IDL's (3s), MDL's and LOR's -XL
Perkin Elmer Optima 5300 DV Performance Figures: OES

No	Element	Wavelength/nm	IDL (3s) mg/l	MDL (3s) mg/l	Estimated LOR (5xMDL) mg/l
1	As	As 193.696	**0.0366**	**0.0367**	**0.18**
2	Cd	Cd 214.44	**0.0090**	**0.0193**	**0.10**
3	Cr	Cr 267.716	**0.0013**	**0.0083**	**0.04**
4	Pb	Pb 220.353	**0.0239**	**0.0309**	**0.15**

IDL's (3s), MDL's and LOR's
Perkin Elmer Elan 6000 ICP MS

No	Element	Mass	IDL (3s) ug/l	MDL (3s) ug/l	Estimated LOR (5xMDL) ug/l
1	As	As-75	**0.006**	**0.019**	**0.093**
2	Cd	Cd-114	**0.006**	**0.011**	**0.057**
3	Cr	Cr-53	**0.004**	**0.009**	**0.047**
4	Pb	Pb- 208	**0.002**	**0.004**	**0.019**

IDL's (3s), MDL's and LOR's
Flow Injection Mercury analyser (FIMS 400)

No	Element	Wavelength/nm	IDL (3s) ug/l	MDL (3s) ug/l	Estimated LOR (5xMDL) ug/l
1	Hg	Hg- 253.6	**0.002**	**0.011**	**0.056**

METHOD VERIFICATION DATA SHEET

Analyte: As

Matrix: 2% Hydrochloric Acid

Method Ref APHA 3120 B

Study	IDL	MDL	Precision 1	Precision 2	Recovery		
Actual/Spike	-	0.10	0.5000	1.0000	sample	1.000	
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	Recoveries
n	Result	Result	Result	Result	Result	Result	Result
1	0.0070	0.1190	0.5360	1.0400	0.0000	1.1810	118.1
2	-0.0180	0.0890	0.5920	1.0670	0.0000	1.1740	117.4
3	0.0120	0.1090	0.5560	1.0690	0.0000	1.1490	114.9
4	0.0070	0.1180	0.5440	1.1040	0.0000	1.1720	117.2
5	0.0180	0.1210	0.5550	1.0970	0.0000	1.1540	115.4
6	0.0020	0.1280	0.5620	1.0630	0.0000	1.1170	111.7
7	-0.0030	0.1080	0.5820	1.0550	0.0000	1.1240	112.4
8		0.1020	0.5490	1.0800	0.0000	1.1060	110.6
9		0.1270	0.5750	1.0570	0.0000	1.1430	114.3
10							
Mean	0.0036	0.1134	0.5612	1.0702	0.0000	1.1467	114.7
Sn-1	0.0116	0.0127	0.0184	0.0204	0.0000	0.0267	2.6665
IDL or MDL	0.0366	0.0367					
% RSD		11.1597	3.2840	1.9085		2.3254	2.3254
% Recovery							114.7
% Bias							14.7

IDL = t X S where S is the SD of replicate measurements of reagent water

MDL= t X S where S is the SD of replicate measuments of low level matrices or reagents balnks spiked with analyte at a level 3-5 times IDL

Student (t)	n	7	8	9	10
Values	t(99.0%)	3.143	2.998	2.896	2.821

METHOD VERIFICATION DATA SHEET

Analyte: Cd

Matrix: 2% Nitric Acid

Method Ref: APHA 3120 B

Study	IDL	MDL	Precision 1	Precision 2	Recovery		
Actual/Spike C	-	0.10	0.5000	1.0000	Sample	1.000	
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	**Recoveries**
n	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
1	0.0100	0.1060	0.5480	1.1220	0.0000	1.0700	107.0
2	0.0100	0.0910	0.5610	1.0670	0.0000	1.0910	109.1
3	0.0100	0.0870	0.5540	1.0520	0.0000	1.1580	115.8
4	0.0100	0.0850	0.5360	1.0060	0.0000	1.1090	110.9
5	0.0110	0.0850	0.5290	1.0500	0.0000	1.1410	114.1
6	0.0100	0.0850	0.5390	1.0520	0.0000	1.1390	113.9
7	0.0100	0.0860	0.5540	1.0470	0.0000	1.1450	114.5
8	0.0010	0.0880	0.5430	1.0430	0.0000	1.1320	113.2
9	0.0110	0.0880	0.5320	1.0550	0.0000	1.1580	115.8
10							
Mean	0.0092	0.0890	0.5440	1.0549	0.0000	1.1270	112.7
Sn-1	0.0031	0.0067	0.0110	0.0302	0.0000	0.0306	3.0578
IDL or MDL	0.0090	0.0193					
% RSD		7.4953	2.0179	2.8606		2.7132	2.7132
% Recovery							112.7
% Bias							12.7

IDL = t X S where S is the SD of replicate measurements of reagent water

MDL= t X S where S is the SD of replicate measuments of low level matrices or reagents balnks spiked with analyte at a level 3-5 times IDL

Student (t)	n	7	8	9	10
Values	t(99.0%)	3.143	2.998	2.896	2.821

METHOD VERIFICATION DATA SHEET

Analyte: Cr   Matrix: 2% Nitric Acid

Method Reference   APHA 3120 B

Study	IDL	MDL	Precision 1	Precision 2	Recovery		
Actual/Spike Conc.	-	0.10	0.5000	1.0000	-	1.000	
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	**Recoveries**
n	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
1	0.0180	0.1080	0.5650	1.1390	0.0000	1.0380	103.8
2	0.0180	0.1060	0.5800	1.1000	0.0000	1.0190	101.9
3	0.0180	0.1050	0.5740	1.0800	0.0000	1.0610	106.1
4	0.0190	0.1030	0.5540	1.0270	0.0000	1.0430	104.3
5	0.0190	0.1030	0.5460	1.0710	0.0000	1.1050	110.5
6	0.0180	0.0990	0.5550	1.0600	0.0000	1.1320	113.2
7	0.0180	0.1010	0.5720	1.0520	0.0000	1.1670	116.7
8	0.0180	0.1010	0.5630	1.0710	0.0000	1.1560	115.6
9	0.0180	0.1010	0.5470	1.0660	0.0000	1.1760	117.6
10							
Mean	0.0182	0.1030	0.5618	1.0740	0.0000	1.0997	110.0
Sn-1	0.0004	0.0029	0.0121	0.0314	0.0000	0.0609	6.0852
IDL or MDL	0.0013	0.0083					
% RSD		2.7886	2.1541	2.9274		5.5337	5.5337
% Recovery							110.0
% Bias							10.0

IDL = t X S where S is the SD of replicate measurements of reagent water

MDL= t X S where S is the SD of replicate measuments of low level matrices or reagents balnks spiked with analyte at a level 3-5 times IDL

Student (t)	n	7	8	9	10
Values	t(99.0%)	3.143	2.998	2.896	2.821

METHOD VERIFICATION DATA SHEET

Analyte: Pb   Matrix: 2% Nitric Acid

Method Reference   APHA 3120 B

Study	IDL	MDL	Precision 1	Precision 2	Recovery		
Actual/Spike Conc.	-	0.10	0.5000	1.0000	-	1.000	
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
n	Result	Result	Result	Result	Result	Result	Recoveries
1	0.0260	0.112	0.5470	1.0900	0.0000	0.9310	93.1
2	0.0460	0.094	0.5630	1.0810	0.0000	0.9100	91.0
3	0.0230	0.123	0.5730	1.0760	0.0000	0.8950	89.5
4	0.0340	0.121	0.5670	1.0460	0.0000	0.8580	85.8
5	0.0240	0.123	0.5790	1.0900	0.0000	0.8610	86.1
6	0.0270	0.132	0.6020	1.0780	0.0000	0.8680	86.8
7	0.0280	0.122	0.5990	1.0810	0.0000	0.8670	86.7
8	0.0350	0.114	0.5800	1.0690	0.0000	0.9030	90.3
9	0.0180	0.121	0.5680	1.1210	0.0000	0.9290	92.9
10							
Mean	0.0290	0.1180	0.5753	1.0813	0.0000	0.8913	89.1
Sn-1	0.0083	0.0107	0.0173	0.0199	0.0000	0.0288	2.8849
IDL or MDL	0.0239	0.0309					
% RSD		9.0285	3.0042	1.8391		3.2366	3.2366
% Recovery							89.1
% Bias							-10.9

IDL = t X S where S is the SD of replicate measurements of reagent water

MDL= t X S where S is the SD of replicate measuments of low level matrices or reagents balnks spiked with analyte at a level 3-5 times IDL

Student (t)	n	7	8	9	10
Values	t(99.0%)	3.143	2.998	2.896	2.821