ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 5
230 South Dearborn Street
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

PROJ. NO.: 89FG07
PROJECT NAME: CASE 11040 FAIRMONT RAILWAY
SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	METALS							REMARKS CRL TAG #
														Superfund 5794
S41	12/6/88	1430		✓	RW 1	1	1							5-000723
D41	12/6/88	1430		✓	RW 2	1	1							5-000725
R06	12/6/88	1210		✓	BLANK	1	1							5-000729

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) Sylvia Puffin	Date / Time 1/25/89 9:30am	Remarks SHIPPED TO CRL BY FEDERAL EXPRESS AIRBILL# 4591317533	

Distribution: White — Accompanies Shipment; Pink — Coordinator Field Files; Yellow — Laboratory File

05- 01226

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAM: METALS

DIVISION/BRANCH (SF) FIT SAMPLE DATE 12-6-88 LAB ARRIVAL DATE 1-25-89 DUE DATE 2-15-89

DU NUMBER 4905 DATA SET NUMBER 5794 STUDY FAIRMONT RAILWAY PRIORITY — CONTRACTOR CRL

CRL LOG NUMBER	SAMPLE DESCRIPTION	TOTAL METALS WATER TOTAL ICAP UG/L MET111	TOTAL METALS WATER AS UG/L MET161	TOTAL METALS WATER PB UG/L MET1191	TOTAL METALS WATER SB UG/L MET1201	TOTAL METALS WATER SE UG/L MET1211	TOTAL METALS WATER TL UG/L MET1221
89FG07S41	5-000723	✓					
89FG07D41	5-000725	✓					
89FG07R06	5-000729	✓					

TMA
Thermo Analytical Inc.

Skinner And Sherman Laboratories
300 Second Avenue
Post Office Box 521
Waltham, MA 02254-0521
(617) 890-7200

Chain of Custody Record

SF 5794

DATE 1/24/89 PAGE 4 OF 9

CLIENT USEPA / CLP
ADDRESS Region V

PROJECT NO.
PROJECT NAME
SAMPLERS (SIGNATURE)

SAMPLE NO.	DATE	TIME	COMP.	GRAB	LOCATION	Total Metals Raw	Iced	Filtered	Preservative HNO3	Sample Type	NUMBER OF CONTAINERS	Observations/ Comments
MECM 78						✓				waters		
MECM 79						✓				↓		
MECM 83						✓						
									Preserve by Samplers			

RELINQUISHED BY	DATE	RECEIVED BY	DATE	RELINQUISHED BY	DATE	RECEIVED BY	DATE
Signature		Signature		Signature		Signature	
Printed Name	TIME	Printed Name	TIME	Printed Name	TIME	Printed Name	TIME
Company		Company		Company		Company	
RELINQUISHED BY	DATE	RECEIVED BY	DATE	RELINQUISHED BY	DATE	RECEIVED BY (Laboratory)	DATE
Signature		Signature		Signature: Lori Cannon	1/24/89	Signature	
Printed Name	TIME	Printed Name	TIME	Printed Name: Skinner + Sherman	TIME 1100	Printed Name	TIME
Company		Company		Company		Skinner & Sherman Labs	

TOTAL NUMBER OF CONTAINERS

METHOD OF SHIPMENT

SPECIAL SHIPMENT/HANDLING OR STORAGE REQUIREMENTS

USEPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 ALEXANDRIA, VA 22313
[illegible]

CASE NO: 11040

SAS NO: (IF APPLICABLE) 4231E

INORGANIC TRAFFIC REPORT

TYPE OF ACTIVITY (CIRCLE ONE) ①
SUPERFUND—PA (SI) ESI RIFS RD RA ER
NPLD O&M OTHER _____
NON-SUPERFUND— _____ PROGRAM

SITE NAME: ~~Fairmon~~ Fairmont Railway Motors

CITY, STATE: Fairmont, MN

SITE SPILL ID: —

REGION NO: V

SAMPLING COMPANY ② FIT

SAMPLER: (NAME) Melanie Nesterenko

SHIP TO: ③
Skiner: Sherman, Inc
300 Second Avenue
Waltham, MA 02254

ATTN: Janet Beckman

SAMPLING DATE: ④
BEGIN: 12.6.88 END: 12.6.88

DATE SHIPPED: 12.6.88 CARRIER: F ⑤

AIRBILL NO: 9488763712

SAMPLE DESCRIPTION ⑥
(ENTER IN BOX A)
1. SURFACE WATER
2. GROUND WATER
3. LEACHATE
4. SOIL
5. SEDIMENT
6. OIL (SAS)
7. WASTE (SAS)

DOUBLE VOLUME REQUIRED FOR MATRIX SPIKE/DUPLICATE AQUEOUS SAMPLE

SHIP MEDIUM AND HIGH CONCENTRATION SAMPLES IN PAINT CANS

SEE REVERSE FOR ADDITIONAL INSTRUCTIONS

Shipment is complete

CLP SAMPLE NUMBER (FROM LABELS)	Ⓐ SAMPLE DESCRIPTION (FROM BOX 1) 1 2 3 4 5 6 7	Ⓑ CONCENTRATION L = LOW M = MED H = HIGH (SAS)	Ⓒ RAS ANALYSIS: TOTAL METALS	CYANIDE	DISSOLVED METALS	HIGH ONLY (SAS): SULFIDE	pH	CONDUCTIVITY	OXIDANTS	Ⓓ SPECIAL HANDLING	Ⓔ STATION LOCATION
MECM 78	~~2~~ 1	L	X	Y							RW1
MECM 79	~~2~~ 1	L	X	Y							RW2
~~MECM 80~~	~~2~~	~~L~~	~~X~~	~~Y~~							~~RW3~~
~~MECM 81~~	~~2~~	~~L~~	~~X~~	~~Y~~							~~RW4~~
~~MECM 82~~	~~2~~	~~L~~	~~X~~	~~Y~~							~~RW5~~
MECM 83	3	L	X	Y						BLANK	BLK

EPA Form 2075-6 (8-87)

WHITE — SMO COPY PINK — CLIENT COPY WHITE — LAB COPY FOR RETURN TO SMO YELLOW — LAB COPY

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 5
CHICAGO, ILLINOIS

DATE: MAR 10 1989

SUBJECT: **Review of Region 5 data for** FAIRMOUNT RAILWAY

FROM: **Curtis Ross, Director** Cla' Fang for
Region 5 Central Regional Laboratory

To: **Data User:**

Attached are the results for:

CRL Data Set Numbers: SF 5794
Sample Numbers: 89FG07541-R06
Parameter(s): FURNACE METALS
Laboratory: CRL/ESAT

Results Status:

( ) **DATA ACCEPTABLE FOR USE***
(✓) **DATA QUALIFIED AS TO USE**
( ) **DATA UNACCEPTABLE FOR USE**

* For data acceptability requirements, refer to the method capability statement for the methods referenced.

Comments by the Quality Control Coordinator:

If there are any questions regarding the data, refer them to David Payne, the Quality Control Coordinator, at 353-3805.

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
(5SCRL)

RECEIVED BY
S Griffin
MAR 1 0 1989

RECEIVED BY/DATE:
Comments:

U.S. EPA CENTRAL
REGIONAL LAB

DATA SET	SITE	DU/ACT.
SF5794	Fairmont Railway	Y905 / T1-A302

SAMPLES	PARAMETER(S)
89FG07S41, D41, R06	As, Cd, Pb, Sb, Se, Tl

SAMPLED	RECEIVED	DUE	LAB
6 Dec 89	24 Jan 89	28 Feb 89	CRL

SHIPPED	DATA RECEIVED	CONTRACT
NA	6 Mar 89	ESAT

Comments By Reviewer: As on sample and field duplicate is similar on standard curve, but different on MSA — absorbances don't make sense. (3 µg/L for both S41 & D41)

Conc. of As on sample 89FG07S41 is doubtful, may be biased low.

(X) REVIEWED ( ) UNREVIEWED TEAM LEADER/DATE John V. Moore 8 Mar 89

( ) REVIEWED (X) UNREVIEWED SECTION CHIEF/DATE Chi Yang 3/9/89

( ) REVIEWED ( ) UNREVIEWED QC COORDINATOR/DATE

REVIEWED BY CONTRACT COORDINATOR/DATE

RECEIVED 3/9/89 TRANSMITTED 3/10/89 DATA MANAGEMENT COORDINATOR S Griffin

CC: QUALITY CONTROL COORDINATOR

Jm
g Mott

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAM: METALS

DIVISION/BRANCH (SF) FIT SAMPLE DATE 12-6-88 LAB ARRIVAL DATE 1-25-89 DUE DATE 2-15-89

DU NUMBER 4905 DATA SET NUMBER 5794 STUDY FAIRMONT RAILWAY PRIORITY — CONTRACTOR CRL

CRL LOG NUMBER	SAMPLE DESCRIPTION	TOTAL METALS WATER CD ~~TOTAL ICAP~~ UG/L MET111	TOTAL METALS WATER AS UG/L MET161	TOTAL METALS WATER PB UG/L MET1191	TOTAL METALS WATER SB UG/L MET1201	TOTAL METALS WATER SE UG/L MET1211	TOTAL METALS WATER TL UG/L MET1221
89FG07S41	5-000723 RW-1	✓ 0.2u	✓ 2u	✓ 1u	✓ 2u	✓ 2u CK 2/22/89	✓ 2u
89FG07D41	5-000725 RW2	✓ 0.2u	✓ 4	✓ 1u	✓ 2u	✓ 2u ↓	✓ 2u
89FG07R06	5-000729 BLANK	✓ 0.2u	✓ 2u	✓ 1u	✓ 2u	✓ 2u	✓ 2u
		2/13/89	2/13/89	2/28/89	2/14/89	2/23/89	2/17/89
		John W. Bang	John W. Bang	Linda Kirodka	A Kruse	L. Kirodka	John W Bang

* REGRESSION ANALYSIS * CSC VERSION 2.00 *

SF5794

J Ganz

2/24/89

NAME OF ANALYST ---: GANZ
PARAMETER NAME ----: AS
DATE OF ANALYSIS --: 02-24-1989

DATA SET NUMBER ---:
DU NUMBER ---------: Y905

DEGREE OF FIT : 1

EQUATION : CONCENTRATION = -7.40852E-02
+5.56995E+01 * SIGNAL

COEFFICIENT OF DETERMINATION : .9998062

T-A-B-L-E O-F S-T-A-N-D-A-R-D-S

STANDARD	SIGNAL	CONCENTRATION	CALCULATED
1	+0.002	+0.000	+0.037
2	+0.183	+10.000	+10.118
3	+0.354	+20.000	+19.643
4	+0.544	+30.000	+30.226
5	+0.719	+40.000	+39.973

T-A-B-L-E O-F S-A-M-P-L-E-S

SAMPLE I.D.	SIGNAL	CONCENTRATION	
AGC TV=19.76	+0.334	+18.529	%R = 93.8 Limit = 100 ± 10%
BLANK	+0.005	+0.204	Limit = ± 2 ppb
89YL11R02 +0	+0.004	+0.148	> %R = 94.4
+20	+0.343	+19.030	
89YL11D01 +0	+0.006	+0.260	> %R = 85.8 Requires MSA
+20	+0.314	+17.415	
89YL11S39 +0	+0.006	+0.260	> %R = 83.5 Requires MSA
+20	+0.306	+16.959	
89YL11S40 +0	+0.019	+0.984	> %R = 89.1 Requires MSA
+20	+0.339	+18.808	
89YL11S41 +0	+0.017	+0.872	> %R = 85.5 Requires MSA
+20	+0.324	+17.972	
AGC TV=19.76	+0.335	+18.585	%R = ~~92.7~~ 94.1 Limit = 100 ± 10%
BLANK	+0.003	+0.093	Limit = ± 2 ppb
89YL11S42 +0	+0.072	+3.936	> %R = 81.3 Requires MSA
+20	+0.364	+20.200	
89YL11S43 +0	+0.002	+0.037	> %R = 86.3 Requires MSA
+20	+0.312	+17.304	
89FS06R05 +0	+0.004	+0.148	> %R = 93.0
+20	+0.338	+18.752	
89FS06S78 +0	+0.001	-0.019	> %R = 78.8 Requires MSA
+20	+0.284	+15.744	
89FS06D78 +0	+0.010	+0.482	> %R = 76.3 Requires MSA
+20	+0.284	+15.744	
AGC TV=19.76	+0.327	+18.139	%R = 91.8 Limit = 100 ± 10%
BLANK	-0.002	-0.186	Limit = ± 2 ppb
89FS06S79 +0	+0.012	+0.594	> %R = 74.4 Requires MSA
+20	+0.279	+15.466	
89FS06S80 +0	+0.002	+0.037	> %R = 84.1 Requires MSA
+20	+0.304	+16.858	
89FS06S81 +0	+0.035	+1.875	> %R = 79.0 Requires MSA

SF5714
SF5742

89FS06S79 +0	+0.012	+0.394	> %R = 74.4 Requires MSA	
+20	+0.279	+15.466		
89FS06S80 +0	+0.002	+0.037	> % R = 84.1 Requires MSA	
+20	+0.304	+16.858		
89FS06S81 +0	+0.035	+1.875	> %R = 78.0 Requires MSA	
+20	+0.315	+17.471		
89FS06S82 +0	+0.015	+0.761	> %R = 75.8 Requires MSA	
+20	+0.287	+15.911		
89FS06S83 +0	+0.007	+0.315	> %R = 72.4 Requires MSA	
+20	+0.267	+14.797		
AGC TV=19.76	+0.324	+17.972	%R = 91.0 Limit = 100 ± 10%	
BLANK	+0.000	-0.075	Limit = ± 2 ppb	SF5742
89FS06R01 +0	+0.003	+0.093	> %R = 81.9 Requires MSA	SF5744
+20	+0.297	+16.458		
89FS06S18 +0	+0.020	+1.039	> %R = 69.1 Requires MSA	
+20	+0.268	+14.853		
89FS06S19 +0	+0.004	+0.148	> %R = 75.5 Requires MSA	
+20	+0.275	+15.243		SF5744
89FG07R06 +0	-0.001	-0.130	> %R = 85.5 Requires MSA	SF5794
+20	+0.306	+16.969		
89FG07S41 +0	+0.059	✓+3.212	> %R = 80.2 Requires MSA	
+20	+0.347	+19.253		
AGC TV=19.76	+0.322	+17.861	%R = 90.4 Limit = 100 ± 10%	
BLANK	+0.007	+0.315	Limit = ± 2 ppb	
89FG07D41 +0	+0.056	✓+3.045	> %R = 78.8 Requires MSA	gwb 2/24/89 SF5794 ~~SF5797~~
+20	+0.339	+18.808		
89FS07R04 +0	+0.003	+0.093	> %R = 83.5 Requires MSA	SF5795
+20	+0.303	+16.802		
89FS07S23 +0	+0.002	+0.037	> %R = 81.0 Requires MSA	
+20	+0.293	+16.245		
89FS07S24 +0	+0.005	+0.204	> %R = 75.8 Requires MSA	
+20	+0.277	+15.354		
AGC TV=19.76	+0.316	+17.526	%R = 88.7 Will rerun previous samples by MSA	
BLANK	-0.003	-0.242	Limit = ± 2 ppb	

g Hamy

2/24/89

SF5794

SF5794

0.004
0.330
0.022 Not used
0.361 JG 2/10/89
0.027
0.347
0.327

Begin Element - AS
0.002
0.000 AZ
0.002 Std 0 ppb
0.183 10 ppb
0.354 20 ppb
0.544 30 ppb
0.719 40 ppb
0.334 AQC TV= 19.76 ppb
0.005 Blank
0.004 89YL11R02 +0
0.343 +20
x 0.006 +0 89YL11D01
0.314 +20
x 0.006 +0 89YL11S39
0.306 +20
x 0.019 +0 89YL11S40
0.339 +20
x 0.017 +0 89YL11S41
0.324 +20
0.335 AQC TV=19.76
0.003 Blank
x 0.072 +0 89YL11S42
0.364 +20
x 0.002 +0 89YL11S43
0.312 +20 SF5714

J Gary
2/10/89

0.004 +0 89F506R05 SF5742
0.338 +20
x 0.001 +0 89F506S78 2/10/89
0.284 +20
x 0.010 +0 89F506D78
0.284 +20
0.327 AQC TV=19.76
-0.002 Blank
x 0.012 89F506S79 +0
0.279 +20
x 0.002 +0 89F506S80
0.304 +20
x 0.035 +0 89F506S81
0.315 +20
x 0.015 +0 89F506S82
0.287 +20
x 0.007 +0 89F506S83 2/10/89
0.267 +20 SF5742

0.324 AQC TV=19.76 SF5744
-0.000 Blank
x 0.003 +0 89F506R01
0.297 +20
x 0.020 +0 89F506S18
0.268 +20
x 0.004 +0 89F506S19
0.275 +20 SF5744

x -0.001 +0 89F607R06 SF5794
0.306 +20

× 0.020	+0	89F506518	
0.268	+20		
× 0.004	+0	89F506519	
0.275	+20		~~SF5744~~
× -0.001	+0	89F607R06	SF5794
0.306	+20		

× 0.059	+0	89F607541	
0.347	+20		
0.322	AQC TV=19.76 ppb		
× 0.007	Blank		
4 0.056	+0	89F607D41	
0.339	+20		SF5794
× 0.003	+0	89F507R04	SF5795
0.303	+20		
< 0.002	+0	89F507523	
0.293	+20		
× 0.005	+0	89F507524	
0.277	+20		
0.316	AQC TV=19.76 ppb		
-0.003	Blank		
~~0.003~~	~~gwk~~ 2/10/89		
	No injection		

2

J Bang

2/10/89

SF5794

AAS Run Log

Element As

Date 2/10/89

J Harry

Initials JWG

Data Set SF5794

	ID	Spike	Comment
1	Std 0		
2	10		
3	20		
4	30		
5	40		
6	AQC TV = 19.76		
7	Blank		
8	89YL11R02	0	
9		20	
10	89YL11D01	0	
11		20	
12	89YL11S39	0	
13		20	
14	89YL11S40	0	
15		20	
16	89YL1S41	0	
17		20	
18	AQC		
19	Blank		
20	89YL1S42	0	
21		20	
22	89YL1S43	0	
23		20	
24	89FS06R05	0	
25		20	
26	gwk	2/10/89	

AAS Run Log

Element As

Date 2/10/89

J Harry

Initials JWG

Data Set SF5794

	ID	Spike	Comment
27	89FS06S78	0	
28		20	
29	89FS06D78	0	
30		20	
31	AQC		
32	Blank		
33			
34			
35			
	Wheel 2		
1	89FS06S79	0	
2		20	
3	89FS06S80	0	
4		20	
5	89FS06S81	0	
6		20	
7	89FS06S82	0	
8		20	
9	89FS06S83	0	
10		20	
11	AQC		
12	Blank		
13	89FS06R01	0	
14		20	
15	89FS06S18	0	
16		20	

AAS Run Log

Element As

Date 2/10/89

J Harry

Initials JWG

Data Set SF5794

	ID	Spike	Comment
17	89FS06519	0	
18		20	
19	89FG07R06	0	
20		20	
21	89FG07541	0	
22		20	
23	AQC		
24	Blank		
25	89FG07D41	0	
26		20	
27	89FS07R04	0	
28		20	
29	89FS07523	0	
30		20	
31	89FS07524	0	
32		20	
33	AQC		
34	Blank		
35			
	Wheel 3		
1			
2			
3			
4			
5			
6			

J Harry

SF5794

Element	Instrument	QC Source	
☐ Ag	☐ 5000	☐ WP 284 TM I #2	Analyst JWG
☒ As	☐ 4000	☐ WP 1183 TM II #1	Date 2/10/89
☐ Cd	☒ 5000 ZE	☐ WP 1183 TM II #2	Lamp # 8327
☐ Cr	☐ 5000 ZW	☒ ICV 2	Energy 61
☐ Pb	☐ 5100	☐ SPEX II	Expansion 5
☐ Sb	☐ Varian 30	☐ NBS SRM 1643b	Stock SPEX 1-92-MD
☐ Se		☐	☐ platform ☒ MSC
☐ Tl		☐	☒ wall ☐ MSA

Blank	Slope	AQC	Digestion QC
.037	55.7	18.53	
.204			
.093			
-.186			
-.075			
.315			
-.242			

Blank cup absorbance

ESAT CONTRACT TID NO: 01-14
TASK NO: 2457

DATASET CUSTODY TRANSFER FORM

All analytical testing was completed on 2/28, 19 89 for the dataset described below:

DATASET NO: 5794 **SITE NAME:** Fairmont Railway

PARAMETER: GFAA metals **SF DU/ACT NO:** Y 905 /C

SAMPLE NUMBERS: 89FG07S41, 89FG07D41, 89FG07B06

ESAT APPROVALS:

(ANALYST	DATE) 3/2/89	(TEAM LEADER	DATE) 3/2/89
(QC COORDINATOR	DATE) 3/6/89	(ESAT TEAM MANAGER	DATE) 3/6/89

COMMENTS:

The subject dataset was transferred to the custody of the U.S. EPA Region V Central Regional Laboratory in its entirety on the date indicated below.

(DELIVERED BY	DATE)	(RECEIVED BY	DATE) 6 Mar 89

EPA APPROVALS:

(EPA TASK MONITOR DATE) 8 Mar 89

[X] Reviewed
[ ] Unreviewed
[X] Accepted
[ ] Rejected
[ ] Returned/_____ (Date)

COMMENTS: As on 89FG07S41 and 89FG07D41 do not agree on (possible mixup?) standard addition, although they agree on std curve. This result is less than requested under the SAS, so accepted

(SECTION CHIEF DATE) 3/9/89 [ ] Reviewed [✓] Unreviewed

(ESAT DPO DATE) 3/9/89 (DATA COORD'R REC'D TRANSMTD) / /

see 89S795 comment on blank on Pb Se sample label error on Se field blank MSA not required on Se field blk

DOC.NO.: ESAT-05-0003-FORM
REVISION NO.: 04 (01/05/89) FILE LOCATION NUMBER: 5.6.1

* FLAMELESS * CSC VERSION 1.00 *

J. Ganz 2/24/89

NAME OF ANALYST ---: GANZ.
DATE OF ANALYSIS --: 02-24-1989
PARAMETER NAME ----: AS
DATA SET # --------: SF5794

SAMPLE NO.	CONC.	R VALUE	SLOPE	
BLANK	-.255814	.9998508	.0215	Limit = ±3 ppb
AQC TV=19.76	20.69927	.9994321	.01902	%R = 104.8 Limit = 100±10%
89FS06R01	.2713799	.9968368	.01953	
~~89FS06S18~~	~~-10~~	~~-.3333334~~	~~-8.666666E-04~~	Not used - error in data entry
89FS06S18	4.028575	.9998532	.0175	
89FS06S19	1.120509	.9956589	.01419	SF5744
~~89FS07R06~~	~~-9.999999~~	~~.3333332~~	~~3.333334E-05~~	Not used - error in data entry SF5744
~~89FS07R06~~	~~-1.869063~~	~~-.1613355~~	~~-5.329444~~	Not used - error in data entry
89FS07R06	.1373892	.9986807	.01727	
89FS07S41	.044352	.9995497	.02023	
AQC TV=19.76	21.02165	.9999034	1.986999E-02	%R = 106.4% Limit = 100±10%
89FS07D41	4.007047	.999935	.01702	SF5794
89FS07R04	-.1732873	.9953904	.0202	SF5795
89FS07S23	5.460281E-02	.9999806	.01797	
89FS07S24	-4.184174E-02	.9996131	.01673	
~~AQC TV=19.76~~	~~0~~	~~1~~	~~2.45058~~	Not used - error in data entry
AQC TV=19.76	20.58941	.9997185	.02002	%R = 104.2 Limit = 100±10%

BLANK

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-8.000001E-03	-.0055	2.500001E-03	-45.45455 %
10	.21	.2094999	-5.000532E-04	-.2386889 %
20	.431	.4244999	-6.500095E-03	-1.531236 %
30	.635	.6394998	4.499853E-03	.7036519 %

AQC TV=19.76

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.4	.3937001	-6.299943E-03	-1.600188 %
10	.579	.5839001	4.900038E-03	.8391913 %
20	.765	.7741	9.10002E-03	1.175561 %
30	.972	.9643	-7.700026E-03	-.7985095 %

89FS06R01

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.002	5.300049E-03	3.300049E-03	62.2645 %
10	.191	.2006	9.600028E-03	4.785657 %
20	.425	.3959	-.0291	-7.350341 %
30	.575	.5912	1.620001E-02	2.740191 %

89FS06S18

SPIKE	MEASURED	CALC.	ERROR	PER CENT

30	.575	.5912	1.620001E-02	2.740191 %

89FS06S18

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.02	6.666667E-03	-1.333333E-02	-200 %
10	0	9.313226E-10	9.313226E-10	100 %
0	0	6.666667E-03	6.666667E-03	100 %
0	0	6.666667E-03	6.666667E-03	100 %

89FS06S18

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.069	7.050006E-02	1.500063E-03	2.127747 %
10	.245	.2455001	5.000532E-04	.2036876 %
20	.426	.4205001	-5.499959E-03	-1.307957 %
30	.592	.5955001	3.500044E-03	.5877488 %

SF5794 2/24/89 J Gamy

89FS06S19

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.018	1.590002E-02	-2.099976E-03	-13.20738 %
10	.158	.1578	-1.999885E-04	-.1267354 %
20	.293	.2997	6.69998E-03	2.235562 %
30	.446	.4416	-4.400045E-03	-.996387 %

89FG07R06

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.001	-3.333333E-04	6.666667E-04	-200 %
10	0	5.820766E-11	5.820766E-11	100 %
0	0	-3.333333E-04	-3.333333E-04	99.99999 %
0	0	-3.333333E-04	-3.333333E-04	99.99999 %

89FG07R0~~x~~6 gw 2/24/89

SPIKE	MEASURED	CALC.	ERROR	PER CENT
.002	10	17.41866	7.418658	42.5903 %
.167	20	15.8793	-4.1207	-25.95014 %
.364	30	14.0414	-15.9586	-113.6539 %
.5120001	0	12.66064	12.66064	100 %

89FG07R0~~x~~6 gw 2/24/89

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.002	2.200012E-03	2.00012E-04	9.091404 %
10	.167	.1749	7.900015E-03	4.516875 %
20	.364	.3476	-1.639998E-02	-4.718061 %
30	.5120001	.5203001	8.300006E-03	1.595235 %

89FG07S41

SPIKE	MEASURED	CALC.	ERROR	PER CENT

0	.003	8.999023E-04	-2.100098E-03	-233.3695 %
10	.202	.2037999	1.799926E-03	.8831829 %
20	.404	.4067	2.699971E-03	.663873 %
30	.612	.6096	-2.399981E-03	-.3936977 %

AQC TV=19.76

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.419	.4177001	-1.299918E-03	-.3112084 %
10	.617	.6164	-5.999804E-04	-.0973362 %
20	.81	.8151	5.099952E-03	.6256843 %
30	1.017	1.0138	-3.200054E-03	-.3156495 %

SF5794

89FG07D41

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.066	6.819995E-02	2.199948E-03	3.225732 %
10	.242	.2384	-3.600016E-03	-1.510074 %
20	.408	.4086	6.0004E-04	.1468526 %
30	.578	.5788	8.000136E-04	.1382193 %

J Gang 2/24/89

89FS07R04

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.001	-.0035	-4.500001E-03	128.5714 %
10	.198	.1985	5.000085E-04	.2518934 %
20	.388	.4005	1.249999E-02	3.121056 %
30	.611	.6025	-8.500039E-03	-1.410795 %

89FS07S23

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.003	1.700012E-03	-1.299988E-03	-76.46931 %
10	.18	.1814	1.399979E-03	.7717636 %
20	.36	.3611	1.099944E-03	.3046093 %
30	.542	.5408	-1.20008E-03	-.2219083 %

89FS07S24

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.005	-7.000122E-04	-5.700012E-03	814.2733 %
10	.159	.1666	7.59998E-03	4.561814 %
20	.332	.3339	1.899958E-03	.5690201 %
30	.505	.5012	-3.800035E-03	-.7581873 %

AQC TV=19.76

SPIKE	MEASURED	CALC.	ERROR	PER CENT
.408	1	.9999999	-1.192093E-07	-1.192093E-05 %
0	0	0	0	1.701412E+38 %
0	0	0	0	1.701412E+38 %
0	0	0	0	1.701412E+38 %

20	.332	.3339	1.899958E-03	.5690201 %
30	.505	.5012	-3.800035E-03	-.7581873 %

AQC TV=19.76

SPIKE	MEASURED	CALC.	ERROR	PER CENT
.408	1	.9999999	-1.192093E-07	-1.192093E-05 %
0	0	0	0	1.701412E+38 %
0	0	0	0	1.701412E+38 %
0	0	0	0	1.701412E+38 %

AQC TV=19.76

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.408	.4122	4.199952E-03	1.018911 %
10	.615	.6124	-2.600074E-03	-.4245712 %
20	.82	.8125999	-7.400096E-03	-.910669 %
30	1.007	1.0128	5.79989E-03	.572559 %

J Harry
2/24/89

SF5194

Begin Element - AS
0.001
0.000 AZ
0.002
0.222
0.365 Not used
0.573 2/13/89
0.417
0.632
0.819
0.992

Begin Element - AS
-0.003
0.000 AZ
0.008
0.165
0.453
0.607

Begin Element - AS
0.007
0.000 AZ
-0.003
0.216
0.388
0.649
0.414

Begin Element - AS
-0.004
0.000 AZ
-0.000
0.214
0.408
0.589
0.411
0.570

Begin Element - AS
0.003
0.000 AZ

-0.008	+0	
0.210	+10	Blank
0.431	+20	
0.635	+30	
0.400	+0	
0.579	+10	AQC TV = 19.76
0.765	+20	
0.972	+30	
0.002	+0	
0.191	+10	89FS06R01
0.425	+20	
0.575	+30	
0.069	+0	
0.245	+10	89FS06S18
0.426	+20	

J Kamy
2/13/89

SF5794

0.425	+20		
0.575	+30		
0.069	+0		
0.245	+10	89F506518	
0.426	+20		
0.592	+30		
0.018	+0		
0.158	+10	89F506519	
0.293	+20		
0.446	+30		SF5744
0.002	+0		SF5794
0.167	+10	89F607R06	
0.364	+20		
0.512	+30		
0.003	+0		
0.202	+10	89F607541	
0.404	+20		
0.612	+30		
0.419	+0		
0.617	+10	AQC TV= 19.76	
0.810	+20		
1.017	+30		
-0.003		Blank	
0.066	+0		
0.242	+10	89F607541	
0.408	+20		
0.578	+30		SF5794
0.001	+0		SF5795
0.198	+10	89F507R04	
0.388	+20		
0.611	+30		
0.003	+0		
0.180	+10	89F507523	
0.360	+20		
0.542	+30		
0.005	+0		
0.159	+10	89F507524	
0.332	+20		
0.505	+30		
0.408	+0		
0.615	+10	AQC TV= 19.76	
0.820	+20		
1.007	+30		
-0.004		Blank	

J Barry
2/13/89

SF5794

AAS Run Log

Element As

Date 2/13/89

J Garry

Initials JWG

Data Set SF5794

	ID	Spike	Comment
1	Blank		
2			
3			
4			
5	AQC TV=19.76		
6			
7			
8			
9	89FS06~~58~~ 2/13/89 R01		
10			
11			
12			
13	89FS06518		
14			
15			
16			
17	89FS06519		
18			
19			
20			
21	89F607R06		
22			
23			
24			
25	89F607541		
26			

AAS Run Log

Element As

Date 2/13/89

J Gary

Initials JWG

Data Set SF5794

	ID	Spike	Comment
27	89FG07541		
28			
29	AQC		
30			
31			
32			
33	Blank		
34			
35			
	Wheel 2		
1	89FG07D41		
2			
3			
4			
5	89F507R04		
6			
7			
8			
9	89F507523		
10			
11			
12			
13	89F507524		
14			
15			
16			

AAS Run Log

Element As

Date 2/13/89

J Gary

Initials JWG

Data Set Sr5794

	ID	Spike	Comment
17	AQC TV= 19.76		
18			
19			
20			
21	Blank		
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
	Wheel 3		
1			
2			
3			
4			
5			
6			

J Ganz

Element	Instrument	QC Source	
☐ Ag	☐ 5000	☐ WP 284 TM I #2	Analyst JWG
☒ As	☐ 4000	☐ WP 1183 TM II #1	Date 2/13/89
☐ Cd	☒ 5000 ZE	☐ WP 1183 TM II #2	Lamp # 8327
☐ Cr	☐ 5000 ZW	☒ ICV 2	Energy 58
☐ Pb	☐ 5100	☐ SPEX II	Expansion 5
☐ Sb	☐ Varian 30	☐ NBS SRM 1643b	Stock SPEX 1-92-MD
☐ Se		☐	☐ platform ☐ MSC
☐ Tl		☐	☒ wall ☒ MSA

Blank	Slope	AQC	Digestion QC
-.26	.0215	20.7 21.0 20.6	

SF5794

Blank cup absorbance
~~-.003~~
-.004

* REGRESSION ANALYSIS * CSC VERSION 2.00 *

SF5794A SF5794

NAME OF ANALYST ---: GANZ DATA SET NUMBER ---: [redacted]
PARAMETER NAME ----: CD DU NUMBER ---------: V908
DATE OF ANALYSIS --: 02-23-1989

John W. Ganz
2/23/89

DEGREE OF FIT : 1

EQUATION : CONCENTRATION = -8.09193E-04
+3.19339E+00 * SIGNAL

COEFFICIENT OF DETERMINATION : .9995323

T-A-B-L-E O-F S-T-A-N-D-A-R-D-S

STANDARD	SIGNAL	CONCENTRATION	CALCULATED
1	+0.005	+0.000	+0.015
2	+0.148	+0.500	+0.471
3	+0.317	+1.000	+1.011
4	+0.471	+1.500	+1.503
5	+0.626	+2.000	+1.998

* Analytical spike recoveries >110% are acceptable if the sample concentration is < IDL.

T-A-B-L-E O-F S-A-M-P-L-E-S

SAMPLE I.D.	SIGNAL	CONCENTRATION		
AQC TV=0.975	+0.324	+1.033	%R = 105.9 Limit = 100 ± 10%	
BLANK	-0.023	-0.075	Limit = ± 0.2 ppb	
89FS06R01 +0	-0.022	-0.072	%R = 115.3 *	
+1	+0.339	+1.081		
89FS06S18 +0	-0.037	-0.119	%R = 103.7	
+1	+0.289	+0.918		
89FS06S19 +0	-0.023	-0.075	%R = 111.2 *	
+1	+0.325	+1.037		SF5744
89FG07R06 +0	-0.031	-0.100	%R = 118.8 *	SF5794
+1	+0.341	+1.088		
89FG07S41 +0	+0.009	+0.027	%R = ~~103.2~~ 97.8 gwb 2/28/89	
+1	+0.315	+1.005		
AQC TV=0.975	+0.328	+1.046	%R = 107.3 Limit = 100 ± 10%	
BLANK	-0.015	-0.049	Limit = ± 0.2 ppb	
89FG07D41 +0	-0.005	-0.017	%R = 97.4	
+1	+0.300	+0.957		SF5794
89FS07R04 +0	+0.011	+0.034	%R = 95.8	SF5795
+1	+0.311	+0.992		
89FS07S23 +0	+0.046	+0.146	%R = 103.4	
+1	+0.370	+1.180		
89FS07S24 +0	-0.013	-0.043	%R = 106.4	
+1	+0.320	+1.021		SF5795
89YL11R02 +0	-0.024	-0.078	%R = 106.3	SF5714
+1	+0.309	+0.985		
AQC TV=0.975	+0.307	+0.979	%R = 100.4 Limit = 100 ± 10%	
BLANK	-0.015	-0.049	Limit = ± 0.2 ppb	

0.650

Begin Element - CD
-0.863
0.000 AZ
-0.018
0.155
0.286
0.451
0.632

JWB 2/13/89

SF5794

Begin Element - CD
-0.862
0.000 AZ
0.005 0 ppb Std
0.148 0.5 ppb
0.317 1.0 ppb
0.471 1.5 ppb
0.626 2.0 ppb
0.324 AQC TV=0.975
-0.023 Blank
-0.022 +0 89F506R01
0.339 +1
-0.037 +0 89F506S18
0.288 +1
-0.023 +0 89F506S19
0.325 +1 SF5744

-0.031 +0 89F607R06 SF5794
0.341 +1
0.009 +0 89F607S41
0.315 +1
0.328 AQC TV=0.975
-0.015 Blank
-0.005 +0 89F607D41
0.300 +1 SF5794

0.011 +0 89F507R04 SF5795
0.311 +1
0.046 +0 89F507S23
0.370 +1
-0.013 +0 89F507S24
0.320 +1

-0.024 +0 89YL11R02 SF5714
0.309 +1
0.307 AQC TV=0.975
-0.015 Blank

John W. Gang
2/13/89

AAS Run Log SF5794

Element Cd

Date 2/13/89

John W. Gary

Initials JWG

Data Set

	ID	Spike	Comment
1	Std 0		
2	0.5		
3	1.0		
4	1.5		
5	2.0		
6	AQC TV=0.975		
7	Blank		
8	89FS06R01	0	
9		1	
10	89FS06S18	0	
11		1	
12	89FS06S19	0	
13		1	
14	89F607R06	0	
15		1	
16	89F607S41	0	
17		1	
18	AQC		
19	Blank		
20	89F607D41	0	
21		1	
22	89FS07R04	0	
23		1	
24	89FS07S23	0	
25		1	
26	89FS07S24	0	

AAS Run Log

SF5794

Element Cd

John W. Gary

Initials JWG

Date 2/13/89

Data Set

	ID	Spike	Comment
27	89FS07S24	1	
28	89YL11R02	0	
29		1	
30	AQC		
31	Blank		
32			
33			
34			
35			
	Wheel 2		
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

John W. Ganz

SF5794

Element	Instrument	QC Source	
☐ Ag	☐ 5000	☒ WP 284 TM I #2	Analyst JWG
☐ As	☐ 4000	☐ WP 1183 TM II #1	Date 2/13/89
☒ Cd	☒ 5000 ZE	☐ WP 1183 TM II #2	Lamp # WL-36016
☐ Cr	☐ 5000 ZW	☐ ICV 2	Energy 44
☐ Pb	☐ 5100	☐ SPEX II	Expansion 5
☐ Sb	☐ Varian 30	☐ NBS SRM 1643b	Stock JVM prepared 2/8/89
☐ Se		☐	☒ platform ☒ MSC
☐ Tl		☐	☐ wall ☐ MSA

Blank (conc)	Slope	AQC	Digestion QC
-.075	3.19339	1.033	
-.049		1.046	
-.049		0.979	
(int) .015			

Blank cup absorbance

SF5794

* REGRESSION ANALYSIS * CSC VERSION 2.00 *

NAME OF ANALYST ---: L KOROBKA
PARAMETER NAME ----: PB
DATE OF ANALYSIS --: 02-28-1989

DATA SET NUMBER ---: 5714 (5794)
DU NUMBER ---------: Y905

Linda Korobka
2/27/89

DEGREE OF FIT : 1

EQUATION : CONCENTRATION = +3.67993E+00
+8.41241E+01 * SIGNAL

COEFFICIENT OF DETERMINATION : .9993936

T-A-B-L-E O-F S-T-A-N-D-A-R-D-S

STANDARD	SIGNAL	CONCENTRATION	CALCULATED
1	-0.046	+0.000	-0.190
2	+0.073	+10.000	+9.820
3	+0.201	+20.000	+20.588
4	+0.315	+30.000	+30.179
5	+0.427	+40.000	+39.600

T-A-B-L-E O-F S-A-M-P-L-E-S

SAMPLE I.D.	SIGNAL		CONCENTRATION	
AQC TV= 22.4 LJK 3/6/89	+0.213		+21.598	96.4% Recovery Limit=±10%
+20	+0.455		+41.956	101.8% Recovery Limit=±10%
89YL11S39	-0.043		+0.062	
+20	+0.209		+21.261	106% Recovery
89YL11S40	-0.047	SF5714	-0.274	
+20	+0.197		+20.252	102.6% Recovery
89YL11S41	-0.048		-0.359	
+20	+0.199		+20.420	103.9% Recovery
89YL11S42	-0.046		-0.190	
+20	+0.201		+20.588	103.9% Recovery
89YL11S43	-0.045		-0.106	
+20	+0.207		+21.093	106% Recovery
89YL11D01	-0.044		-0.022	
+20	+0.211		+21.430	107.3% Recovery
89YL11R02	-0.023		+1.745	
+20	+0.231		+23.112	107% Recovery
89FS06S78	-0.046		-0.190	
+20	+0.206	SF	+21.009	106% Recovery
89FS06D78	-0.043	5742	+0.062	
+20	+0.214		+21.682	108% Recovery
89FS06S79	-0.039		+0.399	
+20	+0.205		+20.925	102.6% Recovery
89FS06S80	-0.040		+0.314	
+20	+0.213		+21.598	106.4% Recovery
89FS06S81	-0.010		+2.838	
+20	+0.244		+24.205	106.8% Recovery
AQC TV= 22.4 mg/L LJK 3/6/89	+0.210		+21.345	R = 95.3%
+20	+0.450		+41.535	Spike Rec = 101%

[redacted]

SF5794

89FS06S80		-0.040	+0.314	
+20		+0.213	+21.598	106.4% Recovery
89FS06S81		-0.010	+2.838	
+20		+0.244	+24.206	106.8% Recovery
AQC		+0.210	+21.345	R=95.3%
+20		+0.450	+41.535	spike Rec = 101%
BLK		-0.044	-0.022	BLK
89FS06S82		-0.045	-0.106	
+20		+0.207	+21.093	R=106%
89FS06S83		-0.043	+0.062	
+20		+0.211	+21.430	106.8% Recovery
89FS06R05		-0.044	-0.022	
+20		+0.206	+21.009	105.2% Recovery
89FS07S23	SF 5795	-0.023	+1.745	
+20		+0.228	+22.860	105.6% Recovery
89FS07S24		-0.024	+1.660	
+20		+0.224	+22.523	104.3% Recovery
89FS07R04		-0.043	+0.062	
+20		+0.214	+21.682	108% Recovery
89GF07S41	SF 5794	-0.035	+0.735	
+20		+0.218	+22.018	106.4% Recovery
89GF07D41		-0.039	+0.399	
+20		+0.217	+21.934	107.7% Recovery
89FG07R06		-0.042	+0.146	
+20		+0.211	+21.430	106.4% Recovery
89FS07S23		-0.024	+1.660	
+20		+0.226	+22.691	105.2% Recovery
89FS07S24		-0.027	+1.408	
+20		+0.225	+22.607	106% Recovery
89FS07R04	SF 5795	-0.042	+0.146	
+20		+0.210	+21.345	106% Recovery
89FS06S19		-0.039	+0.399	
+20	SF 5744	+0.206	+21.009	103% Recovery
89FS06S18		-0.043	+0.062	
+20		+0.197	+20.252	101% Recovery
89FS06R01		-0.034	+0.819	
+20		+0.216	+21.850	105.2% Recovery
89FM07S30		-0.043	+0.062	
+20	SF	+0.203	+20.757	103.5% Recovery
AQC N=22.4		+0.214	+21.682	96.8% Recovery
+20	WK 5792 3/6/89	+0.458	+42.208	spike Rec = 102.6%
BLANK		-0.044	-0.022	BLK

operator error LKrobka 2/28/89

Linda Krobka
3/7/89

Begin Element - PB

2/27/89

Linda Korobka

SF5794

-5.294		
0.000	AZ	
-0.046	0	
0.079	10	
0.201	20	
0.315	30	
0.427	40	
0.213	0	QC
0.455	+20	
-0.043	89YL11S39	SF 5714
0.209	+20	
-0.047	89YL11S40	
0.197		
-0.048	89YL11S41	
0.199		
-0.046	89YL11S42	
0.201		
-0.045	89YL11S43	
0.207		
-0.044	89YL11D01	
0.211		
-0.029	89YL11R02	
0.231		
-0.046	89FS06S78	SF 5742
0.206		
-0.043	89FS06D78	
0.214		
-0.039	89FS06S79	
0.205		
-0.040	89FS06S80	
0.213		
-0.010	89FS06S81	
0.244		
0.210	AQC TV=22.4	
0.450		
-0.044	BLK	
-0.045	89FS06S82	
0.207		
-0.043	89FS06S83	
0.211		
-0.044	89FS06R05	
0.206		
-0.029	89FS07S23	SF 5795
0.228		
-0.024	89FS07S24	
0.224		
-0.042	89FS07R04	
0.214		
-0.025	89FG07S41	SF 5794
0.218		
-0.039	89FG07D41	
0.217		
-0.042	89FG07R06	
0.211		
-0.024	~~89FS07S23~~	SF 5795
0.226		
-0.027	~~89FS07S24~~	operator error (analyzed twice)
0.225		
-0.042	~~89FS07R04~~	X Korobka 2/27/89
0.210		
-0.039	89FS06S19	
0.205		

-0.039
0.206
-0.043

89FS06 S19

SF 5744

89FS06 S18

SF5794

0.197
-0.034
0.216

89FS06 R01

-0.043
0.203

89FM07 S30

Linda Krabbe
2/27/89

0.214
0.458
-0.044

QC TV=22.4

BLK

SF
5792

whell #1 page 1 of 3

AAS Run Log

Element Pb Linda Korobka SF5794 Initials LJK

Date 2/27/89 2/27/89 Data Set

	ID	Spike	Comment
1	0		
2	10		
3	20		
4	30		
5	40		
6	AQC IV = 22.4		
7	+20		
8	89YL11 S39		
9	(+20)		
10	89YL11 S40		
11	(+20)		
12	89YL11 S41		
13	(+20)		
14	89YL11 S42		
15	(+20)		
16	89YL11 S43		
17	(+20)		
18	89YL11 D01		
19	(+20)		
20	89YL11 R02		
21	(+20)		
22	89FS06 S78		
23	(+20)		
24	89FS06 D78		
25	(+20)		
26	89FS06 S79		

AAS Run Log

Element Pb Linda Korobka SF5794 Initials LJK

Date 2/27/89 2/27/89 Data Set

	ID	Spike	Comment
27	89FS06 S79 (+20)		
28	89FS06 S80		
29	(+20)		
30	89FS06 S81		
31	(+20)		
32	AQC N=22.4		
33	(+20)		
34	BLANK		
35			
	Wheel 2		
1	89 FS06 S82		
2	(+20)		
3	89 FS06 S83		
4	(+20)		
5	89 FS06 R05		
6	(+20)		
7	89 FS07 S23		
8	(+20)		
9	89 FS07 S24		
10	(+20)		
11	89FS07 R04		
12	(+20)		
13	89FG07 S41		
14	(+20)		
15	89FG07 D41		
16	(+20)		

page 2 of 3
3 LK 2/28/89

wheel #2 ~~#3~~ LK 2/27/89

AAS Run Log

SF5794

Element Pb

Linda Korobka 2/27/89

Initials LJK

Date 2/27/89

Data Set

	ID	Spike	Comment
17	89FG07 R06		
18	(+20)		
19	89FS07 S23		
20	(+20)		
21	89FS07 S24		
22	(+20)		
23	89FS07 R04		
24	(+20)		
25	89FS06 S19		
26	(+20)		
27	89FS06 S18		
28	(+20)		
29	89FS06 R01		
30	(+20)		
31	89FM07 S 30		
32	(+20)		
33	AQC N=22.4		
34	(+20)		
35	BLANK		
	Wheel 3		
1			
2			
3			
4			
5			
6			

SF5794

Element	Instrument	QC Source		
☐ Ag	☐ 5000	☑ WP 284 TM I #2		
☐ As	☐ 4000	☐ WP 1183 TM II #1		
☐ Cd	☑ 5000 ZE	☐ WP 1183 TM II #2		
☐ Cr	☐ 5000 ZW	☐ ICV 2		
☑ Pb	☐ 5100	☐ SPEX II		
☐ Sb	☐ Varian 30	☐ NBS SRM 1643b		
☐ Se		☐	☑ platform	☑ MSC
☐ Tl		☐	☐ wall	☐ MSA

Analyst LJK

Date 2/28/89

Lamp # Serial # 4250 6/22/87

Energy 58

Expansion 5X

Stock Lot # 1-139-JX (spex)

Blank conc	Slope	AQC	Digestion QC
-.022 -.022	~~21.598~~ LK 2/28/89	21.598	
		21.682	
		21.345	

Blank cup absorbance
-.044 -.044

* REGRESSION ANALYSIS * CSC VERSION 2.00 *

DKruse 2/14/89

NAME OF ANALYST ---: D KRUSE
PARAMETER NAME ----: SB
DATE OF ANALYSIS --: 02-14-1989

DATA SET NUMBER ---: SF 5794
DU NUMBER ---------: Y905

SF5794

DEGREE OF FIT : 1

DKruse 2/14/89

EQUATION : CONCENTRATION = -6.88195E-01
+9.65253E+01 * SIGNAL

COEFFICIENT OF DETERMINATION : .9990422

T-A-B-L-E O-F S-T-A-N-D-A-R-D-S

STANDARD	SIGNAL	CONCENTRATION	CALCULATED
1	+0.006	+0.000	-0.310
2	+0.113	+10.000	+10.015
3	+0.220	+20.000	+20.347
4	+0.326	+30.000	+30.579
5	+0.417	+40.000	+39.363

T-A-B-L-E O-F S-A-M-P-L-E-S

SAMPLE I.D.		SIGNAL	CONCENTRATION		
BLANK		+0.010	+0.077	Limit = ± 2µg/l	
AQC 20.3		+0.219	+20.250	R=99.8% Limit = 90-110%	
89FS07S23		+0.000	-0.889	2u	
89FS07S23	20	+0.280	+26.139	R = 135.1%	SF 5795
89FS07S24		+0.007	-0.213	2u	
89FS07S24	20	+0.324	+30.386	R= 153.0%	
89FS07R04		+0.002	-0.696	2u	
89FS07R04	20	+0.220	+20.347	R= ~~[illegible]~~ 105.2% gwb 3/6/89	
89FS06R01		+0.000	-0.889	2u	
89FS06R01	20	+0.197	+18.127	R= 95.1%	SF 5744
89FS06S18		+0.008	-0.116		
89FS06S18	20	+0.123	+10.984	R= 55.5% > run by MSA	
89FG07S41		+0.007	-0.213	2u	
89FG07S41	20	+0.245	+22.760	R= 114.5%	SF5794
89FG07D41		+0.007	-0.213	2u	
89FG07D41	20	+0.250	+23.243	R= 117.3%	
89FS06S19		+0.005	-0.406	2u	
89FS06S19	20	+0.243	+22.567	R= 114.9%	SF5744
89FG07R06		+0.008	-0.116	2u	
89FG07R06	20	+0.280	+26.139	R= ~~200%~~ 131.3%	SF5794
89FS06S78		+0.007	-0.213	2u	
89FS06S78	20	+0.247	+22.953	R= 115.8%	
89FS06D78		+0.002	-0.696	2u	SF5742
89FS06D78	20	+0.273	+25.463	R= 130.8%	
89FS06S79		+0.001	-0.792	2u	
89FS06S79	20	+0.258	+24.015	R = 124.0%	DKruse 2/14/89
89FS06S81		+0.013	+0.366	2u	
89FS06S81	20	+0.273	+25.463	R= ~~[illegible]~~ 125.5% OK 102.1%	
AQC 20.3		+0.224	+20.733	R= ~~[illegible]~~ Limit = 90-110%	
BLANK		-0.001	-0.985	Limit = ± 2µg/l	
89FS06R05		+0.004	-0.503	> use MSA	

AQC 20.3		+0.224	+20.733	R = 103.7% limit = 90-110%
BLANK		-0.001	-0.985	limit = ± 2µg/L
89FS06R05		+0.004	-0.503	
89FS06R05	20	+0.190	+17.451	R = 89.8% > use MSA
89FS06S80		-0.001	-0.985	2u
89FS06S80	20	+0.270	+25.173	R = 130.8%
89FS06S82		-0.006	-1.468	2u
89FS06S82	20	+0.261	+24.305	128.9%
89FS06S83		+0.007	-0.213	2u
89FS06S83	20	+0.263	+24.498	R = ~~[illegible]~~% 123. WDKruse 8/8/89
89YL11R02		-0.002	-1.082	
89YL11R02	20	+0.184	+16.872	R = 89.8% > run by MSA
89YL11D01		+0.001	-0.792	2u
89YL11D01	20	+0.308	+28.841	R = 148.2%
89YL11S41		+0.009	-0.020	2u
89YL11S41	20	+0.296	+27.683	R = 138.5%
89YL11S42		+0.006	-0.310	2u
89YL11S42	20	+0.270	+25.173	R = 127.4%
89YL11S39		+0.005	-0.406	2u
89YL11S39	20	+0.292	+27.297	R = 138.5%
89YL11S40		+0.003	-0.599	2u
89YL11S40	20	+0.346	+32.509	R = 165.5%
89YL11S43		+0.003	-0.599	2u
89YL11S43	20	+0.224	+20.733	R = 106.7% 94.5% WDKruse 8/8/89
AQC 20.3		+0.208	+19.189	R = ~~[illegible]~~% limit = 90-110%
BLANK		+0.011	+0.173	limit = ± 2µg/L

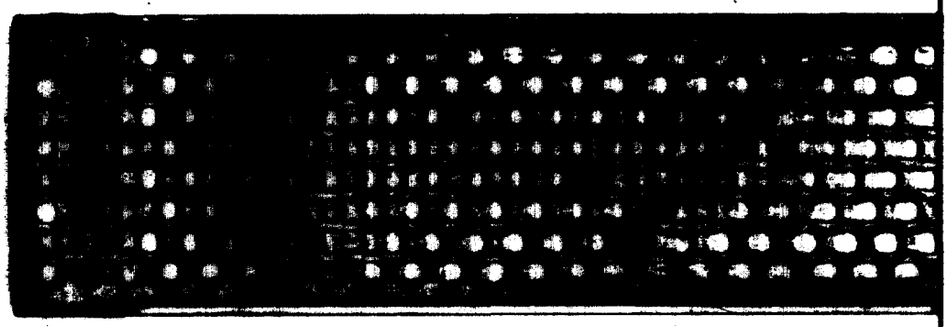
SF5742

SF5714

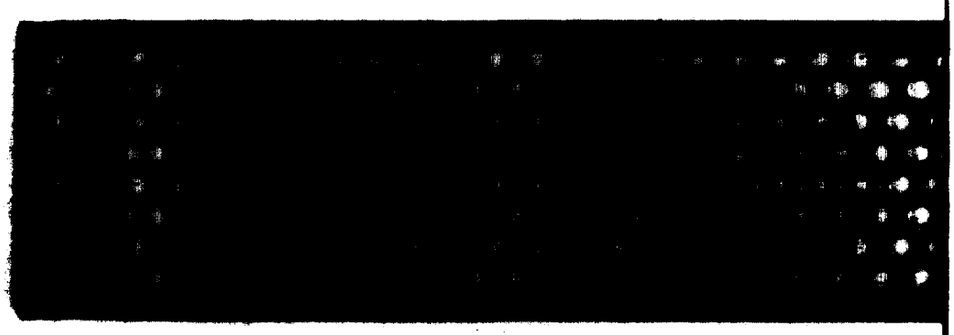
SF5794

WDKruse
2/17/89

SF5794



DKruse
2/14/89



DKruse 2/13/89 Sb

	-0.009	
	0.000	AL
	0.005	0
Std	0.113	10
	0.220	20
	0.326	30
	0.417	40
	0.010	BK
	0.219	AQC
	-0.000	
89FS07S23	0.280	
	0.007	
S24	0.324	
	0.002	
R04	0.220	
	0.000	
89FS06R21	0.197	
	0.003	
S18	0.123	
	0.007	
89FG07S41	0.245	
	0.007	
D41	0.250	
	0.005	
89FS06S15	0.243	
	0.000	
89FG09R06	0.280	
	0.007	
89FS06S78	0.247	
	0.002	
D78	0.273	
	0.001	
S79	0.258	
	0.013	
S81	0.273	
AQC	0.224	
BLK	-0.001	
	0.004	
89FS06R05	0.190	
	-0.001	
S80	0.270	
	-0.006	
S82	0.261	
	0.007	S83
~~89FLNR03~~	0.263	
	-0.002	89411
~~DK D03~~	0.184	R02
	0.001	
~~S41~~	0.305	D01
	0.009	
~~S42~~	0.296	S41
	0.006	
~~S39~~	0.270	S42
	0.005	
~~S40~~	0.292	S39
	0.003	
~~S43~~	0.346	S40
	0.003	S43
	0.224	
	0.208	AQC
	0.011	BLK

AAS Run Log

Element Sb

Date 2/13/89

DKruse 2/14/89

SF5794

Initials DK

Data Set ~~SF55~~ 5792, 5794

Comment 5792, 5794, 5795

	ID	Spike	Comment
1	Blank		
2	10 ~~mg~~/l STD		
3	20		
4	30		
5	40		
6	Blk		
7	AQC		20.3
8	89FS07S23	0	
9		20	
10	S24	0	
11		20	
12	R04	0	
13		20	
14	89FS06R01	0	
15		20	
16	S18	0	
17		20	
18	89FG07 S41	0	
19		20	
20	D41	0	
21		20	
22	89FS06 S19	0	
23		20	
24	89FG07 R06	0	
25		20	
26	89FS06 S78	0	

AAS Run Log

Element Sb

Date 2/13/89

DKrause 2/14/89

SF5794

Initials DKrause

Data Set 5741, 5742, 5744

Comment 5743, 5745

	ID	Spike	Comment
27	89FS06S78	20	
28	D78	0	
29		20	
30	S79	0	
31		20	
32	S81	0	
33		20	
34	AQC	0	20, 3
35	blank	0	
	Wheel 2		
1	89FS06R05	0	
2		20	
3	S80	0	
4		20	
5	S82	0	
6		20	
7	S83	0	
8		20	
9	89YL11R02	0	
10		20	
11	D01	0	
12		20	
13	S41	0	
14		20	
15	S42	0	
16		20	

AAS Run Log

Element Sb

Date 2/13/89

DKuse 2/14/89 SF5794

Initials DK

Data Set 5714, 5742, 5744

Comment 5755, 5794

	ID	Spike	
17	89YL11S39	0	
18		20	
19	S40	0	
20		20	
21	S43	0	
22		20	
23	ARC	0	
24	BIK Cup	0	
25			
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
	Wheel 3		
1			
2			
3			
4			
5			
6			

SF5794

Element	Instrument	QC Source	
☐ Ag	☐ 5000	☐ WP 284 TM I #2	Analyst DK
☐ As	☒ 4000	☐ WP 1183 TM II #1	Date 2/13/89
☐ Cd	☐ 5000 ZE	☒ WP 1183 TM II #2	Lamp # 1113
☐ Cr	☐ 5000 ZW	☐ ICV 2	Energy 52
☐ Pb	☐ 5100	☐ SPEX II	Expansion 4
☒ Sb	☐ Varian 30	☐ NBS SRM 1643b	Stock 1-110-MD
☐ Se		☐	☐ platform ☒ MSC
☐ Tl		☐	☒ wall ☐ MSA

Blank	Slope	AQC	Digestion QC
.077	.0965	20.2	DK
-.985		20.7	2/14/89
.173		19.2	

Blank cup absorbance

SPECIFY SELECTION BY FUNCTION KEY

* REGRESSION ANALYSIS * CSC VERSION 2.00 *

SF5794

NAME OF ANALYST ---: L KOROBKA
PARAMETER NAME ----: SE
DATE OF ANALYSIS --: 02-16-1989

DATA SET NUMBER ---: 5792
DU NUMBER ------: Y905

SF5794

DEGREE OF FIT : 1

EQUATION : CONCENTRATION = -3.72448E-01
+9.63692E+01 * SIGNAL

COEFFICIENT OF DETERMINATION : .998385

Linda J. Korobka
2/16/89

T-A-B-L-E O-F S-T-A-N-D-A-R-D-S

STANDARD	SIGNAL	CONCENTRATION	CALCULATED
1	+0.009	+0.000	+0.494
2	+0.104	+10.000	+9.649
3	+0.212	+20.000	+20.057
4	+0.306	+30.000	+29.116
5	+0.426	+40.000	+40.680

T-A-B-L-E O-F S-A-M-P-L-E-S

SAMPLE I.D.	SIGNAL	CONCENTRATION	
AQC TV=9.8 LJK 2/16/89	+0.104	+9.649	98.4% Recovery Limit = ±10%
89FS06S82	+0.009	+0.494	SF 5742
+20	+0.202	+19.094	93% Recovery Limit = ±10%
89FS06S83	-0.006	-0.951	
+20	+0.191	+18.034	94.9% Recovery
89FS06R01	+0.005	+0.109	
+20	+0.216	+20.443	101.7% Recovery
89FS06S19	+0.022	+1.747	SF 5744
+20	+0.221	+20.925	95.9% Recovery
89FS06S18	+0.013	+0.880	
+20 G JVM	+0.051	+4.542	18.3% Recovery ∴ MSA
89FG07R06	-0.001	-0.469	
+20	+0.233	+22.081	112.8% Recovery ∴ MSA
89FG07D41	+0.007	+0.302	
+20	+0.195	+18.419	90.6% Recovery
89FG07S41	+0.011	+0.687	SF 5794
+20	+0.204	+19.286	LJK ~~92%~~ 93% Recovery 2/16/89
89FS07R04	+0.009	+0.494	
+20	+0.222	+21.021	102.6% Recovery
89FS07S23	+0.007	+0.302	SF 5795
+20	+0.208	+19.672	96.9% Recovery
89FS07S24	+0.003	-0.084	
+20	+0.208	+19.672	98.8% Recovery
89FM07S30	+0.001	-0.277	
+20	+0.196	+18.515	94% Recovery
89FM07S31	+0.008	+0.398	
+20	+0.213	+20.154	98.8% Recovery
AQC TV=9.8 LJK 2/16/89	+0.103	+9.553	97.5% Recovery Limit = ±10%
BLANK	+0.002	-0.180	Limit = ±2 µg/L

Begin Element - SE
-0.004
0.000 AZ
-0.008
0.102
0.254
0.361
0.483
0.127
0.003

SF5794

2/15/89

Linda Korobka
2/16/89

Begin Element - SE
-0.003
0.000 AZ
0.009 0
0.104 10 BLKS
0.213 20
0.306 30
0.426 40
0.104 AQC TV=9.8
0.009
0.202 89FS06S82
-0.006
0.191 89 FS06S83
0.005
0.216 89 FS06 R01
0.022
0.221 89 FS 06 S19
0.013
0.051 89FS 06 S18
-0.001
0.238 89 FG 07 R06
0.007
0.195 89 FG 07 D41
0.011
0.304 89 FG 07 S41

0.009
0.222 89 FS07 R04
0.007
0.208 89 FS 07 S23
0.003
0.208 89 FS 07 S 24
0.001
0.196 89 FM 07 S30
0.008
0.213 89 FM 07 S31
0.103 AQC TV=9.8
0.002 BLK

Linda Korobka
2/16/89

AAS Run Log

Element Se

Date 2/15/89

SF5794

Initials LJK

Data Set 5742, 5744, 5794, 5795, 5792

	ID	Spike	Comment
1	0		
2	10		
3	20		
4	30		Linda Korobka
5	40		2/15/89
6	AQC N=9.8		
7	89 FS06 S82		
8	+20		
9	89 FS 06 S83		
10	+20		
11	89FS 06 R01		
12	+20		
13	89 FS06 S19		
14	+20		
15	89 FS06 S18		
16	+20		
17	89 FG 07 R06		
18	+20		
19	89 FG 07 D41		
20	+20		
21	89 FG 07 S41		
22	+20		
23	89 FS 07 R04		
24	+20		
25	89 FS 07 S23		
26	+20		

AAS Run Log

Element Se

SF5794

Initials LJK

Date 2/15/89

Data Set 5742, 5744, 5794, 5795, 5792

	ID	Spike	Comment
27	89 FS 07 S 24		
28	+20		
29	89 FM 07 S 30 (SF 5792)		
30	+20		
31	89 FM 07 S 31 (SF 5792)		Linda Korbke
32	+20		2/15/89
33	AQC TV=9.8		
34	BLK		
35			
	Wheel 2		
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

SF5794

Linda Korobka 2/15/89

Element	Instrument	QC Source	
☐ Ag	☑ 5000 (LK 2/15/89)	☐ WP 284 TM I #2	Analyst L KOROBKA
☐ As	☐ 4000	☐ WP 1183 TM II #1	Date 2/15/89
☐ Cd	☑ 5000 ZE	☐ WP 1183 TM II #2	Lamp # 2131 (10/84)
☐ Cr	☐ 5000 ZW	☐ ICV 2	Energy 45
☐ Pb	☐ 5100	☐ SPEX II	Expansion 4X
☐ Sb	☐ Varian 30	☐ NBS SRM 1643b	Stock ICV 2(1186)
☑ Se		☑ ICV 2(1186)	☐ platform ☑ MSC
☐ Tl		☐	☑ wall ☐ MSA

Blank	Slope	AQC	Digestion QC
0.494 ug/L -0.180 ug/L		9.649 ug/L (TV = 9.8) 9.553 ug/L (TV = 9.8)	

Blank cup absorbance

SF5794

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* FLAMELESS * CSC VERSION 1.00 *

NAME OF ANALYST ---: LJK
DATE OF ANALYSIS --: 02-23-1989
PARAMETER NAME ----: SE
DATA SET # --------: ~~5742~~ LKorobka 2/23/89 5794

2/23/89 Linda Korobka

SAMPLE NO.	CONC.	R VALUE	SLOPE	
BLANK	.2255634	.9986672	.01064	
AQC:TV=9.8	9.191372	.9999491	.01113	% Recovery = 93.78% Limit: ±10%
89YL11S42	-9.829988E-02	.9998668	.01119	20 SF 5714
89YL11S43	-.2243292	.9993404	.01159	20
89FS06S78	.2061903	.9996371	.01164	20
89FS06S79	-9.443445E-03	.9999759	.01059	20
89FS06S81	-.9472776	.9975438	.01119	20
AQC:TV=9.8	9.555949	.9998642	.01126	%R = 97.5% SF 5742
~~89FS06S76~~	~~-7.887766E-02~~	~~.9993962~~	~~.01141~~	~~20~~
89FS06S18	5.3125	.9477579	.00192	operator error L.Korobka 2/23/89
~~89FS06S18~~ LJK 3/6/89	~~1.018763~~	~~.9931494~~	~~.00373~~	* Must rerun; correlation is out SF 5744
89FG07R06	-.2745439	.9995725	.01202	20 SF 5794
89FM07D30	.0579935	.999998	.01207	20
89FM07R05	-.2928505	.9998464	.01161	20 SF 5792
AQC:TV=9.8	9.105697	.9999074	.0123	%R = 92.9% Limit = ±10%

BLANK

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	8.999999E-03	2.399994E-03	-6.600006E-03	-275.001 %
10	.099	.1088	9.799987E-03	9.007342 %
20	.215	.2152	1.999736E-04	9.292454E-02 %
30	.325	.3216	-3.400028E-03	-1.057223 %

AQC:TV=9.8

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.101	.1023	1.299985E-03	1.270757 %
10	.215	.2136	-1.399994E-03	-.6554278 %
20	.326	.3249	-1.099974E-03	-.3385577 %
30	.435	.4362	1.20002E-03	.2751078 %

89YL11S42 SF 5714

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.001	-1.099976E-03	-9.99755E-05	9.088884 %
10	.109	.1108	1.800016E-03	1.624563 %
20	.226	.2227	-3.299996E-03	-1.481813 %
30	.333	.3346	1.599997E-03	.4781821 %

SPIKE	MEASURED	CALC.		
			.000245E-04	-15.3857 %

89Y 11543 SF 5714

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.003	-2.599976E-03	4.000245E-04	-15.3857 %
10	.11	.1133	3.300026E-03	2.912644 %
20	.237	.2292	-7.799968E-03	-3.403127 %
30	.341	.3451	4.100025E-03	1.188069 %

89FS06S78 SF 5742 SF5794

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.001	2.400055E-03	1.400055E-03	58.33428 %
10	.118	.1188	8.000285E-04	.6734245 %
20	.241	.2352	-5.799994E-03	-2.465984 %
30	.348	.3516	3.599972E-03	1.023883 %

89FS06S79 SF 5742

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	0	-1.000061E-04	-1.000061E-04	99.99999 %
10	.105	.1058	8.000136E-04	.7561564 %
20	.213	.2117	-1.299977E-03	-.6140658 %
30	.317	.3176001	6.0004E-04	.1889294 %

Linda Korobka 2/23/89

89FS06S81 SF 5742

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.005	-1.060004E-02	-5.600037E-03	52.83036 %
10	.088	.1013	1.329997E-02	13.1293 %
20	.223	.2132	-9.800032E-03	-4.596638 %
30	.323	.3251	2.099991E-03	.6459523 %

AQC;TV=9.8

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.109	.1076	-1.400024E-03	-1.301138 %
10	.217	.2202	3.199965E-03	1.453209 %
20	.335	.3328	-2.200067E-03	-.661078 %
30	.445	.4453999	3.999174E-04	8.978838E-02 %

89FS06D78 SF 5742

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.001	-8.999939E-04	-1.899994E-03	211.1119 %
10	.114	.1132	-8.000136E-04	-.7067258 %
20	.22	.2273	7.29996E-03	3.211598 %
30	.346	.3414	-4.600048E-03	-1.347407 %

89FS06S18 SF 5744 operator error L. Korobka 2/23/89

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	8.000001E-03	.0102	2.199996E-03	21.5686 %

[redacted]

89FS06S18 SF 5744 operator error L. Korobka 2/23/89

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	8.000001E-03	.0102	2.199996E-03	21.5686 %
10	.038	2.939999E-02	-8.600008E-03	-29.25174 %
20	.038	4.859999E-02	1.059999E-02	21.81069 %
30	.072	6.779999E-02	-4.200012E-03	-6.194709 %

SF5794

89FS06S18 SF 5744

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	8.000001E-03	3.799988E-03	-4.200013E-03	-110.527 %
10	.038	4.109999E-02	3.099986E-03	7.542547 %
20	.072	7.839999E-02	6.399989E-03	8.163253 %
30	.121	.1157	-5.300008E-03	-4.58082 %

89FG07R06 SF 5794

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.004	-3.300019E-03	6.999818E-04	-21.21145 %
10	.121	.1169	-4.099995E-03	-3.507267 %
20	.231	.2371	6.100029E-03	2.572766 %
30	.36	.3573001	-2.699971E-03	-.7556593 %

89FM07D30 SF 5792

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.001	6.999817E-04	-3.000184E-04	-42.86088 %
10	.121	.1214	3.999993E-04	.3294887 %
20	.242	.2421	1.000166E-04	.0413121 %
30	.363	.3628	-1.999736E-04	-5.511951E-02 %

89FM07R05 SF 5792

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.001	-3.399994E-03	-2.399994E-03	70.58818 %
10	.109	.1127	3.699988E-03	3.283042 %
20	.229	.2288	-2.000332E-04	-.0874271 %
30	.346	.3449	-1.100034E-03	-.3189428 %

AGC:TV=9.8

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.111	.1120001	1.000062E-03	.8929117 %
10	.235	.2350001	5.960465E-08	2.536367E-05 %
20	.361	.3580001	-2.999962E-03	-.837978 %
30	.479	.4810001	2.000064E-03	.4158136 %

L. Korobka
2/23/89

SF5794

```
  0.006
  0.115
  0.222
  0.335
 -0.005
  0.115
  0.246
  0.332
  0.006
  0.117
  0.253
  0.351
 -0.002
  0.097
  0.217
  0.317
  0.005
  0.113
  0.224
  0.327
  0.103
  0.216
  0.340
  0.451
 -0.002
¿¿¿¿¿¿¿¿BEGIN DATA FILE:  SE2.DF

Begin Element - SE
 -0.000
  0.000 AZ
  0.009
  0.099  BLKS
  0.215
  0.325
  0.101
  0.215  GC
  0.326    TV=9.8
  0.435
 -0.001    89YL11542
  0.109
  0.226
  0.333
 -0.003
  0.110  89YL11543
  0.237
  0.341
  0.001
  0.118  89FS06578
  0.241
  0.348
  0.000
  0.105  89FS06579
  0.213
  0.317
 -0.005
  0.088
  0.223  89FS06581
  0.323
  0.109
  0.217  AGC
  0.335    TV=9.8
  0.445
```

2/17/89
Linda Korobka
MSA's

0.000
0.105
0.213
0.317
-0.005
0.088
0.223
0.323
0.109
0.217
0.335
0.445

89FS06579

89FS06581

AQC
N=9.8

SF5794

0.003
0.001
0.114
0.220
0.346
0.008
0.038
0.072
0.121
-0.004
0.121
0.231
0.360
0.001
0.121
0.242
0.363
-0.001
0.109
0.229
0.346
0.111
0.235
0.361
0.479
0.001
-0.005
-0.001

BLK

89FS06D78

89FS06S18

89FG07R06

89FM07D30

89FM07 R05

QC; N=9.8

BLK
BLK
BLK

Linda Korobka
2/17/89

SF5794

AAS Run Log

Element Se

Linda Korobka 2/23/89

Initials LJK

Date 2/17/89

Data Set 5742; 5744; 5714; 5794; 5792

	ID		Spike	Comment
1	0			
2	10			
3	20	Blanks		
4	30			
5	AQC TV = 9.8	0		
6		10		
7		20		
8		30		
9	89YL11S42	0		
10		10		
11		20		
12		30		
13	89YL11S43	0		
14		10		
15		20		
16		30		
17	89FS06S78	0		
18		10		
19		20		
20		30		
21	89FS06S79	0		
22		10		
23		20		
24		30		
25	89FS06S81	0		
26		10		

AAS Run Log

SF5794

Element Se

Linda Korobka 2/23/89

Initials LJK

Date 2/17/89

Data Set 5742; 5744; 5714; 5794; 5792

	ID		Spike	Comment
27	89FS06581 (cont)	20		
28		30		
29	AQC	0		
30		10		
31		20		
32		30		
33	BLK			
34				
35				
	Wheel 2			
1	89FS06 D78	0		
2		10		
3		20		
4		30		
5	89FS06 S18	0		
6		10		
7		20		
8		30		
9	89FG07 R06	0		
10		10		
11		20		
12		30		
13	89FM07 D30	0		
14		10		
15		20		
16		30		

AAS Run Log

Element Se

Date 2/17/89

Linda Korobka 2/23/89

SF5794

Initials LJK

Data Set 5742; 5744; 5714; 5794; 5792

	ID	Spike	Comment
17	89FM07 R05 0		
18	10		
19	20		
20	30		
21	AGC TV=9.8 0		
22	10		
23	20		
24	30		
25	BLK		
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
	Wheel 3		
1			
2			
3			
4			
5			
6			

Linda Korobka
2/22/89

SF5794

Element	Instrument	QC Source		Analyst L. KOROBKA
☐ Ag	☐ 5000	☐ WP 284 TM I #2		Date 2/17/89
☐ As	☐ 4000	☐ WP 1183 TM II #1		Lamp # 2131 (10/84)
☐ Cd	☑ 5000 ZE	☐ WP 1183 TM II #2		Energy 45
☐ Cr	☐ 5000 ZW	☐ ICV 2		Expansion 5X
☐ Pb	☐ 5100	☐ SPEX II		Stock ICV 2 (1186)
☐ Sb	☐ Varian 30	☐ NBS SRM 1643b		
☑ Se		☑ ICV 2 (1186)	☐ platform	☐ MSC
☐ Tl		☐	☑ wall	☑ MSA

Blank	Slope	AQC	Digestion QC
-.000		9.19	.011
.003		9.56	.011
.001		9.11	.012
-.005			
-.001			

Blank cup absorbance

* FLAMELESS * CSC VERSION 1.00 *

J Ganz

NAME OF ANALYST ---: GANZ
DATE OF ANALYSIS --: 02-24-1989 2/24/89
PARAMETER NAME ----: TL
DATA SET # --------: SF5794

SAMPLE NO.	CONC.	R VALUE	SLOPE		
BLANK	-1.757398E-02	.9995876	.01707	Limit = ±2 ppb	
AQC TV=25.0	27.39692	.9983898	.01552	%R = 109.6 Limit = 100 ± 10%	
89FS06R01	.2068966	.9997432	.0145		
89FS06S18	8.583002	.9924961	.00247	Rerun	
89FS06S19	-.2189766	.9966602	.00411		SF5744
89FG07R06	-4.299829E-02	.9999781	.01628		SF5794
89FG07S41	-.5341255	.9994456	.00337		
AQC TV=25.0	-1.701412E+38	1.701412E+38	0	Not used - error in data input	
AQC TV=25.0	26.81759	.9997275	.01546	%R = 107.3 Limit = 100 ± 10%	
BLANK	3.334665E-04	1	1.999933	Not used - error in data input	
BLANK	.2862994	.9995156	.01467	Limit = ± 2 ppb	
AQC TV=25.0	26.96496	.9999197	.01341	%R = 107.9 Limit = 100 ± 10%	
89FG07D41	.3716185	.9995209	.00296		SF5794
89FS07R04	.2592547	.9992274	.0135		SF5795
89FS07S23	-.3580585	.9998235	3.910001E-03		
89FS07S24	2.829027E-02	.999874	.00707		SF5795
89FM07R05	.2616306	.9996454	.01376		SF5792
AQC TV=25.0	27.47786	.999733	1.356001E-02	%R = 109.9 Limit = 100 ± 10%	

BLANK

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.003	-2.999878E-04	2.700012E-03	-900.0407 %
10	.17	.1704	3.99977E-04	.2347283 %
20	.35	.3411	-8.900046E-03	-2.60922 %
30	.506	.5118	5.799949E-03	1.133245 %

AQC TV=25.0

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.418	.4252001	7.200063E-03	1.693335 %
10	.584	.5804001	-3.599942E-03	-.6202518 %
20	.75	.7356	-1.440001E-02	-1.957586 %
30	.88	.8908	.0108	1.212394 %

89FS06R01

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	0	.003	.003	100 %
10	.15	.148	-2.000004E-03	-1.351354 %
20	.298	.293	-5.000025E-03	-1.706493 %
30	.434	.438	4.000008E-03	.9132439 %

89FS06S18

20	.298	.293	-5.000025E-03	-1.706493 %
30	.434	.438	4.000008E-03	.9132439 %

89FS06S18

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.024	2.120001E-02	-2.799988E-03	-13.20748 %
10	.044	4.590001E-02	1.90001E-03	4.139454 %
20	.066	.0706	4.600004E-03	6.515585 %
30	.099	9.530001E-02	-3.699996E-03	-3.882472 %

J Harry 2/24/89

89FS06S19

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	0	-8.999939E-04	-8.999939E-04	100 %
10	.042	.0402	-1.799997E-03	-4.477604 %
20	.075	.0813	6.299995E-03	7.749072 %
30	.126	.1224	-3.600009E-03	-2.941184 %

SF5734

89FG07R06

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.002	-7.000122E-04	1.299988E-03	-185.7093 %
10	.164	.1621	-1.900002E-03	-1.172118 %
20	.325	.3249	-9.998679E-05	-3.077464E-02 %
30	.487	.4877	7.000268E-04	.1435364 %

89FG07S41

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.001	-1.800003E-03	-8.00003E-04	44.44454 %
10	.03	.0319	1.900001E-03	5.956115 %
20	.067	6.560001E-02	-1.399994E-03	-2.134137 %
30	.099	.0993	2.999976E-04	.3021124 %

AQC TV=25.0

SPIKE	MEASURED	CALC.	ERROR	PER CENT
.412	0	0	0	1.701412E+38 %
0	0	0	0	1.701412E+38 %
0	0	0	0	1.701412E+38 %
0	0	0	0	1.701412E+38 %

AQC TV=25.0

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.412	.4146	2.599985E-03	.6271068 %
10	.57	.5692	-8.000136E-04	-.1405505 %
20	.73	.7238	-6.200075E-03	-.8566006 %
30	.874	.8783999	4.399956E-03	.5009057 %

BLANK

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.412	.4146	2.599985E-03	.6271068 %
10	.57	.5692	-8.000136E-04	-.1405505 %
20	.73	.7238	-6.200075E-03	-.8566006 %
30	.874	.8783999	4.399956E-03	.5009057 %

BLANK

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.002	6.669108E-04	-1.333089E-03	-199.8902 %
10	20	20	0	0 %
0	0	6.669108E-04	6.669108E-04	100 %
0	0	6.669108E-04	6.669108E-04	100 %

BLANK

J Barry 2/24/89

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.002	4.200013E-03	2.200012E-03	52.38109 %
10	.15	.1509	9.000301E-04	.5964413 %
20	.306	.2976001	-8.399934E-03	-2.822558 %
30	.439	.4443001	5.300075E-03	1.192904 %

AQC TV=25.0

SF5794

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.361	.3616	5.999804E-04	.1659238 %
10	.495	.4957	6.999374E-04	.1412018 %
20	.633	.6297999	-3.200114E-03	-.508116 %
30	.762	.7638999	1.899839E-03	.2487026 %

89FG07D41

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.001	1.099991E-03	9.999075E-05	9.090144 %
10	.03	3.069999E-02	6.999914E-04	2.280103 %
20	.062	.0603	-1.700006E-03	-2.819248 %
30	.089	8.989999E-02	8.999854E-04	1.001096 %

89FS07R04

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.001	3.499939E-03	4.499939E-03	128.5719 %
10	.141	.1385	-2.500042E-03	-1.805085 %
20	.282	.2735	-8.500039E-03	-3.107876 %
30	.402	.4085	6.499976E-03	1.591181 %

89FS07S23

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.002	-1.400009E-03	5.99991E-04	-42.85622 %
10	.038	.0377	-2.999976E-04	-.7957497 %
20	.078	7.680001E-02	-1.199991E-03	-1.562487 %
30	.115	.1159	9.000152E-04	.7765445 %

0	-.002	-1.400009E-03	5.99991E-04	-42.85622 %
10	.038	.0377	-2.999976E-04	-.7957497 %
20	.078	7.680001E-02	-1.199991E-03	-1.562487 %
30	.115	.1159	9.000152E-04	.7765445 %

89FS07S24

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.001	2.000122E-04	-7.999878E-04	-399.9695 %
10	.069	7.090001E-02	1.90001E-03	2.679845 %
20	.143	.1416	-1.399994E-03	-.9886962 %
30	.212	.2123	3.0002E-04	.1413189 %

89FM07R05

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	0	3.600037E-03	3.600037E-03	100 %
10	.144	.1412	-2.799973E-03	-1.982983 %
20	.284	.2788	-5.199999E-03	-1.865136 %
30	.412	.4164	4.399985E-03	1.056673 %

AQC TV=25.0

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.369	.3726	3.599972E-03	.9661761 %
10	.5120001	.5082001	-3.799975E-03	-.7477321 %
20	.647	.6438001	-3.199935E-03	-.4970386 %
30	.776	.7794001	3.400087E-03	.4362442 %

SF5734

John Gauz
2/24/89

SF5734

		-0.001	
		0.000	AZ
not used		0.004	
		0.148	
		0.307	
		0.432	
		0.365	
		0.499	
		0.626	
		0.762	
		0.001	

J Gary
2/17/89

		0.000	
		0.000	AZ
Blank	+0	0.002	
	+10	0.150	
	+20	0.306	
	+30	0.439	
AQC TV=25.0	+0	0.361	
	+10	0.495	
	+20	0.633	
	+30	0.762	
89FG07 D41	+0	0.001	
	+10	0.030	
	+20	0.062	
	+30	0.089	↑SF5794
89FS07 R04	+0	-0.011	↓SF5794
	+10	0.141	
	+20	0.282	
	+30	0.402	
89FS07 S23	+0	-0.002	
	+10	0.038	
	+20	0.078	
	+30	0.115	
89FS07 S24	+0	0.001	
	+10	0.069	
	+20	0.143	
	+30	0.212	SF5795
89FS07 R05	+0	-0.000	SF5792
	+10	0.144	
	+20	0.284	
	+30	0.412	
AQC TV=25.0	+0	0.369	
	+10	0.512	
	+20	0.647	
	+30	0.776	
Blank		0.003	

J Gary
2/17/89

		0.000	
		0.000	AZ
Blank	+0	-0.003	
	+10	0.170	
	+20	0.350	
	+30	0.506	
AQC TV=25.0	+0	0.418	
	+10	0.584	
	+20	0.750	
	+30	0.860	
89FS06 R01	+0	0.000	
	+10	0.150	
	+20	0.293	
	+30	0.434	
89FS06 S18	+0	0.024	
	+10	0.044	
	+20	0.066	
	+30	0.099	
89FS06 S19	+0	-0.000	
	+10	0.042	
	+20	0.075	
	+30	0.126	SF5794↑
89FG07 R06	+0	-0.002	SF5794↓
	+10	0.164	
	+20	0.325	
	+30	0.487	
89FG07 S41	+0	-0.001	
	+10	0.030	
	+20	0.067	
	+30	0.099	
AQC TV=25.0	+0	0.412	
	+10	0.570	
	+20	0.730	
	+30	0.874	
Blank		-0.002	

		-0.001	
		0.000	AZ
not used		-0.001	
		0.177	
		0.348	
		0.502	
		0.419	
		0.580	
		0.730	
		0.876	

AAS Run Log

Element Tl

Date 2/17/89

J Amy

Initials JWG

Data Set SF5794

	ID	Spike	Comment
1	Blank	0	
2		10	
3		20	
4		30	
5	AQC TV=25.0	0	
6		10	
7		20	
8		30	
9	89F506R01	0	
10		10	
11		20	
12		30	
13	89F506518	0	
14		10	
15		20	
16		30	
17	89F506519	0	
18		10	
19		20	
20		30	
21	89F607544R06 gwb 2/17/89	0	
22		10	
23		20	
24		30	
25	89F607541	0	
26		10	

AAS Run Log

Element Tl

Date 2/17/89

J Hamy

Initials JWG

Data Set SF5794

	ID	Spike	Comment
27		20	
28		30	
29	AQC	0	
30		10	
31		20	
32		30	
33	Blank		
34			
35			
	Wheel 2		
1	Blank	0	
2		10	
3		20	
4		30	
5	AQC	0	
6		10	
7		20	
8		30	
9	89FG07D41	0	
10		10	
11		20	
12		30	
13	89FS07R04	0	
14		10	
15		20	
16		30	

AAS Run Log

Element T1

Date 2/17/89

J Dany

Initials JWG

Data Set SF5794

	ID	Spike	Comment
17	89FS07523	0	
18		10	
19		20	
20		30	
21	89FS07524	0	
22		10	
23		20	
24		30	
25	89FM07R05	0	
26		10	
27		20	
28		30	
29	AQC	0	
30		10	
31		20	
32		30	
33	Blank		
34			
35			
	Wheel 3		
1			
2			
3			
4			
5			
6			

J Gary

Element	Instrument	QC Source	
☐ Ag	☐ 5000	☐ WP 284 TM I #2	Analyst JWG
☐ As	☒ 4000	☒ WP 1183 TM II #1	Date 2/17/89
☐ Cd	☐ 5000 ZE	☐ WP 1183 TM II #2	Lamp # 2256
☐ Cr	☐ 5000 ZW	☐ ICV 2	Energy 60
☐ Pb	☐ 5100	☐ SPEX II	Expansion 3
☐ Sb	☐ Varian 30	☐ NBS SRM 1643b	Stock SPEX 1-128-EP
☐ Se		☐	☐ platform ☐ MSC
☒ Tl		☐	☒ wall ☒ MSA

Blank	Slope	AQC	Digestion QC
-.02	.01707	27.4	
.29	.01467	26.8	
		27.0	
		27.5	
			SF5734

Blank cup absorbance
-.002
.003

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 5
CHICAGO, ILLINOIS

DATE: MAR 10 1989

SUBJECT: Review of Region 5 data for FAIRMOUNT RAILWAY

FROM: Curtis Ross, Director
Region 5 Central Regional Laboratory

To: Data User: F/T

Attached are the results for:

CRL Data Set Numbers: SF 5794
Sample Numbers: 89FG07541-R06
Parameter(s): FURNACE METALS
Laboratory: CRL/ESAT

Results Status:

( ) DATA ACCEPTABLE FOR USE*
( ) DATA QUALIFIED AS TO USE
( ) DATA UNACCEPTABLE FOR USE

* For data acceptability requirements, refer to the method capability statement for the methods referenced.

Comments by the Quality Control Coordinator:

If there are any questions regarding the data, refer them to David Payne, the Quality Control Coordinator, at 353-3805.

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
(5SCRL)

TRANSMITTED BY
S. Griffin
MAR 10 1989

RECEIVED BY/DATE: Mary Gzyra 3/10/89
Comments:

U.S. EPA CENTRAL
REGIONAL LAB