

US EPA ARCHIVE DOCUMENT

**CALCULATION OF METALS TREATMENT STANDARDS
FROM GRAB PERFORMANCE DATA FROM INMETCO'S HTMR PROCESS**

	SB	AS	BA	BE	CD	CR	PB	NI	SE	AG	V	ZN
# OF SAMPLES	40	40	40	40	40	40	40	122	122	40	40	40
MEAN OF TREATED DATA	0.00153	0.0012	0.841	0.0011	0.0039	0.126	0.003	2.81	0.005	0.0036	0.0011	0.274
VARIABILITY FACTOR	28.1	21.6	3.9	16.1	51	6.7	39.7	4.84	57.8	30.5	14.2	13.8
FORMULA	1	1	1	1	1	1	1	1	1	1	1	1
STAND DEV OF LOG TRANSFORM DATA	0.5084	0.358	0.695	0.225	0.988	1.052	0.678	0.782	0.895	0.637	-4.578	1.458
MEAN OF TRANSFORM DATA	-4.341	-4.48	-0.43	-4.52	-3.903	-2.611	-3.73	0.787	-3.33	-3.72	0.173	-2.05
TREATMENT STANDARD	0.043	0.026	3.3	0.018	0.20	0.85	0.12	13.6	0.29	0.11	0.015	3.8

1-Treatment Standard (TS)= Exponent(mean of log transformed data + 2.33 (standard deviation of log transformed data)). The INMETCO data consisted of both nondetects (detection limits) and detect values. The applicable formula (according to the various data scenarios) was the standard BDAT formula shown above. All calculations were performed in accordance with the criteria specified in the "BDAT Methodology Document"

NOTE- No QA/QC information (i.e., matrix spike recovery data) was provided by INMETCO, thus for the purpose of this proposed rule the Agency is assuming 100 percent recovery.

M

APPENDIX B

**CALCULATION OF THE TREATMENT STANDARDS
FROM COMPANY X DATA**

STIX 3.0
TC-METALS

RAW DATA

P.SE	ANTIMONY	LN
1	0.0100	-4.6052
2	0.0100	-4.6052
3	0.0100	-4.6052
4	0.0100	-4.6052
5	0.0100	-4.6052
6	0.0100	-4.6052
7	0.0100	-4.6052
8	0.0100	-4.6052
9	0.0100	-4.6052
10	0.0100	-4.6052
11	0.0100	-4.6052
12	0.0100	-4.6052
13	0.0300	-3.5066
14	0.0300	-3.5066
15	0.0200	-3.9120
16	0.0100	-4.6052
17	0.0100	-4.6052
18	0.0100	-4.6052
19	0.0100	-4.6052
20	0.0100	-4.6052
21	0.0100	-4.6052
22	0.0530	-2.9375
23	0.0100	-4.6052
24	0.0100	-4.6052
25	0.0420	-3.1701
26	0.0100	-4.6052
27	0.0100	-4.6052
28	0.0100	-4.6052
29	0.0200	-3.9120
30	0.0200	-3.9120
31	0.0100	-4.6052
32	0.0200	-3.9120
33	0.0100	-4.6052
34	0.0600	-2.8134
35	0.0100	-4.6052
36	0.0100	-4.6052
37	0.0200	-3.9120
38	0.0100	-4.6052
39	0.0100	-4.6052
40	0.0100	-4.6052

STATISTIX 3.0
ID: TC-METALS

DESCRIPTIVE STATISTICS

	ANTIMONY	LN
CASES	40	40
MEAN	1.538E-02	-4.341
S.D.	1.189E-02	5.084E-01
S.E. (MEAN)	1.881E-03	8.039E-02
LOWER 99.9% C.I.	8.683E-03	-4.627
UPPER 99.9% C.I.	2.207E-02	-4.055
C.V.	77.36	11.71
MEDIAN	1.000E-02	-4.605
MINIMUM	1.000E-02	-4.605
MAXIMUM	6.000E-02	-2.813

*Treatment Standard (TS) = Exponent (mean of
Logtransformed data + 2.33) mean
of the standard deviation of the
Log transformed data.*

$$TS = \text{EXP}(-4.341 + 2.33(0.5084))$$

$$TS = 0.043$$

STATISTIX 3.0

ID: TC-DATA

DESCRIPTIVE STATISTICS

STATISTIX 3.0

ID: TC-DATA

VIEW DATA

CASE	ARSENIC	LN
1	0.0100	-4.6052
2	0.0100	-4.6052
3	0.0100	-4.6052
4	0.0100	-4.6052
5	0.0100	-4.6052
6	0.0100	-4.6052
7	0.0100	-4.6052
8	0.0100	-4.6052
9	0.0100	-4.6052
10	0.0100	-4.6052
11	0.0100	-4.6052
12	0.0100	-4.6052
13	0.0100	-4.6052
14	0.0100	-4.6052
15	0.0100	-4.6052
16	0.0300	-3.5066
17	0.0100	-4.6052
18	0.0100	-4.6052
19	0.0100	-4.6052
20	0.0100	-4.6052
21	0.0100	-4.6052
22	0.0100	-4.6052
23	0.0100	-4.6052
24	0.0100	-4.6052
25	0.0100	-4.6052
26	0.0100	-4.6052
27	0.0100	-4.6052
28	0.0100	-4.6052
29	0.0100	-4.6052
30	0.0300	-3.5066
31	0.0400	-3.2189
32	0.0300	-3.5066
33	0.0100	-4.6052
34	0.0100	-4.6052
35	0.0100	-4.6052
36	0.0100	-4.6052
37	0.0100	-4.6052
38	0.0100	-4.6052
39	0.0100	-4.6052
40	0.0100	-4.6052

CASES	ARSENIC	LN
40	40	40
MEAN	1.225E-02	-4.488
S.D.	6.975E-03	3.579E-01
S.E. (MEAN)	1.103E-03	5.658E-02
LOWER 99.9% C.I.	8.326E-03	-4.689
UPPER 99.9% C.I.	1.617E-02	-4.287
C.V.	56.94	7.97
MEDIAN	1.000E-02	-4.605
MINIMUM	1.000E-02	-4.605
MAXIMUM	4.000E-02	-3.219

$$TS = EXP(-4.488 + 2.33(0.3579))$$

$$TS = 0.026$$

STATISTIX 3.0
TC-METALS

RAW DATA

CASE	BARIUM	LN
1	1.2600	0.2311
2	0.2300	-1.4697
3	0.5800	-0.5447
4	0.2300	-1.4697
5	1.8100	0.5933
6	0.9200	-0.0834
7	1.5200	0.4187
8	1.1600	0.1484
9	0.6000	-0.5108
10	0.8100	-0.2107
11	0.9500	-0.0513
12	0.4600	-0.7765
13	0.6800	-0.3857
14	0.3600	-1.0217
15	0.8900	-0.1165
16	0.2600	-1.3471
17	0.2600	-1.3471
18	0.2900	-1.2379
19	0.2400	-1.4271
20	0.4500	-0.7985
21	0.5100	-0.6733
22	1.1000	0.0953
23	1.2000	0.1823
24	0.6300	-0.4620
25	0.3300	-1.1087
26	0.5000	-0.6931
27	0.3800	-0.9676
28	0.6300	-0.4620
29	0.4200	-0.8675
30	0.6100	-0.4943
31	0.6900	-0.3711
32	0.6500	-0.4308
33	3.5900	1.2782
34	3.2300	1.1725
35	1.5900	0.4637
36	1.4500	0.3716
37	0.5900	-0.5276
38	0.3200	-1.1394
39	0.9500	-0.0513
40	0.3300	-1.1087

DESCRIPTIVE STATISTICS

	BARIUM	LN
CASES	40	40
MEAN	8.415E-01	-4.300E-01
S.D.	7.258E-01	6.951E-01
S.E. (MEAN)	1.148E-01	1.099E-01
LOWER 99.9% C.I.	4.332E-01	-8.210E-01
UPPER 99.9% C.I.	1.250	-3.898E-02
C.V.	86.25	161.64
MEDIAN	6.200E-01	-4.782E-01
MINIMUM	2.300E-01	-1.470
MAXIMUM	3.590	1.278

$$TS = \text{Exp}(-0.43 + 2.33(0.695))$$

$$TS = 3.3$$

STATISTIX 3.0
TC-METALS

RAW DATA

SE	BERYLLIUM	LN
1	0.0100	-4.6052
2	0.0200	-3.9120
3	0.0100	-4.6052
4	0.0100	-4.6052
5	0.0100	-4.6052
6	0.0200	-3.9120
7	0.0100	-4.6052
8	0.0100	-4.6052
9	0.0100	-4.6052
10	0.0100	-4.6052
11	0.0100	-4.6052
12	0.0100	-4.6052
13	0.0100	-4.6052
14	0.0100	-4.6052
15	0.0100	-4.6052
16	0.0100	-4.6052
17	0.0100	-4.6052
18	0.0100	-4.6052
19	0.0100	-4.6052
20	0.0100	-4.6052
21	0.0180	-4.0174
22	0.0100	-4.6052
23	0.0100	-4.6052
24	0.0100	-4.6052
25	0.0100	-4.6052
26	0.0100	-4.6052
27	0.0100	-4.6052
28	0.0100	-4.6052
29	0.0100	-4.6052
30	0.0100	-4.6052
31	0.0100	-4.6052
32	0.0100	-4.6052
33	0.0200	-3.9120
34	0.0100	-4.6052
35	0.0100	-4.6052
36	0.0100	-4.6052
37	0.0100	-4.6052
38	0.0200	-3.9120
39	0.0100	-4.6052
40	0.0100	-4.6052

STATISTIX 3.0
ID: TC-METALS

DESCRIPTIVE STATISTICS

	BERYLLIUM	LN
CASES	40	40
MEAN	1.120E-02	-4.521
S.D.	3.228E-03	2.256E-01
S.E. (MEAN)	5.104E-04	3.567E-02
LOWER 99.9% C.I.	9.384E-03	-4.648
UPPER 99.9% C.I.	1.302E-02	-4.394
C.V.	28.82	4.99
MEDIAN	1.000E-02	-4.605
MINIMUM	1.000E-02	-4.605
MAXIMUM	2.000E-02	-3.912

$$TS = \text{Exp}(-4521 + 2.33(0.2256))$$

$$TS = 0.018$$

TISTIX 3.0
TC-METALS

STATISTIX 3.0
ID: TC-METALS

W DATA

DESCRIPTIVE STATISTICS

SE	CADMIUM	LN
1	0.0100	-4.6052
2	0.0100	-4.6052
3	0.0100	-4.6052
4	0.0100	-4.6052
5	0.0500	-2.9957
6	0.1000	-2.3026
7	0.2500	-1.3863
8	0.3800	-0.9676
9	0.0200	-3.9120
10	0.0100	-4.6052
11	0.0500	-2.9957
12	0.0300	-3.5066
13	0.0100	-4.6052
14	0.0100	-4.6052
15	0.0300	-3.5066
16	0.0700	-2.6593
17	0.0100	-4.6052
18	0.0300	-3.5066
19	0.0900	-2.4079
20	0.0300	-3.5066
21	0.0100	-4.6052
22	0.0100	-4.6052
23	0.0100	-4.6052
24	0.0100	-4.6052
25	0.0100	-4.6052
26	0.0100	-4.6052
27	0.0100	-4.6052
28	0.0100	-4.6052
29	0.0200	-3.9120
30	0.0200	-3.9120
31	0.0100	-4.6052
32	0.0500	-2.9957
33	0.0400	-3.2189
34	0.0100	-4.6052
35	0.0100	-4.6052
36	0.0800	-2.5257
37	0.0100	-4.6052
38	0.0100	-4.6052
39	0.0100	-4.6052
40	0.0100	-4.6052

CASES	CADMIUM	LN
	40	40
MEAN	3.925E-02	-3.903
S.D.	6.996E-02	0.988 SD
S.E. (MEAN)	1.106E-02	1.563E-01
LOWER 99.9% C.I.	-1.082E-04	-4.459
UPPER 99.9% C.I.	7.861E-02	-3.347
C.V.	178.24	25.32
MEDIAN	1.000E-02	-4.605
MINIMUM	1.000E-02	-4.605
MAXIMUM	3.800E-01	-0.968

$$TS = \text{Exp}(-3.903 + 2.33(0.988))$$

$$TS = 0.20$$

STATISTIX 3.0
ID: TC-METALS

RAW DATA

CASE	CHROMIUM	LN
1	0.3200	-1.1394
2	0.2900	-1.2379
3	0.0100	-4.6052
4	0.0200	-3.9120
5	0.0900	-2.4079
6	0.1100	-2.2073
7	0.0700	-2.6593
8	0.0700	-2.6593
9	0.0400	-3.2189
10	0.0400	-3.2189
11	0.5600	-0.5798
12	0.0400	-3.2189
13	0.0400	-3.2189
14	0.0300	-3.5066
15	0.0700	-2.6593
16	0.0300	-3.5066
17	0.0400	-3.2189
18	0.1100	-2.2073
19	0.1400	-1.9661
20	0.0700	-2.6593
21	0.6100	-0.4943
22	0.0100	-4.6052
23	0.0100	-4.6052
24	0.0100	-4.6052
25	0.0700	-2.6593
26	0.0600	-2.8134
27	0.0700	-2.6593
28	0.0700	-2.6593
29	0.0800	-2.5257
30	0.0800	-2.5257
31	0.1600	-1.8326
32	0.6500	-0.4308
33	0.2000	-1.6094
34	0.0900	-2.4079
35	0.0800	-2.5257
36	0.1200	-2.1203
37	0.0600	-2.8134
38	0.2900	-1.2379
39	0.0700	-2.6593
40	0.0700	-2.6593

STATISTIX 3.0
ID: TC-METALS

DESCRIPTIVE STATISTICS

	CHROMIUM	LN
CASES	40	40
MEAN	1.263E-01	-2.611
S.D.	1.571E-01	1.052
S.E. (MEAN)	2.484E-02	1.663E-01
LOWER 99.9% C.I.	3.788E-02	-3.203
UPPER 99.9% C.I.	2.146E-01	-2.020
C.V.	124.42	40.28
MEDIAN	7.000E-02	-2.659
MINIMUM	1.000E-02	-4.605
MAXIMUM	6.500E-01	-4.308E-01

$$TS = \text{EXP}(-2.611 + 2.33(1.052))$$

$$TS = 0.85$$

TISTIX 3.0
TC-METALS

STATISTIX 3.0
ID: TC-METALS

W DATA

DESCRIPTIVE STATISTICS

SE	LEAD	LN
1	0.0300	-3.5066
2	0.0200	-3.9120
3	0.0100	-4.6052
4	0.0100	-4.6052
5	0.0500	-2.9957
6	0.0100	-4.6052
7	0.0300	-3.5066
8	0.0400	-3.2189
9	0.0200	-3.9120
10	0.0200	-3.9120
11	0.1400	-1.9661
12	0.0200	-3.9120
13	0.0400	-3.2189
14	0.0300	-3.5066
15	0.0200	-3.9120
16	0.0100	-4.6052
17	0.0100	-4.6052
18	0.0400	-3.2189
19	0.0400	-3.2189
20	0.0300	-3.5066
21	0.0500	-2.9957
22	0.0100	-4.6052
23	0.0100	-4.6052
24	0.0100	-4.6052
25	0.0200	-3.9120
26	0.0200	-3.9120
27	0.0200	-3.9120
28	0.0200	-3.9120
29	0.0700	-2.6593
30	0.0500	-2.9957
31	0.0500	-2.9957
32	0.0600	-2.8134
33	0.0300	-3.5066
34	0.0300	-3.5066
35	0.0300	-3.5066
36	0.0300	-3.5066
37	0.0100	-4.6052
38	0.0100	-4.6052
39	0.0500	-2.9957
40	0.0100	-4.6052

	LEAD	LN
CASES	40	40
MEAN	3.025E-02	-3.730
S.D.	2.391E-02	6.786E-01
S.E. (MEAN)	3.781E-03	1.073E-01
LOWER 99.9% C.I.	1.680E-02	-4.112
UPPER 99.9% C.I.	4.370E-02	-3.348
C.V.	79.04	18.19
MEDIAN	2.500E-02	-3.709
MINIMUM	1.000E-02	-4.605
MAXIMUM	1.400E-01	-1.966

$$TS = \text{Exp}(-3.73 + 2.33(0.678))$$

$$TS = 0.12$$

STATISTIX 3.0
ID: inmetco

DATE: 6 FEB 97

VIEW DATA

CASE	LN	NI						
1	1.2641	3.5400	52	-1.5141	0.2200	103	1.3661	3.9200
2	1.5063	4.5100	53	1.7047	5.5000	104	0.5933	1.8100
3	0.8416	2.3200	54	0.6780	1.9700	105	0.6931	2.0000
4	0.5306	1.7000	55	-0.1744	0.8400	106	1.9755	7.2100
5	1.0260	2.7900	56	-1.6094	0.2000	107	0.8587	2.3600
6	1.3350	3.8000	57	-0.0408	0.9600	108	1.3962	4.0400
7	1.0188	2.7700	58	0.6523	1.9200	109	2.1541	8.6200
8	1.5041	4.5000	59	-1.3093	0.2700	110	0.2624	1.3000
9	0.9969	2.7100	60	-0.1278	0.8800	111	0.5128	1.6700
10	1.0473	2.8500	61	-1.6094	0.2000	112	0.4383	1.5500
11	0.8329	2.3000	62	1.5151	4.5500	113	0.3148	1.3700
12	0.3853	1.4700	63	0.2469	1.2800	114	1.3056	3.6900
13	-0.2485	0.7800	64	0.3853	1.4700	115	1.1663	3.2100
14	0.0770	1.0800	65	-0.3425	0.7100	116	1.3218	3.7500
15	1.0080	2.7400	66	-0.6539	0.5200	117	0.6152	1.8500
16	1.5151	4.5500	67	-1.1087	0.3300	118	0.7839	2.1900
17	0.8796	2.4100	68	0.0862	1.0900	119	1.0543	2.8700
18	1.0852	2.9600	69	0.0296	1.0300	120	1.4255	4.1600
19	1.5913	4.9100	70	0.1823	1.2000	121	2.1713	8.7700
20	0.9123	2.4900	71	0.0000	1.0000	122	1.1019	3.0100
21	1.1184	3.0600	72	-0.1278	0.8800			
22	0.7655	2.1500	73	1.2470	3.4800			
23	1.4398	4.2200	74	1.7544	5.7800			
24	1.4061	4.0800	75	1.5518	4.7200			
25	1.5644	4.7800	76	1.7011	5.4800			
26	1.5019	4.4900	77	1.5326	4.6300			
27	1.5129	4.5400	78	0.9969	2.7100			
28	1.3191	3.7400	79	1.4816	4.4000			
29	0.3920	1.4800	80	2.2834	9.8100			
30	0.4637	1.5900	81	1.9879	7.3000			
31	0.3436	1.4100	82	1.7334	5.6600			
32	0.6313	1.8800	83	1.6332	5.1200			
33	1.0260	2.7900	84	1.0367	2.8200			
34	0.8755	2.4000	85	1.0403	2.8300			
35	0.9783	2.6600	86	0.5822	1.7900			
36	1.3191	3.7400	87	0.8502	2.3400			
37	0.4318	1.5400	88	0.9042	2.4700			
38	0.8502	2.3400	89	1.3218	3.7500			
39	1.3788	3.9700	90	1.0188	2.7700			
40	1.5644	4.7800	91	1.5686	4.8000			
41	0.1484	1.1600	92	1.5282	4.6100			
42	-0.1625	0.8500	93	1.4816	4.4000			
43	-0.6733	0.5100	94	1.0818	2.9500			
44	0.4447	1.5600	95	0.7467	2.1100			
45	0.3577	1.4300	96	0.1655	1.1800			
46	1.2000	3.3200	97	0.8629	2.3700			
47	0.0488	1.0500	98	0.3577	1.4300			
48	0.2852	1.3300	99	1.4679	4.3400			
49	0.9282	2.5300	100	0.7419	2.1000			
50	1.1314	3.1000	101	0.4947	1.6400			
51	-0.4308	0.6500	102	-0.7765	0.4600			

STATISTIX 3.0
ID: inmetco

DATE: 6 FEB 97

DESCRIPTIVE STATISTICS

	LN	NI
CASES	122	122
MEAN	<u>7.871E-01</u>	2.811
S.D.	<u>7.825E-01</u>	1.833
S.E. (MEAN)	7.085E-02	1.659E-01
LOWER 99.0% C.I.	6.016E-01	2.377
UPPER 99.0% C.I.	0.972	3.245
C.V.	99.43	65.20
MEDIAN	9.083E-01	2.480
MINIMUM	-1.609	2.000E-01
MAXIMUM	2.283	9.810

*Calculation of Standard
Dev Nickel from 122
data pts from
Inmetco's grab data*

Treatment Standard (TS)_{CG} = Exponent (mean of log transformed data + 2.33 (Standard deviation of log trans data))

$$TS = \text{Exp} (.7871 + 2.33 (.7825))$$

$$TS = 13.6$$

STATISTIX 3.0

DATE: 6 FEB 97

ID: inmetco

VIEW DATA

CASE	LN	SE						
1	-2.4079	0.0900	52	-4.6052	0.0100	103	-4.6052	0.0100
2	-3.2189	0.0400	53	-2.1203	0.1200	104	-4.6052	0.0100
3	-3.5066	0.0300	54	-1.9661	0.1400	105	-4.6052	0.0100
4	-2.9957	0.0500	55	-2.4079	0.0900	106	-3.9120	0.0200
5	-3.5066	0.0300	56	-2.4079	0.0900	107	-2.5257	0.0800
6	-2.8134	0.0600	57	-2.5257	0.0800	108	-2.9957	0.0500
7	-3.5066	0.0300	58	-3.5066	0.0300	109	-2.5257	0.0800
8	-2.4079	0.0900	59	-2.9957	0.0500	110	-2.8134	0.0600
9	-1.9661	0.1400	60	-2.8134	0.0600	111	-2.5257	0.0800
10	-1.8971	0.1500	61	-2.6593	0.0700	112	-3.9120	0.0200
11	-2.3026	0.1000	62	-1.9661	0.1400	113	-4.6052	0.0100
12	-2.6593	0.0700	63	-2.2073	0.1100	114	-2.9957	0.0500
13	-2.4079	0.0900	64	-2.6593	0.0700	115	-2.6593	0.0700
14	-2.9957	0.0500	65	-2.1203	0.1200	116	-2.6593	0.0700
15	-2.9957	0.0500	66	-2.3026	0.1000	117	-2.8134	0.0600
16	-4.6052	0.0100	67	-2.0402	0.1300	118	-2.8134	0.0600
17	-3.2189	0.0400	68	-1.8326	0.1600	119	-4.6052	0.0100
18	-2.9957	0.0500	69	-2.8134	0.0600	120	-4.6052	0.0100
19	-3.9120	0.0200	70	-4.6052	0.0100	121	-2.4079	0.0900
20	-3.5066	0.0300	71	-4.6052	0.0100	122	-2.6593	0.0700
21	-3.9120	0.0200	72	-4.6052	0.0100			
22	-2.3026	0.1000	73	-3.5066	0.0300			
23	-2.4079	0.0900	74	-2.6593	0.0700			
24	-2.4079	0.0900	75	-2.5257	0.0800			
25	-3.5066	0.0300	76	-2.9957	0.0500			
26	-2.9957	0.0500	77	-2.4079	0.0900			
27	-3.5066	0.0300	78	-4.6052	0.0100			
28	-3.2189	0.0400	79	-4.6052	0.0100			
29	-2.5257	0.0800	80	-4.6052	0.0100			
30	-3.5066	0.0300	81	-4.6052	0.0100			
31	-3.6119	0.0270	82	-4.6052	0.0100			
32	-4.7105	0.0090	83	-4.6052	0.0100			
33	-3.1942	0.0410	84	-4.6052	0.0100			
34	-4.6052	0.0100	85	-4.6052	0.0100			
35	-4.6052	0.0100	86	-4.6052	0.0100			
36	-4.6052	0.0100	87	-2.9957	0.0500			
37	-4.6052	0.0100	88	-3.2189	0.0400			
38	-4.6052	0.0100	89	-2.8134	0.0600			
39	-4.6052	0.0100	90	-2.8134	0.0600			
40	-4.6052	0.0100	91	-2.8134	0.0600			
41	-2.4079	0.0900	92	-2.9957	0.0500			
42	-4.6052	0.0100	93	-3.2189	0.0400			
43	-4.6052	0.0100	94	-2.9957	0.0500			
44	-3.2189	0.0400	95	-3.2189	0.0400			
45	-2.4079	0.0900	96	-2.9957	0.0500			
46	-2.9957	0.0500	97	-3.9120	0.0200			
47	-2.9957	0.0500	98	-3.9120	0.0200			
48	-2.8134	0.0600	99	-2.9957	0.0500			
49	-4.6052	0.0100	100	-2.6593	0.0700			
50	-4.6052	0.0100	101	-2.8134	0.0600			
51	-4.6052	0.0100	102	-2.9957	0.0500			

STATISTIX 3.0
ID: inmetco

DATE: 6 FEB 97

DESCRIPTIVE STATISTICS

	LN	SE
CASES	122	122
MEAN	3.330	5.014E-02
S.D.	8.953E-01	3.684E-02
S.E. (MEAN)	8.106E-02	3.335E-03
LOWER 99.0% C.I.	-3.542	4.141E-02
UPPER 99.0% C.I.	-3.118	5.887E-02
C.V.	26.89	73.47
MEDIAN	-2.996	5.000E-02
MINIMUM	-4.711	9.000E-03
MAXIMUM	-1.833	1.600E-01

Calculation of Standard for Selenium from 122 data pts from Inmetco's grab data

Treated Standard (TS) = Exponent (mean of log transformed data + 2.33 (Standard deviation of log transformed data))

$$C_{99} \quad TS = \text{Exp}(-3.330 + 2.33(.8953))$$

$$TS = 0.29$$

STATISTIX 3.0
ID: TC-METALS

RAW DATA

CASE	CHROMIUM	LN
1	0.3200	-1.1394
2	0.2900	-1.2379
3	0.0100	-4.6052
4	0.0200	-3.9120
5	0.0900	-2.4079
6	0.1100	-2.2073
7	0.0700	-2.6593
8	0.0700	-2.6593
9	0.0400	-3.2189
10	0.0400	-3.2189
11	0.5600	-0.5798
12	0.0400	-3.2189
13	0.0400	-3.2189
14	0.0300	-3.5066
15	0.0700	-2.6593
16	0.0300	-3.5066
17	0.0400	-3.2189
18	0.1100	-2.2073
19	0.1400	-1.9661
20	0.0700	-2.6593
21	0.6100	-0.4943
22	0.0100	-4.6052
23	0.0100	-4.6052
24	0.0100	-4.6052
25	0.0700	-2.6593
26	0.0600	-2.8134
27	0.0700	-2.6593
28	0.0700	-2.6593
29	0.0800	-2.5257
30	0.0800	-2.5257
31	0.1600	-1.8326
32	0.6500	-0.4308
33	0.2000	-1.6094
34	0.0900	-2.4079
35	0.0800	-2.5257
36	0.1200	-2.1203
37	0.0600	-2.8134
38	0.2900	-1.2379
39	0.0700	-2.6593
40	0.0700	-2.6593

STATISTIX 3.0
ID: TC-METALS

DESCRIPTIVE STATISTICS

	CHROMIUM	LN
CASES	40	40
MEAN	1.263E-01	-2.611
S.D.	1.571E-01	1.052
S.E. (MEAN)	2.484E-02	1.663E-01
LOWER 99.9% C.I.	3.788E-02	-3.203
UPPER 99.9% C.I.	2.146E-01	-2.020
C.V.	124.42	40.28
MEDIAN	7.000E-02	-2.659
MINIMUM	1.000E-02	-4.605
MAXIMUM	6.500E-01	-4.308E-01

$$TS = \text{EXP}(-2.611 + 2.33(1.052))$$

$$TS = 0.85$$

FIX 3.0
-METALS

ATA

STATISTIX 3.0
ID: TC-METALS

LN VANADIUM

-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-4.6052	0.0100
-3.5066	0.0300
-4.6052	0.0100
-4.6052	0.0100

DESCRIPTIVE STATISTICS

	LN	VANADIUM
CASES	40	40
MEAN	-4.578	1.050E-02
S.D.	1.737E-01	3.162E-03
S.E. (MEAN)	2.747E-02	5.000E-04
LOWER 99.9% C.I.	-4.675	8.721E-03
UPPER 99.9% C.I.	-4.480	1.228E-02
C.V.	3.79	30.12
MEDIAN	-4.605	1.000E-02
MINIMUM	-4.605	1.000E-02
MAXIMUM	-3.507	3.000E-02

$TS = EXP(-4.578 + 2.33(0.173))$
 $TS = 0.015$

STATISTIX 3.0

: TCMETALS

EW DATA

ASE	LN	ZINC
1	-3.9120	0.0200
2	-1.3863	0.2500
3	-4.6052	0.0100
4	-4.6052	0.0100
5	-1.3093	0.2700
6	0.5008	1.6500
7	-1.9661	0.1400
8	-0.8210	0.4400
9	-1.0217	0.3600
10	-1.2379	0.2900
11	-2.2073	0.1100
12	-2.9957	0.0500
13	-2.2073	0.1100
14	-3.5066	0.0300
15	-2.6593	0.0700
16	-1.2379	0.2900
17	-3.9120	0.0200
18	-1.8326	0.1600
19	-0.9943	0.3700
20	-1.5606	0.2100
21	-4.6052	0.0100
22	-4.6052	0.0100
23	-4.6052	0.0100
24	-4.6052	0.0100
25	-1.1394	0.3200
26	-2.6593	0.0700
27	-1.2379	0.2900
28	-0.5978	0.5500
29	-1.0498	0.3500
30	-1.5606	0.2100
31	-1.3863	0.2500
32	-1.5141	0.2200
33	-0.9943	0.3700
34	-1.0217	0.3600
35	-1.7720	0.1700
36	-0.5108	0.6000
37	-3.2189	0.0400
38	0.3001	1.3500
39	-1.3093	0.2700
40	-0.4308	0.6500

STATISTIX 3.0

ID: TCMETALS

DESCRIPTIVE STATISTICS

	LN	ZINC
CASES	40	40
MEAN	-2.050	2.742E-01
S.D.	1.458	3.339E-01
S.E. (MEAN)	2.306E-01	5.279E-02
LOWER 99.9% C.I.	-2.870	8.642E-02
UPPER 99.9% C.I.	-1.230	4.621E-01
C.V.	71.14	121.74
MEDIAN	-1.537	2.150E-01
MINIMUM	-4.605	1.000E-02
MAXIMUM	5.008E-01	1.650

$$TS = \text{Exp}(-2.05 + 2.33(1.458))$$

$$TS = 3.8$$