

# **IFA-Proficiency Testing Scheme for Water Analysis**

**Round M151  
Metals**

**Sample Dispatch: 9 March 2020**





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This report has 103 pages.

This report summarises the results of round M151 (trace metals) within the IFA-Proficiency Testing Scheme for Water Analysis. The samples M151A and M151B were distributed to 29 participants on Monday, 9 March 2020. Each participant received two samples of 250 mL, filled into LDPE bottles.

Closing date for reporting results to the IFA-Tulln was Friday, 3 April 2020. All 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 HNO<sub>3</sub> (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: CaCO<sub>3</sub>, Mg(NO<sub>3</sub>)<sub>2</sub>, NaCl, KCl, besides ultrapure H<sub>2</sub>SO<sub>4</sub> for sulphate. By this, the matrix of the samples consisted of about 38.6 mg/L Ca, 16.4 mg/L Mg, 9.51 mg/L Na, 1.03 mg/L K, 19.1 mg/L SO<sub>4</sub><sup>2-</sup> and 16.3 mg/L Cl<sup>-</sup>.

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 M151A and M151B 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 (M152). According to our experience, the concentrations of Al, As, Cd, Cr, Cu, Fe, Pb, Mn, Ni, Se, U, and Zn in the samples remain stable up to 18 months when stored at 4-6 °C in the dark. For the parameter Hg a concentration decrease of 2 % to 4 % per month can be expected.

## Results

Data evaluation was based on target concentrations that were calculated from the weights of the standards used to produce the samples. Their uncertainty intervals correspond to the expanded uncertainty (coverage factor k = 2) as described in the EURACHEM/CITAC Guide "Quantifying Uncertainty in Analytical Measurement, 3<sup>rd</sup> 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 91.4 % (Hg in sample M151A) and 124.9 % (Se in sample M151A).

The between laboratory CVs covered the range between 3.2 % (U in sample M151A) and 33.2 % (Se in sample M151A).

All confidence intervals of the outlier-corrected laboratory mean values encompass the corresponding target values with their uncertainties. Thus, 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“)

$\sigma_{pt}$       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 on page 5 (as well as in the annual program [www.ifatest.eu](http://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)

$\sigma_{pt}$       5.9 µg/L      equivalent to 8.2% (standard deviation for proficiency assessment, see table page 5)

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 Nickel in sample M151A.**

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%	0.4 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 page 7.

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" 3<sup>rd</sup> Edition (2012) ". The uncertainty interval of the reference concentration is illustrated in the graphs as a grey band around the 100 % recovery line.

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

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

Tulln, 8 April 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

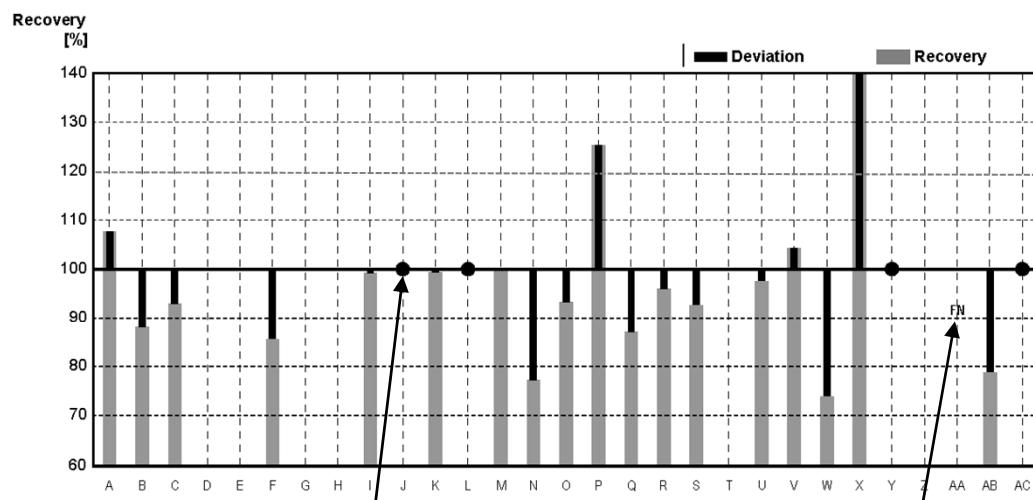


Diagram 2: Recoveries and deviations from target values



# **Illustration of Results Tables and Parameter Oriented Part**

Round M151  
Metals

Sample Dispatch: 9 March 2020



## Results Sample M151A

	Aluminium	Arsenic	Lead	Cadmium	Chromium	Iron	Copper
Target value	12.1	5.14	1.49	0.220	3.80	12.3	4.46
IFA result	12.6	4.89	1.50	0.226	3.81	13.0	4.49
A	24.4	4.59	1.20	0.209	3.84	12.1	4.69
B	<15	5.8	<2.0	<1.0	<5.0	<30	10.4
C	11.28	5.43	1.42	<0.6	3.61	12.9	4.21
D	12.4	6.07	1.08	0.217	3.66	11.4	4.10
E	15.0	5.20	1.60	0.230	3.80	11.0	4.40
F						<20	
G						<50	
H	13.0	5.7	1.57	0.260	3.70	12.7	4.60
I	10.1					10.3	
J	19.7	<	1.56	0.189	3.12	15.5	4.16
K	11.7		<4.0	<0.5	3.79	12.3	<5.0
L	11.2	5.60	1.60	0.200	3.70	11.1	4.10
M		5.15	1.51				
N		6.96					
O	13.2	5.44	1.57	0.229	3.81	12.4	4.43
P	12.1	5.1	1.34	0.219	3.64	12.0	4.17
Q	<20		<6	<0.5	<5	<20	<150
R	11.0					16.0	15.0
S			1.36	0.198		15.5	4.40
T	11.4	5.09	1.29	0.197	3.44	11.7	3.92
U	11.0	5.16	1.41	0.216	3.51	10.9	4.13
V	11.7	5.0	1.44	0.214	3.62	11.8	4.28
W	10.5	5.45	1.45	0.227	3.47	13.5	4.20
X	13.50	5.80	<2	<1	<5	13.06	<5
Y	11.11	4.21	<0.1	<0.1	3.15	12.99	3.79
Z	13.1	5.89	1.42	0.226	3.95	13.1	4.30
AA	15.4	5.8	3.48	0.210	3.97	22.0	4.34
AB	13.0	5.4	1.62	0.213	4.30	11.2	4.88
AC						<20.0	

All data in µg/L

### Measurement Uncertainties Sample M151A

	Aluminium ±	Arsenic ±	Lead ±	Cadmium ±	Chromium ±	Iron ±	Copper ±
Target value	0.3	0.03	0.02	0.005	0.03	0.2	0.03
IFA result	0.6	0.39	0.06	0.016	0.19	1.3	0.40
A	2.68	0.21	0.06	0.040	0.43	1.57	0.52
B		0.9					2.7
C	1.00	0.50	0.10	0.06	0.30	1.00	0.40
D	1.02	0.42	0.08	0.014	0.22	0.82	0.30
E	1.50	0.624	0.128	0.0184	0.456	2.860	0.352
F							
G							
H	1	0.6	0.2	0.03	0.4	1	0.5
I	2.5					1.2	
J	2.0	<0.5	0.16	0.02	0.31	1.6	0.42
K	2.1				0.57	1.3	
L							
M		0.62	0.08				
N		0.66					
O	0.249	0.036	0.067	0.010	0.028	0.121	0.059
P	1.82	0.51	0.13	0.022	0.36	1.2	0.42
Q							
R							
S			0.1	0.02		1.0	0.4
T	1.71	0.76	0.19	0.030	0.52	1.75	0.59
U	1.2	0.29	0.15	0.010	0.50	1.2	0.23
V	1.8	1.0	0.22	0.028	0.36	1.8	0.64
W	0.98	0.08	0.03	0.011	0.16	0.91	0.13
X	1.35	0.58				1.31	
Y	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Z	2.36	1.18	0.227	0.0316	0.593	2.10	0.774
AA	3	1	1	0.1	1	30	1
AB	2.6	1.1	0.32	0.043	0.86	2.2	0.98
AC							

All data in µg/L

## Results Sample M151A

	Manganese	Nickel	Mercury	Selenium	Uranium	Zinc
Target value	57.5	0.88	0.27	0.72	3.11	27.1
IFA result	61.9	0.88	0.25	0.81	3.12	30.7
A	56.6	0.846		0.732	2.39	25.1
B	58.9	<2.0		<5.0		29.4
C	55.6	1.18	0.099	<3.00	2.94	22.89
D	58.7	<1	0.281	<1	3.03	31.7
E	58.0	1.10	0.250	0.80	3.39	26.0
F	51.8					
G	56					
H	57.0	<1	0.277	1.05	3.00	38.0
I	51.6					
J	17.9	0.74	0.4306	1.36		19.9
K	58.0	<1.0	0.232			27.7
L	56.3	1.00		1.30		25.2
M	55.33		0.71			
N				1.03		
O	57.6	0.670	0.272	0.734	3.15	27.4
P	56	0.83	0.237	<1.0	2.95	25.5
Q	58.9	<5				<500
R	60.0					29.0
S						27.9
T	53.6	<1	0.266	<1	2.96	23.7
U	52.4	<1.0	0.244	<1.0	2.92	25.4
V	53	0.83	0.196	0.74	2.97	27.5
W	59.5	<1.00	0.181	<1.00	3.22	28.8
X	60.00	<5	0.310	<2	3.11	25.27
Y	54.72	0.455	15.43	0.351		14.09
Z	59.7	0.887	0.227	0.895	2.97	29.1
AA	57	1.24	0.228			28.0
AB	64.6	1.01	0.253	<1.00	3.35	27.4
AC	57					

All data in µg/L

### Measurement Uncertainties Sample M151A

	Manganese ±	Nickel ±	Mercury ±	Selenium ±	Uranium ±	Zinc ±
Target value	0.3	0.02	0.01	0.06	0.02	0.8
IFA result	5.6	0.08	0.03	0.11	0.31	6.1
A	6.23	0.08		0.040		
B	5.5					4.1
C	5.00	0.10	0.01	0.30	0.20	2.00
D	8.81		0.042		0.26	3.46
E	5.80	0.110	0.030	0.120	0.170	2.60
F	5					
G	5					
H	6		0.03	0.1	0.3	4
I	8.3					
J	1.8	0.07	0.043	0.2		2.0
K	5.8		0.047			3.4
L						
M	3.84		0.05			
N				0.21		
O	0.399	0.037	0.010	0.016	0.118	0.197
P	5.6	0.08	0.036		0.30	2.55
Q	5.9					
R						
S						2.0
T	8.04		0.040		0.44	3.56
U	2.9		0.038		0.31	1.6
V	5	0.08	0.039	0.11	0.30	2.5
W	0.97		0.004		0.06	0.44
X	0.60		0.05		0.31	2.53
Y	0.1	0.1	0.1	0.1		0.1
Z	7.76	0.160	0.0545	0.269	0.475	5.82
AA	20	1	0.1			10
AB	12.9	0.20	0.051		0.67	5.5
AC	6.0					

All data in µg/L

## Results Sample M151B

	Aluminium	Arsenic	Lead	Cadmium	Chromium	Iron	Copper
Target value	23.5	0.96	5.95	1.89	0.93	88.4	19.2
IFA result	24.2	0.94	5.86	1.90	0.92	91.9	19.4
A	31.2	0.886	5.75	1.41	1.02	78.1	18.8
B	25.9	<2.0	6.5	2.00	<5.0	90.0	25.8
C	23.33	<3.00	5.66	1.92	0.81	84.31	18.29
D	23.4	1.08	5.17	1.97	<1	88.2	17.38
E	27.0	1.10	6.30	1.84	0.90	88.0	18.9
F						81.4	
G						90	
H	24.7	1.20	6.23	2.27	<1	86.3	20.0
I	21.5					80.0	
J	28.8	<	5.3	1.91	0.870	67.5	11.69
K	24.3		5.61	1.90	<1.0	90.5	18.2
L	22.4	1.10	6.00	1.90	0.80	86.3	15.9
M		<2	5.66				
N		1.07					
O	25.7	1.00	5.99	1.94	0.852	92.3	19.2
P	23.7	0.96	5.3	1.87	0.89	87.6	17.8
Q	22.0		<6	1.73	<5	86	<150
R	23.0					93.0	30.0
S			5.15	1.58		105	17.0
T	22.5	1.02	5.25	1.68	<1	81.1	16.7
U	22.0	0.967	5.74	1.86	<1.0	84.2	17.9
V	23.7	0.92	5.8	1.89	0.85	82	18.4
W	21.3	<1.00	5.94	1.91	<1.00	89.9	17.4
X	26.43	<2	5.58	2.07	<5	91.94	18.68
Y	23.56	0.50	4.91	1.36	0.582	107.25	18.61
Z	24.1	1.10	5.37	1.94	0.942	88.5	18.4
AA	29.0	1.22	7.5	1.83	0.92	88	18.7
AB	25.1	1.09	6.4	1.94	1.05	82.0	21.1
AC						86	

All data in µg/L

### Measurement Uncertainties Sample M151B

	Aluminium ±	Arsenic ±	Lead ±	Cadmium ±	Chromium ±	Iron ±	Copper ±
Target value	0.3	0.02	0.04	0.01	0.01	0.4	0.1
IFA result	1.2	0.08	0.23	0.13	0.05	9.2	1.7
A	3.43	0.042	0.28	0.27	0.12	10.2	2.1
B	4.0		1.1	0.1		7.6	6.7
C	2.00	0.30	0.50	0.20	0.10	5.00	1.50
D	1.93	0.08	0.37	0.12		6.17	1.25
E	2.7	0.132	0.504	0.147	0.108	22.88	1.512
F						8	
G						6	
H	2.5	0.12	0.6	0.23		8.6	2
I	5.4					9.6	
J	2.9		0.5	0.2	0.09	6.8	1.2
K	4.4		0.68	0.29		9.1	2.8
L							
M			0.30				
N		0.16					
O	0.453	0.013	0.094	0.039	0.038	0.292	0.153
P	3.56	0.096	0.053	0.187	0.089	8.76	1.78
Q	4			0.35		14	
R							
S			0.4	0.15		5.0	1.5
T	3.38	0.15	0.79	0.25		12.2	2.50
U	2.4	0.054	0.61	0.09		9.3	1.0
V	3.6	0.18	0.9	0.25	0.09	12	2.8
W	0.92		0.03	0.049		0.91	0.66
X	2.64		0.56	0.21		9.19	1.87
Y	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Z	4.34	0.220	0.859	0.272	0.141	14.2	3.31
AA	5	1	1	0.2	1	30	2
AB	5.0	0.22	1.3	0.39	0.21	16.4	4.2
AC						9.0	

All data in µg/L

## Results Sample M151B

	Manganese	Nickel	Mercury	Selenium	Uranium	Zinc
Target value	11.4	4.55	2.15	4.64	0.66	19.5
IFA result	12.3	4.37	2.56	5.13	0.66	21.7
A	10.5	3.95		4.78	1.09	17.4
B	11.8	4.90		<0.5		23.7
C	10.97	4.51	1.63	4.51	0.62	14.97
D	11.2	3.93	2.49	6.00	<1	21.8
E	11.0	4.30	2.16	5.10	0.71	19.0
F	10.4					
G	<50					
H	11.0	4.80	2.43	5.03	0.600	26.3
I	'<10					
J	3.36	4.46	2.0080	5.83		14.2
K	11.5	4.63	2.02			19.7
L	11.1	4.60		4.80		17.6
M	10.59		2.70			
N				6.23		
O	11.8	4.29	2.18	4.77	0.642	19.7
P	10.9	4.22	2.01	4.72	0.64	18.3
Q	11.2	<5				<500
R	12.0					21.0
S						16.5
T	10.6	3.99	2.02	4.54	<1	16.7
U	10.4	4.38	2.14	4.78	0.646	18.0
V	10.4	4.25	1.74	4.98	0.63	19.5
W	11.0	4.65	2.01	4.45	<1.00	20.5
X	11.54	<5	2.64	5.33	<1	16.63
Y	10.78	4.321	165.50	4.10		10.62
Z	11.5	4.45	1.94	5.47	0.608	20.3
AA	19.0	5.1	2.02			22.0
AB	12.5	5.04	2.19	4.86	<1.00	20.4
AC	17.0					

All data in µg/L

### Measurement Uncertainties Sample M151B

	Manganese ±	Nickel ±	Mercury ±	Selenium ±	Uranium ±	Zinc ±
Target value	0.1	0.03	0.02	0.06	0.01	0.8
IFA result	1.1	0.39	0.26	0.72	0.07	4.3
A	1.2	0.36		0.24		
B	1.1	0.6				3.3
C	1.00	0.40	0.10	0.50	0.05	1.50
D	1.68	0.28	0.37	0.90		1.69
E	1.10	0.43	0.259	0.765	0.036	1.90
F	3					
G						
H	1	0.5	0.25	0.5	0.06	2.6
I	2.5					
J	0.3	0.4	0.201	0.6		
K	1.2	0.56	0.41			2.4
L						
M	0.73		0.18			
N				0.58		
O	0.290	0.040	0.018	0.077	0.008	0.520
P	1.09	0.42	0.20	0.47	0.064	1.83
Q	1.6					
R						
S						1.5
T	1.60	0.60	0.30	0.68		2.51
U	0.57	0.34	0.33	0.57	0.068	1.1
V	1.0	0.43	0.35	0.75	0.06	1.8
W	1.14	0.16	0.047	0.11		0.44
X	1.15		0.26	0.53		1.66
Y	0.1	0.1	0.1	0.1		0.1
Z	1.50	0.801	0.466	1.31	0.0730	4.06
AA	15	1	0.2			10
AB	2.5	1.01	0.44	0.97		4.1
AC	2.0					

All data in µg/L

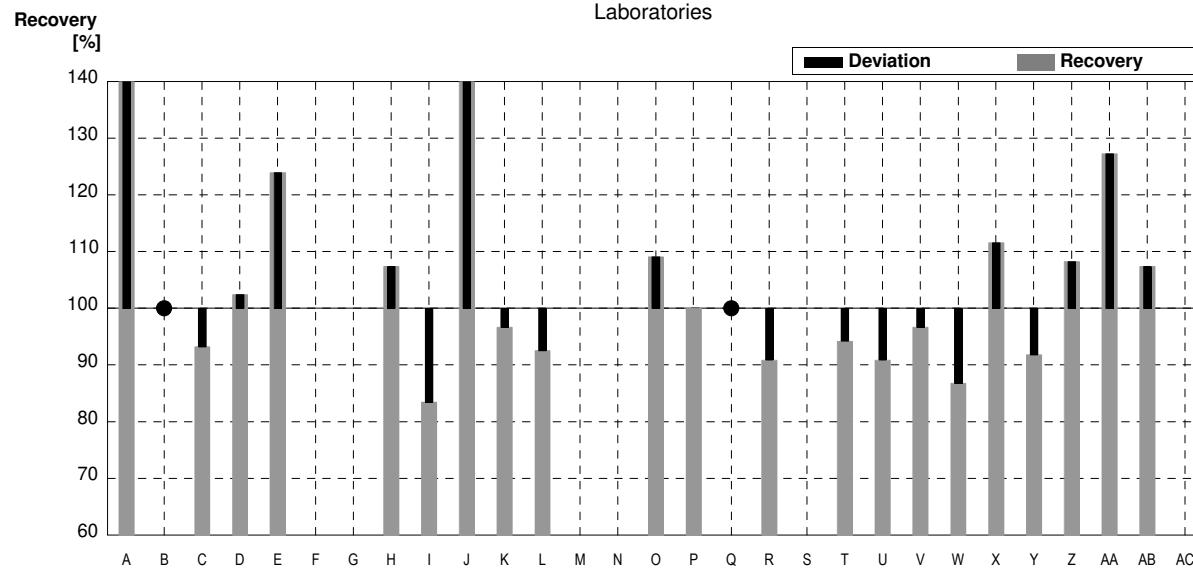
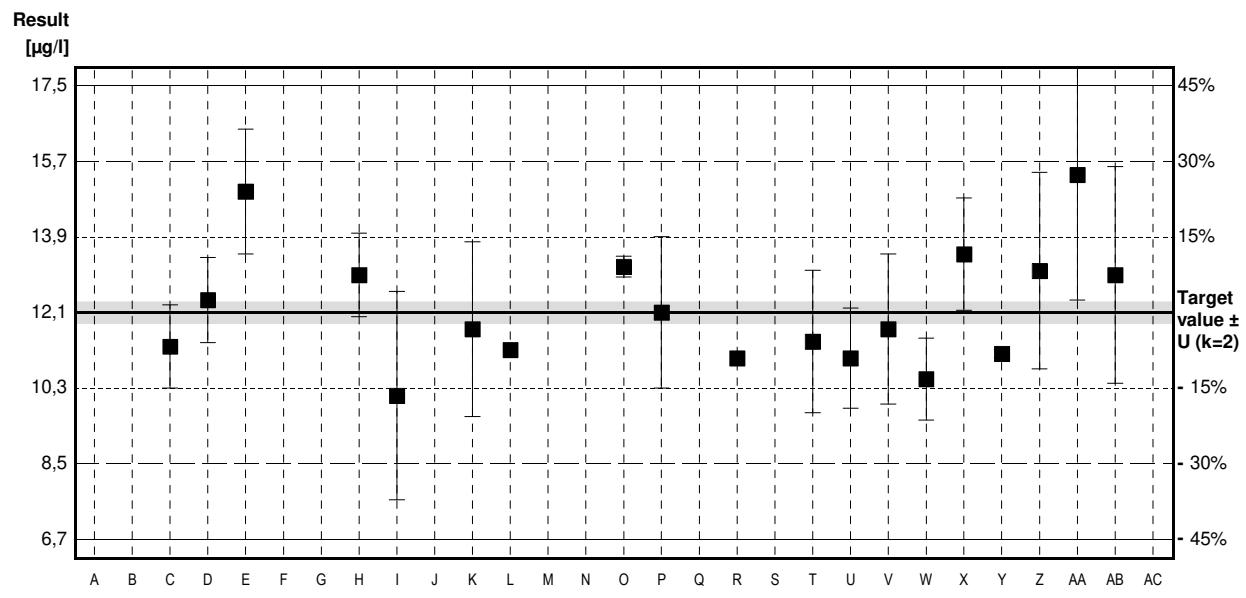
## Sample M151A

### Parameter Aluminium

Target value  $\pm U$  ( $k=2$ ) 12,1  $\mu\text{g/l}$   $\pm$  0,3  $\mu\text{g/l}$   
 IFA result  $\pm U$  ( $k=2$ ) 12,6  $\mu\text{g/l}$   $\pm$  0,6  $\mu\text{g/l}$

Stability test					
Lab Code	Result	$\pm$	Unit	Recovery	z-Score
A	24,4 *	2,68	$\mu\text{g/l}$	202%	12,40
B	<15		$\mu\text{g/l}$	*	
C	11,28	1,00	$\mu\text{g/l}$	93%	-0,83
D	12,4	1,02	$\mu\text{g/l}$	102%	0,30
E	15,0	1,50	$\mu\text{g/l}$	124%	2,92
F			$\mu\text{g/l}$		
G			$\mu\text{g/l}$		
H	13,0	1	$\mu\text{g/l}$	107%	0,91
I	10,1	2,5	$\mu\text{g/l}$	83%	-2,02
J	19,7 *	2,0	$\mu\text{g/l}$	163%	7,66
K	11,7	2,1	$\mu\text{g/l}$	97%	-0,40
L	11,2		$\mu\text{g/l}$	93%	-0,91
M			$\mu\text{g/l}$		
N			$\mu\text{g/l}$		
O	13,2	0,249	$\mu\text{g/l}$	109%	1,11
P	12,1	1,82	$\mu\text{g/l}$	100%	0,00
Q	<20		$\mu\text{g/l}$	*	
R	11,0		$\mu\text{g/l}$	91%	-1,11
S			$\mu\text{g/l}$		
T	11,4	1,71	$\mu\text{g/l}$	94%	-0,71
U	11,0	1,2	$\mu\text{g/l}$	91%	-1,11
V	11,7	1,8	$\mu\text{g/l}$	97%	-0,40
W	10,5	0,98	$\mu\text{g/l}$	87%	-1,61
X	13,50	1,35	$\mu\text{g/l}$	112%	1,41
Y	11,11	0,1	$\mu\text{g/l}$	92%	-1,00
Z	13,1	2,36	$\mu\text{g/l}$	108%	1,01
AA	15,4	3	$\mu\text{g/l}$	127%	3,33
AB	13,0	2,6	$\mu\text{g/l}$	107%	0,91
AC			$\mu\text{g/l}$		

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	13,1 $\pm$ 2,1	12,2 $\pm$ 1,0	$\mu\text{g/l}$
Recov. $\pm$ CI(99%)	108,5 $\pm$ 17,2	100,8 $\pm$ 7,9	%
SD between labs	3,3	1,4	$\mu\text{g/l}$
RSD between labs	25,5	11,8	%
n for calculation	21	19	



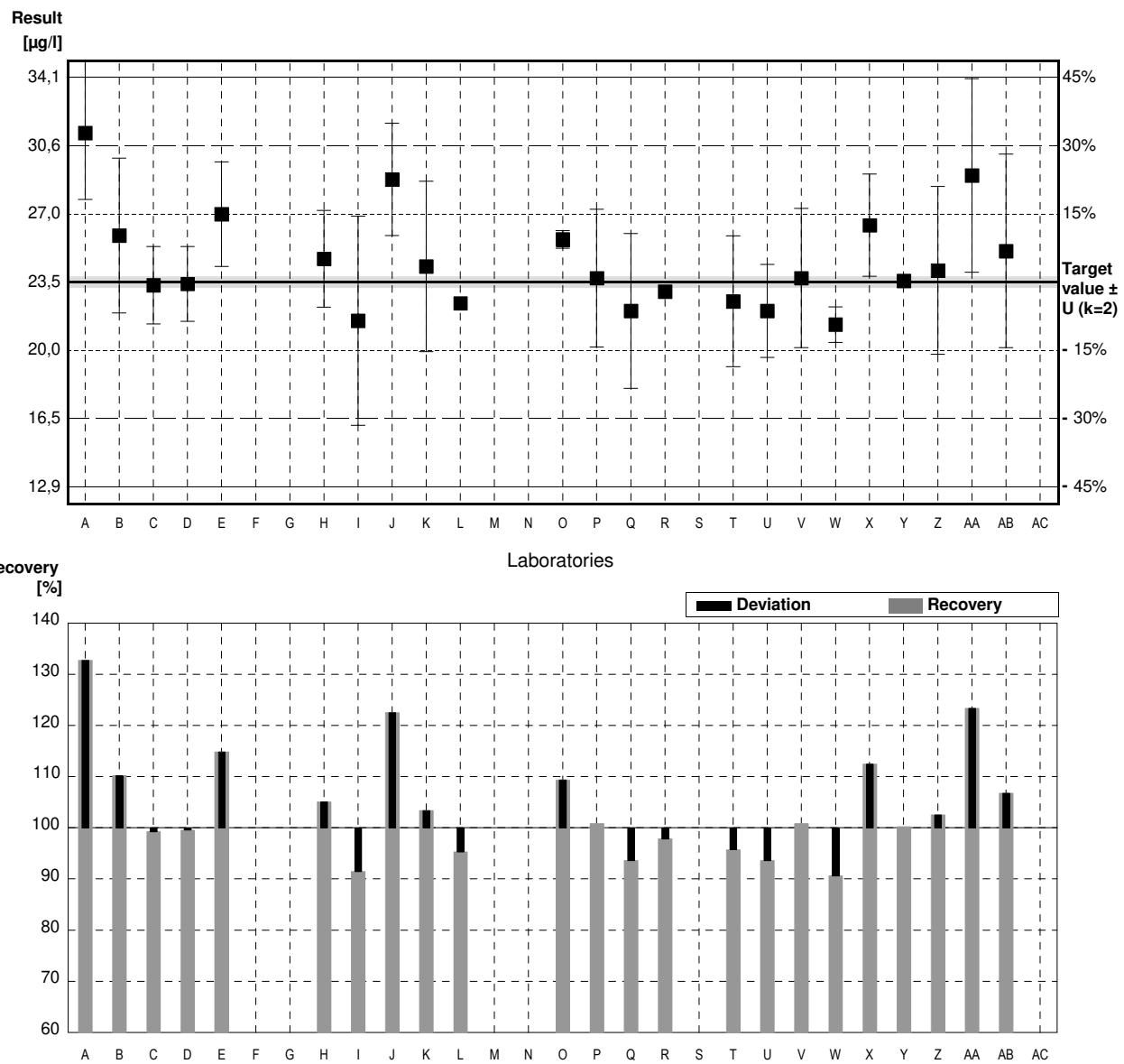
## Sample M151B

### Parameter Aluminium

Target value  $\pm U$  ( $k=2$ )    23,5 µg/l     $\pm$     0,3 µg/l  
 IFA result  $\pm U$  ( $k=2$ )    24,2 µg/l     $\pm$     1,2 µg/l

Stability test					
Lab Code	Result	$\pm$	Unit	Recovery	z-Score
A	31,2 *	3,43	µg/l	133%	4,00
B	25,9	4,0	µg/l	110%	1,25
C	23,33	2,00	µg/l	99%	-0,09
D	23,4	1,93	µg/l	100%	-0,05
E	27,0	2,7	µg/l	115%	1,82
F			µg/l		
G			µg/l		
H	24,7	2,5	µg/l	105%	0,62
I	21,5	5,4	µg/l	91%	-1,04
J	28,8	2,9	µg/l	123%	2,75
K	24,3	4,4	µg/l	103%	0,42
L	22,4		µg/l	95%	-0,57
M			µg/l		
N			µg/l		
O	25,7	0,453	µg/l	109%	1,14
P	23,7	3,56	µg/l	101%	0,10
Q	22,0	4	µg/l	94%	-0,78
R	23,0		µg/l	98%	-0,26
S			µg/l		
T	22,5	3,38	µg/l	96%	-0,52
U	22,0	2,4	µg/l	94%	-0,78
V	23,7	3,6	µg/l	101%	0,10
W	21,3	0,92	µg/l	91%	-1,14
X	26,43	2,64	µg/l	112%	1,52
Y	23,56	0,1	µg/l	100%	0,03
Z	24,1	4,34	µg/l	103%	0,31
AA	29,0	5	µg/l	123%	2,85
AB	25,1	5,0	µg/l	107%	0,83
AC			µg/l		

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	24,5 $\pm$ 1,5	24,2 $\pm$ 1,3	µg/l
Recov. $\pm$ CI(99%)	104,5 $\pm$ 6,4	103,2 $\pm$ 5,6	%
SD between labs	2,6	2,2	µg/l
RSD between labs	10,4	8,9	%
n for calculation	23	22	



## Sample M151A

## Parameter Arsenic

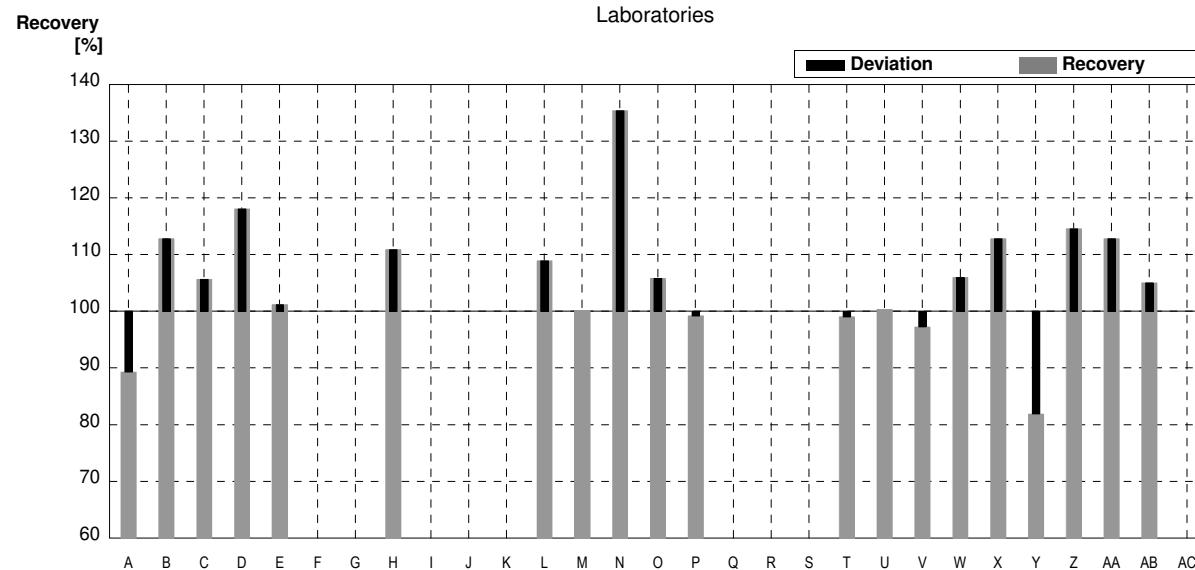
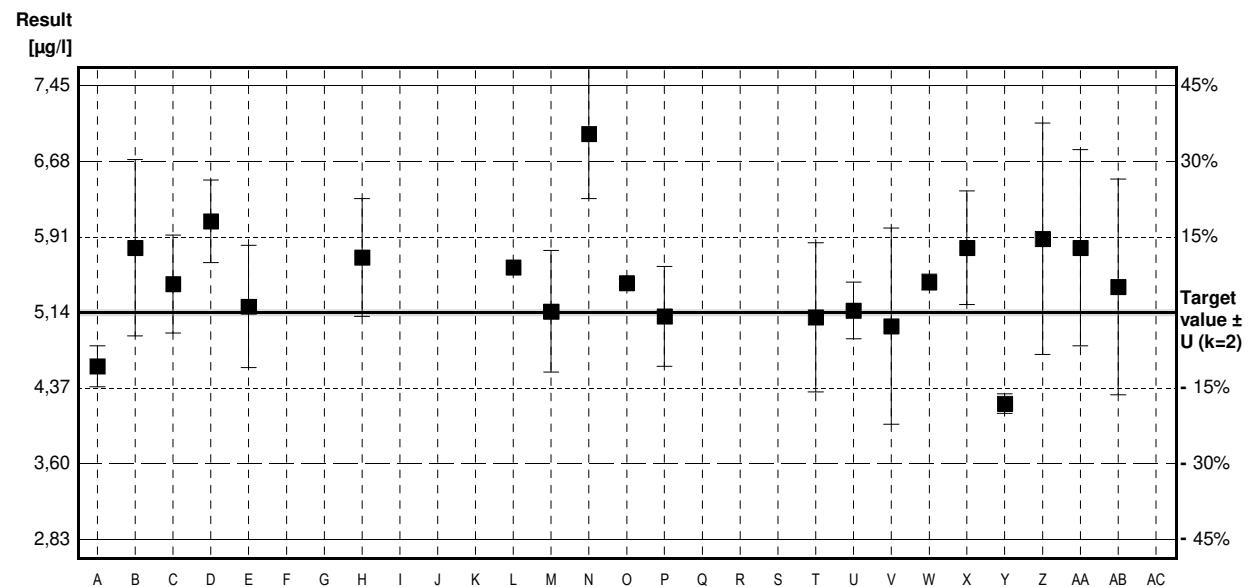
Target value  $\pm$  U (k=2) 5,14 µg/l  $\pm$  0,03 µg/l

IFA result  $\pm$  U (k=2) 4,89  $\mu\text{g/l}$   $\pm$  0,39  $\mu\text{g/l}$

## Stability test

Lab Code	Result	±	Unit	Recovery	z-Score
A	4,59	0,21	µg/l	89%	-1,34
B	5,8	0,9	µg/l	113%	1,61
C	5,43	0,50	µg/l	106%	0,71
D	6,07	0,42	µg/l	118%	2,26
E	5,20	0,624	µg/l	101%	0,15
F			µg/l		
G			µg/l		
H	5,7	0,6	µg/l	111%	1,36
I			µg/l		
J	<	<0,5	µg/l		
K			µg/l		
L	5,60		µg/l	109%	1,12
M	5,15	0,62	µg/l	100%	0,02
N	6,96	0,66	µg/l	135%	4,43
O	5,44	0,036	µg/l	106%	0,73
P	5,1	0,51	µg/l	99%	-0,10
Q			µg/l		
R			µg/l		
S			µg/l		
T	5,09	0,76	µg/l	99%	-0,12
U	5,16	0,29	µg/l	100%	0,05
V	5,0	1,0	µg/l	97%	-0,34
W	5,45	0,08	µg/l	106%	0,75
X	5,80	0,58	µg/l	113%	1,61
Y	4,21	0,1	µg/l	82%	-2,26
Z	5,89	1,18	µg/l	115%	1,82
AA	5,8	1	µg/l	113%	1,61
AB	5,4	1,1	µg/l	105%	0,63
AC			µg/l		

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	5,44 $\pm$ 0,37	5,44 $\pm$ 0,37	$\mu\text{g/l}$
Recov. $\pm$ CI(99%)	105,9 $\pm$ 7,2	105,9 $\pm$ 7,2	%
SD between labs	0,57	0,57	$\mu\text{g/l}$
RSD between labs	10,6	10,6	%
n for calculation	20	20	



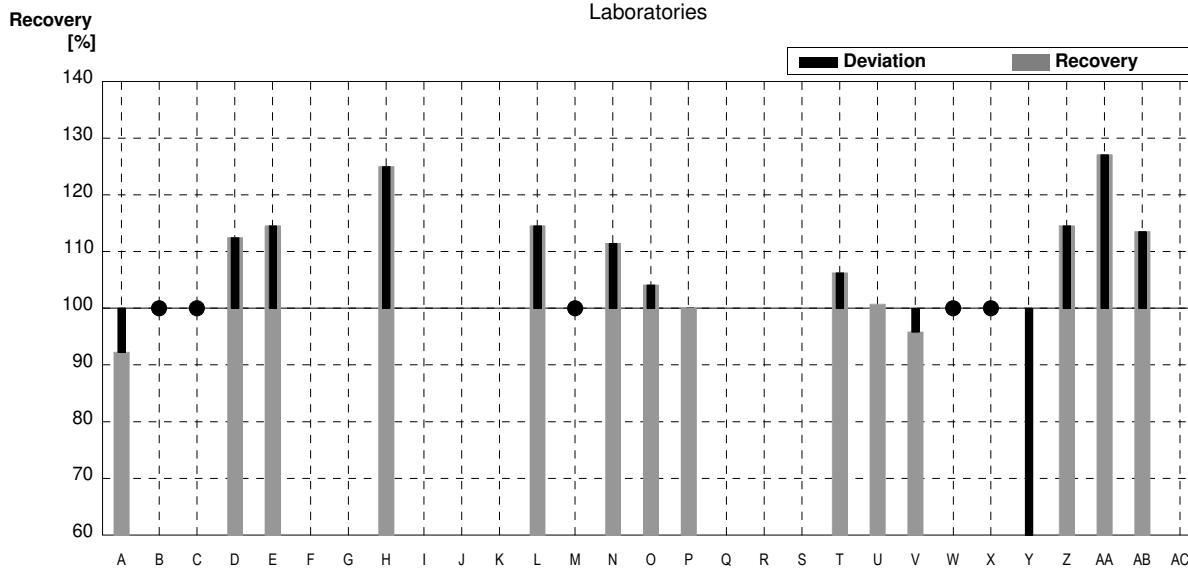
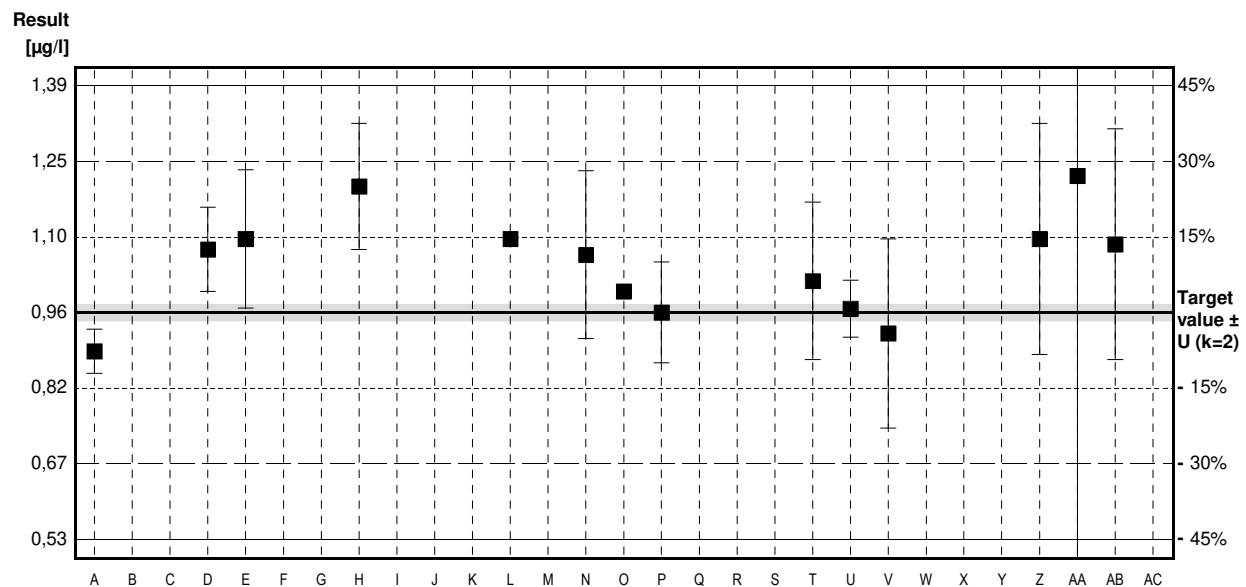
## Sample M151B

### Parameter Arsenic

Target value  $\pm U$  ( $k=2$ ) 0,96 µg/l  $\pm$  0,02 µg/l  
 IFA result  $\pm U$  ( $k=2$ ) 0,94 µg/l  $\pm$  0,08 µg/l

Stability test					
Lab Code	Result	$\pm$	Unit	Recovery	z-Score
A	0,886	0,042	µg/l	92%	-0,96
B	<2,0		µg/l	*	
C	<3,00	0,30	µg/l	*	
D	1,08	0,08	µg/l	113%	1,56
E	1,10	0,132	µg/l	115%	1,82
F			µg/l		
G			µg/l		
H	1,20	0,12	µg/l	125%	3,13
I			µg/l		
J	<		µg/l		
K			µg/l		
L	1,10		µg/l	115%	1,82
M	<2		µg/l	*	
N	1,07	0,16	µg/l	111%	1,43
O	1,00	0,013	µg/l	104%	0,52
P	0,96	0,096	µg/l	100%	0,00
Q			µg/l		
R			µg/l		
S			µg/l		
T	1,02	0,15	µg/l	106%	0,78
U	0,967	0,054	µg/l	101%	0,09
V	0,92	0,18	µg/l	96%	-0,52
W	<1,00		µg/l	*	
X	<2		µg/l	*	
Y	0,50 *	0,1	µg/l	52%	-5,99
Z	1,10	0,220	µg/l	115%	1,82
AA	1,22	1	µg/l	127%	3,39
AB	1,09	0,22	µg/l	114%	1,69
AC			µg/l		

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	1,01 $\pm$ 0,13	1,05 $\pm$ 0,08	µg/l
Recov. $\pm$ CI(99%)	105,6 $\pm$ 13,7	109,5 $\pm$ 8,2	%
SD between labs	0,17	0,10	µg/l
RSD between labs	16,8	9,3	%
n for calculation	15	14	



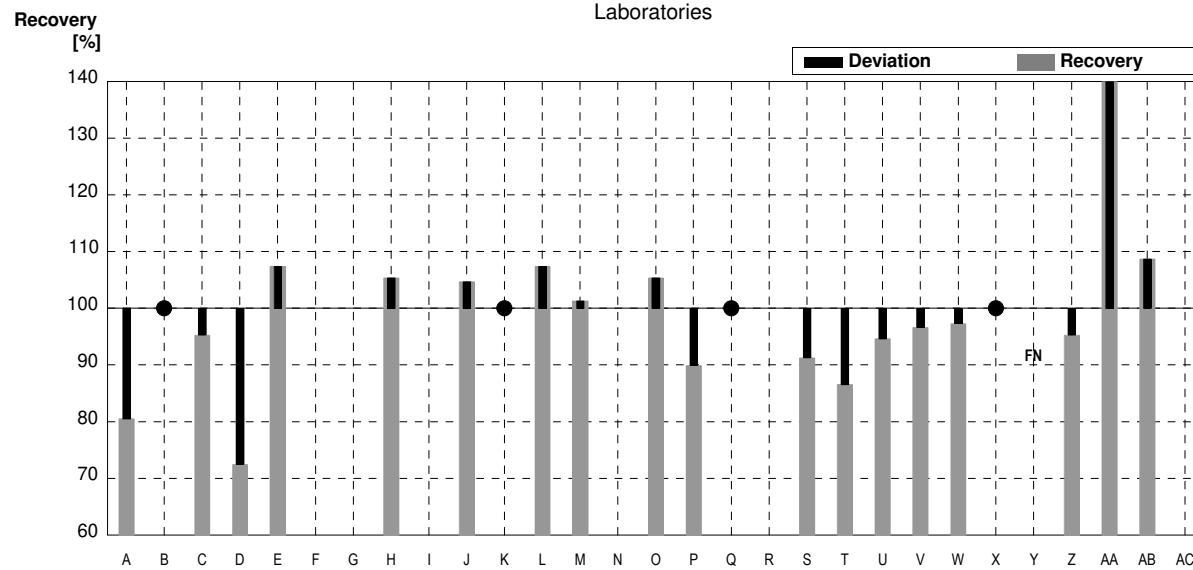
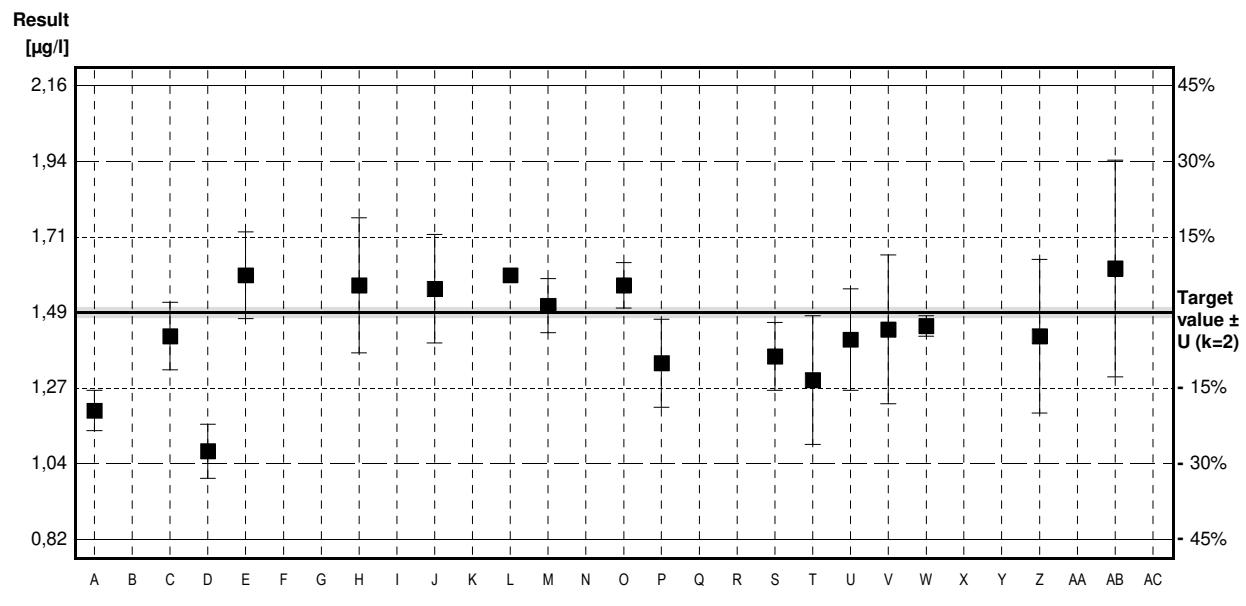
## Sample M151A

### Parameter Lead

Target value  $\pm U$  ( $k=2$ )    1,49 µg/l     $\pm$     0,02 µg/l  
 IFA result  $\pm U$  ( $k=2$ )    1,50 µg/l     $\pm$     0,06 µg/l

Stability test					
Lab Code	Result	$\pm$	Unit	Recovery	z-Score
A	1,20	0,06	µg/l	81%	-2,70
B	<2,0		µg/l	*	
C	1,42	0,10	µg/l	95%	-0,65
D	1,08	0,08	µg/l	72%	-3,82
E	1,60	0,128	µg/l	107%	1,03
F			µg/l		
G			µg/l		
H	1,57	0,2	µg/l	105%	0,75
I			µg/l		
J	1,56	0,16	µg/l	105%	0,65
K	<4,0		µg/l	*	
L	1,60		µg/l	107%	1,03
M	1,51	0,08	µg/l	101%	0,19
N			µg/l		
O	1,57	0,067	µg/l	105%	0,75
P	1,34	0,13	µg/l	90%	-1,40
Q	<6		µg/l	*	
R			µg/l		
S	1,36	0,1	µg/l	91%	-1,21
T	1,29	0,19	µg/l	87%	-1,86
U	1,41	0,15	µg/l	95%	-0,75
V	1,44	0,22	µg/l	97%	-0,47
W	1,45	0,03	µg/l	97%	-0,37
X	<2		µg/l	*	
Y	<0,1	0,1	µg/l	FN	
Z	1,42	0,227	µg/l	95%	-0,65
AA	3,48 *	1	µg/l	234%	18,55
AB	1,62	0,32	µg/l	109%	1,21
AC			µg/l		

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	1,55 $\pm$ 0,34	1,44 $\pm$ 0,11	µg/l
Recov. $\pm$ CI(99%)	104,1 $\pm$ 23,1	96,5 $\pm$ 7,2	%
SD between labs	0,50	0,15	µg/l
RSD between labs	32,4	10,5	%
n for calculation	18	17	



## Sample M151B

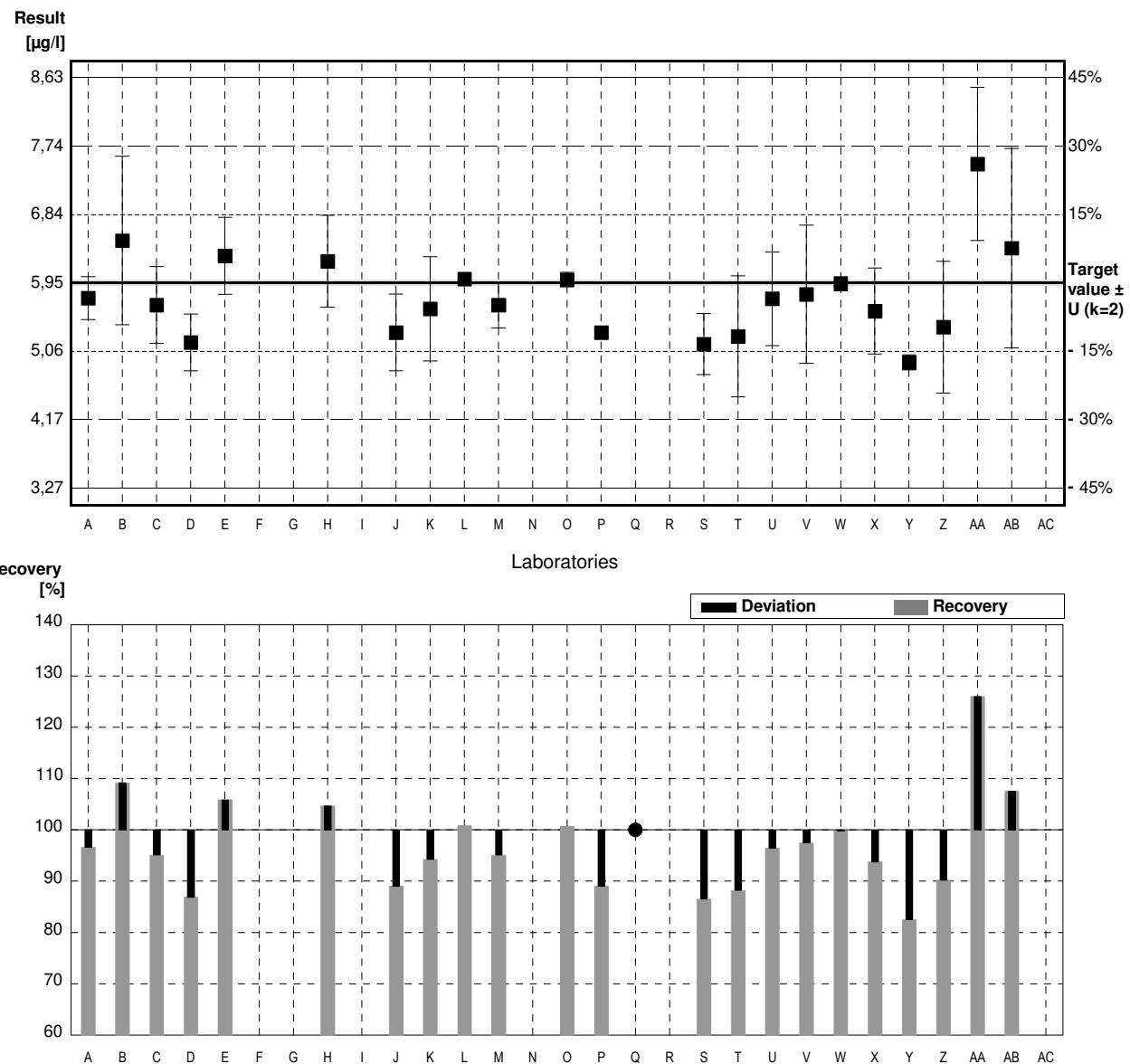
### Parameter Lead

Target value  $\pm U$  ( $k=2$ )    5,95  $\mu\text{g/l}$      $\pm$     0,04  $\mu\text{g/l}$   
 IFA result  $\pm U$  ( $k=2$ )    5,86  $\mu\text{g/l}$      $\pm$     0,23  $\mu\text{g/l}$

### Stability test

Lab Code	Result	$\pm$	Unit	Recovery	z-Score
A	5,75	0,28	$\mu\text{g/l}$	97%	-0,47
B	6,5	1,1	$\mu\text{g/l}$	109%	1,28
C	5,66	0,50	$\mu\text{g/l}$	95%	-0,68
D	5,17	0,37	$\mu\text{g/l}$	87%	-1,82
E	6,30	0,504	$\mu\text{g/l}$	106%	0,82
F			$\mu\text{g/l}$		
G			$\mu\text{g/l}$		
H	6,23	0,6	$\mu\text{g/l}$	105%	0,65
I			$\mu\text{g/l}$		
J	5,3	0,5	$\mu\text{g/l}$	89%	-1,52
K	5,61	0,68	$\mu\text{g/l}$	94%	-0,79
L	6,00		$\mu\text{g/l}$	101%	0,12
M	5,66	0,30	$\mu\text{g/l}$	95%	-0,68
N			$\mu\text{g/l}$		
O	5,99	0,094	$\mu\text{g/l}$	101%	0,09
P	5,3	0,053	$\mu\text{g/l}$	89%	-1,52
Q	<6		$\mu\text{g/l}$	*	
R			$\mu\text{g/l}$		
S	5,15	0,4	$\mu\text{g/l}$	87%	-1,87
T	5,25	0,79	$\mu\text{g/l}$	88%	-1,63
U	5,74	0,61	$\mu\text{g/l}$	96%	-0,49
V	5,8	0,9	$\mu\text{g/l}$	97%	-0,35
W	5,94	0,03	$\mu\text{g/l}$	100%	-0,02
X	5,58	0,56	$\mu\text{g/l}$	94%	-0,86
Y	4,91	0,1	$\mu\text{g/l}$	83%	-2,43
Z	5,37	0,859	$\mu\text{g/l}$	90%	-1,35
AA	7,5	*	1 $\mu\text{g/l}$	126%	3,62
AB	6,4	1,3	$\mu\text{g/l}$	108%	1,05
AC			$\mu\text{g/l}$		

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	5,78 $\pm$ 0,35	5,70 $\pm$ 0,27	$\mu\text{g/l}$
Recov. $\pm$ CI(99%)	97,1 $\pm$ 5,8	95,7 $\pm$ 4,6	%
SD between labs	0,58	0,44	$\mu\text{g/l}$
RSD between labs	10,0	7,7	%
n for calculation	22	21	



## Sample M151A

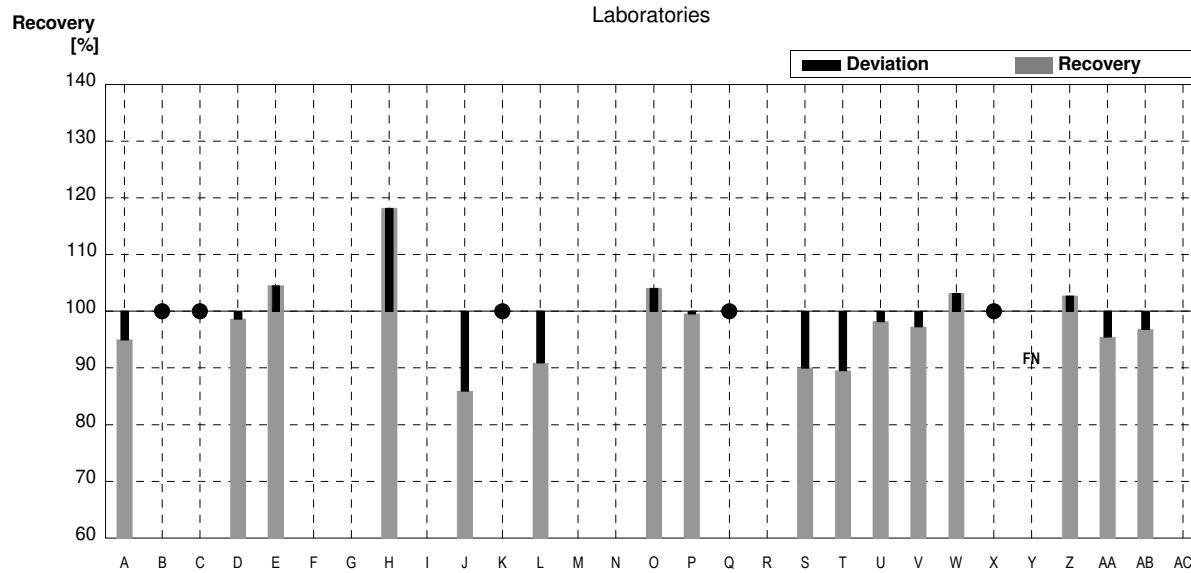
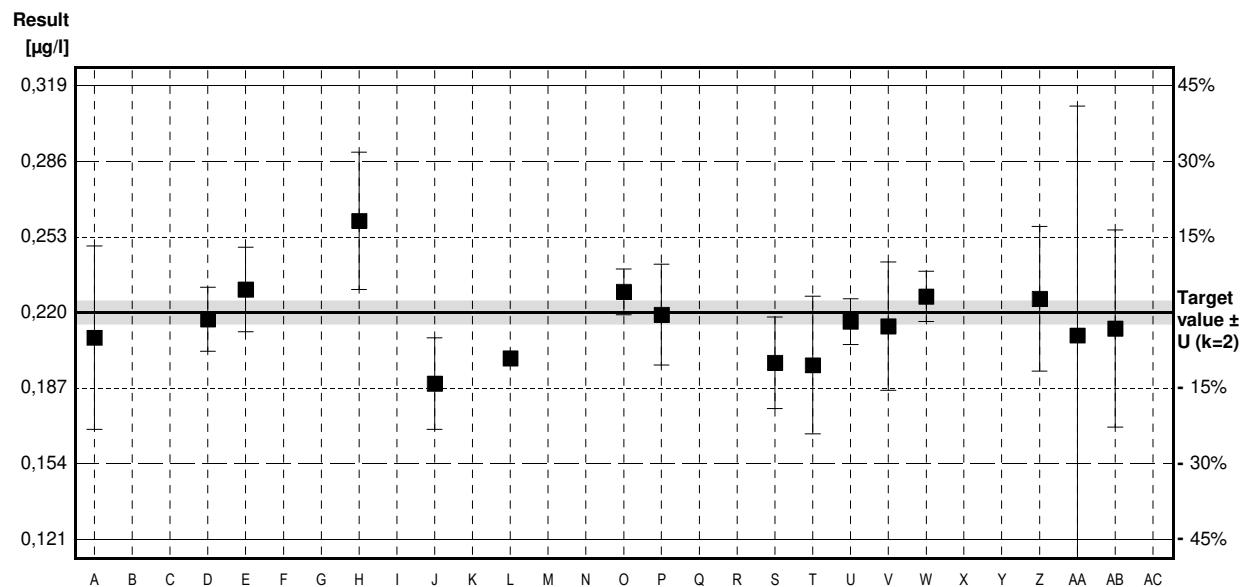
### Parameter Cadmium

Target value  $\pm U$  ( $k=2$ )    0.220 µg/l     $\pm$     0.005 µg/l  
 IFA result  $\pm U$  ( $k=2$ )    0.226 µg/l     $\pm$     0.016 µg/l

Stability test                          µg/l

Lab Code	Result	$\pm$	Unit	Recovery	z-Score
A	0,209	0,040	µg/l	95%	-0,85
B	<1,0		µg/l	*	
C	<0,6	0,06	µg/l	*	
D	0,217	0,014	µg/l	99%	-0,23
E	0,230	0,0184	µg/l	105%	0,77
F			µg/l		
G			µg/l		
H	0,260	0,03	µg/l	118%	3,08
I			µg/l		
J	0,189	0,02	µg/l	86%	-2,39
K	<0,5		µg/l	*	
L	0,200		µg/l	91%	-1,54
M			µg/l		
N			µg/l		
O	0,229	0,010	µg/l	104%	0,69
P	0,219	0,022	µg/l	100%	-0,08
Q	<0,5		µg/l	*	
R			µg/l		
S	0,198	0,02	µg/l	90%	-1,69
T	0,197	0,030	µg/l	90%	-1,77
U	0,216	0,010	µg/l	98%	-0,31
V	0,214	0,028	µg/l	97%	-0,46
W	0,227	0,011	µg/l	103%	0,54
X	<1		µg/l	*	
Y	<0,1	0,1	µg/l	FN	
Z	0,226	0,0316	µg/l	103%	0,46
AA	0,210	0,1	µg/l	95%	-0,77
AB	0,213	0,043	µg/l	97%	-0,54
AC			µg/l		

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	0,216 $\pm$ 0,012	0,216 $\pm$ 0,012	µg/l
Recov. $\pm$ CI(99%)	98,1 $\pm$ 5,7	98,1 $\pm$ 5,7	%
SD between labs	0,017	0,017	µg/l
RSD between labs	7,8	7,8	%
n for calculation	16	16	



Sample M151B

## Parameter Cadmium

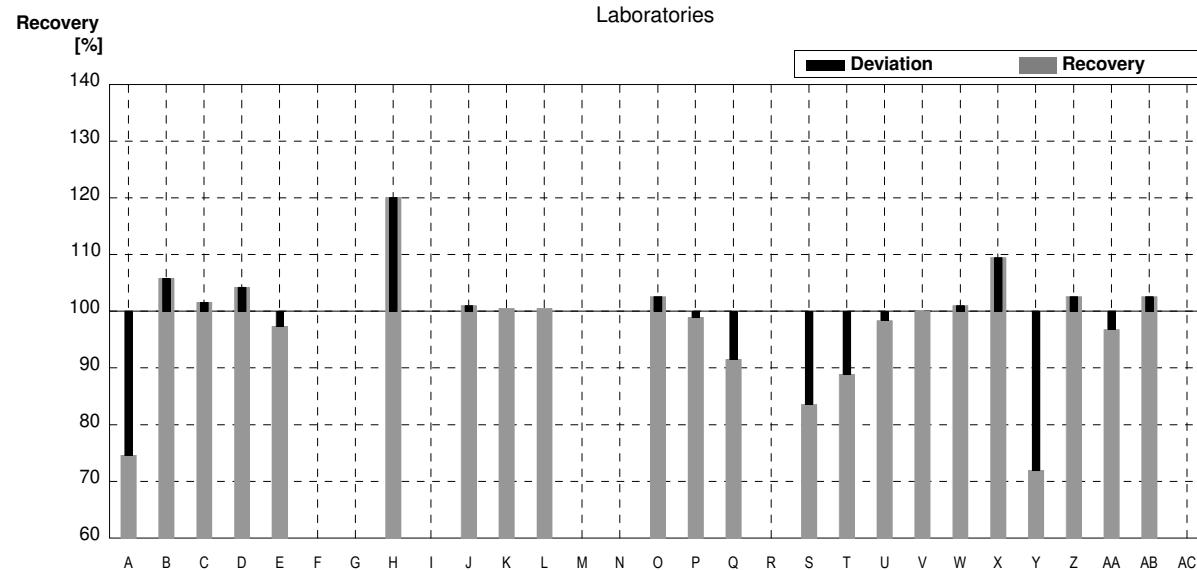
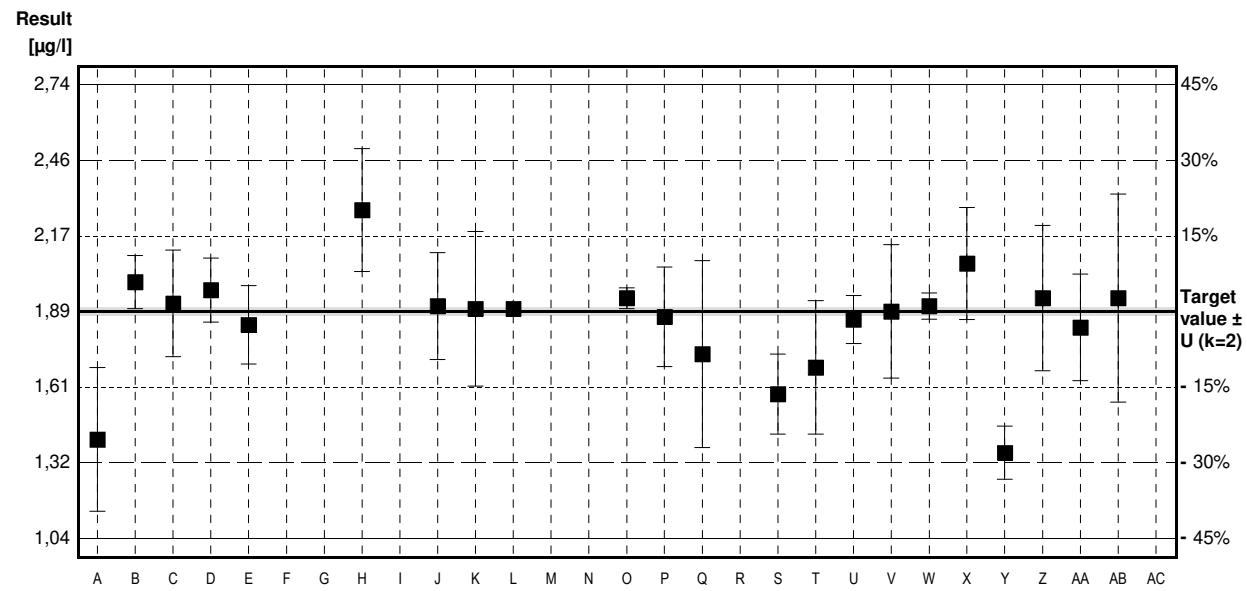
Target value  $\pm$  U (k=2) 1,89 µg/l  $\pm$  0,01 µg/l

IFA result ± U (k=2) 1,90 µg/l ± 0,13 µg/l

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

Lab Code	Result	±	Unit	Recovery	z-Score
A	1,41 *	0,27	µg/l	75%	-4,30
B	2,00	0,1	µg/l	106%	0,99
C	1,92	0,20	µg/l	102%	0,27
D	1,97	0,12	µg/l	104%	0,72
E	1,84	0,147	µg/l	97%	-0,45
F			µg/l		
G			µg/l		
H	2,27 *	0,23	µg/l	120%	3,41
I			µg/l		
J	1,91	0,2	µg/l	101%	0,18
K	1,90	0,29	µg/l	101%	0,09
L	1,90		µg/l	101%	0,09
M			µg/l		
N			µg/l		
O	1,94	0,039	µg/l	103%	0,45
P	1,87	0,187	µg/l	99%	-0,18
Q	1,73	0,35	µg/l	92%	-1,43
R			µg/l		
S	1,58 *	0,15	µg/l	84%	-2,78
T	1,68	0,25	µg/l	89%	-1,88
U	1,86	0,09	µg/l	98%	-0,27
V	1,89	0,25	µg/l	100%	0,00
W	1,91	0,049	µg/l	101%	0,18
X	2,07	0,21	µg/l	110%	1,61
Y	1,36 *	0,1	µg/l	72%	-4,75
Z	1,94	0,272	µg/l	103%	0,45
AA	1,83	0,2	µg/l	97%	-0,54
AB	1,94	0,39	µg/l	103%	0,45
AC			µg/l		

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	1,85 $\pm$ 0,12	1,89 $\pm$ 0,06	$\mu\text{g/l}$
Recov. $\pm$ CI(99%)	97,9 $\pm$ 6,4	100,2 $\pm$ 3,2	%
SD between labs	0,20	0,09	$\mu\text{g/l}$
RSD between labs	10,9	4,7	%
n for calculation	22	18	



## Sample M151A

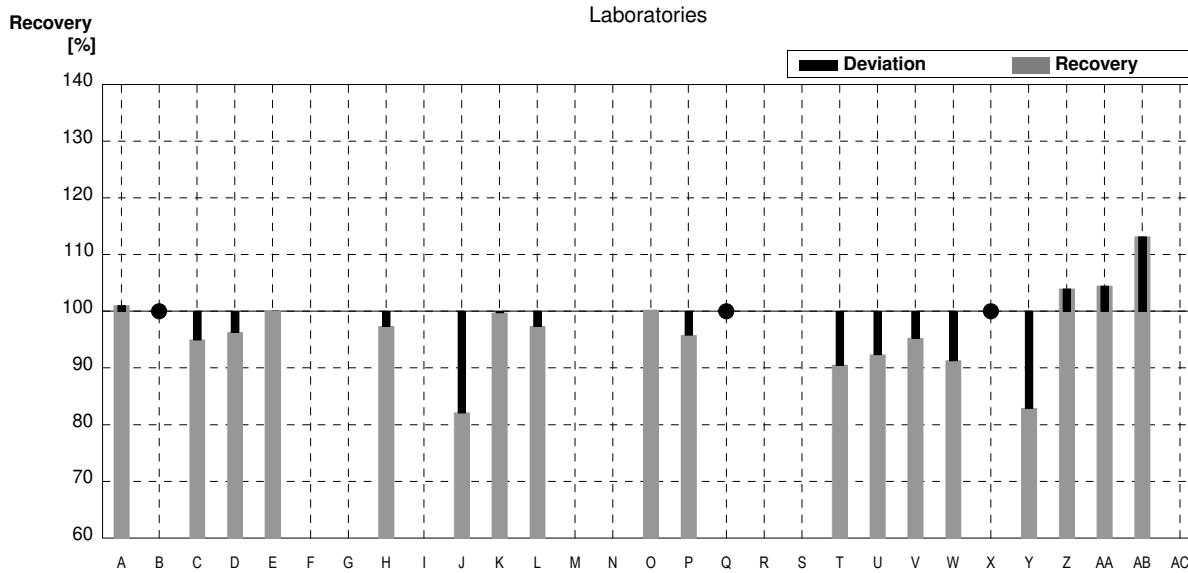
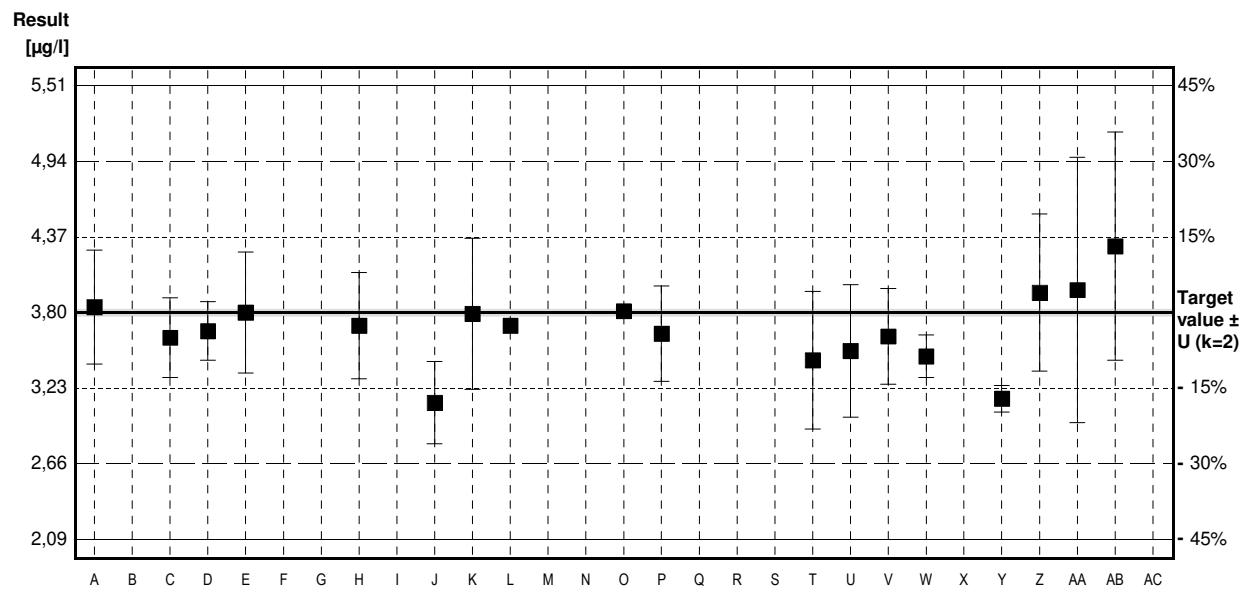
### Parameter Chromium

Target value  $\pm U$  ( $k=2$ )    3,80  $\mu\text{g/l}$      $\pm$     0,03  $\mu\text{g/l}$   
 IFA result  $\pm U$  ( $k=2$ )    3,81  $\mu\text{g/l}$      $\pm$     0,19  $\mu\text{g/l}$

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

Lab Code	Result	$\pm$	Unit	Recovery	z-Score
A	3,84	0,43	$\mu\text{g/l}$	101%	0,16
B	<5,0		$\mu\text{g/l}$	*	
C	3,61	0,30	$\mu\text{g/l}$	95%	-0,76
D	3,66	0,22	$\mu\text{g/l}$	96%	-0,56
E	3,80	0,456	$\mu\text{g/l}$	100%	0,00
F			$\mu\text{g/l}$		
G			$\mu\text{g/l}$		
H	3,70	0,4	$\mu\text{g/l}$	97%	-0,40
I			$\mu\text{g/l}$		
J	3,12	0,31	$\mu\text{g/l}$	82%	-2,71
K	3,79	0,57	$\mu\text{g/l}$	100%	-0,04
L	3,70		$\mu\text{g/l}$	97%	-0,40
M			$\mu\text{g/l}$		
N			$\mu\text{g/l}$		
O	3,81	0,028	$\mu\text{g/l}$	100%	0,04
P	3,64	0,36	$\mu\text{g/l}$	96%	-0,64
Q	<5		$\mu\text{g/l}$	*	
R			$\mu\text{g/l}$		
S			$\mu\text{g/l}$		
T	3,44	0,52	$\mu\text{g/l}$	91%	-1,44
U	3,51	0,50	$\mu\text{g/l}$	92%	-1,16
V	3,62	0,36	$\mu\text{g/l}$	95%	-0,72
W	3,47	0,16	$\mu\text{g/l}$	91%	-1,32
X	<5		$\mu\text{g/l}$	*	
Y	3,15	0,1	$\mu\text{g/l}$	83%	-2,59
Z	3,95	0,593	$\mu\text{g/l}$	104%	0,60
AA	3,97	1	$\mu\text{g/l}$	104%	0,68
AB	4,30	0,86	$\mu\text{g/l}$	113%	1,99
AC			$\mu\text{g/l}$		

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	$3,67 \pm 0,19$	$3,67 \pm 0,19$	$\mu\text{g/l}$
Recov. $\pm$ CI(99%)	$96,6 \pm 5,1$	$96,6 \pm 5,1$	%
SD between labs	0,28	0,28	$\mu\text{g/l}$
RSD between labs	7,7	7,7	%
n for calculation	18	18	



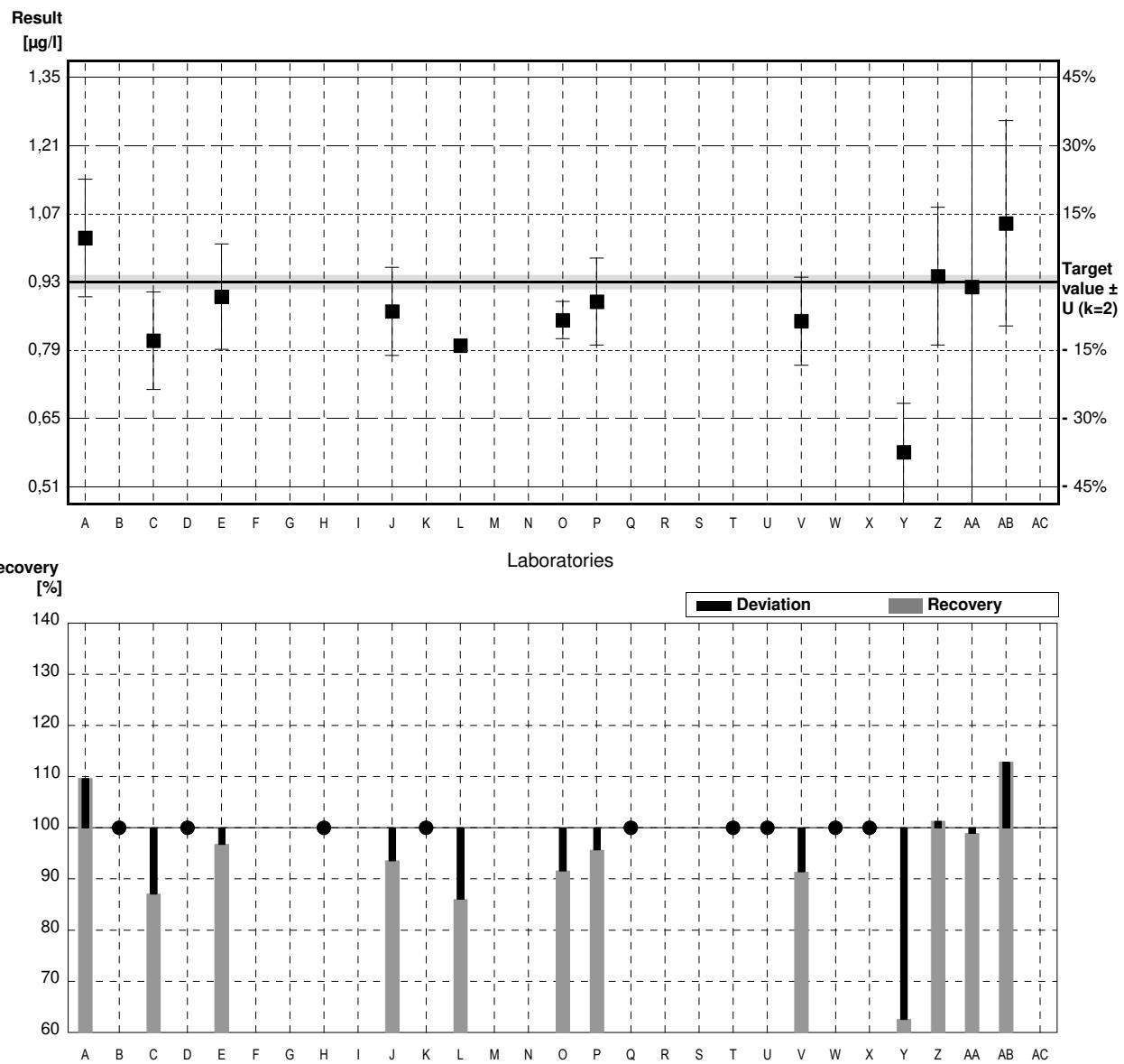
## Sample M151B

### Parameter Chromium

Target value  $\pm U$  ( $k=2$ )    0,93 µg/l     $\pm$     0,01 µg/l  
 IFA result  $\pm U$  ( $k=2$ )    0,92 µg/l     $\pm$     0,05 µg/l

Stability test					
Lab Code	Result	$\pm$	Unit	Recovery	z-Score
A	1,02	0,12	µg/l	110%	1,47
B	<5,0		µg/l	•	
C	0,81	0,10	µg/l	87%	-1,96
D	<1		µg/l	•	
E	0,90	0,108	µg/l	97%	-0,49
F			µg/l		
G			µg/l		
H	<1		µg/l	•	
I			µg/l		
J	0,870	0,09	µg/l	94%	-0,98
K	<1,0		µg/l	•	
L	0,80		µg/l	86%	-2,12
M			µg/l		
N			µg/l		
O	0,852	0,038	µg/l	92%	-1,27
P	0,89	0,089	µg/l	96%	-0,65
Q	<5		µg/l	•	
R			µg/l		
S			µg/l		
T	<1		µg/l	•	
U	<1,0		µg/l	•	
V	0,85	0,09	µg/l	91%	-1,30
W	<1,00		µg/l	•	
X	<5		µg/l	•	
Y	0,582 *	0,1	µg/l	63%	-5,67
Z	0,942	0,141	µg/l	101%	0,20
AA	0,92	1	µg/l	99%	-0,16
AB	1,05	0,21	µg/l	113%	1,96
AC			µg/l		

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	0,87 $\pm$ 0,11	0,90 $\pm$ 0,08	µg/l
Recov. $\pm$ CI(99%)	94,0 $\pm$ 11,5	96,8 $\pm$ 8,2	%
SD between labs	0,12	0,08	µg/l
RSD between labs	13,6	8,8	%
n for calculation	12	11	



## Sample M151A

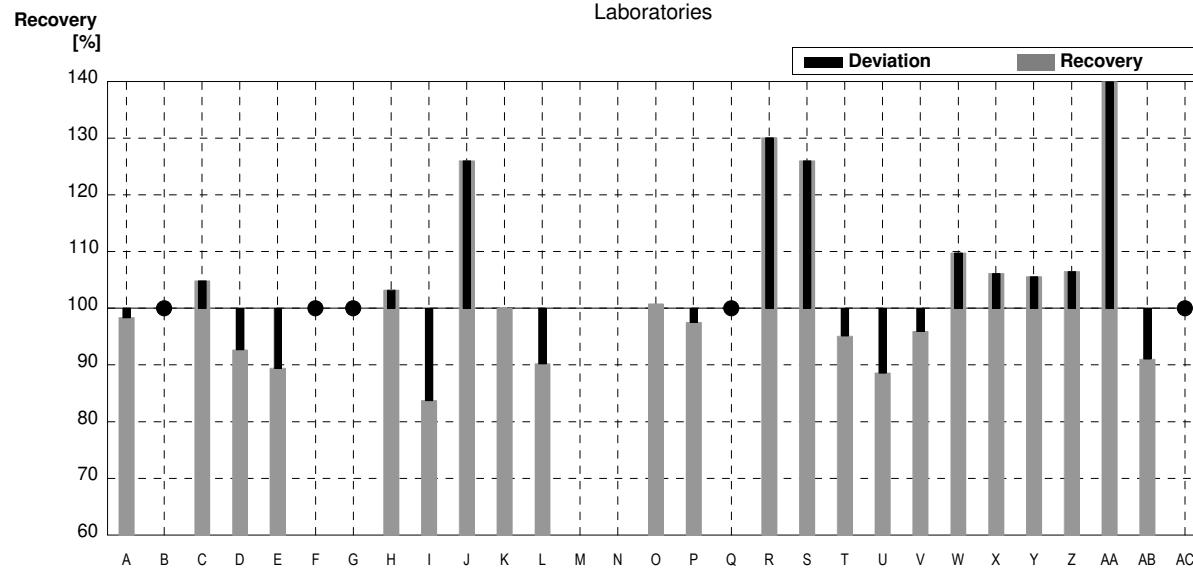
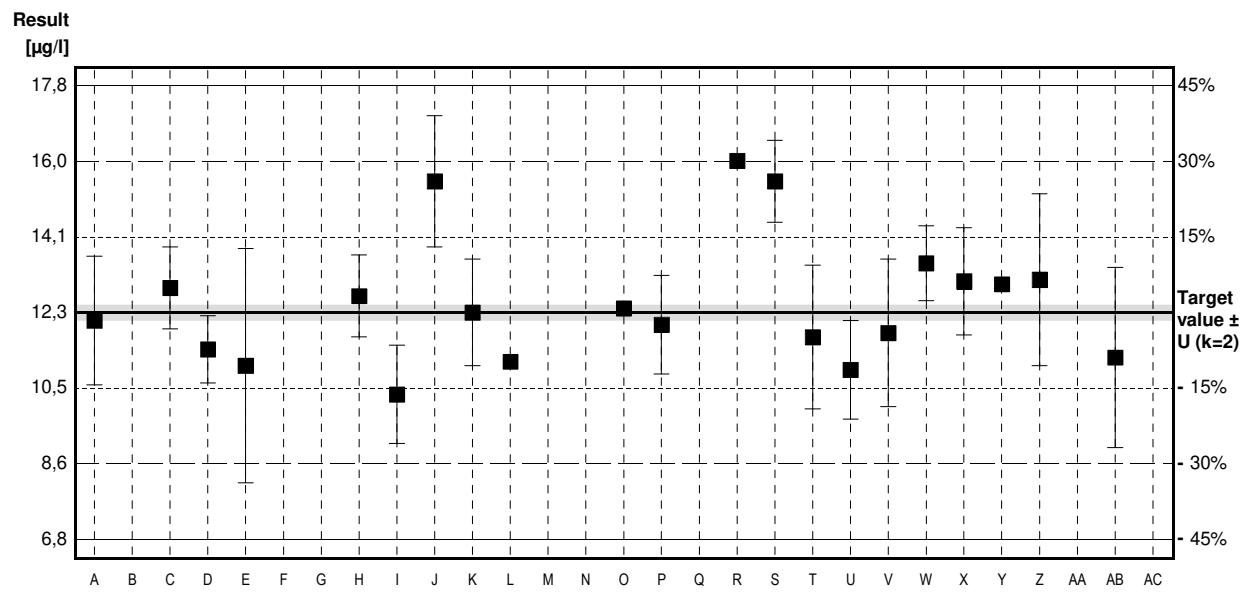
### Parameter Iron

Target value  $\pm U$  ( $k=2$ ) 12,3  $\mu\text{g/l}$   $\pm$  0,2  $\mu\text{g/l}$   
 IFA result  $\pm U$  ( $k=2$ ) 13,0  $\mu\text{g/l}$   $\pm$  1,3  $\mu\text{g/l}$

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

Lab Code	Result	$\pm$	Unit	Recovery	z-Score
A	12,1	1,57	$\mu\text{g/l}$	98%	-0,23
B	<30		$\mu\text{g/l}$	*	
C	12,9	1,00	$\mu\text{g/l}$	105%	0,70
D	11,4	0,82	$\mu\text{g/l}$	93%	-1,05
E	11,0	2,860	$\mu\text{g/l}$	89%	-1,51
F	<20		$\mu\text{g/l}$	*	
G	<50		$\mu\text{g/l}$	*	
H	12,7	1	$\mu\text{g/l}$	103%	0,46
I	10,3	1,2	$\mu\text{g/l}$	84%	-2,32
J	15,5	1,6	$\mu\text{g/l}$	126%	3,72
K	12,3	1,3	$\mu\text{g/l}$	100%	0,00
L	11,1		$\mu\text{g/l}$	90%	-1,39
M			$\mu\text{g/l}$		
N			$\mu\text{g/l}$		
O	12,4	0,121	$\mu\text{g/l}$	101%	0,12
P	12,0	1,2	$\mu\text{g/l}$	98%	-0,35
Q	<20		$\mu\text{g/l}$	*	
R	16,0		$\mu\text{g/l}$	130%	4,30
S	15,5	1,0	$\mu\text{g/l}$	126%	3,72
T	11,7	1,75	$\mu\text{g/l}$	95%	-0,70
U	10,9	1,2	$\mu\text{g/l}$	89%	-1,63
V	11,8	1,8	$\mu\text{g/l}$	96%	-0,58
W	13,5	0,91	$\mu\text{g/l}$	110%	1,39
X	13,06	1,31	$\mu\text{g/l}$	106%	0,88
Y	12,99	0,1	$\mu\text{g/l}$	106%	0,80
Z	13,1	2,10	$\mu\text{g/l}$	107%	0,93
AA	22,0 *	30	$\mu\text{g/l}$	179%	11,27
AB	11,2	2,2	$\mu\text{g/l}$	91%	-1,28
AC	<20,0		$\mu\text{g/l}$	*	

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	13,0 $\pm$ 1,5	12,5 $\pm$ 1,0	$\mu\text{g/l}$
Recov. $\pm$ CI(99%)	105,5 $\pm$ 12,4	102,0 $\pm$ 7,9	%
SD between labs	2,5	1,6	$\mu\text{g/l}$
RSD between labs	19,5	12,4	%
n for calculation	22	21	



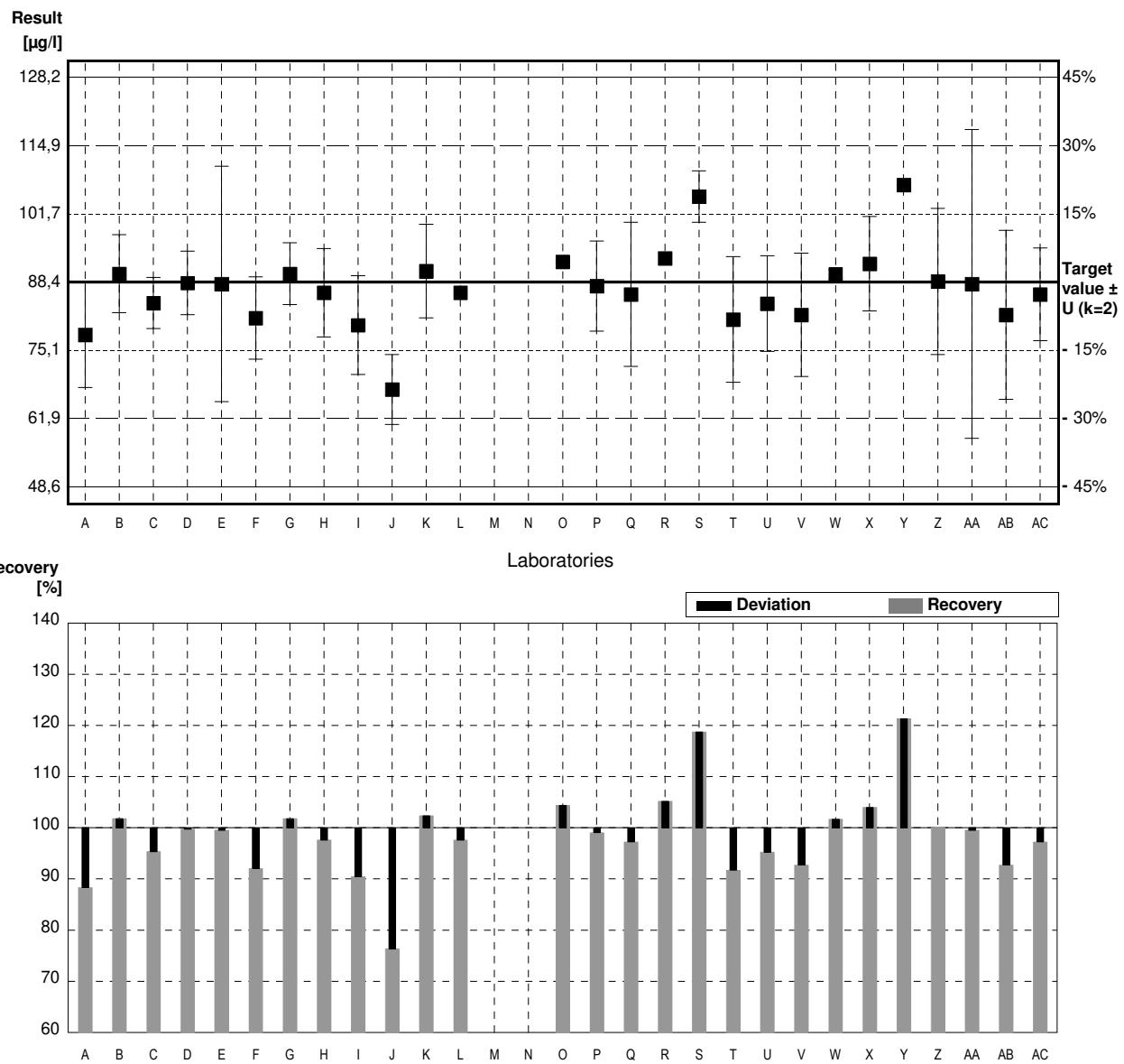
## Sample M151B

### Parameter Iron

Target value  $\pm U$  ( $k=2$ )    88,4  $\mu\text{g/l}$      $\pm$     0,4  $\mu\text{g/l}$   
 IFA result  $\pm U$  ( $k=2$ )    91,9  $\mu\text{g/l}$      $\pm$     9,2  $\mu\text{g/l}$

Stability test					
Lab Code	Result	$\pm$	Unit	Recovery	z-Score
A	78,1	10,2	$\mu\text{g/l}$	88%	-1,66
B	90,0	7,6	$\mu\text{g/l}$	102%	0,26
C	84,31	5,00	$\mu\text{g/l}$	95%	-0,66
D	88,2	6,17	$\mu\text{g/l}$	100%	-0,03
E	88,0	22,88	$\mu\text{g/l}$	100%	-0,06
F	81,4	8	$\mu\text{g/l}$	92%	-1,13
G	90	6	$\mu\text{g/l}$	102%	0,26
H	86,3	8,6	$\mu\text{g/l}$	98%	-0,34
I	80,0	9,6	$\mu\text{g/l}$	90%	-1,36
J	67,5 *	6,8	$\mu\text{g/l}$	76%	-3,38
K	90,5	9,1	$\mu\text{g/l}$	102%	0,34
L	86,3		$\mu\text{g/l}$	98%	-0,34
M			$\mu\text{g/l}$		
N			$\mu\text{g/l}$		
O	92,3	0,292	$\mu\text{g/l}$	104%	0,63
P	87,6	8,76	$\mu\text{g/l}$	99%	-0,13
Q	86	14	$\mu\text{g/l}$	97%	-0,39
R	93,0		$\mu\text{g/l}$	105%	0,74
S	105 *	5,0	$\mu\text{g/l}$	119%	2,68
T	81,1	12,2	$\mu\text{g/l}$	92%	-1,18
U	84,2	9,3	$\mu\text{g/l}$	95%	-0,68
V	82	12	$\mu\text{g/l}$	93%	-1,03
W	89,9	0,91	$\mu\text{g/l}$	102%	0,24
X	91,94	9,19	$\mu\text{g/l}$	104%	0,57
Y	107,25 *	0,1	$\mu\text{g/l}$	121%	3,05
Z	88,5	14,2	$\mu\text{g/l}$	100%	0,02
AA	88	30	$\mu\text{g/l}$	100%	-0,06
AB	82,0	16,4	$\mu\text{g/l}$	93%	-1,03
AC	86	9,0	$\mu\text{g/l}$	97%	-0,39

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	$87,2 \pm 4,1$	$86,5 \pm 2,4$	$\mu\text{g/l}$
Recov. $\pm$ CI(99%)	$98,7 \pm 4,6$	$97,8 \pm 2,7$	%
SD between labs	7,6	4,1	$\mu\text{g/l}$
RSD between labs	8,7	4,8	%
n for calculation	27	24	



Sample M151A

## Parameter Copper

Target value  $\pm$  U (k=2) 4,46 µg/l  $\pm$  0,03 µg/l

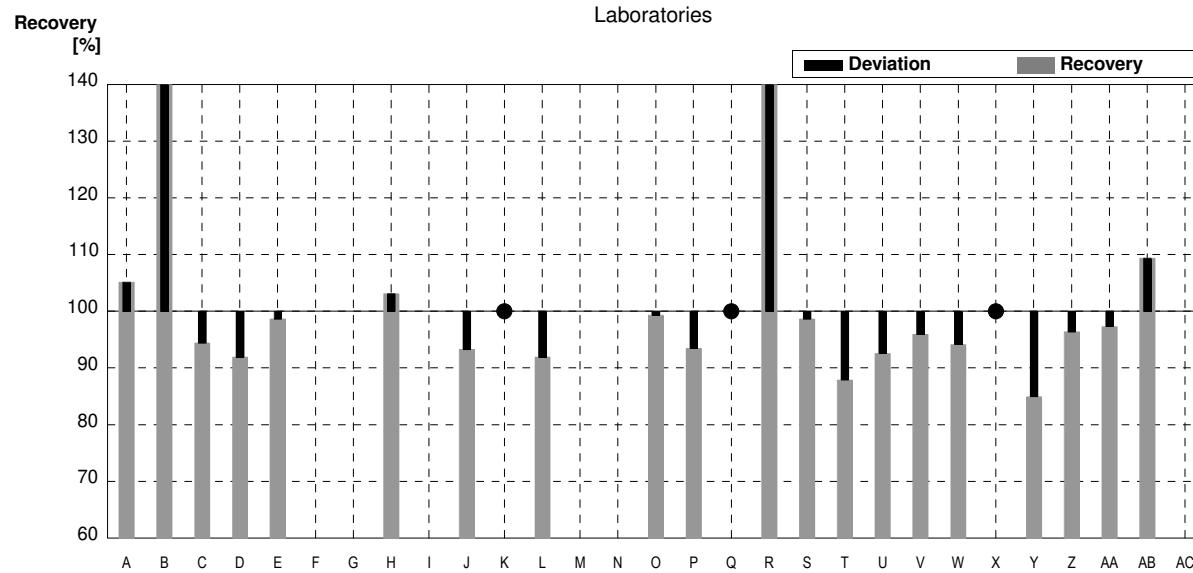
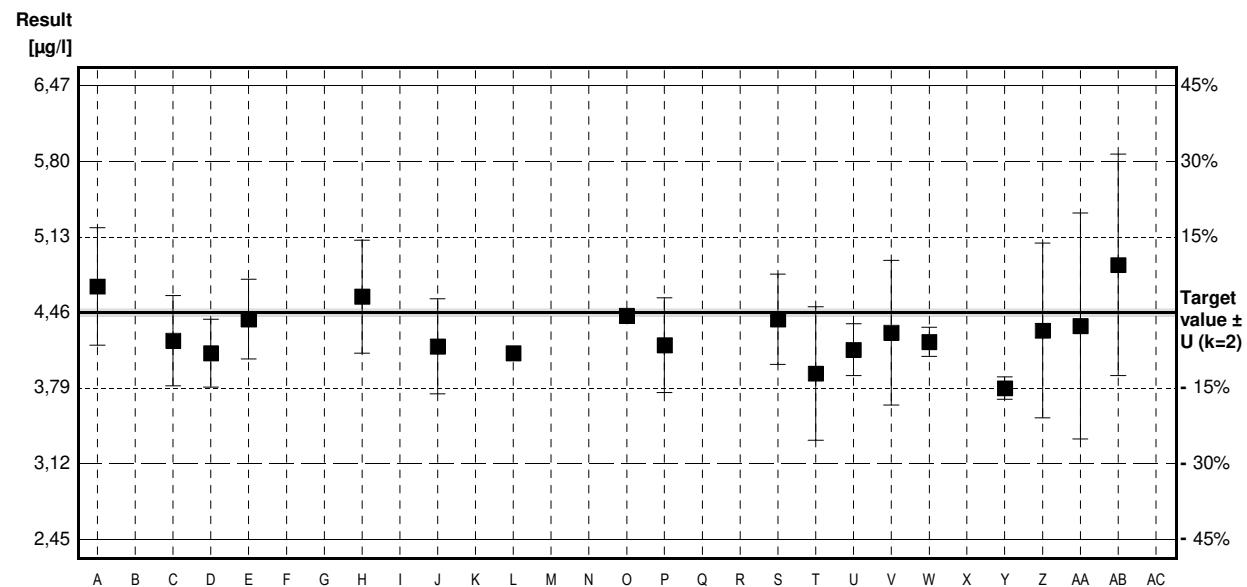
IFA result  $\pm$  U (k=2) 4,49  $\mu\text{g/l}$   $\pm$  0,40  $\mu\text{g/l}$

## Stability test

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

Lab Code	Result	±	Unit	Recovery	z-Score
A	4,69	0,52	µg/l	105%	0,59
B	10,4 *	2,7	µg/l	233%	15,13
C	4,21	0,40	µg/l	94%	-0,64
D	4,10	0,30	µg/l	92%	-0,92
E	4,40	0,352	µg/l	99%	-0,15
F			µg/l		
G			µg/l		
H	4,60	0,5	µg/l	103%	0,36
I			µg/l		
J	4,16	0,42	µg/l	93%	-0,76
K	<5,0		µg/l	*	
L	4,10		µg/l	92%	-0,92
M			µg/l		
N			µg/l		
O	4,43	0,059	µg/l	99%	-0,08
P	4,17	0,42	µg/l	93%	-0,74
Q	<150		µg/l	*	
R	15,0 *		µg/l	336%	26,85
S	4,40	0,4	µg/l	99%	-0,15
T	3,92	0,59	µg/l	88%	-1,38
U	4,13	0,23	µg/l	93%	-0,84
V	4,28	0,64	µg/l	96%	-0,46
W	4,20	0,13	µg/l	94%	-0,66
X	<5		µg/l	*	
Y	3,79	0,1	µg/l	85%	-1,71
Z	4,30	0,774	µg/l	96%	-0,41
AA	4,34	1	µg/l	97%	-0,31
AB	4,88	0,98	µg/l	109%	1,07
AC			µg/l		

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	5,13 $\pm$ 1,73	4,28 $\pm$ 0,18	$\mu\text{g/l}$
Recov. $\pm$ CI(99%)	114,9 $\pm$ 38,8	96,0 $\pm$ 4,0	%
SD between labs	2,71	0,26	$\mu\text{g/l}$
RSD between labs	52,8	6,2	%
n for calculation	20	18	



## Sample M151B

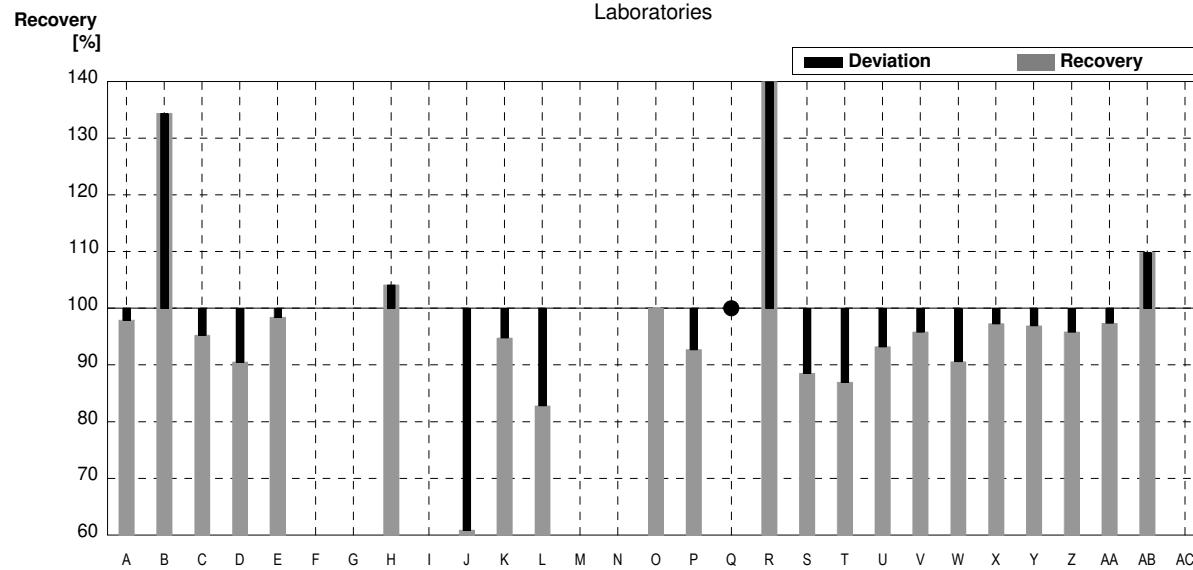
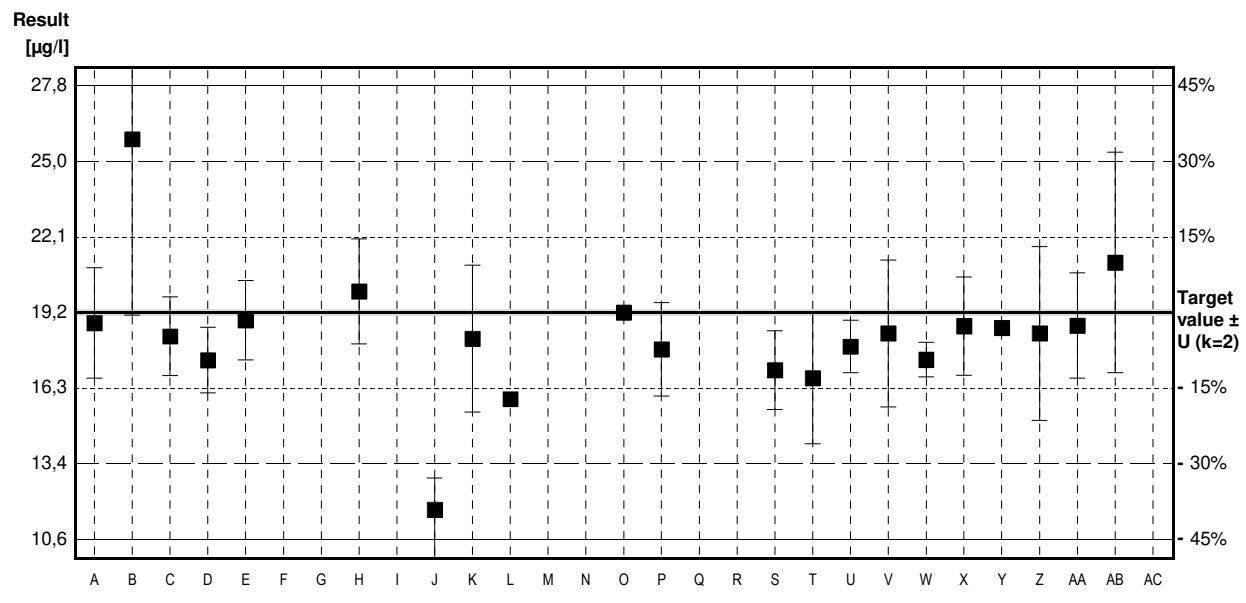
### Parameter Copper

Target value  $\pm U$  ( $k=2$ ) 19,2  $\mu\text{g/l}$   $\pm$  0,1  $\mu\text{g/l}$   
 IFA result  $\pm U$  ( $k=2$ ) 19,4  $\mu\text{g/l}$   $\pm$  1,7  $\mu\text{g/l}$

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

Lab Code	Result	$\pm$	Unit	Recovery	z-Score
A	18,8	2,1	$\mu\text{g/l}$	98%	-0,24
B	25,8 *	6,7	$\mu\text{g/l}$	134%	3,91
C	18,29	1,50	$\mu\text{g/l}$	95%	-0,54
D	17,38	1,25	$\mu\text{g/l}$	91%	-1,08
E	18,9	1,512	$\mu\text{g/l}$	98%	-0,18
F			$\mu\text{g/l}$		
G			$\mu\text{g/l}$		
H	20,0	2	$\mu\text{g/l}$	104%	0,47
I			$\mu\text{g/l}$		
J	11,69 *	1,2	$\mu\text{g/l}$	61%	-4,44
K	18,2	2,8	$\mu\text{g/l}$	95%	-0,59
L	15,9		$\mu\text{g/l}$	83%	-1,95
M			$\mu\text{g/l}$		
N			$\mu\text{g/l}$		
O	19,2	0,153	$\mu\text{g/l}$	100%	0,00
P	17,8	1,78	$\mu\text{g/l}$	93%	-0,83
Q	<150		$\mu\text{g/l}$	*	
R	30,0 *		$\mu\text{g/l}$	156%	6,39
S	17,0	1,5	$\mu\text{g/l}$	89%	-1,30
T	16,7	2,50	$\mu\text{g/l}$	87%	-1,48
U	17,9	1,0	$\mu\text{g/l}$	93%	-0,77
V	18,4	2,8	$\mu\text{g/l}$	96%	-0,47
W	17,4	0,66	$\mu\text{g/l}$	91%	-1,07
X	18,68	1,87	$\mu\text{g/l}$	97%	-0,31
Y	18,61	0,1	$\mu\text{g/l}$	97%	-0,35
Z	18,4	3,31	$\mu\text{g/l}$	96%	-0,47
AA	18,7	2	$\mu\text{g/l}$	97%	-0,30
AB	21,1	4,2	$\mu\text{g/l}$	110%	1,12
AC			$\mu\text{g/l}$		

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	18,9 $\pm$ 2,1	18,3 $\pm$ 0,8	$\mu\text{g/l}$
Recov. $\pm$ CI(99%)	98,2 $\pm$ 10,9	95,2 $\pm$ 4,0	%
SD between labs	3,5	1,2	$\mu\text{g/l}$
RSD between labs	18,5	6,4	%
n for calculation	22	19	



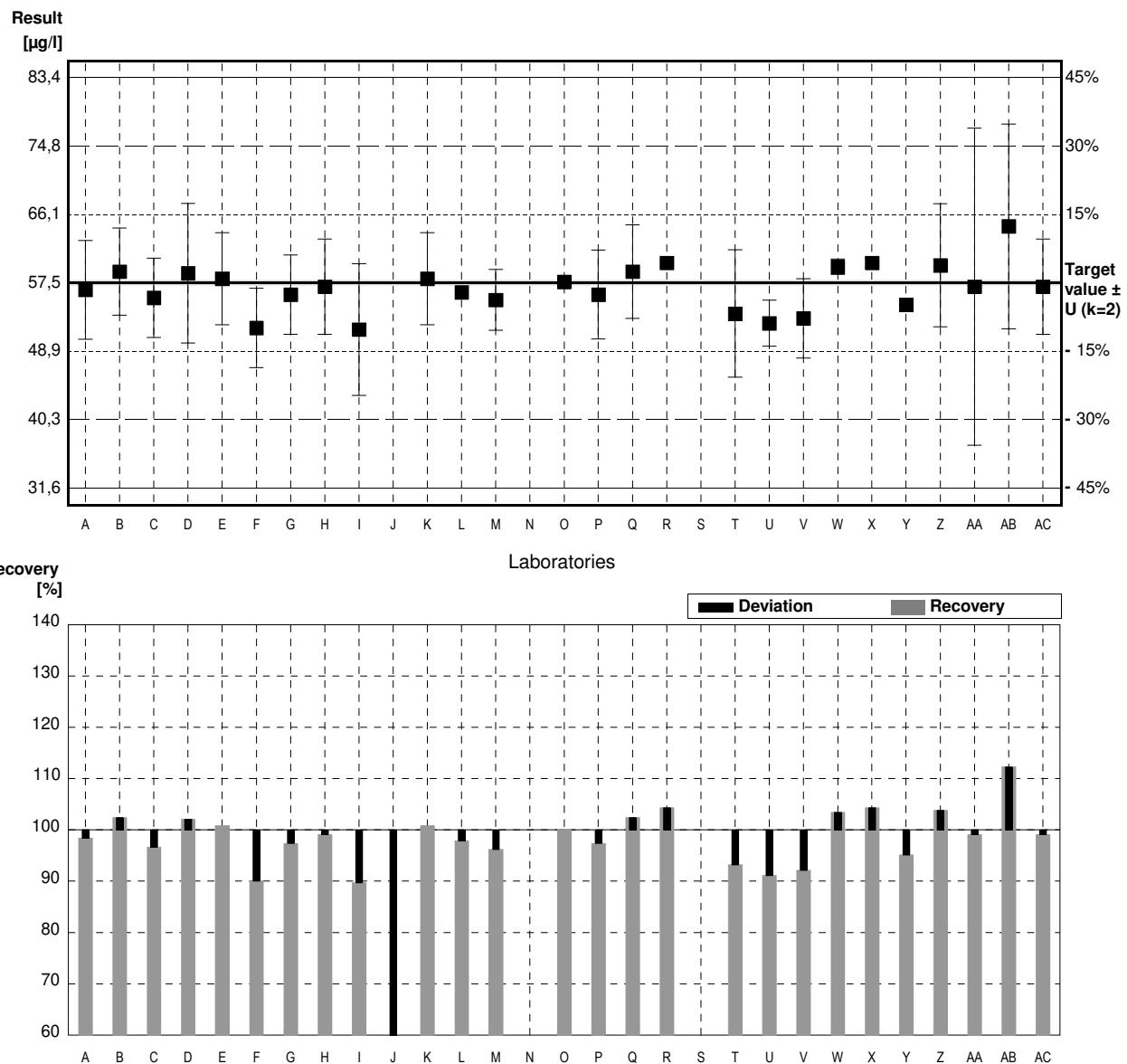
## Sample M151A

### Parameter Manganese

Target value  $\pm U$  ( $k=2$ )    57,5 µg/l     $\pm$     0,3 µg/l  
 IFA result  $\pm U$  ( $k=2$ )    61,9 µg/l     $\pm$     5,6 µg/l

Stability test					
Lab Code	Result	$\pm$	Unit	Recovery	z-Score
A	56,6	6,23	µg/l	98%	-0,28
B	58,9	5,5	µg/l	102%	0,43
C	55,6	5,00	µg/l	97%	-0,59
D	58,7	8,81	µg/l	102%	0,37
E	58,0	5,80	µg/l	101%	0,16
F	51,8	5	µg/l	90%	-1,77
G	56	5	µg/l	97%	-0,47
H	57,0	6	µg/l	99%	-0,16
I	51,6	8,3	µg/l	90%	-1,83
J	17,9 *	1,8	µg/l	31%	-12,30
K	58,0	5,8	µg/l	101%	0,16
L	56,3		µg/l	98%	-0,37
M	55,33	3,84	µg/l	96%	-0,67
N			µg/l		
O	57,6	0,399	µg/l	100%	0,03
P	56	5,6	µg/l	97%	-0,47
Q	58,9	5,9	µg/l	102%	0,43
R	60,0		µg/l	104%	0,78
S			µg/l		
T	53,6	8,04	µg/l	93%	-1,21
U	52,4	2,9	µg/l	91%	-1,58
V	53	5	µg/l	92%	-1,40
W	59,5	0,97	µg/l	103%	0,62
X	60,00	0,60	µg/l	104%	0,78
Y	54,72	0,1	µg/l	95%	-0,86
Z	59,7	7,76	µg/l	104%	0,68
AA	57	20	µg/l	99%	-0,16
AB	64,6	12,9	µg/l	112%	2,20
AC	57	6,0	µg/l	99%	-0,16

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	55,4 $\pm$ 4,3	56,8 $\pm$ 1,6	µg/l
Recov. $\pm$ CI(99%)	96,3 $\pm$ 7,5	98,9 $\pm$ 2,8	%
SD between labs	8,0	3,0	µg/l
RSD between labs	14,5	5,2	%
n for calculation	27	26	



## Sample M151B

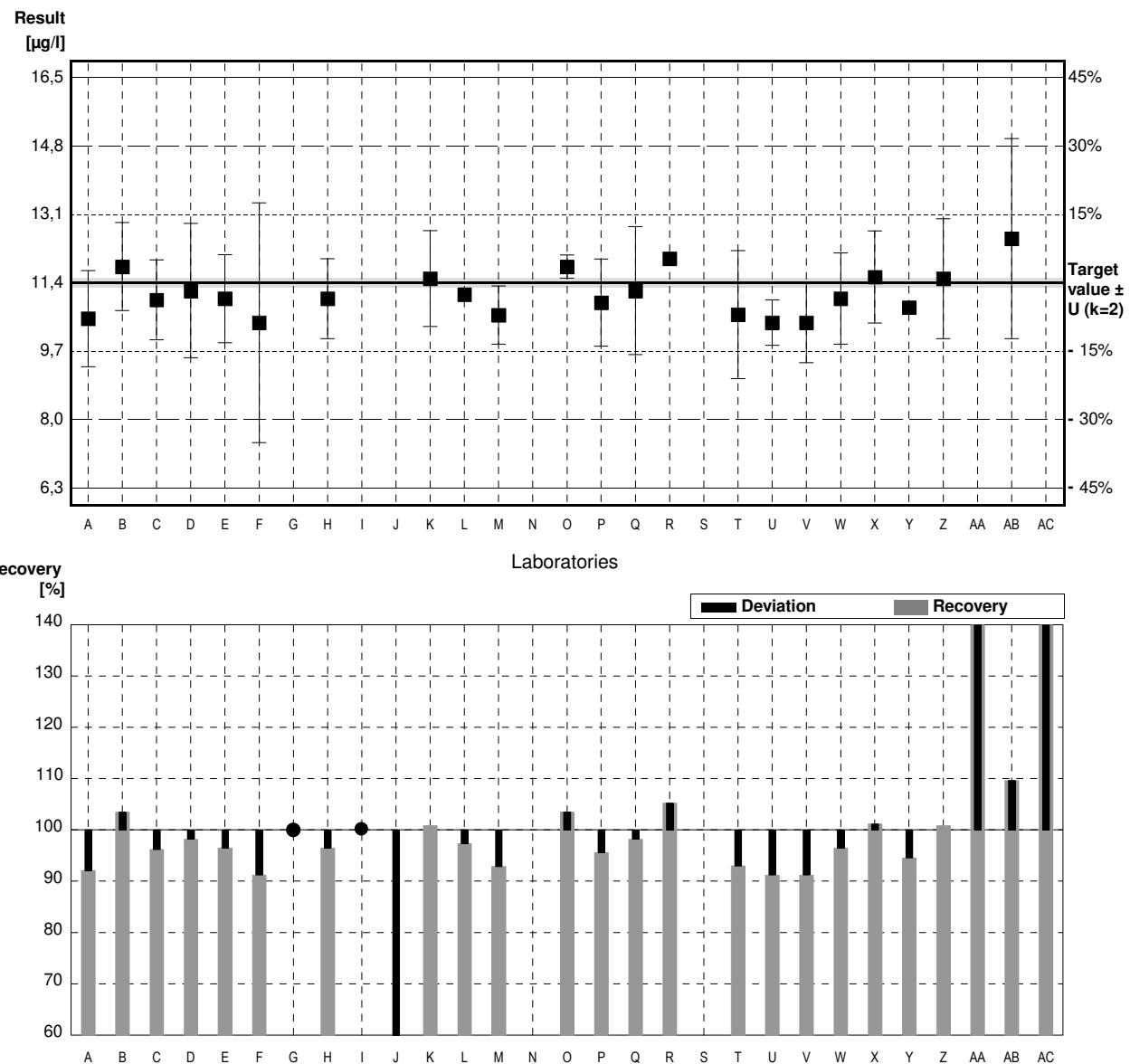
### Parameter Manganese

Target value  $\pm U$  ( $k=2$ )    11,4 µg/l     $\pm$     0,1 µg/l  
 IFA result  $\pm U$  ( $k=2$ )    12,3 µg/l     $\pm$     1,1 µg/l

Stability test                          µg/l

Lab Code	Result	$\pm$	Unit	Recovery	z-Score
A	10,5	1,2	µg/l	92%	-1,41
B	11,8	1,1	µg/l	104%	0,63
C	10,97	1,00	µg/l	96%	-0,67
D	11,2	1,68	µg/l	98%	-0,31
E	11,0	1,10	µg/l	96%	-0,63
F	10,4	3	µg/l	91%	-1,57
G	<50		µg/l	•	
H	11,0	1	µg/l	96%	-0,63
I	'<10	2,5	µg/l	•	
J	3,36 *	0,3	µg/l	29%	-12,59
K	11,5	1,2	µg/l	101%	0,16
L	11,1		µg/l	97%	-0,47
M	10,59	0,73	µg/l	93%	-1,27
N			µg/l		
O	11,8	0,290	µg/l	104%	0,63
P	10,9	1,09	µg/l	96%	-0,78
Q	11,2	1,6	µg/l	98%	-0,31
R	12,0		µg/l	105%	0,94
S			µg/l		
T	10,6	1,60	µg/l	93%	-1,25
U	10,4	0,57	µg/l	91%	-1,57
V	10,4	1,0	µg/l	91%	-1,57
W	11,0	1,14	µg/l	96%	-0,63
X	11,54	1,15	µg/l	101%	0,22
Y	10,78	0,1	µg/l	95%	-0,97
Z	11,5	1,50	µg/l	101%	0,16
AA	19,0 *	15	µg/l	167%	11,90
AB	12,5	2,5	µg/l	110%	1,72
AC	17,0 *	2,0	µg/l	149%	8,77

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	11,4 $\pm$ 1,5	11,1 $\pm$ 0,3	µg/l
Recov. $\pm$ CI(99%)	99,7 $\pm$ 12,8	97,6 $\pm$ 3,0	%
SD between labs	2,6	0,6	µg/l
RSD between labs	22,9	5,1	%
n for calculation	25	22	



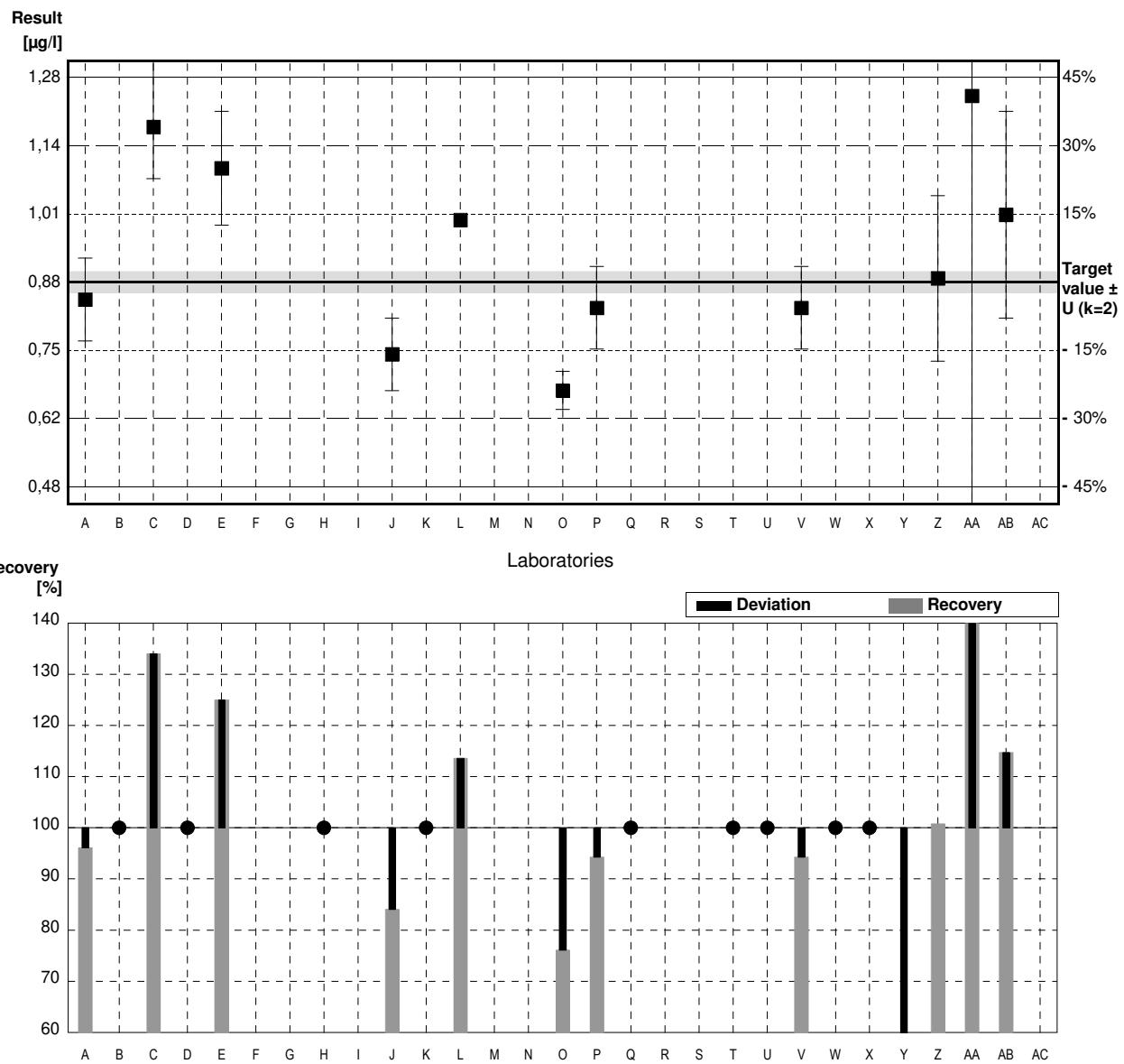
## Sample M151A

### Parameter Nickel

Target value  $\pm U$  ( $k=2$ )    0,88 µg/l     $\pm$     0,02 µg/l  
 IFA result  $\pm U$  ( $k=2$ )    0,88 µg/l     $\pm$     0,08 µg/l

Stability test					
Lab Code	Result	$\pm$	Unit	Recovery	z-Score
A	0,846	0,08	µg/l	96%	
B	<2,0		µg/l	•	
C	1,18	0,10	µg/l	134%	
D	<1		µg/l	•	
E	1,10	0,110	µg/l	125%	
F			µg/l		
G			µg/l		
H	<1		µg/l	•	
I			µg/l		
J	0,74	0,07	µg/l	84%	
K	<1,0		µg/l	•	
L	1,00		µg/l	114%	
M			µg/l		
N			µg/l		
O	0,670	0,037	µg/l	76%	
P	0,83	0,08	µg/l	94%	
Q	<5		µg/l	•	
R			µg/l		
S			µg/l		
T	<1		µg/l	•	
U	<1,0		µg/l	•	
V	0,83	0,08	µg/l	94%	
W	<1,00		µg/l	•	
X	<5		µg/l	•	
Y	0,455	0,1	µg/l	52%	
Z	0,887	0,160	µg/l	101%	
AA	1,24	1	µg/l	141%	
AB	1,01	0,20	µg/l	115%	
AC			µg/l		

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	$0,90 \pm 0,20$	$0,90 \pm 0,20$	µg/l
Recov. $\pm$ CI(99%)	$102,2 \pm 22,7$	$102,2 \pm 22,7$	%
SD between labs	0,22	0,22	µg/l
RSD between labs	24,8	24,8	%
n for calculation	12	12	



Sample M151B

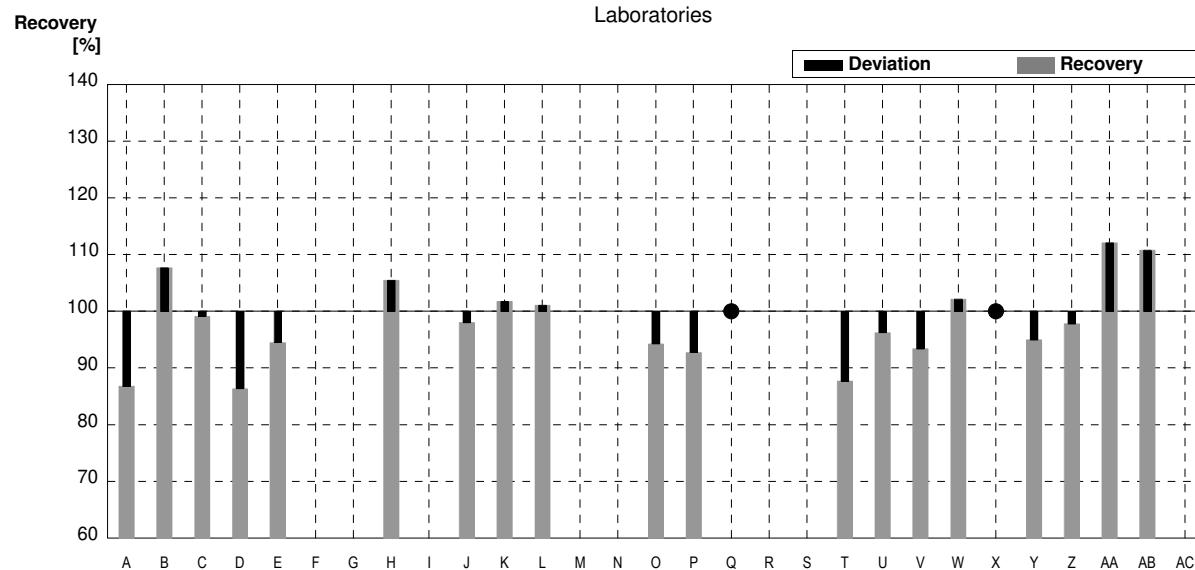
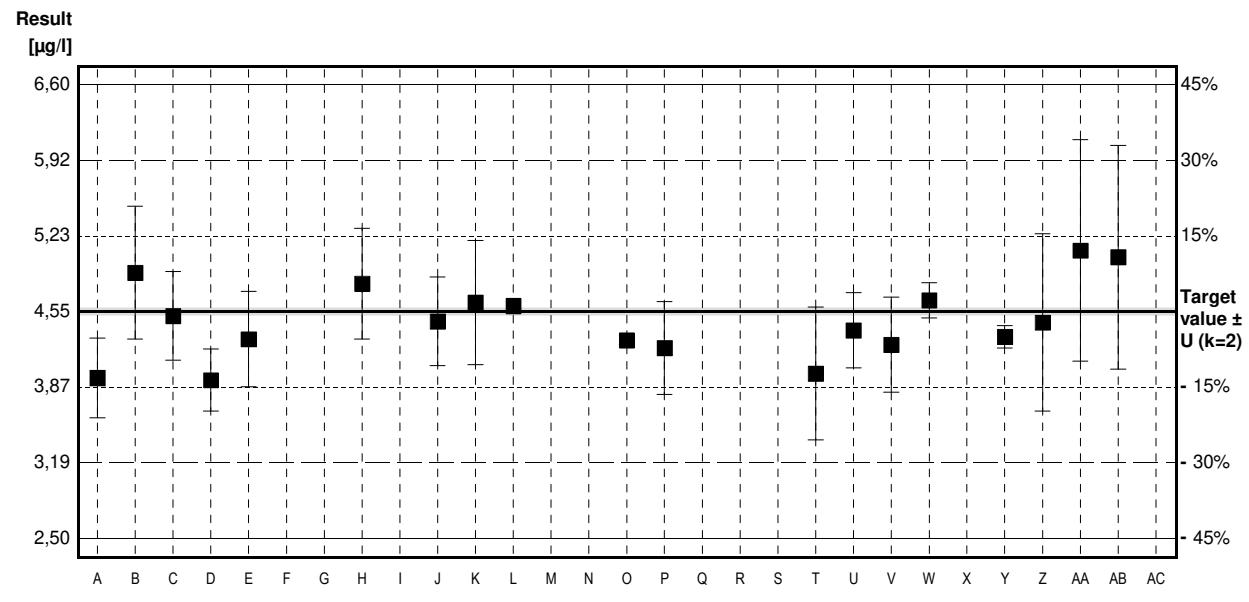
## Parameter Nickel

Target value  $\pm$  U (k=2)      4,55 µg/l       $\pm$       0,03 µg/l  
 IFA result  $\pm$  U (k=2)      4,37 µg/l       $\pm$       0,39 µg/l

## Stability test

Lab Code	Result	±	Unit	Recovery	z-Score
A	3,95	0,36	µg/l	87%	-1,59
B	4,90	0,6	µg/l	108%	0,93
C	4,51	0,40	µg/l	99%	-0,11
D	3,93	0,28	µg/l	86%	-1,64
E	4,30	0,43	µg/l	95%	-0,66
F			µg/l		
G			µg/l		
H	4,80	0,5	µg/l	105%	0,66
I			µg/l		
J	4,46	0,4	µg/l	98%	-0,24
K	4,63	0,56	µg/l	102%	0,21
L	4,60		µg/l	101%	0,13
M			µg/l		
N			µg/l		
O	4,29	0,040	µg/l	94%	-0,69
P	4,22	0,42	µg/l	93%	-0,87
Q	<5		µg/l	•	
R			µg/l		
S			µg/l		
T	3,99	0,60	µg/l	88%	-1,48
U	4,38	0,34	µg/l	96%	-0,45
V	4,25	0,43	µg/l	93%	-0,79
W	4,65	0,16	µg/l	102%	0,26
X	<5		µg/l	•	
Y	4,321	0,1	µg/l	95%	-0,61
Z	4,45	0,801	µg/l	98%	-0,26
AA	5,1	1	µg/l	112%	1,46
AB	5,04	1,01	µg/l	111%	1,30
AC			µg/l		

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	4,46 $\pm$ 0,22	4,46 $\pm$ 0,22	$\mu\text{g/l}$
Recov. $\pm$ CI(99%)	98,1 $\pm$ 4,9	98,1 $\pm$ 4,9	%
SD between labs	0,34	0,34	$\mu\text{g/l}$
RSD between labs	7,6	7,6	%
n for calculation	19	19	



Sample M151A

## Parameter Mercury

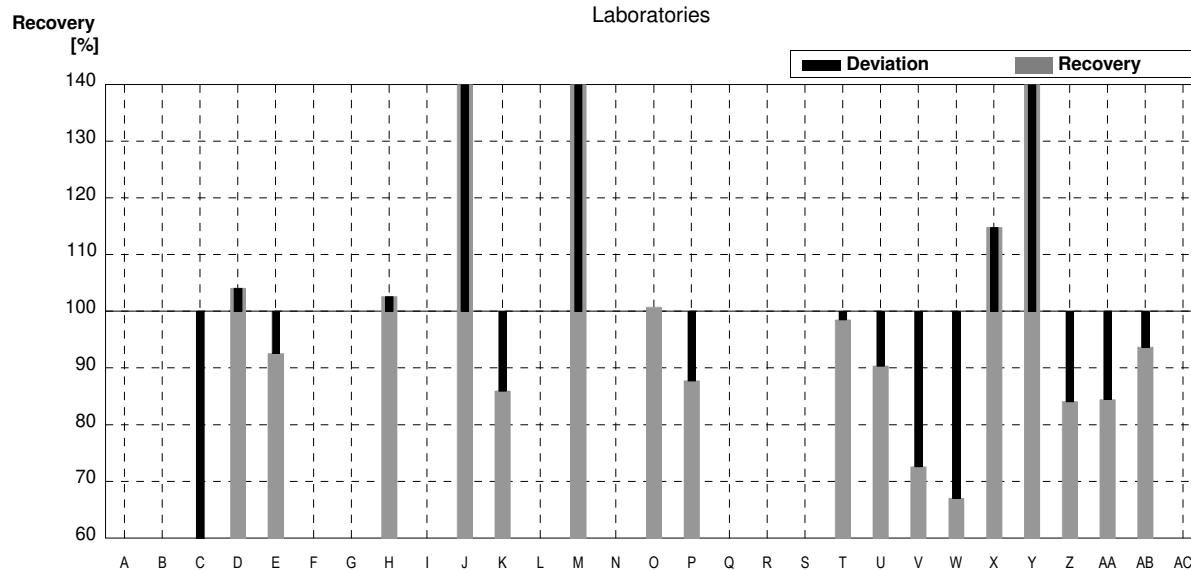
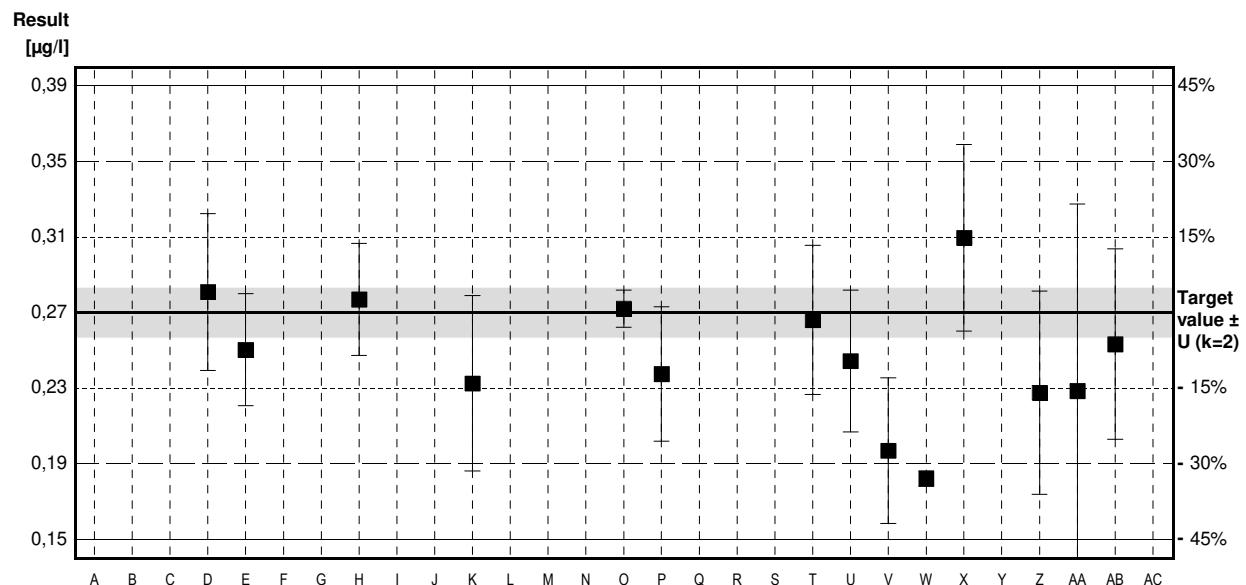
Target value  $\pm$  U (k=2)      0,27 µg/l       $\pm$       0,01 µg/l

IFA result  $\pm$  U (k=2)      0,25 µg/l       $\pm$       0,03 µg/l

## Stability test

Lab Code	Result	±	Unit	Recovery	z-Score
A			µg/l		
B			µg/l		
C	0,099 *	0,01	µg/l	37%	-5,76
D	0,281	0,042	µg/l	104%	0,37
E	0,250	0,030	µg/l	93%	-0,67
F			µg/l		
G			µg/l		
H	0,277	0,03	µg/l	103%	0,24
I			µg/l		
J	0,4306 *	0,043	µg/l	159%	5,41
K	0,232	0,047	µg/l	86%	-1,28
L			µg/l		
M	0,71 *	0,05	µg/l	263%	14,81
N			µg/l		
O	0,272	0,010	µg/l	101%	0,07
P	0,237	0,036	µg/l	88%	-1,11
Q			µg/l		
R			µg/l		
S			µg/l		
T	0,266	0,040	µg/l	99%	-0,13
U	0,244	0,038	µg/l	90%	-0,88
V	0,196	0,039	µg/l	73%	-2,49
W	0,181	0,004	µg/l	67%	-3,00
X	0,310	0,05	µg/l	115%	1,35
Y	15,43 *	0,1	µg/l	5715%	510,44
Z	0,227	0,0545	µg/l	84%	-1,45
AA	0,228	0,1	µg/l	84%	-1,41
AB	0,253	0,051	µg/l	94%	-0,57
AC			µg/l		

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	1,12 $\pm$ 2,44	0,25 $\pm$ 0,03	$\mu\text{g/l}$
Recov. $\pm$ CI(99%)	414,1 $\pm$ 904,8	91,4 $\pm$ 10,2	%
SD between labs	3,57	0,03	$\mu\text{g/l}$
RSD between labs	319,7	13,8	%
n for calculation	18	14	



## Sample M151B

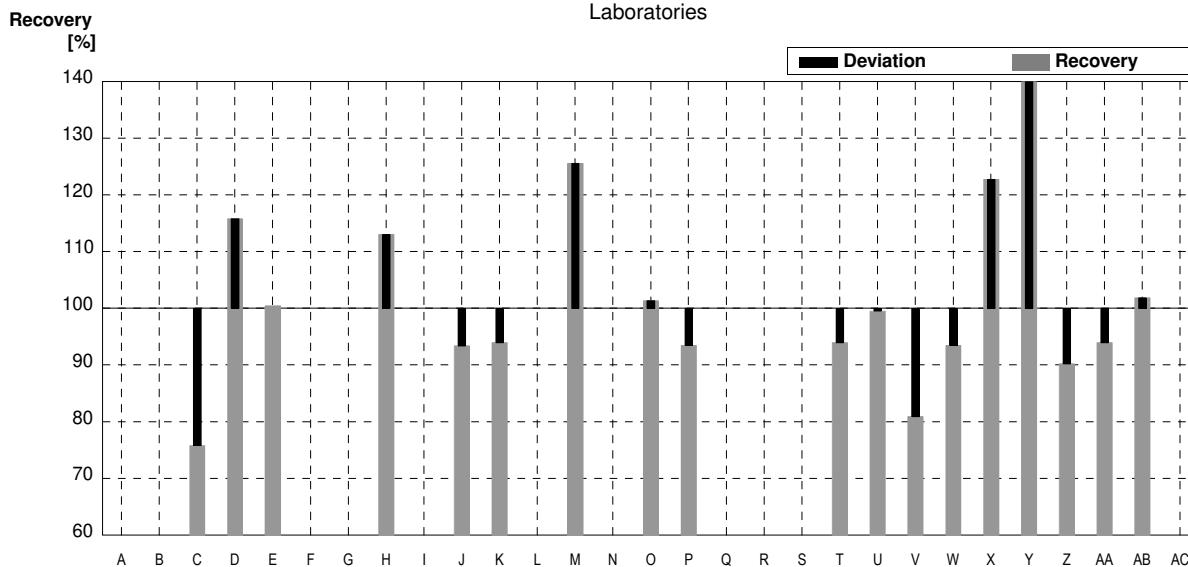
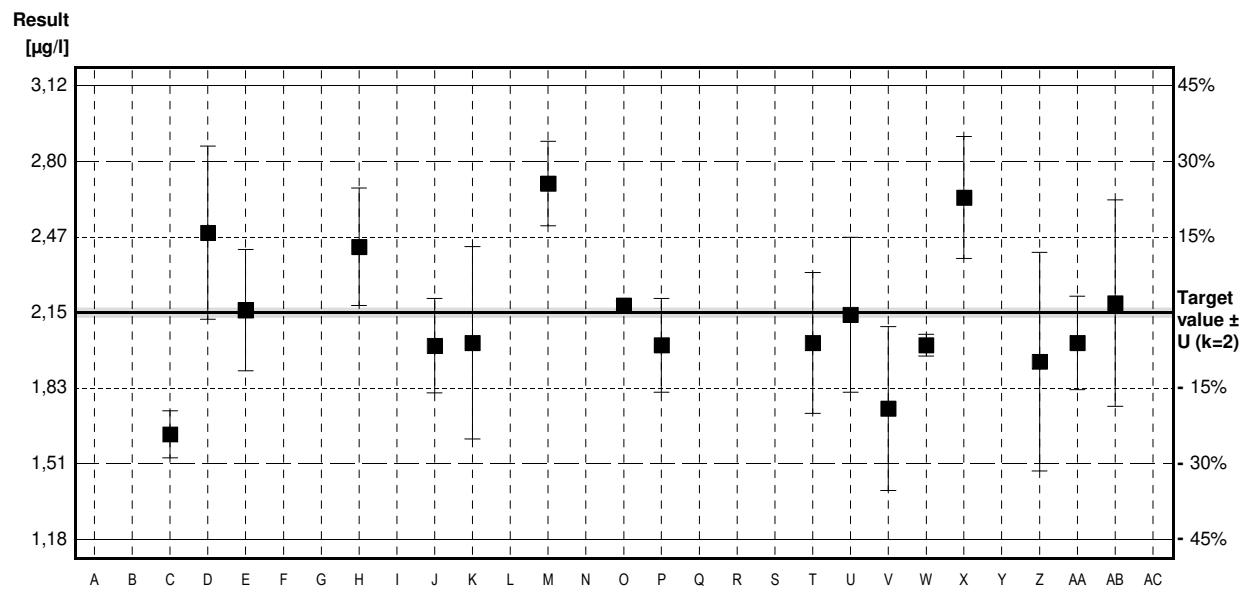
### Parameter Mercury

Target value  $\pm U$  ( $k=2$ ) 2,15 µg/l  $\pm$  0,02 µg/l  
 IFA result  $\pm U$  ( $k=2$ ) 2,56 µg/l  $\pm$  0,26 µg/l

Stability test µg/l

Lab Code	Result	$\pm$	Unit	Recovery	z-Score
A			µg/l		
B			µg/l		
C	1,63	0,10	µg/l	76%	-2,20
D	2,49	0,37	µg/l	116%	1,44
E	2,16	0,259	µg/l	100%	0,04
F			µg/l		
G			µg/l		
H	2,43	0,25	µg/l	113%	1,18
I			µg/l		
J	2,0080	0,201	µg/l	93%	-0,60
K	2,02	0,41	µg/l	94%	-0,55
L			µg/l		
M	2,70 *	0,18	µg/l	126%	2,33
N			µg/l		
O	2,18	0,018	µg/l	101%	0,13
P	2,01	0,20	µg/l	93%	-0,59
Q			µg/l		
R			µg/l		
S			µg/l		
T	2,02	0,30	µg/l	94%	-0,55
U	2,14	0,33	µg/l	100%	-0,04
V	1,74	0,35	µg/l	81%	-1,73
W	2,01	0,047	µg/l	93%	-0,59
X	2,64 *	0,26	µg/l	123%	2,07
Y	165,50 *	0,1	µg/l	7698%	690,70
Z	1,94	0,466	µg/l	90%	-0,89
AA	2,02	0,2	µg/l	94%	-0,55
AB	2,19	0,44	µg/l	102%	0,17
AC			µg/l		

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	11,21 $\pm$ 26,32	2,07 $\pm$ 0,17	µg/l
Recov. $\pm$ CI(99%)	521,5 $\pm$ 1224,2	96,1 $\pm$ 7,9	%
SD between labs	38,51	0,22	µg/l
RSD between labs	343,4	10,7	%
n for calculation	18	15	



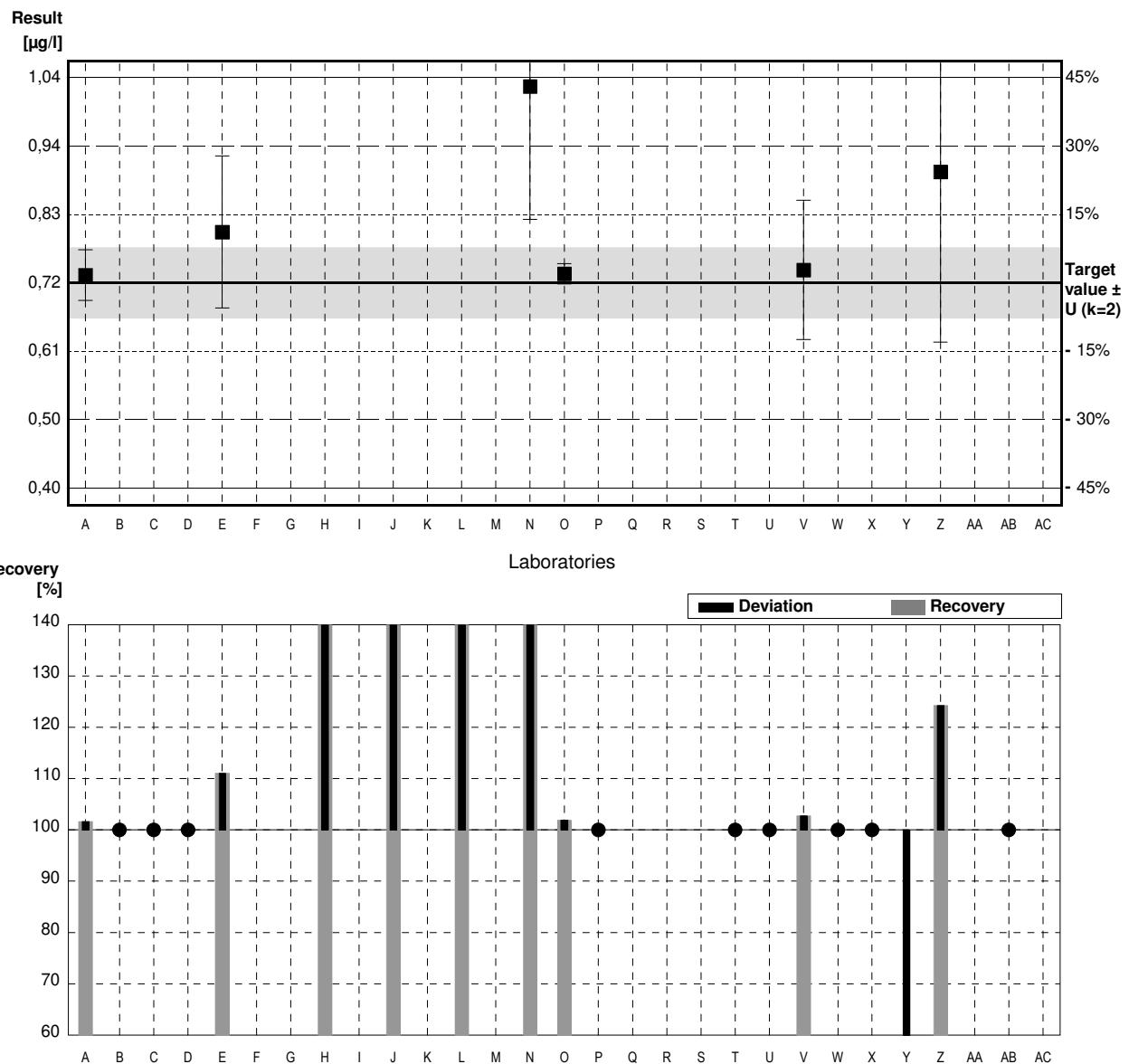
## Sample M151A

### Parameter Selenium

Target value  $\pm U$  ( $k=2$ )    0,72 µg/l     $\pm$     0,06 µg/l  
 IFA result  $\pm U$  ( $k=2$ )    0,81 µg/l     $\pm$     0,11 µg/l

Stability test					
Lab Code	Result	$\pm$	Unit	Recovery	z-Score
A	0,732	0,040	µg/l	102%	0,15
B	<5,0		µg/l	•	
C	<3,00	0,30	µg/l	•	
D	<1		µg/l	•	
E	0,80	0,120	µg/l	111%	1,01
F			µg/l		
G			µg/l		
H	1,05	0,1	µg/l	146%	4,17
I			µg/l		
J	1,36	0,2	µg/l	189%	8,08
K			µg/l		
L	1,30		µg/l	181%	7,32
M			µg/l		
N	1,03	0,21	µg/l	143%	3,91
O	0,734	0,016	µg/l	102%	0,18
P	<1,0		µg/l	•	
Q			µg/l		
R			µg/l		
S			µg/l		
T	<1		µg/l	•	
U	<1,0		µg/l	•	
V	0,74	0,11	µg/l	103%	0,25
W	<1,00		µg/l	•	
X	<2		µg/l	•	
Y	0,351	0,1	µg/l	49%	-4,66
Z	0,895	0,269	µg/l	124%	2,21
AA			µg/l		
AB	<1,00		µg/l	•	
AC			µg/l		

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	$0,90 \pm 0,31$	$0,90 \pm 0,31$	µg/l
Recov. $\pm$ CI(99%)	$124,9 \pm 43,1$	$124,9 \pm 43,1$	%
SD between labs	0,30	0,30	µg/l
RSD between labs	33,2	33,2	%
n for calculation	10	10	



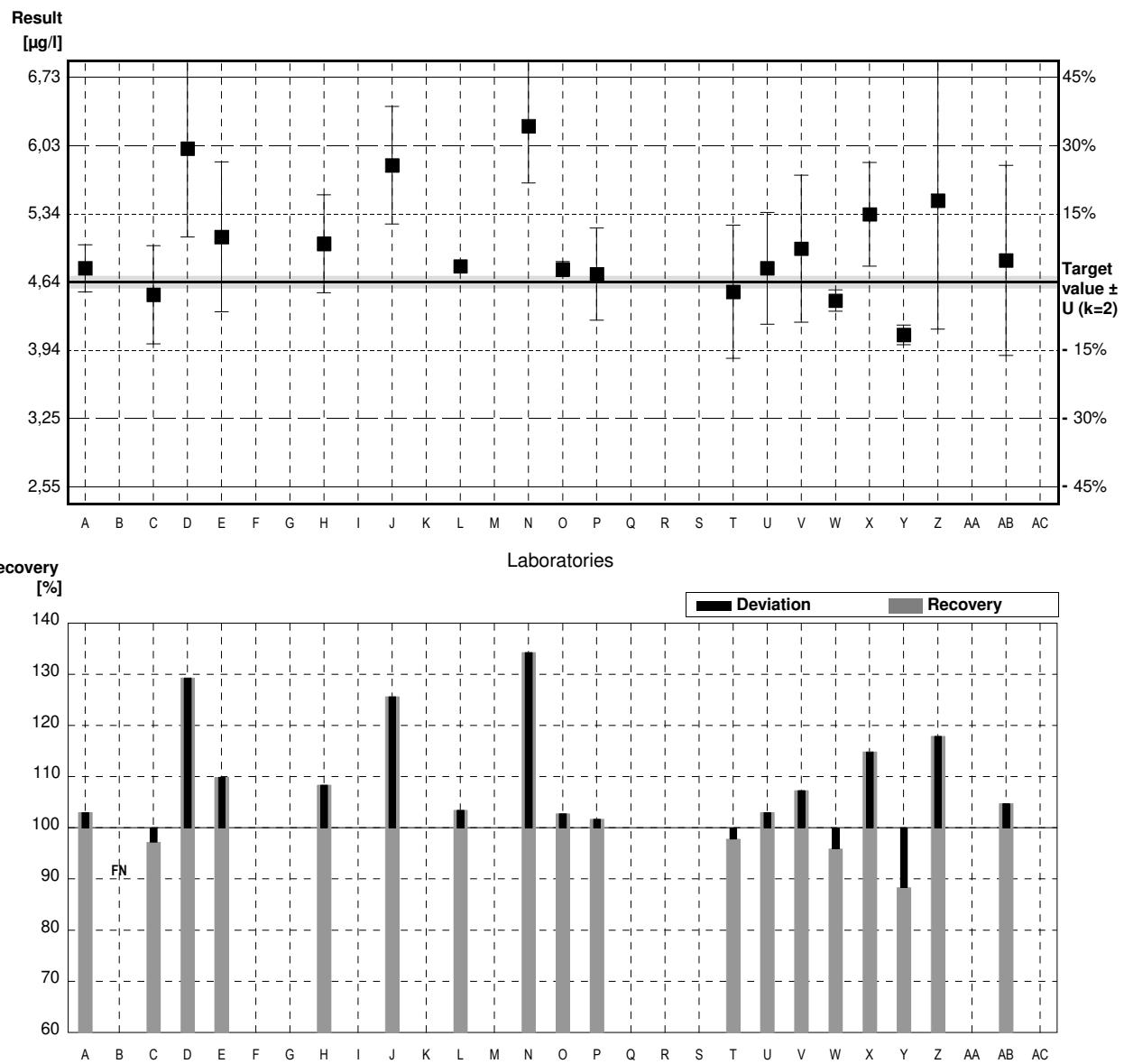
## Sample M151B

### Parameter Selenium

Target value  $\pm U$  ( $k=2$ )    4,64  $\mu\text{g/l}$      $\pm$     0,06  $\mu\text{g/l}$   
 IFA result  $\pm U$  ( $k=2$ )    5,13  $\mu\text{g/l}$      $\pm$     0,72  $\mu\text{g/l}$

Stability test					
Lab Code	Result	$\pm$	Unit	Recovery	z-Score
A	4,78	0,24	$\mu\text{g/l}$	103%	0,27
B	<0,5		$\mu\text{g/l}$	FN	
C	4,51	0,50	$\mu\text{g/l}$	97%	-0,25
D	6,00	0,90	$\mu\text{g/l}$	129%	2,66
E	5,10	0,765	$\mu\text{g/l}$	110%	0,90
F			$\mu\text{g/l}$		
G			$\mu\text{g/l}$		
H	5,03	0,5	$\mu\text{g/l}$	108%	0,76
I			$\mu\text{g/l}$		
J	5,83	0,6	$\mu\text{g/l}$	126%	2,33
K			$\mu\text{g/l}$		
L	4,80		$\mu\text{g/l}$	103%	0,31
M			$\mu\text{g/l}$		
N	6,23 *	0,58	$\mu\text{g/l}$	134%	3,12
O	4,77	0,077	$\mu\text{g/l}$	103%	0,25
P	4,72	0,47	$\mu\text{g/l}$	102%	0,16
Q			$\mu\text{g/l}$		
R			$\mu\text{g/l}$		
S			$\mu\text{g/l}$		
T	4,54	0,68	$\mu\text{g/l}$	98%	-0,20
U	4,78	0,57	$\mu\text{g/l}$	103%	0,27
V	4,98	0,75	$\mu\text{g/l}$	107%	0,67
W	4,45	0,11	$\mu\text{g/l}$	96%	-0,37
X	5,33	0,53	$\mu\text{g/l}$	115%	1,35
Y	4,10	0,1	$\mu\text{g/l}$	88%	-1,06
Z	5,47	1,31	$\mu\text{g/l}$	118%	1,63
AA			$\mu\text{g/l}$		
AB	4,86	0,97	$\mu\text{g/l}$	105%	0,43
AC			$\mu\text{g/l}$		

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	5,02 $\pm$ 0,38	4,94 $\pm$ 0,35	$\mu\text{g/l}$
Recov. $\pm$ CI(99%)	108,1 $\pm$ 8,3	106,6 $\pm$ 7,5	%
SD between labs	0,56	0,49	$\mu\text{g/l}$
RSD between labs	11,2	9,9	%
n for calculation	18	17	



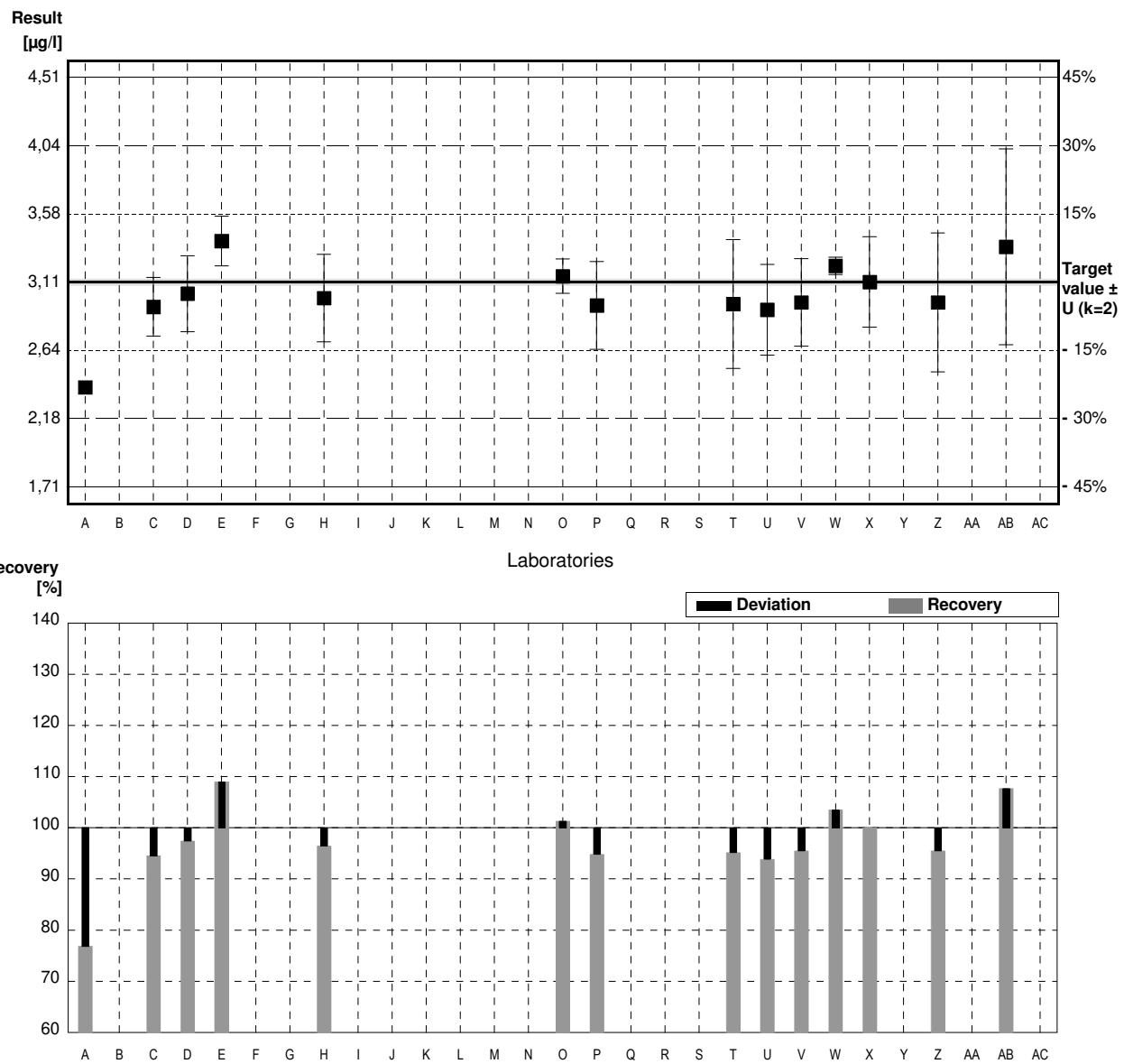
## Sample M151A

### Parameter Uranium

Target value  $\pm$  U (k=2)    3,11  $\mu\text{g/l}$      $\pm$     0,02  $\mu\text{g/l}$   
 IFA result  $\pm$  U (k=2)    3,12  $\mu\text{g/l}$      $\pm$     0,31  $\mu\text{g/l}$

Stability test					
Lab Code	Result	$\pm$	Unit	Recovery	z-Score
A	2,39 *		$\mu\text{g/l}$	77%	-3,92
B			$\mu\text{g/l}$		
C	2,94	0,20	$\mu\text{g/l}$	95%	-0,93
D	3,03	0,26	$\mu\text{g/l}$	97%	-0,44
E	3,39 *	0,170	$\mu\text{g/l}$	109%	1,53
F			$\mu\text{g/l}$		
G			$\mu\text{g/l}$		
H	3,00	0,3	$\mu\text{g/l}$	96%	-0,60
I			$\mu\text{g/l}$		
J			$\mu\text{g/l}$		
K			$\mu\text{g/l}$		
L			$\mu\text{g/l}$		
M			$\mu\text{g/l}$		
N			$\mu\text{g/l}$		
O	3,15	0,118	$\mu\text{g/l}$	101%	0,22
P	2,95	0,30	$\mu\text{g/l}$	95%	-0,87
Q			$\mu\text{g/l}$		
R			$\mu\text{g/l}$		
S			$\mu\text{g/l}$		
T	2,96	0,44	$\mu\text{g/l}$	95%	-0,82
U	2,92	0,31	$\mu\text{g/l}$	94%	-1,04
V	2,97	0,30	$\mu\text{g/l}$	95%	-0,76
W	3,22	0,06	$\mu\text{g/l}$	104%	0,60
X	3,11	0,31	$\mu\text{g/l}$	100%	0,00
Y			$\mu\text{g/l}$		
Z	2,97	0,475	$\mu\text{g/l}$	95%	-0,76
AA			$\mu\text{g/l}$		
AB	3,35 *	0,67	$\mu\text{g/l}$	108%	1,31
AC			$\mu\text{g/l}$		

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	3,03 $\pm$ 0,19	3,02 $\pm$ 0,09	$\mu\text{g/l}$
Recov. $\pm$ CI(99%)	97,3 $\pm$ 6,2	97,1 $\pm$ 3,0	%
SD between labs	0,24	0,10	$\mu\text{g/l}$
RSD between labs	7,9	3,2	%
n for calculation	14	11	



## Sample M151B

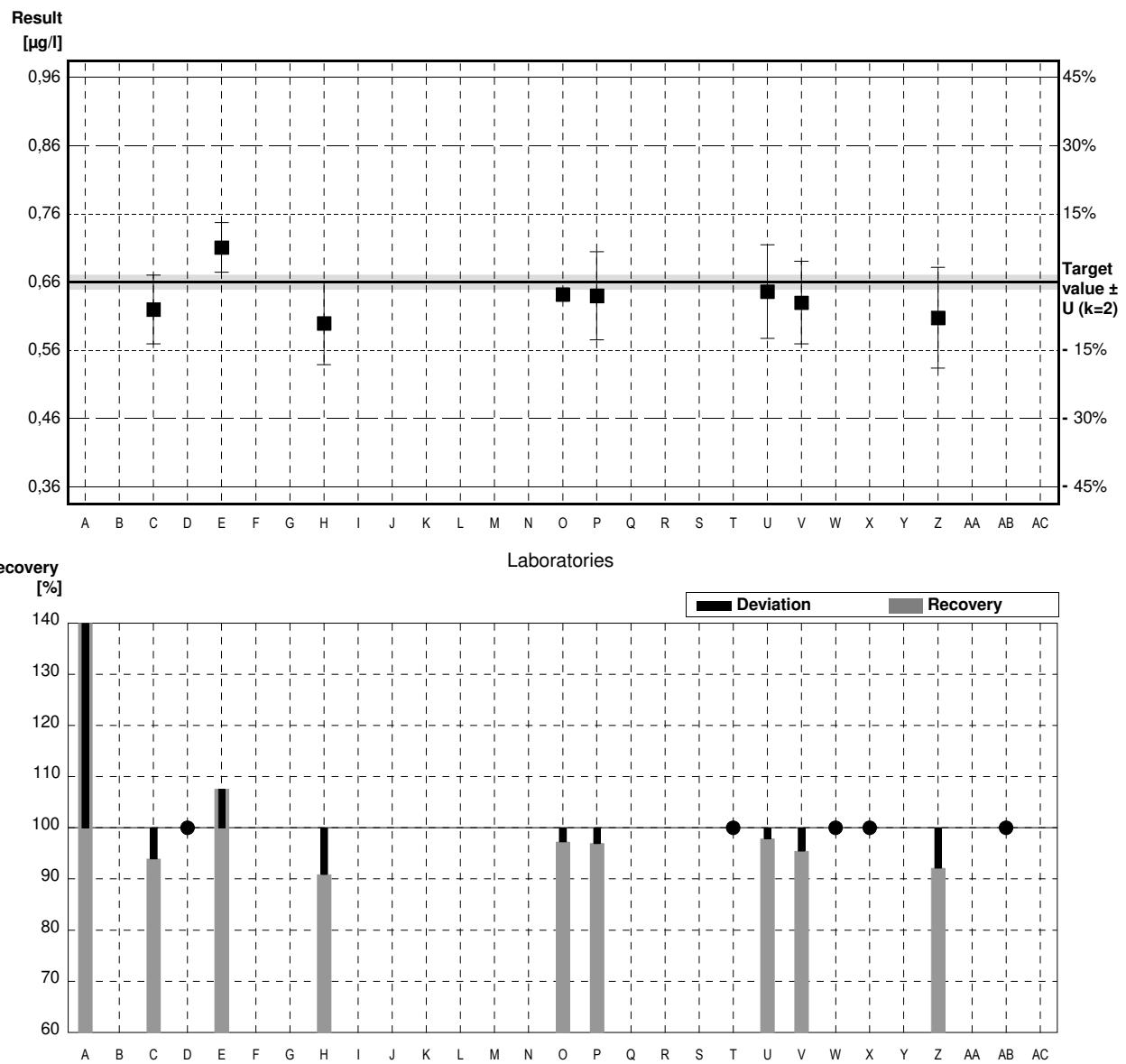
### Parameter Uranium

Target value  $\pm$  U (k=2) 0,66 µg/l  $\pm$  0,01 µg/l  
 IFA result  $\pm$  U (k=2) 0,66 µg/l  $\pm$  0,07 µg/l

Stability test µg/l

Lab Code	Result	$\pm$	Unit	Recovery	z-Score
A	1,09 *		µg/l	165%	11,04
B			µg/l		
C	0,62	0,05	µg/l	94%	-1,03
D	<1		µg/l	*	
E	0,71	0,036	µg/l	108%	1,28
F			µg/l		
G			µg/l		
H	0,600	0,06	µg/l	91%	-1,54
I			µg/l		
J			µg/l		
K			µg/l		
L			µg/l		
M			µg/l		
N			µg/l		
O	0,642	0,008	µg/l	97%	-0,46
P	0,64	0,064	µg/l	97%	-0,51
Q			µg/l		
R			µg/l		
S			µg/l		
T	<1		µg/l	*	
U	0,646	0,068	µg/l	98%	-0,36
V	0,63	0,06	µg/l	95%	-0,77
W	<1,00		µg/l	*	
X	<1		µg/l	*	
Y			µg/l		
Z	0,608	0,0730	µg/l	92%	-1,34
AA			µg/l		
AB	<1,00		µg/l	*	
AC			µg/l		

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	0,69 $\pm$ 0,17	0,64 $\pm$ 0,04	µg/l
Recov. $\pm$ CI(99%)	104,1 $\pm$ 26,2	96,5 $\pm$ 6,3	%
SD between labs	0,15	0,03	µg/l
RSD between labs	22,4	5,3	%
n for calculation	9	8	



## Sample M151A

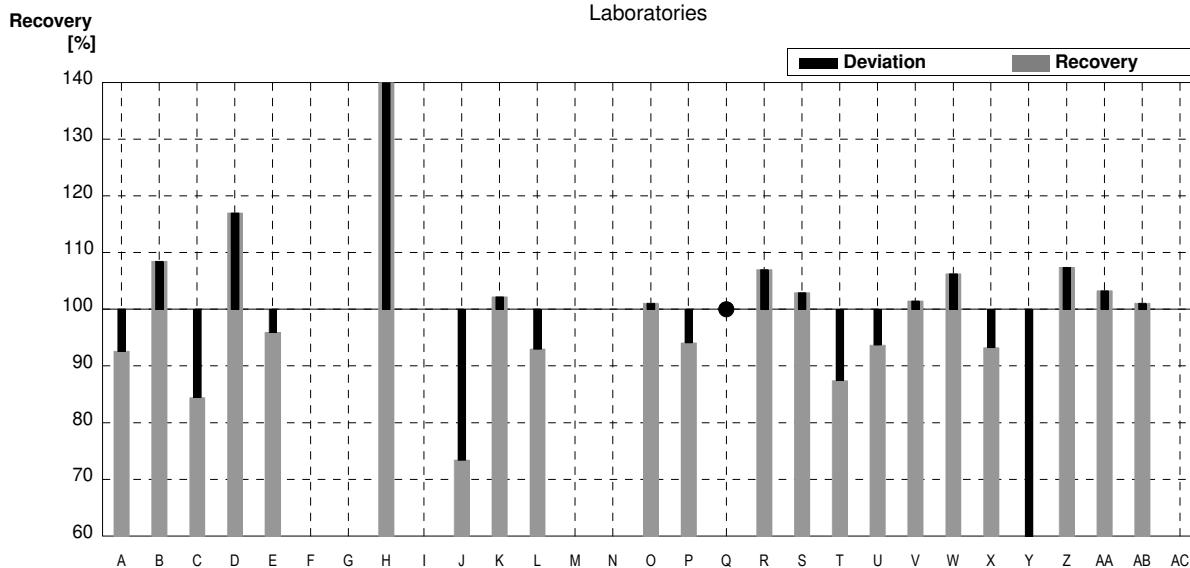
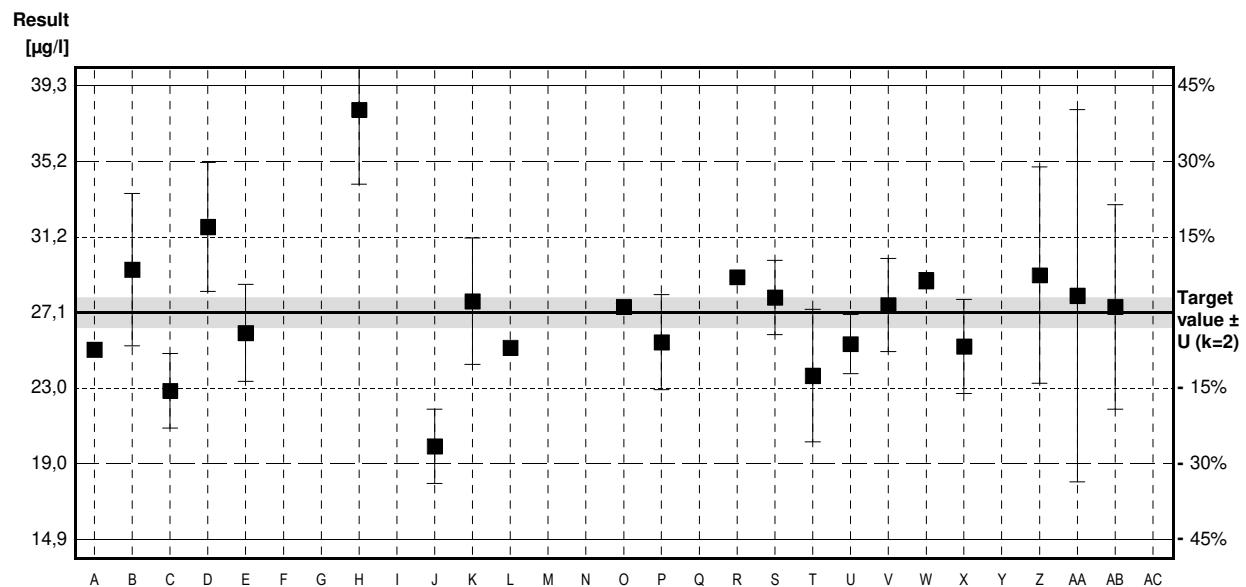
### Parameter Zinc

Target value  $\pm U$  ( $k=2$ )    27,1  $\mu\text{g/l}$      $\pm$     0,8  $\mu\text{g/l}$   
 IFA result  $\pm U$  ( $k=2$ )    30,7  $\mu\text{g/l}$      $\pm$     6,1  $\mu\text{g/l}$

### Stability test

Lab Code	Result	$\pm$	Unit	Recovery	z-Score
A	25,1		$\mu\text{g/l}$	93%	-0,92
B	29,4	4,1	$\mu\text{g/l}$	108%	1,06
C	22,89	2,00	$\mu\text{g/l}$	84%	-1,94
D	31,7	3,46	$\mu\text{g/l}$	117%	2,12
E	26,0	2,60	$\mu\text{g/l}$	96%	-0,51
F			$\mu\text{g/l}$		
G			$\mu\text{g/l}$		
H	38,0 *	4	$\mu\text{g/l}$	140%	5,03
I			$\mu\text{g/l}$		
J	19,9	2,0	$\mu\text{g/l}$	73%	-3,32
K	27,7	3,4	$\mu\text{g/l}$	102%	0,28
L	25,2		$\mu\text{g/l}$	93%	-0,88
M			$\mu\text{g/l}$		
N			$\mu\text{g/l}$		
O	27,4	0,197	$\mu\text{g/l}$	101%	0,14
P	25,5	2,55	$\mu\text{g/l}$	94%	-0,74
Q	<500		$\mu\text{g/l}$	*	
R	29,0		$\mu\text{g/l}$	107%	0,88
S	27,9	2,0	$\mu\text{g/l}$	103%	0,37
T	23,7	3,56	$\mu\text{g/l}$	87%	-1,57
U	25,4	1,6	$\mu\text{g/l}$	94%	-0,78
V	27,5	2,5	$\mu\text{g/l}$	101%	0,18
W	28,8	0,44	$\mu\text{g/l}$	106%	0,78
X	25,27	2,53	$\mu\text{g/l}$	93%	-0,84
Y	14,09 *	0,1	$\mu\text{g/l}$	52%	-6,00
Z	29,1	5,82	$\mu\text{g/l}$	107%	0,92
AA	28,0	10	$\mu\text{g/l}$	103%	0,42
AB	27,4	5,5	$\mu\text{g/l}$	101%	0,14
AC			$\mu\text{g/l}$		

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	26,6 $\pm$ 2,7	26,6 $\pm$ 1,7	$\mu\text{g/l}$
Recov. $\pm$ CI(99%)	98,1 $\pm$ 10,0	98,3 $\pm$ 6,3	%
SD between labs	4,5	2,7	$\mu\text{g/l}$
RSD between labs	16,8	10,0	%
n for calculation	22	20	



## Sample M151B

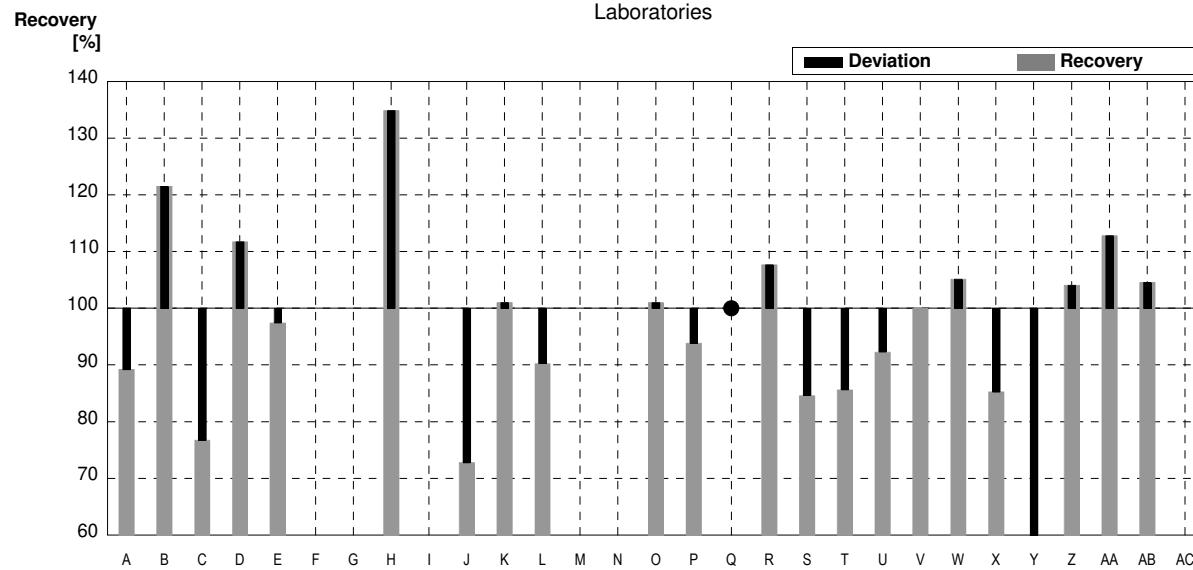
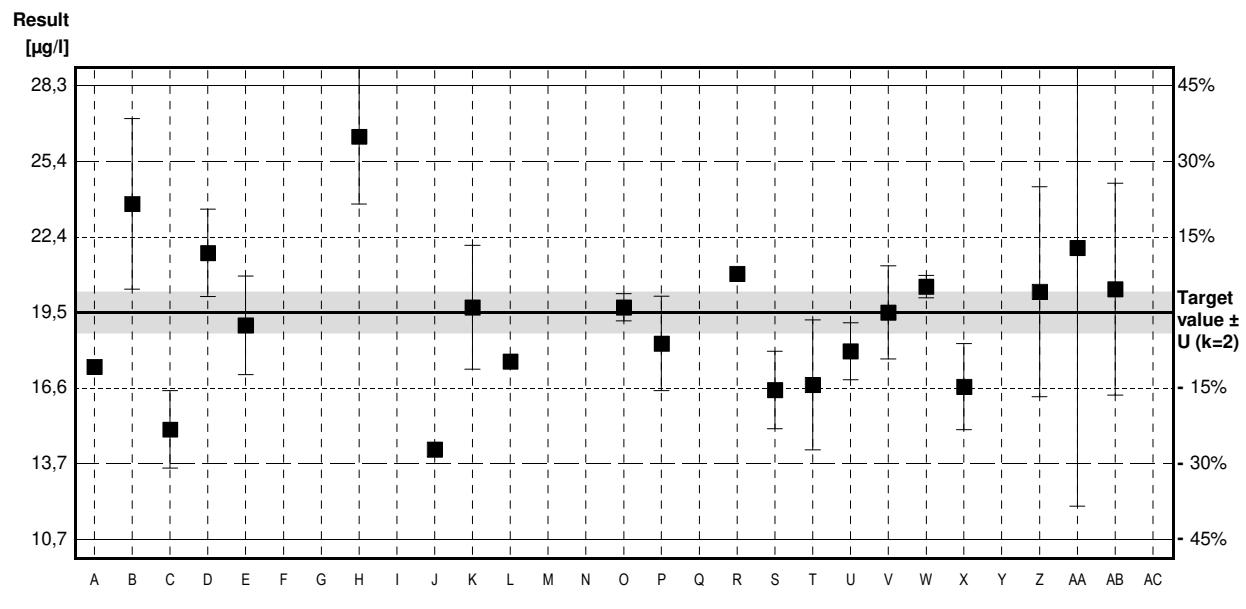
### Parameter Zinc

Target value  $\pm U$  ( $k=2$ )    19,5 µg/l     $\pm$     0,8 µg/l  
 IFA result  $\pm U$  ( $k=2$ )    21,7 µg/l     $\pm$     4,3 µg/l

### Stability test

Lab Code	Result	$\pm$	Unit	Recovery	z-Score
A	17,4		µg/l	89%	-1,35
B	23,7	3,3	µg/l	122%	2,69
C	14,97	1,50	µg/l	77%	-2,90
D	21,8	1,69	µg/l	112%	1,47
E	19,0	1,90	µg/l	97%	-0,32
F			µg/l		
G			µg/l		
H	26,3	2,6	µg/l	135%	4,36
I			µg/l		
J	14,2		µg/l	73%	-3,40
K	19,7	2,4	µg/l	101%	0,13
L	17,6		µg/l	90%	-1,22
M			µg/l		
N			µg/l		
O	19,7	0,520	µg/l	101%	0,13
P	18,3	1,83	µg/l	94%	-0,77
Q	<500		µg/l	*	
R	21,0		µg/l	108%	0,96
S	16,5	1,5	µg/l	85%	-1,92
T	16,7	2,51	µg/l	86%	-1,79
U	18,0	1,1	µg/l	92%	-0,96
V	19,5	1,8	µg/l	100%	0,00
W	20,5	0,44	µg/l	105%	0,64
X	16,63	1,66	µg/l	85%	-1,84
Y	10,62 *	0,1	µg/l	54%	-5,69
Z	20,3	4,06	µg/l	104%	0,51
AA	22,0	10	µg/l	113%	1,60
AB	20,4	4,1	µg/l	105%	0,58
AC			µg/l		

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	18,9 $\pm$ 2,0	19,2 $\pm$ 1,8	µg/l
Recov. $\pm$ CI(99%)	96,7 $\pm$ 10,4	98,7 $\pm$ 9,1	%
SD between labs	3,3	2,9	µg/l
RSD between labs	17,8	14,9	%
n for calculation	22	21	





# **Illustration of Results Laboratory Oriented Part**

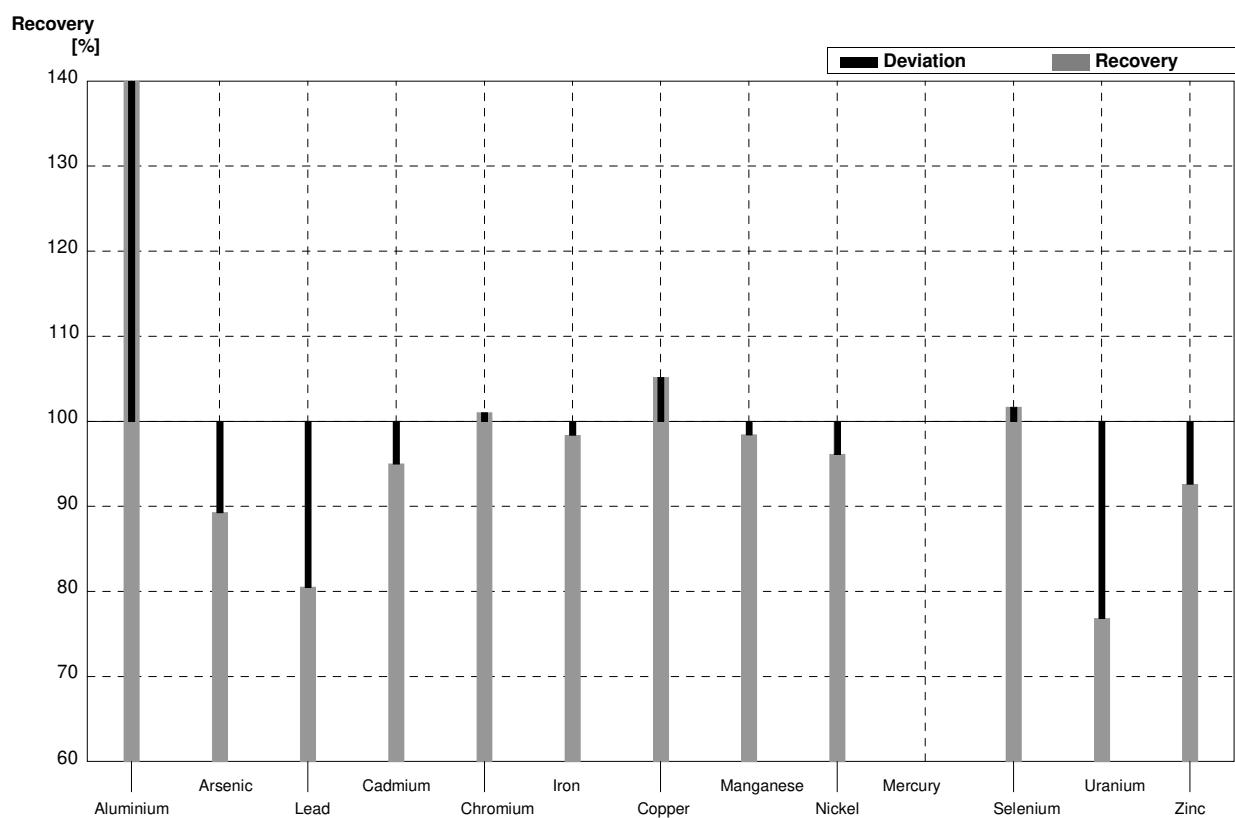
**Round M151  
Metals**

**Sample Dispatch: 9 March 2020**



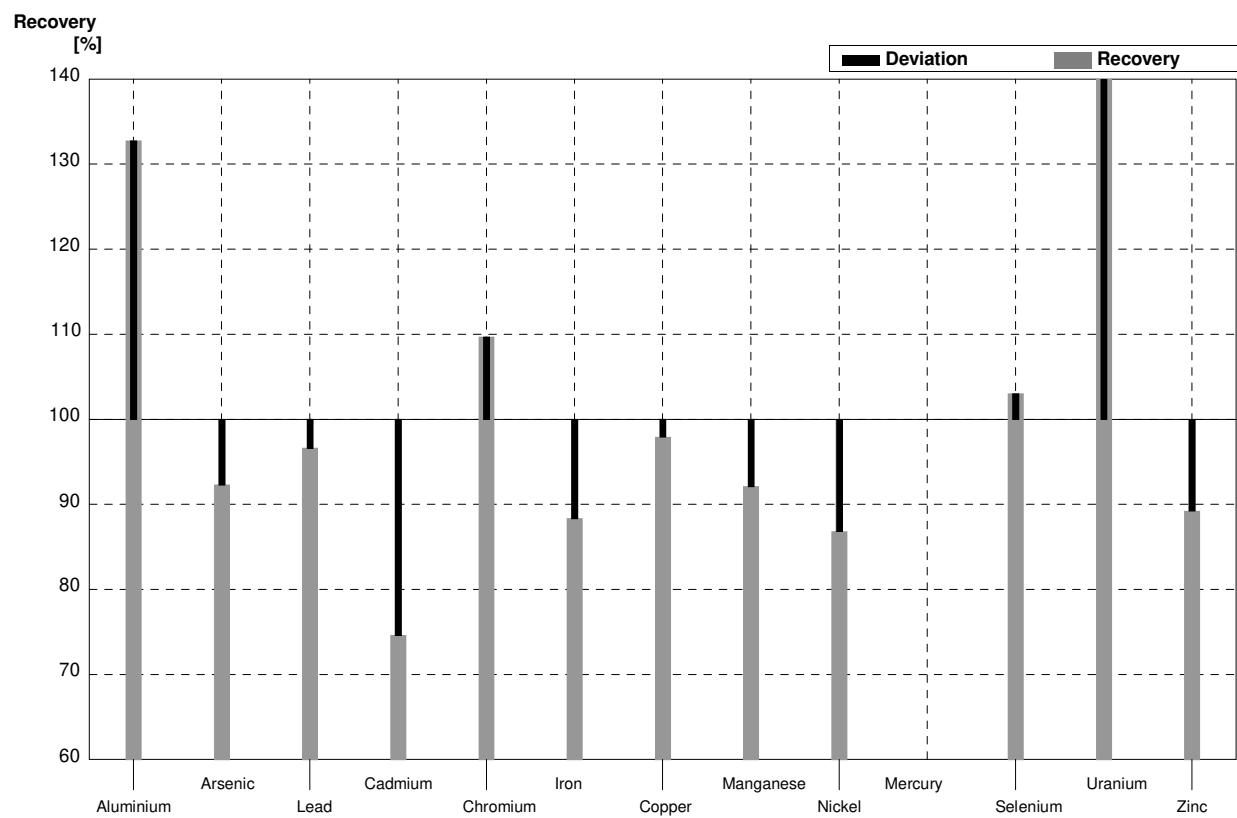
**Sample M151A**  
**Laboratory A**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	12,1	0,3	24,4	2,68	µg/l	202%
Arsenic	5,14	0,03	4,59	0,21	µg/l	89%
Lead	1,49	0,02	1,20	0,06	µg/l	81%
Cadmium	0,220	0,005	0,209	0,040	µg/l	95%
Chromium	3,80	0,03	3,84	0,43	µg/l	101%
Iron	12,3	0,2	12,1	1,57	µg/l	98%
Copper	4,46	0,03	4,69	0,52	µg/l	105%
Manganese	57,5	0,3	56,6	6,23	µg/l	98%
Nickel	0,88	0,02	0,846	0,08	µg/l	96%
Mercury	0,27	0,01			µg/l	
Selenium	0,72	0,06	0,732	0,040	µg/l	102%
Uranium	3,11	0,02	2,39		µg/l	77%
Zinc	27,1	0,8	25,1		µg/l	93%



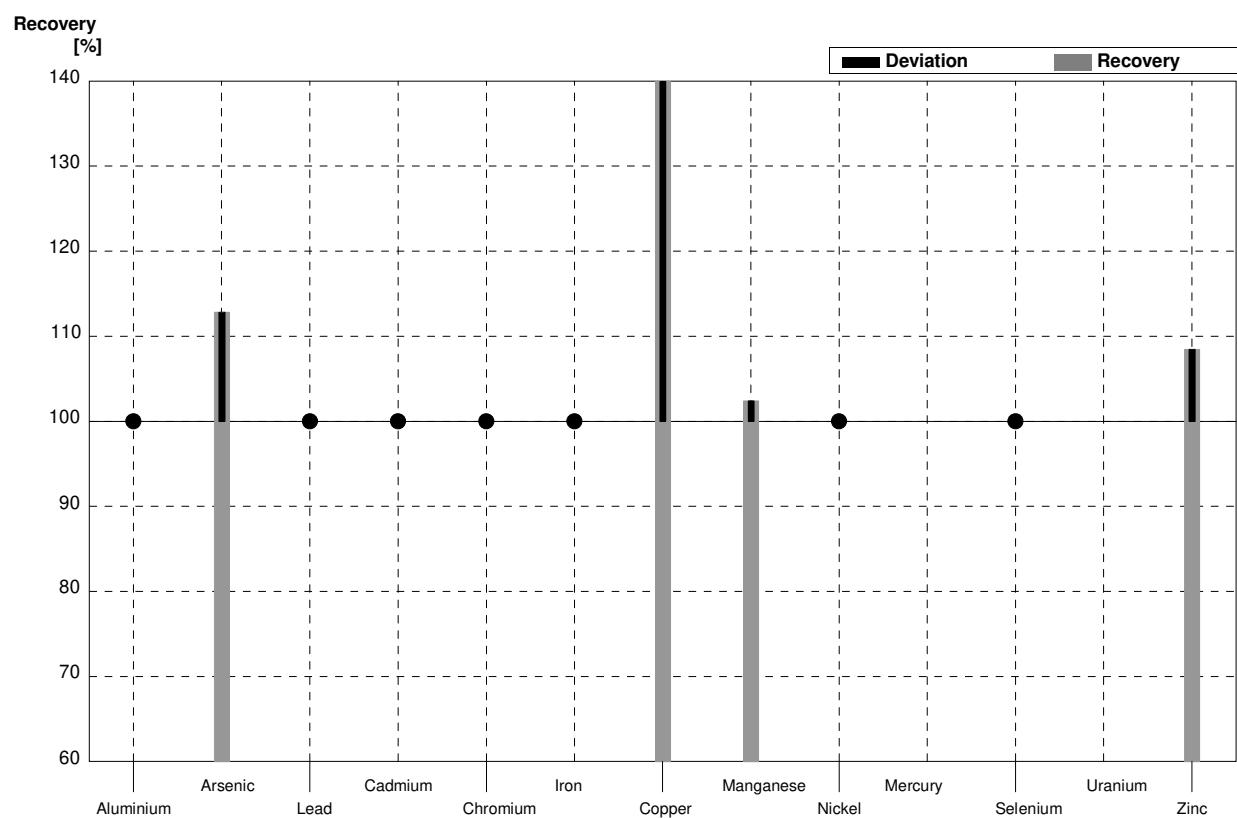
**Sample M151B**  
**Laboratory A**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	23,5	0,3	31,2	3,43	µg/l	133%
Arsenic	0,96	0,02	0,886	0,042	µg/l	92%
Lead	5,95	0,04	5,75	0,28	µg/l	97%
Cadmium	1,89	0,01	1,41	0,27	µg/l	75%
Chromium	0,93	0,01	1,02	0,12	µg/l	110%
Iron	88,4	0,4	78,1	10,2	µg/l	88%
Copper	19,2	0,1	18,8	2,1	µg/l	98%
Manganese	11,4	0,1	10,5	1,2	µg/l	92%
Nickel	4,55	0,03	3,95	0,36	µg/l	87%
Mercury	2,15	0,02			µg/l	
Selenium	4,64	0,06	4,78	0,24	µg/l	103%
Uranium	0,66	0,01	1,09		µg/l	165%
Zinc	19,5	0,8	17,4		µg/l	89%



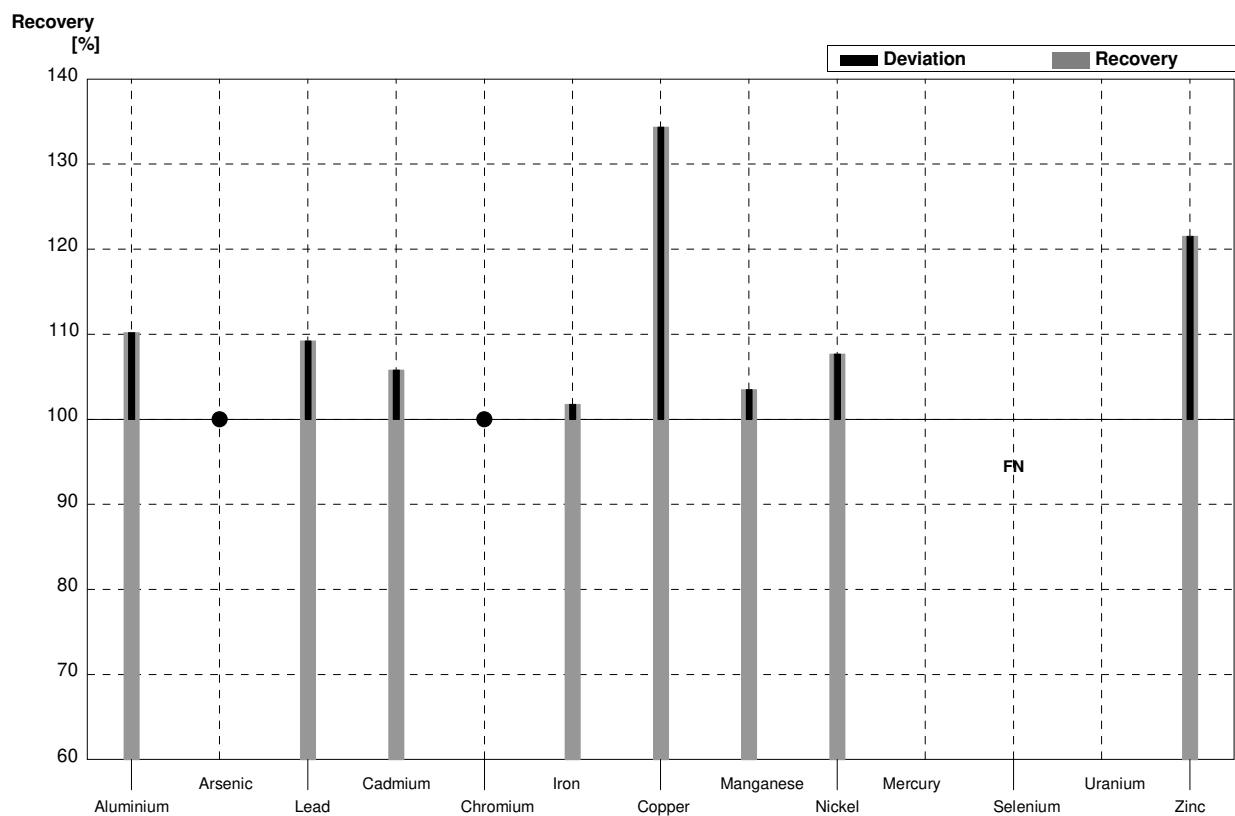
**Sample M151A**  
**Laboratory B**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	12,1	0,3	<15		µg/l	•
Arsenic	5,14	0,03	5,8	0,9	µg/l	113%
Lead	1,49	0,02	<2,0		µg/l	•
Cadmium	0,220	0,005	<1,0		µg/l	•
Chromium	3,80	0,03	<5,0		µg/l	•
Iron	12,3	0,2	<30		µg/l	•
Copper	4,46	0,03	10,4	2,7	µg/l	233%
Manganese	57,5	0,3	58,9	5,5	µg/l	102%
Nickel	0,88	0,02	<2,0		µg/l	•
Mercury	0,27	0,01			µg/l	
Selenium	0,72	0,06	<5,0		µg/l	•
Uranium	3,11	0,02			µg/l	
Zinc	27,1	0,8	29,4	4,1	µg/l	108%



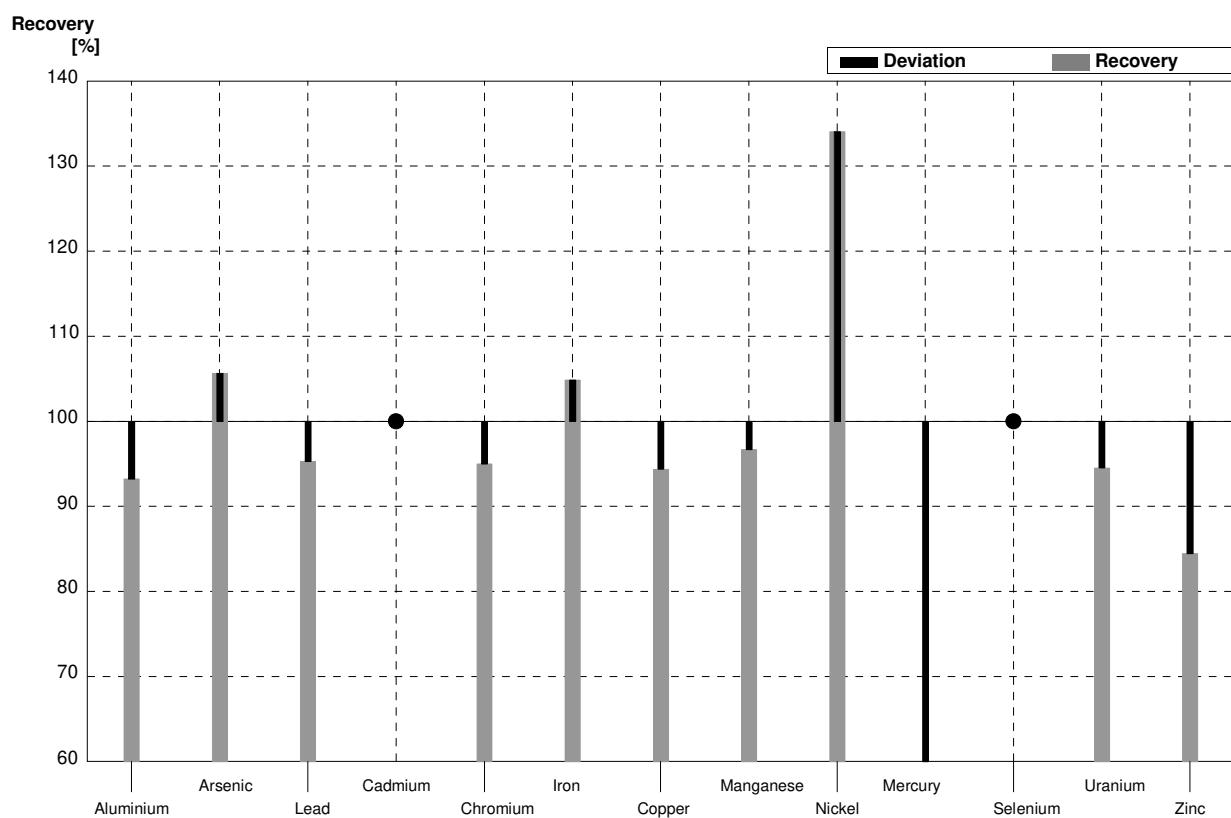
**Sample M151B**  
**Laboratory B**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	23,5	0,3	25,9	4,0	µg/l	110%
Arsenic	0,96	0,02	<2,0		µg/l	•
Lead	5,95	0,04	6,5	1,1	µg/l	109%
Cadmium	1,89	0,01	2,00	0,1	µg/l	106%
Chromium	0,93	0,01	<5,0		µg/l	•
Iron	88,4	0,4	90,0	7,6	µg/l	102%
Copper	19,2	0,1	25,8	6,7	µg/l	134%
Manganese	11,4	0,1	11,8	1,1	µg/l	104%
Nickel	4,55	0,03	4,90	0,6	µg/l	108%
Mercury	2,15	0,02			µg/l	
Selenium	4,64	0,06	<0,5		µg/l	FN
Uranium	0,66	0,01			µg/l	
Zinc	19,5	0,8	23,7	3,3	µg/l	122%



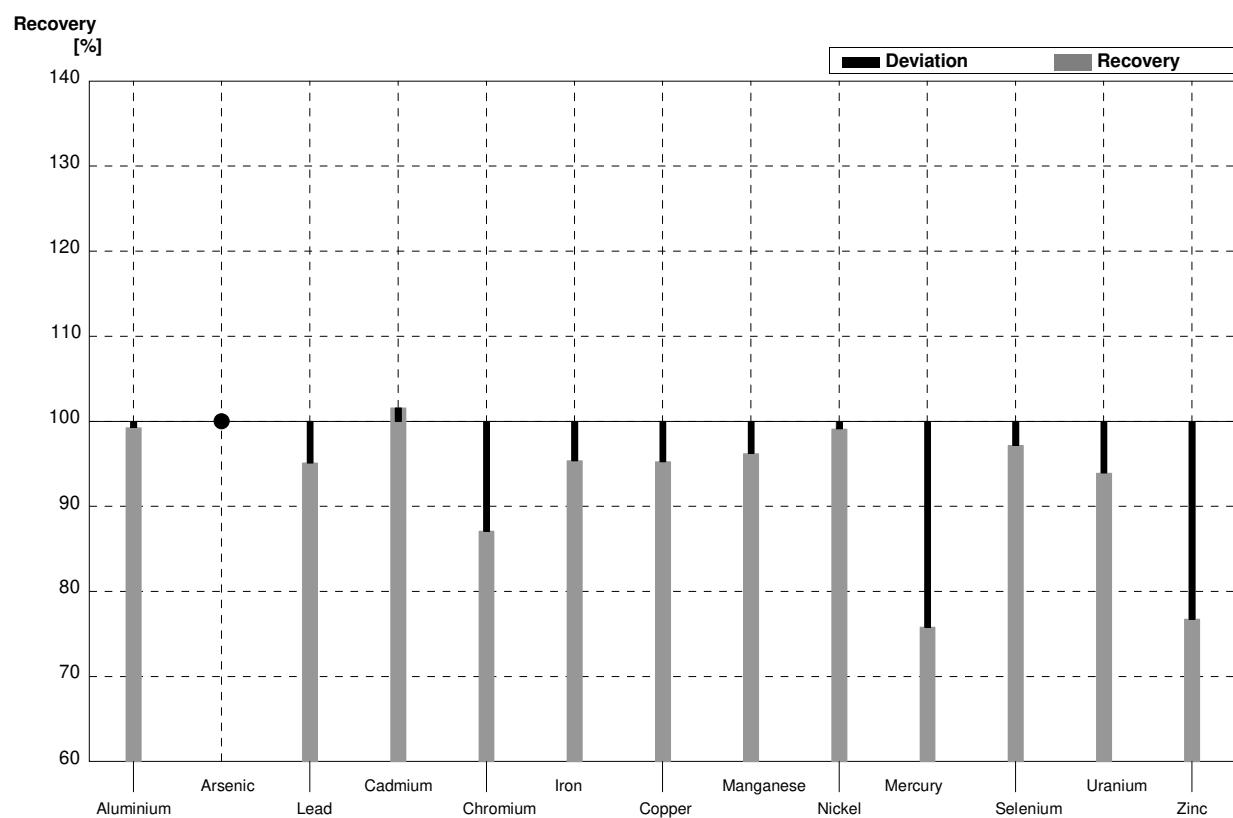
**Sample M151A**  
**Laboratory C**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	12,1	0,3	11,28	1,00	µg/l	93%
Arsenic	5,14	0,03	5,43	0,50	µg/l	106%
Lead	1,49	0,02	1,42	0,10	µg/l	95%
Cadmium	0,220	0,005	<0,6	0,06	µg/l	•
Chromium	3,80	0,03	3,61	0,30	µg/l	95%
Iron	12,3	0,2	12,9	1,00	µg/l	105%
Copper	4,46	0,03	4,21	0,40	µg/l	94%
Manganese	57,5	0,3	55,6	5,00	µg/l	97%
Nickel	0,88	0,02	1,18	0,10	µg/l	134%
Mercury	0,27	0,01	0,099	0,01	µg/l	37%
Selenium	0,72	0,06	<3,00	0,30	µg/l	•
Uranium	3,11	0,02	2,94	0,20	µg/l	95%
Zinc	27,1	0,8	22,89	2,00	µg/l	84%



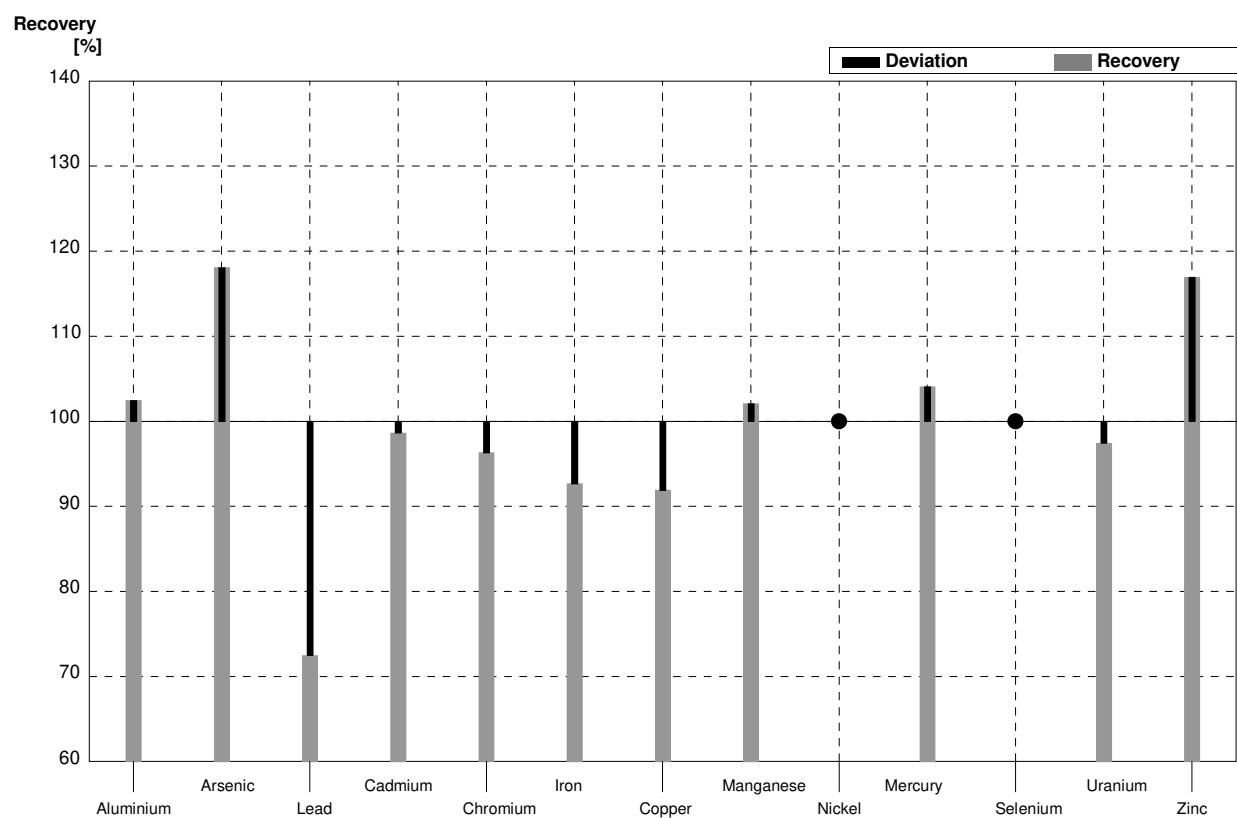
**Sample M151B**  
**Laboratory C**

Parameter	Target value	$\pm$ U ( $k=2$ )	Result	$\pm$	Unit	Recovery
Aluminium	23,5	0,3	23,33	2,00	$\mu\text{g/l}$	99%
Arsenic	0,96	0,02	<3,00	0,30	$\mu\text{g/l}$	•
Lead	5,95	0,04	5,66	0,50	$\mu\text{g/l}$	95%
Cadmium	1,89	0,01	1,92	0,20	$\mu\text{g/l}$	102%
Chromium	0,93	0,01	0,81	0,10	$\mu\text{g/l}$	87%
Iron	88,4	0,4	84,31	5,00	$\mu\text{g/l}$	95%
Copper	19,2	0,1	18,29	1,50	$\mu\text{g/l}$	95%
Manganese	11,4	0,1	10,97	1,00	$\mu\text{g/l}$	96%
Nickel	4,55	0,03	4,51	0,40	$\mu\text{g/l}$	99%
Mercury	2,15	0,02	1,63	0,10	$\mu\text{g/l}$	76%
Selenium	4,64	0,06	4,51	0,50	$\mu\text{g/l}$	97%
Uranium	0,66	0,01	0,62	0,05	$\mu\text{g/l}$	94%
Zinc	19,5	0,8	14,97	1,50	$\mu\text{g/l}$	77%



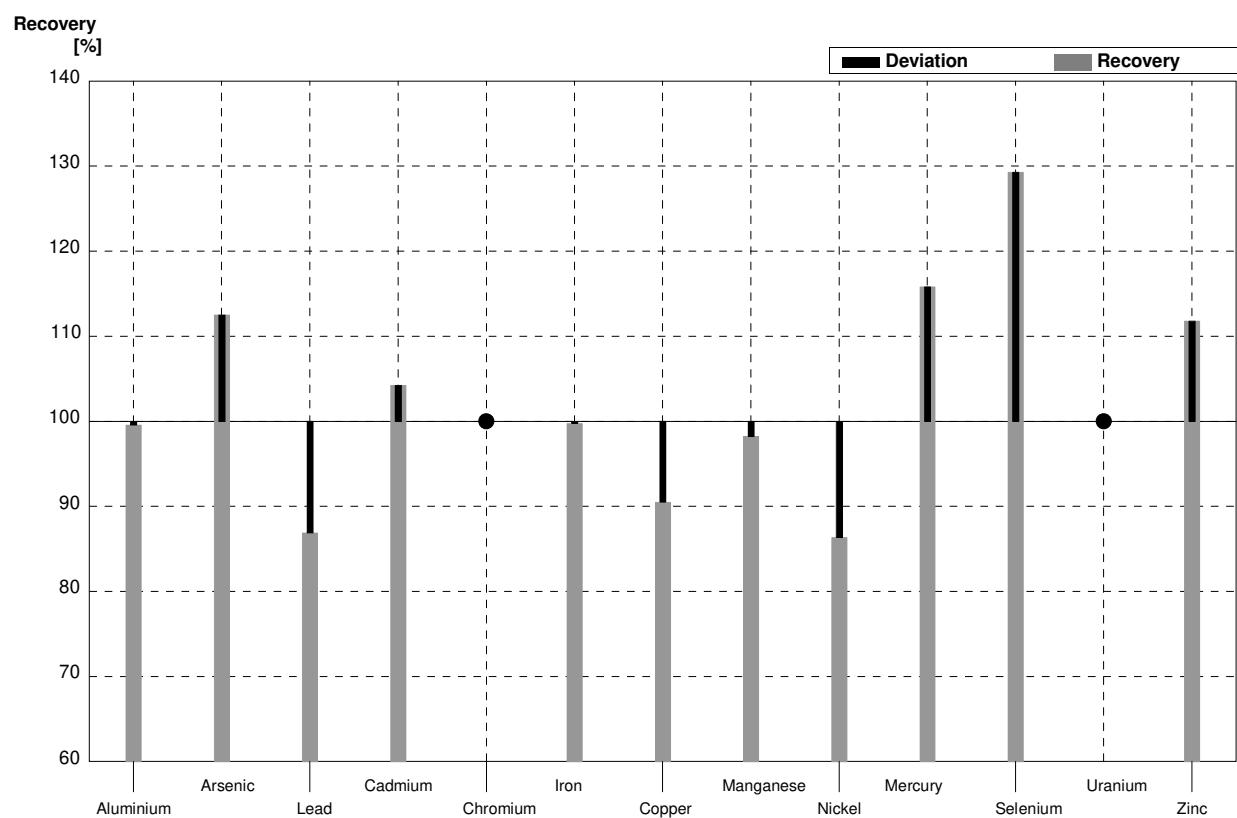
**Sample M151A**  
**Laboratory D**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	12,1	0,3	12,4	1,02	µg/l	102%
Arsenic	5,14	0,03	6,07	0,42	µg/l	118%
Lead	1,49	0,02	1,08	0,08	µg/l	72%
Cadmium	0,220	0,005	0,217	0,014	µg/l	99%
Chromium	3,80	0,03	3,66	0,22	µg/l	96%
Iron	12,3	0,2	11,4	0,82	µg/l	93%
Copper	4,46	0,03	4,10	0,30	µg/l	92%
Manganese	57,5	0,3	58,7	8,81	µg/l	102%
Nickel	0,88	0,02	<1		µg/l	•
Mercury	0,27	0,01	0,281	0,042	µg/l	104%
Selenium	0,72	0,06	<1		µg/l	•
Uranium	3,11	0,02	3,03	0,26	µg/l	97%
Zinc	27,1	0,8	31,7	3,46	µg/l	117%



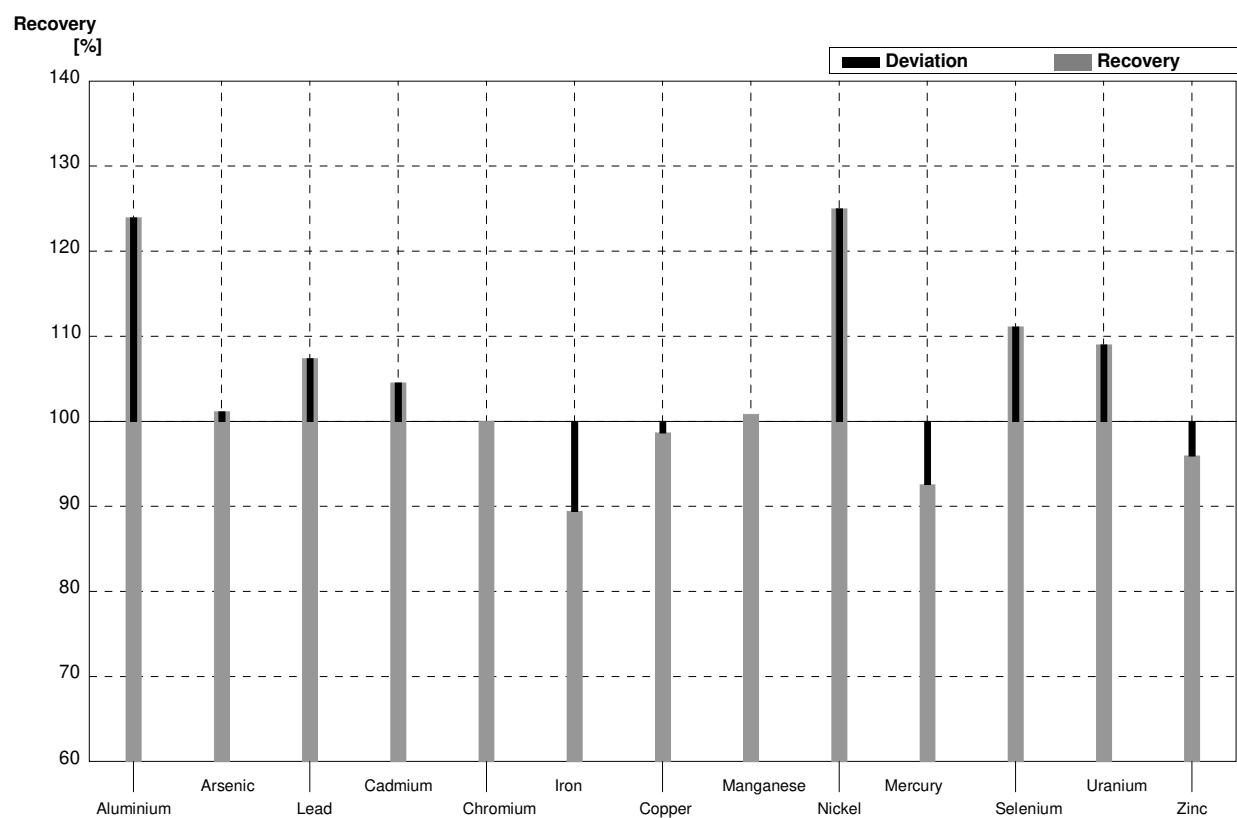
**Sample M151B**  
**Laboratory D**

Parameter	Target value	$\pm$ U ( $k=2$ )	Result	$\pm$	Unit	Recovery
Aluminium	23,5	0,3	23,4	1,93	$\mu\text{g/l}$	100%
Arsenic	0,96	0,02	1,08	0,08	$\mu\text{g/l}$	113%
Lead	5,95	0,04	5,17	0,37	$\mu\text{g/l}$	87%
Cadmium	1,89	0,01	1,97	0,12	$\mu\text{g/l}$	104%
Chromium	0,93	0,01	<1		$\mu\text{g/l}$	•
Iron	88,4	0,4	88,2	6,17	$\mu\text{g/l}$	100%
Copper	19,2	0,1	17,38	1,25	$\mu\text{g/l}$	91%
Manganese	11,4	0,1	11,2	1,68	$\mu\text{g/l}$	98%
Nickel	4,55	0,03	3,93	0,28	$\mu\text{g/l}$	86%
Mercury	2,15	0,02	2,49	0,37	$\mu\text{g/l}$	116%
Selenium	4,64	0,06	6,00	0,90	$\mu\text{g/l}$	129%
Uranium	0,66	0,01	<1		$\mu\text{g/l}$	•
Zinc	19,5	0,8	21,8	1,69	$\mu\text{g/l}$	112%



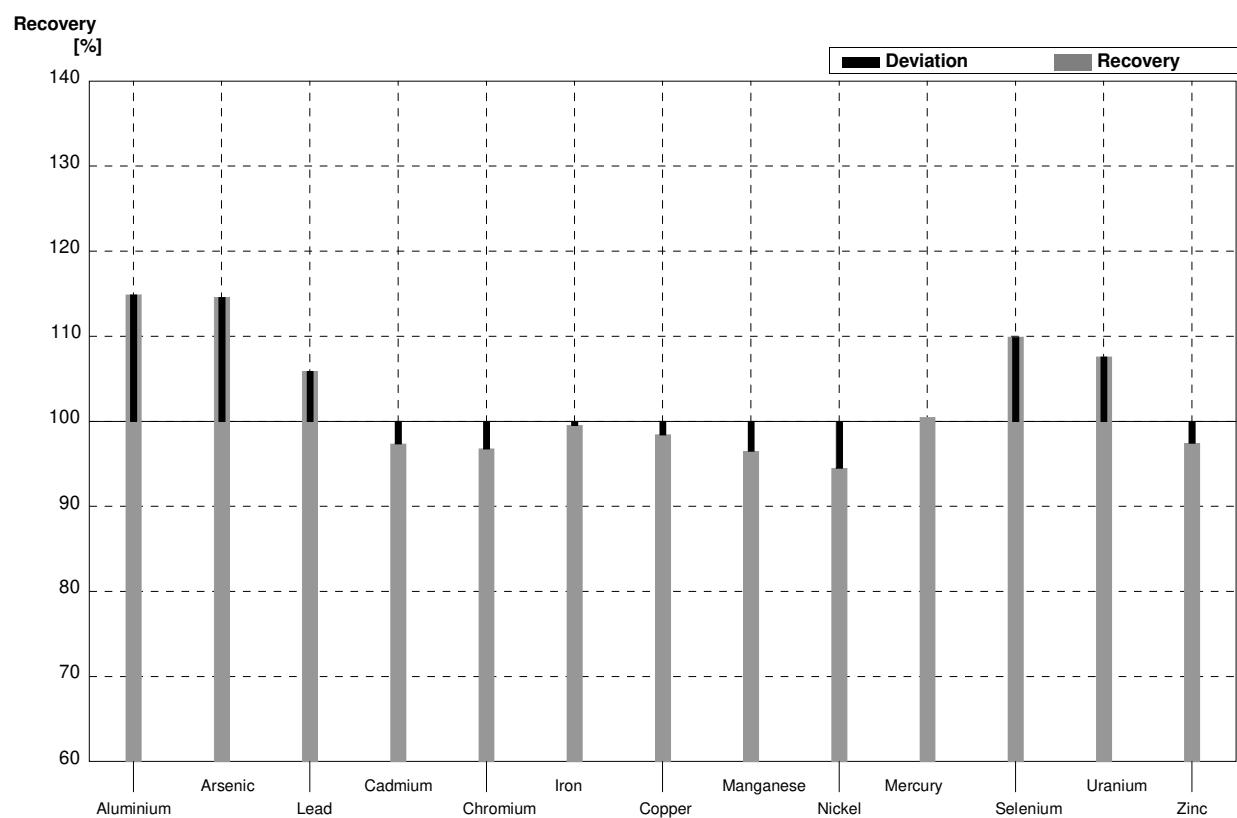
**Sample M151A**  
**Laboratory E**

Parameter	Target value	$\pm$ U ( $k=2$ )	Result	$\pm$	Unit	Recovery
Aluminium	12,1	0,3	15,0	1,50	$\mu\text{g/l}$	124%
Arsenic	5,14	0,03	5,20	0,624	$\mu\text{g/l}$	101%
Lead	1,49	0,02	1,60	0,128	$\mu\text{g/l}$	107%
Cadmium	0,220	0,005	0,230	0,0184	$\mu\text{g/l}$	105%
Chromium	3,80	0,03	3,80	0,456	$\mu\text{g/l}$	100%
Iron	12,3	0,2	11,0	2,860	$\mu\text{g/l}$	89%
Copper	4,46	0,03	4,40	0,352	$\mu\text{g/l}$	99%
Manganese	57,5	0,3	58,0	5,80	$\mu\text{g/l}$	101%
Nickel	0,88	0,02	1,10	0,110	$\mu\text{g/l}$	125%
Mercury	0,27	0,01	0,250	0,030	$\mu\text{g/l}$	93%
Selenium	0,72	0,06	0,80	0,120	$\mu\text{g/l}$	111%
Uranium	3,11	0,02	3,39	0,170	$\mu\text{g/l}$	109%
Zinc	27,1	0,8	26,0	2,60	$\mu\text{g/l}$	96%



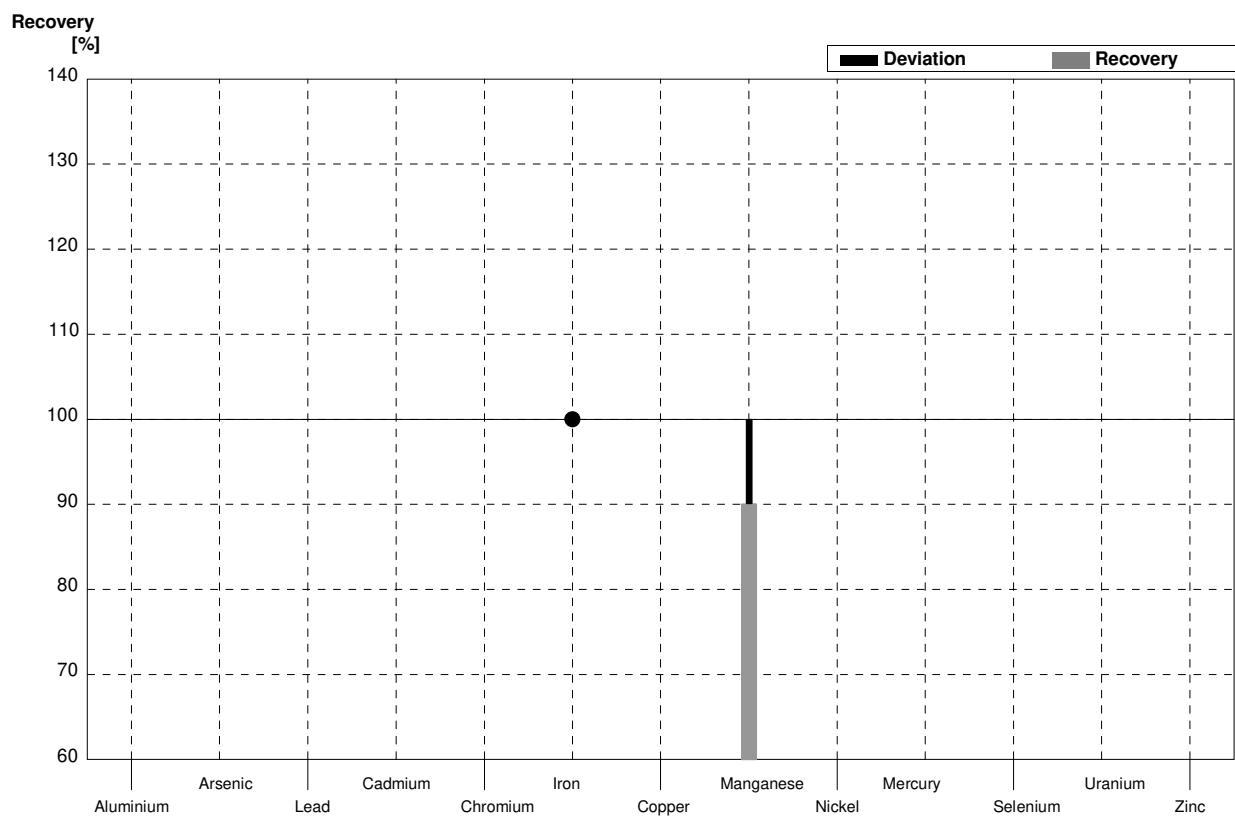
**Sample M151B**  
**Laboratory E**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	23,5	0,3	27,0	2,7	µg/l	115%
Arsenic	0,96	0,02	1,10	0,132	µg/l	115%
Lead	5,95	0,04	6,30	0,504	µg/l	106%
Cadmium	1,89	0,01	1,84	0,147	µg/l	97%
Chromium	0,93	0,01	0,90	0,108	µg/l	97%
Iron	88,4	0,4	88,0	22,88	µg/l	100%
Copper	19,2	0,1	18,9	1,512	µg/l	98%
Manganese	11,4	0,1	11,0	1,10	µg/l	96%
Nickel	4,55	0,03	4,30	0,43	µg/l	95%
Mercury	2,15	0,02	2,16	0,259	µg/l	100%
Selenium	4,64	0,06	5,10	0,765	µg/l	110%
Uranium	0,66	0,01	0,71	0,036	µg/l	108%
Zinc	19,5	0,8	19,0	1,90	µg/l	97%



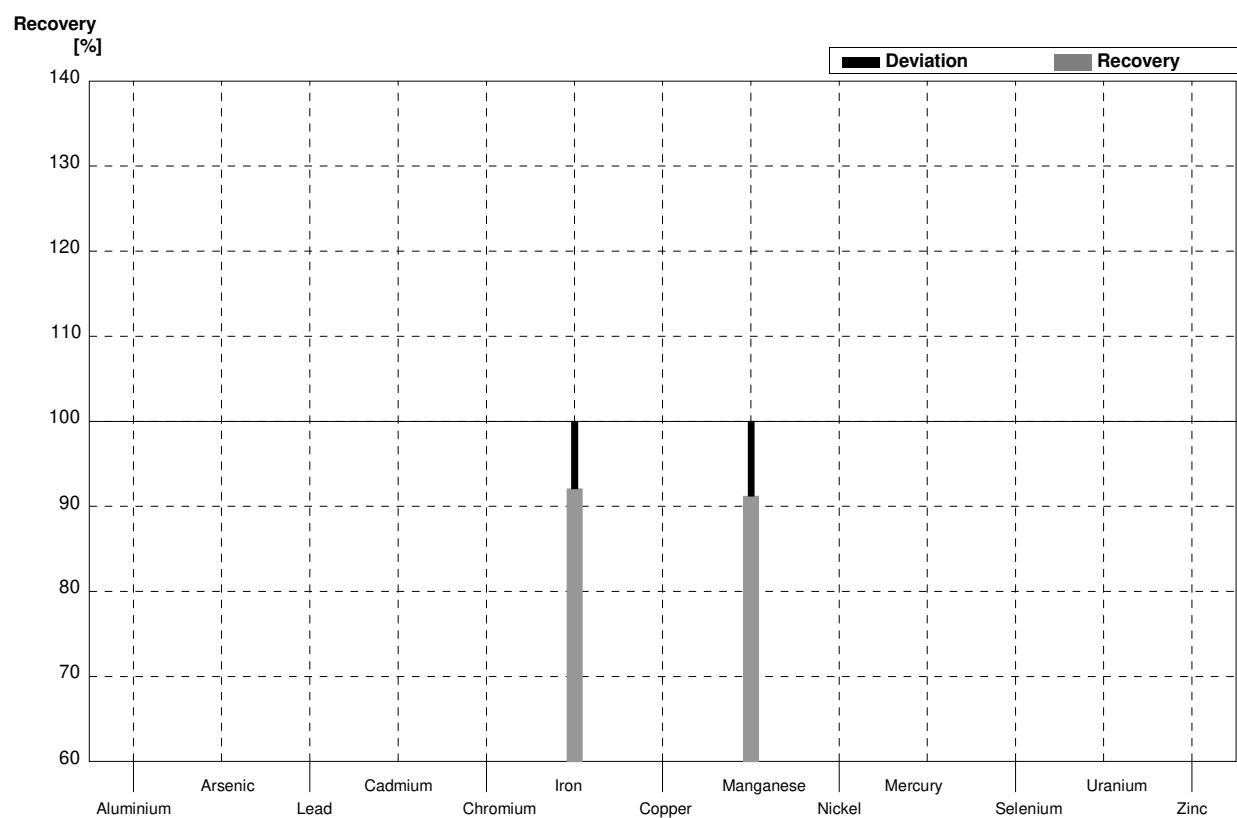
**Sample M151A**  
**Laboratory F**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	12,1	0,3			µg/l	
Arsenic	5,14	0,03			µg/l	
Lead	1,49	0,02			µg/l	
Cadmium	0,220	0,005			µg/l	
Chromium	3,80	0,03			µg/l	
Iron	12,3	0,2	<20		µg/l	•
Copper	4,46	0,03			µg/l	
Manganese	57,5	0,3	51,8	5	µg/l	90%
Nickel	0,88	0,02			µg/l	
Mercury	0,27	0,01			µg/l	
Selenium	0,72	0,06			µg/l	
Uranium	3,11	0,02			µg/l	
Zinc	27,1	0,8			µg/l	



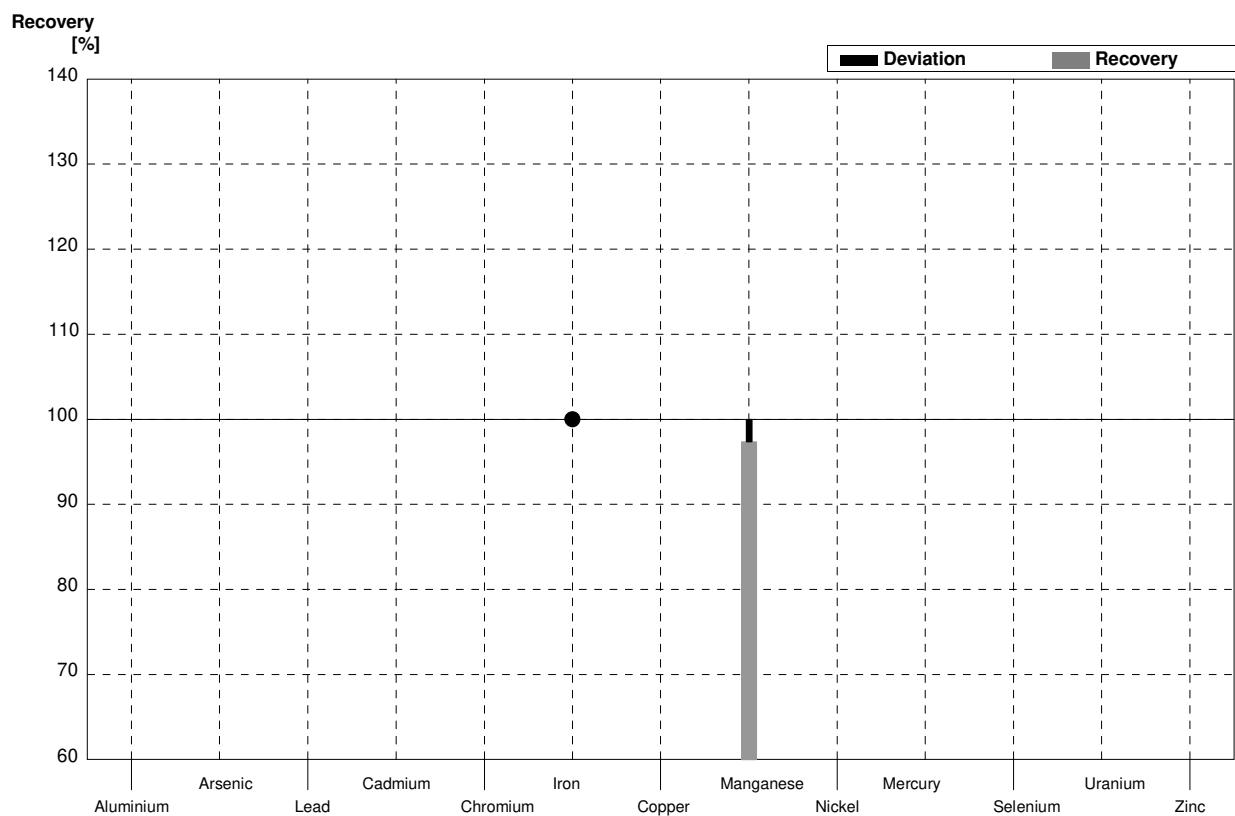
**Sample M151B**  
**Laboratory F**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	23,5	0,3			µg/l	
Arsenic	0,96	0,02			µg/l	
Lead	5,95	0,04			µg/l	
Cadmium	1,89	0,01			µg/l	
Chromium	0,93	0,01			µg/l	
Iron	88,4	0,4	81,4	8	µg/l	92%
Copper	19,2	0,1			µg/l	
Manganese	11,4	0,1	10,4	3	µg/l	91%
Nickel	4,55	0,03			µg/l	
Mercury	2,15	0,02			µg/l	
Selenium	4,64	0,06			µg/l	
Uranium	0,66	0,01			µg/l	
Zinc	19,5	0,8			µg/l	



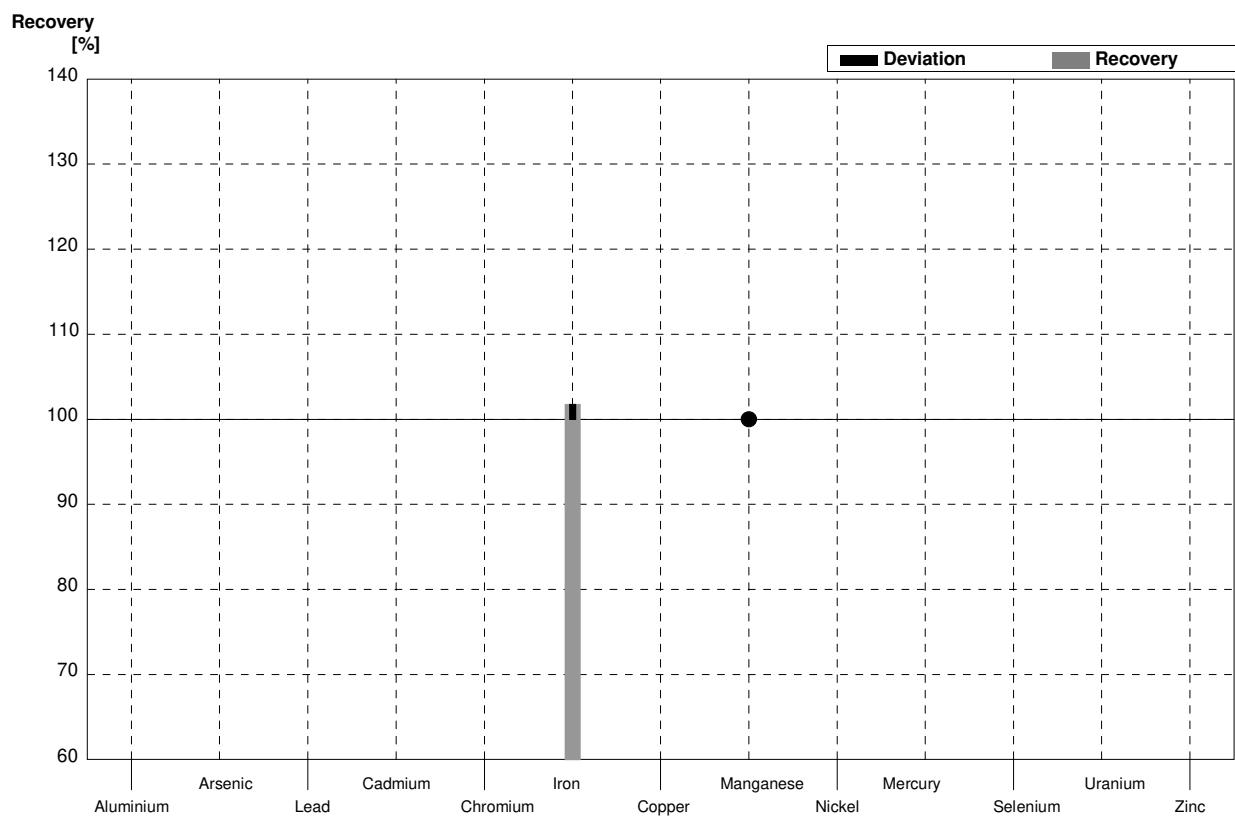
**Sample M151A**  
**Laboratory G**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	12,1	0,3			µg/l	
Arsenic	5,14	0,03			µg/l	
Lead	1,49	0,02			µg/l	
Cadmium	0,220	0,005			µg/l	
Chromium	3,80	0,03			µg/l	
Iron	12,3	0,2	<50		µg/l	•
Copper	4,46	0,03			µg/l	
Manganese	57,5	0,3	56	5	µg/l	97%
Nickel	0,88	0,02			µg/l	
Mercury	0,27	0,01			µg/l	
Selenium	0,72	0,06			µg/l	
Uranium	3,11	0,02			µg/l	
Zinc	27,1	0,8			µg/l	



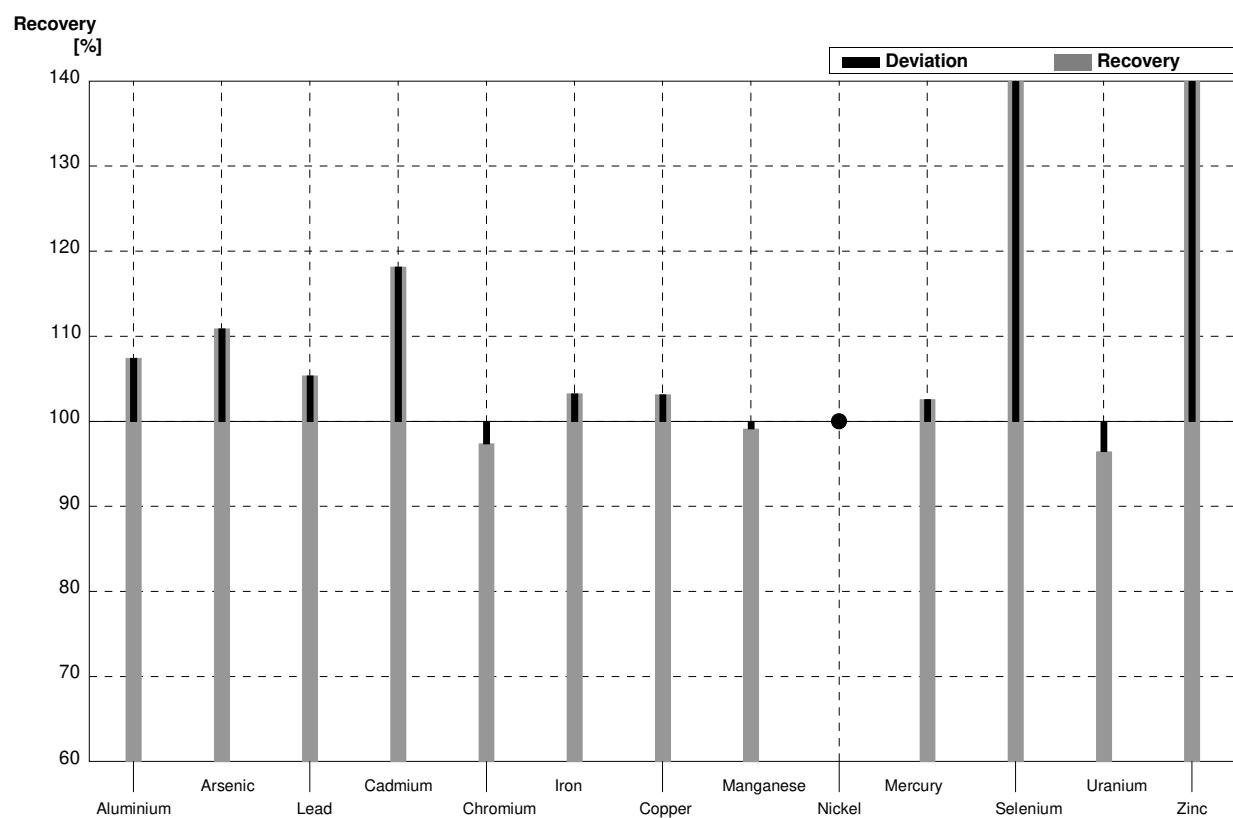
**Sample M151B**  
**Laboratory G**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	23,5	0,3			µg/l	
Arsenic	0,96	0,02			µg/l	
Lead	5,95	0,04			µg/l	
Cadmium	1,89	0,01			µg/l	
Chromium	0,93	0,01			µg/l	
Iron	88,4	0,4	90	6	µg/l	102%
Copper	19,2	0,1			µg/l	
Manganese	11,4	0,1	<50		µg/l	•
Nickel	4,55	0,03			µg/l	
Mercury	2,15	0,02			µg/l	
Selenium	4,64	0,06			µg/l	
Uranium	0,66	0,01			µg/l	
Zinc	19,5	0,8			µg/l	



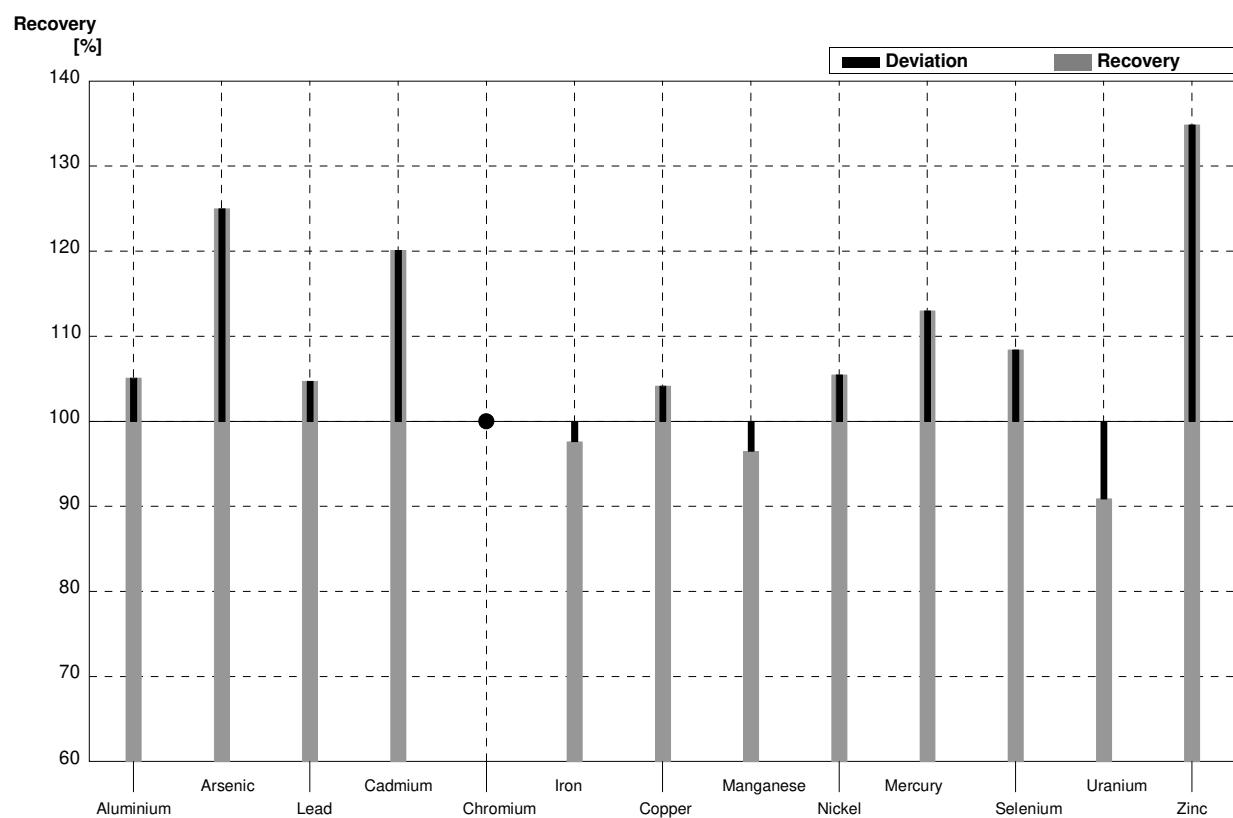
**Sample M151A**  
**Laboratory H**

Parameter	Target value	$\pm$ U ( $k=2$ )	Result	$\pm$	Unit	Recovery
Aluminium	12,1	0,3	13,0	1	$\mu\text{g/l}$	107%
Arsenic	5,14	0,03	5,7	0,6	$\mu\text{g/l}$	111%
Lead	1,49	0,02	1,57	0,2	$\mu\text{g/l}$	105%
Cadmium	0,220	0,005	0,260	0,03	$\mu\text{g/l}$	118%
Chromium	3,80	0,03	3,70	0,4	$\mu\text{g/l}$	97%
Iron	12,3	0,2	12,7	1	$\mu\text{g/l}$	103%
Copper	4,46	0,03	4,60	0,5	$\mu\text{g/l}$	103%
Manganese	57,5	0,3	57,0	6	$\mu\text{g/l}$	99%
Nickel	0,88	0,02	<1		$\mu\text{g/l}$	•
Mercury	0,27	0,01	0,277	0,03	$\mu\text{g/l}$	103%
Selenium	0,72	0,06	1,05	0,1	$\mu\text{g/l}$	146%
Uranium	3,11	0,02	3,00	0,3	$\mu\text{g/l}$	96%
Zinc	27,1	0,8	38,0	4	$\mu\text{g/l}$	140%



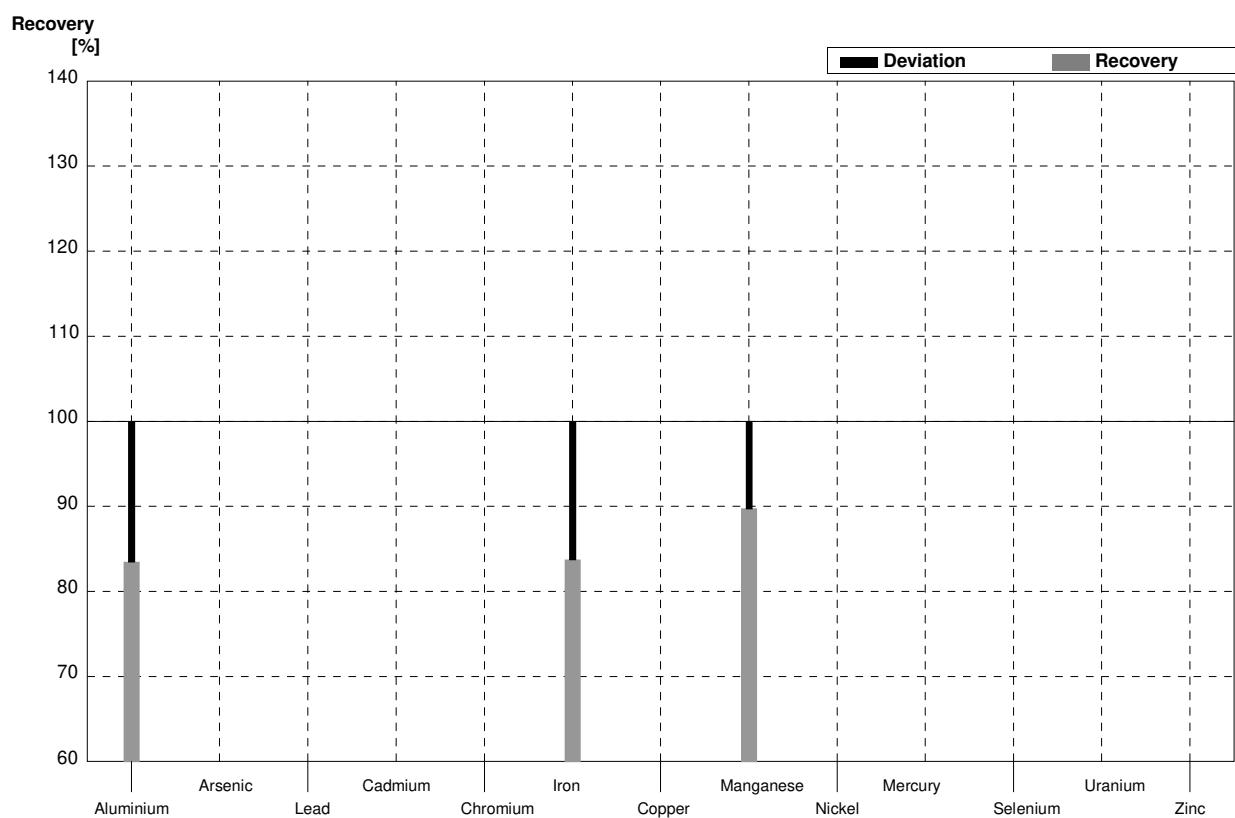
**Sample M151B**  
**Laboratory H**

Parameter	Target value	$\pm$ U ( $k=2$ )	Result	$\pm$	Unit	Recovery
Aluminium	23,5	0,3	24,7	2,5	$\mu\text{g/l}$	105%
Arsenic	0,96	0,02	1,20	0,12	$\mu\text{g/l}$	125%
Lead	5,95	0,04	6,23	0,6	$\mu\text{g/l}$	105%
Cadmium	1,89	0,01	2,27	0,23	$\mu\text{g/l}$	120%
Chromium	0,93	0,01	<1		$\mu\text{g/l}$	•
Iron	88,4	0,4	86,3	8,6	$\mu\text{g/l}$	98%
Copper	19,2	0,1	20,0	2	$\mu\text{g/l}$	104%
Manganese	11,4	0,1	11,0	1	$\mu\text{g/l}$	96%
Nickel	4,55	0,03	4,80	0,5	$\mu\text{g/l}$	105%
Mercury	2,15	0,02	2,43	0,25	$\mu\text{g/l}$	113%
Selenium	4,64	0,06	5,03	0,5	$\mu\text{g/l}$	108%
Uranium	0,66	0,01	0,600	0,06	$\mu\text{g/l}$	91%
Zinc	19,5	0,8	26,3	2,6	$\mu\text{g/l}$	135%



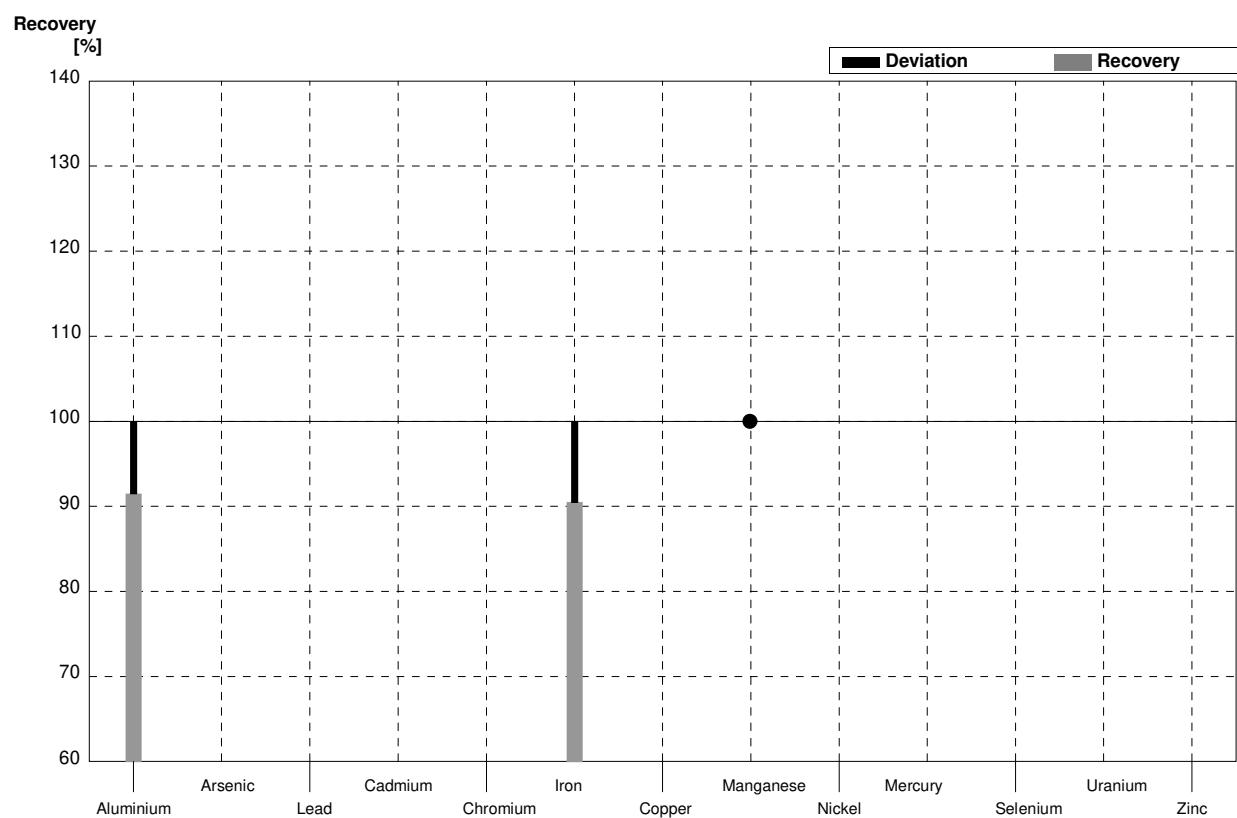
**Sample M151A**  
**Laboratory I**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	12,1	0,3	10,1	2,5	µg/l	83%
Arsenic	5,14	0,03			µg/l	
Lead	1,49	0,02			µg/l	
Cadmium	0,220	0,005			µg/l	
Chromium	3,80	0,03			µg/l	
Iron	12,3	0,2	10,3	1,2	µg/l	84%
Copper	4,46	0,03			µg/l	
Manganese	57,5	0,3	51,6	8,3	µg/l	90%
Nickel	0,88	0,02			µg/l	
Mercury	0,27	0,01			µg/l	
Selenium	0,72	0,06			µg/l	
Uranium	3,11	0,02			µg/l	
Zinc	27,1	0,8			µg/l	



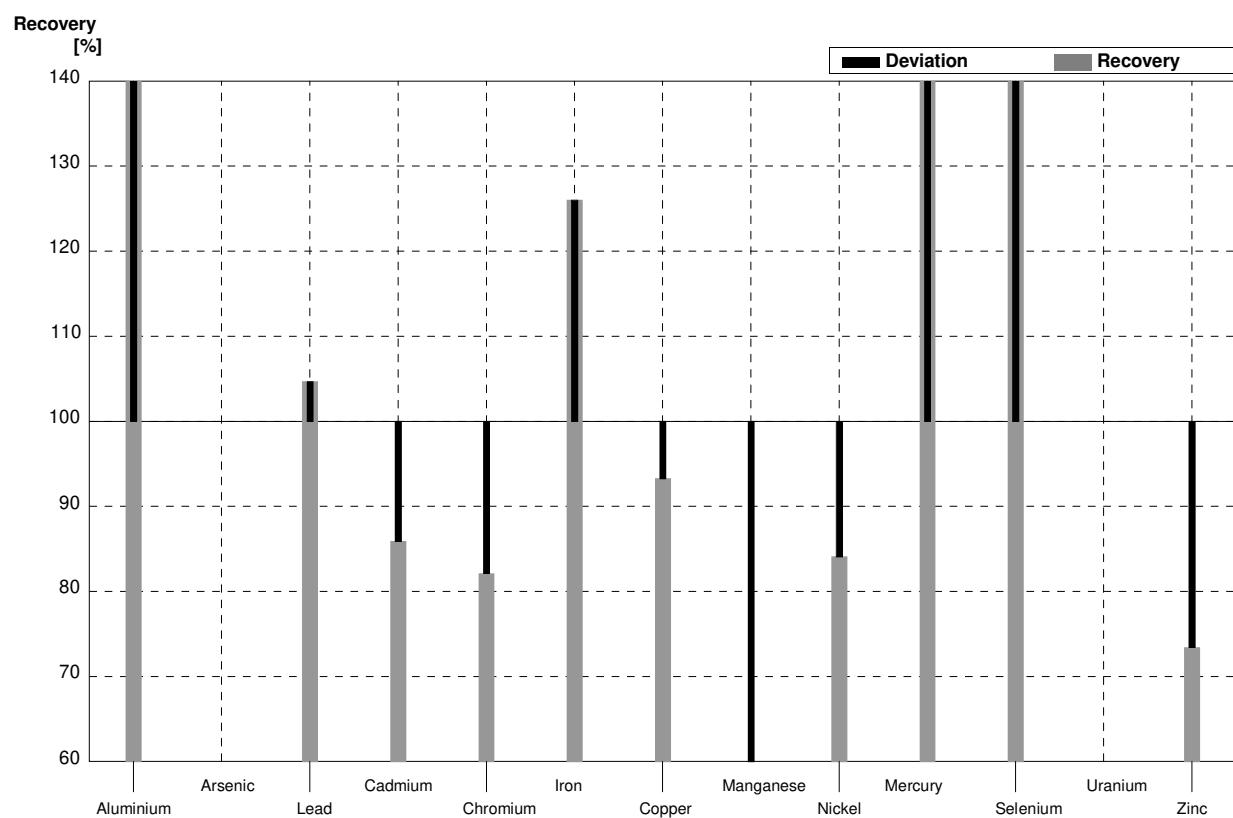
**Sample M151B****Laboratory I**

Parameter	Target value	$\pm$ U ( $k=2$ )	Result	$\pm$	Unit	Recovery
Aluminium	23,5	0,3	21,5	5,4	$\mu\text{g/l}$	91%
Arsenic	0,96	0,02			$\mu\text{g/l}$	
Lead	5,95	0,04			$\mu\text{g/l}$	
Cadmium	1,89	0,01			$\mu\text{g/l}$	
Chromium	0,93	0,01			$\mu\text{g/l}$	
Iron	88,4	0,4	80,0	9,6	$\mu\text{g/l}$	90%
Copper	19,2	0,1			$\mu\text{g/l}$	
Manganese	11,4	0,1	'<10	2,5	$\mu\text{g/l}$	•
Nickel	4,55	0,03			$\mu\text{g/l}$	
Mercury	2,15	0,02			$\mu\text{g/l}$	
Selenium	4,64	0,06			$\mu\text{g/l}$	
Uranium	0,66	0,01			$\mu\text{g/l}$	
Zinc	19,5	0,8			$\mu\text{g/l}$	



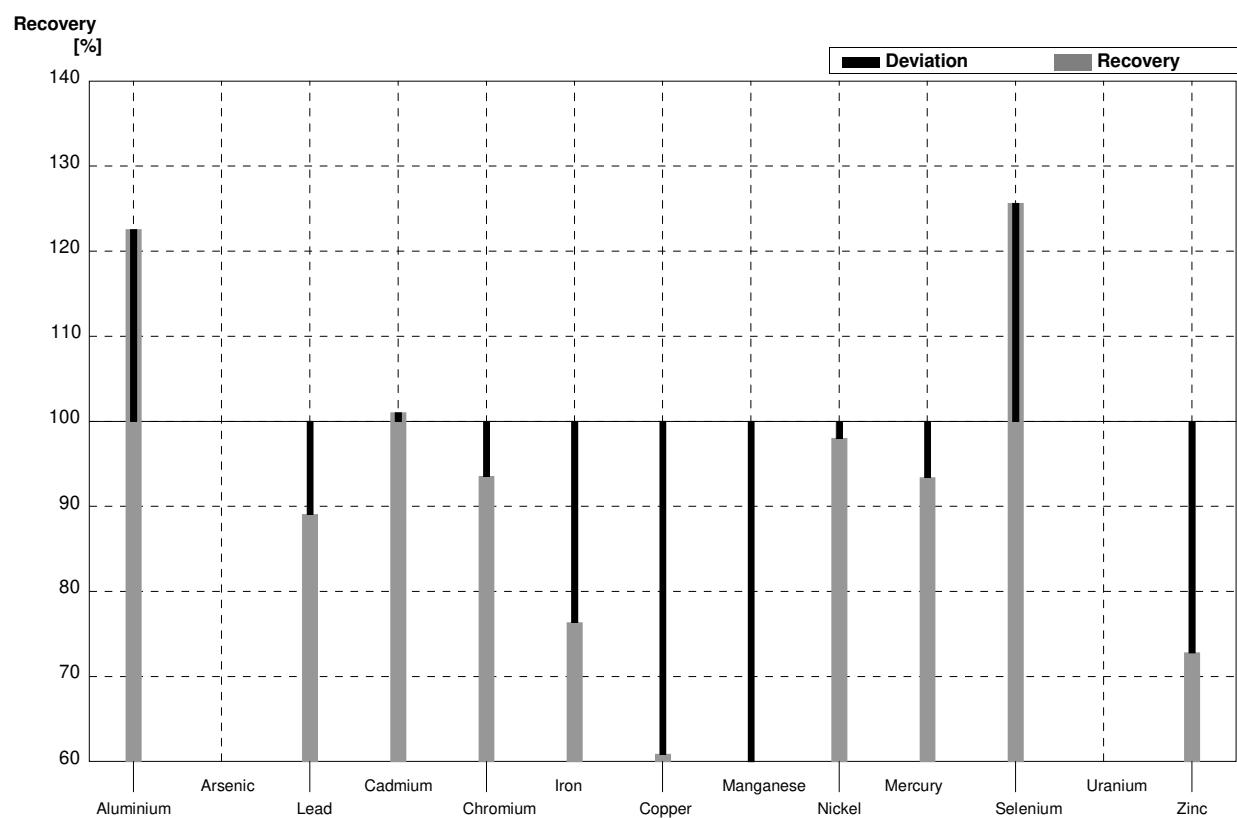
**Sample M151A**  
**Laboratory J**

Parameter	Target value	$\pm$ U ( $k=2$ )	Result	$\pm$	Unit	Recovery
Aluminium	12,1	0,3	19,7	2,0	$\mu\text{g/l}$	163%
Arsenic	5,14	0,03	<	<0,5	$\mu\text{g/l}$	
Lead	1,49	0,02	1,56	0,16	$\mu\text{g/l}$	105%
Cadmium	0,220	0,005	0,189	0,02	$\mu\text{g/l}$	86%
Chromium	3,80	0,03	3,12	0,31	$\mu\text{g/l}$	82%
Iron	12,3	0,2	15,5	1,6	$\mu\text{g/l}$	126%
Copper	4,46	0,03	4,16	0,42	$\mu\text{g/l}$	93%
Manganese	57,5	0,3	17,9	1,8	$\mu\text{g/l}$	31%
Nickel	0,88	0,02	0,74	0,07	$\mu\text{g/l}$	84%
Mercury	0,27	0,01	0,4306	0,043	$\mu\text{g/l}$	159%
Selenium	0,72	0,06	1,36	0,2	$\mu\text{g/l}$	189%
Uranium	3,11	0,02			$\mu\text{g/l}$	
Zinc	27,1	0,8	19,9	2,0	$\mu\text{g/l}$	73%



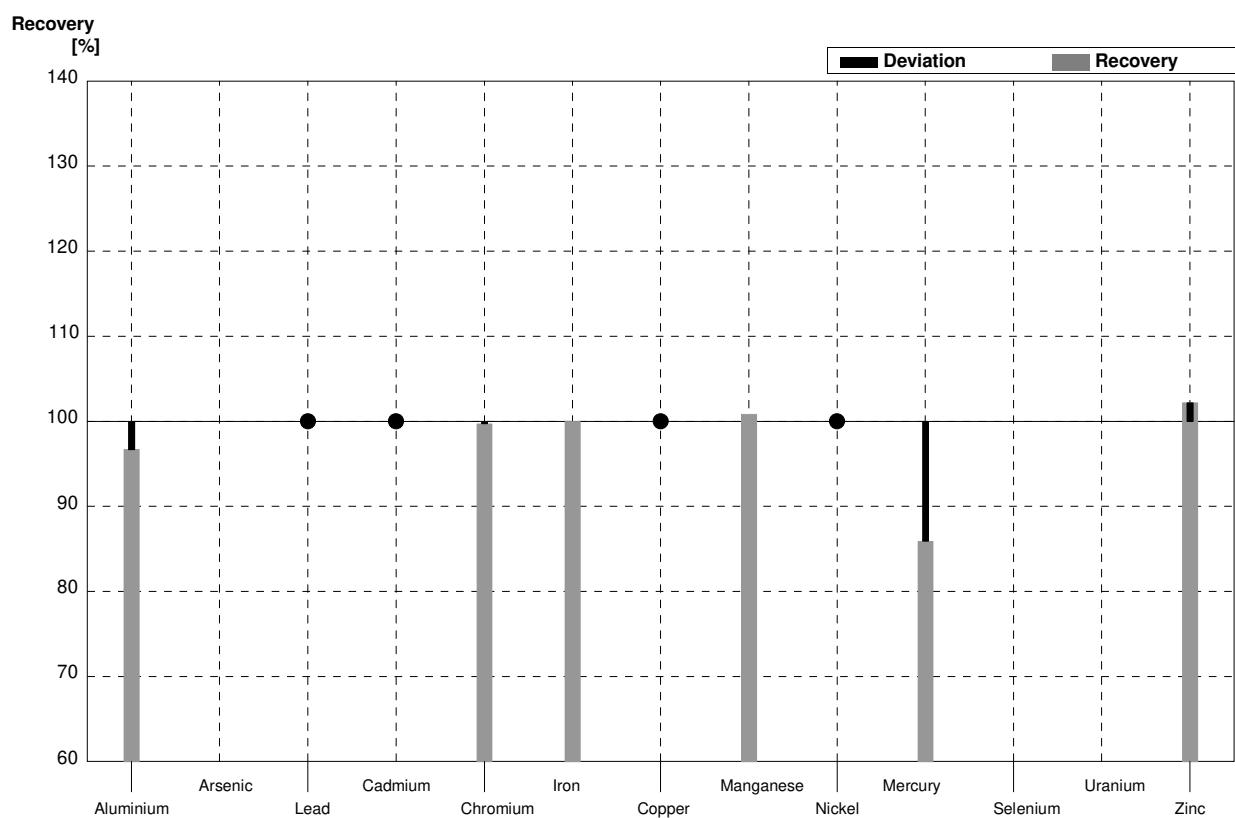
**Sample M151B**  
**Laboratory J**

Parameter	Target value	$\pm$ U ( $k=2$ )	Result	$\pm$	Unit	Recovery
Aluminium	23,5	0,3	28,8	2,9	$\mu\text{g/l}$	123%
Arsenic	0,96	0,02	<		$\mu\text{g/l}$	
Lead	5,95	0,04	5,3	0,5	$\mu\text{g/l}$	89%
Cadmium	1,89	0,01	1,91	0,2	$\mu\text{g/l}$	101%
Chromium	0,93	0,01	0,870	0,09	$\mu\text{g/l}$	94%
Iron	88,4	0,4	67,5	6,8	$\mu\text{g/l}$	76%
Copper	19,2	0,1	11,69	1,2	$\mu\text{g/l}$	61%
Manganese	11,4	0,1	3,36	0,3	$\mu\text{g/l}$	29%
Nickel	4,55	0,03	4,46	0,4	$\mu\text{g/l}$	98%
Mercury	2,15	0,02	2,0080	0,201	$\mu\text{g/l}$	93%
Selenium	4,64	0,06	5,83	0,6	$\mu\text{g/l}$	126%
Uranium	0,66	0,01			$\mu\text{g/l}$	
Zinc	19,5	0,8	14,2		$\mu\text{g/l}$	73%



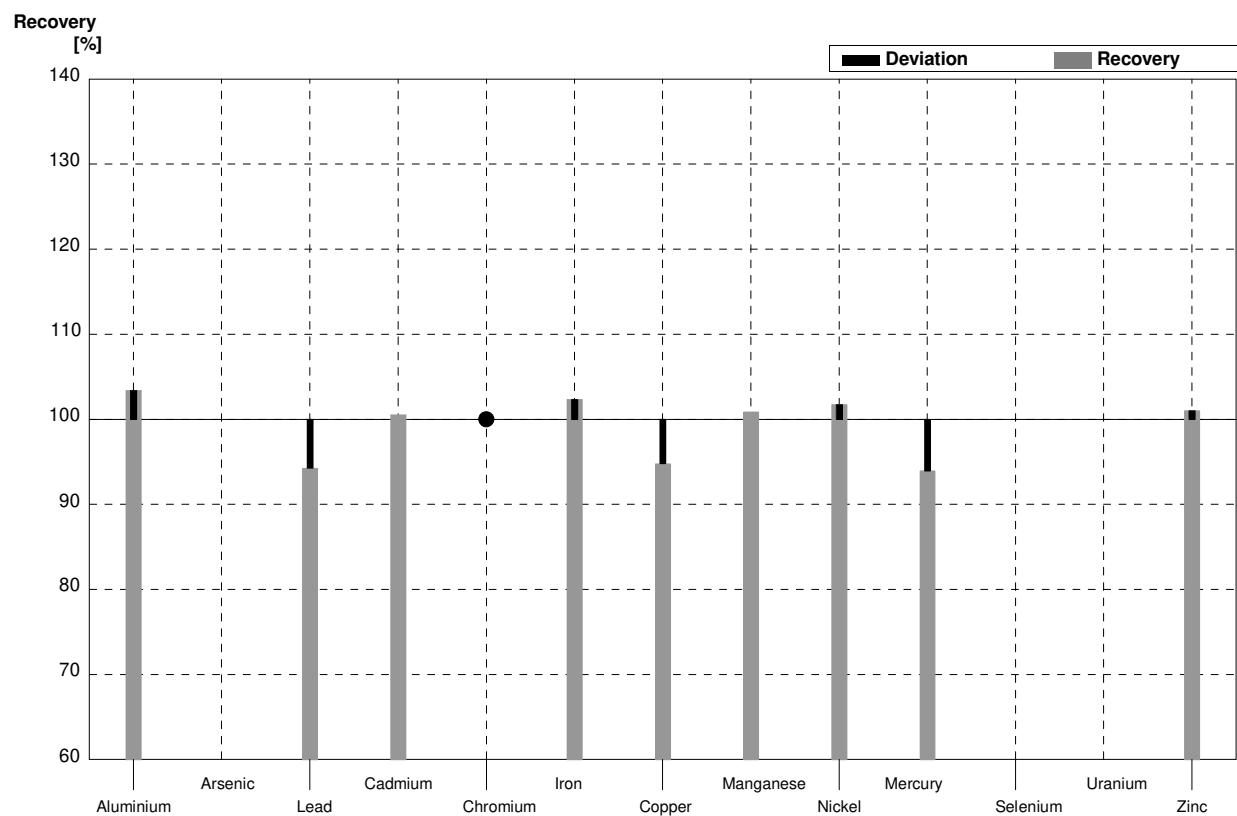
**Sample M151A**  
**Laboratory K**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	12,1	0,3	11,7	2,1	µg/l	97%
Arsenic	5,14	0,03			µg/l	
Lead	1,49	0,02	<4,0		µg/l	•
Cadmium	0,220	0,005	<0,5		µg/l	•
Chromium	3,80	0,03	3,79	0,57	µg/l	100%
Iron	12,3	0,2	12,3	1,3	µg/l	100%
Copper	4,46	0,03	<5,0		µg/l	•
Manganese	57,5	0,3	58,0	5,8	µg/l	101%
Nickel	0,88	0,02	<1,0		µg/l	•
Mercury	0,27	0,01	0,232	0,047	µg/l	86%
Selenium	0,72	0,06			µg/l	
Uranium	3,11	0,02			µg/l	
Zinc	27,1	0,8	27,7	3,4	µg/l	102%



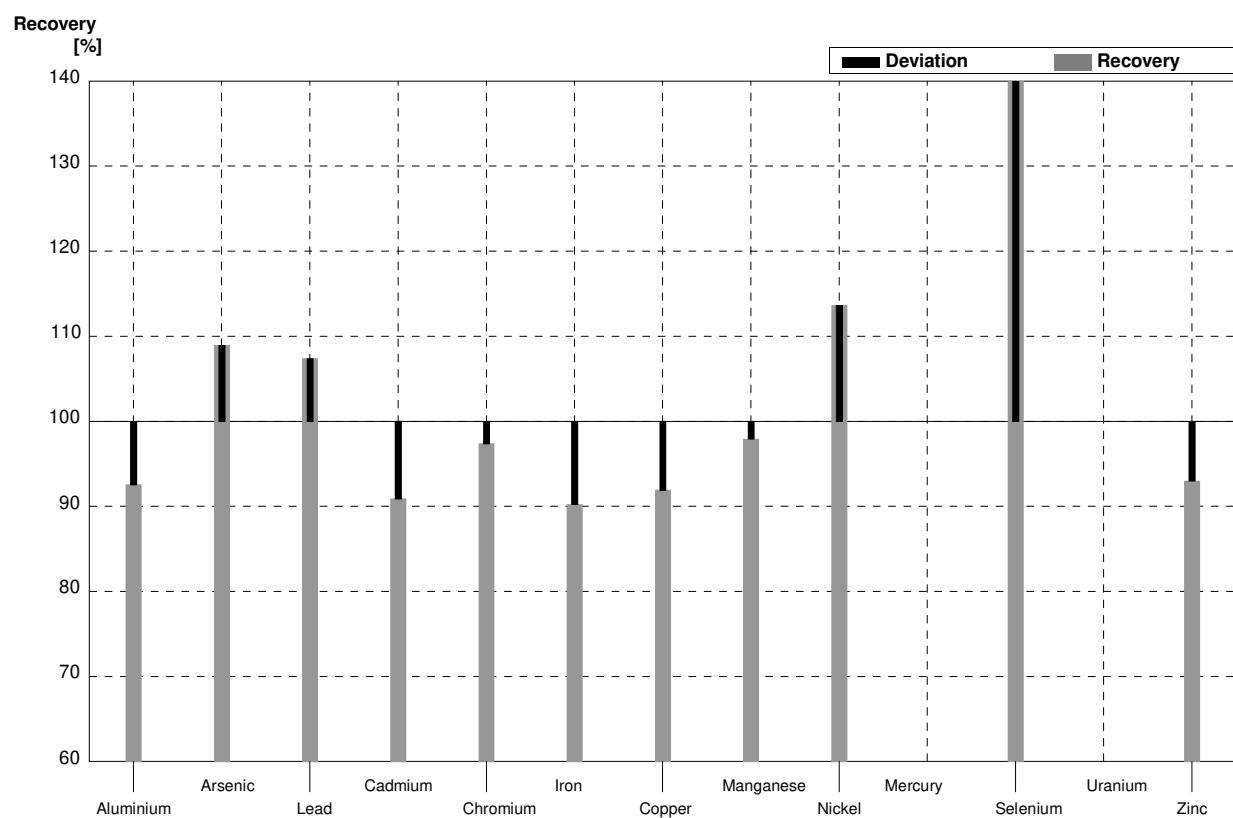
**Sample M151B**  
**Laboratory K**

Parameter	Target value	$\pm$ U ( $k=2$ )	Result	$\pm$	Unit	Recovery
Aluminium	23,5	0,3	24,3	4,4	$\mu\text{g/l}$	103%
Arsenic	0,96	0,02			$\mu\text{g/l}$	
Lead	5,95	0,04	5,61	0,68	$\mu\text{g/l}$	94%
Cadmium	1,89	0,01	1,90	0,29	$\mu\text{g/l}$	101%
Chromium	0,93	0,01	<1,0		$\mu\text{g/l}$	•
Iron	88,4	0,4	90,5	9,1	$\mu\text{g/l}$	102%
Copper	19,2	0,1	18,2	2,8	$\mu\text{g/l}$	95%
Manganese	11,4	0,1	11,5	1,2	$\mu\text{g/l}$	101%
Nickel	4,55	0,03	4,63	0,56	$\mu\text{g/l}$	102%
Mercury	2,15	0,02	2,02	0,41	$\mu\text{g/l}$	94%
Selenium	4,64	0,06			$\mu\text{g/l}$	
Uranium	0,66	0,01			$\mu\text{g/l}$	
Zinc	19,5	0,8	19,7	2,4	$\mu\text{g/l}$	101%



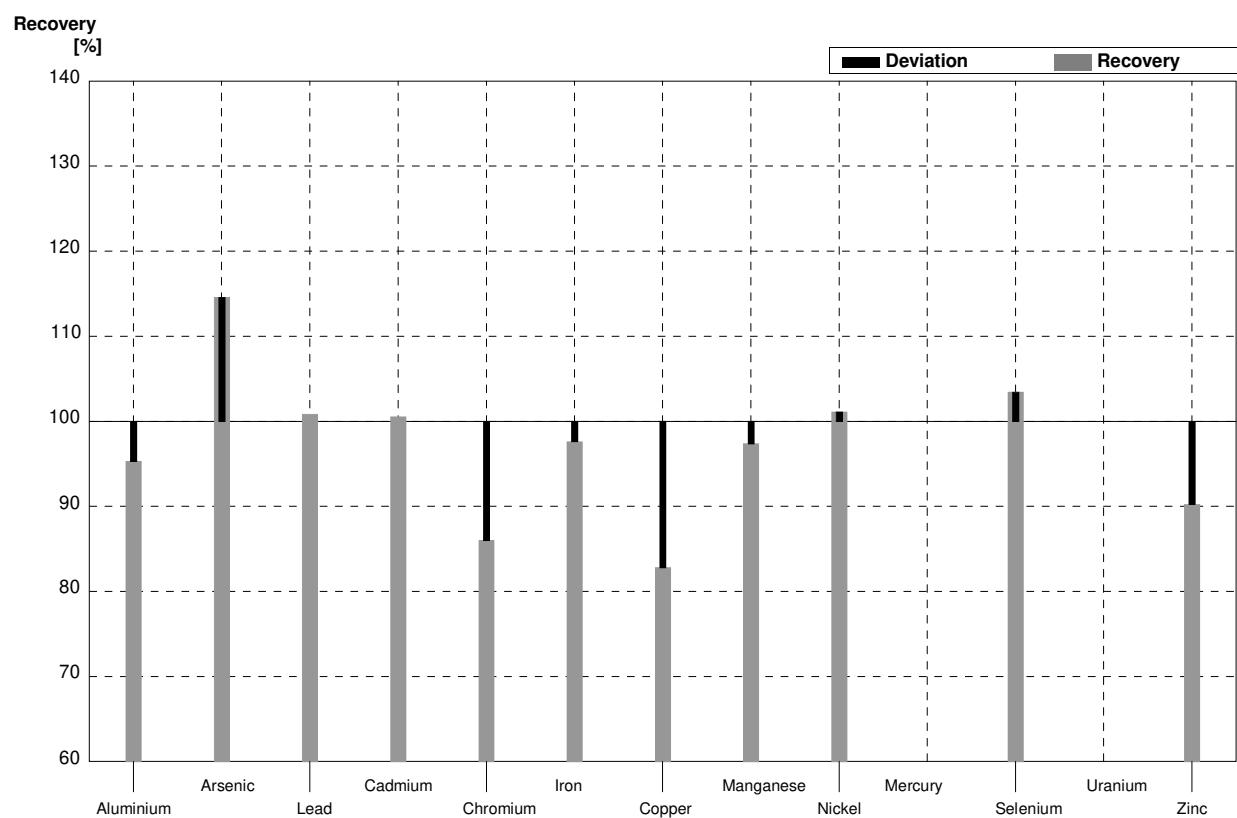
**Sample M151A**  
**Laboratory L**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	12,1	0,3	11,2		µg/l	93%
Arsenic	5,14	0,03	5,60		µg/l	109%
Lead	1,49	0,02	1,60		µg/l	107%
Cadmium	0,220	0,005	0,200		µg/l	91%
Chromium	3,80	0,03	3,70		µg/l	97%
Iron	12,3	0,2	11,1		µg/l	90%
Copper	4,46	0,03	4,10		µg/l	92%
Manganese	57,5	0,3	56,3		µg/l	98%
Nickel	0,88	0,02	1,00		µg/l	114%
Mercury	0,27	0,01			µg/l	
Selenium	0,72	0,06	1,30		µg/l	181%
Uranium	3,11	0,02			µg/l	
Zinc	27,1	0,8	25,2		µg/l	93%



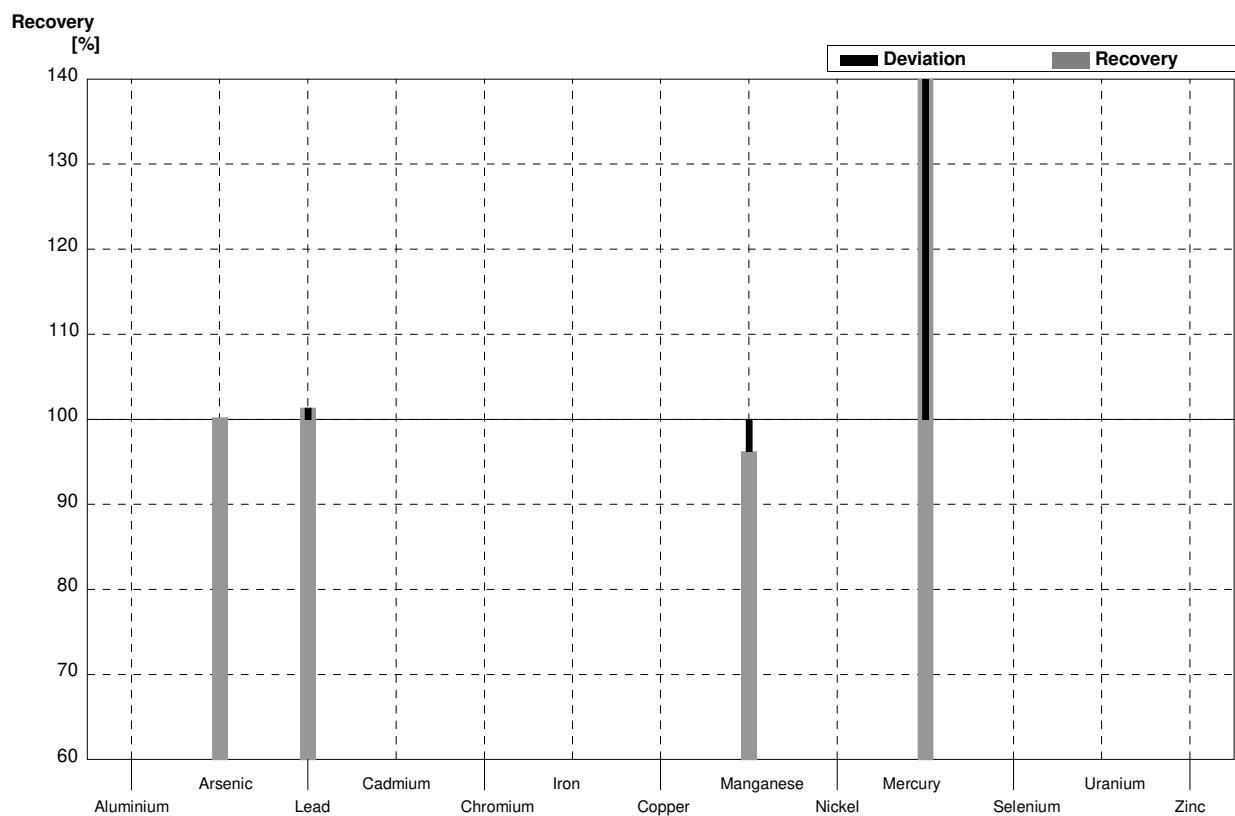
**Sample M151B**  
**Laboratory L**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	23,5	0,3	22,4		µg/l	95%
Arsenic	0,96	0,02	1,10		µg/l	115%
Lead	5,95	0,04	6,00		µg/l	101%
Cadmium	1,89	0,01	1,90		µg/l	101%
Chromium	0,93	0,01	0,80		µg/l	86%
Iron	88,4	0,4	86,3		µg/l	98%
Copper	19,2	0,1	15,9		µg/l	83%
Manganese	11,4	0,1	11,1		µg/l	97%
Nickel	4,55	0,03	4,60		µg/l	101%
Mercury	2,15	0,02			µg/l	
Selenium	4,64	0,06	4,80		µg/l	103%
Uranium	0,66	0,01			µg/l	
Zinc	19,5	0,8	17,6		µg/l	90%



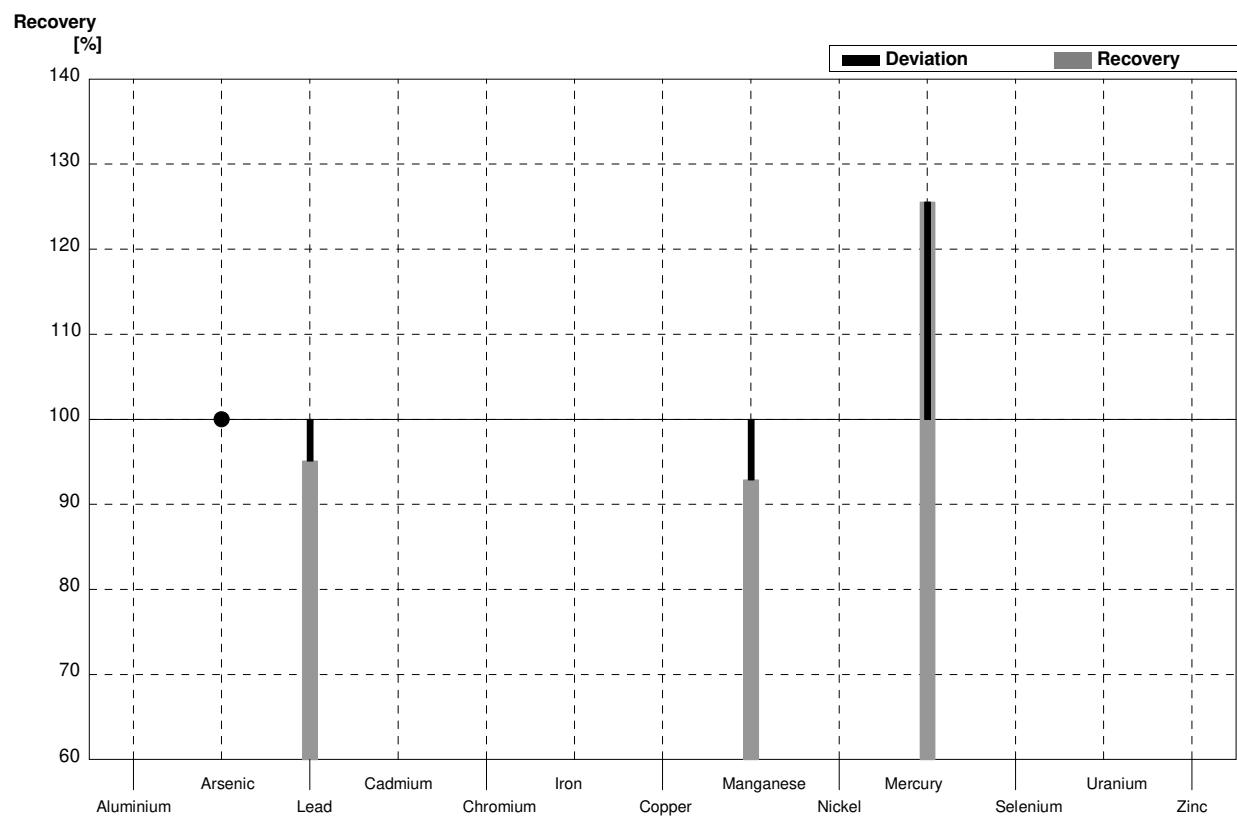
**Sample M151A**  
**Laboratory M**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	12,1	0,3			µg/l	
Arsenic	5,14	0,03	5,15	0,62	µg/l	100%
Lead	1,49	0,02	1,51	0,08	µg/l	101%
Cadmium	0,220	0,005			µg/l	
Chromium	3,80	0,03			µg/l	
Iron	12,3	0,2			µg/l	
Copper	4,46	0,03			µg/l	
Manganese	57,5	0,3	55,33	3,84	µg/l	96%
Nickel	0,88	0,02			µg/l	
Mercury	0,27	0,01	0,71	0,05	µg/l	263%
Selenium	0,72	0,06			µg/l	
Uranium	3,11	0,02			µg/l	
Zinc	27,1	0,8			µg/l	



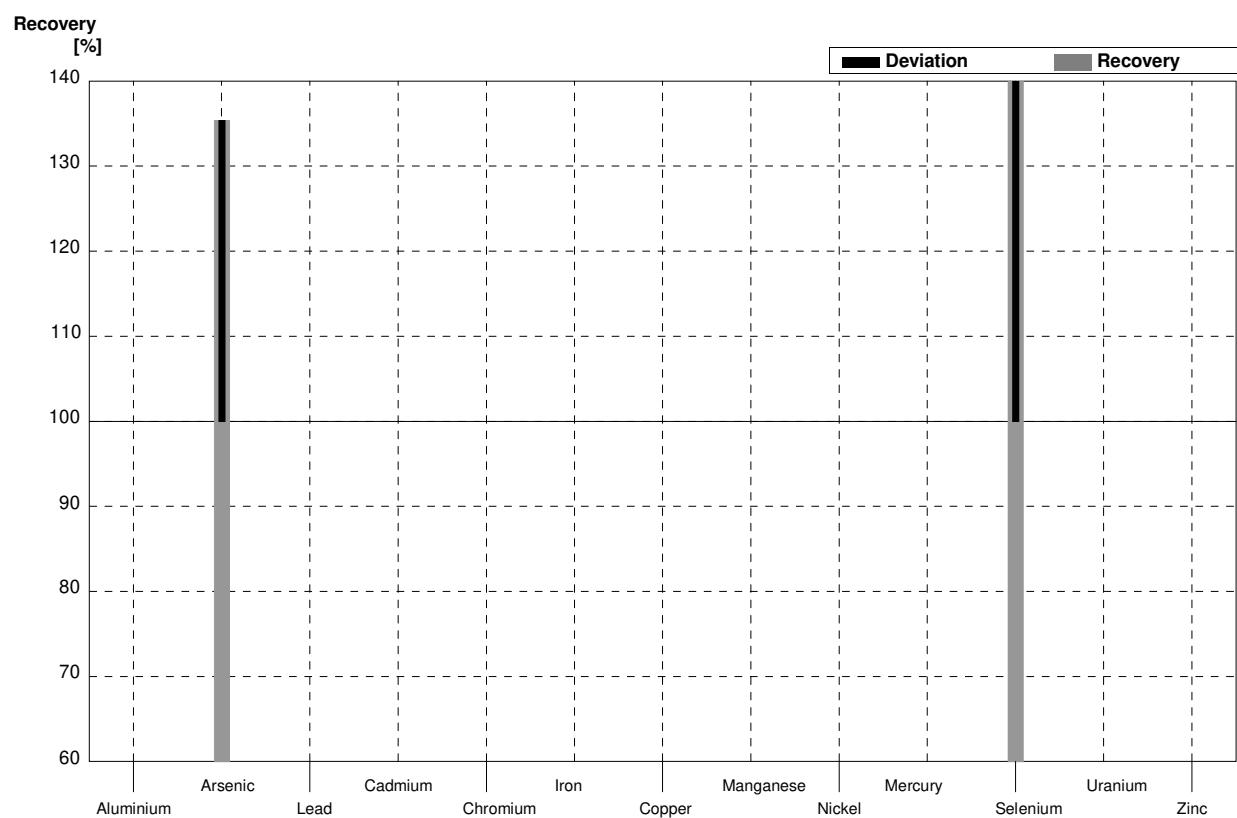
**Sample M151B**  
**Laboratory M**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	23,5	0,3			µg/l	
Arsenic	0,96	0,02	<2		µg/l	•
Lead	5,95	0,04	5,66	0,30	µg/l	95%
Cadmium	1,89	0,01			µg/l	
Chromium	0,93	0,01			µg/l	
Iron	88,4	0,4			µg/l	
Copper	19,2	0,1			µg/l	
Manganese	11,4	0,1	10,59	0,73	µg/l	93%
Nickel	4,55	0,03			µg/l	
Mercury	2,15	0,02	2,70	0,18	µg/l	126%
Selenium	4,64	0,06			µg/l	
Uranium	0,66	0,01			µg/l	
Zinc	19,5	0,8			µg/l	



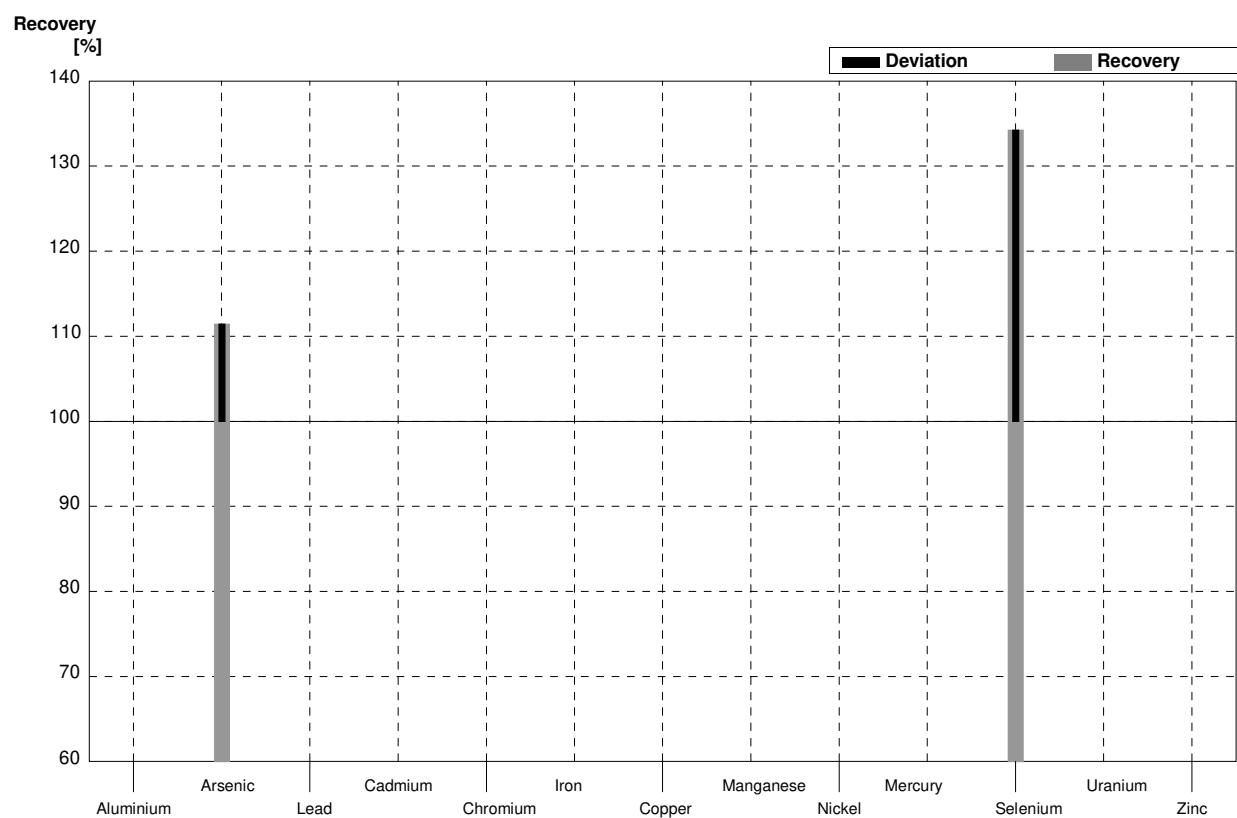
**Sample M151A**  
**Laboratory N**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	12,1	0,3			µg/l	
Arsenic	5,14	0,03	6,96	0,66	µg/l	135%
Lead	1,49	0,02			µg/l	
Cadmium	0,220	0,005			µg/l	
Chromium	3,80	0,03			µg/l	
Iron	12,3	0,2			µg/l	
Copper	4,46	0,03			µg/l	
Manganese	57,5	0,3			µg/l	
Nickel	0,88	0,02			µg/l	
Mercury	0,27	0,01			µg/l	
Selenium	0,72	0,06	1,03	0,21	µg/l	143%
Uranium	3,11	0,02			µg/l	
Zinc	27,1	0,8			µg/l	



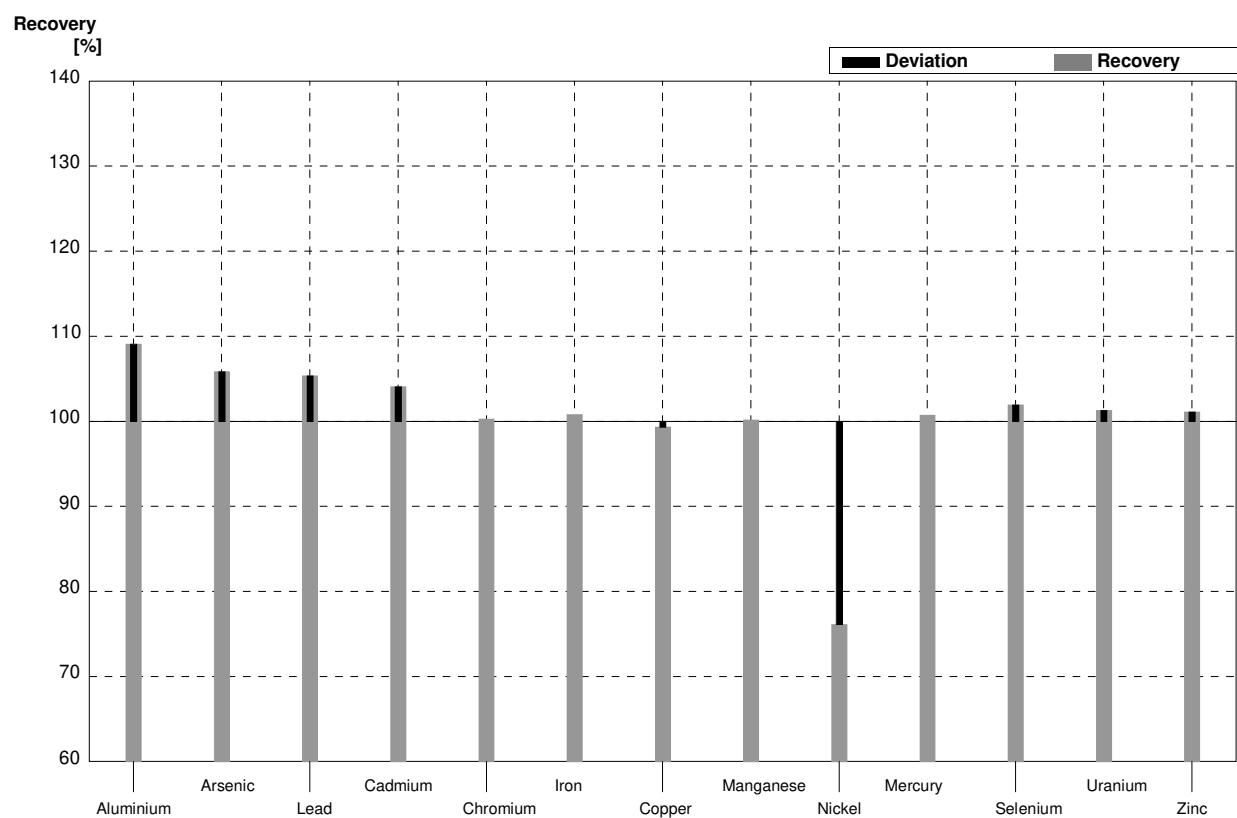
**Sample M151B**  
**Laboratory N**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	23,5	0,3			µg/l	
Arsenic	0,96	0,02	1,07	0,16	µg/l	111%
Lead	5,95	0,04			µg/l	
Cadmium	1,89	0,01			µg/l	
Chromium	0,93	0,01			µg/l	
Iron	88,4	0,4			µg/l	
Copper	19,2	0,1			µg/l	
Manganese	11,4	0,1			µg/l	
Nickel	4,55	0,03			µg/l	
Mercury	2,15	0,02			µg/l	
Selenium	4,64	0,06	6,23	0,58	µg/l	134%
Uranium	0,66	0,01			µg/l	
Zinc	19,5	0,8			µg/l	



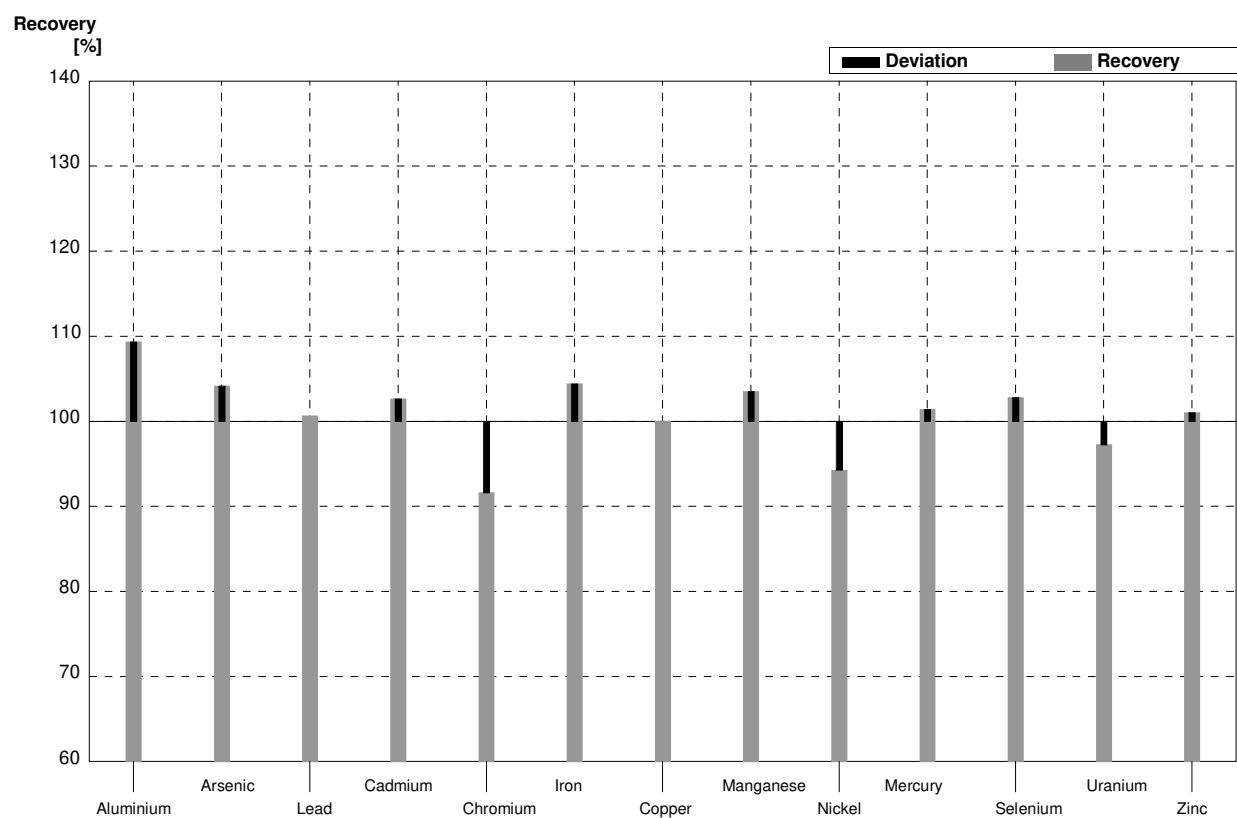
**Sample M151A**  
**Laboratory O**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	12,1	0,3	13,2	0,249	µg/l	109%
Arsenic	5,14	0,03	5,44	0,036	µg/l	106%
Lead	1,49	0,02	1,57	0,067	µg/l	105%
Cadmium	0,220	0,005	0,229	0,010	µg/l	104%
Chromium	3,80	0,03	3,81	0,028	µg/l	100%
Iron	12,3	0,2	12,4	0,121	µg/l	101%
Copper	4,46	0,03	4,43	0,059	µg/l	99%
Manganese	57,5	0,3	57,6	0,399	µg/l	100%
Nickel	0,88	0,02	0,670	0,037	µg/l	76%
Mercury	0,27	0,01	0,272	0,010	µg/l	101%
Selenium	0,72	0,06	0,734	0,016	µg/l	102%
Uranium	3,11	0,02	3,15	0,118	µg/l	101%
Zinc	27,1	0,8	27,4	0,197	µg/l	101%



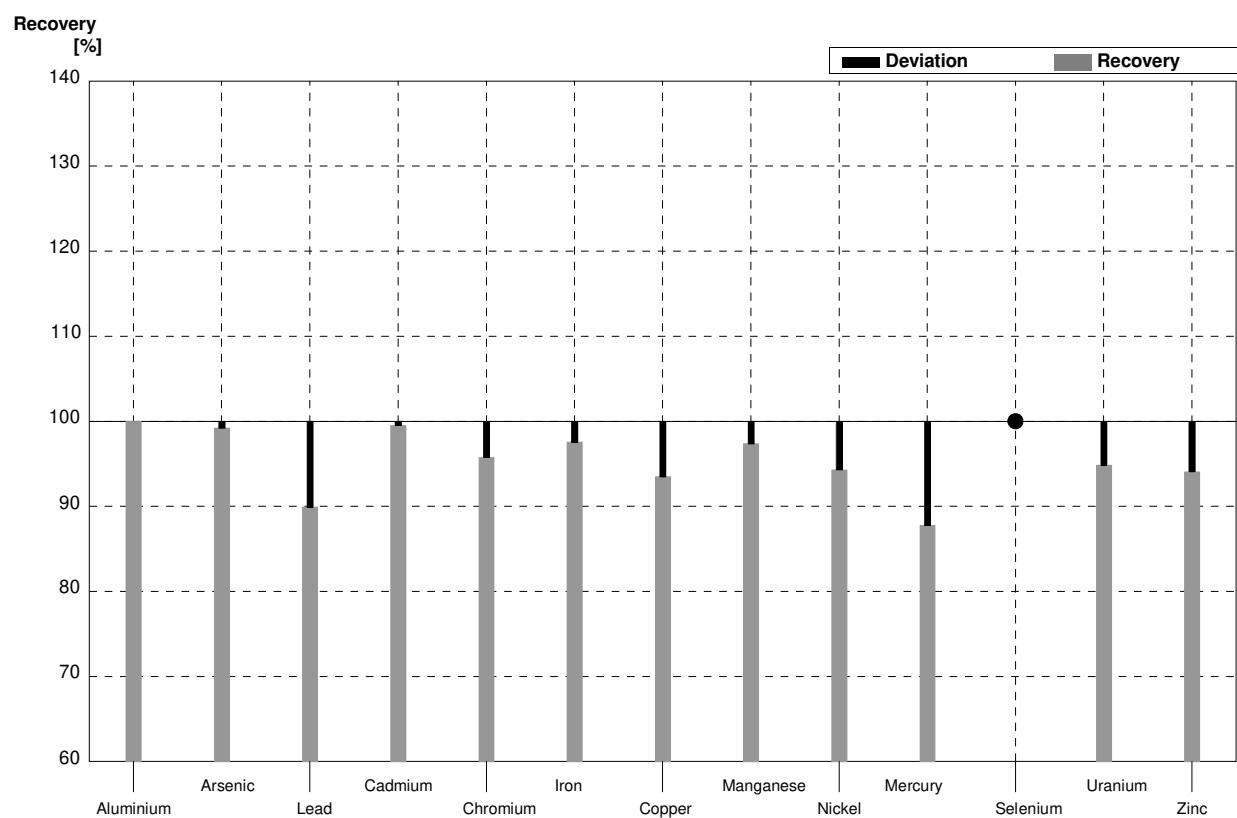
**Sample M151B**  
**Laboratory O**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	23,5	0,3	25,7	0,453	µg/l	109%
Arsenic	0,96	0,02	1,00	0,013	µg/l	104%
Lead	5,95	0,04	5,99	0,094	µg/l	101%
Cadmium	1,89	0,01	1,94	0,039	µg/l	103%
Chromium	0,93	0,01	0,852	0,038	µg/l	92%
Iron	88,4	0,4	92,3	0,292	µg/l	104%
Copper	19,2	0,1	19,2	0,153	µg/l	100%
Manganese	11,4	0,1	11,8	0,290	µg/l	104%
Nickel	4,55	0,03	4,29	0,040	µg/l	94%
Mercury	2,15	0,02	2,18	0,018	µg/l	101%
Selenium	4,64	0,06	4,77	0,077	µg/l	103%
Uranium	0,66	0,01	0,642	0,008	µg/l	97%
Zinc	19,5	0,8	19,7	0,520	µg/l	101%



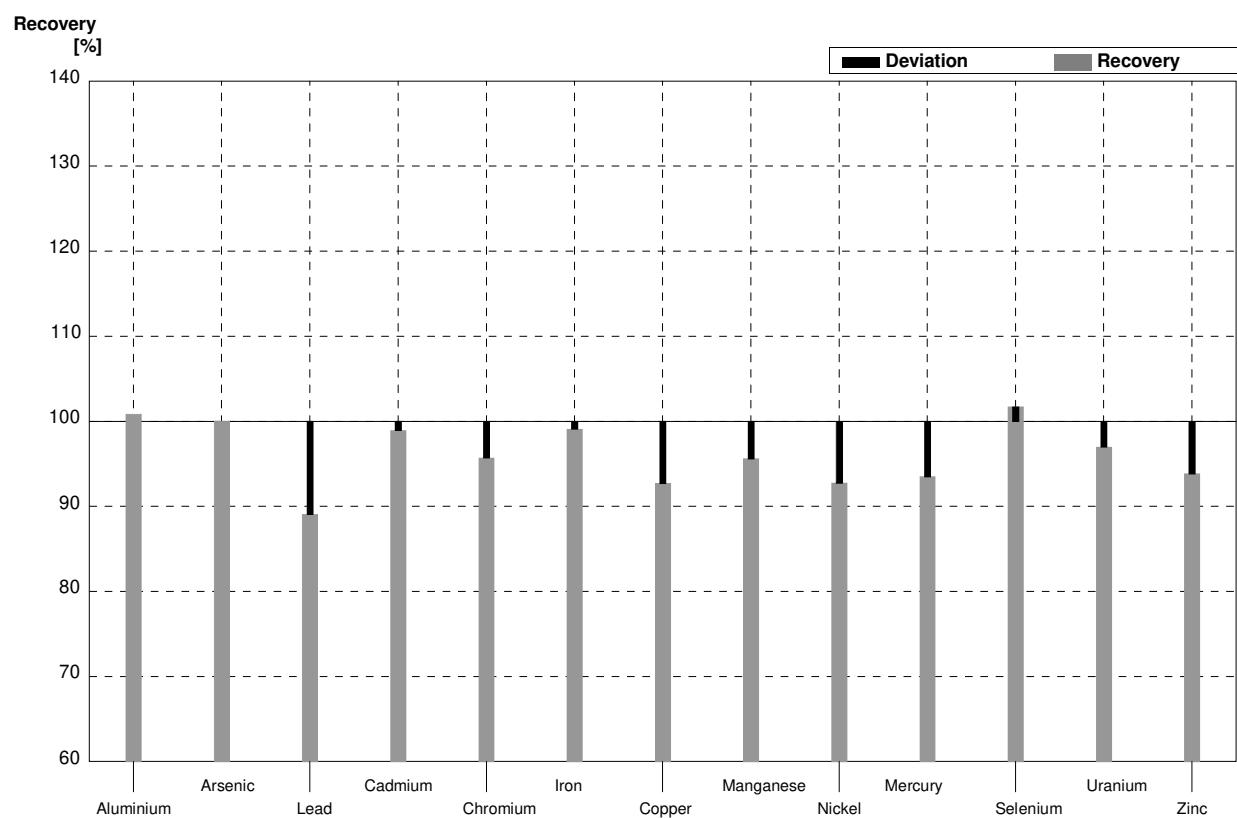
**Sample M151A**  
**Laboratory P**

Parameter	Target value	$\pm$ U ( $k=2$ )	Result	$\pm$	Unit	Recovery
Aluminium	12,1	0,3	12,1	1,82	$\mu\text{g/l}$	100%
Arsenic	5,14	0,03	5,1	0,51	$\mu\text{g/l}$	99%
Lead	1,49	0,02	1,34	0,13	$\mu\text{g/l}$	90%
Cadmium	0,220	0,005	0,219	0,022	$\mu\text{g/l}$	100%
Chromium	3,80	0,03	3,64	0,36	$\mu\text{g/l}$	96%
Iron	12,3	0,2	12,0	1,2	$\mu\text{g/l}$	98%
Copper	4,46	0,03	4,17	0,42	$\mu\text{g/l}$	93%
Manganese	57,5	0,3	56	5,6	$\mu\text{g/l}$	97%
Nickel	0,88	0,02	0,83	0,08	$\mu\text{g/l}$	94%
Mercury	0,27	0,01	0,237	0,036	$\mu\text{g/l}$	88%
Selenium	0,72	0,06	<1,0		$\mu\text{g/l}$	•
Uranium	3,11	0,02	2,95	0,30	$\mu\text{g/l}$	95%
Zinc	27,1	0,8	25,5	2,55	$\mu\text{g/l}$	94%



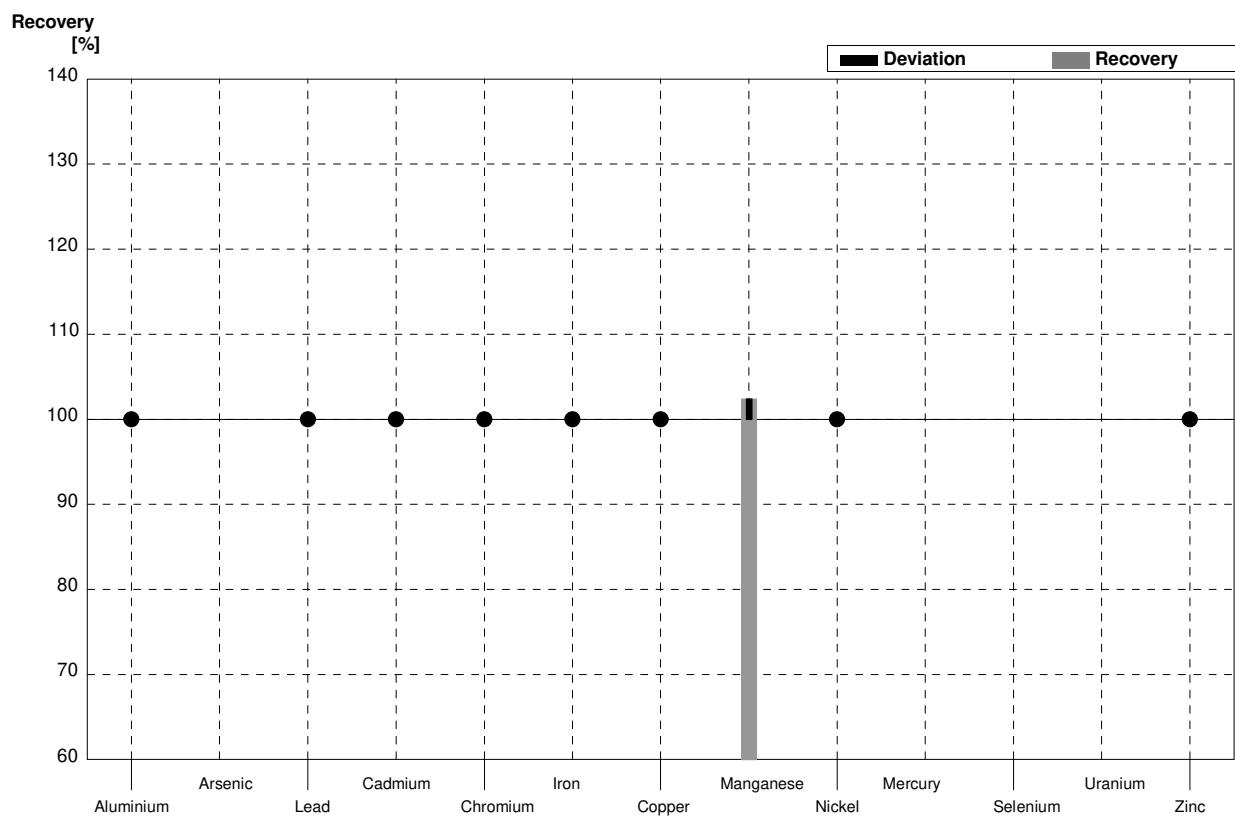
**Sample M151B**  
**Laboratory P**

Parameter	Target value	$\pm$ U ( $k=2$ )	Result	$\pm$	Unit	Recovery
Aluminium	23,5	0,3	23,7	3,56	$\mu\text{g/l}$	101%
Arsenic	0,96	0,02	0,96	0,096	$\mu\text{g/l}$	100%
Lead	5,95	0,04	5,3	0,053	$\mu\text{g/l}$	89%
Cadmium	1,89	0,01	1,87	0,187	$\mu\text{g/l}$	99%
Chromium	0,93	0,01	0,89	0,089	$\mu\text{g/l}$	96%
Iron	88,4	0,4	87,6	8,76	$\mu\text{g/l}$	99%
Copper	19,2	0,1	17,8	1,78	$\mu\text{g/l}$	93%
Manganese	11,4	0,1	10,9	1,09	$\mu\text{g/l}$	96%
Nickel	4,55	0,03	4,22	0,42	$\mu\text{g/l}$	93%
Mercury	2,15	0,02	2,01	0,20	$\mu\text{g/l}$	93%
Selenium	4,64	0,06	4,72	0,47	$\mu\text{g/l}$	102%
Uranium	0,66	0,01	0,64	0,064	$\mu\text{g/l}$	97%
Zinc	19,5	0,8	18,3	1,83	$\mu\text{g/l}$	94%



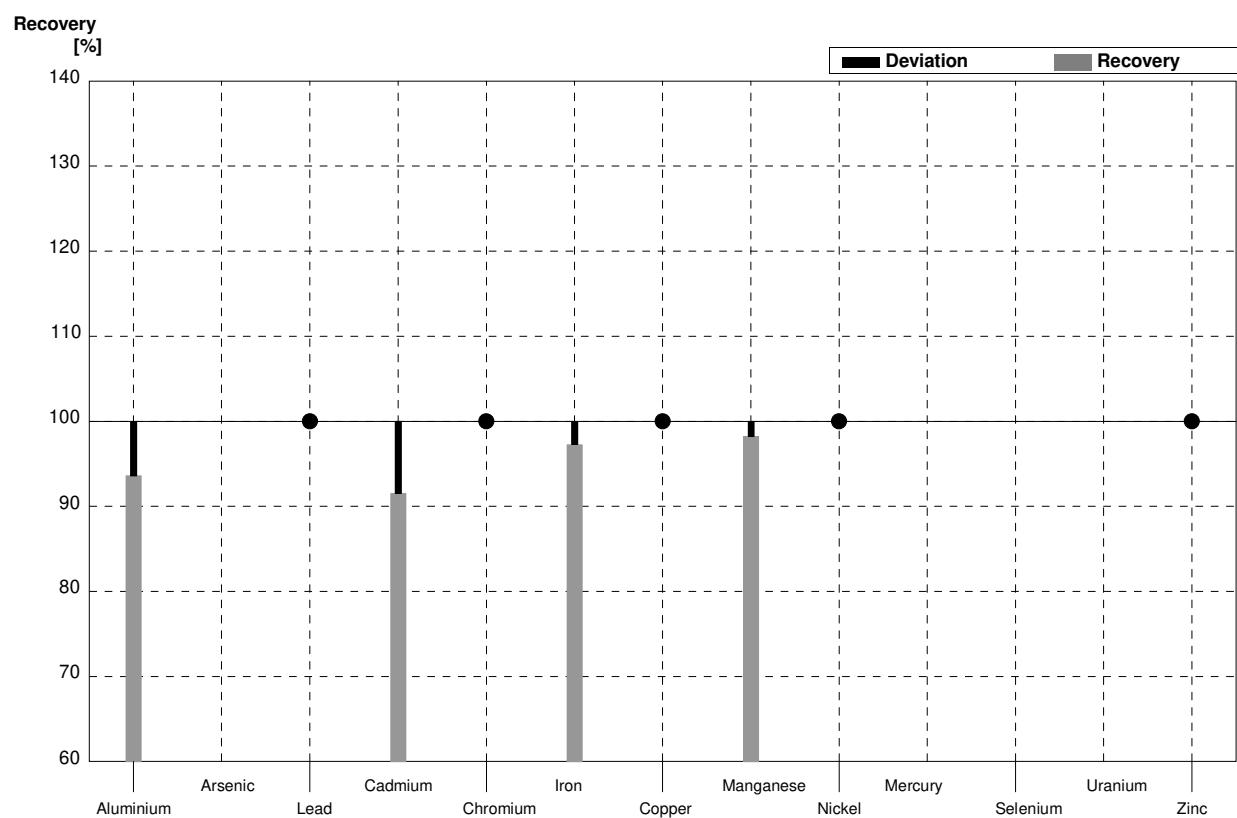
**Sample M151A**  
**Laboratory Q**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	12,1	0,3	<20		µg/l	•
Arsenic	5,14	0,03			µg/l	
Lead	1,49	0,02	<6		µg/l	•
Cadmium	0,220	0,005	<0,5		µg/l	•
Chromium	3,80	0,03	<5		µg/l	•
Iron	12,3	0,2	<20		µg/l	•
Copper	4,46	0,03	<150		µg/l	•
Manganese	57,5	0,3	58,9	5,9	µg/l	102%
Nickel	0,88	0,02	<5		µg/l	•
Mercury	0,27	0,01			µg/l	
Selenium	0,72	0,06			µg/l	
Uranium	3,11	0,02			µg/l	
Zinc	27,1	0,8	<500		µg/l	•



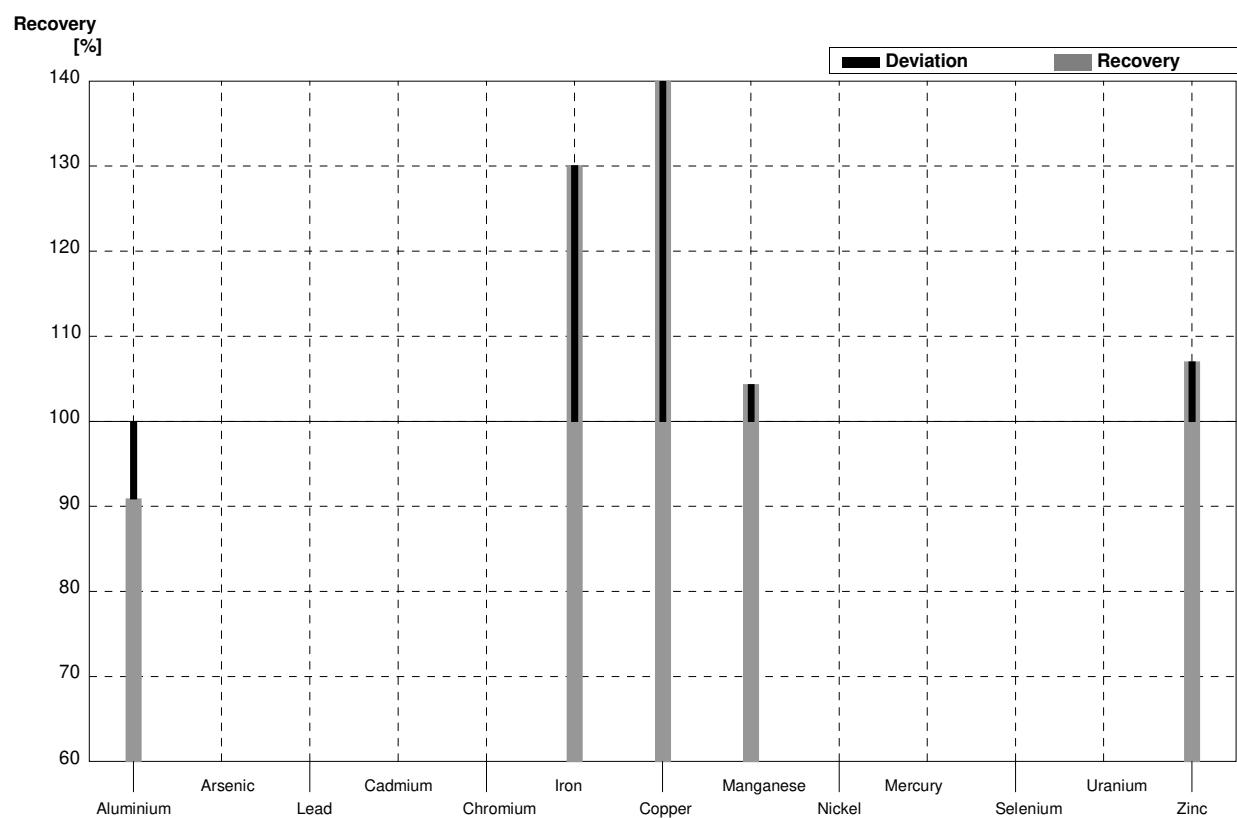
**Sample M151B**  
**Laboratory Q**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	23,5	0,3	22,0	4	µg/l	94%
Arsenic	0,96	0,02			µg/l	
Lead	5,95	0,04	<6		µg/l	•
Cadmium	1,89	0,01	1,73	0,35	µg/l	92%
Chromium	0,93	0,01	<5		µg/l	•
Iron	88,4	0,4	86	14	µg/l	97%
Copper	19,2	0,1	<150		µg/l	•
Manganese	11,4	0,1	11,2	1,6	µg/l	98%
Nickel	4,55	0,03	<5		µg/l	•
Mercury	2,15	0,02			µg/l	
Selenium	4,64	0,06			µg/l	
Uranium	0,66	0,01			µg/l	
Zinc	19,5	0,8	<500		µg/l	•



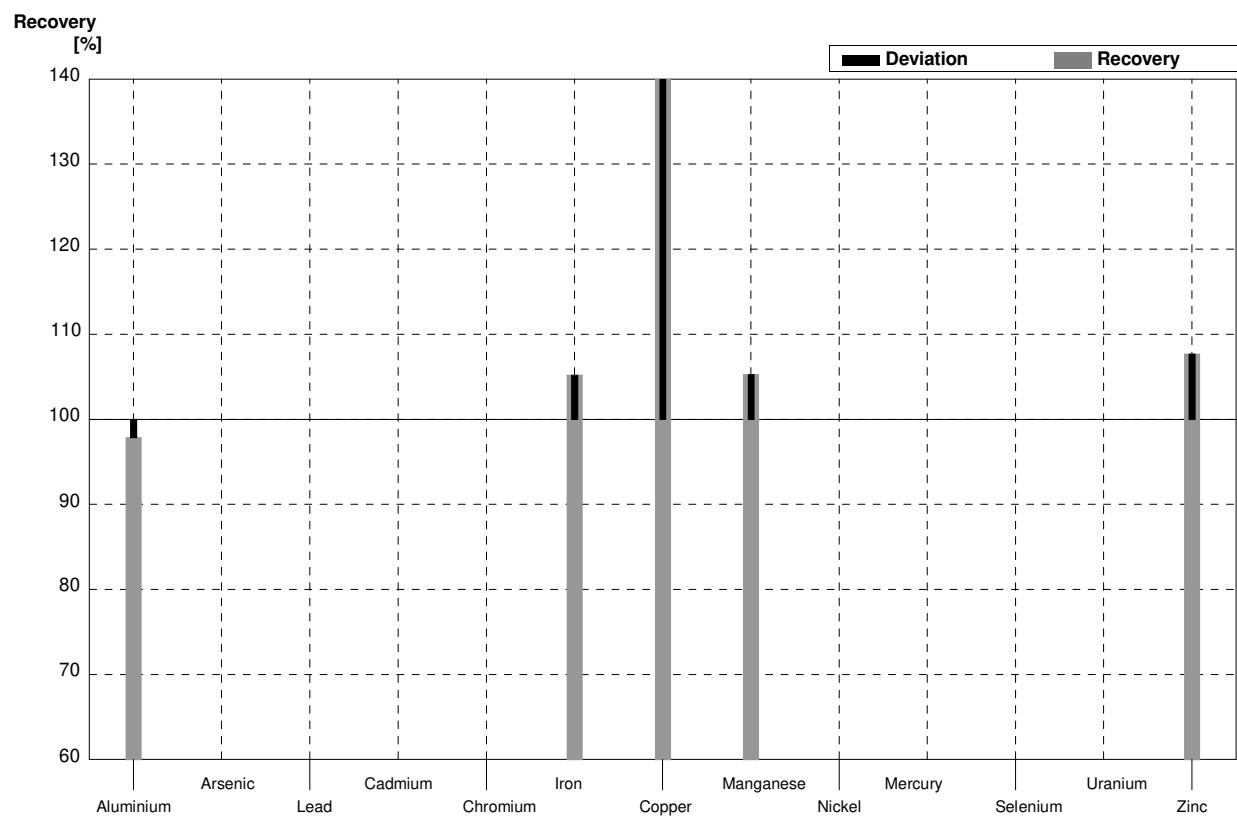
**Sample M151A**  
**Laboratory R**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	12,1	0,3	11,0		µg/l	91%
Arsenic	5,14	0,03			µg/l	
Lead	1,49	0,02			µg/l	
Cadmium	0,220	0,005			µg/l	
Chromium	3,80	0,03			µg/l	
Iron	12,3	0,2	16,0		µg/l	130%
Copper	4,46	0,03	15,0		µg/l	336%
Manganese	57,5	0,3	60,0		µg/l	104%
Nickel	0,88	0,02			µg/l	
Mercury	0,27	0,01			µg/l	
Selenium	0,72	0,06			µg/l	
Uranium	3,11	0,02			µg/l	
Zinc	27,1	0,8	29,0		µg/l	107%



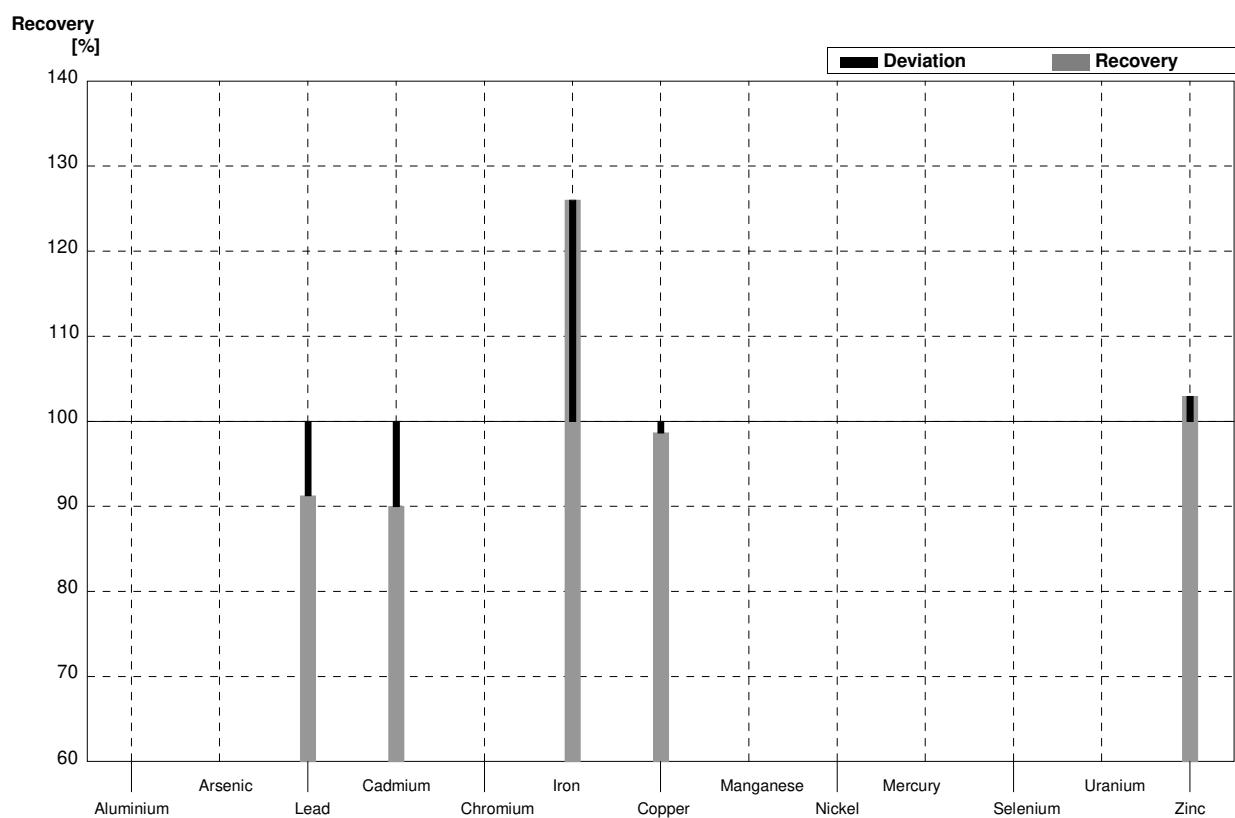
**Sample M151B**  
**Laboratory R**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	23,5	0,3	23,0		µg/l	98%
Arsenic	0,96	0,02			µg/l	
Lead	5,95	0,04			µg/l	
Cadmium	1,89	0,01			µg/l	
Chromium	0,93	0,01			µg/l	
Iron	88,4	0,4	93,0		µg/l	105%
Copper	19,2	0,1	30,0		µg/l	156%
Manganese	11,4	0,1	12,0		µg/l	105%
Nickel	4,55	0,03			µg/l	
Mercury	2,15	0,02			µg/l	
Selenium	4,64	0,06			µg/l	
Uranium	0,66	0,01			µg/l	
Zinc	19,5	0,8	21,0		µg/l	108%



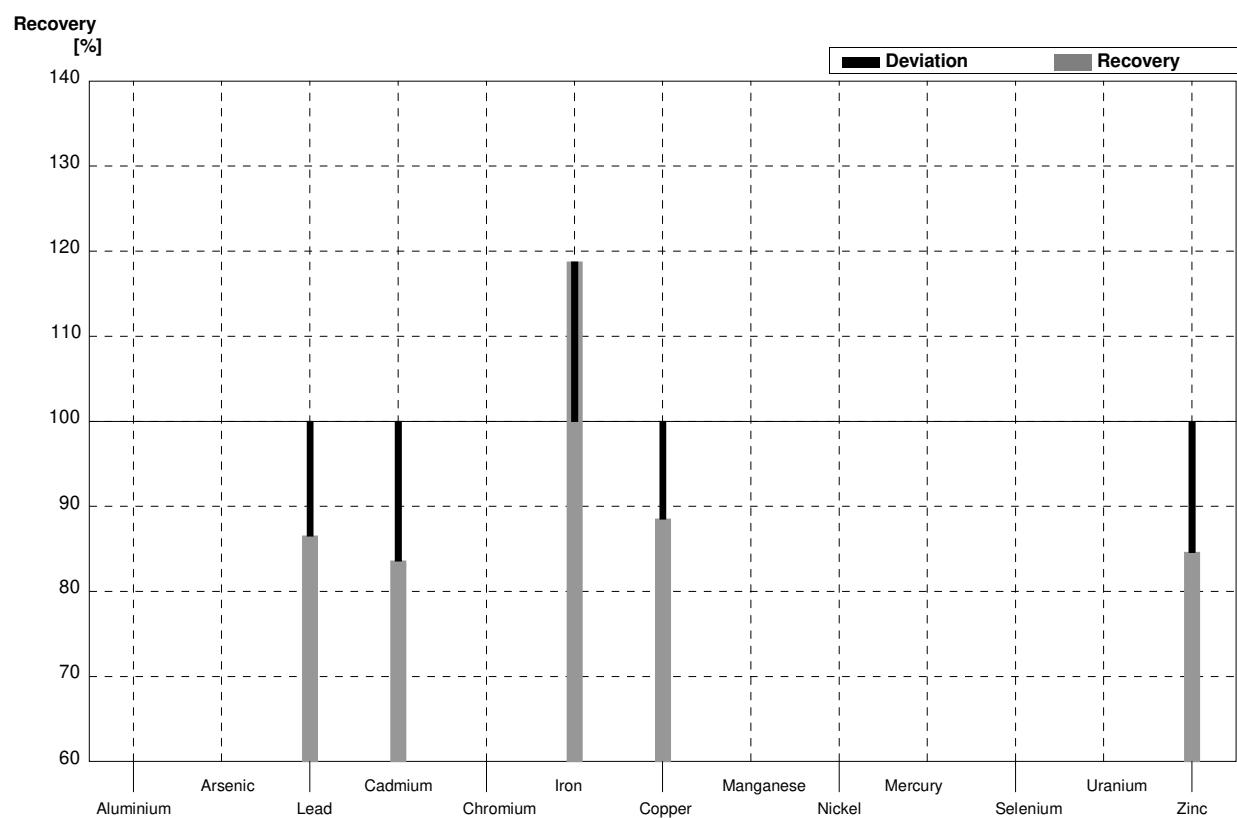
**Sample M151A**  
**Laboratory S**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	12,1	0,3			µg/l	
Arsenic	5,14	0,03			µg/l	
Lead	1,49	0,02	1,36	0,1	µg/l	91%
Cadmium	0,220	0,005	0,198	0,02	µg/l	90%
Chromium	3,80	0,03			µg/l	
Iron	12,3	0,2	15,5	1,0	µg/l	126%
Copper	4,46	0,03	4,40	0,4	µg/l	99%
Manganese	57,5	0,3			µg/l	
Nickel	0,88	0,02			µg/l	
Mercury	0,27	0,01			µg/l	
Selenium	0,72	0,06			µg/l	
Uranium	3,11	0,02			µg/l	
Zinc	27,1	0,8	27,9	2,0	µg/l	103%



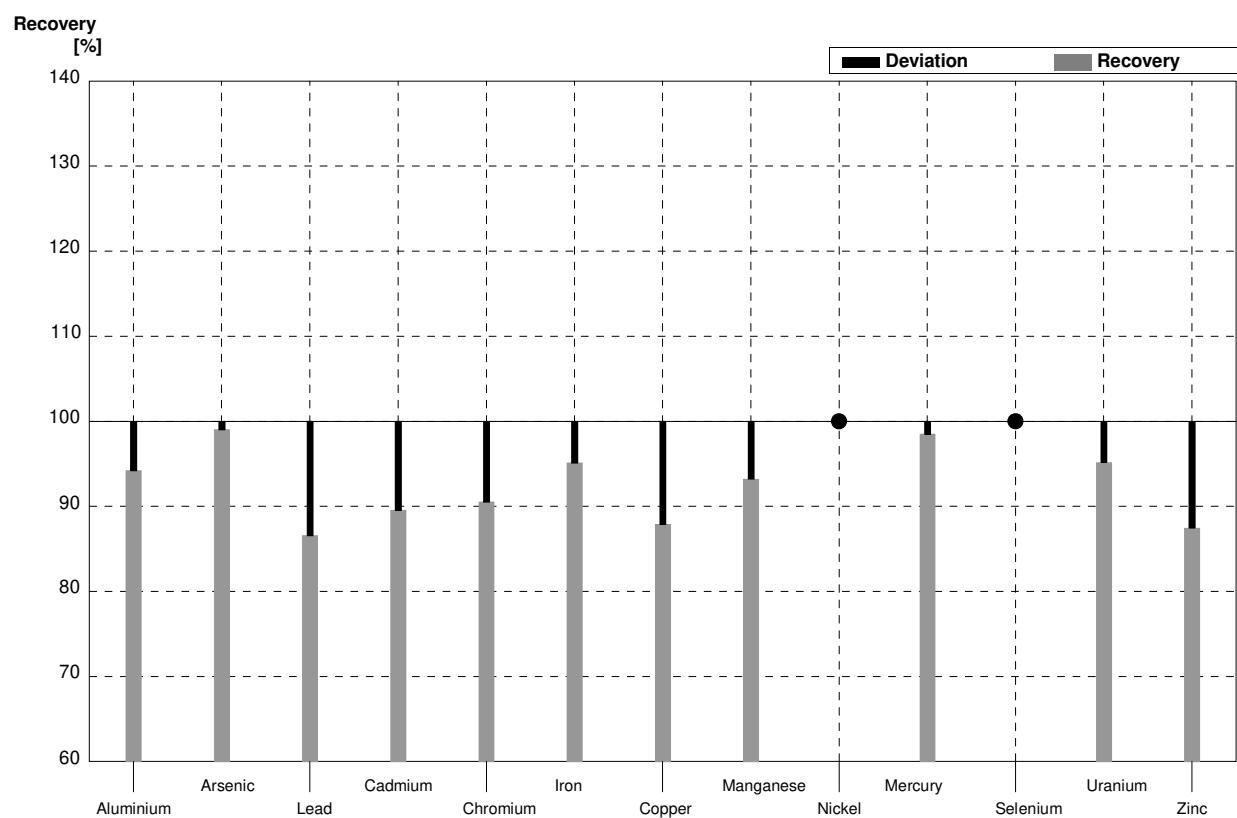
**Sample M151B**  
**Laboratory S**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	23,5	0,3			µg/l	
Arsenic	0,96	0,02			µg/l	
Lead	5,95	0,04	5,15	0,4	µg/l	87%
Cadmium	1,89	0,01	1,58	0,15	µg/l	84%
Chromium	0,93	0,01			µg/l	
Iron	88,4	0,4	105	5,0	µg/l	119%
Copper	19,2	0,1	17,0	1,5	µg/l	89%
Manganese	11,4	0,1			µg/l	
Nickel	4,55	0,03			µg/l	
Mercury	2,15	0,02			µg/l	
Selenium	4,64	0,06			µg/l	
Uranium	0,66	0,01			µg/l	
Zinc	19,5	0,8	16,5	1,5	µg/l	85%



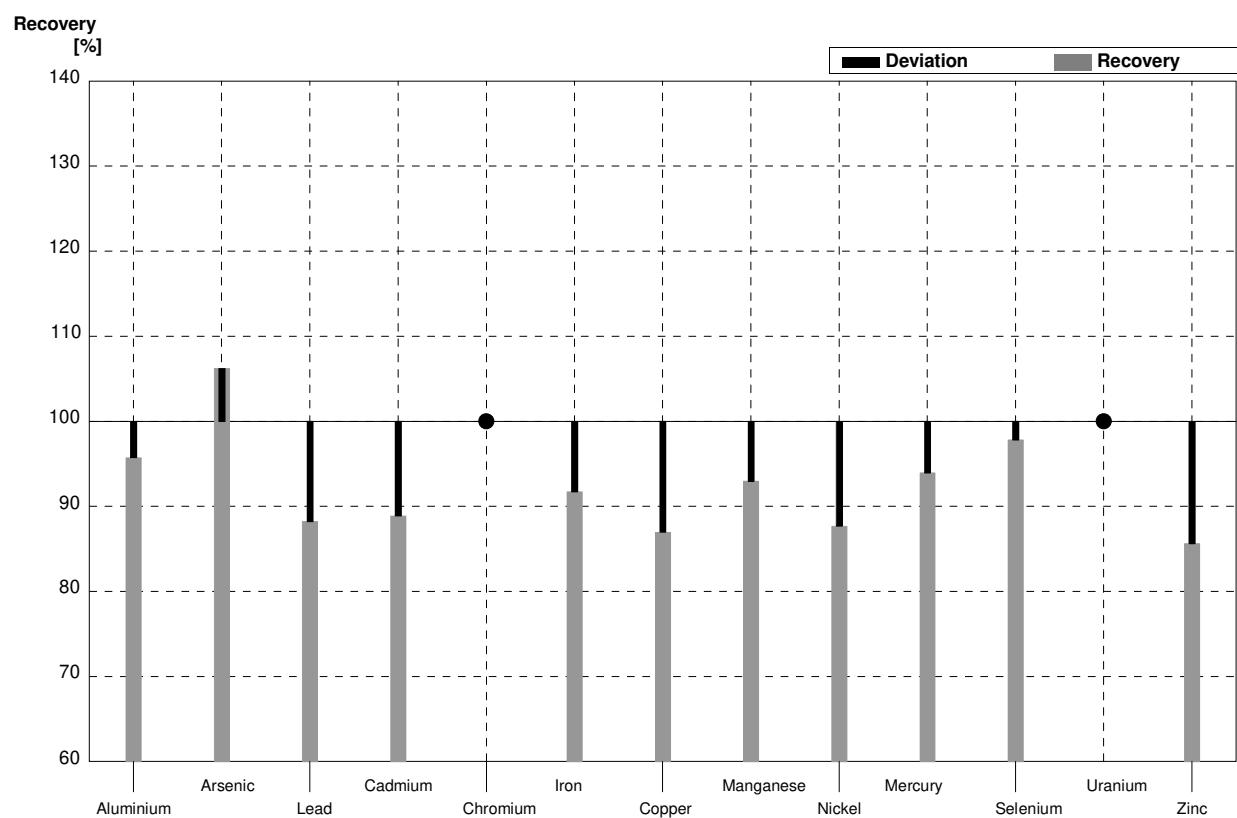
**Sample M151A**  
**Laboratory T**

Parameter	Target value	$\pm$ U ( $k=2$ )	Result	$\pm$	Unit	Recovery
Aluminium	12,1	0,3	11,4	1,71	$\mu\text{g/l}$	94%
Arsenic	5,14	0,03	5,09	0,76	$\mu\text{g/l}$	99%
Lead	1,49	0,02	1,29	0,19	$\mu\text{g/l}$	87%
Cadmium	0,220	0,005	0,197	0,030	$\mu\text{g/l}$	90%
Chromium	3,80	0,03	3,44	0,52	$\mu\text{g/l}$	91%
Iron	12,3	0,2	11,7	1,75	$\mu\text{g/l}$	95%
Copper	4,46	0,03	3,92	0,59	$\mu\text{g/l}$	88%
Manganese	57,5	0,3	53,6	8,04	$\mu\text{g/l}$	93%
Nickel	0,88	0,02	<1		$\mu\text{g/l}$	•
Mercury	0,27	0,01	0,266	0,040	$\mu\text{g/l}$	99%
Selenium	0,72	0,06	<1		$\mu\text{g/l}$	•
Uranium	3,11	0,02	2,96	0,44	$\mu\text{g/l}$	95%
Zinc	27,1	0,8	23,7	3,56	$\mu\text{g/l}$	87%



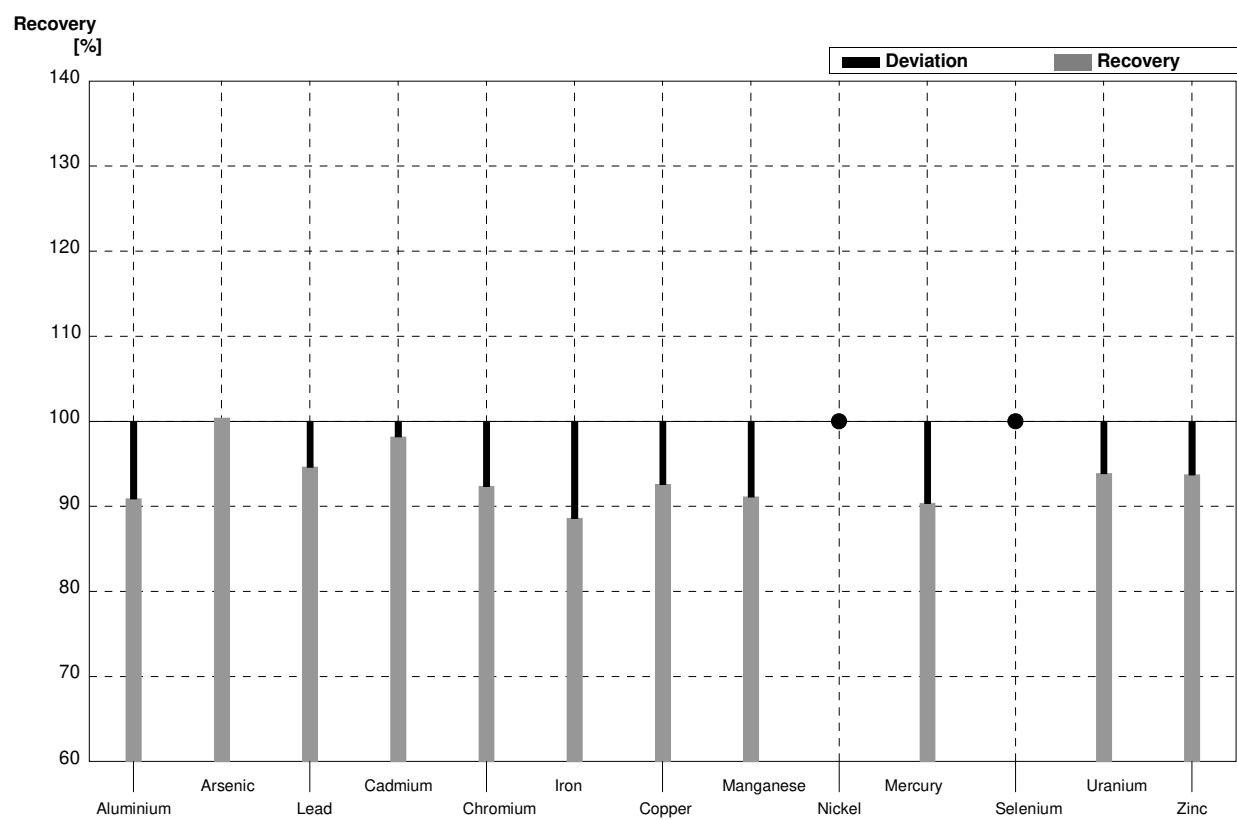
**Sample M151B**  
**Laboratory T**

Parameter	Target value	$\pm$ U ( $k=2$ )	Result	$\pm$	Unit	Recovery
Aluminium	23,5	0,3	22,5	3,38	$\mu\text{g/l}$	96%
Arsenic	0,96	0,02	1,02	0,15	$\mu\text{g/l}$	106%
Lead	5,95	0,04	5,25	0,79	$\mu\text{g/l}$	88%
Cadmium	1,89	0,01	1,68	0,25	$\mu\text{g/l}$	89%
Chromium	0,93	0,01	<1		$\mu\text{g/l}$	•
Iron	88,4	0,4	81,1	12,2	$\mu\text{g/l}$	92%
Copper	19,2	0,1	16,7	2,50	$\mu\text{g/l}$	87%
Manganese	11,4	0,1	10,6	1,60	$\mu\text{g/l}$	93%
Nickel	4,55	0,03	3,99	0,60	$\mu\text{g/l}$	88%
Mercury	2,15	0,02	2,02	0,30	$\mu\text{g/l}$	94%
Selenium	4,64	0,06	4,54	0,68	$\mu\text{g/l}$	98%
Uranium	0,66	0,01	<1		$\mu\text{g/l}$	•
Zinc	19,5	0,8	16,7	2,51	$\mu\text{g/l}$	86%



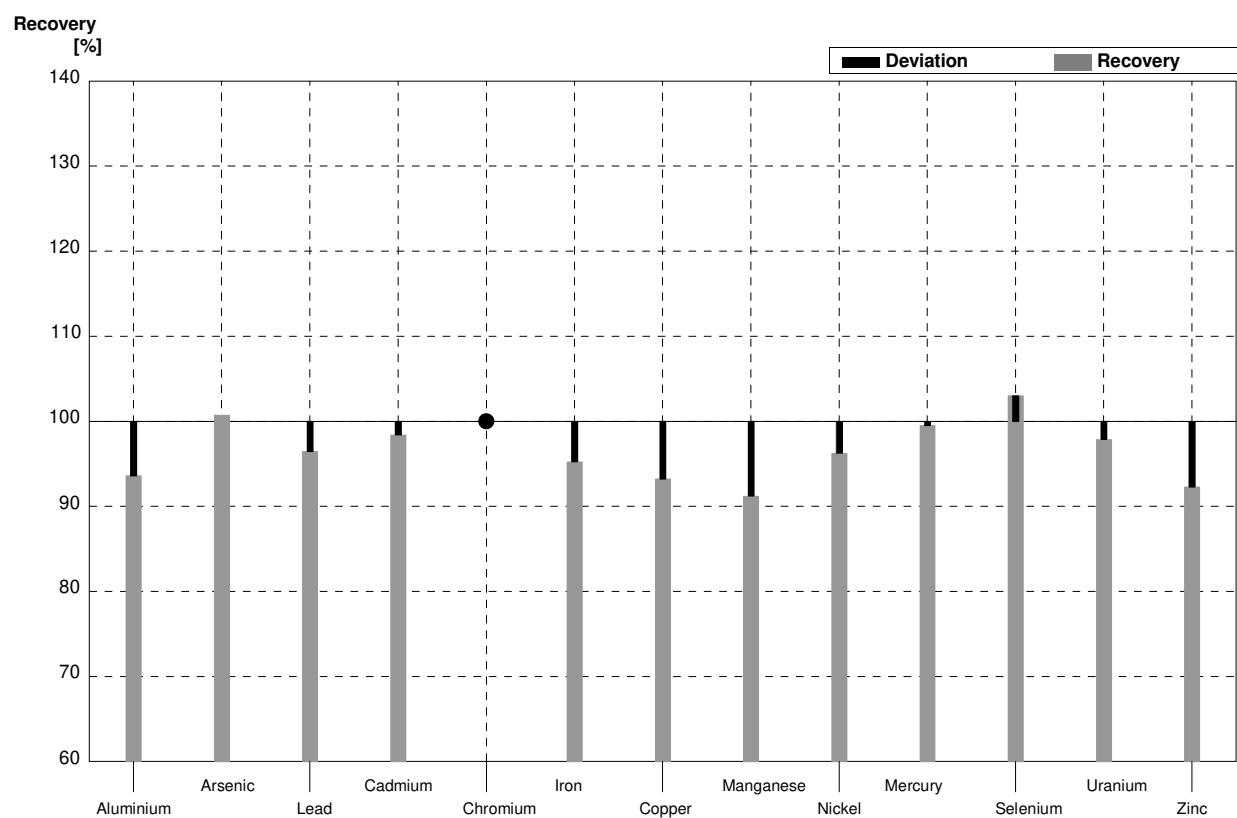
**Sample M151A**  
**Laboratory U**

Parameter	Target value	$\pm$ U ( $k=2$ )	Result	$\pm$	Unit	Recovery
Aluminium	12,1	0,3	11,0	1,2	$\mu\text{g/l}$	91%
Arsenic	5,14	0,03	5,16	0,29	$\mu\text{g/l}$	100%
Lead	1,49	0,02	1,41	0,15	$\mu\text{g/l}$	95%
Cadmium	0,220	0,005	0,216	0,010	$\mu\text{g/l}$	98%
Chromium	3,80	0,03	3,51	0,50	$\mu\text{g/l}$	92%
Iron	12,3	0,2	10,9	1,2	$\mu\text{g/l}$	89%
Copper	4,46	0,03	4,13	0,23	$\mu\text{g/l}$	93%
Manganese	57,5	0,3	52,4	2,9	$\mu\text{g/l}$	91%
Nickel	0,88	0,02	<1,0		$\mu\text{g/l}$	•
Mercury	0,27	0,01	0,244	0,038	$\mu\text{g/l}$	90%
Selenium	0,72	0,06	<1,0		$\mu\text{g/l}$	•
Uranium	3,11	0,02	2,92	0,31	$\mu\text{g/l}$	94%
Zinc	27,1	0,8	25,4	1,6	$\mu\text{g/l}$	94%



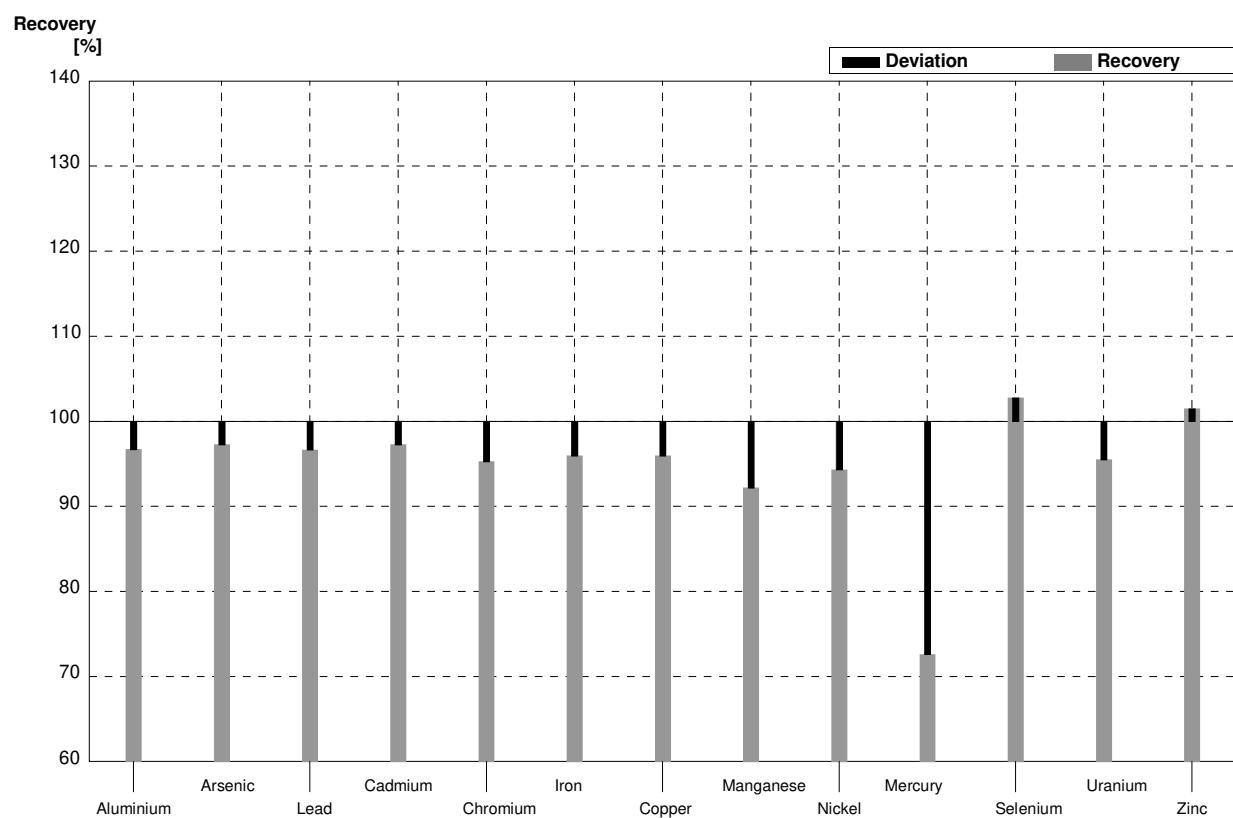
**Sample M151B**  
**Laboratory U**

Parameter	Target value	$\pm$ U ( $k=2$ )	Result	$\pm$	Unit	Recovery
Aluminium	23,5	0,3	22,0	2,4	$\mu\text{g/l}$	94%
Arsenic	0,96	0,02	0,967	0,054	$\mu\text{g/l}$	101%
Lead	5,95	0,04	5,74	0,61	$\mu\text{g/l}$	96%
Cadmium	1,89	0,01	1,86	0,09	$\mu\text{g/l}$	98%
Chromium	0,93	0,01	<1,0		$\mu\text{g/l}$	•
Iron	88,4	0,4	84,2	9,3	$\mu\text{g/l}$	95%
Copper	19,2	0,1	17,9	1,0	$\mu\text{g/l}$	93%
Manganese	11,4	0,1	10,4	0,57	$\mu\text{g/l}$	91%
Nickel	4,55	0,03	4,38	0,34	$\mu\text{g/l}$	96%
Mercury	2,15	0,02	2,14	0,33	$\mu\text{g/l}$	100%
Selenium	4,64	0,06	4,78	0,57	$\mu\text{g/l}$	103%
Uranium	0,66	0,01	0,646	0,068	$\mu\text{g/l}$	98%
Zinc	19,5	0,8	18,0	1,1	$\mu\text{g/l}$	92%



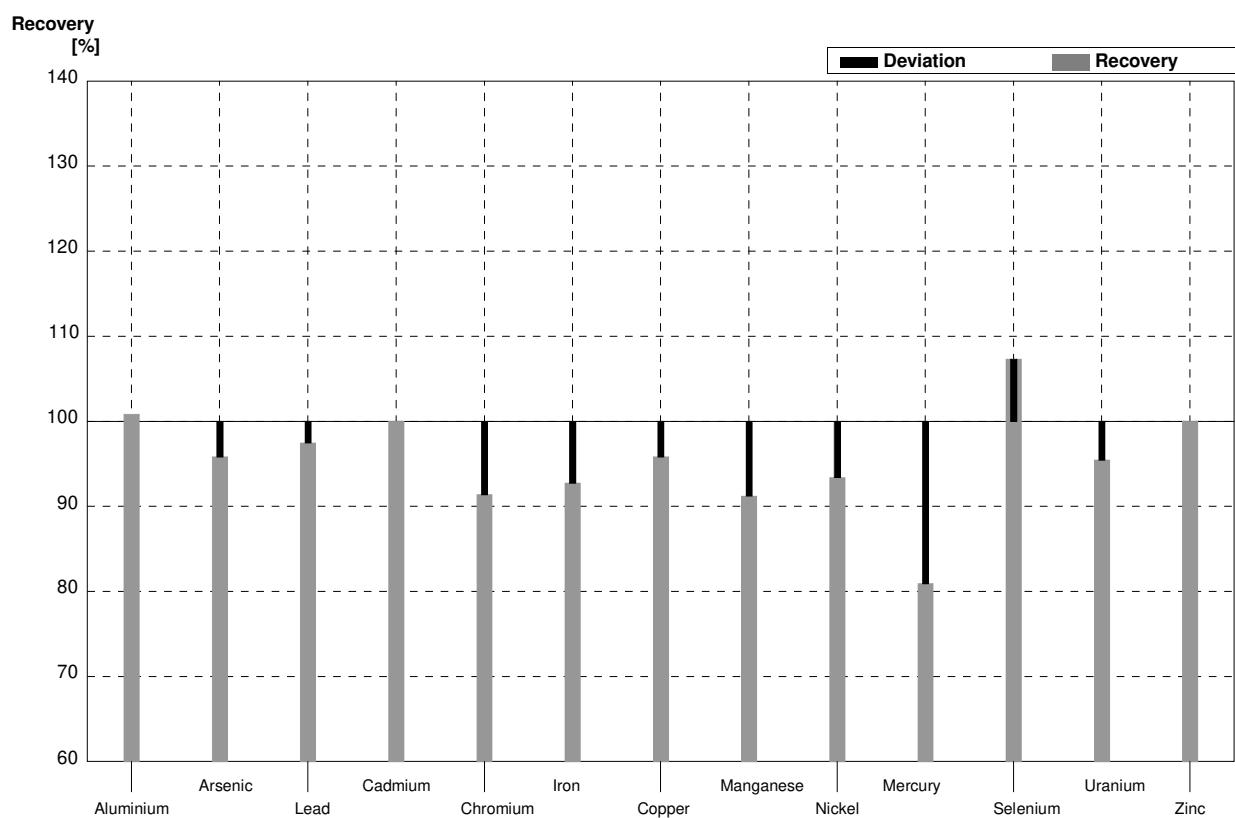
**Sample M151A**  
**Laboratory V**

Parameter	Target value	$\pm$ U ( $k=2$ )	Result	$\pm$	Unit	Recovery
Aluminium	12,1	0,3	11,7	1,8	$\mu\text{g/l}$	97%
Arsenic	5,14	0,03	5,0	1,0	$\mu\text{g/l}$	97%
Lead	1,49	0,02	1,44	0,22	$\mu\text{g/l}$	97%
Cadmium	0,220	0,005	0,214	0,028	$\mu\text{g/l}$	97%
Chromium	3,80	0,03	3,62	0,36	$\mu\text{g/l}$	95%
Iron	12,3	0,2	11,8	1,8	$\mu\text{g/l}$	96%
Copper	4,46	0,03	4,28	0,64	$\mu\text{g/l}$	96%
Manganese	57,5	0,3	53	5	$\mu\text{g/l}$	92%
Nickel	0,88	0,02	0,83	0,08	$\mu\text{g/l}$	94%
Mercury	0,27	0,01	0,196	0,039	$\mu\text{g/l}$	73%
Selenium	0,72	0,06	0,74	0,11	$\mu\text{g/l}$	103%
Uranium	3,11	0,02	2,97	0,30	$\mu\text{g/l}$	95%
Zinc	27,1	0,8	27,5	2,5	$\mu\text{g/l}$	101%



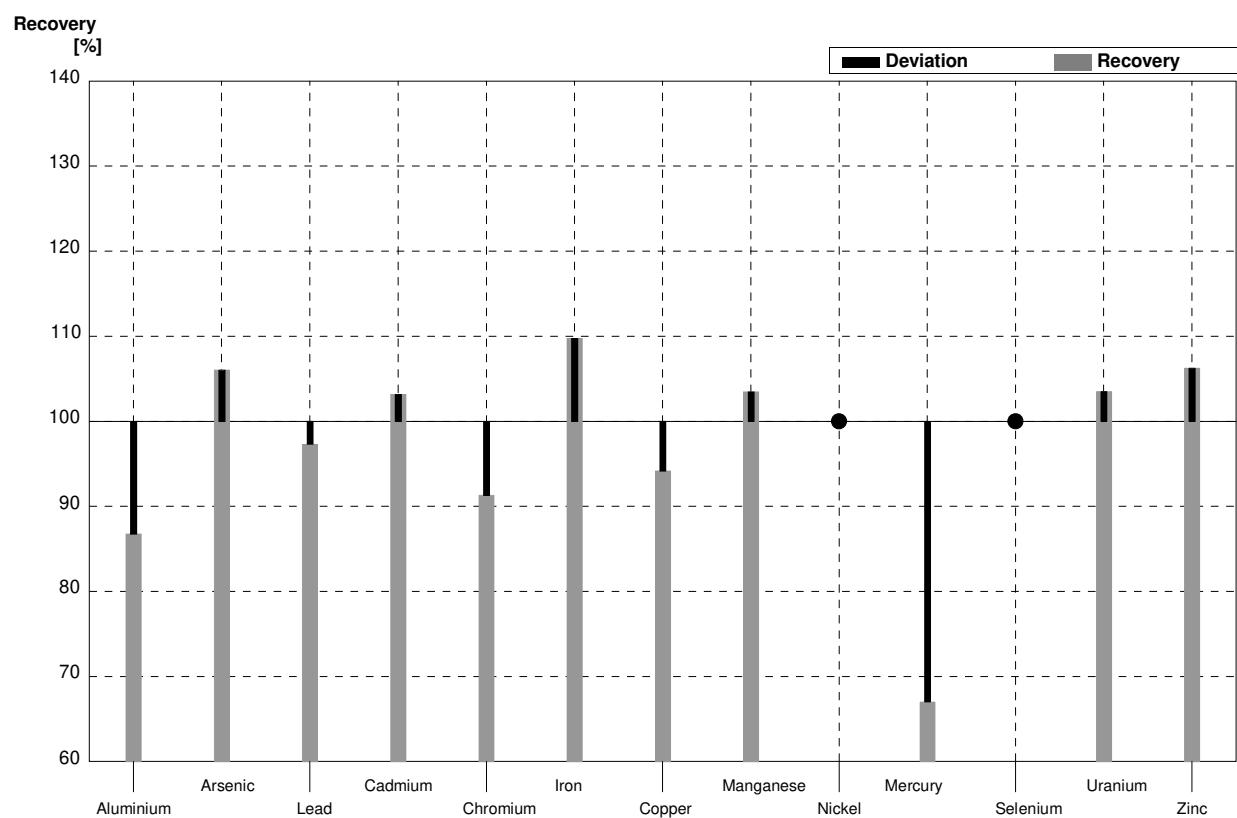
**Sample M151B**  
**Laboratory V**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	23,5	0,3	23,7	3,6	µg/l	101%
Arsenic	0,96	0,02	0,92	0,18	µg/l	96%
Lead	5,95	0,04	5,8	0,9	µg/l	97%
Cadmium	1,89	0,01	1,89	0,25	µg/l	100%
Chromium	0,93	0,01	0,85	0,09	µg/l	91%
Iron	88,4	0,4	82	12	µg/l	93%
Copper	19,2	0,1	18,4	2,8	µg/l	96%
Manganese	11,4	0,1	10,4	1,0	µg/l	91%
Nickel	4,55	0,03	4,25	0,43	µg/l	93%
Mercury	2,15	0,02	1,74	0,35	µg/l	81%
Selenium	4,64	0,06	4,98	0,75	µg/l	107%
Uranium	0,66	0,01	0,63	0,06	µg/l	95%
Zinc	19,5	0,8	19,5	1,8	µg/l	100%



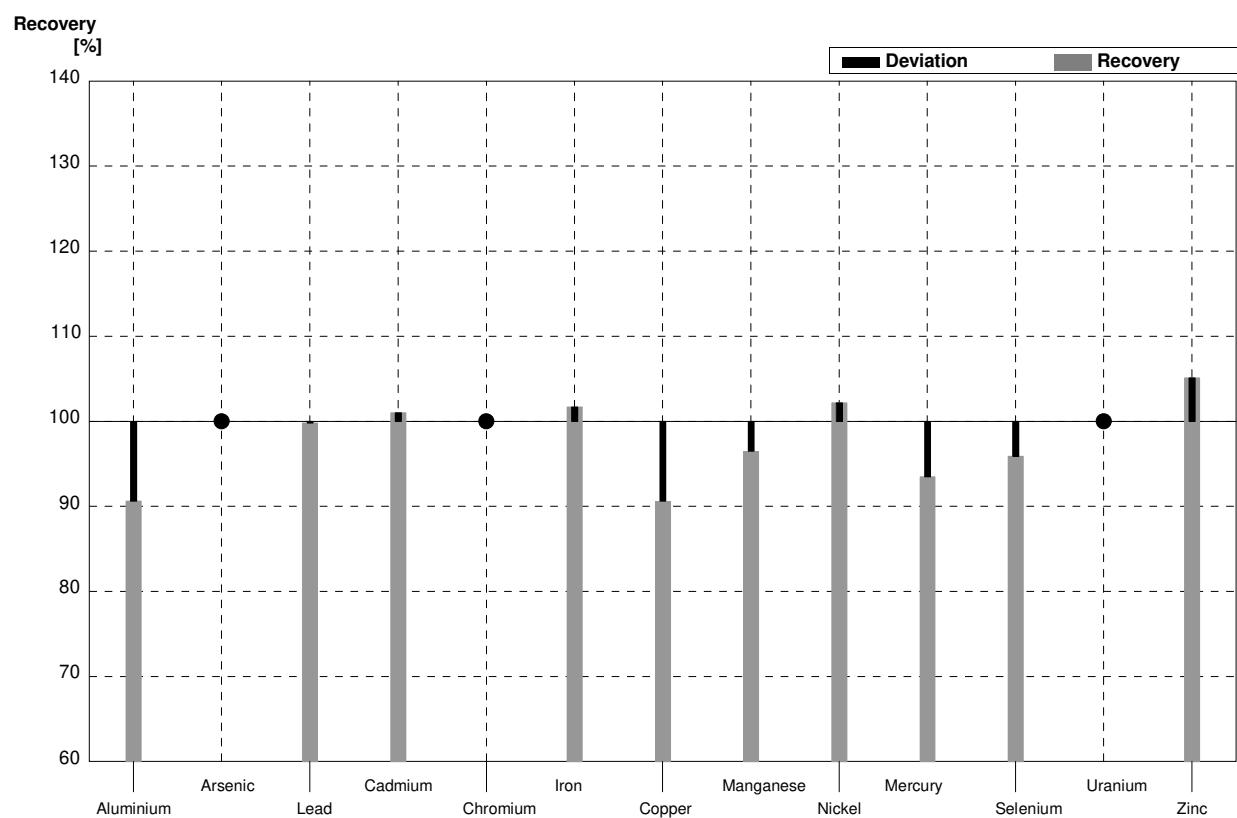
**Sample M151A**  
**Laboratory W**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	12,1	0,3	10,5	0,98	µg/l	87%
Arsenic	5,14	0,03	5,45	0,08	µg/l	106%
Lead	1,49	0,02	1,45	0,03	µg/l	97%
Cadmium	0,220	0,005	0,227	0,011	µg/l	103%
Chromium	3,80	0,03	3,47	0,16	µg/l	91%
Iron	12,3	0,2	13,5	0,91	µg/l	110%
Copper	4,46	0,03	4,20	0,13	µg/l	94%
Manganese	57,5	0,3	59,5	0,97	µg/l	103%
Nickel	0,88	0,02	<1,00		µg/l	•
Mercury	0,27	0,01	0,181	0,004	µg/l	67%
Selenium	0,72	0,06	<1,00		µg/l	•
Uranium	3,11	0,02	3,22	0,06	µg/l	104%
Zinc	27,1	0,8	28,8	0,44	µg/l	106%



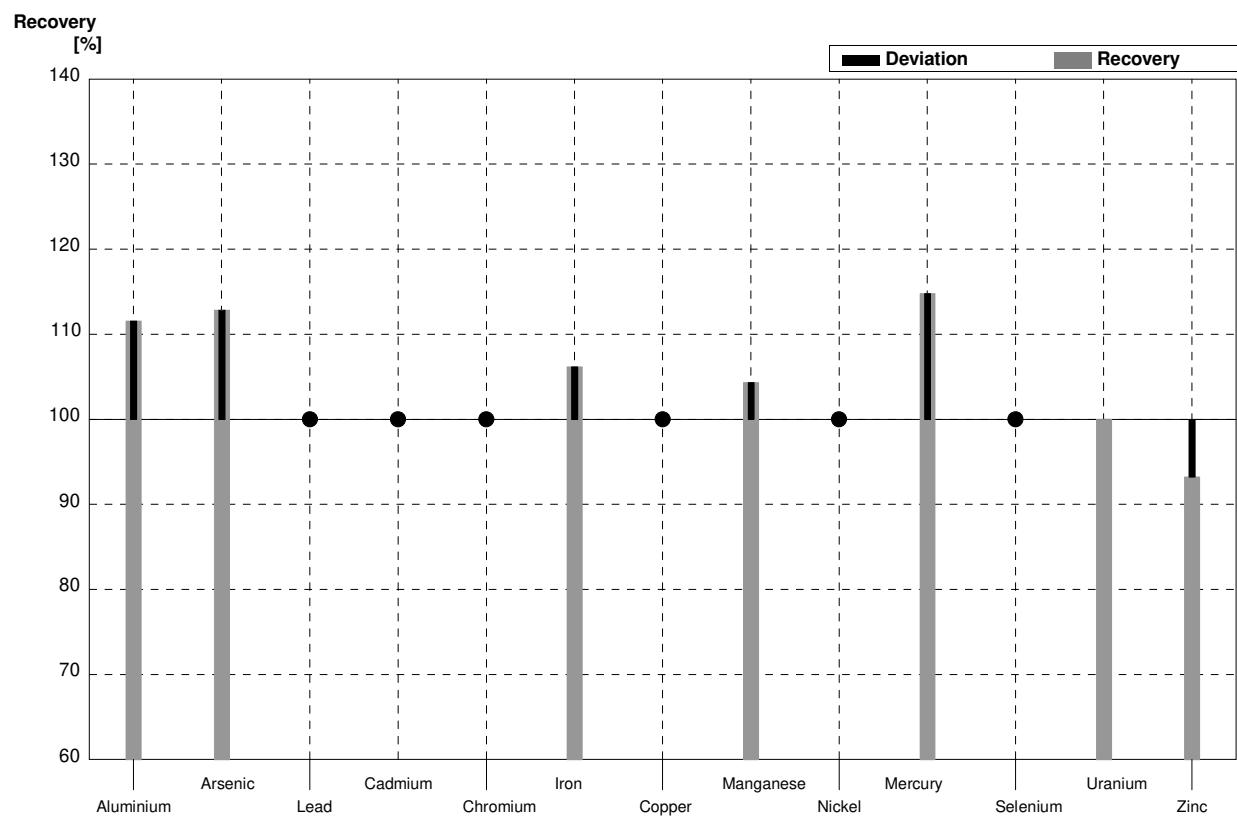
**Sample M151B**  
**Laboratory W**

Parameter	Target value	$\pm$ U ( $k=2$ )	Result	$\pm$	Unit	Recovery
Aluminium	23,5	0,3	21,3	0,92	$\mu\text{g/l}$	91%
Arsenic	0,96	0,02	<1,00		$\mu\text{g/l}$	•
Lead	5,95	0,04	5,94	0,03	$\mu\text{g/l}$	100%
Cadmium	1,89	0,01	1,91	0,049	$\mu\text{g/l}$	101%
Chromium	0,93	0,01	<1,00		$\mu\text{g/l}$	•
Iron	88,4	0,4	89,9	0,91	$\mu\text{g/l}$	102%
Copper	19,2	0,1	17,4	0,66	$\mu\text{g/l}$	91%
Manganese	11,4	0,1	11,0	1,14	$\mu\text{g/l}$	96%
Nickel	4,55	0,03	4,65	0,16	$\mu\text{g/l}$	102%
Mercury	2,15	0,02	2,01	0,047	$\mu\text{g/l}$	93%
Selenium	4,64	0,06	4,45	0,11	$\mu\text{g/l}$	96%
Uranium	0,66	0,01	<1,00		$\mu\text{g/l}$	•
Zinc	19,5	0,8	20,5	0,44	$\mu\text{g/l}$	105%



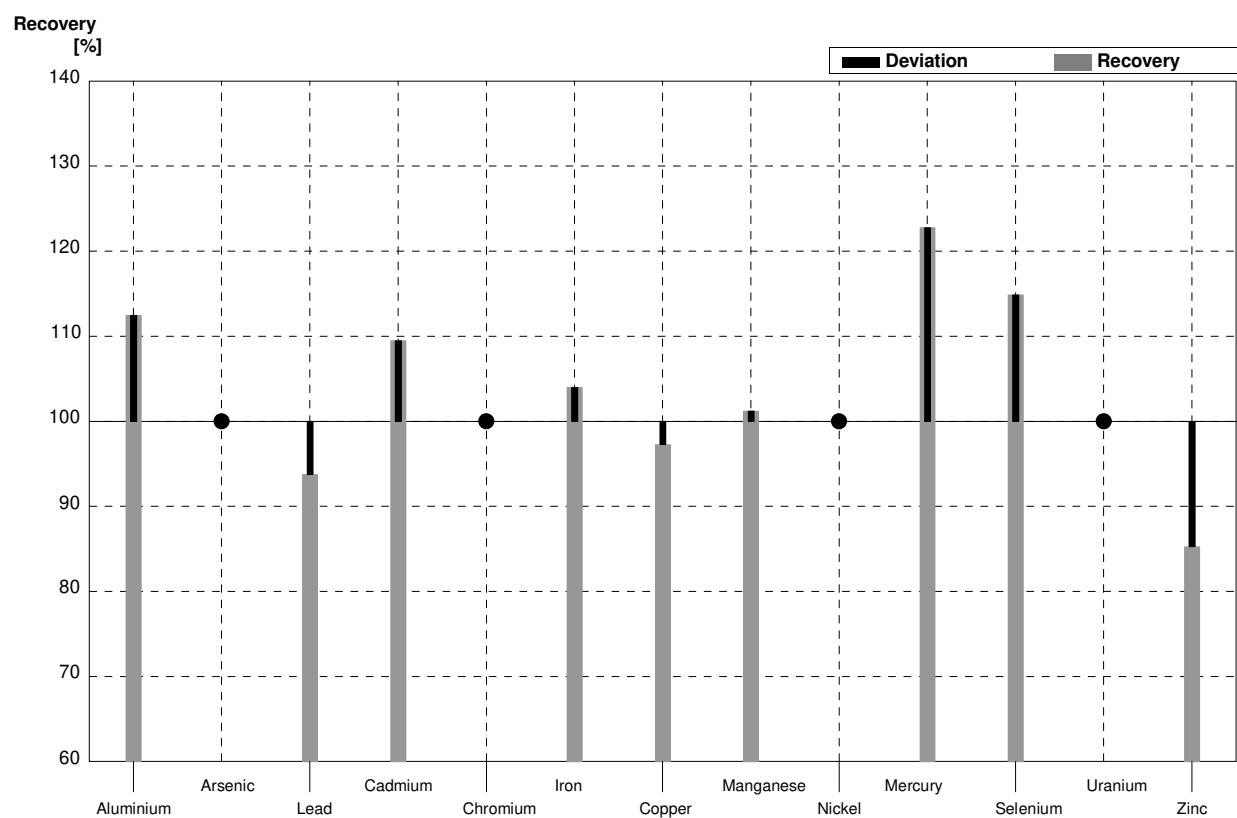
**Sample M151A**  
**Laboratory X**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	12,1	0,3	13,50	1,35	µg/l	112%
Arsenic	5,14	0,03	5,80	0,58	µg/l	113%
Lead	1,49	0,02	<2		µg/l	•
Cadmium	0,220	0,005	<1		µg/l	•
Chromium	3,80	0,03	<5		µg/l	•
Iron	12,3	0,2	13,06	1,31	µg/l	106%
Copper	4,46	0,03	<5		µg/l	•
Manganese	57,5	0,3	60,00	0,60	µg/l	104%
Nickel	0,88	0,02	<5		µg/l	•
Mercury	0,27	0,01	0,310	0,05	µg/l	115%
Selenium	0,72	0,06	<2		µg/l	•
Uranium	3,11	0,02	3,11	0,31	µg/l	100%
Zinc	27,1	0,8	25,27	2,53	µg/l	93%



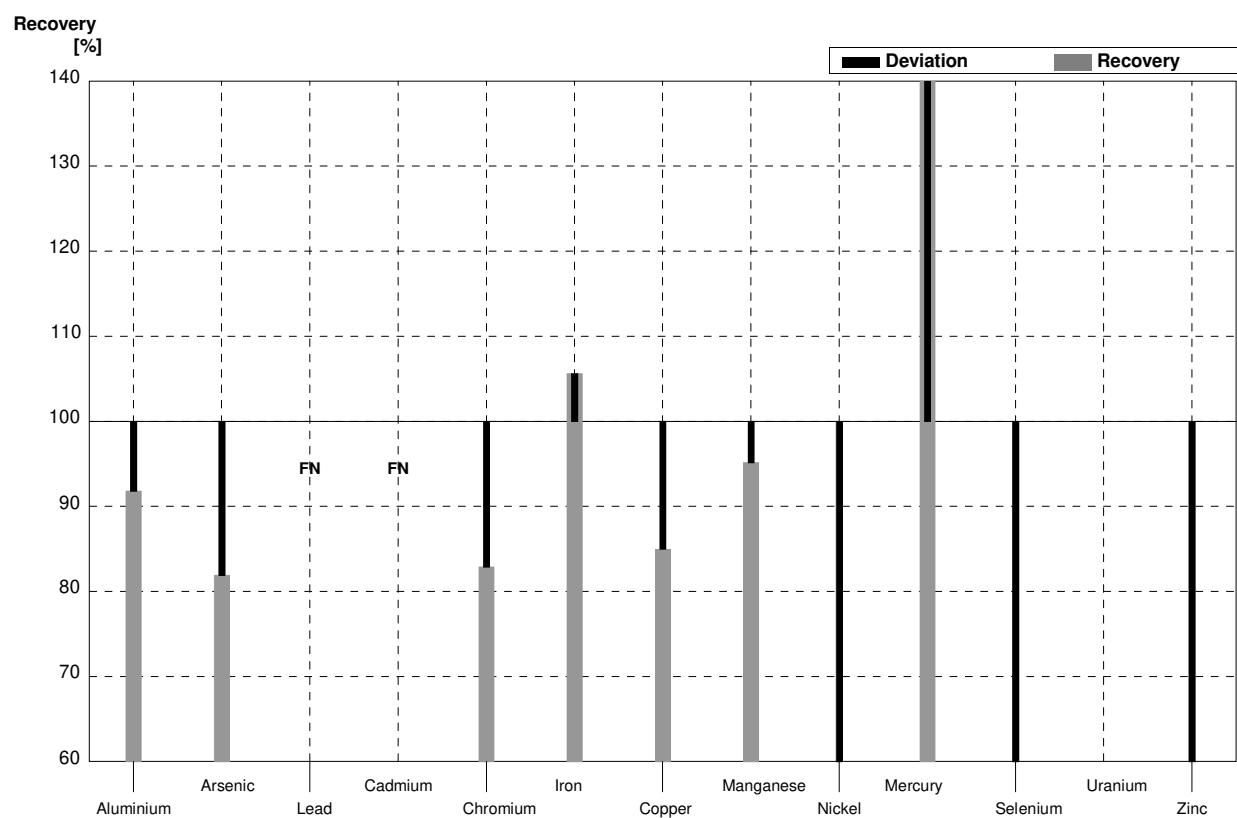
**Sample M151B**  
**Laboratory X**

Parameter	Target value	$\pm$ U ( $k=2$ )	Result	$\pm$	Unit	Recovery
Aluminium	23,5	0,3	26,43	2,64	$\mu\text{g/l}$	112%
Arsenic	0,96	0,02	<2		$\mu\text{g/l}$	•
Lead	5,95	0,04	5,58	0,56	$\mu\text{g/l}$	94%
Cadmium	1,89	0,01	2,07	0,21	$\mu\text{g/l}$	110%
Chromium	0,93	0,01	<5		$\mu\text{g/l}$	•
Iron	88,4	0,4	91,94	9,19	$\mu\text{g/l}$	104%
Copper	19,2	0,1	18,68	1,87	$\mu\text{g/l}$	97%
Manganese	11,4	0,1	11,54	1,15	$\mu\text{g/l}$	101%
Nickel	4,55	0,03	<5		$\mu\text{g/l}$	•
Mercury	2,15	0,02	2,64	0,26	$\mu\text{g/l}$	123%
Selenium	4,64	0,06	5,33	0,53	$\mu\text{g/l}$	115%
Uranium	0,66	0,01	<1		$\mu\text{g/l}$	•
Zinc	19,5	0,8	16,63	1,66	$\mu\text{g/l}$	85%



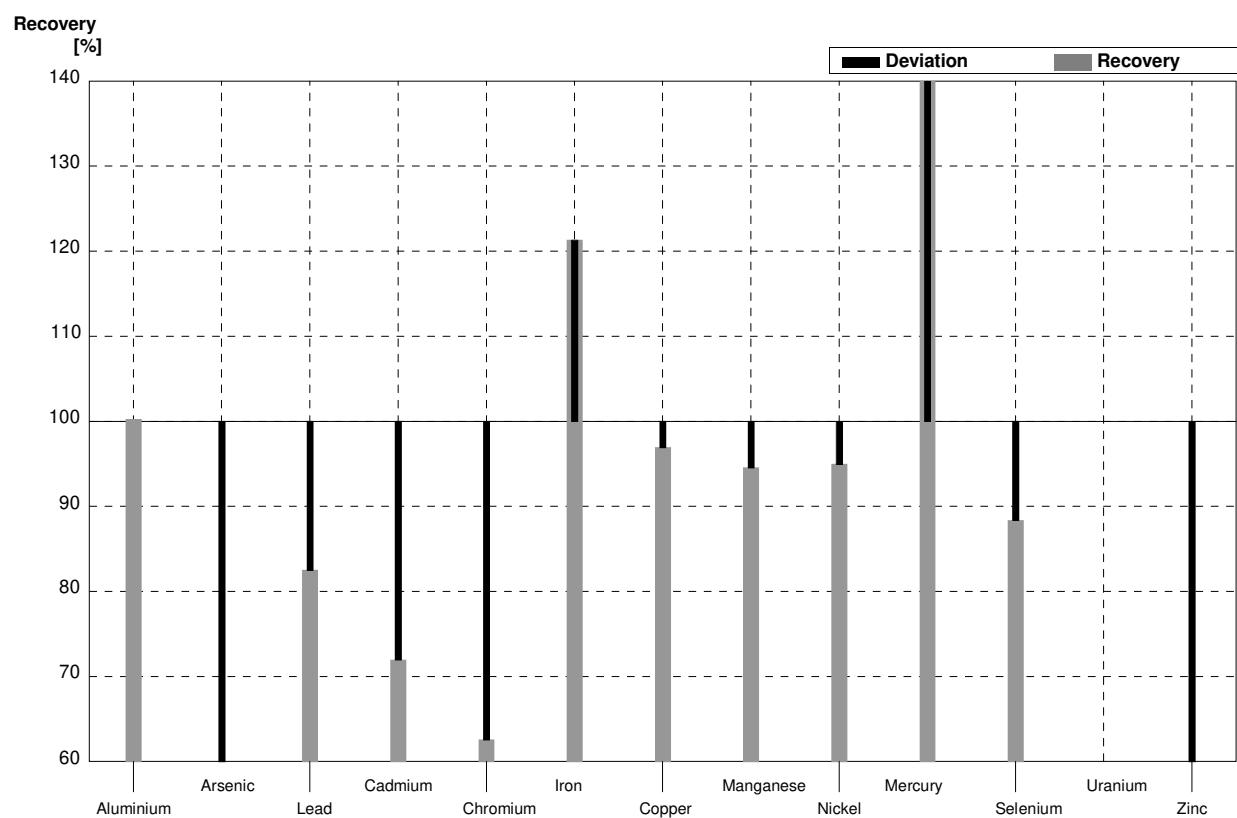
**Sample M151A**  
**Laboratory Y**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	12,1	0,3	11,11	0,1	µg/l	92%
Arsenic	5,14	0,03	4,21	0,1	µg/l	82%
Lead	1,49	0,02	<0,1	0,1	µg/l	FN
Cadmium	0,220	0,005	<0,1	0,1	µg/l	FN
Chromium	3,80	0,03	3,15	0,1	µg/l	83%
Iron	12,3	0,2	12,99	0,1	µg/l	106%
Copper	4,46	0,03	3,79	0,1	µg/l	85%
Manganese	57,5	0,3	54,72	0,1	µg/l	95%
Nickel	0,88	0,02	0,455	0,1	µg/l	52%
Mercury	0,27	0,01	15,43	0,1	µg/l	5715%
Selenium	0,72	0,06	0,351	0,1	µg/l	49%
Uranium	3,11	0,02			µg/l	
Zinc	27,1	0,8	14,09	0,1	µg/l	52%



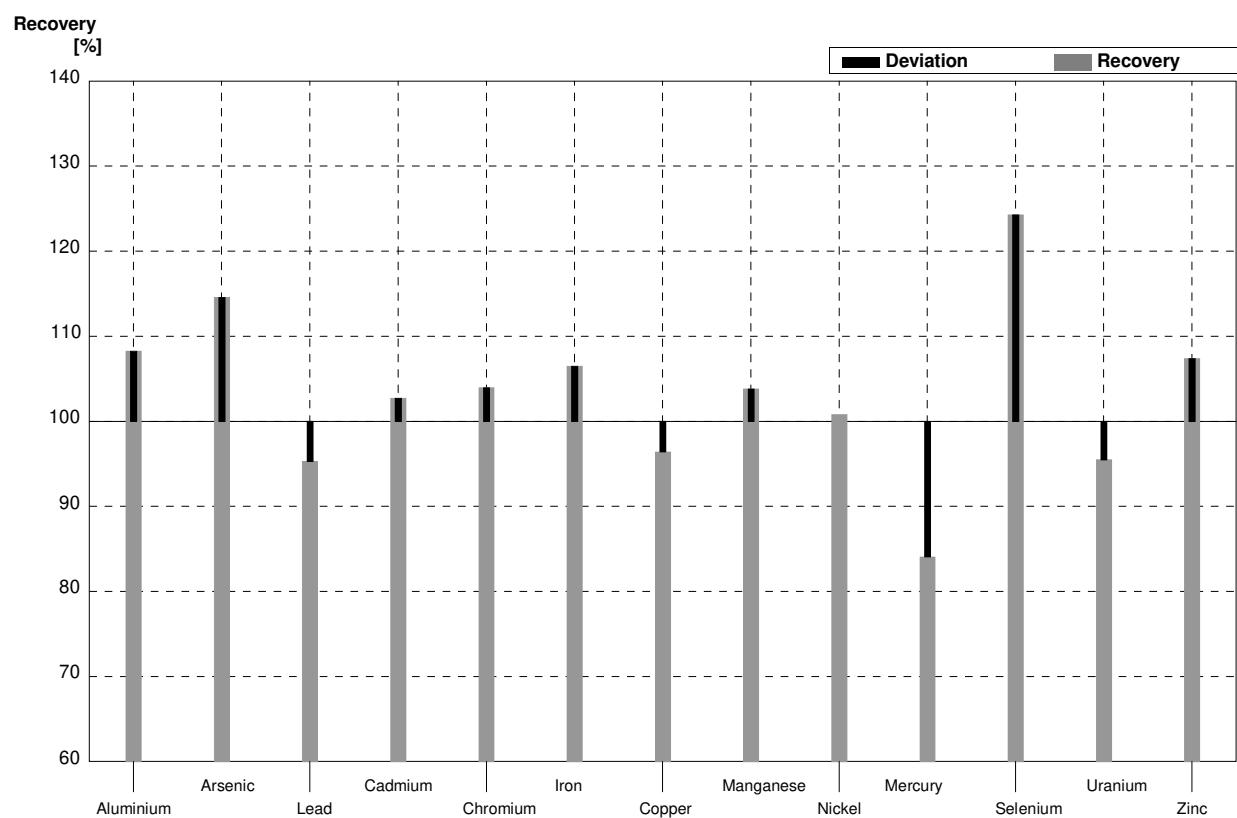
**Sample M151B**  
**Laboratory Y**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	23,5	0,3	23,56	0,1	µg/l	100%
Arsenic	0,96	0,02	0,50	0,1	µg/l	52%
Lead	5,95	0,04	4,91	0,1	µg/l	83%
Cadmium	1,89	0,01	1,36	0,1	µg/l	72%
Chromium	0,93	0,01	0,582	0,1	µg/l	63%
Iron	88,4	0,4	107,25	0,1	µg/l	121%
Copper	19,2	0,1	18,61	0,1	µg/l	97%
Manganese	11,4	0,1	10,78	0,1	µg/l	95%
Nickel	4,55	0,03	4,321	0,1	µg/l	95%
Mercury	2,15	0,02	165,50	0,1	µg/l	7698%
Selenium	4,64	0,06	4,10	0,1	µg/l	88%
Uranium	0,66	0,01			µg/l	
Zinc	19,5	0,8	10,62	0,1	µg/l	54%



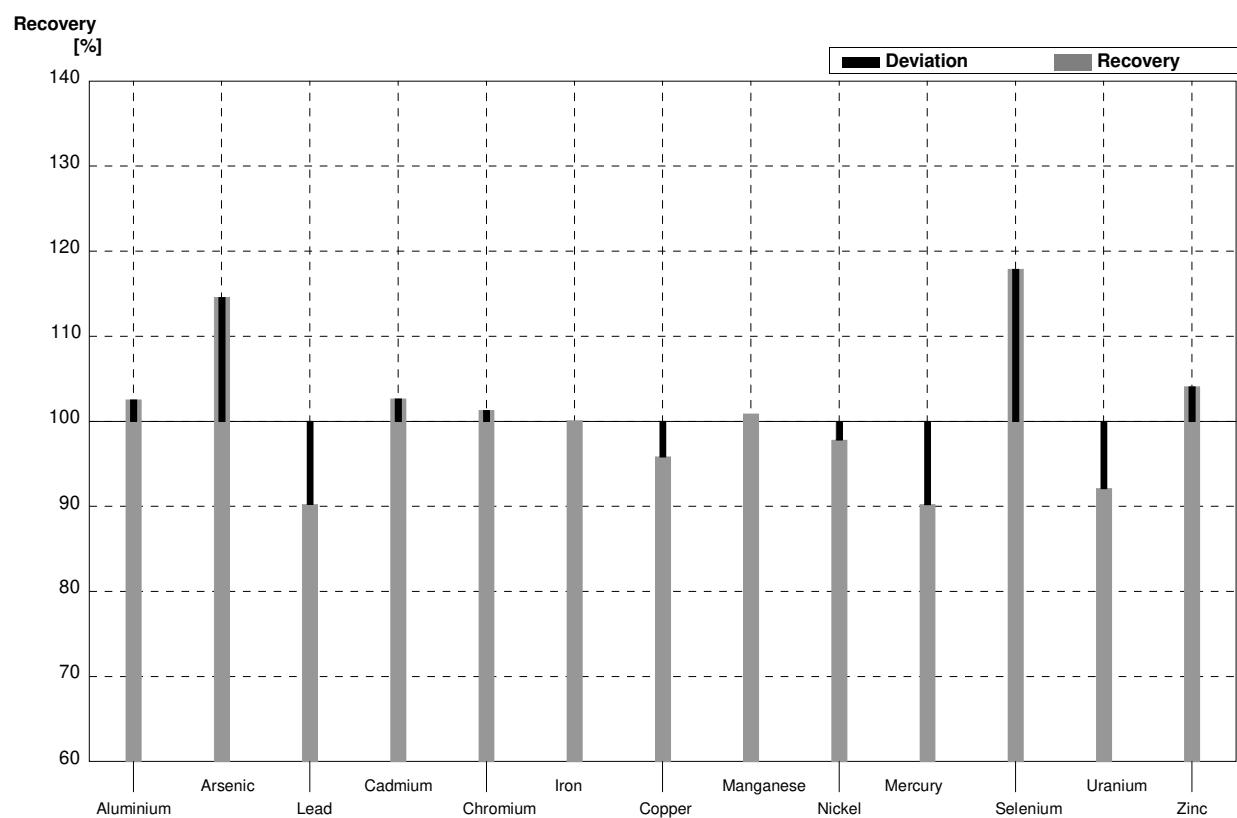
**Sample M151A**  
**Laboratory Z**

Parameter	Target value	$\pm$ U (k=2)	Result	$\pm$	Unit	Recovery
Aluminium	12,1	0,3	13,1	2,36	$\mu\text{g/l}$	108%
Arsenic	5,14	0,03	5,89	1,18	$\mu\text{g/l}$	115%
Lead	1,49	0,02	1,42	0,227	$\mu\text{g/l}$	95%
Cadmium	0,220	0,005	0,226	0,0316	$\mu\text{g/l}$	103%
Chromium	3,80	0,03	3,95	0,593	$\mu\text{g/l}$	104%
Iron	12,3	0,2	13,1	2,10	$\mu\text{g/l}$	107%
Copper	4,46	0,03	4,30	0,774	$\mu\text{g/l}$	96%
Manganese	57,5	0,3	59,7	7,76	$\mu\text{g/l}$	104%
Nickel	0,88	0,02	0,887	0,160	$\mu\text{g/l}$	101%
Mercury	0,27	0,01	0,227	0,0545	$\mu\text{g/l}$	84%
Selenium	0,72	0,06	0,895	0,269	$\mu\text{g/l}$	124%
Uranium	3,11	0,02	2,97	0,475	$\mu\text{g/l}$	95%
Zinc	27,1	0,8	29,1	5,82	$\mu\text{g/l}$	107%



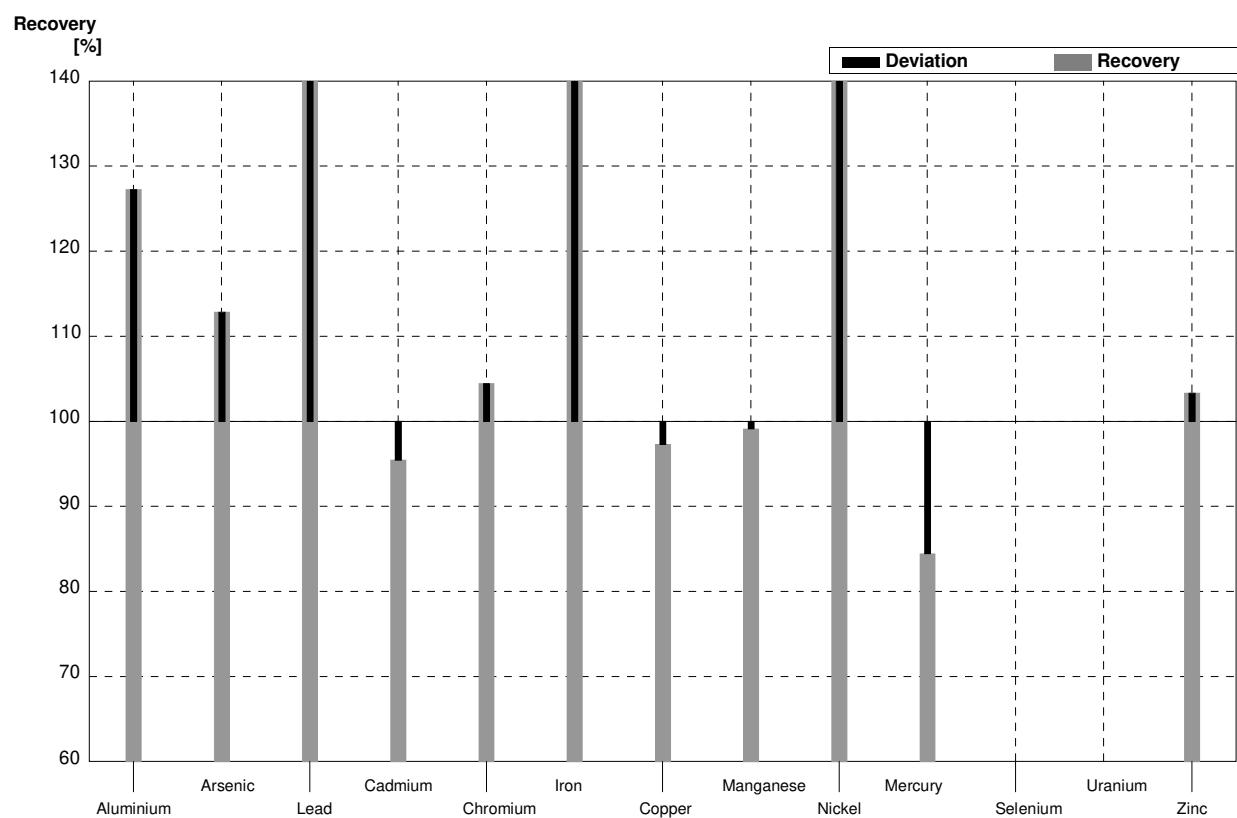
**Sample M151B**  
**Laboratory Z**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	23,5	0,3	24,1	4,34	µg/l	103%
Arsenic	0,96	0,02	1,10	0,220	µg/l	115%
Lead	5,95	0,04	5,37	0,859	µg/l	90%
Cadmium	1,89	0,01	1,94	0,272	µg/l	103%
Chromium	0,93	0,01	0,942	0,141	µg/l	101%
Iron	88,4	0,4	88,5	14,2	µg/l	100%
Copper	19,2	0,1	18,4	3,31	µg/l	96%
Manganese	11,4	0,1	11,5	1,50	µg/l	101%
Nickel	4,55	0,03	4,45	0,801	µg/l	98%
Mercury	2,15	0,02	1,94	0,466	µg/l	90%
Selenium	4,64	0,06	5,47	1,31	µg/l	118%
Uranium	0,66	0,01	0,608	0,0730	µg/l	92%
Zinc	19,5	0,8	20,3	4,06	µg/l	104%



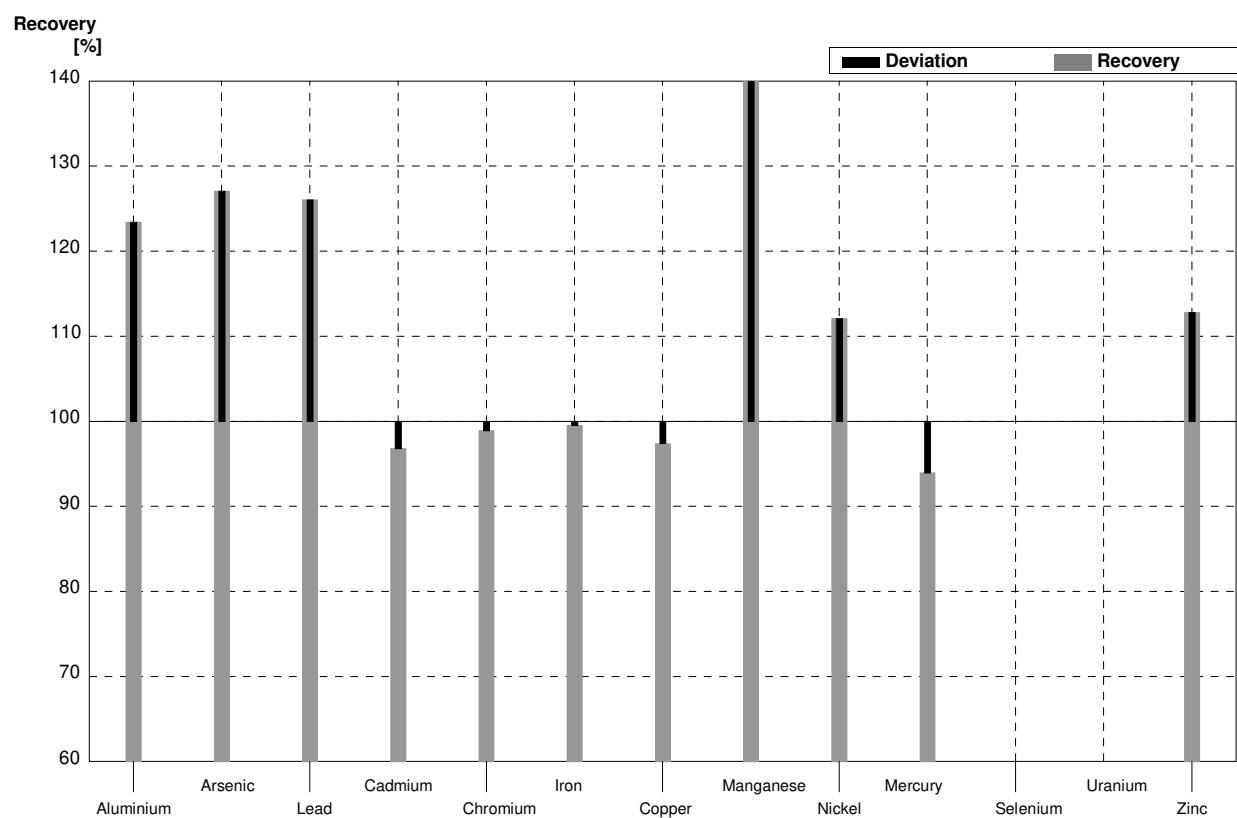
**Sample M151A**  
**Laboratory AA**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	12,1	0,3	15,4	3	µg/l	127%
Arsenic	5,14	0,03	5,8	1	µg/l	113%
Lead	1,49	0,02	3,48	1	µg/l	234%
Cadmium	0,220	0,005	0,210	0,1	µg/l	95%
Chromium	3,80	0,03	3,97	1	µg/l	104%
Iron	12,3	0,2	22,0	30	µg/l	179%
Copper	4,46	0,03	4,34	1	µg/l	97%
Manganese	57,5	0,3	57	20	µg/l	99%
Nickel	0,88	0,02	1,24	1	µg/l	141%
Mercury	0,27	0,01	0,228	0,1	µg/l	84%
Selenium	0,72	0,06			µg/l	
Uranium	3,11	0,02			µg/l	
Zinc	27,1	0,8	28,0	10	µg/l	103%



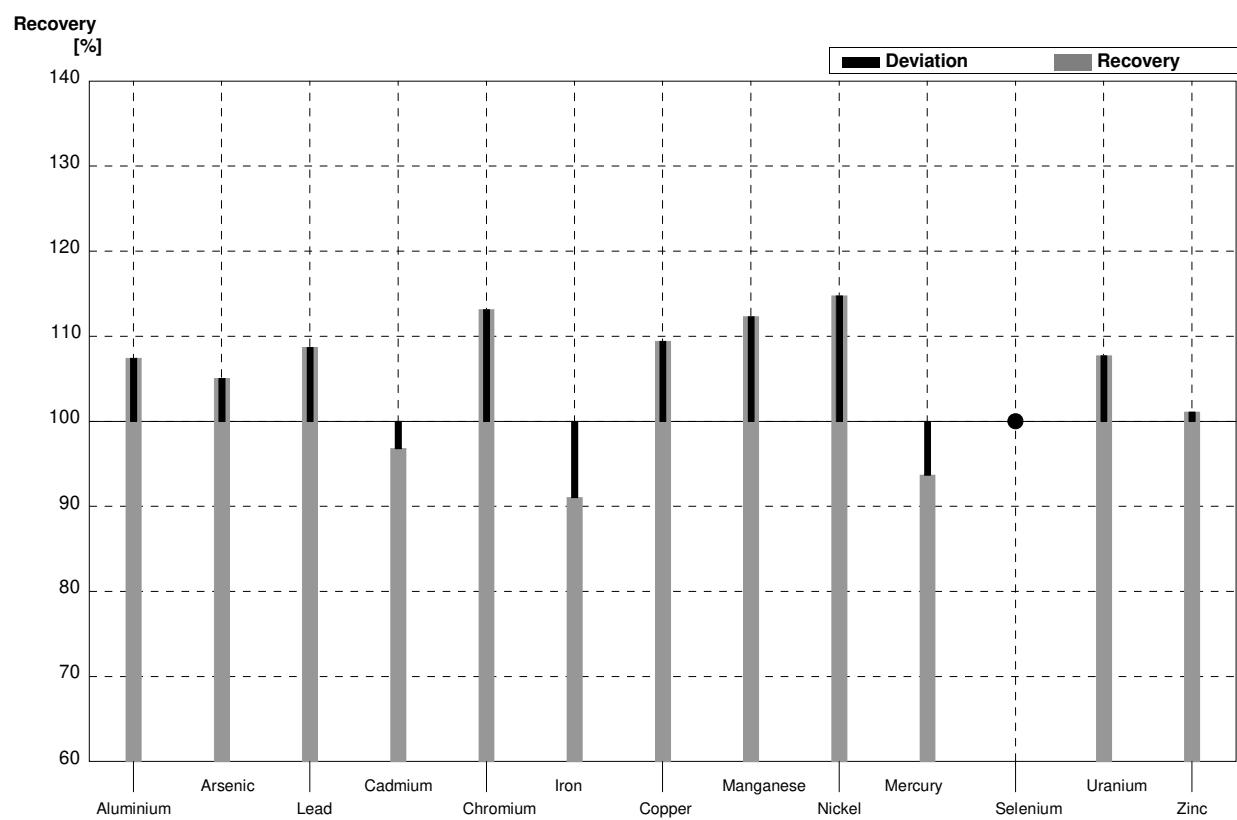
**Sample M151B**  
**Laboratory AA**

Parameter	Target value	$\pm$ U ( $k=2$ )	Result	$\pm$	Unit	Recovery
Aluminium	23,5	0,3	29,0	5	$\mu\text{g/l}$	123%
Arsenic	0,96	0,02	1,22	1	$\mu\text{g/l}$	127%
Lead	5,95	0,04	7,5	1	$\mu\text{g/l}$	126%
Cadmium	1,89	0,01	1,83	0,2	$\mu\text{g/l}$	97%
Chromium	0,93	0,01	0,92	1	$\mu\text{g/l}$	99%
Iron	88,4	0,4	88	30	$\mu\text{g/l}$	100%
Copper	19,2	0,1	18,7	2	$\mu\text{g/l}$	97%
Manganese	11,4	0,1	19,0	15	$\mu\text{g/l}$	167%
Nickel	4,55	0,03	5,1	1	$\mu\text{g/l}$	112%
Mercury	2,15	0,02	2,02	0,2	$\mu\text{g/l}$	94%
Selenium	4,64	0,06			$\mu\text{g/l}$	
Uranium	0,66	0,01			$\mu\text{g/l}$	
Zinc	19,5	0,8	22,0	10	$\mu\text{g/l}$	113%



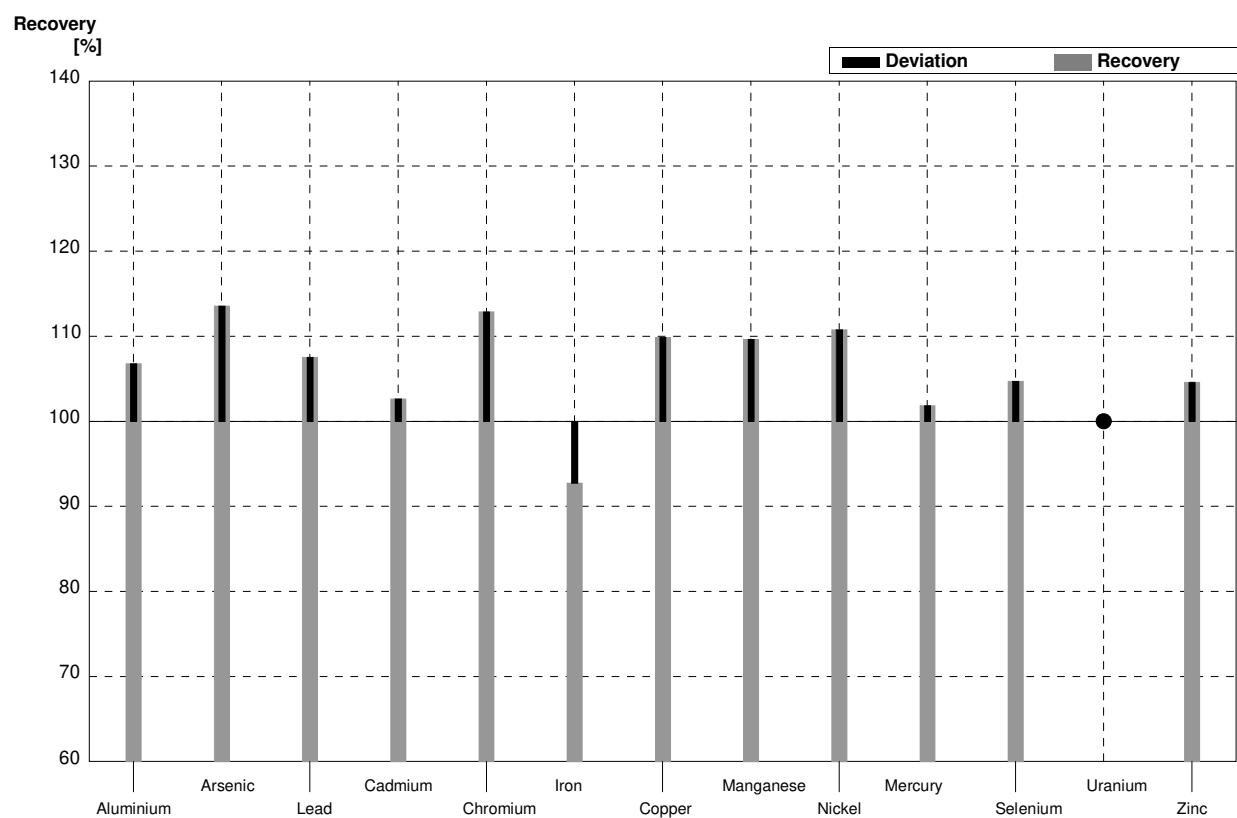
**Sample M151A**  
**Laboratory AB**

Parameter	Target value	$\pm$ U ( $k=2$ )	Result	$\pm$	Unit	Recovery
Aluminium	12,1	0,3	13,0	2,6	$\mu\text{g/l}$	107%
Arsenic	5,14	0,03	5,4	1,1	$\mu\text{g/l}$	105%
Lead	1,49	0,02	1,62	0,32	$\mu\text{g/l}$	109%
Cadmium	0,220	0,005	0,213	0,043	$\mu\text{g/l}$	97%
Chromium	3,80	0,03	4,30	0,86	$\mu\text{g/l}$	113%
Iron	12,3	0,2	11,2	2,2	$\mu\text{g/l}$	91%
Copper	4,46	0,03	4,88	0,98	$\mu\text{g/l}$	109%
Manganese	57,5	0,3	64,6	12,9	$\mu\text{g/l}$	112%
Nickel	0,88	0,02	1,01	0,20	$\mu\text{g/l}$	115%
Mercury	0,27	0,01	0,253	0,051	$\mu\text{g/l}$	94%
Selenium	0,72	0,06	<1,00		$\mu\text{g/l}$	•
Uranium	3,11	0,02	3,35	0,67	$\mu\text{g/l}$	108%
Zinc	27,1	0,8	27,4	5,5	$\mu\text{g/l}$	101%



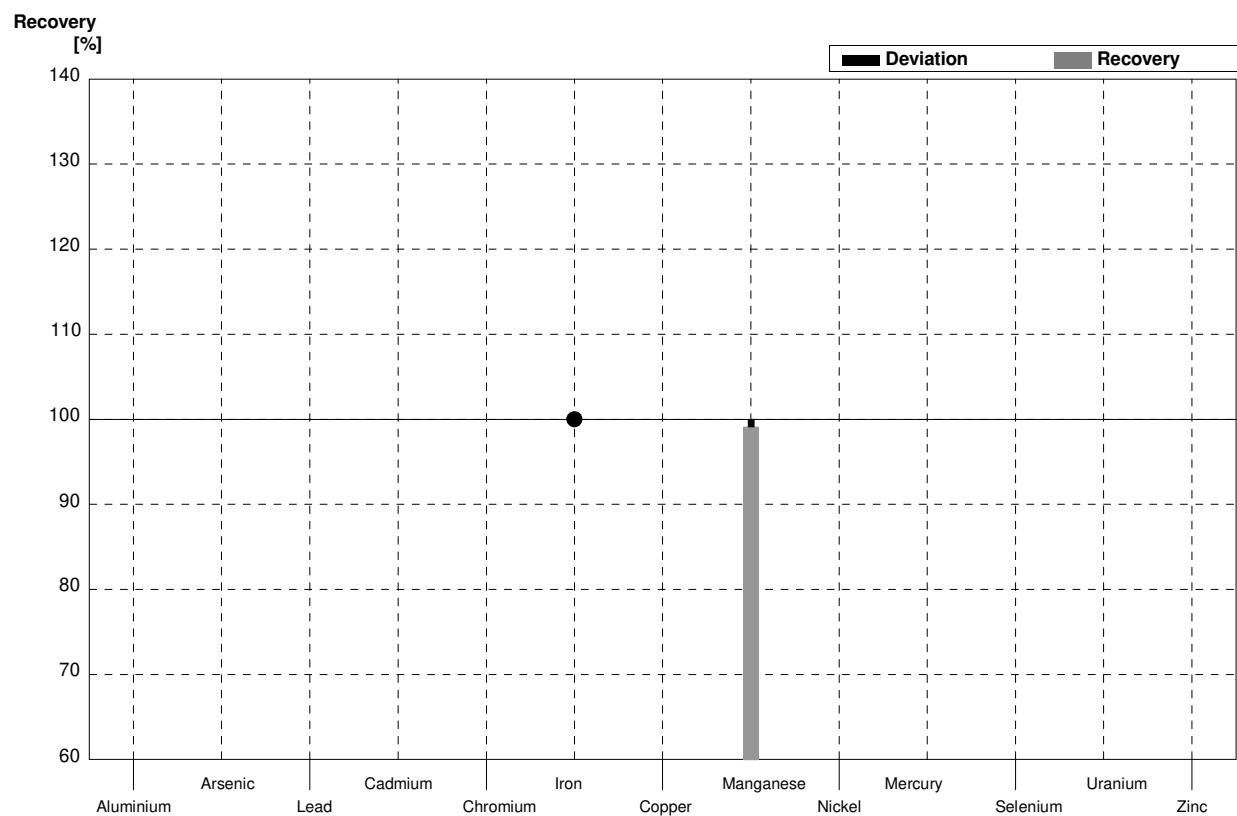
**Sample M151B**  
**Laboratory AB**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	23,5	0,3	25,1	5,0	µg/l	107%
Arsenic	0,96	0,02	1,09	0,22	µg/l	114%
Lead	5,95	0,04	6,4	1,3	µg/l	108%
Cadmium	1,89	0,01	1,94	0,39	µg/l	103%
Chromium	0,93	0,01	1,05	0,21	µg/l	113%
Iron	88,4	0,4	82,0	16,4	µg/l	93%
Copper	19,2	0,1	21,1	4,2	µg/l	110%
Manganese	11,4	0,1	12,5	2,5	µg/l	110%
Nickel	4,55	0,03	5,04	1,01	µg/l	111%
Mercury	2,15	0,02	2,19	0,44	µg/l	102%
Selenium	4,64	0,06	4,86	0,97	µg/l	105%
Uranium	0,66	0,01	<1,00		µg/l	•
Zinc	19,5	0,8	20,4	4,1	µg/l	105%



**Sample M151A**  
**Laboratory AC**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	12,1	0,3			µg/l	
Arsenic	5,14	0,03			µg/l	
Lead	1,49	0,02			µg/l	
Cadmium	0,220	0,005			µg/l	
Chromium	3,80	0,03			µg/l	
Iron	12,3	0,2	<20,0		µg/l	•
Copper	4,46	0,03			µg/l	
Manganese	57,5	0,3	57	6,0	µg/l	99%
Nickel	0,88	0,02			µg/l	
Mercury	0,27	0,01			µg/l	
Selenium	0,72	0,06			µg/l	
Uranium	3,11	0,02			µg/l	
Zinc	27,1	0,8			µg/l	



**Sample M151B**  
**Laboratory AC**

Parameter	Target value	± U (k=2)	Result	±	Unit	Recovery
Aluminium	23,5	0,3			µg/l	
Arsenic	0,96	0,02			µg/l	
Lead	5,95	0,04			µg/l	
Cadmium	1,89	0,01			µg/l	
Chromium	0,93	0,01			µg/l	
Iron	88,4	0,4	86	9,0	µg/l	97%
Copper	19,2	0,1			µg/l	
Manganese	11,4	0,1	17,0	2,0	µg/l	149%
Nickel	4,55	0,03			µg/l	
Mercury	2,15	0,02			µg/l	
Selenium	4,64	0,06			µg/l	
Uranium	0,66	0,01			µg/l	
Zinc	19,5	0,8			µg/l	

