Site: Dugan & Nelson Dump
ID#: MOD086919248
Break: 2.3
Other: Keystone Lab
1-19-91

Report
Prepared
for

Ecology & Environmental Inc.
6405 Metcalf
Bldg 3 Suite 404
Overland Park, KS 66202

Attention : Darrell Messbarger

by

Keystone Lab - Houston
8300 Westpark Drive
Houston, Texas 77063
(713) 266-6800

CERTIFIED BY : [signature]

PROJECT ID :
P.O. NUMBER :

WORK ORDER : H91-01.105
DATE RECEIVED : 19-JAN-1991

40150352
SUPERFUND RECORDS

SAMPLE & ANALYSIS SUMMARY

Keystone Sample ID	Client's Sample Name	Date Collected	Sample Matrix
H91-01.105-001	LCS	17-JAN-1991	SOIL
H91-01.105-002	DHNV001	17-JAN-1991	WATER
H91-01.105-003	DHNV002	17-JAN-1991	SOIL
H91-01.105-004	DHNV003	17-JAN-1991	SOIL
H91-01.105-005	DHNV003 DUP	17-JAN-1991	SOIL
H91-01.105-006	DHNV003 SPIKE	17-JAN-1991	SOIL

Analysis ID	Parameter Description
CN_SX	Total Cyanide by Method 9010 (Non-aqueous)
MET_CLP_SX	Metals 23 TCL-Soil (CLP)
PSOLID	Percent Solids
CN	Cyanide
MET_CLP	Metals 23 TCL (CLP)

K E Y S T O N E L A B - H O U S T O N

Reported on 4-FEB-1991 at 14:04.

SAMPLE ID : H91-01.105-001
SAMPLE NAME: LCS

DATE COLLECTED: 17-JAN-1991
DATE RECEIVED : 19-JAN-1991

SAMPLING POINT: QA_QC
MATRIX : SOIL

Component name	Result	Units
Aluminum	1451	mg/Kg
Antimony	543	mg/Kg
Arsenic	33.7	mg/Kg
Barium	25.8	mg/Kg
Beryllium	95.0	mg/Kg
Cadmium	226	mg/Kg
Calcium	934970	mg/Kg
Chromium	483	mg/Kg
Cobalt	702	mg/Kg
Copper	33566	mg/Kg
Iron	105610	mg/Kg
Lead	225	mg/Kg
Magnesium	586180	mg/Kg
Manganese	968	mg/Kg
Mercury	12.9	mg/Kg
Nickel	280	mg/Kg
Potassium	792	mg/Kg
Silver	80.2	mg/Kg
Selenium	796	mg/Kg
Sodium	279	mg/Kg
Thallium	28.0	mg/Kg
Vanadium	333	mg/Kg
Zinc	1040	mg/Kg
Cyanide (Solid)	96.6	mg/Kg

K E Y S T O N E L A B - H O U S T O N

Reported on 4-FEB-1991 at 14:04.

SAMPLE ID : H91-01.105-002
SAMPLE NAME: DHNV001

DATE COLLECTED: 17-JAN-1991
DATE RECEIVED : 19-JAN-1991

SAMPLING POINT:
MATRIX : WATER

Component name	Result	Units
Aluminum	<46.0	ug/L
Antimony	<24.0	ug/L
Arsenic	6.0	ug/L
Barium	27.0	ug/L
Beryllium	<1.0	ug/L
Cadmium	<5.0	ug/L
Calcium	125000	ug/L
Chromium	<5.0	ug/L
Cobalt	<6.0	ug/L
Copper	5.5	ug/L
Iron	180	ug/L
Lead	<1.0	ug/L
Magnesium	60000	ug/L
Manganese	8.0	ug/L
Mercury	<0.2	ug/L
Nickel	<20.0	ug/L
Potassium	4000	ug/L
Silver	<5.0	ug/L
Selenium	6.2	ug/L
Sodium	11000	ug/L
Thallium	<2.0	ug/L
Vanadium	<5.0	ug/L
Zinc	600	ug/L
Cyanide	<10.0	ug/L

K E Y S T O N E L A B - H O U S T O N

Reported on 4-FEB-1991 at 14:04.

SAMPLE ID : H91-01.105-003
SAMPLE NAME: DHNV002

DATE COLLECTED: 17-JAN-1991
DATE RECEIVED : 19-JAN-1991

SAMPLING POINT:
MATRIX : SOIL

Component name	Result	Units
Aluminum	5500	mg/Kg
Antimony	<7.4	mg/Kg
Arsenic	8.7	mg/Kg
Barium	220	mg/Kg
Beryllium	0.63	mg/Kg
Cadmium	<1.5	mg/Kg
Calcium	15000	mg/Kg
Chromium	38.0	mg/Kg
Cobalt	11.0	mg/Kg
Copper	53.0	mg/Kg
Iron	19000	mg/Kg
Lead	280	mg/Kg
Magnesium	1400	mg/Kg
Manganese	1100	mg/Kg
Mercury	<0.15	mg/Kg
Nickel	17.0	mg/Kg
Potassium	690	mg/Kg
Silver	7.7	mg/Kg
Selenium	<0.92	mg/Kg
Sodium	61.0	mg/Kg
Thallium	<0.60	mg/Kg
Vanadium	32.0	mg/Kg
Zinc	630	mg/Kg
Cyanide (Solid)	16.0	mg/Kg

K E Y S T O N E L A B - H O U S T O N

Reported on 4-FEB-1991 at 14:04.

SAMPLE ID : H91-01.105-004
SAMPLE NAME: DHNV003

DATE COLLECTED: 17-JAN-1991
DATE RECEIVED : 19-JAN-1991

SAMPLING POINT:
MATRIX : SOIL

Component name	Result	Units
Aluminum	8300	mg/Kg
Antimony	<6.3	mg/Kg
Arsenic	7.0	mg/Kg
Barium	31.0	mg/Kg
Beryllium	0.32	mg/Kg
Cadmium	<1.3	mg/Kg
Calcium	770	mg/Kg
Chromium	27.0	mg/Kg
Cobalt	3.3	mg/Kg
Copper	4.0	mg/Kg
Iron	20000	mg/Kg
Lead	26.0	mg/Kg
Magnesium	520	mg/Kg
Manganese	160	mg/Kg
Mercury	<0.13	mg/Kg
Nickel	9.5	mg/Kg
Potassium	600	mg/Kg
Silver	<1.3	mg/Kg
Selenium	0.87	mg/Kg
Sodium	<39.0	mg/Kg
Thallium	<0.53	mg/Kg
Vanadium	35.0	mg/Kg
Zinc	24.0	mg/Kg
Cyanide (Solid)	<0.66	mg/Kg

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER(Print): Wiggans

NAME OF SURVEY OR ACTIVITY: Dugan Hetterbrand Northview

DATE OF COLLECTION: 1 (DAY) 17 (MONTH) 91 (YEAR)

SHEET 1 of 1

CONTENTS OF SHIPMENT: Environmental Samples

SAMPLE NUMBER	TYPE OF CONTAINERS: 1L CUBITAINER	8oz. BOTTLE	BOTTLE	BOTTLE	VOA SET (2 VIALS EA)	SAMPLED MEDIA: water	soil	sediment	dust	other	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	NUMBERS OF CONTAINERS PER SAMPLE NUMBER										
DHNV001	2					X					Total Metals, CN
DHNV002		1					X				" " " " " "
DHNV003		1					X				" " " " " "

DESCRIPTION OF SHIPMENT

4 Box PIECE(S) CONSISTING OF _____ BOX(ES)

1 ICE CHEST(S); OTHER _____

MODE OF SHIPMENT

✓ COMMERCIAL CARRIER: Federal Express

___ COURIER

___ SAMPLER CONVEYED

815 268 0535 (SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
Dave Kimath ☐ SEALED ☐ UNSEALED	1/18/91	10:30	Nhi Nguyen ☒ SEALED ☐ UNSEALED	Analysis
RELINQUISHED BY ☐ SEALED ☐ UNSEALED	DATE	TIME	RECEIVED BY ☐ SEALED ☐ UNSEALED	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY ☐ SEALED ☐ UNSEALED	DATE	TIME	RECEIVED BY ☐ SEALED ☐ UNSEALED	REASON FOR CHANGE OF CUSTODY

7-EPA-9262(Revised 5/85)

Method: ALL Standard: BLANK

Elem	Ag3280	Al3082	As1936	Ba4934	Be3130	Ca3179	Cd2288
Avge	.00005	-.01760	.01065	.00000	.00060	.00090	.00020
SDev	.00007	.00042	.00106	.00000	.00000	.00014	.00014
%RSD	141.42	-2.4106	9.9593	.00000	.00000	15.713	70.711
#1	.00010	-.01790	.01140	.00000	.00060	.00100	.00030
#2	.00000	-.01730	.00990	.00000	.00060	.00080	.00010

Elem	Co2286	Cr2677	Cu3247	Fe2599	K_7664	Mg2790	Mn2576
Avge	-.00010	.00020	.00050	.00425	.00705	.00135	.00000
SDev	.00028	.00057	.00014	.00007	.00120	.00035	.00000
%RSD	-282.84	282.84	28.284	1.6638	17.051	26.189	.00000
#1	-.00030	.00060	.00040	.00430	.00790	.00160	.00000
#2	.00010	-.00020	.00060	.00420	.00620	.00110	.00000

Elem	Na5889	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924
Avge	-.04430	-.00065	.00135	.00055	.00070	-.00015	.00010
SDev	.00283	.00021	.00064	.00021	.00042	.00064	.00014
%RSD	-6.3847	-32.636	47.140	38.569	60.609	-424.26	141.42
#1	-.04630	-.00050	.00090	.00040	.00040	-.00060	.00000
#2	-.04230	-.00080	.00180	.00070	.00100	.00030	.00020

Elem	Zn2138
Avge	.00110
SDev	.00014
%RSD	12.856
#1	.00120
#2	.00100

IntStd	1	2	3	4	5	6	7
Mode	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	--	--	--	--	--	--	--
Wavlen	--	--	--	--	--	--	--
Avge	5000	--	--	--	--	--	--
SDev	.0000000	--	--	--	--	--	--
%RSD	.0000000	--	--	--	--	--	--
#1	5000	--	--	--	--	--	--
#2	5000	--	--	--	--	--	--

Method: ALL Standard: STD1

Elem	Ag3280	Al3082	As1936	Ba4934	Be3130	Ca3179	Cd2288
Avge	.19960	-.00745	.63320	3.4898	.00080	.04105	1.5850
SDev	.00014	.00092	.00594	.0001	.00000	.00021	.0020
%RSD	.07085	-12.339	.93804	.00202	.00000	.51677	.12491
#1	.19970	-.00680	.63740	3.4898	.00080	.04090	1.5864
#2	.19950	-.00810	.62900	3.4897	.00080	.04120	1.5836

Elem	Co2286	Cr2677	Cu3247	Fe2599	K_7664	Mg2790	Mn2576
Avge	.00065	3.3679	.00105	.01650	.01080	.00640	.00035
SDev	.00035	.0050	.00007	.00014	.00099	.00000	.00007
%RSD	54.393	.14697	6.7343	.85710	9.1662	.00000	20.203
#1	.00040	3.3714	.00100	.01640	.01010	.00640	.00030
#2	.00090	3.3644	.00110	.01660	.01150	.00640	.00040

Elem	Na5889	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924
Avge	-.00285	.00270	.44585	.00380	.15760	.25665	-.00160
SDev	.00163	.00127	.00092	.00057	.00028	.00149	.00042
%RSD	-57.065	47.140	.20618	14.886	.17947	.57858	-26.517
#1	-.00400	.00180	.44520	.00340	.15740	.25560	-.00190
#2	-.00170	.00360	.44650	.00420	.15780	.25770	-.00130

Elem	Zn2138
Avge	.01035
SDev	.00064
%RSD	6.1488
#1	.01080
#2	.00990

IntStd	1	2	3	4	5	6	7
Mode	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	--	--	--	--	--	--	--
Wavlen	--	--	--	--	--	--	--
Avge	5000	--	--	--	--	--	--
SDev	.0000000	--	--	--	--	--	--
%RSD	.0000000	--	--	--	--	--	--
#1	5000	--	--	--	--	--	--
#2	5000	--	--	--	--	--	--

Method: ALL Standard: STD2

Elem	Ag3280	Al3082	As1936	Ba4934	Be3130	Ca3179	Co2288
Avge	-.00550	.93440	.02815	.00080	2.4543	.00510	.00280
SDev	.00014	.00636	.00035	.00000	.0118	.00028	.00014
%RSD	-2.5713	.68107	1.2560	.00000	.48115	5.5459	5.0508
#1	-.00540	.93890	.02840	.00080	2.4626	.00490	.00270
#2	-.00560	.92990	.02790	.00080	2.4459	.00530	.00290

Elem	Co2286	Cr2677	Cu3247	Fe2599	K_7664	Mg2790	Mn2576
Avge	2.1539	-.04700	1.2837	2.3025	.00920	-.00190	1.5095
SDev	.0043	.00028	.0062	.0069	.00028	.00071	.0064
%RSD	.20026	-.60180	.47925	.30096	3.0744	-37.216	.42630
#1	2.1570	-.04720	1.2880	2.3074	.00940	-.00240	1.5140
#2	2.1509	-.04680	1.2793	2.2976	.00900	-.00140	1.5049

Elem	Na5889	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924
Avge	-.04130	1.3645	-.00790	.43875	-.00055	-.00355	2.2537
SDev	.00311	.0004	.00014	.00233	.00050	.00078	.0123
%RSD	-7.5333	.03109	-1.7901	.53184	-89.995	-21.910	.54593
#1	-.04350	1.3642	-.00800	.44040	-.00020	-.00410	2.2624
#2	-.03910	1.3648	-.00780	.43710	-.00090	-.00300	2.2450

Elem	Zn2138
Avge	9.0512
SDev	.0202
%RSD	.22344
#1	9.0655
#2	9.0369

IntStd	1	2	3	4	5	6	7
Mode	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	--	--	--	--	--	--	--
Wavlen	--	--	--	--	--	--	--
Avge	5000	--	--	--	--	--	--
SDev	.0000000	--	--	--	--	--	--
%RSD	.0000000	--	--	--	--	--	--
#1	5000	--	--	--	--	--	--
#2	5000	--	--	--	--	--	--

Method: ALL Standard: STD3

Elem	Ag3280	Al3082	As1936	Ba4934	Be3130	Ca3179	Cd2288
Avge	-.00035	-.01770	.00740	.00130	.00090	16.537	.00000
SDev	.00007	.00000	.00014	.00014	.00000	.177	.00000
%RSD	-20.203	.00000	1.9111	10.879	.00000	1.0719	.00000
#1	-.00040	-.01770	.00730	.00140	.00090	16.412	.00000
#2	-.00030	-.01770	.00750	.00120	.00090	16.663	.00000

Elem	Co2286	Cr2677	Cu3247	Fe2599	K_7664	Mg2790	Mn2576
Avge	.00010	.00190	.00500	.00560	.73925	5.9124	.00020
SDev	.00028	.00071	.00113	.00028	.01266	.0684	.00000
%RSD	282.84	37.216	22.627	5.0508	1.7122	1.1565	.00000
#1	.00030	.00140	.00580	.00580	.73030	5.8640	.00020
#2	-.00010	.00240	.00420	.00540	.74820	5.9607	.00020

Elem	Na5889	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924
Avge	25.452	-.00070	.00125	.00040	-.00005	.00265	.00005
SDev	.321	.00269	.00035	.00057	.00007	.00149	.00035
%RSD	1.2607	-383.86	28.284	141.42	-141.42	56.035	707.11
#1	25.226	-.00260	.00150	.00000	.00000	.00370	.00030
#2	25.679	.00120	.00100	.00080	-.00010	.00160	-.00020

Elem	Zn2138
Avge	.03125
SDev	.00431
%RSD	13.803
#1	.03430
#2	.02820

IntStd	1	2	3	4	5	6	7
Mode	Time	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED	NOTUSED
Elem	--	--	--	--	--	--	--
Wavlen	--	--	--	--	--	--	--
Avge	5000	--	--	--	--	--	--
SDev	.0000000	--	--	--	--	--	--
%RSD	.0000000	--	--	--	--	--	--
#1	5000	--	--	--	--	--	--
#2	5000	--	--	--	--	--	--

Standardization Report Sat 02-02-91 02:46:27 PM page 1

Method: ALL

Element	Wavelen	High std	Low std	Slope	Y-intercept	Date Standardized
Ag3280	328.068	STD1	BLANK	5.01128	-.000251	02/02/91 02:40:03
Al3082	308.215	STD2	BLANK	10.5042	.184874	02/02/91 02:42:28
As1936	193.696	STD1	BLANK	8.03148	-.085535	02/02/91 02:40:03
Ba4934	493.409	STD1	BLANK	2.86553	.000000	02/02/91 02:40:03
Be3130	313.042	STD2	BLANK	4.07556	-.002445	02/02/91 02:42:28
Ca3179	317.933	STD3	BLANK	6.04721	-.005442	02/02/91 02:44:41
Cd2288	228.802	STD1	BLANK	6.30994	-.001262	02/02/91 02:40:03
Co2286	228.616	STD2	BLANK	4.64242	.000464	02/02/91 02:42:28
Cr2677	267.716	STD1	BLANK	2.96939	-.000594	02/02/91 02:40:03
Cu3247	324.754	STD2	BLANK	7.79332	-.003897	02/02/91 02:42:28
Fe2599	259.940	STD2	BLANK	4.35114	-.018492	02/02/91 02:42:28
K_7664	766.491	STD3	BLANK	136.575	-.962852	02/02/91 02:44:41
Mg2790	279.079	STD3	BLANK	16.9176	-.022839	02/02/91 02:44:41
Mn2576	257.610	STD2	BLANK	6.62493	.000000	02/02/91 02:42:28
Na5889	588.995	STD3	BLANK	3.92208	.173748	02/02/91 02:44:41
Ni2316	231.604	STD2	BLANK	7.32520	.004761	02/02/91 02:42:28
Pb2203	220.353	STD1	BLANK	22.4972	-.030371	02/02/91 02:40:03
Sb2068	206.838	STD2	BLANK	22.8206	-.012551	02/02/91 02:42:28
Se1960	196.026	STD1	BLANK	63.7349	-.044614	02/02/91 02:40:03
Tl1908	190.801	STD1	BLANK	38.9408	.005841	02/02/91 02:40:03
V_2924	292.402	STD2	BLANK	4.43734	-.000444	02/02/91 02:42:28
Zn2138	213.856	STD2	BLANK	1.10496	-.001215	02/02/91 02:42:28

Method: ALL Sample Name: ICV Operator: EG
Run Time: 02/02/91 14:47:16
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	Ba4934	Be3130	Ca3179	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.52343	2.0998	.99992	1.8980	.49701	51.676	.49028
SDev	.00000	.0074	.00966	.0095	.00259	.132	.00179
%RSD	.00000	.35373	.96554	.50176	.52185	.25569	.36402
#1	.52343	2.0945	.99309	1.8913	.49518	51.583	.49154
#2	.52343	2.1050	1.0067	1.9047	.49885	51.770	.48902
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass
Value	.49800	2.1720	1.0000	2.0410	.51000	51.519	.49800
Range	10.000	10.000	10.000	10.000	10.000	10.000	10.000

Elem	Co2286	Cr2677	Cu3247	Fe2599	K_7664	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.50254	.50287	.51163	2.0365	50.717	25.918	.49952
SDev	.00099	.00399	.00276	.0012	.618	.135	.00187
%RSD	.19596	.79333	.53855	.06043	1.2187	.52157	.37512
#1	.50185	.50569	.50968	2.0357	50.280	25.822	.49819
#2	.50324	.50004	.51358	2.0374	51.154	26.013	.50084
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	NOCHECK	QC Pass
Value	.52000	.51000	.51900	2.0440	52.068		.51600
Range	10.000	10.000	10.000	10.000	10.000		10.000

Elem	Na5889	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	50.890	.48639	4.9269	1.0098	.96877	1.0086	.49521
SDev	.356	.00881	.0143	.0000	.00901	.0413	.00502
%RSD	.70028	1.8104	.29059	.00000	.93041	4.0952	1.0138
#1	50.638	.49262	4.9370	1.0098	.96240	.97936	.49166
#2	51.142	.48017	4.9168	1.0098	.97514	1.0378	.49876
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass
Value	51.368	.49700	5.1400	.97800	1.0000	1.0000	.50700
Range	10.000	10.000	10.000	10.000	10.000	10.000	10.000

Elem	Zn2138
Units	ppm
Avge	3.2918
SDev	.0098
%RSD	.29669
#1	3.2849
#2	3.2987
Errors	QC Pass
Value	3.3160
Range	10.000

Method: ALL Sample Name: ICB Operator: EG
Run Time: 02/02/91 14:49:41
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	Ba4934	Be3130	Ca3179	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00075	-.01208	.01124	.00043	.00000	.00212	.00095
SDev	.00000	.00223	.00625	.00020	.00000	.00043	.00045
%RSD	.00000	-18.446	55.558	47.140	.00000	20.203	47.140
#1	.00075	-.01366	.01566	.00029	.00000	.00242	.00063
#2	.00075	-.01050	.00683	.00057	.00000	.00181	.00126
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.01000	.20000	.10000	.20000	.00500	5.0000	.00500
Low	-.01000	-.20000	-.10000	-.20000	-.00500	-5.0000	-.00500

Elem	Co2286	Cr2677	Cu3247	Fe2599	K_7664	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00046	.00074	.00156	-.00109	-.06146	.00592	.00000
SDev	.00131	.00189	.00000	.00062	.21246	.00239	.00000
%RSD	282.84	254.56	.00000	-56.569	-345.70	40.406	.00000
#1	-.00046	-.00059	.00156	-.00065	-.21169	.00761	.00000
#2	.00139	.00208	.00156	-.00152	.08877	.00423	.00000
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.05000	.01000	.02500	.10000	5.0000	5.0000	.01500
Low	-.05000	-.01000	-.02500	-.10000	-5.0000	-5.0000	-.01500

Elem	Na5889	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00922	.00513	-.02025	-.01027	-.04461	.01168	-.00155
SDev	.00749	.00155	.00795	.01291	.01803	.02478	.00031
%RSD	81.242	30.305	-39.284	-125.71	-40.406	212.13	-20.203
#1	.01451	.00623	-.01462	-.00114	-.03187	-.00584	-.00177
#2	.00392	.00403	-.02587	-.01940	-.05736	.02921	-.00133
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	5.0000	.04000	.20000	.06000	.20000	.20000	.05000
Low	-5.0000	-.04000	-.20000	-.06000	-.20000	-.20000	-.05000

Elem	Zn2138
Units	ppm
Avge	.00481
SDev	.00039
%RSD	8.1277
#1	.00508
#2	.00453
Errors	LC Pass
High	.02000
Low	-.02000

Method: ALL Sample Name: LCSS Operator: ES
Run Time: 02/02/91 14:53:14
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	Ba4934	Be3130	Ca3179	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.08018	1.4512	4.6012	.02579	.09496	934.97	.22621
SDev	.00035	.0052	.0097	.00000	.00058	1.21	.00134
%RSD	.44194	.35829	.20982	.00000	.60696	.12952	.59172
#1	.08043	1.4548	4.5944	.02579	.09537	935.82	.22527
#2	.07993	1.4475	4.6081	.02579	.09453	934.11	.22716
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
High							
Low							

Elem	Co2286	Cr2677	Cu3247	Fe2599	K_7664	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.70217	.48253	33.566	105.61	.79213	586.18	.96757
SDev	.00033	.00168	.083	.08	.02897	.32	.00047
%RSD	.04675	.34811	.24626	.07721	3.6575	.05388	.04842
#1	.70193	.48371	33.507	105.66	.77165	585.95	.96724
#2	.70240	.48134	33.624	105.55	.81262	586.40	.96790
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
High							
Low							

Elem	Na5889	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.27925	.27982	1.1069	.54313	-.94009	.94042	.33324
SDev	.01220	.01502	.0048	.01130	.03155	.10463	.00063
%RSD	4.3698	5.3681	.43116	2.0797	-3.3558	11.126	.18831
#1	.28788	.29044	1.1035	.53514	-.96240	1.0144	.33369
#2	.27062	.26920	1.1102	.55112	-.91778	.86643	.33280
Errors	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK	NOCHECK
High							
Low							

Elem	Zn2138
Units	ppm
Avge	1.0396
SDev	.0045
%RSD	.42639
#1	1.0365
#2	1.0428
Errors	NOCHECK
High	
Low	

Method: ALL Sample Name: H91-01.105-PBC Operator: EC
Run Time: 02/02/91 13:01:52
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	Ba4934	Be3130	Ca3179	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00150	-.00893	-.01004	.00000	.00000	.01088	.00032
SDev	.00106	.00966	.00681	.00000	.00000	.00171	.00134
%RSD	-70.711	-108.15	-67.882	.00000	.00000	15.713	424.26
#1	-.00226	-.01576	-.00522	.00000	.00000	.00968	.00126
#2	-.00075	-.00210	-.01486	.00000	.00000	.01209	-.00063
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.01000	.20000	.10000	.20000	.00500	5.0000	.00500
Low	-.01000	-.20000	-.10000	-.20000	-.00500	-5.0000	-.00500

Elem	Co2286	Cr2677	Cu3247	Fe2599	K_7664	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00232	-.00074	.01130	.00805	-.12975	.01523	.00000
SDev	.00131	.00147	.00055	.00185	.57944	.03230	.00000
%RSD	-56.569	-197.99	4.8766	22.933	-446.59	212.13	.00000
#1	-.00325	-.00178	.01169	.00674	-.53947	.03806	.00000
#2	-.00139	.00030	.01091	.00935	.27998	-.00761	.00000
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.05000	.01000	.02500	.10000	5.0000	5.0000	.01500
Low	-.05000	-.01000	-.02500	-.10000	-5.0000	-5.0000	-.01500

Elem	Na5889	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00843	.00513	-.00112	-.01483	-.04461	.00779	-.00067
SDev	.00028	.00777	.00000	.00323	.01803	.00275	.00031
%RSD	-3.2889	151.52	.00000	-21.757	-40.406	35.355	-47.140
#1	-.00863	.01062	-.00112	-.01255	-.03187	.00584	-.00044
#2	-.00824	-.00037	-.00112	-.01712	-.05736	.00974	-.00089
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	5.0000	.04000	.20000	.06000	.20000	.20000	.05000
Low	-5.0000	-.04000	-.20000	-.06000	-.20000	-.20000	-.05000

Elem	Zn2138
Units	ppm
Avge	.00077
SDev	.00063
%RSD	80.812
#1	.00033
#2	.00122
Errors	LC Pass
High	.02000
Low	-.02000

Analysis Report Blank Sample Sat 02-02-91 03:05:49 PM page 1

Method: ALL Sample Name: H91-01.105-PBW Operator: EG
Run Time: 02/02/91 15:04:15
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	Ba4934	Be3130	Ca3179	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00025	-.00473	.00643	.00000	.00000	.00907	-.00158
SDev	.00142	.00223	.00284	.00000	.00000	.00428	.00045
%RSD	-565.69	-47.141	44.194	.00000	.00000	47.140	-28.284
#1	-.00125	-.00630	.00442	.00000	.00000	.00605	-.00139
#2	.00075	-.00315	.00843	.00000	.00000	.01209	-.00126
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.01000	.20000	.10000	.20000	.00500	5.0000	.00500
Low	-.01000	-.20000	-.10000	-.20000	-.00500	-5.0000	-.00500

Elem	Co2286	Cr2677	Cu3247	Fe2599	K_7664	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00093	-.00045	.00507	.00413	-.15706	-.01692	.00000
SDev	.00460	.00147	.00055	.00123	.07726	.00120	.00000
%RSD	494.97	-329.98	10.879	29.773	-49.190	-7.0711	.00000
#1	.00418	-.00148	.00546	.00326	-.10243	-.01776	.00000
#2	-.00232	.00059	.00468	.00500	-.21169	-.01607	.00000
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.05000	.01000	.02500	.10000	5.0000	5.0000	.01500
Low	-.05000	-.01000	-.02500	-.10000	-5.0000	-5.0000	-.01500

Elem	Na5889	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.01118	.00879	-.00337	-.01369	-.04780	.02336	-.00133
SDev	.01581	.00466	.00000	.01130	.00451	.01928	.00000
%RSD	-141.42	53.033	.00000	-82.496	-9.4281	82.496	.00000
#1	.00000	.01209	-.00337	-.02168	-.04461	.00974	-.00133
#2	-.02236	.00549	-.00337	-.00571	-.05099	.03699	-.00133
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	5.0000	.04000	.20000	.06000	.20000	.20000	.05000
Low	-5.0000	-.04000	-.20000	-.06000	-.20000	-.20000	-.05000

Elem	Zn2138
Units	ppm
Avge	.00044
SDev	.00109
%RSD	247.49
#1	.00122
#2	-.00033
Errors	LC Pass
High	.02000
Low	-.02000

Method: ALL Sample Name: H91-01.105-002w Operator: EG
Run Time: 02/02/91 15:06:22
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	Ba4934	Be3130	Ca3179	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00326	-.00158	-.00080	.02679	.00000	124.70	-.00126
SDev	.00000	.00371	.00511	.00061	.0006	.23	.00178
%RSD	.00000	-235.70	-636.39	2.2688	-660e6	.18550	-141.42
#1	-.00326	-.00420	-.00442	.02722	.00041	124.54	-.00252
#2	-.00326	.00105	.00281	.02636	-.00041	124.87	.00000

Elem	Co2286	Cr2677	Cu3247	Fe2599	K_7664	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00209	.00030	.00546	.17883	3.9607	59.747	.00795
SDev	.00033	.00042	.00000	.00400	.0097	.148	.00000
%RSD	-15.713	141.42	.00000	2.2366	.24383	.24827	.00000
#1	-.00186	.00000	.00546	.17600	3.9675	59.642	.00795
#2	-.00232	.00059	.00546	.18166	3.9538	59.852	.00795

Elem	Na5889	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	11.277	.00989	.00112	-.02853	-.06055	.06815	-.00067
SDev	.027	.00622	.01273	.00645	.04957	.02203	.00031
%RSD	.23856	62.854	1131.4	-22.627	-81.876	32.325	-47.140
#1	11.258	.00549	-.00787	-.02396	-.09560	.08372	-.00044
#2	11.296	.01428	.01012	-.03309	-.02549	.05257	-.00089

Elem	Zn2138
Units	ppm
Avge	.59624
SDev	.00375
%RSD	.62901
#1	.59358
#2	.59889

Method: ALL Sample Name: H91-01.105-003s Operator: EG
Run Time: 02/02/91 15:09:11
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	Ba4934	Be3130	Ca3179	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.02506	17.793	-.10320	.71538	.00204	47.639	.00252
SDev	.00177	.149	.01590	.00669	.00000	.262	.00000
%RSD	7.0711	.83908	-15.408	.93470	.00000	.54932	.00000
#1	.02631	17.687	-.09196	.71065	.00204	47.454	.00252
#2	.02380	17.898	-.11445	.72011	.00204	47.824	.00252

Elem	Co2286	Cr2677	Cu3247	Fe2599	K_7664	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.03598	.12442	.17067	61.905	2.2330	4.5779	3.4307
SDev	.00033	.00294	.00110	.506	.2125	.0227	.0239
%RSD	.91240	2.3627	.64576	.81758	9.5146	.49649	.69639
#1	.03621	.12234	.16989	61.547	2.3832	4.5618	3.4138
#2	.03575	.12650	.17145	62.263	2.0828	4.5940	3.4476

Elem	Na5889	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.19669	.05531	.85714	-.14948	-.63735	.26674	.10272
SDev	.00250	.00932	.01114	.00323	.00901	.02754	.00157
%RSD	1.2690	16.858	1.2991	-2.1591	-1.4142	10.323	1.5272
#1	.19493	.04871	.86502	-.14719	-.64372	.24727	.10383
#2	.19846	.06190	.84927	-.15176	-.63098	.28621	.10162

Elem	Zn2138
Units	ppm
Avge	2.0390
SDev	.0187
%RSD	.91580
#1	2.0258
#2	2.0522

Analysis Report Sat 02-02-91 03:13:10 PM page 1

Method: ALL Sample Name: H91-01.105-004s Operator: EG
Run Time: 02/02/91 15:11:38
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	Ba4934	Be3130	Ca3179	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.01428	31.616	-.10602	.11863	.00122	2.9386	-.00379
SDev	.00000	.024	.00625	.00000	.00000	.0013	.00000
%RSD	.00000	.07517	-5.8926	.00000	.00000	.04365	.00000
#1	-.01428	31.599	-.10160	.11863	.00122	2.9395	-.00379
#2	-.01428	31.632	-.11043	.11863	.00122	2.9377	-.00379

Elem	Co2286	Cr2677	Cu3247	Fe2599	K_7664	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.01253	.10274	.01520	75.569	2.3013	1.9802	.61512
SDev	.00131	.00084	.00055	.089	.4249	.0000	.00047
%RSD	10.476	.81746	3.6262	.11807	18.465	.00000	.07616
#1	.01161	.10215	.01559	75.506	2.0008	1.9802	.61546
#2	.01346	.10333	.01481	75.633	2.6017	1.9802	.61479

Elem	Na5889	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.11511	.03626	.04724	-.19626	-.72020	.28037	.13467
SDev	.01803	.00414	.01114	.01130	.00000	.00826	.00031
%RSD	15.660	11.428	23.570	-5.7555	.00000	2.9463	.23299
#1	.12786	.03333	.05512	-.18827	-.72020	.28621	.13490
#2	.10237	.03919	.03937	-.20424	-.72020	.27453	.13445

Elem	Zn2138
Units	ppm
Avge	.09022
SDev	.00117
%RSD	1.2990
#1	.08939
#2	.09105

Analysis Report QC Standard Sat 02-02-91 03:17:10 PM page 1

Method: ALL Sample Name: CCV Operator: EG
Run Time: 02/02/91 15:15:36
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	Ba4934	Be3130	Ca3179	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.48183	5.2190	2.6600	4.8978	5.1876	52.804	5.0445
SDev	.00142	.0007	.0051	.0081	.0037	.022	.0058
%RSD	.29417	.01423	.19215	.16548	.07222	.04211	.11499
#1	.48083	5.2195	2.6564	4.9035	5.1902	52.819	5.0404
#2	.48284	5.2185	2.6636	4.8920	5.1849	52.788	5.0486
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass
Value	.5	5.0000	2.5000	5.0000	5.0000	50.000	5.0000
Range	10.000	10.000	10.000	10.000	10.000	10.000	10.000

Elem	Co2286	Cr2677	Cu3247	Fe2599	K_7664	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	5.1111	5.0699	5.1194	5.3151	50.874	51.950	5.0402
SDev	.0121	.0017	.0033	.0012	.319	.141	.0047
%RSD	.23764	.03313	.06458	.02315	.62643	.27172	.09295
#1	5.1197	5.0687	5.1218	5.3143	51.099	52.050	5.0436
#2	5.1025	5.0711	5.1171	5.3160	50.649	51.850	5.0369
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass
Value	5.0000	5.0000	5.0000	5.0000	50.000	50.000	5.0000
Range	10.000	10.000	10.000	10.000	10.000	10.000	10.000

Elem	Na5889	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	51.435	5.1115	4.9213	5.1130	5.0382	5.0097	5.2414
SDev	.137	.0129	.0127	.0258	.0406	.0386	.0013
%RSD	.26690	.25333	.25861	.50496	.80506	.76949	.02394
#1	51.532	5.1024	4.9123	5.0947	5.0096	4.9825	5.2423
#2	51.338	5.1207	4.9303	5.1312	5.0669	5.0370	5.2405
Errors	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass	QC Pass
Value	50.000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000
Range	10.000	10.000	10.000	10.000	10.000	10.000	10.000

Elem	Zn2138
Units	ppm
Avge	5.1527
SDev	.0080
%RSD	.15467
#1	5.1470
#2	5.1583
Errors	QC Pass
Value	5.0000
Range	10.000

Analysis Report Blank Sample Sat 02-02-91 03:19:38 PM page 1

Method: ALL Sample Name: CCB Operator: EG
Run Time: 02/02/91 15:18:05
Comment:
Mode: CONC Corr. Factor: 1

Elem	Ag3280	Al3082	As1936	Ba4934	Be3130	Ca3179	Cd2288
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00175	-.00315	-.00924	.00000	.00000	.00272	-.00126
SDev	.00071	.00149	.01022	.00000	.00000	.00556	.00000
%RSD	-40.406	-47.140	-110.68	.00000	.00000	204.28	.00000
#1	-.00125	-.00420	-.01646	.00000	.00000	-.00121	-.00126
#2	-.00226	-.00210	-.00201	.00000	.00000	.00665	-.00126
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.01000	.20000	.10000	.20000	.00500	5.0000	.00500
Low	-.01000	-.20000	-.10000	-.20000	-.00500	-5.0000	-.00500

Elem	Co2286	Cr2677	Cu3247	Fe2599	K_7664	Mg2790	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	.00116	.00000	.01130	.01501	-.04097	-.01438	.00132
SDev	.00033	.0008	.00055	.00185	.26075	.00239	.00000
%RSD	28.284	-721e6	4.8766	12.298	-636.40	-16.638	.00000
#1	.00139	-.00059	.01169	.01371	-.22535	-.01607	.00132
#2	.00093	.00059	.01091	.01632	.14340	-.01249	.00132
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	.05000	.01000	.02500	.10000	5.0000	5.0000	.01500
Low	-.05000	-.01000	-.02500	-.10000	-5.0000	-5.0000	-.01500

Elem	Na5889	Ni2316	Pb2203	Sb2068	Se1960	Tl1908	V_2924
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avge	-.00843	.00000	-.00900	-.01712	-.00637	.00584	-.00044
SDev	.00638	.0212	.02386	.00645	.00901	.00000	.00063
%RSD	-75.644	-4561e6	-265.17	-37.712	-141.42	.00000	-141.42
#1	-.01294	.01502	-.02587	-.02168	.00000	.00584	-.00089
#2	-.00392	-.01502	.00787	-.01255	-.01275	.00584	.00000
Errors	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass	LC Pass
High	5.0000	.04000	.20000	.06000	.20000	.20000	.05000
Low	-5.0000	-.04000	-.20000	-.06000	-.20000	-.20000	-.05000

Elem	Zn2138
Units	ppm
Avge	.00602
SDev	.00195
%RSD	32.436
#1	.00740
#2	.00464
Errors	LC Pass
High	.02000
Low	-.02000

H91-01.105

1-30-91

H91-01.105

		Se-S	As-S
Standard Z			
Abs	1	-0.003	-0.001
Mean		-0.003	-0.001
P/H		-0.002	0.000
Abs	2	0.001	-0.001
Mean		-0.001	-0.001
P/H		-0.001	0.001

AUTO ZERO
07:02:13
Sat 26 JAN 1991

		Se-S	As-S	
Standard C				
Abs	1	0.099	0.144	50
Mean		0.099	0.144	
P/H		0.147	0.257	
Abs	2	0.105	0.149	
Mean		0.102	0.146	
P/H		0.161	0.274	
		Se-S	As-S	
Mean		0.102	0.146	
SD		0.004	0.004	
RSD		04.11	02.46	
		Se-S	As-S	
Standard 1				
Abs	1	0.014	0.029	5/10
Mean		0.014	0.029	
P/H		0.012	0.040	
Abs	2	0.008	0.030	
Mean		0.011	0.029	
P/H		0.011	0.042	
		Se-S	As-S	
Mean		0.011	0.029	
SD		0.004	0.001	
RSD		38.18	03.44	
		Se-S	As-S	
Standard 2				
Abs	1	0.020	0.058	10/20
Mean		0.020	0.058	
P/H		0.032	0.104	
Abs	2	0.024	0.058	
Mean		0.022	0.058	
P/H		0.031	0.100	
		Se-S	As-S	
Mean		0.022	0.058	
SD		0.003	0.000	
RSD		12.72	00.00	
		Se-S	As-S	
Standard 3				
Abs	1	0.178	0.254	100
Mean		0.178	0.254	
P/H		0.264	0.420	
Abs	2	0.180	0.253	
Mean		0.179	0.253	
P/H		0.255	0.451	
		Se-S	As-S	
Mean		0.179	0.253	
SD		0.001	0.001	
RSD		00.78	00.39	

CALIBRATE A

STD	CONC	MEAN
Z	000.0	0.000
C	050.0	0.102
1	005.0	0.011
2	010.0	0.022
3	100.0	0.179

APP CONC

STD Z	000.0
STD C	050.1
STD 1	004.9
STD 2	009.9
STD 3	100.0

CALIBRATE B

STD	CONC	MEAN
Z	000.0	0.000
C	050.0	0.146
1	010.0	0.029
2	020.0	0.058
3	100.0	0.253

APP CONC

STD Z	000.0
STD C	050.1
STD 1	010.0
STD 2	019.8
STD 3	100.1

		Se-S	As-S		
SN= 000006					
Conc	1	051.8	047.3	ICV	0730
Mean		051.8	047.3		
P/H		0.157	0.241		
Conc	2	049.3	044.4	50.5	45.8
Mean		050.5	045.8	52.6	47.4
P/H		0.160	0.213		
		Se-S	As-S		
Mean		050.5	045.8	96%	97%
SD		001.8	002.1		
RSD		03.48	04.47		
		Se-S	As-S		
SN= 000007					
Conc	1	002.3	-001.5	ICB	
Mean		002.3	-001.5		
P/H		0.001	0.002		
Conc	2	001.3	001.0	3	5
Mean		001.8	-000.3		
P/H		0.002	0.000		
		Se-S	As-S		
Mean		001.8	-000.3		
SD		000.7	001.8		
RSD		38.88	DIG HI		
		Se-S	As-S		
SN= 000008					
Conc	1	005.0	010.0	CRA	
Mean		005.0	010.0		
P/H		0.016	0.054		
Conc	2	003.1	009.9	80%	99%
Mean		004.0	009.9		
P/H		0.012	0.045		
		Se-S	As-S		
Mean		004.0	009.9		
SD		001.3	000.1		
RSD		33.50	01.01		
		Se-S	As-S		
SN= 000009					
Conc	1	001.6	-001.3	PBW	
Mean		001.6	-001.3		
P/H		0.002	-0.005		
Conc	2	-000.5	001.8	3	5
Mean		000.5	000.2		
P/H		0.000	-0.003		
		Se-S	As-S		
Mean		000.5	000.2		
SD		001.5	002.2		
RSD		DIG HI	DIG HI		
		Se-S	As-S		
SN= 000010					
Conc	1	010.1	019.1	PBWA	
Mean		010.1	019.1		
P/H		0.029	0.099		
Conc	2	009.1	019.1	96%	96%
Mean		009.6	019.1		
P/H		0.028	0.101		
		Se-S	As-S		
Mean		009.6	019.1		
SD		000.7	000.0		
RSD		07.29	00.00		

```
        Se-S As-S
SN= 000011
Conc  1  000.7  002.4
Mean     000.7  002.4
P/H      0.000  0.002
Conc  2 -000.3  001.4
Mean     000.2  001.9
P/H      0.002 -0.002
        Se-S As-S
Mean     000.2  001.9
SD       000.7  000.7
RSD     DIG HI  36.84
        Se-S As-S
SN= 000012
Conc  1  009.1  018.8
Mean     009.1  018.8
P/H      0.036  0.092
Conc  2  011.3  019.5
Mean     010.2  019.1
P/H      0.030  0.098
        Se-S As-S
Mean     010.2  019.1
SD       001.6  000.5
RSD      15.19  02.61
        Se-S As-S
SN= 000013
Conc  1  026.2  024.7
Mean     026.2  024.7
P/H      0.096  0.150
Conc  2  025.0  024.6
Mean     025.6  024.6
P/H      0.082  0.136
        Se-S As-S
Mean     025.6  024.6
SD       000.8  000.1
RSD      03.28  00.40
        Se-S As-S
SN= 000014
Conc  1  034.2  043.2
Mean     034.2  043.2
P/H      0.113  0.211
Conc  2  035.0  044.6
Mean     034.6  043.9
P/H      0.105  0.224
        Se-S As-S
Mean     034.6  043.9
SD       000.6  001.0
RSD      01.61  02.23
        Se-S As-S
SN= 000015
Conc  1  002.1  042.3
Mean     002.1  042.3
P/H      0.009  0.193
Conc  2  000.7  037.4
Mean     001.4  039.8
P/H      0.002  0.172
        Se-S As-S
Mean     001.4  039.8
SD       001.0  003.5
RSD      70.00  08.69
```

PBS

0.6 1.0

PBS A

102% 96%

LCSW ICV-2x

51.2 49.2

52.4 47.4

97% 104%

LCSW A

90% 96%

LCSS (100x)

79%

91%

		Se-S	As-S	
SN= 000016				
Conc	1	002.3	062.1	LCSSA
Mean		002.3	062.1	
P/H		0.007	0.315	
Conc	2	-000.9	061.0	
Mean		000.7	061.5	
P/H		0.014	0.291	
		Se-S	As-S	
Mean		000.7	061.5	108%
SD		002.3	000.8	
RSD		DIG HI	01.26	
		Se-S	As-S	
SN= 000017				
Conc	1	050.0	048.9	CC ✓ 0800
Mean		050.0	048.9	
P/H		0.149	0.245	
Conc	2	049.9	047.8	
Mean		049.9	048.3	49.9 48.3
P/H		0.147	0.225	50.0 50.0
		Se-S	As-S	
Mean		049.9	048.3	100% 97%
SD		000.1	000.8	
RSD		00.20	01.61	
		Se-S	As-S	
SN= 000018				
Conc	1	002.5	001.2	ccB
Mean		002.5	001.2	
P/H		0.002	0.004	
Conc	2	003.4	-000.7	3 5
Mean		002.9	000.2	
P/H		0.004	-0.002	
		Se-S	As-S	
Mean		002.9	000.2	
SD		000.6	001.3	
RSD		22.06	14.64	
		Se-S	As-S	
SN= 000019				
Conc	1	055.3	007.4	LCSS (3x)
Mean		055.3	007.4	
P/H		0.191	0.027	
Conc	2	057.2	003.8	33.7
Mean		056.2	005.6	39.2
P/H		0.189	0.016	
		Se-S	As-S	
Mean		056.2	005.6	
SD		001.3	002.5	
RSD		02.38	45.35	
		Se-S	As-S	
SN= 000020				
Conc	1	074.4	005.4	LCSSA
Mean		074.4	005.4	
P/H		0.226	0.026	
Conc	2	065.9	004.6	139%
Mean		070.1	005.0	
P/H		0.213	0.020	
		Se-S	As-S	
Mean		070.1	005.0	
SD		006.0	000.6	
RSD		08.57	11.20	

		Se-S	As-S			
SN= 000021						
Conc	1	052.4	050.8	CCV 0810		
Mean		052.4	050.8			
P/H		0.159	0.257			
Conc	2	053.1	049.0			
Mean		052.7	049.9			
P/H		0.150	0.233	52.7	49.9	
		Se-S	As-S	50.0	50.0	
Mean		052.7	049.9			
SD		000.5	001.3	105%	100%	
RSD		00.94	02.54			
		Se-S	As-S			
SN= 000022						
Conc	1	000.6	-000.4	CCB		
Mean		000.6	-000.4			
P/H		0.002	0.000			
Conc	2	000.1	002.1	3	5	
Mean		000.3	000.8			
P/H		0.002	0.001			
		Se-S	As-S			
Mean		000.3	000.8			
SD		000.4	001.8			
RSD		DIG HI	DIG HI			

```
          Se-S As-S
SN= 000001
Conc   1  053.4  051.8
Mean      053.4  051.8
P/H       0.147  0.223
Conc   2  053.7  048.9
Mean      053.5  050.3
P/H       0.143  0.229
          Se-S As-S
Mean      053.5  050.3
SD        000.2  002.1
RSD       00.41  04.07
          Se-S As-S
SN= 000002
Conc   1  001.3 -002.0
Mean      001.3 -002.0
P/H       0.002  0.002
Conc   2  001.2 -002.0
Mean      001.2 -002.0
P/H       0.000  0.000
          Se-S As-S
Mean      001.2 -002.0
SD        000.1  000.0
RSD       08.33 DIG HI
          Se-S As-S
SN= 000003
Conc   1  010.2  007.0
Mean      010.2  007.0
P/H       0.017  0.014
Conc   2  006.5  004.8
Mean      008.3  005.9
P/H       0.010  0.012
          Se-S As-S
Mean      008.3  005.9
SD        002.6  001.6
RSD       31.44  26.27
          Se-S As-S
SN= 000004
Conc   1  011.8  026.7
Mean      011.8  026.7
P/H       0.043  0.136
Conc   2  011.1  026.4
Mean      011.4  026.5
P/H       0.036  0.132
          Se-S As-S
Mean      011.4  026.5
SD        000.5  000.2
RSD       04.38  00.83
          Se-S As-S
SN= 000005
Conc   1  002.8  029.3
Mean      002.8  029.3
P/H       0.003  0.087
Conc   2  002.0  027.1
Mean      002.4  028.2
P/H       0.002  0.080
          Se-S As-S
Mean      002.4  028.2
SD        000.6  001.6
RSD       23.33  05.49
```

CCV 1.105

107% 101% 1-30-91

CCB

3u 5u

0 2

6 B mg/L

See MSA

31%

102.0%

0 3

3u 5, 6 mg/Kg

28.2 mg/L

ReRun H91-01,105

105 #2 Se

		Se-S	As-S
SN= 000001			
Conc	1	047.9	047.9
Mean		047.9	047.9
P/H		0.165	0.231
Conc	2	046.1	046.5
Mean		047.0	047.2
P/H		0.156	0.225
		Se-S	As-S
Mean		047.0	047.2
SD		001.3	001.0
RSD		02.70	02.07
		Se-S	As-S
SN= 000002			
Conc	1	-003.9	001.0
Mean		-003.9	001.0
P/H		-0.003	0.004
Conc	2	-003.2	-000.4
Mean		-003.6	000.3
P/H		-0.002	0.004
		Se-S	As-S
Mean		-003.6	000.3
SD		000.5	001.0
RSD		-13.88	DIG HI
		Se-S	As-S
SN= 000003			
Conc	1	003.4	010.2
Mean		003.4	010.2
P/H		0.012	0.040
Conc	2	001.0	004.5
Mean		002.2	007.3
P/H		0.016	0.014
		Se-S	As-S
Mean		002.2	007.3
SD		001.7	004.0
RSD		76.81	55.20
		Se-S	As-S
SN= 000004			
Conc	1	013.7	003.0
Mean		013.7	003.0
P/H		0.040	0.009
Conc	2	010.6	002.5
Mean		012.1	002.7
P/H		0.044	0.009
		Se-S	As-S
Mean		012.1	002.7
SD		002.2	000.4
RSD		18.09	13.33

ccv

94%

ccb

3

02 (2x)

4.4

02A

99%

		Se-S	As-S	
SN= 000006				
Conc	1	011.7	046.6	03A
Mean		011.7	046.6	
P/H		0.050	0.166	
Conc	2	011.4	048.1	115%
Mean		011.5	047.3	96%
P/H		0.051	0.162	
		Se-S	As-S	
Mean		011.5	047.3	
SD		000.2	001.1	
RSD		01.91	02.24	
		Se-S	As-S	
SN= 000007				
Conc	1	002.9	026.5	04
Mean		002.9	026.5	
P/H		0.012	0.086	
Conc	2	003.8	026.4	
Mean		003.3	026.4	5.3 mg/kg
P/H		0.010	0.091	
		Se-S	As-S	
Mean		003.3	026.4	~~3.3~~ Del 4
SD		000.6	000.1	~~0.87~~
RSD		19.39	00.37	0.66 mg/kg
		Se-S	As-S	
SN= 000008				
Conc	1	013.3	045.9	04A
Mean		013.3	045.9	
P/H		0.073	0.164	
Conc	2	011.7	044.4	Del 4
Mean		012.5	045.1	~~125%~~ 94%
P/H		0.065	0.158	92.0%
		Se-S	As-S	
Mean		012.5	045.1	
SD		001.1	001.1	
RSD		09.04	02.35	
		Se-S	As-S	
SN= 000009				
Conc	1	002.6	-000.4	PBW
Mean		002.6	-000.4	
P/H		0.001	-0.002	
Conc	2	001.1	001.5	3u 5u
Mean		001.8	000.5	
P/H		0.000	0.005	
		Se-S	As-S	
Mean		001.8	000.5	
SD		001.1	001.3	
RSD		58.88	DIG HI	
		Se-S	As-S	
SN= 000010				
Conc	1	017.1	026.6	A
Mean		017.1	026.6	
P/H		0.037	0.116	
Conc	2	009.6	025.2	138% 130%
Mean		013.3	025.9	
P/H		0.031	0.114	
		Se-S	As-S	
Mean		013.3	025.9	
SD		005.3	001.0	
RSD		39.84	03.78	

		Se-S	As-S
SN= 000011			
Conc	1	000.3	000.1
Mean		000.3	000.1
P/H		0.001	0.000
Conc	2	002.3	000.3
Mean		001.3	000.2
P/H		0.000	0.002
		Se-S	As-S
Mean		001.3	000.2
SD		001.4	000.1
RSD		DIG HI	70.00
		Se-S	As-S
SN= 000012			
Conc	1	007.9	020.6
Mean		007.9	020.6
P/H		0.029	0.089
Conc	2	008.7	020.6
Mean		008.3	020.6
P/H		0.023	0.092
		Se-S	As-S
Mean		008.3	020.6
SD		000.6	000.0
RSD		06.74	00.00

PBS

0.6 1.0

A

83% 103%

	Se-S	As-S	
SN= 000013			
Abs	0.009	0.008	
P/H	0.005	0.013	
SN= 000014			
Abs	0.019	0.011	+5
P/H	0.022	0.006	
SN= 000015			
Abs	0.029	0.005	+10
P/H	0.034	0.009	
SN= 000016			
Abs	0.033	0.004	+15
P/H	0.046	0.007	

on Se

corr 0.9843

slope 0.001

x' − 6.21

y' 0.010

6.2

FURNACE-AA BENCH SHEET

KEYSTONE LAB-HOUSTON

Page ____ of ____

D.C. # _____-08

ELEMENT Pb INSTRUMENT PE560 CRDL 3.0

DATE 1/30/91 ANALYST WFL IDL 1.0u

Note: Use proper units and flags for final concentration

CUP NO	SAMPLE OR STD ID	CLIENT ID NO.	INITIAL DATA AVG CONC	INITIAL DATA RPD	INITIAL DATA ANAL SPIKE REC %	DILUTION DATA DIL FACT	DILUTION DATA AVG CONC	DILUTION DATA RPD	DILUTION DATA ANAL SPIKE REC %	MSA DATA DIL FACT	MSA DATA CALC CONC INTCP	DIG FACT	ANALYTE CONC UG/L	ANALYTE CONC MG/KG
1		CCV	50.1	0.08									50.1/50.0 =	100.2%
2		CCB	-1.2	01E									1.2 B	
3		PBW	-1.0	-14.57									1.0 B	
4		PBWA	21.5	2.43	102.5%									
5		PBS	-1.5	-26.50								1/200		0.3
6		PBSA	20.6	0.08	95.5%									
7		LCSW(2x)	48.0	1.82									96.0/97.5 =	98.5%
8		LCSWA	67.7	0.15	98.5%									
9		LCSS(20x)	56.3	0.52									225.2/236 =	95.4%
10		LCSSA	75.9	0.57	98%									
11		DHNV001	-0.1	01E									1.0 U	
12		DHNV001-A	11.0	0.99	55%									
13		CCV	50.9	1.40									50.9/50.0 =	101.8%

FURNACE-AA BENCH SHEET

KEYSTONE LAB-HOUSTON

Page ____ of ____

D.C. # _____-08

ELEMENT Pb
DATE 1/30/91

INSTRUMENT PE 560
ANALYST WFL

CRDL 3.0
IDL 1.0u

Note: Use proper units and flags for final concentration

CUP NO	SAMPLE OR STD ID	CLIENT ID NO.	INITIAL DATA AVG CONC	INITIAL DATA RPD	INITIAL DATA ANAL SPIKE REC %	DILUTION DATA DIL FACT	DILUTION DATA AVG CONC	DILUTION DATA RPD	DILUTION DATA ANAL SPIKE REC %	MSA DATA DIL FACT	MSA DATA CALC CONC INTCP	DIG FACT	ANALYTE CONC UG/L	ANALYTE CONC MG/KG
5		ICV(2x)	47.5	2.93									47.2/50.0 =	94.4%
6		ICB	-1.0	-46.44									1.0 B	
7		CRA	3.2	17.11									3.2/3.0 =	106.7%
8		PBW	-1.3	-14.76									1.3 B	
9		PBWA	19.1	3.98	89%									
10		PBS	-1.5	-20.50								1/200		0.3
11		PBSA	21.9	4.18	102%									
12		LCSW(2x)	49.3	2.53									98.6/97.5 =	101.1%
13		LCSWA	72.5	2.66	116%									
14		LCSS(20x)	58.2	5.09									232.8/236 =	98.6%
15		LCSSA	79.4	0.41	106%									
16		CCV	47.2	1.70									47.2/50.0 =	94.4%
17		CCB	-1.5	-46.86									1.5 B	

FURNACE-AA BENCH SHEET

KEYSTONE LAB-HOUSTON

Page ____ of ____

D.C. # _____ -08

ELEMENT Pb
DATE 1/30/91

INSTRUMENT PE 560
ANALYST WFL

CRDL 3.0
IDL 1.0u

Note: Use proper units and flags for final concentration

CUP NO	SAMPLE OR STD ID	CLIENT ID NO.	INITIAL DATA AVG CONC	INITIAL DATA RPD	INITIAL DATA ANAL SPIKE REC %	DILUTION DATA DIL FACT	DILUTION DATA AVG CONC	DILUTION DATA RPD	DILUTION DATA ANAL SPIKE REC %	MSA DATA DIL FACT	MSA DATA CALC CONC INTCP	DIG FACT	ANALYTE CONC UG/L	ANALYTE CONC MG/KG
14		CCB	-1.3	-60.54										
15		DHNV002	704.7	0.55	OVER	20x	45.3	3.53		3x	COST=0.9975 INTCP=0.0585			
16		DHNV002-A	686.3	0.89	CAL		69.6	1.57	121.5%		slope=0.0039 x'= 15.2	1/200		182.4 S
17		DHNV003	97.2	1.25	OVER	5x	20.2	7.66						20.2
18		DHNV003-A	110.8	0.31	CAL		42.2	2.52	110%			1/200		
25		CCV	52.4	1.11									52.4/50.0=	104.8%
26		CCB	-0.7	-33.92									1.0u	

Furnace-AA Bench Sheet (8/88)

8:30

Pb 1/30/91 PE 560
#91-01-105
WFL

	0.006	
	0.004	
1	0.005AV	S_0
	17.71CV	
	0.000 Z	
	0.012	
	0.014	
2	0.013AV	$S_{3.0}$
	9.10CV	
	3.0 S	
	0.176	
	0.173	
3	0.174AV	$S_{50.0}$
	1.24CV	
	50.0 S	
	0.295	
	0.294	
4	0.295AV	$S_{100.0}$
	0.09CV	
	100.0 S	
	48.5	8:55
	46.6	
5	47.5AV	ICV(2x) $\frac{(47.5)(2)}{97.5} = 97.4\%$
	2.93CV	
	-0.7	
	-1.3	
6	-1.0AV	ICB 1.0 ug/L
	-46.44CV	
	3.6	
	2.8	
7	3.2AV	CRA $\frac{3.2}{3.0} = 106.7\%$
	17.11CV	
	-1.4	
	-1.1	
8	-1.3AV	PBW 1.3 ug/L
	-14.76CV	
	18.6	
	19.6	
9	19.1AV	PBWA 89%
	3.98CV	
	-1.2	
	-1.7	
10	-1.5AV	PBS 0.3 mg/kg
	-20.50CV	
	22.6	
	21.3	
11	21.9AV	PBSA 102%
	4.18CV	
	50.2	
	48.4	
12	49.3AV	LCSW(2x) $\frac{(49.3)(2)}{97.5} = 101.1\%$
	2.53CV	
	73.8	
	71.1	
13	72.5AV	LCSWA 116%
	2.66CV	
	56.1	
	60.3	
14	58.2AV	LCSS(20x) $\frac{(58.2)(20)(0.2)}{2.36} = 98.6\%$
	5.09CV	

79.6
79.2
15 79.4AV LCSWA 106%
0.41CV
46.7 9:50 $\frac{(47.2)}{50.0} = 94.4\%$
47.8
16 47.2AV CCV
1.70CV
-1.0 9:55
-1.9
17 -1.5AV CCB 1.0u
-46.86CV

16:50

Pb 1/30/91 PE 560

#91-01.105

	50.1		
	50.1	16:55	$\frac{50.1}{50.0} = 100.2\%$ WFL
1	50.1AV	CCV	
	0.08CV		
	-0.3		
	-2.1	17:00	1.2 ug/l (B)
2	-1.2AV	CCB	
	01 E		
	-0.9		
	-1.1		~~1.0u ug/l~~ WFL 1.0 ug/l (B)
3	-1.0AV	PBW	
	-14.57CV		
	21.8		
	21.1		
4	21.5AV	PBWA	102.5%
	2.43CV		
	-1.2		
	-1.7		~~1.5~~ WFL 0.3 mg/kg
5	-1.5AV	PBS	
	-26.50CV		
	20.6		
	20.6		95.5%
6	20.6AV	PBSA	
	0.08CV		
	47.4		
	48.6		
7	48.0AV	LCSW(2x)	$\frac{(48.0)(2)}{97.5} = 98.5\%$
	1.82CV		
	67.7		
	67.6		
8	67.7AV	LCSWA	98.5%
	0.15CV		
	56.1		
	56.5		
9	56.3AV	LCSS(20x)	$\frac{(56.3)(20)(0.2)}{236} = 95.4\%$
	0.52CV		
	75.6		
	76.2		
10	75.9AV	LCSSA	98%
	0.57CV		
	-0.3		
	0.2		1.0u ug/l (W) DHNV001
11	-0.1AV	O2w	
	01 E		
	10.9		
	11.0		55% DHNV001-A
12	11.0AV	f20	
	0.99CV		
	50.4		
	51.4	17:55	$\frac{50.9}{50.0} = 101.8\%$
13	50.9AV	CCV	
	1.40CV		
	-0.7		
	-1.8	18:00	1.3 ug/l (B)
14	-1.3AV	CCB	
	-60.54CV		
	702.0 C		
	707.5 C		
15	704.7AV	O3s	— see dilution DHNV002
	0.55CV		

PP 1/30/91 PE 560
H91-01.105
WFL

	682.0 C			
	690.6 C			
16	686.3AV	f20	see dilution	DHNV002-A
	0.89CV			
	98.0			
	96.3			
17	97.2AV	04₁	see dilution	DHNV003
	1.25CV			DHNV003-A
	110.6 C			
	111.1 C			
18	110.8AV	f20		
	0.31CV			
	91.7			
	88.6			DHNV002
19	90.2AV	03(10x)	see dilution	DHNV002-A
	2.40CV			
	110.0 C			
	114.8 C			
20	112.4AV	f20		
	3.00CV			
	19.1			
	21.3		20.2 mg/kg	DHNV003
21	20.2AV	04(5x)		
	7.66CV			
	41.4			DHNV003-A
	42.9			
22	42.2AV	f20	110%	
	2.52CV			
	44.1			
	46.4			DHNV002
23	45.3AV	03(20x)	see MSA	
	3.53CV			DHNV002-A
	68.8			
	70.4			
24	69.6AV	f20	121.5%	
	1.57CV			
	52.8			
	52.0	18:55	$\frac{52.4}{50.0} = 104.8\%$	
25	52.4AV	CCV		
	1.11CV			
	-0.6	19:00	1.0u	
	-0.9			
26	-0.7AV	CCB		
	-33.92CV			

19:05

Pb 1/30/91 PE 560

19:07

1 49.4 CCV ~~49~~ $\frac{49.4}{50.0}$ = 98.8% H91-01.105

2 -1.5 CCB 1.5 ug/l WFL

19:09

DHNV002-0

3 0.056 03(3x) Corr = 0.9975

4 0.102 +10 DHNV002-1 Inter = 0.0585

5 0.133 +20 DHNV002-2

6 0.174 +30 DHNV002-3 slope = 0.0039

$x' = (15.2)(3) = (20)(0.2)$

~~45.6~~ WFL

= 182.4 mg/kg

19:19

7 48.7 CCV 45.7/50 = 97.4%

8 -1.2 CCB 1.2 ug/l

19:21

H91 01.105
2/1/91
RAO

TL 0001
-0.003
-0.005

S0

MEAN= -0.004 STD.DEV.= COEF.VAR.= 31.97 %

0.000 AUTOZERO

TL 0002
0.051
0.046

S10

MEAN= 0.048 STD.DEV.= COEF.VAR.= 8.16 %

10.0 STANDARD 1

TL 0003
23.2
21.0

S25

MEAN= 22.1 STD.DEV.= COEF.VAR.= 6.92 %

22.1
E-50: READING GREATER THAN HIGHEST STANDARD

25.0 STANDARD 2

TL 0004
58.3
56.5

S50

MEAN= 57.4 STD.DEV.= COEF.VAR.= 2.91 %

57.4
E-50: READING GREATER THAN HIGHEST STANDARD

50.0 STANDARD 3

TL 0005
91.5
92.7

S100

MEAN= 92.1 STD.DEV.= COEF.VAR.= 0.94 %

92.1
E-50: READING GREATER THAN HIGHEST STANDARD

100.0 STANDARD 4

TL 0006
50.1
51.1

ICV-4 (2x)

101.2
97.0
104%

MEAN= 50.6 STD.DEV.= COEF.VAR.= 1.56 %

TL 0007
0.0
0.9

ICB

2u

MEAN= 0.5 STD.DEV.= COEF.VAR.= 99.99 %

TL 0008 #9101.105 2/1/91 DO

9.8
9.2 CRA 9.5 / 10.0 = 95%

MEAN= 9.5 STD.DEV.= COEF.VAR.= 4.00 %

TL 0009

-0.2
-0.2 PBW 2u

MEAN= -0.2 STD.DEV.= COEF.VAR.= 20.67 %

TL 0010

19.4
20.4 PBW A 99.5%

MEAN= 19.9 STD.DEV.= COEF.VAR.= 3.76 %

TL 0011

-0.3
1.4 PBS 2 0.4u mg/kg

MEAN= 0.5 STD.DEV.= COEF.VAR.= 99.99 %

TL 0012

21.6
20.9 PBS A 105 %

MEAN= 21.2 STD.DEV.= COEF.VAR.= 2.30 %

TL 0013 111.8 97.0

56.0
55.7 LCSW (2x) 115 %

MEAN= 55.9 STD.DEV.= COEF.VAR.= 0.41 %

TL 0014

77.4
76.8 LCSW A 106%

MEAN= 77.1 STD.DEV.= COEF.VAR.= 0.63 %

TL 0015

45.9
46.3 LCSS (3x) 27.7 mg/kg 39.0

MEAN= 46.1 STD.DEV.= COEF.VAR.= 0.65 %

TL 0016

67.8
68.5 LCSS A 110.5%

MEAN= 68.2 STD.DEV.= COEF.VAR.= 0.86 %

TL 0017

53.1 55.1
57.0 CCV 50.0 110%

MEAN= 55.1 STD.DEV.= COEF.VAR.= 5.65 %

H91-01105

T.L. 0018

-0.4

-0.5

CCB

2a

MEAN= -0.5 STD.DEV.= COEF.VAR.= 28.29 %

****

#91-01.105
2/1/91

TL 0001
50.9
52.5 CCV 103.4%

MEAN= 51.7 STD.DEV.= COEF.VAR.= 2.41 %

****

TL 0002
0.7
0.2 CCB 2u

MEAN= 0.5 STD.DEV.= COEF.VAR.= 65.05 %

****

TL 0003
-0.5
0.2 PBW 2u

MEAN= 0.1 STD.DEV.= COEF.VAR.= 99.99 %

****

TL 0004
22.1
18.6 +20 101.5%

MEAN= 20.3 STD.DEV.= COEF.VAR.= 13.55 %

****

TL 0005
-0.6
-0.8 PBS 0.4u

MEAN= -0.7 STD.DEV.= COEF.VAR.= 23.51 %

****

TL 0006
19.4
17.7 +20 92.5 %

MEAN= 18.5 STD.DEV.= COEF.VAR.= 6.95 %

****

TL 0007
0.5
1.0 002 2u W

MEAN= 0.8 STD.DEV.= COEF.VAR.= 53.00 %

****

TL 0008
9.6
8.9 +20 46%

MEAN= 9.2 STD.DEV.= COEF.VAR.= 5.43 %

****

TL 0009
-0.5
0.6 003 (Soil) 0.4u

MEAN= 0.1 STD.DEV.= COEF.VAR.= 99.99 %

****

TL 0010
21.1
22.5 +20 109 %

MEAN= 21.8 STD.DEV.= COEF.VAR.= 4.89 %

****

H91_01.104

TL 0011
0.0
0.1 004 Soil 0.4u

MEAN= 0.1 STD.DEV.= COEF.VAR.= 99.99 %

****

TL 0012
21.4
19.9 +20 103 %

MEAN= 20.6 STD.DEV.= COEF.VAR.= 5.62 %

****

TL 0013
54.4
53.9 CCV 54.2 50.0 108.4%

MEAN= 54.2 STD.DEV.= COEF.VAR.= 0.61 %

****

TL 0014
-0.1
0.5 CCB 2u

MEAN= 0.2 STD.DEV.= COEF.VAR.= 99.99 %

****

Hg BENCH WORKSHEET

Client: Ecology EN
EPA Case # _____
EPA SDG # _____

Ref: _____
EPA SAS # _____
KEYSTONE Lab # H91-01-105

Correlation Curve

Conc. (ug/L)	Abs (Pk. Ht.)
6	54
4	39
2	20
1	9
BLANK	0

Corr. Coef. 0.998
Slope 9.13
Intercept —

Sample ID # KEYSTONE	Sample ID # CLIENT	PEAK HEIGHT	CONC. ug/L	DILUT. FACTOR	DIGEST FACTOR	CALC. CONC.	% SOLID	CONV. FACTOR	FINAL CONC.	
Emsl	ICV	23	2.45	2	50ml	5.0			5.0	100%
Blk	ICB	0	0.2			0.2U			0.2U	
Blk	PBW	0	0.2			0.2U			0.2U	
Blk	PBS	0	0.2			0.2U			0.2U	
0287	LCS	12.5	1.29		0.01gm	12.9	100	1.00	12.9	102%
CCV	200ng	19	2.00			2.00			2.00	100%
CCB	0ng	0	0.2			0.2U			0.2U	
002	DHNV001	0	0.2		100ml	0.2U			0.2U	
003	DHNV002	1	0.2		0.20gm	0.1U	65.0	1.53	0.15U	
004	DHNV003	1	0.2		↓	0.1U	76.1	1.31	0.13U	
005	DUP DHNV003	1	0.2			0.1U	76.1	1.31	0.13U	
006	SPK DHNV003	10	1.02		↓	0.51	76.1	1.31	0.67mg/kg	
CCV	200ng	19	2.00			2.00			2.00	100%
CCB	0ng	0	0.2			0.2U			0.2U	

NOTE: Use proper units and flags for final concentration.

DATE: 1-24-91 ANALYST: P.N./T.N.

Hg Bench (3/88)

#91-01-105
14:41 002 0.2
14:42 003 0.2
14:43 004 0.2
14:44 005 0.2
14:45 006 1.02 mg/L
14:46 <CV 2.00 mg/L 100%
14:47 <CB 0.2
0
10
20
30
40
50
60
70
80
90
100

Blk	0	14:00	0ng
St1	9	14:01	100ng
St2	20	14:02	200ng
St3	39	14:03	400ng
St4	54	14:04	600ng
EmSi	23	14:05	ICV 2.45ug/L = 100%
Blk	0	14:06	ICB 0.24
Blk	0	14:07	PBW 0.24
Blk	0	14:08	PBS 0.24
0.287	12.5	14:09	LCS 1.29ug/L 102%
CCV	19	14:10	CCV 2.00 ug/L 100%
CCB	0	14:11	CCB 0.24

Corr = 0.998
Slope = 9.13
Date = 1/24/91
T. Nangibo

KEYSTONE LAB-HOUSTON

MERCURY PREPARATION WORKSHEET

Client: ECOLOGY EN

Ref:

EPA Case #

EPA SAS #

EPA SDG #

KEYSTONE Lab # H91-01105

SAMPLE ID # KEYSTONE	SAMPLE ID # CLIENT	MATRIX PRESERVED YES/NO	SAMPLE VOLUME	HNO_3 ml	H_2SO_4 ml	$KMnO_4$ ml	$K_2S_2O_7$ ml	SPIKE INFO.	DATE	INIT.
Blk	0ng			2.5ml	5.0ml	15.0ml	10.0ml		1/24/91	TW
St1	100ng									
St2	200ng									
St3	400ng									
St4	600ng									
EMSI	ICV									
Blk	ICB									
Blk	PBW									
Blk	PBS									
0287	LCS									
CCV	200ng									
CCB	0ng									
002	DHNV001	YES	100ml							
003	DHNV002	NO	0.20gm							
004	DHNV003									
005	DHNV003 DUP									
006	DHNV003 SPK							100ul Hg STD		
CCV	200ng									
CCB	0ng									

DATE OF STANDARD PREPARATION: 1-24-91

REVIEWED BY: G. Simm

Mercury Prep (3/88)

T E C H N I C O N TRAACS 800 SYSTEM 1-ANALYSIS REPORT FORM

DESCRIPTION	RUN INFORMATION	SAMPLEID	TEST #1
Date of Run	01-25-91		1.00
Time of Run	15:48		1.00
Operator	C.VELA		1.00
Comment	ORD H91-01.105,		1.00
	H91-01.108		1.00
			1.00
			1.00
AN1 ChemName	CYANIDE		1.00
AN1 Units	UG/L		1.00
Peak1	Cup:1 -> PRIM	HIGH STD	196.31
Peak2	Cup:2 -> NULL	WASH	-.44
Peak3	Cup:3 -> NULL	WASH	0.78
Peak4	Cup:4 -> CALB	CAL 1	10.76
Peak5	Cup:5 -> CALB	CAL 2	50.44
Peak6	Cup:6 -> CALB	CAL 3	99.37
Peak7	Cup:7 -> CALB	CAL 4	150.35
Peak8	Cup:8 -> CALB	CAL 5	199.90
Peak9	Cup:9 -> HIGH	CARR 0 CORR	197.22
Peak10	Cup:10 -> LOW	CARR 0 CORR	50.83
Peak11	Cup:11 -> LOW	CARR 0 CORR	50.81
Peak12	Cup:12 -> ISMP	ICV-WP586	2.5 x 193.17 = 482.93 96.6%
Peak13	Cup:13 -> ISMP	ICB-LAB BLANK	4629/500 x 100 0.45
Peak14	Cup:14 -> SAMP	H9101.105-002	0.55 < 10 ug/l

T E C H N I C O N TRAACS 800 SYSTEM 1-ANALYSIS REPORT FORM

DESCRIPTION	RUN INFORMATION	SAMPLEID	TEST #1
Peak15	Cup:15 -> SAMP	H9101.105-003	205.67 206 ug/l
Peak16	Cup:16 -> SAMP	H9101.105-004	1.1 <10 ug/l 16 ug/kg
Peak17	Cup:17 -> SAMP	H9101.105-005	1.45 <10 ug/l 0.66 ug/kg
Peak18	Cup:18 -> SAMP	H9101.105-006	91.30 91.3/100 x 100 = 91.3%
Peak19	Cup:19 -> SAMP	H9101.108-002	0.90
Peak20	Cup:20 -> ISMP	CCV-STD 100	99.21
Peak21	Cup:21 -> ISMP	CCB	0.49
Peak22	Cup:22 -> GAIN	HIGH STD	199.90

Technicon TRAACS 800 System Editor

First Screen

File Name B:CYANIDE.INP

		Analysis	1	2	3	4
# of anal.	1	Channel	3	2	3	4

Samples/hr	65	Sample/wash	2.6666	Pecking	N
Sample time	40	Wash time	15	Base Corr	Y
				Raw output	N

Anal	Fit	Inv Chem	Base Concent.	Carryover	Dilution Carryover	Chem Name	Units	Base in Calib
1	L	N	.000000	.000000	.000000	CYANIDE	UG/L	Y
2	L	N	.000000	.000000	.000000			Y
3	L	N	.000000	.000000	.000000			Y
4	L	N	.000000	.000000	.000000			Y

Calibrant values

Anal	1	2	3	4	5	6	7	8
1	10.00000	50.00000	100.0000	150.0000	200.0000	6.000000	7.000000	8.000000
2	1.000000	2.000000	3.000000	4.000000	5.000000	6.000000	7.000000	8.000000
3	1.000000	2.000000	3.000000	4.000000	5.000000	6.000000	7.000000	8.000000
4	1.000000	2.000000	3.000000	4.000000	5.000000	6.000000	7.000000	8.000000

Name of file to be read or written (8 characters,no spaces).

4 Abort 5 Rd fi 6 Wr fi 9 DIR

Technicon TRAACS 800 System Editor

Second Screen

Gain peak # 8 # to resample

Old cal file name

Run Comment

ORD H91-01.105,H91-01.108

Tray Protocol

P,2N,5C,H,2L,2I,6S,2I,G,E

Gain reference peak number

4 Abort 5 Rd fi 6 Wr fi 9 DIR

Technicon TRAACS 800 System Editor

Goto --> Third Screen

Cup#	Peak#	Count	Type	Sample ID	Weight	Dilution	Spike
1	1	1	P	HIGH STD.....	1.000000	1.000000	N
2	2	1	N	WASH	1.000000	1.000000	N
3	3	1	N	WASH	1.000000	1.000000	N
4	4	1	C	CAL 1	1.000000	1.000000	N
5	5	1	C	CAL 2	1.000000	1.000000	N
6	6	1	C	CAL 3	1.000000	1.000000	N
7	7	1	C	CAL 4	1.000000	1.000000	N
8	8	1	C	CAL 5	1.000000	1.000000	N
9	9	1	H	CARR O CORR	1.000000	1.000000	N
10	10	1	L	CARR O CORR	1.000000	1.000000	N
11	11	1	L	CARR O CORR	1.000000	1.000000	N
12	12	1	I	ICV-WP586	1.000000	1.500000	N
13	13	1	I	ICB-LAB BLANK	1.000000	1.000000	N
14	14	1	S	H9101.105-002	1.000000	.500000	N
15	15	1	S	H9101.105-003	1.000000	1.000000	N
16	16	1	S	H9101.105-004	1.000000	1.000000	N
17	17	1	S	H9101.105-005	1.000000	1.000000	N
18	18	1	S	H9101.105-006	1.000000	1.000000	~~N~~ Y
19	19	1	S	H9101.108-002	1.000000	.500000	N
20	20	1	I	CCV-STD 100	1.000000	1.000000	N

Sample id for the specified cup

1 Copy 3 Goto 4 Abort 5 Rd fi 6 Wr fi 7 Pup 8 Pdown 9 DIR

Technicon TRAACS 800 System Editor

Goto --> Third Screen

Cup#	Peak#	Count	Type	Sample ID	Weight	Dilution	Spike
21	21	1	I	CCB.....	1.000000	1.000000	N
22	22	1	G	HIGH STD	1.000000	1.000000	N
23					1.000000	1.000000	N
24					1.000000	1.000000	N
25					1.000000	1.000000	N
26					1.000000	1.000000	N
27					1.000000	1.000000	N
28					1.000000	1.000000	N
29					1.000000	1.000000	N
30					1.000000	1.000000	N
31					1.000000	1.000000	N
32					1.000000	1.000000	N
33					1.000000	1.000000	N
34					1.000000	1.000000	N
35					1.000000	1.000000	N
36					1.000000	1.000000	N
37					1.000000	1.000000	N
38					1.000000	1.000000	N
39					1.000000	1.000000	N
40					1.000000	1.000000	N

Sample id for the specified cup

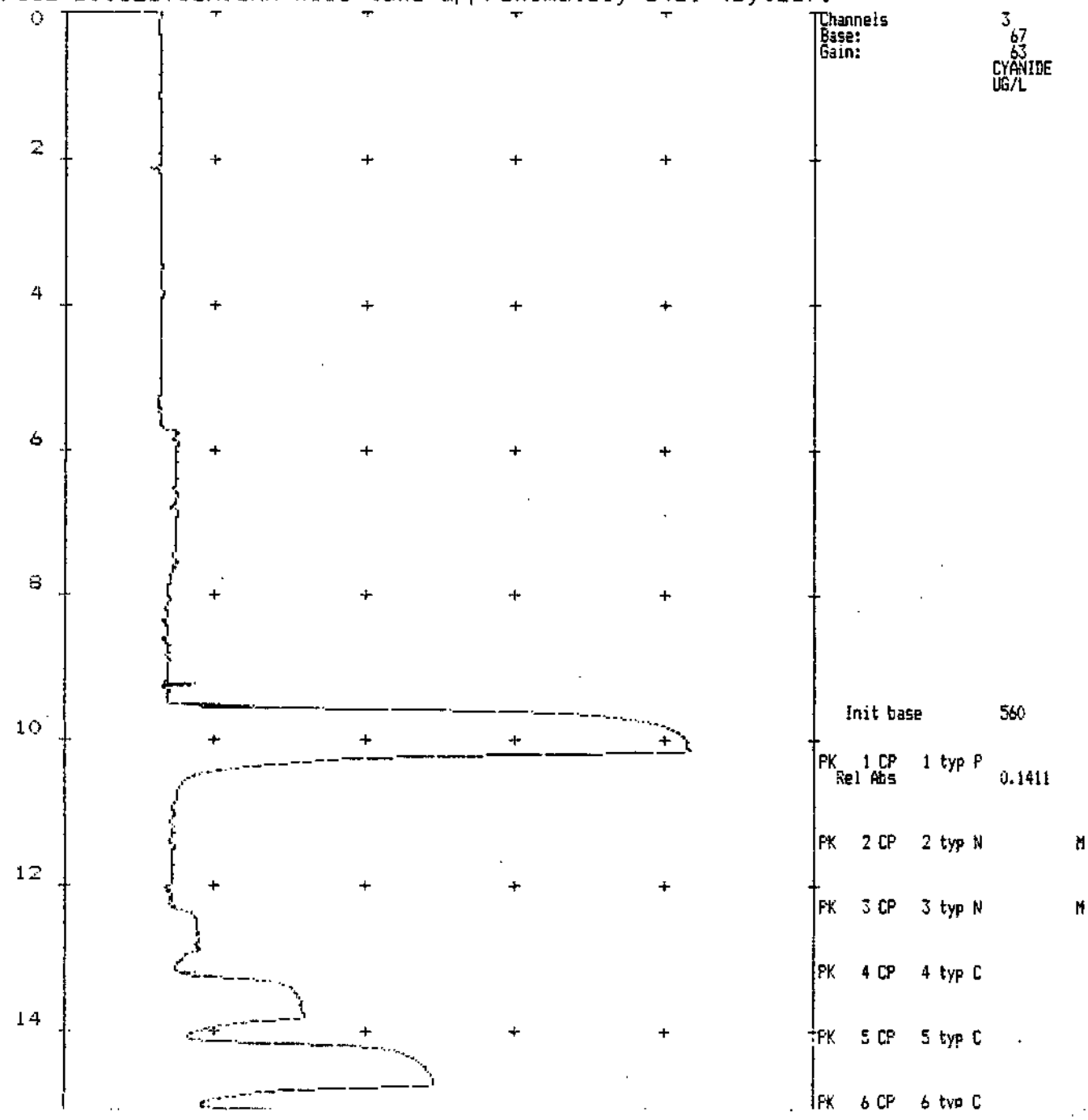
1 Copy 3 Goto 4 Abort 5 Rd fi 6 Wr fi 7 Pup 8 Pdown 9 DIR

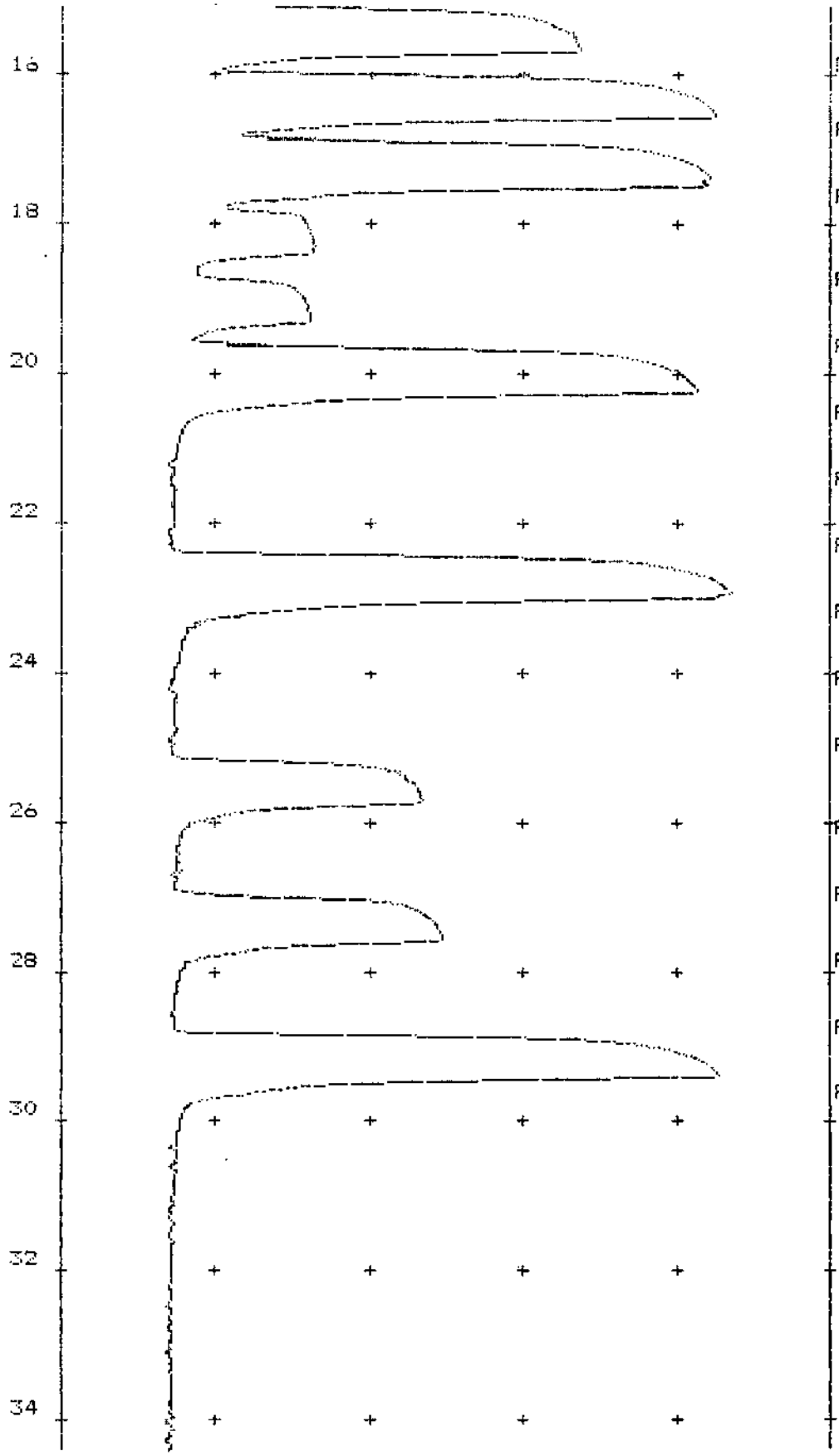
Chart minimum: 0%, maximum 100%
Active channels: 3

Input Filename: B:CYANIDE.INP
Time: 15:48; Date: 01-25-91
Operator: C.VELA

Comment: ORD H91-01.105,H91-01.108

There are 18194432 (bytes) free on disk.
File B:012591CN.CHR will take approximately 5450 (bytes).





PK	7 CP	7 typ C		
PK	8 CP	8 typ C	200.1	
PK	9 CP	9 typ H	198.1	N
PK	10 CP	10 typ L	52.77	
PK	11 CP	11 typ L	51.53	
PK	12 CP	12 typ I	193.3	
PK	13 CP	13 typ I	2.781	M
PK	14 CP	14 typ S	1.749	M
PK	15 CP	15 typ S	206.0	
PK	16 CP	16 typ S	3.743	M
PK	17 CP	17 typ S	2.231	M
PK	18 CP	18 typ S	92.17	N
PK	19 CP	19 typ S	3.468	M
PK	20 CP	20 typ I	100.4	
PK	21 CP	21 typ I	2.299	M
PK	22 CP	22 typ G	201.7	

Last base 574
Conc. 2.364e-01
Anal 1: uncorr linear fit 2.816e+00 -3.923e+01.

Time: 15:48: Date: 01-25-91
Operator: C.VELA

Comment: ORD H91-01.105,H91-01.108

Channels 3
Base: 67
Gain: 63

CYANIDE
UG/L

Base drift correction made
Gain drift correction made

Init base					560	
Conc.					-8.207e-01	
PK	1 CP	1	typ	P	196.3	
Rel Abs					0.1411	
PK	2 CP	2	typ	N	-0.4522	M
PK	3 CP	3	typ	N	0.7833	M
PK	4 CP	4	typ	C	10.76	
PK	5 CP	5	typ	C	50.44	
PK	6 CP	6	typ	C	99.37	
PK	7 CP	7	typ	C	150.3	
PK	8 CP	8	typ	C	199.9	
PK	9 CP	9	typ	H	197.2	N
PK	10 CP	10	typ	L	50.83	
PK	11 CP	11	typ	L	50.81	
PK	12 CP	12	typ	I	193.2	
PK	13 CP	13	typ	I	0.4479	M
PK	14 CP	14	typ	S	1.094	M
PK	15 CP	15	typ	S	205.7	
PK	16 CP	16	typ	S	1.180	M
PK	17 CP	17	typ	S	1.447	M
PK	18 CP	18	typ	S	91.30	N
PK	19 CP	19	typ	S	1.808	M
PK	20 CP	20	typ	I	99.21	
PK	21 CP	21	typ	I	0.4890	M
PK	22 CP	22	typ	G	199.9	
Last base					574	
Conc.					-8.207e-01	

Sample statistics

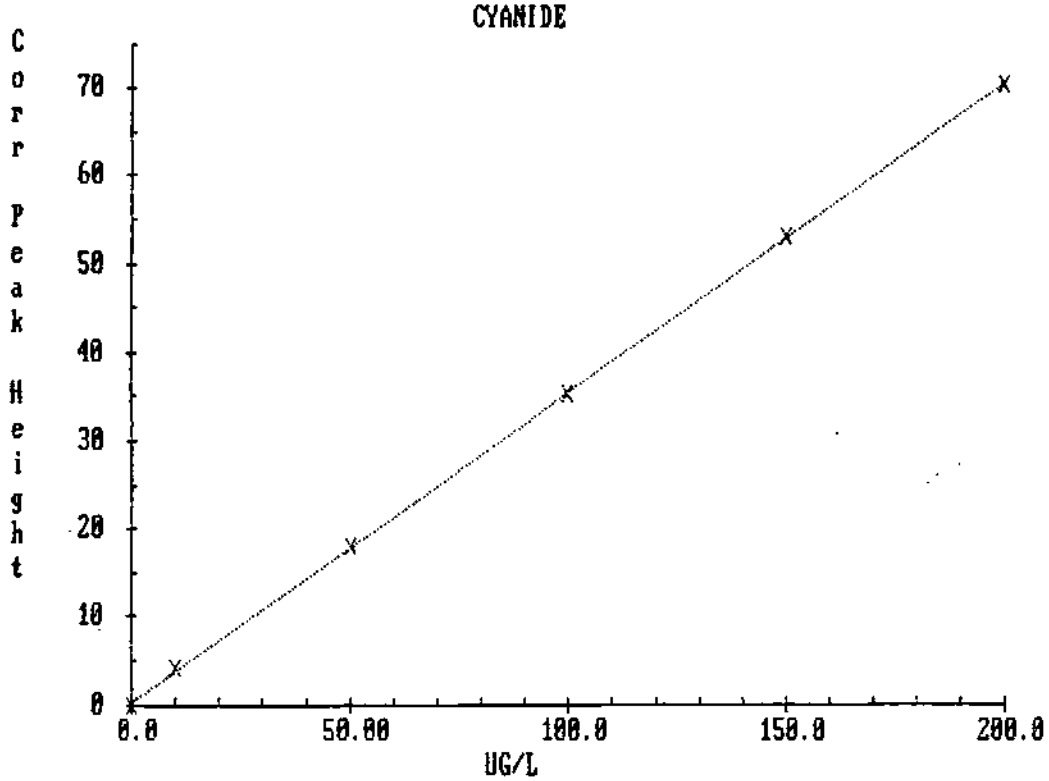
Anal	level	cups	avg	std dev	cv
1	all	6	50.4163	84.1352	1.6688

ISS statistics

Anal	level	cups	avg	std dev	cv
1	all	4	73.3291	92.4643	1.2609

Anal 1: linear fit 2.838e+00 -3.964e+01.
Carryover factor: 0.90%.

Chart saved to file B:012591CN.CHR.

text file B:012591CN.TXT has been saved to disk.

TRAACS 800 Calibration Curve
B:012591CN.CHR analy. 1
CYANIDE