IFA-Proficiency Testing Scheme for Water Analysis

Round M158
Metals

Sample Dispatch: 6 September 2021

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round: M158	Date / Signature:	08.10.2021

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103 pages

This report summarises the results of round M158 (trace metals) within the IFA-Proficiency Testing Scheme for Water Analysis. The samples M158A and M158B were distributed to 29 participants on Monday, 6 September 2021. Each participant received two samples of 250 mL filled into LDPE bottles.

Closing date for reporting results to the IFA-Tulln was Friday, 1 October 2021. 27 participants submitted results. To make the participants anonymous, each laboratory obtained a letter code by random.

Samples

The samples consisted of artificial ground water spiked with pure standards. For sample preparation, ultrapure water was spiked with concentrated solutions of salts in order to simulate the ionic composition of natural Austrian ground water. The following ultrapure salts were used: $CaCO_3$, $Mg(NO_3)_2$, NaCl, KCl, besides ultrapure H_2SO_4 and HCl. By this, the matrix of the samples consisted of about 45.8 mg/L Ca, 19.5 mg/L Mg, 9.0 mg/L Na, 1.31 mg/L K, 21.0 mg/L SO_4^{2-} and 15.7 mg/L Cl^- in sample N158A and 45.6 mg/L Ca, 19.4 mg/L Mg, 9.0 mg/L Na, 1.20 mg/L K, 21.3 mg/L SO_4^{2-} and 15.2 mg/L Cl^- in sample N158B. Ultrapure HNO_3 (0.5 % v/v) was added to stabilise the sample at a pH below 2, which meets the standard sampling procedure in the Austrian monitoring program.

Traces of Al, As, Cd, Cr, Cu, Fe, Pb, Mn, Hg, Ni, Se, U and Zn were added, using certified spectroscopy standards. For the compounds added to the samples, in minimum one sample the target concentrations were higher than the minimum quantifiable values of the Austrian ground and river water monitoring program.

Homogeneity, accuracy and stability tests at the IFA-Tulln

Some samples of the round M158A and M158B were analysed for all investigated parameters prior to shipment to the participants. The results are listed in the results tables and the parameter oriented part of the report ("IFA result").

Stability tests will be carried out together with the accuracy tests of the following round (M159).

According to our experience, the concentrations of Al, As, Cd, Cr, Cu, Fe, Pb, Mn, Ni, Se, U and Zn in the samples remain stable up to 18 months when stored at 4-6 °C in the dark. For the parameter Hg a concentration decrease of 2 % to 4 % per month can be expected.

Results

Data evaluation was based on target concentrations that were calculated from the weights of the 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)".

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

The recoveries of the target concentrations, calculated from outlier-corrected data mean values ranged between 93.6 % (Pb in sample M158B) and 103.5 % (As in sample M158A).

The between laboratory CVs covered the ranged between 3.0 % (Cd in sample M158B) and 9.2 % (Cr in sample M158B).

All confidence intervals of the outlier-corrected laboratory mean values except that for Cu in sample M158A (94.5 % ± 4.0 %) and Pb in sample M158B (93.6 % ± 3.8 %) encompass the corresponding target values with their uncertainties. For all other parameters, no difference could be detected between target concentrations and outlier corrected laboratory mean values statistically.

z-scores

The most common approach to calculate a z-score is 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 2010 to 2020. 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 73.7 µg/L for the parameter Aluminium (recovery of 102 %). The target value for Aluminium was 72.3 µg/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 7.9 %, which is 5.7 µg/L Al, when based on the target value.

$$z = \frac{x_i - X}{\sigma_{pt}} = \frac{73.7\ \mu g/L - 72.3\ \mu g/L}{5.7\ \mu g/L} \approx 0.25 \quad \textbf{or} \quad \frac{102\% - 100\%}{7.9\%} \approx 0.25$$

z	z-score	
x_i	73.7 µg/L	equivalent to 102 % (result of the laboratory)
X	72.3 µg/L	equivalent to 100 % (target value)
σ_{pt}	5.7 µg/L	equivalent to 7.9 % (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 following table lists the standard deviations for proficiency assessment and their limits of applicability. Z-scores were only calculated, if the target values were higher than these limits.

Parameter	standard deviation for proficiency assessment	Lower limit
Aluminium	7.9 %	8 µg/L
Arsenic	7.9 %	0.5 µg/L
Cadmium	5.6 %	0.1 µg/L
Chromium	6.6 %	0.5 µg/L
Copper	8.5 %	1.0 µg/L
Iron	6.8 %	10 µg/L
Lead	7.3 %	0.3 µg/L
Manganese	5.4 %	2.0 µg/L
Mercury	11 %	0.2 µg/L
Nickel	8.0 %	1.0 µg/L
Selenium	11 %	0.3 µg/L
Uranium	5.8 %	0.35 µg/L
Zinc	7.8 %	3 µg/L

Normally, a classification based on z-scores is made this way:

|z-Score|	Classification
≤2	satisfactory
2<|z|<3	questionable
≥3	unsatisfactory

The z-scores are listed 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 presented. The standard deviations for proficiency assessment are given in concentration units there.

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 (*) in the column “out”. 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, 8 October 2021

Sample M106A

Parameter Copper

Target value ± U (k=2)	4,79 µg/l	±	0,13 µg/l
IFA result ± U (k=2)	4,79 µg/l	±	0,38 µg/l
Stability test ± U (k=2)	4,69 µg/l	±	0,38 µg/l

Obtained from sample preperation, U=uncertainty
Determined at IFA prior to shipment of samples
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

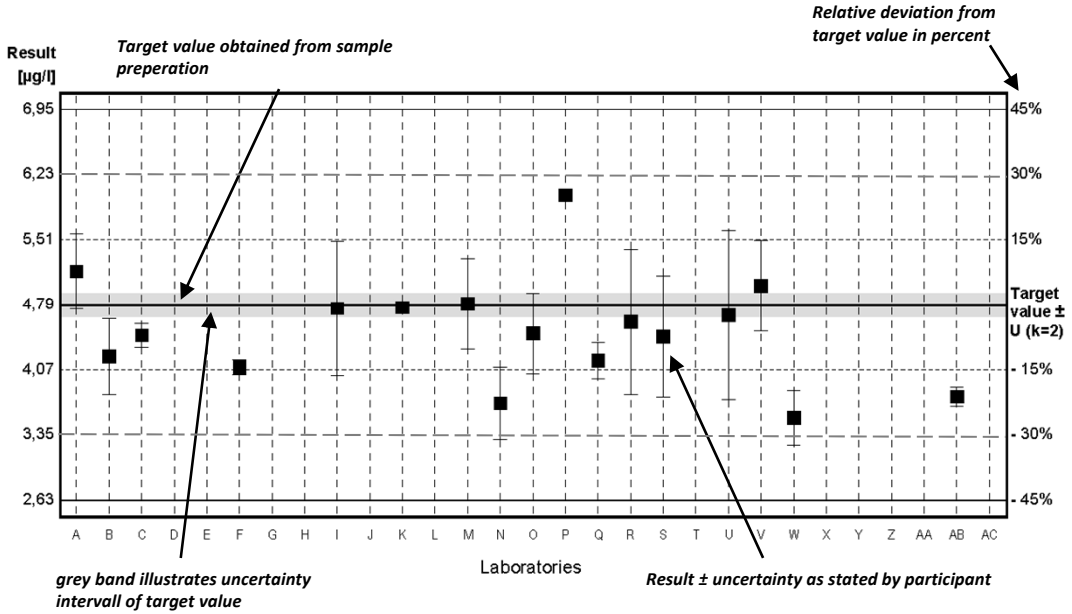


Diagram 1: Measurement results and their uncertainties

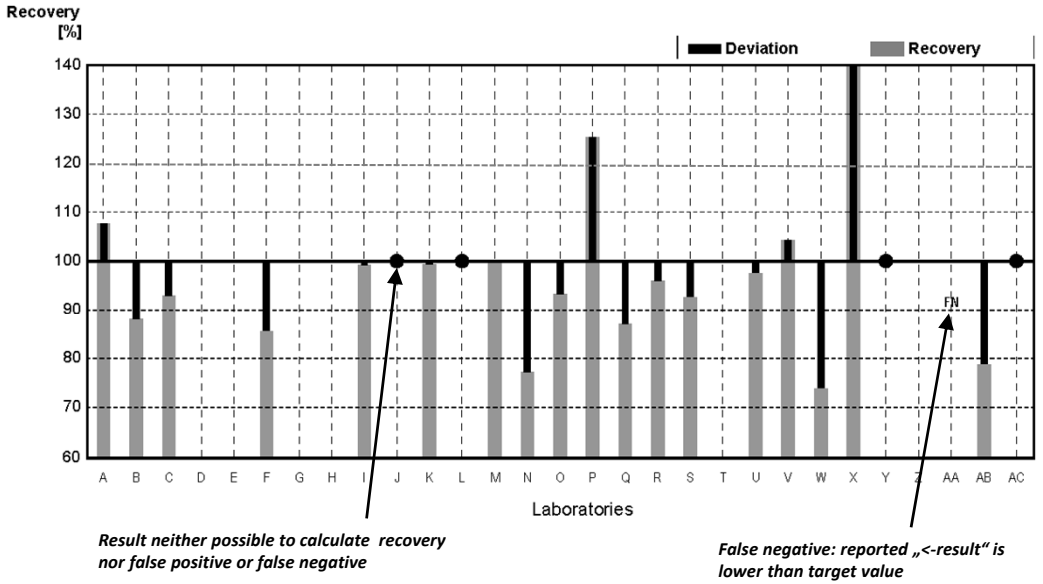


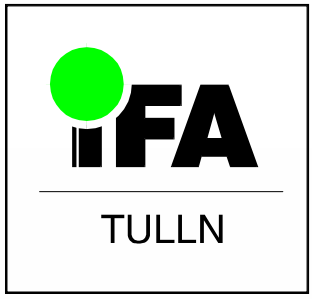
Diagram 2: Recoveries and deviations from target values

EXPLANATION

Illustration of Results
Tables and Parameter Oriented Part

Round M158
Metals

Sample Dispatch: 6 September 2021



Results Sample M158A

	Aluminium	Arsenic	Lead	Cadmium	Chromium	Iron	Copper
Target value	103	3.60	18.1	1.56	10.3	21.6	1.79
IFA result	101	3.68	17.6	1.55	10.2	21.2	1.77
A	108	3.57	16.6	1.56	10.2	21.3	1.57
B	102.5			1.43	10.7	21.4	<5
C	122.9	4.09	18.6	1.59	11.8	25.2	1.81
D							
E	97	3.63	18.5	1.553	11.5	20.2	1.59
F	100	3.38	16.2	1.46	9.6	20.6	1.60
G	103.000	3.70000	14.0000	1.58000	9.7000	22.0000	1.80000
H	109.8	3.835	18.37	1.608	11.03	23.03	1.916
I	102	3.81	17.8	1.57	10.4	20.4	1.79
J	109	3.48	15.1	1.45	11.3	24.0	1.75
K	94.3	3.49	16.3	1.47	9.61	19.2	1.71
L	100.3	3.58	17.7	1.59	10.3	21.5	1.63
M	99.5	3.575	17.56	1.501	9.83	22.43	1.792
N	86		19.9	1.70			
O	109.0					18.7	<10
P	86	4.31	17.7	1.54	11.4	31.0	1.70
Q	100	3.38	17.7	1.57	10.1	20.8	1.74
R	91.5	4.11	18.32	1.16	9.35	21.67	1.46
S	103.2	3.699	16.90	1.462	9.595	18.99	1.531
T	102	3.88	17.22	1.51	10.3	21.5	1.66
U		3.64	17.2	1.58	10.8	20.8	<2.00
V	105.7	3.470	18.13	1.522	10.04	21.41	1.669
W	96.3	4.32	16.9	1.51	10.2	24.6	<5.0
X	102.6	3.683	18.20	1.58	10.21	22.82	1.77
Y						18.18	1.72
Z		3.57					
AA				1.14			
AB							
AC	111	3.74	15.4	1.57	10.5	21.6	1.62

All data in µg/L

Measurement Uncertainties Sample M158A

	Aluminium ±	Arsenic ±	Lead ±	Cadmium ±	Chromium ±	Iron ±	Copper ±
Target value	1	0.02	0.1	0.01	0.1	0.2	0.02
IFA result	5	0.40	0.5	0.09	0.3	1.7	0.12
A	10.8	0.54	1.7	0.16	1.0	2.1	0.16
B	2			0.1	0.2	1.1	
C	18.4	0.61	2.78	0.24	1.77	3.77	0.27
D							
E	19	0.73	3.7	0.311	2.3	4.0	0.32
F	4	0.10	0.1	0.03	0.1	0.8	0.05
G	10.3000	0.44400	1.12000	0.12640	1.16400	5.72000	0.14400
H							
I	1.905	0.081	0.306	0.046	0.058	0.306	0.023
J							
K	10.5	0.20	1.7	0.07	1.36	2.1	0.09
L	25	1.1	4.4	0.40	3.1	6.5	0.41
M	10.0	0.358	1.76	0.150	0.98	2.24	0.179
N	21.5		4.00	0.300			
O	18.530					3.366	
P	10	1	2	0.2	1	30	1
Q	15.1	0.68	2.66	0.204	1.01	3.13	0.262
R	1.1	0.15	0.4	0.1	0.3	0.8	0.15
S							
T	0.520	0.206	0.374	0.0404	0.072	1.19	0.0950
U		0.36	0.50	0.05	0.10	0.2	
V	11	0.35	1.8	0.15	1	2.14	0.17
W							
X	1.84	0.465	1.80	0.14	0.736	1.30	0.20
Y						0.63	0.14
Z		0.26					
AA				0.02			
AB							
AC	3.22	0.158	1.07	0.083	0.407	0.480	0.080

All data in µg/L

Results Sample M158A

	Manganese	Nickel	Mercury	Selenium	Uranium	Zinc
Target value	2.04	4.18	1.38	1.35	4.53	25.9
IFA result	2.07	4.13	1.40	1.42	4.43	26.0
A	1.95	3.92	1.34	1.36	4.38	24.0
B	<4	3.85				23.9
C	<5	4.50	1.62	1.34	4.86	24.2
D						
E	2.20	4.44	1.37	1.33	4.66	25.8
F	1.87	3.77	1.28	1.30	4.27	23.7
G	<2.00	4.20000	1.41200	1.3000	3.48000	26.0000
H	2.155	4.431	1.294	1.522	4.544	26.03
I	2.07	4.19	1.38	2.31	4.44	27.0
J		4.25				24.1
K	<5	3.93	1.22	1.26	3.79	21.5
L	1.95	4.00	1.40	1.36	4.22	24.8
M	2.164	4.101		1.418	4.300	24.75
N						
O	<10					
P	<20	4.88	1.214			34.0
Q	1.95	4.02	1.45	1.29	4.41	23.8
R	1.82	4.10	<0.1	1.62	5.18	24.26
S	1.755	3.554		1.474	3.523	23.93
T	<10.0	4.12	1.36	1.178	4.35	24.6
U		4.23	1.42			26.2
V	1.940	4.314	1.351	1.343	4.267	24.2
W		4.19				<100
X	2.03	4.06	1.240	<3.0	4.53	25.5
Y						
Z						
AA						
AB						
AC	2.12	4.02	1.23	1.49	4.11	24.9

All data in µg/L

Measurement Uncertainties Sample M158A

	Manganese ±	Nickel ±	Mercury ±	Selenium ±	Uranium ±	Zinc ±
Target value	0.03	0.03	0.02	0.06	0.03	0.7
IFA result	0.14	0.17	0.27	0.17	0.49	3.1
A	0.20	0.39	0.13	0.20	0.44	2.4
B		0.3				0.8
C		0.67	0.24	0.20	0.73	3.64
D						
E	0.44	0.89	0.27	0.27	0.93	5.2
F	0.04	0.11	0.04	0.05	0.14	0.8
G		0.42000	0.21200	0.19500	0.17400	2.6000
H						
I	0.015	0.062	0.025	0.081	0.072	0.666
J						
K		0.30	0.19	0.15	0.40	1.3
L	0.59	1.0	0.42	0.54	1.3	6.2
M	0.216	0.410		0.142	0.430	2.48
N						
O						
P		1	0.2			10
Q	0.195	0.402	0.291	0.193	0.441	2.14
R	0.13	0.1		0.1	0.2	0.5
S						
T		0.109	0.00712	0.229	0.174	0.126
U		0.42	0.14			2
V	0.19	0.43	0.14	0.13	0.43	2.4
W						
X	0.151	0.03	0.077		0.28	0.90
Y						
Z						
AA						
AB						
AC	0.064	0.148	0.103	0.085	0.136	0.881

All data in µg/L

Results Sample M158B

	Aluminium	Arsenic	Lead	Cadmium	Chromium	Iron	Copper
Target value	33.5	2.31	5.83	0.161	0.88	102	3.84
IFA result	33.5	2.32	5.73	0.161	0.88	99.9	3.78
A	35.7	2.30	5.4	<0.2	<1	101	3.44
B	32.0			<0.4	<5	99.8	5.3
C	40.6	2.69	5.89	0.167	1.03	117.2	4.00
D							
E	31.2	2.36	5.88	0.162	0.95	99	3.83
F	34.5	2.21	5.3	0.155	0.95	97	3.49
G	35.000	2.4000	4.7000	0.1600	0.80000	99.000	3.80000
H	35.18	2.452	5.953	0.153	0.868	107.6	4.074
I	34.5	2.37	5.69	0.161	0.871	93.7	3.87
J	36.8	2.29	5.0	0.1575	1.04	104	3.91
K	30.7	2.26	5.30	0.153	<1	96.6	3.68
L	32.0	2.30	5.74	0.165	0.886	102.7	3.73
M	34.04	2.367	5.168	0.1574	0.8520	96.3	3.687
N	34.0		7.0	0.210			
O	34.3					91.5	<10
P	30.6	2.80	5.6	0.170	1.33	99	3.69
Q	32.4	2.17	5.6	0.159	0.83	97	3.61
R	29.18	2.75	5.27	<0.1	0.73	78.1	3.20
S	34.65	2.148	5.349	<0.50	0.867	91.78	3.487
T	31.6	2.44	5.73	0.157	<1.00	102	3.52
U		2.42	5.56	0.160	<2.00	<10	3.75
V	34.3	2.225	5.87	0.163	0.828	102.8	3.617
W	31.0	2.80	5.01	<0.2	0.826	110	<5.0
X	32.54	2.316	5.63	<0.45	0.839	103.7	3.72
Y						97.25	3.89
Z		2.40					
AA							
AB							
AC	37.3	2.35	4.91	0.159	0.887	99.6	3.39

All data in µg/L

Measurement Uncertainties Sample M158B

	Aluminium ±	Arsenic ±	Lead ±	Cadmium ±	Chromium ±	Iron ±	Copper ±
Target value	0.3	0.02	0.04	0.002	0.01	1	0.03
IFA result	1.7	0.26	0.17	0.010	0.05	7	0.19
A	3.6	0.35	0.5			10	0.34
B	1					1.3	0.7
C	6.09	0.40	0.88	0.025	0.16	17.6	0.60
D							
E	6.2	0.4	1.18	0.032	0.19	20	0.77
F	1.3	0.11	0.1	0.003	0.07	2	0.08
G	3.5000	0.28800	0.37600	0.01280	0.09600	25.7400	0.30400
H							
I	0.808	0.032	0.036	0.009	0.027	0.473	0.012
J							
K	3.4	0.13	0.56	0.012		10.7	0.20
L	8.0	0.69	1.4	0.041	0.27	31	0.93
M	3.40	0.237	0.517	0.0157	0.0852	9.63	0.369
N	8.5		1.70	0.0600			
O	5.831					16.470	
P	5	1	1	0.1	1	30	1
Q	4.86	0.433	0.84	0.0207	0.083	14.6	0.54
R	0.34	0.1	0.1		0.1	1.75	0.3
S							
T	0.366	0.2195	0.0566	0.00729		3.69	0.0866
U		0.24	0.50	0.05			0.38
V	3.4	0.23	0.59	0.02	0.083	10.2	0.36
W							
X	1.49	0.489	0.263		0.073	4.81	0.18
Y						3.38	0.32
Z		0.16					
AA							
AB							
AC	1.08	0.099	0.340	0.008	0.034	2.21	0.168

All data in µg/L

Results Sample M158B

	Manganese	Nickel	Mercury	Selenium	Uranium	Zinc
Target value	24.0	2.27	0.55	2.27	3.45	204
IFA result	24.0	2.25	0.57	2.16	3.33	206
A	23.4	2.13	0.55	2.34	3.36	196
B	22.9	2.49				208.7
C	26.7	2.54	0.677	2.26	3.71	211.9
D						
E	26.2	2.46	0.547	2.18	3.54	215
F	22.8	2.11	0.520	2.20	3.22	193
G	23.0000	2.10000	0.562	2.30000	2.76000	198.000
H	25.08	2.362	0.434	2.511	3.488	211.2
I	24.4	2.29	0.555	47.4	3.35	211
J		2.35				195
K	21.2	2.24	0.490	2.07	2.93	173
L	23.5	2.15	0.557	2.20	3.23	192
M	23.33	2.262		2.333	3.196	192.5
N						
O	21.1					
P	23.0	2.62	0.487			189
Q	22.8	2.16	0.60	2.14	3.26	190
R	21.6	2.41	0.211	2.67	3.59	197.6
S	21.92	1.816		2.316	<2.90	191.3
T	23.3	2.24	0.537	2.43	3.30	207
U		2.28	0.54			210
V	23.5	2.234	0.524	2.250	3.259	196.1
W		1.93				181
X	24.21	2.30	0.530	<3.9	3.30	203.8
Y						
Z						
AA						
AB						
AC	24.3	2.11	0.445	2.41	3.11	213

All data in µg/L

Measurement Uncertainties Sample M158B

	Manganese ±	Nickel ±	Mercury ±	Selenium ±	Uranium ±	Zinc ±
Target value	0.2	0.02	0.01	0.06	0.03	1
IFA result	1.7	0.14	0.11	0.26	0.37	21
A	2.3	0.21	0.06	0.35	0.34	20
B	0.5	0.3				3
C	4.00	0.38	0.102	0.34	0.56	31.8
D						
E	5.2	0.49	0.109	0.44	0.708	43
F	0.4	0.12	0.015	0.11	0.07	5
G	2.30000	0.21000	0.08400	0.34500	0.13800	19.8000
H						
I	0.231	0.042	0.007	0.265	0.025	1.732
J						
K	1.2	0.17	0.076	0.25	0.31	11
L	7.1	0.54	0.17	0.88	0.97	48
M	2.33	0.226		0.233	0.320	19.3
N						
O	3.798					
P	15	1	0.1			15
Q	2.28	0.216	0.119	0.322	0.326	17.1
R	0.6	0.1	0.08	0.1	0.2	4
S						
T	0.451	0.117	0.00783	0.217	0.165	2.46
U		0.22	0.05			2
V	2.4	0.23	0.052	0.23	0.33	20
W						
X	1.47	0.03	0.031		0.29	4.46
Y						
Z						
AA						
AB						
AC	0.739	0.078	0.037	0.137	0.103	7.54

All data in µg/L

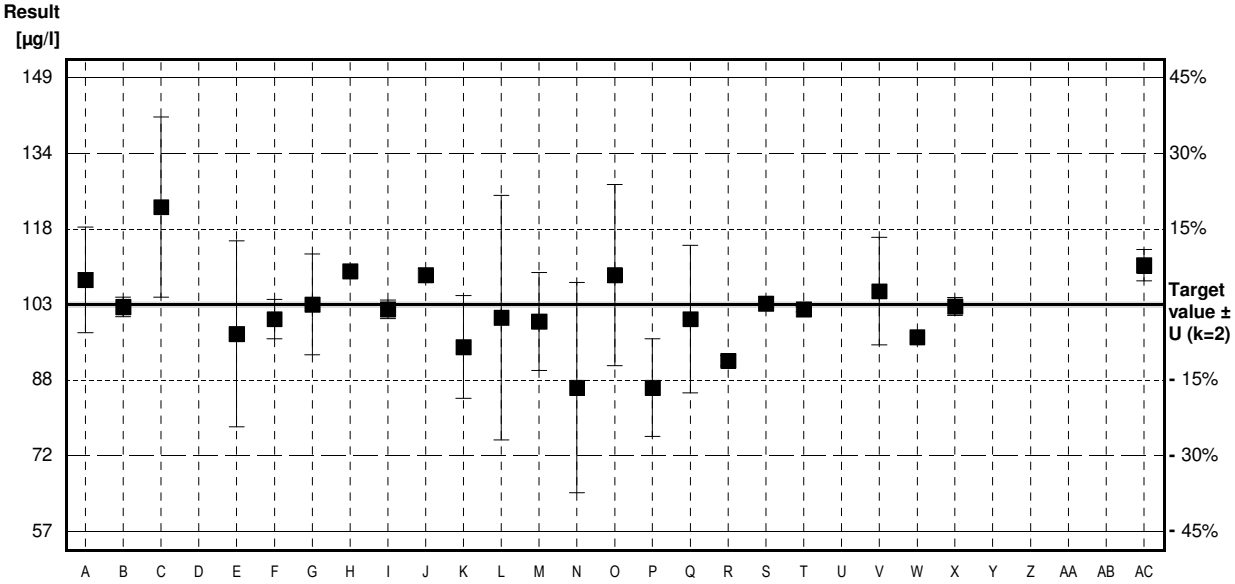
Sample M158A

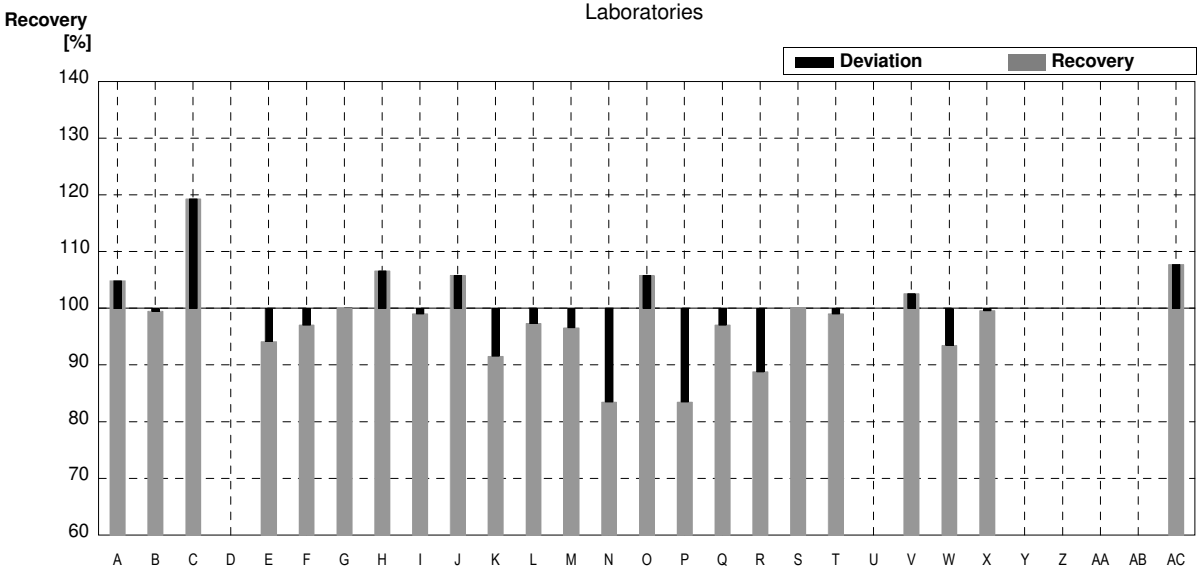
Parameter Aluminium

Target value ± U (k=2)	103 µg/l	±	1 µg/l	
IFA result ± U (k=2)	101 µg/l	±	5 µg/l	
Stability test	µg/l			

Lab Code	Result	±	Unit	Recovery	z-Score
A	108	10,8	µg/l	105%	0,61
B	102,5	2	µg/l	100%	-0,06
C	122,9	18,4	µg/l	119%	2,45
D			µg/l		
E	97	19	µg/l	94%	-0,74
F	100	4	µg/l	97%	-0,37
G	103,000	10,3000	µg/l	100%	0,00
H	109,8		µg/l	107%	0,84
I	102	1,905	µg/l	99%	-0,12
J	109		µg/l	106%	0,74
K	94,3	10,5	µg/l	92%	-1,07
L	100,3	25	µg/l	97%	-0,33
M	99,5	10,0	µg/l	97%	-0,43
N	86	21,5	µg/l	83%	-2,09
O	109,0	18,530	µg/l	106%	0,74
P	86	10	µg/l	83%	-2,09
Q	100	15,1	µg/l	97%	-0,37
R	91,5	1,1	µg/l	89%	-1,41
S	103,2		µg/l	100%	0,02
T	102	0,520	µg/l	99%	-0,12
U			µg/l		
V	105,7	11	µg/l	103%	0,33
W	96,3		µg/l	93%	-0,82
X	102,6	1,84	µg/l	100%	-0,05
Y			µg/l		
Z			µg/l		
AA			µg/l		
AB			µg/l		
AC	111	3,22	µg/l	108%	0,98

	All results	Outliers excl.	Unit
Mean ± CI(99%)	102 ± 5	102 ± 5	µg/l
Recov. ± CI(99%)	98,8 ± 4,7	98,8 ± 4,7	%
SD between labs	8	8	µg/l
RSD between labs	8,1	8,1	%
n for calculation	23	23	





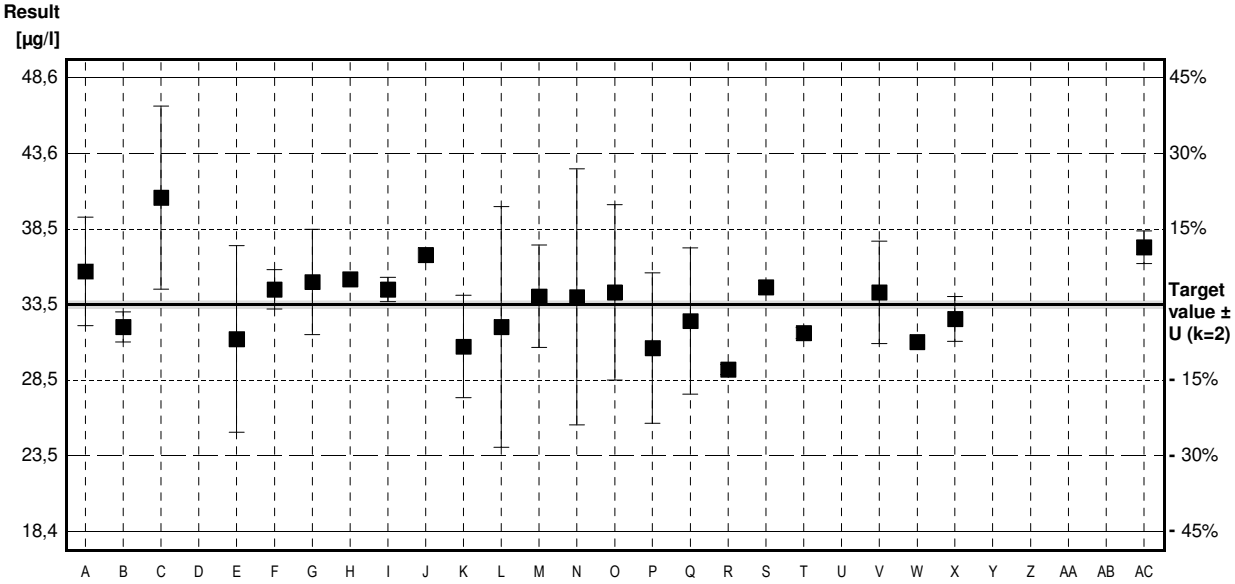
Sample M158B

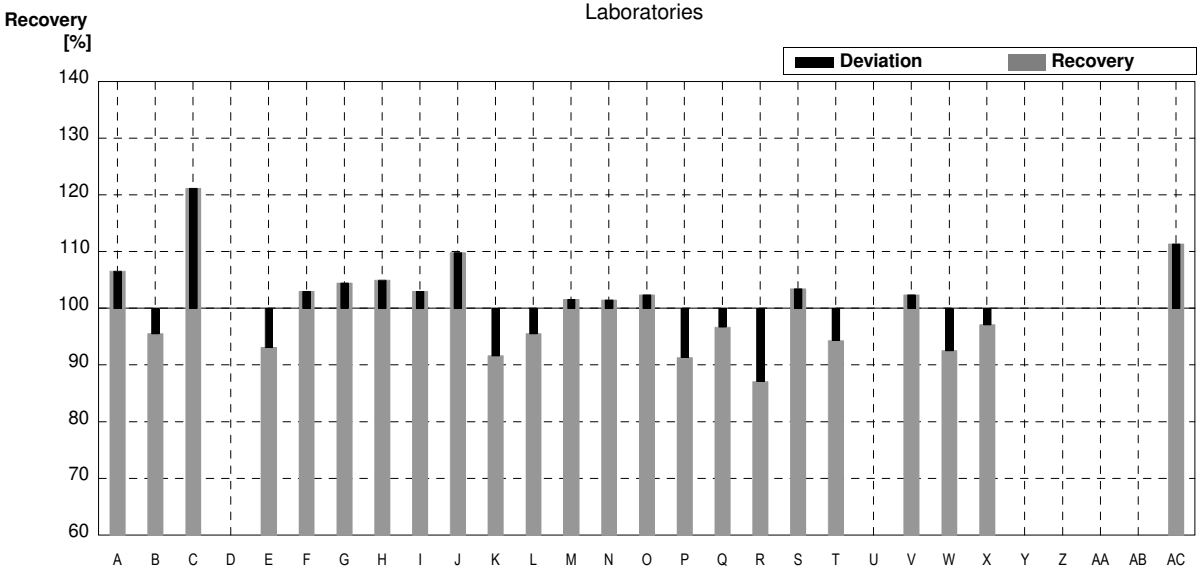
Parameter Aluminium

Target value ± U (k=2)	33,5 µg/l	±	0,3 µg/l	
IFA result ± U (k=2)	33,5 µg/l	±	1,7 µg/l	
Stability test	µg/l			

Lab Code	Result	±	Unit	Recovery	z-Score
A	35,7	3,6	µg/l	107%	0,83
B	32,0	1	µg/l	96%	-0,57
C	40,6	6,09	µg/l	121%	2,68
D			µg/l		
E	31,2	6,2	µg/l	93%	-0,87
F	34,5	1,3	µg/l	103%	0,38
G	35,000	3,5000	µg/l	104%	0,57
H	35,18		µg/l	105%	0,63
I	34,5	0,808	µg/l	103%	0,38
J	36,8		µg/l	110%	1,25
K	30,7	3,4	µg/l	92%	-1,06
L	32,0	8,0	µg/l	96%	-0,57
M	34,04	3,40	µg/l	102%	0,20
N	34,0	8,5	µg/l	101%	0,19
O	34,3	5,831	µg/l	102%	0,30
P	30,6	5	µg/l	91%	-1,10
Q	32,4	4,86	µg/l	97%	-0,42
R	29,18	0,34	µg/l	87%	-1,63
S	34,65		µg/l	103%	0,43
T	31,6	0,366	µg/l	94%	-0,72
U			µg/l		
V	34,3	3,4	µg/l	102%	0,30
W	31,0		µg/l	93%	-0,94
X	32,54	1,49	µg/l	97%	-0,36
Y			µg/l		
Z			µg/l		
AA			µg/l		
AB			µg/l		
AC	37,3	1,08	µg/l	111%	1,44

	All results	Outliers excl.	Unit
Mean ± CI(99%)	33,7 ± 1,5	33,7 ± 1,5	µg/l
Recov. ± CI(99%)	100,5 ± 4,5	100,5 ± 4,5	%
SD between labs	2,6	2,6	µg/l
RSD between labs	7,7	7,7	%
n for calculation	23	23	



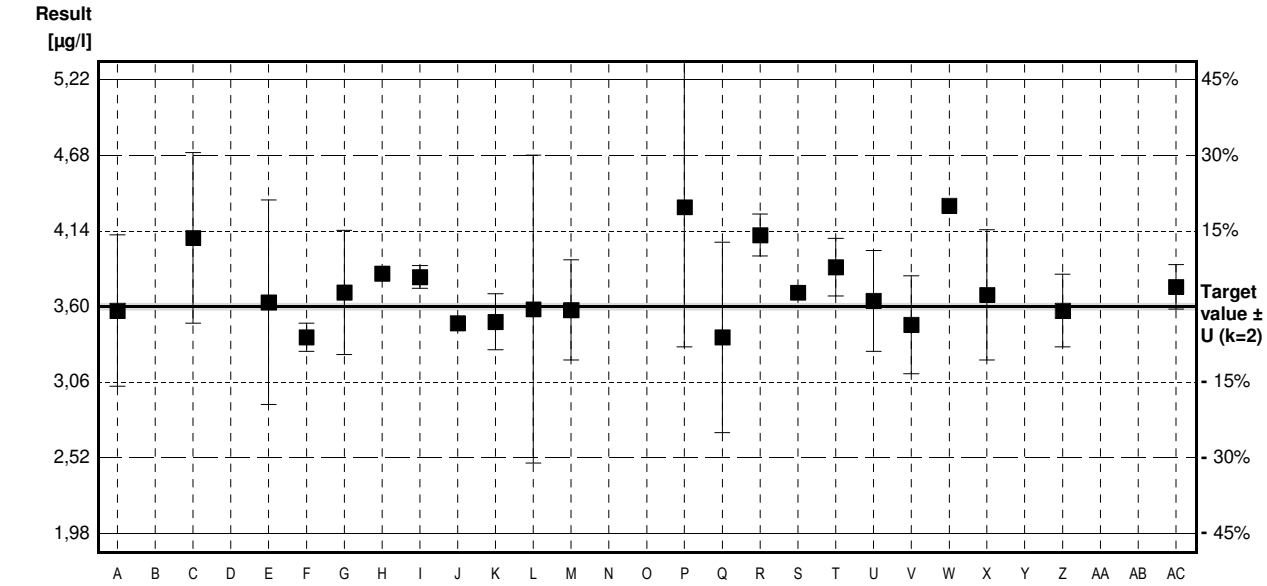


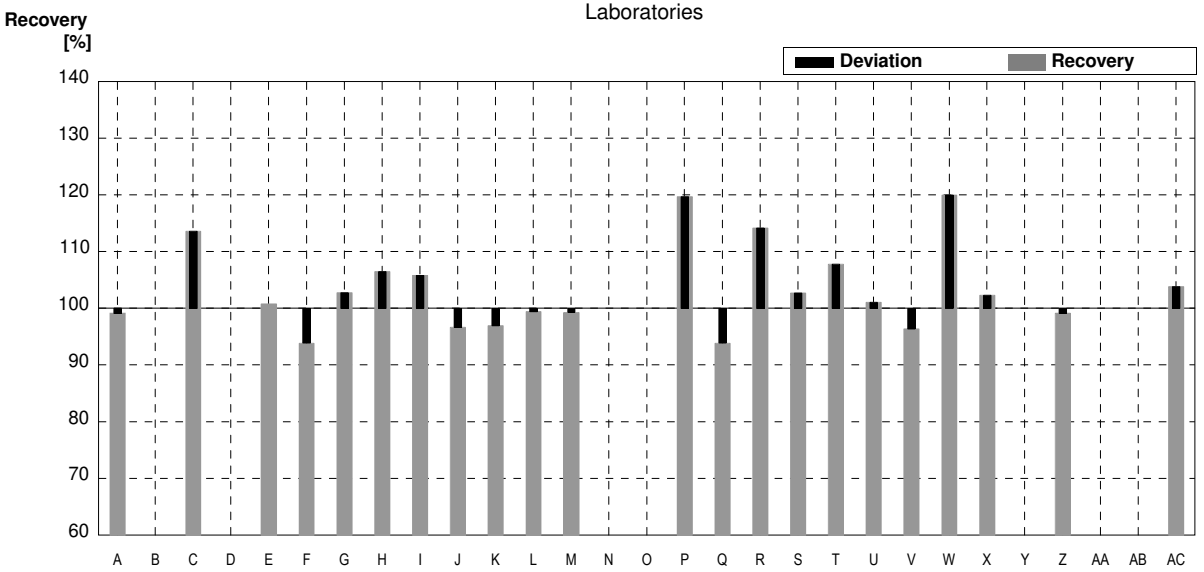
Sample M158A
Parameter Arsenic

Target value ± U (k=2)	3,60 µg/l	±	0,02 µg/l	
IFA result ± U (k=2)	3,68 µg/l	±	0,40 µg/l	
Stability test	µg/l			

Lab Code	Result	±	Unit	Recovery	z-Score
A	3,57	0,54	µg/l	99%	-0,11
B			µg/l		
C	4,09	0,61	µg/l	114%	1,72
D			µg/l		
E	3,63	0,73	µg/l	101%	0,11
F	3,38	0,10	µg/l	94%	-0,77
G	3,70000	0,44400	µg/l	103%	0,35
H	3,835		µg/l	107%	0,83
I	3,81	0,081	µg/l	106%	0,74
J	3,48		µg/l	97%	-0,42
K	3,49	0,20	µg/l	97%	-0,39
L	3,58	1,1	µg/l	99%	-0,07
M	3,575	0,358	µg/l	99%	-0,09
N			µg/l		
O			µg/l		
P	4,31	1	µg/l	120%	2,50
Q	3,38	0,68	µg/l	94%	-0,77
R	4,11	0,15	µg/l	114%	1,79
S	3,699		µg/l	103%	0,35
T	3,88	0,206	µg/l	108%	0,98
U	3,64	0,36	µg/l	101%	0,14
V	3,470	0,35	µg/l	96%	-0,46
W	4,32		µg/l	120%	2,53
X	3,683	0,465	µg/l	102%	0,29
Y			µg/l		
Z	3,57	0,26	µg/l	99%	-0,11
AA			µg/l		
AB			µg/l		
AC	3,74	0,158	µg/l	104%	0,49

	All results	Outliers excl.	Unit
Mean ± CI(99%)	3,72 ± 0,16	3,72 ± 0,16	µg/l
Recov. ± CI(99%)	103,5 ± 4,6	103,5 ± 4,6	%
SD between labs	0,27	0,27	µg/l
RSD between labs	7,3	7,3	%
n for calculation	22	22	



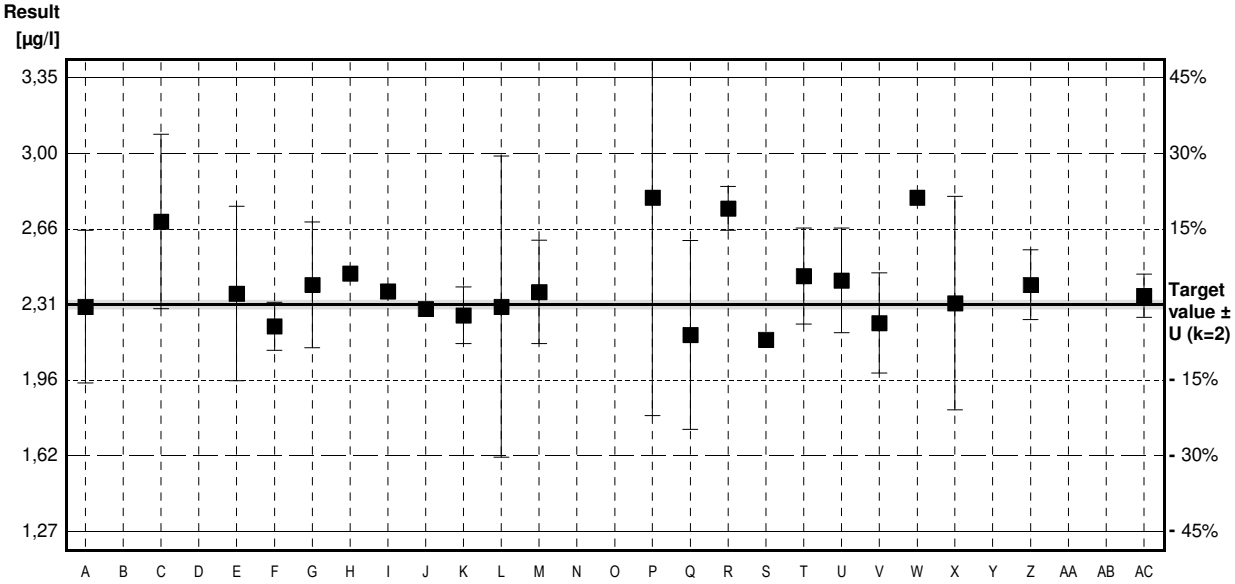


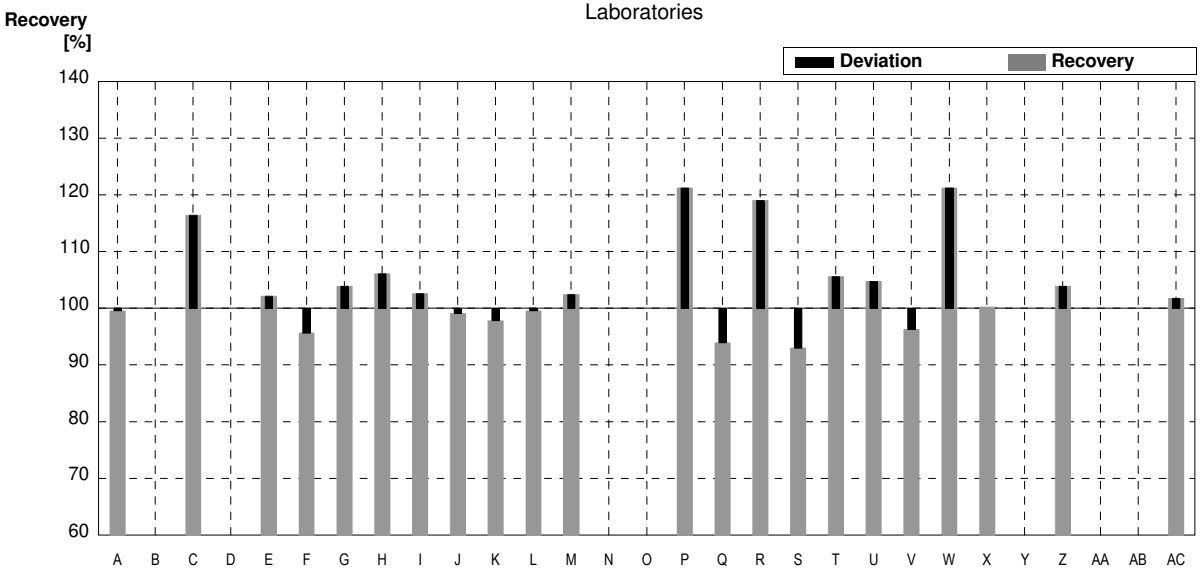
Sample M158B
Parameter Arsenic

Target value ± U (k=2)	2,31	µg/l	±	0,02	µg/l
IFA result ± U (k=2)	2,32	µg/l	±	0,26	µg/l
Stability test		µg/l			

Lab Code	Result		±	Unit	Recovery	z-Score
A	2,30		0,35	µg/l	100%	-0,05
B				µg/l		
C	2,69		0,40	µg/l	116%	2,08
D				µg/l		
E	2,36		0,4	µg/l	102%	0,27
F	2,21		0,11	µg/l	96%	-0,55
G	2,4000		0,28800	µg/l	104%	0,49
H	2,452			µg/l	106%	0,78
I	2,37		0,032	µg/l	103%	0,33
J	2,29			µg/l	99%	-0,11
K	2,26		0,13	µg/l	98%	-0,27
L	2,30		0,69	µg/l	100%	-0,05
M	2,367		0,237	µg/l	102%	0,31
N				µg/l		
O				µg/l		
P	2,80	*	1	µg/l	121%	2,69
Q	2,17		0,433	µg/l	94%	-0,77
R	2,75	*	0,1	µg/l	119%	2,41
S	2,148			µg/l	93%	-0,89
T	2,44		0,2195	µg/l	106%	0,71
U	2,42		0,24	µg/l	105%	0,60
V	2,225		0,23	µg/l	96%	-0,47
W	2,80	*		µg/l	121%	2,69
X	2,316		0,489	µg/l	100%	0,03
Y				µg/l		
Z	2,40		0,16	µg/l	104%	0,49
AA				µg/l		
AB				µg/l		
AC	2,35		0,099	µg/l	102%	0,22

	All results	Outliers excl.	Unit
Mean ± CI(99%)	2,40 ± 0,12	2,34 ± 0,08	µg/l
Recov. ± CI(99%)	103,9 ± 5,0	101,3 ± 3,5	%
SD between labs	0,19	0,12	µg/l
RSD between labs	8,0	5,2	%
n for calculation	22	19	





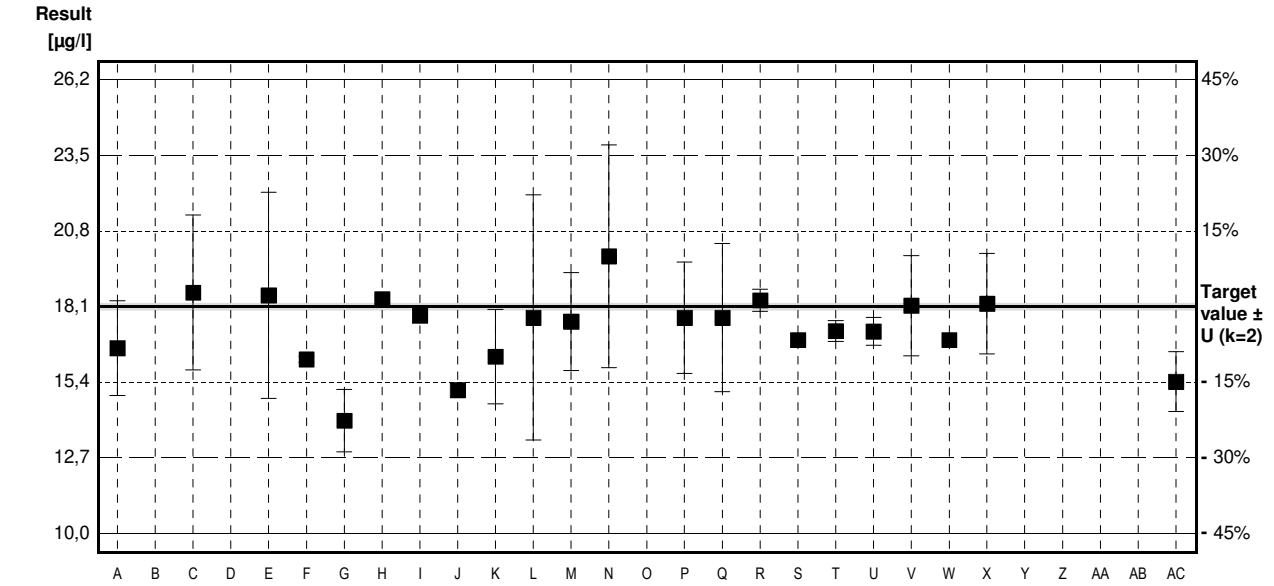
Sample M158A

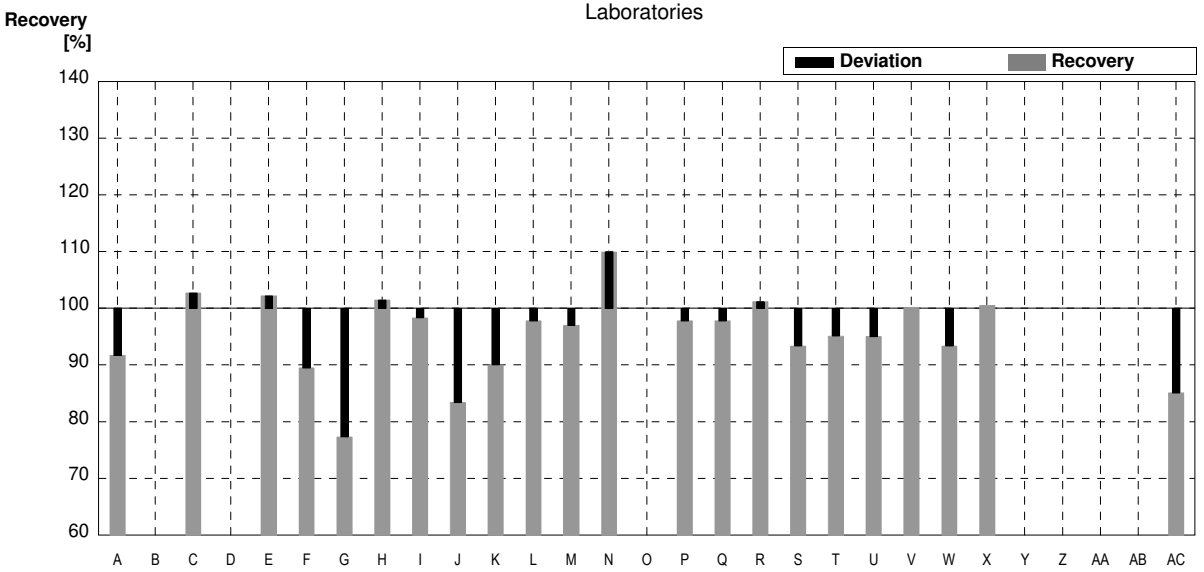
Parameter Lead

Target value ± U (k=2)	18,1 µg/l	±	0,1 µg/l
IFA result ± U (k=2)	17,6 µg/l	±	0,5 µg/l
Stability test	µg/l		

Lab Code	Result	±	Unit	Recovery	z-Score
A	16,6	1,7	µg/l	92%	-1,14
B			µg/l		
C	18,6	2,78	µg/l	103%	0,38
D			µg/l		
E	18,5	3,7	µg/l	102%	0,30
F	16,2	0,1	µg/l	90%	-1,44
G	14,0000 *	1,12000	µg/l	77%	-3,10
H	18,37		µg/l	101%	0,20
I	17,8	0,306	µg/l	98%	-0,23
J	15,1		µg/l	83%	-2,27
K	16,3	1,7	µg/l	90%	-1,36
L	17,7	4,4	µg/l	98%	-0,30
M	17,56	1,76	µg/l	97%	-0,41
N	19,9	4,00	µg/l	110%	1,36
O			µg/l		
P	17,7	2	µg/l	98%	-0,30
Q	17,7	2,66	µg/l	98%	-0,30
R	18,32	0,4	µg/l	101%	0,17
S	16,90		µg/l	93%	-0,91
T	17,22	0,374	µg/l	95%	-0,67
U	17,2	0,50	µg/l	95%	-0,68
V	18,13	1,8	µg/l	100%	0,02
W	16,9		µg/l	93%	-0,91
X	18,20	1,80	µg/l	101%	0,08
Y			µg/l		
Z			µg/l		
AA			µg/l		
AB			µg/l		
AC	15,4	1,07	µg/l	85%	-2,04

	All results	Outliers excl.	Unit
Mean ± CI(99%)	17,3 ± 0,8	17,4 ± 0,7	µg/l
Recov. ± CI(99%)	95,5 ± 4,4	96,4 ± 3,9	%
SD between labs	1,3	1,1	µg/l
RSD between labs	7,7	6,5	%
n for calculation	22	21	





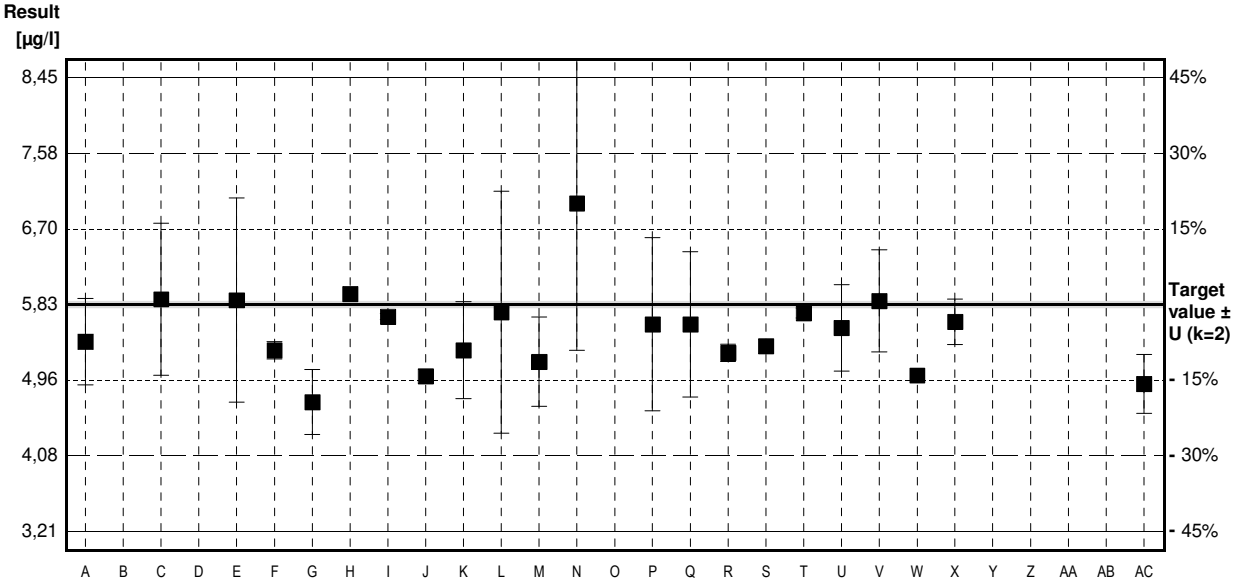
Sample M158B

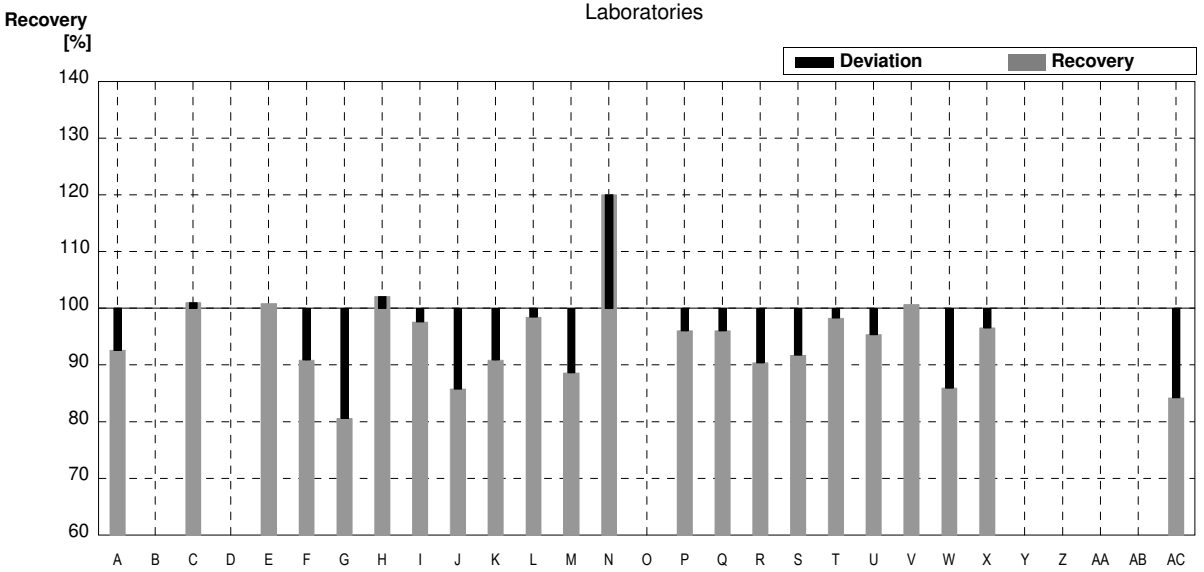
Parameter Lead

Target value ± U (k=2)	5,83 µg/l	±	0,04 µg/l
IFA result ± U (k=2)	5,73 µg/l	±	0,17 µg/l
Stability test	µg/l		

Lab Code	Result		±	Unit	Recovery	z-Score
A	5,4		0,5	µg/l	93%	-1,01
B				µg/l		
C	5,89		0,88	µg/l	101%	0,14
D				µg/l		
E	5,88		1,18	µg/l	101%	0,12
F	5,3		0,1	µg/l	91%	-1,25
G	4,7000		0,37600	µg/l	81%	-2,66
H	5,953			µg/l	102%	0,29
I	5,69		0,036	µg/l	98%	-0,33
J	5,0			µg/l	86%	-1,95
K	5,30		0,56	µg/l	91%	-1,25
L	5,74		1,4	µg/l	98%	-0,21
M	5,168		0,517	µg/l	89%	-1,56
N	7,0	*	1,70	µg/l	120%	2,75
O				µg/l		
P	5,6		1	µg/l	96%	-0,54
Q	5,6		0,84	µg/l	96%	-0,54
R	5,27		0,1	µg/l	90%	-1,32
S	5,349			µg/l	92%	-1,13
T	5,73		0,0566	µg/l	98%	-0,23
U	5,56		0,50	µg/l	95%	-0,63
V	5,87		0,59	µg/l	101%	0,09
W	5,01			µg/l	86%	-1,93
X	5,63		0,263	µg/l	97%	-0,47
Y				µg/l		
Z				µg/l		
AA				µg/l		
AB				µg/l		
AC	4,91		0,340	µg/l	84%	-2,16

	All results	Outliers excl.	Unit
Mean ± CI(99%)	5,53 ± 0,29	5,45 ± 0,22	µg/l
Recov. ± CI(99%)	94,8 ± 5,0	93,6 ± 3,8	%
SD between labs	0,48	0,36	µg/l
RSD between labs	8,7	6,5	%
n for calculation	22	21	





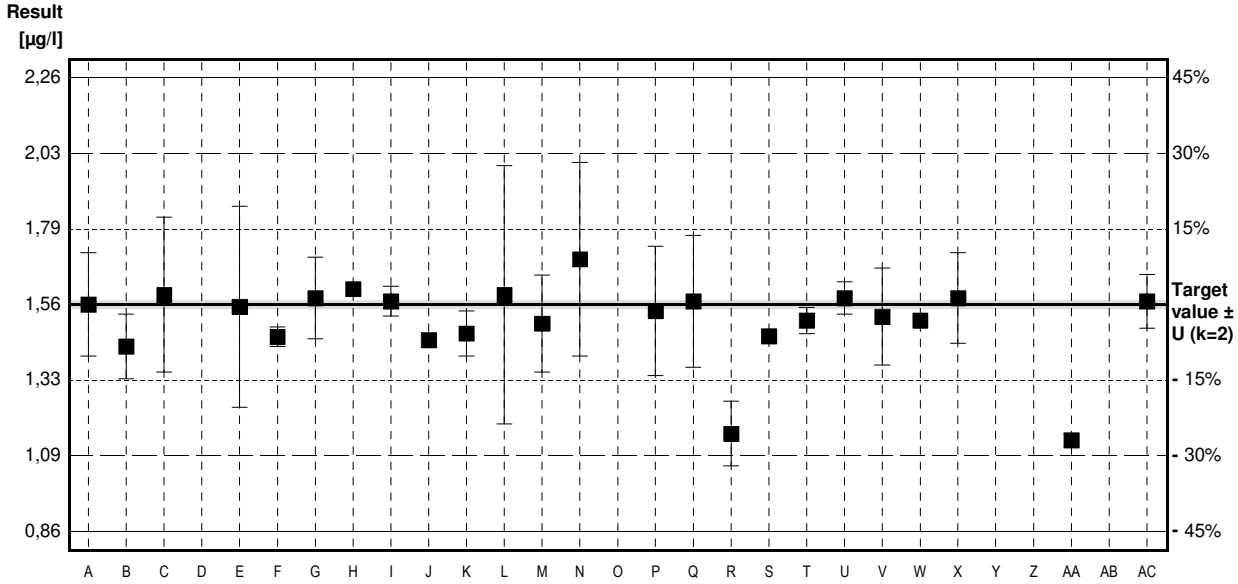
Sample M158A

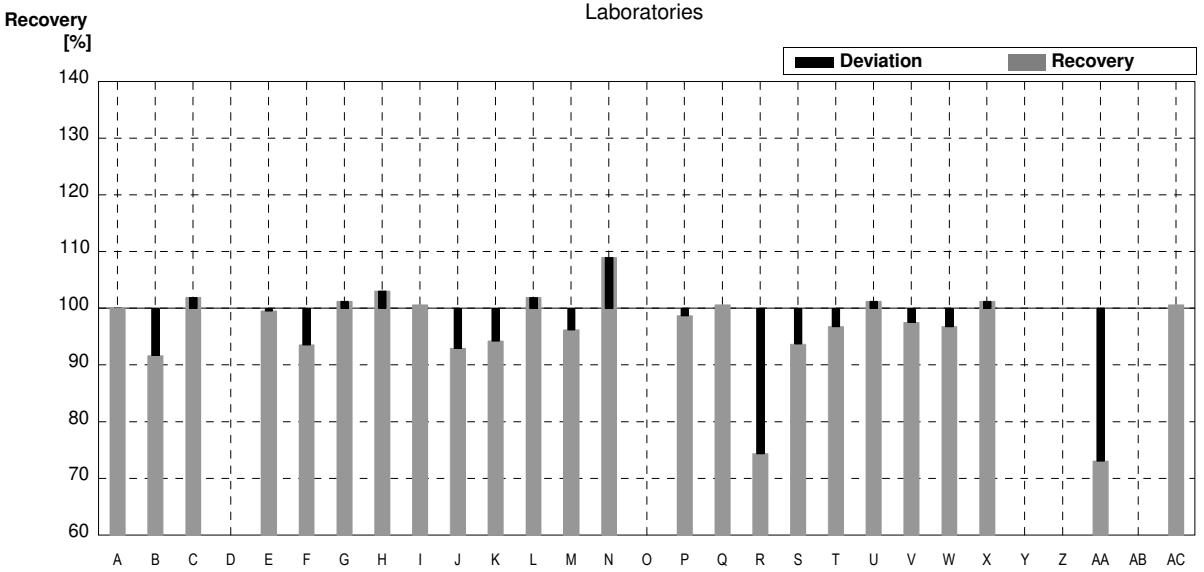
Parameter Cadmium

Target value ± U (k=2)	1,56 µg/l	±	0,01 µg/l	
IFA result ± U (k=2)	1,55 µg/l	±	0,09 µg/l	
Stability test	µg/l			

Lab Code	Result		±	Unit	Recovery	z-Score
A	1,56		0,16	µg/l	100%	0,00
B	1,43		0,1	µg/l	92%	-1,49
C	1,59		0,24	µg/l	102%	0,34
D				µg/l		
E	1,553		0,311	µg/l	100%	-0,08
F	1,46		0,03	µg/l	94%	-1,14
G	1,58000		0,12640	µg/l	101%	0,23
H	1,608			µg/l	103%	0,55
I	1,57		0,046	µg/l	101%	0,11
J	1,45			µg/l	93%	-1,26
K	1,47		0,07	µg/l	94%	-1,03
L	1,59		0,40	µg/l	102%	0,34
M	1,501		0,150	µg/l	96%	-0,68
N	1,70		0,300	µg/l	109%	1,60
O				µg/l		
P	1,54		0,2	µg/l	99%	-0,23
Q	1,57		0,204	µg/l	101%	0,11
R	1,16	*	0,1	µg/l	74%	-4,58
S	1,462			µg/l	94%	-1,12
T	1,51		0,0404	µg/l	97%	-0,57
U	1,58		0,05	µg/l	101%	0,23
V	1,522		0,15	µg/l	98%	-0,43
W	1,51			µg/l	97%	-0,57
X	1,58		0,14	µg/l	101%	0,23
Y				µg/l		
Z				µg/l		
AA	1,14	*	0,02	µg/l	73%	-4,81
AB				µg/l		
AC	1,57		0,083	µg/l	101%	0,11

	All results	Outliers excl.	Unit
Mean ± CI(99%)	1,51 ± 0,07	1,54 ± 0,04	µg/l
Recov. ± CI(99%)	96,7 ± 4,6	98,8 ± 2,5	%
SD between labs	0,13	0,06	µg/l
RSD between labs	8,4	4,1	%
n for calculation	24	22	



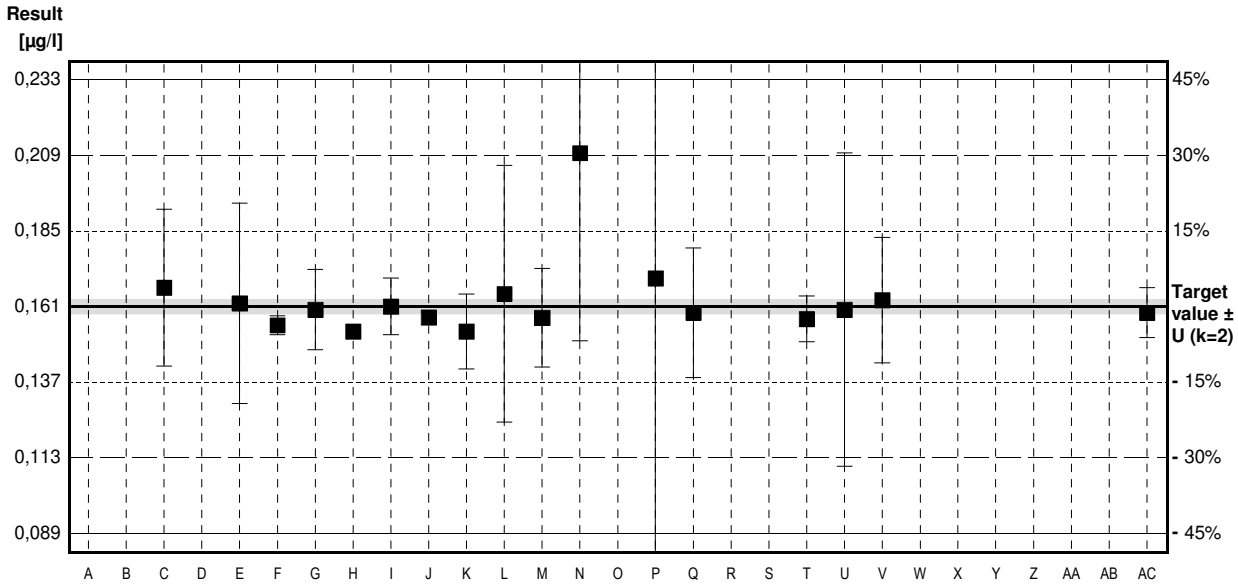


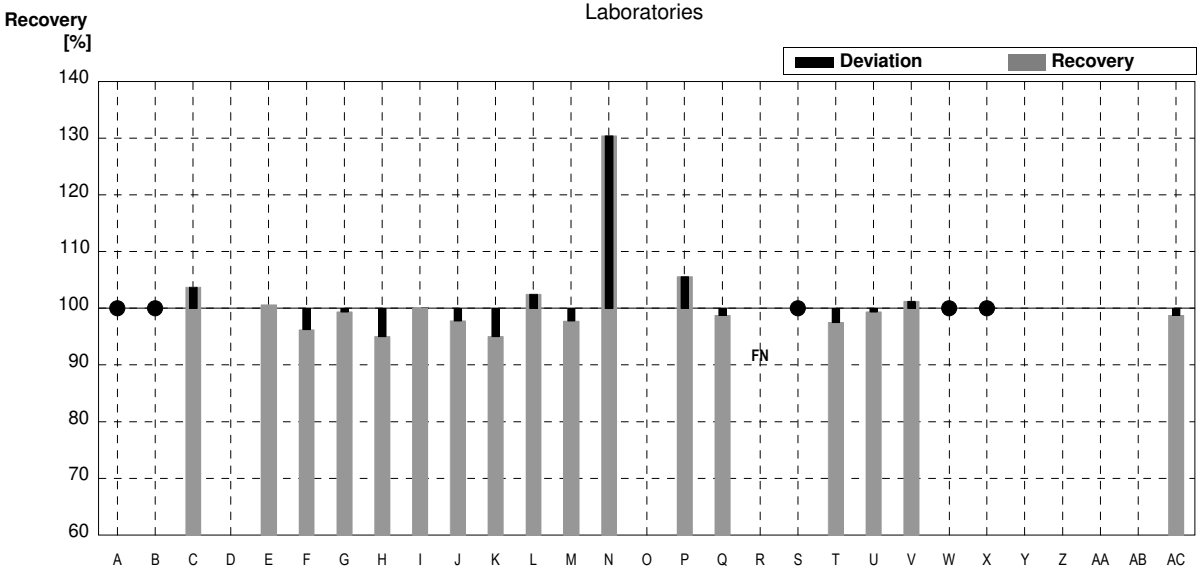
Sample M158B
Parameter Cadmium

Target value ± U (k=2) 0,161 µg/l ± 0,002 µg/l
IFA result ± U (k=2) 0,161 µg/l ± 0,010 µg/l
Stability test µg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	<0,2		µg/l	•	
B	<0,4		µg/l	•	
C	0,167	0,025	µg/l	104%	0,67
D			µg/l		
E	0,162	0,032	µg/l	101%	0,11
F	0,155	0,003	µg/l	96%	-0,67
G	0,1600	0,01280	µg/l	99%	-0,11
H	0,153		µg/l	95%	-0,89
I	0,161	0,009	µg/l	100%	0,00
J	0,1575		µg/l	98%	-0,39
K	0,153	0,012	µg/l	95%	-0,89
L	0,165	0,041	µg/l	102%	0,44
M	0,1574	0,0157	µg/l	98%	-0,40
N	0,210 *	0,0600	µg/l	130%	5,43
O			µg/l		
P	0,170	0,1	µg/l	106%	1,00
Q	0,159	0,0207	µg/l	99%	-0,22
R	<0,1		µg/l	FN	
S	<0,50		µg/l	•	
T	0,157	0,00729	µg/l	98%	-0,44
U	0,160	0,05	µg/l	99%	-0,11
V	0,163	0,02	µg/l	101%	0,22
W	<0,2		µg/l	•	
X	<0,45		µg/l	•	
Y			µg/l		
Z			µg/l		
AA			µg/l		
AB			µg/l		
AC	0,159	0,008	µg/l	99%	-0,22

	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,163 ± 0,009	0,160 ± 0,003	µg/l
Recov. ± CI(99%)	101,2 ± 5,7	99,3 ± 2,2	%
SD between labs	0,013	0,005	µg/l
RSD between labs	8,0	3,0	%
n for calculation	17	16	



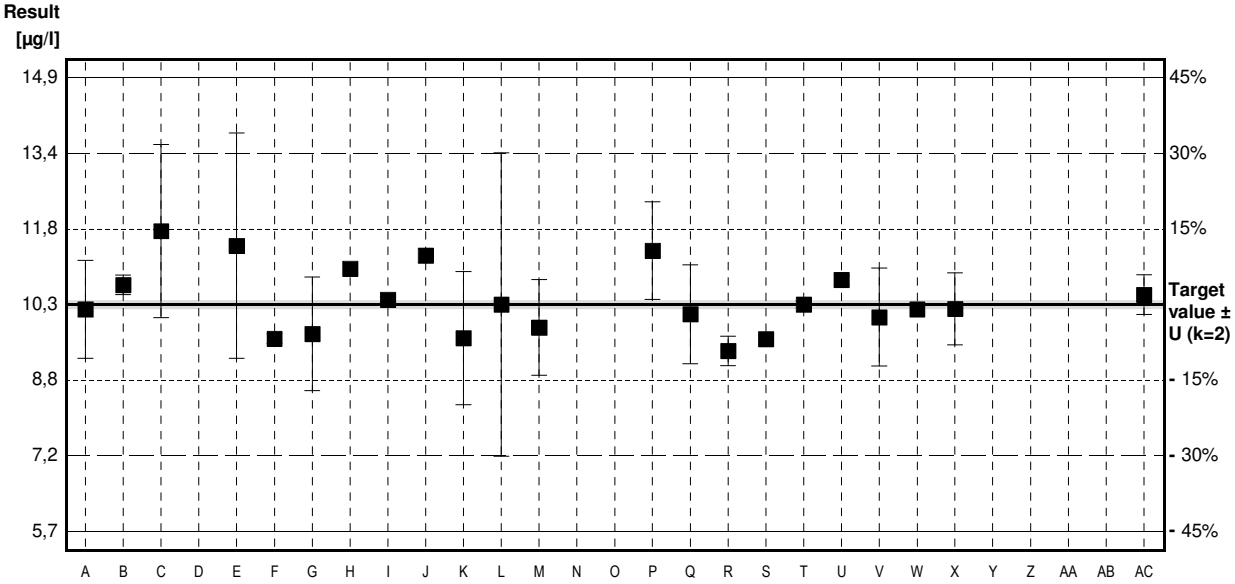


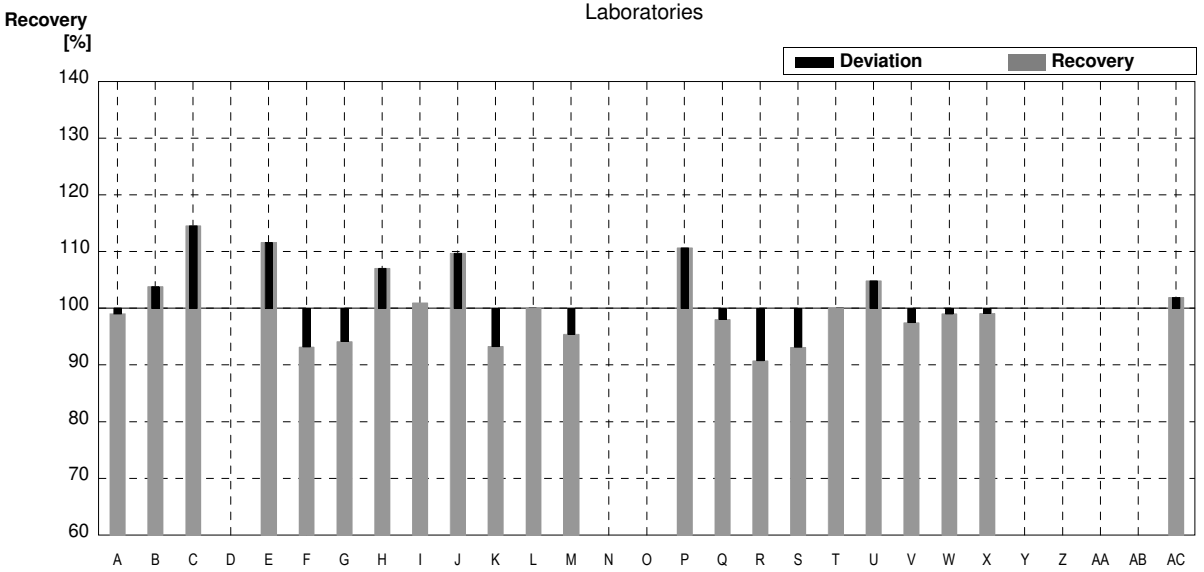
Sample M158A
Parameter Chromium

Target value ± U (k=2)	10,3	µg/l	±	0,1	µg/l
IFA result ± U (k=2)	10,2	µg/l	±	0,3	µg/l
Stability test		µg/l			

Lab Code	Result	±	Unit	Recovery	z-Score
A	10,2	1,0	µg/l	99%	-0,15
B	10,7	0,2	µg/l	104%	0,59
C	11,8	1,77	µg/l	115%	2,21
D			µg/l		
E	11,5	2,3	µg/l	112%	1,77
F	9,6	0,1	µg/l	93%	-1,03
G	9,7000	1,16400	µg/l	94%	-0,88
H	11,03		µg/l	107%	1,07
I	10,4	0,058	µg/l	101%	0,15
J	11,3		µg/l	110%	1,47
K	9,61	1,36	µg/l	93%	-1,02
L	10,3	3,1	µg/l	100%	0,00
M	9,83	0,98	µg/l	95%	-0,69
N			µg/l		
O			µg/l		
P	11,4	1	µg/l	111%	1,62
Q	10,1	1,01	µg/l	98%	-0,29
R	9,35	0,3	µg/l	91%	-1,40
S	9,595		µg/l	93%	-1,04
T	10,3	0,072	µg/l	100%	0,00
U	10,8	0,10	µg/l	105%	0,74
V	10,04	1	µg/l	97%	-0,38
W	10,2		µg/l	99%	-0,15
X	10,21	0,736	µg/l	99%	-0,13
Y			µg/l		
Z			µg/l		
AA			µg/l		
AB			µg/l		
AC	10,5	0,407	µg/l	102%	0,29

	All results	Outliers excl.	Unit
Mean ± CI(99%)	10,4 ± 0,4	10,4 ± 0,4	µg/l
Recov. ± CI(99%)	100,8 ± 4,0	100,8 ± 4,0	%
SD between labs	0,7	0,7	µg/l
RSD between labs	6,6	6,6	%
n for calculation	22	22	





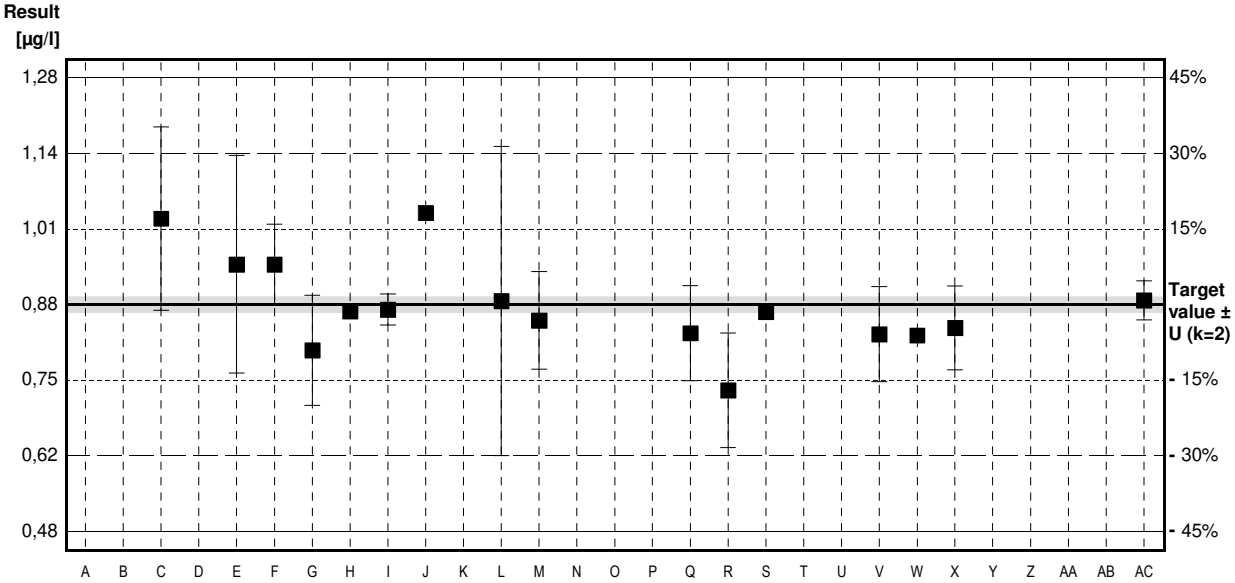
Sample M158B

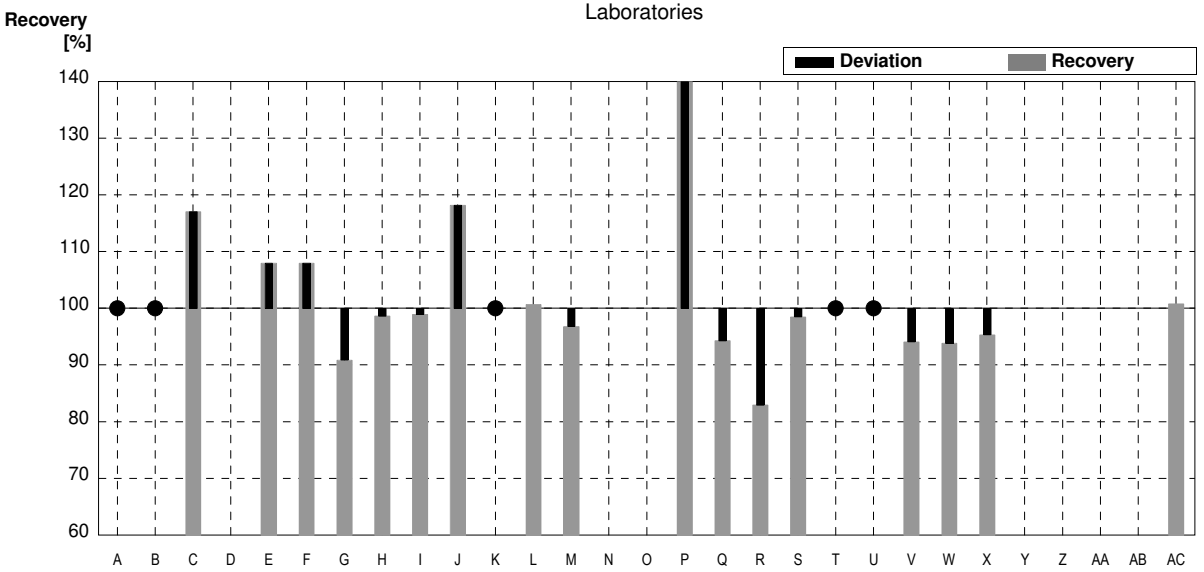
Parameter Chromium

Target value ± U (k=2)	0,88	µg/l	±	0,01	µg/l
IFA result ± U (k=2)	0,88	µg/l	±	0,05	µg/l
Stability test		µg/l			

Lab Code	Result	±	Unit	Recovery	z-Score
A	<1		µg/l	•	
B	<5		µg/l	•	
C	1,03	0,16	µg/l	117%	2,58
D			µg/l		
E	0,95	0,19	µg/l	108%	1,21
F	0,95	0,07	µg/l	108%	1,21
G	0,80000	0,09600	µg/l	91%	-1,38
H	0,868		µg/l	99%	-0,21
I	0,871	0,027	µg/l	99%	-0,15
J	1,04		µg/l	118%	2,75
K	<1		µg/l	•	
L	0,886	0,27	µg/l	101%	0,10
M	0,8520	0,0852	µg/l	97%	-0,48
N			µg/l		
O			µg/l		
P	1,33 *	1	µg/l	151%	7,75
Q	0,83	0,083	µg/l	94%	-0,86
R	0,73	0,1	µg/l	83%	-2,58
S	0,867		µg/l	99%	-0,22
T	<1,00		µg/l	•	
U	<2,00		µg/l	•	
V	0,828	0,083	µg/l	94%	-0,90
W	0,826		µg/l	94%	-0,93
X	0,839	0,073	µg/l	95%	-0,71
Y			µg/l		
Z			µg/l		
AA			µg/l		
AB			µg/l		
AC	0,887	0,034	µg/l	101%	0,12

	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,90 ± 0,10	0,88 ± 0,06	µg/l
Recov. ± CI(99%)	102,8 ± 10,8	99,8 ± 6,8	%
SD between labs	0,13	0,08	µg/l
RSD between labs	14,9	9,2	%
n for calculation	17	16	





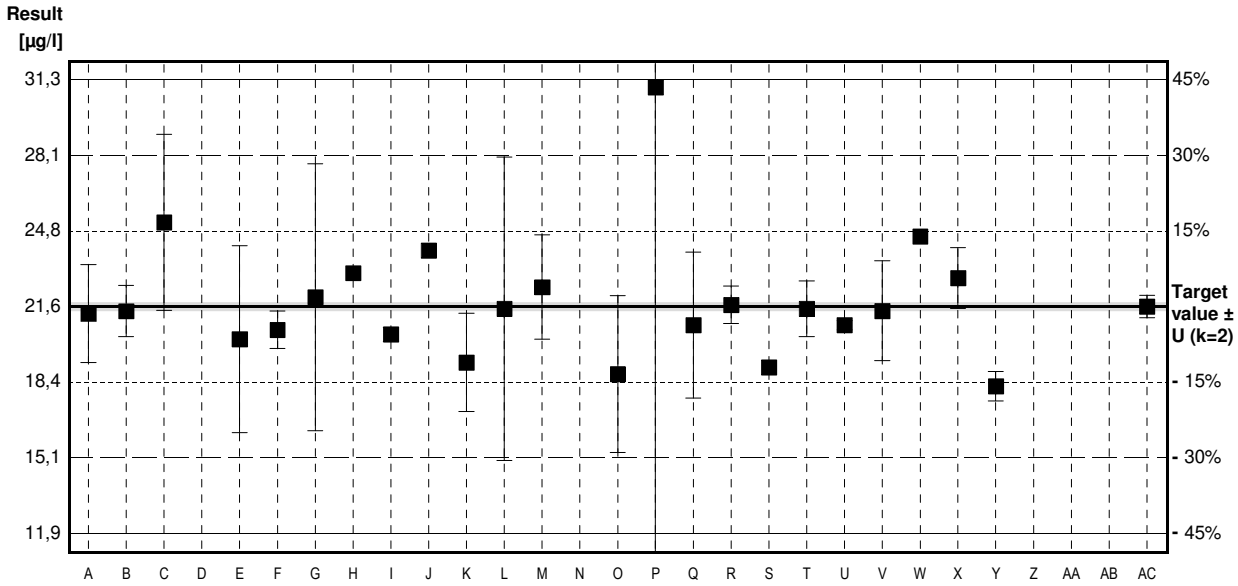
Sample M158A

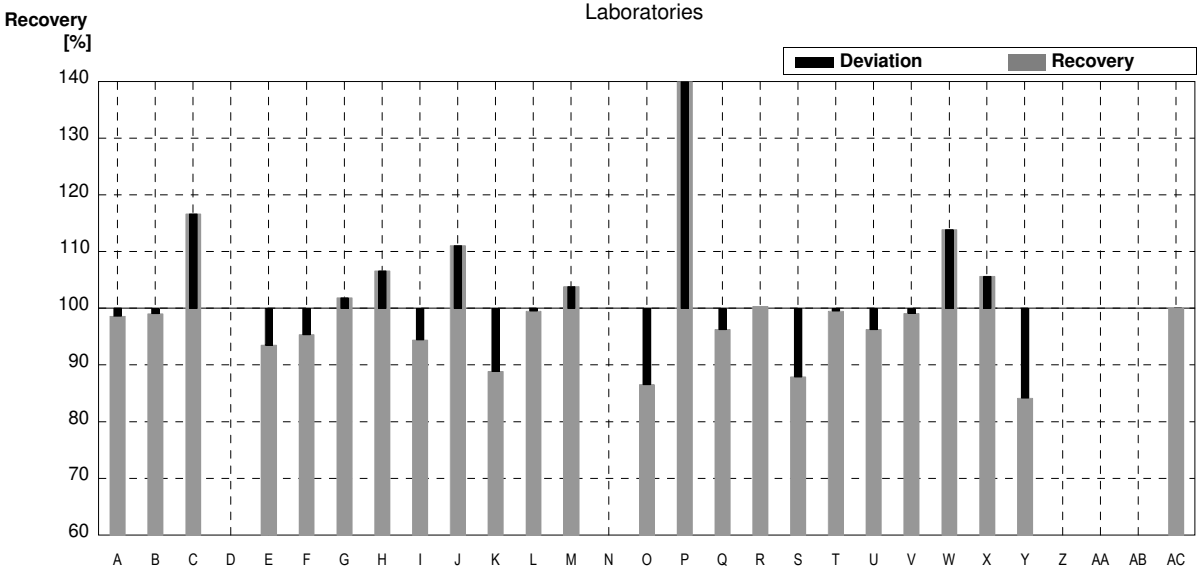
Parameter Iron

Target value ± U (k=2)	21,6 µg/l	±	0,2 µg/l	
IFA result ± U (k=2)	21,2 µg/l	±	1,7 µg/l	
Stability test	µg/l			

Lab Code	Result	±	Unit	Recovery	z-Score
A	21,3	2,1	µg/l	99%	-0,20
B	21,4	1,1	µg/l	99%	-0,14
C	25,2	3,77	µg/l	117%	2,45
D			µg/l		
E	20,2	4,0	µg/l	94%	-0,95
F	20,6	0,8	µg/l	95%	-0,68
G	22,0000	5,72000	µg/l	102%	0,27
H	23,03		µg/l	107%	0,97
I	20,4	0,306	µg/l	94%	-0,82
J	24,0		µg/l	111%	1,63
K	19,2	2,1	µg/l	89%	-1,63
L	21,5	6,5	µg/l	100%	-0,07
M	22,43	2,24	µg/l	104%	0,57
N			µg/l		
O	18,7	3,366	µg/l	87%	-1,97
P	31,0 *	30	µg/l	144%	6,40
Q	20,8	3,13	µg/l	96%	-0,54
R	21,67	0,8	µg/l	100%	0,05
S	18,99		µg/l	88%	-1,78
T	21,5	1,19	µg/l	100%	-0,07
U	20,8	0,2	µg/l	96%	-0,54
V	21,41	2,14	µg/l	99%	-0,13
W	24,6		µg/l	114%	2,04
X	22,82	1,30	µg/l	106%	0,83
Y	18,18	0,63	µg/l	84%	-2,33
Z			µg/l		
AA			µg/l		
AB			µg/l		
AC	21,6	0,480	µg/l	100%	0,00

	All results	Outliers excl.	Unit
Mean ± CI(99%)	21,8 ± 1,5	21,4 ± 1,0	µg/l
Recov. ± CI(99%)	101,0 ± 7,0	99,1 ± 4,8	%
SD between labs	2,6	1,8	µg/l
RSD between labs	12,0	8,3	%
n for calculation	24	23	





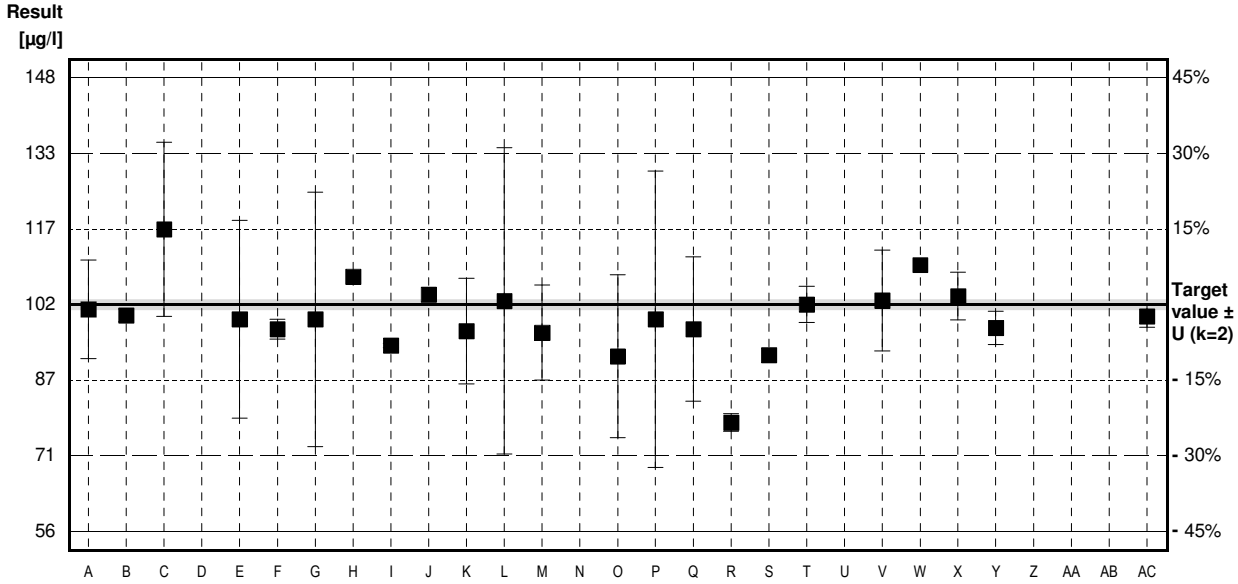
Sample M158B

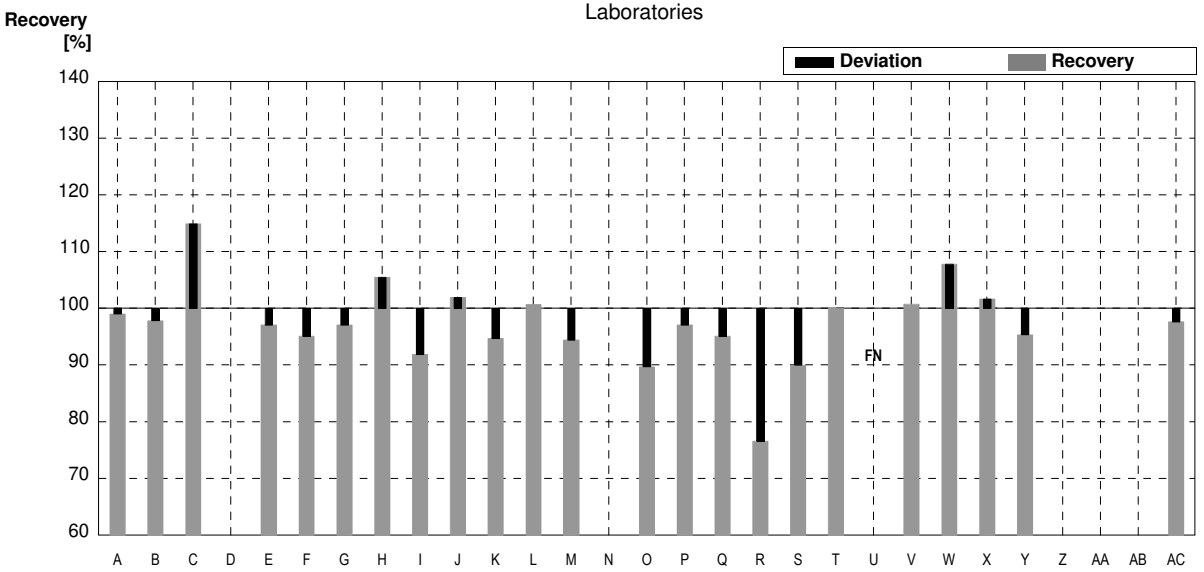
Parameter Iron

Target value ± U (k=2)	102 µg/l	±	1 µg/l
IFA result ± U (k=2)	99,9 µg/l	±	7,0 µg/l
Stability test	µg/l		

Lab Code	Result		±	Unit	Recovery	z-Score
A	101		10	µg/l	99%	-0,14
B	99,8		1,3	µg/l	98%	-0,32
C	117,2	*	17,6	µg/l	115%	2,19
D				µg/l		
E	99		20	µg/l	97%	-0,43
F	97		2	µg/l	95%	-0,72
G	99,000		25,7400	µg/l	97%	-0,43
H	107,6			µg/l	105%	0,81
I	93,7		0,473	µg/l	92%	-1,20
J	104			µg/l	102%	0,29
K	96,6		10,7	µg/l	95%	-0,78
L	102,7		31	µg/l	101%	0,10
M	96,3		9,63	µg/l	94%	-0,82
N				µg/l		
O	91,5		16,470	µg/l	90%	-1,51
P	99		30	µg/l	97%	-0,43
Q	97		14,6	µg/l	95%	-0,72
R	78,1	*	1,75	µg/l	77%	-3,45
S	91,78			µg/l	90%	-1,47
T	102		3,69	µg/l	100%	0,00
U	<10			µg/l	FN	
V	102,8		10,2	µg/l	101%	0,12
W	110			µg/l	108%	1,15
X	103,7		4,81	µg/l	102%	0,25
Y	97,25		3,38	µg/l	95%	-0,68
Z				µg/l		
AA				µg/l		
AB				µg/l		
AC	99,6		2,21	µg/l	98%	-0,35

	All results	Outliers excl.	Unit
Mean ± CI(99%)	99 ± 4	100 ± 3	µg/l
Recov. ± CI(99%)	97,5 ± 4,3	97,6 ± 2,9	%
SD between labs	7	5	µg/l
RSD between labs	7,5	4,7	%
n for calculation	23	21	



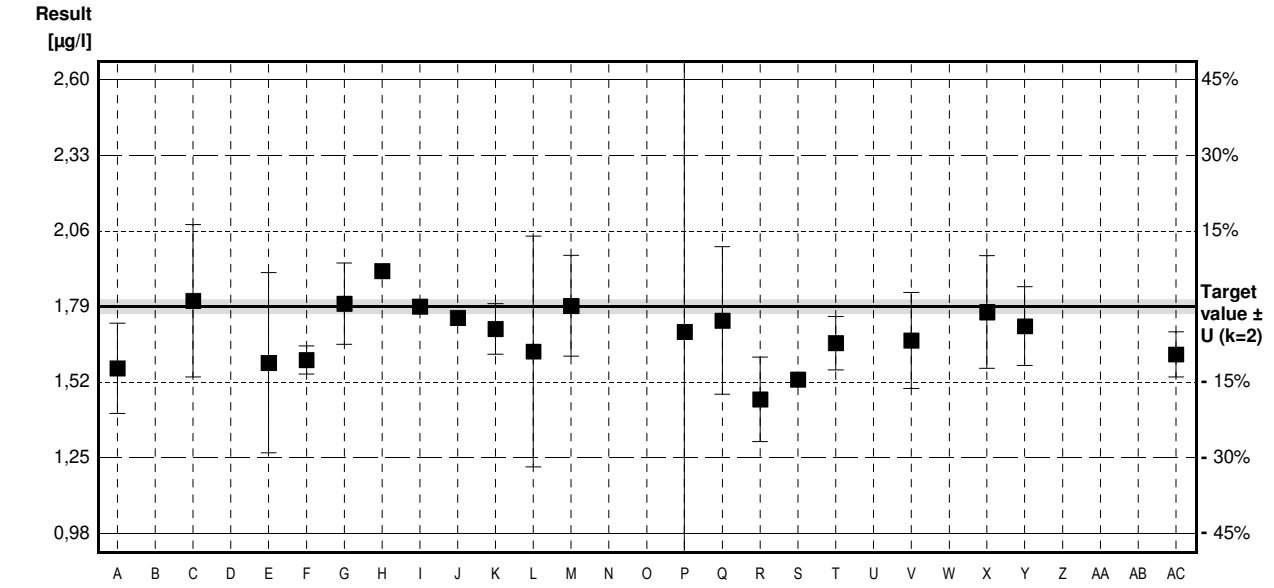


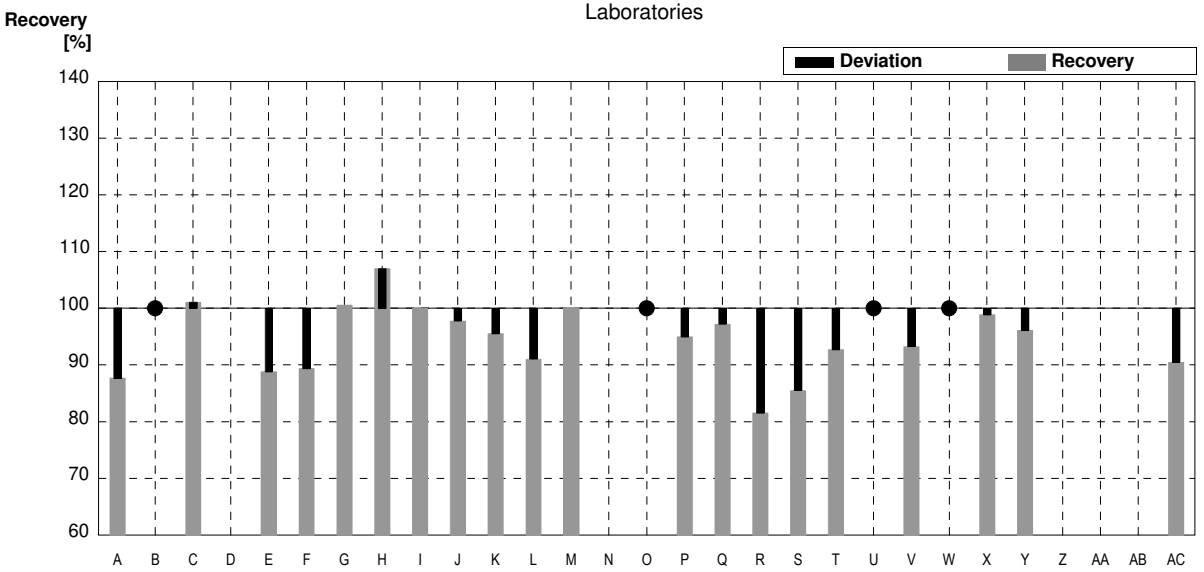
Sample M158A
Parameter Copper

Target value ± U (k=2)	1,79 µg/l	±	0,02 µg/l	
IFA result ± U (k=2)	1,77 µg/l	±	0,12 µg/l	
Stability test	µg/l			

Lab Code	Result	±	Unit	Recovery	z-Score
A	1,57	0,16	µg/l	88%	-1,45
B	<5		µg/l	•	
C	1,81	0,27	µg/l	101%	0,13
D			µg/l		
E	1,59	0,32	µg/l	89%	-1,31
F	1,60	0,05	µg/l	89%	-1,25
G	1,80000	0,14400	µg/l	101%	0,07
H	1,916		µg/l	107%	0,83
I	1,79	0,023	µg/l	100%	0,00
J	1,75		µg/l	98%	-0,26
K	1,71	0,09	µg/l	96%	-0,53
L	1,63	0,41	µg/l	91%	-1,05
M	1,792	0,179	µg/l	100%	0,01
N			µg/l		
O	<10		µg/l	•	
P	1,70	1	µg/l	95%	-0,59
Q	1,74	0,262	µg/l	97%	-0,33
R	1,46	0,15	µg/l	82%	-2,17
S	1,531		µg/l	86%	-1,70
T	1,66	0,0950	µg/l	93%	-0,85
U	<2,00		µg/l	•	
V	1,669	0,17	µg/l	93%	-0,80
W	<5,0		µg/l	•	
X	1,77	0,20	µg/l	99%	-0,13
Y	1,72	0,14	µg/l	96%	-0,46
Z			µg/l		
AA			µg/l		
AB			µg/l		
AC	1,62	0,080	µg/l	91%	-1,12

	All results	Outliers excl.	Unit
Mean ± CI(99%)	1,69 ± 0,07	1,69 ± 0,07	µg/l
Recov. ± CI(99%)	94,5 ± 4,0	94,5 ± 4,0	%
SD between labs	0,11	0,11	µg/l
RSD between labs	6,5	6,5	%
n for calculation	20	20	



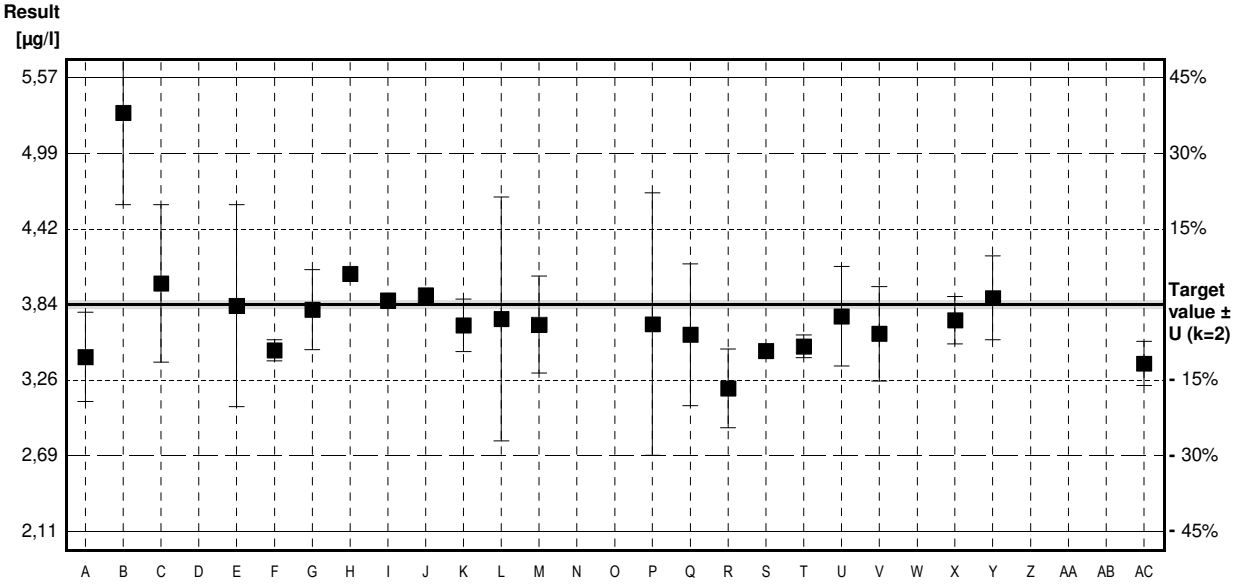


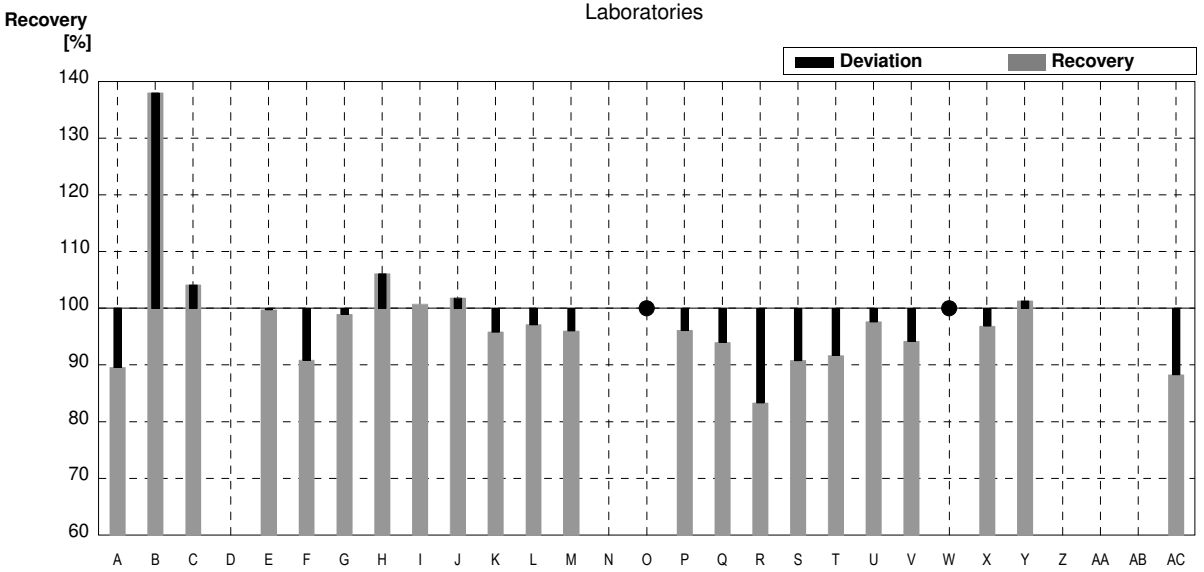
Sample M158B
Parameter Copper

Target value ± U (k=2)	3,84	µg/l	±	0,03	µg/l
IFA result ± U (k=2)	3,78	µg/l	±	0,19	µg/l
Stability test		µg/l			

Lab Code	Result	±	Unit	Recovery	z-Score
A	3,44	0,34	µg/l	90%	-1,23
B	5,3 *	0,7	µg/l	138%	4,47
C	4,00	0,60	µg/l	104%	0,49
D			µg/l		
E	3,83	0,77	µg/l	100%	-0,03
F	3,49	0,08	µg/l	91%	-1,07
G	3,80000	0,30400	µg/l	99%	-0,12
H	4,074		µg/l	106%	0,72
I	3,87	0,012	µg/l	101%	0,09
J	3,91		µg/l	102%	0,21
K	3,68	0,20	µg/l	96%	-0,49
L	3,73	0,93	µg/l	97%	-0,34
M	3,687	0,369	µg/l	96%	-0,47
N			µg/l		
O	<10		µg/l	•	
P	3,69	1	µg/l	96%	-0,46
Q	3,61	0,54	µg/l	94%	-0,70
R	3,20	0,3	µg/l	83%	-1,96
S	3,487		µg/l	91%	-1,08
T	3,52	0,0866	µg/l	92%	-0,98
U	3,75	0,38	µg/l	98%	-0,28
V	3,617	0,36	µg/l	94%	-0,68
W	<5,0		µg/l	•	
X	3,72	0,18	µg/l	97%	-0,37
Y	3,89	0,32	µg/l	101%	0,15
Z			µg/l		
AA			µg/l		
AB			µg/l		
AC	3,39	0,168	µg/l	88%	-1,38

	All results	Outliers excl.	Unit
Mean ± CI(99%)	3,76 ± 0,24	3,69 ± 0,13	µg/l
Recov. ± CI(99%)	97,9 ± 6,3	96,0 ± 3,5	%
SD between labs	0,40	0,21	µg/l
RSD between labs	10,7	5,8	%
n for calculation	22	21	





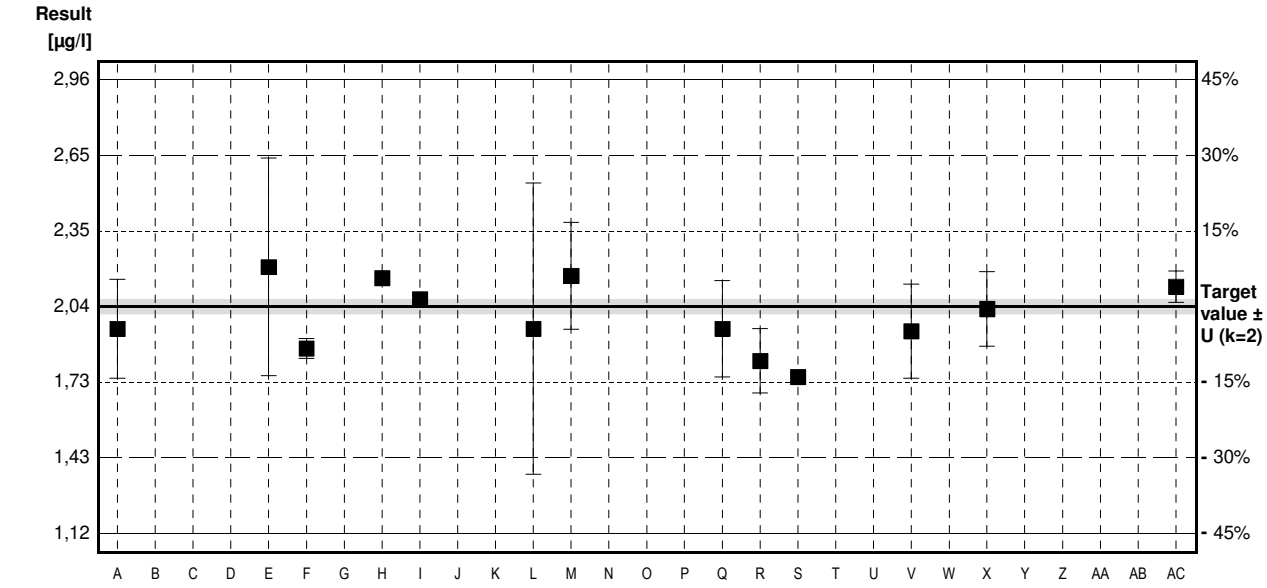
Sample M158A

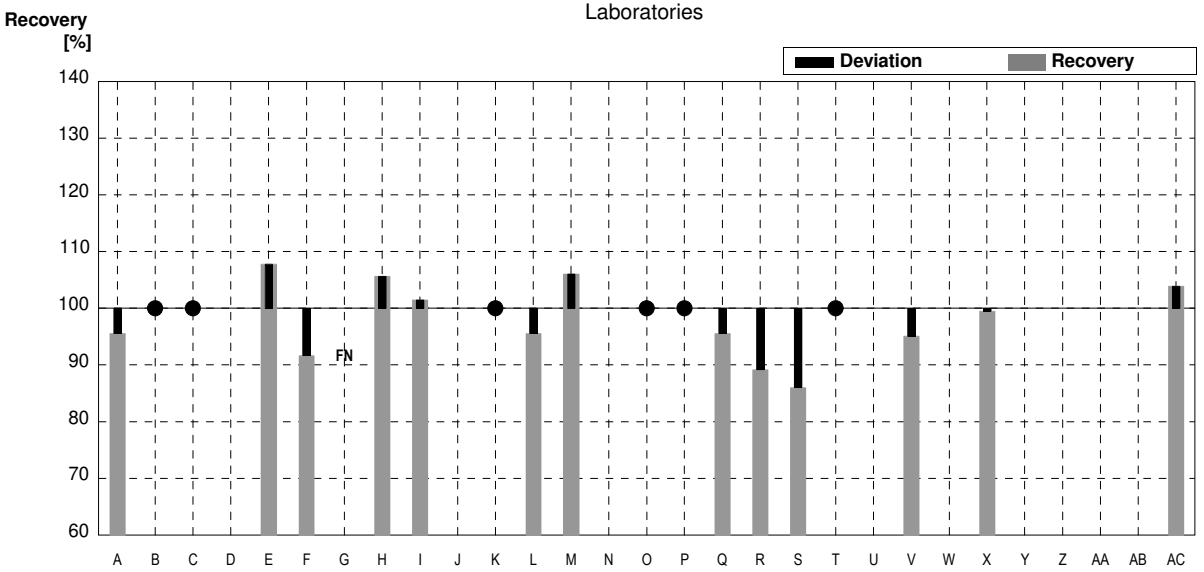
Parameter Manganese

Target value ± U (k=2)	2,04 µg/l	±	0,03 µg/l	
IFA result ± U (k=2)	2,07 µg/l	±	0,14 µg/l	
Stability test	µg/l			

Lab Code	Result	±	Unit	Recovery	z-Score
A	1,95	0,20	µg/l	96%	-0,82
B	<4		µg/l	•	
C	<5		µg/l	•	
D			µg/l		
E	2,20	0,44	µg/l	108%	1,45
F	1,87	0,04	µg/l	92%	-1,54
G	<2,00		µg/l	FN	
H	2,155		µg/l	106%	1,04
I	2,07	0,015	µg/l	101%	0,27
J			µg/l		
K	<5		µg/l	•	
L	1,95	0,59	µg/l	96%	-0,82
M	2,164	0,216	µg/l	106%	1,13
N			µg/l		
O	<10		µg/l	•	
P	<20		µg/l	•	
Q	1,95	0,195	µg/l	96%	-0,82
R	1,82	0,13	µg/l	89%	-2,00
S	1,755		µg/l	86%	-2,59
T	<10,0		µg/l	•	
U			µg/l		
V	1,940	0,19	µg/l	95%	-0,91
W			µg/l		
X	2,03	0,151	µg/l	100%	-0,09
Y			µg/l		
Z			µg/l		
AA			µg/l		
AB			µg/l		
AC	2,12	0,064	µg/l	104%	0,73

	All results	Outliers excl.	Unit
Mean ± CI(99%)	2,00 ± 0,12	2,00 ± 0,12	µg/l
Recov. ± CI(99%)	97,9 ± 5,8	97,9 ± 5,8	%
SD between labs	0,14	0,14	µg/l
RSD between labs	7,0	7,0	%
n for calculation	13	13	





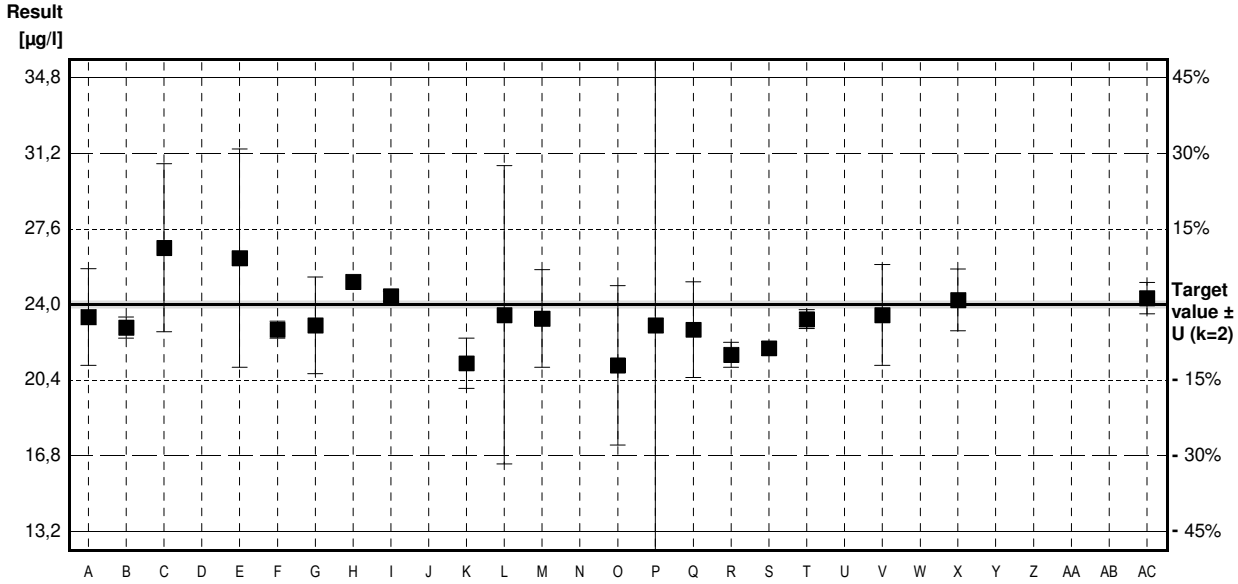
Sample M158B

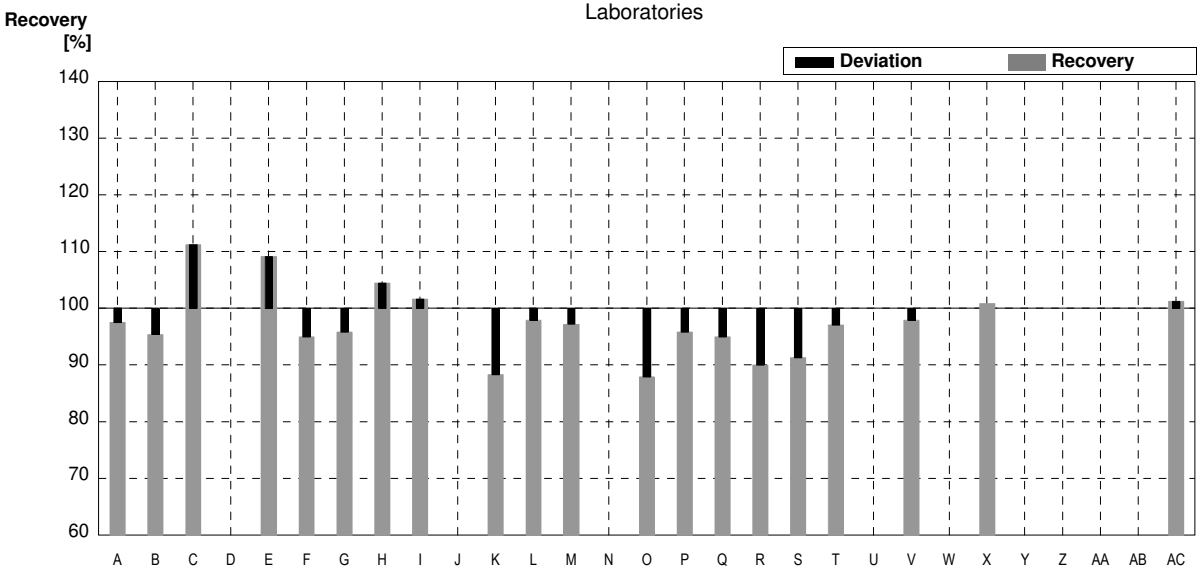
Parameter Manganese

Target value ± U (k=2)	24,0	µg/l	±	0,2	µg/l
IFA result ± U (k=2)	24,0	µg/l	±	1,7	µg/l
Stability test		µg/l			

Lab Code	Result		±	Unit	Recovery	z-Score
A	23,4		2,3	µg/l	98%	-0,46
B	22,9		0,5	µg/l	95%	-0,85
C	26,7	*	4,00	µg/l	111%	2,08
D				µg/l		
E	26,2		5,2	µg/l	109%	1,70
F	22,8		0,4	µg/l	95%	-0,93
G	23,0000		2,30000	µg/l	96%	-0,77
H	25,08			µg/l	105%	0,83
I	24,4		0,231	µg/l	102%	0,31
J				µg/l		
K	21,2		1,2	µg/l	88%	-2,16
L	23,5		7,1	µg/l	98%	-0,39
M	23,33		2,33	µg/l	97%	-0,52
N				µg/l		
O	21,1		3,798	µg/l	88%	-2,24
P	23,0		15	µg/l	96%	-0,77
Q	22,8		2,28	µg/l	95%	-0,93
R	21,6		0,6	µg/l	90%	-1,85
S	21,92			µg/l	91%	-1,60
T	23,3		0,451	µg/l	97%	-0,54
U				µg/l		
V	23,5		2,4	µg/l	98%	-0,39
W				µg/l		
X	24,21		1,47	µg/l	101%	0,16
Y				µg/l		
Z				µg/l		
AA				µg/l		
AB				µg/l		
AC	24,3		0,739	µg/l	101%	0,23

	All results	Outliers excl.	Unit
Mean ± CI(99%)	23,4 ± 0,9	23,2 ± 0,8	µg/l
Recov. ± CI(99%)	97,6 ± 3,9	96,8 ± 3,5	%
SD between labs	1,5	1,3	µg/l
RSD between labs	6,3	5,5	%
n for calculation	20	19	





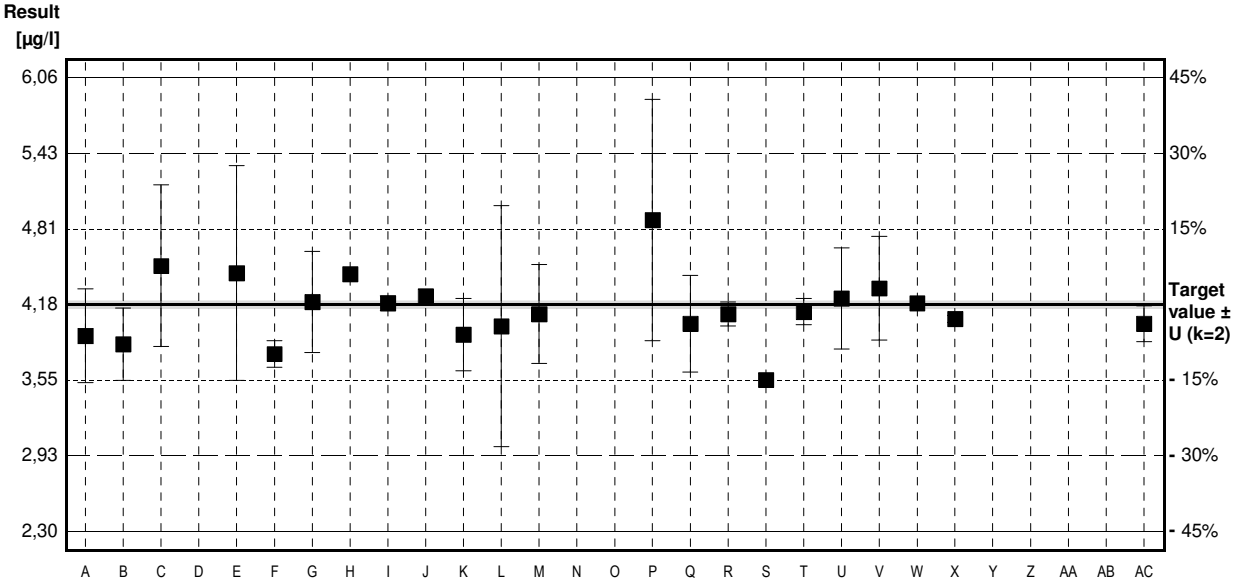
Sample M158A

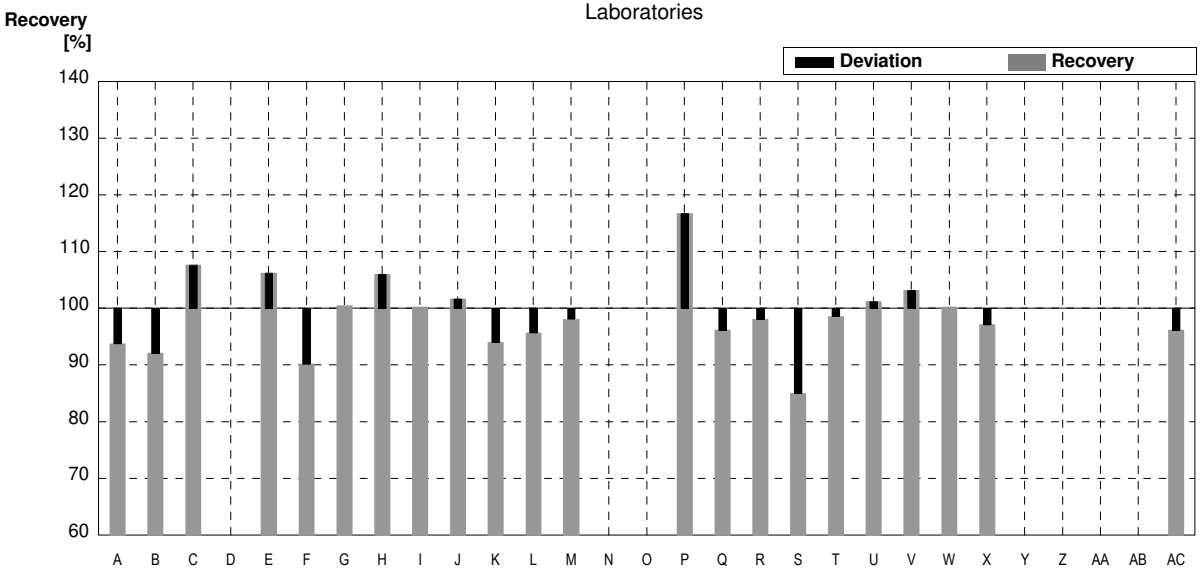
Parameter Nickel

Target value ± U (k=2)	4,18 µg/l	±	0,03 µg/l	
IFA result ± U (k=2)	4,13 µg/l	±	0,17 µg/l	
Stability test	µg/l			

Lab Code	Result	±	Unit	Recovery	z-Score
A	3,92	0,39	µg/l	94%	-0,78
B	3,85	0,3	µg/l	92%	-0,99
C	4,50	0,67	µg/l	108%	0,96
D			µg/l		
E	4,44	0,89	µg/l	106%	0,78
F	3,77	0,11	µg/l	90%	-1,23
G	4,20000	0,42000	µg/l	100%	0,06
H	4,431		µg/l	106%	0,75
I	4,19	0,062	µg/l	100%	0,03
J	4,25		µg/l	102%	0,21
K	3,93	0,30	µg/l	94%	-0,75
L	4,00	1,0	µg/l	96%	-0,54
M	4,101	0,410	µg/l	98%	-0,24
N			µg/l		
O			µg/l		
P	4,88 *	1	µg/l	117%	2,09
Q	4,02	0,402	µg/l	96%	-0,48
R	4,10	0,1	µg/l	98%	-0,24
S	3,554		µg/l	85%	-1,87
T	4,12	0,109	µg/l	99%	-0,18
U	4,23	0,42	µg/l	101%	0,15
V	4,314	0,43	µg/l	103%	0,40
W	4,19		µg/l	100%	0,03
X	4,06	0,03	µg/l	97%	-0,36
Y			µg/l		
Z			µg/l		
AA			µg/l		
AB			µg/l		
AC	4,02	0,148	µg/l	96%	-0,48

	All results	Outliers excl.	Unit
Mean ± CI(99%)	4,14 ± 0,17	4,10 ± 0,14	µg/l
Recov. ± CI(99%)	99,0 ± 4,0	98,2 ± 3,4	%
SD between labs	0,28	0,23	µg/l
RSD between labs	6,7	5,6	%
n for calculation	22	21	





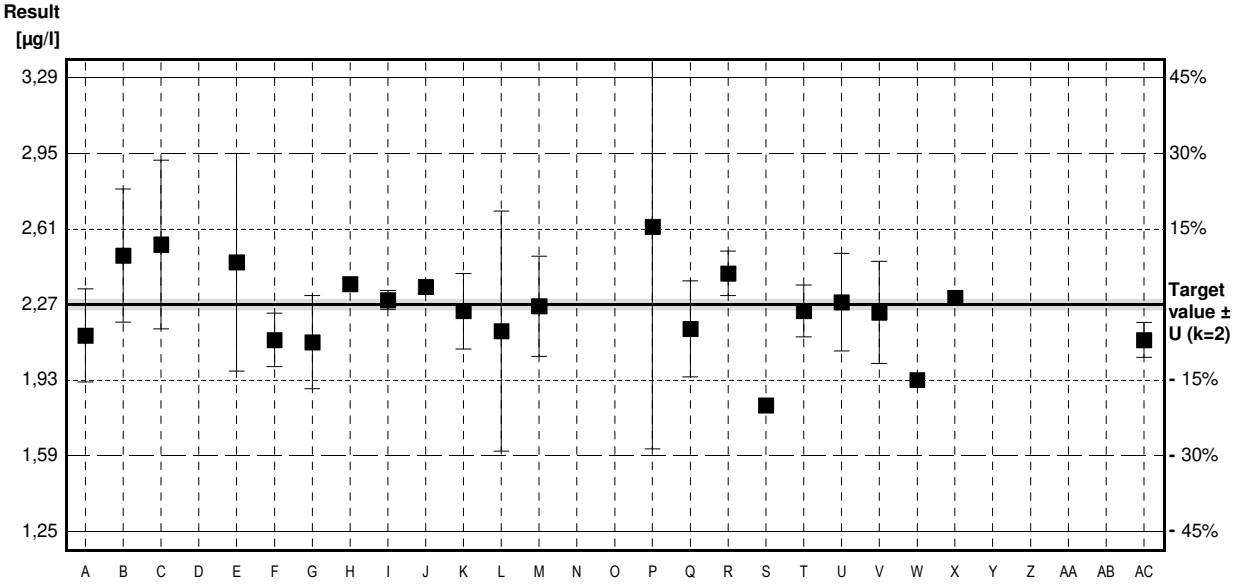
Sample M158B

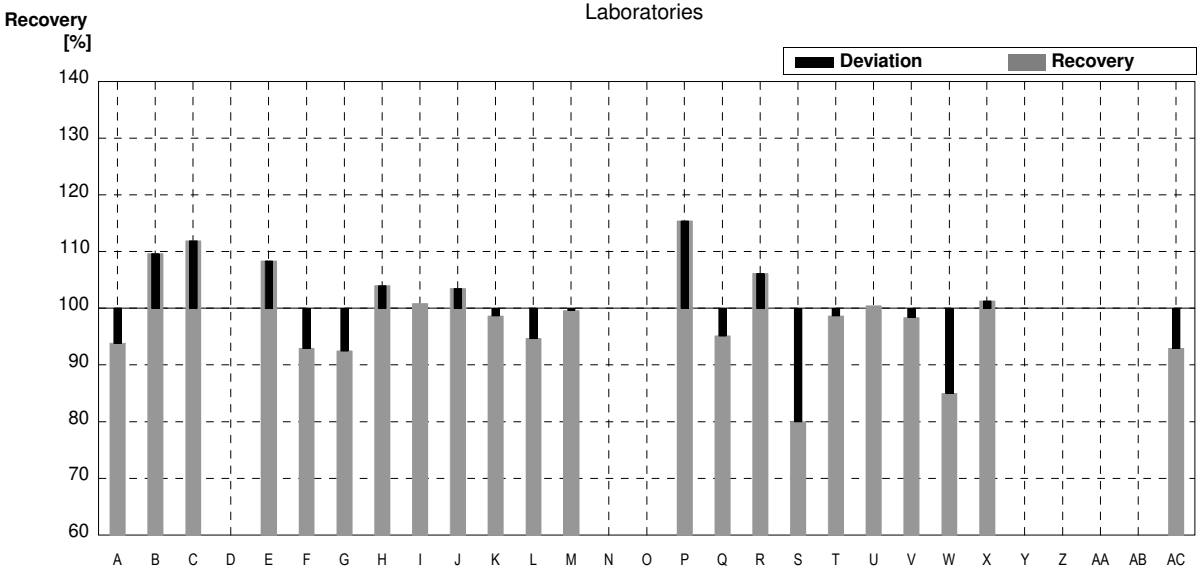
Parameter Nickel

Target value ± U (k=2)	2,27 µg/l	±	0,02 µg/l	
IFA result ± U (k=2)	2,25 µg/l	±	0,14 µg/l	
Stability test	µg/l			

Lab Code	Result	±	Unit	Recovery	z-Score
A	2,13	0,21	µg/l	94%	-0,77
B	2,49	0,3	µg/l	110%	1,21
C	2,54	0,38	µg/l	112%	1,49
D			µg/l		
E	2,46	0,49	µg/l	108%	1,05
F	2,11	0,12	µg/l	93%	-0,88
G	2,10000	0,21000	µg/l	93%	-0,94
H	2,362		µg/l	104%	0,51
I	2,29	0,042	µg/l	101%	0,11
J	2,35		µg/l	104%	0,44
K	2,24	0,17	µg/l	99%	-0,17
L	2,15	0,54	µg/l	95%	-0,66
M	2,262	0,226	µg/l	100%	-0,04
N			µg/l		
O			µg/l		
P	2,62	1	µg/l	115%	1,93
Q	2,16	0,216	µg/l	95%	-0,61
R	2,41	0,1	µg/l	106%	0,77
S	1,816		µg/l	80%	-2,50
T	2,24	0,117	µg/l	99%	-0,17
U	2,28	0,22	µg/l	100%	0,06
V	2,234	0,23	µg/l	98%	-0,20
W	1,93		µg/l	85%	-1,87
X	2,30	0,03	µg/l	101%	0,17
Y			µg/l		
Z			µg/l		
AA			µg/l		
AB			µg/l		
AC	2,11	0,078	µg/l	93%	-0,88

	All results	Outliers excl.	Unit
Mean ± CI(99%)	2,25 ± 0,11	2,25 ± 0,11	µg/l
Recov. ± CI(99%)	99,3 ± 5,1	99,3 ± 5,1	%
SD between labs	0,19	0,19	µg/l
RSD between labs	8,4	8,4	%
n for calculation	22	22	





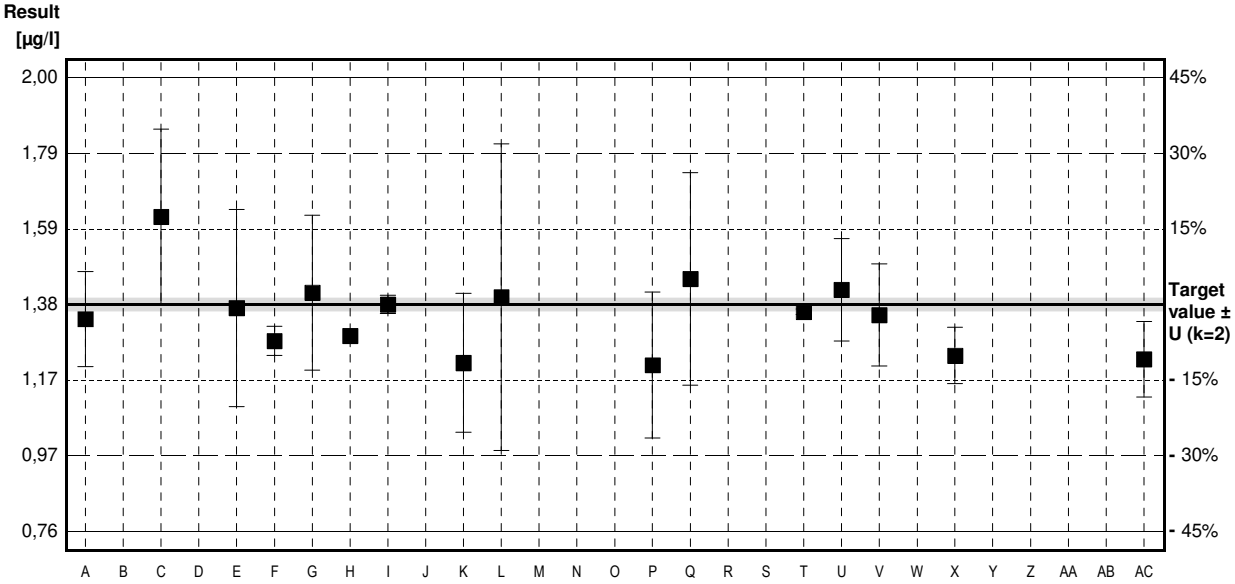
Sample M158A

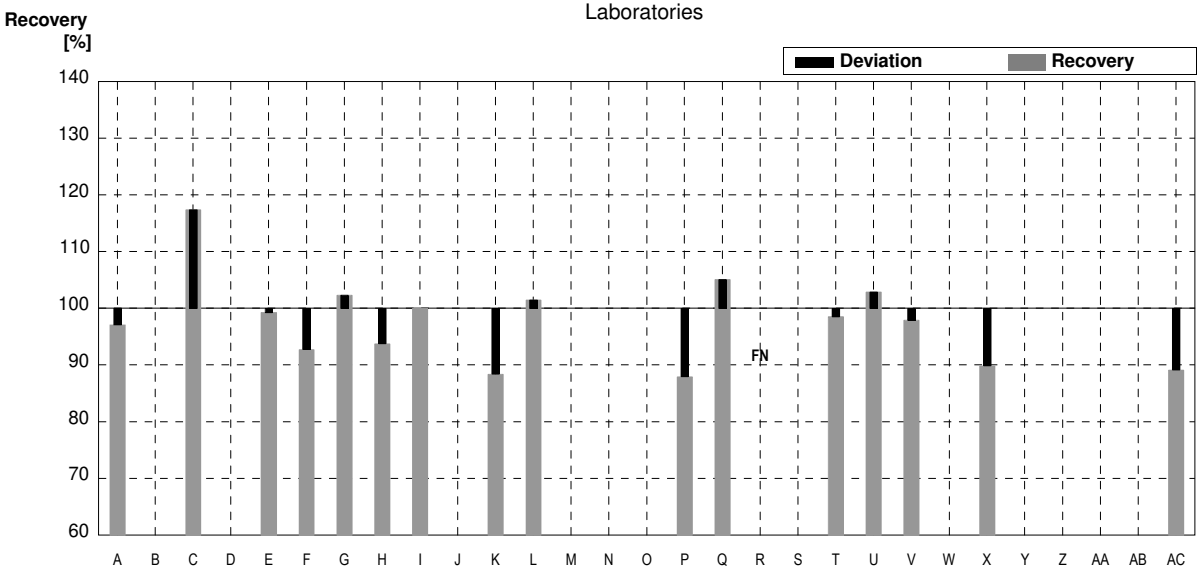
Parameter Mercury

Target value ± U (k=2)	1,38 µg/l	±	0,02 µg/l	
IFA result ± U (k=2)	1,40 µg/l	±	0,27 µg/l	
Stability test	µg/l			

Lab Code	Result	±	Unit	Recovery	z-Score
A	1,34	0,13	µg/l	97%	-0,26
B			µg/l		
C	1,62	0,24	µg/l	117%	1,58
D			µg/l		
E	1,37	0,27	µg/l	99%	-0,07
F	1,28	0,04	µg/l	93%	-0,66
G	1,41200	0,21200	µg/l	102%	0,21
H	1,294		µg/l	94%	-0,57
I	1,38	0,025	µg/l	100%	0,00
J			µg/l		
K	1,22	0,19	µg/l	88%	-1,05
L	1,40	0,42	µg/l	101%	0,13
M			µg/l		
N			µg/l		
O			µg/l		
P	1,214	0,2	µg/l	88%	-1,09
Q	1,45	0,291	µg/l	105%	0,46
R	<0,1		µg/l	FN	
S			µg/l		
T	1,36	0,00712	µg/l	99%	-0,13
U	1,42	0,14	µg/l	103%	0,26
V	1,351	0,14	µg/l	98%	-0,19
W			µg/l		
X	1,240	0,077	µg/l	90%	-0,92
Y			µg/l		
Z			µg/l		
AA			µg/l		
AB			µg/l		
AC	1,23	0,103	µg/l	89%	-0,99

	All results	Outliers excl.	Unit
Mean ± CI(99%)	1,35 ± 0,08	1,35 ± 0,08	µg/l
Recov. ± CI(99%)	97,7 ± 5,6	97,7 ± 5,6	%
SD between labs	0,11	0,11	µg/l
RSD between labs	7,8	7,8	%
n for calculation	16	16	





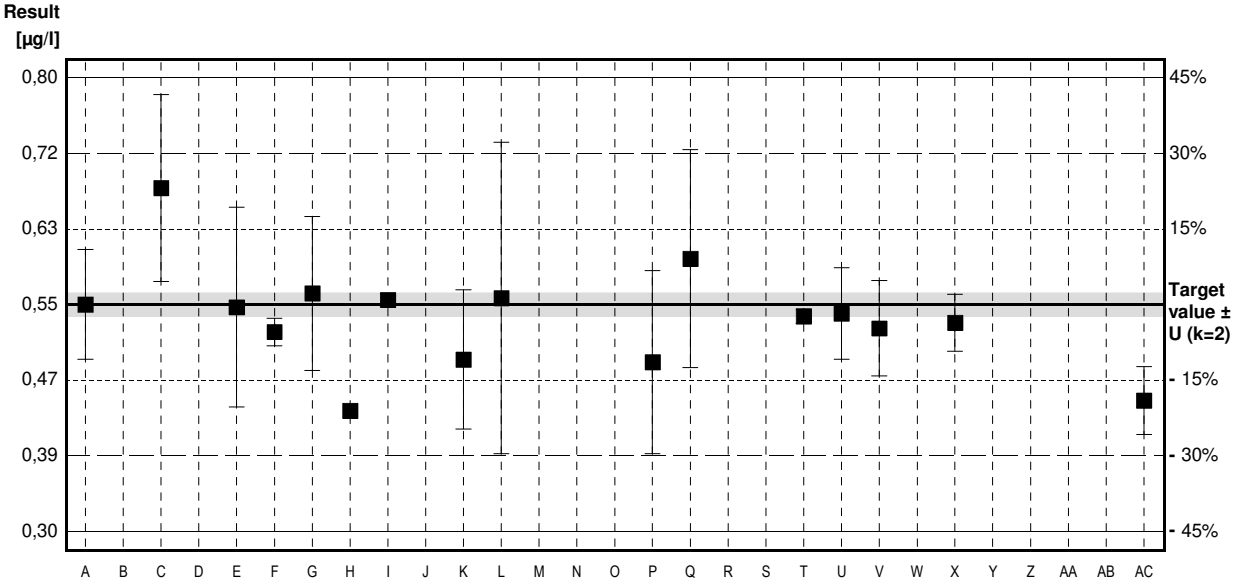
Sample M158B

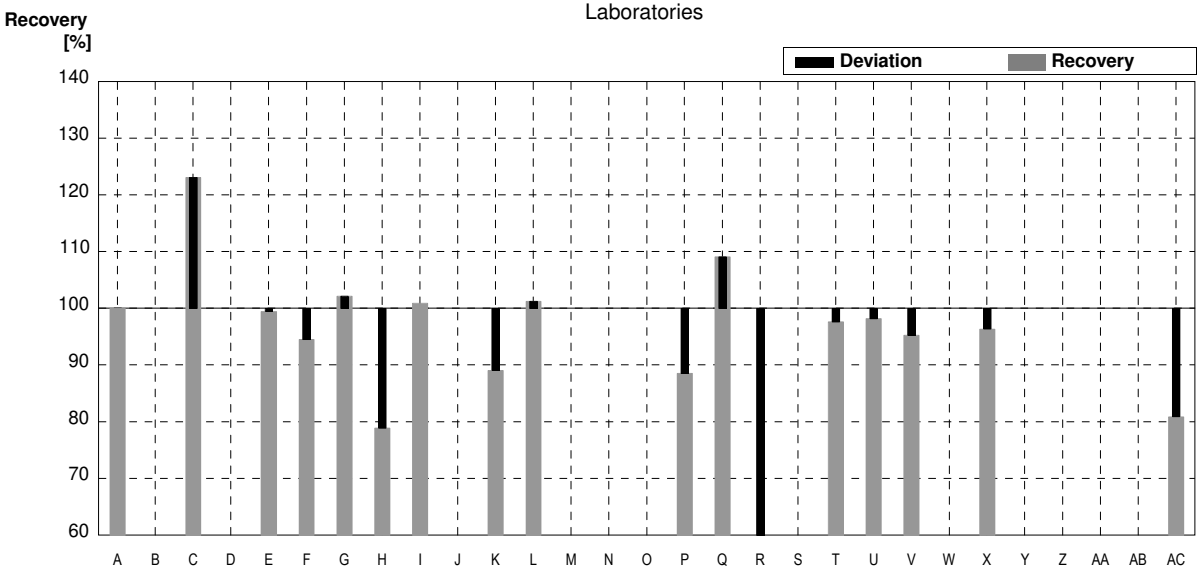
Parameter Mercury

Target value ± U (k=2)	0,55	µg/l	±	0,01	µg/l
IFA result ± U (k=2)	0,57	µg/l	±	0,11	µg/l
Stability test		µg/l			

Lab Code	Result	±	Unit	Recovery	z-Score
A	0,55	0,06	µg/l	100%	0,00
B			µg/l		
C	0,677 *	0,102	µg/l	123%	2,10
D			µg/l		
E	0,547	0,109	µg/l	99%	-0,05
F	0,520	0,015	µg/l	95%	-0,50
G	0,562	0,08400	µg/l	102%	0,20
H	0,434 *		µg/l	79%	-1,92
I	0,555	0,007	µg/l	101%	0,08
J			µg/l		
K	0,490	0,076	µg/l	89%	-0,99
L	0,557	0,17	µg/l	101%	0,12
M			µg/l		
N			µg/l		
O			µg/l		
P	0,487	0,1	µg/l	89%	-1,04
Q	0,60	0,119	µg/l	109%	0,83
R	0,211 *	0,08	µg/l	38%	-5,60
S			µg/l		
T	0,537	0,00783	µg/l	98%	-0,21
U	0,54	0,05	µg/l	98%	-0,17
V	0,524	0,052	µg/l	95%	-0,43
W			µg/l		
X	0,530	0,031	µg/l	96%	-0,33
Y			µg/l		
Z			µg/l		
AA			µg/l		
AB			µg/l		
AC	0,445	0,037	µg/l	81%	-1,74

	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,52 ± 0,07	0,53 ± 0,03	µg/l
Recov. ± CI(99%)	93,8 ± 12,4	96,7 ± 5,6	%
SD between labs	0,10	0,04	µg/l
RSD between labs	18,7	7,2	%
n for calculation	17	14	



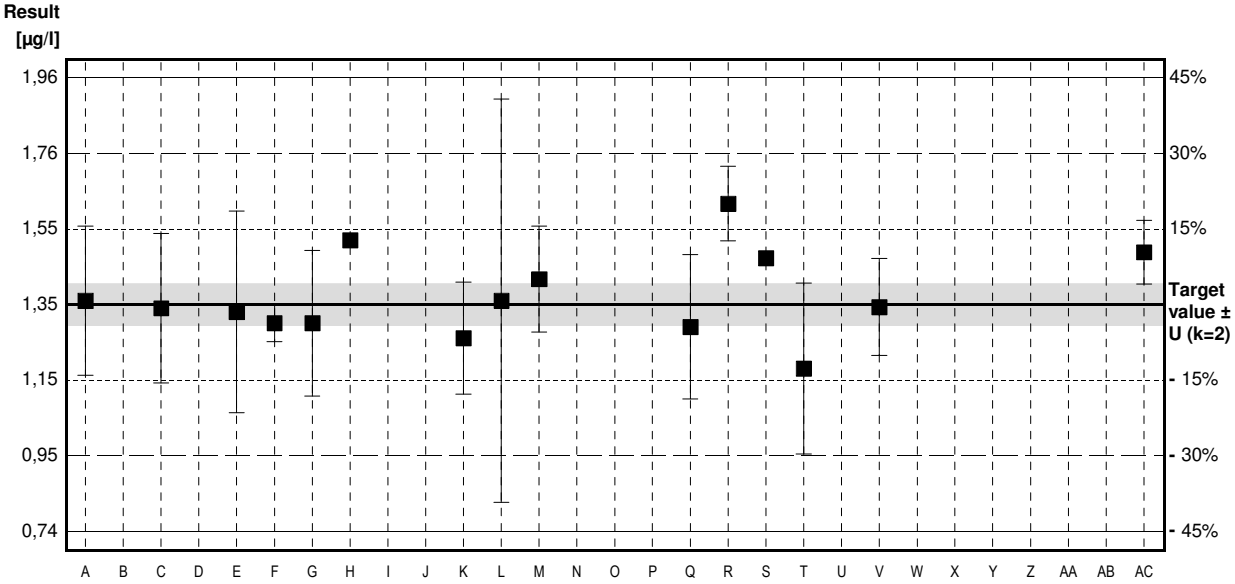


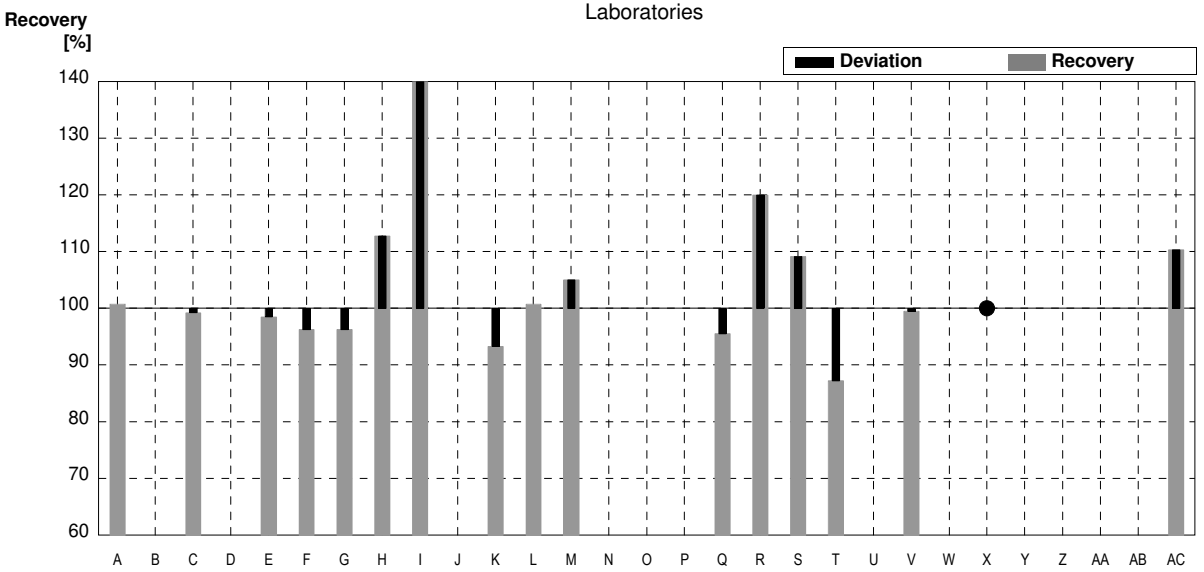
Sample M158A
Parameter Selenium

Target value ± U (k=2)	1,35 µg/l	±	0,06 µg/l	
IFA result ± U (k=2)	1,42 µg/l	±	0,17 µg/l	
Stability test	µg/l			

Lab Code	Result	±	Unit	Recovery	z-Score
A	1,36	0,20	µg/l	101%	0,07
B			µg/l		
C	1,34	0,20	µg/l	99%	-0,07
D			µg/l		
E	1,33	0,27	µg/l	99%	-0,13
F	1,30	0,05	µg/l	96%	-0,34
G	1,3000	0,19500	µg/l	96%	-0,34
H	1,522		µg/l	113%	1,16
I	2,31 *	0,081	µg/l	171%	6,46
J			µg/l		
K	1,26	0,15	µg/l	93%	-0,61
L	1,36	0,54	µg/l	101%	0,07
M	1,418	0,142	µg/l	105%	0,46
N			µg/l		
O			µg/l		
P			µg/l		
Q	1,29	0,193	µg/l	96%	-0,40
R	1,62	0,1	µg/l	120%	1,82
S	1,474		µg/l	109%	0,84
T	1,178	0,229	µg/l	87%	-1,16
U			µg/l		
V	1,343	0,13	µg/l	99%	-0,05
W			µg/l		
X	<3,0		µg/l	•	
Y			µg/l		
Z			µg/l		
AA			µg/l		
AB			µg/l		
AC	1,49	0,085	µg/l	110%	0,94

	All results	Outliers excl.	Unit
Mean ± CI(99%)	1,43 ± 0,19	1,37 ± 0,09	µg/l
Recov. ± CI(99%)	106,0 ± 14,1	101,7 ± 6,5	%
SD between labs	0,26	0,11	µg/l
RSD between labs	18,1	8,3	%
n for calculation	16	15	



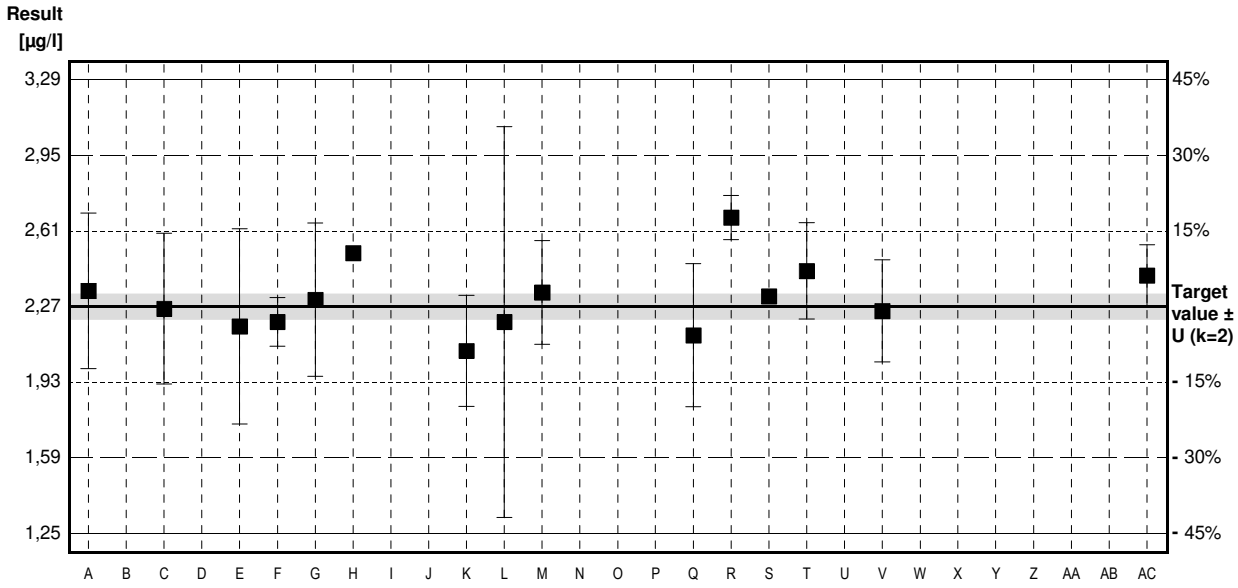


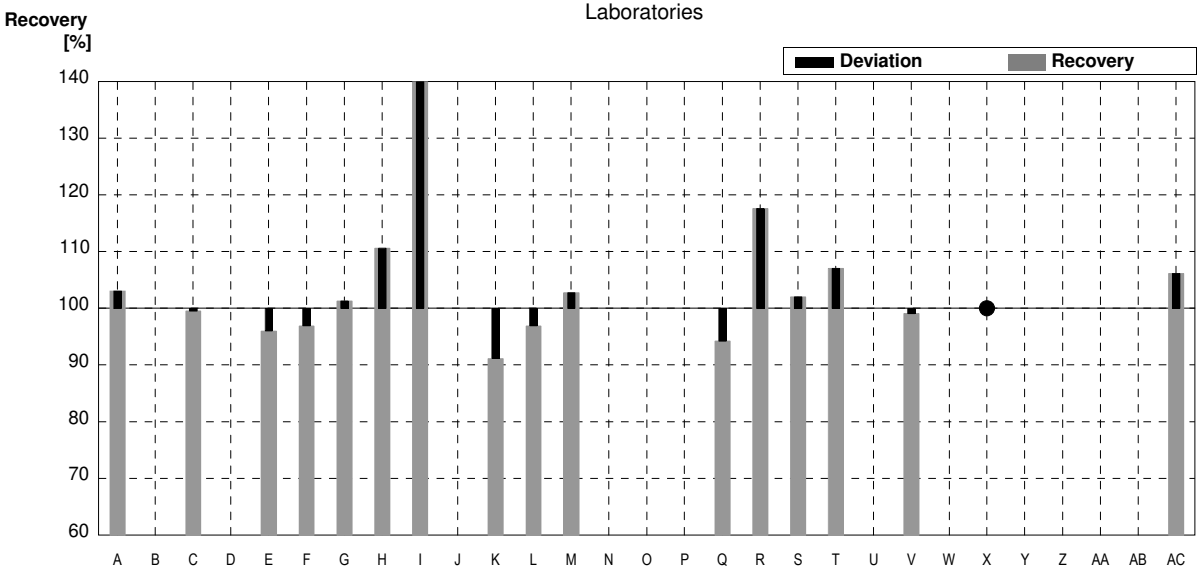
Sample M158B
Parameter Selenium

Target value ± U (k=2)	2,27	µg/l	±	0,06	µg/l
IFA result ± U (k=2)	2,16	µg/l	±	0,26	µg/l
Stability test		µg/l			

Lab Code	Result	±	Unit	Recovery	z-Score
A	2,34	0,35	µg/l	103%	0,28
B			µg/l		
C	2,26	0,34	µg/l	100%	-0,04
D			µg/l		
E	2,18	0,44	µg/l	96%	-0,36
F	2,20	0,11	µg/l	97%	-0,28
G	2,30000	0,34500	µg/l	101%	0,12
H	2,511		µg/l	111%	0,97
I	47,4 *	0,265	µg/l	2088%	180,74
J			µg/l		
K	2,07	0,25	µg/l	91%	-0,80
L	2,20	0,88	µg/l	97%	-0,28
M	2,333	0,233	µg/l	103%	0,25
N			µg/l		
O			µg/l		
P			µg/l		
Q	2,14	0,322	µg/l	94%	-0,52
R	2,67	0,1	µg/l	118%	1,60
S	2,316		µg/l	102%	0,18
T	2,43	0,217	µg/l	107%	0,64
U			µg/l		
V	2,250	0,23	µg/l	99%	-0,08
W			µg/l		
X	<3,9		µg/l	•	
Y			µg/l		
Z			µg/l		
AA			µg/l		
AB			µg/l		
AC	2,41	0,137	µg/l	106%	0,56

	All results	Outliers excl.	Unit
Mean ± CI(99%)	5,13 ± 8,31	2,31 ± 0,12	µg/l
Recov. ± CI(99%)	225,8 ± 366,3	101,6 ± 5,2	%
SD between labs	11,27	0,15	µg/l
RSD between labs	220,0	6,6	%
n for calculation	16	15	



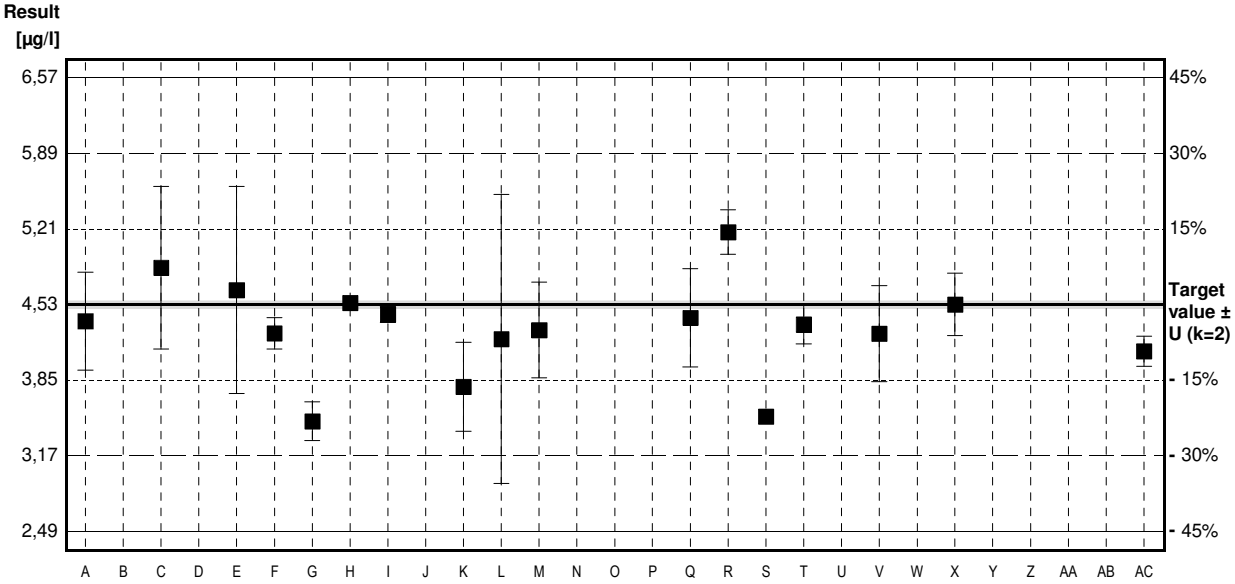


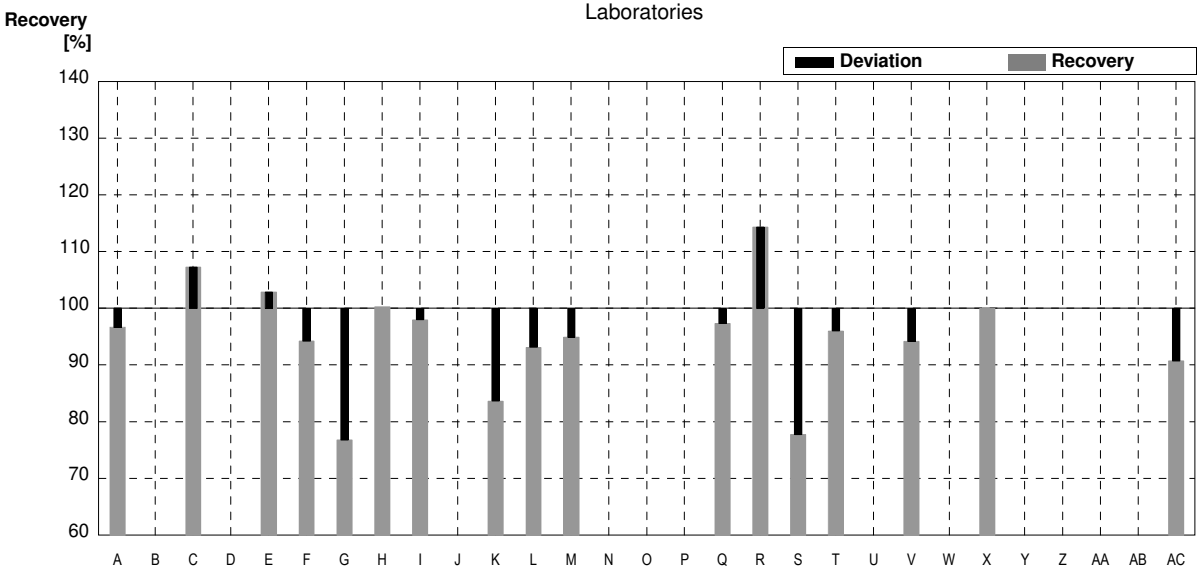
Sample M158A
Parameter Uranium

Target value ± U (k=2)	4,53 µg/l	±	0,03 µg/l	
IFA result ± U (k=2)	4,43 µg/l	±	0,49 µg/l	
Stability test	µg/l			

Lab Code	Result	±	Unit	Recovery	z-Score
A	4,38	0,44	µg/l	97%	-0,57
B			µg/l		
C	4,86	0,73	µg/l	107%	1,26
D			µg/l		
E	4,66	0,93	µg/l	103%	0,49
F	4,27	0,14	µg/l	94%	-0,99
G	3,48000 *	0,17400	µg/l	77%	-4,00
H	4,544		µg/l	100%	0,05
I	4,44	0,072	µg/l	98%	-0,34
J			µg/l		
K	3,79	0,40	µg/l	84%	-2,82
L	4,22	1,3	µg/l	93%	-1,18
M	4,300	0,430	µg/l	95%	-0,88
N			µg/l		
O			µg/l		
P			µg/l		
Q	4,41	0,441	µg/l	97%	-0,46
R	5,18	0,2	µg/l	114%	2,47
S	3,523		µg/l	78%	-3,83
T	4,35	0,174	µg/l	96%	-0,69
U			µg/l		
V	4,267	0,43	µg/l	94%	-1,00
W			µg/l		
X	4,53	0,28	µg/l	100%	0,00
Y			µg/l		
Z			µg/l		
AA			µg/l		
AB			µg/l		
AC	4,11	0,136	µg/l	91%	-1,60

	All results	Outliers excl.	Unit
Mean ± CI(99%)	4,31 ± 0,30	4,36 ± 0,28	µg/l
Recov. ± CI(99%)	95,2 ± 6,7	96,3 ± 6,3	%
SD between labs	0,43	0,38	µg/l
RSD between labs	10,0	8,8	%
n for calculation	17	16	



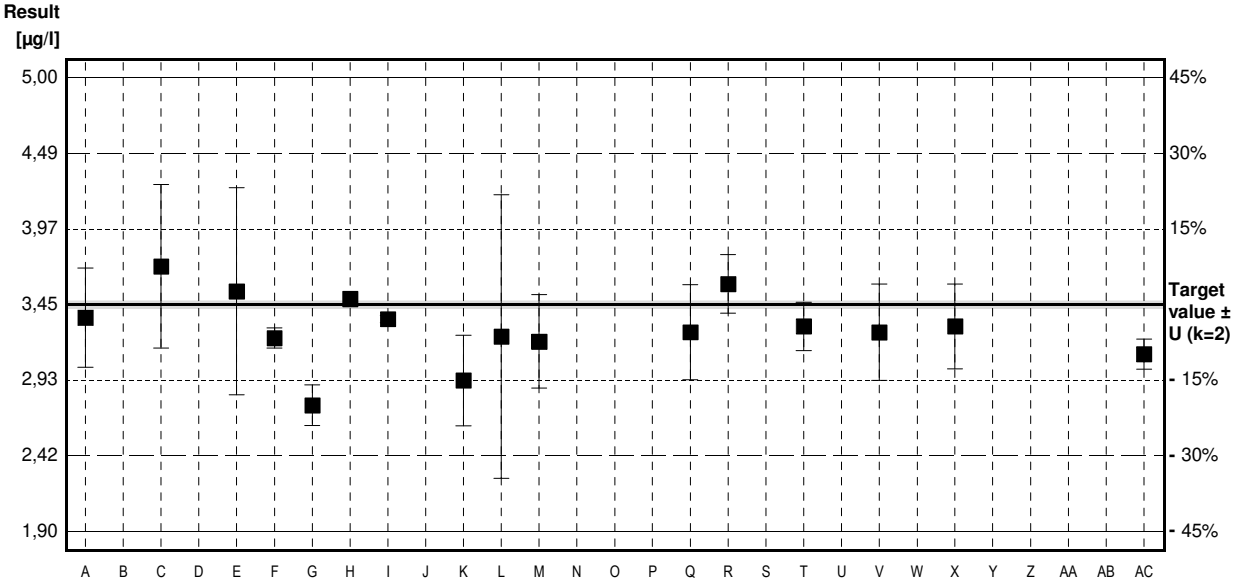


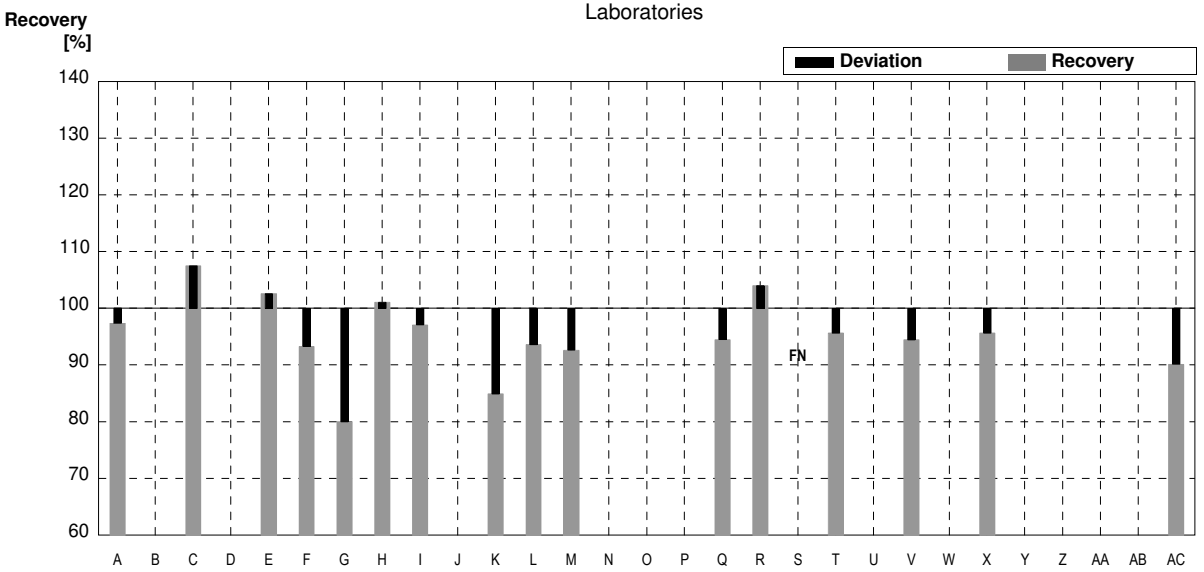
Sample M158B
Parameter Uranium

Target value ± U (k=2)	3,45 µg/l	±	0,03 µg/l	
IFA result ± U (k=2)	3,33 µg/l	±	0,37 µg/l	
Stability test	µg/l			

Lab Code	Result	±	Unit	Recovery	z-Score
A	3,36	0,34	µg/l	97%	-0,45
B			µg/l		
C	3,71 *	0,56	µg/l	108%	1,30
D			µg/l		
E	3,54	0,708	µg/l	103%	0,45
F	3,22	0,07	µg/l	93%	-1,15
G	2,76000 *	0,13800	µg/l	80%	-3,45
H	3,488		µg/l	101%	0,19
I	3,35	0,025	µg/l	97%	-0,50
J			µg/l		
K	2,93	0,31	µg/l	85%	-2,60
L	3,23	0,97	µg/l	94%	-1,10
M	3,196	0,320	µg/l	93%	-1,27
N			µg/l		
O			µg/l		
P			µg/l		
Q	3,26	0,326	µg/l	94%	-0,95
R	3,59	0,2	µg/l	104%	0,70
S	<2,90		µg/l	FN	
T	3,30	0,165	µg/l	96%	-0,75
U			µg/l		
V	3,259	0,33	µg/l	94%	-0,95
W			µg/l		
X	3,30	0,29	µg/l	96%	-0,75
Y			µg/l		
Z			µg/l		
AA			µg/l		
AB			µg/l		
AC	3,11	0,103	µg/l	90%	-1,70

	All results	Outliers excl.	Unit
Mean ± CI(99%)	3,29 ± 0,17	3,30 ± 0,14	µg/l
Recov. ± CI(99%)	95,3 ± 5,1	95,5 ± 4,0	%
SD between labs	0,24	0,17	µg/l
RSD between labs	7,2	5,2	%
n for calculation	16	14	





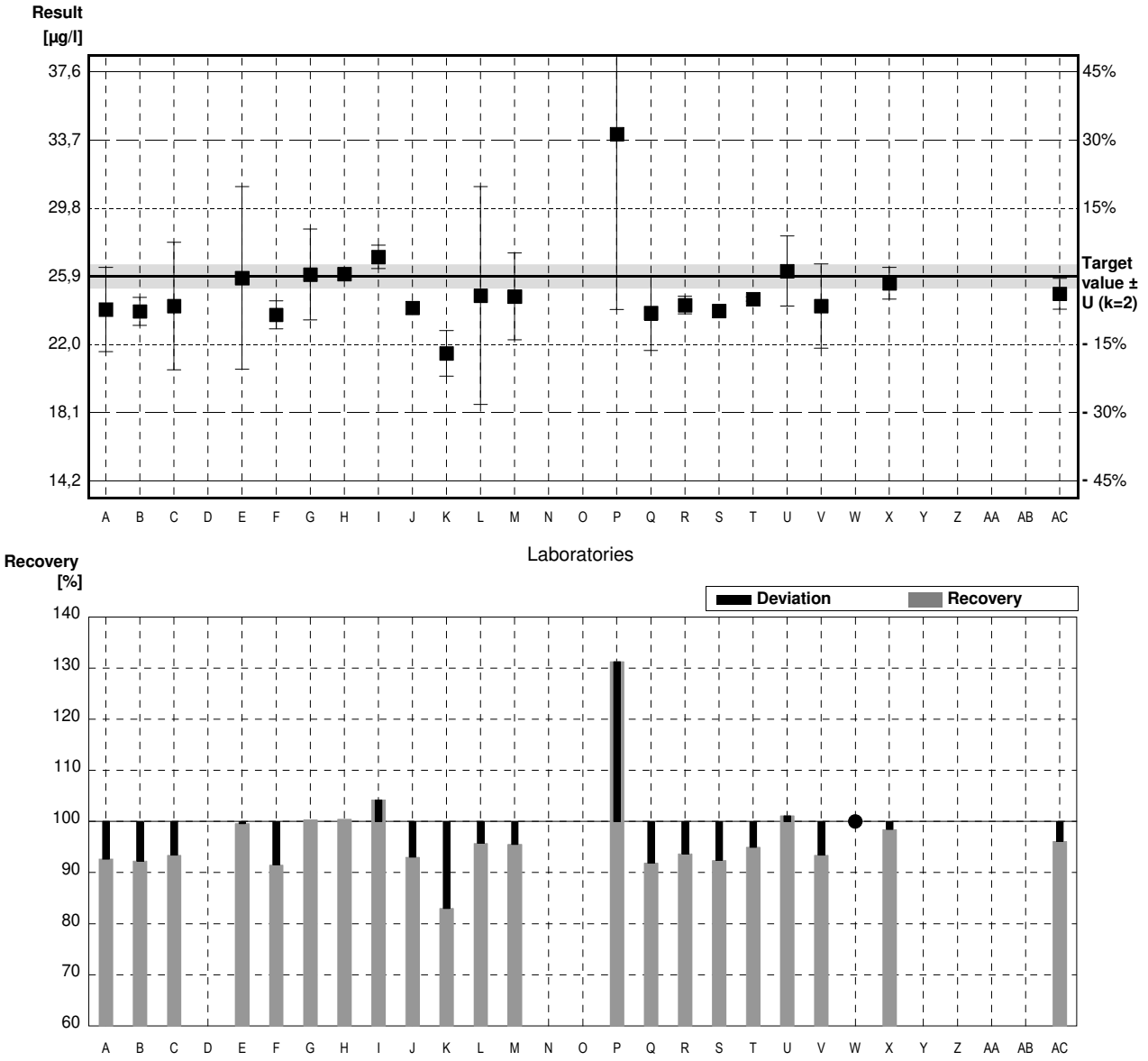
Sample M158A

Parameter Zinc

Target value ± U (k=2)	25,9 µg/l	±	0,7 µg/l	
IFA result ± U (k=2)	26,0 µg/l	±	3,1 µg/l	
Stability test	µg/l			

Lab Code	Result	±	Unit	Recovery	z-Score
A	24,0	2,4	µg/l	93%	-0,94
B	23,9	0,8	µg/l	92%	-0,99
C	24,2	3,64	µg/l	93%	-0,84
D			µg/l		
E	25,8	5,2	µg/l	100%	-0,05
F	23,7	0,8	µg/l	92%	-1,09
G	26,0000	2,6000	µg/l	100%	0,05
H	26,03		µg/l	101%	0,06
I	27,0	0,666	µg/l	104%	0,54
J	24,1		µg/l	93%	-0,89
K	21,5	1,3	µg/l	83%	-2,18
L	24,8	6,2	µg/l	96%	-0,54
M	24,75	2,48	µg/l	96%	-0,57
N			µg/l		
O			µg/l		
P	34,0 *	10	µg/l	131%	4,01
Q	23,8	2,14	µg/l	92%	-1,04
R	24,26	0,5	µg/l	94%	-0,81
S	23,93		µg/l	92%	-0,98
T	24,6	0,126	µg/l	95%	-0,64
U	26,2	2	µg/l	101%	0,15
V	24,2	2,4	µg/l	93%	-0,84
W	<100		µg/l	•	
X	25,5	0,90	µg/l	98%	-0,20
Y			µg/l		
Z			µg/l		
AA			µg/l		
AB			µg/l		
AC	24,9	0,881	µg/l	96%	-0,50

	All results	Outliers excl.	Unit
Mean ± CI(99%)	25,1 ± 1,5	24,7 ± 0,8	µg/l
Recov. ± CI(99%)	96,9 ± 5,7	95,2 ± 3,0	%
SD between labs	2,4	1,2	µg/l
RSD between labs	9,4	4,9	%
n for calculation	21	20	



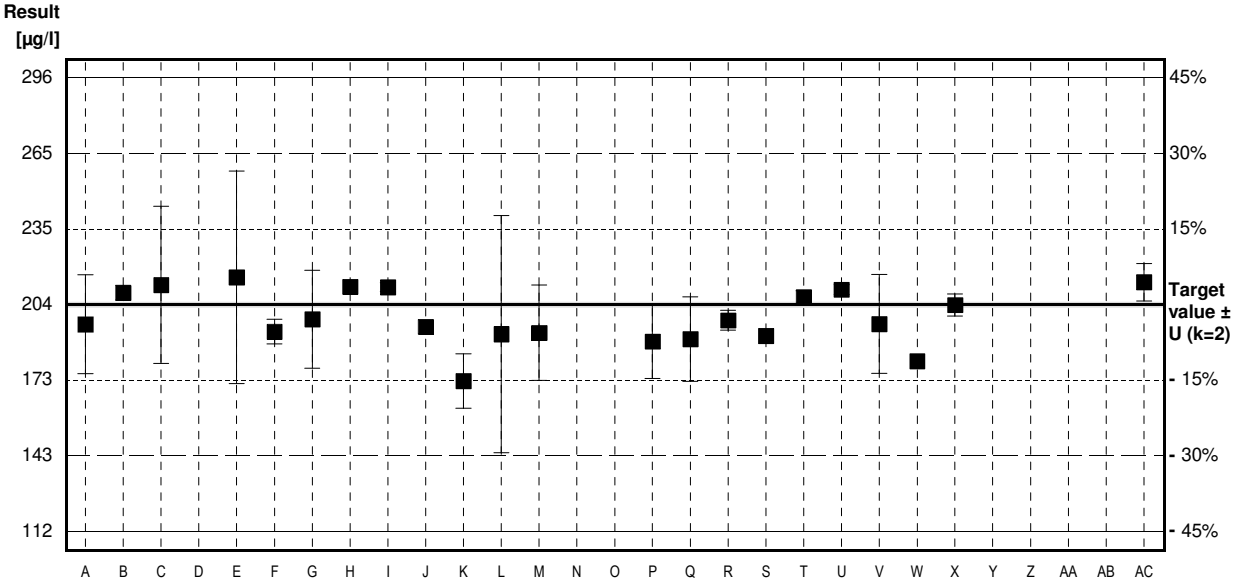
Sample M158B

Parameter Zinc

Target value ± U (k=2)	204	µg/l	±	1	µg/l
IFA result ± U (k=2)	206	µg/l	±	21	µg/l
Stability test		µg/l			

Lab Code	Result	±	Unit	Recovery	z-Score
A	196	20	µg/l	96%	-0,50
B	208,7	3	µg/l	102%	0,30
C	211,9	31,8	µg/l	104%	0,50
D			µg/l		
E	215	43	µg/l	105%	0,69
F	193	5	µg/l	95%	-0,69
G	198,000	19,8000	µg/l	97%	-0,38
H	211,2		µg/l	104%	0,45
I	211	1,732	µg/l	103%	0,44
J	195		µg/l	96%	-0,57
K	173	11	µg/l	85%	-1,95
L	192	48	µg/l	94%	-0,75
M	192,5	19,3	µg/l	94%	-0,72
N			µg/l		
O			µg/l		
P	189	15	µg/l	93%	-0,94
Q	190	17,1	µg/l	93%	-0,88
R	197,6	4	µg/l	97%	-0,40
S	191,3		µg/l	94%	-0,80
T	207	2,46	µg/l	101%	0,19
U	210	2	µg/l	103%	0,38
V	196,1	20	µg/l	96%	-0,50
W	181		µg/l	89%	-1,45
X	203,8	4,46	µg/l	100%	-0,01
Y			µg/l		
Z			µg/l		
AA			µg/l		
AB			µg/l		
AC	213	7,54	µg/l	104%	0,57

	All results	Outliers excl.	Unit
Mean ± CI(99%)	199 ± 7	199 ± 7	µg/l
Recov. ± CI(99%)	97,5 ± 3,3	97,5 ± 3,3	%
SD between labs	11	11	µg/l
RSD between labs	5,6	5,6	%
n for calculation	22	22	



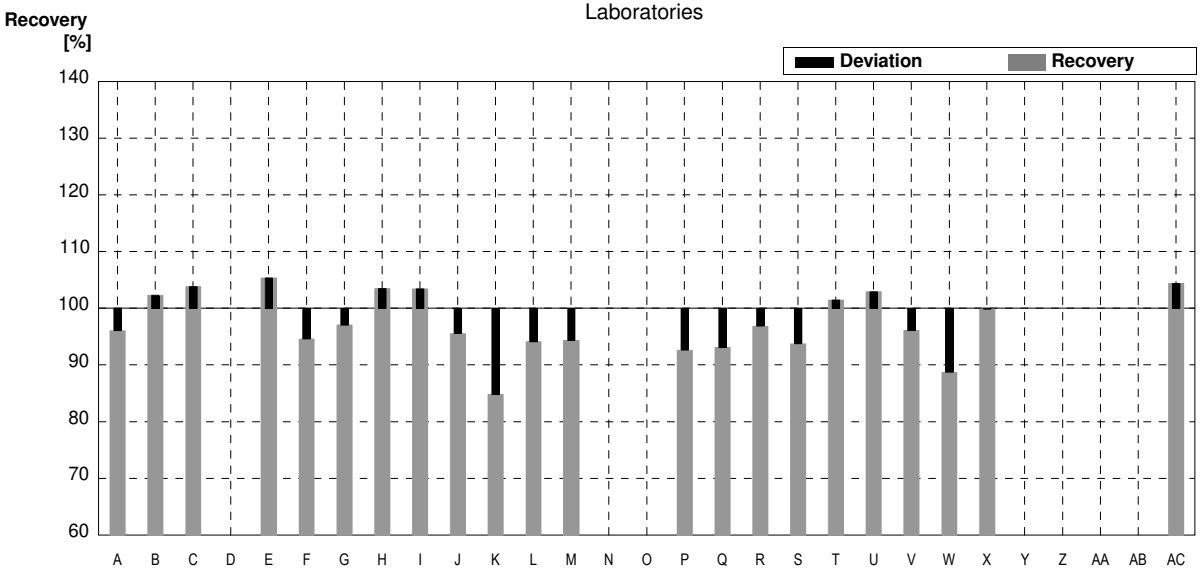


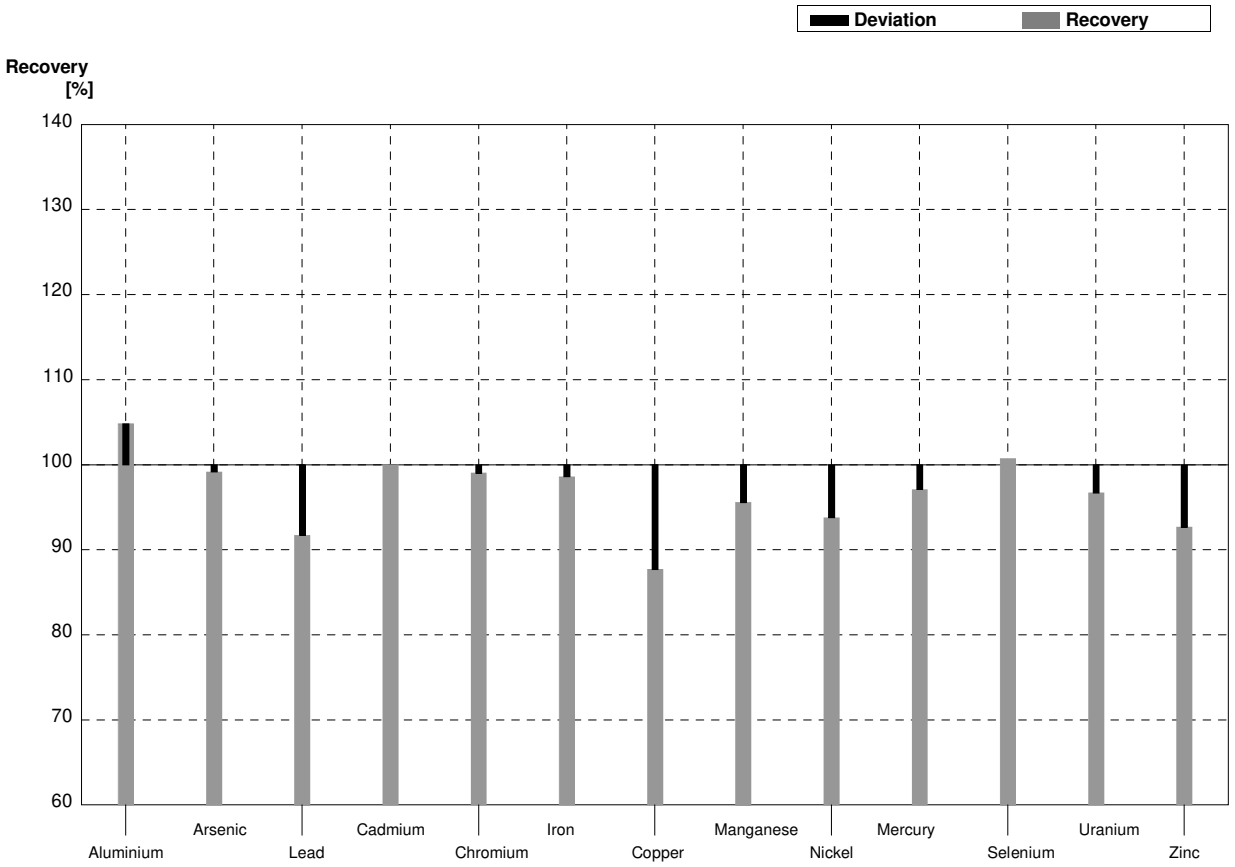
Illustration of Results
Laboratory Oriented Part

Round M158
Metals

Sample Dispatch: 6 September 2021

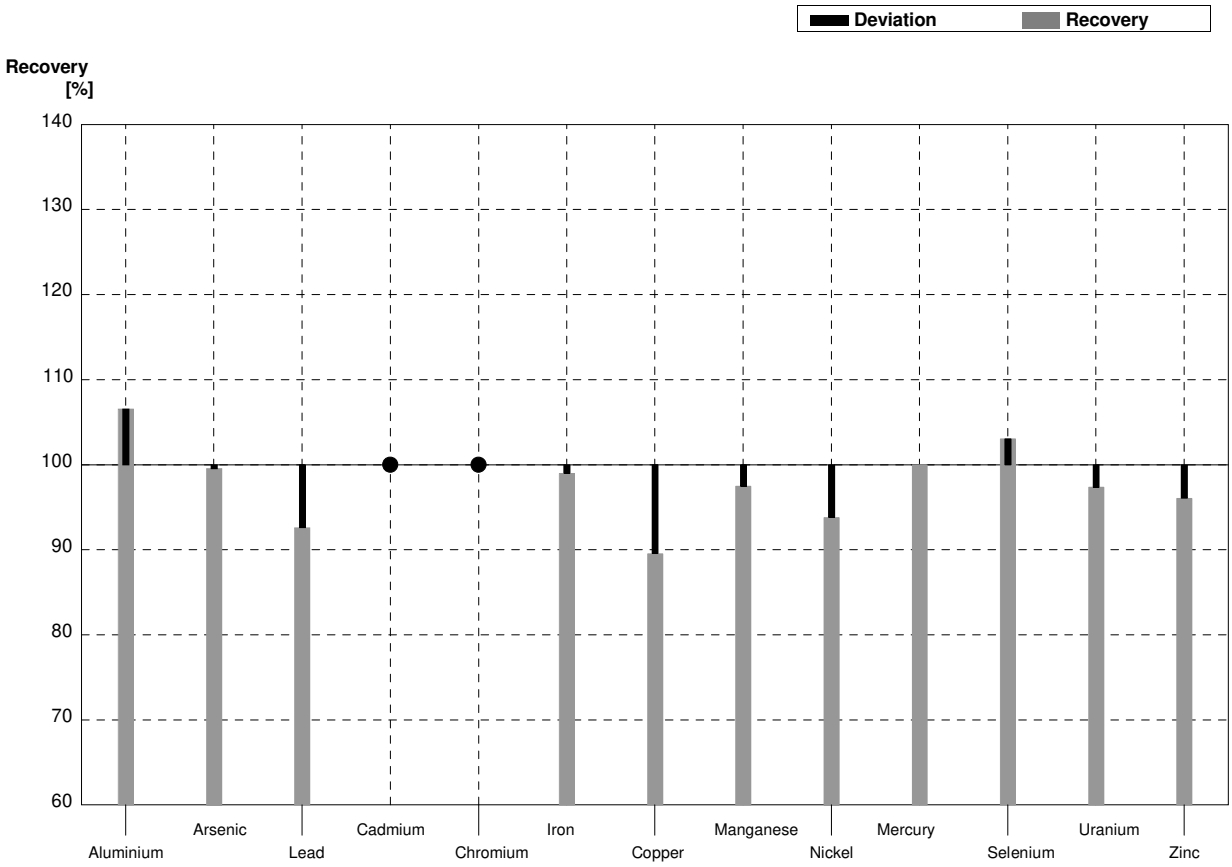
Sample M158A
Laboratory A

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1	108	10,8	µg/l	105%
Arsenic	3,60	0,02	3,57	0,54	µg/l	99%
Lead	18,1	0,1	16,6	1,7	µg/l	92%
Cadmium	1,56	0,01	1,56	0,16	µg/l	100%
Chromium	10,3	0,1	10,2	1,0	µg/l	99%
Iron	21,6	0,2	21,3	2,1	µg/l	99%
Copper	1,79	0,02	1,57	0,16	µg/l	88%
Manganese	2,04	0,03	1,95	0,20	µg/l	96%
Nickel	4,18	0,03	3,92	0,39	µg/l	94%
Mercury	1,38	0,02	1,34	0,13	µg/l	97%
Selenium	1,35	0,06	1,36	0,20	µg/l	101%
Uranium	4,53	0,03	4,38	0,44	µg/l	97%
Zinc	25,9	0,7	24,0	2,4	µg/l	93%



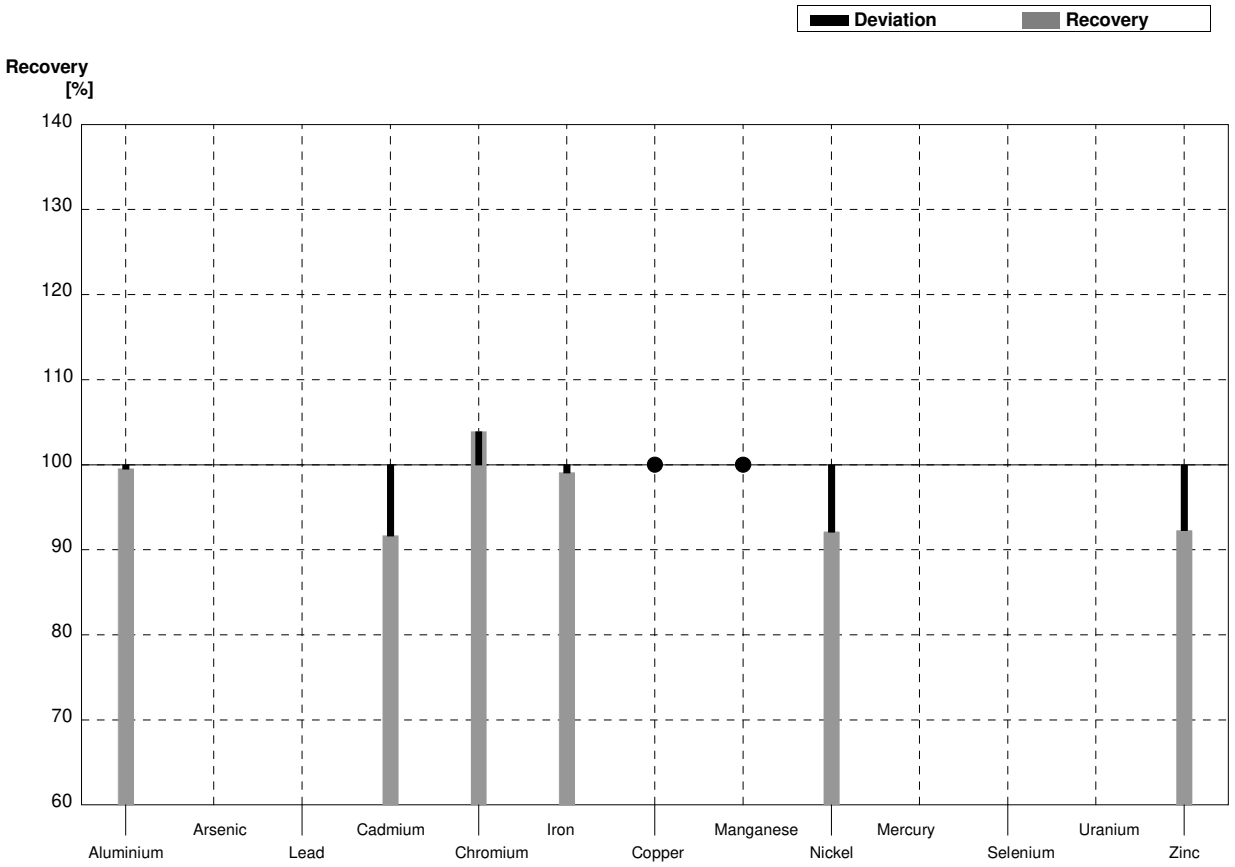
Sample M158B
Laboratory A

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3	35,7	3,6	µg/l	107%
Arsenic	2,31	0,02	2,30	0,35	µg/l	100%
Lead	5,83	0,04	5,4	0,5	µg/l	93%
Cadmium	0,161	0,002	<0,2		µg/l	•
Chromium	0,88	0,01	<1		µg/l	•
Iron	102	1	101	10	µg/l	99%
Copper	3,84	0,03	3,44	0,34	µg/l	90%
Manganese	24,0	0,2	23,4	2,3	µg/l	98%
Nickel	2,27	0,02	2,13	0,21	µg/l	94%
Mercury	0,55	0,01	0,55	0,06	µg/l	100%
Selenium	2,27	0,06	2,34	0,35	µg/l	103%
Uranium	3,45	0,03	3,36	0,34	µg/l	97%
Zinc	204	1	196	20	µg/l	96%



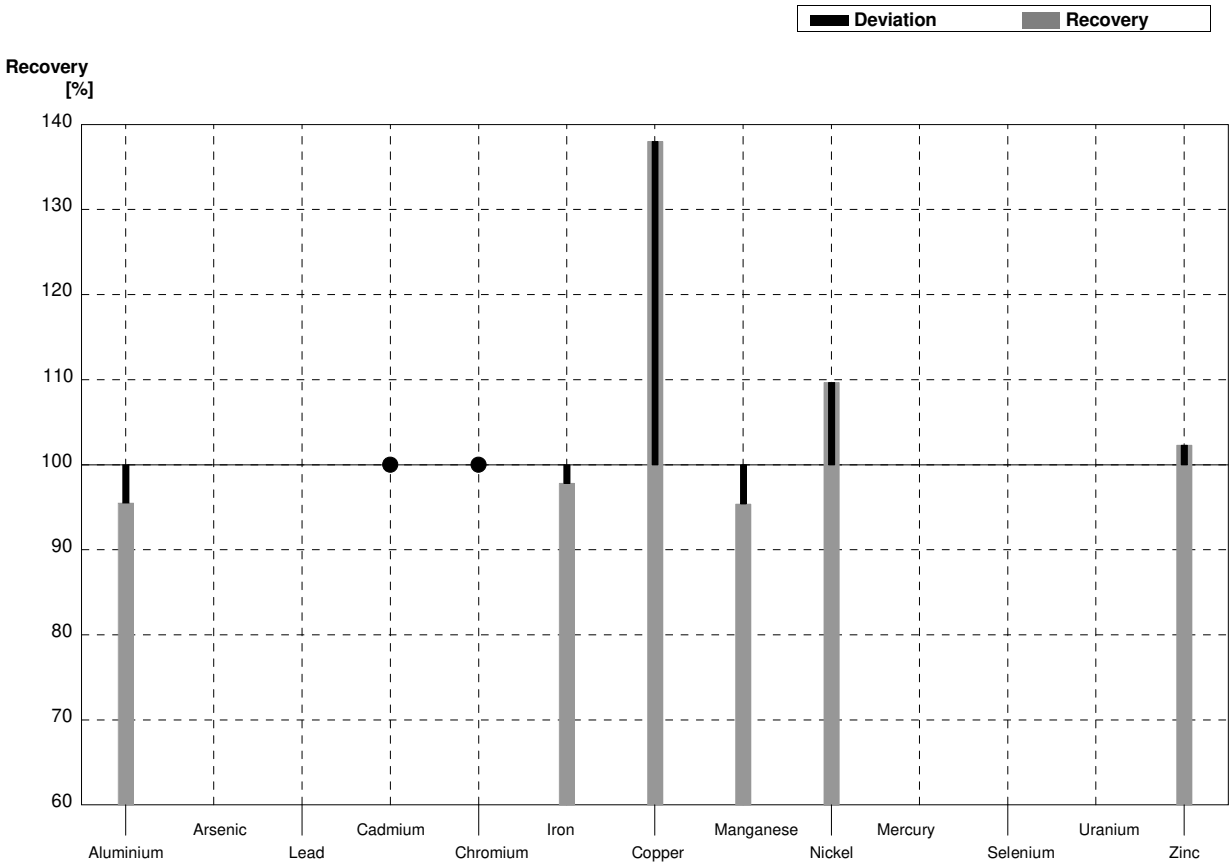
Sample M158A
Laboratory B

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1	102,5	2	µg/l	100%
Arsenic	3,60	0,02			µg/l	
Lead	18,1	0,1			µg/l	
Cadmium	1,56	0,01	1,43	0,1	µg/l	92%
Chromium	10,3	0,1	10,7	0,2	µg/l	104%
Iron	21,6	0,2	21,4	1,1	µg/l	99%
Copper	1,79	0,02	<5		µg/l	•
Manganese	2,04	0,03	<4		µg/l	•
Nickel	4,18	0,03	3,85	0,3	µg/l	92%
Mercury	1,38	0,02			µg/l	
Selenium	1,35	0,06			µg/l	
Uranium	4,53	0,03			µg/l	
Zinc	25,9	0,7	23,9	0,8	µg/l	92%



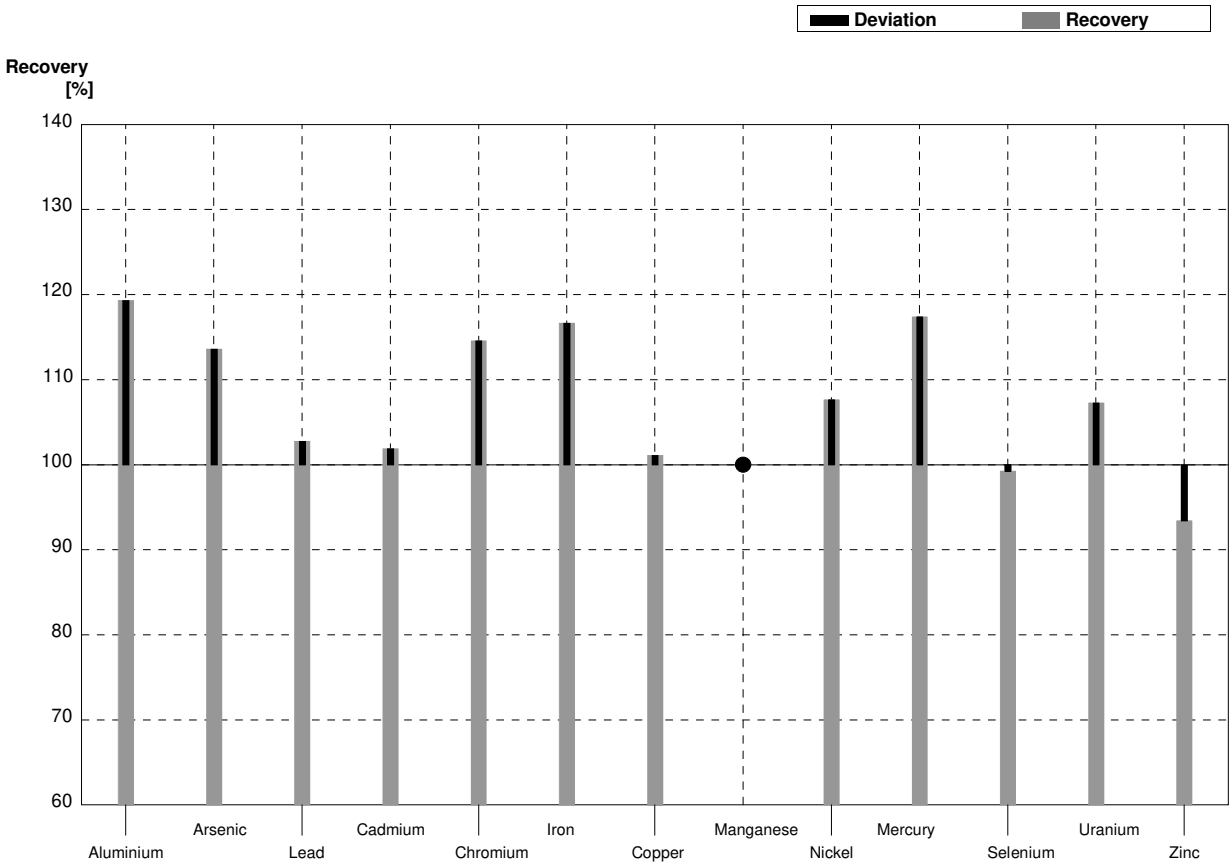
Sample M158B
Laboratory B

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3	32,0	1	µg/l	96%
Arsenic	2,31	0,02			µg/l	
Lead	5,83	0,04			µg/l	
Cadmium	0,161	0,002	<0,4		µg/l	•
Chromium	0,88	0,01	<5		µg/l	•
Iron	102	1	99,8	1,3	µg/l	98%
Copper	3,84	0,03	5,3	0,7	µg/l	138%
Manganese	24,0	0,2	22,9	0,5	µg/l	95%
Nickel	2,27	0,02	2,49	0,3	µg/l	110%
Mercury	0,55	0,01			µg/l	
Selenium	2,27	0,06			µg/l	
Uranium	3,45	0,03			µg/l	
Zinc	204	1	208,7	3	µg/l	102%



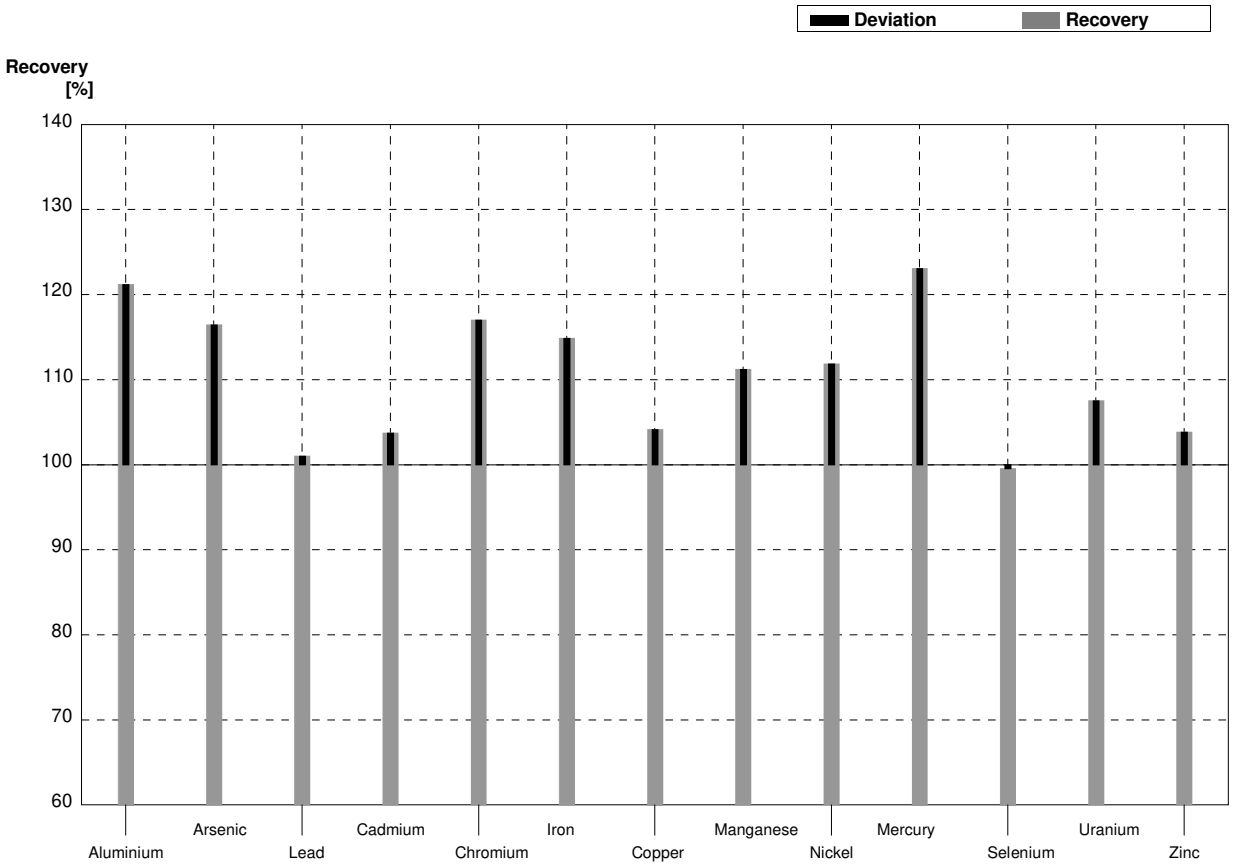
Sample M158A
Laboratory C

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1	122,9	18,4	µg/l	119%
Arsenic	3,60	0,02	4,09	0,61	µg/l	114%
Lead	18,1	0,1	18,6	2,78	µg/l	103%
Cadmium	1,56	0,01	1,59	0,24	µg/l	102%
Chromium	10,3	0,1	11,8	1,77	µg/l	115%
Iron	21,6	0,2	25,2	3,77	µg/l	117%
Copper	1,79	0,02	1,81	0,27	µg/l	101%
Manganese	2,04	0,03	<5		µg/l	•
Nickel	4,18	0,03	4,50	0,67	µg/l	108%
Mercury	1,38	0,02	1,62	0,24	µg/l	117%
Selenium	1,35	0,06	1,34	0,20	µg/l	99%
Uranium	4,53	0,03	4,86	0,73	µg/l	107%
Zinc	25,9	0,7	24,2	3,64	µg/l	93%



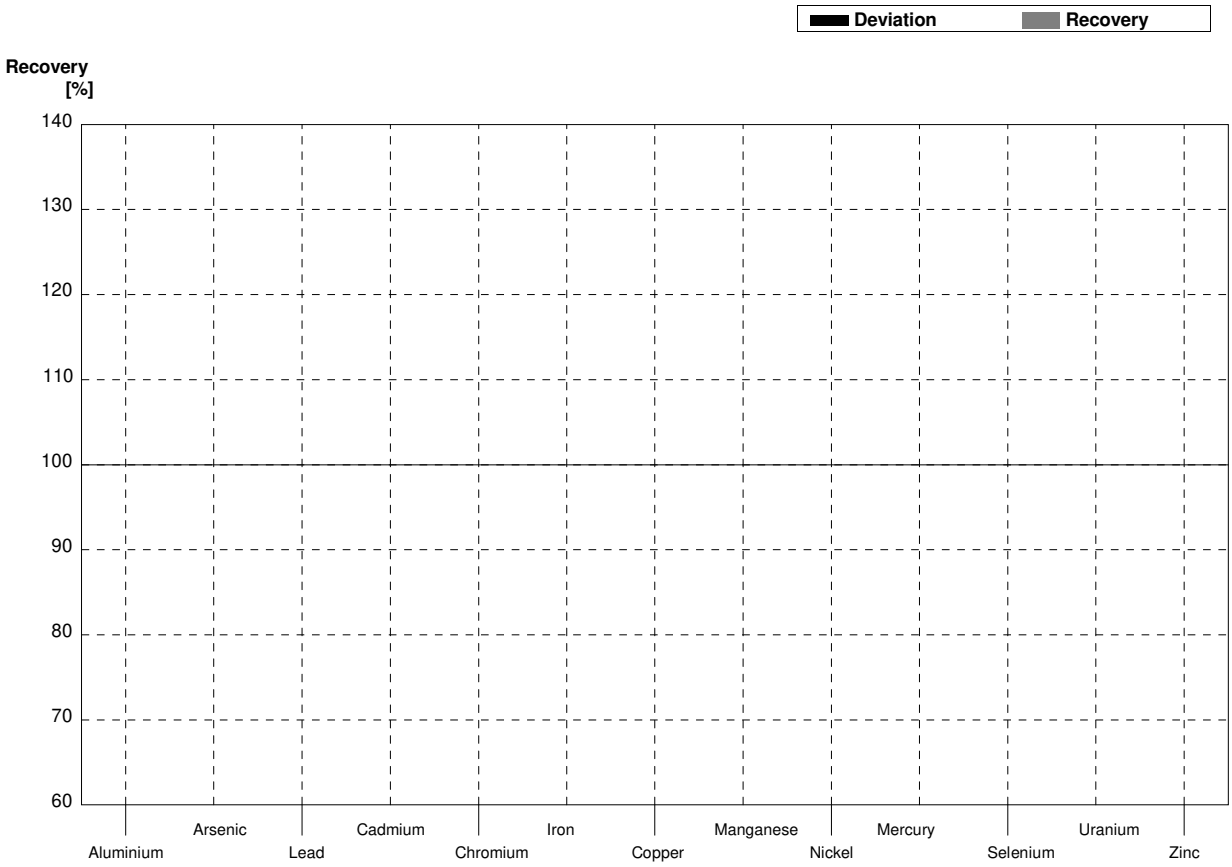
Sample M158B
Laboratory C

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3	40,6	6,09	µg/l	121%
Arsenic	2,31	0,02	2,69	0,40	µg/l	116%
Lead	5,83	0,04	5,89	0,88	µg/l	101%
Cadmium	0,161	0,002	0,167	0,025	µg/l	104%
Chromium	0,88	0,01	1,03	0,16	µg/l	117%
Iron	102	1	117,2	17,6	µg/l	115%
Copper	3,84	0,03	4,00	0,60	µg/l	104%
Manganese	24,0	0,2	26,7	4,00	µg/l	111%
Nickel	2,27	0,02	2,54	0,38	µg/l	112%
Mercury	0,55	0,01	0,677	0,102	µg/l	123%
Selenium	2,27	0,06	2,26	0,34	µg/l	100%
Uranium	3,45	0,03	3,71	0,56	µg/l	108%
Zinc	204	1	211,9	31,8	µg/l	104%



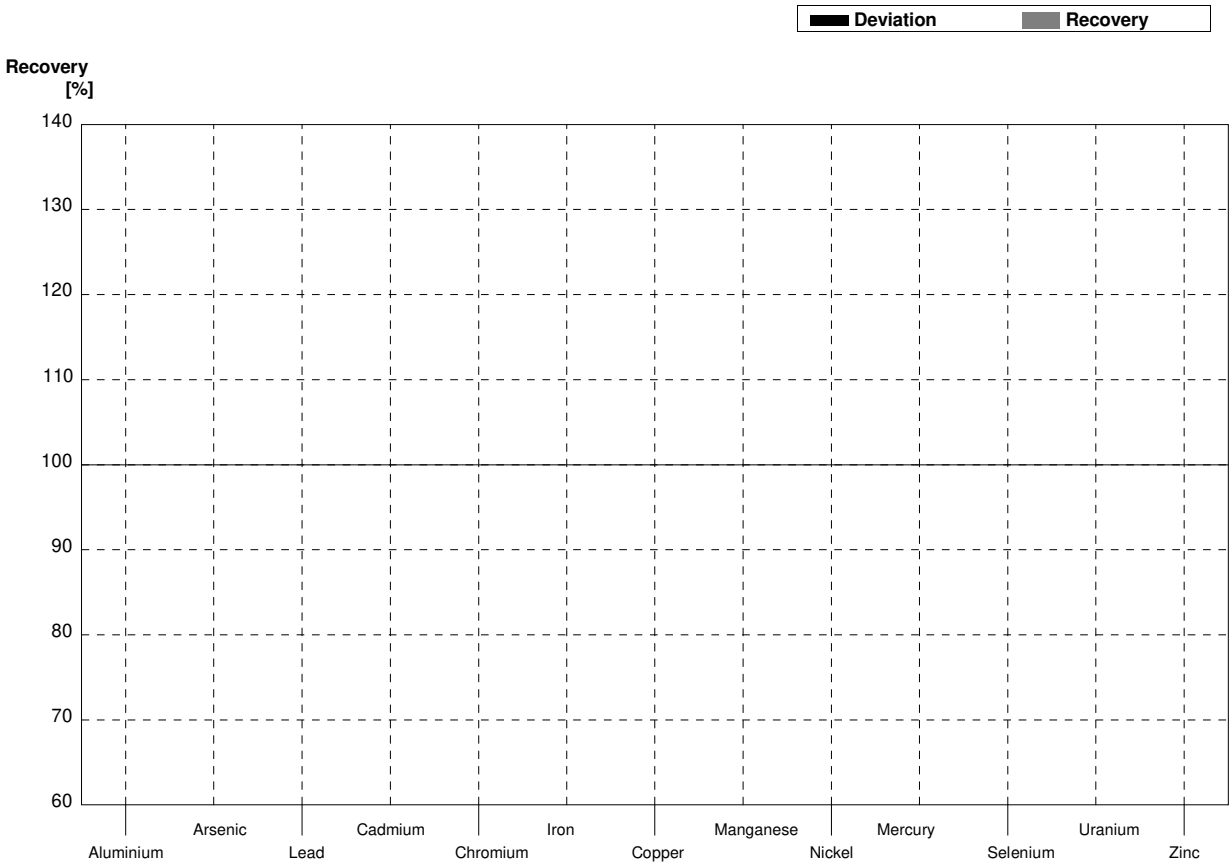
Sample M158A
Laboratory D

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1			µg/l	
Arsenic	3,60	0,02			µg/l	
Lead	18,1	0,1			µg/l	
Cadmium	1,56	0,01			µg/l	
Chromium	10,3	0,1			µg/l	
Iron	21,6	0,2			µg/l	
Copper	1,79	0,02			µg/l	
Manganese	2,04	0,03			µg/l	
Nickel	4,18	0,03			µg/l	
Mercury	1,38	0,02			µg/l	
Selenium	1,35	0,06			µg/l	
Uranium	4,53	0,03			µg/l	
Zinc	25,9	0,7			µg/l	



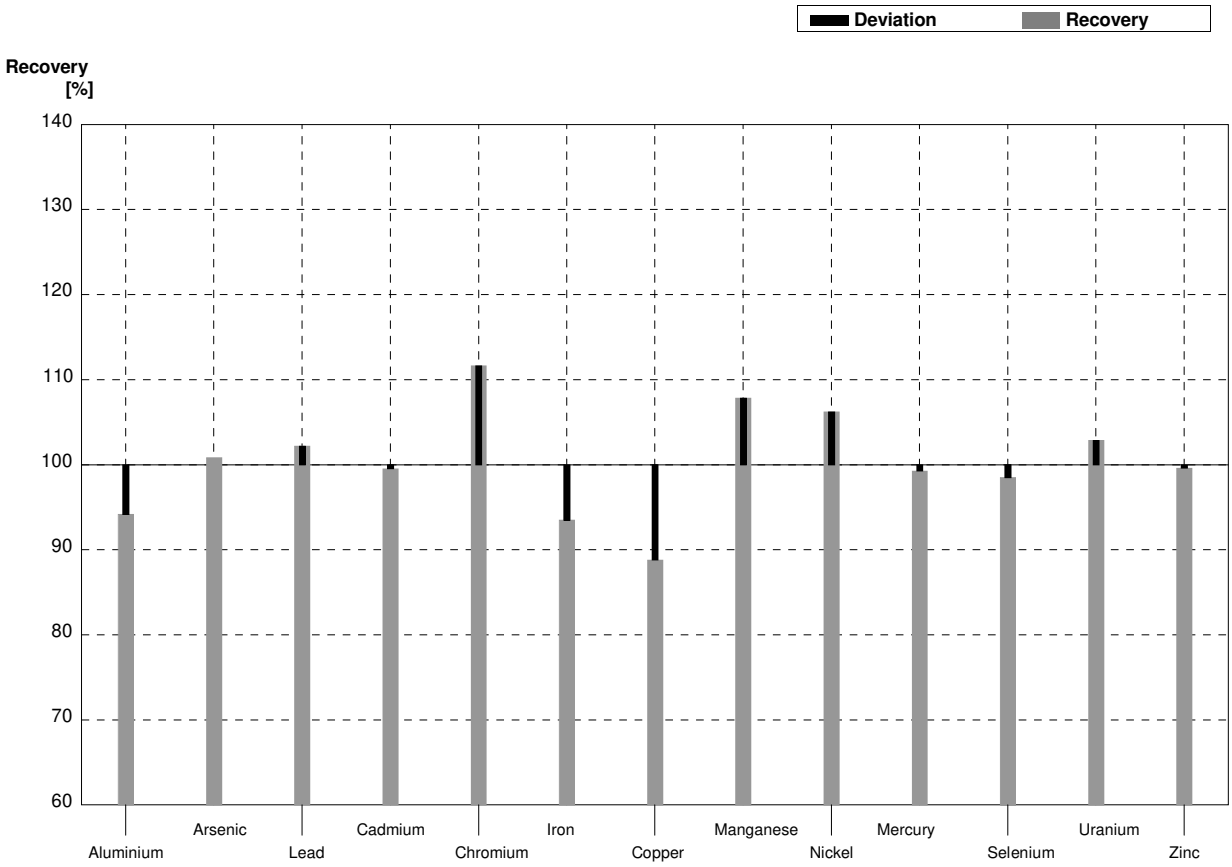
Sample M158B
Laboratory D

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3			µg/l	
Arsenic	2,31	0,02			µg/l	
Lead	5,83	0,04			µg/l	
Cadmium	0,161	0,002			µg/l	
Chromium	0,88	0,01			µg/l	
Iron	102	1			µg/l	
Copper	3,84	0,03			µg/l	
Manganese	24,0	0,2			µg/l	
Nickel	2,27	0,02			µg/l	
Mercury	0,55	0,01			µg/l	
Selenium	2,27	0,06			µg/l	
Uranium	3,45	0,03			µg/l	
Zinc	204	1			µg/l	



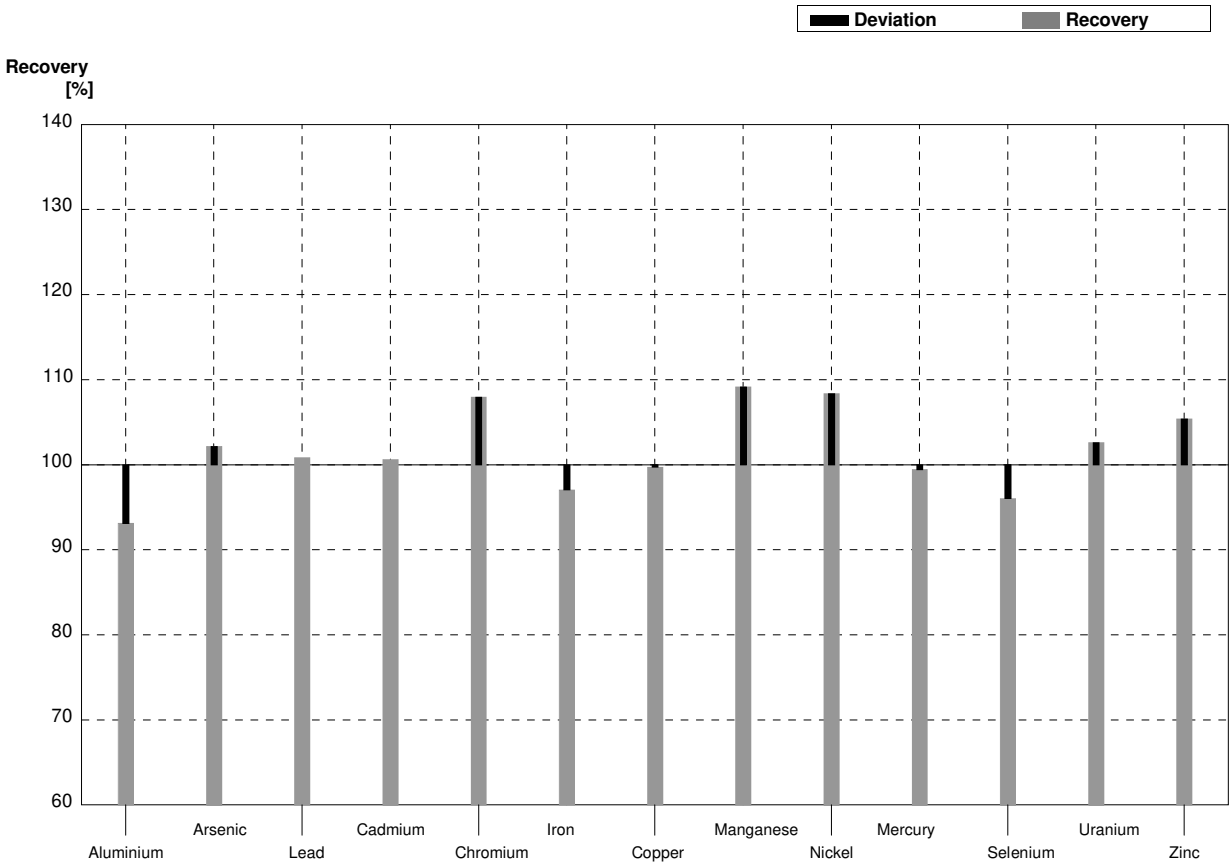
Sample M158A
Laboratory E

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1	97	19	µg/l	94%
Arsenic	3,60	0,02	3,63	0,73	µg/l	101%
Lead	18,1	0,1	18,5	3,7	µg/l	102%
Cadmium	1,56	0,01	1,553	0,311	µg/l	100%
Chromium	10,3	0,1	11,5	2,3	µg/l	112%
Iron	21,6	0,2	20,2	4,0	µg/l	94%
Copper	1,79	0,02	1,59	0,32	µg/l	89%
Manganese	2,04	0,03	2,20	0,44	µg/l	108%
Nickel	4,18	0,03	4,44	0,89	µg/l	106%
Mercury	1,38	0,02	1,37	0,27	µg/l	99%
Selenium	1,35	0,06	1,33	0,27	µg/l	99%
Uranium	4,53	0,03	4,66	0,93	µg/l	103%
Zinc	25,9	0,7	25,8	5,2	µg/l	100%



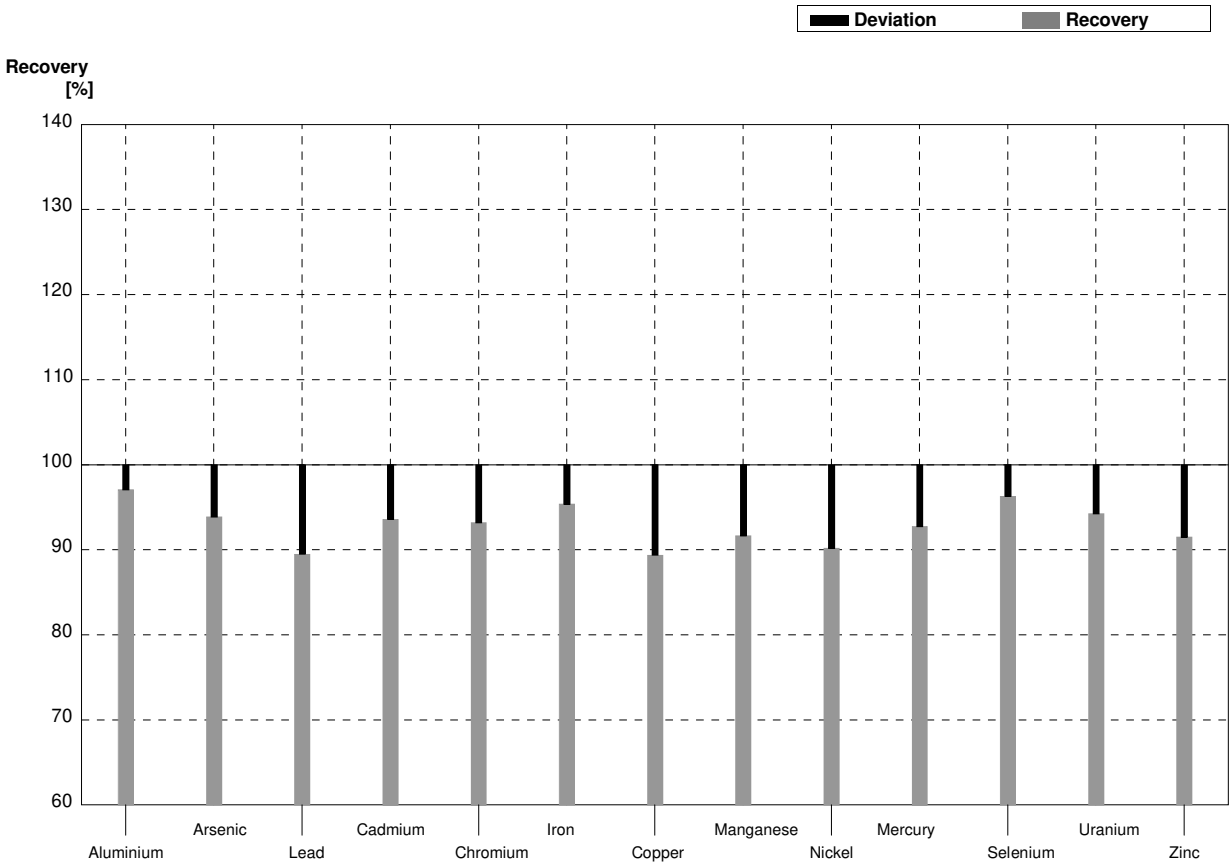
Sample M158B
Laboratory E

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3	31,2	6,2	µg/l	93%
Arsenic	2,31	0,02	2,36	0,4	µg/l	102%
Lead	5,83	0,04	5,88	1,18	µg/l	101%
Cadmium	0,161	0,002	0,162	0,032	µg/l	101%
Chromium	0,88	0,01	0,95	0,19	µg/l	108%
Iron	102	1	99	20	µg/l	97%
Copper	3,84	0,03	3,83	0,77	µg/l	100%
Manganese	24,0	0,2	26,2	5,2	µg/l	109%
Nickel	2,27	0,02	2,46	0,49	µg/l	108%
Mercury	0,55	0,01	0,547	0,109	µg/l	99%
Selenium	2,27	0,06	2,18	0,44	µg/l	96%
Uranium	3,45	0,03	3,54	0,708	µg/l	103%
Zinc	204	1	215	43	µg/l	105%



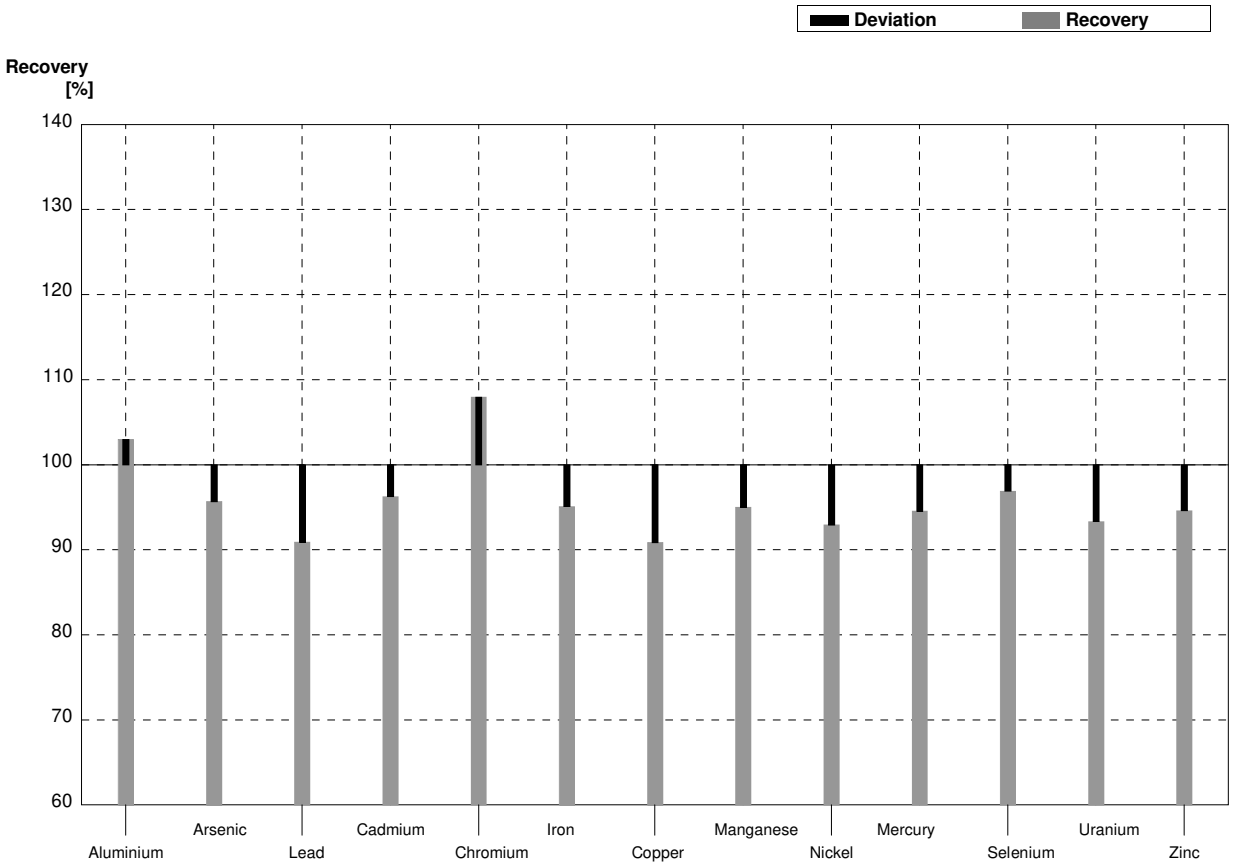
Sample M158A
Laboratory F

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1	100	4	µg/l	97%
Arsenic	3,60	0,02	3,38	0,10	µg/l	94%
Lead	18,1	0,1	16,2	0,1	µg/l	90%
Cadmium	1,56	0,01	1,46	0,03	µg/l	94%
Chromium	10,3	0,1	9,6	0,1	µg/l	93%
Iron	21,6	0,2	20,6	0,8	µg/l	95%
Copper	1,79	0,02	1,60	0,05	µg/l	89%
Manganese	2,04	0,03	1,87	0,04	µg/l	92%
Nickel	4,18	0,03	3,77	0,11	µg/l	90%
Mercury	1,38	0,02	1,28	0,04	µg/l	93%
Selenium	1,35	0,06	1,30	0,05	µg/l	96%
Uranium	4,53	0,03	4,27	0,14	µg/l	94%
Zinc	25,9	0,7	23,7	0,8	µg/l	92%



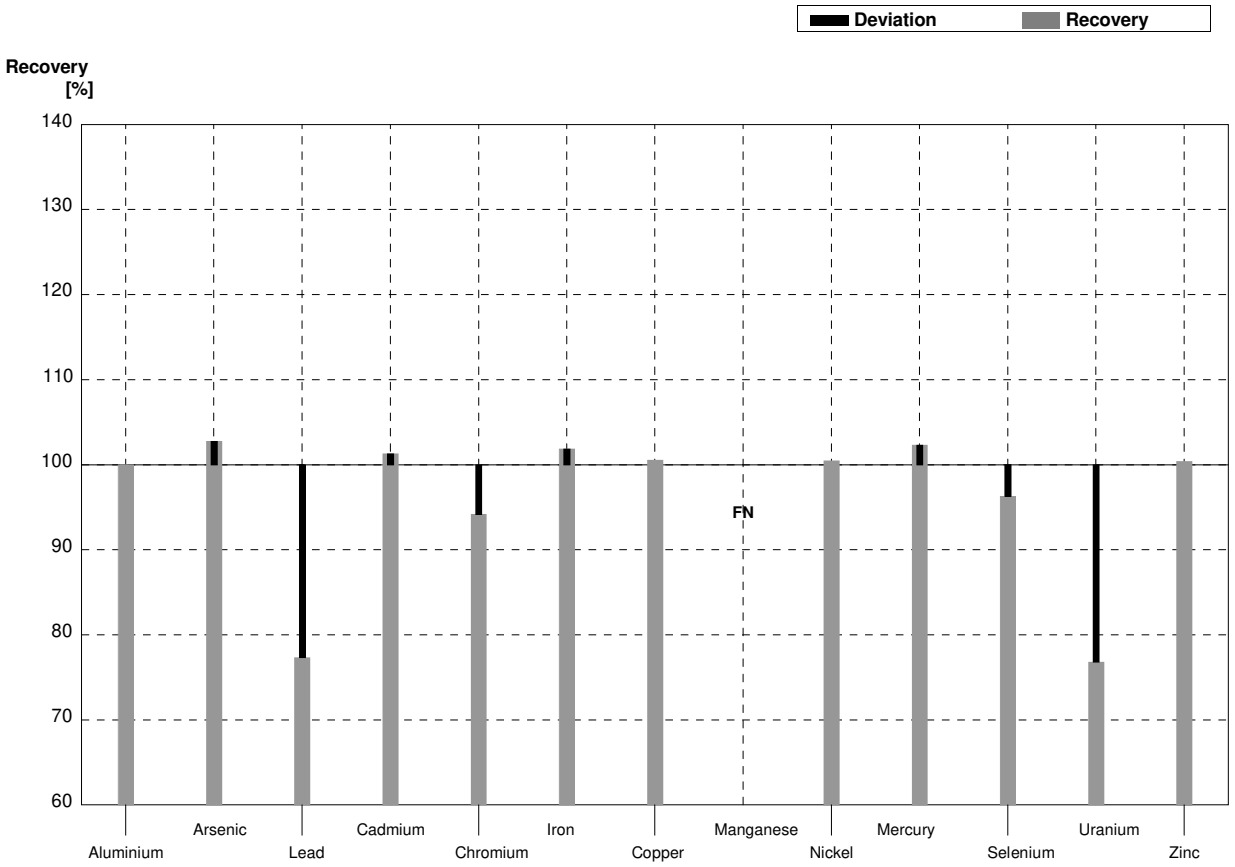
Sample M158B
Laboratory F

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3	34,5	1,3	µg/l	103%
Arsenic	2,31	0,02	2,21	0,11	µg/l	96%
Lead	5,83	0,04	5,3	0,1	µg/l	91%
Cadmium	0,161	0,002	0,155	0,003	µg/l	96%
Chromium	0,88	0,01	0,95	0,07	µg/l	108%
Iron	102	1	97	2	µg/l	95%
Copper	3,84	0,03	3,49	0,08	µg/l	91%
Manganese	24,0	0,2	22,8	0,4	µg/l	95%
Nickel	2,27	0,02	2,11	0,12	µg/l	93%
Mercury	0,55	0,01	0,520	0,015	µg/l	95%
Selenium	2,27	0,06	2,20	0,11	µg/l	97%
Uranium	3,45	0,03	3,22	0,07	µg/l	93%
Zinc	204	1	193	5	µg/l	95%



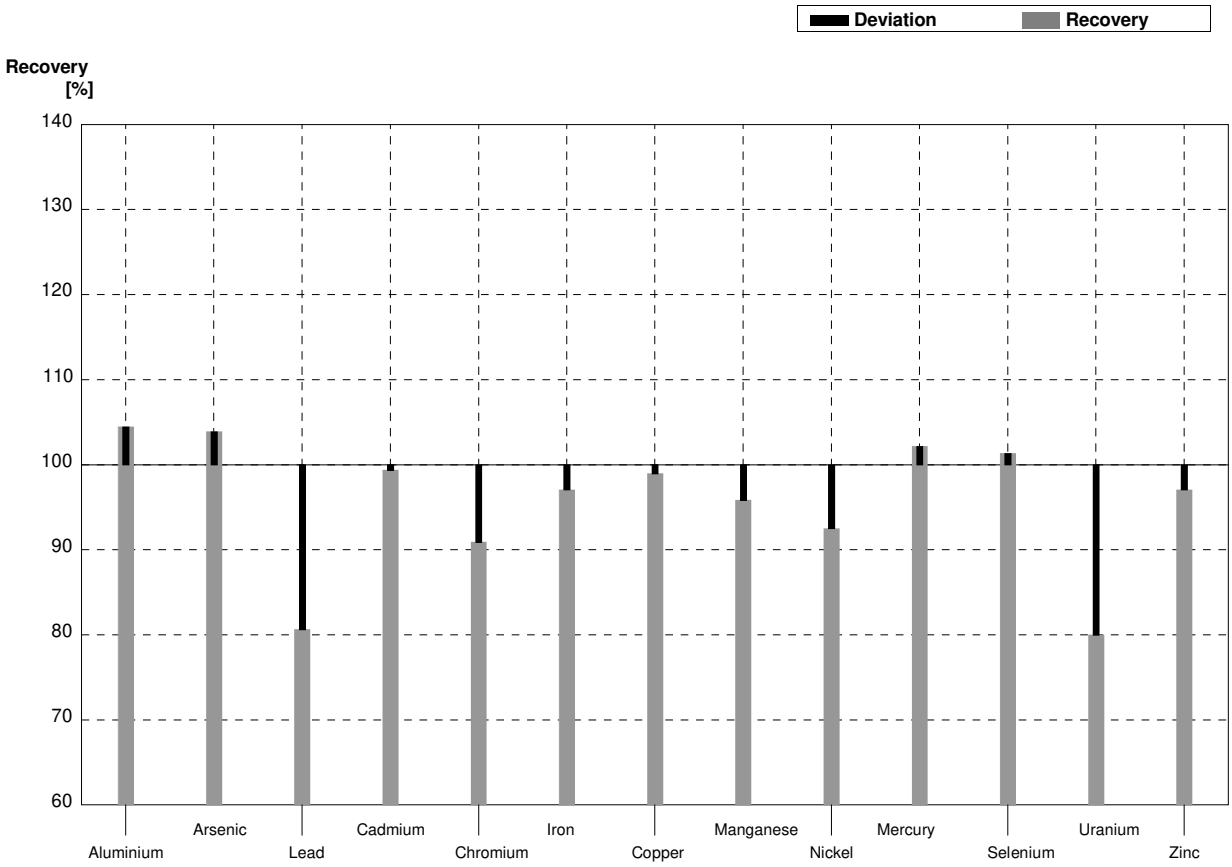
Sample M158A
Laboratory G

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1	103,000	10,3000	µg/l	100%
Arsenic	3,60	0,02	3,70000	0,44400	µg/l	103%
Lead	18,1	0,1	14,0000	1,12000	µg/l	77%
Cadmium	1,56	0,01	1,58000	0,12640	µg/l	101%
Chromium	10,3	0,1	9,7000	1,16400	µg/l	94%
Iron	21,6	0,2	22,0000	5,72000	µg/l	102%
Copper	1,79	0,02	1,80000	0,14400	µg/l	101%
Manganese	2,04	0,03	<2,00		µg/l	FN
Nickel	4,18	0,03	4,20000	0,42000	µg/l	100%
Mercury	1,38	0,02	1,41200	0,21200	µg/l	102%
Selenium	1,35	0,06	1,3000	0,19500	µg/l	96%
Uranium	4,53	0,03	3,48000	0,17400	µg/l	77%
Zinc	25,9	0,7	26,0000	2,6000	µg/l	100%



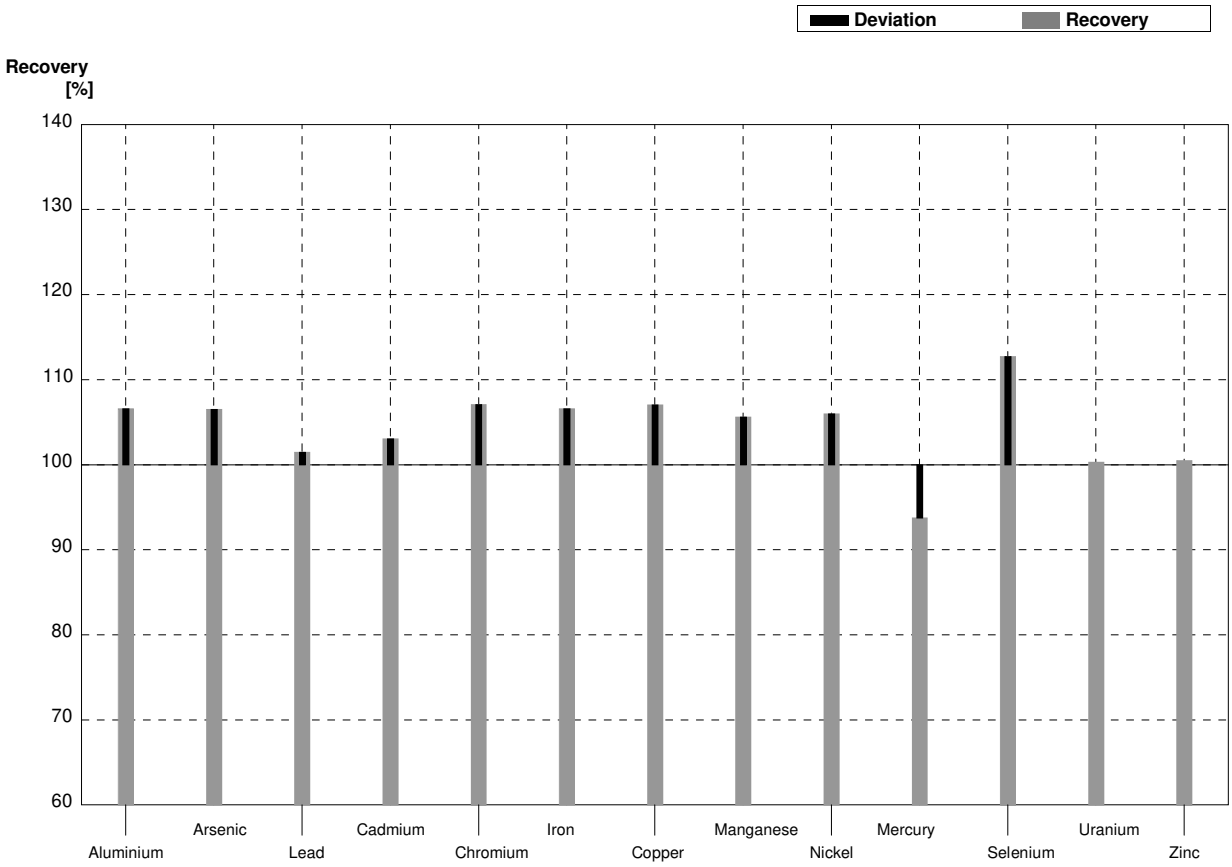
Sample M158B
Laboratory G

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3	35,000	3,5000	µg/l	104%
Arsenic	2,31	0,02	2,4000	0,28800	µg/l	104%
Lead	5,83	0,04	4,7000	0,37600	µg/l	81%
Cadmium	0,161	0,002	0,1600	0,01280	µg/l	99%
Chromium	0,88	0,01	0,80000	0,09600	µg/l	91%
Iron	102	1	99,000	25,7400	µg/l	97%
Copper	3,84	0,03	3,80000	0,30400	µg/l	99%
Manganese	24,0	0,2	23,0000	2,30000	µg/l	96%
Nickel	2,27	0,02	2,10000	0,21000	µg/l	93%
Mercury	0,55	0,01	0,562	0,08400	µg/l	102%
Selenium	2,27	0,06	2,30000	0,34500	µg/l	101%
Uranium	3,45	0,03	2,76000	0,13800	µg/l	80%
Zinc	204	1	198,000	19,8000	µg/l	97%



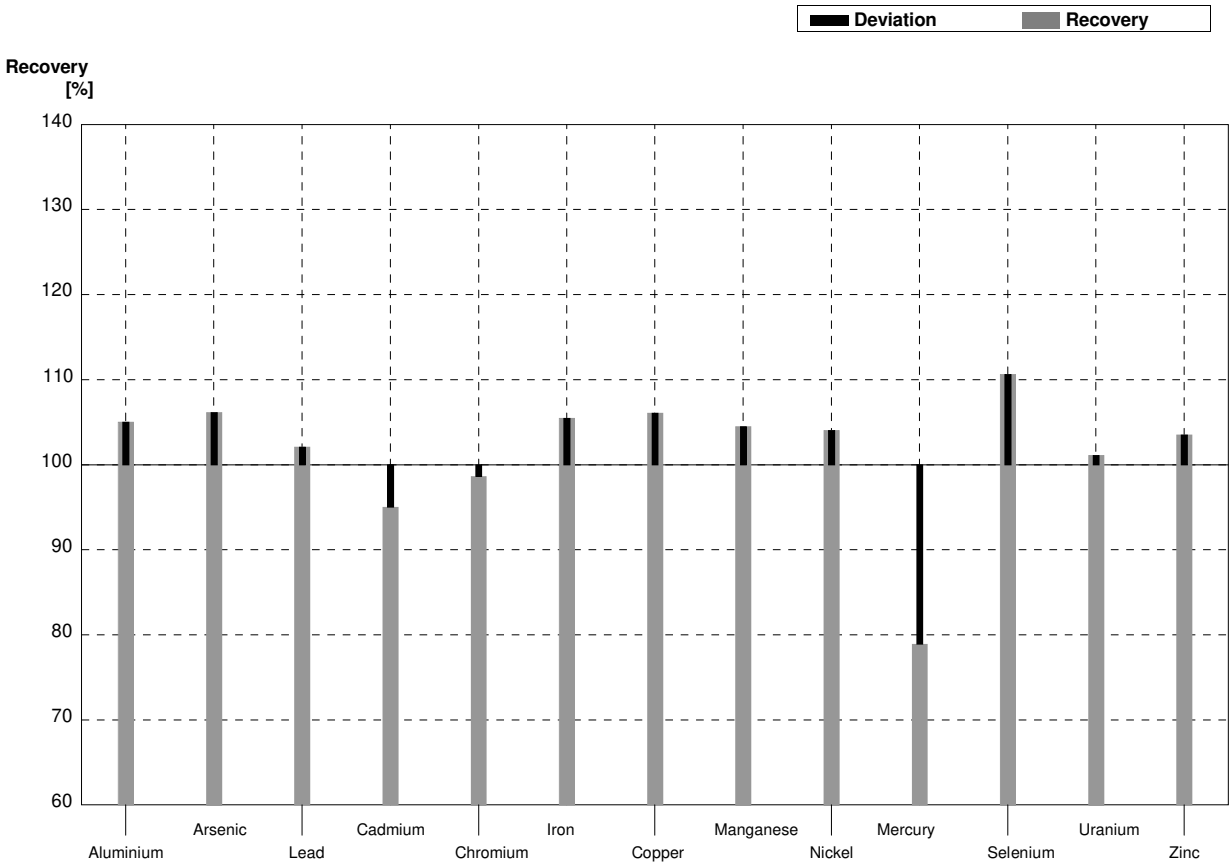
Sample M158A
Laboratory H

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1	109,8		µg/l	107%
Arsenic	3,60	0,02	3,835		µg/l	107%
Lead	18,1	0,1	18,37		µg/l	101%
Cadmium	1,56	0,01	1,608		µg/l	103%
Chromium	10,3	0,1	11,03		µg/l	107%
Iron	21,6	0,2	23,03		µg/l	107%
Copper	1,79	0,02	1,916		µg/l	107%
Manganese	2,04	0,03	2,155		µg/l	106%
Nickel	4,18	0,03	4,431		µg/l	106%
Mercury	1,38	0,02	1,294		µg/l	94%
Selenium	1,35	0,06	1,522		µg/l	113%
Uranium	4,53	0,03	4,544		µg/l	100%
Zinc	25,9	0,7	26,03		µg/l	101%



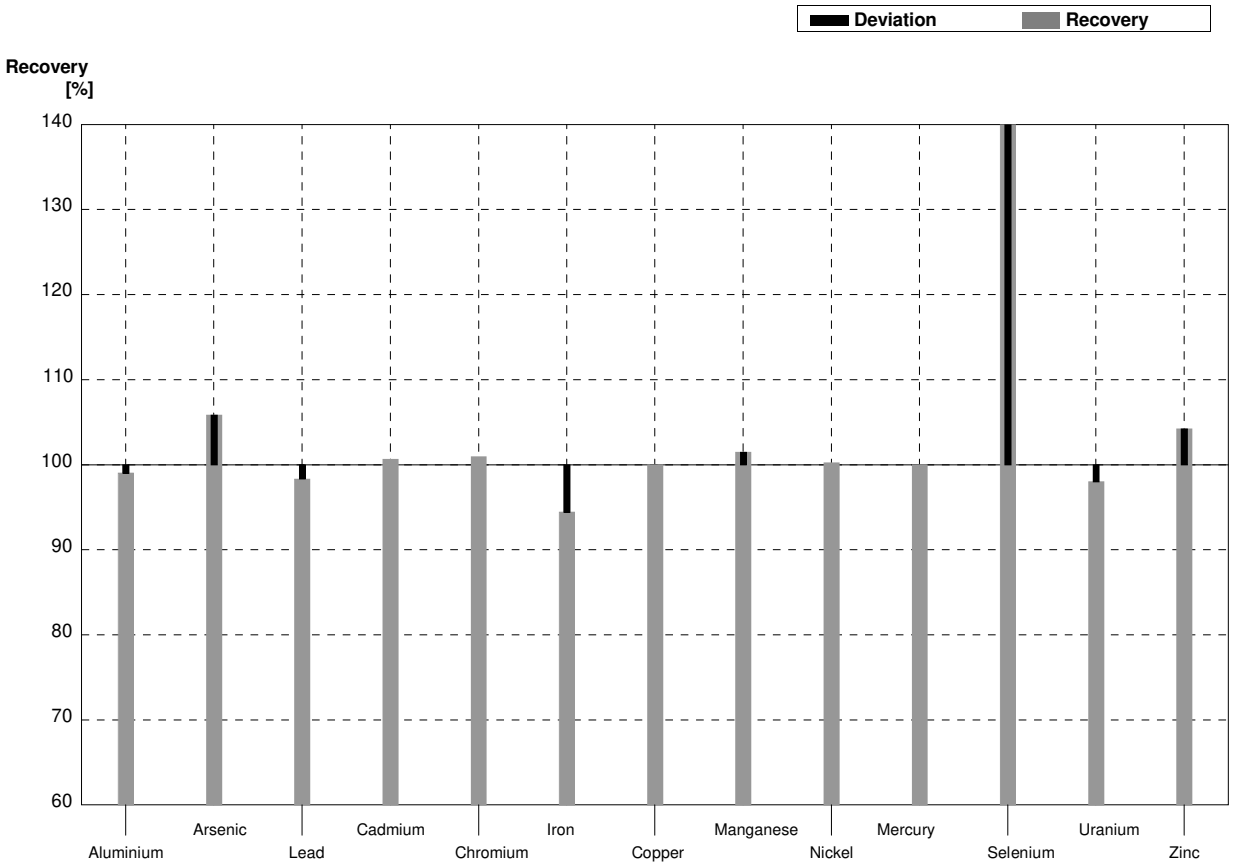
Sample M158B
Laboratory H

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3	35,18		µg/l	105%
Arsenic	2,31	0,02	2,452		µg/l	106%
Lead	5,83	0,04	5,953		µg/l	102%
Cadmium	0,161	0,002	0,153		µg/l	95%
Chromium	0,88	0,01	0,868		µg/l	99%
Iron	102	1	107,6		µg/l	105%
Copper	3,84	0,03	4,074		µg/l	106%
Manganese	24,0	0,2	25,08		µg/l	105%
Nickel	2,27	0,02	2,362		µg/l	104%
Mercury	0,55	0,01	0,434		µg/l	79%
Selenium	2,27	0,06	2,511		µg/l	111%
Uranium	3,45	0,03	3,488		µg/l	101%
Zinc	204	1	211,2		µg/l	104%



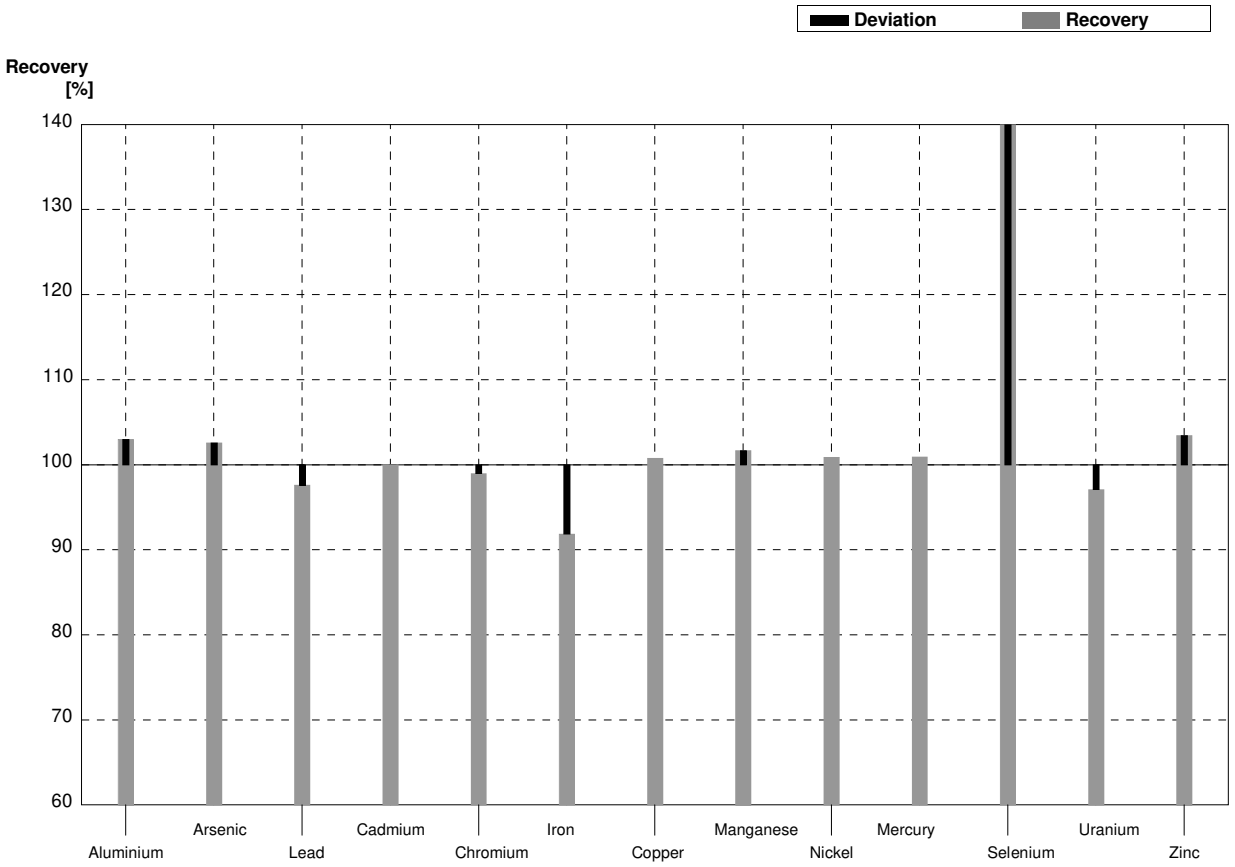
Sample M158A
Laboratory I

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1	102	1,905	µg/l	99%
Arsenic	3,60	0,02	3,81	0,081	µg/l	106%
Lead	18,1	0,1	17,8	0,306	µg/l	98%
Cadmium	1,56	0,01	1,57	0,046	µg/l	101%
Chromium	10,3	0,1	10,4	0,058	µg/l	101%
Iron	21,6	0,2	20,4	0,306	µg/l	94%
Copper	1,79	0,02	1,79	0,023	µg/l	100%
Manganese	2,04	0,03	2,07	0,015	µg/l	101%
Nickel	4,18	0,03	4,19	0,062	µg/l	100%
Mercury	1,38	0,02	1,38	0,025	µg/l	100%
Selenium	1,35	0,06	2,31	0,081	µg/l	171%
Uranium	4,53	0,03	4,44	0,072	µg/l	98%
Zinc	25,9	0,7	27,0	0,666	µg/l	104%



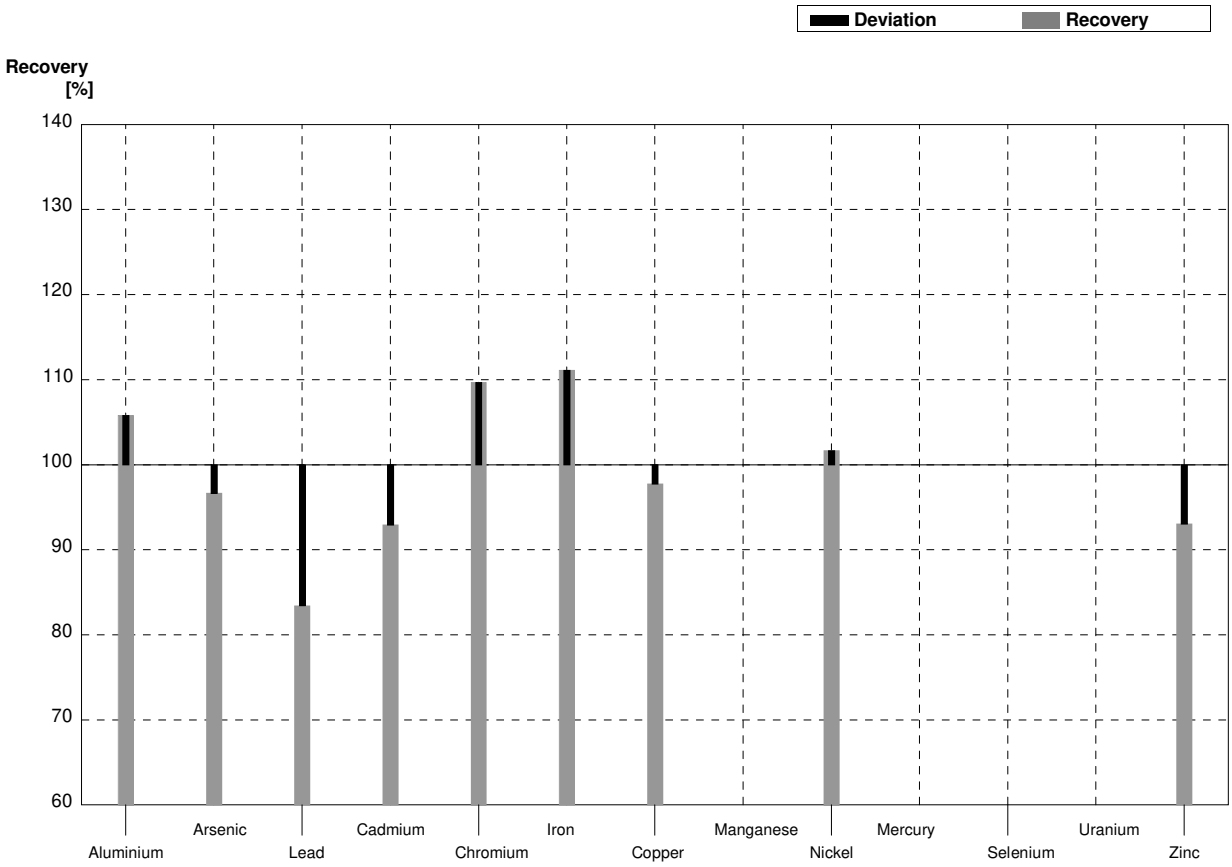
Sample M158B
Laboratory I

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3	34,5	0,808	µg/l	103%
Arsenic	2,31	0,02	2,37	0,032	µg/l	103%
Lead	5,83	0,04	5,69	0,036	µg/l	98%
Cadmium	0,161	0,002	0,161	0,009	µg/l	100%
Chromium	0,88	0,01	0,871	0,027	µg/l	99%
Iron	102	1	93,7	0,473	µg/l	92%
Copper	3,84	0,03	3,87	0,012	µg/l	101%
Manganese	24,0	0,2	24,4	0,231	µg/l	102%
Nickel	2,27	0,02	2,29	0,042	µg/l	101%
Mercury	0,55	0,01	0,555	0,007	µg/l	101%
Selenium	2,27	0,06	47,4	0,265	µg/l	2088%
Uranium	3,45	0,03	3,35	0,025	µg/l	97%
Zinc	204	1	211	1,732	µg/l	103%



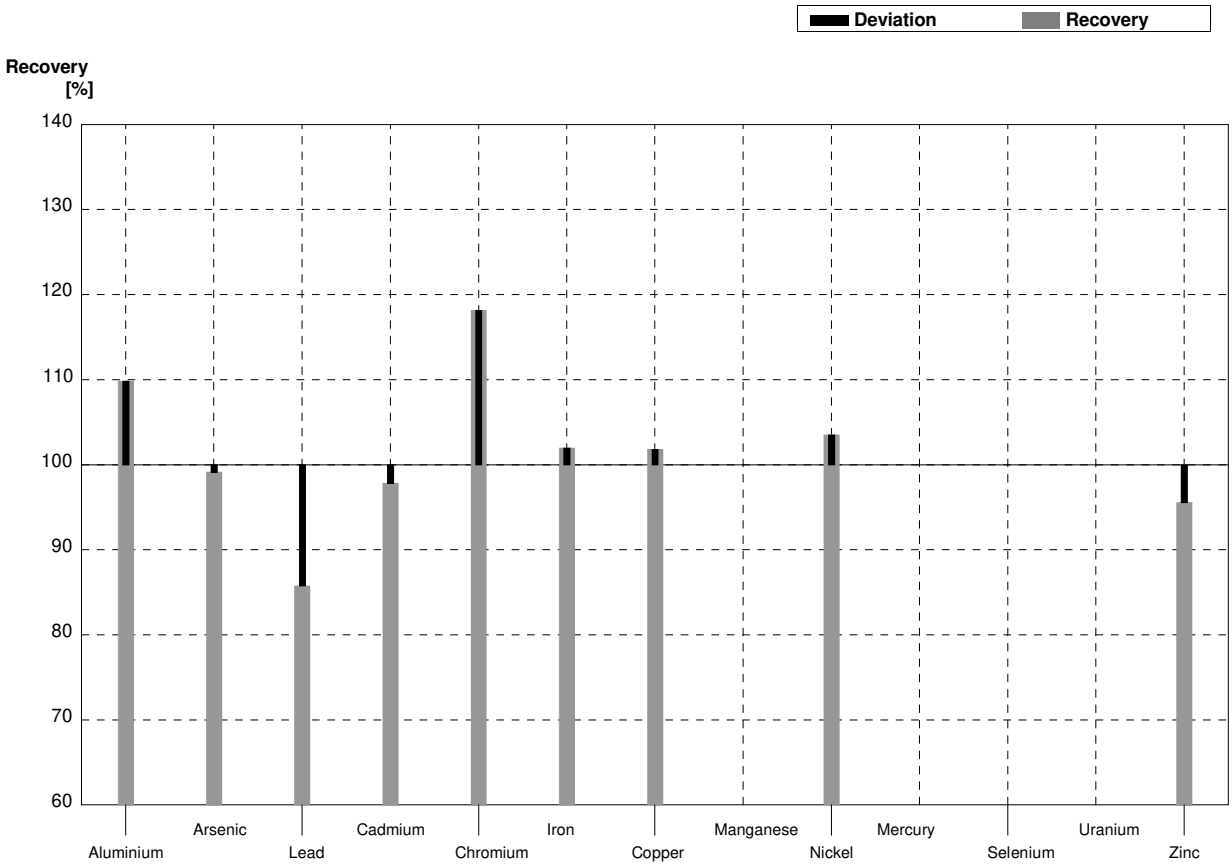
Sample M158A
Laboratory J

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1	109		µg/l	106%
Arsenic	3,60	0,02	3,48		µg/l	97%
Lead	18,1	0,1	15,1		µg/l	83%
Cadmium	1,56	0,01	1,45		µg/l	93%
Chromium	10,3	0,1	11,3		µg/l	110%
Iron	21,6	0,2	24,0		µg/l	111%
Copper	1,79	0,02	1,75		µg/l	98%
Manganese	2,04	0,03			µg/l	
Nickel	4,18	0,03	4,25		µg/l	102%
Mercury	1,38	0,02			µg/l	
Selenium	1,35	0,06			µg/l	
Uranium	4,53	0,03			µg/l	
Zinc	25,9	0,7	24,1		µg/l	93%



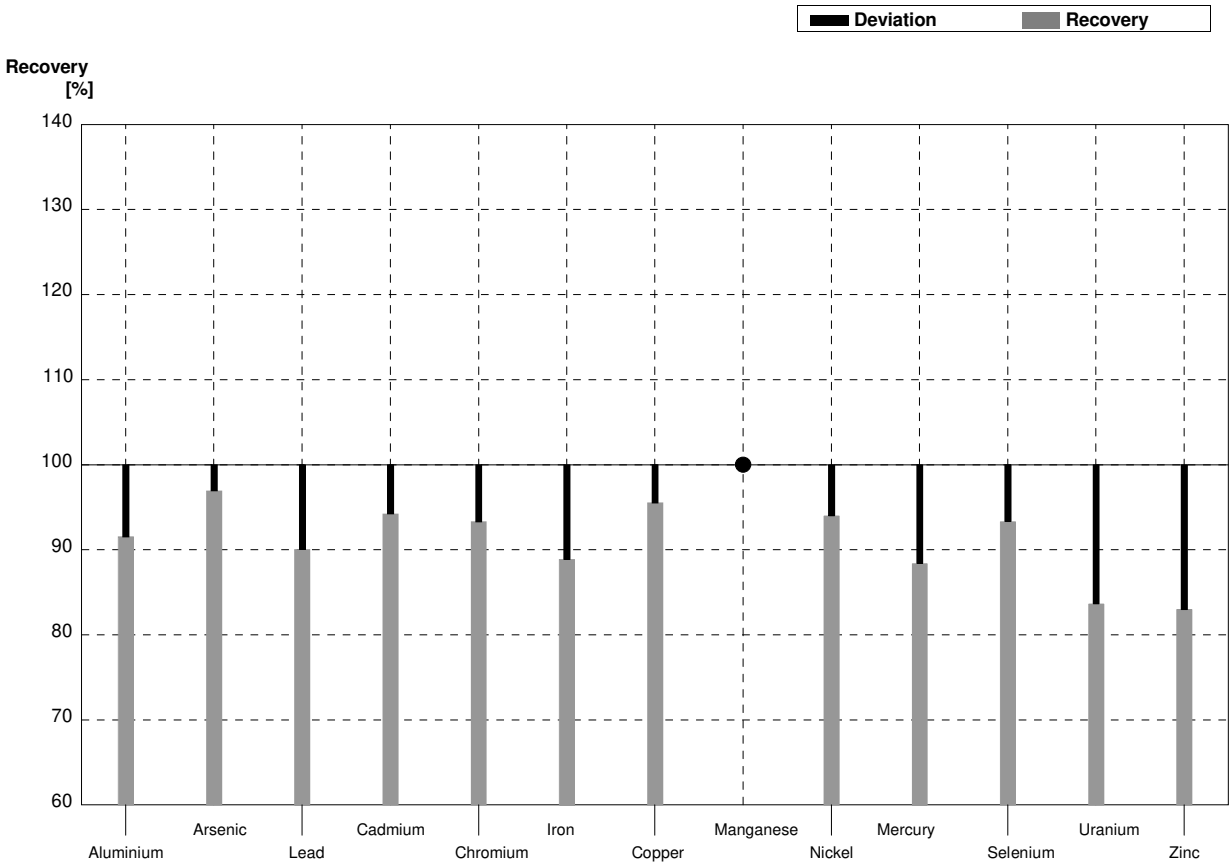
Sample M158B
Laboratory J

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3	36,8		µg/l	110%
Arsenic	2,31	0,02	2,29		µg/l	99%
Lead	5,83	0,04	5,0		µg/l	86%
Cadmium	0,161	0,002	0,1575		µg/l	98%
Chromium	0,88	0,01	1,04		µg/l	118%
Iron	102	1	104		µg/l	102%
Copper	3,84	0,03	3,91		µg/l	102%
Manganese	24,0	0,2			µg/l	
Nickel	2,27	0,02	2,35		µg/l	104%
Mercury	0,55	0,01			µg/l	
Selenium	2,27	0,06			µg/l	
Uranium	3,45	0,03			µg/l	
Zinc	204	1	195		µg/l	96%



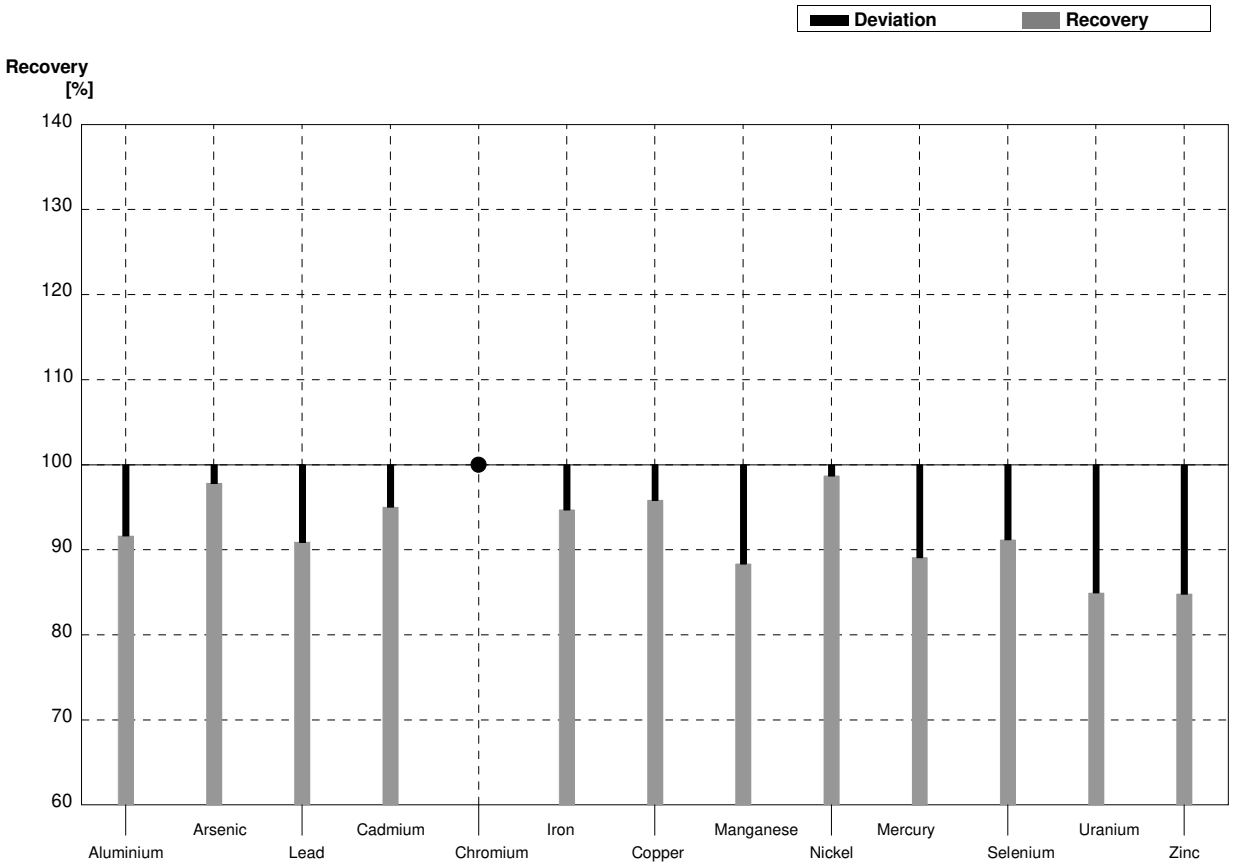
Sample M158A
Laboratory K

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1	94,3	10,5	µg/l	92%
Arsenic	3,60	0,02	3,49	0,20	µg/l	97%
Lead	18,1	0,1	16,3	1,7	µg/l	90%
Cadmium	1,56	0,01	1,47	0,07	µg/l	94%
Chromium	10,3	0,1	9,61	1,36	µg/l	93%
Iron	21,6	0,2	19,2	2,1	µg/l	89%
Copper	1,79	0,02	1,71	0,09	µg/l	96%
Manganese	2,04	0,03	<5		µg/l	•
Nickel	4,18	0,03	3,93	0,30	µg/l	94%
Mercury	1,38	0,02	1,22	0,19	µg/l	88%
Selenium	1,35	0,06	1,26	0,15	µg/l	93%
Uranium	4,53	0,03	3,79	0,40	µg/l	84%
Zinc	25,9	0,7	21,5	1,3	µg/l	83%



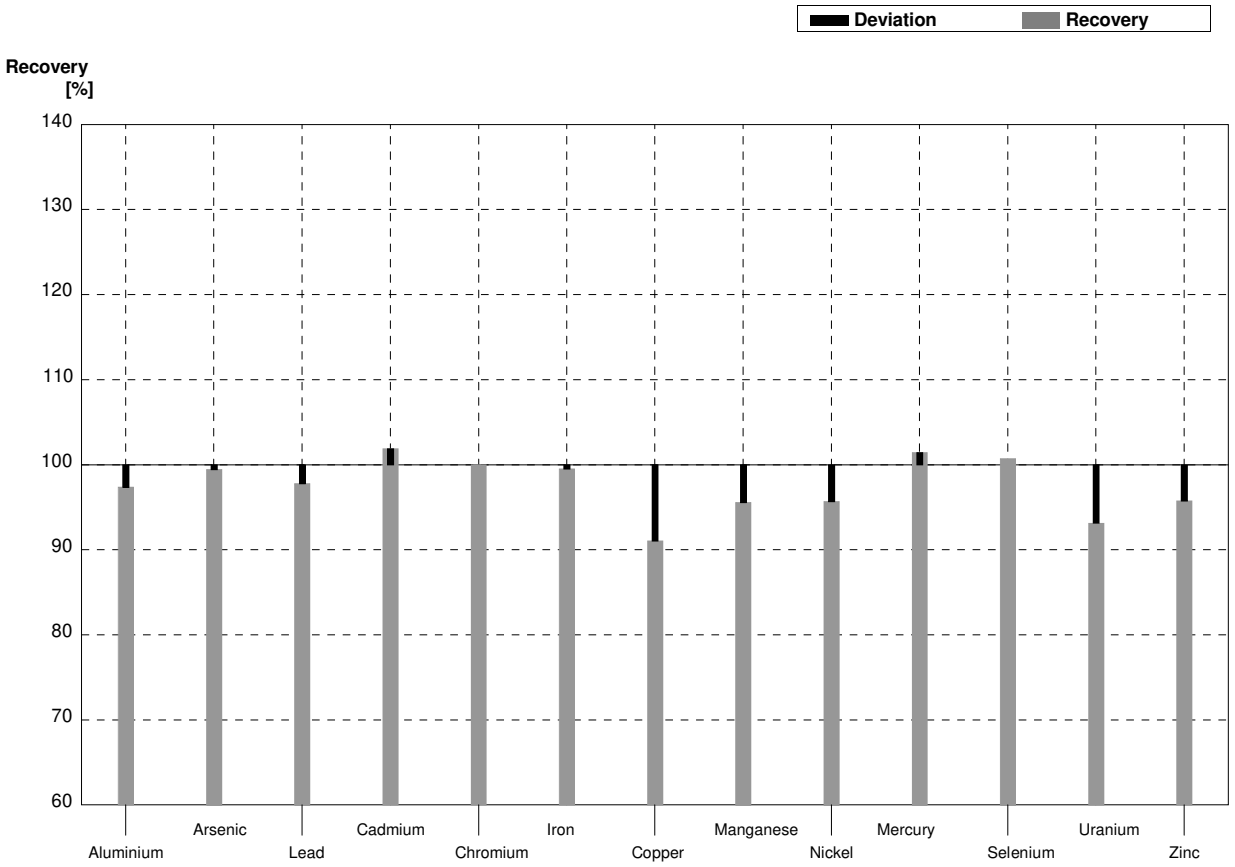
Sample M158B
Laboratory K

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3	30,7	3,4	µg/l	92%
Arsenic	2,31	0,02	2,26	0,13	µg/l	98%
Lead	5,83	0,04	5,30	0,56	µg/l	91%
Cadmium	0,161	0,002	0,153	0,012	µg/l	95%
Chromium	0,88	0,01	<1		µg/l	•
Iron	102	1	96,6	10,7	µg/l	95%
Copper	3,84	0,03	3,68	0,20	µg/l	96%
Manganese	24,0	0,2	21,2	1,2	µg/l	88%
Nickel	2,27	0,02	2,24	0,17	µg/l	99%
Mercury	0,55	0,01	0,490	0,076	µg/l	89%
Selenium	2,27	0,06	2,07	0,25	µg/l	91%
Uranium	3,45	0,03	2,93	0,31	µg/l	85%
Zinc	204	1	173	11	µg/l	85%



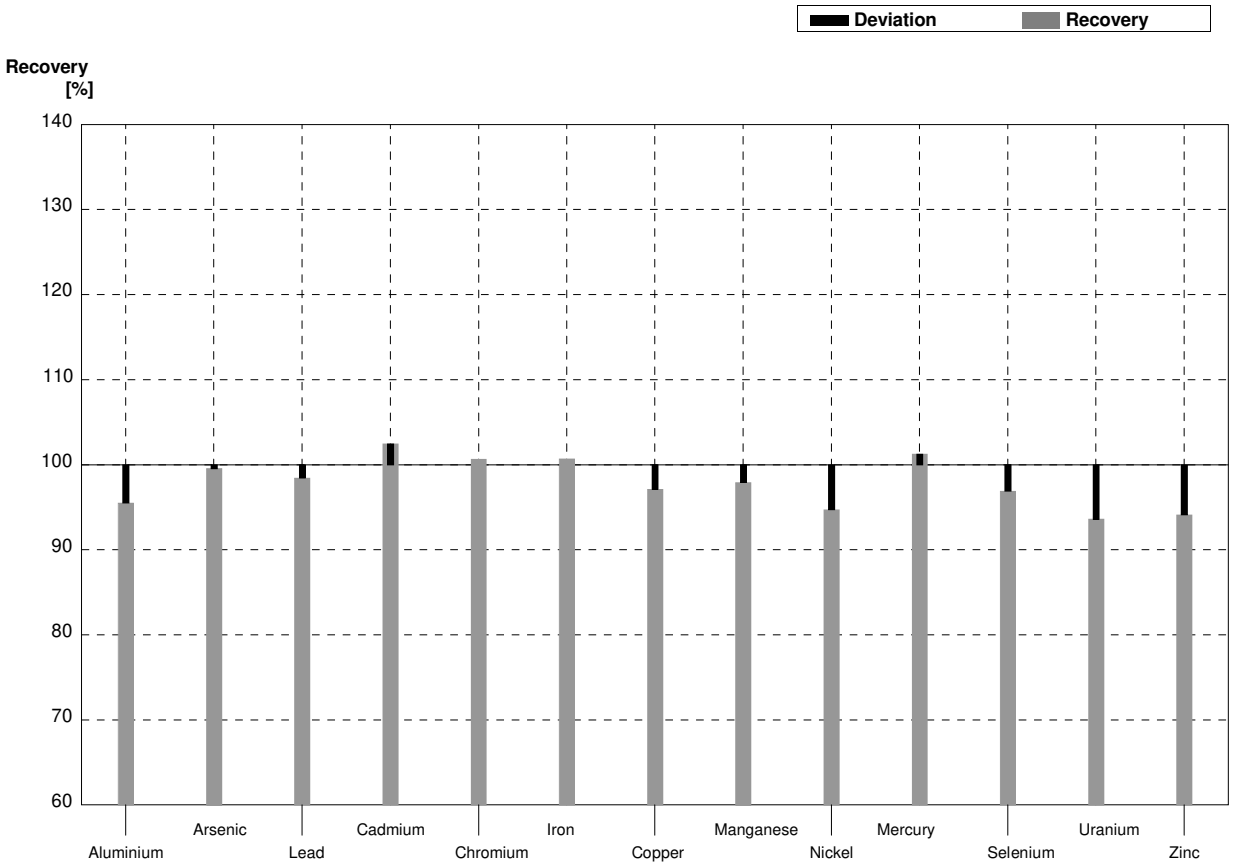
Sample M158A
Laboratory L

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1	100,3	25	µg/l	97%
Arsenic	3,60	0,02	3,58	1,1	µg/l	99%
Lead	18,1	0,1	17,7	4,4	µg/l	98%
Cadmium	1,56	0,01	1,59	0,40	µg/l	102%
Chromium	10,3	0,1	10,3	3,1	µg/l	100%
Iron	21,6	0,2	21,5	6,5	µg/l	100%
Copper	1,79	0,02	1,63	0,41	µg/l	91%
Manganese	2,04	0,03	1,95	0,59	µg/l	96%
Nickel	4,18	0,03	4,00	1,0	µg/l	96%
Mercury	1,38	0,02	1,40	0,42	µg/l	101%
Selenium	1,35	0,06	1,36	0,54	µg/l	101%
Uranium	4,53	0,03	4,22	1,3	µg/l	93%
Zinc	25,9	0,7	24,8	6,2	µg/l	96%



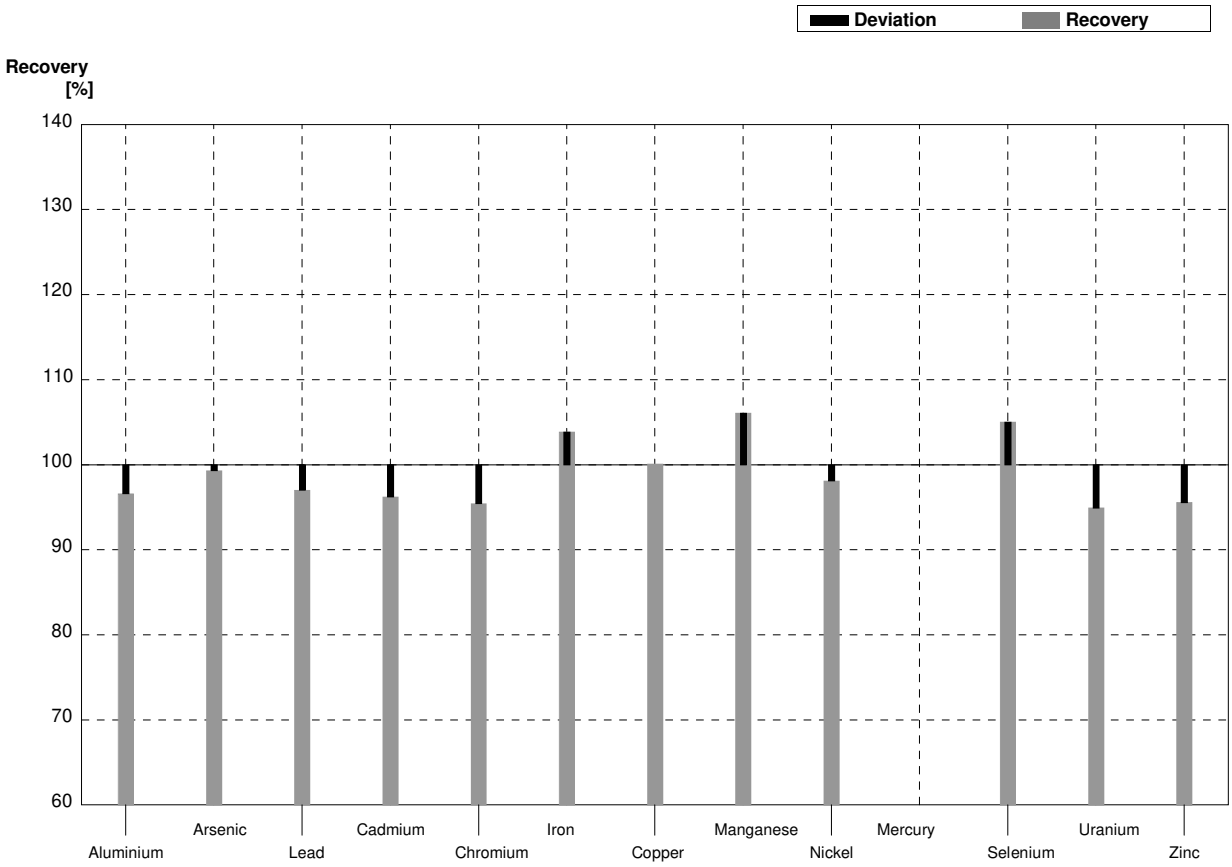
Sample M158B
Laboratory L

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3	32,0	8,0	µg/l	96%
Arsenic	2,31	0,02	2,30	0,69	µg/l	100%
Lead	5,83	0,04	5,74	1,4	µg/l	98%
Cadmium	0,161	0,002	0,165	0,041	µg/l	102%
Chromium	0,88	0,01	0,886	0,27	µg/l	101%
Iron	102	1	102,7	31	µg/l	101%
Copper	3,84	0,03	3,73	0,93	µg/l	97%
Manganese	24,0	0,2	23,5	7,1	µg/l	98%
Nickel	2,27	0,02	2,15	0,54	µg/l	95%
Mercury	0,55	0,01	0,557	0,17	µg/l	101%
Selenium	2,27	0,06	2,20	0,88	µg/l	97%
Uranium	3,45	0,03	3,23	0,97	µg/l	94%
Zinc	204	1	192	48	µg/l	94%



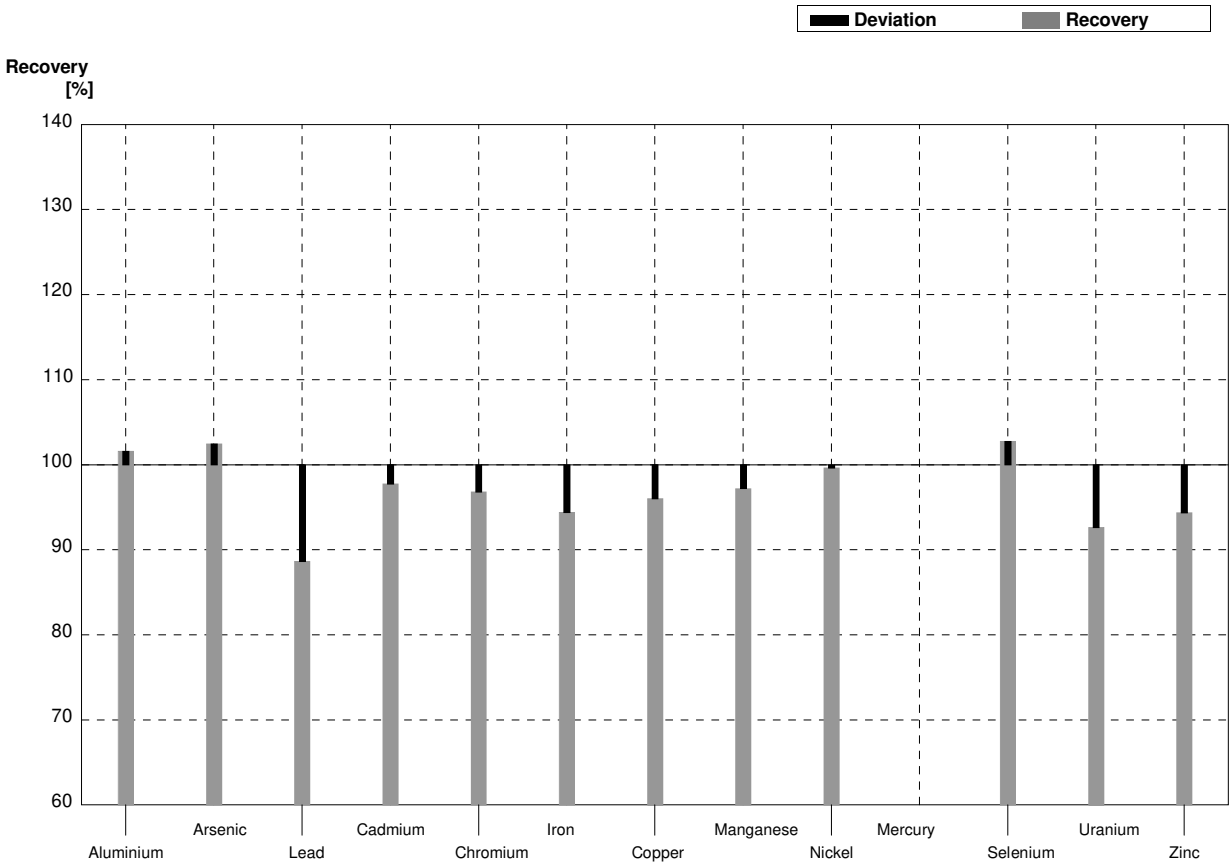
Sample M158A
Laboratory M

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1	99,5	10,0	µg/l	97%
Arsenic	3,60	0,02	3,575	0,358	µg/l	99%
Lead	18,1	0,1	17,56	1,76	µg/l	97%
Cadmium	1,56	0,01	1,501	0,150	µg/l	96%
Chromium	10,3	0,1	9,83	0,98	µg/l	95%
Iron	21,6	0,2	22,43	2,24	µg/l	104%
Copper	1,79	0,02	1,792	0,179	µg/l	100%
Manganese	2,04	0,03	2,164	0,216	µg/l	106%
Nickel	4,18	0,03	4,101	0,410	µg/l	98%
Mercury	1,38	0,02			µg/l	
Selenium	1,35	0,06	1,418	0,142	µg/l	105%
Uranium	4,53	0,03	4,300	0,430	µg/l	95%
Zinc	25,9	0,7	24,75	2,48	µg/l	96%



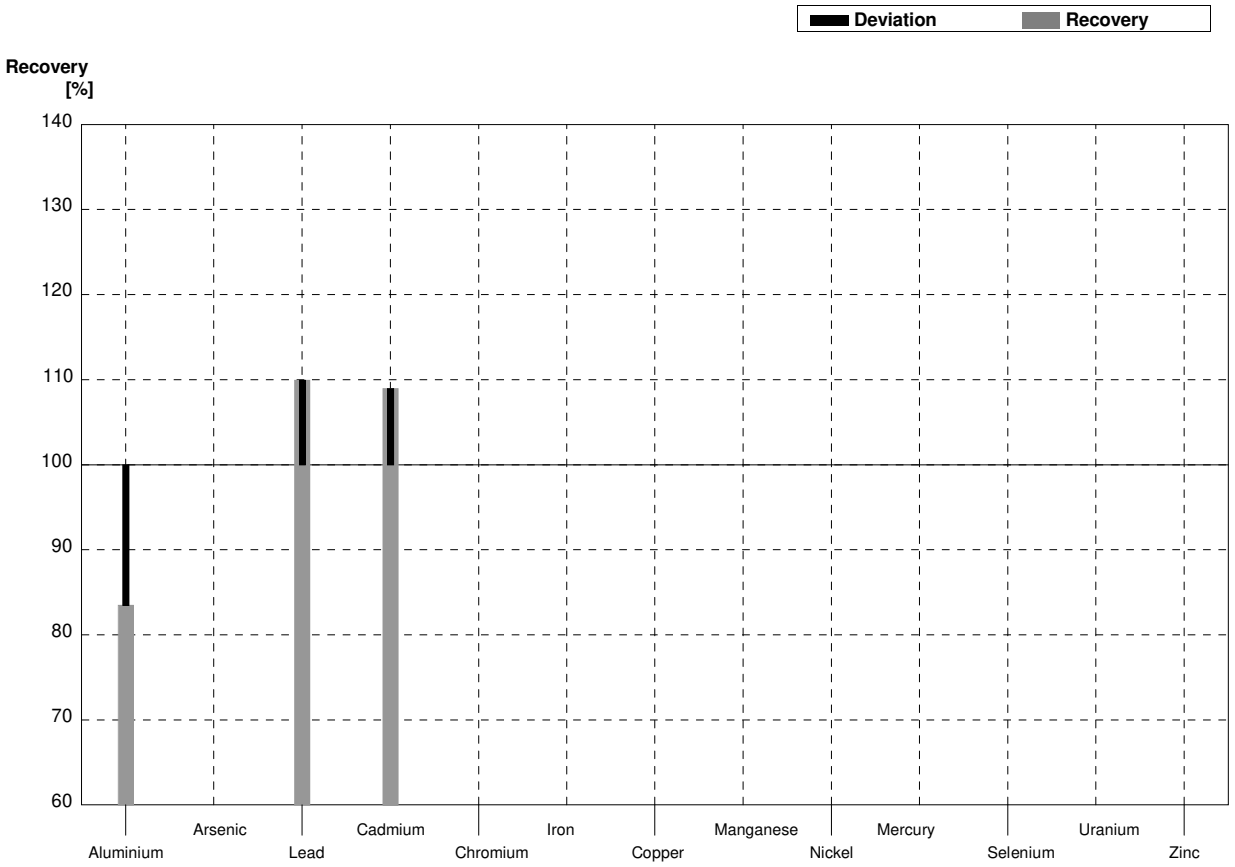
Sample M158B
Laboratory M

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3	34,04	3,40	µg/l	102%
Arsenic	2,31	0,02	2,367	0,237	µg/l	102%
Lead	5,83	0,04	5,168	0,517	µg/l	89%
Cadmium	0,161	0,002	0,1574	0,0157	µg/l	98%
Chromium	0,88	0,01	0,8520	0,0852	µg/l	97%
Iron	102	1	96,3	9,63	µg/l	94%
Copper	3,84	0,03	3,687	0,369	µg/l	96%
Manganese	24,0	0,2	23,33	2,33	µg/l	97%
Nickel	2,27	0,02	2,262	0,226	µg/l	100%
Mercury	0,55	0,01			µg/l	
Selenium	2,27	0,06	2,333	0,233	µg/l	103%
Uranium	3,45	0,03	3,196	0,320	µg/l	93%
Zinc	204	1	192,5	19,3	µg/l	94%



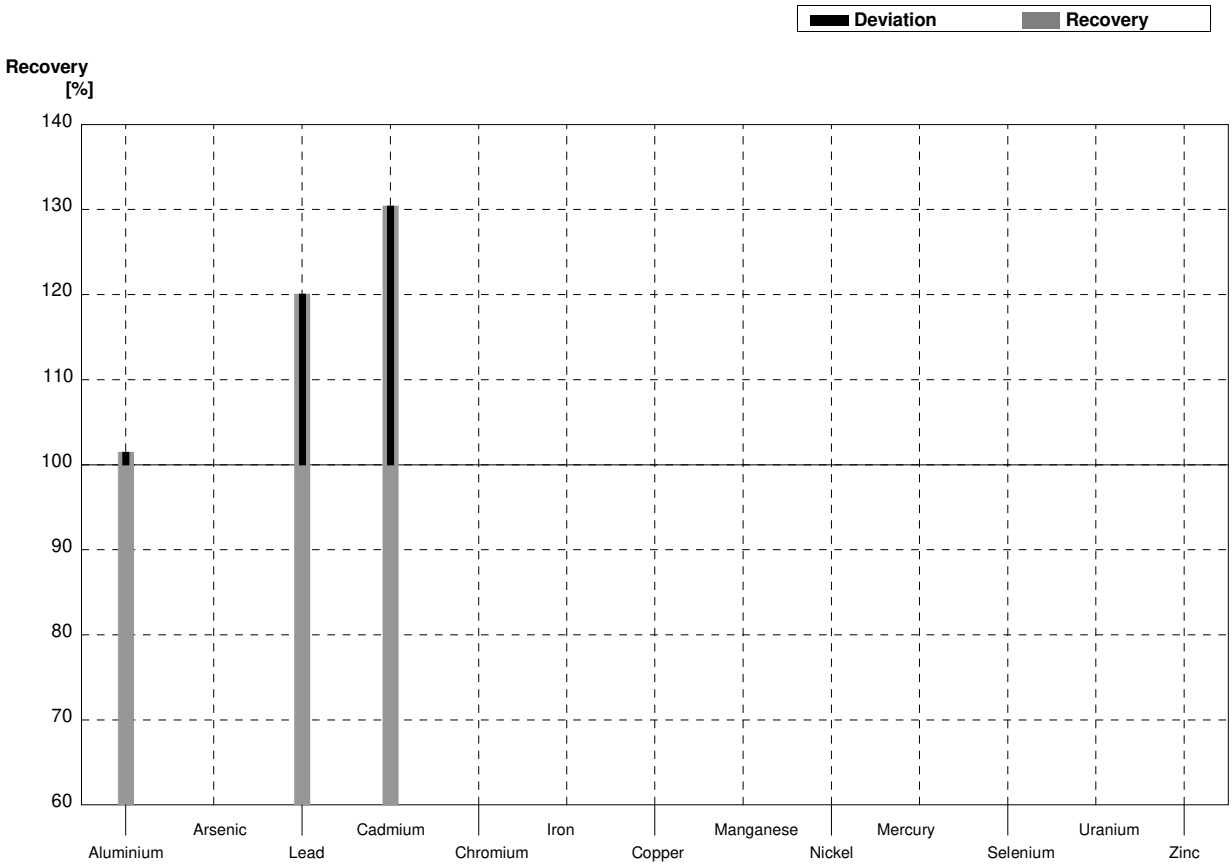
Sample M158A
Laboratory N

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1	86	21,5	µg/l	83%
Arsenic	3,60	0,02			µg/l	
Lead	18,1	0,1	19,9	4,00	µg/l	110%
Cadmium	1,56	0,01	1,70	0,300	µg/l	109%
Chromium	10,3	0,1			µg/l	
Iron	21,6	0,2			µg/l	
Copper	1,79	0,02			µg/l	
Manganese	2,04	0,03			µg/l	
Nickel	4,18	0,03			µg/l	
Mercury	1,38	0,02			µg/l	
Selenium	1,35	0,06			µg/l	
Uranium	4,53	0,03			µg/l	
Zinc	25,9	0,7			µg/l	



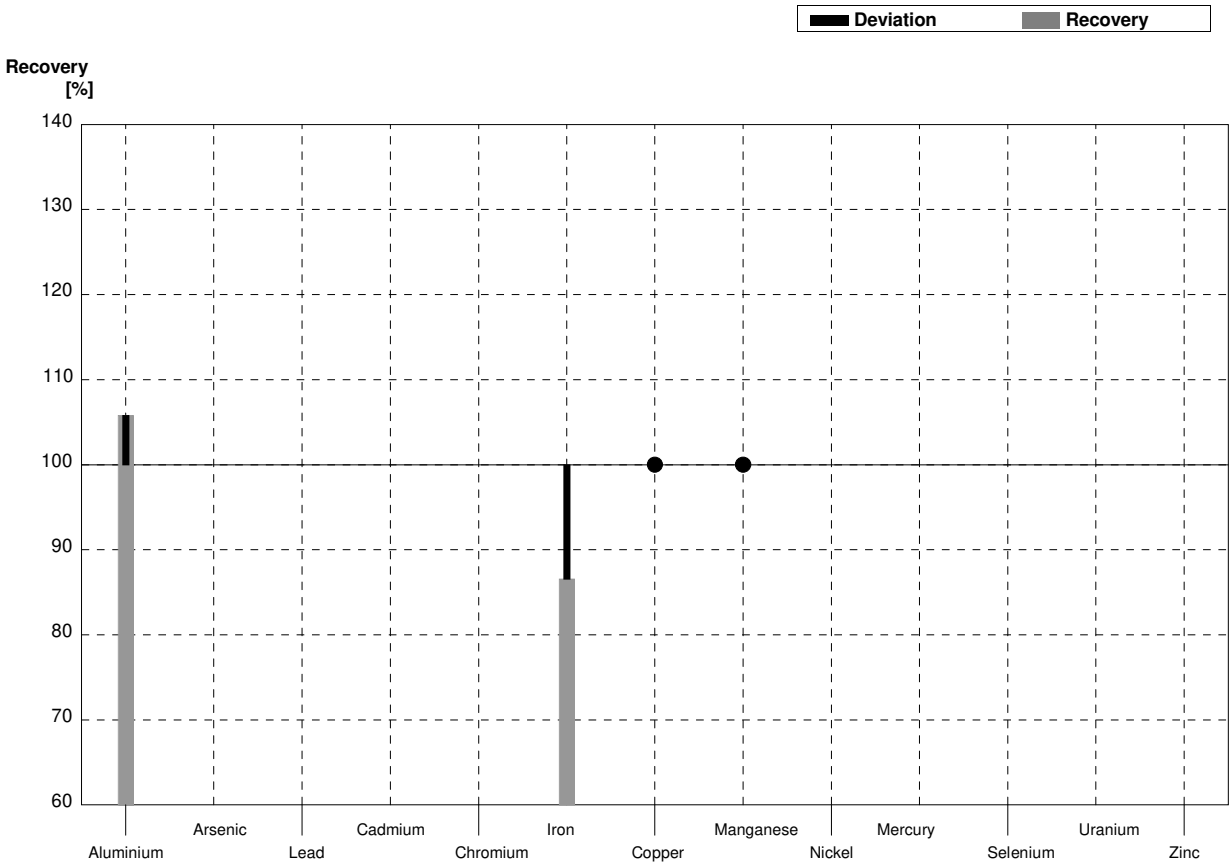
Sample M158B
Laboratory N

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3	34,0	8,5	µg/l	101%
Arsenic	2,31	0,02			µg/l	
Lead	5,83	0,04	7,0	1,70	µg/l	120%
Cadmium	0,161	0,002	0,210	0,0600	µg/l	130%
Chromium	0,88	0,01			µg/l	
Iron	102	1			µg/l	
Copper	3,84	0,03			µg/l	
Manganese	24,0	0,2			µg/l	
Nickel	2,27	0,02			µg/l	
Mercury	0,55	0,01			µg/l	
Selenium	2,27	0,06			µg/l	
Uranium	3,45	0,03			µg/l	
Zinc	204	1			µg/l	



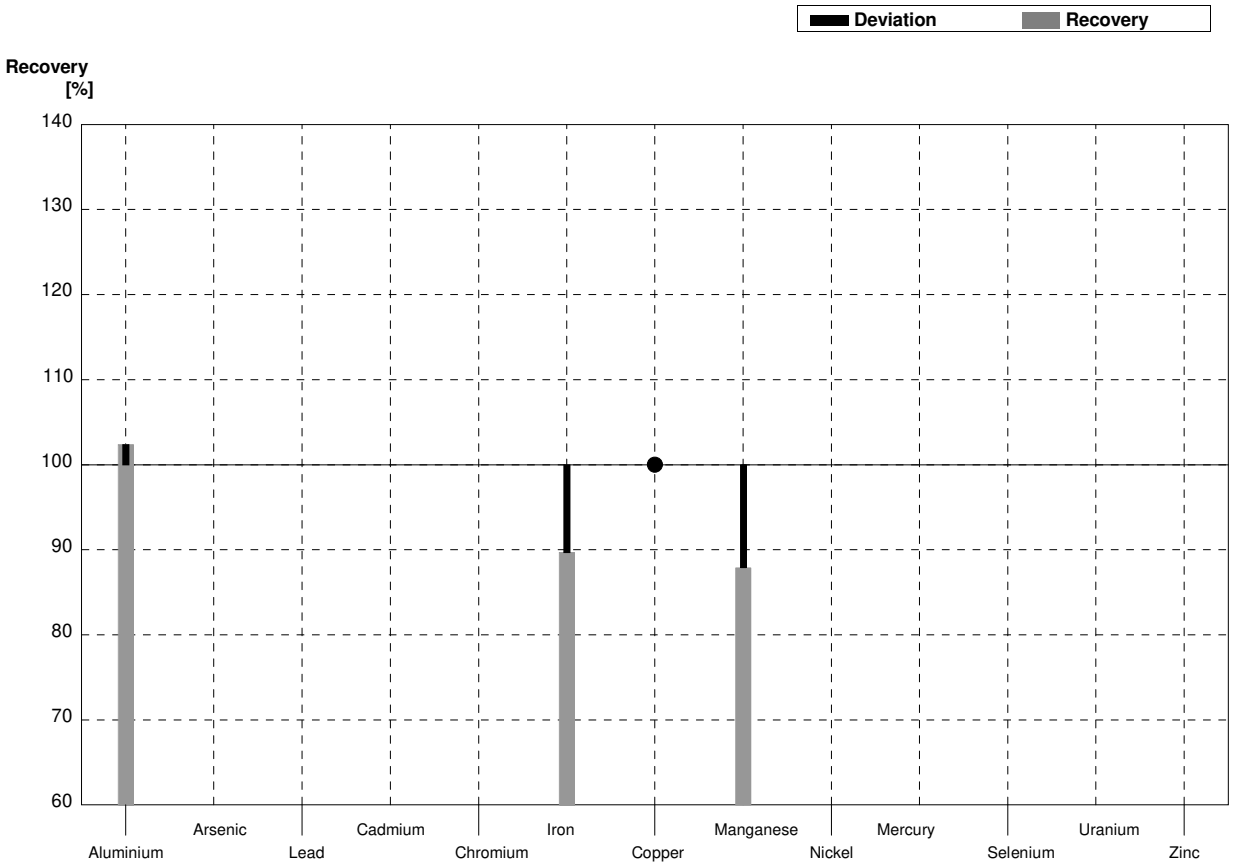
Sample M158A
Laboratory O

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1	109,0	18,530	µg/l	106%
Arsenic	3,60	0,02			µg/l	
Lead	18,1	0,1			µg/l	
Cadmium	1,56	0,01			µg/l	
Chromium	10,3	0,1			µg/l	
Iron	21,6	0,2	18,7	3,366	µg/l	87%
Copper	1,79	0,02	<10		µg/l	•
Manganese	2,04	0,03	<10		µg/l	•
Nickel	4,18	0,03			µg/l	
Mercury	1,38	0,02			µg/l	
Selenium	1,35	0,06			µg/l	
Uranium	4,53	0,03			µg/l	
Zinc	25,9	0,7			µg/l	



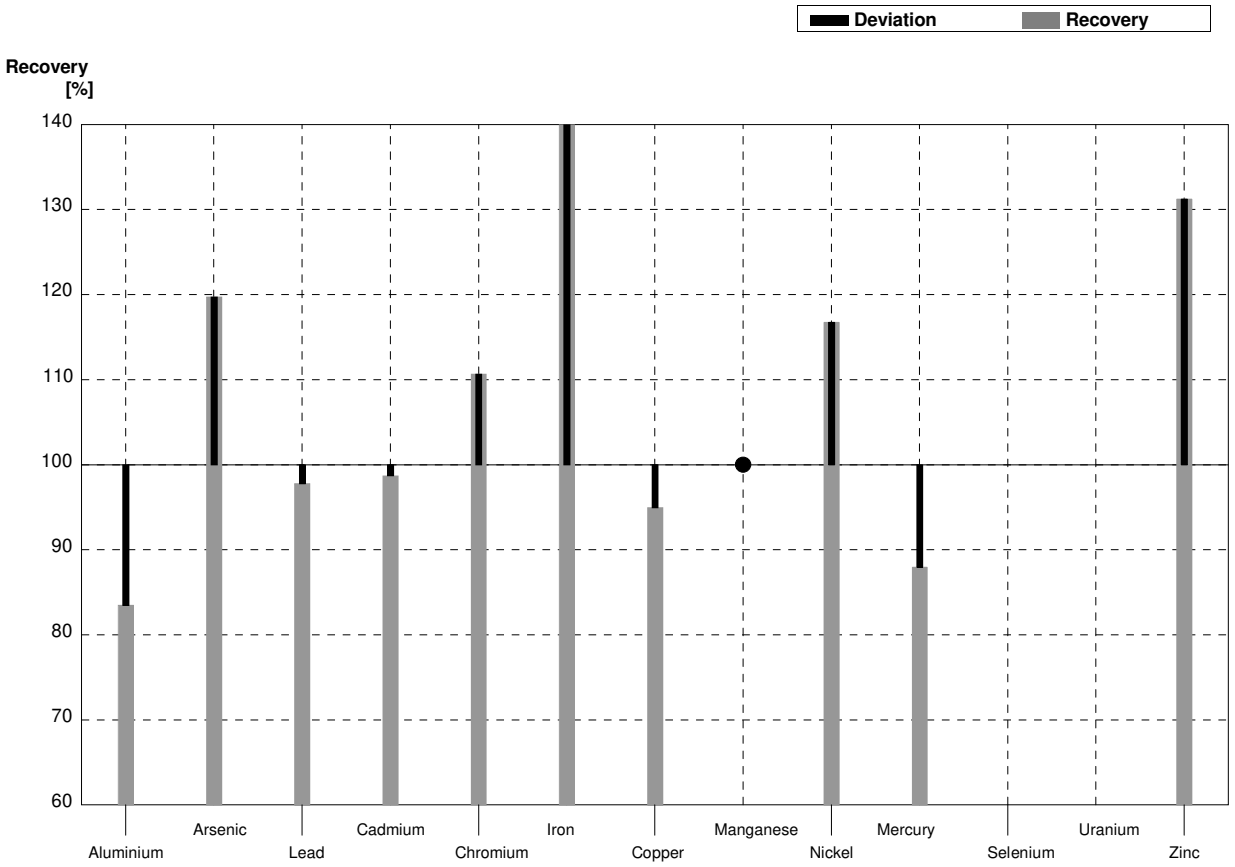
Sample M158B
Laboratory O

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3	34,3	5,831	µg/l	102%
Arsenic	2,31	0,02			µg/l	
Lead	5,83	0,04			µg/l	
Cadmium	0,161	0,002			µg/l	
Chromium	0,88	0,01			µg/l	
Iron	102	1	91,5	16,470	µg/l	90%
Copper	3,84	0,03	<10		µg/l	•
Manganese	24,0	0,2	21,1	3,798	µg/l	88%
Nickel	2,27	0,02			µg/l	
Mercury	0,55	0,01			µg/l	
Selenium	2,27	0,06			µg/l	
Uranium	3,45	0,03			µg/l	
Zinc	204	1			µg/l	



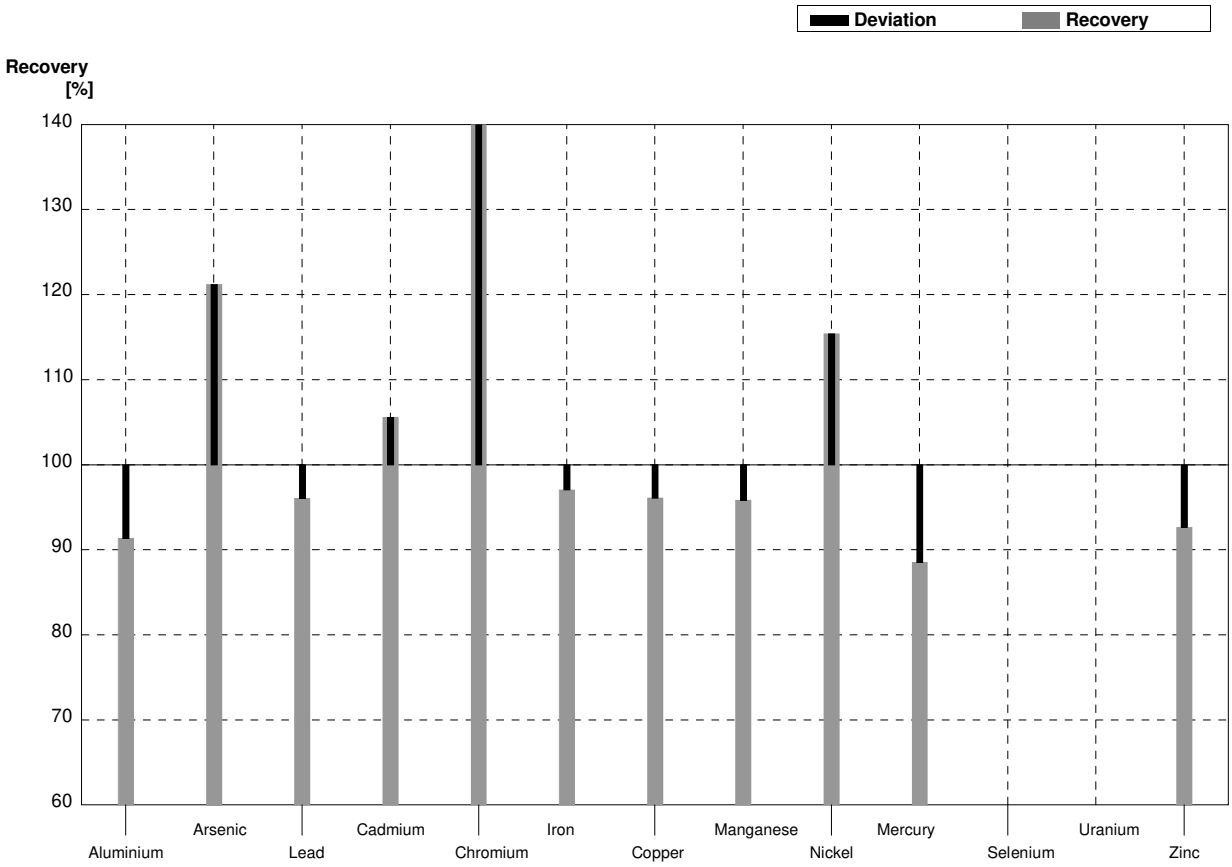
Sample M158A
Laboratory P

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1	86	10	µg/l	83%
Arsenic	3,60	0,02	4,31	1	µg/l	120%
Lead	18,1	0,1	17,7	2	µg/l	98%
Cadmium	1,56	0,01	1,54	0,2	µg/l	99%
Chromium	10,3	0,1	11,4	1	µg/l	111%
Iron	21,6	0,2	31,0	30	µg/l	144%
Copper	1,79	0,02	1,70	1	µg/l	95%
Manganese	2,04	0,03	<20		µg/l	•
Nickel	4,18	0,03	4,88	1	µg/l	117%
Mercury	1,38	0,02	1,214	0,2	µg/l	88%
Selenium	1,35	0,06			µg/l	
Uranium	4,53	0,03			µg/l	
Zinc	25,9	0,7	34,0	10	µg/l	131%



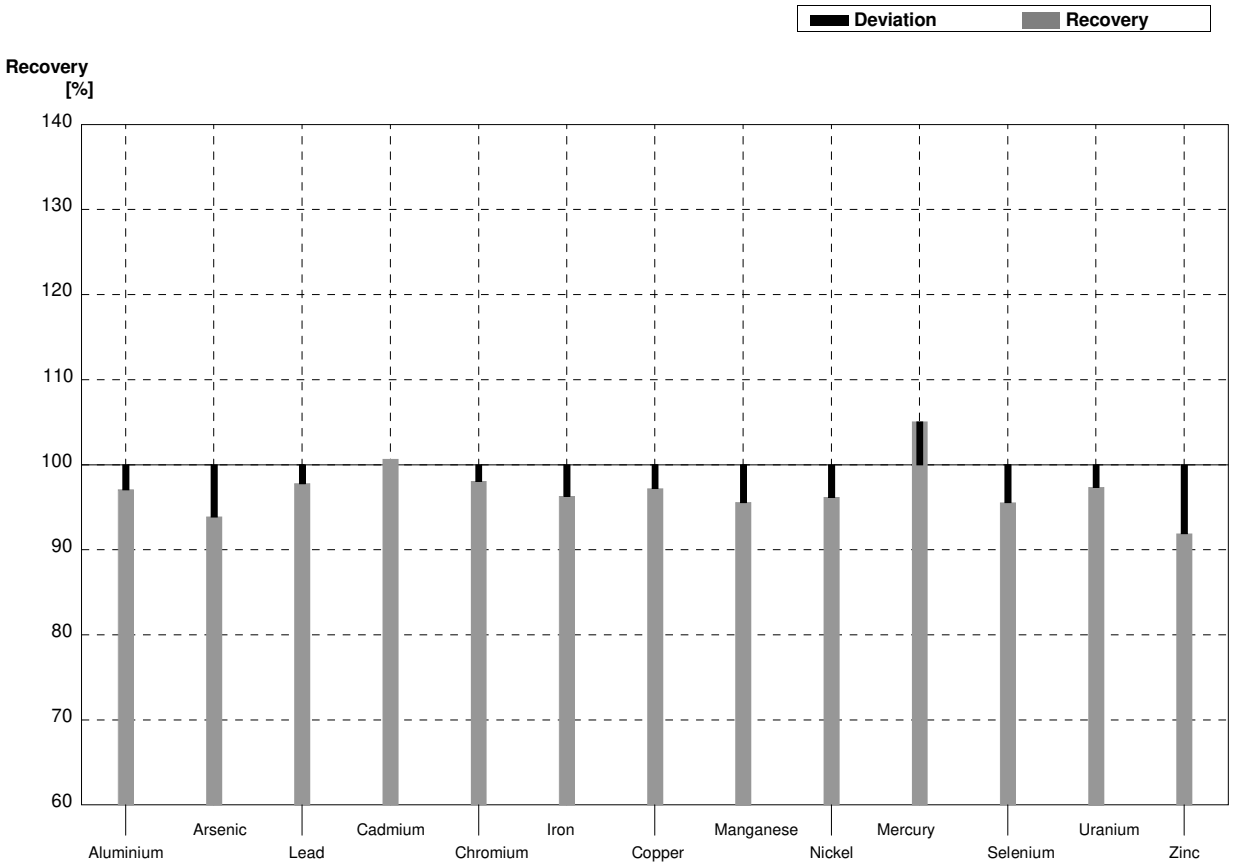
Sample M158B
Laboratory P

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3	30,6	5	µg/l	91%
Arsenic	2,31	0,02	2,80	1	µg/l	121%
Lead	5,83	0,04	5,6	1	µg/l	96%
Cadmium	0,161	0,002	0,170	0,1	µg/l	106%
Chromium	0,88	0,01	1,33	1	µg/l	151%
Iron	102	1	99	30	µg/l	97%
Copper	3,84	0,03	3,69	1	µg/l	96%
Manganese	24,0	0,2	23,0	15	µg/l	96%
Nickel	2,27	0,02	2,62	1	µg/l	115%
Mercury	0,55	0,01	0,487	0,1	µg/l	89%
Selenium	2,27	0,06			µg/l	
Uranium	3,45	0,03			µg/l	
Zinc	204	1	189	15	µg/l	93%



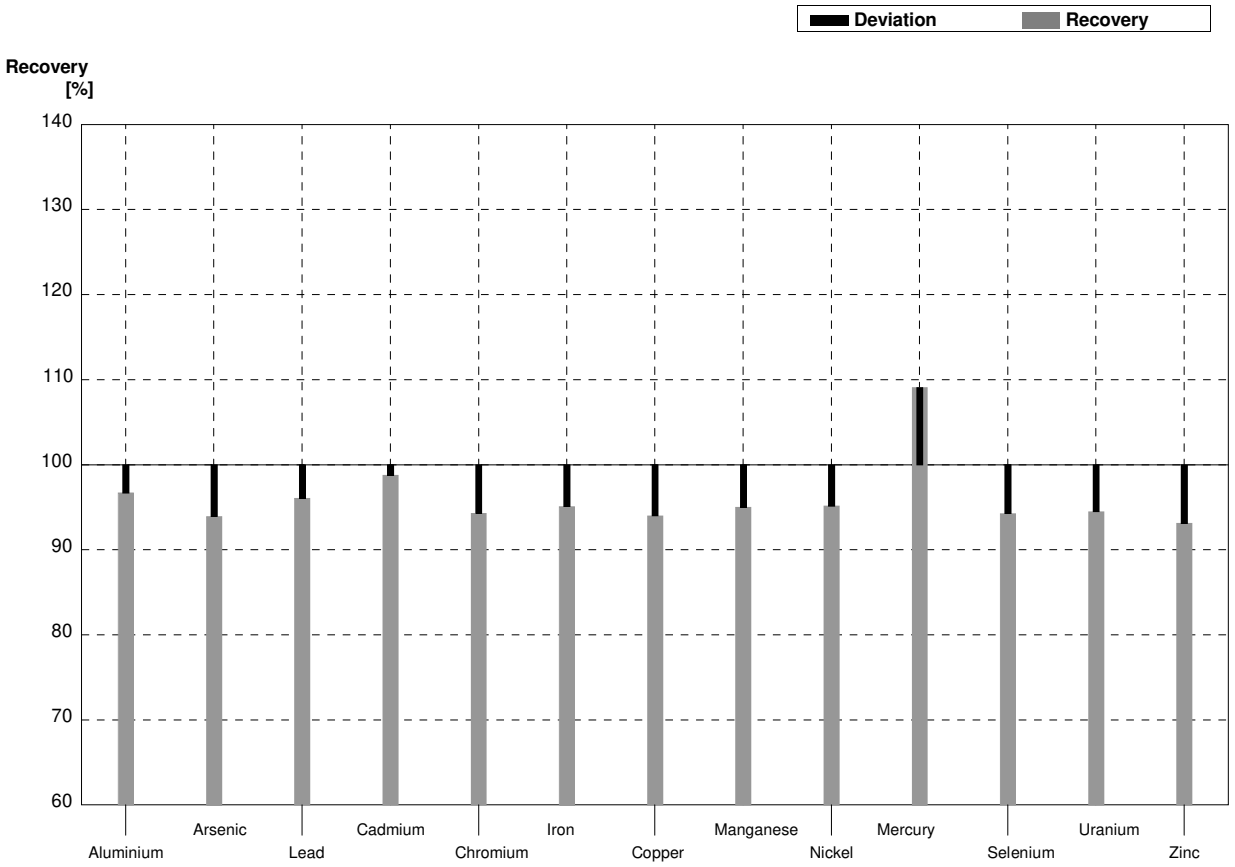
Sample M158A
Laboratory Q

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1	100	15,1	µg/l	97%
Arsenic	3,60	0,02	3,38	0,68	µg/l	94%
Lead	18,1	0,1	17,7	2,66	µg/l	98%
Cadmium	1,56	0,01	1,57	0,204	µg/l	101%
Chromium	10,3	0,1	10,1	1,01	µg/l	98%
Iron	21,6	0,2	20,8	3,13	µg/l	96%
Copper	1,79	0,02	1,74	0,262	µg/l	97%
Manganese	2,04	0,03	1,95	0,195	µg/l	96%
Nickel	4,18	0,03	4,02	0,402	µg/l	96%
Mercury	1,38	0,02	1,45	0,291	µg/l	105%
Selenium	1,35	0,06	1,29	0,193	µg/l	96%
Uranium	4,53	0,03	4,41	0,441	µg/l	97%
Zinc	25,9	0,7	23,8	2,14	µg/l	92%



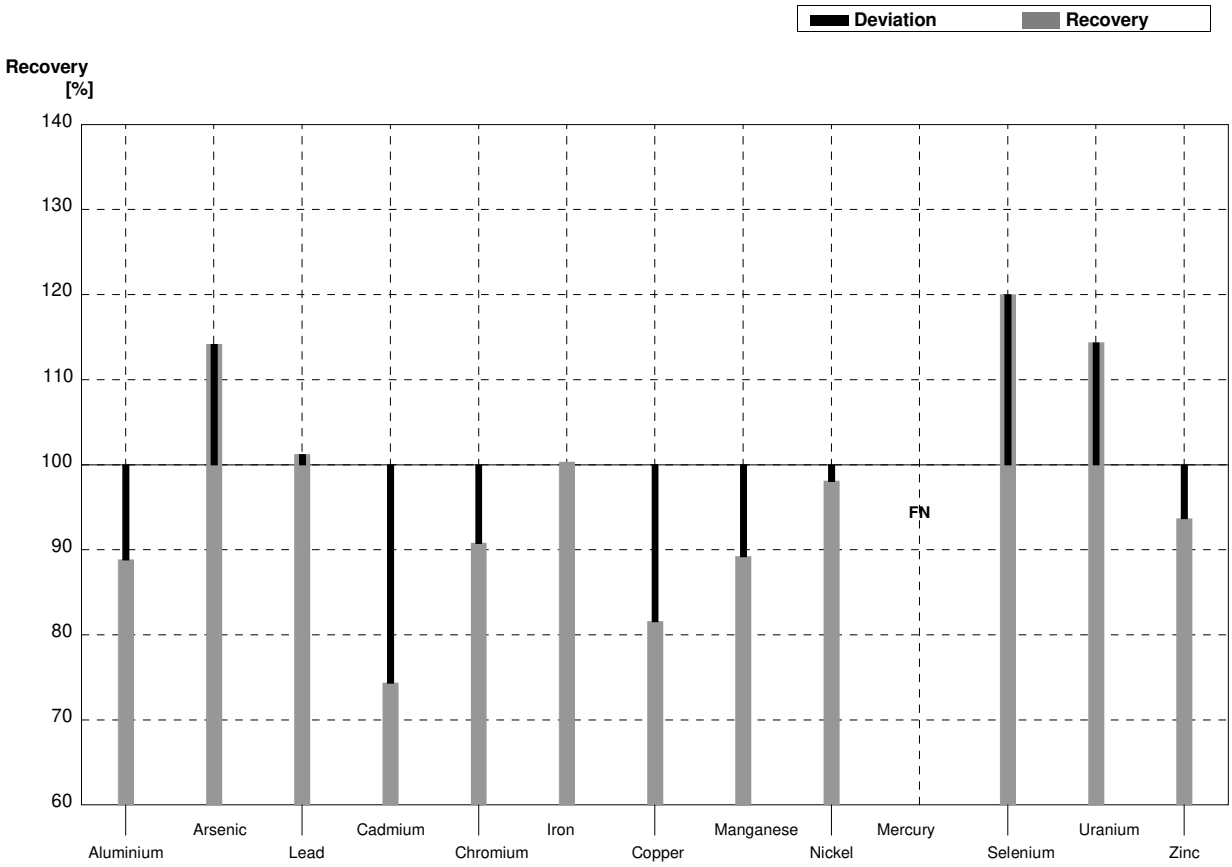
Sample M158B
Laboratory Q

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3	32,4	4,86	µg/l	97%
Arsenic	2,31	0,02	2,17	0,433	µg/l	94%
Lead	5,83	0,04	5,6	0,84	µg/l	96%
Cadmium	0,161	0,002	0,159	0,0207	µg/l	99%
Chromium	0,88	0,01	0,83	0,083	µg/l	94%
Iron	102	1	97	14,6	µg/l	95%
Copper	3,84	0,03	3,61	0,54	µg/l	94%
Manganese	24,0	0,2	22,8	2,28	µg/l	95%
Nickel	2,27	0,02	2,16	0,216	µg/l	95%
Mercury	0,55	0,01	0,60	0,119	µg/l	109%
Selenium	2,27	0,06	2,14	0,322	µg/l	94%
Uranium	3,45	0,03	3,26	0,326	µg/l	94%
Zinc	204	1	190	17,1	µg/l	93%



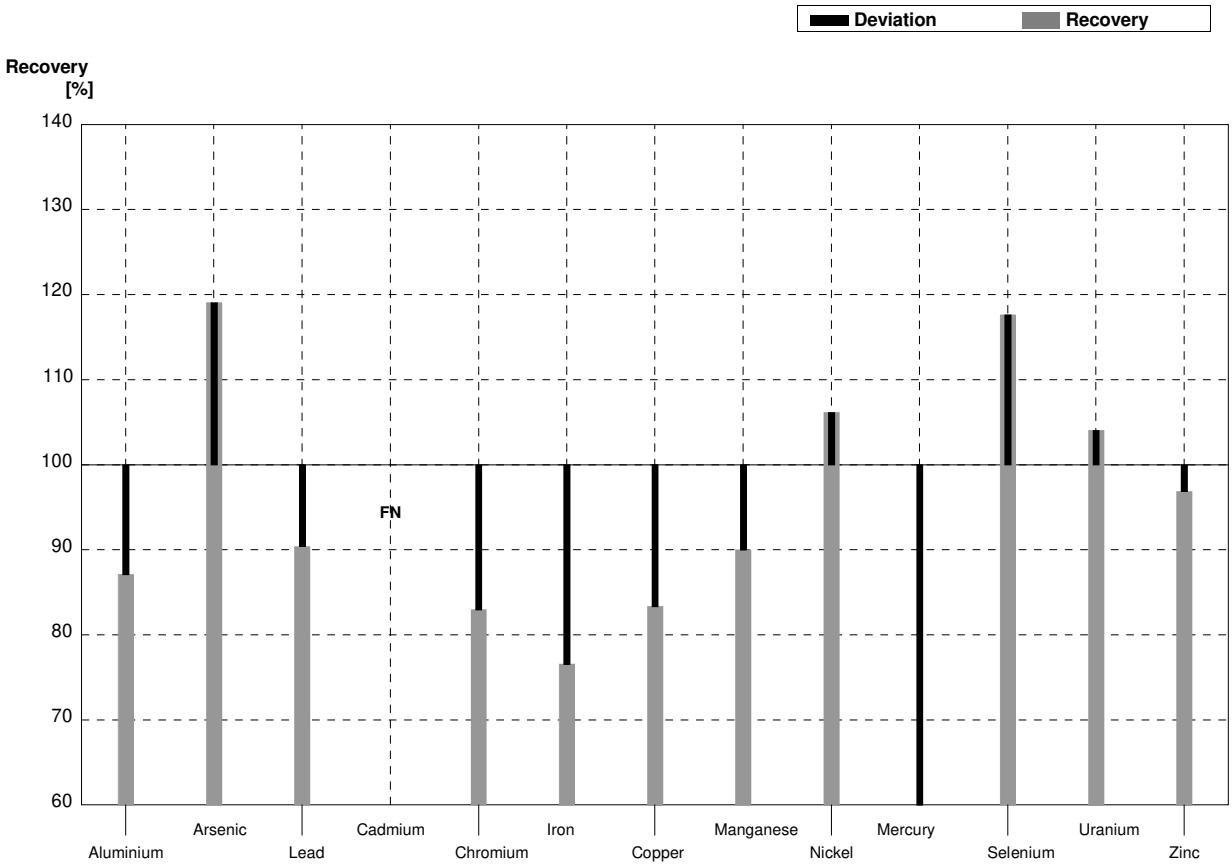
Sample M158A
Laboratory R

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1	91,5	1,1	µg/l	89%
Arsenic	3,60	0,02	4,11	0,15	µg/l	114%
Lead	18,1	0,1	18,32	0,4	µg/l	101%
Cadmium	1,56	0,01	1,16	0,1	µg/l	74%
Chromium	10,3	0,1	9,35	0,3	µg/l	91%
Iron	21,6	0,2	21,67	0,8	µg/l	100%
Copper	1,79	0,02	1,46	0,15	µg/l	82%
Manganese	2,04	0,03	1,82	0,13	µg/l	89%
Nickel	4,18	0,03	4,10	0,1	µg/l	98%
Mercury	1,38	0,02	<0,1		µg/l	FN
Selenium	1,35	0,06	1,62	0,1	µg/l	120%
Uranium	4,53	0,03	5,18	0,2	µg/l	114%
Zinc	25,9	0,7	24,26	0,5	µg/l	94%



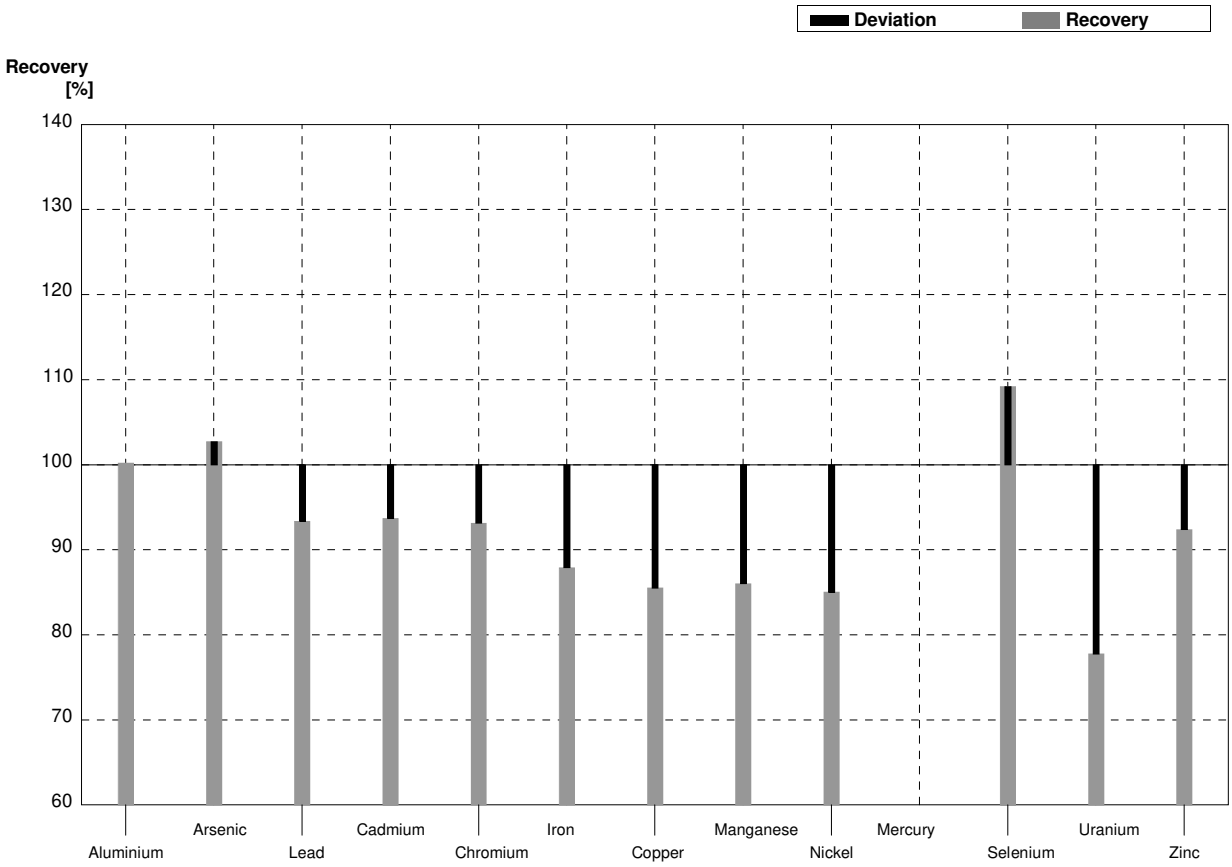
Sample M158B
Laboratory R

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3	29,18	0,34	µg/l	87%
Arsenic	2,31	0,02	2,75	0,1	µg/l	119%
Lead	5,83	0,04	5,27	0,1	µg/l	90%
Cadmium	0,161	0,002	<0,1		µg/l	FN
Chromium	0,88	0,01	0,73	0,1	µg/l	83%
Iron	102	1	78,1	1,75	µg/l	77%
Copper	3,84	0,03	3,20	0,3	µg/l	83%
Manganese	24,0	0,2	21,6	0,6	µg/l	90%
Nickel	2,27	0,02	2,41	0,1	µg/l	106%
Mercury	0,55	0,01	0,211	0,08	µg/l	38%
Selenium	2,27	0,06	2,67	0,1	µg/l	118%
Uranium	3,45	0,03	3,59	0,2	µg/l	104%
Zinc	204	1	197,6	4	µg/l	97%



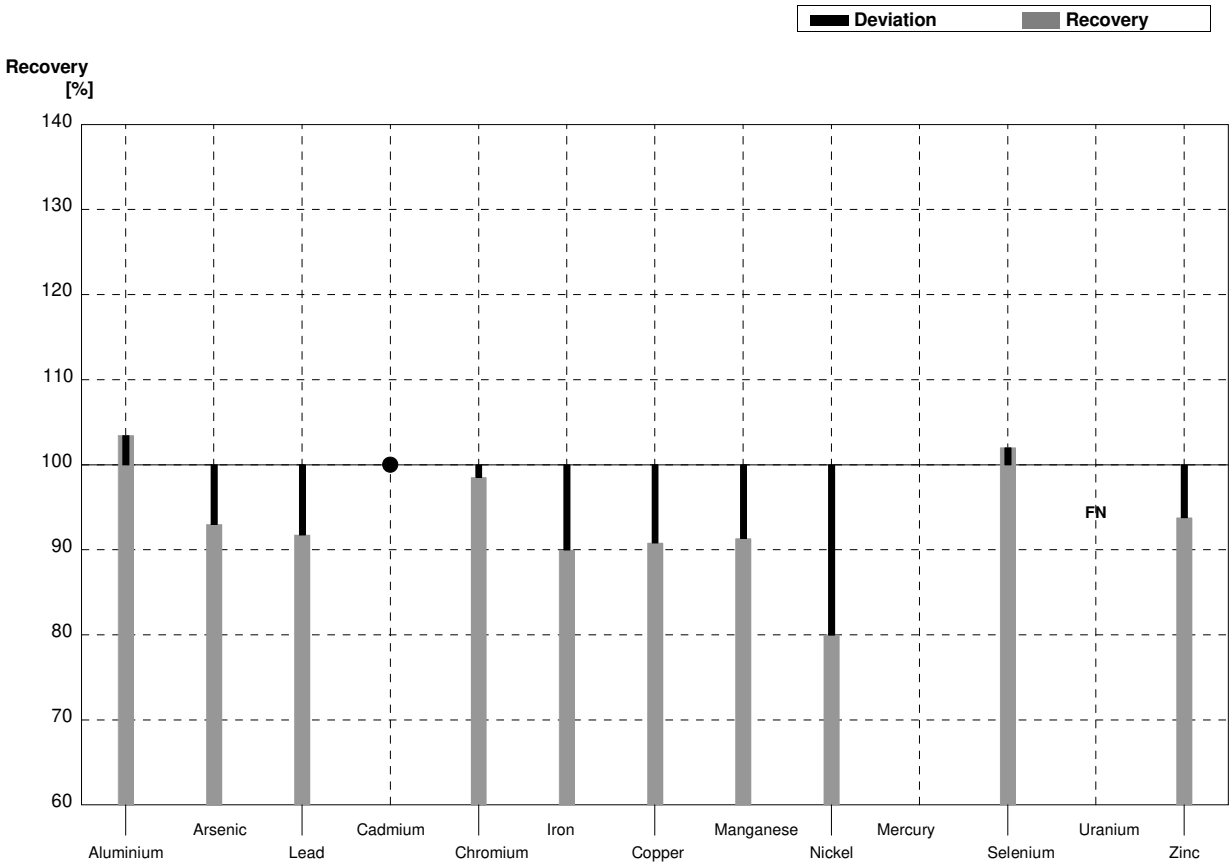
Sample M158A
Laboratory S

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1	103,2		µg/l	100%
Arsenic	3,60	0,02	3,699		µg/l	103%
Lead	18,1	0,1	16,90		µg/l	93%
Cadmium	1,56	0,01	1,462		µg/l	94%
Chromium	10,3	0,1	9,595		µg/l	93%
Iron	21,6	0,2	18,99		µg/l	88%
Copper	1,79	0,02	1,531		µg/l	86%
Manganese	2,04	0,03	1,755		µg/l	86%
Nickel	4,18	0,03	3,554		µg/l	85%
Mercury	1,38	0,02			µg/l	
Selenium	1,35	0,06	1,474		µg/l	109%
Uranium	4,53	0,03	3,523		µg/l	78%
Zinc	25,9	0,7	23,93		µg/l	92%



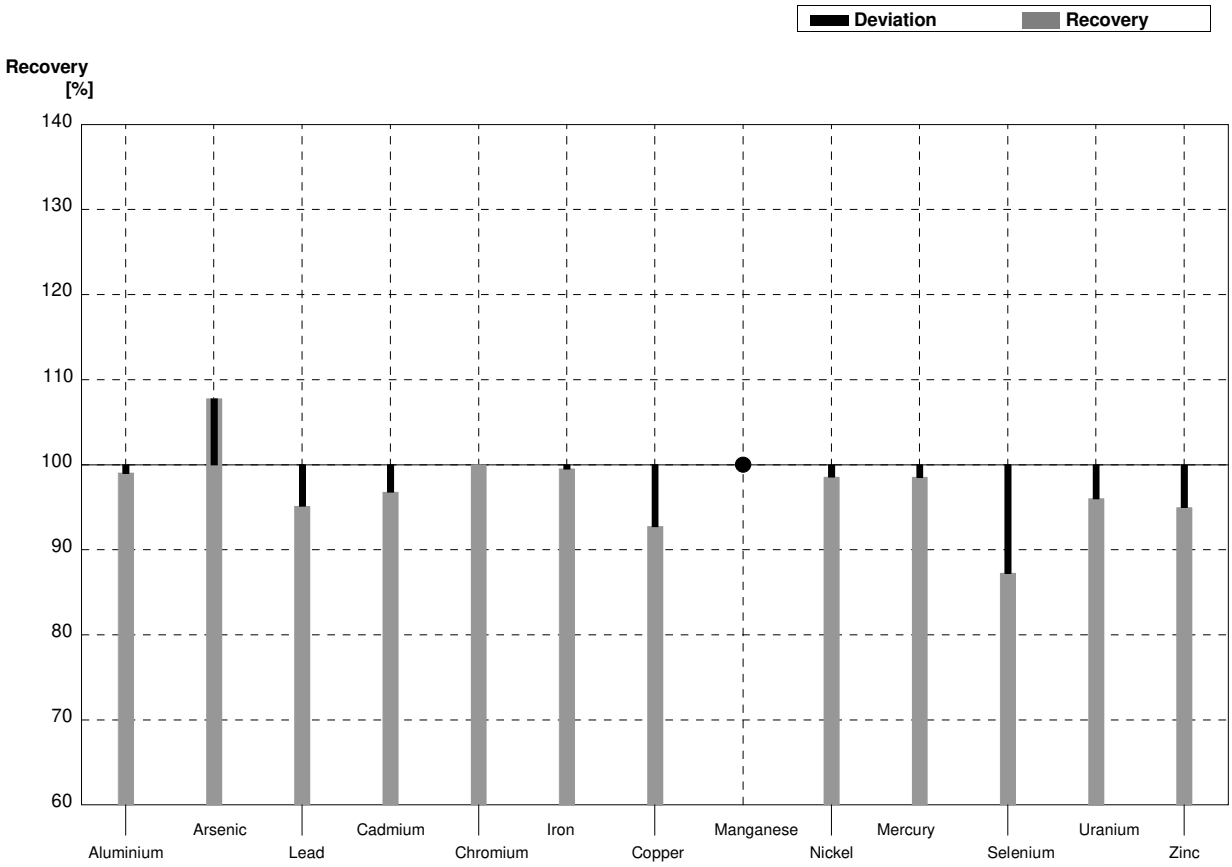
Sample M158B
Laboratory S

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3	34,65		µg/l	103%
Arsenic	2,31	0,02	2,148		µg/l	93%
Lead	5,83	0,04	5,349		µg/l	92%
Cadmium	0,161	0,002	<0,50		µg/l	•
Chromium	0,88	0,01	0,867		µg/l	99%
Iron	102	1	91,78		µg/l	90%
Copper	3,84	0,03	3,487		µg/l	91%
Manganese	24,0	0,2	21,92		µg/l	91%
Nickel	2,27	0,02	1,816		µg/l	80%
Mercury	0,55	0,01			µg/l	
Selenium	2,27	0,06	2,316		µg/l	102%
Uranium	3,45	0,03	<2,90		µg/l	FN
Zinc	204	1	191,3		µg/l	94%



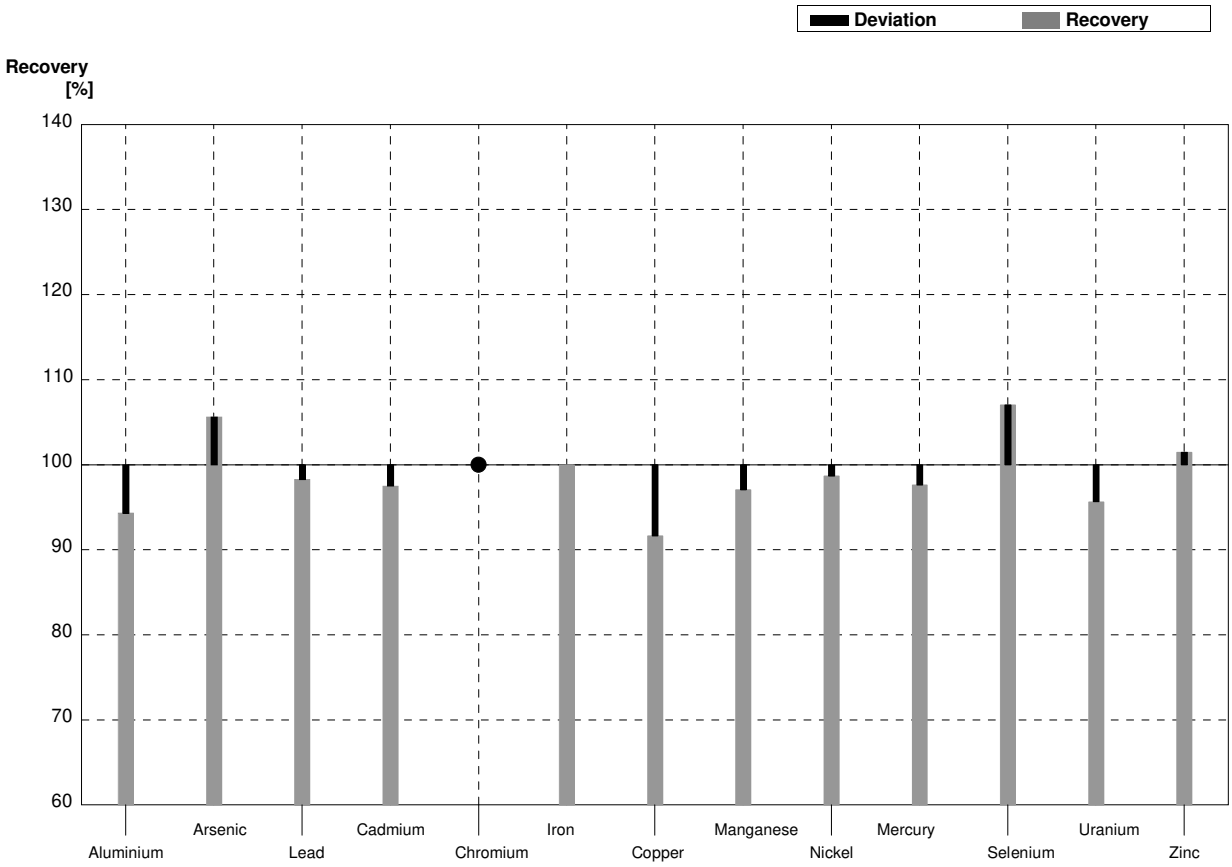
Sample M158A
Laboratory T

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1	102	0,520	µg/l	99%
Arsenic	3,60	0,02	3,88	0,206	µg/l	108%
Lead	18,1	0,1	17,22	0,374	µg/l	95%
Cadmium	1,56	0,01	1,51	0,0404	µg/l	97%
Chromium	10,3	0,1	10,3	0,072	µg/l	100%
Iron	21,6	0,2	21,5	1,19	µg/l	100%
Copper	1,79	0,02	1,66	0,0950	µg/l	93%
Manganese	2,04	0,03	<10,0		µg/l	•
Nickel	4,18	0,03	4,12	0,109	µg/l	99%
Mercury	1,38	0,02	1,36	0,00712	µg/l	99%
Selenium	1,35	0,06	1,178	0,229	µg/l	87%
Uranium	4,53	0,03	4,35	0,174	µg/l	96%
Zinc	25,9	0,7	24,6	0,126	µg/l	95%



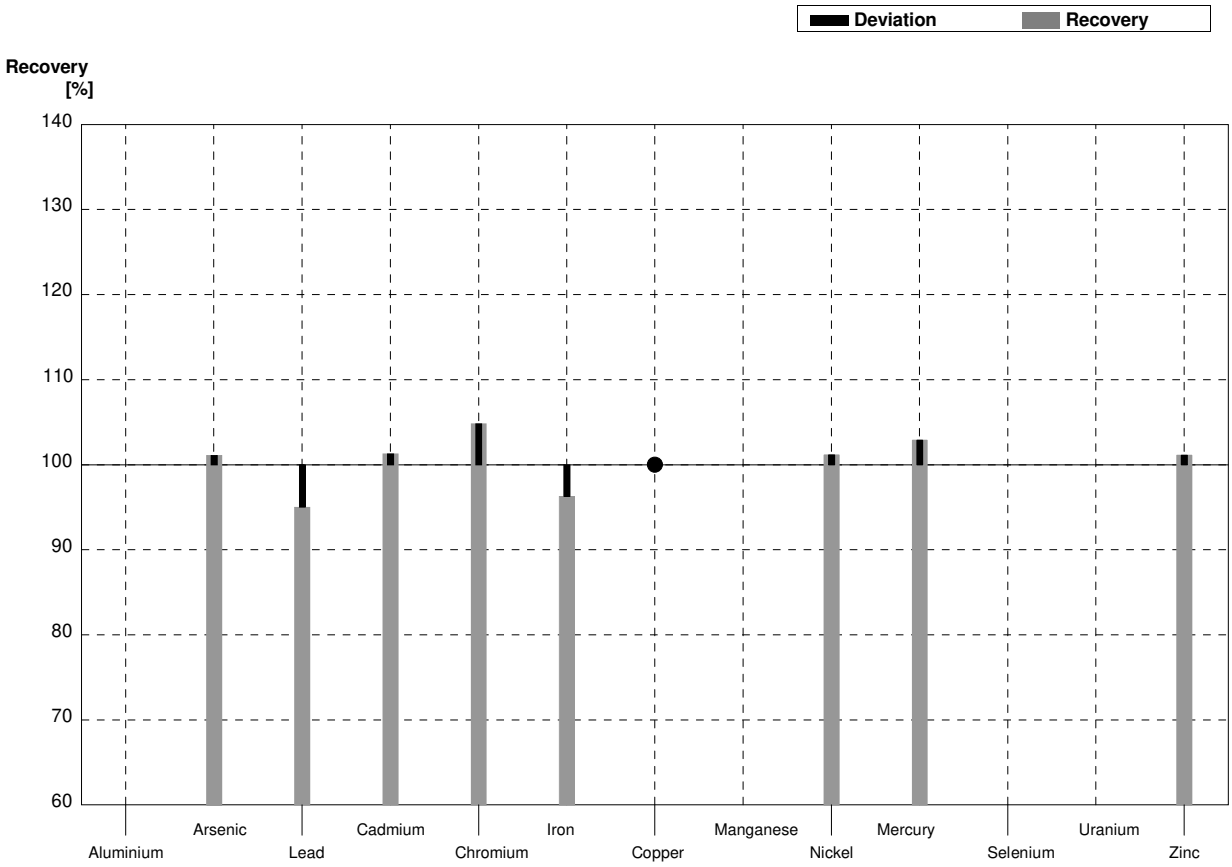
Sample M158B
Laboratory T

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3	31,6	0,366	µg/l	94%
Arsenic	2,31	0,02	2,44	0,2195	µg/l	106%
Lead	5,83	0,04	5,73	0,0566	µg/l	98%
Cadmium	0,161	0,002	0,157	0,00729	µg/l	98%
Chromium	0,88	0,01	<1,00		µg/l	•
Iron	102	1	102	3,69	µg/l	100%
Copper	3,84	0,03	3,52	0,0866	µg/l	92%
Manganese	24,0	0,2	23,3	0,451	µg/l	97%
Nickel	2,27	0,02	2,24	0,117	µg/l	99%
Mercury	0,55	0,01	0,537	0,00783	µg/l	98%
Selenium	2,27	0,06	2,43	0,217	µg/l	107%
Uranium	3,45	0,03	3,30	0,165	µg/l	96%
Zinc	204	1	207	2,46	µg/l	101%



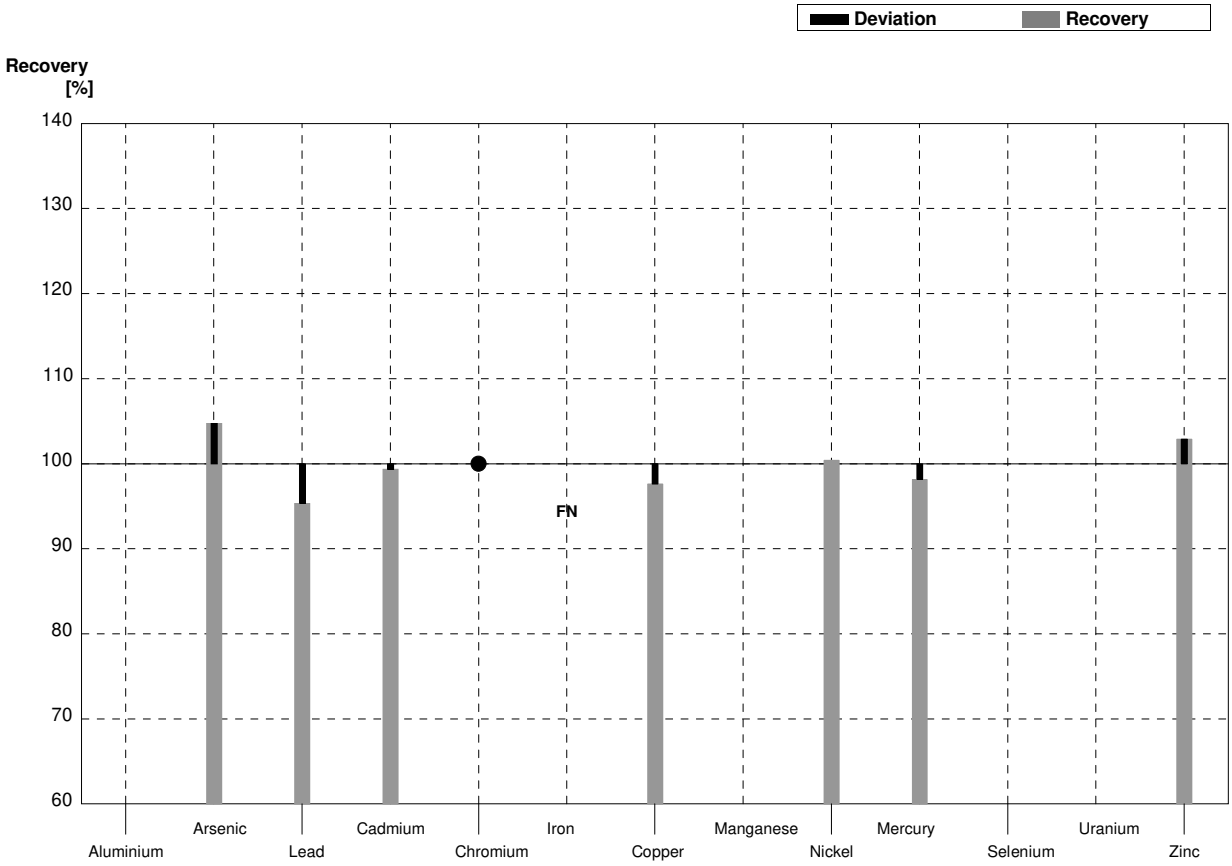
Sample M158A
Laboratory U

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1			µg/l	
Arsenic	3,60	0,02	3,64	0,36	µg/l	101%
Lead	18,1	0,1	17,2	0,50	µg/l	95%
Cadmium	1,56	0,01	1,58	0,05	µg/l	101%
Chromium	10,3	0,1	10,8	0,10	µg/l	105%
Iron	21,6	0,2	20,8	0,2	µg/l	96%
Copper	1,79	0,02	<2,00		µg/l	•
Manganese	2,04	0,03			µg/l	
Nickel	4,18	0,03	4,23	0,42	µg/l	101%
Mercury	1,38	0,02	1,42	0,14	µg/l	103%
Selenium	1,35	0,06			µg/l	
Uranium	4,53	0,03			µg/l	
Zinc	25,9	0,7	26,2	2	µg/l	101%



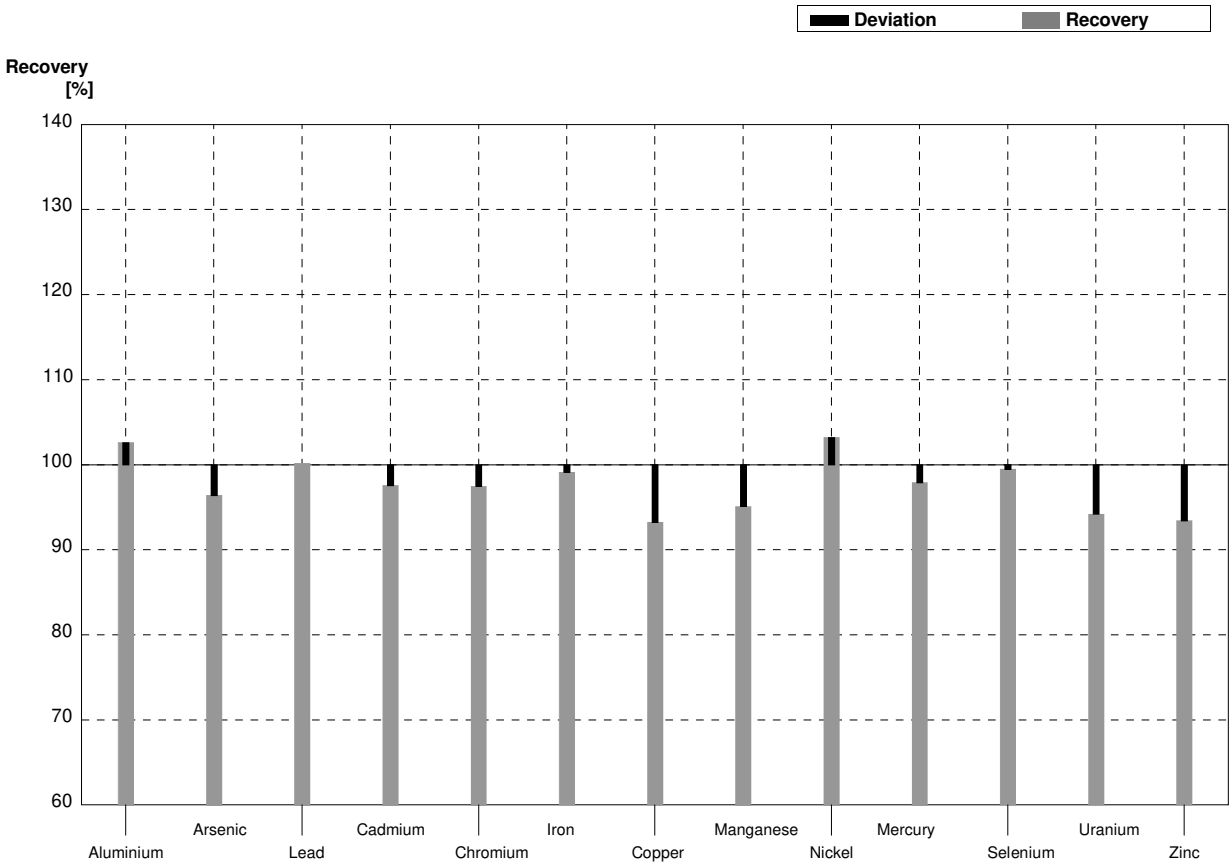
Sample M158B
Laboratory U

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3			µg/l	
Arsenic	2,31	0,02	2,42	0,24	µg/l	105%
Lead	5,83	0,04	5,56	0,50	µg/l	95%
Cadmium	0,161	0,002	0,160	0,05	µg/l	99%
Chromium	0,88	0,01	<2,00		µg/l	•
Iron	102	1	<10		µg/l	FN
Copper	3,84	0,03	3,75	0,38	µg/l	98%
Manganese	24,0	0,2			µg/l	
Nickel	2,27	0,02	2,28	0,22	µg/l	100%
Mercury	0,55	0,01	0,54	0,05	µg/l	98%
Selenium	2,27	0,06			µg/l	
Uranium	3,45	0,03			µg/l	
Zinc	204	1	210	2	µg/l	103%



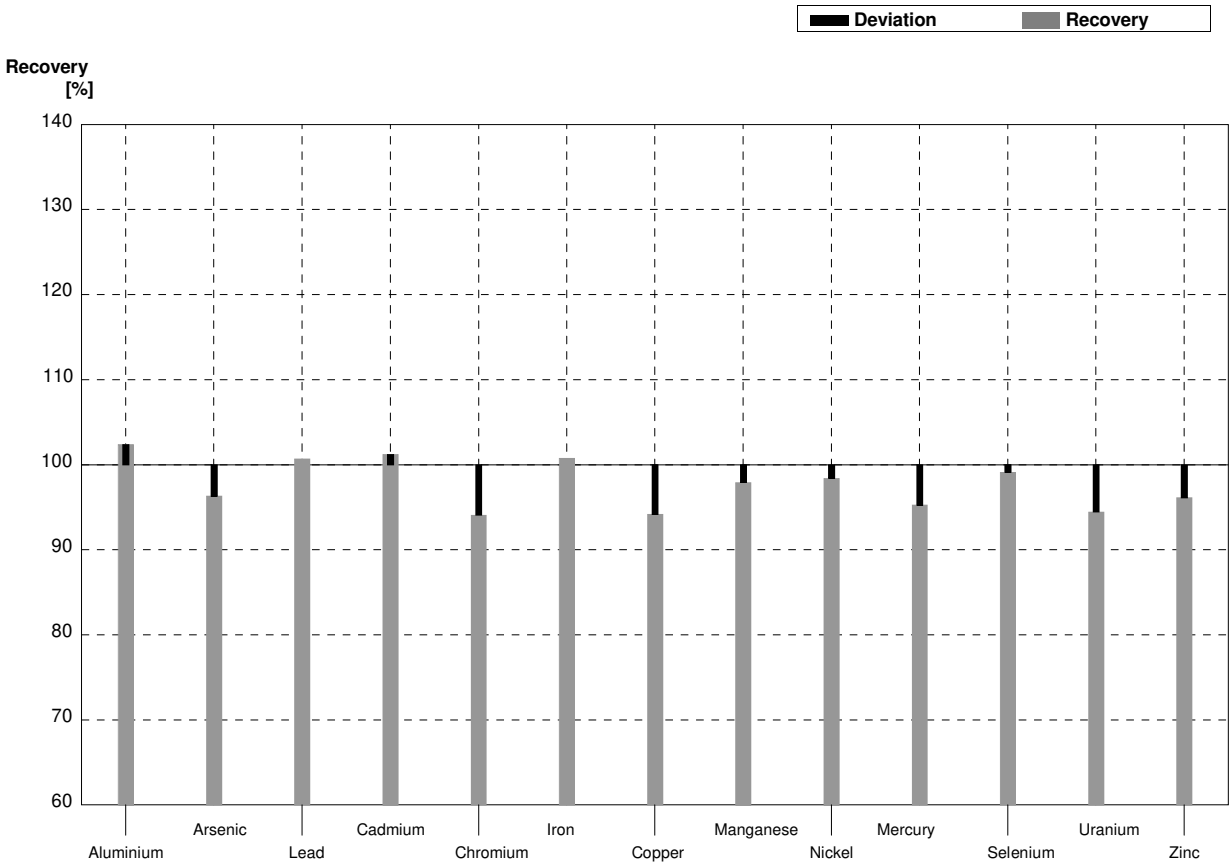
Sample M158A
Laboratory V

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1	105,7	11	µg/l	103%
Arsenic	3,60	0,02	3,470	0,35	µg/l	96%
Lead	18,1	0,1	18,13	1,8	µg/l	100%
Cadmium	1,56	0,01	1,522	0,15	µg/l	98%
Chromium	10,3	0,1	10,04	1	µg/l	97%
Iron	21,6	0,2	21,41	2,14	µg/l	99%
Copper	1,79	0,02	1,669	0,17	µg/l	93%
Manganese	2,04	0,03	1,940	0,19	µg/l	95%
Nickel	4,18	0,03	4,314	0,43	µg/l	103%
Mercury	1,38	0,02	1,351	0,14	µg/l	98%
Selenium	1,35	0,06	1,343	0,13	µg/l	99%
Uranium	4,53	0,03	4,267	0,43	µg/l	94%
Zinc	25,9	0,7	24,2	2,4	µg/l	93%



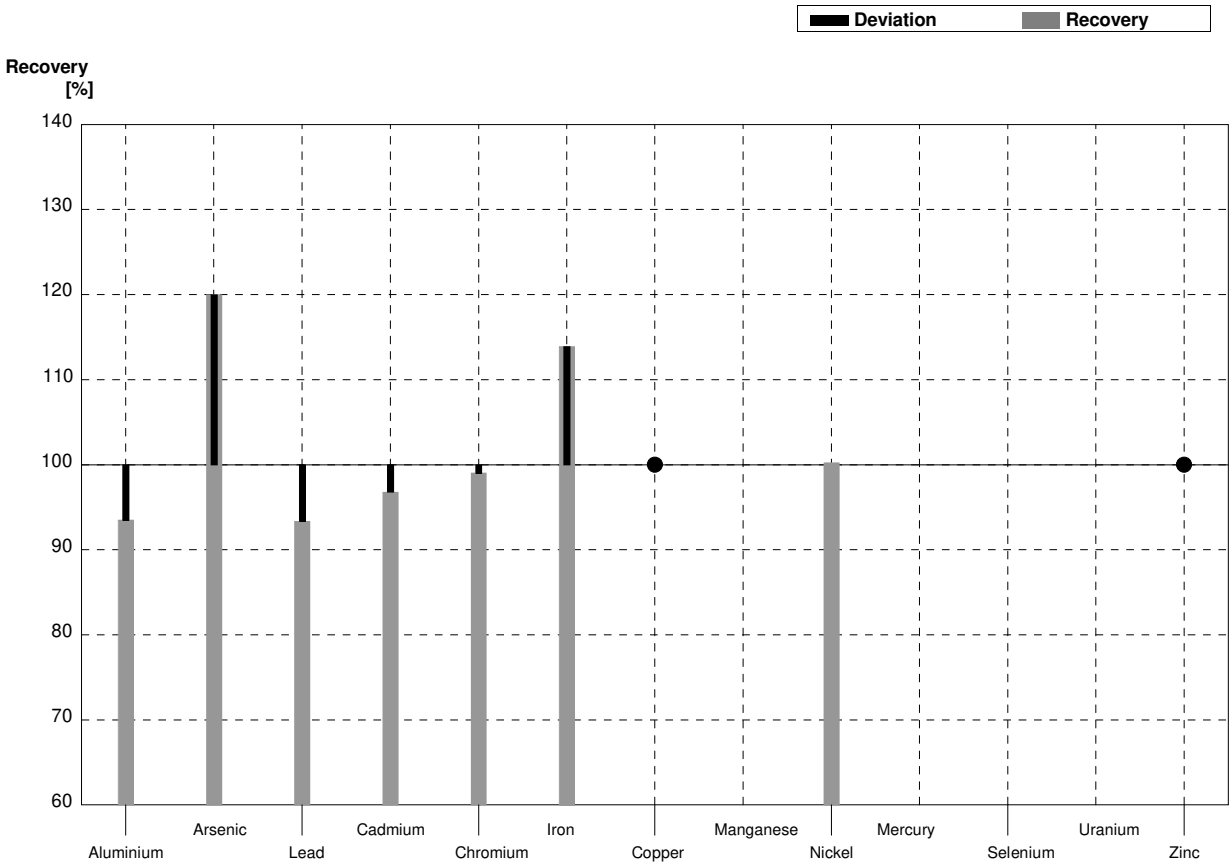
Sample M158B
Laboratory V

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3	34,3	3,4	µg/l	102%
Arsenic	2,31	0,02	2,225	0,23	µg/l	96%
Lead	5,83	0,04	5,87	0,59	µg/l	101%
Cadmium	0,161	0,002	0,163	0,02	µg/l	101%
Chromium	0,88	0,01	0,828	0,083	µg/l	94%
Iron	102	1	102,8	10,2	µg/l	101%
Copper	3,84	0,03	3,617	0,36	µg/l	94%
Manganese	24,0	0,2	23,5	2,4	µg/l	98%
Nickel	2,27	0,02	2,234	0,23	µg/l	98%
Mercury	0,55	0,01	0,524	0,052	µg/l	95%
Selenium	2,27	0,06	2,250	0,23	µg/l	99%
Uranium	3,45	0,03	3,259	0,33	µg/l	94%
Zinc	204	1	196,1	20	µg/l	96%



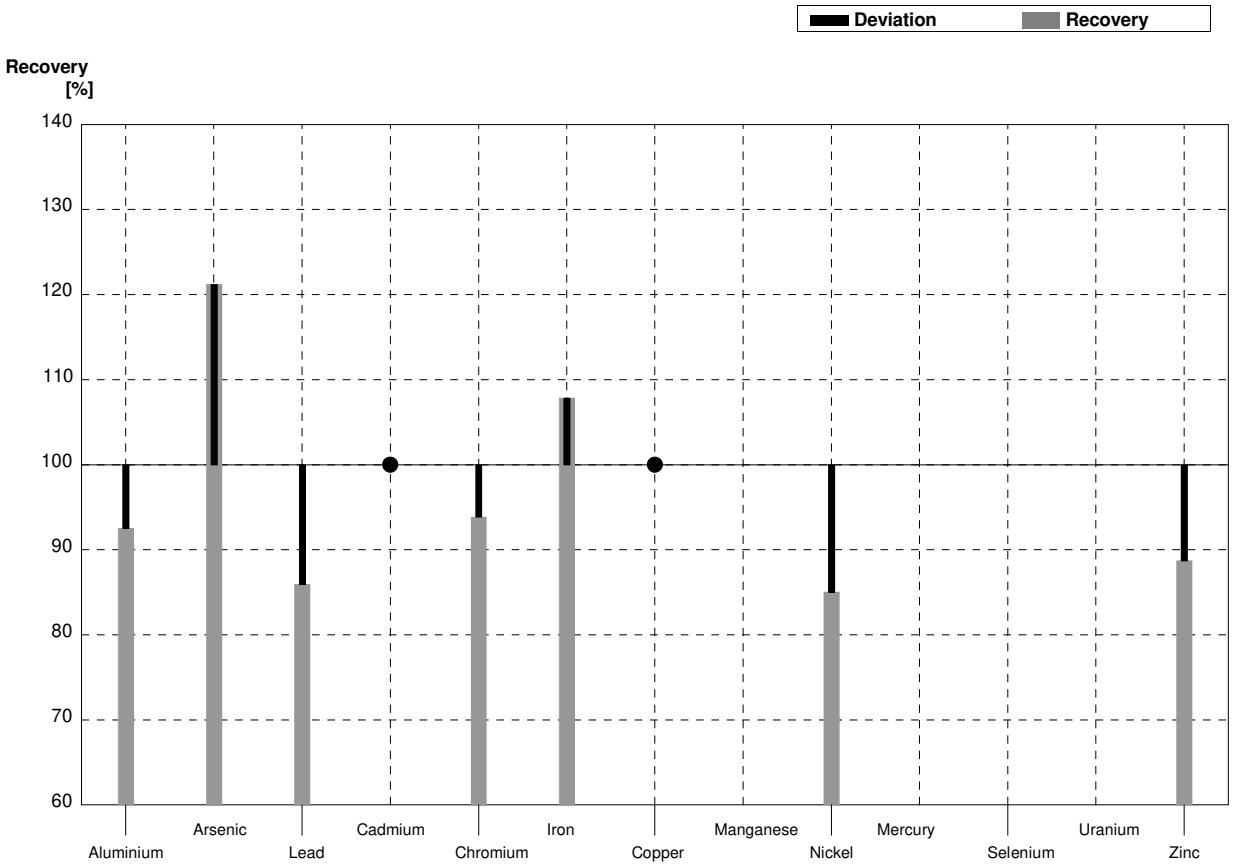
Sample M158A
Laboratory W

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1	96,3		µg/l	93%
Arsenic	3,60	0,02	4,32		µg/l	120%
Lead	18,1	0,1	16,9		µg/l	93%
Cadmium	1,56	0,01	1,51		µg/l	97%
Chromium	10,3	0,1	10,2		µg/l	99%
Iron	21,6	0,2	24,6		µg/l	114%
Copper	1,79	0,02	<5,0		µg/l	•
Manganese	2,04	0,03			µg/l	
Nickel	4,18	0,03	4,19		µg/l	100%
Mercury	1,38	0,02			µg/l	
Selenium	1,35	0,06			µg/l	
Uranium	4,53	0,03			µg/l	
Zinc	25,9	0,7	<100		µg/l	•



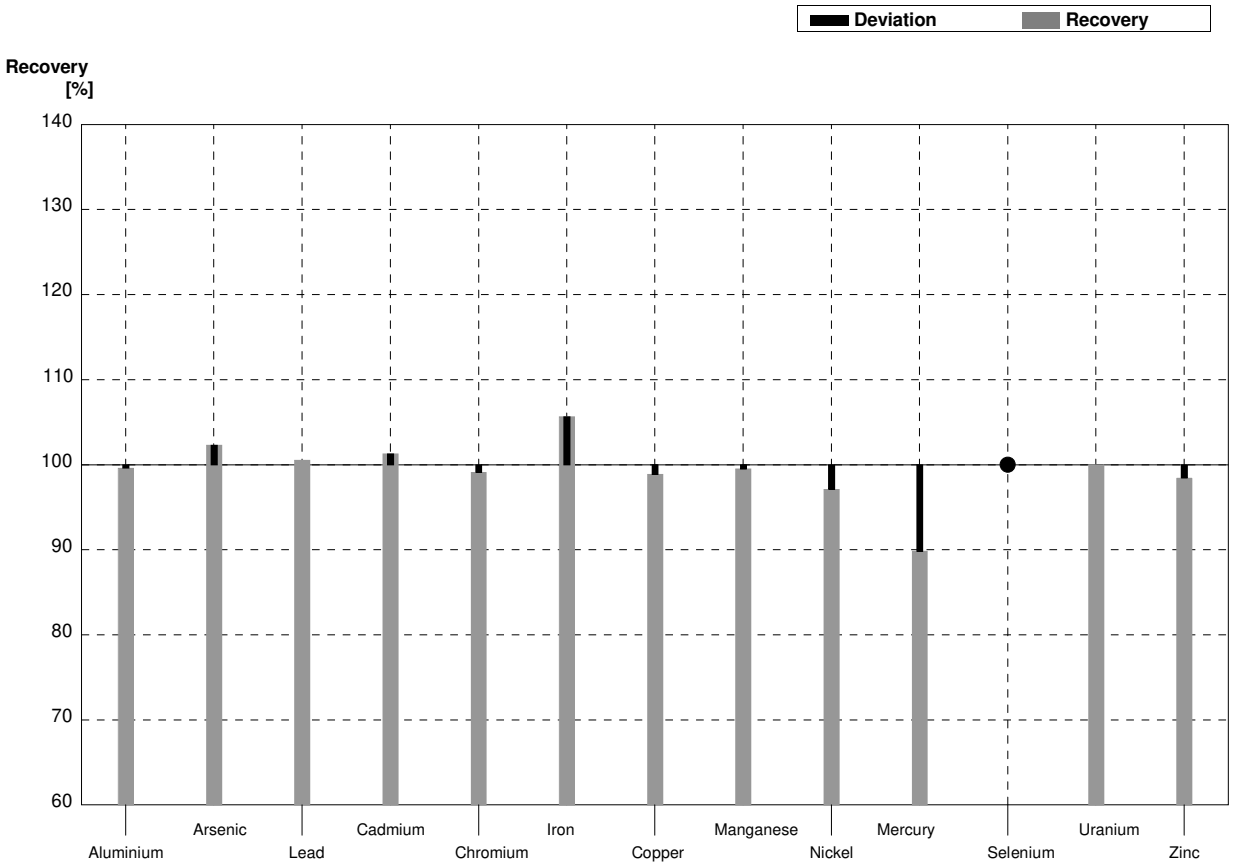
Sample M158B
Laboratory W

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3	31,0		µg/l	93%
Arsenic	2,31	0,02	2,80		µg/l	121%
Lead	5,83	0,04	5,01		µg/l	86%
Cadmium	0,161	0,002	<0,2		µg/l	•
Chromium	0,88	0,01	0,826		µg/l	94%
Iron	102	1	110		µg/l	108%
Copper	3,84	0,03	<5,0		µg/l	•
Manganese	24,0	0,2			µg/l	
Nickel	2,27	0,02	1,93		µg/l	85%
Mercury	0,55	0,01			µg/l	
Selenium	2,27	0,06			µg/l	
Uranium	3,45	0,03			µg/l	
Zinc	204	1	181		µg/l	89%



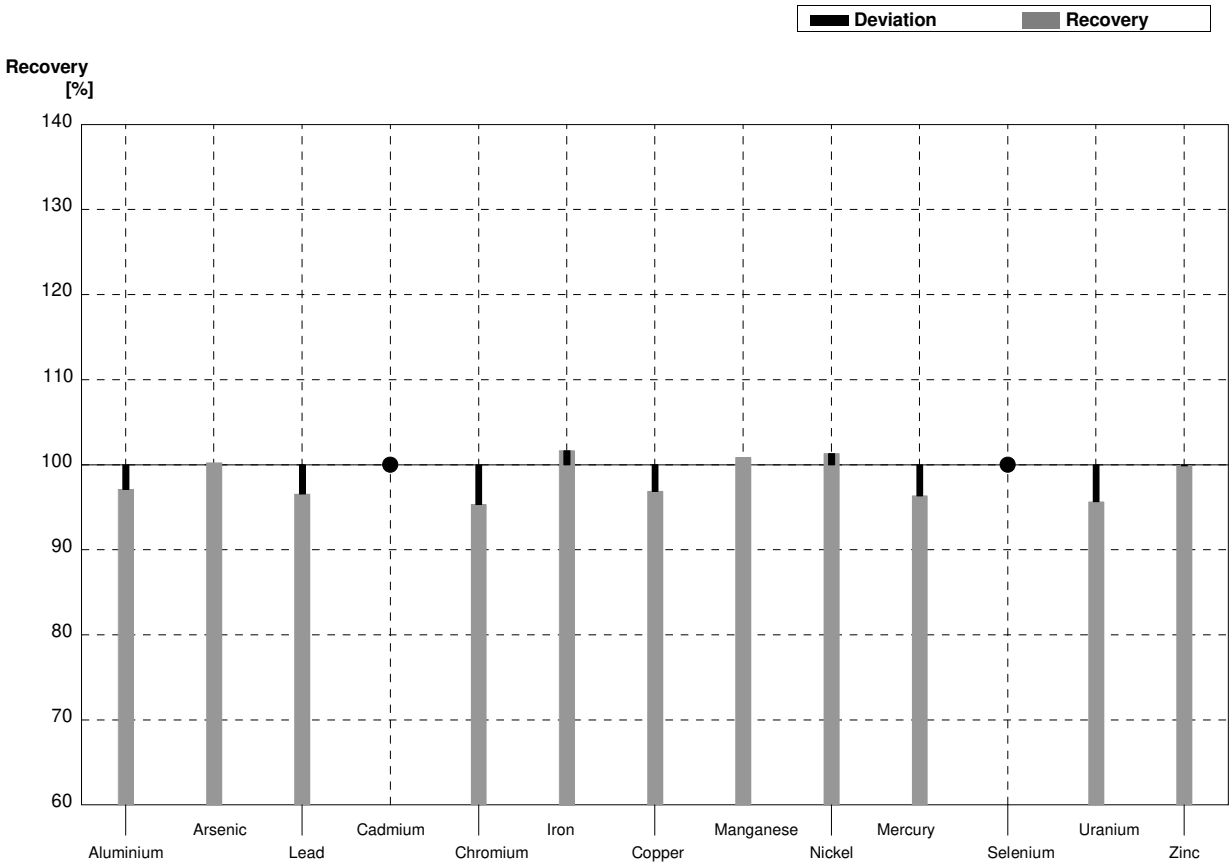
Sample M158A
Laboratory X

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1	102,6	1,84	µg/l	100%
Arsenic	3,60	0,02	3,683	0,465	µg/l	102%
Lead	18,1	0,1	18,20	1,80	µg/l	101%
Cadmium	1,56	0,01	1,58	0,14	µg/l	101%
Chromium	10,3	0,1	10,21	0,736	µg/l	99%
Iron	21,6	0,2	22,82	1,30	µg/l	106%
Copper	1,79	0,02	1,77	0,20	µg/l	99%
Manganese	2,04	0,03	2,03	0,151	µg/l	100%
Nickel	4,18	0,03	4,06	0,03	µg/l	97%
Mercury	1,38	0,02	1,240	0,077	µg/l	90%
Selenium	1,35	0,06	<3,0		µg/l	•
Uranium	4,53	0,03	4,53	0,28	µg/l	100%
Zinc	25,9	0,7	25,5	0,90	µg/l	98%



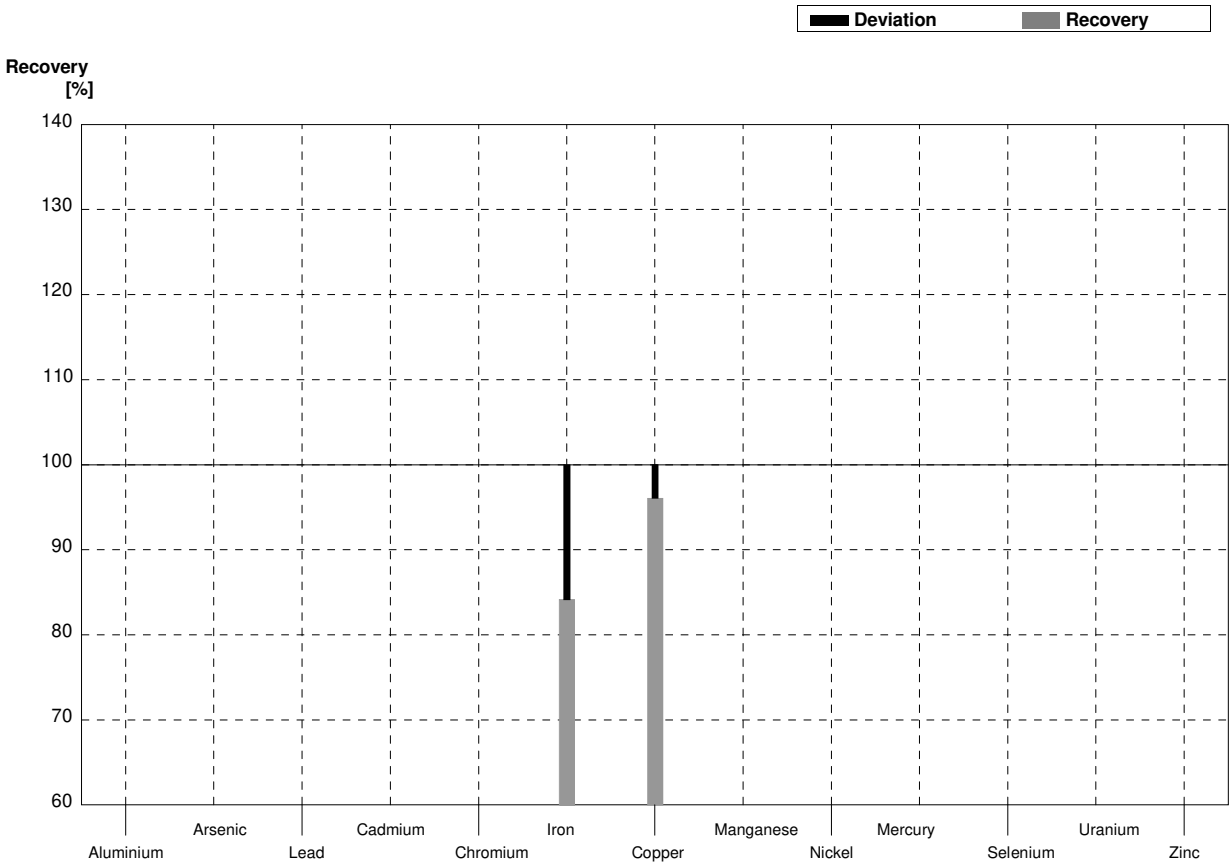
Sample M158B
Laboratory X

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3	32,54	1,49	µg/l	97%
Arsenic	2,31	0,02	2,316	0,489	µg/l	100%
Lead	5,83	0,04	5,63	0,263	µg/l	97%
Cadmium	0,161	0,002	<0,45		µg/l	•
Chromium	0,88	0,01	0,839	0,073	µg/l	95%
Iron	102	1	103,7	4,81	µg/l	102%
Copper	3,84	0,03	3,72	0,18	µg/l	97%
Manganese	24,0	0,2	24,21	1,47	µg/l	101%
Nickel	2,27	0,02	2,30	0,03	µg/l	101%
Mercury	0,55	0,01	0,530	0,031	µg/l	96%
Selenium	2,27	0,06	<3,9		µg/l	•
Uranium	3,45	0,03	3,30	0,29	µg/l	96%
Zinc	204	1	203,8	4,46	µg/l	100%



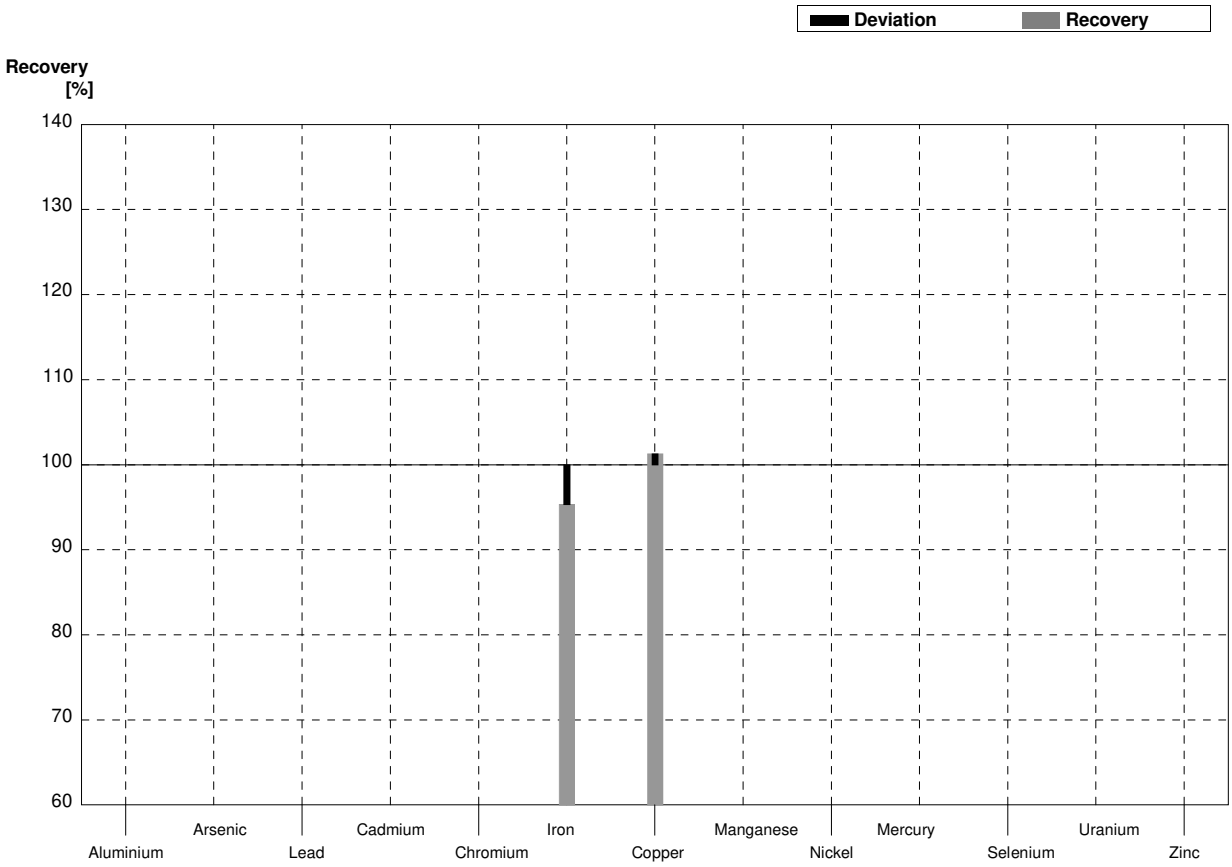
Sample M158A
Laboratory Y

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1			µg/l	
Arsenic	3,60	0,02			µg/l	
Lead	18,1	0,1			µg/l	
Cadmium	1,56	0,01			µg/l	
Chromium	10,3	0,1			µg/l	
Iron	21,6	0,2	18,18	0,63	µg/l	84%
Copper	1,79	0,02	1,72	0,14	µg/l	96%
Manganese	2,04	0,03			µg/l	
Nickel	4,18	0,03			µg/l	
Mercury	1,38	0,02			µg/l	
Selenium	1,35	0,06			µg/l	
Uranium	4,53	0,03			µg/l	
Zinc	25,9	0,7			µg/l	



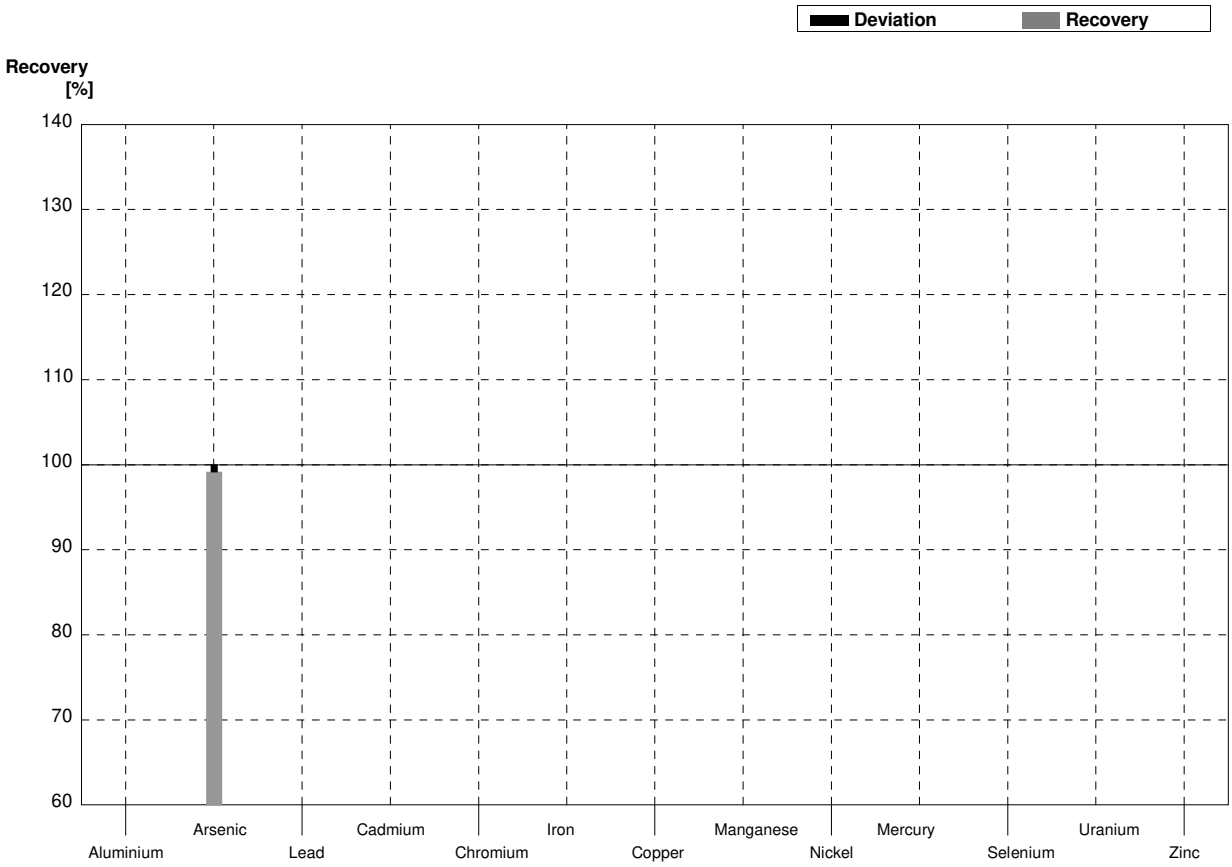
Sample M158B
Laboratory Y

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3			µg/l	
Arsenic	2,31	0,02			µg/l	
Lead	5,83	0,04			µg/l	
Cadmium	0,161	0,002			µg/l	
Chromium	0,88	0,01			µg/l	
Iron	102	1	97,25	3,38	µg/l	95%
Copper	3,84	0,03	3,89	0,32	µg/l	101%
Manganese	24,0	0,2			µg/l	
Nickel	2,27	0,02			µg/l	
Mercury	0,55	0,01			µg/l	
Selenium	2,27	0,06			µg/l	
Uranium	3,45	0,03			µg/l	
Zinc	204	1			µg/l	



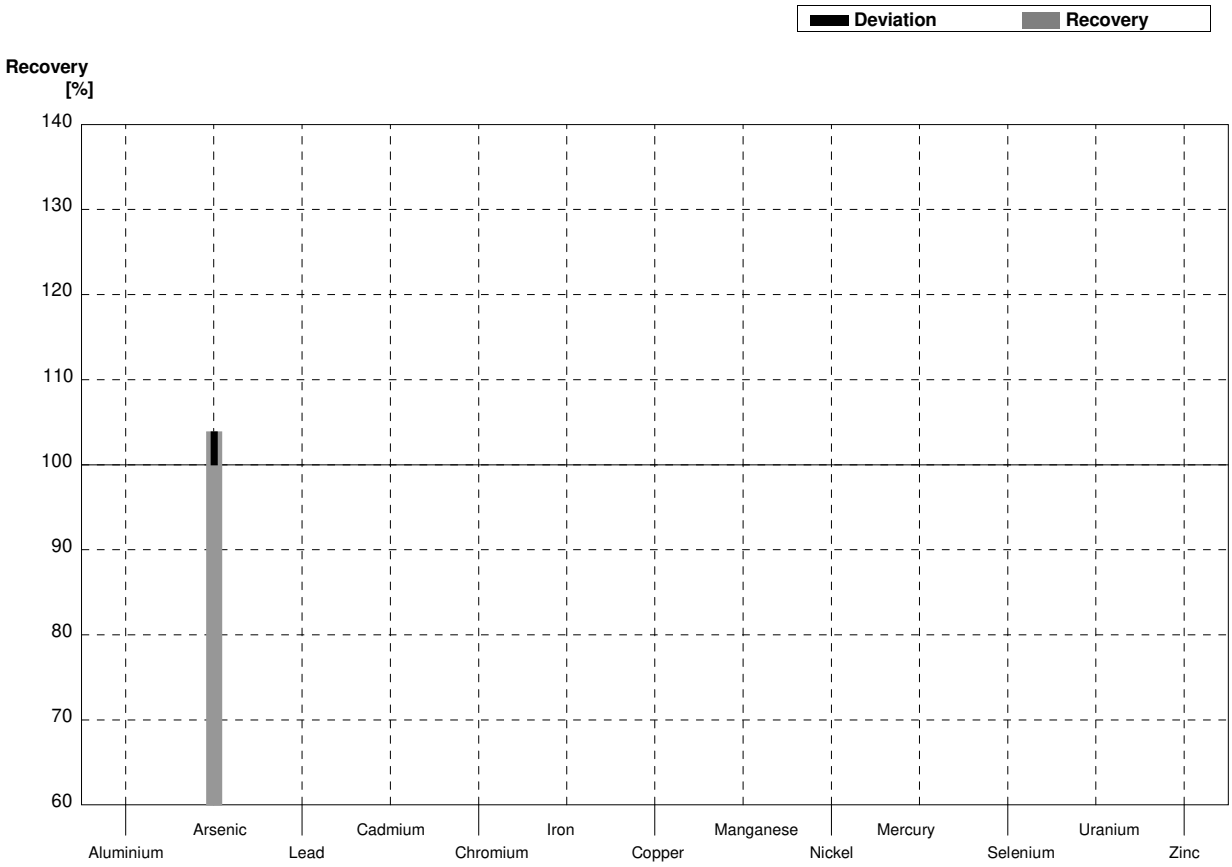
Sample M158A
Laboratory Z

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1			µg/l	
Arsenic	3,60	0,02	3,57	0,26	µg/l	99%
Lead	18,1	0,1			µg/l	
Cadmium	1,56	0,01			µg/l	
Chromium	10,3	0,1			µg/l	
Iron	21,6	0,2			µg/l	
Copper	1,79	0,02			µg/l	
Manganese	2,04	0,03			µg/l	
Nickel	4,18	0,03			µg/l	
Mercury	1,38	0,02			µg/l	
Selenium	1,35	0,06			µg/l	
Uranium	4,53	0,03			µg/l	
Zinc	25,9	0,7			µg/l	



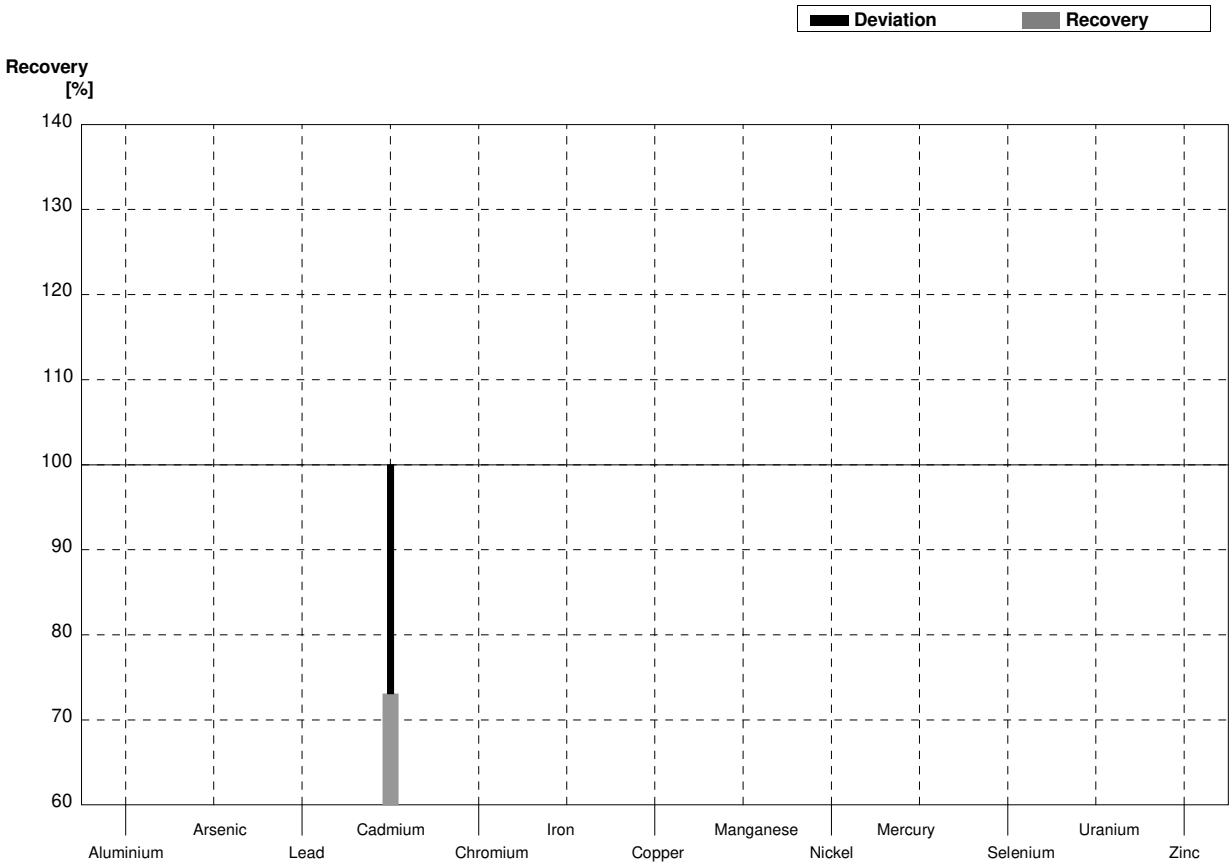
Sample M158B
Laboratory Z

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3			µg/l	
Arsenic	2,31	0,02	2,40	0,16	µg/l	104%
Lead	5,83	0,04			µg/l	
Cadmium	0,161	0,002			µg/l	
Chromium	0,88	0,01			µg/l	
Iron	102	1			µg/l	
Copper	3,84	0,03			µg/l	
Manganese	24,0	0,2			µg/l	
Nickel	2,27	0,02			µg/l	
Mercury	0,55	0,01			µg/l	
Selenium	2,27	0,06			µg/l	
Uranium	3,45	0,03			µg/l	
Zinc	204	1			µg/l	



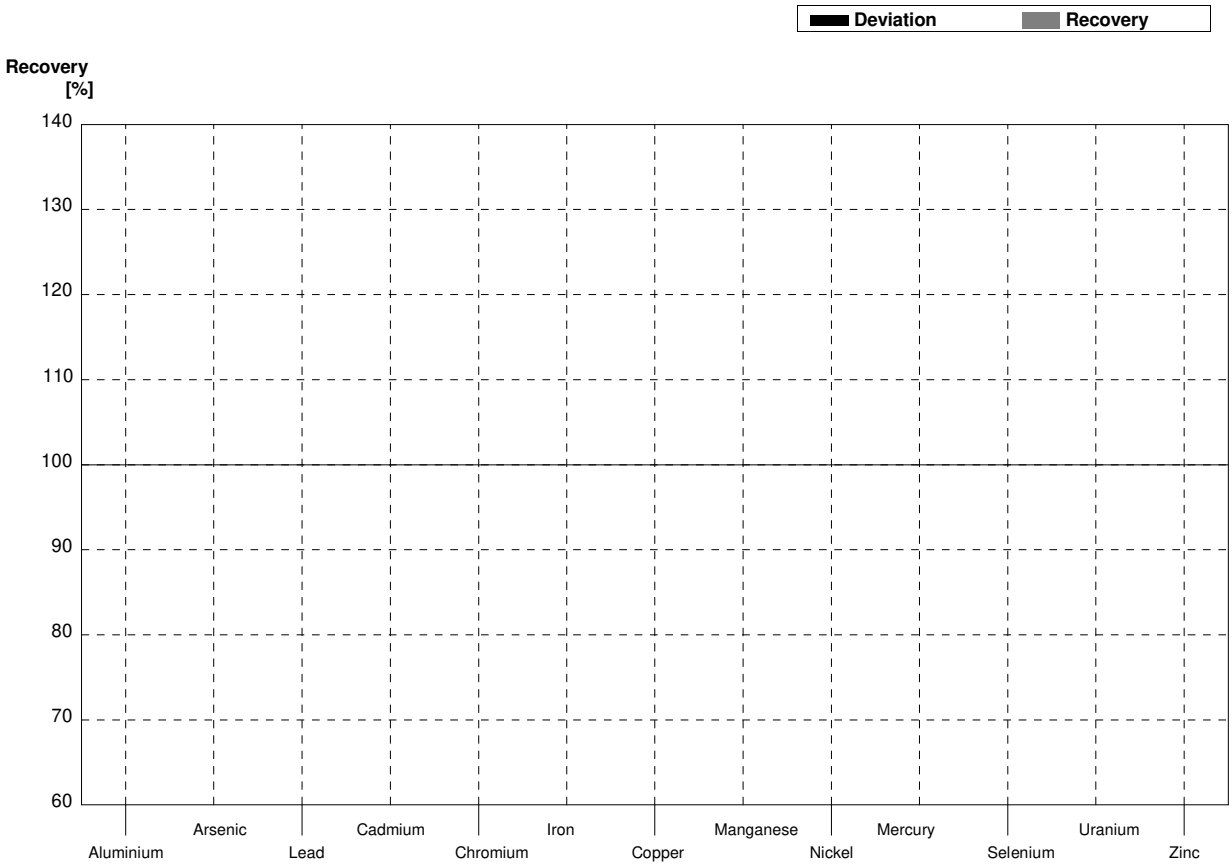
Sample M158A
Laboratory AA

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1			µg/l	
Arsenic	3,60	0,02			µg/l	
Lead	18,1	0,1			µg/l	
Cadmium	1,56	0,01	1,14	0,02	µg/l	73%
Chromium	10,3	0,1			µg/l	
Iron	21,6	0,2			µg/l	
Copper	1,79	0,02			µg/l	
Manganese	2,04	0,03			µg/l	
Nickel	4,18	0,03			µg/l	
Mercury	1,38	0,02			µg/l	
Selenium	1,35	0,06			µg/l	
Uranium	4,53	0,03			µg/l	
Zinc	25,9	0,7			µg/l	



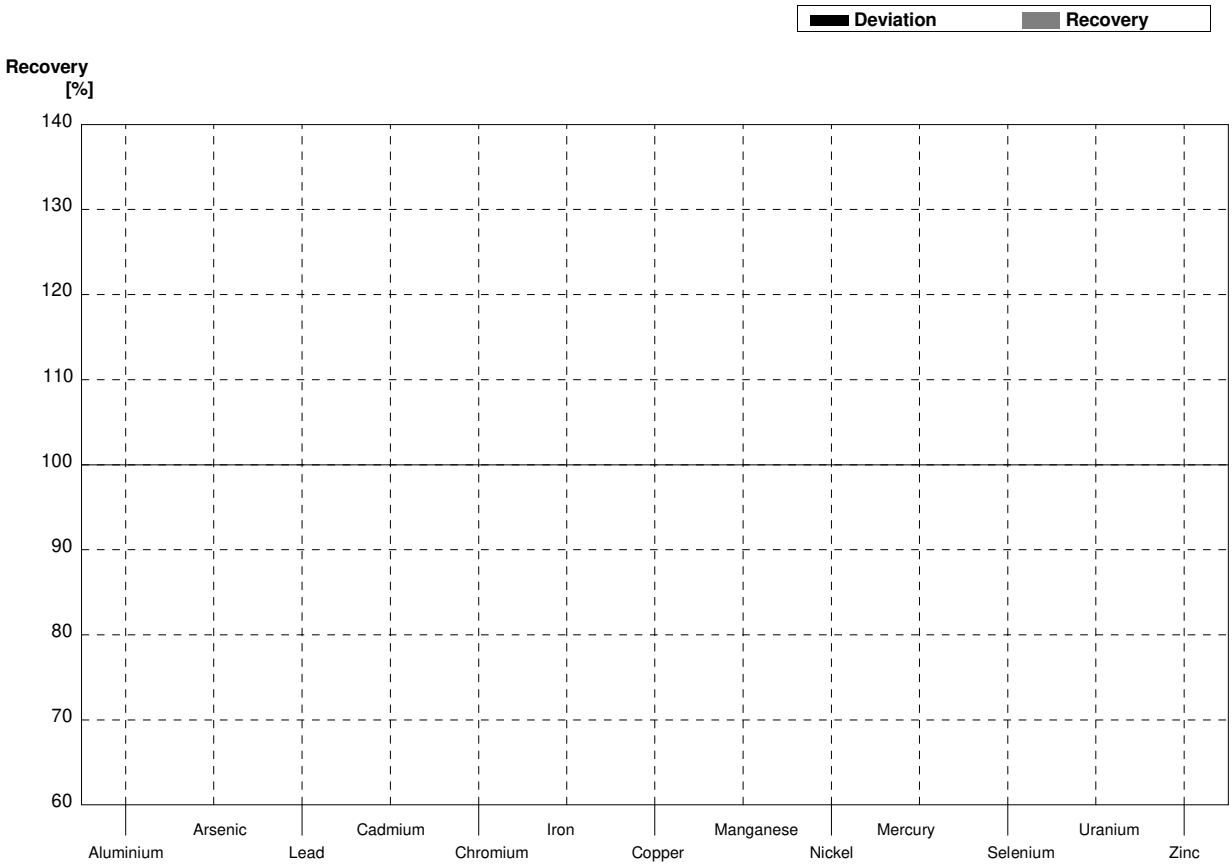
Sample M158B
Laboratory AA

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3			µg/l	
Arsenic	2,31	0,02			µg/l	
Lead	5,83	0,04			µg/l	
Cadmium	0,161	0,002			µg/l	
Chromium	0,88	0,01			µg/l	
Iron	102	1			µg/l	
Copper	3,84	0,03			µg/l	
Manganese	24,0	0,2			µg/l	
Nickel	2,27	0,02			µg/l	
Mercury	0,55	0,01			µg/l	
Selenium	2,27	0,06			µg/l	
Uranium	3,45	0,03			µg/l	
Zinc	204	1			µg/l	



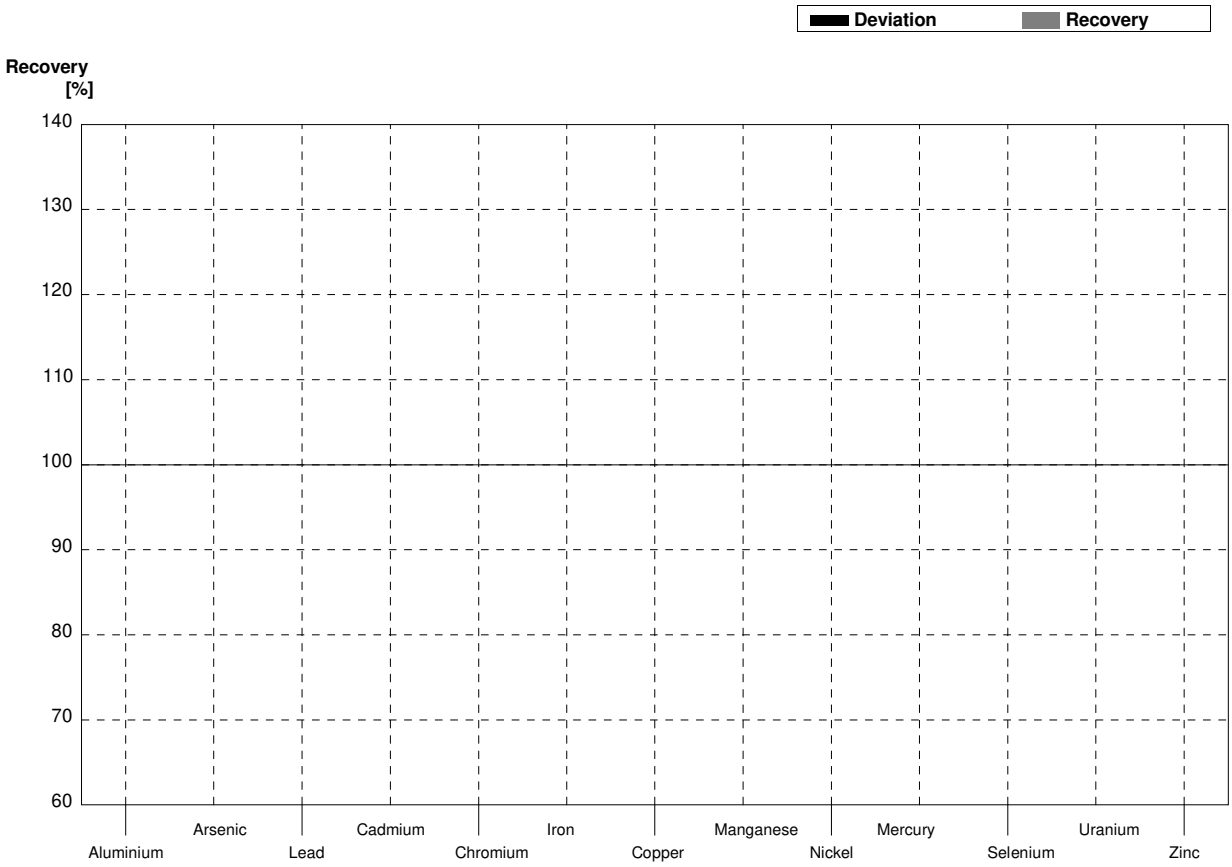
Sample M158A
Laboratory AB

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1			µg/l	
Arsenic	3,60	0,02			µg/l	
Lead	18,1	0,1			µg/l	
Cadmium	1,56	0,01			µg/l	
Chromium	10,3	0,1			µg/l	
Iron	21,6	0,2			µg/l	
Copper	1,79	0,02			µg/l	
Manganese	2,04	0,03			µg/l	
Nickel	4,18	0,03			µg/l	
Mercury	1,38	0,02			µg/l	
Selenium	1,35	0,06			µg/l	
Uranium	4,53	0,03			µg/l	
Zinc	25,9	0,7			µg/l	



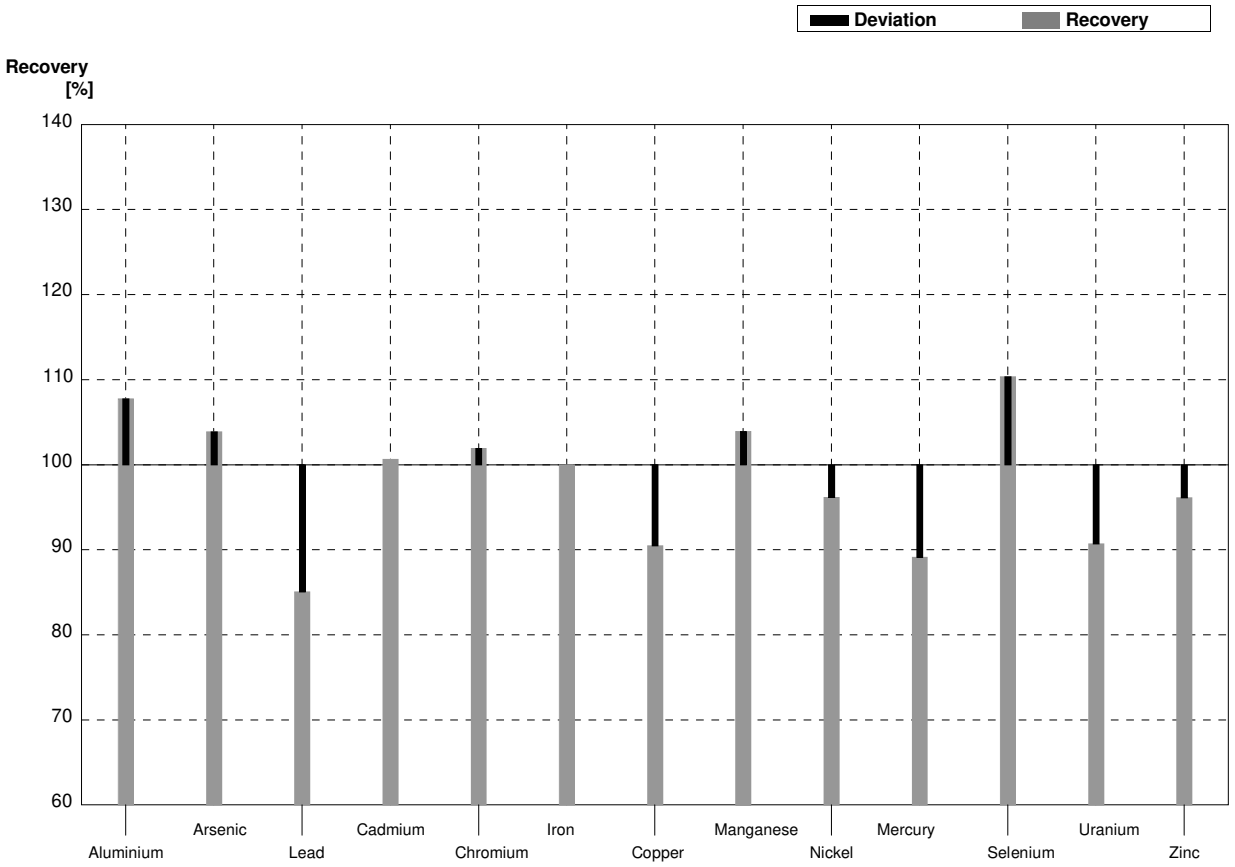
Sample M158B
Laboratory AB

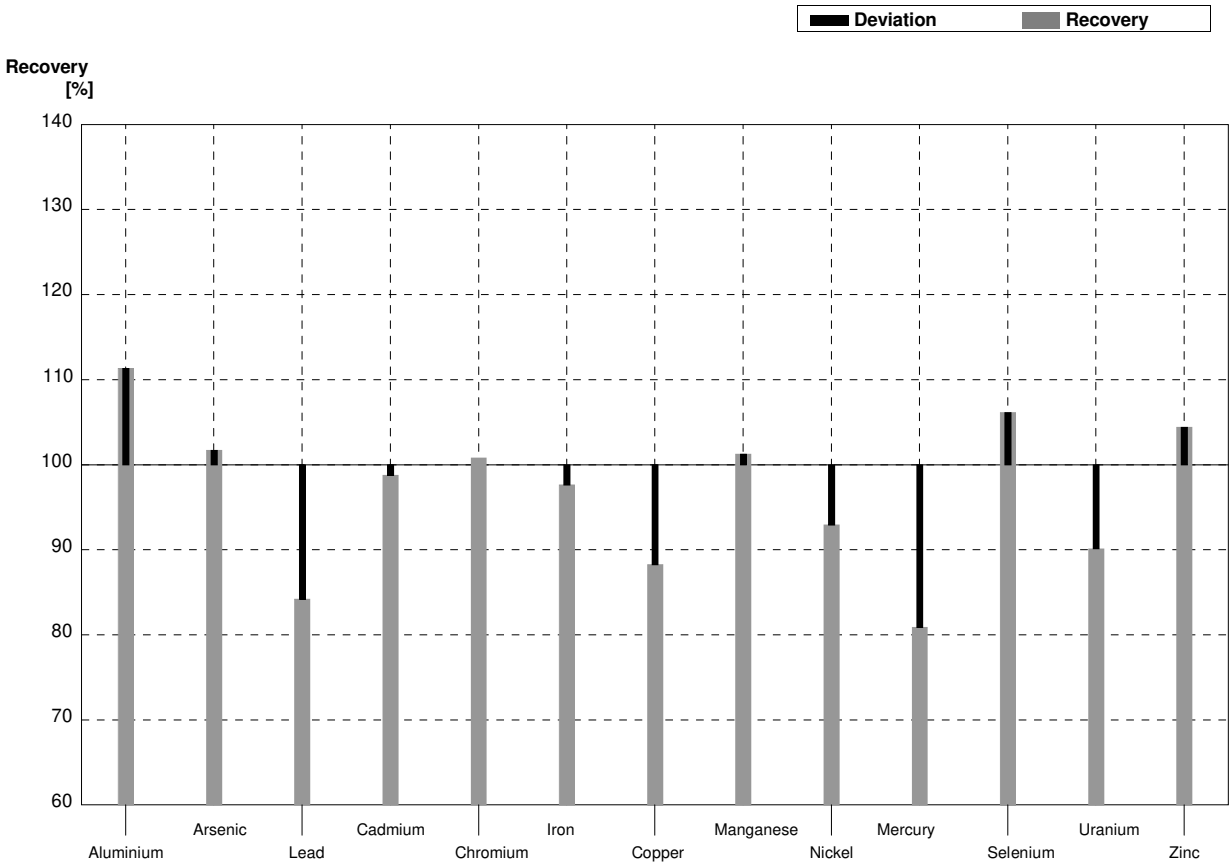
Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3			µg/l	
Arsenic	2,31	0,02			µg/l	
Lead	5,83	0,04			µg/l	
Cadmium	0,161	0,002			µg/l	
Chromium	0,88	0,01			µg/l	
Iron	102	1			µg/l	
Copper	3,84	0,03			µg/l	
Manganese	24,0	0,2			µg/l	
Nickel	2,27	0,02			µg/l	
Mercury	0,55	0,01			µg/l	
Selenium	2,27	0,06			µg/l	
Uranium	3,45	0,03			µg/l	
Zinc	204	1			µg/l	



Sample M158A
Laboratory AC

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	103	1	111	3,22	µg/l	108%
Arsenic	3,60	0,02	3,74	0,158	µg/l	104%
Lead	18,1	0,1	15,4	1,07	µg/l	85%
Cadmium	1,56	0,01	1,57	0,083	µg/l	101%
Chromium	10,3	0,1	10,5	0,407	µg/l	102%
Iron	21,6	0,2	21,6	0,480	µg/l	100%
Copper	1,79	0,02	1,62	0,080	µg/l	91%
Manganese	2,04	0,03	2,12	0,064	µg/l	104%
Nickel	4,18	0,03	4,02	0,148	µg/l	96%
Mercury	1,38	0,02	1,23	0,103	µg/l	89%
Selenium	1,35	0,06	1,49	0,085	µg/l	110%
Uranium	4,53	0,03	4,11	0,136	µg/l	91%
Zinc	25,9	0,7	24,9	0,881	µg/l	96%



Sample M158B
Laboratory AC

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	33,5	0,3	37,3	1,08	µg/l	111%
Arsenic	2,31	0,02	2,35	0,099	µg/l	102%
Lead	5,83	0,04	4,91	0,340	µg/l	84%
Cadmium	0,161	0,002	0,159	0,008	µg/l	99%
Chromium	0,88	0,01	0,887	0,034	µg/l	101%
Iron	102	1	99,6	2,21	µg/l	98%
Copper	3,84	0,03	3,39	0,168	µg/l	88%
Manganese	24,0	0,2	24,3	0,739	µg/l	101%
Nickel	2,27	0,02	2,11	0,078	µg/l	93%
Mercury	0,55	0,01	0,445	0,037	µg/l	81%
Selenium	2,27	0,06	2,41	0,137	µg/l	106%
Uranium	3,45	0,03	3,11	0,103	µg/l	90%
Zinc	204	1	213	7,54	µg/l	104%