

IFA-Proficiency Testing Scheme for Water Analysis

**Round M153
Metals**

Sample Dispatch: 31 August 2020



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This report has 93 pages.

This report summarises the results of round M153 (trace metals) within the IFA-Proficiency Testing Scheme for Water Analysis. The samples M153A and M153B were distributed to 24 participants on Monday, 31 August 2020. Each participant received two samples of 250 mL filled into LDPE bottles.

Closing date for reporting results to the IFA-Tulln was Friday, 25 September 2020. 23 participants submitted results. To make the results of this round anonymous, each laboratory was given a laboratory code on a random basis.

Samples

The samples consisted of artificial ground water 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. Ultrapure HNO₃ (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. The following ultrapure salts were used: CaCO₃, Mg(NO₃)₂, NaCl, KCl, besides ultrapure H₂SO₄ for sulphate. By this, the matrix of the samples consisted of about 46.0 mg/L Ca, 19.5 mg/L Mg, 11.2 mg/L Na, 1.23 mg/L K, 22.1 mg/L SO₄²⁻ and 19.0 mg/L Cl⁻.

Traces of Al, As, Cd, Cr, Cu, Fe, Pb, Mn, Hg, Ni, Se, U and Zn were added, using certified spectroscopy standards. For most of the compounds added to the samples, the target concentrations were higher than the minimum quantifiable values of the Austrian ground and river water monitoring program. The calculation of the target concentrations of the compounds was based on the mass of standard added to the samples.

Homogeneity, accuracy and stability tests at the IFA-Tulln

Some samples of the round M153A and M153B 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 (M154). 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 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 %). A minimum number of four results was required for the outlier test.

The recoveries of the target concentrations, calculated from outlier-corrected data mean values ranged between 89.5 % (Hg in sample M153A) and 107.2 % (Al in sample M153B).

The between laboratory CVs covered the range between 0.8 % (Cr in sample M153A) and 11.8 % (Ni in sample M153A).

All confidence intervals of the outlier-corrected laboratory mean values except those for Pb (93.2 % ± 5.2 %), Cr (93.4 % ± 2.2 %), Cu (94.4 % ± 2.8 %), and U (91.9 % ± 4.5 %) in sample M153A encompass the corresponding target values with their uncertainties. For all other parameters no difference could be detected between target concentrations and outlier corrected laboratory means statistically.

z-scores

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

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

z z-score

x_i result of laboratory

X target value or mean value („consensus value“)

σ_{pt} standard deviation for proficiency assessment

Thus, the z-score is the ratio of the estimated bias (difference between result and target value) and a standard deviation. The z-score criteria were determined from relative standard deviations from all interlaboratory comparisons that have been organised by the IFA-Tulln from 2009 to 2019. 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 8.2%, which is 5.9 µg/L Al, when based on the target value.

$$z = \frac{x_i - X}{\sigma_{pt}} = \frac{73.7 \text{ µg/L} - 72.3 \text{ µg/L}}{5.9 \text{ µg/L}} \quad 0.24 \quad \text{or} \quad \frac{102\% - 100\%}{8.2\%} \quad 0.24$$

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} 5.9 µg/L equivalent to 8.2% (standard deviation for proficiency assessment, see table below)

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

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

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

Thus, no z-scores were calculated for Cr in sample M153A.

Parameter	standard deviation for proficiency assessment	Lower limit
Aluminium	8.2%	8 µg/L
Arsenic	8.0%	0.5 µg/L
Cadmium	5.9%	0.1 µg/L
Chromium	6.6%	0.5 µg/L
Copper	8.8%	1.2 µg/L
Iron	7.0%	10 µg/L
Lead	7.2%	0.3 µg/L
Manganese	5.6%	2.0 µg/L
Mercury	11%	0.2 µg/L
Nickel	8.3%	1.0 µg/L
Selenium	11%	0.3 µg/L
Uranium	5.9%	0.35 µg/L
Zinc	8.0%	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 together with the recoveries in the tables of the parameter oriented part. Additionally, each laboratory obtained for every sample a single sheet that summarises the z-scores of the laboratory in graphical and tabular form.

Illustration of results

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

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

In the **parameter oriented part** the reported results and corresponding uncertainties are illustrated together with recoveries of the target values and the z-scores for each parameter and all laboratories. This information is presented in graphical and tabular form. Results, which were identified as outliers by the Hampel test are marked with an asterisk 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, 2 October 2020

EXPLANATION

Sample M106A

Parameter Copper

Target value $\pm U$ ($k=2$) $4,79 \mu\text{g/l} \pm 0,13 \mu\text{g/l}$

IFA result $\pm U$ ($k=2$) $4,79 \mu\text{g/l} \pm 0,38 \mu\text{g/l}$

Stability test $\pm U$ ($k=2$) $4,69 \mu\text{g/l} \pm 0,38 \mu\text{g/l}$

Obtained from sample preparation, U =uncertainty

Determined at IFA prior to shipment of samples

Determined at IFA 3 weeks after sample dispatch

Lab Code	Result	\pm	Unit	Recovery	z-Score
A	5.16	0.4128	$\mu\text{g/l}$	108%	0.90
B	4.22	0.42	$\mu\text{g/l}$	88%	-1.38
C	4.45	0.13	$\mu\text{g/l}$	93%	-0.83
D			$\mu\text{g/l}$		
E			$\mu\text{g/l}$		
F	4.10	0.08	$\mu\text{g/l}$	86%	-1.68
G			$\mu\text{g/l}$		
H			$\mu\text{g/l}$		
I	4.75	0.74	$\mu\text{g/l}$	99%	-0.10
J	<5		$\mu\text{g/l}$	*	
K	4.76		$\mu\text{g/l}$	99%	-0.07
L	<10		$\mu\text{g/l}$	*	
M	4.8	0.5	$\mu\text{g/l}$	100%	0.02
N	3.7	0.4	$\mu\text{g/l}$	77%	-2.65
O	4.47	0.447	$\mu\text{g/l}$	93%	-0.78
P	6.0		$\mu\text{g/l}$	125%	2.94
Q	4.17	0.2	$\mu\text{g/l}$	87%	-1.51
R	4.6	0.8	$\mu\text{g/l}$	96%	-0.46
S	4.44	0.67	$\mu\text{g/l}$	93%	-0.85
T			$\mu\text{g/l}$		
U	4.675	0.935	$\mu\text{g/l}$	98%	-0.28
V	5.0	0.50	$\mu\text{g/l}$	104%	0.51
W	3.54	0.3	$\mu\text{g/l}$	74%	-3.03
X	7.108	*	$\mu\text{g/l}$	148%	5.63
Y	<10		$\mu\text{g/l}$	*	
Z			$\mu\text{g/l}$		
AA	<3.0		$\mu\text{g/l}$	FN	
AB	3.775	0.107	$\mu\text{g/l}$	79%	-2.46
AC	<10.0		$\mu\text{g/l}$	*	

An asterisk 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 $\pm CI(99\%)$	$4,65 \pm 0,57$	$4,51 \pm 0,42$	$\mu\text{g/l}$
Recov. $\pm CI(99\%)$	$97,1 \pm 12,0$	$94,1 \pm 8,8$	%
SD between labs	0.84	0.59	$\mu\text{g/l}$
RSD between labs	18.1	13.2	%
n for calculation	18	17	

Between laboratory standard deviation

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

Number of results used for calculation of statistic parameters



Diagram 1: Measurement results and their uncertainties

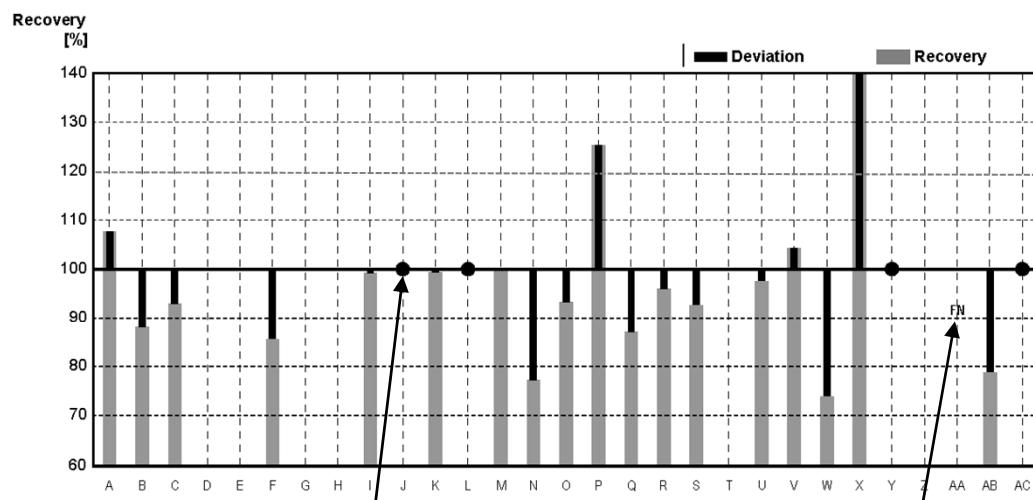


Diagram 2: Recoveries and deviations from target values

Illustration of Results Tables and Parameter Oriented Part

Round M153
Metals

Sample Dispatch: 31 August 2020



Results Sample M153A

	Aluminium	Arsenic	Lead	Cadmium	Chromium	Iron	Copper
Target value	56.1	2.56	2.32	0.502	0.397	68.9	10.4
IFA result	56.3	2.66	2.37	0.511	0.410	70.8	10.7
A	56.1	2.72	2.20	0.55	<5	69.2	<100
B	57.3	2.82	2.22	0.532	0.370	67	10.1
C	54					76	22.5
D	55.7	2.69	2.40	0.498	<1.00	69.4	10.3
E	53	<3.8	2.10	0.90	<0.2	61.8	9.9
F	44.2	2.83	1.74	0.458	0.338	65.4	9.56
G		2.00	2.10	0.51	<0.50		9.00
H	58.2					63.1	
I	48.6	2.34	2.07	0.481	0.375	68	9.09
J	57.7	2.91	2.23	0.529	<1	73.5	9.97
K							
L						63.0	
M	57	2.53	2.10	0.51	<1.0	66	9.4
N	58.7	2.65	2.26	0.504	<1.0	53.2	9.79
O	58.0	2.67	2.10	0.502	0.368	71.5	9.17
P	62.6	2.58	<2	<1	<5	73.6	9.83
Q	56.2	2.64	2.31	0.513	0.370	68.5	10.3
R	69.4	3.99	1.84	0.283	<0.5	73.0	9.92
S	51.7	2.72	2.24	0.489	<1.00	65.4	9.63
T	58.00	2.80	2.500	0.510	<0.500	69.00	10.20
U	58.3	2.65	2.17	0.475	<5	66.8	12.3
V	59.0		3.27	0.537	0.466	67.9	10.2
W	49.89	2.52	2.09	0.52	<0.50	64.04	9.95
X	56.2	2.53	2.26	0.510	<0.5	71.3	10.4

All data in µg/L

Measurement Uncertainties Sample M153A

	Aluminium ±	Arsenic ±	Lead ±	Cadmium ±	Chromium ±	Iron ±	Copper ±
Target value	0.3	0.02	0.02	0.005	0.014	0.3	0.1
IFA result	2.8	0.21	0.09	0.036	0.020	7.1	1.0
A	5.7	0.27	0.22	0.06		6.9	
B	10.1	0.42	0.29	0.060	0.050	7.04	1.6
C							
D	11.1	0.54	0.48	0.100		13.9	2.1
E	1		0.3	0.1		0.2	0.1
F	1.3	0.03	0.08	0.028	0.011	1.5	0.09
G		0.34	0.32	0.056			1.64
H	14.6					7.6	
I	9.7	0.59	0.41	0.096	0.094	17	1.82
J	8.65	0.44	0.34	0.079		11.0	1.50
K							
L						13.0	
M	5.7	0.380	0.21	0.051		6.6	0.94
N	6.5	0.15	0.24	0.023		5.9	0.53
O	0.109	0.056	0.029	0.009	0.022	0.138	0.034
P	6.26	0.258				7.36	0.983
Q	1.69	0.0792	0.0693	0.0154	0.0111	2.06	0.309
R	5.7	0.34	0.13	0.016		5.2	0.87
S	0.39	0.08	0.11	0.018		0.91	0.13
T	5.80	0.336	0.200	0.0408		17.94	0.816
U	0.8	0.12	0.05	0.07		0.8	0.6
V	11.8		0.654	0.107	0.093	13.6	2.04
W	1.455	0.139	0.125	0.007		2.802	0.227
X	8.5	0.38	0.34	0.08		10.7	1.6

All data in µg/L

Results Sample M153A

	Manganese	Nickel	Mercury	Selenium	Uranium	Zinc
Target value	43.0	1.01	0.399	0.50	0.399	40.3
IFA result	45.1	1.04	0.382	0.51	0.411	45.4
A	42.2	<2	0.180	<1		<50
B	41.6	1.00	0.406	0.58	0.370	34.0
C	44.0					44.5
D	45.9	1.08	0.361	<1.00	<1.00	40.9
E	39.1	0.60	0.322	<4.2	<1.4	37.2
F	45.3	0.92	<5.0	0.55	0.348	41.0
G	45.3	2.03	0.370			
H	39.2					
I	41.9	1.07		0.475	0.378	39.66
J	43.1	1.08	0.430	<1	<1	43.2
K						
L	49.0					
M	41.5	0.96	0.350	<1.0	<1.0	37.8
N	43.0	0.948	0.394	<1.0	0.377	39.4
O	42.6	0.930	0.358	0.518	0.377	40.2
P	44.3	<5	0.340	<2	<1	35.2
Q	44.0	1.03	0.328	0.520	0.350	40.1
R	42.3	<1.0		<0.3		43.8
S	40.6	1.11	0.369	<1.00	<1.00	38.0
T	44.00	1.10	0.360	0.50	0.410	41.00
U	42.5	1.25		<1	<2	38.1
V	43.0	1.39				42.7
W	41.60	1.06	0.328	<0.50	0.367	39.38
X	43.2	0.987	0.285	<1.0	<0.5	39.9

All data in µg/L

Measurement Uncertainties Sample M153A

	Manganese ±	Nickel ±	Mercury ±	Selenium ±	Uranium ±	Zinc ±
Target value	0.3	0.02	0.013	0.05	0.005	0.5
IFA result	4.1	0.09	0.038	0.07	0.041	9.1
A	4.2		0.02			
B	6.24	0.15	0.061	0.10	0.070	5.4
C						
D	9.2	0.22	0.072			8.2
E	0.3	0.1	0.096			0.1
F	0.2	0.02		0.01	0.011	0.5
G	8.67	0.33	0.024			
H	6.3					
I	10.5	0.214		0.143	0.095	7.93
J	6.46	0.16	0.064			6.49
K						
L	11.0					
M	4.15	0.096	0.0350			3.78
N	2.3	0.073	0.061		0.040	2.5
O	0.373	0.027	0.007	0.008	0.012	0.320
P	4.43		0.051			3.52
Q	1.32	0.0309	0.00983	0.0156	0.105	1.20
R	2.4					3.5
S	0.62	0.14	0.026			0.20
T	4.40	0.11	0.0432	0.075	0.021	4.10
U	0.8	0.1				0.8
V	8.60	0.279				8.54
W	0.400	0.044	0.052		0.009	1.241
X	6.5	0.15	0.05			6.0

All data in µg/L

Results Sample M153B

	Aluminium	Arsenic	Lead	Cadmium	Chromium	Iron	Copper
Target value	10.4	2.01	4.07	0.897	3.49	36.0	2.96
IFA result	10.7	2.11	4.12	0.922	3.60	36.3	3.10
A	<20	2.08	3.70	1.00	<5	34.5	<100
B	10.9	2.27	3.84	0.926	3.47	33.6	2.93
C	11.0					42.5	17.0
D	10.6	2.13	4.25	0.885	3.75	35.2	2.70
E	11.6	<3.8	3.30	1.30	2.80	30.5	3.00
F	6.87	2.18	3.01	0.828	3.66	34.0	2.53
G		<2.0	3.92	0.90	4.30		2.42
H	<10					33.4	
I	7.2	1.79	3.53	0.832	3.16	38.0	4.66
J	11.3	2.26	3.96	0.953	3.71	38.9	2.96
K							
L						30.0	
M	11.0	1.95	3.76	0.90	3.38	35.4	2.63
N	9.75	2.07	3.92	0.876	3.42	32.3	2.73
O	11.3	2.09	3.91	0.936	3.41	36.0	2.03
P	11.5	<2	3.45	<1	<5	37.9	<5
Q	13.6	2.06	3.95	0.886	3.51	36.6	3.42
R	10.9	2.91	3.18	0.510	3.76	36.3	2.39
S	<10.0	2.17	4.03	0.901	3.60	33.4	2.84
T	16.00	2.20	4.10	0.900	3.500	40.00	2.90
U	13.3	2.06	3.81	0.86	<5	35.0	<5
V	11.5		5.13	0.913	3.48	35.3	2.67
W	<5.0	1.97	4.58	0.93	3.00	33.55	2.97
X	10.3	2.01	3.94	0.913	3.56	37.0	2.93

All data in µg/L

Measurement Uncertainties Sample M153B

	Aluminium ±	Arsenic ±	Lead ±	Cadmium ±	Chromium ±	Iron ±	Copper ±
Target value	0.2	0.02	0.03	0.008	0.03	0.2	0.03
IFA result	0.5	0.17	0.16	0.065	0.18	3.6	0.28
A		0.21	0.37	0.10		3.5	
B	1.9	0.34	0.50	0.110	0.46	3.53	0.45
C							
D	2.1	0.43	0.85	0.177	0.75	7.0	0.54
E	0.2		0.1	0.1	0.1	0.2	0.2
F	0.08	0.27	0.01	0.042	0.07	0.3	0.04
G			0.60	0.098	0.84		0.45
H	2.5					4.0	
I	1.4	0.45	0.71	0.166	0.79	9.5	0.93
J	1.69	0.34	0.59	0.143	0.56	5.83	0.44
K							
L						6.30	
M	1.1	0.293	0.376	0.090	0.338	3.54	0.263
N	1.06	0.12	0.42	0.041	0.48	3.6	0.15
O	0.166	0.044	0.040	0.035	0.022	0.398	0.084
P	1.15		0.345			3.79	
Q	0.408	0.0618	0.119	0.0266	0.105	1.098	0.103
R	1.6	0.35	0.23	0.03	0.25	2.5	0.19
S		0.08	0.10	0.020	0.216	0.95	0.12
T	1.60	0.264	0.328	0.072	0.420	10.40	0.232
U	0.9	0.2	0.04	0.02		0.3	
V	2.30		1.03	0.183	0.696	7.05	0.533
W		0.061	0.390	0.016	0.149	1.265	0.080
X	1.6	0.31	0.59	0.14	0.54	5.6	0.44

All data in µg/L

Results Sample M153B

	Manganese	Nickel	Mercury	Selenium	Uranium	Zinc
Target value	13.2	3.75	1.30	2.39	2.80	14.9
IFA result	13.7	3.85	1.39	2.17	2.85	16.6
A	12.9	3.70	1.18	<1		<50
B	12.3	3.80	1.39	2.65	2.57	13.3
C	14.0					17.0
D	14.1	4.02	1.27	2.43	2.96	15.0
E	12.0	2.70	1.57	<2.8	<1.7	13.7
F	13.51	3.70	<5.0	2.41	2.03	15.17
G	14.5	4.37	1.20			
H	11.2					
I	12.6	3.31		2.28	2.64	17.36
J	13.7	3.89	1.49	2.40	2.81	15.9
K						
L	15.0					
M	13.0	3.51	1.24	2.55	2.74	14.0
N	13.3	3.52	1.33	2.31	2.58	14.1
O	13.2	3.64	1.22	2.44	2.73	14.5
P	13.1	<5	1.14	2.15	2.76	<15
Q	13.5	3.76	1.70	2.37	2.40	15.4
R	12.1	3.04		1.26		13.2
S	11.3	3.74	1.29	2.46	2.78	13.6
T	13.00	3.80	1.24	2.40	2.81	15.00
U	12.5	4.22		2.42	2.96	12.1
V	13.1	3.88				15.5
W	12.73	3.77	1.11	2.45	2.57	15.31
X	13.1	3.72	1.22	2.48	2.57	14.5

All data in µg/L

Measurement Uncertainties Sample M153B

	Manganese ±	Nickel ±	Mercury ±	Selenium ±	Uranium ±	Zinc ±
Target value	0.1	0.03	0.02	0.06	0.02	0.5
IFA result	1.2	0.35	0.14	0.30	0.28	3.3
A	1.3	0.37	0.12			
B	1.85	0.56	0.21	0.47	0.46	2.1
C						
D	2.8	0.80	0.25	0.49	0.59	3.0
E	0.1	0.1	0.249			0.1
F	0.07	0.02		0.08	0.01	0.03
G	2.78	0.68	0.10			
H	1.8					
I	3.15	0.66		0.68	0.66	3.47
J	2.05	0.58	0.22	0.36	0.42	2.38
K						
L	3.30					
M	1.30	0.351	0.124	0.383	0.274	1.4
N	0.7	0.27	0.21	0.28	0.27	0.9
O	0.054	0.055	0.010	0.069	0.036	0.130
P	1.31		0.171	0.215	0.276	
Q	0.405	0.113	0.0510	0.0711	0.0720	0.462
R	0.68	0.32		0.14		1.1
S	0.72	0.12	0.024	0.17	0.18	0.21
T	1.30	0.38	0.149	0.36	0.141	1.50
U	0.2	0.2		0.09	0.63	1.3
V	2.61	0.775				3.09
W	0.102	0.115	0.043	0.035	0.057	2.025
X	2.0	0.56	0.19	0.38	0.39	2.2

All data in µg/L

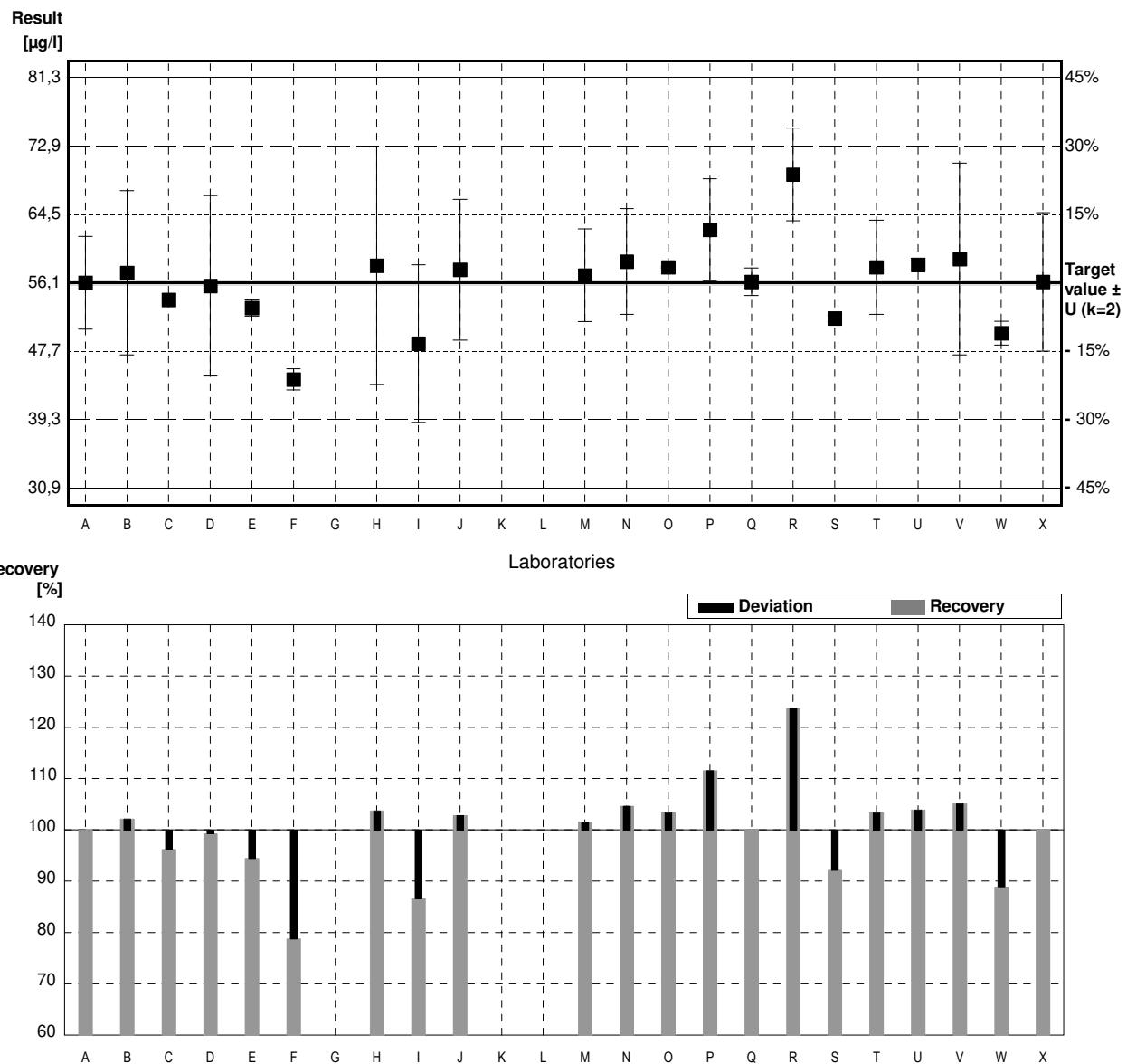
Sample M153A

Parameter Aluminium

Target value $\pm U$ ($k=2$) 56,1 $\mu\text{g/l}$ \pm 0,3 $\mu\text{g/l}$
 IFA result $\pm U$ ($k=2$) 56,3 $\mu\text{g/l}$ \pm 2,8 $\mu\text{g/l}$

Stability test					
Lab Code	Result	\pm	Unit	Recovery	z-Score
A	56,1	5,7	$\mu\text{g/l}$	100%	0,00
B	57,3	10,1	$\mu\text{g/l}$	102%	0,26
C	54		$\mu\text{g/l}$	96%	-0,46
D	55,7	11,1	$\mu\text{g/l}$	99%	-0,09
E	53	1	$\mu\text{g/l}$	94%	-0,67
F	44,2 *	1,3	$\mu\text{g/l}$	79%	-2,59
G			$\mu\text{g/l}$		
H	58,2	14,6	$\mu\text{g/l}$	104%	0,46
I	48,6 *	9,7	$\mu\text{g/l}$	87%	-1,63
J	57,7	8,65	$\mu\text{g/l}$	103%	0,35
K			$\mu\text{g/l}$		
L			$\mu\text{g/l}$		
M	57	5,7	$\mu\text{g/l}$	102%	0,20
N	58,7	6,5	$\mu\text{g/l}$	105%	0,57
O	58,0	0,109	$\mu\text{g/l}$	103%	0,41
P	62,6	6,26	$\mu\text{g/l}$	112%	1,41
Q	56,2	1,69	$\mu\text{g/l}$	100%	0,02
R	69,4 *	5,7	$\mu\text{g/l}$	124%	2,89
S	51,7	0,39	$\mu\text{g/l}$	92%	-0,96
T	58,00	5,80	$\mu\text{g/l}$	103%	0,41
U	58,3	0,8	$\mu\text{g/l}$	104%	0,48
V	59,0	11,8	$\mu\text{g/l}$	105%	0,63
W	49,89 *	1,455	$\mu\text{g/l}$	89%	-1,35
X	56,2	8,5	$\mu\text{g/l}$	100%	0,02

	All results	Outliers excl.	Unit
Mean \pm CI(99%)	56,2 \pm 3,2	56,9 \pm 1,8	$\mu\text{g/l}$
Recov. \pm CI(99%)	100,1 \pm 5,7	101,5 \pm 3,2	%
SD between labs	5,1	2,5	$\mu\text{g/l}$
RSD between labs	9,1	4,4	%
n for calculation	21	17	



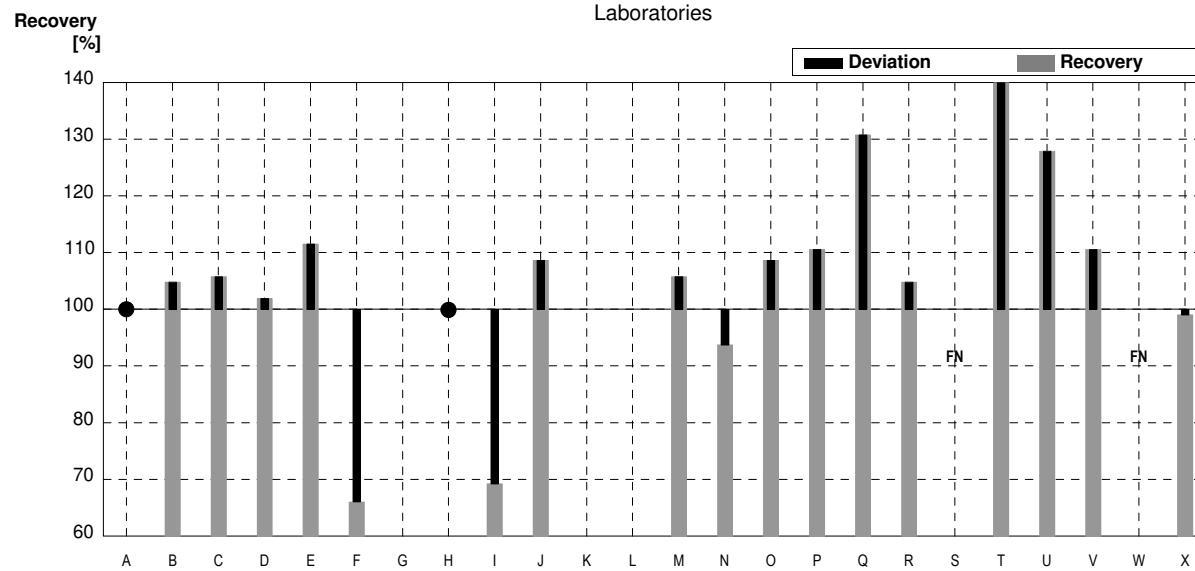
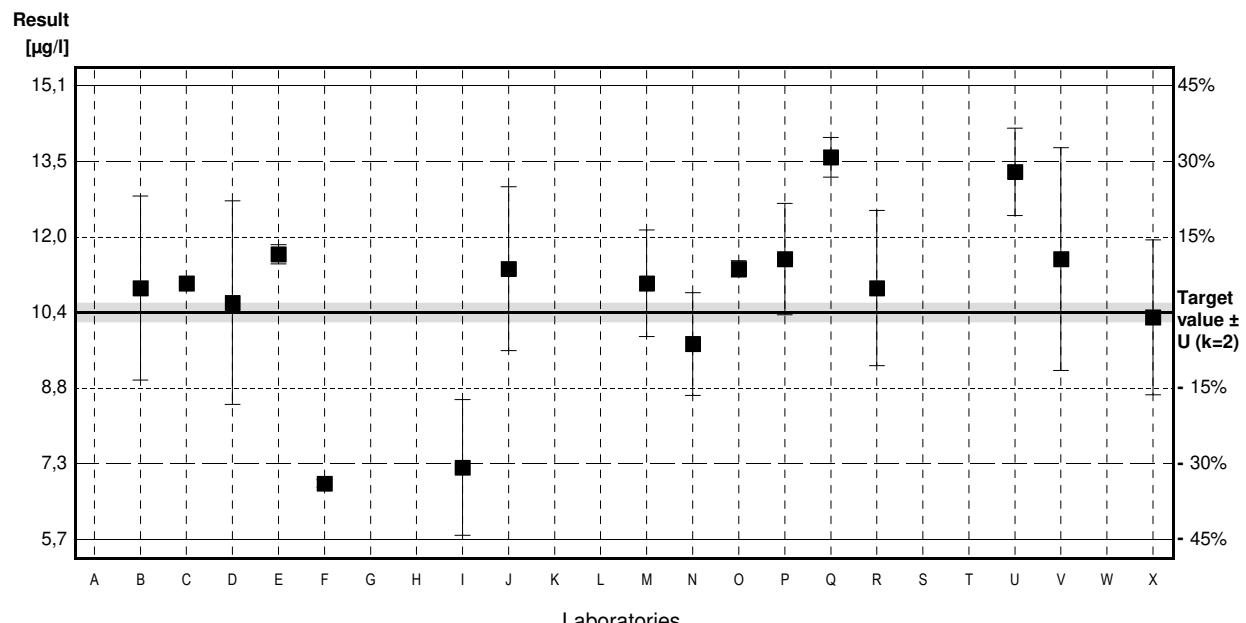
Sample M153B

Parameter Aluminium

Target value $\pm U$ ($k=2$) 10,4 $\mu\text{g/l}$ \pm 0,2 $\mu\text{g/l}$
 IFA result $\pm U$ ($k=2$) 10,7 $\mu\text{g/l}$ \pm 0,5 $\mu\text{g/l}$

Stability test					
Lab Code	Result	\pm	Unit	Recovery	z-Score
A	<20		$\mu\text{g/l}$	*	
B	10,9	1,9	$\mu\text{g/l}$	105%	0,59
C	11,0		$\mu\text{g/l}$	106%	0,70
D	10,6	2,1	$\mu\text{g/l}$	102%	0,23
E	11,6	0,2	$\mu\text{g/l}$	112%	1,41
F	6,87 *	0,08	$\mu\text{g/l}$	66%	-4,14
G			$\mu\text{g/l}$		
H	<10	2,5	$\mu\text{g/l}$	*	
I	7,2 *	1,4	$\mu\text{g/l}$	69%	-3,75
J	11,3	1,69	$\mu\text{g/l}$	109%	1,06
K			$\mu\text{g/l}$		
L			$\mu\text{g/l}$		
M	11,0	1,1	$\mu\text{g/l}$	106%	0,70
N	9,75	1,06	$\mu\text{g/l}$	94%	-0,76
O	11,3	0,166	$\mu\text{g/l}$	109%	1,06
P	11,5	1,15	$\mu\text{g/l}$	111%	1,29
Q	13,6 *	0,408	$\mu\text{g/l}$	131%	3,75
R	10,9	1,6	$\mu\text{g/l}$	105%	0,59
S	<10,0		$\mu\text{g/l}$	FN	
T	16,00 *	1,60	$\mu\text{g/l}$	154%	6,57
U	13,3	0,9	$\mu\text{g/l}$	128%	3,40
V	11,5	2,30	$\mu\text{g/l}$	111%	1,29
W	<5,0		$\mu\text{g/l}$	FN	
X	10,3	1,6	$\mu\text{g/l}$	99%	-0,12

	All results	Outliers excl.	Unit
Mean \pm CI(99%)	11,1 \pm 1,5	11,2 \pm 0,7	$\mu\text{g/l}$
Recov. \pm CI(99%)	106,7 \pm 14,4	107,2 \pm 6,8	%
SD between labs	2,1	0,8	$\mu\text{g/l}$
RSD between labs	19,1	7,4	%
n for calculation	17	13	



Sample M153A

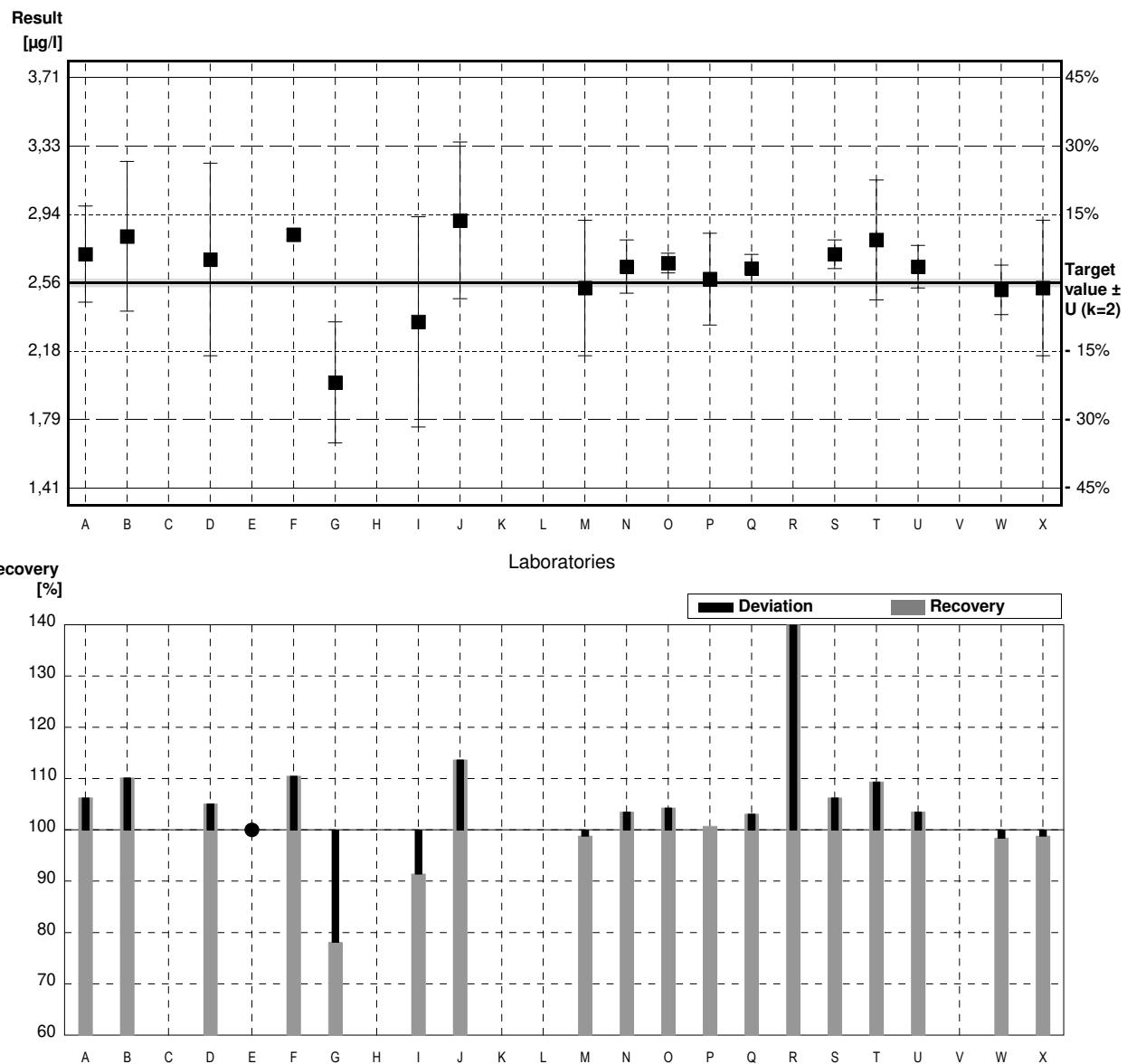
Parameter Arsenic

Target value $\pm U$ ($k=2$) 2,56 $\mu\text{g/l}$ \pm 0,02 $\mu\text{g/l}$
 IFA result $\pm U$ ($k=2$) 2,66 $\mu\text{g/l}$ \pm 0,21 $\mu\text{g/l}$

Stability test $\mu\text{g/l}$

Lab Code	Result	\pm	Unit	Recovery	z-Score
A	2,72	0,27	$\mu\text{g/l}$	106%	0,78
B	2,82	0,42	$\mu\text{g/l}$	110%	1,27
C			$\mu\text{g/l}$		
D	2,69	0,54	$\mu\text{g/l}$	105%	0,63
E	<3,8		$\mu\text{g/l}$	*	
F	2,83	0,03	$\mu\text{g/l}$	111%	1,32
G	2,00 *	0,34	$\mu\text{g/l}$	78%	-2,73
H			$\mu\text{g/l}$		
I	2,34	0,59	$\mu\text{g/l}$	91%	-1,07
J	2,91	0,44	$\mu\text{g/l}$	114%	1,71
K			$\mu\text{g/l}$		
L			$\mu\text{g/l}$		
M	2,53	0,380	$\mu\text{g/l}$	99%	-0,15
N	2,65	0,15	$\mu\text{g/l}$	104%	0,44
O	2,67	0,056	$\mu\text{g/l}$	104%	0,54
P	2,58	0,258	$\mu\text{g/l}$	101%	0,10
Q	2,64	0,0792	$\mu\text{g/l}$	103%	0,39
R	3,99 *	0,34	$\mu\text{g/l}$	156%	6,98
S	2,72	0,08	$\mu\text{g/l}$	106%	0,78
T	2,80	0,336	$\mu\text{g/l}$	109%	1,17
U	2,65	0,12	$\mu\text{g/l}$	104%	0,44
V			$\mu\text{g/l}$		
W	2,52	0,139	$\mu\text{g/l}$	98%	-0,20
X	2,53	0,38	$\mu\text{g/l}$	99%	-0,15

	All results	Outliers excl.	Unit
Mean \pm CI(99%)	2,70 \pm 0,26	2,66 \pm 0,11	$\mu\text{g/l}$
Recov. \pm CI(99%)	105,4 \pm 10,2	104,0 \pm 4,1	%
SD between labs	0,38	0,14	$\mu\text{g/l}$
RSD between labs	14,2	5,4	%
n for calculation	18	16	



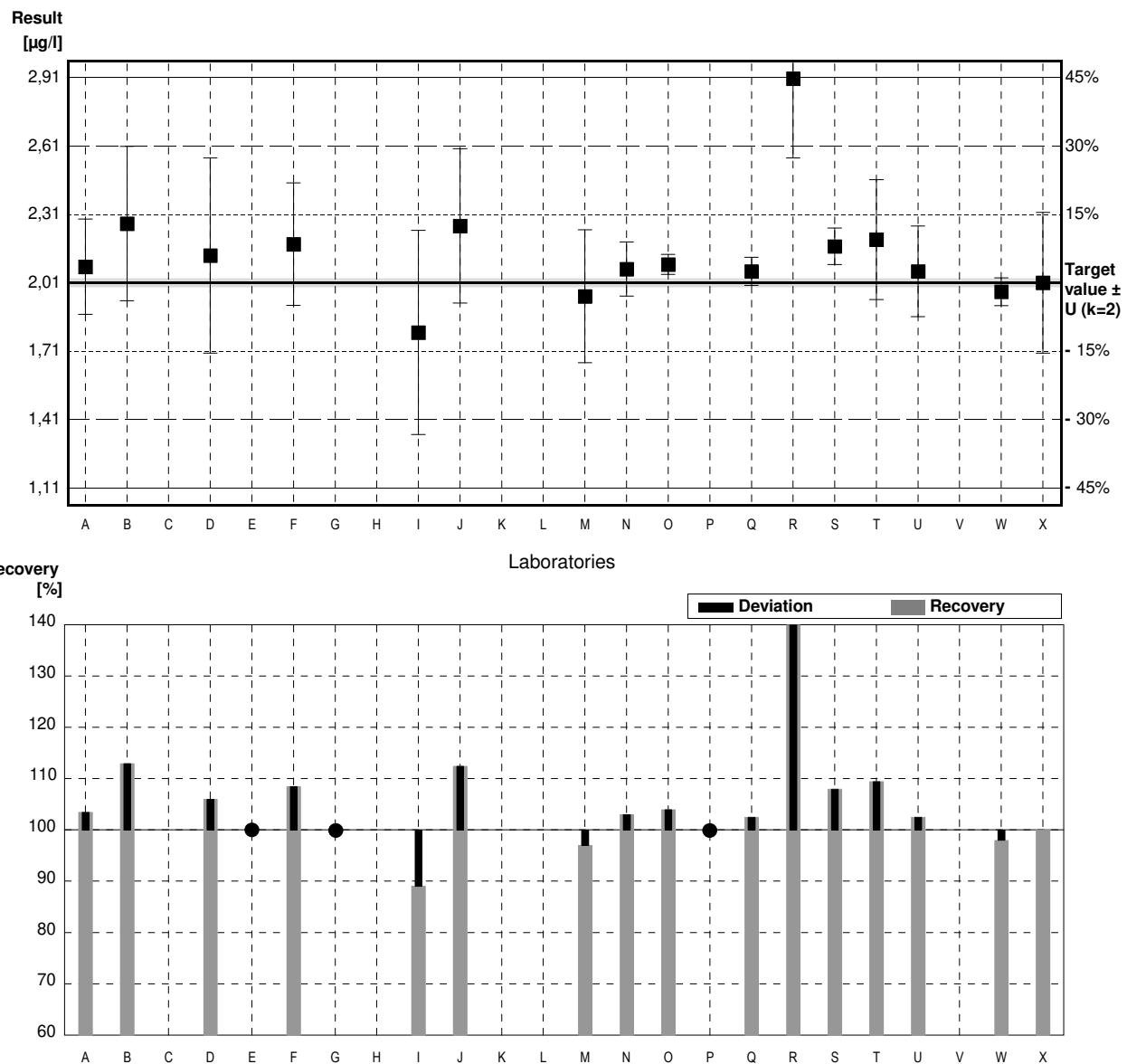
Sample M153B

Parameter Arsenic

Target value $\pm U$ ($k=2$) 2,01 µg/l \pm 0,02 µg/l
 IFA result $\pm U$ ($k=2$) 2,11 µg/l \pm 0,17 µg/l

Stability test					
Lab Code	Result	\pm	Unit	Recovery	z-Score
A	2,08	0,21	µg/l	103%	0,44
B	2,27	0,34	µg/l	113%	1,62
C			µg/l		
D	2,13	0,43	µg/l	106%	0,75
E	<3,8		µg/l	*	
F	2,18	0,27	µg/l	108%	1,06
G	<2,0		µg/l	*	
H			µg/l		
I	1,79	0,45	µg/l	89%	-1,37
J	2,26	0,34	µg/l	112%	1,55
K			µg/l		
L			µg/l		
M	1,95	0,293	µg/l	97%	-0,37
N	2,07	0,12	µg/l	103%	0,37
O	2,09	0,044	µg/l	104%	0,50
P	<2		µg/l	*	
Q	2,06	0,0618	µg/l	102%	0,31
R	2,91	*	µg/l	145%	5,60
S	2,17	0,08	µg/l	108%	1,00
T	2,20	0,264	µg/l	109%	1,18
U	2,06	0,2	µg/l	102%	0,31
V			µg/l		
W	1,97	0,061	µg/l	98%	-0,25
X	2,01	0,31	µg/l	100%	0,00

	All results	Outliers excl.	Unit
Mean \pm CI(99%)	2,14 \pm 0,18	2,09 \pm 0,10	µg/l
Recov. \pm CI(99%)	106,3 \pm 8,8	103,8 \pm 4,8	%
SD between labs	0,24	0,13	µg/l
RSD between labs	11,2	6,0	%
n for calculation	16	15	



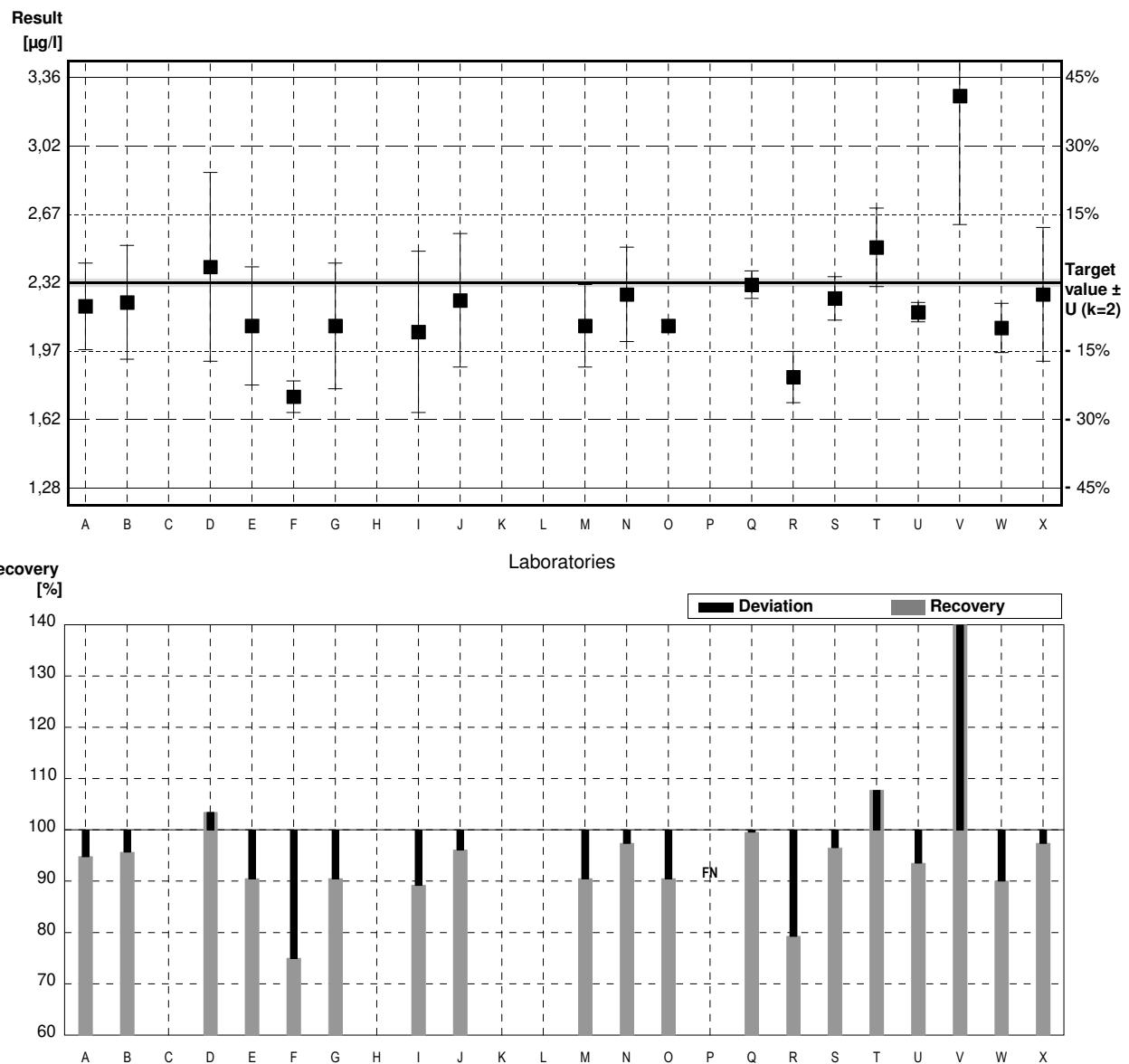
Sample M153A

Parameter Lead

Target value $\pm U (k=2)$ 2,32 µg/l \pm 0,02 µg/l
 IFA result $\pm U (k=2)$ 2,37 µg/l \pm 0,09 µg/l

Stability test					
Lab Code	Result	\pm	Unit	Recovery	z-Score
A	2,20	0,22	µg/l	95%	-0,72
B	2,22	0,29	µg/l	96%	-0,60
C			µg/l		
D	2,40	0,48	µg/l	103%	0,48
E	2,10	0,3	µg/l	91%	-1,32
F	1,74	0,08	µg/l	75%	-3,47
G	2,10	0,32	µg/l	91%	-1,32
H			µg/l		
I	2,07	0,41	µg/l	89%	-1,50
J	2,23	0,34	µg/l	96%	-0,54
K			µg/l		
L			µg/l		
M	2,10	0,21	µg/l	91%	-1,32
N	2,26	0,24	µg/l	97%	-0,36
O	2,10	0,029	µg/l	91%	-1,32
P	<2		µg/l	FN	
Q	2,31	0,0693	µg/l	100%	-0,06
R	1,84	0,13	µg/l	79%	-2,87
S	2,24	0,11	µg/l	97%	-0,48
T	2,500	0,200	µg/l	108%	1,08
U	2,17	0,05	µg/l	94%	-0,90
V	3,27 *	0,654	µg/l	141%	5,69
W	2,09	0,125	µg/l	90%	-1,38
X	2,26	0,34	µg/l	97%	-0,36

	All results	Outliers excl.	Unit
Mean $\pm CI(99\%)$	2,22 \pm 0,20	2,16 \pm 0,12	µg/l
Recov. $\pm CI(99\%)$	95,7 \pm 8,8	93,2 \pm 5,2	%
SD between labs	0,31	0,18	µg/l
RSD between labs	13,8	8,2	%
n for calculation	19	18	



Sample M153B

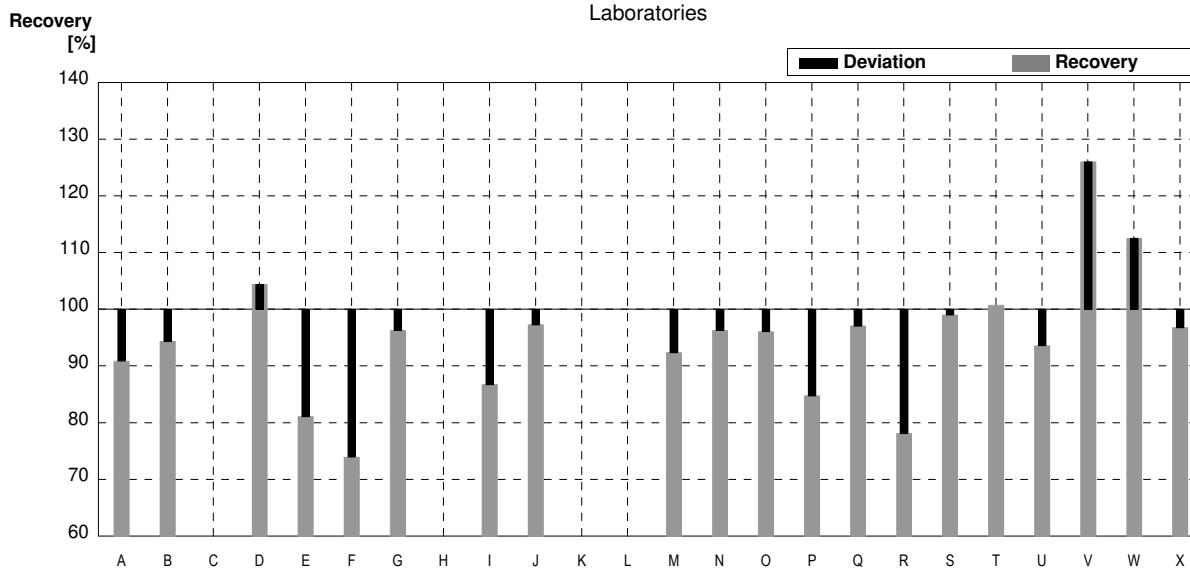
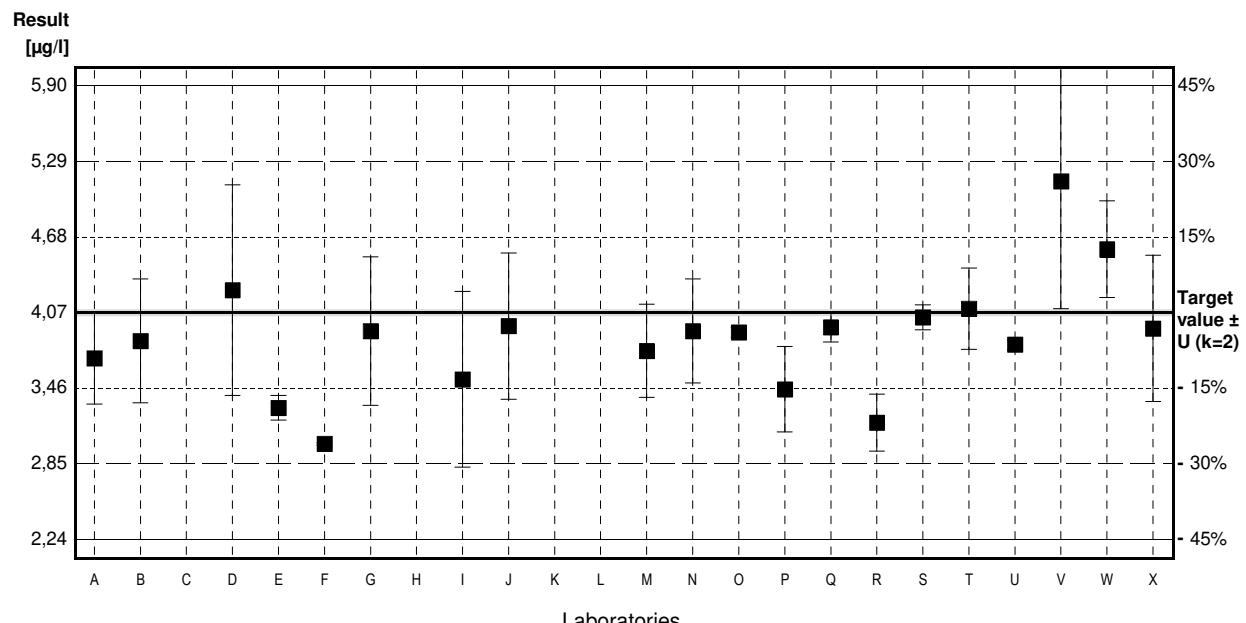
Parameter Lead

Target value $\pm U$ ($k=2$) 4,07 µg/l \pm 0,03 µg/l
 IFA result $\pm U$ ($k=2$) 4,12 µg/l \pm 0,16 µg/l

Stability test

Lab Code	Result	\pm	Unit	Recovery	z-Score
A	3,70	0,37	µg/l	91%	-1,26
B	3,84	0,50	µg/l	94%	-0,78
C			µg/l		
D	4,25	0,85	µg/l	104%	0,61
E	3,30	0,1	µg/l	81%	-2,63
F	3,01 *	0,01	µg/l	74%	-3,62
G	3,92	0,60	µg/l	96%	-0,51
H			µg/l		
I	3,53	0,71	µg/l	87%	-1,84
J	3,96	0,59	µg/l	97%	-0,38
K			µg/l		
L			µg/l		
M	3,76	0,376	µg/l	92%	-1,06
N	3,92	0,42	µg/l	96%	-0,51
O	3,91	0,040	µg/l	96%	-0,55
P	3,45	0,345	µg/l	85%	-2,12
Q	3,95	0,119	µg/l	97%	-0,41
R	3,18	0,23	µg/l	78%	-3,04
S	4,03	0,10	µg/l	99%	-0,14
T	4,10	0,328	µg/l	101%	0,10
U	3,81	0,04	µg/l	94%	-0,89
V	5,13 *	1,03	µg/l	126%	3,62
W	4,58	0,390	µg/l	113%	1,74
X	3,94	0,59	µg/l	97%	-0,44

	All results	Outliers excl.	Unit
Mean \pm CI(99%)	3,86 \pm 0,30	3,84 \pm 0,23	µg/l
Recov. \pm CI(99%)	94,9 \pm 7,4	94,4 \pm 5,6	%
SD between labs	0,47	0,33	µg/l
RSD between labs	12,2	8,6	%
n for calculation	20	18	



Sample M153A

Parameter Cadmium

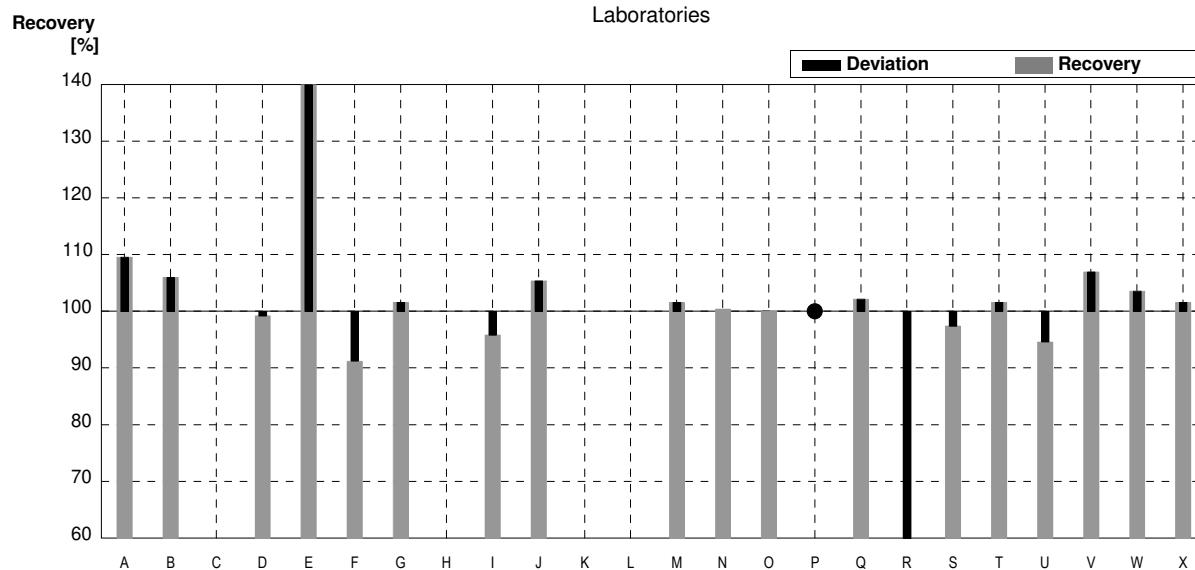
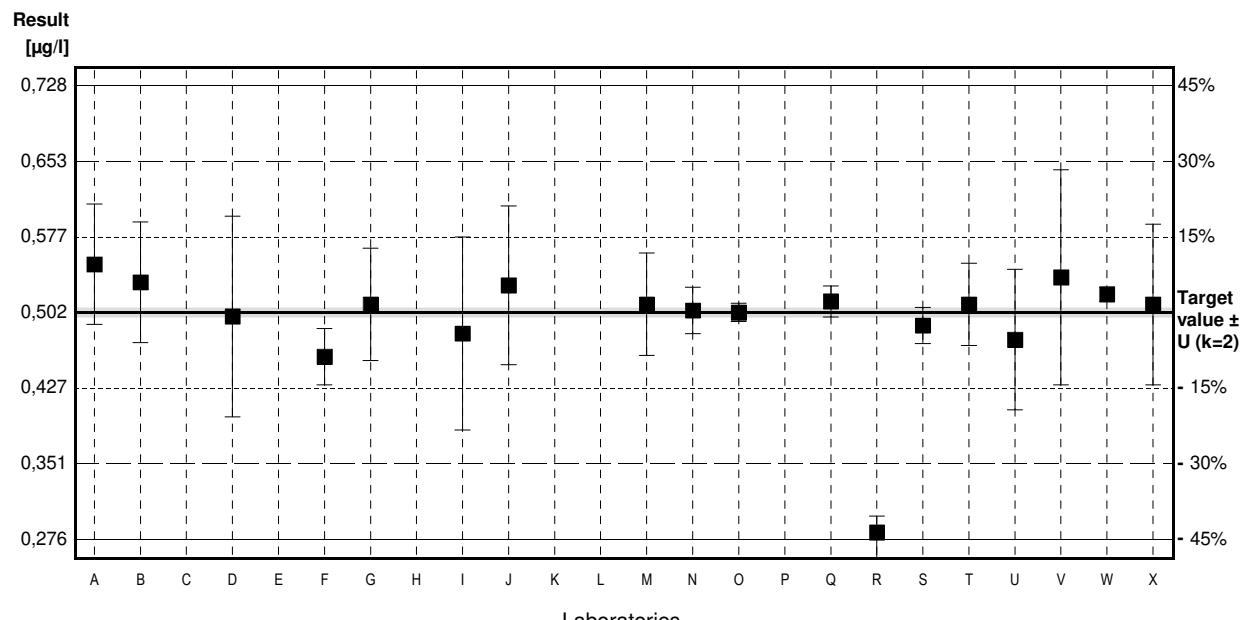
Target value \pm U (k=2) 0,502 µg/l \pm 0,005 µg/l

IFA result \pm U (k=2) 0,511 µg/l \pm 0,036 µg/l

Stability test

Stability test **µg/l**

Lab Code	Result	±	Unit	Recovery	z-Score
A	0,55	0,06	µg/l	110%	1,62
B	0,532	0,060	µg/l	106%	1,01
C			µg/l		
D	0,498	0,100	µg/l	99%	-0,14
E	0,90 *	0,1	µg/l	179%	13,44
F	0,458	0,028	µg/l	91%	-1,49
G	0,51	0,056	µg/l	102%	0,27
H			µg/l		
I	0,481	0,096	µg/l	96%	-0,71
J	0,529	0,079	µg/l	105%	0,91
K			µg/l		
L			µg/l		
M	0,51	0,051	µg/l	102%	0,27
N	0,504	0,023	µg/l	100%	0,07
O	0,502	0,009	µg/l	100%	0,00
P	<1		µg/l	*	
Q	0,513	0,0154	µg/l	102%	0,37
R	0,283 *	0,016	µg/l	56%	-7,39
S	0,489	0,018	µg/l	97%	-0,44
T	0,510	0,0408	µg/l	102%	0,27
U	0,475	0,07	µg/l	95%	-0,91
V	0,537	0,107	µg/l	107%	1,18
W	0,52	0,007	µg/l	104%	0,61
X	0,510	0,08	µg/l	102%	0,27



Sample M153B

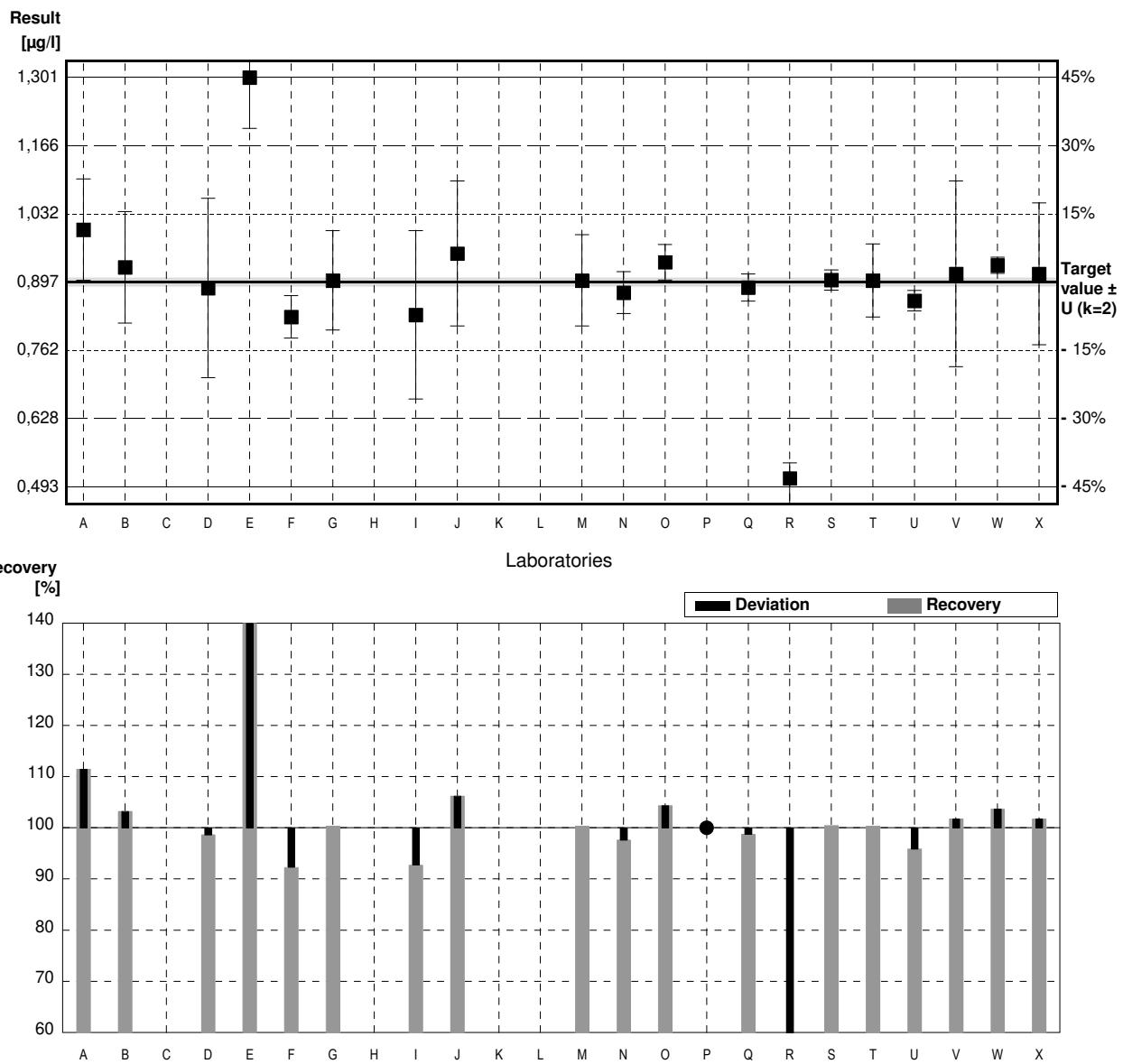
Parameter Cadmium

Target value $\pm U (k=2)$ 0.897 µg/l \pm 0.008 µg/l
 IFA result $\pm U (k=2)$ 0.922 µg/l \pm 0.065 µg/l

Stability test µg/l

Lab Code	Result	\pm	Unit	Recovery	z-Score
A	1,00	0,10	µg/l	111%	1,95
B	0,926	0,110	µg/l	103%	0,55
C			µg/l		
D	0,885	0,177	µg/l	99%	-0,23
E	1,30 *	0,1	µg/l	145%	7,61
F	0,828	0,042	µg/l	92%	-1,30
G	0,90	0,098	µg/l	100%	0,06
H			µg/l		
I	0,832	0,166	µg/l	93%	-1,23
J	0,953	0,143	µg/l	106%	1,06
K			µg/l		
L			µg/l		
M	0,90	0,090	µg/l	100%	0,06
N	0,876	0,041	µg/l	98%	-0,40
O	0,936	0,035	µg/l	104%	0,74
P	<1		µg/l	*	
Q	0,886	0,0266	µg/l	99%	-0,21
R	0,510 *	0,03	µg/l	57%	-7,31
S	0,901	0,020	µg/l	100%	0,08
T	0,900	0,072	µg/l	100%	0,06
U	0,86	0,02	µg/l	96%	-0,70
V	0,913	0,183	µg/l	102%	0,30
W	0,93	0,016	µg/l	104%	0,62
X	0,913	0,14	µg/l	102%	0,30

	All results	Outliers excl.	Unit
Mean $\pm CI(99\%)$	0,903 \pm 0,091	0,902 \pm 0,030	µg/l
Recov. $\pm CI(99\%)$	100,6 \pm 10,1	100,6 \pm 3,3	%
SD between labs	0,138	0,042	µg/l
RSD between labs	15,2	4,7	%
n for calculation	19	17	



Sample M153A

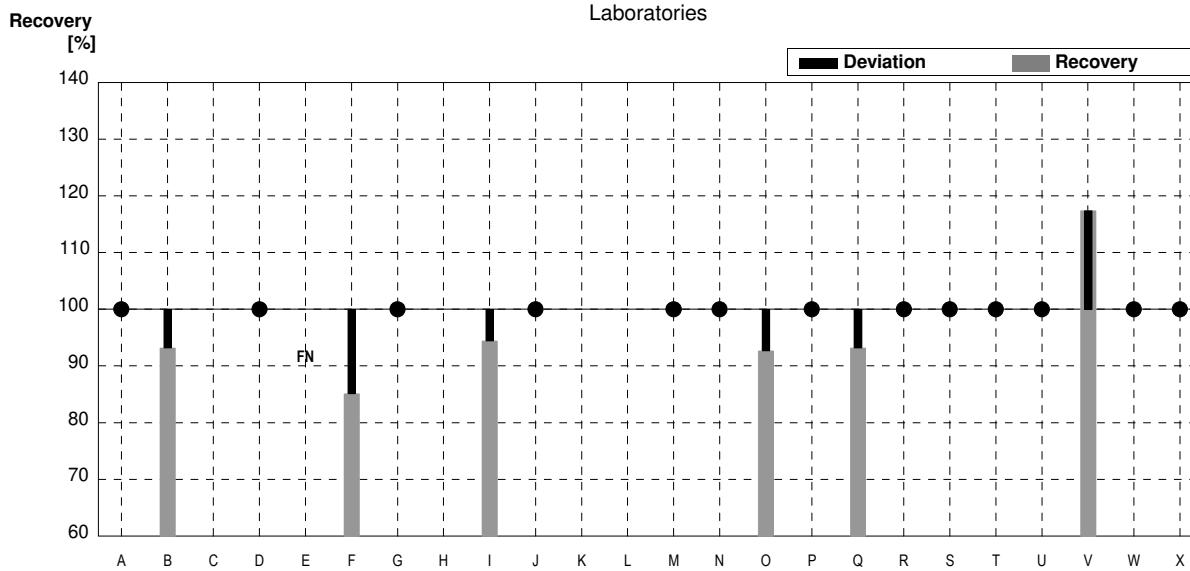
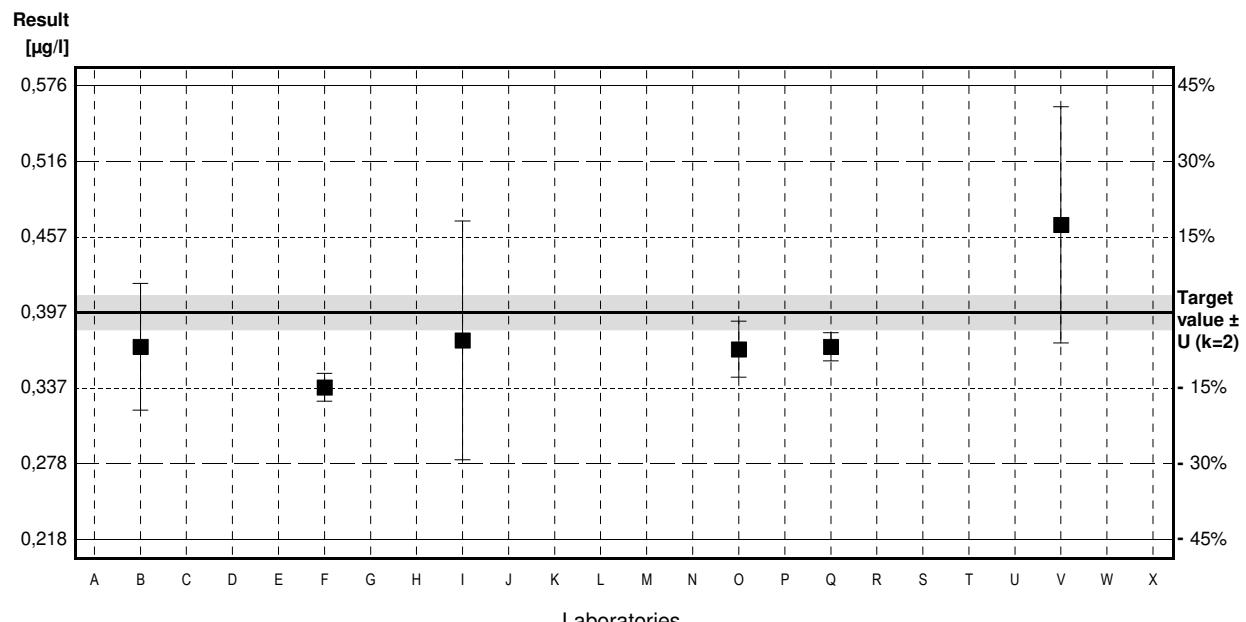
Parameter Chromium

Target value $\pm U$ ($k=2$) 0.397 µg/l \pm 0.014 µg/l
 IFA result $\pm U$ ($k=2$) 0.410 µg/l \pm 0.021 µg/l

Stability test µg/l

Lab Code	Result	\pm	Unit	Recovery	z-Score
A	<5		µg/l	•	
B	0,370	0,050	µg/l	93%	
C			µg/l		
D	<1,00		µg/l	•	
E	<0,2		µg/l	FN	
F	0,338 * 0,011	µg/l		85%	
G	<0,50		µg/l	•	
H			µg/l		
I	0,375	0,094	µg/l	94%	
J	<1		µg/l	•	
K			µg/l		
L			µg/l		
M	<1,0		µg/l	•	
N	<1,0		µg/l	•	
O	0,368	0,022	µg/l	93%	
P	<5		µg/l	•	
Q	0,370	0,0111	µg/l	93%	
R	<0,5		µg/l	•	
S	<1,00		µg/l	•	
T	<0,500		µg/l	•	
U	<5		µg/l	•	
V	0,466 * 0,093	µg/l		117%	
W	<0,50		µg/l	•	
X	<0,5		µg/l	•	

	All results	Outliers excl.	Unit
Mean \pm CI(99%)	0,381 \pm 0,072	0,371 \pm 0,009	µg/l
Recov. \pm CI(99%)	96,0 \pm 18,1	93,4 \pm 2,2	%
SD between labs	0,044	0,003	µg/l
RSD between labs	11,4	0,8	%
n for calculation	6	4	



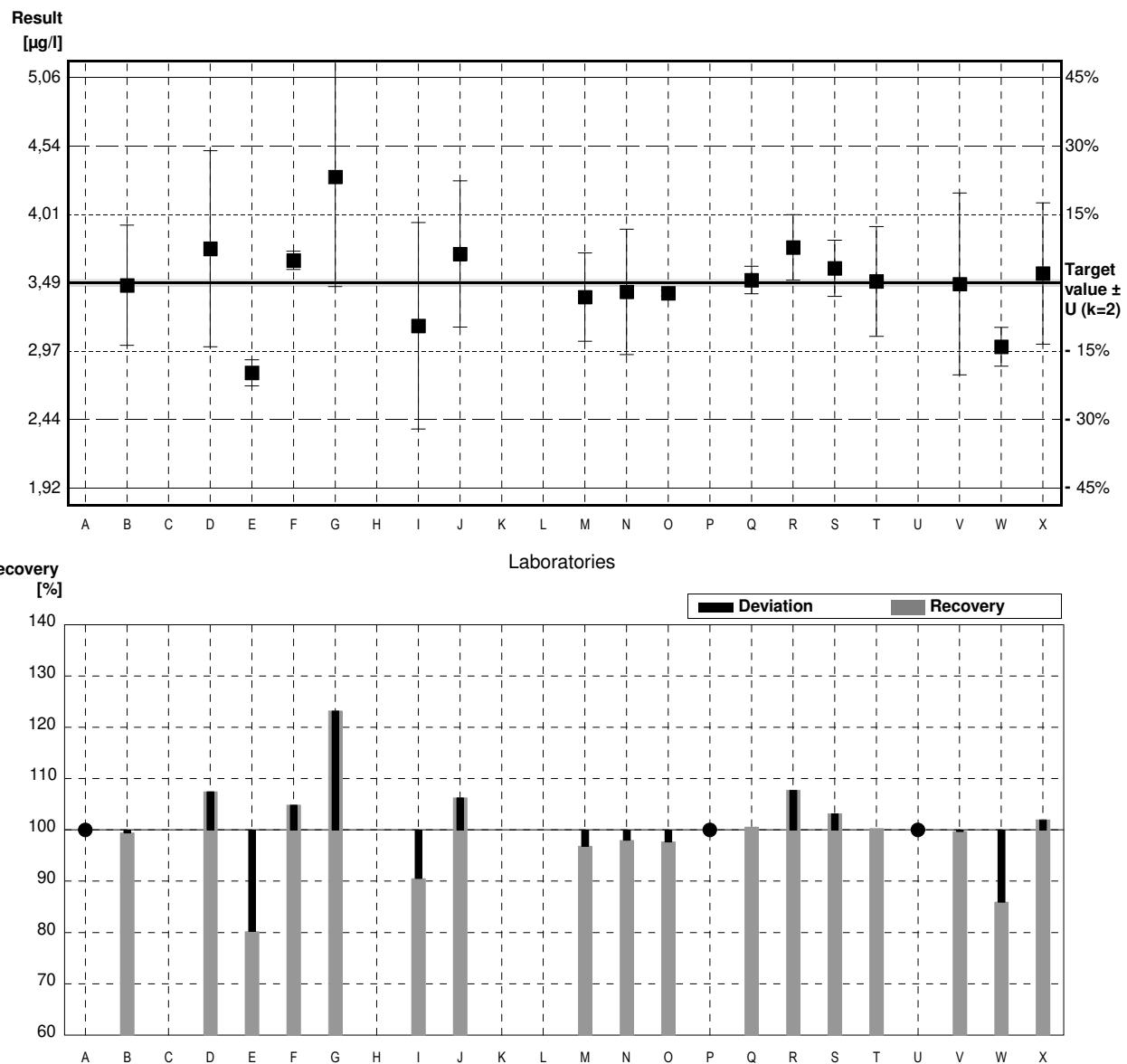
Sample M153B

Parameter Chromium

Target value $\pm U$ ($k=2$) 3,49 µg/l \pm 0,03 µg/l
 IFA result $\pm U$ ($k=2$) 3,60 µg/l \pm 0,18 µg/l

Stability test					
Lab Code	Result	\pm	Unit	Recovery	z-Score
A	<5		µg/l	*	
B	3,47	0,46	µg/l	99%	-0,09
C			µg/l		
D	3,75	0,75	µg/l	107%	1,13
E	2,80 *	0,1	µg/l	80%	-3,00
F	3,66	0,07	µg/l	105%	0,74
G	4,30 *	0,84	µg/l	123%	3,52
H			µg/l		
I	3,16	0,79	µg/l	91%	-1,43
J	3,71	0,56	µg/l	106%	0,96
K			µg/l		
L			µg/l		
M	3,38	0,338	µg/l	97%	-0,48
N	3,42	0,48	µg/l	98%	-0,30
O	3,41	0,022	µg/l	98%	-0,35
P	<5		µg/l	*	
Q	3,51	0,105	µg/l	101%	0,09
R	3,76	0,25	µg/l	108%	1,17
S	3,60	0,216	µg/l	103%	0,48
T	3,500	0,420	µg/l	100%	0,04
U	<5		µg/l	*	
V	3,48	0,696	µg/l	100%	-0,04
W	3,00	0,149	µg/l	86%	-2,13
X	3,56	0,54	µg/l	102%	0,30

	All results	Outliers excl.	Unit
Mean \pm CI(99%)	$3,50 \pm 0,23$	$3,49 \pm 0,16$	µg/l
Recov. \pm CI(99%)	$100,2 \pm 6,7$	$100,0 \pm 4,6$	%
SD between labs	0,33	0,21	µg/l
RSD between labs	9,4	6,0	%
n for calculation	17	15	



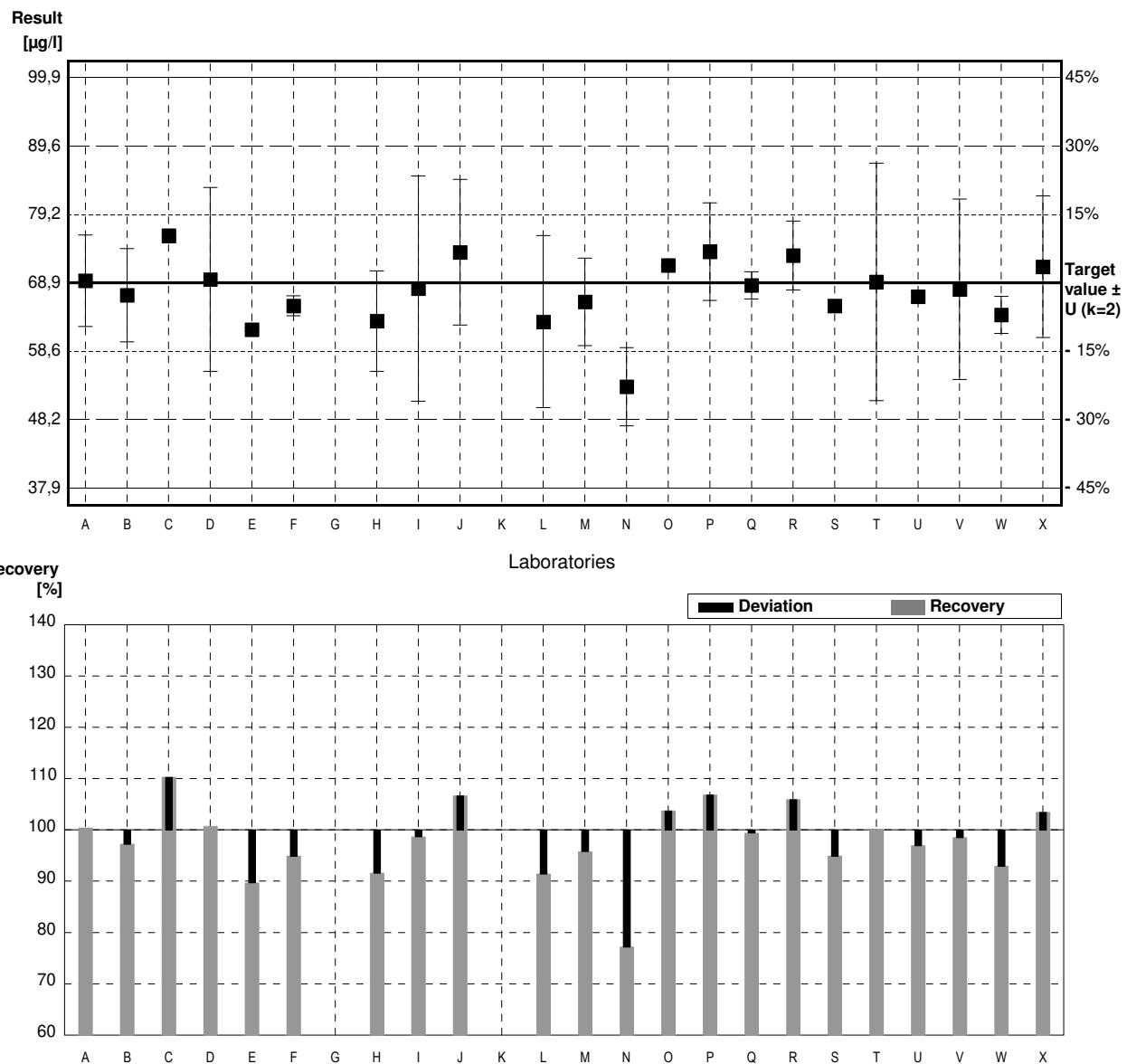
Sample M153A

Parameter Iron

Target value $\pm U$ ($k=2$) 68,9 $\mu\text{g/l}$ \pm 0,3 $\mu\text{g/l}$
 IFA result $\pm U$ ($k=2$) 70,8 $\mu\text{g/l}$ \pm 7,1 $\mu\text{g/l}$

Stability test					
Lab Code	Result	\pm	Unit	Recovery	z-Score
A	69,2	6,9	$\mu\text{g/l}$	100%	0,06
B	67	7,04	$\mu\text{g/l}$	97%	-0,39
C	76		$\mu\text{g/l}$	110%	1,47
D	69,4	13,9	$\mu\text{g/l}$	101%	0,10
E	61,8	0,2	$\mu\text{g/l}$	90%	-1,47
F	65,4	1,5	$\mu\text{g/l}$	95%	-0,73
G			$\mu\text{g/l}$		
H	63,1	7,6	$\mu\text{g/l}$	92%	-1,20
I	68	17	$\mu\text{g/l}$	99%	-0,19
J	73,5	11,0	$\mu\text{g/l}$	107%	0,95
K			$\mu\text{g/l}$		
L	63,0	13,0	$\mu\text{g/l}$	91%	-1,22
M	66	6,6	$\mu\text{g/l}$	96%	-0,60
N	53,2 *	5,9	$\mu\text{g/l}$	77%	-3,26
O	71,5	0,138	$\mu\text{g/l}$	104%	0,54
P	73,6	7,36	$\mu\text{g/l}$	107%	0,97
Q	68,5	2,06	$\mu\text{g/l}$	99%	-0,08
R	73,0	5,2	$\mu\text{g/l}$	106%	0,85
S	65,4	0,91	$\mu\text{g/l}$	95%	-0,73
T	69,00	17,94	$\mu\text{g/l}$	100%	0,02
U	66,8	0,8	$\mu\text{g/l}$	97%	-0,44
V	67,9	13,6	$\mu\text{g/l}$	99%	-0,21
W	64,04	2,802	$\mu\text{g/l}$	93%	-1,01
X	71,3	10,7	$\mu\text{g/l}$	103%	0,50

	All results	Outliers excl.	Unit
Mean \pm CI(99%)	$67,6 \pm 3,0$	$68,3 \pm 2,4$	$\mu\text{g/l}$
Recov. \pm CI(99%)	$98,1 \pm 4,3$	$99,1 \pm 3,5$	%
SD between labs	5,0	3,9	$\mu\text{g/l}$
RSD between labs	7,3	5,7	%
n for calculation	22	21	



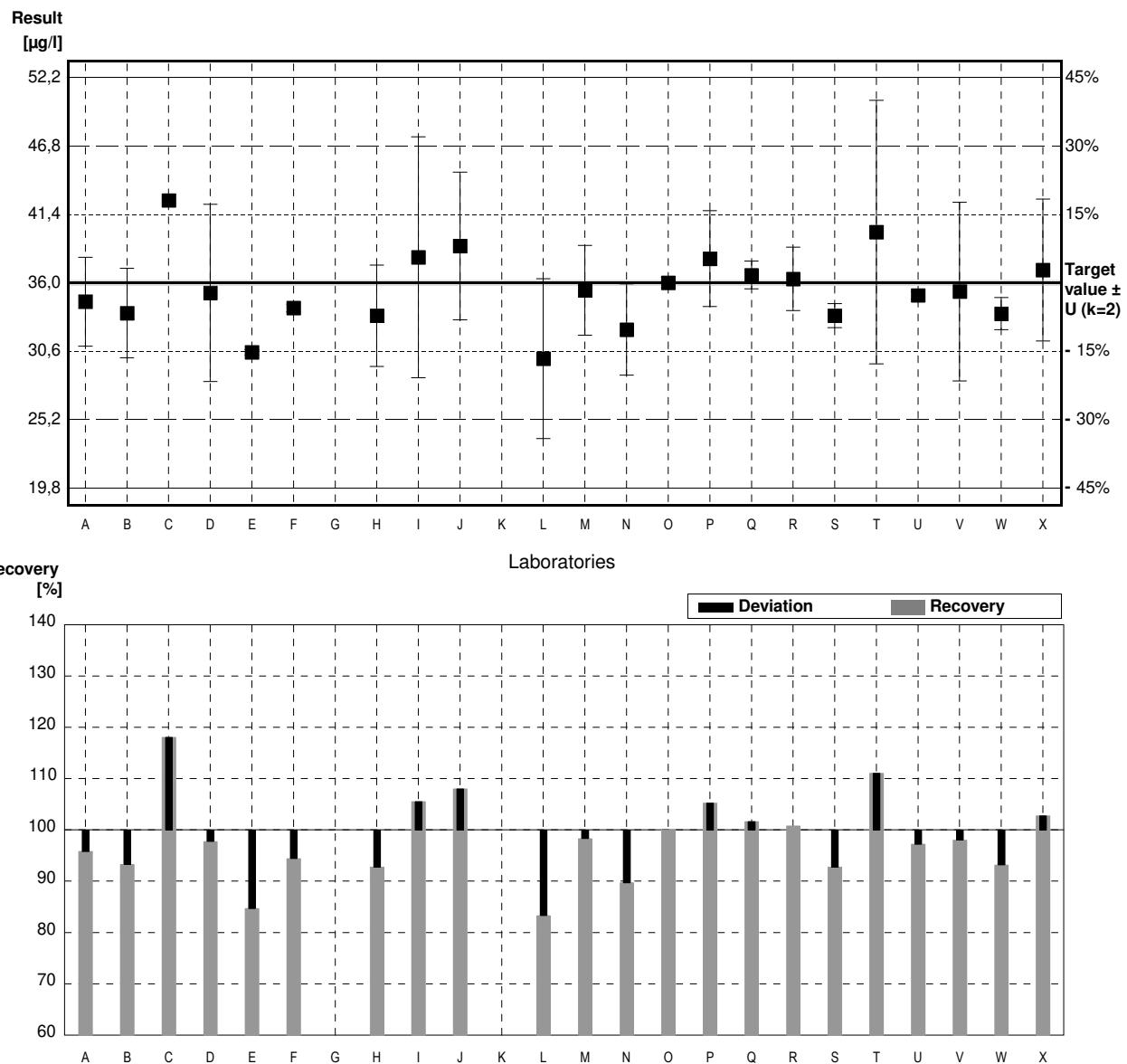
Sample M153B

Parameter Iron

Target value $\pm U$ ($k=2$) 36,0 $\mu\text{g/l}$ \pm 0,2 $\mu\text{g/l}$
 IFA result $\pm U$ ($k=2$) 36,3 $\mu\text{g/l}$ \pm 3,6 $\mu\text{g/l}$

Stability test					
Lab Code	Result	\pm	Unit	Recovery	z-Score
A	34,5	3,5	$\mu\text{g/l}$	96%	-0,60
B	33,6	3,53	$\mu\text{g/l}$	93%	-0,95
C	42,5		$\mu\text{g/l}$	118%	2,58
D	35,2	7,0	$\mu\text{g/l}$	98%	-0,32
E	30,5	0,2	$\mu\text{g/l}$	85%	-2,18
F	34,0	0,3	$\mu\text{g/l}$	94%	-0,79
G			$\mu\text{g/l}$		
H	33,4	4,0	$\mu\text{g/l}$	93%	-1,03
I	38,0	9,5	$\mu\text{g/l}$	106%	0,79
J	38,9	5,83	$\mu\text{g/l}$	108%	1,15
K			$\mu\text{g/l}$		
L	30,0	6,30	$\mu\text{g/l}$	83%	-2,38
M	35,4	3,54	$\mu\text{g/l}$	98%	-0,24
N	32,3	3,6	$\mu\text{g/l}$	90%	-1,47
O	36,0	0,398	$\mu\text{g/l}$	100%	0,00
P	37,9	3,79	$\mu\text{g/l}$	105%	0,75
Q	36,6	1,098	$\mu\text{g/l}$	102%	0,24
R	36,3	2,5	$\mu\text{g/l}$	101%	0,12
S	33,4	0,95	$\mu\text{g/l}$	93%	-1,03
T	40,00	10,40	$\mu\text{g/l}$	111%	1,59
U	35,0	0,3	$\mu\text{g/l}$	97%	-0,40
V	35,3	7,05	$\mu\text{g/l}$	98%	-0,28
W	33,55	1,265	$\mu\text{g/l}$	93%	-0,97
X	37,0	5,6	$\mu\text{g/l}$	103%	0,40

	All results	Outliers excl.	Unit
Mean \pm CI(99%)	35,4 \pm 1,8	35,4 \pm 1,8	$\mu\text{g/l}$
Recov. \pm CI(99%)	98,4 \pm 4,9	98,4 \pm 4,9	%
SD between labs	2,9	2,9	$\mu\text{g/l}$
RSD between labs	8,3	8,3	%
n for calculation	22	22	



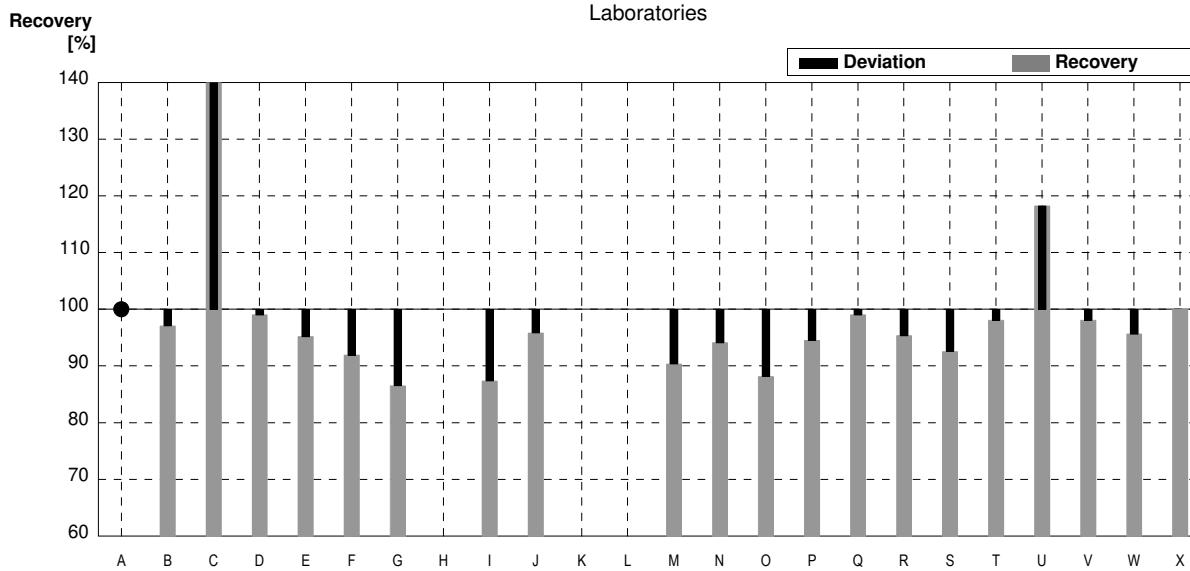
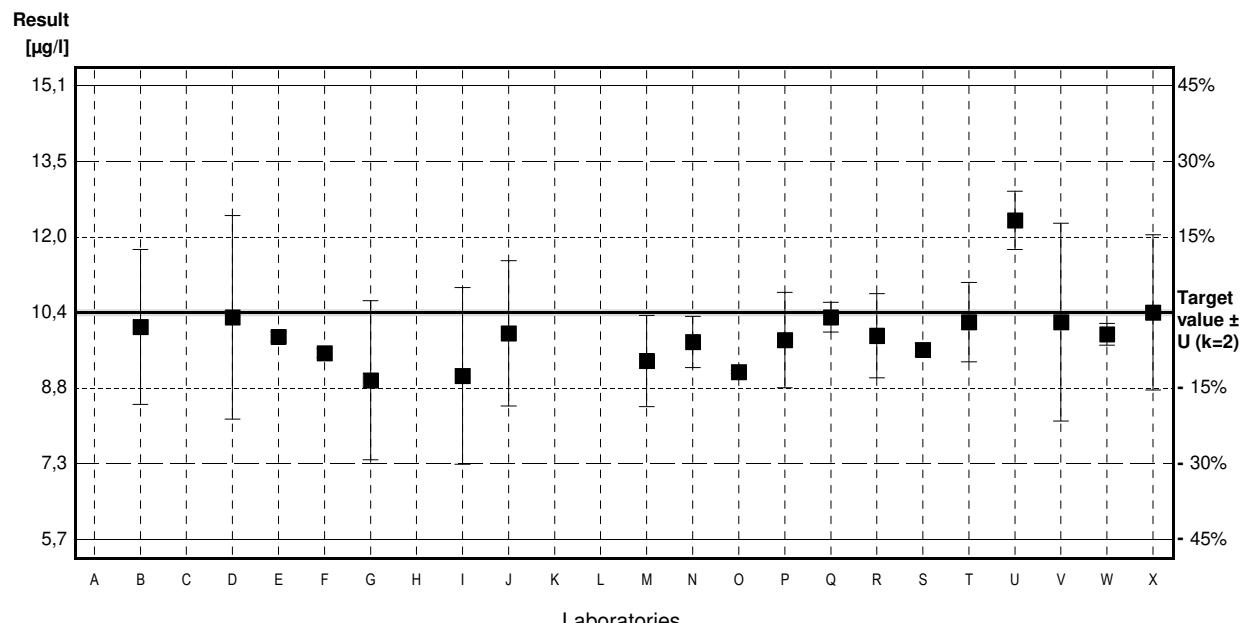
Sample M153A

Parameter Copper

Target value $\pm U$ ($k=2$) 10,4 µg/l \pm 0,1 µg/l
 IFA result $\pm U$ ($k=2$) 10,7 µg/l \pm 1,0 µg/l

Stability test					
Lab Code	Result	\pm	Unit	Recovery	z-Score
A	<100		µg/l	*	
B	10,1	1,6	µg/l	97%	-0,33
C	22,5 *		µg/l	216%	13,22
D	10,3	2,1	µg/l	99%	-0,11
E	9,9	0,1	µg/l	95%	-0,55
F	9,56	0,09	µg/l	92%	-0,92
G	9,00	1,64	µg/l	87%	-1,53
H			µg/l		
I	9,09	1,82	µg/l	87%	-1,43
J	9,97	1,50	µg/l	96%	-0,47
K			µg/l		
L			µg/l		
M	9,4	0,94	µg/l	90%	-1,09
N	9,79	0,53	µg/l	94%	-0,67
O	9,17	0,034	µg/l	88%	-1,34
P	9,83	0,983	µg/l	95%	-0,62
Q	10,3	0,309	µg/l	99%	-0,11
R	9,92	0,87	µg/l	95%	-0,52
S	9,63	0,13	µg/l	93%	-0,84
T	10,20	0,816	µg/l	98%	-0,22
U	12,3 *	0,6	µg/l	118%	2,08
V	10,2	2,04	µg/l	98%	-0,22
W	9,95	0,227	µg/l	96%	-0,49
X	10,4	1,6	µg/l	100%	0,00

	All results	Outliers excl.	Unit
Mean \pm CI(99%)	10,6 \pm 1,8	9,8 \pm 0,3	µg/l
Recov. \pm CI(99%)	101,7 \pm 17,8	94,4 \pm 2,8	%
SD between labs	2,9	0,4	µg/l
RSD between labs	27,3	4,4	%
n for calculation	20	18	



Sample M153B

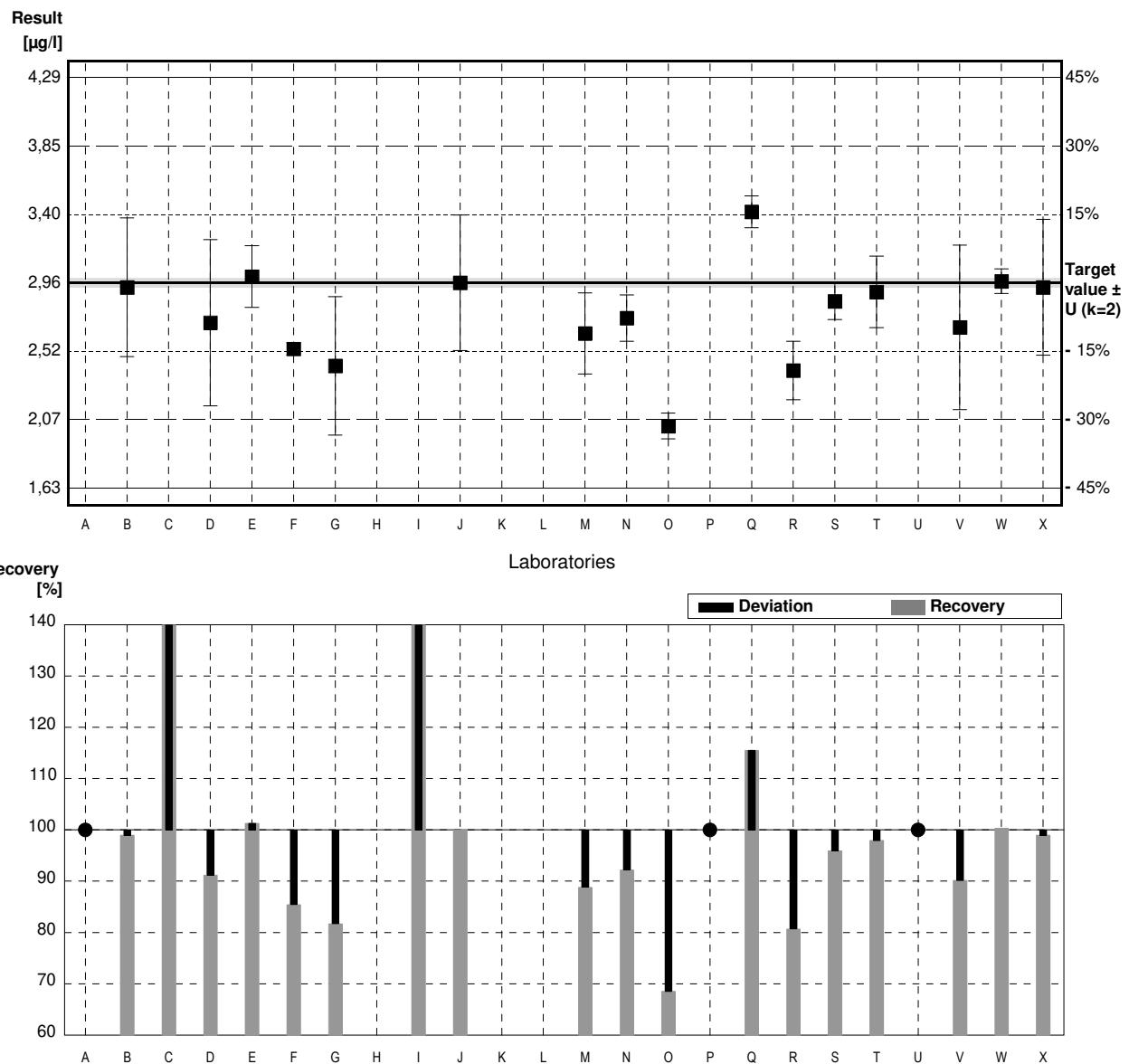
Parameter Copper

Target value $\pm U(k=2)$ 2,96 µg/l \pm 0,03 µg/l
 IFA result $\pm U(k=2)$ 3,10 µg/l \pm 0,28 µg/l

Stability test µg/l

Lab Code	Result	\pm	Unit	Recovery	z-Score
A	<100		µg/l	*	
B	2,93	0,45	µg/l	99%	-0,12
C	17,0 *		µg/l	574%	53,90
D	2,70	0,54	µg/l	91%	-1,00
E	3,00	0,2	µg/l	101%	0,15
F	2,53	0,04	µg/l	85%	-1,65
G	2,42	0,45	µg/l	82%	-2,07
H			µg/l		
I	4,66 *	0,93	µg/l	157%	6,53
J	2,96	0,44	µg/l	100%	0,00
K			µg/l		
L			µg/l		
M	2,63	0,263	µg/l	89%	-1,27
N	2,73	0,15	µg/l	92%	-0,88
O	2,03	0,084	µg/l	69%	-3,57
P	<5		µg/l	*	
Q	3,42	0,103	µg/l	116%	1,77
R	2,39	0,19	µg/l	81%	-2,19
S	2,84	0,12	µg/l	96%	-0,46
T	2,90	0,232	µg/l	98%	-0,23
U	<5		µg/l	*	
V	2,67	0,533	µg/l	90%	-1,11
W	2,97	0,080	µg/l	100%	0,04
X	2,93	0,44	µg/l	99%	-0,12

	All results	Outliers excl.	Unit
Mean \pm CI(99%)	3,65 \pm 2,31	2,75 \pm 0,24	µg/l
Recov. \pm CI(99%)	123,3 \pm 77,9	93,0 \pm 8,0	%
SD between labs	3,38	0,32	µg/l
RSD between labs	92,5	11,6	%
n for calculation	18	16	



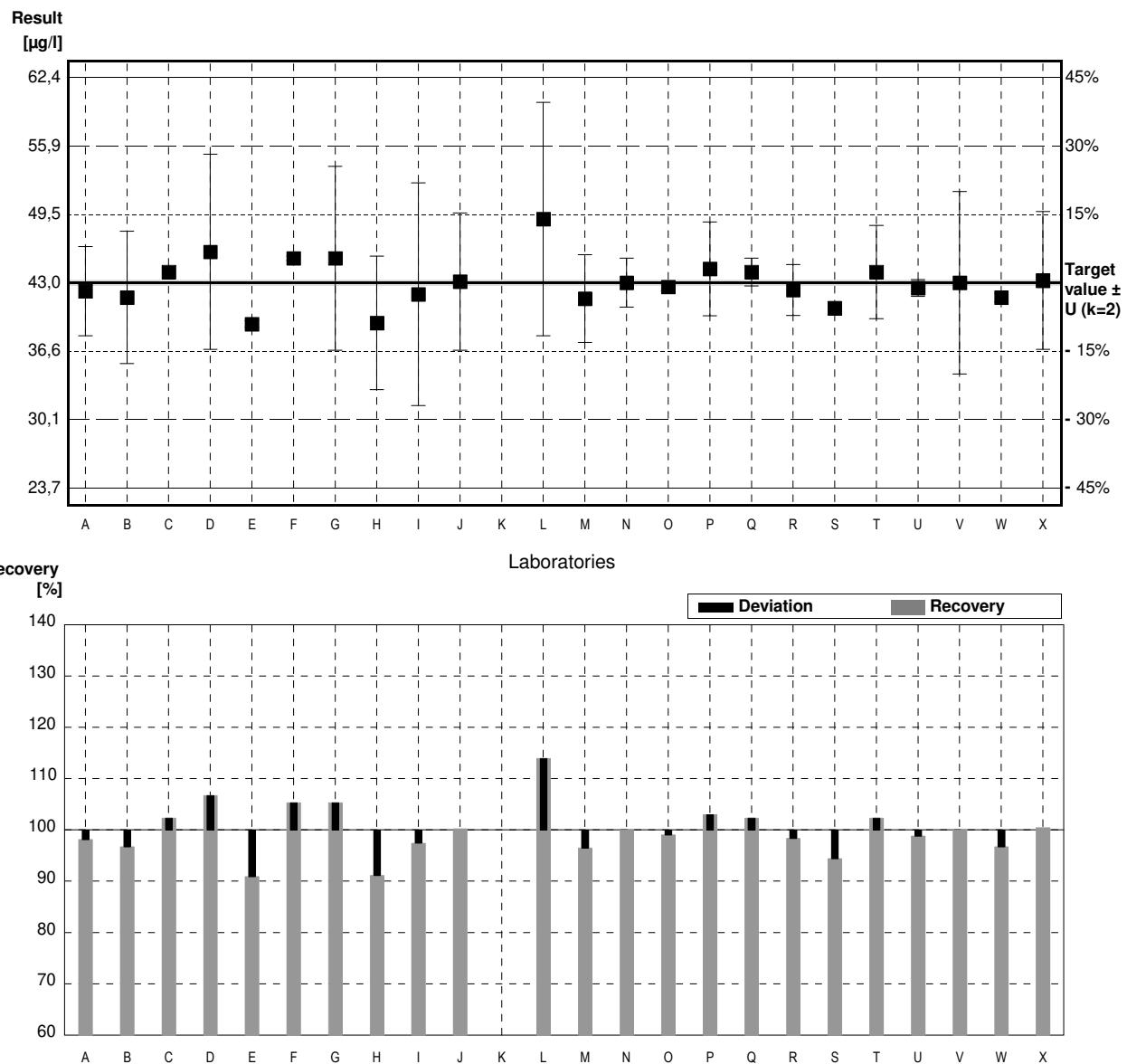
Sample M153A

Parameter Manganese

Target value $\pm U(k=2)$ 43,0 µg/l \pm 0,3 µg/l
 IFA result $\pm U(k=2)$ 45,1 µg/l \pm 4,1 µg/l

Stability test					
Lab Code	Result	\pm	Unit	Recovery	z-Score
A	42,2	4,2	µg/l	98%	-0,33
B	41,6	6,24	µg/l	97%	-0,58
C	44,0		µg/l	102%	0,42
D	45,9	9,2	µg/l	107%	1,20
E	39,1	0,3	µg/l	91%	-1,62
F	45,3	0,2	µg/l	105%	0,96
G	45,3	8,67	µg/l	105%	0,96
H	39,2	6,3	µg/l	91%	-1,58
I	41,9	10,5	µg/l	97%	-0,46
J	43,1	6,46	µg/l	100%	0,04
K			µg/l		
L	49,0 *	11,0	µg/l	114%	2,49
M	41,5	4,15	µg/l	97%	-0,62
N	43,0	2,3	µg/l	100%	0,00
O	42,6	0,373	µg/l	99%	-0,17
P	44,3	4,43	µg/l	103%	0,54
Q	44,0	1,32	µg/l	102%	0,42
R	42,3	2,4	µg/l	98%	-0,29
S	40,6	0,62	µg/l	94%	-1,00
T	44,00	4,40	µg/l	102%	0,42
U	42,5	0,8	µg/l	99%	-0,21
V	43,0	8,60	µg/l	100%	0,00
W	41,60	0,400	µg/l	97%	-0,58
X	43,2	6,5	µg/l	100%	0,08

	All results	Outliers excl.	Unit
Mean \pm CI(99%)	43,0 \pm 1,3	42,7 \pm 1,1	µg/l
Recov. \pm CI(99%)	100,0 \pm 3,0	99,4 \pm 2,5	%
SD between labs	2,2	1,8	µg/l
RSD between labs	5,1	4,2	%
n for calculation	23	22	



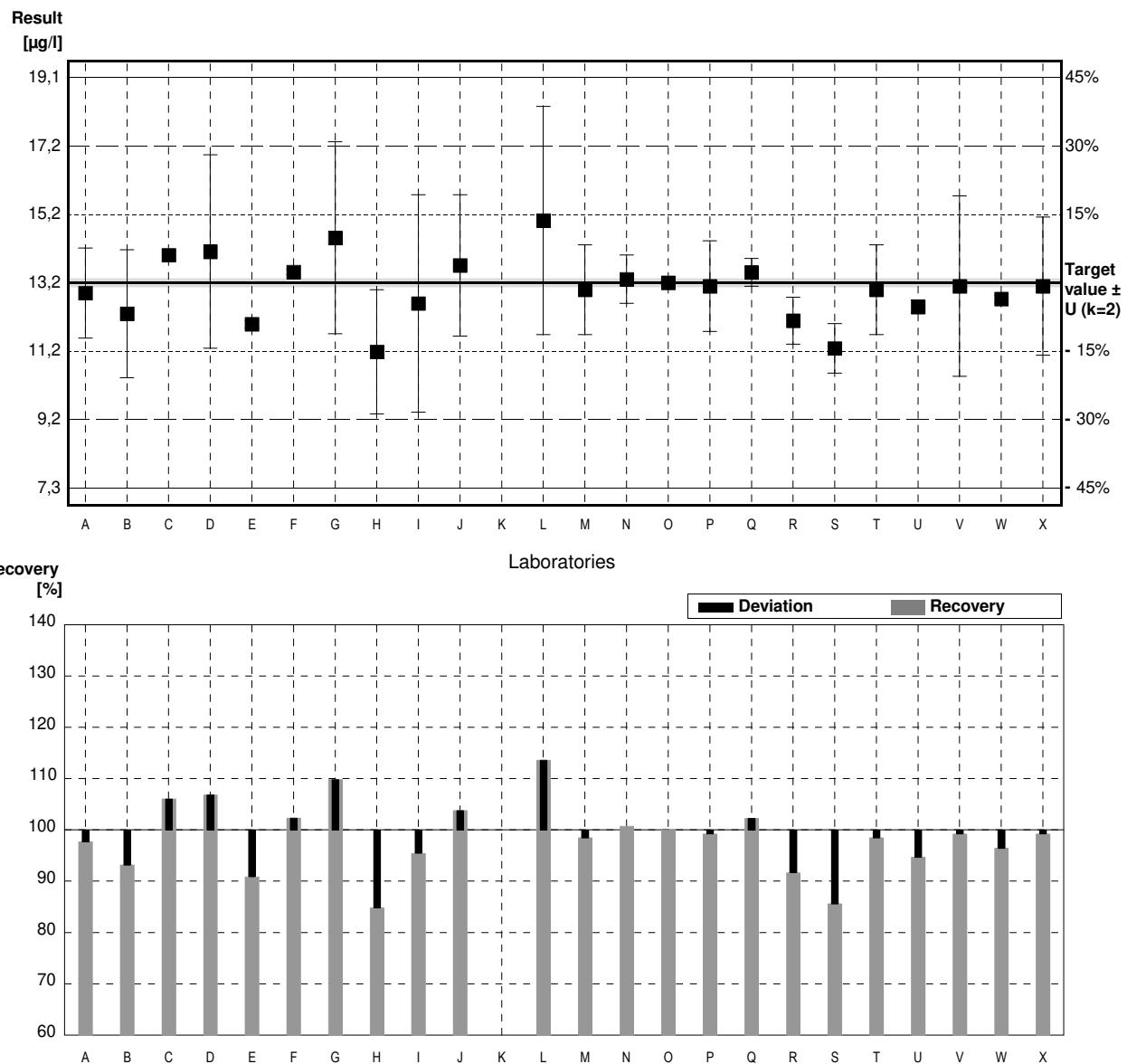
Sample M153B

Parameter Manganese

Target value $\pm U$ ($k=2$) 13,2 $\mu\text{g/l}$ \pm 0,1 $\mu\text{g/l}$
 IFA result $\pm U$ ($k=2$) 13,7 $\mu\text{g/l}$ \pm 1,2 $\mu\text{g/l}$

Stability test					
Lab Code	Result	\pm	Unit	Recovery	z-Score
A	12,9	1,3	$\mu\text{g/l}$	98%	-0,41
B	12,3	1,85	$\mu\text{g/l}$	93%	-1,22
C	14,0		$\mu\text{g/l}$	106%	1,08
D	14,1	2,8	$\mu\text{g/l}$	107%	1,22
E	12,0	0,1	$\mu\text{g/l}$	91%	-1,62
F	13,51	0,07	$\mu\text{g/l}$	102%	0,42
G	14,5	2,78	$\mu\text{g/l}$	110%	1,76
H	11,2	1,8	$\mu\text{g/l}$	85%	-2,71
I	12,6	3,15	$\mu\text{g/l}$	95%	-0,81
J	13,7	2,05	$\mu\text{g/l}$	104%	0,68
K			$\mu\text{g/l}$		
L	15,0	3,30	$\mu\text{g/l}$	114%	2,44
M	13,0	1,30	$\mu\text{g/l}$	98%	-0,27
N	13,3	0,7	$\mu\text{g/l}$	101%	0,14
O	13,2	0,054	$\mu\text{g/l}$	100%	0,00
P	13,1	1,31	$\mu\text{g/l}$	99%	-0,14
Q	13,5	0,405	$\mu\text{g/l}$	102%	0,41
R	12,1	0,68	$\mu\text{g/l}$	92%	-1,49
S	11,3	0,72	$\mu\text{g/l}$	86%	-2,57
T	13,00	1,30	$\mu\text{g/l}$	98%	-0,27
U	12,5	0,2	$\mu\text{g/l}$	95%	-0,95
V	13,1	2,61	$\mu\text{g/l}$	99%	-0,14
W	12,73	0,102	$\mu\text{g/l}$	96%	-0,64
X	13,1	2,0	$\mu\text{g/l}$	99%	-0,14

	All results	Outliers excl.	Unit
Mean \pm CI(99%)	13,0 \pm 0,5	13,0 \pm 0,5	$\mu\text{g/l}$
Recov. \pm CI(99%)	98,7 \pm 4,1	98,7 \pm 4,1	%
SD between labs	0,9	0,9	$\mu\text{g/l}$
RSD between labs	7,0	7,0	%
n for calculation	23	23	



Sample M153A

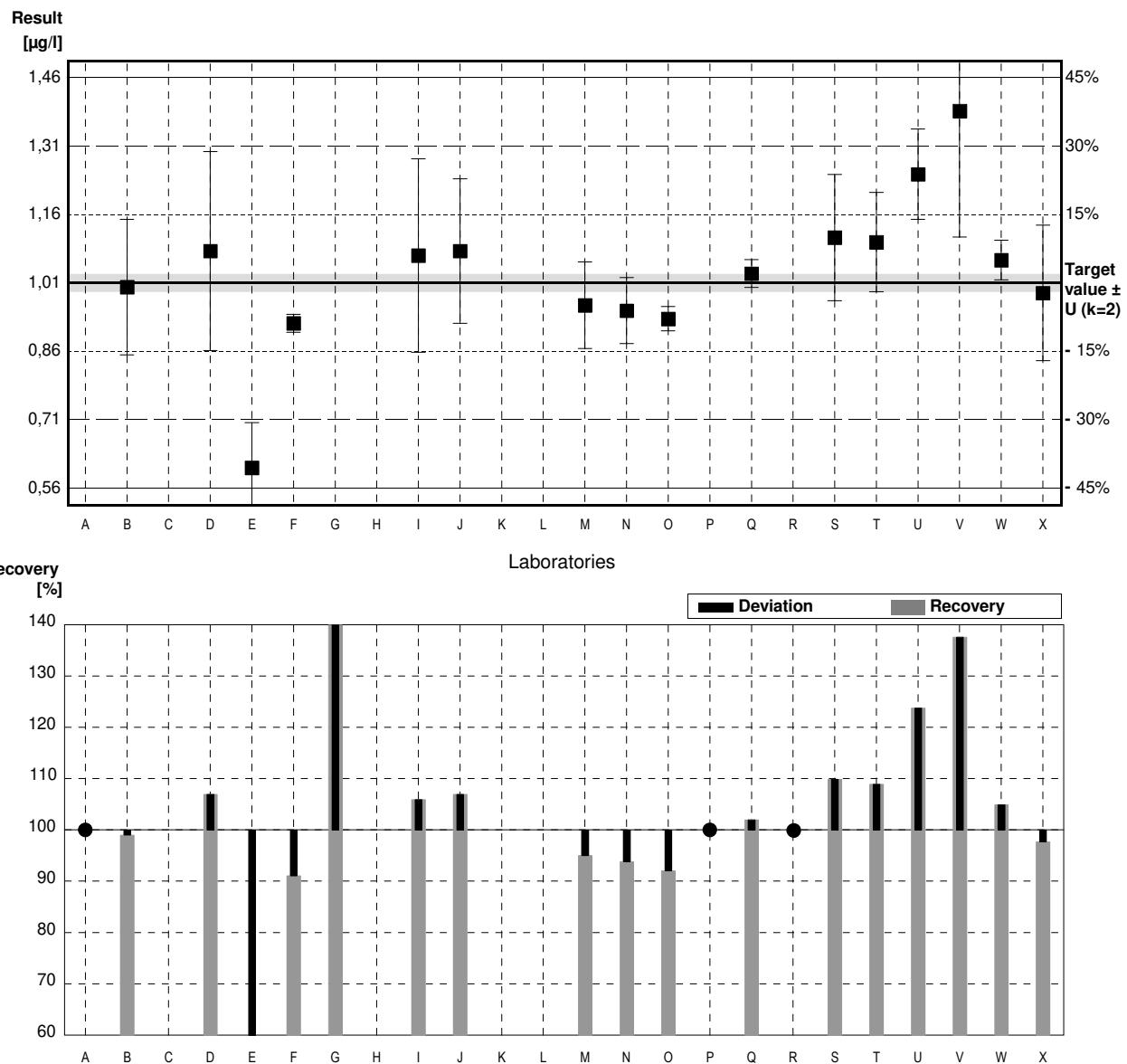
Parameter Nickel

Target value $\pm U$ ($k=2$) 1,01 $\mu\text{g/l}$ \pm 0,02 $\mu\text{g/l}$
 IFA result $\pm U$ ($k=2$) 1,04 $\mu\text{g/l}$ \pm 0,09 $\mu\text{g/l}$

Stability test $\mu\text{g/l}$

Lab Code	Result	\pm	Unit	Recovery	z-Score
A	<2		$\mu\text{g/l}$	*	
B	1,00	0,15	$\mu\text{g/l}$	99%	-0,12
C			$\mu\text{g/l}$		
D	1,08	0,22	$\mu\text{g/l}$	107%	0,84
E	0,60 *	0,1	$\mu\text{g/l}$	59%	-4,89
F	0,92	0,02	$\mu\text{g/l}$	91%	-1,07
G	2,03 *	0,33	$\mu\text{g/l}$	201%	12,17
H			$\mu\text{g/l}$		
I	1,07	0,214	$\mu\text{g/l}$	106%	0,72
J	1,08	0,16	$\mu\text{g/l}$	107%	0,84
K			$\mu\text{g/l}$		
L			$\mu\text{g/l}$		
M	0,96	0,096	$\mu\text{g/l}$	95%	-0,60
N	0,948	0,073	$\mu\text{g/l}$	94%	-0,74
O	0,930	0,027	$\mu\text{g/l}$	92%	-0,95
P	<5		$\mu\text{g/l}$	*	
Q	1,03	0,0309	$\mu\text{g/l}$	102%	0,24
R	<1,0		$\mu\text{g/l}$	*	
S	1,11	0,14	$\mu\text{g/l}$	110%	1,19
T	1,10	0,11	$\mu\text{g/l}$	109%	1,07
U	1,25	0,1	$\mu\text{g/l}$	124%	2,86
V	1,39	0,279	$\mu\text{g/l}$	138%	4,53
W	1,06	0,044	$\mu\text{g/l}$	105%	0,60
X	0,987	0,15	$\mu\text{g/l}$	98%	-0,27

	All results	Outliers excl.	Unit
Mean \pm CI(99%)	1,09 \pm 0,21	1,06 \pm 0,10	$\mu\text{g/l}$
Recov. \pm CI(99%)	108,0 \pm 20,4	105,0 \pm 9,5	%
SD between labs	0,29	0,13	$\mu\text{g/l}$
RSD between labs	26,7	11,8	%
n for calculation	17	15	



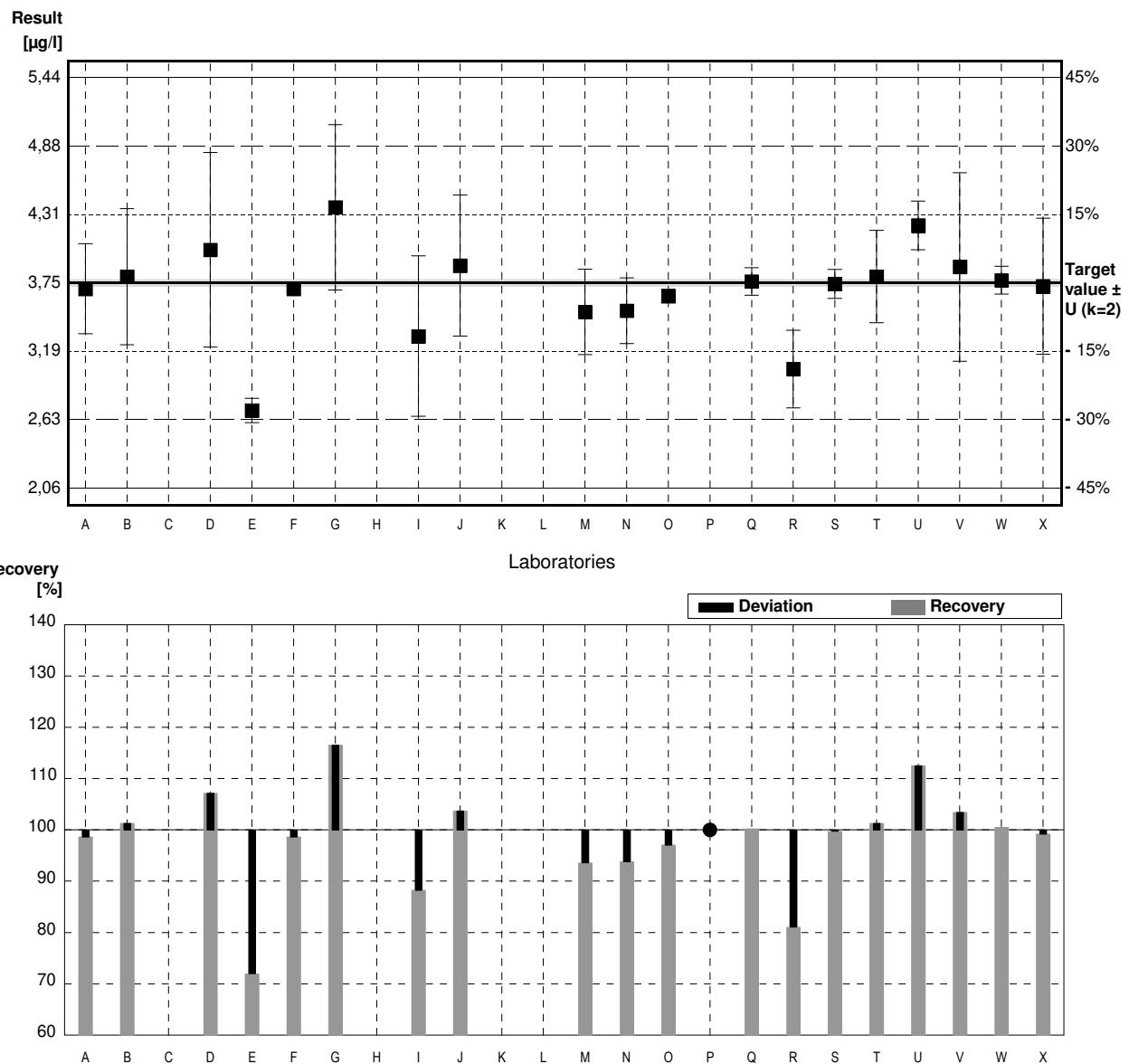
Sample M153B

Parameter Nickel

Target value $\pm U (k=2)$ 3,75 µg/l \pm 0,03 µg/l
 IFA result $\pm U (k=2)$ 3,85 µg/l \pm 0,35 µg/l

Stability test					
Lab Code	Result	\pm	Unit	Recovery	z-Score
A	3,70	0,37	µg/l	99%	-0,16
B	3,80	0,56	µg/l	101%	0,16
C			µg/l		
D	4,02	0,80	µg/l	107%	0,87
E	2,70 *	0,1	µg/l	72%	-3,37
F	3,70	0,02	µg/l	99%	-0,16
G	4,37	0,68	µg/l	117%	1,99
H			µg/l		
I	3,31	0,66	µg/l	88%	-1,41
J	3,89	0,58	µg/l	104%	0,45
K			µg/l		
L			µg/l		
M	3,51	0,351	µg/l	94%	-0,77
N	3,52	0,27	µg/l	94%	-0,74
O	3,64	0,055	µg/l	97%	-0,35
P	<5		µg/l	*	
Q	3,76	0,113	µg/l	100%	0,03
R	3,04 *	0,32	µg/l	81%	-2,28
S	3,74	0,12	µg/l	100%	-0,03
T	3,80	0,38	µg/l	101%	0,16
U	4,22	0,2	µg/l	113%	1,51
V	3,88	0,775	µg/l	103%	0,42
W	3,77	0,115	µg/l	101%	0,06
X	3,72	0,56	µg/l	99%	-0,10

	All results	Outliers excl.	Unit
Mean \pm CI(99%)	3,69 \pm 0,25	3,79 \pm 0,18	µg/l
Recov. \pm CI(99%)	98,4 \pm 6,7	100,9 \pm 4,8	%
SD between labs	0,38	0,25	µg/l
RSD between labs	10,3	6,7	%
n for calculation	19	17	



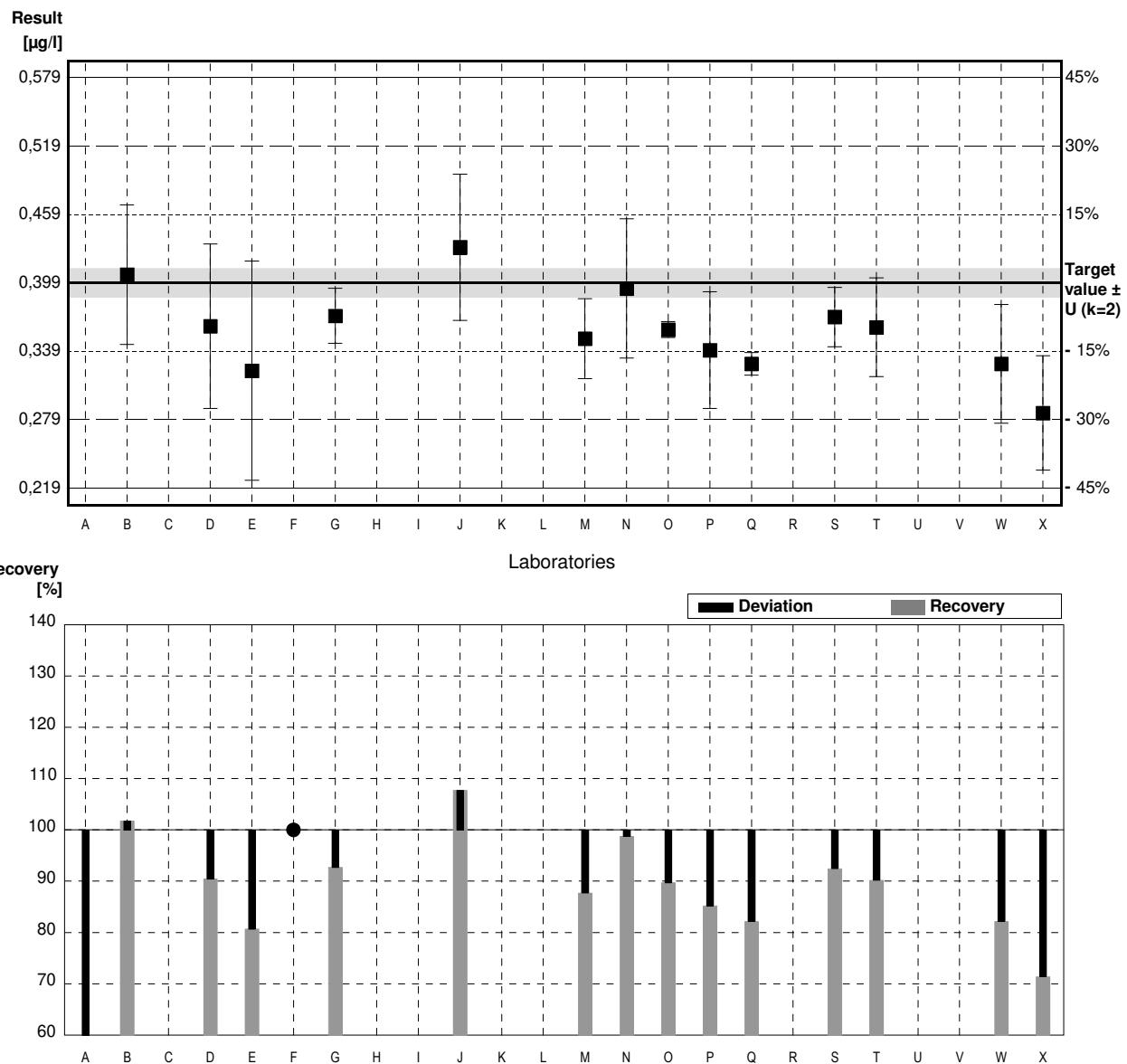
Sample M153A

Parameter Mercury

Target value $\pm U$ ($k=2$) 0.399 µg/l \pm 0.013 µg/l
 IFA result $\pm U$ ($k=2$) 0.382 µg/l \pm 0.038 µg/l

Stability test					
Lab Code	Result	\pm	Unit	Recovery	z-Score
A	0,180 *	0,02	µg/l	45%	-4,99
B	0,406	0,061	µg/l	102%	0,16
C			µg/l		
D	0,361	0,072	µg/l	90%	-0,87
E	0,322	0,096	µg/l	81%	-1,75
F	<5,0		µg/l	*	
G	0,370	0,024	µg/l	93%	-0,66
H			µg/l		
I			µg/l		
J	0,430	0,064	µg/l	108%	0,71
K			µg/l		
L			µg/l		
M	0,350	0,0350	µg/l	88%	-1,12
N	0,394	0,061	µg/l	99%	-0,11
O	0,358	0,007	µg/l	90%	-0,93
P	0,340	0,051	µg/l	85%	-1,34
Q	0,328	0,00983	µg/l	82%	-1,62
R			µg/l		
S	0,369	0,026	µg/l	92%	-0,68
T	0,360	0,0432	µg/l	90%	-0,89
U			µg/l		
V			µg/l		
W	0,328	0,052	µg/l	82%	-1,62
X	0,285	0,05	µg/l	71%	-2,60

	All results	Outliers excl.	Unit
Mean \pm CI(99%)	0,345 \pm 0,045	0,357 \pm 0,030	µg/l
Recov. \pm CI(99%)	86,6 \pm 11,2	89,5 \pm 7,5	%
SD between labs	0,058	0,037	µg/l
RSD between labs	16,8	10,4	%
n for calculation	15	14	



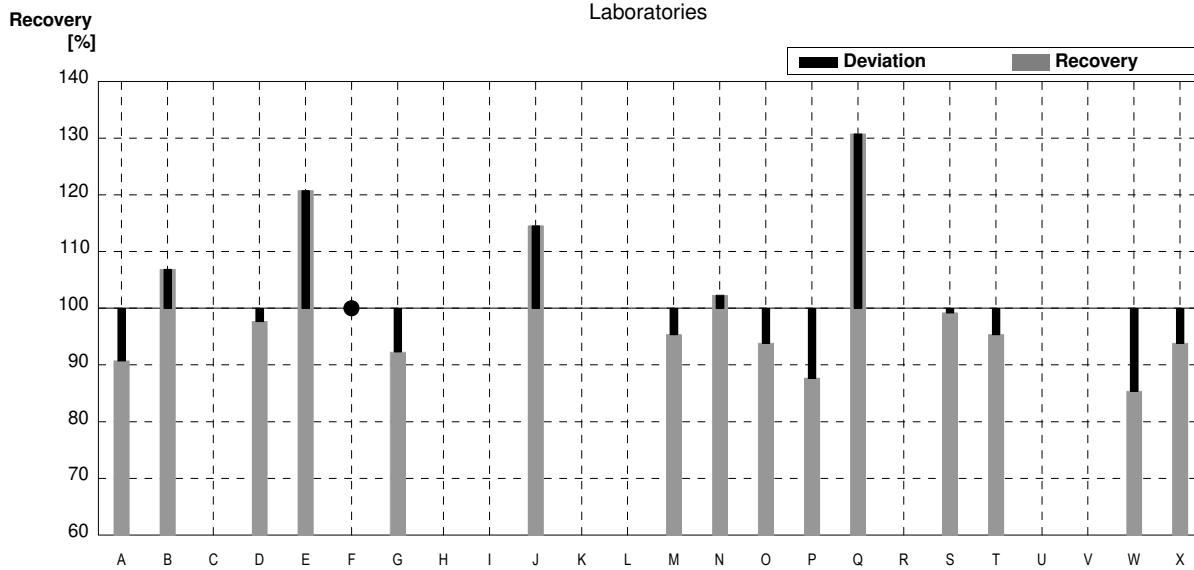
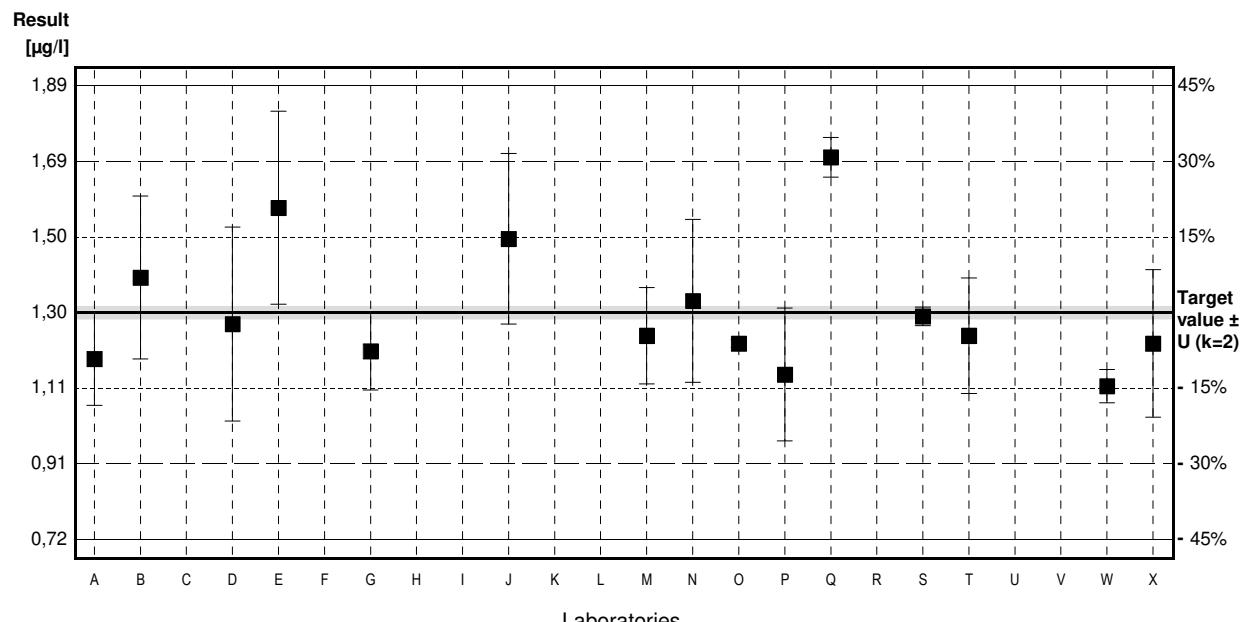
Sample M153B

Parameter Mercury

Target value $\pm U$ ($k=2$) 1,30 $\mu\text{g/l}$ \pm 0,02 $\mu\text{g/l}$
 IFA result $\pm U$ ($k=2$) 1,39 $\mu\text{g/l}$ \pm 0,14 $\mu\text{g/l}$

Stability test					
Lab Code	Result	\pm	Unit	Recovery	z-Score
A	1,18	0,12	$\mu\text{g/l}$	91%	-0,84
B	1,39	0,21	$\mu\text{g/l}$	107%	0,63
C			$\mu\text{g/l}$		
D	1,27	0,25	$\mu\text{g/l}$	98%	-0,21
E	1,57 *	0,249	$\mu\text{g/l}$	121%	1,89
F	<5,0		$\mu\text{g/l}$	*	
G	1,20	0,10	$\mu\text{g/l}$	92%	-0,70
H			$\mu\text{g/l}$		
I			$\mu\text{g/l}$		
J	1,49	0,22	$\mu\text{g/l}$	115%	1,33
K			$\mu\text{g/l}$		
L			$\mu\text{g/l}$		
M	1,24	0,124	$\mu\text{g/l}$	95%	-0,42
N	1,33	0,21	$\mu\text{g/l}$	102%	0,21
O	1,22	0,010	$\mu\text{g/l}$	94%	-0,56
P	1,14	0,171	$\mu\text{g/l}$	88%	-1,12
Q	1,70 *	0,0510	$\mu\text{g/l}$	131%	2,80
R			$\mu\text{g/l}$		
S	1,29	0,024	$\mu\text{g/l}$	99%	-0,07
T	1,24	0,149	$\mu\text{g/l}$	95%	-0,42
U			$\mu\text{g/l}$		
V			$\mu\text{g/l}$		
W	1,11	0,043	$\mu\text{g/l}$	85%	-1,33
X	1,22	0,19	$\mu\text{g/l}$	94%	-0,56

	All results	Outliers excl.	Unit
Mean \pm CI(99%)	1,31 \pm 0,13	1,26 \pm 0,09	$\mu\text{g/l}$
Recov. \pm CI(99%)	100,5 \pm 9,8	96,6 \pm 6,7	%
SD between labs	0,17	0,10	$\mu\text{g/l}$
RSD between labs	12,7	8,2	%
n for calculation	15	13	



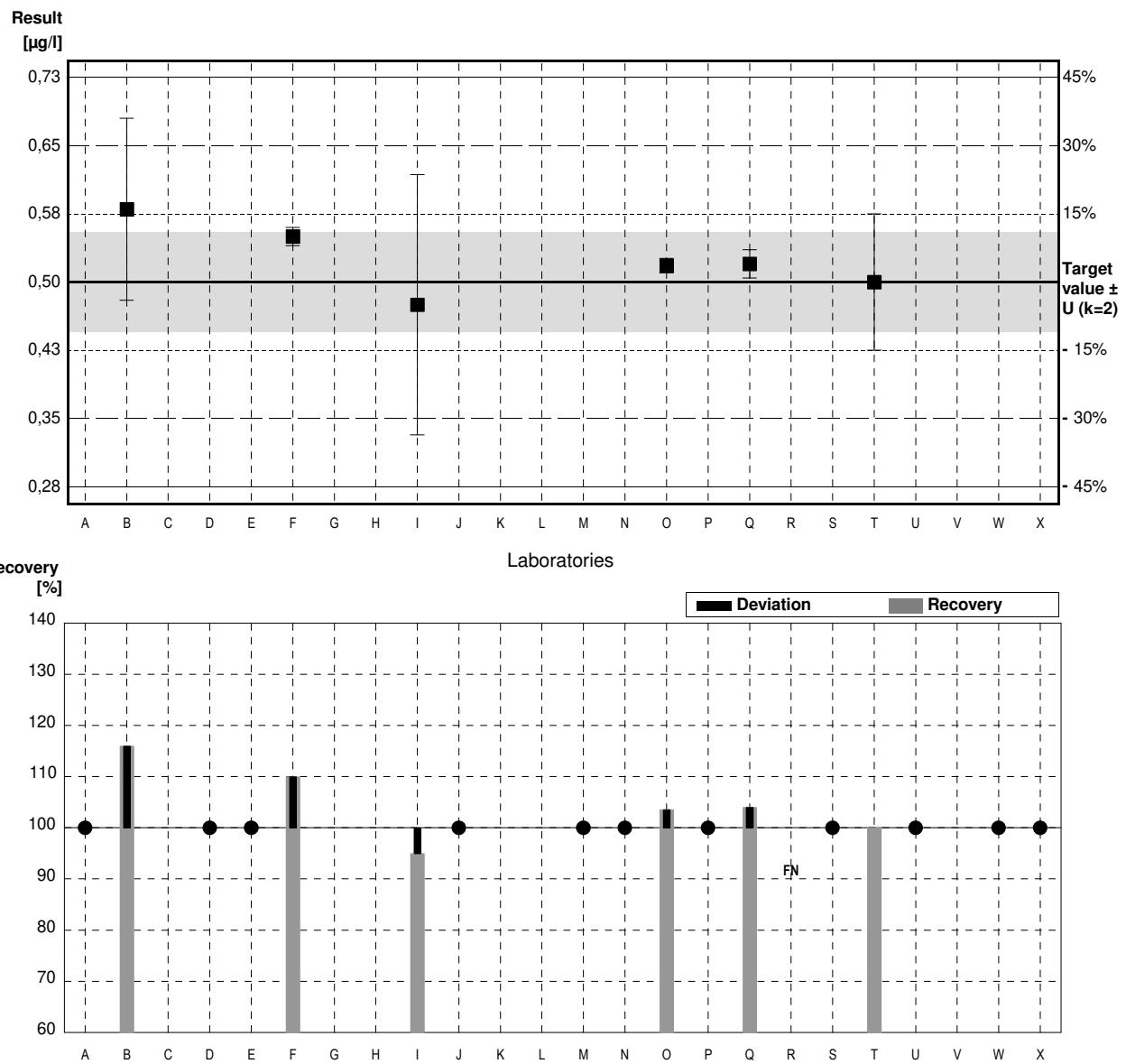
Sample M153A

Parameter Selenium

Target value $\pm U$ ($k=2$) 0,50 µg/l \pm 0,05 µg/l
 IFA result $\pm U$ ($k=2$) 0,51 µg/l \pm 0,07 µg/l

Stability test					
Lab Code	Result	\pm	Unit	Recovery	z-Score
A	<1		µg/l	•	
B	0,58	0,10	µg/l	116%	1,45
C			µg/l		
D	<1,00		µg/l	•	
E	<4,2		µg/l	•	
F	0,55	0,01	µg/l	110%	0,91
G			µg/l		
H			µg/l		
I	0,475	0,143	µg/l	95%	-0,45
J	<1		µg/l	•	
K			µg/l		
L			µg/l		
M	<1,0		µg/l	•	
N	<1,0		µg/l	•	
O	0,518	0,008	µg/l	104%	0,33
P	<2		µg/l	•	
Q	0,520	0,0156	µg/l	104%	0,36
R	<0,3		µg/l	FN	
S	<1,00		µg/l	•	
T	0,50	0,075	µg/l	100%	0,00
U	<1		µg/l	•	
V			µg/l		
W	<0,50		µg/l	•	
X	<1,0		µg/l	•	

	All results	Outliers excl.	Unit
Mean \pm CI(99%)	0,52 \pm 0,06	0,52 \pm 0,06	µg/l
Recov. \pm CI(99%)	104,8 \pm 12,2	104,8 \pm 12,2	%
SD between labs	0,04	0,04	µg/l
RSD between labs	7,1	7,1	%
n for calculation	6	6	



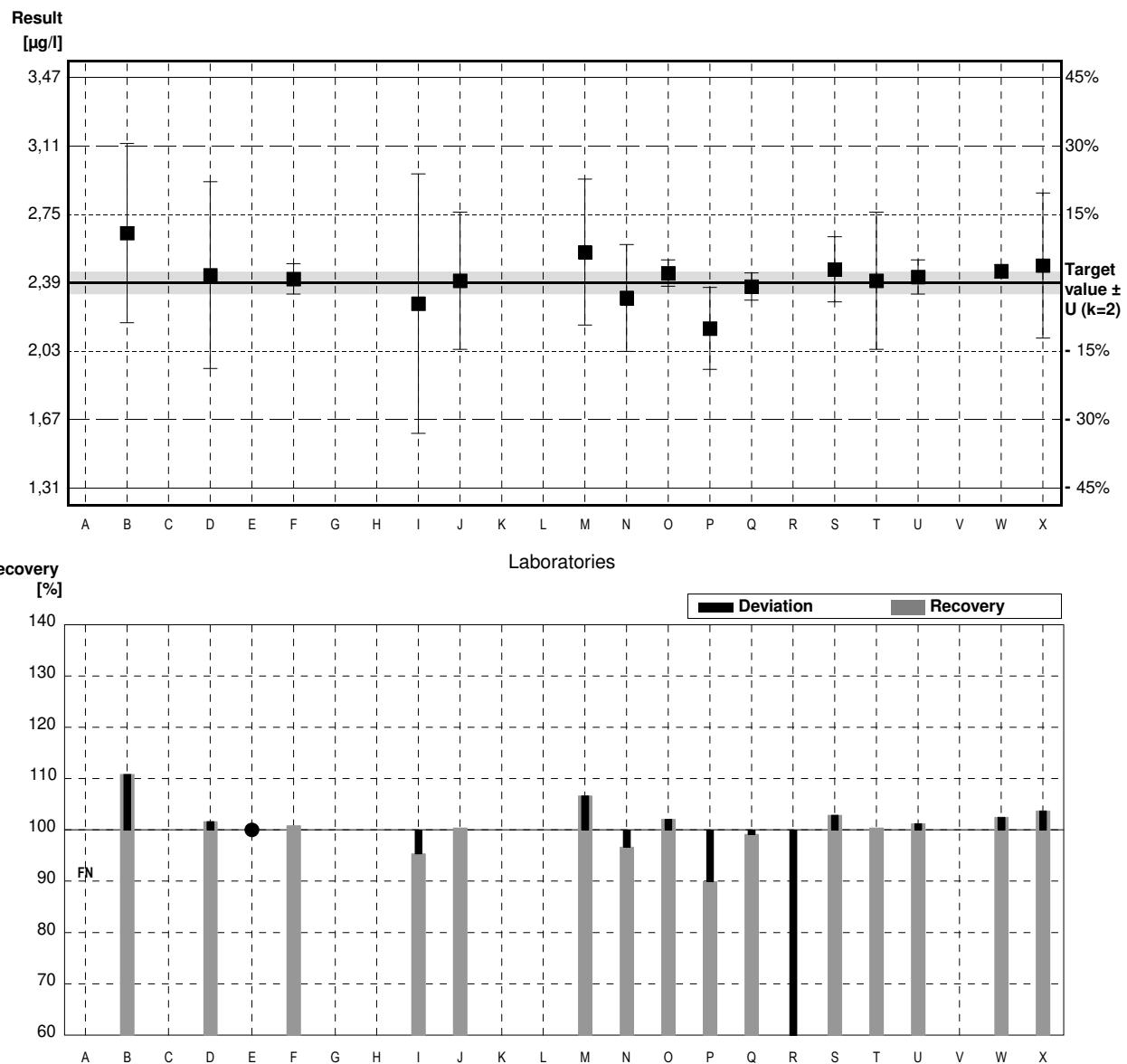
Sample M153B

Parameter Selenium

Target value $\pm U$ ($k=2$) 2,39 $\mu\text{g/l}$ \pm 0,06 $\mu\text{g/l}$
 IFA result $\pm U$ ($k=2$) 2,17 $\mu\text{g/l}$ \pm 0,30 $\mu\text{g/l}$

Stability test					
Lab Code	Result	\pm	Unit	Recovery	z-Score
A	<1		$\mu\text{g/l}$	FN	
B	2,65 *	0,47	$\mu\text{g/l}$	111%	0,99
C			$\mu\text{g/l}$		
D	2,43	0,49	$\mu\text{g/l}$	102%	0,15
E	<2,8		$\mu\text{g/l}$	*	
F	2,41	0,08	$\mu\text{g/l}$	101%	0,08
G			$\mu\text{g/l}$		
H			$\mu\text{g/l}$		
I	2,28	0,68	$\mu\text{g/l}$	95%	-0,42
J	2,40	0,36	$\mu\text{g/l}$	100%	0,04
K			$\mu\text{g/l}$		
L			$\mu\text{g/l}$		
M	2,55	0,383	$\mu\text{g/l}$	107%	0,61
N	2,31	0,28	$\mu\text{g/l}$	97%	-0,30
O	2,44	0,069	$\mu\text{g/l}$	102%	0,19
P	2,15 *	0,215	$\mu\text{g/l}$	90%	-0,91
Q	2,37	0,0711	$\mu\text{g/l}$	99%	-0,08
R	1,26 *	0,14	$\mu\text{g/l}$	53%	-4,30
S	2,46	0,17	$\mu\text{g/l}$	103%	0,27
T	2,40	0,36	$\mu\text{g/l}$	100%	0,04
U	2,42	0,09	$\mu\text{g/l}$	101%	0,11
V			$\mu\text{g/l}$		
W	2,45	0,035	$\mu\text{g/l}$	103%	0,23
X	2,48	0,38	$\mu\text{g/l}$	104%	0,34

	All results	Outliers excl.	Unit
Mean \pm CI(99%)	2,34 \pm 0,23	2,42 \pm 0,06	$\mu\text{g/l}$
Recov. \pm CI(99%)	98,0 \pm 9,5	101,1 \pm 2,5	%
SD between labs	0,31	0,07	$\mu\text{g/l}$
RSD between labs	13,2	2,9	%
n for calculation	16	13	



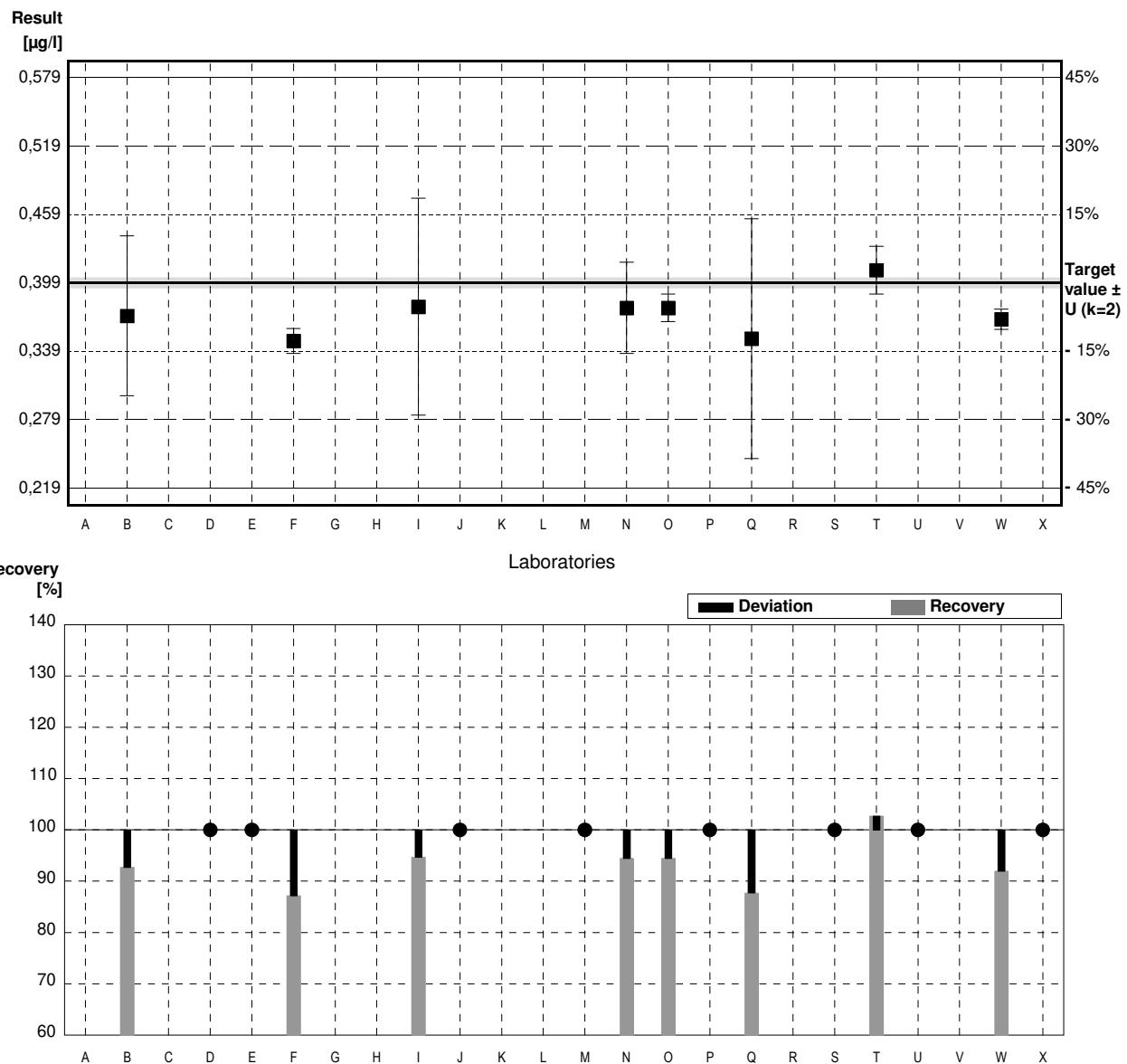
Sample M153A

Parameter Uranium

Target value \pm U (k=2) 0.399 $\mu\text{g/l}$ \pm 0.005 $\mu\text{g/l}$
 IFA result \pm U (k=2) 0.411 $\mu\text{g/l}$ \pm 0.041 $\mu\text{g/l}$

Stability test					
Lab Code	Result	\pm	Unit	Recovery	z-Score
A			$\mu\text{g/l}$		
B	0,370	0,070	$\mu\text{g/l}$	93%	-1,23
C			$\mu\text{g/l}$		
D	<1,00		$\mu\text{g/l}$	•	
E	<1,4		$\mu\text{g/l}$	•	
F	0,348	0,011	$\mu\text{g/l}$	87%	-2,17
G			$\mu\text{g/l}$		
H			$\mu\text{g/l}$		
I	0,378	0,095	$\mu\text{g/l}$	95%	-0,89
J	<1		$\mu\text{g/l}$	•	
K			$\mu\text{g/l}$		
L			$\mu\text{g/l}$		
M	<1,0		$\mu\text{g/l}$	•	
N	0,377	0,040	$\mu\text{g/l}$	94%	-0,93
O	0,377	0,012	$\mu\text{g/l}$	94%	-0,93
P	<1		$\mu\text{g/l}$	•	
Q	0,350	0,105	$\mu\text{g/l}$	88%	-2,08
R			$\mu\text{g/l}$		
S	<1,00		$\mu\text{g/l}$	•	
T	0,410 * 0,021	0,021	$\mu\text{g/l}$	103%	0,47
U	<2		$\mu\text{g/l}$	•	
V			$\mu\text{g/l}$		
W	0,367	0,009	$\mu\text{g/l}$	92%	-1,36
X	<0,5		$\mu\text{g/l}$	•	

	All results	Outliers excl.	Unit
Mean \pm CI(99%)	$0,372 \pm 0,024$	$0,367 \pm 0,018$	$\mu\text{g/l}$
Recov. \pm CI(99%)	$93,3 \pm 6,0$	$91,9 \pm 4,5$	%
SD between labs	0,019	0,013	$\mu\text{g/l}$
RSD between labs	5,2	3,5	%
n for calculation	8	7	



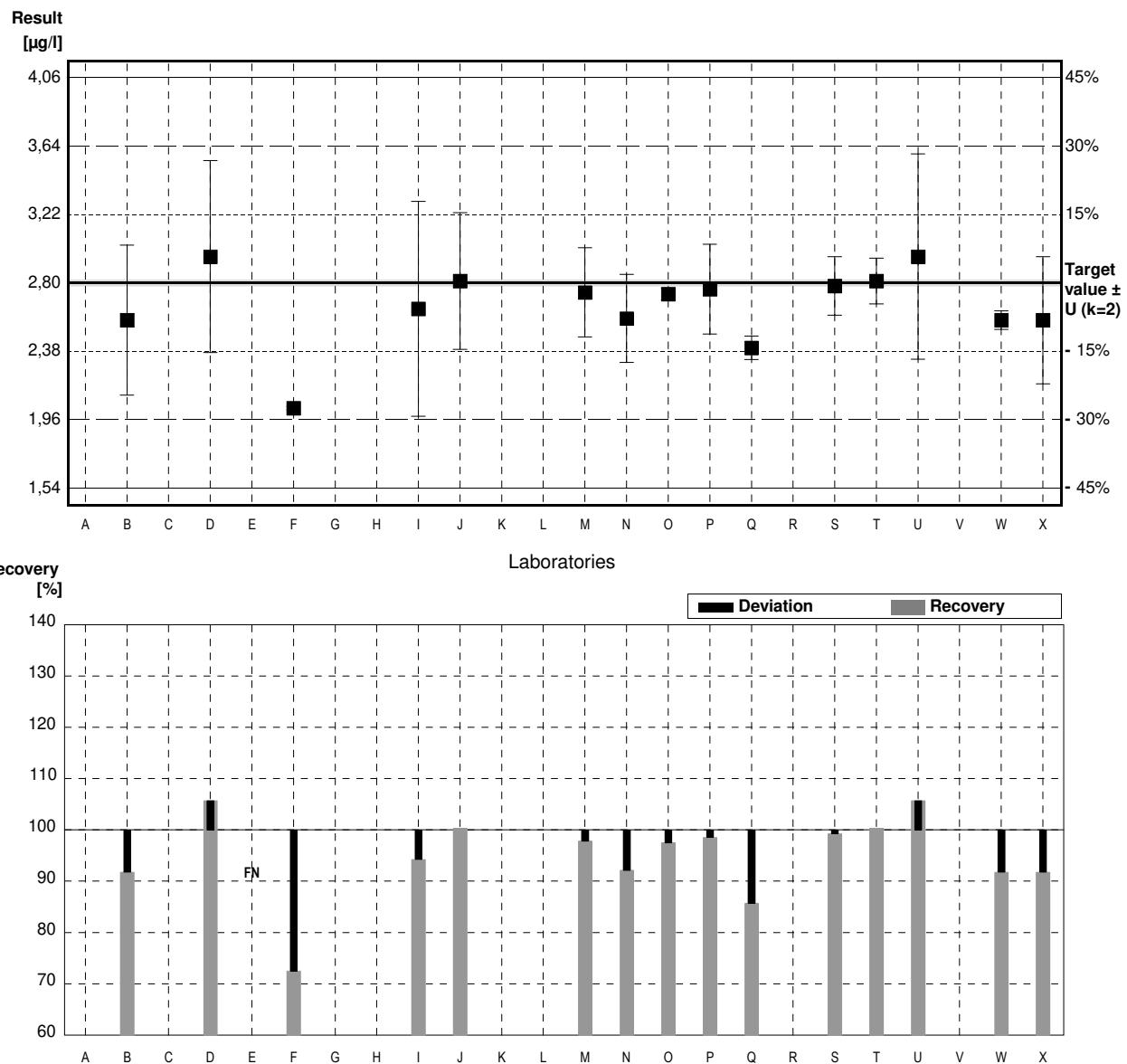
Sample M153B

Parameter Uranium

Target value \pm U (k=2) 2,80 $\mu\text{g/l}$ \pm 0,02 $\mu\text{g/l}$
 IFA result \pm U (k=2) 2,85 $\mu\text{g/l}$ \pm 0,29 $\mu\text{g/l}$

Stability test					
Lab Code	Result	\pm	Unit	Recovery	z-Score
A			$\mu\text{g/l}$		
B	2,57	0,46	$\mu\text{g/l}$	92%	-1,39
C			$\mu\text{g/l}$		
D	2,96	0,59	$\mu\text{g/l}$	106%	0,97
E	<1,7		$\mu\text{g/l}$	FN	
F	2,03	0,01	$\mu\text{g/l}$	73%	-4,66
G			$\mu\text{g/l}$		
H			$\mu\text{g/l}$		
I	2,64	0,66	$\mu\text{g/l}$	94%	-0,97
J	2,81	0,42	$\mu\text{g/l}$	100%	0,06
K			$\mu\text{g/l}$		
L			$\mu\text{g/l}$		
M	2,74	0,274	$\mu\text{g/l}$	98%	-0,36
N	2,58	0,27	$\mu\text{g/l}$	92%	-1,33
O	2,73	0,036	$\mu\text{g/l}$	98%	-0,42
P	2,76	0,276	$\mu\text{g/l}$	99%	-0,24
Q	2,40	0,0720	$\mu\text{g/l}$	86%	-2,42
R			$\mu\text{g/l}$		
S	2,78	0,18	$\mu\text{g/l}$	99%	-0,12
T	2,81	0,141	$\mu\text{g/l}$	100%	0,06
U	2,96	0,63	$\mu\text{g/l}$	106%	0,97
V			$\mu\text{g/l}$		
W	2,57	0,057	$\mu\text{g/l}$	92%	-1,39
X	2,57	0,39	$\mu\text{g/l}$	92%	-1,39

	All results	Outliers excl.	Unit
Mean \pm CI(99%)	2,66 \pm 0,18	2,66 \pm 0,18	$\mu\text{g/l}$
Recov. \pm CI(99%)	95,0 \pm 6,4	95,0 \pm 6,4	%
SD between labs	0,23	0,23	$\mu\text{g/l}$
RSD between labs	8,7	8,7	%
n for calculation	15	15	



Sample M153A

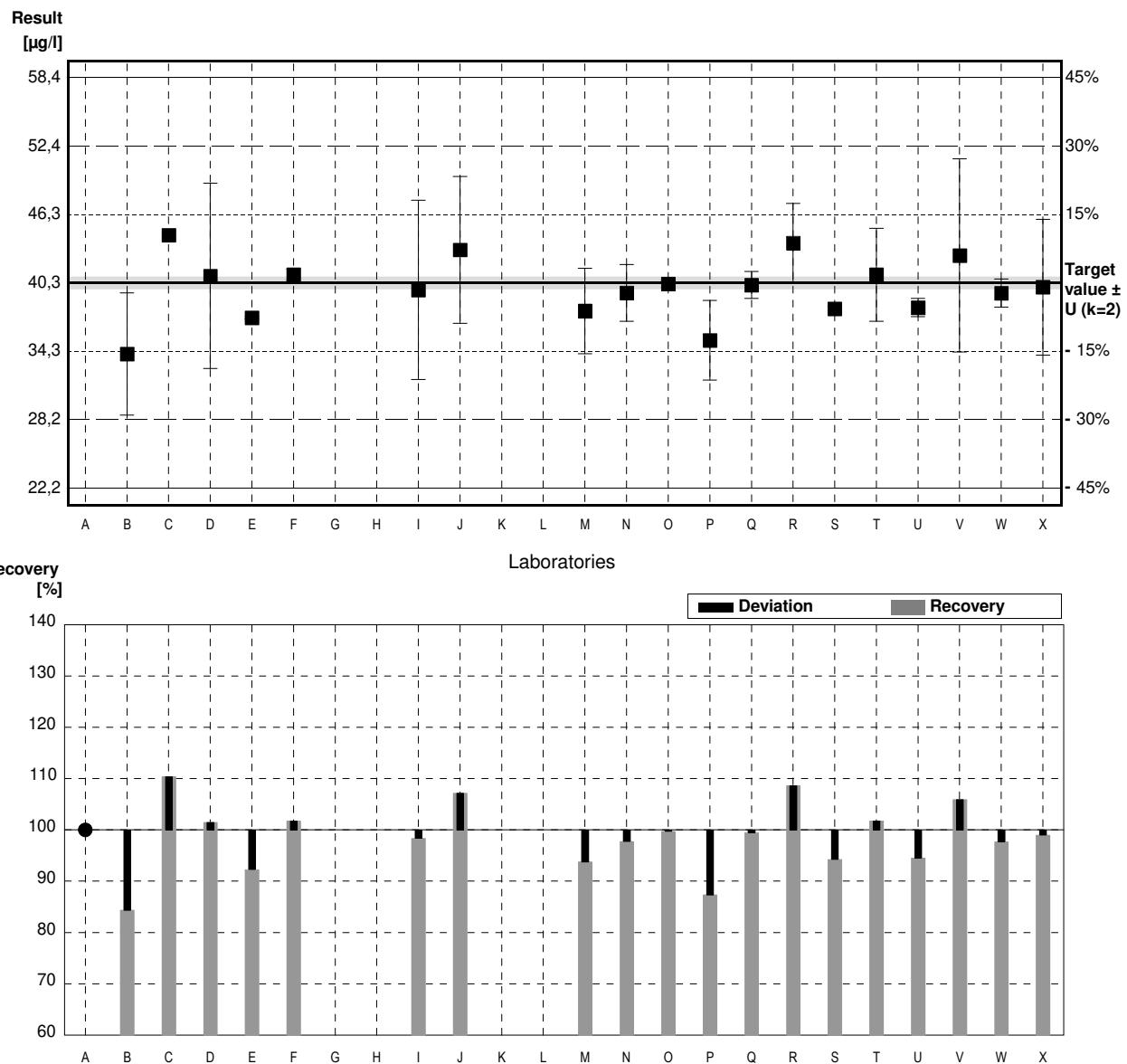
Parameter Zinc

Target value $\pm U (k=2)$ 40,3 µg/l \pm 0,5 µg/l
 IFA result $\pm U (k=2)$ 45,4 µg/l \pm 9,1 µg/l

Stability test µg/l

Lab Code	Result	\pm	Unit	Recovery	z-Score
A	<50		µg/l	*	
B	34,0	5,4	µg/l	84%	-1,95
C	44,5		µg/l	110%	1,30
D	40,9	8,2	µg/l	101%	0,19
E	37,2	0,1	µg/l	92%	-0,96
F	41,0	0,5	µg/l	102%	0,22
G			µg/l		
H			µg/l		
I	39,66	7,93	µg/l	98%	-0,20
J	43,2	6,49	µg/l	107%	0,90
K			µg/l		
L			µg/l		
M	37,8	3,78	µg/l	94%	-0,78
N	39,4	2,5	µg/l	98%	-0,28
O	40,2	0,320	µg/l	100%	-0,03
P	35,2	3,52	µg/l	87%	-1,58
Q	40,1	1,20	µg/l	100%	-0,06
R	43,8	3,5	µg/l	109%	1,09
S	38,0	0,20	µg/l	94%	-0,71
T	41,00	4,10	µg/l	102%	0,22
U	38,1	0,8	µg/l	95%	-0,68
V	42,7	8,54	µg/l	106%	0,74
W	39,38	1,241	µg/l	98%	-0,29
X	39,9	6,0	µg/l	99%	-0,12

	All results	Outliers excl.	Unit
Mean \pm CI(99%)	39,8 \pm 1,8	39,8 \pm 1,8	µg/l
Recov. \pm CI(99%)	98,7 \pm 4,5	98,7 \pm 4,5	%
SD between labs	2,7	2,7	µg/l
RSD between labs	6,9	6,9	%
n for calculation	19	19	



Sample M153B

Parameter Zinc

Target value $\pm U$ ($k=2$) 14,9 $\mu\text{g/l}$ \pm 0,5 $\mu\text{g/l}$
 IFA result $\pm U$ ($k=2$) 16,6 $\mu\text{g/l}$ \pm 3,3 $\mu\text{g/l}$

Stability test $\mu\text{g/l}$

Lab Code	Result	\pm	Unit	Recovery	z-Score
A	<50		$\mu\text{g/l}$	*	
B	13,3	2,1	$\mu\text{g/l}$	89%	-1,34
C	17,0		$\mu\text{g/l}$	114%	1,76
D	15,0	3,0	$\mu\text{g/l}$	101%	0,08
E	13,7	0,1	$\mu\text{g/l}$	92%	-1,01
F	15,17	0,03	$\mu\text{g/l}$	102%	0,23
G			$\mu\text{g/l}$		
H			$\mu\text{g/l}$		
I	17,36	3,47	$\mu\text{g/l}$	117%	2,06
J	15,9	2,38	$\mu\text{g/l}$	107%	0,84
K			$\mu\text{g/l}$		
L			$\mu\text{g/l}$		
M	14,0	1,4	$\mu\text{g/l}$	94%	-0,76
N	14,1	0,9	$\mu\text{g/l}$	95%	-0,67
O	14,5	0,130	$\mu\text{g/l}$	97%	-0,34
P	<15		$\mu\text{g/l}$	*	
Q	15,4	0,462	$\mu\text{g/l}$	103%	0,42
R	13,2	1,1	$\mu\text{g/l}$	89%	-1,43
S	13,6	0,21	$\mu\text{g/l}$	91%	-1,09
T	15,00	1,50	$\mu\text{g/l}$	101%	0,08
U	12,1	1,3	$\mu\text{g/l}$	81%	-2,35
V	15,5	3,09	$\mu\text{g/l}$	104%	0,50
W	15,31	2,025	$\mu\text{g/l}$	103%	0,34
X	14,5	2,2	$\mu\text{g/l}$	97%	-0,34

	All results	Outliers excl.	Unit
Mean \pm CI(99%)	14,7 \pm 0,9	14,7 \pm 0,9	$\mu\text{g/l}$
Recov. \pm CI(99%)	98,7 \pm 6,1	98,7 \pm 6,1	%
SD between labs	1,3	1,3	$\mu\text{g/l}$
RSD between labs	9,0	9,0	%
n for calculation	18	18	

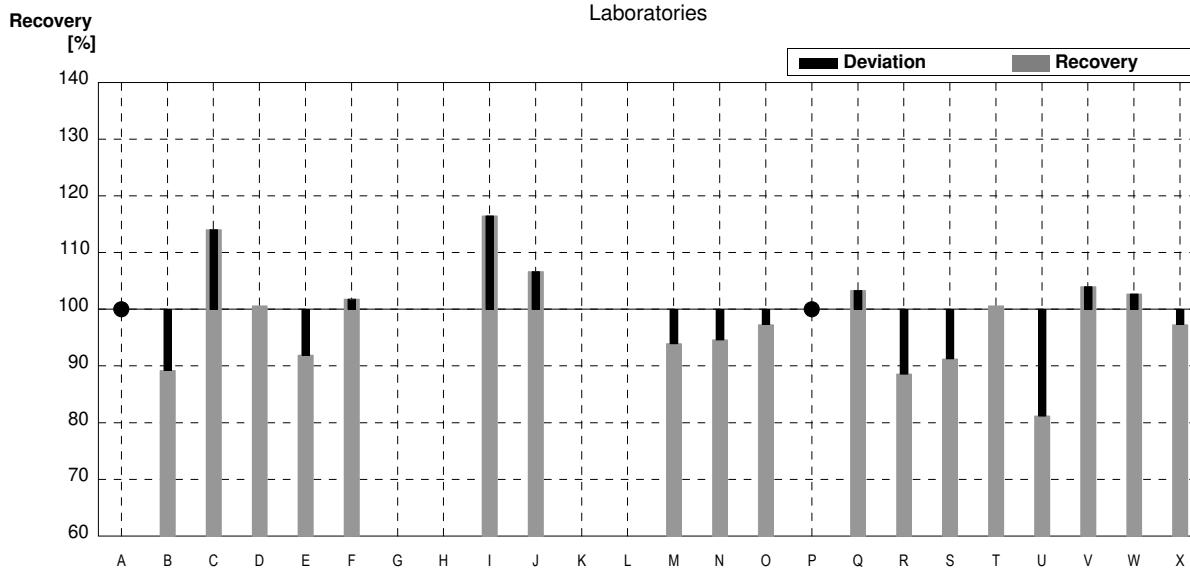
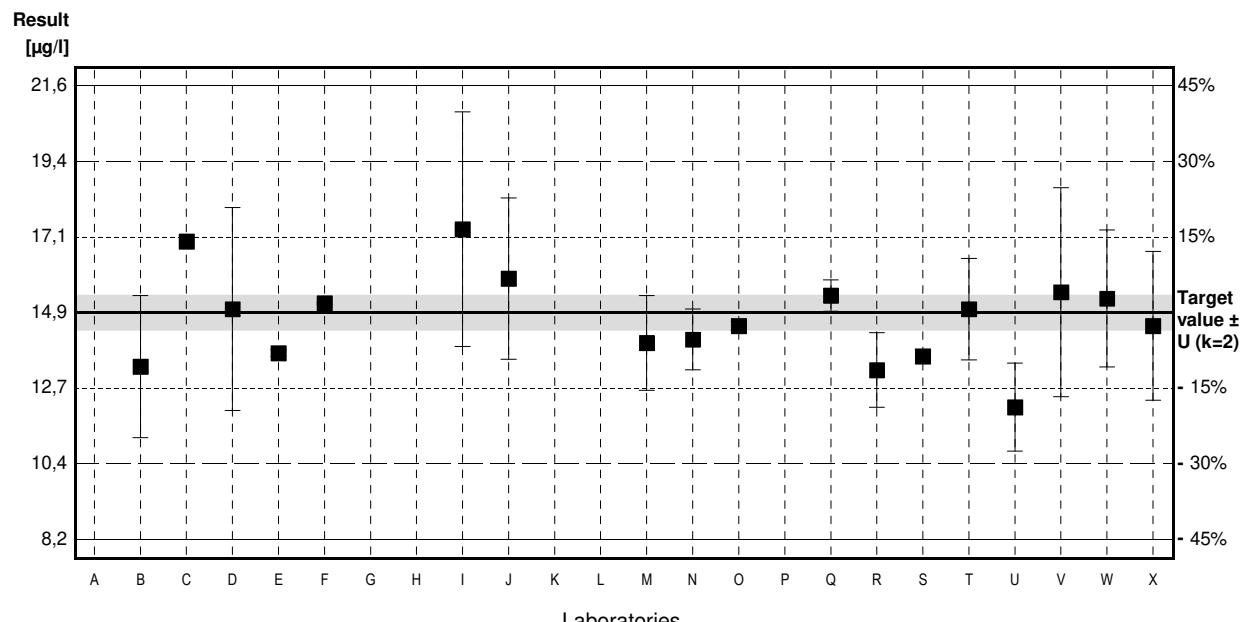


Illustration of Results Laboratory Oriented Part

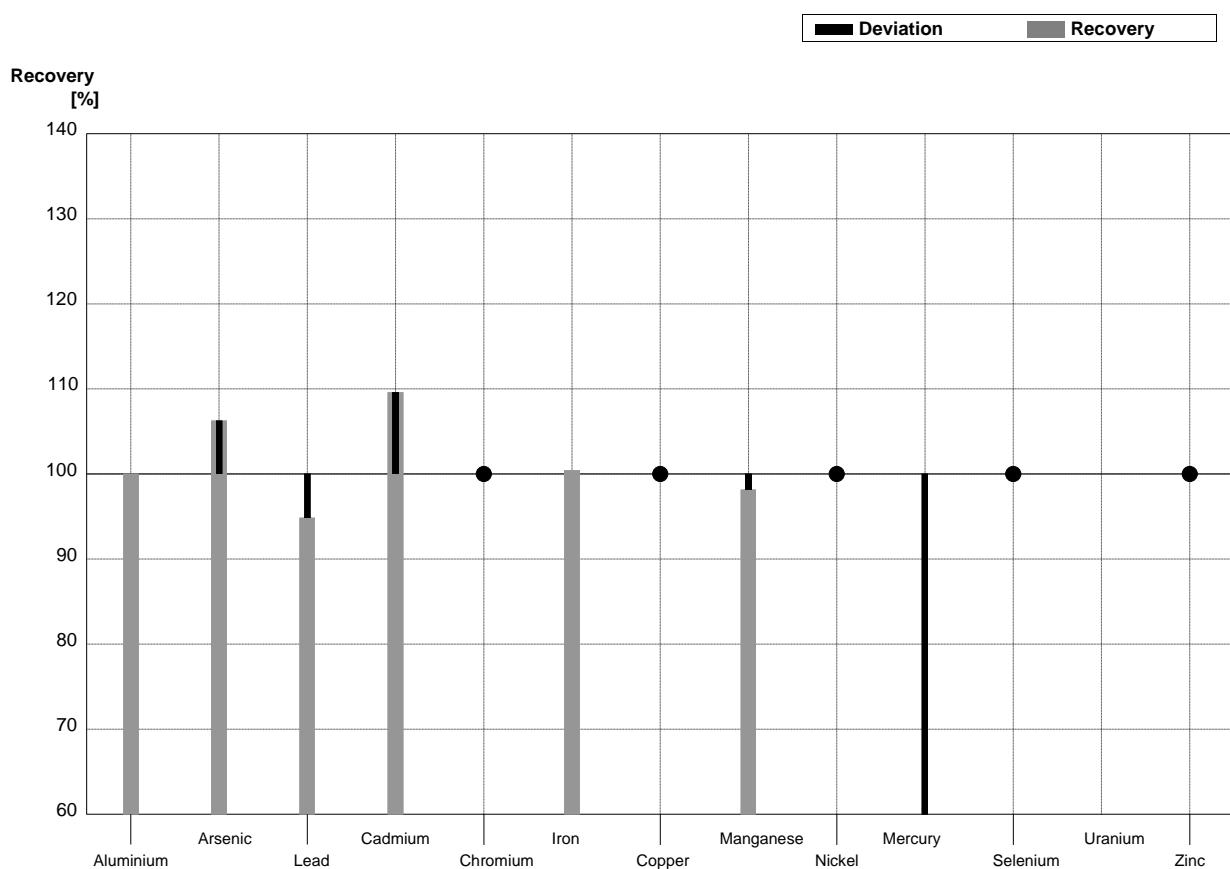
**Round M153
Metals**

Sample Dispatch: 31 August 2020



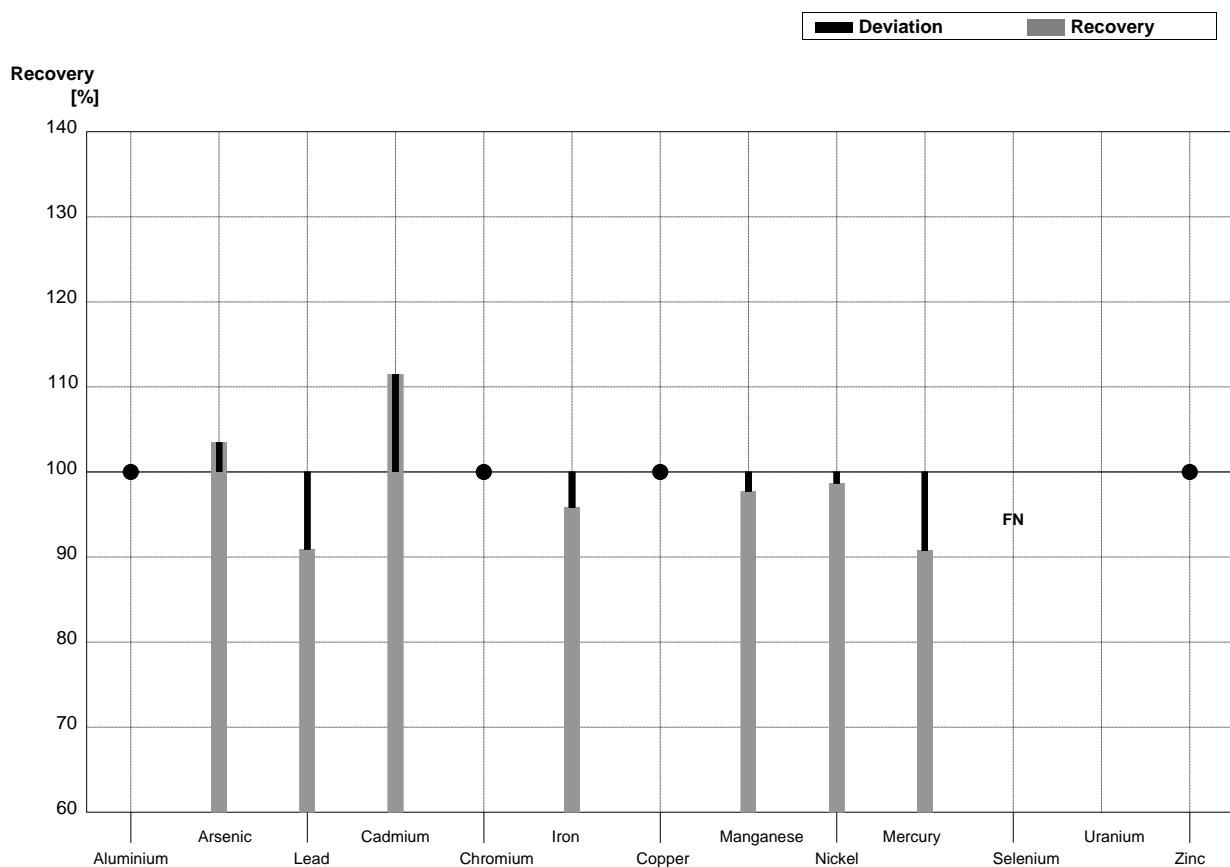
Sample M153A
Laboratory A

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	56,1	0,3	56,1	5,7	$\mu\text{g/l}$	100%
Arsenic	2,56	0,02	2,72	0,27	$\mu\text{g/l}$	106%
Lead	2,32	0,02	2,20	0,22	$\mu\text{g/l}$	95%
Cadmium	0,502	0,005	0,55	0,06	$\mu\text{g/l}$	110%
Chromium	0,397	0,014	<5		$\mu\text{g/l}$	•
Iron	68,9	0,3	69,2	6,9	$\mu\text{g/l}$	100%
Copper	10,4	0,1	<100		$\mu\text{g/l}$	•
Manganese	43,0	0,3	42,2	4,2	$\mu\text{g/l}$	98%
Nickel	1,01	0,02	<2		$\mu\text{g/l}$	•
Mercury	0,399	0,013	0,180	0,02	$\mu\text{g/l}$	45%
Selenium	0,50	0,05	<1		$\mu\text{g/l}$	•
Uranium	0,399	0,005			$\mu\text{g/l}$	
Zinc	40,3	0,5	<50		$\mu\text{g/l}$	•



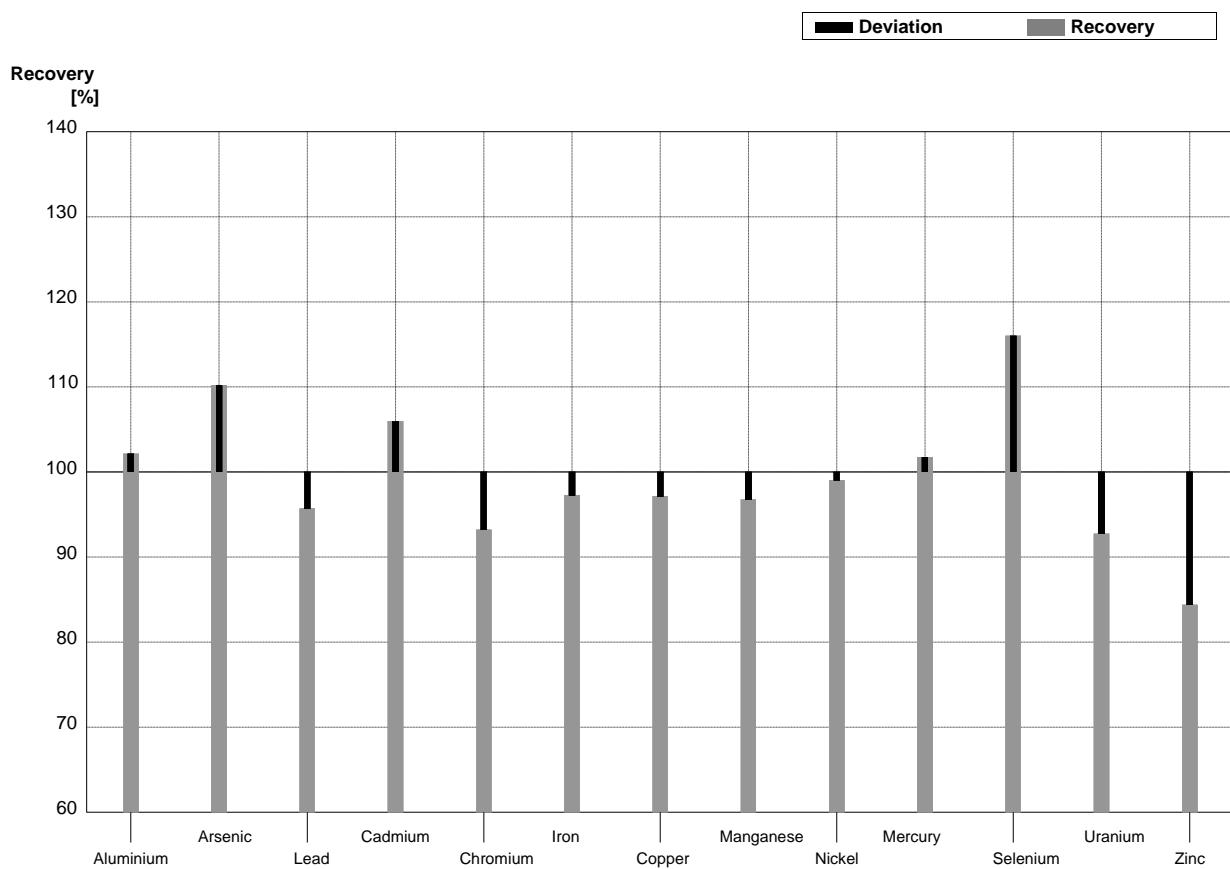
Sample M153B
Laboratory A

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	10,4	0,2	<20		$\mu\text{g/l}$	•
Arsenic	2,01	0,02	2,08	0,21	$\mu\text{g/l}$	103%
Lead	4,07	0,03	3,70	0,37	$\mu\text{g/l}$	91%
Cadmium	0,897	0,008	1,00	0,10	$\mu\text{g/l}$	111%
Chromium	3,49	0,03	<5		$\mu\text{g/l}$	•
Iron	36,0	0,2	34,5	3,5	$\mu\text{g/l}$	96%
Copper	2,96	0,03	<100		$\mu\text{g/l}$	•
Manganese	13,2	0,1	12,9	1,3	$\mu\text{g/l}$	98%
Nickel	3,75	0,03	3,70	0,37	$\mu\text{g/l}$	99%
Mercury	1,30	0,02	1,18	0,12	$\mu\text{g/l}$	91%
Selenium	2,39	0,06	<1		$\mu\text{g/l}$	FN
Uranium	2,80	0,02			$\mu\text{g/l}$	
Zinc	14,9	0,5	<50		$\mu\text{g/l}$	•



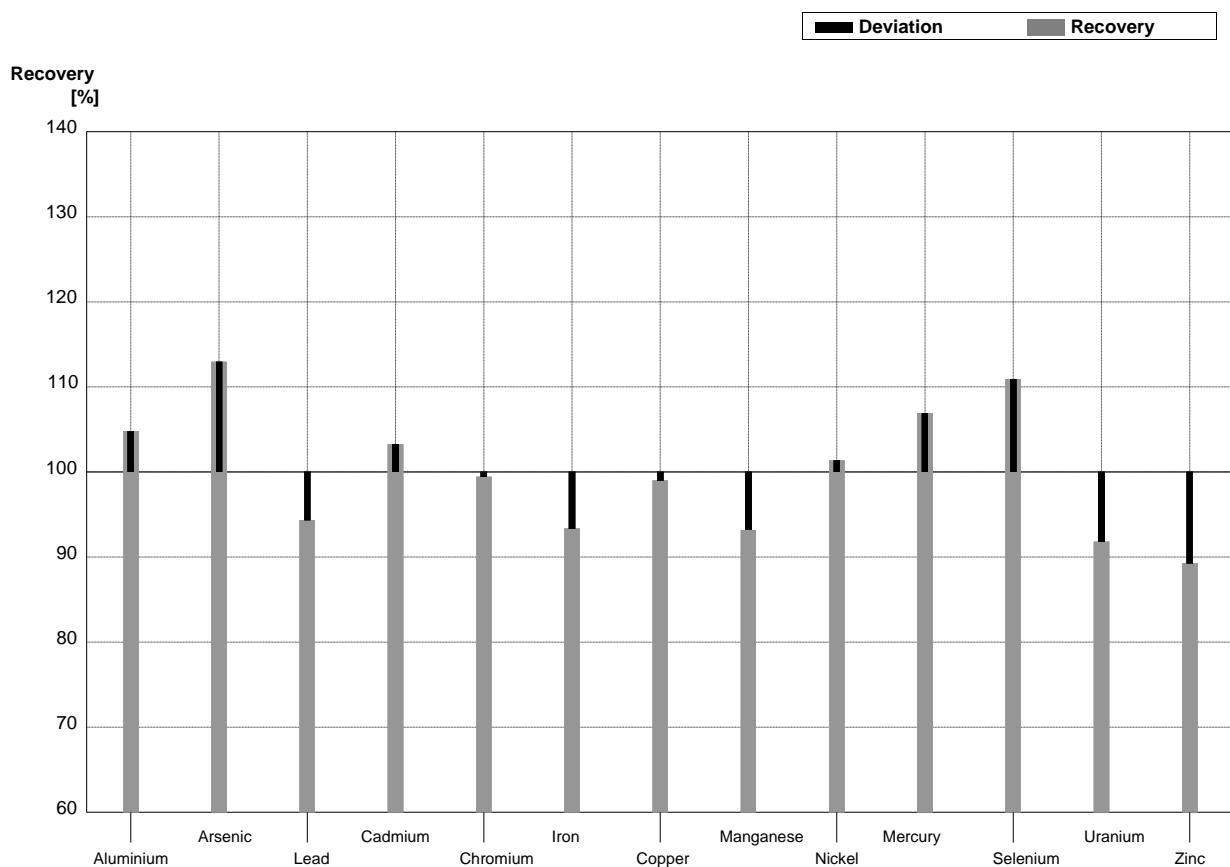
Sample M153A
Laboratory B

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	56,1	0,3	57,3	10,1	$\mu\text{g/l}$	102%
Arsenic	2,56	0,02	2,82	0,42	$\mu\text{g/l}$	110%
Lead	2,32	0,02	2,22	0,29	$\mu\text{g/l}$	96%
Cadmium	0,502	0,005	0,532	0,060	$\mu\text{g/l}$	106%
Chromium	0,397	0,014	0,370	0,050	$\mu\text{g/l}$	93%
Iron	68,9	0,3	67	7,04	$\mu\text{g/l}$	97%
Copper	10,4	0,1	10,1	1,6	$\mu\text{g/l}$	97%
Manganese	43,0	0,3	41,6	6,24	$\mu\text{g/l}$	97%
Nickel	1,01	0,02	1,00	0,15	$\mu\text{g/l}$	99%
Mercury	0,399	0,013	0,406	0,061	$\mu\text{g/l}$	102%
Selenium	0,50	0,05	0,58	0,10	$\mu\text{g/l}$	116%
Uranium	0,399	0,005	0,370	0,070	$\mu\text{g/l}$	93%
Zinc	40,3	0,5	34,0	5,4	$\mu\text{g/l}$	84%



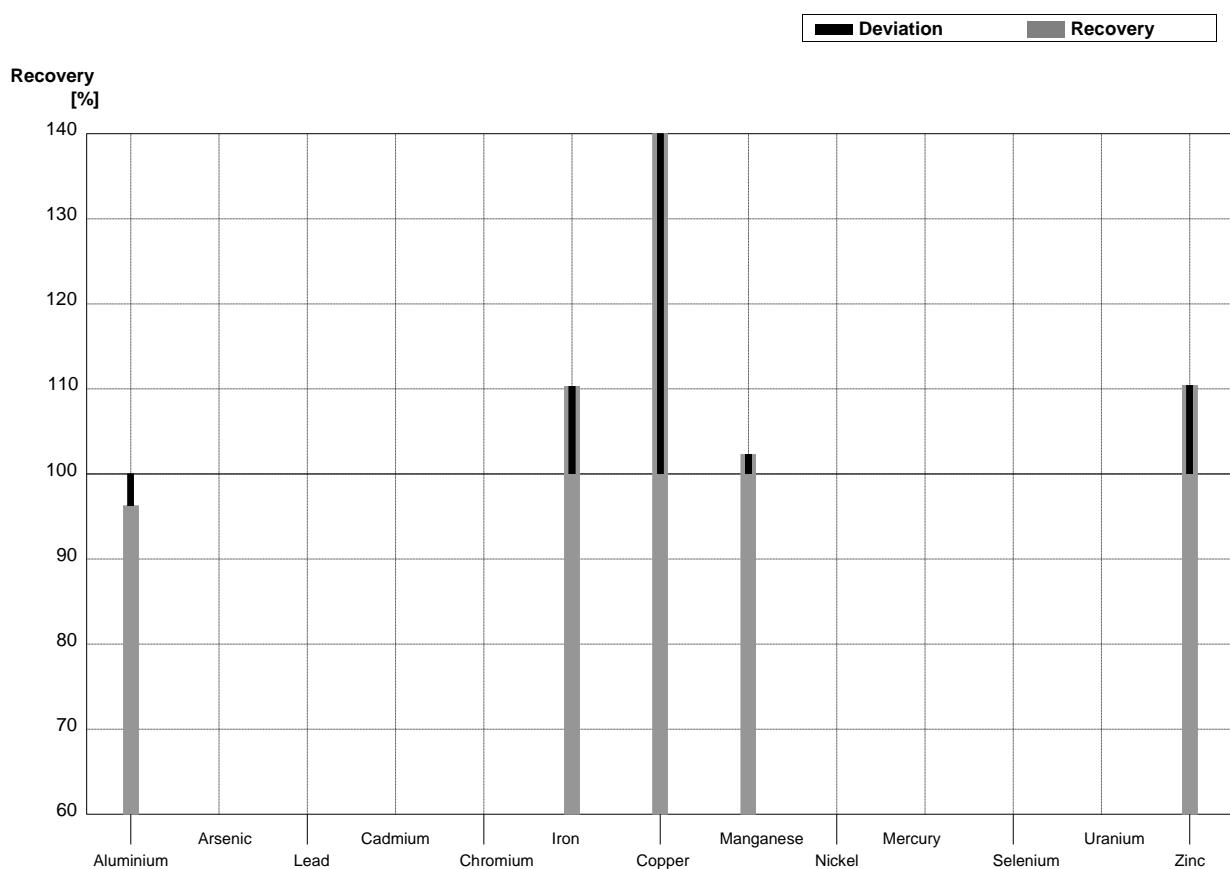
Sample M153B
Laboratory B

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	10,4	0,2	10,9	1,9	$\mu\text{g/l}$	105%
Arsenic	2,01	0,02	2,27	0,34	$\mu\text{g/l}$	113%
Lead	4,07	0,03	3,84	0,50	$\mu\text{g/l}$	94%
Cadmium	0,897	0,008	0,926	0,110	$\mu\text{g/l}$	103%
Chromium	3,49	0,03	3,47	0,46	$\mu\text{g/l}$	99%
Iron	36,0	0,2	33,6	3,53	$\mu\text{g/l}$	93%
Copper	2,96	0,03	2,93	0,45	$\mu\text{g/l}$	99%
Manganese	13,2	0,1	12,3	1,85	$\mu\text{g/l}$	93%
Nickel	3,75	0,03	3,80	0,56	$\mu\text{g/l}$	101%
Mercury	1,30	0,02	1,39	0,21	$\mu\text{g/l}$	107%
Selenium	2,39	0,06	2,65	0,47	$\mu\text{g/l}$	111%
Uranium	2,80	0,02	2,57	0,46	$\mu\text{g/l}$	92%
Zinc	14,9	0,5	13,3	2,1	$\mu\text{g/l}$	89%



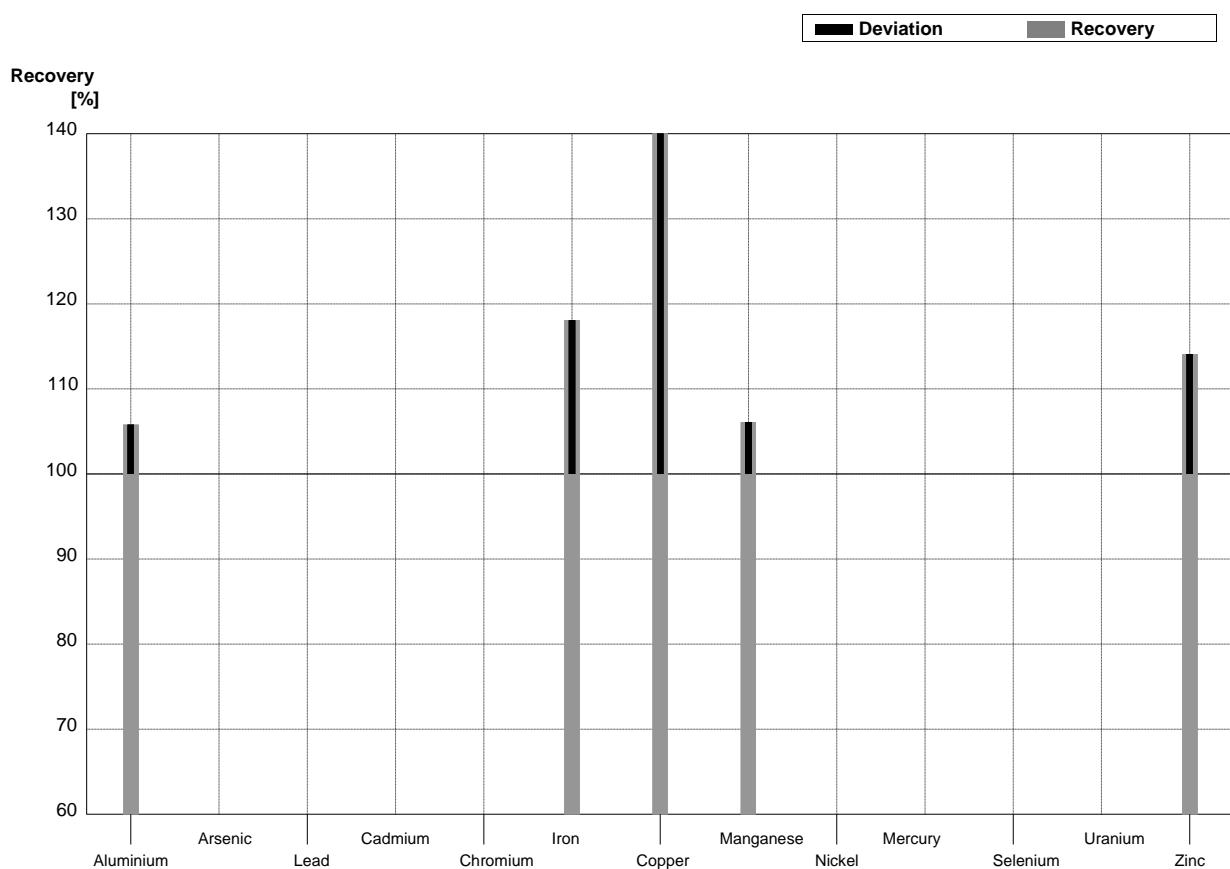
Sample M153A
Laboratory C

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	56,1	0,3	54		$\mu\text{g/l}$	96%
Arsenic	2,56	0,02			$\mu\text{g/l}$	
Lead	2,32	0,02			$\mu\text{g/l}$	
Cadmium	0,502	0,005			$\mu\text{g/l}$	
Chromium	0,397	0,014			$\mu\text{g/l}$	
Iron	68,9	0,3	76		$\mu\text{g/l}$	110%
Copper	10,4	0,1	22,5		$\mu\text{g/l}$	216%
Manganese	43,0	0,3	44,0		$\mu\text{g/l}$	102%
Nickel	1,01	0,02			$\mu\text{g/l}$	
Mercury	0,399	0,013			$\mu\text{g/l}$	
Selenium	0,50	0,05			$\mu\text{g/l}$	
Uranium	0,399	0,005			$\mu\text{g/l}$	
Zinc	40,3	0,5	44,5		$\mu\text{g/l}$	110%



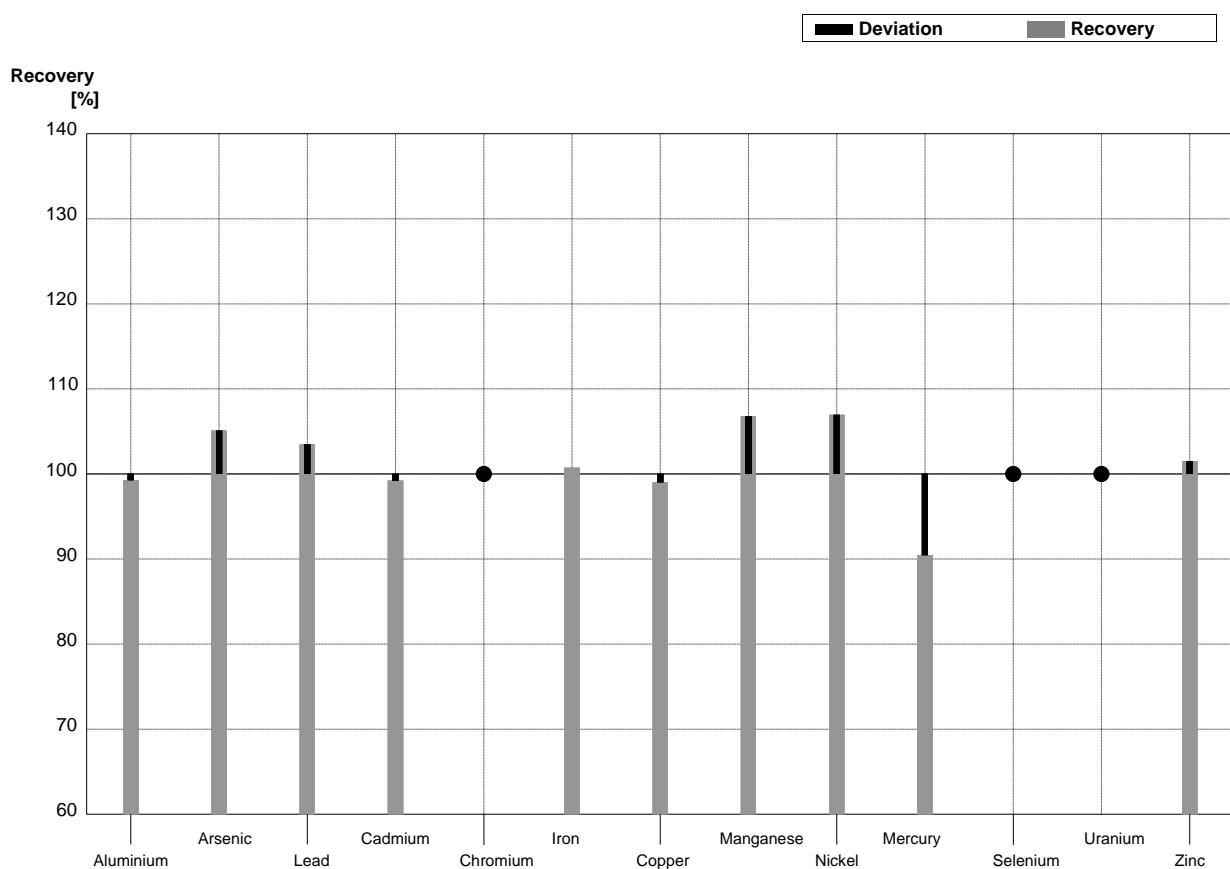
Sample M153B
Laboratory C

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	10,4	0,2	11,0		$\mu\text{g/l}$	106%
Arsenic	2,01	0,02			$\mu\text{g/l}$	
Lead	4,07	0,03			$\mu\text{g/l}$	
Cadmium	0,897	0,008			$\mu\text{g/l}$	
Chromium	3,49	0,03			$\mu\text{g/l}$	
Iron	36,0	0,2	42,5		$\mu\text{g/l}$	118%
Copper	2,96	0,03	17,0		$\mu\text{g/l}$	574%
Manganese	13,2	0,1	14,0		$\mu\text{g/l}$	106%
Nickel	3,75	0,03			$\mu\text{g/l}$	
Mercury	1,30	0,02			$\mu\text{g/l}$	
Selenium	2,39	0,06			$\mu\text{g/l}$	
Uranium	2,80	0,02			$\mu\text{g/l}$	
Zinc	14,9	0,5	17,0		$\mu\text{g/l}$	114%



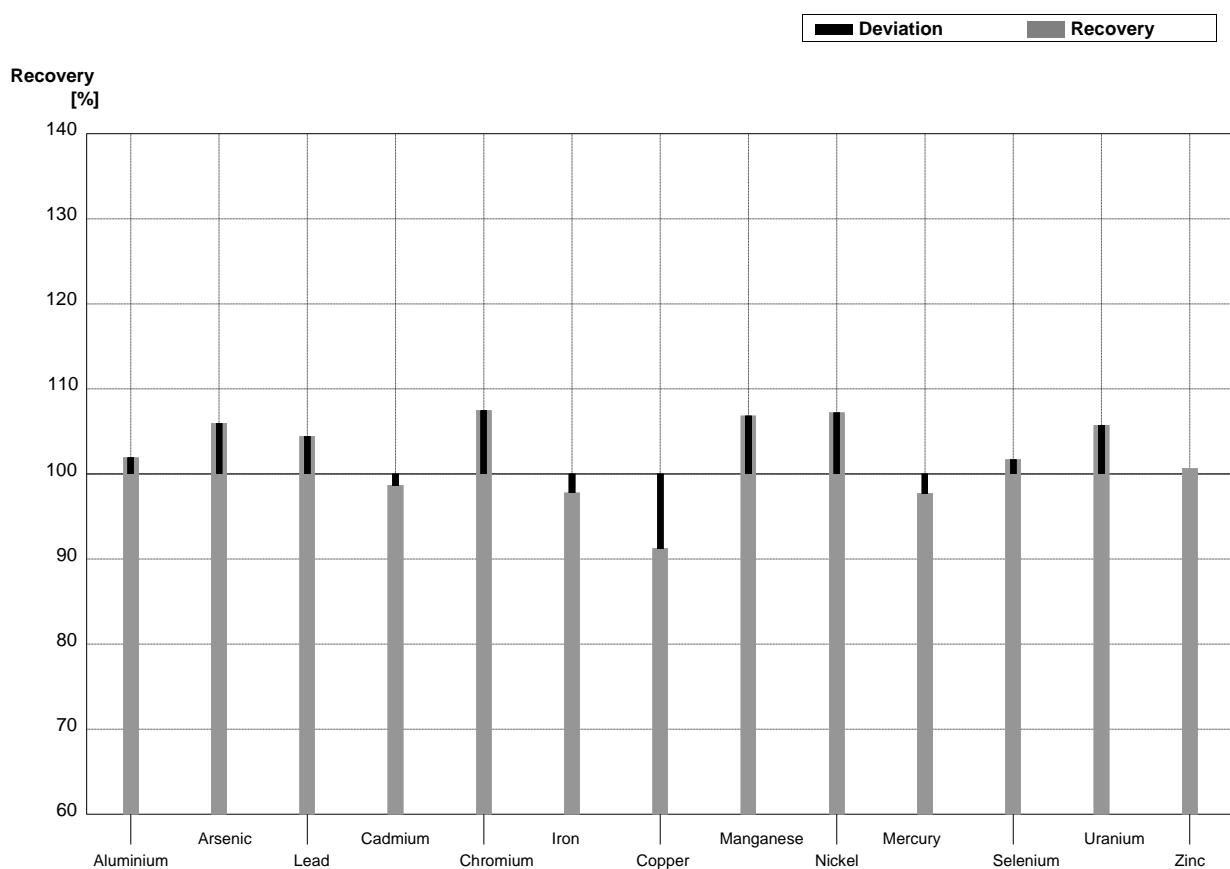
Sample M153A
Laboratory D

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	56,1	0,3	55,7	11,1	$\mu\text{g/l}$	99%
Arsenic	2,56	0,02	2,69	0,54	$\mu\text{g/l}$	105%
Lead	2,32	0,02	2,40	0,48	$\mu\text{g/l}$	103%
Cadmium	0,502	0,005	0,498	0,100	$\mu\text{g/l}$	99%
Chromium	0,397	0,014	<1,00		$\mu\text{g/l}$	•
Iron	68,9	0,3	69,4	13,9	$\mu\text{g/l}$	101%
Copper	10,4	0,1	10,3	2,1	$\mu\text{g/l}$	99%
Manganese	43,0	0,3	45,9	9,2	$\mu\text{g/l}$	107%
Nickel	1,01	0,02	1,08	0,22	$\mu\text{g/l}$	107%
Mercury	0,399	0,013	0,361	0,072	$\mu\text{g/l}$	90%
Selenium	0,50	0,05	<1,00		$\mu\text{g/l}$	•
Uranium	0,399	0,005	<1,00		$\mu\text{g/l}$	•
Zinc	40,3	0,5	40,9	8,2	$\mu\text{g/l}$	101%



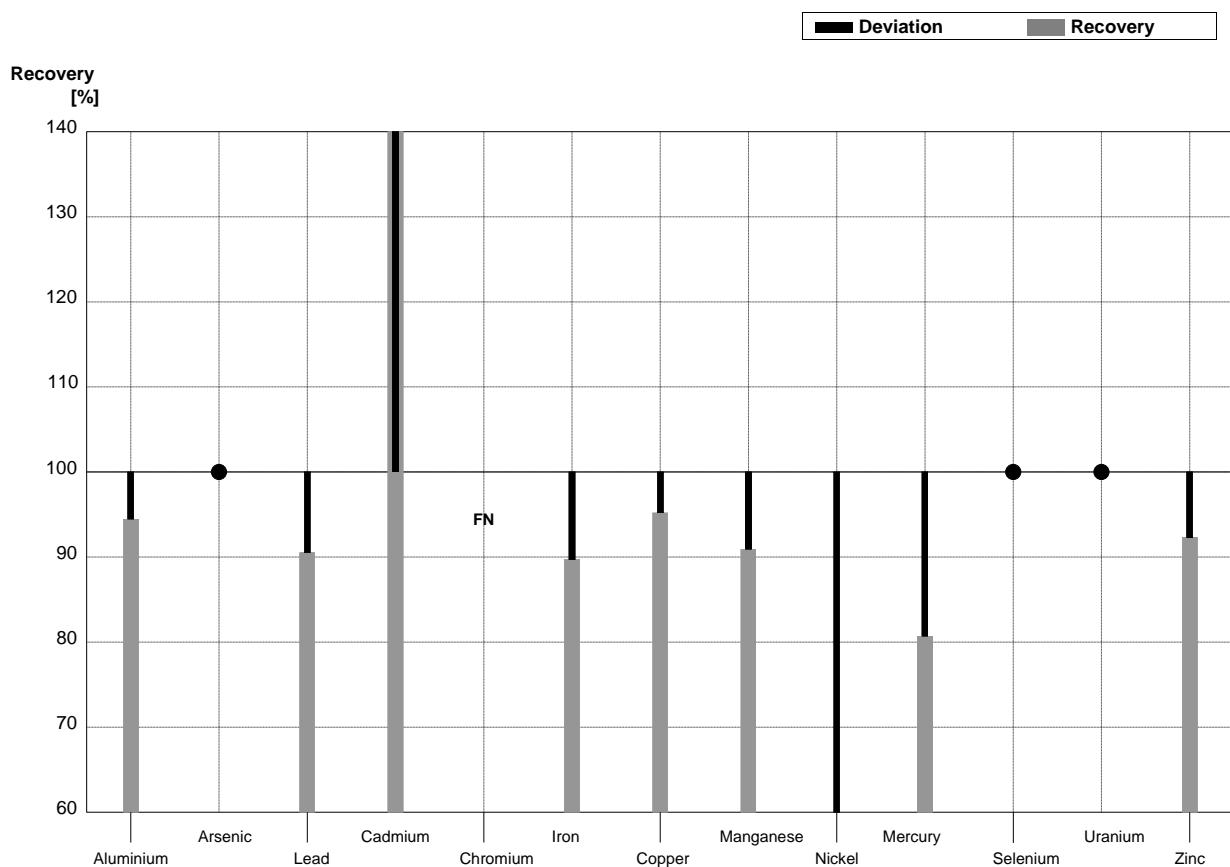
Sample M153B
Laboratory D

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	10,4	0,2	10,6	2,1	$\mu\text{g/l}$	102%
Arsenic	2,01	0,02	2,13	0,43	$\mu\text{g/l}$	106%
Lead	4,07	0,03	4,25	0,85	$\mu\text{g/l}$	104%
Cadmium	0,897	0,008	0,885	0,177	$\mu\text{g/l}$	99%
Chromium	3,49	0,03	3,75	0,75	$\mu\text{g/l}$	107%
Iron	36,0	0,2	35,2	7,0	$\mu\text{g/l}$	98%
Copper	2,96	0,03	2,70	0,54	$\mu\text{g/l}$	91%
Manganese	13,2	0,1	14,1	2,8	$\mu\text{g/l}$	107%
Nickel	3,75	0,03	4,02	0,80	$\mu\text{g/l}$	107%
Mercury	1,30	0,02	1,27	0,25	$\mu\text{g/l}$	98%
Selenium	2,39	0,06	2,43	0,49	$\mu\text{g/l}$	102%
Uranium	2,80	0,02	2,96	0,59	$\mu\text{g/l}$	106%
Zinc	14,9	0,5	15,0	3,0	$\mu\text{g/l}$	101%



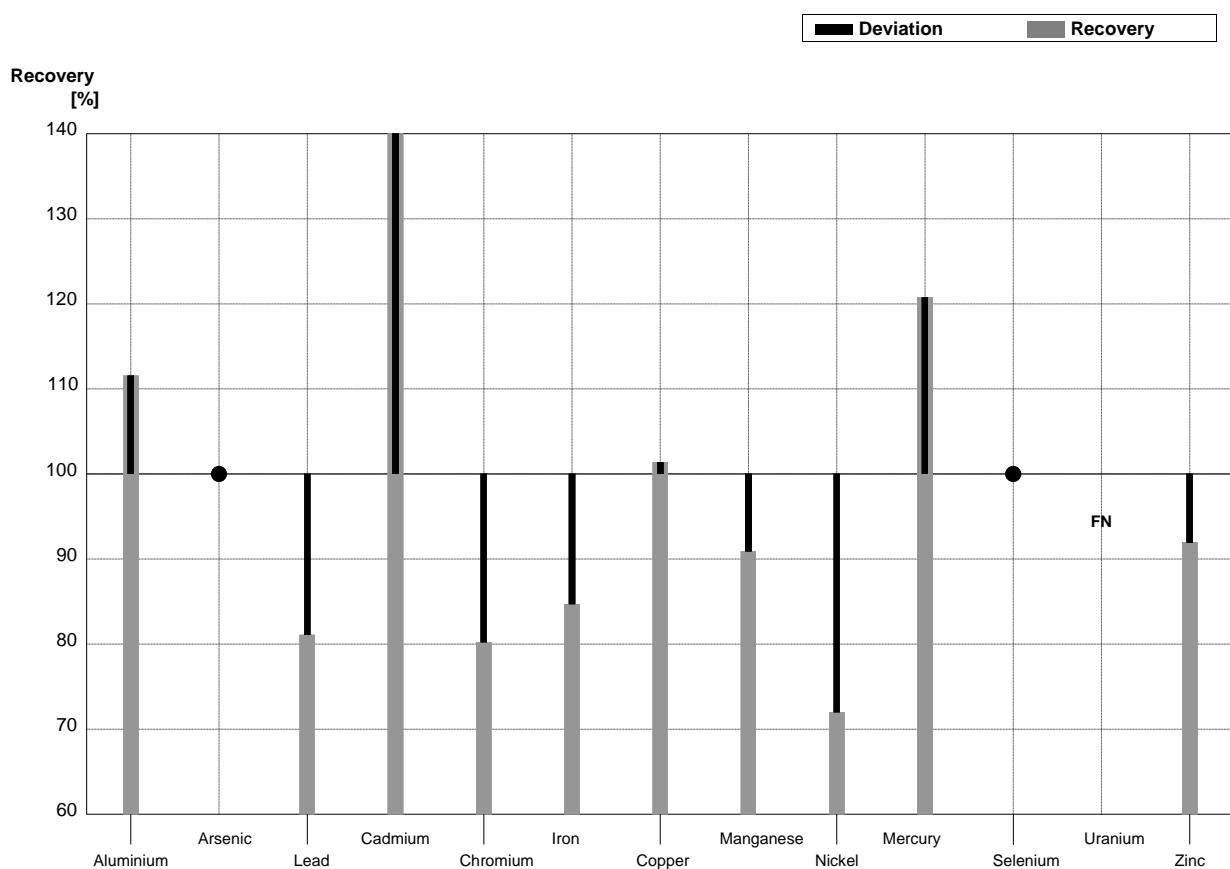
Sample M153A
Laboratory E

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	56,1	0,3	53	1	$\mu\text{g/l}$	94%
Arsenic	2,56	0,02	<3,8		$\mu\text{g/l}$	•
Lead	2,32	0,02	2,10	0,3	$\mu\text{g/l}$	91%
Cadmium	0,502	0,005	0,90	0,1	$\mu\text{g/l}$	179%
Chromium	0,397	0,014	<0,2		$\mu\text{g/l}$	FN
Iron	68,9	0,3	61,8	0,2	$\mu\text{g/l}$	90%
Copper	10,4	0,1	9,9	0,1	$\mu\text{g/l}$	95%
Manganese	43,0	0,3	39,1	0,3	$\mu\text{g/l}$	91%
Nickel	1,01	0,02	0,60	0,1	$\mu\text{g/l}$	59%
Mercury	0,399	0,013	0,322	0,096	$\mu\text{g/l}$	81%
Selenium	0,50	0,05	<4,2		$\mu\text{g/l}$	•
Uranium	0,399	0,005	<1,4		$\mu\text{g/l}$	•
Zinc	40,3	0,5	37,2	0,1	$\mu\text{g/l}$	92%



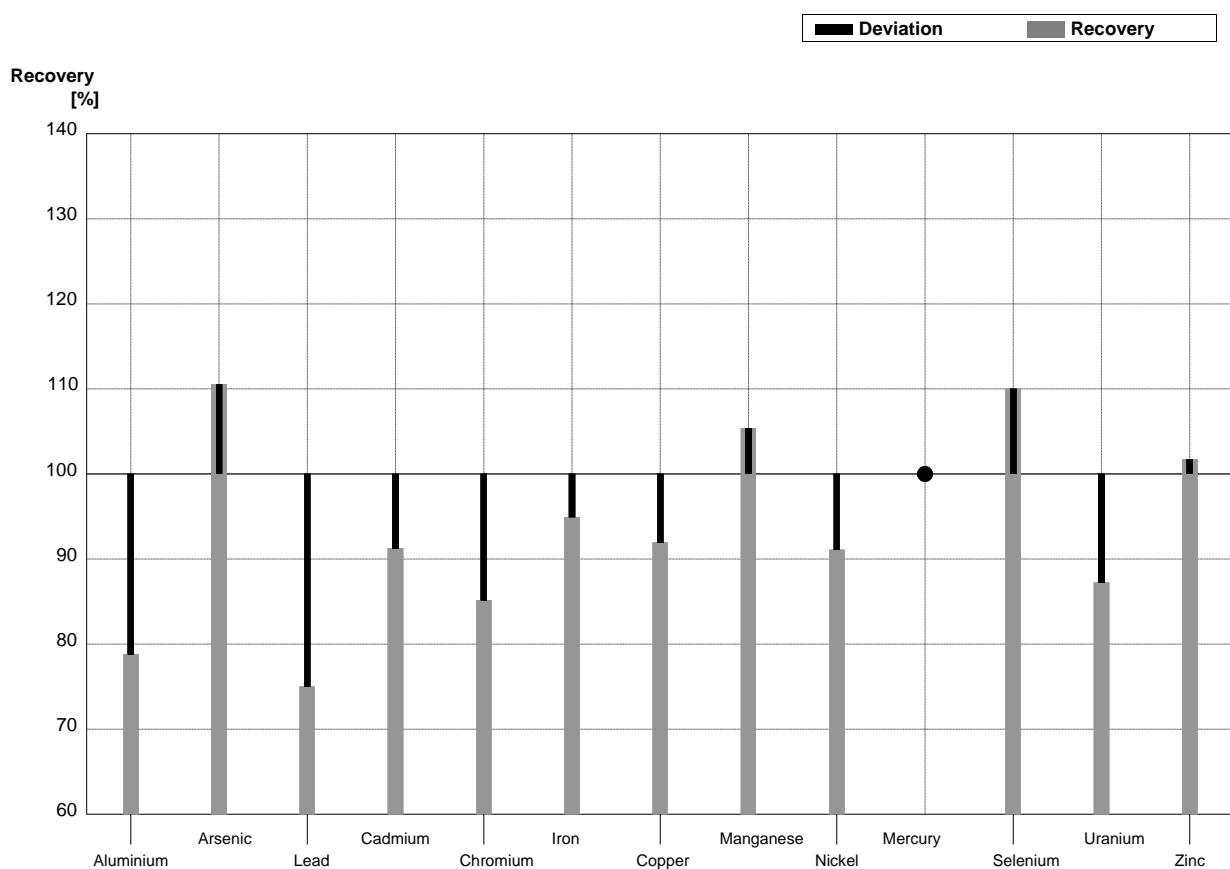
Sample M153B
Laboratory E

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	10,4	0,2	11,6	0,2	$\mu\text{g/l}$	112%
Arsenic	2,01	0,02	<3,8		$\mu\text{g/l}$	•
Lead	4,07	0,03	3,30	0,1	$\mu\text{g/l}$	81%
Cadmium	0,897	0,008	1,30	0,1	$\mu\text{g/l}$	145%
Chromium	3,49	0,03	2,80	0,1	$\mu\text{g/l}$	80%
Iron	36,0	0,2	30,5	0,2	$\mu\text{g/l}$	85%
Copper	2,96	0,03	3,00	0,2	$\mu\text{g/l}$	101%
Manganese	13,2	0,1	12,0	0,1	$\mu\text{g/l}$	91%
Nickel	3,75	0,03	2,70	0,1	$\mu\text{g/l}$	72%
Mercury	1,30	0,02	1,57	0,249	$\mu\text{g/l}$	121%
Selenium	2,39	0,06	<2,8		$\mu\text{g/l}$	•
Uranium	2,80	0,02	<1,7		$\mu\text{g/l}$	FN
Zinc	14,9	0,5	13,7	0,1	$\mu\text{g/l}$	92%



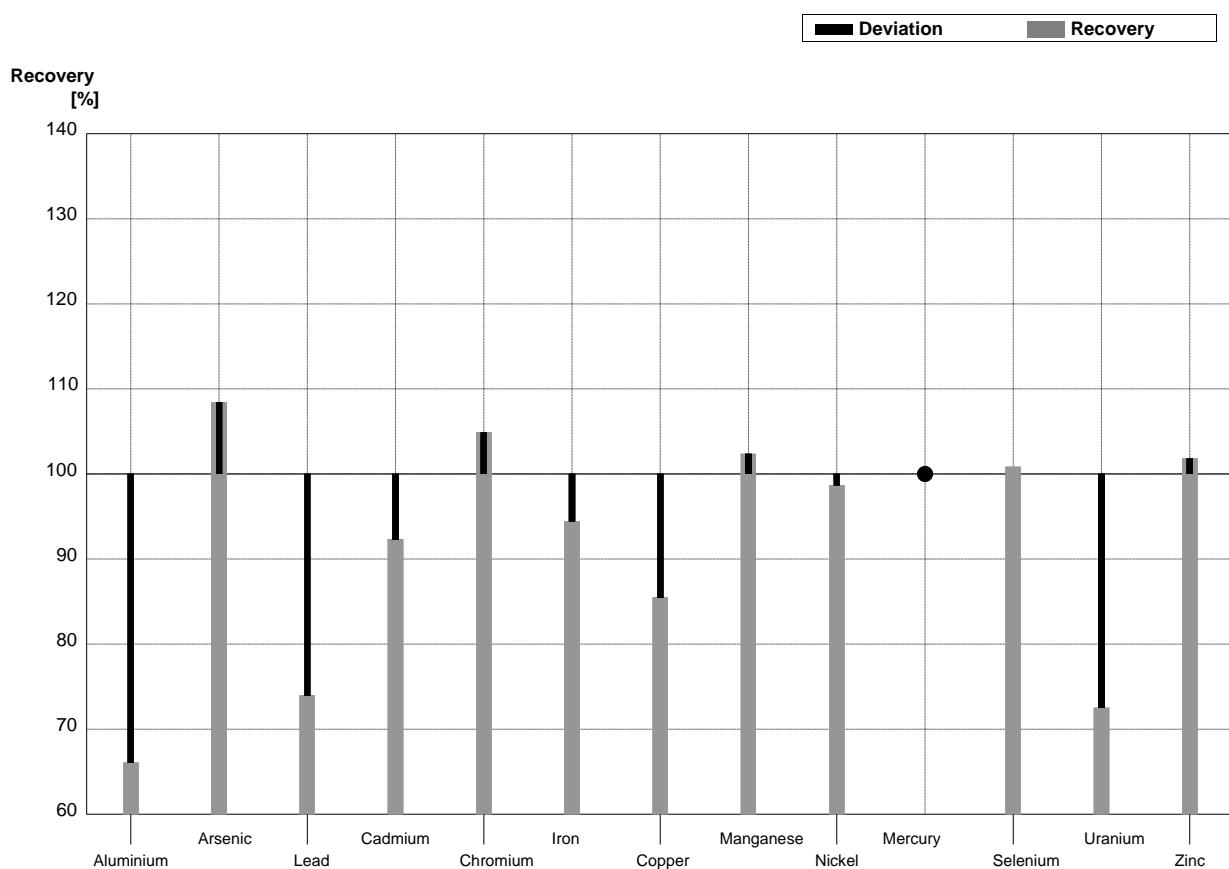
Sample M153A
Laboratory F

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	56,1	0,3	44,2	1,3	$\mu\text{g/l}$	79%
Arsenic	2,56	0,02	2,83	0,03	$\mu\text{g/l}$	111%
Lead	2,32	0,02	1,74	0,08	$\mu\text{g/l}$	75%
Cadmium	0,502	0,005	0,458	0,028	$\mu\text{g/l}$	91%
Chromium	0,397	0,014	0,338	0,011	$\mu\text{g/l}$	85%
Iron	68,9	0,3	65,4	1,5	$\mu\text{g/l}$	95%
Copper	10,4	0,1	9,56	0,09	$\mu\text{g/l}$	92%
Manganese	43,0	0,3	45,3	0,2	$\mu\text{g/l}$	105%
Nickel	1,01	0,02	0,92	0,02	$\mu\text{g/l}$	91%
Mercury	0,399	0,013	<5,0		$\mu\text{g/l}$	•
Selenium	0,50	0,05	0,55	0,01	$\mu\text{g/l}$	110%
Uranium	0,399	0,005	0,348	0,011	$\mu\text{g/l}$	87%
Zinc	40,3	0,5	41,0	0,5	$\mu\text{g/l}$	102%



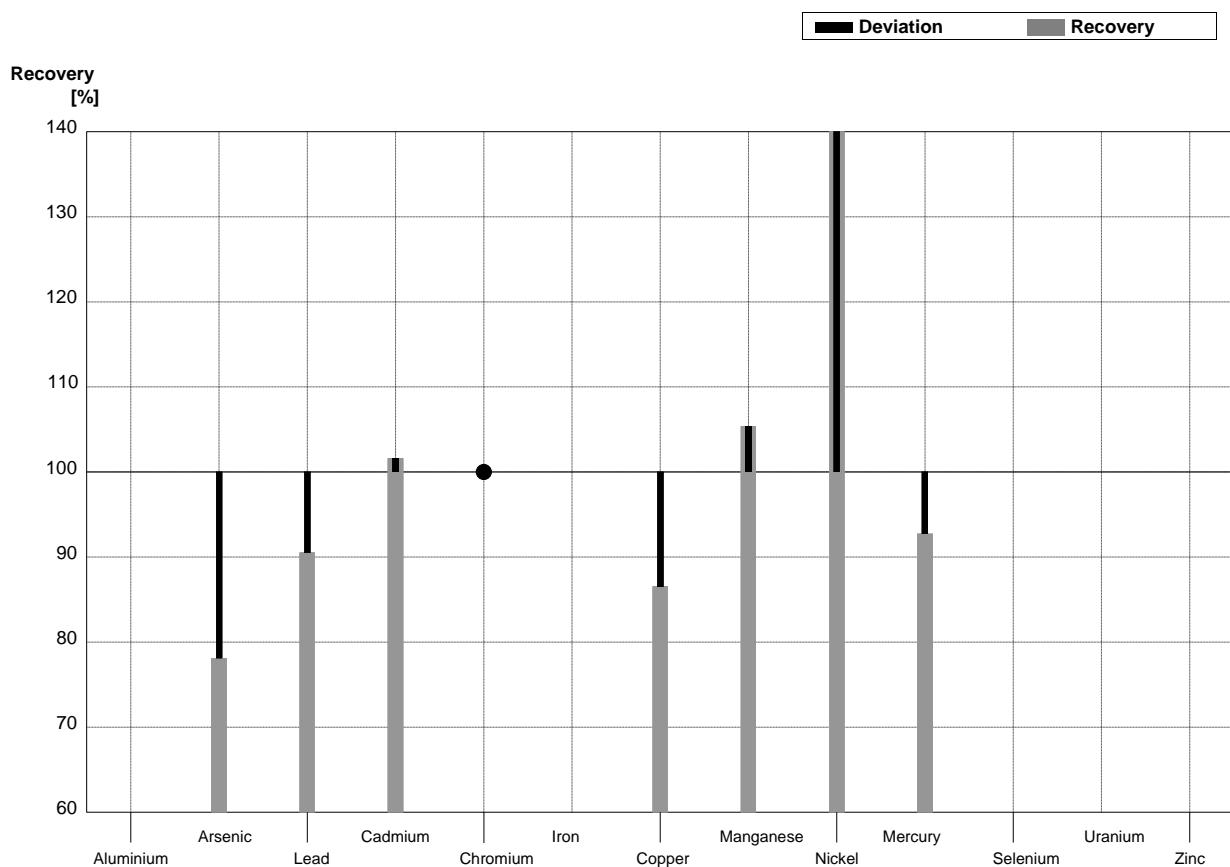
Sample M153B
Laboratory F

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	10,4	0,2	6,87	0,08	$\mu\text{g/l}$	66%
Arsenic	2,01	0,02	2,18	0,27	$\mu\text{g/l}$	108%
Lead	4,07	0,03	3,01	0,01	$\mu\text{g/l}$	74%
Cadmium	0,897	0,008	0,828	0,042	$\mu\text{g/l}$	92%
Chromium	3,49	0,03	3,66	0,07	$\mu\text{g/l}$	105%
Iron	36,0	0,2	34,0	0,3	$\mu\text{g/l}$	94%
Copper	2,96	0,03	2,53	0,04	$\mu\text{g/l}$	85%
Manganese	13,2	0,1	13,51	0,07	$\mu\text{g/l}$	102%
Nickel	3,75	0,03	3,70	0,02	$\mu\text{g/l}$	99%
Mercury	1,30	0,02	<5,0		$\mu\text{g/l}$	•
Selenium	2,39	0,06	2,41	0,08	$\mu\text{g/l}$	101%
Uranium	2,80	0,02	2,03	0,01	$\mu\text{g/l}$	73%
Zinc	14,9	0,5	15,17	0,03	$\mu\text{g/l}$	102%



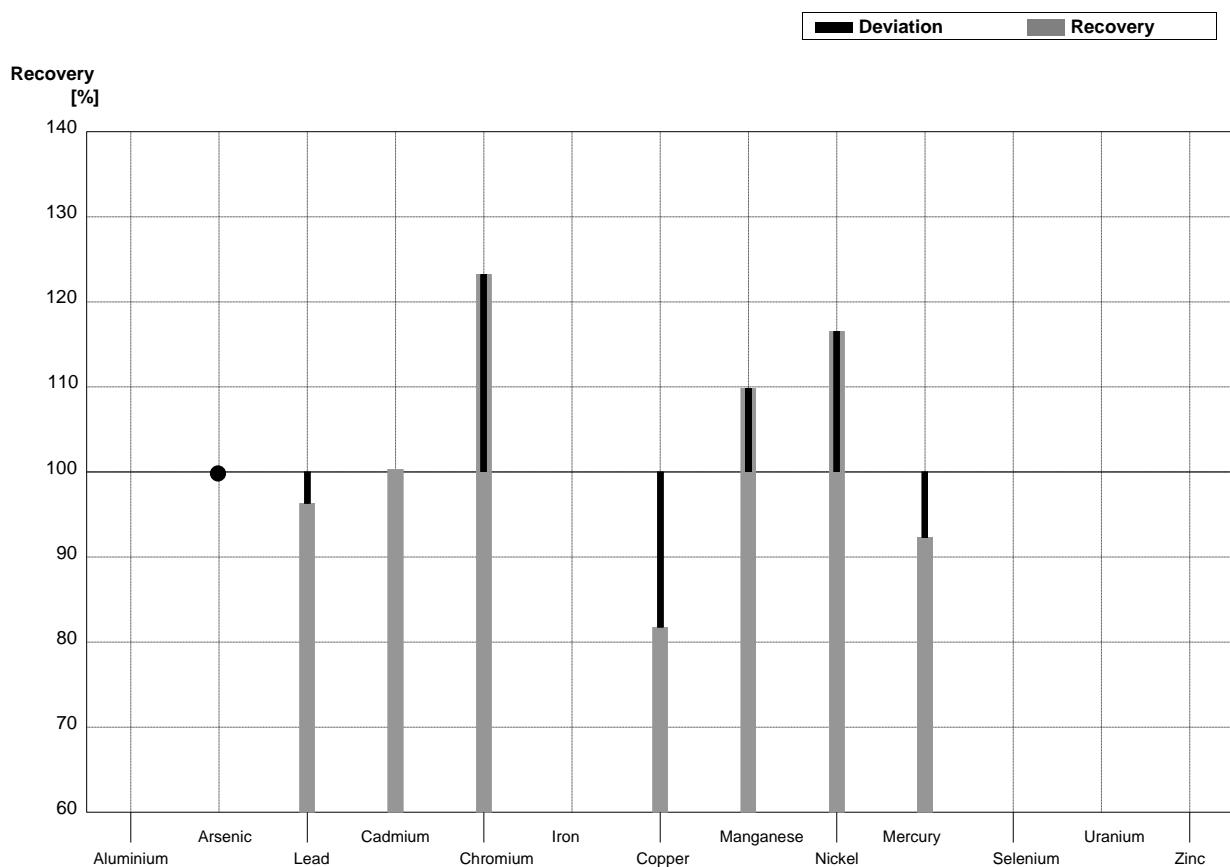
Sample M153A
Laboratory G

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	56,1	0,3			$\mu\text{g/l}$	
Arsenic	2,56	0,02	2,00	0,34	$\mu\text{g/l}$	78%
Lead	2,32	0,02	2,10	0,32	$\mu\text{g/l}$	91%
Cadmium	0,502	0,005	0,51	0,056	$\mu\text{g/l}$	102%
Chromium	0,397	0,014	<0,50		$\mu\text{g/l}$	•
Iron	68,9	0,3			$\mu\text{g/l}$	
Copper	10,4	0,1	9,00	1,64	$\mu\text{g/l}$	87%
Manganese	43,0	0,3	45,3	8,67	$\mu\text{g/l}$	105%
Nickel	1,01	0,02	2,03	0,33	$\mu\text{g/l}$	201%
Mercury	0,399	0,013	0,370	0,024	$\mu\text{g/l}$	93%
Selenium	0,50	0,05			$\mu\text{g/l}$	
Uranium	0,399	0,005			$\mu\text{g/l}$	
Zinc	40,3	0,5			$\mu\text{g/l}$	



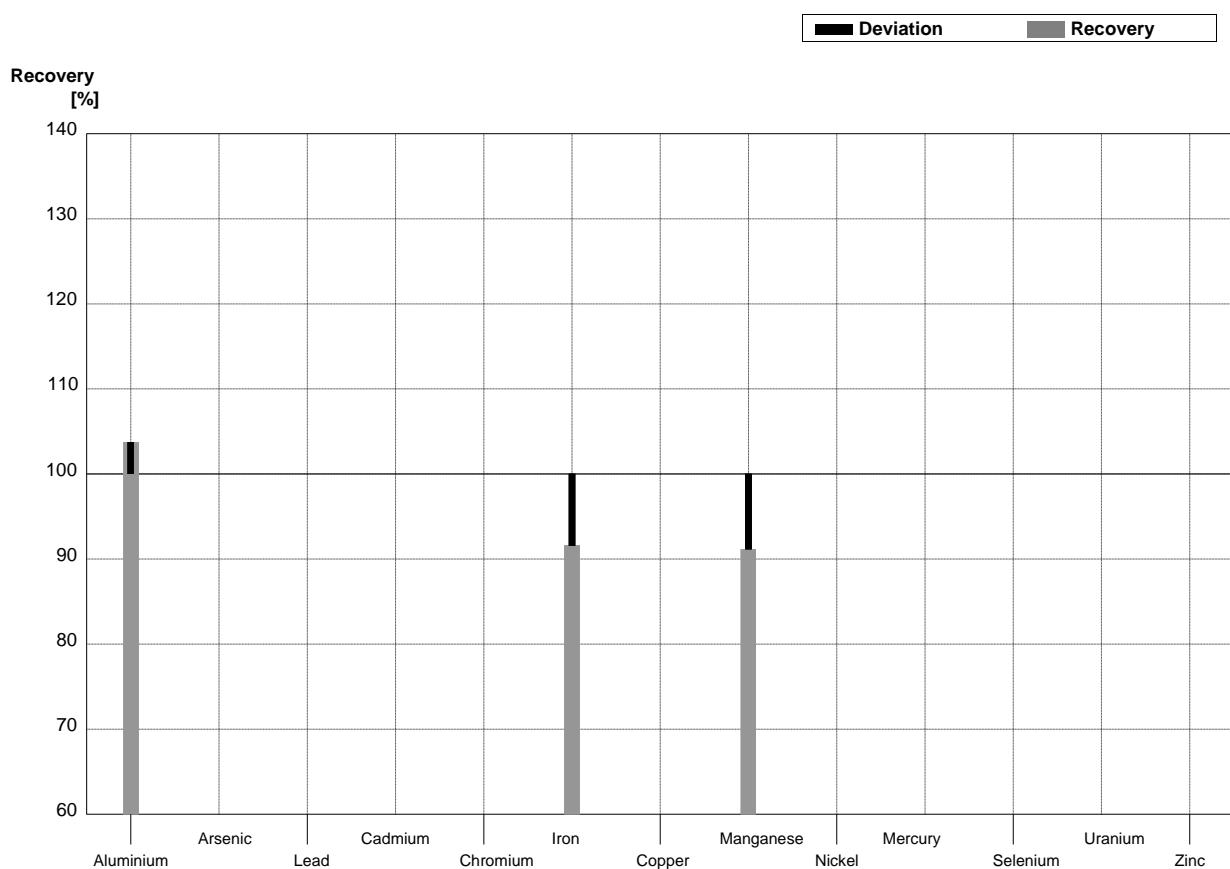
Sample M153B
Laboratory G

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	10,4	0,2			$\mu\text{g/l}$	
Arsenic	2,01	0,02	<2,0		$\mu\text{g/l}$	•
Lead	4,07	0,03	3,92	0,60	$\mu\text{g/l}$	96%
Cadmium	0,897	0,008	0,90	0,098	$\mu\text{g/l}$	100%
Chromium	3,49	0,03	4,30	0,84	$\mu\text{g/l}$	123%
Iron	36,0	0,2			$\mu\text{g/l}$	
Copper	2,96	0,03	2,42	0,45	$\mu\text{g/l}$	82%
Manganese	13,2	0,1	14,5	2,78	$\mu\text{g/l}$	110%
Nickel	3,75	0,03	4,37	0,68	$\mu\text{g/l}$	117%
Mercury	1,30	0,02	1,20	0,10	$\mu\text{g/l}$	92%
Selenium	2,39	0,06			$\mu\text{g/l}$	
Uranium	2,80	0,02			$\mu\text{g/l}$	
Zinc	14,9	0,5			$\mu\text{g/l}$	



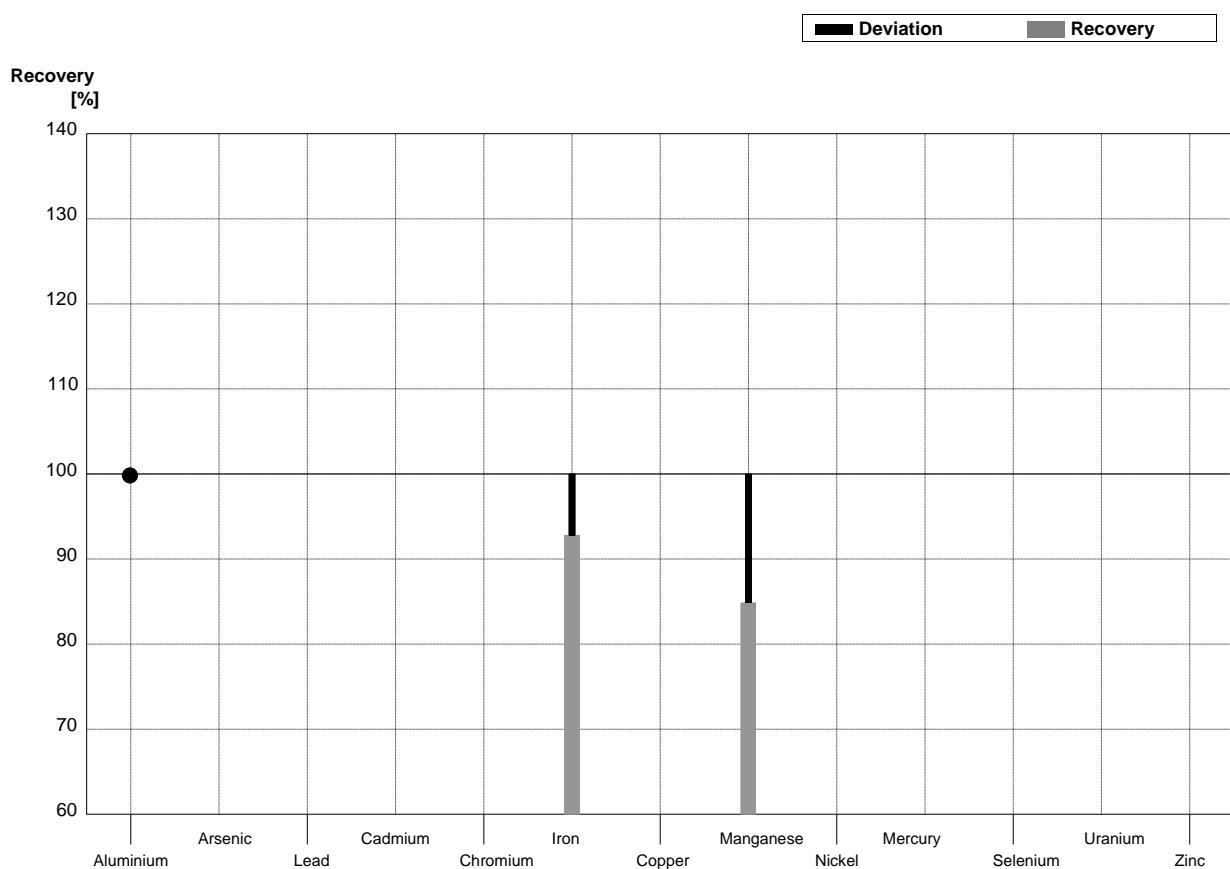
Sample M153A
Laboratory H

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	56,1	0,3	58,2	14,6	$\mu\text{g/l}$	104%
Arsenic	2,56	0,02			$\mu\text{g/l}$	
Lead	2,32	0,02			$\mu\text{g/l}$	
Cadmium	0,502	0,005			$\mu\text{g/l}$	
Chromium	0,397	0,014			$\mu\text{g/l}$	
Iron	68,9	0,3	63,1	7,6	$\mu\text{g/l}$	92%
Copper	10,4	0,1			$\mu\text{g/l}$	
Manganese	43,0	0,3	39,2	6,3	$\mu\text{g/l}$	91%
Nickel	1,01	0,02			$\mu\text{g/l}$	
Mercury	0,399	0,013			$\mu\text{g/l}$	
Selenium	0,50	0,05			$\mu\text{g/l}$	
Uranium	0,399	0,005			$\mu\text{g/l}$	
Zinc	40,3	0,5			$\mu\text{g/l}$	



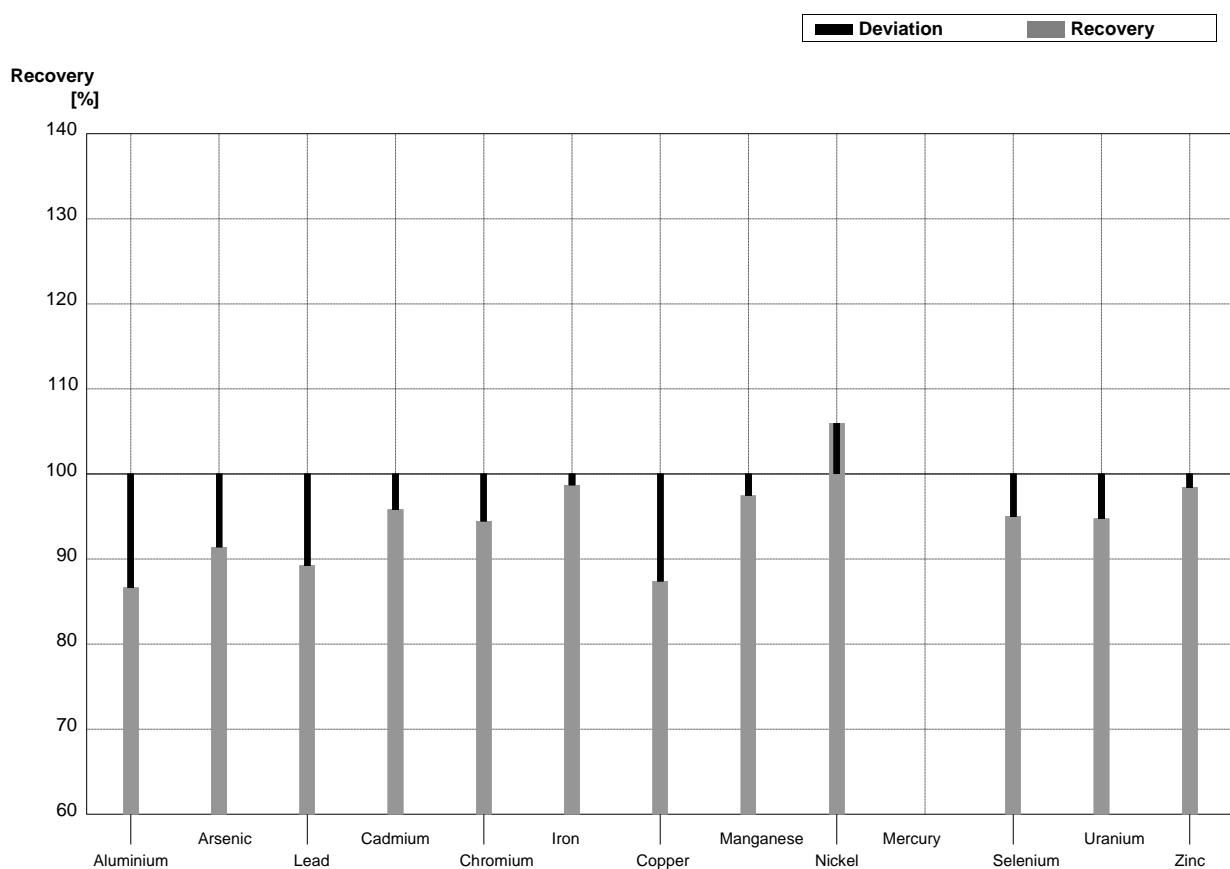
Sample M153B
Laboratory H

Parameter	Target value	\pm U ($k=2$)	Result	\pm	Unit	Recovery
Aluminium	10,4	0,2	<10	2,5	$\mu\text{g/l}$	•
Arsenic	2,01	0,02			$\mu\text{g/l}$	
Lead	4,07	0,03			$\mu\text{g/l}$	
Cadmium	0,897	0,008			$\mu\text{g/l}$	
Chromium	3,49	0,03			$\mu\text{g/l}$	
Iron	36,0	0,2	33,4	4,0	$\mu\text{g/l}$	93%
Copper	2,96	0,03			$\mu\text{g/l}$	
Manganese	13,2	0,1	11,2	1,8	$\mu\text{g/l}$	85%
Nickel	3,75	0,03			$\mu\text{g/l}$	
Mercury	1,30	0,02			$\mu\text{g/l}$	
Selenium	2,39	0,06			$\mu\text{g/l}$	
Uranium	2,80	0,02			$\mu\text{g/l}$	
Zinc	14,9	0,5			$\mu\text{g/l}$	



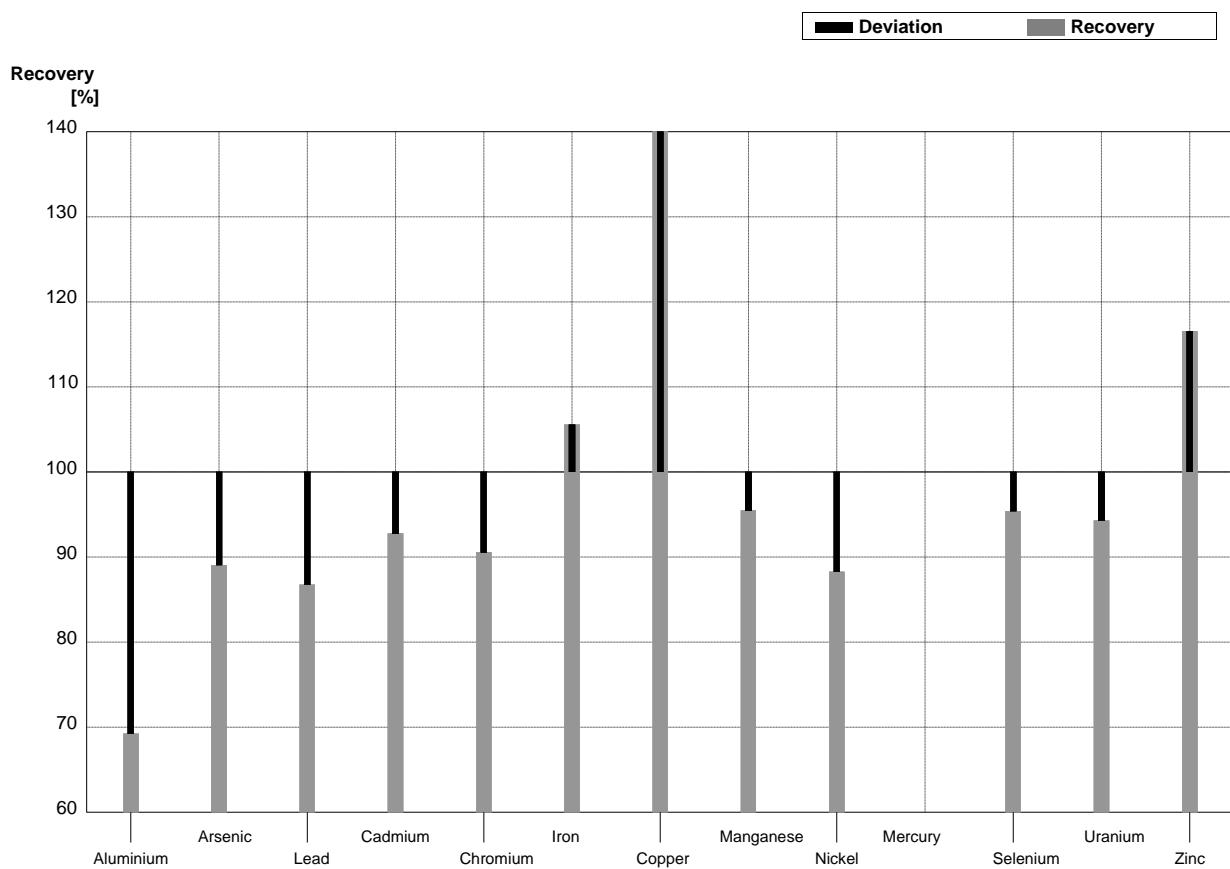
Sample M153A
Laboratory I

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	56,1	0,3	48,6	9,7	$\mu\text{g/l}$	87%
Arsenic	2,56	0,02	2,34	0,59	$\mu\text{g/l}$	91%
Lead	2,32	0,02	2,07	0,41	$\mu\text{g/l}$	89%
Cadmium	0,502	0,005	0,481	0,096	$\mu\text{g/l}$	96%
Chromium	0,397	0,014	0,375	0,094	$\mu\text{g/l}$	94%
Iron	68,9	0,3	68	17	$\mu\text{g/l}$	99%
Copper	10,4	0,1	9,09	1,82	$\mu\text{g/l}$	87%
Manganese	43,0	0,3	41,9	10,5	$\mu\text{g/l}$	97%
Nickel	1,01	0,02	1,07	0,214	$\mu\text{g/l}$	106%
Mercury	0,399	0,013			$\mu\text{g/l}$	
Selenium	0,50	0,05	0,475	0,143	$\mu\text{g/l}$	95%
Uranium	0,399	0,005	0,378	0,095	$\mu\text{g/l}$	95%
Zinc	40,3	0,5	39,66	7,93	$\mu\text{g/l}$	98%



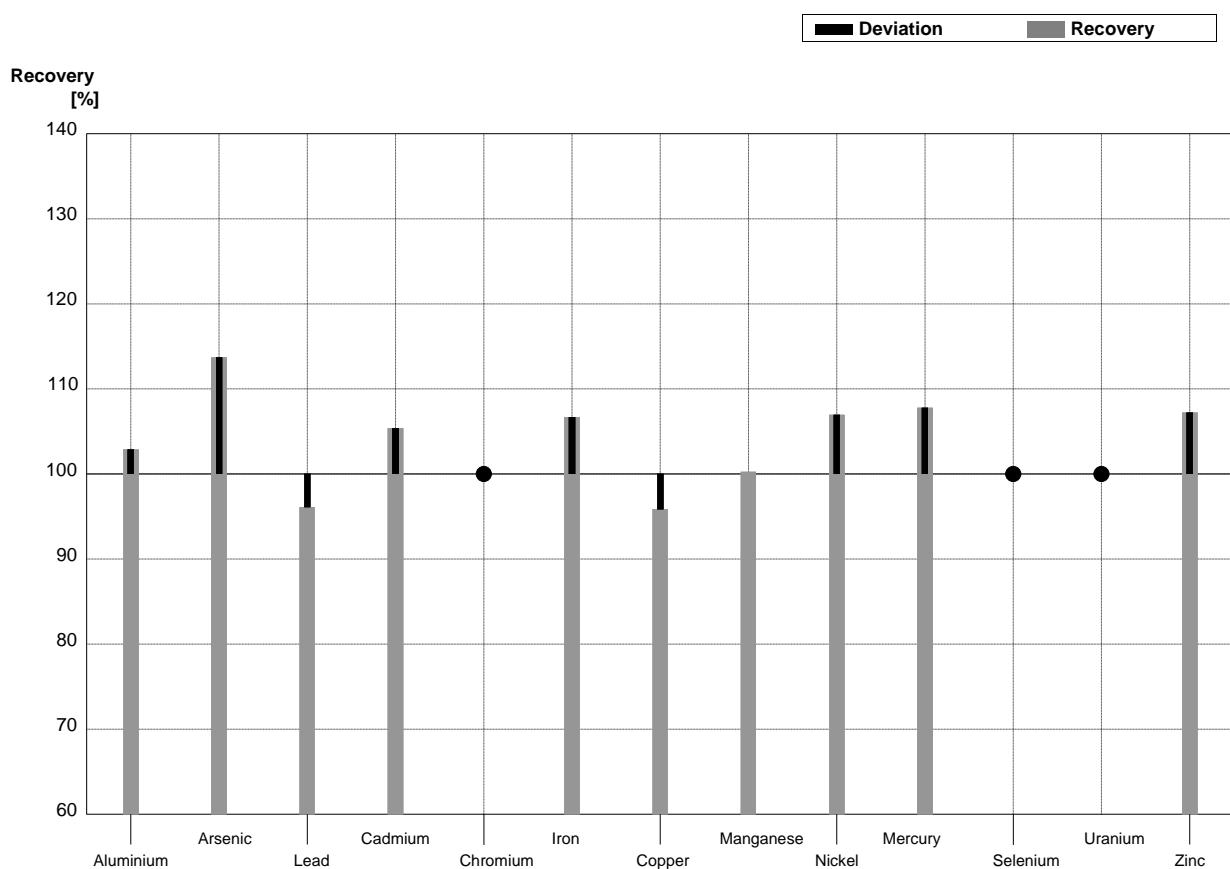
Sample M153B
Laboratory I

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	10,4	0,2	7,2	1,4	$\mu\text{g/l}$	69%
Arsenic	2,01	0,02	1,79	0,45	$\mu\text{g/l}$	89%
Lead	4,07	0,03	3,53	0,71	$\mu\text{g/l}$	87%
Cadmium	0,897	0,008	0,832	0,166	$\mu\text{g/l}$	93%
Chromium	3,49	0,03	3,16	0,79	$\mu\text{g/l}$	91%
Iron	36,0	0,2	38,0	9,5	$\mu\text{g/l}$	106%
Copper	2,96	0,03	4,66	0,93	$\mu\text{g/l}$	157%
Manganese	13,2	0,1	12,6	3,15	$\mu\text{g/l}$	95%
Nickel	3,75	0,03	3,31	0,66	$\mu\text{g/l}$	88%
Mercury	1,30	0,02			$\mu\text{g/l}$	
Selenium	2,39	0,06	2,28	0,68	$\mu\text{g/l}$	95%
Uranium	2,80	0,02	2,64	0,66	$\mu\text{g/l}$	94%
Zinc	14,9	0,5	17,36	3,47	$\mu\text{g/l}$	117%



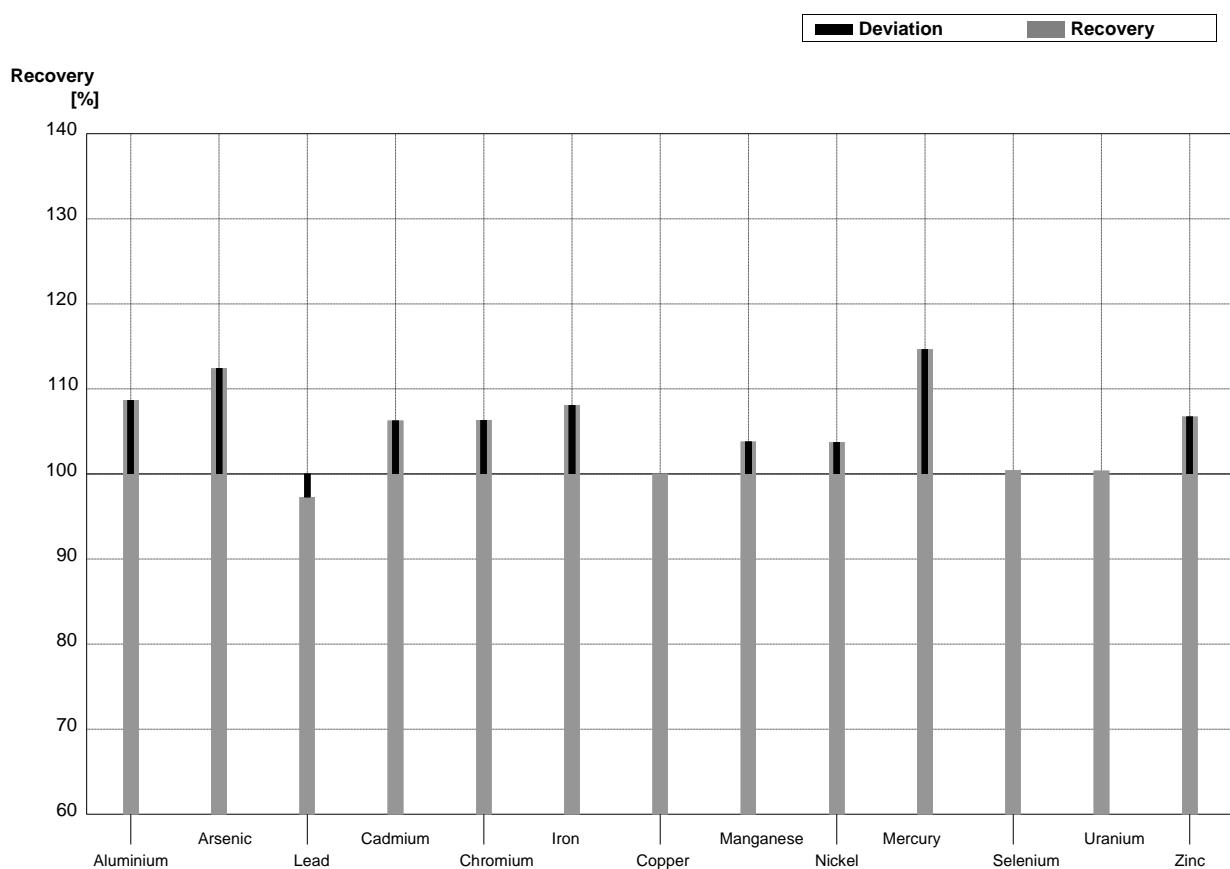
Sample M153A
Laboratory J

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	56,1	0,3	57,7	8,65	$\mu\text{g/l}$	103%
Arsenic	2,56	0,02	2,91	0,44	$\mu\text{g/l}$	114%
Lead	2,32	0,02	2,23	0,34	$\mu\text{g/l}$	96%
Cadmium	0,502	0,005	0,529	0,079	$\mu\text{g/l}$	105%
Chromium	0,397	0,014	<1		$\mu\text{g/l}$	•
Iron	68,9	0,3	73,5	11,0	$\mu\text{g/l}$	107%
Copper	10,4	0,1	9,97	1,50	$\mu\text{g/l}$	96%
Manganese	43,0	0,3	43,1	6,46	$\mu\text{g/l}$	100%
Nickel	1,01	0,02	1,08	0,16	$\mu\text{g/l}$	107%
Mercury	0,399	0,013	0,430	0,064	$\mu\text{g/l}$	108%
Selenium	0,50	0,05	<1		$\mu\text{g/l}$	•
Uranium	0,399	0,005	<1		$\mu\text{g/l}$	•
Zinc	40,3	0,5	43,2	6,49	$\mu\text{g/l}$	107%



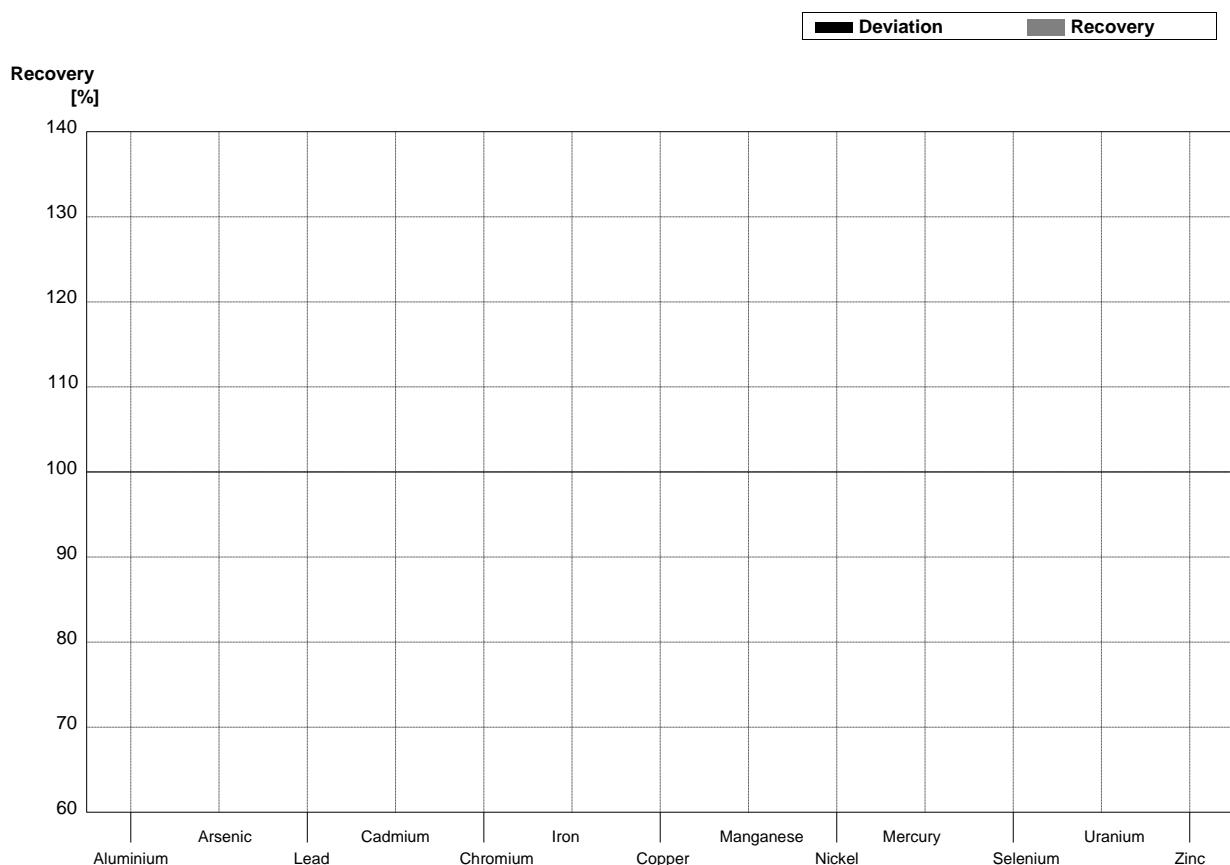
Sample M153B
Laboratory J

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	10,4	0,2	11,3	1,69	$\mu\text{g/l}$	109%
Arsenic	2,01	0,02	2,26	0,34	$\mu\text{g/l}$	112%
Lead	4,07	0,03	3,96	0,59	$\mu\text{g/l}$	97%
Cadmium	0,897	0,008	0,953	0,143	$\mu\text{g/l}$	106%
Chromium	3,49	0,03	3,71	0,56	$\mu\text{g/l}$	106%
Iron	36,0	0,2	38,9	5,83	$\mu\text{g/l}$	108%
Copper	2,96	0,03	2,96	0,44	$\mu\text{g/l}$	100%
Manganese	13,2	0,1	13,7	2,05	$\mu\text{g/l}$	104%
Nickel	3,75	0,03	3,89	0,58	$\mu\text{g/l}$	104%
Mercury	1,30	0,02	1,49	0,22	$\mu\text{g/l}$	115%
Selenium	2,39	0,06	2,40	0,36	$\mu\text{g/l}$	100%
Uranium	2,80	0,02	2,81	0,42	$\mu\text{g/l}$	100%
Zinc	14,9	0,5	15,9	2,38	$\mu\text{g/l}$	107%



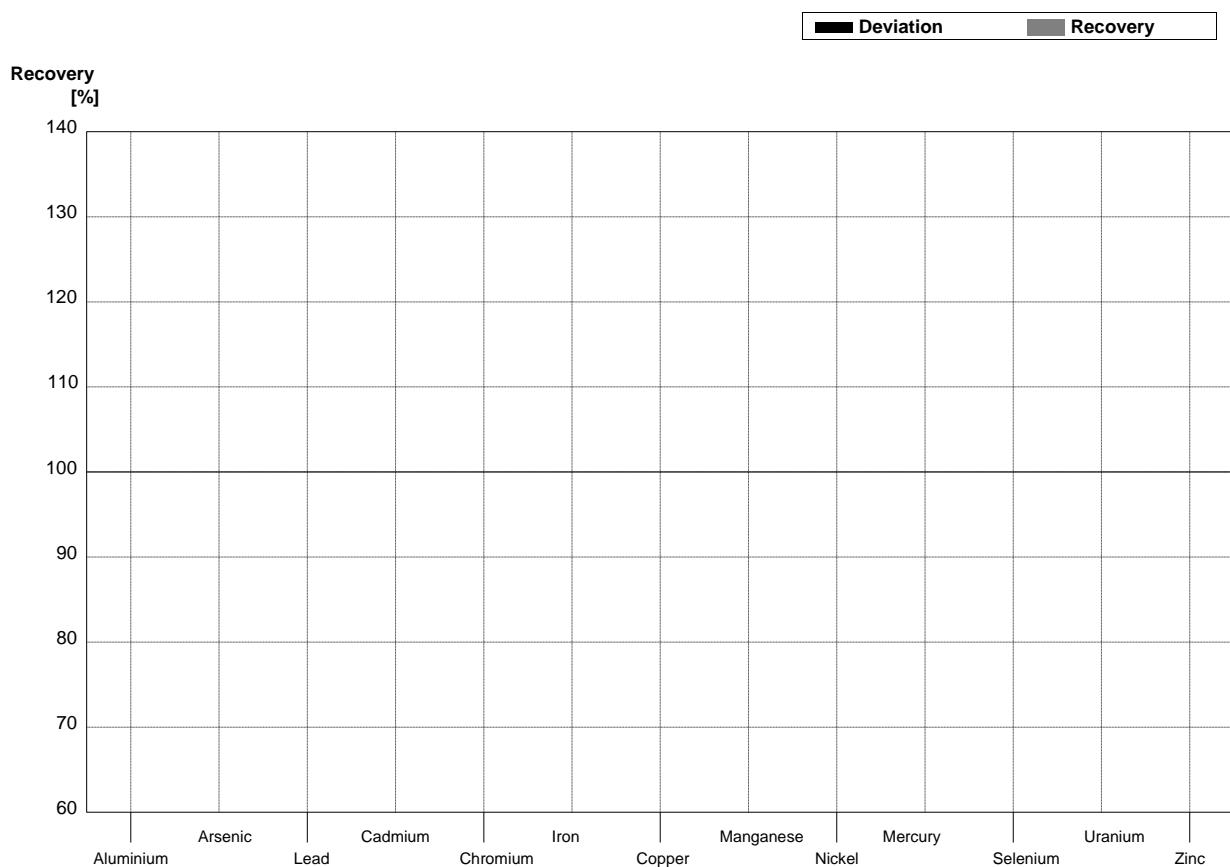
Sample M153A
Laboratory K

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	56,1	0,3			µg/l	
Arsenic	2,56	0,02			µg/l	
Lead	2,32	0,02			µg/l	
Cadmium	0,502	0,005			µg/l	
Chromium	0,397	0,014			µg/l	
Iron	68,9	0,3			µg/l	
Copper	10,4	0,1			µg/l	
Manganese	43,0	0,3			µg/l	
Nickel	1,01	0,02			µg/l	
Mercury	0,399	0,013			µg/l	
Selenium	0,50	0,05			µg/l	
Uranium	0,399	0,005			µg/l	
Zinc	40,3	0,5			µg/l	



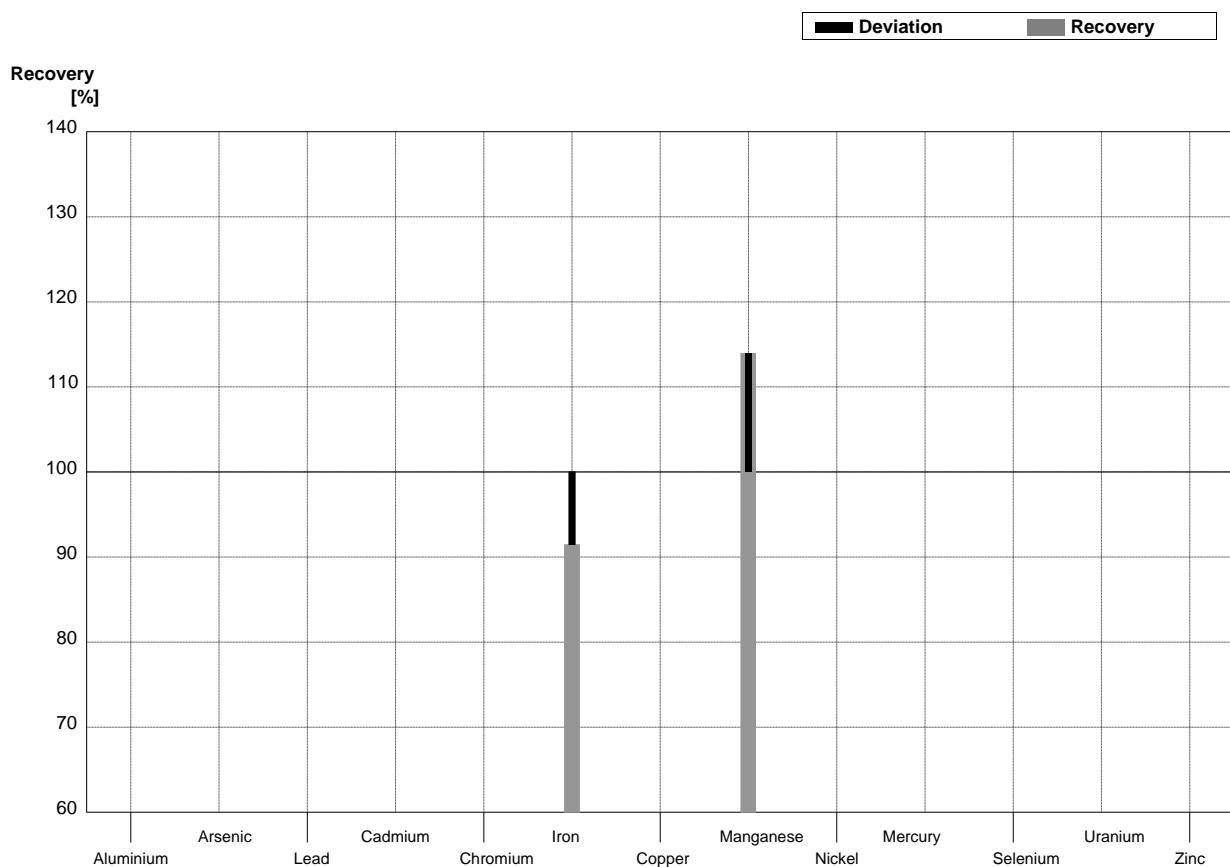
Sample M153B
Laboratory K

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	10,4	0,2			µg/l	
Arsenic	2,01	0,02			µg/l	
Lead	4,07	0,03			µg/l	
Cadmium	0,897	0,008			µg/l	
Chromium	3,49	0,03			µg/l	
Iron	36,0	0,2			µg/l	
Copper	2,96	0,03			µg/l	
Manganese	13,2	0,1			µg/l	
Nickel	3,75	0,03			µg/l	
Mercury	1,30	0,02			µg/l	
Selenium	2,39	0,06			µg/l	
Uranium	2,80	0,02			µg/l	
Zinc	14,9	0,5			µg/l	



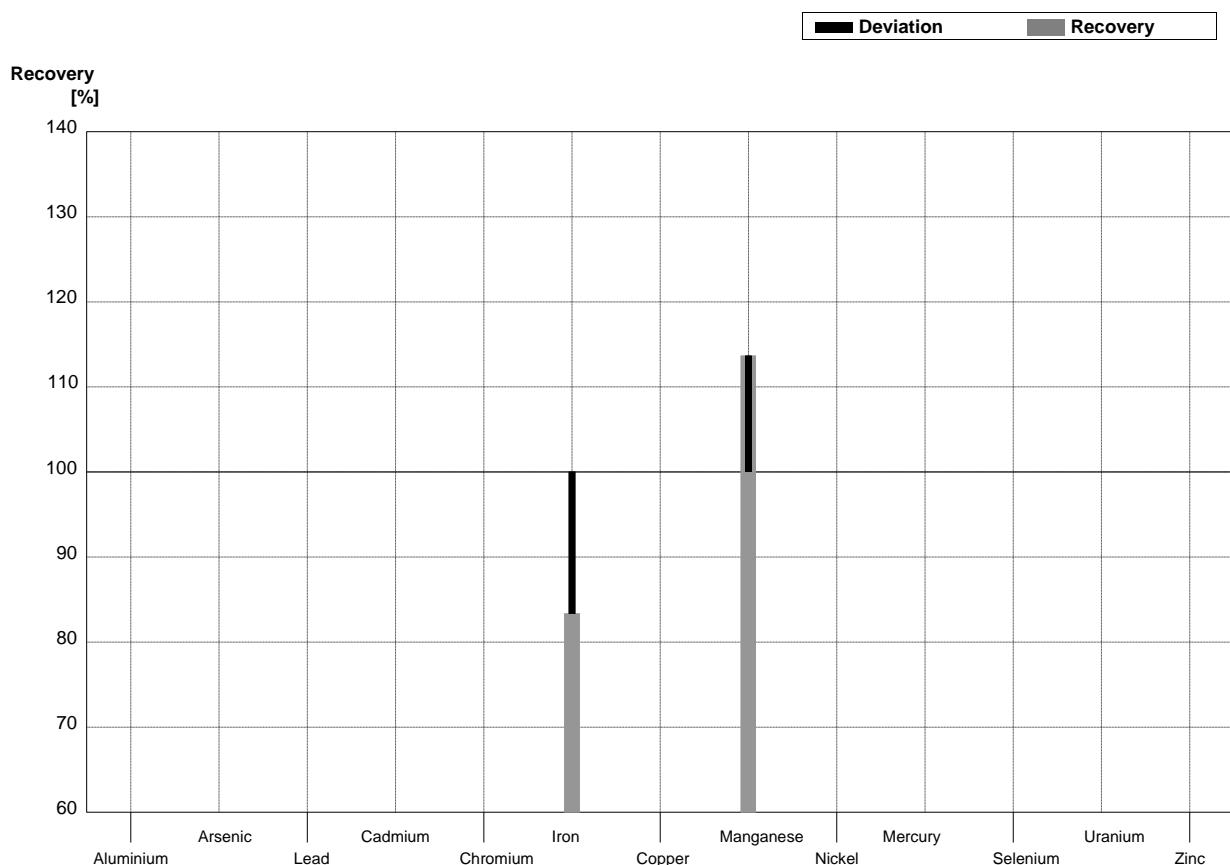
Sample M153A
Laboratory L

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	56,1	0,3			µg/l	
Arsenic	2,56	0,02			µg/l	
Lead	2,32	0,02			µg/l	
Cadmium	0,502	0,005			µg/l	
Chromium	0,397	0,014			µg/l	
Iron	68,9	0,3	63,0	13,0	µg/l	91%
Copper	10,4	0,1			µg/l	
Manganese	43,0	0,3	49,0	11,0	µg/l	114%
Nickel	1,01	0,02			µg/l	
Mercury	0,399	0,013			µg/l	
Selenium	0,50	0,05			µg/l	
Uranium	0,399	0,005			µg/l	
Zinc	40,3	0,5			µg/l	



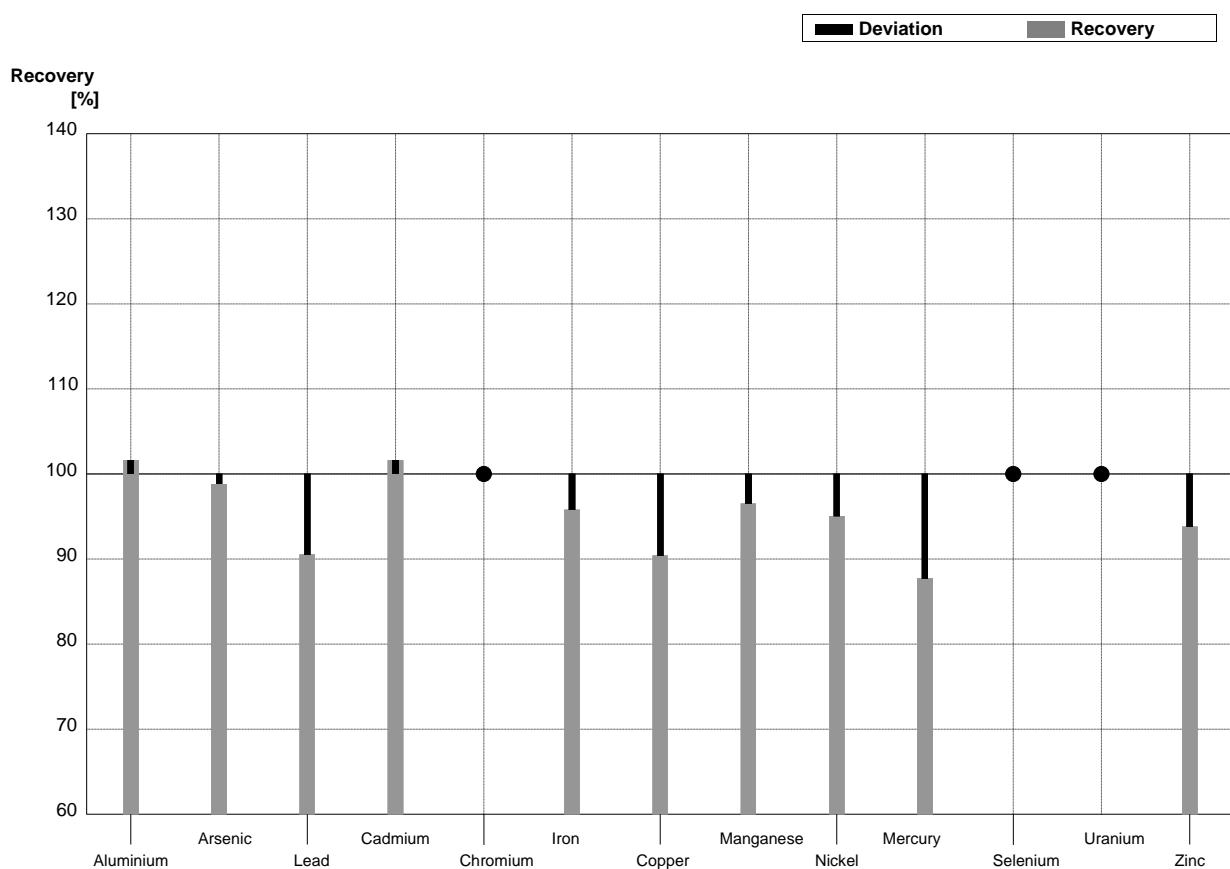
Sample M153B
Laboratory L

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	10,4	0,2			µg/l	
Arsenic	2,01	0,02			µg/l	
Lead	4,07	0,03			µg/l	
Cadmium	0,897	0,008			µg/l	
Chromium	3,49	0,03			µg/l	
Iron	36,0	0,2	30,0	6,30	µg/l	83%
Copper	2,96	0,03			µg/l	
Manganese	13,2	0,1	15,0	3,30	µg/l	114%
Nickel	3,75	0,03			µg/l	
Mercury	1,30	0,02			µg/l	
Selenium	2,39	0,06			µg/l	
Uranium	2,80	0,02			µg/l	
Zinc	14,9	0,5			µg/l	



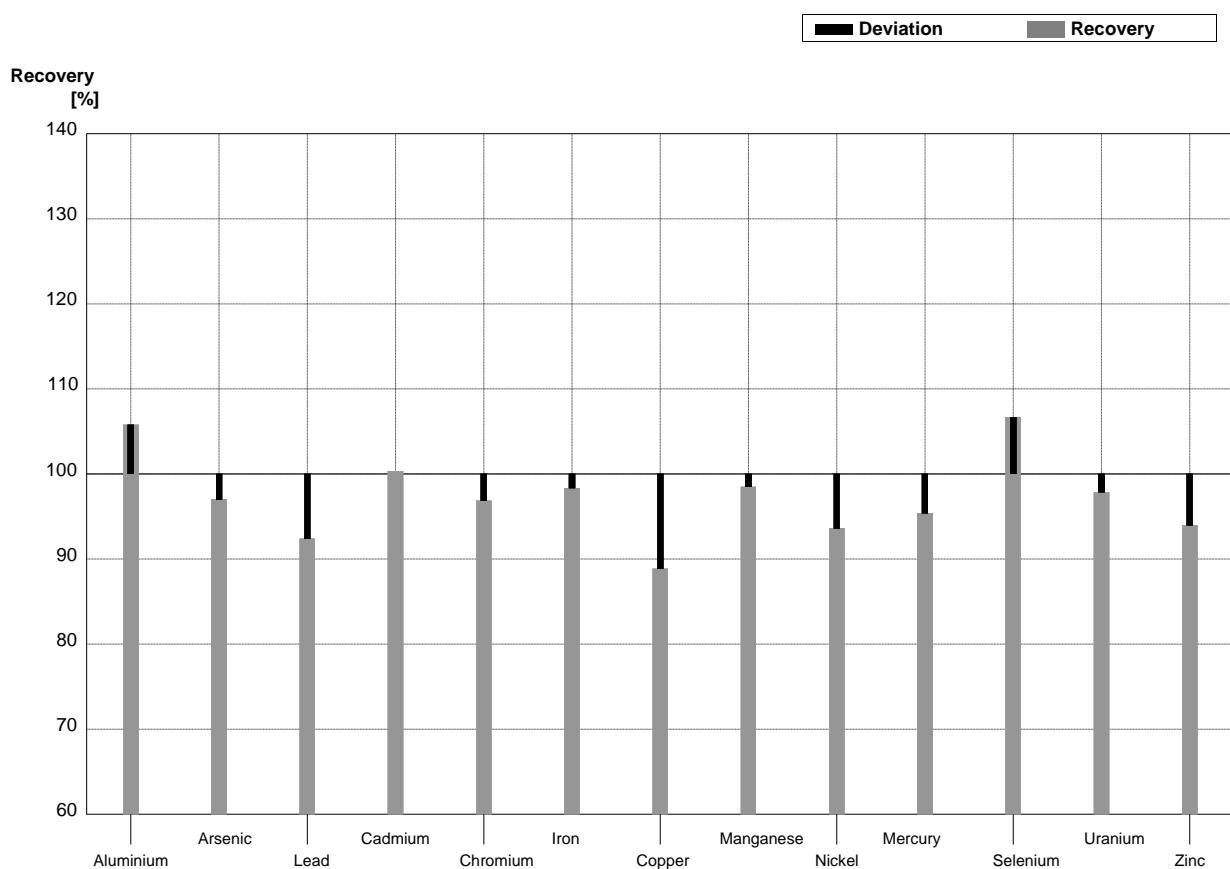
Sample M153A
Laboratory M

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	56,1	0,3	57	5,7	$\mu\text{g/l}$	102%
Arsenic	2,56	0,02	2,53	0,380	$\mu\text{g/l}$	99%
Lead	2,32	0,02	2,10	0,21	$\mu\text{g/l}$	91%
Cadmium	0,502	0,005	0,51	0,051	$\mu\text{g/l}$	102%
Chromium	0,397	0,014	<1,0		$\mu\text{g/l}$	•
Iron	68,9	0,3	66	6,6	$\mu\text{g/l}$	96%
Copper	10,4	0,1	9,4	0,94	$\mu\text{g/l}$	90%
Manganese	43,0	0,3	41,5	4,15	$\mu\text{g/l}$	97%
Nickel	1,01	0,02	0,96	0,096	$\mu\text{g/l}$	95%
Mercury	0,399	0,013	0,350	0,0350	$\mu\text{g/l}$	88%
Selenium	0,50	0,05	<1,0		$\mu\text{g/l}$	•
Uranium	0,399	0,005	<1,0		$\mu\text{g/l}$	•
Zinc	40,3	0,5	37,8	3,78	$\mu\text{g/l}$	94%



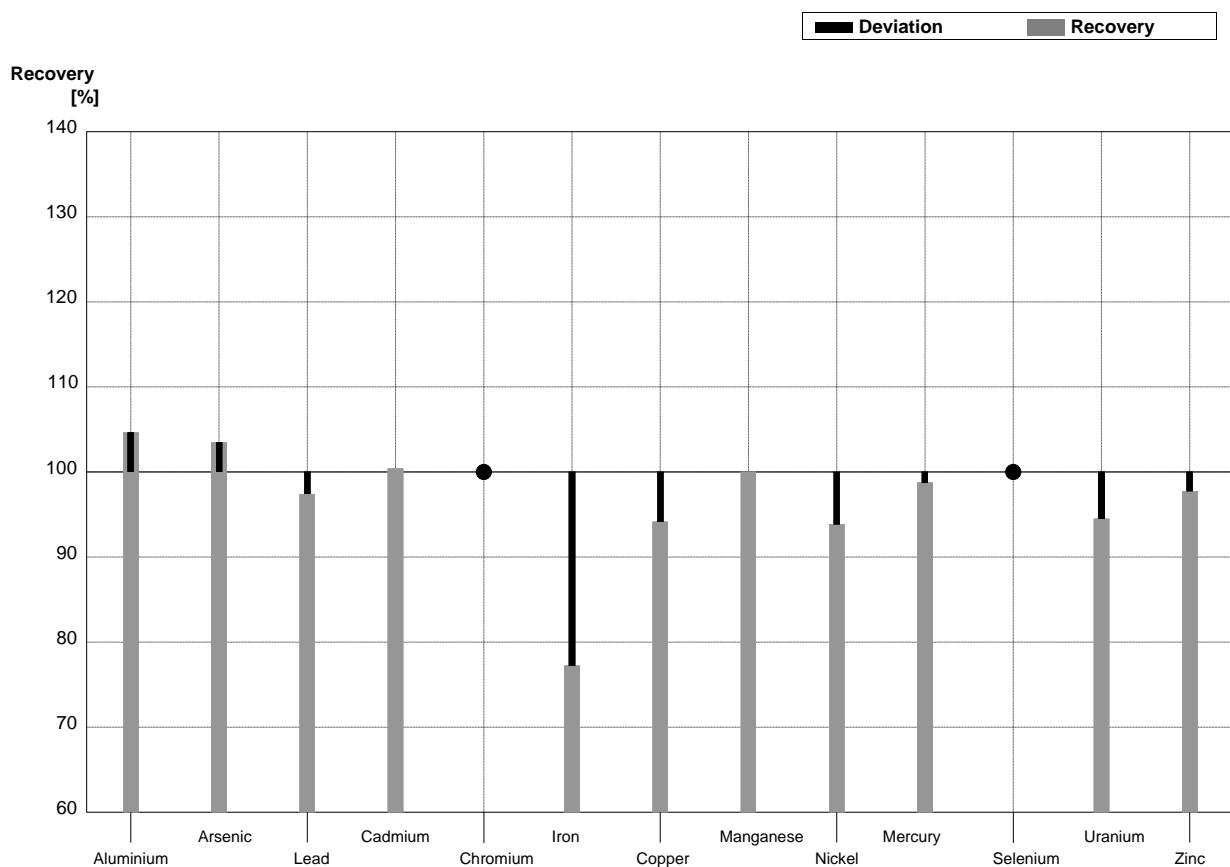
Sample M153B
Laboratory M

Parameter	Target value	\pm U ($k=2$)	Result	\pm	Unit	Recovery
Aluminium	10,4	0,2	11,0	1,1	$\mu\text{g/l}$	106%
Arsenic	2,01	0,02	1,95	0,293	$\mu\text{g/l}$	97%
Lead	4,07	0,03	3,76	0,376	$\mu\text{g/l}$	92%
Cadmium	0,897	0,008	0,90	0,090	$\mu\text{g/l}$	100%
Chromium	3,49	0,03	3,38	0,338	$\mu\text{g/l}$	97%
Iron	36,0	0,2	35,4	3,54	$\mu\text{g/l}$	98%
Copper	2,96	0,03	2,63	0,263	$\mu\text{g/l}$	89%
Manganese	13,2	0,1	13,0	1,30	$\mu\text{g/l}$	98%
Nickel	3,75	0,03	3,51	0,351	$\mu\text{g/l}$	94%
Mercury	1,30	0,02	1,24	0,124	$\mu\text{g/l}$	95%
Selenium	2,39	0,06	2,55	0,383	$\mu\text{g/l}$	107%
Uranium	2,80	0,02	2,74	0,274	$\mu\text{g/l}$	98%
Zinc	14,9	0,5	14,0	1,4	$\mu\text{g/l}$	94%



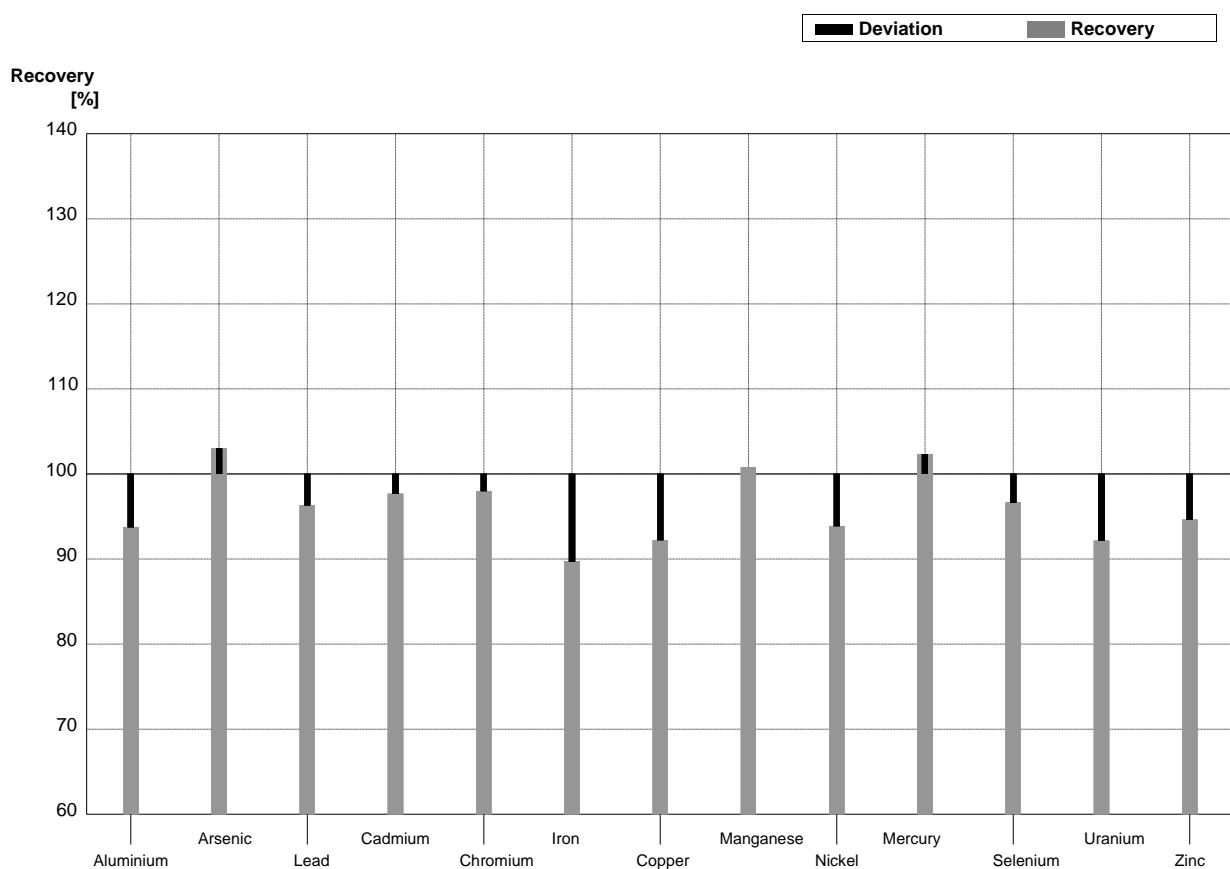
Sample M153A
Laboratory N

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	56,1	0,3	58,7	6,5	$\mu\text{g/l}$	105%
Arsenic	2,56	0,02	2,65	0,15	$\mu\text{g/l}$	104%
Lead	2,32	0,02	2,26	0,24	$\mu\text{g/l}$	97%
Cadmium	0,502	0,005	0,504	0,023	$\mu\text{g/l}$	100%
Chromium	0,397	0,014	<1,0		$\mu\text{g/l}$	•
Iron	68,9	0,3	53,2	5,9	$\mu\text{g/l}$	77%
Copper	10,4	0,1	9,79	0,53	$\mu\text{g/l}$	94%
Manganese	43,0	0,3	43,0	2,3	$\mu\text{g/l}$	100%
Nickel	1,01	0,02	0,948	0,073	$\mu\text{g/l}$	94%
Mercury	0,399	0,013	0,394	0,061	$\mu\text{g/l}$	99%
Selenium	0,50	0,05	<1,0		$\mu\text{g/l}$	•
Uranium	0,399	0,005	0,377	0,040	$\mu\text{g/l}$	94%
Zinc	40,3	0,5	39,4	2,5	$\mu\text{g/l}$	98%



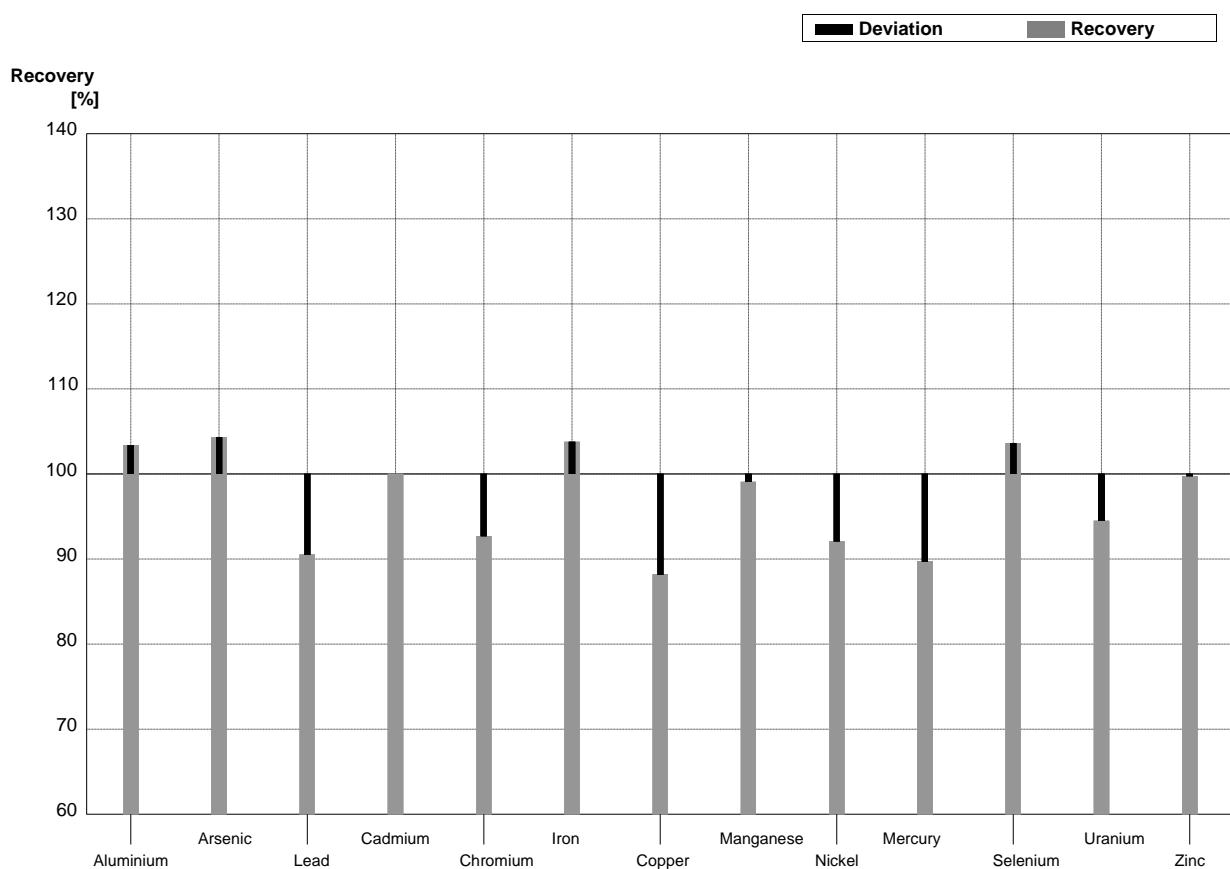
Sample M153B
Laboratory N

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	10,4	0,2	9,75	1,06	$\mu\text{g/l}$	94%
Arsenic	2,01	0,02	2,07	0,12	$\mu\text{g/l}$	103%
Lead	4,07	0,03	3,92	0,42	$\mu\text{g/l}$	96%
Cadmium	0,897	0,008	0,876	0,041	$\mu\text{g/l}$	98%
Chromium	3,49	0,03	3,42	0,48	$\mu\text{g/l}$	98%
Iron	36,0	0,2	32,3	3,6	$\mu\text{g/l}$	90%
Copper	2,96	0,03	2,73	0,15	$\mu\text{g/l}$	92%
Manganese	13,2	0,1	13,3	0,7	$\mu\text{g/l}$	101%
Nickel	3,75	0,03	3,52	0,27	$\mu\text{g/l}$	94%
Mercury	1,30	0,02	1,33	0,21	$\mu\text{g/l}$	102%
Selenium	2,39	0,06	2,31	0,28	$\mu\text{g/l}$	97%
Uranium	2,80	0,02	2,58	0,27	$\mu\text{g/l}$	92%
Zinc	14,9	0,5	14,1	0,9	$\mu\text{g/l}$	95%



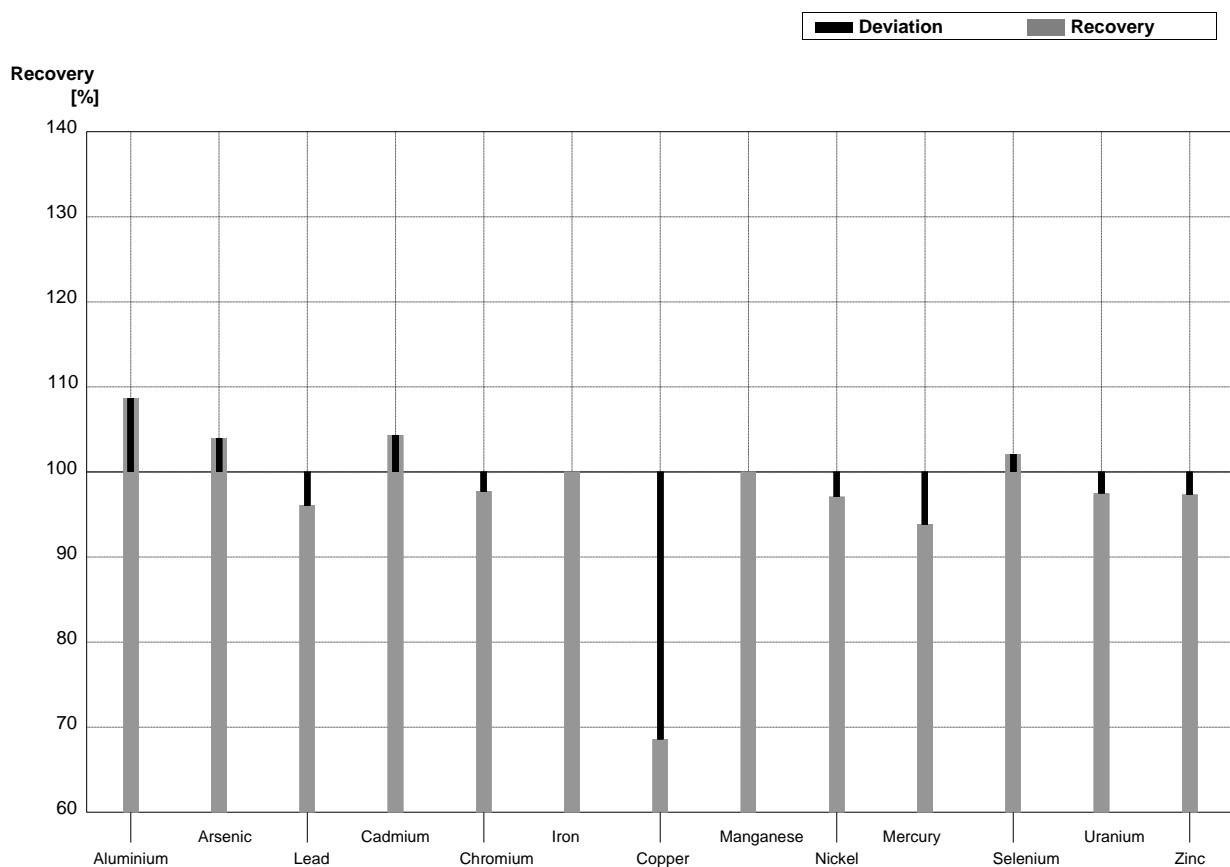
Sample M153A
Laboratory O

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	56,1	0,3	58,0	0,109	$\mu\text{g/l}$	103%
Arsenic	2,56	0,02	2,67	0,056	$\mu\text{g/l}$	104%
Lead	2,32	0,02	2,10	0,029	$\mu\text{g/l}$	91%
Cadmium	0,502	0,005	0,502	0,009	$\mu\text{g/l}$	100%
Chromium	0,397	0,014	0,368	0,022	$\mu\text{g/l}$	93%
Iron	68,9	0,3	71,5	0,138	$\mu\text{g/l}$	104%
Copper	10,4	0,1	9,17	0,034	$\mu\text{g/l}$	88%
Manganese	43,0	0,3	42,6	0,373	$\mu\text{g/l}$	99%
Nickel	1,01	0,02	0,930	0,027	$\mu\text{g/l}$	92%
Mercury	0,399	0,013	0,358	0,007	$\mu\text{g/l}$	90%
Selenium	0,50	0,05	0,518	0,008	$\mu\text{g/l}$	104%
Uranium	0,399	0,005	0,377	0,012	$\mu\text{g/l}$	94%
Zinc	40,3	0,5	40,2	0,320	$\mu\text{g/l}$	100%



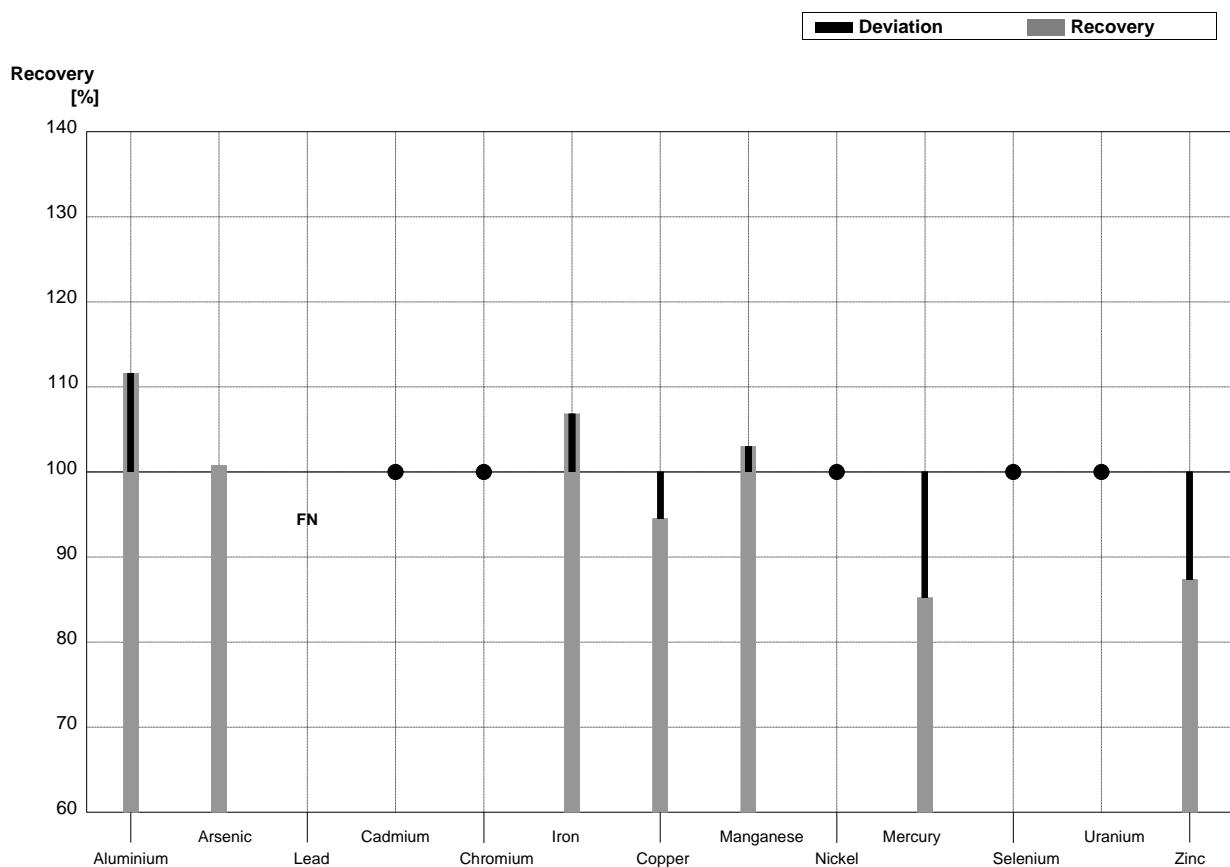
Sample M153B
Laboratory O

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	10,4	0,2	11,3	0,166	$\mu\text{g/l}$	109%
Arsenic	2,01	0,02	2,09	0,044	$\mu\text{g/l}$	104%
Lead	4,07	0,03	3,91	0,040	$\mu\text{g/l}$	96%
Cadmium	0,897	0,008	0,936	0,035	$\mu\text{g/l}$	104%
Chromium	3,49	0,03	3,41	0,022	$\mu\text{g/l}$	98%
Iron	36,0	0,2	36,0	0,398	$\mu\text{g/l}$	100%
Copper	2,96	0,03	2,03	0,084	$\mu\text{g/l}$	69%
Manganese	13,2	0,1	13,2	0,054	$\mu\text{g/l}$	100%
Nickel	3,75	0,03	3,64	0,055	$\mu\text{g/l}$	97%
Mercury	1,30	0,02	1,22	0,010	$\mu\text{g/l}$	94%
Selenium	2,39	0,06	2,44	0,069	$\mu\text{g/l}$	102%
Uranium	2,80	0,02	2,73	0,036	$\mu\text{g/l}$	98%
Zinc	14,9	0,5	14,5	0,130	$\mu\text{g/l}$	97%



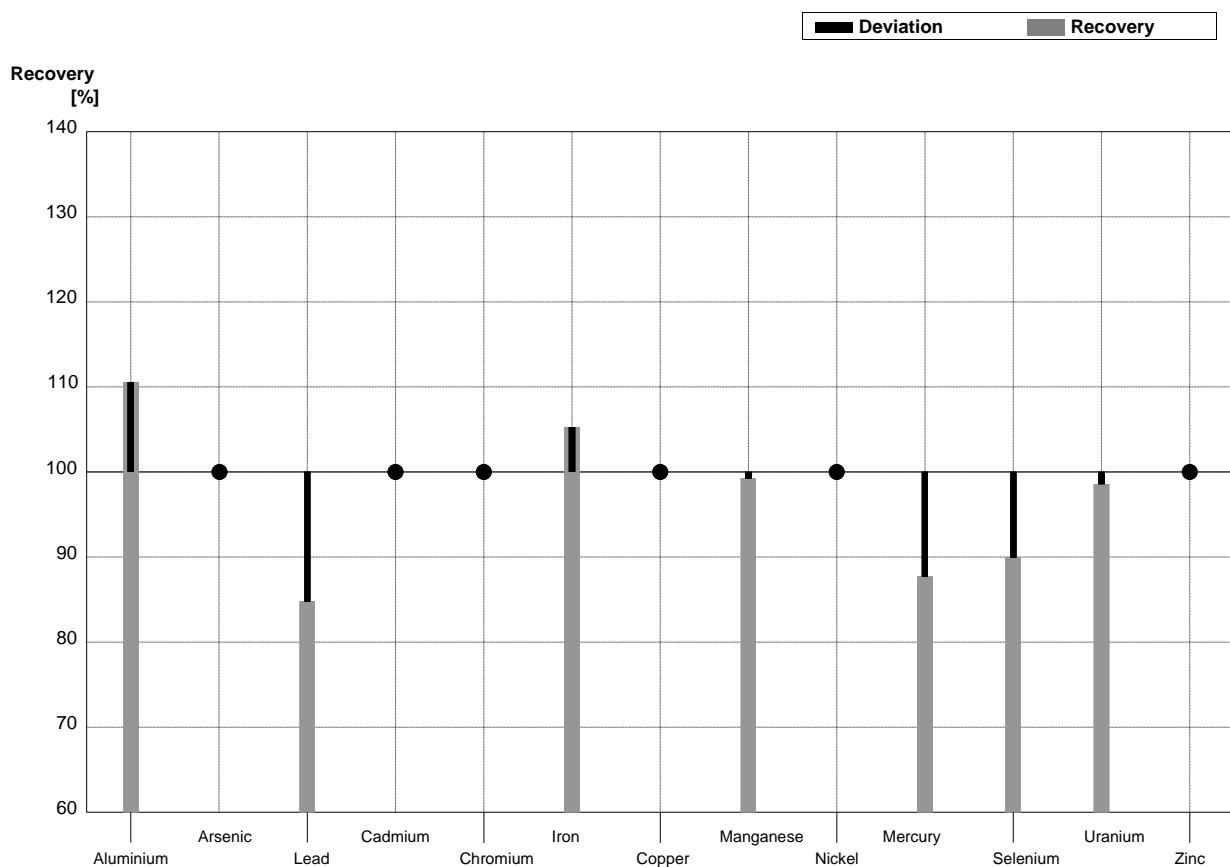
Sample M153A
Laboratory P

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	56,1	0,3	62,6	6,26	$\mu\text{g/l}$	112%
Arsenic	2,56	0,02	2,58	0,258	$\mu\text{g/l}$	101%
Lead	2,32	0,02	<2		$\mu\text{g/l}$	FN
Cadmium	0,502	0,005	<1		$\mu\text{g/l}$	•
Chromium	0,397	0,014	<5		$\mu\text{g/l}$	•
Iron	68,9	0,3	73,6	7,36	$\mu\text{g/l}$	107%
Copper	10,4	0,1	9,83	0,983	$\mu\text{g/l}$	95%
Manganese	43,0	0,3	44,3	4,43	$\mu\text{g/l}$	103%
Nickel	1,01	0,02	<5		$\mu\text{g/l}$	•
Mercury	0,399	0,013	0,340	0,051	$\mu\text{g/l}$	85%
Selenium	0,50	0,05	<2		$\mu\text{g/l}$	•
Uranium	0,399	0,005	<1		$\mu\text{g/l}$	•
Zinc	40,3	0,5	35,2	3,52	$\mu\text{g/l}$	87%



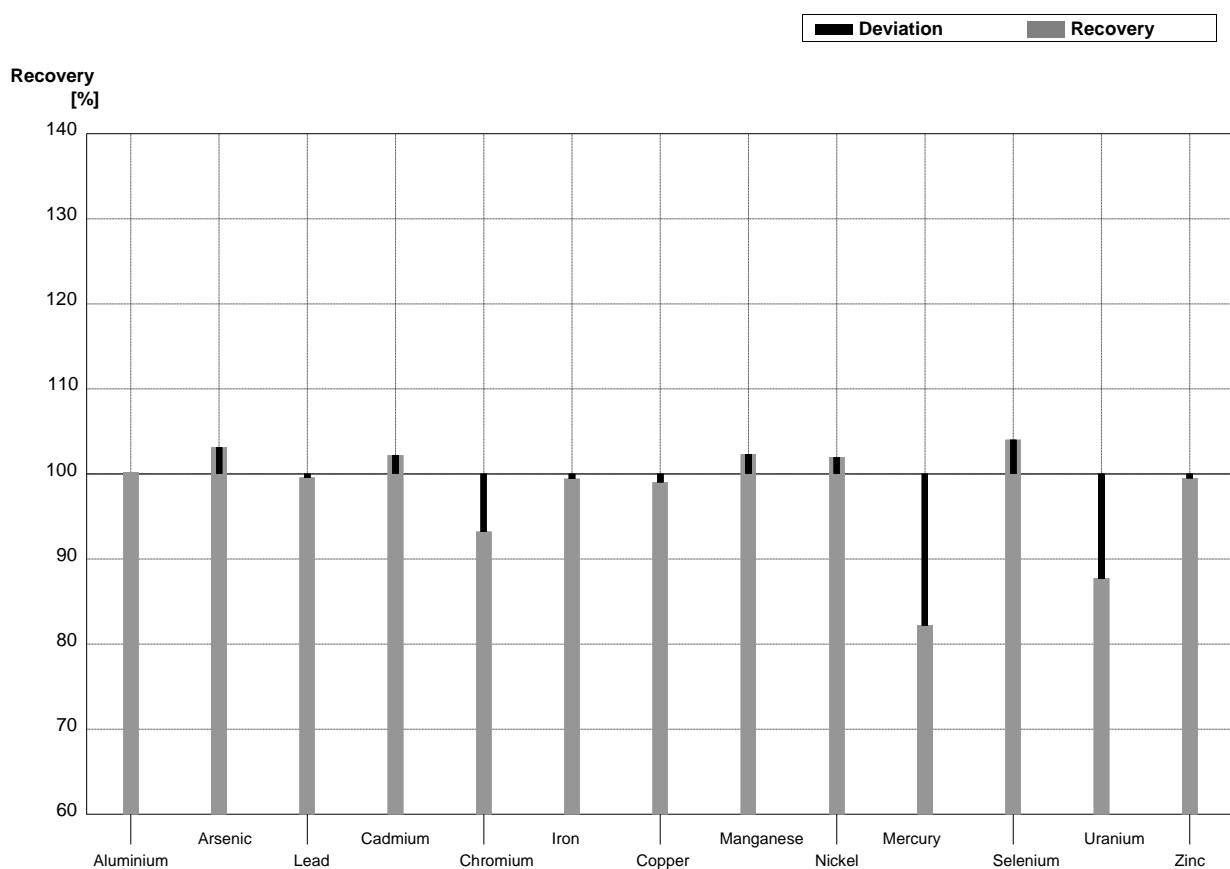
Sample M153B
Laboratory P

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	10,4	0,2	11,5	1,15	$\mu\text{g/l}$	111%
Arsenic	2,01	0,02	<2		$\mu\text{g/l}$	•
Lead	4,07	0,03	3,45	0,345	$\mu\text{g/l}$	85%
Cadmium	0,897	0,008	<1		$\mu\text{g/l}$	•
Chromium	3,49	0,03	<5		$\mu\text{g/l}$	•
Iron	36,0	0,2	37,9	3,79	$\mu\text{g/l}$	105%
Copper	2,96	0,03	<5		$\mu\text{g/l}$	•
Manganese	13,2	0,1	13,1	1,31	$\mu\text{g/l}$	99%
Nickel	3,75	0,03	<5		$\mu\text{g/l}$	•
Mercury	1,30	0,02	1,14	0,171	$\mu\text{g/l}$	88%
Selenium	2,39	0,06	2,15	0,215	$\mu\text{g/l}$	90%
Uranium	2,80	0,02	2,76	0,276	$\mu\text{g/l}$	99%
Zinc	14,9	0,5	<15		$\mu\text{g/l}$	•



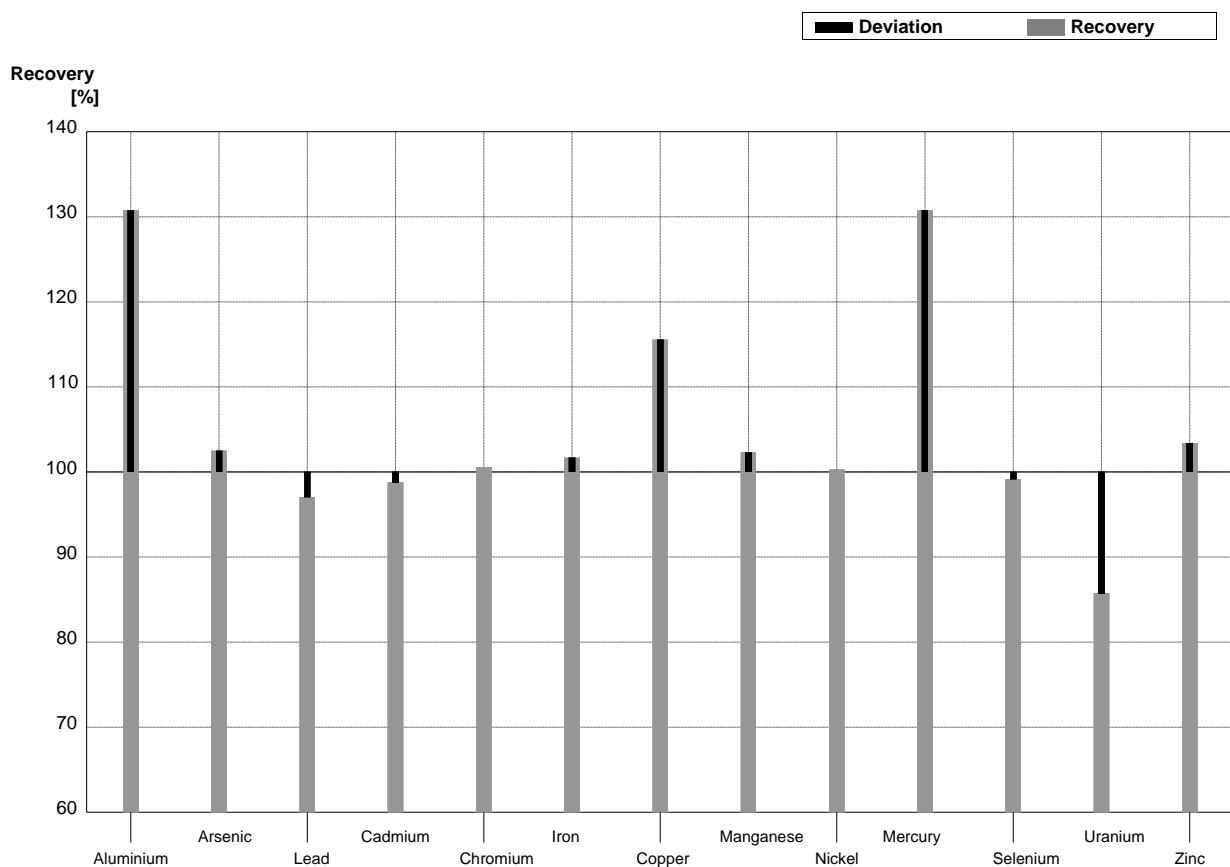
Sample M153A
Laboratory Q

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	56,1	0,3	56,2	1,69	$\mu\text{g/l}$	100%
Arsenic	2,56	0,02	2,64	0,0792	$\mu\text{g/l}$	103%
Lead	2,32	0,02	2,31	0,0693	$\mu\text{g/l}$	100%
Cadmium	0,502	0,005	0,513	0,0154	$\mu\text{g/l}$	102%
Chromium	0,397	0,014	0,370	0,0111	$\mu\text{g/l}$	93%
Iron	68,9	0,3	68,5	2,06	$\mu\text{g/l}$	99%
Copper	10,4	0,1	10,3	0,309	$\mu\text{g/l}$	99%
Manganese	43,0	0,3	44,0	1,32	$\mu\text{g/l}$	102%
Nickel	1,01	0,02	1,03	0,0309	$\mu\text{g/l}$	102%
Mercury	0,399	0,013	0,328	0,00983	$\mu\text{g/l}$	82%
Selenium	0,50	0,05	0,520	0,0156	$\mu\text{g/l}$	104%
Uranium	0,399	0,005	0,350	0,105	$\mu\text{g/l}$	88%
Zinc	40,3	0,5	40,1	1,20	$\mu\text{g/l}$	100%



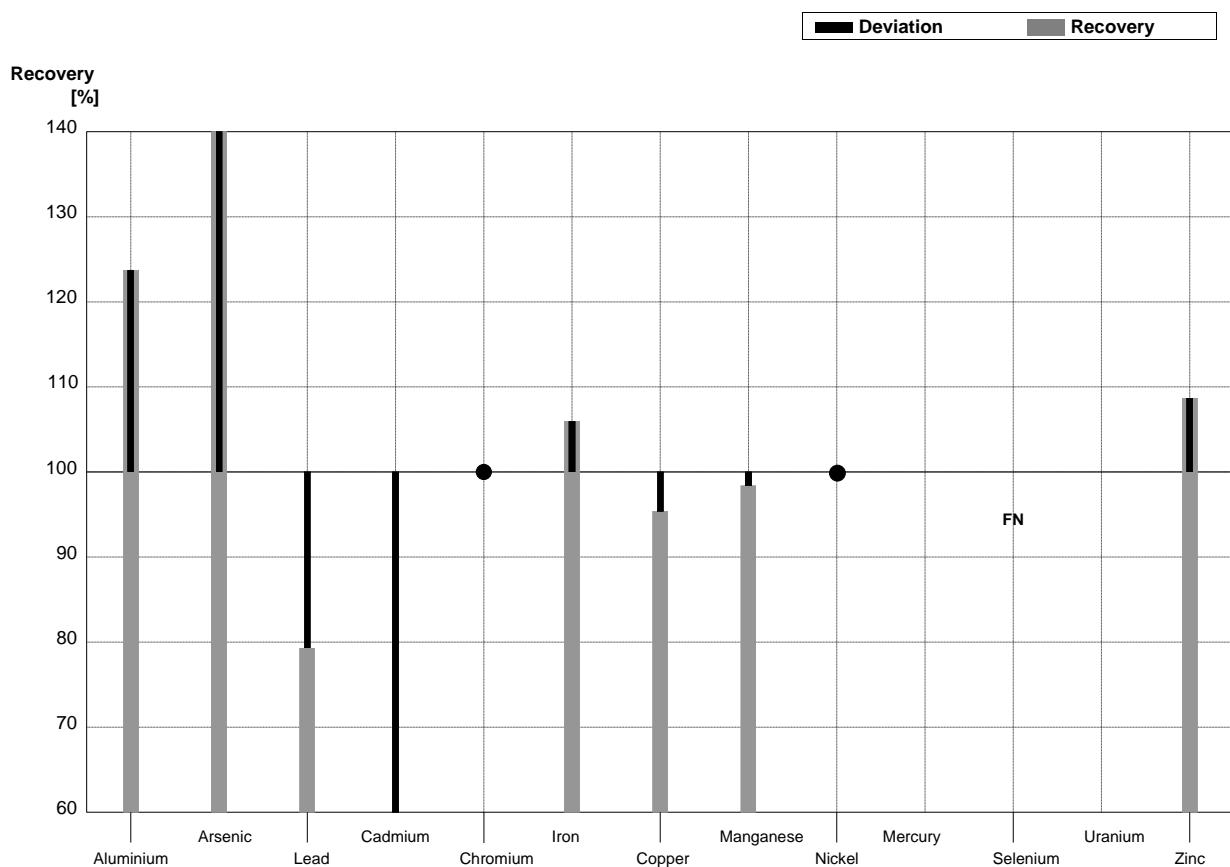
Sample M153B
Laboratory Q

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	10,4	0,2	13,6	0,408	$\mu\text{g/l}$	131%
Arsenic	2,01	0,02	2,06	0,0618	$\mu\text{g/l}$	102%
Lead	4,07	0,03	3,95	0,119	$\mu\text{g/l}$	97%
Cadmium	0,897	0,008	0,886	0,0266	$\mu\text{g/l}$	99%
Chromium	3,49	0,03	3,51	0,105	$\mu\text{g/l}$	101%
Iron	36,0	0,2	36,6	1,098	$\mu\text{g/l}$	102%
Copper	2,96	0,03	3,42	0,103	$\mu\text{g/l}$	116%
Manganese	13,2	0,1	13,5	0,405	$\mu\text{g/l}$	102%
Nickel	3,75	0,03	3,76	0,113	$\mu\text{g/l}$	100%
Mercury	1,30	0,02	1,70	0,0510	$\mu\text{g/l}$	131%
Selenium	2,39	0,06	2,37	0,0711	$\mu\text{g/l}$	99%
Uranium	2,80	0,02	2,40	0,0720	$\mu\text{g/l}$	86%
Zinc	14,9	0,5	15,4	0,462	$\mu\text{g/l}$	103%



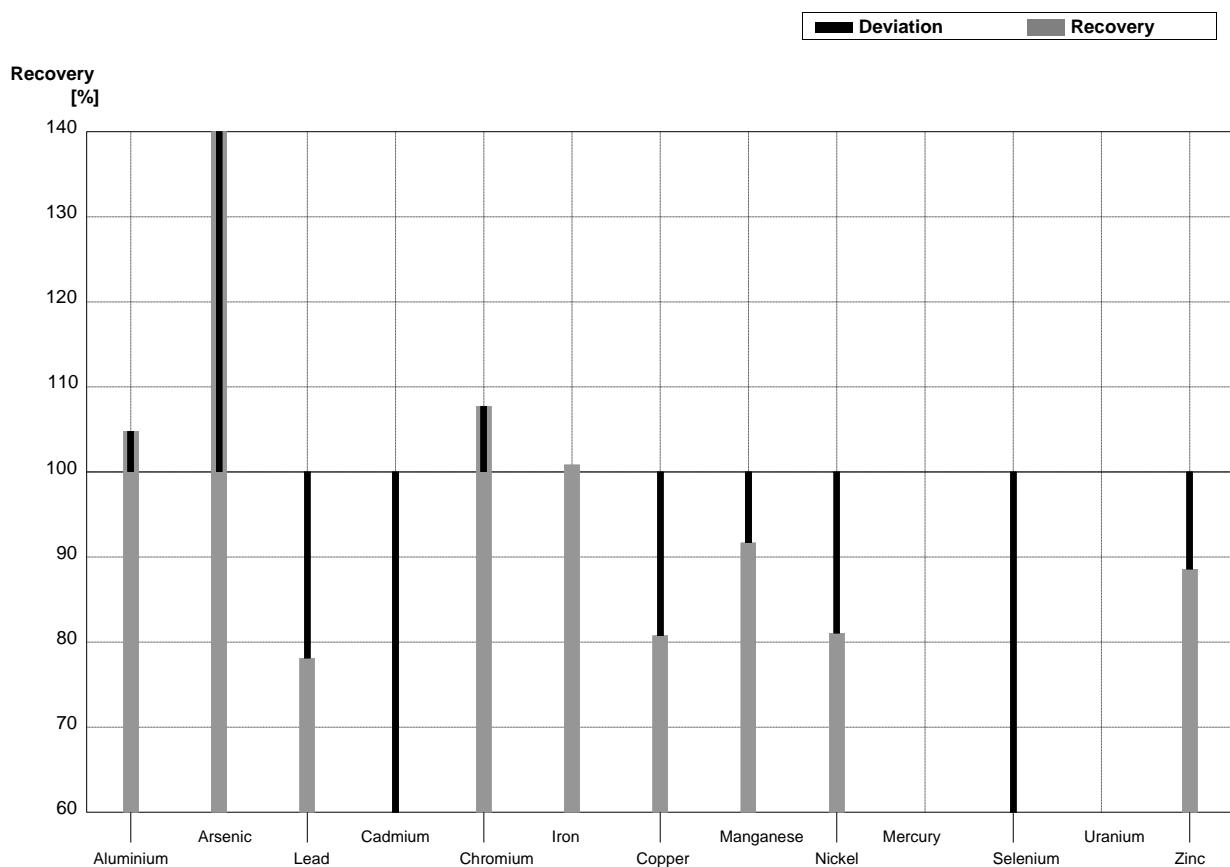
Sample M153A
Laboratory R

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	56,1	0,3	69,4	5,7	$\mu\text{g/l}$	124%
Arsenic	2,56	0,02	3,99	0,34	$\mu\text{g/l}$	156%
Lead	2,32	0,02	1,84	0,13	$\mu\text{g/l}$	79%
Cadmium	0,502	0,005	0,283	0,016	$\mu\text{g/l}$	56%
Chromium	0,397	0,014	<0,5		$\mu\text{g/l}$	•
Iron	68,9	0,3	73,0	5,2	$\mu\text{g/l}$	106%
Copper	10,4	0,1	9,92	0,87	$\mu\text{g/l}$	95%
Manganese	43,0	0,3	42,3	2,4	$\mu\text{g/l}$	98%
Nickel	1,01	0,02	<1,0		$\mu\text{g/l}$	•
Mercury	0,399	0,013			$\mu\text{g/l}$	
Selenium	0,50	0,05	<0,3		$\mu\text{g/l}$	FN
Uranium	0,399	0,005			$\mu\text{g/l}$	
Zinc	40,3	0,5	43,8	3,5	$\mu\text{g/l}$	109%



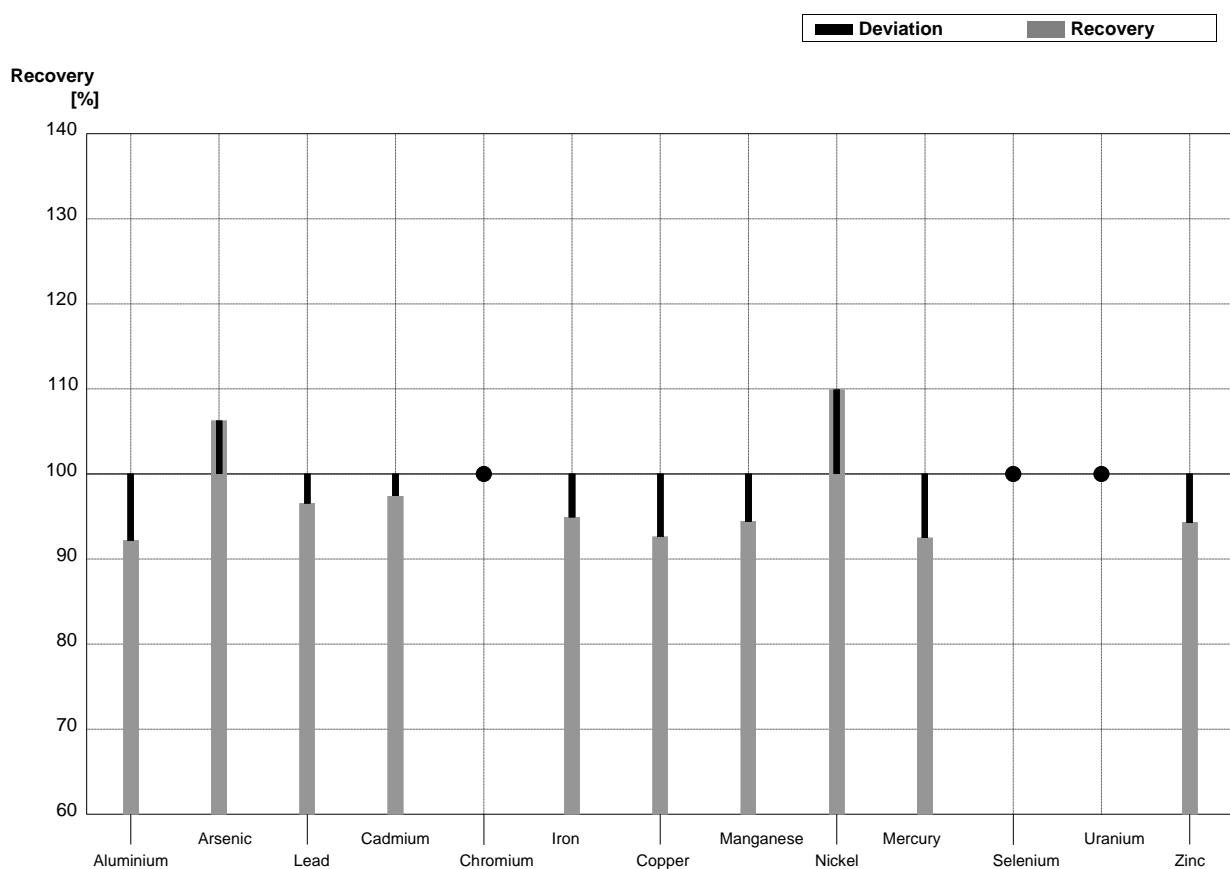
Sample M153B
Laboratory R

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	10,4	0,2	10,9	1,6	$\mu\text{g/l}$	105%
Arsenic	2,01	0,02	2,91	0,35	$\mu\text{g/l}$	145%
Lead	4,07	0,03	3,18	0,23	$\mu\text{g/l}$	78%
Cadmium	0,897	0,008	0,510	0,03	$\mu\text{g/l}$	57%
Chromium	3,49	0,03	3,76	0,25	$\mu\text{g/l}$	108%
Iron	36,0	0,2	36,3	2,5	$\mu\text{g/l}$	101%
Copper	2,96	0,03	2,39	0,19	$\mu\text{g/l}$	81%
Manganese	13,2	0,1	12,1	0,68	$\mu\text{g/l}$	92%
Nickel	3,75	0,03	3,04	0,32	$\mu\text{g/l}$	81%
Mercury	1,30	0,02			$\mu\text{g/l}$	
Selenium	2,39	0,06	1,26	0,14	$\mu\text{g/l}$	53%
Uranium	2,80	0,02			$\mu\text{g/l}$	
Zinc	14,9	0,5	13,2	1,1	$\mu\text{g/l}$	89%



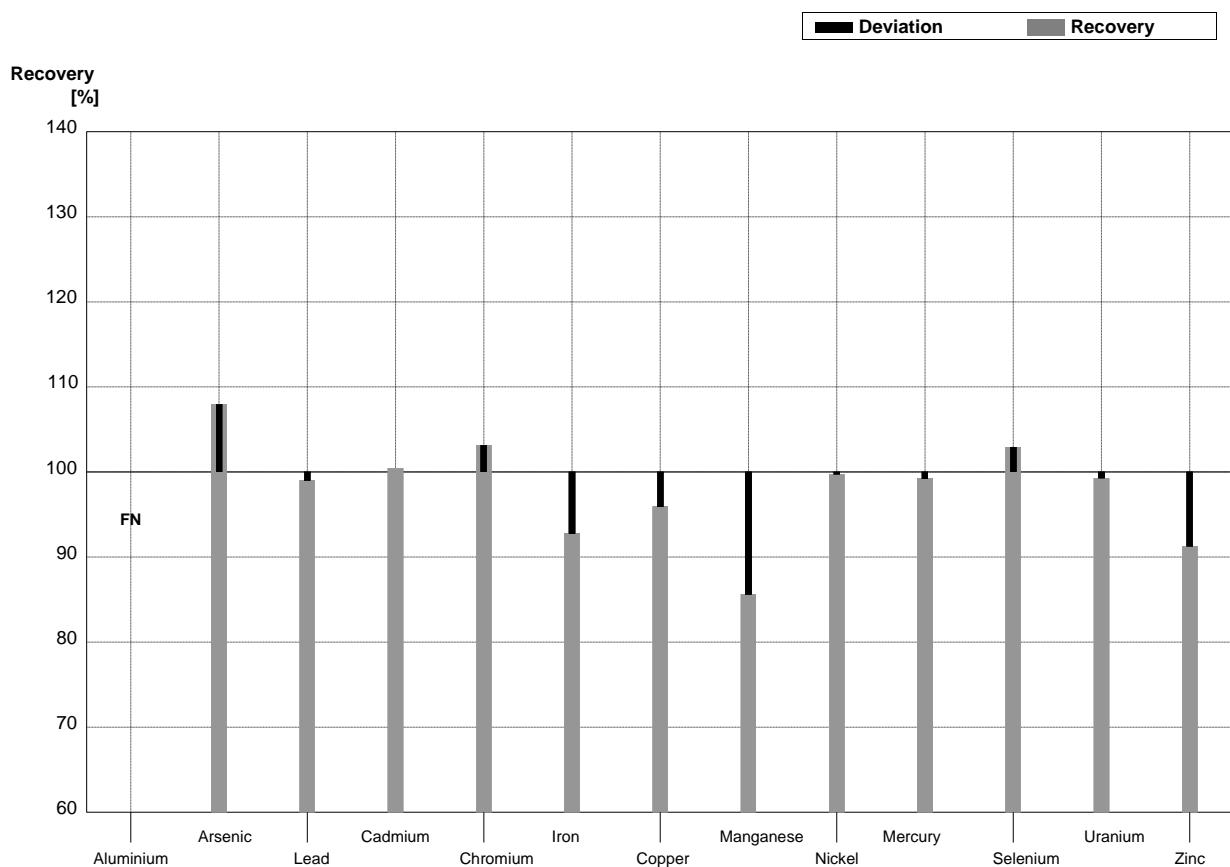
Sample M153A
Laboratory S

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	56,1	0,3	51,7	0,39	$\mu\text{g/l}$	92%
Arsenic	2,56	0,02	2,72	0,08	$\mu\text{g/l}$	106%
Lead	2,32	0,02	2,24	0,11	$\mu\text{g/l}$	97%
Cadmium	0,502	0,005	0,489	0,018	$\mu\text{g/l}$	97%
Chromium	0,397	0,014	<1,00		$\mu\text{g/l}$	•
Iron	68,9	0,3	65,4	0,91	$\mu\text{g/l}$	95%
Copper	10,4	0,1	9,63	0,13	$\mu\text{g/l}$	93%
Manganese	43,0	0,3	40,6	0,62	$\mu\text{g/l}$	94%
Nickel	1,01	0,02	1,11	0,14	$\mu\text{g/l}$	110%
Mercury	0,399	0,013	0,369	0,026	$\mu\text{g/l}$	92%
Selenium	0,50	0,05	<1,00		$\mu\text{g/l}$	•
Uranium	0,399	0,005	<1,00		$\mu\text{g/l}$	•
Zinc	40,3	0,5	38,0	0,20	$\mu\text{g/l}$	94%



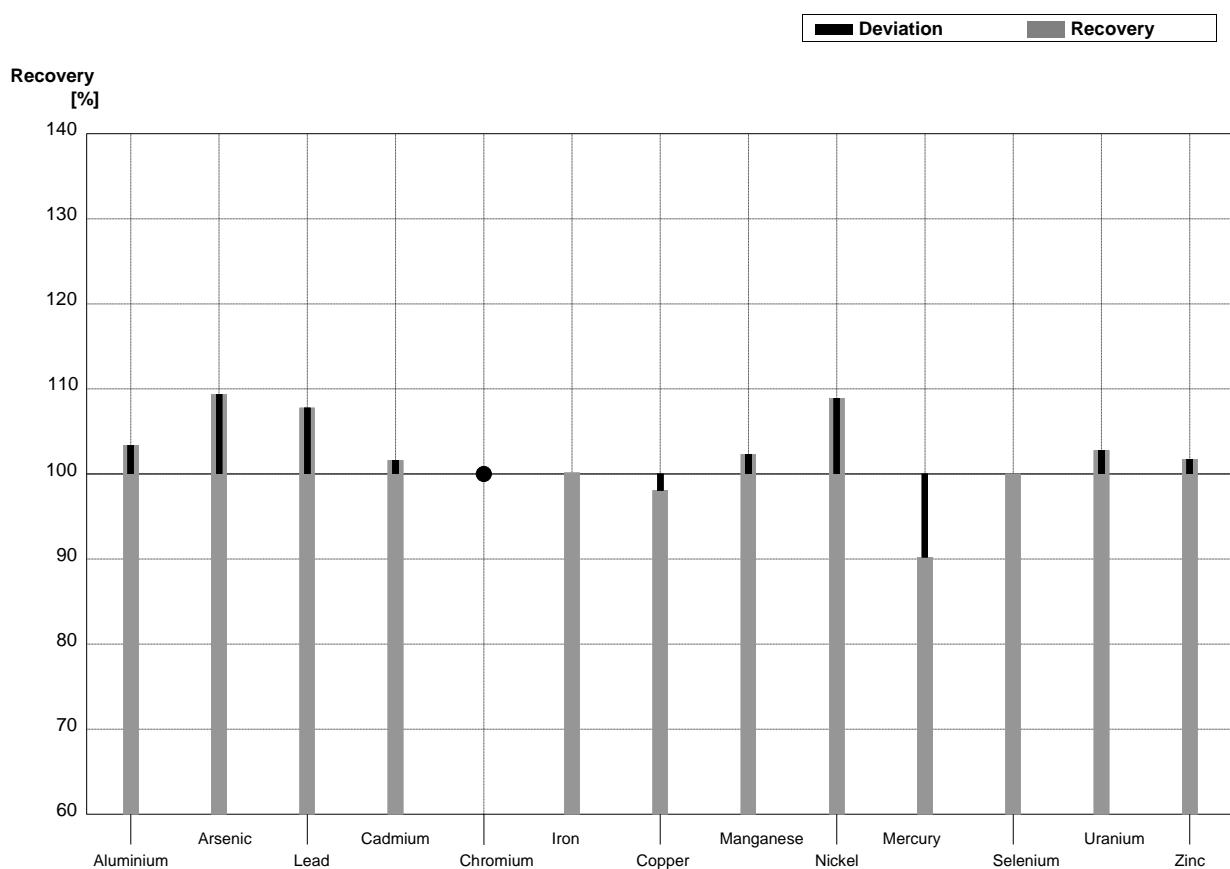
Sample M153B
Laboratory S

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	10,4	0,2	<10,0		$\mu\text{g/l}$	FN
Arsenic	2,01	0,02	2,17	0,08	$\mu\text{g/l}$	108%
Lead	4,07	0,03	4,03	0,10	$\mu\text{g/l}$	99%
Cadmium	0,897	0,008	0,901	0,020	$\mu\text{g/l}$	100%
Chromium	3,49	0,03	3,60	0,216	$\mu\text{g/l}$	103%
Iron	36,0	0,2	33,4	0,95	$\mu\text{g/l}$	93%
Copper	2,96	0,03	2,84	0,12	$\mu\text{g/l}$	96%
Manganese	13,2	0,1	11,3	0,72	$\mu\text{g/l}$	86%
Nickel	3,75	0,03	3,74	0,12	$\mu\text{g/l}$	100%
Mercury	1,30	0,02	1,29	0,024	$\mu\text{g/l}$	99%
Selenium	2,39	0,06	2,46	0,17	$\mu\text{g/l}$	103%
Uranium	2,80	0,02	2,78	0,18	$\mu\text{g/l}$	99%
Zinc	14,9	0,5	13,6	0,21	$\mu\text{g/l}$	91%



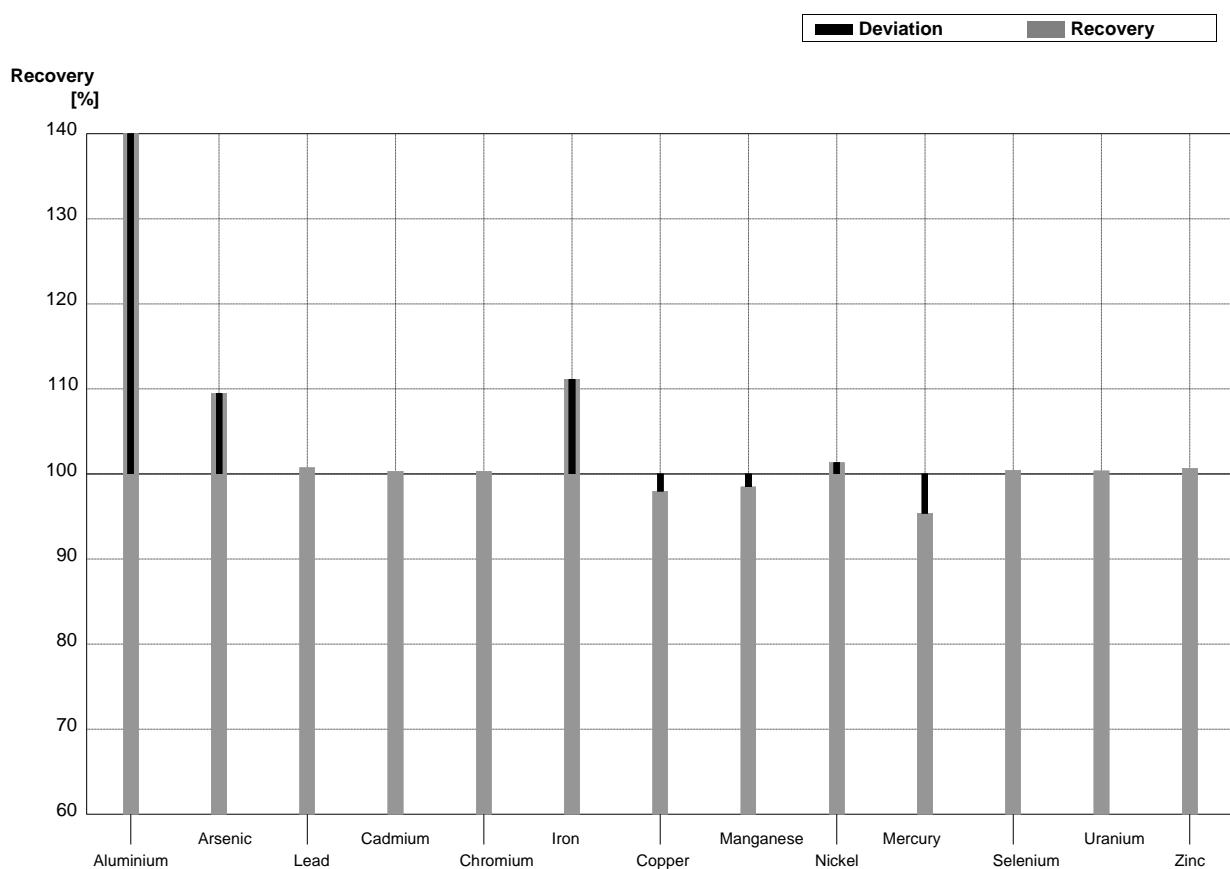
Sample M153A
Laboratory T

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	56,1	0,3	58,00	5,80	$\mu\text{g/l}$	103%
Arsenic	2,56	0,02	2,80	0,336	$\mu\text{g/l}$	109%
Lead	2,32	0,02	2,500	0,200	$\mu\text{g/l}$	108%
Cadmium	0,502	0,005	0,510	0,0408	$\mu\text{g/l}$	102%
Chromium	0,397	0,014	<0,500		$\mu\text{g/l}$	•
Iron	68,9	0,3	69,00	17,94	$\mu\text{g/l}$	100%
Copper	10,4	0,1	10,20	0,816	$\mu\text{g/l}$	98%
Manganese	43,0	0,3	44,00	4,40	$\mu\text{g/l}$	102%
Nickel	1,01	0,02	1,10	0,11	$\mu\text{g/l}$	109%
Mercury	0,399	0,013	0,360	0,0432	$\mu\text{g/l}$	90%
Selenium	0,50	0,05	0,50	0,075	$\mu\text{g/l}$	100%
Uranium	0,399	0,005	0,410	0,021	$\mu\text{g/l}$	103%
Zinc	40,3	0,5	41,00	4,10	$\mu\text{g/l}$	102%



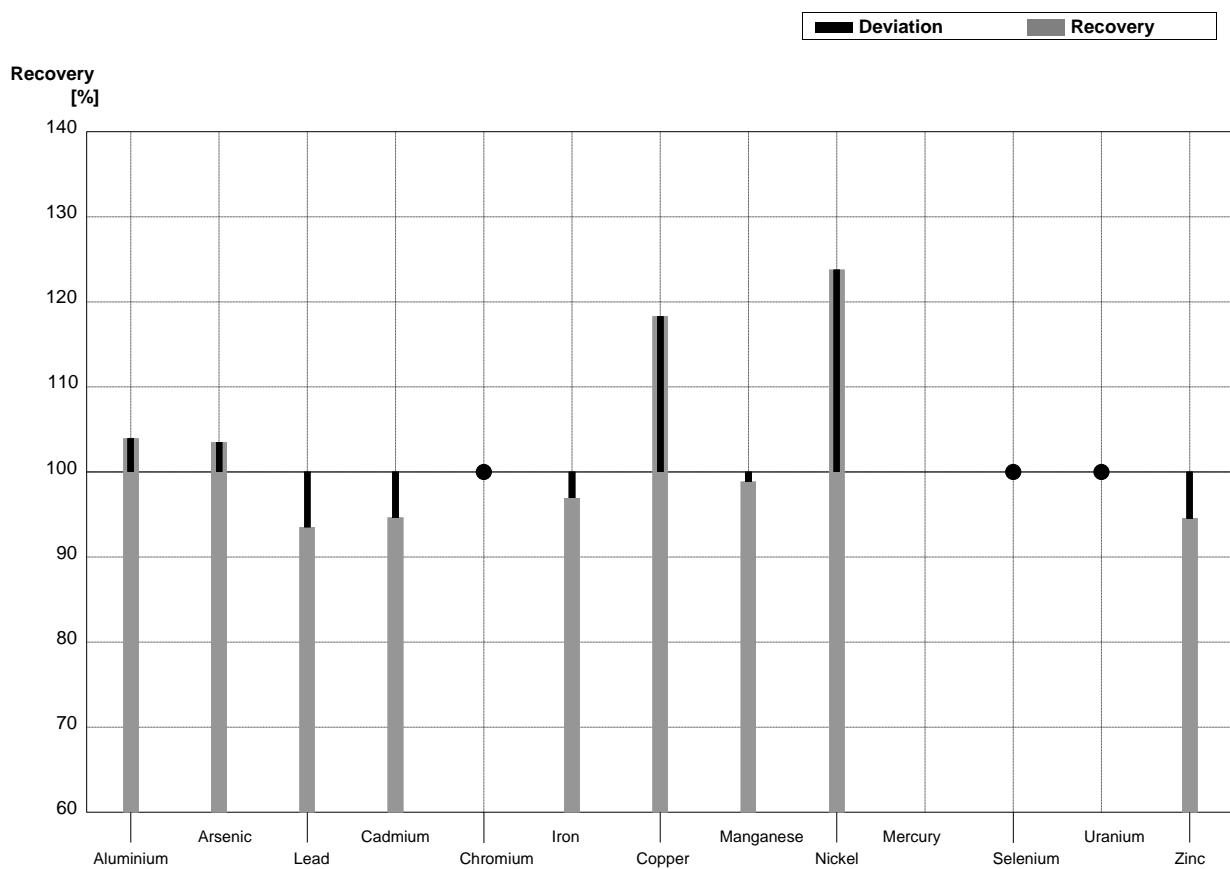
Sample M153B
Laboratory T

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	10,4	0,2	16,00	1,60	$\mu\text{g/l}$	154%
Arsenic	2,01	0,02	2,20	0,264	$\mu\text{g/l}$	109%
Lead	4,07	0,03	4,10	0,328	$\mu\text{g/l}$	101%
Cadmium	0,897	0,008	0,900	0,072	$\mu\text{g/l}$	100%
Chromium	3,49	0,03	3,500	0,420	$\mu\text{g/l}$	100%
Iron	36,0	0,2	40,00	10,40	$\mu\text{g/l}$	111%
Copper	2,96	0,03	2,90	0,232	$\mu\text{g/l}$	98%
Manganese	13,2	0,1	13,00	1,30	$\mu\text{g/l}$	98%
Nickel	3,75	0,03	3,80	0,38	$\mu\text{g/l}$	101%
Mercury	1,30	0,02	1,24	0,149	$\mu\text{g/l}$	95%
Selenium	2,39	0,06	2,40	0,36	$\mu\text{g/l}$	100%
Uranium	2,80	0,02	2,81	0,141	$\mu\text{g/l}$	100%
Zinc	14,9	0,5	15,00	1,50	$\mu\text{g/l}$	101%



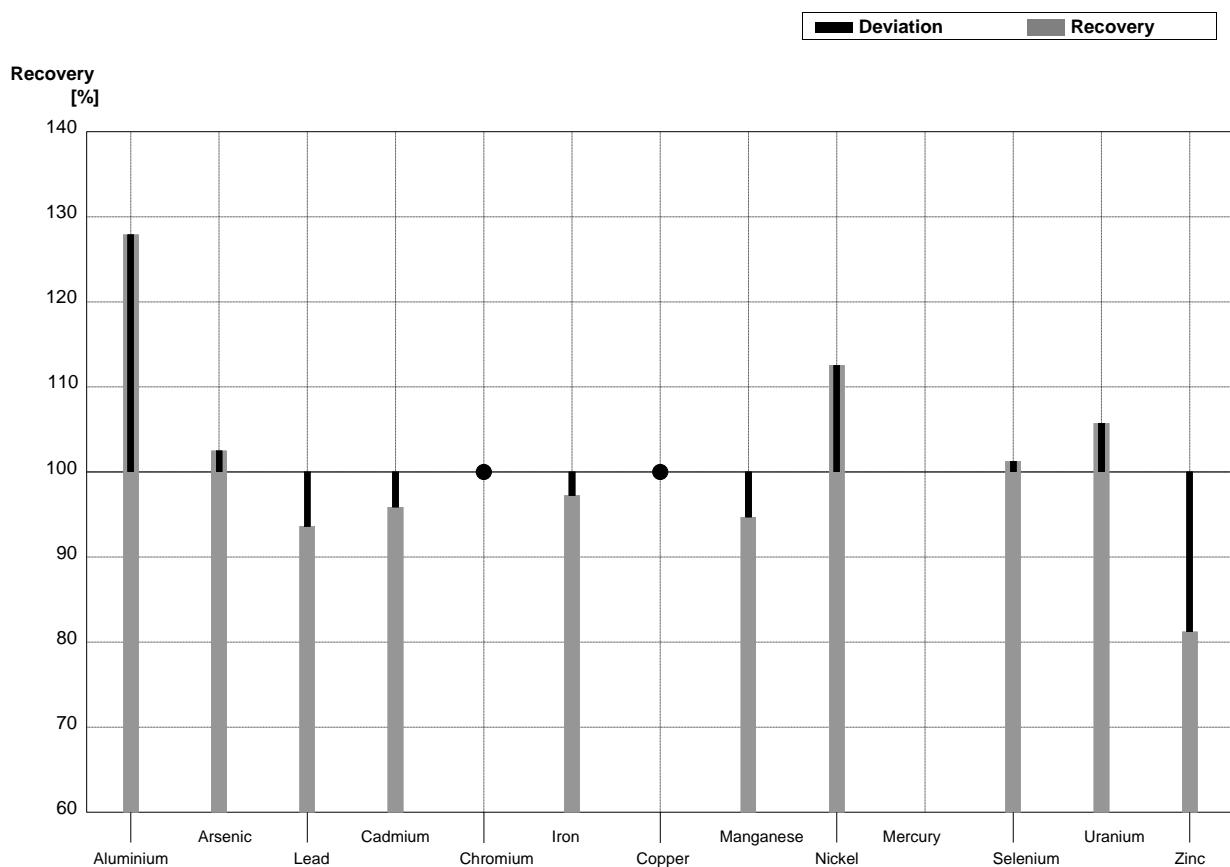
Sample M153A
Laboratory U

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	56,1	0,3	58,3	0,8	$\mu\text{g/l}$	104%
Arsenic	2,56	0,02	2,65	0,12	$\mu\text{g/l}$	104%
Lead	2,32	0,02	2,17	0,05	$\mu\text{g/l}$	94%
Cadmium	0,502	0,005	0,475	0,07	$\mu\text{g/l}$	95%
Chromium	0,397	0,014	<5		$\mu\text{g/l}$	•
Iron	68,9	0,3	66,8	0,8	$\mu\text{g/l}$	97%
Copper	10,4	0,1	12,3	0,6	$\mu\text{g/l}$	118%
Manganese	43,0	0,3	42,5	0,8	$\mu\text{g/l}$	99%
Nickel	1,01	0,02	1,25	0,1	$\mu\text{g/l}$	124%
Mercury	0,399	0,013			$\mu\text{g/l}$	
Selenium	0,50	0,05	<1		$\mu\text{g/l}$	•
Uranium	0,399	0,005	<2		$\mu\text{g/l}$	•
Zinc	40,3	0,5	38,1	0,8	$\mu\text{g/l}$	95%



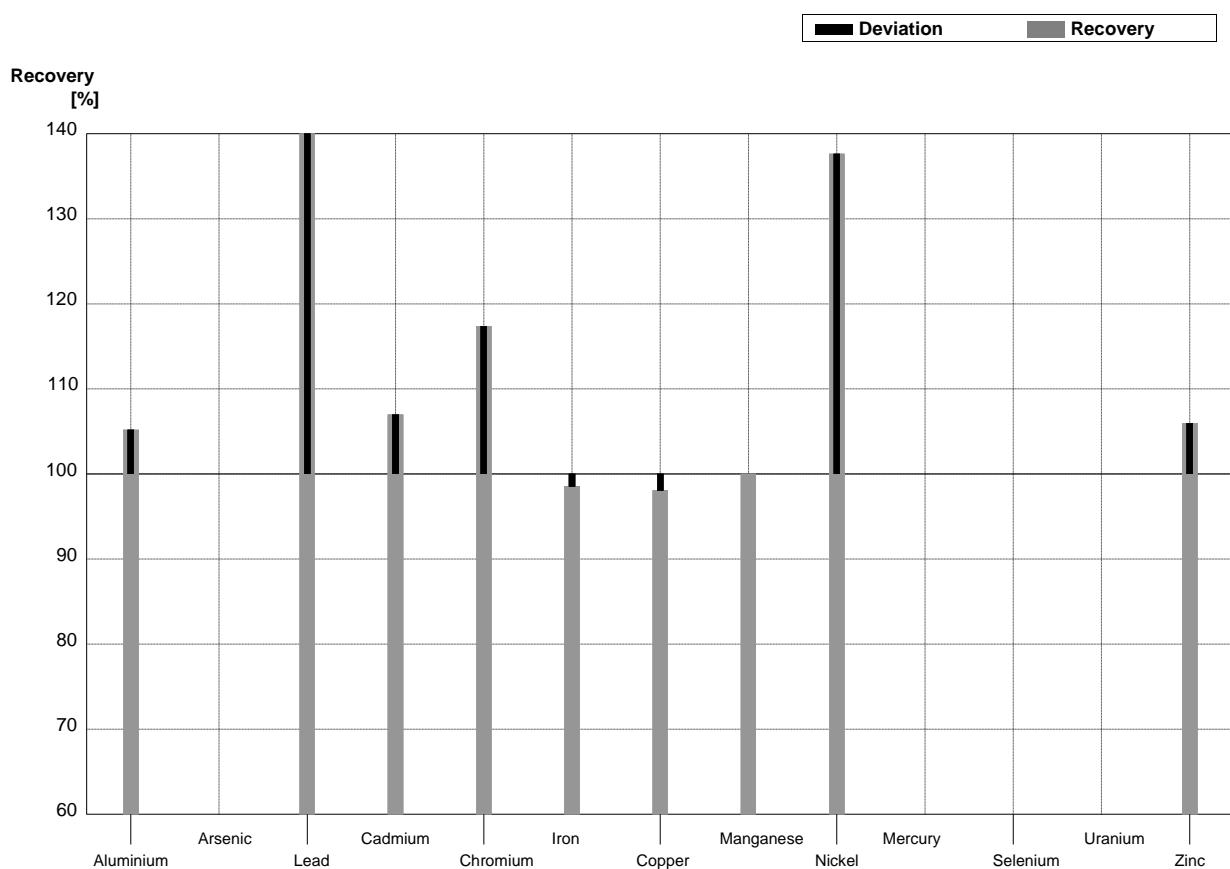
Sample M153B
Laboratory U

Parameter	Target value	\pm U ($k=2$)	Result	\pm	Unit	Recovery
Aluminium	10,4	0,2	13,3	0,9	$\mu\text{g/l}$	128%
Arsenic	2,01	0,02	2,06	0,2	$\mu\text{g/l}$	102%
Lead	4,07	0,03	3,81	0,04	$\mu\text{g/l}$	94%
Cadmium	0,897	0,008	0,86	0,02	$\mu\text{g/l}$	96%
Chromium	3,49	0,03	<5		$\mu\text{g/l}$	•
Iron	36,0	0,2	35,0	0,3	$\mu\text{g/l}$	97%
Copper	2,96	0,03	<5		$\mu\text{g/l}$	•
Manganese	13,2	0,1	12,5	0,2	$\mu\text{g/l}$	95%
Nickel	3,75	0,03	4,22	0,2	$\mu\text{g/l}$	113%
Mercury	1,30	0,02			$\mu\text{g/l}$	
Selenium	2,39	0,06	2,42	0,09	$\mu\text{g/l}$	101%
Uranium	2,80	0,02	2,96	0,63	$\mu\text{g/l}$	106%
Zinc	14,9	0,5	12,1	1,3	$\mu\text{g/l}$	81%



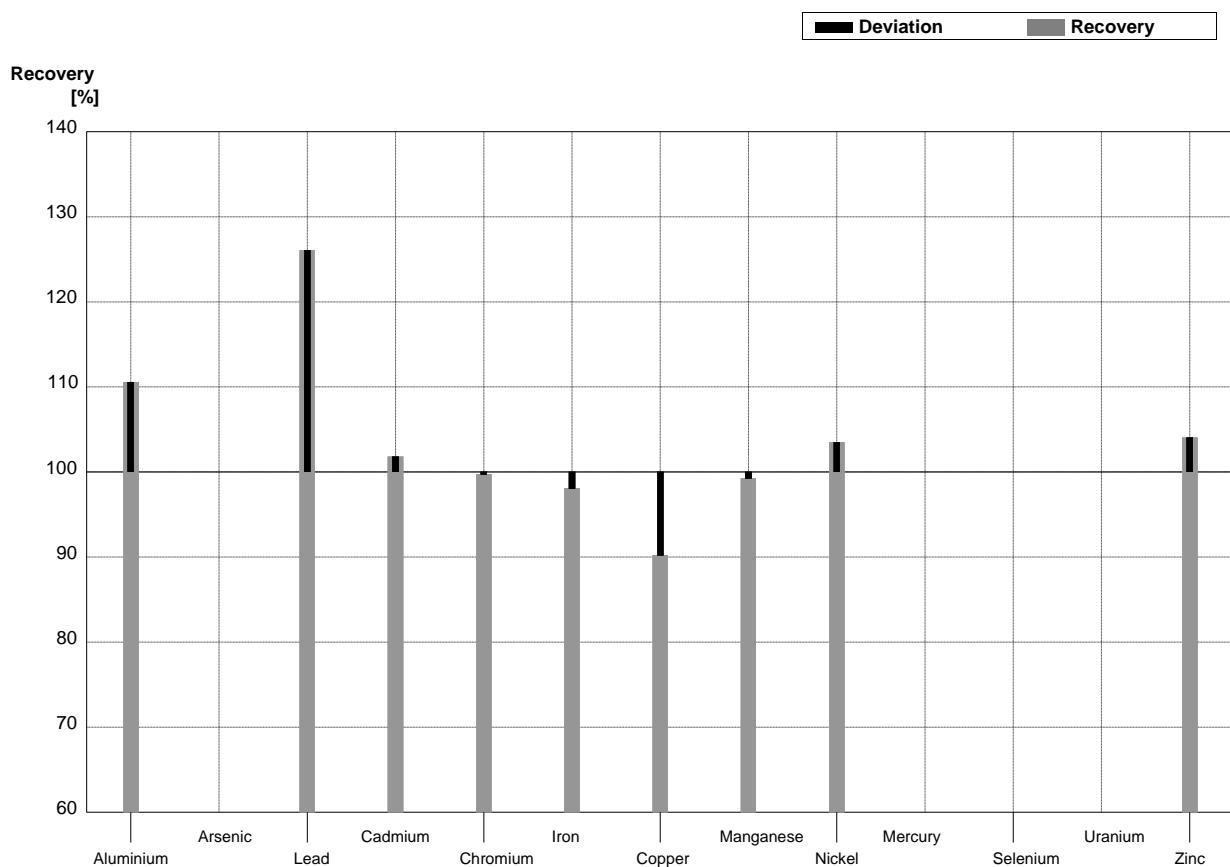
Sample M153A
Laboratory V

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	56,1	0,3	59,0	11,8	$\mu\text{g/l}$	105%
Arsenic	2,56	0,02			$\mu\text{g/l}$	
Lead	2,32	0,02	3,27	0,654	$\mu\text{g/l}$	141%
Cadmium	0,502	0,005	0,537	0,107	$\mu\text{g/l}$	107%
Chromium	0,397	0,014	0,466	0,093	$\mu\text{g/l}$	117%
Iron	68,9	0,3	67,9	13,6	$\mu\text{g/l}$	99%
Copper	10,4	0,1	10,2	2,04	$\mu\text{g/l}$	98%
Manganese	43,0	0,3	43,0	8,60	$\mu\text{g/l}$	100%
Nickel	1,01	0,02	1,39	0,279	$\mu\text{g/l}$	138%
Mercury	0,399	0,013			$\mu\text{g/l}$	
Selenium	0,50	0,05			$\mu\text{g/l}$	
Uranium	0,399	0,005			$\mu\text{g/l}$	
Zinc	40,3	0,5	42,7	8,54	$\mu\text{g/l}$	106%



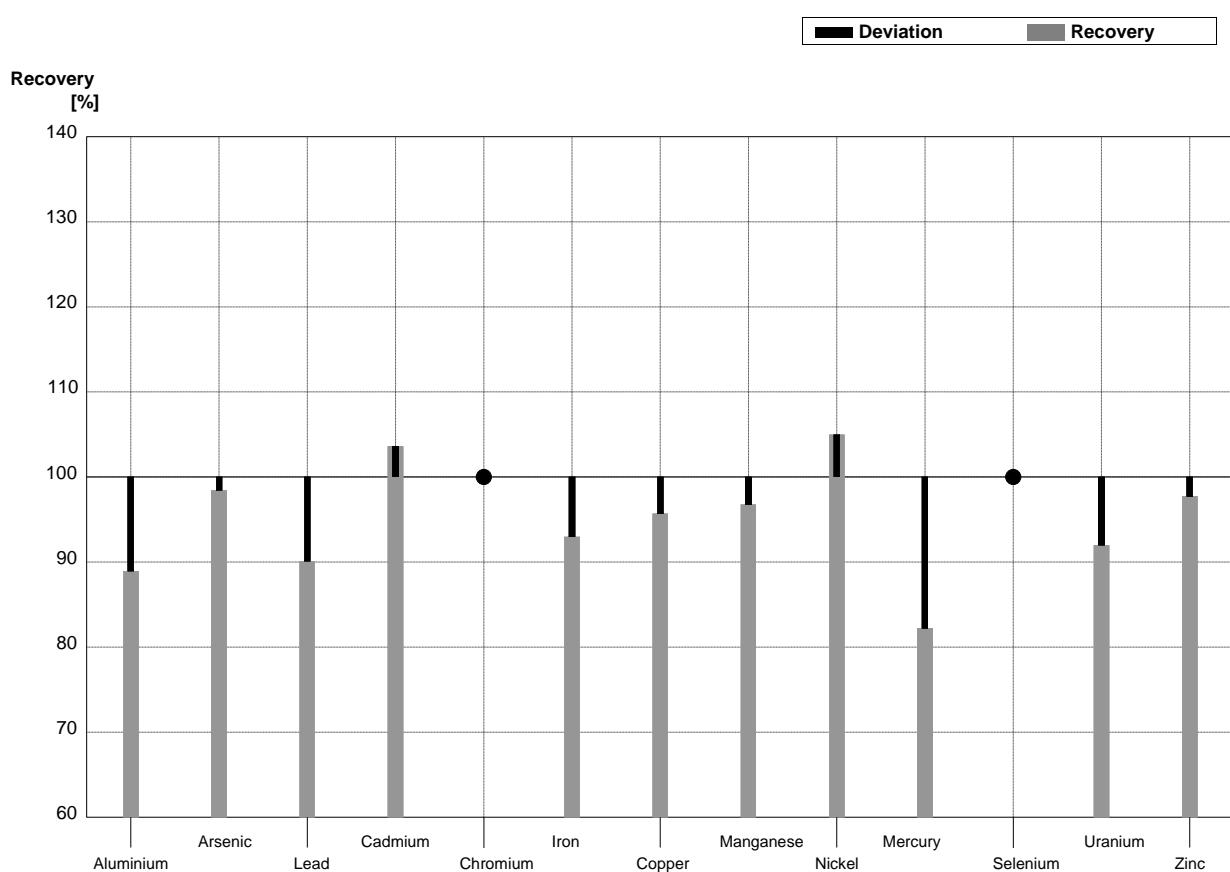
Sample M153B
Laboratory V

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	10,4	0,2	11,5	2,30	$\mu\text{g/l}$	111%
Arsenic	2,01	0,02			$\mu\text{g/l}$	
Lead	4,07	0,03	5,13	1,03	$\mu\text{g/l}$	126%
Cadmium	0,897	0,008	0,913	0,183	$\mu\text{g/l}$	102%
Chromium	3,49	0,03	3,48	0,696	$\mu\text{g/l}$	100%
Iron	36,0	0,2	35,3	7,05	$\mu\text{g/l}$	98%
Copper	2,96	0,03	2,67	0,533	$\mu\text{g/l}$	90%
Manganese	13,2	0,1	13,1	2,61	$\mu\text{g/l}$	99%
Nickel	3,75	0,03	3,88	0,775	$\mu\text{g/l}$	103%
Mercury	1,30	0,02			$\mu\text{g/l}$	
Selenium	2,39	0,06			$\mu\text{g/l}$	
Uranium	2,80	0,02			$\mu\text{g/l}$	
Zinc	14,9	0,5	15,5	3,09	$\mu\text{g/l}$	104%



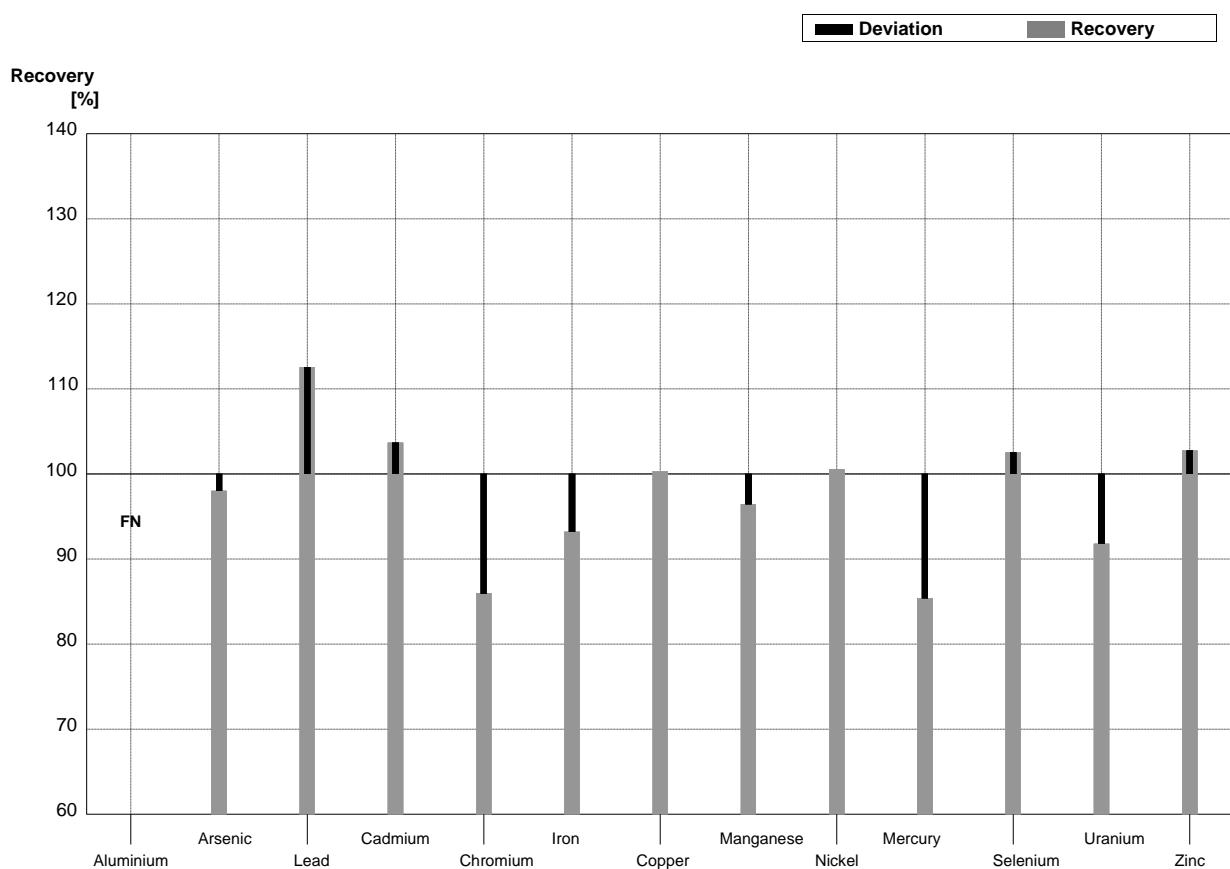
Sample M153A
Laboratory W

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	56,1	0,3	49,89	1,455	$\mu\text{g/l}$	89%
Arsenic	2,56	0,02	2,52	0,139	$\mu\text{g/l}$	98%
Lead	2,32	0,02	2,09	0,125	$\mu\text{g/l}$	90%
Cadmium	0,502	0,005	0,52	0,007	$\mu\text{g/l}$	104%
Chromium	0,397	0,014	<0,50		$\mu\text{g/l}$	•
Iron	68,9	0,3	64,04	2,802	$\mu\text{g/l}$	93%
Copper	10,4	0,1	9,95	0,227	$\mu\text{g/l}$	96%
Manganese	43,0	0,3	41,60	0,400	$\mu\text{g/l}$	97%
Nickel	1,01	0,02	1,06	0,044	$\mu\text{g/l}$	105%
Mercury	0,399	0,013	0,328	0,052	$\mu\text{g/l}$	82%
Selenium	0,50	0,05	<0,50		$\mu\text{g/l}$	•
Uranium	0,399	0,005	0,367	0,009	$\mu\text{g/l}$	92%
Zinc	40,3	0,5	39,38	1,241	$\mu\text{g/l}$	98%



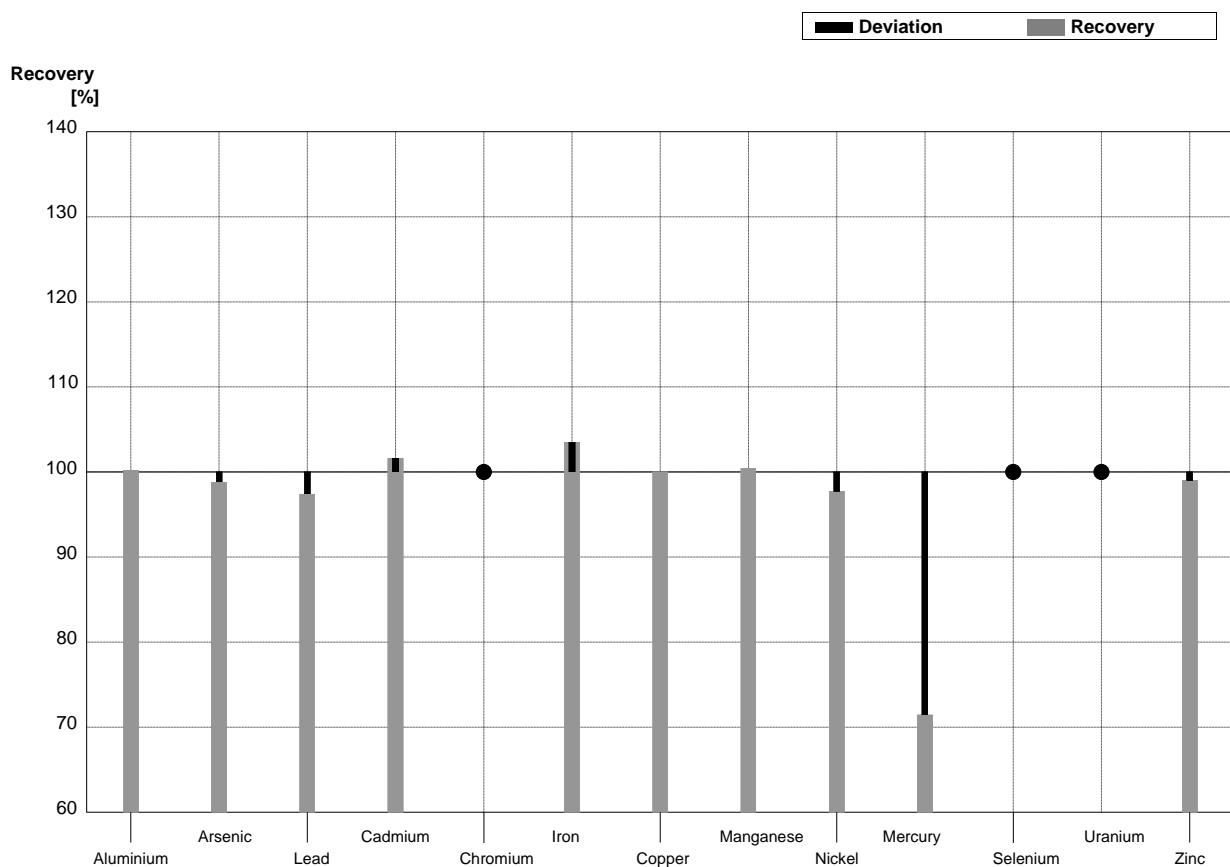
Sample M153B
Laboratory W

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	10,4	0,2	<5,0		$\mu\text{g/l}$	FN
Arsenic	2,01	0,02	1,97	0,061	$\mu\text{g/l}$	98%
Lead	4,07	0,03	4,58	0,390	$\mu\text{g/l}$	113%
Cadmium	0,897	0,008	0,93	0,016	$\mu\text{g/l}$	104%
Chromium	3,49	0,03	3,00	0,149	$\mu\text{g/l}$	86%
Iron	36,0	0,2	33,55	1,265	$\mu\text{g/l}$	93%
Copper	2,96	0,03	2,97	0,080	$\mu\text{g/l}$	100%
Manganese	13,2	0,1	12,73	0,102	$\mu\text{g/l}$	96%
Nickel	3,75	0,03	3,77	0,115	$\mu\text{g/l}$	101%
Mercury	1,30	0,02	1,11	0,043	$\mu\text{g/l}$	85%
Selenium	2,39	0,06	2,45	0,035	$\mu\text{g/l}$	103%
Uranium	2,80	0,02	2,57	0,057	$\mu\text{g/l}$	92%
Zinc	14,9	0,5	15,31	2,025	$\mu\text{g/l}$	103%



Sample M153A
Laboratory X

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	56,1	0,3	56,2	8,5	$\mu\text{g/l}$	100%
Arsenic	2,56	0,02	2,53	0,38	$\mu\text{g/l}$	99%
Lead	2,32	0,02	2,26	0,34	$\mu\text{g/l}$	97%
Cadmium	0,502	0,005	0,510	0,08	$\mu\text{g/l}$	102%
Chromium	0,397	0,014	<0,5		$\mu\text{g/l}$	•
Iron	68,9	0,3	71,3	10,7	$\mu\text{g/l}$	103%
Copper	10,4	0,1	10,4	1,6	$\mu\text{g/l}$	100%
Manganese	43,0	0,3	43,2	6,5	$\mu\text{g/l}$	100%
Nickel	1,01	0,02	0,987	0,15	$\mu\text{g/l}$	98%
Mercury	0,399	0,013	0,285	0,05	$\mu\text{g/l}$	71%
Selenium	0,50	0,05	<1,0		$\mu\text{g/l}$	•
Uranium	0,399	0,005	<0,5		$\mu\text{g/l}$	•
Zinc	40,3	0,5	39,9	6,0	$\mu\text{g/l}$	99%



Sample M153B
Laboratory X

Parameter	Target value	\pm U (k=2)	Result	\pm	Unit	Recovery
Aluminium	10,4	0,2	10,3	1,6	$\mu\text{g/l}$	99%
Arsenic	2,01	0,02	2,01	0,31	$\mu\text{g/l}$	100%
Lead	4,07	0,03	3,94	0,59	$\mu\text{g/l}$	97%
Cadmium	0,897	0,008	0,913	0,14	$\mu\text{g/l}$	102%
Chromium	3,49	0,03	3,56	0,54	$\mu\text{g/l}$	102%
Iron	36,0	0,2	37,0	5,6	$\mu\text{g/l}$	103%
Copper	2,96	0,03	2,93	0,44	$\mu\text{g/l}$	99%
Manganese	13,2	0,1	13,1	2,0	$\mu\text{g/l}$	99%
Nickel	3,75	0,03	3,72	0,56	$\mu\text{g/l}$	99%
Mercury	1,30	0,02	1,22	0,19	$\mu\text{g/l}$	94%
Selenium	2,39	0,06	2,48	0,38	$\mu\text{g/l}$	104%
Uranium	2,80	0,02	2,57	0,39	$\mu\text{g/l}$	92%
Zinc	14,9	0,5	14,5	2,2	$\mu\text{g/l}$	97%

