

# **IFA-Proficiency Testing Scheme zur Wasseranalytik / for Water Analysis**

**Endbericht / Final Report**  
Eignungsprüfungsrunde / Proficiency testing round  
**N172**

**Nährstoffe**  
**Nutrients / Major ions**

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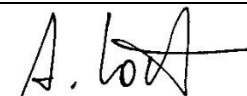
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## Allgemeine Informationen

Diese Zusammenfassung beschreibt die 172. Runde der regelmäßigen Eignungsprüfungen zur Parametergruppe „Nährstoffe“. Die Prüfgegenstände N172A und N172B wurden am 28. Juni 2024 an 42 Teilnehmer versendet. Jedes Labor erhielt zwei Prüfgegenstände zu 1000 ml, abgefüllt in je zwei 500-ml-Flaschen aus PET.

Einsendeschluss für die Ergebnisse war am 28. Juni 2024. Von 41 Teilnehmern wurden Ergebnisse übermittelt. Zur Anonymisierung wurde jedem Labor per Zufallsgenerator ein Buchstabencode zugeteilt.

### Zusammensetzung der Prüfgegenstände

Die Prüfgegenstände N172A und N172B wurden durch Einwaage von reinen Salzen hergestellt, wobei die meisten der in der österreichischen Gewässerzustandsüberwachungsverordnung (GZÜV i.d.g.F.) für den Parameterblock 1 genannten Parameter berücksichtigt wurden. Zur Herstellung wurden  $\text{CaCO}_3$ ,  $\text{CaCl}_2$ ,  $\text{Ca}(\text{NO}_3)_2$ ,  $\text{MgSO}_4$ ,  $\text{MgCl}_2$ ,  $\text{Mg}(\text{NO}_3)_2$ , Natriumsalicylat (für  $\text{KMnO}_4$ -Index),  $\text{NaCl}$ ,  $\text{Na}_2\text{SO}_4$ ,  $\text{NaHCO}_3$ ,  $\text{KHCO}_3$ ,  $\text{K}_2\text{SO}_4$ ,  $\text{C}_6\text{H}_{15}\text{PO}_3$  (für Gesamt-P) und Kaliumhydrogenphthalat (für DOC) als Reinsubstanzen sowie zertifizierte Standardlösungen von  $\text{NaNO}_2$ ,  $\text{Na}_2\text{SiO}_3$ ,  $\text{NH}_4\text{Cl}$ ,  $\text{KH}_2\text{PO}_4$  und  $\text{H}_3\text{BO}_3$  verwendet. Beide Prüfgegenstände enthielten freies  $\text{CO}_2$ , welches zum Lösen von  $\text{CaCO}_3$  und zum Neutralisieren von  $\text{Na}_2\text{SiO}_3$  verwendet wurde. Stabilisierung der Prüfgegenstände erfolgte durch Sterilfiltration und über die Temperatur.

### Homogenitäts-, Richtigkeits- und Stabilitätsuntersuchung

Die Prüfgegenstände wurden vor dem Versand am IFA-Tulln auf Homogenität und Richtigkeit untersucht. Die Ergebnisse der Kontrollanalytik finden sich auf den Rohdatenblättern sowie auf den Auswertungen zu jedem Parameter.

Zur Überprüfung der Stabilität wurden ca. vier Wochen nach dem Versand die Parameter Nitrit, DOC und Kaliumpermanganat-Index nochmals bestimmt. Die Ergebnisse befinden sich ebenfalls auf den Rohdatenblättern sowie auf den Auswertungen zu jedem Parameter. Die Stabilitätsuntersuchungen zu den restlichen Parametern werden zusammen mit der Kontrollanalytik zur folgenden Runde (N173) durchgeführt.

Unserer Erfahrung nach sind die Prüfgegenstände hinsichtlich der Parameter Leitfähigkeit, Gesamthärte, Säurekapazität,  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{NO}_3^-$ ,  $\text{Cl}^-$ ,  $\text{SO}_4^{2-}$ , Bor,  $\text{HCO}_3^-$  und Si bis 18 Monate stabil. Für die Parameter  $\text{NH}_4^+$ ,  $\text{NO}_2^-$ ,  $\text{o-PO}_4^{3-}$  Gesamt-P, DOC und Kaliumpermanganat-Index sind die Prüfgegenstände mehrere Wochen stabil, wobei die ersten Veränderungen üblicherweise bei Ammonium beobachtet werden können.

### Zugewiesene Werte

Die zugewiesenen Werte ergaben sich aus den Einwaagewerten der verwendeten Chemikalien. Die Unsicherheiten der zugewiesenen Werte (erweiterte Unsicherheiten,  $k = 2$ ,  $\alpha = 0,05$ ) wurden nach den Vorgaben des EURACHEM / CITAC Guides „Quantifying Uncertainty in Analytical Measurement, 3<sup>rd</sup> Edition (2012)“ ermittelt.

Der zugewiesene Wert für die Leitfähigkeit wurde mit einer Näherung nach Debye-Hückel berechnet. Die Auswertung der bis jetzt erhobenen Daten zeigte, dass bei mehr als 20 Teilnehmern und den beobachteten Standardabweichungen der Messwerte zwischen den Labors von ca. 1 % die Mittelwerte der ausreißerbereinigten Daten eine geringere Unsicherheit haben, als die mit der Näherung berechneten Werte. Deshalb wurde die Leitfähigkeit über die Labormittelwerte ausgewertet. Die mit der Näherung berechneten Werte waren 415  $\mu\text{S}/\text{cm}$  für N172A und 320  $\mu\text{S}/\text{cm}$  für N172B.

Für den pH-Wert lassen sich keine zugewiesenen Werte angeben. Daher wurden die Messwerte nicht weiter ausgewertet. Die Werte können anhand der Rohdatenblätter verglichen werden. Dabei ist jedoch zu berücksichtigen, dass die Prüfgegenstände nur schwach gepuffert waren und freies  $\text{CO}_2$  enthielten. Man beobachtet daher in der Regel ein leichtes Ansteigen des pH-Wertes mit der Zeit.

Als Standardsubstanz für den Parameter Gesamt-P (als  $\text{PO}_4^{3-}$ ) nach Aufschluss nach DIN EN ISO 6878 wurde Ethylphosphonsäurediethylester ( $\text{C}_6\text{H}_{15}\text{PO}_3$ ) verwendet. Diese Substanz kann nur nach einem oxidierenden Aufschluss als Phosphat erfasst werden. Die zugewiesenen Werte wurden aus den Einwaagen von  $\text{KH}_2\text{PO}_4$  und  $\text{C}_6\text{H}_{15}\text{PO}_3$  berechnet. Die Ergebnisse wurden in  $\text{mg/l PO}_4^{3-}$  angegeben.

Als Standardsubstanz für den  $\text{KMnO}_4$ -Index wurde Natriumsalicylat in den Konzentrationen 3,52  $\text{mg/l}$  (N172A) und 2,06  $\text{mg/l}$  (N172B) verwendet. Geht man von einer vollständigen Oxidation zu  $\text{CO}_2$ , Wasser und Nitrat aus, ergeben sich unter Berücksichtigung von Nitrit theoretische Werte von 4,95  $\text{mg/l O}_2$  (N172A) und 2,90  $\text{mg/l O}_2$  (N172B). Die endgültige Auswertung erfolgte über die Labormittelwerte. Diese waren 4,42  $\text{mg/l O}_2$  für N172A und 2,83  $\text{mg/l O}_2$  für N172B.

Dem Prüfgegenstand N172A wurde kein Ammonium und N172B wurden keine Phosphorverbindungen zugesetzt. Die zugewiesenen Werte von  $<0,01 \text{ mg/l NH}_4^+$ ,  $<0,009 \text{ mg/l o-PO}_4^{3-}$  und  $<0,009 \text{ mg/l Ges-P (als PO}_4^{3-})$  wurden bei diesen Überprüfungen der Blindwerte entsprechend den Mindestbestimmungsgrenzen der GZÜV festgelegt.

## Auswertung

Mit den bei uns eingegangenen Messwerten wurde ein Ausreißertest nach Hampel durchgeführt. Die durch den Test als auffällig eingestuft Werte wurden in der parameterorientierten Auswertung mit einem Stern gekennzeichnet. Die aus den ausreißerbereinigten Daten berechneten, auf die zugewiesenen Werte bezogenen mittleren Wiederfindungen lagen zwischen 96,5 % (Orthophosphat in N172A) und 105,4 % (DOC in N172A). Die aus den ausreißerbereinigten Daten berechneten Standardabweichungen bewegten sich im Bereich von 0,7 % (Leitfähigkeit in N172B) bis 9,3 % ( $\text{KMnO}_4$ -Index in N172B).

Zu den Mittelwerten und mittleren Wiederfindungen wurden auch die Vertrauensbereiche ( $P=99\%$ ) angegeben. Diese Vertrauensbereiche der Labormittelwerte enthalten in allen Fällen mit Ausnahme von DOC in N172A ( $105,4 \% \pm 3,7 \%$ ) die entsprechenden zugewiesenen Werte mit ihren Unsicherheiten.

## z-Score-Auswertung

Ein z-Score ist die auf eine Standardabweichung bezogene Abweichung eines Messwertes vom zugewiesenen Wert. Er wird mittels folgender Formel berechnet:

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

$z$	z-Score
$x_i$	Messwert eines Labors
$X$	Zugewiesener Wert oder ausreißerbereinigter Mittelwert („konventioneller zugewiesener Wert“)
$\sigma_{pt}$	Standardabweichung für die Eignungsbewertung

Es handelt sich also um das Verhältnis der Abweichung des Messwerts eines Labors vom zugewiesenen Wert zu einer vorgegebenen Standardabweichung.

Die Standardabweichungen für die Eignungsbewertung wurden aus den Ergebnissen der im Zeitraum 2013 - 2023 vom IFA-Tulln veranstalteten Eignungsprüfungen berechnet.

Diese Vorgehensweise wurde deshalb gewählt, weil unserer Erfahrung nach, die Standardabweichungen der ausreißerbereinigten Messwerte zwischen den einzelnen Eignungsprüfungen variieren. Die Ermittlung der Standardabweichung über die Eignungsprüfungsrunden aus mehreren Jahren bieten jedoch eine gut abgesicherte Basis auf einer breiten Datengrundlage und ist somit meistens besser geeignet, als das bei der direkt aus der Eignungsprüfung berechneten Standardabweichung der Fall wäre. (EN ISO/IEC 17043:2010, B.3.1.3)

Der Vorteil der sich für alle Teilnehmer daraus ergibt ist, dass dadurch bei unseren Eignungsprüfungen schon vor der Teilnahme vorhersehbar ist, welche z-Scores man mit den eigenen, aus Routineverfahren bekannten, Messabweichungen erwarten kann.

#### Rechenbeispiel:

Ein Labor bestimmte für den Parameter DOC einen Wert von 7,00 mg/l (Wiederfindung von 116%). Der zugewiesene Wert war 6,02 mg/l (100%).

In der nachfolgenden Tabelle (und in der Tabelle des Jahresprogrammes [www.ifatest.at](http://www.ifatest.at)) ist die relative Standardabweichung für die Eignungsbewertung beim Parameter DOC mit 5,4 % angegeben. Bezogen auf den zugewiesenen Wert von 6,02 mg/l DOC entsprechen 5,4 % 0,33 mg/l.

$$z = \frac{x_i - X}{\sigma_{pt}} = \frac{7,00 \text{ mg/l} - 6,02 \text{ mg/l}}{0,33 \text{ mg/l}} \approx 3,0 \quad \text{oder} \quad \frac{116 \% - 100 \%}{5,4 \%} \approx 3,0$$

$z$	z-Score
$x_i$	7,00 mg/l entsprechen 116 % (Messwert des Labors)
$X$	6,02 mg/l entsprechen 100 % (zugewiesener Wert)
$\sigma_{pt}$	0,33 mg/l entsprechen 5,4 % (Standardabweichung für die Eignungsbewertung, siehe Tabelle)

Abweichungen in den Nachkommastellen können sich bei Nachberechnung dadurch ergeben, dass im Bericht bei den Wiederfindungen zwecks Übersichtlichkeit gerundete Werte angegeben sind.

Die folgende Tabelle enthält die Standardabweichung für die Eignungsbewertung bezogen auf den zugewiesenen Wert mit ihren Anwendungsbereichen

Parameter	Standardabweichung für die Eignungsbewertung bezogen auf den zugewiesenen Wert	untere Grenze
Ammonium	11 %	0,01 mg/l
Bor	7,1 %	0,012 mg/l
Calcium	3,1 %	9 mg/l
Chlorid	2,7 %	2 mg/l
DOC	5,4 %	1 mg/l
Gesamthärte	2,8 %	0,1 mmol/l
Gesamt-P (als PO <sub>4</sub> <sup>3-</sup> )	9,1 %	0,015 mg/l
Hydrogencarbonat	2,3 %	20 mg/l
Kalium	4,0 %	0,5 mg/l
KMnO <sub>4</sub> -Index	8,2 %	1 mg/l
Leitfähigkeit	1,2 %	50 µS/cm
Magnesium	3,5 %	1 mg/l
Natrium	3,1 %	1 mg/l
Nitrat	3,0 %	2 mg/l
Nitrit	5,5 %	0,01 mg/l
Orthophosphat	9,2 %	0,015 mg/l
Säurekapazität	1,8 %	0,2 mmol/l
Sulfat	3,0 %	3 mg/l

Zur Interpretation von z-Scores wird meist folgende Klassifikation vorgeschlagen:

z-Score	Klassifikation
$\leq 2$	zufriedenstellend
$2 <  z  < 3$	fraglich
$\geq 3$	nicht zufriedenstellend

Die z-Scores sind in der parameterorientierten Auswertung in den Tabellen neben den Wiederfindungen angegeben. Jedes Labor erhält zusätzlich zu dieser Auswertung ein Blatt, auf dem die erzielten z-Scores zusammengefasst und grafisch dargestellt sind. Die Standardabweichungen für die Eignungsbewertung sind dort in Konzentrationseinheiten angegeben.

Eine Übersichtstabelle aller z-Scores ist im Anschluss an die Rohdatentabellen im parameterorientierten Teil zu finden.

### Darstellung der Ergebnisse in der Auswertung

Eine Legende zur Darstellung der Ergebnisse finden Sie auf der nächsten Seite. In den Tabellen der Auswertung sind jeweils der zugewiesene Wert, Messwert, Unsicherheit und die Wiederfindung dargestellt. In der parameterorientierten Auswertung befindet sich der direkt unter der Parameterbezeichnung. Die Unsicherheit des zugewiesenen Wertes ist immer als erweiterte Unsicherheit ( $k = 2$ ;  $\alpha = 0,05$ ) angegeben. Sie wurde nach den Vorgaben des EURACHEM / CITAC Guides „Quantifying Uncertainty in Analytical Measurement, 3<sup>rd</sup> Edition (2012)“ ermittelt. Die grafische Darstellung der Ergebnisse enthält die Unsicherheit des zugewiesenen Wertes als grau unterlegtes Band.

In der parameterorientierten Auswertung wurden die Messwerte, die nach dem Test nach Hampel als Ausreißer gewertet wurden, mit einem Stern (\*) gekennzeichnet. Die Grafik der Messwerte wurde für Nitrit, Ammonium, Orthophosphat, Bor, DOC, ges-P (als  $\text{PO}_4^{3-}$ ) und  $\text{KMnO}_4$ -Index auf  $100 \% \pm 45 \%$  des zugewiesenen Wertes und für alle übrigen Parameter auf  $100 \% \pm 15 \%$  des zugewiesenen Wertes skaliert. Die kleine Tabelle unten links enthält statistische Parameter, darunter den 99 % - Vertrauensbereich der Labormittelwerte vor und nach Ausreißereliminierung.

Ergebnisse, für die keine Wiederfindung bzw. Abweichung vom zugewiesenen Wert berechnet werden kann (d.h. „kleiner als“ Ergebnisse oder Zahlenwerte bei nicht zugegebenen Substanzen) werden in den Tabellen und Grafiken entweder als **FN** (falsch negativ), **FP** (falsch positiv) oder als • - Symbol dargestellt.

- Als falsch negativ gelten „< Ergebnisse“ mit einem Betrag des < - Wertes unterhalb des zugewiesenen Wertes bzw. Messwert „0“ bei zugegebenen Substanzen.
- Falsch positive Ergebnisse sind nur für Substanzen möglich, die über „< zugewiesener Wert“ ausgewertet wurden. Mit FP werden alle Messwerte gekennzeichnet, die mit Ihren Unsicherheiten das Kriterium „< zugewiesener Wert“ nicht einschließen (tangieren).
- Mit einem • - Symbol werden alle weiteren Ergebnisse illustriert, für die keine Wiederfindung berechnet werden kann

### Prüfmethoden

Den Teilnehmenden stand, mit Ausnahme der Parameter Gesamt-P und  $\text{KMnO}_4$ -Index, die Wahl der Analyseverfahren frei. Die Prüfmethoden sollten mit den jeweilig im Teilnehmerlabor verwendeten Routineverfahren übereinstimmen. Gesamt-P (gelöst) sollte gemäß DIN EN ISO 6878:2004 nach oxidierendem Aufschluss und  $\text{KMnO}_4$ -Index nach EN ISO 8467 (H5) analysiert werden, wobei gleichwertige oder bessere Verfahren, die vergleichbare Messwerte liefern, zulässig waren. Eine Übersicht der angewendeten Methoden befindet sich am Ende des Berichts. „< Werte“ bzw. „> Werte“ sowie stark abweichende Messwerte, welche zu einer unübersichtlichen Skalierung führen würden, sind in den Graphiken nicht berücksichtigt.

Tulln, 9. Juli 2024

**Probe M106A**

**Parameter Kupfer**

\*Sollwert ± U (k=2) 4,79 µg/l ± 0,13 µg/l  
 IFA-Kontrolle ± U (k=2) 4,79 µg/l ± 0,38 µg/l  
 IFA-Stabilität ± U (k=2) 4,69 µg/l ± 0,38 µg/l

\*Sollwert = "zugewiesener Wert"  
**Sollwert ± Unsicherheit aus Einwaage**  
**Kontrollmessung IFA vor Versand**  
**Messung IFA 3 Wochen nach Versand**

Labor-Kennung	Messwert	±	Einheit	Wiederfindung	z-Score
A	5,16	0,4128	µg/l	108%	0,90
B	4,22	0,42	µg/l	88%	-1,38
C	4,45	0,13	µg/l	93%	-0,83
D			µg/l		
E			µg/l		
F	4,10	0,08	µg/l	86%	-1,68
G			µg/l		
H			µg/l		
I	4,75	0,74	µg/l	99%	-0,10
J	<5		µg/l	*	
K	4,76		µg/l	99%	-0,07
L	<10		µg/l	*	
M	4,8	0,5	µg/l	100%	0,02
N	3,7	0,4	µg/l	77%	-2,65
O	4,47	0,447	µg/l	93%	-0,78
P	6,0		µg/l	125%	2,94
Q	4,17	0,2	µg/l	87%	-1,51
R	4,6	0,8	µg/l	96%	-0,46
S	4,44	0,67	µg/l	93%	-0,85
T			µg/l		
U	4,675	0,935	µg/l	95%	-0,28
V	5,0	0,50	µg/l	104%	0,51
W	3,54	0,3	µg/l	74%	-3,03
X	7,108	0,749	µg/l	148%	5,63
Y	<10		µg/l	*	
Z			µg/l		
AA	<3,0		µg/l	FN	
AB	3,775	0,107	µg/l	79%	-2,46
AC	<10,0		µg/l	*	

Wiederfindung des zugewiesenen Wertes in Prozent

z-Score des Labors

Ein Stern markiert einen Ausreißer nach dem Hampel-Test

Ergebnisunsicherheit laut Teilnehmer

	alle Ergebnisse	ohne Ausreißer	Einheit
MW ± VB(99%)	4,65 ± 0,57	4,51 ± 0,42	µg/l
WF ± VB(99%)	97,1 ± 12,0	94,1 ± 8,8	%
Standardabw.	0,84	0,59	µg/l
rel. Standardabw.	18,1	13,2	%
n für Berechnung	18	17	

Standardabweichung zwischen den Labors

Mittelwert der Messwerte und Wiederfindung des zugewiesenen Wertes mit zugehörigen Vertrauensbereichen (p=99%)

Anzahl der Messungen zur Berechnung der statistischen Kenngrößen

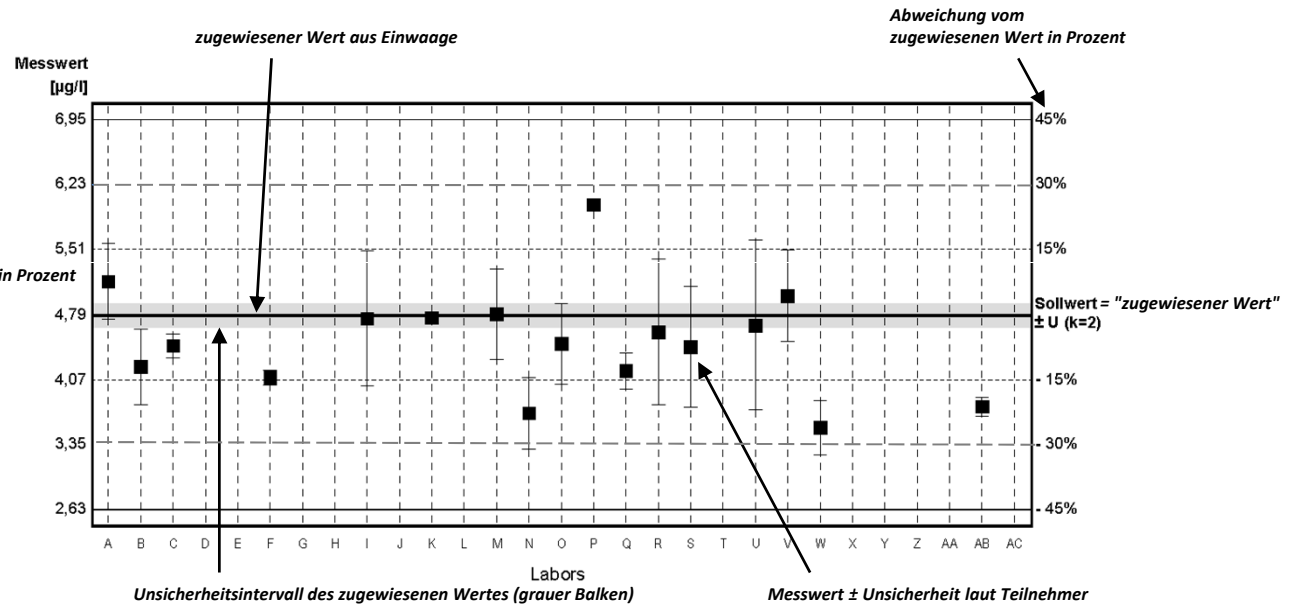
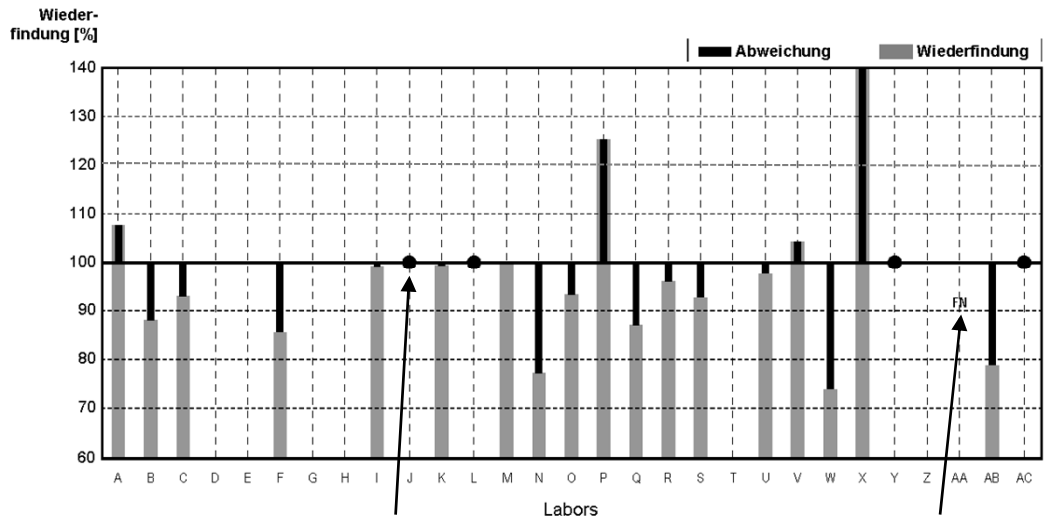


Diagramm 1: Messwerte mit zugehörigen Unsicherheitsintervallen



Ergebnis abgegeben, Berechnung der Wiederfindung oder Zuordnung FN, FP nicht möglich

Falsch negativ „< Ergebnis“ kleiner als der theoretische Sollwert

Diagramm 2: Wiederfindung und Abweichung vom zugewiesenen Wert

LEGENDE

## Information

This report summarises the results of round N172 (major ions) within the IFA-Proficiency Testing Scheme for Water Analysis. The proficiency testing items N172A and N172B were distributed to 42 participants on Monday, 03 June 2024. Each participant received two proficiency testing items of 1000 mL, each filled into two 500 mL PET bottles.

Closing date for reporting results to the IFA-Tulln was Friday, 28. June 2024. 41 participants submitted results. To make the participants anonymous, each laboratory obtained a letter code by random.

### Proficiency testing items

The proficiency testing items consisted of artificial ground water. For sample preparation, ultrapure water was spiked with solutions of salts and standards in order to simulate the ionic composition of natural Austrian ground water. The following substances were added to the proficiency testing items:  $\text{CaCO}_3$ ,  $\text{CaCl}_2$ ,  $\text{Ca}(\text{NO}_3)_2$ ,  $\text{MgSO}_4$ ,  $\text{MgCl}_2$ ,  $\text{Mg}(\text{NO}_3)_2$ ,  $\text{NaCl}$ ,  $\text{Na}_2\text{SO}_4$ ,  $\text{NaHCO}_3$ ,  $\text{KHCO}_3$ ,  $\text{K}_2\text{SO}_4$ , diethyl ethylphosphonate ( $\text{C}_6\text{H}_{15}\text{PO}_3$ , for total-P), potassium hydrogen phthalate (for DOC), sodium salicylate (for  $\text{KMnO}_4$ -Index) and certified standard solutions of  $\text{NaNO}_2$ ,  $\text{Na}_2\text{SiO}_3$ ,  $\text{NH}_4\text{Cl}$ ,  $\text{KH}_2\text{PO}_4$  and  $\text{H}_3\text{BO}_3$ . Both proficiency testing items, N172A and N172B, contained free  $\text{CO}_2$ , which was used for dissolution of  $\text{CaCO}_3$  and neutralisation of  $\text{Na}_2\text{SiO}_3$ . No other substances (e.g. preservatives) were added. The proficiency testing items were stabilised by sterile filtration and low temperature.

### Homogeneity, accuracy and stability tests at the IFA-Tulln

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

To verify stability, the parameters DOC,  $\text{NO}_2^-$  and  $\text{KMnO}_4$ -Index of proficiency testing items N172A and N172B were determined in several proficiency testing items four weeks after shipment. The results are listed in the result tables ("Stability test") and the parameter oriented part of the report ("IFA result"). Stability tests for all other parameters will be carried out together with the accuracy tests of the following round (N173).

According to our experience, the proficiency testing items remain stable up to 18 months for the parameters conductivity, total hardness, alkalinity,  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{NO}_3^-$ ,  $\text{Cl}^-$ ,  $\text{SO}_4^{2-}$ , boron,  $\text{HCO}_3^-$  and Si when stored at 4°C in the dark. For the parameters  $\text{NH}_4^+$ ,  $\text{NO}_2^-$ ,  $\text{o-PO}_4^{3-}$ , total-P, DOC and  $\text{KMnO}_4$ -Index the proficiency testing items remain stable several weeks, whereas the first changes normally are observed for  $\text{NH}_4^+$ .

## Results

Data evaluation was based on assigned concentrations that were calculated from the weights of the substances and standards used to produce the proficiency testing items. 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)".

The assigned value of the electrical conductivity was set to the laboratory mean (consensus value). When calculated from more than 20 results with a standard deviation between the laboratories of about 1 %, the consensus value has a confidence interval that is smaller than the uncertainty of our estimate calculated from the assigned concentrations by Debye-Hückel's theory: 2.4 % ( $p = 95$  %). However, the calculated electrical conductivity was 415  $\mu\text{S}/\text{cm}$  in sample N172A and 320  $\mu\text{S}/\text{cm}$  in sample N172B.

For the pH no assigned values can be defined. The results can be compared on the tables. In this kind of proficiency testing items containing  $\text{CO}_2$ , the pH tends to increase slowly over time.

Total phosphorus after digestion had to be determined according to DIN EN ISO 6878. Diethyl ethylphosphonate (C<sub>6</sub>H<sub>15</sub>PO<sub>3</sub>), which can be determined as phosphate only after oxidative digestion and potassium dihydrogen phosphate (KH<sub>2</sub>PO<sub>4</sub>) were used for preparation. The assigned values of total-P were calculated from the weights of the two substances. The results were given in mg/L PO<sub>4</sub><sup>3-</sup>.

The concentrations of sodium salicylate, which was used as standard substance for the KMnO<sub>4</sub>-Index, were 3.52 mg/L in sample N172A and 2.06 mg/L in sample N172B. Assuming complete oxidation to carbon dioxide, nitrate and water (considering nitrite), the theoretical values were 4.95 mg/L O<sub>2</sub> (N172A) and 2.90 mg/L O<sub>2</sub> (N172B). However, the laboratory mean values were taken as reference values in this report: 4.42 mg/L O<sub>2</sub> for N172A and 2.83 mg/L O<sub>2</sub> for N172B.

Ammonium was not added to sample N172A. No phosphorus substances were added to sample N172B in order to check the analytical blank values. The concentrations were set to <0.01 mg/L NH<sub>4</sub><sup>+</sup> in N172A and <0.009 mg/L o-PO<sub>4</sub><sup>3-</sup> and <0.009 mg/L total-P (as PO<sub>4</sub><sup>3-</sup>) in N172B, which meets the minimum quantifiable values defined by the Austrian ground and river water monitoring program and the quantification limits of the analytical methods applied in the IFA.

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

The recoveries of the concentrations, calculated from outlier-corrected data mean values ranged between 96.5 % (orthophosphate in sample N172A) and 105.4 % (DOC in sample N172A).

The between laboratory CVs covered the range between 0.7 % (conductivity in sample N172B) and 9.3 % (KMnO<sub>4</sub> in sample N172B).

All confidence intervals of the outlier-corrected laboratory mean values except for DOC in sample N172A (105.4 % ± 3.7 %) encompass the corresponding assigned values with their uncertainties. For all other parameters, statistically, no difference could be detected between theoretical concentrations and outlier corrected laboratory means.

## **z-scores**

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

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

$z$  z-score

$x_i$  result of laboratory

$X$  assigned 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 assigned value) and a standard deviation. The standard deviations for proficiency assessment were determined from the results of all interlaboratory comparisons that have been organised by the IFA-Tulln from 2013 to 2023. They represent average performance data of all former participating laboratories.

This approach was chosen, because standard deviations of the outlier-corrected measurements substantially vary between individual proficiency test rounds. Averaging standard deviations from proficiency testing rounds of several years can provide standard deviations for proficiency assessment on a broad data basis. It is therefore more suitable than a standard deviation taken directly from the interlaboratory comparison (EN ISO/IEC 17043:2010, B.3.1.3).

Another advantage of previously determined standard deviations is that the participants can foresee which z-scores can be expected by their routine analysis methods before participation.

Calculation example:

A laboratory found 7.00 mg/L for the parameter DOC (recovery of 116 %). The assigned value for the DOC was 6.02 mg/L (100 %). The relative standard deviation for proficiency assessment is given in the table below (as well as in the annual program [www.ifatest.eu](http://www.ifatest.eu)) by 5.4 %, which is 0.33 mg/L DOC, when based on the assigned value.

$$z = \frac{x_i - X}{\sigma_{PT}} = \frac{7.00 \text{ mg/L} - 6.02 \text{ mg/L}}{0.33 \text{ mg/L}} \approx 3.0 \quad \text{or} \quad \frac{116 \% - 100 \%}{5.4 \%} \approx 3.0$$

- $z$  z-score
- $x_i$  7.00 mg/L equivalent to 116 % (value of the laboratory)
- $X$  6.02 mg/L equivalent to 100 % (assigned value)
- $\sigma_{PT}$  0.33 mg/L equivalent to 3.0 % (standard deviation for proficiency assessment, see table below)

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

The following table lists the z-score criteria as relative standard deviation and their limits of applicability

Parameter	standard deviation for proficiency assessment based on the assigned value	Lower limit
Alkalinity $K_{S4.3}$	1.8 %	0.2 mmol/L
Ammonium	11 %	0.01 mg/L
Boron	7.1 %	0.012 mg/L
Calcium	3.1 %	9 mg/L
Chloride	2.7 %	2 mg/L
el. Conductivity	1.2 %	50 $\mu$ S/cm
DOC	5.4 %	1 mg/L
Hydrogen carbonate	2.3 %	20 mg/L
KMnO <sub>4</sub> -Index	8.2 %	1 mg/L
Magnesium	3.5 %	1 mg/L
Nitrate	3.0 %	2 mg/L
Nitrite	5.5 %	0.01 mg/L
Orthophosphate	9.2 %	0.015 mg/L
Potassium	4.0 %	0.5 mg/L
Sodium	3.1 %	1 mg/L
Sulphate	3.0 %	3 mg/L
Total hardness	2.8 %	0.1 mmol/L
Total-P (as PO <sub>4</sub> <sup>3-</sup> )	9.1 %	0.015 mg/L

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

z-Score	Classification
$\leq 2$	satisfactory
$2 <  z  < 3$	questionable
$\geq 3$	unsatisfactory

The z-scores are listed in the parameter-oriented evaluation in the tables next to the recoveries. Additionally, each laboratory receives a sheet on which the obtained z-scores are summarized and graphically presented. The standard deviations for proficiency assessment are given in concentration units there.

An overview table of all z-scores can be found after the result tables in the parameter-oriented part.

### Illustration of results

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

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

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

Results, which were identified as outliers by the Hampel test are marked with an asterisk (\*). These values were not considered for the calculation of statistical parameters (mean values, standard deviations and confidence intervals). Moreover, the parameter oriented part contains the uncertainties of the assigned 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 assigned value or the measured value was given as "0" when the substance was added.
- "FP": False positive results can only be obtained for compounds that were evaluated on the basis of a "< assigned value". A result is termed FP if it does not include (strike) the "< "assigned value" with its measurement uncertainty.
- "•": All other results for which no recoveries can be calculated are illustrated by this symbol

### Overview of measurement methods

With the exception of total P and  $\text{KMnO}_4$ -Index the participants were free to choose the analysis method. The test methods should be consistent with the methods applied in routine. Total P (dissolved) should be analysed according to EN ISO 6878:2004 and  $\text{KMnO}_4$ -Index should be analysed according to EN ISO 8467-H5 whereby equivalent or better methods that provide comparable measured values were allowed. An overview of the methods used can be found at the end of the report.

"< values" or "> values" as well as significantly different measured values, which would lead to confusing scaling, are not included in the graphics.

Tulln, 9 July 2024

**Sample M106A**  
**Parameter Copper**

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

*\*Target value = "assigned value"*  
*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	±	Unit	Recovery	z-Score
A	5.16	0.4128	µg/l	108%	0.90
B	4.22	0.42	µg/l	88%	-1.38
C	4.45	0.13	µg/l	93%	-0.83
D			µg/l		
E			µg/l		
F	4.10	0.08	µg/l	86%	-1.68
G			µg/l		
H			µg/l		
I	4.75	0.74	µg/l	99%	-0.10
J	<5		µg/l	.	.
K	4.76		µg/l	99%	-0.07
L	<10		µg/l	.	.
M	4.8	0.5	µg/l	100%	0.02
N	3.7	0.4	µg/l	77%	-2.65
O	4.47	0.447	µg/l	93%	-0.78
P	6.0		µg/l	125%	2.94
Q	4.17	0.2	µg/l	87%	-1.51
R	4.6	0.8	µg/l	96%	-0.46
S	4.44	0.67	µg/l	93%	-0.85
T			µg/l		
U	4.675	0.935	µg/l	98%	-0.28
V	5.0	0.50	µg/l	104%	0.51
W	3.54	0.3	µg/l	74%	-3.03
X	7.108 *	0.749	µg/l	148%	5.63
Y	<10		µg/l	.	.
Z			µg/l		
AA	<3.0		µg/l	FN	
AB	3.775	0.107	µg/l	79%	-2.46
AC	<10.0		µg/l	.	.

Recovery of assigned value in percent

z-Score of the laboratory

An asterik indicates a result detected as outlier by Hampel test

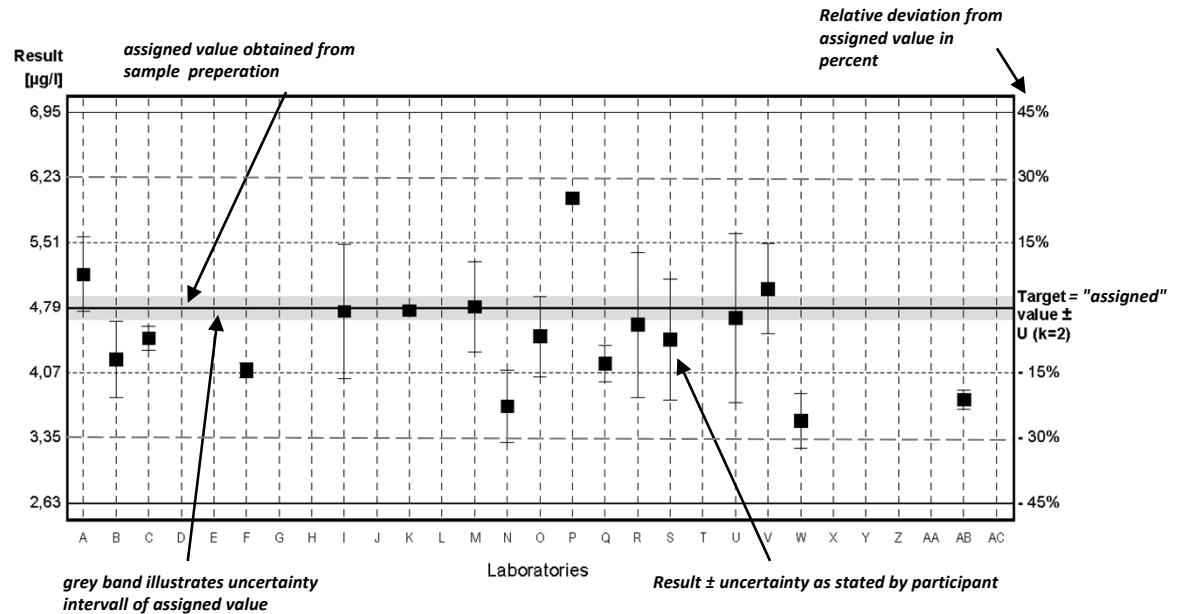
Interval expected to encompass target value as stated by participant

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

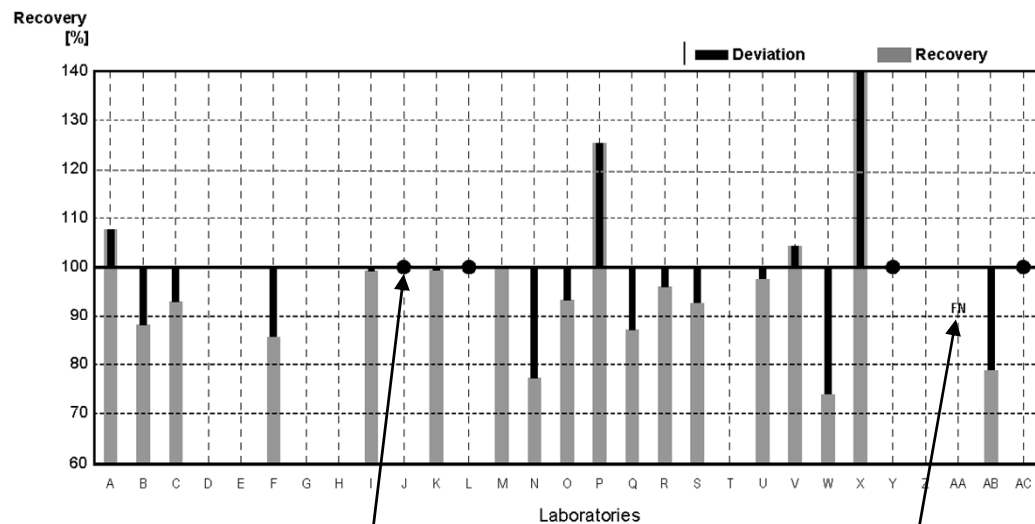
Between laboratory standard deviation

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

Number of results used for calculation of statistic parameters



**Diagram 1: Measurement results and their uncertainties**



Result neither possible to calculate recovery nor false positive or false negative

False negative: reported „<-result“ is lower than target value

**Diagram 2: Recoveries and deviations from assigned values**

**EXPLANATION**

**Rohdatenblätter und  
Parameterorientierte Auswertung  
Tables and Parameter Oriented Part**

Eignungsprüfungsrunde / Proficiency testing round  
N172

Nährstoffe  
Nutrients / Major ions

Versand / Dispatch: 03.06.2024

## Results N172A

	pH	Cond.	total-Hardn.	K <sub>S</sub> 4.3	HCO <sub>3</sub> <sup>-</sup>	Ca <sup>2+</sup>	Mg <sup>2+</sup>	Na <sup>+</sup>	K <sup>+</sup>	NO <sub>3</sub> <sup>-</sup>
Unit		µS/cm	mmol/L	mmol/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
assigned value		422	1,78	2,07	123	45,0	16,0	10,5	2,54	31,3
IFA result	6,12	422	1,73	2,03	121	41,8	16,6	10,2	2,55	30,5
Stability test										
A										31,0
B	6,06	420	1,80	2,07	126	47,1	15,2	10,3	2,83	30,3
C										>30
D	6,43	419	1,76	2,05	122	44,6	15,9	10,6	2,56	29,7
E		422	1,80	1,96	119,9	45,3	16,3	10,6	2,83	33,0
F	6,4	419	1,80	1,99	121,4	45,9	16,0	10,3	2,68	31,2
G	6,31	422	1,82	2,02	120,2	46,3	16,1	10,6	2,56	31,0
H								10,6		
I	6,39	450	1,74	2,03	124	43,3	16,1	10,8	2,62	33,2
J	6,00	418	1,71	2,04	125	43,3	15,3	10,2	2,43	30,0
K	6,1	424	1,80	2,00		45,0	16,5	10,8	2,66	30,7
L										
M										
N	6,33	417,1	1,71	2,048		39,0	17,8			31,1
O	6,53	424		2,025	123,5					31,23
P	5,99	424	1,50	1,96	119,6	42,80	15,73	10,50	2,65	30,88
Q	6,70	420	1,82	2,01	119,57	46,18	16,29	10,43	2,46	31,43
R	5,995	459	1,80	2,006	122	44,77	16,34	10,41	2,459	31,02
S	6,06	424		2,02	119,8					30,7
T	6,27	422	1,85	2,01	120	46,2	16,8	10,3	2,39	31,4
U	6,00	424	1,80	2,00	NA	45,0	16,4	10,4	2,55	31,8
V	6,16	415	1,72	2,06	126	43,8	15,2	10,9	2,73	31,2
W			1,765							
X										
Y						44,7	16,3			30,8
Z	6,04	420,0	1,745	1,92	114,03	44,04	15,70	10,28	2,48	31,08
AA	6,2	420	1,66	2,12	130	43,1	15,4	11,4	2,51	28,7
AB	6,53	427	1,77	2,02	120	45,0	15,8	10,3	2,51	30,1
AC			1,779			44,75	16,02			
AD	6,14	423	1,77	2,04	121	44,3	16,2	10,5	2,59	31,8
AE	6,30	415	1,81	2,02	123	44,7	16,9	11,0	2,50	29,7
AF	6,6	421	9,7	2,00	122	48,2	15,6	10,9	2,64	33,1
AG	6,3	426	1,79	2,02	123,3	44,6	16,5	10,9	2,67	30,7
AH										
AI	5,65	424		1,97		45,0	16,0	10,0	1,30	37,6
AJ	5,80	421	1,79	1,96	120	45,3	16,0	10,5	2,51	32,0
AK	6,2	424	1,813	2,054	122,3	46,5	15,9	10,5	2,00	31,6
AL	6,31	429		2,05		43,2	15,2	11,5	2,73	31,3
AM	6,25	453	1,889	2,023	123,4	48,06	16,78	10,4	2,43	30,23
AN										
AO	6,41	421	1,79	2,061	123	44,638	16,481	10,813	2,627	31,904
AP	6,306	412,5	1,79	1,991	118,43	45,1	16,1	10,3	2,55	33,004

## Measurement Uncertainties N172A

	pH ±	Cond. ±	total- Hardn. ±	K <sub>S</sub> 4.3 ±	HCO <sub>3</sub> <sup>-</sup> ±	Ca <sup>2+</sup> ±	Mg <sup>2+</sup> ±	Na <sup>+</sup> ±	K <sup>+</sup> ±	NO <sub>3</sub> <sup>-</sup> ±
Unit		µS/cm	mmol/L	mmol/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
assigned value		1	0,02	0,04	2	0,8	0,2	0,3	0,02	0,8
IFA result	0,20	6	0,07	0,08	5	1,9	0,9	0,9	0,17	1,7
Stability test										
A										1,67
B	0,04	9	0,15	0,10	6	2,1	0,6	0,5	0,11	1,1
C										
D	0,26	16,8	0,32	0,08	4,9	8,03	2,86	1,91	0,46	2,67
E		8	0,12	0,12	8,4	3,6	1,3	0,8	0,25	3,0
F	0,2	17	0,10	0,13	7,9	2,2	1,0	0,6	0,14	3,0
G				0,14		3,9	1,7	0,9	0,2	4,4
H								1,2		
I	0,06	10	0,14	0,17	5,6	2,2	1,0	0,82	0,091	1,6
J	0,6	42	0,31	0,20	13	8,7	3,1	2,0	0,49	4,5
K	0,1	10	0,36	0,2		9,0	3,3	1,7	0,53	3,1
L										
M										
N	0,05	0,275	0,06	0,06		0,82	1,53			0,482
O	0,040	12,3		0,196	11,9					1,155
P										
Q	0,1	4,51		0,20		4,6	1,6	1,0	2,5	3,1
R	0,06	46	0,2	0,3	20,7	2,9	1,2	1,4	0,2	4,3
S	0,01	3		0,06	1,7					2,1
T	0,30	12	0,15	0,08	5	2,3	1,0	0,4	0,19	1,9
U	0,30	13	0,09	0,10		4,5	1,6	1,0	0,26	1,6
V	0,18	12	0,26	0,16	10	6,6	1,8	1,4	0,41	3,1
W										
X										
Y						1,52	1,00			0,430
Z	0,24	9,2	0,07	0,04	2,39	1,72	0,74	0,49	0,16	2,08
AA										
AB	0,0653	0,357	0,0187	0,0895	2,41	0,592	0,277	0,375	0,0185	0,673
AC			0,07			1,8	0,4			
AD	0,3	17	0,1	0,1	5	4	2	1,6	0,4	3
AE	0,03	0,6	0,02	0,02	1,2	0,27	0,21	0,12	0,04	0,11
AF	0,2	40	1,0	0,2		3,8	2,1	0,15	0,4	3,3
AG	0,1	10	0,2	0,2	12,3	9,0	3,3	1,7	0,54	3,0
AH										
AI										
AJ	0,20	42,1		0,29	17,9	4,53	1,60	1,05	0,251	1,60
AK		24	0,241			6,2	2,1	1,86	0,33	2,67
AL										
AM	0,13	41	0,227	0,182	11,1	5,77	1,68	1,14	0,39	3,33
AN										
AO	0,19	25,26	0,11	0,124	7,38	2,46	0,58	0,38	0,092	3,19
AP	0,315	20,6	0,269	0,199	9,09	0,050	0,024	0,015	0,003	7,591

## Results N172A

	NO <sub>2</sub> <sup>-</sup>	NH <sub>4</sub> <sup>+</sup>	Cl <sup>-</sup>	SO <sub>4</sub> <sup>2-</sup>	o-PO <sub>4</sub> <sup>3-</sup>	Boron	DOC	total-P (as PO <sub>4</sub> <sup>3-</sup> )	KMnO <sub>4</sub> - Index
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
assigned value	0,0640	<0,01	38,4	21,2	0,070	0,0392	3,08	0,164	4,42
IFA result	0,064	<0,01	37,8	21,2	0,0703	0,0377	3,15	0,160	4,62
Stability test	0,063						3,15		4,67
A	0,062	0,0080	38,5	20,9	0,064		3,18	0,152	
B	0,064	<0,02	40,4	20,4	0,065		3,38	0,154	4,03
C		<0,01			0,0797			0,1584	
D	0,062	<0,01	36,6	19,8	0,063	0,0360	3,09	0,138	4,85
E	0,064	<0,02	38,8	21,6	0,065		2,97	0,163	4,30
F	0,062	<0,010	38,4	21,6	0,073	0,0400	3,74	0,168	
G	0,066	0,0108	38,9	21,1	0,062	0,0420	3,071	0,165	4,08
H					0,0702		3,07		4,37
I	0,061	0,0185	38,4	19,9	0,060		3,28	0,161	4,76
J	0,0585	<0,01	37,5	20,0	<0,1	0,0335	3,30	0,161	
K	0,063	<0,010	36,8	20,2		0,0383			4,33
L	0,0638				0,0644				
M									
N			40,6	16,0					4,683
O	0,06423	<0,038	38,53	21,68	0,07309		3,61	0,1757	4,79
P	0,061	0,0050	37,94	20,38	0,066		3,23		4,37
Q	0,061	<0,009	37,99	21,23	0,057	0,0392	3,43	0,153	
R	0,0638	0,00430	38,12	20,55	<0,2	0,0161	3,337	0,135	3,97
S	0,0648	<0,005	37,6		0,0673			0,156	
T	0,066	<0,008	38,4	21,0	0,071	0,0373	3,18	0,170	
U	0,063	<0,01	38,5	21,8	0,065	0,0389	NA	NA	NA
V	0,0673	<0,01	38,2	21,4	0,0690	0,0391	3,53	0,173	4,41
W					0,0702				
X					0,067			0,156	
Y	0,0624	<0,098	38,0	18,4	<0,095				
Z	0,065	<0,005	38,42	20,47			3,12		4,34
AA	<0,66	<0,26	36,6	20,1	<0,20	32,1	2,98	<0,20	
AB	0,0631	<0,0100	37,4	20,1	0,0665	0,0367	3,18	0,161	4,61
AC									
AD	0,065	<0,013	39,6	21,8	0,070		3,39	0,151	
AE	0,065	<0,010	38,6	21,3	0,071	0,0399	3,32	0,147	4,41
AF	0,065	<0,01	39,0	21,0	<0,29				4,37
AG	0,0649	<0,010	36,9	20,1	0,0690	0,0381	3,25	0,1610	
AH		<0,01			<0,10				
AI	0,061		40,1	22,1					4,72
AJ	0,062	<0,0005	38,9	22,8	0,061	0,0430	3,30	0,163	4,65
AK	0,064	<0,03	38,2	20,8	0,138	0,0411	3,50	0,276	4,40
AL	0,0516	<0,010	38,3	21,5	0,0717	0,0391	3,22	0,175	
AM	0,064	0,00300	37,41	19,73	0,065	0,0400	3,11	0,178	4,30
AN					0,070				
AO	0,066	<0,01	39,038	21,652	0,070	0,0388	2,744	0,162	4,14
AP	0,069	<0,03	42,163	22,623	0,072	0,0351	3,140		4,266

### Measurement Uncertainties N172A

	NO <sub>2</sub> <sup>-</sup> ±	NH <sub>4</sub> <sup>+</sup> ±	Cl <sup>-</sup> ±	SO <sub>4</sub> <sup>2-</sup> ±	o-PO <sub>4</sub> <sup>3-</sup> ±	Boron ±	DOC ±	total-P (as PO <sub>4</sub> <sup>3-</sup> ) ±	KMnO <sub>4</sub> - Index ±
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
assigned value	0,0003		0,6	0,4	0,004	0,0010	0,05	0,002	0,11
IFA result	0,003		1,4	0,6	0,0014	0,0029	0,09	0,021	0,69
Stability test	0,003						0,09		0,69
A	0,0040	0,0006	1,62	0,542	0,004		0,191	0,007	
B	0,005		1,6	0,8	0,006		0,42	0,033	0,54
C					0,0061			0,0035	
D	0,011		3,29	1,78	0,011	0,006	0,28	0,025	0,44
E	0,007		3,1	1,5	0,012		0,56	0,041	0,20
F	0,007		3,0	1,9	0,010	0,0045	0,75	0,017	
G	0,01	0,002	5,5	1,7	0,01	0,004		0,006	
H					0,006		0,46		0,65
I	0,0036	0,0014	3,0	1,2	0,0089		0,30	0,021	0,22
J	0,009		5,6	3		0,007	1	0,032	
K	0,020		3,7	2,0		0,0096			1,1
L	0,0048				0,0022				
M									
N			1,074	7,4					0,588
O	0,00225	0,001	1,850	0,997	0,00577		0,209	0,01423	0,479
P									
Q	0,006		3,8	2,1	0,006	0,004	0,34	0,015	
R	0,01	0,0008	4,2	2,3	0,02	0,002	0,7	0,009	0,6
S	0,0065	0	0,4		0,008			0,021	
T	0,006		1,9	1,3	0,004	0,006	0,29	0,012	
U	0,13		1,9	2,2	0,007	0,0078			
V	0,0074		3,8	3,4	0,0055	0,0051	0,71	0,014	0,66
W									
X					0,013			0,023	
Y	0,00412		2,33	1,57					
Z	0,004		1,81	1,02			0,54		0,92
AA									
AB	0,00033		0,571	0,643	0,00222	0,00133	0,0160	0,0331	
AC									
AD	0,005		3	2	0,012		0,5	0,02	
AE	0,001		0,29	0,15	0,001	0,002	0,04	0,02	0,11
AF	0,007		3,9	2,1					0,4
AG	0,0094		3,7	2,0	0,0081	0,0095	0,33	0,0190	
AH		0,00235			0,008				
AI									
AJ	0,0094		1,94	1,14	0,0092	0,0052	0,26	0,025	0,74
AK	0,007		3,21	1,34	0,038		0,65	0,044	
AL									
AM	0,010	0,001	5,24	2,56	0,007	0,008	0,40	0,028	0,69
AN					0,010				
AO	0,007		3,904	2,165	0,007	0,007	0,574	0,016	0,54
AP	0,0138		4,216	3,846	0,108	0,0070	0,314		0,640

## Results N172B

	pH	Cond.	total-Hardn.	K <sub>S 4.3</sub>	HCO <sub>3</sub> <sup>-</sup>	Ca <sup>2+</sup>	Mg <sup>2+</sup>	Na <sup>+</sup>	K <sup>+</sup>	NO <sub>3</sub> <sup>-</sup>
Unit		µS/cm	mmol/L	mmol/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
assigned value		321	1,032	1,565	92,4	28,0	8,12	20,63	5,38	16,5
IFA result	6,23	321	1,01	1,55	91	26,4	8,4	20,0	5,3	16,2
Stability test										
A										16,1
B	6,21	320	1,02	1,570	95,8	27,6	8,0	20,5	6,1	16,1
C										17,23
D	6,57	319	1,01	1,56	92,1	27,2	8,14	20,4	5,50	15,5
E		321	1,04	1,50	91,4	28,3	8,2	21,2	5,7	17,1
F	6,5	319	1,02	1,52	92,8	27,4	8,12	20,1	5,54	16,4
G	6,40	321	1,03	1,13	91,5	29,2	8,33	21,9	5,60	19,2
H								20,5		
I	6,46	344	1,01	1,65	101	27,1	8,1	21,1	5,5	17,3
J	6,10	318	1,02	1,58	97	27,8	7,85	19,5	5,43	16,0
K	6,2	322	1,03	1,53		27,6	8,36	21,2	5,50	15,9
L										
M										
N	6,46	317,1	0,98	1,558		24,6	8,99			16,5
O	6,56	320		1,625	99,1					16,47
P	6,12	325	1,00	1,49	90,89	27,16	7,90	20,70	5,26	17,48
Q	6,85	320	1,08	1,52	89,68	29,41	8,33	21,04	5,38	16,57
R	6,195	346	1,00	1,514	92,4	27,75	8,208	20,72	5,25	16,27
S	6,22	323		1,54	91					16,4
T	6,41	320	1,11	1,54	90,9	29,6	8,97	20,4	5,38	16,3
U	6,15	321	1,07	1,60	NA	<40	8,67	20,4	5,47	16,9
V	6,29	317	1,00	1,56	95,2	27,2	7,78	21,3	5,70	16,5
W			1,016							
X										
Y						27,9	8,18			16,1
Z	5,94	320,0	1,004	1,44	84,76	27,20	7,90	20,21	5,22	16,26
AA	6,3	320	1,01	1,58	99	27,3	8,0	21,1	5,28	15,7
AB	6,62	325	1,03	1,54	90,7	27,9	8,00	20,4	5,32	15,8
AC			1,056			28,15	8,55			
AD	6,30	321	1,03	1,56	91,9	27,7	8,14	20,6	5,38	16,6
AE	6,55	316	1,03	1,54	93,8	27,1	8,58	20,3	5,47	15,7
AF	6,8	318	5,6	1,44	88	29,5	8,43	21,3	5,36	17,5
AG	6,4	325	1,05	1,54	90,9	28,2	8,44	21,3	5,58	15,9
AH										
AI	5,97	321		1,48		27,9	8,03	19,8	4,37	24,5
AJ	5,80	313	1,04	1,49	90,9	28,3	8,12	20,4	5,41	16,9
AK	6,4	322	1,074	1,569	92,7	29,4	8,3	21,1	4,60	16,9
AL	6,38	322		1,53		26,1	7,71	21,0	5,37	16,6
AM	6,41	322	0,992	1,514	92,4	26,65	7,96	20,28	5,28	15,55
AN										
AO	6,56	322	1,04	1,588	93,8	27,864	8,406	21,095	5,505	16,501
AP	6,397	316,0	1,02	1,504	88,72	27,5	8,17	20,4	5,46	17,122

## Measurement Uncertainties N172B

	pH ±	Cond. ±	total- Hardn.±	K <sub>S</sub> 4.3 ±	HCO <sub>3</sub> <sup>-</sup> ±	Ca <sup>2+</sup> ±	Mg <sup>2+</sup> ±	Na <sup>+</sup> ±	K <sup>+</sup> ±	NO <sub>3</sub> <sup>-</sup> ±
Unit		µS/cm	mmol/L	mmol/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
assigned value		1	0,012	0,019	1,2	0,4	0,15	0,19	0,03	0,3
IFA result	0,20	4	0,04	0,06	4	1,3	0,5	1,2	0,3	0,9
Stability test										
A										0,870
B	0,05	7	0,09	0,070	4,3	1,2	0,3	0,9	0,3	0,6
C										0,7568
D	0,26	12,8	0,18	0,06	3,68	4,9	1,47	3,67	0,99	1,40
E		6	0,07	0,09	6,4	2,3	0,7	0,9	0,5	1,5
F	0,2	13	0,06	0,11	6,5	1,4	0,55	1,0	0,24	1,6
G		13	0,1			2,5	0,9	1,9	0,5	2,7
H								2,4		
I	0,06	7,4	0,083	0,14	4,5	1,4	0,51	1,6	0,19	0,83
J	0,6	32	0,20	0,16	10	5,6	1,6	3,9	1,1	2,4
K	0,1	10	0,21	0,15		5,6	1,7	3,2	1,1	1,6
L										
M										
N	0,05	0,275	0,06	0,06		0,82	1,53			0,482
O	0,040	9,28		0,157	9,6					0,609
P										
Q	0,1	4,51		0,15		2,9	0,8	2,1	0,5	1,7
R	0,06	35	0,1	0,3	15,7	1,8	0,6	2,7	0,4	2,3
S	0,008	2		0,04	1,3					1,1
T	0,30	10	0,09	0,07	3,7	1,5	0,54	0,8	0,43	1,0
U	0,3	10	0,05	0,08			0,87	2,0	0,55	0,8
V	0,19	10	0,15	0,12	7,6	4,1	0,93	2,8	0,86	1,7
W										
X										
Y						0,949	0,504			0,224
Z	0,24	7,0	0,04	0,03	1,78	1,06	0,37	0,97	0,33	1,09
AA										
AB	0,0662	0,127	0,0141	0,0797	1,81	0,563	0,0287	0,372	0,466	0,609
AC			0,04			1,1	0,3			
AD	0,3	13	0,1	0,1	4	3	1	4	0,7	1,2
AE	0,01	0,6	0,03	0,01	0,25	0,87	0,28	0,52	0,13	0,09
AF	0,2	30	0,6	0,16		2,3	1,1	2,4	0,8	1,8
AG	0,1	10	0,1	0,2	9,1	5,7	1,7	3,2	1,1	1,6
AH										
AI										
AJ	0,20	31,3		0,22	13,6	2,83	0,812	2,07	0,541	0,847
AK		18,23	0,143			3,92	1,1	3,73	0,76	1,43
AL										
AM	0,13	29	0,119	0,136	8,3	3,2	0,80	2,23	0,84	1,71
AN										
AO	0,19	19,32	0,06	0,0953	5,63	1,53	0,29	0,74	0,19	1,65
AP	0,320	15,8	0,153	0,154	6,10	0,031	0,012	0,030	0,007	3,938

## Results N172B

	NO <sub>2</sub> <sup>-</sup>	NH <sub>4</sub> <sup>+</sup>	Cl <sup>-</sup>	SO <sub>4</sub> <sup>2-</sup>	o-PO <sub>4</sub> <sup>3-</sup>	Boron	DOC	total-P (as PO <sub>4</sub> <sup>3-</sup> )	KMnO <sub>4</sub> - Index
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
assigned value	0,0530	0,060	16,9	38,2	<0,009	0,0540	4,64	<0,009	2,83
IFA result	0,054	0,060	16,4	38,3	<0,009	0,053	4,57	<0,009	2,82
Stability test	0,053						4,59		2,91
A	0,0490	0,0680	16,9	37,9	0,00200		4,97	<0,034	
B	0,053	0,061	16,9	39,4	<0,01		4,93	<0,01	2,08
C		0,0673			<0,019			<0,02	
D	0,051	0,065	16,0	36,4	<0,02	0,051	4,72	<0,05	3,02
E	0,053	0,062	16,1	39,9	<0,009		4,35	<0,009	2,80
F	0,051	0,057	16,7	39,3	<0,010	0,0548	4,77	<0,010	
G	0,055	0,0672	18,1	41,4		0,0541	4,531	<0,03	2,58
H					<0,03		4,50		2,82
I	0,052	0,069	16,0	36,1	<0,01		4,70	0,0300	3,05
J	0,0470	0,060	16,0	36,8	<0,1	0,0478	4,65	<0,031	
K	0,053	0,066	16,0	36,6		0,0535			2,73
L	0,0535				<0,015				
M									
N			17,3	34,5					3,070
O	0,05434	0,0625	16,84	40,01	<0,015		3,86	<0,015	3,01
P	0,050	0,064	16,64	37,32	0,0140		4,66		2,81
Q	0,052	0,054	16,75	38,61	<0,0015	0,0545	4,98	<0,003	
R	0,0533	0,0534	17,02	37,46	<0,2	0,0311	4,563	<0,1	2,68
S	0,0541	0,062	16,3		<0,006			<0,006	
T	0,055	0,062	16,7	38,1	<0,006	0,0488	4,64	<0,006	
U	0,053	0,059	17,2	38,6	<0,006	0,0532	NA	NA	NA
V	0,0578	0,0621	16,9	37,4	<0,015	0,0540	4,86	<0,015	2,79
W					0,00081				
X					<0,015			<0,015	
Y	0,0526	<0,098	16,9	36,6	<0,095				
Z	0,054	0,0540	17,05	37,70			4,67		2,81
AA	<0,66	<0,26	16,2	37,8	<0,20	45,6	5,1	<0,20	
AB	0,0526	0,0591	16,3	36,7	<0,0150	0,0522	4,60	<0,0150	3,11
AC									
AD	0,054	0,062	17,3	38,6	<0,01		4,73	<0,013	
AE	0,055	0,068	17,2	38,7	<0,015	0,0555	4,98	<0,015	2,56
AF	0,051	0,057	15,5	39,0	<0,29				2,83
AG	0,0543	0,0626	16,0	36,6	<0,009	0,0527	4,70	<0,015	
AH		0,058			<0,10				
AI	0,051		18,7	38,4					3,29
AJ	0,056	0,055	17,1	40,0	0,0090	0,061	4,80	<0,0150	3,21
AK	0,054	0,070	17,2	38,0	0,0340	0,0487	5,00	0,0613	2,70
AL	0,0420	0,0480	17,5	37,6	<0,010	0,0530	4,73	<0,010	
AM	0,053	0,061	15,69	37,12	0,00300	0,051	3,73	0,00300	2,57
AN					<0,01				
AO	0,055	0,061	17,131	39,987	<0,01	0,0549	4,118	<0,01	2,75
AP	0,058	0,063	17,442	37,531	<0,05	0,0492	4,732		2,922

### Measurement Uncertainties N172B

	NO <sub>2</sub> <sup>-</sup> ±	NH <sub>4</sub> <sup>+</sup> ±	Cl <sup>-</sup> ±	SO <sub>4</sub> <sup>2-</sup> ±	o-PO <sub>4</sub> <sup>3-</sup> ±	Boron ±	DOC ±	total-P (as PO <sub>4</sub> <sup>3-</sup> ) ±	KMnO <sub>4</sub> - Index ±
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
assigned value	0,0005	0,002	0,3	0,6		0,0005	0,05		0,12
IFA result	0,003	0,002	0,6	1,0		0,004	0,09		0,42
Stability test	0,003						0,09		0,43
A	0,0031	0,0050	0,708	0,986	0,0001		0,298	0,0017	
B	0,004	0,008	0,7	1,5			0,62		0,28
C		0,0039							
D	0,009	0,012	1,44	3,28		0,009	0,42		0,27
E	0,006	0,010	1,3	3,2			0,83		0,10
F	0,006	0,011	1,5	3,2		0,0058	0,91		
G	0,01	0,01	2,6	3,3					
H							0,67		0,42
I	0,0030	0,0051	1,3	2,2			0,44	0,0039	0,14
J	0,007	0,012	2,4	5,5		0,010	1,4		
K	0,020	0,020	1,6	3,6		0,014			0,7
L	0,0040								
M									
N			1,074	7,4					0,588
O	0,00190	0,0033	0,808	1,840			0,224		0,301
P									
Q	0,005	0,005	1,8	3,9		0,006	0,49		
R	0,009	0,0010	1,9	4,1	0,02	0,004	1,0	0,007	0,4
S	0,0054	0,009	0,2		0			0	
T	0,005	0,006	0,9	2,3		0,007	0,42		
U	0,011	0,007	0,9	0,15		0,0106			
V	0,0064	0,0050	1,7	6,0		0,0070	0,97		0,42
W									
X									
Y	0,00347		1,04	3,13					
Z	0,004	0,010	0,80	1,89			0,81		0,60
AA									
AB	0,00032	0,00101	0,522	0,691		0,00125	0,0164		
AC									
AD	0,004	0,007	1,3	3			0,7		
AE	0,001	0,001	0,40	0,35		0,002	0,02		0,08
AF	0,005	0,006	1,6	3,9					0,3
AG	0,0079	0,0103	1,6	3,7		0,014	0,47		
AH		0,01363			0,008				
AI									
AJ	0,0084	0,0055	0,85	2,00	0,0014	0,0073	0,38		0,51
AK	0,006	0,016	1,43	2,45	0,009		0,94	0,0098	
AL									
AM	0,008	0,014	2,20	4,83	0,0003	0,006	0,48	0,0005	0,41
AN									
AO	0,006	0,006	1,713	3,999		0,01	0,861		0,36
AP	0,0116	0,0113	1,744	6,380		0,0098	0,473		0,499

## z-Scores N172A

	Cond.	total-Hardn.	K <sub>s</sub> 4.3	HCO <sub>3</sub> <sup>-</sup>	Ca <sup>2+</sup>	Mg <sup>2+</sup>	Na <sup>+</sup>	K <sup>+</sup>	NO <sub>3</sub> <sup>-</sup>
A									-0,32
B	-0,39	0,40	0,00	1,06	1,51	-1,43	-0,61	2,85	-1,06
C									
D	-0,59	-0,40	-0,54	-0,35	-0,29	-0,18	0,31	0,20	-1,70
E	0,00	0,40	-2,95	-1,10	0,22	0,54	0,31	2,85	1,81
F	-0,59	0,40	-2,15	-0,57	0,65	0,00	-0,61	1,38	-0,11
G	0,00	0,80	-1,34	-0,99	0,93	0,18	0,31	0,20	-0,32
H							0,31		
I	5,53	-0,80	-1,07	0,35	-1,22	0,18	0,92	0,79	2,02
J	-0,79	-1,40	-0,81	0,71	-1,22	-1,25	-0,92	-1,08	-1,38
K	0,39	0,40	-1,88		0,00	0,89	0,92	1,18	-0,64
L									
M									
N	-0,97	-1,40	-0,59		-4,30	3,21			-0,21
O	0,39		-1,21	0,18					-0,07
P	0,39	-5,62	-2,95	-1,20	-1,58	-0,48	0,00	1,08	-0,45
Q	-0,39	0,80	-1,61	-1,21	0,85	0,52	-0,22	-0,79	0,14
R	7,31	0,40	-1,72	-0,35	-0,16	0,61	-0,28	-0,80	-0,30
S	0,39		-1,34	-1,13					-0,64
T	0,00	1,40	-1,61	-1,06	0,86	1,43	-0,61	-1,48	0,11
U	0,39	0,40	-1,88		0,00	0,71	-0,31	0,10	0,53
V	-1,38	-1,20	-0,27	1,06	-0,86	-1,43	1,23	1,87	-0,11
W		-0,30							
X									
Y					-0,22	0,54			-0,53
Z	-0,39	-0,70	-4,03	-3,17	-0,69	-0,54	-0,68	-0,59	-0,23
AA	-0,39	-2,41	1,34	2,47	-1,36	-1,07	2,76	-0,30	-2,77
AB	0,99	-0,20	-1,34	-1,06	0,00	-0,36	-0,61	-0,30	-1,28
AC		-0,02			-0,18	0,04			
AD	0,20	-0,20	-0,81	-0,71	-0,50	0,36	0,00	0,49	0,53
AE	-1,38	0,60	-1,34	0,00	-0,22	1,61	1,54	-0,39	-1,70
AF	-0,20	158,91	-1,88	-0,35	2,29	-0,71	1,23	0,98	1,92
AG	0,79	0,20	-1,34	0,11	-0,29	0,89	1,23	1,28	-0,64
AH									
AI	0,39		-2,68		0,00	0,00	-1,54	-12,20	6,71
AJ	-0,20	0,20	-2,95	-1,06	0,22	0,00	0,00	-0,30	0,75
AK	0,39	0,66	-0,43	-0,25	1,08	-0,18	0,00	-5,31	0,32
AL	1,38		-0,54		-1,29	-1,43	3,07	1,87	0,00
AM	6,12	2,19	-1,26	0,14	2,19	1,39	-0,31	-1,08	-1,14
AN									
AO	-0,20	0,20	-0,24	0,00	-0,26	0,86	0,96	0,86	0,64
AP	-1,88	0,20	-2,12	-1,62	0,07	0,18	-0,61	0,10	1,81

## z-Scores N172A

	NO <sub>2</sub> <sup>-</sup>	NH <sub>4</sub> <sup>+</sup>	Cl <sup>-</sup>	SO <sub>4</sub> <sup>2-</sup>	o-PO <sub>4</sub> <sup>3-</sup>	Boron	DOC	total-P (as PO <sub>4</sub> <sup>3-</sup> )	KMnO <sub>4</sub> - Index
A	-0,57		0,10	-0,47	-0,93		0,60	-0,80	
B	0,00		1,93	-1,26	-0,78		1,80	-0,67	-1,08
C					1,51			-0,38	
D	-0,57		-1,74	-2,20	-1,09	-1,15	0,06	-1,74	1,19
E	0,00		0,39	0,63	-0,78		-0,66	-0,07	-0,33
F	-0,57		0,00	0,63	0,47	0,29	3,97	0,27	
G	0,57		0,48	-0,16	-1,24	1,01	-0,05	0,07	-0,94
H					0,03		-0,06		-0,14
I	-0,85		0,00	-2,04	-1,55		1,20	-0,20	0,94
J	-1,56		-0,87	-1,89		-2,05	1,32	-0,20	
K	-0,28		-1,54	-1,57		-0,32			-0,25
L	-0,06				-0,87				
M									
N			2,12	-8,18					0,73
O	0,07		0,13	0,75	0,48		3,19	0,78	1,02
P	-0,85		-0,44	-1,29	-0,62		0,90		-0,14
Q	-0,85		-0,40	0,05	-2,02	0,00	2,10	-0,74	
R	-0,06		-0,27	-1,02		-8,30	1,55	-1,94	-1,24
S	0,23		-0,77		-0,42			-0,54	
T	0,57		0,00	-0,31	0,16	-0,68	0,60	0,40	
U	-0,28		0,10	0,94	-0,78	-0,11			
V	0,94		-0,19	0,31	-0,16	-0,04	2,71	0,60	-0,03
W					0,03				
X					-0,47			-0,54	
Y	-0,45		-0,39	-4,40					
Z	0,28		0,02	-1,15			0,24		-0,22
AA			-1,74	-1,73		11519,40	-0,60		
AB	-0,26		-0,96	-1,73	-0,54	-0,90	0,60	-0,20	0,52
AC									
AD	0,28		1,16	0,94	0,00		1,86	-0,87	
AE	0,28		0,19	0,16	0,16	0,25	1,44	-1,14	-0,03
AF	0,28		0,58	-0,31					-0,14
AG	0,26		-1,45	-1,73	-0,16	-0,40	1,02	-0,20	
AH									
AI	-0,85		1,64	1,42					0,83
AJ	-0,57		0,48	2,52	-1,40	1,37	1,32	-0,07	0,63
AK	0,00		-0,19	-0,63	10,56	0,68	2,53	7,50	-0,06
AL	-3,52		-0,10	0,47	0,26	-0,04	0,84	0,74	
AM	0,00		-0,95	-2,31	-0,78	0,29	0,18	0,94	-0,33
AN					0,00				
AO	0,57		0,62	0,71	0,00	-0,14	-2,02	-0,13	-0,77
AP	1,42		3,63	2,24	0,31	-1,47	0,36		-0,42

## z-Scores N172B

	Cond.	total-Hardn.	K <sub>s4.3</sub>	HCO <sub>3</sub> <sup>-</sup>	Ca <sup>2+</sup>	Mg <sup>2+</sup>	Na <sup>+</sup>	K <sup>+</sup>	NO <sub>3</sub> <sup>-</sup>
A									-0,81
B	-0,26	-0,42	0,18	1,60	-0,46	-0,42	-0,20	3,35	-0,81
C									1,47
D	-0,52	-0,76	-0,18	-0,14	-0,92	0,07	-0,36	0,56	-2,02
E	0,00	0,28	-2,31	-0,47	0,35	0,28	0,89	1,49	1,21
F	-0,52	-0,42	-1,60	0,19	-0,69	0,00	-0,83	0,74	-0,20
G	0,00	-0,07	-15,44	-0,42	1,38	0,74	1,99	1,02	5,45
H							-0,20		
I	5,97	-0,76	3,02	4,05	-1,04	-0,07	0,73	0,56	1,62
J	-0,78	-0,42	0,53	2,16	-0,23	-0,95	-1,77	0,23	-1,01
K	0,26	-0,07	-1,24		-0,46	0,84	0,89	0,56	-1,21
L									
M									
N	-1,01	-1,80	-0,25		-3,92	3,06			0,00
O	-0,26		2,13	3,15					-0,06
P	1,04	-1,11	-2,66	-0,71	-0,97	-0,77	0,11	-0,56	1,98
Q	-0,26	1,66	-1,60	-1,28	1,62	0,74	0,64	0,00	0,14
R	6,49	-1,11	-1,81	0,00	-0,29	0,31	0,14	-0,60	-0,46
S	0,52		-0,89	-0,66					-0,20
T	-0,26	2,70	-0,89	-0,71	1,84	2,99	-0,36	0,00	-0,40
U	0,00	1,32	1,24			1,94	-0,36	0,42	0,81
V	-1,04	-1,11	-0,18	1,32	-0,92	-1,20	1,05	1,49	0,00
W		-0,55							
X									
Y					-0,12	0,21			-0,81
Z	-0,26	-0,97	-4,44	-3,59	-0,92	-0,77	-0,66	-0,74	-0,48
AA	-0,26	-0,76	0,53	3,11	-0,81	-0,42	0,73	-0,46	-1,62
AB	1,04	-0,07	-0,89	-0,80	-0,12	-0,42	-0,36	-0,28	-1,41
AC		0,83			0,17	1,51			
AD	0,00	-0,07	-0,18	-0,24	-0,35	0,07	-0,05	0,00	0,20
AE	-1,30	-0,07	-0,89	0,66	-1,04	1,62	-0,52	0,42	-1,62
AF	-0,78	158,08	-4,44	-2,07	1,73	1,09	1,05	-0,09	2,02
AG	1,04	0,62	-0,89	-0,71	0,23	1,13	1,05	0,93	-1,21
AH									
AI	0,00		-3,02		-0,12	-0,32	-1,30	-4,69	16,16
AJ	-2,08	0,28	-2,66	-0,71	0,35	0,00	-0,36	0,14	0,81
AK	0,26	1,45	0,14	0,14	1,61	0,63	0,73	-3,62	0,81
AL	0,26		-1,24		-2,19	-1,44	0,58	-0,05	0,20
AM	0,26	-1,38	-1,81	0,00	-1,56	-0,56	-0,55	-0,46	-1,92
AN									
AO	0,26	0,28	0,82	0,66	-0,16	1,01	0,73	0,58	0,00
AP	-1,30	-0,42	-2,17	-1,73	-0,58	0,18	-0,36	0,37	1,26

## z-Scores N172B

	NO <sub>2</sub> <sup>-</sup>	NH <sub>4</sub> <sup>+</sup>	Cl <sup>-</sup>	SO <sub>4</sub> <sup>2-</sup>	o-PO <sub>4</sub> <sup>3-</sup>	Boron	DOC	total-P (as PO <sub>4</sub> <sup>3-</sup> )	KMnO <sub>4</sub> - Index <sup>-</sup>
A	-1,37	1,21	0,00	-0,26			1,32		
B	0,00	0,15	0,00	1,05			1,16		-3,23
C		1,11							
D	-0,69	0,76	-1,97	-1,57		-0,78	0,32		0,82
E	0,00	0,30	-1,75	1,48			-1,16		-0,13
F	-0,69	-0,45	-0,44	0,96		0,21	0,52		
G	0,69	1,09	2,63	2,79		0,03	-0,44		-1,08
H							-0,56		-0,04
I	-0,34	1,36	-1,97	-1,83			0,24		0,95
J	-2,06	0,00	-1,97	-1,22		-1,62	0,04		
K	0,00	0,91	-1,97	-1,40		-0,13			-0,43
L	0,17								
M									
N			0,88	-3,23					1,03
O	0,46	0,38	-0,13	1,58			-3,11		0,78
P	-1,03	0,61	-0,57	-0,77			0,08		-0,09
Q	-0,34	-0,91	-0,33	0,36		0,13	1,36		
R	0,10	-1,00	0,26	-0,65		-5,97	-0,31		-0,65
S	0,38	0,30	-1,31						
T	0,69	0,30	-0,44	-0,09		-1,36	0,00		
U	0,00	-0,15	0,66	0,35		-0,21			
V	1,65	0,32	0,00	-0,70		0,00	0,88		-0,17
W									
X									
Y	-0,14		0,00	-1,40					
Z	0,34	-0,91	0,33	-0,44			0,12		-0,09
AA			-1,53	-0,35		11879,5	1,84		
AB	-0,14	-0,14	-1,31	-1,31		-0,47	-0,16		1,21
AC									
AD	0,34	0,30	0,88	0,35			0,36		
AE	0,69	1,21	0,66	0,44		0,39	1,36		-1,16
AF	-0,69	-0,45	-3,07	0,70					0,00
AG	0,45	0,39	-1,97	-1,40		-0,34	0,24		
AH		-0,30							
AI	-0,69		3,94	0,17					1,98
AJ	1,03	-0,76	0,44	1,57		1,83	0,64		1,64
AK	0,34	1,52	0,66	-0,17		-1,38	1,44		-0,56
AL	-3,77	-1,82	1,31	-0,52		-0,26	0,36		
AM	0,00	0,15	-2,65	-0,94		-0,78	-3,63		-1,12
AN									
AO	0,69	0,15	0,51	1,56		0,23	-2,08		-0,34
AP	1,72	0,45	1,19	-0,58		-1,25	0,37		0,40

# Sample N172A

## Parameter Conductivity

Assigned value  $\pm U$  (k=2) 422  $\mu\text{S/cm}$   $\pm$  1  $\mu\text{S/cm}$

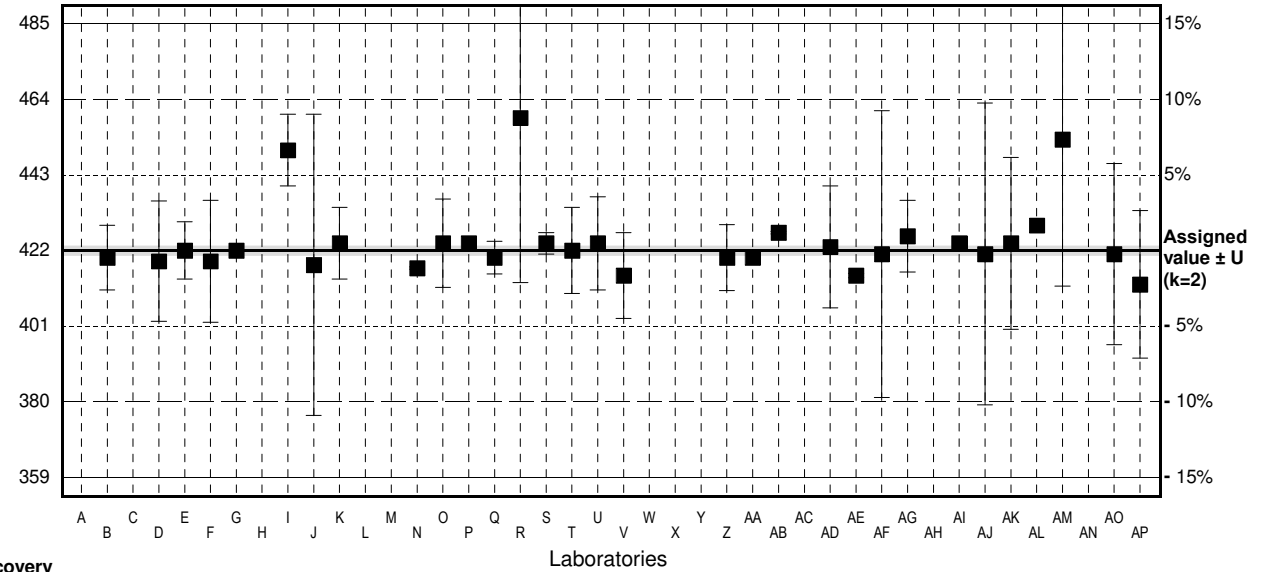
IFA result  $\pm U$  (k=2) 422  $\mu\text{S/cm}$   $\pm$  6  $\mu\text{S/cm}$

Stability test  $\mu\text{S/cm}$

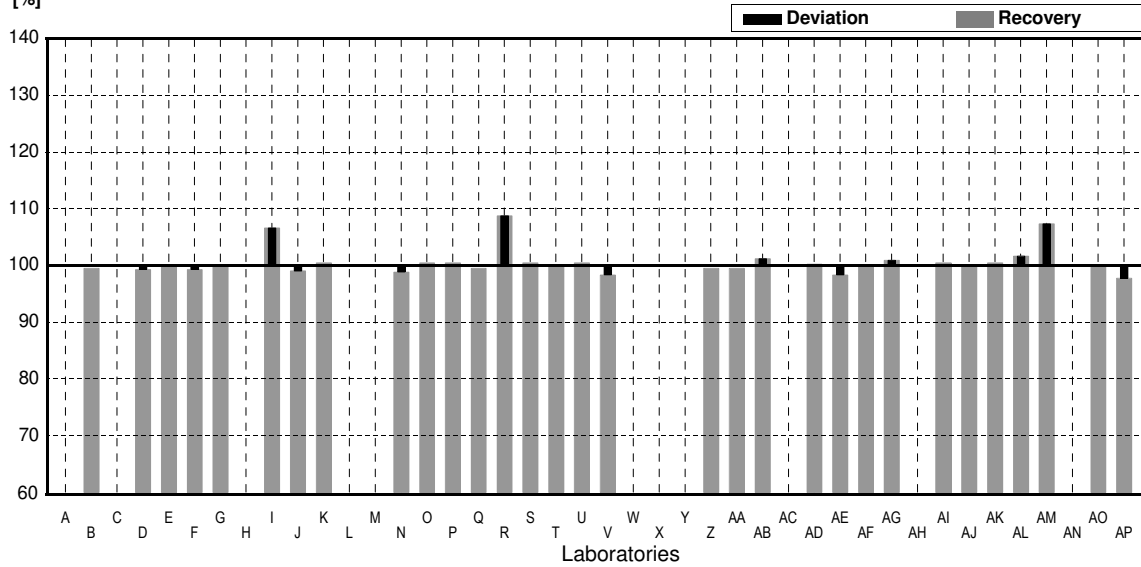
Lab Code	Result	$\pm$	Unit	Recovery	z-Score	
A			$\mu\text{S/cm}$			
B	420	9	$\mu\text{S/cm}$	100%	-0.39	
C			$\mu\text{S/cm}$			
D	419	16.8	$\mu\text{S/cm}$	99%	-0.59	
E	422	8	$\mu\text{S/cm}$	100%	0.00	
F	419	17	$\mu\text{S/cm}$	99%	-0.59	
G	422		$\mu\text{S/cm}$	100%	0.00	
H			$\mu\text{S/cm}$			
I	450	*	10	$\mu\text{S/cm}$	107%	5.53
J	418		42	$\mu\text{S/cm}$	99%	-0.79
K	424	10	$\mu\text{S/cm}$	100%	0.39	
L			$\mu\text{S/cm}$			
M			$\mu\text{S/cm}$			
N	417.1	0.275	$\mu\text{S/cm}$	99%	-0.97	
O	424	12.3	$\mu\text{S/cm}$	100%	0.39	
P	424		$\mu\text{S/cm}$	100%	0.39	
Q	420	4.51	$\mu\text{S/cm}$	100%	-0.39	
R	459	*	46	$\mu\text{S/cm}$	109%	7.31
S	424	3	$\mu\text{S/cm}$	100%	0.39	
T	422	12	$\mu\text{S/cm}$	100%	0.00	
U	424	13	$\mu\text{S/cm}$	100%	0.39	
V	415	12	$\mu\text{S/cm}$	98%	-1.38	
W			$\mu\text{S/cm}$			
X			$\mu\text{S/cm}$			
Y			$\mu\text{S/cm}$			
Z	420.0	9.2	$\mu\text{S/cm}$	100%	-0.39	
AA	420		$\mu\text{S/cm}$	100%	-0.39	
AB	427	0.357	$\mu\text{S/cm}$	101%	0.99	
AC			$\mu\text{S/cm}$			
AD	423	17	$\mu\text{S/cm}$	100%	0.20	
AE	415	0.6	$\mu\text{S/cm}$	98%	-1.38	
AF	421	40	$\mu\text{S/cm}$	100%	-0.20	
AG	426	10	$\mu\text{S/cm}$	101%	0.79	
AH			$\mu\text{S/cm}$			
AI	424		$\mu\text{S/cm}$	100%	0.39	
AJ	421	42.1	$\mu\text{S/cm}$	100%	-0.20	
AK	424	24	$\mu\text{S/cm}$	100%	0.39	
AL	429		$\mu\text{S/cm}$	102%	1.38	
AM	453	*	41	$\mu\text{S/cm}$	107%	6.12
AN			$\mu\text{S/cm}$			
AO	421	25.26	$\mu\text{S/cm}$	100%	-0.20	
AP	412.5	*	20.6	$\mu\text{S/cm}$	98%	-1.88

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	425 $\pm$ 5	422 $\pm$ 2	$\mu\text{S/cm}$
Recov. $\pm$ CI(99%)	100,6 $\pm$ 1,2	99,9 $\pm$ 0,4	%
SD between labs	10	3	$\mu\text{S/cm}$
RSD between labs	2,5	0,8	%
n for calculation	31	27	

Result  
[ $\mu\text{S/cm}$ ]



Recovery  
[%]



# Sample N172B

## Parameter Conductivity

Assigned value  $\pm U$  (k=2) 321  $\mu\text{S/cm}$   $\pm$  1  $\mu\text{S/cm}$

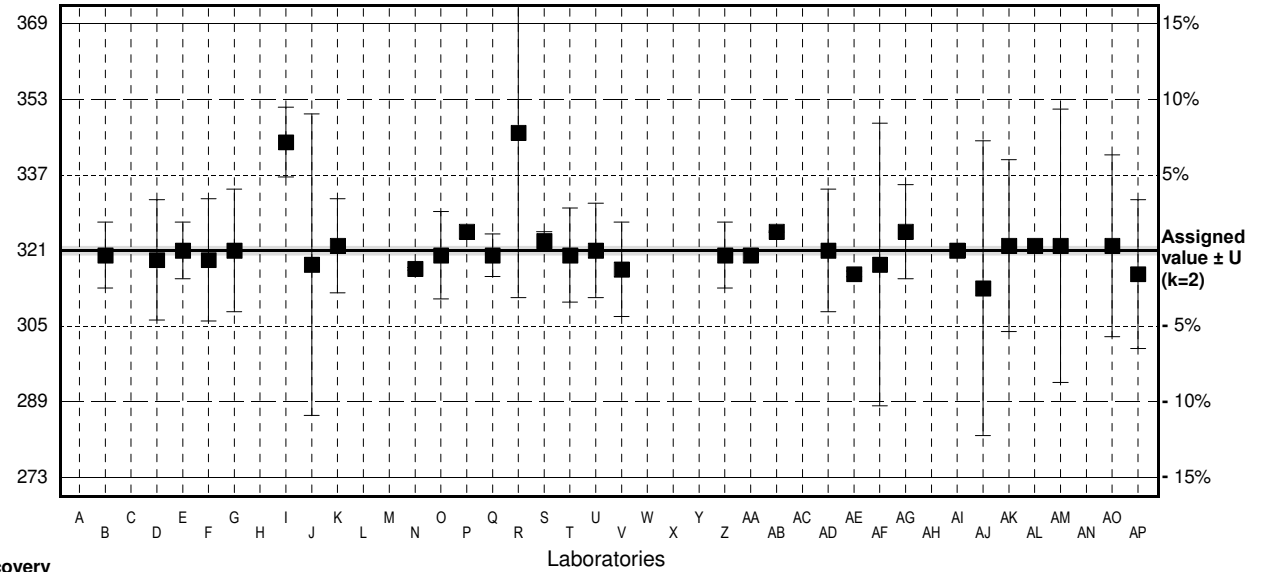
IFA result  $\pm U$  (k=2) 321  $\mu\text{S/cm}$   $\pm$  4  $\mu\text{S/cm}$

Stability test  $\mu\text{S/cm}$

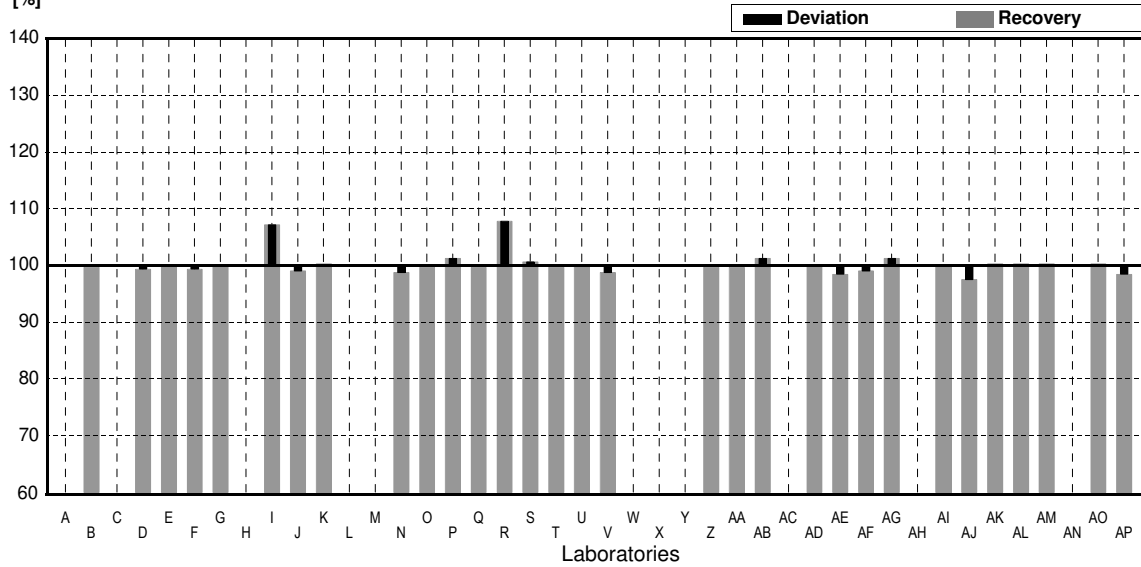
Lab Code	Result	$\pm$	Unit	Recovery	z-Score
A			$\mu\text{S/cm}$		
B	320	7	$\mu\text{S/cm}$	100%	-0.26
C			$\mu\text{S/cm}$		
D	319	12.8	$\mu\text{S/cm}$	99%	-0.52
E	321	6	$\mu\text{S/cm}$	100%	0.00
F	319	13	$\mu\text{S/cm}$	99%	-0.52
G	321	13	$\mu\text{S/cm}$	100%	0.00
H			$\mu\text{S/cm}$		
I	344 *	7.4	$\mu\text{S/cm}$	107%	5.97
J	318	32	$\mu\text{S/cm}$	99%	-0.78
K	322	10	$\mu\text{S/cm}$	100%	0.26
L			$\mu\text{S/cm}$		
M			$\mu\text{S/cm}$		
N	317.1	0.275	$\mu\text{S/cm}$	99%	-1.01
O	320	9.28	$\mu\text{S/cm}$	100%	-0.26
P	325		$\mu\text{S/cm}$	101%	1.04
Q	320	4.51	$\mu\text{S/cm}$	100%	-0.26
R	346 *	35	$\mu\text{S/cm}$	108%	6.49
S	323	2	$\mu\text{S/cm}$	101%	0.52
T	320	10	$\mu\text{S/cm}$	100%	-0.26
U	321	10	$\mu\text{S/cm}$	100%	0.00
V	317	10	$\mu\text{S/cm}$	99%	-1.04
W			$\mu\text{S/cm}$		
X			$\mu\text{S/cm}$		
Y			$\mu\text{S/cm}$		
Z	320.0	7.0	$\mu\text{S/cm}$	100%	-0.26
AA	320		$\mu\text{S/cm}$	100%	-0.26
AB	325	0.127	$\mu\text{S/cm}$	101%	1.04
AC			$\mu\text{S/cm}$		
AD	321	13	$\mu\text{S/cm}$	100%	0.00
AE	316 *	0.6	$\mu\text{S/cm}$	98%	-1.30
AF	318	30	$\mu\text{S/cm}$	99%	-0.78
AG	325	10	$\mu\text{S/cm}$	101%	1.04
AH			$\mu\text{S/cm}$		
AI	321		$\mu\text{S/cm}$	100%	0.00
AJ	313 *	31.3	$\mu\text{S/cm}$	98%	-2.08
AK	322	18.23	$\mu\text{S/cm}$	100%	0.26
AL	322		$\mu\text{S/cm}$	100%	0.26
AM	322	29	$\mu\text{S/cm}$	100%	0.26
AN			$\mu\text{S/cm}$		
AO	322	19.32	$\mu\text{S/cm}$	100%	0.26
AP	316.0 *	15.8	$\mu\text{S/cm}$	98%	-1.30

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	322 $\pm$ 3	321 $\pm$ 1	$\mu\text{S/cm}$
Recov. $\pm$ CI(99%)	100,3 $\pm$ 1,0	99,9 $\pm$ 0,4	%
SD between labs	7	2	$\mu\text{S/cm}$
RSD between labs	2,1	0,7	%
n for calculation	31	26	

Result  
[ $\mu\text{S/cm}$ ]



Recovery  
[%]



# Sample N172A

## Parameter Total hardness

Assigned value ± U (k=2) 1,78 mmol/l ± 0,02 mmol/l

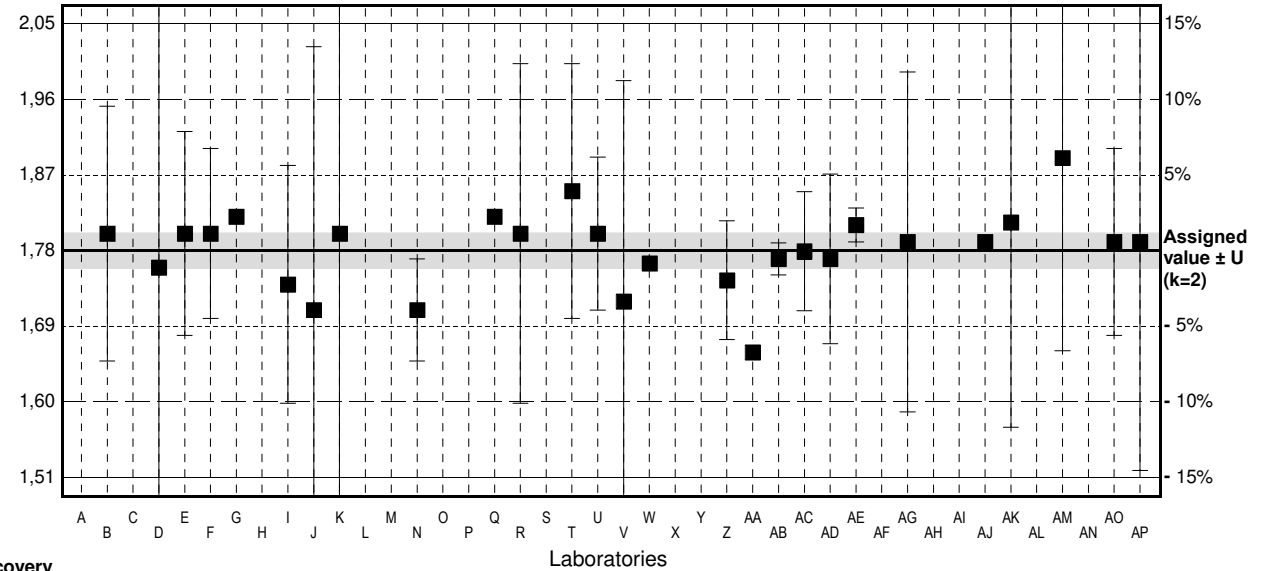
IFA result ± U (k=2) 1,73 mmol/l ± 0,07 mmol/l

Stability test mmol/l

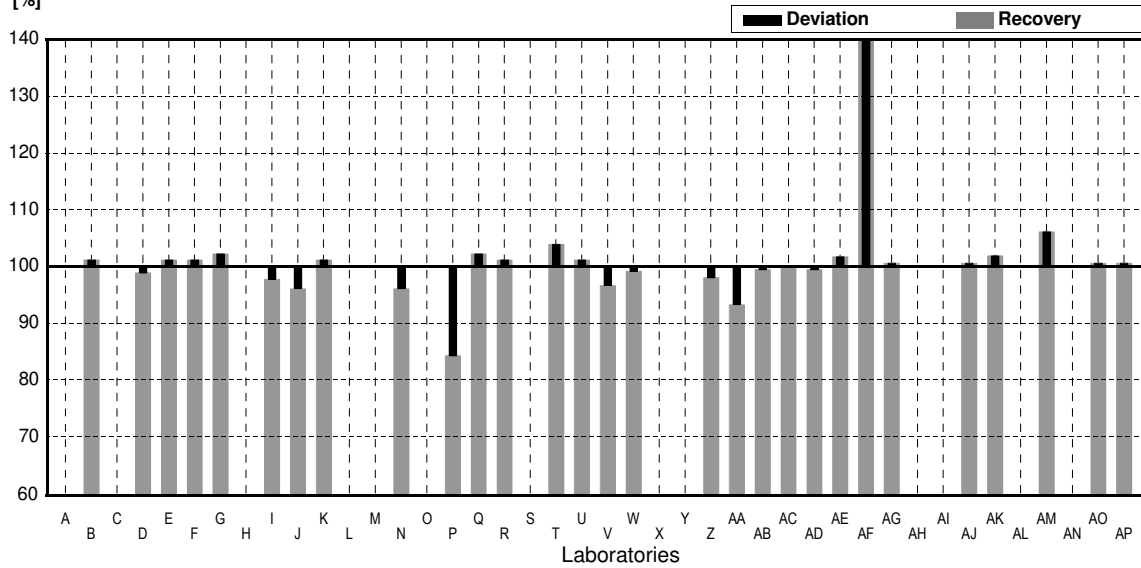
Lab Code	Result	±	Unit	Recovery	z-Score
A			mmol/l		
B	1.80	0.15	mmol/l	101%	0.40
C			mmol/l		
D	1.76	0.32	mmol/l	99%	-0.40
E	1.80	0.12	mmol/l	101%	0.40
F	1.80	0.10	mmol/l	101%	0.40
G	1.82		mmol/l	102%	0.80
H			mmol/l		
I	1.74	0.14	mmol/l	98%	-0.80
J	1.71	0.31	mmol/l	96%	-1.40
K	1.80	0.36	mmol/l	101%	0.40
L			mmol/l		
M			mmol/l		
N	1.71	0.06	mmol/l	96%	-1.40
O			mmol/l		
P	1.50	*	mmol/l	84%	-5.62
Q	1.82		mmol/l	102%	0.80
R	1.80	0.2	mmol/l	101%	0.40
S			mmol/l		
T	1.85	0.15	mmol/l	104%	1.40
U	1.80	0.09	mmol/l	101%	0.40
V	1.72	0.26	mmol/l	97%	-1.20
W	1.765		mmol/l	99%	-0.30
X			mmol/l		
Y			mmol/l		
Z	1.745	0.07	mmol/l	98%	-0.70
AA	1.66	*	mmol/l	93%	-2.41
AB	1.77	0.0187	mmol/l	99%	-0.20
AC	1.779	0.07	mmol/l	100%	-0.02
AD	1.77	0.1	mmol/l	99%	-0.20
AE	1.81	0.02	mmol/l	102%	0.60
AF	9.7	*	mmol/l	545%	158.91
AG	1.79	0.2	mmol/l	101%	0.20
AH			mmol/l		
AI			mmol/l		
AJ	1.79		mmol/l	101%	0.20
AK	1.813	0.241	mmol/l	102%	0.66
AL			mmol/l		
AM	1.889	0.227	mmol/l	106%	2.19
AN			mmol/l		
AO	1.79	0.11	mmol/l	101%	0.20
AP	1.79	0.269	mmol/l	101%	0.20

	All results	Outliers excl.	Unit
Mean ± CI(99%)	2,04 ± 0,76	1,79 ± 0,02	mmol/l
Recov. ± CI(99%)	114,9 ± 42,4	100,3 ± 1,2	%
SD between labs	1,47	0,04	mmol/l
RSD between labs	72,1	2,3	%
n for calculation	29	26	

Result [mmol/l]



Recovery [%]



# Sample N172B

## Parameter Total hardness

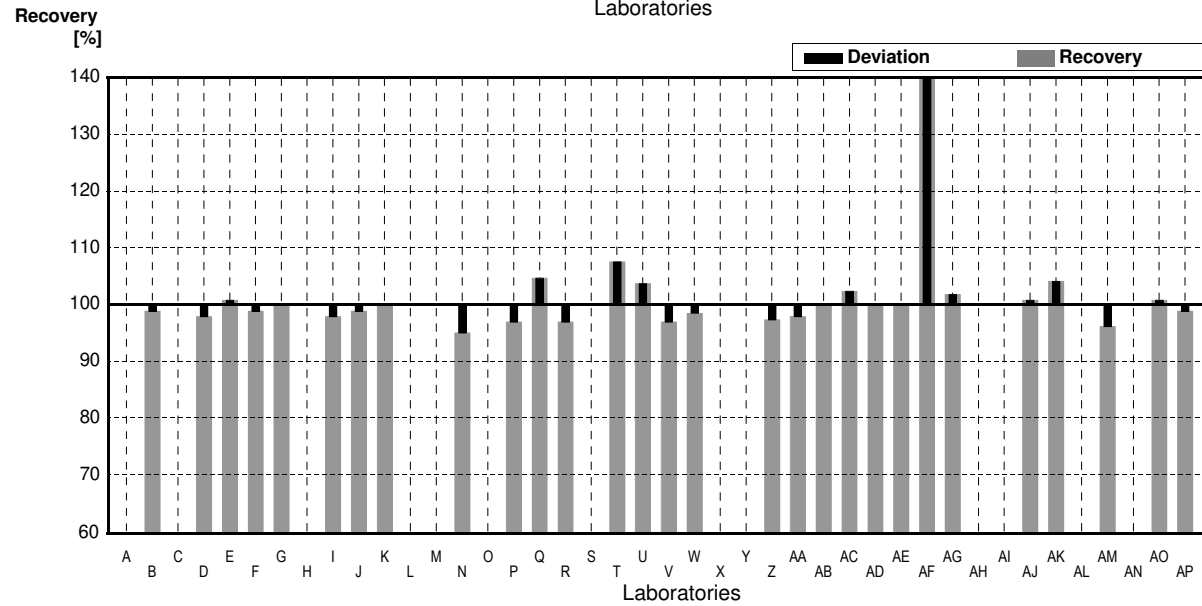
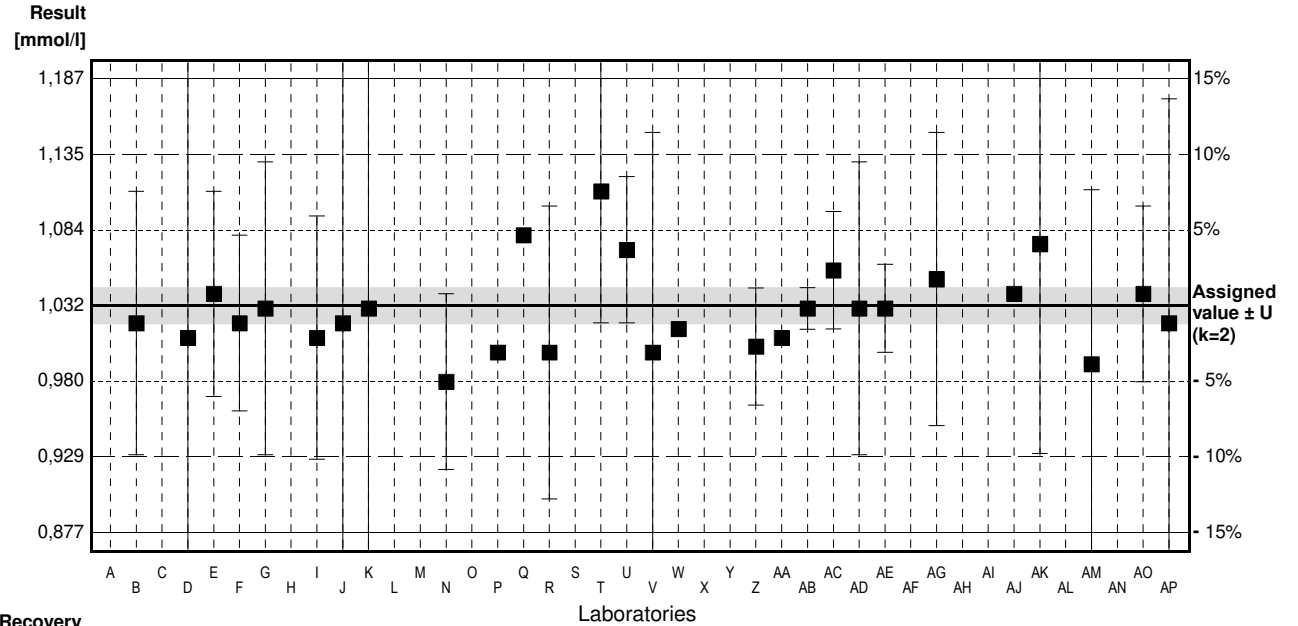
Assigned value  $\pm U$  (k=2) 1,032 mmol/l  $\pm$  0,012 mmol/l

IFA result  $\pm U$  (k=2) 1,01 mmol/l  $\pm$  0,04 mmol/l

Stability test mmol/l

Lab Code	Result	$\pm$	Unit	Recovery	z-Score
A			mmol/l		
B	1.02	0.09	mmol/l	99%	-0.42
C			mmol/l		
D	1.01	0.18	mmol/l	98%	-0.76
E	1.04	0.07	mmol/l	101%	0.28
F	1.02	0.06	mmol/l	99%	-0.42
G	1.03	0.1	mmol/l	100%	-0.07
H			mmol/l		
I	1.01	0.083	mmol/l	98%	-0.76
J	1.02	0.20	mmol/l	99%	-0.42
K	1.03	0.21	mmol/l	100%	-0.07
L			mmol/l		
M			mmol/l		
N	0.98	0.06	mmol/l	95%	-1.80
O			mmol/l		
P	1.00		mmol/l	97%	-1.11
Q	1.08		mmol/l	105%	1.66
R	1.00	0.1	mmol/l	97%	-1.11
S			mmol/l		
T	1.11	0.09	mmol/l	108%	2.70
U	1.07	0.05	mmol/l	104%	1.32
V	1.00	0.15	mmol/l	97%	-1.11
W	1.016		mmol/l	98%	-0.55
X			mmol/l		
Y			mmol/l		
Z	1.004	0.04	mmol/l	97%	-0.97
AA	1.01		mmol/l	98%	-0.76
AB	1.03	0.0141	mmol/l	100%	-0.07
AC	1.056	0.04	mmol/l	102%	0.83
AD	1.03	0.1	mmol/l	100%	-0.07
AE	1.03	0.03	mmol/l	100%	-0.07
AF	5.6 *	0.6	mmol/l	543%	158.08
AG	1.05	0.1	mmol/l	102%	0.62
AH			mmol/l		
AI			mmol/l		
AJ	1.04		mmol/l	101%	0.28
AK	1.074	0.143	mmol/l	104%	1.45
AL			mmol/l		
AM	0.992	0.119	mmol/l	96%	-1.38
AN			mmol/l		
AO	1.04	0.06	mmol/l	101%	0.28
AP	1.02	0.153	mmol/l	99%	-0.42

	All results	Outliers excl.	Unit
Mean $\pm$ CI(99%)	1,187 $\pm$ 0,435	1,029 $\pm$ 0,015	mmol/l
Recov. $\pm$ CI(99%)	115,0 $\pm$ 42,2	99,7 $\pm$ 1,5	%
SD between labs	0,849	0,029	mmol/l
RSD between labs	71,6	2,8	%
n for calculation	29	28	



**Sample N172A**  
**Parameter Alkalinity**

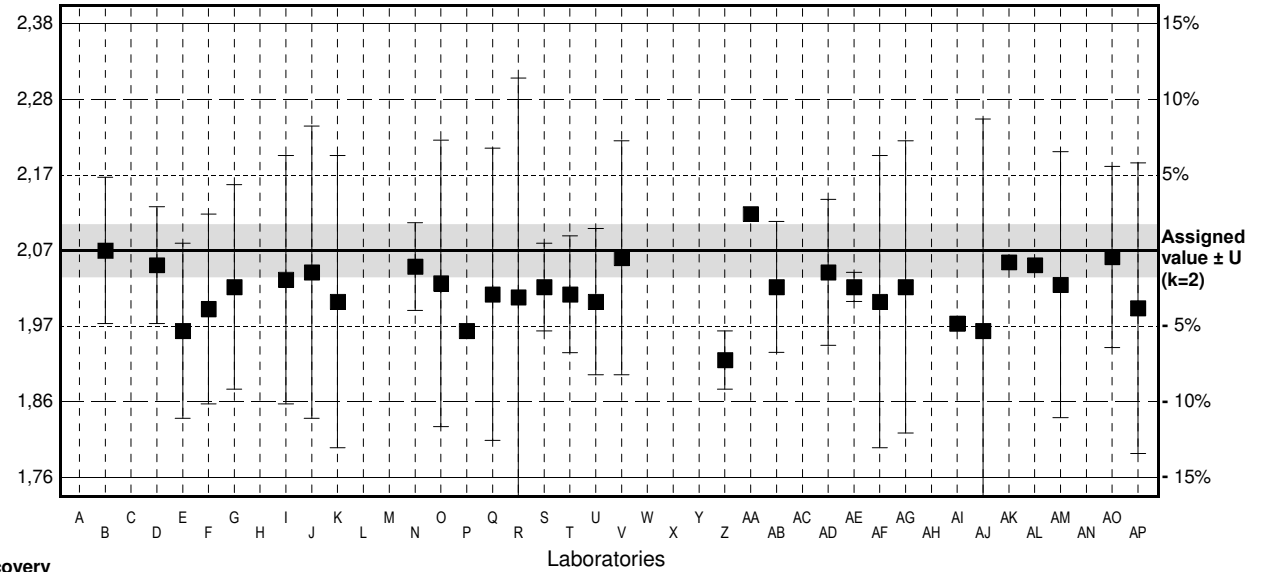
Assigned value ± U (k=2) 2,07 mmol/l ± 0,04 mmol/l  
IFA result ± U (k=2) 2,03 mmol/l ± 0,08 mmol/l

Stability test mmol/l

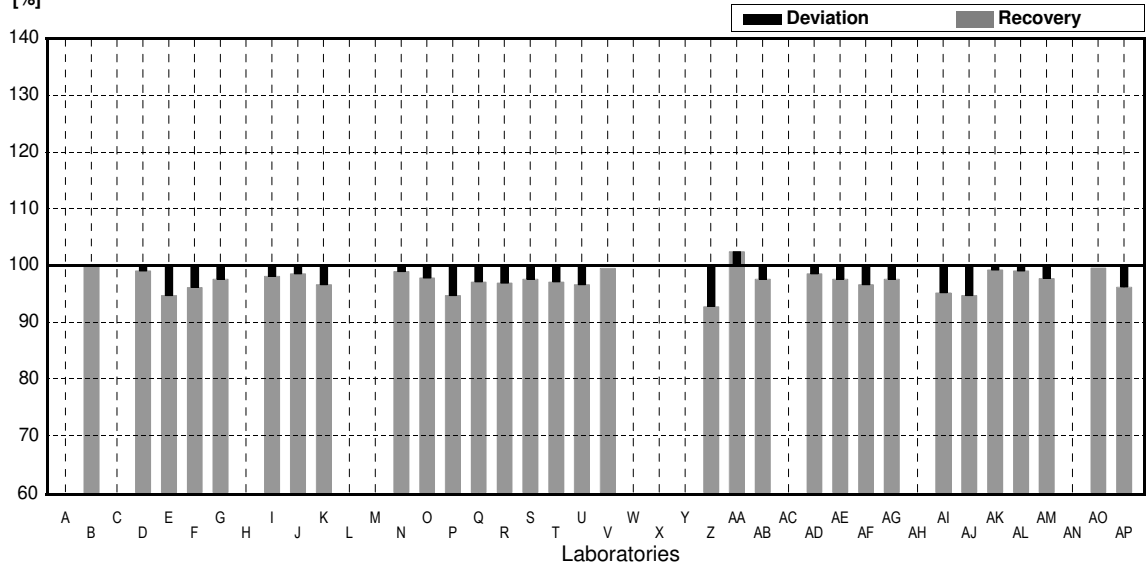
Lab Code	Result	±	Unit	Recovery	z-Score
A			mmol/l		
B	2.07	0.10	mmol/l	100%	0.00
C			mmol/l		
D	2.05	0.08	mmol/l	99%	-0.54
E	1.96	0.12	mmol/l	95%	-2.95
F	1.99	0.13	mmol/l	96%	-2.15
G	2.02	0.14	mmol/l	98%	-1.34
H			mmol/l		
I	2.03	0.17	mmol/l	98%	-1.07
J	2.04	0.20	mmol/l	99%	-0.81
K	2.00	0.2	mmol/l	97%	-1.88
L			mmol/l		
M			mmol/l		
N	2.048	0.06	mmol/l	99%	-0.59
O	2.025	0.196	mmol/l	98%	-1.21
P	1.96		mmol/l	95%	-2.95
Q	2.01	0.20	mmol/l	97%	-1.61
R	2.006	0.3	mmol/l	97%	-1.72
S	2.02	0.06	mmol/l	98%	-1.34
T	2.01	0.08	mmol/l	97%	-1.61
U	2.00	0.10	mmol/l	97%	-1.88
V	2.06	0.16	mmol/l	100%	-0.27
W			mmol/l		
X			mmol/l		
Y			mmol/l		
Z	1.92	0.04	mmol/l	93%	-4.03
AA	2.12	*	mmol/l	102%	1.34
AB	2.02	0.0895	mmol/l	98%	-1.34
AC			mmol/l		
AD	2.04	0.1	mmol/l	99%	-0.81
AE	2.02	0.02	mmol/l	98%	-1.34
AF	2.00	0.2	mmol/l	97%	-1.88
AG	2.02	0.2	mmol/l	98%	-1.34
AH			mmol/l		
AI	1.97		mmol/l	95%	-2.68
AJ	1.96	0.29	mmol/l	95%	-2.95
AK	2.054		mmol/l	99%	-0.43
AL	2.05		mmol/l	99%	-0.54
AM	2.023	0.182	mmol/l	98%	-1.26
AN			mmol/l		
AO	2.061	0.124	mmol/l	100%	-0.24
AP	1.991	0.199	mmol/l	96%	-2.12

	All results	Outliers excl.	Unit
Mean ± CI(99%)	2,02 ± 0,02	2,02 ± 0,02	mmol/l
Recov. ± CI(99%)	97,5 ± 0,9	97,5 ± 0,8	%
SD between labs	0,04	0,03	mmol/l
RSD between labs	2,0	1,5	%
n for calculation	31	29	

**Result**  
[mmol/l]



**Recovery**  
[%]



# Sample N172B

## Parameter Alkalinity

Assigned value ± U (k=2) 1,565 mmol/l ± 0,019 mmol/l

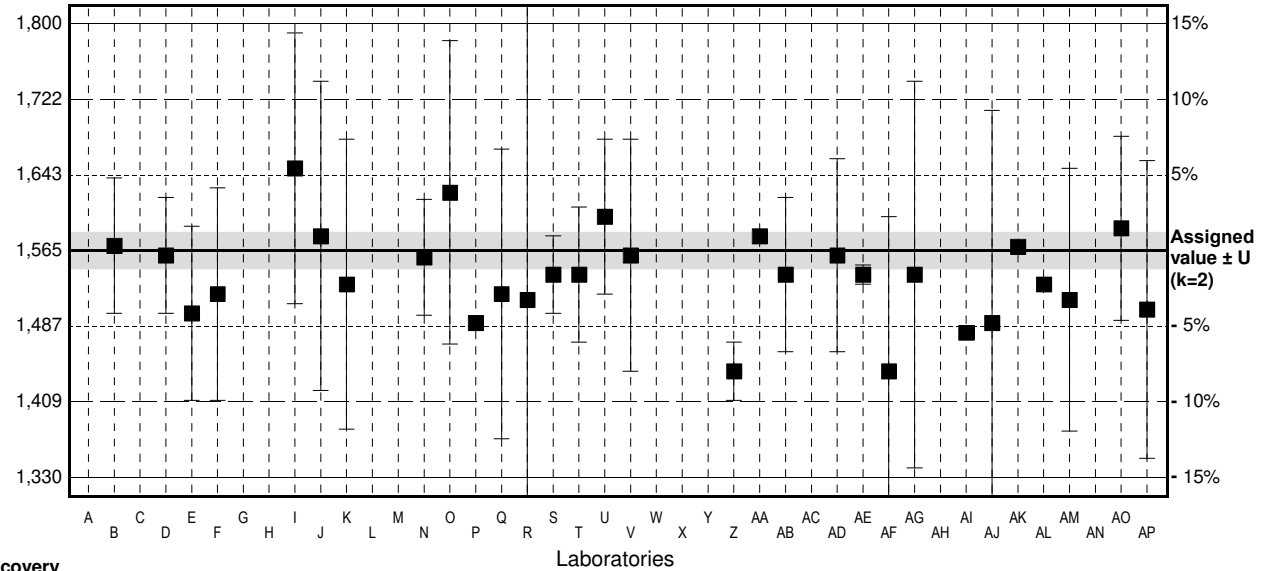
IFA result ± U (k=2) 1,55 mmol/l ± 0,06 mmol/l

Stability test mmol/l

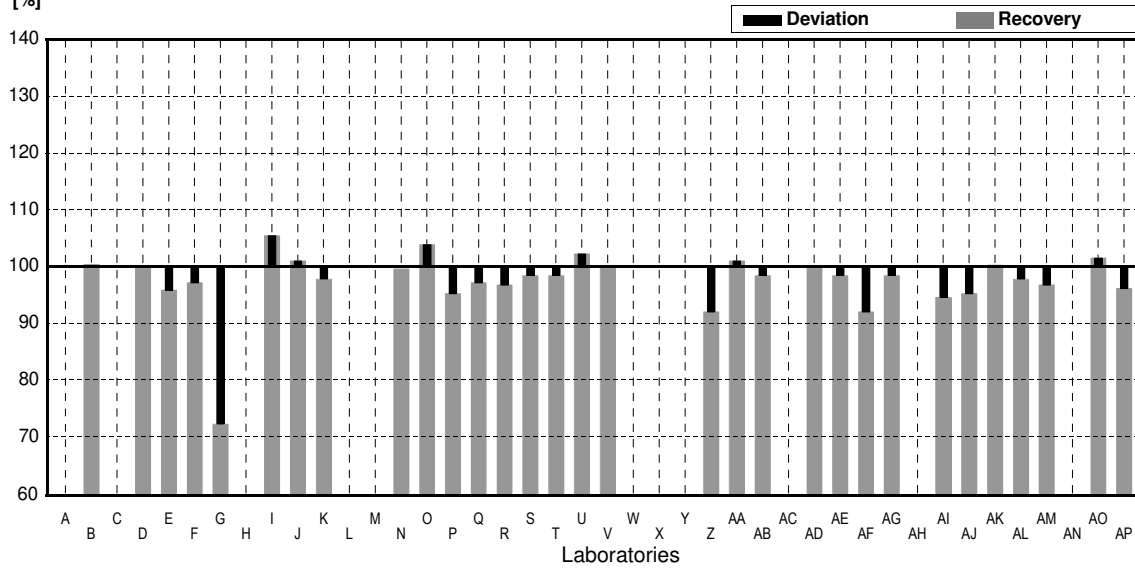
Lab Code	Result	±	Unit	Recovery	z-Score
A			mmol/l		
B	1,570	0,070	mmol/l	100%	0,18
C			mmol/l		
D	1,56	0,06	mmol/l	100%	-0,18
E	1,50	0,09	mmol/l	96%	-2,31
F	1,52	0,11	mmol/l	97%	-1,60
G	1,13 *		mmol/l	72%	-15,44
H			mmol/l		
I	1,65	0,14	mmol/l	105%	3,02
J	1,58	0,16	mmol/l	101%	0,53
K	1,53	0,15	mmol/l	98%	-1,24
L			mmol/l		
M			mmol/l		
N	1,558	0,06	mmol/l	100%	-0,25
O	1,625	0,157	mmol/l	104%	2,13
P	1,49		mmol/l	95%	-2,66
Q	1,52	0,15	mmol/l	97%	-1,60
R	1,514	0,3	mmol/l	97%	-1,81
S	1,54	0,04	mmol/l	98%	-0,89
T	1,54	0,07	mmol/l	98%	-0,89
U	1,60	0,08	mmol/l	102%	1,24
V	1,56	0,12	mmol/l	100%	-0,18
W			mmol/l		
X			mmol/l		
Y			mmol/l		
Z	1,44	0,03	mmol/l	92%	-4,44
AA	1,58		mmol/l	101%	0,53
AB	1,54	0,0797	mmol/l	98%	-0,89
AC			mmol/l		
AD	1,56	0,1	mmol/l	100%	-0,18
AE	1,54	0,01	mmol/l	98%	-0,89
AF	1,44	0,16	mmol/l	92%	-4,44
AG	1,54	0,2	mmol/l	98%	-0,89
AH			mmol/l		
AI	1,48		mmol/l	95%	-3,02
AJ	1,49	0,22	mmol/l	95%	-2,66
AK	1,569		mmol/l	100%	0,14
AL	1,53		mmol/l	98%	-1,24
AM	1,514	0,136	mmol/l	97%	-1,81
AN			mmol/l		
AO	1,588	0,0953	mmol/l	101%	0,82
AP	1,504	0,154	mmol/l	96%	-2,17

	All results	Outliers excl.	Unit
Mean ± CI(99%)	1,526 ± 0,043	1,539 ± 0,024	mmol/l
Recov. ± CI(99%)	97,5 ± 2,7	98,3 ± 1,5	%
SD between labs	0,087	0,048	mmol/l
RSD between labs	5,7	3,1	%
n for calculation	31	30	

Result [mmol/l]



Recovery [%]



# Sample N172A

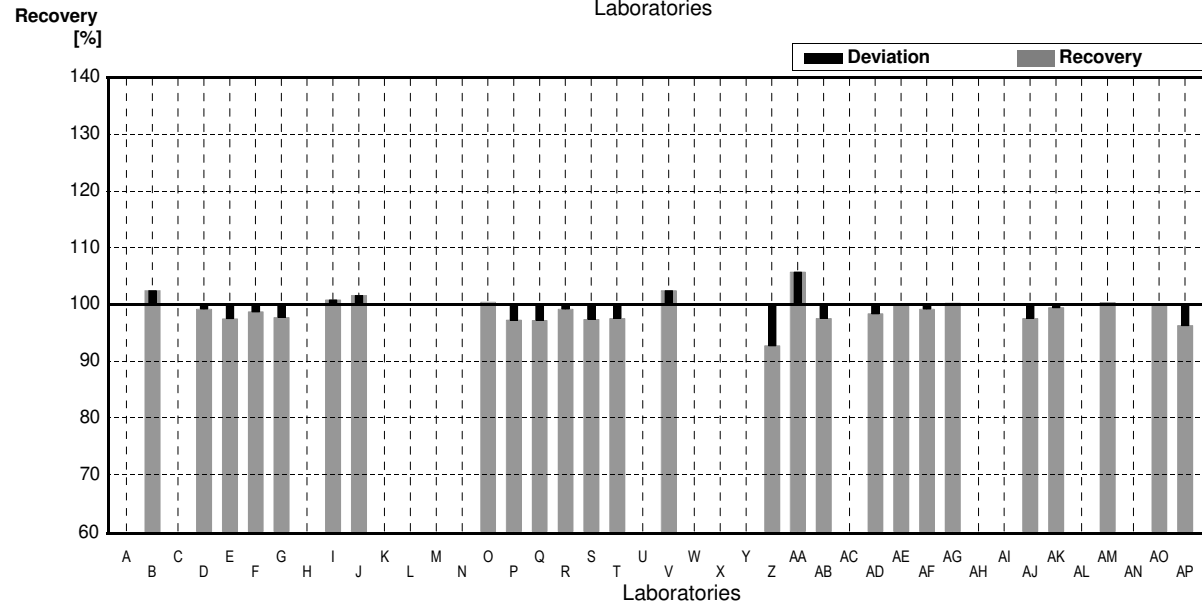
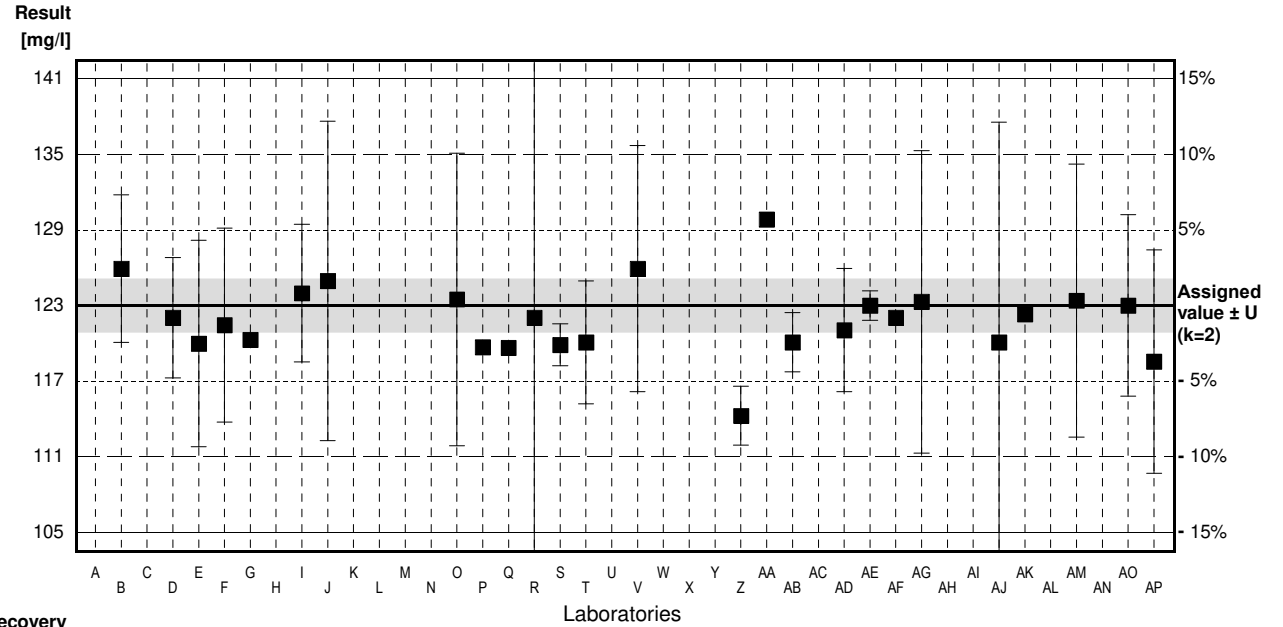
## Parameter Hydrogen carbonate

Assigned value ± U (k=2) 123 mg/l ± 2 mg/l

IFA result ± U (k=2) 121 mg/l ± 5 mg/l

Stability test mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A			mg/l		
B	126	6	mg/l	102%	1.06
C			mg/l		
D	122	4.9	mg/l	99%	-0.35
E	119.9	8.4	mg/l	97%	-1.10
F	121.4	7.9	mg/l	99%	-0.57
G	120.2		mg/l	98%	-0.99
H			mg/l		
I	124	5.6	mg/l	101%	0.35
J	125	13	mg/l	102%	0.71
K			mg/l		
L			mg/l		
M			mg/l		
N			mg/l		
O	123.5	11.9	mg/l	100%	0.18
P	119.6		mg/l	97%	-1.20
Q	119.57		mg/l	97%	-1.21
R	122	20.7	mg/l	99%	-0.35
S	119.8	1.7	mg/l	97%	-1.13
T	120	5	mg/l	98%	-1.06
U	NA		mg/l		
V	126	10	mg/l	102%	1.06
W			mg/l		
X			mg/l		
Y			mg/l		
Z	114.03	2.39	mg/l	93%	-3.17
AA	130		mg/l	106%	2.47
AB	120	2.41	mg/l	98%	-1.06
AC			mg/l		
AD	121	5	mg/l	98%	-0.71
AE	123	1.2	mg/l	100%	0.00
AF	122		mg/l	99%	-0.35
AG	123.3	12.3	mg/l	100%	0.11
AH			mg/l		
AI			mg/l		
AJ	120	17.9	mg/l	98%	-1.06
AK	122.3		mg/l	99%	-0.25
AL			mg/l		
AM	123.4	11.1	mg/l	100%	0.14
AN			mg/l		
AO	123	7.38	mg/l	100%	0.00
AP	118.43	9.09	mg/l	96%	-1.62



	All results	Outliers excl.	Unit
Mean ± CI(99%)	122 ± 2	122 ± 2	mg/l
Recov. ± CI(99%)	99,1 ± 1,4	99,1 ± 1,4	%
SD between labs	3	3	mg/l
RSD between labs	2,5	2,5	%
n for calculation	26	26	

# Sample N172B

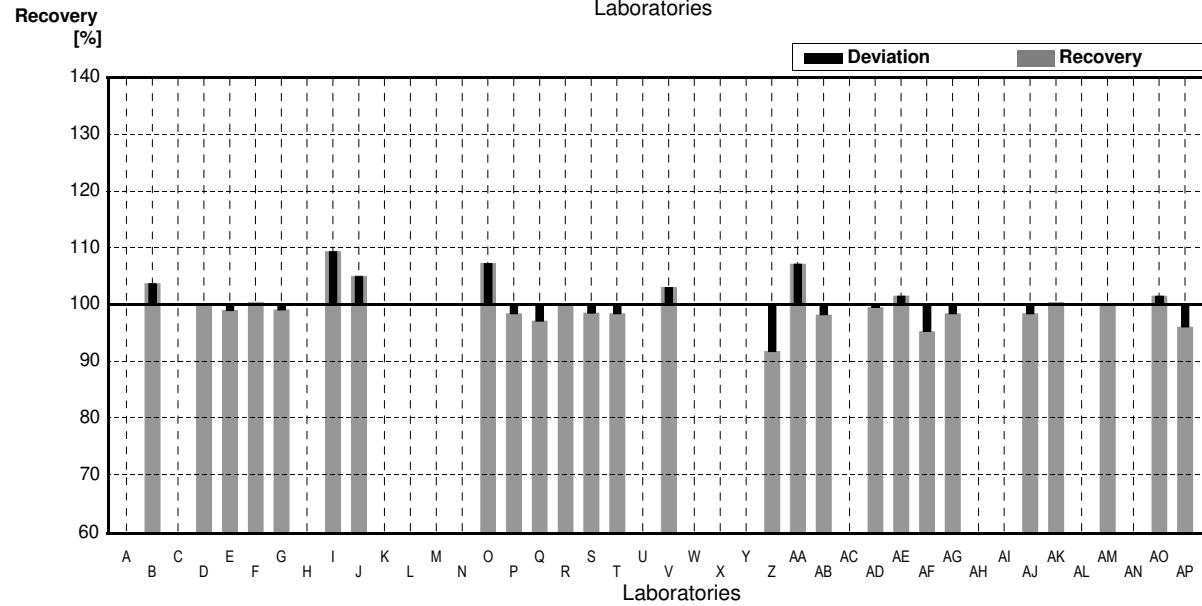
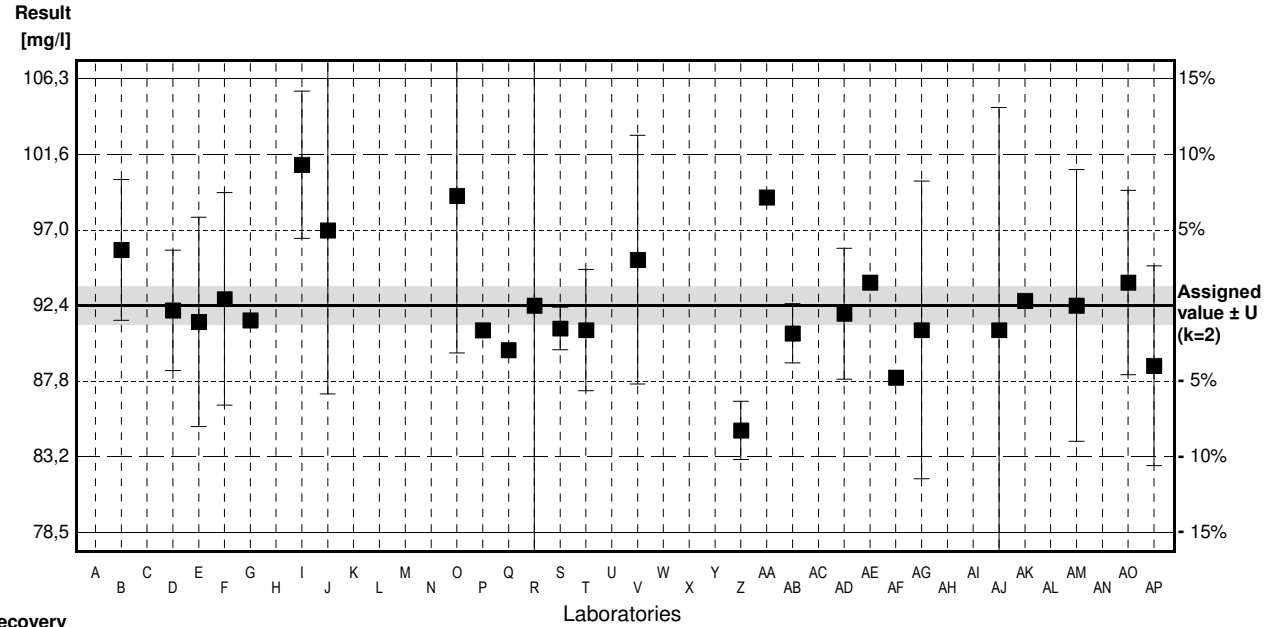
## Parameter Hydrogen carbonate

Assigned value ± U (k=2) 92,4 mg/l ± 1,2 mg/l

IFA result ± U (k=2) 91 mg/l ± 4 mg/l

Stability test mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A			mg/l		
B	95.8	4.3	mg/l	104%	1.60
C			mg/l		
D	92.1	3.68	mg/l	100%	-0.14
E	91.4	6.4	mg/l	99%	-0.47
F	92.8	6.5	mg/l	100%	0.19
G	91.5		mg/l	99%	-0.42
H			mg/l		
I	101 *	4.5	mg/l	109%	4.05
J	97	10	mg/l	105%	2.16
K			mg/l		
L			mg/l		
M			mg/l		
N			mg/l		
O	99.1 *	9.6	mg/l	107%	3.15
P	90.89		mg/l	98%	-0.71
Q	89.68		mg/l	97%	-1.28
R	92.4	15.7	mg/l	100%	0.00
S	91	1.3	mg/l	98%	-0.66
T	90.9	3.7	mg/l	98%	-0.71
U	NA		mg/l		
V	95.2	7.6	mg/l	103%	1.32
W			mg/l		
X			mg/l		
Y			mg/l		
Z	84.76 *	1.78	mg/l	92%	-3.59
AA	99 *		mg/l	107%	3.11
AB	90.7	1.81	mg/l	98%	-0.80
AC			mg/l		
AD	91.9	4	mg/l	99%	-0.24
AE	93.8	0.25	mg/l	102%	0.66
AF	88		mg/l	95%	-2.07
AG	90.9	9.1	mg/l	98%	-0.71
AH			mg/l		
AI			mg/l		
AJ	90.9	13.6	mg/l	98%	-0.71
AK	92.7		mg/l	100%	0.14
AL			mg/l		
AM	92.4	8.3	mg/l	100%	0.00
AN			mg/l		
AO	93.8	5.63	mg/l	102%	0.66
AP	88.72	6.10	mg/l	96%	-1.73



	All results	Outliers excl.	Unit
Mean ± CI(99%)	92,6 ± 2,0	92,0 ± 1,3	mg/l
Recov. ± CI(99%)	100,2 ± 2,1	99,6 ± 1,4	%
SD between labs	3,6	2,2	mg/l
RSD between labs	3,9	2,3	%
n for calculation	26	22	

# Sample N172A

## Parameter Calcium

Assigned value ± U (k=2) 45,0 mg/l ± 0,8 mg/l

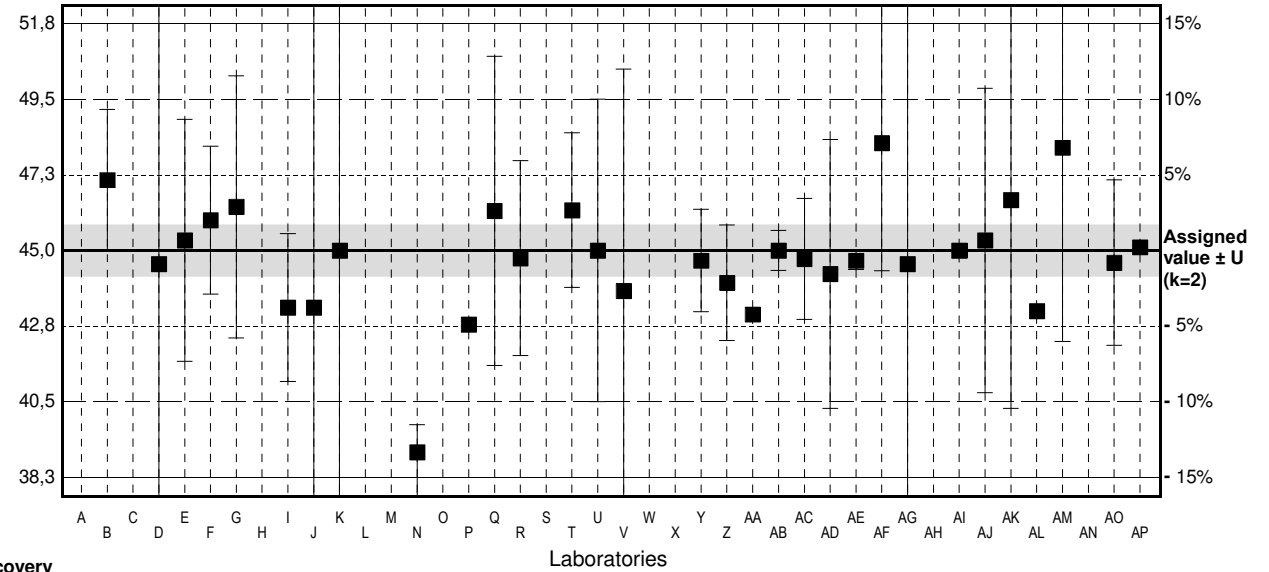
IFA result ± U (k=2) 41,8 mg/l ± 1,9 mg/l

Stability test mg/l

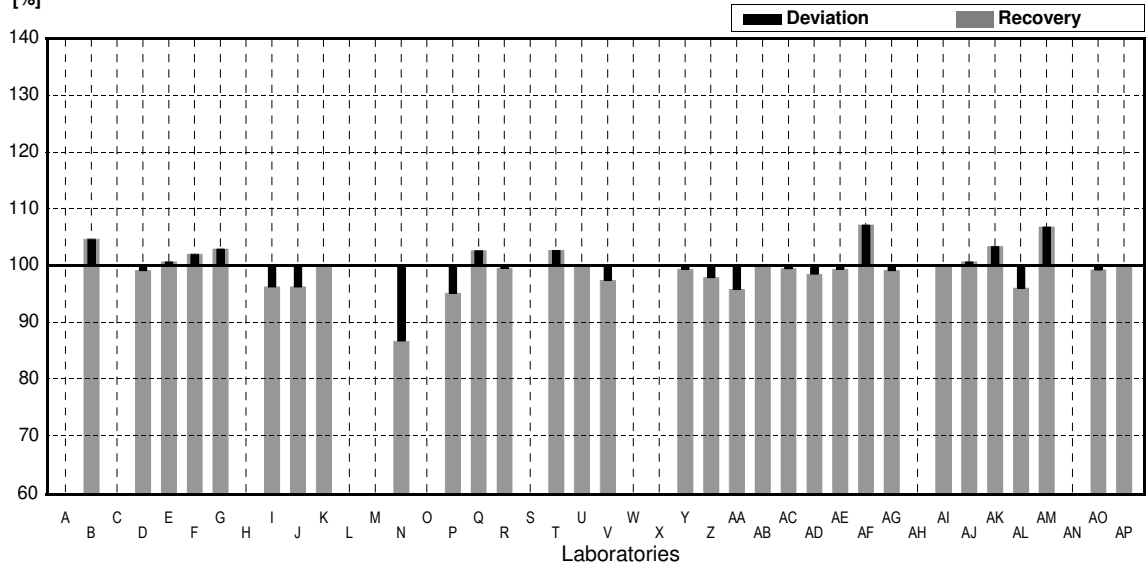
Lab Code	Result	±	Unit	Recovery	z-Score
A			mg/l		
B	47,1	2,1	mg/l	105%	1,51
C			mg/l		
D	44,6	8,03	mg/l	99%	-0,29
E	45,3	3,6	mg/l	101%	0,22
F	45,9	2,2	mg/l	102%	0,65
G	46,3	3,9	mg/l	103%	0,93
H			mg/l		
I	43,3	2,2	mg/l	96%	-1,22
J	43,3	8,7	mg/l	96%	-1,22
K	45,0	9,0	mg/l	100%	0,00
L			mg/l		
M			mg/l		
N	39,0 *	0,82	mg/l	87%	-4,30
O			mg/l		
P	42,80		mg/l	95%	-1,58
Q	46,18	4,6	mg/l	103%	0,85
R	44,77	2,9	mg/l	99%	-0,16
S			mg/l		
T	46,2	2,3	mg/l	103%	0,86
U	45,0	4,5	mg/l	100%	0,00
V	43,8	6,6	mg/l	97%	-0,86
W			mg/l		
X			mg/l		
Y	44,7	1,52	mg/l	99%	-0,22
Z	44,04	1,72	mg/l	98%	-0,69
AA	43,1		mg/l	96%	-1,36
AB	45,0	0,592	mg/l	100%	0,00
AC	44,75	1,8	mg/l	99%	-0,18
AD	44,3	4	mg/l	98%	-0,50
AE	44,7	0,27	mg/l	99%	-0,22
AF	48,2 *	3,8	mg/l	107%	2,29
AG	44,6	9,0	mg/l	99%	-0,29
AH			mg/l		
AI	45,0		mg/l	100%	0,00
AJ	45,3	4,53	mg/l	101%	0,22
AK	46,5	6,2	mg/l	103%	1,08
AL	43,2		mg/l	96%	-1,29
AM	48,06	5,77	mg/l	107%	2,19
AN			mg/l		
AO	44,638	2,46	mg/l	99%	-0,26
AP	45,1	0,050	mg/l	100%	0,07

	All results	Outliers excl.	Unit
Mean ± CI(99%)	44,8 ± 0,8	44,9 ± 0,6	mg/l
Recov. ± CI(99%)	99,6 ± 1,9	99,8 ± 1,4	%
SD between labs	1,7	1,2	mg/l
RSD between labs	3,8	2,7	%
n for calculation	31	29	

Result [mg/l]



Recovery [%]



# Sample N172B

## Parameter Calcium

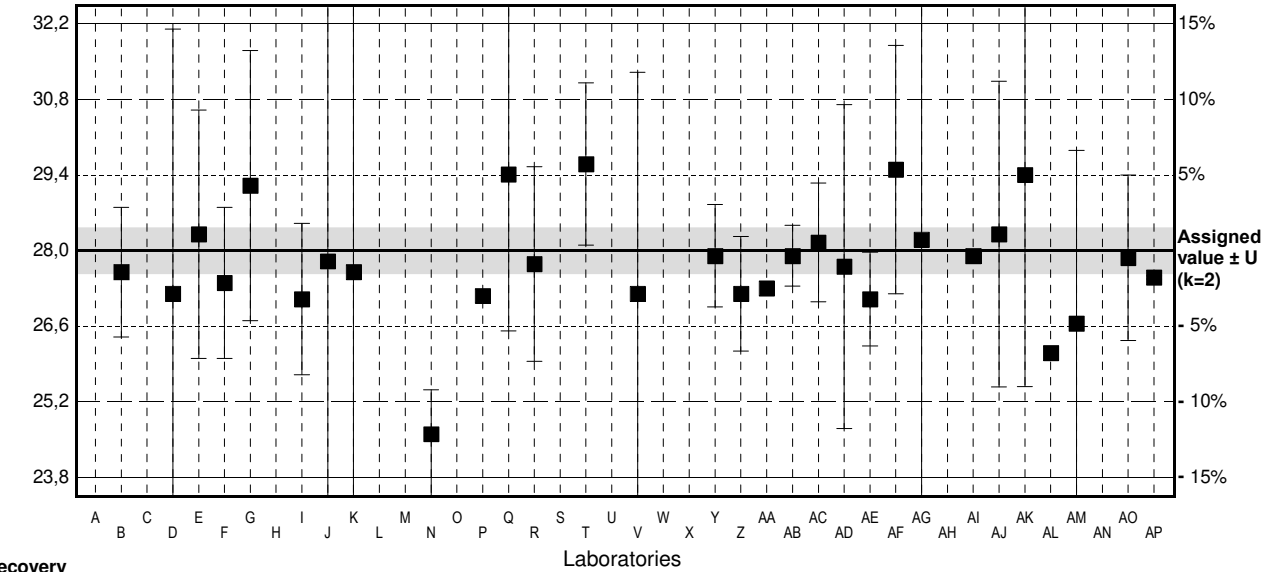
Assigned value ± U (k=2) 28,0 mg/l ± 0,4 mg/l

IFA result ± U (k=2) 26,4 mg/l ± 1,3 mg/l

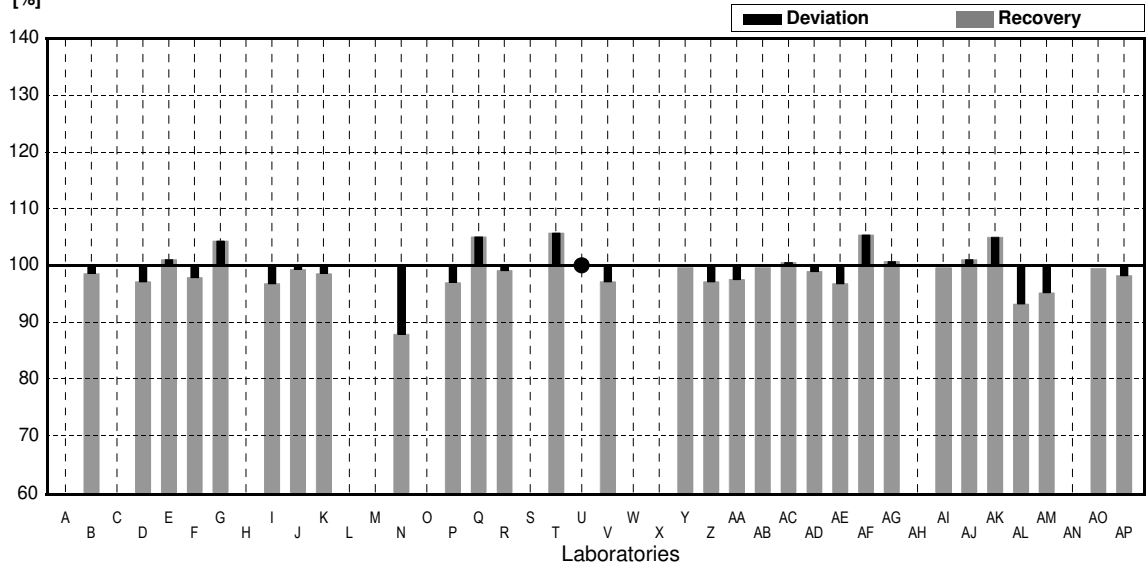
Stability test mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A			mg/l		
B	27.6	1.2	mg/l	99%	-0.46
C			mg/l		
D	27.2	4.9	mg/l	97%	-0.92
E	28.3	2.3	mg/l	101%	0.35
F	27.4	1.4	mg/l	98%	-0.69
G	29.2	2.5	mg/l	104%	1.38
H			mg/l		
I	27.1	1.4	mg/l	97%	-1.04
J	27.8	5.6	mg/l	99%	-0.23
K	27.6	5.6	mg/l	99%	-0.46
L			mg/l		
M			mg/l		
N	24.6 *	0.82	mg/l	88%	-3.92
O			mg/l		
P	27.16		mg/l	97%	-0.97
Q	29.41	2.9	mg/l	105%	1.62
R	27.75	1.8	mg/l	99%	-0.29
S			mg/l		
T	29.6	1.5	mg/l	106%	1.84
U	<40		mg/l	*	
V	27.2	4.1	mg/l	97%	-0.92
W			mg/l		
X			mg/l		
Y	27.9	0.949	mg/l	100%	-0.12
Z	27.20	1.06	mg/l	97%	-0.92
AA	27.3		mg/l	98%	-0.81
AB	27.9	0.563	mg/l	100%	-0.12
AC	28.15	1.1	mg/l	101%	0.17
AD	27.7	3	mg/l	99%	-0.35
AE	27.1	0.87	mg/l	97%	-1.04
AF	29.5	2.3	mg/l	105%	1.73
AG	28.2	5.7	mg/l	101%	0.23
AH			mg/l		
AI	27.9		mg/l	100%	-0.12
AJ	28.3	2.83	mg/l	101%	0.35
AK	29.4	3.92	mg/l	105%	1.61
AL	26.1		mg/l	93%	-2.19
AM	26.65	3.2	mg/l	95%	-1.56
AN			mg/l		
AO	27.864	1.53	mg/l	100%	-0.16
AP	27.5	0.031	mg/l	98%	-0.58

Result [mg/l]



Recovery [%]



	All results	Outliers excl.	Unit
Mean ± CI(99%)	27,8 ± 0,5	27,9 ± 0,4	mg/l
Recov. ± CI(99%)	99,1 ± 1,9	99,5 ± 1,6	%
SD between labs	1,0	0,9	mg/l
RSD between labs	3,8	3,1	%
n for calculation	30	29	

# Sample N172A

## Parameter Magnesium

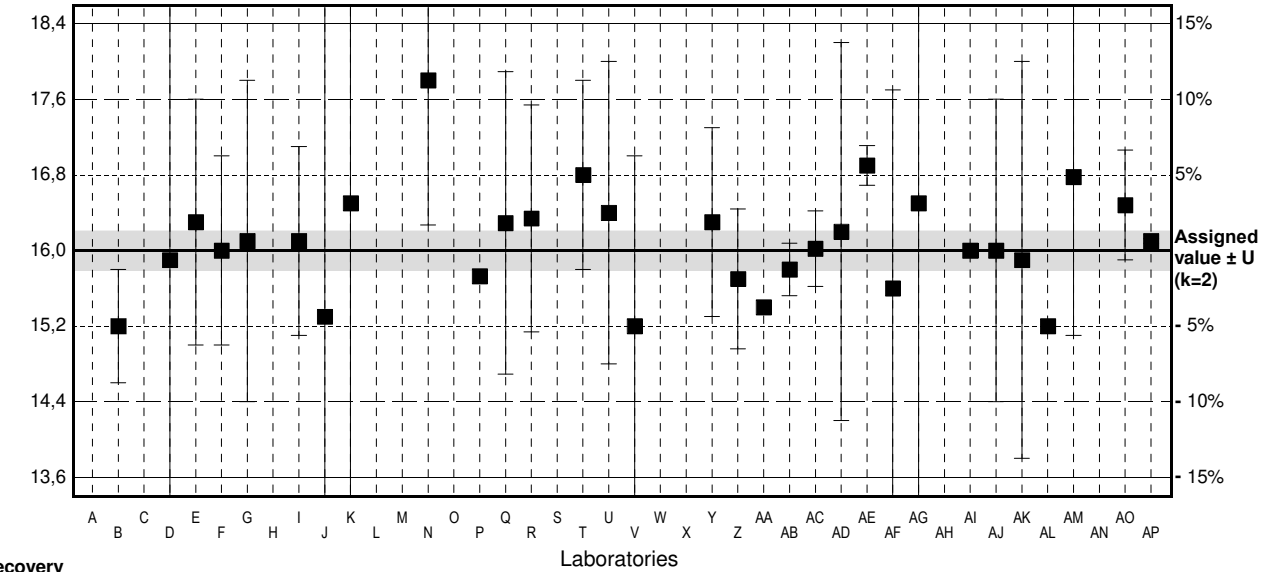
Assigned value ± U (k=2) 16,0 mg/l ± 0,2 mg/l

IFA result ± U (k=2) 16,6 mg/l ± 0,9 mg/l

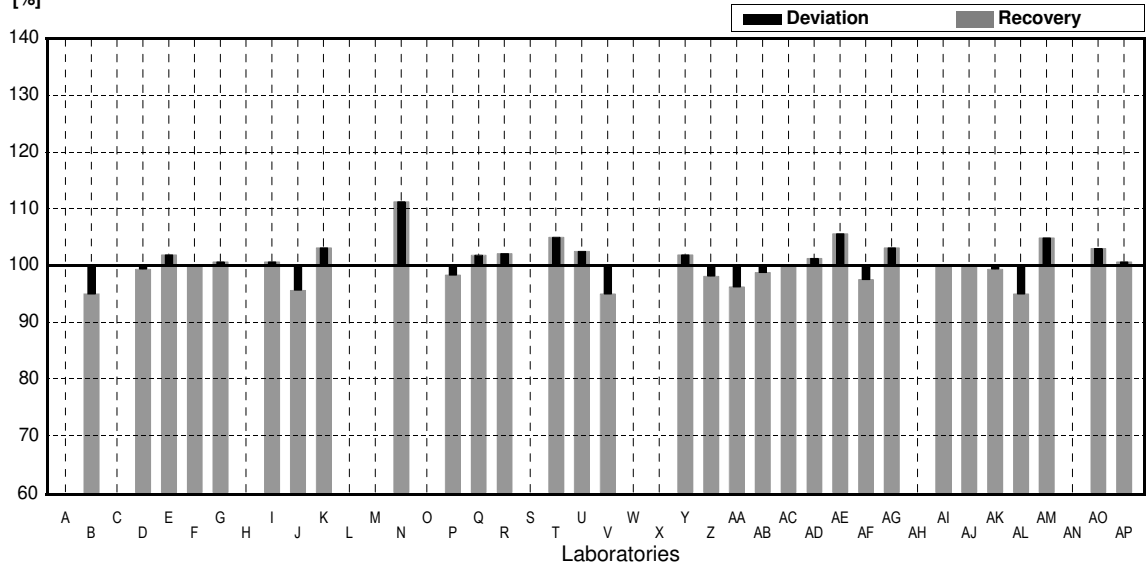
Stability test mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A			mg/l		
B	15.2	0.6	mg/l	95%	-1.43
C			mg/l		
D	15.9	2.86	mg/l	99%	-0.18
E	16.3	1.3	mg/l	102%	0.54
F	16.0	1.0	mg/l	100%	0.00
G	16.1	1.7	mg/l	101%	0.18
H			mg/l		
I	16.1	1.0	mg/l	101%	0.18
J	15.3	3.1	mg/l	96%	-1.25
K	16.5	3.3	mg/l	103%	0.89
L			mg/l		
M			mg/l		
N	17.8	1.53	mg/l	111%	3.21
O			mg/l		
P	15.73		mg/l	98%	-0.48
Q	16.29	1.6	mg/l	102%	0.52
R	16.34	1.2	mg/l	102%	0.61
S			mg/l		
T	16.8	1.0	mg/l	105%	1.43
U	16.4	1.6	mg/l	103%	0.71
V	15.2	1.8	mg/l	95%	-1.43
W			mg/l		
X			mg/l		
Y	16.3	1.00	mg/l	102%	0.54
Z	15.70	0.74	mg/l	98%	-0.54
AA	15.4		mg/l	96%	-1.07
AB	15.8	0.277	mg/l	99%	-0.36
AC	16.02	0.4	mg/l	100%	0.04
AD	16.2	2	mg/l	101%	0.36
AE	16.9	0.21	mg/l	106%	1.61
AF	15.6	2.1	mg/l	98%	-0.71
AG	16.5	3.3	mg/l	103%	0.89
AH			mg/l		
AI	16.0		mg/l	100%	0.00
AJ	16.0	1.60	mg/l	100%	0.00
AK	15.9	2.1	mg/l	99%	-0.18
AL	15.2		mg/l	95%	-1.43
AM	16.78	1.68	mg/l	105%	1.39
AN			mg/l		
AO	16.481	0.58	mg/l	103%	0.86
AP	16.1	0.024	mg/l	101%	0.18

Result [mg/l]



Recovery [%]



	All results	Outliers excl.	Unit
Mean ± CI(99%)	16,1 ± 0,3	16,0 ± 0,2	mg/l
Recov. ± CI(99%)	100,6 ± 1,7	100,2 ± 1,5	%
SD between labs	0,6	0,5	mg/l
RSD between labs	3,5	3,0	%
n for calculation	31	30	

# Sample N172B

## Parameter Magnesium

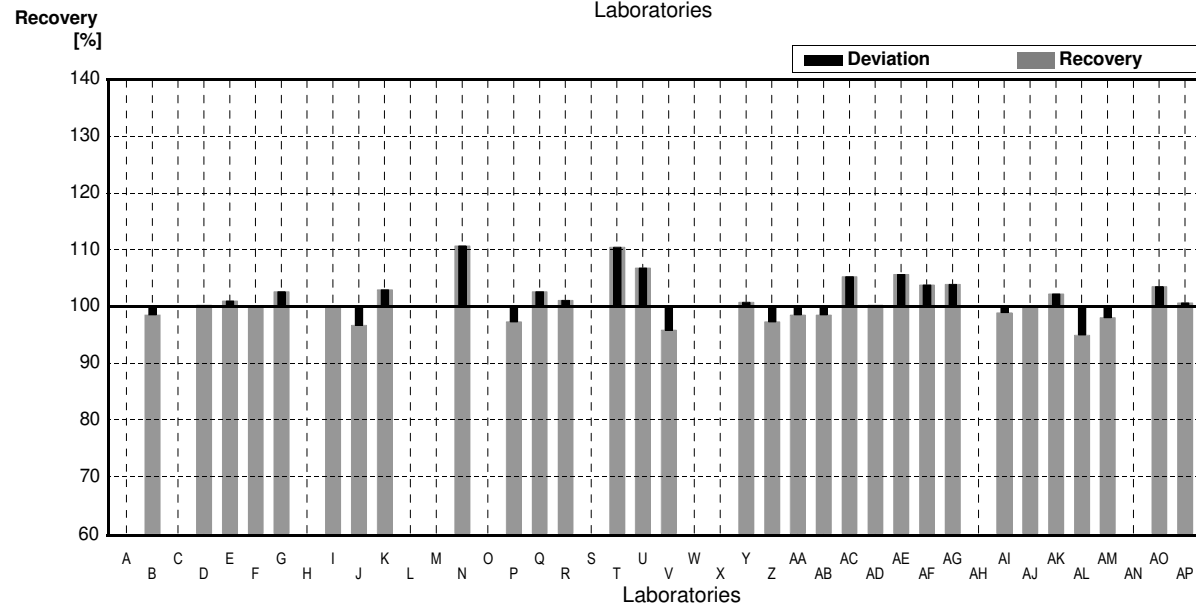
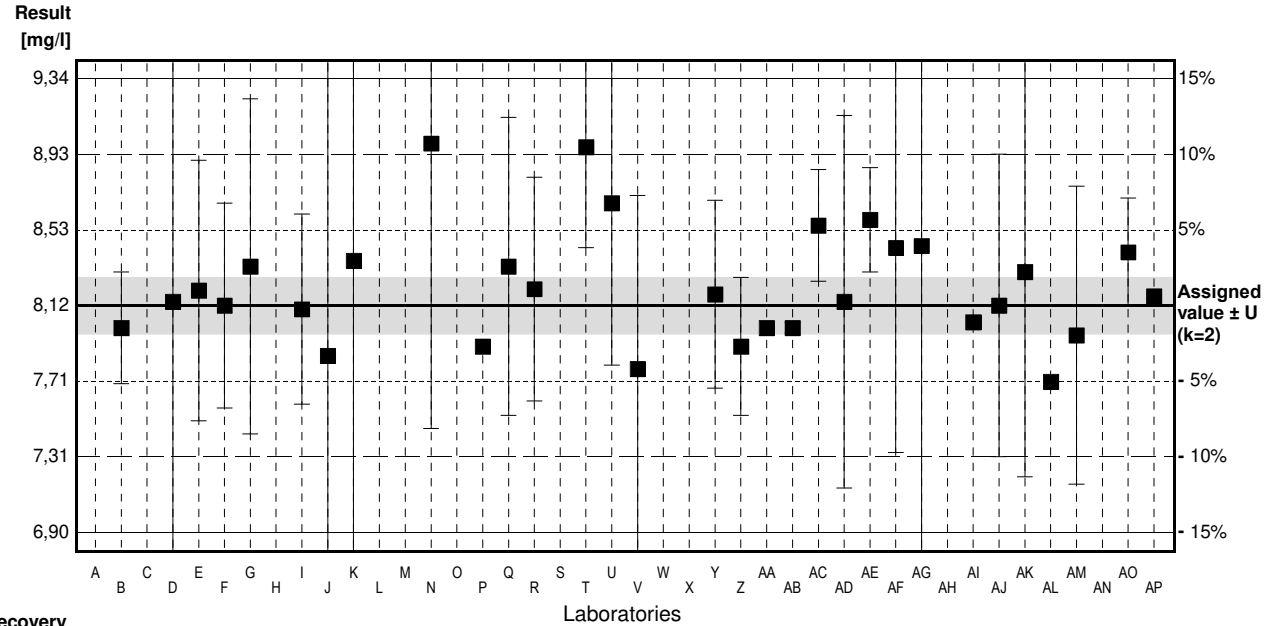
Assigned value ± U (k=2) 8,12 mg/l ± 0,15 mg/l

IFA result ± U (k=2) 8,4 mg/l ± 0,5 mg/l

Stability test mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A			mg/l		
B	8.0	0.3	mg/l	99%	-0.42
C			mg/l		
D	8.14	1.47	mg/l	100%	0.07
E	8.2	0.7	mg/l	101%	0.28
F	8.12	0.55	mg/l	100%	0.00
G	8.33	0.9	mg/l	103%	0.74
H			mg/l		
I	8.1	0.51	mg/l	100%	-0.07
J	7.85	1.6	mg/l	97%	-0.95
K	8.36	1.7	mg/l	103%	0.84
L			mg/l		
M			mg/l		
N	8.99 *	1.53	mg/l	111%	3.06
O			mg/l		
P	7.90		mg/l	97%	-0.77
Q	8.33	0.8	mg/l	103%	0.74
R	8.208	0.6	mg/l	101%	0.31
S			mg/l		
T	8.97 *	0.54	mg/l	110%	2.99
U	8.67	0.87	mg/l	107%	1.94
V	7.78	0.93	mg/l	96%	-1.20
W			mg/l		
X			mg/l		
Y	8.18	0.504	mg/l	101%	0.21
Z	7.90	0.37	mg/l	97%	-0.77
AA	8.0		mg/l	99%	-0.42
AB	8.00	0.0287	mg/l	99%	-0.42
AC	8.55	0.3	mg/l	105%	1.51
AD	8.14	1	mg/l	100%	0.07
AE	8.58	0.28	mg/l	106%	1.62
AF	8.43	1.1	mg/l	104%	1.09
AG	8.44	1.7	mg/l	104%	1.13
AH			mg/l		
AI	8.03		mg/l	99%	-0.32
AJ	8.12	0.812	mg/l	100%	0.00
AK	8.3	1.1	mg/l	102%	0.63
AL	7.71		mg/l	95%	-1.44
AM	7.96	0.80	mg/l	98%	-0.56
AN			mg/l		
AO	8.406	0.29	mg/l	104%	1.01
AP	8.17	0.012	mg/l	101%	0.18

	All results	Outliers excl.	Unit
Mean ± CI(99%)	8,22 ± 0,15	8,17 ± 0,12	mg/l
Recov. ± CI(99%)	101,2 ± 1,9	100,6 ± 1,5	%
SD between labs	0,31	0,24	mg/l
RSD between labs	3,8	3,0	%
n for calculation	31	29	



**Sample N172A**  
**Parameter Sodium**

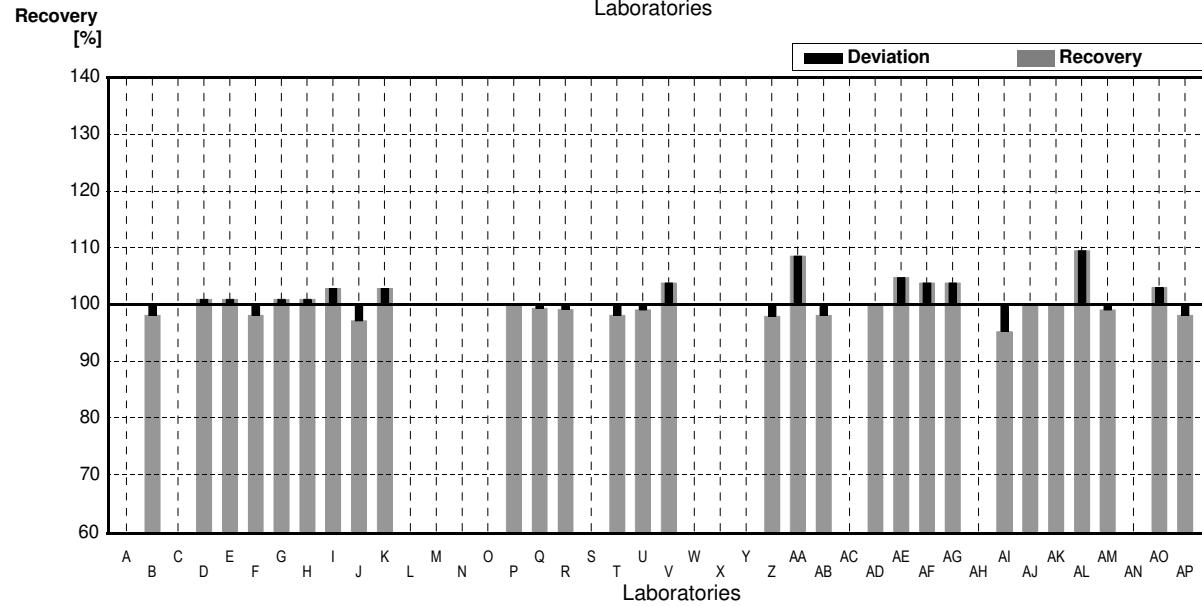
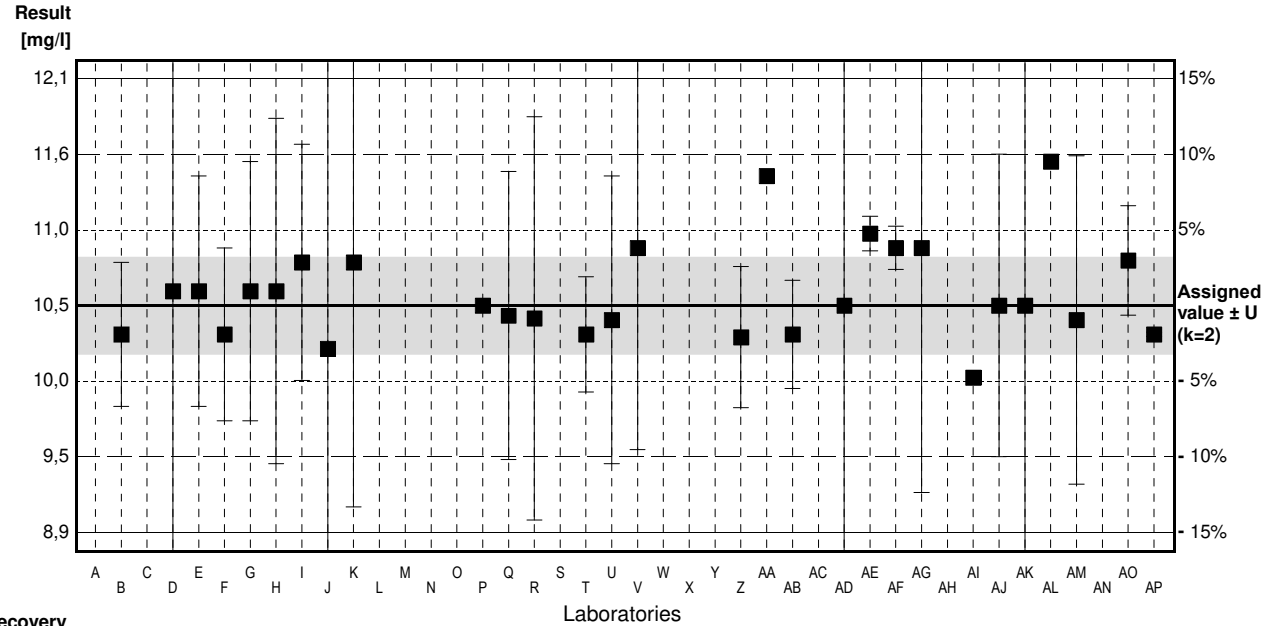
Assigned value ± U (k=2) 10,5 mg/l ± 0,3 mg/l

IFA result ± U (k=2) 10,2 mg/l ± 0,9 mg/l

Stability test mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A			mg/l		
B	10.3	0.5	mg/l	98%	-0.61
C			mg/l		
D	10.6	1.91	mg/l	101%	0.31
E	10.6	0.8	mg/l	101%	0.31
F	10.3	0.6	mg/l	98%	-0.61
G	10.6	0.9	mg/l	101%	0.31
H	10.6	1.2	mg/l	101%	0.31
I	10.8	0.82	mg/l	103%	0.92
J	10.2	2.0	mg/l	97%	-0.92
K	10.8	1.7	mg/l	103%	0.92
L			mg/l		
M			mg/l		
N			mg/l		
O			mg/l		
P	10.50		mg/l	100%	0.00
Q	10.43	1.0	mg/l	99%	-0.22
R	10.41	1.4	mg/l	99%	-0.28
S			mg/l		
T	10.3	0.4	mg/l	98%	-0.61
U	10.4	1.0	mg/l	99%	-0.31
V	10.9	1.4	mg/l	104%	1.23
W			mg/l		
X			mg/l		
Y			mg/l		
Z	10.28	0.49	mg/l	98%	-0.68
AA	11.4		mg/l	109%	2.76
AB	10.3	0.375	mg/l	98%	-0.61
AC			mg/l		
AD	10.5	1.6	mg/l	100%	0.00
AE	11.0	0.12	mg/l	105%	1.54
AF	10.9	0.15	mg/l	104%	1.23
AG	10.9	1.7	mg/l	104%	1.23
AH			mg/l		
AI	10.0		mg/l	95%	-1.54
AJ	10.5	1.05	mg/l	100%	0.00
AK	10.5	1.86	mg/l	100%	0.00
AL	11.5 *		mg/l	110%	3.07
AM	10.4	1.14	mg/l	99%	-0.31
AN			mg/l		
AO	10.813	0.38	mg/l	103%	0.96
AP	10.3	0.015	mg/l	98%	-0.61

	All results	Outliers excl.	Unit
Mean ± CI(99%)	10,6 ± 0,2	10,6 ± 0,2	mg/l
Recov. ± CI(99%)	100,8 ± 1,7	100,5 ± 1,5	%
SD between labs	0,3	0,3	mg/l
RSD between labs	3,2	2,8	%
n for calculation	29	28	



**Sample N172B**  
**Parameter Sodium**

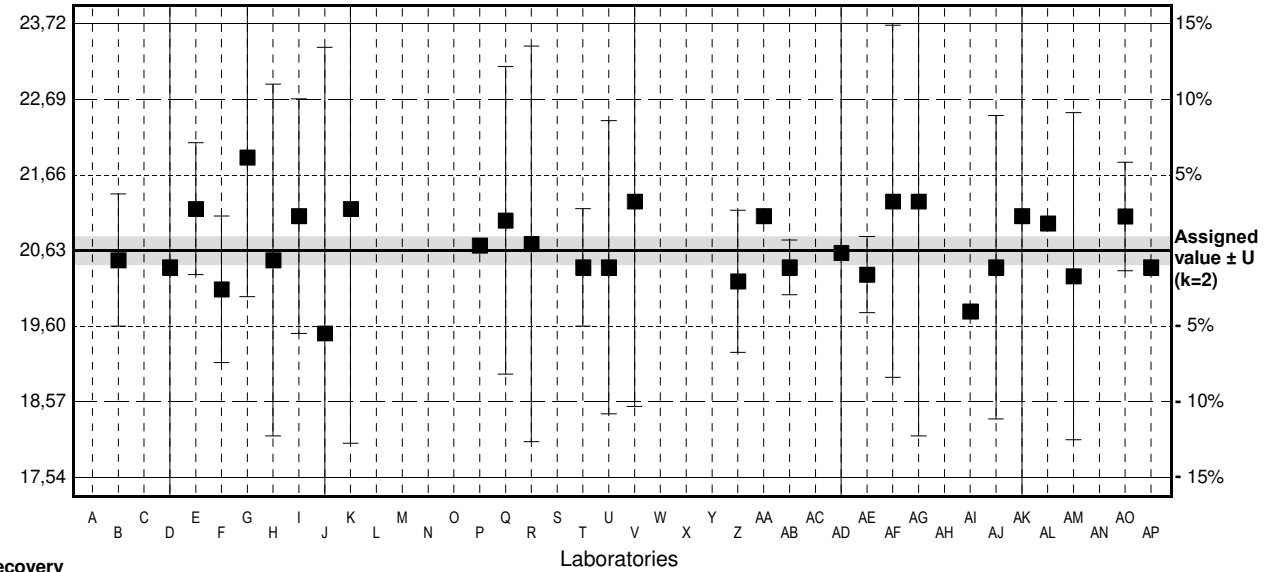
Assigned value ± U (k=2) 20,63 mg/l ± 0,19 mg/l

IFA result ± U (k=2) 20,0 mg/l ± 1,2 mg/l

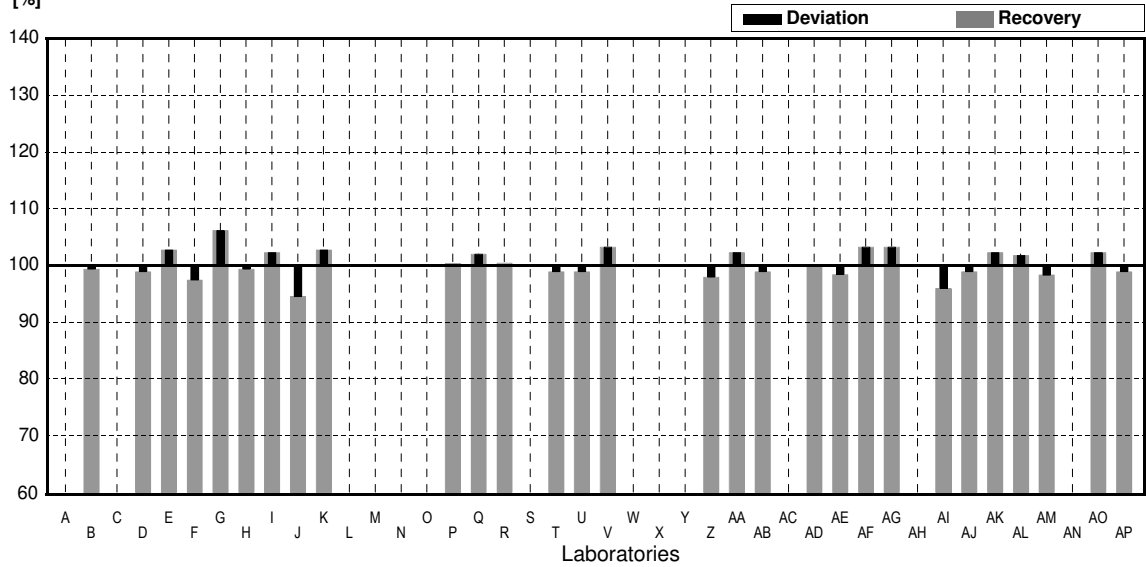
Stability test mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A			mg/l		
B	20.5	0.9	mg/l	99%	-0.20
C			mg/l		
D	20.4	3.67	mg/l	99%	-0.36
E	21.2	0.9	mg/l	103%	0.89
F	20.1	1.0	mg/l	97%	-0.83
G	21.9	1.9	mg/l	106%	1.99
H	20.5	2.4	mg/l	99%	-0.20
I	21.1	1.6	mg/l	102%	0.73
J	19.5	3.9	mg/l	95%	-1.77
K	21.2	3.2	mg/l	103%	0.89
L			mg/l		
M			mg/l		
N			mg/l		
O			mg/l		
P	20.70		mg/l	100%	0.11
Q	21.04	2.1	mg/l	102%	0.64
R	20.72	2.7	mg/l	100%	0.14
S			mg/l		
T	20.4	0.8	mg/l	99%	-0.36
U	20.4	2.0	mg/l	99%	-0.36
V	21.3	2.8	mg/l	103%	1.05
W			mg/l		
X			mg/l		
Y			mg/l		
Z	20.21	0.97	mg/l	98%	-0.66
AA	21.1		mg/l	102%	0.73
AB	20.4	0.372	mg/l	99%	-0.36
AC			mg/l		
AD	20.6	4	mg/l	100%	-0.05
AE	20.3	0.52	mg/l	98%	-0.52
AF	21.3	2.4	mg/l	103%	1.05
AG	21.3	3.2	mg/l	103%	1.05
AH			mg/l		
AI	19.8		mg/l	96%	-1.30
AJ	20.4	2.07	mg/l	99%	-0.36
AK	21.1	3.73	mg/l	102%	0.73
AL	21.0		mg/l	102%	0.58
AM	20.28	2.23	mg/l	98%	-0.55
AN			mg/l		
AO	21.095	0.74	mg/l	102%	0.73
AP	20.4	0.030	mg/l	99%	-0.36

**Result [mg/l]**



**Recovery [%]**



	All results	Outliers excl.	Unit
Mean ± CI(99%)	20,70 ± 0,27	20,70 ± 0,27	mg/l
Recov. ± CI(99%)	100,3 ± 1,3	100,3 ± 1,3	%
SD between labs	0,52	0,52	mg/l
RSD between labs	2,5	2,5	%
n for calculation	29	29	

# Sample N172A

## Parameter Potassium

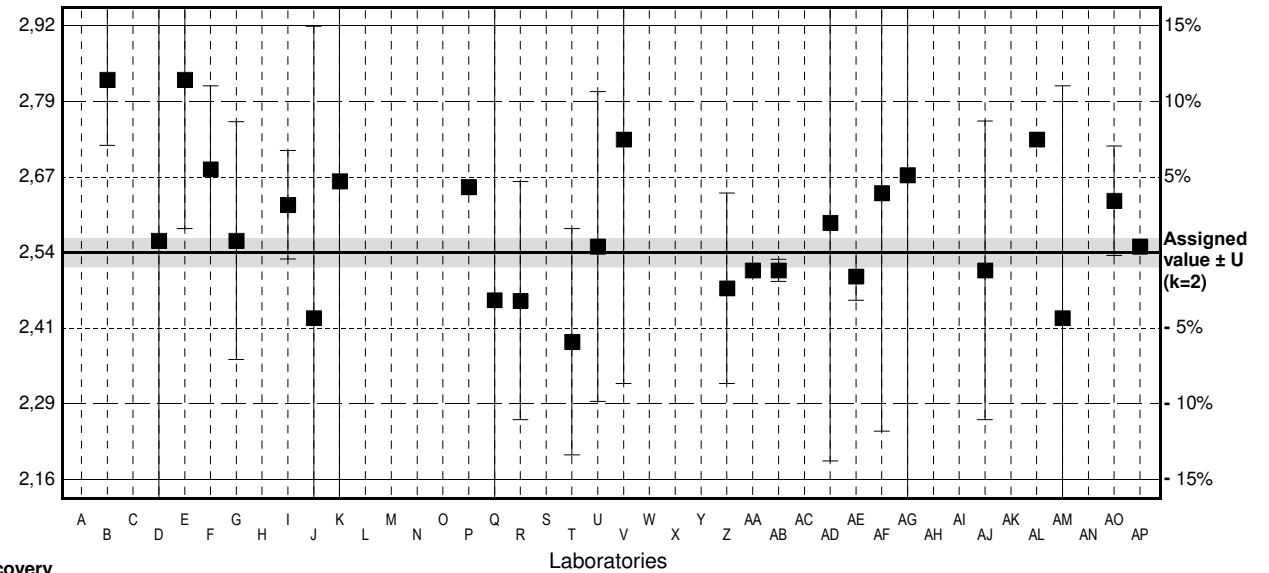
Assigned value ± U (k=2) 2,54 mg/l ± 0,02 mg/l

IFA result ± U (k=2) 2,55 mg/l ± 0,17 mg/l

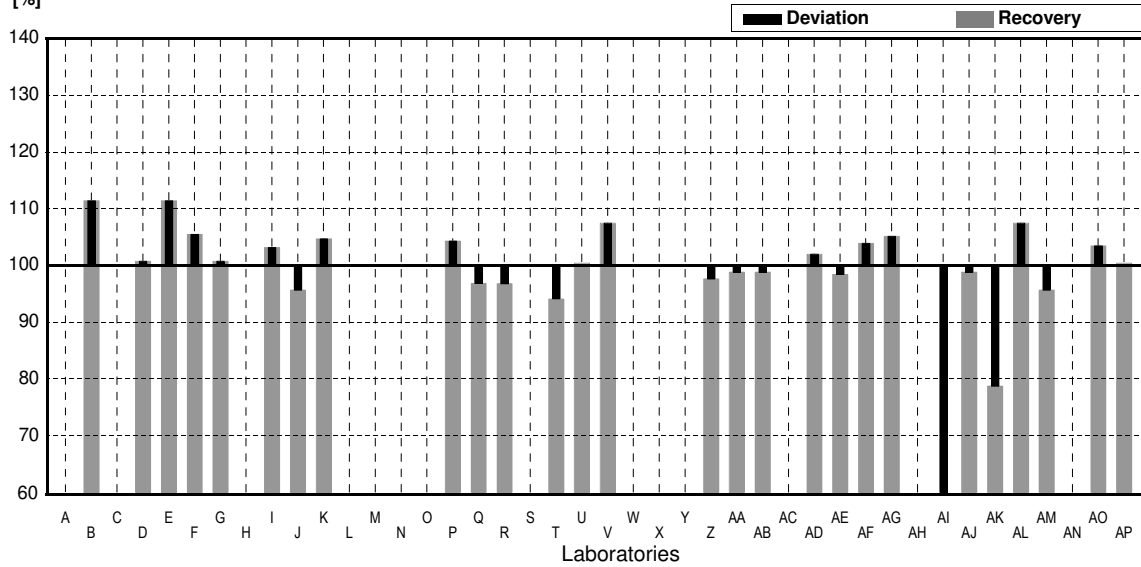
Stability test mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A			mg/l		
B	2.83	0.11	mg/l	111%	2.85
C			mg/l		
D	2.56	0.46	mg/l	101%	0.20
E	2.83	0.25	mg/l	111%	2.85
F	2.68	0.14	mg/l	106%	1.38
G	2.56	0.2	mg/l	101%	0.20
H			mg/l		
I	2.62	0.091	mg/l	103%	0.79
J	2.43	0.49	mg/l	96%	-1.08
K	2.66	0.53	mg/l	105%	1.18
L			mg/l		
M			mg/l		
N			mg/l		
O			mg/l		
P	2.65		mg/l	104%	1.08
Q	2.46	2.5	mg/l	97%	-0.79
R	2.459	0.2	mg/l	97%	-0.80
S			mg/l		
T	2.39	0.19	mg/l	94%	-1.48
U	2.55	0.26	mg/l	100%	0.10
V	2.73	0.41	mg/l	107%	1.87
W			mg/l		
X			mg/l		
Y			mg/l		
Z	2.48	0.16	mg/l	98%	-0.59
AA	2.51		mg/l	99%	-0.30
AB	2.51	0.0185	mg/l	99%	-0.30
AC			mg/l		
AD	2.59	0.4	mg/l	102%	0.49
AE	2.50	0.04	mg/l	98%	-0.39
AF	2.64	0.4	mg/l	104%	0.98
AG	2.67	0.54	mg/l	105%	1.28
AH			mg/l		
AI	1.30	*	mg/l	51%	-12.20
AJ	2.51	0.251	mg/l	99%	-0.30
AK	2.00	*	mg/l	79%	-5.31
AL	2.73		mg/l	107%	1.87
AM	2.43	0.39	mg/l	96%	-1.08
AN			mg/l		
AO	2.627	0.092	mg/l	103%	0.86
AP	2.55	0.003	mg/l	100%	0.10

Result [mg/l]



Recovery [%]



	All results	Outliers excl.	Unit
Mean ± CI(99%)	2,52 ± 0,15	2,58 ± 0,06	mg/l
Recov. ± CI(99%)	99,1 ± 5,9	101,7 ± 2,6	%
SD between labs	0,29	0,12	mg/l
RSD between labs	11,4	4,6	%
n for calculation	28	26	

# Sample N172B

## Parameter Potassium

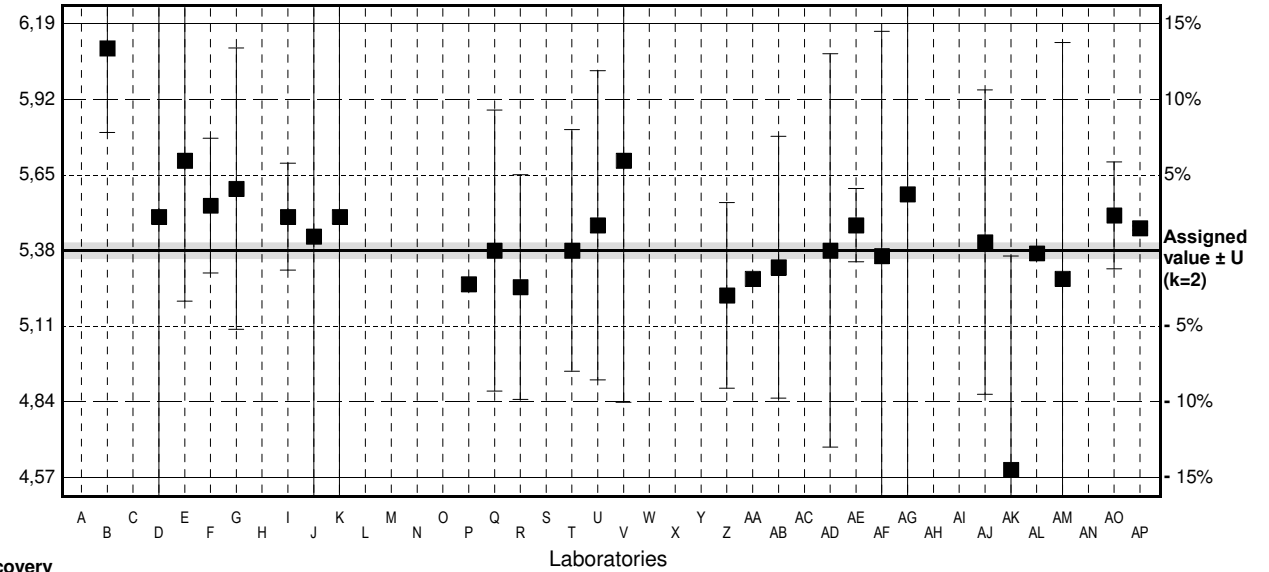
Assigned value ± U (k=2) 5,38 mg/l ± 0,03 mg/l

IFA result ± U (k=2) 5,3 mg/l ± 0,3 mg/l

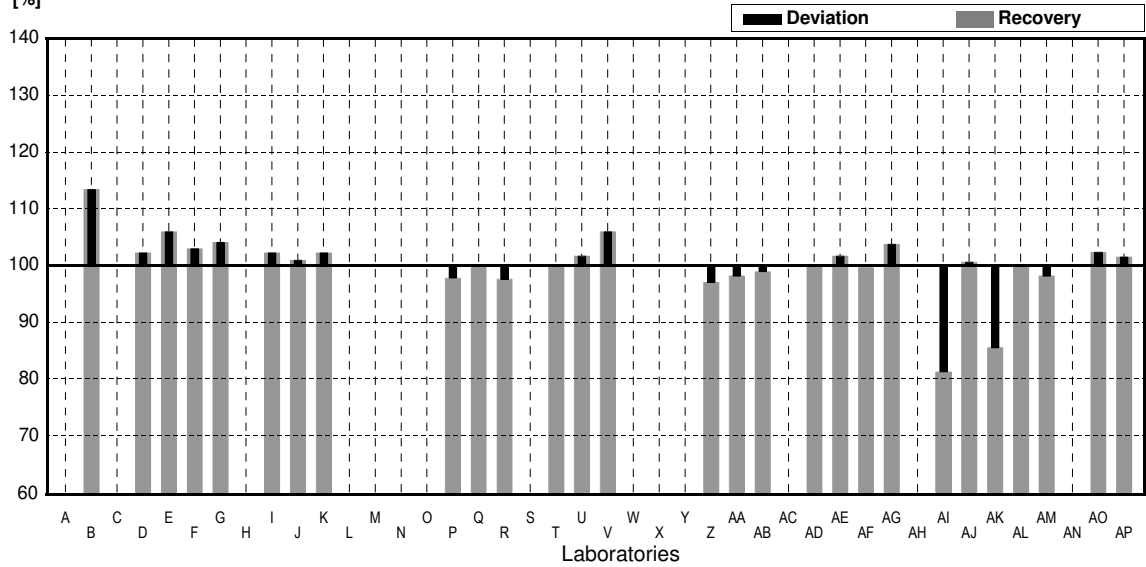
Stability test mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A			mg/l		
B	6.1 *	0.3	mg/l	113%	3.35
C			mg/l		
D	5.50	0.99	mg/l	102%	0.56
E	5.7	0.5	mg/l	106%	1.49
F	5.54	0.24	mg/l	103%	0.74
G	5.60	0.5	mg/l	104%	1.02
H			mg/l		
I	5.5	0.19	mg/l	102%	0.56
J	5.43	1.1	mg/l	101%	0.23
K	5.50	1.1	mg/l	102%	0.56
L			mg/l		
M			mg/l		
N			mg/l		
O			mg/l		
P	5.26		mg/l	98%	-0.56
Q	5.38	0.5	mg/l	100%	0.00
R	5.25	0.4	mg/l	98%	-0.60
S			mg/l		
T	5.38	0.43	mg/l	100%	0.00
U	5.47	0.55	mg/l	102%	0.42
V	5.70	0.86	mg/l	106%	1.49
W			mg/l		
X			mg/l		
Y			mg/l		
Z	5.22	0.33	mg/l	97%	-0.74
AA	5.28		mg/l	98%	-0.46
AB	5.32	0.466	mg/l	99%	-0.28
AC			mg/l		
AD	5.38	0.7	mg/l	100%	0.00
AE	5.47	0.13	mg/l	102%	0.42
AF	5.36	0.8	mg/l	100%	-0.09
AG	5.58	1.1	mg/l	104%	0.93
AH			mg/l		
AI	4.37 *		mg/l	81%	-4.69
AJ	5.41	0.541	mg/l	101%	0.14
AK	4.60 *	0.76	mg/l	86%	-3.62
AL	5.37		mg/l	100%	-0.05
AM	5.28	0.84	mg/l	98%	-0.46
AN			mg/l		
AO	5.505	0.19	mg/l	102%	0.58
AP	5.46	0.007	mg/l	101%	0.37

Result [mg/l]



Recovery [%]



	All results	Outliers excl.	Unit
Mean ± CI(99%)	5,39 ± 0,16	5,43 ± 0,07	mg/l
Recov. ± CI(99%)	100,2 ± 3,0	101,0 ± 1,4	%
SD between labs	0,31	0,13	mg/l
RSD between labs	5,8	2,4	%
n for calculation	28	25	

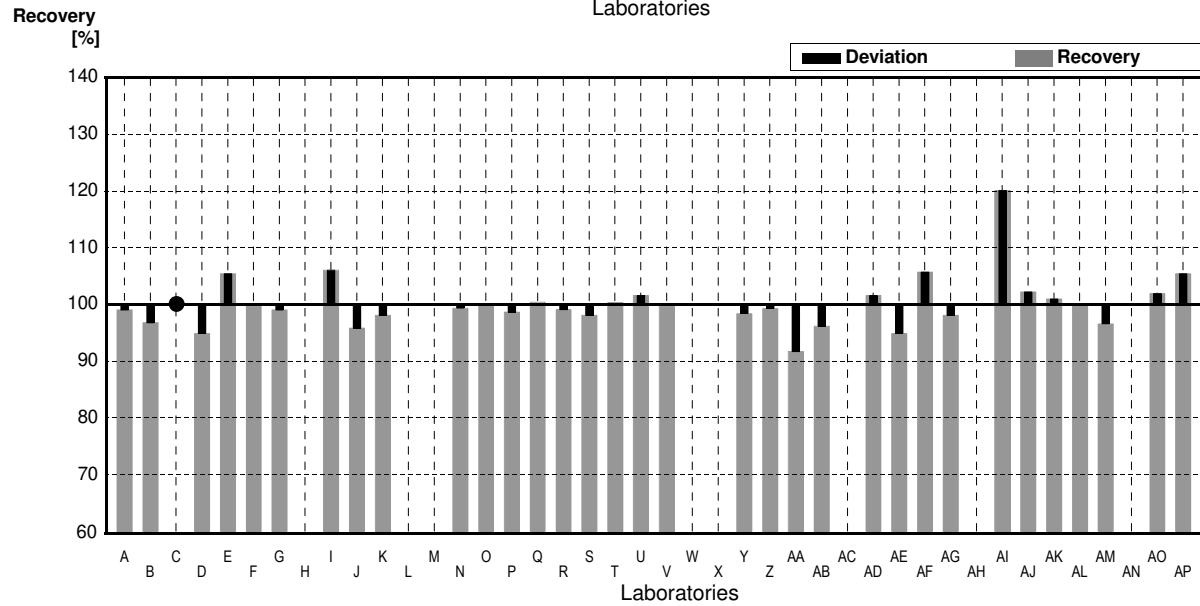
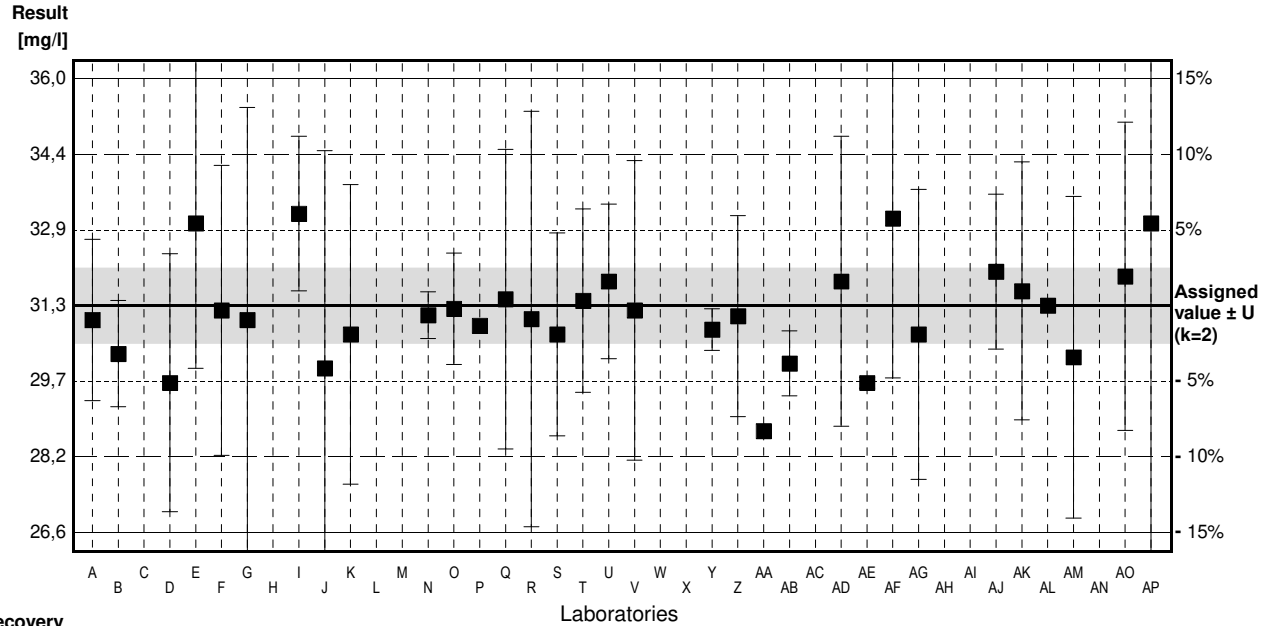
**Sample N172A**  
**Parameter Nitrate**

Assigned value ± U (k=2) 31,3 mg/l ± 0,8 mg/l

IFA result ± U (k=2) 30,5 mg/l ± 1,7 mg/l

Stability test mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	31.0	1.67	mg/l	99%	-0.32
B	30.3	1.1	mg/l	97%	-1.06
C	>30		mg/l	*	
D	29.7	2.67	mg/l	95%	-1.70
E	33.0	3.0	mg/l	105%	1.81
F	31.2	3.0	mg/l	100%	-0.11
G	31.0	4.4	mg/l	99%	-0.32
H			mg/l		
I	33.2	1.6	mg/l	106%	2.02
J	30.0	4.5	mg/l	96%	-1.38
K	30.7	3.1	mg/l	98%	-0.64
L			mg/l		
M			mg/l		
N	31.1	0.482	mg/l	99%	-0.21
O	31.23	1.155	mg/l	100%	-0.07
P	30.88		mg/l	99%	-0.45
Q	31.43	3.1	mg/l	100%	0.14
R	31.02	4.3	mg/l	99%	-0.30
S	30.7	2.1	mg/l	98%	-0.64
T	31.4	1.9	mg/l	100%	0.11
U	31.8	1.6	mg/l	102%	0.53
V	31.2	3.1	mg/l	100%	-0.11
W			mg/l		
X			mg/l		
Y	30.8	0.430	mg/l	98%	-0.53
Z	31.08	2.08	mg/l	99%	-0.23
AA	28.7 *		mg/l	92%	-2.77
AB	30.1	0.673	mg/l	96%	-1.28
AC			mg/l		
AD	31.8	3	mg/l	102%	0.53
AE	29.7	0.11	mg/l	95%	-1.70
AF	33.1	3.3	mg/l	106%	1.92
AG	30.7	3.0	mg/l	98%	-0.64
AH			mg/l		
AI	37.6 *		mg/l	120%	6.71
AJ	32.0	1.60	mg/l	102%	0.75
AK	31.6	2.67	mg/l	101%	0.32
AL	31.3		mg/l	100%	0.00
AM	30.23	3.33	mg/l	97%	-1.14
AN			mg/l		
AO	31.904	3.19	mg/l	102%	0.64
AP	33.004	7.591	mg/l	105%	1.81



	All results	Outliers excl.	Unit
Mean ± CI(99%)	31,3 ± 0,7	31,2 ± 0,5	mg/l
Recov. ± CI(99%)	100,2 ± 2,3	99,8 ± 1,5	%
SD between labs	1,5	0,9	mg/l
RSD between labs	4,8	3,0	%
n for calculation	33	31	

**Sample N172B**  
**Parameter Nitrate**

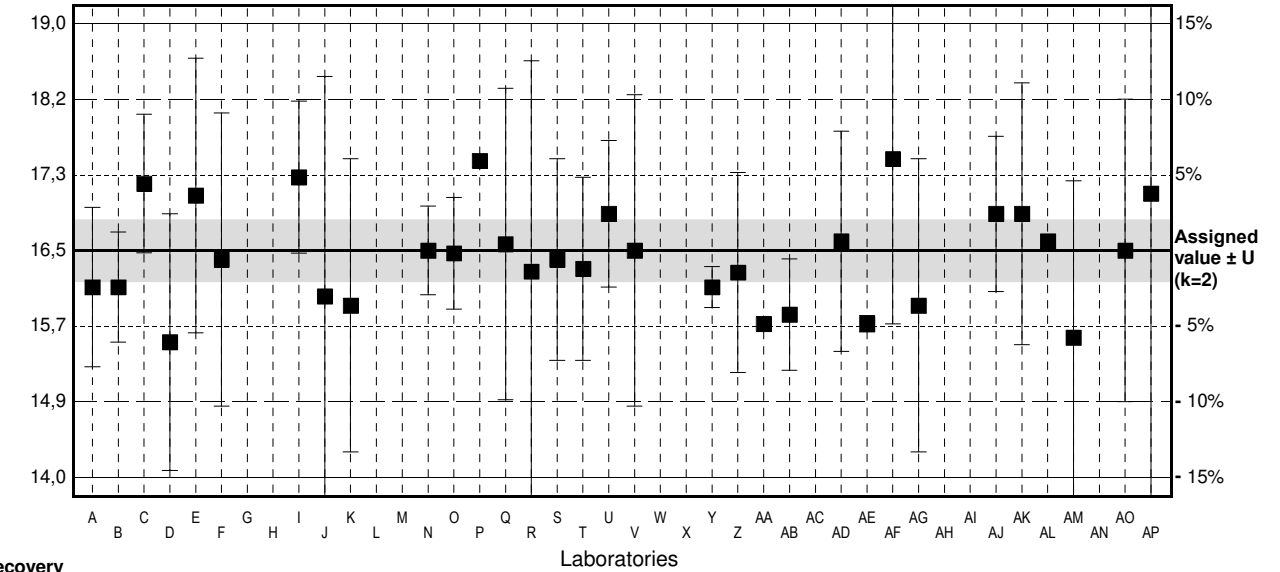
Assigned value ± U (k=2) 16,5 mg/l ± 0,3 mg/l

IFA result ± U (k=2) 16,2 mg/l ± 0,9 mg/l

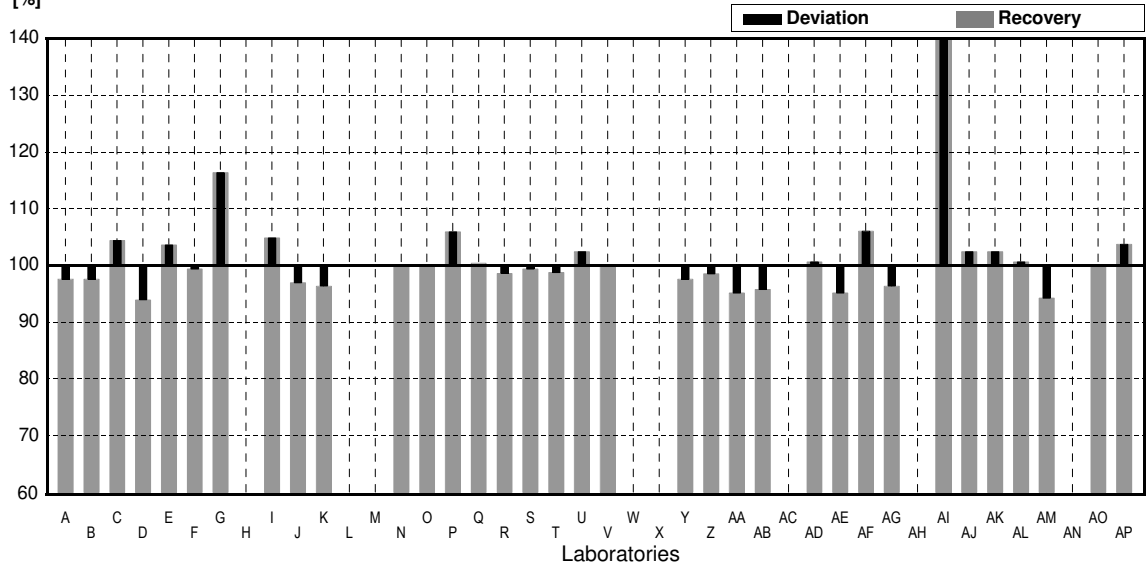
Stability test mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	16.1	0.870	mg/l	98%	-0.81
B	16.1	0.6	mg/l	98%	-0.81
C	17.23	0.7568	mg/l	104%	1.47
D	15.5	1.40	mg/l	94%	-2.02
E	17.1	1.5	mg/l	104%	1.21
F	16.4	1.6	mg/l	99%	-0.20
G	19.2 *	2.7	mg/l	116%	5.45
H			mg/l		
I	17.3	0.83	mg/l	105%	1.62
J	16.0	2.4	mg/l	97%	-1.01
K	15.9	1.6	mg/l	96%	-1.21
L			mg/l		
M			mg/l		
N	16.5	0.482	mg/l	100%	0.00
O	16.47	0.609	mg/l	100%	-0.06
P	17.48		mg/l	106%	1.98
Q	16.57	1.7	mg/l	100%	0.14
R	16.27	2.3	mg/l	99%	-0.46
S	16.4	1.1	mg/l	99%	-0.20
T	16.3	1.0	mg/l	99%	-0.40
U	16.9	0.8	mg/l	102%	0.81
V	16.5	1.7	mg/l	100%	0.00
W			mg/l		
X			mg/l		
Y	16.1	0.224	mg/l	98%	-0.81
Z	16.26	1.09	mg/l	99%	-0.48
AA	15.7		mg/l	95%	-1.62
AB	15.8	0.609	mg/l	96%	-1.41
AC			mg/l		
AD	16.6	1.2	mg/l	101%	0.20
AE	15.7	0.09	mg/l	95%	-1.62
AF	17.5	1.8	mg/l	106%	2.02
AG	15.9	1.6	mg/l	96%	-1.21
AH			mg/l		
AI	24.5 *		mg/l	148%	16.16
AJ	16.9	0.847	mg/l	102%	0.81
AK	16.9	1.43	mg/l	102%	0.81
AL	16.6		mg/l	101%	0.20
AM	15.55	1.71	mg/l	94%	-1.92
AN			mg/l		
AO	16.501	1.65	mg/l	100%	0.00
AP	17.122	3.938	mg/l	104%	1.26

**Result [mg/l]**



**Recovery [%]**



	All results	Outliers excl.	Unit
Mean ± CI(99%)	16,8 ± 0,7	16,4 ± 0,3	mg/l
Recov. ± CI(99%)	101,6 ± 4,4	99,7 ± 1,6	%
SD between labs	1,5	0,6	mg/l
RSD between labs	9,2	3,4	%
n for calculation	34	32	

# Sample N172A

## Parameter Nitrite

Assigned value ± U (k=2) 0,0640 mg/l ± 0,0003 mg/l

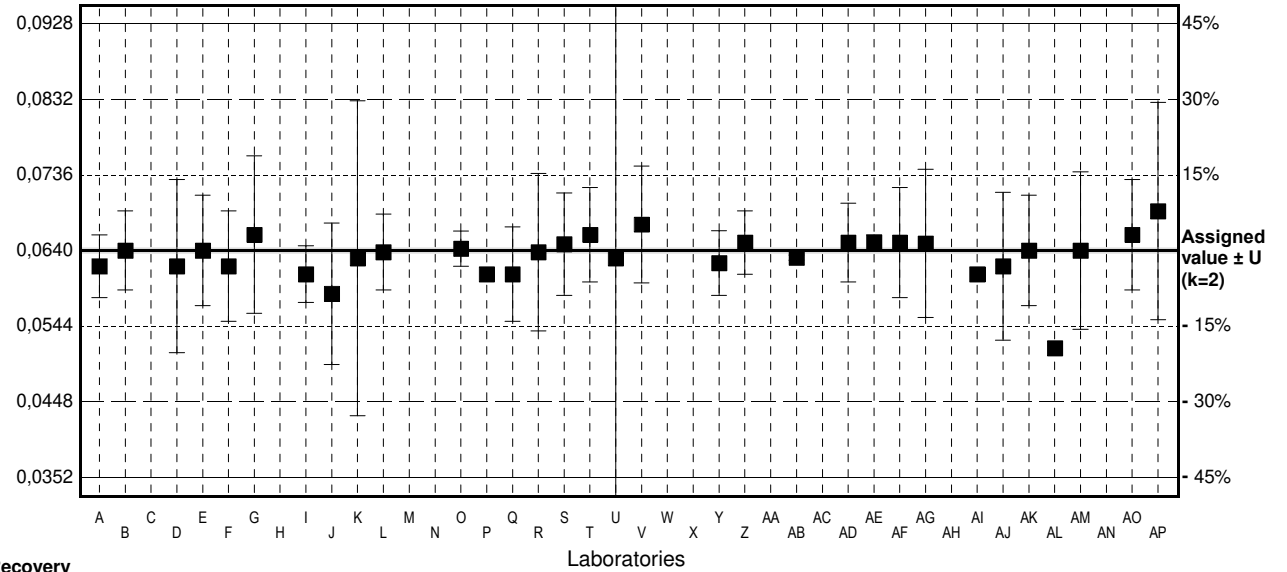
IFA result ± U (k=2) 0,064 mg/l ± 0,003 mg/l

Stability test ± U (k=2) 0,063 mg/l ± 0,003 mg/l

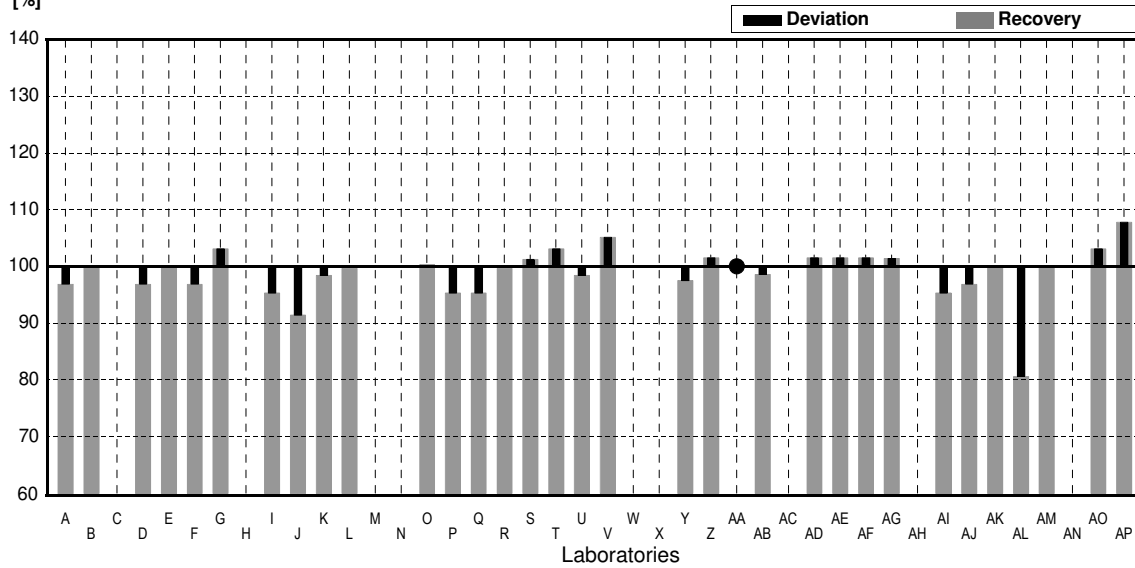
Lab Code	Result	±	Unit	Recovery	z-Score
A	0.062	0.0040	mg/l	97%	-0.57
B	0.064	0.005	mg/l	100%	0.00
C			mg/l		
D	0.062	0.011	mg/l	97%	-0.57
E	0.064	0.007	mg/l	100%	0.00
F	0.062	0.007	mg/l	97%	-0.57
G	0.066	0.01	mg/l	103%	0.57
H			mg/l		
I	0.061	0.0036	mg/l	95%	-0.85
J	0.0585	0.009	mg/l	91%	-1.56
K	0.063	0.020	mg/l	98%	-0.28
L	0.0638	0.0048	mg/l	100%	-0.06
M			mg/l		
N			mg/l		
O	0.06423	0.00225	mg/l	100%	0.07
P	0.061		mg/l	95%	-0.85
Q	0.061	0.006	mg/l	95%	-0.85
R	0.0638	0.01	mg/l	100%	-0.06
S	0.0648	0.0065	mg/l	101%	0.23
T	0.066	0.006	mg/l	103%	0.57
U	0.063	0.13	mg/l	98%	-0.28
V	0.0673	0.0074	mg/l	105%	0.94
W			mg/l		
X			mg/l		
Y	0.0624	0.00412	mg/l	98%	-0.45
Z	0.065	0.004	mg/l	102%	0.28
AA	<0.66		mg/l	.	
AB	0.0631	0.00033	mg/l	99%	-0.26
AC			mg/l		
AD	0.065	0.005	mg/l	102%	0.28
AE	0.065	0.001	mg/l	102%	0.28
AF	0.065	0.007	mg/l	102%	0.28
AG	0.0649	0.0094	mg/l	101%	0.26
AH			mg/l		
AI	0.061		mg/l	95%	-0.85
AJ	0.062	0.0094	mg/l	97%	-0.57
AK	0.064	0.007	mg/l	100%	0.00
AL	0.0516 *		mg/l	81%	-3.52
AM	0.064	0.010	mg/l	100%	0.00
AN			mg/l		
AO	0.066	0.007	mg/l	103%	0.57
AP	0.069	0.0138	mg/l	108%	1.42

	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,0633 ± 0,0015	0,0637 ± 0,0011	mg/l
Recov. ± CI(99%)	98,9 ± 2,3	99,5 ± 1,7	%
SD between labs	0,0030	0,0021	mg/l
RSD between labs	4,7	3,4	%
n for calculation	32	31	

### Result [mg/l]



### Recovery [%]



# Sample N172B

## Parameter Nitrite

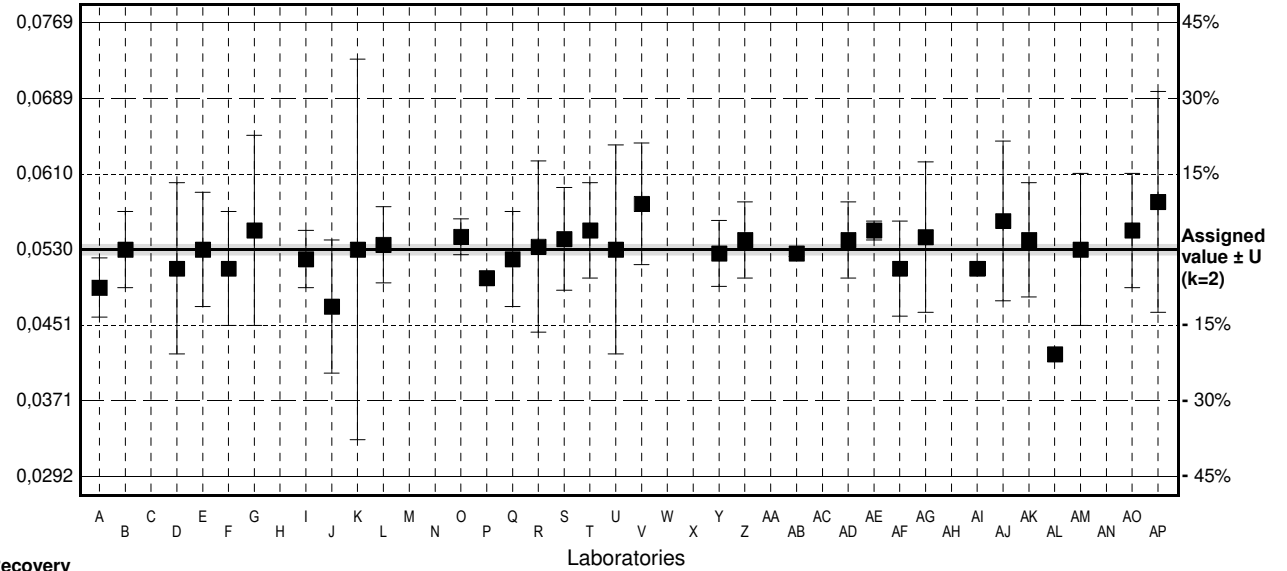
Assigned value ± U (k=2) 0,0530 mg/l ± 0,0005 mg/l

IFA result ± U (k=2) 0,054 mg/l ± 0,003 mg/l

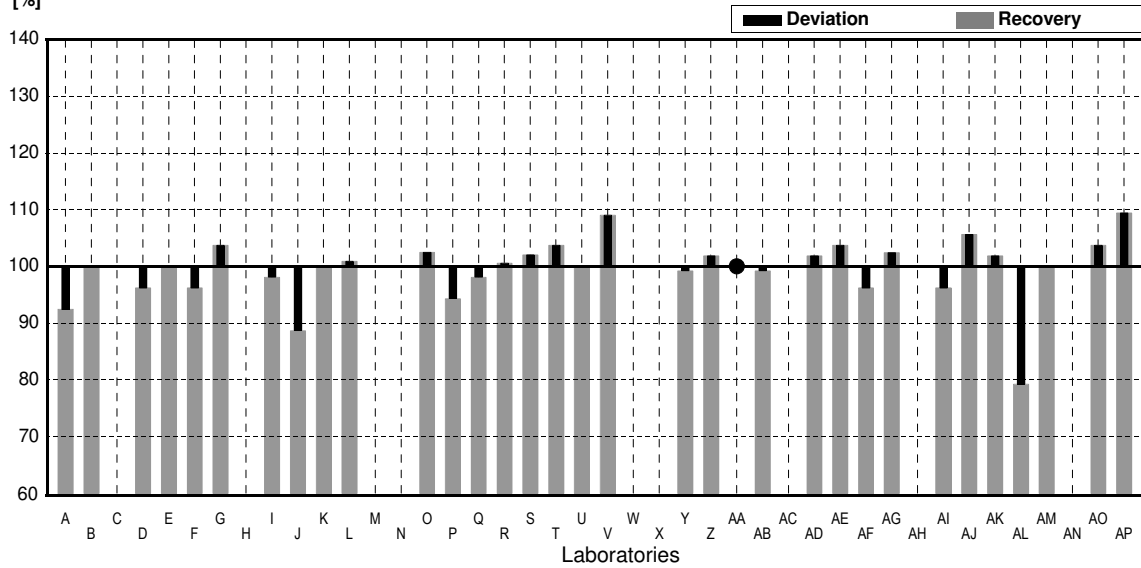
Stability test ± U (k=2) 0,053 mg/l ± 0,003 mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	0.0490	0.0031	mg/l	92%	-1.37
B	0.053	0.004	mg/l	100%	0.00
C			mg/l		
D	0.051	0.009	mg/l	96%	-0.69
E	0.053	0.006	mg/l	100%	0.00
F	0.051	0.006	mg/l	96%	-0.69
G	0.055	0.01	mg/l	104%	0.69
H			mg/l		
I	0.052	0.0030	mg/l	98%	-0.34
J	0.0470	0.007	mg/l	89%	-2.06
K	0.053	0.020	mg/l	100%	0.00
L	0.0535	0.0040	mg/l	101%	0.17
M			mg/l		
N			mg/l		
O	0.05434	0.00190	mg/l	103%	0.46
P	0.050		mg/l	94%	-1.03
Q	0.052	0.005	mg/l	98%	-0.34
R	0.0533	0.009	mg/l	101%	0.10
S	0.0541	0.0054	mg/l	102%	0.38
T	0.055	0.005	mg/l	104%	0.69
U	0.053	0.011	mg/l	100%	0.00
V	0.0578	0.0064	mg/l	109%	1.65
W			mg/l		
X			mg/l		
Y	0.0526	0.00347	mg/l	99%	-0.14
Z	0.054	0.004	mg/l	102%	0.34
AA	<0.66		mg/l	.	
AB	0.0526	0.00032	mg/l	99%	-0.14
AC			mg/l		
AD	0.054	0.004	mg/l	102%	0.34
AE	0.055	0.001	mg/l	104%	0.69
AF	0.051	0.005	mg/l	96%	-0.69
AG	0.0543	0.0079	mg/l	102%	0.45
AH			mg/l		
AI	0.051		mg/l	96%	-0.69
AJ	0.056	0.0084	mg/l	106%	1.03
AK	0.054	0.006	mg/l	102%	0.34
AL	0.0420 *		mg/l	79%	-3.77
AM	0.053	0.008	mg/l	100%	0.00
AN			mg/l		
AO	0.055	0.006	mg/l	104%	0.69
AP	0.058	0.0116	mg/l	109%	1.72

Result [mg/l]



Recovery [%]



	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,0528 ± 0,0015	0,0531 ± 0,0011	mg/l
Recov. ± CI(99%)	99,6 ± 2,8	100,3 ± 2,2	%
SD between labs	0,0030	0,0023	mg/l
RSD between labs	5,7	4,3	%
n for calculation	32	31	

# Sample N172A

## Parameter Ammonium

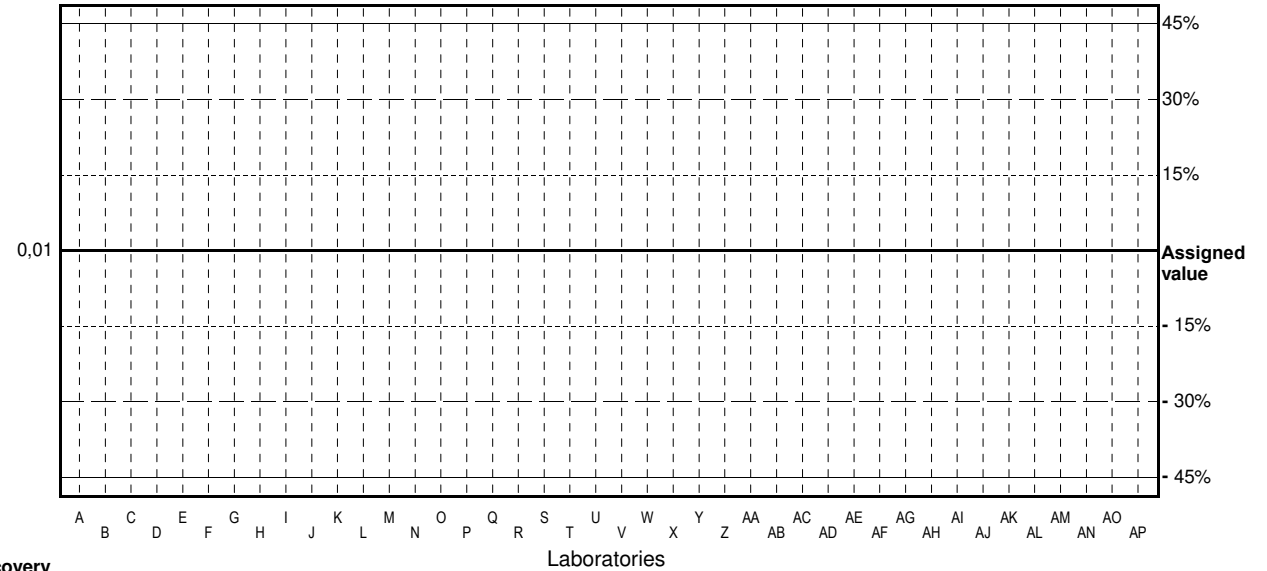
Assigned value <0,01 mg/l

IFA result <0,01 mg/l

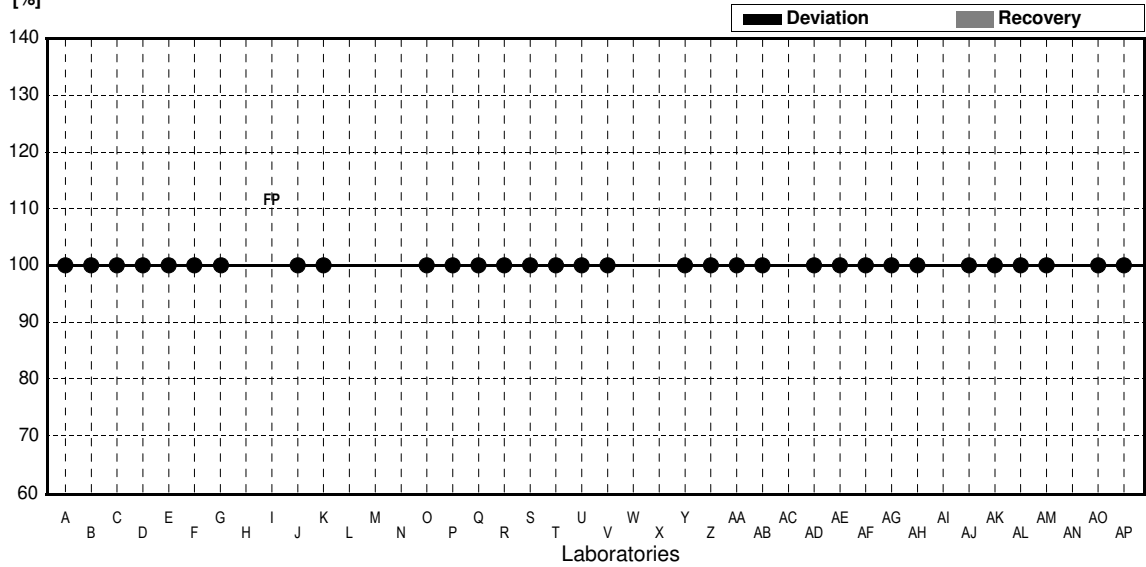
Stability test mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	0.0080	0.0006	mg/l	•	
B	<0.02		mg/l	•	
C	<0.01		mg/l	•	
D	<0.01		mg/l	•	
E	<0.02		mg/l	•	
F	<0.010		mg/l	•	
G	0.0108	0.002	mg/l	•	
H			mg/l		
I	0.0185	0.0014	mg/l	FP	
J	<0.01		mg/l	•	
K	<0.010		mg/l	•	
L			mg/l		
M			mg/l		
N			mg/l		
O	<0.038	0.001	mg/l	•	
P	0.0050		mg/l	•	
Q	<0.009		mg/l	•	
R	0.00430	0.0008	mg/l	•	
S	<0.005	0	mg/l	•	
T	<0.008		mg/l	•	
U	<0.01		mg/l	•	
V	<0.01		mg/l	•	
W			mg/l		
X			mg/l		
Y	<0.098		mg/l	•	
Z	<0.005		mg/l	•	
AA	<0.26		mg/l	•	
AB	<0.0100		mg/l	•	
AC			mg/l		
AD	<0.013		mg/l	•	
AE	<0.010		mg/l	•	
AF	<0.01		mg/l	•	
AG	<0.010		mg/l	•	
AH	<0.01	0.00235	mg/l	•	
AI			mg/l		
AJ	<0.0005		mg/l	•	
AK	<0.03		mg/l	•	
AL	<0.010		mg/l	•	
AM	0.00300	0.001	mg/l	•	
AN			mg/l		
AO	<0.01		mg/l	•	
AP	<0.03		mg/l	•	

Result [mg/l]



Recovery [%]



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

# Sample N172B

## Parameter Ammonium

Assigned value ± U (k=2) 0,060 mg/l ± 0,002 mg/l

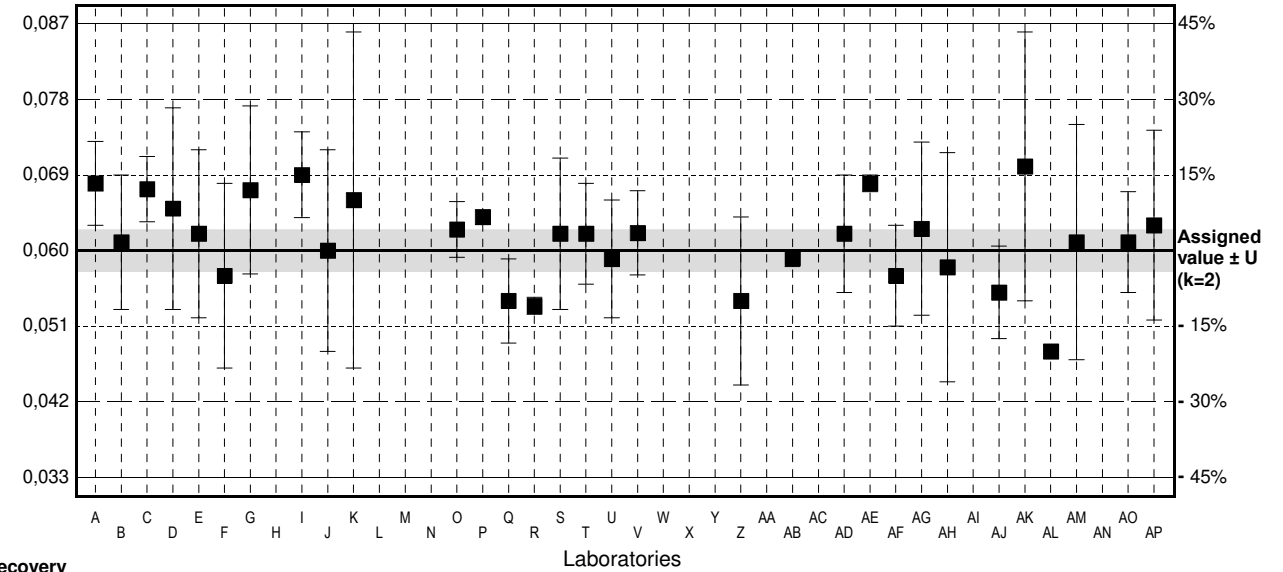
IFA result ± U (k=2) 0,060 mg/l ± 0,002 mg/l

Stability test mg/l

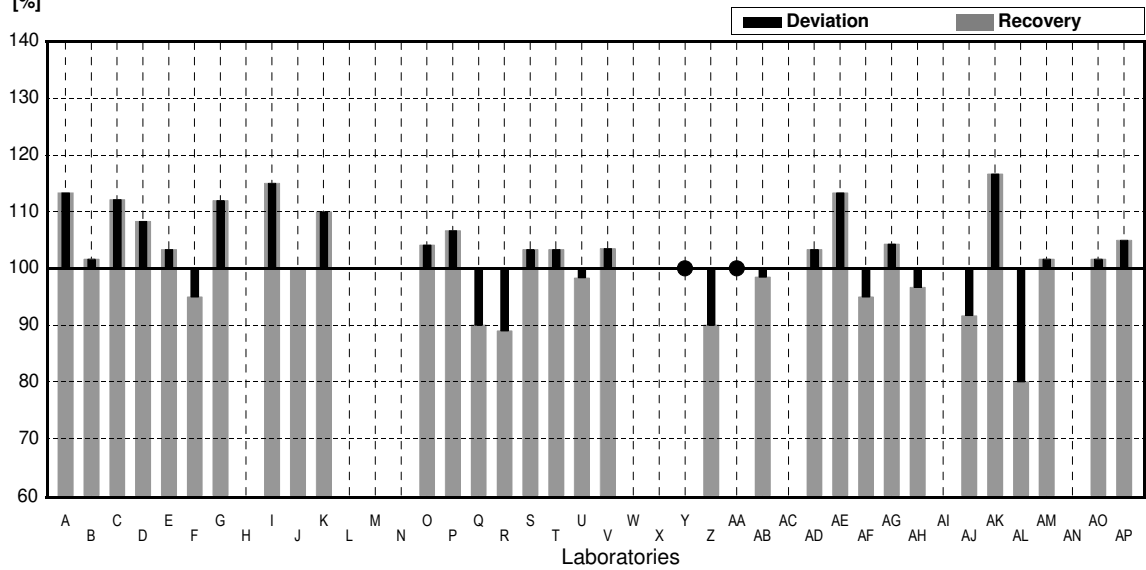
Lab Code	Result	±	Unit	Recovery	z-Score
A	0.0680	0.0050	mg/l	113%	1.21
B	0.061	0.008	mg/l	102%	0.15
C	0.0673	0.0039	mg/l	112%	1.11
D	0.065	0.012	mg/l	108%	0.76
E	0.062	0.010	mg/l	103%	0.30
F	0.057	0.011	mg/l	95%	-0.45
G	0.0672	0.01	mg/l	112%	1.09
H			mg/l		
I	0.069	0.0051	mg/l	115%	1.36
J	0.060	0.012	mg/l	100%	0.00
K	0.066	0.020	mg/l	110%	0.91
L			mg/l		
M			mg/l		
N			mg/l		
O	0.0625	0.0033	mg/l	104%	0.38
P	0.064		mg/l	107%	0.61
Q	0.054	0.005	mg/l	90%	-0.91
R	0.0534	0.0010	mg/l	89%	-1.00
S	0.062	0.009	mg/l	103%	0.30
T	0.062	0.006	mg/l	103%	0.30
U	0.059	0.007	mg/l	98%	-0.15
V	0.0621	0.0050	mg/l	104%	0.32
W			mg/l		
X			mg/l		
Y	<0.098		mg/l	-	
Z	0.0540	0.010	mg/l	90%	-0.91
AA	<0.26		mg/l	-	
AB	0.0591	0.00101	mg/l	99%	-0.14
AC			mg/l		
AD	0.062	0.007	mg/l	103%	0.30
AE	0.068	0.001	mg/l	113%	1.21
AF	0.057	0.006	mg/l	95%	-0.45
AG	0.0626	0.0103	mg/l	104%	0.39
AH	0.058	0.01363	mg/l	97%	-0.30
AI			mg/l		
AJ	0.055	0.0055	mg/l	92%	-0.76
AK	0.070	0.016	mg/l	117%	1.52
AL	0.0480 *		mg/l	80%	-1.82
AM	0.061	0.014	mg/l	102%	0.15
AN			mg/l		
AO	0.061	0.006	mg/l	102%	0.15
AP	0.063	0.0113	mg/l	105%	0.45

	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,061 ± 0,003	0,062 ± 0,002	mg/l
Recov. ± CI(99%)	102,2 ± 4,2	102,9 ± 3,9	%
SD between labs	0,005	0,005	mg/l
RSD between labs	8,4	7,4	%
n for calculation	31	30	

Result [mg/l]



Recovery [%]



**Sample N172A**  
**Parameter Chloride**

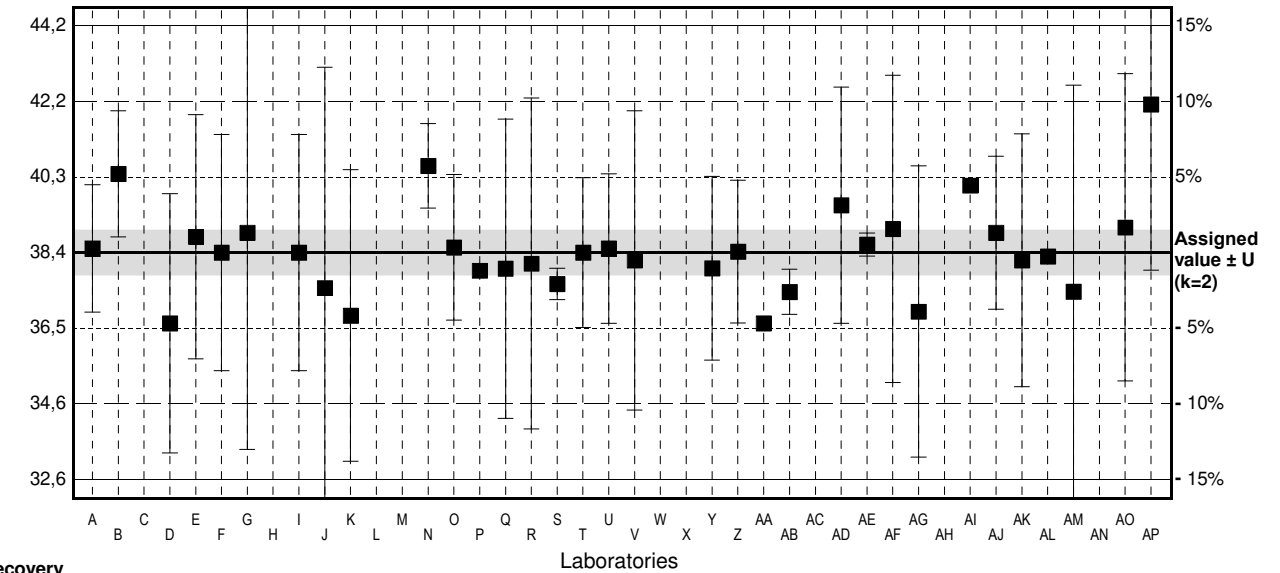
Assigned value ± U (k=2) 38,4 mg/l ± 0,6 mg/l

IFA result ± U (k=2) 37,8 mg/l ± 1,4 mg/l

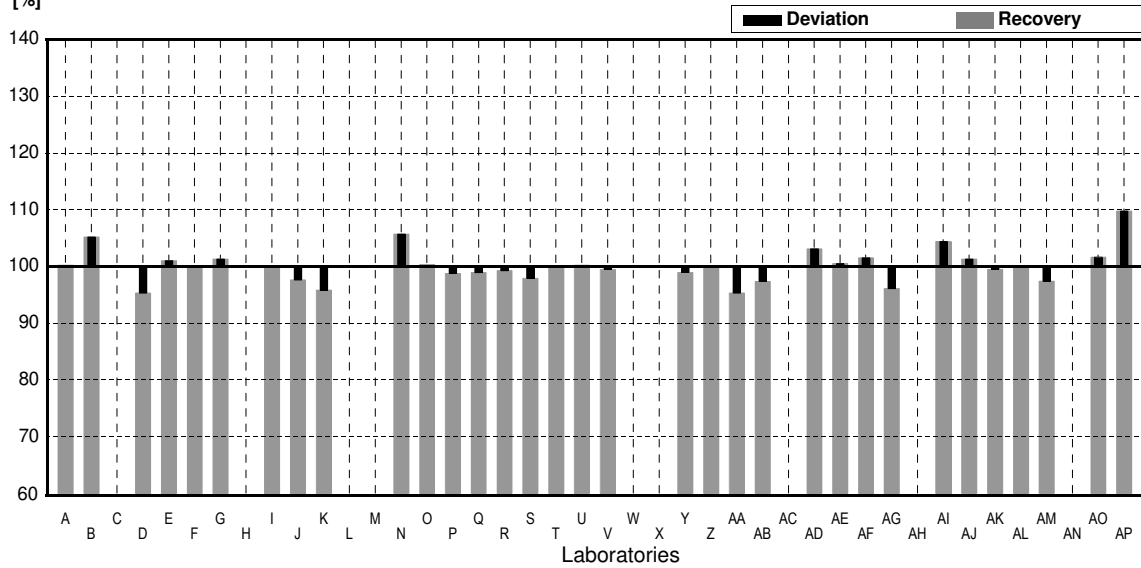
Stability test mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	38,5	1,62	mg/l	100%	0,10
B	40,4	1,6	mg/l	105%	1,93
C			mg/l		
D	36,6	3,29	mg/l	95%	-1,74
E	38,8	3,1	mg/l	101%	0,39
F	38,4	3,0	mg/l	100%	0,00
G	38,9	5,5	mg/l	101%	0,48
H			mg/l		
I	38,4	3,0	mg/l	100%	0,00
J	37,5	5,6	mg/l	98%	-0,87
K	36,8	3,7	mg/l	96%	-1,54
L			mg/l		
M			mg/l		
N	40,6	1,074	mg/l	106%	2,12
O	38,53	1,850	mg/l	100%	0,13
P	37,94		mg/l	99%	-0,44
Q	37,99	3,8	mg/l	99%	-0,40
R	38,12	4,2	mg/l	99%	-0,27
S	37,6	0,4	mg/l	98%	-0,77
T	38,4	1,9	mg/l	100%	0,00
U	38,5	1,9	mg/l	100%	0,10
V	38,2	3,8	mg/l	99%	-0,19
W			mg/l		
X			mg/l		
Y	38,0	2,33	mg/l	99%	-0,39
Z	38,42	1,81	mg/l	100%	0,02
AA	36,6		mg/l	95%	-1,74
AB	37,4	0,571	mg/l	97%	-0,96
AC			mg/l		
AD	39,6	3	mg/l	103%	1,16
AE	38,6	0,29	mg/l	101%	0,19
AF	39,0	3,9	mg/l	102%	0,58
AG	36,9	3,7	mg/l	96%	-1,45
AH			mg/l		
AI	40,1		mg/l	104%	1,64
AJ	38,9	1,94	mg/l	101%	0,48
AK	38,2	3,21	mg/l	99%	-0,19
AL	38,3		mg/l	100%	-0,10
AM	37,41	5,24	mg/l	97%	-0,95
AN			mg/l		
AO	39,038	3,904	mg/l	102%	0,62
AP	42,163 *	4,216	mg/l	110%	3,63

Result [mg/l]



Recovery [%]



	All results	Outliers excl.	Unit
Mean ± CI(99%)	38,4 ± 0,6	38,3 ± 0,5	mg/l
Recov. ± CI(99%)	100,1 ± 1,5	99,8 ± 1,2	%
SD between labs	1,2	1,0	mg/l
RSD between labs	3,1	2,6	%
n for calculation	33	32	

**Sample N172B**  
**Parameter Chloride**

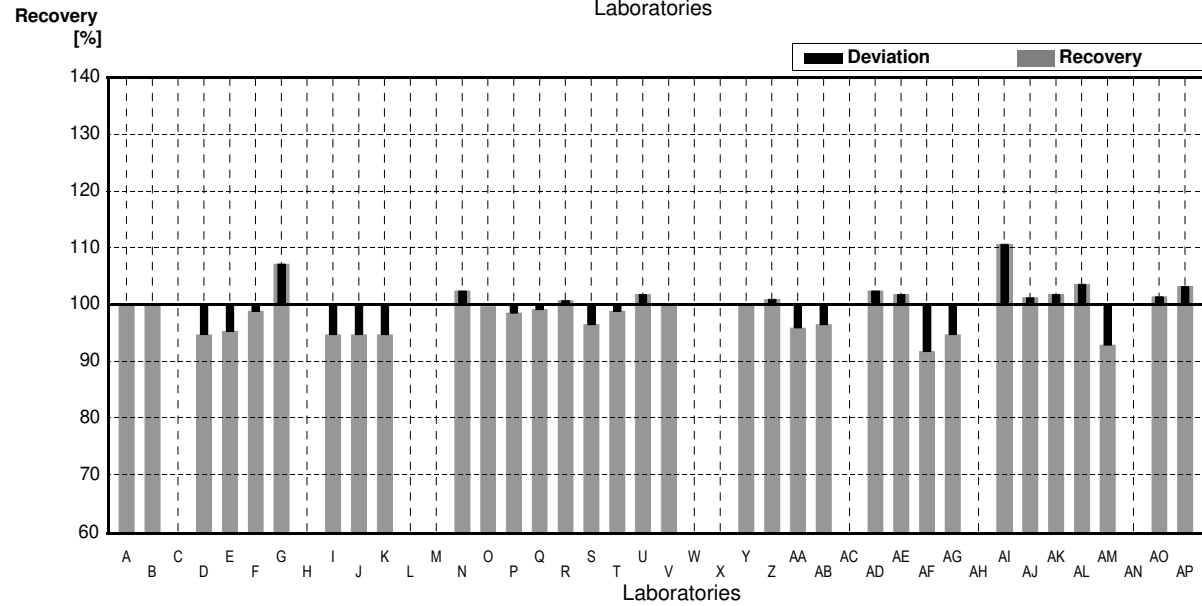
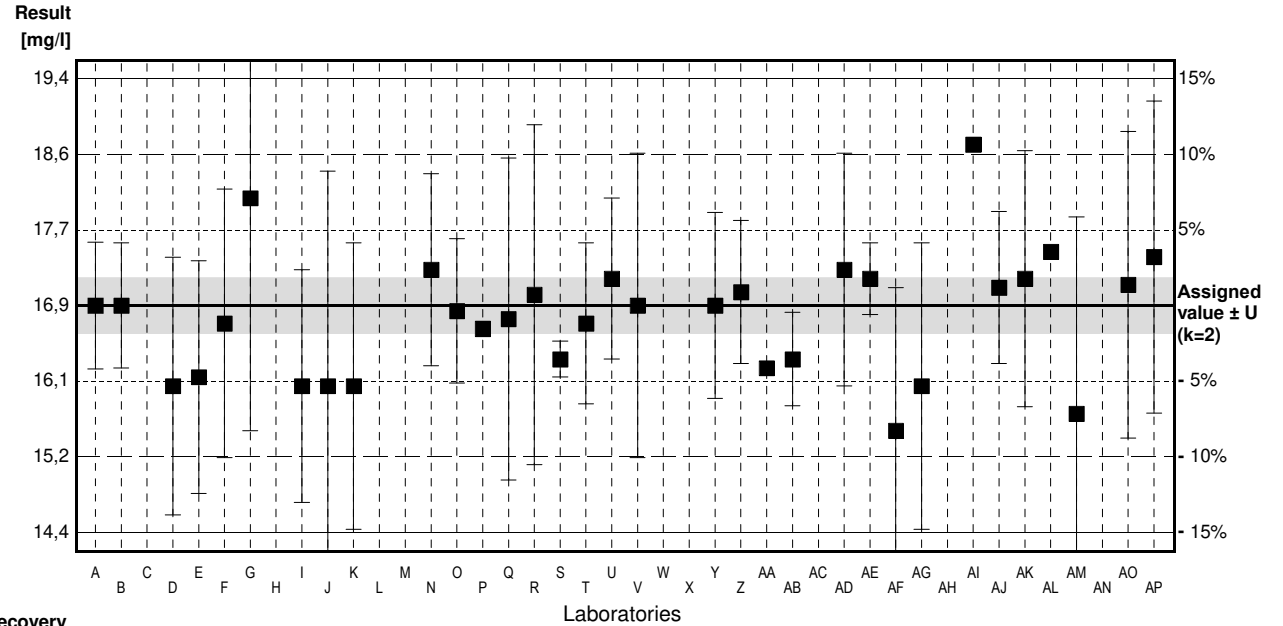
Assigned value ± U (k=2) 16,9 mg/l ± 0,3 mg/l

IFA result ± U (k=2) 16,4 mg/l ± 0,6 mg/l

Stability test mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	16.9	0.708	mg/l	100%	0.00
B	16.9	0.7	mg/l	100%	0.00
C			mg/l		
D	16.0	1.44	mg/l	95%	-1.97
E	16.1	1.3	mg/l	95%	-1.75
F	16.7	1.5	mg/l	99%	-0.44
G	18.1	2.6	mg/l	107%	2.63
H			mg/l		
I	16.0	1.3	mg/l	95%	-1.97
J	16.0	2.4	mg/l	95%	-1.97
K	16.0	1.6	mg/l	95%	-1.97
L			mg/l		
M			mg/l		
N	17.3	1.074	mg/l	102%	0.88
O	16.84	0.808	mg/l	100%	-0.13
P	16.64		mg/l	98%	-0.57
Q	16.75	1.8	mg/l	99%	-0.33
R	17.02	1.9	mg/l	101%	0.26
S	16.3	0.2	mg/l	96%	-1.31
T	16.7	0.9	mg/l	99%	-0.44
U	17.2	0.9	mg/l	102%	0.66
V	16.9	1.7	mg/l	100%	0.00
W			mg/l		
X			mg/l		
Y	16.9	1.04	mg/l	100%	0.00
Z	17.05	0.80	mg/l	101%	0.33
AA	16.2		mg/l	96%	-1.53
AB	16.3	0.522	mg/l	96%	-1.31
AC			mg/l		
AD	17.3	1.3	mg/l	102%	0.88
AE	17.2	0.40	mg/l	102%	0.66
AF	15.5	1.6	mg/l	92%	-3.07
AG	16.0	1.6	mg/l	95%	-1.97
AH			mg/l		
AI	18.7		mg/l	111%	3.94
AJ	17.1	0.85	mg/l	101%	0.44
AK	17.2	1.43	mg/l	102%	0.66
AL	17.5		mg/l	104%	1.31
AM	15.69	2.20	mg/l	93%	-2.65
AN			mg/l		
AO	17.131	1.713	mg/l	101%	0.51
AP	17.442	1.744	mg/l	103%	1.19

	All results	Outliers excl.	Unit
Mean ± CI(99%)	16,8 ± 0,3	16,8 ± 0,3	mg/l
Recov. ± CI(99%)	99,3 ± 1,9	99,3 ± 1,9	%
SD between labs	0,7	0,7	mg/l
RSD between labs	4,1	4,1	%
n for calculation	33	33	



**Sample N172A**  
**Parameter Sulphate**

Assigned value ± U (k=2) 21,2 mg/l ± 0,4 mg/l

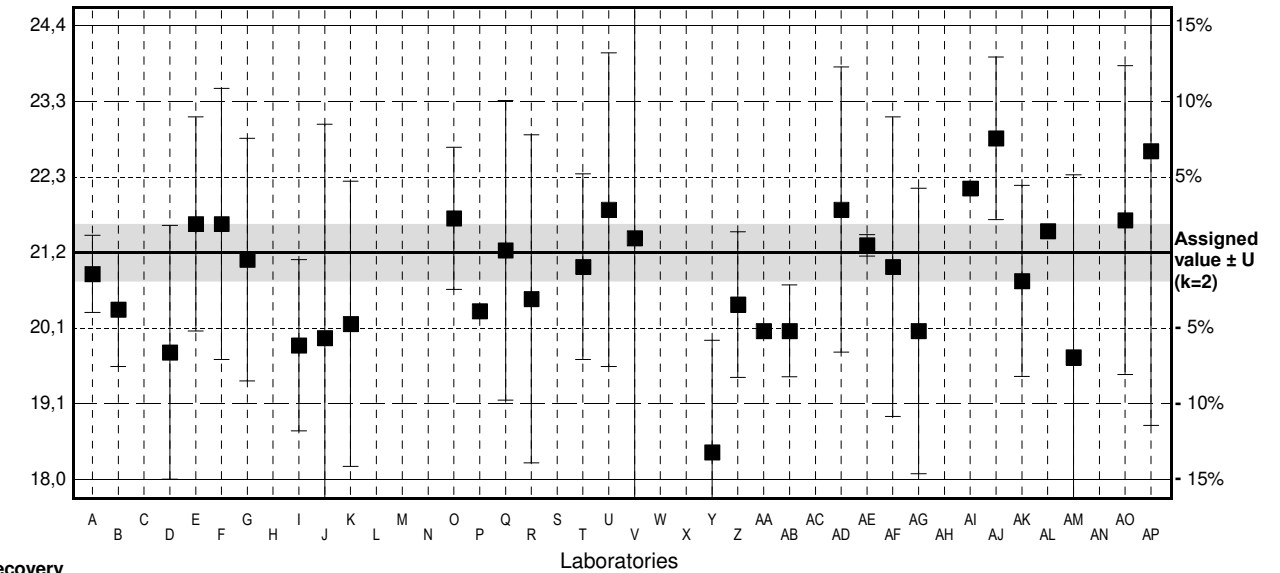
IFA result ± U (k=2) 21,2 mg/l ± 0,6 mg/l

Stability test mg/l

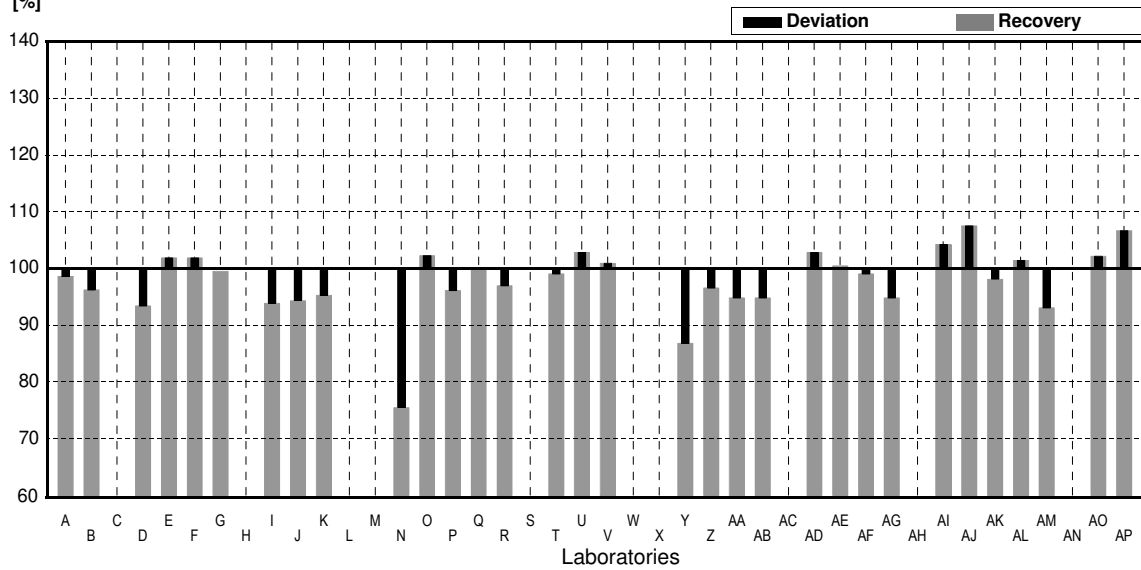
Lab Code	Result	±	Unit	Recovery	z-Score
A	20.9	0.542	mg/l	99%	-0.47
B	20.4	0.8	mg/l	96%	-1.26
C			mg/l		
D	19.8	1.78	mg/l	93%	-2.20
E	21.6	1.5	mg/l	102%	0.63
F	21.6	1.9	mg/l	102%	0.63
G	21.1	1.7	mg/l	100%	-0.16
H			mg/l		
I	19.9	1.2	mg/l	94%	-2.04
J	20.0	3	mg/l	94%	-1.89
K	20.2	2.0	mg/l	95%	-1.57
L			mg/l		
M			mg/l		
N	16.0 *	7.4	mg/l	75%	-8.18
O	21.68	0.997	mg/l	102%	0.75
P	20.38		mg/l	96%	-1.29
Q	21.23	2.1	mg/l	100%	0.05
R	20.55	2.3	mg/l	97%	-1.02
S			mg/l		
T	21.0	1.3	mg/l	99%	-0.31
U	21.8	2.2	mg/l	103%	0.94
V	21.4	3.4	mg/l	101%	0.31
W			mg/l		
X			mg/l		
Y	18.4	1.57	mg/l	87%	-4.40
Z	20.47	1.02	mg/l	97%	-1.15
AA	20.1		mg/l	95%	-1.73
AB	20.1	0.643	mg/l	95%	-1.73
AC			mg/l		
AD	21.8	2	mg/l	103%	0.94
AE	21.3	0.15	mg/l	100%	0.16
AF	21.0	2.1	mg/l	99%	-0.31
AG	20.1	2.0	mg/l	95%	-1.73
AH			mg/l		
AI	22.1		mg/l	104%	1.42
AJ	22.8	1.14	mg/l	108%	2.52
AK	20.8	1.34	mg/l	98%	-0.63
AL	21.5		mg/l	101%	0.47
AM	19.73	2.56	mg/l	93%	-2.31
AN			mg/l		
AO	21.652	2.165	mg/l	102%	0.71
AP	22.623	3.846	mg/l	107%	2.24

	All results	Outliers excl.	Unit
Mean ± CI(99%)	20,8 ± 0,6	20,9 ± 0,5	mg/l
Recov. ± CI(99%)	97,9 ± 2,9	98,6 ± 2,2	%
SD between labs	1,3	0,9	mg/l
RSD between labs	6,1	4,5	%
n for calculation	32	31	

**Result [mg/l]**



**Recovery [%]**



**Sample N172B**  
**Parameter Sulphate**

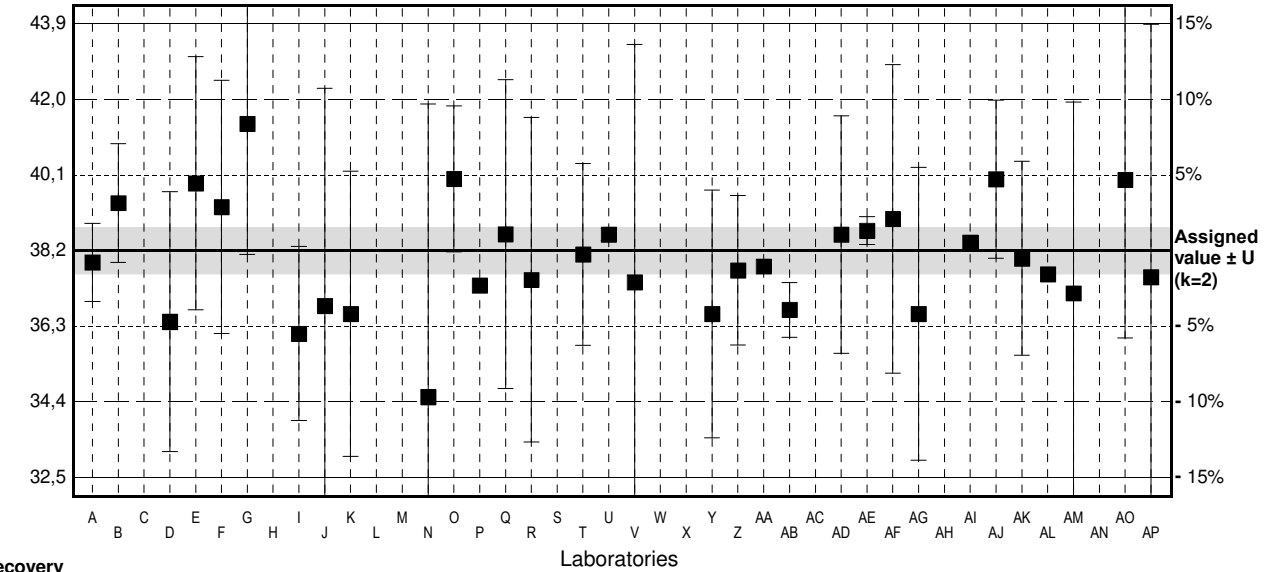
Assigned value ± U (k=2) 38,2 mg/l ± 0,6 mg/l

IFA result ± U (k=2) 38,3 mg/l ± 1,0 mg/l

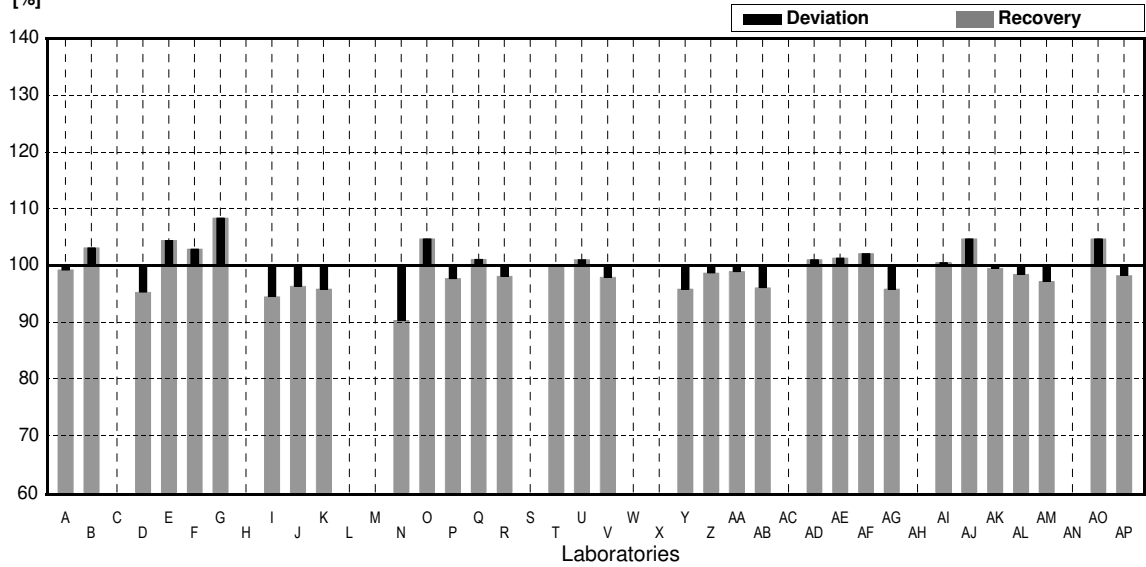
Stability test mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	37.9	0,986	mg/l	99%	-0.26
B	39.4	1.5	mg/l	103%	1.05
C			mg/l		
D	36.4	3,28	mg/l	95%	-1.57
E	39.9	3.2	mg/l	104%	1.48
F	39.3	3.2	mg/l	103%	0.96
G	41.4	3.3	mg/l	108%	2.79
H			mg/l		
I	36.1	2.2	mg/l	95%	-1.83
J	36.8	5.5	mg/l	96%	-1.22
K	36.6	3.6	mg/l	96%	-1.40
L			mg/l		
M			mg/l		
N	34.5	7.4	mg/l	90%	-3.23
O	40.01	1,840	mg/l	105%	1.58
P	37.32		mg/l	98%	-0.77
Q	38.61	3.9	mg/l	101%	0.36
R	37.46	4.1	mg/l	98%	-0.65
S			mg/l		
T	38.1	2.3	mg/l	100%	-0.09
U	38.6	0.15	mg/l	101%	0.35
V	37.4	6.0	mg/l	98%	-0.70
W			mg/l		
X			mg/l		
Y	36.6	3.13	mg/l	96%	-1.40
Z	37.70	1.89	mg/l	99%	-0.44
AA	37.8		mg/l	99%	-0.35
AB	36.7	0,691	mg/l	96%	-1.31
AC			mg/l		
AD	38.6	3	mg/l	101%	0.35
AE	38.7	0.35	mg/l	101%	0.44
AF	39.0	3.9	mg/l	102%	0.70
AG	36.6	3.7	mg/l	96%	-1.40
AH			mg/l		
AI	38.4		mg/l	101%	0.17
AJ	40.0	2,00	mg/l	105%	1.57
AK	38.0	2.45	mg/l	99%	-0.17
AL	37.6		mg/l	98%	-0.52
AM	37.12	4.83	mg/l	97%	-0.94
AN			mg/l		
AO	39.987	3.999	mg/l	105%	1.56
AP	37.531	6.380	mg/l	98%	-0.58

Result [mg/l]



Recovery [%]



	All results	Outliers excl.	Unit
Mean ± CI(99%)	38,0 ± 0,7	38,0 ± 0,7	mg/l
Recov. ± CI(99%)	99,5 ± 1,8	99,5 ± 1,8	%
SD between labs	1,4	1,4	mg/l
RSD between labs	3,8	3,8	%
n for calculation	32	32	

# Sample N172A

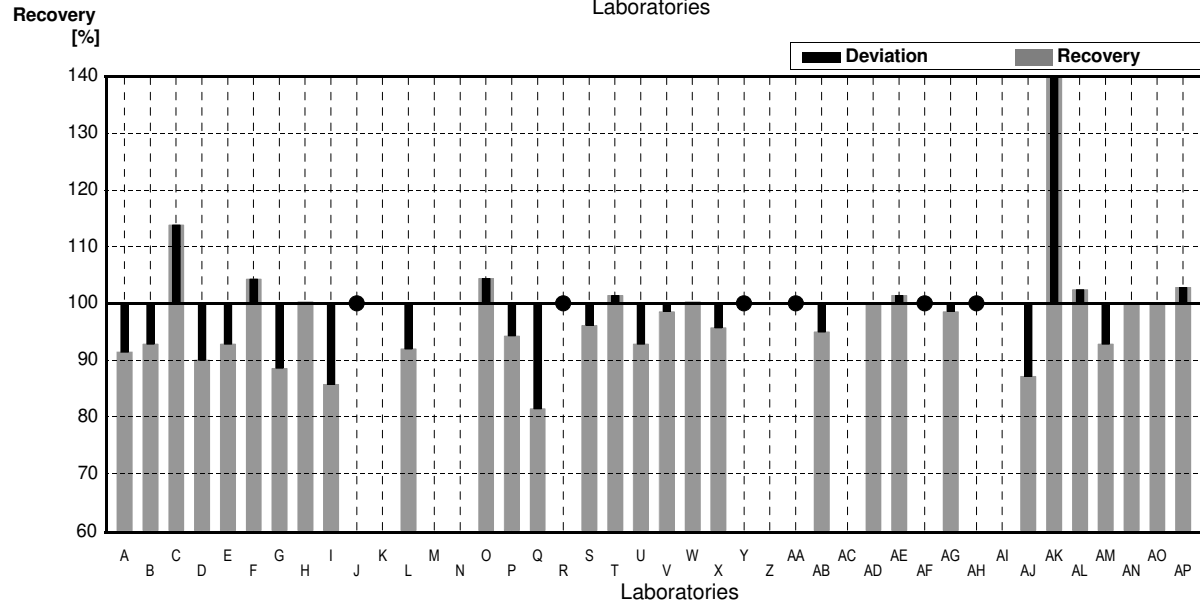
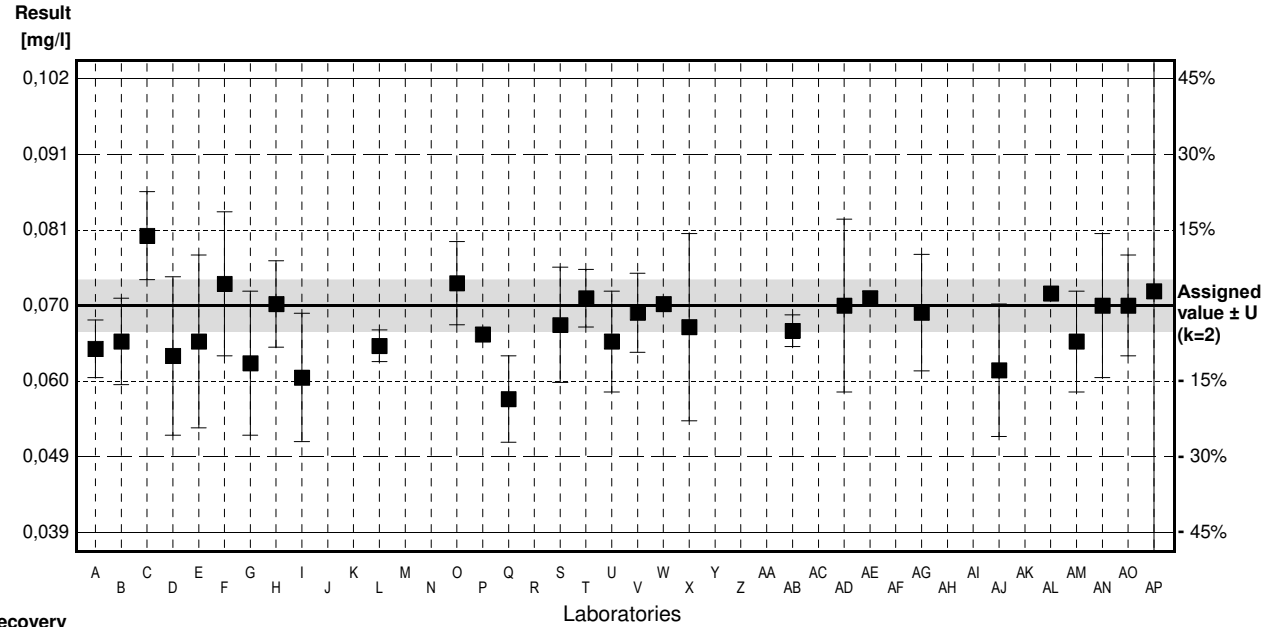
## Parameter Orthophosphate

Assigned value ± U (k=2) 0,070 mg/l ± 0,004 mg/l

IFA result ± U (k=2) 0,0703 mg/l ± 0,0014 mg/l

Stability test mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	0.064	0.004	mg/l	91%	-0.93
B	0.065	0.006	mg/l	93%	-0.78
C	0.0797	0.0061	mg/l	114%	1.51
D	0.063	0.011	mg/l	90%	-1.09
E	0.065	0.012	mg/l	93%	-0.78
F	0.073	0.010	mg/l	104%	0.47
G	0.062	0.01	mg/l	89%	-1.24
H	0.0702	0.006	mg/l	100%	0.03
I	0.060	0.0089	mg/l	86%	-1.55
J	<0.1		mg/l	*	
K			mg/l		
L	0.0644	0.0022	mg/l	92%	-0.87
M			mg/l		
N			mg/l		
O	0.07309	0.00577	mg/l	104%	0.48
P	0.066		mg/l	94%	-0.62
Q	0.057	0.006	mg/l	81%	-2.02
R	<0.2	0.02	mg/l	*	
S	0.0673	0.008	mg/l	96%	-0.42
T	0.071	0.004	mg/l	101%	0.16
U	0.065	0.007	mg/l	93%	-0.78
V	0.0690	0.0055	mg/l	99%	-0.16
W	0.0702		mg/l	100%	0.03
X	0.067	0.013	mg/l	96%	-0.47
Y	<0.095		mg/l	*	
Z			mg/l		
AA	<0.20		mg/l	*	
AB	0.0665	0.00222	mg/l	95%	-0.54
AC			mg/l		
AD	0.070	0.012	mg/l	100%	0.00
AE	0.071	0.001	mg/l	101%	0.16
AF	<0.29		mg/l	*	
AG	0.0690	0.0081	mg/l	99%	-0.16
AH	<0.10	0.008	mg/l	*	
AI			mg/l		
AJ	0.061	0.0092	mg/l	87%	-1.40
AK	0.138	0.038	mg/l	197%	10.56
AL	0.0717		mg/l	102%	0.26
AM	0.065	0.007	mg/l	93%	-0.78
AN	0.070	0.010	mg/l	100%	0.00
AO	0.070	0.007	mg/l	100%	0.00
AP	0.072	0.108	mg/l	103%	0.31



	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,070 ± 0,007	0,068 ± 0,002	mg/l
Recov. ± CI(99%)	99,8 ± 9,8	96,5 ± 3,4	%
SD between labs	0,014	0,005	mg/l
RSD between labs	19.6	7.0	%
n for calculation	30	29	

# Sample N172B

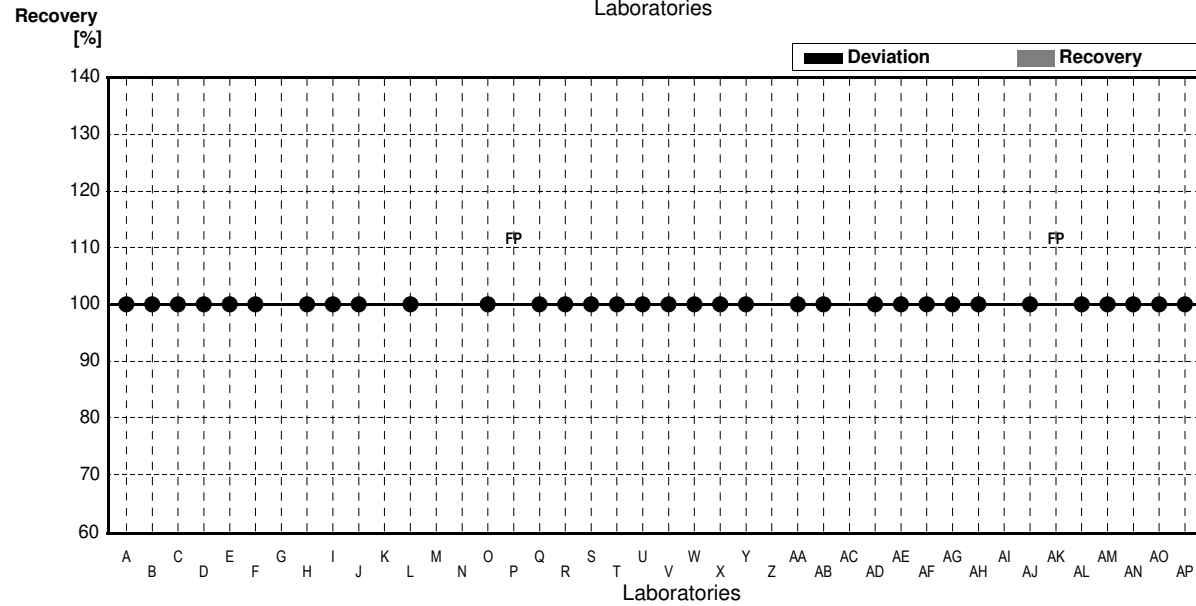
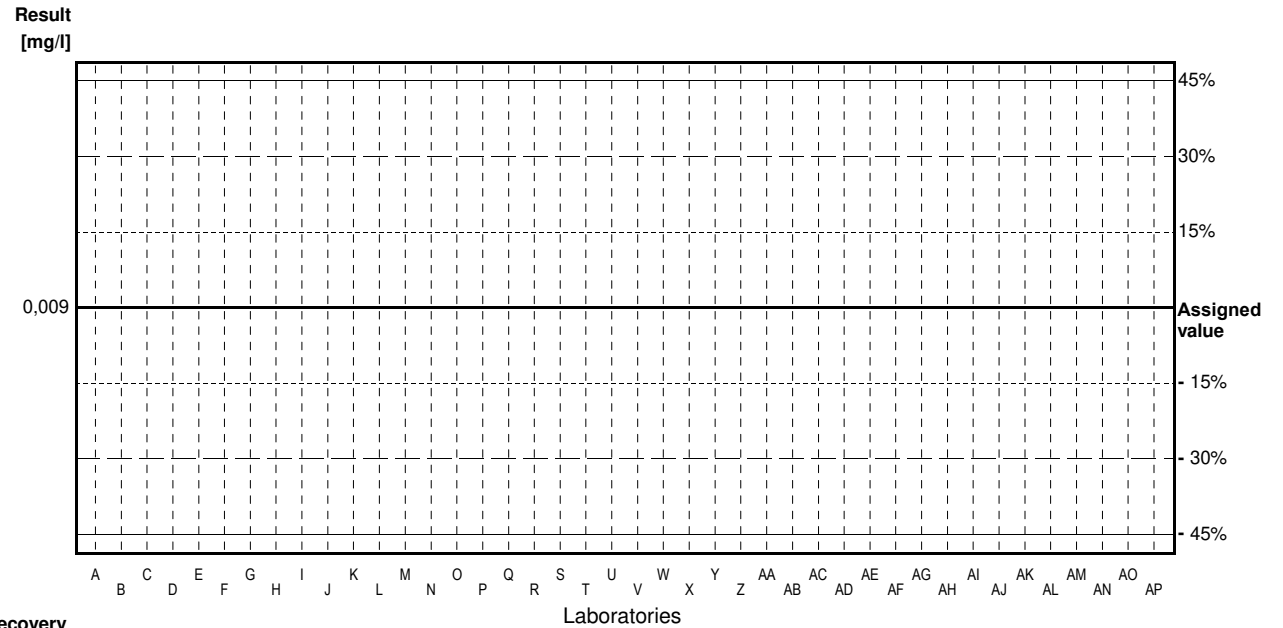
## Parameter Orthophosphate

Assigned value <0,009 mg/l

IFA result <0,009 mg/l

Stability test mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	0,00200	0,0001	mg/l	•	
B	<0,01		mg/l	•	
C	<0,019		mg/l	•	
D	<0,02		mg/l	•	
E	<0,009		mg/l	•	
F	<0,010		mg/l	•	
G			mg/l		
H	<0,03		mg/l	•	
I	<0,01		mg/l	•	
J	<0,1		mg/l	•	
K			mg/l		
L	<0,015		mg/l	•	
M			mg/l		
N			mg/l		
O	<0,015		mg/l	•	
P	0,0140		mg/l	FP	
Q	<0,0015		mg/l	•	
R	<0,2	0,02	mg/l	•	
S	<0,006	0	mg/l	•	
T	<0,006		mg/l	•	
U	<0,006		mg/l	•	
V	<0,015		mg/l	•	
W	0,00081		mg/l	•	
X	<0,015		mg/l	•	
Y	<0,095		mg/l	•	
Z			mg/l		
AA	<0,20		mg/l	•	
AB	<0,0150		mg/l	•	
AC			mg/l		
AD	<0,01		mg/l	•	
AE	<0,015		mg/l	•	
AF	<0,29		mg/l	•	
AG	<0,009		mg/l	•	
AH	<0,10	0,008	mg/l	•	
AI			mg/l		
AJ	0,0090	0,0014	mg/l	•	
AK	0,0340	0,009	mg/l	FP	
AL	<0,010		mg/l	•	
AM	0,00300	0,0003	mg/l	•	
AN	<0,01		mg/l	•	
AO	<0,01		mg/l	•	
AP	<0,05		mg/l	•	



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

# Sample N172A

## Parameter Boron

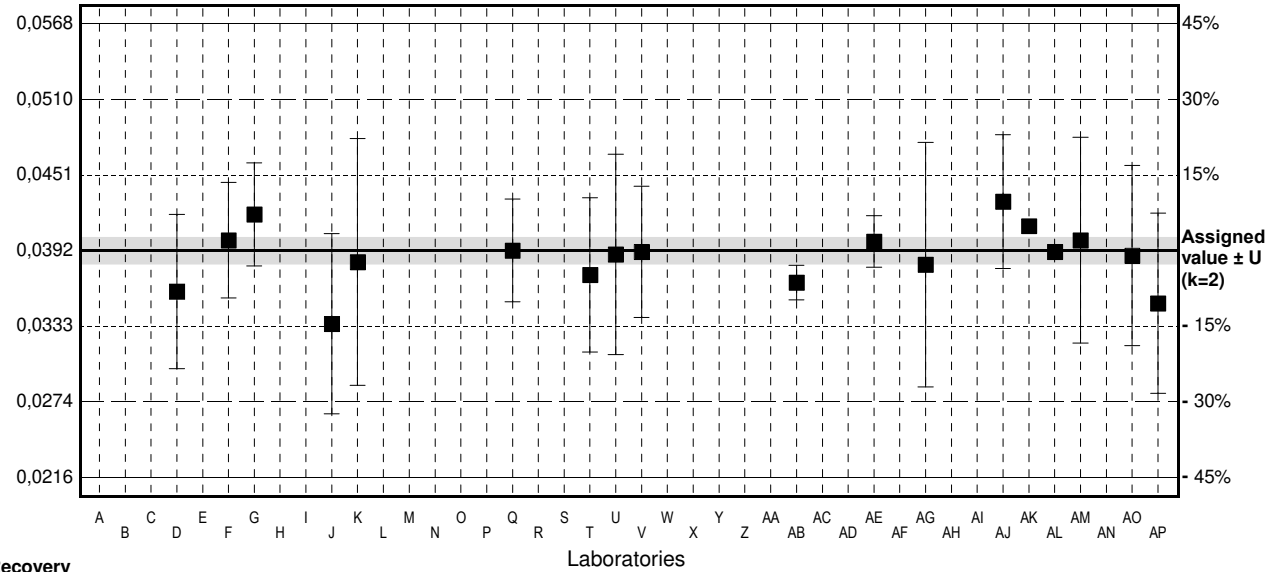
Assigned value ± U (k=2) 0,0392 mg/l ± 0,0010 mg/l

IFA result ± U (k=2) 0,0377 mg/l ± 0,0029 mg/l

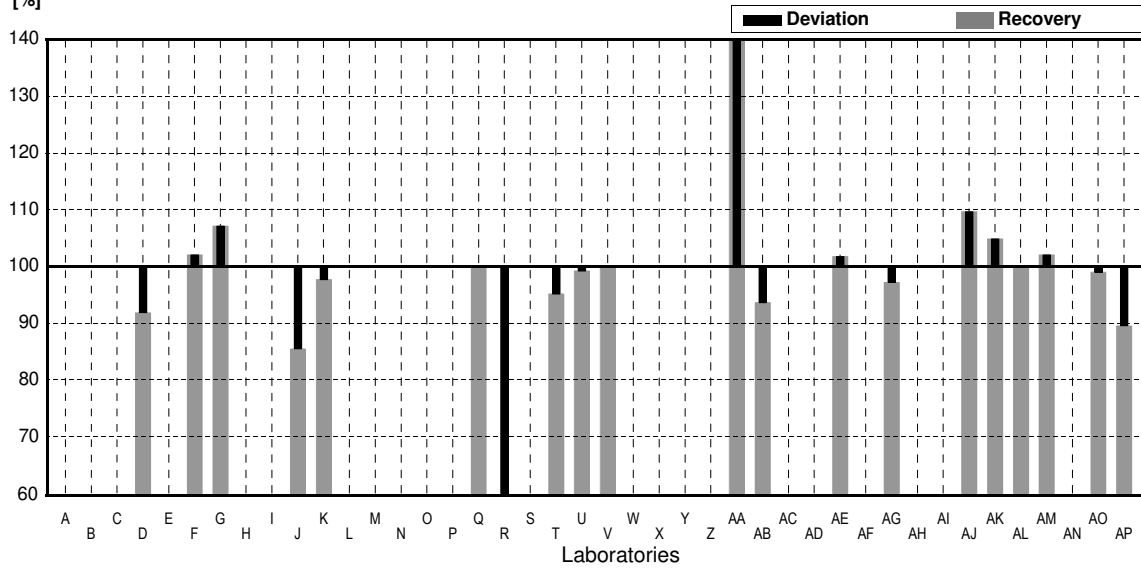
Stability test mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A			mg/l		
B			mg/l		
C			mg/l		
D	0.0360	0.006	mg/l	92%	-1.15
E			mg/l		
F	0.0400	0.0045	mg/l	102%	0.29
G	0.0420	0.004	mg/l	107%	1.01
H			mg/l		
I			mg/l		
J	0.0335	0.007	mg/l	85%	-2.05
K	0.0383	0.0096	mg/l	98%	-0.32
L			mg/l		
M			mg/l		
N			mg/l		
O			mg/l		
P			mg/l		
Q	0.0392	0.004	mg/l	100%	0.00
R	0.0161 *	0.002	mg/l	41%	-8.30
S			mg/l		
T	0.0373	0.006	mg/l	95%	-0.68
U	0.0389	0.0078	mg/l	99%	-0.11
V	0.0391	0.0051	mg/l	100%	-0.04
W			mg/l		
X			mg/l		
Y			mg/l		
Z			mg/l		
AA	32.1 *		mg/l	81888%	11519.40
AB	0.0367	0.00133	mg/l	94%	-0.90
AC			mg/l		
AD			mg/l		
AE	0.0399	0.002	mg/l	102%	0.25
AF			mg/l		
AG	0.0381	0.0095	mg/l	97%	-0.40
AH			mg/l		
AI			mg/l		
AJ	0.0430	0.0052	mg/l	110%	1.37
AK	0.0411		mg/l	105%	0.68
AL	0.0391		mg/l	100%	-0.04
AM	0.0400	0.008	mg/l	102%	0.29
AN			mg/l		
AO	0.0388	0.007	mg/l	99%	-0.14
AP	0.0351	0.0070	mg/l	90%	-1.47

Result [mg/l]



Recovery [%]



	All results	Outliers excl.	Unit
Mean ± CI(99%)	1,6406 ± 4,5849	0,0387 ± 0,0016	mg/l
Recov. ± CI(99%)	4185,2 ± 11696,	98,7 ± 4,1	%
SD between labs	7,1694	0,0024	mg/l
RSD between labs	437,0	6,1	%
n for calculation	20	18	

# Sample N172B

## Parameter Boron

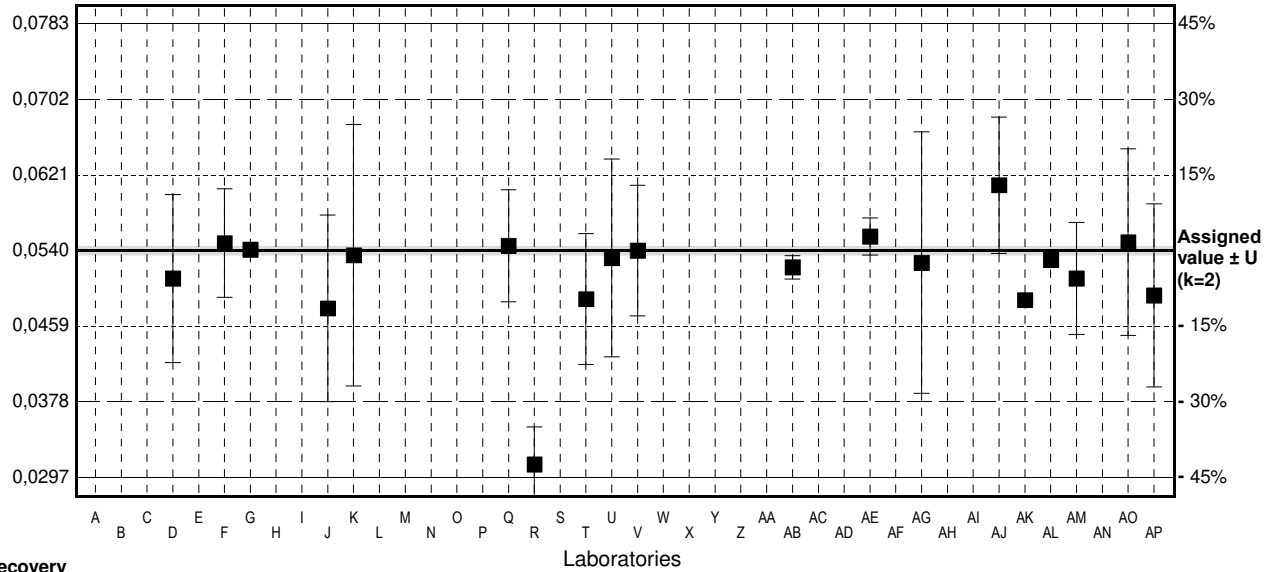
Assigned value ± U (k=2) 0,0540 mg/l ± 0,0005 mg/l

IFA result ± U (k=2) 0,053 mg/l ± 0,004 mg/l

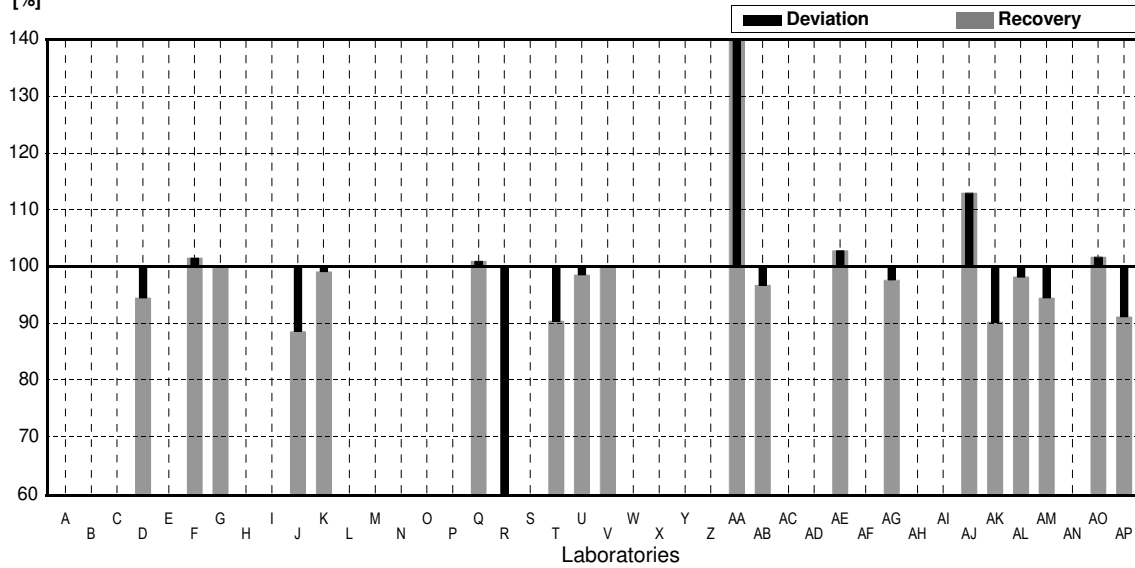
Stability test mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A			mg/l		
B			mg/l		
C			mg/l		
D	0.051	0.009	mg/l	94%	-0.78
E			mg/l		
F	0.0548	0.0058	mg/l	101%	0.21
G	0.0541		mg/l	100%	0.03
H			mg/l		
I			mg/l		
J	0.0478	0.010	mg/l	89%	-1.62
K	0.0535	0.014	mg/l	99%	-0.13
L			mg/l		
M			mg/l		
N			mg/l		
O			mg/l		
P			mg/l		
Q	0.0545	0.006	mg/l	101%	0.13
R	0.0311 *	0.004	mg/l	58%	-5.97
S			mg/l		
T	0.0488	0.007	mg/l	90%	-1.36
U	0.0532	0.0106	mg/l	99%	-0.21
V	0.0540	0.0070	mg/l	100%	0.00
W			mg/l		
X			mg/l		
Y			mg/l		
Z			mg/l		
AA	45.6 *		mg/l	84444%	11879.50
AB	0.0522	0.00125	mg/l	97%	-0.47
AC			mg/l		
AD			mg/l		
AE	0.0555	0.002	mg/l	103%	0.39
AF			mg/l		
AG	0.0527	0.014	mg/l	98%	-0.34
AH			mg/l		
AI			mg/l		
AJ	0.061	0.0073	mg/l	113%	1.83
AK	0.0487		mg/l	90%	-1.38
AL	0.0530		mg/l	98%	-0.26
AM	0.051	0.006	mg/l	94%	-0.78
AN			mg/l		
AO	0.0549	0.01	mg/l	102%	0.23
AP	0.0492	0.0098	mg/l	91%	-1.25

Result [mg/l]



Recovery [%]



	All results	Outliers excl.	Unit
Mean ± CI(99%)	2,3291 ± 6,5134	0,0528 ± 0,0021	mg/l
Recov. ± CI(99%)	4313,1 ± 12061,	97,7 ± 4,0	%
SD between labs	10,1849	0,0031	mg/l
RSD between labs	437,3	5,9	%
n for calculation	20	18	

# Sample N172A

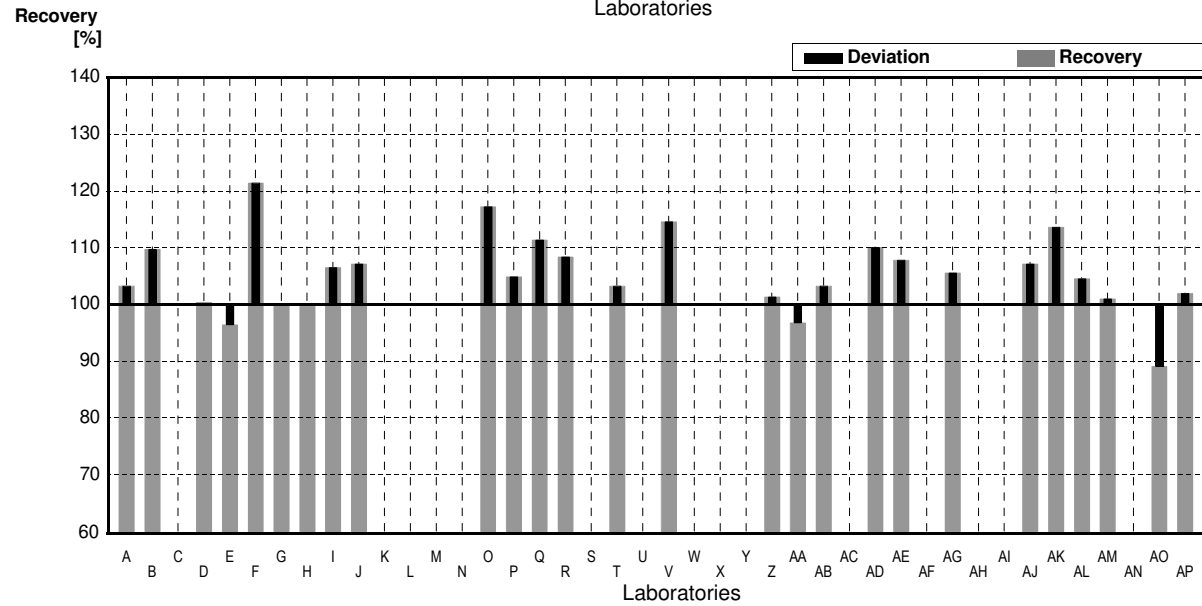
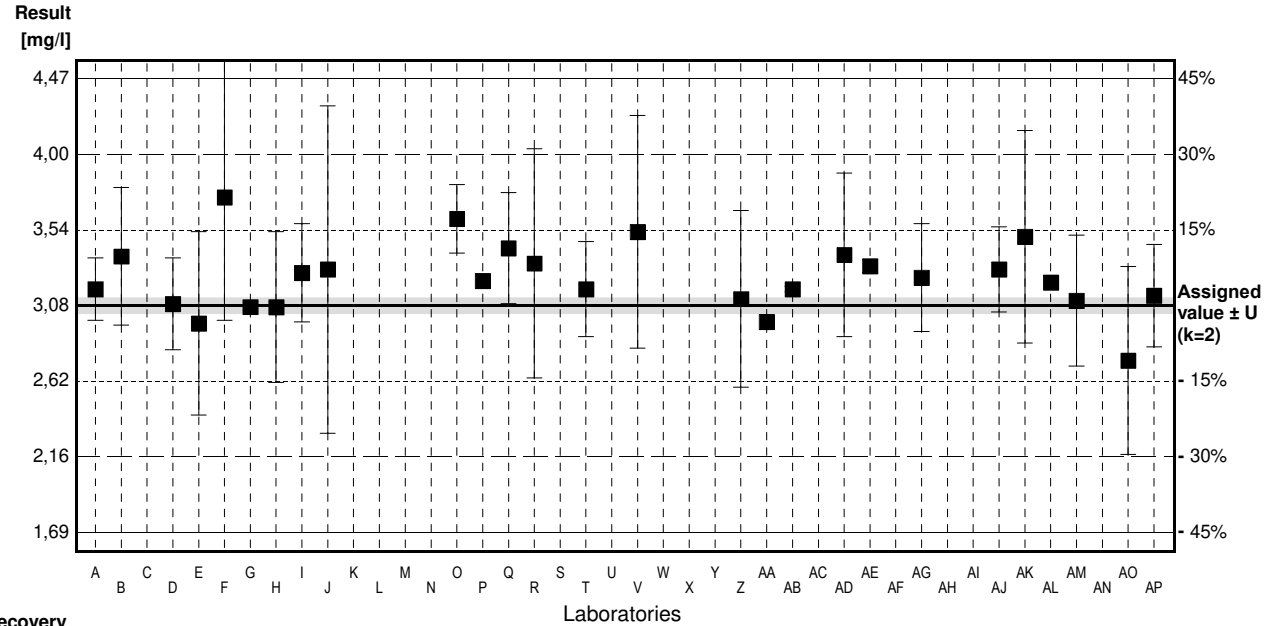
## Parameter DOC

Assigned value ± U (k=2) 3,08 mg/l ± 0,05 mg/l

IFA result ± U (k=2) 3,15 mg/l ± 0,09 mg/l

Stability test ± U (k=2) 3,15 mg/l ± 0,09 mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	3.18	0.191	mg/l	103%	0.60
B	3.38	0.42	mg/l	110%	1.80
C			mg/l		
D	3.09	0.28	mg/l	100%	0.06
E	2.97	0.56	mg/l	96%	-0.66
F	3.74	0.75	mg/l	121%	3.97
G	3.071		mg/l	100%	-0.05
H	3.07	0.46	mg/l	100%	-0.06
I	3.28	0.30	mg/l	106%	1.20
J	3.30	1	mg/l	107%	1.32
K			mg/l		
L			mg/l		
M			mg/l		
N			mg/l		
O	3.61	0.209	mg/l	117%	3.19
P	3.23		mg/l	105%	0.90
Q	3.43	0.34	mg/l	111%	2.10
R	3.337	0.7	mg/l	108%	1.55
S			mg/l		
T	3.18	0.29	mg/l	103%	0.60
U	NA		mg/l		
V	3.53	0.71	mg/l	115%	2.71
W			mg/l		
X			mg/l		
Y			mg/l		
Z	3.12	0.54	mg/l	101%	0.24
AA	2.98		mg/l	97%	-0.60
AB	3.18	0.0160	mg/l	103%	0.60
AC			mg/l		
AD	3.39	0.5	mg/l	110%	1.86
AE	3.32	0.04	mg/l	108%	1.44
AF			mg/l		
AG	3.25	0.33	mg/l	106%	1.02
AH			mg/l		
AI			mg/l		
AJ	3.30	0.26	mg/l	107%	1.32
AK	3.50	0.65	mg/l	114%	2.53
AL	3.22		mg/l	105%	0.84
AM	3.11	0.40	mg/l	101%	0.18
AN			mg/l		
AO	2.744	0.574	mg/l	89%	-2.02
AP	3.140	0.314	mg/l	102%	0.36



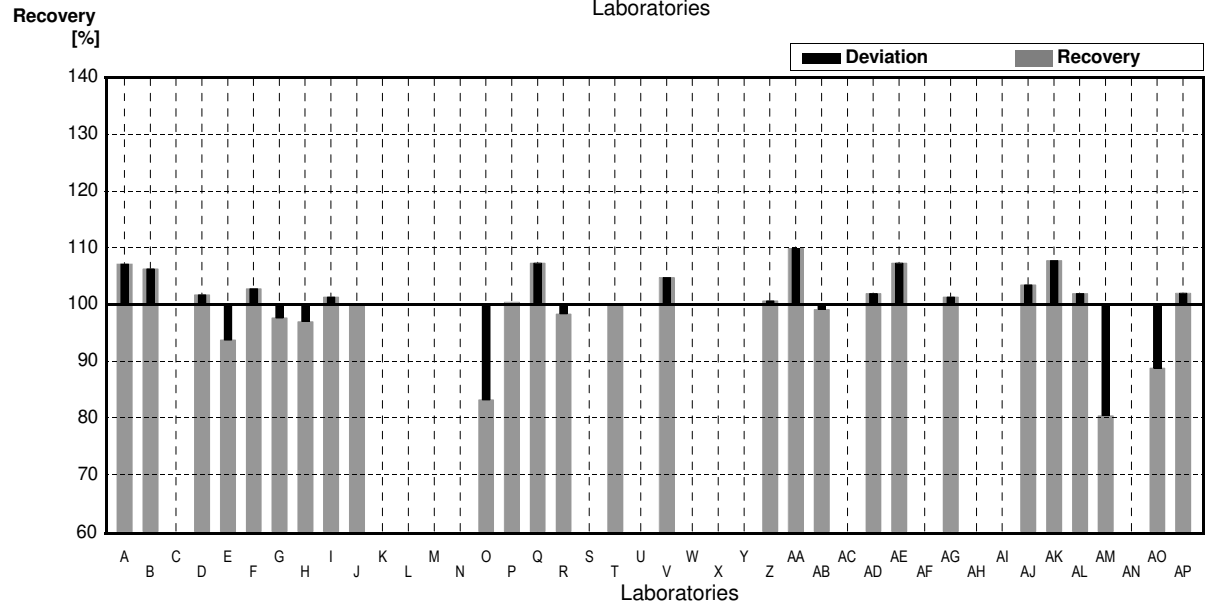
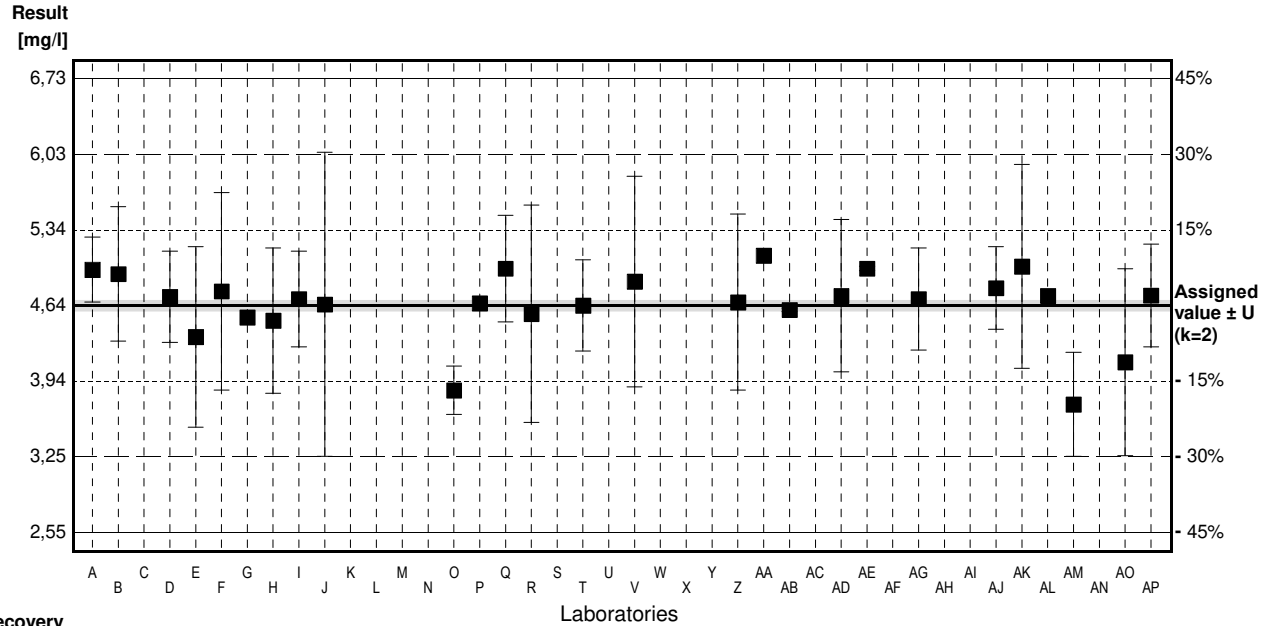
	All results	Outliers excl.	Unit
Mean ± CI(99%)	3,25 ± 0,11	3,25 ± 0,11	mg/l
Recov. ± CI(99%)	105,4 ± 3,7	105,4 ± 3,7	%
SD between labs	0,21	0,21	mg/l
RSD between labs	6,5	6,5	%
n for calculation	27	27	

**Sample N172B**  
**Parameter DOC**

Assigned value ± U (k=2) 4,64 mg/l ± 0,05 mg/l  
 IFA result ± U (k=2) 4,57 mg/l ± 0,09 mg/l  
 Stability test ± U (k=2) 4,59 mg/l ± 0,09 mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	4.97	0.298	mg/l	107%	1.32
B	4.93	0.62	mg/l	106%	1.16
C			mg/l		
D	4.72	0.42	mg/l	102%	0.32
E	4.35	0.83	mg/l	94%	-1.16
F	4.77	0.91	mg/l	103%	0.52
G	4.531		mg/l	98%	-0.44
H	4.50	0.67	mg/l	97%	-0.56
I	4.70	0.44	mg/l	101%	0.24
J	4.65	1.4	mg/l	100%	0.04
K			mg/l		
L			mg/l		
M			mg/l		
N			mg/l		
O	3.86 *	0.224	mg/l	83%	-3.11
P	4.66		mg/l	100%	0.08
Q	4.98	0.49	mg/l	107%	1.36
R	4.563	1.0	mg/l	98%	-0.31
S			mg/l		
T	4.64	0.42	mg/l	100%	0.00
U	NA		mg/l		
V	4.86	0.97	mg/l	105%	0.88
W			mg/l		
X			mg/l		
Y			mg/l		
Z	4.67	0.81	mg/l	101%	0.12
AA	5.1		mg/l	110%	1.84
AB	4.60	0.0164	mg/l	99%	-0.16
AC			mg/l		
AD	4.73	0.7	mg/l	102%	0.36
AE	4.98	0.02	mg/l	107%	1.36
AF			mg/l		
AG	4.70	0.47	mg/l	101%	0.24
AH			mg/l		
AI			mg/l		
AJ	4.80	0.38	mg/l	103%	0.64
AK	5.00	0.94	mg/l	108%	1.44
AL	4.73		mg/l	102%	0.36
AM	3.73 *	0.48	mg/l	80%	-3.63
AN			mg/l		
AO	4.118	0.861	mg/l	89%	-2.08
AP	4.732	0.473	mg/l	102%	0.37

	All results	Outliers excl.	Unit
Mean ± CI(99%)	4,65 ± 0,17	4,72 ± 0,12	mg/l
Recov. ± CI(99%)	100,2 ± 3,7	101,7 ± 2,6	%
SD between labs	0,32	0,22	mg/l
RSD between labs	7,0	4,6	%
n for calculation	27	25	



# Sample N172A

## Parameter Total P (as PO4)

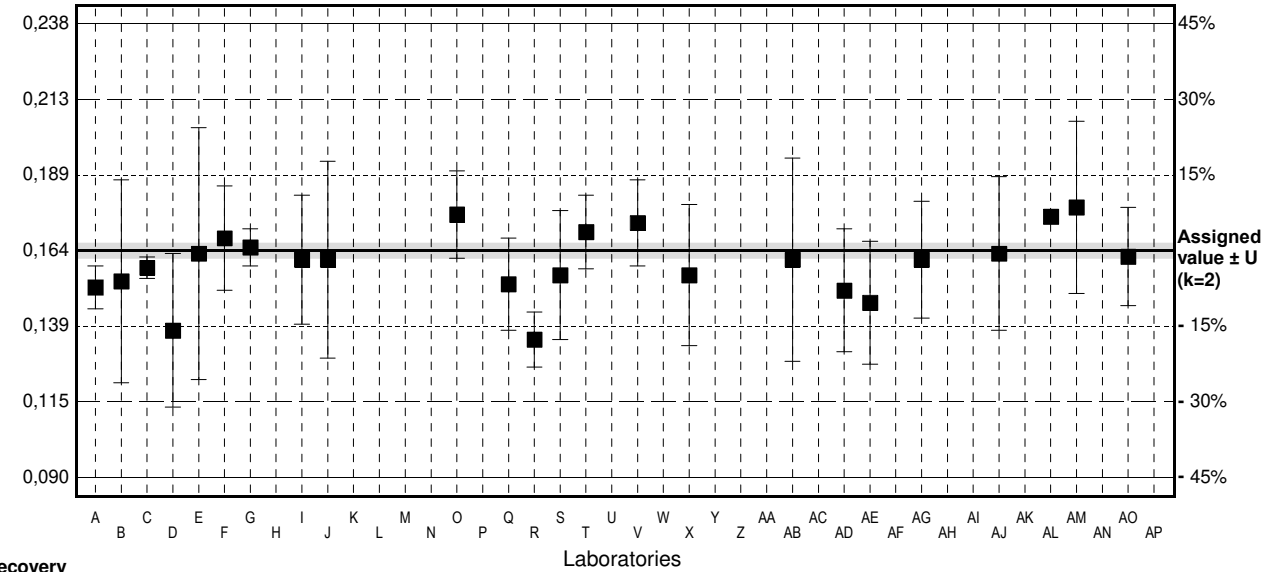
Assigned value ± U (k=2) 0,164 mg/l ± 0,002 mg/l

IFA result ± U (k=2) 0,160 mg/l ± 0,021 mg/l

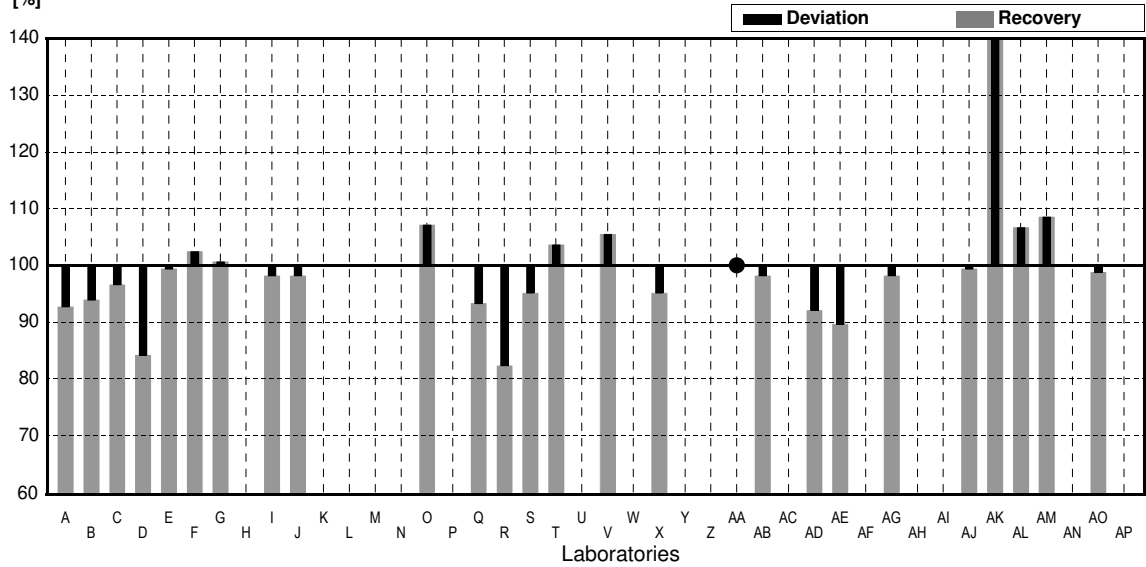
Stability test mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A	0.152	0.007	mg/l	93%	-0.80
B	0.154	0.033	mg/l	94%	-0.67
C	0.1584	0.0035	mg/l	97%	-0.38
D	0.138	0.025	mg/l	84%	-1.74
E	0.163	0.041	mg/l	99%	-0.07
F	0.168	0.017	mg/l	102%	0.27
G	0.165	0.006	mg/l	101%	0.07
H			mg/l		
I	0.161	0.021	mg/l	98%	-0.20
J	0.161	0.032	mg/l	98%	-0.20
K			mg/l		
L			mg/l		
M			mg/l		
N			mg/l		
O	0.1757	0.01423	mg/l	107%	0.78
P			mg/l		
Q	0.153	0.015	mg/l	93%	-0.74
R	0.135	0.009	mg/l	82%	-1.94
S	0.156	0.021	mg/l	95%	-0.54
T	0.170	0.012	mg/l	104%	0.40
U	NA		mg/l		
V	0.173	0.014	mg/l	105%	0.60
W			mg/l		
X	0.156	0.023	mg/l	95%	-0.54
Y			mg/l		
Z			mg/l		
AA	<0.20		mg/l	.	
AB	0.161	0.0331	mg/l	98%	-0.20
AC			mg/l		
AD	0.151	0.02	mg/l	92%	-0.87
AE	0.147	0.02	mg/l	90%	-1.14
AF			mg/l		
AG	0.1610	0.0190	mg/l	98%	-0.20
AH			mg/l		
AI			mg/l		
AJ	0.163	0.025	mg/l	99%	-0.07
AK	0.276 *	0.044	mg/l	168%	7.50
AL	0.175		mg/l	107%	0.74
AM	0.178	0.028	mg/l	109%	0.94
AN			mg/l		
AO	0.162	0.016	mg/l	99%	-0.13
AP			mg/l		

Result [mg/l]



Recovery [%]



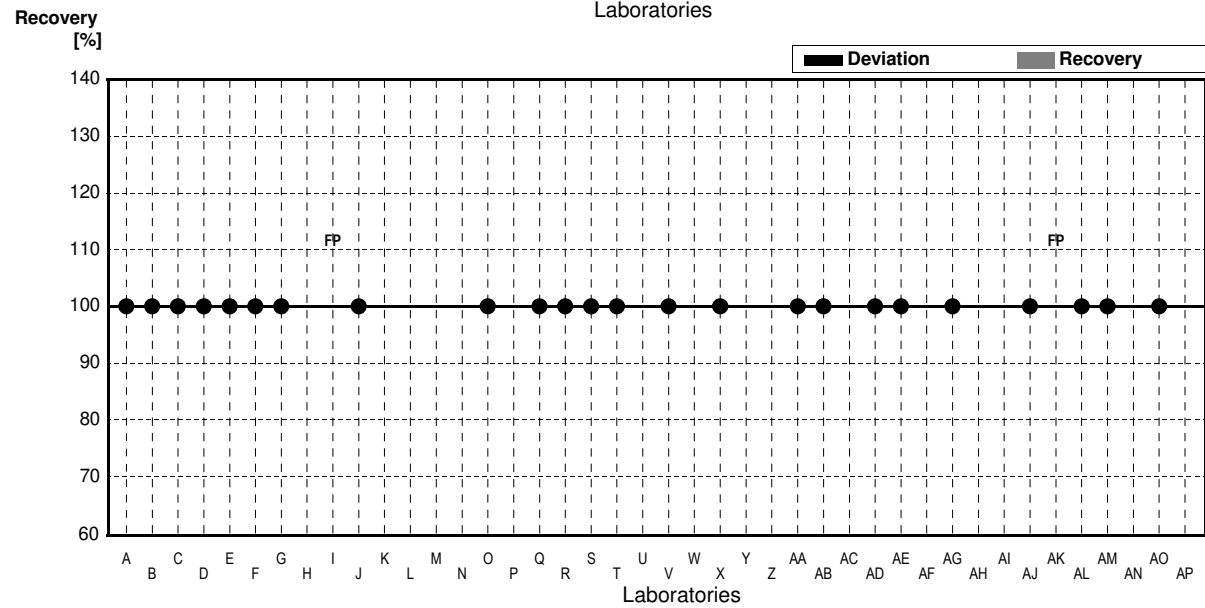
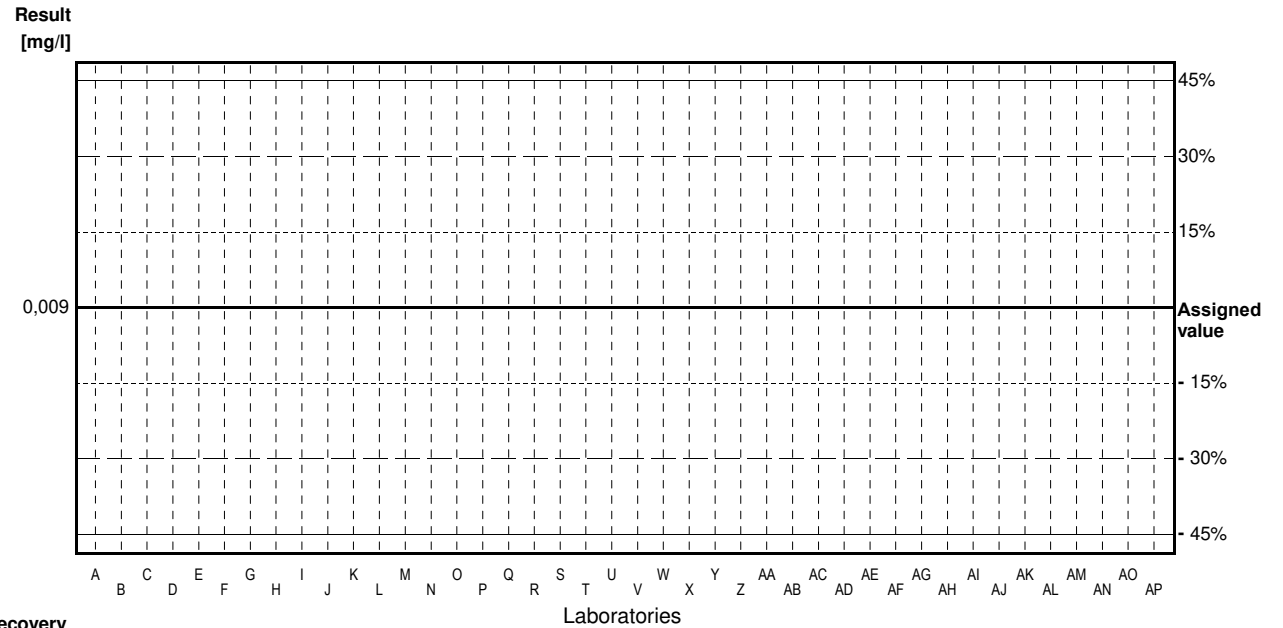
	All results	Outliers excl.	Unit
Mean ± CI(99%)	0,165 ± 0,014	0,160 ± 0,006	mg/l
Recov. ± CI(99%)	100,3 ± 8,7	97,5 ± 3,8	%
SD between labs	0,026	0,011	mg/l
RSD between labs	15,5	6,8	%
n for calculation	25	24	

# Sample N172B

## Parameter Total P (as PO4)

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

Lab Code	Result	±	Unit	Recovery	z-Score
A	<0,034	0,0017	mg/l	•	
B	<0,01		mg/l	•	
C	<0,02		mg/l	•	
D	<0,05		mg/l	•	
E	<0,009		mg/l	•	
F	<0,010		mg/l	•	
G	<0,03		mg/l	•	
H			mg/l		
I	0,0300	0,0039	mg/l	FP	
J	<0,031		mg/l	•	
K			mg/l		
L			mg/l		
M			mg/l		
N			mg/l		
O	<0,015		mg/l	•	
P			mg/l		
Q	<0,003		mg/l	•	
R	<0,1	0,007	mg/l	•	
S	<0,006	0	mg/l	•	
T	<0,006		mg/l	•	
U	NA		mg/l		
V	<0,015		mg/l	•	
W			mg/l		
X	<0,015		mg/l	•	
Y			mg/l		
Z			mg/l		
AA	<0,20		mg/l	•	
AB	<0,0150		mg/l	•	
AC			mg/l		
AD	<0,013		mg/l	•	
AE	<0,015		mg/l	•	
AF			mg/l		
AG	<0,015		mg/l	•	
AH			mg/l		
AI			mg/l		
AJ	<0,0150		mg/l	•	
AK	0,0613	0,0098	mg/l	FP	
AL	<0,010		mg/l	•	
AM	0,00300	0,0005	mg/l	•	
AN			mg/l		
AO	<0,01		mg/l	•	
AP			mg/l		



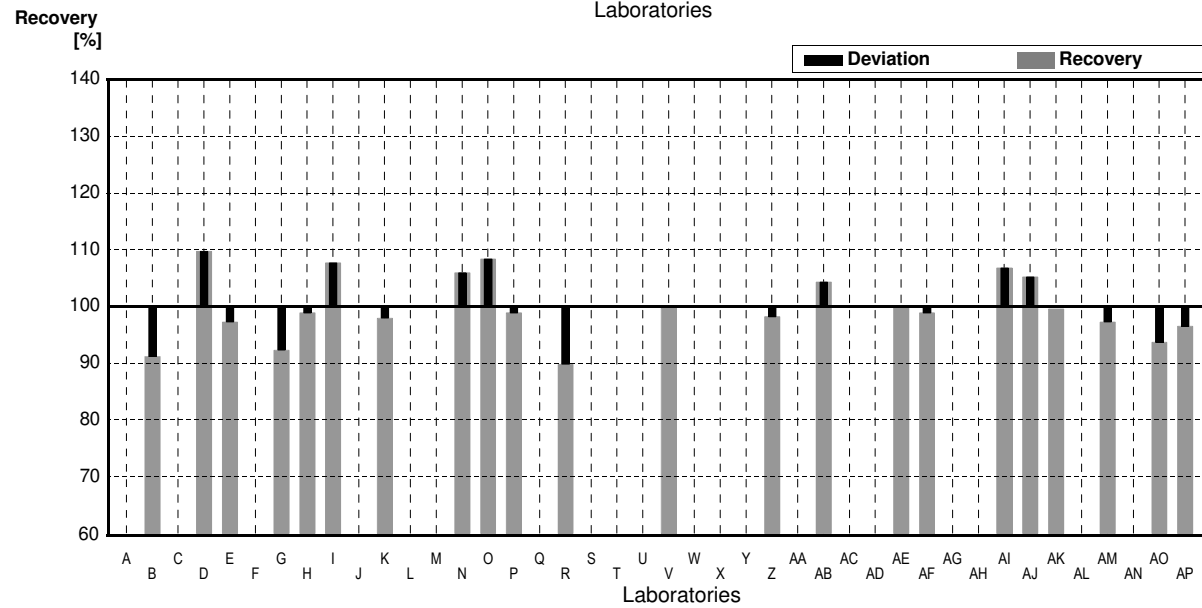
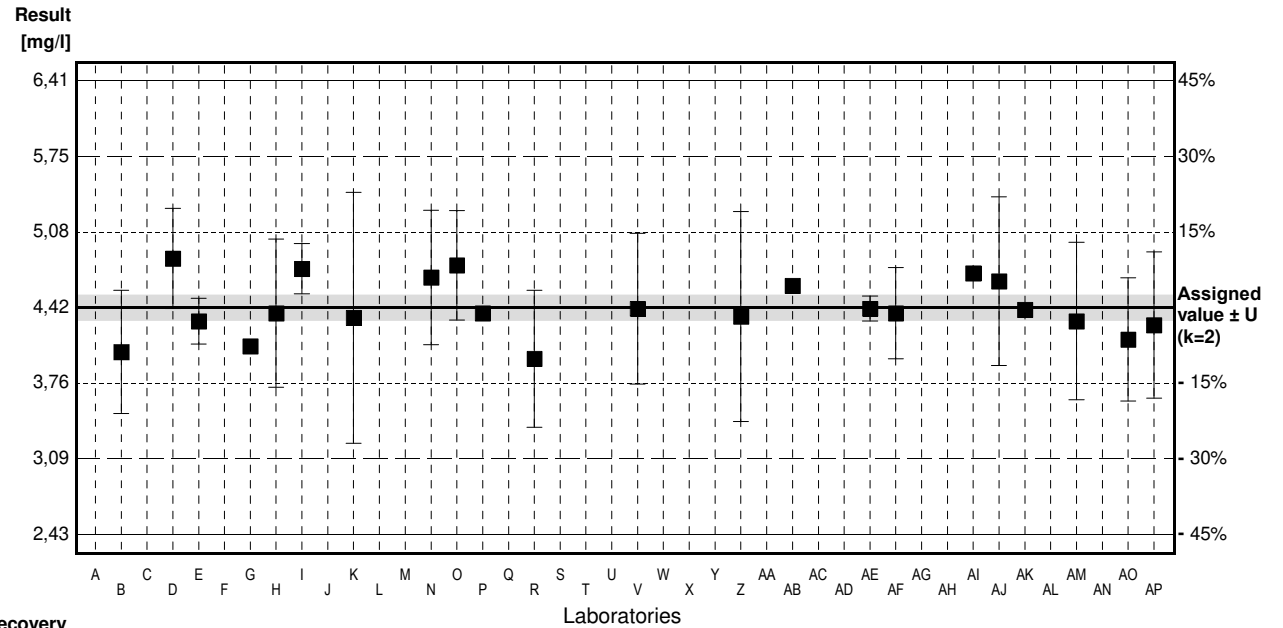
	All results	Outliers excl.	Unit
Mean ± CI(99%)			mg/l
Recov. ± CI(99%)			%
SD between labs			mg/l
RSD between labs			%
n for calculation			

# Sample N172A

## Parameter KMnO4-Index

Assigned value ± U (k=2) 4,42 mg/l ± 0,11 mg/l  
 IFA result ± U (k=2) 4,62 mg/l ± 0,69 mg/l  
 Stability test ± U (k=2) 4,67 mg/l ± 0,69 mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A			mg/l		
B	4.03	0.54	mg/l	91%	-1.08
C			mg/l		
D	4.85	0.44	mg/l	110%	1.19
E	4.30	0.20	mg/l	97%	-0.33
F			mg/l		
G	4.08		mg/l	92%	-0.94
H	4.37	0.65	mg/l	99%	-0.14
I	4.76	0.22	mg/l	108%	0.94
J			mg/l		
K	4.33	1.1	mg/l	98%	-0.25
L			mg/l		
M			mg/l		
N	4.683	0.588	mg/l	106%	0.73
O	4.79	0.479	mg/l	108%	1.02
P	4.37		mg/l	99%	-0.14
Q			mg/l		
R	3.97	0.6	mg/l	90%	-1.24
S			mg/l		
T			mg/l		
U	NA		mg/l		
V	4.41	0.66	mg/l	100%	-0.03
W			mg/l		
X			mg/l		
Y			mg/l		
Z	4.34	0.92	mg/l	98%	-0.22
AA			mg/l		
AB	4.61		mg/l	104%	0.52
AC			mg/l		
AD			mg/l		
AE	4.41	0.11	mg/l	100%	-0.03
AF	4.37	0.4	mg/l	99%	-0.14
AG			mg/l		
AH			mg/l		
AI	4.72		mg/l	107%	0.83
AJ	4.65	0.74	mg/l	105%	0.63
AK	4.40		mg/l	100%	-0.06
AL			mg/l		
AM	4.30	0.69	mg/l	97%	-0.33
AN			mg/l		
AO	4.14	0.54	mg/l	94%	-0.77
AP	4.266	0.640	mg/l	97%	-0.42



	All results	Outliers excl.	Unit
Mean ± CI(99%)	4,42 ± 0,15	4,42 ± 0,15	mg/l
Recov. ± CI(99%)	99,9 ± 3,4	99,9 ± 3,4	%
SD between labs	0,25	0,25	mg/l
RSD between labs	5,7	5,7	%
n for calculation	22	22	

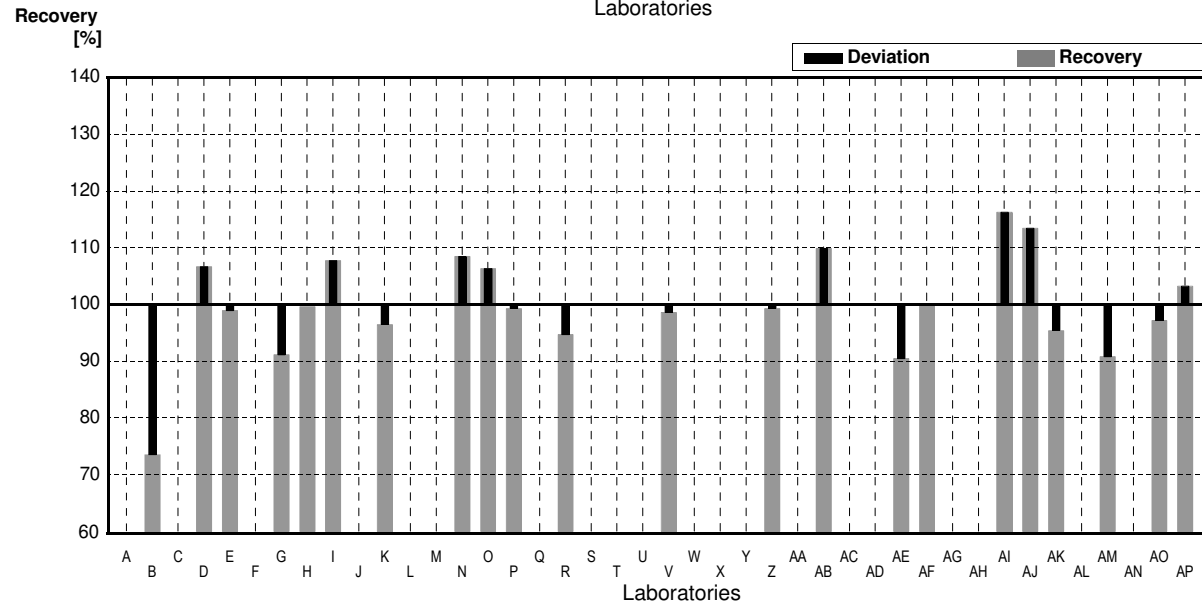
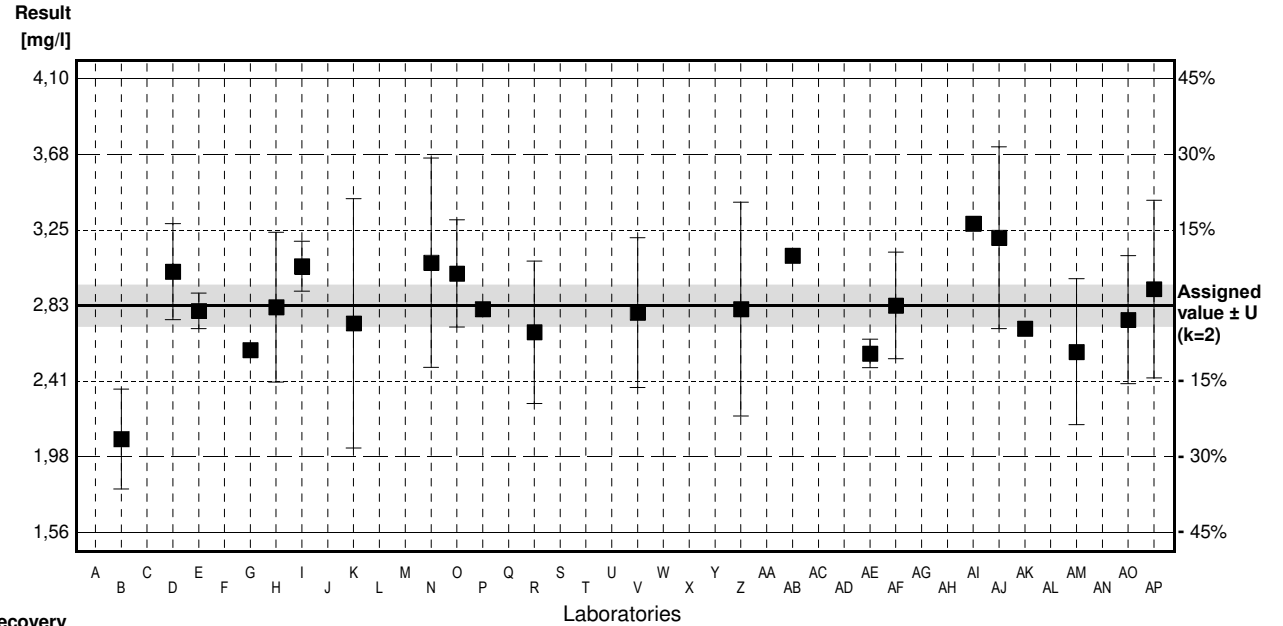
# Sample N172B

## Parameter KMnO4-Index

Assigned value ± U (k=2) 2,83 mg/l ± 0,12 mg/l  
 IFA result ± U (k=2) 2,82 mg/l ± 0,42 mg/l  
 Stability test ± U (k=2) 2,91 mg/l ± 0,43 mg/l

Lab Code	Result	±	Unit	Recovery	z-Score
A			mg/l		
B	2.08	0.28	mg/l	73%	-3.23
C			mg/l		
D	3.02	0.27	mg/l	107%	0.82
E	2.80	0.10	mg/l	99%	-0.13
F			mg/l		
G	2.58		mg/l	91%	-1.08
H	2.82	0.42	mg/l	100%	-0.04
I	3.05	0.14	mg/l	108%	0.95
J			mg/l		
K	2.73	0.7	mg/l	96%	-0.43
L			mg/l		
M			mg/l		
N	3.070	0.588	mg/l	108%	1.03
O	3.01	0.301	mg/l	106%	0.78
P	2.81		mg/l	99%	-0.09
Q			mg/l		
R	2.68	0.4	mg/l	95%	-0.65
S			mg/l		
T			mg/l		
U	NA		mg/l		
V	2.79	0.42	mg/l	99%	-0.17
W			mg/l		
X			mg/l		
Y			mg/l		
Z	2.81	0.60	mg/l	99%	-0.09
AA			mg/l		
AB	3.11		mg/l	110%	1.21
AC			mg/l		
AD			mg/l		
AE	2.56	0.08	mg/l	90%	-1.16
AF	2.83	0.3	mg/l	100%	0.00
AG			mg/l		
AH			mg/l		
AI	3.29		mg/l	116%	1.98
AJ	3.21	0.51	mg/l	113%	1.64
AK	2.70		mg/l	95%	-0.56
AL			mg/l		
AM	2.57	0.41	mg/l	91%	-1.12
AN			mg/l		
AO	2.75	0.36	mg/l	97%	-0.34
AP	2.922	0.499	mg/l	103%	0.40

	All results	Outliers excl.	Unit
Mean ± CI(99%)	2,83 ± 0,16	2,83 ± 0,16	mg/l
Recov. ± CI(99%)	99,9 ± 5,6	99,9 ± 5,6	%
SD between labs	0,26	0,26	mg/l
RSD between labs	9,3	9,3	%
n for calculation	22	22	





# **Labororientierte Auswertung**

## **Laboratory Oriented Part**

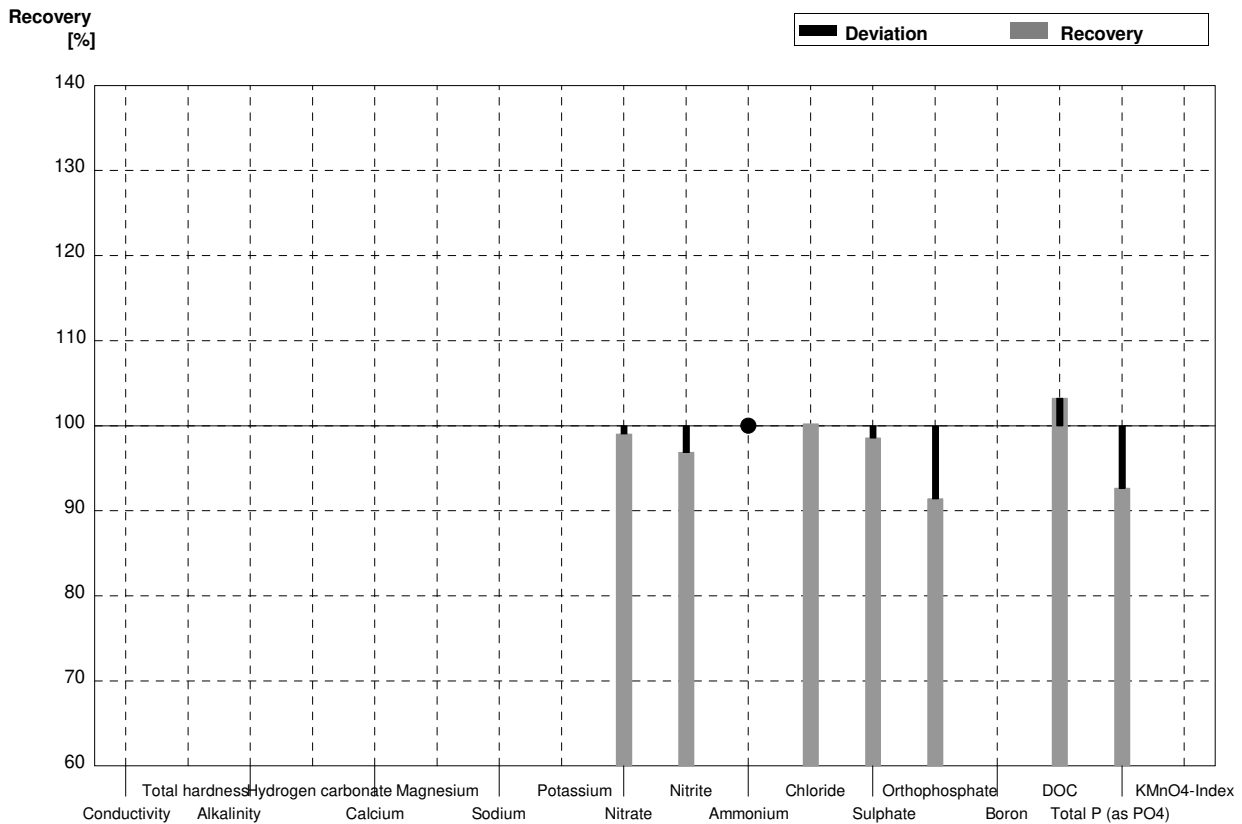
Eignungsprüfungsrunde / Proficiency testing round  
N172

Nährstoffe  
Nutrients / Major ions

Versand / Dispatch: 03.06.2024

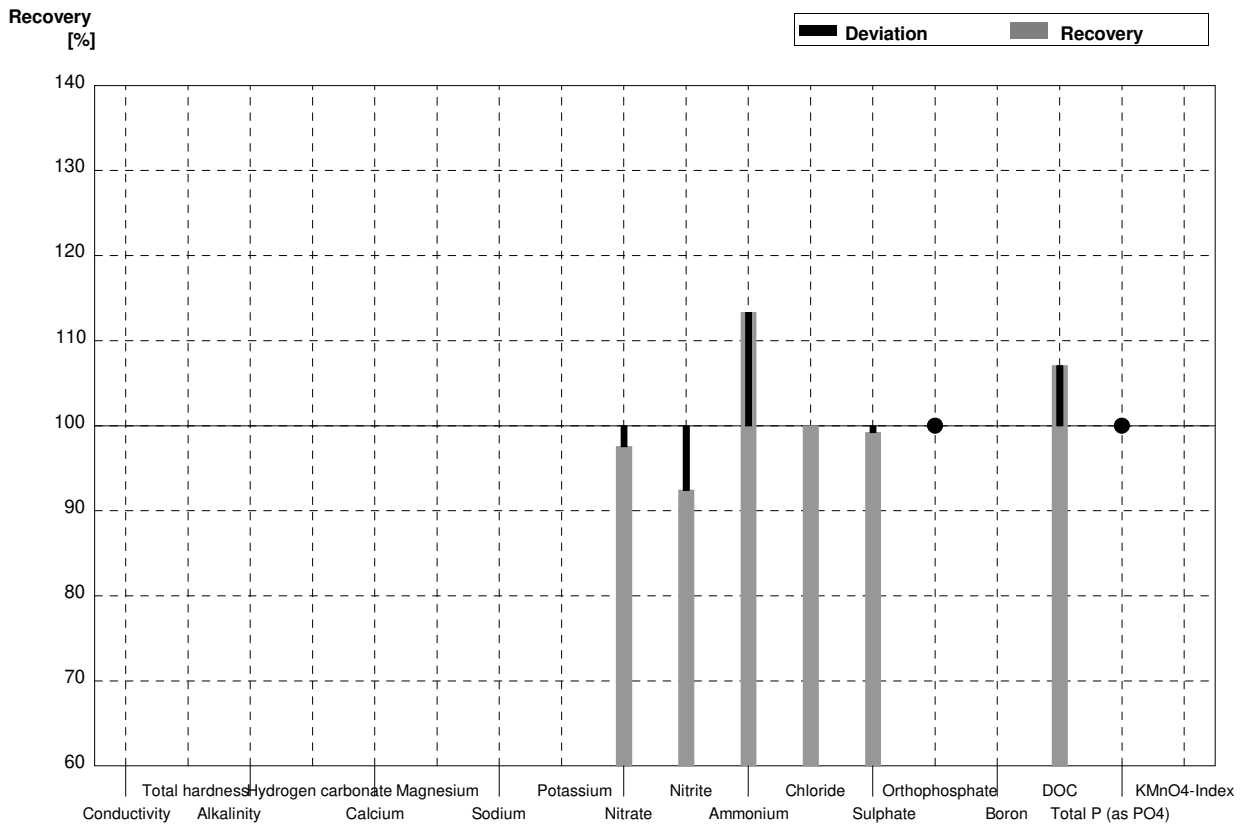
**Sample N172A**  
**Laboratory A**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1			µS/cm	
Total hardness	1,78	0,02			mmol/l	
Alkalinity	2,07	0,04			mmol/l	
Hydrogen carbonate	123	2			mg/l	
Calcium	45,0	0,8			mg/l	
Magnesium	16,0	0,2			mg/l	
Sodium	10,5	0,3			mg/l	
Potassium	2,54	0,02			mg/l	
Nitrate	31,3	0,8	31,0	1,67	mg/l	99%
Nitrite	0,0640	0,0003	0,062	0,0040	mg/l	97%
Ammonium	<0,01		0,0080	0,0006	mg/l	•
Chloride	38,4	0,6	38,5	1,62	mg/l	100%
Sulphate	21,2	0,4	20,9	0,542	mg/l	99%
Orthophosphate	0,070	0,004	0,064	0,004	mg/l	91%
Boron	0,0392	0,0010			mg/l	
DOC	3,08	0,05	3,18	0,191	mg/l	103%
Total P (as PO4)	0,164	0,002	0,152	0,007	mg/l	93%
KMnO4-Index	4,42	0,11			mg/l	



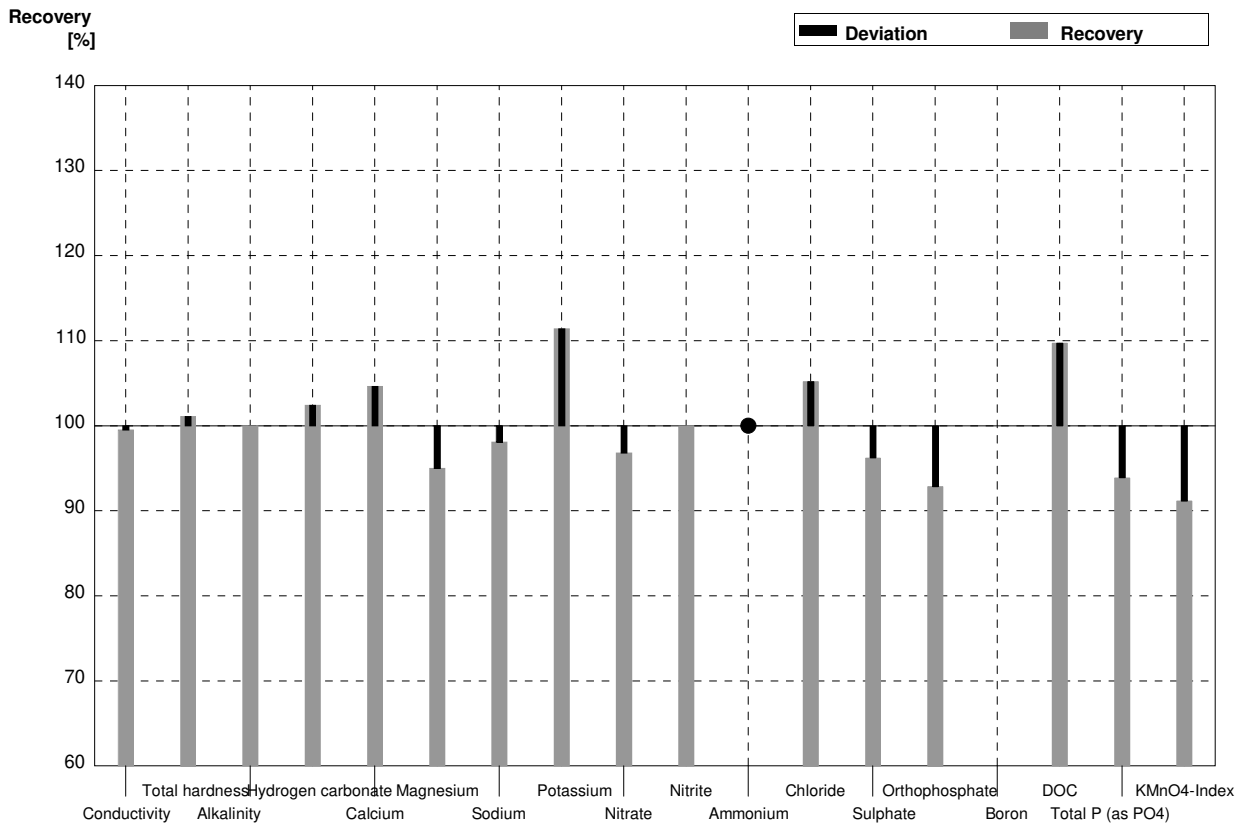
**Sample N172B**  
**Laboratory A**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1			µS/cm	
Total hardness	1,032	0,012			mmol/l	
Alkalinity	1,565	0,019			mmol/l	
Hydrogen carbonate	92,4	1,2			mg/l	
Calcium	28,0	0,4			mg/l	
Magnesium	8,12	0,15			mg/l	
Sodium	20,63	0,19			mg/l	
Potassium	5,38	0,03			mg/l	
Nitrate	16,5	0,3	16,1	0,870	mg/l	98%
Nitrite	0,0530	0,0005	0,0490	0,0031	mg/l	92%
Ammonium	0,060	0,002	0,0680	0,0050	mg/l	113%
Chloride	16,9	0,3	16,9	0,708	mg/l	100%
Sulphate	38,2	0,6	37,9	0,986	mg/l	99%
Orthophosphate	<0,009		0,00200	0,0001	mg/l	•
Boron	0,0540	0,0005			mg/l	
DOC	4,64	0,05	4,97	0,298	mg/l	107%
Total P (as PO4)	<0,009		<0,034	0,0017	mg/l	•
KMnO4-Index	2,83	0,12			mg/l	



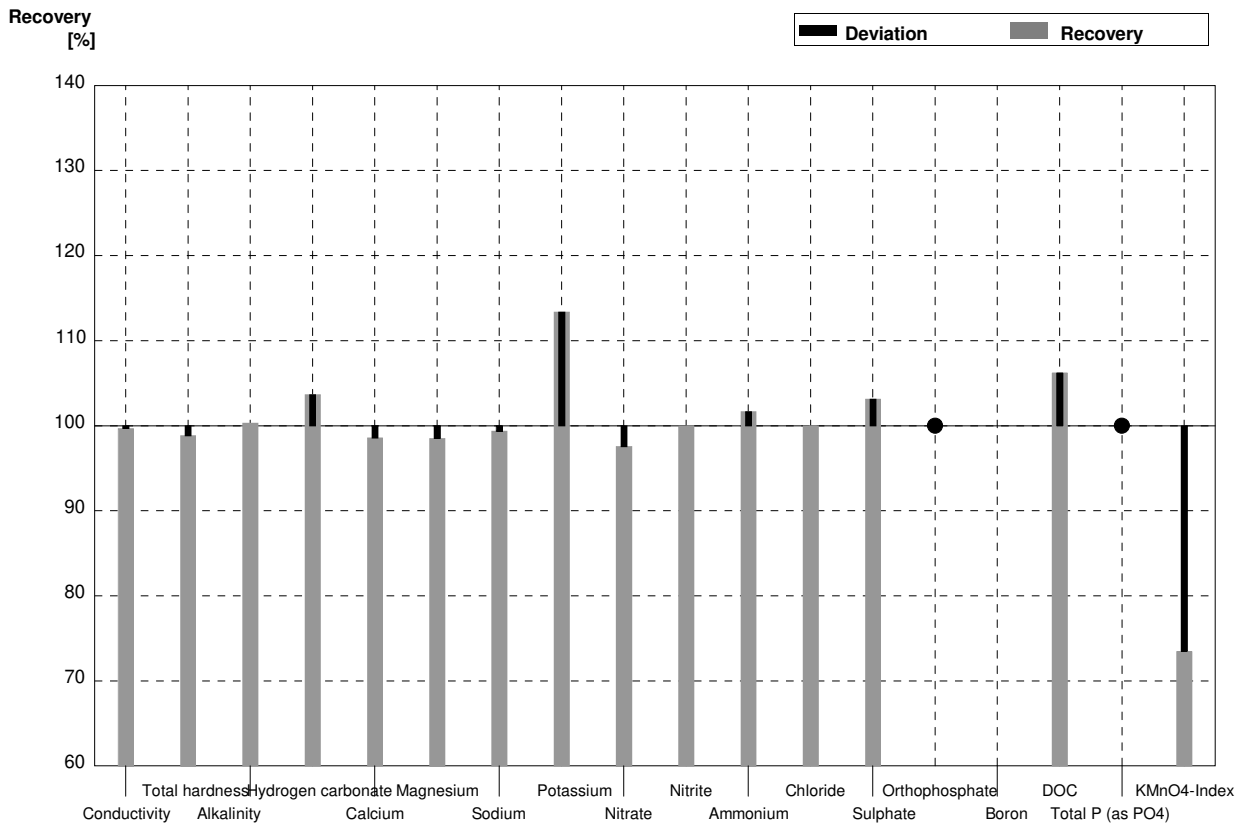
**Sample N172A**  
**Laboratory B**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	420	9	µS/cm	100%
Total hardness	1,78	0,02	1,80	0,15	mmol/l	101%
Alkalinity	2,07	0,04	2,07	0,10	mmol/l	100%
Hydrogen carbonate	123	2	126	6	mg/l	102%
Calcium	45,0	0,8	47,1	2,1	mg/l	105%
Magnesium	16,0	0,2	15,2	0,6	mg/l	95%
Sodium	10,5	0,3	10,3	0,5	mg/l	98%
Potassium	2,54	0,02	2,83	0,11	mg/l	111%
Nitrate	31,3	0,8	30,3	1,1	mg/l	97%
Nitrite	0,0640	0,0003	0,064	0,005	mg/l	100%
Ammonium	<0,01		<0,02		mg/l	•
Chloride	38,4	0,6	40,4	1,6	mg/l	105%
Sulphate	21,2	0,4	20,4	0,8	mg/l	96%
Orthophosphate	0,070	0,004	0,065	0,006	mg/l	93%
Boron	0,0392	0,0010			mg/l	
DOC	3,08	0,05	3,38	0,42	mg/l	110%
Total P (as PO <sub>4</sub> )	0,164	0,002	0,154	0,033	mg/l	94%
KMnO <sub>4</sub> -Index	4,42	0,11	4,03	0,54	mg/l	91%



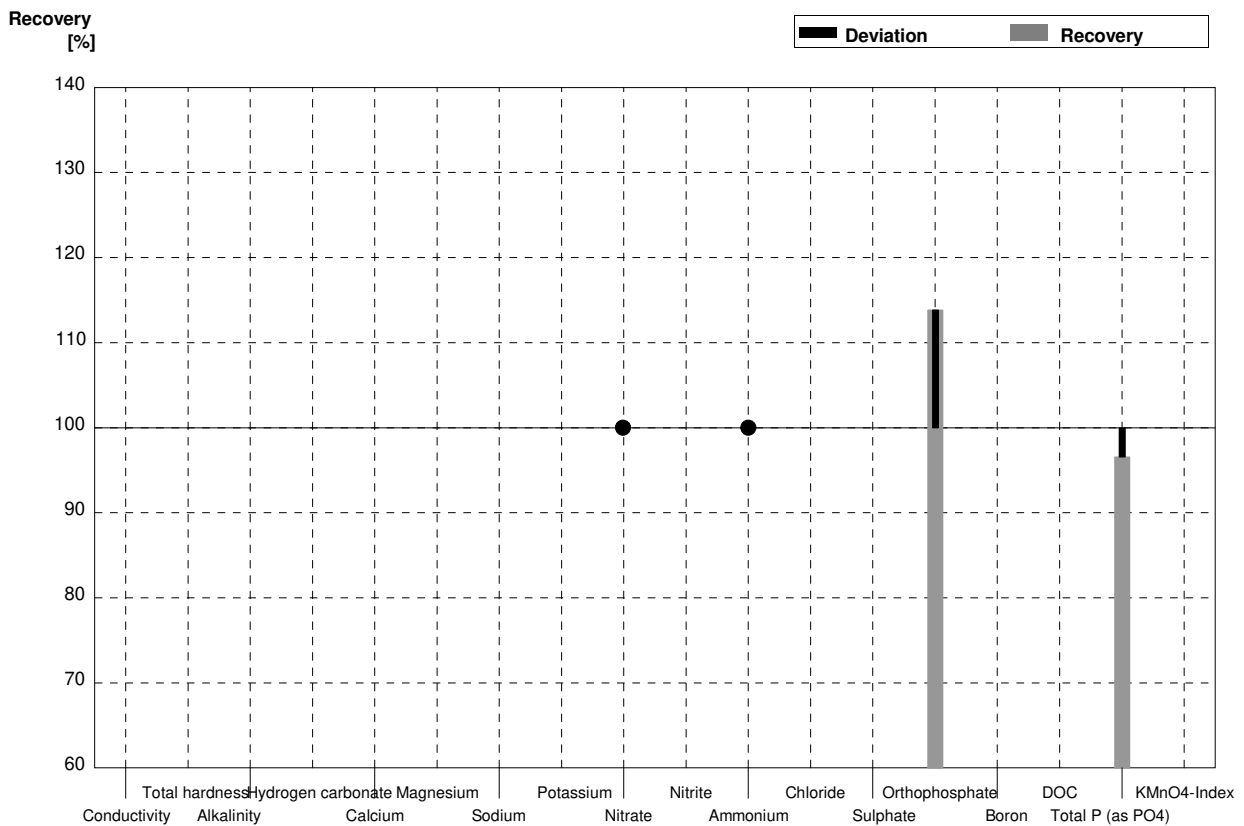
**Sample N172B**  
**Laboratory B**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	320	7	µS/cm	100%
Total hardness	1,032	0,012	1,02	0,09	mmol/l	99%
Alkalinity	1,565	0,019	1,570	0,070	mmol/l	100%
Hydrogen carbonate	92,4	1,2	95,8	4,3	mg/l	104%
Calcium	28,0	0,4	27,6	1,2	mg/l	99%
Magnesium	8,12	0,15	8,0	0,3	mg/l	99%
Sodium	20,63	0,19	20,5	0,9	mg/l	99%
Potassium	5,38	0,03	6,1	0,3	mg/l	113%
Nitrate	16,5	0,3	16,1	0,6	mg/l	98%
Nitrite	0,0530	0,0005	0,053	0,004	mg/l	100%
Ammonium	0,060	0,002	0,061	0,008	mg/l	102%
Chloride	16,9	0,3	16,9	0,7	mg/l	100%
Sulphate	38,2	0,6	39,4	1,5	mg/l	103%
Orthophosphate	<0,009		<0,01		mg/l	•
Boron	0,0540	0,0005			mg/l	
DOC	4,64	0,05	4,93	0,62	mg/l	106%
Total P (as PO4)	<0,009		<0,01		mg/l	•
KMnO4-Index	2,83	0,12	2,08	0,28	mg/l	73%



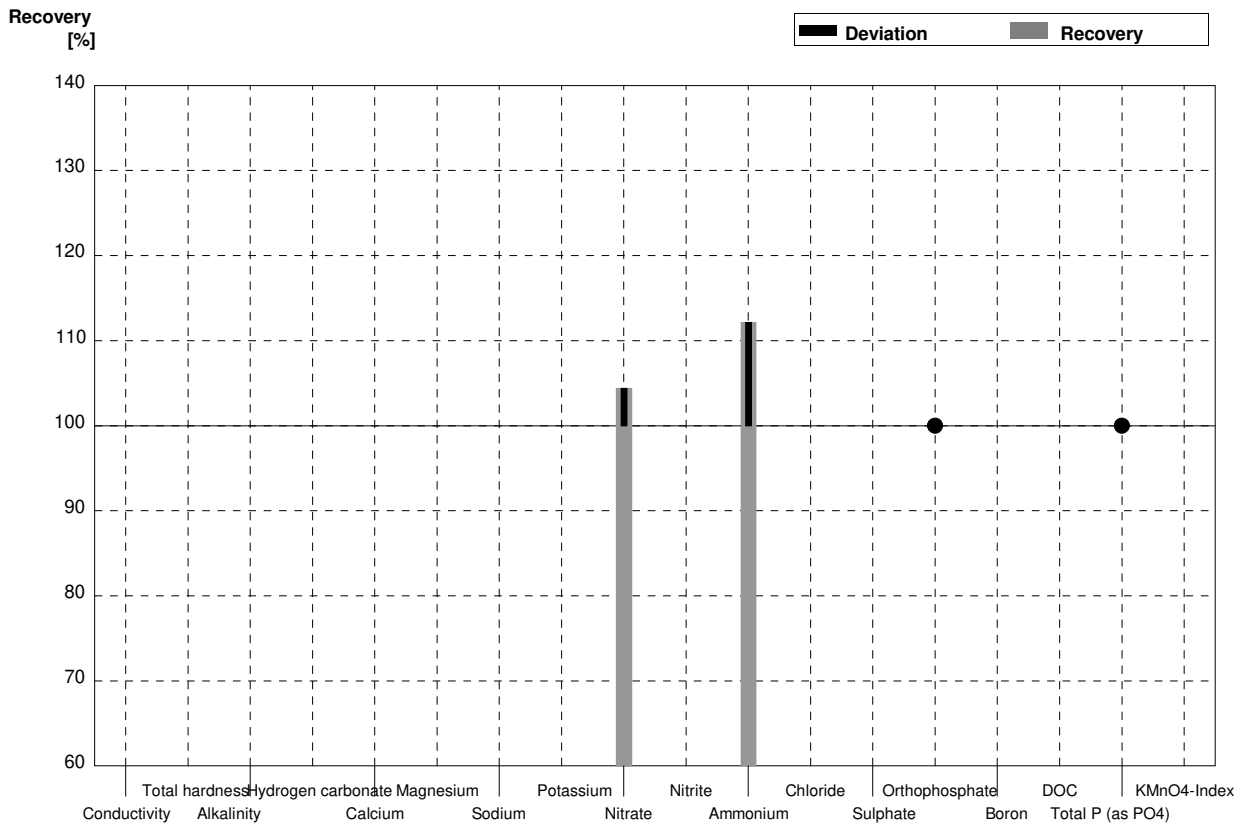
**Sample N172A**  
**Laboratory C**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1			µS/cm	
Total hardness	1,78	0,02			mmol/l	
Alkalinity	2,07	0,04			mmol/l	
Hydrogen carbonate	123	2			mg/l	
Calcium	45,0	0,8			mg/l	
Magnesium	16,0	0,2			mg/l	
Sodium	10,5	0,3			mg/l	
Potassium	2,54	0,02			mg/l	
Nitrate	31,3	0,8	>30		mg/l	•
Nitrite	0,0640	0,0003			mg/l	
Ammonium	<0,01		<0,01		mg/l	•
Chloride	38,4	0,6			mg/l	
Sulphate	21,2	0,4			mg/l	
Orthophosphate	0,070	0,004	0,0797	0,0061	mg/l	114%
Boron	0,0392	0,0010			mg/l	
DOC	3,08	0,05			mg/l	
Total P (as PO4)	0,164	0,002	0,1584	0,0035	mg/l	97%
KMnO4-Index	4,42	0,11			mg/l	



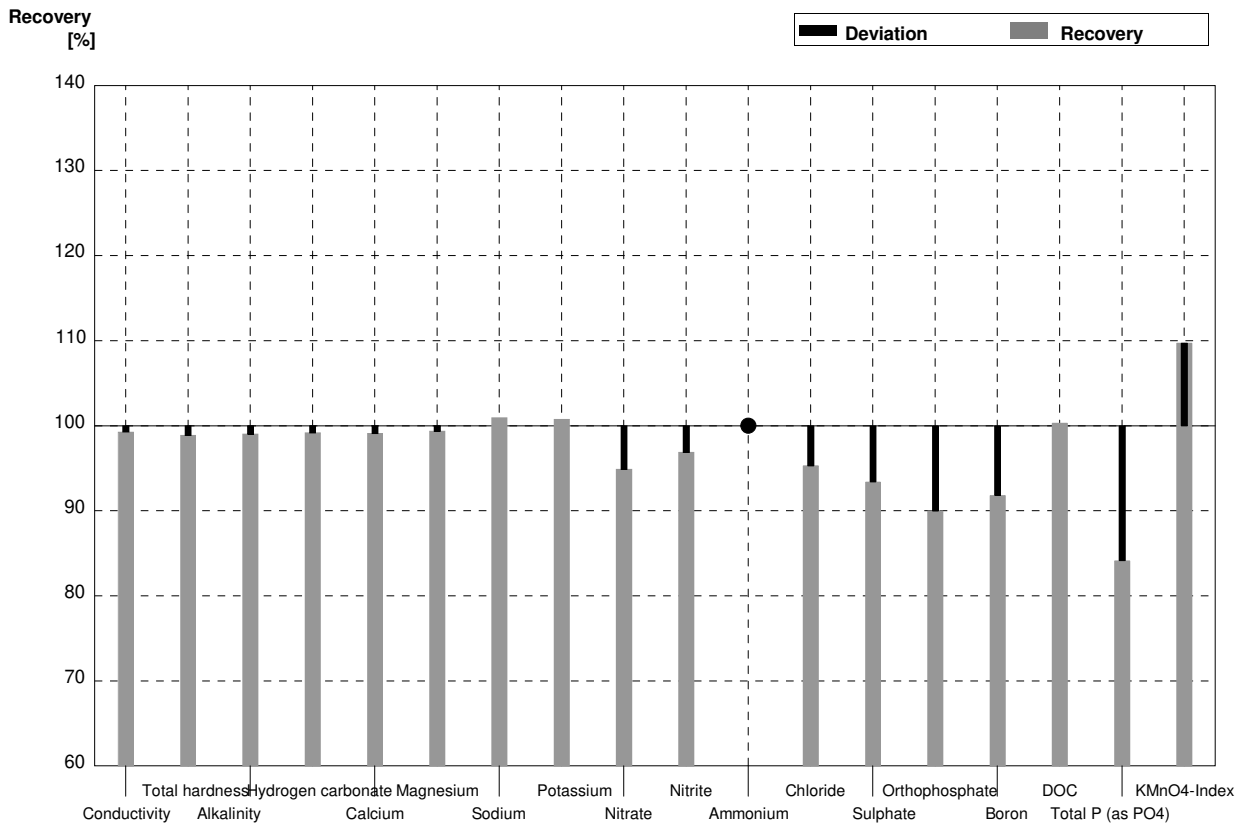
**Sample N172B**  
**Laboratory C**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1			µS/cm	
Total hardness	1,032	0,012			mmol/l	
Alkalinity	1,565	0,019			mmol/l	
Hydrogen carbonate	92,4	1,2			mg/l	
Calcium	28,0	0,4			mg/l	
Magnesium	8,12	0,15			mg/l	
Sodium	20,63	0,19			mg/l	
Potassium	5,38	0,03			mg/l	
Nitrate	16,5	0,3	17,23	0,7568	mg/l	104%
Nitrite	0,0530	0,0005			mg/l	
Ammonium	0,060	0,002	0,0673	0,0039	mg/l	112%
Chloride	16,9	0,3			mg/l	
Sulphate	38,2	0,6			mg/l	
Orthophosphate	<0,009		<0,019		mg/l	•
Boron	0,0540	0,0005			mg/l	
DOC	4,64	0,05			mg/l	
Total P (as PO4)	<0,009		<0,02		mg/l	•
KMnO4-Index	2,83	0,12			mg/l	



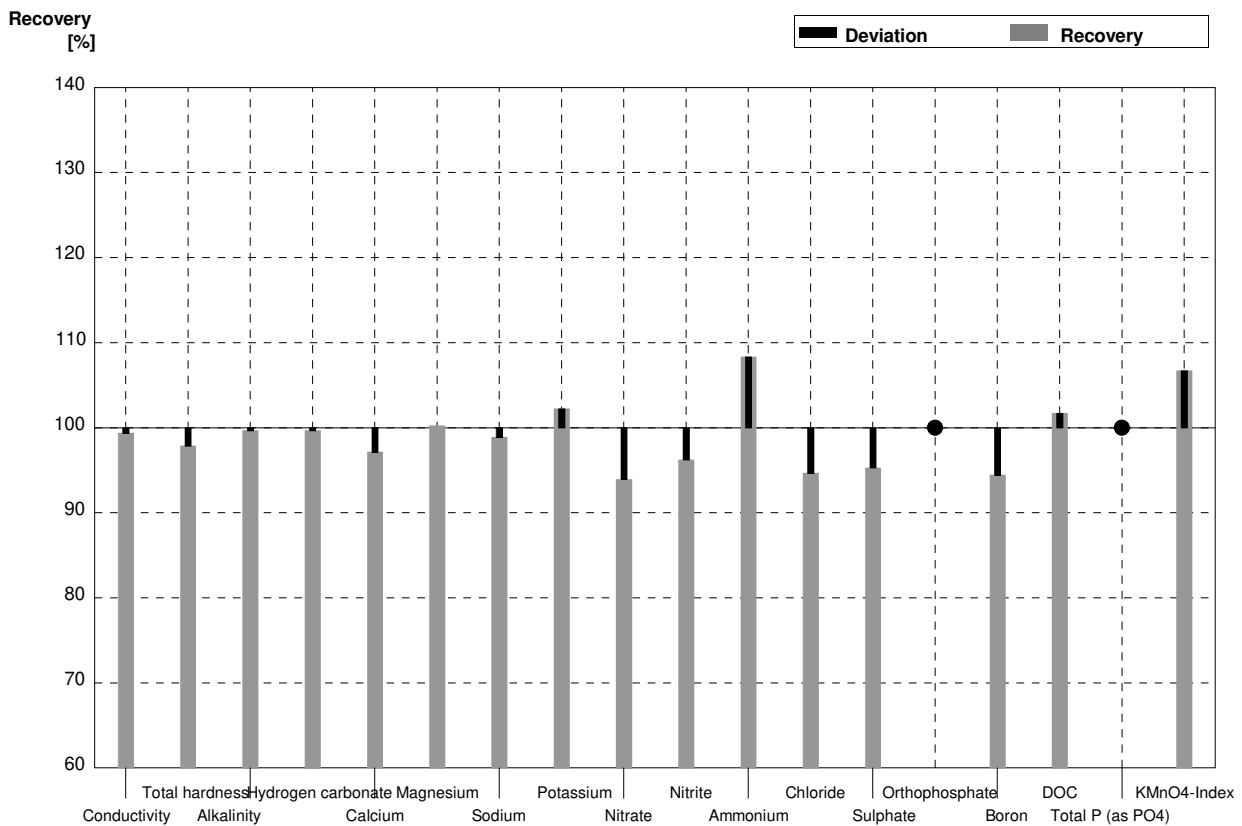
**Sample N172A**  
**Laboratory D**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	419	16,8	µS/cm	99%
Total hardness	1,78	0,02	1,76	0,32	mmol/l	99%
Alkalinity	2,07	0,04	2,05	0,08	mmol/l	99%
Hydrogen carbonate	123	2	122	4,9	mg/l	99%
Calcium	45,0	0,8	44,6	8,03	mg/l	99%
Magnesium	16,0	0,2	15,9	2,86	mg/l	99%
Sodium	10,5	0,3	10,6	1,91	mg/l	101%
Potassium	2,54	0,02	2,56	0,46	mg/l	101%
Nitrate	31,3	0,8	29,7	2,67	mg/l	95%
Nitrite	0,0640	0,0003	0,062	0,011	mg/l	97%
Ammonium	<0,01		<0,01		mg/l	•
Chloride	38,4	0,6	36,6	3,29	mg/l	95%
Sulphate	21,2	0,4	19,8	1,78	mg/l	93%
Orthophosphate	0,070	0,004	0,063	0,011	mg/l	90%
Boron	0,0392	0,0010	0,0360	0,006	mg/l	92%
DOC	3,08	0,05	3,09	0,28	mg/l	100%
Total P (as PO4)	0,164	0,002	0,138	0,025	mg/l	84%
KMnO4-Index	4,42	0,11	4,85	0,44	mg/l	110%



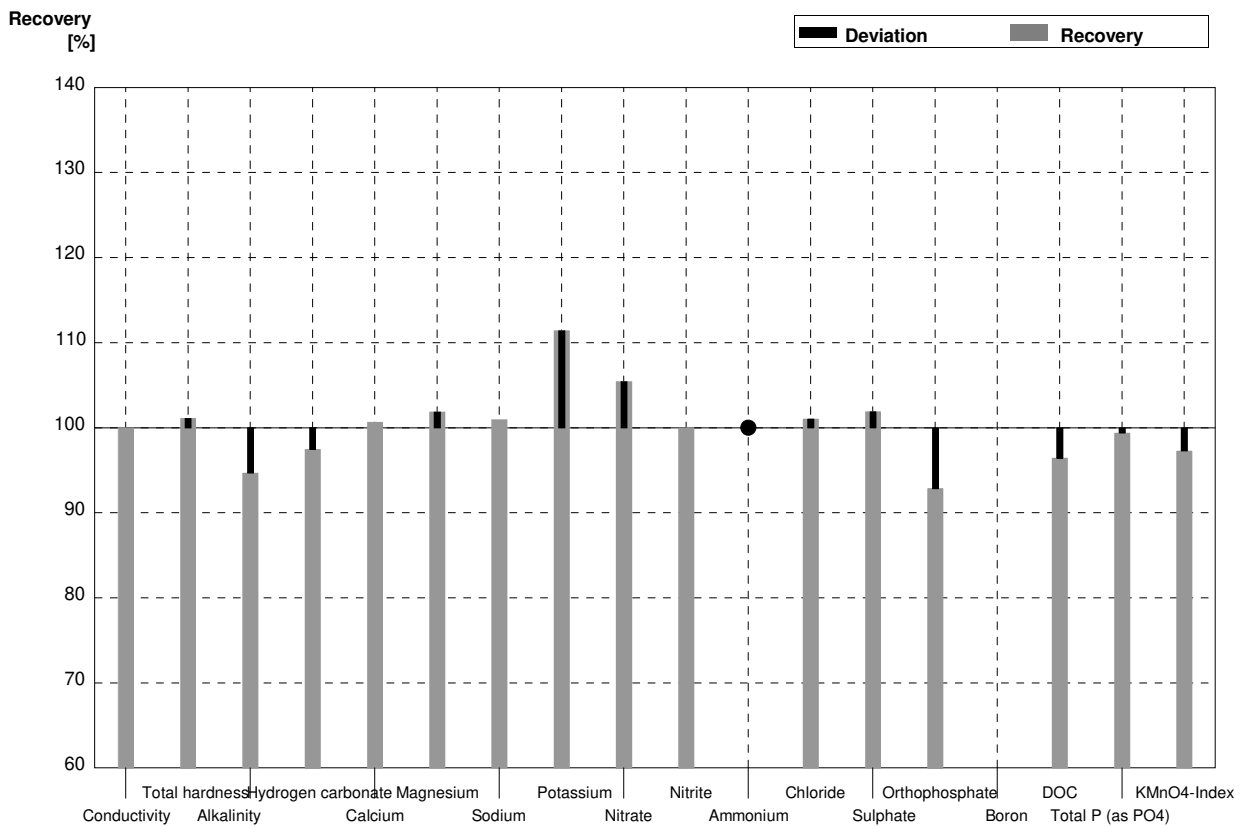
**Sample N172B**  
**Laboratory D**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	319	12,8	µS/cm	99%
Total hardness	1,032	0,012	1,01	0,18	mmol/l	98%
Alkalinity	1,565	0,019	1,56	0,06	mmol/l	100%
Hydrogen carbonate	92,4	1,2	92,1	3,68	mg/l	100%
Calcium	28,0	0,4	27,2	4,9	mg/l	97%
Magnesium	8,12	0,15	8,14	1,47	mg/l	100%
Sodium	20,63	0,19	20,4	3,67	mg/l	99%
Potassium	5,38	0,03	5,50	0,99	mg/l	102%
Nitrate	16,5	0,3	15,5	1,40	mg/l	94%
Nitrite	0,0530	0,0005	0,051	0,009	mg/l	96%
Ammonium	0,060	0,002	0,065	0,012	mg/l	108%
Chloride	16,9	0,3	16,0	1,44	mg/l	95%
Sulphate	38,2	0,6	36,4	3,28	mg/l	95%
Orthophosphate	<0,009		<0,02		mg/l	•
Boron	0,0540	0,0005	0,051	0,009	mg/l	94%
DOC	4,64	0,05	4,72	0,42	mg/l	102%
Total P (as PO4)	<0,009		<0,05		mg/l	•
KMnO4-Index	2,83	0,12	3,02	0,27	mg/l	107%



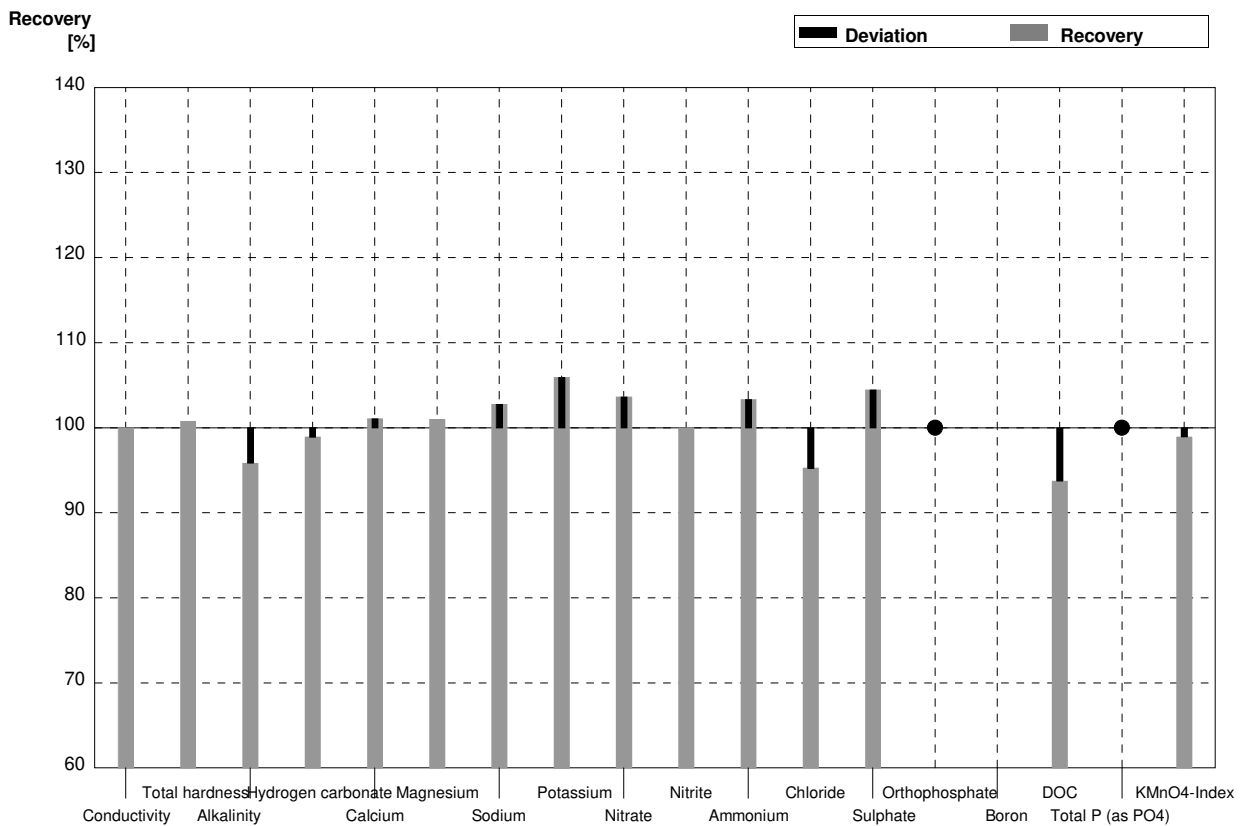
**Sample N172A**  
**Laboratory E**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	422	8	µS/cm	100%
Total hardness	1,78	0,02	1,80	0,12	mmol/l	101%
Alkalinity	2,07	0,04	1,96	0,12	mmol/l	95%
Hydrogen carbonate	123	2	119,9	8,4	mg/l	97%
Calcium	45,0	0,8	45,3	3,6	mg/l	101%
Magnesium	16,0	0,2	16,3	1,3	mg/l	102%
Sodium	10,5	0,3	10,6	0,8	mg/l	101%
Potassium	2,54	0,02	2,83	0,25	mg/l	111%
Nitrate	31,3	0,8	33,0	3,0	mg/l	105%
Nitrite	0,0640	0,0003	0,064	0,007	mg/l	100%
Ammonium	<0,01		<0,02		mg/l	•
Chloride	38,4	0,6	38,8	3,1	mg/l	101%
Sulphate	21,2	0,4	21,6	1,5	mg/l	102%
Orthophosphate	0,070	0,004	0,065	0,012	mg/l	93%
Boron	0,0392	0,0010			mg/l	
DOC	3,08	0,05	2,97	0,56	mg/l	96%
Total P (as PO4)	0,164	0,002	0,163	0,041	mg/l	99%
KMnO4-Index	4,42	0,11	4,30	0,20	mg/l	97%



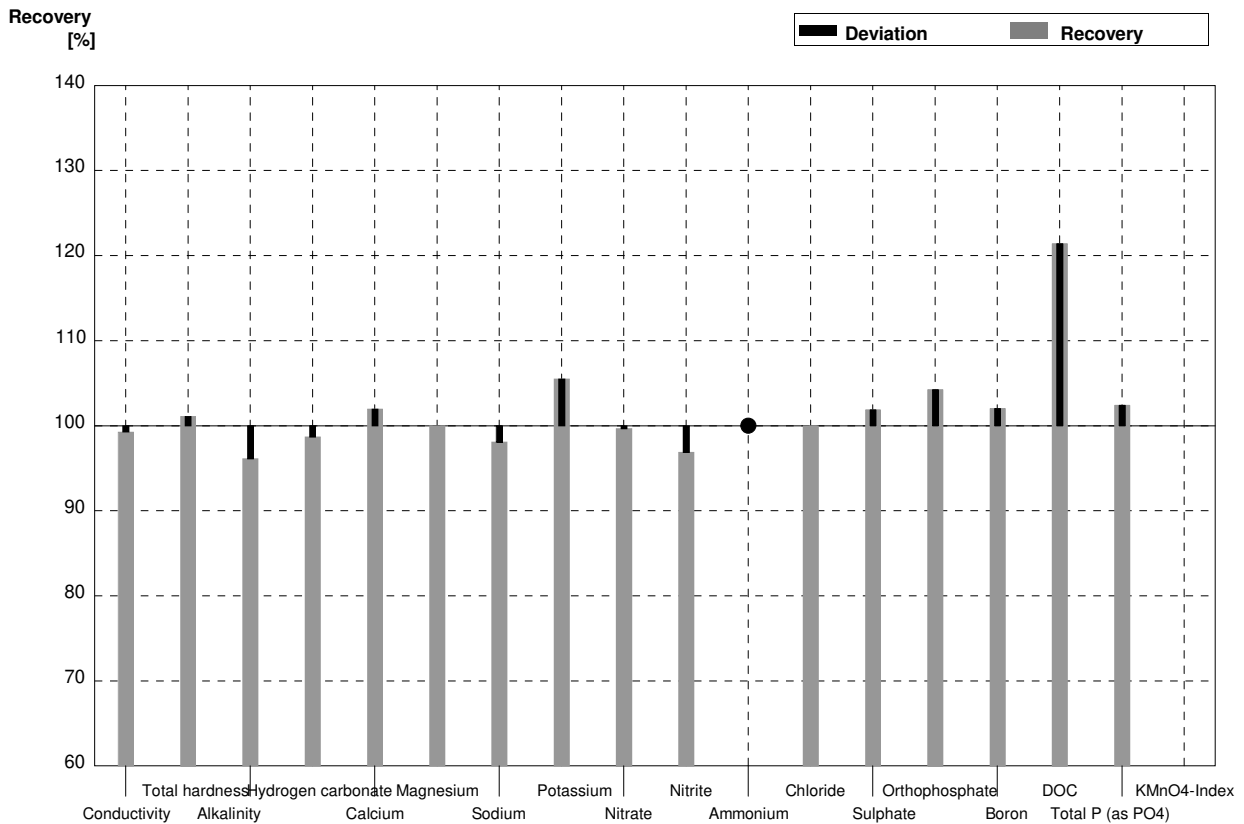
**Sample N172B**  
**Laboratory E**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	321	6	µS/cm	100%
Total hardness	1,032	0,012	1,04	0,07	mmol/l	101%
Alkalinity	1,565	0,019	1,50	0,09	mmol/l	96%
Hydrogen carbonate	92,4	1,2	91,4	6,4	mg/l	99%
Calcium	28,0	0,4	28,3	2,3	mg/l	101%
Magnesium	8,12	0,15	8,2	0,7	mg/l	101%
Sodium	20,63	0,19	21,2	0,9	mg/l	103%
Potassium	5,38	0,03	5,7	0,5	mg/l	106%
Nitrate	16,5	0,3	17,1	1,5	mg/l	104%
Nitrite	0,0530	0,0005	0,053	0,006	mg/l	100%
Ammonium	0,060	0,002	0,062	0,010	mg/l	103%
Chloride	16,9	0,3	16,1	1,3	mg/l	95%
Sulphate	38,2	0,6	39,9	3,2	mg/l	104%
Orthophosphate	<0,009		<0,009		mg/l	•
Boron	0,0540	0,0005			mg/l	
DOC	4,64	0,05	4,35	0,83	mg/l	94%
Total P (as PO4)	<0,009		<0,009		mg/l	•
KMnO4-Index	2,83	0,12	2,80	0,10	mg/l	99%



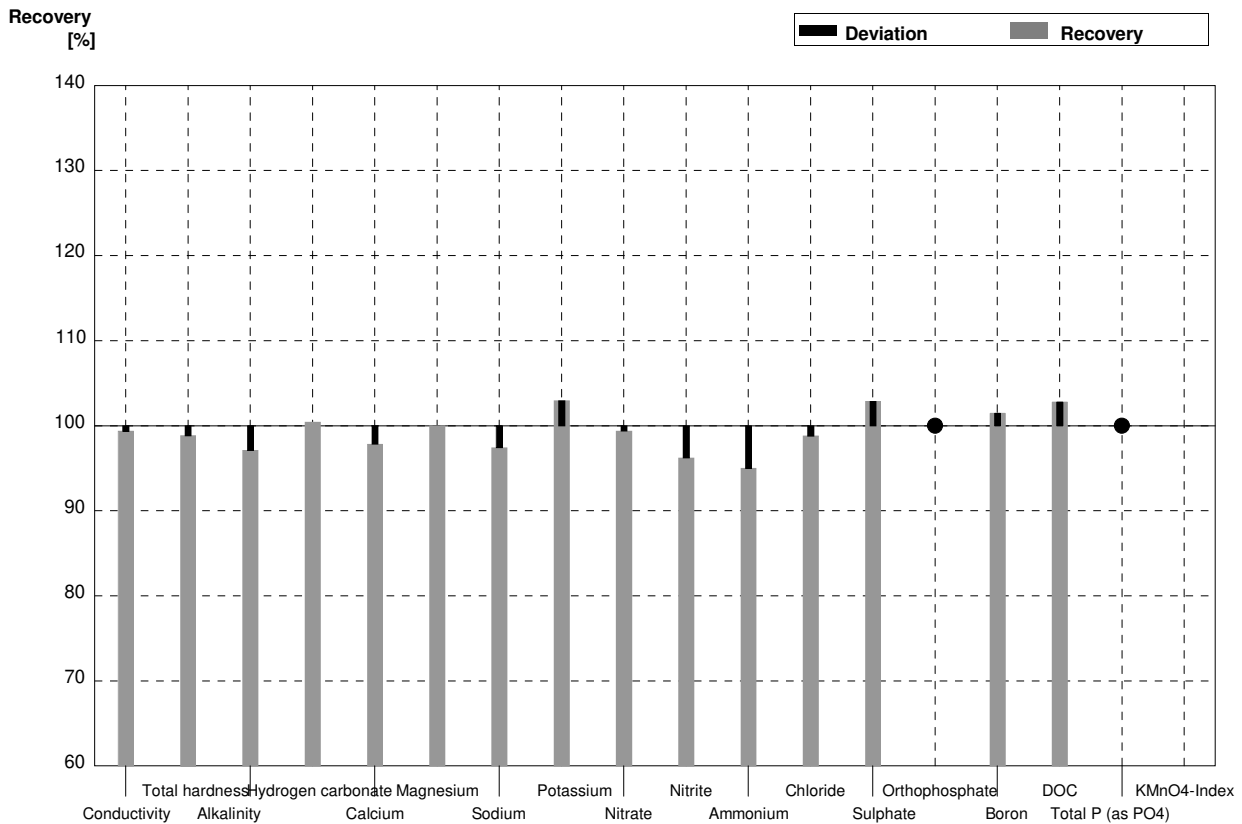
**Sample N172A**  
**Laboratory F**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	419	17	µS/cm	99%
Total hardness	1,78	0,02	1,80	0,10	mmol/l	101%
Alkalinity	2,07	0,04	1,99	0,13	mmol/l	96%
Hydrogen carbonate	123	2	121,4	7,9	mg/l	99%
Calcium	45,0	0,8	45,9	2,2	mg/l	102%
Magnesium	16,0	0,2	16,0	1,0	mg/l	100%
Sodium	10,5	0,3	10,3	0,6	mg/l	98%
Potassium	2,54	0,02	2,68	0,14	mg/l	106%
Nitrate	31,3	0,8	31,2	3,0	mg/l	100%
Nitrite	0,0640	0,0003	0,062	0,007	mg/l	97%
Ammonium	<0,01		<0,010		mg/l	•
Chloride	38,4	0,6	38,4	3,0	mg/l	100%
Sulphate	21,2	0,4	21,6	1,9	mg/l	102%
Orthophosphate	0,070	0,004	0,073	0,010	mg/l	104%
Boron	0,0392	0,0010	0,0400	0,0045	mg/l	102%
DOC	3,08	0,05	3,74	0,75	mg/l	121%
Total P (as PO4)	0,164	0,002	0,168	0,017	mg/l	102%
KMnO4-Index	4,42	0,11			mg/l	



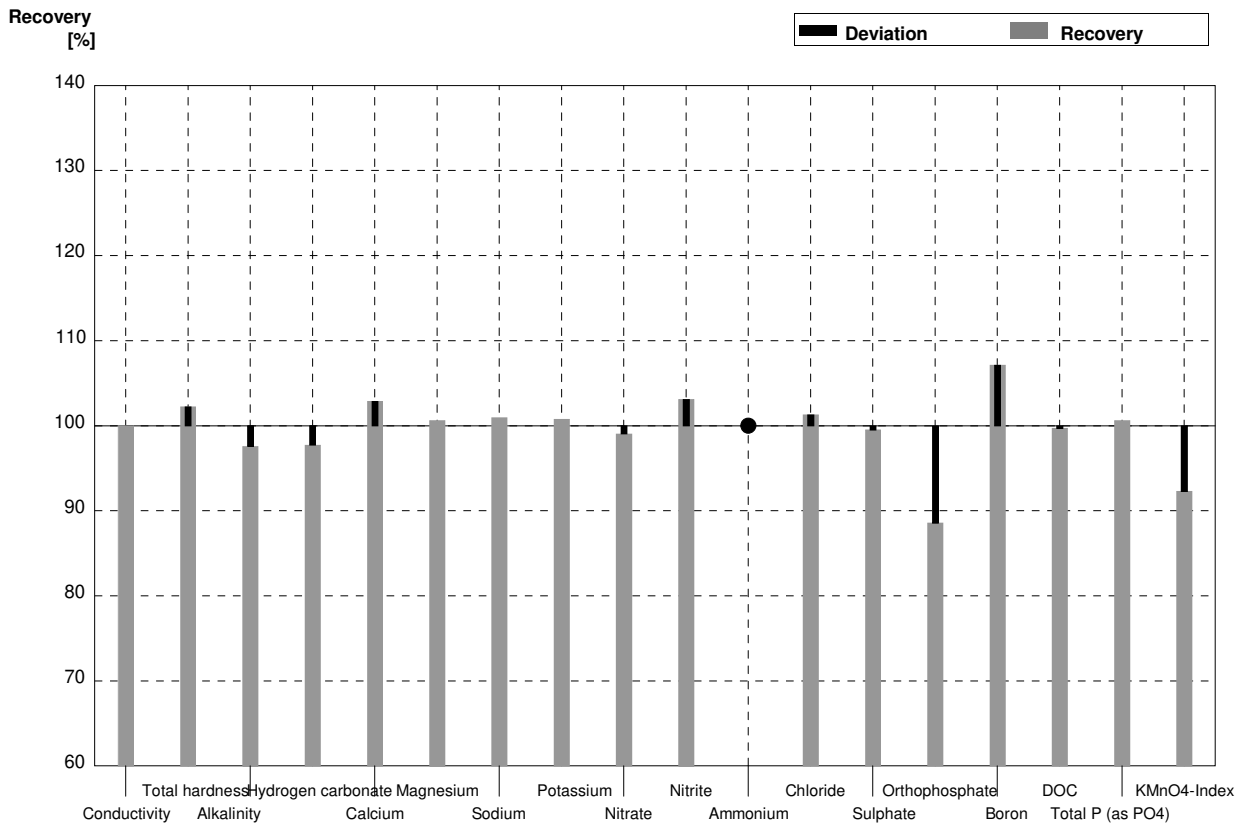
**Sample N172B**  
**Laboratory F**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	319	13	µS/cm	99%
Total hardness	1,032	0,012	1,02	0,06	mmol/l	99%
Alkalinity	1,565	0,019	1,52	0,11	mmol/l	97%
Hydrogen carbonate	92,4	1,2	92,8	6,5	mg/l	100%
Calcium	28,0	0,4	27,4	1,4	mg/l	98%
Magnesium	8,12	0,15	8,12	0,55	mg/l	100%
Sodium	20,63	0,19	20,1	1,0	mg/l	97%
Potassium	5,38	0,03	5,54	0,24	mg/l	103%
Nitrate	16,5	0,3	16,4	1,6	mg/l	99%
Nitrite	0,0530	0,0005	0,051	0,006	mg/l	96%
Ammonium	0,060	0,002	0,057	0,011	mg/l	95%
Chloride	16,9	0,3	16,7	1,5	mg/l	99%
Sulphate	38,2	0,6	39,3	3,2	mg/l	103%
Orthophosphate	<0,009		<0,010		mg/l	•
Boron	0,0540	0,0005	0,0548	0,0058	mg/l	101%
DOC	4,64	0,05	4,77	0,91	mg/l	103%
Total P (as PO4)	<0,009		<0,010		mg/l	•
KMnO4-Index	2,83	0,12			mg/l	



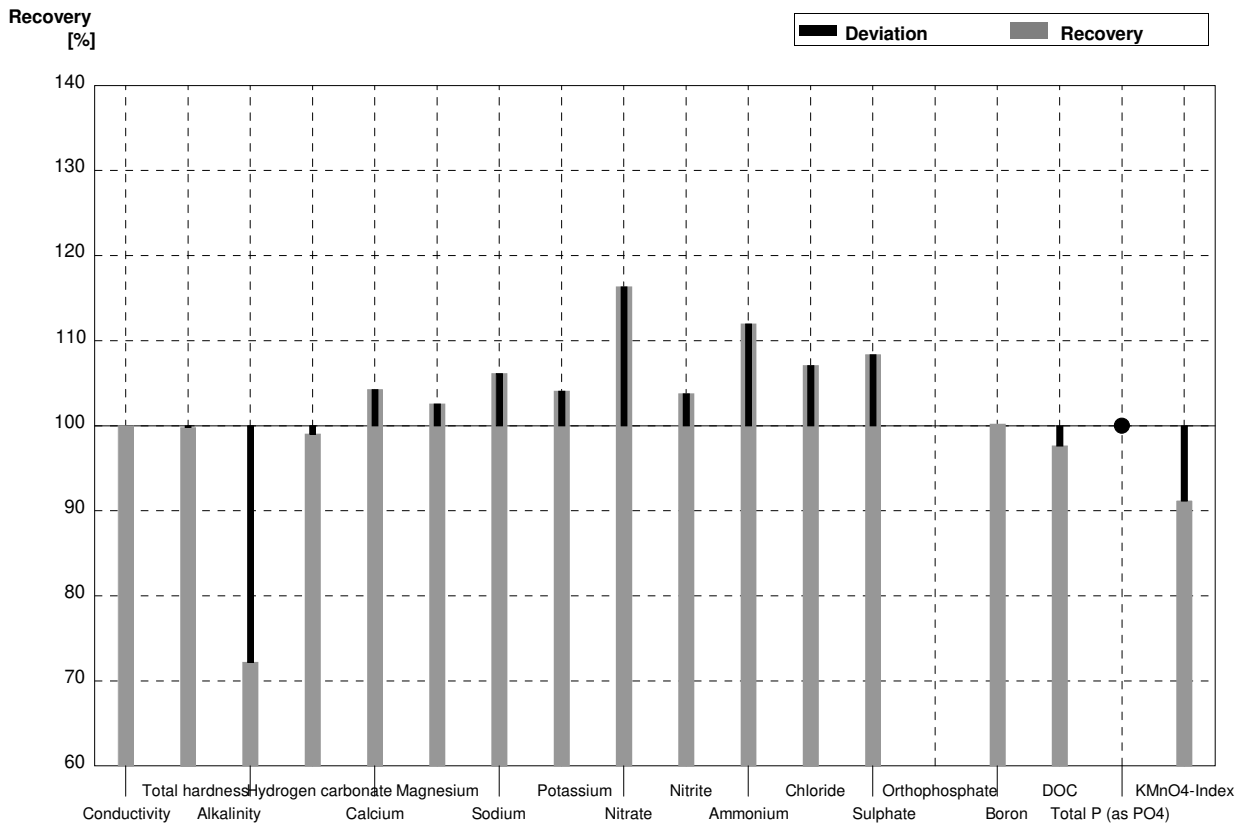
**Sample N172A**  
**Laboratory G**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	422		µS/cm	100%
Total hardness	1,78	0,02	1,82		mmol/l	102%
Alkalinity	2,07	0,04	2,02	0,14	mmol/l	98%
Hydrogen carbonate	123	2	120,2		mg/l	98%
Calcium	45,0	0,8	46,3	3,9	mg/l	103%
Magnesium	16,0	0,2	16,1	1,7	mg/l	101%
Sodium	10,5	0,3	10,6	0,9	mg/l	101%
Potassium	2,54	0,02	2,56	0,2	mg/l	101%
Nitrate	31,3	0,8	31,0	4,4	mg/l	99%
Nitrite	0,0640	0,0003	0,066	0,01	mg/l	103%
Ammonium	<0,01		0,0108	0,002	mg/l	•
Chloride	38,4	0,6	38,9	5,5	mg/l	101%
Sulphate	21,2	0,4	21,1	1,7	mg/l	100%
Orthophosphate	0,070	0,004	0,062	0,01	mg/l	89%
Boron	0,0392	0,0010	0,0420	0,004	mg/l	107%
DOC	3,08	0,05	3,071		mg/l	100%
Total P (as PO4)	0,164	0,002	0,165	0,006	mg/l	101%
KMnO4-Index	4,42	0,11	4,08		mg/l	92%



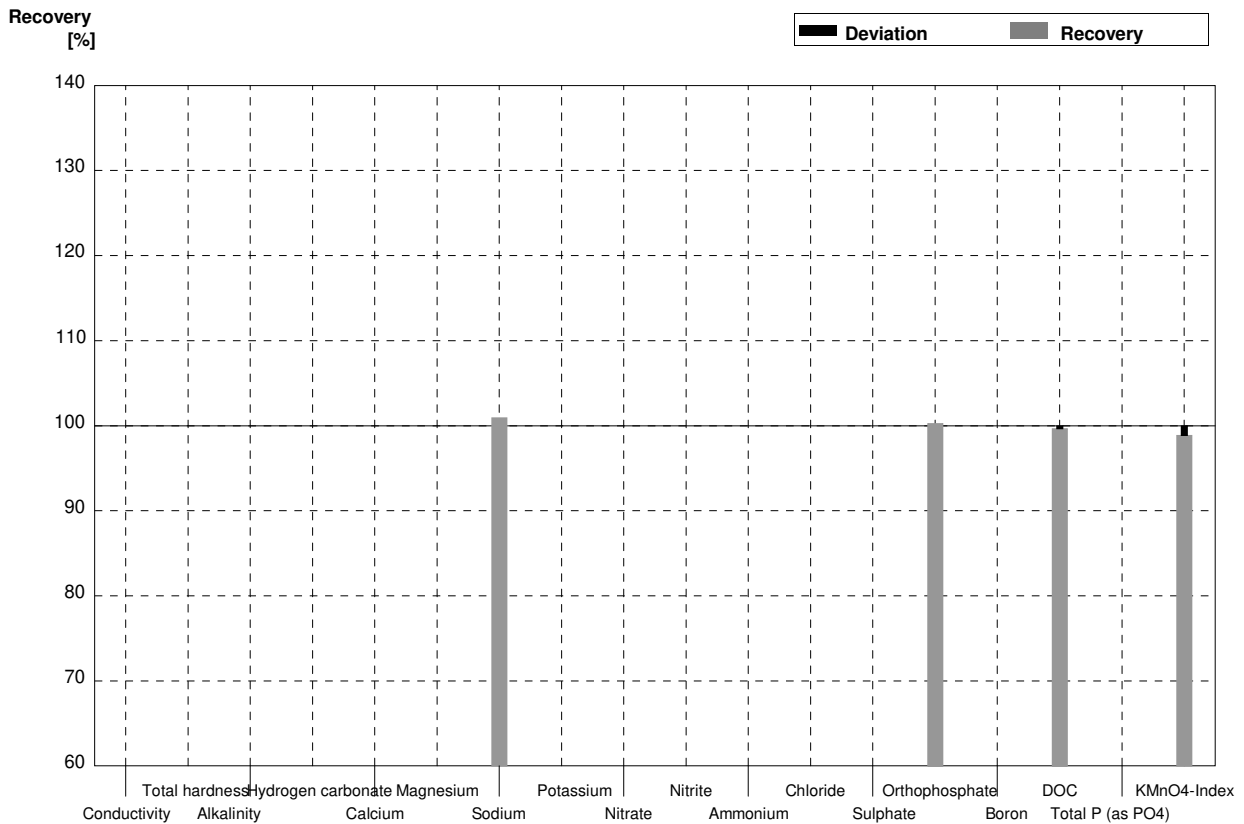
**Sample N172B**  
**Laboratory G**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	321	13	µS/cm	100%
Total hardness	1,032	0,012	1,03	0,1	mmol/l	100%
Alkalinity	1,565	0,019	1,13		mmol/l	72%
Hydrogen carbonate	92,4	1,2	91,5		mg/l	99%
Calcium	28,0	0,4	29,2	2,5	mg/l	104%
Magnesium	8,12	0,15	8,33	0,9	mg/l	103%
Sodium	20,63	0,19	21,9	1,9	mg/l	106%
Potassium	5,38	0,03	5,60	0,5	mg/l	104%
Nitrate	16,5	0,3	19,2	2,7	mg/l	116%
Nitrite	0,0530	0,0005	0,055	0,01	mg/l	104%
Ammonium	0,060	0,002	0,0672	0,01	mg/l	112%
Chloride	16,9	0,3	18,1	2,6	mg/l	107%
Sulphate	38,2	0,6	41,4	3,3	mg/l	108%
Orthophosphate	<0,009				mg/l	
Boron	0,0540	0,0005	0,0541		mg/l	100%
DOC	4,64	0,05	4,531		mg/l	98%
Total P (as PO4)	<0,009		<0,03		mg/l	•
KMnO4-Index	2,83	0,12	2,58		mg/l	91%



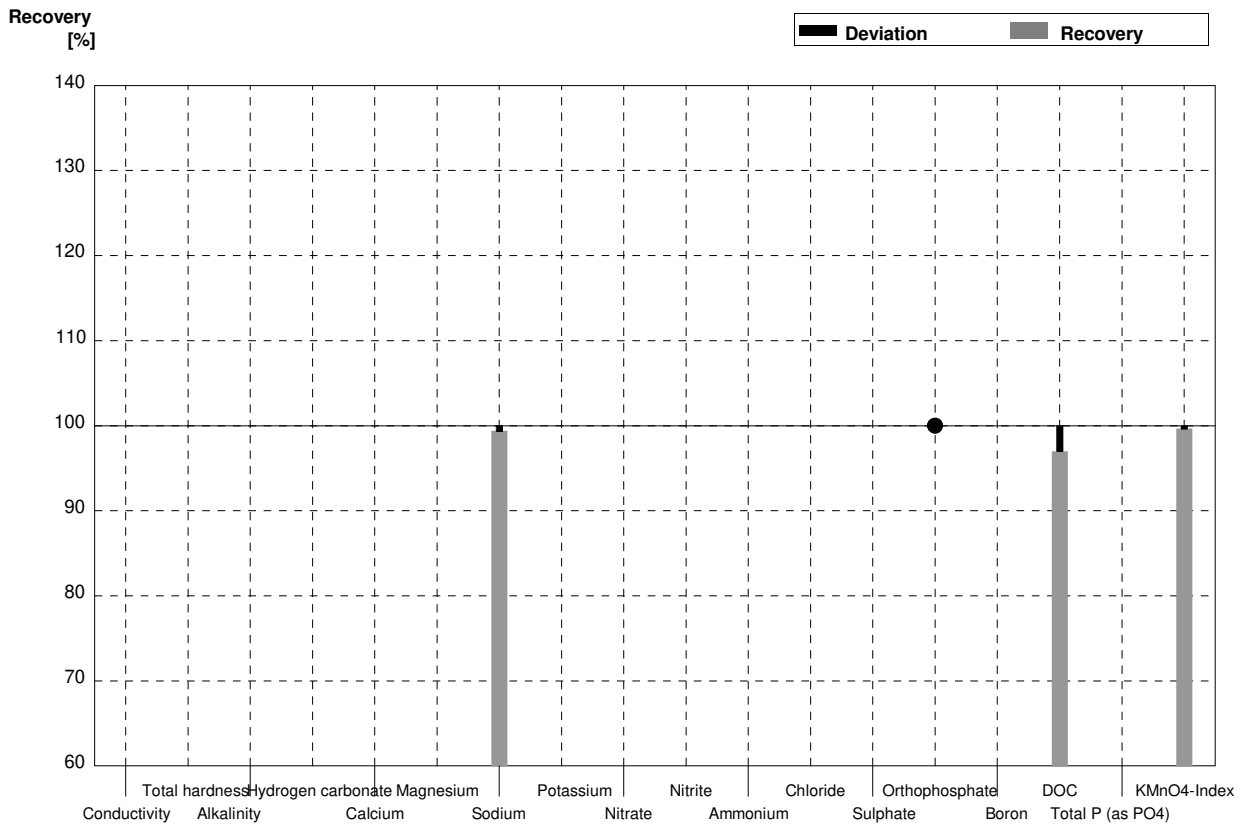
**Sample N172A**  
**Laboratory H**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1			µS/cm	
Total hardness	1,78	0,02			mmol/l	
Alkalinity	2,07	0,04			mmol/l	
Hydrogen carbonate	123	2			mg/l	
Calcium	45,0	0,8			mg/l	
Magnesium	16,0	0,2			mg/l	
Sodium	10,5	0,3	10,6	1,2	mg/l	101%
Potassium	2,54	0,02			mg/l	
Nitrate	31,3	0,8			mg/l	
Nitrite	0,0640	0,0003			mg/l	
Ammonium	<0,01				mg/l	
Chloride	38,4	0,6			mg/l	
Sulphate	21,2	0,4			mg/l	
Orthophosphate	0,070	0,004	0,0702	0,006	mg/l	100%
Boron	0,0392	0,0010			mg/l	
DOC	3,08	0,05	3,07	0,46	mg/l	100%
Total P (as PO4)	0,164	0,002			mg/l	
KMnO4-Index	4,42	0,11	4,37	0,65	mg/l	99%



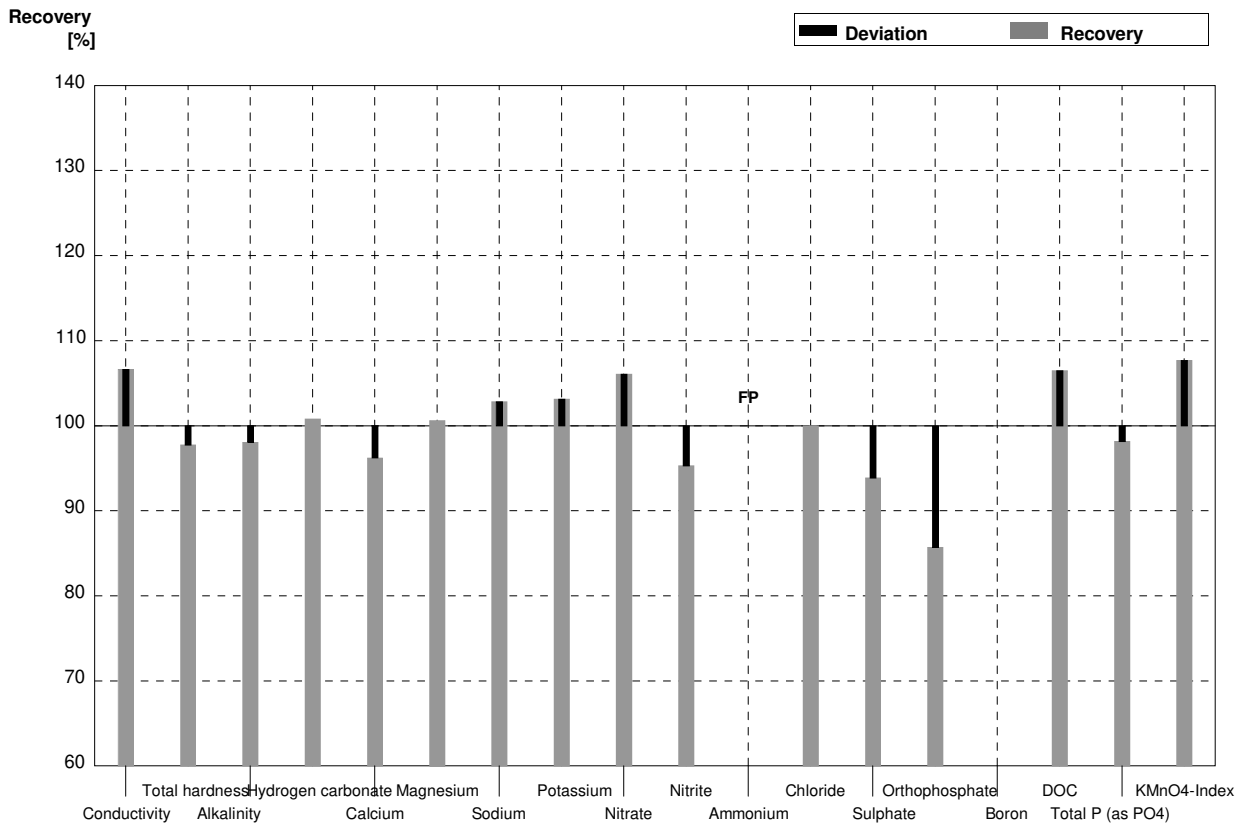
**Sample N172B**  
**Laboratory H**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1			µS/cm	
Total hardness	1,032	0,012			mmol/l	
Alkalinity	1,565	0,019			mmol/l	
Hydrogen carbonate	92,4	1,2			mg/l	
Calcium	28,0	0,4			mg/l	
Magnesium	8,12	0,15			mg/l	
Sodium	20,63	0,19	20,5	2,4	mg/l	99%
Potassium	5,38	0,03			mg/l	
Nitrate	16,5	0,3			mg/l	
Nitrite	0,0530	0,0005			mg/l	
Ammonium	0,060	0,002			mg/l	
Chloride	16,9	0,3			mg/l	
Sulphate	38,2	0,6			mg/l	
Orthophosphate	<0,009		<0,03		mg/l	•
Boron	0,0540	0,0005			mg/l	
DOC	4,64	0,05	4,50	0,67	mg/l	97%
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	2,83	0,12	2,82	0,42	mg/l	100%



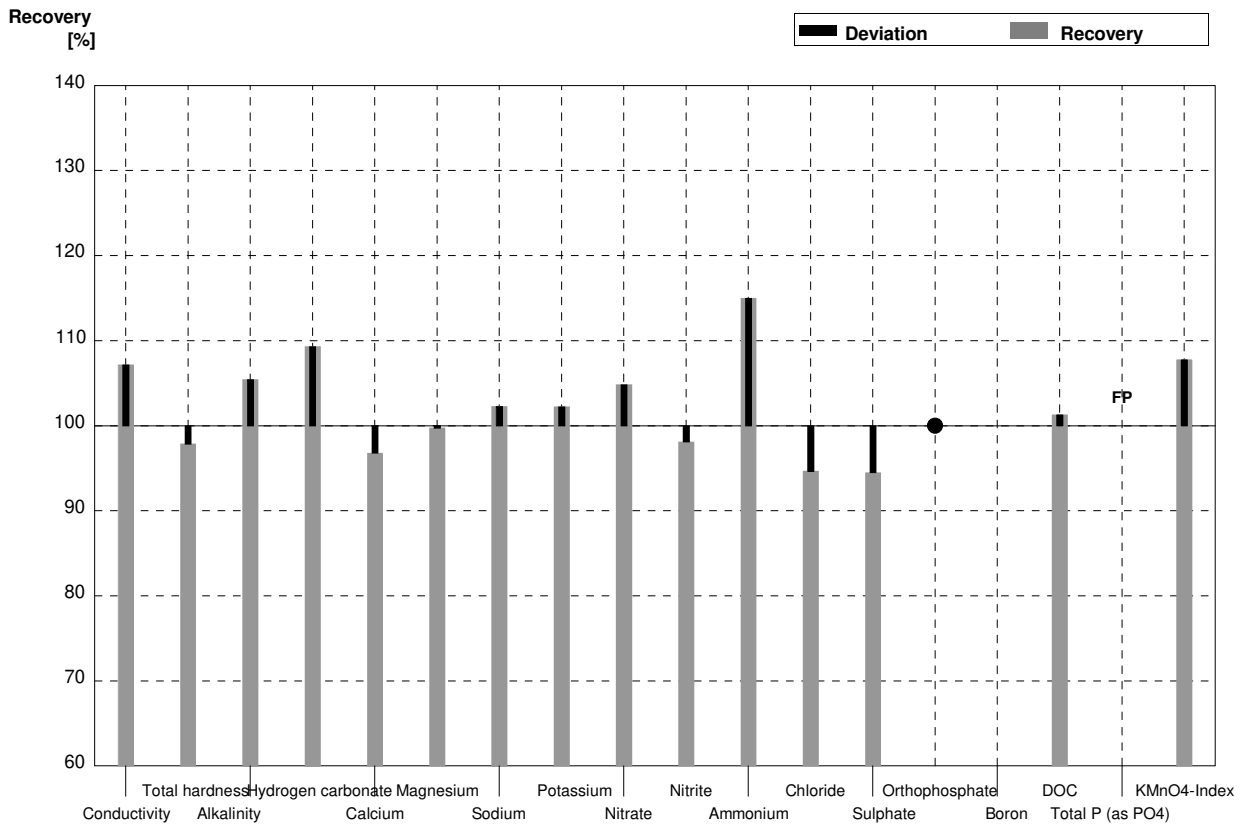
**Sample N172A**  
**Laboratory I**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	450	10	µS/cm	107%
Total hardness	1,78	0,02	1,74	0,14	mmol/l	98%
Alkalinity	2,07	0,04	2,03	0,17	mmol/l	98%
Hydrogen carbonate	123	2	124	5,6	mg/l	101%
Calcium	45,0	0,8	43,3	2,2	mg/l	96%
Magnesium	16,0	0,2	16,1	1,0	mg/l	101%
Sodium	10,5	0,3	10,8	0,82	mg/l	103%
Potassium	2,54	0,02	2,62	0,091	mg/l	103%
Nitrate	31,3	0,8	33,2	1,6	mg/l	106%
Nitrite	0,0640	0,0003	0,061	0,0036	mg/l	95%
Ammonium	<0,01		0,0185	0,0014	mg/l	FP
Chloride	38,4	0,6	38,4	3,0	mg/l	100%
Sulphate	21,2	0,4	19,9	1,2	mg/l	94%
Orthophosphate	0,070	0,004	0,060	0,0089	mg/l	86%
Boron	0,0392	0,0010			mg/l	
DOC	3,08	0,05	3,28	0,30	mg/l	106%
Total P (as PO4)	0,164	0,002	0,161	0,021	mg/l	98%
KMnO4-Index	4,42	0,11	4,76	0,22	mg/l	108%



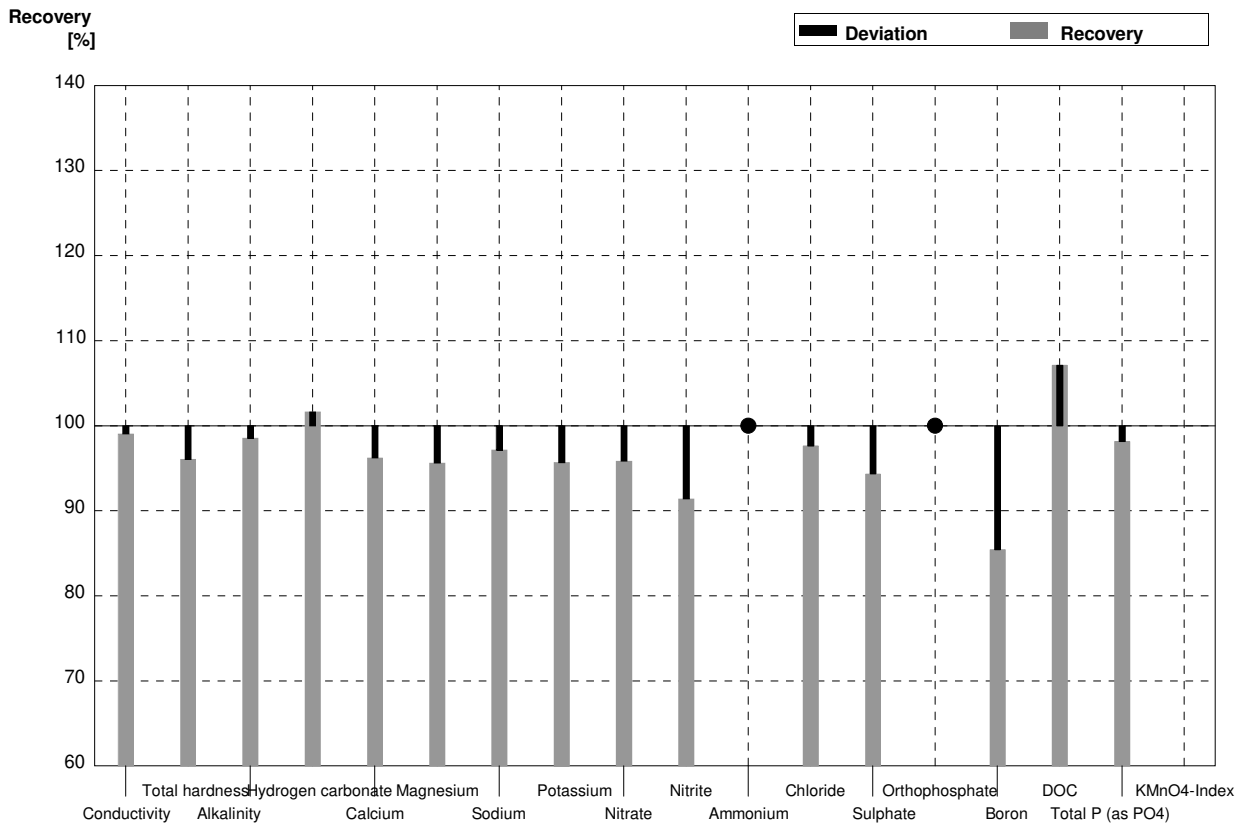
**Sample N172B**  
**Laboratory I**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	344	7,4	µS/cm	107%
Total hardness	1,032	0,012	1,01	0,083	mmol/l	98%
Alkalinity	1,565	0,019	1,65	0,14	mmol/l	105%
Hydrogen carbonate	92,4	1,2	101	4,5	mg/l	109%
Calcium	28,0	0,4	27,1	1,4	mg/l	97%
Magnesium	8,12	0,15	8,1	0,51	mg/l	100%
Sodium	20,63	0,19	21,1	1,6	mg/l	102%
Potassium	5,38	0,03	5,5	0,19	mg/l	102%
Nitrate	16,5	0,3	17,3	0,83	mg/l	105%
Nitrite	0,0530	0,0005	0,052	0,0030	mg/l	98%
Ammonium	0,060	0,002	0,069	0,0051	mg/l	115%
Chloride	16,9	0,3	16,0	1,3	mg/l	95%
Sulphate	38,2	0,6	36,1	2,2	mg/l	95%
Orthophosphate	<0,009		<0,01		mg/l	•
Boron	0,0540	0,0005			mg/l	
DOC	4,64	0,05	4,70	0,44	mg/l	101%
Total P (as PO4)	<0,009		0,0300	0,0039	mg/l	FP
KMnO4-Index	2,83	0,12	3,05	0,14	mg/l	108%



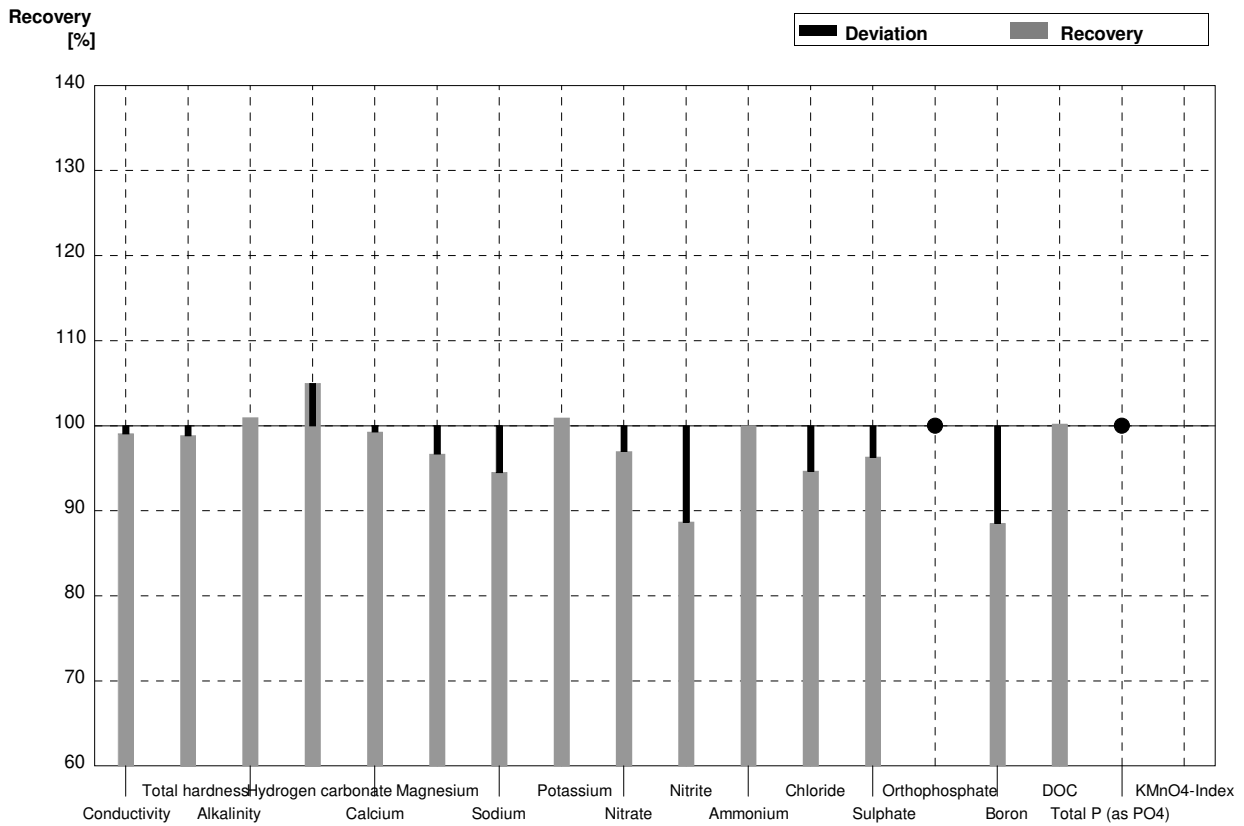
**Sample N172A**  
**Laboratory J**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	418	42	µS/cm	99%
Total hardness	1,78	0,02	1,71	0,31	mmol/l	96%
Alkalinity	2,07	0,04	2,04	0,20	mmol/l	99%
Hydrogen carbonate	123	2	125	13	mg/l	102%
Calcium	45,0	0,8	43,3	8,7	mg/l	96%
Magnesium	16,0	0,2	15,3	3,1	mg/l	96%
Sodium	10,5	0,3	10,2	2,0	mg/l	97%
Potassium	2,54	0,02	2,43	0,49	mg/l	96%
Nitrate	31,3	0,8	30,0	4,5	mg/l	96%
Nitrite	0,0640	0,0003	0,0585	0,009	mg/l	91%
Ammonium	<0,01		<0,01		mg/l	•
Chloride	38,4	0,6	37,5	5,6	mg/l	98%
Sulphate	21,2	0,4	20,0	3	mg/l	94%
Orthophosphate	0,070	0,004	<0,1		mg/l	•
Boron	0,0392	0,0010	0,0335	0,007	mg/l	85%
DOC	3,08	0,05	3,30	1	mg/l	107%
Total P (as PO4)	0,164	0,002	0,161	0,032	mg/l	98%
KMnO4-Index	4,42	0,11			mg/l	



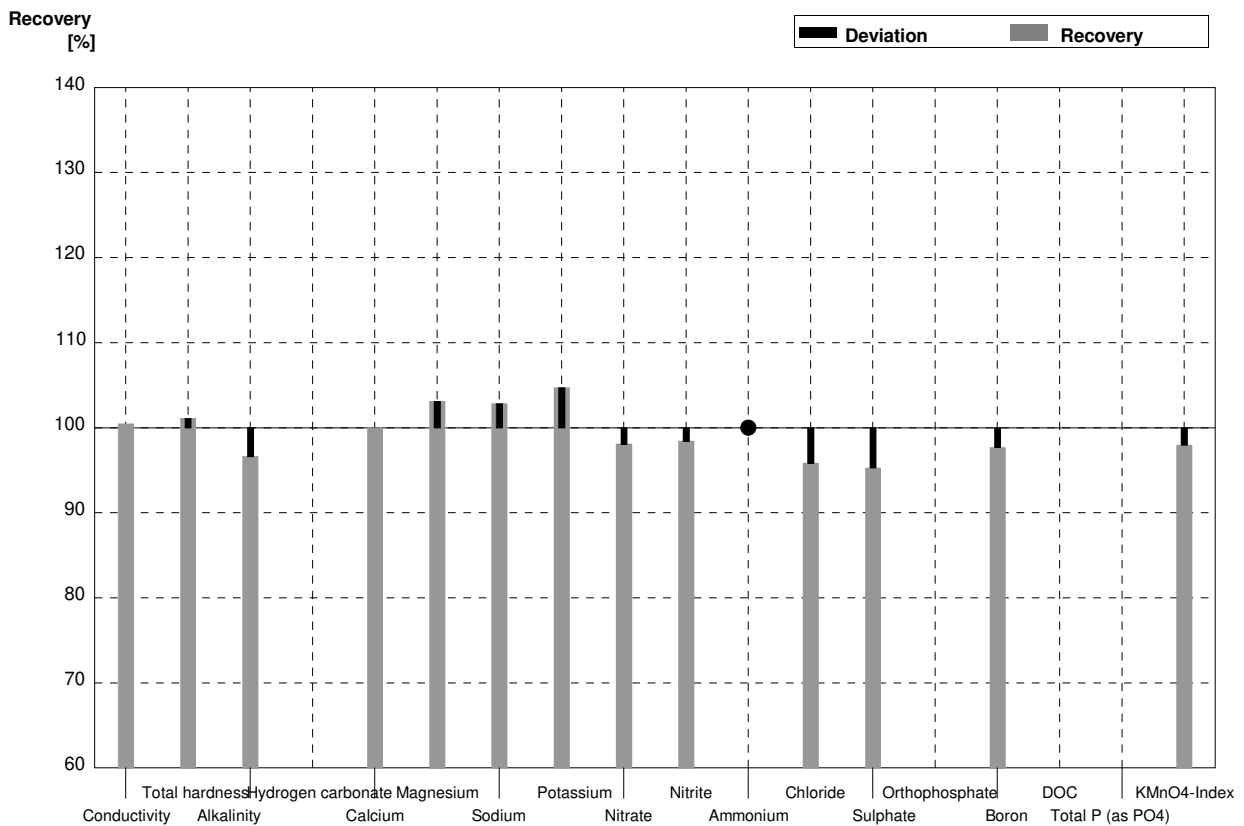
**Sample N172B**  
**Laboratory J**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	318	32	µS/cm	99%
Total hardness	1,032	0,012	1,02	0,20	mmol/l	99%
Alkalinity	1,565	0,019	1,58	0,16	mmol/l	101%
Hydrogen carbonate	92,4	1,2	97	10	mg/l	105%
Calcium	28,0	0,4	27,8	5,6	mg/l	99%
Magnesium	8,12	0,15	7,85	1,6	mg/l	97%
Sodium	20,63	0,19	19,5	3,9	mg/l	95%
Potassium	5,38	0,03	5,43	1,1	mg/l	101%
Nitrate	16,5	0,3	16,0	2,4	mg/l	97%
Nitrite	0,0530	0,0005	0,0470	0,007	mg/l	89%
Ammonium	0,060	0,002	0,060	0,012	mg/l	100%
Chloride	16,9	0,3	16,0	2,4	mg/l	95%
Sulphate	38,2	0,6	36,8	5,5	mg/l	96%
Orthophosphate	<0,009		<0,1		mg/l	•
Boron	0,0540	0,0005	0,0478	0,010	mg/l	89%
DOC	4,64	0,05	4,65	1,4	mg/l	100%
Total P (as PO4)	<0,009		<0,031		mg/l	•
KMnO4-Index	2,83	0,12			mg/l	



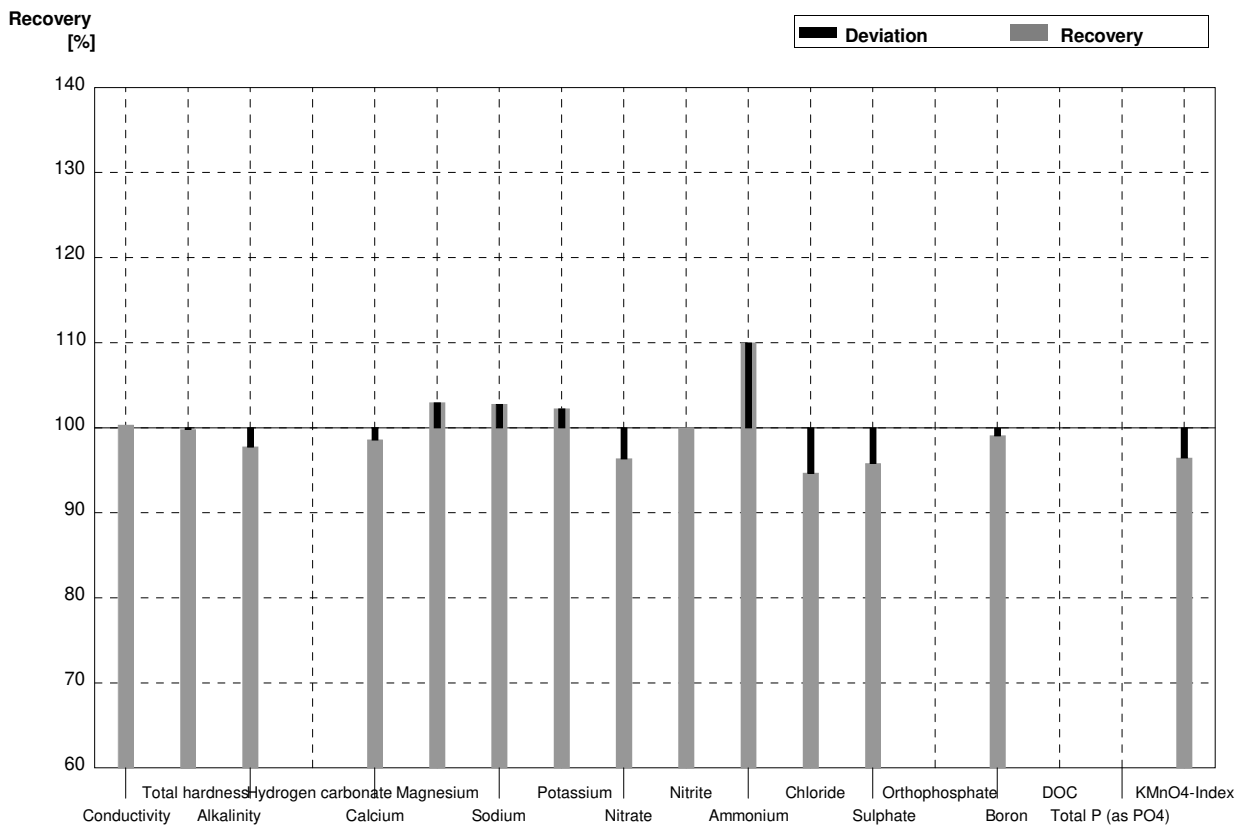
**Sample N172A**  
**Laboratory K**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	424	10	µS/cm	100%
Total hardness	1,78	0,02	1,80	0,36	mmol/l	101%
Alkalinity	2,07	0,04	2,00	0,2	mmol/l	97%
Hydrogen carbonate	123	2			mg/l	
Calcium	45,0	0,8	45,0	9,0	mg/l	100%
Magnesium	16,0	0,2	16,5	3,3	mg/l	103%
Sodium	10,5	0,3	10,8	1,7	mg/l	103%
Potassium	2,54	0,02	2,66	0,53	mg/l	105%
Nitrate	31,3	0,8	30,7	3,1	mg/l	98%
Nitrite	0,0640	0,0003	0,063	0,020	mg/l	98%
Ammonium	<0,01		<0,010		mg/l	•
Chloride	38,4	0,6	36,8	3,7	mg/l	96%
Sulphate	21,2	0,4	20,2	2,0	mg/l	95%
Orthophosphate	0,070	0,004			mg/l	
Boron	0,0392	0,0010	0,0383	0,0096	mg/l	98%
DOC	3,08	0,05			mg/l	
Total P (as PO4)	0,164	0,002			mg/l	
KMnO4-Index	4,42	0,11	4,33	1,1	mg/l	98%



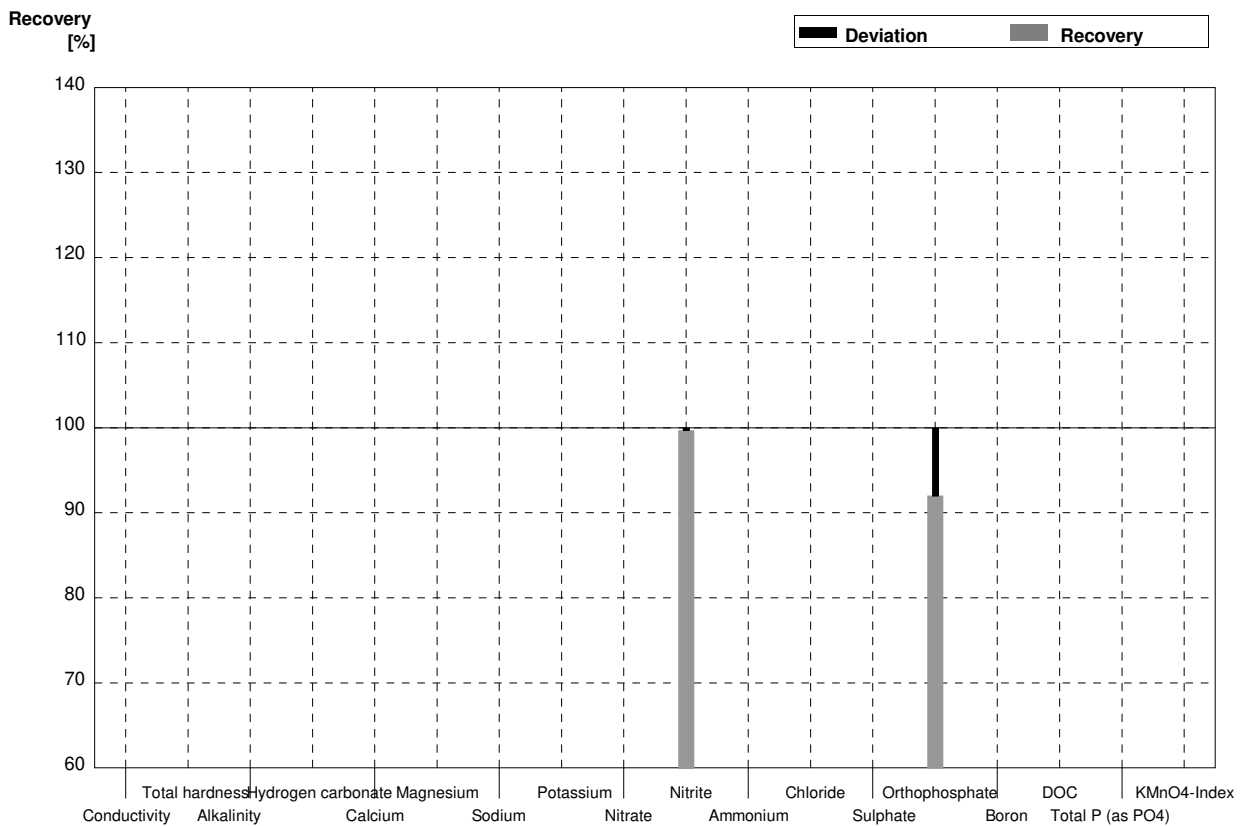
**Sample N172B**  
**Laboratory K**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	322	10	µS/cm	100%
Total hardness	1,032	0,012	1,03	0,21	mmol/l	100%
Alkalinity	1,565	0,019	1,53	0,15	mmol/l	98%
Hydrogen carbonate	92,4	1,2			mg/l	
Calcium	28,0	0,4	27,6	5,6	mg/l	99%
Magnesium	8,12	0,15	8,36	1,7	mg/l	103%
Sodium	20,63	0,19	21,2	3,2	mg/l	103%
Potassium	5,38	0,03	5,50	1,1	mg/l	102%
Nitrate	16,5	0,3	15,9	1,6	mg/l	96%
Nitrite	0,0530	0,0005	0,053	0,020	mg/l	100%
Ammonium	0,060	0,002	0,066	0,020	mg/l	110%
Chloride	16,9	0,3	16,0	1,6	mg/l	95%
Sulphate	38,2	0,6	36,6	3,6	mg/l	96%
Orthophosphate	<0,009				mg/l	
Boron	0,0540	0,0005	0,0535	0,014	mg/l	99%
DOC	4,64	0,05			mg/l	
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	2,83	0,12	2,73	0,7	mg/l	96%



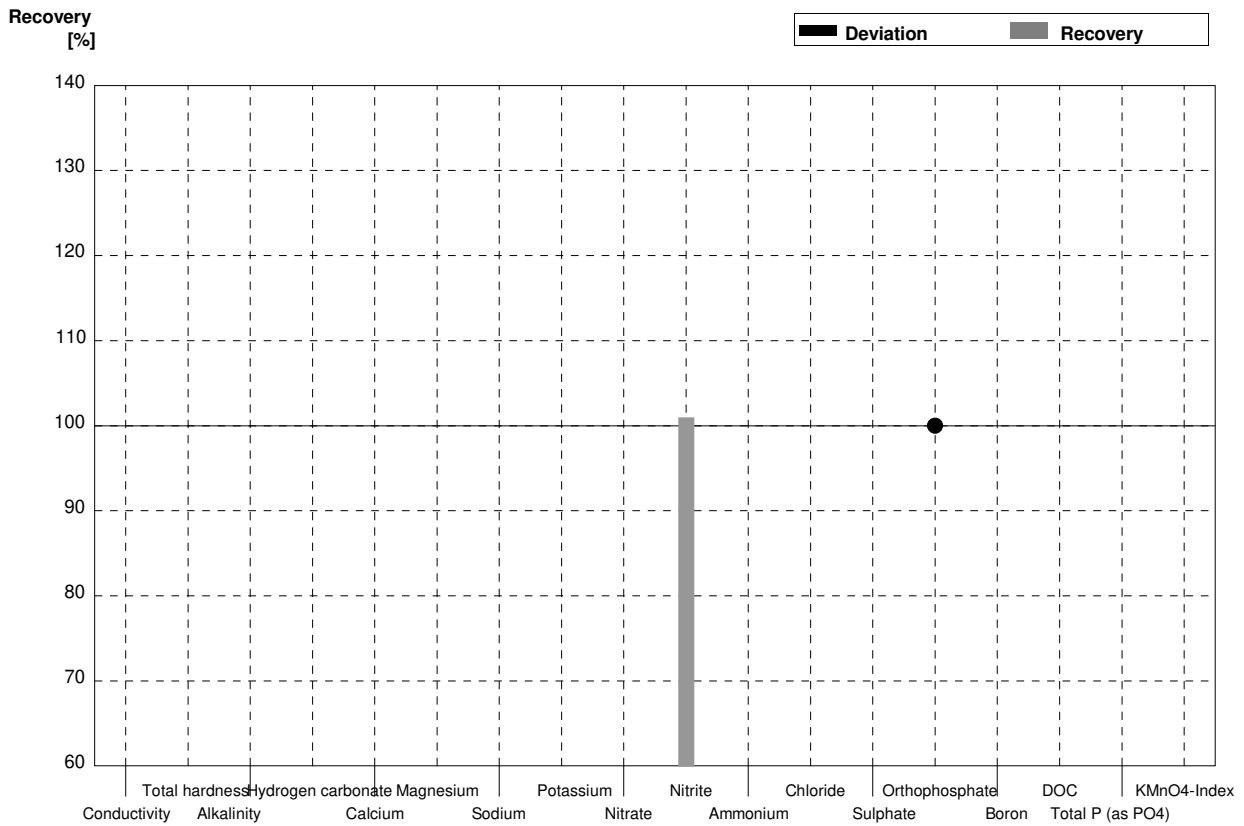
**Sample N172A**  
**Laboratory L**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1			µS/cm	
Total hardness	1,78	0,02			mmol/l	
Alkalinity	2,07	0,04			mmol/l	
Hydrogen carbonate	123	2			mg/l	
Calcium	45,0	0,8			mg/l	
Magnesium	16,0	0,2			mg/l	
Sodium	10,5	0,3			mg/l	
Potassium	2,54	0,02			mg/l	
Nitrate	31,3	0,8			mg/l	
Nitrite	0,0640	0,0003	0,0638	0,0048	mg/l	100%
Ammonium	<0,01				mg/l	
Chloride	38,4	0,6			mg/l	
Sulphate	21,2	0,4			mg/l	
Orthophosphate	0,070	0,004	0,0644	0,0022	mg/l	92%
Boron	0,0392	0,0010			mg/l	
DOC	3,08	0,05			mg/l	
Total P (as PO4)	0,164	0,002			mg/l	
KMnO4-Index	4,42	0,11			mg/l	



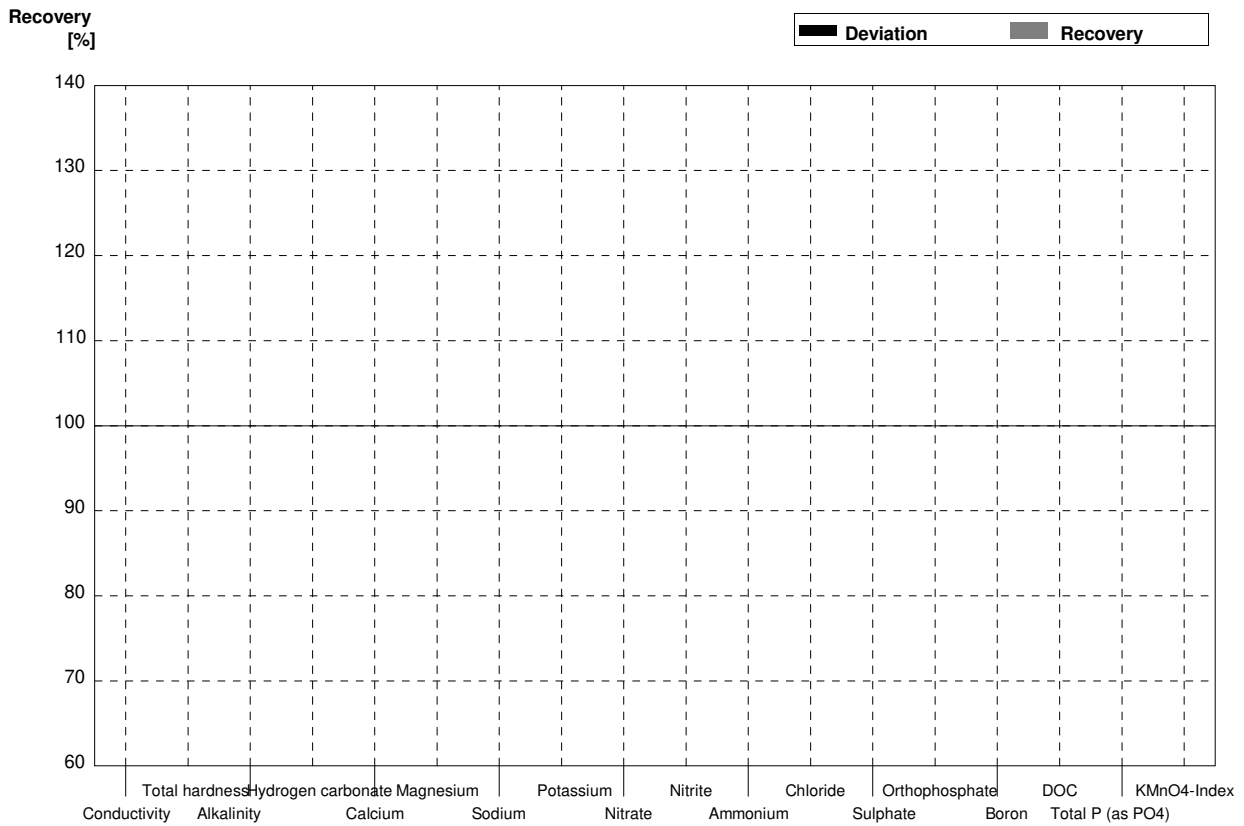
**Sample N172B**  
**Laboratory L**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1			µS/cm	
Total hardness	1,032	0,012			mmol/l	
Alkalinity	1,565	0,019			mmol/l	
Hydrogen carbonate	92,4	1,2			mg/l	
Calcium	28,0	0,4			mg/l	
Magnesium	8,12	0,15			mg/l	
Sodium	20,63	0,19			mg/l	
Potassium	5,38	0,03			mg/l	
Nitrate	16,5	0,3			mg/l	
Nitrite	0,0530	0,0005	0,0535	0,0040	mg/l	101%
Ammonium	0,060	0,002			mg/l	
Chloride	16,9	0,3			mg/l	
Sulphate	38,2	0,6			mg/l	
Orthophosphate	<0,009		<0,015		mg/l	•
Boron	0,0540	0,0005			mg/l	
DOC	4,64	0,05			mg/l	
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	2,83	0,12			mg/l	



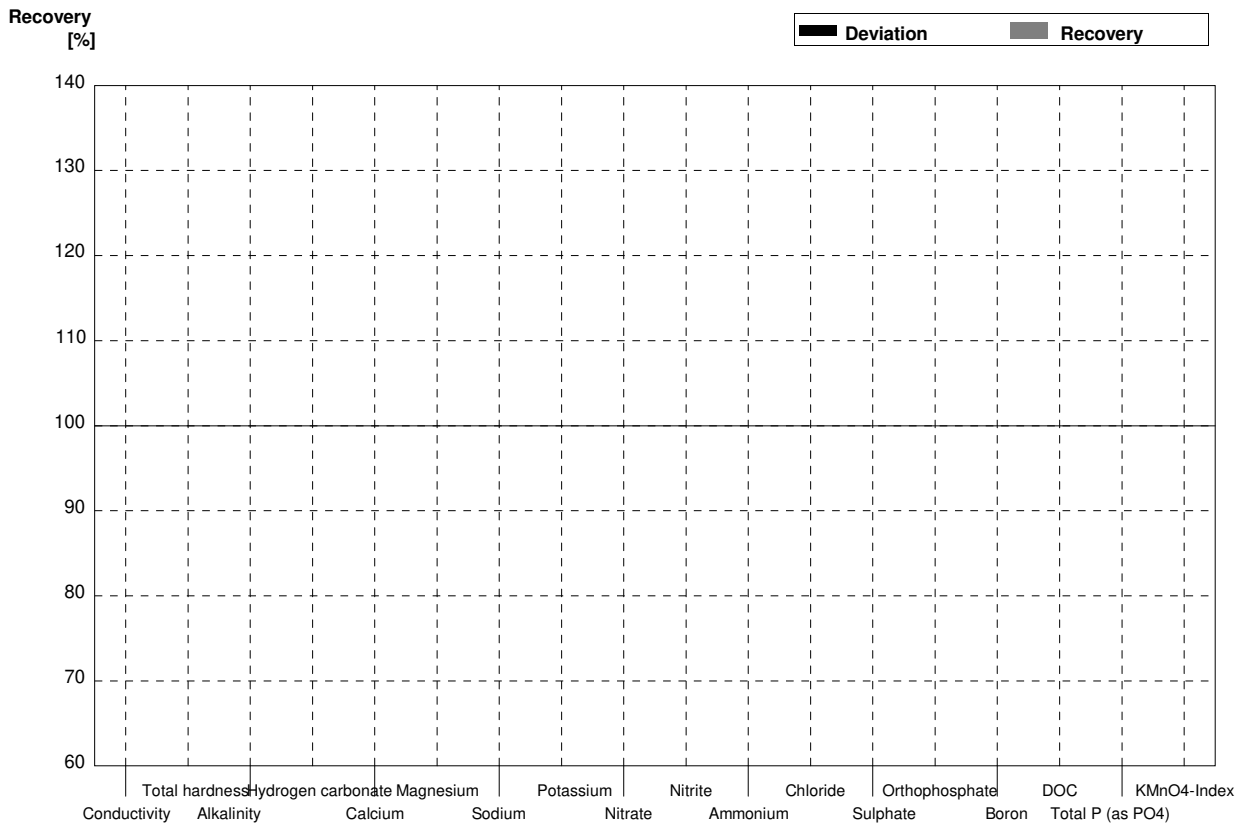
**Sample N172A**  
**Laboratory M**

Parameter	Assigned value	$\pm U (k=2)$	Result	$\pm$	Unit	Recovery
Conductivity	422	1			$\mu\text{S/cm}$	
Total hardness	1,78	0,02			mmol/l	
Alkalinity	2,07	0,04			mmol/l	
Hydrogen carbonate	123	2			mg/l	
Calcium	45,0	0,8			mg/l	
Magnesium	16,0	0,2			mg/l	
Sodium	10,5	0,3			mg/l	
Potassium	2,54	0,02			mg/l	
Nitrate	31,3	0,8			mg/l	
Nitrite	0,0640	0,0003			mg/l	
Ammonium	<0,01				mg/l	
Chloride	38,4	0,6			mg/l	
Sulphate	21,2	0,4			mg/l	
Orthophosphate	0,070	0,004			mg/l	
Boron	0,0392	0,0010			mg/l	
DOC	3,08	0,05			mg/l	
Total P (as PO4)	0,164	0,002			mg/l	
KMnO4-Index	4,42	0,11			mg/l	



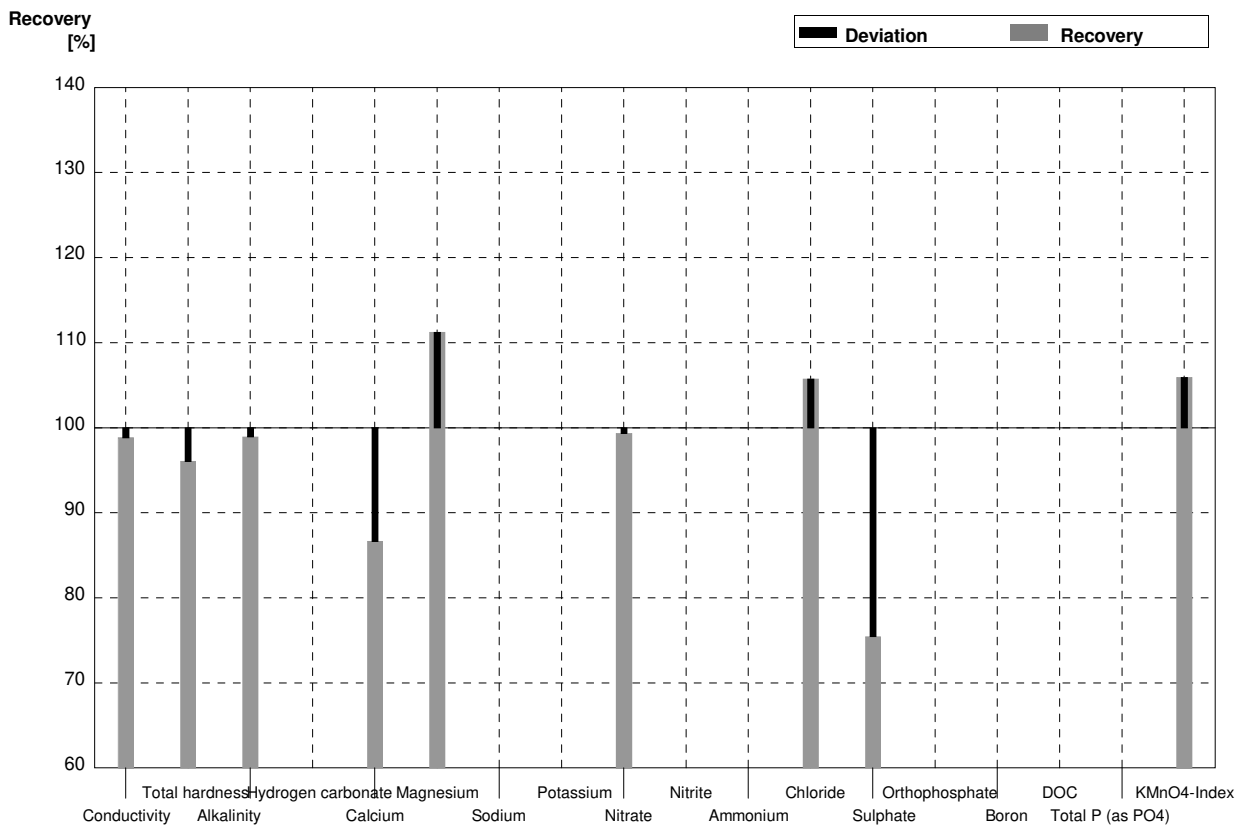
**Sample N172B**  
**Laboratory M**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1			µS/cm	
Total hardness	1,032	0,012			mmol/l	
Alkalinity	1,565	0,019			mmol/l	
Hydrogen carbonate	92,4	1,2			mg/l	
Calcium	28,0	0,4			mg/l	
Magnesium	8,12	0,15			mg/l	
Sodium	20,63	0,19			mg/l	
Potassium	5,38	0,03			mg/l	
Nitrate	16,5	0,3			mg/l	
Nitrite	0,0530	0,0005			mg/l	
Ammonium	0,060	0,002			mg/l	
Chloride	16,9	0,3			mg/l	
Sulphate	38,2	0,6			mg/l	
Orthophosphate	<0,009				mg/l	
Boron	0,0540	0,0005			mg/l	
DOC	4,64	0,05			mg/l	
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	2,83	0,12			mg/l	



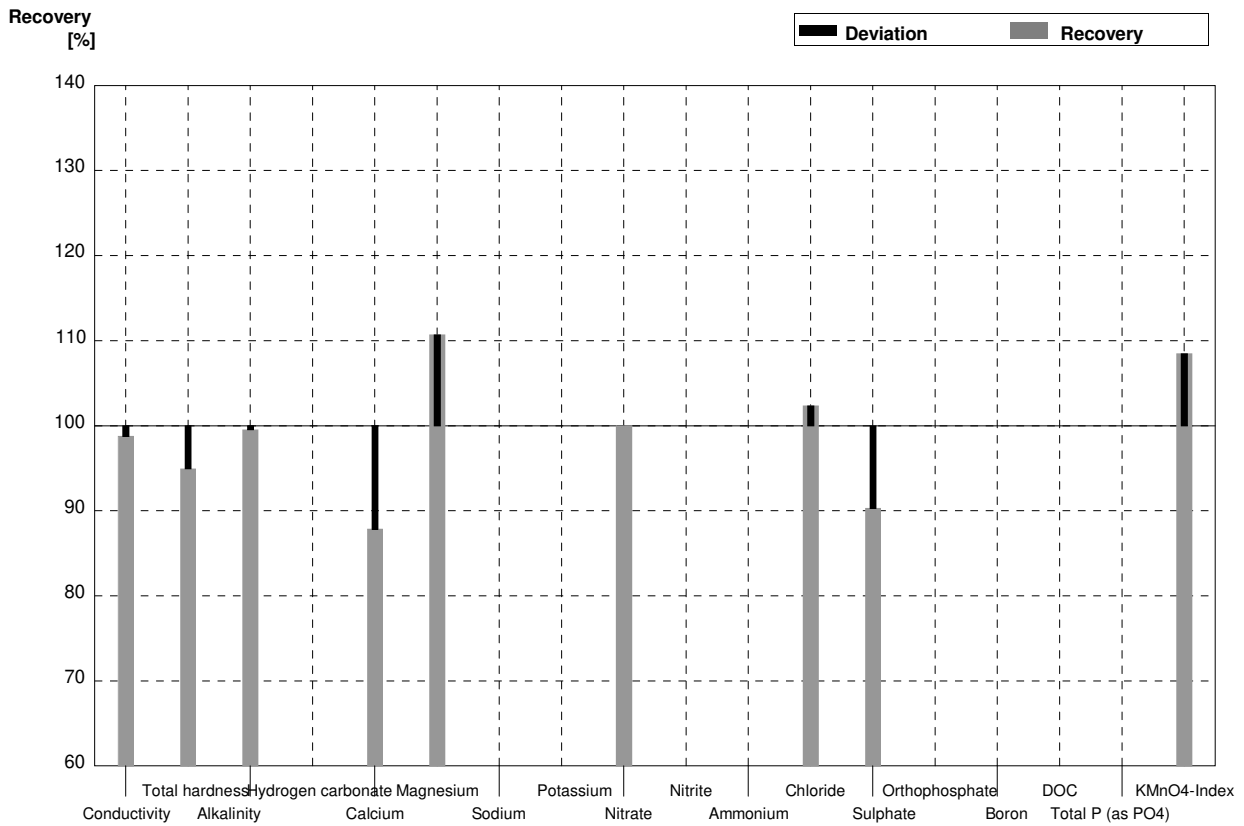
**Sample N172A**  
**Laboratory N**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	417,1	0,275	µS/cm	99%
Total hardness	1,78	0,02	1,71	0,06	mmol/l	96%
Alkalinity	2,07	0,04	2,048	0,06	mmol/l	99%
Hydrogen carbonate	123	2			mg/l	
Calcium	45,0	0,8	39,0	0,82	mg/l	87%
Magnesium	16,0	0,2	17,8	1,53	mg/l	111%
Sodium	10,5	0,3			mg/l	
Potassium	2,54	0,02			mg/l	
Nitrate	31,3	0,8	31,1	0,482	mg/l	99%
Nitrite	0,0640	0,0003			mg/l	
Ammonium	<0,01				mg/l	
Chloride	38,4	0,6	40,6	1,074	mg/l	106%
Sulphate	21,2	0,4	16,0	7,4	mg/l	75%
Orthophosphate	0,070	0,004			mg/l	
Boron	0,0392	0,0010			mg/l	
DOC	3,08	0,05			mg/l	
Total P (as PO4)	0,164	0,002			mg/l	
KMnO4-Index	4,42	0,11	4,683	0,588	mg/l	106%



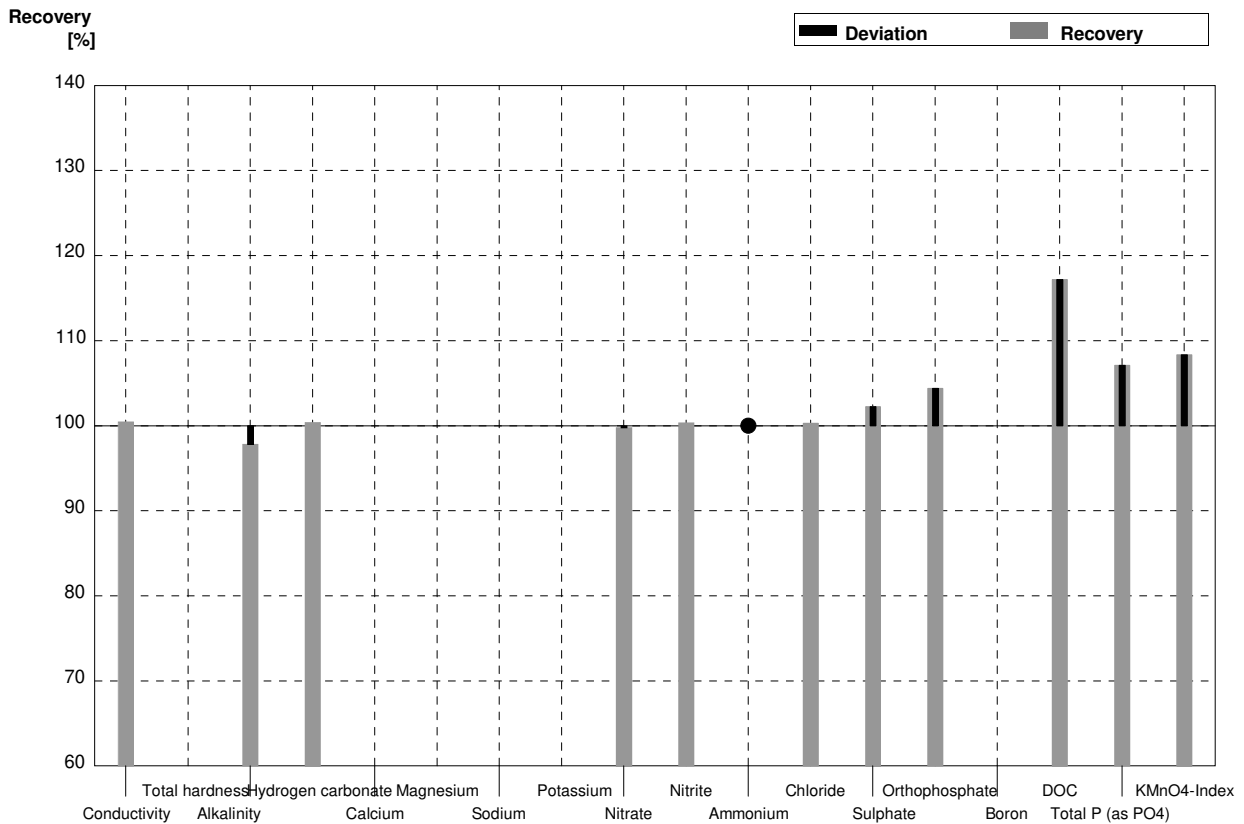
**Sample N172B**  
**Laboratory N**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	317,1	0,275	µS/cm	99%
Total hardness	1,032	0,012	0,98	0,06	mmol/l	95%
Alkalinity	1,565	0,019	1,558	0,06	mmol/l	100%
Hydrogen carbonate	92,4	1,2			mg/l	
Calcium	28,0	0,4	24,6	0,82	mg/l	88%
Magnesium	8,12	0,15	8,99	1,53	mg/l	111%
Sodium	20,63	0,19			mg/l	
Potassium	5,38	0,03			mg/l	
Nitrate	16,5	0,3	16,5	0,482	mg/l	100%
Nitrite	0,0530	0,0005			mg/l	
Ammonium	0,060	0,002			mg/l	
Chloride	16,9	0,3	17,3	1,074	mg/l	102%
Sulphate	38,2	0,6	34,5	7,4	mg/l	90%
Orthophosphate	<0,009				mg/l	
Boron	0,0540	0,0005			mg/l	
DOC	4,64	0,05			mg/l	
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	2,83	0,12	3,070	0,588	mg/l	108%



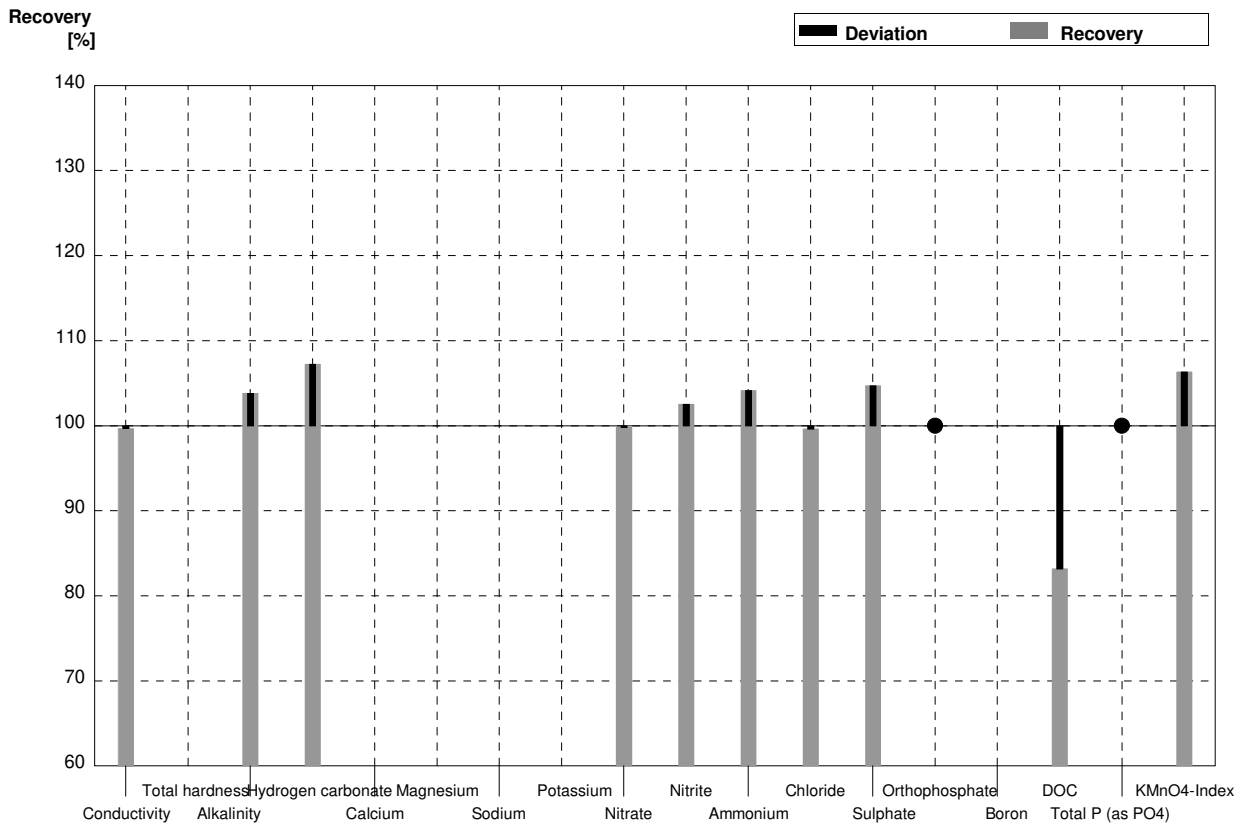
**Sample N172A**  
**Laboratory O**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	424	12,3	µS/cm	100%
Total hardness	1,78	0,02			mmol/l	
Alkalinity	2,07	0,04	2,025	0,196	mmol/l	98%
Hydrogen carbonate	123	2	123,5	11,9	mg/l	100%
Calcium	45,0	0,8			mg/l	
Magnesium	16,0	0,2			mg/l	
Sodium	10,5	0,3			mg/l	
Potassium	2,54	0,02			mg/l	
Nitrate	31,3	0,8	31,23	1,155	mg/l	100%
Nitrite	0,0640	0,0003	0,06423	0,00225	mg/l	100%
Ammonium	<0,01		<0,038	0,001	mg/l	•
Chloride	38,4	0,6	38,53	1,850	mg/l	100%
Sulphate	21,2	0,4	21,68	0,997	mg/l	102%
Orthophosphate	0,070	0,004	0,07309	0,00577	mg/l	104%
Boron	0,0392	0,0010			mg/l	
DOC	3,08	0,05	3,61	0,209	mg/l	117%
Total P (as PO4)	0,164	0,002	0,1757	0,01423	mg/l	107%
KMnO4-Index	4,42	0,11	4,79	0,479	mg/l	108%



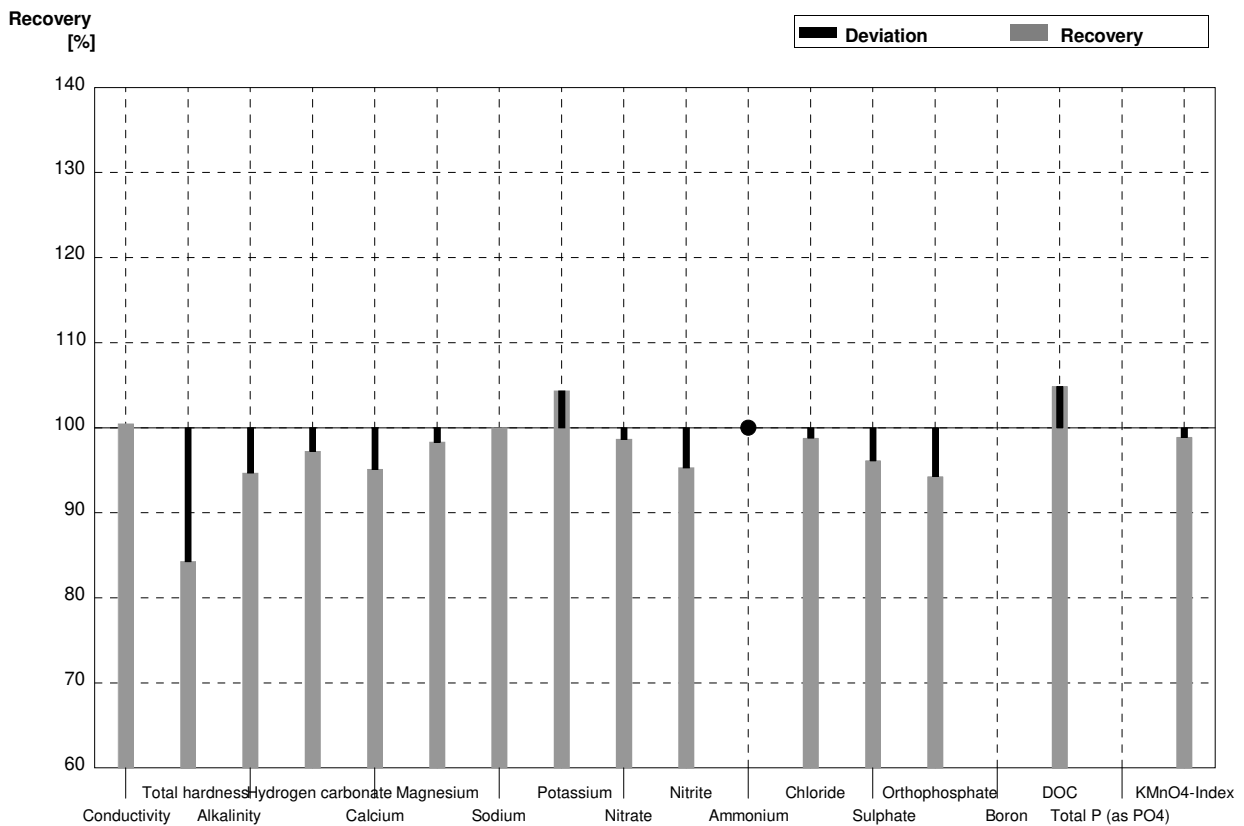
**Sample N172B**  
**Laboratory O**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	320	9,28	µS/cm	100%
Total hardness	1,032	0,012			mmol/l	
Alkalinity	1,565	0,019	1,625	0,157	mmol/l	104%
Hydrogen carbonate	92,4	1,2	99,1	9,6	mg/l	107%
Calcium	28,0	0,4			mg/l	
Magnesium	8,12	0,15			mg/l	
Sodium	20,63	0,19			mg/l	
Potassium	5,38	0,03			mg/l	
Nitrate	16,5	0,3	16,47	0,609	mg/l	100%
Nitrite	0,0530	0,0005	0,05434	0,00190	mg/l	103%
Ammonium	0,060	0,002	0,0625	0,0033	mg/l	104%
Chloride	16,9	0,3	16,84	0,808	mg/l	100%
Sulphate	38,2	0,6	40,01	1,840	mg/l	105%
Orthophosphate	<0,009		<0,015		mg/l	•
Boron	0,0540	0,0005			mg/l	
DOC	4,64	0,05	3,86	0,224	mg/l	83%
Total P (as PO4)	<0,009		<0,015		mg/l	•
KMnO4-Index	2,83	0,12	3,01	0,301	mg/l	106%



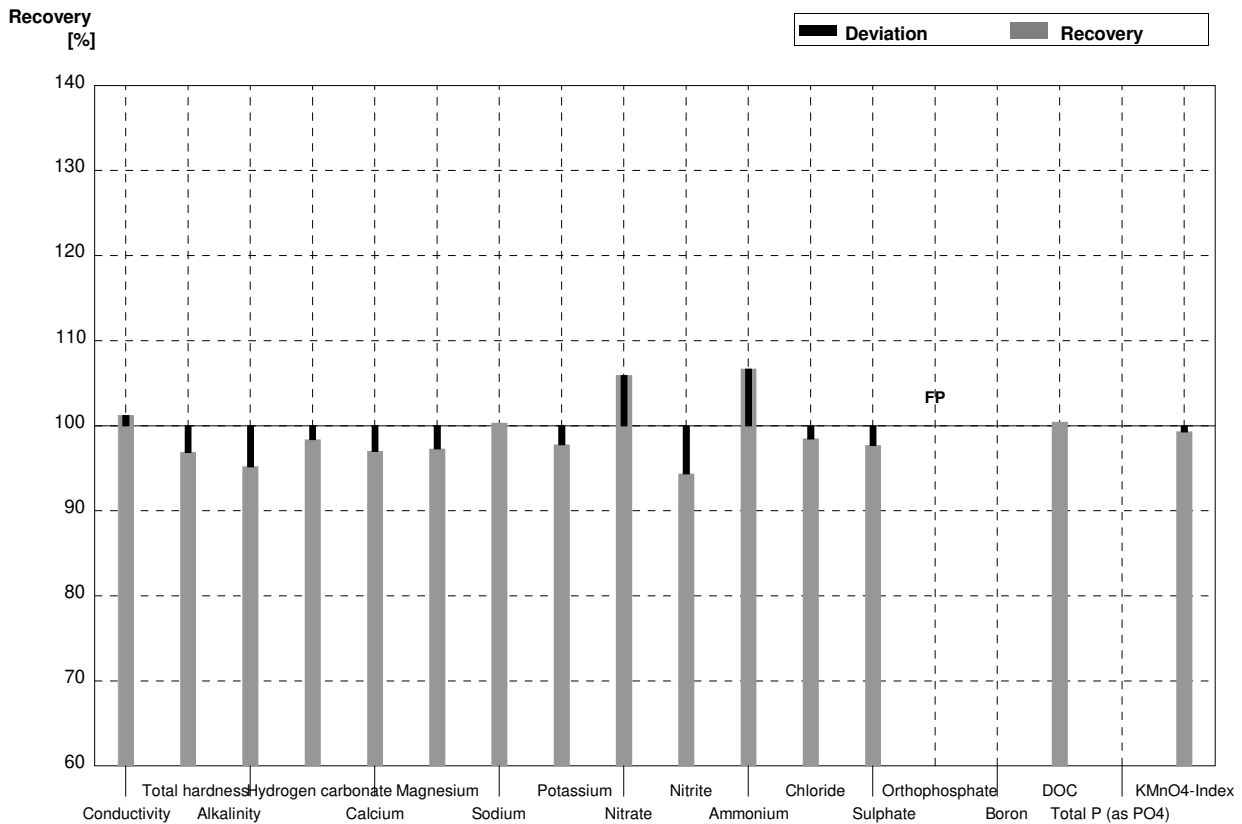
**Sample N172A**  
**Laboratory P**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	424		µS/cm	100%
Total hardness	1,78	0,02	1,50		mmol/l	84%
Alkalinity	2,07	0,04	1,96		mmol/l	95%
Hydrogen carbonate	123	2	119,6		mg/l	97%
Calcium	45,0	0,8	42,80		mg/l	95%
Magnesium	16,0	0,2	15,73		mg/l	98%
Sodium	10,5	0,3	10,50		mg/l	100%
Potassium	2,54	0,02	2,65		mg/l	104%
Nitrate	31,3	0,8	30,88		mg/l	99%
Nitrite	0,0640	0,0003	0,061		mg/l	95%
Ammonium	<0,01		0,0050		mg/l	•
Chloride	38,4	0,6	37,94		mg/l	99%
Sulphate	21,2	0,4	20,38		mg/l	96%
Orthophosphate	0,070	0,004	0,066		mg/l	94%
Boron	0,0392	0,0010			mg/l	
DOC	3,08	0,05	3,23		mg/l	105%
Total P (as PO4)	0,164	0,002			mg/l	
KMnO4-Index	4,42	0,11	4,37		mg/l	99%



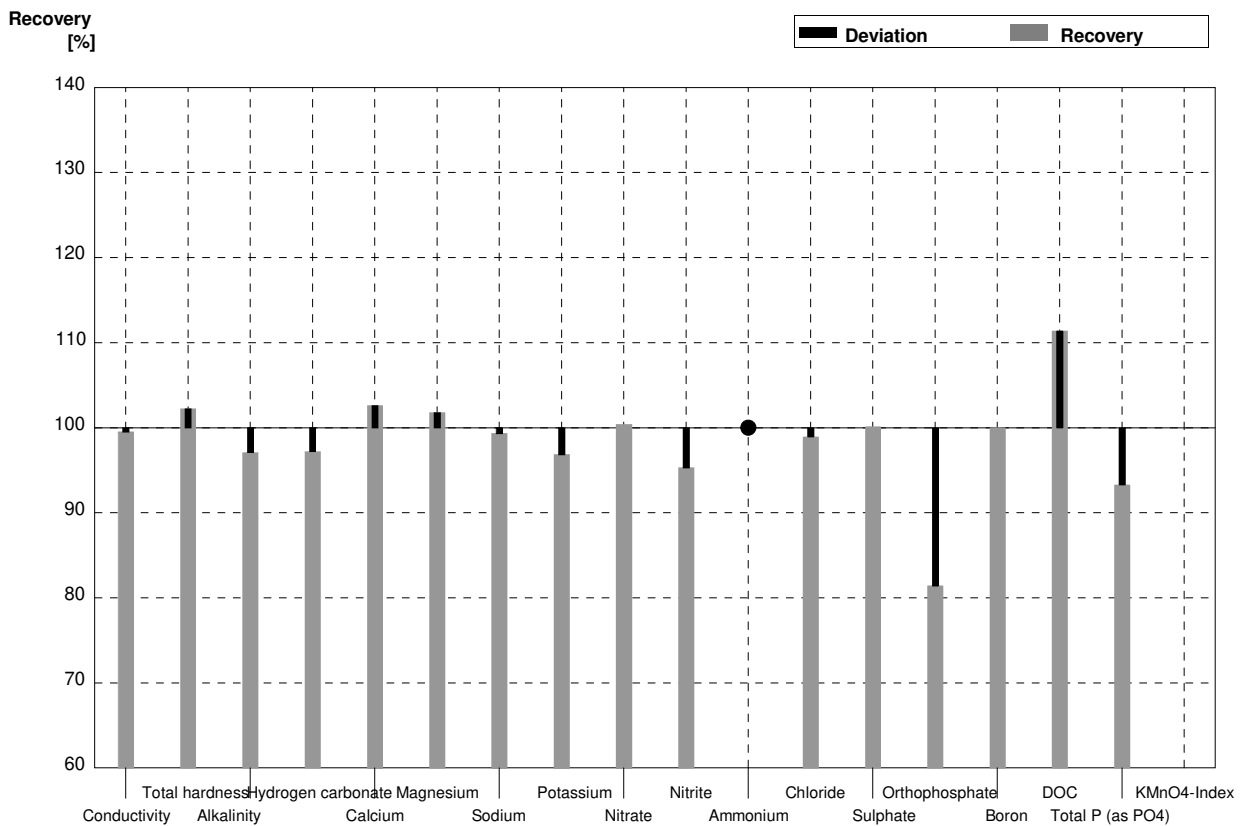
**Sample N172B**  
**Laboratory P**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	325		µS/cm	101%
Total hardness	1,032	0,012	1,00		mmol/l	97%
Alkalinity	1,565	0,019	1,49		mmol/l	95%
Hydrogen carbonate	92,4	1,2	90,89		mg/l	98%
Calcium	28,0	0,4	27,16		mg/l	97%
Magnesium	8,12	0,15	7,90		mg/l	97%
Sodium	20,63	0,19	20,70		mg/l	100%
Potassium	5,38	0,03	5,26		mg/l	98%
Nitrate	16,5	0,3	17,48		mg/l	106%
Nitrite	0,0530	0,0005	0,050		mg/l	94%
Ammonium	0,060	0,002	0,064		mg/l	107%
Chloride	16,9	0,3	16,64		mg/l	98%
Sulphate	38,2	0,6	37,32		mg/l	98%
Orthophosphate	<0,009		0,0140		mg/l	FP
Boron	0,0540	0,0005			mg/l	
DOC	4,64	0,05	4,66		mg/l	100%
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	2,83	0,12	2,81		mg/l	99%



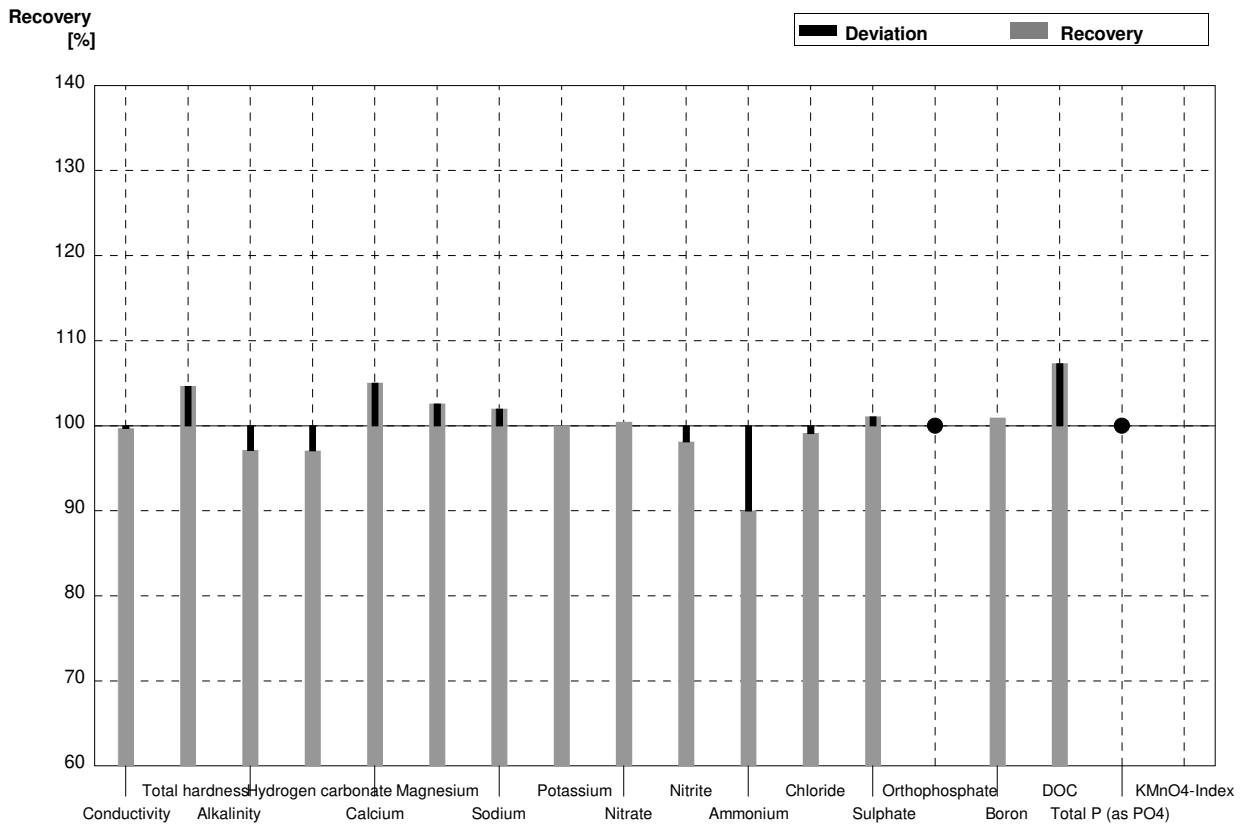
**Sample N172A**  
**Laboratory Q**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	420	4,51	µS/cm	100%
Total hardness	1,78	0,02	1,82		mmol/l	102%
Alkalinity	2,07	0,04	2,01	0,20	mmol/l	97%
Hydrogen carbonate	123	2	119,57		mg/l	97%
Calcium	45,0	0,8	46,18	4,6	mg/l	103%
Magnesium	16,0	0,2	16,29	1,6	mg/l	102%
Sodium	10,5	0,3	10,43	1,0	mg/l	99%
Potassium	2,54	0,02	2,46	2,5	mg/l	97%
Nitrate	31,3	0,8	31,43	3,1	mg/l	100%
Nitrite	0,0640	0,0003	0,061	0,006	mg/l	95%
Ammonium	<0,01		<0,009		mg/l	•
Chloride	38,4	0,6	37,99	3,8	mg/l	99%
Sulphate	21,2	0,4	21,23	2,1	mg/l	100%
Orthophosphate	0,070	0,004	0,057	0,006	mg/l	81%
Boron	0,0392	0,0010	0,0392	0,004	mg/l	100%
DOC	3,08	0,05	3,43	0,34	mg/l	111%
Total P (as PO4)	0,164	0,002	0,153	0,015	mg/l	93%
KMnO4-Index	4,42	0,11			mg/l	



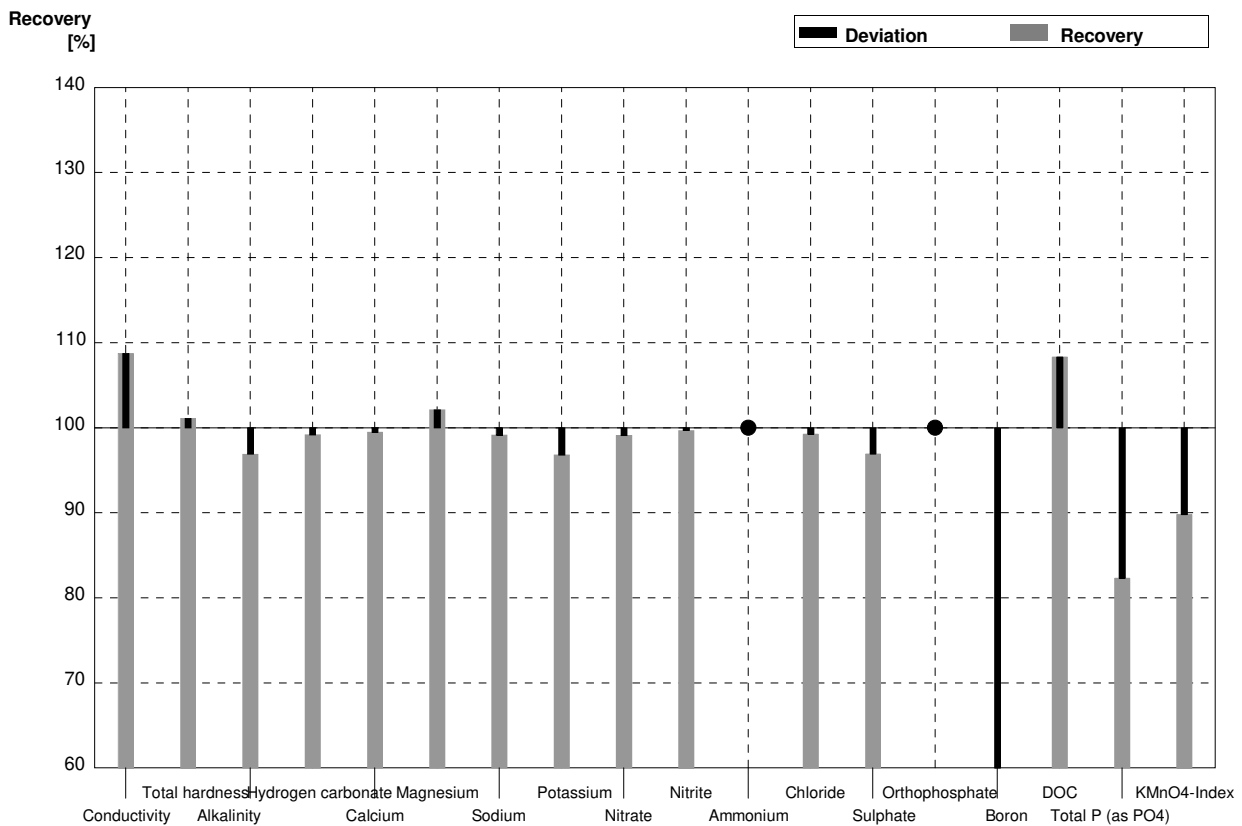
**Sample N172B**  
**Laboratory Q**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	320	4,51	µS/cm	100%
Total hardness	1,032	0,012	1,08		mmol/l	105%
Alkalinity	1,565	0,019	1,52	0,15	mmol/l	97%
Hydrogen carbonate	92,4	1,2	89,68		mg/l	97%
Calcium	28,0	0,4	29,41	2,9	mg/l	105%
Magnesium	8,12	0,15	8,33	0,8	mg/l	103%
Sodium	20,63	0,19	21,04	2,1	mg/l	102%
Potassium	5,38	0,03	5,38	0,5	mg/l	100%
Nitrate	16,5	0,3	16,57	1,7	mg/l	100%
Nitrite	0,0530	0,0005	0,052	0,005	mg/l	98%
Ammonium	0,060	0,002	0,054	0,005	mg/l	90%
Chloride	16,9	0,3	16,75	1,8	mg/l	99%
Sulphate	38,2	0,6	38,61	3,9	mg/l	101%
Orthophosphate	<0,009		<0,0015		mg/l	•
Boron	0,0540	0,0005	0,0545	0,006	mg/l	101%
DOC	4,64	0,05	4,98	0,49	mg/l	107%
Total P (as PO4)	<0,009		<0,003		mg/l	•
KMnO4-Index	2,83	0,12			mg/l	



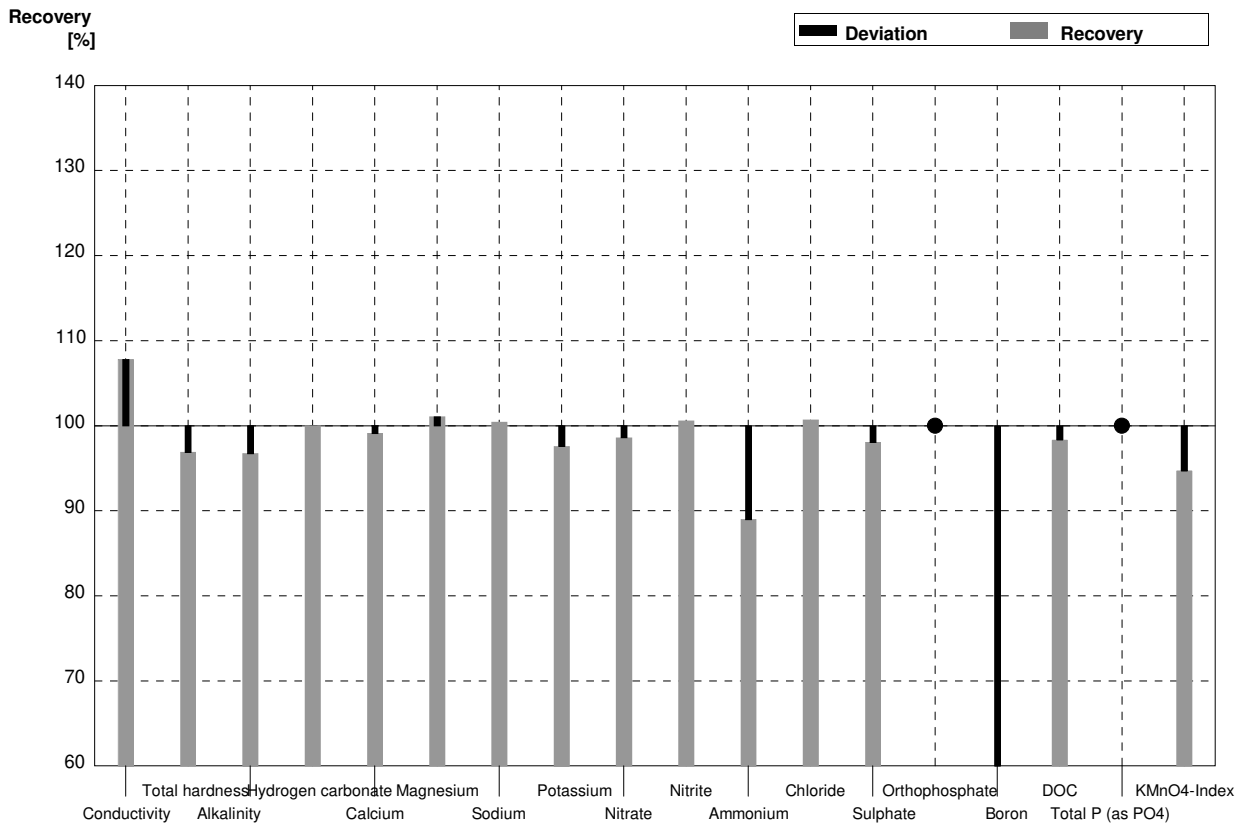
**Sample N172A**  
**Laboratory R**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	459	46	µS/cm	109%
Total hardness	1,78	0,02	1,80	0,2	mmol/l	101%
Alkalinity	2,07	0,04	2,006	0,3	mmol/l	97%
Hydrogen carbonate	123	2	122	20,7	mg/l	99%
Calcium	45,0	0,8	44,77	2,9	mg/l	99%
Magnesium	16,0	0,2	16,34	1,2	mg/l	102%
Sodium	10,5	0,3	10,41	1,4	mg/l	99%
Potassium	2,54	0,02	2,459	0,2	mg/l	97%
Nitrate	31,3	0,8	31,02	4,3	mg/l	99%
Nitrite	0,0640	0,0003	0,0638	0,01	mg/l	100%
Ammonium	<0,01		0,00430	0,0008	mg/l	•
Chloride	38,4	0,6	38,12	4,2	mg/l	99%
Sulphate	21,2	0,4	20,55	2,3	mg/l	97%
Orthophosphate	0,070	0,004	<0,2	0,02	mg/l	•
Boron	0,0392	0,0010	0,0161	0,002	mg/l	41%
DOC	3,08	0,05	3,337	0,7	mg/l	108%
Total P (as PO4)	0,164	0,002	0,135	0,009	mg/l	82%
KMnO4-Index	4,42	0,11	3,97	0,6	mg/l	90%



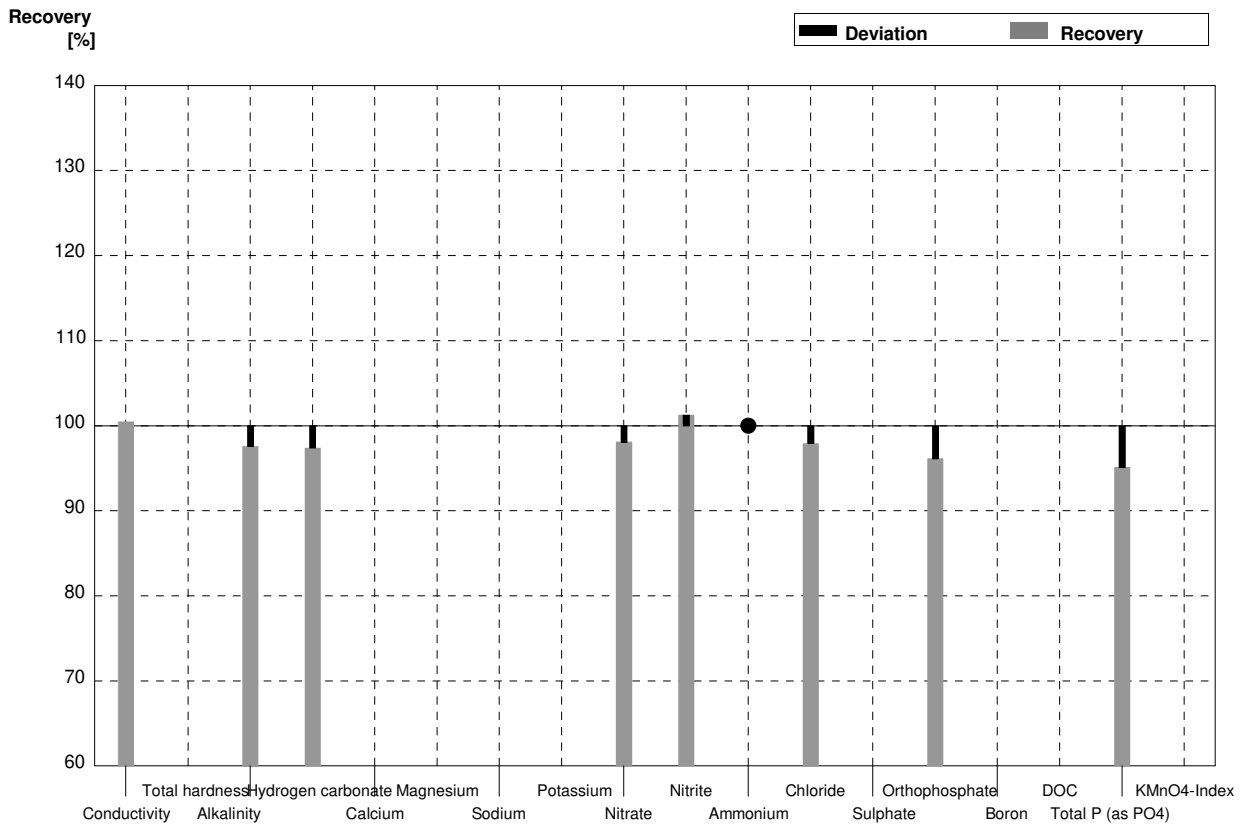
**Sample N172B**  
**Laboratory R**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	346	35	µS/cm	108%
Total hardness	1,032	0,012	1,00	0,1	mmol/l	97%
Alkalinity	1,565	0,019	1,514	0,3	mmol/l	97%
Hydrogen carbonate	92,4	1,2	92,4	15,7	mg/l	100%
Calcium	28,0	0,4	27,75	1,8	mg/l	99%
Magnesium	8,12	0,15	8,208	0,6	mg/l	101%
Sodium	20,63	0,19	20,72	2,7	mg/l	100%
Potassium	5,38	0,03	5,25	0,4	mg/l	98%
Nitrate	16,5	0,3	16,27	2,3	mg/l	99%
Nitrite	0,0530	0,0005	0,0533	0,009	mg/l	101%
Ammonium	0,060	0,002	0,0534	0,0010	mg/l	89%
Chloride	16,9	0,3	17,02	1,9	mg/l	101%
Sulphate	38,2	0,6	37,46	4,1	mg/l	98%
Orthophosphate	<0,009		<0,2	0,02	mg/l	•
Boron	0,0540	0,0005	0,0311	0,004	mg/l	58%
DOC	4,64	0,05	4,563	1,0	mg/l	98%
Total P (as PO4)	<0,009		<0,1	0,007	mg/l	•
KMnO4-Index	2,83	0,12	2,68	0,4	mg/l	95%



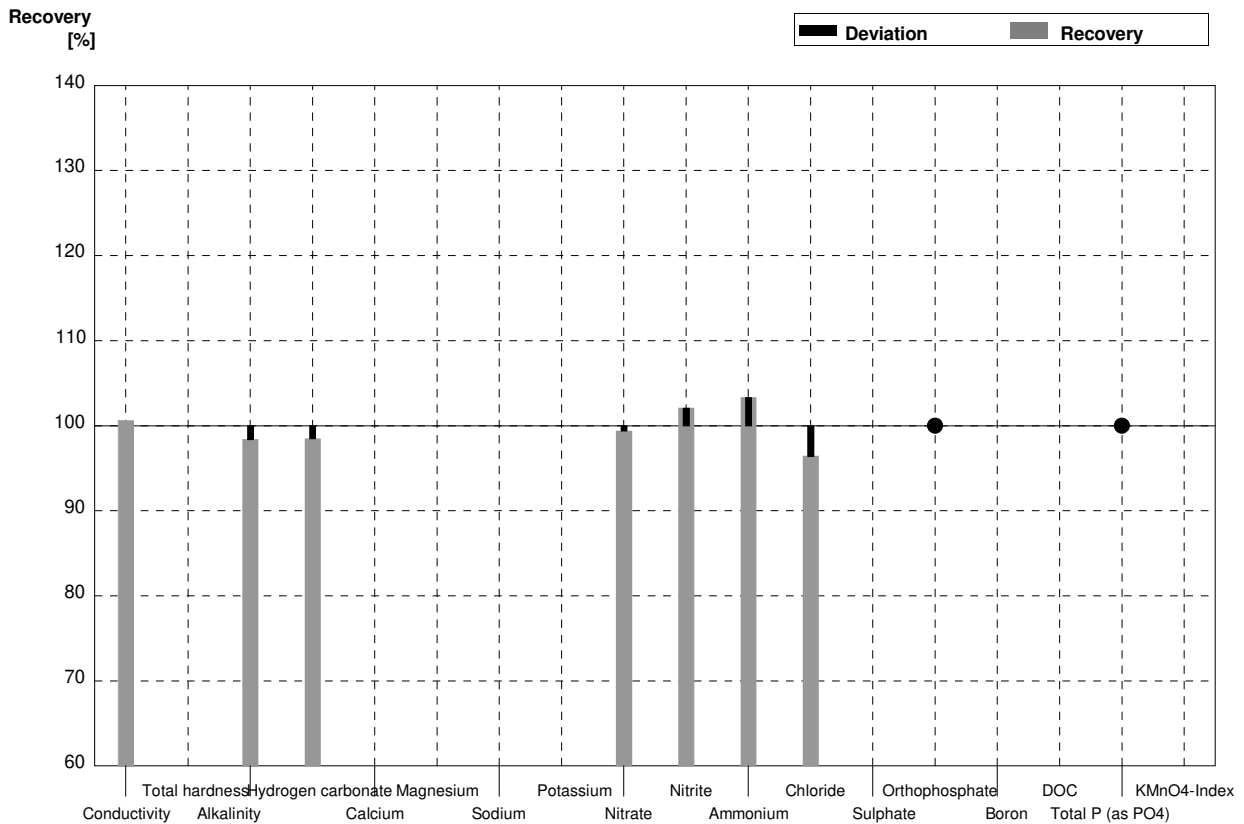
**Sample N172A**  
**Laboratory S**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	424	3	µS/cm	100%
Total hardness	1,78	0,02			mmol/l	
Alkalinity	2,07	0,04	2,02	0,06	mmol/l	98%
Hydrogen carbonate	123	2	119,8	1,7	mg/l	97%
Calcium	45,0	0,8			mg/l	
Magnesium	16,0	0,2			mg/l	
Sodium	10,5	0,3			mg/l	
Potassium	2,54	0,02			mg/l	
Nitrate	31,3	0,8	30,7	2,1	mg/l	98%
Nitrite	0,0640	0,0003	0,0648	0,0065	mg/l	101%
Ammonium	<0,01		<0,005	0	mg/l	•
Chloride	38,4	0,6	37,6	0,4	mg/l	98%
Sulphate	21,2	0,4			mg/l	
Orthophosphate	0,070	0,004	0,0673	0,008	mg/l	96%
Boron	0,0392	0,0010			mg/l	
DOC	3,08	0,05			mg/l	
Total P (as PO4)	0,164	0,002	0,156	0,021	mg/l	95%
KMnO4-Index	4,42	0,11			mg/l	



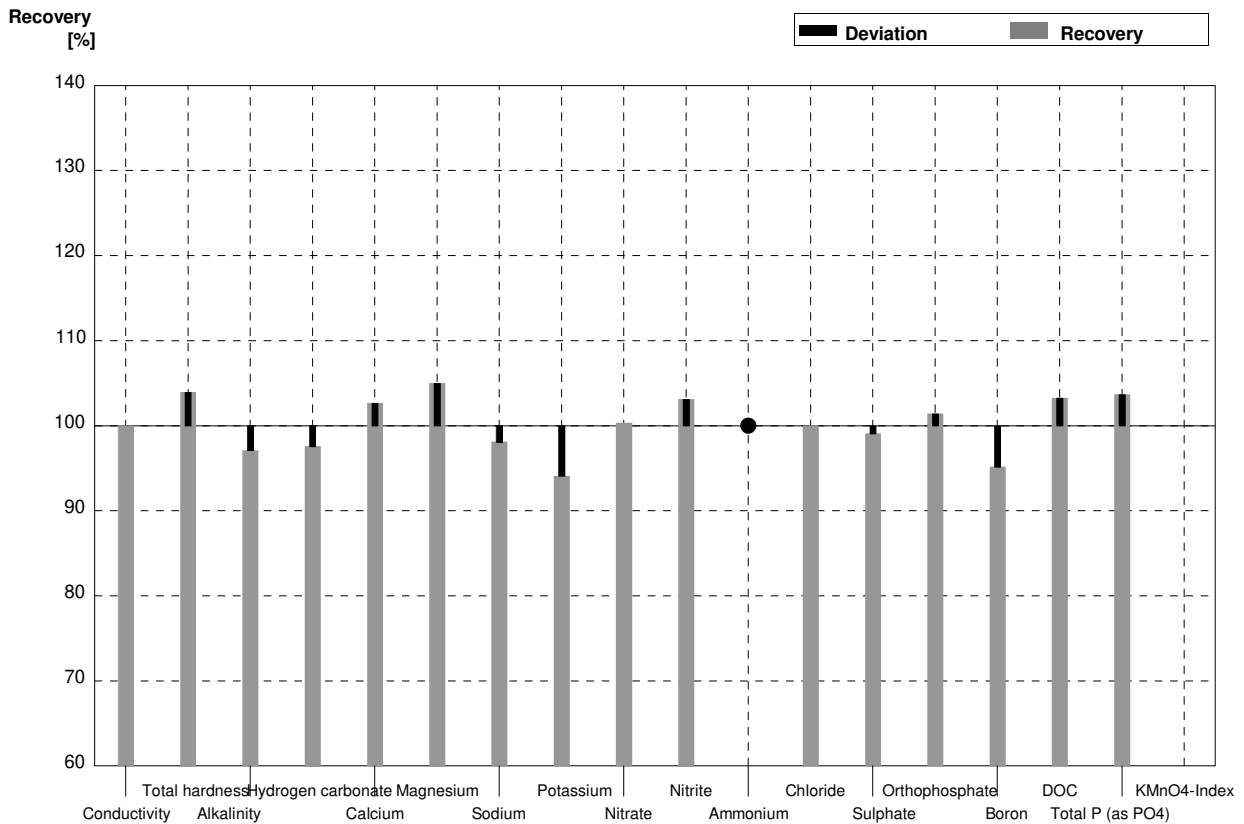
**Sample N172B**  
**Laboratory S**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	323	2	µS/cm	101%
Total hardness	1,032	0,012			mmol/l	
Alkalinity	1,565	0,019	1,54	0,04	mmol/l	98%
Hydrogen carbonate	92,4	1,2	91	1,3	mg/l	98%
Calcium	28,0	0,4			mg/l	
Magnesium	8,12	0,15			mg/l	
Sodium	20,63	0,19			mg/l	
Potassium	5,38	0,03			mg/l	
Nitrate	16,5	0,3	16,4	1,1	mg/l	99%
Nitrite	0,0530	0,0005	0,0541	0,0054	mg/l	102%
Ammonium	0,060	0,002	0,062	0,009	mg/l	103%
Chloride	16,9	0,3	16,3	0,2	mg/l	96%
Sulphate	38,2	0,6			mg/l	
Orthophosphate	<0,009		<0,006	0	mg/l	•
Boron	0,0540	0,0005			mg/l	
DOC	4,64	0,05			mg/l	
Total P (as PO4)	<0,009		<0,006	0	mg/l	•
KMnO4-Index	2,83	0,12			mg/l	



**Sample N172A**  
**Laboratory T**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	422	12	µS/cm	100%
Total hardness	1,78	0,02	1,85	0,15	mmol/l	104%
Alkalinity	2,07	0,04	2,01	0,08	mmol/l	97%
Hydrogen carbonate	123	2	120	5	mg/l	98%
Calcium	45,0	0,8	46,2	2,3	mg/l	103%
Magnesium	16,0	0,2	16,8	1,0	mg/l	105%
Sodium	10,5	0,3	10,3	0,4	mg/l	98%
Potassium	2,54	0,02	2,39	0,19	mg/l	94%
Nitrate	31,3	0,8	31,4	1,9	mg/l	100%
Nitrite	0,0640	0,0003	0,066	0,006	mg/l	103%
Ammonium	<0,01		<0,008		mg/l	•
Chloride	38,4	0,6	38,4	1,9	mg/l	100%
Sulphate	21,2	0,4	21,0	1,3	mg/l	99%
Orthophosphate	0,070	0,004	0,071	0,004	mg/l	101%
Boron	0,0392	0,0010	0,0373	0,006	mg/l	95%
DOC	3,08	0,05	3,18	0,29	mg/l	103%
Total P (as PO4)	0,164	0,002	0,170	0,012	mg/l	104%
KMnO4-Index	4,42	0,11			mg/l	



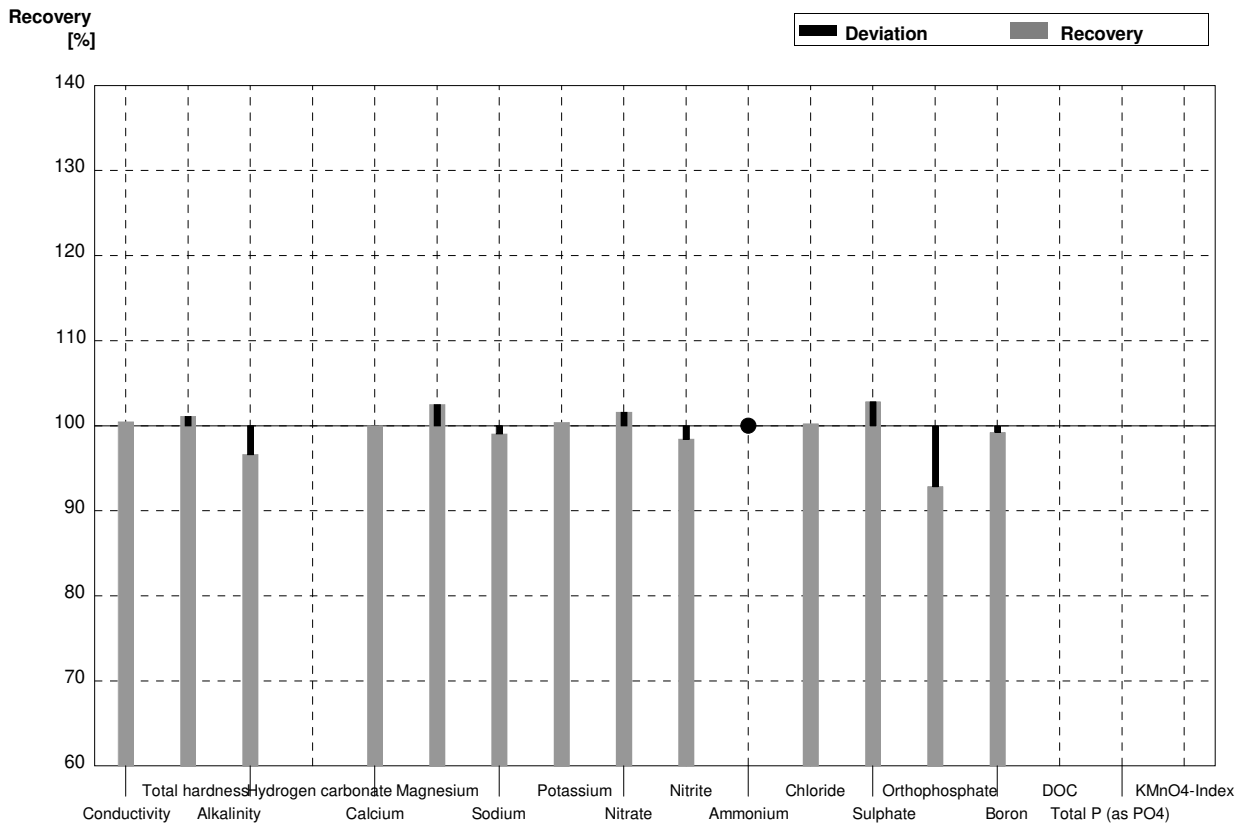
**Sample N172B**  
**Laboratory T**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	320	10	µS/cm	100%
Total hardness	1,032	0,012	1,11	0,09	mmol/l	108%
Alkalinity	1,565	0,019	1,54	0,07	mmol/l	98%
Hydrogen carbonate	92,4	1,2	90,9	3,7	mg/l	98%
Calcium	28,0	0,4	29,6	1,5	mg/l	106%
Magnesium	8,12	0,15	8,97	0,54	mg/l	110%
Sodium	20,63	0,19	20,4	0,8	mg/l	99%
Potassium	5,38	0,03	5,38	0,43	mg/l	100%
Nitrate	16,5	0,3	16,3	1,0	mg/l	99%
Nitrite	0,0530	0,0005	0,055	0,005	mg/l	104%
Ammonium	0,060	0,002	0,062	0,006	mg/l	103%
Chloride	16,9	0,3	16,7	0,9	mg/l	99%
Sulphate	38,2	0,6	38,1	2,3	mg/l	100%
Orthophosphate	<0,009		<0,006		mg/l	•
Boron	0,0540	0,0005	0,0488	0,007	mg/l	90%
DOC	4,64	0,05	4,64	0,42	mg/l	100%
Total P (as PO4)	<0,009		<0,006		mg/l	•
KMnO4-Index	2,83	0,12			mg/l	



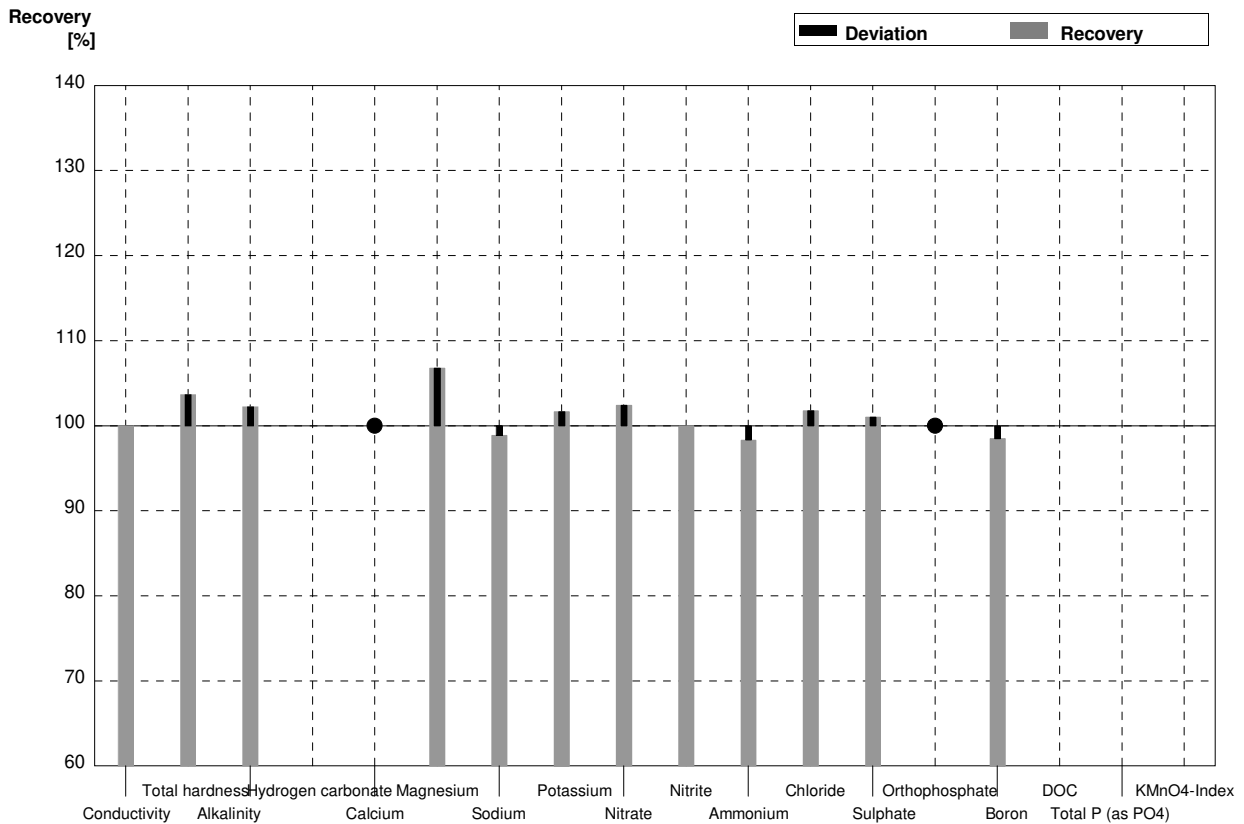
**Sample N172A**  
**Laboratory U**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	424	13	µS/cm	100%
Total hardness	1,78	0,02	1,80	0,09	mmol/l	101%
Alkalinity	2,07	0,04	2,00	0,10	mmol/l	97%
Hydrogen carbonate	123	2	NA		mg/l	
Calcium	45,0	0,8	45,0	4,5	mg/l	100%
Magnesium	16,0	0,2	16,4	1,6	mg/l	103%
Sodium	10,5	0,3	10,4	1,0	mg/l	99%
Potassium	2,54	0,02	2,55	0,26	mg/l	100%
Nitrate	31,3	0,8	31,8	1,6	mg/l	102%
Nitrite	0,0640	0,0003	0,063	0,13	mg/l	98%
Ammonium	<0,01		<0,01		mg/l	•
Chloride	38,4	0,6	38,5	1,9	mg/l	100%
Sulphate	21,2	0,4	21,8	2,2	mg/l	103%
Orthophosphate	0,070	0,004	0,065	0,007	mg/l	93%
Boron	0,0392	0,0010	0,0389	0,0078	mg/l	99%
DOC	3,08	0,05	NA		mg/l	
Total P (as PO4)	0,164	0,002	NA		mg/l	
KMnO4-Index	4,42	0,11	NA		mg/l	



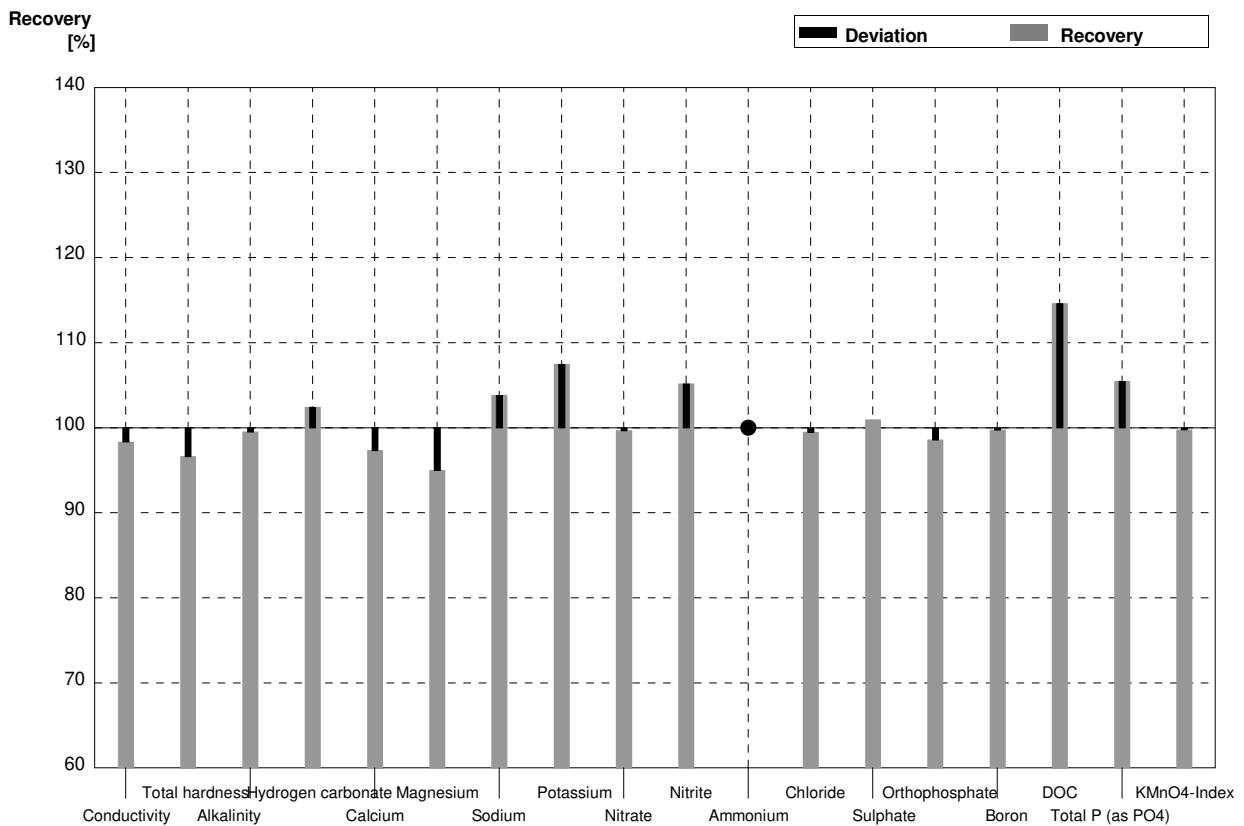
**Sample N172B**  
**Laboratory U**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	321	10	µS/cm	100%
Total hardness	1,032	0,012	1,07	0,05	mmol/l	104%
Alkalinity	1,565	0,019	1,60	0,08	mmol/l	102%
Hydrogen carbonate	92,4	1,2	NA		mg/l	
Calcium	28,0	0,4	<40		mg/l	•
Magnesium	8,12	0,15	8,67	0,87	mg/l	107%
Sodium	20,63	0,19	20,4	2,0	mg/l	99%
Potassium	5,38	0,03	5,47	0,55	mg/l	102%
Nitrate	16,5	0,3	16,9	0,8	mg/l	102%
Nitrite	0,0530	0,0005	0,053	0,011	mg/l	100%
Ammonium	0,060	0,002	0,059	0,007	mg/l	98%
Chloride	16,9	0,3	17,2	0,9	mg/l	102%
Sulphate	38,2	0,6	38,6	0,15	mg/l	101%
Orthophosphate	<0,009		<0,006		mg/l	•
Boron	0,0540	0,0005	0,0532	0,0106	mg/l	99%
DOC	4,64	0,05	NA		mg/l	
Total P (as PO4)	<0,009		NA		mg/l	
KMnO4-Index	2,83	0,12	NA		mg/l	



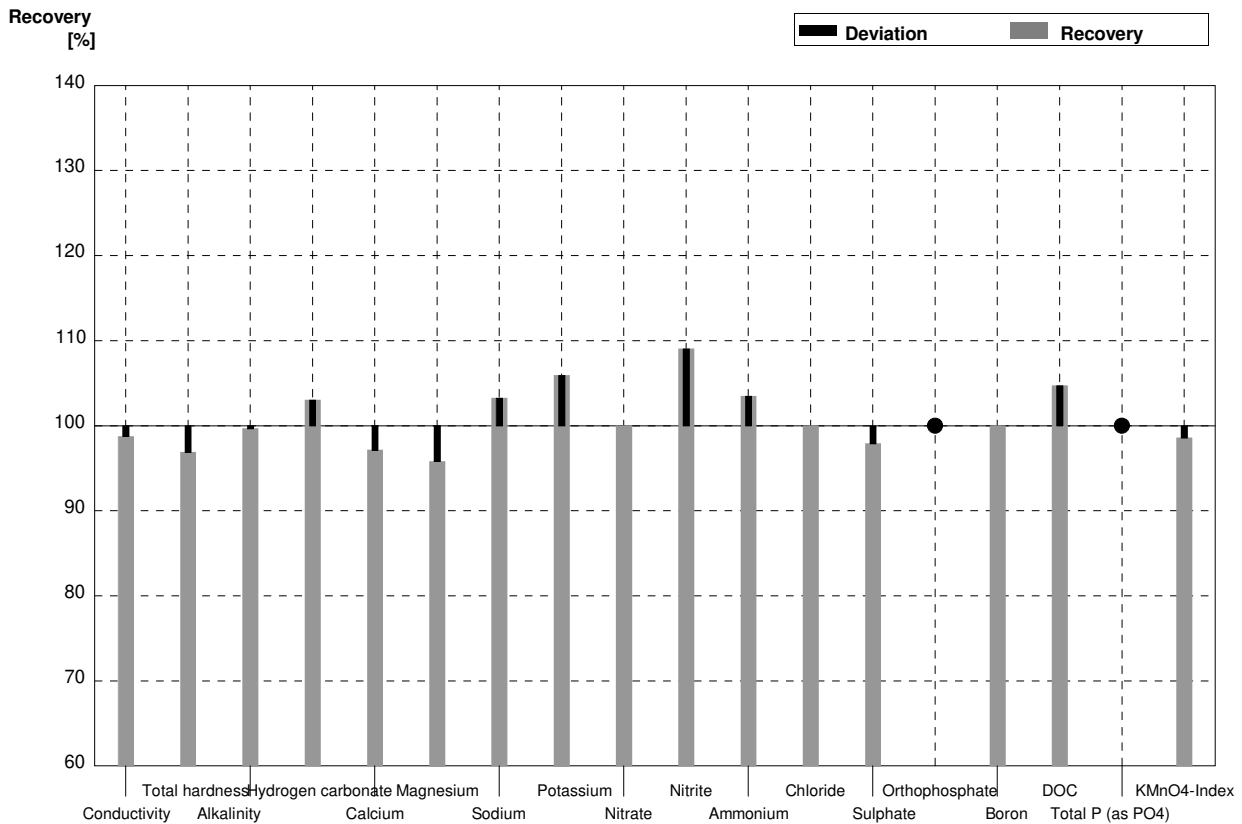
**Sample N172A**  
**Laboratory V**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	415	12	µS/cm	98%
Total hardness	1,78	0,02	1,72	0,26	mmol/l	97%
Alkalinity	2,07	0,04	2,06	0,16	mmol/l	100%
Hydrogen carbonate	123	2	126	10	mg/l	102%
Calcium	45,0	0,8	43,8	6,6	mg/l	97%
Magnesium	16,0	0,2	15,2	1,8	mg/l	95%
Sodium	10,5	0,3	10,9	1,4	mg/l	104%
Potassium	2,54	0,02	2,73	0,41	mg/l	107%
Nitrate	31,3	0,8	31,2	3,1	mg/l	100%
Nitrite	0,0640	0,0003	0,0673	0,0074	mg/l	105%
Ammonium	<0,01		<0,01		mg/l	•
Chloride	38,4	0,6	38,2	3,8	mg/l	99%
Sulphate	21,2	0,4	21,4	3,4	mg/l	101%
Orthophosphate	0,070	0,004	0,0690	0,0055	mg/l	99%
Boron	0,0392	0,0010	0,0391	0,0051	mg/l	100%
DOC	3,08	0,05	3,53	0,71	mg/l	115%
Total P (as PO4)	0,164	0,002	0,173	0,014	mg/l	105%
KMnO4-Index	4,42	0,11	4,41	0,66	mg/l	100%



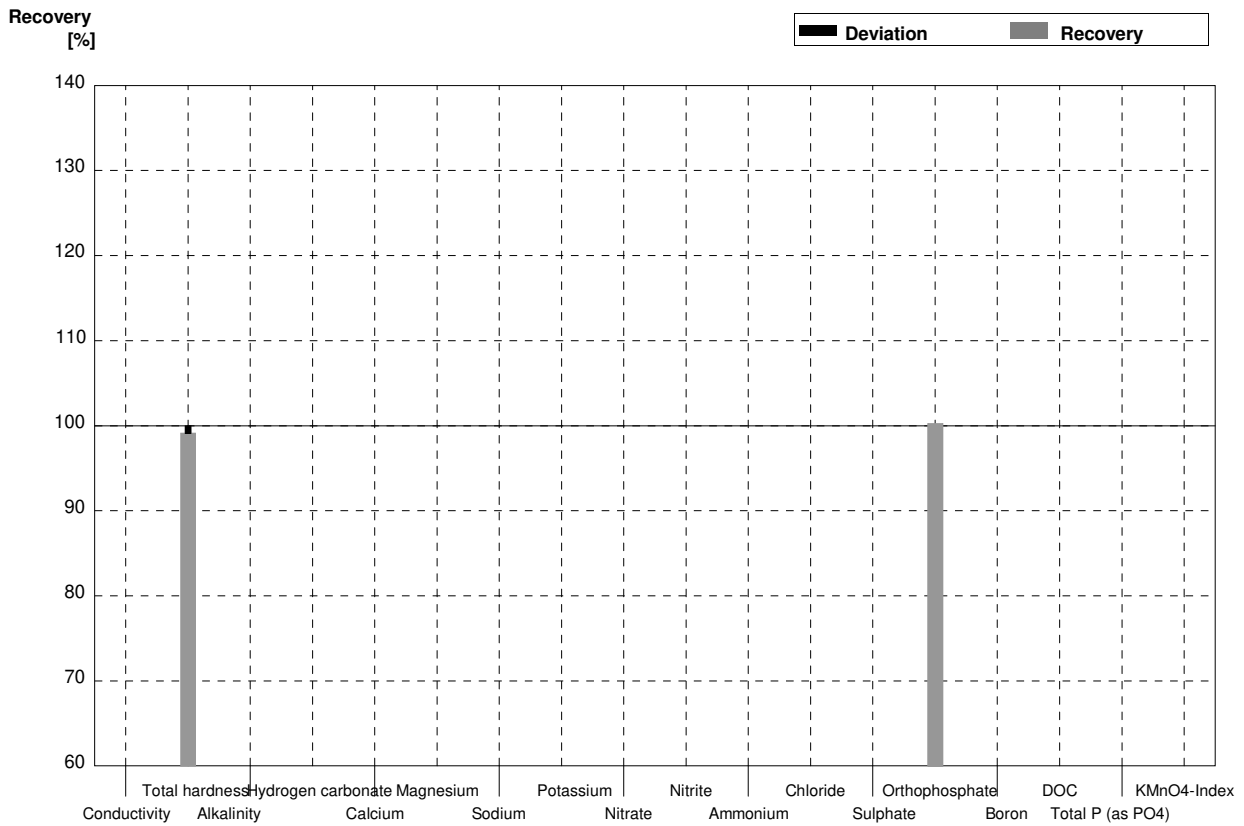
**Sample N172B**  
**Laboratory V**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	317	10	µS/cm	99%
Total hardness	1,032	0,012	1,00	0,15	mmol/l	97%
Alkalinity	1,565	0,019	1,56	0,12	mmol/l	100%
Hydrogen carbonate	92,4	1,2	95,2	7,6	mg/l	103%
Calcium	28,0	0,4	27,2	4,1	mg/l	97%
Magnesium	8,12	0,15	7,78	0,93	mg/l	96%
Sodium	20,63	0,19	21,3	2,8	mg/l	103%
Potassium	5,38	0,03	5,70	0,86	mg/l	106%
Nitrate	16,5	0,3	16,5	1,7	mg/l	100%
Nitrite	0,0530	0,0005	0,0578	0,0064	mg/l	109%
Ammonium	0,060	0,002	0,0621	0,0050	mg/l	104%
Chloride	16,9	0,3	16,9	1,7	mg/l	100%
Sulphate	38,2	0,6	37,4	6,0	mg/l	98%
Orthophosphate	<0,009		<0,015		mg/l	•
Boron	0,0540	0,0005	0,0540	0,0070	mg/l	100%
DOC	4,64	0,05	4,86	0,97	mg/l	105%
Total P (as PO4)	<0,009		<0,015		mg/l	•
KMnO4-Index	2,83	0,12	2,79	0,42	mg/l	99%



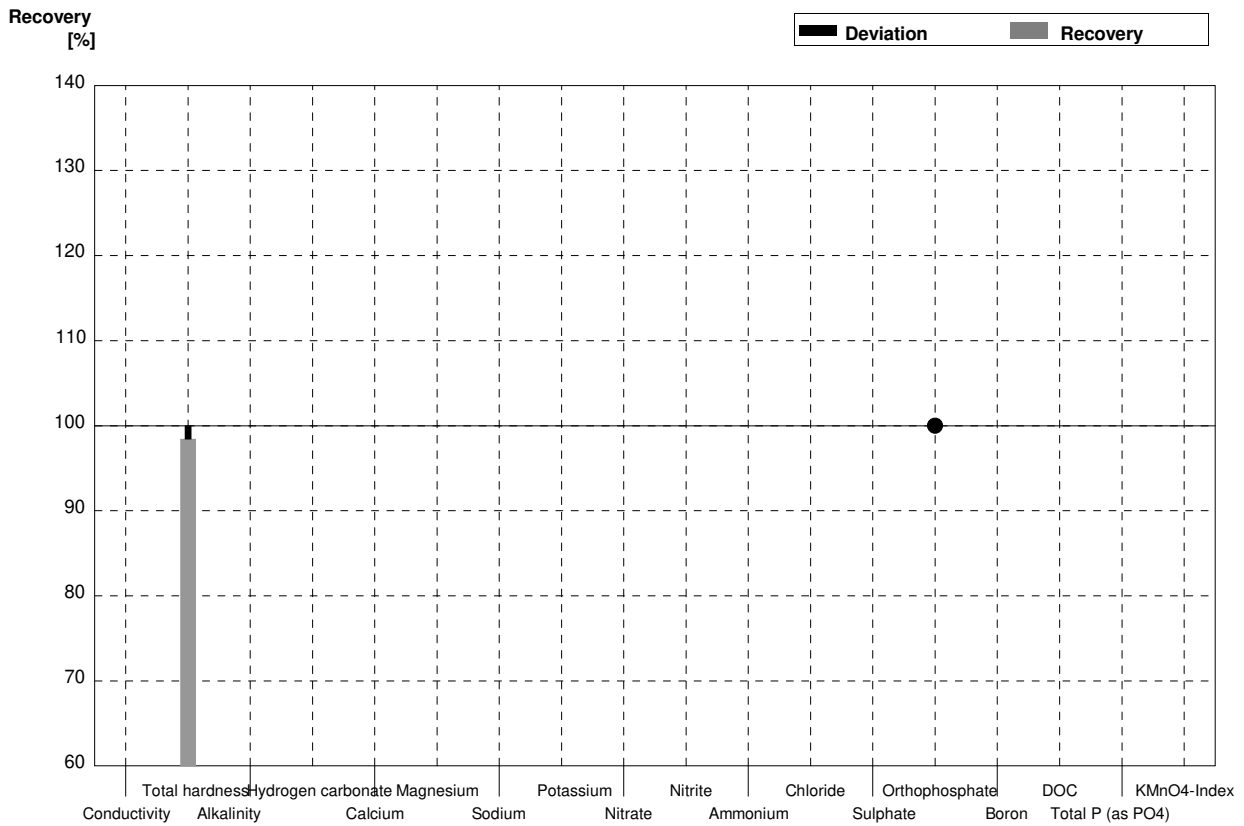
**Sample N172A**  
**Laboratory W**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1			µS/cm	
Total hardness	1,78	0,02	1,765		mmol/l	99%
Alkalinity	2,07	0,04			mmol/l	
Hydrogen carbonate	123	2			mg/l	
Calcium	45,0	0,8			mg/l	
Magnesium	16,0	0,2			mg/l	
Sodium	10,5	0,3			mg/l	
Potassium	2,54	0,02			mg/l	
Nitrate	31,3	0,8			mg/l	
Nitrite	0,0640	0,0003			mg/l	
Ammonium	<0,01				mg/l	
Chloride	38,4	0,6			mg/l	
Sulphate	21,2	0,4			mg/l	
Orthophosphate	0,070	0,004	0,0702		mg/l	100%
Boron	0,0392	0,0010			mg/l	
DOC	3,08	0,05			mg/l	
Total P (as PO4)	0,164	0,002			mg/l	
KMnO4-Index	4,42	0,11			mg/l	



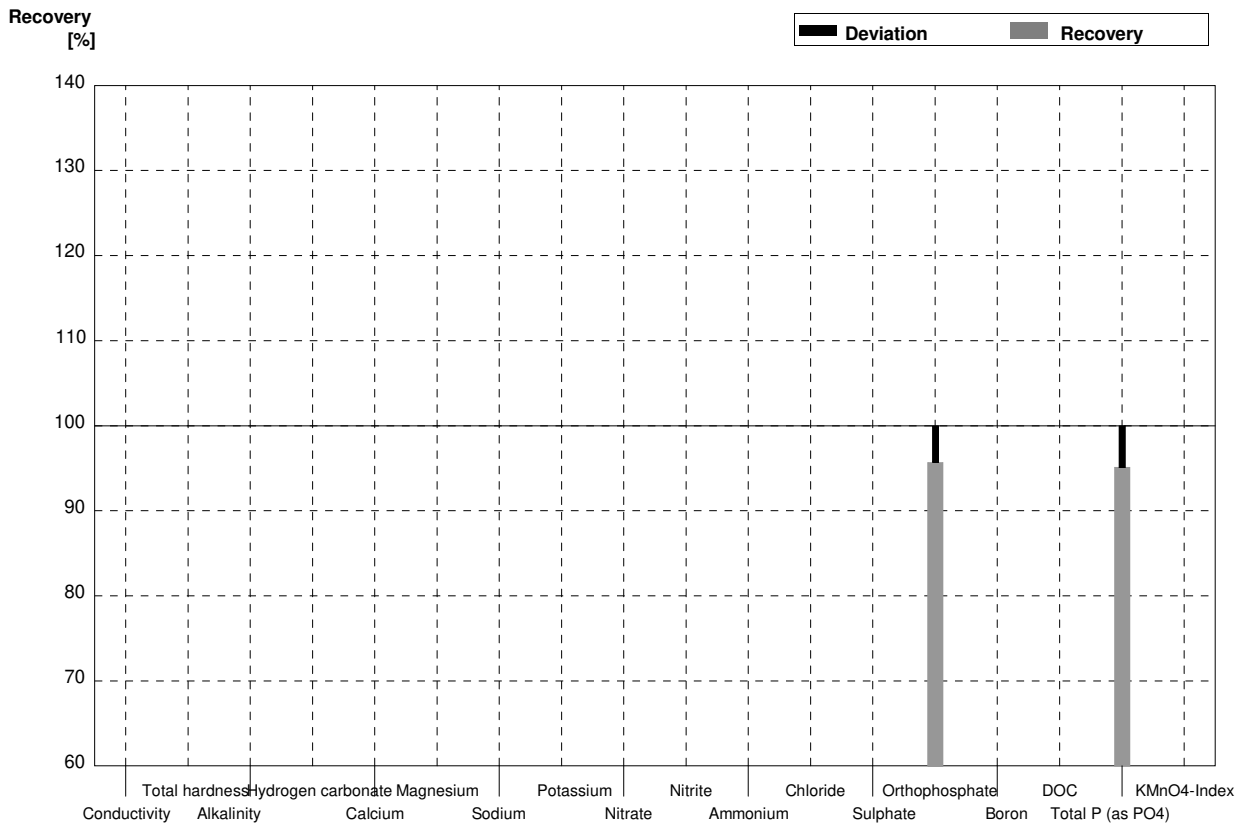
**Sample N172B**  
**Laboratory W**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1			µS/cm	
Total hardness	1,032	0,012	1,016		mmol/l	98%
Alkalinity	1,565	0,019			mmol/l	
Hydrogen carbonate	92,4	1,2			mg/l	
Calcium	28,0	0,4			mg/l	
Magnesium	8,12	0,15			mg/l	
Sodium	20,63	0,19			mg/l	
Potassium	5,38	0,03			mg/l	
Nitrate	16,5	0,3			mg/l	
Nitrite	0,0530	0,0005			mg/l	
Ammonium	0,060	0,002			mg/l	
Chloride	16,9	0,3			mg/l	
Sulphate	38,2	0,6			mg/l	
Orthophosphate	<0,009		0,00081		mg/l	•
Boron	0,0540	0,0005			mg/l	
DOC	4,64	0,05			mg/l	
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	2,83	0,12			mg/l	



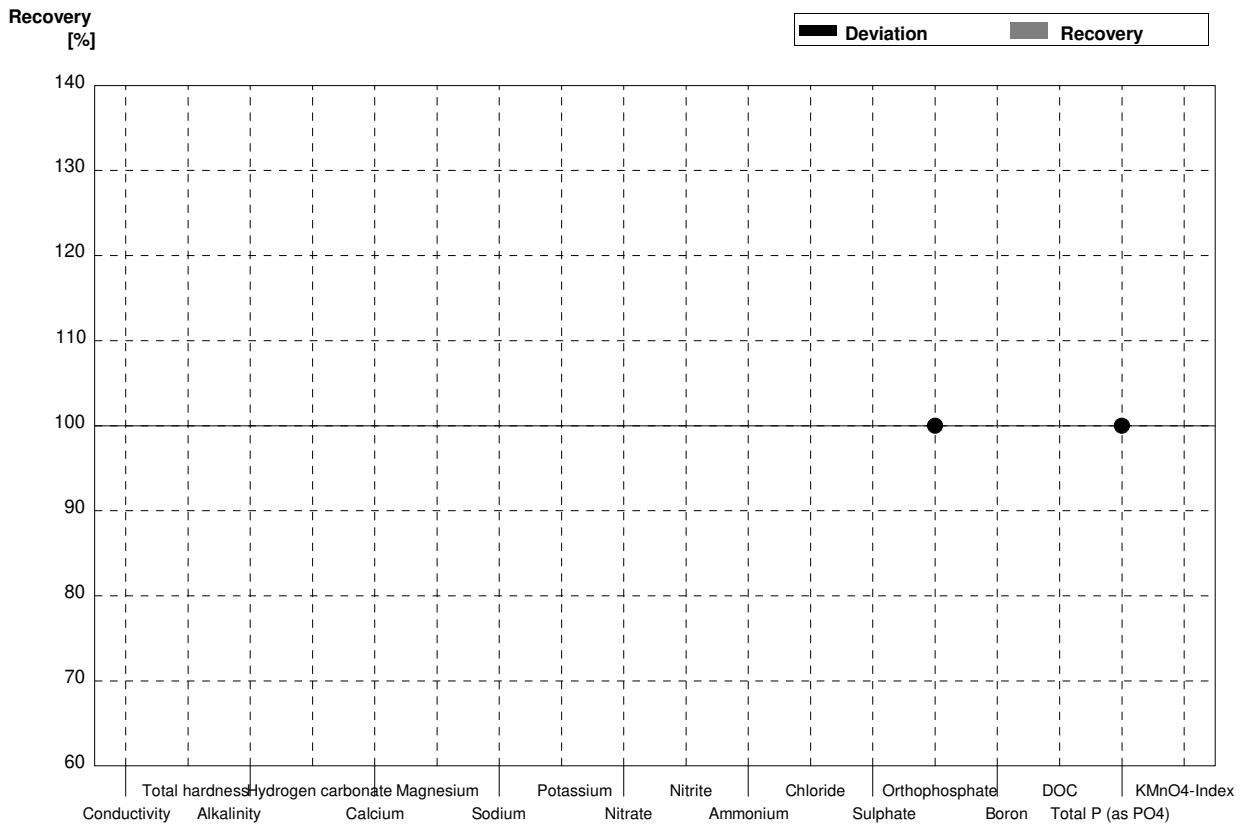
**Sample N172A**  
**Laboratory X**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1			µS/cm	
Total hardness	1,78	0,02			mmol/l	
Alkalinity	2,07	0,04			mmol/l	
Hydrogen carbonate	123	2			mg/l	
Calcium	45,0	0,8			mg/l	
Magnesium	16,0	0,2			mg/l	
Sodium	10,5	0,3			mg/l	
Potassium	2,54	0,02			mg/l	
Nitrate	31,3	0,8			mg/l	
Nitrite	0,0640	0,0003			mg/l	
Ammonium	<0,01				mg/l	
Chloride	38,4	0,6			mg/l	
Sulphate	21,2	0,4			mg/l	
Orthophosphate	0,070	0,004	0,067	0,013	mg/l	96%
Boron	0,0392	0,0010			mg/l	
DOC	3,08	0,05			mg/l	
Total P (as PO4)	0,164	0,002	0,156	0,023	mg/l	95%
KMnO4-Index	4,42	0,11			mg/l	



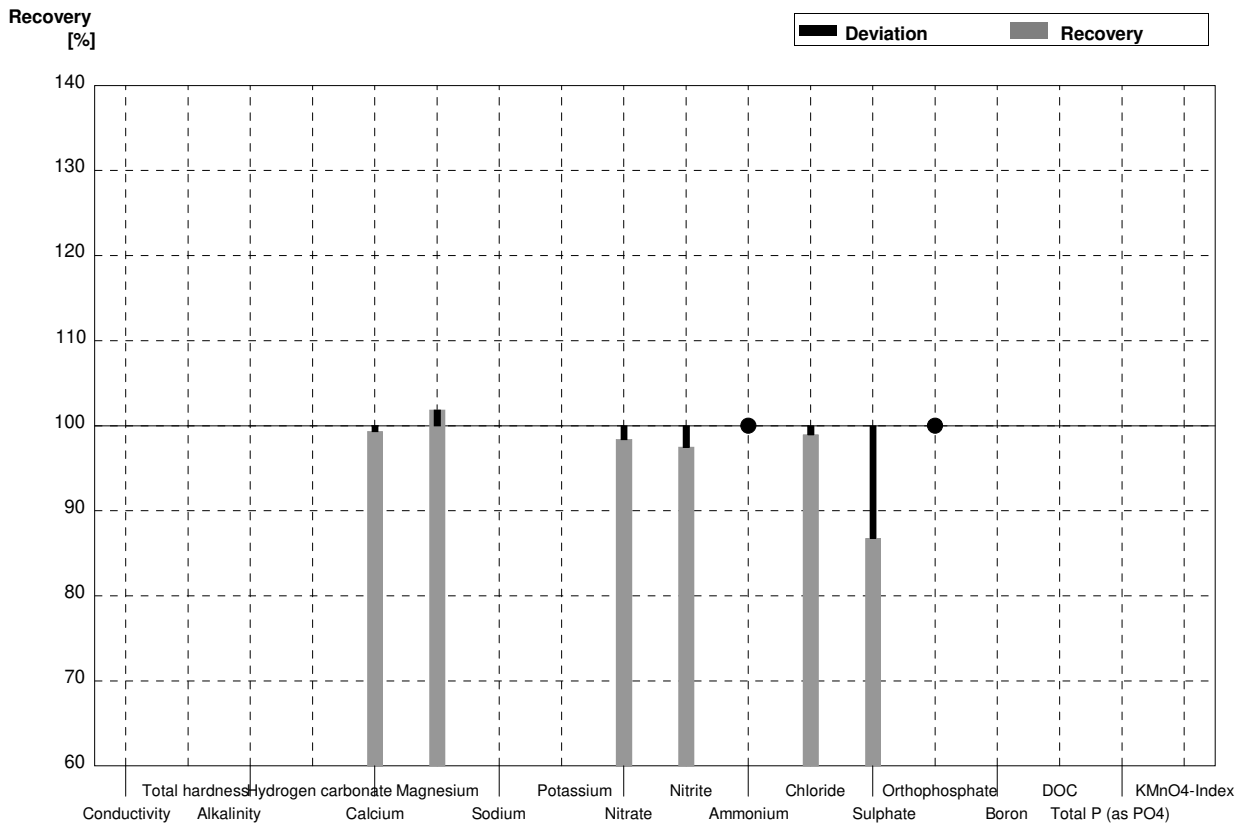
**Sample N172B**  
**Laboratory X**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1			µS/cm	
Total hardness	1,032	0,012			mmol/l	
Alkalinity	1,565	0,019			mmol/l	
Hydrogen carbonate	92,4	1,2			mg/l	
Calcium	28,0	0,4			mg/l	
Magnesium	8,12	0,15			mg/l	
Sodium	20,63	0,19			mg/l	
Potassium	5,38	0,03			mg/l	
Nitrate	16,5	0,3			mg/l	
Nitrite	0,0530	0,0005			mg/l	
Ammonium	0,060	0,002			mg/l	
Chloride	16,9	0,3			mg/l	
Sulphate	38,2	0,6			mg/l	
Orthophosphate	<0,009		<0,015		mg/l	•
Boron	0,0540	0,0005			mg/l	
DOC	4,64	0,05			mg/l	
Total P (as PO4)	<0,009		<0,015		mg/l	•
KMnO4-Index	2,83	0,12			mg/l	



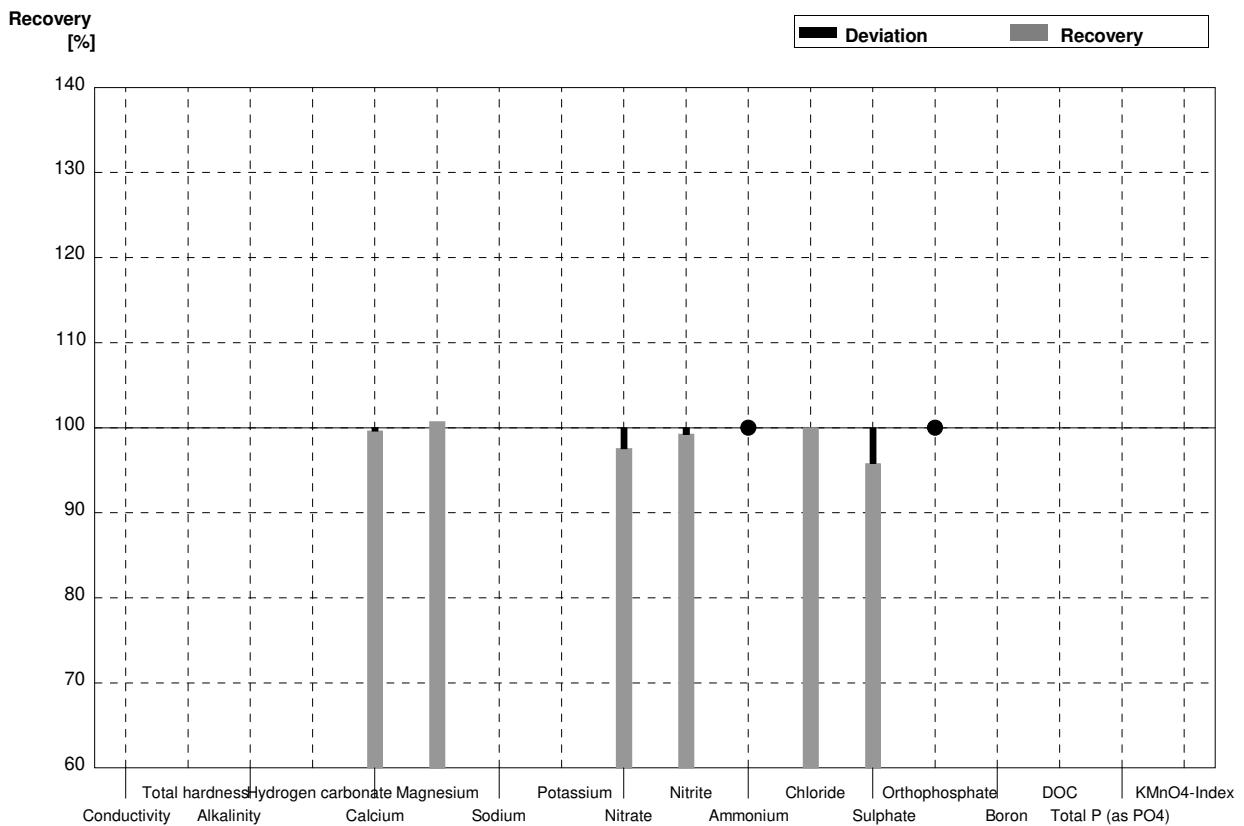
**Sample N172A**  
**Laboratory Y**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1			µS/cm	
Total hardness	1,78	0,02			mmol/l	
Alkalinity	2,07	0,04			mmol/l	
Hydrogen carbonate	123	2			mg/l	
Calcium	45,0	0,8	44,7	1,52	mg/l	99%
Magnesium	16,0	0,2	16,3	1,00	mg/l	102%
Sodium	10,5	0,3			mg/l	
Potassium	2,54	0,02			mg/l	
Nitrate	31,3	0,8	30,8	0,430	mg/l	98%
Nitrite	0,0640	0,0003	0,0624	0,00412	mg/l	98%
Ammonium	<0,01		<0,098		mg/l	•
Chloride	38,4	0,6	38,0	2,33	mg/l	99%
Sulphate	21,2	0,4	18,4	1,57	mg/l	87%
Orthophosphate	0,070	0,004	<0,095		mg/l	•
Boron	0,0392	0,0010			mg/l	
DOC	3,08	0,05			mg/l	
Total P (as PO4)	0,164	0,002			mg/l	
KMnO4-Index	4,42	0,11			mg/l	



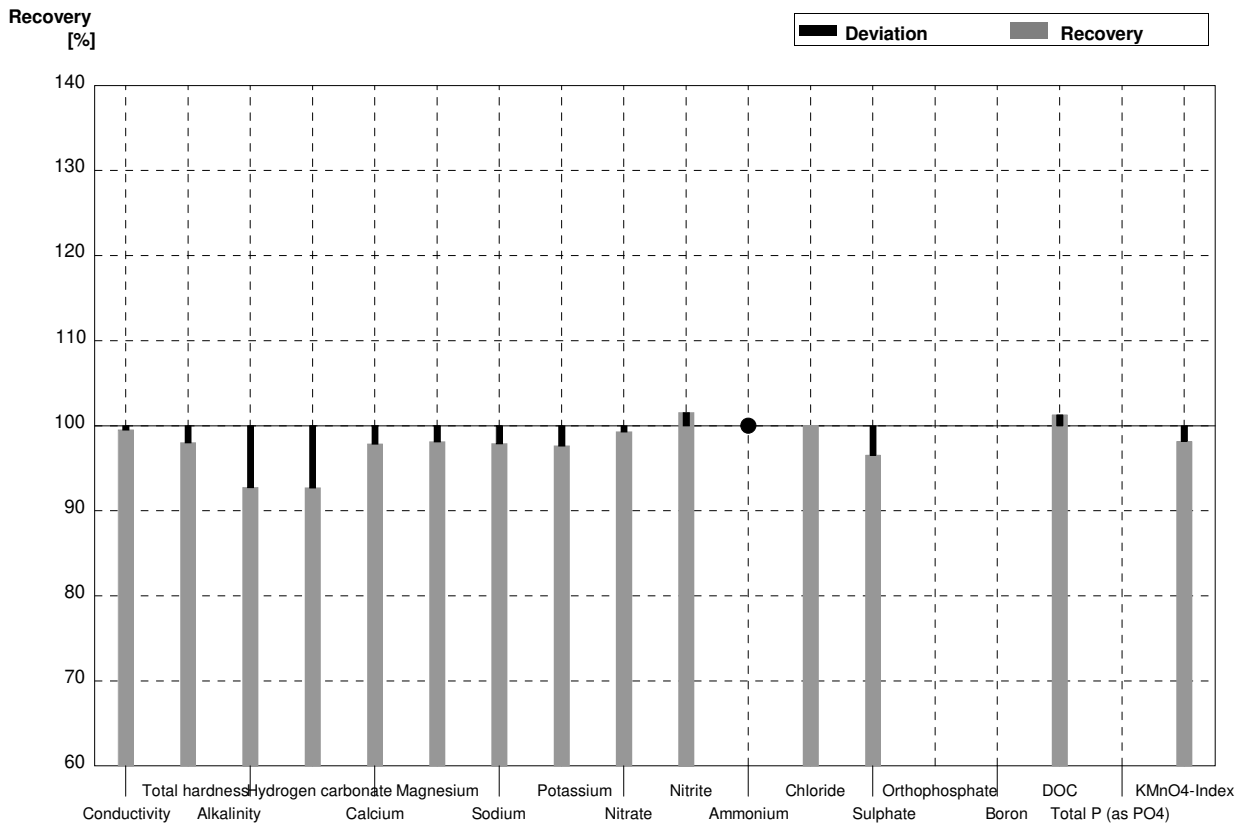
**Sample N172B**  
**Laboratory Y**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1			µS/cm	
Total hardness	1,032	0,012			mmol/l	
Alkalinity	1,565	0,019			mmol/l	
Hydrogen carbonate	92,4	1,2			mg/l	
Calcium	28,0	0,4	27,9	0,949	mg/l	100%
Magnesium	8,12	0,15	8,18	0,504	mg/l	101%
Sodium	20,63	0,19			mg/l	
Potassium	5,38	0,03			mg/l	
Nitrate	16,5	0,3	16,1	0,224	mg/l	98%
Nitrite	0,0530	0,0005	0,0526	0,00347	mg/l	99%
Ammonium	0,060	0,002	<0,098		mg/l	•
Chloride	16,9	0,3	16,9	1,04	mg/l	100%
Sulphate	38,2	0,6	36,6	3,13	mg/l	96%
Orthophosphate	<0,009		<0,095		mg/l	•
Boron	0,0540	0,0005			mg/l	
DOC	4,64	0,05			mg/l	
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	2,83	0,12			mg/l	



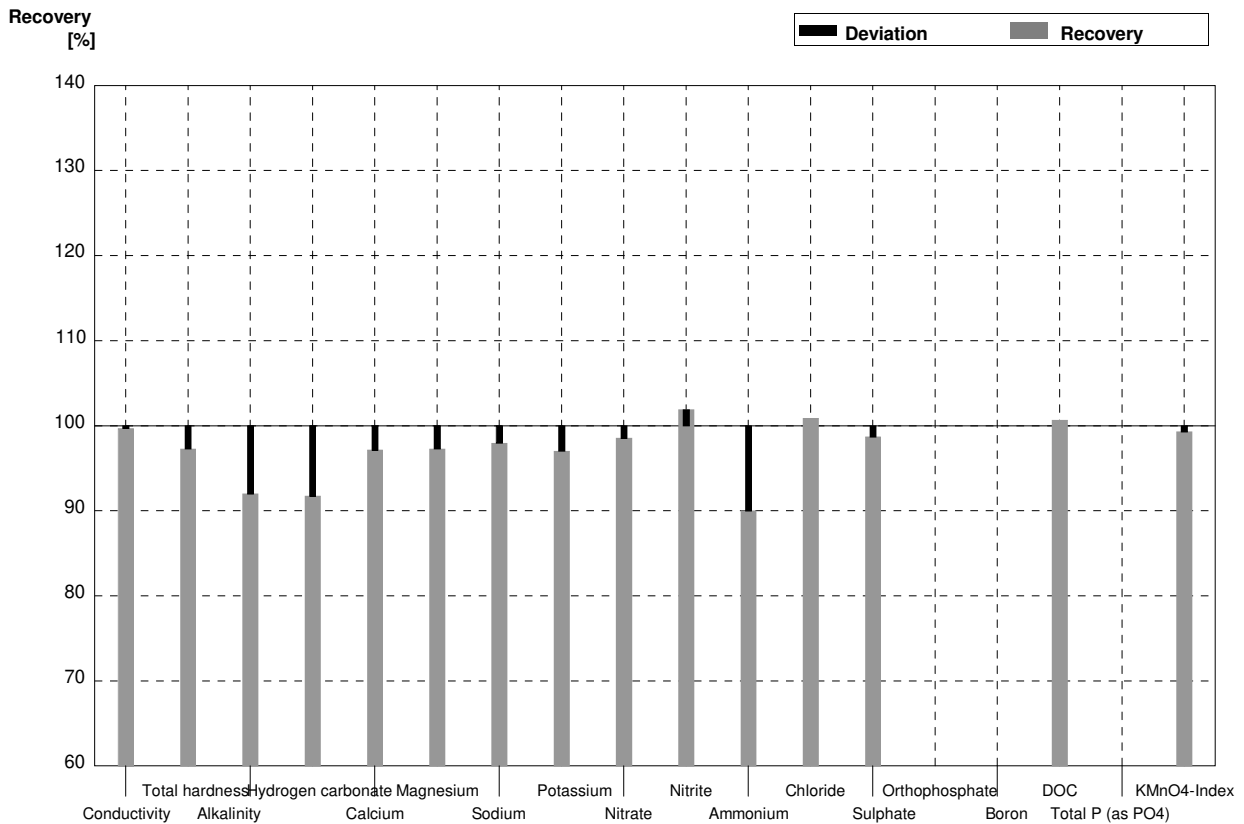
**Sample N172A**  
**Laboratory Z**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	420,0	9,2	µS/cm	100%
Total hardness	1,78	0,02	1,745	0,07	mmol/l	98%
Alkalinity	2,07	0,04	1,92	0,04	mmol/l	93%
Hydrogen carbonate	123	2	114,03	2,39	mg/l	93%
Calcium	45,0	0,8	44,04	1,72	mg/l	98%
Magnesium	16,0	0,2	15,70	0,74	mg/l	98%
Sodium	10,5	0,3	10,28	0,49	mg/l	98%
Potassium	2,54	0,02	2,48	0,16	mg/l	98%
Nitrate	31,3	0,8	31,08	2,08	mg/l	99%
Nitrite	0,0640	0,0003	0,065	0,004	mg/l	102%
Ammonium	<0,01		<0,005		mg/l	•
Chloride	38,4	0,6	38,42	1,81	mg/l	100%
Sulphate	21,2	0,4	20,47	1,02	mg/l	97%
Orthophosphate	0,070	0,004			mg/l	
Boron	0,0392	0,0010			mg/l	
DOC	3,08	0,05	3,12	0,54	mg/l	101%
Total P (as PO4)	0,164	0,002			mg/l	
KMnO4-Index	4,42	0,11	4,34	0,92	mg/l	98%



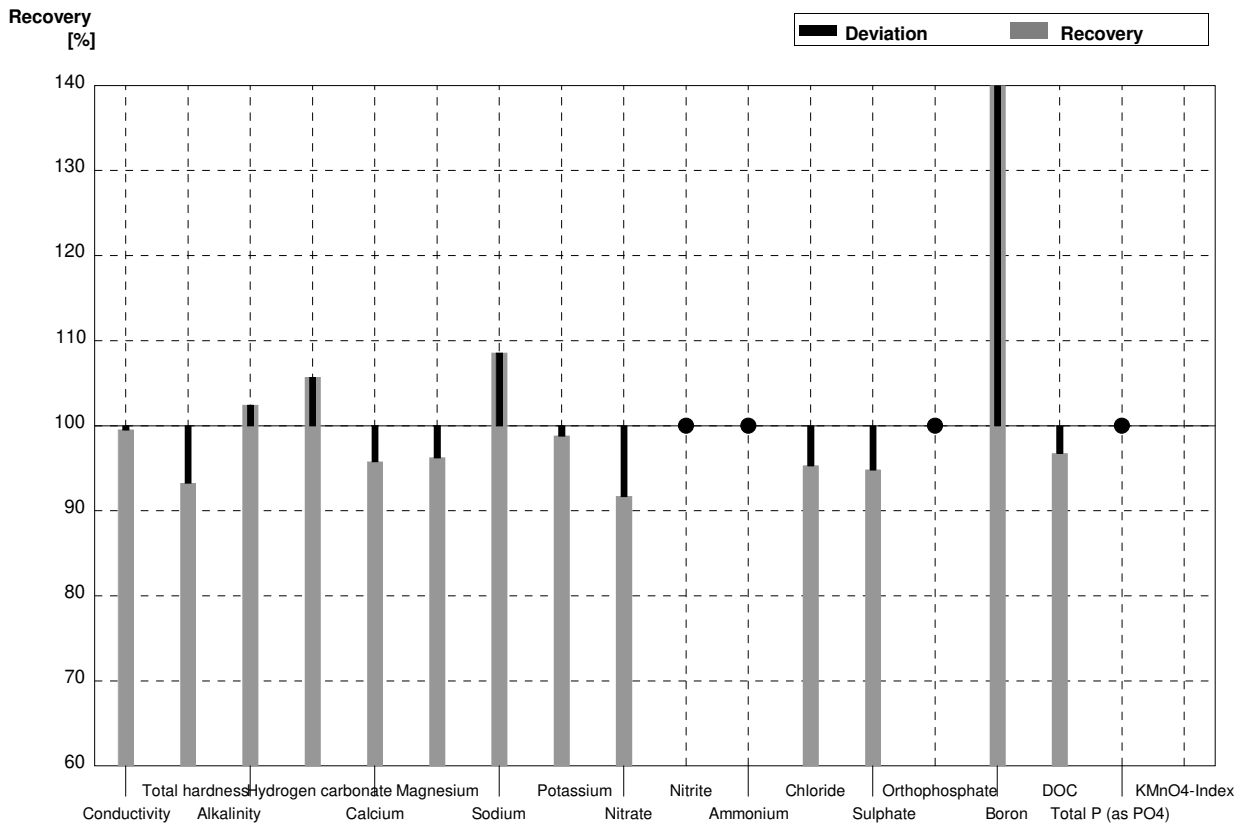
**Sample N172B**  
**Laboratory Z**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	320,0	7,0	µS/cm	100%
Total hardness	1,032	0,012	1,004	0,04	mmol/l	97%
Alkalinity	1,565	0,019	1,44	0,03	mmol/l	92%
Hydrogen carbonate	92,4	1,2	84,76	1,78	mg/l	92%
Calcium	28,0	0,4	27,20	1,06	mg/l	97%
Magnesium	8,12	0,15	7,90	0,37	mg/l	97%
Sodium	20,63	0,19	20,21	0,97	mg/l	98%
Potassium	5,38	0,03	5,22	0,33	mg/l	97%
Nitrate	16,5	0,3	16,26	1,09	mg/l	99%
Nitrite	0,0530	0,0005	0,054	0,004	mg/l	102%
Ammonium	0,060	0,002	0,0540	0,010	mg/l	90%
Chloride	16,9	0,3	17,05	0,80	mg/l	101%
Sulphate	38,2	0,6	37,70	1,89	mg/l	99%
Orthophosphate	<0,009				mg/l	
Boron	0,0540	0,0005			mg/l	
DOC	4,64	0,05	4,67	0,81	mg/l	101%
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	2,83	0,12	2,81	0,60	mg/l	99%



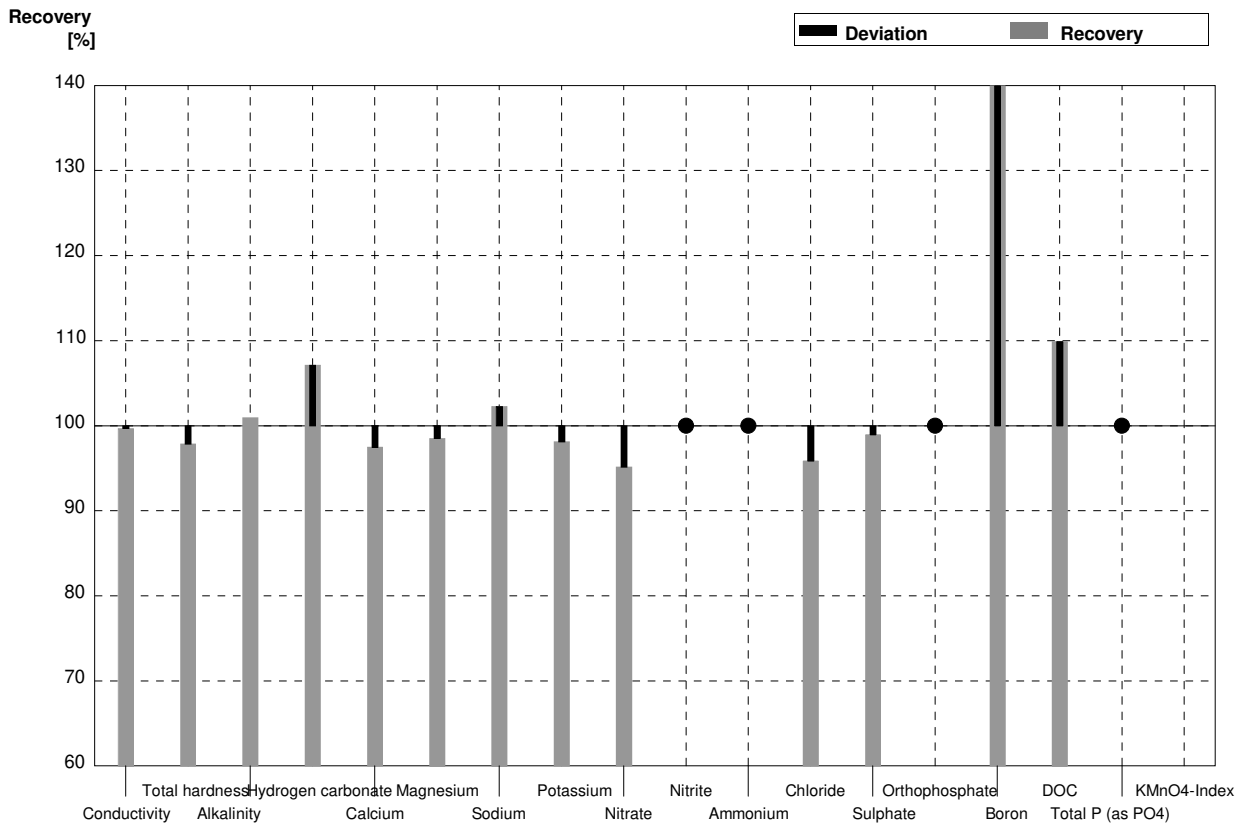
**Sample N172A**  
**Laboratory AA**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	420		µS/cm	100%
Total hardness	1,78	0,02	1,66		mmol/l	93%
Alkalinity	2,07	0,04	2,12		mmol/l	102%
Hydrogen carbonate	123	2	130		mg/l	106%
Calcium	45,0	0,8	43,1		mg/l	96%
Magnesium	16,0	0,2	15,4		mg/l	96%
Sodium	10,5	0,3	11,4		mg/l	109%
Potassium	2,54	0,02	2,51		mg/l	99%
Nitrate	31,3	0,8	28,7		mg/l	92%
Nitrite	0,0640	0,0003	<0,66		mg/l	•
Ammonium	<0,01		<0,26		mg/l	•
Chloride	38,4	0,6	36,6		mg/l	95%
Sulphate	21,2	0,4	20,1		mg/l	95%
Orthophosphate	0,070	0,004	<0,20		mg/l	•
Boron	0,0392	0,0010	32,1		mg/l	81888%
DOC	3,08	0,05	2,98		mg/l	97%
Total P (as PO4)	0,164	0,002	<0,20		mg/l	•
KMnO4-Index	4,42	0,11			mg/l	



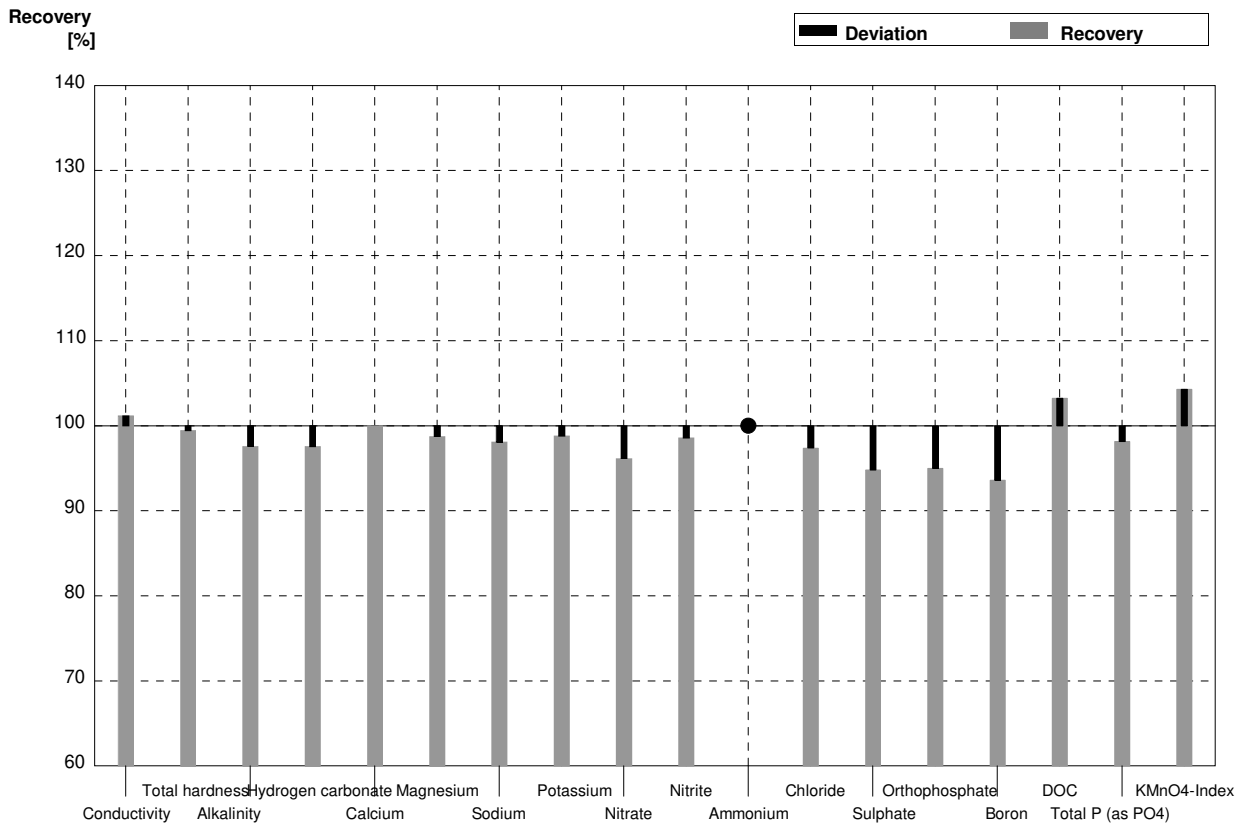
**Sample N172B**  
**Laboratory AA**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	320		µS/cm	100%
Total hardness	1,032	0,012	1,01		mmol/l	98%
Alkalinity	1,565	0,019	1,58		mmol/l	101%
Hydrogen carbonate	92,4	1,2	99		mg/l	107%
Calcium	28,0	0,4	27,3		mg/l	98%
Magnesium	8,12	0,15	8,0		mg/l	99%
Sodium	20,63	0,19	21,1		mg/l	102%
Potassium	5,38	0,03	5,28		mg/l	98%
Nitrate	16,5	0,3	15,7		mg/l	95%
Nitrite	0,0530	0,0005	<0,66		mg/l	•
Ammonium	0,060	0,002	<0,26		mg/l	•
Chloride	16,9	0,3	16,2		mg/l	96%
Sulphate	38,2	0,6	37,8		mg/l	99%
Orthophosphate	<0,009		<0,20		mg/l	•
Boron	0,0540	0,0005	45,6		mg/l	84444%
DOC	4,64	0,05	5,1		mg/l	110%
Total P (as PO4)	<0,009		<0,20		mg/l	•
KMnO4-Index	2,83	0,12			mg/l	



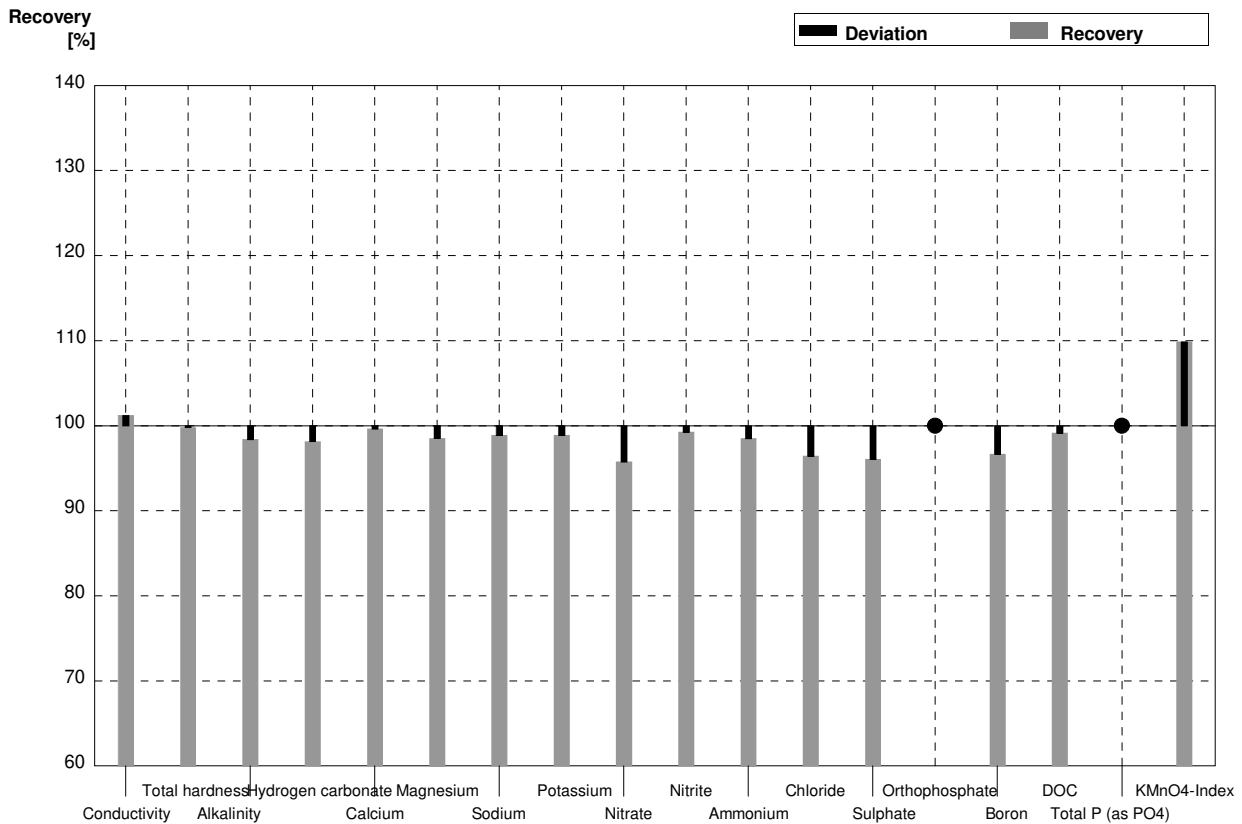
**Sample N172A**  
**Laboratory AB**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	427	0,357	µS/cm	101%
Total hardness	1,78	0,02	1,77	0,0187	mmol/l	99%
Alkalinity	2,07	0,04	2,02	0,0895	mmol/l	98%
Hydrogen carbonate	123	2	120	2,41	mg/l	98%
Calcium	45,0	0,8	45,0	0,592	mg/l	100%
Magnesium	16,0	0,2	15,8	0,277	mg/l	99%
Sodium	10,5	0,3	10,3	0,375	mg/l	98%
Potassium	2,54	0,02	2,51	0,0185	mg/l	99%
Nitrate	31,3	0,8	30,1	0,673	mg/l	96%
Nitrite	0,0640	0,0003	0,0631	0,00033	mg/l	99%
Ammonium	<0,01		<0,0100		mg/l	•
Chloride	38,4	0,6	37,4	0,571	mg/l	97%
Sulphate	21,2	0,4	20,1	0,643	mg/l	95%
Orthophosphate	0,070	0,004	0,0665	0,00222	mg/l	95%
Boron	0,0392	0,0010	0,0367	0,00133	mg/l	94%
DOC	3,08	0,05	3,18	0,0160	mg/l	103%
Total P (as PO4)	0,164	0,002	0,161	0,0331	mg/l	98%
KMnO4-Index	4,42	0,11	4,61		mg/l	104%



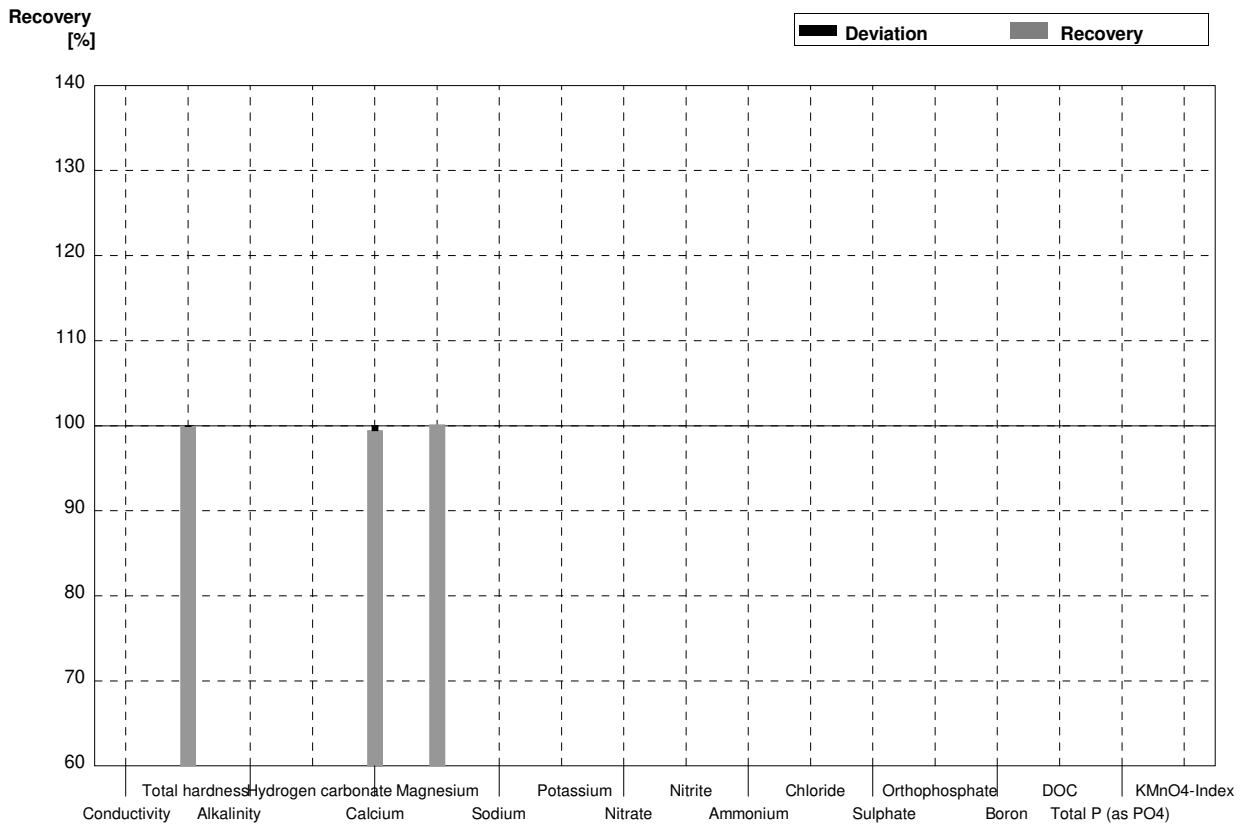
**Sample N172B**  
**Laboratory AB**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	325	0,127	µS/cm	101%
Total hardness	1,032	0,012	1,03	0,0141	mmol/l	100%
Alkalinity	1,565	0,019	1,54	0,0797	mmol/l	98%
Hydrogen carbonate	92,4	1,2	90,7	1,81	mg/l	98%
Calcium	28,0	0,4	27,9	0,563	mg/l	100%
Magnesium	8,12	0,15	8,00	0,0287	mg/l	99%
Sodium	20,63	0,19	20,4	0,372	mg/l	99%
Potassium	5,38	0,03	5,32	0,466	mg/l	99%
Nitrate	16,5	0,3	15,8	0,609	mg/l	96%
Nitrite	0,0530	0,0005	0,0526	0,00032	mg/l	99%
Ammonium	0,060	0,002	0,0591	0,00101	mg/l	99%
Chloride	16,9	0,3	16,3	0,522	mg/l	96%
Sulphate	38,2	0,6	36,7	0,691	mg/l	96%
Orthophosphate	<0,009		<0,0150		mg/l	•
Boron	0,0540	0,0005	0,0522	0,00125	mg/l	97%
DOC	4,64	0,05	4,60	0,0164	mg/l	99%
Total P (as PO4)	<0,009		<0,0150		mg/l	•
KMnO4-Index	2,83	0,12	3,11		mg/l	110%



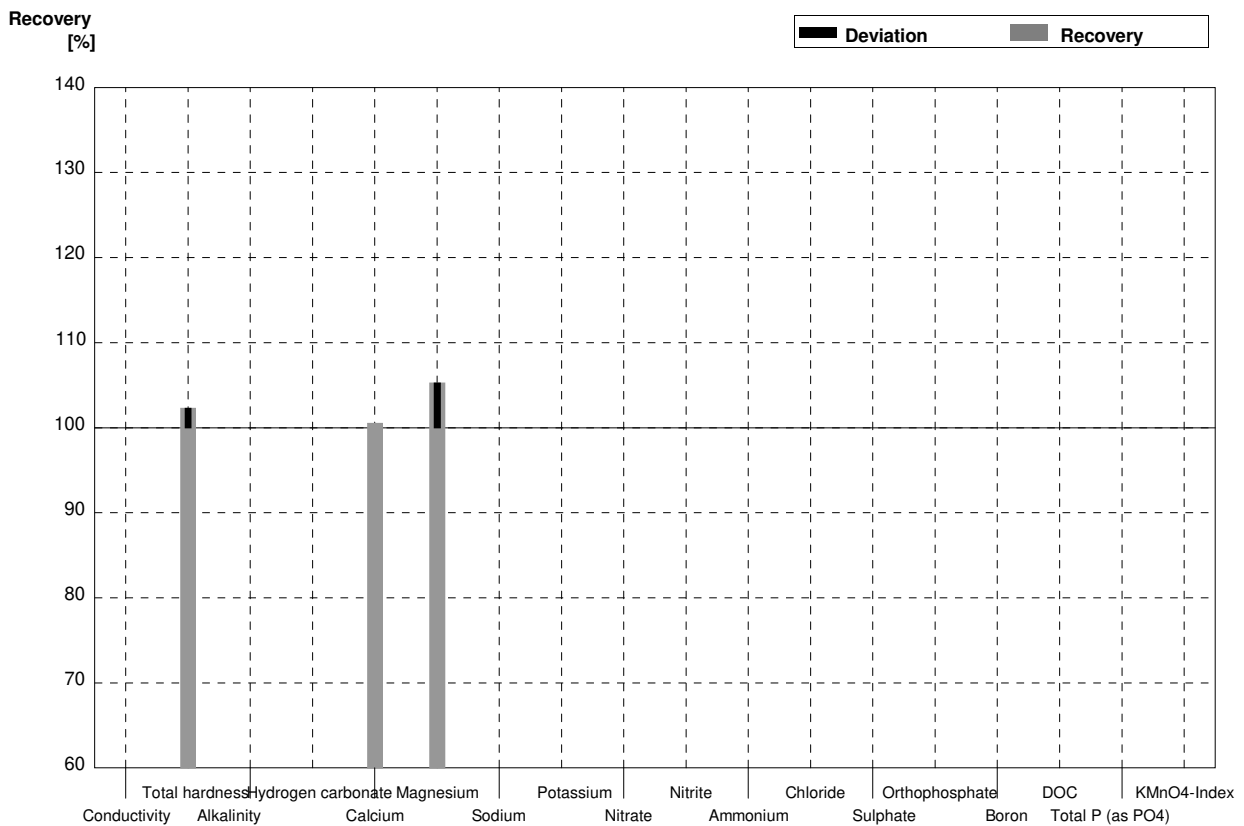
**Sample N172A**  
**Laboratory AC**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1			µS/cm	
Total hardness	1,78	0,02	1,779	0,07	mmol/l	100%
Alkalinity	2,07	0,04			mmol/l	
Hydrogen carbonate	123	2			mg/l	
Calcium	45,0	0,8	44,75	1,8	mg/l	99%
Magnesium	16,0	0,2	16,02	0,4	mg/l	100%
Sodium	10,5	0,3			mg/l	
Potassium	2,54	0,02			mg/l	
Nitrate	31,3	0,8			mg/l	
Nitrite	0,0640	0,0003			mg/l	
Ammonium	<0,01				mg/l	
Chloride	38,4	0,6			mg/l	
Sulphate	21,2	0,4			mg/l	
Orthophosphate	0,070	0,004			mg/l	
Boron	0,0392	0,0010			mg/l	
DOC	3,08	0,05			mg/l	
Total P (as PO4)	0,164	0,002			mg/l	
KMnO4-Index	4,42	0,11			mg/l	



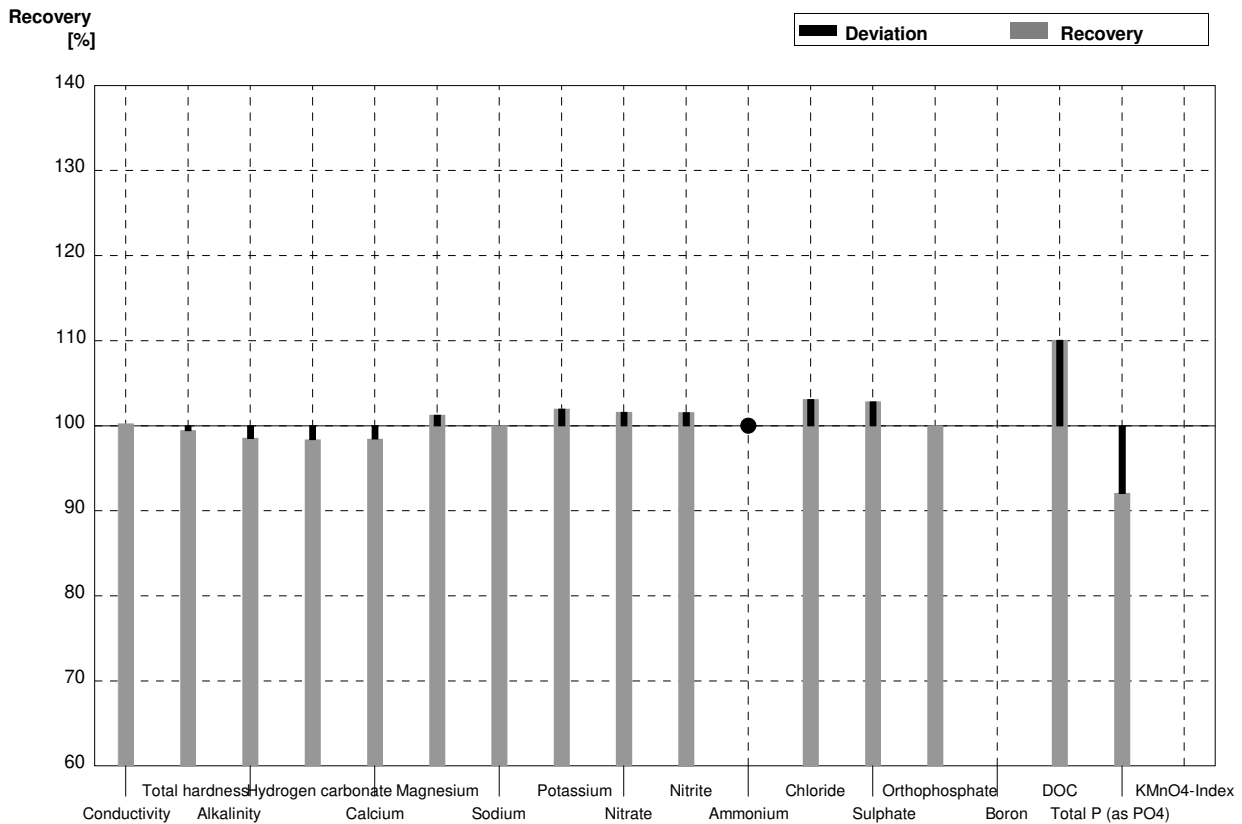
**Sample N172B**  
**Laboratory AC**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1			µS/cm	
Total hardness	1,032	0,012	1,056	0,04	mmol/l	102%
Alkalinity	1,565	0,019			mmol/l	
Hydrogen carbonate	92,4	1,2			mg/l	
Calcium	28,0	0,4	28,15	1,1	mg/l	101%
Magnesium	8,12	0,15	8,55	0,3	mg/l	105%
Sodium	20,63	0,19			mg/l	
Potassium	5,38	0,03			mg/l	
Nitrate	16,5	0,3			mg/l	
Nitrite	0,0530	0,0005			mg/l	
Ammonium	0,060	0,002			mg/l	
Chloride	16,9	0,3			mg/l	
Sulphate	38,2	0,6			mg/l	
Orthophosphate	<0,009				mg/l	
Boron	0,0540	0,0005			mg/l	
DOC	4,64	0,05			mg/l	
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	2,83	0,12			mg/l	



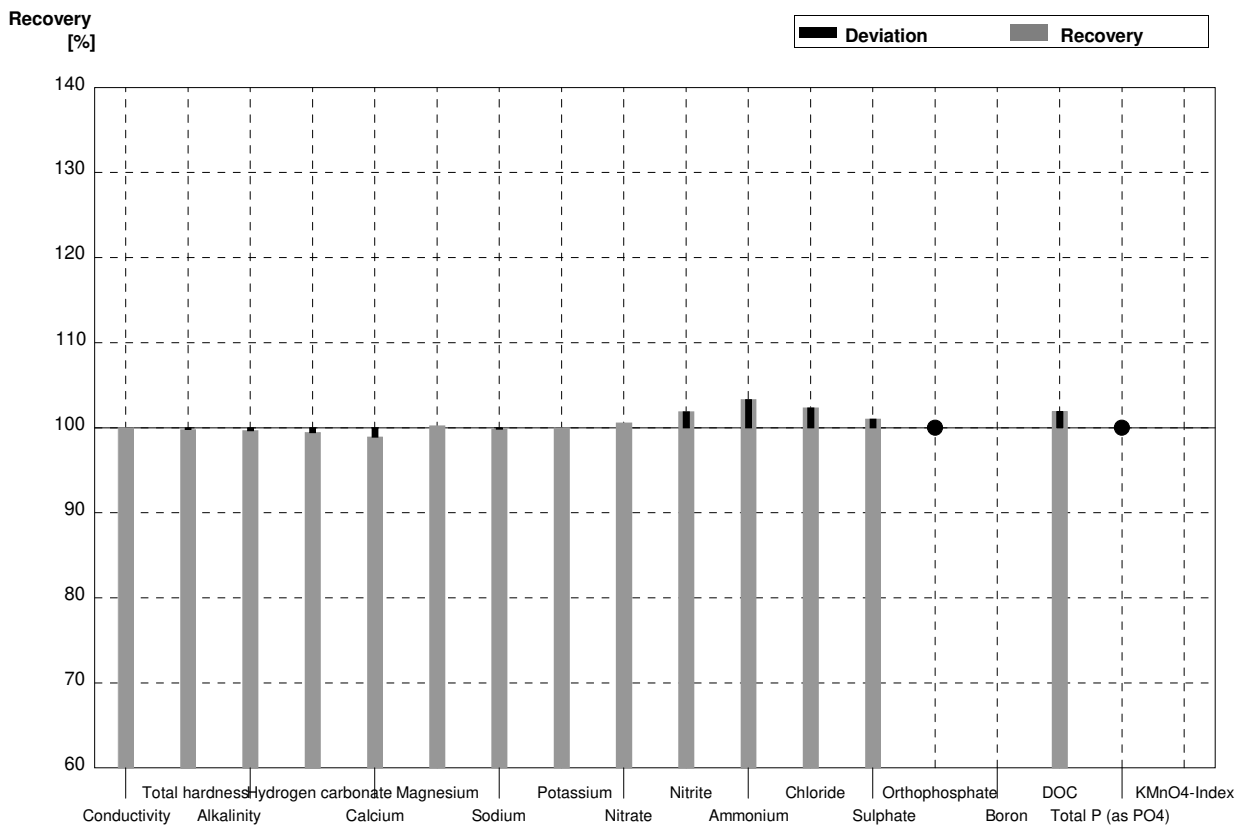
**Sample N172A**  
**Laboratory AD**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	423	17	µS/cm	100%
Total hardness	1,78	0,02	1,77	0,1	mmol/l	99%
Alkalinity	2,07	0,04	2,04	0,1	mmol/l	99%
Hydrogen carbonate	123	2	121	5	mg/l	98%
Calcium	45,0	0,8	44,3	4	mg/l	98%
Magnesium	16,0	0,2	16,2	2	mg/l	101%
Sodium	10,5	0,3	10,5	1,6	mg/l	100%
Potassium	2,54	0,02	2,59	0,4	mg/l	102%
Nitrate	31,3	0,8	31,8	3	mg/l	102%
Nitrite	0,0640	0,0003	0,065	0,005	mg/l	102%
Ammonium	<0,01		<0,013		mg/l	•
Chloride	38,4	0,6	39,6	3	mg/l	103%
Sulphate	21,2	0,4	21,8	2	mg/l	103%
Orthophosphate	0,070	0,004	0,070	0,012	mg/l	100%
Boron	0,0392	0,0010			mg/l	
DOC	3,08	0,05	3,39	0,5	mg/l	110%
Total P (as PO4)	0,164	0,002	0,151	0,02	mg/l	92%
KMnO4-Index	4,42	0,11			mg/l	



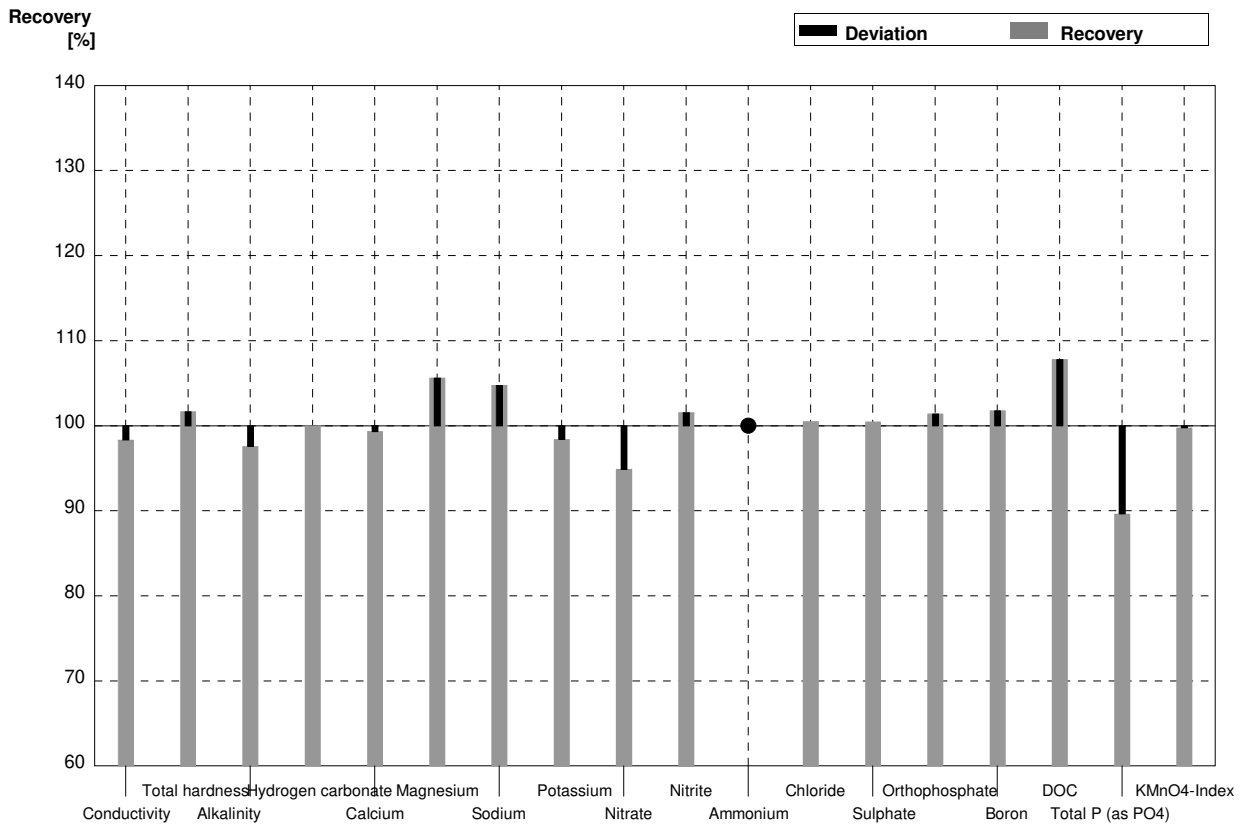
**Sample N172B**  
**Laboratory AD**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	321	13	µS/cm	100%
Total hardness	1,032	0,012	1,03	0,1	mmol/l	100%
Alkalinity	1,565	0,019	1,56	0,1	mmol/l	100%
Hydrogen carbonate	92,4	1,2	91,9	4	mg/l	99%
Calcium	28,0	0,4	27,7	3	mg/l	99%
Magnesium	8,12	0,15	8,14	1	mg/l	100%
Sodium	20,63	0,19	20,6	4	mg/l	100%
Potassium	5,38	0,03	5,38	0,7	mg/l	100%
Nitrate	16,5	0,3	16,6	1,2	mg/l	101%
Nitrite	0,0530	0,0005	0,054	0,004	mg/l	102%
Ammonium	0,060	0,002	0,062	0,007	mg/l	103%
Chloride	16,9	0,3	17,3	1,3	mg/l	102%
Sulphate	38,2	0,6	38,6	3	mg/l	101%
Orthophosphate	<0,009		<0,01		mg/l	•
Boron	0,0540	0,0005			mg/l	
DOC	4,64	0,05	4,73	0,7	mg/l	102%
Total P (as PO4)	<0,009		<0,013		mg/l	•
KMnO4-Index	2,83	0,12			mg/l	



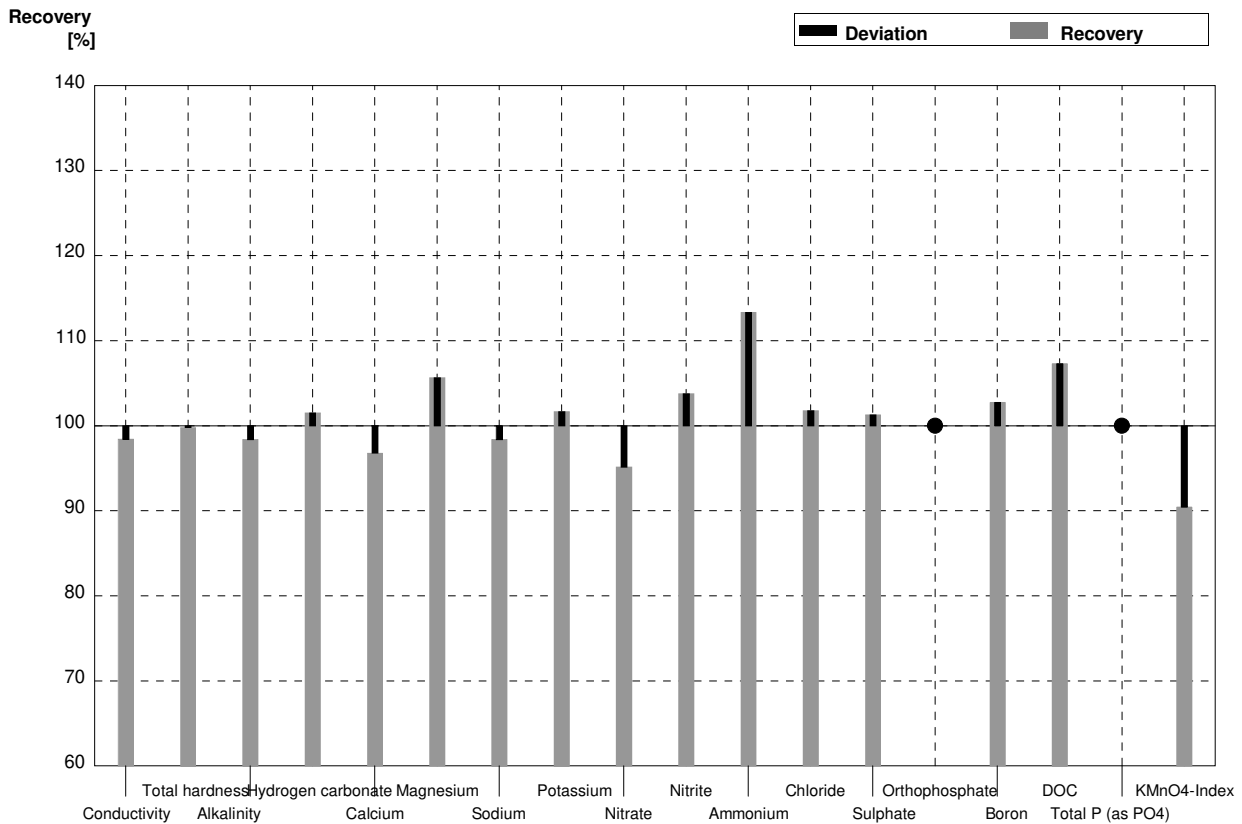
**Sample N172A**  
**Laboratory AE**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	415	0,6	µS/cm	98%
Total hardness	1,78	0,02	1,81	0,02	mmol/l	102%
Alkalinity	2,07	0,04	2,02	0,02	mmol/l	98%
Hydrogen carbonate	123	2	123	1,2	mg/l	100%
Calcium	45,0	0,8	44,7	0,27	mg/l	99%
Magnesium	16,0	0,2	16,9	0,21	mg/l	106%
Sodium	10,5	0,3	11,0	0,12	mg/l	105%
Potassium	2,54	0,02	2,50	0,04	mg/l	98%
Nitrate	31,3	0,8	29,7	0,11	mg/l	95%
Nitrite	0,0640	0,0003	0,065	0,001	mg/l	102%
Ammonium	<0,01		<0,010		mg/l	•
Chloride	38,4	0,6	38,6	0,29	mg/l	101%
Sulphate	21,2	0,4	21,3	0,15	mg/l	100%
Orthophosphate	0,070	0,004	0,071	0,001	mg/l	101%
Boron	0,0392	0,0010	0,0399	0,002	mg/l	102%
DOC	3,08	0,05	3,32	0,04	mg/l	108%
Total P (as PO4)	0,164	0,002	0,147	0,02	mg/l	90%
KMnO4-Index	4,42	0,11	4,41	0,11	mg/l	100%



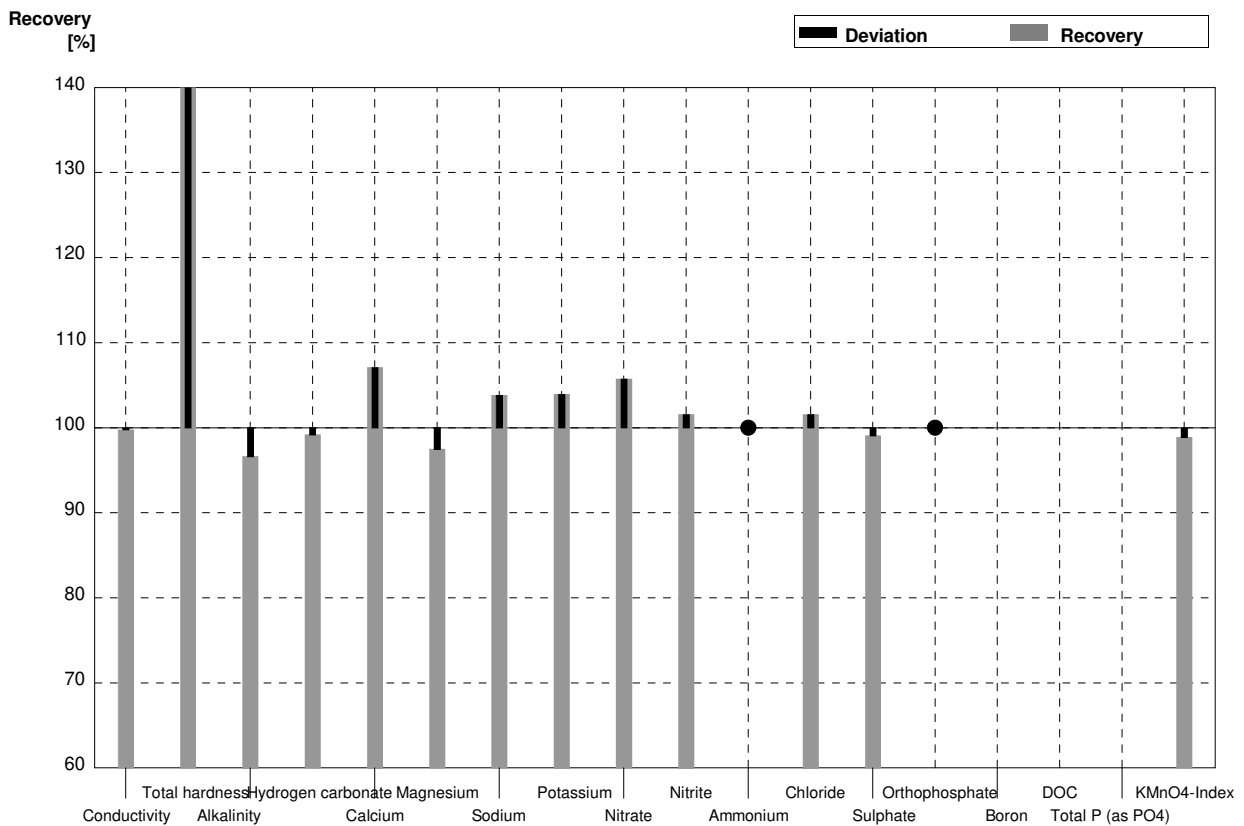
**Sample N172B**  
**Laboratory AE**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	316	0,6	µS/cm	98%
Total hardness	1,032	0,012	1,03	0,03	mmol/l	100%
Alkalinity	1,565	0,019	1,54	0,01	mmol/l	98%
Hydrogen carbonate	92,4	1,2	93,8	0,25	mg/l	102%
Calcium	28,0	0,4	27,1	0,87	mg/l	97%
Magnesium	8,12	0,15	8,58	0,28	mg/l	106%
Sodium	20,63	0,19	20,3	0,52	mg/l	98%
Potassium	5,38	0,03	5,47	0,13	mg/l	102%
Nitrate	16,5	0,3	15,7	0,09	mg/l	95%
Nitrite	0,0530	0,0005	0,055	0,001	mg/l	104%
Ammonium	0,060	0,002	0,068	0,001	mg/l	113%
Chloride	16,9	0,3	17,2	0,40	mg/l	102%
Sulphate	38,2	0,6	38,7	0,35	mg/l	101%
Orthophosphate	<0,009		<0,015		mg/l	•
Boron	0,0540	0,0005	0,0555	0,002	mg/l	103%
DOC	4,64	0,05	4,98	0,02	mg/l	107%
Total P (as PO4)	<0,009		<0,015		mg/l	•
KMnO4-Index	2,83	0,12	2,56	0,08	mg/l	90%



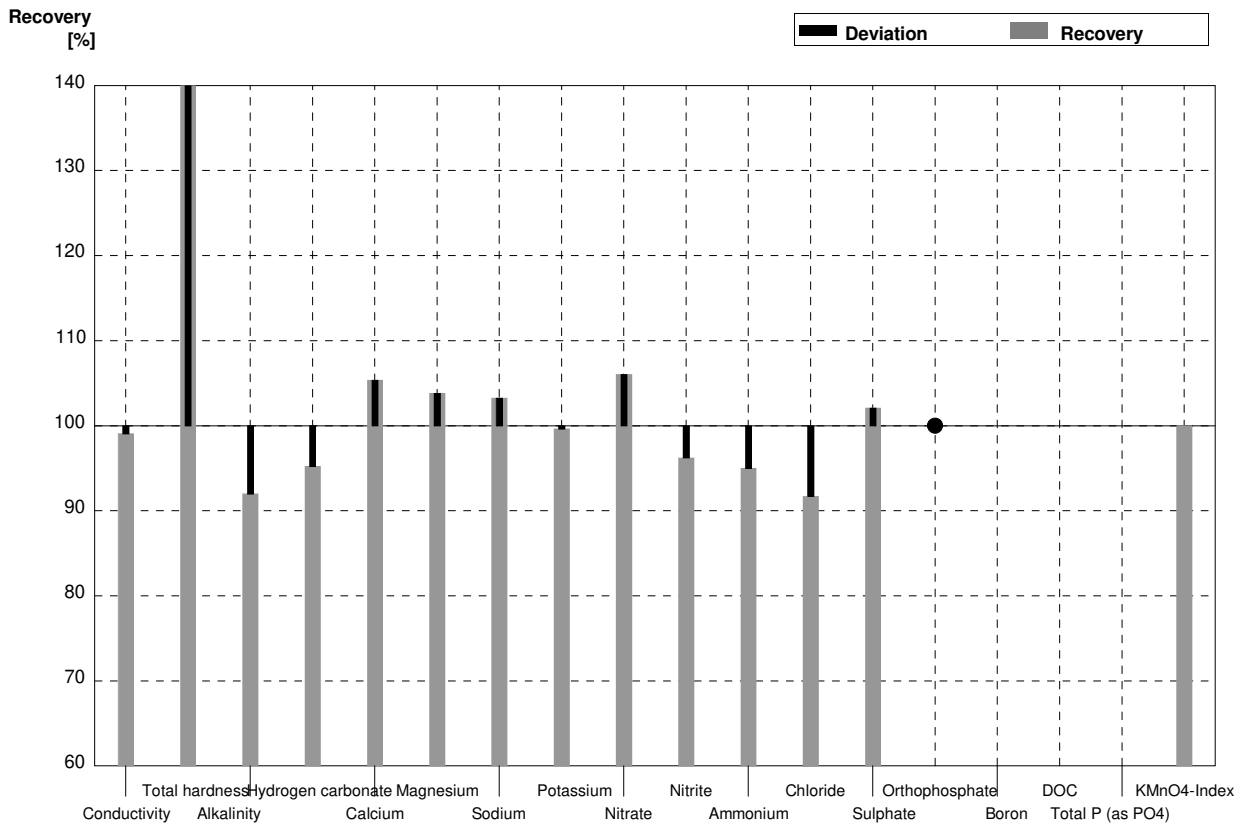
**Sample N172A**  
**Laboratory AF**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	421	40	µS/cm	100%
Total hardness	1,78	0,02	9,7	1,0	mmol/l	545%
Alkalinity	2,07	0,04	2,00	0,2	mmol/l	97%
Hydrogen carbonate	123	2	122		mg/l	99%
Calcium	45,0	0,8	48,2	3,8	mg/l	107%
Magnesium	16,0	0,2	15,6	2,1	mg/l	98%
Sodium	10,5	0,3	10,9	0,15	mg/l	104%
Potassium	2,54	0,02	2,64	0,4	mg/l	104%
Nitrate	31,3	0,8	33,1	3,3	mg/l	106%
Nitrite	0,0640	0,0003	0,065	0,007	mg/l	102%
Ammonium	<0,01		<0,01		mg/l	•
Chloride	38,4	0,6	39,0	3,9	mg/l	102%
Sulphate	21,2	0,4	21,0	2,1	mg/l	99%
Orthophosphate	0,070	0,004	<0,29		mg/l	•
Boron	0,0392	0,0010			mg/l	
DOC	3,08	0,05			mg/l	
Total P (as PO4)	0,164	0,002			mg/l	
KMnO4-Index	4,42	0,11	4,37	0,4	mg/l	99%



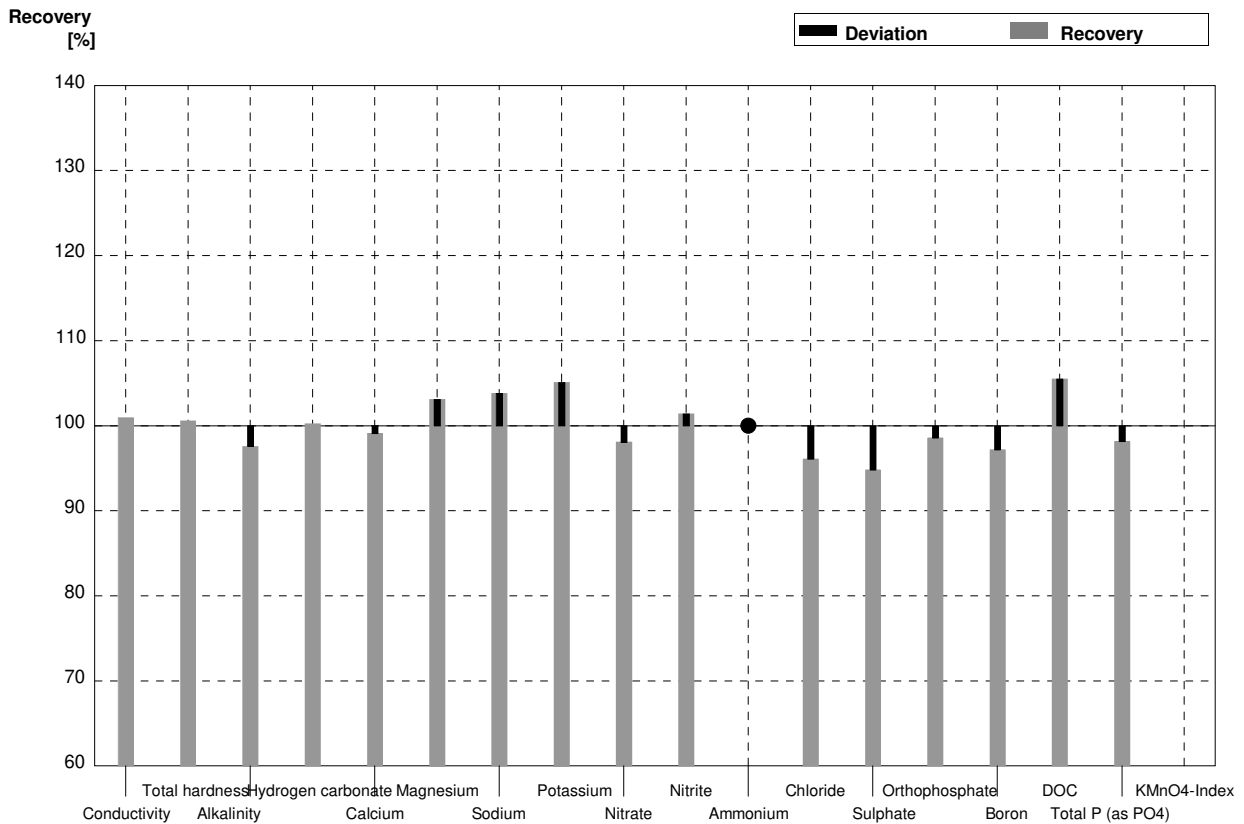
**Sample N172B**  
**Laboratory AF**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	318	30	µS/cm	99%
Total hardness	1,032	0,012	5,6	0,6	mmol/l	543%
Alkalinity	1,565	0,019	1,44	0,16	mmol/l	92%
Hydrogen carbonate	92,4	1,2	88		mg/l	95%
Calcium	28,0	0,4	29,5	2,3	mg/l	105%
Magnesium	8,12	0,15	8,43	1,1	mg/l	104%
Sodium	20,63	0,19	21,3	2,4	mg/l	103%
Potassium	5,38	0,03	5,36	0,8	mg/l	100%
Nitrate	16,5	0,3	17,5	1,8	mg/l	106%
Nitrite	0,0530	0,0005	0,051	0,005	mg/l	96%
Ammonium	0,060	0,002	0,057	0,006	mg/l	95%
Chloride	16,9	0,3	15,5	1,6	mg/l	92%
Sulphate	38,2	0,6	39,0	3,9	mg/l	102%
Orthophosphate	<0,009		<0,29		mg/l	•
Boron	0,0540	0,0005			mg/l	
DOC	4,64	0,05			mg/l	
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	2,83	0,12	2,83	0,3	mg/l	100%



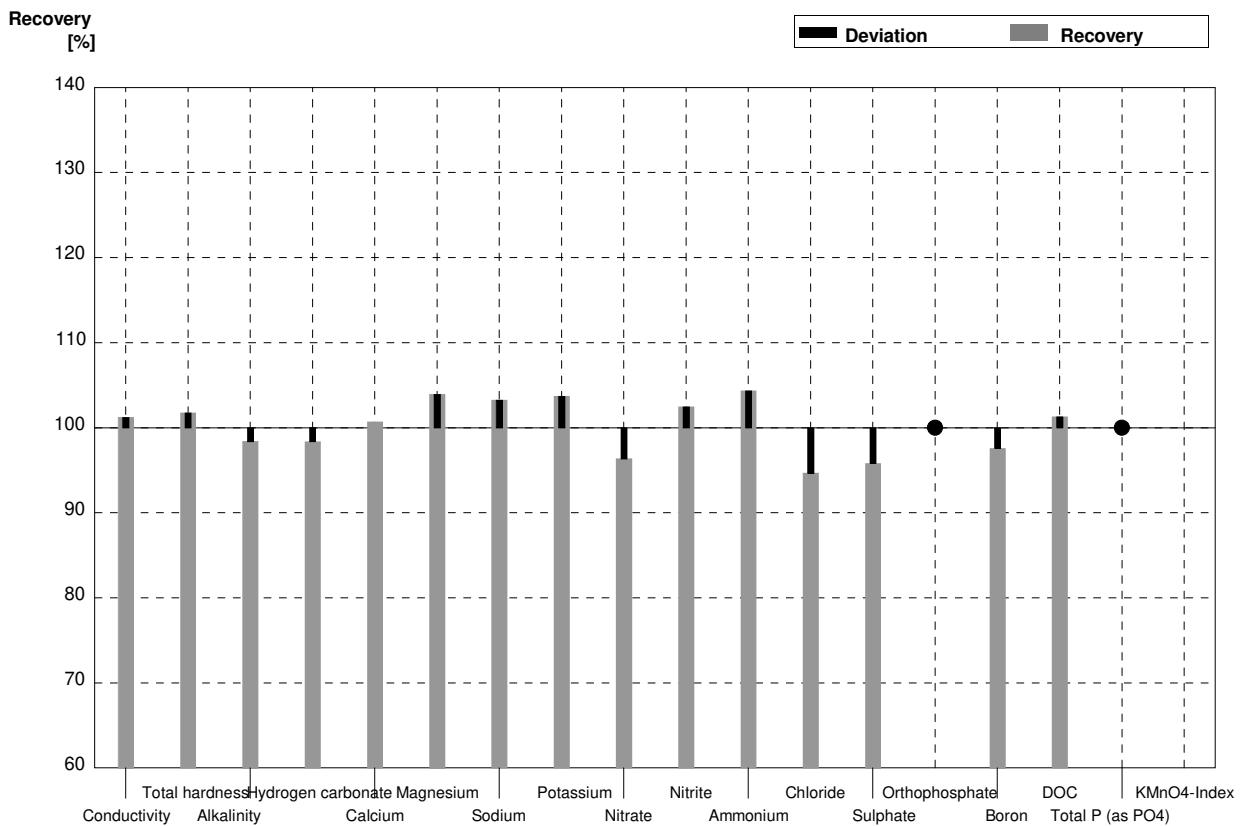
**Sample N172A**  
**Laboratory AG**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	426	10	µS/cm	101%
Total hardness	1,78	0,02	1,79	0,2	mmol/l	101%
Alkalinity	2,07	0,04	2,02	0,2	mmol/l	98%
Hydrogen carbonate	123	2	123,3	12,3	mg/l	100%
Calcium	45,0	0,8	44,6	9,0	mg/l	99%
Magnesium	16,0	0,2	16,5	3,3	mg/l	103%
Sodium	10,5	0,3	10,9	1,7	mg/l	104%
Potassium	2,54	0,02	2,67	0,54	mg/l	105%
Nitrate	31,3	0,8	30,7	3,0	mg/l	98%
Nitrite	0,0640	0,0003	0,0649	0,0094	mg/l	101%
Ammonium	<0,01		<0,010		mg/l	•
Chloride	38,4	0,6	36,9	3,7	mg/l	96%
Sulphate	21,2	0,4	20,1	2,0	mg/l	95%
Orthophosphate	0,070	0,004	0,0690	0,0081	mg/l	99%
Boron	0,0392	0,0010	0,0381	0,0095	mg/l	97%
DOC	3,08	0,05	3,25	0,33	mg/l	106%
Total P (as PO4)	0,164	0,002	0,1610	0,0190	mg/l	98%
KMnO4-Index	4,42	0,11			mg/l	



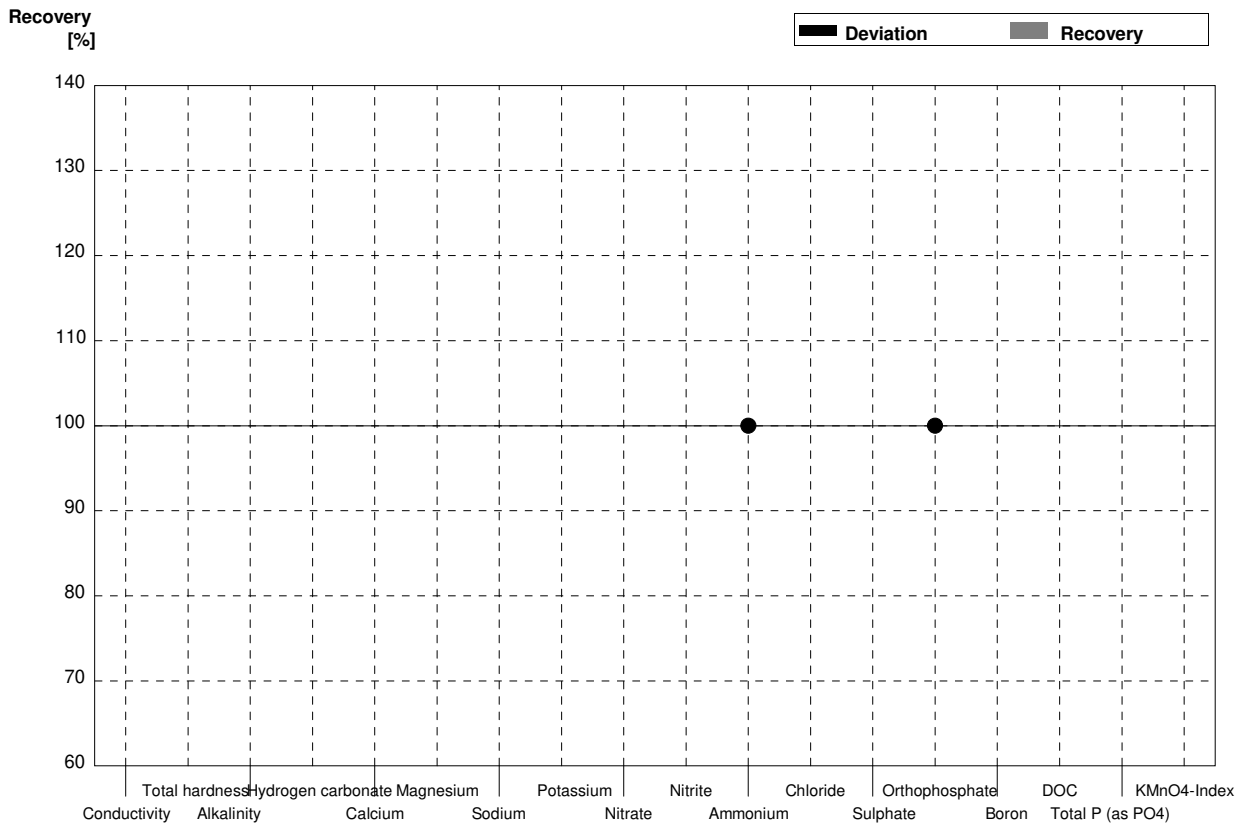
**Sample N172B**  
**Laboratory AG**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	325	10	µS/cm	101%
Total hardness	1,032	0,012	1,05	0,1	mmol/l	102%
Alkalinity	1,565	0,019	1,54	0,2	mmol/l	98%
Hydrogen carbonate	92,4	1,2	90,9	9,1	mg/l	98%
Calcium	28,0	0,4	28,2	5,7	mg/l	101%
Magnesium	8,12	0,15	8,44	1,7	mg/l	104%
Sodium	20,63	0,19	21,3	3,2	mg/l	103%
Potassium	5,38	0,03	5,58	1,1	mg/l	104%
Nitrate	16,5	0,3	15,9	1,6	mg/l	96%
Nitrite	0,0530	0,0005	0,0543	0,0079	mg/l	102%
Ammonium	0,060	0,002	0,0626	0,0103	mg/l	104%
Chloride	16,9	0,3	16,0	1,6	mg/l	95%
Sulphate	38,2	0,6	36,6	3,7	mg/l	96%
Orthophosphate	<0,009		<0,009		mg/l	•
Boron	0,0540	0,0005	0,0527	0,014	mg/l	98%
DOC	4,64	0,05	4,70	0,47	mg/l	101%
Total P (as PO4)	<0,009		<0,015		mg/l	•
KMnO4-Index	2,83	0,12			mg/l	



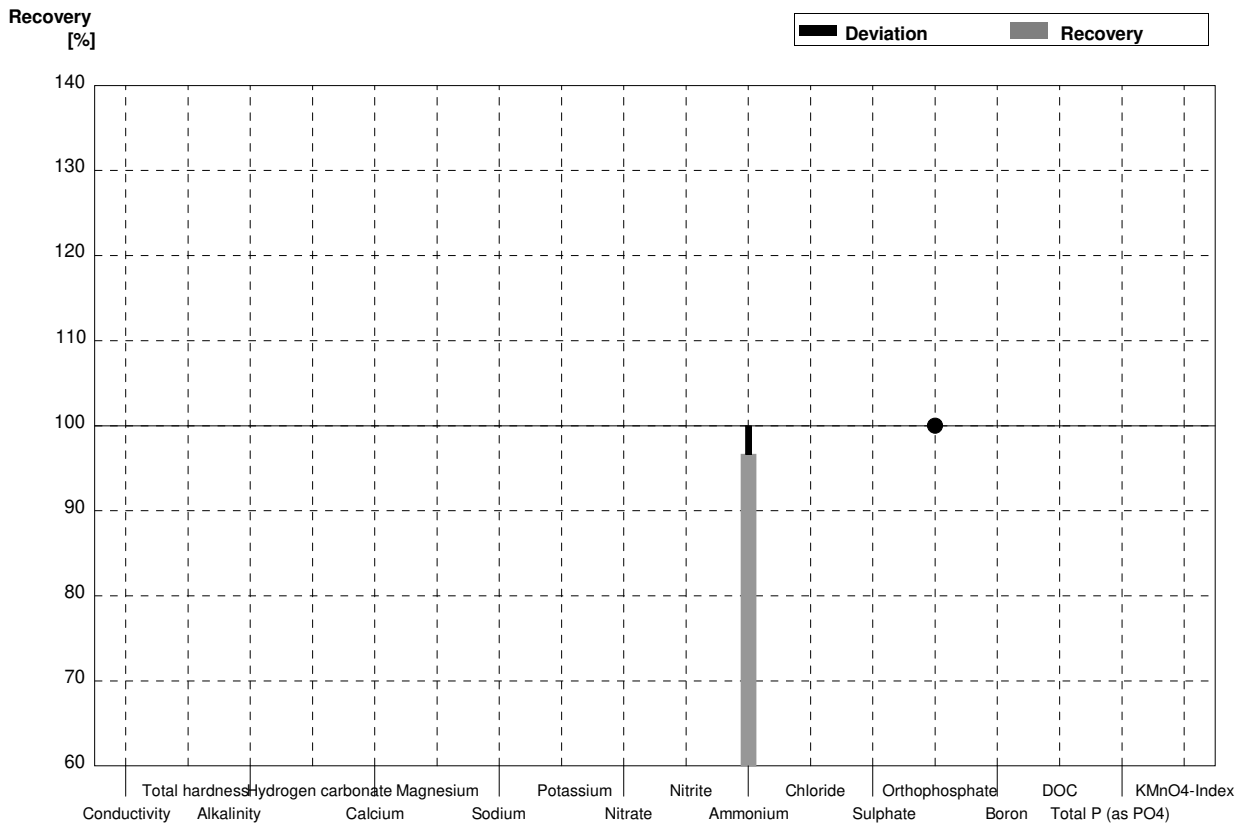
**Sample N172A**  
**Laboratory AH**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1			µS/cm	
Total hardness	1,78	0,02			mmol/l	
Alkalinity	2,07	0,04			mmol/l	
Hydrogen carbonate	123	2			mg/l	
Calcium	45,0	0,8			mg/l	
Magnesium	16,0	0,2			mg/l	
Sodium	10,5	0,3			mg/l	
Potassium	2,54	0,02			mg/l	
Nitrate	31,3	0,8			mg/l	
Nitrite	0,0640	0,0003			mg/l	
Ammonium	<0,01		<0,01	0,00235	mg/l	•
Chloride	38,4	0,6			mg/l	
Sulphate	21,2	0,4			mg/l	
Orthophosphate	0,070	0,004	<0,10	0,008	mg/l	•
Boron	0,0392	0,0010			mg/l	
DOC	3,08	0,05			mg/l	
Total P (as PO4)	0,164	0,002			mg/l	
KMnO4-Index	4,42	0,11			mg/l	



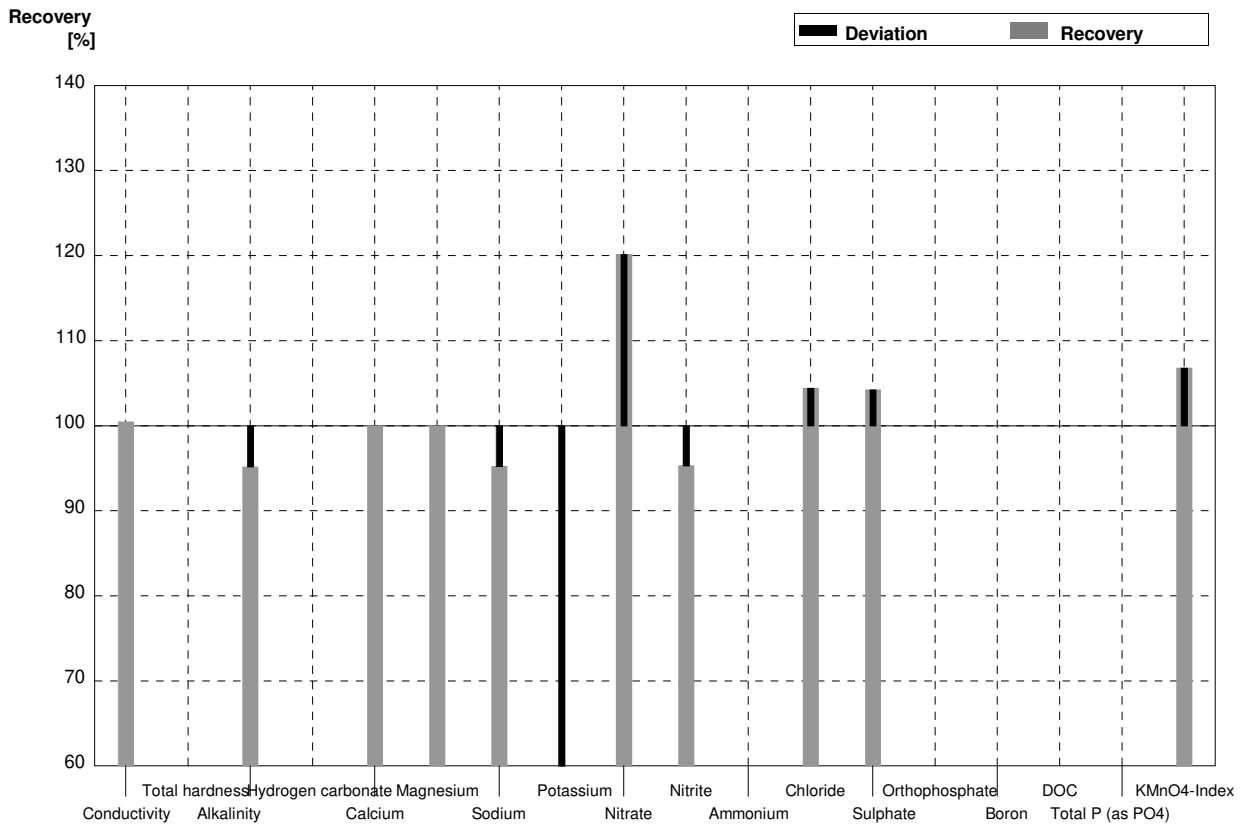
**Sample N172B**  
**Laboratory AH**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1			µS/cm	
Total hardness	1,032	0,012			mmol/l	
Alkalinity	1,565	0,019			mmol/l	
Hydrogen carbonate	92,4	1,2			mg/l	
Calcium	28,0	0,4			mg/l	
Magnesium	8,12	0,15			mg/l	
Sodium	20,63	0,19			mg/l	
Potassium	5,38	0,03			mg/l	
Nitrate	16,5	0,3			mg/l	
Nitrite	0,0530	0,0005			mg/l	
Ammonium	0,060	0,002	0,058	0,01363	mg/l	97%
Chloride	16,9	0,3			mg/l	
Sulphate	38,2	0,6			mg/l	
Orthophosphate	<0,009		<0,10	0,008	mg/l	•
Boron	0,0540	0,0005			mg/l	
DOC	4,64	0,05			mg/l	
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	2,83	0,12			mg/l	



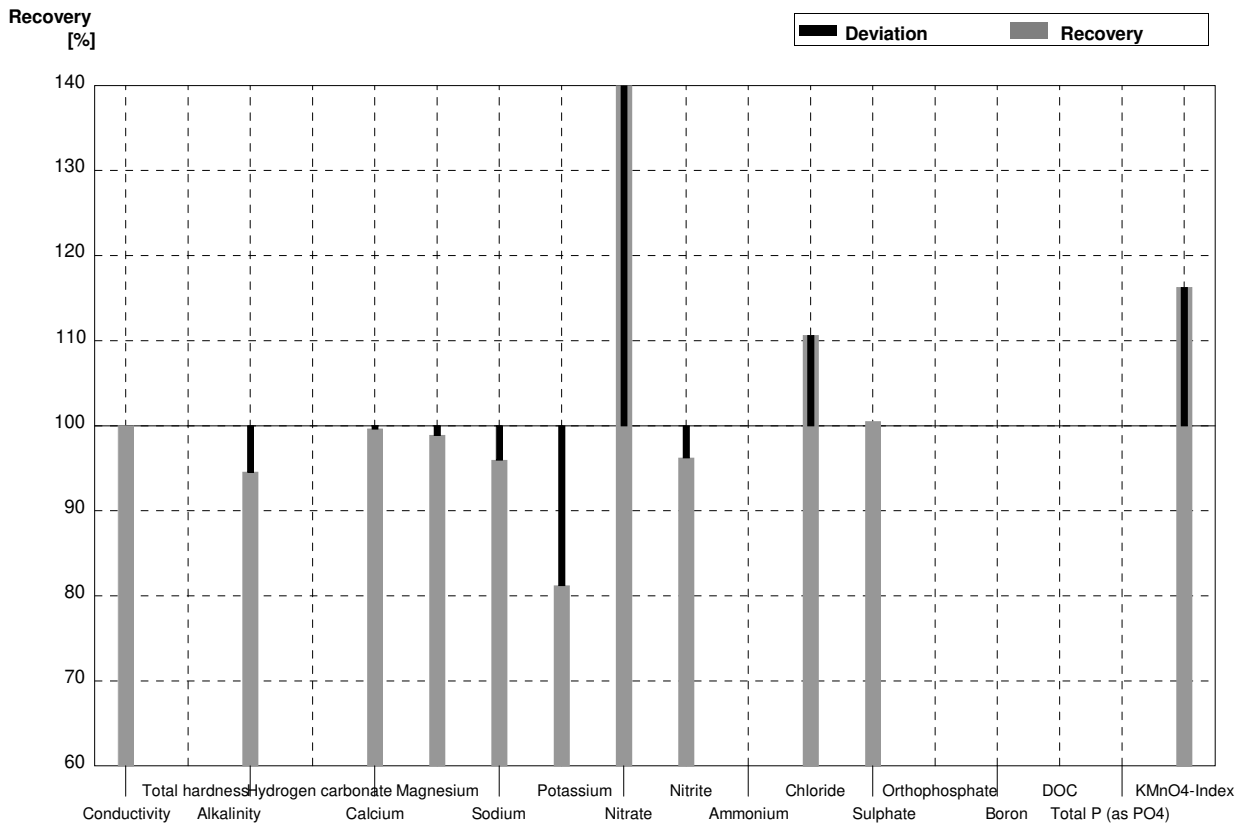
**Sample N172A**  
**Laboratory AI**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	424		µS/cm	100%
Total hardness	1,78	0,02			mmol/l	
Alkalinity	2,07	0,04	1,97		mmol/l	95%
Hydrogen carbonate	123	2			mg/l	
Calcium	45,0	0,8	45,0		mg/l	100%
Magnesium	16,0	0,2	16,0		mg/l	100%
Sodium	10,5	0,3	10,0		mg/l	95%
Potassium	2,54	0,02	1,30		mg/l	51%
Nitrate	31,3	0,8	37,6		mg/l	120%
Nitrite	0,0640	0,0003	0,061		mg/l	95%
Ammonium	<0,01				mg/l	
Chloride	38,4	0,6	40,1		mg/l	104%
Sulphate	21,2	0,4	22,1		mg/l	104%
Orthophosphate	0,070	0,004			mg/l	
Boron	0,0392	0,0010			mg/l	
DOC	3,08	0,05			mg/l	
Total P (as PO4)	0,164	0,002			mg/l	
KMnO4-Index	4,42	0,11	4,72		mg/l	107%



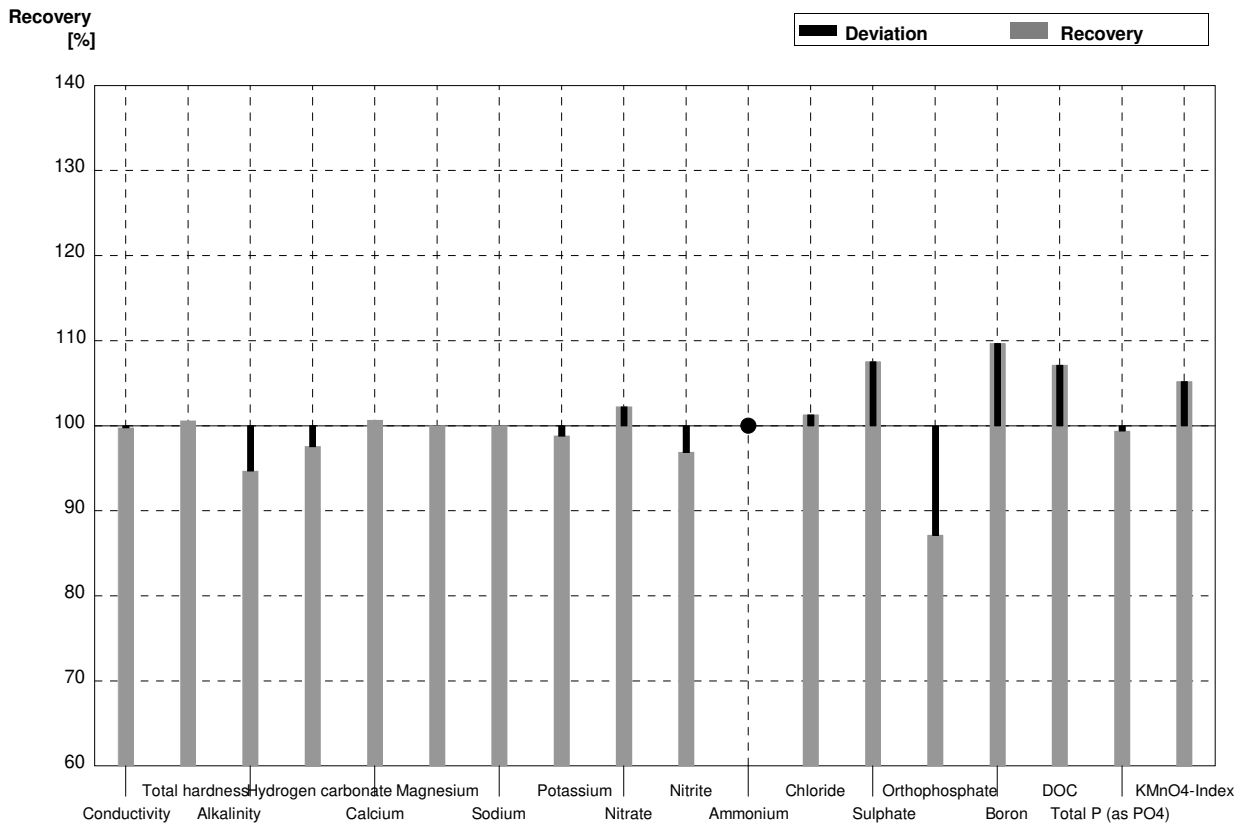
**Sample N172B**  
**Laboratory AI**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	321		µS/cm	100%
Total hardness	1,032	0,012			mmol/l	
Alkalinity	1,565	0,019	1,48		mmol/l	95%
Hydrogen carbonate	92,4	1,2			mg/l	
Calcium	28,0	0,4	27,9		mg/l	100%
Magnesium	8,12	0,15	8,03		mg/l	99%
Sodium	20,63	0,19	19,8		mg/l	96%
Potassium	5,38	0,03	4,37		mg/l	81%
Nitrate	16,5	0,3	24,5		mg/l	148%
Nitrite	0,0530	0,0005	0,051		mg/l	96%
Ammonium	0,060	0,002			mg/l	
Chloride	16,9	0,3	18,7		mg/l	111%
Sulphate	38,2	0,6	38,4		mg/l	101%
Orthophosphate	<0,009				mg/l	
Boron	0,0540	0,0005			mg/l	
DOC	4,64	0,05			mg/l	
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	2,83	0,12	3,29		mg/l	116%



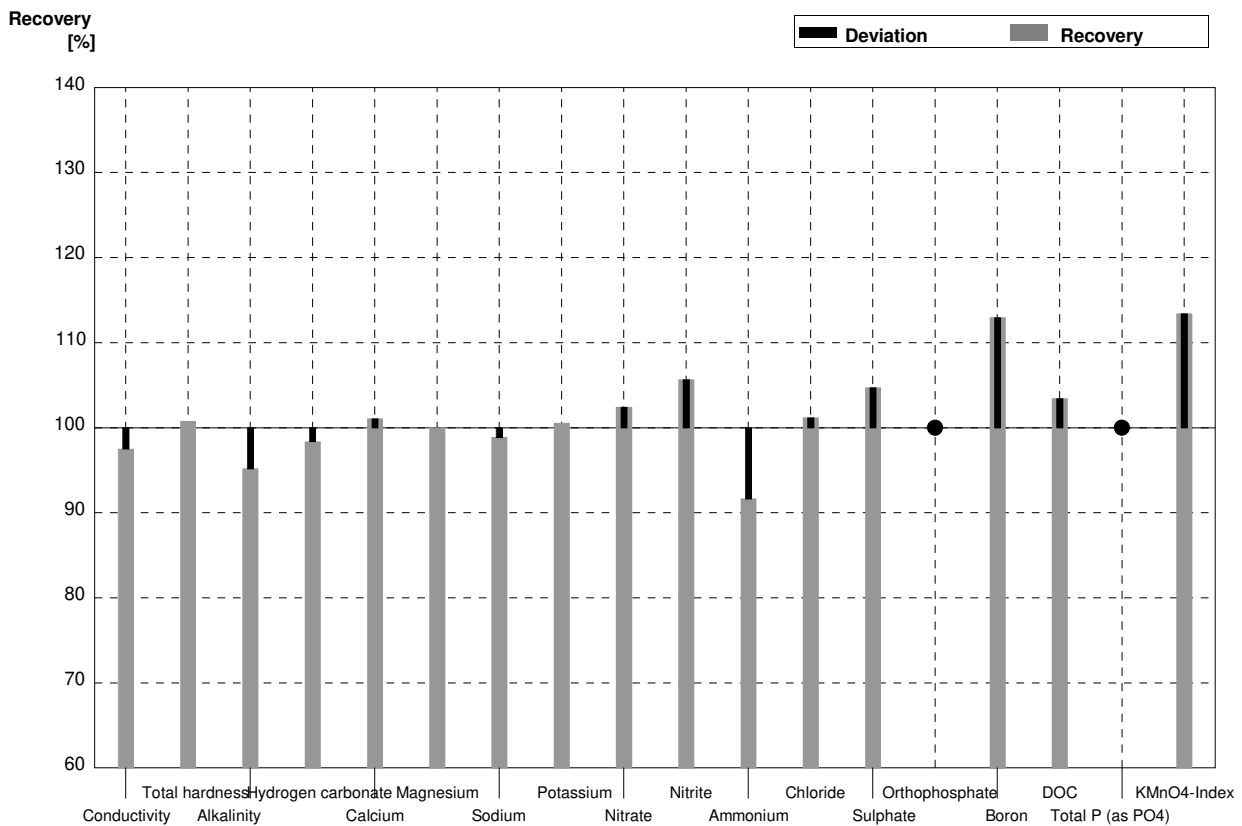
**Sample N172A**  
**Laboratory AJ**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	421	42,1	µS/cm	100%
Total hardness	1,78	0,02	1,79		mmol/l	101%
Alkalinity	2,07	0,04	1,96	0,29	mmol/l	95%
Hydrogen carbonate	123	2	120	17,9	mg/l	98%
Calcium	45,0	0,8	45,3	4,53	mg/l	101%
Magnesium	16,0	0,2	16,0	1,60	mg/l	100%
Sodium	10,5	0,3	10,5	1,05	mg/l	100%
Potassium	2,54	0,02	2,51	0,251	mg/l	99%
Nitrate	31,3	0,8	32,0	1,60	mg/l	102%
Nitrite	0,0640	0,0003	0,062	0,0094	mg/l	97%
Ammonium	<0,01		<0,0005		mg/l	•
Chloride	38,4	0,6	38,9	1,94	mg/l	101%
Sulphate	21,2	0,4	22,8	1,14	mg/l	108%
Orthophosphate	0,070	0,004	0,061	0,0092	mg/l	87%
Boron	0,0392	0,0010	0,0430	0,0052	mg/l	110%
DOC	3,08	0,05	3,30	0,26	mg/l	107%
Total P (as PO4)	0,164	0,002	0,163	0,025	mg/l	99%
KMnO4-Index	4,42	0,11	4,65	0,74	mg/l	105%



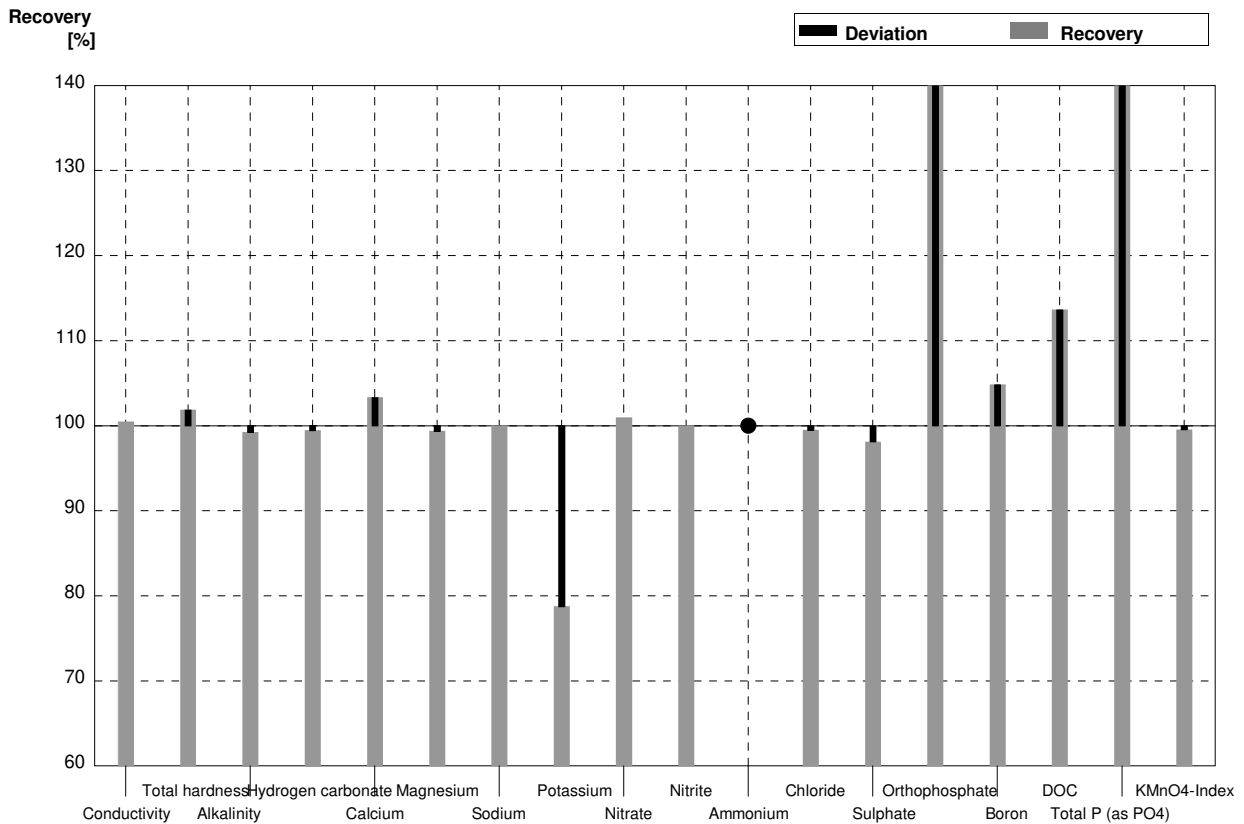
**Sample N172B**  
**Laboratory AJ**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	313	31,3	µS/cm	98%
Total hardness	1,032	0,012	1,04		mmol/l	101%
Alkalinity	1,565	0,019	1,49	0,22	mmol/l	95%
Hydrogen carbonate	92,4	1,2	90,9	13,6	mg/l	98%
Calcium	28,0	0,4	28,3	2,83	mg/l	101%
Magnesium	8,12	0,15	8,12	0,812	mg/l	100%
Sodium	20,63	0,19	20,4	2,07	mg/l	99%
Potassium	5,38	0,03	5,41	0,541	mg/l	101%
Nitrate	16,5	0,3	16,9	0,847	mg/l	102%
Nitrite	0,0530	0,0005	0,056	0,0084	mg/l	106%
Ammonium	0,060	0,002	0,055	0,0055	mg/l	92%
Chloride	16,9	0,3	17,1	0,85	mg/l	101%
Sulphate	38,2	0,6	40,0	2,00	mg/l	105%
Orthophosphate	<0,009		0,0090	0,0014	mg/l	•
Boron	0,0540	0,0005	0,061	0,0073	mg/l	113%
DOC	4,64	0,05	4,80	0,38	mg/l	103%
Total P (as PO4)	<0,009		<0,0150		mg/l	•
KMnO4-Index	2,83	0,12	3,21	0,51	mg/l	113%



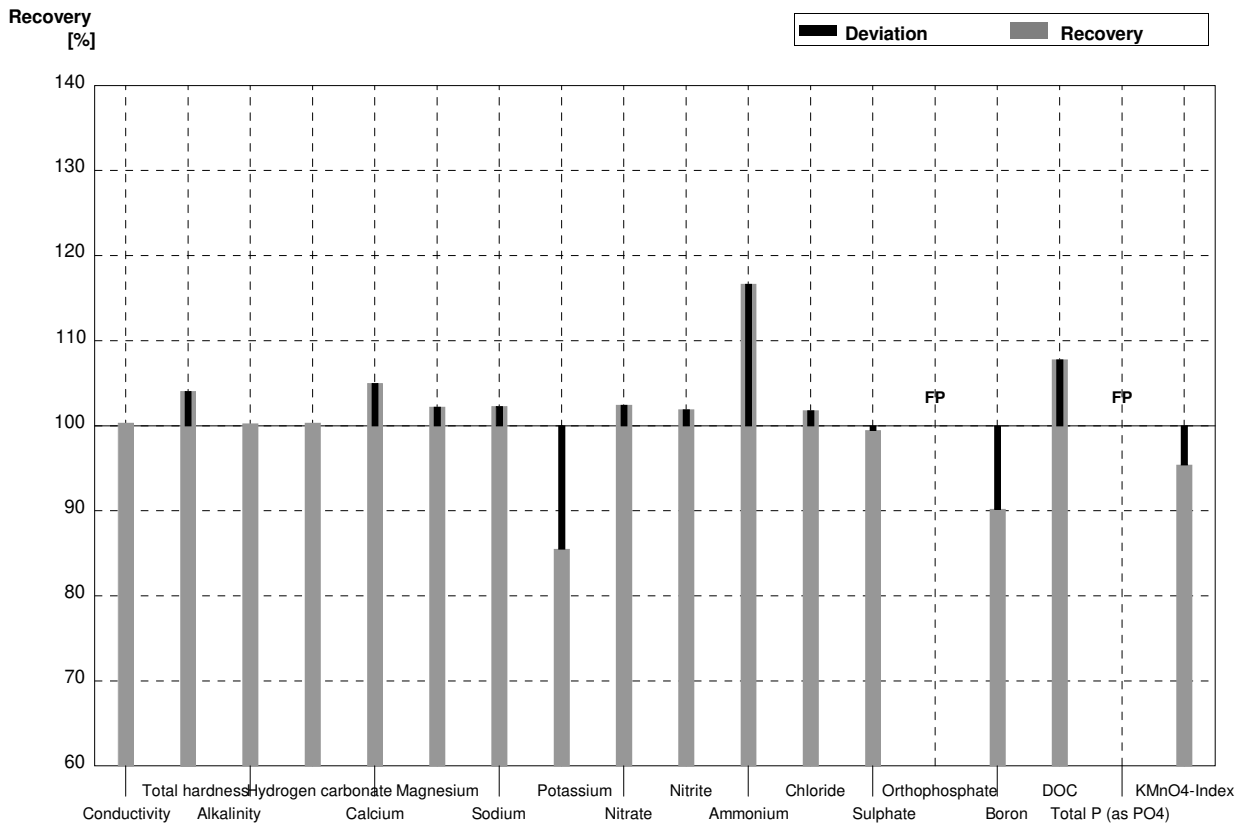
**Sample N172A**  
**Laboratory AK**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	424	24	µS/cm	100%
Total hardness	1,78	0,02	1,813	0,241	mmol/l	102%
Alkalinity	2,07	0,04	2,054		mmol/l	99%
Hydrogen carbonate	123	2	122,3		mg/l	99%
Calcium	45,0	0,8	46,5	6,2	mg/l	103%
Magnesium	16,0	0,2	15,9	2,1	mg/l	99%
Sodium	10,5	0,3	10,5	1,86	mg/l	100%
Potassium	2,54	0,02	2,00	0,33	mg/l	79%
Nitrate	31,3	0,8	31,6	2,67	mg/l	101%
Nitrite	0,0640	0,0003	0,064	0,007	mg/l	100%
Ammonium	<0,01		<0,03		mg/l	•
Chloride	38,4	0,6	38,2	3,21	mg/l	99%
Sulphate	21,2	0,4	20,8	1,34	mg/l	98%
Orthophosphate	0,070	0,004	0,138	0,038	mg/l	197%
Boron	0,0392	0,0010	0,0411		mg/l	105%
DOC	3,08	0,05	3,50	0,65	mg/l	114%
Total P (as PO4)	0,164	0,002	0,276	0,044	mg/l	168%
KMnO4-Index	4,42	0,11	4,40		mg/l	100%



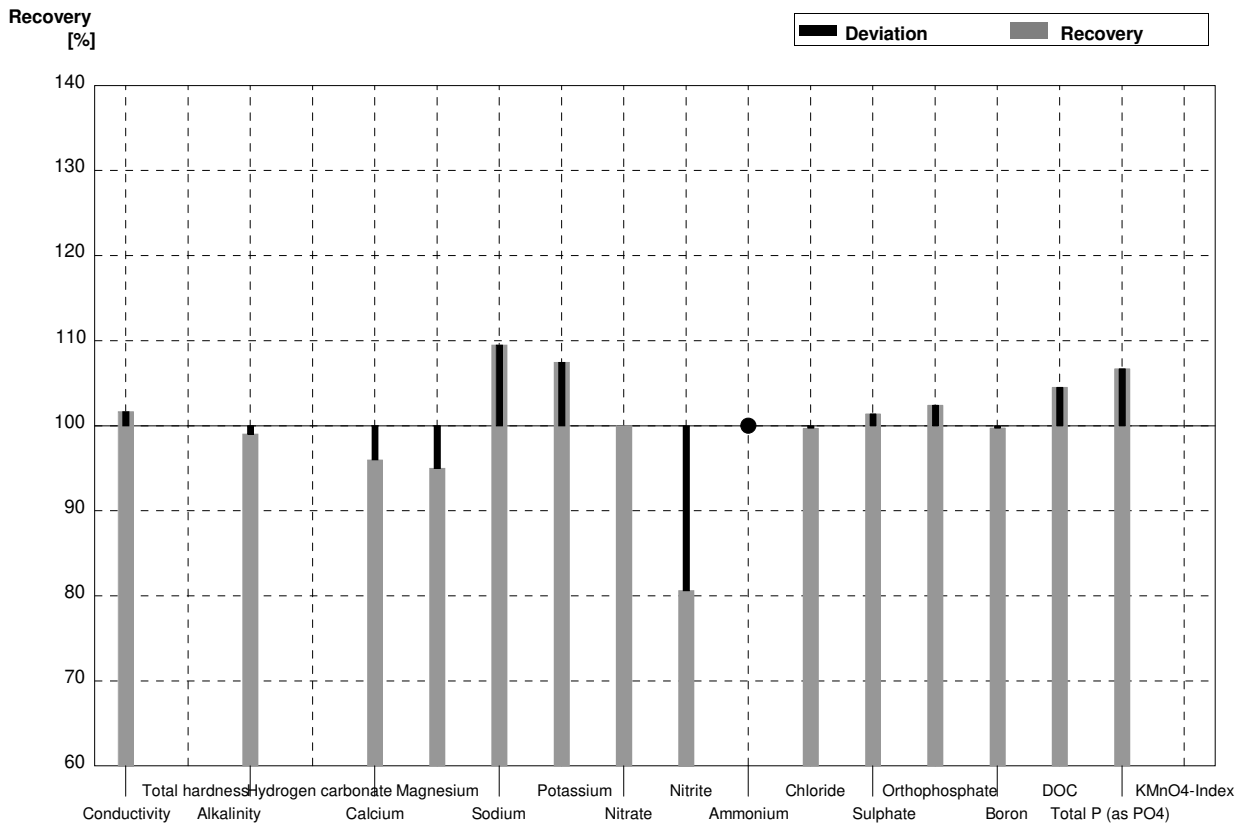
**Sample N172B**  
**Laboratory AK**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	322	18,23	µS/cm	100%
Total hardness	1,032	0,012	1,074	0,143	mmol/l	104%
Alkalinity	1,565	0,019	1,569		mmol/l	100%
Hydrogen carbonate	92,4	1,2	92,7		mg/l	100%
Calcium	28,0	0,4	29,4	3,92	mg/l	105%
Magnesium	8,12	0,15	8,3	1,1	mg/l	102%
Sodium	20,63	0,19	21,1	3,73	mg/l	102%
Potassium	5,38	0,03	4,60	0,76	mg/l	86%
Nitrate	16,5	0,3	16,9	1,43	mg/l	102%
Nitrite	0,0530	0,0005	0,054	0,006	mg/l	102%
Ammonium	0,060	0,002	0,070	0,016	mg/l	117%
Chloride	16,9	0,3	17,2	1,43	mg/l	102%
Sulphate	38,2	0,6	38,0	2,45	mg/l	99%
Orthophosphate	<0,009		0,0340	0,009	mg/l	FP
Boron	0,0540	0,0005	0,0487		mg/l	90%
DOC	4,64	0,05	5,00	0,94	mg/l	108%
Total P (as PO4)	<0,009		0,0613	0,0098	mg/l	FP
KMnO4-Index	2,83	0,12	2,70		mg/l	95%



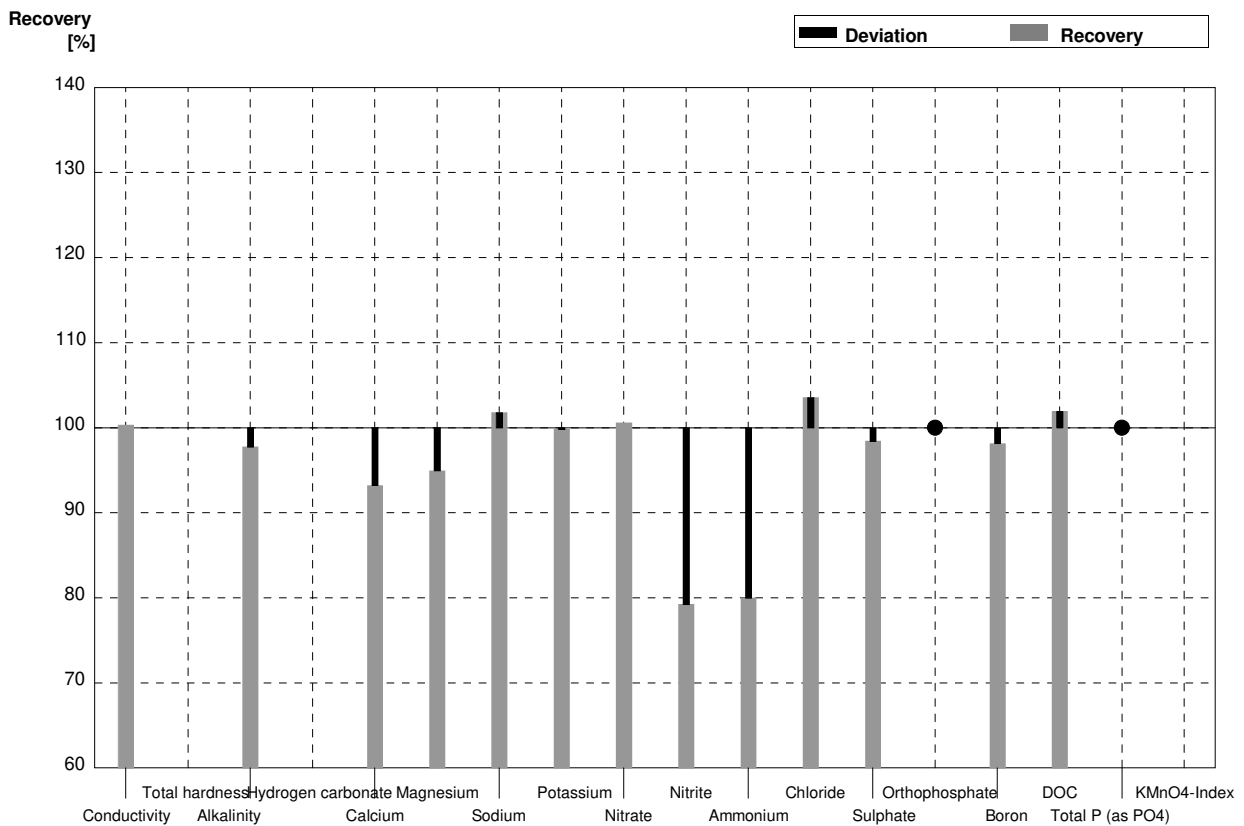
**Sample N172A**  
**Laboratory AL**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	429		µS/cm	102%
Total hardness	1,78	0,02			mmol/l	
Alkalinity	2,07	0,04	2,05		mmol/l	99%
Hydrogen carbonate	123	2			mg/l	
Calcium	45,0	0,8	43,2		mg/l	96%
Magnesium	16,0	0,2	15,2		mg/l	95%
Sodium	10,5	0,3	11,5		mg/l	110%
Potassium	2,54	0,02	2,73		mg/l	107%
Nitrate	31,3	0,8	31,3		mg/l	100%
Nitrite	0,0640	0,0003	0,0516		mg/l	81%
Ammonium	<0,01		<0,010		mg/l	•
Chloride	38,4	0,6	38,3		mg/l	100%
Sulphate	21,2	0,4	21,5		mg/l	101%
Orthophosphate	0,070	0,004	0,0717		mg/l	102%
Boron	0,0392	0,0010	0,0391		mg/l	100%
DOC	3,08	0,05	3,22		mg/l	105%
Total P (as PO4)	0,164	0,002	0,175		mg/l	107%
KMnO4-Index	4,42	0,11			mg/l	



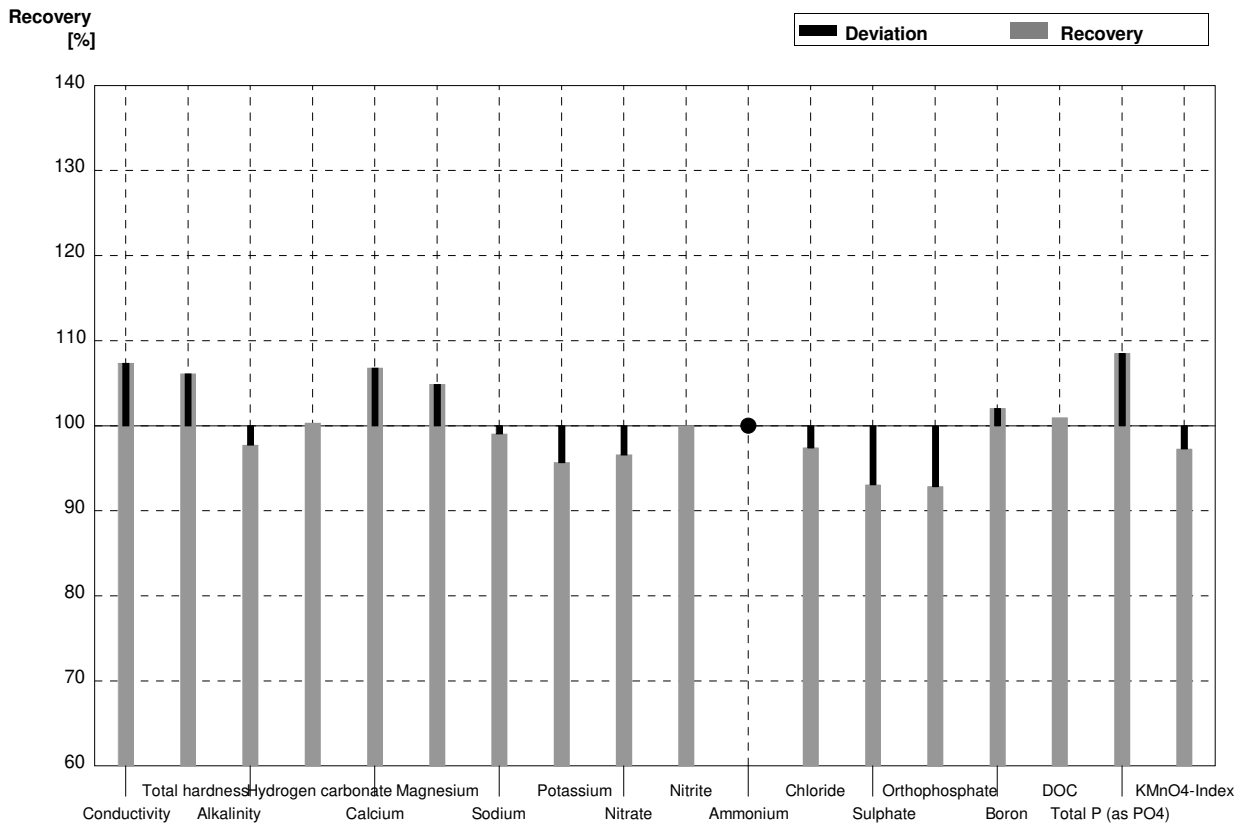
**Sample N172B**  
**Laboratory AL**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	322		µS/cm	100%
Total hardness	1,032	0,012			mmol/l	
Alkalinity	1,565	0,019	1,53		mmol/l	98%
Hydrogen carbonate	92,4	1,2			mg/l	
Calcium	28,0	0,4	26,1		mg/l	93%
Magnesium	8,12	0,15	7,71		mg/l	95%
Sodium	20,63	0,19	21,0		mg/l	102%
Potassium	5,38	0,03	5,37		mg/l	100%
Nitrate	16,5	0,3	16,6		mg/l	101%
Nitrite	0,0530	0,0005	0,0420		mg/l	79%
Ammonium	0,060	0,002	0,0480		mg/l	80%
Chloride	16,9	0,3	17,5		mg/l	104%
Sulphate	38,2	0,6	37,6		mg/l	98%
Orthophosphate	<0,009		<0,010		mg/l	•
Boron	0,0540	0,0005	0,0530		mg/l	98%
DOC	4,64	0,05	4,73		mg/l	102%
Total P (as PO4)	<0,009		<0,010		mg/l	•
KMnO4-Index	2,83	0,12			mg/l	



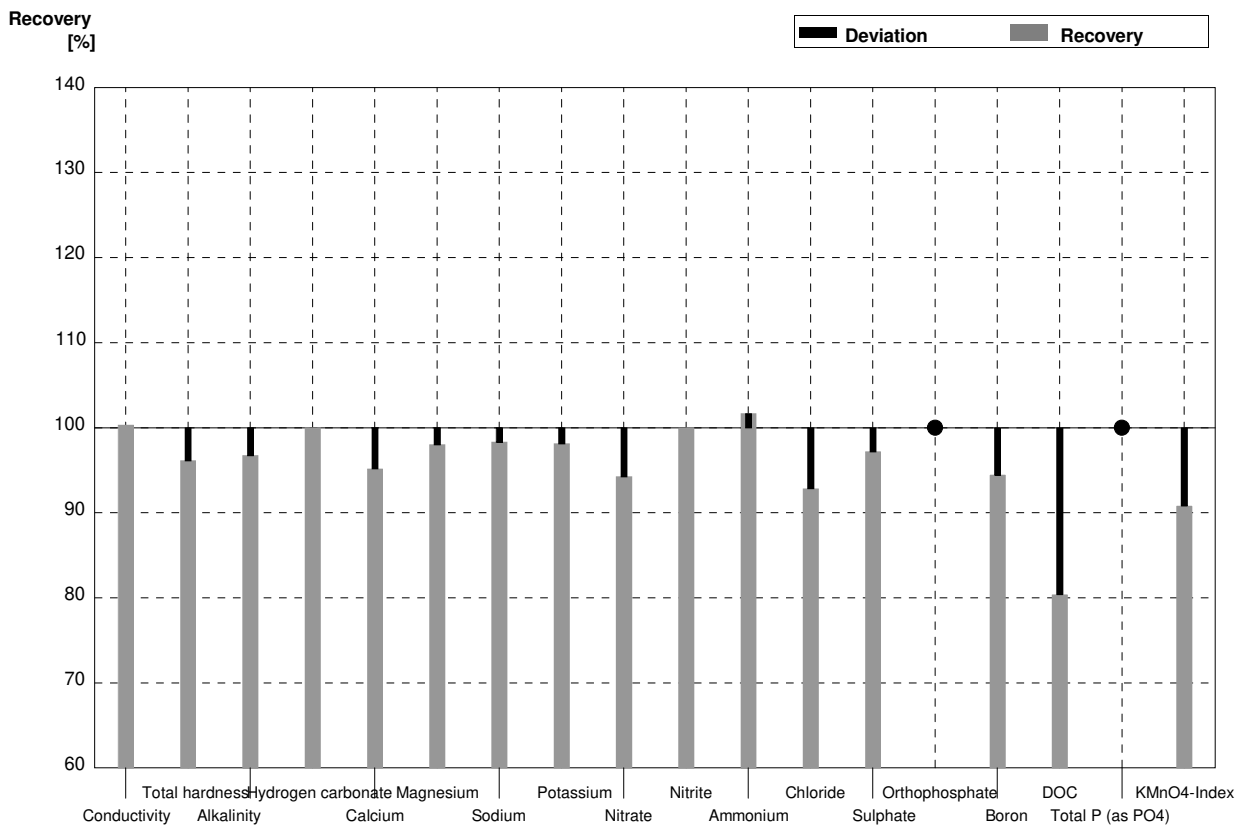
**Sample N172A**  
**Laboratory AM**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	453	41	µS/cm	107%
Total hardness	1,78	0,02	1,889	0,227	mmol/l	106%
Alkalinity	2,07	0,04	2,023	0,182	mmol/l	98%
Hydrogen carbonate	123	2	123,4	11,1	mg/l	100%
Calcium	45,0	0,8	48,06	5,77	mg/l	107%
Magnesium	16,0	0,2	16,78	1,68	mg/l	105%
Sodium	10,5	0,3	10,4	1,14	mg/l	99%
Potassium	2,54	0,02	2,43	0,39	mg/l	96%
Nitrate	31,3	0,8	30,23	3,33	mg/l	97%
Nitrite	0,0640	0,0003	0,064	0,010	mg/l	100%
Ammonium	<0,01		0,00300	0,001	mg/l	•
Chloride	38,4	0,6	37,41	5,24	mg/l	97%
Sulphate	21,2	0,4	19,73	2,56	mg/l	93%
Orthophosphate	0,070	0,004	0,065	0,007	mg/l	93%
Boron	0,0392	0,0010	0,0400	0,008	mg/l	102%
DOC	3,08	0,05	3,11	0,40	mg/l	101%
Total P (as PO4)	0,164	0,002	0,178	0,028	mg/l	109%
KMnO4-Index	4,42	0,11	4,30	0,69	mg/l	97%



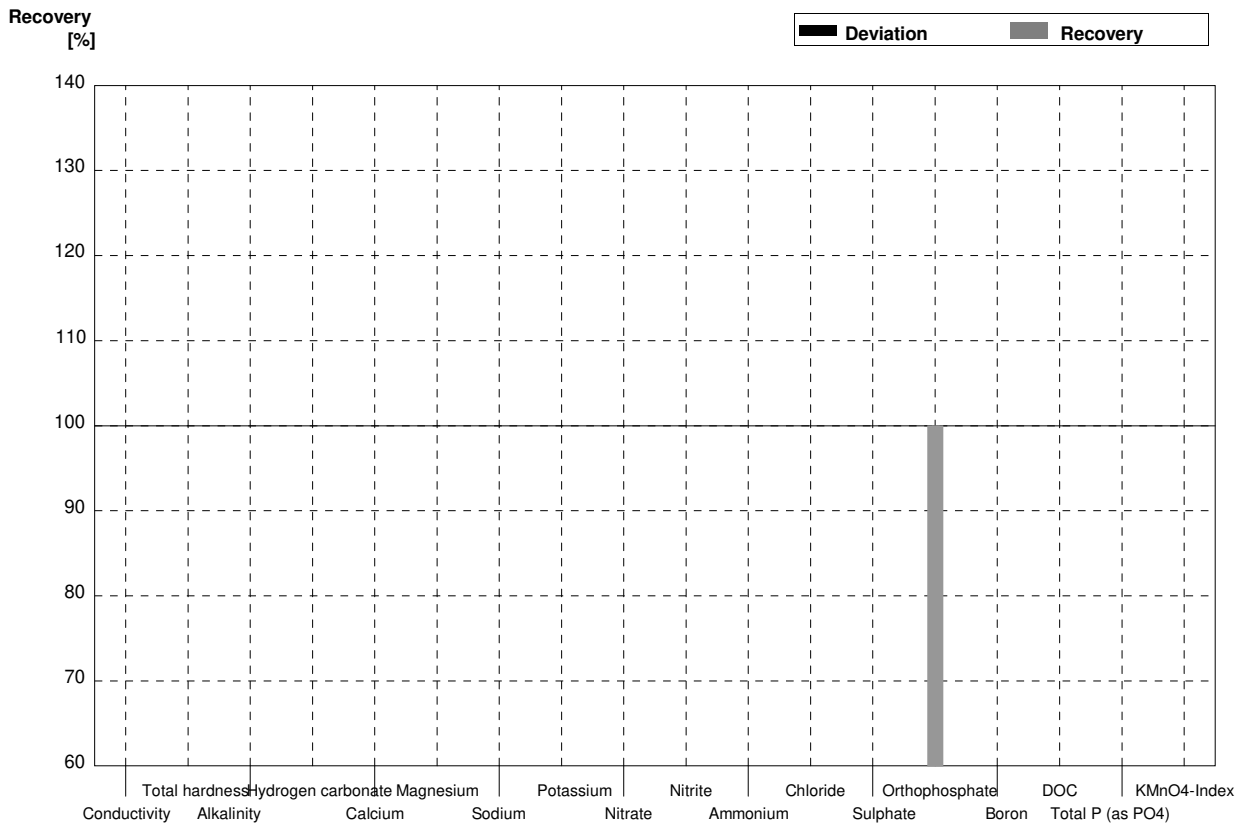
**Sample N172B**  
**Laboratory AM**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	322	29	µS/cm	100%
Total hardness	1,032	0,012	0,992	0,119	mmol/l	96%
Alkalinity	1,565	0,019	1,514	0,136	mmol/l	97%
Hydrogen carbonate	92,4	1,2	92,4	8,3	mg/l	100%
Calcium	28,0	0,4	26,65	3,2	mg/l	95%
Magnesium	8,12	0,15	7,96	0,80	mg/l	98%
Sodium	20,63	0,19	20,28	2,23	mg/l	98%
Potassium	5,38	0,03	5,28	0,84	mg/l	98%
Nitrate	16,5	0,3	15,55	1,71	mg/l	94%
Nitrite	0,0530	0,0005	0,053	0,008	mg/l	100%
Ammonium	0,060	0,002	0,061	0,014	mg/l	102%
Chloride	16,9	0,3	15,69	2,20	mg/l	93%
Sulphate	38,2	0,6	37,12	4,83	mg/l	97%
Orthophosphate	<0,009		0,00300	0,0003	mg/l	•
Boron	0,0540	0,0005	0,051	0,006	mg/l	94%
DOC	4,64	0,05	3,73	0,48	mg/l	80%
Total P (as PO4)	<0,009		0,00300	0,0005	mg/l	•
KMnO4-Index	2,83	0,12	2,57	0,41	mg/l	91%



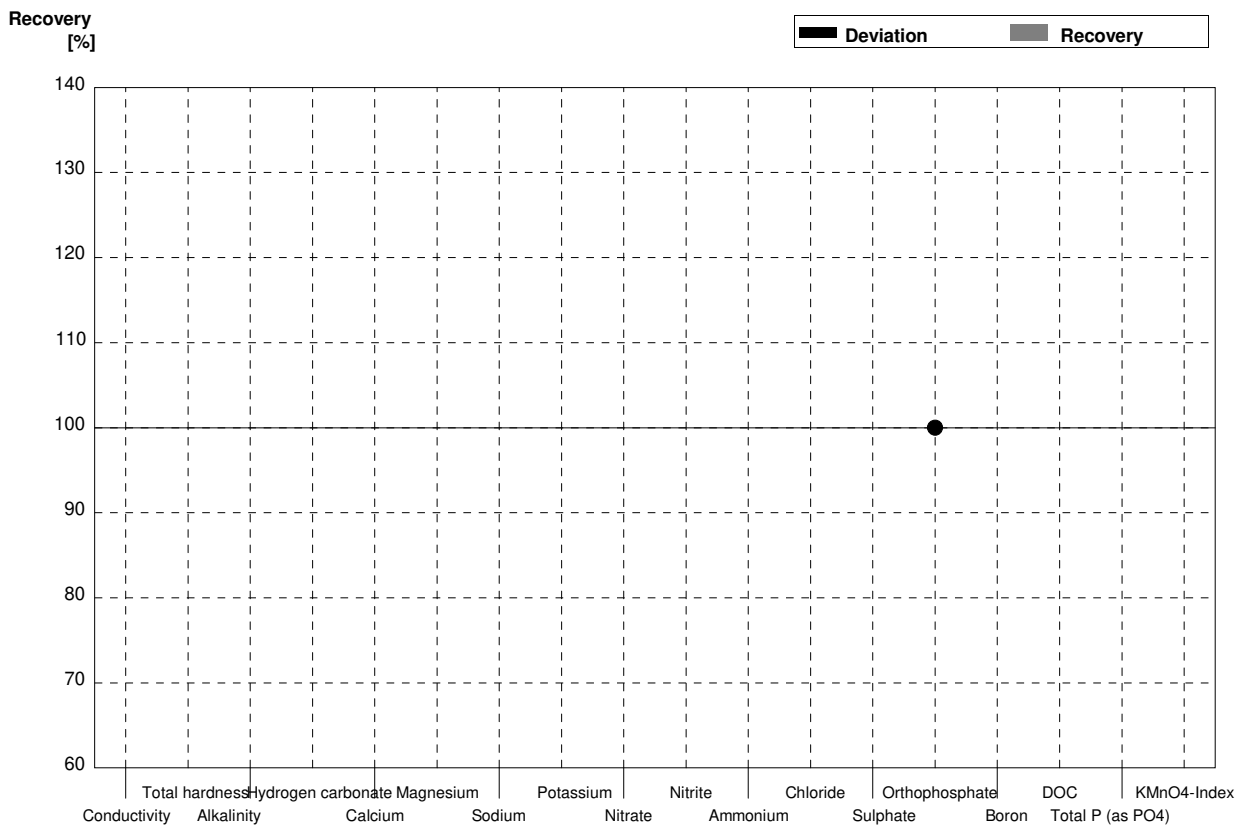
**Sample N172A**  
**Laboratory AN**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1			µS/cm	
Total hardness	1,78	0,02			mmol/l	
Alkalinity	2,07	0,04			mmol/l	
Hydrogen carbonate	123	2			mg/l	
Calcium	45,0	0,8			mg/l	
Magnesium	16,0	0,2			mg/l	
Sodium	10,5	0,3			mg/l	
Potassium	2,54	0,02			mg/l	
Nitrate	31,3	0,8			mg/l	
Nitrite	0,0640	0,0003			mg/l	
Ammonium	<0,01				mg/l	
Chloride	38,4	0,6			mg/l	
Sulphate	21,2	0,4			mg/l	
Orthophosphate	0,070	0,004	0,070	0,010	mg/l	100%
Boron	0,0392	0,0010			mg/l	
DOC	3,08	0,05			mg/l	
Total P (as PO4)	0,164	0,002			mg/l	
KMnO4-Index	4,42	0,11			mg/l	



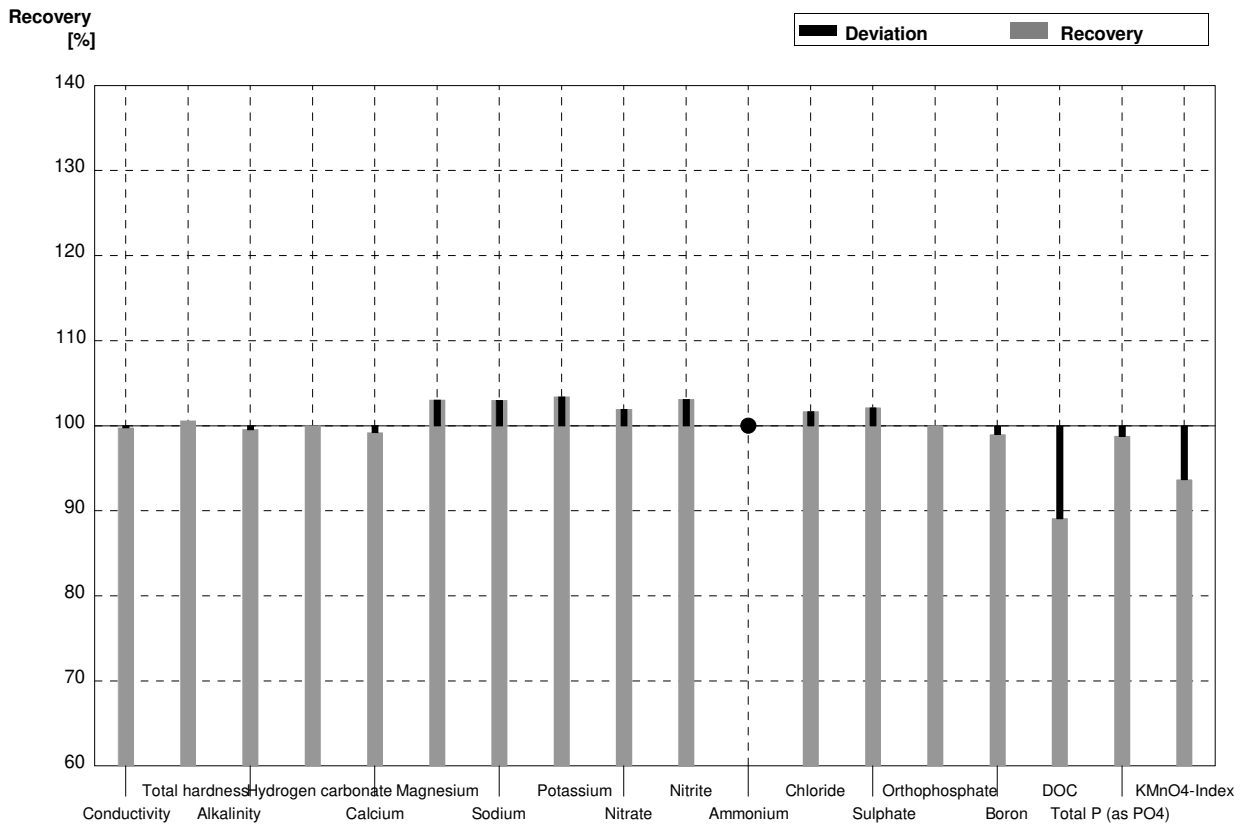
**Sample N172B**  
**Laboratory AN**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1			µS/cm	
Total hardness	1,032	0,012			mmol/l	
Alkalinity	1,565	0,019			mmol/l	
Hydrogen carbonate	92,4	1,2			mg/l	
Calcium	28,0	0,4			mg/l	
Magnesium	8,12	0,15			mg/l	
Sodium	20,63	0,19			mg/l	
Potassium	5,38	0,03			mg/l	
Nitrate	16,5	0,3			mg/l	
Nitrite	0,0530	0,0005			mg/l	
Ammonium	0,060	0,002			mg/l	
Chloride	16,9	0,3			mg/l	
Sulphate	38,2	0,6			mg/l	
Orthophosphate	<0,009		<0,01		mg/l	•
Boron	0,0540	0,0005			mg/l	
DOC	4,64	0,05			mg/l	
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	2,83	0,12			mg/l	



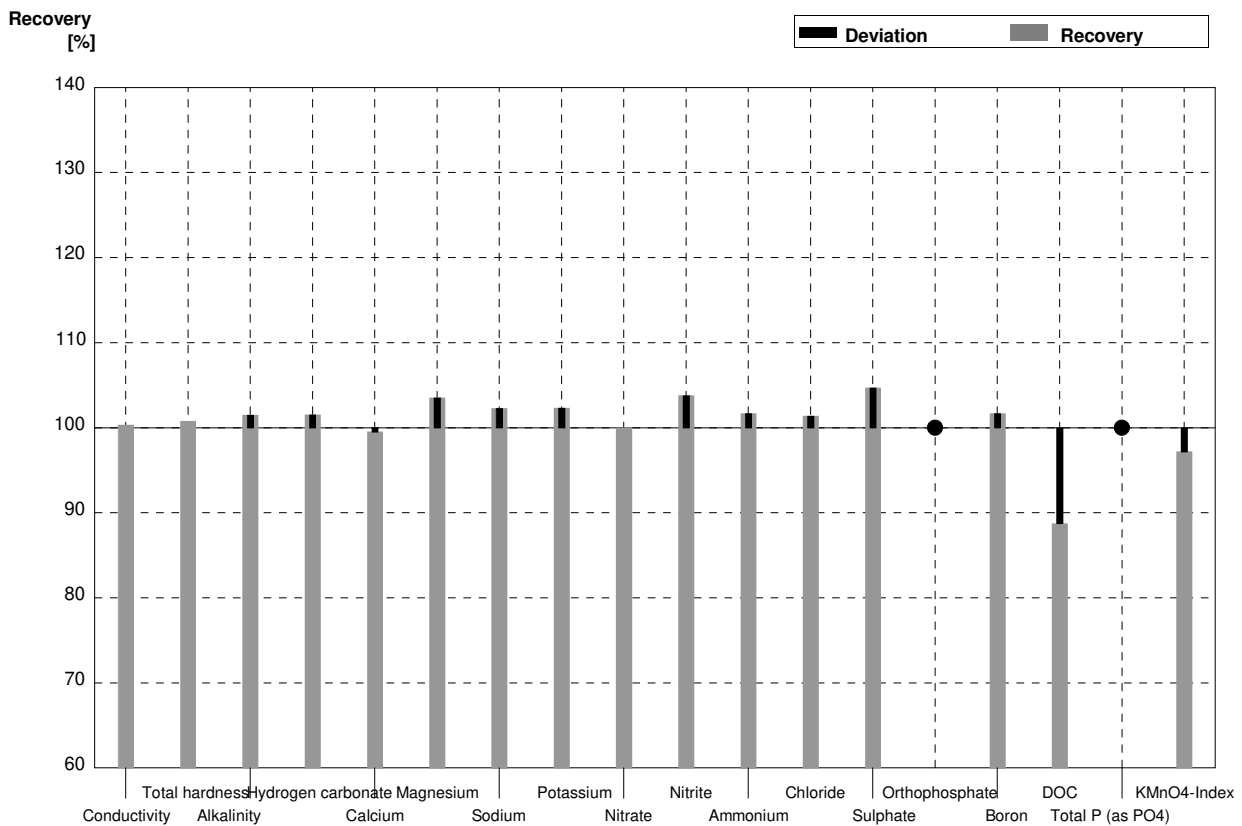
**Sample N172A**  
**Laboratory AO**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	421	25,26	µS/cm	100%
Total hardness	1,78	0,02	1,79	0,11	mmol/l	101%
Alkalinity	2,07	0,04	2,061	0,124	mmol/l	100%
Hydrogen carbonate	123	2	123	7,38	mg/l	100%
Calcium	45,0	0,8	44,638	2,46	mg/l	99%
Magnesium	16,0	0,2	16,481	0,58	mg/l	103%
Sodium	10,5	0,3	10,813	0,38	mg/l	103%
Potassium	2,54	0,02	2,627	0,092	mg/l	103%
Nitrate	31,3	0,8	31,904	3,19	mg/l	102%
Nitrite	0,0640	0,0003	0,066	0,007	mg/l	103%
Ammonium	<0,01		<0,01		mg/l	•
Chloride	38,4	0,6	39,038	3,904	mg/l	102%
Sulphate	21,2	0,4	21,652	2,165	mg/l	102%
Orthophosphate	0,070	0,004	0,070	0,007	mg/l	100%
Boron	0,0392	0,0010	0,0388	0,007	mg/l	99%
DOC	3,08	0,05	2,744	0,574	mg/l	89%
Total P (as PO4)	0,164	0,002	0,162	0,016	mg/l	99%
KMnO4-Index	4,42	0,11	4,14	0,54	mg/l	94%



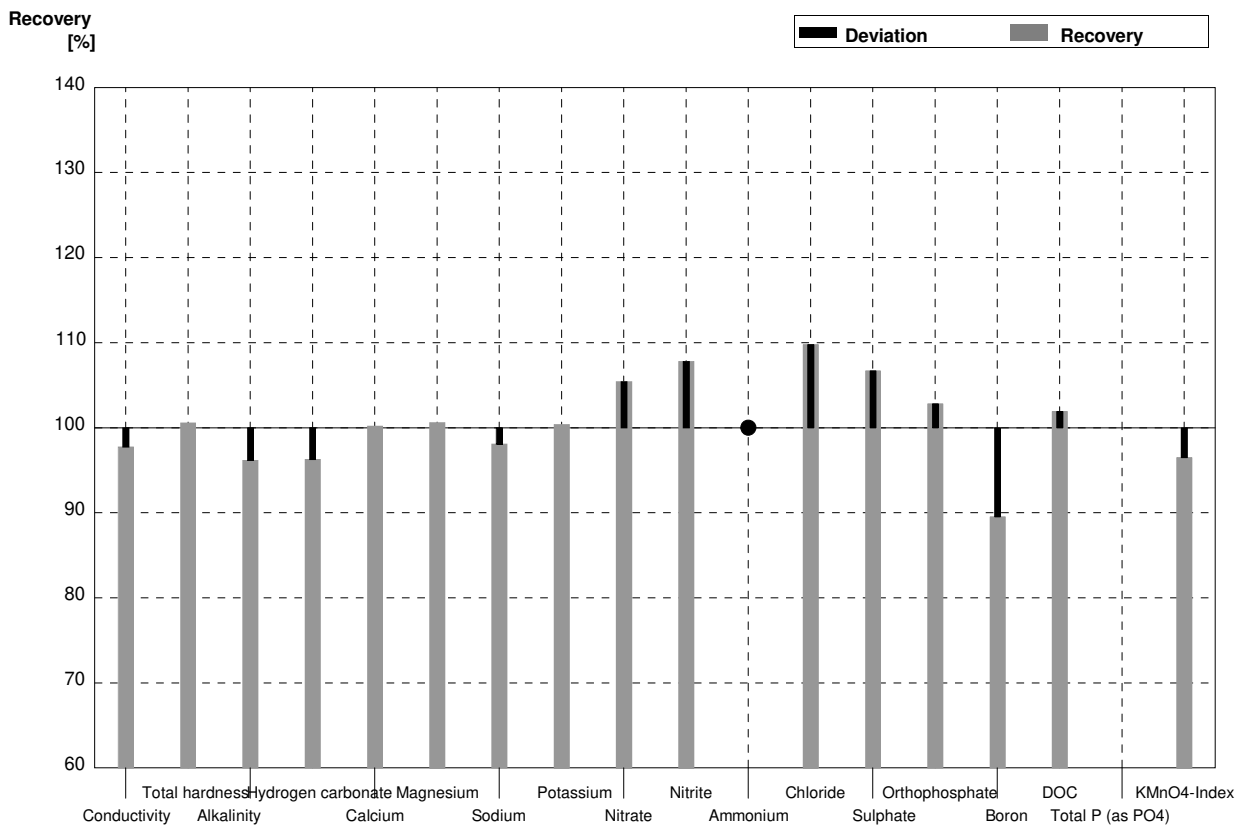
**Sample N172B**  
**Laboratory AO**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	322	19,32	µS/cm	100%
Total hardness	1,032	0,012	1,04	0,06	mmol/l	101%
Alkalinity	1,565	0,019	1,588	0,0953	mmol/l	101%
Hydrogen carbonate	92,4	1,2	93,8	5,63	mg/l	102%
Calcium	28,0	0,4	27,864	1,53	mg/l	100%
Magnesium	8,12	0,15	8,406	0,29	mg/l	104%
Sodium	20,63	0,19	21,095	0,74	mg/l	102%
Potassium	5,38	0,03	5,505	0,19	mg/l	102%
Nitrate	16,5	0,3	16,501	1,65	mg/l	100%
Nitrite	0,0530	0,0005	0,055	0,006	mg/l	104%
Ammonium	0,060	0,002	0,061	0,006	mg/l	102%
Chloride	16,9	0,3	17,131	1,713	mg/l	101%
Sulphate	38,2	0,6	39,987	3,999	mg/l	105%
Orthophosphate	<0,009		<0,01		mg/l	•
Boron	0,0540	0,0005	0,0549	0,01	mg/l	102%
DOC	4,64	0,05	4,118	0,861	mg/l	89%
Total P (as PO4)	<0,009		<0,01		mg/l	•
KMnO4-Index	2,83	0,12	2,75	0,36	mg/l	97%



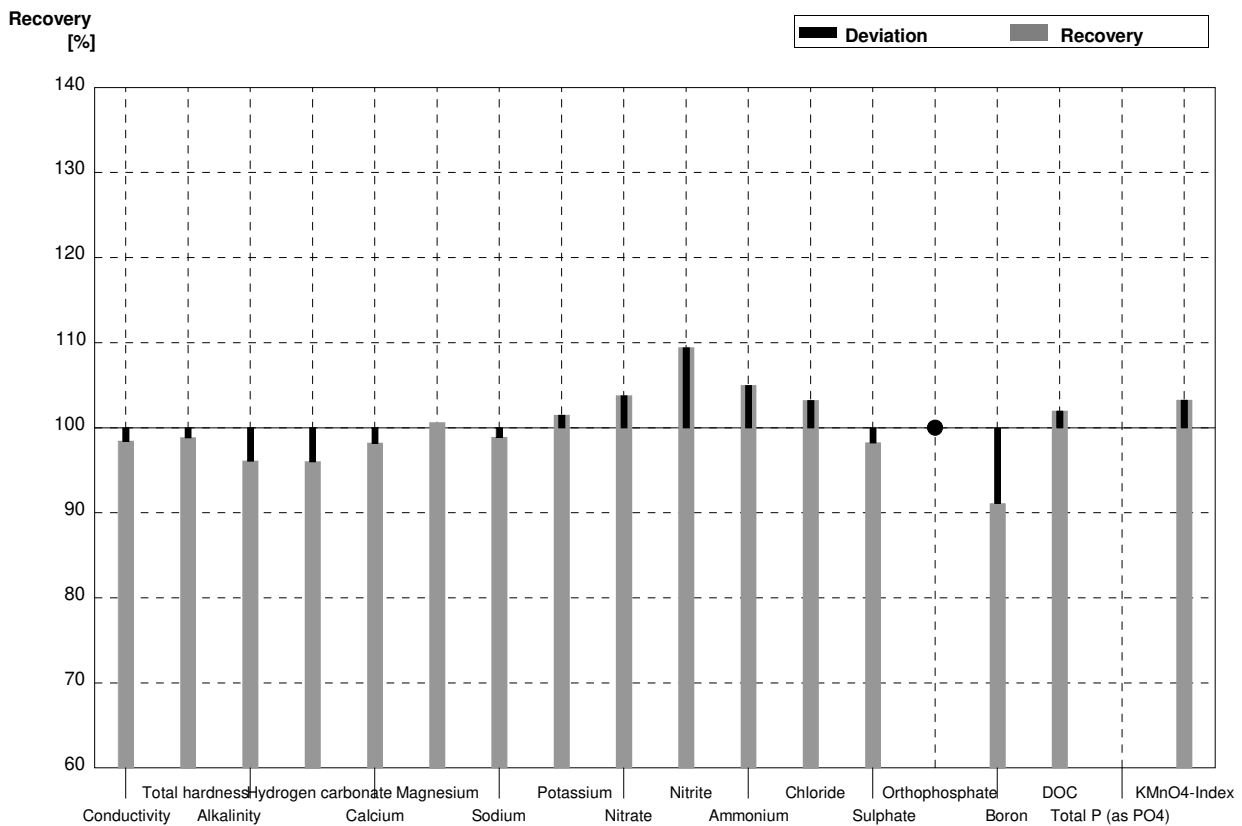
**Sample N172A**  
**Laboratory AP**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	422	1	412,5	20,6	µS/cm	98%
Total hardness	1,78	0,02	1,79	0,269	mmol/l	101%
Alkalinity	2,07	0,04	1,991	0,199	mmol/l	96%
Hydrogen carbonate	123	2	118,43	9,09	mg/l	96%
Calcium	45,0	0,8	45,1	0,050	mg/l	100%
Magnesium	16,0	0,2	16,1	0,024	mg/l	101%
Sodium	10,5	0,3	10,3	0,015	mg/l	98%
Potassium	2,54	0,02	2,55	0,003	mg/l	100%
Nitrate	31,3	0,8	33,004	7,591	mg/l	105%
Nitrite	0,0640	0,0003	0,069	0,0138	mg/l	108%
Ammonium	<0,01		<0,03		mg/l	•
Chloride	38,4	0,6	42,163	4,216	mg/l	110%
Sulphate	21,2	0,4	22,623	3,846	mg/l	107%
Orthophosphate	0,070	0,004	0,072	0,108	mg/l	103%
Boron	0,0392	0,0010	0,0351	0,0070	mg/l	90%
DOC	3,08	0,05	3,140	0,314	mg/l	102%
Total P (as PO4)	0,164	0,002			mg/l	
KMnO4-Index	4,42	0,11	4,266	0,640	mg/l	97%



**Sample N172B**  
**Laboratory AP**

Parameter	Assigned value	± U (k=2)	Result	±	Unit	Recovery
Conductivity	321	1	316,0	15,8	µS/cm	98%
Total hardness	1,032	0,012	1,02	0,153	mmol/l	99%
Alkalinity	1,565	0,019	1,504	0,154	mmol/l	96%
Hydrogen carbonate	92,4	1,2	88,72	6,10	mg/l	96%
Calcium	28,0	0,4	27,5	0,031	mg/l	98%
Magnesium	8,12	0,15	8,17	0,012	mg/l	101%
Sodium	20,63	0,19	20,4	0,030	mg/l	99%
Potassium	5,38	0,03	5,46	0,007	mg/l	101%
Nitrate	16,5	0,3	17,122	3,938	mg/l	104%
Nitrite	0,0530	0,0005	0,058	0,0116	mg/l	109%
Ammonium	0,060	0,002	0,063	0,0113	mg/l	105%
Chloride	16,9	0,3	17,442	1,744	mg/l	103%
Sulphate	38,2	0,6	37,531	6,380	mg/l	98%
Orthophosphate	<0,009		<0,05		mg/l	•
Boron	0,0540	0,0005	0,0492	0,0098	mg/l	91%
DOC	4,64	0,05	4,732	0,473	mg/l	102%
Total P (as PO4)	<0,009				mg/l	
KMnO4-Index	2,83	0,12	2,922	0,499	mg/l	103%





# **Methodenvergleich**

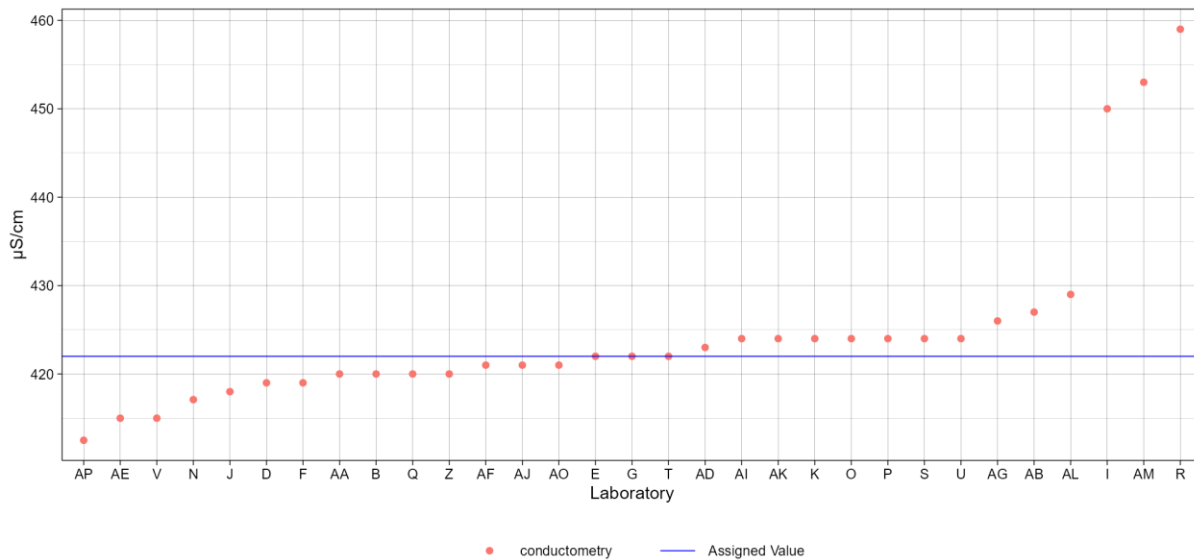
## **Method comparison**

Eignungsprüfungsrunde / Proficiency testing round  
N172

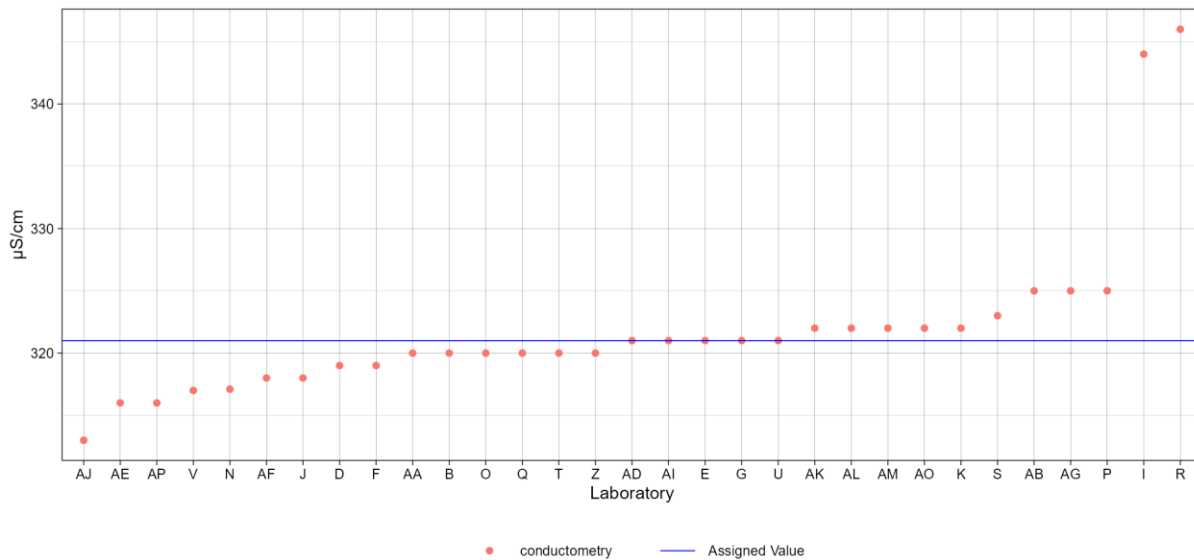
Nährstoffe  
Nutrients / Major ions

Versand / Dispatch: 03.06.2024

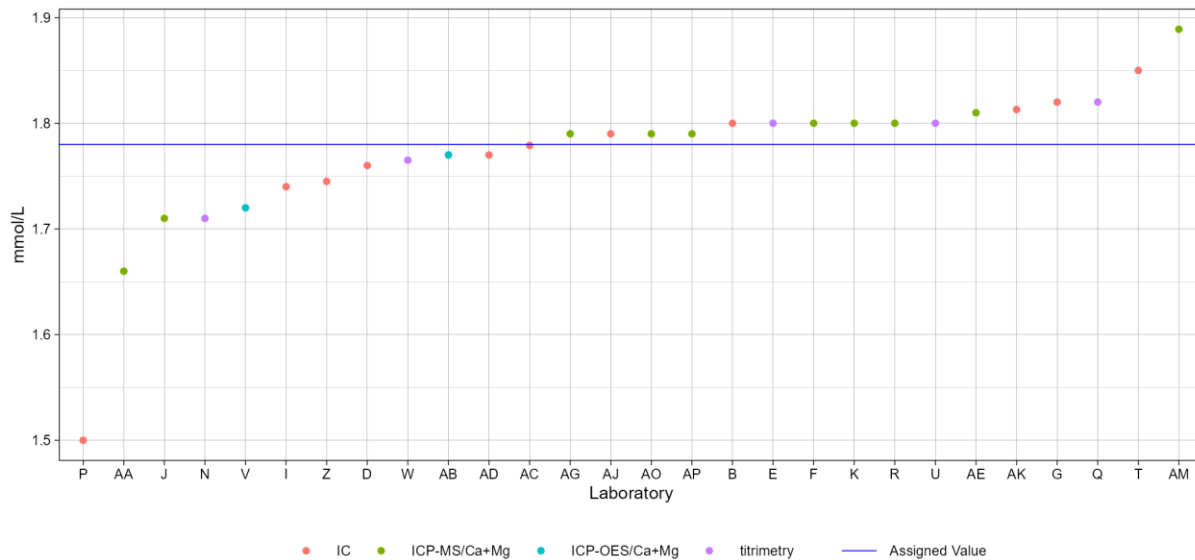
Sample N172A  
Parameter Conductivity



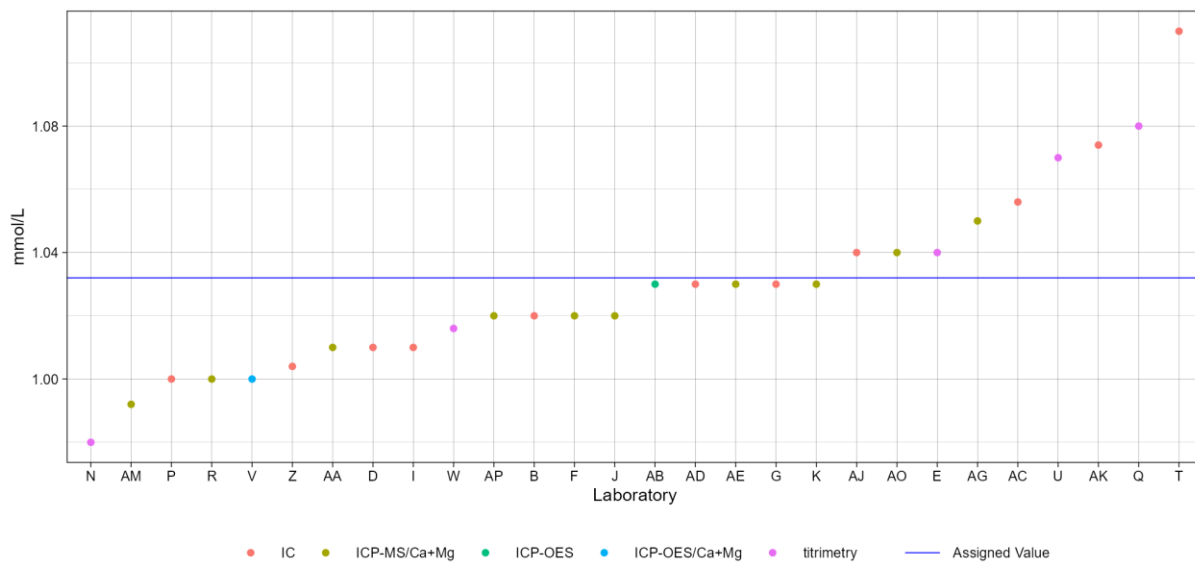
Sample N172B  
Parameter Conductivity



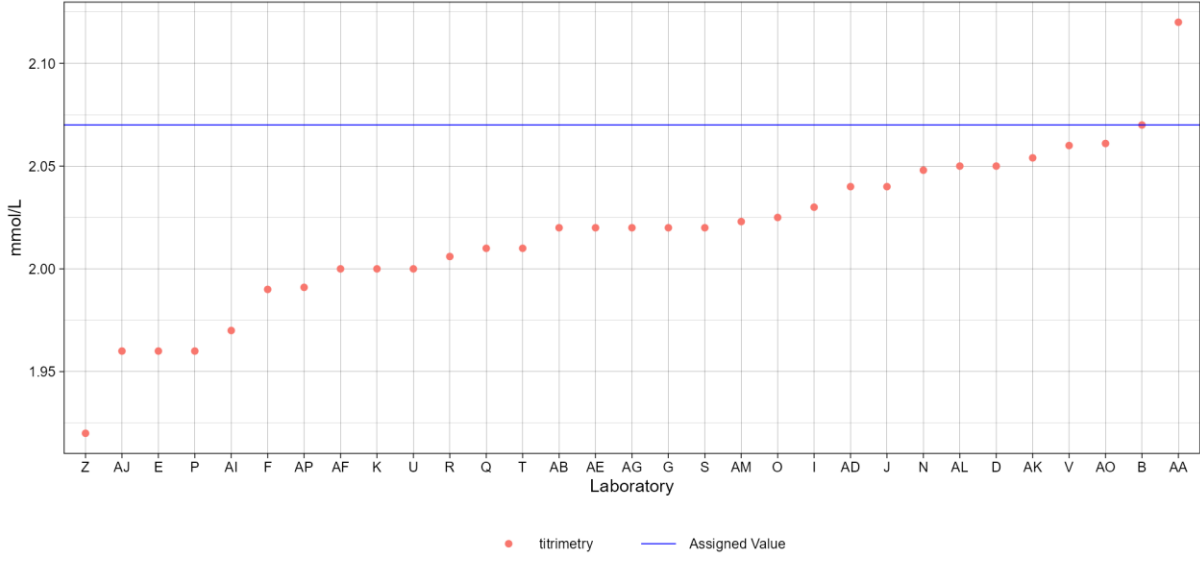
Sample N172A  
Parameter total Hardness



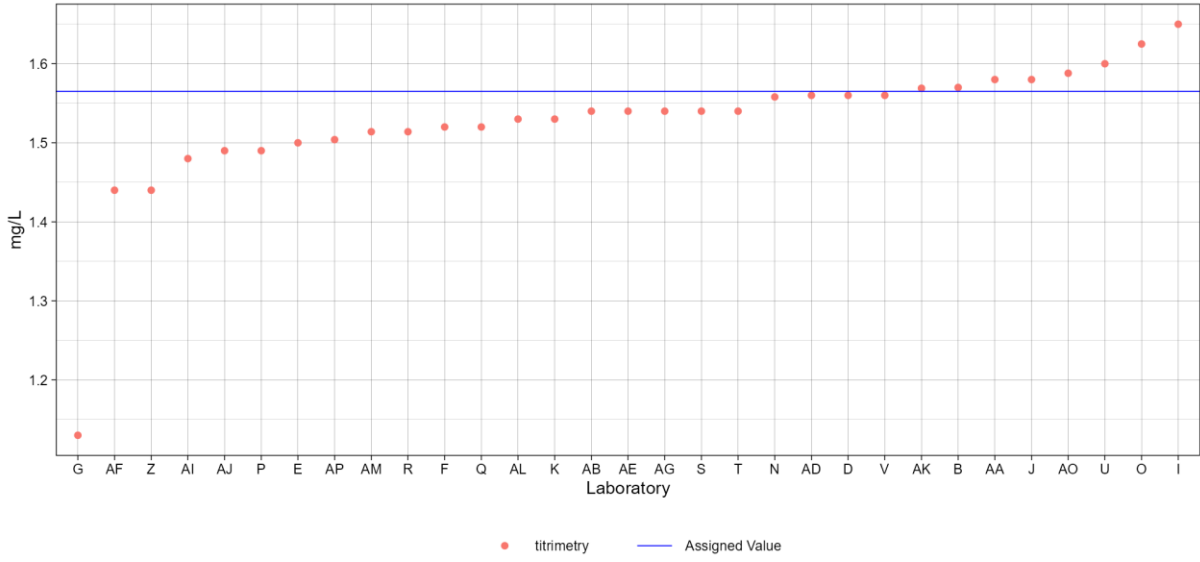
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Parameter total Hardness



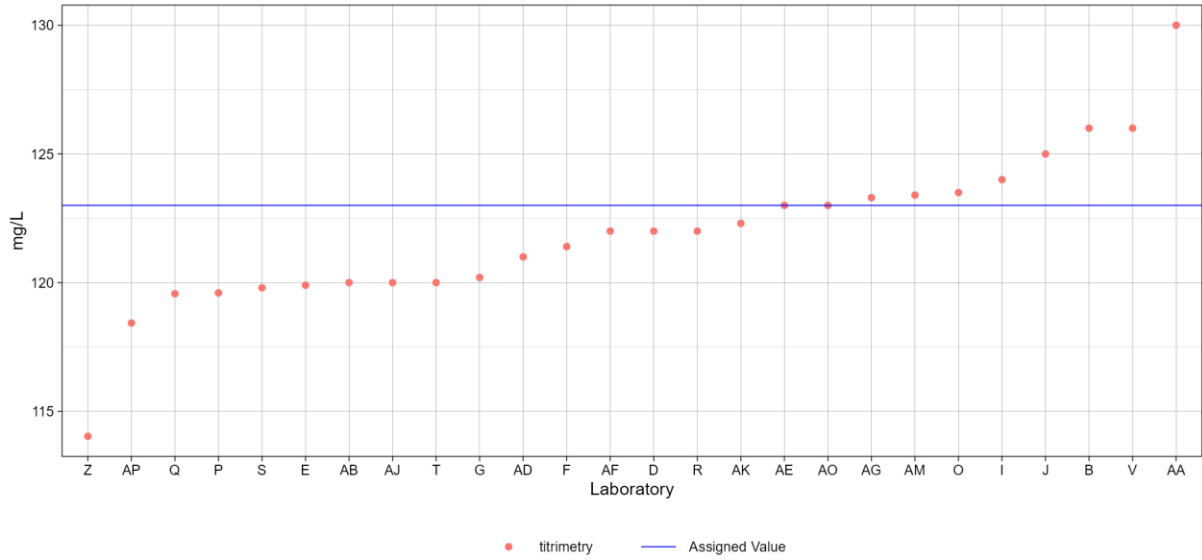
Sample N172A  
Parameter Alkalinity



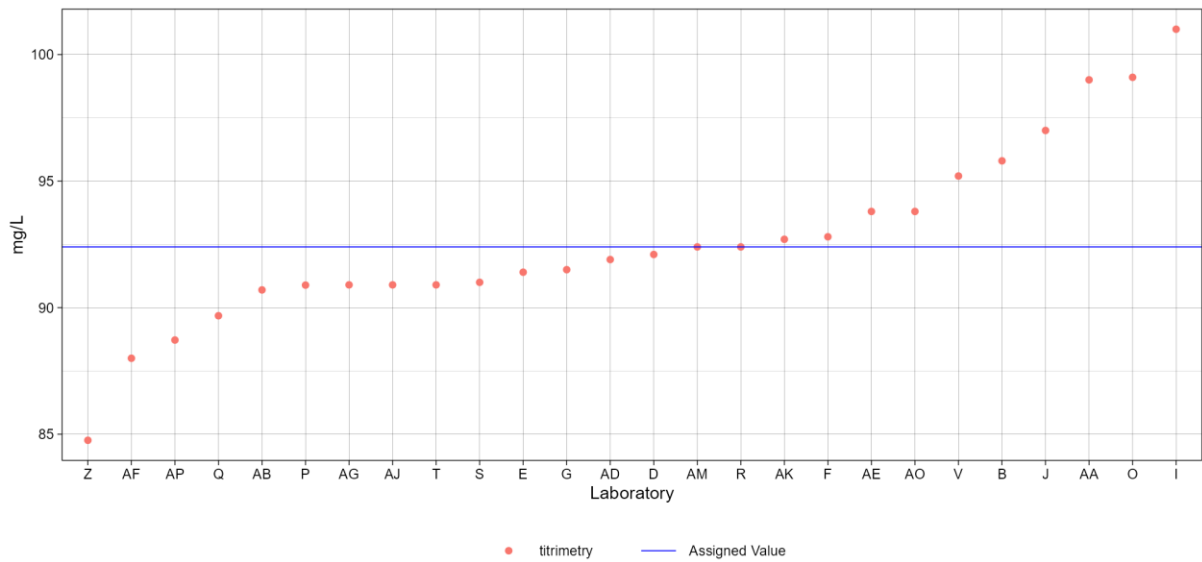
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Parameter Alkalinity



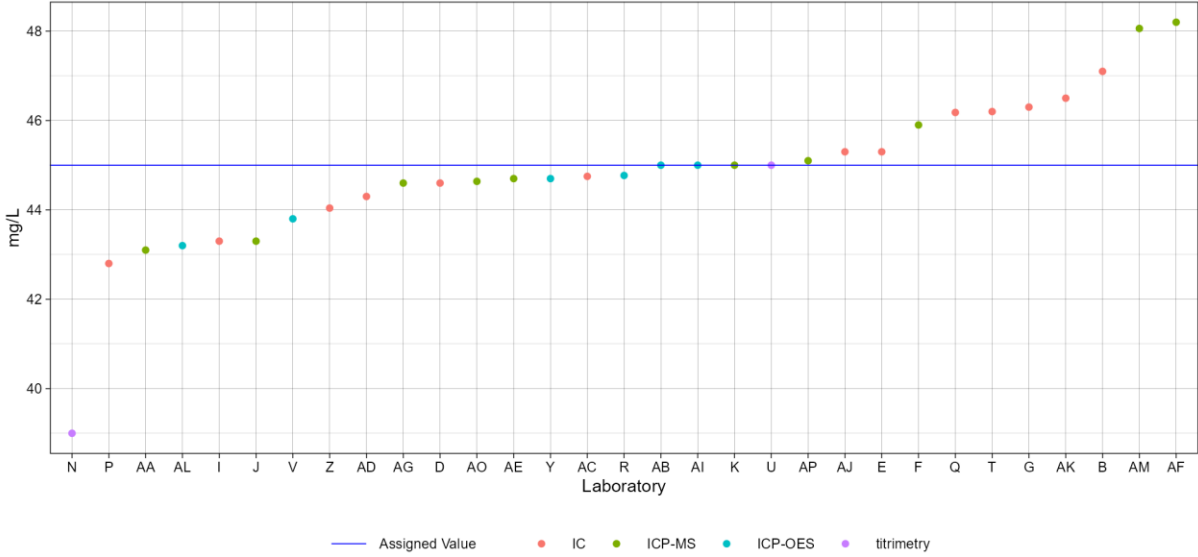
Sample N172A  
Parameter Hydrogen carbonate



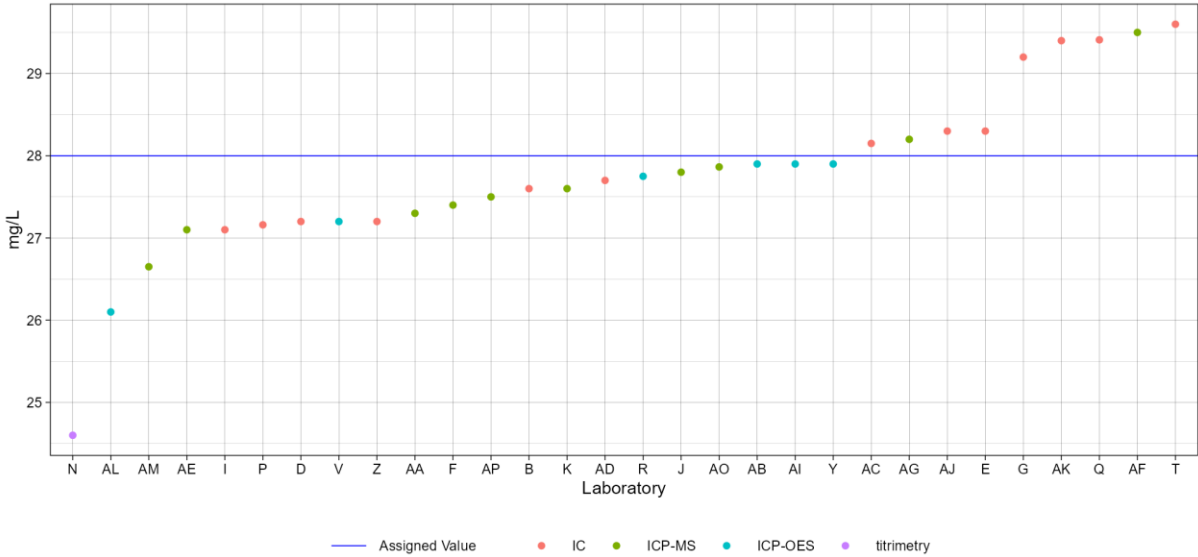
Sample N172B  
Parameter Hydrogen carbonate



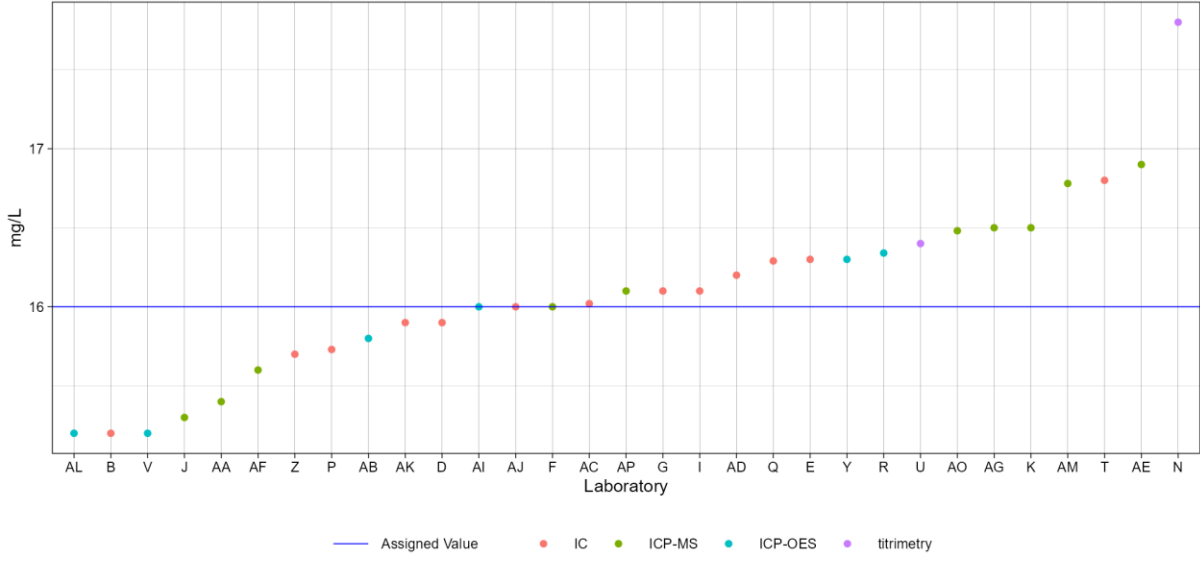
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Parameter Calcium



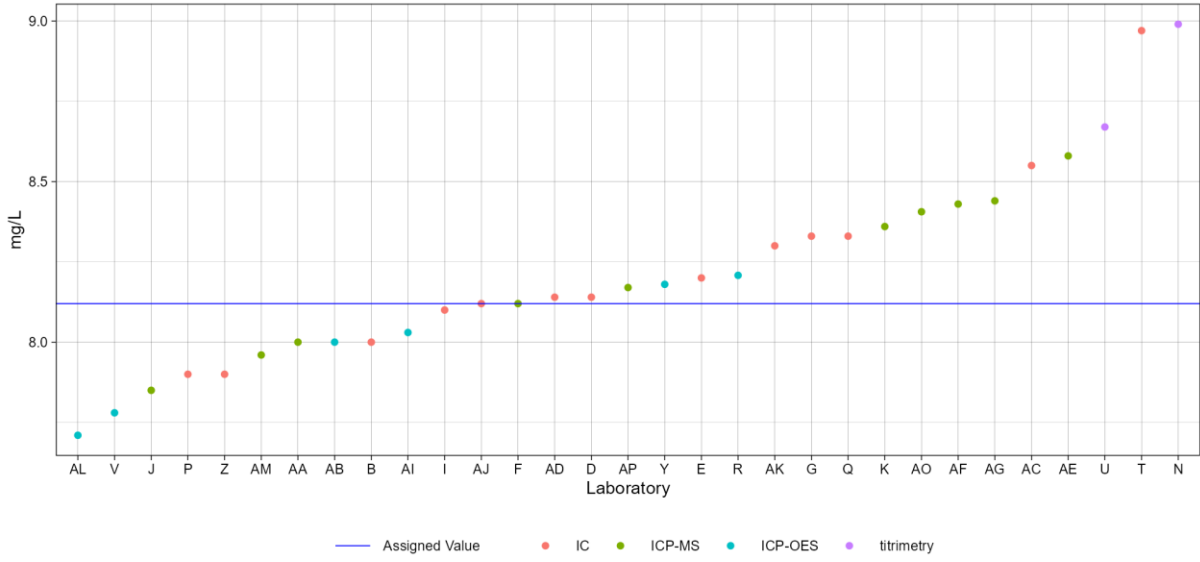
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Parameter Calcium



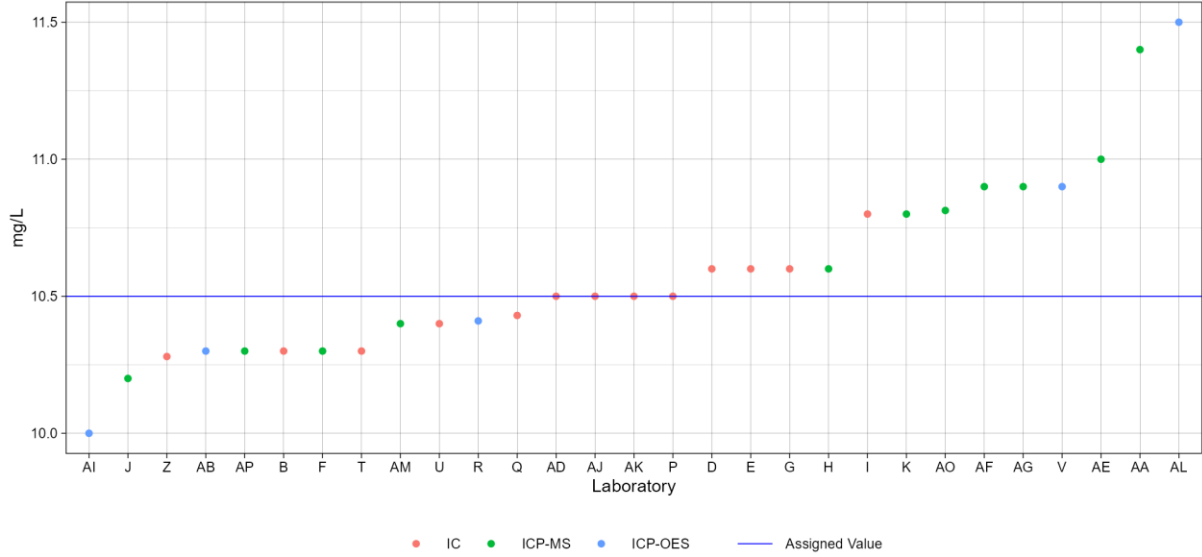
Sample N172A  
Parameter Magnesium



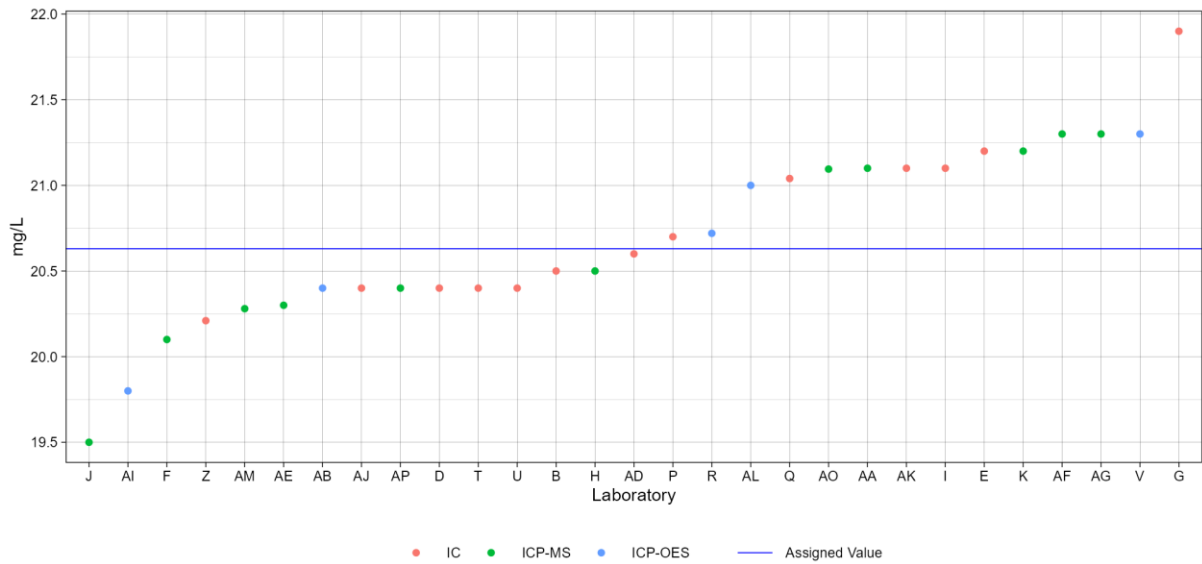
Sample N172B  
Parameter Magnesium



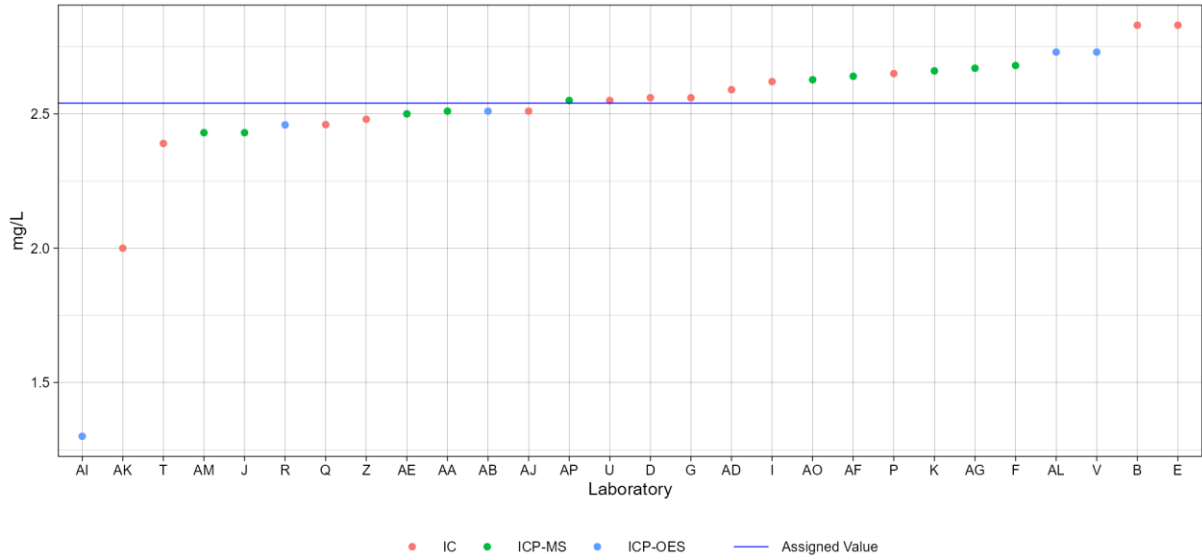
Sample N172A  
Parameter Sodium



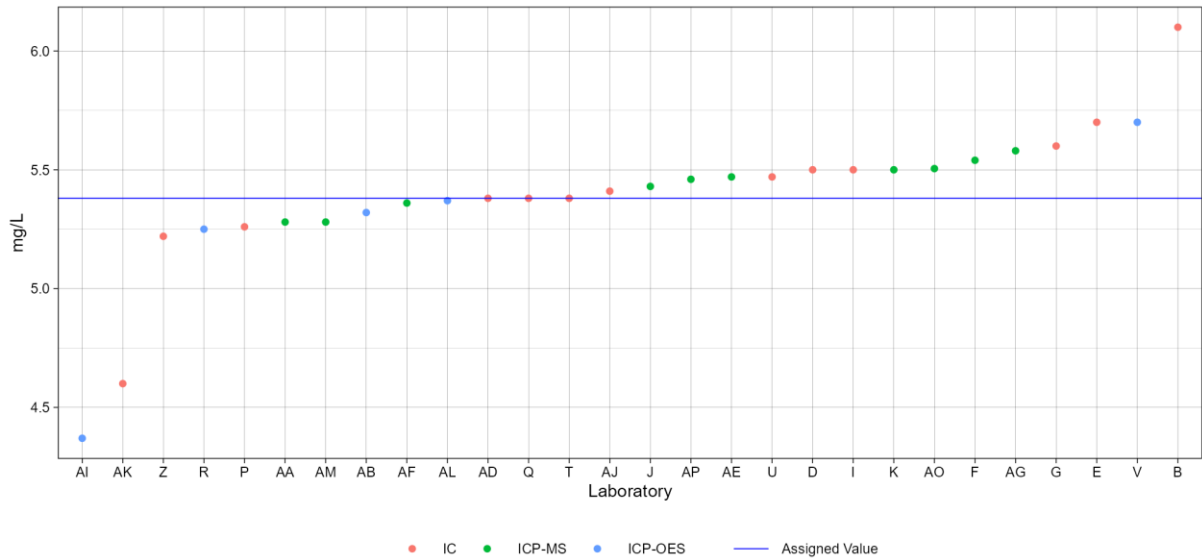
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Parameter Sodium



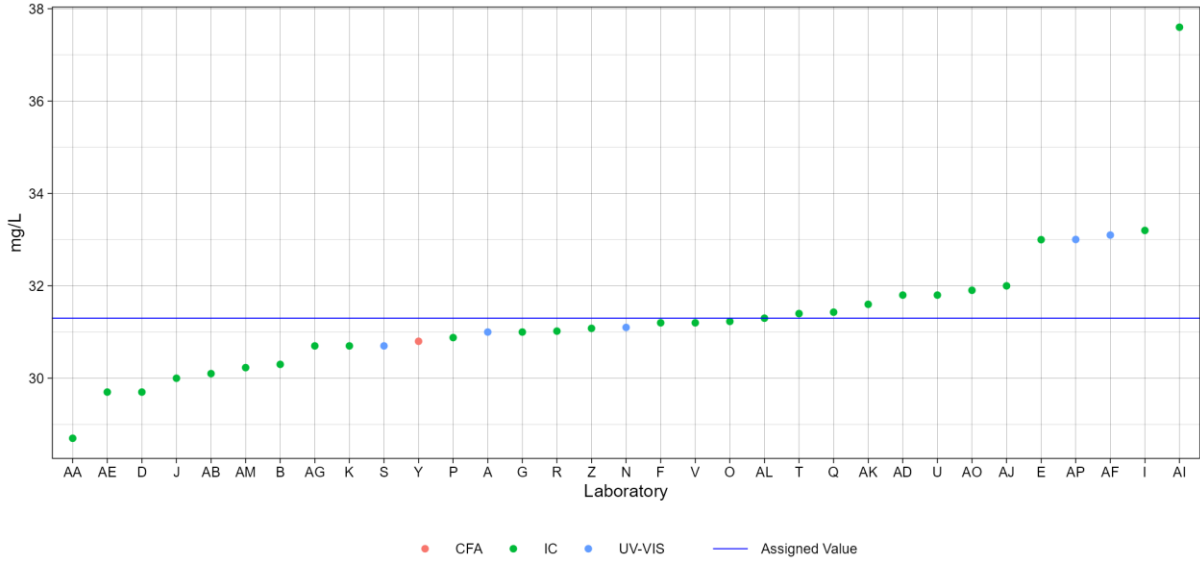
Sample N172A  
Parameter Potassium



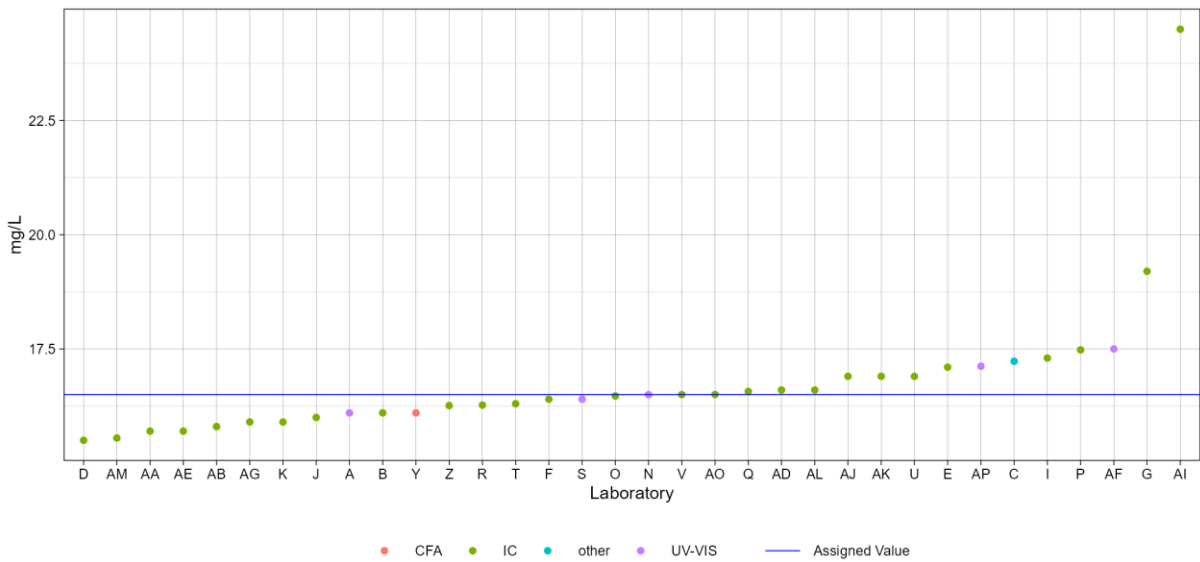
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Parameter Potassium



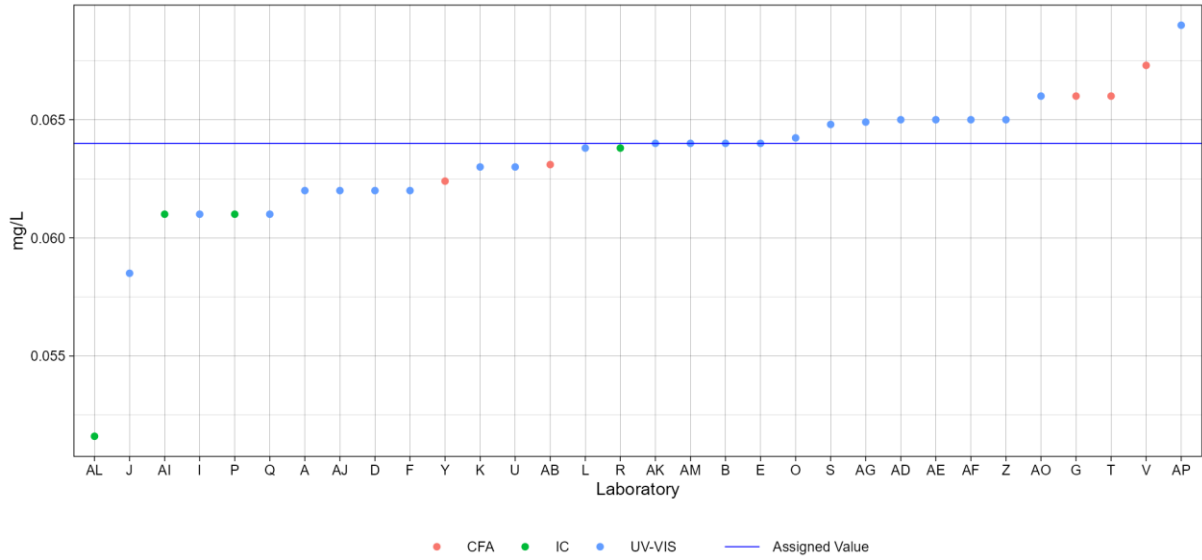
Sample N172A  
Parameter Nitrate



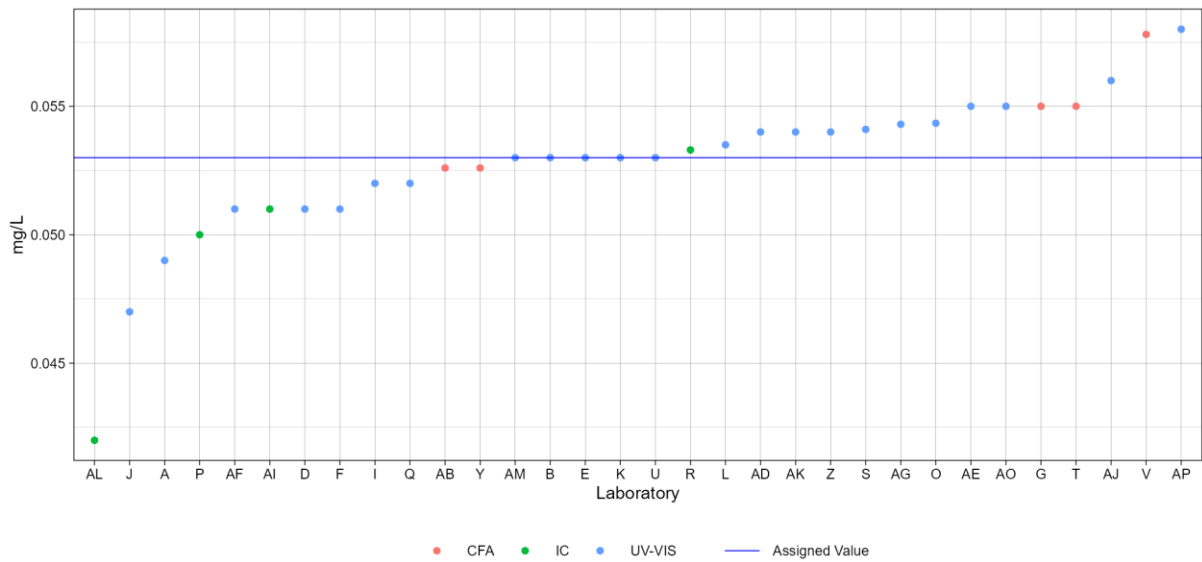
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Parameter Nitrate



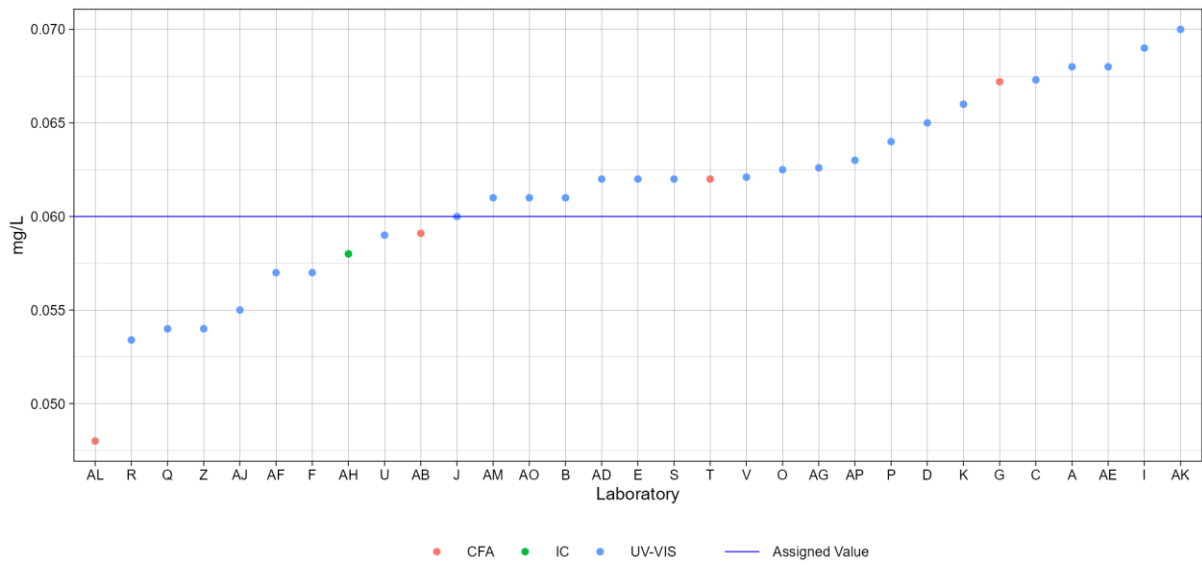
Sample N172A  
Parameter Nitrite



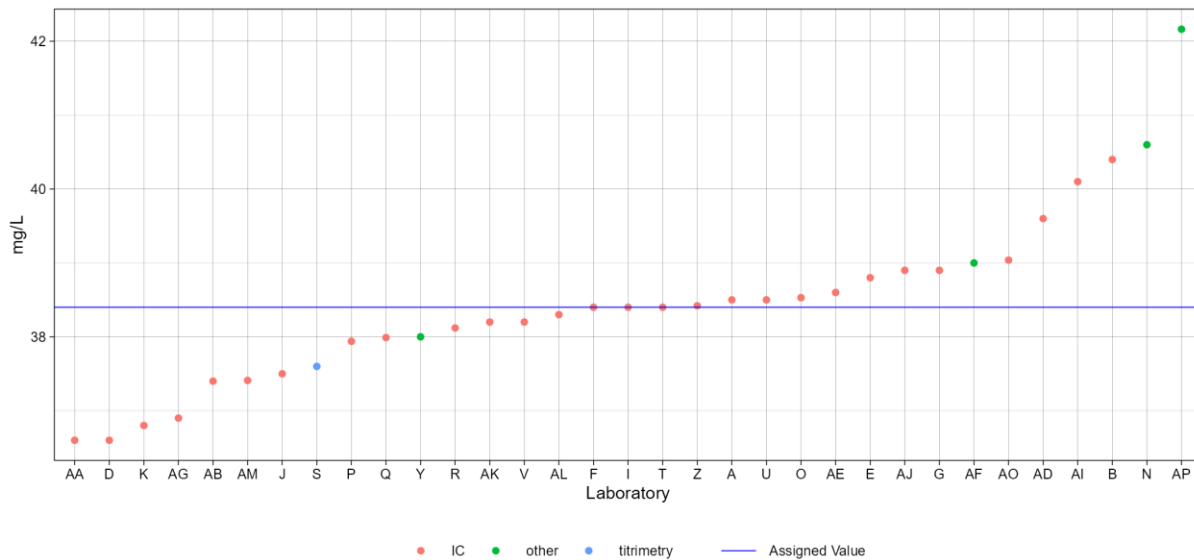
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Parameter Nitrite



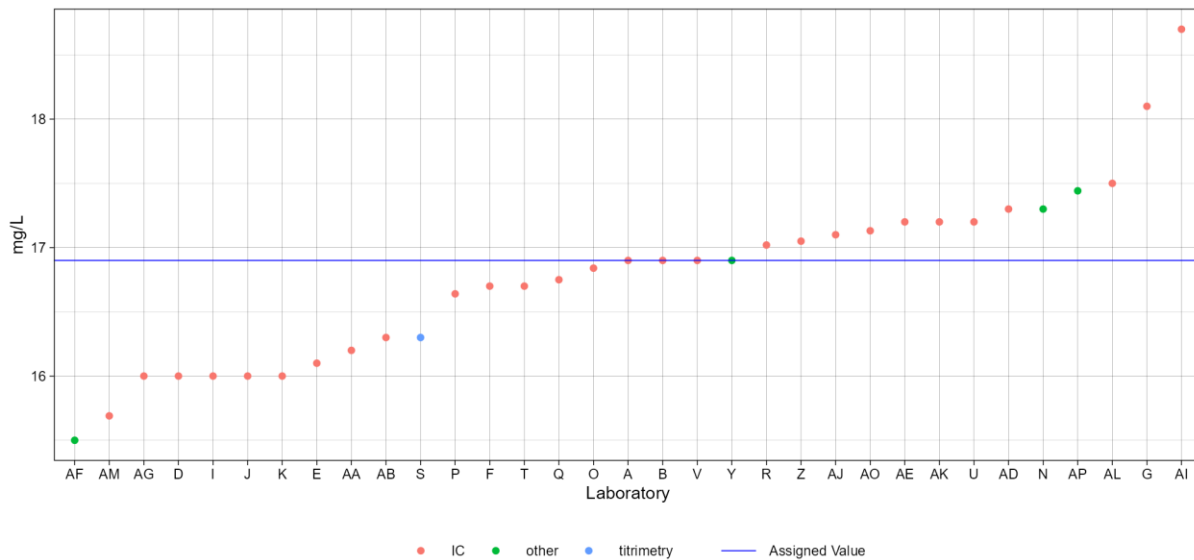
Sample N172B  
Parameter Ammonium



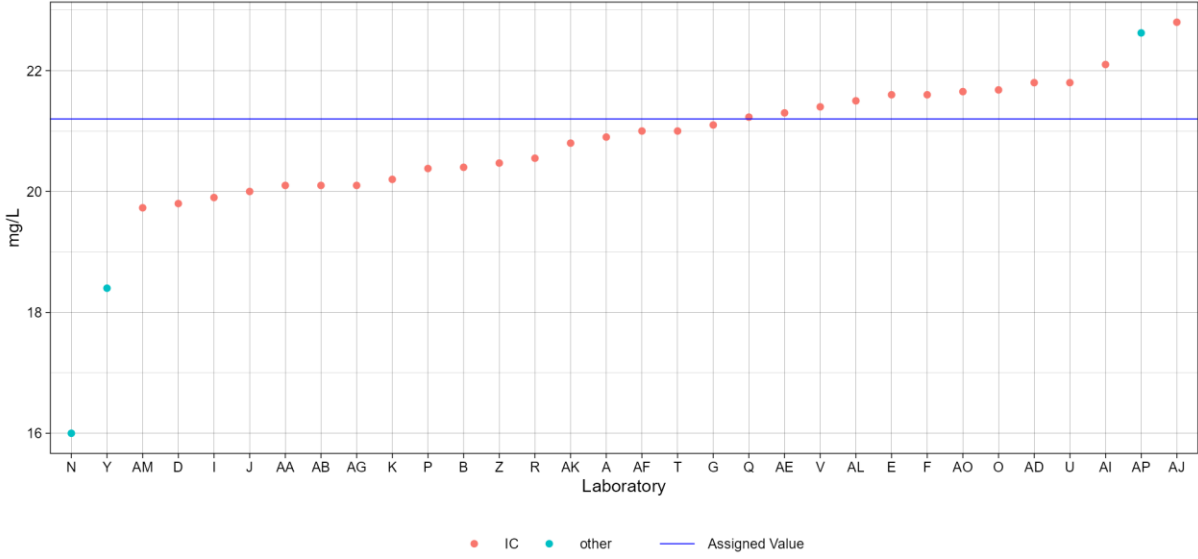
Sample N172A  
Parameter Chloride



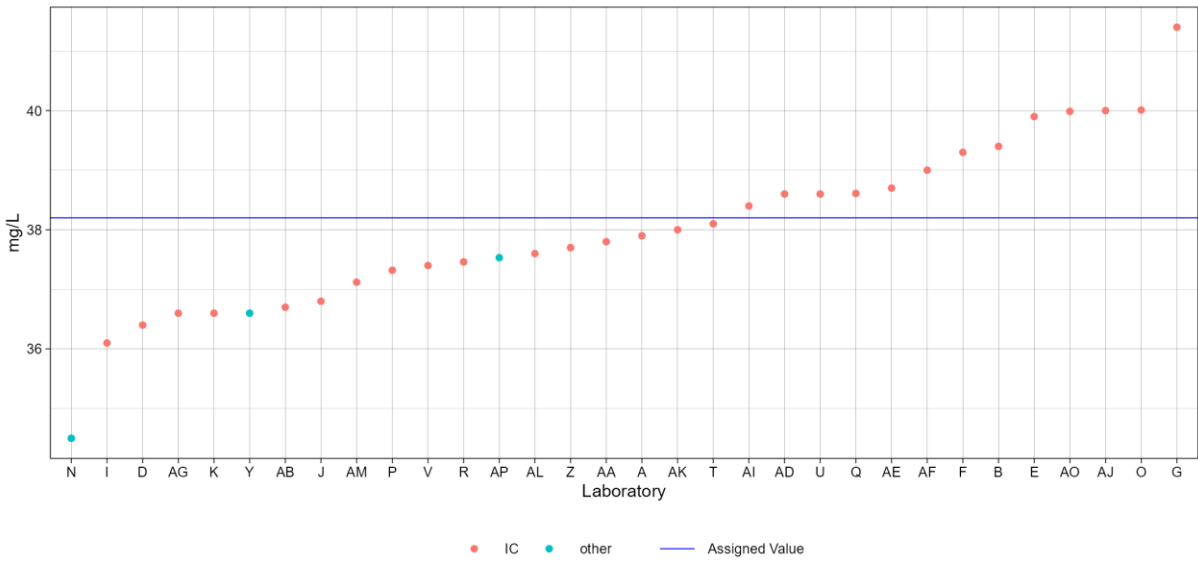
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Parameter Chloride



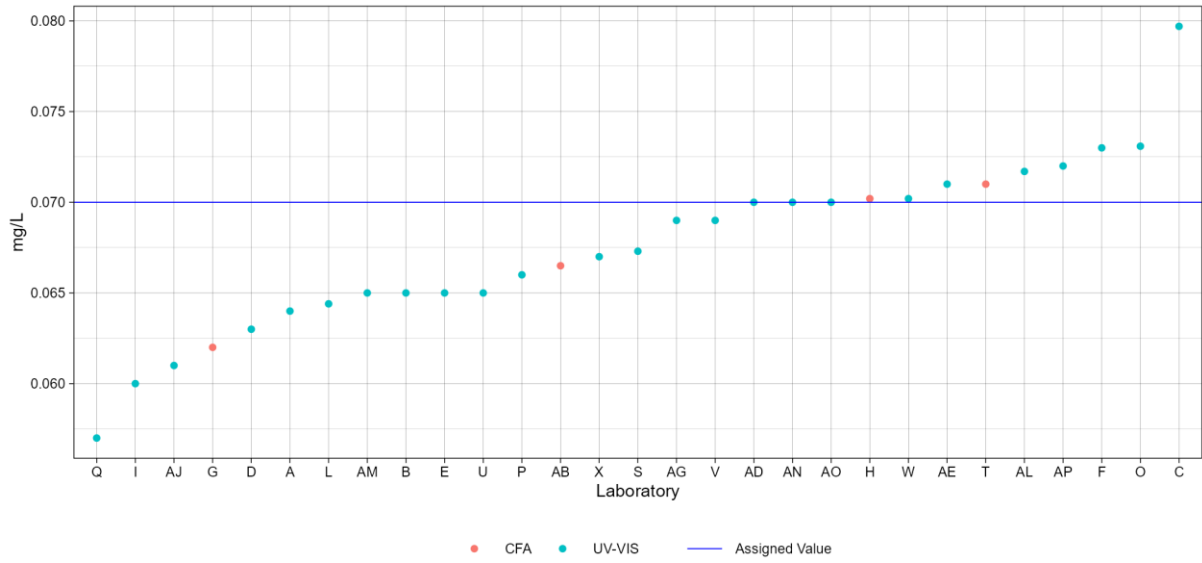
Sample N172A  
Parameter Sulphate



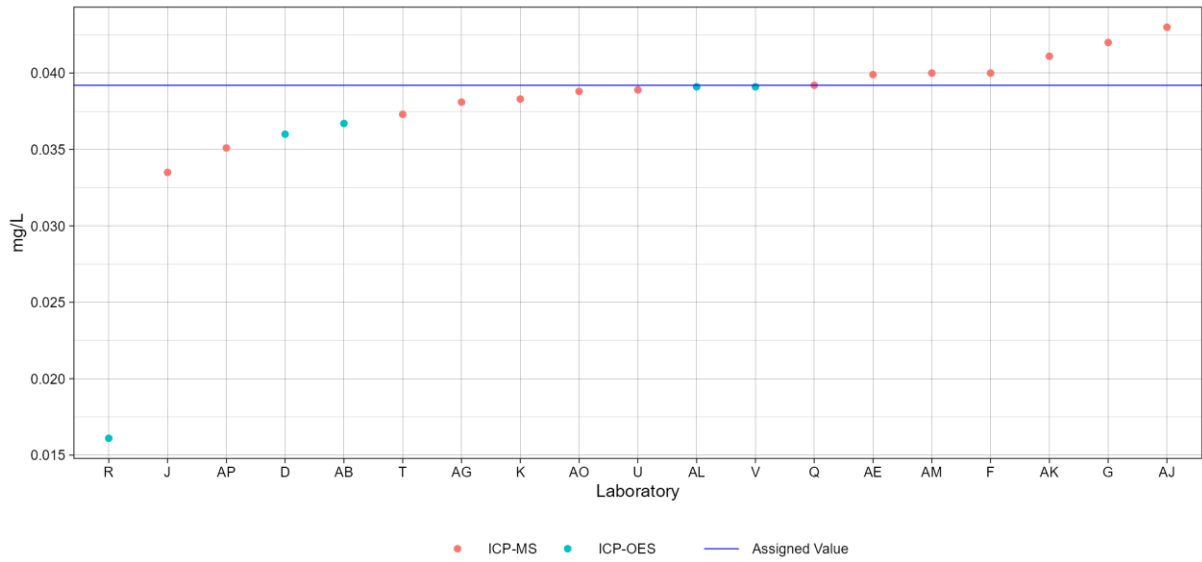
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Parameter Sulphate



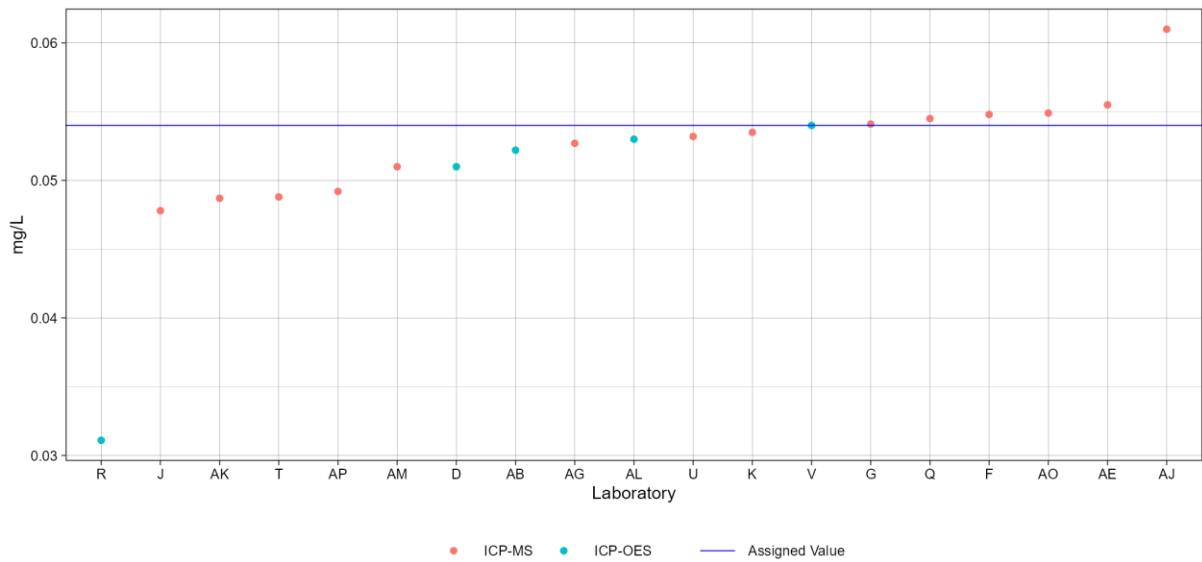
Sample N172A  
Parameter Orthophosphate



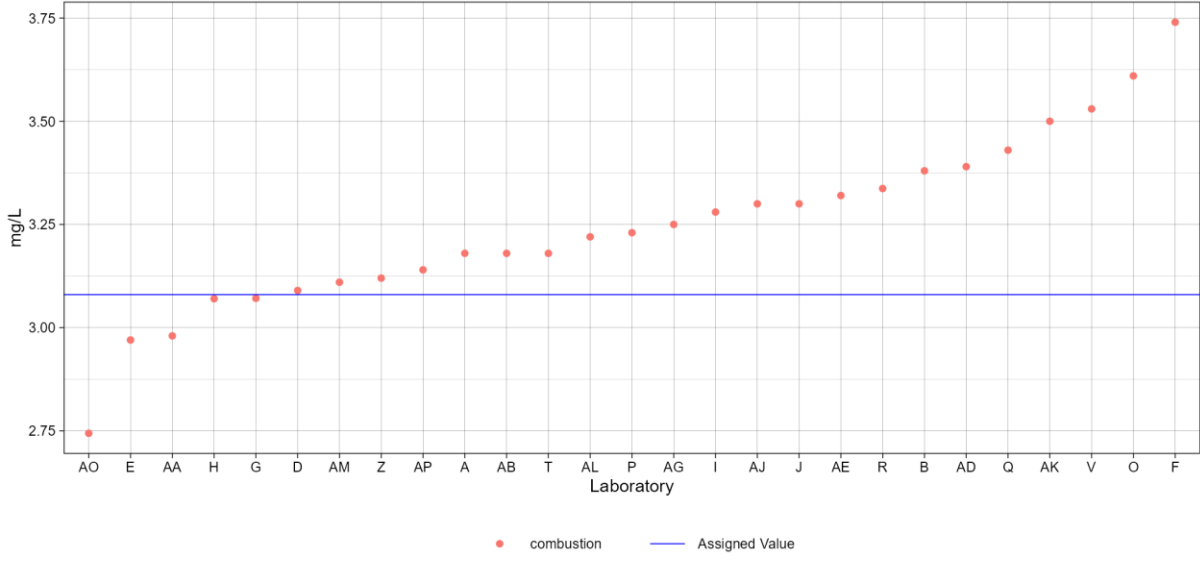
Sample N172A  
Parameter Boron



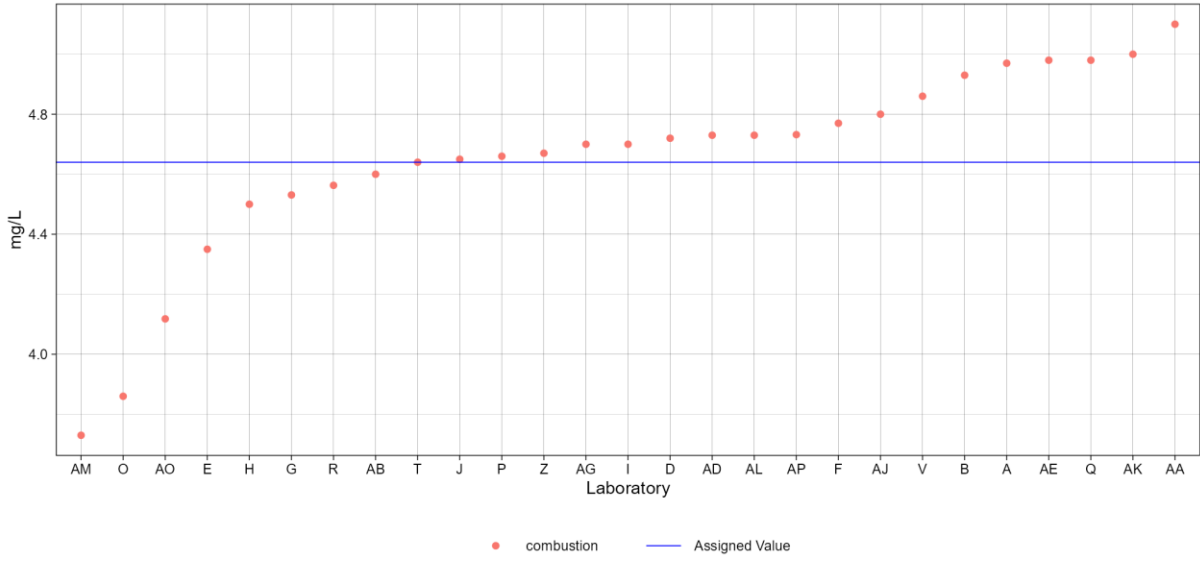
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Parameter Boron



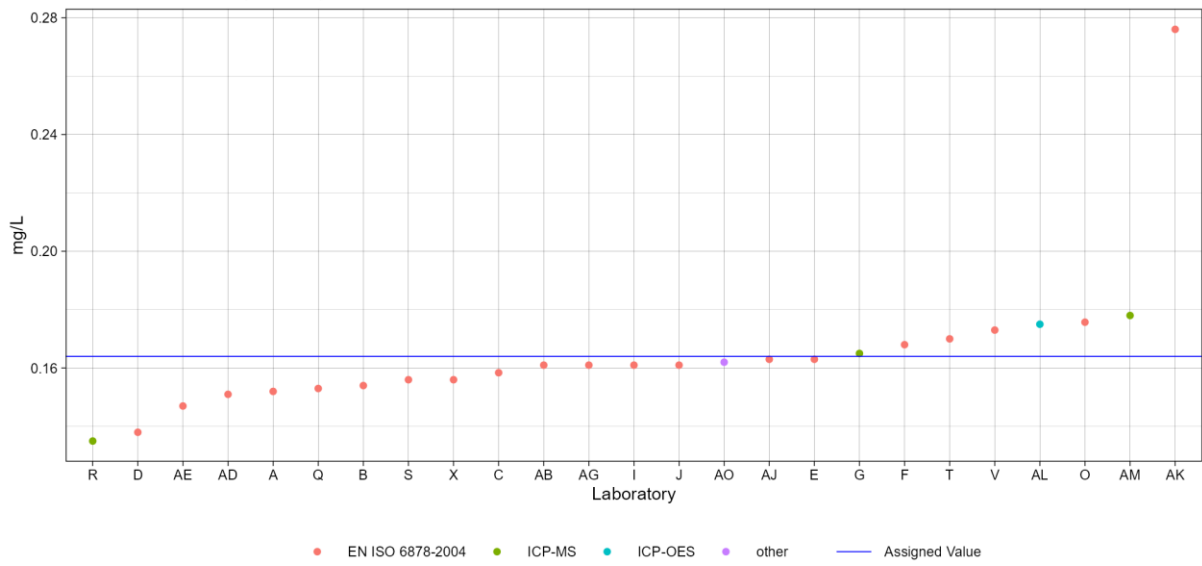
Sample N172A  
Parameter DOC



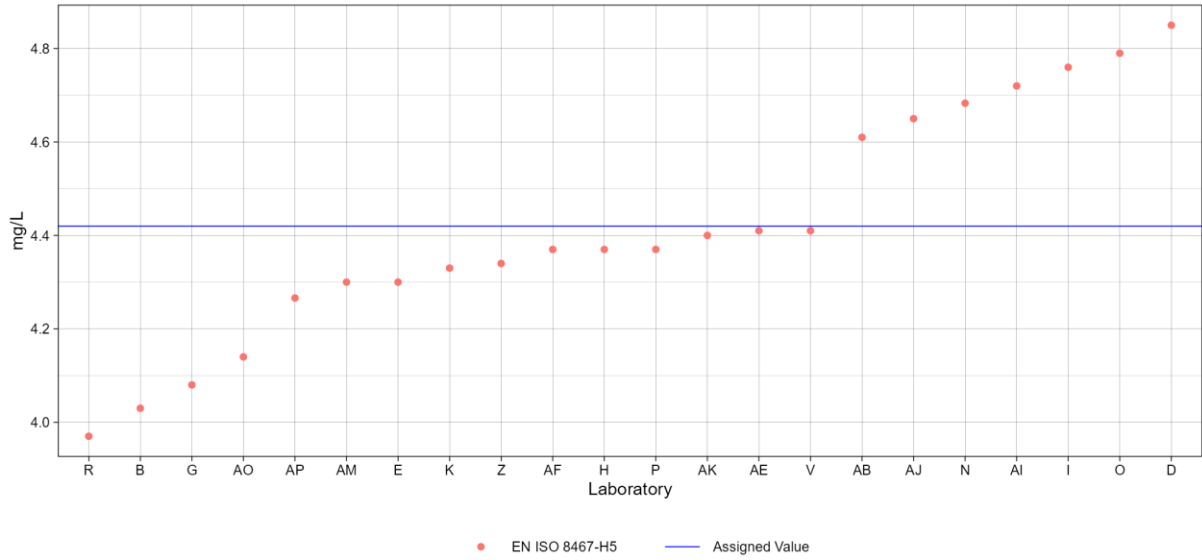
Sample N172B  
Parameter DOC



Sample N172A  
Parameter Total-P (as PO4)



Sample N172A  
Parameter Permanganate index



Sample N172B  
Parameter Permanganate index

