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Level IV Data Package

MWH Group 240233

Method: EPA 6010B CRVI

2805090112
2805090115
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EPA 200.7/6010B QC Check List

Analyst CSK Analysis Date 5-21-08 Reviewer/Date 5-22-08

Instrumnet PerKin Elmer Optima 4300DV

✓ All sample analyzed within 6 month holding time

✓ All sample raw concentraction below the high standard or linear range o marked for dilution and rerun

Initial and closing QC
- ✓ ICV within +/- 5%
- ✓ Linearity check +/- 10%
- ✓ ICSAB +/- 20%
- ✓ QCS +/- 5%
- ✓ MRL +/- 50%

Middle, closing and batch QC
- ✓ FilterCheck < 1/2 MRL
- ✓ MBLANK < 1/2 MRL
- ✓ LCS +/-15%
- ✓ MS/MSD +/-/30%(200.7) +/- 25% (6010B)
- ✓ CCV/MCV/ECV +/- 10%
- ✓ ICB/CCB/ECB < 1/2 MRL
- ✓ CCB ran after the CCV

General QC
- ✓ RPD between MS/MSD is within +/-/20%
- ✓ RPD between LCS/LCSD is within +/- 20%
- ✓ Internal standards 60 TO 125%
- ✓ All pH of the samples are < 2

✓ No more than 20 samples per batch

✓ MS is run at frequency of 1 every 10 samples and MSD is run at frequency of 1 every 20 samples

Yes QIR needed for failed QC

NA ~~Yes~~ Special Det Code noted on the cover sheet Cr 6+0, Ni 6+0

NA R value for multi point calibration is > 0.995

NA Proper MRL check ran for special low MRL samples

Reagent and Standards used for
Optima 4300 DV
Updated 03/31/08

Int: CSK
Date: 5-22-08

Method 200.7/6010

ICP SUMMARY SHEET

File ID: 080521
Date Started: 5/21/08
Analyst ID: CSK

SAMPLE ID

LINEARITY	(13:35)	LINEARITY	(13:42)	Wash	(13:48)
FILTERCHECK	(14:17)	2805080195_10X	(14:34)	2805070675_10X	(14:47)
2805070677_10X	(15:00)	2805070678_10X	(15:04)	2805070679_10X	(15:08)
2805190158	(15:25)	D805150230	(15:45)	2805190370	(15:49)
2805200055	(15:53)	2805200009	(15:58)	2805200010	(16:02)
2805200011	(16:06)	2805200012	(16:11)	2805200013	(16:15)
2805200014	(16:19)	2805190004	(16:24)	2805200320	(17:44)
2805200459	(17:47)	2805200453	(17:51)	2805200454	(17:55)
2805200455	(17:59)	2805200215	(18:03)	2805200603	(18:07)
2805200505	(18:11)	2805200507	(18:26)	2805200510	(18:42)
2805200509	(18:53)	2805200511	(18:57)	2805200512	(19:08)
2805200064	(19:12)	2805200068	(19:16)	2805200070	(19:20)
2805200605	(19:24)	2805200607	(19:28)	2805200608	(19:33)
2805200609	(19:37)	2805200280_2	(19:57)	2805090186_2	(20:18)
2805090189_2	(20:28)	2805090181_2	(20:44)	2805090182_2	(20:48)
2805090184_2	(20:53)	2805090185_2	(20:57)	2805100128_2	(21:01)
2805100129_2	(21:06)	2805100130_2	(21:10)	2805100131_2	(21:14)
2805100132_2	(21:36)	2805100135_2	(21:41)	2805100137_2	(21:45)
2805100138_1	(21:49)	2805100139_2	(21:53)	2805100140_2	(21:57)
2805130453_2	(22:02)	2805130454_2	(22:06)	2805140073_2	(22:10)
2805140074_2	(22:14)	2805080677_2 CCK 5/22/08	(22:54)	2805080991_2	(23:03)
2805080656_5	(23:19)	2805080657_1	(23:22)	2805080665_2	(23:25)
2805080666_5	(23:31)	2805080668_5	(23:34)	2805080673_5	(23:37)
2805080681_1	(23:40)	2805080682_1	(23:43)	2805080683_1	(23:46)
2805080684_5	(23:55)	2805080685_5	(23:58)	2805080686_5	(0:01)
2805080688_5	(0:04)	2805080695_2	(0:07)	2805080696_2	(0:10)
2805080697_2	(0:13)	2805080999_2	(0:16)	2805090112_5	(0:19)
2805090119_2	(0:45)	2805090120_2	(0:54)	2805090115_5	(1:09)
2805090116_2	(1:12)	2805090117_5	(1:15)	2805090118_5	(1:18)
2805090121_5	(1:21)	2805090122_5	(1:24)	2805090123_5	(1:27)
2805090124_1	(1:30)	2805090132_1	(1:33)	2805090133_1	(1:36)
2805090134_5	(1:47)	2805090135_5	(1:50)	2805090136_1	(1:53)
2805090137_1	(1:56)	2805090138_5	(1:59)	2805090152_5	(2:02)
2805090157_5	(2:05)	2805090177_2	(2:08)		

COMMENT:

(1) Na 6010 samples. due to the spike sample 2805080195 concentration (Recovery) is too high even with 10X, the result is too low. Need QIR.

(2) sample from 2805200280 for Cr 6010 samples.

(3) 2805080677 → 2805080667
2805080697 → 2805080997 } Typeing Error

Analyst: CSK
5-22-08

Approved By: WBM

WB MM 6/3/08

BATCH NUMBER for 080521

Test Parameter:

SCA YR AG AL AS B_ BA BE CA CD CO CR CU FE K MG MN MO NA NI

Batch ID: 2805080195_10X

2805080195_10X	2805070675_10X	2805070677_10X
2805070678_10X	2805070679_10X	

Batch ID: 2805190158

2805190158	2805190370	2805200055
2805200009	2805200010	2805200011
2805200012	2805200013	2805200014
2805190004	2805200320	2805200459
2805200453	2805200454	2805200455
2805200215	2805200603	2805200505
2805200507		

Batch ID: 2805200510

2805200510	2805200509	2805200511
2805200512	2805200064	2805200068
2805200070	2805200605	2805200607
2805200608	2805200609	2805200280_2X

Batch ID: 2805090186_2X

2805090186_2X	2805090189_2X	2805090181_2X
2805090182_2X	2805090184_2X	2805090185_2X
2805100128_2X	2805100129_2X	2805100130_2X
2805100131_2X	2805100132_2X	2805100135_2X
2805100137_2X	2805100138_10X	2805100139_2X
2805100140_2X	2805130453_2X	2805130454_2X
2805140073_2X	2805140074_2X	

Batch ID: 2805080677_2X

2805080677_2X	2805080991_2X	2805080656_5X
2805080657_10X	2805080665_2X	2805080666_5X
2805080668_5X	2805080673_5X	2805080681_10X
2805080682_10X	2805080683_10X	2805080684_5X
2805080685_5X	2805080686_5X	2805080688_5X
2805080695_2X	2805080696_2X	2805080697_2X
2805080999_2X	2805090112_5X	

Batch ID: 2805090119_2X

2805090119_2X	2805090120_2X	2805090115_5X
2805090116_2X	2805090117_5X	2805090118_5X

2805090121_5X
2805090122_5X
2805090123_5X
2805090124_10X
2805090132_10X
2805090133_10X
2805090134_5X
2805090135_5X
2805090136_10X
2805090137_10X
2805090138_5X
2805090152_5X
2805090157_5X
2805090177_2X

Analytical Sequence

Method : 200.7&6010_080304

Seq.	Loc.	Sample ID	Status
1	15	ICV	
2	9	LINEARITY	
3	10	ICSA	
4	11	ICSAB	
5	0	Wash	
6	12	QC-25 1ppm	
7	4	CCV	
8	0	ICB	
9	20	MRL	
10	16	MRL/2	
11	18	FILTERCHECK	
12	38	MBLANK2007	
13	24	MRL2007	
14	39	LCS2007	
15	40	LCSD2007	
16	41	2805080195_10X	
17	42	2805080195_10XMS	
18	43	2805080195_10XMSD	
19	44	2805070675_10X	
20	4	CCV	
21	0	CCB	QC Passed
22	45	2805070677_10X	Analyzed
23	46	2805070678_10X	Analyzed
24	47	2805070679_10X	Analyzed
25	48	MBLANK	Analyzed
26	21	MRL	Analyzed
27	49	LCS	Analyzed
28	50	LCSD	Analyzed
29	51	2805190158	Analyzed
30	52	2805190158MS	Analyzed
31	53	2805190158MSD	Analyzed
32	4	CCV	QC Passed
33	0	CCB	QC Passed
34	5	MCV	QC Passed
35	54	D805150230	Analyzed
36	55	2805190370	Analyzed
37	56	2805200055	Analyzed
38	57	2805200009	Analyzed
39	58	2805200010	Analyzed
40	59	2805200011	Analyzed
41	60	2805200012	Analyzed
42	61	2805200013	Analyzed
43	62	2805200014	Analyzed
44	63	2805190004	Analyzed
45	4	CCV	QC Passed
46	0	CCB	QC Passed
47	64	2805190004MS	Analyzed
48	65	2805190004MSD	Analyzed
49	66	2805150826	
50	67	2805150100_5X	
51	68	2805150132_5X	
52	69	2805150132_100X	
53	70	2805080368	
54	71	2805160299	
55	72	2805130392	
56	73	2805141006	

Analytical Sequence
Method: 200.7&6010_080304

Seq.	Loc.	ID	Status
1	15	ICV	
2	9	LINEARITY	
3	10	ICSA	
4	11	ICSAB	
5	0	Wash	
6	12	QC-25 1ppm	
7	4	CCV	
8	0	ICB	
9	20	MRL	
10	16	MRL/2	
11	18	FILTERCHECK	
12	38	MBLANK2007	
13	24	MRL2007	
14	39	LCS2007	
15	40	LCSD2007	
16	41	2805080195_10X	
17	42	2805080195_10XMS	
18	43	2805080195_10XMSD	
19	44	2805070675_10X	
20	4	CCV	
21	0	CCB	
22	45	2805070677_10X	
23	46	2805070678_10X	
24	47	2805070679_10X	
25	48	MBLANK	
26	21	MRL	
27	49	LCS	
28	50	LCSD	
29	51	2805190158	
30	52	2805190158MS	
31	53	2805190158MSD	
32	4	CCV	
33	0	CCB	
34	5	MCV	
35	54	D805150230	
36	55	2805190370	
37	56	2805200055	
38	57	2805200009	
39	58	2805200010	
40	59	2805200011	
41	60	2805200012	
42	61	2805200013	
43	62	2805200014	
44	63	2805190004	
45	4	CCV	
46	0	CCB	
47	64	2805190004MS	
48	65	2805190004MSD	
49	66	2805200320	
50	67	2805200459	
51	68	2805200453	
52	69	2805200454	
53	70	2805200455	
54	71	2805200215	
55	72	2805200603	
56	73	2805200505	
57	4	CCV	
58	0	CCB	
59	5	MCV	
60	74	2805200507	Analyzed
61	75	MBLANK	Analyzed
62	21	MRL	Analyzed
63	76	LCS	Analyzed
64	77	LCSD	Analyzed
65	78	2805200510	Analyzed
66	79	2805200510MS	Analyzed
67	80	2805200510MSD	Analyzed

68	81	2805200509	Analyzed
69	82	2805200511	Analyzed
70	4	CCV	QC Passed
71	0	CCB	QC Passed
72	83	2805200512	Analyzed
73	84	2805200064	Analyzed
74	85	2805200068	Analyzed
75	86	2805200070	Analyzed
76	87	2805200605	Analyzed
77	88	2805200607	Analyzed
78	89	2805200608	Analyzed
79	90	2805200609	Analyzed
80	91	2805200609MS	Analyzed
81	92	2805200609MSD	Analyzed
82	4	CCV	QC Passed
83	0	CCB	QC Passed
84	5	MCV	QC Passed
85	93	2805200280_2X	Analyzed
86	94	MBLANK2007	Analyzed
87	21	MRL	Analyzed
88	95	MRL2007	Analyzed
89	96	LCS2007	Analyzed
90	97	LCSD2007	Analyzed
91	98	2805090186_2X	Analyzed
92	99	2805090186_2XMS	Analyzed
93	100	2805090186_2XMSD	Analyzed
94	101	2805090189_2X	Analyzed
95	4	CCV	QC Passed
96	0	CCB	QC Passed
97	102	2805090189_2XMS	Analyzed
98	103	2805090189_2XMSD	Analyzed
99	104	2805090181_2X	Analyzed
100	105	2805090182_2X	Analyzed
101	106	2805090184_2X	Analyzed
102	107	2805090185_2X	Analyzed
103	108	2805100128_2X	Analyzed
104	109	2805100129_2X	Analyzed
105	110	2805100130_2X	Analyzed
106	111	2805100131_2X	Analyzed
107	4	CCV	QC Failed
108	4	CCV	QC Failed
109	4	CCV	QC Passed
110	0	CCB	QC Failed
111	0	CCB	QC Failed
112	0	CCB	QC Failed
113	5	MCV	QC Passed
114	112	2805100132_2X	Analyzed
115	113	2805100135_2X	Analyzed
116	114	2805100137_2X	Analyzed
117	115	2805100138_10X	Analyzed
118	116	2805100139_2X	Analyzed
119	117	2805100140_2X	Analyzed
120	118	2805130453_2X	Analyzed
121	119	2805130454_2X	Analyzed
122	120	2805140073_2X	Analyzed
123	121	2805140074_2X	Analyzed
124	4	ECV	QC Failed
125	4	ECV	QC Failed
126	0	ECB	QC Passed

Analytical Sequence
Method: 200.7&6010_080304

Seq.	Loc.	ID	Status
1	15	ICV	
2	9	LINEARITY	
3	10	ICSA	
4	11	ICSAB	
5	0	Wash	
6	12	QC-25 1ppm	
7	4	CCV	
8	0	ICB	
9	20	MRL	
10	16	MRL/2	
11	18	FILTERCHECK	
12	38	MBLANK2007	
13	24	MRL2007	
14	39	LCS2007	
15	40	LCSD2007	
16	41	2805080195_10X	
17	42	2805080195_10XMS	
18	43	2805080195_10XMSD	
19	44	2805070675_10X	
20	4	CCV	
21	0	CCB	
22	45	2805070677_10X	
23	46	2805070678_10X	
24	47	2805070679_10X	
25	48	MBLANK	
26	21	MRL	
27	49	LCS	
28	50	LCSD	
29	51	2805190158	
30	52	2805190158MS	
31	53	2805190158MSD	
32	4	CCV	
33	0	CCB	
34	5	MCV	
35	54	D805150230	
36	55	2805190370	
37	56	2805200055	
38	57	2805200009	
39	58	2805200010	
40	59	2805200011	
41	60	2805200012	
42	61	2805200013	
43	62	2805200014	
44	63	2805190004	
45	4	CCV	
46	0	CCB	
47	64	2805190004MS	
48	65	2805190004MSD	
49	66	2805200320	
50	67	2805200459	
51	68	2805200453	
52	69	2805200454	
53	70	2805200455	
54	71	2805200215	
55	72	2805200603	
56	73	2805200505	
57	4	CCV	
58	0	CCB	
59	5	MCV	
60	74	2805200507	
61	75	MBLANK	
62	21	MRL	
63	76	LCS	
64	77	LCSD	
65	78	2805200510	
66	79	2805200510MS	
67	80	2805200510MSD	

68	81	2805200509	
69	82	2805200511	
70	4	CCV	
71	0	CCB	
72	83	2805200512	
73	84	2805200064	
74	85	2805200068	
75	86	2805200070	
76	87	2805200605	
77	88	2805200607	
78	89	2805200608	
79	90	2805200609	
80	91	2805200609MS	
81	92	2805200609MSD	
82	4	CCV	
83	0	CCB	
84	5	MCV	
85	93	2805200280_2X	
86	94	MBLANK2007	
87	21	MRL	
88	95	MRL2007	
89	96	LCS2007	
90	97	LCSD2007	
91	98	2805090186_2X	
92	99	2805090186_2XMS	
93	100	2805090186_2XMSD	
94	101	2805090189_2X	
95	4	CCV	
96	0	CCB	
97	102	2805090189_2XMS	
98	103	2805090189_2XMSD	
99	104	2805090181_2X	
100	105	2805090182_2X	
101	106	2805090184_2X	
102	107	2805090185_2X	
103	108	2805100128_2X	
104	109	2805100129_2X	
105	110	2805100130_2X	
106	111	2805100131_2X	
107	4	CCV	
108	0	CCB	
109	5	MCV	
110	112	2805100132_2X	
111	113	2805100135_2X	
112	114	2805100137_2X	
113	115	2805100138_10X	
114	116	2805100139_2X	
115	117	2805100140_2X	
116	118	2805130453_2X	
117	119	2805130454_2X	
118	120	2805140073_2X	
119	121	2805140074_2X	
120	4	CCV	QC Failed
121	4	CCV	QC Failed
122	4	CCV	QC Failed
123	0	CCB	QC Passed
124	122	MBLANK2007	Analyzed
125	21	MRL	Analyzed
126	24	MRL2007	Analyzed
127	123	LCS2007	Analyzed
128	124	LCSD2007	Analyzed
129	125	2805080677_2X	Analyzed
130	126	2805080677_2XMS	Analyzed
131	127	2805080677_2XMSD	Analyzed
132	128	2805080991_2X	Analyzed
133	129	2805080991_2XMS	Analyzed
134	4	CCV	QC Passed
135	0	CCB	QC Passed
136	5	MCV	QC Passed
137	130	2805080991_2XMSD	Analyzed
138	131	2805080656_5X	Analyzed
139	132	2805080657_10X	Analyzed

140	133	2805080665_2X	Analyzed
141	134	2805080666_5X	Analyzed
142	135	2805080668_5X	Analyzed
143	136	2805080673_5X	Analyzed
144	137	2805080681_10X	Analyzed
145	138	2805080682_10X	Analyzed
146	139	2805080683_10X	Analyzed
147	4	CCV	QC Passed
148	0	CCB	QC Passed
149	140	2805080684_5X	Analyzed
150	141	2805080685_5X	Analyzed
151	142	2805080686_5X	Analyzed
152	143	2805080688_5X	Analyzed
153	144	2805080695_2X	Analyzed
154	145	2805080696_2X	Analyzed
155	146	2805080697_2X	Analyzed
156	147	2805080999_2X	Analyzed
157	148	2805090112_5X	Analyzed
158	38	MBLANK2007	Analyzed
159	4	CCV	QC Passed
160	0	CCB	QC Passed
161	5	MCV	QC Passed
162	21	MRL	Analyzed
163	24	MRL2007	Analyzed
164	39	LCS2007	Analyzed
165	40	LCSD2007	Analyzed
166	41	2805090119_2X	Analyzed
167	42	2805090119_2XMS	Analyzed
168	43	2805090119_2XMSD	Analyzed
169	44	2805090120_2X	Analyzed
170	45	2805090120_2XMS	Analyzed
171	46	2805090120_2XMSD	Analyzed
172	4	CCV	QC Passed
173	0	CCB	QC Passed
174	47	2805090115_5X	Analyzed
175	48	2805090116_2X	Analyzed
176	49	2805090117_5X	Analyzed
177	50	2805090118_5X	Analyzed
178	51	2805090121_5X	Analyzed
179	52	2805090122_5X	Analyzed
180	53	2805090123_5X	Analyzed
181	54	2805090124_10X	Analyzed
182	55	2805090132_10X	Analyzed
183	56	2805090133_10X	Analyzed
184	4	CCV	QC Passed
185	0	CCB	QC Passed
186	5	MCV	QC Passed
187	57	2805090134_5X	Analyzed
188	58	2805090135_5X	Analyzed
189	59	2805090136_10X	Analyzed
190	60	2805090137_10X	Analyzed
191	61	2805090138_5X	Analyzed
192	62	2805090152_5X	Analyzed
193	63	2805090157_5X	Analyzed
194	64	2805090177_2X	Analyzed
195	4	ECV	QC Passed
196	0	ECB	QC Passed

File ID: 080521

CR

Sample ID	Date	Time	Dil	Raw	Rept.	Limit	Comment
ICV	5/21/08	13:32	1	9.9459	9.95	95-105	99.4%
LINEARITY	5/21/08	13:35	1	0.0032	.0032		
ICSA	5/21/08	13:39	1	0.0005	0.0005	80-120	
LINEARITY	5/21/08	13:42	1	0.0025	.0025		
ICSAB	5/21/08	13:45	1	.25183	.252	80-120	100%
Wash	5/21/08	13:48	1	0.0000	0.0000		
QC-25 1ppm	5/21/08	13:56	1	.98132	.980		
CCV	5/21/08	13:59	1	4.9141	4.91	90-110	98.2%
MCV	5/21/08	14:03	1	2.5189	2.52	90-110	100%
ICB	5/21/08	14:07	1	0.0001	0.0001		
MRL	5/21/08	14:10	1	0.0103	.0103	50-150	103%
MRL/2	5/21/08	14:14	1	0.0057	.0057		
FILTERCHECK	5/21/08	14:17	1	0.0001	0.0000		
MBLANK2007	5/21/08	14:21	1	-0.0001	ND		
MRL2007	5/21/08	14:25	1	0.0110	.011		
LCS2007	5/21/08	14:28	1	.94745	.947	85-115	94.7%
LCSD2007	5/21/08	14:31	1	.98383	.984	85-115	98.3%
2805080195_10X	5/21/08	14:34	10	0.0770	.077		
2805080195_10XMS	5/21/08	14:39	10	1.0525	1.05	[0.976]	9.75 Q
2805080195_10XMSD	5/21/08	14:43	10	1.0692	1.07	[0.992]	9.92 Q
2805080195_10XT	5/21/08	14:43	10		10.00	70 - 130	
2805070675_10X	5/21/08	14:47	10	0.0003	0.0003		
CCV	5/21/08	14:51	1	5.0401	5.04	90-110	100%
CCB	5/21/08	14:56	1	-0.0001	ND		
2805070677_10X	5/21/08	15:00	10	0.0018	.0018		
2805070678_10X	5/21/08	15:04	10	0.0004	0.0003		
2805070679_10X	5/21/08	15:08	10	0.0009	0.0009		
MBLANK	5/21/08	15:12	1	-0.0000	ND		
MRL	5/21/08	15:16	1	0.0097	.0097	50-150	97.4%
LCS	5/21/08	15:20	1	.94261	.943	85-115	94.2%
LCSD	5/21/08	15:22	1	.92615	.926	85-115	92.6%
2805190158	5/21/08	15:25	1	0.0052	.0052		
2805190158MS	5/21/08	15:29	1	.92652	.927	[0.921]	92.1%
2805190158MSD	5/21/08	15:32	1	.93229	.932	[0.927]	92.7%
2805190158T	5/21/08	15:32	1		1.00	70 - 130	
CCV	5/21/08	15:35	1	5.0709	5.07	90-110	101%
CCB	5/21/08	15:38	1	-0.0000	ND		
MCV	5/21/08	15:42	1	2.4505	2.45	90-110	98.0%
D805150230	5/21/08	15:45	1	-0.0004	ND		
2805190370	5/21/08	15:49	1	-0.0005	ND		
2805200055	5/21/08	15:53	1	-0.0003	ND		
2805200009	5/21/08	15:58	1	-0.0004	ND		
2805200010	5/21/08	16:02	1	0.0012	.0012		
2805200011	5/21/08	16:06	1	-0.0003	ND		
2805200012	5/21/08	16:11	1	0.0004	0.0003		
2805200013	5/21/08	16:15	1	0.0004	0.0004		

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CR

Sample ID	Date	Time	Dil	Raw	Rept.	Limit	Comment
2805200014	5/21/08	16:19	1	0.0008	0.0008		
2805190004	5/21/08	16:24	1	-0.0002	ND,		
CCV	5/21/08	16:27	1	5.0236	5.02	90-110	100%
CCB	5/21/08	16:31	1	0.0001	0.0000		
2805190004MS	5/21/08	16:34	1	.92541	.925	[0.925]	92.5%
2805190004MSD	5/21/08	16:37	1	.93946	.939	[0.939]	93.9%
2805190004T	5/21/08	16:37	1		1.00	70 - 130	
CCV	5/21/08	17:35	1	5.1021	5.1	90-110	102%
CCB	5/21/08	17:38	1	-0.0000	ND		
2805200320	5/21/08	17:44	1	0.0005	0.0004		
2805200459	5/21/08	17:47	1	-0.0004	ND		
2805200453	5/21/08	17:51	1	0.0016	.0016		
2805200454	5/21/08	17:55	1	0.0015	.0015		
2805200455	5/21/08	17:59	1	-0.0004	ND		
2805200215	5/21/08	18:03	1	-0.0004	ND		
2805200603	5/21/08	18:07	1	0.0081	.0081		
2805200505	5/21/08	18:11	1	-0.0007	ND		
CCV	5/21/08	18:15	1	5.0637	5.06	90-110	101%
CCB	5/21/08	18:18	1	0.0001	0.0000		
MCV	5/21/08	18:21	1	2.5868	2.59	90-110	103%
2805200507	5/21/08	18:26	1	-0.0006	ND		
MBLANK	5/21/08	18:30	1	0.0001	0.0001		
MRL	5/21/08	18:34	1	0.0099	.0099	50-150	99.0%
LCS	5/21/08	18:37	1	.97513	.975	85-115	97.5%
LCSD	5/21/08	18:40	1	.95523	.955	85-115	95.5%
2805200510	5/21/08	18:42	1	-0.0002	ND		
2805200510MS	5/21/08	18:46	1	.95724	.957	[0.957]	95.7%
2805200510MSD	5/21/08	18:50	1	.97185	.972	[0.972]	97.1%
2805200510T	5/21/08	18:50	1		1.00	70 - 130	
2805200509	5/21/08	18:53	1	0.0000	0		
2805200511	5/21/08	18:57	1	-0.0005	ND		
CCV	5/21/08	19:01	1	5.1491	5.15	90-110	102%
CCB	5/21/08	19:05	1	0.0002	0.0001		
2805200512	5/21/08	19:08	1	-0.0006	ND		
2805200064	5/21/08	19:12	1	0.0252	.025		
2805200068	5/21/08	19:16	1	0.0222	.022		
2805200070	5/21/08	19:20	1	0.0228	.023		
2805200605	5/21/08	19:24	1	-0.0003	ND		
2805200607	5/21/08	19:28	1	-0.0002	ND		
2805200608	5/21/08	19:33	1	-0.0003	ND		
2805200609	5/21/08	19:37	1	-0.0003	ND		
2805200609MS	5/21/08	19:41	1	.96268	.963	[0.963]	96.2%
2805200609MSD	5/21/08	19:44	1	.95927	.959	[0.959]	95.9%
2805200609T	5/21/08	19:44	1		1.00	70 - 130	
CCV	5/21/08	19:47	1	5.2577	5.26	90-110	105%
CCB	5/21/08	19:51	1	0.0001	0.0000		
MCV	5/21/08	19:54	1	2.6140	2.61	90-110	104%
2805200280_2X	5/21/08	19:57	2	.21786	.220		
MBLANK2007	5/21/08	20:02	1	0.0002	0.0002		

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CR

Sample ID	Date	Time	Dil	Raw	Rept.	Limit	Comment
MRL	5/21/08	20:05	1	0.0105	.0105	50-150	104%
MRL2007	5/21/08	20:09	1	0.0115	.0115		
LCS2007	5/21/08	20:12	1	1.0615	1.06	85-115	106%
LCSD2007	5/21/08	20:16	1	.97612	.976	85-115	97.6%
2805090186_2X	5/21/08	20:18	2	0.0001	0.0000		
2805090186_2XMS	5/21/08	20:22	2	.99959	1.00	[1.000] 49.9	Q
2805090186_2XMSD	5/21/08	20:25	2	.99619	.996	[0.996] 49.8	Q
2805090186_2XT	5/21/08	20:25	2		2.00	70 - 130	
2805090189_2X	5/21/08	20:28	2	0.0000	0.0000		
CCV	5/21/08	20:31	1	5.2437	5.24	90-110	104%
CCB	5/21/08	20:35	1	0.0001	0.0001		
2805090189_2XMS	5/21/08	20:38	2	1.0084	1.01	[1.008] 50.4	Q
2805090189_2XMSD	5/21/08	20:41	2	1.0628	1.06	[1.063] 53.1	Q
2805090189_2XT	5/21/08	20:41	2		2.00	70 - 130	
2805090181_2X	5/21/08	20:44	2	.09997	.1		
2805090182_2X	5/21/08	20:48	2	0.0782	.078		
2805090184_2X	5/21/08	20:53	2	0.0104	.010		
2805090185_2X	5/21/08	20:57	2	.01203	.012		
2805100128_2X	5/21/08	21:01	2	0.0021	.0021		
2805100129_2X	5/21/08	21:06	2	.55388	.550		
2805100130_2X	5/21/08	21:10	2	.91655	.920		
2805100131_2X	5/21/08	21:14	2	.73133	.730		
CCV	5/21/08	21:21	1	5.1896	5.19	90-110	103%
CCB	5/21/08	21:30	1	0.0001	0.0001		
MCV	5/21/08	21:33	1	2.5769	2.58	90-110	103%
2805100132_2X	5/21/08	21:36	2	.49203	.490		
2805100135_2X	5/21/08	21:41	2	0.0009	0.0009		
2805100137_2X	5/21/08	21:45	2	0.0002	0.0002		
2805100138_10X	5/21/08	21:49	10	34.496	34		
2805100139_2X	5/21/08	21:53	2	0.0306	.031		
2805100140_2X	5/21/08	21:57	2	0.0576	.058		
2805130453_2X	5/21/08	22:02	2	.11898	.120		
2805130454_2X	5/21/08	22:06	2	.11419	.110		
2805140073_2X	5/21/08	22:10	2	0.0075	.0075		
2805140074_2X	5/21/08	22:14	2	0.0780	.078		
ECV	5/21/08	22:19	1	5.0827	5.08	90-110	101%
ECB	5/21/08	22:22	1	0.0004	0.0003		
CCV	5/21/08	22:34	1	5.0988	5.1	90-110	101%
CCB	5/21/08	22:37	1	0.0001	0.0001		
MBLANK2007	5/21/08	22:39	1	-0.0001	ND		
MRL	5/21/08	22:42	1	0.0101	.0101	50-150	100%
MRL2007	5/21/08	22:45	1	0.0115	.0115		
LCS2007	5/21/08	22:48	1	.98502	.985	85-115	98.5%
LCSD2007	5/21/08	22:51	1	.95341	.953	85-115	95.3%
2805080607_2X	5/21/08	22:54	2	.32905	.330		
2805080607_2XMS	5/21/08	22:57	2	1.2844	1.28	[0.955] 47.7	Q
2805080607_2XMSD	5/21/08	23:00	2	1.2763	1.28	[0.947] 47.3	Q
2805080607_2XT	5/21/08	23:00	2		2.00	70 - 130	

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CR

Sample ID	Date	Time	Dil	Raw	Rept.	Limit	Comment
2805080991_2X	5/21/08	23:03	2	0.0003	0.0003		
2805080991_2XMS	5/21/08	23:06	2	.94970	.95	[0.950]	47.4 Q
CCV	5/21/08	23:09	1	5.0469	5.05	90-110	100%
CCB	5/21/08	23:12	1	0.0001	0.0000		
MCV	5/21/08	23:14	1	2.5375	2.54	90-110	101%
2805080991_2XMSD	5/21/08	23:17	2	1.0000	1.00	[1.000]	50.0 Q
2805080991_2XT	5/21/08	23:17	2		2.00	70 - 130	
2805080656_5X	5/21/08	23:19	5	7.0694	7.1		
2805080657_10X	5/21/08	23:22	10	31.134	31		
2805080665_2X	5/21/08	23:25	2	0.0093	.0093		
CCV	5/21/08	23:28	1	4.9527	4.95	90-110	99.0%
2805080666_5X	5/21/08	23:31	5	1.3697	1.4		
2805080668_5X	5/21/08	23:34	5	4.9169	4.9		
2805080673_5X	5/21/08	23:37	5	1.1177	1.1		
2805080681_10X	5/21/08	23:40	10	23.713	24		
2805080682_10X	5/21/08	23:43	10	22.215	22		
2805080683_10X	5/21/08	23:46	10	11.408	11		
CCV	5/21/08	23:49	1	4.9831	4.98	90-110	99.6%
CCB	5/21/08	23:52	1	0.0015	.0015		
2805080684_5X	5/21/08	23:55	5	3.0084	3.0		
2805080685_5X	5/21/08	23:58	5	1.2471	1.2		
2805080686_5X	5/22/08	0:01	5	1.2788	1.3		
2805080688_5X	5/22/08	0:04	5	13.751	14		
2805080695_2X	5/22/08	0:07	2	2.7784	2.8		
2805080696_2X	5/22/08	0:10	2	1.0708	1.1		
2805080697_2X	5/22/08	0:13	2	0.0046	.0046		
2805080999_2X	5/22/08	0:16	2	0.0021	.0021		
2805090112_5X	5/22/08	0:19	5	.90842	.910		
MBLANK2007	5/22/08	0:22	1	0.0004	0.0003		
CCV	5/22/08	0:25	1	4.9881	4.99	90-110	99.7%
CCB	5/22/08	0:28	1	0.0005	0.0005		
MCV	5/22/08	0:31	1	2.5148	2.51	90-110	100%
MRL	5/22/08	0:33	1	0.0105	.0105	50-150	105%
MRL2007	5/22/08	0:36	1	0.0114	.0114		
LCS2007	5/22/08	0:39	1	.95899	.959	85-115	95.8%
LCSD2007	5/22/08	0:42	1	.96078	.961	85-115	96.0%
2805090119_2X	5/22/08	0:45	2	0.0647	.065		
2805090119_2XMS	5/22/08	0:48	2	1.0532	1.05	[0.989]	49.1 Q
2805090119_2XMSD	5/22/08	0:51	2	1.0129	1.01	[0.948]	47.4 Q
2805090119_2XT	5/22/08	0:51	2		2.00	70 - 130	
2805090120_2X	5/22/08	0:54	2	.18039	.180		
2805090120_2XMS	5/22/08	0:57	2	1.1300	1.13	[0.950]	47.4 Q
2805090120_2XMSD	5/22/08	1:00	2	1.1673	1.17	[0.987]	49.3 Q
2805090120_2XT	5/22/08	1:00	2		2.00	70 - 130	
CCV	5/22/08	1:03	1	4.9408	4.94	90-110	98.8%
CCB	5/22/08	1:06	1	0.0003	0.0003		
2805090115_5X	5/22/08	1:09	5	3.7895	3.8		
2805090116_2X	5/22/08	1:12	2	.88476	.880		

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CR

Sample ID	Date	Time	Dil	Raw	Rept.	Limit	Comment
2805090117_5X	5/22/08	1:15	5	2.9111	2.9		
2805090118_5X	5/22/08	1:18	5	2.7389	2.7		
2805090121_5X	5/22/08	1:21	5	3.9985	4.0		
2805090122_5X	5/22/08	1:24	5	4.8871	4.9		
2805090123_5X	5/22/08	1:27	5	4.2750	4.3		
2805090124_10X	5/22/08	1:30	10	28.256	28		
2805090132_10X	5/22/08	1:33	10	25.441	25		
2805090133_10X	5/22/08	1:36	10	29.583	30		
CCV	5/22/08	1:39	1	4.8736	4.87	90-110	97.4%
CCB	5/22/08	1:42	1	0.0023	.0023		
MCV	5/22/08	1:45	1	2.4881	2.49	90-110	99.5%
2805090134_5X	5/22/08	1:47	5	2.7698	2.8		
2805090135_5X	5/22/08	1:50	5	3.9205	3.9		
2805090136_10X	5/22/08	1:53	10	19.735	20		
2805090137_10X	5/22/08	1:56	10	35.180	35		
2805090138_5X	5/22/08	1:59	5	1.0802	1.1		
2805090152_5X	5/22/08	2:02	5	0.0836	.084		
2805090157_5X	5/22/08	2:05	5	.10458	.1		
2805090177_2X	5/22/08	2:08	2	0.0032	.0032		
ECV	5/22/08	2:11	1	4.8729	4.87	90-110	97.4%
ECB	5/22/08	2:14	1	0.0008	0.0008		

Nebulizer Parameters: Hg_ReAlign

Analyte	Back Pressure	Flow
All	151.0 kPa	0.55 L/min

5/21/2008 10:24:47 Hg ReAlign... Actual peak offset (nm): 0.004
Drift (nm): -0.001 Slit adjustment: -3

Nebulizer Parameters: Hg_ReAlign

Analyte	Back Pressure	Flow
All	153.0 kPa	0.54 L/min

5/21/2008 10:27:57 Hg ReAlign... Actual peak offset (nm): 0.003
Drift (nm): -0.000 Slit adjustment: -2

Align View XY Axial for analyte Mn 257.610

X-position	Y-position	Intensity
-2.0	15.0	216670.5
-1.6	15.0	311860.4
-1.2	15.0	418613.7
-0.8	15.0	525770.1
-0.4	15.0	597917.8
0.0	15.0	635736.6
0.4	15.0	633277.0
0.8	15.0	579861.7
1.2	15.0	481550.7
1.6	15.0	390731.0
2.0	15.0	294542.5
0.0	10.0	8346.5
0.0	10.5	25759.9
0.0	11.0	42113.8
0.0	11.5	62157.3
0.0	12.0	91918.5
0.0	12.5	187737.0
0.0	13.0	253263.6
0.0	13.5	337977.2
0.0	14.0	437597.0
0.0	14.5	618531.8
0.0	15.0	643325.0
0.0	15.5	632257.4
0.0	16.0	560521.4
0.0	16.5	391174.0
0.0	17.0	294053.9
0.0	17.5	211601.2
0.0	18.0	151787.8
0.0	18.5	101761.8
0.0	19.0	28624.3
0.0	19.5	12063.4
0.0	20.0	5636.2
-0.8	15.0	521764.7
-0.4	15.0	594650.3
0.0	15.0	649782.1
0.4	15.0	628322.0
0.8	15.0	580653.5
0.0	13.0	271014.0
0.0	13.5	347603.9
0.0	14.0	447432.0
0.0	14.5	605458.5
0.0	15.0	655112.7
0.0	15.5	618867.8
0.0	16.0	561109.8
0.0	16.5	384506.5
0.0	17.0	287313.8

5/21/2008 10:38:21 aligned for analyte Mn 257.610
X viewing position set to 0.0 mm having Peak intensity 655112.7 for Axial viewing
Y viewing position set to 15.0 mm having Peak intensity 655112.7 for Axial viewing

Align View X Radial for analyte Mn 257.610

X-position	Y-position	Intensity
-7.0	15.0	4638.3
-6.5	15.0	5483.0
-6.0	15.0	6472.4
-5.5	15.0	7203.1
-5.0	15.0	8662.0
-4.5	15.0	11757.3
-4.0	15.0	16839.0
-3.5	15.0	27103.6
-3.0	15.0	39792.9
-2.5	15.0	59090.8
-2.0	15.0	81263.7
-1.5	15.0	100606.6
-1.0	15.0	129495.6
-0.5	15.0	145229.3
0.0	15.0	175944.4
0.5	15.0	165437.1
1.0	15.0	143398.9
1.5	15.0	113605.4
2.0	15.0	88922.5
2.5	15.0	67743.2
3.0	15.0	46092.6
3.5	15.0	29105.3
4.0	15.0	21177.4
4.5	15.0	18198.0
5.0	15.0	16472.6
5.5	15.0	15198.6
6.0	15.0	13964.2
6.5	15.0	11192.5
7.0	15.0	9697.9

5/21/2008 10:40:34 aligned for analyte Mn 257.610
X viewing position set to 0.0 mm having Peak intensity 175944.4 for Radial viewing

Cdt	35.6	0.40	1.13%	[0.00]	mg/L
Cot	-44.4	4.77	10.76%	[0.00]	mg/L
Crt	106.1	0.26	0.25%	[0.00]	mg/L
Cut	3240.3	38.11	1.18%	[0.00]	mg/L
Fet	-27.0	0.28	1.04%	[0.00]	mg/L
Kt	-15.7	76.92	489.51%	[0.00]	mg/L
Mgt	-267.7	1.42	0.53%	[0.00]	mg/L
Mnt	337.5	6.14	1.82%	[0.00]	mg/L
Mot	15.9	0.28	1.77%	[0.00]	mg/L
Nat	-148.5	0.42	0.28%	[0.00]	mg/L
Nit	-52.4	6.66	12.73%	[0.00]	mg/L
Pbt	-16.6	1.33	8.02%	[0.00]	mg/L
Sbt	7.0	0.98	13.92%	[0.00]	mg/L
Set	2.0	1.12	55.53%	[0.00]	mg/L
Tlt	-20.1	0.85	4.22%	[0.00]	mg/L
Vt	130.5	9.13	6.99%	[0.00]	mg/L
Znt	147.7	2.75	1.87%	[0.00]	mg/L

Analysis Begun

Start Time: 5/21/2008 13:22:34
Logged In Analyst: Charley Kay
Spectrometer Model: Optima 4300 DV, S/N 077N2121801
Plasma On Time: 5/21/2008 10:24:22
Technique: ICP Continuous
Autosampler Model: AS-93plus

Sample Information File: C:\pe\Charley Kay\Sample Information\080521.sif
Batch ID: 080521
Results Data Set: 080521
Results Library: C:\pe\Charley Kay\Results\Results.mdb

Method Loaded
Method Name: 200.7&6010_080304
IEC File: IEC080304.iec
Method Description: 200.7/6010_080304
Method Last Saved: 5/2/2008 09:27:36
MSF File:

Analyte	Calibration Equation	Processing	View	Internal Standard	IEC
Ag	Lin, Calc Int	Peak Area	Axial	Sca	Yes
Al	Lin, Calc Int	Peak Area	Radial	Yr	Yes
As	Lin, Calc Int	Peak Area	Axial	Sca	Yes
B_	Lin, Calc Int	Peak Area	Axial	Sca	Yes
Ba	Lin, Calc Int	Peak Area	Axial	Sca	Yes
Be	Lin, Calc Int	Peak Area	Axial	Sca	Yes
Ca	Lin, Calc Int	Peak Area	Radial	Yr	Yes
Cd	Lin, Calc Int	Peak Area	Axial	Sca	Yes
Co	Lin, Calc Int	Peak Area	Axial	Sca	Yes
Cr	Lin, Calc Int	Peak Area	Axial	Sca	Yes
Cu	Lin, Calc Int	Peak Area	Axial	Sca	Yes
Fe	Lin, Calc Int	Peak Area	Radial	Yr	Yes
K	Lin, Calc Int	Peak Area	Radial	Yr	Yes
Mg	Lin, Calc Int	Peak Area	Radial	Yr	Yes
Mn	Lin, Calc Int	Peak Area	Axial	Sca	Yes
Mo	Lin, Calc Int	Peak Area	Axial	Sca	Yes
Na	Lin, Calc Int	Peak Area	Radial	Yr	Yes
Ni	Lin, Calc Int	Peak Area	Axial	Sca	Yes
Pb	Lin, Calc Int	Peak Area	Axial	Sca	Yes
Sb	Lin, Calc Int	Peak Area	Axial	Sca	Yes
Se	Lin, Calc Int	Peak Area	Axial	Sca	Yes
Tl	Lin, Calc Int	Peak Area	Axial	Sca	Yes
V	Lin, Calc Int	Peak Area	Axial	Sca	Yes
Zn	Lin, Calc Int	Peak Area	Axial	Sca	Yes
Sca	Lin, Calc Int	Peak Area	Axial	n/a	n/a
Yr	Lin, Calc Int	Peak Area	Radial	n/a	n/a

Sequence No.: 1
Sample ID: Calib Blank 1
Analyst:
Initial Sample Wt:
Dilution:
Autosampler Location: 0
Date Collected: 5/21/2008 13:22:51
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: Calib Blank 1

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: Calib Blank 1

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Calib Conc.	Units
Sca	404742.0	3110.56	0.77%	100	%
Yr	323061.0	1244.48	0.39%	100	%
Ag†	235.4	1.16	0.49%	[0.00]	mg/L
Al†	88.0	68.58	77.94%	[0.00]	mg/L
As†	2.9	2.41	84.24%	[0.00]	mg/L
B_†	179.7	1.62	0.90%	[0.00]	mg/L
Ba†	-22.6	2.01	8.87%	[0.00]	mg/L
Be†	-3677.2	27.04	0.74%	[0.00]	mg/L
Ca†	2045.8	19.00	0.93%	[0.00]	mg/L

User canceled analysis.

Analysis Begun

Start Time: 5/21/2008 13:26:01 Plasma On Time: 5/21/2008 10:24:22
Logged In Analyst: Charley Kay Technique: ICP Continuous
Spectrometer Model: Optima 4300 DV, S/N 077N2121801 Autosampler Model: AS-93plus

Sample Information File: C:\pe\Charley Kay\Sample Information\080521.sif
Batch ID: 080521
Results Data Set: 080521
Results Library: C:\pe\Charley Kay\Results\Results.mdb

Sequence No.: 2 Autosampler Location: 15
Sample ID: Standard 2 Date Collected: 5/21/2008 13:26:02
Analyst: Data Type: Original
Initial Sample Wt: Initial Sample Vol:
Dilution: Sample Prep Vol:

Nebulizer Parameters: Standard 2

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: Standard 2

Analyte	Mean Corrected Intensity	Std.Dev.	RSD	Conc.	Calib Units
Sca	361802.3	405.03	0.11%	89.4	%
Yr	312337.6	2027.85	0.65%	96.7	%
Agt	486827.1	591.45	0.12%	[2]	mg/L
Alt	69574.3	10.95	0.02%	[10]	mg/L
Ast	15399.7	230.12	1.49%	[10]	mg/L
B_t	129037.4	190.22	0.15%	[5.02]	mg/L
Bat	390340.1	766.48	0.20%	[10]	mg/L
Bet	9919934.5	65580.02	0.66%	[4.01]	mg/L
Cat	1604780.8	11420.38	0.71%	[100]	mg/L
Cdt	104724.5	158.83	0.15%	[5.01]	mg/L
Cot	142491.5	89.67	0.06%	[10]	mg/L
Crt	409531.9	1027.09	0.25%	[9.97]	mg/L
Cut	2976990.1	4196.62	0.14%	[10]	mg/L
Fet	34668.3	212.06	0.61%	[9.98]	mg/L
Kt	101208.5	286.78	0.28%	[100]	mg/L
Mgt	994485.5	7891.06	0.79%	[100]	mg/L
Mnt	4695790.6	1839.99	0.04%	[10]	mg/L
Mot	96679.2	215.34	0.22%	[9.98]	mg/L
Nat	265148.9	628.35	0.24%	[100]	mg/L
Nit	181525.8	435.76	0.24%	[10]	mg/L
Pbt	36984.2	409.01	1.11%	[10]	mg/L
Sbt	15482.8	301.03	1.94%	[10]	mg/L
Set	9413.1	124.80	1.33%	[10]	mg/L
Tlt	21205.0	249.41	1.18%	[10]	mg/L
Vt	1457745.8	1431.46	0.10%	[10]	mg/L
Znt	372517.7	290.32	0.08%	[10]	mg/L

Calibration Summary

Analyte	Stds	Equation	Intercept	Slope	Curvature	Corr. Coef.	Reslope
Ag	1	Lin, Calc Int	0.0	243400	0.00000	1.000000	
Al	1	Lin, Calc Int	0.0	6957	0.00000	1.000000	
As	1	Lin, Calc Int	0.0	1540	0.00000	1.000000	
B_	1	Lin, Calc Int	-0.0	25700	0.00000	1.000000	
Ba	1	Lin, Calc Int	0.0	39030	0.00000	1.000000	
Be	1	Lin, Calc Int	0.0	2474000	0.00000	1.000000	
Ca	1	Lin, Calc Int	0.0	16050	0.00000	1.000000	
Cd	1	Lin, Calc Int	0.0	20900	0.00000	1.000000	
Co	1	Lin, Calc Int	0.0	14250	0.00000	1.000000	
Cr	1	Lin, Calc Int	0.0	41080	0.00000	1.000000	
Cu	1	Lin, Calc Int	0.0	297700	0.00000	1.000000	

Fe	1	Lin, Calc Int	0.0	3474	0.00000	1.000000
K	1	Lin, Calc Int	0.0	1012	0.00000	1.000000
Mg	1	Lin, Calc Int	0.0	9945	0.00000	1.000000
Mn	1	Lin, Calc Int	0.0	469600	0.00000	1.000000
Mo	1	Lin, Calc Int	0.0	9687	0.00000	1.000000
Na	1	Lin, Calc Int	0.0	2651	0.00000	1.000000
Ni	1	Lin, Calc Int	0.0	18150	0.00000	1.000000
Pb	1	Lin, Calc Int	0.0	3698	0.00000	1.000000
Sb	1	Lin, Calc Int	0.0	1548	0.00000	1.000000
Se	1	Lin, Calc Int	0.0	941.3	0.00000	1.000000
Tl	1	Lin, Calc Int	0.0	2120	0.00000	1.000000
V	1	Lin, Calc Int	0.0	145800	0.00000	1.000000
Zn	1	Lin, Calc Int	0.0	37250	0.00000	1.000000

Analytical Sequence
Method: 200.7&6010_080304

Seq.	Loc.	ID	Status
1	0	Calib Blank 1	Applied
2	15	Standard 2	Applied

Analysis Begun

Start Time: 5/21/2008 13:32:27
Logged In Analyst: Charley Kay
Spectrometer Model: Optima 4300 DV, S/N 077N2121801
Plasma On Time: 5/21/2008 10:24:22
Technique: ICP Continuous
Autosampler Model: AS-93plus

Sample Information File: C:\pe\Charley Kay\Sample Information\080521.sif
Batch ID: 080521
Results Data Set: 080521
Results Library: C:\pe\Charley Kay\Results\Results.mdb

Sequence No.: 1
Sample ID: ICV
Analyst:
Initial Sample Wt:
Dilution:
Autosampler Location: 15
Date Collected: 5/21/2008 13:32:29
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: ICV

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: ICV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	362587.4	89.6	%	0.04				0.05%
Yr	315456.9	97.6	%	1.14				1.17%
Ag†	485642.8	2.00	mg/L	0.004	2.00	mg/L	0.004	0.19%
QC value within limits for Ag		Recovery = 99.94%						
Al†	69860.3	9.68	mg/L	0.016	9.68	mg/L	0.016	0.16%
QC value within limits for Al		Recovery = 96.78%						
As†	15306.2	9.94	mg/L	0.017	9.94	mg/L	0.017	0.17%
QC value within limits for As		Recovery = 99.39%						
B_†	129039.7	4.93	mg/L	0.018	4.93	mg/L	0.018	0.36%
QC value within limits for B_		Recovery = 98.65%						
Ba†	390661.0	10.0	mg/L	0.01	10.0	mg/L	0.01	0.12%
QC value within limits for Ba		Recovery = 100.08%						
Be†	9972093.4	4.03	mg/L	0.003	4.03	mg/L	0.003	0.07%
QC value within limits for Be		Recovery = 100.81%						
Ca†	1596667.1	99.5	mg/L	1.83	99.5	mg/L	1.83	1.84%
QC value within limits for Ca		Recovery = 99.49%						
Cd†	104725.9	4.90	mg/L	0.007	4.90	mg/L	0.007	0.14%
QC value within limits for Cd		Recovery = 98.06%						
Co†	141774.9	9.95	mg/L	0.046	9.95	mg/L	0.046	0.46%
QC value within limits for Co		Recovery = 99.50%						
Cr†	408544.3	9.95	mg/L	0.032	9.95	mg/L	0.032	0.32%
QC value within limits for Cr		Recovery = 99.46%						
Cu†	2977285.9	10.0	mg/L	0.01	10.0	mg/L	0.01	0.07%
QC value within limits for Cu		Recovery = 100.10%						
Fe†	35176.0	10.1	mg/L	0.03	10.1	mg/L	0.03	0.26%
QC value within limits for Fe		Recovery = 101.26%						
K†	102412.2	101	mg/L	0.3	101	mg/L	0.3	0.33%
QC value within limits for K		Recovery = 101.19%						
Mg†	997974.9	100	mg/L	1.7	100	mg/L	1.7	1.74%
QC value within limits for Mg		Recovery = 100.37%						
Mn†	4690644.2	9.99	mg/L	0.008	9.99	mg/L	0.008	0.08%
QC value within limits for Mn		Recovery = 99.87%						
Mo†	96457.1	9.96	mg/L	0.017	9.96	mg/L	0.017	0.17%
QC value within limits for Mo		Recovery = 99.57%						
Na†	267764.5	101	mg/L	0.0	101	mg/L	0.0	0.03%
QC value within limits for Na		Recovery = 100.99%						
Ni†	181333.4	9.99	mg/L	0.002	9.99	mg/L	0.002	0.02%
QC value within limits for Ni		Recovery = 99.89%						
Pb†	36821.4	9.96	mg/L	0.003	9.96	mg/L	0.003	0.03%
QC value within limits for Pb		Recovery = 99.56%						
Sb†	15402.3	9.99	mg/L	0.006	9.99	mg/L	0.006	0.06%
QC value within limits for Sb		Recovery = 99.88%						
Se†	9459.5	10.1	mg/L	0.08	10.1	mg/L	0.08	0.75%

QC value within limits for Se	Recovery = 100.74%					
Tl†	21087.4	10.0 mg/L	0.02	10.0 mg/L	0.02	0.24%
QC value within limits for Tl	Recovery = 100.01%					
V†	1455765.5	10.0 mg/L	0.01	10.0 mg/L	0.01	0.13%
QC value within limits for V	Recovery = 100.39%					
Zn†	372213.7	9.91 mg/L	0.015	9.91 mg/L	0.015	0.15%
QC value within limits for Zn	Recovery = 99.06%					

All analyte(s) passed QC.

Sequence No.: 2
Sample ID: LINEARITY
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 9
Date Collected: 5/21/2008 13:35:45
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: LINEARITY

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: LINEARITY

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	347772.8	85.9	%	0.54				0.63%
Yr	307541.4	95.2	%	0.61				0.64%
Agt	-5400.6	0.0158	mg/L	0.00085	0.0158	mg/L	0.00085	5.37%
QC value within limits for Ag	Recovery = Not calculated							
Alt	-40.3	-0.00599	mg/L	0.005506	-0.00599	mg/L	0.005506	91.98%
QC value within limits for Al	Recovery = Not calculated							
Ast	-176.1	-0.114	mg/L	0.0003	-0.114	mg/L	0.0003	0.30%
QC value within limits for As	Recovery = Not calculated							
B_t	471.1	0.0184	mg/L	0.00092	0.0184	mg/L	0.00092	5.01%
QC value within limits for B_	Recovery = Not calculated							
Bat	63.0	0.00161	mg/L	0.000003	0.00161	mg/L	0.000003	0.21%
QC value within limits for Ba	Recovery = Not calculated							
Bet	-694.6	-0.00028	mg/L	0.000025	-0.00028	mg/L	0.000025	9.09%
QC value within limits for Be	Recovery = Not calculated							
Cat	4777890.4	298	mg/L	0.4	298	mg/L	0.4	0.14%
QC value within limits for Ca	Recovery = 99.24%							
Cdt	-9.8	0.00112	mg/L	0.000001	0.00112	mg/L	0.000001	0.13%
QC value within limits for Cd	Recovery = Not calculated							
Cot	35.4	0.00249	mg/L	0.000032	0.00249	mg/L	0.000032	1.28%
QC value within limits for Co	Recovery = Not calculated							
Crt	131.6	0.00320	mg/L	0.000053	0.00320	mg/L	0.000053	1.64%
QC value within limits for Cr	Recovery = Not calculated							
Cut	-2760.9	-0.00927	mg/L	0.000358	-0.00927	mg/L	0.000358	3.86%
QC value within limits for Cu	Recovery = Not calculated							
Fet	358678.9	103	mg/L	0.7	103	mg/L	0.7	0.67%
QC value within limits for Fe	Recovery = 103.25%							
Kt	335556.4	332	mg/L	0.2	332	mg/L	0.2	0.06%
QC value greater than the upper limit for K	Recovery = 110.52%							
Mgt	1890292.0	190	mg/L	0.9	190	mg/L	0.9	0.48%
QC value within limits for Mg	Recovery = Not calculated							
Mnt	-1061.5	-0.00653	mg/L	0.000023	-0.00653	mg/L	0.000023	0.35%
QC value within limits for Mn	Recovery = Not calculated							
Mot	51.1	0.00527	mg/L	0.000349	0.00527	mg/L	0.000349	6.62%
QC value within limits for Mo	Recovery = Not calculated							
Nat	841880.5	318	mg/L	0.9	318	mg/L	0.9	0.29%
QC value within limits for Na	Recovery = 105.84%							
Nit	10.7	0.00059	mg/L	0.000424	0.00059	mg/L	0.000424	72.14%
QC value within limits for Ni	Recovery = Not calculated							
Pbt	-4.5	-0.00123	mg/L	0.000529	-0.00123	mg/L	0.000529	43.04%
QC value within limits for Pb	Recovery = Not calculated							
Sbt	19.7	0.0127	mg/L	0.00179	0.0127	mg/L	0.00179	14.06%
QC value within limits for Sb	Recovery = Not calculated							
Set	-91.9	0.158	mg/L	0.0012	0.158	mg/L	0.0012	0.79%
QC value within limits for Se	Recovery = Not calculated							
Tlt	23.6	0.0111	mg/L	0.00132	0.0111	mg/L	0.00132	11.96%
QC value within limits for Tl	Recovery = Not calculated							
Vt	-252.5	0.00233	mg/L	0.000149	0.00233	mg/L	0.000149	6.37%
QC value within limits for V	Recovery = Not calculated							
Znt	809.0	0.0217	mg/L	0.00019	0.0217	mg/L	0.00019	0.89%
QC value within limits for Zn	Recovery = Not calculated							

QC Failed. Continue with analysis.

Sequence No.: 3
Sample ID: ICSA
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 10
Date Collected: 5/21/2008 13:39:28
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: ICSA

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: ICSA

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	358424.6	88.6	%	0.02				0.02%
Yr	317955.6	98.4	%	0.73				0.75%
Ag†	-5296.3	0.0154	mg/L	0.00078	0.0154	mg/L	0.00078	5.04%
QC value within limits for Ag	Recovery = Not calculated							
Al†	1718089.2	247	mg/L	3.0	247	mg/L	3.0	1.20%
QC value within limits for Al	Recovery = 98.78%							
As†	-355.1	-0.231	mg/L	0.0031	-0.231	mg/L	0.0031	1.35%
QC value within limits for As	Recovery = Not calculated							
B_†	-101.8	-0.00388	mg/L	0.000419	-0.00388	mg/L	0.000419	10.79%
QC value within limits for B_	Recovery = Not calculated							
Ba†	75.1	0.00192	mg/L	0.000076	0.00192	mg/L	0.000076	3.95%
QC value within limits for Ba	Recovery = Not calculated							
Be†	-956.0	-0.00039	mg/L	0.000013	-0.00039	mg/L	0.000013	3.32%
QC value within limits for Be	Recovery = Not calculated							
Ca†	3973417.1	248	mg/L	4.3	248	mg/L	4.3	1.75%
QC value within limits for Ca	Recovery = 99.04%							
Cd†	-31.5	0.00169	mg/L	0.000180	0.00169	mg/L	0.000180	10.66%
QC value within limits for Cd	Recovery = Not calculated							
Co†	14.8	0.00104	mg/L	0.000114	0.00104	mg/L	0.000114	10.99%
QC value within limits for Co	Recovery = Not calculated							
Cr†	22.6	0.00055	mg/L	0.000097	0.00055	mg/L	0.000097	17.68%
QC value within limits for Cr	Recovery = Not calculated							
Cu†	-3117.3	-0.0105	mg/L	0.00004	-0.0105	mg/L	0.00004	0.35%
QC value within limits for Cu	Recovery = Not calculated							
Fe†	351167.4	101	mg/L	1.6	101	mg/L	1.6	1.58%
QC value within limits for Fe	Recovery = 101.09%							
K†	260.7	0.258	mg/L	0.0194	0.258	mg/L	0.0194	7.53%
QC value within limits for K	Recovery = Not calculated							
Mg†	2325901.4	234	mg/L	4.0	234	mg/L	4.0	1.72%
QC value within limits for Mg	Recovery = 93.62%							
Mn†	-1360.5	-0.00815	mg/L	0.000019	-0.00815	mg/L	0.000019	0.23%
QC value within limits for Mn	Recovery = Not calculated							
Mo†	4.8	0.00049	mg/L	0.000386	0.00049	mg/L	0.000386	78.62%
QC value within limits for Mo	Recovery = Not calculated							
Na†	421.7	0.159	mg/L	0.0061	0.159	mg/L	0.0061	3.85%
QC value within limits for Na	Recovery = Not calculated							
Ni†	-9.5	-0.00052	mg/L	0.000485	-0.00052	mg/L	0.000485	92.97%
QC value within limits for Ni	Recovery = Not calculated							
Pb†	-143.4	-0.0388	mg/L	0.00036	-0.0388	mg/L	0.00036	0.93%
QC value within limits for Pb	Recovery = Not calculated							
Sb†	14.5	0.00935	mg/L	0.006247	0.00935	mg/L	0.006247	66.80%
QC value within limits for Sb	Recovery = Not calculated							
Se†	-116.1	0.127	mg/L	0.0139	0.127	mg/L	0.0139	10.95%
QC value within limits for Se	Recovery = Not calculated							
Tl†	15.5	0.00728	mg/L	0.001572	0.00728	mg/L	0.001572	21.61%
QC value within limits for Tl	Recovery = Not calculated							
V†	-388.0	0.00131	mg/L	0.000476	0.00131	mg/L	0.000476	36.47%
QC value within limits for V	Recovery = Not calculated							
Zn†	623.1	0.0167	mg/L	0.00001	0.0167	mg/L	0.00001	0.05%
QC value within limits for Zn	Recovery = Not calculated							

All analyte(s) passed QC.

User canceled analysis.

Analysis Begun

Start Time: 5/21/2008 13:42:45 **Plasma On Time:** 5/21/2008 10:24:22
Logged In Analyst: Charley Kay **Technique:** ICP Continuous
Spectrometer Model: Optima 4300 DV, S/N 077N2121801 **Autosampler Model:** AS-93plus

Sample Information File: C:\pe\Charley Kay\Sample Information\080521.sif
Batch ID: 080521
Results Data Set: 080521
Results Library: C:\pe\Charley Kay\Results\Results.mdb

Sequence No.: 2 **Autosampler Location:** 9
Sample ID: LINEARITY **Date Collected:** 5/21/2008 13:42:46
Analyst: **Data Type:** Original
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: LINEARITY

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: LINEARITY

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	348437.1	86.1	%	0.09				0.11%
Yr	306929.2	95.0	%	0.78				0.82%
Agt	-5392.8	0.0147	mg/L	0.00062	0.0147	mg/L	0.00062	4.20%
QC value within limits for Ag		Recovery = Not calculated						
Alt	-17.6	-0.00250	mg/L	0.011554	-0.00250	mg/L	0.011554	461.72%
QC value within limits for Al		Recovery = Not calculated						
Ast	-185.4	-0.120	mg/L	0.0027	-0.120	mg/L	0.0027	2.26%
QC value within limits for As		Recovery = Not calculated						
B_t	-111.9	-0.00428	mg/L	0.000452	-0.00428	mg/L	0.000452	10.56%
QC value within limits for B_		Recovery = Not calculated						
Bat	41.3	0.00106	mg/L	0.000040	0.00106	mg/L	0.000040	3.78%
QC value within limits for Ba		Recovery = Not calculated						
Bet	-1190.0	-0.00048	mg/L	0.000027	-0.00048	mg/L	0.000027	5.53%
QC value within limits for Be		Recovery = Not calculated						
Cat	4648811.1	290	mg/L	7.3	290	mg/L	7.3	2.51%
QC value within limits for Ca		Recovery = 96.56%						
Cdt	-28.5	0.00031	mg/L	0.000224	0.00031	mg/L	0.000224	72.63%
QC value within limits for Cd		Recovery = Not calculated						
Cot	26.2	0.00184	mg/L	0.000169	0.00184	mg/L	0.000169	9.19%
QC value within limits for Co		Recovery = Not calculated						
Crt	102.4	0.00249	mg/L	0.000146	0.00249	mg/L	0.000146	5.85%
QC value within limits for Cr		Recovery = Not calculated						
Cut	-2888.1	-0.00970	mg/L	0.000057	-0.00970	mg/L	0.000057	0.58%
QC value within limits for Cu		Recovery = Not calculated						
Fet	348384.1	100	mg/L	2.7	100	mg/L	2.7	2.66%
QC value within limits for Fe		Recovery = 100.29%						
Kt	324186.6	320	mg/L	8.5	320	mg/L	8.5	2.66%
QC value within limits for K		Recovery = 106.77%						
Mgt	1844638.6	186	mg/L	4.3	186	mg/L	4.3	2.33%
QC value within limits for Mg		Recovery = Not calculated						
Mnt	-1326.0	-0.00699	mg/L	0.000176	-0.00699	mg/L	0.000176	2.52%
QC value within limits for Mn		Recovery = Not calculated						
Mot	-6.7	-0.00069	mg/L	0.000082	-0.00069	mg/L	0.000082	11.84%
QC value within limits for Mo		Recovery = Not calculated						
Nat	816823.7	308	mg/L	6.5	308	mg/L	6.5	2.10%
QC value within limits for Na		Recovery = 102.69%						
Nit	5.4	0.00030	mg/L	0.000779	0.00030	mg/L	0.000779	261.47%
QC value within limits for Ni		Recovery = Not calculated						
Pbt	-4.6	-0.00123	mg/L	0.001837	-0.00123	mg/L	0.001837	149.12%
QC value within limits for Pb		Recovery = Not calculated						
Sbt	18.1	0.0117	mg/L	0.00089	0.0117	mg/L	0.00089	7.67%
QC value within limits for Sb		Recovery = Not calculated						

Se†	-110.4	0.131 mg/L	0.0059	0.131 mg/L	0.0059	4.49%
QC value within limits for Se Recovery = Not calculated						
Tl†	23.7	0.0112 mg/L	0.00007	0.0112 mg/L	0.00007	0.66%
QC value within limits for Tl Recovery = Not calculated						
V†	-312.9	0.00180 mg/L	0.000662	0.00180 mg/L	0.000662	36.83%
QC value within limits for V Recovery = Not calculated						
Zn†	748.8	0.0201 mg/L	0.00021	0.0201 mg/L	0.00021	1.04%
QC value within limits for Zn Recovery = Not calculated						

All analyte(s) passed QC.

User canceled analysis.

Analysis Begun

Start Time: 5/21/2008 13:45:12 **Plasma On Time:** 5/21/2008 10:24:22
Logged In Analyst: Charley Kay **Technique:** ICP Continuous
Spectrometer Model: Optima 4300 DV, S/N 077N2121801 **Autosampler Model:** AS-93plus

Sample Information File: C:\pe\Charley Kay\Sample Information\080521.sif
Batch ID: 080521
Results Data Set: 080521
Results Library: C:\pe\Charley Kay\Results\Results.mdb

Sequence No.: 4 **Autosampler Location:** 11
Sample ID: ICSAB **Date Collected:** 5/21/2008 13:45:13
Analyst: **Data Type:** Original
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: ICSAB

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: ICSAB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	357376.1	88.3	%	0.61				0.70%
Yr	317999.3	98.4	%	0.36				0.36%
Ag†	19948.3	0.120	mg/L	0.0004	0.120	mg/L	0.0004	0.34%
QC value less than the lower limit for Ag Recovery = 23.92%								
Al†	1749676.1	251	mg/L	0.6	251	mg/L	0.6	0.22%
QC value within limits for Al Recovery = 100.59%								
As†	-360.9	-0.234	mg/L	0.0020	-0.234	mg/L	0.0020	0.85%
QC value less than the lower limit for As Recovery = Not calculated								
B_†	-232.0	-0.0112	mg/L	0.00107	-0.0112	mg/L	0.00107	9.58%
QC value within limits for B_ Recovery = Not calculated								
Ba†	10384.5	0.266	mg/L	0.0016	0.266	mg/L	0.0016	0.58%
QC value within limits for Ba Recovery = 106.41%								
Be†	618416.3	0.250	mg/L	0.0006	0.250	mg/L	0.0006	0.26%
QC value within limits for Be Recovery = 100.01%								
Ca†	4001503.7	249	mg/L	0.2	249	mg/L	0.2	0.08%
QC value within limits for Ca Recovery = 99.74%								
Cd†	10543.5	0.508	mg/L	0.0039	0.508	mg/L	0.0039	0.77%
QC value within limits for Cd Recovery = 101.68%								
Co†	3399.0	0.239	mg/L	0.0027	0.239	mg/L	0.0027	1.12%
QC value within limits for Co Recovery = 95.42%								
Cr†	10344.3	0.252	mg/L	0.0016	0.252	mg/L	0.0016	0.64%
QC value within limits for Cr Recovery = 100.73%								
Cu†	73608.6	0.247	mg/L	0.0003	0.247	mg/L	0.0003	0.11%
QC value within limits for Cu Recovery = 99.00%								
Fe†	355603.7	102	mg/L	0.5	102	mg/L	0.5	0.47%
QC value within limits for Fe Recovery = 102.37%								
K†	396.4	0.392	mg/L	0.0218	0.392	mg/L	0.0218	5.56%
QC value within limits for K Recovery = Not calculated								
Mg†	2336643.2	235	mg/L	0.2	235	mg/L	0.2	0.06%
QC value within limits for Mg Recovery = 94.06%								
Mn†	119085.9	0.248	mg/L	0.0009	0.248	mg/L	0.0009	0.38%
QC value within limits for Mn Recovery = 99.33%								
Mo†	-7.7	-0.00080	mg/L	0.000178	-0.00080	mg/L	0.000178	22.36%
QC value within limits for Mo Recovery = Not calculated								
Na†	817.9	0.308	mg/L	0.0105	0.308	mg/L	0.0105	3.39%
QC value within limits for Na Recovery = Not calculated								
Ni†	8562.5	0.472	mg/L	0.0028	0.472	mg/L	0.0028	0.60%
QC value within limits for Ni Recovery = 94.34%								
Pb†	1696.8	0.459	mg/L	0.0016	0.459	mg/L	0.0016	0.35%
QC value within limits for Pb Recovery = 91.76%								
Sb†	10.9	0.00802	mg/L	0.001379	0.00802	mg/L	0.001379	17.19%
QC value within limits for Sb Recovery = Not calculated								

Se†	-120.1	0.126 mg/L	0.0098	0.126 mg/L	0.0098	7.76%
QC value greater than the upper limit for Se Recovery = Not calculated						
Tl†	10.9	0.00734 mg/L	0.006489	0.00734 mg/L	0.006489	88.37%
QC value within limits for Tl Recovery = Not calculated						
V†	35928.8	0.252 mg/L	0.0003	0.252 mg/L	0.0003	0.12%
QC value within limits for V Recovery = 100.68%						
Zn†	20275.8	0.541 mg/L	0.0011	0.541 mg/L	0.0011	0.20%
QC value within limits for Zn Recovery = 108.13%						

QC Failed. Continue with analysis.

Sequence No.: 5
Sample ID: Wash
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 0
Date Collected: 5/21/2008 13:48:58
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: Wash

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: Wash

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	404664.2	100.0	%	0.71				0.71%
Yr	338245.1	105	%	0.0				0.02%
Ag†	13.0	0.00005	mg/L	0.000083	0.00005	mg/L	0.000083	154.09%
QC value within limits for Ag		Recovery = Not calculated						
Al†	-24.4	-0.00350	mg/L	0.004636	-0.00350	mg/L	0.004636	132.41%
QC value within limits for Al		Recovery = Not calculated						
As†	-0.6	-0.00038	mg/L	0.001467	-0.00038	mg/L	0.001467	387.12%
QC value within limits for As		Recovery = Not calculated						
B_†	47.0	0.00183	mg/L	0.000061	0.00183	mg/L	0.000061	3.33%
QC value within limits for B_		Recovery = Not calculated						
Ba†	3.6	0.00009	mg/L	0.000054	0.00009	mg/L	0.000054	58.19%
QC value within limits for Ba		Recovery = Not calculated						
Be†	125.9	0.00005	mg/L	0.000019	0.00005	mg/L	0.000019	37.52%
QC value within limits for Be		Recovery = Not calculated						
Ca†	61.4	0.00382	mg/L	0.000379	0.00382	mg/L	0.000379	9.92%
QC value within limits for Ca		Recovery = Not calculated						
Cd†	3.9	0.00019	mg/L	0.000016	0.00019	mg/L	0.000016	8.32%
QC value within limits for Cd		Recovery = Not calculated						
Co†	2.9	0.00020	mg/L	0.000271	0.00020	mg/L	0.000271	132.60%
QC value within limits for Co		Recovery = Not calculated						
Cr†	0.5	0.00001	mg/L	0.000072	0.00001	mg/L	0.000072	656.21%
QC value within limits for Cr		Recovery = Not calculated						
Cu†	14.3	0.00005	mg/L	0.000013	0.00005	mg/L	0.000013	27.65%
QC value within limits for Cu		Recovery = Not calculated						
Fe†	8.6	0.00248	mg/L	0.001136	0.00248	mg/L	0.001136	45.86%
QC value within limits for Fe		Recovery = Not calculated						
K†	89.6	0.0886	mg/L	0.05562	0.0886	mg/L	0.05562	62.81%
QC value within limits for K		Recovery = Not calculated						
Mg†	11.3	0.00114	mg/L	0.000240	0.00114	mg/L	0.000240	21.03%
QC value within limits for Mg		Recovery = Not calculated						
Mn†	-81.2	-0.00017	mg/L	0.000005	-0.00017	mg/L	0.000005	3.14%
QC value within limits for Mn		Recovery = Not calculated						
Mo†	-0.6	-0.00006	mg/L	0.000019	-0.00006	mg/L	0.000019	29.23%
QC value within limits for Mo		Recovery = Not calculated						
Na†	91.3	0.0344	mg/L	0.00536	0.0344	mg/L	0.00536	15.56%
QC value within limits for Na		Recovery = Not calculated						
Ni†	1.0	0.00006	mg/L	0.000031	0.00006	mg/L	0.000031	54.00%
QC value within limits for Ni		Recovery = Not calculated						
Pb†	8.3	0.00223	mg/L	0.000339	0.00223	mg/L	0.000339	15.19%
QC value within limits for Pb		Recovery = Not calculated						
Sb†	0.8	0.00050	mg/L	0.001182	0.00050	mg/L	0.001182	234.05%
QC value within limits for Sb		Recovery = Not calculated						
Se†	-7.1	-0.00753	mg/L	0.002737	-0.00753	mg/L	0.002737	36.33%
QC value within limits for Se		Recovery = Not calculated						
Tl†	1.6	0.00073	mg/L	0.001551	0.00073	mg/L	0.001551	211.41%
QC value within limits for Tl		Recovery = Not calculated						
V†	55.2	0.00038	mg/L	0.000061	0.00038	mg/L	0.000061	16.07%
QC value within limits for V		Recovery = Not calculated						
Zn†	11.0	0.00029	mg/L	0.000070	0.00029	mg/L	0.000070	23.67%
QC value within limits for Zn		Recovery = Not calculated						

All analyte(s) passed QC.

Analysis Begun

Start Time: 5/21/2008 13:55:40
Logged In Analyst: Charley Kay
Spectrometer Model: Optima 4300 DV, S/N 077N2121801
Plasma On Time: 5/21/2008 10:24:22
Technique: ICP Continuous
Autosampler Model: AS-93plus

Sample Information File: C:\pe\Charley Kay\Sample Information\080521.sif
Batch ID: 080521
Results Data Set: 080521
Results Library: C:\pe\Charley Kay\Results\Results.mdb

Sequence No.: 1
Sample ID: ICV
Analyst:
Initial Sample Wt:
Dilution:
User canceled analysis.

Autosampler Location: 15
Date Collected: 5/21/2008 13:55:42
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Analysis Begun

Start Time: 5/21/2008 13:56:05
Logged In Analyst: Charley Kay
Spectrometer Model: Optima 4300 DV, S/N 077N2121801
Plasma On Time: 5/21/2008 10:24:22
Technique: ICP Continuous
Autosampler Model: AS-93plus

Sample Information File: C:\pe\Charley Kay\Sample Information\080521.sif
Batch ID: 080521
Results Data Set: 080521
Results Library: C:\pe\Charley Kay\Results\Results.mdb

Sequence No.: 6
Sample ID: QC-25 1ppm
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 12
Date Collected: 5/21/2008 13:56:05
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: QC-25 1ppm

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: QC-25 1ppm

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	408766.4	101	%	0.7				0.69%
Yr	348424.5	108	%	1.0				0.92%
Ag†	231422.0	0.951	mg/L	0.0020	0.951	mg/L	0.0020	0.22%
QC value within limits for Ag		Recovery = 95.11%						
Al†	6847.4	0.949	mg/L	0.0095	0.949	mg/L	0.0095	1.00%
QC value within limits for Al		Recovery = 94.94%						
As†	1411.4	0.917	mg/L	0.0109	0.917	mg/L	0.0109	1.19%
QC value within limits for As		Recovery = 91.65%						
B_†	23989.1	0.924	mg/L	0.0049	0.924	mg/L	0.0049	0.53%
QC value within limits for B_		Recovery = 92.43%						
Ba†	40351.3	1.03	mg/L	0.000	1.03	mg/L	0.000	0.05%
QC value within limits for Ba		Recovery = 103.37%						
Be†	2432885.4	0.984	mg/L	0.0052	0.984	mg/L	0.0052	0.52%
QC value within limits for Be		Recovery = 98.36%						
Ca†	16264.3	1.01	mg/L	0.017	1.01	mg/L	0.017	1.63%
QC value within limits for Ca		Recovery = 101.35%						
Cd†	20258.8	0.960	mg/L	0.0052	0.960	mg/L	0.0052	0.54%
QC value within limits for Cd		Recovery = 95.97%						
Co†	14714.5	1.03	mg/L	0.011	1.03	mg/L	0.011	1.02%
QC value within limits for Co		Recovery = 103.27%						
Cr†	40309.2	0.981	mg/L	0.0034	0.981	mg/L	0.0034	0.35%
QC value within limits for Cr		Recovery = 98.13%						
Cu†	301535.9	1.01	mg/L	0.002	1.01	mg/L	0.002	0.16%

QC value within limits for Cu	Recovery = 101.38%				
Fe† 3685.9	1.06 mg/L	0.021	1.06 mg/L	0.021	1.94%
QC value within limits for Fe	Recovery = 106.11%				
K† 9594.2	9.48 mg/L	0.098	9.48 mg/L	0.098	1.03%
QC value within limits for K	Recovery = 94.80%				
Mg† 10601.4	1.07 mg/L	0.012	1.07 mg/L	0.012	1.08%
QC value within limits for Mg	Recovery = 106.79%				
Mn† 489840.3	1.04 mg/L	0.002	1.04 mg/L	0.002	0.21%
QC value within limits for Mn	Recovery = 104.31%				
Mo† 9249.9	0.955 mg/L	0.0055	0.955 mg/L	0.0055	0.58%
QC value within limits for Mo	Recovery = 95.49%				
Na† 2566.5	0.968 mg/L	0.0153	0.968 mg/L	0.0153	1.58%
QC value within limits for Na	Recovery = 96.80%				
Ni† 19310.4	1.06 mg/L	0.001	1.06 mg/L	0.001	0.11%
QC value within limits for Ni	Recovery = 106.38%				
Pb† 3859.7	1.04 mg/L	0.011	1.04 mg/L	0.011	1.06%
QC value within limits for Pb	Recovery = 104.36%				
Sb† 1440.4	0.934 mg/L	0.0032	0.934 mg/L	0.0032	0.34%
QC value within limits for Sb	Recovery = 93.40%				
Se† 887.3	0.945 mg/L	0.0120	0.945 mg/L	0.0120	1.27%
QC value within limits for Se	Recovery = 94.53%				
Tl† 2278.8	1.08 mg/L	0.011	1.08 mg/L	0.011	0.98%
QC value within limits for Tl	Recovery = 108.05%				
V† 138313.2	0.954 mg/L	0.0000	0.954 mg/L	0.0000	0.00%
QC value within limits for V	Recovery = 95.40%				
Zn† 38361.3	1.02 mg/L	0.001	1.02 mg/L	0.001	0.10%
QC value within limits for Zn	Recovery = 102.07%				

All analyte(s) passed QC.

Sequence No.: 7
Sample ID: CCV
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 4
Date Collected: 5/21/2008 13:59:53
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: CCV

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	380635.8	94.0	%	1.43				1.52%
Yr	341197.5	106	%	0.8				0.71%
Agt	238099.1	0.980	mg/L	0.0007	0.980	mg/L	0.0007	0.07%
QC value within limits for Ag		Recovery = 98.01%						
Alt	35168.4	4.88	mg/L	0.028	4.88	mg/L	0.028	0.57%
QC value within limits for Al		Recovery = 97.51%						
Ast	7328.3	4.76	mg/L	0.045	4.76	mg/L	0.045	0.95%
QC value within limits for As		Recovery = 95.17%						
B_t	63626.2	2.43	mg/L	0.003	2.43	mg/L	0.003	0.13%
QC value within limits for B_		Recovery = 97.22%						
Bat	194481.8	4.98	mg/L	0.009	4.98	mg/L	0.009	0.19%
QC value within limits for Ba		Recovery = 99.65%						
Bet	4983695.5	2.02	mg/L	0.007	2.02	mg/L	0.007	0.35%
QC value within limits for Be		Recovery = 100.76%						
Cat	790044.3	49.2	mg/L	0.56	49.2	mg/L	0.56	1.14%
QC value within limits for Ca		Recovery = 98.46%						
Cdt	41553.6	1.94	mg/L	0.009	1.94	mg/L	0.009	0.46%
QC value within limits for Cd		Recovery = 96.87%						
Cot	70663.9	4.96	mg/L	0.008	4.96	mg/L	0.008	0.15%
QC value within limits for Co		Recovery = 99.18%						
Crt	201856.3	4.91	mg/L	0.030	4.91	mg/L	0.030	0.61%
QC value within limits for Cr		Recovery = 98.28%						
Cut	1524795.9	5.13	mg/L	0.018	5.13	mg/L	0.018	0.36%
QC value within limits for Cu		Recovery = 102.53%						
Fet	18477.1	5.32	mg/L	0.008	5.32	mg/L	0.008	0.16%
QC value within limits for Fe		Recovery = 106.38%						
Kt	50942.8	50.3	mg/L	0.22	50.3	mg/L	0.22	0.44%
QC value within limits for K		Recovery = 100.67%						
Mgt	506620.9	51.0	mg/L	0.43	51.0	mg/L	0.43	0.85%
QC value within limits for Mg		Recovery = 101.90%						
Mnt	2341350.7	4.98	mg/L	0.010	4.98	mg/L	0.010	0.20%
QC value within limits for Mn		Recovery = 99.70%						
Mot	47683.1	4.92	mg/L	0.006	4.92	mg/L	0.006	0.12%
QC value within limits for Mo		Recovery = 98.44%						
Nat	134954.4	50.9	mg/L	0.40	50.9	mg/L	0.40	0.78%
QC value within limits for Na		Recovery = 101.80%						
Nit	91282.2	5.03	mg/L	0.004	5.03	mg/L	0.004	0.08%
QC value within limits for Ni		Recovery = 100.57%						
Pbt	18495.3	5.00	mg/L	0.047	5.00	mg/L	0.047	0.95%
QC value within limits for Pb		Recovery = 100.02%						
Sbt	7507.8	4.87	mg/L	0.055	4.87	mg/L	0.055	1.14%
QC value within limits for Sb		Recovery = 97.38%						
Set	4687.7	4.99	mg/L	0.074	4.99	mg/L	0.074	1.48%
QC value within limits for Se		Recovery = 99.86%						
Tlt	11009.1	5.22	mg/L	0.044	5.22	mg/L	0.044	0.84%
QC value within limits for Tl		Recovery = 104.40%						
Vt	716133.8	4.94	mg/L	0.010	4.94	mg/L	0.010	0.21%
QC value within limits for V		Recovery = 98.77%						
Znt	189102.4	5.03	mg/L	0.005	5.03	mg/L	0.005	0.10%
QC value within limits for Zn		Recovery = 100.66%						

All analyte(s) passed QC.

User canceled analysis.

Analysis Begun

Start Time: 5/21/2008 14:03:40
Logged In Analyst: Charley Kay
Spectrometer Model: Optima 4300 DV, S/N 077N2121801
Plasma On Time: 5/21/2008 10:24:22
Technique: ICP Continuous
Autosampler Model: AS-93plus

Sample Information File: C:\pe\Charley Kay\Sample Information\080521.sif
Batch ID: 080521
Results Data Set: 080521
Results Library: C:\pe\Charley Kay\Results\Results.mdb

Sequence No.: 34
Sample ID: MCV
Analyst:
Initial Sample Wt:
Dilution:
Autosampler Location: 5
Date Collected: 5/21/2008 14:03:41
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: MCV

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: MCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	388942.0	96.1	%	0.01				0.01%
Yr	331990.9	103	%	0.7				0.71%
Ag†	116274.4	0.479	mg/L	0.0008	0.479	mg/L	0.0008	0.17%
QC value within limits for Ag		Recovery = 95.73%						
Al†	17412.4	2.41	mg/L	0.015	2.41	mg/L	0.015	0.60%
QC value within limits for Al		Recovery = 96.48%						
As†	3640.6	2.36	mg/L	0.004	2.36	mg/L	0.004	0.17%
QC value within limits for As		Recovery = 94.56%						
B_†	31868.9	1.22	mg/L	0.006	1.22	mg/L	0.006	0.49%
QC value within limits for B_		Recovery = 97.44%						
Ba†	100086.4	2.56	mg/L	0.006	2.56	mg/L	0.006	0.23%
QC value within limits for Ba		Recovery = 102.56%						
Be†	2515251.4	1.02	mg/L	0.011	1.02	mg/L	0.011	1.12%
QC value within limits for Be		Recovery = 101.71%						
Ca†	406337.0	25.3	mg/L	0.23	25.3	mg/L	0.23	0.92%
QC value within limits for Ca		Recovery = 101.28%						
Cd†	20592.8	0.960	mg/L	0.0010	0.960	mg/L	0.0010	0.10%
QC value within limits for Cd		Recovery = 96.04%						
Co†	36568.7	2.57	mg/L	0.007	2.57	mg/L	0.007	0.25%
QC value within limits for Co		Recovery = 102.66%						
Cr†	103469.9	2.52	mg/L	0.002	2.52	mg/L	0.002	0.09%
QC value within limits for Cr		Recovery = 100.76%						
Cu†	731531.2	2.46	mg/L	0.017	2.46	mg/L	0.017	0.70%
QC value within limits for Cu		Recovery = 98.39%						
Fe†	9132.4	2.63	mg/L	0.020	2.63	mg/L	0.020	0.75%
QC value within limits for Fe		Recovery = 105.16%						
K†	24748.8	24.5	mg/L	0.05	24.5	mg/L	0.05	0.19%
QC value within limits for K		Recovery = 97.81%						
Mg†	255314.6	25.7	mg/L	0.08	25.7	mg/L	0.08	0.33%
QC value within limits for Mg		Recovery = 102.71%						
Mn†	1196943.2	2.55	mg/L	0.025	2.55	mg/L	0.025	1.00%
QC value within limits for Mn		Recovery = 101.94%						
Mo†	24117.4	2.49	mg/L	0.001	2.49	mg/L	0.001	0.06%
QC value within limits for Mo		Recovery = 99.58%						
Na†	64730.0	24.4	mg/L	0.03	24.4	mg/L	0.03	0.13%
QC value within limits for Na		Recovery = 97.65%						
Ni†	47469.1	2.62	mg/L	0.011	2.62	mg/L	0.011	0.43%
QC value within limits for Ni		Recovery = 104.60%						
Pb†	9557.2	2.58	mg/L	0.005	2.58	mg/L	0.005	0.20%
QC value within limits for Pb		Recovery = 103.37%						
Sb†	3675.4	2.38	mg/L	0.005	2.38	mg/L	0.005	0.21%
QC value within limits for Sb		Recovery = 95.34%						

Se†	2327.1	2.48 mg/L	0.013	2.48 mg/L	0.013	0.54%
QC value within limits for Se	Recovery = 99.15%					
Tl†	5648.6	2.68 mg/L	0.000	2.68 mg/L	0.000	0.01%
QC value within limits for Tl	Recovery = 107.12%					
V†	358453.9	2.47 mg/L	0.004	2.47 mg/L	0.004	0.16%
QC value within limits for V	Recovery = 98.89%					
Zn†	96145.9	2.56 mg/L	0.008	2.56 mg/L	0.008	0.32%
QC value within limits for Zn	Recovery = 102.34%					

All analyte(s) passed QC.

User canceled analysis.

Analysis Begun

Start Time: 5/21/2008 14:07:17 **Plasma On Time:** 5/21/2008 10:24:22
Logged In Analyst: Charley Kay **Technique:** ICP Continuous
Spectrometer Model: Optima 4300 DV, S/N 077N2121801 **Autosampler Model:** AS-93plus

Sample Information File: C:\pe\Charley Kay\Sample Information\080521.sif
Batch ID: 080521
Results Data Set: 080521
Results Library: C:\pe\Charley Kay\Results\Results.mdb

Sequence No.: 8 **Autosampler Location:** 0
Sample ID: ICB **Date Collected:** 5/21/2008 14:07:18
Analyst: **Data Type:** Original
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Nebulizer Parameters: ICB

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: ICB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	401704.8	99.2	%	1.18				1.19%
Yr	340209.0	105	%	0.4				0.35%
Agt	-13.6	-0.00006	mg/L	0.000078	-0.00006	mg/L	0.000078	138.55%
QC value within limits for Ag	Recovery = Not calculated							
Alt	-0.1	-0.00010	mg/L	0.004396	-0.00010	mg/L	0.004396	>999.9%
QC value within limits for Al	Recovery = Not calculated							
Ast	17.5	0.0114	mg/L	0.00148	0.0114	mg/L	0.00148	13.00%
QC value within limits for As	Recovery = Not calculated							
B_t	232.6	0.00905	mg/L	0.000408	0.00905	mg/L	0.000408	4.51%
QC value within limits for B_	Recovery = Not calculated							
Bat	3.7	0.00009	mg/L	0.000028	0.00009	mg/L	0.000028	29.46%
QC value within limits for Ba	Recovery = Not calculated							
Bet	46.0	0.00002	mg/L	0.000042	0.00002	mg/L	0.000042	223.46%
QC value within limits for Be	Recovery = Not calculated							
Cat	34.7	0.00216	mg/L	0.000377	0.00216	mg/L	0.000377	17.45%
QC value within limits for Ca	Recovery = Not calculated							
Cdt	6.5	0.00015	mg/L	0.000018	0.00015	mg/L	0.000018	11.73%
QC value within limits for Cd	Recovery = Not calculated							
Cot	-1.3	-0.00009	mg/L	0.000022	-0.00009	mg/L	0.000022	23.14%
QC value within limits for Co	Recovery = Not calculated							
Crt	5.9	0.00014	mg/L	0.000185	0.00014	mg/L	0.000185	128.38%
QC value within limits for Cr	Recovery = Not calculated							
Cut	19.0	0.00006	mg/L	0.000259	0.00006	mg/L	0.000259	407.10%
QC value within limits for Cu	Recovery = Not calculated							
Fet	0.5	0.00015	mg/L	0.000207	0.00015	mg/L	0.000207	140.80%
QC value within limits for Fe	Recovery = Not calculated							
Kt	63.3	0.0625	mg/L	0.00925	0.0625	mg/L	0.00925	14.80%
QC value within limits for K	Recovery = Not calculated							
Mgt	-2.5	-0.00025	mg/L	0.000248	-0.00025	mg/L	0.000248	97.14%
QC value within limits for Mg	Recovery = Not calculated							
Mnt	-60.2	-0.00013	mg/L	0.000020	-0.00013	mg/L	0.000020	15.48%
QC value within limits for Mn	Recovery = Not calculated							
Mot	21.9	0.00226	mg/L	0.000406	0.00226	mg/L	0.000406	18.00%
QC value within limits for Mo	Recovery = Not calculated							
Nat	22.9	0.00863	mg/L	0.007607	0.00863	mg/L	0.007607	88.10%
QC value within limits for Na	Recovery = Not calculated							
Nit	4.6	0.00025	mg/L	0.000771	0.00025	mg/L	0.000771	302.89%
QC value within limits for Ni	Recovery = Not calculated							
Pbt	9.7	0.00263	mg/L	0.001130	0.00263	mg/L	0.001130	42.98%
QC value within limits for Pb	Recovery = Not calculated							
Sbt	17.5	0.0113	mg/L	0.00375	0.0113	mg/L	0.00375	33.18%
QC value within limits for Sb	Recovery = Not calculated							

Se†	-0.8	-0.00088 mg/L	0.002553	-0.00088 mg/L	0.002553	290.63%
QC value within limits for Se	Recovery = Not calculated					
Tl†	2.2	0.00103 mg/L	0.000841	0.00103 mg/L	0.000841	81.82%
QC value within limits for Tl	Recovery = Not calculated					
V†	18.7	0.00013 mg/L	0.000063	0.00013 mg/L	0.000063	48.76%
QC value within limits for V	Recovery = Not calculated					
Zn†	8.7	0.00023 mg/L	0.000081	0.00023 mg/L	0.000081	35.15%
QC value within limits for Zn	Recovery = Not calculated					

All analyte(s) passed QC.

Sequence No.: 124
Sample ID: ECV
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 4
Date Collected: 5/21/2008 22:18:24
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: ECV

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: ECV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	369310.8	91.2	%	0.22				0.24%
Yr	329728.4	102	%	0.3				0.27%
Ca†	829200.8	51.7	mg/L	0.58	51.7	mg/L	0.58	1.12%
QC value within limits for Ca Recovery = 103.34%								
Cr†	210014.5	5.11	mg/L	0.016	5.11	mg/L	0.016	0.32%
QC value within limits for Cr Recovery = 102.26%								
Fe†	20074.6	5.78	mg/L	0.002	5.78	mg/L	0.002	0.04%
QC value greater than the upper limit for Fe Recovery = 115.58%								
Mn†	2413150.7	5.14	mg/L	0.009	5.14	mg/L	0.009	0.18%
QC value within limits for Mn Recovery = 102.78%								
Na†	145271.7	54.8	mg/L	0.00	54.8	mg/L	0.00	0.00%
QC value within limits for Na Recovery = 109.58%								

QC Failed. Retry.

Sequence No.: 125
Sample ID: ECV
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 4
Date Collected: 5/21/2008 22:19:49
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: ECV

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: ECV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	372221.5	92.0	%	0.42				0.46%
Yr	330252.7	102	%	0.4				0.36%
Ca†	842102.9	52.5	mg/L	0.02	52.5	mg/L	0.02	0.04%
QC value within limits for Ca Recovery = 104.95%								
Cr†	208779.6	5.08	mg/L	0.033	5.08	mg/L	0.033	0.64%
QC value within limits for Cr Recovery = 101.65%								
Fe†	20147.1	5.80	mg/L	0.066	5.80	mg/L	0.066	1.14%
QC value greater than the upper limit for Fe Recovery = 116.00%								
Mn†	2418127.9	5.15	mg/L	0.001	5.15	mg/L	0.001	0.02%
QC value within limits for Mn Recovery = 102.99%								
Na†	144824.6	54.6	mg/L	0.13	54.6	mg/L	0.13	0.23%
QC value within limits for Na Recovery = 109.24%								

QC Failed. Continue with analysis.

Sequence No.: 126
Sample ID: ECB
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 0
Date Collected: 5/21/2008 22:22:45
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: ECB

Analyte	Back Pressure	Flow
All	214.0 kPa	0.65 L/min

Mean Data: ECB

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	396550.5	98.0	%	1.32				1.35%
Yr	347346.7	108	%	1.1				0.98%
Cat	62.3	0.00388	mg/L	0.000082	0.00388	mg/L	0.000082	2.11%
QC value within limits for Ca		Recovery = Not calculated						
Crt	14.5	0.00035	mg/L	0.000088	0.00035	mg/L	0.000088	24.81%
QC value within limits for Cr		Recovery = Not calculated						
Fet	-3.7	-0.00105	mg/L	0.000093	-0.00105	mg/L	0.000093	8.79%
QC value within limits for Fe		Recovery = Not calculated						
Mnt	-3.7	-0.00001	mg/L	0.000037	-0.00001	mg/L	0.000037	468.35%
QC value within limits for Mn		Recovery = Not calculated						
Nat	290.1	0.109	mg/L	0.0138	0.109	mg/L	0.0138	12.60%
QC value within limits for Na		Recovery = Not calculated						

All analyte(s) passed QC.

Analysis Begun

Start Time: 5/21/2008 22:30:26 Plasma On Time: 5/21/2008 10:24:22
Logged In Analyst: Charley Kay Technique: ICP Continuous
Spectrometer Model: Optima 4300 DV, S/N 077N2121801 Autosampler Model: AS-93plus

Sample Information File: C:\pe\Charley Kay\Sample Information\080521.sif
Batch ID: 080521
Results Data Set: 080521
Results Library: C:\pe\Charley Kay\Results\Results.mdb

Sequence No.: 1 Autosampler Location: 15
Sample ID: ICV Date Collected: 5/21/2008 22:30:27
Analyst: Data Type: Original
Initial Sample Wt: Initial Sample Vol:
Dilution: Sample Prep Vol:
User canceled analysis.

Analysis Begun

Start Time: 5/21/2008 22:31:27 Plasma On Time: 5/21/2008 10:24:22
Logged In Analyst: Charley Kay Technique: ICP Continuous
Spectrometer Model: Optima 4300 DV, S/N 077N2121801 Autosampler Model: AS-93plus

Sample Information File: C:\pe\Charley Kay\Sample Information\080521.sif
Batch ID: 080521
Results Data Set: 080521
Results Library: C:\pe\Charley Kay\Results\Results.mdb

Sequence No.: 120 Autosampler Location: 4
Sample ID: CCV Date Collected: 5/21/2008 22:31:27
Analyst: Data Type: Original
Initial Sample Wt: Initial Sample Vol:
Dilution: Sample Prep Vol:

Nebulizer Parameters: CCV

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	375575.2	92.8	%	0.08				0.09%
Yr	336674.9	104	%	0.1				0.09%
Ca†	831478.3	51.8	mg/L	0.16	51.8	mg/L	0.16	0.31%
QC value within limits for Ca Recovery = 103.63%								
Cr†	205235.6	5.00	mg/L	0.009	5.00	mg/L	0.009	0.19%
QC value within limits for Cr Recovery = 99.93%								
Fe†	20068.3	5.78	mg/L	0.017	5.78	mg/L	0.017	0.29%
QC value greater than the upper limit for Fe Recovery = 115.54%								
Mn†	2372391.5	5.05	mg/L	0.000	5.05	mg/L	0.000	0.01%
QC value within limits for Mn Recovery = 101.04%								
Na†	143267.7	54.0	mg/L	0.22	54.0	mg/L	0.22	0.41%
QC value within limits for Na Recovery = 108.07%								

QC Failed. Retry.

Sequence No.: 121 Autosampler Location: 4
Sample ID: CCV Date Collected: 5/21/2008 22:32:51
Analyst: Data Type: Original
Initial Sample Wt: Initial Sample Vol:
Dilution: Sample Prep Vol:

Nebulizer Parameters: CCV

Analyte	Back Pressure	Flow
All	214.0 kPa	0.65 L/min

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	372761.9	92.1	%	0.19				0.20%
Yr	331633.2	103	%	0.1				0.11%
Ca†	825400.5	51.4	mg/L	0.14	51.4	mg/L	0.14	0.28%
QC value within limits for Ca Recovery = 102.87%								
Cr†	207030.9	5.04	mg/L	0.028	5.04	mg/L	0.028	0.56%
QC value within limits for Cr Recovery = 100.80%								
Fe†	19630.7	5.65	mg/L	0.046	5.65	mg/L	0.046	0.81%
QC value greater than the upper limit for Fe Recovery = 113.02%								
Mn†	2391639.8	5.09	mg/L	0.001	5.09	mg/L	0.001	0.01%
QC value within limits for Mn Recovery = 101.86%								
Na†	141890.9	53.5	mg/L	0.16	53.5	mg/L	0.16	0.30%
QC value within limits for Na Recovery = 107.03%								

QC Failed. Retry.

Sequence No.: 122
Sample ID: CCV
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 4
Date Collected: 5/21/2008 22:34:09
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: CCV

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	368790.5	91.1	%	0.14				0.16%
Yr	330365.0	102	%	1.1				1.10%
Ca†	840081.4	52.3	mg/L	0.16	52.3	mg/L	0.16	0.31%
QC value within limits for Ca Recovery = 104.70%								
Cr†	209442.8	5.10	mg/L	0.002	5.10	mg/L	0.002	0.03%
QC value within limits for Cr Recovery = 101.98%								
Fe†	19999.6	5.76	mg/L	0.000	5.76	mg/L	0.000	0.01%
QC value greater than the upper limit for Fe Recovery = 115.15%								
Mn†	2413381.0	5.14	mg/L	0.003	5.14	mg/L	0.003	0.06%
QC value within limits for Mn Recovery = 102.79%								
Na†	144758.4	54.6	mg/L	0.09	54.6	mg/L	0.09	0.16%
QC value within limits for Na Recovery = 109.19%								

QC Failed. Continue with analysis.

Sequence No.: 123
Sample ID: CCB
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 0
Date Collected: 5/21/2008 22:37:04
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: CCB

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	396375.1	97.9	%	0.38				0.39%
Yr	346445.4	107	%	1.1				1.05%
Cr†	5.7	0.00014	mg/L	0.000052	0.00014	mg/L	0.000052	37.93%
QC value within limits for Cr		Recovery = Not calculated						
Mn†	-4.3	-0.00001	mg/L	0.000019	-0.00001	mg/L	0.000019	209.14%
QC value within limits for Mn		Recovery = Not calculated						
Na†	179.1	0.0676	mg/L	0.01028	0.0676	mg/L	0.01028	15.22%
QC value within limits for Na		Recovery = Not calculated						

All analyte(s) passed QC.

Sequence No.: 124
Sample ID: MBLANK2007
Analyst:
Initial Sample Wt:
Dilution: 1X

Autosampler Location: 122
Date Collected: 5/21/2008 22:39:46
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: MBLANK2007

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: MBLANK2007

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	408850.3	101	%	0.3				0.26%
Yr	356261.5	110	%	0.3				0.27%
Cr†	-2.4	-0.00006	mg/L	0.000096	-0.00006	mg/L	0.000096	166.18%
Mn†	-75.8	-0.00016	mg/L	0.000020	-0.00016	mg/L	0.000020	12.19%
Na†	212.7	0.0802	mg/L	0.00169	0.0802	mg/L	0.00169	2.10%

Sequence No.: 125
Sample ID: MRL
Analyst:
Initial Sample Wt:
Dilution: 1X

Autosampler Location: 21
Date Collected: 5/21/2008 22:42:45
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: MRL

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: MRL

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	399421.0	98.7	%	0.10				0.10%
Yr	354149.7	110	%	0.6				0.56%
Crt	413.9	0.0101	mg/L	0.00017	0.0101	mg/L	0.00017	1.69%
Mnt	948.3	0.00202	mg/L	0.000012	0.00202	mg/L	0.000012	0.62%
Nat	2895.1	1.09	mg/L	0.014	1.09	mg/L	0.014	1.31%

Sequence No.: 126
Sample ID: MRL2007
Analyst:
Initial Sample Wt:
Dilution: 1X

Autosampler Location: 24
Date Collected: 5/21/2008 22:45:40
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: MRL2007

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: MRL2007

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	400442.8	98.9	%	1.15				1.16%
Yr	351399.0	109	%	0.2				0.17%
Crt	472.6	0.0115	mg/L	0.00017	0.0115	mg/L	0.00017	1.44%
Mnt	1044.8	0.00223	mg/L	0.000036	0.00223	mg/L	0.000036	1.61%
Nat	3276.4	1.24	mg/L	0.018	1.24	mg/L	0.018	1.46%

Sequence No.: 127
Sample ID: LCS2007
Analyst:
Initial Sample Wt:
Dilution: 1X

Autosampler Location: 123
Date Collected: 5/21/2008 22:48:38
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: LCS2007

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: LCS2007

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	377194.1	93.2	%	0.36				0.39%
Yr	341442.2	106	%	0.5				0.48%
Crt	40461.2	0.985	mg/L	0.0016	0.985	mg/L	0.0016	0.16%
Mnt	237187.6	0.505	mg/L	0.0013	0.505	mg/L	0.0013	0.25%
Nat	143155.7	54.0	mg/L	0.09	54.0	mg/L	0.09	0.16%

Sequence No.: 128
Sample ID: LCSD2007
Analyst:
Initial Sample Wt:
Dilution: 1X

Autosampler Location: 124
Date Collected: 5/21/2008 22:51:37
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: LCSD2007

Analyte	Back Pressure	Flow
All	214.0 kPa	0.65 L/min

Mean Data: LCSD2007

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	382162.8	94.4	%	0.29				0.30%
Yr	346983.5	107	%	0.8				0.75%
Cr†	39162.7	0.953	mg/L	0.0019	0.953	mg/L	0.0019	0.20%
Mn†	229917.9	0.490	mg/L	0.0011	0.490	mg/L	0.0011	0.22%
Na†	136476.2	51.5	mg/L	0.01	51.5	mg/L	0.01	0.01%

Sequence No.: 133
Sample ID: 2805080991_2XMS
Analyst:
Initial Sample Wt:
Dilution: 2X

Autosampler Location: 129
Date Collected: 5/21/2008 23:06:39
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 2805080991_2XMS

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: 2805080991_2XMS

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	387962.0	95.9	%	0.39				0.40%
Yr	340106.6	105	%	0.3				0.25%
Crt	19505.2	0.475	mg/L	0.0011	0.950	mg/L	0.0021	0.22%
Mnt	115599.8	0.246	mg/L	0.0009	0.492	mg/L	0.0017	0.35%
Nat	67133.7	25.3	mg/L	0.04	50.6	mg/L	0.09	0.18%

Sequence No.: 134
Sample ID: CCV
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 4
Date Collected: 5/21/2008 23:09:02
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: CCV

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	370427.5	91.5	%	0.36				0.39%
Yr	327891.7	101	%	0.3				0.26%
Crf	207309.9	5.05	mg/L	0.039	5.05	mg/L	0.039	0.78%
QC value within limits for Cr		Recovery =	100.94%					
Mnf	2405119.0	5.12	mg/L	0.017	5.12	mg/L	0.017	0.34%
QC value within limits for Mn		Recovery =	102.44%					
Naf	144749.3	54.6	mg/L	0.09	54.6	mg/L	0.09	0.16%
QC value within limits for Na		Recovery =	109.18%					

All analyte(s) passed QC.

Sequence No.: 135
Sample ID: CCB
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 0
Date Collected: 5/21/2008 23:12:00
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: CCB

Analyte	Back Pressure	Flow
All	214.0 kPa	0.65 L/min

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	395239.1	97.7	%	0.18				0.19%
Yr	341600.1	106	%	0.1				0.08%
Cr†	3.5	0.00009	mg/L	0.000015	0.00009	mg/L	0.000015	17.16%
QC value within limits for Cr	Recovery = Not calculated							
Mn†	-40.8	-0.00009	mg/L	0.000019	-0.00009	mg/L	0.000019	21.62%
QC value within limits for Mn	Recovery = Not calculated							
Na†	254.0	0.0958	mg/L	0.00797	0.0958	mg/L	0.00797	8.32%
QC value within limits for Na	Recovery = Not calculated							

All analyte(s) passed QC.

Sequence No.: 136
Sample ID: MCV
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 5
Date Collected: 5/21/2008 23:14:42
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: MCV

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: MCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	373869.0	92.4	%	0.18				0.20%
Yr	329292.7	102	%	1.4				1.39%
Crf	104235.0	2.54	mg/L	0.011	2.54	mg/L	0.011	0.44%
QC value within limits for Cr		Recovery = 101.50%						
Mnf	1224501.9	2.61	mg/L	0.004	2.61	mg/L	0.004	0.14%
QC value within limits for Mn		Recovery = 104.31%						
Naf	70636.9	26.6	mg/L	0.08	26.6	mg/L	0.08	0.30%
QC value within limits for Na		Recovery = 106.56%						

All analyte(s) passed QC.

Sequence No.: 137
Sample ID: 2805080991_2XMSD
Analyst:
Initial Sample Wt:
Dilution: 2X

Autosampler Location: 130
Date Collected: 5/21/2008 23:17:00
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 2805080991_2XMSD

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: 2805080991_2XMSD

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	389418.9	96.2	%	0.34				0.35%
Yr	337327.2	104	%	0.1				0.07%
Cr†	20539.8	0.500	mg/L	0.0038	1.00	mg/L	0.008	0.77%
Mn†	121192.3	0.258	mg/L	0.0008	0.516	mg/L	0.0016	0.32%
Na†	69437.0	26.2	mg/L	0.04	52.4	mg/L	0.08	0.14%

User canceled analysis.

Analysis Begun

Start Time: 5/21/2008 23:28:08
Logged In Analyst: Charley Kay
Spectrometer Model: Optima 4300 DV, S/N 077N2121801
Plasma On Time: 5/21/2008 10:24:22
Technique: ICP Continuous
Autosampler Model: AS-93plus

Sample Information File: C:\pe\Charley Kay\Sample Information\080521.sif
Batch ID: 080521
Results Data Set: 080521
Results Library: C:\pe\Charley Kay\Results\Results.mdb

Sequence No.: 147
Sample ID: CCV
Analyst:
Initial Sample Wt:
Dilution:
Autosampler Location: 4
Date Collected: 5/21/2008 23:28:09
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: CCV

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	375047.2	92.7	%	1.00				1.08%
Yr	334101.6	103	%	1.9				1.85%
Crf	203441.0	4.95	mg/L	0.020	4.95	mg/L	0.020	0.41%
QC value within limits for Cr		Recovery =	99.05%					
Mnf	2354893.2	5.01	mg/L	0.020	5.01	mg/L	0.020	0.39%
QC value within limits for Mn		Recovery =	100.30%					
Naf	139252.3	52.5	mg/L	0.16	52.5	mg/L	0.16	0.30%
QC value within limits for Na		Recovery =	105.04%					

All analyte(s) passed QC.

Sequence No.: 147
Sample ID: CCV
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 4
Date Collected: 5/21/2008 23:49:31
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: CCV

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	374167.1	92.4	%	0.71				0.76%
Yr	326818.7	101	%	0.6				0.58%
Cr†	204690.7	4.98	mg/L	0.007	4.98	mg/L	0.007	0.14%
QC value within limits for Cr	Recovery = 99.66%							
Mn†	2375506.3	5.06	mg/L	0.004	5.06	mg/L	0.004	0.09%
QC value within limits for Mn	Recovery = 101.18%							
Na†	141534.5	53.4	mg/L	0.02	53.4	mg/L	0.02	0.04%
QC value within limits for Na	Recovery = 106.76%							

All analyte(s) passed QC.

Sequence No.: 148
Sample ID: CCB
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 0
Date Collected: 5/21/2008 23:52:29
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: CCB

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	396712.2	98.0	%	0.64				0.66%
Yr	341714.7	106	%	0.2				0.17%
Cr†	59.8	0.00145	mg/L	0.000100	0.00145	mg/L	0.000100	6.91%
QC value within limits for Cr		Recovery = Not calculated						
Mn†	-49.3	-0.00010	mg/L	0.000017	-0.00010	mg/L	0.000017	16.19%
QC value within limits for Mn		Recovery = Not calculated						
Na†	232.1	0.0875	mg/L	0.00462	0.0875	mg/L	0.00462	5.27%
QC value within limits for Na		Recovery = Not calculated						

All analyte(s) passed QC.

Sequence No.: 158
Sample ID: MBLANK2007
Analyst:
Initial Sample Wt:
Dilution: 1X

Autosampler Location: 38
Date Collected: 5/22/2008 00:22:31
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: MBLANK2007

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: MBLANK2007

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	407090.4	101	%	0.0				0.03%
Yr	353875.5	110	%	0.5				0.41%
Crf	15.8	0.00039	mg/L	0.000036	0.00039	mg/L	0.000036	9.25%
Mnf	-109.5	-0.00023	mg/L	0.000016	-0.00023	mg/L	0.000016	6.78%
Naf	528.6	0.199	mg/L	0.0094	0.199	mg/L	0.0094	4.69%

Sequence No.: 159
Sample ID: CCV
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 4
Date Collected: 5/22/2008 00:25:26
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: CCV

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	370103.1	91.4	%	0.63				0.69%
Yr	328178.7	102	%	0.8				0.82%
Crf	204896.8	4.99	mg/L	0.008	4.99	mg/L	0.008	0.16%
QC value within limits for Cr		Recovery =	99.76%					
Mnf	2375595.0	5.06	mg/L	0.007	5.06	mg/L	0.007	0.14%
QC value within limits for Mn		Recovery =	101.18%					
Naf	142408.1	53.7	mg/L	0.16	53.7	mg/L	0.16	0.30%
QC value within limits for Na		Recovery =	107.42%					

All analyte(s) passed QC.

Sequence No.: 160
Sample ID: CCB
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 0
Date Collected: 5/22/2008 00:28:24
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: CCB

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	396715.4	98.0	%	0.45				0.45%
Yr	343208.7	106	%	0.8				0.73%
Cr†	21.7	0.00053	mg/L	0.000061	0.00053	mg/L	0.000061	11.61%
QC value within limits for Cr	Recovery = Not calculated							
Mn†	-39.1	-0.00008	mg/L	0.000022	-0.00008	mg/L	0.000022	25.89%
QC value within limits for Mn	Recovery = Not calculated							
Na†	260.9	0.0984	mg/L	0.00551	0.0984	mg/L	0.00551	5.60%
QC value within limits for Na	Recovery = Not calculated							

All analyte(s) passed QC.

Sequence No.: 161
Sample ID: MCV
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 5
Date Collected: 5/22/2008 00:31:06
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: MCV

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: MCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	381147.9	94.2	%	0.80				0.85%
Yr	331248.8	103	%	0.8				0.74%
Cr†	103302.6	2.51	mg/L	0.004	2.51	mg/L	0.004	0.16%
QC value within limits for Cr		Recovery = 100.60%						
Mn†	1211047.4	2.58	mg/L	0.002	2.58	mg/L	0.002	0.08%
QC value within limits for Mn		Recovery = 103.16%						
Na†	68786.5	25.9	mg/L	0.26	25.9	mg/L	0.26	1.00%
QC value within limits for Na		Recovery = 103.77%						

All analyte(s) passed QC.

Sequence No.: 162
Sample ID: MRL
Analyst:
Initial Sample Wt:
Dilution: 1X

Autosampler Location: 21
Date Collected: 5/22/2008 00:33:24
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: MRL

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: MRL

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	395749.0	97.8	%	0.17				0.17%
Yr	343913.4	106	%	1.2				1.14%
Cr†	432.5	0.0105	mg/L	0.00006	0.0105	mg/L	0.00006	0.52%
Mn†	963.7	0.00205	mg/L	0.000010	0.00205	mg/L	0.000010	0.46%
Na†	2876.0	1.08	mg/L	0.001	1.08	mg/L	0.001	0.05%

Sequence No.: 163
Sample ID: MRL2007
Analyst:
Initial Sample Wt:
Dilution: 1X

Autosampler Location: 24
Date Collected: 5/22/2008 00:36:20
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: MRL2007

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: MRL2007

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	400390.9	98.9	%	0.52				0.53%
Yr	346330.6	107	%	1.5				1.42%
Crf	469.2	0.0114	mg/L	0.00024	0.0114	mg/L	0.00024	2.12%
Mnf	1022.7	0.00218	mg/L	0.000019	0.00218	mg/L	0.000019	0.89%
Naf	3146.8	1.19	mg/L	0.018	1.19	mg/L	0.018	1.55%

Sequence No.: 164
Sample ID: LCS2007
Analyst:
Initial Sample Wt:
Dilution: 1X

Autosampler Location: 39
Date Collected: 5/22/2008 00:39:18
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: LCS2007

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: LCS2007

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	383616.3	94.8	%	1.42				1.50%
Yr	334469.1	104	%	0.5				0.51%
Cr†	39392.1	0.959	mg/L	0.0089	0.959	mg/L	0.0089	0.93%
Mn†	233866.5	0.498	mg/L	0.0035	0.498	mg/L	0.0035	0.71%
Na†	140189.3	52.9	mg/L	0.02	52.9	mg/L	0.02	0.03%

Sequence No.: 165
Sample ID: LCSD2007
Analyst:
Initial Sample Wt:
Dilution: 1X

Autosampler Location: 40
Date Collected: 5/22/2008 00:42:14
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: LCSD2007

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: LCSD2007

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	388611.0	96.0	%	0.00				0.00%
Yr	334349.6	103	%	0.7				0.67%
Crf	39465.5	0.961	mg/L	0.0034	0.961	mg/L	0.0034	0.35%
Mnf	234443.1	0.499	mg/L	0.0006	0.499	mg/L	0.0006	0.11%
Naf	138969.5	52.4	mg/L	0.09	52.4	mg/L	0.09	0.18%

Sequence No.: 167
Sample ID: 2805090119_2XMS
Analyst:
Initial Sample Wt:
Dilution: 2X

Autosampler Location: 42
Date Collected: 5/22/2008 00:48:46
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 2805090119_2XMS

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: 2805090119_2XMS

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	377347.2	93.2	%	0.30				0.32%
Yr	329710.6	102	%	1.5				1.47%
Cr†	21632.1	0.527	mg/L	0.0012	1.05	mg/L	0.002	0.23%
Mn†	123135.6	0.262	mg/L	0.0017	0.524	mg/L	0.0034	0.65%
Na†	301096.9	114	mg/L	0.0	227	mg/L	0.1	0.03%

Sequence No.: 168
Sample ID: 2805090119_2XMSD
Analyst:
Initial Sample Wt:
Dilution: 2X

Autosampler Location: 43
Date Collected: 5/22/2008 00:51:46
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 2805090119_2XMSD

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: 2805090119_2XMSD

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	374944.8	92.6	%	0.22				0.24%
Yr	334636.7	104	%	0.1				0.09%
Cr†	20805.0	0.506	mg/L	0.0014	1.01	mg/L	0.003	0.28%
Mn†	117881.6	0.251	mg/L	0.0010	0.502	mg/L	0.0020	0.40%
Na†	292865.8	110	mg/L	0.2	221	mg/L	0.4	0.16%

Sequence No.: 170
Sample ID: 2805090120_2XMS
Analyst:
Initial Sample Wt:
Dilution: 2X

Autosampler Location: 45
Date Collected: 5/22/2008 00:57:46
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 2805090120_2XMS

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: 2805090120_2XMS

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	365066.9	90.2	%	0.60				0.67%
Yr	322422.7	99.8	%	0.87				0.87%
Crf	23209.5	0.565	mg/L	0.0056	1.13	mg/L	0.011	0.98%
Mnf	120908.8	0.257	mg/L	0.0016	0.515	mg/L	0.0031	0.60%
Naf	512010.7	193	mg/L	0.2	386	mg/L	0.4	0.09%

Sequence No.: 171
Sample ID: 2805090120_2XMSD
Analyst:
Initial Sample Wt:
Dilution: 2X

Autosampler Location: 46
Date Collected: 5/22/2008 01:00:46
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 2805090120_2XMSD

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: 2805090120_2XMSD

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	362303.7	89.5	%	0.29				0.32%
Yr	321721.3	99.6	%	0.02				0.02%
Cr†	23974.5	0.584	mg/L	0.0034	1.17	mg/L	0.007	0.58%
Mn†	126545.2	0.269	mg/L	0.0006	0.539	mg/L	0.0013	0.24%
Na†	527769.8	199	mg/L	1.5	398	mg/L	2.9	0.73%

Sequence No.: 172
Sample ID: CCV
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 4
Date Collected: 5/22/2008 01:03:43
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: CCV

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	371701.0	91.8	%	0.86				0.93%
Yr	329948.9	102	%	0.0				0.01%
Cr†	202952.0	4.94	mg/L	0.034	4.94	mg/L	0.034	0.68%
QC value within limits for Cr		Recovery = 98.82%						
Mn†	2362929.7	5.03	mg/L	0.010	5.03	mg/L	0.010	0.20%
QC value within limits for Mn		Recovery = 100.64%						
Na†	143668.6	54.2	mg/L	0.04	54.2	mg/L	0.04	0.07%
QC value within limits for Na		Recovery = 108.37%						

All analyte(s) passed QC.

Sequence No.: 173
Sample ID: CCB
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 0
Date Collected: 5/22/2008 01:06:42
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: CCB

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: CCB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Sca	391544.8	96.7	%	1.45				1.50%
Yr	342606.9	106	%	0.1				0.14%
Cr†	12.7	0.00031	mg/L	0.000047	0.00031	mg/L	0.000047	15.34%
QC value within limits for Cr		Recovery =	Not calculated					
Mn†	-40.3	-0.00009	mg/L	0.000005	-0.00009	mg/L	0.000005	6.14%
QC value within limits for Mn		Recovery =	Not calculated					
Na†	184.2	0.0695	mg/L	0.00324	0.0695	mg/L	0.00324	4.66%
QC value within limits for Na		Recovery =	Not calculated					

All analyte(s) passed QC.

Sequence No.: 184
Sample ID: CCV
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 4
Date Collected: 5/22/2008 01:39:40
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: CCV

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: CCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	373204.2	92.2	%	0.41				0.45%
Yr	324550.6	100	%	0.6				0.62%
Cr†	200190.6	4.87	mg/L	0.022	4.87	mg/L	0.022	0.44%
QC value within limits for Cr		Recovery =	97.47%					
Mn†	2354258.9	5.01	mg/L	0.006	5.01	mg/L	0.006	0.13%
QC value within limits for Mn		Recovery =	100.27%					
Na†	141259.2	53.3	mg/L	0.04	53.3	mg/L	0.04	0.07%
QC value within limits for Na		Recovery =	106.55%					

All analyte(s) passed QC.

Sequence No.: 185
Sample ID: CCB
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 0
Date Collected: 5/22/2008 01:42:39
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: CCB

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: CCB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Sca	395528.9	97.7	%	0.21				0.21%
Yr	337200.5	104	%	0.0				0.01%
Cr†	93.5	0.00228	mg/L	0.000003	0.00228	mg/L	0.000003	0.13%
QC value within limits for Cr		Recovery = Not calculated						
Mn†	-71.7	-0.00015	mg/L	0.000005	-0.00015	mg/L	0.000005	3.10%
QC value within limits for Mn		Recovery = Not calculated						
Na†	291.9	0.110	mg/L	0.0180	0.110	mg/L	0.0180	16.31%
QC value within limits for Na		Recovery = Not calculated						

All analyte(s) passed QC.

Sequence No.: 186
Sample ID: MCV
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 5
Date Collected: 5/22/2008 01:45:21
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: MCV

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: MCV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	382869.6	94.6	%	0.72				0.76%
Yr	325214.2	101	%	1.6				1.63%
Cr†	102203.5	2.49	mg/L	0.012	2.49	mg/L	0.012	0.47%
QC value within limits for Cr		Recovery = 99.53%						
Mn†	1210343.1	2.58	mg/L	0.007	2.58	mg/L	0.007	0.29%
QC value within limits for Mn		Recovery = 103.10%						
Na†	70174.8	26.5	mg/L	0.04	26.5	mg/L	0.04	0.17%
QC value within limits for Na		Recovery = 105.86%						

All analyte(s) passed QC.

Sequence No.: 195
Sample ID: ECV
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 4
Date Collected: 5/22/2008 02:11:48
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: ECV

Analyte	Back Pressure	Flow
All	212.0 kPa	0.65 L/min

Mean Data: ECV

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	368037.1	90.9	%	0.80				0.88%
Yr	323335.8	100	%	0.4				0.40%
Cr†	200164.7	4.87	mg/L	0.026	4.87	mg/L	0.026	0.54%
QC value within limits for Cr		Recovery = 97.46%						
Mn†	2361303.5	5.03	mg/L	0.014	5.03	mg/L	0.014	0.28%
QC value within limits for Mn		Recovery = 100.57%						
Na†	144010.3	54.3	mg/L	0.01	54.3	mg/L	0.01	0.02%
QC value within limits for Na		Recovery = 108.63%						

All analyte(s) passed QC.

Sequence No.: 196
Sample ID: ECB
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 0
Date Collected: 5/22/2008 02:14:46
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: ECB

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: ECB

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	397081.4	98.1	%	0.04				0.04%
Yr	332487.5	103	%	0.2				0.15%
Cr†	33.4	0.00081	mg/L	0.000156	0.00081	mg/L	0.000156	19.17%
QC value within limits for Cr		Recovery = Not calculated						
Mn†	-76.5	-0.00016	mg/L	0.000024	-0.00016	mg/L	0.000024	14.44%
QC value within limits for Mn		Recovery = Not calculated						
Na†	318.6	0.120	mg/L	0.0004	0.120	mg/L	0.0004	0.35%
QC value within limits for Na		Recovery = Not calculated						

All analyte(s) passed QC.

Sequence No.: 132
Sample ID: 2805080991_2X
Analyst:
Initial Sample Wt:
Dilution: 2X

Autosampler Location: 128
Date Collected: 5/21/2008 23:03:41
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 2805080991_2X

Analyte	Back Pressure	Flow
All	214.0 kPa	0.65 L/min

Mean Data: 2805080991_2X

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	401163.3	99.1	%	0.76				0.77%
Yr	347599.4	108	%	0.8				0.72%
Crt	6.5	0.00016	mg/L	0.000121	0.00032	mg/L	0.000242	76.39%
Mnt	-56.9	-0.00012	mg/L	0.000013	-0.00024	mg/L	0.000026	10.93%
Nat	478.1	0.180	mg/L	0.0007	0.361	mg/L	0.0013	0.37%

Sequence No.: 157
Sample ID: 2805090112_5X
Analyst:
Initial Sample Wt:
Dilution: 5X

Autosampler Location: 148
Date Collected: 5/22/2008 00:19:27
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 2805090112_5X

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: 2805090112_5X

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	360944.5	89.2	%	0.45				0.50%
Yr	331352.2	103	%	0.5				0.50%
Crt	7463.0	0.182	mg/L	0.0019	0.908	mg/L	0.0095	1.05%
Mnt	2037.8	0.00434	mg/L	0.000037	0.0217	mg/L	0.00018	0.84%
Nat	741785.0	280	mg/L	0.2	1400	mg/L	1.0	0.07%

Sequence No.: 166
Sample ID: 2805090119_2X
Analyst:
Initial Sample Wt:
Dilution: 2X

Autosampler Location: 41
Date Collected: 5/22/2008 00:45:10
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 2805090119_2X

Analyte	Back Pressure	Flow
All	212.0 kPa	0.65 L/min

Mean Data: 2805090119_2X

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	382316.3	94.5	%	1.46				1.55%
Yr	332178.9	103	%	0.8				0.79%
Crt	1329.5	0.0324	mg/L	0.00033	0.0647	mg/L	0.00066	1.02%
Mnt	309.7	0.00066	mg/L	0.000035	0.00132	mg/L	0.000070	5.34%
Nat	228292.3	86.1	mg/L	0.46	172	mg/L	0.9	0.54%

Sequence No.: 169
Sample ID: 2805090120_2X
Analyst:
Initial Sample Wt:
Dilution: 2X

Autosampler Location: 44
Date Collected: 5/22/2008 00:54:46
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 2805090120_2X

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: 2805090120_2X

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	369959.4	91.4	%	0.40				0.44%
Yr	325478.2	101	%	0.3				0.33%
Crt	3705.0	0.0902	mg/L	0.00011	0.180	mg/L	0.0002	0.12%
Mnt	2136.3	0.00455	mg/L	0.000002	0.00910	mg/L	0.000004	0.04%
Nat	464703.9	175	mg/L	0.1	351	mg/L	0.1	0.03%

Sequence No.: 174
Sample ID: 2805090115_5X
Analyst:
Initial Sample Wt:
Dilution: 5X

Autosampler Location: 47
Date Collected: 5/22/2008 01:09:24
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 2805090115_5X

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: 2805090115_5X

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	372277.8	92.0	%	1.01				1.10%
Yr	328377.7	102	%	0.8				0.80%
Crf	31131.9	0.758	mg/L	0.0144	3.79	mg/L	0.072	1.90%
Mnf	12183.8	0.0259	mg/L	0.00033	0.130	mg/L	0.0016	1.26%
Naf	318639.0	120	mg/L	0.2	601	mg/L	1.0	0.16%

Sequence No.: 175
Sample ID: 2805090116_2X
Analyst:
Initial Sample Wt:
Dilution: 2X

Autosampler Location: 48
Date Collected: 5/22/2008 01:12:26
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 2805090116_2X

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: 2805090116_2X

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	338057.7	83.5	%	0.96				1.15%
Yr	310369.1	96.1	%	0.85				0.89%
Crf	18171.5	0.442	mg/L	0.0022	0.885	mg/L	0.0044	0.50%
Mnf	5732.4	0.0122	mg/L	0.00004	0.0244	mg/L	0.00009	0.37%
Naf	2001431.9	755	mg/L	10.1	1510	mg/L	20.2	1.34%

Sequence No.: 176
Sample ID: 2805090117_5X
Analyst:
Initial Sample Wt:
Dilution: 5X

Autosampler Location: 49
Date Collected: 5/22/2008 01:15:32
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 2805090117_5X

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: 2805090117_5X

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	377775.6	93.3	%	0.68				0.73%
Yr	329418.4	102	%	0.8				0.74%
Crt	23915.6	0.582	mg/L	0.0007	2.91	mg/L	0.004	0.12%
Mnt	4447.5	0.00947	mg/L	0.000114	0.0474	mg/L	0.00057	1.21%
Nat	320306.3	121	mg/L	0.3	604	mg/L	1.5	0.25%

Sequence No.: 177
Sample ID: 2805090118_5X
Analyst:
Initial Sample Wt:
Dilution: 5X

Autosampler Location: 50
Date Collected: 5/22/2008 01:18:34
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 2805090118_5X

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: 2805090118_5X

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	370331.4	91.5	%	0.03				0.04%
Yr	326585.9	101	%	0.9				0.92%
Cr†	22501.3	0.548	mg/L	0.0019	2.74	mg/L	0.009	0.34%
Mn†	2412.9	0.00514	mg/L	0.000029	0.0257	mg/L	0.00014	0.55%
Na†	374474.8	141	mg/L	0.1	706	mg/L	0.5	0.07%

Sequence No.: 178
Sample ID: 2805090121_5X
Analyst:
Initial Sample Wt:
Dilution: 5X

Autosampler Location: 51
Date Collected: 5/22/2008 01:21:34
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 2805090121_5X

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: 2805090121_5X

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	364241.0	90.0	%	0.25				0.28%
Yr	324299.6	100	%	1.2				1.17%
Crf	32849.0	0.800	mg/L	0.0051	4.00	mg/L	0.026	0.64%
Mnf	1302.4	0.00277	mg/L	0.000011	0.0139	mg/L	0.00005	0.39%
Naf	583567.8	220	mg/L	0.0	1100	mg/L	0.2	0.02%

Sequence No.: 179
Sample ID: 2805090122_5X
Analyst:
Initial Sample Wt:
Dilution: 5X

Autosampler Location: 52
Date Collected: 5/22/2008 01:24:35
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 2805090122_5X

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: 2805090122_5X

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	359700.2	88.9	%	0.82				0.93%
Yr	317951.0	98.4	%	0.91				0.92%
Cr†	40149.2	0.977	mg/L	0.0049	4.89	mg/L	0.024	0.50%
Mn†	3627.6	0.00773	mg/L	0.000069	0.0386	mg/L	0.00034	0.89%
Na†	635441.2	240	mg/L	0.3	1200	mg/L	1.5	0.12%

Sequence No.: 180
Sample ID: 2805090123_5X
Analyst:
Initial Sample Wt:
Dilution: 5X

Autosampler Location: 53
Date Collected: 5/22/2008 01:27:36
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 2805090123_5X

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: 2805090123_5X

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	358804.0	88.7	%	0.68				0.77%
Yr	320035.8	99.1	%	0.45				0.45%
Crt	35120.4	0.855	mg/L	0.0090	4.28	mg/L	0.045	1.05%
Mnt	10446.0	0.0222	mg/L	0.00015	0.111	mg/L	0.0007	0.67%
Nat	686839.6	259	mg/L	0.5	1300	mg/L	2.7	0.21%

Sequence No.: 181
Sample ID: 2805090124_10X
Analyst:
Initial Sample Wt:
Dilution: 10X

Autosampler Location: 54
Date Collected: 5/22/2008 01:30:37
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 2805090124_10X

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: 2805090124_10X

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	360353.6	89.0	%	0.37				0.41%
Yr	319839.8	99.0	%	1.48				1.49%
Crt	116067.2	2.83	mg/L	0.016	28.3	mg/L	0.16	0.55%
Mnt	4581.2	0.00976	mg/L	0.000063	0.0976	mg/L	0.00063	0.64%
Nat	662017.3	250	mg/L	1.8	2500	mg/L	17.7	0.71%

Sequence No.: 182
Sample ID: 2805090132_10X
Analyst:
Initial Sample Wt:
Dilution: 10X

Autosampler Location: 55
Date Collected: 5/22/2008 01:33:38
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 2805090132_10X

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: 2805090132_10X

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	363568.5	89.8	%	0.04				0.05%
Yr	316726.8	98.0	%	0.95				0.97%
Crt	104506.5	2.54	mg/L	0.008	25.4	mg/L	0.08	0.31%
Mnt	272.6	0.00058	mg/L	0.000035	0.00580	mg/L	0.000348	6.00%
Nat	615686.7	232	mg/L	1.4	2320	mg/L	14.1	0.61%

Sequence No.: 183
Sample ID: 2805090133_10X
Analyst:
Initial Sample Wt:
Dilution: 10X

Autosampler Location: 56
Date Collected: 5/22/2008 01:36:39
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 2805090133_10X

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: 2805090133_10X

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	362029.8	89.4	%	0.23				0.26%
Yr	319267.0	98.8	%	0.92				0.93%
Crt	121519.3	2.96	mg/L	0.030	29.6	mg/L	0.30	1.03%
Mnt	559.2	0.00119	mg/L	0.000007	0.0119	mg/L	0.00007	0.58%
Nat	706476.5	266	mg/L	0.6	2660	mg/L	5.6	0.21%

Sequence No.: 187
Sample ID: 2805090134_5X
Analyst:
Initial Sample Wt:
Dilution: 5X

Autosampler Location: 57
Date Collected: 5/22/2008 01:47:39
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 2805090134_5X

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: 2805090134_5X

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	370040.7	91.4	%	0.32				0.35%
Yr	325674.0	101	%	0.5				0.53%
Crt	22755.1	0.554	mg/L	0.0033	2.77	mg/L	0.016	0.59%
Mnt	2590.7	0.00552	mg/L	0.000035	0.0276	mg/L	0.00017	0.63%
Nat	630890.6	238	mg/L	1.9	1190	mg/L	9.7	0.82%

Sequence No.: 188
Sample ID: 2805090135_5X
Analyst:
Initial Sample Wt:
Dilution: 5X

Autosampler Location: 58
Date Collected: 5/22/2008 01:50:39
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 2805090135_5X

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: 2805090135_5X

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sca	368360.2	91.0	%	0.29				0.32%
Yr	321575.8	99.5	%	0.58				0.58%
Crf	32208.4	0.784	mg/L	0.0040	3.92	mg/L	0.020	0.51%
Mnf	1022.2	0.00218	mg/L	0.000050	0.0109	mg/L	0.00025	2.31%
Naf	701426.8	265	mg/L	1.2	1320	mg/L	5.9	0.45%

Sequence No.: 189
Sample ID: 2805090136_10X
Analyst:
Initial Sample Wt:
Dilution: 10X

Autosampler Location: 59
Date Collected: 5/22/2008 01:53:40
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 2805090136_10X

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: 2805090136_10X

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Sca	369944.2	91.4	%	0.48				0.52%
Yr	320904.7	99.3	%	1.60				1.61%
Crt	81065.3	1.97	mg/L	0.015	19.7	mg/L	0.15	0.76%
Mnt	298.0	0.00063	mg/L	0.000041	0.00635	mg/L	0.000408	6.43%
Nat	482817.7	182	mg/L	0.3	1820	mg/L	2.8	0.15%

Sequence No.: 190
Sample ID: 2805090137_10X
Analyst:
Initial Sample Wt:
Dilution: 10X

Autosampler Location: 60
Date Collected: 5/22/2008 01:56:42
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 2805090137_10X

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: 2805090137_10X

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	359700.7	88.9	%	0.37				0.42%
Yr	317894.2	98.4	%	0.54				0.55%
Crt	144507.0	3.52	mg/L	0.021	35.2	mg/L	0.21	0.60%
Mnt	11310.2	0.0241	mg/L	0.00003	0.241	mg/L	0.0003	0.12%
Nat	761384.0	287	mg/L	0.0	2870	mg/L	0.3	0.01%

Sequence No.: 191
Sample ID: 2805090138_5X
Analyst:
Initial Sample Wt:
Dilution: 5X

Autosampler Location: 61
Date Collected: 5/22/2008 01:59:43
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Nebulizer Parameters: 2805090138_5X

Analyte	Back Pressure	Flow
All	213.0 kPa	0.65 L/min

Mean Data: 2805090138_5X

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sca	376197.7	92.9	%	0.34				0.37%
Yr	331187.3	103	%	0.7				0.68%
Crt	8874.3	0.216	mg/L	0.0020	1.08	mg/L	0.010	0.94%
Mnt	18488.9	0.0394	mg/L	0.00025	0.197	mg/L	0.0013	0.64%
Nat	339879.7	128	mg/L	0.4	641	mg/L	1.8	0.27%

Standard Preparation Worksheet & Certificate of Analysis

Reagent	Lot #		
HNO3 R# 100450		HCL R# 100446	
IS = Yttrium(ME0709008)0.75mL + Scandium (ME0710007)0.5mL to 1000mL w/ 2% HNO3			
Standards	Lot #	Exp. Date	Dilution
Calibration	ME0712001	(12/01/08)	1:10 ME0801001
(Prepare daily)	ME0712001	(12/01/08)	1:10
			CCV/ECV MCV
CCV/MCV/ECV	ME0710008	(04/17/09)	1:20 ME0801002 1:40 ME0801003
(Prepare daily)			
Spike/LCS	ME0709009	(03/11/09)	1:100 ME0801005
(Prepare daily)	ME0801004	(07/11/08)	1:100
	ME0803001	(08/13/08)	1:50
MRL	ME0801007	(07/11/08)	1:100 ME0801008
(Prepare daily)			
ICSA	ME0712003	(06/01/08)	
ICSAB	ME0712004	(06/01/08)	
QCS	ME0610005	(04/10/08)	
1ppm Check	ME0801010	(07/11/08)	
Linearity	ME0805001	(11/05/08)	
Method Sr/Ti/Sn/SiO2			
Calibration	ME0801012	(07/11/08)	
CCV/ECV	ME0803011	(09/30/08)	
QCS	ME0801012	(07/11/08)	
Spike/LCS	ME0803012	(09/30/08)	1:100
(Prepare daily)			
MRL	ME0801014	(07/11/08)	1:100
(Prepare daily)			
Method Li			
Std/ICV/MRL	ME0801009	(07/11/08)	1:1000, 200, 40, 10
(Prepare daily)			
QCS	ME0801011	(07/11/08)	1:10
(Prepare daily)			
LCS/Spike	ME0801011	(07/11/08)	1:50
(Prepare daily)			
ccv	ME0801011	(07/11/08)	1:40
(Prepare daily)			

From May 2005: the calibration std for ICP should be ME0505010,011 not ME0408010

dilution should be 1:20 and 1:40 not 1:200 and 1:400. 1/10/2006.

Intial: wbh
Date: 4/1/08

METALS STANDARD DOCUMENTATION

Standard: ICP Calibration STD
Date Received/Prepped: Prep Daily
Date Expired: 12/1/2008
Manufacturer: MWH-wbh
Matrix: 2% HNO3 + 5% HCl
Amount:

ME #: 0801001
By: wbh
Lot #:
Certificate: NO
NIST SRM:
Storage: Room Temp

Component	Comment	Conc. Unit:
Mo	1:10 ME0712002	10 ug/ml
Sb		10 ug/ml
Sn		10 ug/ml
Ti		10 ug/ml
B		5 ug/ml
Ca	1:10 ME0712001	100 ug/ml
K		100 ug/ml
Mg		100 ug/ml
Na		100 ug/ml
Al		10 ug/ml
As		10 ug/ml
Ba		10 ug/ml
Co		10 ug/ml
Cr		10 ug/ml
Cu		10 ug/ml
Fe		10 ug/ml
Mn		10 ug/ml
Ni		10 ug/ml
Pb		10 ug/ml
Se		10 ug/ml
Tl		10 ug/ml
V		10 ug/ml
Zn		10 ug/ml
Cd		5 ug/ml
Be		4 ug/ml
SR		3 ug/ml
Ag		2 ug/ml

Intial: STE
Date: 12/21/07

METALS STANDARD DOCUMENTATION

Standard: ICPCalibration Stock Std #1
Date Received/Prepped: 12/1/2007
Date Expired: 12/1/2008
Manufacturer: Inorganic Ventures
Matrix: 5% Nitric Acid
Amount: 500 mL

ME #: 0712001
By: STE
Lot #: A2-MEB243151
Certificate: Y
NIST SRM: Varies
Storage: Room Temp

Component	Comment	Conc. Unit:
Ca	(P/N MWH-ICAP-CAL-1)	1000 ug/ml
K		1000 ug/ml
Mg		1000 ug/ml
Na		1000 ug/ml
Al		100 ug/ml
As		100 ug/ml
Ba		100 ug/ml
Co		100 ug/ml
Cr		100 ug/ml
Cu		100 ug/ml
Fe		100 ug/ml
Mn		100 ug/ml
Ni		100 ug/ml
Pb		100 ug/ml
Se		100 ug/ml
Tl		100 ug/ml
V		100 ug/ml
Zn		100 ug/ml
Cd		50 ug/ml
Be		40 ug/ml
SR		30 ug/ml
Ag		20 ug/ml

INORGANIC VENTURES

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34:2000 registered Certified Reference Material (CRM) Manufacturer (Certificate #883-02). The certificate is designed and the data is determined in accordance with ISO Guide 31:2000 (Reference Materials-Contents of Certificates and Labels), ISO Guide 34:2000 "Quality System Guidelines for the Production of Reference Materials," and ISO Guide 35-1989 "Certification of Reference Materials - General and Statistical Principals."

2.0 **DESCRIPTION OF CRM** Custom Solution

Catalog No.: MWH-ICAP-CAL-1

Lot Number: **A2-MEB243151** ME 071203

Matrix: 5% HNO3(abs)

1,000.00 µg/mL ea:
Ca, K, Mg, Na,

100.00 µg/mL ea:
Al, As, Ba, Co, Cr3, Cu, Fe, Mn, Ni, Pb, Se, Tl, V, Zn,

50.00 µg/mL ea:
Cd,

40.00 µg/mL ea:
Be,

30.00 µg/mL ea:
Sr,

20.00 µg/mL ea:
Ag

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Aluminum, Al	100.4 ± 0.3 µg/mL	Arsenic, As	100.1 ± 0.3 µg/mL	Barium, Ba	99.6 ± 0.4 µg/mL
Beryllium, Be	40.04 ± 0.08 µg/mL	Cadmium, Cd	50.15 ± 0.12 µg/mL	Calcium, Ca	1,000 ± 2 µg/mL
Chromium+3, Cr3	100.0 ± 0.2 µg/mL	Cobalt, Co	99.9 ± 0.2 µg/mL	Copper, Cu	100.0 ± 0.2 µg/mL
Iron, Fe	99.6 ± 0.1 µg/mL	Lead, Pb	100.0 ± 0.3 µg/mL	Magnesium, Mg	1,000 ± 4 µg/mL
Manganese, Mn	100.0 ± 0.3 µg/mL	Nickel, Ni	100.0 ± 0.3 µg/mL	Potassium, K	1,001 ± 5 µg/mL
Selenium, Se	100.0 ± 0.2 µg/mL	Silver, Ag	20.04 ± 0.02 µg/mL	Sodium, Na	1,002 ± 5 µg/mL
Strontium, Sr	30.04 ± 0.18 µg/mL	Thallium, Tl	99.7 ± 0.1 µg/mL	Vanadium, V	100.0 ± 0.3 µg/mL
Zinc, Zn	100.0 ± 0.3 µg/mL				

Certified Density: 1.055 g/mL (measured at 22° C)

Intial: STE
Date: 12/01/08

METALS STANDARD DOCUMENTATION

Standard: ICPCalibration Stock Std #2
Date Received/Prepped: 12/1/2007
Date Expired: 12/1/2008
Manufacturer: Inorganic Ventures
Matrix: 5% Nitric Acid + Trace HF
Amount: 500 mL

ME #: 0712002
By: STE
Lot #: A2-MEB243152
Certificate: Y
NIST SRM: Varies
Storage: Room Temp

Component	Comment	Conc. Unit:
Mo	(P/N MWH-ICAP-CAL-2)	100 ug/ml
Sb		100 ug/ml
Sn		100 ug/ml
Ti		100 ug/ml
B		50 ug/ml
Mo		100 ug/ml

INORGANIC VENTURES

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34:2000 registered Certified Reference Material (CRM) Manufacturer (Certificate #883-02). The certificate is designed and the data is determined in accordance with ISO Guide 31:2000 (Reference Materials-Contents of Certificates and Labels), ISO Guide 34:2000 "Quality System Guidelines for the Production of Reference Materials," and ISO Guide 35-1989 "Certification of Reference Materials - General and Statistical Principals."

2.0 **DESCRIPTION OF CRM** Custom Solution

ME 0712 C02

Catalog No.: MWH-ICAP-CAL-2

Lot Number: **A2-MEB243152**

Matrix: tr. HF, 5% HNO3(abs)

100.00 µg/mL ea:
Mo, Sb, Sn, Ti,

50.00 µg/mL ea:
B

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Antimony, Sb	100.4 ± 0.3 µg/mL	Boron, B	49.85 ± 0.20 µg/mL	Molybdenum, Mo	100.2 ± 0.3 µg/mL
Tin, Sn	100.2 ± 0.3 µg/mL	Titanium, Ti	100.4 ± 0.2 µg/mL		

Certified Density: 1.037 g/mL (measured at 22° C)

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors (Most common are the errors from instrumental measurement, weighing, dilution to volume, and the fixed error reported on the NIST SRM certificate of analysis.)

4.0 TRACEBILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

Intial: STE
Date: 10/19/07

METALS STANDARD DOCUMENTATION

Standard: ICP CCV/MCV/QCS Stock Standard
Date Received/Prepped: 10/19/2007
Date Expired: 4/17/2009
Manufacturer: CPI
Matrix: 5% HNO3 = tr HF
Amount: 100 mL x 10

ME #: 0710008
By: STE
Lot #: 07J154
Certificate: Y
NIST SRM: Various
Storage: Room Temp

Component	Comment	Conc. Unit:
Ag	P/N 4400-061003RH01	20 ppm
Al		100 ppm
As		100 ppm
B		50 ppm
Ba		100 ppm
bE		40 ppm
Ca		1000 ppm
Cd		50 ppm
Co		100 ppm
Cr		100 ppm
Cu		100 ppm
Fe		100 ppm
K		1000 ppm
Mg		1000 ppm
Mn		100 ppm
Mo		100 ppm
Na		1000 ppm
Ni		100 ppm
Pb		100 ppm
Sb		100 ppm
Se		100 ppm
Tl		100 ppm
V		100 ppm
Zn		100 ppm
Sr		20 ppm
Sn		20 ppm
Ti		20 ppm

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Expiry: 4/17/2009

Certificate of Analysis

Part Number: **4400-061003RH01**
Lot Number: **07J154**
Shelf Life: **18 months**

MWH
Custom Multi
5% HNO3 + tr HF

Concentrations in ug/mL ± 0.5%

Ag	20	K	1000	Sr	20
Al	100	Mg	1000	Sn	20
As	100	Mn	100	Ti	20
B	50	Mo	100		
Ba	100	Na	1000		
Be	40	Ni	100		
Ca	1000	Pb	100		
Cd	50	Sb	100		
Co	100	Se	100		
Cr	100	TL	100		
Cu	100	V	100		
Fe	100	Zn	100		

This standard solution was prepared using high-purity starting materials, high-purity acid (if required) and 18-megaohm de-ionized water. The starting materials were weighed to five significant figures and diluted in volumetric glassware calibrated to five significant figures.

Starting materials were analyzed at 1000µg/mL by ICP-MS for trace impurities. The standard solution concentrations were certified instrumentally against the National Institute of Standards and Technology's SRM 3100 series, NIST approved second source and/or gravimetrically.

Accuracy and stability are guaranteed to within plus or minus 0.5% of the certified value for the stated shelf life from the date of shipment. The solution should be kept tightly capped and stored under normal laboratory conditions. See attached MSDS for proper handling information.

For questions or comments please call 1-800-878-7654 in the USA, +31 20 638 05 97 in Europe or visit our web-site at www.cpiinternational.com.

Intial: WBh
Date: 4/16/09

METALS STANDARD DOCUMENTATION

Standard: ICP MCV Working Standard
Date Received/Prepped: Daily
Date Expired: 4/17/2009
Manufacturer: CPI
Matrix: 2%HNO3 + 5% HCL
Amount: 100 mL

ME #: 0801003
By: Wbh
Lot #:
Certificate: Y
NIST SRM: Various
Storage: Room Temp

Component	Comment	Conc. Unit:
Ag	5ml ME0710008 / 100mL	0.5 ppm
Al		2.5 ppm
As		2.5 ppm
B		1.25 ppm
Ba		2.5 ppm
bE		1 ppm
Ca		25 ppm
Cd		1 ppm
Co		2.5 ppm
Cr		2.5 ppm
Cu		2.5 ppm
Fe		2.5 ppm
K		25 ppm
Mg		25 ppm
Mn		2.5 ppm
Mo		2.5 ppm
Na		25 ppm
Ni		2.5 ppm
Pb		2.5 ppm
Sb		2.5 ppm
Se		2.5 ppm
Tl		2.5 ppm
V		2.5 ppm
Zn		2.5 ppm
Sr		0.5 ppm
Sn		0.5 ppm
Ti		0.5 ppm

Intial: WBH
Date: 4/14/08

METALS STANDARD DOCUMENTATION

Standard: ICP CCV/ECV Working Standard
Date Received/Prepped: Daily
Date Expired: 4/17/2009
Manufacturer: CPI
Matrix: 2%HNO3 + 5% HCL
Amount: 100 mL

ME #: 0801002
By: Wbh
Lot #:
Certificate: Y
NIST SRM: Various
Storage: Room Temp

Component	Comment	Conc. Unit:
Ag	5ml ME0710008 / 100mL	1 ppm
Al		5 ppm
As		5 ppm
B		2.5 ppm
Ba		5 ppm
bE		2 ppm
Ca		50 ppm
Cd		2 ppm
Co		5 ppm
Cr		5 ppm
Cu		5 ppm
Fe		5 ppm
K		50 ppm
Mg		50 ppm
Mn		5 ppm
Mo		5 ppm
Na		50 ppm
Ni		5 ppm
Pb		5 ppm
Sb		5 ppm
Se		5 ppm
Tl		5 ppm
V		5 ppm
Zn		5 ppm
Sr		1 ppm
Sn		1 ppm
Ti		1 ppm

Intial: WBH
Date: 7/11/08

METALS STANDARD DOCUMENTATION

Standard: Spike and LCS std for ICP
Date Received/Prepped: prep daily
Date Expired: 7/11/2008
Manufacturer: MWH-wbh
Matrix: 2% HNO3 + 5% HCl
Amount:

ME #: 0801005
By: WBH
Lot #:
Certificate: N
NIST SRM:
Storage: Room Temp

Component	Comment	Conc.	Unit:
CA	1:200 ME0709007	50	ppm
K		20	ppm
MG		20	ppm
NA		50	ppm
Iron	1:100 ME0709009	5	mg/L
Aluminum		2	mg/L
Barium		1	mg/L
Cobalt		1	mg/L
Chromium		1	mg/L
Copper		1	mg/L
Molybdenum		1	mg/L
Strontium		1	mg/L
Titanium		1	mg/L
Vanadium		1	mg/L
Zinc		1	mg/L
Tin		1	mg/L
Silver		0.5	mg/L
Boron		0.5	mg/L
Manganese		0.5	mg/L
Nickel		0.5	mg/L
Antimony		0.5	mg/L
Arsenic		0.2	mg/L
Cadmium		0.2	mg/L
Lead		0.2	mg/L
Selenium		0.2	mg/L
Thallium		0.2	mg/L
Uraium		0.2	mg/L
Beryllium		0.05	mg/L
AS	1:100 ME0801004	0.8	mg/L
PB		0.8	mg/L
SE		0.8	mg/L
TL		0.8	mg/L

Intial: WBH
Date: 1/11/08

METALS STANDARD DOCUMENTATION

Standard:	ICP Spike Solution	**ME #:**	0801004
Date Received/Prepped:	1/11/2008	**By:**	Wbh
Date Expired:	7/11/2008	**Lot #:**	VARIOUS
Manufacturer:	MWH-wbh	**Certificate:**	
Matrix:	2%HNO3	**NIST SRM:**	
Amount:	100mL	**Storage:**	Room Temp

Component	Comment	Conc.	Unit:
AS	8.0mL ME07090023/100mL	80	ppm
PB	8.0mL ME0704013/100mL	80	ppm
SE	8.0mL ME0703001/100mL	80	ppm
TL	8.0mL ME0702006/100mL	80	ppm

Intial: wbh
Date: 3/12/08

METALS STANDARD DOCUMENTATION

Standard: ICP LCS/SPIKE Solution
Date Received/Prepped: 3/12//2008
Date Expired: 8/12/2008
Manufacturer: MWH-wbh
Matrix: 2% HNO3 + 5% HCl
Amount: 100mL

ME #: 0803001
By: wbh
Lot #:
Certificate: NO
NIST SRM:
Storage: Room Temp

Component	Comment	Conc. Unit:
Ca	1:4 ME0702002	5000 ug/ml
K	1:10 ME0702005	1000 ug/ml
Mg	1:10 ME0702004	1000 ug/ml
Na	1:4 ME0702003	5000 ug/ml

Intial: STE
Date: 9/13/07

METALS STANDARD DOCUMENTATION

Standard: ICP CCV/MCV Stock Standard
Date Received/Prepped: 9/13/2007
Date Expired: 3/11/2009
Manufacturer: CPI International
Matrix: 5% HNO3 AND 0.1% HF
Amount: 100 mL

ME #: 0709009
By: STE
Lot #: 07I040
Certificate:
NIST SRM:
Storage: Room Temp.

Component	Comment	Conc. Unit:
Fe	P/N 4400-050314RH01	500
Al	(10 bottles)	200
Ba		100
Co		100
Cr		100
Cu		100
Mo		100
Sr		100
Ti		100
V		100
Zn		50
Ag		50
Ba		50
Mn		50
Ni		50
Sb		50
As		20
Cd		20
Pb		20
Se		20
Tl		20
Sn		100
Be		5
U		20

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Expiry: 3/11/2009

Certificate of Analysis

Part Number: **4400-050314RH01**
Lot Number: **07I040**
Shelf Life: **18 months**

ME C7 C9 C09

MWH Labs
5% HNO3 + 0.1% HF
#REF!

Concentrations in ug/mL ± 0.5%

Fe	500	B	50
Al	200	Mn	50
Ba	100	Ni	50
Co	100	Sb	50
Cr	100	As	20
Cu	100	Cd	20
Mo	100	Pb	20
Sr	100	Se	20
Ti	100	TL	20
V	100	Sn	100
Zn	100	Be	5
Ag	50	U	20

This standard solution was prepared using high-purity starting materials, high-purity acid (if required) and 18-megaohm de-ionized water. The starting materials were weighed to five significant figures and diluted in volumetric glassware calibrated to five significant figures.

Starting materials were analyzed at 1000µg/mL by ICP-MS for trace impurities. The standard solution concentrations were certified instrumentally against the National Institute of Standards and Technology's SRM 3100 series, NIST approved second source and/or gravimetrically.

Accuracy and stability are guaranteed to within plus or minus 0.5% of the certified value for the stated shelf life from the date of shipment. The solution should be kept tightly capped and stored under normal laboratory conditions. See attached MSDS for proper handling information.

For questions or comments please call 1-800-878-7654 in the USA, +31 20 638 05 97 in Europe or visit our web-site at www.cpiinternational.com.

Intial: WBH
Date: 2/20/07

METALS STANDARD DOCUMENTATION

Standard:	Potassium 10000ppm Stock Std	**ME #:**	0702005
Date Received/Prepped:	2/20/2007	**By:**	WBH
Date Expired:	8/16/2008	**Lot #:**	07B056
Manufacturer:	CPI	**Certificate:**	Y
Matrix:	1% HNO3	**NIST SRM:**	3141
Amount:	250 mL	Room temp. storage	

Component	Comment	Conc. Unit:
K	P/N 4400-10M411	10000 ppm

AUG 16 '08

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CERTIFICATE OF ANALYSIS

M20702005

P/N 4400-10M411
P/N S4400-10M411

Single-Element Potassium Standard
K in 1% HNO_3
10,000 ± 30 µg/mL

Lot # 07B056

Material Source: Potassium Nitrate (KNO_3)
Source Purity: 99.999%
Specific Gravity: 1.019 @ 21 °C

This standard solution was prepared using high-purity salt, sub-boiled distilled nitric acid and 18-megaohm deionized water. The starting material was weighed to five significant figures and diluted in volumetric glassware calibrated to five significant figures.

The standard solution concentration was certified by ICP against the National Institute of Standards and Technology's SRM 3141. Trace impurities of the standard solution at 1000µg/mL were analyzed by ICP-MS.

	ppb	DL		ppb	DL		ppb	DL		ppb	DL		ppb	DL
Al	0.39	0.1	Cu	0.16	0.1	Pb	ND	0.1	K	X	70	Tl	ND	0.1
Sb	0.34	0.1	Dy	ND	0.1	Li	ND	0.4	Pr	ND	0.1	Th	ND	0.1
As	ND	6	Er	ND	0.1	Lu	ND	1	Re	ND	0.1	Tm	ND	0.1
Ba	0.14	0.1	Eu	ND	0.1	Mg	2.6	0.2	Rh	ND	0.1	Sn	0.17	0.1
Be	ND	0.1	Gd	ND	0.1	Mn	0.93	1	Rb	9.5	0.1	Ti	ND	0.1
Bi	ND	0.1	Ga	ND	0.1	Hg	ND	0.2	Ru	ND	0.1	W	ND	0.1
B	ND	4	Ge	ND	0.1	Mo	ND	0.1	Sm	ND	0.1	U	ND	0.1
Br	ND	10	Au	ND	0.1	Nd	ND	0.1	Se	ND	6	V	ND	1
Cd	ND	0.1	Hf	ND	0.1	Ni	0.4	0.1	Si	50	20	Yb	ND	0.1
Ca	82	7	Ho	ND	0.1	Nb	ND	0.1	Ag	ND	0.1	Y	ND	0.1
Ce	ND	0.1	I	ND	0.2	Os	ND	0.1	Na	19	1	Zn	2.9	1
Cs	ND	0.1	Ir	ND	0.1	Pd	ND	0.1	Sr	1	0.1	Zr	ND	0.1
Cr	ND	1	Fe	ND	30	P	18	10	Ta	ND	0.1			
Co	ND	0.1	La	ND	0.1	Pt	ND	0.1	Te	ND	0.1			

X=Major Element INT=Interference from Major Element ND=Not Detected DL=Detection Limit

Accuracy and stability are guaranteed to within plus or minus 0.3% of the certified value for 18 months after the date of shipment. The solution should be kept tightly capped and stored under normal laboratory conditions. See attached MSDS for proper handling information.

For questions or comments please call 1-800-878-7654 in the USA or +31 20 638 05 97 in Europe.

Intial: WBH
Date: 2/20/07

METALS STANDARD DOCUMENTATION

Standard:	Magnessium 10000ppm Stock Std	**ME #:**	0702004
Date Received/Prepped:	2/20/2007	**By:**	WBH
Date Expired:	8/16/2008	**Lot #:**	07B058
Manufacturer:	CPI	**Certificate:**	Y
Matrix:	4% HNO3	**NIST SRM:**	3131
Amount:	250 mL	Room temp. storage	

Component	Comment	Conc. Unit:
Mg	P/N 4400-10M311	10000 ppm

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CERTIFICATE OF ANALYSIS

4/20/2004

P/N 4400-10M311
P/N S4400-10M311

Single-Element Magnesium Standard
Mg in 4% HNO_3
10,000 ± 30 µg/mL

Lot # 07B058

Material Source: Magnesium Metal
Source Purity: 99.99%
Specific Gravity: 1.056 @ 21 °C

This standard solution was prepared using high-purity metal, sub-boiled distilled nitric acid and 18-megaohm deionized water. The starting material was weighed to five significant figures and diluted in volumetric glassware calibrated to five significant figures.

The standard solution concentration was certified by ICP against the National Institute of Standards and Technology's SRM 3131. Trace impurities of the standard solution at 1000 µg/mL were analyzed by ICP-MS.

	ppb	DL		ppb	DL		ppb	DL		ppb	DL		ppb	DL
Al	28	0.1	Cu	1.6	0.1	Pb	7.7	0.7	K	ND	70	Tl	0.91	0.1
Sb	ND	0.1	Dy	ND	0.1	Li	ND	0.4	Pr	0.28	0.1	Th	ND	0.1
As	ND	6	Er	ND	0.1	Lu	ND	1	Re	ND	0.1	Tm	ND	0.1
Ba	0.28	0.1	Eu	ND	0.1	Mg	X	0.2	Rh	ND	0.1	Sn	0.14	0.1
Be	ND	0.1	Gd	0.23	0.1	Mn	19.8	1	Rb	ND	0.1	Ti	ND	0.1
Bi	ND	0.1	Ga	0.18	0.1	Hg	ND	0.2	Ru	ND	0.1	W	ND	0.1
B	ND	4	Ge	ND	0.1	Mo	ND	0.1	Sm	ND	0.1	U	ND	0.1
Br	ND	10	Au	ND	0.1	Nd	1.1	0.1	Se	ND	6	V	ND	1
Cd	ND	0.1	Hf	ND	0.1	Ni	1	0.1	Si	64	20	Yb	ND	0.1
Ca	ND	7	Ho	ND	0.1	Nb	ND	0.1	Ag	0.19	0.1	Y	0.2	0.1
Ce	2.1	0.1	I	1	0.2	Os	ND	0.1	Na	7.2	1	Zn	ND	1
Cs	ND	0.1	Ir	ND	0.1	Pd	ND	0.1	Sr	0.19	0.1	Zr	0.29	0.1
Cr	ND	1	Fe	80	30	P	ND	10	Ta	ND	0.1			
Co	ND	0.1	La	0.76	0.1	Pt	ND	0.1	Te	ND	0.1			

X=Major Element INT=Interference from Major Element ND=Not Detected DL=Detection Limit

Accuracy and stability are guaranteed to within plus or minus 0.3% of the certified value for 18 months after the date of shipment. The solution should be kept tightly capped and stored under normal laboratory conditions. See attached MSDS for proper handling information.

For questions or comments please call 1-800-878-7654 in the USA or +31 20 638 05 97 in Europe.

Intial: WBH
Date: 2/20/07

METALS STANDARD DOCUMENTATION

Standard:	Sodium 10000ppm Stock Std	**ME #:**	0702003
Date Received/Prepped:	2/20/2007	**By:**	WBH
Date Expired:	8/16/2008	**Lot #:**	07B057
Manufacturer:	CPI	**Certificate:**	Y
Matrix:	1% HNO3	**NIST SRM:**	3152a
Amount:	250 mL	Room temp. storage	

Component	Comment	Conc.	Unit:
Na	P/N 4400-10M521	10000	ppm

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CERTIFICATE OF ANALYSIS

M70702003

P/N 4400-10M521
P/N S4400-10M521

Single-Element Sodium Standard
Na in 1% HNO_3
10,000 ± 30 µg/mL

Lot # 07B057

Material Source: Sodium Nitrate ($NaNO_3$)
Source Purity: 99.99%
Specific Gravity: 1.053 @ 21 °C

This standard solution was prepared using high-purity salt, sub-boiled distilled nitric acid and 18-megaohm deionized water. The starting material was weighed to five significant figures and diluted in volumetric glassware calibrated to five significant figures.

The standard solution concentration was certified by ICP against the National Institute of Standards and Technology's SRM 3152a. Trace impurities of the standard solution at 1000µg/mL were analyzed by ICP-MS.

	ppb	DL		ppb	DL		ppb	DL		ppb	DL		ppb	DL
Al	1.5	0.1	Cu	0.45	0.1	Pb	ND	0.1	K	ND	70	Tl	ND	0.1
Sb	ND	0.1	Dy	ND	0.1	Li	ND	0.4	Pr	ND	0.1	Th	ND	0.1
As	ND	6	Er	ND	0.1	Lu	ND	1	Re	ND	0.1	Tm	ND	0.1
Ba	0.13	0.1	Eu	ND	0.1	Mg	2.3	0.2	Rh	ND	0.1	Sn	ND	0.1
Be	ND	0.1	Gd	ND	0.1	Mn	ND	1	Rb	ND	0.1	Ti	ND	0.1
Bi	ND	0.1	Ga	ND	0.1	Hg	ND	0.2	Ru	ND	0.1	W	ND	0.1
B	ND	4	Ge	ND	0.1	Mo	ND	0.1	Sm	ND	0.1	U	ND	0.1
Br	ND	10	Au	ND	0.1	Nd	ND	0.1	Se	ND	6	V	ND	1
Cd	ND	0.1	Hf	ND	0.1	Ni	0.4	0.1	Si	50	8	Yb	ND	0.1
Ca	120	7	Ho	ND	0.1	Nb	ND	0.1	Ag	ND	0.1	Y	ND	0.1
Ce	ND	0.1	I	ND	0.2	Os	ND	0.1	Na	X	1	Zn	2.9	2
Cs	ND	0.1	Ir	ND	0.1	Pd	ND	0.1	Sr	1	0.1	Zr	ND	0.1
Cr	ND	1	Fe	ND	30	P	18	10	Ta	ND	0.1			
Co	ND	0.1	La	ND	0.1	Pt	ND	0.1	Te	ND	0.1			

X=Major Element INT=Interference from Major Element ND=Not Detected DL=Detection Limit

Accuracy and stability are guaranteed to within plus or minus 0.3% of the certified value for 18 months after the date of shipment. The solution should be kept tightly capped and stored under normal laboratory conditions. See attached MSDS for proper handling information.

For questions or comments please call 1-800-878-7654 in the United States or +31 20 638 05 97 in Europe.

Intial: WBH
Date: 2/20/07

METALS STANDARD DOCUMENTATION

Standard:	Calcium 10000ppm Stock Std	**ME #:**	0702002
Date Received/Prepped:	2/20/2007	**By:**	WBH
Date Expired:	8/16/2008	**Lot #:**	07B065
Manufacturer:	CPI	**Certificate:**	Y
Matrix:	4% HNO3	**NIST SRM:**	3109a
Amount:	250 mL	Room temp. storage	

Component	Comment	Conc. Unit:
Ca	P/N 4400-10M91	10000 ppm

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CERTIFICATE OF ANALYSIS

P/N 4400-10M91
P/N S4400-10M91

'1B0702602

Single-Element Calcium Standard
Ca in 4% HNO_3
10,000 ± 30 µg/mL

Lot # 07B065

Material Source: Calcium Carbonate ($CaCO_3$)
Source Purity: 99.997%
Specific Gravity: 1.035 @ 21 °C

This standard solution was prepared using high-purity salt, sub-boiled distilled nitric acid and 18-megaohm deionized water. The starting material was weighed to five significant figures and diluted in volumetric glassware calibrated to five significant figures.

The standard solution concentration was certified by ICP against the National Institute of Standards and Technology's SRM 3109a. Trace impurities of the standard solution at 1000 µg/mL were analyzed by ICP-MS.

	ppb	DL		ppb	DL		ppb	DL		ppb	DL		ppb	DL
Al	7	0.1	Cu	1.7	0.1	Pb	0.23	0.1	K	ND	70	Tl	0.27	0.1
Sb	ND	0.1	Dy	ND	0.1	Li	ND	0.4	Pr	ND	0.1	Th	ND	0.1
As	ND	6	Er	ND	0.1	Lu	ND	1	Re	ND	0.1	Tm	ND	0.1
Ba	1.5	0.1	Eu	ND	0.1	Mg	38	0.2	Rh	ND	0.1	Sn	ND	0.1
Be	ND	0.1	Gd	ND	0.1	Mn	ND	1	Rb	ND	0.1	Ti	ND	0.1
Bi	ND	0.1	Ga	ND	0.1	Hg	ND	0.2	Ru	ND	0.1	W	ND	0.1
B	1.5	4	Ge	ND	0.1	Mo	ND	0.1	Sm	ND	0.1	U	ND	0.1
Br	ND	10	Au	ND	0.1	Nd	ND	0.1	Se	ND	6	V	ND	1
Cd	ND	0.1	Hf	ND	0.1	Ni	3	0.1	Si	47	8	Yb	ND	0.1
Ca	X	7	Ho	ND	0.1	Nb	ND	0.1	Ag	ND	0.1	Y	ND	0.1
Ce	ND	0.1	I	0.27	0.2	Os	ND	0.1	Na	116	1	Zn	3.5	2
Cs	ND	0.1	Ir	ND	0.1	Pd	ND	0.1	Sr	55	0.1	Zr	ND	0.1
Cr	ND	1	Fe	INT	30	P	ND	10	Ta	ND	0.1			
Co	INT	0.1	La	0.41	0.1	Pt	ND	0.1	Te	ND	0.1			

INT=Interference from Major Element ND=None Detected X=Major Element DL=Detection Limit

Accuracy and stability are guaranteed to within plus or minus 0.3% of the certified value for 18 months after the date of shipment. The solution should be kept tightly capped and stored under normal laboratory conditions. See attached MSDS for proper handling information.

For questions or comments please call 1-800-878-7654 in the USA or +31 20 638 05 97 in Europe.

Intial: WBH
Date: 2/20/07

METALS STANDARD DOCUMENTATION

Standard:	Thallium 1000ppm Stock Std	**ME #:**	0702006
Date Received/Prepped:	2/20/2007	**By:**	WBH
Date Expired:	8/16/2008	**Lot #:**	06H213
Manufacturer:	CPI	**Certificate:**	Y
Matrix:	2% HNO3	**NIST SRM:**	3158
Amount:	100 mL	Room temp. storage	

Component	Comment	Conc. Unit:
Tl	P/N S4400-1000581	1000 ppm

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MF0702006

CERTIFICATE OF ANALYSIS

P/N 4400-1000581
P/N S4400-1000581

Single Element Thallium Standard
Tl in 2% HNO_3
1000 ± 3 µg/mL

Lot # 06H213

Material Source: Thallium metal
Source Purity: 99.999%
Specific Gravity: 1.015 @ 21 °C

This standard solution was prepared using high-purity metal, sub-boiled distilled nitric acid and 18-megaohm deionized water. The starting material was weighed to five significant figures and diluted in volumetric glassware calibrated to five significant figures.

The standard solution concentration was certified by ICP against the National Institute of Standards and Technology's SRM 3158. Trace impurities of the 1000 µg/mL standard were analyzed by ICP-MS.

	ppb	DL		ppb	DL		Ppb	DL		ppb	DL		ppb	DL
Al	13.3	0.1	Cu	9.3	0.1	Pb	41	0.1	K	ND	70	Tl	X	0.1
Sb	ND	0.1	Dy	ND	0.1	Li	ND	0.4	Pr	ND	0.1	Th	ND	0.1
As	ND	6	Er	ND	0.1	Lu	ND	1	Re	ND	0.1	Tm	ND	0.1
Ba	0.37	0.1	Eu	ND	0.1	Mg	1.7	0.2	Rh	ND	0.1	Sn	ND	0.1
Be	0.67	0.1	Gd	ND	0.1	Mn	ND	1	Rb	ND	0.1	Ti	0.45	0.1
Bi	0.12	0.1	Ga	ND	0.1	Hg	0.16	0.2	Ru	ND	0.1	W	ND	0.1
B	ND	4	Ge	ND	0.1	Mo	0.21	0.1	Sm	ND	0.1	U	ND	0.1
Br	ND	10	Au	ND	0.1	Nd	ND	0.1	Se	ND	6	V	ND	1
Cd	1.6	0.1	Hf	ND	0.1	Ni	1.1	0.1	Si	46	8	Yb	ND	0.1
Ca	51	7	Ho	ND	0.1	Nb	ND	0.1	Ag	0.3	0.1	Y	ND	0.1
Ce	ND	0.1	I	0.4	0.2	Os	ND	0.1	Na	3.3	1	Zn	14.7	2
Cs	0.24	0.1	Ir	ND	0.1	Pd	ND	0.1	Sr	ND	0.1	Zr	ND	0.1
Cr	ND	1	Fe	ND	30	P	20	10	Ta	ND	0.1			
Co	ND	0.1	La	ND	0.1	Pt	ND	0.1	Te	ND	0.1			

X=Major Element INT=Interference from Major Element DL=Detection Limit ND=None Detected

Accuracy and stability are guaranteed to within plus or minus 0.3% of the certified value for 18 months after the date of shipment. The solution should be kept tightly capped and stored under normal laboratory conditions. See attached MSDS for proper handling information.

For questions or comments please call 1-800-878-7654.

Intial: WBH
Date: 3/5/07

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METALS STANDARD DOCUMENTATION

Standard:	Selenium Stock Standard	**ME #:**	0703001
Date Received/Prepped:	3/5/2007	**By:**	wbh
Date Expired:	8/22/2008	**Lot #:**	6.00E+228
Manufacturer:	CPI	**Certificate:**	Y
Matrix:	2% HNO3	**NIST SRM:**	3148
Amount:	100 mL	**Storage:**	Room Temp

Component	Comment	Conc.	Unit:
Se	P/N # S4400-1000491	1000	ppm

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CERTIFICATE OF ANALYSIS

P/N 4400-1000491
P/N S4400-1000491

MZ070300 1

Single-Element Selenium Standard
Se in 2% HNO_3
1000 ± 3 µg/mL

Lot # 06E228

Material Source: Selenium Metal
Source Purity: 99.99%
Specific Gravity: 1.011 @ 21 °C

This standard solution was prepared using high-purity metal, sub-boiled distilled nitric acid and 18-megaohm deionized water. The starting material was weighed to five significant figures and diluted in volumetric glassware calibrated to five significant figures.

The standard solution concentration was certified by ICP against the National Institute of Standards and Technology's SRM 3148. Trace impurities of the 1000 µg/mL standard were analyzed by ICP-MS.

	ppb	DL		ppb	DL		ppb	DL		ppb	DL		ppb	DL
Al	1.8	0.1	Cu	0.4	0.1	Pb	0.3	0.1	K	ND	70	Tl	3.6	0.1
Sb	ND	0.1	Dy	ND	0.1	Li	ND	0.4	Pr	ND	0.1	Th	ND	0.1
As	ND	6	Er	ND	0.1	Lu	ND	1	Re	ND	0.1	Tm	ND	0.1
Ba	ND	0.1	Eu	ND	0.1	Mg	1.1	0.2	Rh	ND	0.1	Sn	ND	0.1
Be	ND	0.1	Gd	ND	0.1	Mn	ND	1	Rb	ND	0.1	Ti	ND	0.1
Bi	ND	0.1	Ga	ND	0.1	Hg	ND	0.2	Ru	ND	0.1	W	ND	0.1
B	ND	4	Ge	ND	0.1	Mo	0.6	0.1	Sm	ND	0.1	U	ND	0.1
Br	INT	10	Au	ND	0.1	Nd	ND	0.1	Se	X	6	V	ND	1
Cd	0.4	0.1	Hf	ND	0.1	Ni	0.6	0.1	Si	40	8	Yb	ND	0.1
Ca	5	7	Ho	ND	0.1	Nb	INT	0.1	Ag	0.8	0.1	Y	ND	0.1
Ce	ND	0.1	I	0.5	0.2	Os	ND	0.1	Na	3.8	1	Zn	ND	2
Cs	ND	0.1	Ir	ND	0.1	Pd	ND	0.1	Sr	ND	0.1	Zr	INT	0.1
Cr	ND	1	Fe	ND	30	P	ND	10	Ta	ND	0.1			
Co	ND	0.1	La	ND	0.1	Pt	ND	0.1	Te	ND	0.1			

X=Major Element INT=Interference from Major Element DL=Detection Limit ND=None Detected

Accuracy and stability are guaranteed to within plus or minus 0.3% of the certified value for 18 months after the date of shipment. The solution should be kept tightly capped and stored under normal laboratory conditions. See attached MSDS for proper handling information.

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Intial: WBH
Date: 4/16/07

METALS STANDARD DOCUMENTATION

Standard:	Lead Stock Standard	**ME #:**	0704013
Date Received/Prepped:	4/16/2007	**By:**	WBH
Date Expired:	10/11/2008	**Lot #:**	07A097
Manufacturer:	CPI	**Certificate:**	Y
Matrix:	2% HNO3	**NIST SRM:**	3128
Amount:	100 mL	Room temp. storage	

Component	Comment	Conc. Unit:
Pb	P/N S4400-1000281	1000 ppm

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CERTIFICATE OF ANALYSIS

P/N S4400-1000281
P/N 4400-1000281

12707040 13

Single-Element Lead Standard
Pb in 2% HNO_3
1000 ± 3 µg/mL

Lot # 07A097

Material Source: Lead Metal
Source Purity: 99.995 %
Specific Gravity: 1.009 @ 21 °C

This standard solution was prepared using high-purity metal, sub-boiled distilled nitric acid and 18-megaohm deionized water. The starting material was weighed to five significant figures and diluted in volumetric glassware calibrated to five significant figures.

The standard solution concentration was certified by ICP against the National Institute of Standards and Technology's SRM 3128. Trace impurities of the 1000 µg/mL standard were analyzed by ICP-MS.

	ppb	DL		ppb	DL		ppb	DL		ppb	DL		ppb	DL
Al	10.3	0.1	Cu	58	0.1	Pb	X	0.1	K	ND	70	Tl	0.25	0.1
Sb	ND	0.1	Dy	ND	0.1	Li	2	0.4	Pr	ND	0.1	Th	ND	0.1
As	ND	6	Er	ND	0.1	Lu	ND	1	Re	ND	0.1	Tm	ND	0.1
Ba	0.22	0.1	Eu	ND	0.1	Mg	1.4	0.2	Rh	IN	0.1	Sn	ND	0.1
Be	0.58	0.1	Gd	ND	0.1	Mn	3.8	1	Rb	ND	0.1	Ti	0.58	0.1
Bi	0.7	0.1	Ga	ND	0.1	Hg	ND	0.2	Ru	ND	0.1	W	ND	0.1
B	ND	4	Ge	ND	0.1	Mo	0.17	0.1	Sm	ND	0.1	U	ND	0.1
Br	ND	10	Au	ND	0.1	Nd	ND	0.1	Se	ND	6	V	ND	1
Cd	ND	0.1	Hf	ND	0.1	Ni	0.9	0.1	Si	31	8	Yb	ND	0.1
Ca	25	7	Ho	ND	0.1	Nb	ND	0.1	Ag	6.1	0.1	Y	ND	0.1
Ce	ND	0.1	I	0.1	0.2	Os	ND	0.1	Na	3.5	1	Zn	23	2
Cs	0.26	0.1	Ir	ND	0.1	Pd	ND	0.1	Sr	ND	0.1	Zr	INT	0.1
Cr	ND	1	Fe	ND	30	P	ND	10	Ta	ND	0.1			
Co	ND	0.1	La	ND	0.1	Pt	ND	0.1	Te	ND	0.1			

X=Major Element INT=Interference from Major Element DL=Detection Limit ND=None Detected

Accuracy and stability are guaranteed to within plus or minus 0.3% of the certified value for 18 months after the date of shipment. The solution should be kept tightly capped and stored under normal laboratory conditions. See attached MSDS for proper handling information.

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Intial: STE
Date: 9/24/07

METALS STANDARD DOCUMENTATION

Standard:	As Stock Standard	**ME #:**	0709023
Date Received/Prepped:	9/24/2007	**By:**	STE
Date Expired:	10/1/2008	**Lot #:**	A2-AS02035
Manufacturer:	Inorganic Ventures	**Certificate:**	Y
Matrix:	1.4% HNO3	**NIST SRM:**	
Amount:	100 mL X2	**Storage:**	Room Temp

Component	Comment	Conc. Unit:
As	PN: CGAS1-1	1000 ug/ml

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CERTIFICATE OF ANALYSIS

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2.0 DESCRIPTION OF CRM — 1000 µg/mL Arsenic in 1.4% (abs) HNO3

Catalog Number:	CGAS1-1, CGAS1-2, and CGAS1-5
Lot Number:	**A2-AS02035**
Starting Material:	As Polycrystaline lump
Starting Material Purity (%):	99.998288
Starting Material Lot No:	23444
Matrix:	1.4% (abs) HNO3

ME0709023

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1000 ± 6 µg/mL

Certified Density: 1.010 g/mL (measured at 22° C)

The Certified Value is the instrument analysis value. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors
(Most common are the errors from instrumental measurement, weighing, dilution to volume, and the fixed error reported on the NIST SRM certificate of analysis.)

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

- "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)
- This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 **Assay Method #1** — **1000 ± 6 µg/mL**
ICP Assay NIST SRM 3103a Lot Number: 010713

Assay Method #2 — **1001 ± 5 µg/mL**
Gravimetric NIST SRM Lot Number: See Sec. 4.2

Date: WBH 7/11/08

METALS STANDARD DOCUMENTATION

Standard:	ICP MRL Working Stock Solution	**ME #:**	0801008
Date Received/Prepped:	Daily	**By:**	Wbh
Date Expired:	7/11/2008	**Lot #:**	
Manufacturer:	MWH-wbh	**Certificate:**	Y
5% HNO3	2% HNO3 + 5% Hcl	**NIST SRM:**	
Amount:	100 mL	Room temp. storage	

Component	Comment	Conc.	Unit:
Al	0.1mL ME0801007 / 10mL	0.05	ppm
Sb		0.05	ppm
As		0.1	ppm
Ba		0.02	ppm
Be		0.001	ppm
Ba		0.05	ppm
Cd		0.005	ppm
Ca		1	ppm
Cr		0.01	ppm
Co		0.05	ppm
Cu		0.01	ppm
Fe		0.02	ppm
Pb		0.02	ppm
Li		0.1	ppm
Mg		0.002	ppm
Mn		0.02	ppm
Mo		0.02	ppm
Ni		1	ppm
K		0.1	ppm
Se		0.01	ppm
Ag		1	ppm
Na		0.02	ppm
Tl		0.002	ppm
V		0.1	ppm
Zn		0.001	ppm
Ti		0.02	ppm
Sr		0.01	ppm
Sn		0.2	ppm

Date: 1/11/08

METALS STANDARD DOCUMENTATION

Standard:	ICP MRL Working Stock Solu	**ME #:**	0801007
Date Received/Prepped:	1/11/2008	**By:**	Wbh
Date Expired:	7/11/2008	**Lot #:**	
Manufacturer:	MWH-wbh	**Certificate:**	Y
Matrix:	5% HNO3	**NIST SRM:**	
Amount:	100 mL	Room temp. storage	

Component	Comment	Conc.	Unit:
Al	10mL ME0709020 / 100mL	5	ppm
Sb		5	ppm
As		10	ppm
Ba		2	ppm
Be		0.1	ppm
Ba		5	ppm
Cd		0.5	ppm
Ca		100	ppm
Cr		1	ppm
Co		5	ppm
Cu		1	ppm
Fe		2	ppm
Pb		2	ppm
Li		10	ppm
Mg		0.2	ppm
Mn		2	ppm
Mo		2	ppm
Ni		100	ppm
K		10	ppm
Se		1	ppm
Ag		100	ppm
Na		2	ppm
Tl		0.2	ppm
V		10	ppm
Zn		0.1	ppm
Ti		2	ppm
Sr		1	ppm
Sn		20	ppm

Intial: SME
Date: 9/20/07

METALS STANDARD DOCUMENTATION

Standard:	ICP MRL Stock Standard	**ME #:** 0709020	
Date Received/Prepped:	9/20/2007	**By:**	
Date Expired:	9/18/2008	**Lot #:** 06I162	
Manufacturer:	CPI	**Certificate:** Y	
Matrix:	2% HNO3 + tr HF	**NIST SRM:**	
Amount:	100 mL	Room temp. storage	

Component	Comment	Conc. Unit:
Al	P/N 4400-060915RHO1	50 ppm
Sb		50 ppm
As		100 ppm
Ba		20 ppm
Be		1 ppm
Ba		50 ppm
Cd		5 ppm
Ca		1000 ppm
Cr		10 ppm
Co		50 ppm
Cu		10 ppm
Fe		20 ppm
Pb		20 ppm
Li		1 ppm
Mg		100 ppm
Mn		2 ppm
Mo		20 ppm
Ni		20 ppm
K		1000 ppm
Se		100 ppm
Ag		10 ppm
Na		1000 ppm
Tl		100 ppm
V		2 ppm
Zn		20 ppm
Ti		20 ppm
Sr		10 ppm
Sn		200 ppm

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ME0709020

Expiry 9/18/2008

Certificate of Analysis

Part Number: **4400-060915RH01**
Lot Number: **06I162**
Shelf Life: **12 months**

MWH
Custom Standard
2% HNO3 + tr HF

Concentrations in ug/mL ± 0.5%

Al	50	Pb	20	Zn	20
Sb	50	Li	1	Ti	20
As	100	Mg	100	Sr	10
Ba	20	Mn	2	Sn	200
Be	1	Mo	20		
B	50	Ni	20		
Cd	5	K	1000		
Ca	1000	Se	100		
Cr	10	Ag	10		
Co	50	Na	1000		
Cu	10	TL	100		
Fe	20	V	2		

This standard solution was prepared using high-purity starting materials, high-purity acid (if required) and 18-megaohm de-ionized water. The starting materials were weighed to five significant figures and diluted in volumetric glassware calibrated to five significant figures.

Starting materials were analyzed at 1000µg/mL by ICP-MS for trace impurities. The standard solution concentrations were certified instrumentally against the National Institute of Standards and Technology's SRM 3100 series, NIST approved second source and/or gravimetrically.

Accuracy and stability are guaranteed to within plus or minus 0.5% of the certified value for the stated shelf life from the date of shipment. The solution should be kept tightly capped and stored under normal laboratory conditions. See attached MSDS for proper handling information.

For questions or comments please call 1-800-878-7654 in the USA, +31 20 638 05 97 in Europe or visit our web-site at www.cpiinternational.com.

METALS STANDARD DOCUMENTATION

Standard:	INTERFERENCE CHECK STANDAI	**ME #:**	0806001
Date Received/Prepped:	6/1/2008	**By:**	CSK
Date Expired:	12/1/2008	**Lot #:**	various
Manufacturer:	MWH-CSK	**Certificate:**	
Matrix:	5% HNO3	**NIST SRM:**	
Amount:	500ML	**Storage:**	Room Temp

Component	Comment	Conc. Unit:
AL	P/N 4400-INTA1-500	250 ppm
CA	25ML IN 500ML	250 ppm
FE		100 ppm
MG		250 ppm
AG		
BA		
BE		
CD		
CO		
CR		
CU		
MN		
NI		
PB		
V		
ZN		

Intial: CSK
Date: 6-1-08

METALS STANDARD DOCUMENTATION

Standard:	INTERFERENCE CHECK STANDAF	**ME #:**	0806002
Date Received/Prepped:	6/1/2008	**By:**	CSK
Date Expired:	12/1/2008	**Lot #:**	various
Manufacturer:	MWH-CSK	**Certificate:**	
Matrix:	5% HNO3	**NIST SRM:**	
Amount:	500 mL	**Storage:**	Room Temp.

Component	Comment	Conc. Unit:
Al	P/N 4400-INTA1-500(25ML)	250 ppm
Ca	P/N 4400-INTB1-100(2.5ML)	250 ppm
Fe		100 ppm
Mg		250 ppm
AG		0.5 ppm
BA		0.25 ppm
BE		0.25 ppm
CD		0.5 ppm
Co		0.25 ppm
Cr3		0.25 ppm
Cu		0.5 ppm
Mn		0.25 ppm
Ni		0.25 ppm
Pb		0.25 ppm
V		0.25 ppm
Zn		0.5 ppm

Tl	100 ppm
V	100 ppm
Zn	100 ppm
Si	50 ppm

5/14/08

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FEB 17 09

ME 070500

CERTIFICATE OF ANALYSIS

P/N 4400-INTB1-100

CLP Analytes B Solution
in 5% HNO_3

Lot # 07c256

Material Source: Metals and Salts
Source Purity: 99.99+%

Elements and Concentrations: µg/mL

Ag	100	Ba	50	Be	50	Cd	100
Co	50	Cr	50	Cu	50	Mn	50
Ni	100	Pb	100	V	50	Zn	100

This standard solution was prepared using high-purity reference materials, sub-boiled distilled nitric acid and 18-megaohm deionized water. The starting materials were weighed to five significant figures and diluted in volumetric glassware calibrated to five significant figures.

Starting materials were analyzed by ICP-MS for trace impurities. The standard solution concentrations were certified instrumentally against an independent source traceable to the National Institute of Standards and Technology's SRM 3100 series.

Accuracy and stability are guaranteed to within plus or minus 0.5% of the certified value for 18 months after the date of shipment. The solution should be kept tightly capped and stored under normal laboratory conditions. See attached MSDS for proper handling information.

For questions or comments please call 1-800-878-7654 in the USA or +31 20 638 05 97 in Europe.

Intial: STE
Date: 8/27/07

METALS STANDARD DOCUMENTATION

Standard:	CLP Interferents A Solution	**ME #:**	0708009
Date Received/Prepped:	8/27/2007	**By:**	STE
Date Expired:	2/15/2009	**Lot #:**	07E175
Manufacturer:	CPI International	**Certificate:**	
Matrix:	5% HNO3	**NIST SRM:**	
Amount:	500 mL	**Storage:**	Room Temp.

Component	Comment	Conc. Unit:
Al	P/N 4400-INTA1-500	5000 ug/mL
Ca		5000 ug/mL
Fe		2000 ug/mL
Mg		5000 ug/mL

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CERTIFICATE OF ANALYSIS

P/N 4400-INTA1-500

CLP Interferents A Solution ME 07050009
in 5% HNO_3

Lot # 07E175

Material Source: Metals and Salts
Source Purity: 99.99+%

Elements and Concentrations: µg/mL

Al 5000 Ca 5000 Fe 2000 Mg 5000

This standard solution was prepared using high-purity reference materials, sub-boiled distilled nitric acid and 18-megaohm deionized water. The starting materials were weighed to five significant figures and diluted in volumetric glassware calibrated to five significant figures.

Starting materials were analyzed by ICP-MS for trace impurities. The standard solution concentrations were certified instrumentally against an independent source traceable to the National Institute of Standards and Technology's SRM 3100 series.

Accuracy and stability are guaranteed to within plus or minus 0.5% of the certified value for 18 months after the date of shipment. The solution should be kept tightly capped and stored under normal laboratory conditions. See attached MSDS for proper handling information.

For questions or comments please call 1-800-878-7654 in the USA or +31 20 638 05 97 in Europe.

Intial: Wbh
Date: 1/11/08

METALS STANDARD DOCUMENTATION

Standard:	ICP 1 PPM CHECK	**ME #:**	0801010
Date Received/Prepped	1/11/2008	**By:**	Wbh
Date Expired:	7/11/2008	**Lot #:**	VARIOUS
Manufacturer:	MWH-wbh	**Certificate:**	
Matrix:	5% HNO3	**NIST SRM:**	
Amount:	500 mL	**Storage:**	Room Tem

Component	Comment	Conc.	Unit:
Ag	5mL ME0708011 /500mL	1	mg/L
Al		1	mg/L
B		1	mg/L
Ba		1	mg/L
K		10	mg/L
Na		1	mg/L
Si		1	mg/L
As	5mL ME0708012 /500mL	1	mg/L
Be		1	mg/L
Ca		1	mg/L
Cd		1	mg/L
Co		1	mg/L
Cr		1	mg/L
Cu		1	mg/L
Fe		1	mg/L
Li		1	mg/L
Mg		1	mg/L
Mn		1	mg/L
Mo		1	mg/L
Ni		1	mg/L
Pb		1	mg/L
Sb		1	mg/L
Se		1	mg/L
Sr		1	mg/L
Ti		1	mg/L
Tl		1	mg/L
V		1	mg/L
Zn		1	mg/L

Intial: STE
Date: 8/27/07

METALS STANDARD DOCUMENTATION

Standard:	QC Check Standard 21	**ME #:** 0708012	
Date Received/Prepped:	8/27/2007	**By:** STE	
Date Expired:	8/31/2008	**Lot #:** 074438H	
Manufacturer:	Crescent Chemical Co. Inc.	**Certificate:**	
Matrix:	5% HNO3/tr. F/tr Tartaric Acid	**NIST SRM:**	
Amount:	100 mL	Room temp. storage	

Component	Comment	Conc. Unit:
As	Catalog No: QC-021.1	100 ug/mL
Be		100 ug/mL
Ca		100 ug/mL
Cd		100 ug/mL
Co		100 ug/mL
Cu		100 ug/mL
Fe		100 ug/mL
Li		100 ug/mL
Mg		100 ug/mL
Mn		100 ug/mL
Mo		100 ug/mL
Ni		100 ug/mL
Pb		100 ug/mL
Sb		100 ug/mL
Se		100 ug/mL
Sr		100 ug/mL
Ti		100 ug/mL
Tl		100 ug/mL
V		100 ug/mL
Zn		100 ug/mL

ME 070801Z

Laboratory Report - Certificate of Analysis

Environmental Multielement Standard

QC Check Standard 21

CATALOG NO: QC-021.1

CONTENTS: See Below

MATRIX: 5% HNO_3/tr. F^-/tr. Tartaric Acid **LOT NO.:** 074438H

This solution is intended for use as a calibration standard for plasma emission spectroscopy (ICP or DCP). It is a multielement solution, that was prepared gravimetrically to contain the elements/concentrations shown below.

In order to verify the concentration, the final solution was checked against NIST SRMS: 3102a, 3103a, 3105a, 3108, 3109a, 3112a, 3113, 3114, 3126a, 3128, 3129a, 3131a, 3132, 3134, 3136, 3149, 3153a, 3158, 3162a, 3165, and 3168a.

Concentrations are given in µg/mL unless noted otherwise.

As 100	**Be 100**	**Ca 100**	**Cd 100**	**Co 100**
Cr 100	**Cu 100**	**Fe 100**	**Li 100**	**Mg 100**
Mn 100	**Mo 100**	**Ni 100**	**Pb 100**	**Sb 100**
Se 100	**Sr 100**	**Ti 100**	**Tl 100**	**V 100**
Zn 100				

Crescent Chemical Co. Inc.

Julie M. MacIntosh

QA Manager

EXPIRES: August 2008

CRESCENT CHEMICAL CO, INC., waives all responsibility for any damages resulting from the usage and/or implementation of the products/data described herein.

Crescent Chemical Co, Inc., 2 Oval Dive, Islandia, NY 11749
(516) 348-0333 - Fax (516) 348-0913

ME070[illegible]11

Intial: STE
Date: 8/27/07

METALS STANDARD DOCUMENTATION

Standard: QC Check Standard 7
Date Received/Prepped: 8/27/2007
Date Expired: 8/31/2007
Manufacturer: Crescent Chemical Co. Inc.
Matrix: 5% HNO3
Amount: 100

ME #: 0705011
By: STE
Lot #: 074438I
Certificate:
NIST SRM:
Storage: Room Temp.

Component	Comment	Conc. Unit:
Ag	Catalog No: QC-007.1	100 ug/mL
Al		100 ug/mL
B		100 ug/mL
Ba		100 ug/mL
K		1000 +/- 5 ug/mL
Na		100 ug/mL
Si		50 ug/mL

ME 07 08 011

Laboratory Report - Certificate of Analysis

Environmental Multielement Standard

QC Check Standard 7

CATALOG NO: QC-007.1

CONTENTS: See Below

MATRIX: 5% HNO_3/tr. F^- **LOT NO.:** 074438I

This solution is intended for use as a calibration standard for plasma emission spectroscopy (ICP or DCP). It is a multielement solution, that was prepared gravimetrically to contain the elements/concentrations shown below.

In order to verify the concentration, the final solution was checked against NIST SRMS: 3101a, 3104a, 3107, 3141a, 3150, 3151, and 3152a.

Concentrations are given in µg/mL unless noted otherwise.

Ag	**100**	**Al**	**100**	**B**	**100**	**Ba**	**100**	**K**	**1,000±5**
Na	**100**	**Si**	**50.0**						

Crescent Chemical Co. Inc.

Julie M. MacIntosh

QA Manager

EXPIRES: August 2008

CRESCENT CHEMICAL CO, INC., waives all responsibility for any damages resulting from the usage and/or implementation of the products/data described herein.

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Intial: CSK
Date: 05/05/08

METALS STANDARD DOCUMENTATION

Standard: ICP LINEARITY CHECK
Date Received/Prepped: 5/5/2008
Date Expired: 11/5/2008
Manufacturer: MWH-STE
Matrix: 5% HNO3
Amount: 500ML

ME #: 0805001
By: CSK
Lot #: VARIOUS
Certificate:
NIST SRM:
Storage: Room Temp

Component	Comment	Conc. Unit:
CA	15.0ML ME0702002/500ML	300 ppm
K	15.0ML ME0702005/500ML	300 ppm
MG	10.0ML ME0702004/500ML	200 ppm
NA	15.0ML ME0702003/500ML	300 ppm
FE	5.0ML ME0701008/500ML	100 ppm

Intial: WBH
Date: 2/20/07

METALS STANDARD DOCUMENTATION

Standard:	Potassium 10000ppm Stock Std	**ME #:**	0702005
Date Received/Prepped:	2/20/2007	**By:**	WBH
Date Expired:	8/16/2008	**Lot #:**	07B056
Manufacturer:	CPI	**Certificate:**	Y
Matrix:	1% HNO3	**NIST SRM:**	3141
Amount:	250 mL	Room temp. storage	

Component	Comment	Conc.	Unit:
K	P/N 4400-10M411	10000	ppm

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CERTIFICATE OF ANALYSIS

M20702005

P/N 4400-10M411
P/N S4400-10M411

Single-Element Potassium Standard
K in 1% HNO_3
10,000 ± 30 µg/mL

Lot # 07B056

Material Source: Potassium Nitrate (KNO_3)
Source Purity: 99.999%
Specific Gravity: 1.019 @ 21 °C

This standard solution was prepared using high-purity salt, sub-boiled distilled nitric acid and 18-megaohm deionized water. The starting material was weighed to five significant figures and diluted in volumetric glassware calibrated to five significant figures.

The standard solution concentration was certified by ICP against the National Institute of Standards and Technology's SRM 3141. Trace impurities of the standard solution at 1000µg/mL were analyzed by ICP-MS.

	ppb	DL		ppb	DL		ppb	DL		ppb	DL		ppb	DL
Al	0.39	0.1	Cu	0.16	0.1	Pb	ND	0.1	K	X	70	Tl	ND	0.1
Sb	0.34	0.1	Dy	ND	0.1	Li	ND	0.4	Pr	ND	0.1	Th	ND	0.1
As	ND	6	Er	ND	0.1	Lu	ND	1	Re	ND	0.1	Tm	ND	0.1
Ba	0.14	0.1	Eu	ND	0.1	Mg	2.6	0.2	Rh	ND	0.1	Sn	0.17	0.1
Be	ND	0.1	Gd	ND	0.1	Mn	0.93	1	Rb	9.5	0.1	Ti	ND	0.1
Bi	ND	0.1	Ga	ND	0.1	Hg	ND	0.2	Ru	ND	0.1	W	ND	0.1
B	ND	4	Ge	ND	0.1	Mo	ND	0.1	Sm	ND	0.1	U	ND	0.1
Br	ND	10	Au	ND	0.1	Nd	ND	0.1	Se	ND	6	V	ND	1
Cd	ND	0.1	Hf	ND	0.1	Ni	0.4	0.1	Si	50	20	Yb	ND	0.1
Ca	82	7	Ho	ND	0.1	Nb	ND	0.1	Ag	ND	0.1	Y	ND	0.1
Ce	ND	0.1	I	ND	0.2	Os	ND	0.1	Na	19	1	Zn	2.9	1
Cs	ND	0.1	Ir	ND	0.1	Pd	ND	0.1	Sr	1	0.1	Zr	ND	0.1
Cr	ND	1	Fe	ND	30	P	18	10	Ta	ND	0.1			
Co	ND	0.1	La	ND	0.1	Pt	ND	0.1	Te	ND	0.1			

X=Major Element INT=Interference from Major Element ND=Not Detected DL=Detection Limit

Accuracy and stability are guaranteed to within plus or minus 0.3% of the certified value for 18 months after the date of shipment. The solution should be kept tightly capped and stored under normal laboratory conditions. See attached MSDS for proper handling information.

For questions or comments please call 1-800-878-7654 in the USA or +31 20 638 05 97 in Europe.

Intial: WBH
Date: 2/20/07

METALS STANDARD DOCUMENTATION

Standard:	Magnessium 10000ppm Stock Std	**ME #:**	0702004
Date Received/Prepped:	2/20/2007	**By:**	WBH
Date Expired:	8/16/2008	**Lot #:**	07B058
Manufacturer:	CPI	**Certificate:**	Y
Matrix:	4% HNO3	**NIST SRM:**	3131
Amount:	250 mL	Room temp. storage	

Component	Comment	Conc. Unit:
Mg	P/N 4400-10M311	10000 ppm

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CERTIFICATE OF ANALYSIS

4/20/2004

P/N 4400-10M311
P/N S4400-10M311

Single-Element Magnesium Standard
Mg in 4% HNO_3
10,000 ± 30 µg/mL

Lot # 07B058

Material Source: Magnesium Metal
Source Purity: 99.99%
Specific Gravity: 1.056 @ 21 °C

This standard solution was prepared using high-purity metal, sub-boiled distilled nitric acid and 18-megaohm deionized water. The starting material was weighed to five significant figures and diluted in volumetric glassware calibrated to five significant figures.

The standard solution concentration was certified by ICP against the National Institute of Standards and Technology's SRM 3131. Trace impurities of the standard solution at 1000 µg/mL were analyzed by ICP-MS.

	ppb	DL		ppb	DL		ppb	DL		ppb	DL		ppb	DL
Al	28	0.1	Cu	1.6	0.1	Pb	7.7	0.7	K	ND	70	Tl	0.91	0.1
Sb	ND	0.1	Dy	ND	0.1	Li	ND	0.4	Pr	0.28	0.1	Th	ND	0.1
As	ND	6	Er	ND	0.1	Lu	ND	1	Re	ND	0.1	Tm	ND	0.1
Ba	0.28	0.1	Eu	ND	0.1	Mg	X	0.2	Rh	ND	0.1	Sn	0.14	0.1
Be	ND	0.1	Gd	0.23	0.1	Mn	19.8	1	Rb	ND	0.1	Ti	ND	0.1
Bi	ND	0.1	Ga	0.18	0.1	Hg	ND	0.2	Ru	ND	0.1	W	ND	0.1
B	ND	4	Ge	ND	0.1	Mo	ND	0.1	Sm	ND	0.1	U	ND	0.1
Br	ND	10	Au	ND	0.1	Nd	1.1	0.1	Se	ND	6	V	ND	1
Cd	ND	0.1	Hf	ND	0.1	Ni	1	0.1	Si	64	20	Yb	ND	0.1
Ca	ND	7	Ho	ND	0.1	Nb	ND	0.1	Ag	0.19	0.1	Y	0.2	0.1
Ce	2.1	0.1	I	1	0.2	Os	ND	0.1	Na	7.2	1	Zn	ND	1
Cs	ND	0.1	Ir	ND	0.1	Pd	ND	0.1	Sr	0.19	0.1	Zr	0.29	0.1
Cr	ND	1	Fe	80	30	P	ND	10	Ta	ND	0.1			
Co	ND	0.1	La	0.76	0.1	Pt	ND	0.1	Te	ND	0.1			

X=Major Element INT=Interference from Major Element ND=Not Detected DL=Detection Limit

Accuracy and stability are guaranteed to within plus or minus 0.3% of the certified value for 18 months after the date of shipment. The solution should be kept tightly capped and stored under normal laboratory conditions. See attached MSDS for proper handling information.

For questions or comments please call 1-800-878-7654 in the USA or +31 20 638 05 97 in Europe.

Intial: WBH
Date: 2/19/07

METALS STANDARD DOCUMENTATION

Standard:	Sodium 10000ppm Stock Std	**ME #:**	0702003
Date Received/Prepped:	2/20/2007	**By:**	WBH
Date Expired:	8/16/2008	**Lot #:**	07B057
Manufacturer:	CPI	**Certificate:**	Y
Matrix:	1% HNO3	**NIST SRM:**	3152a
Amount:	250 mL	Room temp. storage	

Component	Comment	Conc.	Unit:
Na	P/N 4400-10M521	10000	ppm

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Innovative Solutions in Analytical Science and Technology

CERTIFICATE OF ANALYSIS

M70702003

P/N 4400-10M521
P/N S4400-10M521

Single-Element Sodium Standard
Na in 1% HNO_3
10,000 ± 30 µg/mL

Lot # 07B057

Material Source: Sodium Nitrate ($NaNO_3$)
Source Purity: 99.99%
Specific Gravity: 1.053 @ 21 °C

This standard solution was prepared using high-purity salt, sub-boiled distilled nitric acid and 18-megaohm deionized water. The starting material was weighed to five significant figures and diluted in volumetric glassware calibrated to five significant figures.

The standard solution concentration was certified by ICP against the National Institute of Standards and Technology's SRM 3152a. Trace impurities of the standard solution at 1000µg/mL were analyzed by ICP-MS.

	ppb	DL		ppb	DL		ppb	DL		ppb	DL		ppb	DL
Al	1.5	0.1	Cu	0.45	0.1	Pb	ND	0.1	K	ND	70	Tl	ND	0.1
Sb	ND	0.1	Dy	ND	0.1	Li	ND	0.4	Pr	ND	0.1	Th	ND	0.1
As	ND	6	Er	ND	0.1	Lu	ND	1	Re	ND	0.1	Tm	ND	0.1
Ba	0.13	0.1	Eu	ND	0.1	Mg	2.3	0.2	Rh	ND	0.1	Sn	ND	0.1
Be	ND	0.1	Gd	ND	0.1	Mn	ND	1	Rb	ND	0.1	Ti	ND	0.1
Bi	ND	0.1	Ga	ND	0.1	Hg	ND	0.2	Ru	ND	0.1	W	ND	0.1
B	ND	4	Ge	ND	0.1	Mo	ND	0.1	Sm	ND	0.1	U	ND	0.1
Br	ND	10	Au	ND	0.1	Nd	ND	0.1	Se	ND	6	V	ND	1
Cd	ND	0.1	Hf	ND	0.1	Ni	0.4	0.1	Si	50	8	Yb	ND	0.1
Ca	120	7	Ho	ND	0.1	Nb	ND	0.1	Ag	ND	0.1	Y	ND	0.1
Ce	ND	0.1	I	ND	0.2	Os	ND	0.1	Na	X	1	Zn	2.9	2
Cs	ND	0.1	Ir	ND	0.1	Pd	ND	0.1	Sr	1	0.1	Zr	ND	0.1
Cr	ND	1	Fe	ND	30	P	18	10	Ta	ND	0.1			
Co	ND	0.1	La	ND	0.1	Pt	ND	0.1	Te	ND	0.1			

X=Major Element INT=Interference from Major Element ND=Not Detected DL=Detection Limit

Accuracy and stability are guaranteed to within plus or minus 0.3% of the certified value for 18 months after the date of shipment. The solution should be kept tightly capped and stored under normal laboratory conditions. See attached MSDS for proper handling information.

For questions or comments please call 1-800-878-7654 in the United States or +31 20 638 05 97 in Europe.

Intial: WBH
Date: 3/20/07

METALS STANDARD DOCUMENTATION

Standard:	Calcium 10000ppm Stock Std	**ME #:**	0702002
Date Received/Prepped:	2/20/2007	**By:**	WBH
Date Expired:	8/16/2008	**Lot #:**	07B065
Manufacturer:	CPI	**Certificate:**	Y
Matrix:	4% HNO3	**NIST SRM:**	3109a
Amount:	250 mL	Room temp. storage	

Component	Comment	Conc. Unit:
Ca	P/N 4400-10M91	10000 ppm

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CERTIFICATE OF ANALYSIS

P/N 4400-10M91
P/N S4400-10M91

1707702002

Single-Element Calcium Standard
Ca in 4% HNO_3
10,000 ± 30 µg/mL

Lot # 07B065

Material Source: Calcium Carbonate ($CaCO_3$)
Source Purity: 99.997%
Specific Gravity: 1.035 @ 21 °C

This standard solution was prepared using high-purity salt, sub-boiled distilled nitric acid and 18-megaohm deionized water. The starting material was weighed to five significant figures and diluted in volumetric glassware calibrated to five significant figures.

The standard solution concentration was certified by ICP against the National Institute of Standards and Technology's SRM 3109a. Trace impurities of the standard solution at 1000 µg/mL were analyzed by ICP-MS.

	ppb	DL		ppb	DL		ppb	DL		ppb	DL		ppb	DL
Al	7	0.1	Cu	1.7	0.1	Pb	0.23	0.1	K	ND	70	Tl	0.27	0.1
Sb	ND	0.1	Dy	ND	0.1	Li	ND	0.4	Pr	ND	0.1	Th	ND	0.1
As	ND	6	Er	ND	0.1	Lu	ND	1	Re	ND	0.1	Tm	ND	0.1
Ba	1.5	0.1	Eu	ND	0.1	Mg	38	0.2	Rh	ND	0.1	Sn	ND	0.1
Be	ND	0.1	Gd	ND	0.1	Mn	ND	1	Rb	ND	0.1	Ti	ND	0.1
Bi	ND	0.1	Ga	ND	0.1	Hg	ND	0.2	Ru	ND	0.1	W	ND	0.1
B	1.5	4	Ge	ND	0.1	Mo	ND	0.1	Sm	ND	0.1	U	ND	0.1
Br	ND	10	Au	ND	0.1	Nd	ND	0.1	Se	ND	6	V	ND	1
Cd	ND	0.1	Hf	ND	0.1	Ni	3	0.1	Si	47	8	Yb	ND	0.1
Ca	X	7	Ho	ND	0.1	Nb	ND	0.1	Ag	ND	0.1	Y	ND	0.1
Ce	ND	0.1	I	0.27	0.2	Os	ND	0.1	Na	11.6	1	Zn	3.5	2
Cs	ND	0.1	Ir	ND	0.1	Pd	ND	0.1	Sr	55	0.1	Zr	ND	0.1
Cr	ND	1	Fe	INT	30	P	ND	10	Ta	ND	0.1			
Co	INT	0.1	La	0.41	0.1	Pt	ND	0.1	Te	ND	0.1			

INT=Interference from Major Element ND=None Detected X=Major Element DL=Detection Limit

Accuracy and stability are guaranteed to within plus or minus 0.3% of the certified value for 18 months after the date of shipment. The solution should be kept tightly capped and stored under normal laboratory conditions. See attached MSDS for proper handling information.

For questions or comments please call 1-800-878-7654 in the USA or +31 20 638 05 97 in Europe.

Intial: WBH
Date: 1/27/07

METALS STANDARD DOCUMENTATION

Standard:	FE 10000ppm Stock Std	**ME #:**	701008
Date Received/Prepped:	1/26/2007	**By:**	WBH
Date Expired:	7/19/2008	**Lot #:**	06I143
Manufacturer:	CPI	**Certificate:**	
Matrix:	4% HNO3	**NIST SRM:**	3126a
Amount:	100 mL	**Storage:**	Room Temp

Component	Comment	Conc.	Unit:
Fe	PN4400-10M261	10000	PPM

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CERTIFICATE OF ANALYSIS

MZ07010005

P/N 4400-10M261
P/N S4400-10M261

Single-Element Iron Standard
Fe in 4% HNO_3
10,000 ± 30 µg/mL

Lot # 06I143

Material Source: Iron Metal
Source Purity: 99.999%
Specific Gravity: 1.062 @ 21 °C

This standard solution was prepared using high-purity metal, sub-boiled distilled nitric acid and 18-megaohm deionized water. The starting material was weighed to five significant figures and diluted in volumetric glassware calibrated to five significant figures.

The standard solution concentration was certified by ICP against the National Institute of Standards and Technology's SRM 3126a. Trace impurities of the standard solution at 1000 µg/mL were analyzed by ICP-MS.

	ppb	DL		ppb	DL		ppb	DL		ppb	DL		ppb	DL
Al	INT	0.1	Cu	6.4	0.1	Pb	ND	0.1	K	ND	70	Tl	0.18	0.1
Sb	0.35	0.1	Dy	ND	0.1	Li	ND	0.4	Pr	ND	0.1	Th	ND	0.1
As	ND	6	Er	ND	0.1	Lu	ND	1	Re	ND	0.1	Tm	ND	0.1
Ba	ND	0.1	Eu	ND	0.1	Mg	1.3	0.2	Rh	ND	0.1	Sn	0.67	0.1
Be	ND	0.1	Gd	ND	0.1	Mn	INT	1	Rb	ND	0.1	Ti	0.21	0.1
Bi	ND	0.1	Ga	0.41	0.1	Hg	ND	0.2	Ru	ND	0.1	W	0.13	0.1
B	ND	4	Ge	INT	0.1	Mo	4.9	0.1	Sm	ND	0.1	U	ND	0.1
Br	ND	10	Au	ND	0.1	Nd	ND	0.1	Se	ND	6	V	ND	1
Cd	ND	0.1	Hf	ND	0.1	Ni	9.3	0.1	Si	INT	8	Yb	ND	0.1
Ca	15	7	Ho	ND	0.1	Nb	ND	0.1	Ag	ND	0.1	Y	ND	0.1
Ce	ND	0.1	I	0.34	0.2	Os	ND	0.1	Na	8	1	Zn	8.6	2
Cs	0.34	0.1	Ir	ND	0.1	Pd	ND	0.1	Sr	ND	0.1	Zr	ND	0.1
Cr	3.3	1	Fe	X	30	P	28	10	Ta	ND	0.1			
Co	12	0.1	La	ND	0.1	Pt	ND	0.1	Te	ND	0.1			

INT=Interference from Major Element ND=Not Detected X=Major Element DL=Detection Limit

Accuracy and stability are guaranteed to within plus or minus 0.3% of the certified value for 18 months after the date of shipment. The solution should be kept tightly capped and stored under normal laboratory conditions. See attached MSDS for proper handling information.

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