IFA-Proficiency Testing Scheme for Water Analysis

Round N149
Major Ions

Sample Dispatch: 18 November 2019

TULLN

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This report has 139 pages

This report summarises the results of round N149 (major ions) within the IFA-Proficiency Testing Scheme for Water Analysis. The samples N149A and N149B were distributed to 42 participants on Monday, 18. November 2019. Each participant received two samples of 1000 mL, each filled into two 500 mL PET bottles.

Closing date for reporting results to the IFA-Tulln was Friday, 13 December 2019. 41 participants submitted results. To make the results of this round anonymous, each laboratory was given a laboratory code on a random basis.

Samples

The samples consisted of artificial ground water. For sample preparation, ultrapure water was spiked with solutions of salts and standards in order to simulate the ionic composition of natural Austrian ground water. The following substances were added to the samples: $CaCO_3$, $CaCl_2$, $Ca(NO_3)_2$, $MgSO_4$, $Mg(NO_3)_2$, $NaHCO_3$, $KHCO_3$, $C_6H_{15}PO_3$, potassium hydrogen phthalate (for DOC), sodium salicylate (for $KMnO_4$-Index) and certified standard solutions of $NaNO_2$, NH_4Cl, KH_2PO_4 and H_3BO_3. Both samples, N149A and N149B, contained free CO_2, which was used for dissolution of $CaCO_3$. No other substances (e.g. preservatives) were added. The samples were stabilised by sterile filtration and low temperature.

Ammonium was not added to sample N149A and no phosphorus compounds were added to sample N149B in order to check the analytical blank values.

Homogeneity, accuracy and stability tests at the IFA-Tulln

The samples were checked for homogeneity and accuracy at the IFA-Tulln before dispatch. The results of the measurements are listed in the result tables and the parameter oriented part of the report (”IFA result”).

After about four weeks, stability tests were carried out on all parameters. The results are also on the result tables (”Stability test”) and on the evaluations for each parameter in the parameter oriented part.

According to our experience the samples remain stable up to 18 months for the parameters conductivity, total hardness, alkalinity, Ca^{2+}, Mg^{2+}, Na^+, K^+, NO_3^-, Cl^-, SO_4^{2-}, Boron, HCO^{3-} and $KMnO_4$-Index when stored at 4°C in the dark. For the parameters NH_4^+, NO_2^-, o-PO_4^{3-} total-P and DOC the samples remain stable several weeks, whereas the first changes normally are observed for NH_4^+.

Results

Data evaluation was based on target concentrations that were calculated from the weights of the substances and standards used to produce the samples. Their uncertainty intervals correspond to the expanded uncertainty (coverage factor k = 2) as described in the EURACHEM/CITAC Guide “Quantifying Uncertainty in Analytical Measurement, 3rd Edition (2012)”.

The target value of the electrical conductivity was set to the laboratory mean (conventional value). When calculated from more than 20 results, the observed standard deviations of the measured values between the laboratories (1.2% for sample N149A and 2.2% for sample N149B) has a smaller uncertainty than our estimate calculated from the target concentrations by Debye-Hückel´s theory: 2.4 % (p = 95 %). However, the calculated electrical conductivity was 519 µS/cm in sample N149A and 282 µS/cm in sample N149B.

For the pH no target values can be assigned. The results can be compared on the tables. In this kind of samples containing CO_2, the pH tends to increase slowly over time.

Total phosphorus after digestion had to be determined according to DIN EN ISO 6878. Diethyl ethylphosphonate ($C_6H_{15}PO_3$), which can be determined as phosphate only after oxidative digestion and potassium dihydrogen phosphate (KH_2PO_4) were used for preparation. The target values of total-P were calculated from the weights of the two substances. The results were given in mg/L o-PO_4^{3-}.

The concentrations of sodium salicylate, which was used as standard substance for the $KMnO_4$-Index, were 3.59 mg/L in sample N149A and 2.78 mg/L in sample N149B. Assuming complete oxidation to carbon dioxide, nitrate and water (considering nitrite), the theoretical values were 5.04 mg/L O_2 (N149A) and 3.90 mg/L O_2 (N149B). However, the laboratory mean values were taken as reference values in this report: 4.53 mg/L O_2 for N149A and 3.53 mg/L O_2 for N149B.

Recoveries for individual laboratory results and overall mean values are related to the target concentrations. The results were tested for outliers by application of the Hampel outlier test (level of significance 99 %).

In order to check the analytical blank values, target concentrations were set to <0.01 mg/L NH_4^+, <0.009 mg/L o-PO_4^{3-} and <0.009 mg/L total-P (as PO_4^{3-}), in N149A and N149B, which meets the minimum quantifiable values defined by the Austrian ground and river water monitoring program and the quantification limits of the analytical methods applied in the IFA.

The recoveries of the target concentrations, calculated from outlier-corrected data mean values ranged between 97.4 % (ammonium in sample N149B) and 102.7 % (DOC in sample N149A).

The between laboratory CVs covered the range between 1.2 % (el. conductivity in sample N149A) and 8.9 % (boron in sample N149B).

All confidence intervals of the outlier-corrected laboratory mean values except those for DOC in sample N149A (102.7 % ± 1.9 %) encompass the corresponding target values with their uncertainties. For all other parameters, statistically, no difference could be detected between theoretical target concentrations and outlier corrected laboratory means.

z-scores

The most common approach is to form the z-score given by

$$z = \frac{x_i - X}{\sigma_{PT}}$$

z	z-score
x_i	result of laboratory
X	target value or mean value („consensus value“)
σ_{pt}	standard deviation for proficiency assessment

Thus, the z-score is the ratio of the estimated bias (difference between result and target value) and a standard deviation. The z-score criteria were determined from relative standard deviations from all interlaboratory comparisons that have been organised by the IFA-Tulln from 2008 to 2018. They represent average performance data of all former participating laboratories.

This approach was chosen, because standard deviations of the outlier-corrected measurements substantially vary between individual proficiency test rounds. Averaging standard deviations from proficiency testing rounds of several years can provide standard deviations for proficiency assessment on a broad data basis. It is therefore more suitable than a standard deviation taken directly from the interlaboratory comparison (EN ISO/IEC 17043:2010, B.3.1.3). Another advantage of previously determined standard deviations is that the participants can foresee which z-scores can be expected by their routine analysis methods before participation.

Calculation example:

A laboratory found 7.00 mg/L for the parameter DOC (recovery of 116%). The target value for the DOC was 6.02 mg/L (100%). The relative standard deviation for proficiency assessment is given in the table below (as well as in the annual program www.ifatest.eu) by 6.0%, which is 0.36 mg/L DOC, when based on the target value.

$$z = \frac{x_i - X}{\sigma_{PT}} = \frac{7.00\ \text{mg/L} - 6.02\ \text{mg/L}}{0.36\ \text{mg/L}} \approx 2.7 \quad \textbf{or} \quad \frac{116\% - 100\%}{6.0\%} \approx 2.7$$

z	z-score	
x_i	7.00 mg/L	equivalent to 116% (value of the laboratory)
X	6.02 mg/L	equivalent to 100% (target value)
σ_{pt}	0.36 mg/L	equivalent to 6,0% (standard deviation for proficiency assessment, see table below)

In the case of recalculation, deviations in the last digits may occur due to the fact that rounded values are given in the report for clarity.

The z-scores are given in the parameter-oriented evaluation in the tables next to the recoveries. Additionally, each laboratory receives a sheet on which the obtained z-scores are summarized and graphically represented. On this z-score sheet the criteria are given in concentration units.

The following table lists the standard deviations for proficiency assessment and their limits of applicability. Z-scores were only calculated, if the target values were above these limits.

Parameter	standard deviation for proficiency assessment	Lower limit	Unit
Alkalinity $K_{S4.3}$	2.2%	0.2 mmol/L	
Ammonium	13%	0.01 mg/L	
Boron	8.6%	0.012 mg/L	
Calcium	3.3%	9 mg/L	
Chloride	3.2%	2 mg/L	
el. Conductivity	1.3%	50 µS/cm	
DOC	6.0%	1 mg/L	
Hydrogen carbonate	2.5%	20 mg/L	
$KMnO_4$-Index	10%	1 mg/L	
Magnesium	3.6%	1 mg/L	
Nitrate	3.5%	2 mg/L	
Nitrite	5.6%	0.01 mg/L	
Orthophosphate	11%	0.015 mg/L	
Potassium	4.8%	0.5 mg/L	
Sodium	3.4%	1 mg/L	
Sulphate	3.1%	3 mg/L	
Total hardness	2.8%	0.1 mmol/L	
Total-P (as PO_4^{3-})	11%	0.015 mg/L	

Normally, performance evaluation based on z-scores is made this way:

|z-Score|	Classification
<2	satisfactory
2<|z|<3	questionable
>3	unsatisfactory

The z-scores are listed together with the recoveries in the tables of the parameter oriented part. Additionally, each laboratory obtained for every sample a single sheet that summarises the z-scores of the laboratory in graphical and tabular form.

Illustration of results

An explanation to the illustration of the results is given on the following page.

The **laboratory oriented part** contains the measurement results and reported uncertainties of each individual laboratory for all parameters together with the achieved recoveries in graphical and tabular form. This part of the report also lists tables with the results originally reported by the laboratories.

In the **parameter oriented part** the reported results and corresponding uncertainties are illustrated together with recoveries of the target values and the z-scores for each parameter and all laboratories. This information is presented in graphical and tabular form.

Results, which were identified as outliers by the Hampel test are marked with an asterisk. These values were not considered for the calculation of statistical parameters (mean values, standard deviations and confidence intervals). Moreover, the parameter oriented part contains the uncertainties of the target values. The uncertainty intervals correspond to the expanded uncertainty (coverage factor k = 2) as described in the EURACHEM / CITAC Guide “Quantifying Uncertainty in Analytical Measurement”, 3rd Edition (2012)”. The uncertainty interval of the reference concentration is illustrated in the graphs as a grey band around the 100 % recovery line.

Results, for which no recoveries could be calculated, are illustrated by one of the following symbols: **FN** (false negative), **FP** (false positive) or • - symbol.

- “FN”: A result is considered false negative when the “< result” reported is lower than the corresponding target value
- “FP”: False positive results can only be obtained for compounds that were evaluated on the basis of a “< target value”. A result is termed FP if it does not include (strike) the “< target” with its measurement uncertainty.
- “•”: All other results for which no recoveries can be calculated are illustrated by this symbol

Tulln, 19 December 2019

EXPLANATION

Sample M106A

Parameter Copper

Target value ± U (k=2)	4,79 µg/l	±	0,13 µg/l	*Obtained from sample preperation, U=uncertainty*
IFA result ± U (k=2)	4,79 µg/l	±	0,38 µg/l	*Determined at IFA prior to shipment of samples*
Stability test ± U (k=2)	4,69 µg/l	±	0,38 µg/l	*Determined at IFA 3 weeks after sample dispatch*

Lab Code	Result	±	Unit	Recovery	z-Score
A	5,16	0,4128	µg/l	108%	0,90
B	4,22	0,42	µg/l	88%	-1,38
C	4,45	0,13	µg/l	93%	-0,83
D			µg/l		
E			µg/l		
F	4,10	0,08	µg/l	86%	-1,68
G			µg/l		
H			µg/l		
I	4,75	0,74	µg/l	99%	-0,10
J	<5		µg/l	•	
K	4,76		µg/l	99%	-0,07
L	<10		µg/l	•	
M	4,8	0,5	µg/l	100%	0,02
N	3,7	0,4	µg/l	77%	-2,65
O	4,47	0,447	µg/l	93%	-0,78
P	6,0		µg/l	125%	2,94
Q	4,17	0,2	µg/l	87%	-1,51
R	4,6	0,8	µg/l	96%	-0,46
S	4,44	0,67	µg/l	93%	-0,85
T			µg/l		
U	4,675	0,935	µg/l	98%	-0,28
V	5,0	0,50	µg/l	104%	0,51
W	3,54	0,3	µg/l	74%	-3,03
X	7,108 *	0,749	µg/l	148%	5,63
Y	<10		µg/l	•	
Z			µg/l		
AA	<3,0		µg/l	FN	
AB	3,775	0,107	µg/l	79%	-2,46
AC	<10,0		µg/l	•	

Recovery of target value in percent

z-Score of the laboratory

An asterik indicates a result detected as outlier by Hampel test

Interval expected to encompass target value as stated by participant

	All results	Outliers excl.	Unit
Mean ± CI(99%)	4,65 ± 0,57	4,51 ± 0,42	µg/l
Recov. ± CI(99%)	97,1 ± 12,0	94,1 ± 8,8	%
SD between labs	0,84	0,59	µg/l
RSD between labs	18,1	13,2	%
n for calculation	18	17	

Between laboratory standard deviation

Laboratory mean and recovery of target value with corresponding confidence intervals (p=99%)

Number of results used for calculation of statistic parameters

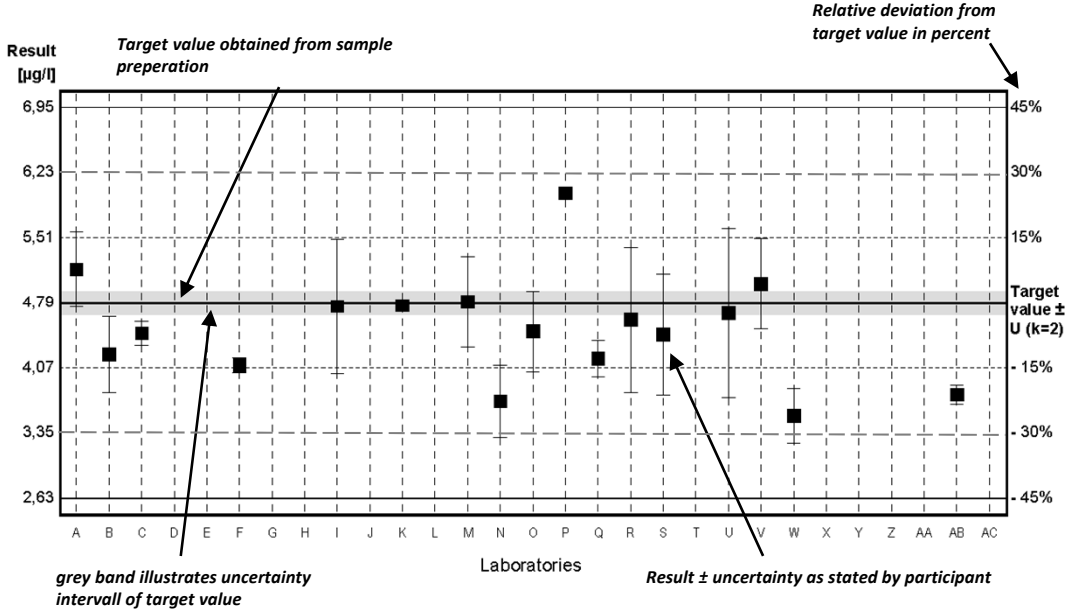


Diagram 1: Measurement results and their uncertainties

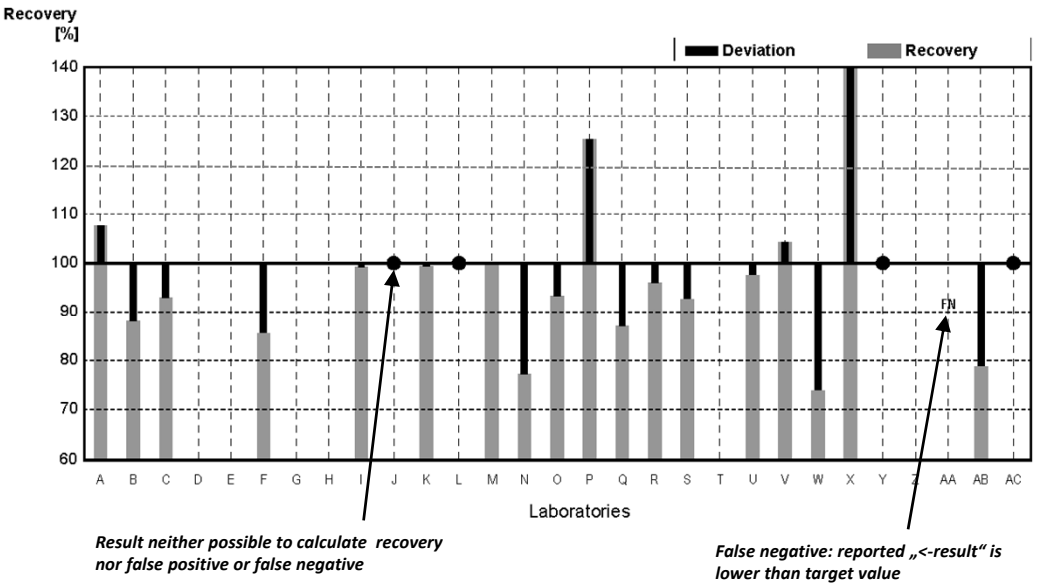


Diagram 2: Recoveries and deviations from target values

Illustration of Results
Tables and Parameter Oriented Part

Round N149
Major Ions

Sample Dispatch: 18 November 2019

TULLN

Results Sample N149A

	pH	Cond.	total-Hardn.	$K_{S\ 4.3}$	HCO_3^-	Ca^{2+}	Mg^{2+}	Na^+	K^+	NO_3^-
Unit		µS/cm	mmol/L	mmol/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Target value		525	2.11	2.78	167	55.8	17.5	21.2	4.23	43.6
IFA result	6.25	530	2.16	2.74	164	57.9	17.5	21.3	4.32	42.9
Stability test		530	2.21	2.76	166	60.2	17.3	22.9	4.12	42.5
A	6.14	526								43.85
B	6.3	526	2.15	2.84	170.2	56.8	17.7	21.2	4.26	45.5
C	6.2	530	2.13	2.71	162	56.3	17.7	21.4	4.26	45.1
D	6.16	515	2.10	2.78	166.5	55.3	17.5	21.0	4.20	44.3
E	6.2	520	2.14	2.42	148	57.5	17.7	20.0	4.10	44.5
F	6.1	531	2.07	2.40	146	54.2	17.5	21.1	4.27	43.5
G	6.6	528	2.09	2.72	163.1	54.8	17.5	20.7	4.11	44.4
H										
I		532	2.09	2.73	164	55.9	16.8	20.8	4.10	43.9
J	6.09	533	2.25	2.77	169.0	61.4	17.4			43.6
K	6.01	525	2.18	2.77	169.1	56.1	17.4	20.4	3.68	41.3
L	6.00	525	2.15	2.80	171	57	17.6	21.1	4.02	45.4
M	6.7	525	67.2	2.98	182	56	18.0	21.5	4.14	42.9
N	6.16	498	2.20	2.79	170	58	18.3	20.6	4.21	43.9
O	6.29	520	2.06	2.68	160.4	54.09	17.30	20.42	4.22	42.98
P	6.11	523		2.74	164					42.8
Q	6.26	526	2.132	2.44	145.83	57.10	17.20			42.317
R	6.22	537	2.14	2.75	168	56.5	17.6	20.2	4.37	44.1
S	6.58	503	2.20	2.84	173	49.7	22.6	14.3	2.80	46.2
T	6.55	525	2.16	2.74	167	57.6	17.4	21.2	4.29	45.3
U	6.80	546	1.99	2.60	161	50.87	17.46	20.75	4.12	44.0
V	6.20	516.6	2.12			55.9	17.5	20.8	3.94	43.6
W	6.26	524	2.04	2.59	158	53.9	16.9	19.9	3.78	42.1
X	6.19	537	2.12	2.75	184	56.5	17.2	22.0	4.45	43.0
Y	6.92	547	2.30	2.75	164.73	61.77	18.45	21.24	4.36	44.40
Z	6.15	529	2.15	2.72	163	56.4	18.0	20.9	4.22	43.8
AA	6.4	524	1.96	2.766	165.7	54.5	18.0	20.4	4.10	43.8
AB	6.14	529	2.11	2.73	167	55.8	17.5	19.6	4.19	44.2
AC	6.4	532	2.16	2.72	166.0	56.3	18.3	20.9	4.15	43.4
AD	6.22	510	2.20	2.74	167	53.0	22.0	20.0	3.90	44.0
AE	6.15	521	2.15	2.71	165	57.4	17.5	20.6	4.07	46.8
AF	6.20	522	2.037	2.69	161	52.8	17.5	20.9	4.02	43.1
AG	6.2	527	2.16	2.75	168	57	17.8	21.3	4.37	43.9
AH				2.66						
AI	6.3	537	2.08	2.74	164	54.6	17.5	21.2	4.05	44.4
AJ	6.13	530.1	4.350	2.730	166.58	56.497	18.482	21.390	4.292	43.694
AK		522	2.09	3.46	208	55.73	17.1	20.9	3.89	42.2
AL	6.4	513	2.13	2.70	164.7	56.18	17.65	21.92	5.14	44.649
AM	6.28	523	2.01	2.71	165	53.0	16.6	21.3	4.06	41.5
AN	6.39	527		2.72						
AO				2.86	174.33					
AP	6.28	521	1.95	2.70	162	54.5	14.2	19.3	5.11	40.3

Measurement Uncertainties Sample N149A

	pH ±	Cond. ±	total-Hardn. ±	$K_{S\ 4.3}$ ±	HCO_3^- ±	Ca^{2+} ±	Mg^{2+} ±	Na^+ ±	K^+ ±	NO_3^- ±
Unit		µS/cm	mmol/L	mmol/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Target value		2	0.02	0.03	2	0.7	0.2	0.4	0.04	0.8
IFA result	0.20	16	0.11	0.14	8	3.5	0.9	1.5	0.26	2.1
Stability test		16	0.11	0.14	8	3.6	0.9	1.6	0.25	2.1
A	0.61	26								1.942
B						3.6	1.41	0.7	0.23	0.8
C	0.3	22	0.1	0.2	7	5	2.2	4	0.6	4
D	0.01	9	0.04	0.02	1.0	1.0	0.9	0.5	0.14	1.1
E	0.2	52	0.21	0.24	15	5.8	1.8	2.0	0.41	4.5
F						2.17	0.86	1.1	0.29	
G	0.2	21	0.11	0.20	12.0	2.6	1.1	1.1	0.2	2.7
H										
I		0.35	0.04	0.10	3.27	0.93	0.65	0.43	0.71	0.19
J										
K			0.20	0.25	15.2	4.48	1.74	2.45	0.37	4.13
L	0.09	6	0.07	0.08	5	2	0.8	1.1	0.19	3.0
M	0.2	52.5	6.72	0.30	18.2	5.6	1.80	2.15	0.41	4.29
N	0.92	74.7	0.33	0.42	25.5	8.70	2.75	3.09	0.63	6.59
O	0.25	11	0.08	0.06	3.4	2.11	0.81	0.98	0.27	2.88
P										
Q	0.063	10.836				2.941	1.956			2.228
R	0.10									
S	0.1	7	0.03	0.04	2.44	1.78	0.53	0.51	0.06	0.37
T	0.12	10	0.50	0.16	13	5.8	0.7	1.1	0.47	2.7
U	0.4	30	0.4	0.6	9	10	4	4	0.8	10
V	0.1	10	0.2			5.6	1.8	2.1	0.3	4.4
W	0.015	3.06	0.010	0.035	0.577	0.208	0.058	0.153	0.038	0.100
X	0.25	13	0.04	0.03	1.9	0.6	1.7	0.7	0.3	1.8
Y	0.1	4.51		0.28		6.1	1.8	2.1	0.42	4.4
Z	0.30	16	0.24	0.14	8	5.1	1.6	1.7	0.30	3.9
AA	0.02	12.7		0.19		3.76	2.36	1.94	0.42	4.56
AB	0.61	53	0.21	0.27	17	5.6	1.8	2.0	0.42	4.4
AC	0.1	5	0.22	0.27	16.6	5.7	1.9	2.1	0.42	4.3
AD										
AE	0.18	35	0.24	0.43	26	4.9	1.5	3.2	0.66	4.5
AF	0.31	26	0.33	0.13	8	8.45	2.1	2.93	0.84	2.90
AG	0.1	3	0.18	0.10	4	2	1	1	0.5	2
AH				0.116						
AI	0.04	4	0.2	0.137	5.3	1.33	1.63	1.50	0.55	2.99
AJ	0.012	4.771	0.435	0.112	6.83	5.54	2.01	1.95	0.40	2.0
AK		10	0.209	0.346	20.8	5.57	1.71	2.09	0.778	4.22
AL	0.38	20.5		0.405	24.71	2.247	1.059	1.315	0.514	1.7859
AM	0.10	15.7	0.16	0.13	7.9	2.4	1.4	1.5	0.29	1.4
AN	0.04	15		0.13						
AO				0.057	3.49					
AP	0.1	5.2	0.08	0.1	6.1	2.54	0.60	0.98	0.30	4.0

Results Sample N149A

	NO_2^-	NH_4^+	Cl^-	SO_4^{2-}	o-PO_4^{3-}	Boron	DOC	total-P (as PO_4^{3-})	$KMnO_4$-Index
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Target value	0.0402	<0.01	35.9	35.2	0.081	0.101	6.43	0.186	4.53
IFA result	0.0388	<0.01	35.3	35.4	0.081	0.104	6.41	0.190	4.86
Stability test	0.0393	<0.01	35.6	35.3	0.081	0.099	6.57	0.205	4.73
A	<0.016	<0.012	35.80	34.92	0.0796		6.61	0.170	
B	0.0430	<0.01	36.9	36.4	0.0780	97.5	6.583	0.187	4.74
C	0.0400	<0.013	36.4	36.4	0.078		6.79	0.185	
D	0.0420	<0.01	36.5	36.3	0.083	0.106	6.90	0.184	
E	<0.04	<0.025	36.4	33.2	0.107	0.072	6.8	0.068	3.45
F	0.0384	<0.04	36.2	35.3		<0.258			
G	0.0416	<0.010	37.4	36.2	0.082	0.0966	6.65	0.183	
H									
I	0.0405	[0.002]	36.4	36.2	0.0780	0.103	6.15	0.1895	
J	0.0240	<0.06	37.6	34.6	0.065				
K	0.0389	<0.0300	34.4	35.0	0.0741	0.103	6.70	0.176	
L	0.0390	<0.02	36.4	36.2	0.080		6.5	0.180	5.4
M	0.0410	<0.010	35.3	35.8	0.065	0.090	6.6	0.212	4.69
N	0.0406	<0.04	36.0	34.2	0.080	0.102	6.58	0.198	
O	0.0410		35.50	33.58			6.50		4.54
P	0.0394	<0.005	36.5		0.080			0.080	
Q			34.337	34.176					
R	0.0440	<0.02	35.5	35.2	<0.15	0.110	6.58	0.200	
S	0.0380	<0.01	39.0	27.0	0.0150			0.0350	1.16
T	0.0390	<0.02	36.6	35.9	0.082	0.095	0.163	0.186	4.63
U	0.0350	<0.01	36.0	35.0	<0.1	0.091	6.43	0.185	4.65
V	0.054		35.6	35.6					
W	0.0410	<0.010	36.1	34.5	0.0779	0.103	6.33	0.1539	4.53
X	0.0380	<0.01	36.6	34.9	0.077		6.32	0.169	4.52
Y	0.0400	<0.0026	35.39	36.00	0.081	0.105	6.56	0.178	
Z	0.0410	<0.008	36.2	34.9	0.082	0.102	6.29	0.187	
AA	0.384	<0.050	34.9	35.0		0.104	7.20	0.196	
AB	0.0407	<0.064	35.8	35.5	0.0732	0.0952	6.77		
AC	0.0394	<0.010	34.2	34.4	0.079		6.508	0.173	
AD	0.0380	<0.042	37.0	35.0		0.097	6.94		4.52
AE	0.0394		36.6	34.3		0.098			4.83
AF	0.050	<0.05	31.7	32.1	0.080	0.095	8.03	0.170	4.45
AG	0.0380	<0.020	36.5	34.1		0.090	6.7	0.190	4.50
AH									
AI	0.0363	<0.02	35.9	35.6	0.073	0.098	6.3	0.262	3.93
AJ	0.0400	<0.025	36.351	35.193	0.081				
AK	0.0405	<0.009	34.9	34.8	0.078	0.091	6.89	0.215	
AL	0.0380	<0.0006	36.93	37.13	0.064	0.110	6.6	0.190	4.68
AM	0.0375	<0.01	37.1	35.6	0.090	0.102	7.48	0.191	4.64
AN									
AO					0.119			0.252	
AP	0.0490	<0.03	36.3	33.0	0.080	0.093	6.59	0.086	4.11

Measurement Uncertainties Sample N149A

	NO_2^- ±	NH_4^+ ±	Cl^- ±	SO_4^{2-} ±	o-PO_4^{3-} ±	Boron ±	DOC ±	total-P (as PO_4^{3-}) ±	$KMnO_4$-Index ±
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Target value	0.0003		0.7	0.4	0.003	0.001	0.05	0.003	0.13
IFA result	0.0019		1.8	1.4	0.003	0.010	0.26	0.044	0.87
Stability test	0.0020		1.8	1.4	0.003	0.010	0.26	0.047	0.85
A			4.683	2.127	0.0135		1.191	0.020	
B	0.001		0.4	1.3	0.003	2.2		0.003	0.7
C	0.003		3	3	0.01		1.1	0.03	
D	0.002		0.8	0.9	0.007	0.014	0.62	0.017	
E	0.008		3.6	3.3	0.04	0.007	0.7	0.007	0.35
F									
G	0.0049		3.0	3.4	0.011	0.0126	1.2	0.026	
H									
I	0.0012		0.07	0.28	0.0028	0.002	0.05	0.0016	
J									
K	0.003	0.024	3.44	5.25	0.04	0.0062	1.34	0.035	
L	0.0021		3.0	1.8	0.007		0.7	0.017	0.2
M	0.0041		3.53	3.58	0.0065	0.009	0.66	0.021	0.47
N	0.006		5.4	5.13	0.012	0.015	0.99	0.03	
O	0.003		1.67	1.68			1.13		0.96
P									
Q			0.903	3.968					
R									
S	0.004	0.002	0.5	0.93	0.002			0.006	0.098
T	0.003	0.01	2.9	2.2	0.013	0.007	0.047	0.024	0.46
U	0.008		8	8		0.02	2	0.04	1
V	0.005		3.6	3.6					
W	0.001		0.100	0.173	0.001	0.0004	0.047	0.0016	0.035
X	0.004	0.003	1.1	1.6	0.01		1.0	0.025	0.6
Y	0.004		3.6	3.6	0.008	0.016	0.98	0.018	
Z	0.005		1.8	1.8	0.008	0.010	0.51	0.019	
AA	0.094		4.89	3.33		0.01	1.33		
AB	0.0041		3.6	3.6	0.0073	0.0095	0.68		
AC	0.004		3.4	3.4	0.016		0.65	0.034	
AD									
AE	0.004		4.2	4.0		0.025			0.94
AF	0.004	0.010	2.6	2.5	0.012	0.02	1.2	0.03	0.93
AG	0.01		2	2		0.01	0.5	0.02	0.4
AH									
AI	0.00245	0.003	1.94	3.07	0.0063	0.0073	0.19	0.032	0.39
AJ	0.002		1.74	1.51	0.004				
AK	0.008		3.49	3.48	0.016	0.018	0.0689	0.043	
AL	0.0030		1.477	2.228	0.0077	0.0132	0.53	0.0282	0.749
AM	0.004		2.5	1.2	0.006	0.013	1.2	0.013	0.70
AN									
AO					0.006			0.010	
AP	0.003	0.0028	1.4	1.65	0.004	0.005	0.28	0.004	0.50

Results Sample N149B

	pH	Cond.	total-Hardn.	$K_{S\ 4.3}$	HCO_3^-	Ca^{2+}	Mg^{2+}	Na^+	K^+	NO_3^-
Unit		µS/cm	mmol/L	mmol/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Target value		284	1.03	1.61	95.4	31.0	6.14	15.6	1.65	21.8
IFA result	6.36	286	1.07	1.60	94.7	32.2	6.53	15.8	1.69	21.6
Stability test		286	1.05	1.61	95.1	32.2	5.92	16.0	1.61	21.4
A	6.10	286								21.55
B	6.2	285	1.08	1.61	95.2	32.4	6.49	15.6	1.82	22.3
C	6.3	287	1.04	1.58	93.2	31.5	6.30	15.7	1.72	22.6
D	6.21	280	1.03	1.64	97.0	30.9	6.2	15.5	1.70	22.1
E	6.2	280	1.05	1.26	77	30.0	6.6	15.0	1.60	22.3
F	6.2	288	1.00	1.37	83.8	30.0	6.05	15.7	1.52	21.7
G	6.7	284	1.02	1.59	94.1	30.4	6.3	15.5	1.63	22.3
H										
I		288	1.04	1.58	93.6	31.8	5.90	15.7	1.74	21.9
J	6.15	289	1.02	1.62	98.8	34.7	3.65			22.0
K	6.08	284	1.08	1.61	98.1	29.4	6.00	14.7	n.n.	20.3
L	6.01	282	1.053	1.610	98.2	32.3	6.2	15.6	1.51	22.5
M	6.7	278	33.0	1.70	101	31.6	6.37	15.3	1.65	21.4
N	6.24	269	1.06	1.62	98.8	31.9	6.43	14.9	1.58	21.8
O	6.33	278	0.993	1.58	93.3	29.83	6.05	14.63	1.73	21.65
P	6.16	284		1.61	95.3					21.2
Q	6.35	287	1.027	1.42	83.59	31.60	5.80			22.037
R	6.28	290	1.04	1.57	96.1	31.1	6.26	14.9	1.58	22.3
S	6.80	269	1.11	1.66	101	32.1	7.25	10.5	1.14	22.9
T	6.86	288	1.04	1.64	100	31.8	5.9	15.5	1.70	22.5
U	6.75	296	0.97	1.55	97.0	28.61	6.32	15.49	1.62	22.0
V	6.24	284.1	1.03			31.1	6.2	15.3	1.63	21.6
W	6.28	284	1.01	1.55	92.1	30.4	6.09	14.7	1.32	21.7
X	6.24	290	1.05	1.62	95.7	31.3	6.6	16.2	1.70	21.4
Y	6.82	298	1.18	1.60	94.57	36.29	6.73	16.15	1.77	22.91
Z	6.24	287	1.05	1.58	93.4	31.5	6.25	15.4	1.67	21.6
AA	6.5	284	0.89	1.624	96.04	31.3	6.3	15.6	1.70	21.8
AB	6.18	286	1.03	1.58	96.4	31.2	6.08	14.4	<2.00	21.9
AC	6.4	288	1.05	1.58	93.4	31.4	6.47	15.4	1.64	21.0
AD	6.45	279	1.10	1.57	96	30.0	7.9	14.0	1.60	21.0
AE	6.24	280	1.07	1.55	95	32.1	6.5	15.3	1.54	23.7
AF	6.28	282	0.989	1.56	92.1	29.5	6.14	15.7	1.58	21.6
AG	6.2	286	1.04	1.55	95	31.8	6.2	15.7	1.61	21.9
AH				1.56						
AI	6.4	290	1.01	1.60	94.5	30.5	5.96	15.8	1.58	21.4
AJ	6.18	287.82	2.093	1.562	95.32	31.386	6.424	15.654	1.665	21.908
AK		282	1.05	1.58	93.4	31.97	6.21	14.8	1.64	21.1
AL	6.4	272	1.03	1.57	95.8	31.15	6.25	15.62	1.72	21.426
AM	6.33	283	0.985	1.56	95.2	29.8	5.89	15.3	1.48	20.8
AN	6.38	285		1.58						
AO				1.67	101.7					
AP	6.21	275	1.03	1.58	93.1	32.5	5.34	13.4	1.79	20.4

Measurement Uncertainties Sample N149B

	pH ±	Cond. ±	total-Hardn.±	$K_{S\ 4.3}$ ±	HCO_3^- ±	Ca^{2+} ±	Mg^{2+} ±	Na^+ ±	K^+ ±	NO_3^- ±
Unit		µS/cm	mmol/L	mmol/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Target value		2	0.01	0.02	1.0	0.4	0.07	0.2	0.02	0.6
IFA result	0.20	11	0.05	0.08	4.7	1.9	0.33	1.1	0.10	1.1
Stability test		11	0.05	0.08	4.8	1.9	0.30	1.1	0.10	1.1
A	0.61	14								0.955
B						0.9	0.48	0.8	0.24	0.7
C	0.3	12	0.1	0.1	4	3	0.8	2.4	0.3	2
D	0.01	5	0.02	0.01	0.6	0.6	0.3	0.4	0.06	0.6
E	0.2	28	0.11	0.13	8	3	0.7	1.5	0.16	2.2
F						1.20	0.30	0.82	0.10	
G	0.2	11	0.06	0.13	7.7	1.5	0.4	0.8	0.11	1.4
H										
I		0.20	0.02	0.08	1.87	0.83	0.04	0.44	0.06	0.17
J										
K			0.10	0.14	8.8	2.35	0.60	1.76		20.3
L	0.09	3	0.033	0.046	2.8	0.9	0.3	0.8	0.07	1.5
M	0.2	27.8	3.30	0.17	10.1	3.2	0.64	1.53	0.17	2.14
N	0.94	40.4	0.16	0.24	14.8	4.79	0.96	2.24	0.24	3.27
O	0.25	6	0.039	0.03	2.0	1.16	0.28	0.70	0.11	1.45
P										
Q	0.064	5.912				1.627	0.659			1.243
R	0.10									
S	0.1	7	0.03	0.04	2.44	1.78	0.53	0.51	0.06	0.37
T	0.12	5	0.24	0.10	8	3.2	0.4	0.9	0.19	1.4
U	0.4	15	0.2	0.4	5	6	0.2	3	0.4	5
V	0.1	6	0.1			3.1	0.6	1.5	0.2	2.2
W	0.023	1.53	0.005	0.012	0.473	0.058	0.006	0.058	0.012	0.058
X	0.25	7	0.02	0.02	1.0	0.3	0.7	0.5	0.1	0.9
Y	0.1	4.51		0.16		3.5	0.7	1.6	0.17	2.3
Z	0.30	9	0.12	0.09	4.7	2.8	0.57	1.3	0.12	2.0
AA	0.02	12.7		0.11		2.16	0.83	1.48	0.17	2.27
AB	0.62	29	0.10	0.16	9.6	3.1	0.61	1.4		2.2
AC	0.1	5	0.11	0.16	9.3	3.2	0.65	1.6	0.17	2.1
AD										
AE	0.18	19	0.12	0.25	15	2.8	0.6	2.4	0.25	2.3
AF	0.31	14	0.16	0.08	4.6	4.72	0.74	2.19	0.33	1.4
AG	0.1	2	0.13	0.10	3	1	1	1	0.5	2
AH				0.063						
AI	0.04	2	0.1	0.080	1.8	0.74	0.55	1.11	0.22	1.44
AJ	0.012	2.590	0.209	0.064	3.91	3.08	0.70	1.42	0.15	1.0
AK		6	0.105	0.158	9.3	3.20	0.621	1.48	0.329	2.11
AL	0.38	10.9		0.236	14.37	1.246	0.375	0.937	0.172	0.857
AM	0.10	8.5	0.081	0.07	4.6	1.4	0.48	1.1	0.11	0.68
AN	0.04	15		0.08						
AO				0.033	2.034					
AP	0.1	2.75	0.04	0.06	3.7	1.55	0.31	0.54	0.10	2.0

Results Sample N149B

	NO_2^-	NH_4^+	Cl^-	SO_4^{2-}	o-PO_4^{3-}	Boron	DOC	total-P (as PO_4^{3-})	$KMnO_4$-Index
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Target value	0.0202	0.061	14.5	19.6	<0.009	0.066	4.06	<0.009	3.53
IFA result	0.0192	0.060	14.4	19.8	<0.009	0.067	3.95	<0.009	3.67
Stability test	0.0198	0.061	14.4	19.6	<0.009	0.062	4.15	<0.009	3.66
A	0.0223	0.0669	14.37	19.04	<0.015		4.28	<0.015	
B	0.0220	0.062	15.0	19.7	0.0110	59.9	4.247	<0.002	4.21
C	0.0200	0.063	14.8	20.7	<0.01		4.08	<0.013	
D	0.0200	0.060	14.7	20.0	<0.01	0.069	4.30	<0.01	
E	<0.04	0.064	14.4	19.0	<0.010	0.0380	4.36	<0.02	4.36
F	0.0181	0.060	14.6	19.7		<0.258			
G	0.0217	0.062	14.5	20.1	<0.010	0.0644	4.32	<0.010	
H									
I	0.0204	0.0654	14.7	20.1	[0.003]	0.068	3.86	[0.002]	
J	0.0060	0.061	15.2	16.6	<0.15				
K	0.0183	0.0499	13.6	19.6	<0.0200	0.067	4.02	0.070	
L	0.0191	0.064	14.1	20.0	<0.01		4.12	<0.01	4.16
M	0.0230	0.062	14.5	19.4	<0.008	0.058	4.25	<0.015	3.55
N	0.0205	0.064	14.0	19.6	<0.01	0.067	4.15	<0.01	
O	0.0200	0.0610	14.39	18.70			4.14		3.39
P	0.0202	0.057	14.5		<0.006			<0.006	
Q			15.773	19.953					
R	<0.03	0.059	14.4	20.3	<0.15	0.0754	4.06	<0.03	
S	0.0190	0.0430	16.4	18.3	<0.001			<0.001	2.99
T	0.0190	0.066	14.5	19.9	<0.009	0.062	3.88	<0.009	3.65
U	0.0180	0.050	14.0	20.0	<0.1	0.056	3.55	<0.031	3.55
V			14.4	19.3					
W	0.0194	0.0606	14.5	19.0	<0.015	0.0657	3.91	<0.015	3.55
X	0.0190	0.054	14.5	19.3	<0.01		4.01	<0.01	3.42
Y	0.0200	0.054	14.39	20.77	<0.0015	0.069	4.07	<0.0010	
Z	0.0220	0.062	14.6	19.2	<0.006	0.065	3.97	<0.006	
AA	0.0200	0.060	13.2	19.4		0.070	4.25	0.00400	
AB	0.0204	<0.064	14.5	19.7	<0.050	0.0629	4.24		
AC	0.0198	0.0593	13.7	18.8	<0.009		4.160	<0.009	
AD	<0.020	0.088	15.0	19.0		0.073	4.13		3.88
AE	0.0197		14.8	18.6		0.065			4.04
AF	0.0200	0.050	14.0	18.7	<0.06	0.061	5.00	0.0400	3.45
AG	0.0200	0.063	15.3	19.0		0.060	4.20	0.0100	3.50
AH									
AI	0.0187	0.0447	14.2	20.1	<0.01	0.065	3.88	<0.01	3.35
AJ	0.0200	0.0490	14.266	19.590	<0.0300				
AK	0.0275	0.057	15.1	19.8	<0.009	0.050	4.52	<0.009	
AL	0.0210	0.05100	14.28	20.10	0.0060	0.072	4.30	0.0215	3.62
AM	0.0185	0.061	15.7	20.3	<0.015	0.067	5.21	<0.015	3.52
AN									
AO					0.0160			0.080	
AP	0.0300	0.064	14.6	18.0	<0.015	0.060	4.13	<0.015	3.44

Measurement Uncertainties Sample N149B

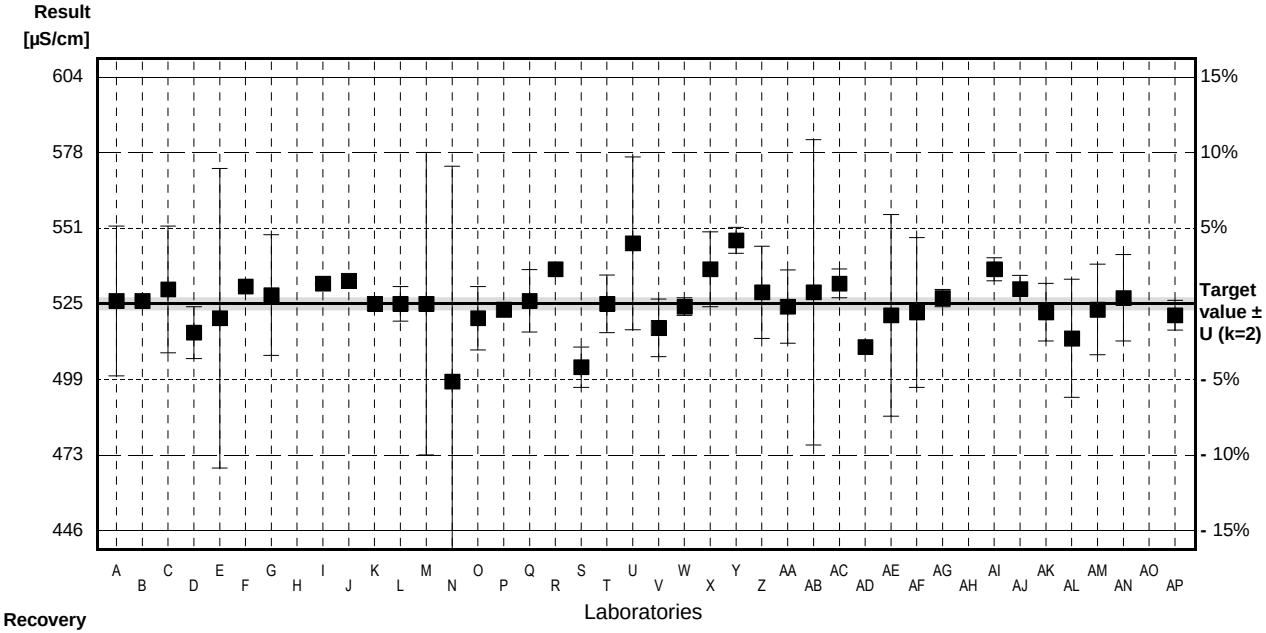
	NO_2^- ±	NH_4^+ ±	Cl^- ±	SO_4^{2-} ±	o-PO_4^{3-} ±	Boron ±	DOC ±	total-P (as PO_4^{3-}) ±	$KMnO_4$-Index ±
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
Target value	0.0006	0.002	0.3	0.2		0.001	0.04		0.13
IFA result	0.0010	0.004	0.7	0.8		0.007	0.16		0.66
Stability test	0.0010	0.004	0.7	0.8		0.006	0.17		0.66
A	0.0062	0.0154	1.879	1.160			0.771		
B	0.0004	0.001	0.5	1.3	0.003	2.4			0.2
C	0.002	0.009	1.1	2			0.7		
D	0.001	0.003	0.3	0.5		0.009	0.39		
E		0.006	1.4	1.9		0.0038	0.44		0.44
F									
G	0.0035	0.011	1.3	2.0		0.0087	0.84		
H									
I	0.0013	0.0017	0.08	0.29		0.002	0.04		
J									
K	0.003	0.024	1.36	2.94	0.04	0.00402	0.80	0.010	
L	0.0011	0.008	1.2	1.0			0.42		0.16
M	0.0023	0.0062	1.45	1.94		0.0058	0.43		0.36
N	0.003	0.01	2.1	2.94		0.010	0.62		
O	0.001	0.010	0.68	0.94			0.72		0.72
P									
Q			0.372	2.316					
R									
S	0.004	0.002	0.5	0.93	0.002			0.006	0.098
T	0.001	0.027	1.2	1.2	0.001	0.004	0.54	0.003	0.37
U	0.004	0.02	3	4		0.01	1		0.8
V			1.4	1.9					
W	0.0001	0.0003	0.058	0.031		0.0007	0.015		0.042
X	0.002	0.003	0.5	0.9	0.003		0.6	0.003	0.5
Y	0.002	0.005	1.5	2.1		0.010	0.60		
Z	0.003	0.009	0.8	1.0		0.007	0.33		
AA	0.005	0.025	1.85	1.84		0.01	0.79		
AB	0.0020		1.5	2.0		0.0063	0.42		
AC	0.002	0.006	1.4	1.9			0.42		
AD									
AE	0.002		1.7	2.2		0.017			0.81
AF	0.001	0.007	1.1	1.4	0.012	0.01	0.75	0.003	0.72
AG	0.01	0.01	2	2		0.01	0.3	0.01	0.3
AH									
AI	0.00126	0.006	0.77	1.73	0.001	0.0049	0.12	0.001	0.34
AJ	0.001	0.013	0.68	0.84					
AK	0.006	0.012	1.51	1.98		0.010	0.452		
AL	0.0017	0.00510	0.571	1.206	0.0007	0.0086	0.34	0.00306	0.579
AM	0.002	0.004	1.1	0.67		0.008	0.83		0.53
AN									
AO					0.0008			0.004	
AP	0.002	0.006	0.55	0.90	0.001	0.003	0.21	0.001	0.42

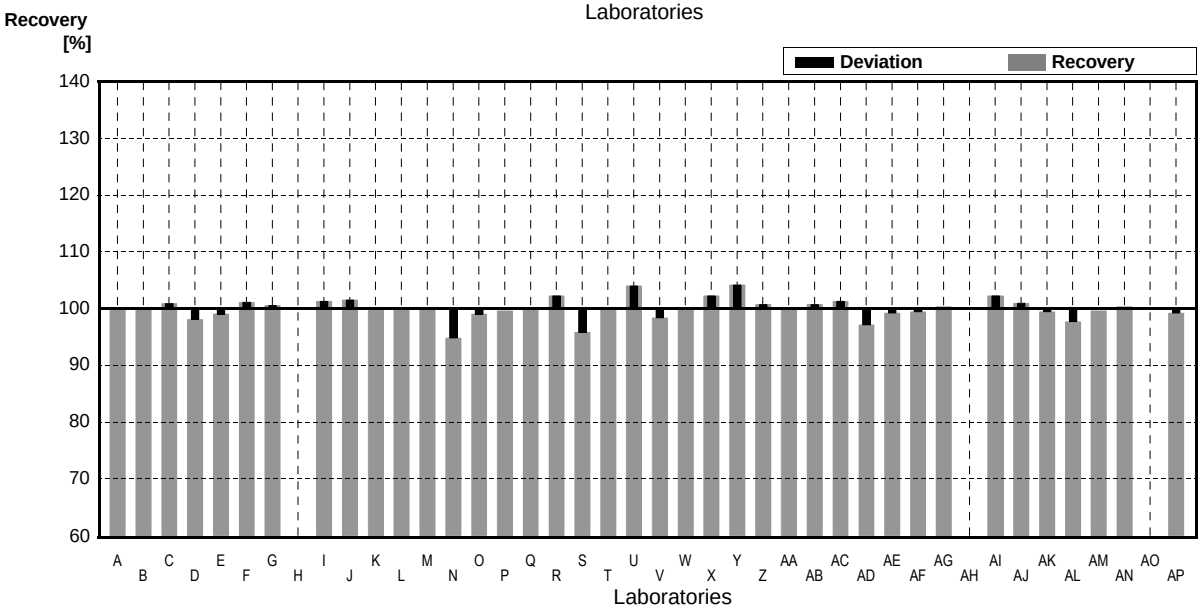
Sample N149A

Parameter Conductivity

Target value	± U (k=2)	525	µS/cm	±	2	µS/cm
IFA result	± U (k=2)	530	µS/cm	±	16	µS/cm
Stability test	± U (k=2)	530	µS/cm	±	16	µS/cm

Lab Code	Result		±	Unit	Recovery	z-Score
A	526		26	µS/cm	100%	0,15
B	526			µS/cm	100%	0,15
C	530		22	µS/cm	101%	0,73
D	515		9	µS/cm	98%	-1,47
E	520		52	µS/cm	99%	-0,73
F	531			µS/cm	101%	0,88
G	528		21	µS/cm	101%	0,44
H				µS/cm		
I	532		0,35	µS/cm	101%	1,03
J	533			µS/cm	102%	1,17
K	525			µS/cm	100%	0,00
L	525		6	µS/cm	100%	0,00
M	525		52,5	µS/cm	100%	0,00
N	498	*	74,7	µS/cm	95%	-3,96
O	520		11	µS/cm	99%	-0,73
P	523			µS/cm	100%	-0,29
Q	526		10,836	µS/cm	100%	0,15
R	537			µS/cm	102%	1,76
S	503	*	7	µS/cm	96%	-3,22
T	525		10	µS/cm	100%	0,00
U	546	*	30	µS/cm	104%	3,08
V	516,6		10	µS/cm	98%	-1,23
W	524		3,06	µS/cm	100%	-0,15
X	537		13	µS/cm	102%	1,76
Y	547	*	4,51	µS/cm	104%	3,22
Z	529		16	µS/cm	101%	0,59
AA	524		12,7	µS/cm	100%	-0,15
AB	529		53	µS/cm	101%	0,59
AC	532		5	µS/cm	101%	1,03
AD	510			µS/cm	97%	-2,20
AE	521		35	µS/cm	99%	-0,59
AF	522		26	µS/cm	99%	-0,44
AG	527		3	µS/cm	100%	0,29
AH				µS/cm		
AI	537		4	µS/cm	102%	1,76
AJ	530,1		4,771	µS/cm	101%	0,75
AK	522		10	µS/cm	99%	-0,44
AL	513		20,5	µS/cm	98%	-1,76
AM	523		15,7	µS/cm	100%	-0,29
AN	527		15	µS/cm	100%	0,29
AO				µS/cm		
AP	521		5,2	µS/cm	99%	-0,59





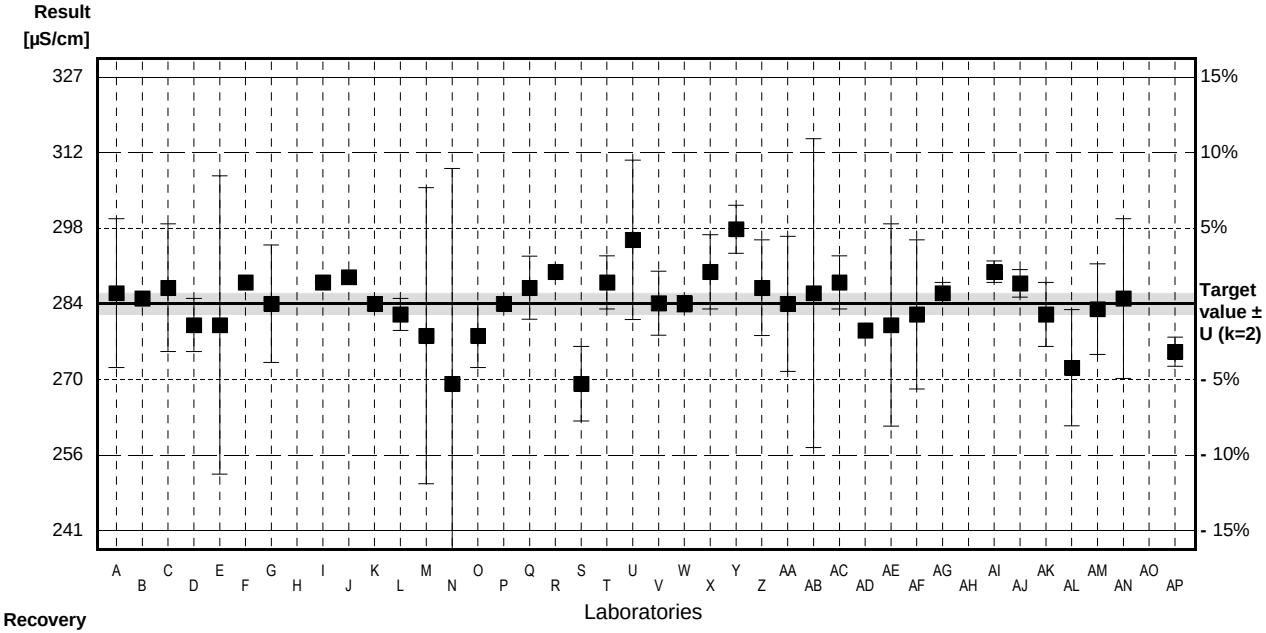
	All results	Outliers excl.	Unit
Mean ± CI(99%)	525 ± 4	525 ± 3	µS/cm
Recov. ± CI(99%)	100,1 ± 0,8	100,1 ± 0,6	%
SD between labs	10	6	µS/cm
RSD between labs	1,8	1,2	%
n for calculation	39	35	

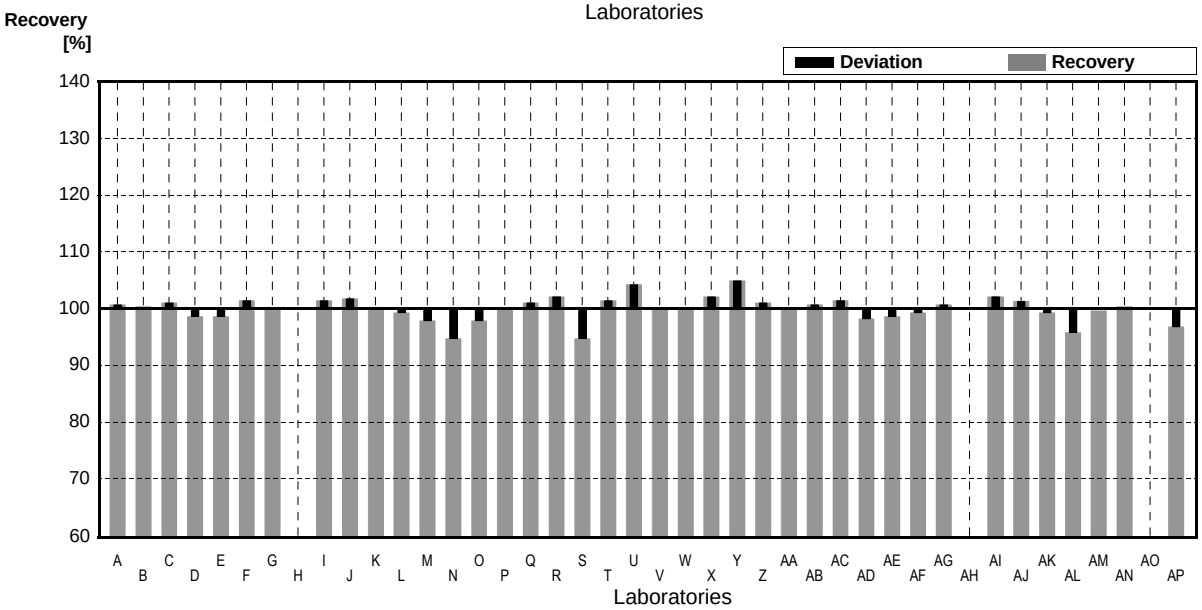
Sample N149B

Parameter Conductivity

Target value ± U (k=2)	284	µS/cm	±	2	µS/cm
IFA result ± U (k=2)	286	µS/cm	±	11	µS/cm
Stability test ± U (k=2)	286	µS/cm	±	11	µS/cm

Lab Code	Result	±	Unit	Recovery	z-Score
A	286	14	µS/cm	101%	0,54
B	285		µS/cm	100%	0,27
C	287	12	µS/cm	101%	0,81
D	280	5	µS/cm	99%	-1,08
E	280	28	µS/cm	99%	-1,08
F	288		µS/cm	101%	1,08
G	284	11	µS/cm	100%	0,00
H			µS/cm		
I	288	0,20	µS/cm	101%	1,08
J	289		µS/cm	102%	1,35
K	284		µS/cm	100%	0,00
L	282	3	µS/cm	99%	-0,54
M	278	27,8	µS/cm	98%	-1,63
N	269	40,4	µS/cm	95%	-4,06
O	278	6	µS/cm	98%	-1,63
P	284		µS/cm	100%	0,00
Q	287	5,912	µS/cm	101%	0,81
R	290		µS/cm	102%	1,63
S	269	7	µS/cm	95%	-4,06
T	288	5	µS/cm	101%	1,08
U	296	15	µS/cm	104%	3,25
V	284,1	6	µS/cm	100%	0,03
W	284	1,53	µS/cm	100%	0,00
X	290	7	µS/cm	102%	1,63
Y	298	4,51	µS/cm	105%	3,79
Z	287	9	µS/cm	101%	0,81
AA	284	12,7	µS/cm	100%	0,00
AB	286	29	µS/cm	101%	0,54
AC	288	5	µS/cm	101%	1,08
AD	279		µS/cm	98%	-1,35
AE	280	19	µS/cm	99%	-1,08
AF	282	14	µS/cm	99%	-0,54
AG	286	2	µS/cm	101%	0,54
AH			µS/cm		
AI	290	2	µS/cm	102%	1,63
AJ	287,82	2,590	µS/cm	101%	1,03
AK	282	6	µS/cm	99%	-0,54
AL	272	10,9	µS/cm	96%	-3,25
AM	283	8,5	µS/cm	100%	-0,27
AN	285	15	µS/cm	100%	0,27
AO			µS/cm		
AP	275	2,75	µS/cm	97%	-2,44





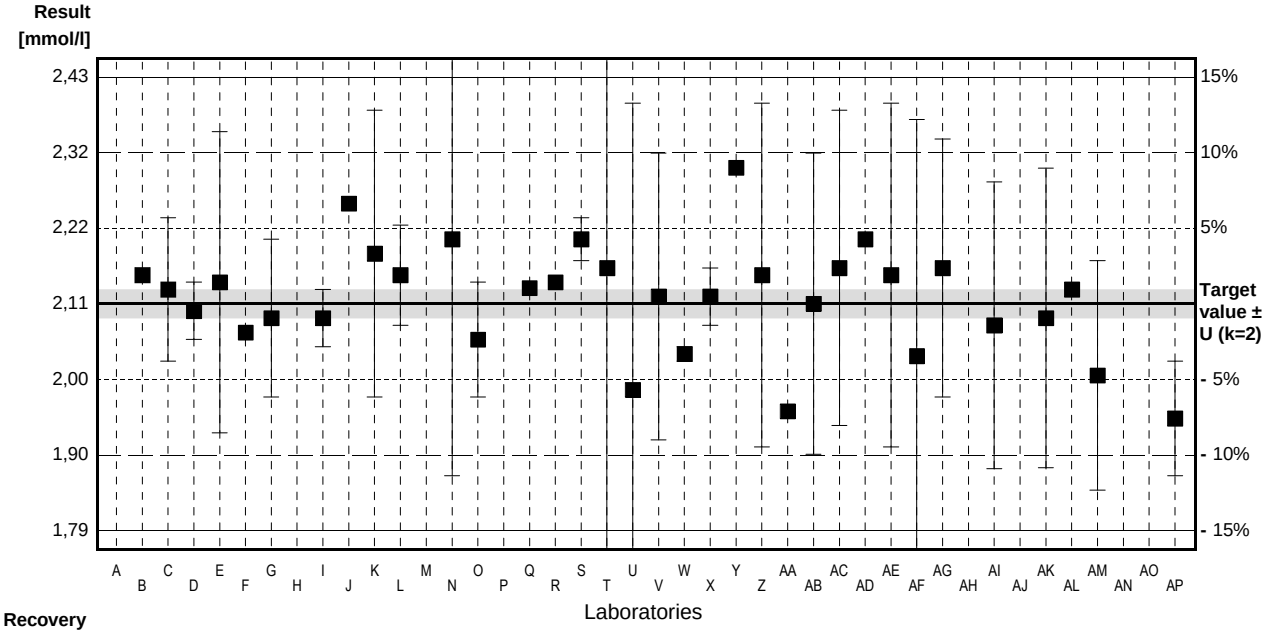
	All results	Outliers excl.	Unit
Mean ± CI(99%)	284 ± 3	284 ± 3	µS/cm
Recov. ± CI(99%)	100,0 ± 0,9	100,0 ± 0,9	%
SD between labs	6	6	µS/cm
RSD between labs	2,2	2,2	%
n for calculation	39	39	

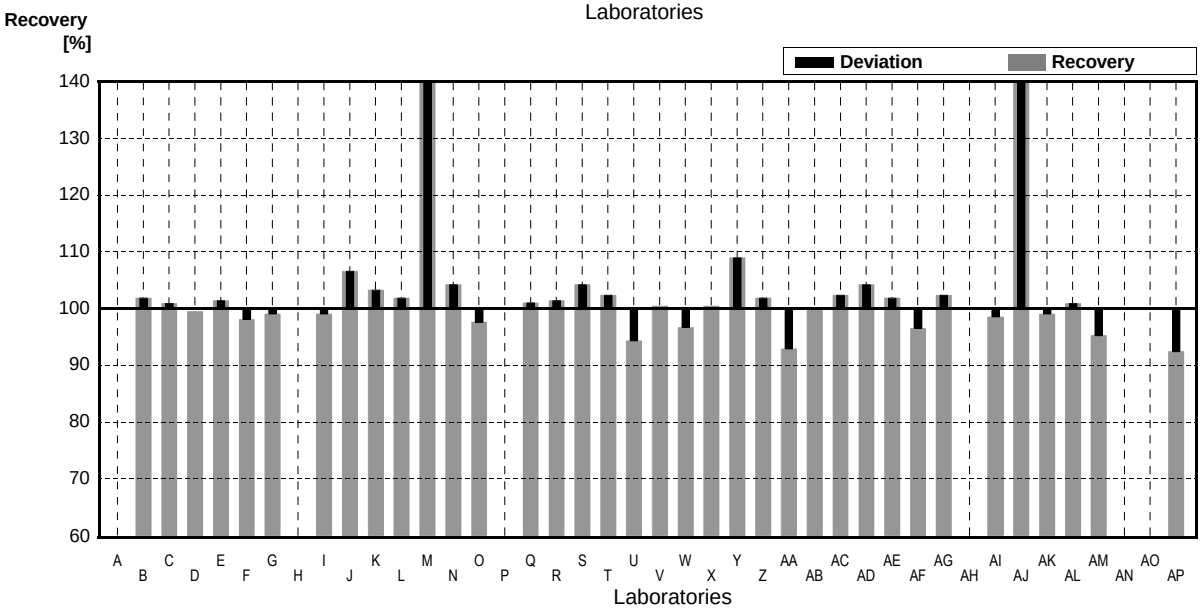
Sample N149A

Parameter Total hardness

Target value ± U (k=2)	2,11	mmol/l	±	0,02	mmol/l
IFA result ± U (k=2)	2,16	mmol/l	±	0,11	mmol/l
Stability test ± U (k=2)	2,21	mmol/l	±	0,11	mmol/l

Lab Code	Result		±	Unit	Recovery	z-Score
A				mmol/l		
B	2,15			mmol/l	102%	0,68
C	2,13		0,1	mmol/l	101%	0,34
D	2,10		0,04	mmol/l	100%	-0,17
E	2,14		0,21	mmol/l	101%	0,51
F	2,07			mmol/l	98%	-0,68
G	2,09		0,11	mmol/l	99%	-0,34
H				mmol/l		
I	2,09		0,04	mmol/l	99%	-0,34
J	2,25			mmol/l	107%	2,37
K	2,18		0,20	mmol/l	103%	1,18
L	2,15		0,07	mmol/l	102%	0,68
M	67,2	*	6,72	mmol/l	3185%	1101,73
N	2,20		0,33	mmol/l	104%	1,52
O	2,06		0,08	mmol/l	98%	-0,85
P				mmol/l		
Q	2,132			mmol/l	101%	0,37
R	2,14			mmol/l	101%	0,51
S	2,20		0,03	mmol/l	104%	1,52
T	2,16		0,50	mmol/l	102%	0,85
U	1,99		0,4	mmol/l	94%	-2,03
V	2,12		0,2	mmol/l	100%	0,17
W	2,04		0,010	mmol/l	97%	-1,18
X	2,12		0,04	mmol/l	100%	0,17
Y	2,30			mmol/l	109%	3,22
Z	2,15		0,24	mmol/l	102%	0,68
AA	1,96			mmol/l	93%	-2,54
AB	2,11		0,21	mmol/l	100%	0,00
AC	2,16		0,22	mmol/l	102%	0,85
AD	2,20			mmol/l	104%	1,52
AE	2,15		0,24	mmol/l	102%	0,68
AF	2,037		0,33	mmol/l	97%	-1,24
AG	2,16		0,18	mmol/l	102%	0,85
AH				mmol/l		
AI	2,08		0,2	mmol/l	99%	-0,51
AJ	4,350	*	0,435	mmol/l	206%	37,91
AK	2,09		0,209	mmol/l	99%	-0,34
AL	2,13			mmol/l	101%	0,34
AM	2,01		0,16	mmol/l	95%	-1,69
AN				mmol/l		
AO				mmol/l		
AP	1,95		0,08	mmol/l	92%	-2,71





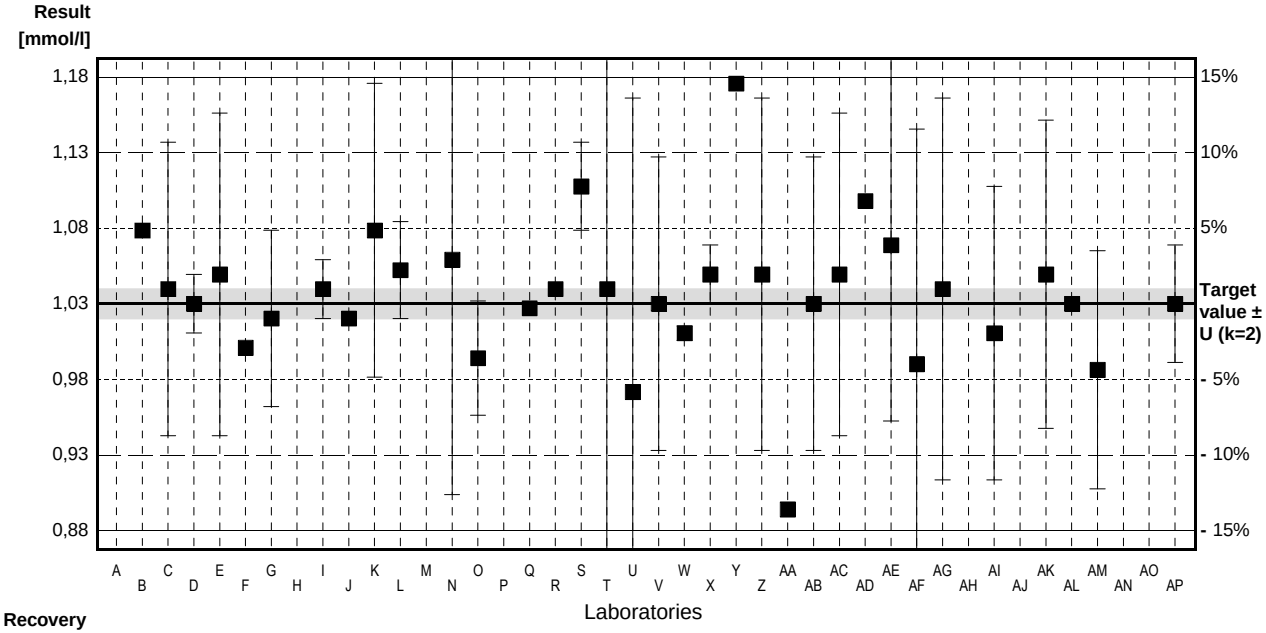
	All results	Outliers excl.	Unit
Mean ± CI(99%)	3,99 ± 4,93	2,12 ± 0,04	mmol/l
Recov. ± CI(99%)	189,0 ± 233,8	100,4 ± 1,7	%
SD between labs	10,84	0,08	mmol/l
RSD between labs	271,9	3,6	%
n for calculation	36	34	

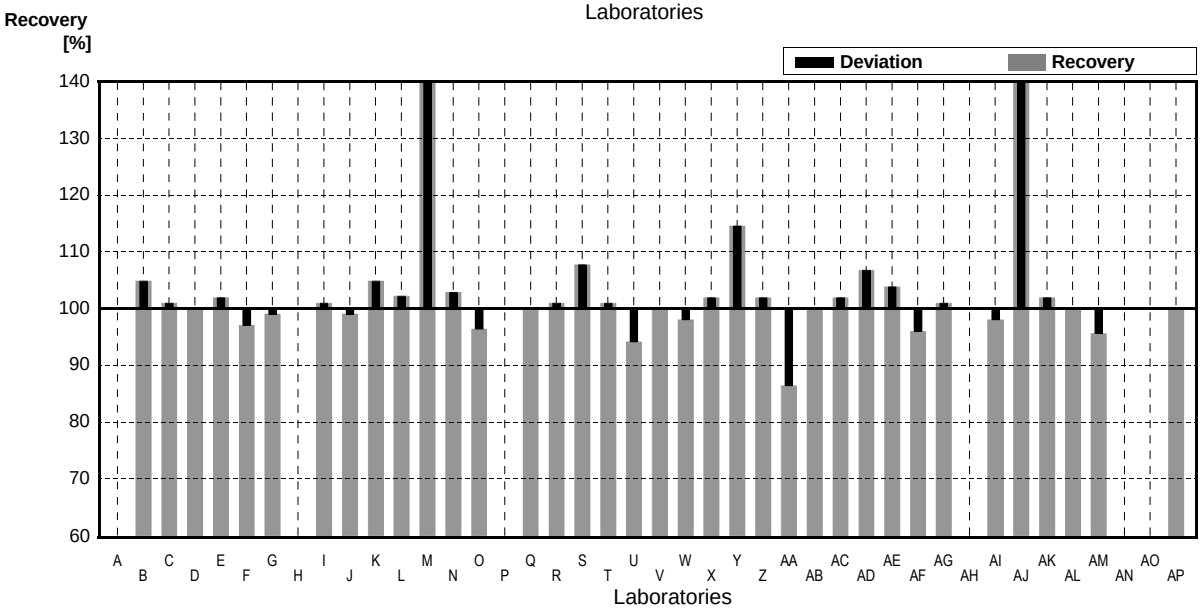
Sample N149B

Parameter Total hardness

Target value ± U (k=2)	1,03	mmol/l	±	0,01	mmol/l
IFA result ± U (k=2)	1,07	mmol/l	±	0,05	mmol/l
Stability test ± U (k=2)	1,05	mmol/l	±	0,05	mmol/l

Lab Code	Result		±	Unit	Recovery	z-Score
A				mmol/l		
B	1,08			mmol/l	105%	1,73
C	1,04		0,1	mmol/l	101%	0,35
D	1,03		0,02	mmol/l	100%	0,00
E	1,05		0,11	mmol/l	102%	0,69
F	1,00			mmol/l	97%	-1,04
G	1,02		0,06	mmol/l	99%	-0,35
H				mmol/l		
I	1,04		0,02	mmol/l	101%	0,35
J	1,02			mmol/l	99%	-0,35
K	1,08		0,10	mmol/l	105%	1,73
L	1,053		0,033	mmol/l	102%	0,80
M	33,0	*	3,30	mmol/l	3204%	1108,53
N	1,06		0,16	mmol/l	103%	1,04
O	0,993		0,039	mmol/l	96%	-1,28
P				mmol/l		
Q	1,027			mmol/l	100%	-0,10
R	1,04			mmol/l	101%	0,35
S	1,11		0,03	mmol/l	108%	2,77
T	1,04		0,24	mmol/l	101%	0,35
U	0,97		0,2	mmol/l	94%	-2,08
V	1,03		0,1	mmol/l	100%	0,00
W	1,01		0,005	mmol/l	98%	-0,69
X	1,05		0,02	mmol/l	102%	0,69
Y	1,18	*		mmol/l	115%	5,20
Z	1,05		0,12	mmol/l	102%	0,69
AA	0,89	*		mmol/l	86%	-4,85
AB	1,03		0,10	mmol/l	100%	0,00
AC	1,05		0,11	mmol/l	102%	0,69
AD	1,10			mmol/l	107%	2,43
AE	1,07		0,12	mmol/l	104%	1,39
AF	0,989		0,16	mmol/l	96%	-1,42
AG	1,04		0,13	mmol/l	101%	0,35
AH				mmol/l		
AI	1,01		0,1	mmol/l	98%	-0,69
AJ	2,093	*	0,209	mmol/l	203%	36,86
AK	1,05		0,105	mmol/l	102%	0,69
AL	1,03			mmol/l	100%	0,00
AM	0,985		0,081	mmol/l	96%	-1,56
AN				mmol/l		
AO				mmol/l		
AP	1,03		0,04	mmol/l	100%	0,00



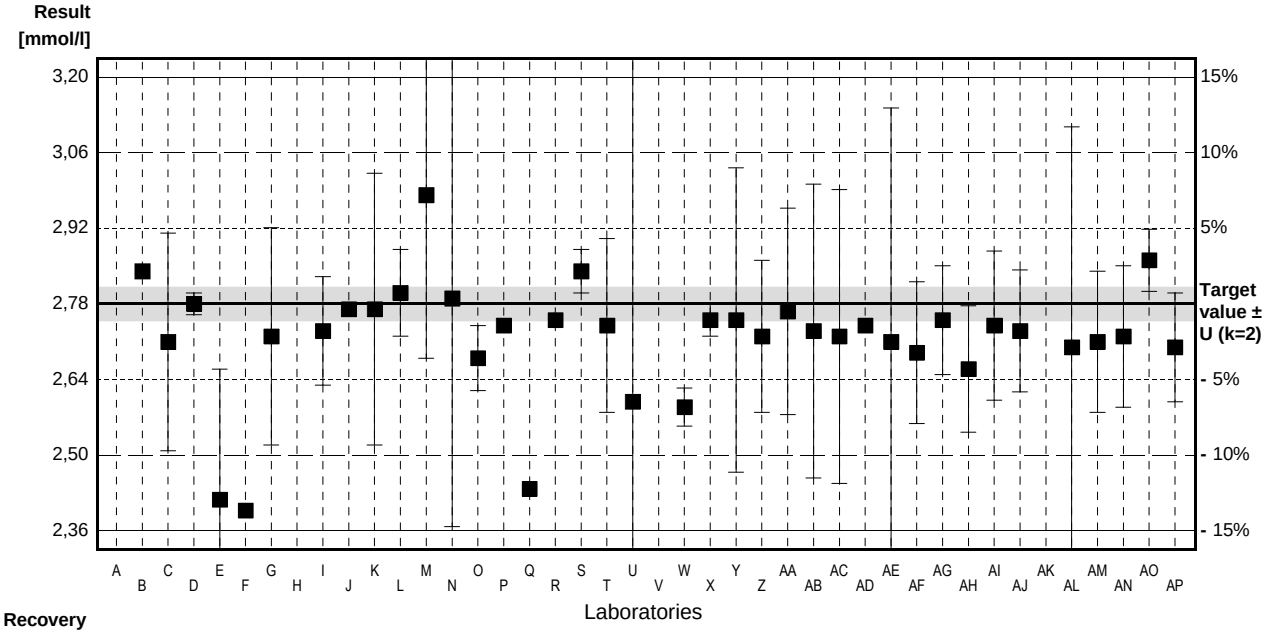


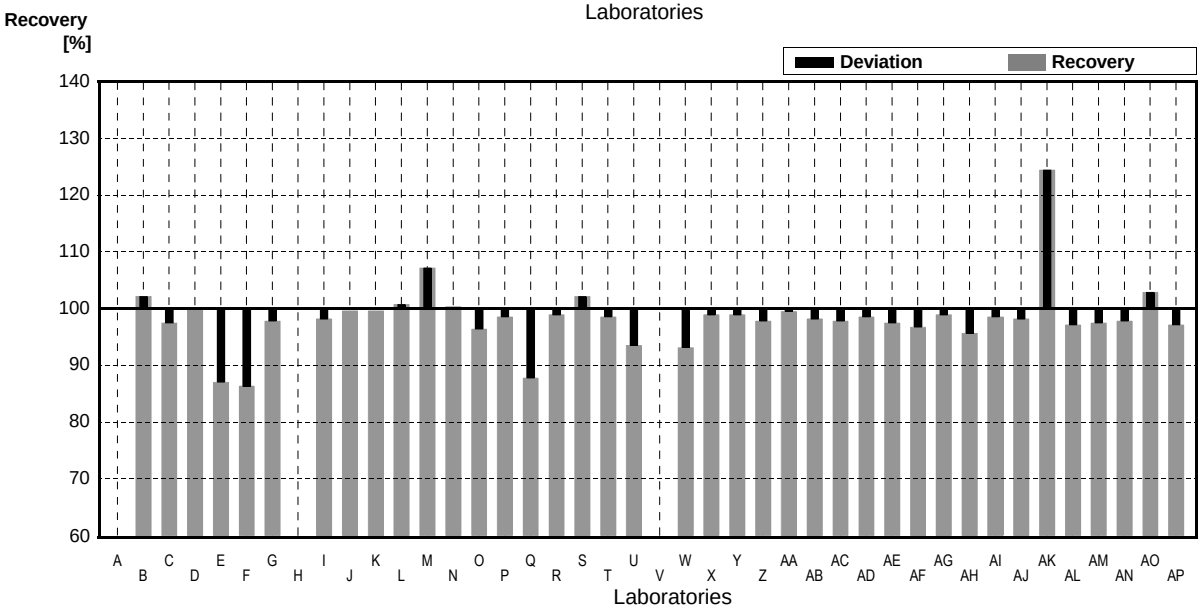
	All results	Outliers excl.	Unit
Mean ± CI(99%)	1,95 ± 2,42	1,04 ± 0,02	mmol/l
Recov. ± CI(99%)	189,7 ± 235,2	100,7 ± 1,5	%
SD between labs	5,33	0,03	mmol/l
RSD between labs	272,5	3,0	%
n for calculation	36	32	

Sample N149A
Parameter Alkalinity

Target value ± U (k=2)	2,78	mmol/l	±	0,03	mmol/l
IFA result ± U (k=2)	2,74	mmol/l	±	0,14	mmol/l
Stability test ± U (k=2)	2,76	mmol/l	±	0,14	mmol/l

Lab Code	Result		±	Unit	Recovery	z-Score
A				mmol/l		
B	2,84			mmol/l	102%	0,98
C	2,71		0,2	mmol/l	97%	-1,14
D	2,78		0,02	mmol/l	100%	0,00
E	2,42	*	0,24	mmol/l	87%	-5,89
F	2,40	*		mmol/l	86%	-6,21
G	2,72		0,20	mmol/l	98%	-0,98
H				mmol/l		
I	2,73		0,10	mmol/l	98%	-0,82
J	2,77			mmol/l	100%	-0,16
K	2,77		0,25	mmol/l	100%	-0,16
L	2,80		0,08	mmol/l	101%	0,33
M	2,98	*	0,30	mmol/l	107%	3,27
N	2,79		0,42	mmol/l	100%	0,16
O	2,68		0,06	mmol/l	96%	-1,64
P	2,74			mmol/l	99%	-0,65
Q	2,44	*		mmol/l	88%	-5,56
R	2,75			mmol/l	99%	-0,49
S	2,84		0,04	mmol/l	102%	0,98
T	2,74		0,16	mmol/l	99%	-0,65
U	2,60		0,6	mmol/l	94%	-2,94
V				mmol/l		
W	2,59	*	0,035	mmol/l	93%	-3,11
X	2,75		0,03	mmol/l	99%	-0,49
Y	2,75		0,28	mmol/l	99%	-0,49
Z	2,72		0,14	mmol/l	98%	-0,98
AA	2,766		0,19	mmol/l	99%	-0,23
AB	2,73		0,27	mmol/l	98%	-0,82
AC	2,72		0,27	mmol/l	98%	-0,98
AD	2,74			mmol/l	99%	-0,65
AE	2,71		0,43	mmol/l	97%	-1,14
AF	2,69		0,13	mmol/l	97%	-1,47
AG	2,75		0,10	mmol/l	99%	-0,49
AH	2,66		0,116	mmol/l	96%	-1,96
AI	2,74		0,137	mmol/l	99%	-0,65
AJ	2,730		0,112	mmol/l	98%	-0,82
AK	3,46	*	0,346	mmol/l	124%	11,12
AL	2,70		0,405	mmol/l	97%	-1,31
AM	2,71		0,13	mmol/l	97%	-1,14
AN	2,72		0,13	mmol/l	98%	-0,98
AO	2,86		0,057	mmol/l	103%	1,31
AP	2,70		0,1	mmol/l	97%	-1,31



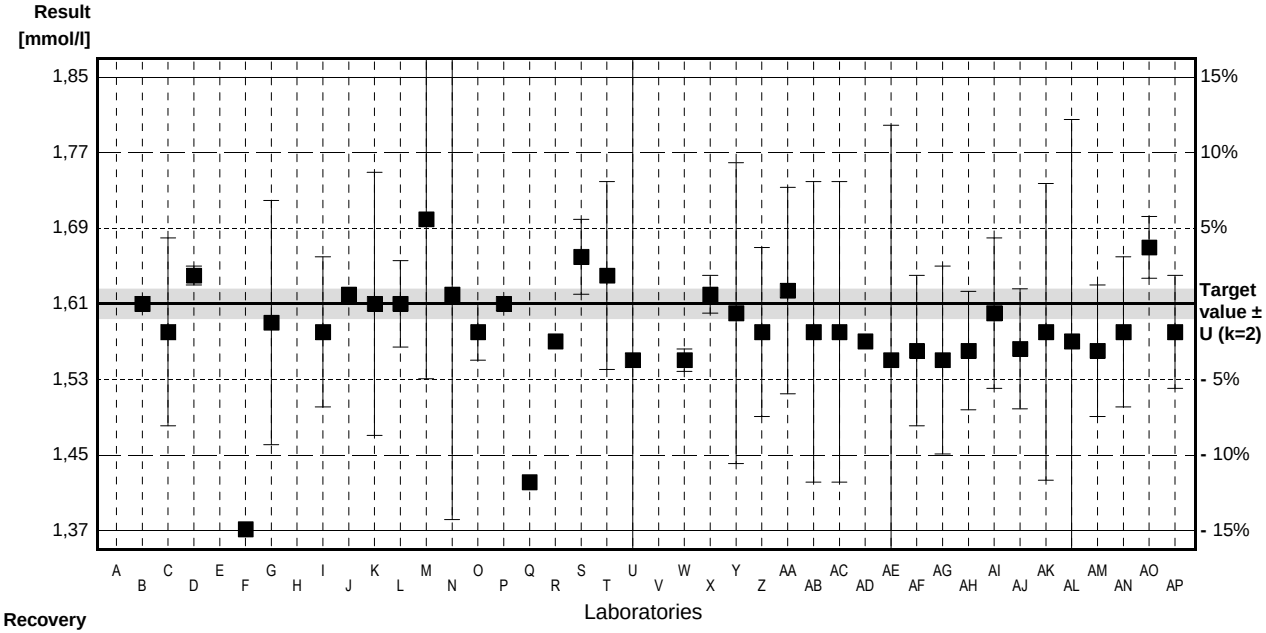


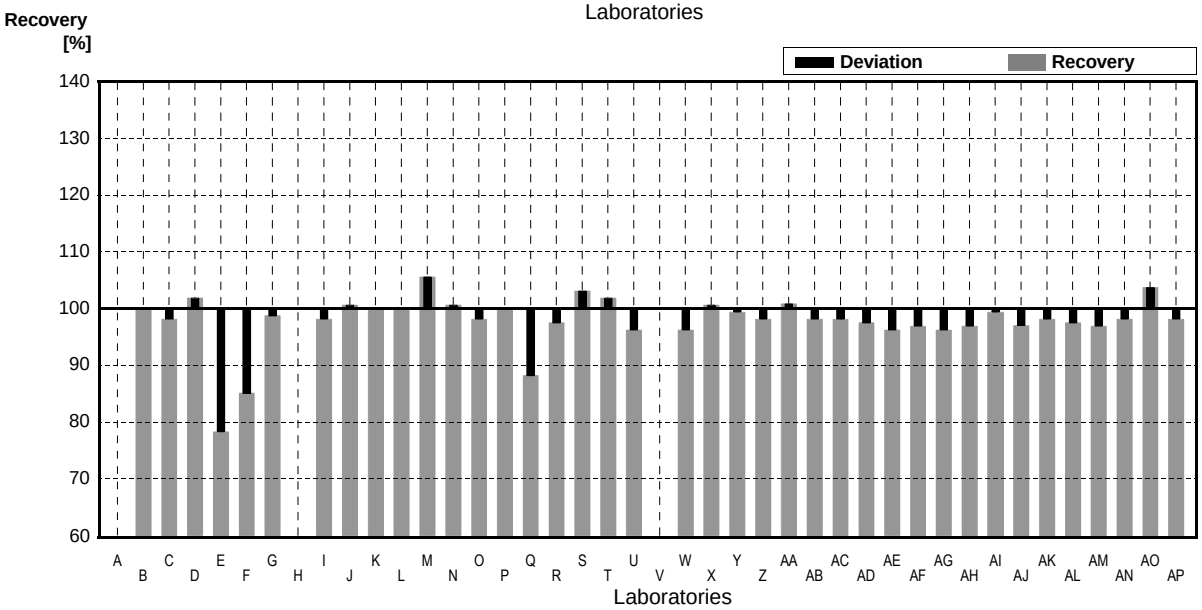
	All results	Outliers excl.	Unit
Mean ± CI(99%)	2,74 ± 0,07	2,74 ± 0,02	mmol/l
Recov. ± CI(99%)	98,4 ± 2,5	98,5 ± 0,9	%
SD between labs	0,16	0,05	mmol/l
RSD between labs	5,9	1,9	%
n for calculation	39	33	

Sample N149B
Parameter Alkalinity

Target value ± U (k=2)	1,61	mmol/l	±	0,02	mmol/l
IFA result ± U (k=2)	1,60	mmol/l	±	0,08	mmol/l
Stability test ± U (k=2)	1,61	mmol/l	±	0,08	mmol/l

Lab Code	Result		±	Unit	Recovery	z-Score
A				mmol/l		
B	1,61			mmol/l	100%	0,00
C	1,58		0,1	mmol/l	98%	-0,85
D	1,64		0,01	mmol/l	102%	0,85
E	1,26	*	0,13	mmol/l	78%	-9,88
F	1,37	*		mmol/l	85%	-6,78
G	1,59		0,13	mmol/l	99%	-0,56
H				mmol/l		
I	1,58		0,08	mmol/l	98%	-0,85
J	1,62			mmol/l	101%	0,28
K	1,61		0,14	mmol/l	100%	0,00
L	1,610		0,046	mmol/l	100%	0,00
M	1,70		0,17	mmol/l	106%	2,54
N	1,62		0,24	mmol/l	101%	0,28
O	1,58		0,03	mmol/l	98%	-0,85
P	1,61			mmol/l	100%	0,00
Q	1,42	*		mmol/l	88%	-5,36
R	1,57			mmol/l	98%	-1,13
S	1,66		0,04	mmol/l	103%	1,41
T	1,64		0,10	mmol/l	102%	0,85
U	1,55		0,4	mmol/l	96%	-1,69
V				mmol/l		
W	1,55		0,012	mmol/l	96%	-1,69
X	1,62		0,02	mmol/l	101%	0,28
Y	1,60		0,16	mmol/l	99%	-0,28
Z	1,58		0,09	mmol/l	98%	-0,85
AA	1,624		0,11	mmol/l	101%	0,40
AB	1,58		0,16	mmol/l	98%	-0,85
AC	1,58		0,16	mmol/l	98%	-0,85
AD	1,57			mmol/l	98%	-1,13
AE	1,55		0,25	mmol/l	96%	-1,69
AF	1,56		0,08	mmol/l	97%	-1,41
AG	1,55		0,10	mmol/l	96%	-1,69
AH	1,56		0,063	mmol/l	97%	-1,41
AI	1,60		0,080	mmol/l	99%	-0,28
AJ	1,562		0,064	mmol/l	97%	-1,36
AK	1,58		0,158	mmol/l	98%	-0,85
AL	1,57		0,236	mmol/l	98%	-1,13
AM	1,56		0,07	mmol/l	97%	-1,41
AN	1,58		0,08	mmol/l	98%	-0,85
AO	1,67		0,033	mmol/l	104%	1,69
AP	1,58		0,06	mmol/l	98%	-0,85





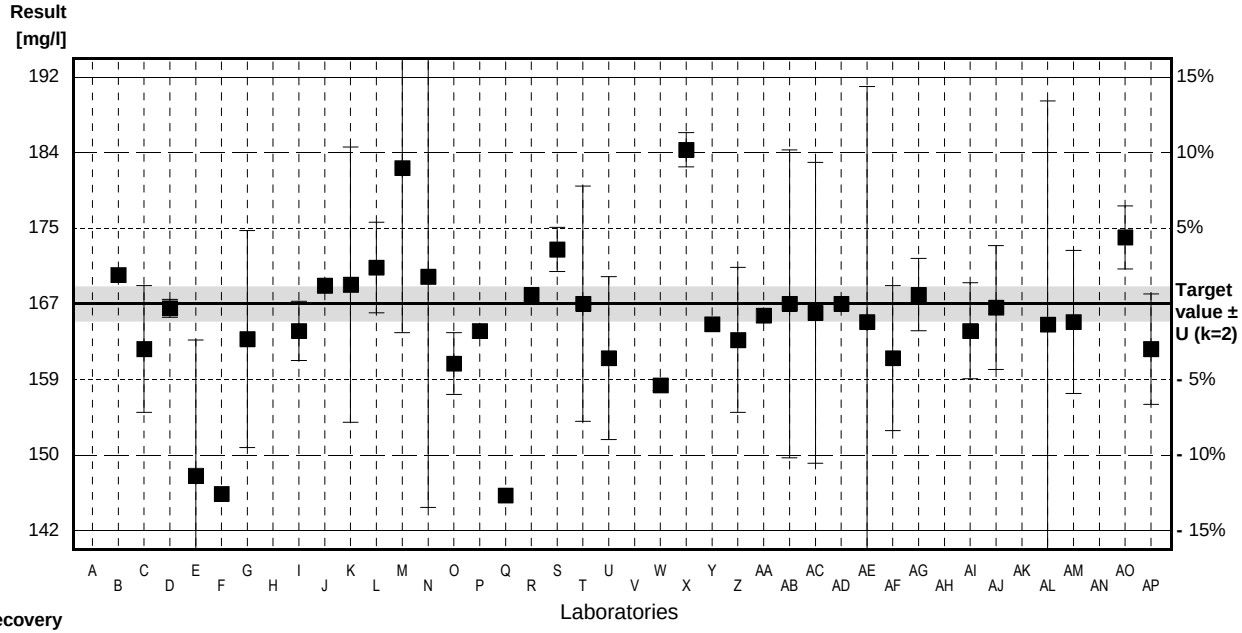
	All results	Outliers excl.	Unit
Mean ± CI(99%)	1,58 ± 0,03	1,59 ± 0,02	mmol/l
Recov. ± CI(99%)	97,9 ± 2,1	99,0 ± 1,0	%
SD between labs	0,08	0,04	mmol/l
RSD between labs	4,9	2,3	%
n for calculation	39	36	

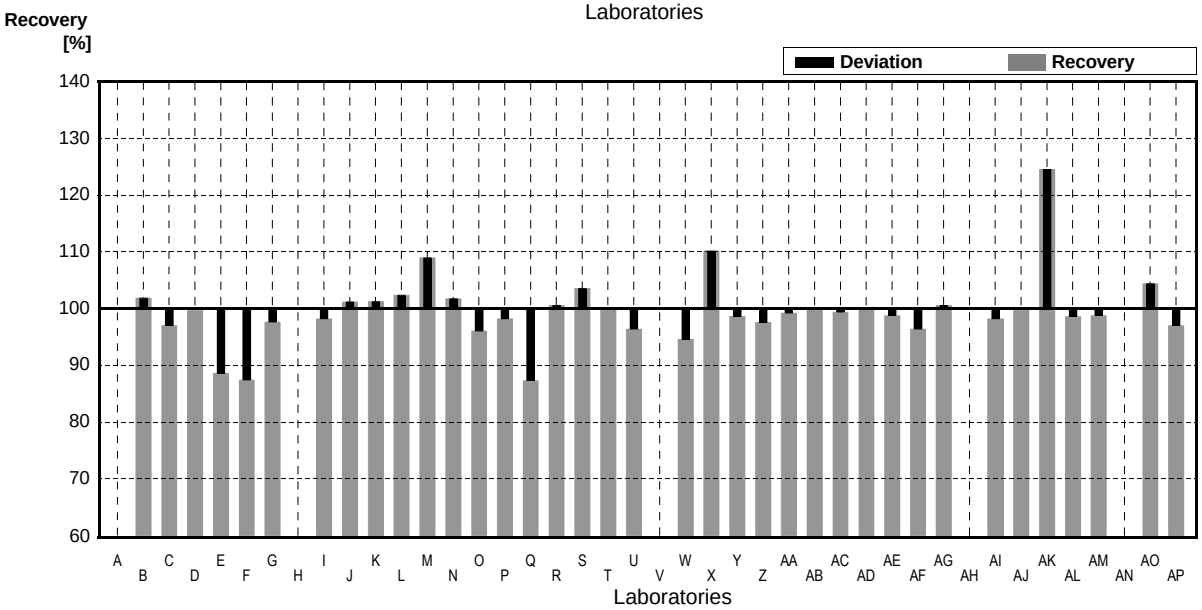
Sample N149A

Parameter Hydrogen carbonate

Target value ± U (k=2)	167	mg/l	±	2	mg/l
IFA result ± U (k=2)	164	mg/l	±	8	mg/l
Stability test ± U (k=2)	166	mg/l	±	8	mg/l

Lab Code	Result		±	Unit	Recovery	z-Score
A				mg/l		
B	170,2			mg/l	102%	0,77
C	162		7	mg/l	97%	-1,20
D	166,5		1,0	mg/l	100%	-0,12
E	148	*	15	mg/l	89%	-4,55
F	146	*		mg/l	87%	-5,03
G	163,1		12,0	mg/l	98%	-0,93
H				mg/l		
I	164		3,27	mg/l	98%	-0,72
J	169,0			mg/l	101%	0,48
K	169,1		15,2	mg/l	101%	0,50
L	171		5	mg/l	102%	0,96
M	182	*	18,2	mg/l	109%	3,59
N	170		25,5	mg/l	102%	0,72
O	160,4		3,4	mg/l	96%	-1,58
P	164			mg/l	98%	-0,72
Q	145,83	*		mg/l	87%	-5,07
R	168			mg/l	101%	0,24
S	173		2,44	mg/l	104%	1,44
T	167		13	mg/l	100%	0,00
U	161		9	mg/l	96%	-1,44
V				mg/l		
W	158		0,577	mg/l	95%	-2,16
X	184	*	1,9	mg/l	110%	4,07
Y	164,73			mg/l	99%	-0,54
Z	163		8	mg/l	98%	-0,96
AA	165,7			mg/l	99%	-0,31
AB	167		17	mg/l	100%	0,00
AC	166,0		16,6	mg/l	99%	-0,24
AD	167			mg/l	100%	0,00
AE	165		26	mg/l	99%	-0,48
AF	161		8	mg/l	96%	-1,44
AG	168		4	mg/l	101%	0,24
AH				mg/l		
AI	164		5,3	mg/l	98%	-0,72
AJ	166,58		6,83	mg/l	100%	-0,10
AK	208	*	20,8	mg/l	125%	9,82
AL	164,7		24,71	mg/l	99%	-0,55
AM	165		7,9	mg/l	99%	-0,48
AN				mg/l		
AO	174,33		3,49	mg/l	104%	1,76
AP	162		6,1	mg/l	97%	-1,20





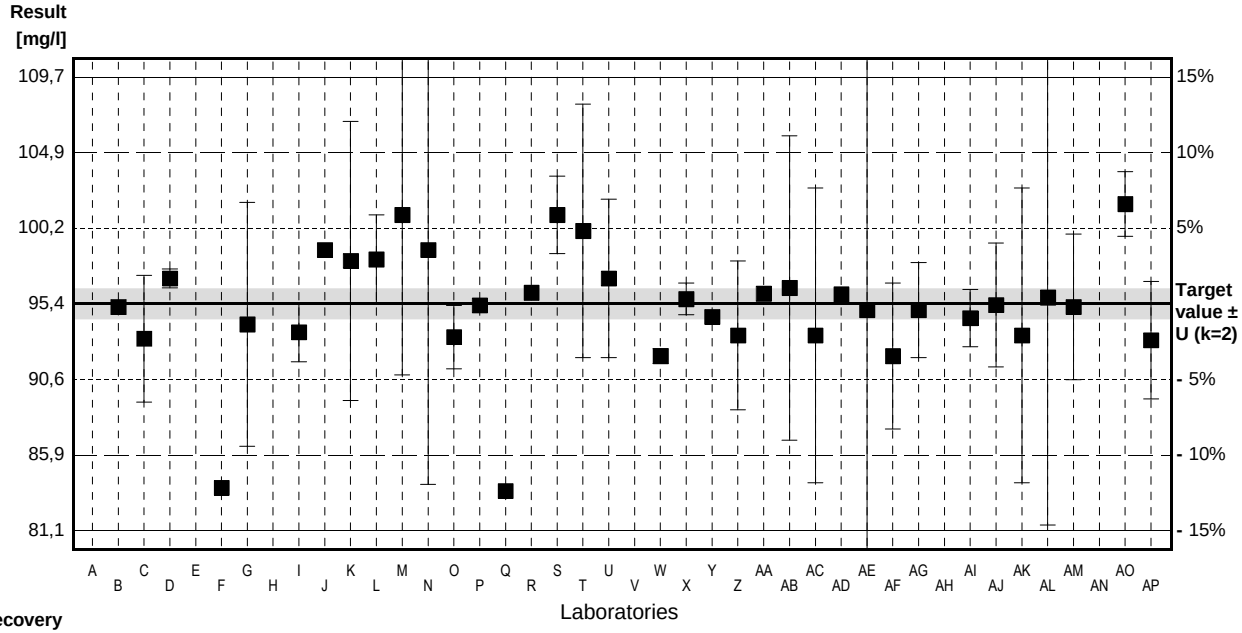
	All results	Outliers excl.	Unit
Mean ± CI(99%)	166 ± 5	166 ± 2	mg/l
Recov. ± CI(99%)	99,6 ± 2,8	99,3 ± 1,1	%
SD between labs	10	4	mg/l
RSD between labs	6,2	2,3	%
n for calculation	37	31	

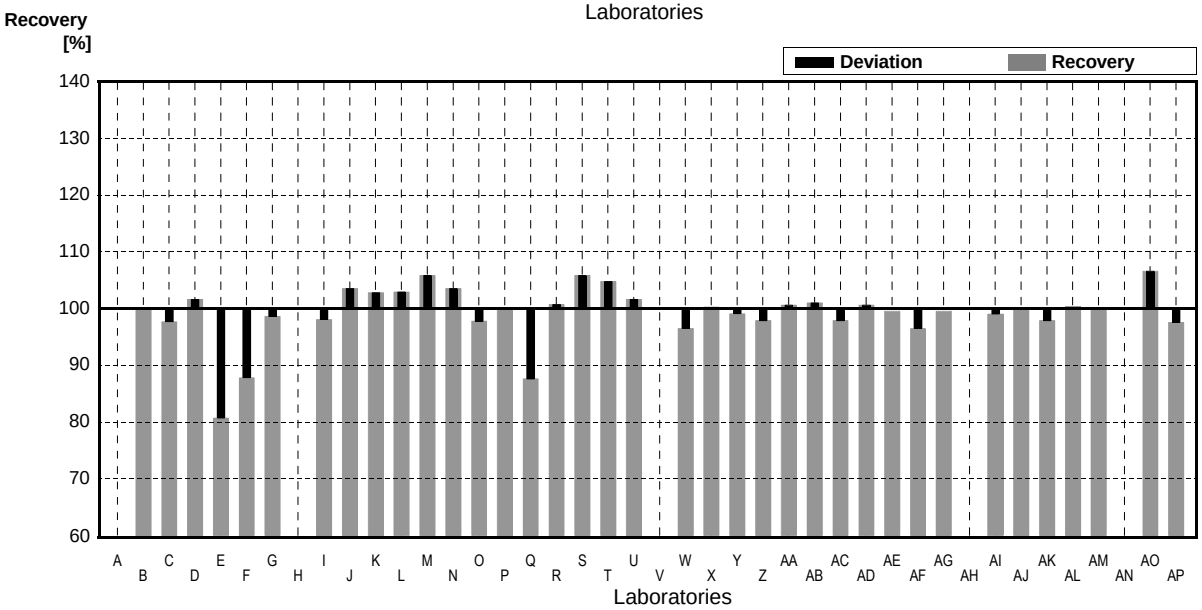
Sample N149B

Parameter Hydrogen carbonate

Target value	± U (k=2)	95,4 mg/l	±	1,0 mg/l
IFA result	± U (k=2)	94,7 mg/l	±	4,7 mg/l
Stability test	± U (k=2)	95,1 mg/l	±	4,8 mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A			mg/l		
B	95,2		mg/l	100%	-0,08
C	93,2	4	mg/l	98%	-0,92
D	97,0	0,6	mg/l	102%	0,67
E	77 *	8	mg/l	81%	-7,71
F	83,8 *		mg/l	88%	-4,86
G	94,1	7,7	mg/l	99%	-0,55
H			mg/l		
I	93,6	1,87	mg/l	98%	-0,75
J	98,8		mg/l	104%	1,43
K	98,1	8,8	mg/l	103%	1,13
L	98,2	2,8	mg/l	103%	1,17
M	101	10,1	mg/l	106%	2,35
N	98,8	14,8	mg/l	104%	1,43
O	93,3	2,0	mg/l	98%	-0,88
P	95,3		mg/l	100%	-0,04
Q	83,59 *		mg/l	88%	-4,95
R	96,1		mg/l	101%	0,29
S	101	2,44	mg/l	106%	2,35
T	100	8	mg/l	105%	1,93
U	97,0	5	mg/l	102%	0,67
V			mg/l		
W	92,1	0,473	mg/l	97%	-1,38
X	95,7	1,0	mg/l	100%	0,13
Y	94,57		mg/l	99%	-0,35
Z	93,4	4,7	mg/l	98%	-0,84
AA	96,04		mg/l	101%	0,27
AB	96,4	9,6	mg/l	101%	0,42
AC	93,4	9,3	mg/l	98%	-0,84
AD	96		mg/l	101%	0,25
AE	95	15	mg/l	100%	-0,17
AF	92,1	4,6	mg/l	97%	-1,38
AG	95	3	mg/l	100%	-0,17
AH			mg/l		
AI	94,5	1,8	mg/l	99%	-0,38
AJ	95,32	3,91	mg/l	100%	-0,03
AK	93,4	9,3	mg/l	98%	-0,84
AL	95,8	14,37	mg/l	100%	0,17
AM	95,2	4,6	mg/l	100%	-0,08
AN			mg/l		
AO	101,7	2,034	mg/l	107%	2,64
AP	93,1	3,7	mg/l	98%	-0,96



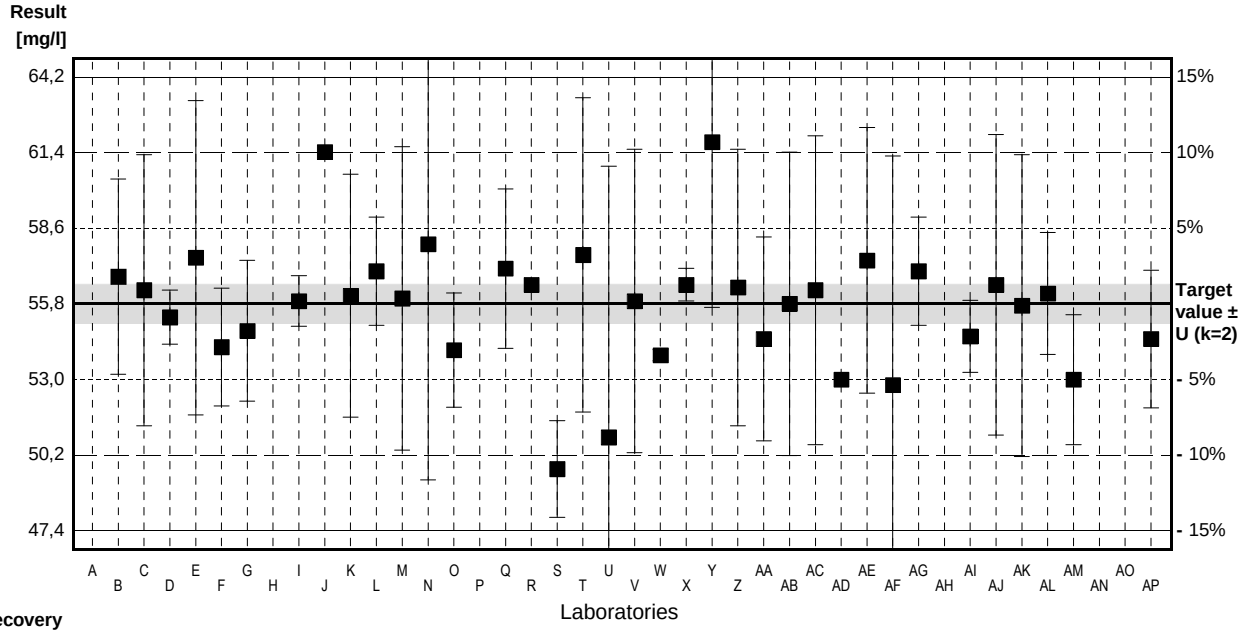


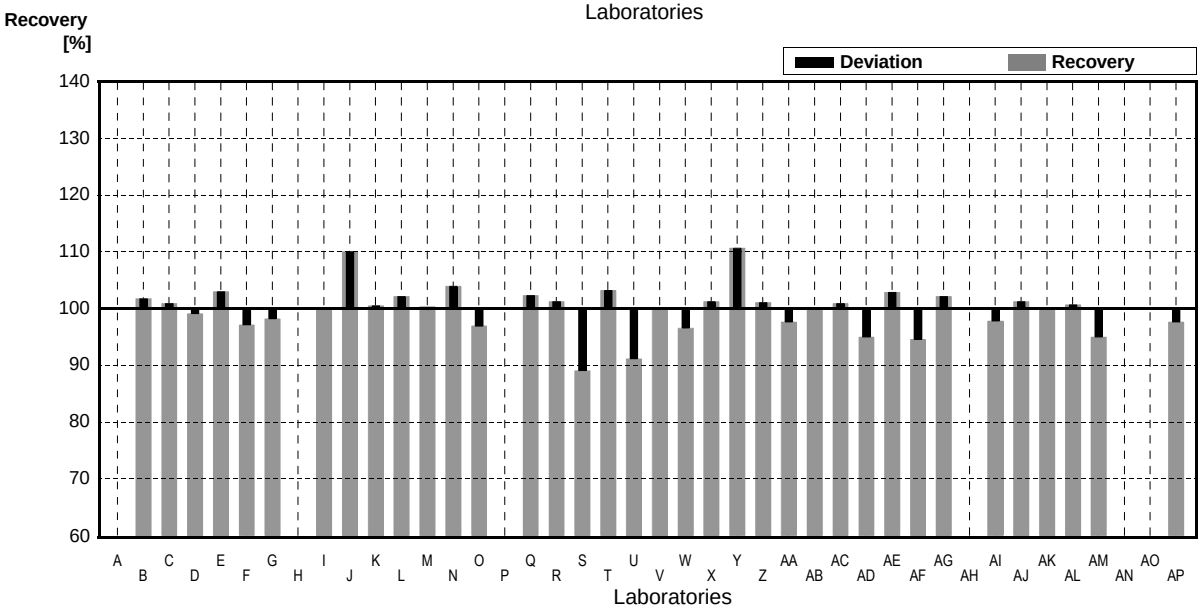
	All results	Outliers excl.	Unit
Mean ± CI(99%)	94,7 ± 2,1	95,9 ± 1,2	mg/l
Recov. ± CI(99%)	99,3 ± 2,2	100,5 ± 1,3	%
SD between labs	4,8	2,6	mg/l
RSD between labs	5,0	2,7	%
n for calculation	37	34	

Sample N149A
Parameter Calcium

Target value ± U (k=2)	55,8	mg/l	±	0,7	mg/l
IFA result ± U (k=2)	57,9	mg/l	±	3,5	mg/l
Stability test ± U (k=2)	60,2	mg/l	±	3,6	mg/l

Lab Code	Result		±	Unit	Recovery	z-Score
A				mg/l		
B	56,8		3,6	mg/l	102%	0,54
C	56,3		5	mg/l	101%	0,27
D	55,3		1,0	mg/l	99%	-0,27
E	57,5		5,8	mg/l	103%	0,92
F	54,2		2,17	mg/l	97%	-0,87
G	54,8		2,6	mg/l	98%	-0,54
H				mg/l		
I	55,9		0,93	mg/l	100%	0,05
J	61,4	*		mg/l	110%	3,04
K	56,1		4,48	mg/l	101%	0,16
L	57		2	mg/l	102%	0,65
M	56		5,6	mg/l	100%	0,11
N	58		8,70	mg/l	104%	1,19
O	54,09		2,11	mg/l	97%	-0,93
P				mg/l		
Q	57,10		2,941	mg/l	102%	0,71
R	56,5			mg/l	101%	0,38
S	49,7	*	1,78	mg/l	89%	-3,31
T	57,6		5,8	mg/l	103%	0,98
U	50,87		10	mg/l	91%	-2,68
V	55,9		5,6	mg/l	100%	0,05
W	53,9		0,208	mg/l	97%	-1,03
X	56,5		0,6	mg/l	101%	0,38
Y	61,77	*	6,1	mg/l	111%	3,24
Z	56,4		5,1	mg/l	101%	0,33
AA	54,5		3,76	mg/l	98%	-0,71
AB	55,8		5,6	mg/l	100%	0,00
AC	56,3		5,7	mg/l	101%	0,27
AD	53,0			mg/l	95%	-1,52
AE	57,4		4,9	mg/l	103%	0,87
AF	52,8		8,45	mg/l	95%	-1,63
AG	57		2	mg/l	102%	0,65
AH				mg/l		
AI	54,6		1,33	mg/l	98%	-0,65
AJ	56,497		5,54	mg/l	101%	0,38
AK	55,73		5,57	mg/l	100%	-0,04
AL	56,18		2,247	mg/l	101%	0,21
AM	53,0		2,4	mg/l	95%	-1,52
AN				mg/l		
AO				mg/l		
AP	54,5		2,54	mg/l	98%	-0,71



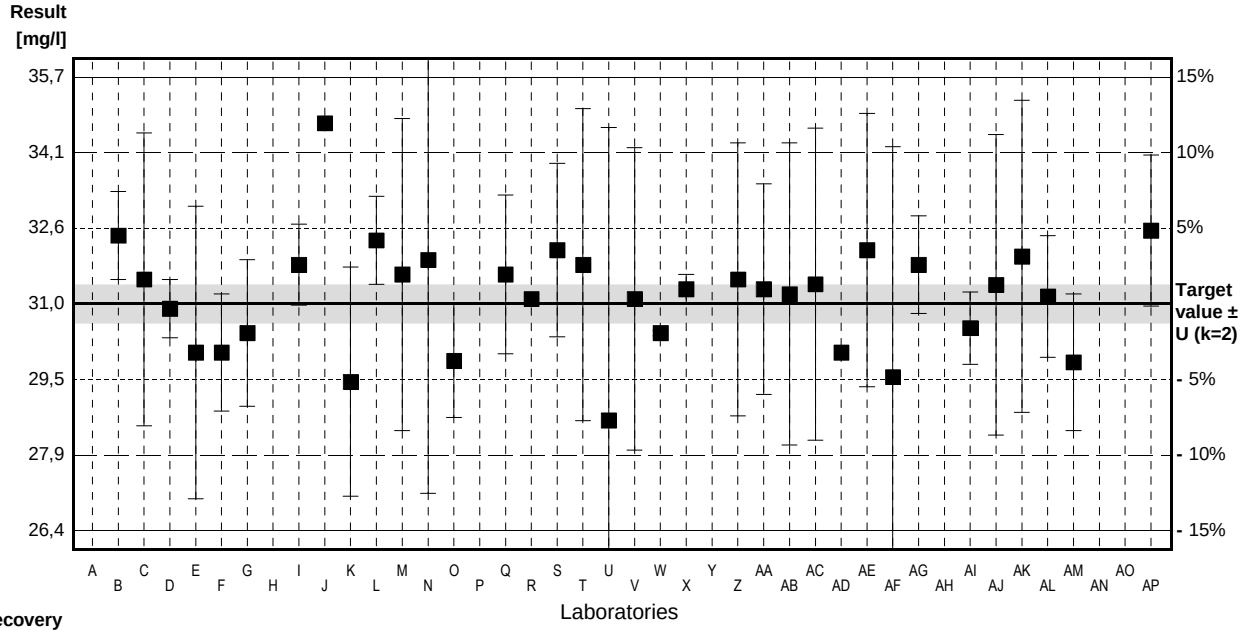


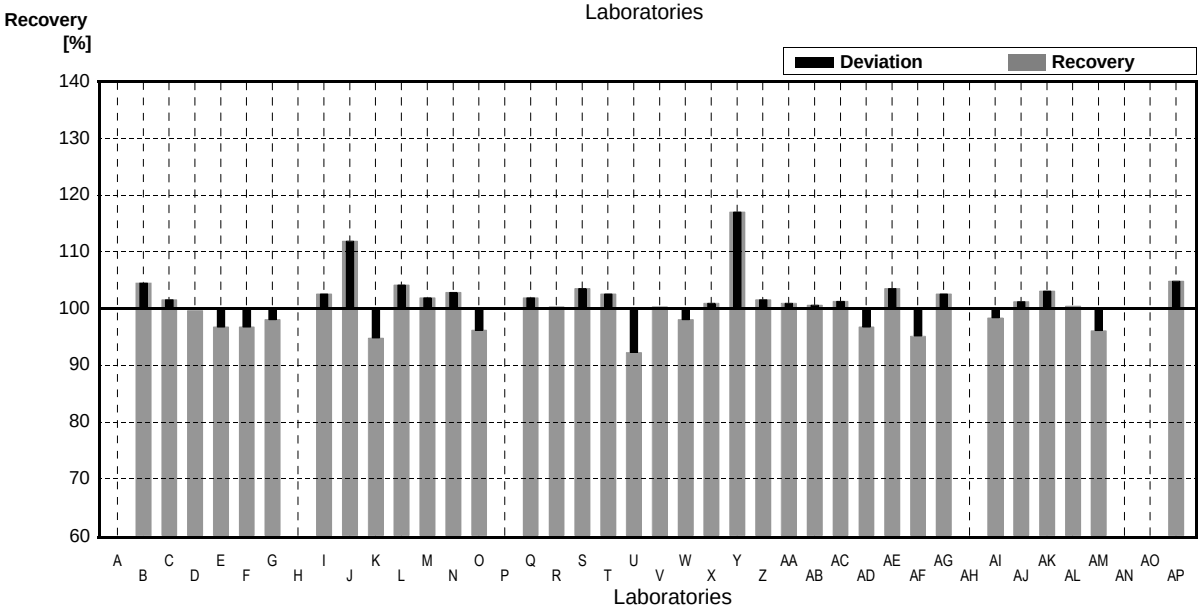
	All results	Outliers excl.	Unit
Mean ± CI(99%)	55,7 ± 1,1	55,6 ± 0,8	mg/l
Recov. ± CI(99%)	99,9 ± 1,9	99,6 ± 1,4	%
SD between labs	2,3	1,6	mg/l
RSD between labs	4,2	2,9	%
n for calculation	36	33	

Sample N149B
Parameter Calcium

Target value	± U (k=2)	31,0 mg/l	±	0,4 mg/l	
IFA result	± U (k=2)	32,2 mg/l	±	1,9 mg/l	
Stability test	± U (k=2)	32,2 mg/l	±	1,9 mg/l	

Lab Code	Result	±	Unit	Recovery	z-Score
A			mg/l		
B	32,4	0,9	mg/l	105%	1,37
C	31,5	3	mg/l	102%	0,49
D	30,9	0,6	mg/l	100%	-0,10
E	30,0	3	mg/l	97%	-0,98
F	30,0	1,20	mg/l	97%	-0,98
G	30,4	1,5	mg/l	98%	-0,59
H			mg/l		
I	31,8	0,83	mg/l	103%	0,78
J	34,7 *		mg/l	112%	3,62
K	29,4	2,35	mg/l	95%	-1,56
L	32,3	0,9	mg/l	104%	1,27
M	31,6	3,2	mg/l	102%	0,59
N	31,9	4,79	mg/l	103%	0,88
O	29,83	1,16	mg/l	96%	-1,14
P			mg/l		
Q	31,60	1,627	mg/l	102%	0,59
R	31,1		mg/l	100%	0,10
S	32,1	1,78	mg/l	104%	1,08
T	31,8	3,2	mg/l	103%	0,78
U	28,61	6	mg/l	92%	-2,34
V	31,1	3,1	mg/l	100%	0,10
W	30,4	0,058	mg/l	98%	-0,59
X	31,3	0,3	mg/l	101%	0,29
Y	36,29 *	3,5	mg/l	117%	5,17
Z	31,5	2,8	mg/l	102%	0,49
AA	31,3	2,16	mg/l	101%	0,29
AB	31,2	3,1	mg/l	101%	0,20
AC	31,4	3,2	mg/l	101%	0,39
AD	30,0		mg/l	97%	-0,98
AE	32,1	2,8	mg/l	104%	1,08
AF	29,5	4,72	mg/l	95%	-1,47
AG	31,8	1	mg/l	103%	0,78
AH			mg/l		
AI	30,5	0,74	mg/l	98%	-0,49
AJ	31,386	3,08	mg/l	101%	0,38
AK	31,97	3,20	mg/l	103%	0,95
AL	31,15	1,246	mg/l	100%	0,15
AM	29,8	1,4	mg/l	96%	-1,17
AN			mg/l		
AO			mg/l		
AP	32,5	1,55	mg/l	105%	1,47



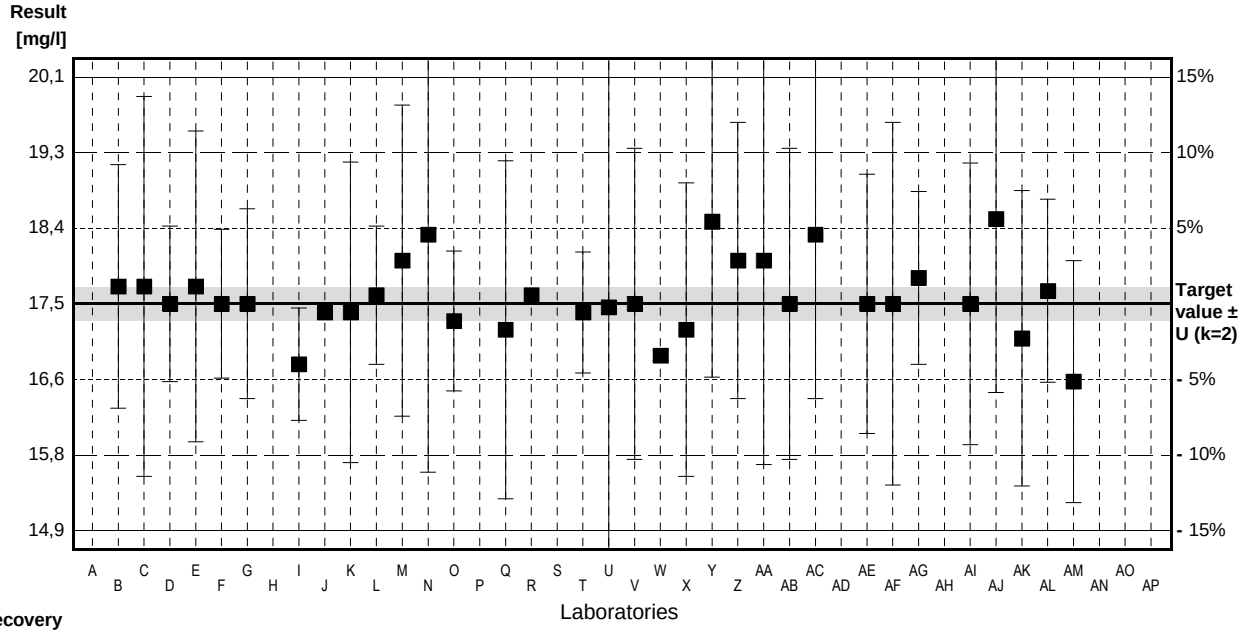


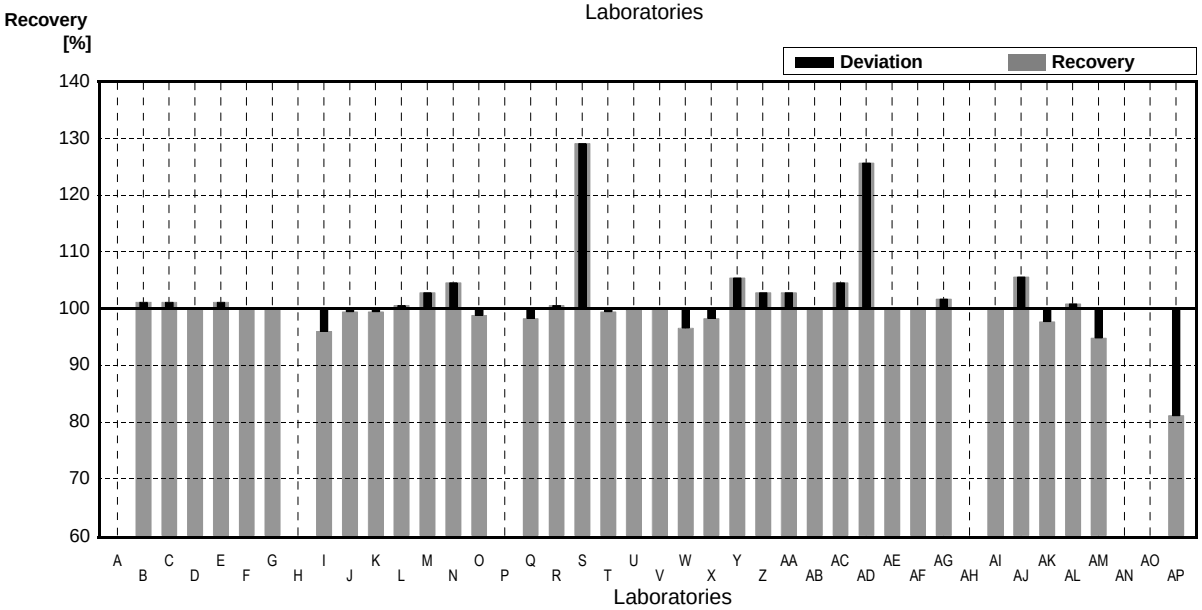
	All results	Outliers excl.	Unit
Mean ± CI(99%)	31,3 ± 0,6	31,1 ± 0,5	mg/l
Recov. ± CI(99%)	101,0 ± 2,1	100,2 ± 1,5	%
SD between labs	1,4	1,0	mg/l
RSD between labs	4,5	3,1	%
n for calculation	36	34	

Sample N149A
Parameter Magnesium

Target value ± U (k=2)	17,5	mg/l	±	0,2	mg/l
IFA result ± U (k=2)	17,5	mg/l	±	0,9	mg/l
Stability test ± U (k=2)	17,3	mg/l	±	0,9	mg/l

Lab Code	Result		±	Unit	Recovery	z-Score
A				mg/l		
B	17,7		1,41	mg/l	101%	0,32
C	17,7		2,2	mg/l	101%	0,32
D	17,5		0,9	mg/l	100%	0,00
E	17,7		1,8	mg/l	101%	0,32
F	17,5		0,86	mg/l	100%	0,00
G	17,5		1,1	mg/l	100%	0,00
H				mg/l		
I	16,8		0,65	mg/l	96%	-1,11
J	17,4			mg/l	99%	-0,16
K	17,4		1,74	mg/l	99%	-0,16
L	17,6		0,8	mg/l	101%	0,16
M	18,0		1,80	mg/l	103%	0,79
N	18,3		2,75	mg/l	105%	1,27
O	17,30		0,81	mg/l	99%	-0,32
P				mg/l		
Q	17,20		1,956	mg/l	98%	-0,48
R	17,6			mg/l	101%	0,16
S	22,6	*	0,53	mg/l	129%	8,10
T	17,4		0,7	mg/l	99%	-0,16
U	17,46		4	mg/l	100%	-0,06
V	17,5		1,8	mg/l	100%	0,00
W	16,9		0,058	mg/l	97%	-0,95
X	17,2		1,7	mg/l	98%	-0,48
Y	18,45	*	1,8	mg/l	105%	1,51
Z	18,0		1,6	mg/l	103%	0,79
AA	18,0		2,36	mg/l	103%	0,79
AB	17,5		1,8	mg/l	100%	0,00
AC	18,3		1,9	mg/l	105%	1,27
AD	22,0	*		mg/l	126%	7,14
AE	17,5		1,5	mg/l	100%	0,00
AF	17,5		2,1	mg/l	100%	0,00
AG	17,8		1	mg/l	102%	0,48
AH				mg/l		
AI	17,5		1,63	mg/l	100%	0,00
AJ	18,482	*	2,01	mg/l	106%	1,56
AK	17,1		1,71	mg/l	98%	-0,63
AL	17,65		1,059	mg/l	101%	0,24
AM	16,6		1,4	mg/l	95%	-1,43
AN				mg/l		
AO				mg/l		
AP	14,2	*	0,60	mg/l	81%	-5,24



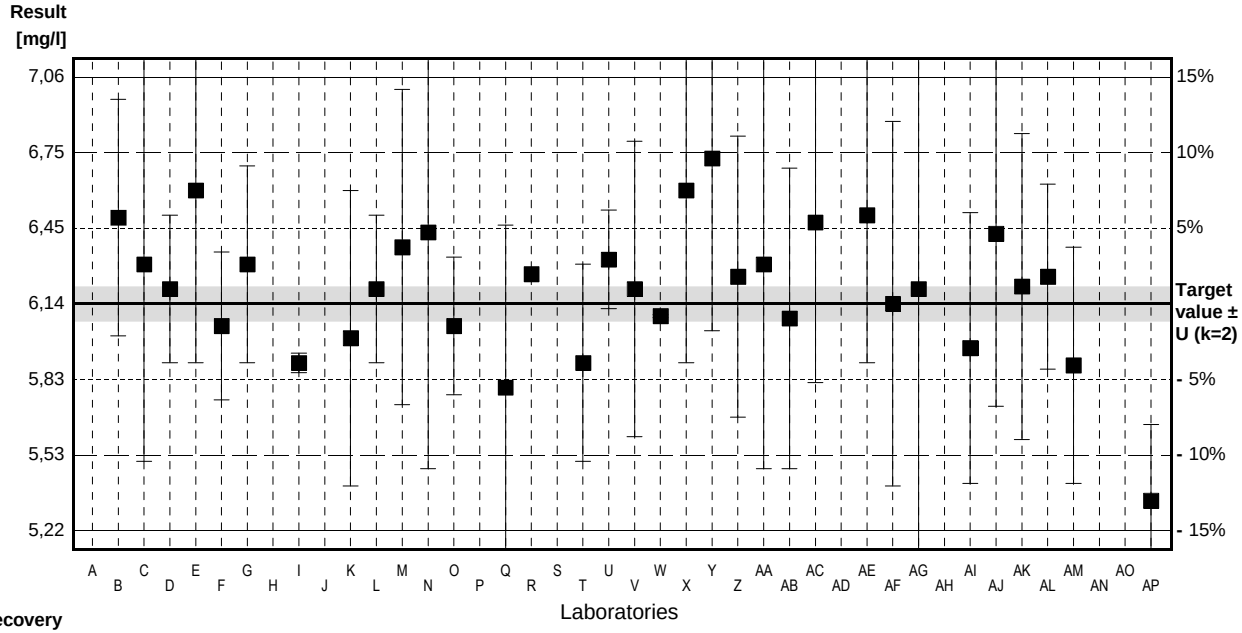


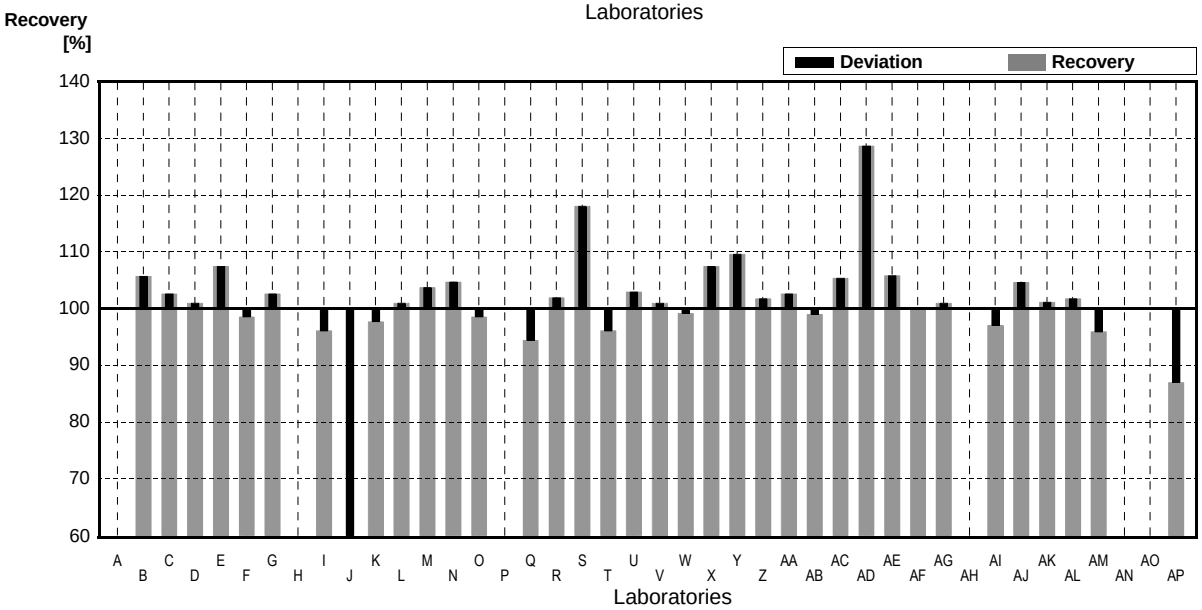
	All results	Outliers excl.	Unit
Mean ± CI(99%)	17,7 ± 0,6	17,5 ± 0,2	mg/l
Recov. ± CI(99%)	101,4 ± 3,4	100,1 ± 1,1	%
SD between labs	1,3	0,4	mg/l
RSD between labs	7,5	2,2	%
n for calculation	36	31	

Sample N149B
Parameter Magnesium

Target value ± U (k=2)	6,14	mg/l	±	0,07	mg/l
IFA result ± U (k=2)	6,53	mg/l	±	0,33	mg/l
Stability test ± U (k=2)	5,92	mg/l	±	0,30	mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A			mg/l		
B	6,49	0,48	mg/l	106%	1,58
C	6,30	0,8	mg/l	103%	0,72
D	6,2	0,3	mg/l	101%	0,27
E	6,6	0,7	mg/l	107%	2,08
F	6,05	0,30	mg/l	99%	-0,41
G	6,3	0,4	mg/l	103%	0,72
H			mg/l		
I	5,90	0,04	mg/l	96%	-1,09
J	3,65 *		mg/l	59%	-11,26
K	6,00	0,60	mg/l	98%	-0,63
L	6,2	0,3	mg/l	101%	0,27
M	6,37	0,64	mg/l	104%	1,04
N	6,43	0,96	mg/l	105%	1,31
O	6,05	0,28	mg/l	99%	-0,41
P			mg/l		
Q	5,80	0,659	mg/l	94%	-1,54
R	6,26		mg/l	102%	0,54
S	7,25 *	0,53	mg/l	118%	5,02
T	5,9	0,4	mg/l	96%	-1,09
U	6,32	0,2	mg/l	103%	0,81
V	6,2	0,6	mg/l	101%	0,27
W	6,09	0,006	mg/l	99%	-0,23
X	6,6	0,7	mg/l	107%	2,08
Y	6,73	0,7	mg/l	110%	2,67
Z	6,25	0,57	mg/l	102%	0,50
AA	6,3	0,83	mg/l	103%	0,72
AB	6,08	0,61	mg/l	99%	-0,27
AC	6,47	0,65	mg/l	105%	1,49
AD	7,9 *		mg/l	129%	7,96
AE	6,5	0,6	mg/l	106%	1,63
AF	6,14	0,74	mg/l	100%	0,00
AG	6,2	1	mg/l	101%	0,27
AH			mg/l		
AI	5,96	0,55	mg/l	97%	-0,81
AJ	6,424	0,70	mg/l	105%	1,28
AK	6,21	0,621	mg/l	101%	0,32
AL	6,25	0,375	mg/l	102%	0,50
AM	5,89	0,48	mg/l	96%	-1,13
AN			mg/l		
AO			mg/l		
AP	5,34 *	0,31	mg/l	87%	-3,62



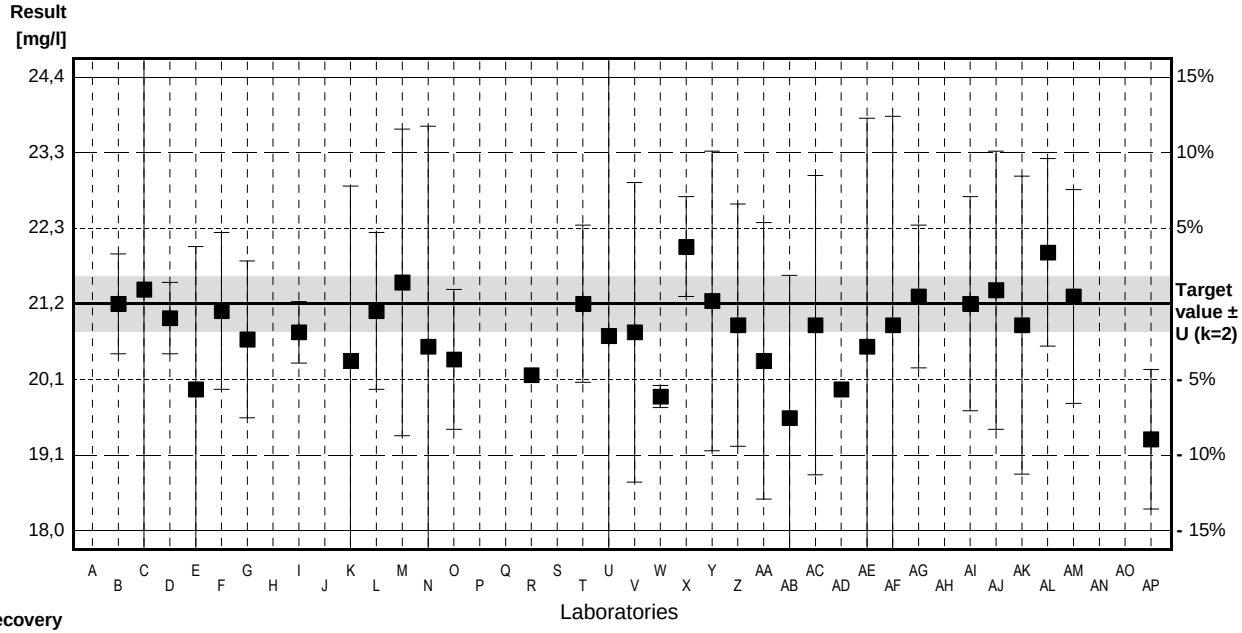


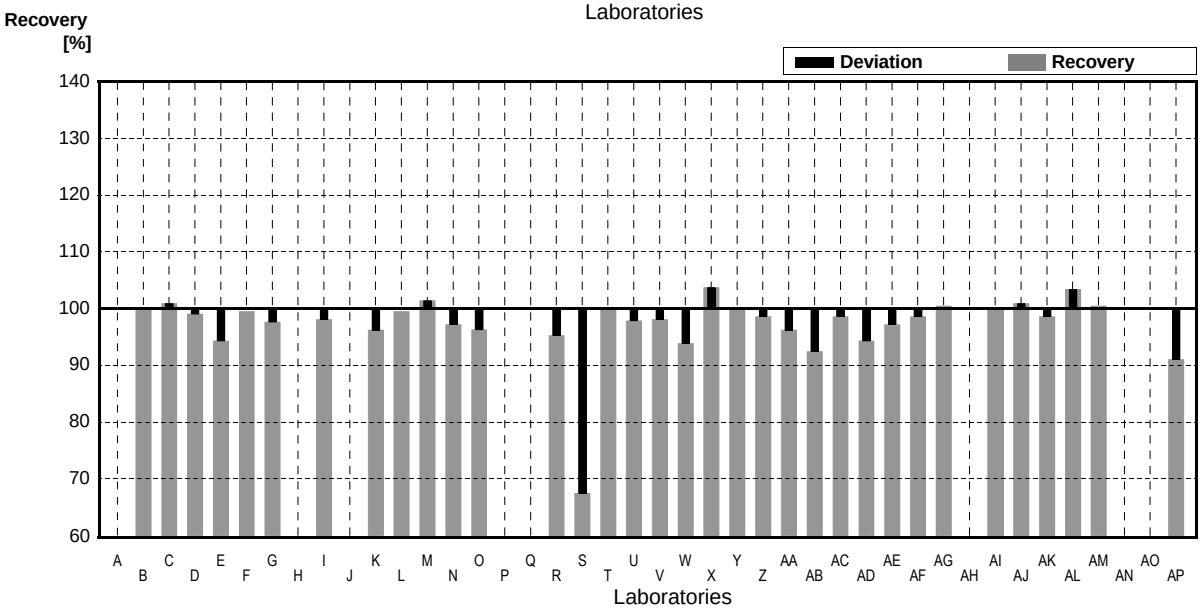
	All results	Outliers excl.	Unit
Mean ± CI(99%)	6,21 ± 0,28	6,23 ± 0,11	mg/l
Recov. ± CI(99%)	101,2 ± 4,5	101,5 ± 1,8	%
SD between labs	0,61	0,23	mg/l
RSD between labs	9,8	3,7	%
n for calculation	36	32	

Sample N149A
Parameter Sodium

Target value ± U (k=2)	21,2	mg/l	±	0,4	mg/l
IFA result ± U (k=2)	21,3	mg/l	±	1,5	mg/l
Stability test ± U (k=2)	22,9	mg/l	±	1,6	mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A			mg/l		
B	21,2	0,7	mg/l	100%	0,00
C	21,4	4	mg/l	101%	0,28
D	21,0	0,5	mg/l	99%	-0,28
E	20,0	2,0	mg/l	94%	-1,66
F	21,1	1,1	mg/l	100%	-0,14
G	20,7	1,1	mg/l	98%	-0,69
H			mg/l		
I	20,8	0,43	mg/l	98%	-0,55
J			mg/l		
K	20,4	2,45	mg/l	96%	-1,11
L	21,1	1,1	mg/l	100%	-0,14
M	21,5	2,15	mg/l	101%	0,42
N	20,6	3,09	mg/l	97%	-0,83
O	20,42	0,98	mg/l	96%	-1,08
P			mg/l		
Q			mg/l		
R	20,2		mg/l	95%	-1,39
S	14,3 *	0,51	mg/l	67%	-9,57
T	21,2	1,1	mg/l	100%	0,00
U	20,75	4	mg/l	98%	-0,62
V	20,8	2,1	mg/l	98%	-0,55
W	19,9	0,153	mg/l	94%	-1,80
X	22,0	0,7	mg/l	104%	1,11
Y	21,24	2,1	mg/l	100%	0,06
Z	20,9	1,7	mg/l	99%	-0,42
AA	20,4	1,94	mg/l	96%	-1,11
AB	19,6	2,0	mg/l	92%	-2,22
AC	20,9	2,1	mg/l	99%	-0,42
AD	20,0		mg/l	94%	-1,66
AE	20,6	3,2	mg/l	97%	-0,83
AF	20,9	2,93	mg/l	99%	-0,42
AG	21,3	1	mg/l	100%	0,14
AH			mg/l		
AI	21,2	1,50	mg/l	100%	0,00
AJ	21,390	1,95	mg/l	101%	0,26
AK	20,9	2,09	mg/l	99%	-0,42
AL	21,92	1,315	mg/l	103%	1,00
AM	21,3	1,5	mg/l	100%	0,14
AN			mg/l		
AO			mg/l		
AP	19,3	0,98	mg/l	91%	-2,64



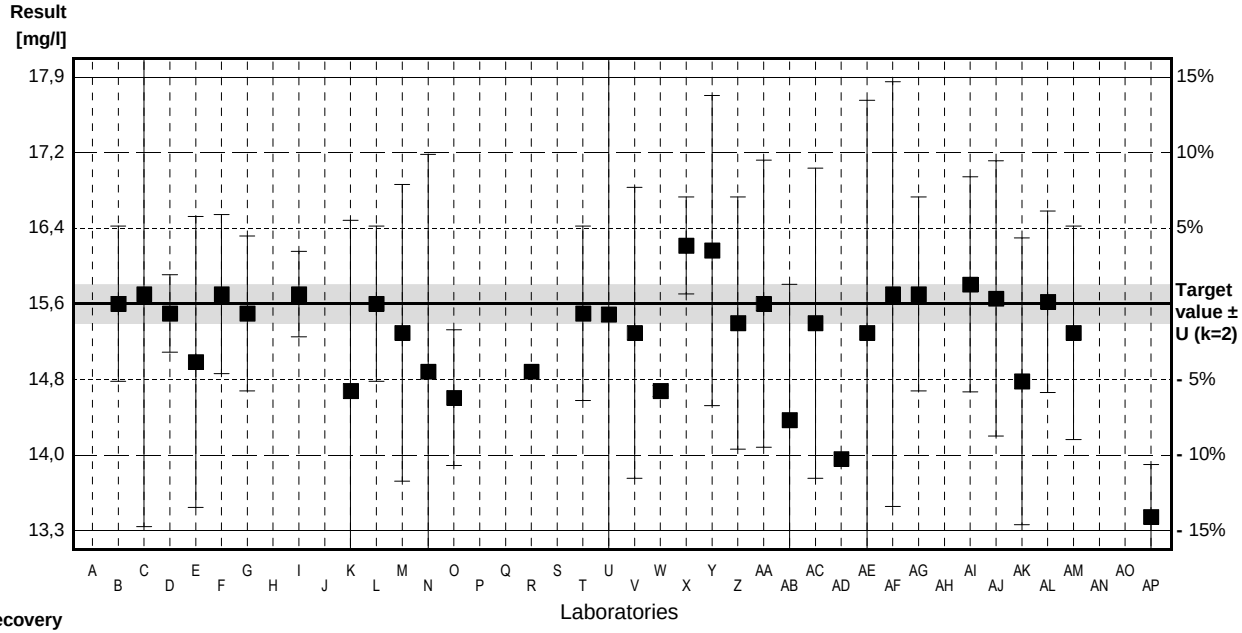


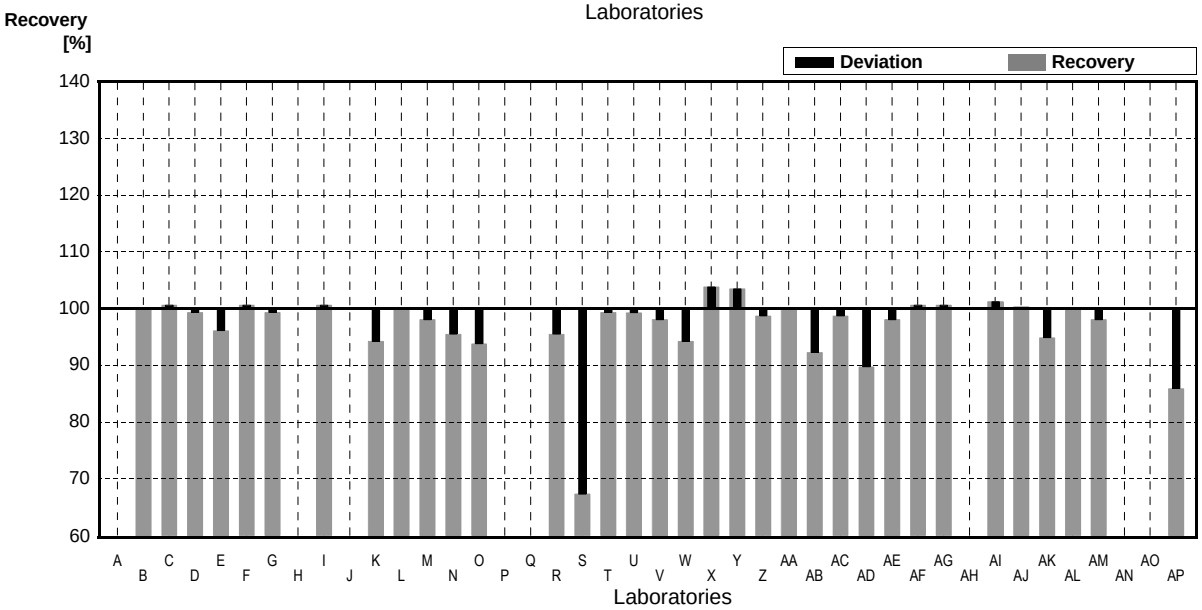
	All results	Outliers excl.	Unit
Mean ± CI(99%)	20,6 ± 0,6	20,8 ± 0,3	mg/l
Recov. ± CI(99%)	97,3 ± 2,8	98,2 ± 1,4	%
SD between labs	1,3	0,6	mg/l
RSD between labs	6,2	2,9	%
n for calculation	34	33	

Sample N149B
Parameter Sodium

Target value ± U (k=2)	15,6	mg/l	±	0,2	mg/l
IFA result ± U (k=2)	15,8	mg/l	±	1,1	mg/l
Stability test ± U (k=2)	16,0	mg/l	±	1,1	mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A			mg/l		
B	15,6	0,8	mg/l	100%	0,00
C	15,7	2,4	mg/l	101%	0,19
D	15,5	0,4	mg/l	99%	-0,19
E	15,0	1,5	mg/l	96%	-1,13
F	15,7	0,82	mg/l	101%	0,19
G	15,5	0,8	mg/l	99%	-0,19
H			mg/l		
I	15,7	0,44	mg/l	101%	0,19
J			mg/l		
K	14,7	1,76	mg/l	94%	-1,70
L	15,6	0,8	mg/l	100%	0,00
M	15,3	1,53	mg/l	98%	-0,57
N	14,9	2,24	mg/l	96%	-1,32
O	14,63	0,70	mg/l	94%	-1,83
P			mg/l		
Q			mg/l		
R	14,9		mg/l	96%	-1,32
S	10,5 *	0,51	mg/l	67%	-9,62
T	15,5	0,9	mg/l	99%	-0,19
U	15,49	3	mg/l	99%	-0,21
V	15,3	1,5	mg/l	98%	-0,57
W	14,7	0,058	mg/l	94%	-1,70
X	16,2	0,5	mg/l	104%	1,13
Y	16,15	1,6	mg/l	104%	1,04
Z	15,4	1,3	mg/l	99%	-0,38
AA	15,6	1,48	mg/l	100%	0,00
AB	14,4	1,4	mg/l	92%	-2,26
AC	15,4	1,6	mg/l	99%	-0,38
AD	14,0 *		mg/l	90%	-3,02
AE	15,3	2,4	mg/l	98%	-0,57
AF	15,7	2,19	mg/l	101%	0,19
AG	15,7	1	mg/l	101%	0,19
AH			mg/l		
AI	15,8	1,11	mg/l	101%	0,38
AJ	15,654	1,42	mg/l	100%	0,10
AK	14,8	1,48	mg/l	95%	-1,51
AL	15,62	0,937	mg/l	100%	0,04
AM	15,3	1,1	mg/l	98%	-0,57
AN			mg/l		
AO			mg/l		
AP	13,4 *	0,54	mg/l	86%	-4,15



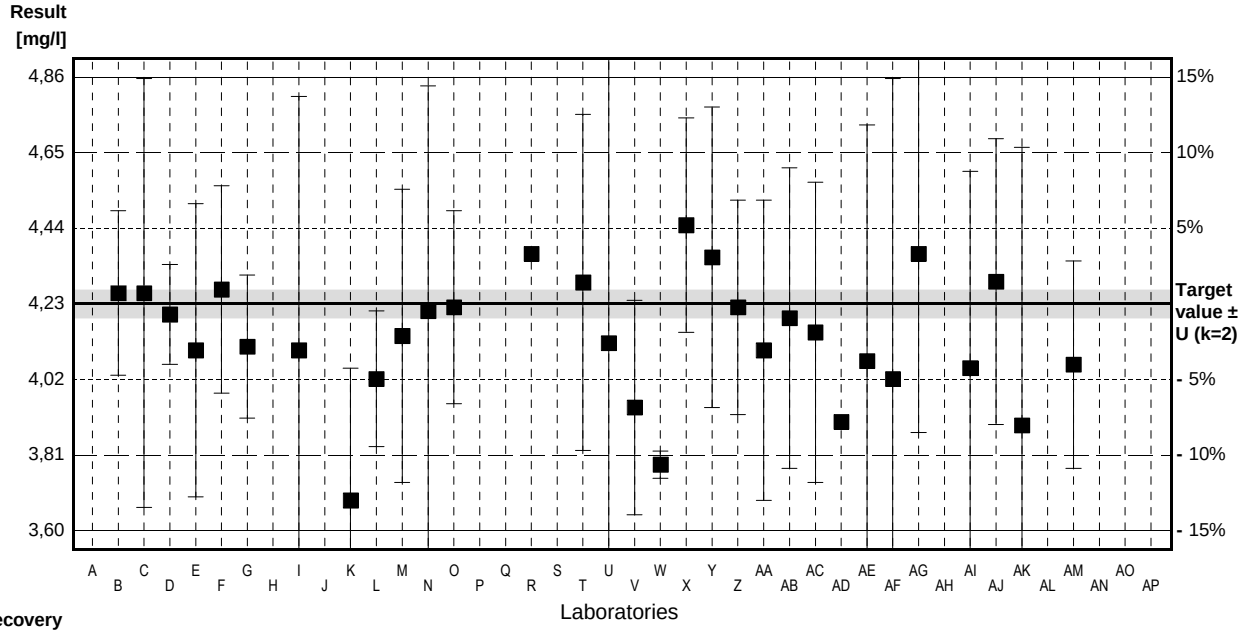


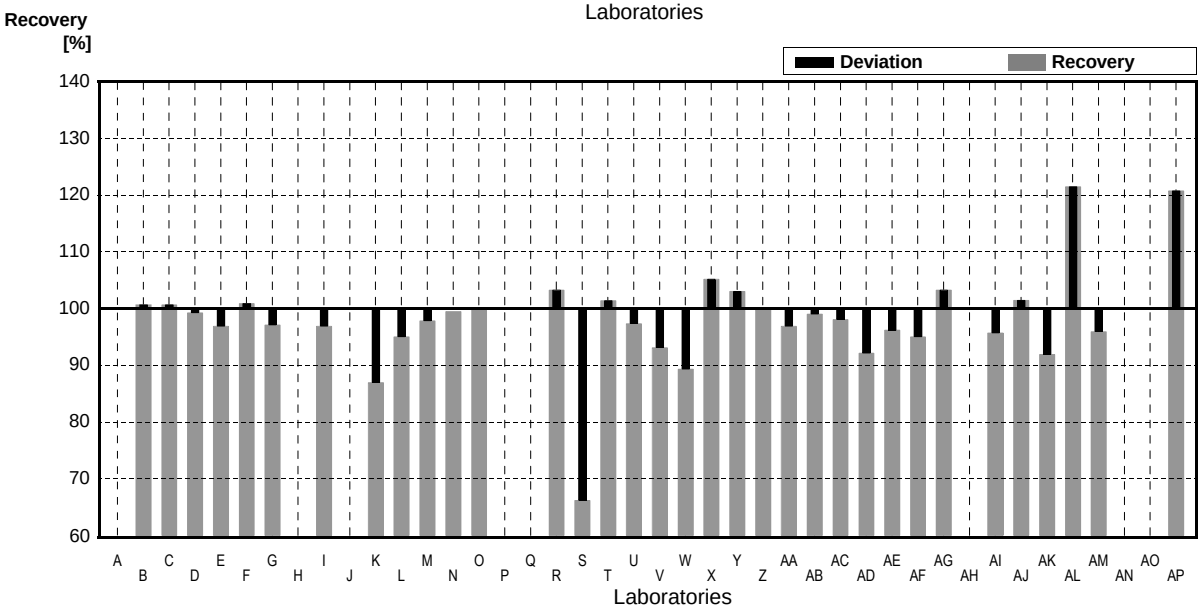
	All results	Outliers excl.	Unit
Mean ± CI(99%)	15,1 ± 0,5	15,4 ± 0,2	mg/l
Recov. ± CI(99%)	97,0 ± 3,0	98,6 ± 1,4	%
SD between labs	1,0	0,4	mg/l
RSD between labs	6,6	2,8	%
n for calculation	34	31	

Sample N149A
Parameter Potassium

Target value ± U (k=2)	4,23	mg/l	±	0,04	mg/l
IFA result ± U (k=2)	4,32	mg/l	±	0,26	mg/l
Stability test ± U (k=2)	4,12	mg/l	±	0,25	mg/l

Lab Code	Result		±	Unit	Recovery	z-Score
A				mg/l		
B	4,26		0,23	mg/l	101%	0,15
C	4,26		0,6	mg/l	101%	0,15
D	4,20		0,14	mg/l	99%	-0,15
E	4,10		0,41	mg/l	97%	-0,64
F	4,27		0,29	mg/l	101%	0,20
G	4,11		0,2	mg/l	97%	-0,59
H				mg/l		
I	4,10		0,71	mg/l	97%	-0,64
J				mg/l		
K	3,68		0,37	mg/l	87%	-2,71
L	4,02		0,19	mg/l	95%	-1,03
M	4,14		0,41	mg/l	98%	-0,44
N	4,21		0,63	mg/l	100%	-0,10
O	4,22		0,27	mg/l	100%	-0,05
P				mg/l		
Q				mg/l		
R	4,37			mg/l	103%	0,69
S	2,80	*	0,06	mg/l	66%	-7,04
T	4,29		0,47	mg/l	101%	0,30
U	4,12		0,8	mg/l	97%	-0,54
V	3,94		0,3	mg/l	93%	-1,43
W	3,78		0,038	mg/l	89%	-2,22
X	4,45		0,3	mg/l	105%	1,08
Y	4,36		0,42	mg/l	103%	0,64
Z	4,22		0,30	mg/l	100%	-0,05
AA	4,10		0,42	mg/l	97%	-0,64
AB	4,19		0,42	mg/l	99%	-0,20
AC	4,15		0,42	mg/l	98%	-0,39
AD	3,90			mg/l	92%	-1,63
AE	4,07		0,66	mg/l	96%	-0,79
AF	4,02		0,84	mg/l	95%	-1,03
AG	4,37		0,5	mg/l	103%	0,69
AH				mg/l		
AI	4,05		0,55	mg/l	96%	-0,89
AJ	4,292		0,40	mg/l	101%	0,31
AK	3,89		0,778	mg/l	92%	-1,67
AL	5,14	*	0,514	mg/l	122%	4,48
AM	4,06		0,29	mg/l	96%	-0,84
AN				mg/l		
AO				mg/l		
AP	5,11	*	0,30	mg/l	121%	4,33



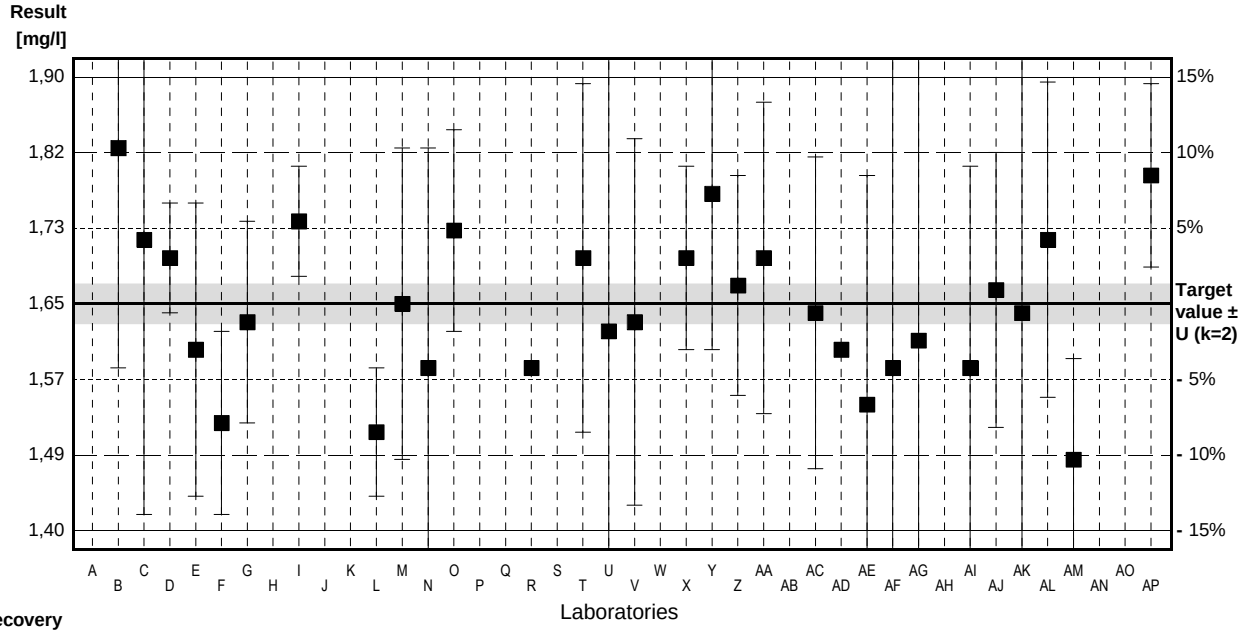


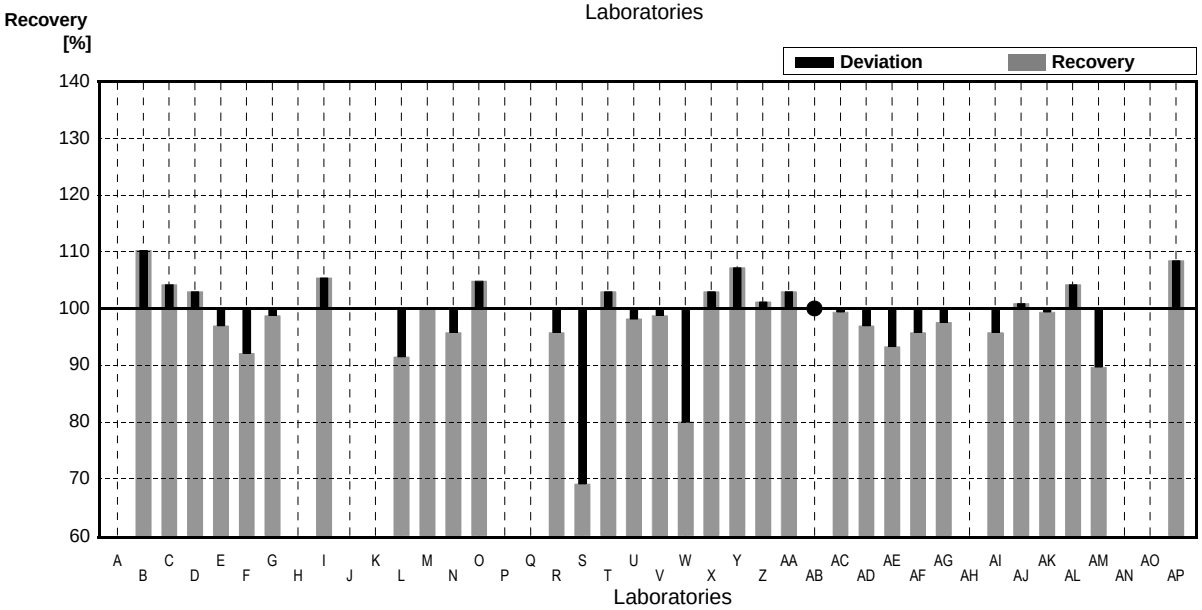
	All results	Outliers excl.	Unit
Mean ± CI(99%)	4,15 ± 0,18	4,14 ± 0,09	mg/l
Recov. ± CI(99%)	98,2 ± 4,2	97,8 ± 2,0	%
SD between labs	0,38	0,18	mg/l
RSD between labs	9,0	4,2	%
n for calculation	34	31	

Sample N149B
Parameter Potassium

Target value ± U (k=2)	1,65	mg/l	±	0,02	mg/l
IFA result ± U (k=2)	1,69	mg/l	±	0,10	mg/l
Stability test ± U (k=2)	1,61	mg/l	±	0,10	mg/l

Lab Code	Result		±	Unit	Recovery	z-Score
A				mg/l		
B	1,82		0,24	mg/l	110%	2,15
C	1,72		0,3	mg/l	104%	0,88
D	1,70		0,06	mg/l	103%	0,63
E	1,60		0,16	mg/l	97%	-0,63
F	1,52		0,10	mg/l	92%	-1,64
G	1,63		0,11	mg/l	99%	-0,25
H				mg/l		
I	1,74		0,06	mg/l	105%	1,14
J				mg/l		
K	n.n.			mg/l		
L	1,51		0,07	mg/l	92%	-1,77
M	1,65		0,17	mg/l	100%	0,00
N	1,58		0,24	mg/l	96%	-0,88
O	1,73		0,11	mg/l	105%	1,01
P				mg/l		
Q				mg/l		
R	1,58			mg/l	96%	-0,88
S	1,14	*	0,06	mg/l	69%	-6,44
T	1,70		0,19	mg/l	103%	0,63
U	1,62		0,4	mg/l	98%	-0,38
V	1,63		0,2	mg/l	99%	-0,25
W	1,32	*	0,012	mg/l	80%	-4,17
X	1,70		0,1	mg/l	103%	0,63
Y	1,77		0,17	mg/l	107%	1,52
Z	1,67		0,12	mg/l	101%	0,25
AA	1,70		0,17	mg/l	103%	0,63
AB	<2,00			mg/l	•	
AC	1,64		0,17	mg/l	99%	-0,13
AD	1,60			mg/l	97%	-0,63
AE	1,54		0,25	mg/l	93%	-1,39
AF	1,58		0,33	mg/l	96%	-0,88
AG	1,61		0,5	mg/l	98%	-0,51
AH				mg/l		
AI	1,58		0,22	mg/l	96%	-0,88
AJ	1,665		0,15	mg/l	101%	0,19
AK	1,64		0,329	mg/l	99%	-0,13
AL	1,72		0,172	mg/l	104%	0,88
AM	1,48		0,11	mg/l	90%	-2,15
AN				mg/l		
AO				mg/l		
AP	1,79		0,10	mg/l	108%	1,77



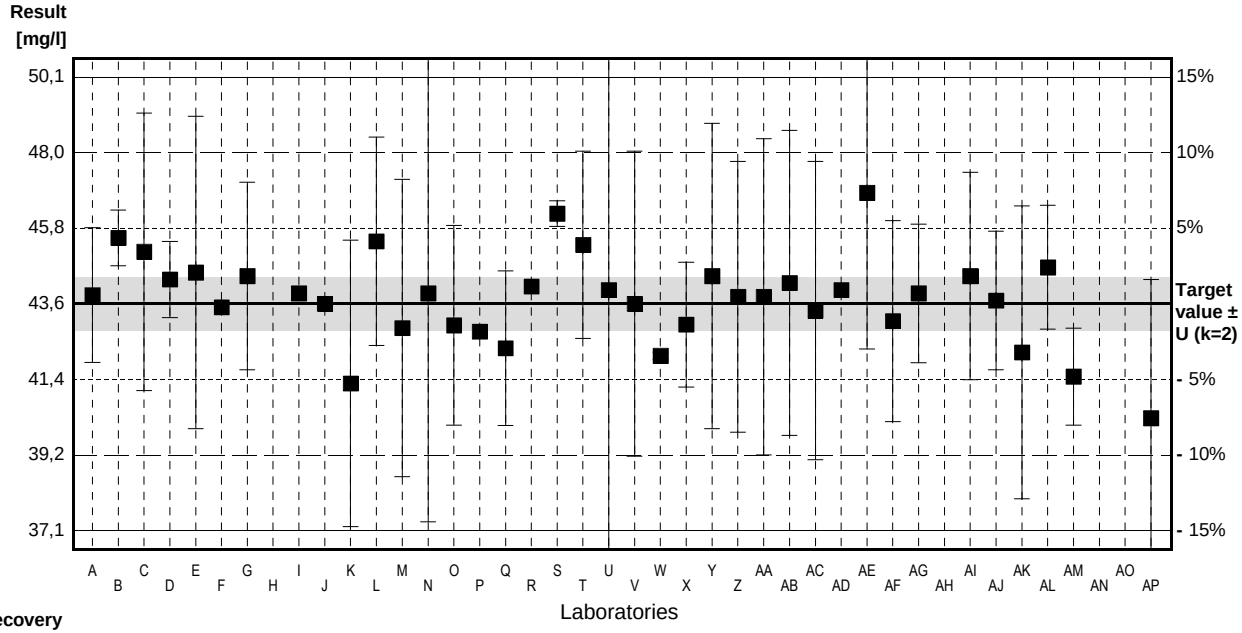


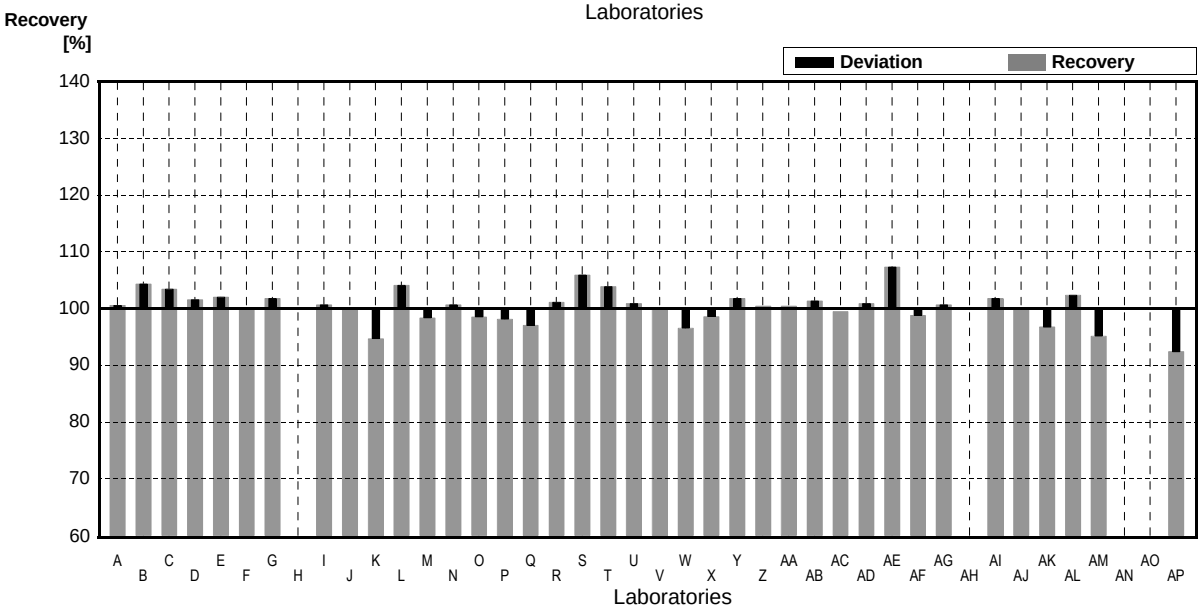
	All results	Outliers excl.	Unit
Mean ± CI(99%)	1,62 ± 0,06	1,65 ± 0,04	mg/l
Recov. ± CI(99%)	98,2 ± 3,9	99,8 ± 2,6	%
SD between labs	0,13	0,08	mg/l
RSD between labs	8,2	5,1	%
n for calculation	32	30	

Sample N149A
Parameter Nitrate

Target value ± U (k=2)	43,6	mg/l	±	0,8	mg/l
IFA result ± U (k=2)	42,9	mg/l	±	2,1	mg/l
Stability test ± U (k=2)	42,5	mg/l	±	2,1	mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	43,85	1,942	mg/l	101%	0,16
B	45,5	0,8	mg/l	104%	1,25
C	45,1	4	mg/l	103%	0,98
D	44,3	1,1	mg/l	102%	0,46
E	44,5	4,5	mg/l	102%	0,59
F	43,5		mg/l	100%	-0,07
G	44,4	2,7	mg/l	102%	0,52
H			mg/l		
I	43,9	0,19	mg/l	101%	0,20
J	43,6		mg/l	100%	0,00
K	41,3	4,13	mg/l	95%	-1,51
L	45,4	3,0	mg/l	104%	1,18
M	42,9	4,29	mg/l	98%	-0,46
N	43,9	6,59	mg/l	101%	0,20
O	42,98	2,88	mg/l	99%	-0,41
P	42,8		mg/l	98%	-0,52
Q	42,317	2,228	mg/l	97%	-0,84
R	44,1		mg/l	101%	0,33
S	46,2	0,37	mg/l	106%	1,70
T	45,3	2,7	mg/l	104%	1,11
U	44,0	10	mg/l	101%	0,26
V	43,6	4,4	mg/l	100%	0,00
W	42,1	0,100	mg/l	97%	-0,98
X	43,0	1,8	mg/l	99%	-0,39
Y	44,40	4,4	mg/l	102%	0,52
Z	43,8	3,9	mg/l	100%	0,13
AA	43,8	4,56	mg/l	100%	0,13
AB	44,2	4,4	mg/l	101%	0,39
AC	43,4	4,3	mg/l	100%	-0,13
AD	44,0		mg/l	101%	0,26
AE	46,8 *	4,5	mg/l	107%	2,10
AF	43,1	2,90	mg/l	99%	-0,33
AG	43,9	2	mg/l	101%	0,20
AH			mg/l		
AI	44,4	2,99	mg/l	102%	0,52
AJ	43,694	2,0	mg/l	100%	0,06
AK	42,2	4,22	mg/l	97%	-0,92
AL	44,649	1,7859	mg/l	102%	0,69
AM	41,5	1,4	mg/l	95%	-1,38
AN			mg/l		
AO			mg/l		
AP	40,3 *	4,0	mg/l	92%	-2,16



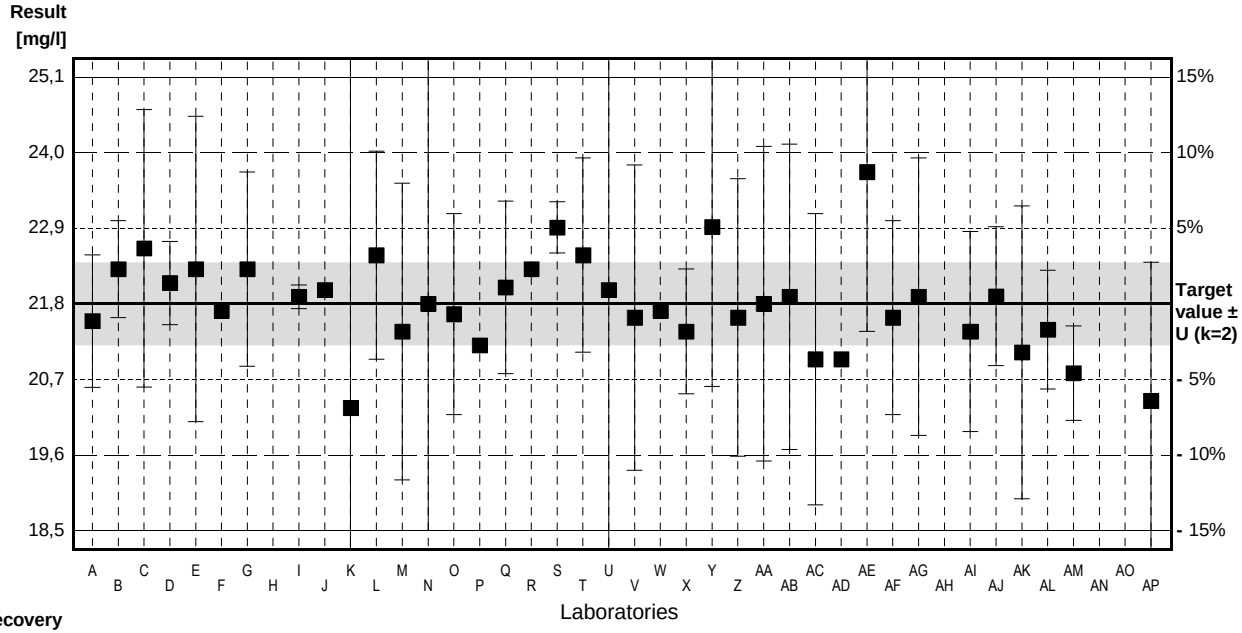


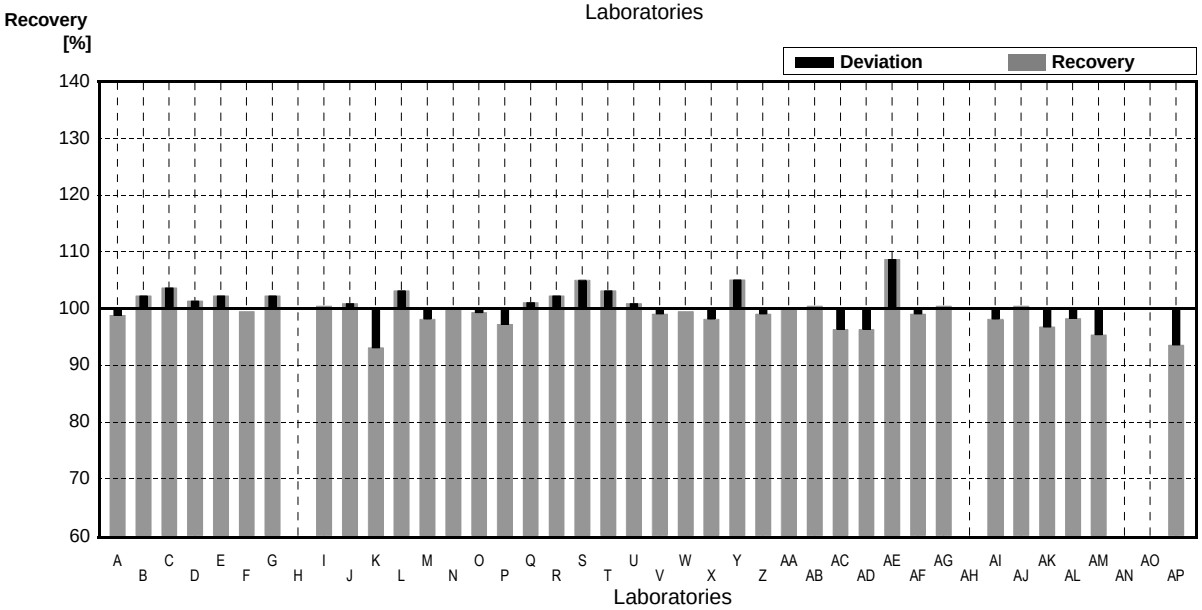
	All results	Outliers excl.	Unit
Mean ± CI(99%)	43,8 ± 0,6	43,8 ± 0,5	mg/l
Recov. ± CI(99%)	100,4 ± 1,3	100,4 ± 1,1	%
SD between labs	1,3	1,1	mg/l
RSD between labs	3,0	2,5	%
n for calculation	38	36	

Sample N149B
Parameter Nitrate

Target value ± U (k=2)	21,8	mg/l	±	0,6	mg/l
IFA result ± U (k=2)	21,6	mg/l	±	1,1	mg/l
Stability test ± U (k=2)	21,4	mg/l	±	1,1	mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	21,55	0,955	mg/l	99%	-0,33
B	22,3	0,7	mg/l	102%	0,66
C	22,6	2	mg/l	104%	1,05
D	22,1	0,6	mg/l	101%	0,39
E	22,3	2,2	mg/l	102%	0,66
F	21,7		mg/l	100%	-0,13
G	22,3	1,4	mg/l	102%	0,66
H			mg/l		
I	21,9	0,17	mg/l	100%	0,13
J	22,0		mg/l	101%	0,26
K	20,3	20,3	mg/l	93%	-1,97
L	22,5	1,5	mg/l	103%	0,92
M	21,4	2,14	mg/l	98%	-0,52
N	21,8	3,27	mg/l	100%	0,00
O	21,65	1,45	mg/l	99%	-0,20
P	21,2		mg/l	97%	-0,79
Q	22,037	1,243	mg/l	101%	0,31
R	22,3		mg/l	102%	0,66
S	22,9	0,37	mg/l	105%	1,44
T	22,5	1,4	mg/l	103%	0,92
U	22,0	5	mg/l	101%	0,26
V	21,6	2,2	mg/l	99%	-0,26
W	21,7	0,058	mg/l	100%	-0,13
X	21,4	0,9	mg/l	98%	-0,52
Y	22,91	2,3	mg/l	105%	1,45
Z	21,6	2,0	mg/l	99%	-0,26
AA	21,8	2,27	mg/l	100%	0,00
AB	21,9	2,2	mg/l	100%	0,13
AC	21,0	2,1	mg/l	96%	-1,05
AD	21,0		mg/l	96%	-1,05
AE	23,7 *	2,3	mg/l	109%	2,49
AF	21,6	1,4	mg/l	99%	-0,26
AG	21,9	2	mg/l	100%	0,13
AH			mg/l		
AI	21,4	1,44	mg/l	98%	-0,52
AJ	21,908	1,0	mg/l	100%	0,14
AK	21,1	2,11	mg/l	97%	-0,92
AL	21,426	0,857	mg/l	98%	-0,49
AM	20,8	0,68	mg/l	95%	-1,31
AN			mg/l		
AO			mg/l		
AP	20,4	2,0	mg/l	94%	-1,83



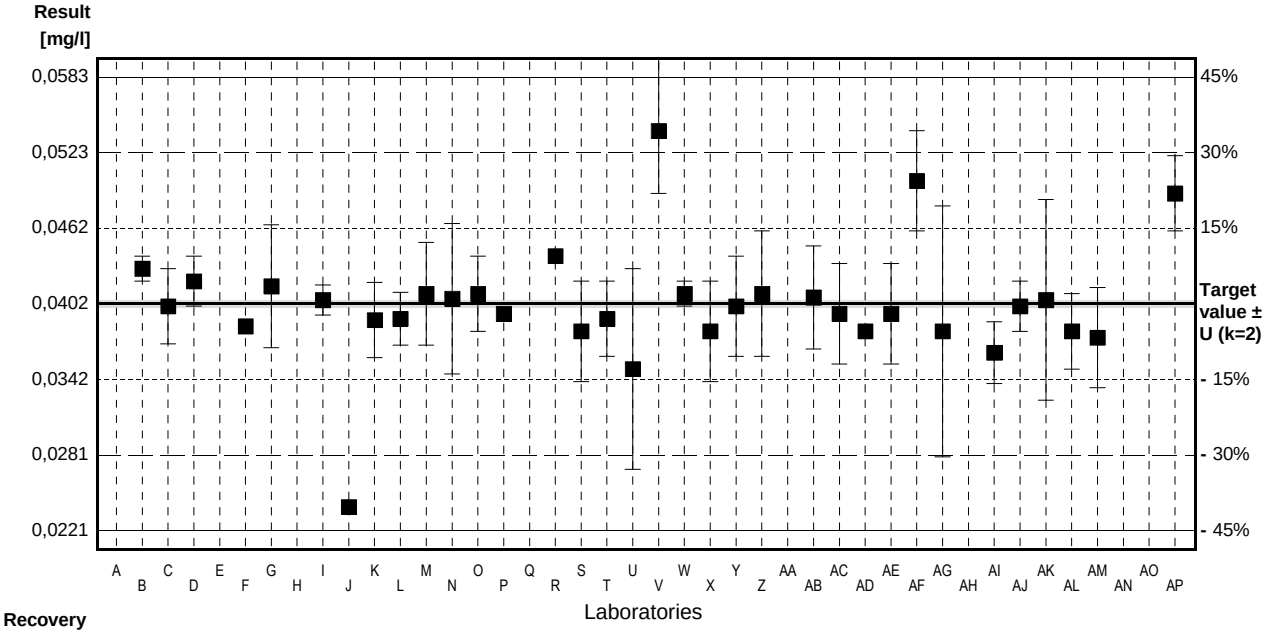


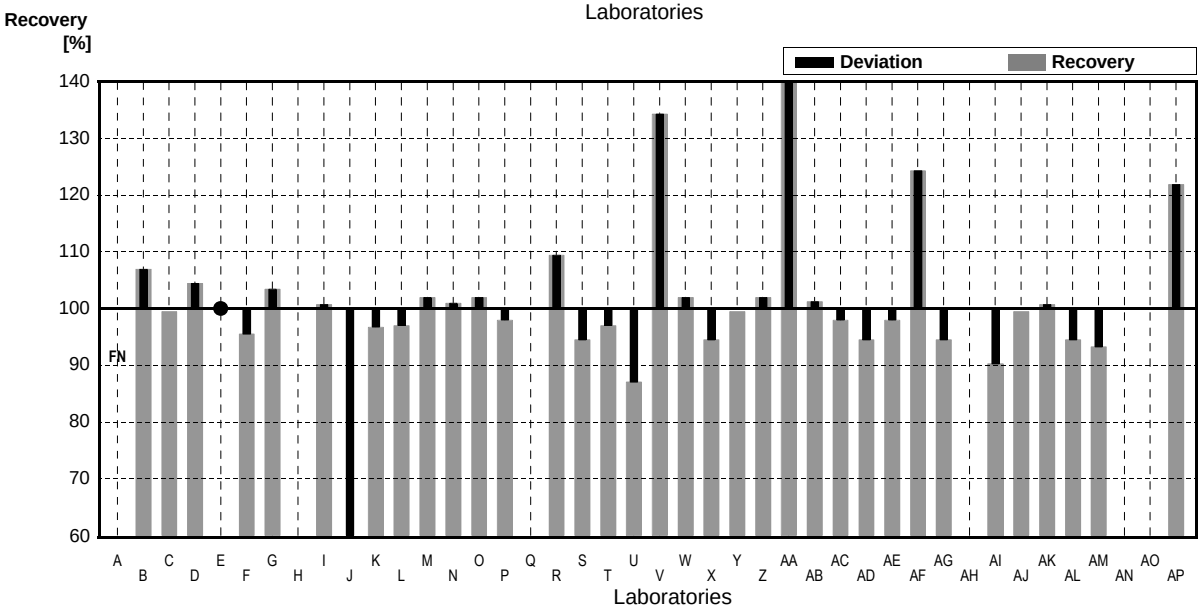
	All results	Outliers excl.	Unit
Mean ± CI(99%)	21,8 ± 0,3	21,8 ± 0,3	mg/l
Recov. ± CI(99%)	100,0 ± 1,4	99,8 ± 1,3	%
SD between labs	0,7	0,6	mg/l
RSD between labs	3,1	2,8	%
n for calculation	38	37	

Sample N149A
Parameter Nitrite

Target value ± U (k=2)	0,0402	mg/l	±	0,0003	mg/l
IFA result ± U (k=2)	0,0388	mg/l	±	0,0019	mg/l
Stability test ± U (k=2)	0,0393	mg/l	±	0,0020	mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	<0,016		mg/l	FN	
B	0,0430	0,001	mg/l	107%	1,24
C	0,0400	0,003	mg/l	100%	-0,09
D	0,0420	0,002	mg/l	104%	0,80
E	<0,04	0,008	mg/l	•	
F	0,0384		mg/l	96%	-0,80
G	0,0416	0,0049	mg/l	103%	0,62
H			mg/l		
I	0,0405	0,0012	mg/l	101%	0,13
J	0,0240 *		mg/l	60%	-7,20
K	0,0389	0,003	mg/l	97%	-0,58
L	0,0390	0,0021	mg/l	97%	-0,53
M	0,0410	0,0041	mg/l	102%	0,36
N	0,0406	0,006	mg/l	101%	0,18
O	0,0410	0,003	mg/l	102%	0,36
P	0,0394		mg/l	98%	-0,36
Q			mg/l		
R	0,0440		mg/l	109%	1,69
S	0,0380	0,004	mg/l	95%	-0,98
T	0,0390	0,003	mg/l	97%	-0,53
U	0,0350	0,008	mg/l	87%	-2,31
V	0,054 *	0,005	mg/l	134%	6,13
W	0,0410	0,001	mg/l	102%	0,36
X	0,0380	0,004	mg/l	95%	-0,98
Y	0,0400	0,004	mg/l	100%	-0,09
Z	0,0410	0,005	mg/l	102%	0,36
AA	0,384 *	0,094	mg/l	955%	152,72
AB	0,0407	0,0041	mg/l	101%	0,22
AC	0,0394	0,004	mg/l	98%	-0,36
AD	0,0380		mg/l	95%	-0,98
AE	0,0394	0,004	mg/l	98%	-0,36
AF	0,050 *	0,004	mg/l	124%	4,35
AG	0,0380	0,01	mg/l	95%	-0,98
AH			mg/l		
AI	0,0363	0,00245	mg/l	90%	-1,73
AJ	0,0400	0,002	mg/l	100%	-0,09
AK	0,0405	0,008	mg/l	101%	0,13
AL	0,0380	0,0030	mg/l	95%	-0,98
AM	0,0375	0,004	mg/l	93%	-1,20
AN			mg/l		
AO			mg/l		
AP	0,0490 *	0,003	mg/l	122%	3,91



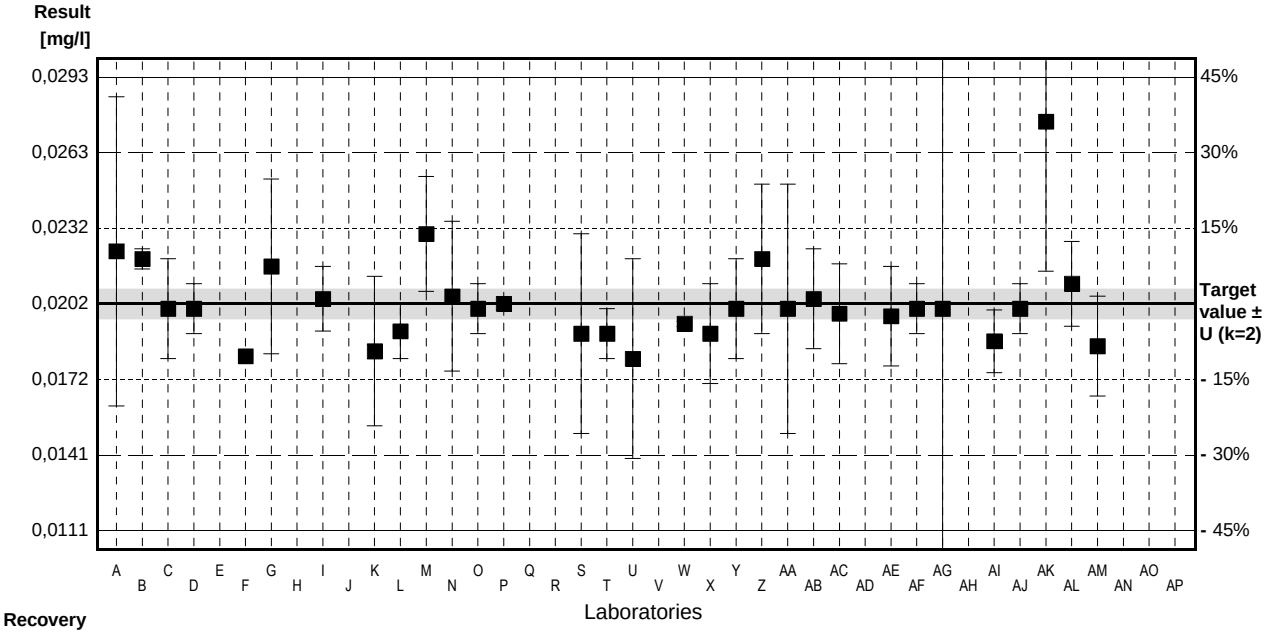


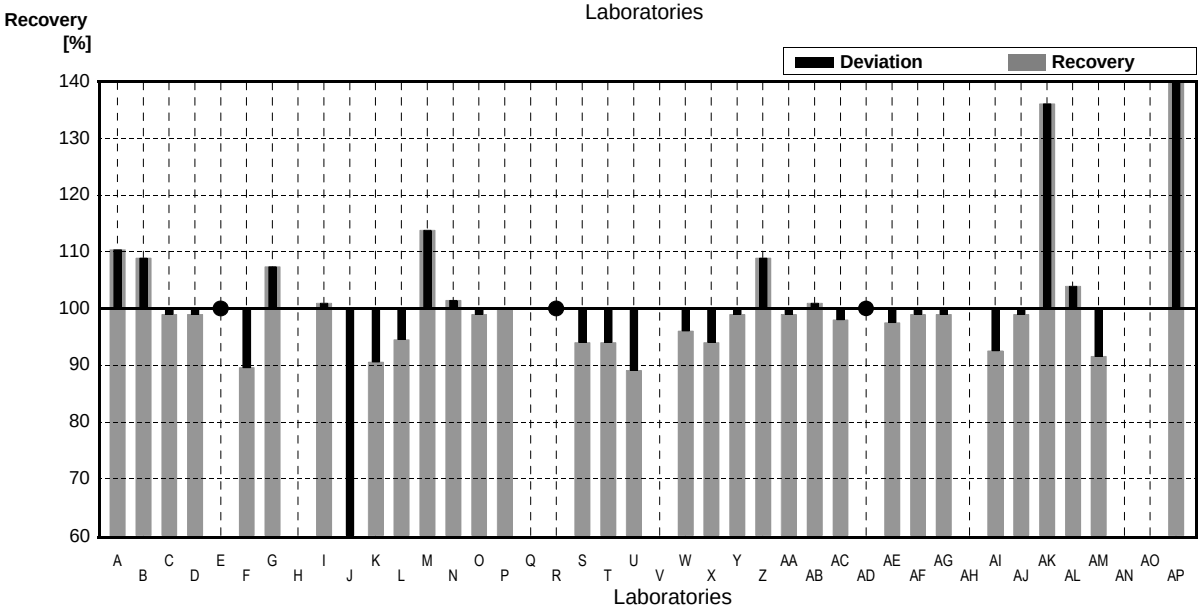
	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,0500 ± 0,0269	0,0396 ± 0,0010	mg/l
Recov. ± CI(99%)	124,4 ± 66,9	98,6 ± 2,4	%
SD between labs	0,0583	0,0019	mg/l
RSD between labs	116,6	4,8	%
n for calculation	35	30	

Sample N149B
Parameter Nitrite

Target value ± U (k=2)	0,0202	mg/l	±	0,0006	mg/l
IFA result ± U (k=2)	0,0192	mg/l	±	0,0010	mg/l
Stability test ± U (k=2)	0,0198	mg/l	±	0,0010	mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	0,0223	0,0062	mg/l	110%	1,86
B	0,0220	0,0004	mg/l	109%	1,59
C	0,0200	0,002	mg/l	99%	-0,18
D	0,0200	0,001	mg/l	99%	-0,18
E	<0,04		mg/l	•	
F	0,0181		mg/l	90%	-1,86
G	0,0217	0,0035	mg/l	107%	1,33
H			mg/l		
I	0,0204	0,0013	mg/l	101%	0,18
J	0,0060 *		mg/l	30%	-12,55
K	0,0183	0,003	mg/l	91%	-1,68
L	0,0191	0,0011	mg/l	95%	-0,97
M	0,0230	0,0023	mg/l	114%	2,48
N	0,0205	0,003	mg/l	101%	0,27
O	0,0200	0,001	mg/l	99%	-0,18
P	0,0202		mg/l	100%	0,00
Q			mg/l		
R	<0,03		mg/l	•	
S	0,0190	0,004	mg/l	94%	-1,06
T	0,0190	0,001	mg/l	94%	-1,06
U	0,0180	0,004	mg/l	89%	-1,94
V			mg/l		
W	0,0194	0,0001	mg/l	96%	-0,71
X	0,0190	0,002	mg/l	94%	-1,06
Y	0,0200	0,002	mg/l	99%	-0,18
Z	0,0220	0,003	mg/l	109%	1,59
AA	0,0200	0,005	mg/l	99%	-0,18
AB	0,0204	0,0020	mg/l	101%	0,18
AC	0,0198	0,002	mg/l	98%	-0,35
AD	<0,020		mg/l	•	
AE	0,0197	0,002	mg/l	98%	-0,44
AF	0,0200	0,001	mg/l	99%	-0,18
AG	0,0200	0,01	mg/l	99%	-0,18
AH			mg/l		
AI	0,0187	0,00126	mg/l	93%	-1,33
AJ	0,0200	0,001	mg/l	99%	-0,18
AK	0,0275 *	0,006	mg/l	136%	6,45
AL	0,0210	0,0017	mg/l	104%	0,71
AM	0,0185	0,002	mg/l	92%	-1,50
AN			mg/l		
AO			mg/l		
AP	0,0300 *	0,002	mg/l	149%	8,66





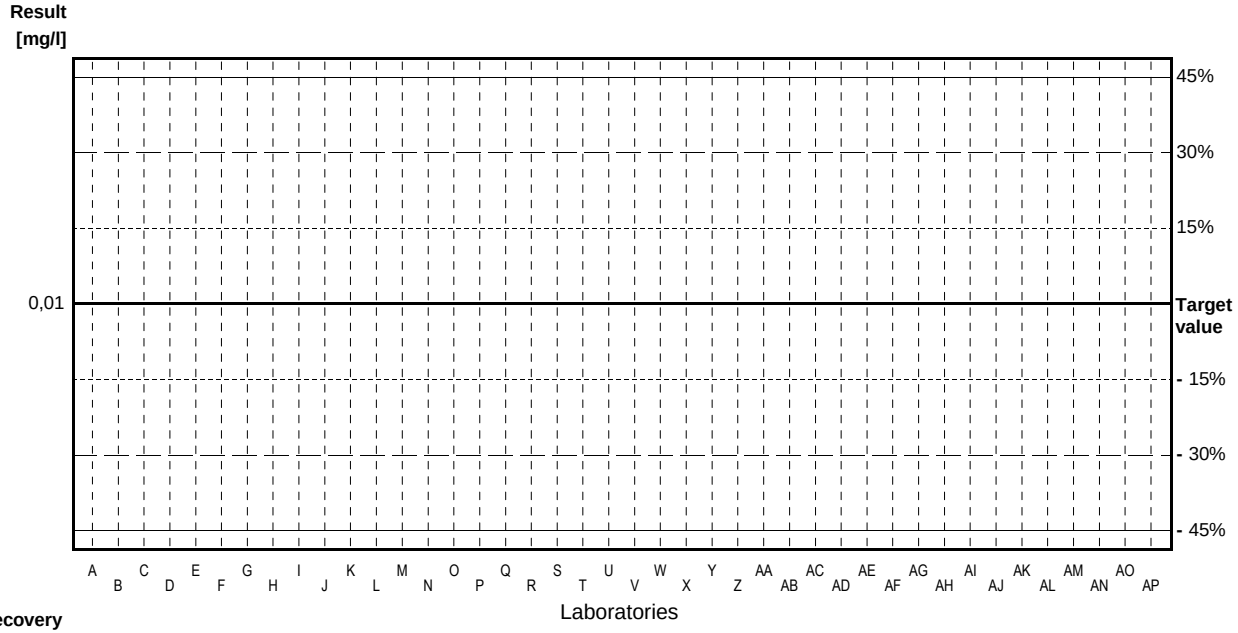
	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,0201 ± 0,0017	0,0200 ± 0,0006	mg/l
Recov. ± CI(99%)	99,5 ± 8,3	99,0 ± 3,1	%
SD between labs	0,0035	0,0013	mg/l
RSD between labs	17,5	6,3	%
n for calculation	33	30	

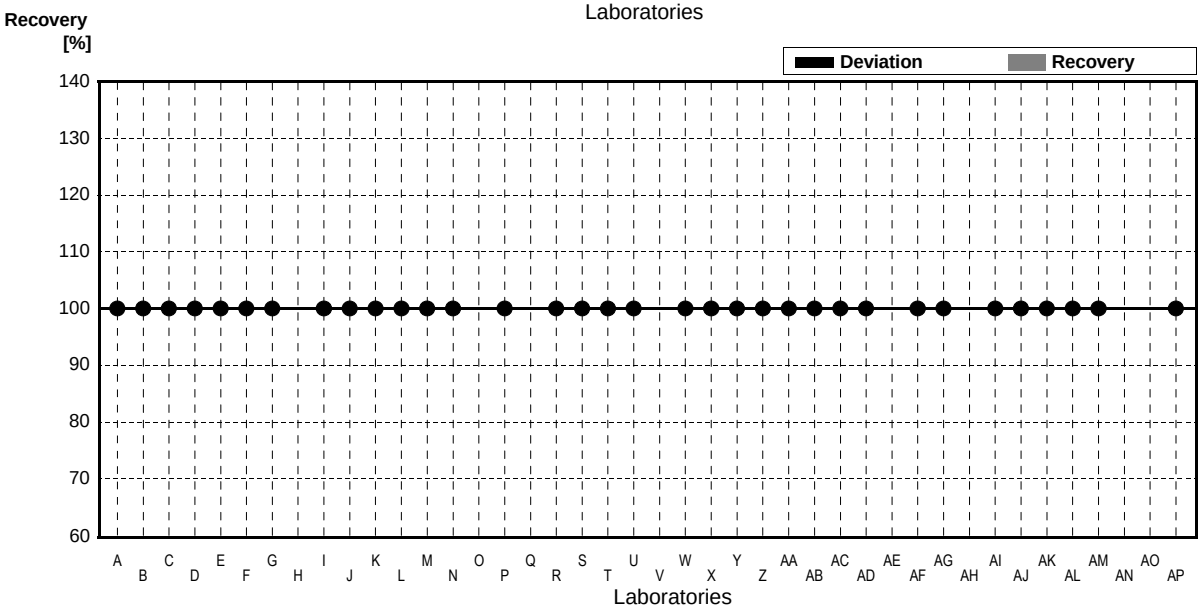
Sample N149A

Parameter Ammonium

Target value	<0,01	mg/l
IFA result	<0,01	mg/l
Stability test	<0,01	mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	<0,012		mg/l	•	
B	<0,01		mg/l	•	
C	<0,013		mg/l	•	
D	<0,01		mg/l	•	
E	<0,025		mg/l	•	
F	<0,04		mg/l	•	
G	<0,010		mg/l	•	
H			mg/l		
I	[0,002]		mg/l	•	
J	<0,06		mg/l	•	
K	<0,0300	0,024	mg/l	•	
L	<0,02		mg/l	•	
M	<0,010		mg/l	•	
N	<0,04		mg/l	•	
O			mg/l		
P	<0,005		mg/l	•	
Q			mg/l		
R	<0,02		mg/l	•	
S	<0,01	0,002	mg/l	•	
T	<0,02	0,01	mg/l	•	
U	<0,01		mg/l	•	
V			mg/l		
W	<0,010		mg/l	•	
X	<0,01	0,003	mg/l	•	
Y	<0,0026		mg/l	•	
Z	<0,008		mg/l	•	
AA	<0,050		mg/l	•	
AB	<0,064		mg/l	•	
AC	<0,010		mg/l	•	
AD	<0,042		mg/l	•	
AE			mg/l		
AF	<0,05	0,010	mg/l	•	
AG	<0,020		mg/l	•	
AH			mg/l		
AI	<0,02	0,003	mg/l	•	
AJ	<0,025		mg/l	•	
AK	<0,009		mg/l	•	
AL	<0,0006		mg/l	•	
AM	<0,01		mg/l	•	
AN			mg/l		
AO			mg/l		
AP	<0,03	0,0028	mg/l	•	





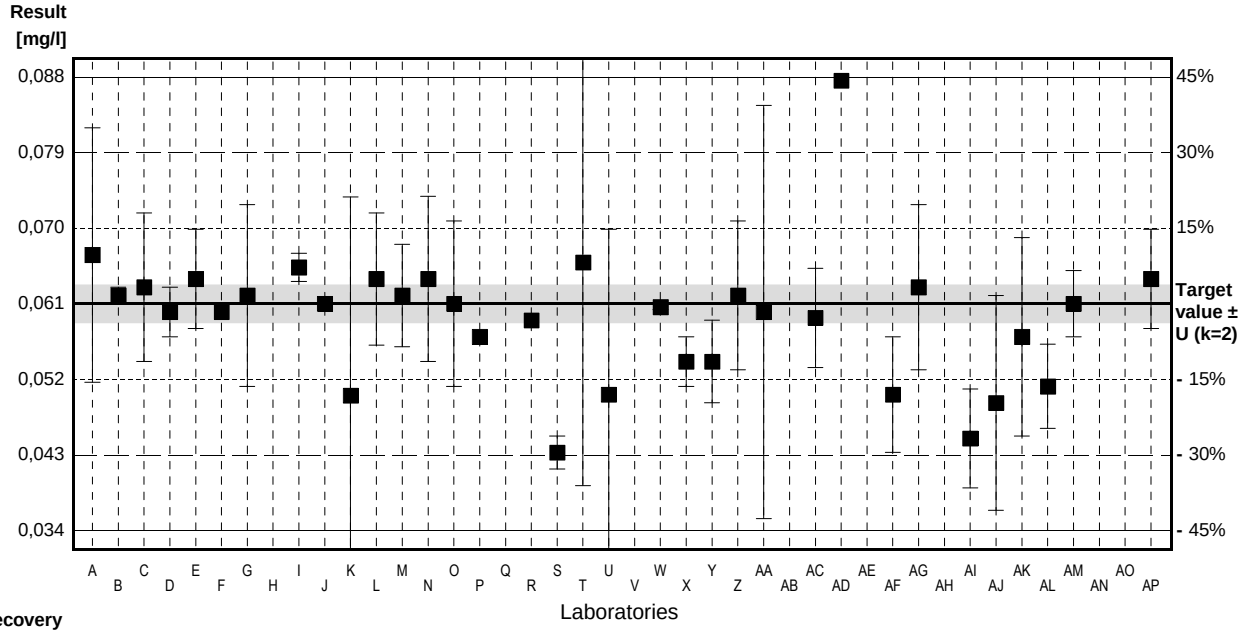
	All results	Outliers excl.	Unit
Mean ± CI(99%)			mg/l
Recov. ± CI(99%)			%
SD between labs			mg/l
RSD between labs			%
n for calculation			

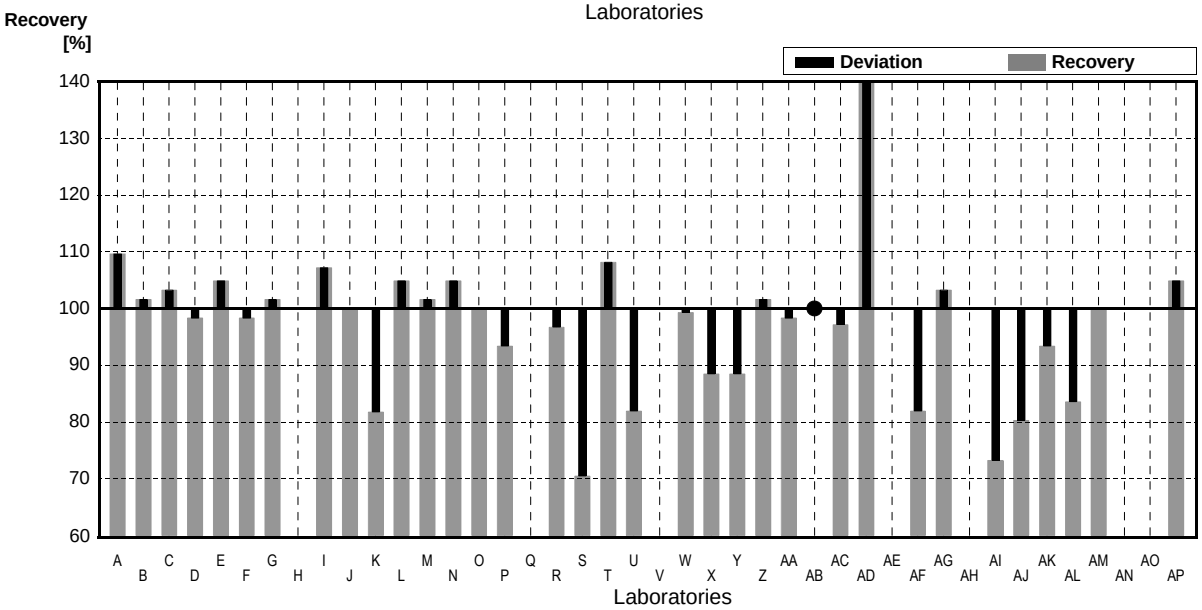
Sample N149B

Parameter Ammonium

Target value	± U (k=2)	0,061	mg/l	±	0,002 mg/l
IFA result	± U (k=2)	0,060	mg/l	±	0,004 mg/l
Stability test	± U (k=2)	0,061	mg/l	±	0,004 mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	0,0669	0,0154	mg/l	110%	0,74
B	0,062	0,001	mg/l	102%	0,13
C	0,063	0,009	mg/l	103%	0,25
D	0,060	0,003	mg/l	98%	-0,13
E	0,064	0,006	mg/l	105%	0,38
F	0,060		mg/l	98%	-0,13
G	0,062	0,011	mg/l	102%	0,13
H			mg/l		
I	0,0654	0,0017	mg/l	107%	0,55
J	0,061		mg/l	100%	0,00
K	0,0499	0,024	mg/l	82%	-1,40
L	0,064	0,008	mg/l	105%	0,38
M	0,062	0,0062	mg/l	102%	0,13
N	0,064	0,01	mg/l	105%	0,38
O	0,0610	0,010	mg/l	100%	0,00
P	0,057		mg/l	93%	-0,50
Q			mg/l		
R	0,059		mg/l	97%	-0,25
S	0,0430 *	0,002	mg/l	70%	-2,27
T	0,066	0,027	mg/l	108%	0,63
U	0,050	0,02	mg/l	82%	-1,39
V			mg/l		
W	0,0606	0,0003	mg/l	99%	-0,05
X	0,054	0,003	mg/l	89%	-0,88
Y	0,054	0,005	mg/l	89%	-0,88
Z	0,062	0,009	mg/l	102%	0,13
AA	0,060	0,025	mg/l	98%	-0,13
AB	<0,064		mg/l	•	
AC	0,0593	0,006	mg/l	97%	-0,21
AD	0,088 *		mg/l	144%	3,40
AE			mg/l		
AF	0,050	0,007	mg/l	82%	-1,39
AG	0,063	0,01	mg/l	103%	0,25
AH			mg/l		
AI	0,0447 *	0,006	mg/l	73%	-2,06
AJ	0,0490	0,013	mg/l	80%	-1,51
AK	0,057	0,012	mg/l	93%	-0,50
AL	0,05100	0,00510	mg/l	84%	-1,26
AM	0,061	0,004	mg/l	100%	0,00
AN			mg/l		
AO			mg/l		
AP	0,064	0,006	mg/l	105%	0,38



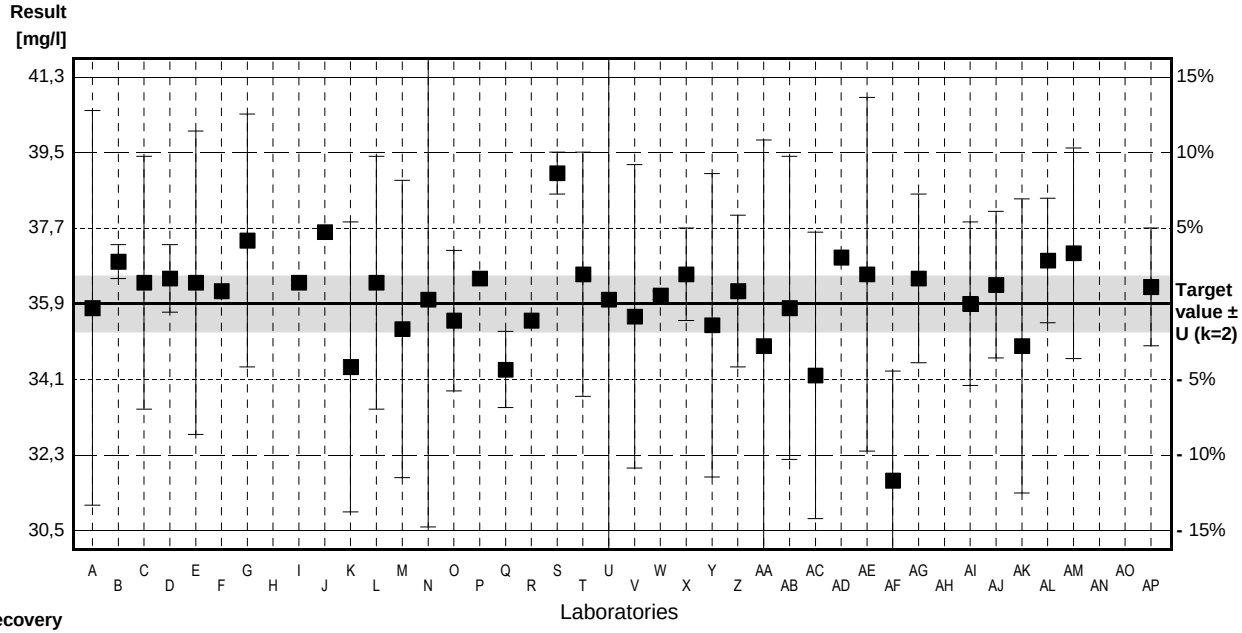


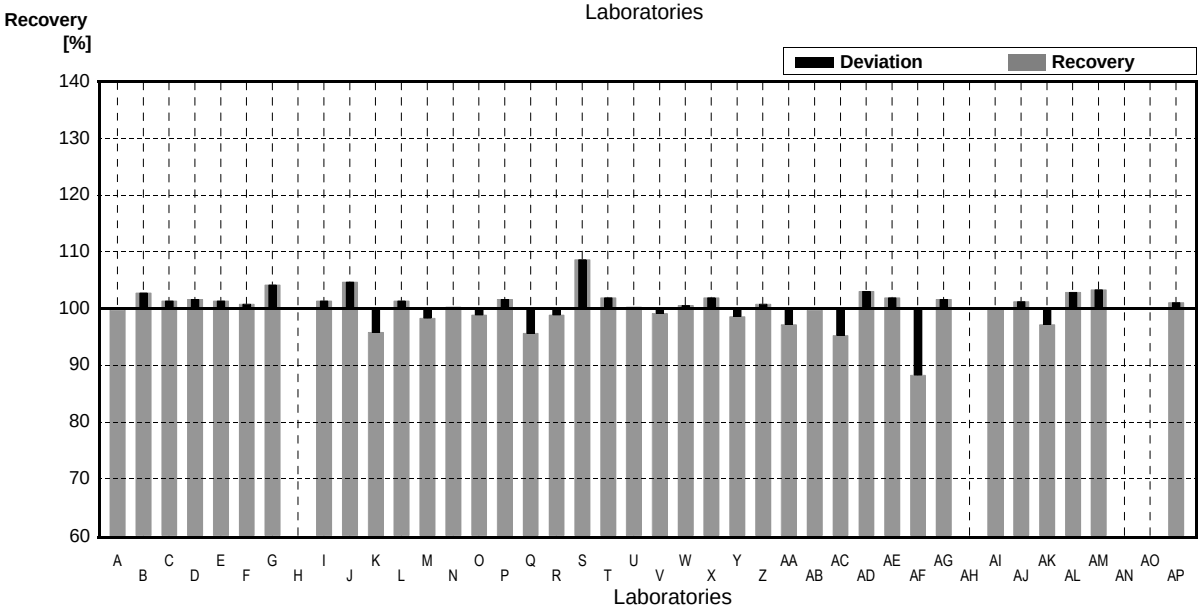
	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,059 ± 0,004	0,059 ± 0,003	mg/l
Recov. ± CI(99%)	97,3 ± 6,1	97,4 ± 4,2	%
SD between labs	0,008	0,005	mg/l
RSD between labs	13,4	8,7	%
n for calculation	34	31	

Sample N149A
Parameter Chloride

Target value ± U (k=2)	35,9	mg/l	±	0,7	mg/l
IFA result ± U (k=2)	35,3	mg/l	±	1,8	mg/l
Stability test ± U (k=2)	35,6	mg/l	±	1,8	mg/l

Lab Code	Result		±	Unit	Recovery	z-Score
A	35.80		4.683	mg/l	100%	-0.09
B	36.9		0.4	mg/l	103%	0.87
C	36.4		3	mg/l	101%	0.44
D	36.5		0.8	mg/l	102%	0.52
E	36.4		3.6	mg/l	101%	0.44
F	36.2			mg/l	101%	0.26
G	37.4		3.0	mg/l	104%	1.31
H				mg/l		
I	36.4		0.07	mg/l	101%	0.44
J	37.6			mg/l	105%	1.48
K	34.4		3.44	mg/l	96%	-1.31
L	36.4		3.0	mg/l	101%	0.44
M	35.3		3.53	mg/l	98%	-0.52
N	36.0		5.4	mg/l	100%	0.09
O	35.50		1.67	mg/l	99%	-0.35
P	36.5			mg/l	102%	0.52
Q	34.337		0.903	mg/l	96%	-1.36
R	35.5			mg/l	99%	-0.35
S	39.0	*	0.5	mg/l	109%	2.70
T	36.6		2.9	mg/l	102%	0.61
U	36.0		8	mg/l	100%	0.09
V	35.6		3.6	mg/l	99%	-0.26
W	36.1		0.100	mg/l	101%	0.17
X	36.6		1.1	mg/l	102%	0.61
Y	35.39		3.6	mg/l	99%	-0.44
Z	36.2		1.8	mg/l	101%	0.26
AA	34.9		4.89	mg/l	97%	-0.87
AB	35.8		3.6	mg/l	100%	-0.09
AC	34.2		3.4	mg/l	95%	-1.48
AD	37.0			mg/l	103%	0.96
AE	36.6		4.2	mg/l	102%	0.61
AF	31.7	*	2.6	mg/l	88%	-3.66
AG	36.5		2	mg/l	102%	0.52
AH				mg/l		
AI	35.9		1.94	mg/l	100%	0.00
AJ	36.351		1.74	mg/l	101%	0.39
AK	34.9		3.49	mg/l	97%	-0.87
AL	36.93		1.477	mg/l	103%	0.90
AM	37.1		2.5	mg/l	103%	1.04
AN				mg/l		
AO				mg/l		
AP	36.3		1.4	mg/l	101%	0.35



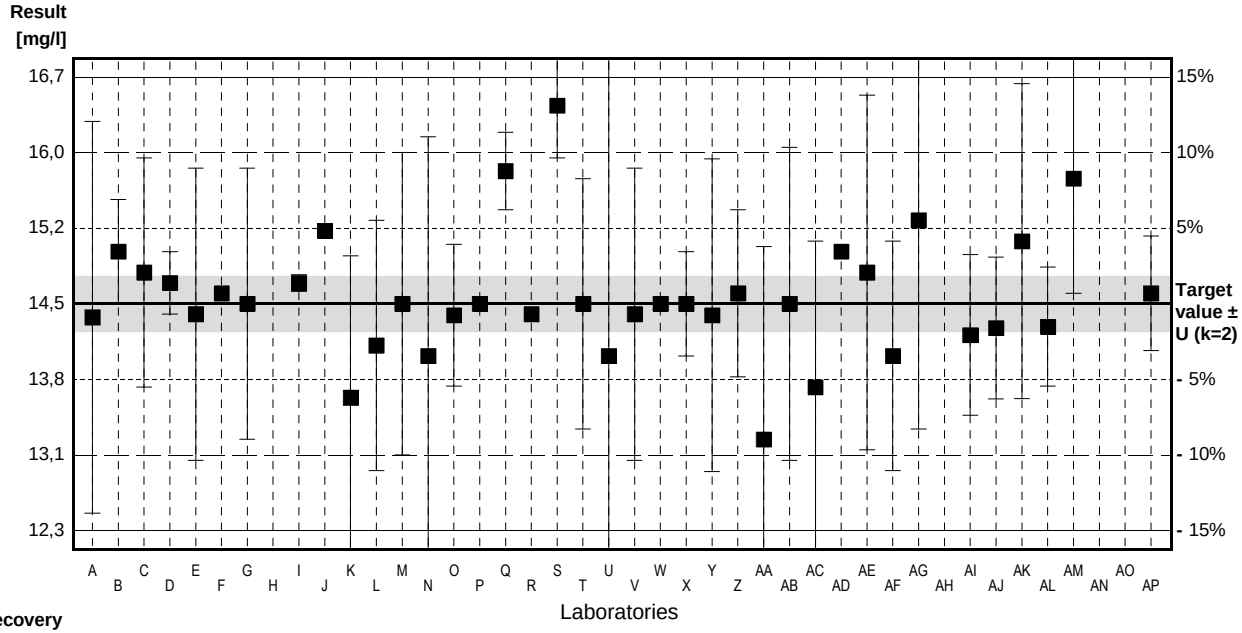


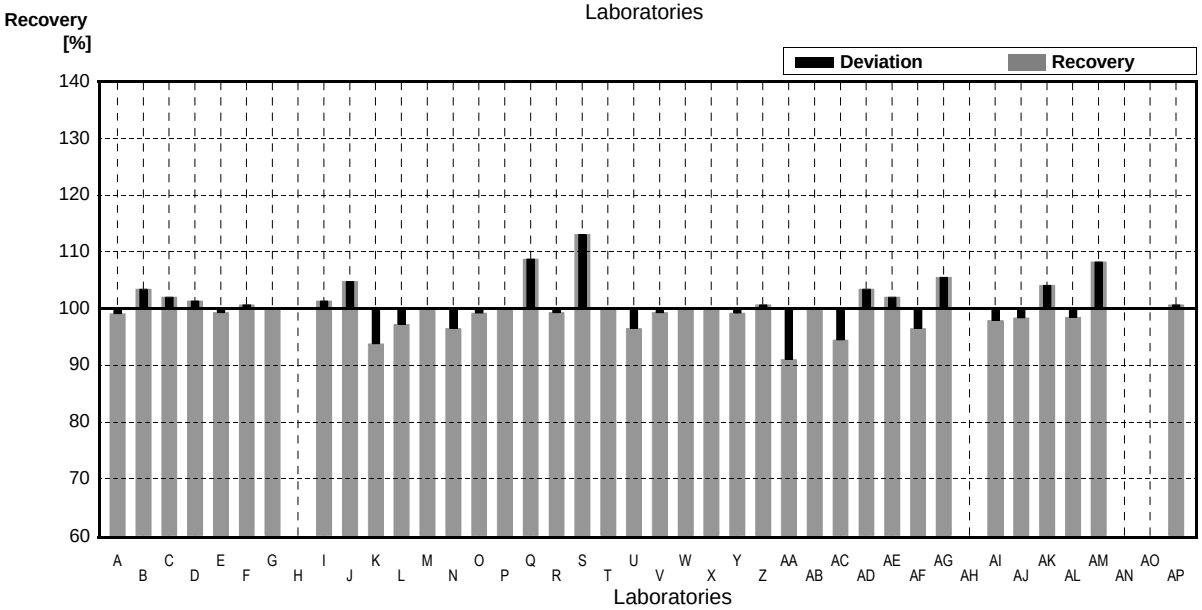
	All results	Outliers excl.	Unit
Mean ± CI(99%)	36,0 ± 0,5	36,1 ± 0,4	mg/l
Recov. ± CI(99%)	100,4 ± 1,4	100,5 ± 1,0	%
SD between labs	1,2	0,8	mg/l
RSD between labs	3,3	2,3	%
n for calculation	38	36	

Sample N149B
Parameter Chloride

Target value ± U (k=2)	14,5	mg/l	±	0,3	mg/l
IFA result ± U (k=2)	14,4	mg/l	±	0,7	mg/l
Stability test ± U (k=2)	14,4	mg/l	±	0,7	mg/l

Lab Code	Result		±	Unit	Recovery	z-Score
A	14,37		1,879	mg/l	99%	-0,28
B	15,0		0,5	mg/l	103%	1,08
C	14,8		1,1	mg/l	102%	0,65
D	14,7		0,3	mg/l	101%	0,43
E	14,4		1,4	mg/l	99%	-0,22
F	14,6			mg/l	101%	0,22
G	14,5		1,3	mg/l	100%	0,00
H				mg/l		
I	14,7		0,08	mg/l	101%	0,43
J	15,2			mg/l	105%	1,51
K	13,6		1,36	mg/l	94%	-1,94
L	14,1		1,2	mg/l	97%	-0,86
M	14,5		1,45	mg/l	100%	0,00
N	14,0		2,1	mg/l	97%	-1,08
O	14,39		0,68	mg/l	99%	-0,24
P	14,5			mg/l	100%	0,00
Q	15,773	*	0,372	mg/l	109%	2,74
R	14,4			mg/l	99%	-0,22
S	16,4	*	0,5	mg/l	113%	4,09
T	14,5		1,2	mg/l	100%	0,00
U	14,0		3	mg/l	97%	-1,08
V	14,4		1,4	mg/l	99%	-0,22
W	14,5		0,058	mg/l	100%	0,00
X	14,5		0,5	mg/l	100%	0,00
Y	14,39		1,5	mg/l	99%	-0,24
Z	14,6		0,8	mg/l	101%	0,22
AA	13,2	*	1,85	mg/l	91%	-2,80
AB	14,5		1,5	mg/l	100%	0,00
AC	13,7		1,4	mg/l	94%	-1,72
AD	15,0			mg/l	103%	1,08
AE	14,8		1,7	mg/l	102%	0,65
AF	14,0		1,1	mg/l	97%	-1,08
AG	15,3		2	mg/l	106%	1,72
AH				mg/l		
AI	14,2		0,77	mg/l	98%	-0,65
AJ	14,266		0,68	mg/l	98%	-0,50
AK	15,1		1,51	mg/l	104%	1,29
AL	14,28		0,571	mg/l	98%	-0,47
AM	15,7	*	1,1	mg/l	108%	2,59
AN				mg/l		
AO				mg/l		
AP	14,6		0,55	mg/l	101%	0,22



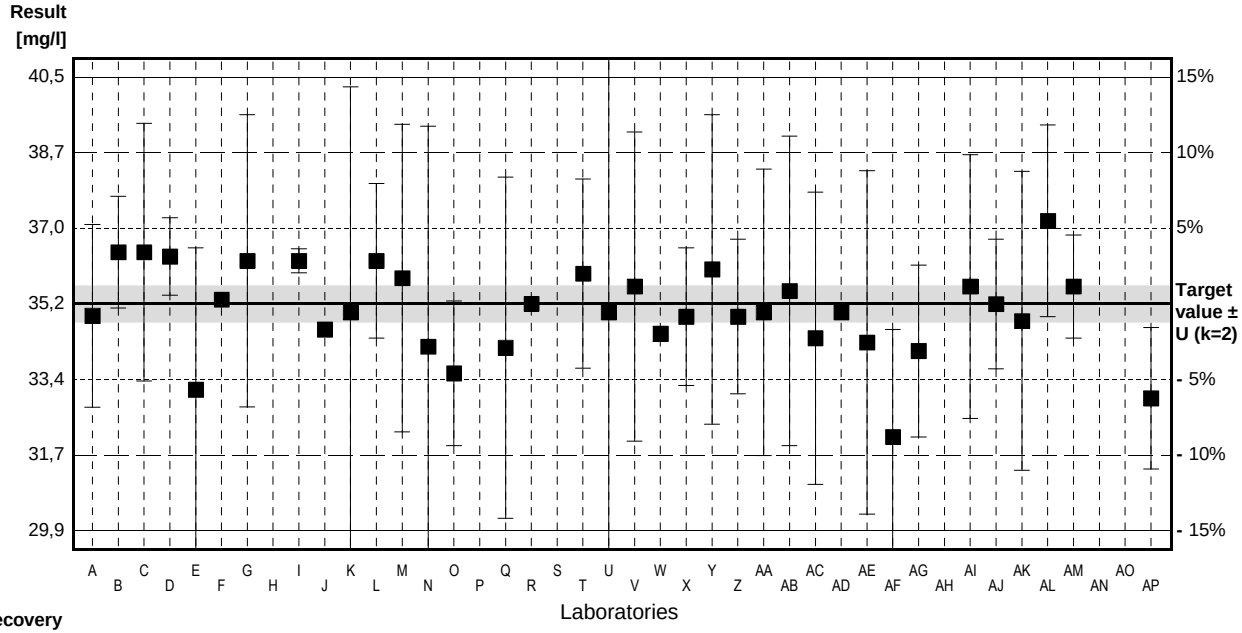


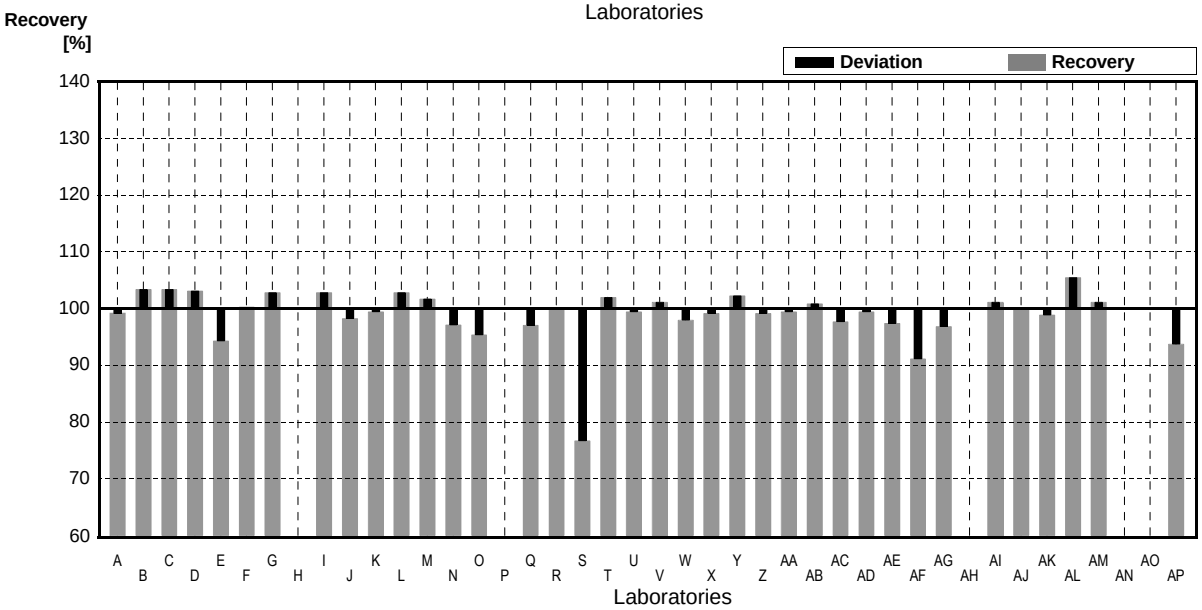
	All results	Outliers excl.	Unit
Mean ± CI(99%)	14,6 ± 0,3	14,5 ± 0,2	mg/l
Recov. ± CI(99%)	100,4 ± 1,8	99,9 ± 1,2	%
SD between labs	0,6	0,4	mg/l
RSD between labs	4,1	2,7	%
n for calculation	38	34	

Sample N149A
Parameter Sulphate

Target value	± U (k=2)	35,2 mg/l	±	0,4 mg/l
IFA result	± U (k=2)	35,4 mg/l	±	1,4 mg/l
Stability test	± U (k=2)	35,3 mg/l	±	1,4 mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	34,92	2,127	mg/l	99%	-0,26
B	36,4	1,3	mg/l	103%	1,10
C	36,4	3	mg/l	103%	1,10
D	36,3	0,9	mg/l	103%	1,01
E	33,2	3,3	mg/l	94%	-1,83
F	35,3		mg/l	100%	0,09
G	36,2	3,4	mg/l	103%	0,92
H			mg/l		
I	36,2	0,28	mg/l	103%	0,92
J	34,6		mg/l	98%	-0,55
K	35,0	5,25	mg/l	99%	-0,18
L	36,2	1,8	mg/l	103%	0,92
M	35,8	3,58	mg/l	102%	0,55
N	34,2	5,13	mg/l	97%	-0,92
O	33,58	1,68	mg/l	95%	-1,48
P			mg/l		
Q	34,176	3,968	mg/l	97%	-0,94
R	35,2		mg/l	100%	0,00
S	27,0 *	0,93	mg/l	77%	-7,51
T	35,9	2,2	mg/l	102%	0,64
U	35,0	8	mg/l	99%	-0,18
V	35,6	3,6	mg/l	101%	0,37
W	34,5	0,173	mg/l	98%	-0,64
X	34,9	1,6	mg/l	99%	-0,27
Y	36,00	3,6	mg/l	102%	0,73
Z	34,9	1,8	mg/l	99%	-0,27
AA	35,0	3,33	mg/l	99%	-0,18
AB	35,5	3,6	mg/l	101%	0,27
AC	34,4	3,4	mg/l	98%	-0,73
AD	35,0		mg/l	99%	-0,18
AE	34,3	4,0	mg/l	97%	-0,82
AF	32,1	2,5	mg/l	91%	-2,84
AG	34,1	2	mg/l	97%	-1,01
AH			mg/l		
AI	35,6	3,07	mg/l	101%	0,37
AJ	35,193	1,51	mg/l	100%	-0,01
AK	34,8	3,48	mg/l	99%	-0,37
AL	37,13	2,228	mg/l	105%	1,77
AM	35,6	1,2	mg/l	101%	0,37
AN			mg/l		
AO			mg/l		
AP	33,0	1,65	mg/l	94%	-2,02



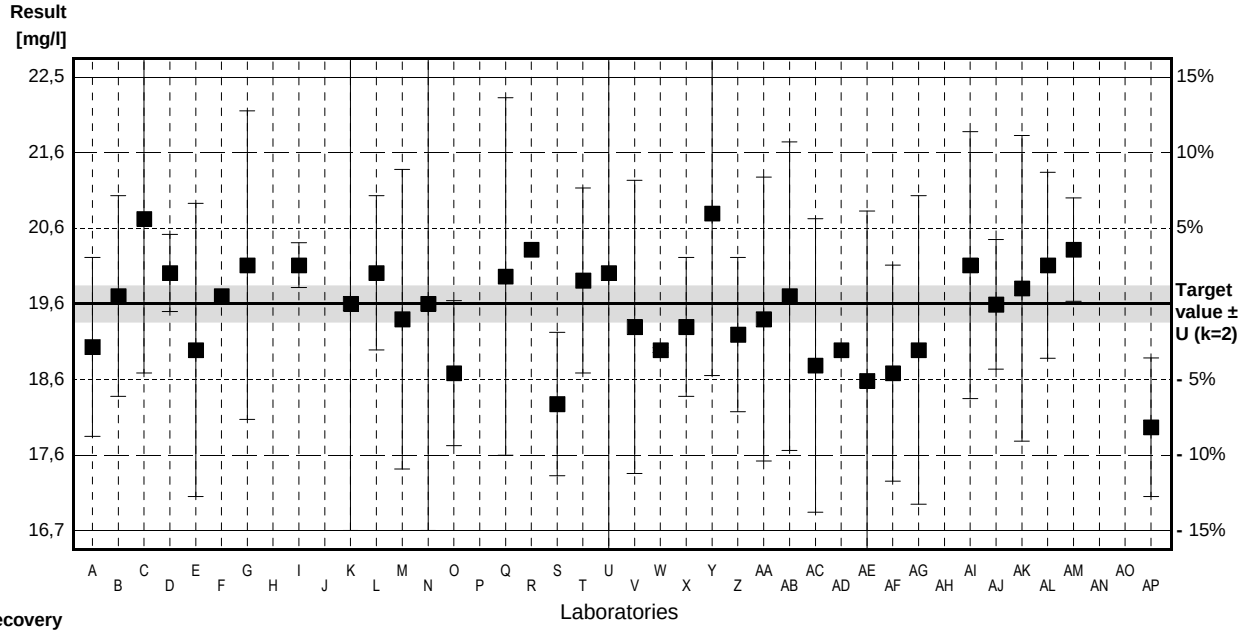


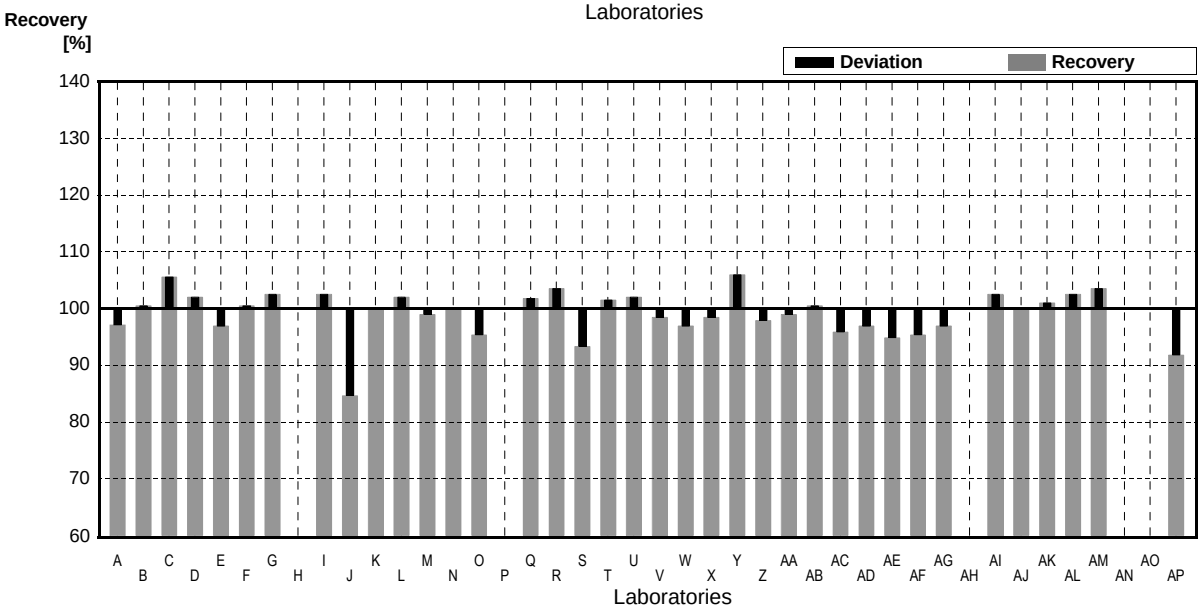
	All results	Outliers excl.	Unit
Mean ± CI(99%)	34,8 ± 0,8	35,1 ± 0,5	mg/l
Recov. ± CI(99%)	99,0 ± 2,1	99,6 ± 1,4	%
SD between labs	1,7	1,1	mg/l
RSD between labs	4,8	3,0	%
n for calculation	37	36	

Sample N149B
Parameter Sulphate

Target value ± U (k=2)	19,6	mg/l	±	0,2	mg/l
IFA result ± U (k=2)	19,8	mg/l	±	0,8	mg/l
Stability test ± U (k=2)	19,6	mg/l	±	0,8	mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	19,04	1,160	mg/l	97%	-0,92
B	19,7	1,3	mg/l	101%	0,16
C	20,7	2	mg/l	106%	1,81
D	20,0	0,5	mg/l	102%	0,66
E	19,0	1,9	mg/l	97%	-0,99
F	19,7		mg/l	101%	0,16
G	20,1	2,0	mg/l	103%	0,82
H			mg/l		
I	20,1	0,29	mg/l	103%	0,82
J	16,6 *		mg/l	85%	-4,94
K	19,6	2,94	mg/l	100%	0,00
L	20,0	1,0	mg/l	102%	0,66
M	19,4	1,94	mg/l	99%	-0,33
N	19,6	2,94	mg/l	100%	0,00
O	18,70	0,94	mg/l	95%	-1,48
P			mg/l		
Q	19,953	2,316	mg/l	102%	0,58
R	20,3		mg/l	104%	1,15
S	18,3	0,93	mg/l	93%	-2,14
T	19,9	1,2	mg/l	102%	0,49
U	20,0	4	mg/l	102%	0,66
V	19,3	1,9	mg/l	98%	-0,49
W	19,0	0,031	mg/l	97%	-0,99
X	19,3	0,9	mg/l	98%	-0,49
Y	20,77	2,1	mg/l	106%	1,93
Z	19,2	1,0	mg/l	98%	-0,66
AA	19,4	1,84	mg/l	99%	-0,33
AB	19,7	2,0	mg/l	101%	0,16
AC	18,8	1,9	mg/l	96%	-1,32
AD	19,0		mg/l	97%	-0,99
AE	18,6	2,2	mg/l	95%	-1,65
AF	18,7	1,4	mg/l	95%	-1,48
AG	19,0	2	mg/l	97%	-0,99
AH			mg/l		
AI	20,1	1,73	mg/l	103%	0,82
AJ	19,590	0,84	mg/l	100%	-0,02
AK	19,8	1,98	mg/l	101%	0,33
AL	20,10	1,206	mg/l	103%	0,82
AM	20,3	0,67	mg/l	104%	1,15
AN			mg/l		
AO			mg/l		
AP	18,0	0,90	mg/l	92%	-2,63



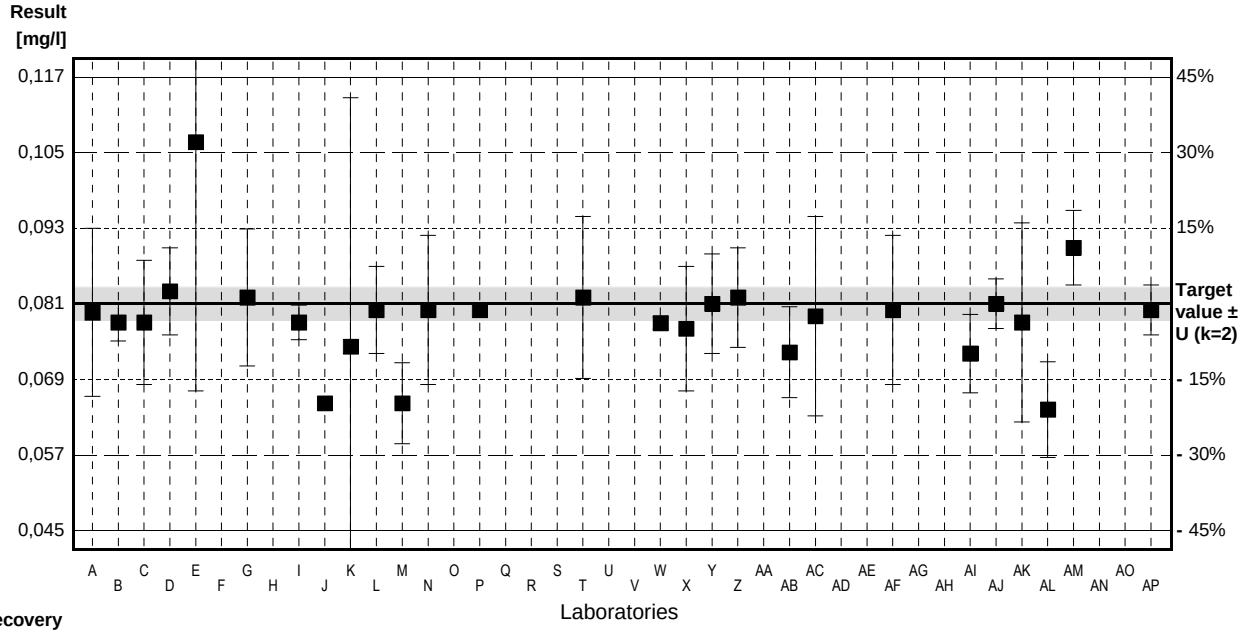


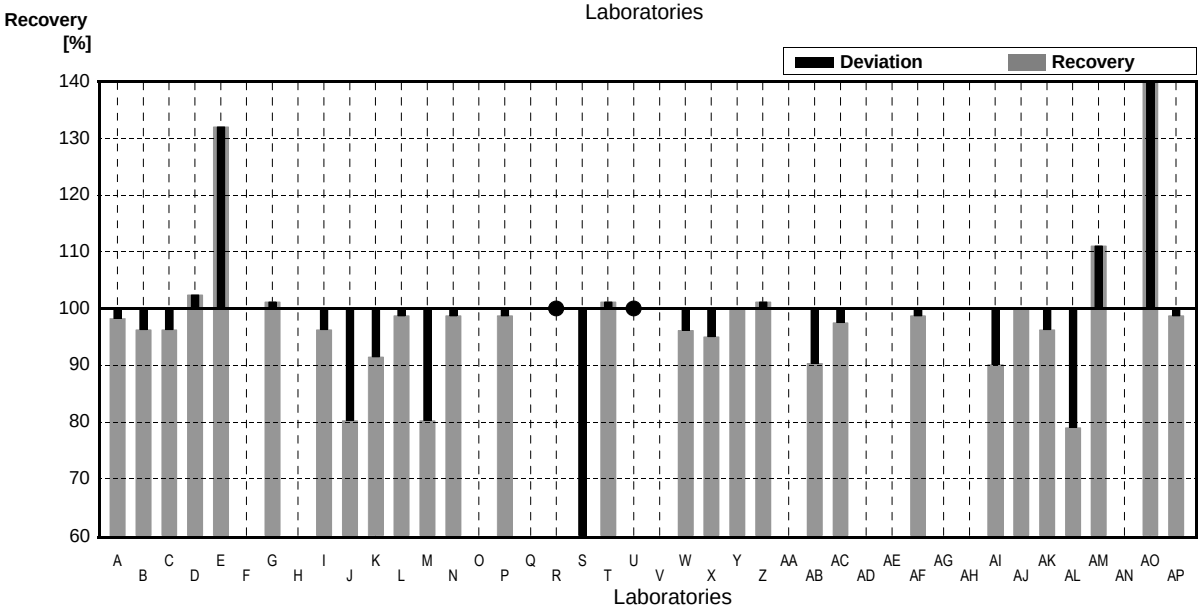
	All results	Outliers excl.	Unit
Mean ± CI(99%)	19,4 ± 0,4	19,5 ± 0,3	mg/l
Recov. ± CI(99%)	99,2 ± 1,8	99,6 ± 1,5	%
SD between labs	0,8	0,6	mg/l
RSD between labs	4,1	3,3	%
n for calculation	37	36	

Sample N149A
Parameter Orthophosphate

Target value	± U (k=2)	0,081	mg/l	±	0,003 mg/l
IFA result	± U (k=2)	0,081	mg/l	±	0,003 mg/l
Stability test	± U (k=2)	0,081	mg/l	±	0,003 mg/l

Lab Code	Result		±	Unit	Recovery	z-Score
A	0,0796		0,0135	mg/l	98%	-0,16
B	0,0780		0,003	mg/l	96%	-0,34
C	0,078		0,01	mg/l	96%	-0,34
D	0,083		0,007	mg/l	102%	0,22
E	0,107	*	0,04	mg/l	132%	2,92
F				mg/l		
G	0,082		0,011	mg/l	101%	0,11
H				mg/l		
I	0,0780		0,0028	mg/l	96%	-0,34
J	0,065	*		mg/l	80%	-1,80
K	0,0741		0,04	mg/l	91%	-0,77
L	0,080		0,007	mg/l	99%	-0,11
M	0,065	*	0,0065	mg/l	80%	-1,80
N	0,080		0,012	mg/l	99%	-0,11
O				mg/l		
P	0,080			mg/l	99%	-0,11
Q				mg/l		
R	<0,15			mg/l	•	
S	0,0150	*	0,002	mg/l	19%	-7,41
T	0,082		0,013	mg/l	101%	0,11
U	<0,1			mg/l	•	
V				mg/l		
W	0,0779		0,001	mg/l	96%	-0,35
X	0,077		0,01	mg/l	95%	-0,45
Y	0,081		0,008	mg/l	100%	0,00
Z	0,082		0,008	mg/l	101%	0,11
AA				mg/l		
AB	0,0732		0,0073	mg/l	90%	-0,88
AC	0,079		0,016	mg/l	98%	-0,22
AD				mg/l		
AE				mg/l		
AF	0,080		0,012	mg/l	99%	-0,11
AG				mg/l		
AH				mg/l		
AI	0,073		0,0063	mg/l	90%	-0,90
AJ	0,081		0,004	mg/l	100%	0,00
AK	0,078		0,016	mg/l	96%	-0,34
AL	0,064	*	0,0077	mg/l	79%	-1,91
AM	0,090		0,006	mg/l	111%	1,01
AN				mg/l		
AO	0,119	*	0,006	mg/l	147%	4,26
AP	0,080		0,004	mg/l	99%	-0,11



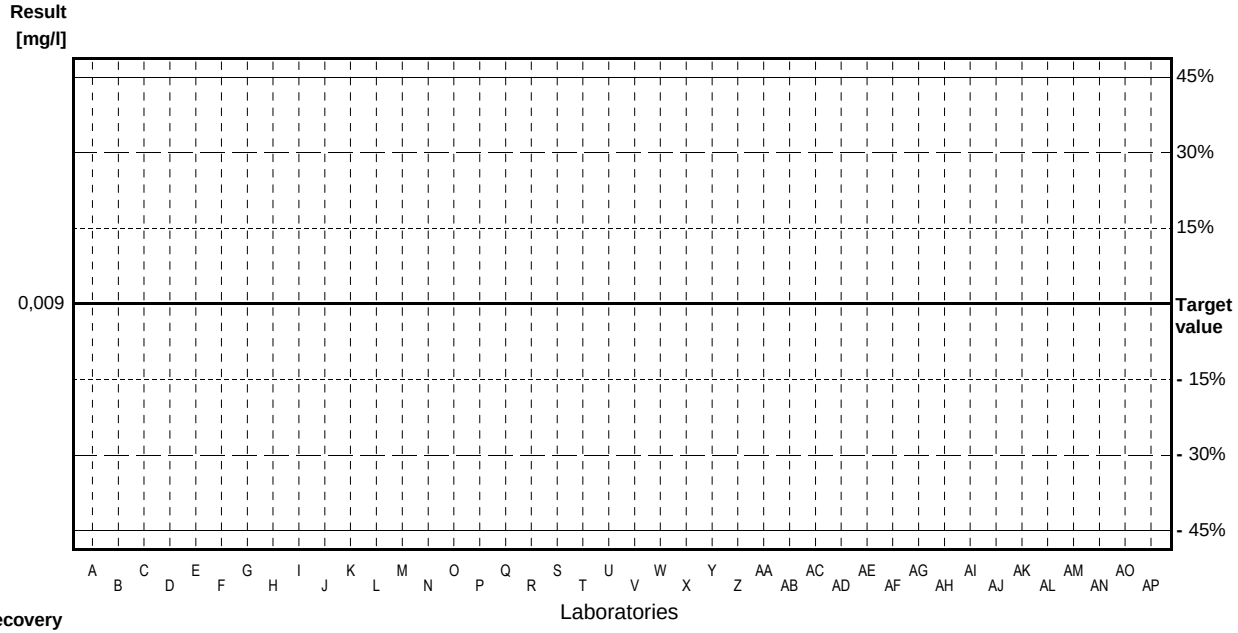


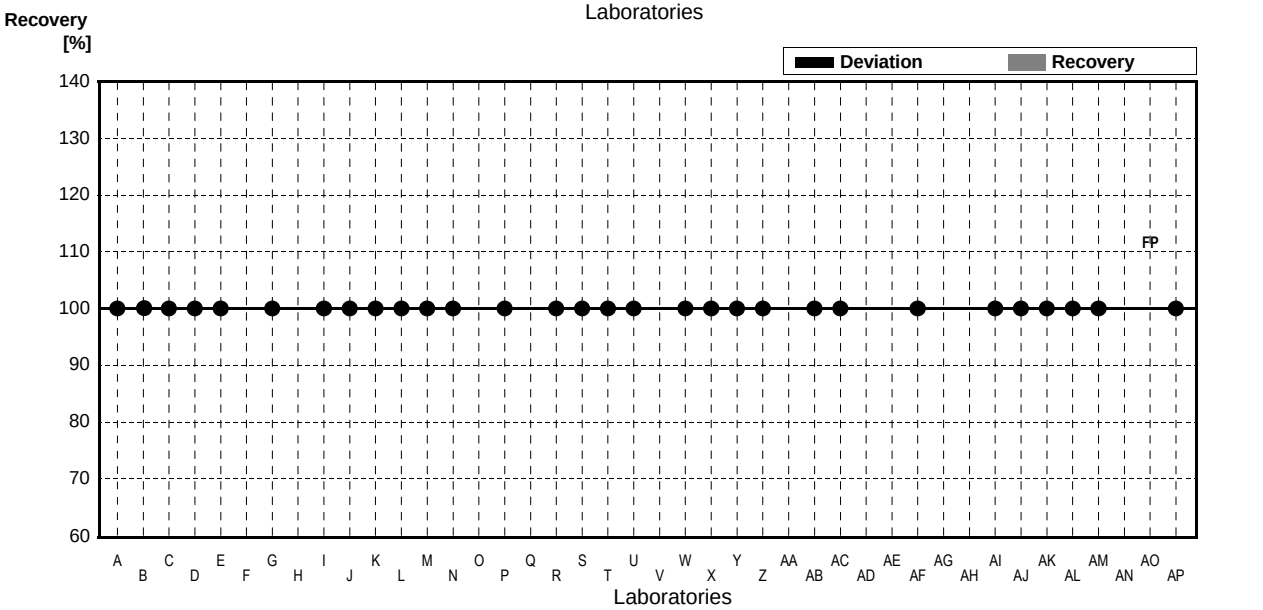
	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,078 ± 0,008	0,079 ± 0,002	mg/l
Recov. ± CI(99%)	96,3 ± 10,3	98,1 ± 2,6	%
SD between labs	0,016	0,004	mg/l
RSD between labs	20,8	4,5	%
n for calculation	29	23	

Sample N149B
Parameter Orthophosphate

Target value	<0,009	mg/l
IFA result	<0,009	mg/l
Stability test	<0,009	mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	<0,015		mg/l	•	
B	0,0110	0,003	mg/l	•	
C	<0,01		mg/l	•	
D	<0,01		mg/l	•	
E	<0,010		mg/l	•	
F			mg/l		
G	<0,010		mg/l	•	
H			mg/l		
I	[0,003]		mg/l	•	
J	<0,15		mg/l	•	
K	<0,0200	0,04	mg/l	•	
L	<0,01		mg/l	•	
M	<0,008		mg/l	•	
N	<0,01		mg/l	•	
O			mg/l		
P	<0,006		mg/l	•	
Q			mg/l		
R	<0,15		mg/l	•	
S	<0,001	0,002	mg/l	•	
T	<0,009	0,001	mg/l	•	
U	<0,1		mg/l	•	
V			mg/l		
W	<0,015		mg/l	•	
X	<0,01	0,003	mg/l	•	
Y	<0,0015		mg/l	•	
Z	<0,006		mg/l	•	
AA			mg/l		
AB	<0,050		mg/l	•	
AC	<0,009		mg/l	•	
AD			mg/l		
AE			mg/l		
AF	<0,06	0,012	mg/l	•	
AG			mg/l		
AH			mg/l		
AI	<0,01	0,001	mg/l	•	
AJ	<0,0300		mg/l	•	
AK	<0,009		mg/l	•	
AL	0,0060	0,0007	mg/l	•	
AM	<0,015		mg/l	•	
AN			mg/l		
AO	0,0160	0,0008	mg/l	FP	
AP	<0,015	0,001	mg/l	•	



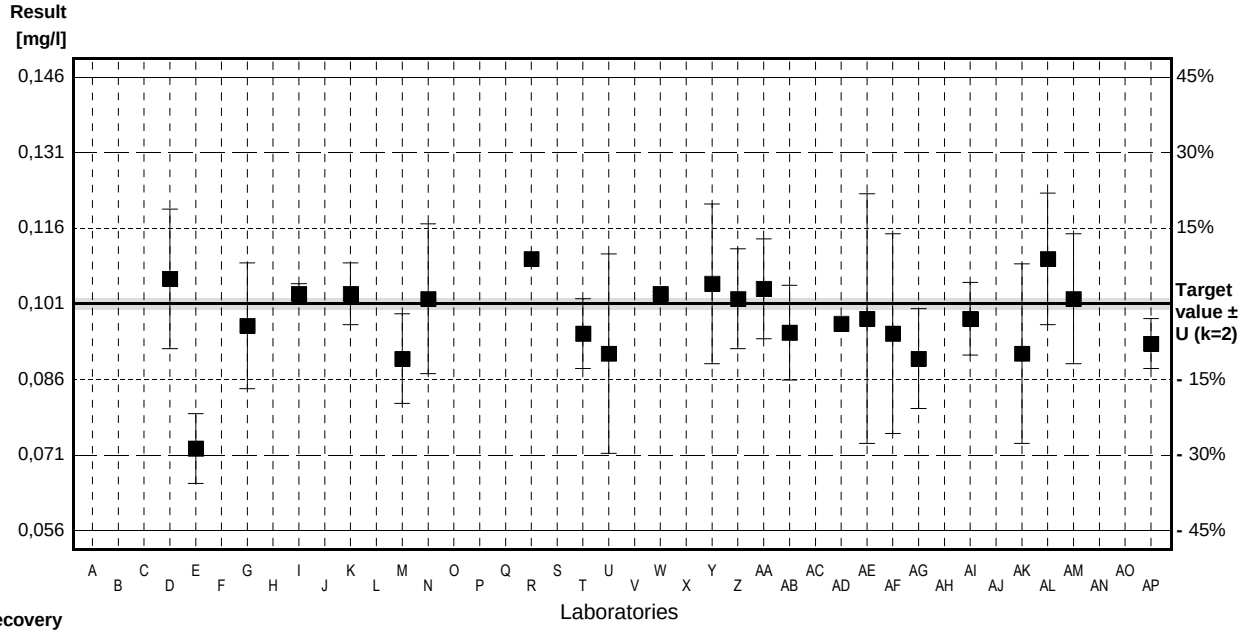


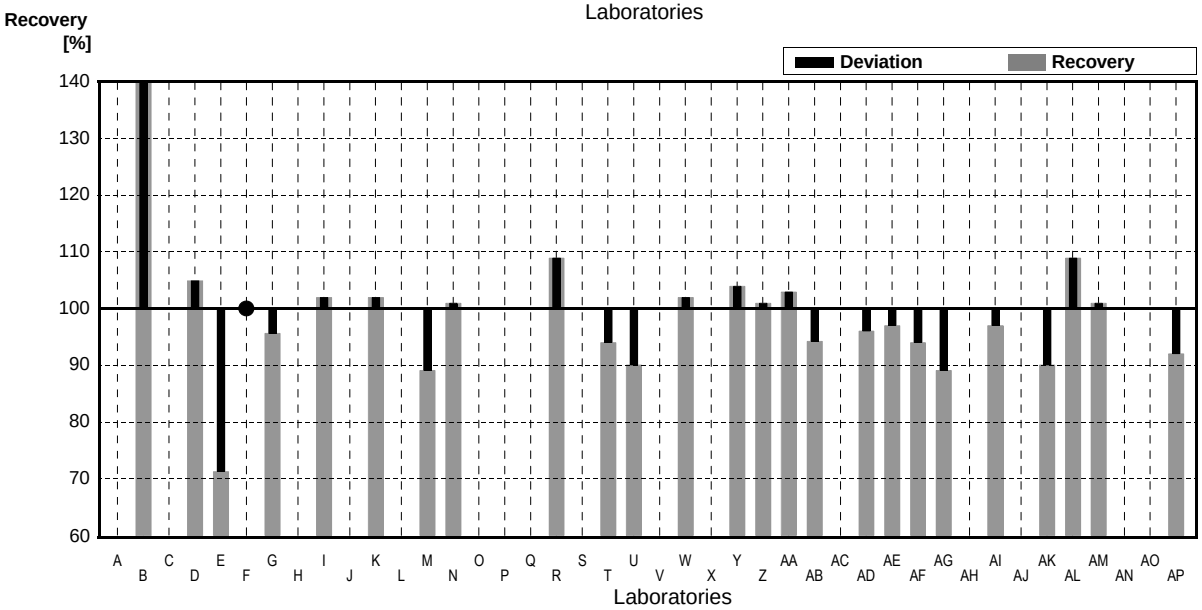
	All results	Outliers excl.	Unit
Mean ± CI(99%)			mg/l
Recov. ± CI(99%)			%
SD between labs			mg/l
RSD between labs			%
n for calculation			

Sample N149A
Parameter Boron

Target value ± U (k=2)	0,101	mg/l	±	0,001	mg/l
IFA result ± U (k=2)	0,104	mg/l	±	0,010	mg/l
Stability test ± U (k=2)	0,099	mg/l	±	0,010	mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A			mg/l		
B	97,5 *	2,2	mg/l	96535%	11213,33
C			mg/l		
D	0,106	0,014	mg/l	105%	0,58
E	0,072 *	0,007	mg/l	71%	-3,34
F	<0,258		mg/l	•	
G	0,0966	0,0126	mg/l	96%	-0,51
H			mg/l		
I	0,103	0,002	mg/l	102%	0,23
J			mg/l		
K	0,103	0,0062	mg/l	102%	0,23
L			mg/l		
M	0,090	0,009	mg/l	89%	-1,27
N	0,102	0,015	mg/l	101%	0,12
O			mg/l		
P			mg/l		
Q			mg/l		
R	0,110		mg/l	109%	1,04
S			mg/l		
T	0,095	0,007	mg/l	94%	-0,69
U	0,091	0,02	mg/l	90%	-1,15
V			mg/l		
W	0,103	0,0004	mg/l	102%	0,23
X			mg/l		
Y	0,105	0,016	mg/l	104%	0,46
Z	0,102	0,010	mg/l	101%	0,12
AA	0,104	0,01	mg/l	103%	0,35
AB	0,0952	0,0095	mg/l	94%	-0,67
AC			mg/l		
AD	0,097		mg/l	96%	-0,46
AE	0,098	0,025	mg/l	97%	-0,35
AF	0,095	0,02	mg/l	94%	-0,69
AG	0,090	0,01	mg/l	89%	-1,27
AH			mg/l		
AI	0,098	0,0073	mg/l	97%	-0,35
AJ			mg/l		
AK	0,091	0,018	mg/l	90%	-1,15
AL	0,110	0,0132	mg/l	109%	1,04
AM	0,102	0,013	mg/l	101%	0,12
AN			mg/l		
AO			mg/l		
AP	0,093	0,005	mg/l	92%	-0,92



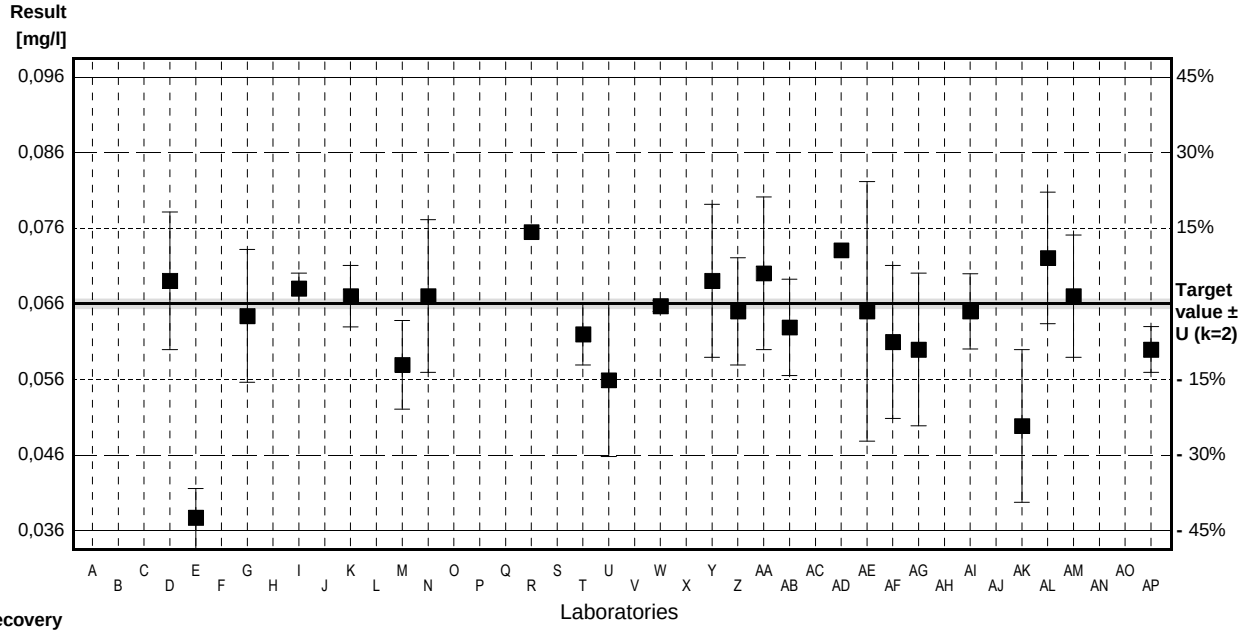


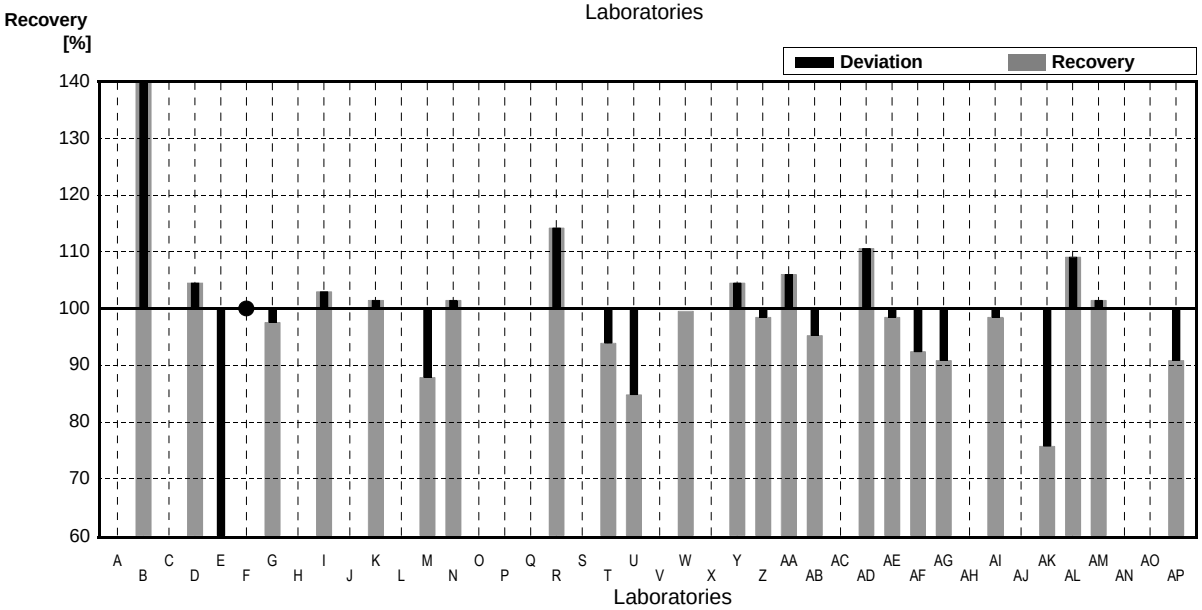
	All results	Outliers excl.	Unit
Mean ± CI(99%)	3,994 ± 10,909	0,099 ± 0,004	mg/l
Recov. ± CI(99%)	3954,5 ± 10801,	98,1 ± 3,5	%
SD between labs	19,480	0,006	mg/l
RSD between labs	487,7	6,1	%
n for calculation	25	23	

Sample N149B
Parameter Boron

Target value ± U (k=2)	0,066	mg/l	±	0,001	mg/l
IFA result ± U (k=2)	0,067	mg/l	±	0,007	mg/l
Stability test ± U (k=2)	0,062	mg/l	±	0,006	mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A			mg/l		
B	59,9 *	2,4	mg/l	90758%	10541,58
C			mg/l		
D	0,069	0,009	mg/l	105%	0,53
E	0,0380 *	0,0038	mg/l	58%	-4,93
F	<0,258		mg/l	•	
G	0,0644	0,0087	mg/l	98%	-0,28
H			mg/l		
I	0,068	0,002	mg/l	103%	0,35
J			mg/l		
K	0,067	0,00402	mg/l	102%	0,18
L			mg/l		
M	0,058	0,0058	mg/l	88%	-1,41
N	0,067	0,010	mg/l	102%	0,18
O			mg/l		
P			mg/l		
Q			mg/l		
R	0,0754		mg/l	114%	1,66
S			mg/l		
T	0,062	0,004	mg/l	94%	-0,70
U	0,056	0,01	mg/l	85%	-1,76
V			mg/l		
W	0,0657	0,0007	mg/l	100%	-0,05
X			mg/l		
Y	0,069	0,010	mg/l	105%	0,53
Z	0,065	0,007	mg/l	98%	-0,18
AA	0,070	0,01	mg/l	106%	0,70
AB	0,0629	0,0063	mg/l	95%	-0,55
AC			mg/l		
AD	0,073		mg/l	111%	1,23
AE	0,065	0,017	mg/l	98%	-0,18
AF	0,061	0,01	mg/l	92%	-0,88
AG	0,060	0,01	mg/l	91%	-1,06
AH			mg/l		
AI	0,065	0,0049	mg/l	98%	-0,18
AJ			mg/l		
AK	0,050	0,010	mg/l	76%	-2,82
AL	0,072	0,0086	mg/l	109%	1,06
AM	0,067	0,008	mg/l	102%	0,18
AN			mg/l		
AO			mg/l		
AP	0,060	0,003	mg/l	91%	-1,06



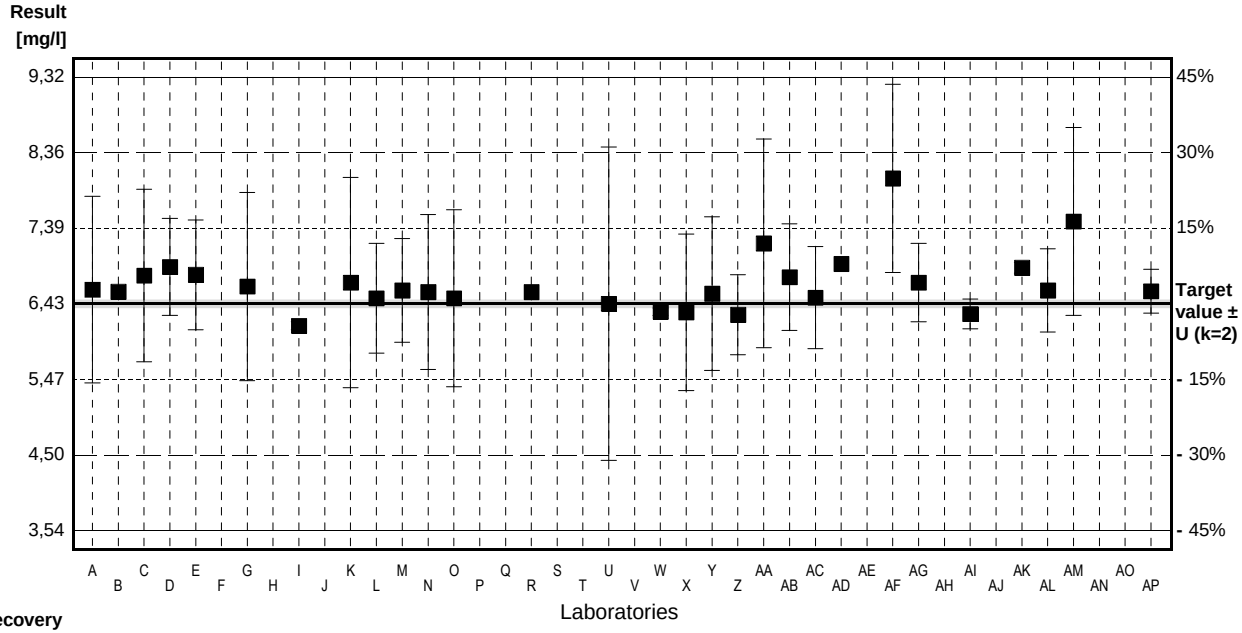


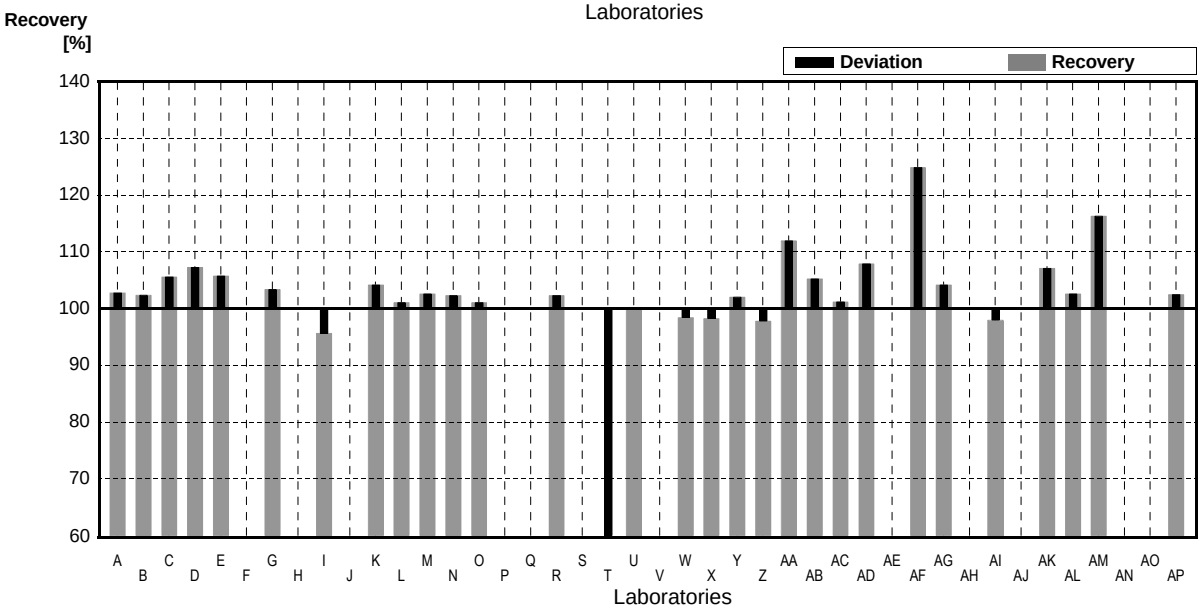
	All results	Outliers excl.	Unit
Mean ± CI(99%)	2,457 ± 6,702	0,065 ± 0,003	mg/l
Recov. ± CI(99%)	3723,1 ± 10154,	98,3 ± 5,1	%
SD between labs	11,967	0,006	mg/l
RSD between labs	487,0	8,9	%
n for calculation	25	23	

Sample N149A
Parameter DOC

Target value ± U (k=2)	6,43	mg/l	±	0,05	mg/l
IFA result ± U (k=2)	6,41	mg/l	±	0,26	mg/l
Stability test ± U (k=2)	6,57	mg/l	±	0,26	mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	6,61	1,191	mg/l	103%	0,47
B	6,583		mg/l	102%	0,40
C	6,79	1,1	mg/l	106%	0,93
D	6,90	0,62	mg/l	107%	1,22
E	6,8	0,7	mg/l	106%	0,96
F			mg/l		
G	6,65	1,2	mg/l	103%	0,57
H			mg/l		
I	6,15	0,05	mg/l	96%	-0,73
J			mg/l		
K	6,70	1,34	mg/l	104%	0,70
L	6,5	0,7	mg/l	101%	0,18
M	6,6	0,66	mg/l	103%	0,44
N	6,58	0,99	mg/l	102%	0,39
O	6,50	1,13	mg/l	101%	0,18
P			mg/l		
Q			mg/l		
R	6,58		mg/l	102%	0,39
S			mg/l		
T	0,163 *	0,047	mg/l	3%	-16,24
U	6,43	2	mg/l	100%	0,00
V			mg/l		
W	6,33	0,047	mg/l	98%	-0,26
X	6,32	1,0	mg/l	98%	-0,29
Y	6,56	0,98	mg/l	102%	0,34
Z	6,29	0,51	mg/l	98%	-0,36
AA	7,20	1,33	mg/l	112%	2,00
AB	6,77	0,68	mg/l	105%	0,88
AC	6,508	0,65	mg/l	101%	0,20
AD	6,94		mg/l	108%	1,32
AE			mg/l		
AF	8,03 *	1,2	mg/l	125%	4,15
AG	6,7	0,5	mg/l	104%	0,70
AH			mg/l		
AI	6,3	0,19	mg/l	98%	-0,34
AJ			mg/l		
AK	6,89	0,0689	mg/l	107%	1,19
AL	6,6	0,53	mg/l	103%	0,44
AM	7,48 *	1,2	mg/l	116%	2,72
AN			mg/l		
AO			mg/l		
AP	6,59	0,28	mg/l	102%	0,41



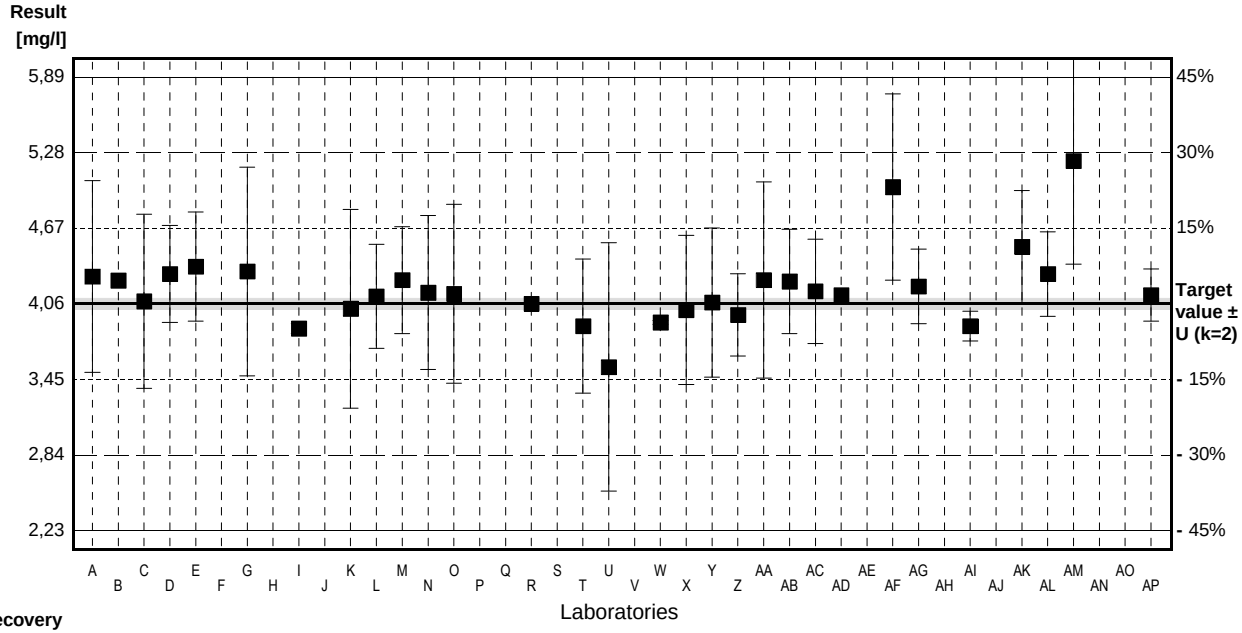


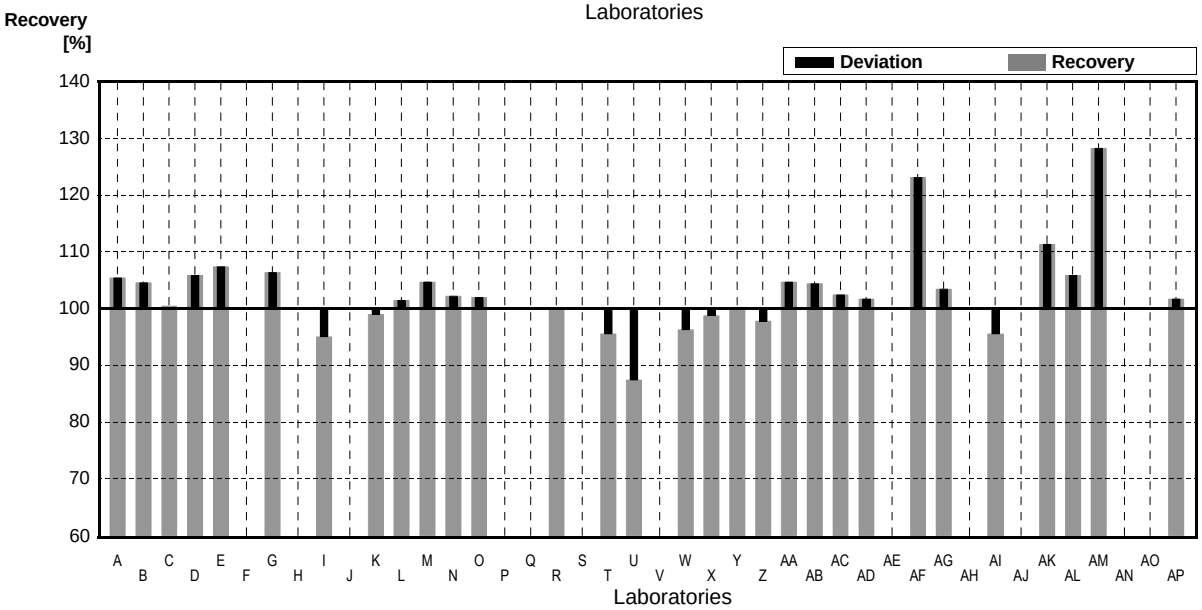
	All results	Outliers excl.	Unit
Mean ± CI(99%)	6,47 ± 0,63	6,61 ± 0,12	mg/l
Recov. ± CI(99%)	100,6 ± 9,8	102,7 ± 1,9	%
SD between labs	1,25	0,23	mg/l
RSD between labs	19,3	3,5	%
n for calculation	30	27	

Sample N149B
Parameter DOC

Target value ± U (k=2)	4,06	mg/l	±	0,04	mg/l
IFA result ± U (k=2)	3,95	mg/l	±	0,16	mg/l
Stability test ± U (k=2)	4,15	mg/l	±	0,17	mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	4,28	0,771	mg/l	105%	0,90
B	4,247		mg/l	105%	0,77
C	4,08	0,7	mg/l	100%	0,08
D	4,30	0,39	mg/l	106%	0,99
E	4,36	0,44	mg/l	107%	1,23
F			mg/l		
G	4,32	0,84	mg/l	106%	1,07
H			mg/l		
I	3,86	0,04	mg/l	95%	-0,82
J			mg/l		
K	4,02	0,80	mg/l	99%	-0,16
L	4,12	0,42	mg/l	101%	0,25
M	4,25	0,43	mg/l	105%	0,78
N	4,15	0,62	mg/l	102%	0,37
O	4,14	0,72	mg/l	102%	0,33
P			mg/l		
Q			mg/l		
R	4,06		mg/l	100%	0,00
S			mg/l		
T	3,88	0,54	mg/l	96%	-0,74
U	3,55	1	mg/l	87%	-2,09
V			mg/l		
W	3,91	0,015	mg/l	96%	-0,62
X	4,01	0,6	mg/l	99%	-0,21
Y	4,07	0,60	mg/l	100%	0,04
Z	3,97	0,33	mg/l	98%	-0,37
AA	4,25	0,79	mg/l	105%	0,78
AB	4,24	0,42	mg/l	104%	0,74
AC	4,160	0,42	mg/l	102%	0,41
AD	4,13		mg/l	102%	0,29
AE			mg/l		
AF	5,00 *	0,75	mg/l	123%	3,86
AG	4,20	0,3	mg/l	103%	0,57
AH			mg/l		
AI	3,88	0,12	mg/l	96%	-0,74
AJ			mg/l		
AK	4,52	0,452	mg/l	111%	1,89
AL	4,30	0,34	mg/l	106%	0,99
AM	5,21 *	0,83	mg/l	128%	4,72
AN			mg/l		
AO			mg/l		
AP	4,13	0,21	mg/l	102%	0,29





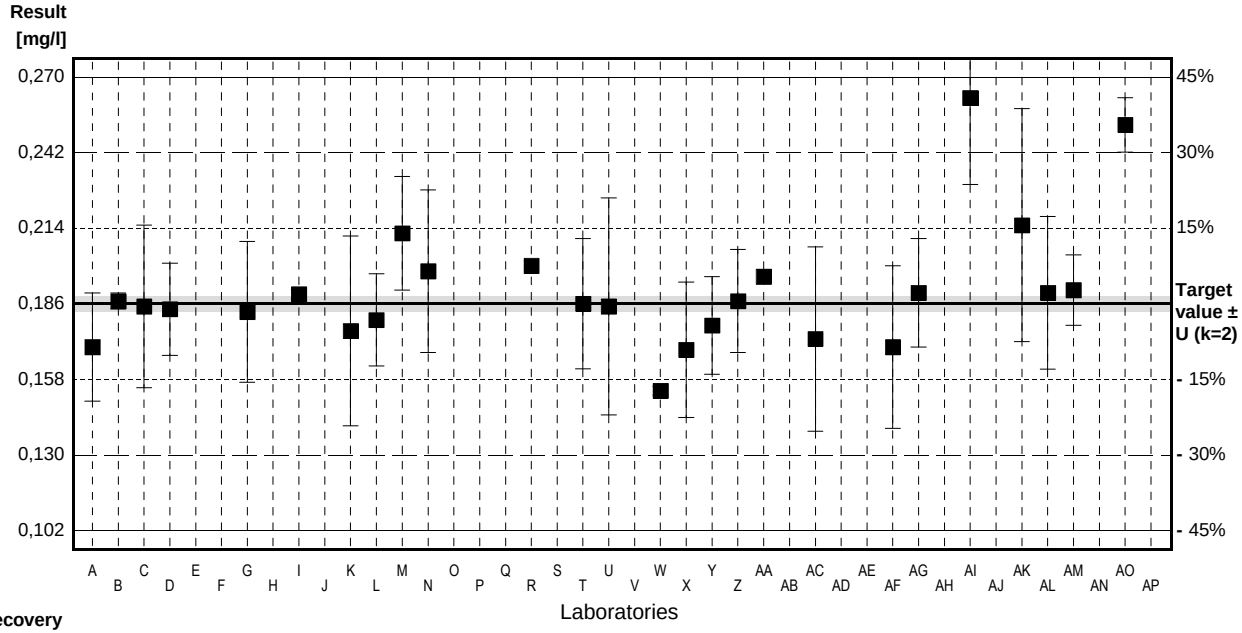
	All results	Outliers excl.	Unit
Mean ± CI(99%)	4,19 ± 0,16	4,12 ± 0,10	mg/l
Recov. ± CI(99%)	103,1 ± 3,9	101,5 ± 2,5	%
SD between labs	0,31	0,19	mg/l
RSD between labs	7,5	4,7	%
n for calculation	30	28	

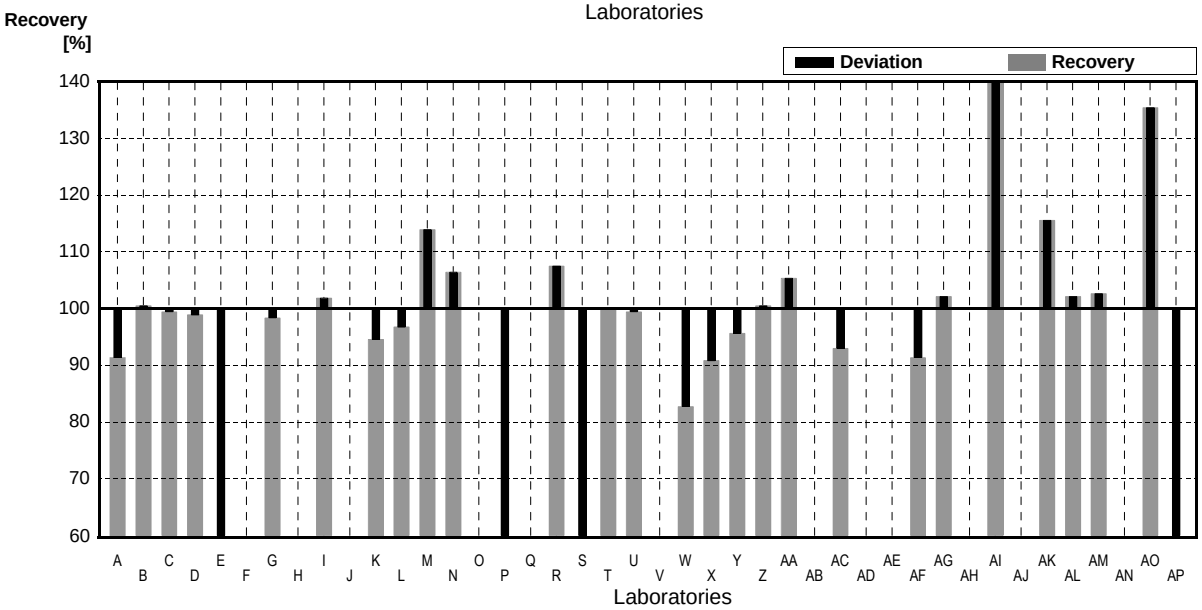
Sample N149A

Parameter Total P (as PO4)

Target value ± U (k=2)	0,186	mg/l	±	0,003	mg/l
IFA result ± U (k=2)	0,190	mg/l	±	0,044	mg/l
Stability test ± U (k=2)	0,205	mg/l	±	0,047	mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	0,170	0,020	mg/l	91%	-0,78
B	0,187	0,003	mg/l	101%	0,05
C	0,185	0,03	mg/l	99%	-0,05
D	0,184	0,017	mg/l	99%	-0,10
E	0,068 *	0,007	mg/l	37%	-5,77
F			mg/l		
G	0,183	0,026	mg/l	98%	-0,15
H			mg/l		
I	0,1895	0,0016	mg/l	102%	0,17
J			mg/l		
K	0,176	0,035	mg/l	95%	-0,49
L	0,180	0,017	mg/l	97%	-0,29
M	0,212	0,021	mg/l	114%	1,27
N	0,198	0,03	mg/l	106%	0,59
O			mg/l		
P	0,080 *		mg/l	43%	-5,18
Q			mg/l		
R	0,200		mg/l	108%	0,68
S	0,0350 *	0,006	mg/l	19%	-7,38
T	0,186	0,024	mg/l	100%	0,00
U	0,185	0,04	mg/l	99%	-0,05
V			mg/l		
W	0,1539	0,0016	mg/l	83%	-1,57
X	0,169	0,025	mg/l	91%	-0,83
Y	0,178	0,018	mg/l	96%	-0,39
Z	0,187	0,019	mg/l	101%	0,05
AA	0,196		mg/l	105%	0,49
AB			mg/l		
AC	0,173	0,034	mg/l	93%	-0,64
AD			mg/l		
AE			mg/l		
AF	0,170	0,03	mg/l	91%	-0,78
AG	0,190	0,02	mg/l	102%	0,20
AH			mg/l		
AI	0,262 *	0,032	mg/l	141%	3,71
AJ			mg/l		
AK	0,215	0,043	mg/l	116%	1,42
AL	0,190	0,0282	mg/l	102%	0,20
AM	0,191	0,013	mg/l	103%	0,24
AN			mg/l		
AO	0,252 *	0,010	mg/l	135%	3,23
AP	0,086 *	0,004	mg/l	46%	-4,89



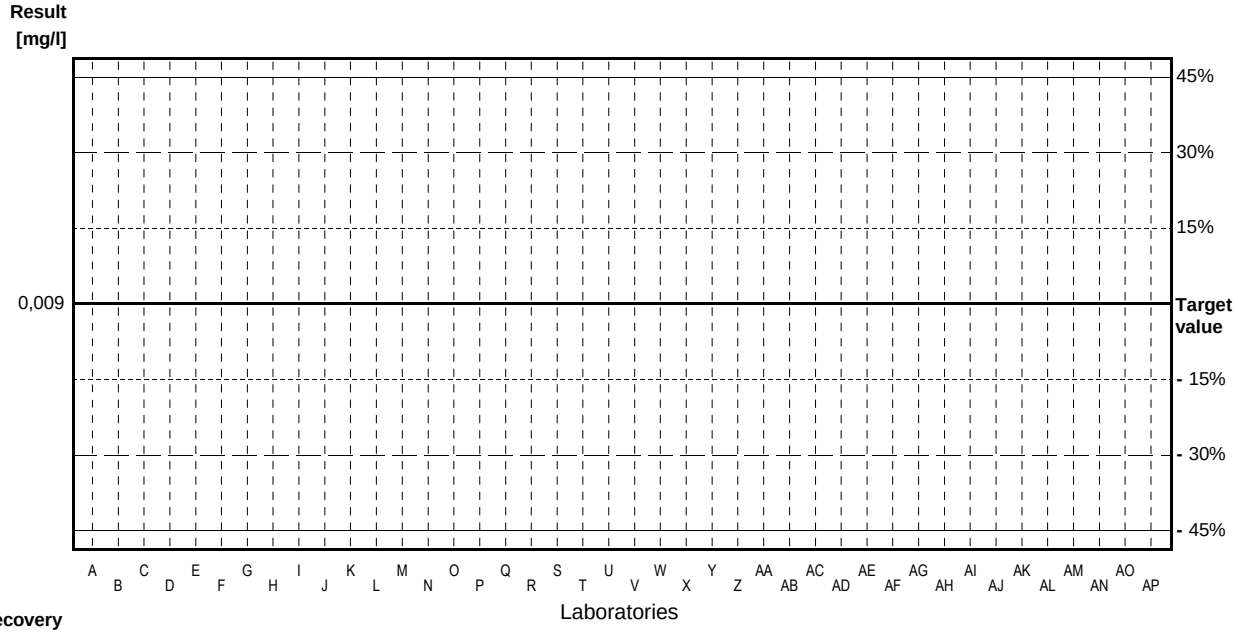


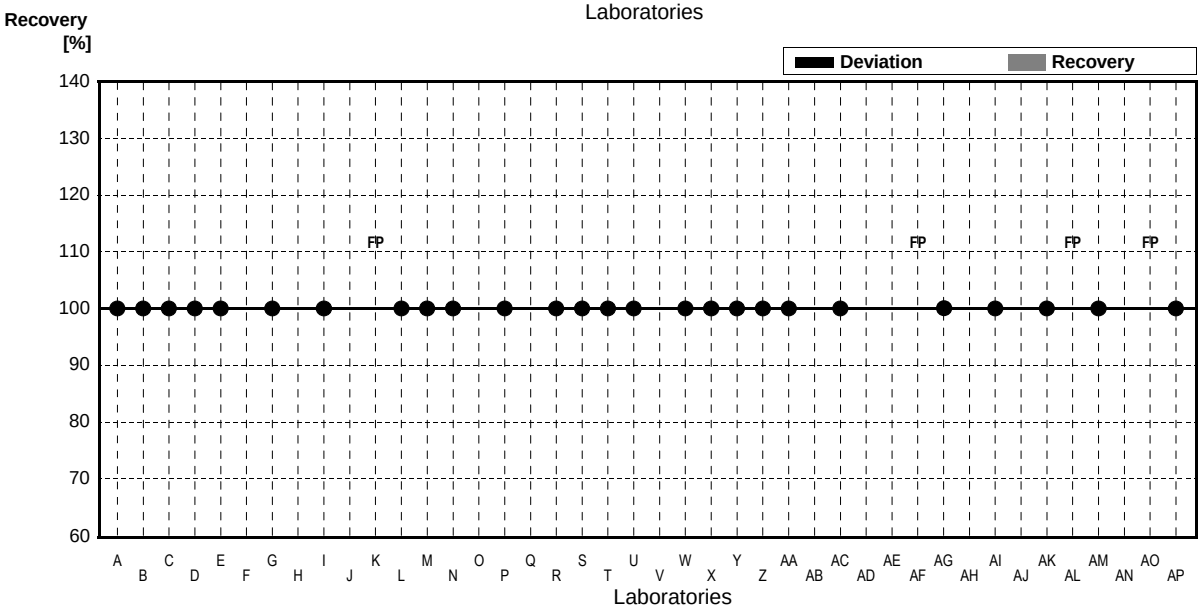
	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,174 ± 0,024	0,185 ± 0,008	mg/l
Recov. ± CI(99%)	93,8 ± 13,1	99,7 ± 4,2	%
SD between labs	0,049	0,014	mg/l
RSD between labs	27,8	7,3	%
n for calculation	30	24	

Sample N149B
Parameter Total P (as PO4)

Target value	<0,009	mg/l
IFA result	<0,009	mg/l
Stability test	<0,009	mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	<0,015		mg/l	•	
B	<0,002		mg/l	•	
C	<0,013		mg/l	•	
D	<0,01		mg/l	•	
E	<0,02		mg/l	•	
F			mg/l		
G	<0,010		mg/l	•	
H			mg/l		
I	[0,002]		mg/l	•	
J			mg/l		
K	0,070	0,010	mg/l	FP	
L	<0,01		mg/l	•	
M	<0,015		mg/l	•	
N	<0,01		mg/l	•	
O			mg/l		
P	<0,006		mg/l	•	
Q			mg/l		
R	<0,03		mg/l	•	
S	<0,001	0,006	mg/l	•	
T	<0,009	0,003	mg/l	•	
U	<0,031		mg/l	•	
V			mg/l		
W	<0,015		mg/l	•	
X	<0,01	0,003	mg/l	•	
Y	<0,0010		mg/l	•	
Z	<0,006		mg/l	•	
AA	0,00400		mg/l	•	
AB			mg/l		
AC	<0,009		mg/l	•	
AD			mg/l		
AE			mg/l		
AF	0,0400	0,003	mg/l	FP	
AG	0,0100	0,01	mg/l	•	
AH			mg/l		
AI	<0,01	0,001	mg/l	•	
AJ			mg/l		
AK	<0,009		mg/l	•	
AL	0,0215	0,00306	mg/l	FP	
AM	<0,015		mg/l	•	
AN			mg/l		
AO	0,080	0,004	mg/l	FP	
AP	<0,015	0,001	mg/l	•	



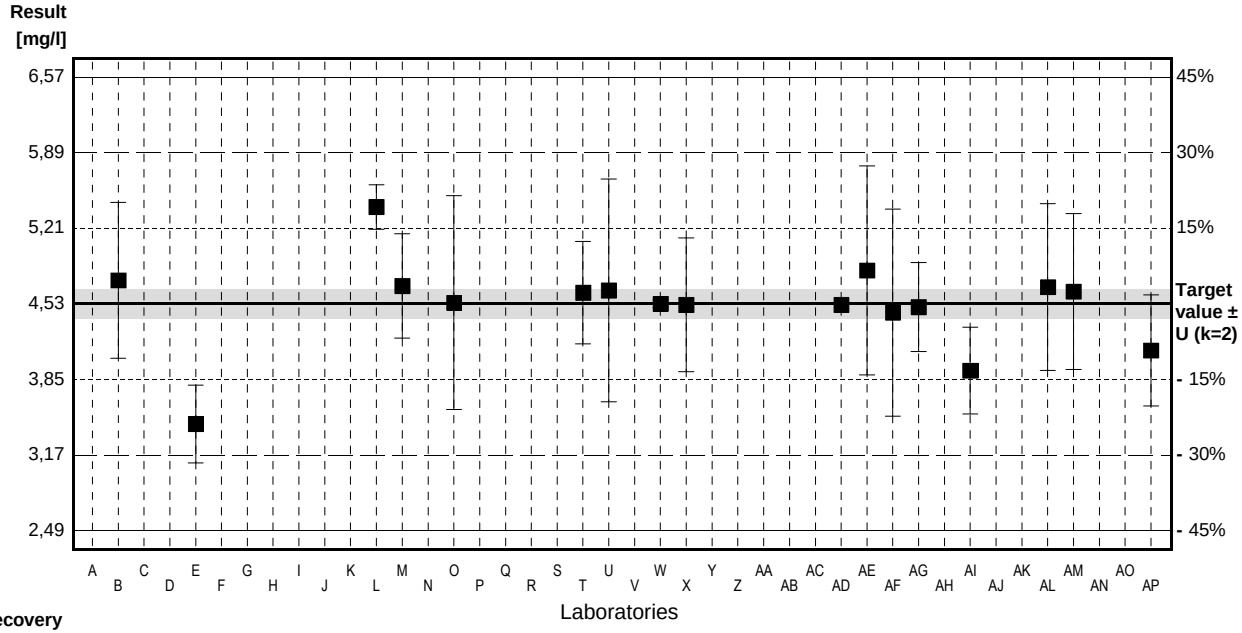


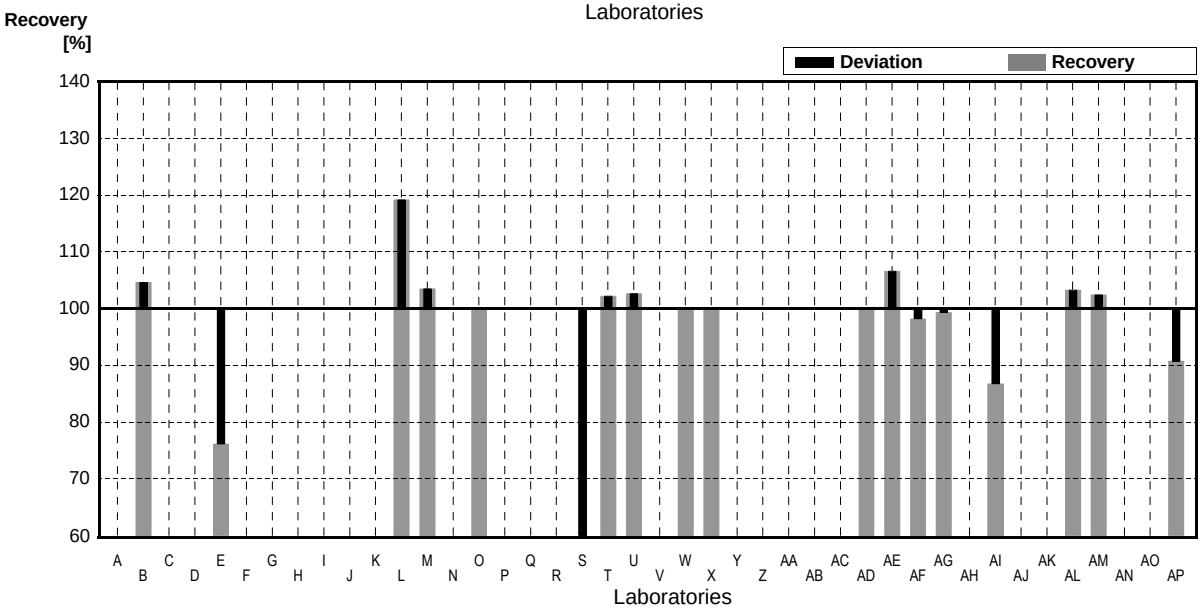
	All results	Outliers excl.	Unit
Mean ± CI(99%)			mg/l
Recov. ± CI(99%)			%
SD between labs			mg/l
RSD between labs			%
n for calculation			

Sample N149A
Parameter KMnO4-Index

Target value ± U (k=2)	4,53	mg/l	±	0,13	mg/l
IFA result ± U (k=2)	4,86	mg/l	±	0,87	mg/l
Stability test ± U (k=2)	4,73	mg/l	±	0,85	mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A			mg/l		
B	4,74	0,7	mg/l	105%	0,46
C			mg/l		
D			mg/l		
E	3,45 *	0,35	mg/l	76%	-2,38
F			mg/l		
G			mg/l		
H			mg/l		
I			mg/l		
J			mg/l		
K			mg/l		
L	5,4 *	0,2	mg/l	119%	1,92
M	4,69	0,47	mg/l	104%	0,35
N			mg/l		
O	4,54	0,96	mg/l	100%	0,02
P			mg/l		
Q			mg/l		
R			mg/l		
S	1,16 *	0,098	mg/l	26%	-7,44
T	4,63	0,46	mg/l	102%	0,22
U	4,65	1	mg/l	103%	0,26
V			mg/l		
W	4,53	0,035	mg/l	100%	0,00
X	4,52	0,6	mg/l	100%	-0,02
Y			mg/l		
Z			mg/l		
AA			mg/l		
AB			mg/l		
AC			mg/l		
AD	4,52		mg/l	100%	-0,02
AE	4,83	0,94	mg/l	107%	0,66
AF	4,45	0,93	mg/l	98%	-0,18
AG	4,50	0,4	mg/l	99%	-0,07
AH			mg/l		
AI	3,93	0,39	mg/l	87%	-1,32
AJ			mg/l		
AK			mg/l		
AL	4,68	0,749	mg/l	103%	0,33
AM	4,64	0,70	mg/l	102%	0,24
AN			mg/l		
AO			mg/l		
AP	4,11	0,50	mg/l	91%	-0,93



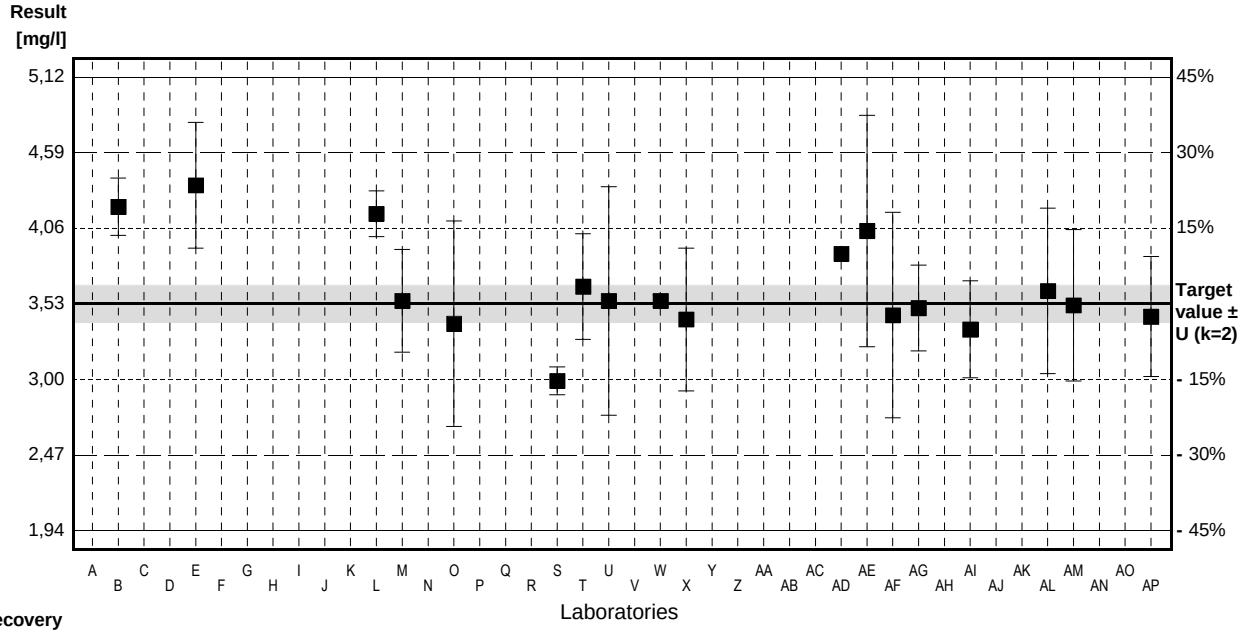


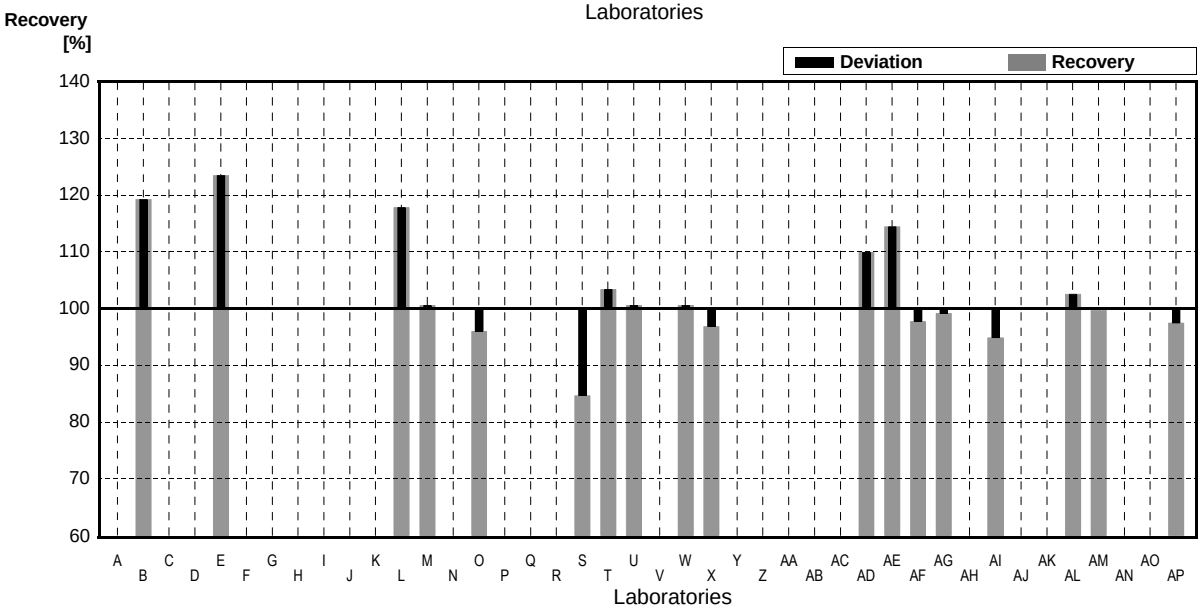
	All results	Outliers excl.	Unit
Mean ± CI(99%)	4,33 ± 0,61	4,53 ± 0,18	mg/l
Recov. ± CI(99%)	95,6 ± 13,4	100,0 ± 4,0	%
SD between labs	0,89	0,23	mg/l
RSD between labs	20,4	5,2	%
n for calculation	18	15	

Sample N149B
Parameter KMnO4-Index

Target value ± U (k=2)	3,53	mg/l	±	0,13	mg/l
IFA result ± U (k=2)	3,67	mg/l	±	0,66	mg/l
Stability test ± U (k=2)	3,66	mg/l	±	0,66	mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A			mg/l		
B	4,21 *	0,2	mg/l	119%	1,93
C			mg/l		
D			mg/l		
E	4,36 *	0,44	mg/l	124%	2,35
F			mg/l		
G			mg/l		
H			mg/l		
I			mg/l		
J			mg/l		
K			mg/l		
L	4,16 *	0,16	mg/l	118%	1,78
M	3,55	0,36	mg/l	101%	0,06
N			mg/l		
O	3,39	0,72	mg/l	96%	-0,40
P			mg/l		
Q			mg/l		
R			mg/l		
S	2,99	0,098	mg/l	85%	-1,53
T	3,65	0,37	mg/l	103%	0,34
U	3,55	0,8	mg/l	101%	0,06
V			mg/l		
W	3,55	0,042	mg/l	101%	0,06
X	3,42	0,5	mg/l	97%	-0,31
Y			mg/l		
Z			mg/l		
AA			mg/l		
AB			mg/l		
AC			mg/l		
AD	3,88		mg/l	110%	0,99
AE	4,04	0,81	mg/l	114%	1,44
AF	3,45	0,72	mg/l	98%	-0,23
AG	3,50	0,3	mg/l	99%	-0,08
AH			mg/l		
AI	3,35	0,34	mg/l	95%	-0,51
AJ			mg/l		
AK			mg/l		
AL	3,62	0,579	mg/l	103%	0,25
AM	3,52	0,53	mg/l	100%	-0,03
AN			mg/l		
AO			mg/l		
AP	3,44	0,42	mg/l	97%	-0,25





	All results	Outliers excl.	Unit
Mean ± CI(99%)	3,65 ± 0,24	3,53 ± 0,18	mg/l
Recov. ± CI(99%)	103,3 ± 6,8	99,9 ± 5,1	%
SD between labs	0,35	0,24	mg/l
RSD between labs	9,6	6,7	%
n for calculation	18	15	

Illustration of Results
Laboratory Oriented Part

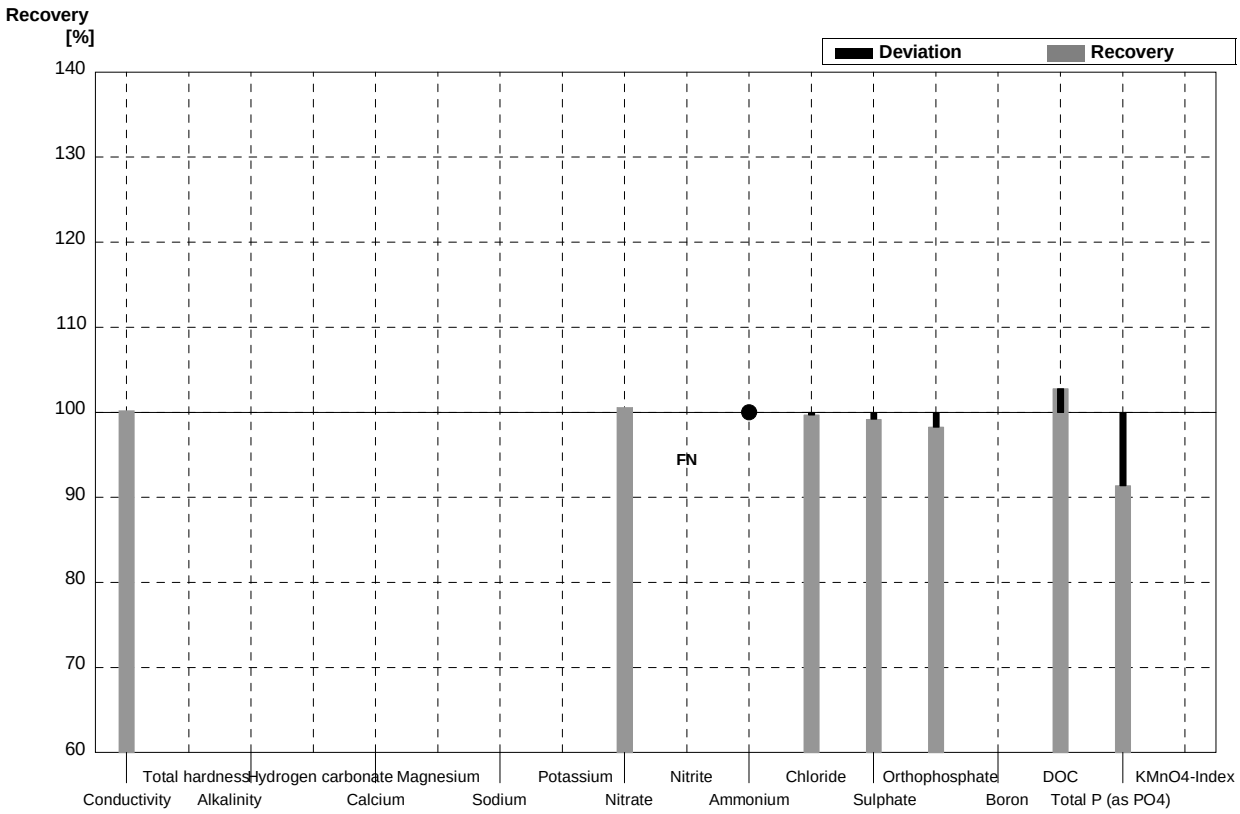
Round N149
Major Ions

Sample Dispatch: 18 November 2019

TULLN

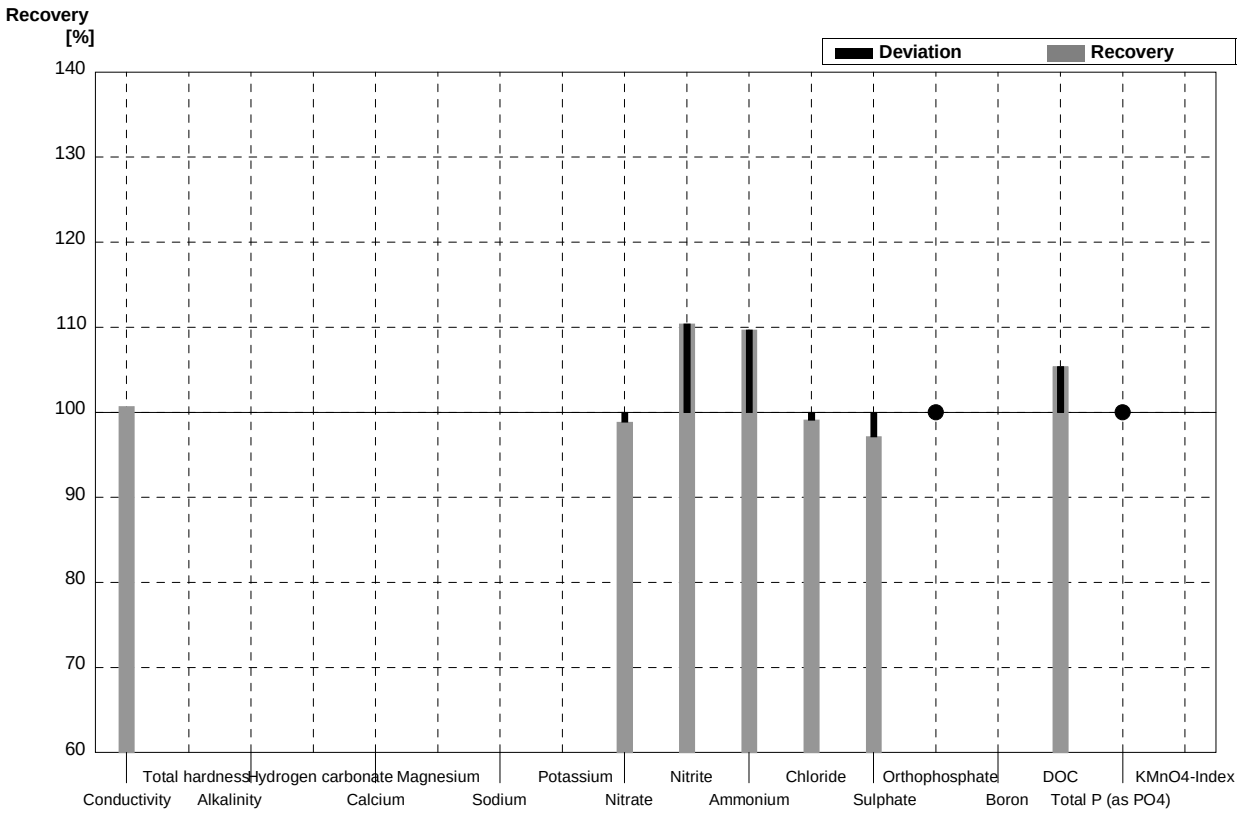
Sample N149A
Laboratory A

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	526	26	µS/cm	100%
Total hardness	2,11	0,02			mmol/l	
Alkalinity	2,78	0,03			mmol/l	
Hydrogen carbonate	167	2			mg/l	
Calcium	55,8	0,7			mg/l	
Magnesium	17,5	0,2			mg/l	
Sodium	21,2	0,4			mg/l	
Potassium	4,23	0,04			mg/l	
Nitrate	43,6	0,8	43,85	1,942	mg/l	101%
Nitrite	0,0402	0,0003	<0,016		mg/l	FN
Ammonium	<0,01		<0,012		mg/l	•
Chloride	35,9	0,7	35,80	4,683	mg/l	100%
Sulphate	35,2	0,4	34,92	2,127	mg/l	99%
Orthophosphate	0,081	0,003	0,0796	0,0135	mg/l	98%
Boron	0,101	0,001			mg/l	
DOC	6,43	0,05	6,61	1,191	mg/l	103%
Total P (as PO4)	0,186	0,003	0,170	0,020	mg/l	91%
KMnO4-Index	4,53	0,13			mg/l	



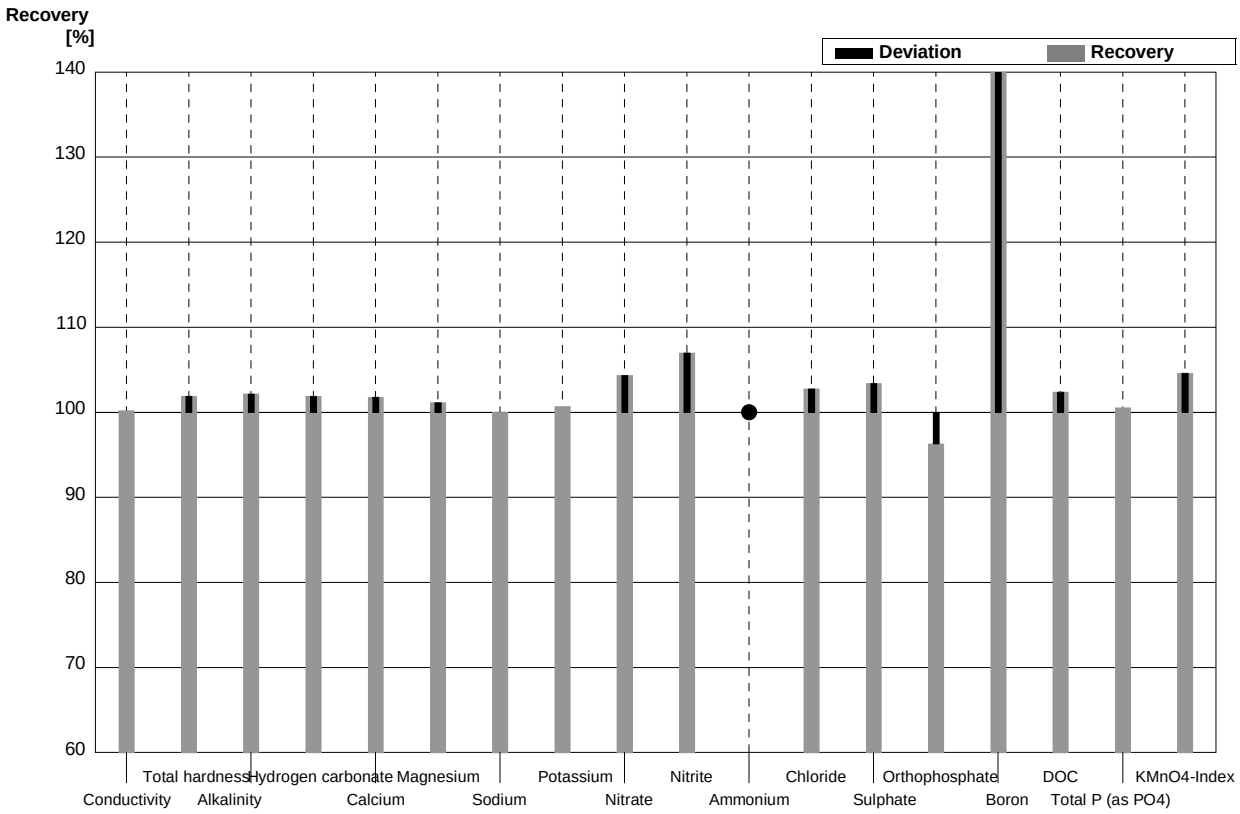
Sample N149B
Laboratory A

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	286	14	µS/cm	101%
Total hardness	1,03	0,01			mmol/l	
Alkalinity	1,61	0,02			mmol/l	
Hydrogen carbonate	95,4	1,0			mg/l	
Calcium	31,0	0,4			mg/l	
Magnesium	6,14	0,07			mg/l	
Sodium	15,6	0,2			mg/l	
Potassium	1,65	0,02			mg/l	
Nitrate	21,8	0,6	21,55	0,955	mg/l	99%
Nitrite	0,0202	0,0006	0,0223	0,0062	mg/l	110%
Ammonium	0,061	0,002	0,0669	0,0154	mg/l	110%
Chloride	14,5	0,3	14,37	1,879	mg/l	99%
Sulphate	19,6	0,2	19,04	1,160	mg/l	97%
Orthophosphate	<0,009		<0,015		mg/l	•
Boron	0,066	0,001			mg/l	
DOC	4,06	0,04	4,28	0,771	mg/l	105%
Total P (as PO4)	<0,009		<0,015		mg/l	•
KMnO4-Index	3,53	0,13			mg/l	



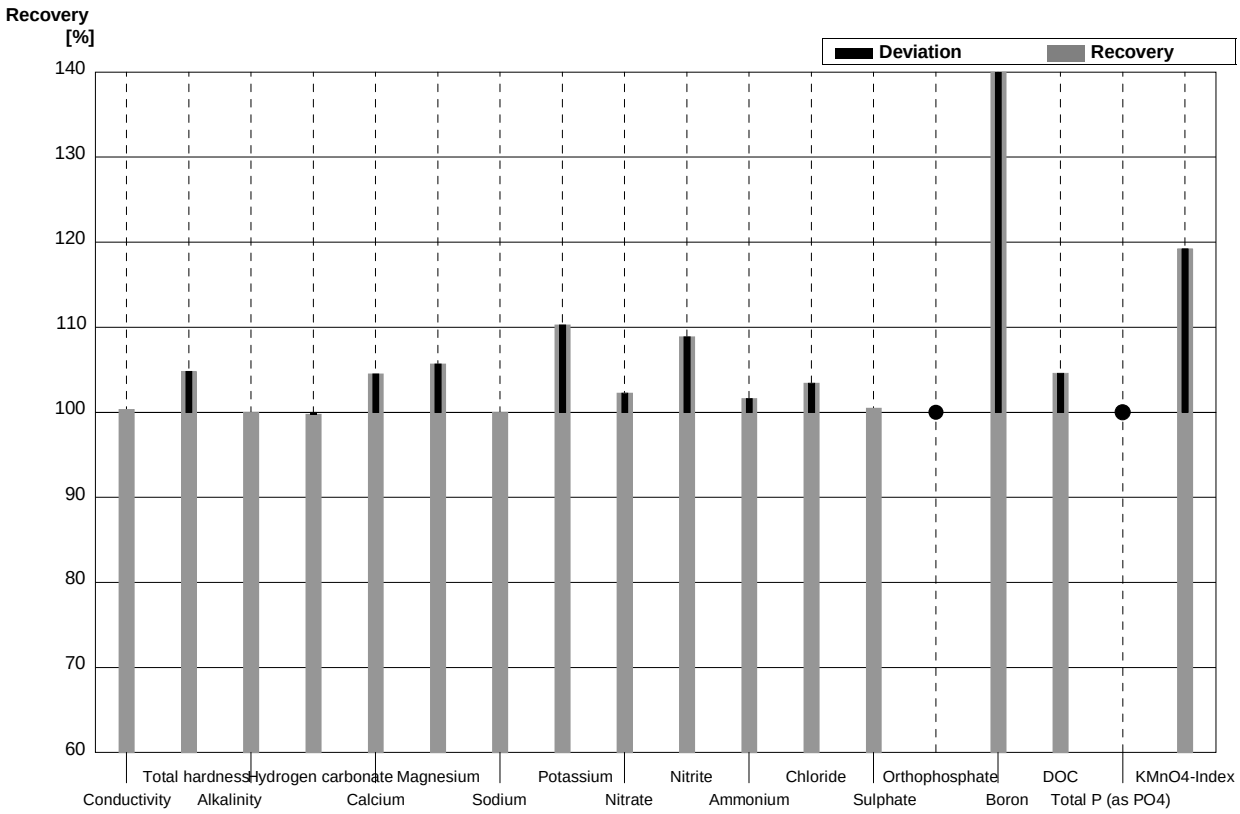
Sample N149A
Laboratory B

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	526		µS/cm	100%
Total hardness	2,11	0,02	2,15		mmol/l	102%
Alkalinity	2,78	0,03	2,84		mmol/l	102%
Hydrogen carbonate	167	2	170,2		mg/l	102%
Calcium	55,8	0,7	56,8	3,6	mg/l	102%
Magnesium	17,5	0,2	17,7	1,41	mg/l	101%
Sodium	21,2	0,4	21,2	0,7	mg/l	100%
Potassium	4,23	0,04	4,26	0,23	mg/l	101%
Nitrate	43,6	0,8	45,5	0,8	mg/l	104%
Nitrite	0,0402	0,0003	0,0430	0,001	mg/l	107%
Ammonium	<0,01		<0,01		mg/l	•
Chloride	35,9	0,7	36,9	0,4	mg/l	103%
Sulphate	35,2	0,4	36,4	1,3	mg/l	103%
Orthophosphate	0,081	0,003	0,0780	0,003	mg/l	96%
Boron	0,101	0,001	97,5	2,2	mg/l	96535%
DOC	6,43	0,05	6,583		mg/l	102%
Total P (as PO4)	0,186	0,003	0,187	0,003	mg/l	101%
KMnO4-Index	4,53	0,13	4,74	0,7	mg/l	105%



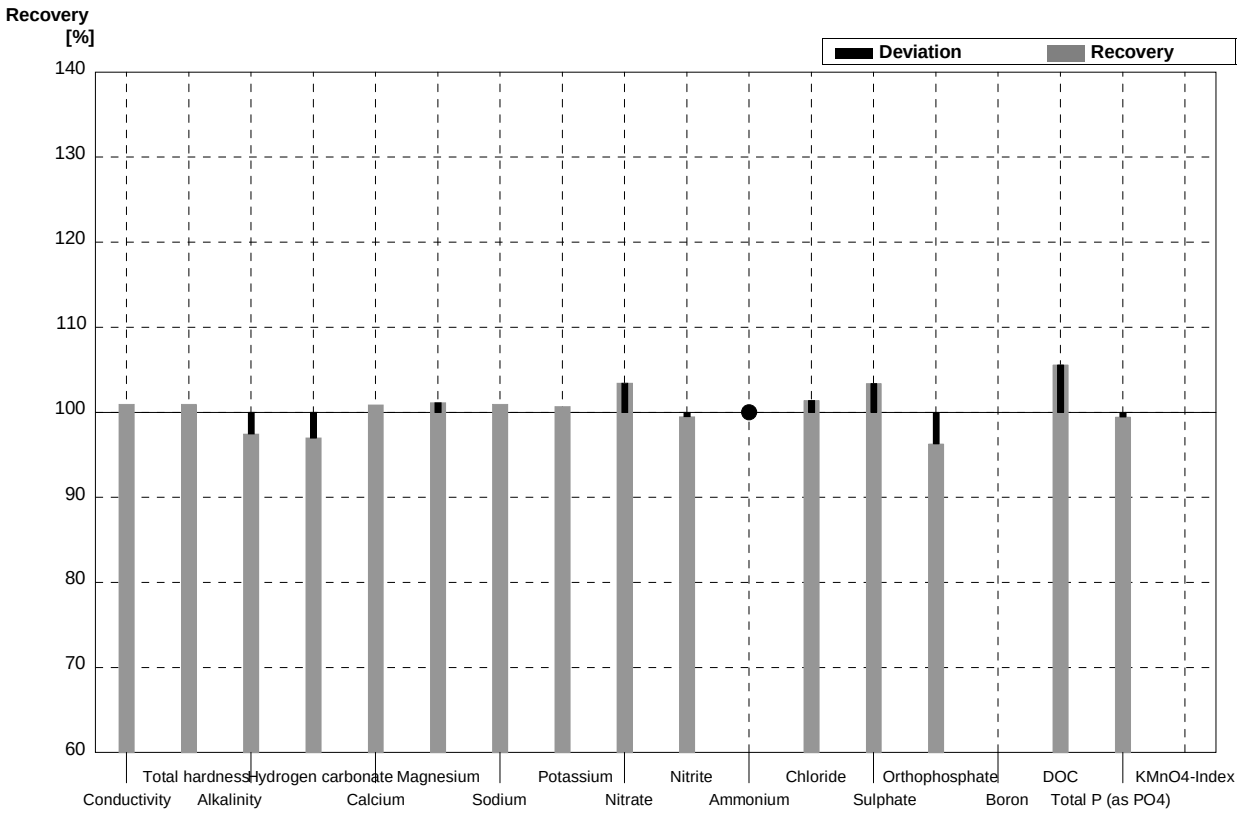
Sample N149B
Laboratory B

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	285		µS/cm	100%
Total hardness	1,03	0,01	1,08		mmol/l	105%
Alkalinity	1,61	0,02	1,61		mmol/l	100%
Hydrogen carbonate	95,4	1,0	95,2		mg/l	100%
Calcium	31,0	0,4	32,4	0,9	mg/l	105%
Magnesium	6,14	0,07	6,49	0,48	mg/l	106%
Sodium	15,6	0,2	15,6	0,8	mg/l	100%
Potassium	1,65	0,02	1,82	0,24	mg/l	110%
Nitrate	21,8	0,6	22,3	0,7	mg/l	102%
Nitrite	0,0202	0,0006	0,0220	0,0004	mg/l	109%
Ammonium	0,061	0,002	0,062	0,001	mg/l	102%
Chloride	14,5	0,3	15,0	0,5	mg/l	103%
Sulphate	19,6	0,2	19,7	1,3	mg/l	101%
Orthophosphate	<0,009		0,0110	0,003	mg/l	•
Boron	0,066	0,001	59,9	2,4	mg/l	90758%
DOC	4,06	0,04	4,247		mg/l	105%
Total P (as PO4)	<0,009		<0,002		mg/l	•
KMnO4-Index	3,53	0,13	4,21	0,2	mg/l	119%



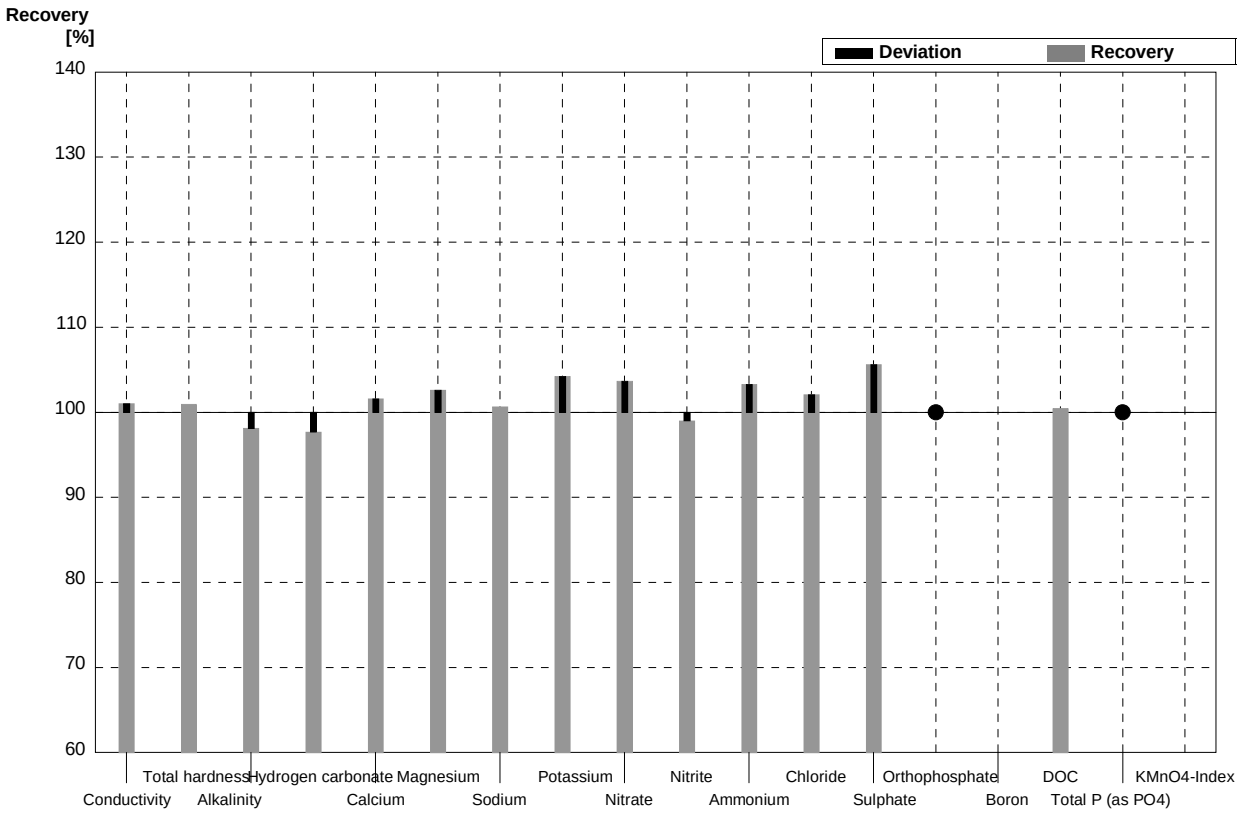
Sample N149A
Laboratory C

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	530	22	µS/cm	101%
Total hardness	2,11	0,02	2,13	0,1	mmol/l	101%
Alkalinity	2,78	0,03	2,71	0,2	mmol/l	97%
Hydrogen carbonate	167	2	162	7	mg/l	97%
Calcium	55,8	0,7	56,3	5	mg/l	101%
Magnesium	17,5	0,2	17,7	2,2	mg/l	101%
Sodium	21,2	0,4	21,4	4	mg/l	101%
Potassium	4,23	0,04	4,26	0,6	mg/l	101%
Nitrate	43,6	0,8	45,1	4	mg/l	103%
Nitrite	0,0402	0,0003	0,0400	0,003	mg/l	100%
Ammonium	<0,01		<0,013		mg/l	•
Chloride	35,9	0,7	36,4	3	mg/l	101%
Sulphate	35,2	0,4	36,4	3	mg/l	103%
Orthophosphate	0,081	0,003	0,078	0,01	mg/l	96%
Boron	0,101	0,001			mg/l	
DOC	6,43	0,05	6,79	1,1	mg/l	106%
Total P (as PO4)	0,186	0,003	0,185	0,03	mg/l	99%
KMnO4-Index	4,53	0,13			mg/l	



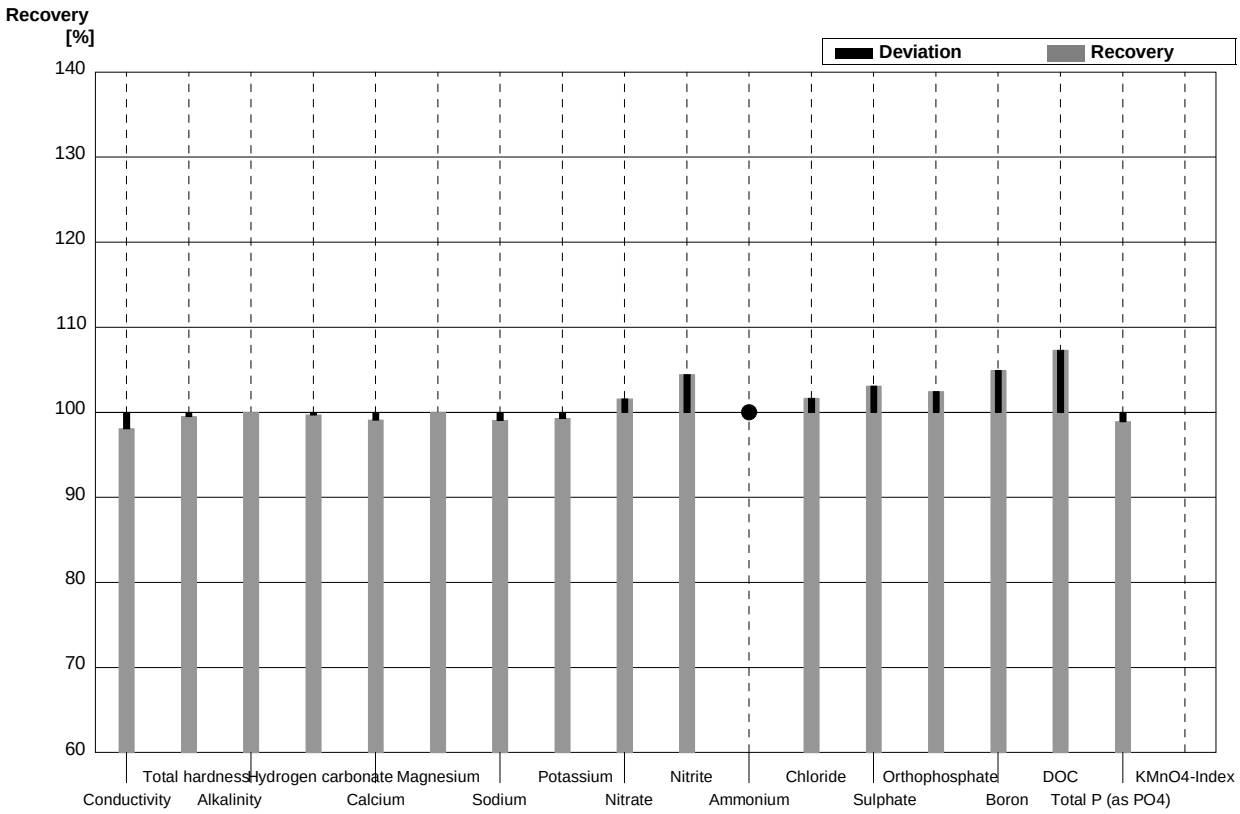
Sample N149B
Laboratory C

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	287	12	µS/cm	101%
Total hardness	1,03	0,01	1,04	0,1	mmol/l	101%
Alkalinity	1,61	0,02	1,58	0,1	mmol/l	98%
Hydrogen carbonate	95,4	1,0	93,2	4	mg/l	98%
Calcium	31,0	0,4	31,5	3	mg/l	102%
Magnesium	6,14	0,07	6,30	0,8	mg/l	103%
Sodium	15,6	0,2	15,7	2,4	mg/l	101%
Potassium	1,65	0,02	1,72	0,3	mg/l	104%
Nitrate	21,8	0,6	22,6	2	mg/l	104%
Nitrite	0,0202	0,0006	0,0200	0,002	mg/l	99%
Ammonium	0,061	0,002	0,063	0,009	mg/l	103%
Chloride	14,5	0,3	14,8	1,1	mg/l	102%
Sulphate	19,6	0,2	20,7	2	mg/l	106%
Orthophosphate	<0,009		<0,01		mg/l	•
Boron	0,066	0,001			mg/l	
DOC	4,06	0,04	4,08	0,7	mg/l	100%
Total P (as PO4)	<0,009		<0,013		mg/l	•
KMnO4-Index	3,53	0,13			mg/l	



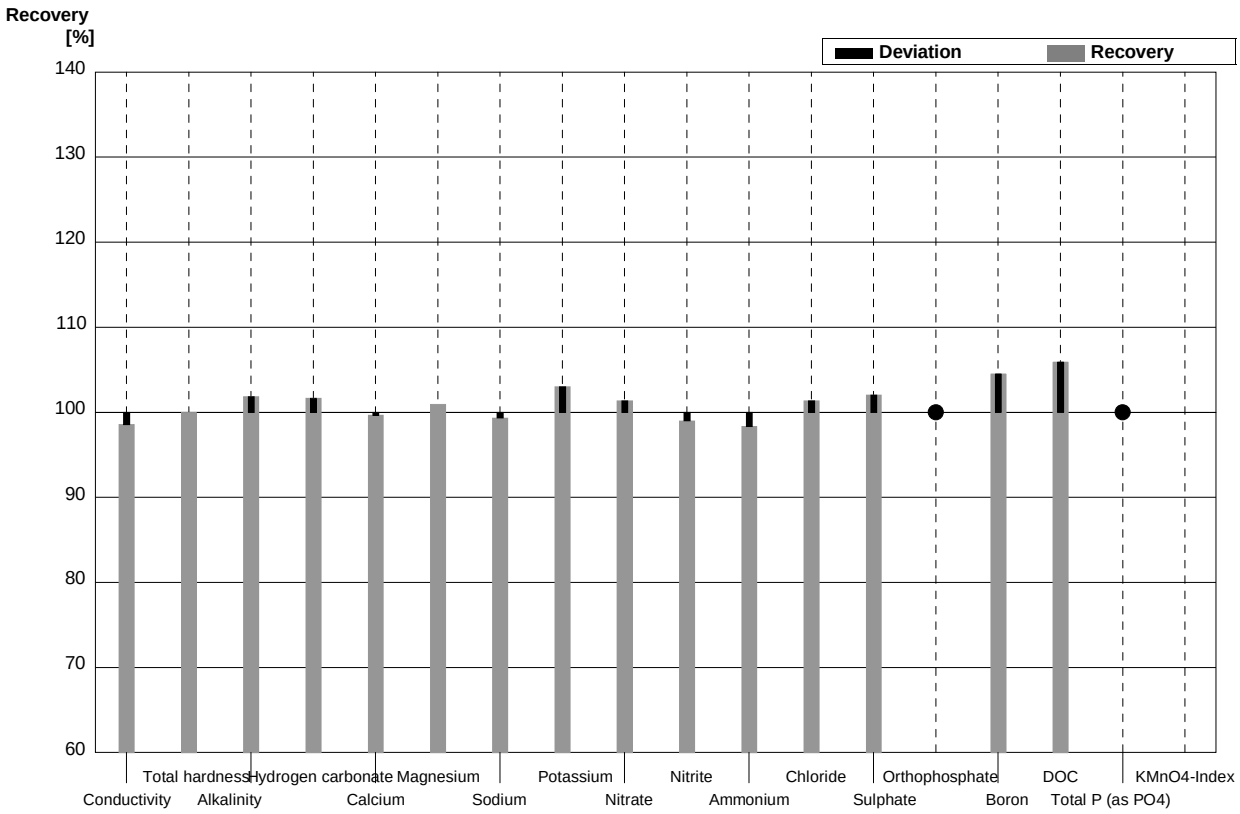
Sample N149A
Laboratory D

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	515	9	µS/cm	98%
Total hardness	2,11	0,02	2,10	0,04	mmol/l	100%
Alkalinity	2,78	0,03	2,78	0,02	mmol/l	100%
Hydrogen carbonate	167	2	166,5	1,0	mg/l	100%
Calcium	55,8	0,7	55,3	1,0	mg/l	99%
Magnesium	17,5	0,2	17,5	0,9	mg/l	100%
Sodium	21,2	0,4	21,0	0,5	mg/l	99%
Potassium	4,23	0,04	4,20	0,14	mg/l	99%
Nitrate	43,6	0,8	44,3	1,1	mg/l	102%
Nitrite	0,0402	0,0003	0,0420	0,002	mg/l	104%
Ammonium	<0,01		<0,01		mg/l	•
Chloride	35,9	0,7	36,5	0,8	mg/l	102%
Sulphate	35,2	0,4	36,3	0,9	mg/l	103%
Orthophosphate	0,081	0,003	0,083	0,007	mg/l	102%
Boron	0,101	0,001	0,106	0,014	mg/l	105%
DOC	6,43	0,05	6,90	0,62	mg/l	107%
Total P (as PO4)	0,186	0,003	0,184	0,017	mg/l	99%
KMnO4-Index	4,53	0,13			mg/l	



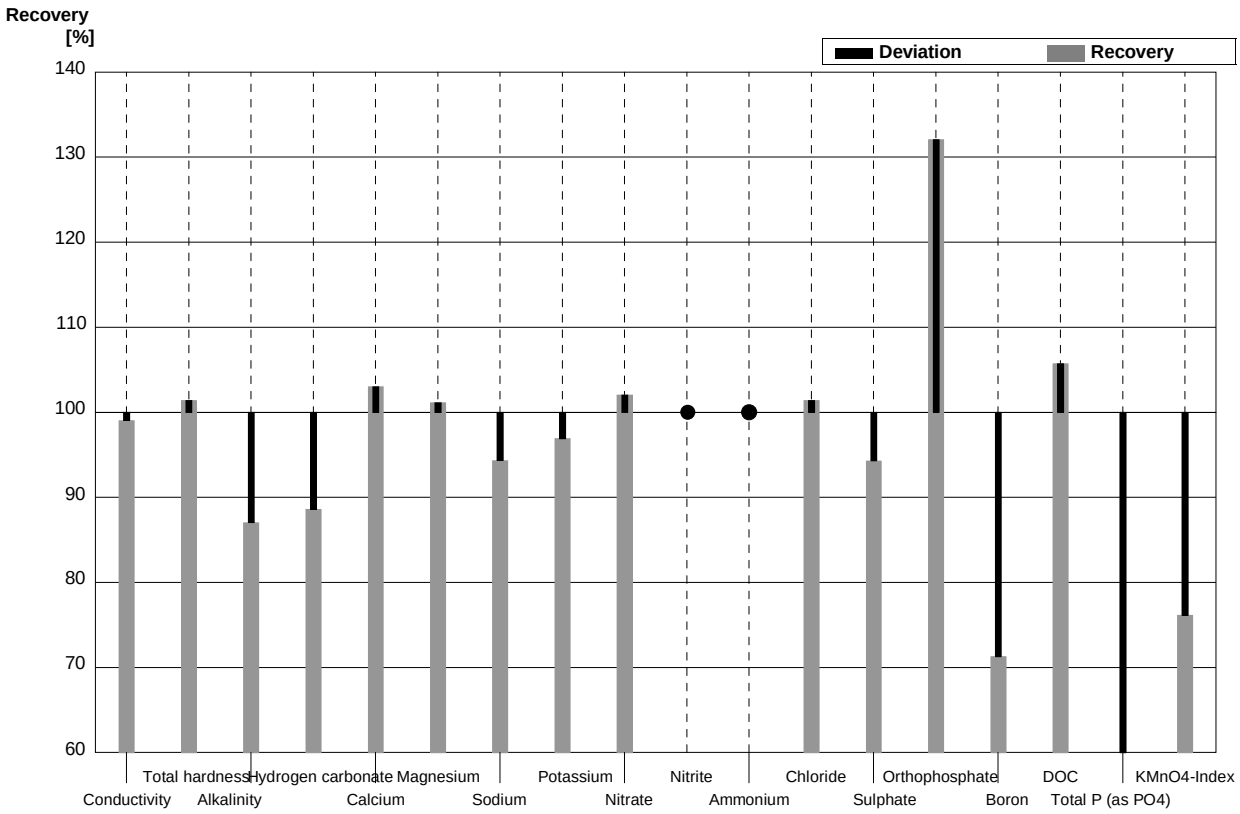
Sample N149B
Laboratory D

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	280	5	µS/cm	99%
Total hardness	1,03	0,01	1,03	0,02	mmol/l	100%
Alkalinity	1,61	0,02	1,64	0,01	mmol/l	102%
Hydrogen carbonate	95,4	1,0	97,0	0,6	mg/l	102%
Calcium	31,0	0,4	30,9	0,6	mg/l	100%
Magnesium	6,14	0,07	6,2	0,3	mg/l	101%
Sodium	15,6	0,2	15,5	0,4	mg/l	99%
Potassium	1,65	0,02	1,70	0,06	mg/l	103%
Nitrate	21,8	0,6	22,1	0,6	mg/l	101%
Nitrite	0,0202	0,0006	0,0200	0,001	mg/l	99%
Ammonium	0,061	0,002	0,060	0,003	mg/l	98%
Chloride	14,5	0,3	14,7	0,3	mg/l	101%
Sulphate	19,6	0,2	20,0	0,5	mg/l	102%
Orthophosphate	<0,009		<0,01		mg/l	•
Boron	0,066	0,001	0,069	0,009	mg/l	105%
DOC	4,06	0,04	4,30	0,39	mg/l	106%
Total P (as PO4)	<0,009		<0,01		mg/l	•
KMnO4-Index	3,53	0,13			mg/l	



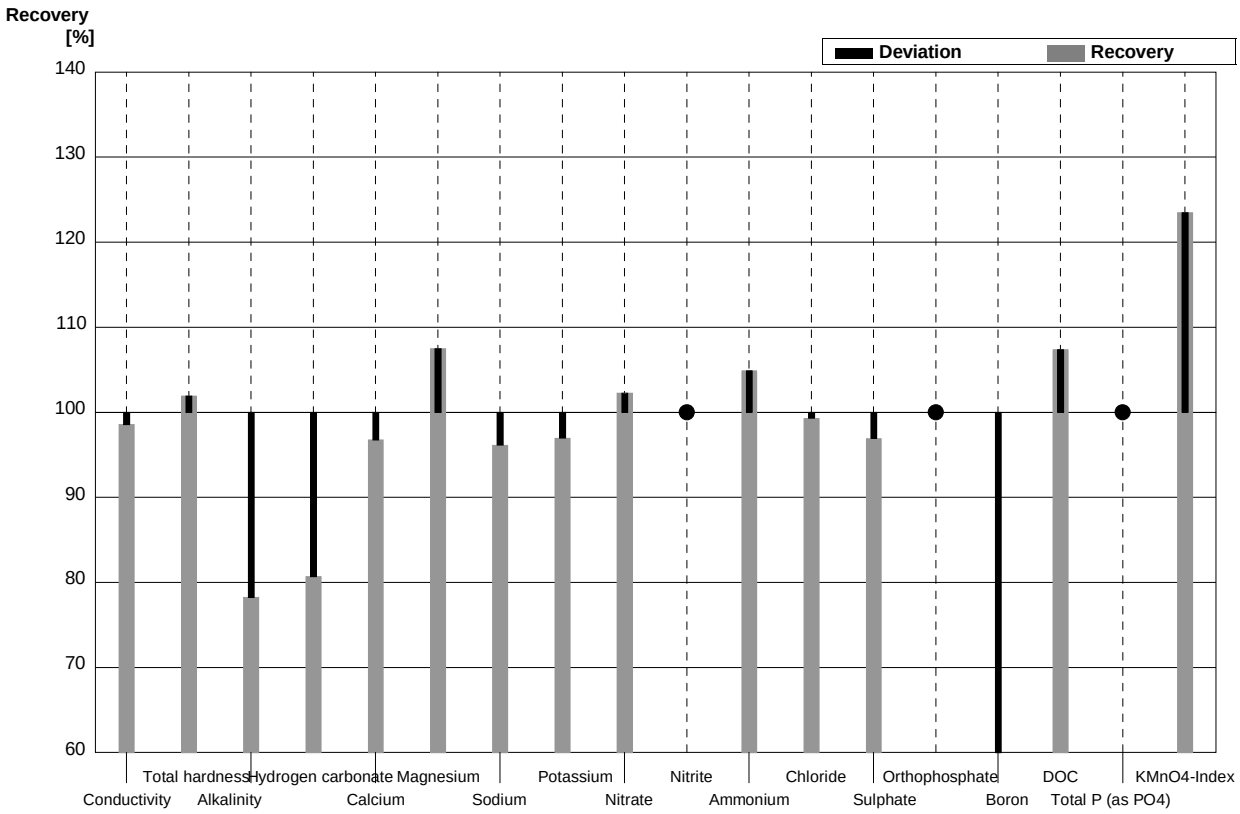
Sample N149A
Laboratory E

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	520	52	µS/cm	99%
Total hardness	2,11	0,02	2,14	0,21	mmol/l	101%
Alkalinity	2,78	0,03	2,42	0,24	mmol/l	87%
Hydrogen carbonate	167	2	148	15	mg/l	89%
Calcium	55,8	0,7	57,5	5,8	mg/l	103%
Magnesium	17,5	0,2	17,7	1,8	mg/l	101%
Sodium	21,2	0,4	20,0	2,0	mg/l	94%
Potassium	4,23	0,04	4,10	0,41	mg/l	97%
Nitrate	43,6	0,8	44,5	4,5	mg/l	102%
Nitrite	0,0402	0,0003	<0,04	0,008	mg/l	•
Ammonium	<0,01		<0,025		mg/l	•
Chloride	35,9	0,7	36,4	3,6	mg/l	101%
Sulphate	35,2	0,4	33,2	3,3	mg/l	94%
Orthophosphate	0,081	0,003	0,107	0,04	mg/l	132%
Boron	0,101	0,001	0,072	0,007	mg/l	71%
DOC	6,43	0,05	6,8	0,7	mg/l	106%
Total P (as PO4)	0,186	0,003	0,068	0,007	mg/l	37%
KMnO4-Index	4,53	0,13	3,45	0,35	mg/l	76%



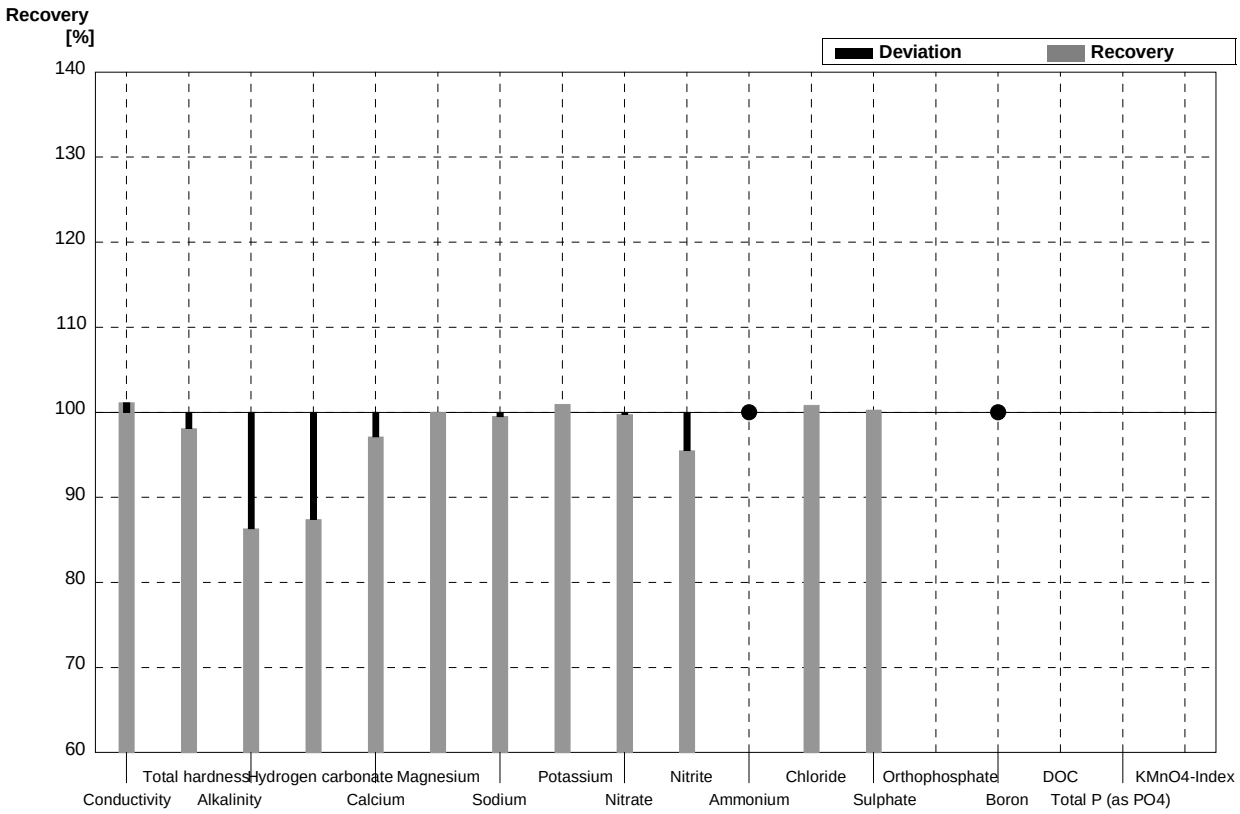
Sample N149B
Laboratory E

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	280	28	µS/cm	99%
Total hardness	1,03	0,01	1,05	0,11	mmol/l	102%
Alkalinity	1,61	0,02	1,26	0,13	mmol/l	78%
Hydrogen carbonate	95,4	1,0	77	8	mg/l	81%
Calcium	31,0	0,4	30,0	3	mg/l	97%
Magnesium	6,14	0,07	6,6	0,7	mg/l	107%
Sodium	15,6	0,2	15,0	1,5	mg/l	96%
Potassium	1,65	0,02	1,60	0,16	mg/l	97%
Nitrate	21,8	0,6	22,3	2,2	mg/l	102%
Nitrite	0,0202	0,0006	<0,04		mg/l	•
Ammonium	0,061	0,002	0,064	0,006	mg/l	105%
Chloride	14,5	0,3	14,4	1,4	mg/l	99%
Sulphate	19,6	0,2	19,0	1,9	mg/l	97%
Orthophosphate	<0,009		<0,010		mg/l	•
Boron	0,066	0,001	0,0380	0,0038	mg/l	58%
DOC	4,06	0,04	4,36	0,44	mg/l	107%
Total P (as PO4)	<0,009		<0,02		mg/l	•
KMnO4-Index	3,53	0,13	4,36	0,44	mg/l	124%



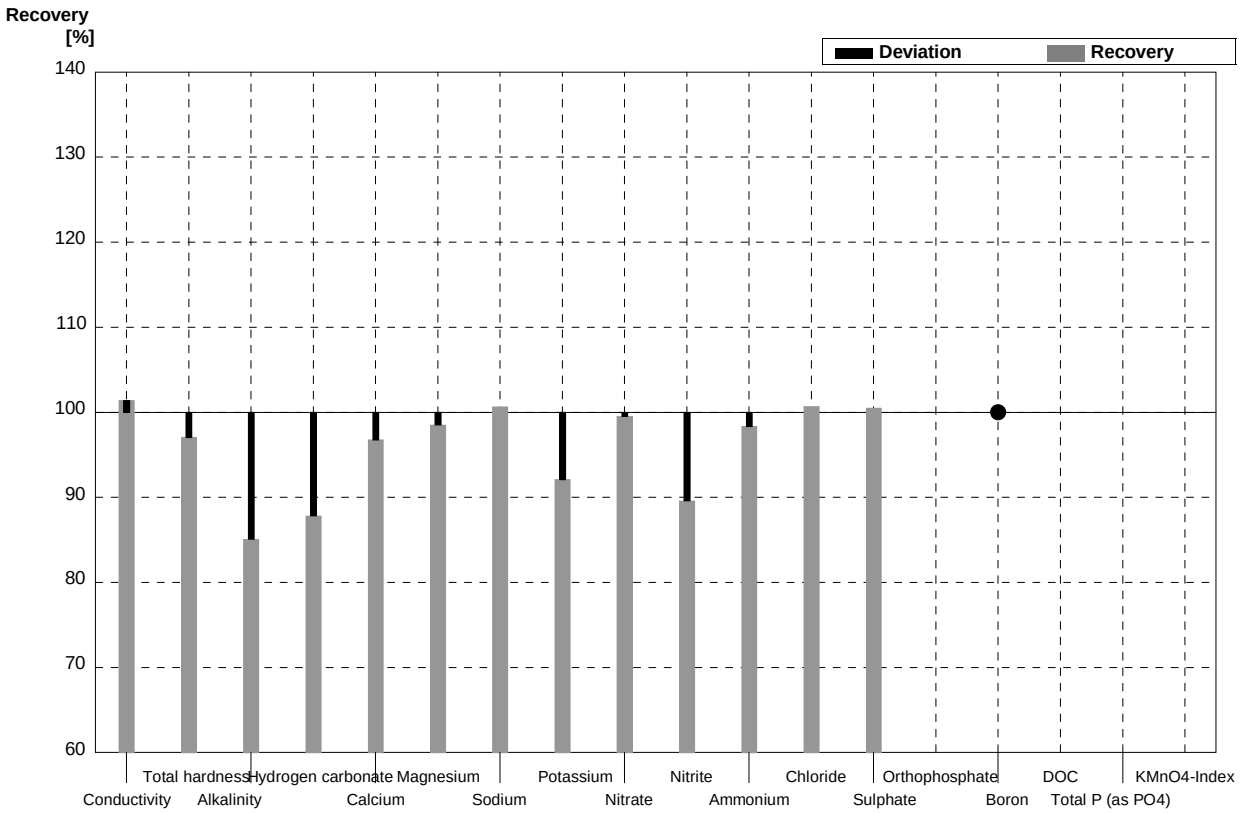
Sample N149A
Laboratory F

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	531		µS/cm	101%
Total hardness	2,11	0,02	2,07		mmol/l	98%
Alkalinity	2,78	0,03	2,40		mmol/l	86%
Hydrogen carbonate	167	2	146		mg/l	87%
Calcium	55,8	0,7	54,2	2,17	mg/l	97%
Magnesium	17,5	0,2	17,5	0,86	mg/l	100%
Sodium	21,2	0,4	21,1	1,1	mg/l	100%
Potassium	4,23	0,04	4,27	0,29	mg/l	101%
Nitrate	43,6	0,8	43,5		mg/l	100%
Nitrite	0,0402	0,0003	0,0384		mg/l	96%
Ammonium	<0,01		<0,04		mg/l	•
Chloride	35,9	0,7	36,2		mg/l	101%
Sulphate	35,2	0,4	35,3		mg/l	100%
Orthophosphate	0,081	0,003			mg/l	
Boron	0,101	0,001	<0,258		mg/l	•
DOC	6,43	0,05			mg/l	
Total P (as PO4)	0,186	0,003			mg/l	
KMnO4-Index	4,53	0,13			mg/l	



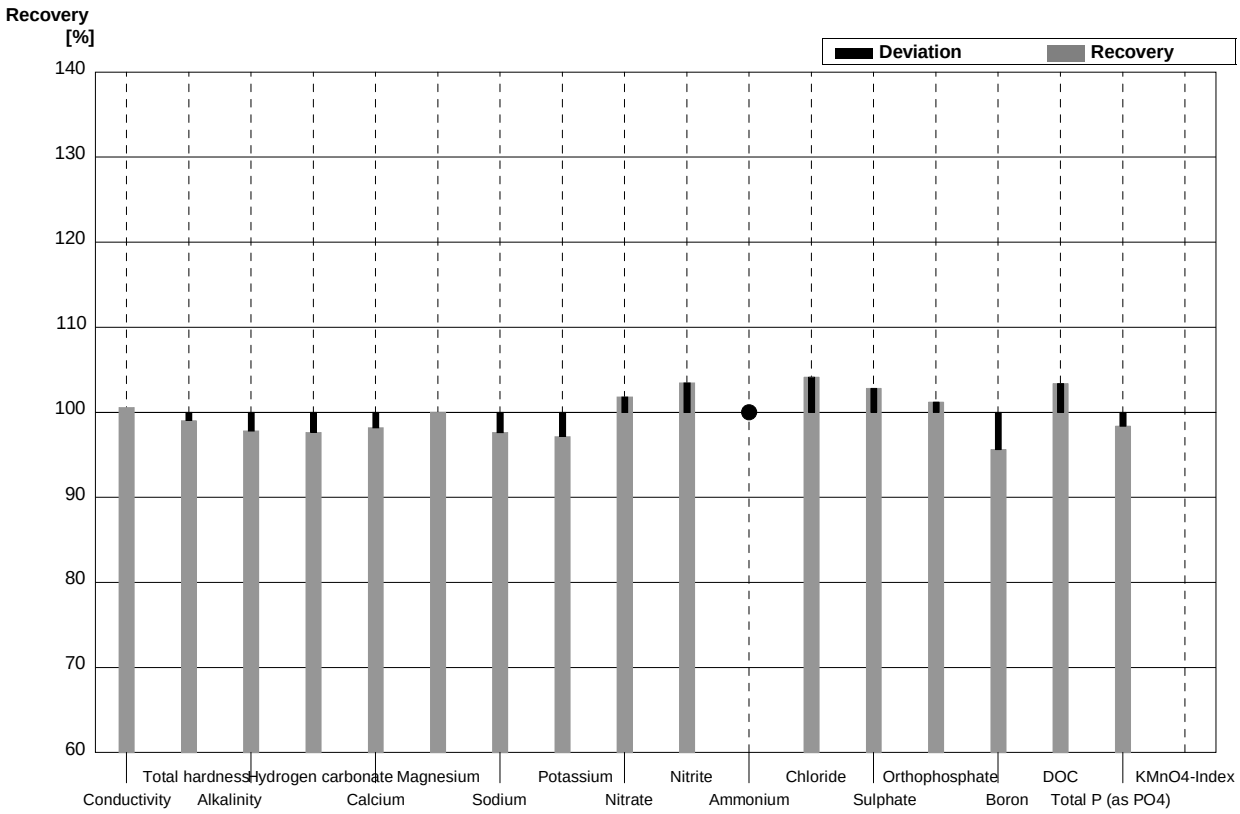
Sample N149B
Laboratory F

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	288		µS/cm	101%
Total hardness	1,03	0,01	1,00		mmol/l	97%
Alkalinity	1,61	0,02	1,37		mmol/l	85%
Hydrogen carbonate	95,4	1,0	83,8		mg/l	88%
Calcium	31,0	0,4	30,0	1,20	mg/l	97%
Magnesium	6,14	0,07	6,05	0,30	mg/l	99%
Sodium	15,6	0,2	15,7	0,82	mg/l	101%
Potassium	1,65	0,02	1,52	0,10	mg/l	92%
Nitrate	21,8	0,6	21,7		mg/l	100%
Nitrite	0,0202	0,0006	0,0181		mg/l	90%
Ammonium	0,061	0,002	0,060		mg/l	98%
Chloride	14,5	0,3	14,6		mg/l	101%
Sulphate	19,6	0,2	19,7		mg/l	101%
Orthophosphate	<0,009				mg/l	
Boron	0,066	0,001	<0,258		mg/l	•
DOC	4,06	0,04			mg/l	
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	3,53	0,13			mg/l	



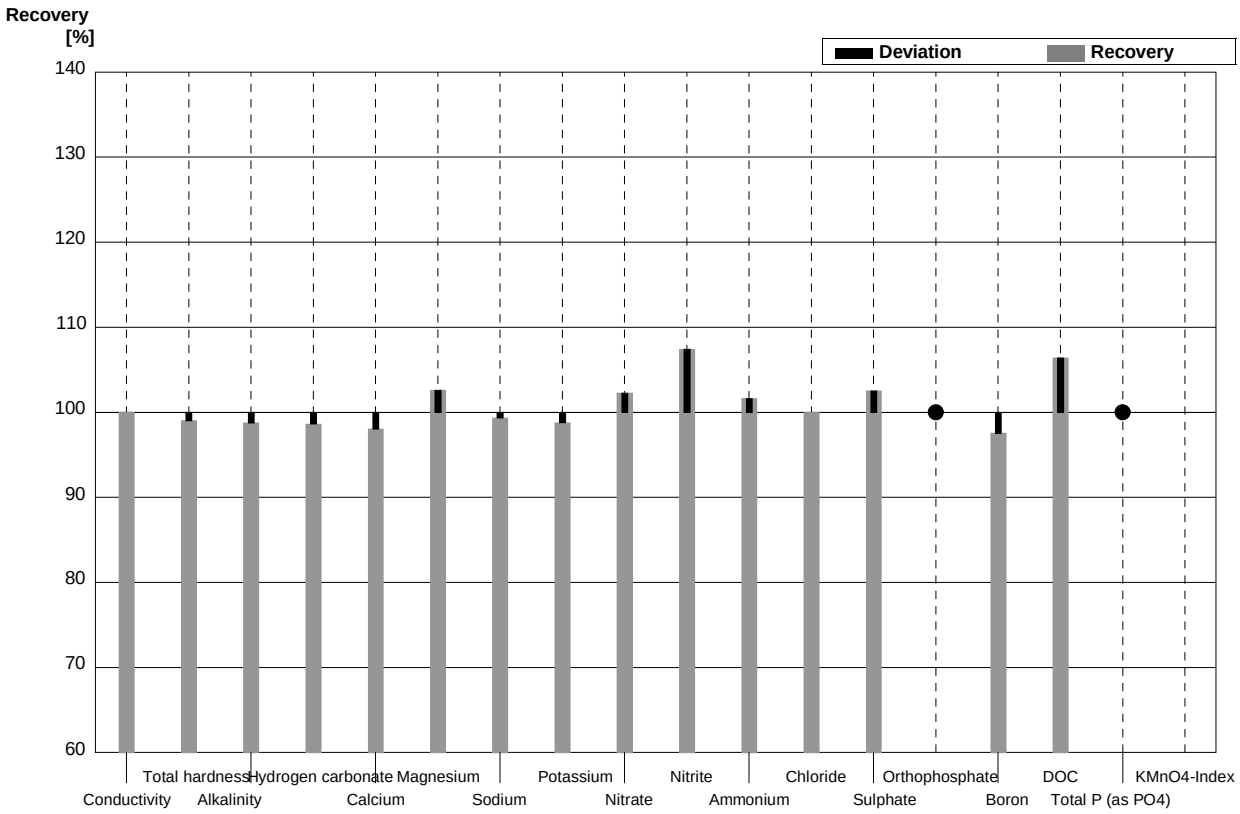
Sample N149A
Laboratory G

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	528	21	µS/cm	101%
Total hardness	2,11	0,02	2,09	0,11	mmol/l	99%
Alkalinity	2,78	0,03	2,72	0,20	mmol/l	98%
Hydrogen carbonate	167	2	163,1	12,0	mg/l	98%
Calcium	55,8	0,7	54,8	2,6	mg/l	98%
Magnesium	17,5	0,2	17,5	1,1	mg/l	100%
Sodium	21,2	0,4	20,7	1,1	mg/l	98%
Potassium	4,23	0,04	4,11	0,2	mg/l	97%
Nitrate	43,6	0,8	44,4	2,7	mg/l	102%
Nitrite	0,0402	0,0003	0,0416	0,0049	mg/l	103%
Ammonium	<0,01		<0,010		mg/l	•
Chloride	35,9	0,7	37,4	3,0	mg/l	104%
Sulphate	35,2	0,4	36,2	3,4	mg/l	103%
Orthophosphate	0,081	0,003	0,082	0,011	mg/l	101%
Boron	0,101	0,001	0,0966	0,0126	mg/l	96%
DOC	6,43	0,05	6,65	1,2	mg/l	103%
Total P (as PO4)	0,186	0,003	0,183	0,026	mg/l	98%
KMnO4-Index	4,53	0,13			mg/l	



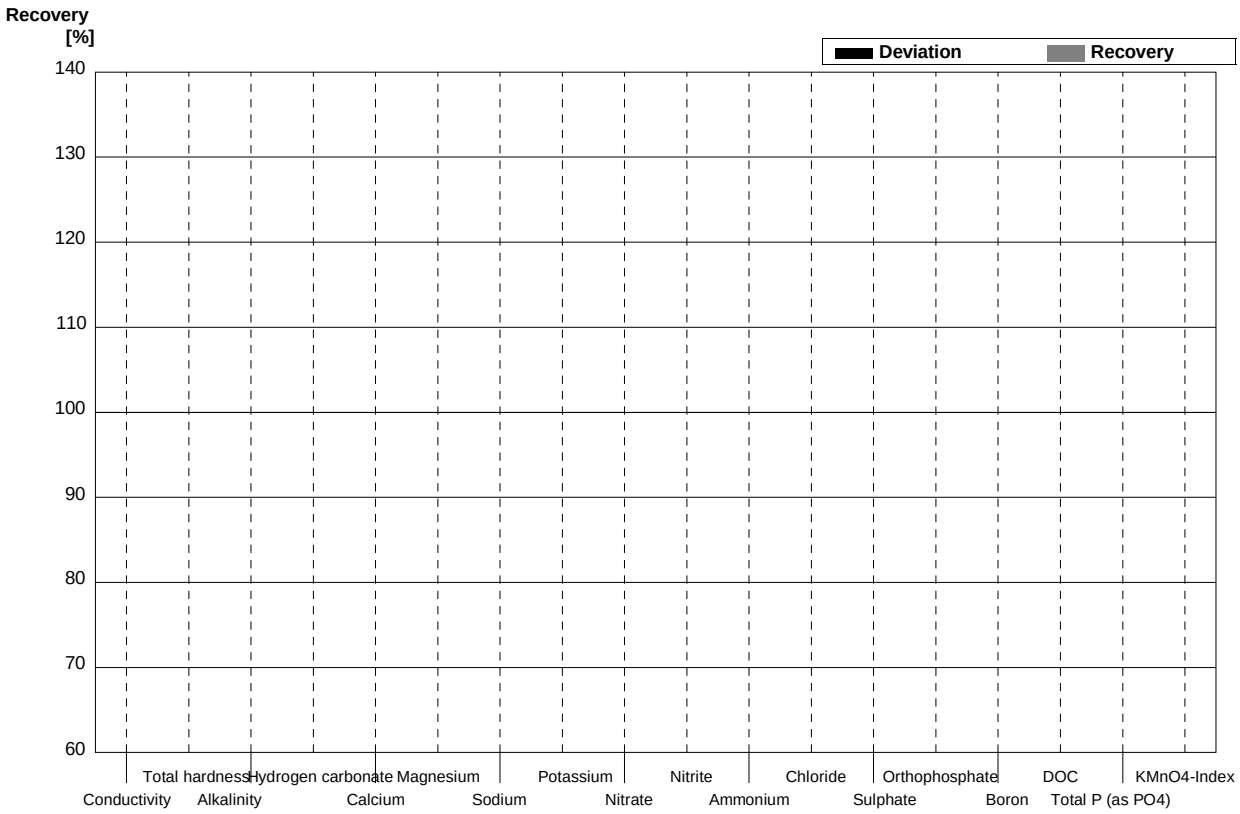
Sample N149B
Laboratory G

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	284	11	µS/cm	100%
Total hardness	1,03	0,01	1,02	0,06	mmol/l	99%
Alkalinity	1,61	0,02	1,59	0,13	mmol/l	99%
Hydrogen carbonate	95,4	1,0	94,1	7,7	mg/l	99%
Calcium	31,0	0,4	30,4	1,5	mg/l	98%
Magnesium	6,14	0,07	6,3	0,4	mg/l	103%
Sodium	15,6	0,2	15,5	0,8	mg/l	99%
Potassium	1,65	0,02	1,63	0,11	mg/l	99%
Nitrate	21,8	0,6	22,3	1,4	mg/l	102%
Nitrite	0,0202	0,0006	0,0217	0,0035	mg/l	107%
Ammonium	0,061	0,002	0,062	0,011	mg/l	102%
Chloride	14,5	0,3	14,5	1,3	mg/l	100%
Sulphate	19,6	0,2	20,1	2,0	mg/l	103%
Orthophosphate	<0,009		<0,010		mg/l	•
Boron	0,066	0,001	0,0644	0,0087	mg/l	98%
DOC	4,06	0,04	4,32	0,84	mg/l	106%
Total P (as PO4)	<0,009		<0,010		mg/l	•
KMnO4-Index	3,53	0,13			mg/l	



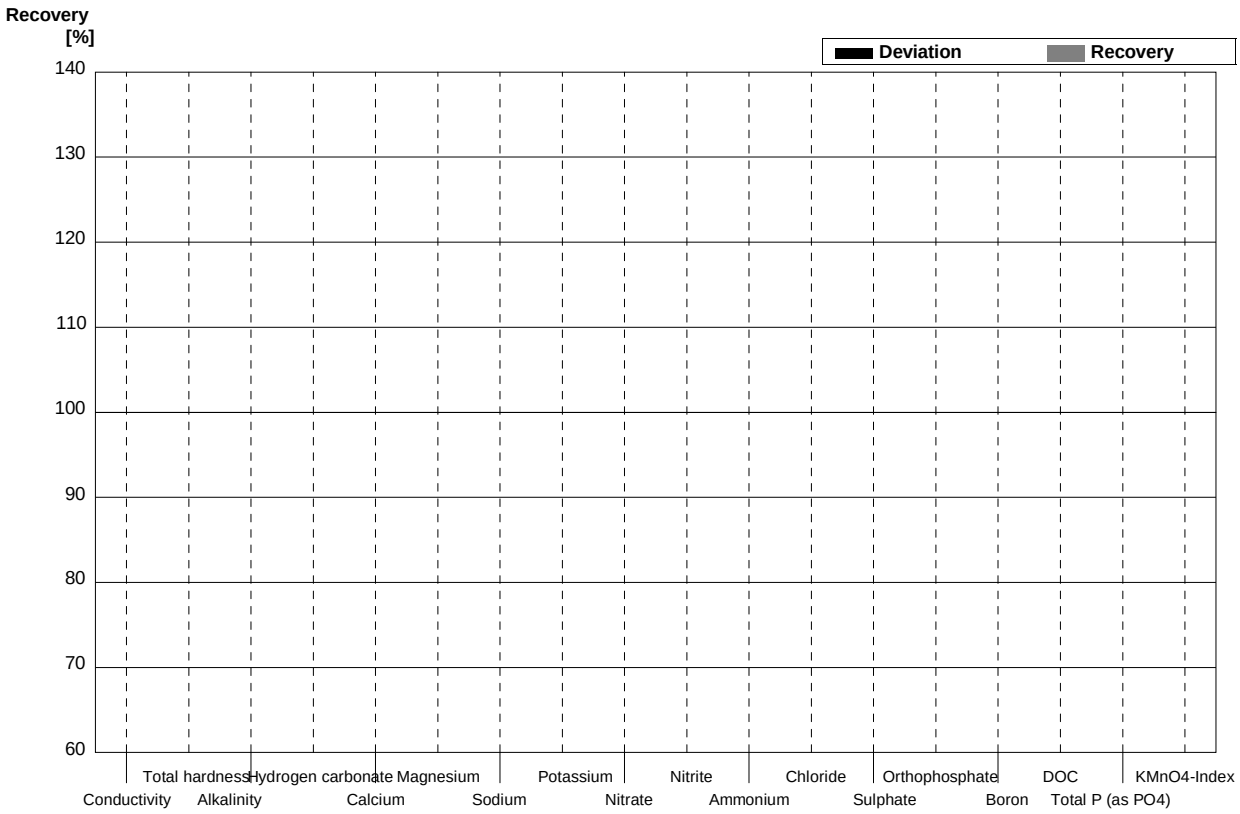
Sample N149A
Laboratory H

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2			µS/cm	
Total hardness	2,11	0,02			mmol/l	
Alkalinity	2,78	0,03			mmol/l	
Hydrogen carbonate	167	2			mg/l	
Calcium	55,8	0,7			mg/l	
Magnesium	17,5	0,2			mg/l	
Sodium	21,2	0,4			mg/l	
Potassium	4,23	0,04			mg/l	
Nitrate	43,6	0,8			mg/l	
Nitrite	0,0402	0,0003			mg/l	
Ammonium	<0,01				mg/l	
Chloride	35,9	0,7			mg/l	
Sulphate	35,2	0,4			mg/l	
Orthophosphate	0,081	0,003			mg/l	
Boron	0,101	0,001			mg/l	
DOC	6,43	0,05			mg/l	
Total P (as PO4)	0,186	0,003			mg/l	
KMnO4-Index	4,53	0,13			mg/l	



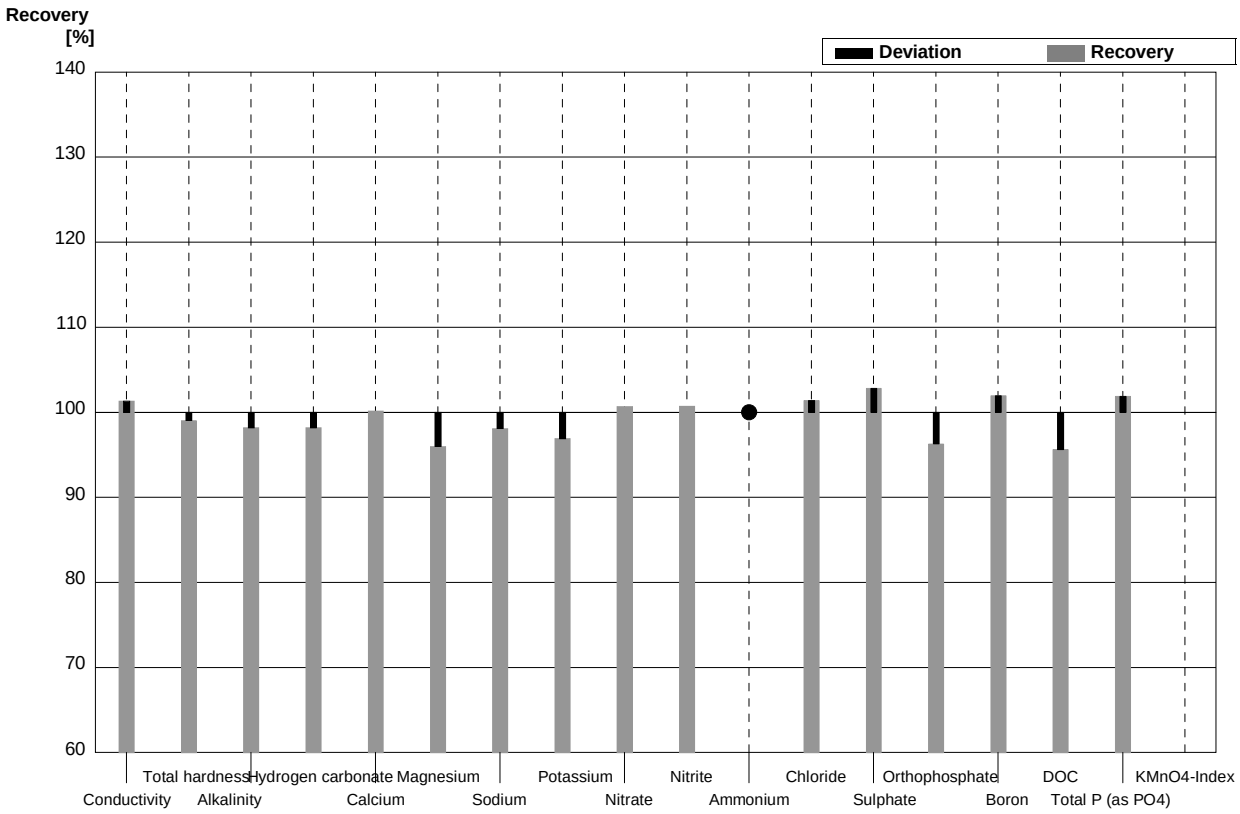
Sample N149B
Laboratory H

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2			µS/cm	
Total hardness	1,03	0,01			mmol/l	
Alkalinity	1,61	0,02			mmol/l	
Hydrogen carbonate	95,4	1,0			mg/l	
Calcium	31,0	0,4			mg/l	
Magnesium	6,14	0,07			mg/l	
Sodium	15,6	0,2			mg/l	
Potassium	1,65	0,02			mg/l	
Nitrate	21,8	0,6			mg/l	
Nitrite	0,0202	0,0006			mg/l	
Ammonium	0,061	0,002			mg/l	
Chloride	14,5	0,3			mg/l	
Sulphate	19,6	0,2			mg/l	
Orthophosphate	<0,009				mg/l	
Boron	0,066	0,001			mg/l	
DOC	4,06	0,04			mg/l	
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	3,53	0,13			mg/l	



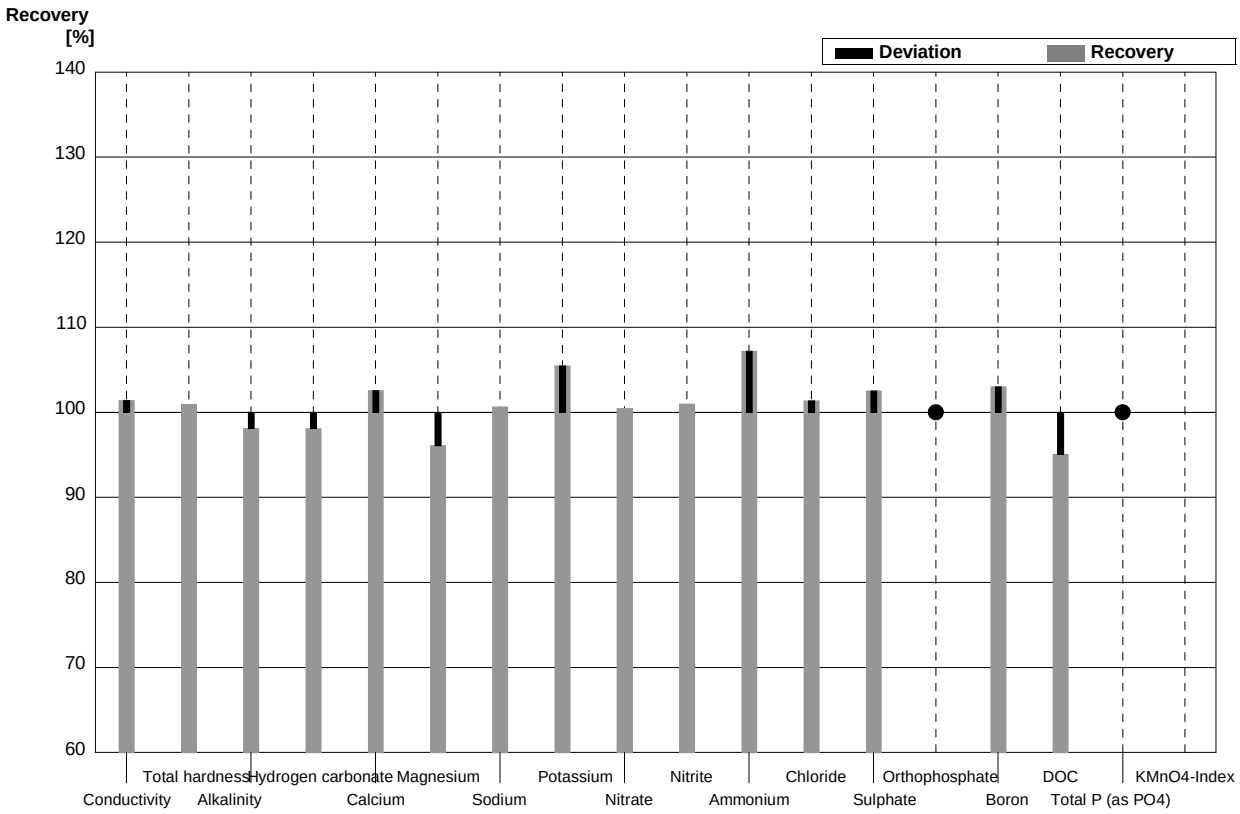
Sample N149A
Laboratory I

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	532	0,35	µS/cm	101%
Total hardness	2,11	0,02	2,09	0,04	mmol/l	99%
Alkalinity	2,78	0,03	2,73	0,10	mmol/l	98%
Hydrogen carbonate	167	2	164	3,27	mg/l	98%
Calcium	55,8	0,7	55,9	0,93	mg/l	100%
Magnesium	17,5	0,2	16,8	0,65	mg/l	96%
Sodium	21,2	0,4	20,8	0,43	mg/l	98%
Potassium	4,23	0,04	4,10	0,71	mg/l	97%
Nitrate	43,6	0,8	43,9	0,19	mg/l	101%
Nitrite	0,0402	0,0003	0,0405	0,0012	mg/l	101%
Ammonium	<0,01		[0,002]		mg/l	•
Chloride	35,9	0,7	36,4	0,07	mg/l	101%
Sulphate	35,2	0,4	36,2	0,28	mg/l	103%
Orthophosphate	0,081	0,003	0,0780	0,0028	mg/l	96%
Boron	0,101	0,001	0,103	0,002	mg/l	102%
DOC	6,43	0,05	6,15	0,05	mg/l	96%
Total P (as PO4)	0,186	0,003	0,1895	0,0016	mg/l	102%
KMnO4-Index	4,53	0,13			mg/l	



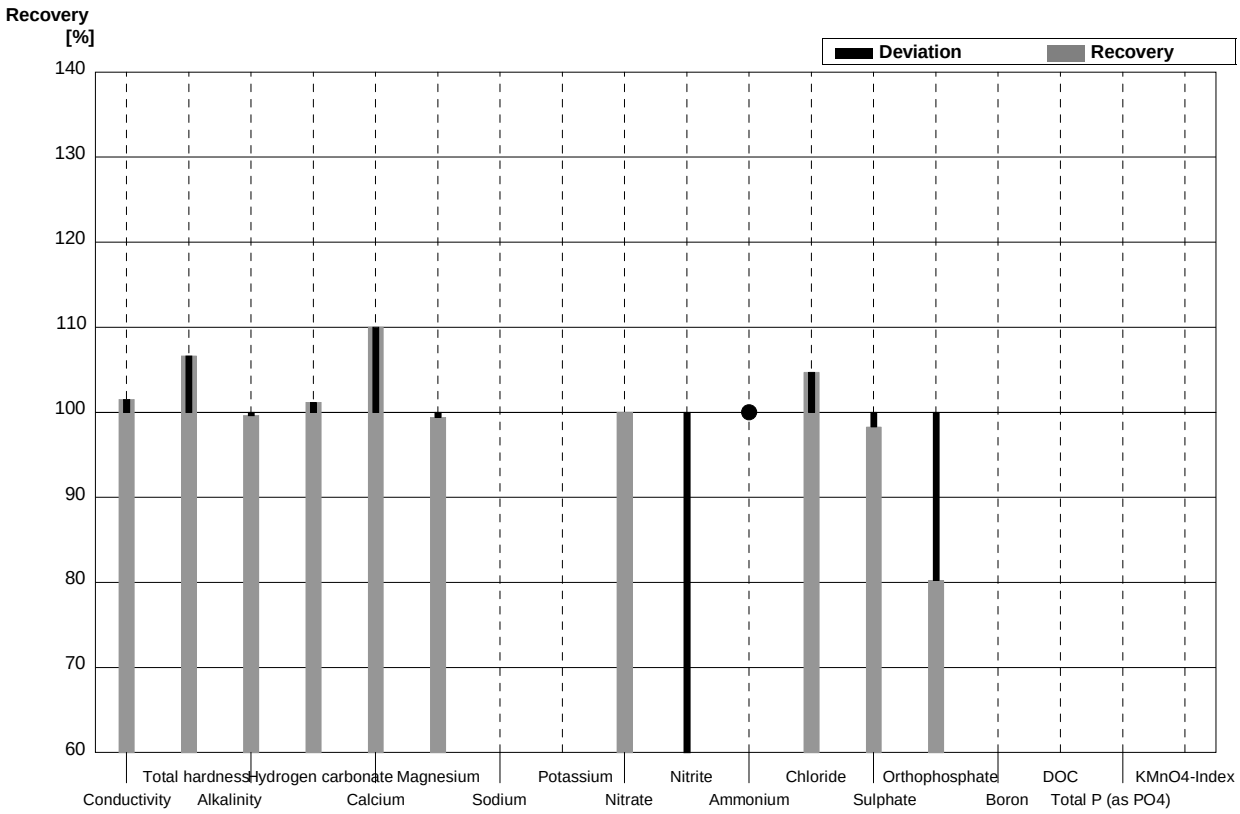
Sample N149B
Laboratory I

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	288	0,20	µS/cm	101%
Total hardness	1,03	0,01	1,04	0,02	mmol/l	101%
Alkalinity	1,61	0,02	1,58	0,08	mmol/l	98%
Hydrogen carbonate	95,4	1,0	93,6	1,87	mg/l	98%
Calcium	31,0	0,4	31,8	0,83	mg/l	103%
Magnesium	6,14	0,07	5,90	0,04	mg/l	96%
Sodium	15,6	0,2	15,7	0,44	mg/l	101%
Potassium	1,65	0,02	1,74	0,06	mg/l	105%
Nitrate	21,8	0,6	21,9	0,17	mg/l	100%
Nitrite	0,0202	0,0006	0,0204	0,0013	mg/l	101%
Ammonium	0,061	0,002	0,0654	0,0017	mg/l	107%
Chloride	14,5	0,3	14,7	0,08	mg/l	101%
Sulphate	19,6	0,2	20,1	0,29	mg/l	103%
Orthophosphate	<0,009		[0,003]		mg/l	•
Boron	0,066	0,001	0,068	0,002	mg/l	103%
DOC	4,06	0,04	3,86	0,04	mg/l	95%
Total P (as PO4)	<0,009		[0,002]		mg/l	•
KMnO4-Index	3,53	0,13			mg/l	



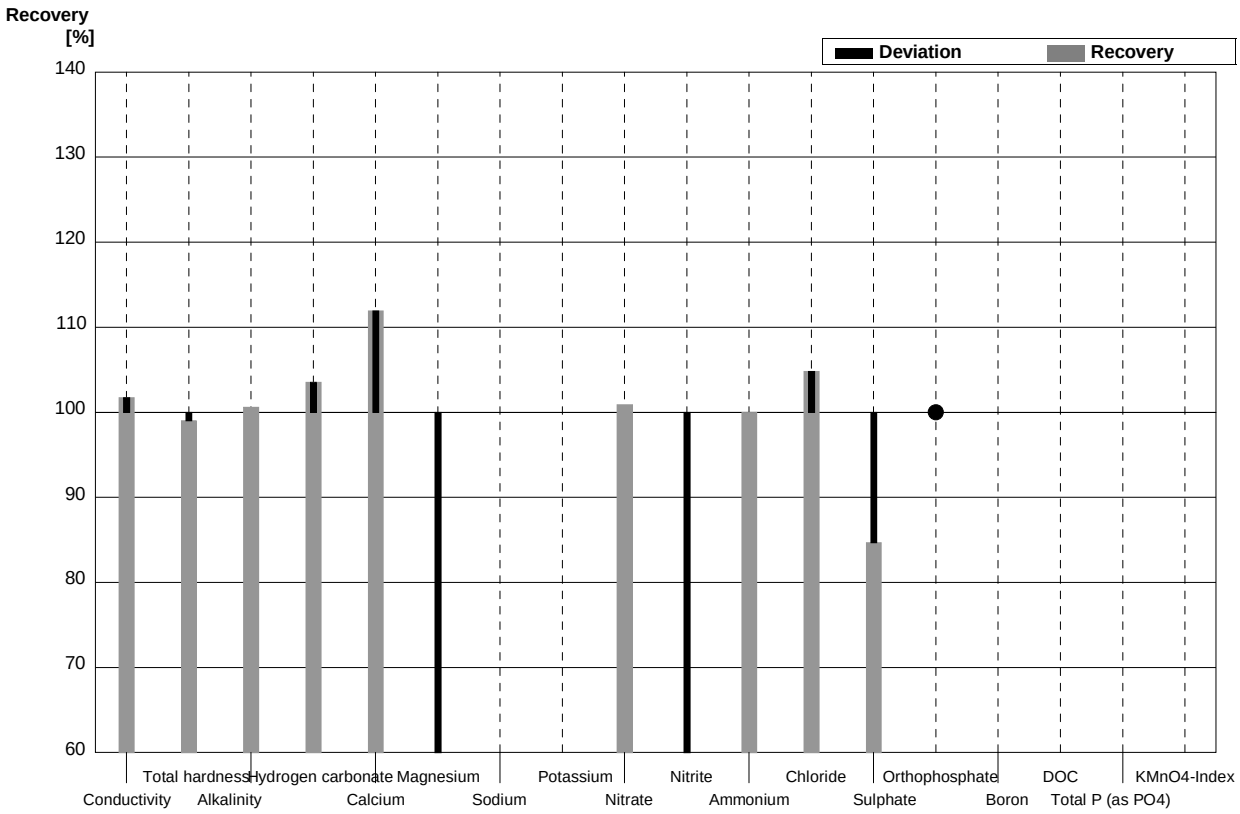
Sample N149A
Laboratory J

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	533		µS/cm	102%
Total hardness	2,11	0,02	2,25		mmol/l	107%
Alkalinity	2,78	0,03	2,77		mmol/l	100%
Hydrogen carbonate	167	2	169,0		mg/l	101%
Calcium	55,8	0,7	61,4		mg/l	110%
Magnesium	17,5	0,2	17,4		mg/l	99%
Sodium	21,2	0,4			mg/l	
Potassium	4,23	0,04			mg/l	
Nitrate	43,6	0,8	43,6		mg/l	100%
Nitrite	0,0402	0,0003	0,0240		mg/l	60%
Ammonium	<0,01		<0,06		mg/l	•
Chloride	35,9	0,7	37,6		mg/l	105%
Sulphate	35,2	0,4	34,6		mg/l	98%
Orthophosphate	0,081	0,003	0,065		mg/l	80%
Boron	0,101	0,001			mg/l	
DOC	6,43	0,05			mg/l	
Total P (as PO4)	0,186	0,003			mg/l	
KMnO4-Index	4,53	0,13			mg/l	



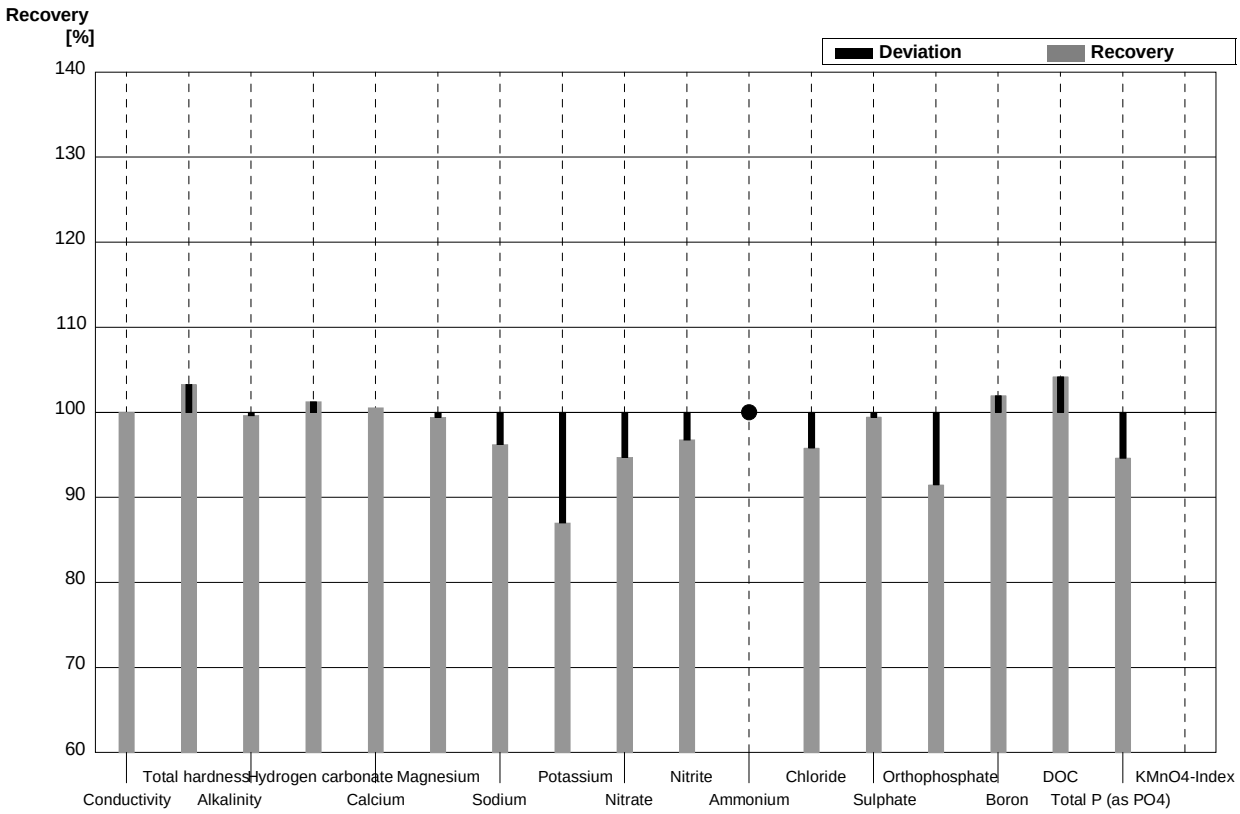
Sample N149B
Laboratory J

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	289		µS/cm	102%
Total hardness	1,03	0,01	1,02		mmol/l	99%
Alkalinity	1,61	0,02	1,62		mmol/l	101%
Hydrogen carbonate	95,4	1,0	98,8		mg/l	104%
Calcium	31,0	0,4	34,7		mg/l	112%
Magnesium	6,14	0,07	3,65		mg/l	59%
Sodium	15,6	0,2			mg/l	
Potassium	1,65	0,02			mg/l	
Nitrate	21,8	0,6	22,0		mg/l	101%
Nitrite	0,0202	0,0006	0,0060		mg/l	30%
Ammonium	0,061	0,002	0,061		mg/l	100%
Chloride	14,5	0,3	15,2		mg/l	105%
Sulphate	19,6	0,2	16,6		mg/l	85%
Orthophosphate	<0,009		<0,15		mg/l	•
Boron	0,066	0,001			mg/l	
DOC	4,06	0,04			mg/l	
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	3,53	0,13			mg/l	



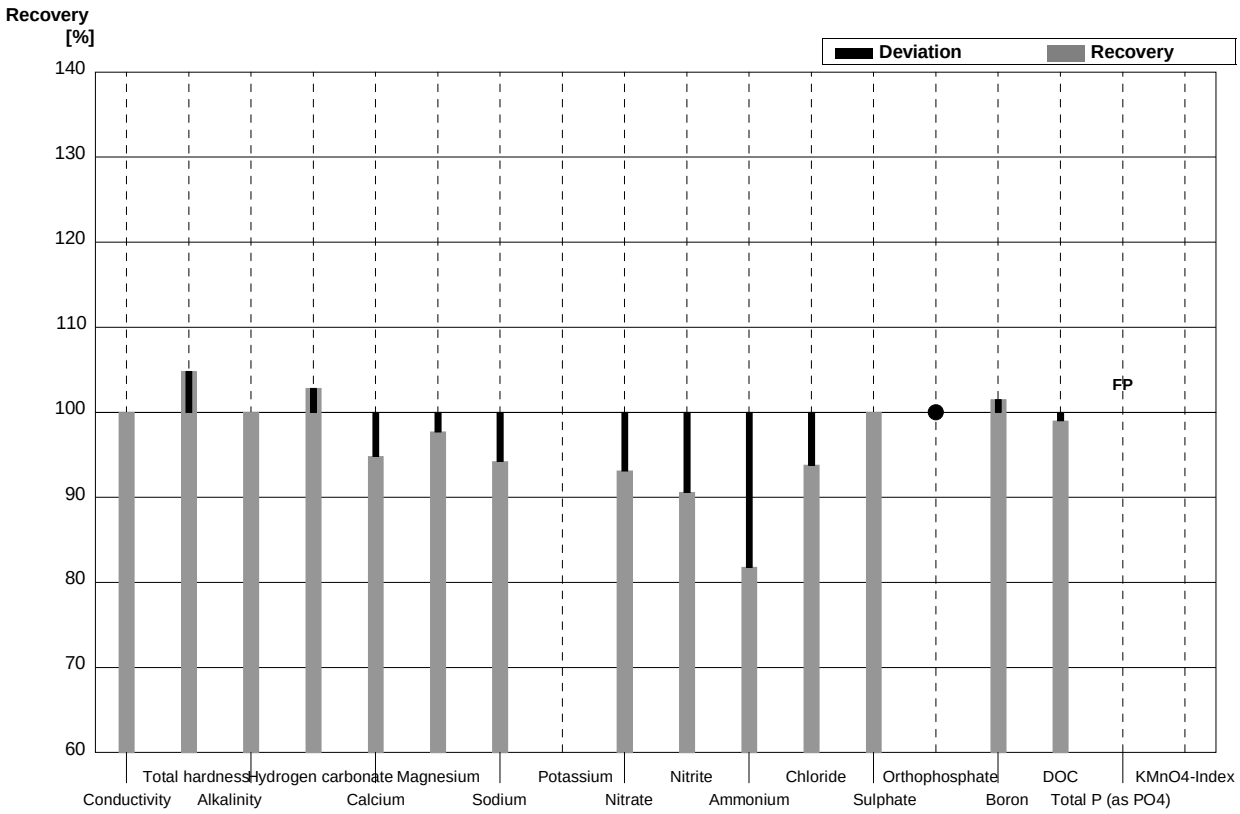
Sample N149A
Laboratory K

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	525		µS/cm	100%
Total hardness	2,11	0,02	2,18	0,20	mmol/l	103%
Alkalinity	2,78	0,03	2,77	0,25	mmol/l	100%
Hydrogen carbonate	167	2	169,1	15,2	mg/l	101%
Calcium	55,8	0,7	56,1	4,48	mg/l	101%
Magnesium	17,5	0,2	17,4	1,74	mg/l	99%
Sodium	21,2	0,4	20,4	2,45	mg/l	96%
Potassium	4,23	0,04	3,68	0,37	mg/l	87%
Nitrate	43,6	0,8	41,3	4,13	mg/l	95%
Nitrite	0,0402	0,0003	0,0389	0,003	mg/l	97%
Ammonium	<0,01		<0,0300	0,024	mg/l	•
Chloride	35,9	0,7	34,4	3,44	mg/l	96%
Sulphate	35,2	0,4	35,0	5,25	mg/l	99%
Orthophosphate	0,081	0,003	0,0741	0,04	mg/l	91%
Boron	0,101	0,001	0,103	0,0062	mg/l	102%
DOC	6,43	0,05	6,70	1,34	mg/l	104%
Total P (as PO4)	0,186	0,003	0,176	0,035	mg/l	95%
KMnO4-Index	4,53	0,13			mg/l	



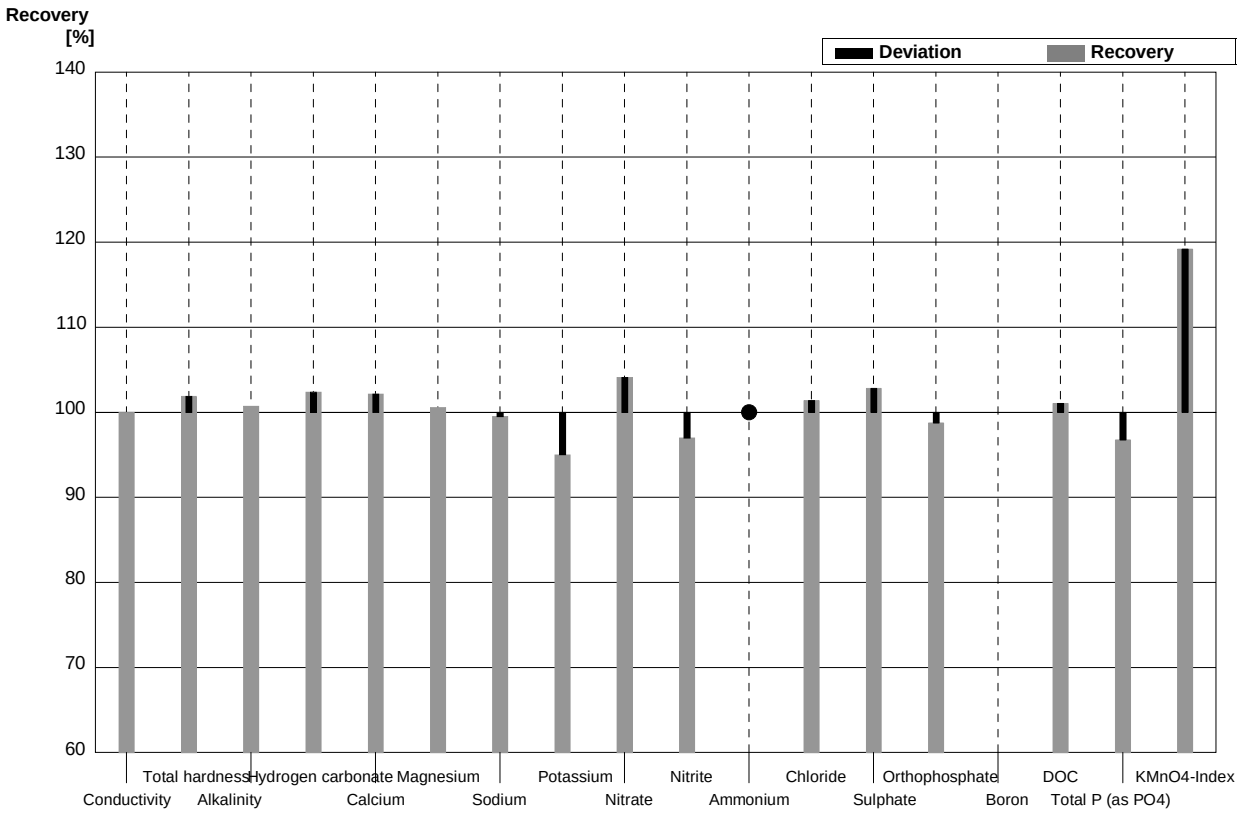
Sample N149B
Laboratory K

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	284		µS/cm	100%
Total hardness	1,03	0,01	1,08	0,10	mmol/l	105%
Alkalinity	1,61	0,02	1,61	0,14	mmol/l	100%
Hydrogen carbonate	95,4	1,0	98,1	8,8	mg/l	103%
Calcium	31,0	0,4	29,4	2,35	mg/l	95%
Magnesium	6,14	0,07	6,00	0,60	mg/l	98%
Sodium	15,6	0,2	14,7	1,76	mg/l	94%
Potassium	1,65	0,02	n,n.		mg/l	
Nitrate	21,8	0,6	20,3	20,3	mg/l	93%
Nitrite	0,0202	0,0006	0,0183	0,003	mg/l	91%
Ammonium	0,061	0,002	0,0499	0,024	mg/l	82%
Chloride	14,5	0,3	13,6	1,36	mg/l	94%
Sulphate	19,6	0,2	19,6	2,94	mg/l	100%
Orthophosphate	<0,009		<0,0200	0,04	mg/l	•
Boron	0,066	0,001	0,067	0,00402	mg/l	102%
DOC	4,06	0,04	4,02	0,80	mg/l	99%
Total P (as PO4)	<0,009		0,070	0,010	mg/l	FP
KMnO4-Index	3,53	0,13			mg/l	



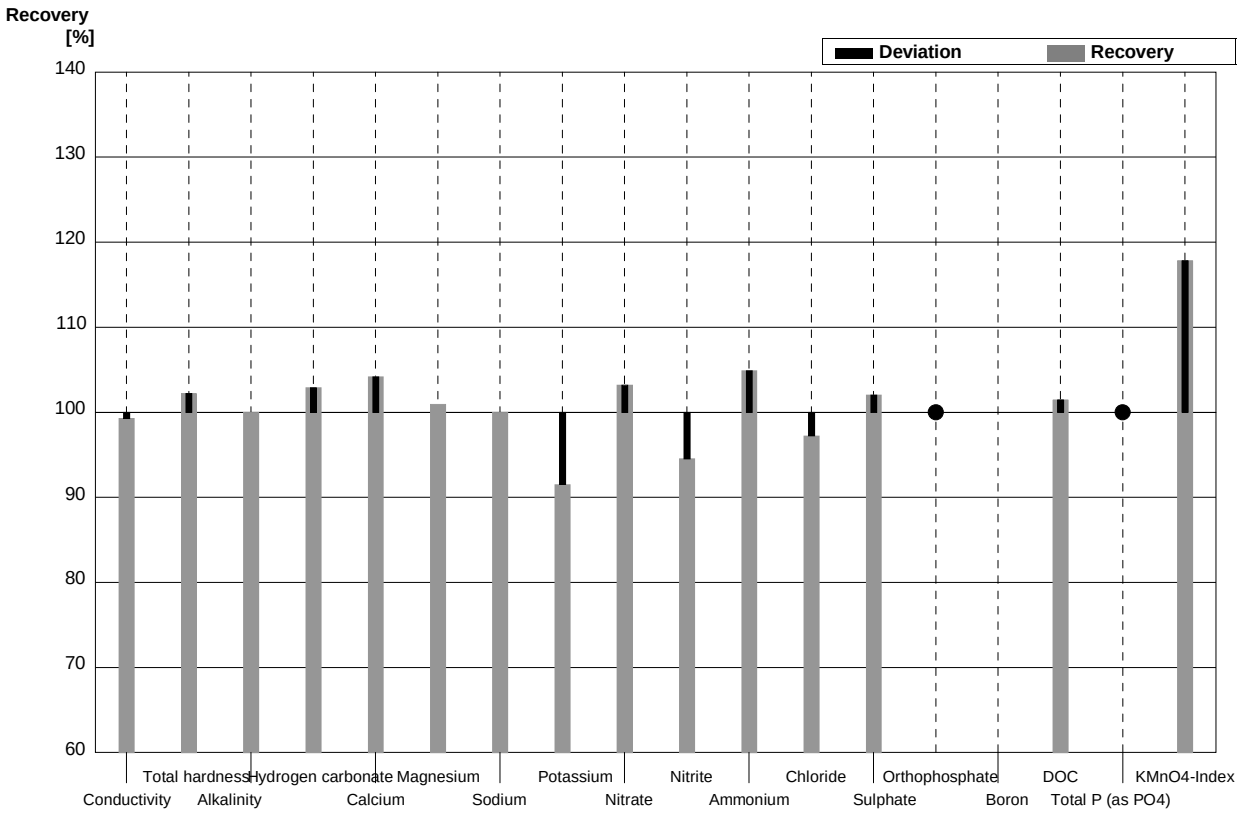
Sample N149A
Laboratory L

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	525	6	µS/cm	100%
Total hardness	2,11	0,02	2,15	0,07	mmol/l	102%
Alkalinity	2,78	0,03	2,80	0,08	mmol/l	101%
Hydrogen carbonate	167	2	171	5	mg/l	102%
Calcium	55,8	0,7	57	2	mg/l	102%
Magnesium	17,5	0,2	17,6	0,8	mg/l	101%
Sodium	21,2	0,4	21,1	1,1	mg/l	100%
Potassium	4,23	0,04	4,02	0,19	mg/l	95%
Nitrate	43,6	0,8	45,4	3,0	mg/l	104%
Nitrite	0,0402	0,0003	0,0390	0,0021	mg/l	97%
Ammonium	<0,01		<0,02		mg/l	•
Chloride	35,9	0,7	36,4	3,0	mg/l	101%
Sulphate	35,2	0,4	36,2	1,8	mg/l	103%
Orthophosphate	0,081	0,003	0,080	0,007	mg/l	99%
Boron	0,101	0,001			mg/l	
DOC	6,43	0,05	6,5	0,7	mg/l	101%
Total P (as PO4)	0,186	0,003	0,180	0,017	mg/l	97%
KMnO4-Index	4,53	0,13	5,4	0,2	mg/l	119%



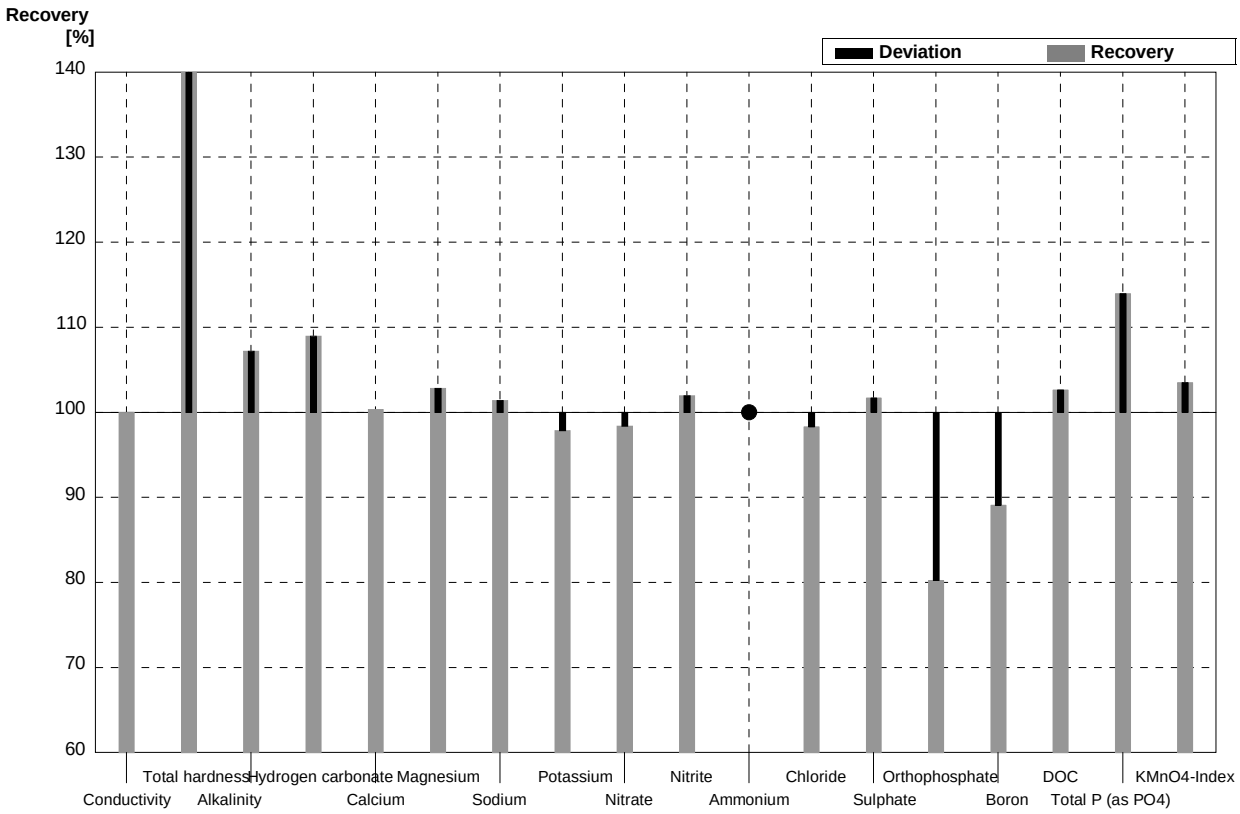
Sample N149B
Laboratory L

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	282	3	µS/cm	99%
Total hardness	1,03	0,01	1,053	0,033	mmol/l	102%
Alkalinity	1,61	0,02	1,610	0,046	mmol/l	100%
Hydrogen carbonate	95,4	1,0	98,2	2,8	mg/l	103%
Calcium	31,0	0,4	32,3	0,9	mg/l	104%
Magnesium	6,14	0,07	6,2	0,3	mg/l	101%
Sodium	15,6	0,2	15,6	0,8	mg/l	100%
Potassium	1,65	0,02	1,51	0,07	mg/l	92%
Nitrate	21,8	0,6	22,5	1,5	mg/l	103%
Nitrite	0,0202	0,0006	0,0191	0,0011	mg/l	95%
Ammonium	0,061	0,002	0,064	0,008	mg/l	105%
Chloride	14,5	0,3	14,1	1,2	mg/l	97%
Sulphate	19,6	0,2	20,0	1,0	mg/l	102%
Orthophosphate	<0,009		<0,01		mg/l	•
Boron	0,066	0,001			mg/l	
DOC	4,06	0,04	4,12	0,42	mg/l	101%
Total P (as PO4)	<0,009		<0,01		mg/l	•
KMnO4-Index	3,53	0,13	4,16	0,16	mg/l	118%



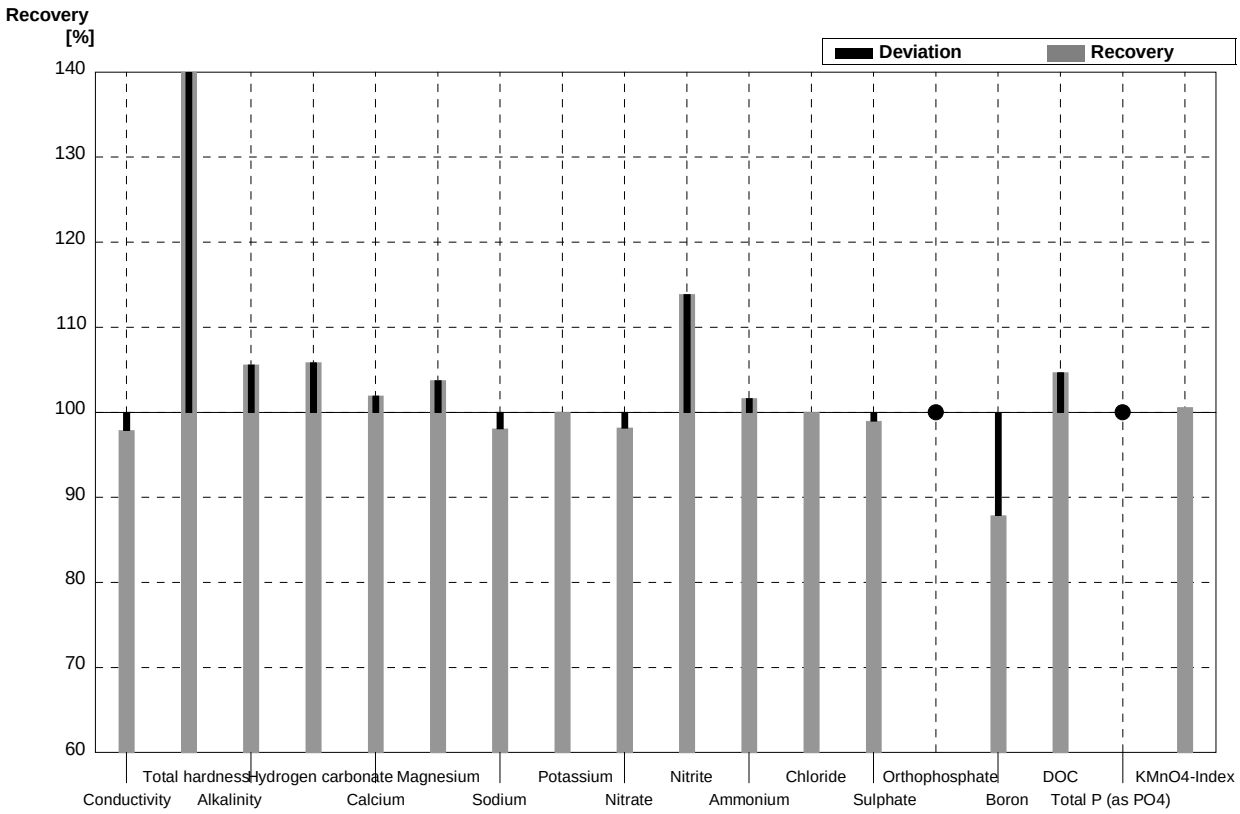
Sample N149A
Laboratory M

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	525	52,5	µS/cm	100%
Total hardness	2,11	0,02	67,2	6,72	mmol/l	3185%
Alkalinity	2,78	0,03	2,98	0,30	mmol/l	107%
Hydrogen carbonate	167	2	182	18,2	mg/l	109%
Calcium	55,8	0,7	56	5,6	mg/l	100%
Magnesium	17,5	0,2	18,0	1,80	mg/l	103%
Sodium	21,2	0,4	21,5	2,15	mg/l	101%
Potassium	4,23	0,04	4,14	0,41	mg/l	98%
Nitrate	43,6	0,8	42,9	4,29	mg/l	98%
Nitrite	0,0402	0,0003	0,0410	0,0041	mg/l	102%
Ammonium	<0,01		<0,010		mg/l	•
Chloride	35,9	0,7	35,3	3,53	mg/l	98%
Sulphate	35,2	0,4	35,8	3,58	mg/l	102%
Orthophosphate	0,081	0,003	0,065	0,0065	mg/l	80%
Boron	0,101	0,001	0,090	0,009	mg/l	89%
DOC	6,43	0,05	6,6	0,66	mg/l	103%
Total P (as PO4)	0,186	0,003	0,212	0,021	mg/l	114%
KMnO4-Index	4,53	0,13	4,69	0,47	mg/l	104%



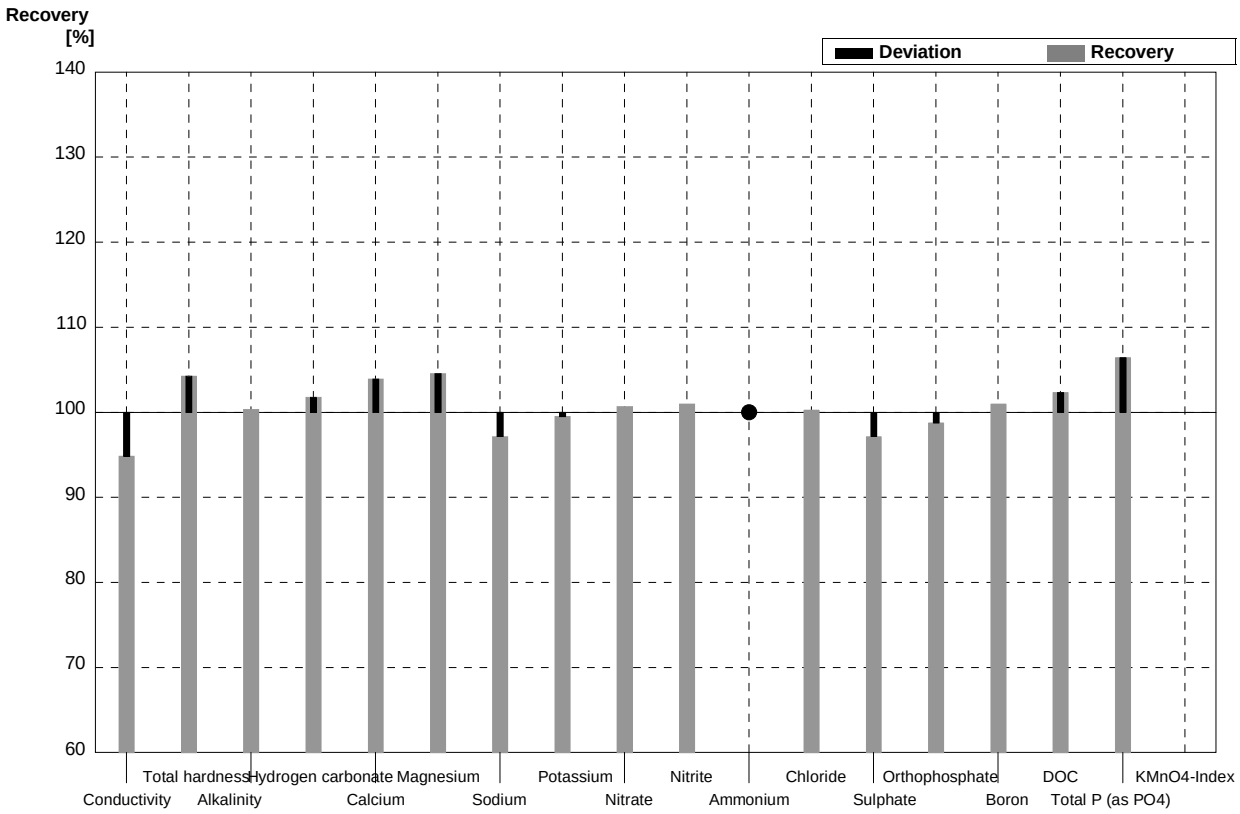
Sample N149B
Laboratory M

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	278	27,8	µS/cm	98%
Total hardness	1,03	0,01	33,0	3,30	mmol/l	3204%
Alkalinity	1,61	0,02	1,70	0,17	mmol/l	106%
Hydrogen carbonate	95,4	1,0	101	10,1	mg/l	106%
Calcium	31,0	0,4	31,6	3,2	mg/l	102%
Magnesium	6,14	0,07	6,37	0,64	mg/l	104%
Sodium	15,6	0,2	15,3	1,53	mg/l	98%
Potassium	1,65	0,02	1,65	0,17	mg/l	100%
Nitrate	21,8	0,6	21,4	2,14	mg/l	98%
Nitrite	0,0202	0,0006	0,0230	0,0023	mg/l	114%
Ammonium	0,061	0,002	0,062	0,0062	mg/l	102%
Chloride	14,5	0,3	14,5	1,45	mg/l	100%
Sulphate	19,6	0,2	19,4	1,94	mg/l	99%
Orthophosphate	<0,009		<0,008		mg/l	•
Boron	0,066	0,001	0,058	0,0058	mg/l	88%
DOC	4,06	0,04	4,25	0,43	mg/l	105%
Total P (as PO4)	<0,009		<0,015		mg/l	•
KMnO4-Index	3,53	0,13	3,55	0,36	mg/l	101%



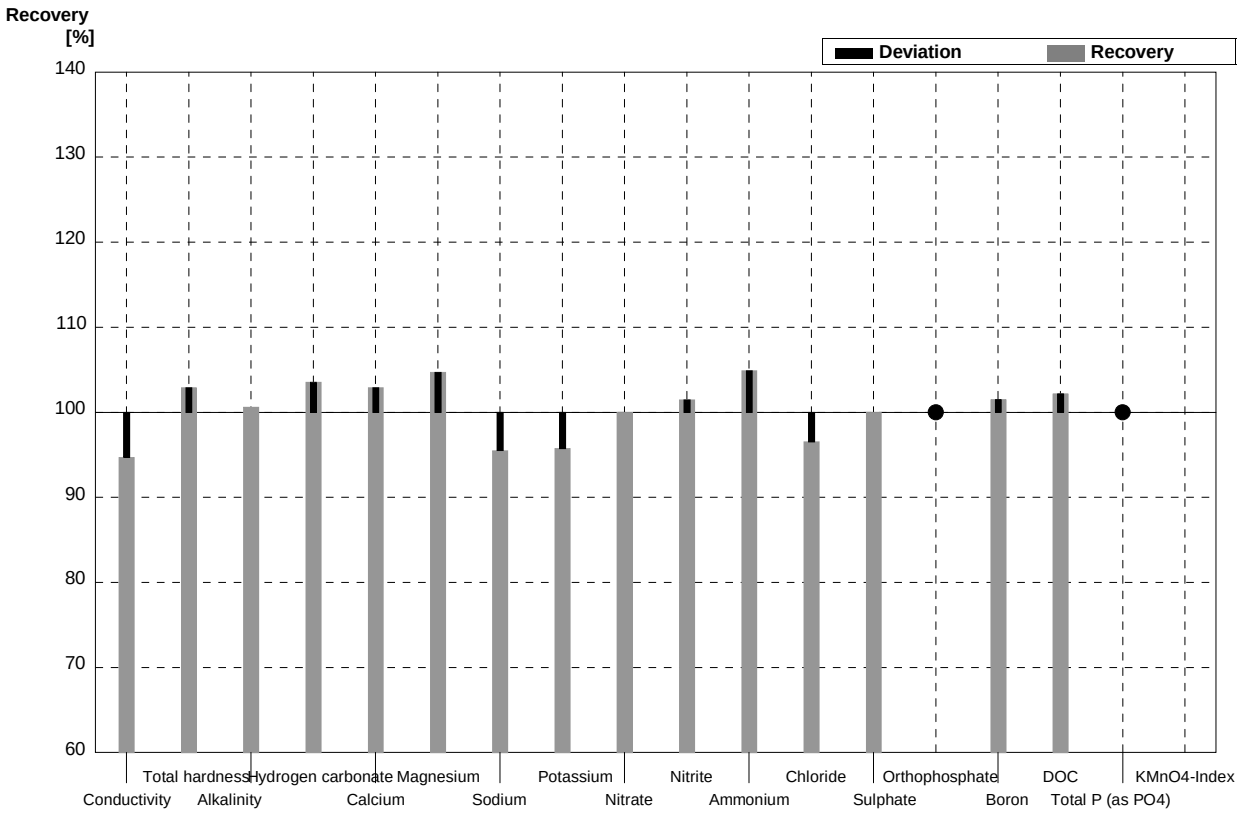
Sample N149A
Laboratory N

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	498	74,7	µS/cm	95%
Total hardness	2,11	0,02	2,20	0,33	mmol/l	104%
Alkalinity	2,78	0,03	2,79	0,42	mmol/l	100%
Hydrogen carbonate	167	2	170	25,5	mg/l	102%
Calcium	55,8	0,7	58	8,70	mg/l	104%
Magnesium	17,5	0,2	18,3	2,75	mg/l	105%
Sodium	21,2	0,4	20,6	3,09	mg/l	97%
Potassium	4,23	0,04	4,21	0,63	mg/l	100%
Nitrate	43,6	0,8	43,9	6,59	mg/l	101%
Nitrite	0,0402	0,0003	0,0406	0,006	mg/l	101%
Ammonium	<0,01		<0,04		mg/l	•
Chloride	35,9	0,7	36,0	5,4	mg/l	100%
Sulphate	35,2	0,4	34,2	5,13	mg/l	97%
Orthophosphate	0,081	0,003	0,080	0,012	mg/l	99%
Boron	0,101	0,001	0,102	0,015	mg/l	101%
DOC	6,43	0,05	6,58	0,99	mg/l	102%
Total P (as PO4)	0,186	0,003	0,198	0,03	mg/l	106%
KMnO4-Index	4,53	0,13			mg/l	



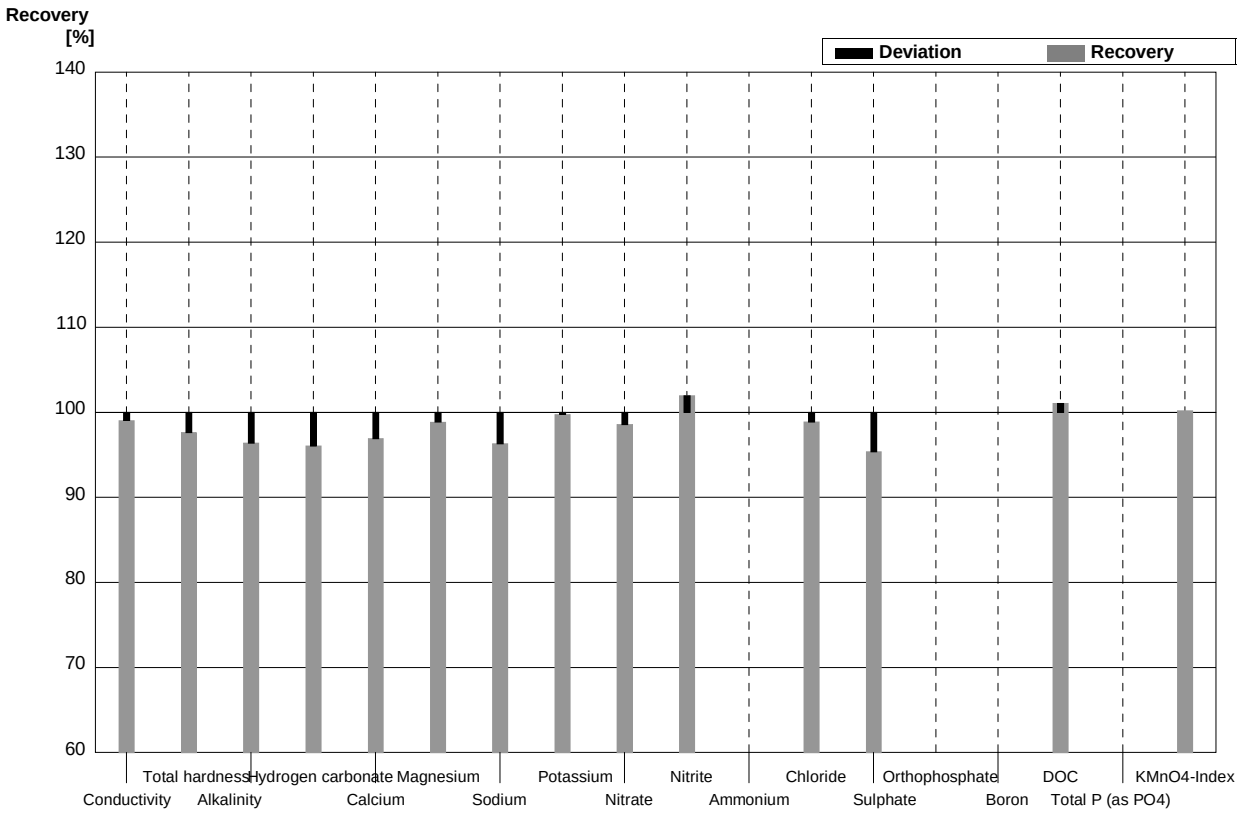
Sample N149B
Laboratory N

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	269	40,4	µS/cm	95%
Total hardness	1,03	0,01	1,06	0,16	mmol/l	103%
Alkalinity	1,61	0,02	1,62	0,24	mmol/l	101%
Hydrogen carbonate	95,4	1,0	98,8	14,8	mg/l	104%
Calcium	31,0	0,4	31,9	4,79	mg/l	103%
Magnesium	6,14	0,07	6,43	0,96	mg/l	105%
Sodium	15,6	0,2	14,9	2,24	mg/l	96%
Potassium	1,65	0,02	1,58	0,24	mg/l	96%
Nitrate	21,8	0,6	21,8	3,27	mg/l	100%
Nitrite	0,0202	0,0006	0,0205	0,003	mg/l	101%
Ammonium	0,061	0,002	0,064	0,01	mg/l	105%
Chloride	14,5	0,3	14,0	2,1	mg/l	97%
Sulphate	19,6	0,2	19,6	2,94	mg/l	100%
Orthophosphate	<0,009		<0,01		mg/l	•
Boron	0,066	0,001	0,067	0,010	mg/l	102%
DOC	4,06	0,04	4,15	0,62	mg/l	102%
Total P (as PO4)	<0,009		<0,01		mg/l	•
KMnO4-Index	3,53	0,13			mg/l	



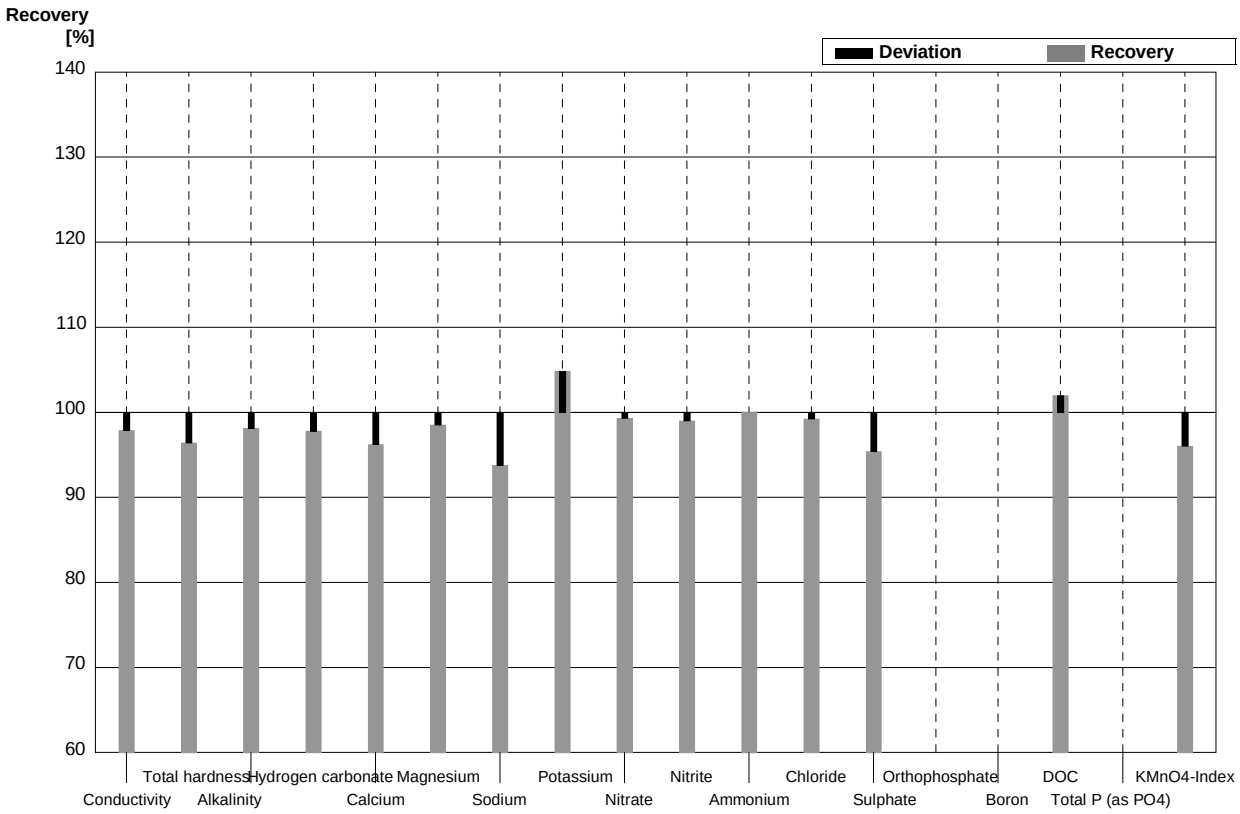
Sample N149A
Laboratory O

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	520	11	µS/cm	99%
Total hardness	2,11	0,02	2,06	0,08	mmol/l	98%
Alkalinity	2,78	0,03	2,68	0,06	mmol/l	96%
Hydrogen carbonate	167	2	160,4	3,4	mg/l	96%
Calcium	55,8	0,7	54,09	2,11	mg/l	97%
Magnesium	17,5	0,2	17,30	0,81	mg/l	99%
Sodium	21,2	0,4	20,42	0,98	mg/l	96%
Potassium	4,23	0,04	4,22	0,27	mg/l	100%
Nitrate	43,6	0,8	42,98	2,88	mg/l	99%
Nitrite	0,0402	0,0003	0,0410	0,003	mg/l	102%
Ammonium	<0,01				mg/l	
Chloride	35,9	0,7	35,50	1,67	mg/l	99%
Sulphate	35,2	0,4	33,58	1,68	mg/l	95%
Orthophosphate	0,081	0,003			mg/l	
Boron	0,101	0,001			mg/l	
DOC	6,43	0,05	6,50	1,13	mg/l	101%
Total P (as PO4)	0,186	0,003			mg/l	
KMnO4-Index	4,53	0,13	4,54	0,96	mg/l	100%



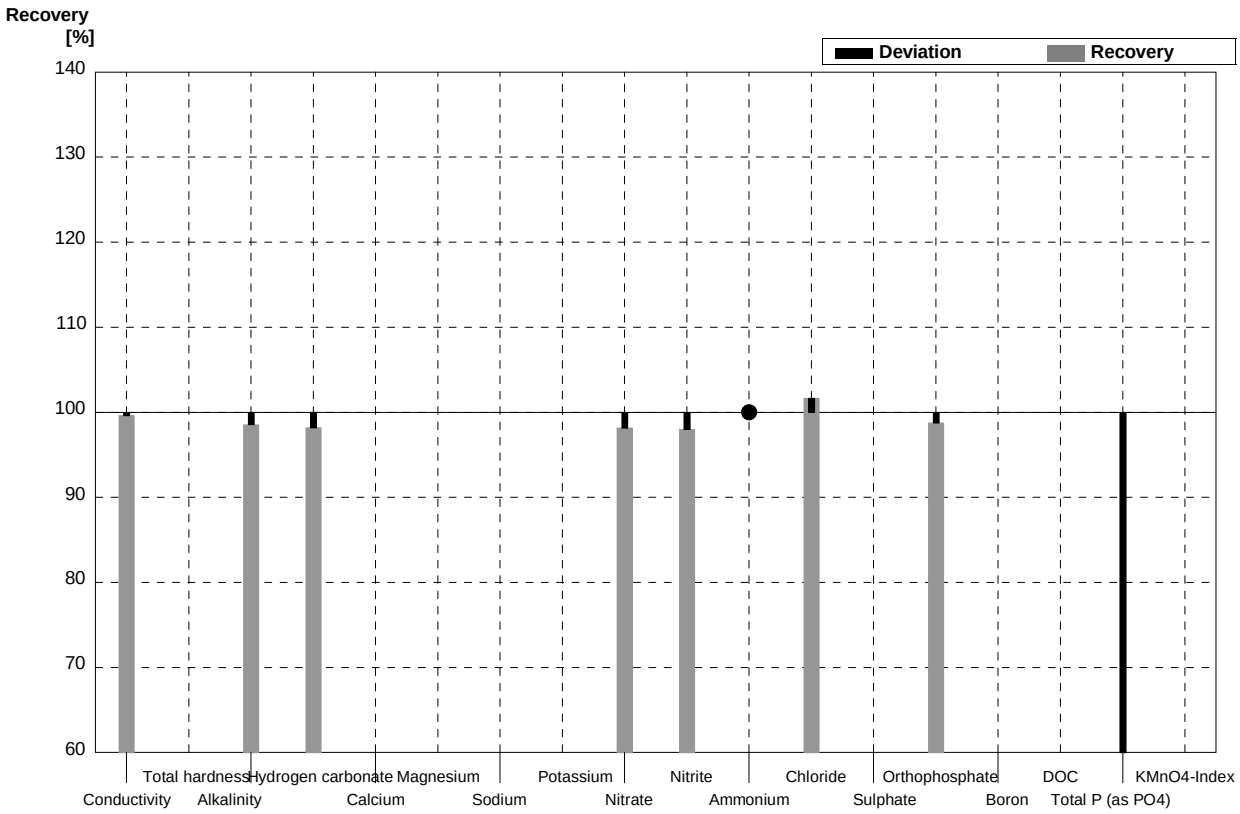
Sample N149B
Laboratory O

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	278	6	µS/cm	98%
Total hardness	1,03	0,01	0,993	0,039	mmol/l	96%
Alkalinity	1,61	0,02	1,58	0,03	mmol/l	98%
Hydrogen carbonate	95,4	1,0	93,3	2,0	mg/l	98%
Calcium	31,0	0,4	29,83	1,16	mg/l	96%
Magnesium	6,14	0,07	6,05	0,28	mg/l	99%
Sodium	15,6	0,2	14,63	0,70	mg/l	94%
Potassium	1,65	0,02	1,73	0,11	mg/l	105%
Nitrate	21,8	0,6	21,65	1,45	mg/l	99%
Nitrite	0,0202	0,0006	0,0200	0,001	mg/l	99%
Ammonium	0,061	0,002	0,0610	0,010	mg/l	100%
Chloride	14,5	0,3	14,39	0,68	mg/l	99%
Sulphate	19,6	0,2	18,70	0,94	mg/l	95%
Orthophosphate	<0,009				mg/l	
Boron	0,066	0,001			mg/l	
DOC	4,06	0,04	4,14	0,72	mg/l	102%
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	3,53	0,13	3,39	0,72	mg/l	96%



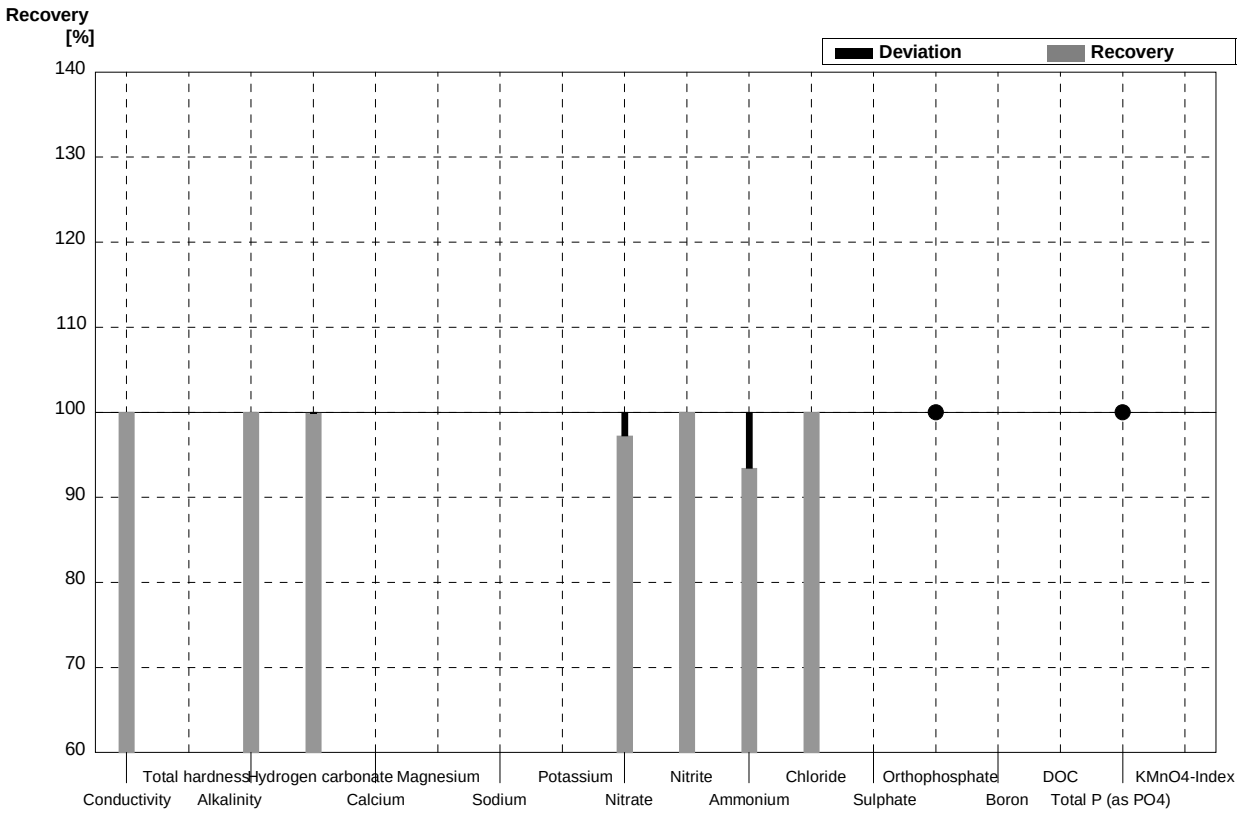
Sample N149A
Laboratory P

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	523		µS/cm	100%
Total hardness	2,11	0,02			mmol/l	
Alkalinity	2,78	0,03	2,74		mmol/l	99%
Hydrogen carbonate	167	2	164		mg/l	98%
Calcium	55,8	0,7			mg/l	
Magnesium	17,5	0,2			mg/l	
Sodium	21,2	0,4			mg/l	
Potassium	4,23	0,04			mg/l	
Nitrate	43,6	0,8	42,8		mg/l	98%
Nitrite	0,0402	0,0003	0,0394		mg/l	98%
Ammonium	<0,01		<0,005		mg/l	•
Chloride	35,9	0,7	36,5		mg/l	102%
Sulphate	35,2	0,4			mg/l	
Orthophosphate	0,081	0,003	0,080		mg/l	99%
Boron	0,101	0,001			mg/l	
DOC	6,43	0,05			mg/l	
Total P (as PO4)	0,186	0,003	0,080		mg/l	43%
KMnO4-Index	4,53	0,13			mg/l	



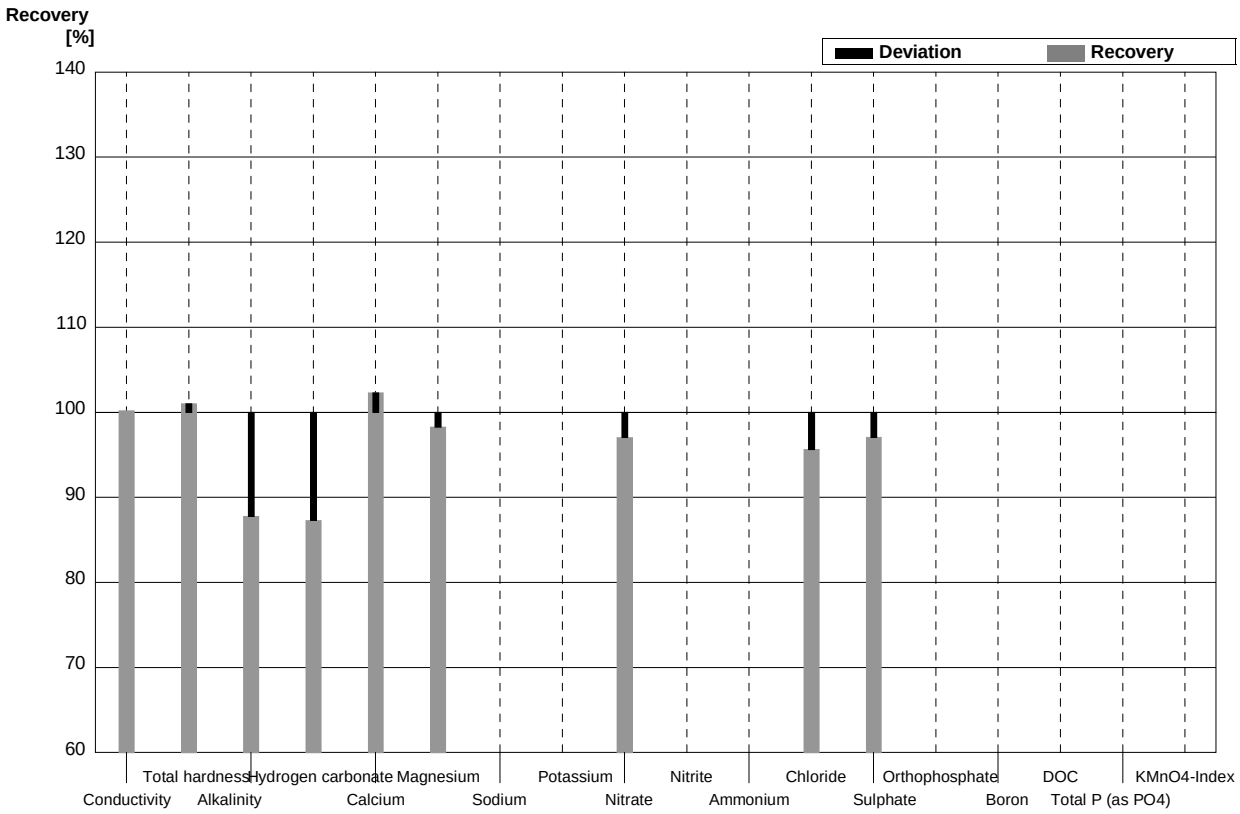
Sample N149B
Laboratory P

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	284		µS/cm	100%
Total hardness	1,03	0,01			mmol/l	
Alkalinity	1,61	0,02	1,61		mmol/l	100%
Hydrogen carbonate	95,4	1,0	95,3		mg/l	100%
Calcium	31,0	0,4			mg/l	
Magnesium	6,14	0,07			mg/l	
Sodium	15,6	0,2			mg/l	
Potassium	1,65	0,02			mg/l	
Nitrate	21,8	0,6	21,2		mg/l	97%
Nitrite	0,0202	0,0006	0,0202		mg/l	100%
Ammonium	0,061	0,002	0,057		mg/l	93%
Chloride	14,5	0,3	14,5		mg/l	100%
Sulphate	19,6	0,2			mg/l	
Orthophosphate	<0,009		<0,006		mg/l	•
Boron	0,066	0,001			mg/l	
DOC	4,06	0,04			mg/l	
Total P (as PO4)	<0,009		<0,006		mg/l	•
KMnO4-Index	3,53	0,13			mg/l	



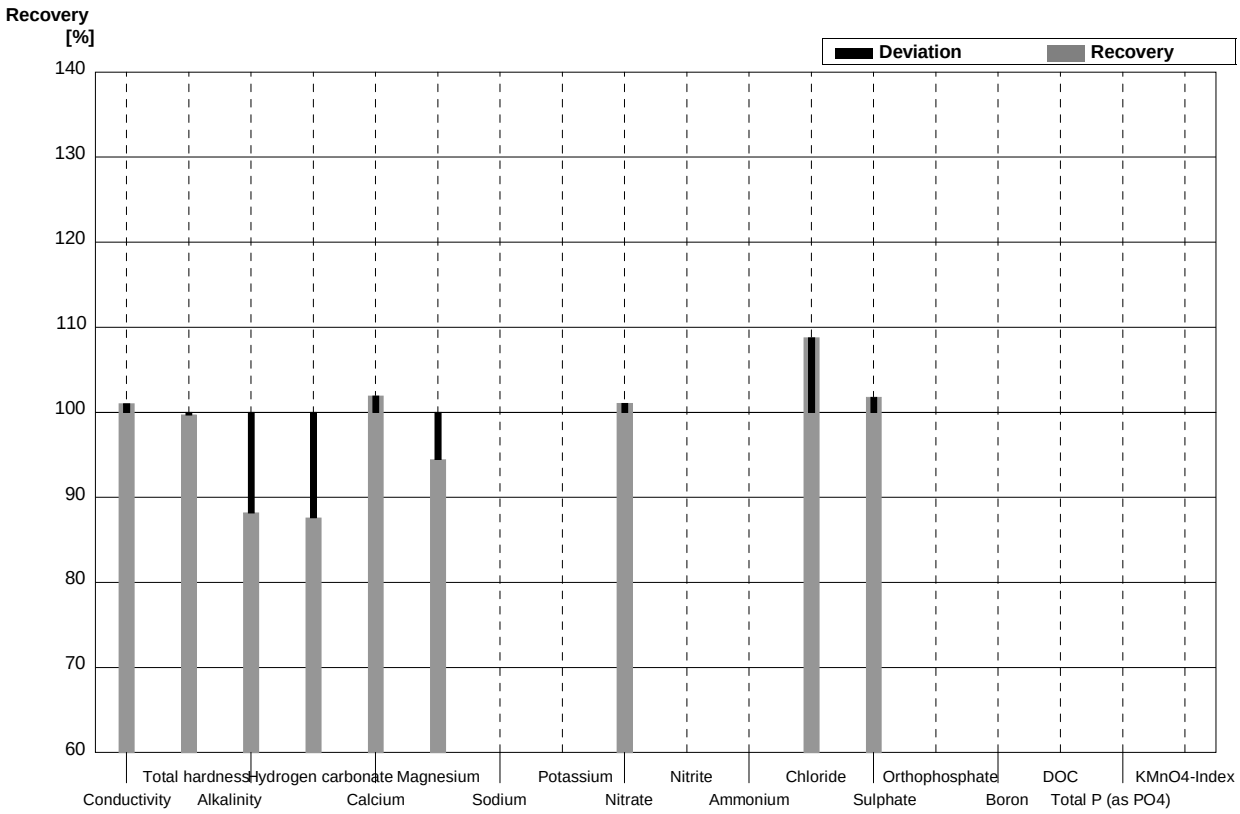
Sample N149A
Laboratory Q

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	526	10,836	µS/cm	100%
Total hardness	2,11	0,02	2,132		mmol/l	101%
Alkalinity	2,78	0,03	2,44		mmol/l	88%
Hydrogen carbonate	167	2	145,83		mg/l	87%
Calcium	55,8	0,7	57,10	2,941	mg/l	102%
Magnesium	17,5	0,2	17,20	1,956	mg/l	98%
Sodium	21,2	0,4			mg/l	
Potassium	4,23	0,04			mg/l	
Nitrate	43,6	0,8	42,317	2,228	mg/l	97%
Nitrite	0,0402	0,0003			mg/l	
Ammonium	<0,01				mg/l	
Chloride	35,9	0,7	34,337	0,903	mg/l	96%
Sulphate	35,2	0,4	34,176	3,968	mg/l	97%
Orthophosphate	0,081	0,003			mg/l	
Boron	0,101	0,001			mg/l	
DOC	6,43	0,05			mg/l	
Total P (as PO4)	0,186	0,003			mg/l	
KMnO4-Index	4,53	0,13			mg/l	



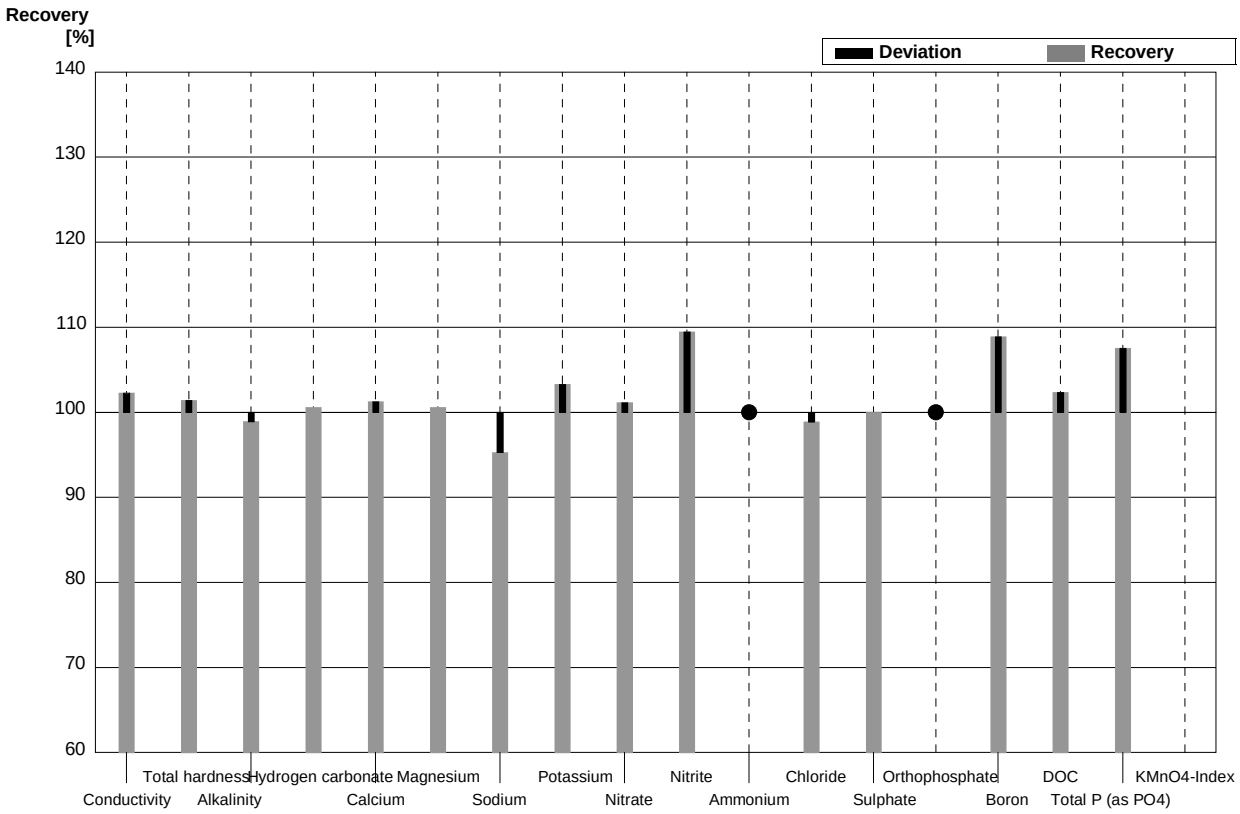
Sample N149B
Laboratory Q

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	287	5,912	µS/cm	101%
Total hardness	1,03	0,01	1,027		mmol/l	100%
Alkalinity	1,61	0,02	1,42		mmol/l	88%
Hydrogen carbonate	95,4	1,0	83,59		mg/l	88%
Calcium	31,0	0,4	31,60	1,627	mg/l	102%
Magnesium	6,14	0,07	5,80	0,659	mg/l	94%
Sodium	15,6	0,2			mg/l	
Potassium	1,65	0,02			mg/l	
Nitrate	21,8	0,6	22,037	1,243	mg/l	101%
Nitrite	0,0202	0,0006			mg/l	
Ammonium	0,061	0,002			mg/l	
Chloride	14,5	0,3	15,773	0,372	mg/l	109%
Sulphate	19,6	0,2	19,953	2,316	mg/l	102%
Orthophosphate	<0,009				mg/l	
Boron	0,066	0,001			mg/l	
DOC	4,06	0,04			mg/l	
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	3,53	0,13			mg/l	



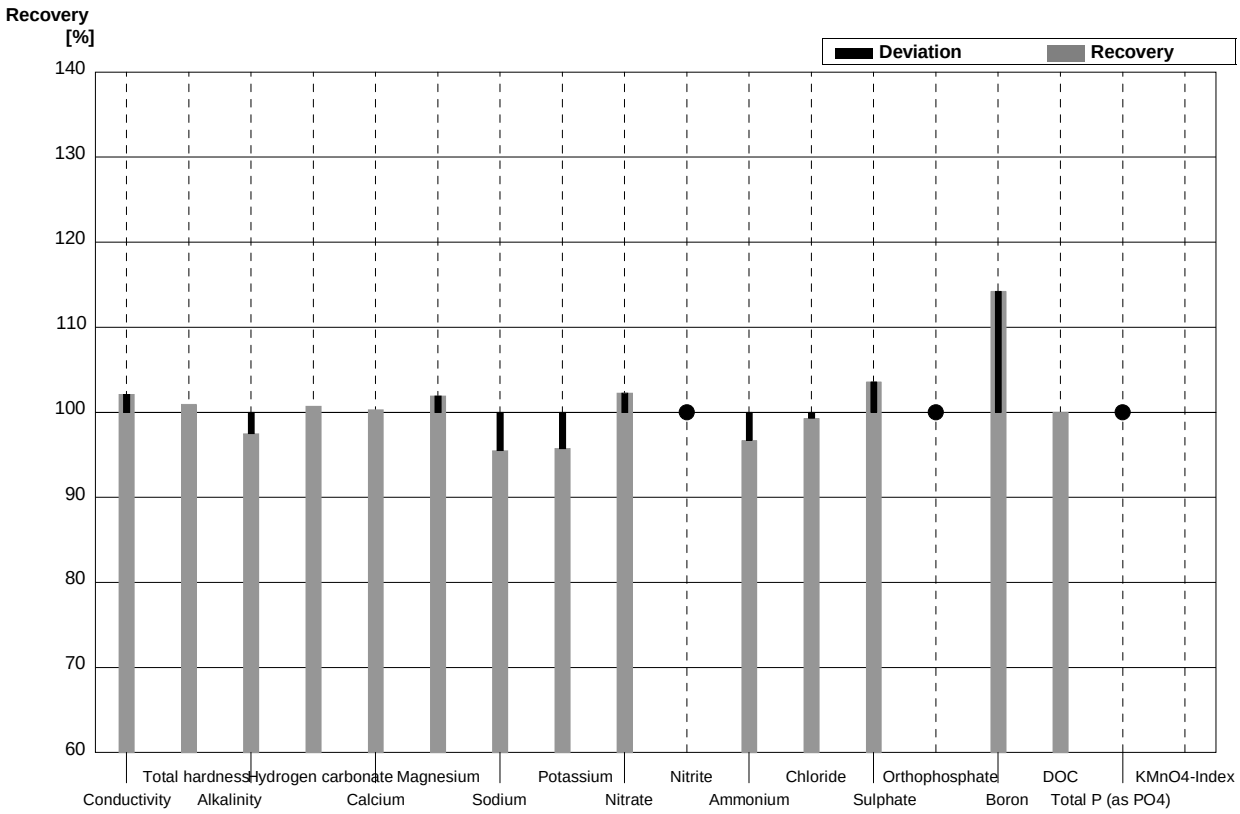
Sample N149A
Laboratory R

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	537		µS/cm	102%
Total hardness	2,11	0,02	2,14		mmol/l	101%
Alkalinity	2,78	0,03	2,75		mmol/l	99%
Hydrogen carbonate	167	2	168		mg/l	101%
Calcium	55,8	0,7	56,5		mg/l	101%
Magnesium	17,5	0,2	17,6		mg/l	101%
Sodium	21,2	0,4	20,2		mg/l	95%
Potassium	4,23	0,04	4,37		mg/l	103%
Nitrate	43,6	0,8	44,1		mg/l	101%
Nitrite	0,0402	0,0003	0,0440		mg/l	109%
Ammonium	<0,01		<0,02		mg/l	•
Chloride	35,9	0,7	35,5		mg/l	99%
Sulphate	35,2	0,4	35,2		mg/l	100%
Orthophosphate	0,081	0,003	<0,15		mg/l	•
Boron	0,101	0,001	0,110		mg/l	109%
DOC	6,43	0,05	6,58		mg/l	102%
Total P (as PO4)	0,186	0,003	0,200		mg/l	108%
KMnO4-Index	4,53	0,13			mg/l	



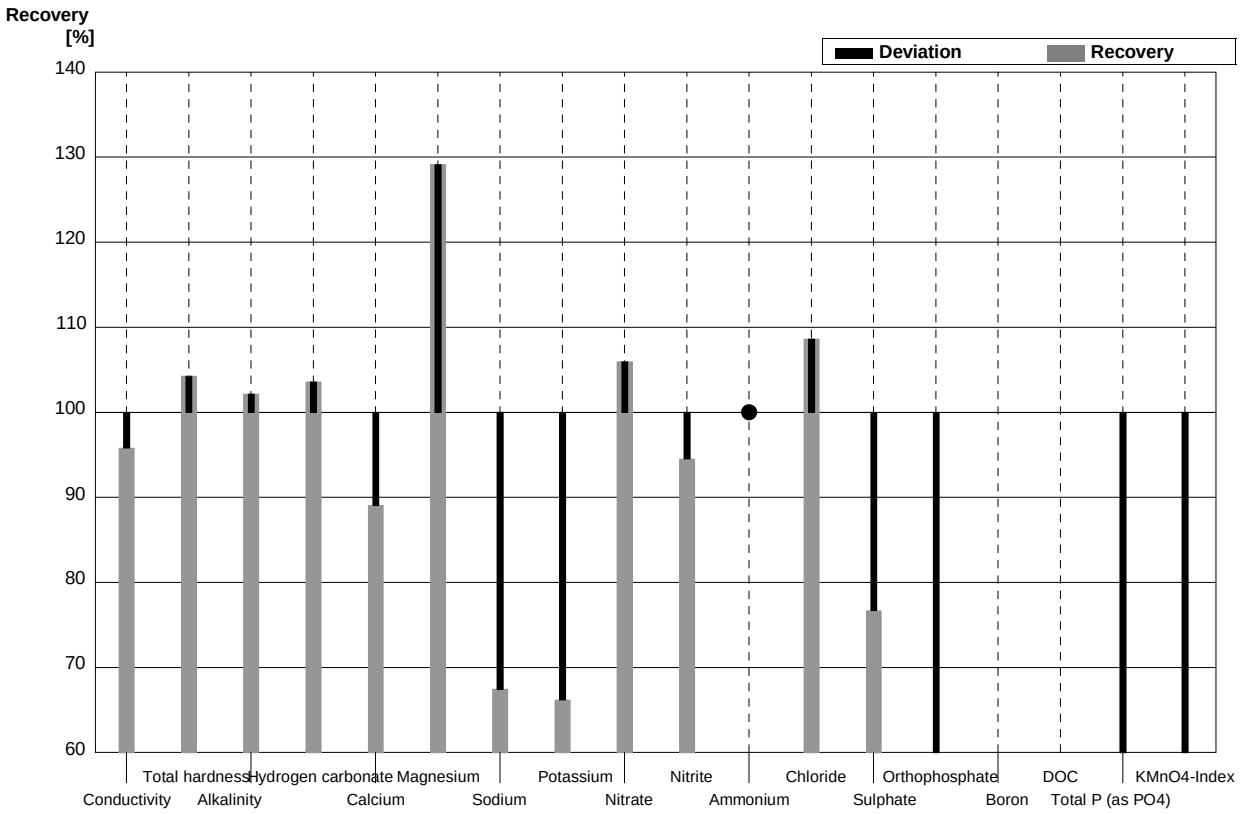
Sample N149B
Laboratory R

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	290		µS/cm	102%
Total hardness	1,03	0,01	1,04		mmol/l	101%
Alkalinity	1,61	0,02	1,57		mmol/l	98%
Hydrogen carbonate	95,4	1,0	96,1		mg/l	101%
Calcium	31,0	0,4	31,1		mg/l	100%
Magnesium	6,14	0,07	6,26		mg/l	102%
Sodium	15,6	0,2	14,9		mg/l	96%
Potassium	1,65	0,02	1,58		mg/l	96%
Nitrate	21,8	0,6	22,3		mg/l	102%
Nitrite	0,0202	0,0006	<0,03		mg/l	•
Ammonium	0,061	0,002	0,059		mg/l	97%
Chloride	14,5	0,3	14,4		mg/l	99%
Sulphate	19,6	0,2	20,3		mg/l	104%
Orthophosphate	<0,009		<0,15		mg/l	•
Boron	0,066	0,001	0,0754		mg/l	114%
DOC	4,06	0,04	4,06		mg/l	100%
Total P (as PO4)	<0,009		<0,03		mg/l	•
KMnO4-Index	3,53	0,13			mg/l	



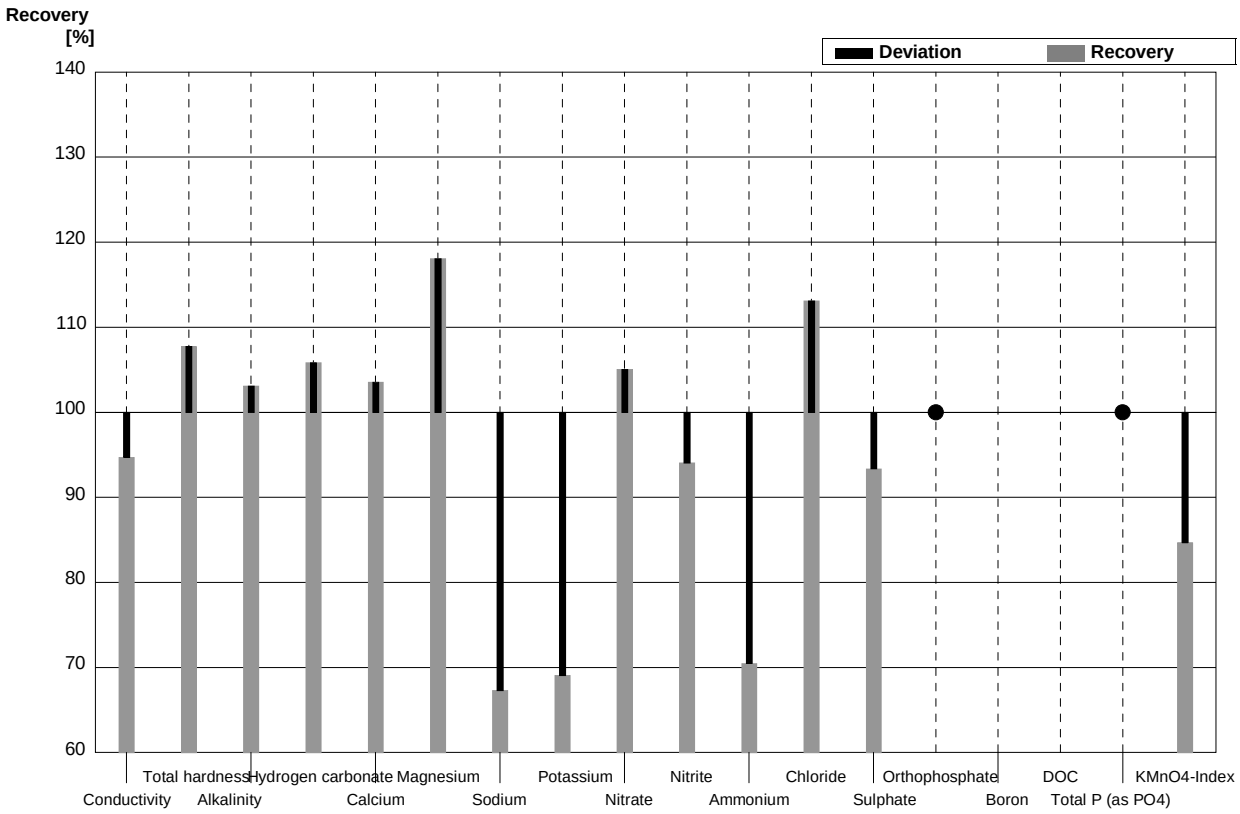
Sample N149A
Laboratory S

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	503	7	µS/cm	96%
Total hardness	2,11	0,02	2,20	0,03	mmol/l	104%
Alkalinity	2,78	0,03	2,84	0,04	mmol/l	102%
Hydrogen carbonate	167	2	173	2,44	mg/l	104%
Calcium	55,8	0,7	49,7	1,78	mg/l	89%
Magnesium	17,5	0,2	22,6	0,53	mg/l	129%
Sodium	21,2	0,4	14,3	0,51	mg/l	67%
Potassium	4,23	0,04	2,80	0,06	mg/l	66%
Nitrate	43,6	0,8	46,2	0,37	mg/l	106%
Nitrite	0,0402	0,0003	0,0380	0,004	mg/l	95%
Ammonium	<0,01		<0,01	0,002	mg/l	•
Chloride	35,9	0,7	39,0	0,5	mg/l	109%
Sulphate	35,2	0,4	27,0	0,93	mg/l	77%
Orthophosphate	0,081	0,003	0,0150	0,002	mg/l	19%
Boron	0,101	0,001			mg/l	
DOC	6,43	0,05			mg/l	
Total P (as PO4)	0,186	0,003	0,0350	0,006	mg/l	19%
KMnO4-Index	4,53	0,13	1,16	0,098	mg/l	26%



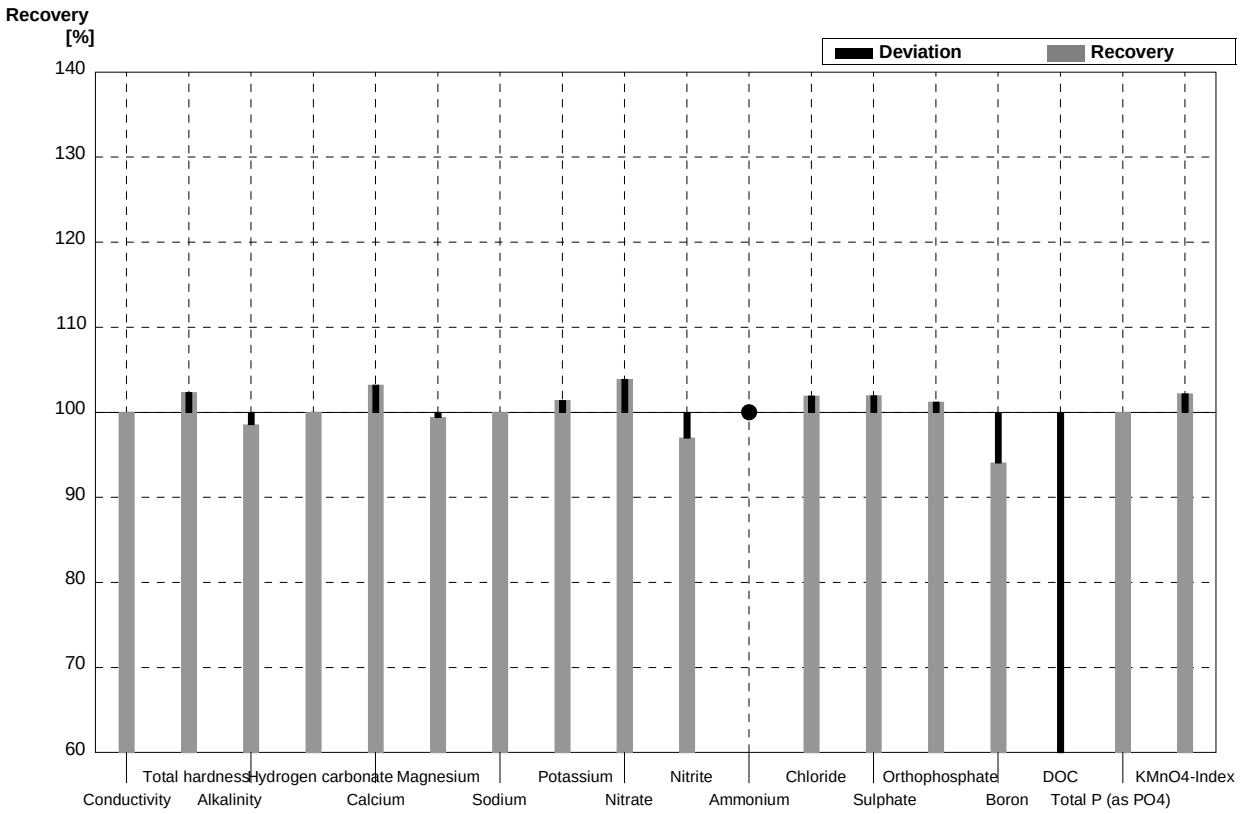
Sample N149B
Laboratory S

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	269	7	µS/cm	95%
Total hardness	1,03	0,01	1,11	0,03	mmol/l	108%
Alkalinity	1,61	0,02	1,66	0,04	mmol/l	103%
Hydrogen carbonate	95,4	1,0	101	2,44	mg/l	106%
Calcium	31,0	0,4	32,1	1,78	mg/l	104%
Magnesium	6,14	0,07	7,25	0,53	mg/l	118%
Sodium	15,6	0,2	10,5	0,51	mg/l	67%
Potassium	1,65	0,02	1,14	0,06	mg/l	69%
Nitrate	21,8	0,6	22,9	0,37	mg/l	105%
Nitrite	0,0202	0,0006	0,0190	0,004	mg/l	94%
Ammonium	0,061	0,002	0,0430	0,002	mg/l	70%
Chloride	14,5	0,3	16,4	0,5	mg/l	113%
Sulphate	19,6	0,2	18,3	0,93	mg/l	93%
Orthophosphate	<0,009		<0,001	0,002	mg/l	•
Boron	0,066	0,001			mg/l	
DOC	4,06	0,04			mg/l	
Total P (as PO4)	<0,009		<0,001	0,006	mg/l	•
KMnO4-Index	3,53	0,13	2,99	0,098	mg/l	85%



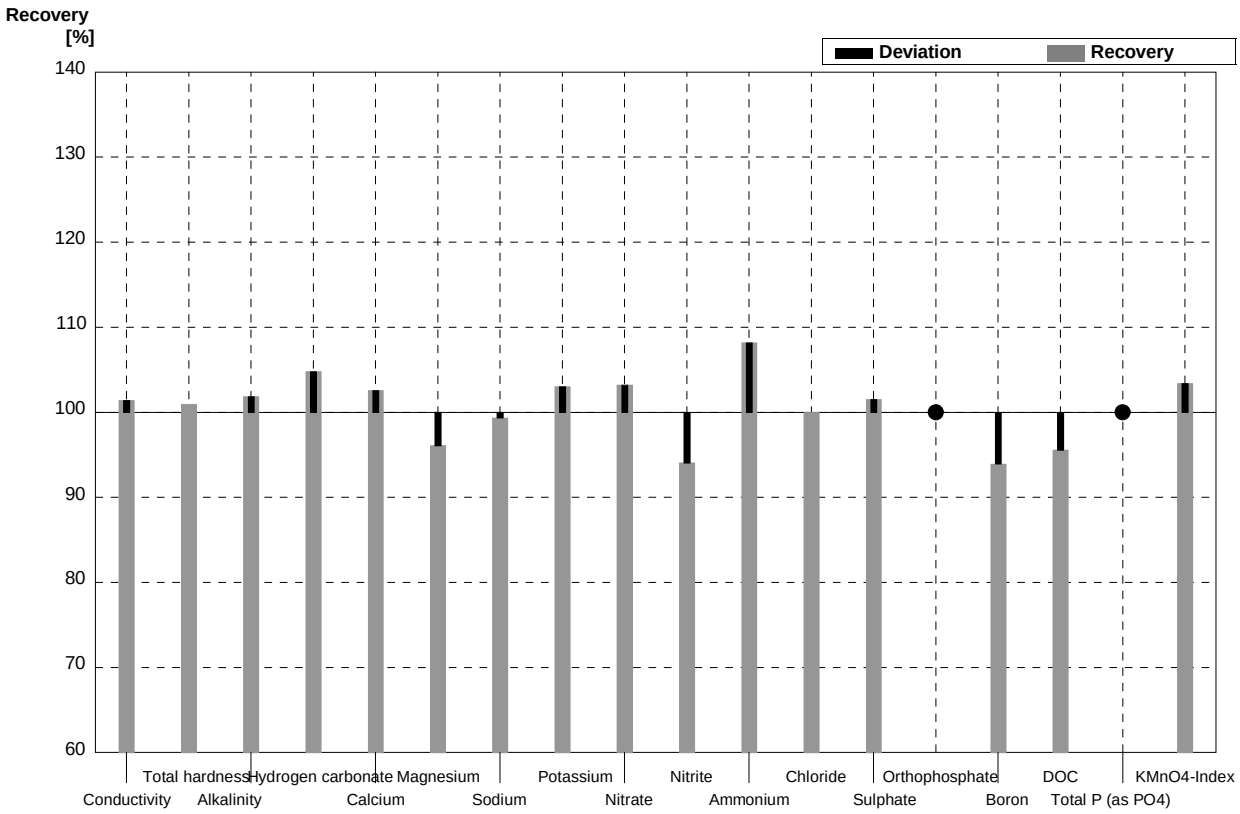
Sample N149A
Laboratory T

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	525	10	µS/cm	100%
Total hardness	2,11	0,02	2,16	0,50	mmol/l	102%
Alkalinity	2,78	0,03	2,74	0,16	mmol/l	99%
Hydrogen carbonate	167	2	167	13	mg/l	100%
Calcium	55,8	0,7	57,6	5,8	mg/l	103%
Magnesium	17,5	0,2	17,4	0,7	mg/l	99%
Sodium	21,2	0,4	21,2	1,1	mg/l	100%
Potassium	4,23	0,04	4,29	0,47	mg/l	101%
Nitrate	43,6	0,8	45,3	2,7	mg/l	104%
Nitrite	0,0402	0,0003	0,0390	0,003	mg/l	97%
Ammonium	<0,01		<0,02	0,01	mg/l	•
Chloride	35,9	0,7	36,6	2,9	mg/l	102%
Sulphate	35,2	0,4	35,9	2,2	mg/l	102%
Orthophosphate	0,081	0,003	0,082	0,013	mg/l	101%
Boron	0,101	0,001	0,095	0,007	mg/l	94%
DOC	6,43	0,05	0,163	0,047	mg/l	3%
Total P (as PO4)	0,186	0,003	0,186	0,024	mg/l	100%
KMnO4-Index	4,53	0,13	4,63	0,46	mg/l	102%



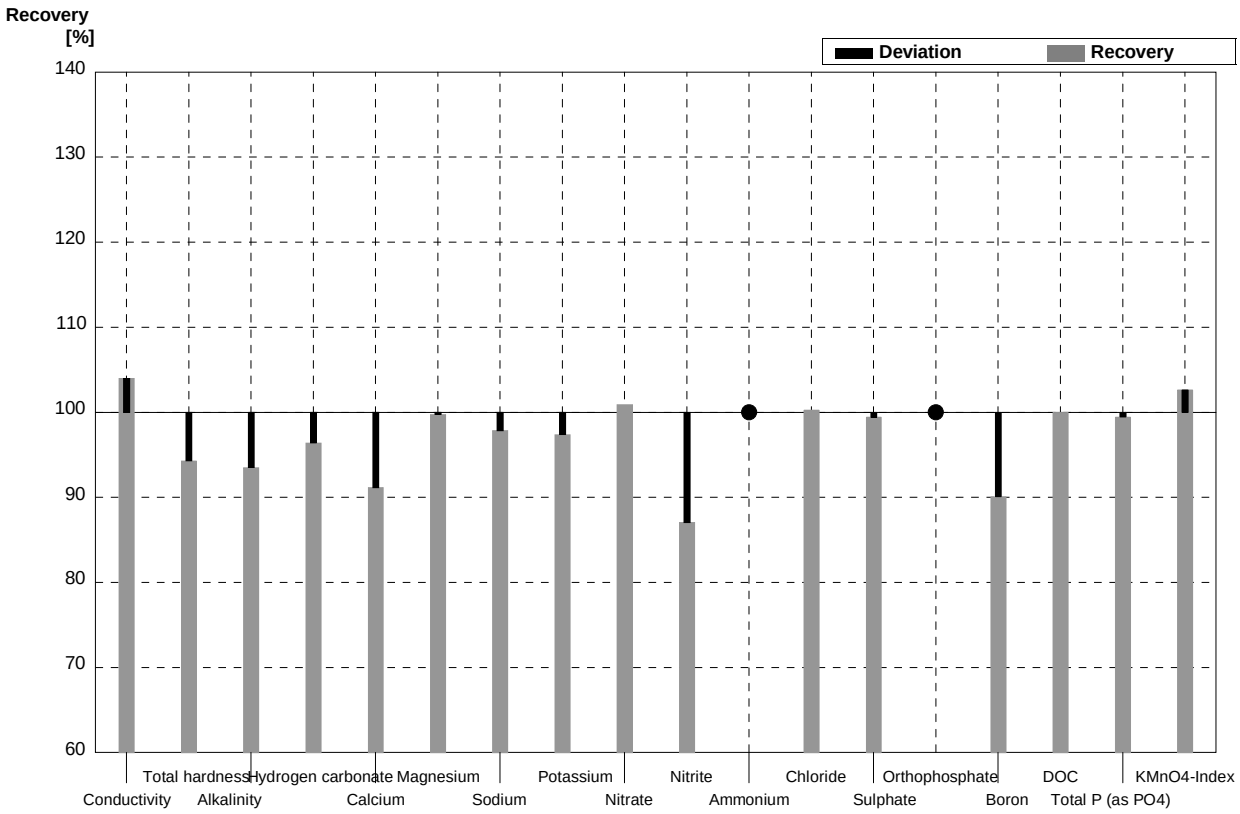
Sample N149B
Laboratory T

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	288	5	µS/cm	101%
Total hardness	1,03	0,01	1,04	0,24	mmol/l	101%
Alkalinity	1,61	0,02	1,64	0,10	mmol/l	102%
Hydrogen carbonate	95,4	1,0	100	8	mg/l	105%
Calcium	31,0	0,4	31,8	3,2	mg/l	103%
Magnesium	6,14	0,07	5,9	0,4	mg/l	96%
Sodium	15,6	0,2	15,5	0,9	mg/l	99%
Potassium	1,65	0,02	1,70	0,19	mg/l	103%
Nitrate	21,8	0,6	22,5	1,4	mg/l	103%
Nitrite	0,0202	0,0006	0,0190	0,001	mg/l	94%
Ammonium	0,061	0,002	0,066	0,027	mg/l	108%
Chloride	14,5	0,3	14,5	1,2	mg/l	100%
Sulphate	19,6	0,2	19,9	1,2	mg/l	102%
Orthophosphate	<0,009		<0,009	0,001	mg/l	•
Boron	0,066	0,001	0,062	0,004	mg/l	94%
DOC	4,06	0,04	3,88	0,54	mg/l	96%
Total P (as PO4)	<0,009		<0,009	0,003	mg/l	•
KMnO4-Index	3,53	0,13	3,65	0,37	mg/l	103%



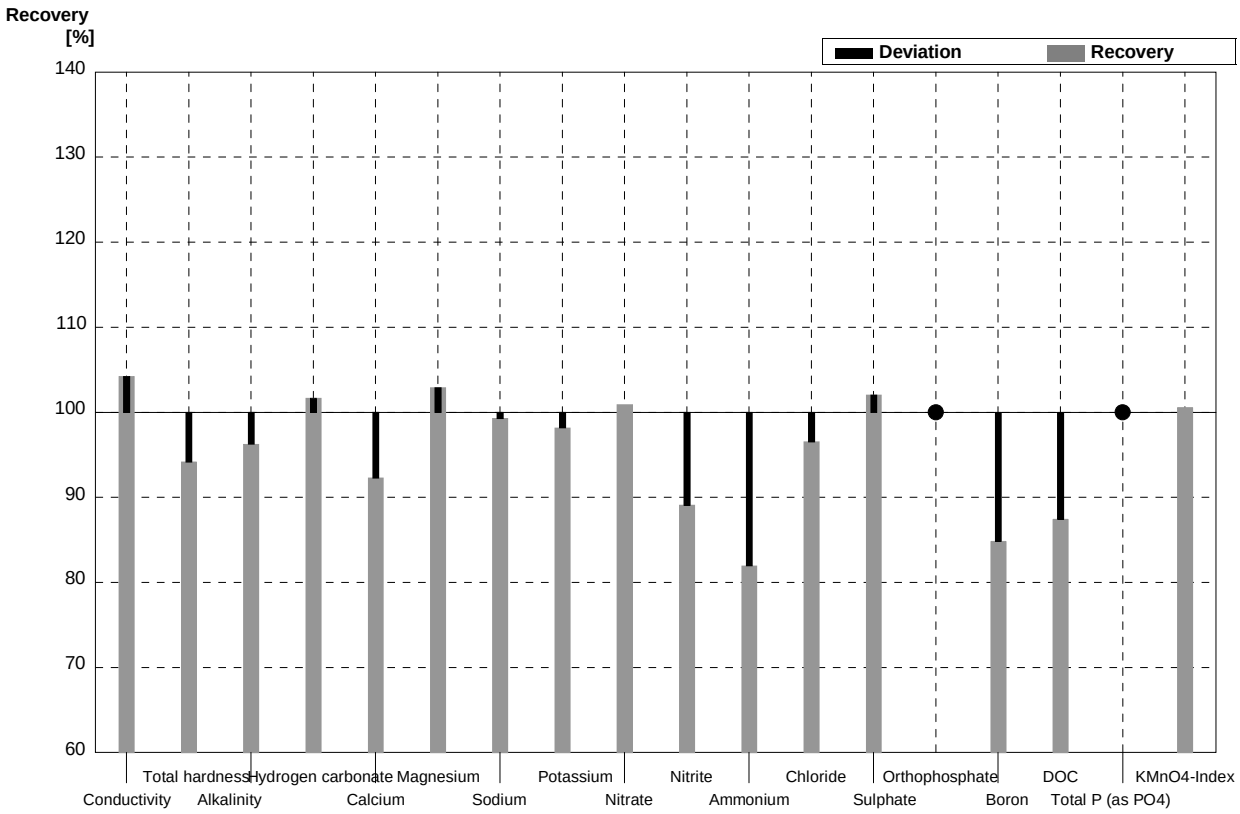
Sample N149A
Laboratory U

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	546	30	µS/cm	104%
Total hardness	2,11	0,02	1,99	0,4	mmol/l	94%
Alkalinity	2,78	0,03	2,60	0,6	mmol/l	94%
Hydrogen carbonate	167	2	161	9	mg/l	96%
Calcium	55,8	0,7	50,87	10	mg/l	91%
Magnesium	17,5	0,2	17,46	4	mg/l	100%
Sodium	21,2	0,4	20,75	4	mg/l	98%
Potassium	4,23	0,04	4,12	0,8	mg/l	97%
Nitrate	43,6	0,8	44,0	10	mg/l	101%
Nitrite	0,0402	0,0003	0,0350	0,008	mg/l	87%
Ammonium	<0,01		<0,01		mg/l	•
Chloride	35,9	0,7	36,0	8	mg/l	100%
Sulphate	35,2	0,4	35,0	8	mg/l	99%
Orthophosphate	0,081	0,003	<0,1		mg/l	•
Boron	0,101	0,001	0,091	0,02	mg/l	90%
DOC	6,43	0,05	6,43	2	mg/l	100%
Total P (as PO4)	0,186	0,003	0,185	0,04	mg/l	99%
KMnO4-Index	4,53	0,13	4,65	1	mg/l	103%



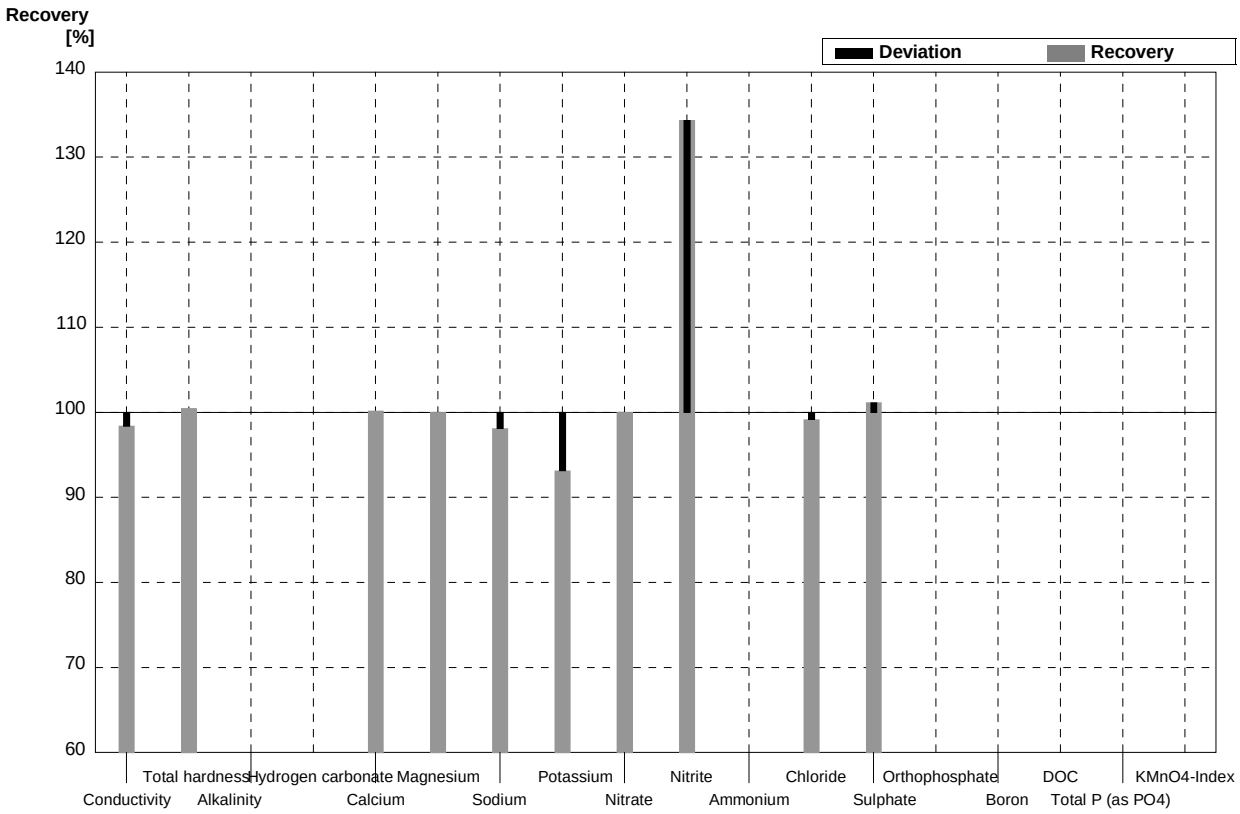
Sample N149B
Laboratory U

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	296	15	µS/cm	104%
Total hardness	1,03	0,01	0,97	0,2	mmol/l	94%
Alkalinity	1,61	0,02	1,55	0,4	mmol/l	96%
Hydrogen carbonate	95,4	1,0	97,0	5	mg/l	102%
Calcium	31,0	0,4	28,61	6	mg/l	92%
Magnesium	6,14	0,07	6,32	0,2	mg/l	103%
Sodium	15,6	0,2	15,49	3	mg/l	99%
Potassium	1,65	0,02	1,62	0,4	mg/l	98%
Nitrate	21,8	0,6	22,0	5	mg/l	101%
Nitrite	0,0202	0,0006	0,0180	0,004	mg/l	89%
Ammonium	0,061	0,002	0,050	0,02	mg/l	82%
Chloride	14,5	0,3	14,0	3	mg/l	97%
Sulphate	19,6	0,2	20,0	4	mg/l	102%
Orthophosphate	<0,009		<0,1		mg/l	•
Boron	0,066	0,001	0,056	0,01	mg/l	85%
DOC	4,06	0,04	3,55	1	mg/l	87%
Total P (as PO4)	<0,009		<0,031		mg/l	•
KMnO4-Index	3,53	0,13	3,55	0,8	mg/l	101%



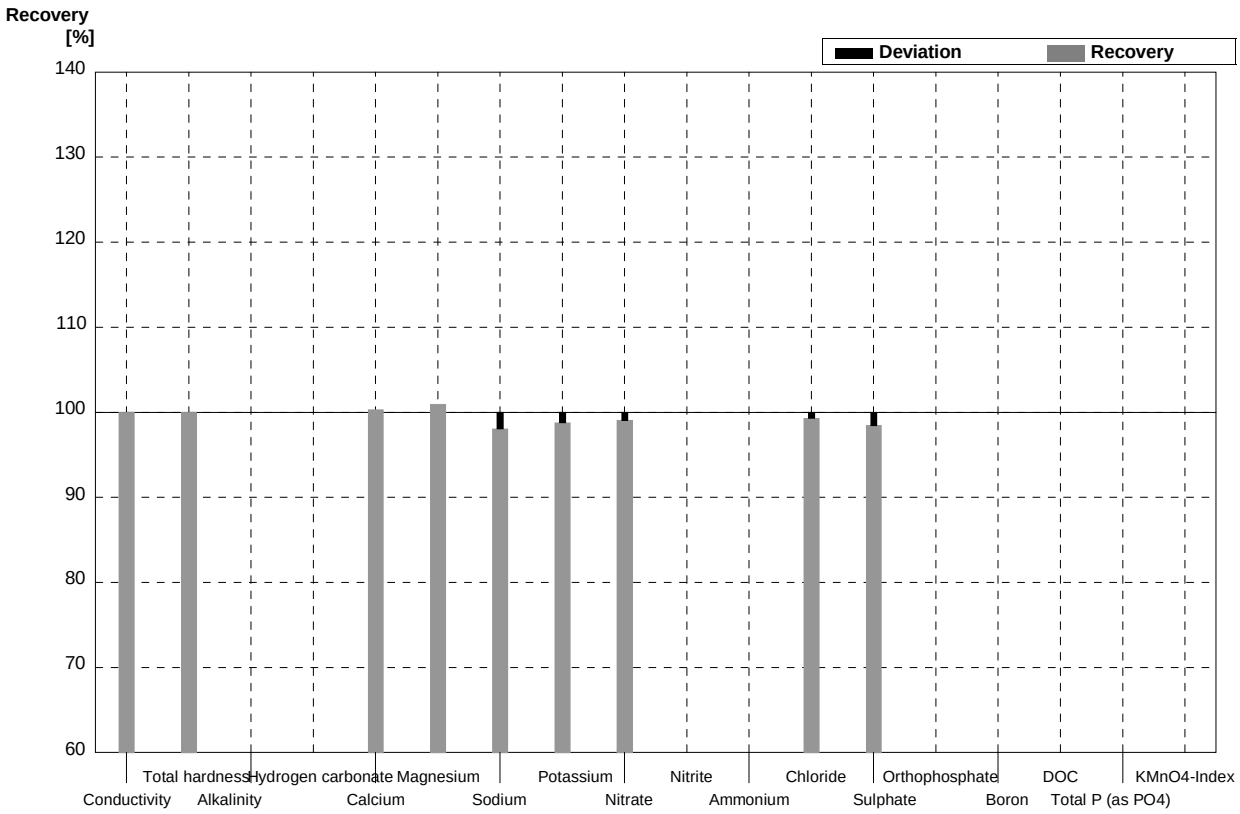
Sample N149A
Laboratory V

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	516,6	10	µS/cm	98%
Total hardness	2,11	0,02	2,12	0,2	mmol/l	100%
Alkalinity	2,78	0,03			mmol/l	
Hydrogen carbonate	167	2			mg/l	
Calcium	55,8	0,7	55,9	5,6	mg/l	100%
Magnesium	17,5	0,2	17,5	1,8	mg/l	100%
Sodium	21,2	0,4	20,8	2,1	mg/l	98%
Potassium	4,23	0,04	3,94	0,3	mg/l	93%
Nitrate	43,6	0,8	43,6	4,4	mg/l	100%
Nitrite	0,0402	0,0003	0,054	0,005	mg/l	134%
Ammonium	<0,01				mg/l	
Chloride	35,9	0,7	35,6	3,6	mg/l	99%
Sulphate	35,2	0,4	35,6	3,6	mg/l	101%
Orthophosphate	0,081	0,003			mg/l	
Boron	0,101	0,001			mg/l	
DOC	6,43	0,05			mg/l	
Total P (as PO4)	0,186	0,003			mg/l	
KMnO4-Index	4,53	0,13			mg/l	



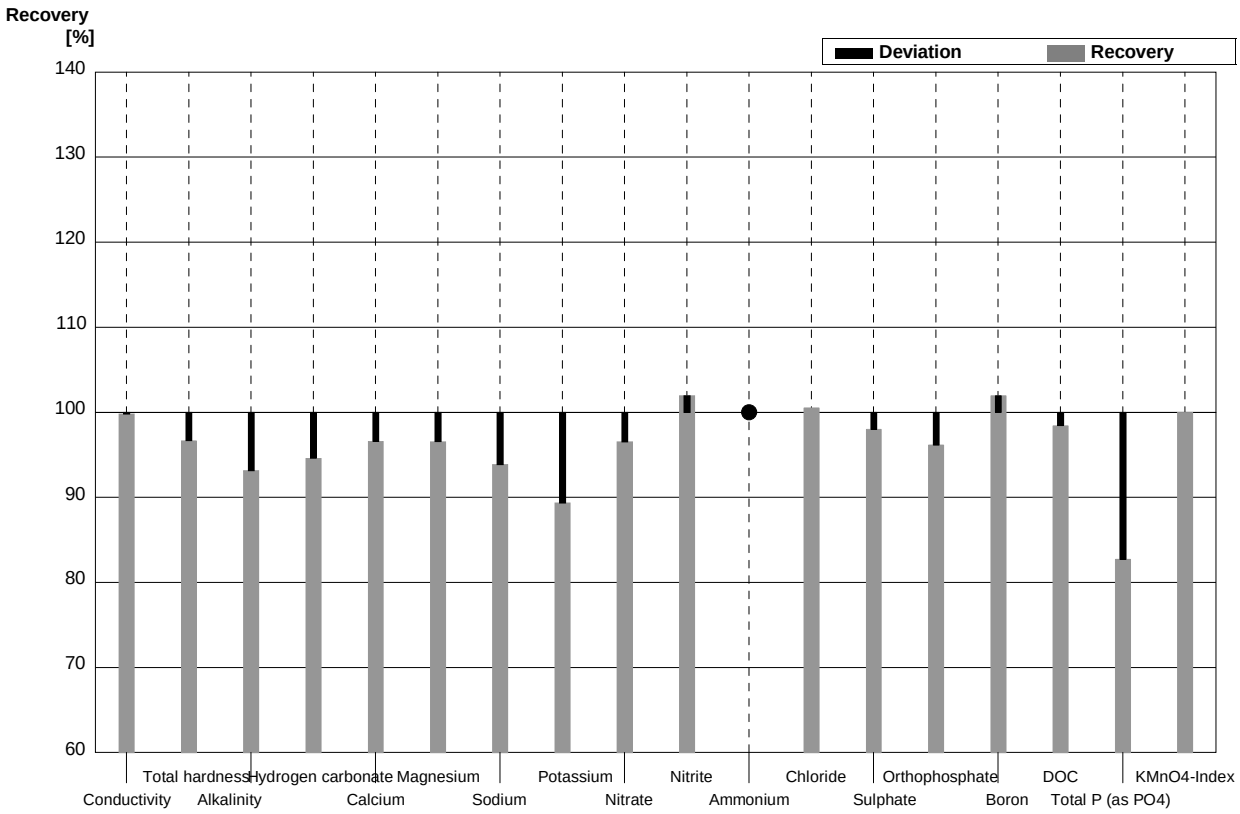
Sample N149B
Laboratory V

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	284,1	6	µS/cm	100%
Total hardness	1,03	0,01	1,03	0,1	mmol/l	100%
Alkalinity	1,61	0,02			mmol/l	
Hydrogen carbonate	95,4	1,0			mg/l	
Calcium	31,0	0,4	31,1	3,1	mg/l	100%
Magnesium	6,14	0,07	6,2	0,6	mg/l	101%
Sodium	15,6	0,2	15,3	1,5	mg/l	98%
Potassium	1,65	0,02	1,63	0,2	mg/l	99%
Nitrate	21,8	0,6	21,6	2,2	mg/l	99%
Nitrite	0,0202	0,0006			mg/l	
Ammonium	0,061	0,002			mg/l	
Chloride	14,5	0,3	14,4	1,4	mg/l	99%
Sulphate	19,6	0,2	19,3	1,9	mg/l	98%
Orthophosphate	<0,009				mg/l	
Boron	0,066	0,001			mg/l	
DOC	4,06	0,04			mg/l	
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	3,53	0,13			mg/l	



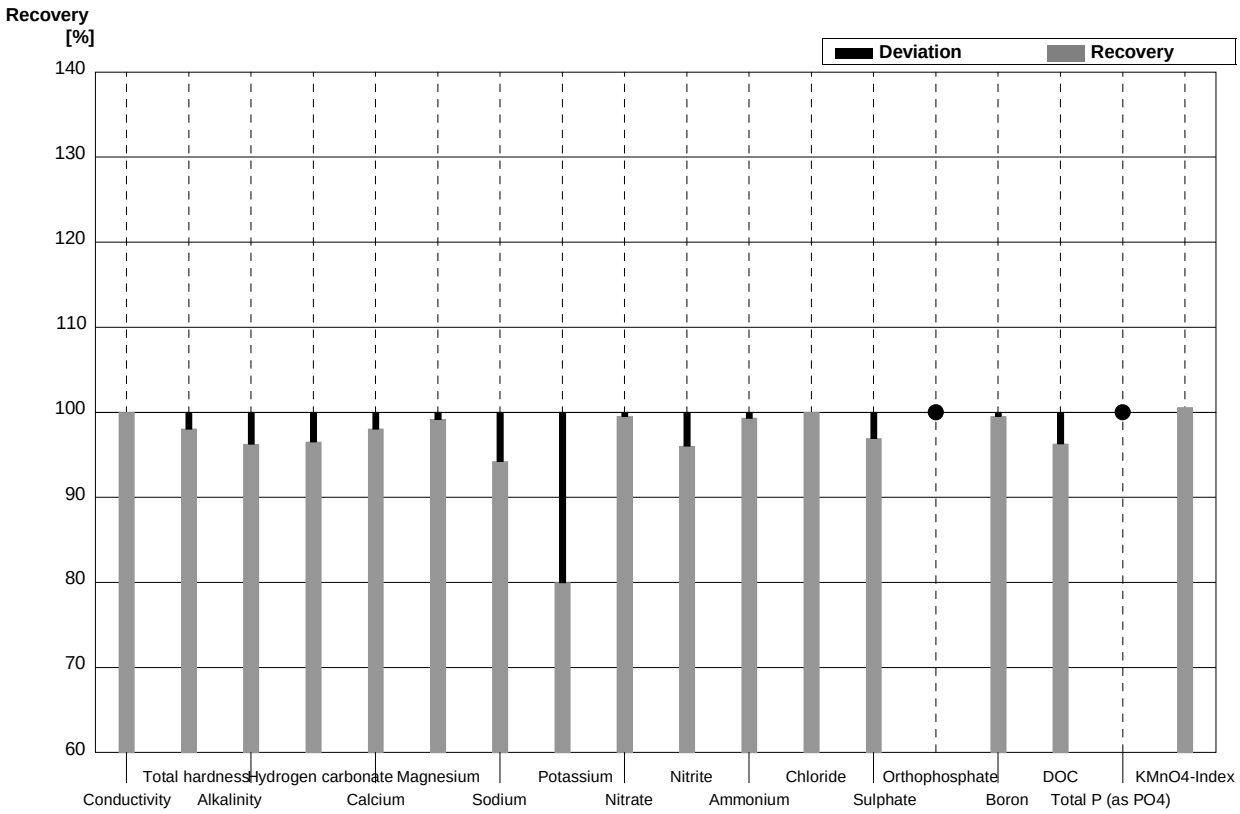
Sample N149A
Laboratory W

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	524	3,06	µS/cm	100%
Total hardness	2,11	0,02	2,04	0,010	mmol/l	97%
Alkalinity	2,78	0,03	2,59	0,035	mmol/l	93%
Hydrogen carbonate	167	2	158	0,577	mg/l	95%
Calcium	55,8	0,7	53,9	0,208	mg/l	97%
Magnesium	17,5	0,2	16,9	0,058	mg/l	97%
Sodium	21,2	0,4	19,9	0,153	mg/l	94%
Potassium	4,23	0,04	3,78	0,038	mg/l	89%
Nitrate	43,6	0,8	42,1	0,100	mg/l	97%
Nitrite	0,0402	0,0003	0,0410	0,001	mg/l	102%
Ammonium	<0,01		<0,010		mg/l	•
Chloride	35,9	0,7	36,1	0,100	mg/l	101%
Sulphate	35,2	0,4	34,5	0,173	mg/l	98%
Orthophosphate	0,081	0,003	0,0779	0,001	mg/l	96%
Boron	0,101	0,001	0,103	0,0004	mg/l	102%
DOC	6,43	0,05	6,33	0,047	mg/l	98%
Total P (as PO4)	0,186	0,003	0,1539	0,0016	mg/l	83%
KMnO4-Index	4,53	0,13	4,53	0,035	mg/l	100%



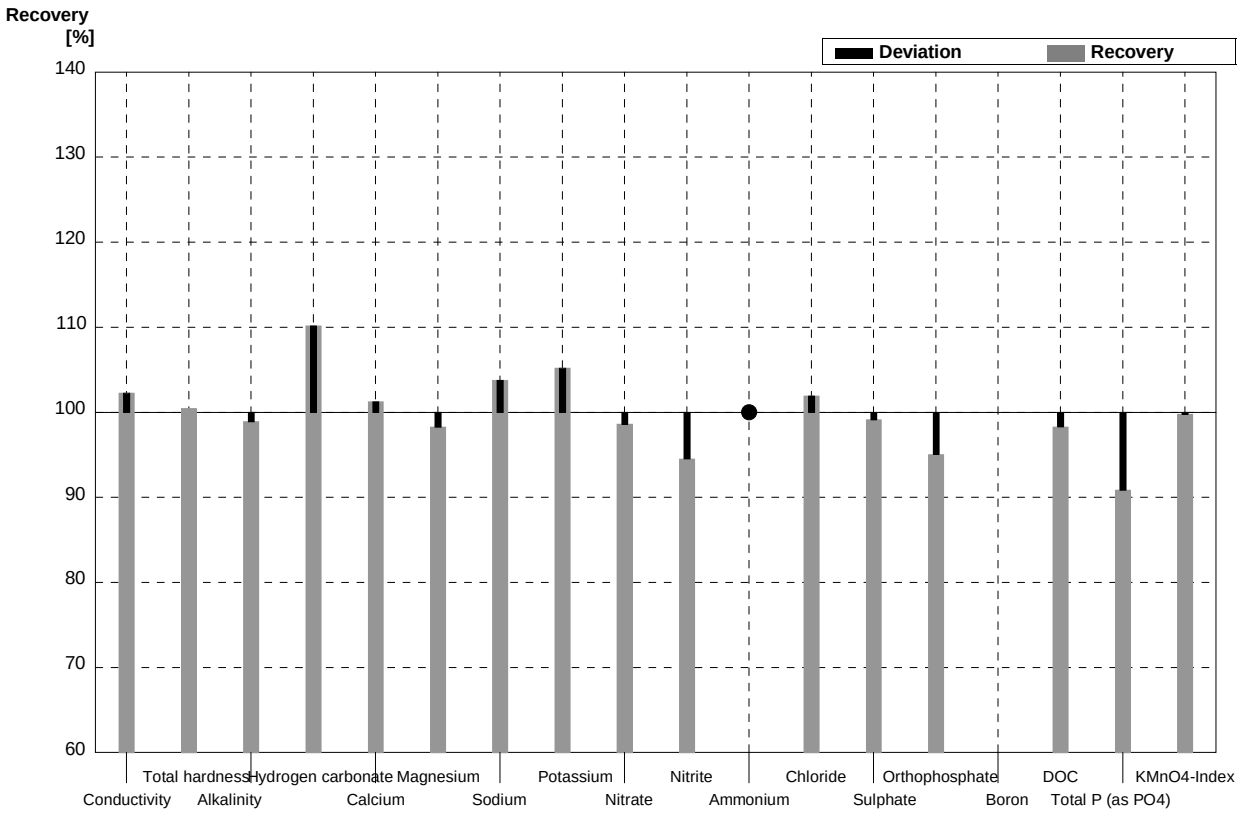
Sample N149B
Laboratory W

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	284	1,53	µS/cm	100%
Total hardness	1,03	0,01	1,01	0,005	mmol/l	98%
Alkalinity	1,61	0,02	1,55	0,012	mmol/l	96%
Hydrogen carbonate	95,4	1,0	92,1	0,473	mg/l	97%
Calcium	31,0	0,4	30,4	0,058	mg/l	98%
Magnesium	6,14	0,07	6,09	0,006	mg/l	99%
Sodium	15,6	0,2	14,7	0,058	mg/l	94%
Potassium	1,65	0,02	1,32	0,012	mg/l	80%
Nitrate	21,8	0,6	21,7	0,058	mg/l	100%
Nitrite	0,0202	0,0006	0,0194	0,0001	mg/l	96%
Ammonium	0,061	0,002	0,0606	0,0003	mg/l	99%
Chloride	14,5	0,3	14,5	0,058	mg/l	100%
Sulphate	19,6	0,2	19,0	0,031	mg/l	97%
Orthophosphate	<0,009		<0,015		mg/l	•
Boron	0,066	0,001	0,0657	0,0007	mg/l	100%
DOC	4,06	0,04	3,91	0,015	mg/l	96%
Total P (as PO4)	<0,009		<0,015		mg/l	•
KMnO4-Index	3,53	0,13	3,55	0,042	mg/l	101%



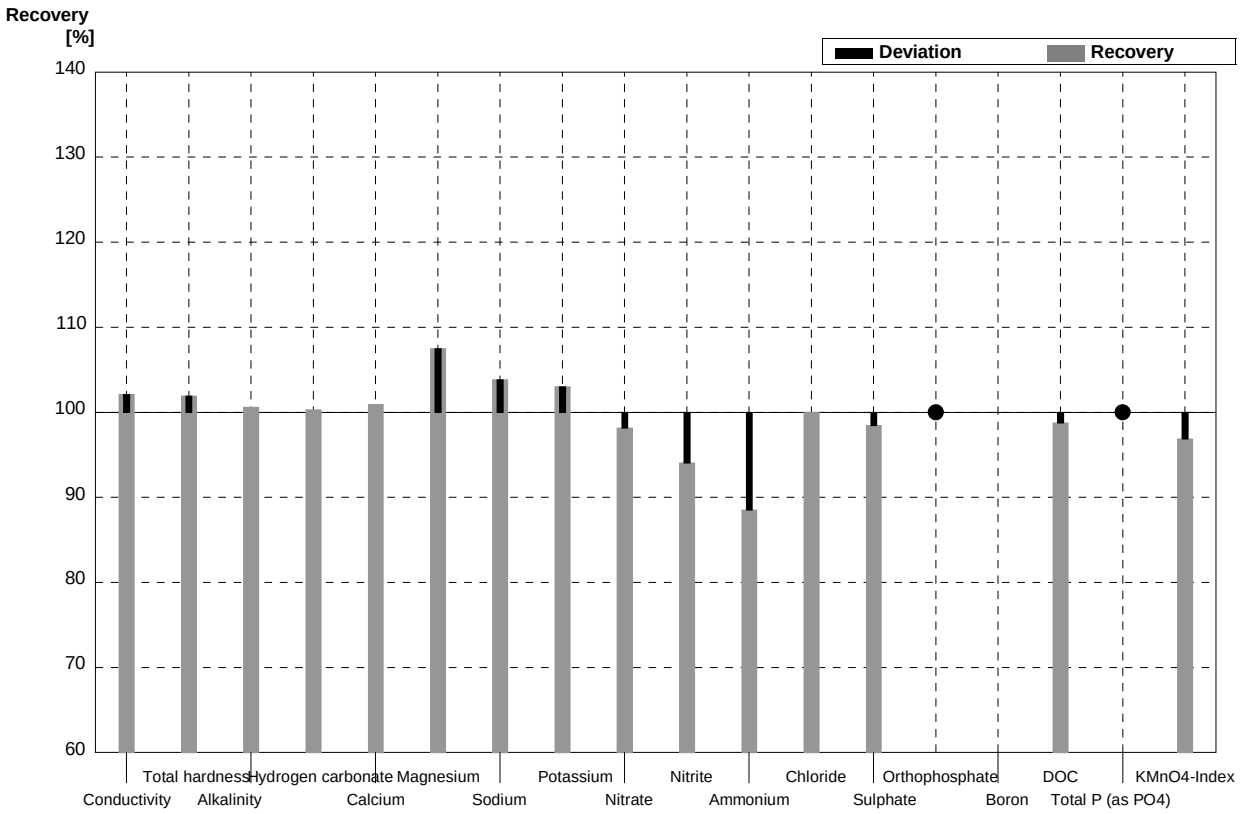
Sample N149A
Laboratory X

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	537	13	µS/cm	102%
Total hardness	2,11	0,02	2,12	0,04	mmol/l	100%
Alkalinity	2,78	0,03	2,75	0,03	mmol/l	99%
Hydrogen carbonate	167	2	184	1,9	mg/l	110%
Calcium	55,8	0,7	56,5	0,6	mg/l	101%
Magnesium	17,5	0,2	17,2	1,7	mg/l	98%
Sodium	21,2	0,4	22,0	0,7	mg/l	104%
Potassium	4,23	0,04	4,45	0,3	mg/l	105%
Nitrate	43,6	0,8	43,0	1,8	mg/l	99%
Nitrite	0,0402	0,0003	0,0380	0,004	mg/l	95%
Ammonium	<0,01		<0,01	0,003	mg/l	•
Chloride	35,9	0,7	36,6	1,1	mg/l	102%
Sulphate	35,2	0,4	34,9	1,6	mg/l	99%
Orthophosphate	0,081	0,003	0,077	0,01	mg/l	95%
Boron	0,101	0,001			mg/l	
DOC	6,43	0,05	6,32	1,0	mg/l	98%
Total P (as PO4)	0,186	0,003	0,169	0,025	mg/l	91%
KMnO4-Index	4,53	0,13	4,52	0,6	mg/l	100%



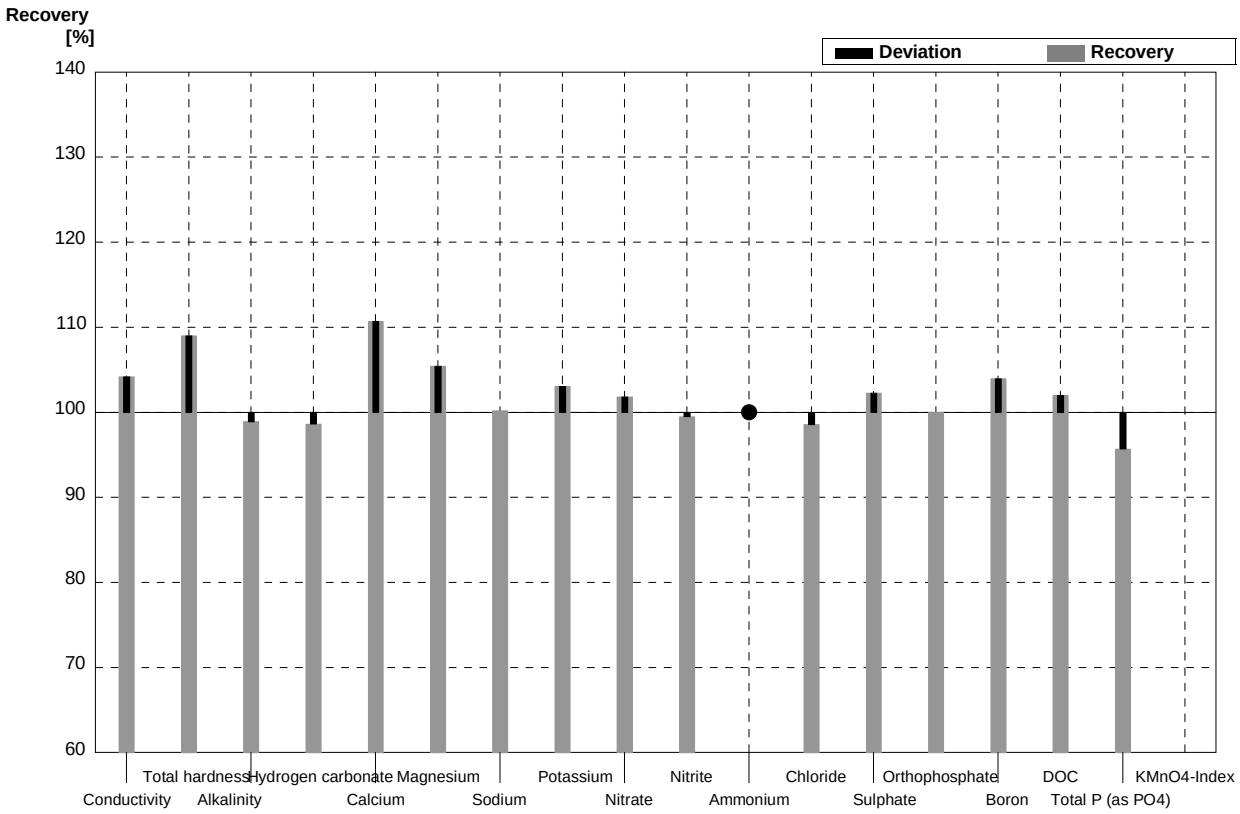
Sample N149B
Laboratory X

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	290	7	µS/cm	102%
Total hardness	1,03	0,01	1,05	0,02	mmol/l	102%
Alkalinity	1,61	0,02	1,62	0,02	mmol/l	101%
Hydrogen carbonate	95,4	1,0	95,7	1,0	mg/l	100%
Calcium	31,0	0,4	31,3	0,3	mg/l	101%
Magnesium	6,14	0,07	6,6	0,7	mg/l	107%
Sodium	15,6	0,2	16,2	0,5	mg/l	104%
Potassium	1,65	0,02	1,70	0,1	mg/l	103%
Nitrate	21,8	0,6	21,4	0,9	mg/l	98%
Nitrite	0,0202	0,0006	0,0190	0,002	mg/l	94%
Ammonium	0,061	0,002	0,054	0,003	mg/l	89%
Chloride	14,5	0,3	14,5	0,5	mg/l	100%
Sulphate	19,6	0,2	19,3	0,9	mg/l	98%
Orthophosphate	<0,009		<0,01	0,003	mg/l	•
Boron	0,066	0,001			mg/l	
DOC	4,06	0,04	4,01	0,6	mg/l	99%
Total P (as PO4)	<0,009		<0,01	0,003	mg/l	•
KMnO4-Index	3,53	0,13	3,42	0,5	mg/l	97%



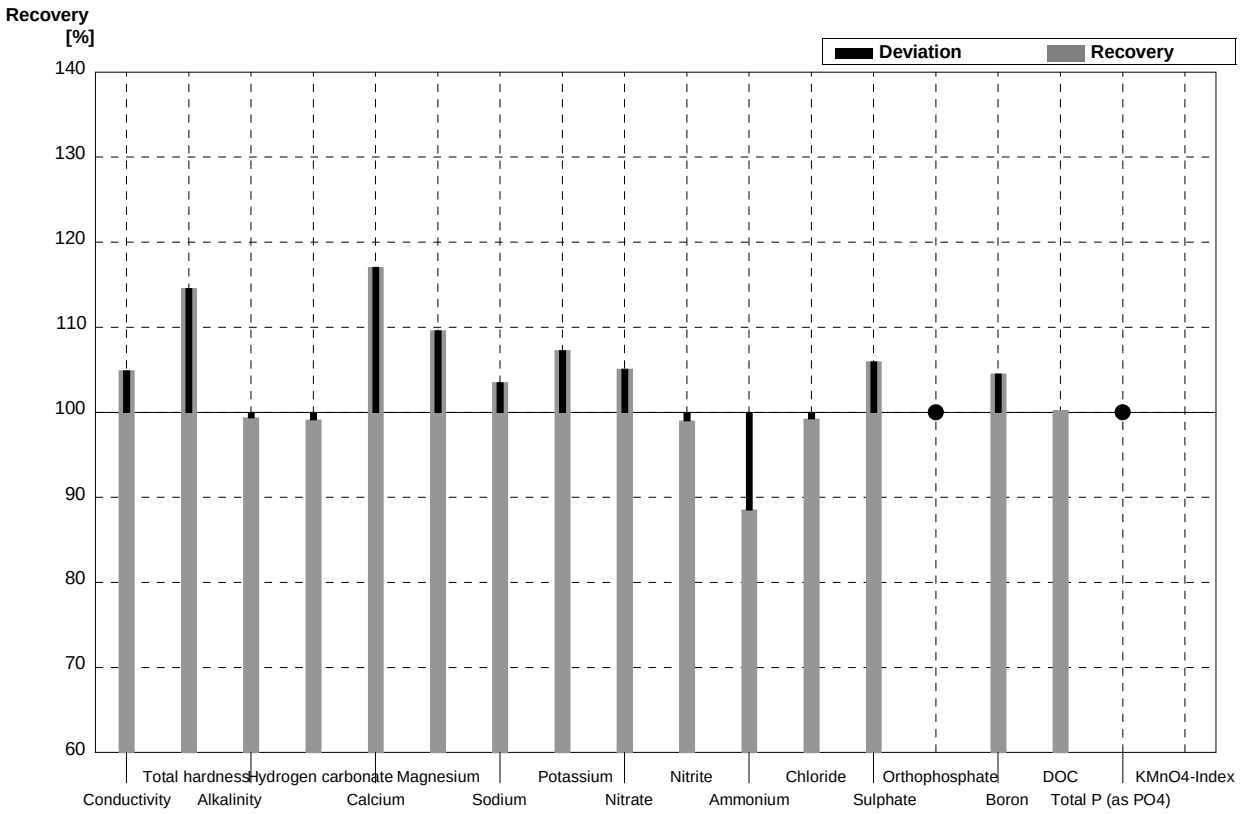
Sample N149A
Laboratory Y

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	547	4,51	µS/cm	104%
Total hardness	2,11	0,02	2,30		mmol/l	109%
Alkalinity	2,78	0,03	2,75	0,28	mmol/l	99%
Hydrogen carbonate	167	2	164,73		mg/l	99%
Calcium	55,8	0,7	61,77	6,1	mg/l	111%
Magnesium	17,5	0,2	18,45	1,8	mg/l	105%
Sodium	21,2	0,4	21,24	2,1	mg/l	100%
Potassium	4,23	0,04	4,36	0,42	mg/l	103%
Nitrate	43,6	0,8	44,40	4,4	mg/l	102%
Nitrite	0,0402	0,0003	0,0400	0,004	mg/l	100%
Ammonium	<0,01		<0,0026		mg/l	•
Chloride	35,9	0,7	35,39	3,6	mg/l	99%
Sulphate	35,2	0,4	36,00	3,6	mg/l	102%
Orthophosphate	0,081	0,003	0,081	0,008	mg/l	100%
Boron	0,101	0,001	0,105	0,016	mg/l	104%
DOC	6,43	0,05	6,56	0,98	mg/l	102%
Total P (as PO4)	0,186	0,003	0,178	0,018	mg/l	96%
KMnO4-Index	4,53	0,13			mg/l	



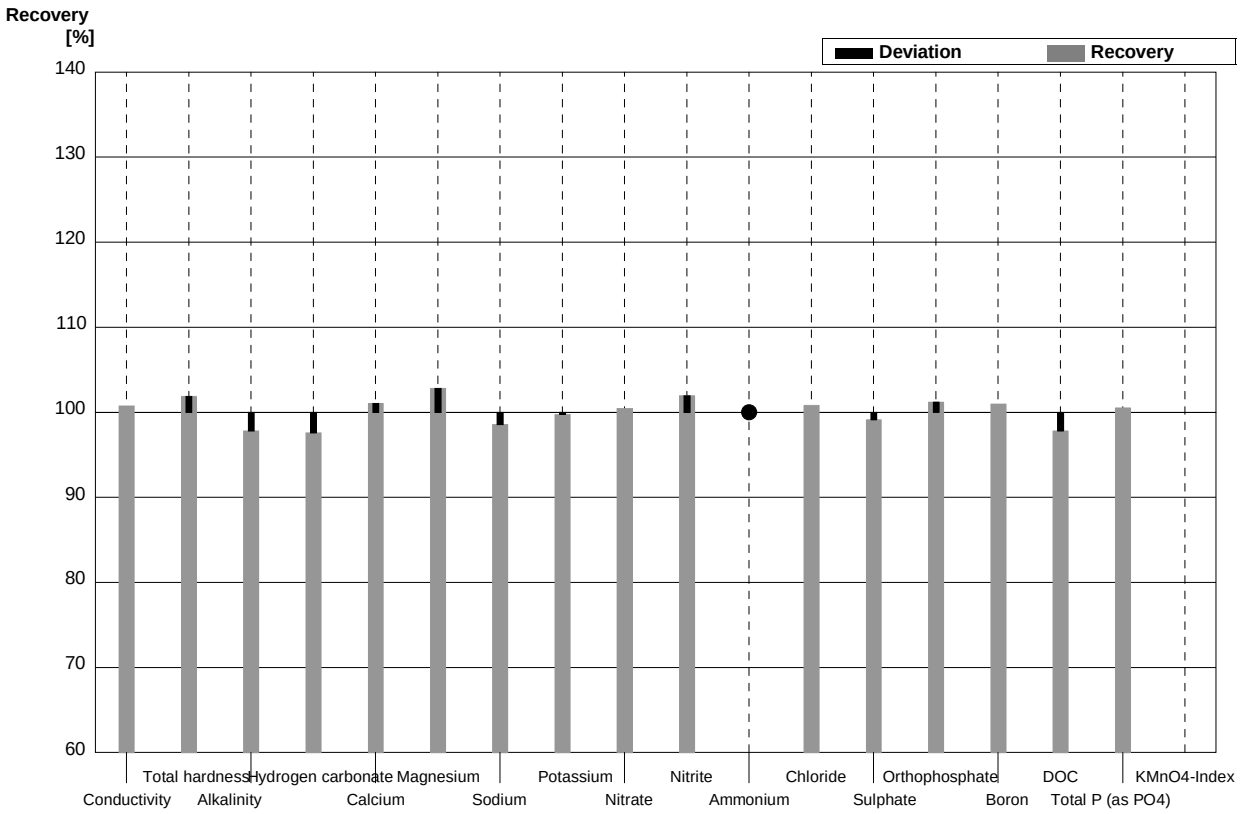
Sample N149B
Laboratory Y

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	298	4,51	µS/cm	105%
Total hardness	1,03	0,01	1,18		mmol/l	115%
Alkalinity	1,61	0,02	1,60	0,16	mmol/l	99%
Hydrogen carbonate	95,4	1,0	94,57		mg/l	99%
Calcium	31,0	0,4	36,29	3,5	mg/l	117%
Magnesium	6,14	0,07	6,73	0,7	mg/l	110%
Sodium	15,6	0,2	16,15	1,6	mg/l	104%
Potassium	1,65	0,02	1,77	0,17	mg/l	107%
Nitrate	21,8	0,6	22,91	2,3	mg/l	105%
Nitrite	0,0202	0,0006	0,0200	0,002	mg/l	99%
Ammonium	0,061	0,002	0,054	0,005	mg/l	89%
Chloride	14,5	0,3	14,39	1,5	mg/l	99%
Sulphate	19,6	0,2	20,77	2,1	mg/l	106%
Orthophosphate	<0,009		<0,0015		mg/l	•
Boron	0,066	0,001	0,069	0,010	mg/l	105%
DOC	4,06	0,04	4,07	0,60	mg/l	100%
Total P (as PO4)	<0,009		<0,0010		mg/l	•
KMnO4-Index	3,53	0,13			mg/l	



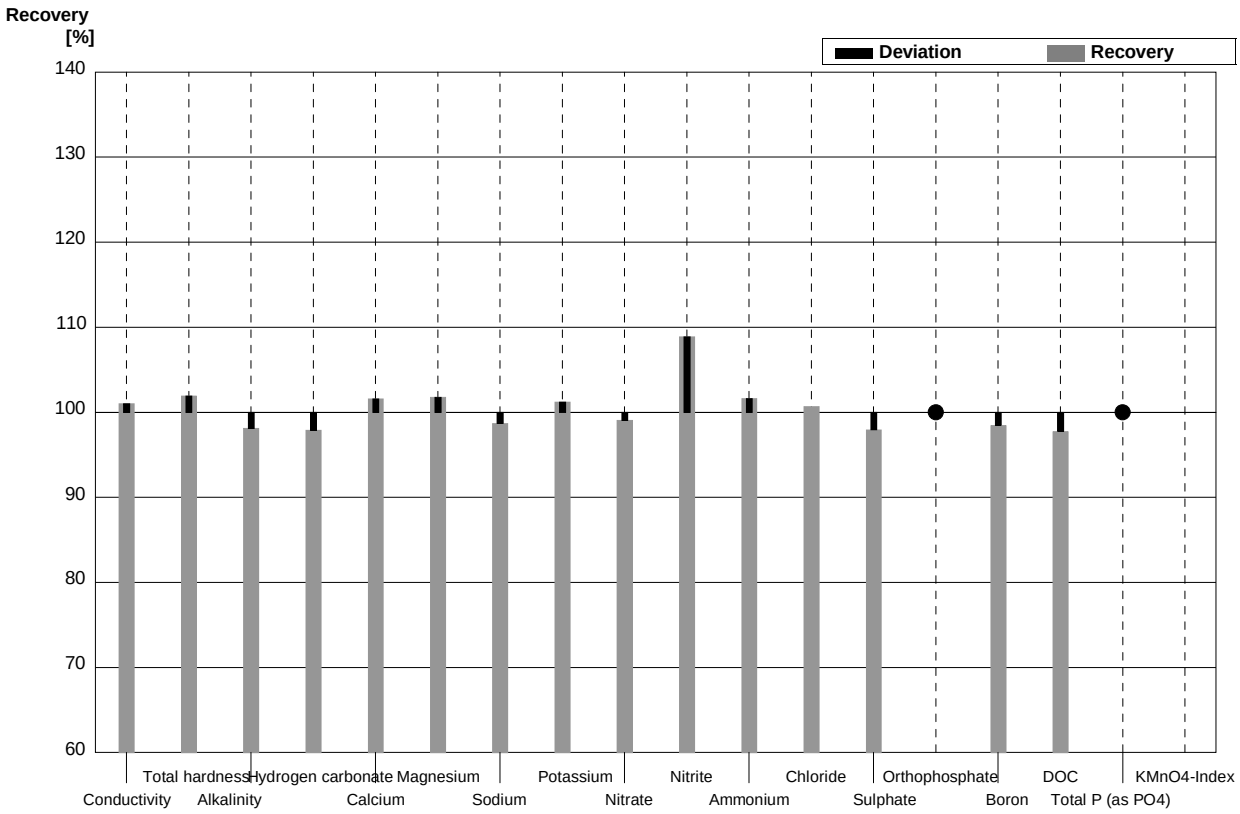
Sample N149A
Laboratory Z

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	529	16	µS/cm	101%
Total hardness	2,11	0,02	2,15	0,24	mmol/l	102%
Alkalinity	2,78	0,03	2,72	0,14	mmol/l	98%
Hydrogen carbonate	167	2	163	8	mg/l	98%
Calcium	55,8	0,7	56,4	5,1	mg/l	101%
Magnesium	17,5	0,2	18,0	1,6	mg/l	103%
Sodium	21,2	0,4	20,9	1,7	mg/l	99%
Potassium	4,23	0,04	4,22	0,30	mg/l	100%
Nitrate	43,6	0,8	43,8	3,9	mg/l	100%
Nitrite	0,0402	0,0003	0,0410	0,005	mg/l	102%
Ammonium	<0,01		<0,008		mg/l	•
Chloride	35,9	0,7	36,2	1,8	mg/l	101%
Sulphate	35,2	0,4	34,9	1,8	mg/l	99%
Orthophosphate	0,081	0,003	0,082	0,008	mg/l	101%
Boron	0,101	0,001	0,102	0,010	mg/l	101%
DOC	6,43	0,05	6,29	0,51	mg/l	98%
Total P (as PO4)	0,186	0,003	0,187	0,019	mg/l	101%
KMnO4-Index	4,53	0,13			mg/l	



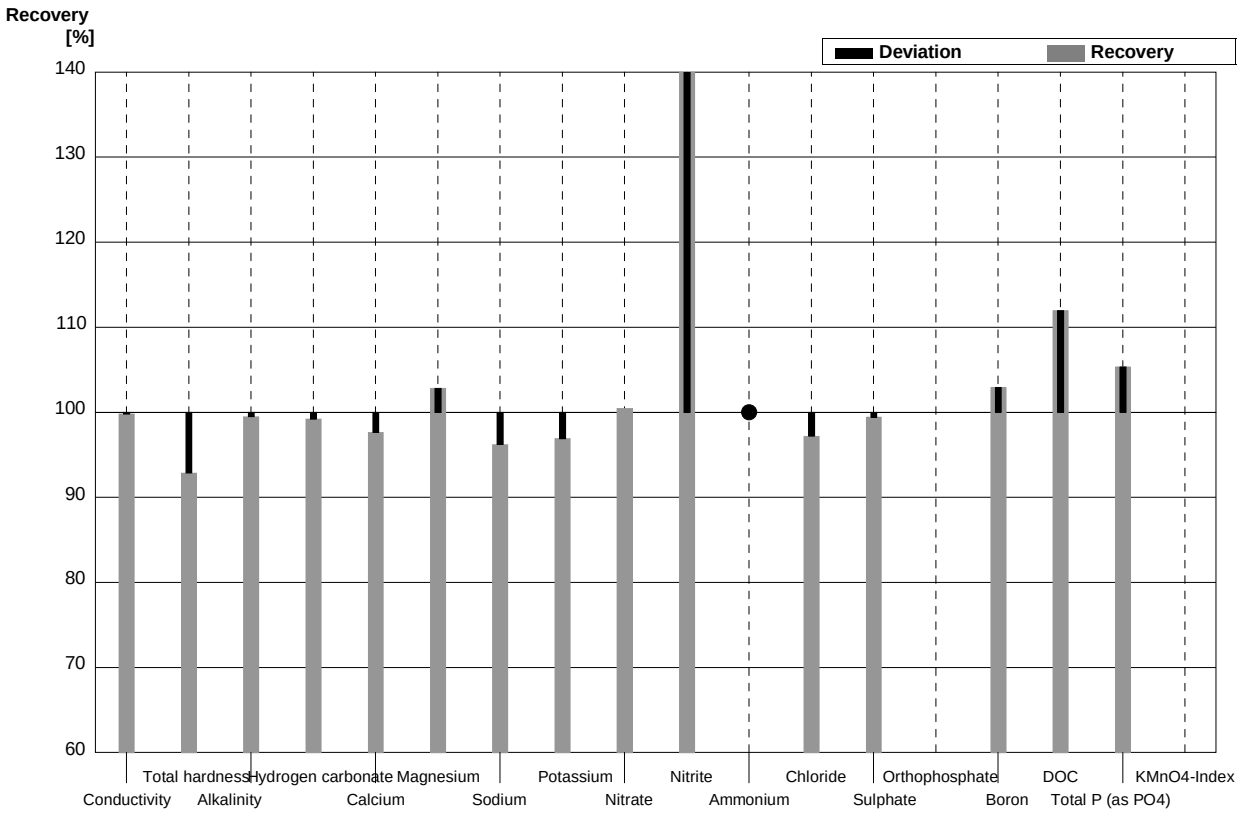
Sample N149B
Laboratory Z

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	287	9	µS/cm	101%
Total hardness	1,03	0,01	1,05	0,12	mmol/l	102%
Alkalinity	1,61	0,02	1,58	0,09	mmol/l	98%
Hydrogen carbonate	95,4	1,0	93,4	4,7	mg/l	98%
Calcium	31,0	0,4	31,5	2,8	mg/l	102%
Magnesium	6,14	0,07	6,25	0,57	mg/l	102%
Sodium	15,6	0,2	15,4	1,3	mg/l	99%
Potassium	1,65	0,02	1,67	0,12	mg/l	101%
Nitrate	21,8	0,6	21,6	2,0	mg/l	99%
Nitrite	0,0202	0,0006	0,0220	0,003	mg/l	109%
Ammonium	0,061	0,002	0,062	0,009	mg/l	102%
Chloride	14,5	0,3	14,6	0,8	mg/l	101%
Sulphate	19,6	0,2	19,2	1,0	mg/l	98%
Orthophosphate	<0,009		<0,006		mg/l	•
Boron	0,066	0,001	0,065	0,007	mg/l	98%
DOC	4,06	0,04	3,97	0,33	mg/l	98%
Total P (as PO4)	<0,009		<0,006		mg/l	•
KMnO4-Index	3,53	0,13			mg/l	



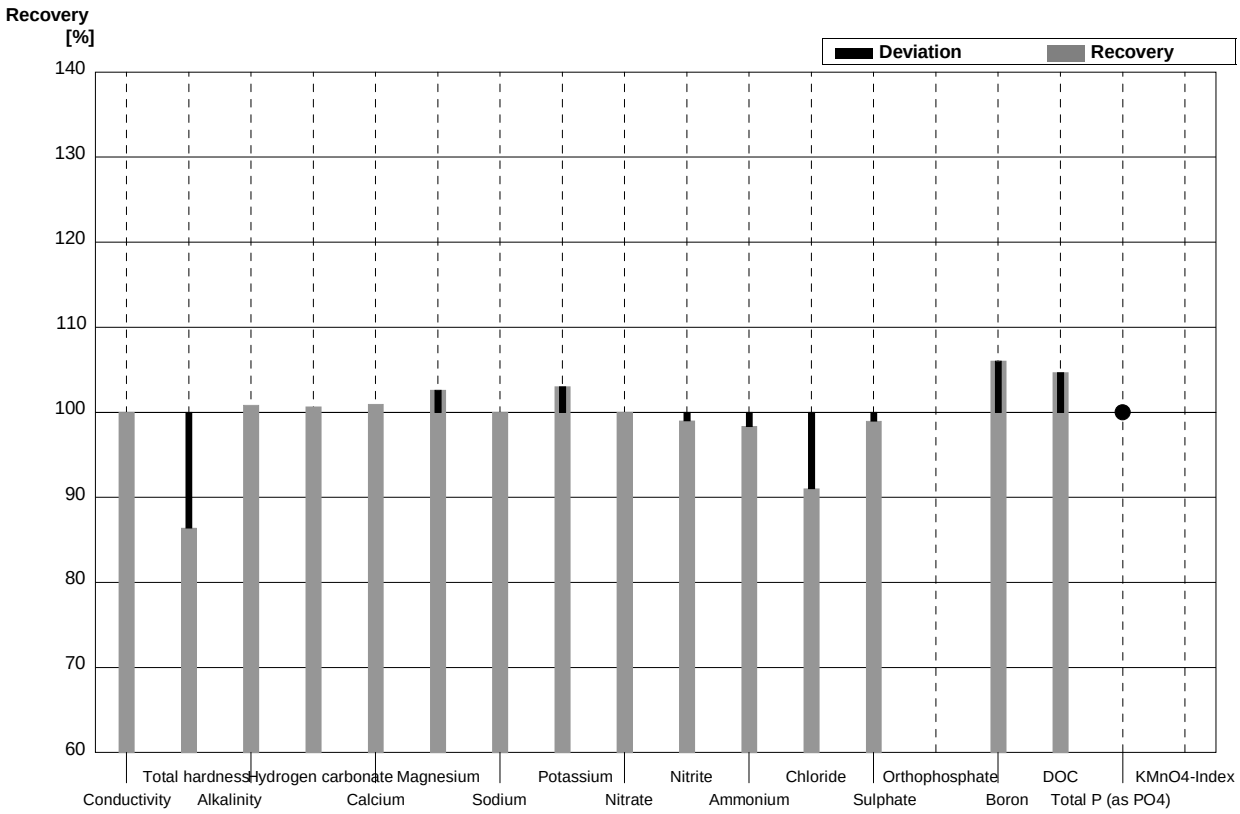
Sample N149A
Laboratory AA

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	524	12,7	µS/cm	100%
Total hardness	2,11	0,02	1,96		mmol/l	93%
Alkalinity	2,78	0,03	2,766	0,19	mmol/l	99%
Hydrogen carbonate	167	2	165,7		mg/l	99%
Calcium	55,8	0,7	54,5	3,76	mg/l	98%
Magnesium	17,5	0,2	18,0	2,36	mg/l	103%
Sodium	21,2	0,4	20,4	1,94	mg/l	96%
Potassium	4,23	0,04	4,10	0,42	mg/l	97%
Nitrate	43,6	0,8	43,8	4,56	mg/l	100%
Nitrite	0,0402	0,0003	0,384	0,094	mg/l	955%
Ammonium	<0,01		<0,050		mg/l	•
Chloride	35,9	0,7	34,9	4,89	mg/l	97%
Sulphate	35,2	0,4	35,0	3,33	mg/l	99%
Orthophosphate	0,081	0,003			mg/l	
Boron	0,101	0,001	0,104	0,01	mg/l	103%
DOC	6,43	0,05	7,20	1,33	mg/l	112%
Total P (as PO4)	0,186	0,003	0,196		mg/l	105%
KMnO4-Index	4,53	0,13			mg/l	



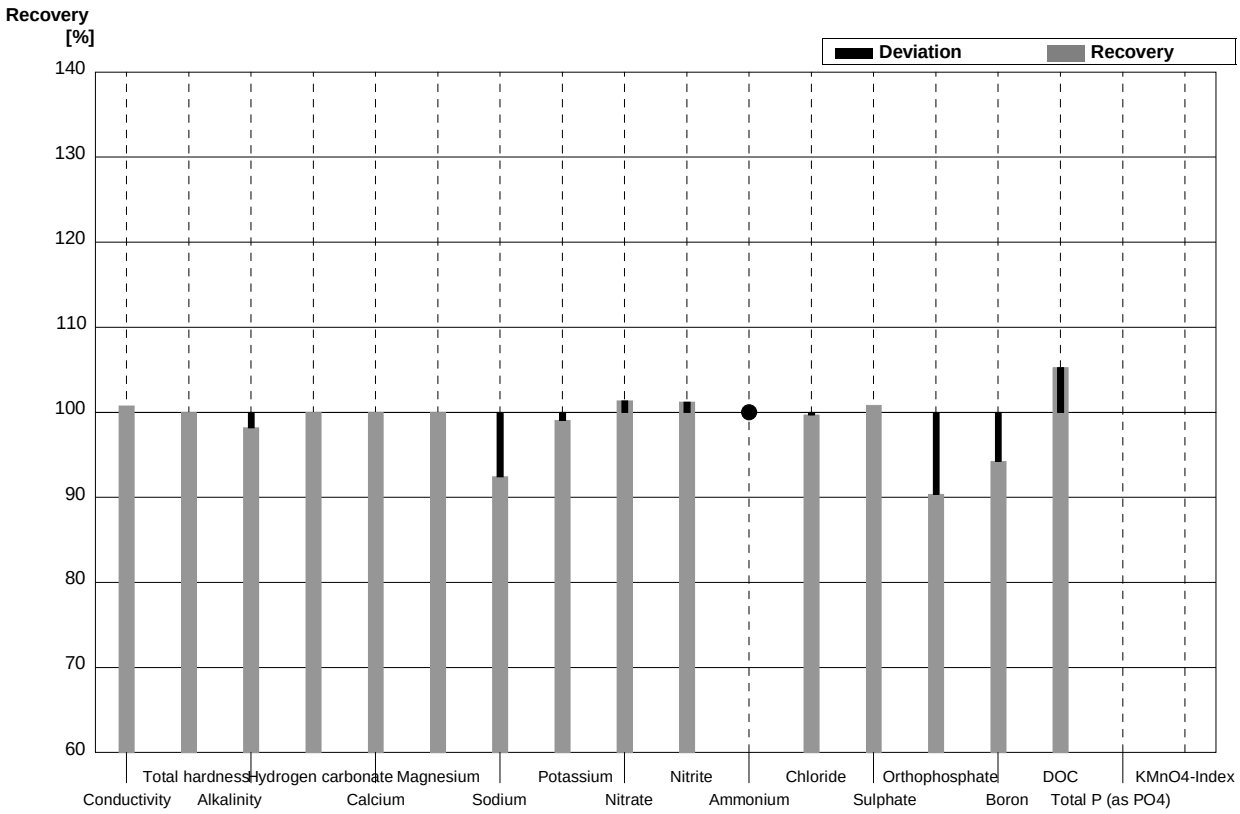
Sample N149B
Laboratory AA

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	284	12,7	µS/cm	100%
Total hardness	1,03	0,01	0,89		mmol/l	86%
Alkalinity	1,61	0,02	1,624	0,11	mmol/l	101%
Hydrogen carbonate	95,4	1,0	96,04		mg/l	101%
Calcium	31,0	0,4	31,3	2,16	mg/l	101%
Magnesium	6,14	0,07	6,3	0,83	mg/l	103%
Sodium	15,6	0,2	15,6	1,48	mg/l	100%
Potassium	1,65	0,02	1,70	0,17	mg/l	103%
Nitrate	21,8	0,6	21,8	2,27	mg/l	100%
Nitrite	0,0202	0,0006	0,0200	0,005	mg/l	99%
Ammonium	0,061	0,002	0,060	0,025	mg/l	98%
Chloride	14,5	0,3	13,2	1,85	mg/l	91%
Sulphate	19,6	0,2	19,4	1,84	mg/l	99%
Orthophosphate	<0,009				mg/l	
Boron	0,066	0,001	0,070	0,01	mg/l	106%
DOC	4,06	0,04	4,25	0,79	mg/l	105%
Total P (as PO4)	<0,009		0,00400		mg/l	•
KMnO4-Index	3,53	0,13			mg/l	



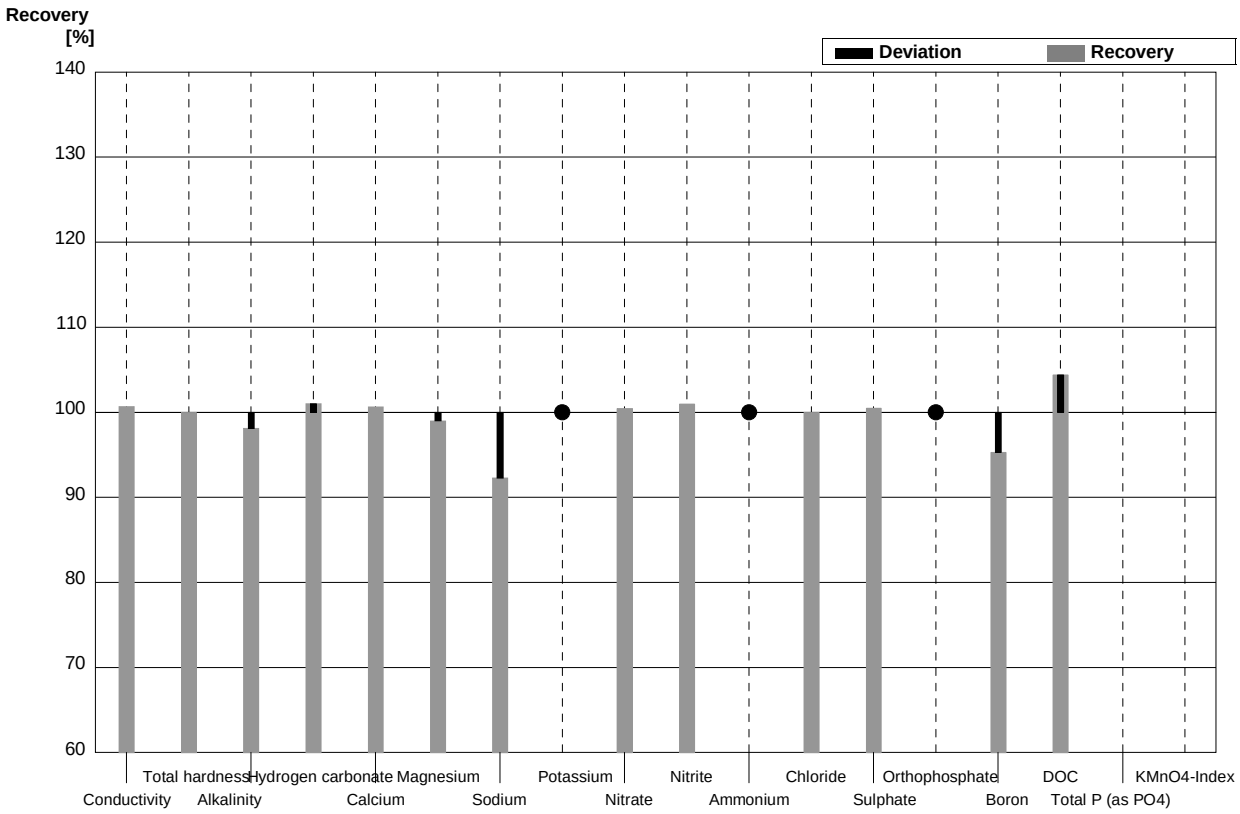
Sample N149A
Laboratory AB

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	529	53	µS/cm	101%
Total hardness	2,11	0,02	2,11	0,21	mmol/l	100%
Alkalinity	2,78	0,03	2,73	0,27	mmol/l	98%
Hydrogen carbonate	167	2	167	17	mg/l	100%
Calcium	55,8	0,7	55,8	5,6	mg/l	100%
Magnesium	17,5	0,2	17,5	1,8	mg/l	100%
Sodium	21,2	0,4	19,6	2,0	mg/l	92%
Potassium	4,23	0,04	4,19	0,42	mg/l	99%
Nitrate	43,6	0,8	44,2	4,4	mg/l	101%
Nitrite	0,0402	0,0003	0,0407	0,0041	mg/l	101%
Ammonium	<0,01		<0,064		mg/l	•
Chloride	35,9	0,7	35,8	3,6	mg/l	100%
Sulphate	35,2	0,4	35,5	3,6	mg/l	101%
Orthophosphate	0,081	0,003	0,0732	0,0073	mg/l	90%
Boron	0,101	0,001	0,0952	0,0095	mg/l	94%
DOC	6,43	0,05	6,77	0,68	mg/l	105%
Total P (as PO4)	0,186	0,003			mg/l	
KMnO4-Index	4,53	0,13			mg/l	



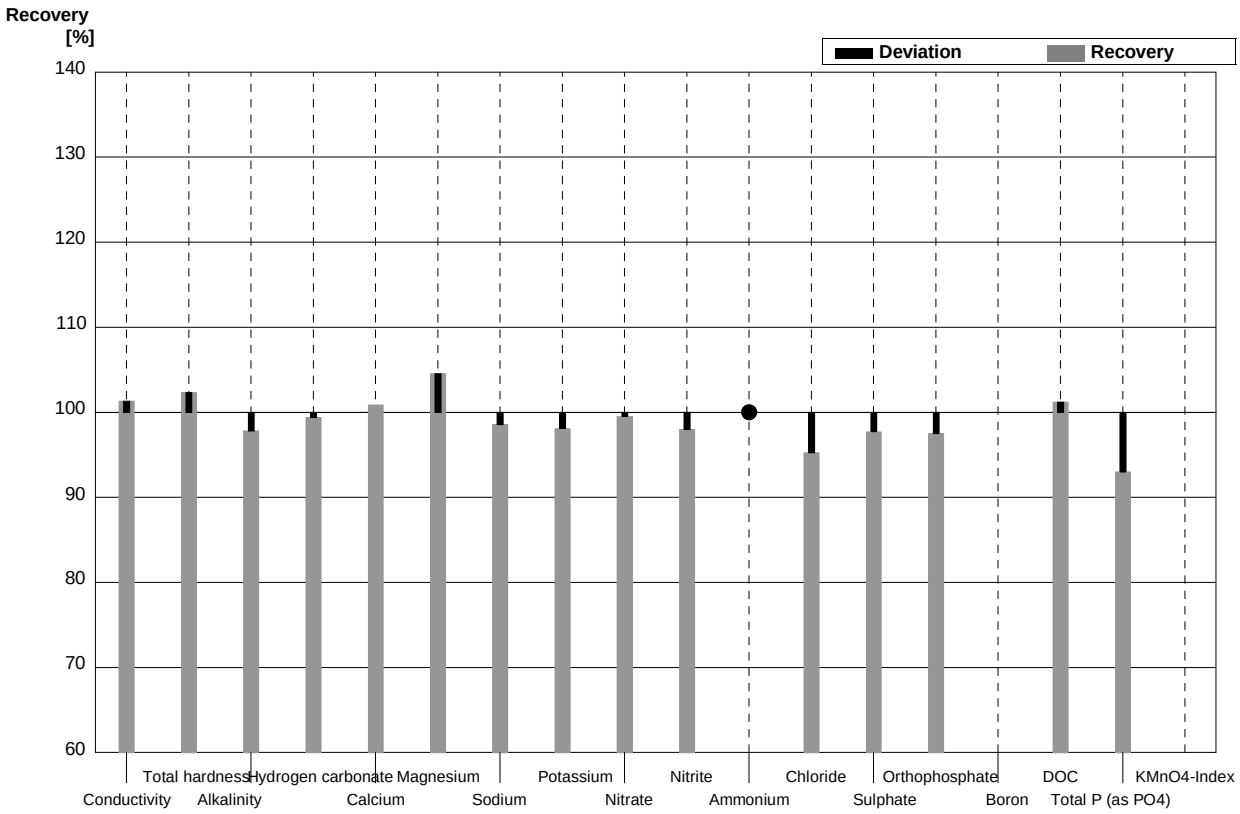
Sample N149B
Laboratory AB

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	286	29	µS/cm	101%
Total hardness	1,03	0,01	1,03	0,10	mmol/l	100%
Alkalinity	1,61	0,02	1,58	0,16	mmol/l	98%
Hydrogen carbonate	95,4	1,0	96,4	9,6	mg/l	101%
Calcium	31,0	0,4	31,2	3,1	mg/l	101%
Magnesium	6,14	0,07	6,08	0,61	mg/l	99%
Sodium	15,6	0,2	14,4	1,4	mg/l	92%
Potassium	1,65	0,02	<2,00		mg/l	•
Nitrate	21,8	0,6	21,9	2,2	mg/l	100%
Nitrite	0,0202	0,0006	0,0204	0,0020	mg/l	101%
Ammonium	0,061	0,002	<0,064		mg/l	•
Chloride	14,5	0,3	14,5	1,5	mg/l	100%
Sulphate	19,6	0,2	19,7	2,0	mg/l	101%
Orthophosphate	<0,009		<0,050		mg/l	•
Boron	0,066	0,001	0,0629	0,0063	mg/l	95%
DOC	4,06	0,04	4,24	0,42	mg/l	104%
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	3,53	0,13			mg/l	



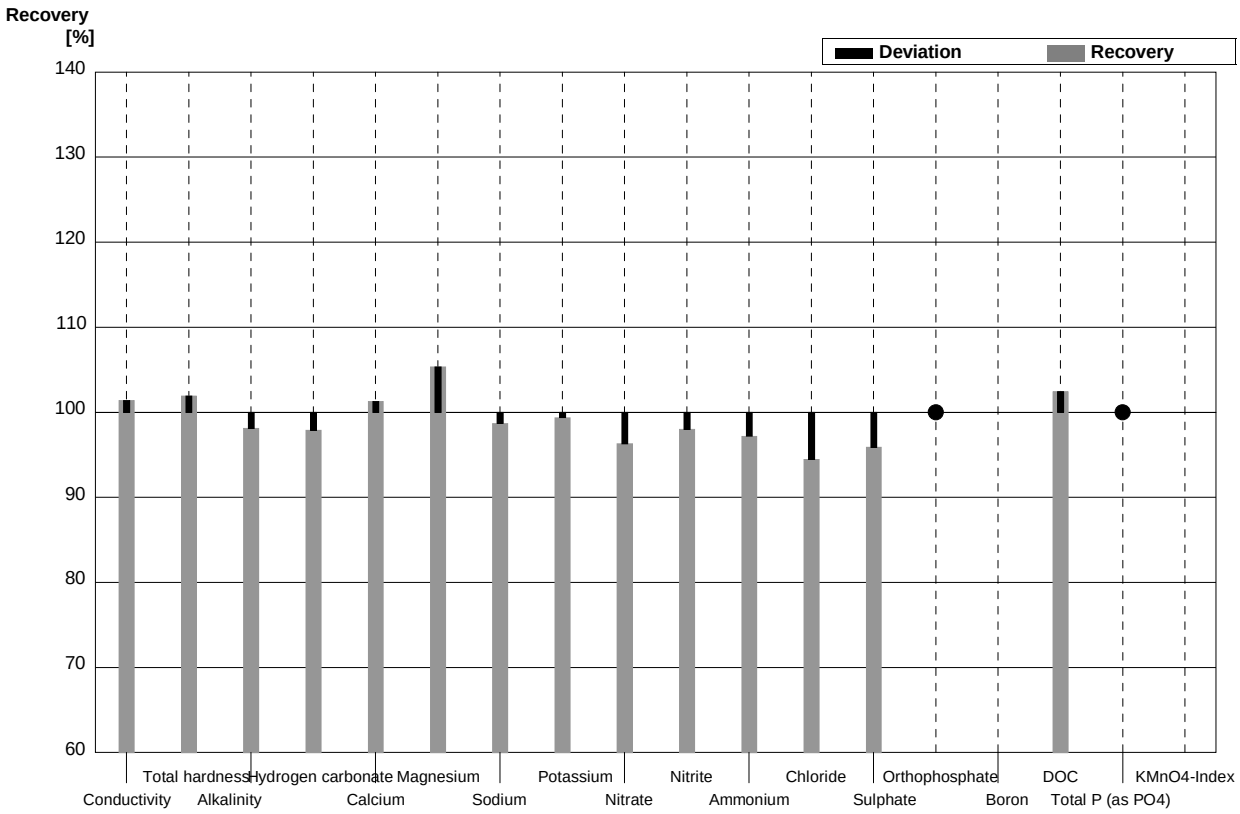
Sample N149A
Laboratory AC

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	532	5	µS/cm	101%
Total hardness	2,11	0,02	2,16	0,22	mmol/l	102%
Alkalinity	2,78	0,03	2,72	0,27	mmol/l	98%
Hydrogen carbonate	167	2	166,0	16,6	mg/l	99%
Calcium	55,8	0,7	56,3	5,7	mg/l	101%
Magnesium	17,5	0,2	18,3	1,9	mg/l	105%
Sodium	21,2	0,4	20,9	2,1	mg/l	99%
Potassium	4,23	0,04	4,15	0,42	mg/l	98%
Nitrate	43,6	0,8	43,4	4,3	mg/l	100%
Nitrite	0,0402	0,0003	0,0394	0,004	mg/l	98%
Ammonium	<0,01		<0,010		mg/l	•
Chloride	35,9	0,7	34,2	3,4	mg/l	95%
Sulphate	35,2	0,4	34,4	3,4	mg/l	98%
Orthophosphate	0,081	0,003	0,079	0,016	mg/l	98%
Boron	0,101	0,001			mg/l	
DOC	6,43	0,05	6,508	0,65	mg/l	101%
Total P (as PO4)	0,186	0,003	0,173	0,034	mg/l	93%
KMnO4-Index	4,53	0,13			mg/l	



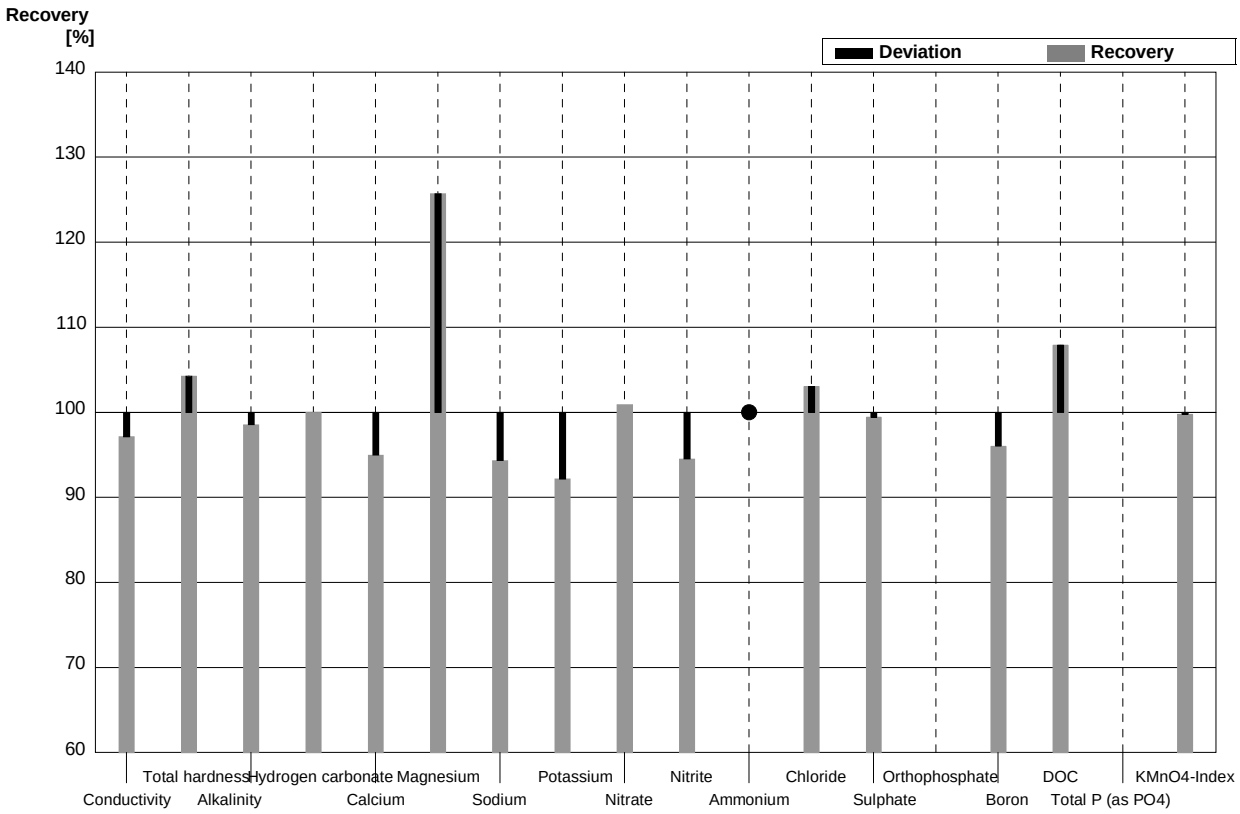
Sample N149B
Laboratory AC

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	288	5	µS/cm	101%
Total hardness	1,03	0,01	1,05	0,11	mmol/l	102%
Alkalinity	1,61	0,02	1,58	0,16	mmol/l	98%
Hydrogen carbonate	95,4	1,0	93,4	9,3	mg/l	98%
Calcium	31,0	0,4	31,4	3,2	mg/l	101%
Magnesium	6,14	0,07	6,47	0,65	mg/l	105%
Sodium	15,6	0,2	15,4	1,6	mg/l	99%
Potassium	1,65	0,02	1,64	0,17	mg/l	99%
Nitrate	21,8	0,6	21,0	2,1	mg/l	96%
Nitrite	0,0202	0,0006	0,0198	0,002	mg/l	98%
Ammonium	0,061	0,002	0,0593	0,006	mg/l	97%
Chloride	14,5	0,3	13,7	1,4	mg/l	94%
Sulphate	19,6	0,2	18,8	1,9	mg/l	96%
Orthophosphate	<0,009		<0,009		mg/l	•
Boron	0,066	0,001			mg/l	
DOC	4,06	0,04	4,160	0,42	mg/l	102%
Total P (as PO4)	<0,009		<0,009		mg/l	•
KMnO4-Index	3,53	0,13			mg/l	



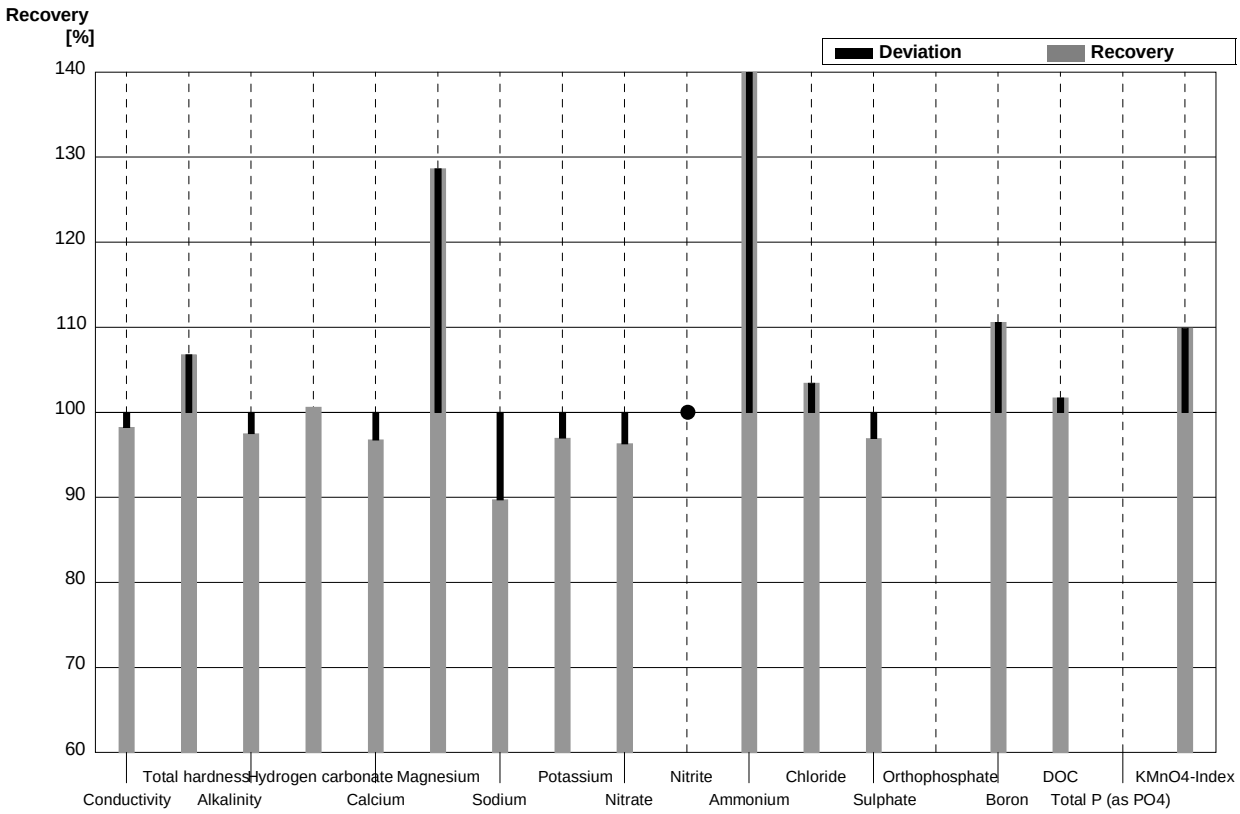
Sample N149A
Laboratory AD

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	510		µS/cm	97%
Total hardness	2,11	0,02	2,20		mmol/l	104%
Alkalinity	2,78	0,03	2,74		mmol/l	99%
Hydrogen carbonate	167	2	167		mg/l	100%
Calcium	55,8	0,7	53,0		mg/l	95%
Magnesium	17,5	0,2	22,0		mg/l	126%
Sodium	21,2	0,4	20,0		mg/l	94%
Potassium	4,23	0,04	3,90		mg/l	92%
Nitrate	43,6	0,8	44,0		mg/l	101%
Nitrite	0,0402	0,0003	0,0380		mg/l	95%
Ammonium	<0,01		<0,042		mg/l	•
Chloride	35,9	0,7	37,0		mg/l	103%
Sulphate	35,2	0,4	35,0		mg/l	99%
Orthophosphate	0,081	0,003			mg/l	
Boron	0,101	0,001	0,097		mg/l	96%
DOC	6,43	0,05	6,94		mg/l	108%
Total P (as PO4)	0,186	0,003			mg/l	
KMnO4-Index	4,53	0,13	4,52		mg/l	100%



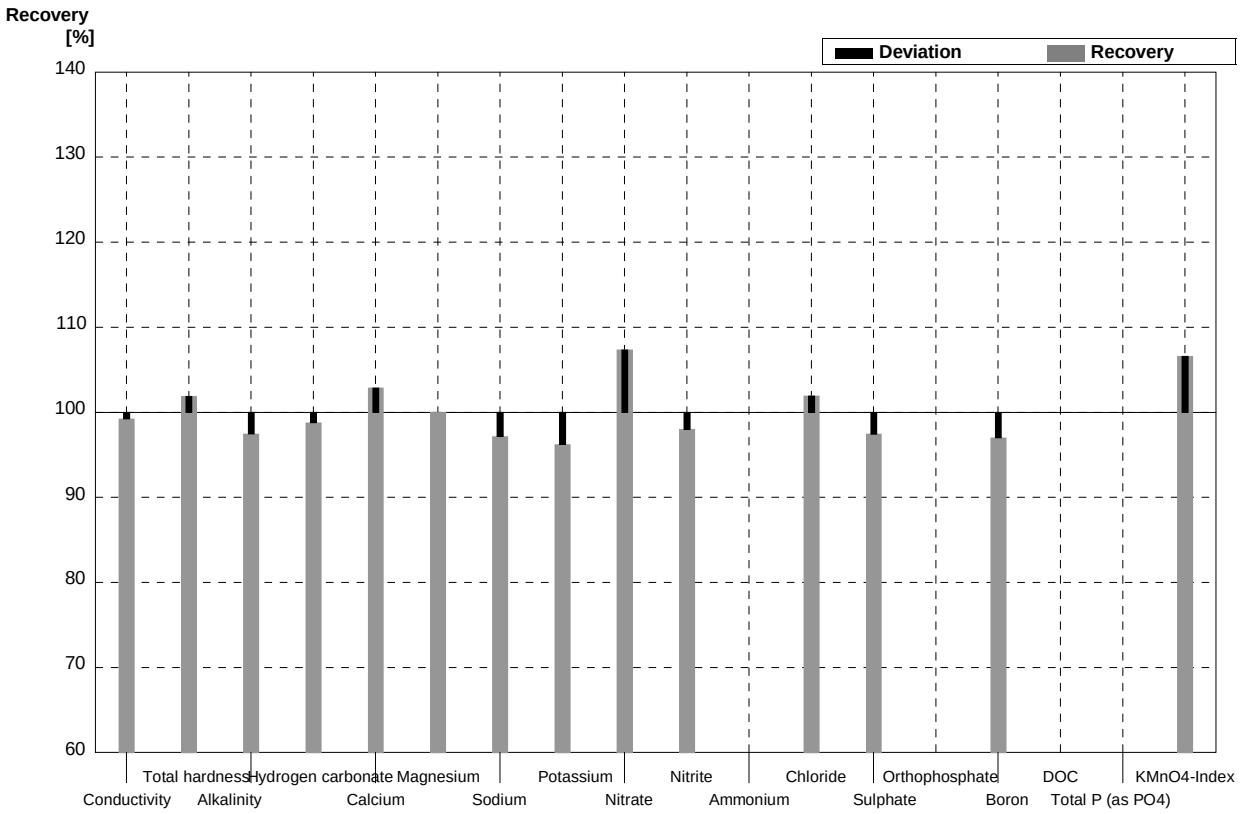
Sample N149B
Laboratory AD

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	279		µS/cm	98%
Total hardness	1,03	0,01	1,10		mmol/l	107%
Alkalinity	1,61	0,02	1,57		mmol/l	98%
Hydrogen carbonate	95,4	1,0	96		mg/l	101%
Calcium	31,0	0,4	30,0		mg/l	97%
Magnesium	6,14	0,07	7,9		mg/l	129%
Sodium	15,6	0,2	14,0		mg/l	90%
Potassium	1,65	0,02	1,60		mg/l	97%
Nitrate	21,8	0,6	21,0		mg/l	96%
Nitrite	0,0202	0,0006	<0,020		mg/l	•
Ammonium	0,061	0,002	0,088		mg/l	144%
Chloride	14,5	0,3	15,0		mg/l	103%
Sulphate	19,6	0,2	19,0		mg/l	97%
Orthophosphate	<0,009				mg/l	
Boron	0,066	0,001	0,073		mg/l	111%
DOC	4,06	0,04	4,13		mg/l	102%
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	3,53	0,13	3,88		mg/l	110%



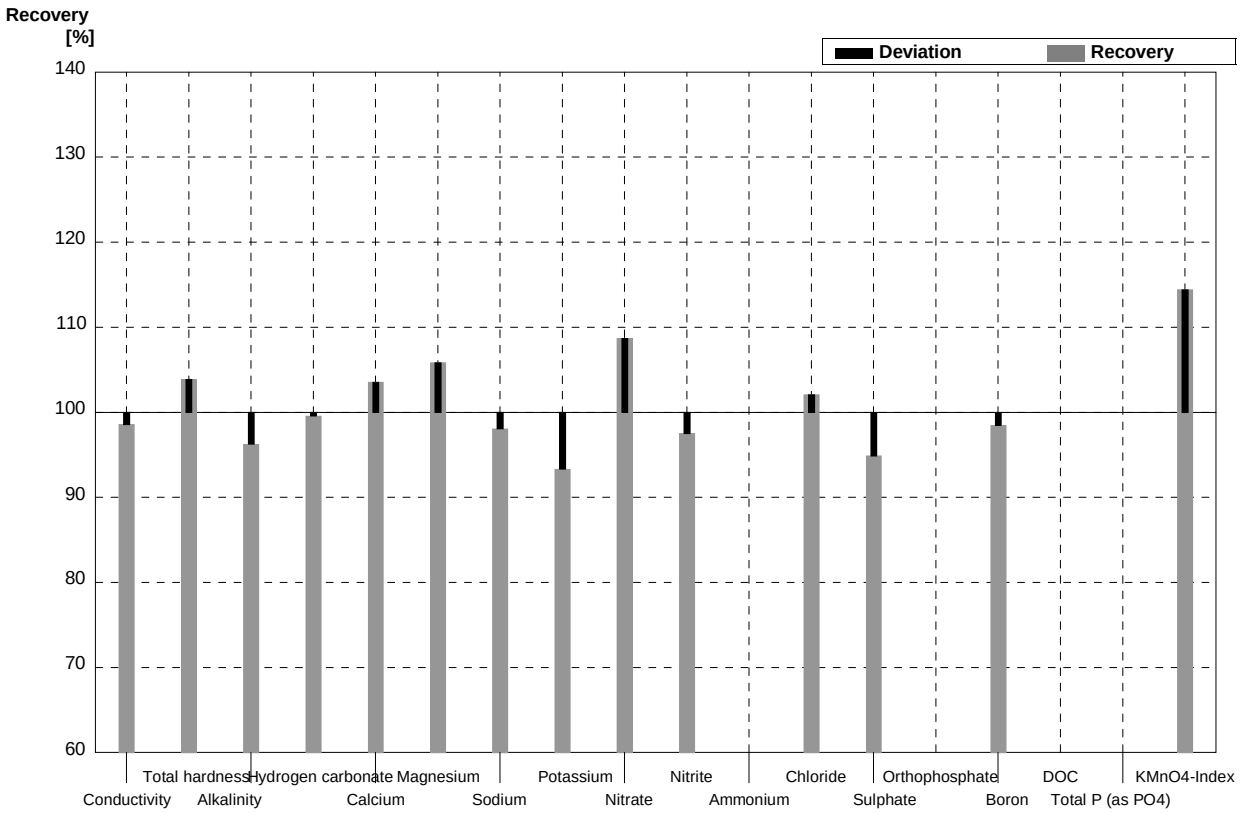
Sample N149A
Laboratory AE

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	521	35	µS/cm	99%
Total hardness	2,11	0,02	2,15	0,24	mmol/l	102%
Alkalinity	2,78	0,03	2,71	0,43	mmol/l	97%
Hydrogen carbonate	167	2	165	26	mg/l	99%
Calcium	55,8	0,7	57,4	4,9	mg/l	103%
Magnesium	17,5	0,2	17,5	1,5	mg/l	100%
Sodium	21,2	0,4	20,6	3,2	mg/l	97%
Potassium	4,23	0,04	4,07	0,66	mg/l	96%
Nitrate	43,6	0,8	46,8	4,5	mg/l	107%
Nitrite	0,0402	0,0003	0,0394	0,004	mg/l	98%
Ammonium	<0,01				mg/l	
Chloride	35,9	0,7	36,6	4,2	mg/l	102%
Sulphate	35,2	0,4	34,3	4,0	mg/l	97%
Orthophosphate	0,081	0,003			mg/l	
Boron	0,101	0,001	0,098	0,025	mg/l	97%
DOC	6,43	0,05			mg/l	
Total P (as PO4)	0,186	0,003			mg/l	
KMnO4-Index	4,53	0,13	4,83	0,94	mg/l	107%



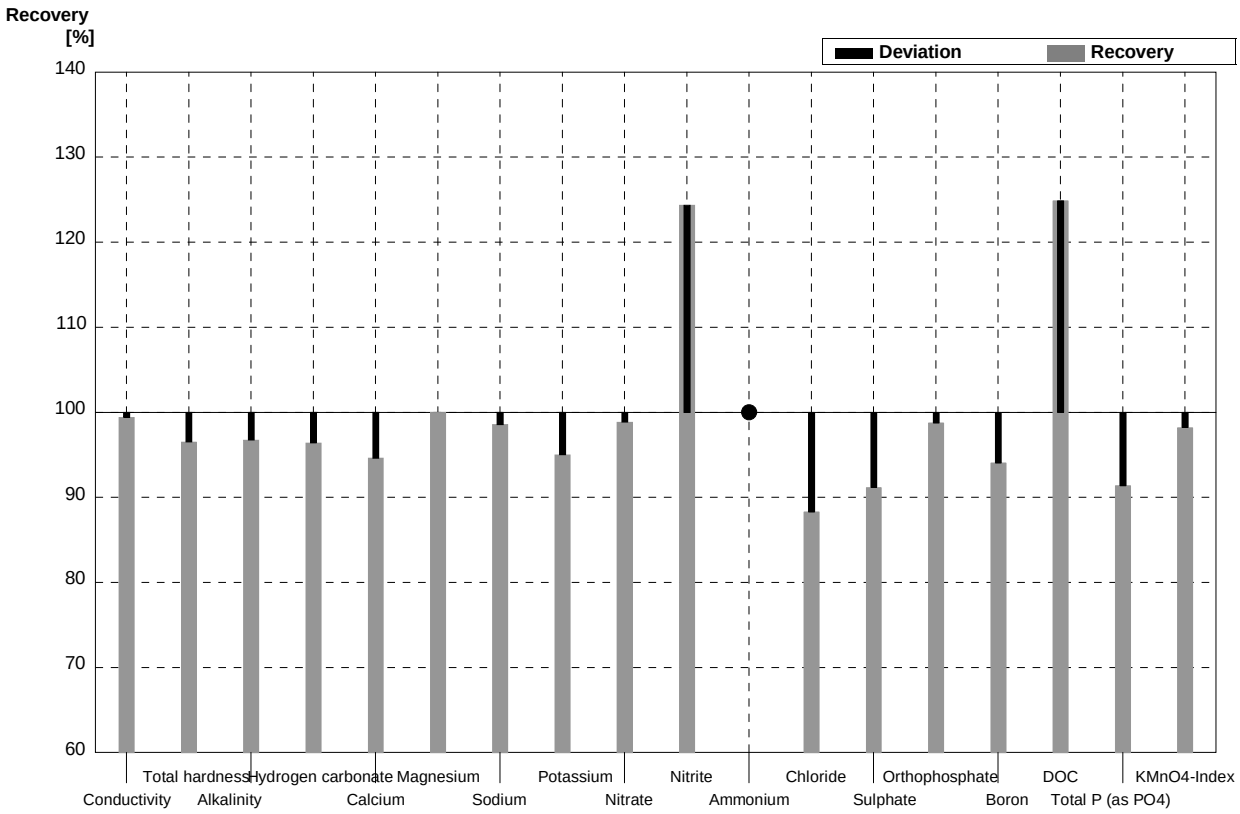
Sample N149B
Laboratory AE

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	280	19	µS/cm	99%
Total hardness	1,03	0,01	1,07	0,12	mmol/l	104%
Alkalinity	1,61	0,02	1,55	0,25	mmol/l	96%
Hydrogen carbonate	95,4	1,0	95	15	mg/l	100%
Calcium	31,0	0,4	32,1	2,8	mg/l	104%
Magnesium	6,14	0,07	6,5	0,6	mg/l	106%
Sodium	15,6	0,2	15,3	2,4	mg/l	98%
Potassium	1,65	0,02	1,54	0,25	mg/l	93%
Nitrate	21,8	0,6	23,7	2,3	mg/l	109%
Nitrite	0,0202	0,0006	0,0197	0,002	mg/l	98%
Ammonium	0,061	0,002			mg/l	
Chloride	14,5	0,3	14,8	1,7	mg/l	102%
Sulphate	19,6	0,2	18,6	2,2	mg/l	95%
Orthophosphate	<0,009				mg/l	
Boron	0,066	0,001	0,065	0,017	mg/l	98%
DOC	4,06	0,04			mg/l	
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	3,53	0,13	4,04	0,81	mg/l	114%



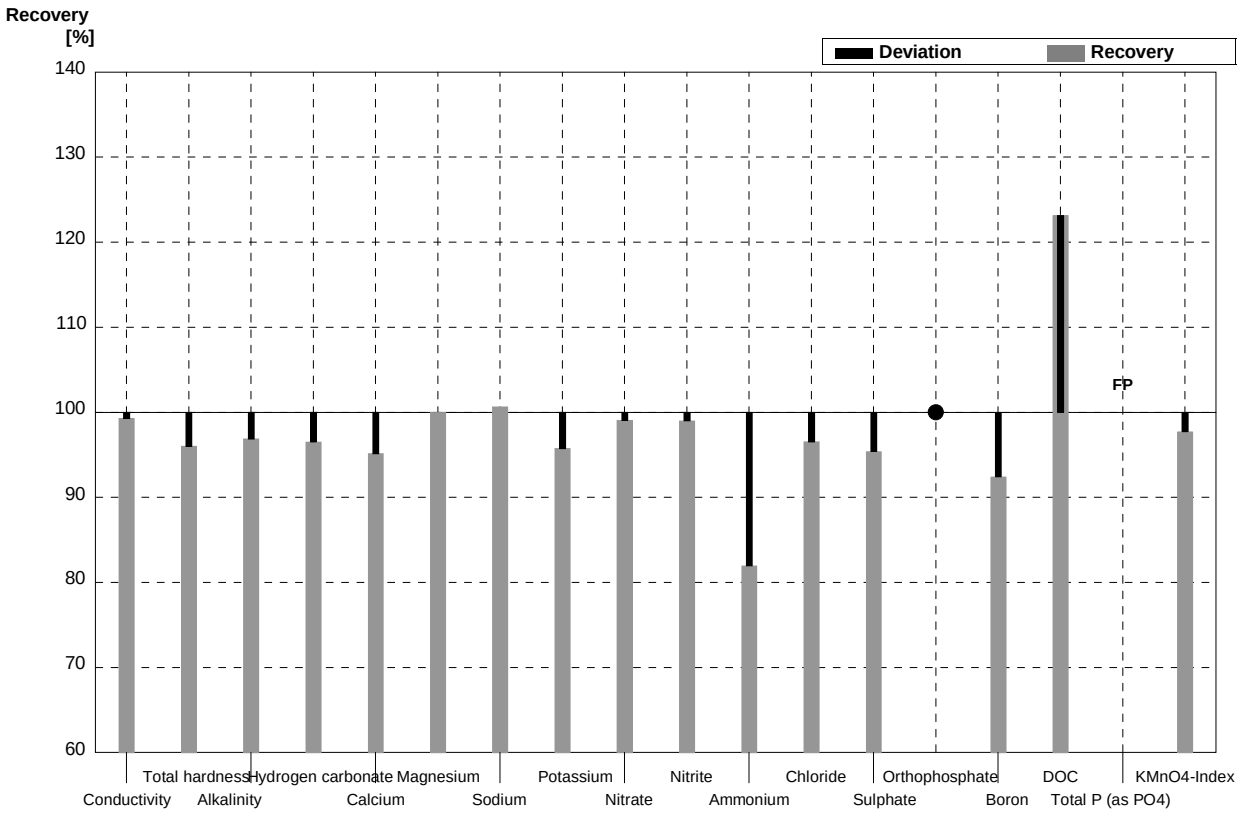
Sample N149A
Laboratory AF

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	522	26	µS/cm	99%
Total hardness	2,11	0,02	2,037	0,33	mmol/l	97%
Alkalinity	2,78	0,03	2,69	0,13	mmol/l	97%
Hydrogen carbonate	167	2	161	8	mg/l	96%
Calcium	55,8	0,7	52,8	8,45	mg/l	95%
Magnesium	17,5	0,2	17,5	2,1	mg/l	100%
Sodium	21,2	0,4	20,9	2,93	mg/l	99%
Potassium	4,23	0,04	4,02	0,84	mg/l	95%
Nitrate	43,6	0,8	43,1	2,90	mg/l	99%
Nitrite	0,0402	0,0003	0,050	0,004	mg/l	124%
Ammonium	<0,01		<0,05	0,010	mg/l	•
Chloride	35,9	0,7	31,7	2,6	mg/l	88%
Sulphate	35,2	0,4	32,1	2,5	mg/l	91%
Orthophosphate	0,081	0,003	0,080	0,012	mg/l	99%
Boron	0,101	0,001	0,095	0,02	mg/l	94%
DOC	6,43	0,05	8,03	1,2	mg/l	125%
Total P (as PO4)	0,186	0,003	0,170	0,03	mg/l	91%
KMnO4-Index	4,53	0,13	4,45	0,93	mg/l	98%



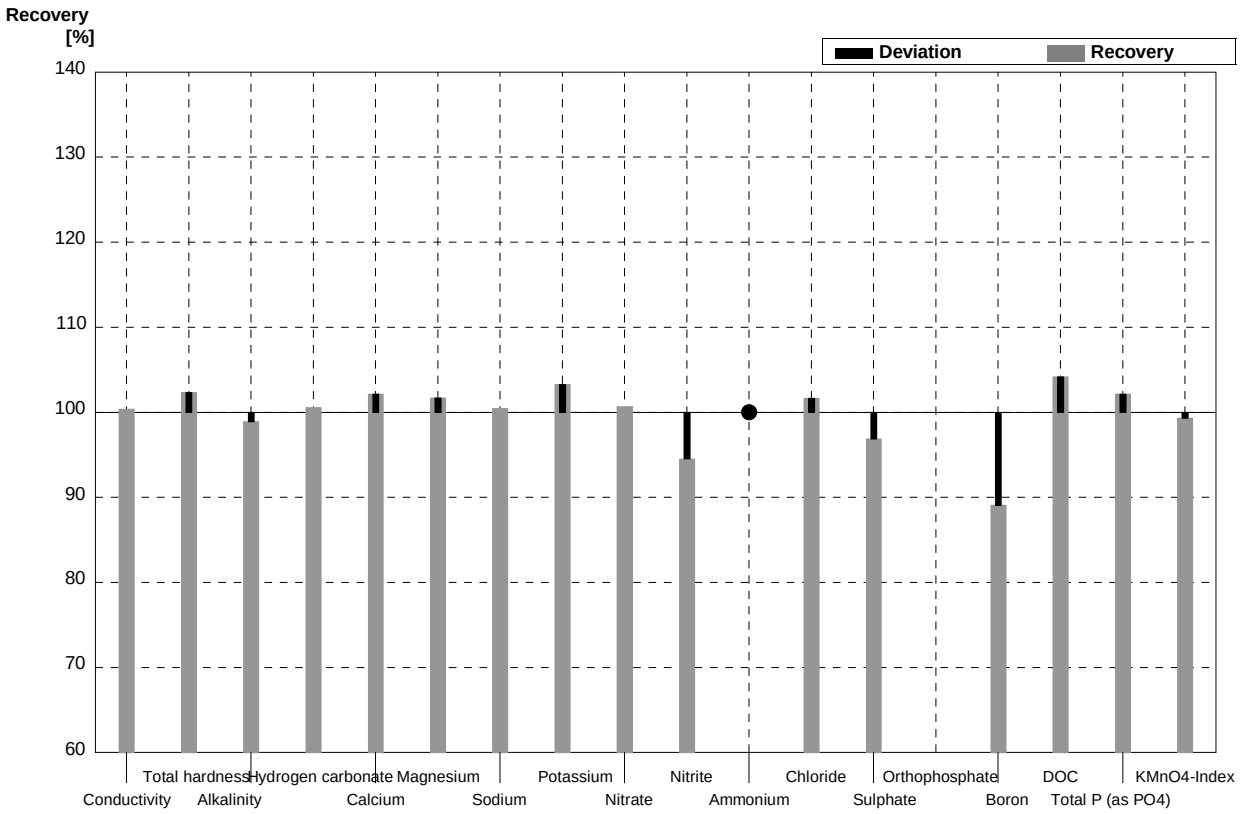
Sample N149B
Laboratory AF

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	282	14	µS/cm	99%
Total hardness	1,03	0,01	0,989	0,16	mmol/l	96%
Alkalinity	1,61	0,02	1,56	0,08	mmol/l	97%
Hydrogen carbonate	95,4	1,0	92,1	4,6	mg/l	97%
Calcium	31,0	0,4	29,5	4,72	mg/l	95%
Magnesium	6,14	0,07	6,14	0,74	mg/l	100%
Sodium	15,6	0,2	15,7	2,19	mg/l	101%
Potassium	1,65	0,02	1,58	0,33	mg/l	96%
Nitrate	21,8	0,6	21,6	1,4	mg/l	99%
Nitrite	0,0202	0,0006	0,0200	0,001	mg/l	99%
Ammonium	0,061	0,002	0,050	0,007	mg/l	82%
Chloride	14,5	0,3	14,0	1,1	mg/l	97%
Sulphate	19,6	0,2	18,7	1,4	mg/l	95%
Orthophosphate	<0,009		<0,06	0,012	mg/l	•
Boron	0,066	0,001	0,061	0,01	mg/l	92%
DOC	4,06	0,04	5,00	0,75	mg/l	123%
Total P (as PO4)	<0,009		0,0400	0,003	mg/l	FP
KMnO4-Index	3,53	0,13	3,45	0,72	mg/l	98%



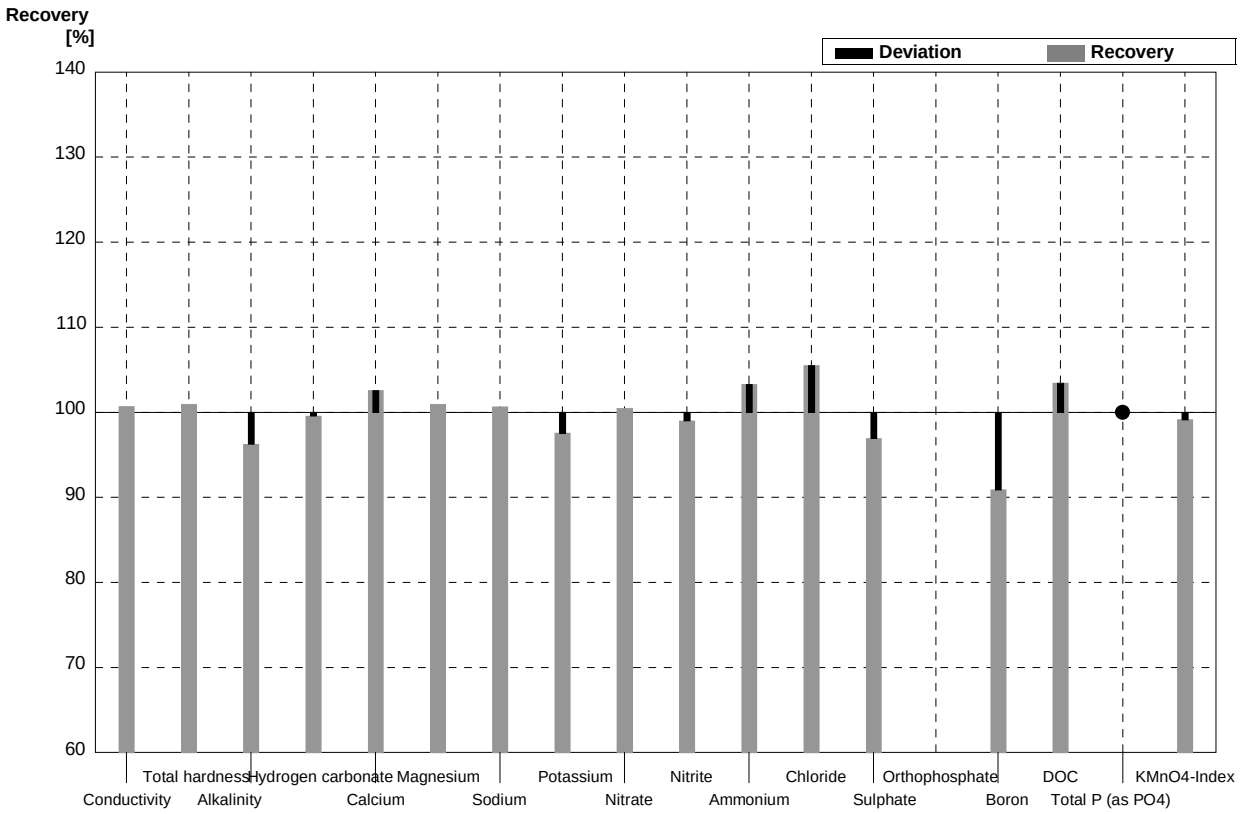
Sample N149A
Laboratory AG

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	527	3	µS/cm	100%
Total hardness	2,11	0,02	2,16	0,18	mmol/l	102%
Alkalinity	2,78	0,03	2,75	0,10	mmol/l	99%
Hydrogen carbonate	167	2	168	4	mg/l	101%
Calcium	55,8	0,7	57	2	mg/l	102%
Magnesium	17,5	0,2	17,8	1	mg/l	102%
Sodium	21,2	0,4	21,3	1	mg/l	100%
Potassium	4,23	0,04	4,37	0,5	mg/l	103%
Nitrate	43,6	0,8	43,9	2	mg/l	101%
Nitrite	0,0402	0,0003	0,0380	0,01	mg/l	95%
Ammonium	<0,01		<0,020		mg/l	•
Chloride	35,9	0,7	36,5	2	mg/l	102%
Sulphate	35,2	0,4	34,1	2	mg/l	97%
Orthophosphate	0,081	0,003			mg/l	
Boron	0,101	0,001	0,090	0,01	mg/l	89%
DOC	6,43	0,05	6,7	0,5	mg/l	104%
Total P (as PO4)	0,186	0,003	0,190	0,02	mg/l	102%
KMnO4-Index	4,53	0,13	4,50	0,4	mg/l	99%



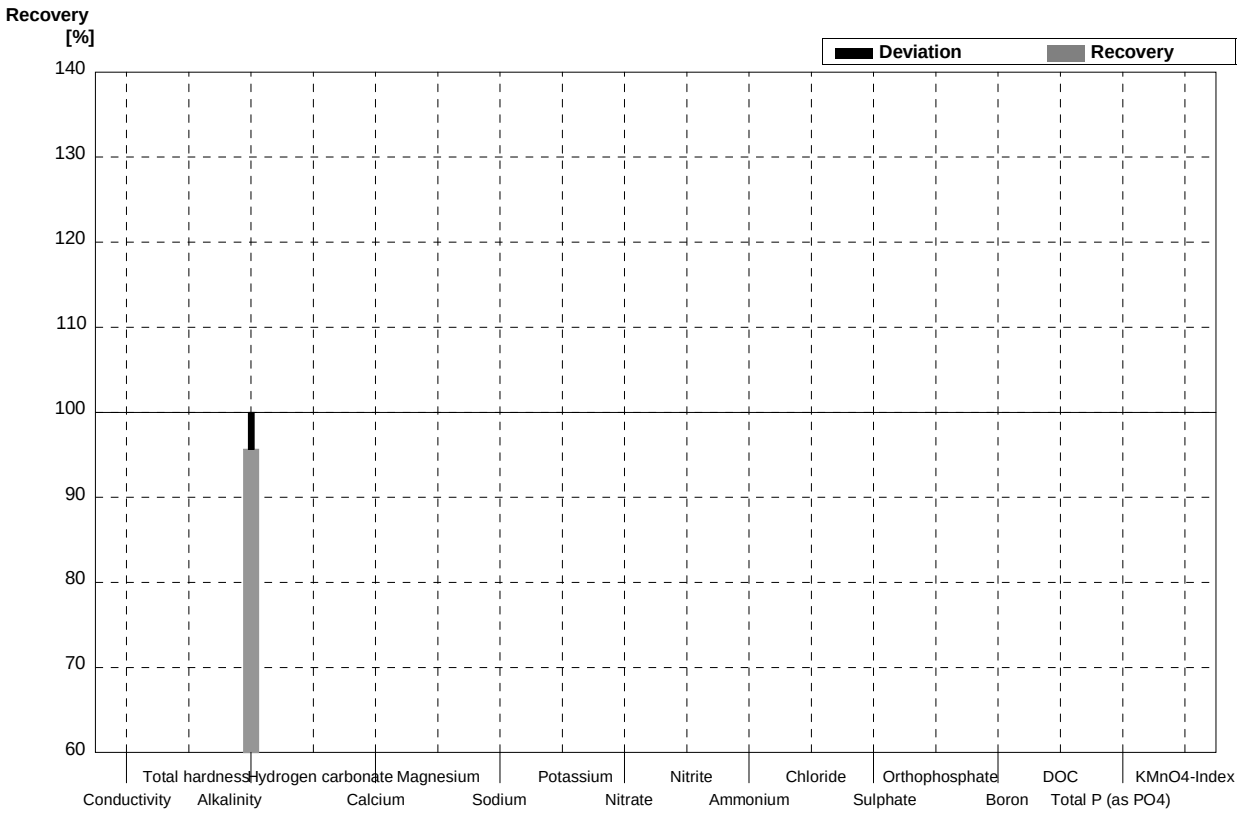
Sample N149B
Laboratory AG

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	286	2	µS/cm	101%
Total hardness	1,03	0,01	1,04	0,13	mmol/l	101%
Alkalinity	1,61	0,02	1,55	0,10	mmol/l	96%
Hydrogen carbonate	95,4	1,0	95	3	mg/l	100%
Calcium	31,0	0,4	31,8	1	mg/l	103%
Magnesium	6,14	0,07	6,2	1	mg/l	101%
Sodium	15,6	0,2	15,7	1	mg/l	101%
Potassium	1,65	0,02	1,61	0,5	mg/l	98%
Nitrate	21,8	0,6	21,9	2	mg/l	100%
Nitrite	0,0202	0,0006	0,0200	0,01	mg/l	99%
Ammonium	0,061	0,002	0,063	0,01	mg/l	103%
Chloride	14,5	0,3	15,3	2	mg/l	106%
Sulphate	19,6	0,2	19,0	2	mg/l	97%
Orthophosphate	<0,009				mg/l	
Boron	0,066	0,001	0,060	0,01	mg/l	91%
DOC	4,06	0,04	4,20	0,3	mg/l	103%
Total P (as PO4)	<0,009		0,0100	0,01	mg/l	•
KMnO4-Index	3,53	0,13	3,50	0,3	mg/l	99%



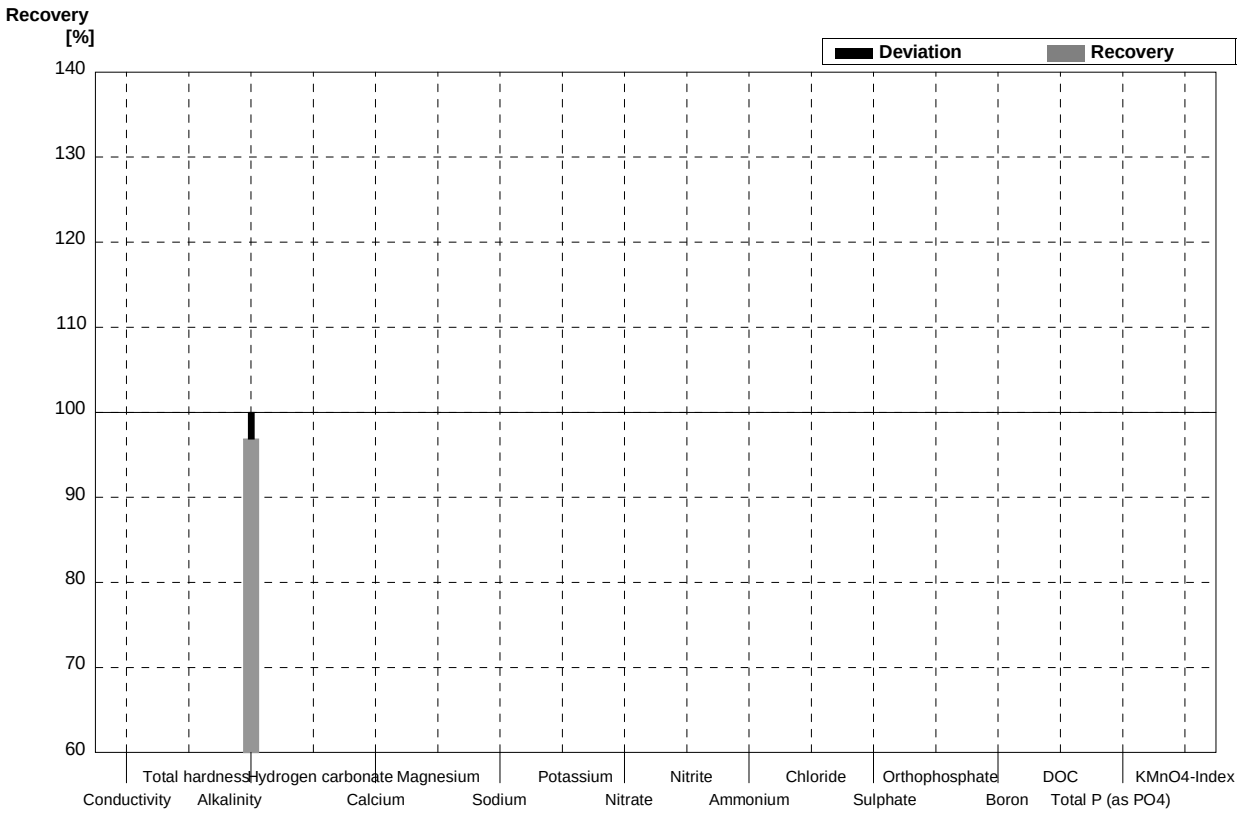
Sample N149A
Laboratory AH

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2			µS/cm	
Total hardness	2,11	0,02			mmol/l	
Alkalinity	2,78	0,03	2,66	0,116	mmol/l	96%
Hydrogen carbonate	167	2			mg/l	
Calcium	55,8	0,7			mg/l	
Magnesium	17,5	0,2			mg/l	
Sodium	21,2	0,4			mg/l	
Potassium	4,23	0,04			mg/l	
Nitrate	43,6	0,8			mg/l	
Nitrite	0,0402	0,0003			mg/l	
Ammonium	<0,01				mg/l	
Chloride	35,9	0,7			mg/l	
Sulphate	35,2	0,4			mg/l	
Orthophosphate	0,081	0,003			mg/l	
Boron	0,101	0,001			mg/l	
DOC	6,43	0,05			mg/l	
Total P (as PO4)	0,186	0,003			mg/l	
KMnO4-Index	4,53	0,13			mg/l	



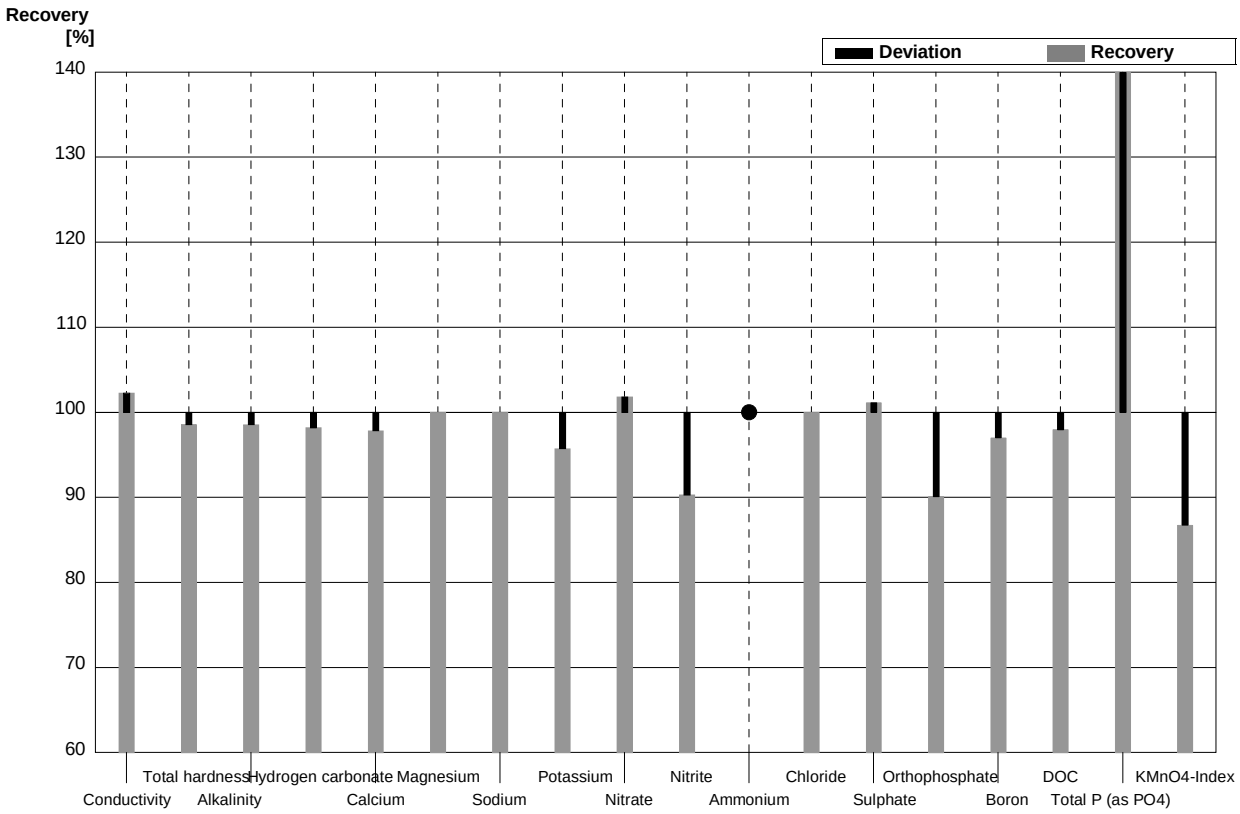
Sample N149B
Laboratory AH

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2			µS/cm	
Total hardness	1,03	0,01			mmol/l	
Alkalinity	1,61	0,02	1,56	0,063	mmol/l	97%
Hydrogen carbonate	95,4	1,0			mg/l	
Calcium	31,0	0,4			mg/l	
Magnesium	6,14	0,07			mg/l	
Sodium	15,6	0,2			mg/l	
Potassium	1,65	0,02			mg/l	
Nitrate	21,8	0,6			mg/l	
Nitrite	0,0202	0,0006			mg/l	
Ammonium	0,061	0,002			mg/l	
Chloride	14,5	0,3			mg/l	
Sulphate	19,6	0,2			mg/l	
Orthophosphate	<0,009				mg/l	
Boron	0,066	0,001			mg/l	
DOC	4,06	0,04			mg/l	
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	3,53	0,13			mg/l	



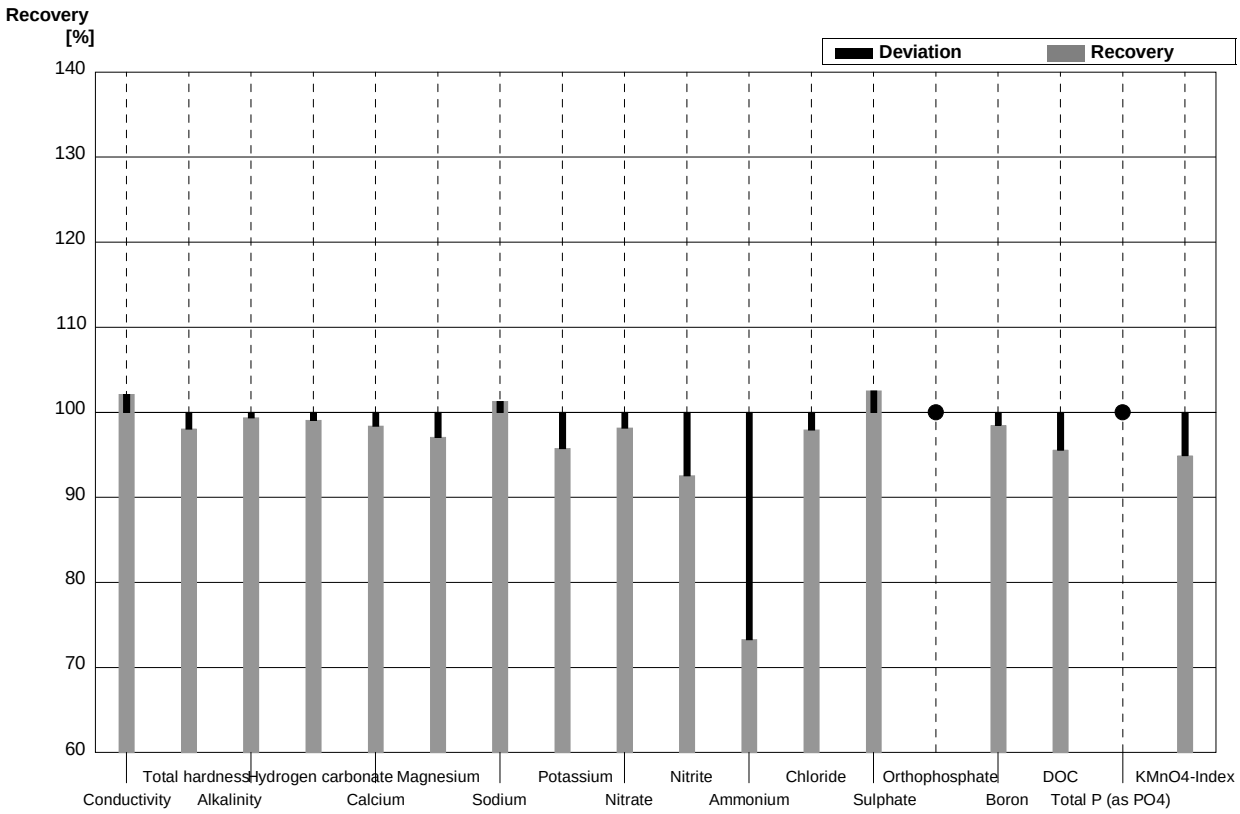
Sample N149A
Laboratory AI

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	537	4	µS/cm	102%
Total hardness	2,11	0,02	2,08	0,2	mmol/l	99%
Alkalinity	2,78	0,03	2,74	0,137	mmol/l	99%
Hydrogen carbonate	167	2	164	5,3	mg/l	98%
Calcium	55,8	0,7	54,6	1,33	mg/l	98%
Magnesium	17,5	0,2	17,5	1,63	mg/l	100%
Sodium	21,2	0,4	21,2	1,50	mg/l	100%
Potassium	4,23	0,04	4,05	0,55	mg/l	96%
Nitrate	43,6	0,8	44,4	2,99	mg/l	102%
Nitrite	0,0402	0,0003	0,0363	0,00245	mg/l	90%
Ammonium	<0,01		<0,02	0,003	mg/l	•
Chloride	35,9	0,7	35,9	1,94	mg/l	100%
Sulphate	35,2	0,4	35,6	3,07	mg/l	101%
Orthophosphate	0,081	0,003	0,073	0,0063	mg/l	90%
Boron	0,101	0,001	0,098	0,0073	mg/l	97%
DOC	6,43	0,05	6,3	0,19	mg/l	98%
Total P (as PO4)	0,186	0,003	0,262	0,032	mg/l	141%
KMnO4-Index	4,53	0,13	3,93	0,39	mg/l	87%



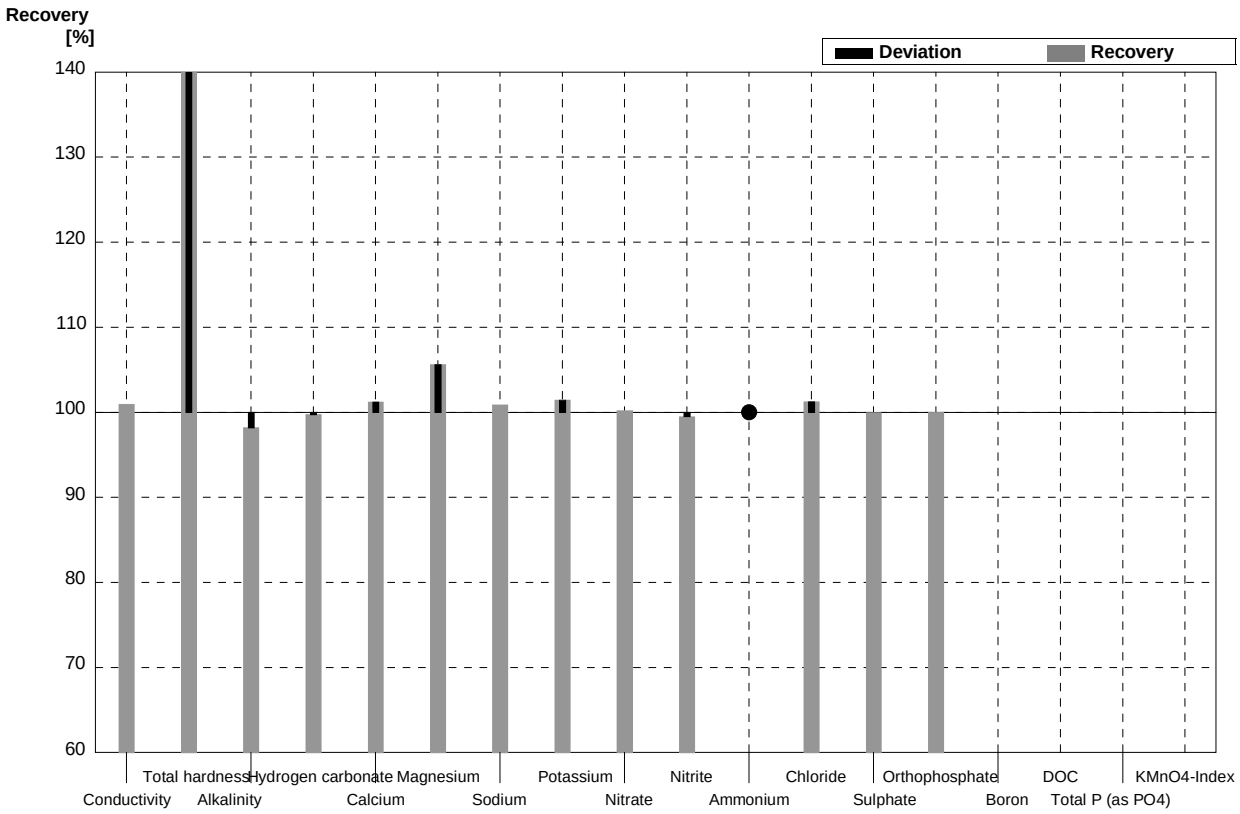
Sample N149B
Laboratory AI

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	290	2	µS/cm	102%
Total hardness	1,03	0,01	1,01	0,1	mmol/l	98%
Alkalinity	1,61	0,02	1,60	0,080	mmol/l	99%
Hydrogen carbonate	95,4	1,0	94,5	1,8	mg/l	99%
Calcium	31,0	0,4	30,5	0,74	mg/l	98%
Magnesium	6,14	0,07	5,96	0,55	mg/l	97%
Sodium	15,6	0,2	15,8	1,11	mg/l	101%
Potassium	1,65	0,02	1,58	0,22	mg/l	96%
Nitrate	21,8	0,6	21,4	1,44	mg/l	98%
Nitrite	0,0202	0,0006	0,0187	0,00126	mg/l	93%
Ammonium	0,061	0,002	0,0447	0,006	mg/l	73%
Chloride	14,5	0,3	14,2	0,77	mg/l	98%
Sulphate	19,6	0,2	20,1	1,73	mg/l	103%
Orthophosphate	<0,009		<0,01	0,001	mg/l	•
Boron	0,066	0,001	0,065	0,0049	mg/l	98%
DOC	4,06	0,04	3,88	0,12	mg/l	96%
Total P (as PO4)	<0,009		<0,01	0,001	mg/l	•
KMnO4-Index	3,53	0,13	3,35	0,34	mg/l	95%



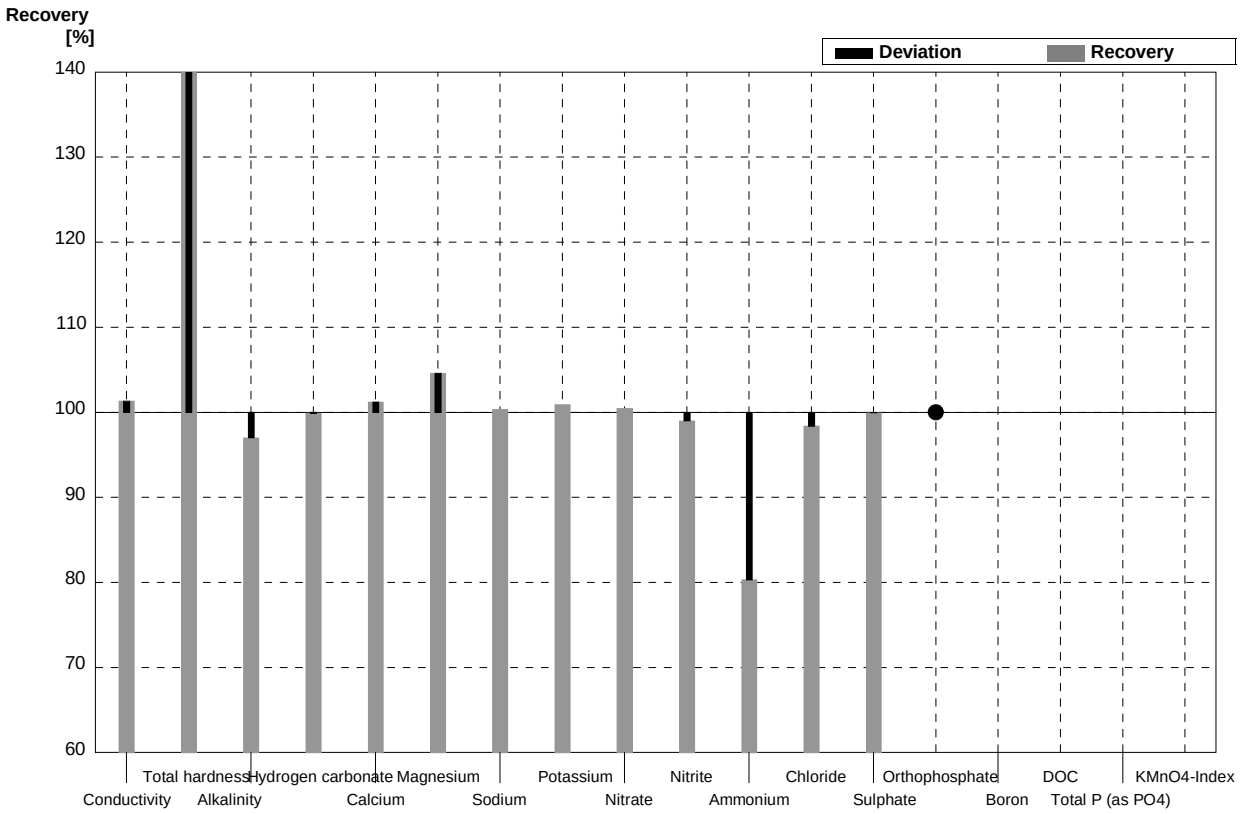
Sample N149A
Laboratory AJ

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	530,1	4,771	µS/cm	101%
Total hardness	2,11	0,02	4,350	0,435	mmol/l	206%
Alkalinity	2,78	0,03	2,730	0,112	mmol/l	98%
Hydrogen carbonate	167	2	166,58	6,83	mg/l	100%
Calcium	55,8	0,7	56,497	5,54	mg/l	101%
Magnesium	17,5	0,2	18,482	2,01	mg/l	106%
Sodium	21,2	0,4	21,390	1,95	mg/l	101%
Potassium	4,23	0,04	4,292	0,40	mg/l	101%
Nitrate	43,6	0,8	43,694	2,0	mg/l	100%
Nitrite	0,0402	0,0003	0,0400	0,002	mg/l	100%
Ammonium	<0,01		<0,025		mg/l	•
Chloride	35,9	0,7	36,351	1,74	mg/l	101%
Sulphate	35,2	0,4	35,193	1,51	mg/l	100%
Orthophosphate	0,081	0,003	0,081	0,004	mg/l	100%
Boron	0,101	0,001			mg/l	
DOC	6,43	0,05			mg/l	
Total P (as PO4)	0,186	0,003			mg/l	
KMnO4-Index	4,53	0,13			mg/l	



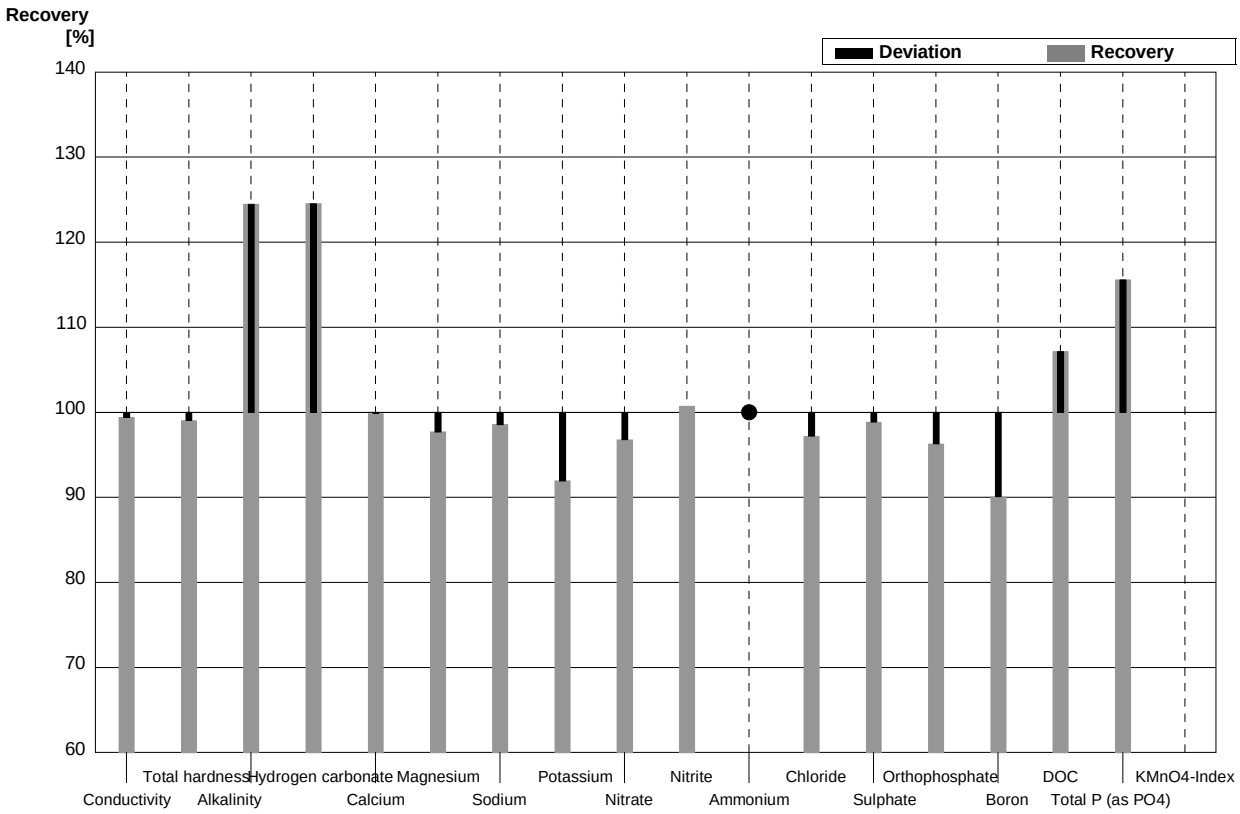
Sample N149B
Laboratory AJ

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	287,82	2,590	µS/cm	101%
Total hardness	1,03	0,01	2,093	0,209	mmol/l	203%
Alkalinity	1,61	0,02	1,562	0,064	mmol/l	97%
Hydrogen carbonate	95,4	1,0	95,32	3,91	mg/l	100%
Calcium	31,0	0,4	31,386	3,08	mg/l	101%
Magnesium	6,14	0,07	6,424	0,70	mg/l	105%
Sodium	15,6	0,2	15,654	1,42	mg/l	100%
Potassium	1,65	0,02	1,665	0,15	mg/l	101%
Nitrate	21,8	0,6	21,908	1,0	mg/l	100%
Nitrite	0,0202	0,0006	0,0200	0,001	mg/l	99%
Ammonium	0,061	0,002	0,0490	0,013	mg/l	80%
Chloride	14,5	0,3	14,266	0,68	mg/l	98%
Sulphate	19,6	0,2	19,590	0,84	mg/l	100%
Orthophosphate	<0,009		<0,0300		mg/l	•
Boron	0,066	0,001			mg/l	
DOC	4,06	0,04			mg/l	
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	3,53	0,13			mg/l	



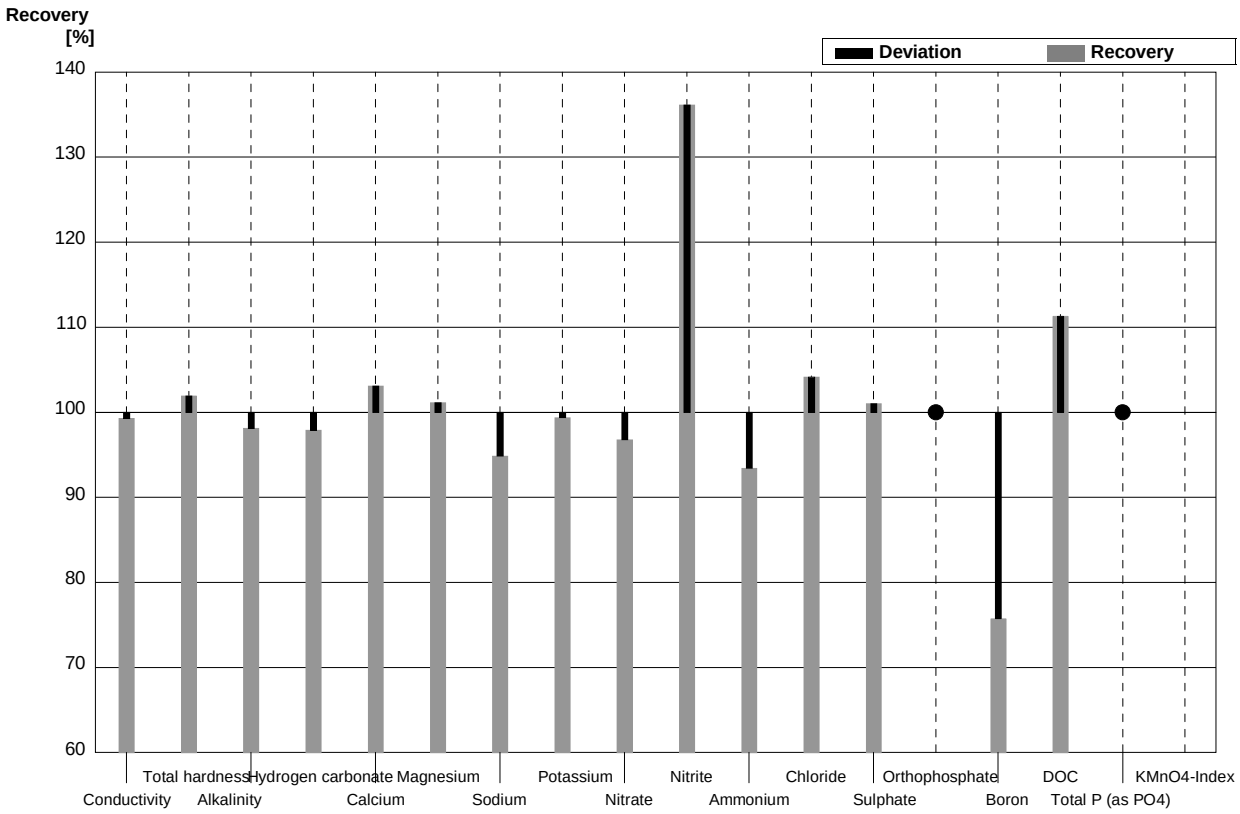
Sample N149A
Laboratory AK

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	522	10	µS/cm	99%
Total hardness	2,11	0,02	2,09	0,209	mmol/l	99%
Alkalinity	2,78	0,03	3,46	0,346	mmol/l	124%
Hydrogen carbonate	167	2	208	20,8	mg/l	125%
Calcium	55,8	0,7	55,73	5,57	mg/l	100%
Magnesium	17,5	0,2	17,1	1,71	mg/l	98%
Sodium	21,2	0,4	20,9	2,09	mg/l	99%
Potassium	4,23	0,04	3,89	0,778	mg/l	92%
Nitrate	43,6	0,8	42,2	4,22	mg/l	97%
Nitrite	0,0402	0,0003	0,0405	0,008	mg/l	101%
Ammonium	<0,01		<0,009		mg/l	•
Chloride	35,9	0,7	34,9	3,49	mg/l	97%
Sulphate	35,2	0,4	34,8	3,48	mg/l	99%
Orthophosphate	0,081	0,003	0,078	0,016	mg/l	96%
Boron	0,101	0,001	0,091	0,018	mg/l	90%
DOC	6,43	0,05	6,89	0,0689	mg/l	107%
Total P (as PO4)	0,186	0,003	0,215	0,043	mg/l	116%
KMnO4-Index	4,53	0,13			mg/l	



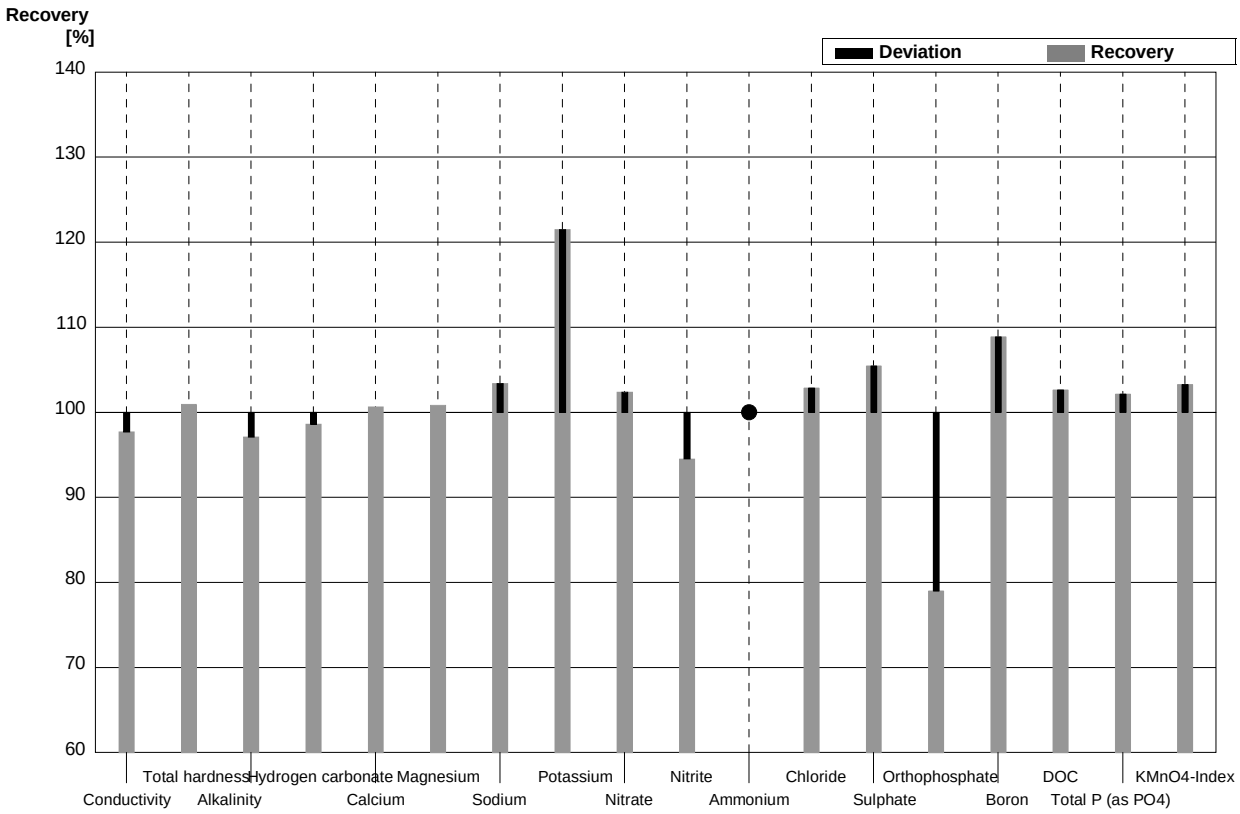
Sample N149B
Laboratory AK

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	282	6	µS/cm	99%
Total hardness	1,03	0,01	1,05	0,105	mmol/l	102%
Alkalinity	1,61	0,02	1,58	0,158	mmol/l	98%
Hydrogen carbonate	95,4	1,0	93,4	9,3	mg/l	98%
Calcium	31,0	0,4	31,97	3,20	mg/l	103%
Magnesium	6,14	0,07	6,21	0,621	mg/l	101%
Sodium	15,6	0,2	14,8	1,48	mg/l	95%
Potassium	1,65	0,02	1,64	0,329	mg/l	99%
Nitrate	21,8	0,6	21,1	2,11	mg/l	97%
Nitrite	0,0202	0,0006	0,0275	0,006	mg/l	136%
Ammonium	0,061	0,002	0,057	0,012	mg/l	93%
Chloride	14,5	0,3	15,1	1,51	mg/l	104%
Sulphate	19,6	0,2	19,8	1,98	mg/l	101%
Orthophosphate	<0,009		<0,009		mg/l	•
Boron	0,066	0,001	0,050	0,010	mg/l	76%
DOC	4,06	0,04	4,52	0,452	mg/l	111%
Total P (as PO4)	<0,009		<0,009		mg/l	•
KMnO4-Index	3,53	0,13			mg/l	



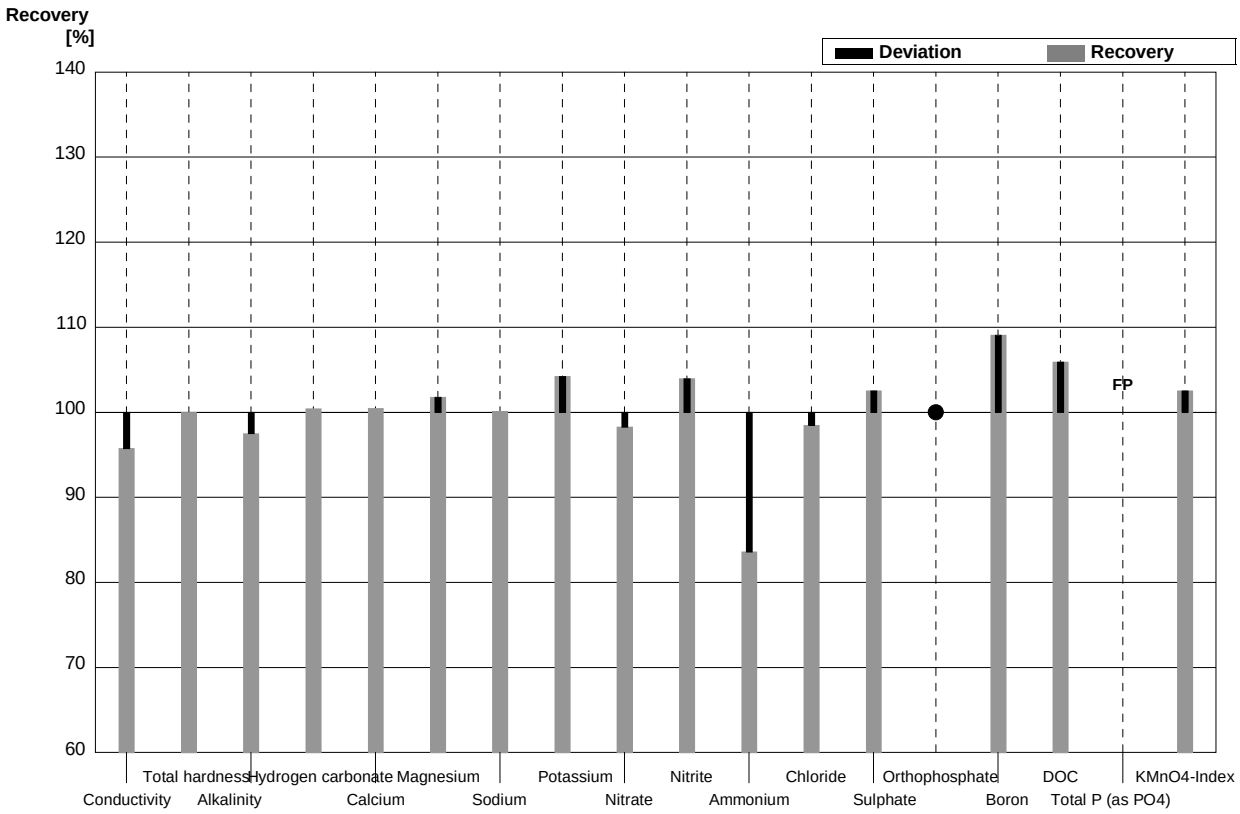
Sample N149A
Laboratory AL

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	513	20,5	µS/cm	98%
Total hardness	2,11	0,02	2,13		mmol/l	101%
Alkalinity	2,78	0,03	2,70	0,405	mmol/l	97%
Hydrogen carbonate	167	2	164,7	24,71	mg/l	99%
Calcium	55,8	0,7	56,18	2,247	mg/l	101%
Magnesium	17,5	0,2	17,65	1,059	mg/l	101%
Sodium	21,2	0,4	21,92	1,315	mg/l	103%
Potassium	4,23	0,04	5,14	0,514	mg/l	122%
Nitrate	43,6	0,8	44,649	1,7859	mg/l	102%
Nitrite	0,0402	0,0003	0,0380	0,0030	mg/l	95%
Ammonium	<0,01		<0,0006		mg/l	•
Chloride	35,9	0,7	36,93	1,477	mg/l	103%
Sulphate	35,2	0,4	37,13	2,228	mg/l	105%
Orthophosphate	0,081	0,003	0,064	0,0077	mg/l	79%
Boron	0,101	0,001	0,110	0,0132	mg/l	109%
DOC	6,43	0,05	6,6	0,53	mg/l	103%
Total P (as PO4)	0,186	0,003	0,190	0,0282	mg/l	102%
KMnO4-Index	4,53	0,13	4,68	0,749	mg/l	103%



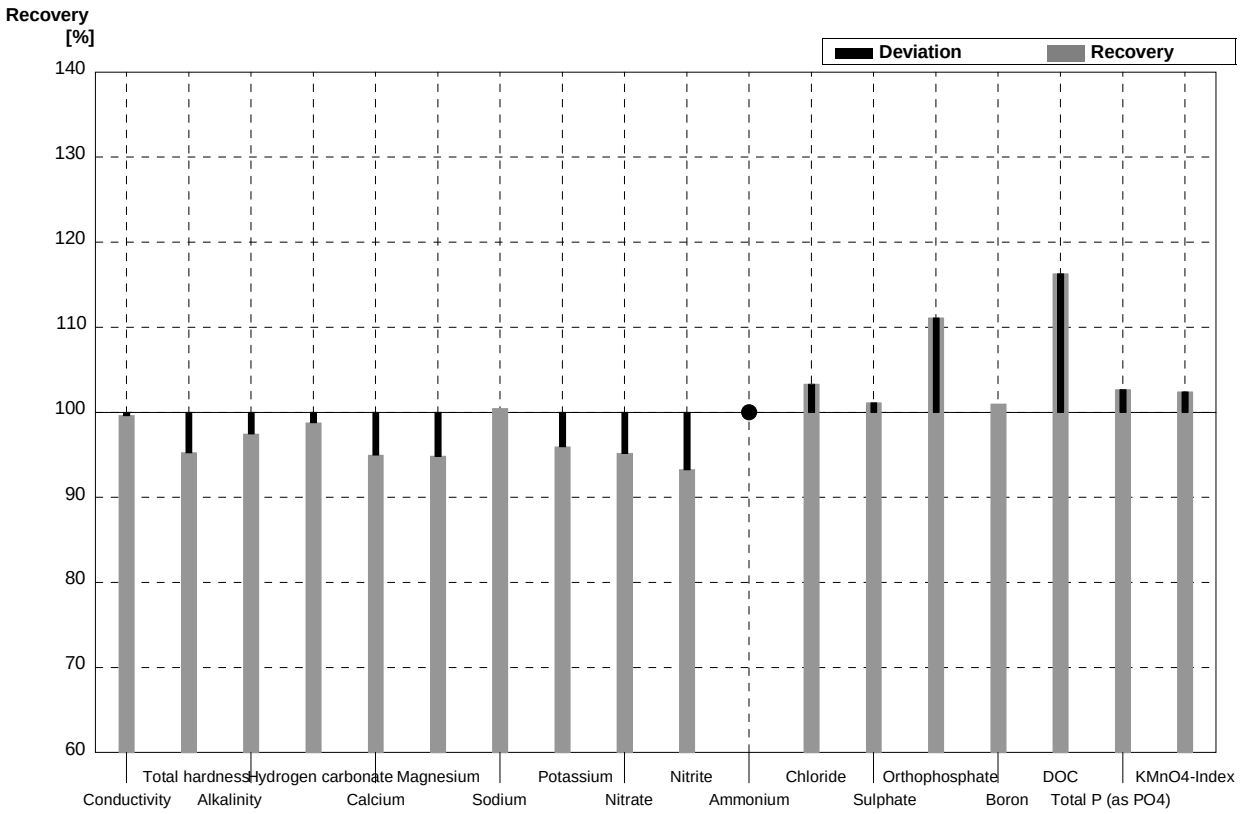
Sample N149B
Laboratory AL

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	272	10,9	µS/cm	96%
Total hardness	1,03	0,01	1,03		mmol/l	100%
Alkalinity	1,61	0,02	1,57	0,236	mmol/l	98%
Hydrogen carbonate	95,4	1,0	95,8	14,37	mg/l	100%
Calcium	31,0	0,4	31,15	1,246	mg/l	100%
Magnesium	6,14	0,07	6,25	0,375	mg/l	102%
Sodium	15,6	0,2	15,62	0,937	mg/l	100%
Potassium	1,65	0,02	1,72	0,172	mg/l	104%
Nitrate	21,8	0,6	21,426	0,857	mg/l	98%
Nitrite	0,0202	0,0006	0,0210	0,0017	mg/l	104%
Ammonium	0,061	0,002	0,05100	0,00510	mg/l	84%
Chloride	14,5	0,3	14,28	0,571	mg/l	98%
Sulphate	19,6	0,2	20,10	1,206	mg/l	103%
Orthophosphate	<0,009		0,0060	0,0007	mg/l	•
Boron	0,066	0,001	0,072	0,0086	mg/l	109%
DOC	4,06	0,04	4,30	0,34	mg/l	106%
Total P (as PO4)	<0,009		0,0215	0,00306	mg/l	FP
KMnO4-Index	3,53	0,13	3,62	0,579	mg/l	103%



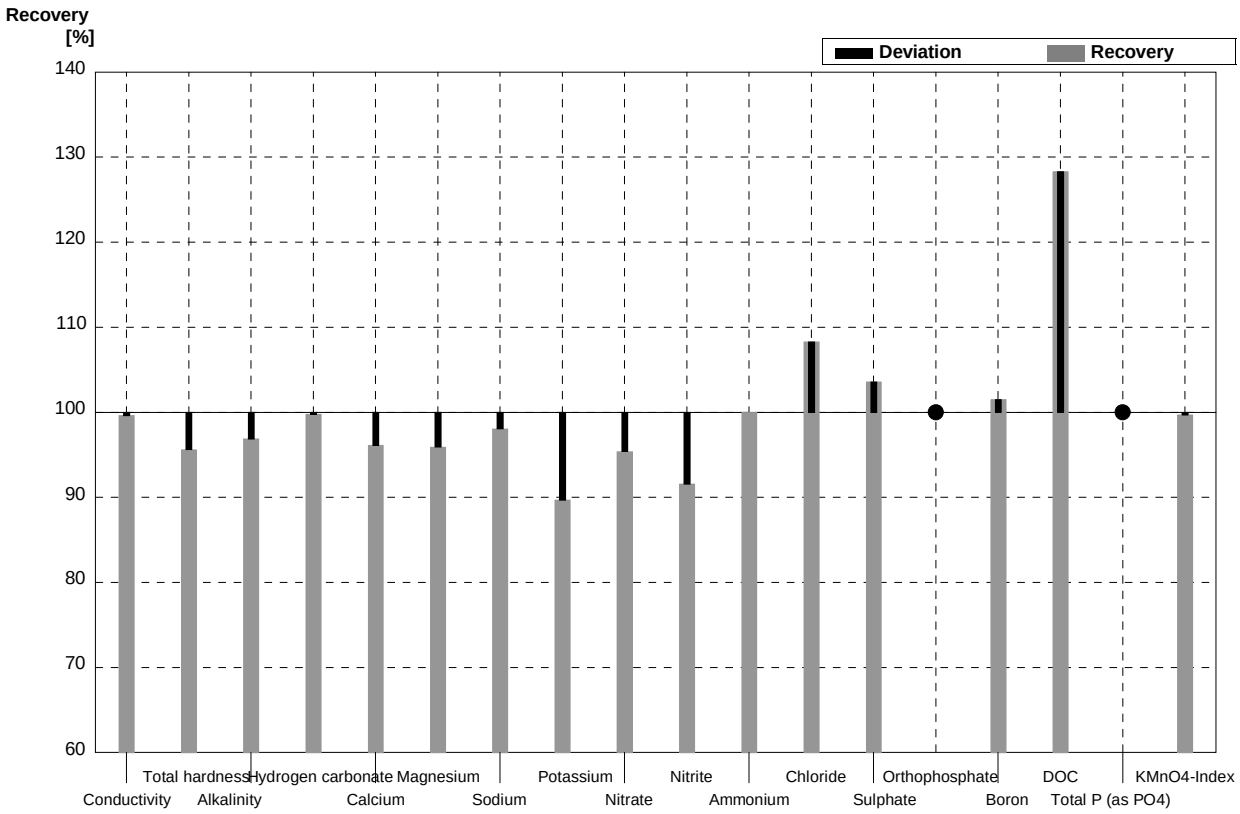
Sample N149A
Laboratory AM

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	523	15,7	µS/cm	100%
Total hardness	2,11	0,02	2,01	0,16	mmol/l	95%
Alkalinity	2,78	0,03	2,71	0,13	mmol/l	97%
Hydrogen carbonate	167	2	165	7,9	mg/l	99%
Calcium	55,8	0,7	53,0	2,4	mg/l	95%
Magnesium	17,5	0,2	16,6	1,4	mg/l	95%
Sodium	21,2	0,4	21,3	1,5	mg/l	100%
Potassium	4,23	0,04	4,06	0,29	mg/l	96%
Nitrate	43,6	0,8	41,5	1,4	mg/l	95%
Nitrite	0,0402	0,0003	0,0375	0,004	mg/l	93%
Ammonium	<0,01		<0,01		mg/l	•
Chloride	35,9	0,7	37,1	2,5	mg/l	103%
Sulphate	35,2	0,4	35,6	1,2	mg/l	101%
Orthophosphate	0,081	0,003	0,090	0,006	mg/l	111%
Boron	0,101	0,001	0,102	0,013	mg/l	101%
DOC	6,43	0,05	7,48	1,2	mg/l	116%
Total P (as PO4)	0,186	0,003	0,191	0,013	mg/l	103%
KMnO4-Index	4,53	0,13	4,64	0,70	mg/l	102%



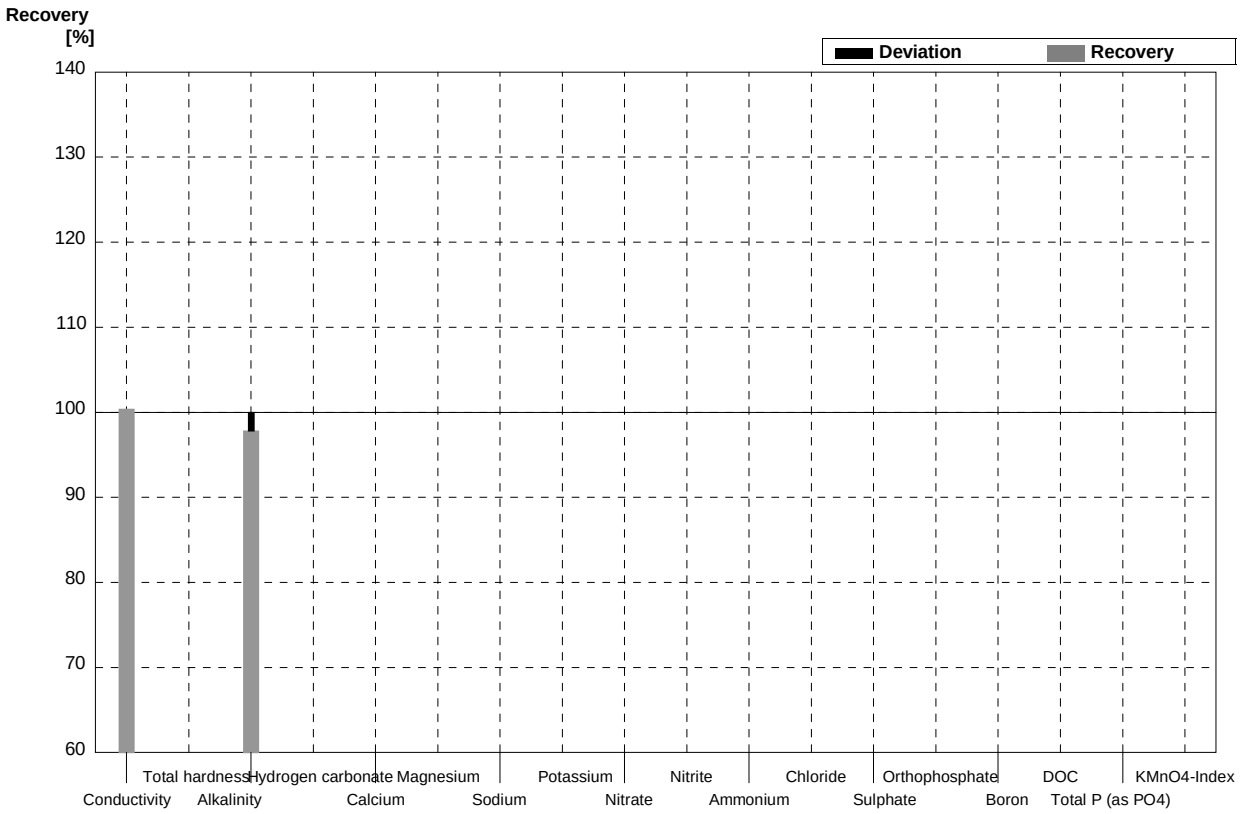
Sample N149B
Laboratory AM

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	283	8,5	µS/cm	100%
Total hardness	1,03	0,01	0,985	0,081	mmol/l	96%
Alkalinity	1,61	0,02	1,56	0,07	mmol/l	97%
Hydrogen carbonate	95,4	1,0	95,2	4,6	mg/l	100%
Calcium	31,0	0,4	29,8	1,4	mg/l	96%
Magnesium	6,14	0,07	5,89	0,48	mg/l	96%
Sodium	15,6	0,2	15,3	1,1	mg/l	98%
Potassium	1,65	0,02	1,48	0,11	mg/l	90%
Nitrate	21,8	0,6	20,8	0,68	mg/l	95%
Nitrite	0,0202	0,0006	0,0185	0,002	mg/l	92%
Ammonium	0,061	0,002	0,061	0,004	mg/l	100%
Chloride	14,5	0,3	15,7	1,1	mg/l	108%
Sulphate	19,6	0,2	20,3	0,67	mg/l	104%
Orthophosphate	<0,009		<0,015		mg/l	•
Boron	0,066	0,001	0,067	0,008	mg/l	102%
DOC	4,06	0,04	5,21	0,83	mg/l	128%
Total P (as PO4)	<0,009		<0,015		mg/l	•
KMnO4-Index	3,53	0,13	3,52	0,53	mg/l	100%



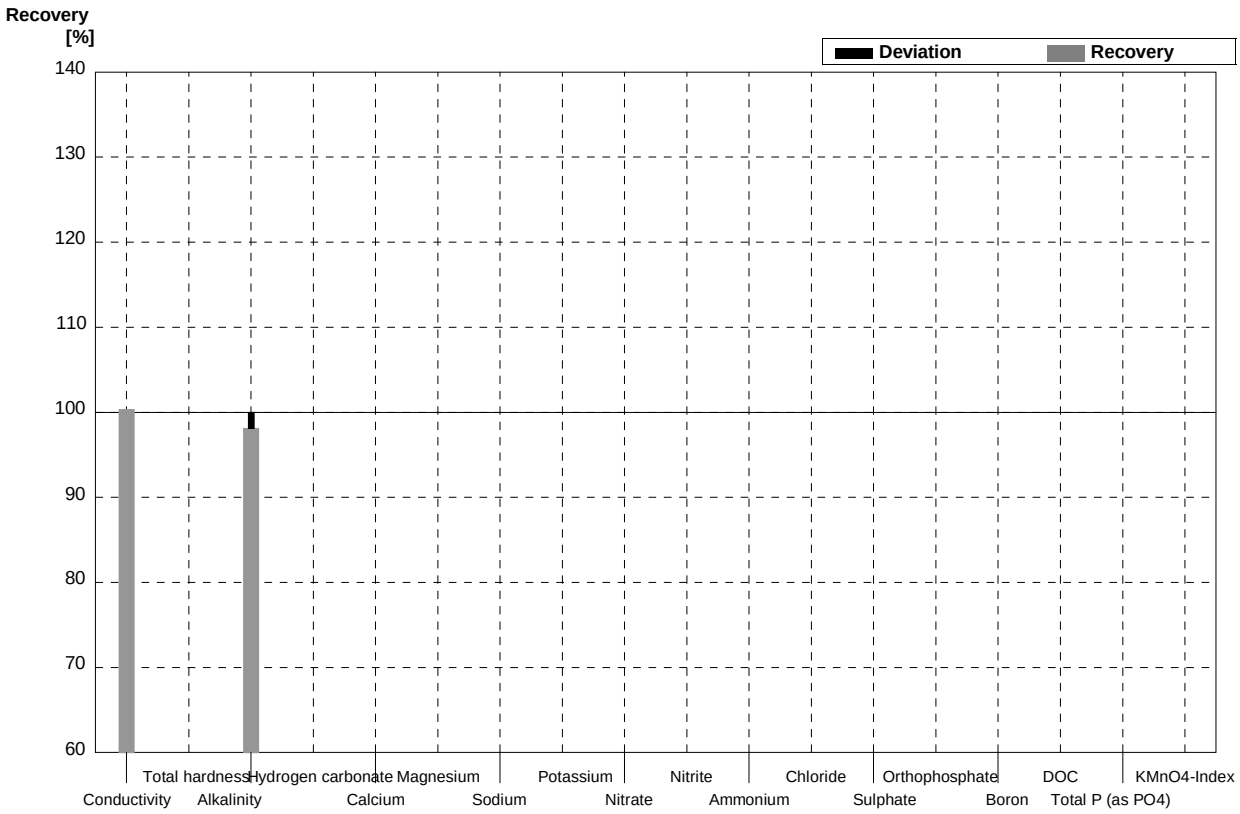
Sample N149A
Laboratory AN

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	527	15	µS/cm	100%
Total hardness	2,11	0,02			mmol/l	
Alkalinity	2,78	0,03	2,72	0,13	mmol/l	98%
Hydrogen carbonate	167	2			mg/l	
Calcium	55,8	0,7			mg/l	
Magnesium	17,5	0,2			mg/l	
Sodium	21,2	0,4			mg/l	
Potassium	4,23	0,04			mg/l	
Nitrate	43,6	0,8			mg/l	
Nitrite	0,0402	0,0003			mg/l	
Ammonium	<0,01				mg/l	
Chloride	35,9	0,7			mg/l	
Sulphate	35,2	0,4			mg/l	
Orthophosphate	0,081	0,003			mg/l	
Boron	0,101	0,001			mg/l	
DOC	6,43	0,05			mg/l	
Total P (as PO4)	0,186	0,003			mg/l	
KMnO4-Index	4,53	0,13			mg/l	



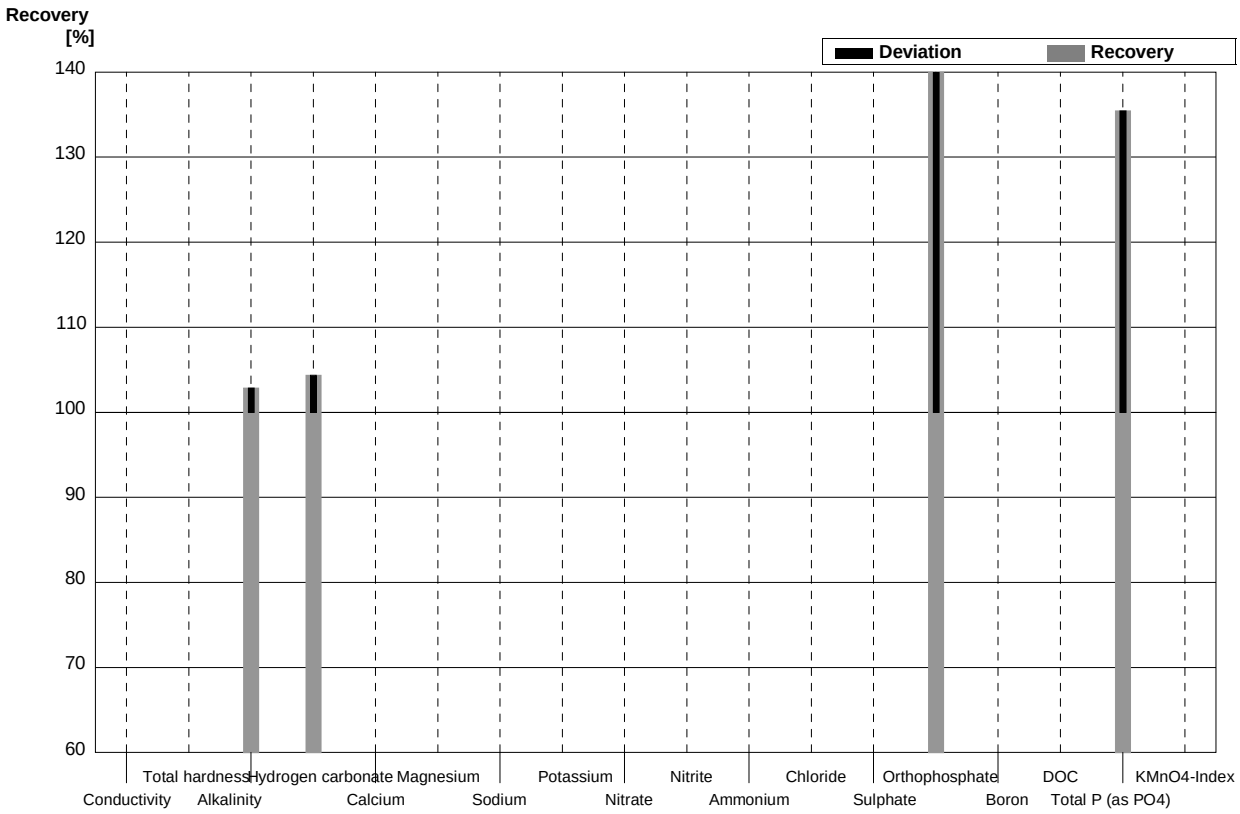
Sample N149B
Laboratory AN

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	285	15	µS/cm	100%
Total hardness	1,03	0,01			mmol/l	
Alkalinity	1,61	0,02	1,58	0,08	mmol/l	98%
Hydrogen carbonate	95,4	1,0			mg/l	
Calcium	31,0	0,4			mg/l	
Magnesium	6,14	0,07			mg/l	
Sodium	15,6	0,2			mg/l	
Potassium	1,65	0,02			mg/l	
Nitrate	21,8	0,6			mg/l	
Nitrite	0,0202	0,0006			mg/l	
Ammonium	0,061	0,002			mg/l	
Chloride	14,5	0,3			mg/l	
Sulphate	19,6	0,2			mg/l	
Orthophosphate	<0,009				mg/l	
Boron	0,066	0,001			mg/l	
DOC	4,06	0,04			mg/l	
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	3,53	0,13			mg/l	



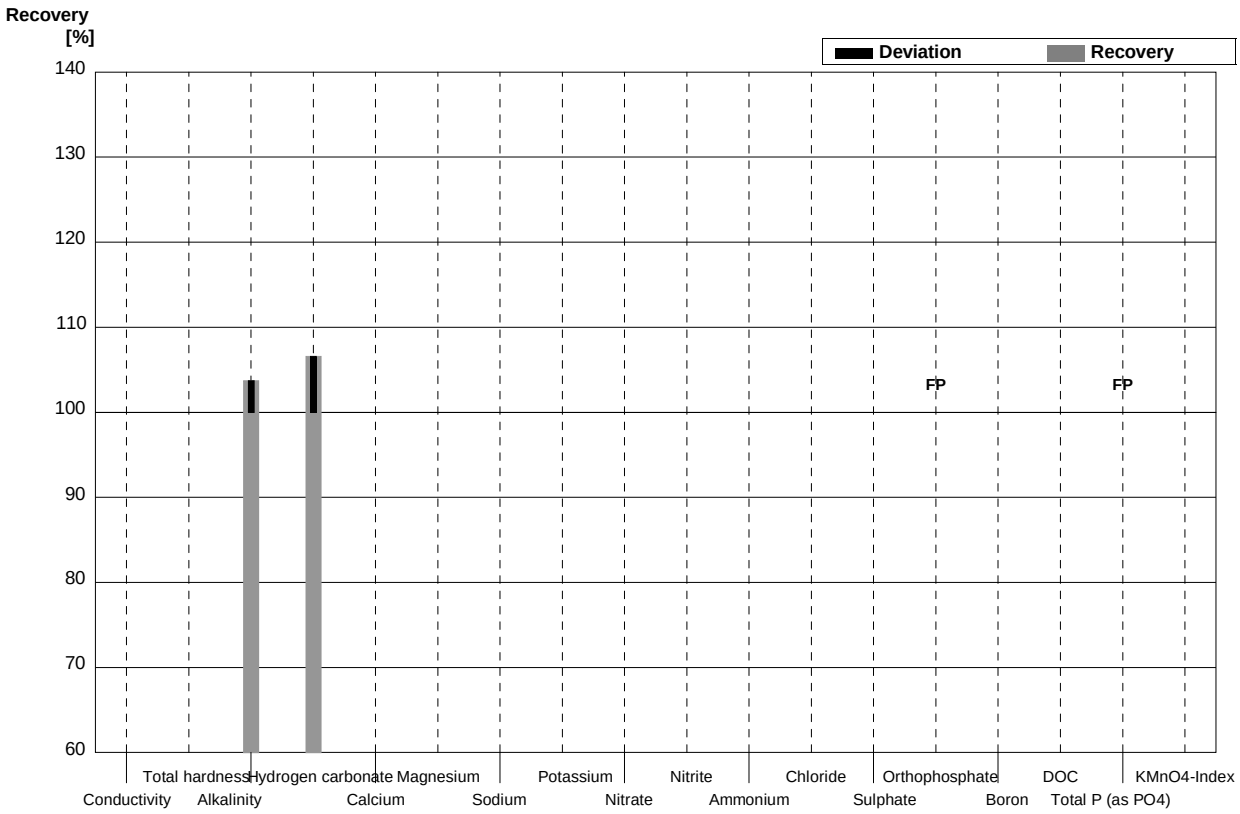
Sample N149A
Laboratory AO

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2			µS/cm	
Total hardness	2,11	0,02			mmol/l	
Alkalinity	2,78	0,03	2,86	0,057	mmol/l	103%
Hydrogen carbonate	167	2	174,33	3,49	mg/l	104%
Calcium	55,8	0,7			mg/l	
Magnesium	17,5	0,2			mg/l	
Sodium	21,2	0,4			mg/l	
Potassium	4,23	0,04			mg/l	
Nitrate	43,6	0,8			mg/l	
Nitrite	0,0402	0,0003			mg/l	
Ammonium	<0,01				mg/l	
Chloride	35,9	0,7			mg/l	
Sulphate	35,2	0,4			mg/l	
Orthophosphate	0,081	0,003	0,119	0,006	mg/l	147%
Boron	0,101	0,001			mg/l	
DOC	6,43	0,05			mg/l	
Total P (as PO4)	0,186	0,003	0,252	0,010	mg/l	135%
KMnO4-Index	4,53	0,13			mg/l	



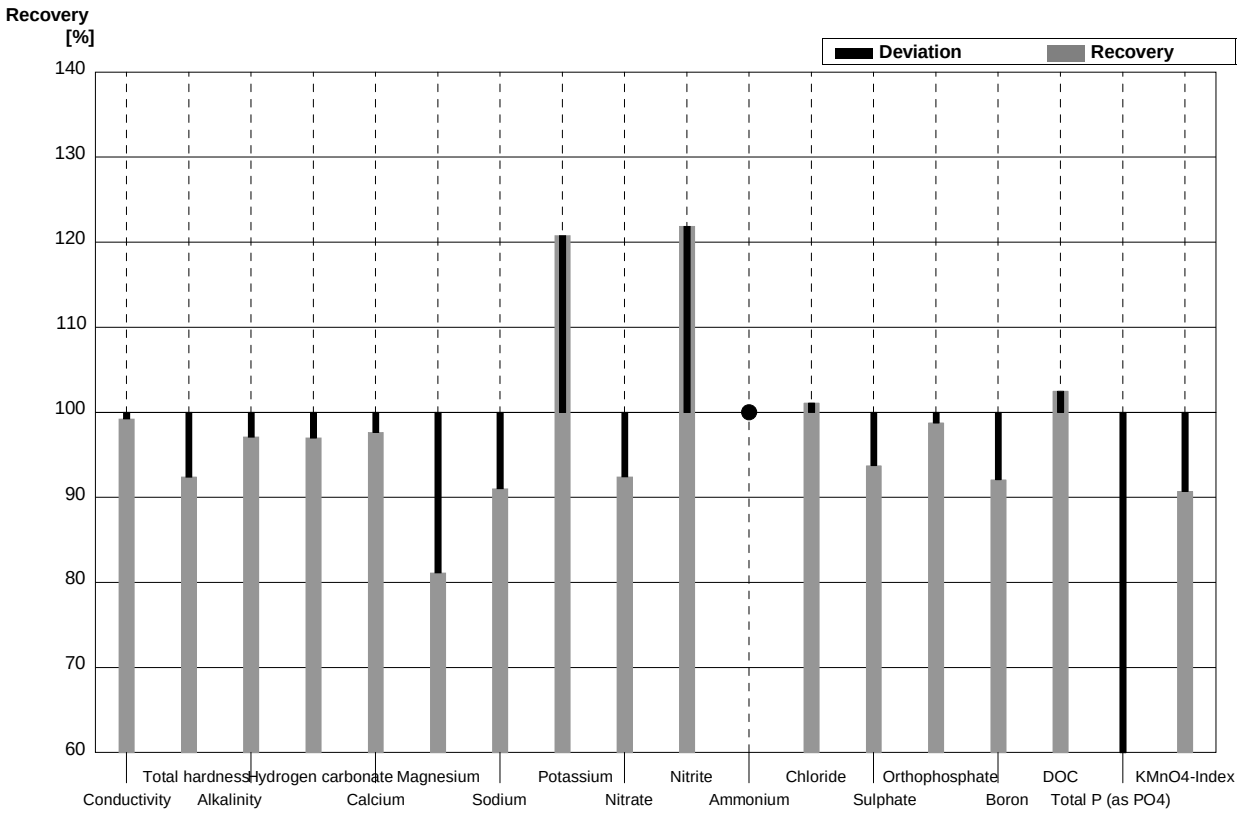
Sample N149B
Laboratory AO

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2			µS/cm	
Total hardness	1,03	0,01			mmol/l	
Alkalinity	1,61	0,02	1,67	0,033	mmol/l	104%
Hydrogen carbonate	95,4	1,0	101,7	2,034	mg/l	107%
Calcium	31,0	0,4			mg/l	
Magnesium	6,14	0,07			mg/l	
Sodium	15,6	0,2			mg/l	
Potassium	1,65	0,02			mg/l	
Nitrate	21,8	0,6			mg/l	
Nitrite	0,0202	0,0006			mg/l	
Ammonium	0,061	0,002			mg/l	
Chloride	14,5	0,3			mg/l	
Sulphate	19,6	0,2			mg/l	
Orthophosphate	<0,009		0,0160	0,0008	mg/l	FP
Boron	0,066	0,001			mg/l	
DOC	4,06	0,04			mg/l	
Total P (as PO4)	<0,009		0,080	0,004	mg/l	FP
KMnO4-Index	3,53	0,13			mg/l	



Sample N149A
Laboratory AP

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	525	2	521	5,2	µS/cm	99%
Total hardness	2,11	0,02	1,95	0,08	mmol/l	92%
Alkalinity	2,78	0,03	2,70	0,1	mmol/l	97%
Hydrogen carbonate	167	2	162	6,1	mg/l	97%
Calcium	55,8	0,7	54,5	2,54	mg/l	98%
Magnesium	17,5	0,2	14,2	0,60	mg/l	81%
Sodium	21,2	0,4	19,3	0,98	mg/l	91%
Potassium	4,23	0,04	5,11	0,30	mg/l	121%
Nitrate	43,6	0,8	40,3	4,0	mg/l	92%
Nitrite	0,0402	0,0003	0,0490	0,003	mg/l	122%
Ammonium	<0,01		<0,03	0,0028	mg/l	•
Chloride	35,9	0,7	36,3	1,4	mg/l	101%
Sulphate	35,2	0,4	33,0	1,65	mg/l	94%
Orthophosphate	0,081	0,003	0,080	0,004	mg/l	99%
Boron	0,101	0,001	0,093	0,005	mg/l	92%
DOC	6,43	0,05	6,59	0,28	mg/l	102%
Total P (as PO4)	0,186	0,003	0,086	0,004	mg/l	46%
KMnO4-Index	4,53	0,13	4,11	0,50	mg/l	91%



Sample N149B
Laboratory AP

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	284	2	275	2,75	µS/cm	97%
Total hardness	1,03	0,01	1,03	0,04	mmol/l	100%
Alkalinity	1,61	0,02	1,58	0,06	mmol/l	98%
Hydrogen carbonate	95,4	1,0	93,1	3,7	mg/l	98%
Calcium	31,0	0,4	32,5	1,55	mg/l	105%
Magnesium	6,14	0,07	5,34	0,31	mg/l	87%
Sodium	15,6	0,2	13,4	0,54	mg/l	86%
Potassium	1,65	0,02	1,79	0,10	mg/l	108%
Nitrate	21,8	0,6	20,4	2,0	mg/l	94%
Nitrite	0,0202	0,0006	0,0300	0,002	mg/l	149%
Ammonium	0,061	0,002	0,064	0,006	mg/l	105%
Chloride	14,5	0,3	14,6	0,55	mg/l	101%
Sulphate	19,6	0,2	18,0	0,90	mg/l	92%
Orthophosphate	<0,009		<0,015	0,001	mg/l	•
Boron	0,066	0,001	0,060	0,003	mg/l	91%
DOC	4,06	0,04	4,13	0,21	mg/l	102%
Total P (as PO4)	<0,009		<0,015	0,001	mg/l	•
KMnO4-Index	3,53	0,13	3,44	0,42	mg/l	97%