AR TARGET SHEET

The following document was too large to scan as one unit, therefore it has been broken down into sections.

DOCUMENT # SD-WM-DP-025

EDMC # 0025698 Vol 17 of 18

SECTION 2 OF 2

Pages 562-1191

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MERCURY ANALYSIS - UNDIGESTED SAMPLE

Sample No.	Sample Point	Date	Time Issued	Priority
R 314.-5597	106AW	9-19-91	13:33	26

Determination	Method/Standard	Result Units	Charge Code	Reagent
Hg	LA-325-102	% RECOVERY	W11E2	C

Sample Size: ? 1.50 ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R716 HG/HYDRD
STDN/25838D RESULT 1.05E-1
STD VAL 1.00E-1 %REC 105.0920
~~0.085~~ 157.57/1500 =
DRJ 0.504

Analyst-1: GC225

Date	Time Completed	Log Unit/Sig
10-18-91		

10-17-91 JWL

Sample No.	Sample Point	Date	Time Issued	Priority
R 317.-5697	106AW	9-19-91	13:45	26

Determination	Method/Standard	Result Units	Charge Code	Reagent
Hg	LA-325-102	PPM	W11E2	C

Sample Size: ? 10.0 ml
Customer ID: REG W.

Remarks, Calculations, Results:
REAGENT BLANK
~~0.012~~ 10-17-91 DRJ
0.000 <5/10,000 = <5.00E-4 ppm

Analyst-1: GC225

Date	Time Completed	Log Unit/Sig
10-6-91	10:47A	

JWL 6-5-91

Sample No.	Sample Point	Date	Time Issued	Priority
R 322.-5797	106AW	9-19-91	15:42	25

Determination	Method/Standard	Result Units	Charge Code	Reagent
Hg	LA-325-102	PPM	W11E2	C

Sample Size: ? 1.0 ml
Customer ID: 291-9A

Remarks, Calculations, Results:
~~0.006~~ 10-17-91 DRJ
-0.010 <5/1000 = <5.00E-3 ppm

Analyst-1: GC225

Date	Time Completed	Log Unit/Sig
10-6-91		

JWL 7-7-91

Sample No.	Sample Point	Date	Time Issued	Priority
R 323.-5597	106AW	9-19-91	15:45	25

Determination	Method/Standard	Result Units	Charge Code	Reagent
Hg	LA-325-102	% RECOVERY	W11E2	C

Sample Size: ? 1.50 ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R716 HG/HYDRD
STDN/25838D RESULT 1.00E-1
STD VAL 1.00E-1 %REC 100.0920
DRJ 0.483 150.73/1500 =
~~0.515~~ 10-17-91

Analyst-1: GC225

Date	Time Completed	Log Unit/Sig
10-6-91		

JWL 6-5-91

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
CALIBRATION RECORD

Analyte: Hg

Procedure: LA-325-102 | Revision: B-0

Instrument: PERKIN ELMER | Property No.: WA77479

Technologist: D. R. JACKSON | Payroll No.: 6C275 | Date: 10-17-91

Calibration Standard: 124B38D

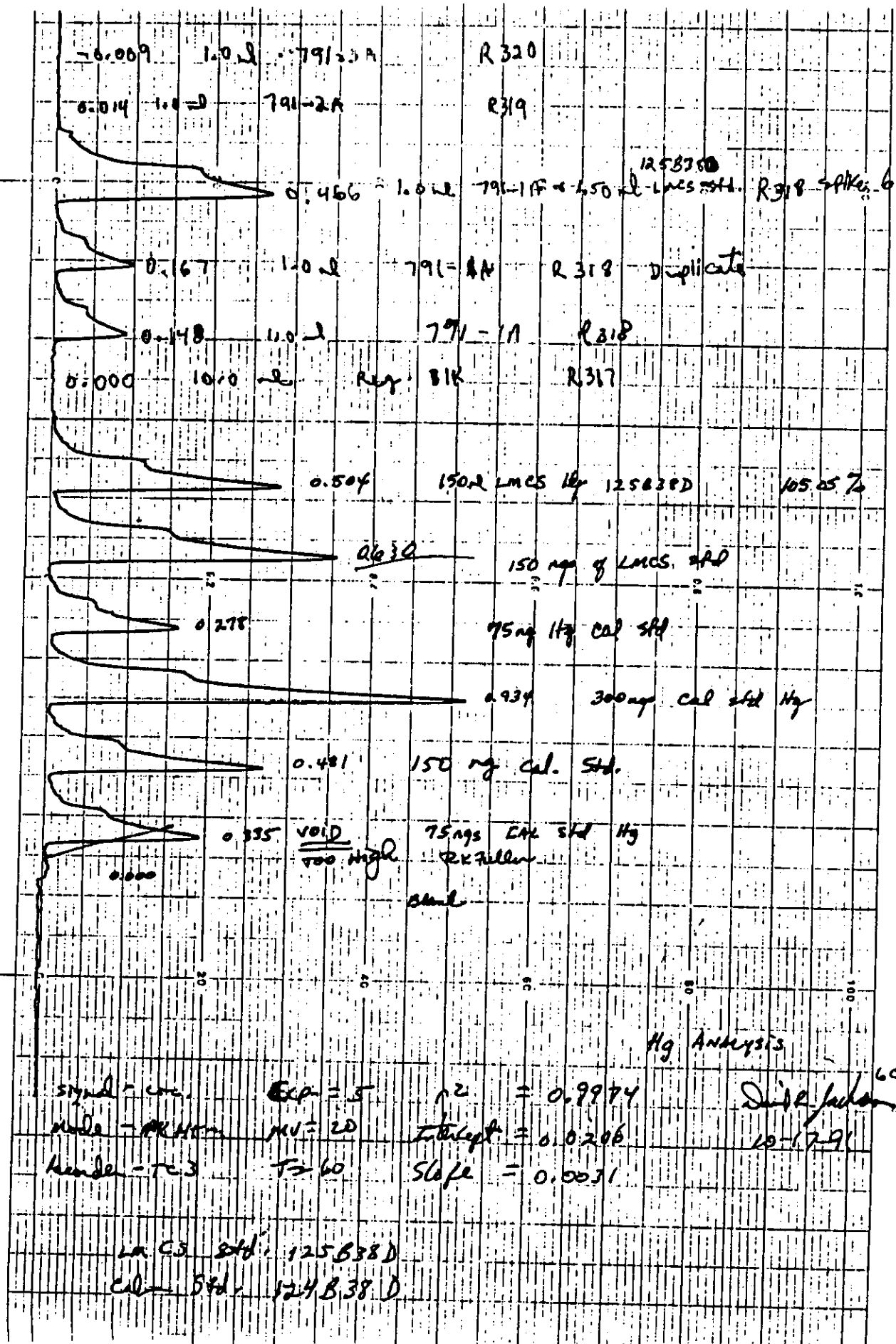
Analyte Concentration: 0.1000 ppm

Type of Calibration: LINEAR

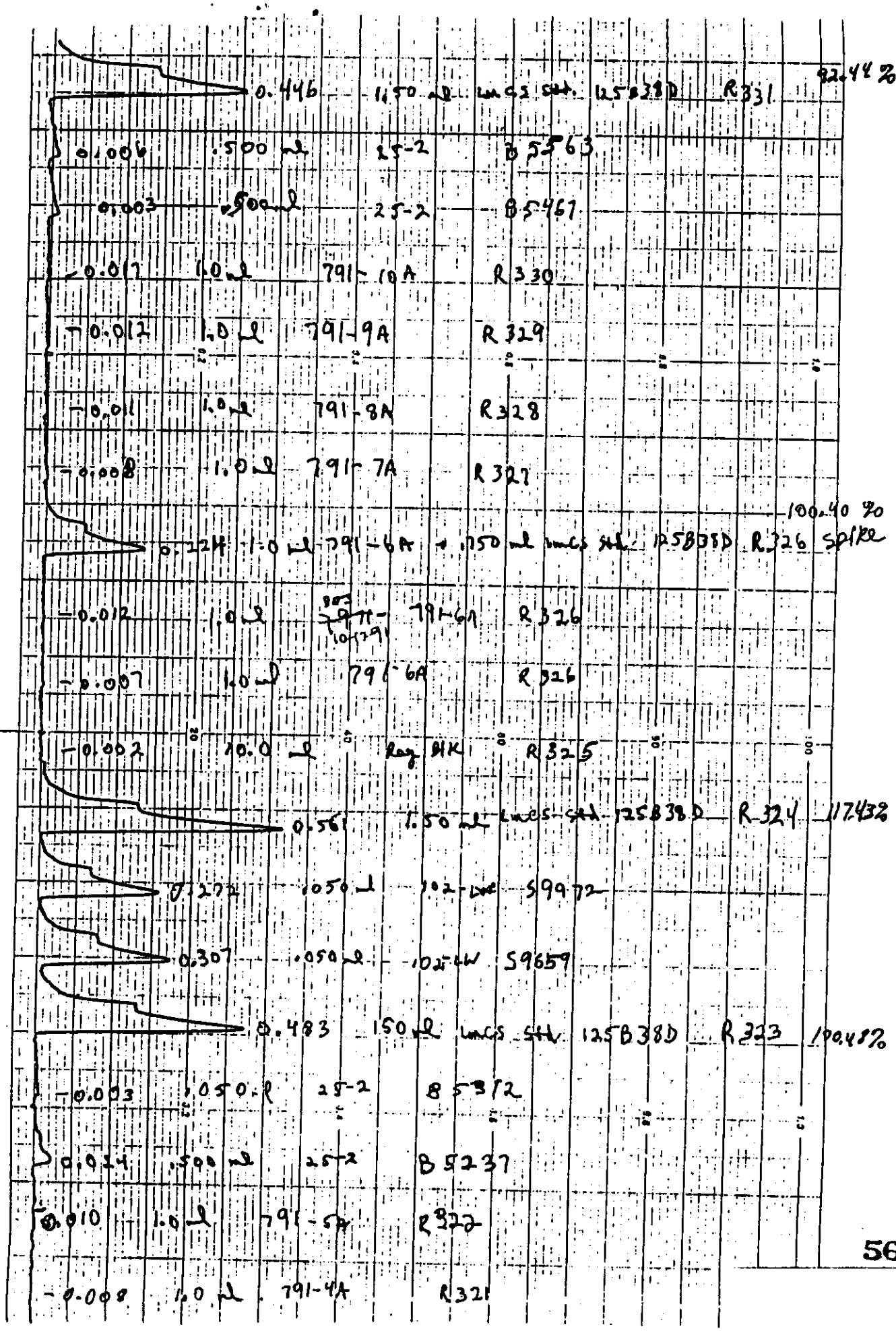
	Dilution	Concentration	Instrument Reading Unit
1	0.000 mL	0 ng	0.000
2	0.750 mL	75 ng	0.278
3	1.500 mL	150 ng	0.481
4	3.000 mL	300 ng	0.934
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Comments:

A-6000-882 (03/9



SIGNATURE ABOVE REPRESENTS TECHNOLOGIST/CHEMIST THAT COMPLETED THE ANALYSIS RUN ON PAGES 564 TO 565.


PERKIN-ELMER
Chart No. CP334C2-0
0.446 1.50 ml LMCS Std. 125B38D R331 92.44 %
0.006 .500 ml 25-2 B5563
0.003 .500 ml 25-2 B5467
-0.017 1.0 ml 791-10A R330
-0.012 1.0 ml 791-9A R329
-0.011 1.0 ml 791-8A R328
-0.008 1.0 ml 791-7A R327
100.40 %
0.224 1.0 ml 791-6A + .750 ml LMCS Std. 125B38D R326 Spike
-0.012 1.0 ml 791-6A R326
-0.007 1.0 ml 791-6A R326
-0.002 10.0 ml Reg Blk R325
0.561 1.50 ml LMCS Std 125B38D R324 117.43%
0.272 .050 ml 102-LW S9972
0.307 .050 ml 102-LW S9659
0.483 150 ml LMCS Std 125B38D R323 100.48%
-0.003 .050 ml 25-2 B5372
0.024 .500 ml 25-2 B5237
-0.010 1.0 ml 791-5A R322
-0.008 1.0 ml 791-4A R321
PERKIN-ELMER
Chart No. CP334C2-0

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R322	Customer ID: 791-5A
Analysis: AMMONIA	Sample Prep: UNDIGESTED

Instrument: AL10665,AL10696	Procedure/Rev: LA-634-102/D-0
Technologist: S. LAI	Date: 10-03-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5528	11		
2	REAGENT BLANK	R325-5628	12		
3	SAMPLE 791-5A	R322-5728*	13		
4	FINAL LMCS CHECK STD	R331-5528	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	4C11-QQ/.250 mL			NA
*SAMPLE RERUN.				

A-6000-881 (03/92)

9312231331

AMMONIA ANALYSIS - UNDIGESTED SAMPLE
WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5528	106AW	9-20-91	10: 5	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
NH4	LA-634-102	% RECOVERY	W11E2	0

Sample Size: ? 250λ — 0.099414 — Customer ID: STD

Remarks, Calculations, Results: NCL

S235 NH4CL

STD# 4C11-QQ RESULT 4.90x10^-2 — Blank: 28λ

STD VAL 5.10x10^-2 %REC 96.08%

(.250-.028)(.09941) / .250 = .049 — STD: 150λ

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
Sue Lin				
6C916				

Date: 10-3-91 — Time Completed: — Lab Unit Mgr: DM Thornton — Dayne Smith

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5628	106AW	9-20-91	10: 7	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
NH4	LA-634-102	PPM	W11E2	0

Sample Size: ? 1 ml — 0.099414 — Customer ID: REG BL

Remarks, Calculations, Results: NCL

REAGENT BLANK

< (.010)(.09941) / 1 = <9.94x10^-4 M — Blank: 28λ (kg) Blank: 28λ

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
Sue Lin				
6C916				

Date: 10-3-91 — Time Completed: — Lab Unit Mgr: DM Thornton — Dayne Smith

Serial No	Sample Point	Date	Time Issued	Priority
R 322.-5720	106AW	9-19-91	15:41	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
NH4	LA-634-102	PPM	W11E2	1

RERUN

Sample Size: ? 1 ml — 0.099414 — Customer ID: 791 5a

Remarks, Calculations, Results: NCL

(.042-.028)(.09941) / 1 = 1.39x10^-3 M — Blank: 28λ — Sample: 42λ

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
Sue Lin				
6C916				

Date: 10-3-91 — Time Completed: — Lab Unit Mgr: DM Thornton — Dayne Smith

Serial No	Sample Point	Date	Time Issued	Priority
R 331. 5528	106AW	9-20-91	10:[illegible]	[illegible]

Determination	Method/Standard	Result Units	Charge Code	Rerun
NH4	LA-634-102	% RECOVERY	W11E2	0

Sample Size: ? 250λ — 0.099414 — Customer ID: STD

Remarks, Calculations, Results: NCL

S235 NH4CL

STD# 4C11-QQ RESULT 4.93x10^-2 — Blank: 28λ

STD VAL 5.10x10^-2 %REC 96.67%

(.152-.028)(.09941) / .250 — STD: 152λ

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
Sue Lin				
6C916				

Date: 10-3-91 — Time Completed: — Lab Unit Mgr: DM Thornton — Dayne Smith

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R322	Customer ID: 791-5A
Analysis: DETERMINATION OF HYDROXIDE ION IN SOLUTION	Sample Prep: UNDIGESTED

Instrument: FISHER - WA77509	Procedure/Rev: LA-661-102/F-1
Technologist: M. BIERMAN	Date: 09-26-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: S. ISAACSON

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5529	11		
2	REAGENT BLANK	R325-5629	12		
3	SAMPLE 791-5A	R322-5729	13		
4	FINAL LMCS CHECK STD	R331-5529	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	9C11AF/0.1 mL			0.100 mL

A-6000-881 (03/92)

9 3 1 2 1 3 1 3 3 3 3

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.-5529	106AW	9-20-91	10: 5	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
OH	LA-661-102	% RECOVERY	W1TE2	0

Sample Size: ? .100 ml
Customer ID: STD

Remarks, Calculations, Results:
S273 ITS-OH
STDH 9611AF RESULT 1.02
STD VAL 1.0136 %REC 100.740
1 ml BaCl
.1905 ⊡ HNO3
(542.5 - 9)(.1905)/100 =

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6559				
MLB				

Date: 9/26/91
Time Completed:
Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.-5629	106AW	9-20-91	10: 8	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
OH	LA-661-102	M	W1TE2	0

Sample Size: ? 3 ml Q-H2O
Customer ID: REQ BL

Remarks, Calculations, Results:
REAGENT BLANK
.1905 ⊡ HNO3

Complete

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6559				
MLB				

Date: 9/26/91
Time Completed:
Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 322.-5729	106AW	9-19-91	15:41	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
OH	LA-661-102	M	W1TE2	0

Sample Size: .050 ml
Customer ID: 791 SA

Remarks, Calculations, Results:
1 ml BaCl
10 ml Q-H2O
1:2-OH (9611AF) .100 ml
.1905 ⊡ HNO3
(697-542.5)(.1905)/50 =
5.87E-1M

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6559				
MLB				

Date: 9/26/91
Time Completed:
Lab Unit Mgr: [signature]
JL 1-10-92

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.-5529	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
OH	LA-661-102	% RECOVERY	W1TE2	0

Sample Size: ? .100 ml
Customer ID: STD

Remarks, Calculations, Results:
S273 ITS-OH
STDH 9611AF RESULT 9.98E-1 m
STD VAL 1.0136 %REC 98.540
1 ml BaCl
3 ml Q-H2O
.1905 ⊡ HNO3
(533-9)(.1905)/100 =

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6559				
MLB				

Date: 9/26/91
Time Completed:
Lab Unit Mgr: [signature]
JL 5-27-92

DOCUMENTATION SEP 26 1991 10:51 AM

ANALYST: 6C559 LOCATION: 222-S 200 West

TITRANT: .1905 M HNO_3

INDICATING ELECTRODE:

REFERENCE ELECTRODE: 98% efficiency

SAMPLE:

SETUP PARAMETERS

MODE:	DIRECT READ PH
ELECTRODE STDZ:	PH
EQUILIBRATION TIME, SEC:	15

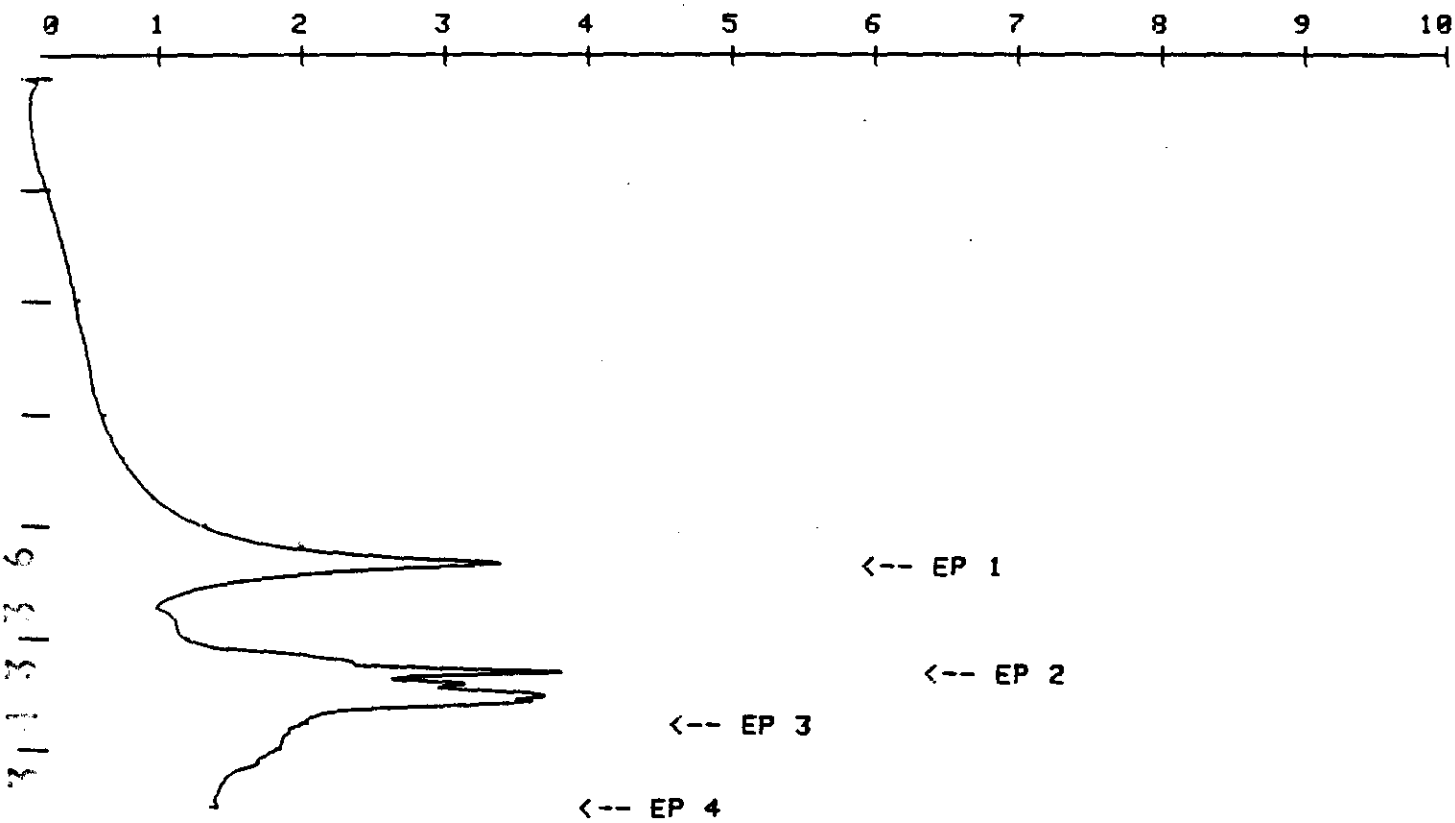
MODE:	DRV TITRATION
ELECTRODE STDZ:	PH
dE/dV SIGN:	+
ML LIMIT:	2.50
PH LIMIT:	3.
TITRATION RATE:	10
SENSITIVITY:	1
DISPENSE, ML:	0.
PLOT GAIN:	5
COMPUTATION:	CONCENTRATION
TITRANT NORMALITY:	0.1900
SOLVENT BLANK:	0.
MULTIPLIER:	0.

LAST ELECTRODE STANDARDIZATION: SEP 26 1991 10:20 AM

SAMPLE DATH: 324.
DIRECT READ PH: 12.022

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.72	0.541	0.0000
7.75	0.662	0.0000
4.85	0.720	0.0000
3.66	0.813	0.0000

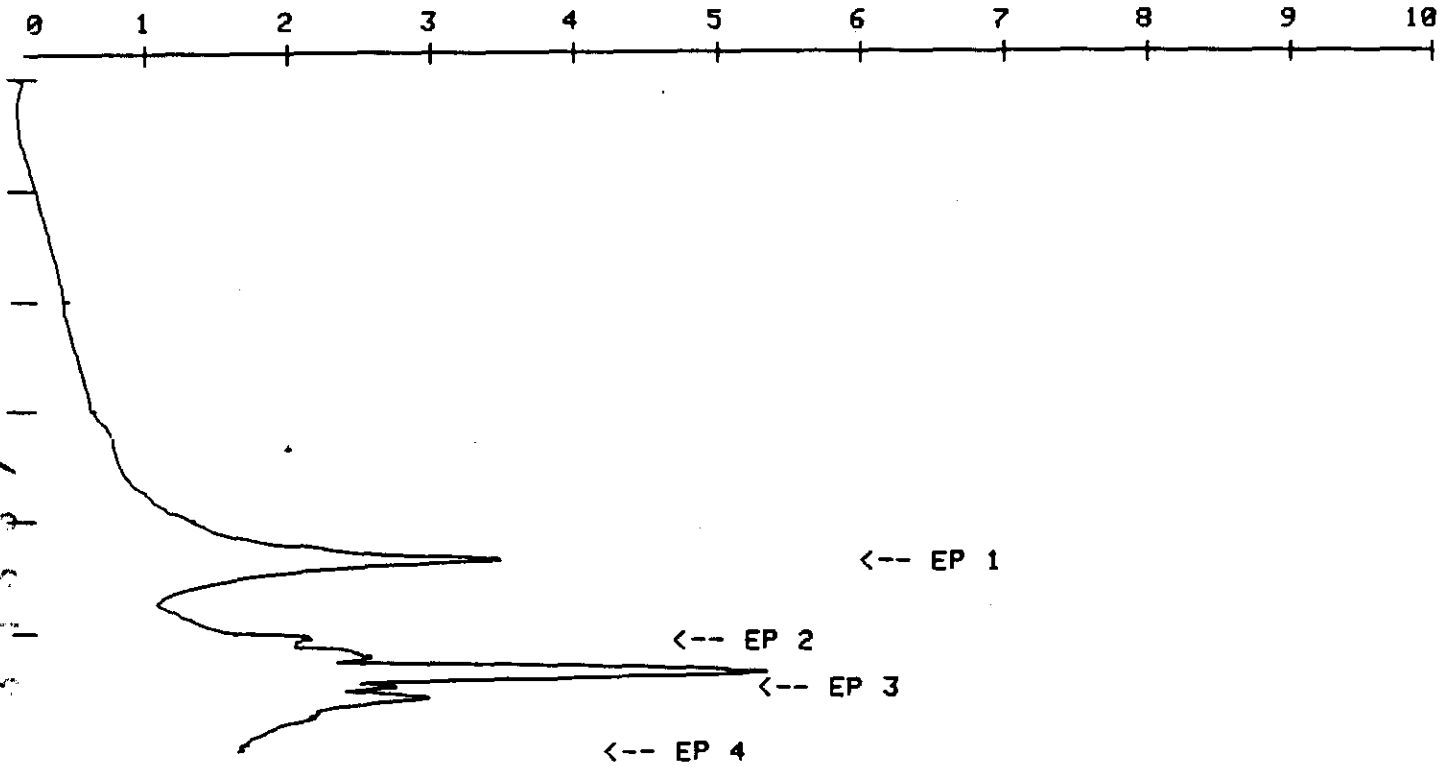
TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

SEP 26 1991 10:29 AM

SAMPLE NUMBER: 2
SAMPLE DATA: 324.
DIRECT READ PH: 12.041

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.75	0.544	0.0000
8.78	0.632	0.0000
5.78	0.683	0.0000
4.03	0.752	0.0000

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

SEP 26 1991 10:45 AM

SAMPLE NUMBER: 1
SAMPLE DATA: 325.
DIRECT READ PH: 5.668

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

DERIVATIVE OUTPUT, dE/dV

0 1 2 3 4 5 6 7 8 9 10

.009

DRV TITRATION:

TITRATION TERMINATED BY PH LIMIT.

SEP 26 1991 10:47 AM

SAMPLE NUMBER: 2
SAMPLE DATA: 325.
DIRECT READ PH: 5.739

DERIVATIVE OUTPUT, dE/dV

0 1 2 3 4 5 6 7 8 9 10

.009

DRV TITRATION:

TITRATION TERMINATED BY PH LIMIT.

SEP 26 1991 10:49 AM

SAMPLE NUMBER: 3
SAMPLE DATA: 325.
DIRECT READ PH: 5.727

DERIVATIVE OUTPUT, dE/dV

0 1 2 3 4 5 6 7 8 9 10

.009

DRV TITRATION:

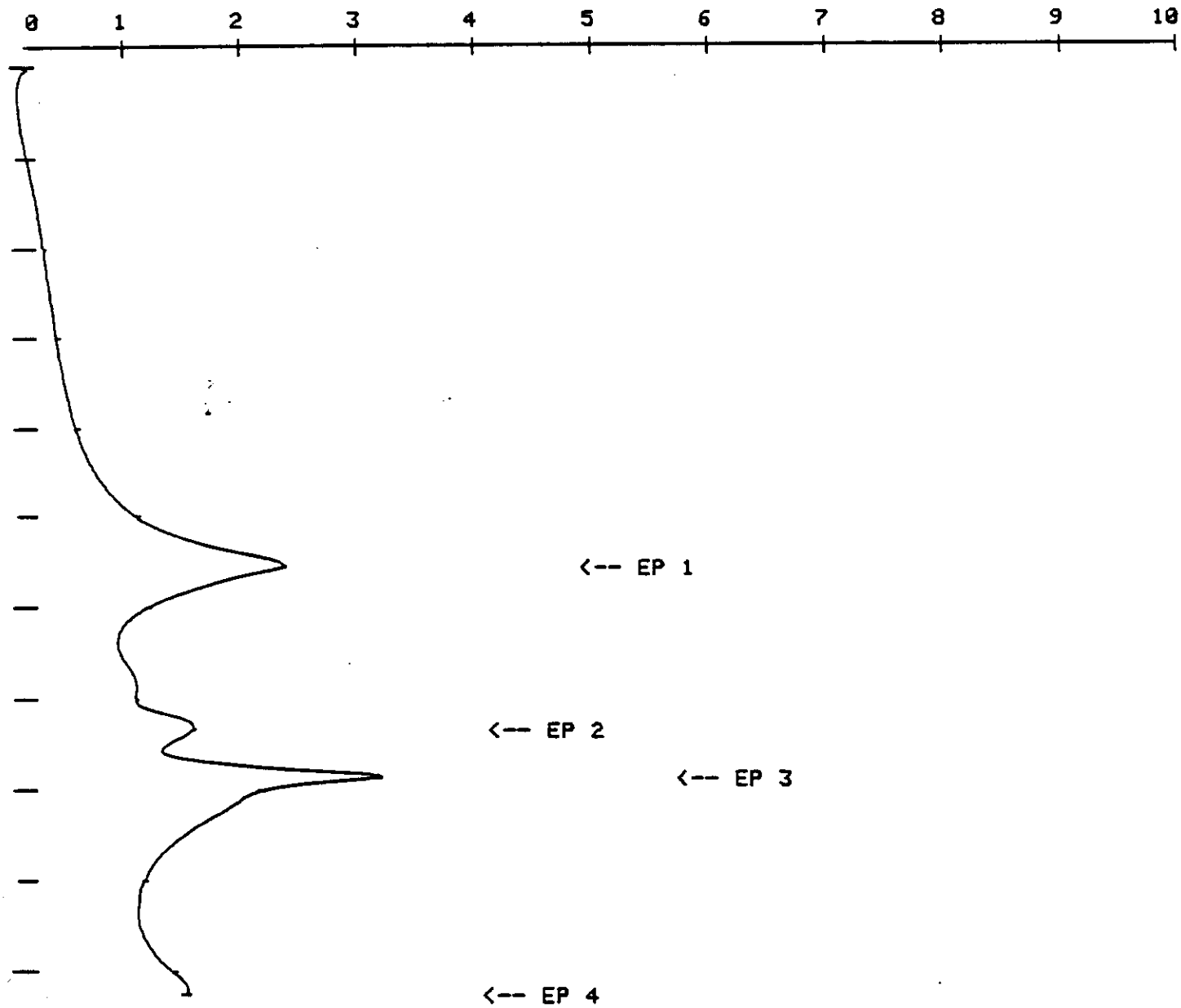
TITRATION TERMINATED BY PH LIMIT.

P 26 1991 10:51 AM

SAMPLE NUMBER: 1
SAMPLE DATA: 322.
DIRECT READ PH: 11.836

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.71	0.693	0.0000
8.20	0.915	0.0000
6.77	0.980	0.0000
3.72	1.278	0.0000

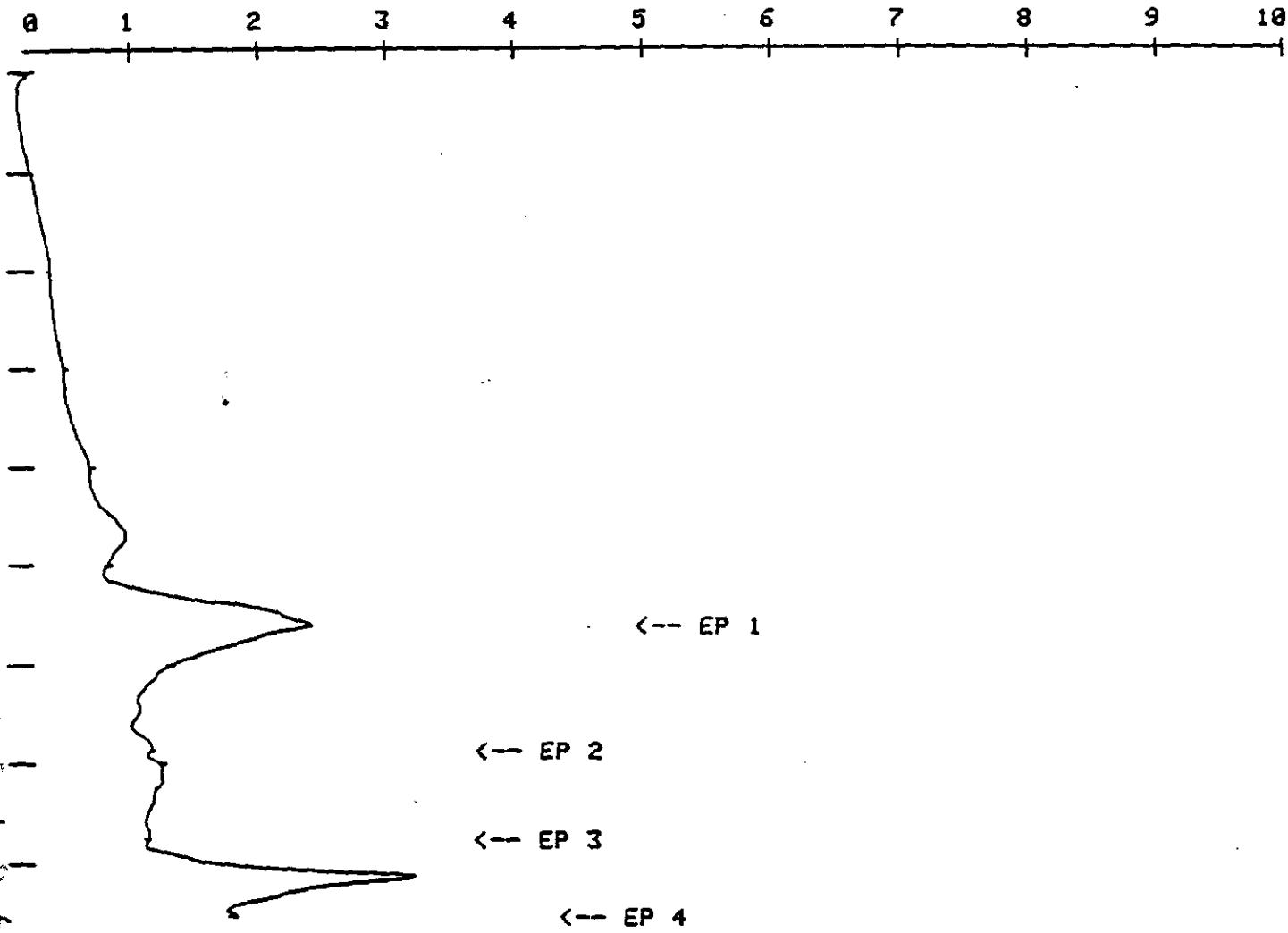
TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

SEP 26 1991 11:12 AM

SAMPLE NUMBER:
SAMPLE DATA: 9/26/91 #322
DIRECT READ PH: 11.867

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.74	0.701	0.0000
8.66	0.858	0.0000
8.02	0.968	0.0000
5.68	1.064	0.0000

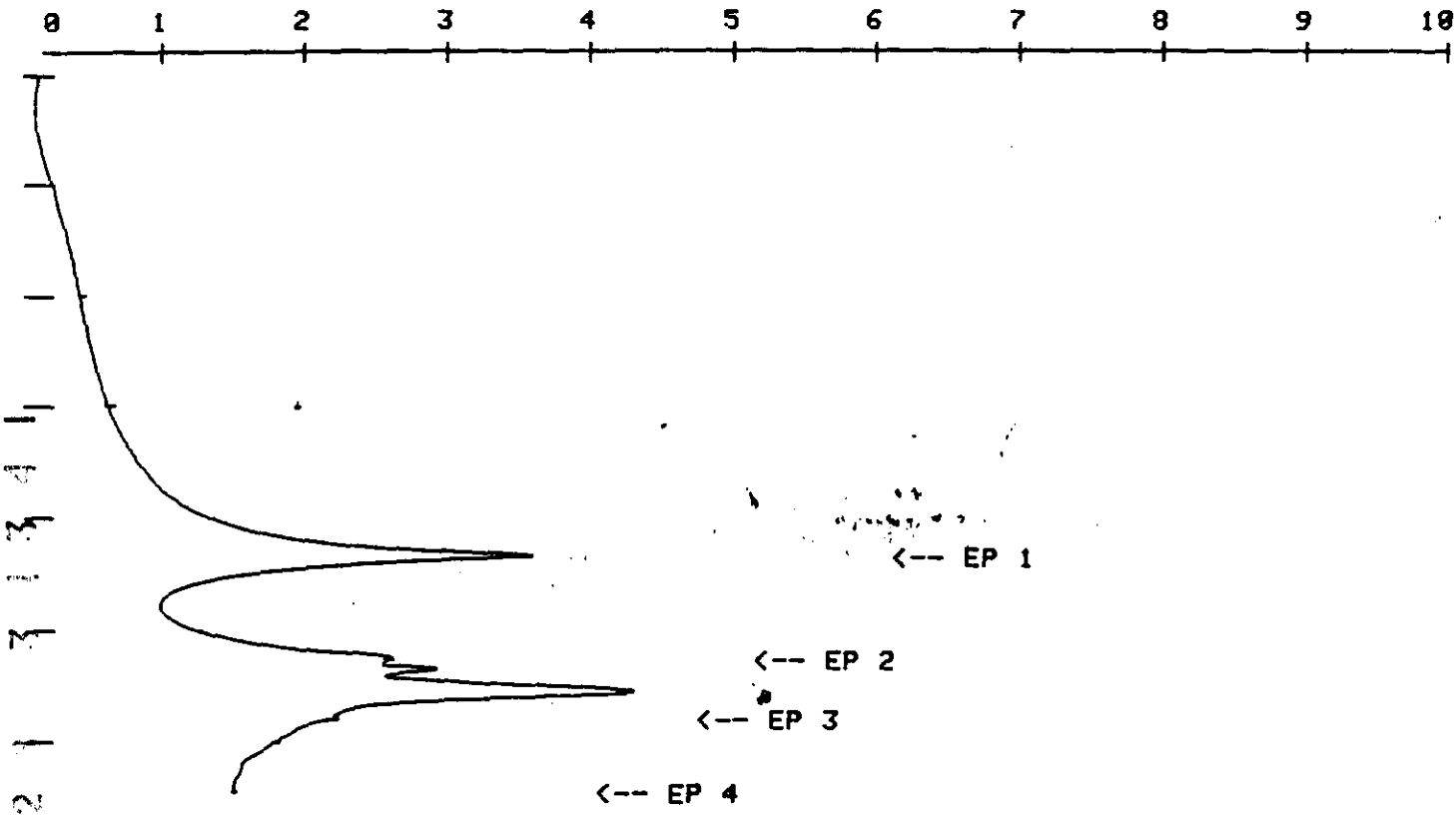
TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

SEP 26 1991 11:26 AM

SAMPLE NUMBER: 1
SAMPLE DATA: 331.
DIRECT READ PH: 12.057

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

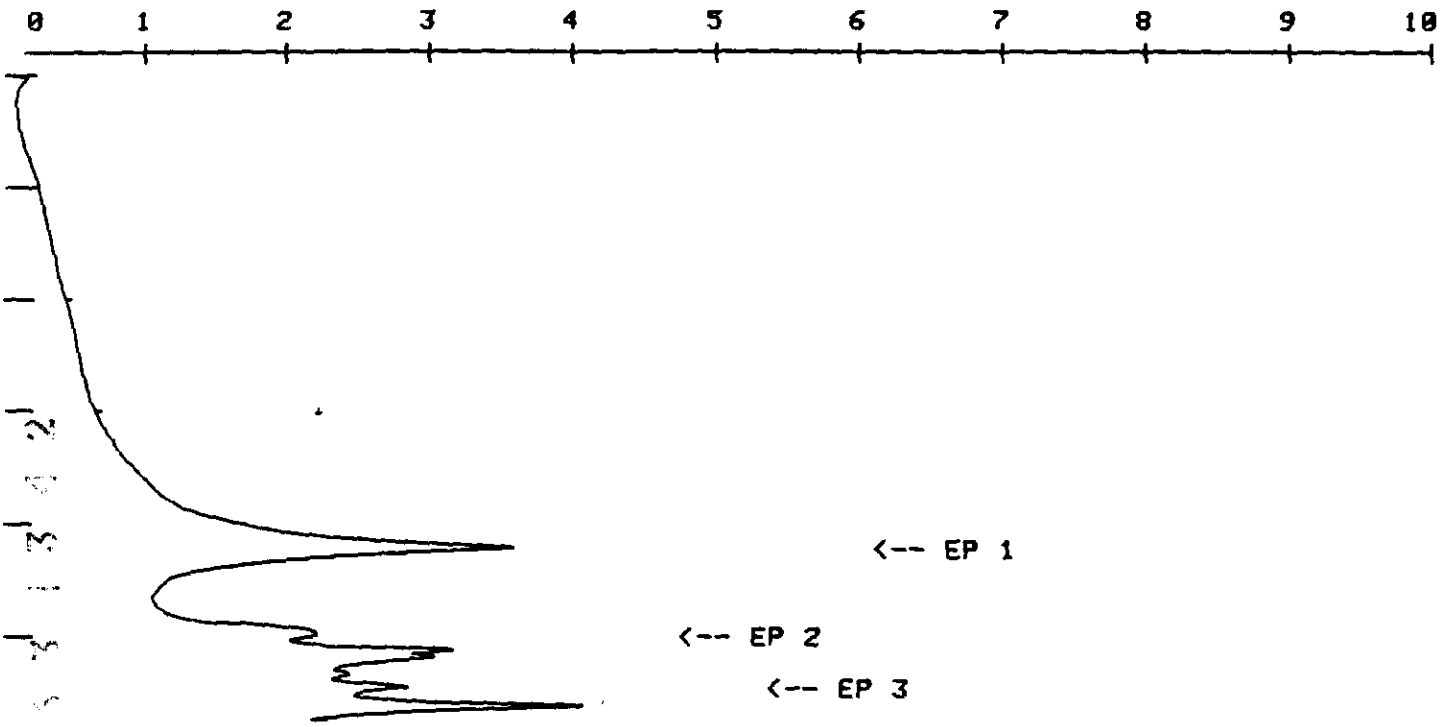
EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.65	0.541	0.0000
8.24	0.656	0.0000
4.79	0.722	0.0000
3.80	0.802	0.0000

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

SEP 26 1991 2:48 PM

SAMPLE NUMBER: 2
SAMPLE DATA: 331.
DIRECT READ PH: 12.055

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.62	0.525	0.0000
8.51	0.623	0.0000
6.29	0.680	0.0000

TITRATION TERMINATED BY PH LIMIT.

SEP 26 1991 2:55 PM

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R322	Customer ID: 791-5A
Analysis: SELENIUM	Sample Prep: UNDIGESTED

Instrument: PERKIN ELMER - WA77479	Procedure/Rev: LA-365-131/B-1
Technologist: M. MYERS	Date: 09-23-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R316-5596	11		
2	REAGENT BLANK	R317-5696	12		
3	SAMPLE 791-5A	R322-5796	13		
4	FINAL LMCS CHECK STD	R323-5596	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	125B38A/0.5 mL			NA

A-6000-881 (03/92)

SELENIUM ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

Serial No.	Sample Point	Date	Time Issued	Priority
R 316.-5596	106AW	9-19-91	13:35	26

Determination	Method/Standard	Result Units	Charge Code	Remarks
Se	LA-365-131	% RECOVERY	W1TE2	0

Sample Size: ? .5000 ml — Customer ID: STD

Remarks, Calculations, Results:
EDP R743 SE/HYDRD 9/24/91
STDN 125838A RESULT ~~1.731E-1~~ 1.011E-1
STD VAL 1.00E-1 %REC ~~[illegible]~~ 101.1%
~~[illegible]~~ 1.087 ~~86.5[illegible]~~ 9/24/91 ~~500~~ 50.573 / 500

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				
Hrs 6C823	Hrs	Hrs	Hrs	Hrs

Date: 9-23-91 — Time Completed: [signature] — Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 317.-5696	106AW	9-19-91	13:45	26

Determination	Method/Standard	Result Units	Charge Code	Remarks
Se	LA-365-131	PPM	W1TE2	

Sample Size: ? 1.0 ml — Customer ID: REG BL

Remarks, Calculations, Results:
REAGENT BLANK
0.013
$\frac{<5}{1000} = <5.00E^{-3}$

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				
Hrs 6C823	Hrs	Hrs	Hrs	Hrs

Date: 9-23-91 — Time Completed: [signature] — Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 322.-5796	106AW	9-19-91	15:42	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
Se	LA-365-131	PPM	W1TE2	0

Sample Size: ? 0.500 — Customer ID: 791-5A

Remarks, Calculations, Results:
0.031
$\frac{<5}{5000} = <1.00E^{-3}$

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				
Hrs 6C823	Hrs	Hrs	Hrs	Hrs

Date: 9-23-91 — Time Completed: [signature] — Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 323.-5596	106AW	9-19-91	15:45	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
Se	LA-365-131	% RECOVERY	W1TE2	0

Sample Size: ? .500 ml — Customer ID: STD

Remarks, Calculations, Results:
EDP R743 SE/HYDRD 9/24/91
STDN 125838A RESULT ~~1.33E-1~~ 9.12E-2
STD VAL 1.00E-1 %REC 91.07%
.983 9/24/91 ~~76.263~~ / 500 45.575 / 500

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				
Hrs 6C823	Hrs	Hrs	Hrs	Hrs

Date: 9-23-91 — Time Completed: [signature] — Lab Unit Mgr: [signature]

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
CALIBRATION RECORD

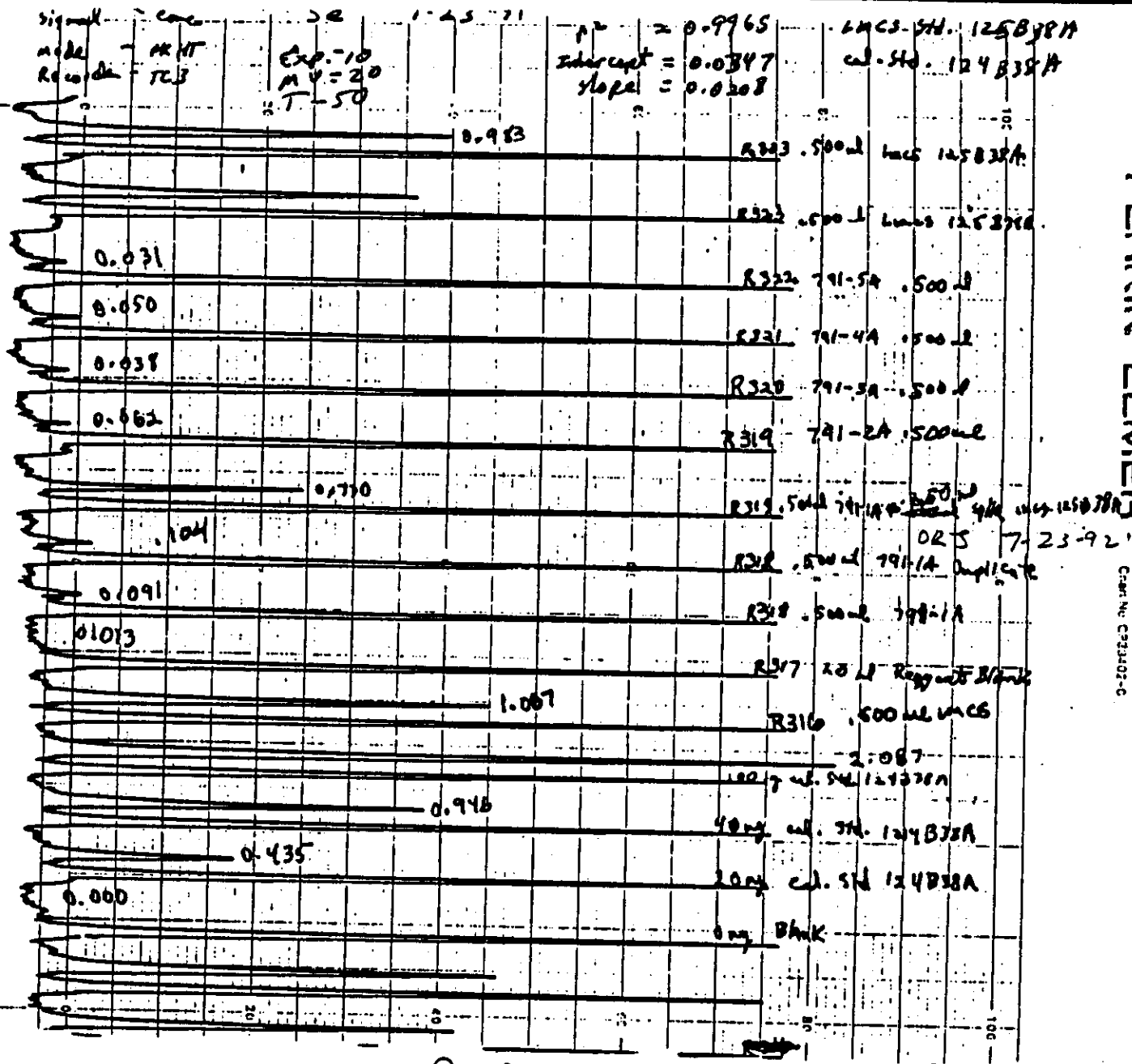
Analyte:	Se				
Procedure:	LA-365-131	Revision:	B-1		
Instrument:	HYDRIDE 44	Property No.:	WA77479		
Technologist:	M. MYERS	Payroll No.:	6C823	Date:	09-23-91

Calibration Standard: 124B38A
Analyte Concentration: 0.1000 ppm
Type of Calibration: LINEAR

	Dilution	Concentration	Instrument Reading Unit
1	0.000 mL	0.0 ng	0.000
2	0.200 mL	20.0 ng	0.435
3	0.400 mL	40.0 ng	0.946
4	1.000 mL	100.0 ng	2.087
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Comments:

A-6000-882 (03/92)



Se 9-23-91 [signature] DRS 7-23-92

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R322	Customer ID: 791-5A
Analysis: SPECIFIC GRAVITY	Sample Prep: UNDIGESTED

Instrument: WA90787	Procedure/Rev: LA-510-112/C-2
Technologist: J. SOLBRACK	Date: 10-18-91
Starting Time: 00:30	Temperature: N/A
Ending Time: 04:30	Chemist: R. K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R316-5506	11		
2	REAGENT BLANK	R317-5606	12		
3	SAMPLE 791-5A	R322-5706	13		
4	FINAL LMCS CHECK STD	R323-5506	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	15C11BJ/.20019 mL			N/A

A-6000-881 (03/92)

SPECIFIC GRAVITY ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
R 316. 5506	106AW	9-19-91	13:35	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SPG	LA-510-112	% RECOVERY	WHE2	0

Sample Size: 200.19 g — Customer ID: STD

Remarks, Calculations, Results:
SS32 ZNCL2
STDN/SCH-43 RESULT 1.4264
STD VAL 1.4386 %REC 99.15%

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				
82020			[signature]	

Date: 10-18-91 — Time Completed — Lab Unit Mgr: [signature]

R 316-5506

A. 2.2171
1.4316
.2855 — .2855 / .20019 = 1.4261 ÷ 1.4386 x 100 = 99.15

B. 2.2037
1.9181
.2856 — .2856 / .20019 = 1.4266 ÷ 1.4386 x 100 = 99.16

Serial No.	Sample Point	Date	Time Issued	Priority
R 317.-5606	106AW	9-19-91	13:45	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
SPG	LA-510-112		WHE2	

Sample Size: 200.19 g — Customer ID: RED BL

Remarks, Calculations, Results:
REAGENT BLANK

.9871

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				
82020				

Date: 10 18 91 — Time Completed — Lab Unit Mgr: [signature]

R 317-5606

A. 2.1434
1.9458
.1976 ÷ .20019 = .9871

B. 2.0895
1.8919
.1976 — .1976 / .20019 .9871

Serial No.	Sample Point	Date	Time Issued	Priority
R 322. 5706	106AW	9-19-91	15:40	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
SPG	LA-510-112		WHE2	0

Sample Size: .20019 — Customer ID: [illegible]

Remarks, Calculations, Results:

1.0795

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				
82020				

Date: 10 18 91 — Time Completed — Lab Unit Mgr: [signature]

R 322-5706

~~A. 2.1130~~
~~1.8970~~
~~.2160~~ 28.
10-18-91

A. 2.1130
1.8970
.2160

ave = .2161 / .20019 = 1.0795

B 2.0783
1.8621
.2162

SPECIFIC GRAVITY ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No	Sample Point	Date	Time Issued	Priority
R 323-5506	106AW	7-19-91	15:43	25

Determination	Method/Standard	Result Units	Charge Code	Return
SPG	LA 510-112	% RECOVERY	W1TE2	0

Sample Size	Customer ID
% .20019	STD

Remarks, Calculations, Results

S332 ZHCL2

STDN 15CH-BJ RESULT 1.4254

STD VAL 1.4886 %REC 99.08%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
Hrs 82020	Hrs	Hrs	Hrs [signature]	Hrs

Date	Time Completed	Lab Unit Hrs
10 18 91		[signature]

A. 2.1738
1.8885
.2853

R. 323-5506

ave = .2854 / .20019 = 1.4258

B. 2.1808
1.8954
.2854

9 3 1 2 3 3 1 3 4 9

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R322	Customer ID: 791-5A
Analysis: TOTAL INORGANIC CARBON	Sample Prep: UNDIGESTED

Instrument: WB39927	Procedure/Rev: LA-622-102/B-0
Technologist: M. MYERS	Date: 09-25-91
Starting Time: 00:29	Temperature: NA
Ending Time: 04:18	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R316-5527	11		
2	REAGENT BLANK	R317-5627	12		
3	SAMPLE 791-5A	R322-5727	13		
4	FINAL LMCS CHECK STD	R323-5527	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	69C11K/0.05 mL			N/A

A-6000-881 (03/92)

TOTAL INORGANIC CARBON ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Sample No	Sample Point	Date	Time Issued	Priority
R 316.-5527	106AW	9-19-91	13:35	26

Determination	Method/Standard	Result Units	Charge Code	Results
TIC	EA-622 102	% RECOVERY	WHE2	C

Sample Size: .050 ml — Customer ID: STD

Remarks, Calculations, Results:
S225 CO3
STD# 6ACUK RESULT ~~2.68E-1~~ 1.995E-1 M DYBivenius 6/30/92
STD VAL 2.00E-1 % REC ~~104.0%~~ 99.75% DYB 6/30/92

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				DYBivenius
6C823			[signature]	

Date: 9-25-91 — Time Completed: — Lab Unit Mgr: [signature]

Sample No	Sample Point	Date	Time Issued	Priority
R 317.-5627	106AW	9-19-91	13:45	26

Determination	Method/Standard	Result Units	Charge Code	Results
TIC	EA-622 102	G/L	WHE2	C

Sample Size: .050 ml — Customer ID: REG BL

Remarks, Calculations, Results:
REAGENT BLANK
~~5.10 ug C~~ DYB 6/30/92 5.70 ug C
~~1.14E-1 g/L C~~ ~~minutes/ppm~~ DYB 6-11-92

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				DYBivenius
6C823				

Date: 9-25-91 — Time Completed: — Lab Unit Mgr: [signature]

Sample No	Sample Point	Date	Time Issued	Priority
R 322.-5727	106AW	9-19-91	15:40	25

Determination	Method/Standard	Result Units	Charge Code	Results
TIC	EA-622 102	G/L	WHE2	C

Sample Size: .050 ml — Customer ID: 791 5A

Remarks, Calculations, Results:
2.30 g/L C

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				
6C823				

Date: 9-25-91 — Time Completed: — Lab Unit Mgr: [signature]

Sample No	Sample Point	Date	Time Issued	Priority
R 323.-5527	106AW	9-19-91	15:45	25

Determination	Method/Standard	Result Units	Charge Code	Results
TIC	EA-622 102	% RECOVERY	WHE2	C

Sample Size: .050 ml — Customer ID: STD

Remarks, Calculations, Results:
S225 CO3
STD# 6ACUK RESULT ~~2.1E-1~~ 2.04E-1 M DYB 6/30/92
STD VAL 2.00E-1 % REC ~~106.0%~~ 102% DYB 6/30/92

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				DYBivenius
6C823			[signature]	

Date: 9-25-91 — Time Completed: — Lab Unit Mgr: [signature]

TIC

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: BLANK Date: 09-25-1991 Time: 00:29:30

Blank = 0 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.80	-525.00
2	2.01	1.60	50.00
3	3.01	2.30	30.43
4	4.01	3.00	23.33
5	5.01	3.60	16.67
6	6.01	4.50	20.00
7	7.01	5.10	11.76

(5.1 - 0)(1)/(50) = .102 g/L Carbon

(5.1 - 0)(1)/(50)(12) = 8.499999E-03 Molar Carbon

Sample Run By: 80028_____

TVC

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: STD R3/4 Date: 09-25-1991 Time: 00:45:11

Blank = 0 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	104.80	100.00
3	3.01	117.60	10.88
4	4.01	121.40	3.13
5	5.01	123.00	1.30
6	6.01	124.00	0.81
7	7.01	124.80	0.64

(124.8 - 0)(1)/(50) = 2.496 g/L Carbon

(124.8 - 0)(1)/(50)(12) = .208 Molar Carbon

Sample Run By: 6C823 _____

TIC

WHC-SD-WM-DP-025
Addendum 16 Rev 0

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R317 Date: 09-25-1991 Time: 00:54:43

Blank = 0 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	2.10	100.00
3	3.01	3.10	32.26
4	4.00	3.60	13.89
5	5.01	4.30	16.28
6	6.01	5.00	14.00
7	7.01	5.70	12.28

(5.7 - 0)(1)/(50) = .114 g/L Carbon

(5.7 - 0)(1)/(50)(12) = .0095 Molar Carbon

Sample Run By: 6C823 _____

TIC

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R322 Date: 09-25-1991 Time: 03:58:14

Blank = .11 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	99.10	100.00
3	3.01	106.50	6.95
4	4.01	110.60	3.71
5	5.01	113.10	2.21
6	6.01	114.50	1.22
7	7.01	115.60	0.95

(115.6 - .7706244)(1)/(50) = 2.296588 g/L Carbon

(115.6 - .7706244)(1)/(50)(12) = .1913823 Molar Carbon

Sample Run By: 6C823 _____

TIC

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R323 Date: 09-25-1991 Time: 04:18:14

Blank = .11 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	112.90	100.00
3	3.01	123.20	8.36
4	4.01	125.50	1.83
5	5.01	126.50	0.79
6	6.01	127.30	0.63
7	7.00	128.10	0.62

(128.1 - .7705304)(1)/(50) = 2.54659 g/L Carbon

(128.1 - .7705304)(1)/(50)(12) = .2122158 Molar Carbon

Sample Run By: 6C823 _____

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R322	Customer ID: 791-5A
Analysis: TOTAL ORGANIC CARBON	Sample Prep: UNDIGESTED

Instrument: MODEL 5011 - WC16130	Procedure/Rev: LA-344-105/B-0
Technologist: M. MYERS	Date: 10-28-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R316-5526	11		
2	REAGENT BLANK	R317-5626	12		
3	SAMPLE 791-5A	R322-5726	13		
4	FINAL LMCS CHECK STD	R323-5526	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	70C11I/0.2 mL			NA
SAMPLES RERUN.				

A-6000-881 (03/92)

TOTAL ORGANIC CARBON ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Sample No	Sample Point	Date	Time Issued	Priority
R 316.-5524	106AW	9-19-91	13:35	26

Determination	Method/Standard	Result Units	Charge Code	Revision
TOC	LA-344-105	G/L	RERUN	1

Sample Size: 7 .200ml - 2nd .200ml

Customer ID: STD

Remarks, Calculations, Results:

9356 COSTOC

STDN 70C11I RESULT 3.6745

STD VAL 3.0 %REC 102.5%

Analyst: Lorlyn Lingo

Date: 10-28-91

Sample No	Sample Point	Date	Time Issued	Priority
R 317.-5624	106AW	9-19-91	13:45	26

Determination	Method/Standard	Result Units	Charge Code	Revision
TOC	LA-344-105	G/L	RERUN	1

Sample Size: 7 .200ml

Customer ID: RED DL

Remarks, Calculations, Results:

READENT BLANK

4.80 ug C

~~8.06E-3 g/l~~ DAB 6/30/92

Analyst: Lorlyn Lingo; D4 Bisenius

Date: 10-28-91

Sample No	Sample Point	Date	Time Issued	Priority
R 322.-5724	106AW	9-19-91	15:40	26

Determination	Method/Standard	Result Units	Charge Code	Revision
TOC	LA-344-105	G/L	RERUN	1

Sample Size: 7 .200ml 2nd .200ml

Customer ID: 291-26

Remarks, Calculations, Results:

9.18 E^{-1} g/l

Analyst: Lorlyn Lingo

Date: 10-28

Sample No	Sample Point	Date	Time Issued	Priority
R 323.-5724	106AW	9-19-91	15:53	26

Determination	Method/Standard	Result Units	Charge Code	Revision
TOC	LA-344-105	G/L	RERUN	1

Sample Size: 7 .200ml - 2nd .200ml

Customer ID: STD

Remarks, Calculations, Results:

9356 COSTOC 3.014 g/LC

STDN 70C11I RESULT ~~3.102g/L~~ DAB 6/30/92

STD VAL 3.00g/L %REC ~~103.4%~~ DAB 6/30/92

100.5%

Analyst: Lorlyn Lingo; D4 Bisenius

Date: 10-28-91

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: BLANK Date: 10-26-1991 Time: 21:52:10

Blank = N/A Sample Size = 200 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	0.30	100.00
3	3.01	1.00	70.00
4	4.01	1.80	44.44
5	5.01	2.40	25.00
6	6.01	2.80	14.29
7	7.01	3.20	12.50

BLANK VALUE = 3.2 / 7.006714 = .4567049 g/L/minute

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: STD R3/6 Date: 10-27-1991 Time: 01:10:43

Blank = .4567049 Sample Size = 200 Dilution Factor = 11
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	42.40	100.00
3	3.01	51.00	16.86
4	4.01	55.00	7.27
5	5.01	57.10	3.68
6	6.01	58.30	2.06
7	7.01	59.10	1.35

(59.1 - 3.1996)(11)/(200) = 3.074522 g/L Carbon

(59.1 - 3.1996)(11)/(200)(12) = .2562102 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R317 BLANK Date: 10-27-1991 Time: 01:29:09

Blank = .4567049 Sample Size = 200 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	1.70	100.00
3	3.01	2.80	39.29
4	4.01	3.40	17.65
5	5.01	3.90	12.82
6	6.01	4.40	11.36
7	7.01	4.80	8.33

(4.8 - 3.1996)(1)/(200) = 8.002001E-03 g/L Carbon

(4.8 - 3.1996)(1)/(200)(12) = 6.668334E-04 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R322 Date: 10-27-1991 Time: 05:08:37

Blank = .4567049 Sample Size = 200 Dilution Factor = 11
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	9.20	100.00
3	3.01	14.60	36.99
4	4.01	16.80	13.10
5	5.01	18.10	7.18
6	6.01	19.10	5.24
7	7.01	19.90	4.02

(19.9 - 3.199541)(11)/(200) = .9185252 g/L Carbon

(19.9 - 3.199541)(11)/(200)(12) = 7.654377E-02 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: ~~R322~~ R323 Date: 10-27-1991 Time: 05:22:10
MM-10-28-91

Blank = .4567049 Sample Size = 200 Dilution Factor = 11
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	25.90	100.00
3	3.01	47.20	45.13
4	4.01	53.80	12.27
5	5.01	56.90	5.45
6	6.01	58.60	2.90
7	7.01	59.60	1.68

(59.6 - 3.199987)(11)/(200) = 3.102001 g/L Carbon

(59.6 - 3.199987)(11)/(200)(12) = .2585001 Molar Carbon

Sample Run By: 6C823_____

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R322	Customer ID: 791-5A
Analysis: ION CHROMATOGRAPHIC - FLUORIDE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 09-30-91
Starting Time: 22:35	Temperature: 24-25degC
Ending Time: 00:32	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R316-5571	11		
2	REAGENT BLANK	R317-5671	12		
3	SAMPLE 791-5A	R322-5771	13		
4	FINAL LMCS CHECK STD	R323-5571	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (FLUORIDE) - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Sample No.	Sample Point	Date	Time Issued	Priority
R 316.-5571	106AW	9-19-91	13:35	26

Determination	Method/Standard	Result Units	Charge Code	Repeats
F	LA-533-105	% RECOVERY	W1TE2	0

Sample Size: ? 100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R974 DIONEX
STD# 73C11CO RESULT 53.664
STD VAL 56.0 %REC 95.8%

Analyst - 1: [illegible] Date: 9-30-91
Analyst - 2: Initials
Analyst - 3: Initials
Analyst - 4: Initials
Analyst - 5: [illegible]
Date: 9-30-91
Time Completed:
Lab Location:

Sample No.	Sample Point	Date	Time Issued	Priority
R 317.-5671	106AW	9-19-91	13:45	26

Determination	Method/Standard	Result Units	Charge Code	Repeats
F	LA-533-105	PPM	W1TE2	0

Sample Size: ? 5 ml ~~100ml - 10ml~~ 5/29/98
Customer ID: REG DL

Remarks, Calculations, Results:
REAGENT BLANK
<1.00E-1 ppm

Analyst - 1: [illegible] Date: 9-30-91
Analyst - 2: Initials
Analyst - 3: Initials
Analyst - 4: Initials
Analyst - 5: [illegible]
Date: 9-30-91
Time Completed:
Lab Location:

Sample No.	Sample Point	Date	Time Issued	Priority
R 322.-5771	106AW	9-19-91	15:41	25

Determination	Method/Standard	Result Units	Charge Code	Repeats
F	LA-533-105	G/O	W1TE2	0

Sample Size: ? 100ml - 10ml - 100ml - 10ml
Customer ID: 791-5A

Remarks, Calculations, Results:
5.83E 3

Analyst - 1: [illegible] Date: 9-30-91
Analyst - 2: Initials
Analyst - 3: Initials
Analyst - 4: Initials
Analyst - 5: [illegible]
Date: 9-30-91
Time Completed:
Lab Location:

Sample No.	Sample Point	Date	Time Issued	Priority
R 323.-5571	106AW	9-19-91	15:44	25

Determination	Method/Standard	Result Units	Charge Code	Repeats
F	LA-533-105	% RECOVERY	W1TE2	0

Sample Size: ? 100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R974 DIONEX
STD# 73C11CO RESULT 53.790
STD VAL 56.0 %REC 96.1%

Analyst - 1: [illegible] Date: 9-30-91
Analyst - 2: Initials
Analyst - 3: Initials
Analyst - 4: Initials
Analyst - 5: [illegible]
Date: 9-30-91
Time Completed:
Lab Location:

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R322	Customer ID: 791-5A
Analysis: ION CHROMATOGRAPHIC - NITRATE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 09-30-91
Starting Time: 22:35	Temperature: 24-25degC
Ending Time: 00:32	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R316-5573	11		
2	REAGENT BLANK	R317-5673	12		
3	SAMPLE 791-5A	R322-5773	13		
4	FINAL LMCS CHECK STD	R323-5573	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (NITRATE) - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No.	Sample Point	Date	Time Issued	Priority
R 316.-5573	106AW	9-19-91	13:35	26

Determination	Method/Standard	Result Units	Charge Code	Rerun
NO3	LA-533-105	% RECOVERY	W11E2	0

Sample Size	Customer ID
? .100ml - 10ml	STD

Remarks, Calculations, Results:
EDP R978 DIONEX
STD #73C11CO RESULT 529.531
STD VAL 564.0 %REC 93.9%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
Hrs	Hrs	Hrs	Hrs	Hrs
6C823			[signature]	

Date	Time Completed	Lab Unit Mgr
9-30-91		[signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 317.-5673	106AW	9-19-91	13:45	26

Determination	Method/Standard	Result Units	Charge Code	Rerun
NO3	LA-533-105	PPM	W11E2	0

Sample Size	Customer ID
? 5ml	REC BL

Remarks, Calculations, Results:
REAGENT BLANK

<1.00 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
Hrs	Hrs	Hrs	Hrs	Hrs
6C823				

Date	Time Completed	Lab Unit Mgr
9-30-91		[signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 322.-5773	106AW	9-19-91	15:41	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
NO3	LA-533-105	PPM	W11E2	0

Sample Size	Customer ID
? .100ml - 10ml - .100ml - 10ml	791-5A

Remarks, Calculations, Results:

3.25E4

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
Hrs	Hrs	Hrs	Hrs	Hrs
6C823				

Date	Time Completed	Lab Unit Mgr
9-30-91		[signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 323.-5573	106AW	9-19-91	15:44	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
NO3	LA-533-105	% RECOVERY	W11E2	0

Sample Size	Customer ID
? .100ml - 10ml	STD

Remarks, Calculations, Results:
EDP R978 DIONEX
STD #73C11CO RESULT 551.166
STD VAL 564.0 %REC 97.7%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
Hrs	Hrs	Hrs	Hrs	Hrs
6C823			[signature]	

Date	Time Completed	Lab Unit Mgr
9-30-91		[signature]

9-22-91

4469-AC

DIONEX METHOD PARAMETERS - SYSTEM1.MET

System Parameters

System Name : system1/gpm
Number of Detectors..... 1
Detector 1 Type..... CDM-1
Detector 1 real time plot scale (uS)..... 20.00
Run Time (minutes)..... 8.50
Sampling Rate (seconds)..... 0.20

-- DETECTOR 1 PARAMETERS --
Report Options

Save Data File..... Yes
Data File Name: c:\dx\data\91092201.D08
Create ASCII Report File..... No
Print Report..... Yes
List Peaks Not Found in this run..... No
Report Unknowns Found in this run..... Yes
Print Chromatogram..... Yes
AutoScale Chromatogram to Highest Peak..... Yes
Fill Peaks with Color ..... Yes
Draw Grid Lines on Chromatogram..... No
Label with Peak Number..... Yes
Label with Retention Times on Chromatogram..... No
Label with Component Name..... Yes
Format File Name: c:\dx\method\default.prf

Integration Parameters

Starting Peak Width (seconds)..... 10.0
Peak Threshold (mV or uS/data pt interval)..... 0.500
Peak Area Reject..... 1000
Area Reject for Reference Peaks..... 1000
Percent Retention Time Window for Reference Peaks..... 5.0

Integration Timed Events

Time	Description
1.32	Start peak detection
1.44	Start peak detection
1.46	Start peak detection
1.77	
1.77	Enable end of peak detection

Calibration Parameters

Number Of Levels for Calibration	6
Calibration Fit Type	Quadratic
Replace Or Average Calibrations	Replace
External or Internal Calibration	External
Calibrate by Area or Height	Area
Default Injection Volume	1.0
Default Dilution Factor	1.0
Response Factor for Unknown Peaks	1.0
Calibration Standard Volume	1.0
Internal Standard Volume	1.0
Sample Unit	PPM

Component # 1 FLUORIDE Retention Time 1.13
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 8.52797E-002
K1 = 6.06440E-005
K2 = -6.17180E-011

Level	Amount	Area	Height
1	1.20000E-001	1439	225
2	3.00000E-001	4035	566
3	6.00000E-001	8217	1141
4	1.20000E+000	16507	2218
5	2.30000E+000	39534	4812
6	4.40000E+000	76890	9371

Component # 2 CHLORIDE Retention Time 1.70
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.93335E-002
K1 = 1.01273E-004
K2 = -9.35560E-011

Level	Amount	Area	Height
1	1.60000E-001	1319	217
2	3.90000E-001	3754	568
3	7.80000E-001	6942	1045
4	1.50000E+000	14461	1975
5	3.00000E+000	30287	3987
6	5.90000E+000	61305	8910

Component # 3 NITRITE Retention Time 2.03
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.88691E-001
K1 = 1.33960E-004
K2 = 5.52630E-012

Level	Amount	Area	Height
1	1.08000E+000	6239	874
2	2.69000E+000	17299	2252
3	5.37000E+000	34328	4729
4	1.06200E+001	72787	9300
5	2.08500E+001	153501	19401
6	4.01500E+001	292053	34439

Component # 4 BROMIDE Retention Time 2.80
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.01960E-002
K1 = 2.00453E-004
K2 = -1.00008E-010

Level	Amount	Area	Height
1	1.56000E+000	7660	753
2	3.90000E+000	20706	1880
3	7.80000E+000	38868	3455
4	1.54000E+001	78061	6644
5	3.02000E+001	165133	12632
6	5.81000E+001	350930	24386

Component # 5 NITRATE Retention Time 3.30
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.02611E-001
K1 = 1.61787E-004
K2 = -5.83501E-011

Level	Amount	Area	Height
1	1.37000E+000	7543	727
2	3.43000E+000	19321	1803
3	6.83000E+000	40244	3563
4	1.35000E+001	83386	7010
5	2.65000E+001	173503	13640
6	5.11000E+001	360809	25639

Component # 6 PHOSPHATE Retention Time 5.32
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 5.53452E-001
K1 = 3.53243E-004
K2 = -3.51156E-010

Level	Amount	Area	Height
1	1.19000E+000	2277	162
2	2.98000E+000	7242	453
3	5.93000E+000	15025	935
4	1.17400E+001	31660	1933
5	2.30300E+001	69135	4130
6	4.43700E+001	144749	8447

Component # 7 SULFATE Retention Time 6.85
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.55734E-001
K1 = 1.27491E-004
K2 = -3.79358E-011

Level	Amount	Area	Height
1	1.40000E+000	9418	543
2	3.50000E+000	24499	1382
3	6.96000E+000	52303	2890
4	1.37800E+001	107173	5909
5	2.70400E+001	225632	12225
6	5.20700E+001	471630	24686

IC Control File: C:\DX\METHOD\SYSTEM1.TE

Step	Time	Description
Init		CDM-1 AutoOffset Off
Init		CDM-1 Recorder Mark OFF
Init		CDM-1 Temp. Comp. = 1.7 / Deg C
Init		CDM-1 Recorder Range = 1.0 uS
Init		CDM-1 Cell ON
Init		CHA Heater = 25 Deg. C
Init		Valve A ON
Init		Valve B ON
Init		Inject Valve OFF
Init		ACI Autosmp OFF
Init		ACI RLY 2 OFF
Init		ACI TTL 1 OFF
Init		ACI TTL 2 OFF
Init		ACI AC 1 ON
Init		GPM Start
Init		GPM Hold Gradient Clock
Init		GPM Reset ON
1	0.0	CDM-1 AutoOffset ON
1	0.0	Start Sampling
1	0.0	GPM Reset OFF
2	0.1	CDM-1 Recorder Range = 10.0 uS
2	0.1	Inject Valve ON
2	0.1	GPM Run Gradient Clock
3	3.0	Inject Valve OFF
4	3.5	ACI Autosmp ON
5	8.0	ACI Autosmp OFF

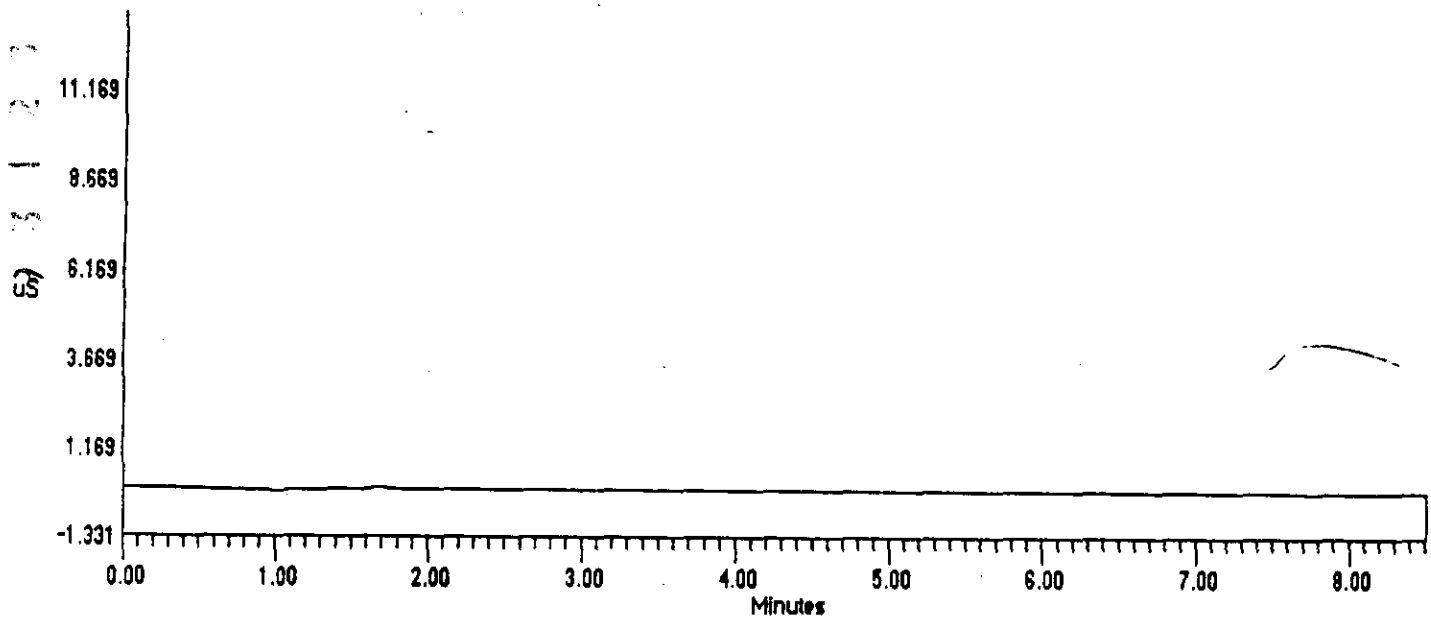
GpmFile: C:\DX\METHOD\SYSTEM1.GPM
Lo Pressure Limit = 200
Hi Pressure Limit = 2000
Eluant 1 - DI WATER
Eluant 2 - SODIUM CARBONATE
Eluant 3 - SODIUM BICARBONATE
Eluant 4 - Eluant 4

Time	Flow	%1	%2	%3	%4	V5	V6	Comment
0.0	2.0	84	8	8	0	0	0	

```
==========================================================================
| Sample Name: BLANK                          Date: Mon Sep 30 22:35:47 1991|
| Data File   : c:\dx\data\91093071.D02                                   |
| Method      : c:\dx\method\SYSTEM1.met                                  |
| ACI Address: 1        System : 1        Inject#:    2  Detector: CDM-1  |
==========================================================================
```

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	1	2555	5Hz	0.00	8.52	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta

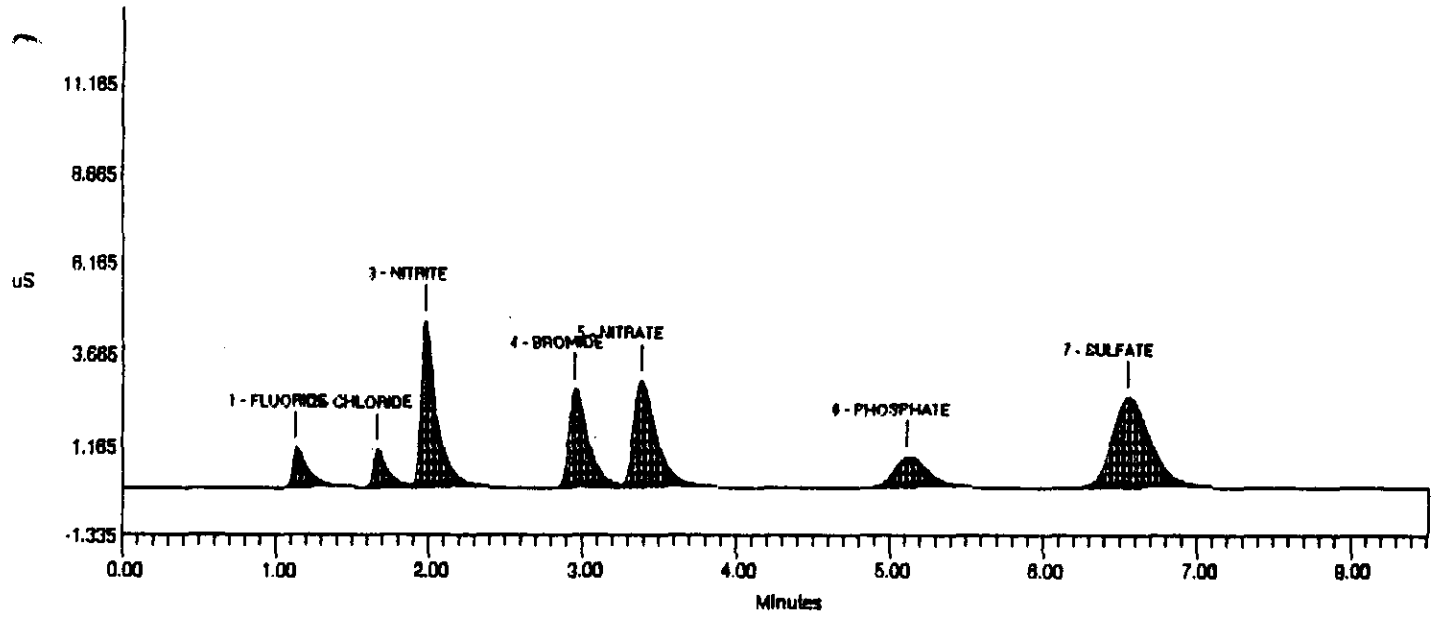


```
==================================================================================
: Sample Name: LMCS/73C11C0 R3/4 DK 9-14-92          Date: Mon Sep 30 22:45:24 1991:
: Data File  : c:\dx\data\91093071.D03                                            :
: Method     : c:\dx\method\SYSTEM1.met                                           :
: ACI Address: 1        System : 1        Inject#:   3  Detector: CDM-1           :
==================================================================================
```

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2355	5Hz	0.00	8.52	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	95.8 53.664	1073	7411	1	0.00
2	1.67	CHLORIDE	95.6 71.733	1049	6666	2	-1.96
3	1.98	NITRITE	98.4 501.700	4572	33387	2	-2.30
4	2.95	BROMIDE	DK 9-14-92 487.695	2681	24180	2	-3.28
5	3.38	NITRATE	93.9 527.531	2719	30880	2	2.53
6	5.12	PHOSPHATE	102.0 527.513	869	13397	1	-3.76
7	6.55	SULFATE	96.2 536.301	2510	43340	1	-4.38

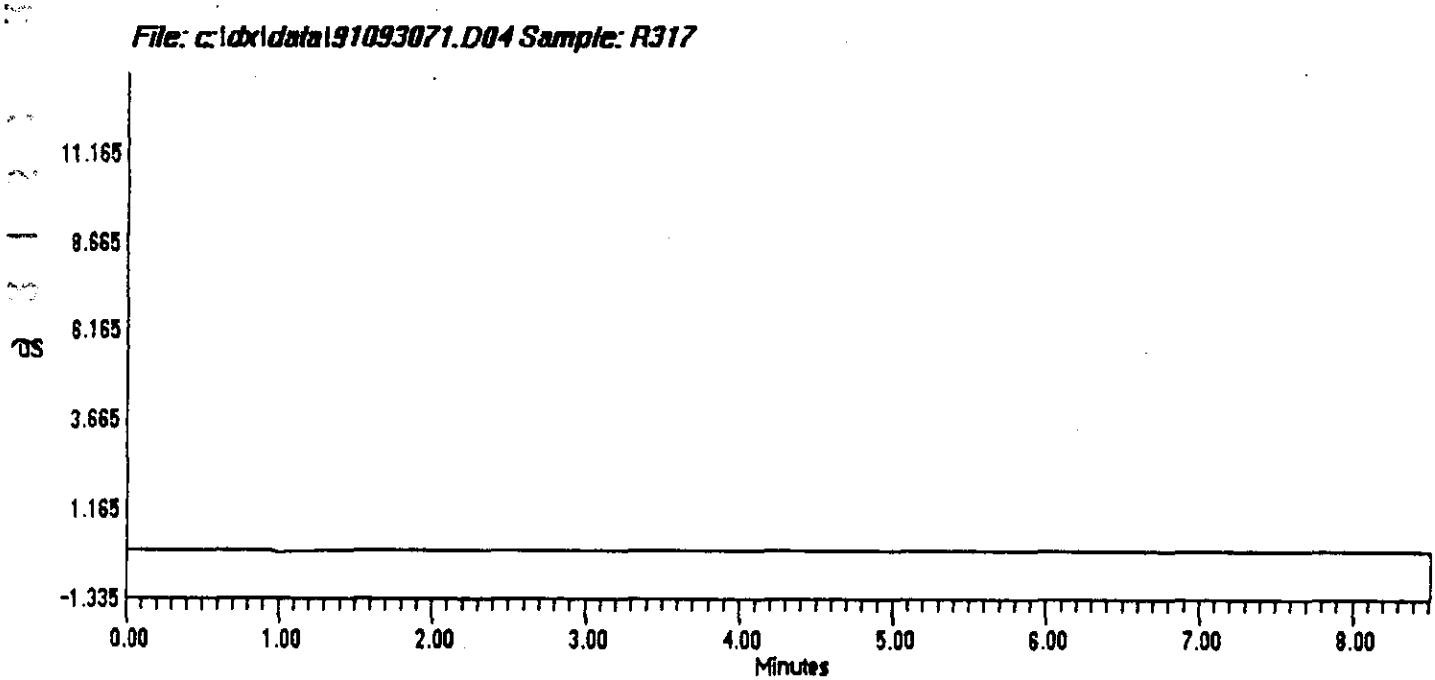
File: c:\dx\data\91093071.D03 Sample: LMCS/73C11C0



```
==========================================================================
| Sample Name: R317                          Date: Mon Sep 30 22:55:18 1991|
| Data File   : c:\dx\data\91093071.D04                                   |
| Method      : c:\dx\method\SYSTEM1.met                                  |
| ACI Address: 1        System : 1        Inject#:    4  Detector: CDM-1  |
==========================================================================
```

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	1	2555	5Hz	0.00	8.52	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta

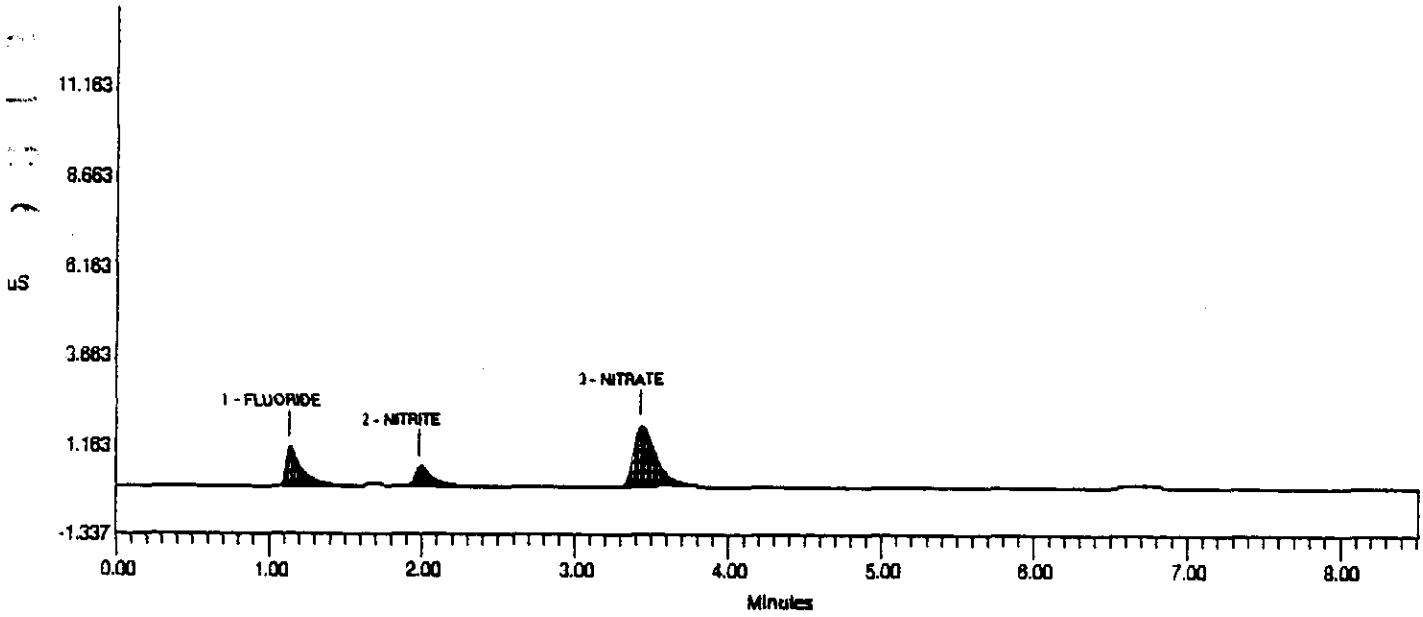


```
==========================================================================
| Sample Name: R322                          Date: Tue Oct 01 00:23:15 1991|
| Data File   : c:\dx\data\91093061.D13                                  |
| Method      : c:\dx\method\SYSTEM1.met                                 |
| ACI Address: 1        System : 1        Inject#:  13  Detector: CDM-1  |
==========================================================================
```

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	10200	2555	5Hz	0.00	8.52	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	5834.699	1138	8093	1	0.00
2	1.98	NITRITE	10686.760	557	4172	1	-2.30
3	3.43	NITRATE	32452.517	1735	17911	1	4.04

File: c:\dx\data\91093061.D13 Sample: R322

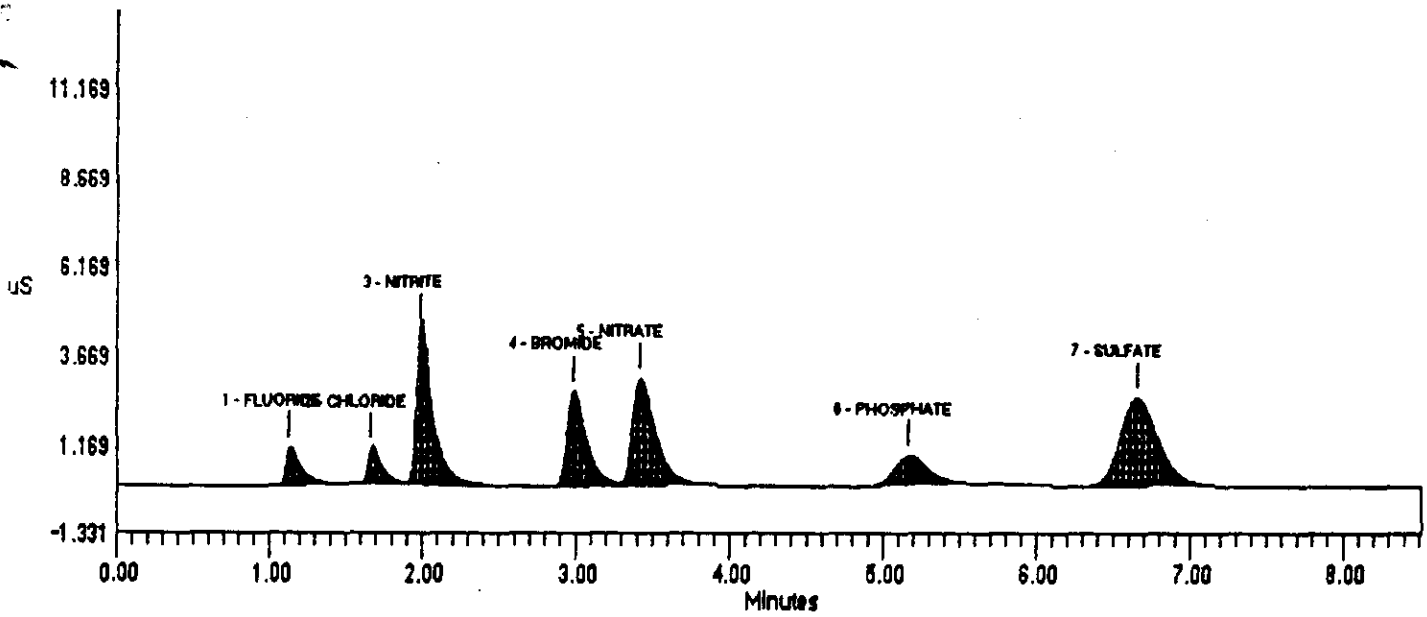


```
==========================================================================
| Sample Name: LMCS/73C11C0 R3L3 9-14-92        Date: Tue Oct 01 00:32:59 1991|
| Data File   : c:\dx\data\91093061.D14                                    |
| Method      : c:\dx\method\SYSTEM1.met                                   |
| ACI Address: 1        System : 1        Inject#:  14  Detector: CDM-1    |
==========================================================================
```

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2555	5Hz	0.00	8.52	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	53.790	1068	7432	1	0.00
2	1.67	CHLORIDE	73.065	1011	6797	2	-1.96
3	1.98	NITRITE	511.009	4382	34073	2	-2.30
4	2.98	BROMIDE	495.249	2689	24562	2	-2.19
5	3.42	NITRATE	551.166	2999	32234	2	3.54
6	5.17	PHOSPHATE	513.595	854	12997	1	-2.82
7	6.65	SULFATE	585.022	2491	43198	1	-2.92

File: c:\dx\data\91093061.D14 Sample: LMCS/73C11C0



WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R322	Customer ID: 791-5A
Analysis: ION CHROMATOGRAPHIC - PHOSPHATE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-02-91
Starting Time: 18:46	Temperature: 24-25degC
Ending Time: 21:31	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R316-5574	11		
2	REAGENT BLANK	R317-5674	12		
3	SAMPLE 791-5A	R322-5774	13		
4	FINAL LMCS CHECK STD	R323-5574	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (PHOSPHATE) - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No.	Sample Place	Date	Time Issued	Priority
R 316.-5574	106AW	9-19-91	13:35	26

Determination	Method/Standard	Result Units	Charge Code	Remarks
PO4	LA-533-105	% RECOVERY	W1TE2	0

Sample Size: 7 ; 100ml - 10ml
Container ID: STD

Remarks, Calculations, Results:
EDP R976 DIONEX
STDN 73C1/C0 RESULT 522.442
STD VAL 517.0 %REC 101.1%

Analyst - 1: [illegible] Hrs: 1425 Date: 10-2-91
Analyst - 2: Hrs:
Analyst - 3: Hrs:
Analyst - 4: Hrs:
Analyst - 5: Hrs:
Time Completed:
Lab Unit Mgr: [illegible]

Serial No.	Sample Place	Date	Time Issued	Priority
R 317.-5674	106AW	9-19-91	13:45	20

Determination	Method/Standard	Result Units	Charge Code	Remarks
PO4	LA-533-105	PPM	W1TE2	0

Sample Size: 7 1dl
Container ID: REG DI.

Remarks, Calculations, Results:
REAGENT BLANK
<1 ppm

Analyst - 1: [illegible] Hrs: 1426 Date: 10-2-91
Analyst - 2: Hrs:
Analyst - 3: Hrs:
Analyst - 4: Hrs:
Analyst - 5: Hrs:
Time Completed:
Lab Unit Mgr: [illegible]

Serial No.	Sample Place	Date	Time Issued	Priority
R 322.-5774	106AW	9-19-91	15:41	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
PO4	LA-533-105	PPM	W1TE2	0

Sample Size: 7 ; 100ml - 10ml
Container ID: 791-5A

Remarks, Calculations, Results:
595.300

Analyst - 1: [illegible] Hrs: 1423 Date: 10-2-91
Analyst - 2: Hrs:
Analyst - 3: Hrs:
Analyst - 4: Hrs:
Analyst - 5: Hrs:
Time Completed:
Lab Unit Mgr: [illegible]

Serial No.	Sample Place	Date	Time Issued	Priority
R 323.-5574	106AW	9-19-91	15:44	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
PO4	LA-533-105	% RECOVERY	W1TE2	0

Sample Size: 7 100ml - 10ml
Container ID: STD

Remarks, Calculations, Results:
EDP R976 DIONEX
STDN 73C1/C0 RESULT 506.607
STD VAL 517.0 %REC 98.0%

Analyst - 1: [illegible] Hrs: 1423 Date: 10-2-91
Analyst - 2: Hrs:
Analyst - 3: Hrs:
Analyst - 4: Hrs:
Analyst - 5: Hrs:
Time Completed:
Lab Unit Mgr: [illegible]

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R322	Customer ID: 791-5A
Analysis: ION CHROMATOGRAPHIC - SULFATE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-02-91
Starting Time: 18:46	Temperature: 24-25degC
Ending Time: 21:31	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R316-5575	11		
2	REAGENT BLANK	R317-5675	12		
3	SAMPLE 791-5A	R322-5775	13		
4	FINAL LMCS CHECK STD	R323-5575	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (SULFATE) - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No.	Sample Point	Date	Time Issued	Priority
R 316.-5575	106AW	9-19-91	13:35	26

Determination	Method/Standard	Result Units	Charge Code	Remarks
SO4	LA-533-105	% RECOVERY	W1TE2	0

Sample Size: ? .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R970 DIONEX
STD# 73C11CO RESULT 581.586
STD VAL 610.0 %REC 95.3%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
Hrs: 6C823	Hrs:	Hrs:	Hrs:	Hrs:

Date: 10-2-91 Time Completed: Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 317.-5675	106AW	9-19-91	13:45	26

Determination	Method/Standard	Result Units	Charge Code	Remarks
SO4	LA-533-105	PPM	W1TE2	0

Sample Size: ? 1ml
Customer ID: REG DL

Remarks, Calculations, Results:
REAGENT BLANK

<1ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
Hrs: 6C823	Hrs:	Hrs:	Hrs:	Hrs:

Date: 10-2-91 Time Completed: Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 322.-5775	106AW	9-19-91	15:41	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
SO4	LA-533-105	PPM	W1TE2	0

Sample Size: ? .100ml - 10ml
Customer ID: 791-5A

Remarks, Calculations, Results:
2491.180

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
Hrs: 6C823	Hrs:	Hrs:	Hrs:	Hrs:

Date: 10-2-91 Time Completed: Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 323.-5575	106AW	9-19-91	15:44	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
SO4	LA-533-105	% RECOVERY	W1TE2	0

Sample Size: ? .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R970 DIONEX
STD# 73C11CO RESULT 582.554
STD VAL 610.0 %REC 95.5%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
Hrs: 6C823	Hrs:	Hrs:	Hrs:	Hrs:

Date: 10-2-91 Time Completed: Lab Unit Mgr: [signature]

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R322	Customer ID: 791-5A
Analysis: ION CHROMATOGRAPHIC - NITRITE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-02-91
Starting Time: 18:46	Temperature: 24-25degC
Ending Time: 21:31	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R316-5576	11		
2	REAGENT BLANK	R317-5676	12		
3	SAMPLE 791-5A	R322-5776	13		
4	FINAL LMCS CHECK STD	R323-5576	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (NITRITE) - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No.	Sample Point	Date	Time Issued	Priority
R 316.-5576	106AW	9-19-91	13:35	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO2	LA-533-105	% RECOVERY	W1TE2	0

Sample Size: ? .100ml-10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R968 DIONEX
STD# 73C11C0 RESULT 494.073
STD VAL 510.0 %REC 96.9%

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				[signature]
6C823				[signature]

Date: 10-2-91
Time Completed:
Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 317.-5676	106AW	9-19-91	13:45	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO2	LA-533-105	PPM	W1TE2	0

Sample Size: ? 1ml
Customer ID: REG BL

Remarks, Calculations, Results:
REAGENT BLANK

<1 ppm

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				[signature]
6C823				

Date: 10-2-91
Time Completed:
Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 322.-5776	106AW	9-19-91	15:41	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO2	LA-533-105	PPM	W1TE2	0

Sample Size: ? .100ml - 10ml - .500ml - 10ml
Customer ID: 291-5A

Remarks, Calculations, Results:

7452.941

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				[signature]
6C823				

Date: 10-2-91
Time Completed:
Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 323.-5576	106AW	9-19-91	15:44	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO2	LA-533-105	% RECOVERY	W1TE2	0

Sample Size: ? .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R968 DIONEX
STD# 73C11C0 RESULT 501.702
STD VAL 510.0 %REC 98.4%

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				[signature]
6C823				[signature]

Date: 10-2-91
Time Completed:
Lab Unit Mgr: [signature]

9-22-91

4469-AC

DIONEX METHOD PARAMETERS - SYSTEM1.MET

System Parameters

System Name : system1/gpm
Number of Detectors..... 1
Detector 1 Type..... CDM-1
Detector 1 real time plot scale (uS)..... 20.00
Run Time (minutes)..... 8.50
Sampling Rate (seconds)..... 0.20

-- DETECTOR 1 PARAMETERS --
Report Options

Save Data File..... Yes
Data File Name: c:\dx\data\91092201.D08
Create ASCII Report File..... No
Print Report..... Yes
List Peaks Not Found in this run..... No
Report Unknowns Found in this run..... Yes
Print Chromatogram..... Yes
AutoScale Chromatogram to Highest Peak..... Yes
Fill Peaks with Color ..... Yes
Draw Grid Lines on Chromatogram..... No
Label with Peak Number..... Yes
Label with Retention Times on Chromatogram..... No
Label with Component Name..... Yes
Format File Name: c:\dx\method\default.prf

Integration Parameters

Starting Peak Width (seconds)..... 10.0
Peak Threshold (mV or uS/data pt interval)..... 0.500
Peak Area Reject..... 1000
Area Reject for Reference Peaks..... 1000
Percent Retention Time Window for Reference Peaks..... 5.0

Integration Timed Events

Time	Description
1.32	Start peak detection
1.44	Start peak detection
1.46	Start peak detection
1.77	
1.77	Enable end of peak detection

Calibration Parameters

Number Of Levels for Calibration	6
Calibration Fit Type	Quadratic
Replace Or Average Calibrations	Replace
External or Internal Calibration	External
Calibrate by Area or Height	Area
Default Injection Volume	1.0
Default Dilution Factor	1.0
Response Factor for Unknown Peaks	1.0
Calibration Standard Volume	1.0
Internal Standard Volume	1.0
Sample Unit	PPM

Component # 1 FLUORIDE Retention Time 1.13
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 8.52797E-002
K1 = 6.06440E-005
K2 = -6.17180E-011

Level	Amount	Area	Height
1	1.20000E-001	1439	225
2	3.00000E-001	4035	566
3	6.00000E-001	8217	1141
4	1.20000E+000	16507	2218
5	2.30000E+000	39534	4812
6	4.40000E+000	76890	9371

Component # 2 CHLORIDE Retention Time 1.70
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.93335E-002
K1 = 1.01273E-004
K2 = -9.35560E-011

Level	Amount	Area	Height
1	1.60000E-001	1319	217
2	3.90000E-001	3754	568
3	7.80000E-001	6742	1045
4	1.50000E+000	14461	1975
5	3.00000E+000	30287	3987
6	5.90000E+000	61305	8910

Component # 3 NITRITE Retention Time 2.03
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.88671E-001
K1 = 1.33960E-004
K2 = 5.52630E-012

Level	Amount	Area	Height
1	1.08000E+000	6239	874
2	2.69000E+000	17279	2252
3	5.37000E+000	34328	4729
4	1.06200E+001	72787	9300
5	2.08500E+001	153501	19401
6	4.01500E+001	292053	34439

Component # 4 BROMIDE Retention Time 2.80
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.01960E-002
K1 = 2.00453E-004
K2 = -1.00008E-010

Level	Amount	Area	Height
1	1.56000E+000	7660	753
2	3.90000E+000	20706	1880
3	7.80000E+000	38868	3455
4	1.54000E+001	78061	6644
5	3.02000E+001	165133	12632
6	5.81000E+001	350930	24386

Component # 5 NITRATE Retention Time 3.30
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.02611E-001
K1 = 1.61787E-004
K2 = -5.83501E-011

Level	Amount	Area	Height
1	1.37000E+000	7543	727
2	3.43000E+000	19321	1803
3	6.83000E+000	40244	3563
4	1.35000E+001	83386	7010
5	2.65000E+001	173503	13640
6	5.11000E+001	360809	25639

Component # 6 PHOSPHATE Retention Time 5.32
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 5.53452E-001
K1 = 3.53243E-004
K2 = -3.51156E-010

Level	Amount	Area	Height
1	1.19000E+000	2277	162
2	2.98000E+000	7242	453
3	5.93000E+000	15025	935
4	1.17400E+001	31660	1933
5	2.30300E+001	69135	4130
6	4.43700E+001	144749	8447

Component # 7 SULFATE Retention Time 6.85
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.55734E-001
K1 = 1.27491E-004
K2 = -3.79358E-011

Level	Amount	Area	Height
1	1.40000E+000	9418	543
2	3.50000E+000	24499	1382
3	6.96000E+000	52303	2890
4	1.37800E+001	107173	5909
5	2.70400E+001	225632	12225
6	5.20700E+001	471630	24686

IC Control File: C:\DX\METHOD\SYSTEM1.TE

Step	Time	Description
Init		CDM-1 AutoOffset Off
Init		CDM-1 Recorder Mark OFF
Init		CDM-1 Temp. Comp. = 1.7 / Deg C
Init		CDM-1 Recorder Range = 1.0 uS
Init		CDM-1 Cell ON
Init		CHA Heater = 25 Deg. C
Init		Valve A ON
Init		Valve B ON
Init		Inject Valve OFF
Init		ACI Autosmp OFF
Init		ACI RLY 2 OFF
Init		ACI TTL 1 OFF
Init		ACI TTL 2 OFF
Init		ACI AC 1 ON
Init		GPM Start
Init		GPM Hold Gradient Clock
Init		GPM Reset ON
1	0.0	CDM-1 AutoOffset ON
1	0.0	Start Sampling
1	0.0	GPM Reset OFF
2	0.1	CDM-1 Recorder Range = 10.0 uS
2	0.1	Inject Valve ON
2	0.1	GPM Run Gradient Clock
3	3.0	Inject Valve OFF
4	3.5	ACI Autosmp ON
5	8.0	ACI Autosmp OFF

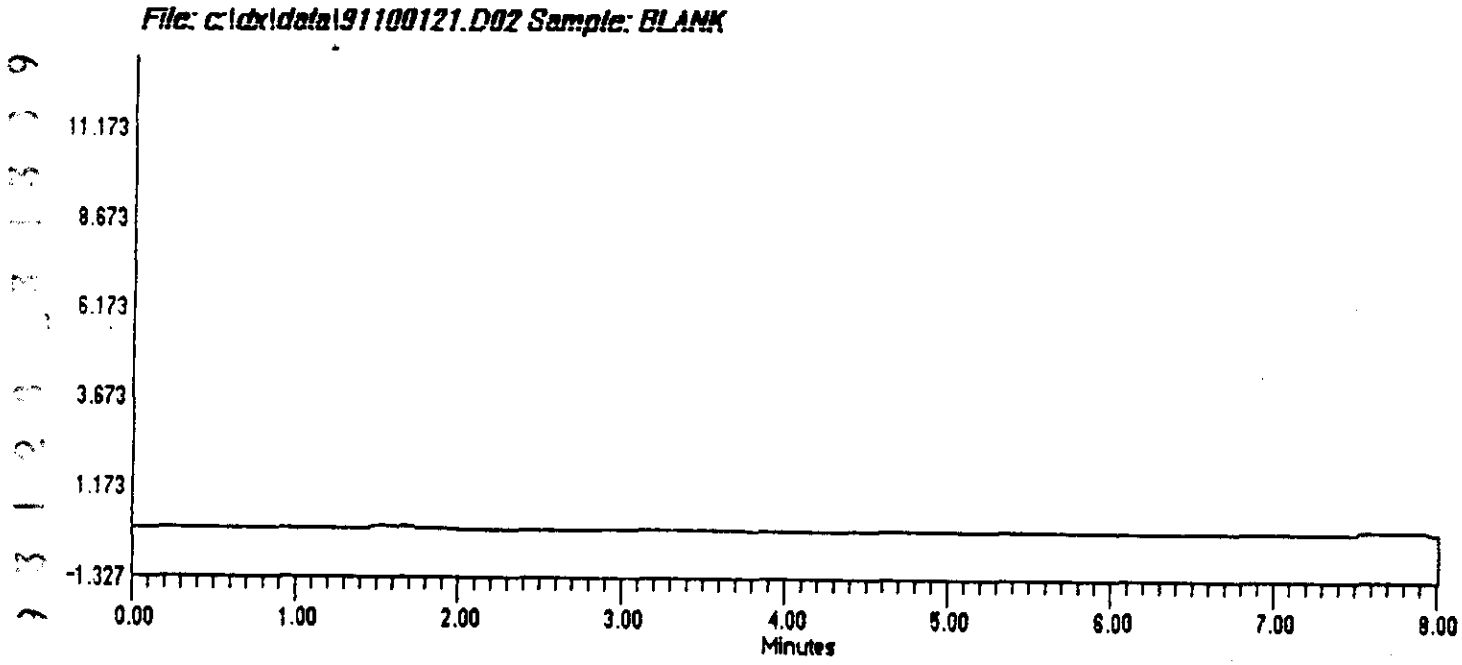
GpmFile: C:\DX\METHOD\SYSTEM1.GPM
Lo Pressure Limit = 200
Hi Pressure Limit = 2000
Eluant 1 - DI WATER
Eluant 2 - SODIUM CARBONATE
Eluant 3 - SODIUM BICARBONATE
Eluant 4 - Eluant 4

Time	Flow	%1	%2	%3	%4	V5	V6	Comment
0.0	2.0	84	8	8	0	0	0	

```
==========================================================================
| Sample Name: BLANK                          Date: Wed Oct 02 18:46:10 1991|
| Data File   : c:\dx\data\91100121.D02                                    |
| Method      : c:\dx\method\SYSTEM1.met                                   |
| ACI Address: 1        System : 1        Inject#:   2  Detector: CDM-1    |
==========================================================================
```

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	1	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta

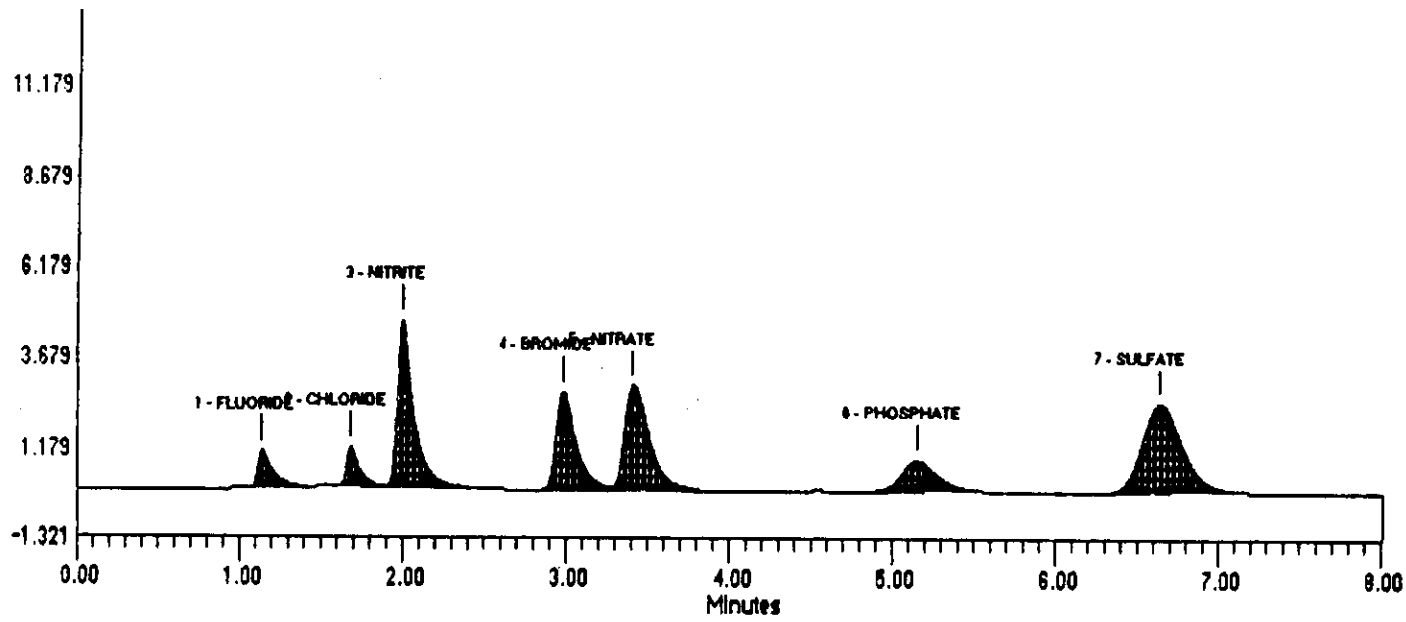


Sample Name: LMCS/73C11C0 R316 1-14-92		Date: Wed Oct 02 18:55:16 1991	
Data File : c:\dx\data\91100111.D03			
Method : c:\dx\method\SYSTEM1.met			
ACI Address: 1	System : 1	Inject#: 3	Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	51.501	1052	7053	1	0.00
2	1.68	CHLORIDE	67.889	1092	6285	2	-0.98
3	2.00	NITRITE	494.073	4650	32824	2	-1.48
4	2.98	BROMIDE	487.271	2732	24158	2	-2.19
5	3.40	NITRATE	538.528	2889	31443	2	3.03
6	5.15	PHOSPHATE	522.442	861	13251	1	-3.13
7	6.63	SULFATE	581.586	2485	42924	1	-3.16

File: c:\dx\data\91100111.D03 Sample: LMCS/73C11C0



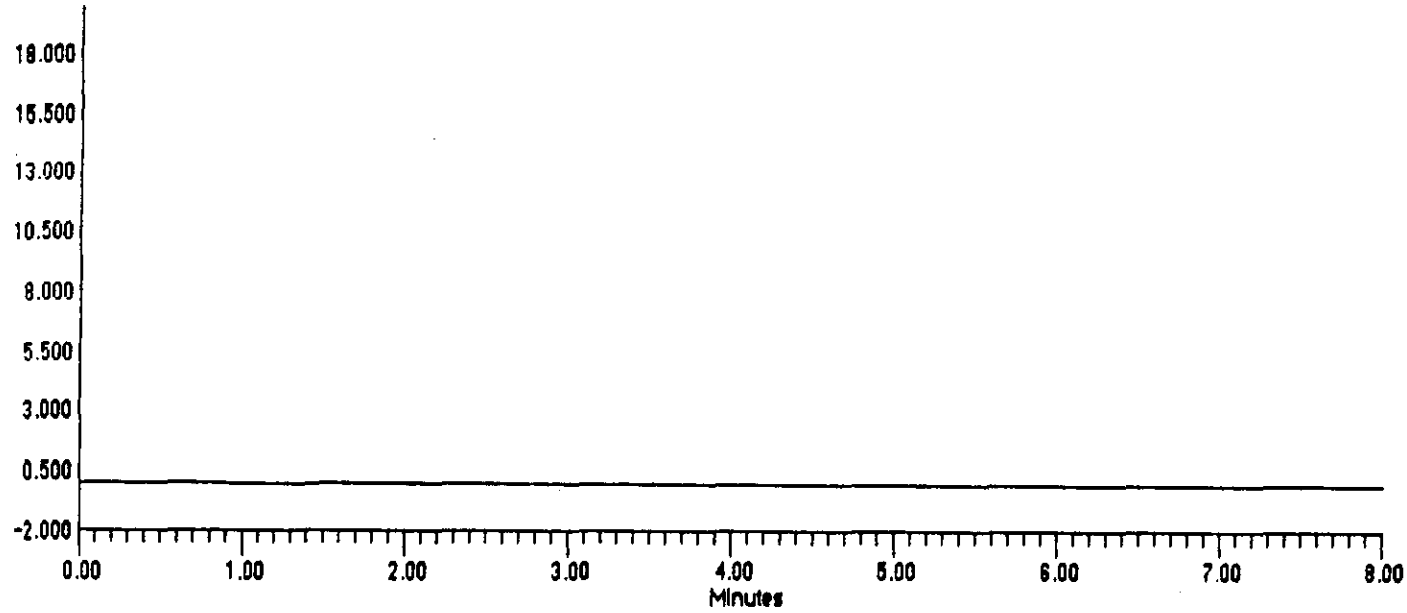
DATA REPROCESSED ON Wed Oct 02 19:17:10 1991

```
==========================================================================
: Sample Name: R317                          Date: Wed Oct 02 19:04:35 1991:
: Data File  : C:\DX\DATA\91100101.D04                                    :
: Method     : c:\dx\method\SYSTEM1.met                                   :
: ACI Address: 1        System : 1        Inject#:   4  Detector: CDM-1   :
==========================================================================
```

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	1	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta

File: C:\DX\DATA\91100101.D04 Sample: R317



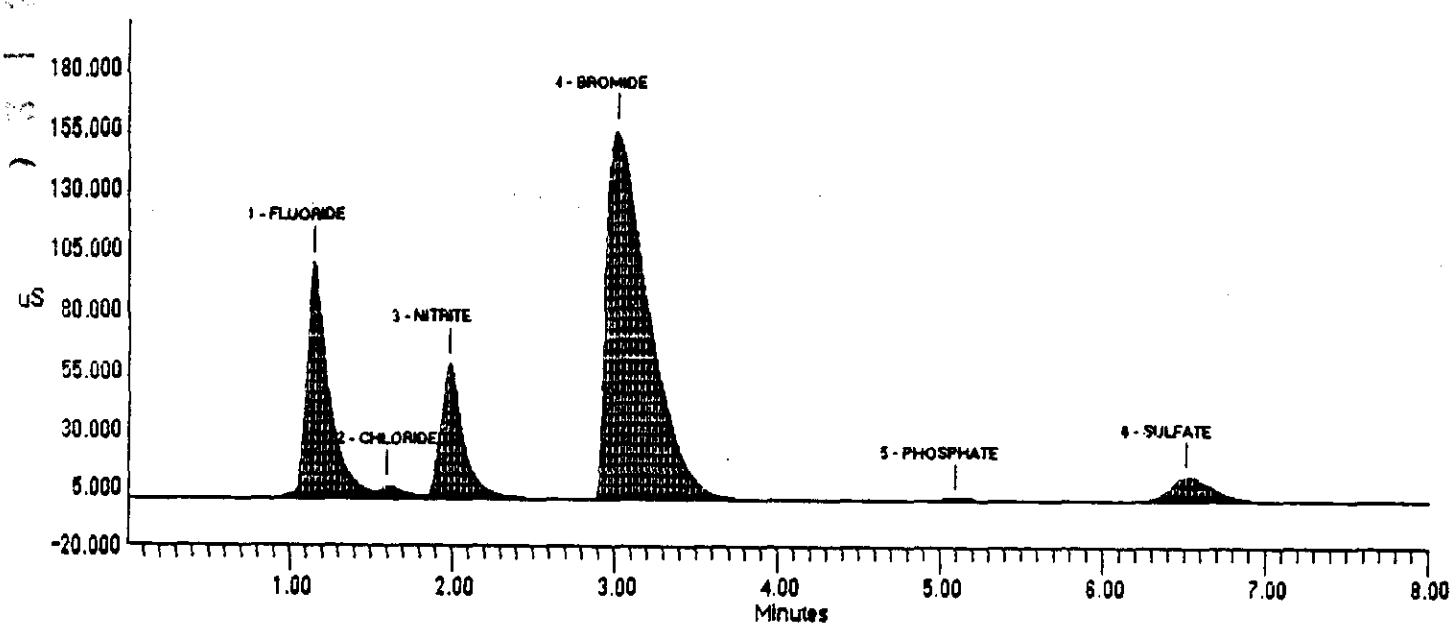
DATA REPROCESSED ON Wed Oct 02 22:53:54 1991

Sample Name: R322		Date: Wed Oct 02 21:12:22 1991	
Data File : C:\DX\DATA\91100101.D17			
Method : c:\dx\method\SYSTEM1.met			
ACI Address: 1	System : 1	Inject#: 17	Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.15	FLUORIDE	23.936	99114	980091	3	0.00
2	1.60	CHLORIDE	4835929.631	4942	47880	4	-1.45
3	1.98	NITRITE	7930.007	57619	569099	2	-3.71
4	3.02	BROMIDE	-21350.581	153827	2768115	2	-2.53
5	5.10	PHOSPHATE	595.300	950	15352	1	-5.47
6	6.52	SULFATE	2491.180	10863	202928	1	-6.24

File: C:\DX\DATA\91100101.D17 Sample: R322

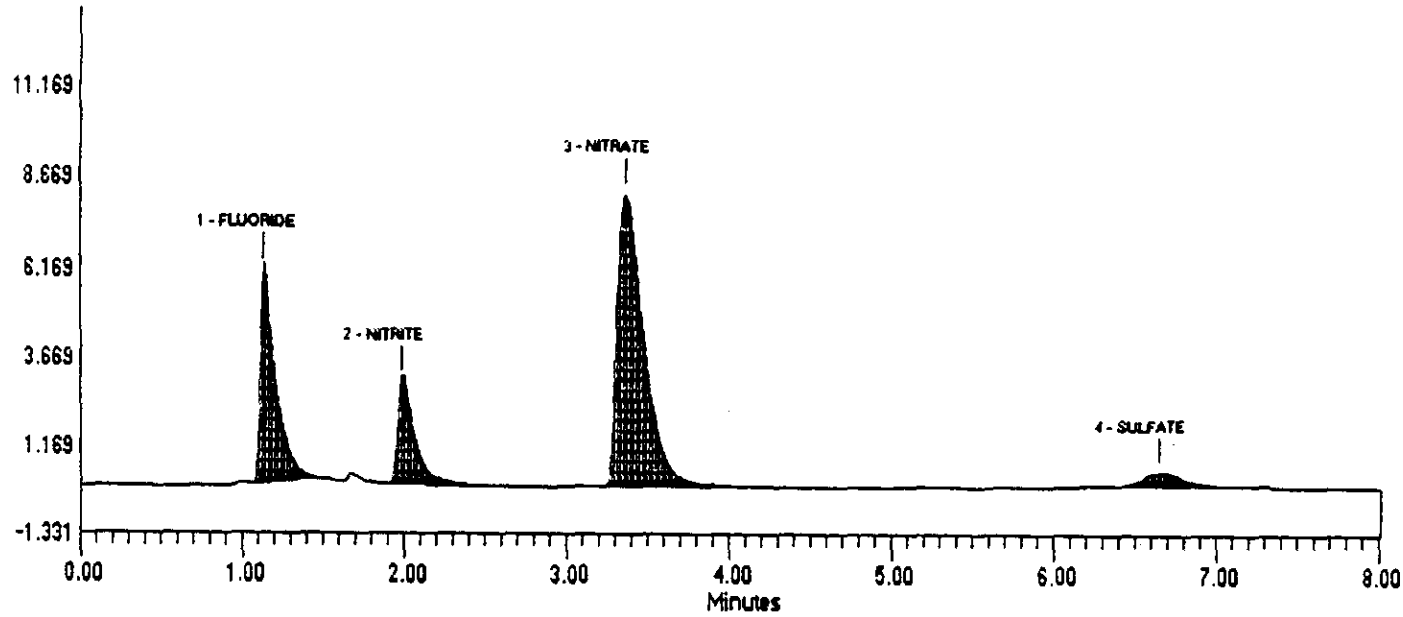


```
Sample Name: R322                                   Date: Wed Oct 02 21:21:47 1991
Data File  : c:\dx\data\91100101.D18
Method     : c:\dx\method\SYSTEM1.met
ACI Address: 1        System : 1        Inject#:  18  Detector: CDM-1
```

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	2121	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	5231.710	6019	40976	1	0.00
2	1.98	NITRITE	7452.941	2945	22562	1	-2.30
3	3.37	NITRATE	32120.565	8167	94989	1	2.02
4	6.65	SULFATE	2707.356	450	7237	1	-2.92

File: c:\dx\data\91100101.D18 Sample: R322

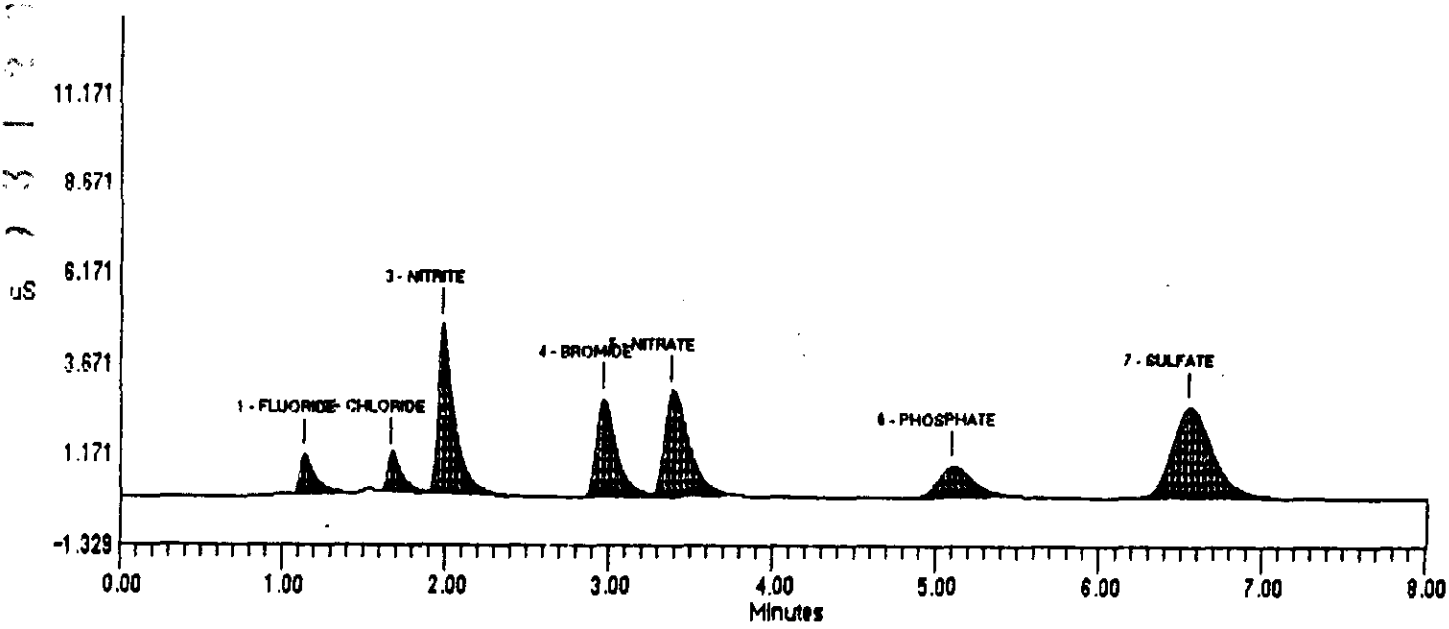


Sample Name: LMCS/73C11C0 R3L3 JH 9-14-91 Date: Wed Oct 02 21:31:01 1991
Data File : c:\dx\data\91100101.D19
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 19 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	52.789	1086	7266	1	0.00
2	1.67	CHLORIDE	69.288	1038	6424	2	-1.96
3	1.98	NITRITE	501.702	4638	33387	2	-2.30
4	2.97	BROMIDE	485.310	2705	24059	2	-2.73
5	3.38	NITRATE	533.443	2901	31125	2	2.53
6	5.10	PHOSPHATE	506.601	836	12795	1	-4.08
7	6.55	SULFATE	582.554	2497	43001	1	-4.38

File: c:\dx\data\91100101.D19 Sample: LMCS/73C11C0



WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R322	Customer ID: 791-5A
Analysis: ION CHROMATOGRAPHIC - CHLORIDE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-04-91
Starting Time: 20:46	Temperature: 24-25degC
Ending Time: 23:36	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R316-5572	11		
2	REAGENT BLANK	R317-5672	12		
3	SAMPLE 791-5A	R322-5772	13		
4	FINAL LMCS CHECK STD	R323-5572	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (CHLORIDE) - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
R 316.-5572	106AW	9-19-91	13:35	26

Determination	Method/Standard	Result Units	Charge Code	Remarks
Cl.	LA-533-105	% RECOVERY	W1TE2	C

Sample Size: ? .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R972 DIONEX
STD# 73C11CD RESULT 74.035 ppm
STD VAL 75.00 ppm %REC 98.7%

Analyst-1: [signature] Analyst-2: Analyst-3: Analyst-4: Analyst-5: [signature]
Hrs: 6CB23
Date: 10-04-91 Time Completed: [signature] Lab Unit Mgr: [signature]
JK 6-5-92

Serial No.	Sample Point	Date	Time Issued	Priority
R 317.-5672	106AW	9-19-91	13:45	26

Determination	Method/Standard	Result Units	Charge Code	Remarks
CL	LA-533-105	PPM	W1TE2	C

Sample Size: ? 1ml
Customer ID: REG BL

Remarks, Calculations, Results:
REAGENT BLANK
<1.00 E-1 ppm

Analyst-1: [signature] Analyst-2: Analyst-3: Analyst-4: Analyst-5: [signature]
Hrs: 6CB23
Date: 10-4-91 Time Completed: [signature] Lab Unit Mgr: [signature]
JK 6-5-92

Serial No.	Sample Point	Date	Time Issued	Priority
R 322.-5772	106AW	9-19-91	15:41	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
Cl.	LA-533-105	PPM	W1TE2	C

Sample Size: ? .100ml - 10ml - .500ml - 10ml
Customer ID: 791 5A

Remarks, Calculations, Results:
4.89 E2 ppm

Analyst-1: [signature] Analyst-2: Analyst-3: Analyst-4: Analyst-5: [signature]
Hrs: 6CB23
Date: 10-8-91 Time Completed: [signature] Lab Unit Mgr: [signature]
JK 7-7-92

Serial No.	Sample Point	Date	Time Issued	Priority
R 323.-5572	106AW	9-19-91	15:44	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
CL	LA-533-105	% RECOVERY	W1TE2	C

Sample Size: ? .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R972 DIONEX
STD# 73C11CD RESULT 71.429 ppm
STD VAL 75 ppm %REC 95.2%

Analyst-1: [signature] Analyst-2: Analyst-3: Analyst-4: Analyst-5: [signature]
Hrs: 6CB23
Date: 10-4-91 Time Completed: [signature] Lab Unit Mgr: [signature]
JK 6-5-92

9-22-91
4469-AC

DIONEX METHOD PARAMETERS - SYSTEM1.MET

System Parameters

System Name : system1/gpm
Number of Detectors..... 1
Detector 1 Type..... CDM-1
Detector 1 real time plot scale (uS)..... 20.00
Run Time (minutes)..... 8.50
Sampling Rate (seconds)..... 0.20

-- DETECTOR 1 PARAMETERS --
Report Options

Save Data File..... Yes
Data File Name: c:\dx\data\91092201.D08
Create ASCII Report File..... No
Print Report..... Yes
List Peaks Not Found in this run..... No
Report Unknowns Found in this run..... Yes
Print Chromatogram..... Yes
AutoScale Chromatogram to Highest Peak..... Yes
Fill Peaks with Color ..... Yes
Draw Grid Lines on Chromatogram..... No
Label with Peak Number..... Yes
Label with Retention Times on Chromatogram..... No
Label with Component Name..... Yes
Format File Name: c:\dx\method\default.prf

Integration Parameters

Starting Peak Width (seconds)..... 10.0
Peak Threshold (mV or uS/data pt interval)..... 0.500
Peak Area Reject..... 1000
Area Reject for Reference Peaks..... 1000
Percent Retention Time Window for Reference Peaks..... 5.0

Integration Timed Events

Time	Description
1.32	Start peak detection
1.44	Start peak detection
1.46	Start peak detection
1.77	
1.77	Enable end of peak detection

Calibration Parameters

Number Of Levels for Calibration	6
Calibration Fit Type	Quadratic
Replace Or Average Calibrations	Replace
External or Internal Calibration	External
Calibrate by Area or Height	Area
Default Injection Volume	1.0
Default Dilution Factor	1.0
Response Factor for Unknown Peaks	1.0
Calibration Standard Volume	1.0
Internal Standard Volume	1.0
Sample Unit	PPM

Component # 1 FLUORIDE Retention Time 1.13
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 8.52797E-002
K1 = 6.06440E-005
K2 = -6.17180E-011

Level	Amount	Area	Height
1	1.20000E-001	1439	225
2	3.00000E-001	4035	566
3	6.00000E-001	8217	1141
4	1.20000E+000	16507	2218
5	2.30000E+000	39534	4812
6	4.40000E+000	76890	9371

Component # 2 CHLORIDE Retention Time 1.70
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.93335E-002
K1 = 1.01273E-004
K2 = -9.35560E-011

Level	Amount	Area	Height
1	1.60000E-001	1319	217
2	3.90000E-001	3754	568
3	7.80000E-001	6742	1045
4	1.50000E+000	14461	1975
5	3.00000E+000	30287	3987
6	5.90000E+000	61305	8910

Component # 3 NITRITE Retention Time 2.03
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.88691E-001
K1 = 1.33960E-004
K2 = 5.52630E-012

Level	Amount	Area	Height
1	1.08000E+000	6239	874
2	2.69000E+000	17299	2252
3	5.37000E+000	34328	4729
4	1.06200E+001	72787	9300
5	2.08500E+001	153501	19401
6	4.01500E+001	292053	34439

Component # 4 BROMIDE Retention Time 2.80
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.01960E-002
K1 = 2.00453E-004
K2 = -1.00008E-010

Level	Amount	Area	Height
1	1.56000E+000	7660	753
2	3.90000E+000	20706	1880
3	7.80000E+000	38868	3455
4	1.54000E+001	78061	6644
5	3.02000E+001	165133	12632
6	5.81000E+001	350930	24386

Component # 5 NITRATE Retention Time 3.30
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.02611E-001
K1 = 1.61787E-004
K2 = -5.83501E-011

Level	Amount	Area	Height
1	1.37000E+000	7543	727
2	3.43000E+000	17321	1803
3	6.83000E+000	40244	3563
4	1.35000E+001	83386	7010
5	2.65000E+001	173503	13640
6	5.11000E+001	360809	25639

Component # 6 PHOSPHATE Retention Time 5.32
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 5.53452E-001
K1 = 3.53243E-004
K2 = -3.51156E-010

Level	Amount	Area	Height
1	1.19000E+000	2277	162
2	2.98000E+000	7242	453
3	5.93000E+000	15025	935
4	1.17400E+001	31660	1933
5	2.30300E+001	69135	4130
6	4.43700E+001	144749	8447

Component # 7 SULFATE Retention Time 6.85
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.55734E-001
K1 = 1.27491E-004
K2 = -3.79358E-011

Level	Amount	Area	Height
1	1.40000E+000	9418	543
2	3.50000E+000	24499	1382
3	6.96000E+000	52303	2890
4	1.37800E+001	107173	5909
5	2.70400E+001	225632	12225
6	5.20700E+001	471630	24686

IC Control File: C:\DX\METHOD\SYSTEM1.TE

Step	Time	Description
Init		CDM-1 AutoOffset Off
Init		CDM-1 Recorder Mark OFF
Init		CDM-1 Temp. Comp. = 1.7 / Deg C
Init		CDM-1 Recorder Range = 1.0 uS
Init		CDM-1 Cell ON
Init		CHA Heater = 25 Deg. C
Init		Valve A ON
Init		Valve B ON
Init		Inject Valve OFF
Init		ACI Autosmp OFF
Init		ACI RLY 2 OFF
Init		ACI TTL 1 OFF
Init		ACI TTL 2 OFF
Init		ACI AC 1 ON
Init		GPM Start
Init		GPM Hold Gradient Clock
Init		GPM Reset ON
1	0.0	CDM-1 AutoOffset ON
1	0.0	Start Sampling
1	0.0	GPM Reset OFF
2	0.1	CDM-1 Recorder Range = 10.0 uS
2	0.1	Inject Valve ON
2	0.1	GPM Run Gradient Clock
3	3.0	Inject Valve OFF
4	3.5	ACI Autosmp ON
5	8.0	ACI Autosmp OFF

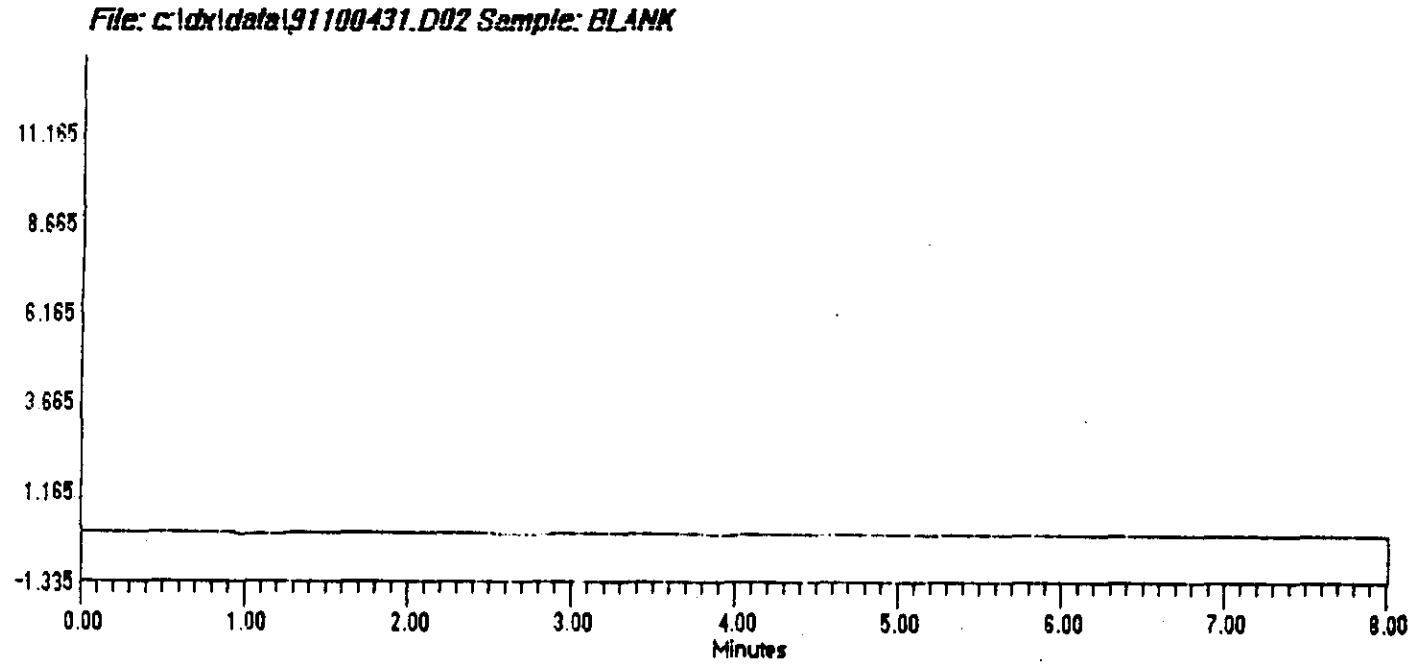
GpmFile: C:\DX\METHOD\SYSTEM1.GPM
Lo Pressure Limit = 200
Hi Pressure Limit = 2000
Eluant 1 - DI WATER
Eluant 2 - SODIUM CARBONATE
Eluant 3 - SODIUM BICARBONATE
Eluant 4 - Eluant 4

Time	Flow	%1	%2	%3	%4	V5	V6	Comment
0.0	2.0	84	8	8	0	0	0	

```
Sample Name: BLANK                                  Date: Fri Oct 04 20:37:01 1991
Data File   : c:\dx\date\91100431.D02
Method      : c:\dx\method\SYSTEM1.met
ACI Address: 1        System : 1        Inject#:   2  Detector: COM-1
```

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	1	2405	5Hz	0.00	8.02	1000	

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta



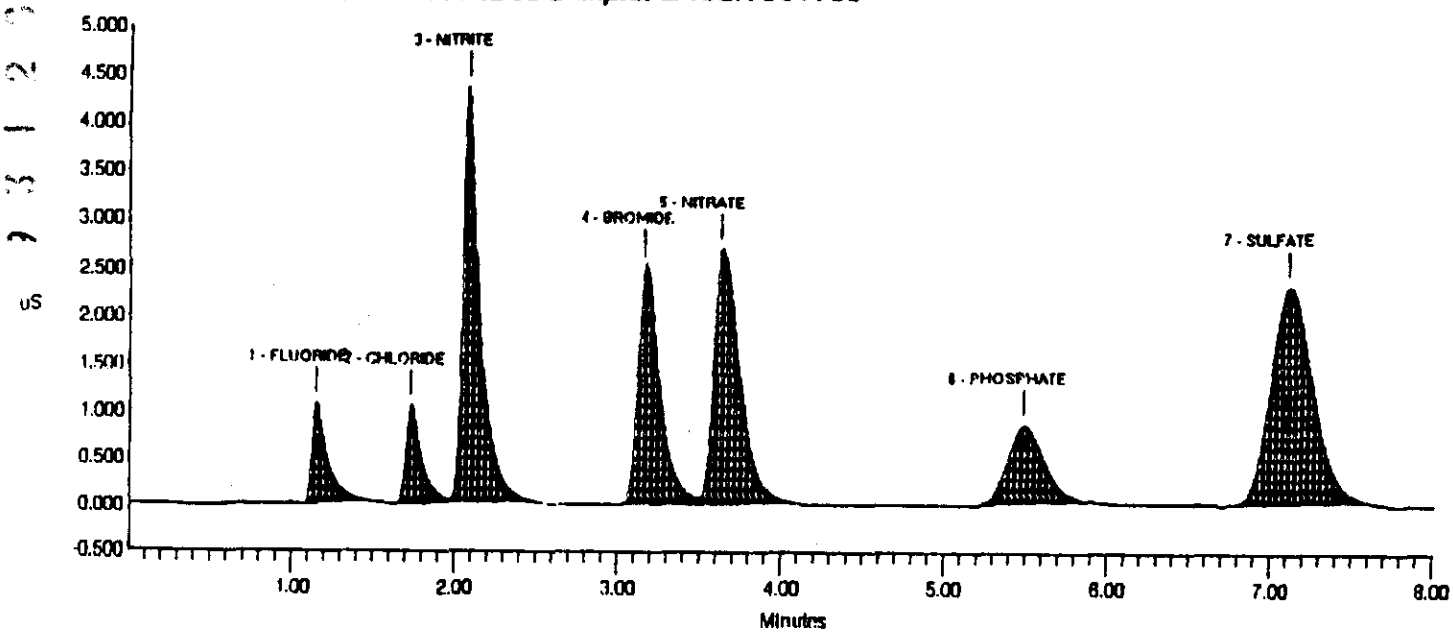
DATA REPROCESSED ON Fri Oct 04 21:38:52 1991

Sample Name: LMCS/73C11C0 R3/4			Date: Fri Oct 04 20:46:06 1991
Data File : C:\DX\DATA\91100421.D03			
Method : c:\dx\method\SYSTEM1.met			
ACI Address: 1	System : 1	Inject#: 3	Detector: CDN-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.15	FLUORIDE	52.136	1058	7158	1	0.00
2	1.73	CHLORIDE	74.035	1030	6894	2	0.48
3	2.08	NITRITE	489.305	4334	32473	2	1.14
4	3.17	BROMIDE	458.041	2492	22680	2	2.32
5	3.63	NITRATE	530.820	2668	30960	2	8.51
6	5.48	PHOSPHATE	505.944	805	12777	1	1.64
7	7.12	SULFATE	558.013	2291	41046	1	2.32

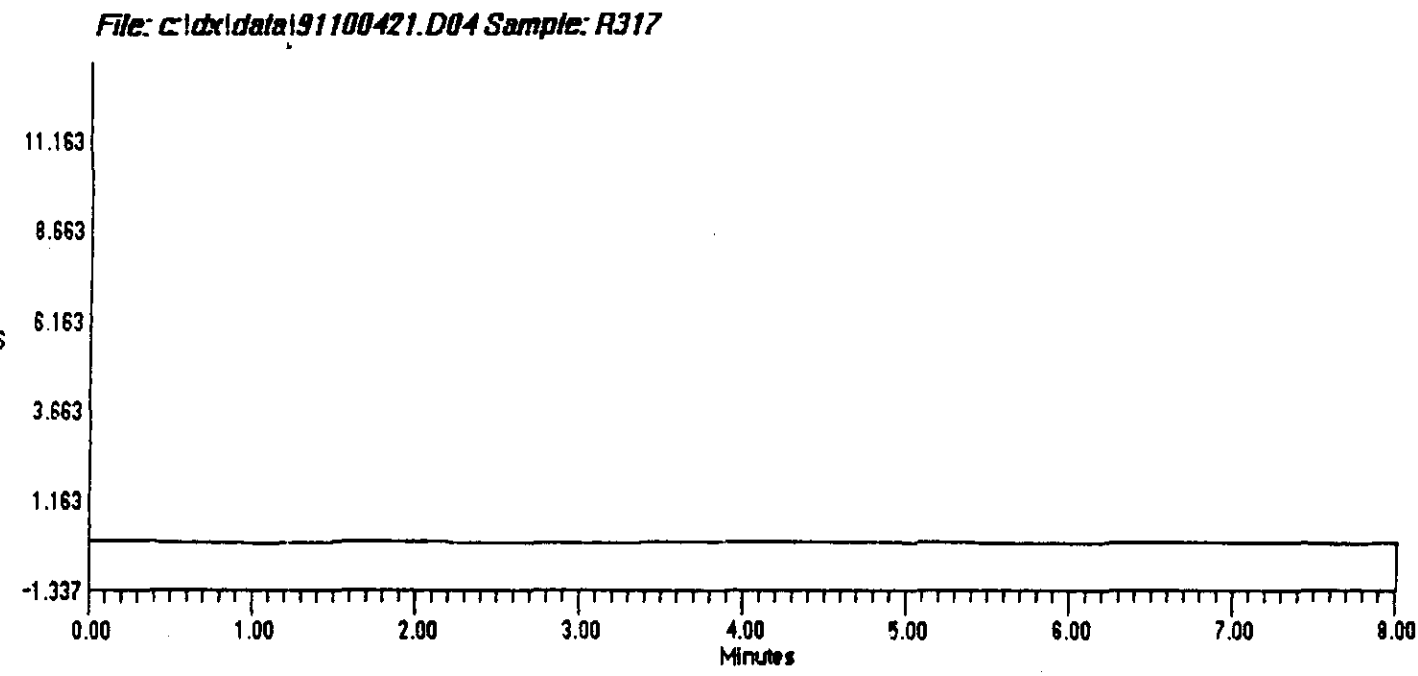
File: C:\DX\DATA\91100421.D03 Sample: LMCS/73C11C0



```
| Sample Name: R317                                    Date: Fri Oct 04 20:55:27 1991|
| Data File   : c:\dx\data\91100421.D04                                              |
| Method      : c:\dx\method\SYSTEM1.met                                             |
| ACI Address: 1        System : 1        Inject#:    4  Detector: CDM-1           |
```

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	1	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Weight	Area	Bl. Code	%Delta



 R323 7 R324 1-14-92

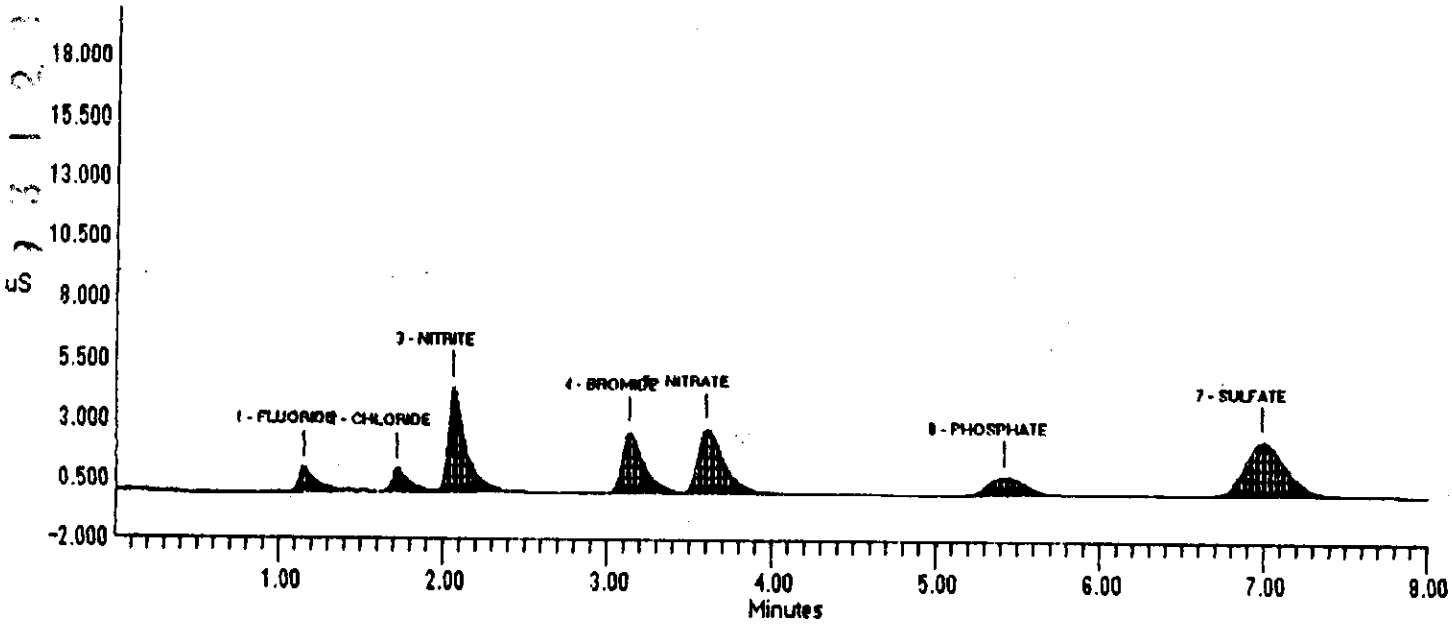
DATA REPROCESSED ON Fri Oct 04 22:45:26 1991

Sample Name: LMCS/73C11C0 R323 1-14-92	Date: Fri Oct 04 22:10:28 1991
Data File : C:\DX\DATA\91100411.D12	
Method : c:\dx\method\SYSTEM1.met	
ACI Address: 1 System : 1 Inject#: 12 Detector: CDM-1	

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.15	FLUORIDE	52.102	1076	7152	1	0.00
2	1.72	CHLORIDE	71.429	993	6636	2	-0.48
3	2.07	NITRITE	487.247	4357	32321	2	0.33
4	3.13	BROMIDE	475.164	2356	23546	2	1.24
5	3.60	NITRATE	521.193	2723	30545	2	7.51
6	5.42	PHOSPHATE	510.540	821	12909	1	0.40
7	6.98	SULFATE	565.442	2341	41638	1	0.47

File: C:\DX\DATA\91100411.D10 Sample: LMCS/73C11C0

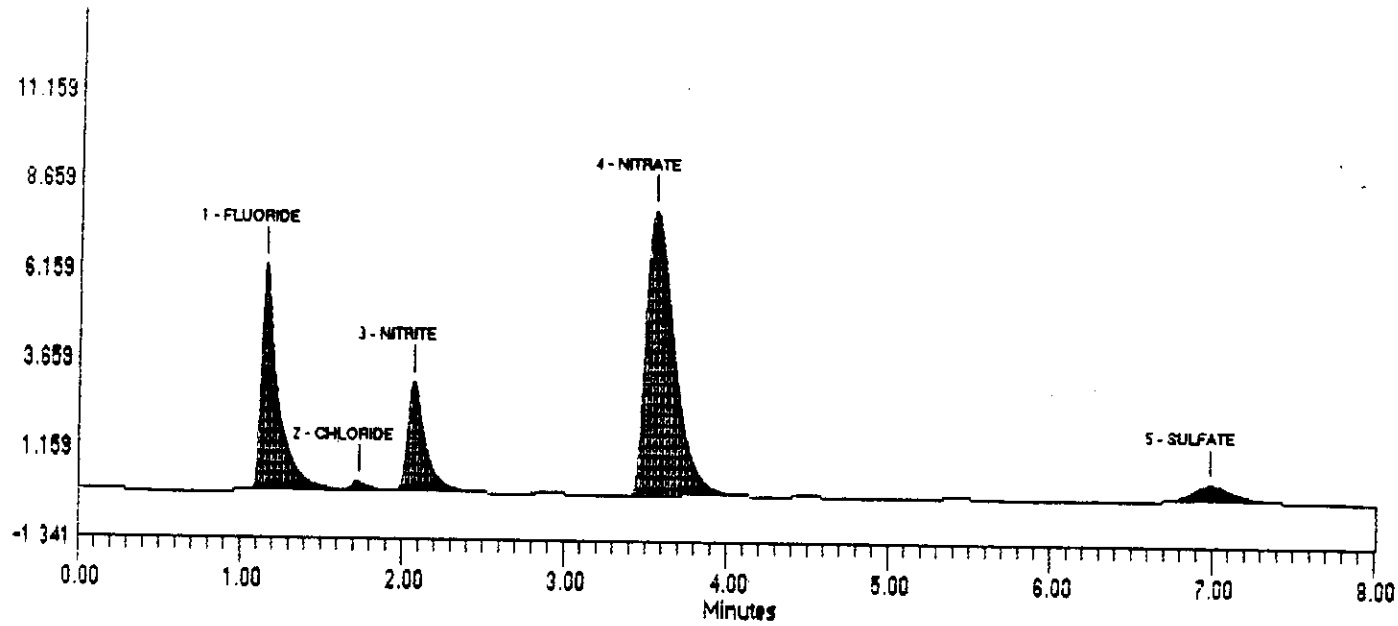


Sample Name: R322 Date: Fri Oct 04 22:01:12 1991
Data File : c:\dx\data\91100411.D11
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 11 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	2121	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.15	FLUORIDE	5724.479	6333	45176	2	0.00
2	1.73	CHLORIDE	488.984	265	1891	2	0.48
3	2.07	NITRITE	7545.692	3068	22888	2	0.33
4	3.55	NITRATE	32604.372	7980	96504	1	6.02
5	6.98	SULFATE	2828.608	450	7688	1	0.47

File: c:\dx\data\91100411.D11 Sample: R322



TFZ 9-30-92
~~623~~

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R322	Customer ID: 791-5A
Analysis: ACID DIGESTION	Sample Prep: ACID DIGESTION

Instrument: METTLER BAL. SNF04495	Procedure/Rev: LA-508-158/A-2
Technologist: L. MORRISON	Date: 9-24-91
Starting Time: N/A	Temperature: N/A
Ending Time: N/A	Chemist: L. OTTMAR

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R316-8505	11		
2	REAGENT BLANK	R317-8605	12		
3	SAMPLE 791-5A	R322-8705	13		
4	FINAL LMCS CHECK STD	R323-8505	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	ICP1-9S4/10 mL	ICP2-6S4/10 mL	ICP3-8S4/10 mL	N/A

A-6000-881 (03/92)

ACID DIGESTION ANALYSIS
WHC-SD-WM-DP-025
Addendum 16 Rev C

Serial No	Sample Point	Date	Time Issued	Priority
R 316.-8505	106AW	9-19-91	13:35	26

Determination	Method/Standard	Result Units	Charge Code	Rerun
ACD-DIG	LA-505-158	% RECOVERY	WITE2	0

Sample Size: ? 10 mL on in 100 mL
Customer ID: STD

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID
1cP-ESTI - 954
1cP-ESTL - 654
1cP-ESTS - 554

Complete

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731				
Hrs	Hrs	Hrs	Hrs	Hrs

Date: 9-24-91 | Time Completed | Lab Unit Mgr: [signature] | DK McGarland

Serial No	Sample Point	Date	Time Issued	Priority
R 317.-8605	106AW	9-19-91	13:45	26

Determination	Method/Standard	Result Units	Charge Code	Rerun
ACD-DIG	LA-505-158	G/B	WITE2	0

Sample Size: ?
Customer ID: REG DL

Remarks, Calculations, Results:
REAGENT BLANK
VOLUME ON
COMPLETION

Complete

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731				
Hrs	Hrs	Hrs	Hrs	Hrs

Date: 9-24-91 | Time Completed | Lab Unit Mgr: [signature] | DK McGarland

Serial No	Sample Point	Date	Time Issued	Priority
R 322.-8705	106AW	9-19-91	15:43	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
ACD-DIG	LA-505-158	G/B	WITE2	0

Sample Size: ? 1 mL in 100 mL
Customer ID: 794 5A

Remarks, Calculations, Results:

Complete

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731				
Hrs	Hrs	Hrs	Hrs	Hrs

Date: 9-24-91 | Time Completed | Lab Unit Mgr: [signature] | DK McGarland

Serial No	Sample Point	Date	Time Issued	Priority
R 323.-8505	106AW	9-19-91	15:45	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
ACD-DIG	LA-505-158	% RECOVERY	WITE2	0

Sample Size: ? 10 mL on in 100 mL
Customer ID: STD

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID
1cP-ESTI - 954
1cP-ESTL - 654
1cP-ESTS - 554

Complete

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731				
Hrs	Hrs	Hrs	Hrs	Hrs

Date: 9-24-91 | Time Completed | Lab Unit Mgr: [signature] | DK McGarland

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R322	Customer ID: 791-5A
Analysis: INDUCTIVELY COUPLED PLASMA	Sample Prep: ACID DIGESTION

Instrument: WB39939	Procedure/Rev: LA-505-151/B-0
Technologist: L. MORRISON	Date: 11-19-91
Starting Time: 13:14	Temperature: N/A
Ending Time: 14:23	Chemist: L. OTTMAR

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R316-8550	11		
2	REAGENT BLANK	R317-8650	12		
3	SAMPLE 791-5A	R322-8750	13		
4	FINAL LMCS CHECK STD	R323-8550	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	9S4/ 10 mL	6S4/ 10 mL	8S4/ 10 mL	N/A

A-6000-881 (03/92)

ICP ANALYSIS - ACID DIGESTION
WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No.	Sample Point	Date	Time Issued	Priority
R 316-8550	106AW	9-19-91	13:35	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	% RECOVERY	W1E2	0

Sample Size		Customer ID
? 10 mL to 100 mL	DIGESTED STDS	STD

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID
984,639,824

Al 6.7262ppb (10/1000) = 6.72ppm = 134%
Ca 1.8084 (.01) = 1.8082ppm = 180%
Cr 5.4162 (.01) = 5.41ppm = 108%
Fe 7.9762 (.01) = 7.97ppm = 157%
Na 1.5763 (.01) = 15.70ppm = 157%

(OVER

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
11/19/91	11/20/91			

34-6600-061 (R-10-63)

DIGESTED
Ag (483)(.01) = 96.6%
Ba (1015)(.01) = 101.5%
Cd (1026)(.01) = 102.6%
Mg (2840)(.01) = 568%
Mn (563)(.01) = 112.6%
Pb (560)(.01) = 120.0%
Zn (2300)(.01) = 230.0%

Al 4.80 96.0%
Ca 10.57 105.7%
Cr 4.75 95.0%
Fe 4.97 99.4%
Na 9.45 94.5%

LMCS ✓ 11/22/91

Undigested
Ba 9.79 97.9%
Cd 9.85 98.5%
Mg 4.97 99.4%
Mn 4.88 97.6%
Zn 9.90 99.0%
Ag 4.88 97.6%
Pb 5.17 103.4%

R316-8550
~~9231~~ LS

Serial No.	Sample Point	Date	Time Issued	Priority
R 317.-8650	106AW	9-19-91	13:45	26

Determination	Method/Standard	Result Units	Charge Code	Rerune
ICP	LA-505-151	PPM	W1TE2	0

Sample Size	Customer ID
? Direct	REG BL

Remarks, Calculations, Results:
REAGENT BLANK
AL 1.01E2/1000 = 1.01E-1 ppm
CA 5.15E3/1000 = 5.15 ppm
CR 1.02E1/1000 = 1.02E-2 ppm
FE 7.59E1/1000 = 7.59E-2 ppm
NA 4.09E2/1000 = 4.09E-1 ppm
Ag <8.0/1000 = <8.0E-3 ppm
Ba <3.0/1000 = <3.0E-3 ppm
Cd <4.0/1000 = <4.0E-3 ppm
Mg 402/1000 = 4.02E-1 ppm
Mn 17/1000 = 1.70E-2 ppm
Pb <80/1000 = <8.0E-2 ppm
Zn 430/1000 = 4.30E-1 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]	Laurine J. Ottman			

Date	Time Completed	Lab Unit Mgr
11/19/91	11/20/91	[signature]

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
R 322.-8750	106AW	9-19-91	15:43	25

Determination	Method/Standard	Result Units	Charge Code	Rerune
ICP	LA-505-151	ug/g rec	W1TE2	0

Sample Size	Customer ID
? 1mL in 100mL, 2mL to 10mL DF=600	791-5A

Remarks, Calculations, Results:
AL 1.62E3 (600) = 9.72E5 ppb
CA 2.57E3 (600) = 1.54E6 ppb
CR 2.55E1 (600) = 1.53E4 ppb
FE <87 (600) < 5.22E4 ppb
NA 4.44E4 (600) = 2.66E7 ppb
Ag (<8.0)(600) = <4.80E3 ppb
Ba (<3.0)(600) = <1.80E3 ppb
Cd (<4.0)(600) = <2.40E3 ppb
Mg (<11)(600) = <6.60E3 ppb
Mn (9.1)(600) = 5.46E3 ppb
Pb (<80)(600) = <4.80E4 ppb
4 [illegible] 192
Zn (213)(600) = 1.28E5 ppb

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]	Laurine J. Ottman			

Date	Time Completed	Lab Unit Mgr
11/19/91	11/20/91	[signature]

54-6800-061 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
R 323.-8550	106AW	9-19-91	15:45	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	% RECOVERY	W1TE2	0

Sample Size	Customer ID
? 10 mL ea in 100 mL	STD

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID

ICP-SET1 - 984
ICP-SET2 - 654
ICP-SET3 - 884

LMCS STDS

AL 6.51E2 (10/10²) = 6.51 ppm = 130%
Ca 1.88E4 (.01) = 1.88E2 ppm = 1,880%
Cr 5.99E2 (.01) = 5.99 ppm 120%
Fe 1.11E3 (.01) = 11.10 ppm 111%
Na 1.62E3 (.01) = 16.20 ppm 162%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]	Laurine J. Altman			

Date	Time Completed	Lab Unit Mgr
11/19/91	11/20/91	[signature]

64-6600-061 (R-10-83)

DIGESTED

R 323-8550

Al 4.72 94.4%
Ca 9.84 98.4%
Cr 4.75 95.0%
Fe ~~9.40~~ 4.97 99.4%
Na 9.40 94.0%

Ag (487)(.01) = 97.4%
Ba (998)(.01) = 99.8%
Cd (1016)(.01) = 101.6%
Mg (2336)(.01) = 467.2%
Mn (563)(.01) = 112.6%
Pb (568)(.01) = 113.6%
Zn (2433)(.01) = 243.3%

LMCS ✓ [signature] 11/22/91

Ag 4.74 94.8%
Ba 9.80 98.0%
Cd 9.88 98.8%
Mg 4.95 99.0%
Mn 4.88 97.6%
Pb 5.12 102.4%
Zn 9.82 98.2%

646

TF2
8-31-92

~~628~~

Identity [redacted] Identity [redacted] PM November 1991

Sample Weight : Solution Volume :
On-Peak Integrations : Off-Peak Integrations :

[illegible — faded printout of element concentrations (ppb) with Mean, S.D. and %R.S.D. rows; several values redacted: [redacted]]

Uncorrected Counts Statistics PM November 1991

Sample Weight : Solution Volume :
On-Peak Integrations : Off-Peak Integrations :

Channel	Mean (pulses)	S.D. (pulses)	%R.S.D. (pulses)
[illegible]	[illegible]	[illegible]	

648

TFZ
8-31-92
~~630~~

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	0.001	0.015
[illegible]	[illegible]	-0.060	0.033
[illegible]	[illegible]	0.058	0.013
[illegible]	[illegible]	4.768	0.015
[illegible]	[illegible]	-0.025	0.008
[illegible]	[illegible]	-0.457	0.015
[illegible]	[illegible]	[illegible]	0.010
[illegible]	[illegible]	0.114	0.001
[illegible]	[illegible]	0.133	0.011
[illegible]	[illegible]	0.269	0.013
[illegible]	[illegible]	0.012	0.007
[illegible]	[illegible]	-0.033	0.010
[illegible]	[illegible]	17.803	0.052
[illegible]	[illegible]	3.955	0.042
[illegible]	[illegible]	-0.171	0.031
[illegible]	[illegible]	0.085	0.016
[illegible]	[illegible]	-0.177	0.008
[illegible]	[illegible]	[illegible]	0.004
[illegible]	[illegible]	[illegible]	0.003
[illegible]	[illegible]	-0.949	[illegible]
[illegible]	[illegible]	0.335	0.002
[illegible]	[illegible]	3.565	0.003

Operator: [redacted] Chemistry ID: [redacted] [illegible] November [illegible], 1991

[illegible]

9 3 1 2 5 3 1 3 1 6

649

TFZ 8-31-92

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9 3 1 2 3 4 1 7

[redacted] [redacted]

[redacted]

	Ba	Tl
	222	203
Year	9225.650	5249.486
S.D.	263.357	-30.303
R.S.D.	3.650	9.207

Corrected Counts Statistics 1:24 PM November 19, 1991
Top Time = 10.0MIN
Sample Weight : 1.0000 Dilution Volume : 1.00
Cuvette Thickness : 2 Cuvette Integration : 1

Nuclide Chemical	Peak Activity	S.D. in Peak	%R.S.D. Activity
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
Pa	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
Tl	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

65

TFZ
8-31-92
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[illegible]

[illegible] [redacted] [illegible] [redacted] [illegible]
[illegible]
[illegible]
[illegible]

[illegible]	[illegible]	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]	[redacted]	[redacted]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]	[redacted]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

652

TFZ
8-31-92
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[illegible]

[illegible] [redacted] [illegible] [redacted] [illegible]

[illegible] [redacted] [illegible] [redacted] [illegible] [redacted] [illegible]

[illegible]

654

TF2
8-31-92
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Test name : 011NEW

Sample Weight : Solution Volume :

D-Peak Integration : 2 Off-Peak Integration : 1

Analyte Name	Peak Number	Mean Volume	S.D. Volume	R.S.D. Volume
Sr	1	[illegible]	[illegible]	
Al	2	[illegible]	[illegible]	
Fe	3	[illegible]	[illegible]	
[illegible]	4	[illegible]	[illegible]	
[illegible]	5	[illegible]	[illegible]	
Ca	6	-[illegible]	[illegible]	
[illegible]	7	[illegible]	[illegible]	
Mg	8	-[illegible]	[illegible]	
Cr	9	[illegible]	[illegible]	
Fe	10	-[illegible]	[illegible]	
[illegible]	11	[illegible]	[illegible]	
[illegible]	12	[illegible]	[illegible]	
[illegible]	13	[illegible]	[illegible]	
[illegible]	14	[illegible]	[illegible]	
[illegible]	15	[illegible]	[illegible]	
[illegible]	16	[illegible]	[illegible]	
[illegible]	17	[illegible]	[illegible]	
[illegible]	18	[illegible]	[illegible]	
[illegible]	19	[illegible]	[illegible]	
[illegible]	20	[illegible]	[illegible]	
[illegible]	21	[illegible]	[illegible]	
[illegible]	22	[illegible]	[illegible]	
[illegible]	23	[illegible]	[illegible]	
[illegible]	24	[illegible]	[illegible]	
[illegible]	25	[illegible]	[illegible]	
[illegible]	26	[illegible]	[illegible]	
[illegible]	27	[illegible]	[illegible]	
[illegible]	28	[illegible]	[illegible]	
[illegible]	29	[illegible]	[illegible]	
[illegible]	30	[illegible]	[illegible]	
[illegible]	31	[illegible]	[illegible]	
[illegible]	32	[illegible]	[illegible]	
[illegible]	33	[illegible]	[illegible]	
[illegible]	34	[illegible]	[illegible]	
[illegible]	35	[illegible]	[illegible]	
[illegible]	36	[illegible]	[illegible]	
[illegible]	37	[illegible]	[illegible]	
[illegible]	38	[illegible]	[illegible]	
[illegible]	39	[illegible]	[illegible]	
[illegible]	40	[illegible]	[illegible]	
[illegible]	41	[illegible]	[illegible]	
[illegible]	42	[illegible]	[illegible]	
[illegible]	43	[illegible]	[illegible]	
[illegible]	44	[illegible]	[illegible]	
[illegible]	45	[illegible]	[illegible]	

Identifier : [redacted] Dilution : 2 [illegible] November [illegible]

Test name : [illegible]

Sample Weight : Solution Volume :

D-Peak Integration : 2 Off-Peak Integration : 1

	Si	Al	Fe	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	Cr	Ba	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[redacted]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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[redacted] [redacted]

[redacted]

[redacted]

WHC-SD-WM-DP-025
Addendum 16 Rev 0

[redacted]

[redacted]

657

TFZ
8-31-92
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Sample Weight [illegible] Solution Volume [illegible]
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Si	Al	Ti	Cu	Zn	Mn	Fe	Ca
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	[illegible]	[redacted]	357.977	[illegible]	[illegible]	[illegible]	[redacted]	[redacted]
S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	Ti	Sr	B	Mg	Na	K	Mo	Be
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]	[redacted]	[illegible]	[illegible]
S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	Ag	Pb	Cd	S	[illegible]	[illegible]	Sb	[illegible]
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	[illegible]	[illegible]	[illegible]	354.733	[illegible]	[illegible]	[illegible]	[illegible]
S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	Te	Tl
	(ppb)	(ppb)
Mean	[illegible]	[illegible]
S.D.	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

WHC-SD-WM-DP-025
Addendum 16 Rev 0

[illegible] Statistics [illegible] 1:47 PM [illegible] 19, 1991
[illegible]
Sample Weight : [illegible] Solution Volume : [illegible]
On-Peak Integrations : 3 Off-Peak Integrations : 1

[illegible] Statistics	Mean Values	S.D. Values	[illegible] S.D.
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
Fe	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	

658

TFZ
8-31-92
~~640~~

[illegible]	42	0.003	0.005
	43	[illegible]	[illegible]
[illegible]	44	[illegible]	0.009
[illegible]	45	[illegible]	[illegible]

[illegible] [redacted] Identity By [illegible] [illegible] November [illegible]
[illegible]
Sample Weight [illegible] Solution Volume : [illegible]
On-Peak Integrations : 3 Off-Peak Integrations : [illegible]

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Mean	47.921	[redacted]	266.553	73.522	152.956	93.279	[redacted]	[redacted]
S.D.	1.294	[illegible]	3.292	0.952	3.152	1.224	[illegible]	[illegible]
% R.S.D.	2.700	1.192	1.237	1.21	2.061	[illegible]	[illegible]	[illegible]

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Mean	[redacted]	182.735	2157.533	-141.339	68.134	[redacted]	[illegible]	51.094
S.D.	[illegible]	[illegible]	15.303	[illegible]	[illegible]	[illegible]	[illegible]	49.710
% R.S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	97.353

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
[illegible]	[illegible]	133.735	[illegible]	355.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% R.S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	[illegible]	[illegible]
	ppm	ppm
[illegible]	[illegible]	-[illegible]
S.D.	[illegible]	[illegible]
% R.S.D.	[illegible]	[illegible]

[illegible] November [illegible]
[illegible]
Sample Weight [illegible] Solution Volume : [illegible]
On-Peak Integrations : [illegible] Off-Peak Integrations : [illegible]

Analyte Channel	Mean Intensity	S.D. Intensity	% R.S.D. Intensity
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

9 3 1 2 7 1 3 2 5 9

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible] [redacted] Identity [illegible] 1:55 PM November 19, [illegible]
[illegible]
[illegible] Solution [illegible]
[illegible] Off-Peak Integrations [illegible]

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	ppb	(ppb)	(ppb)	(ppb)	(ppb)	ppb	(ppb)	(ppb)
Mean	[illegible]	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]	[redacted]	[redacted]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	ppb	(ppb)
Mean	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]	[redacted]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	ppb	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	[illegible]	[illegible]
	ppb	(ppb)
Mean	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

[illegible] 1:57 PM [illegible]
[illegible]
[illegible] Solution [illegible]
[illegible] Off-Peak Integrations

[illegible]

660

TF2
8-31-92
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661
8-31-92
~~643~~

Corrected Counts Statistics   3:02 PM November 19, 1991

[illegible]

[illegible]	[illegible]	0.446	0.019	
[illegible]	[illegible]	5.785	[illegible]	
[illegible]	[illegible]	2.787	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	0.015	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	55.124	0.821	
[illegible]	[illegible]	0.013	[illegible]	
[illegible]	[illegible]	[illegible]	0.017	
[illegible]	[illegible]	[illegible]	0.019	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	

[illegible] [redacted] [illegible] [redacted] 3:13 PM November 19, 1991

[illegible]

[redacted] [redacted] [redacted]

[redacted] [redacted]

[illegible]

662

TF2 8-31-92
~~644~~

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% S.D.	39.985	34.969	18.519	1.754	1.712	18.752	1836.195	18.718

WHC-SD-WM-DP-025
Addendum 16 Rev 0

	Ba	Tl
	ppb	ppb
Mean	1.548	-391.487
S.D.	1.811	115.981
% S.D.	[illegible]	31.098

Corrected Counts Statistics   8:0? PM November 19, 1991
Data name : [illegible]
Sample weight : 1.0000 Solution volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

[illegible] Channel	Mean [illegible]	S.D. [illegible]	%R.S.D. [illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	1.931	0.012
[illegible]	13	[illegible]	0.024
[illegible]	[illegible]	[illegible]	0.181
[illegible]	[illegible]	[illegible]	[illegible]
Fe	[illegible]	[illegible]	0.154
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	34.342	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Sample [redacted] Identity [redacted]   8:1? PM November 19, 1991
Data name : [illegible]
Sample weight : [illegible] Solution volume : [illegible]
On-Peak Integrations : 3 Off-Peak Integrations : 1

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fe	[illegible]
[illegible]	[illegible]	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]	[redacted]	[redacted]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TF2 8-31-92

~~645~~

	Cr (ppb)	Ba (ppb)	B (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)
Mean	[redacted]	-5.473	1386.089	-244.363	-10.303	[redacted]	-7.393	-19.162
S.D.	[redacted]	3.080	13.693	0.117	15.199	586.191	5.339	19.417
% R.S.D.	7.357	56.266	0.989	0.048	147.511	[illegible]	31.619	1[illegible].[illegible]

	Hg (ppb)	Pb (ppb)	Co (ppb)	B (ppb)	K (ppb)	Al (ppb)	Zn (ppb)	V (ppb)
Mean	-1.225	17.880	-2.133	336.763	15484.695	6.778	-151.942	-7.704
S.D.	2.377	21.302	1.904	5.447	57.372	1.334	14.881	9.352
% R.S.D.	333.333	177.234	72.309	5.301	1.462	4.916	11.579	155.394

WHC-SD-WM-DP-025
Addendum 16 Rev 0

	Be (ppb)	Tl (ppb)
Mean	3.940	-181.049
S.D.	1.508	347.780
% R.S.D.	20.457	136.335

Corrected Counts Statistics 3:09 PM November 19, 1991
Tab name: [illegible]
Sample Weight: 1.0000 Solution Volume: 1.00
On-Peak Integrations: 3 Off-Peak Integrations: 1

Element Channel	Mean pulses	S.D. pulses	% S.D. pulses
[illegible] 8	1.[illegible]	.135	
[illegible] 9	4.135	0.027	
[illegible] [illegible]	3.747	0.029	
[illegible] 12	-1.[illegible]	0.[illegible]	
[illegible] 15	-0.[illegible]	[illegible]	
[illegible] [illegible]	-1.[illegible]	[illegible]	
[illegible] [illegible]	[illegible]	[illegible]	
[illegible] [illegible]	15.[illegible]	[illegible]	
[illegible] [illegible]	[illegible]	[illegible]	
[illegible] 26	-1.[illegible]	[illegible]	
[illegible] 33	5.[illegible]	[illegible]	
[illegible] [illegible]	[illegible]	[illegible]	
[illegible] [illegible]	-1.[illegible]	[illegible]	
[illegible] [illegible]	13.553	0.535	
[illegible] 32	[illegible]	[illegible]	
[illegible] 33	-[illegible]	[illegible]	
[illegible] [illegible]	-1.[illegible]	[illegible]	
[illegible] [illegible]	-1.[illegible]	[illegible]	
[illegible] [illegible]	-1.[illegible]	[illegible]	
[illegible] 33	1.545	[illegible]	
[illegible] [illegible]	1.[illegible]	[illegible]	
[illegible] [illegible]	[illegible]	[illegible]	
[illegible] [illegible]	-1.[illegible]	[illegible]	
[illegible] [illegible]	-1.[illegible]	[illegible]	
[illegible] [illegible]	[illegible]	[illegible]	
[illegible] [illegible]	[illegible]	[illegible]	

664

TF2 8-31-92

~~646~~

Identity: [redacted] Identity: [redacted]

[illegible]

[redacted]

[illegible]

TF2
9-31-92
~~647~~

[illegible]

[redacted] [illegible] [redacted] [illegible]

[illegible]

[redacted] [illegible] [redacted] [illegible] [redacted]

[illegible] [redacted] [illegible] [redacted] [illegible]

[illegible]

[illegible]

[redacted] [redacted]

[illegible]

[redacted] [redacted] [redacted]

[redacted] [redacted]

[illegible]

9 3 1 2 ... 4

[illegible]	9	0.064	0.094
[illegible]	9	-0.359	0.101
[illegible]	11	131.769	0.189
[illegible]	13	30.913	0.176
[illegible]	15	53.547	0.451
[illegible]	16	57.173	0.214
[illegible]	17	51.881	0.395
[illegible]	20	59.890	0.538
[illegible]	21	14.841	0.140
[illegible]	[illegible]	155.091	0.497
[illegible]	33	0.837	0.008
[illegible]	19	35.955	0.333
[illegible]	[illegible]	0.001	0.014
[illegible]	[illegible]	13.355	0.134
[illegible]	33	-1.001	0.209
[illegible]	73	0.670	0.016
[illegible]	34	0.144	0.016
[illegible]	35	-0.015	0.014
[illegible]	37	336.349	3.311
[illegible]	38	35.533	0.364
	39	0.791	0.011
[illegible]	[illegible]	59.006	0.463
[illegible]	45	0.303	0.005
[illegible]	43	-0.033	0.013
[illegible]	[illegible]	0.304	0.001
[illegible]	45	3.511	0.031

[illegible] [redacted] Identif. By: [redacted] 3:19 PM November 19, 1991
Task name : [illegible] NEW
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]	[redacted]	[redacted]
[illegible]	[illegible]	[illegible]	64.105	[illegible]	33.270	[illegible]	[illegible]	38.704
[illegible]	[illegible]	85.107	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[redacted]	9904.762	213.329	4453.565	-19.338	[redacted]	-10.363	591.361
[illegible]	[illegible]	[illegible]	1.347	[illegible]	13.197	[illegible]	[illegible]	53.034
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	13.104	1.794

	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	97.391	9909.359	[illegible]	[illegible]	[illegible]	[illegible]	-90.565
[illegible]	[illegible]	19.191	78.393	33.334	59.136	[illegible]	111.944	3.393
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0.810

	[illegible]	[illegible]
	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

[illegible]

[redacted] [redacted]

[illegible]

	[redacted]		ppb	ppb	ppb	ppb	ppb	ppb
Mean			0.149	149.975	301.152	5.779	137.607	-555.751
S.D.	107.888	179.551	5.951	7.536	367.112	2.455	100.365	51.316
%R.S.D.	-4.162	3.507	4030.880	5.136	121.903	-3.906	75.043	3.336

	Ba	Ti
	ppb	ppb
Mean	5.569	568.276
S.D.	0.774	579.331
%R.S.D.	13.89	101.890

Corrected Counts Statistics   3:33 PM November 19, 1991
Task name : SOLMEA
Sample Weight   1.0000 Solution Volume :   1.00
On-Peak Integrations : 3   Off-Peak Integrations : 0

Channel	Mean c/sec	S.D. c/sec	%R.S.D. c/sec
	9	15.133	0.121
	9	15.096	0.118
	11	1.899	0.008
	13	0.050	0.003
	15	-0.079	0.019
	16	0.489	0.033
	19	0.311	0.013
	21	3.334	0.113
	21	1.089	0.006
	26	1.014	0.017
	28	4.400	0.068
	29	0.067	0.001
	27	5.104	0.147
	31	1.174	0.019
	33	36.519	0.191
	33	1.741	0.131
	3	3.113	0.013
	33	-4.118	0.013
	37	-1.564	0.038
	35	1.847	0.031
	39	-0.041	0.014
	41	1.005	0.036
	43	0.107	0.013
	42	15.574	0.173
	4	27.641	0.113
	45	4.284	0.011

Identifier [redacted] Identifier [redacted]   3:33 PM November 19, 1991
Task name : [illegible]
Sample Weight : [illegible] Solution Volume : [illegible]
On-Peak Integrations : 3   Off-Peak Integrations : 0

---

	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
[illegible]	[illegible]	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[redacted]	[redacted]

WHC-SD-WM-DP-025
Addendum 16 Rev 0

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R326	Customer ID: 791-6A
Analysis: ARSENIC	Sample Prep: UNDIGESTED

Instrument: PERKIN ELMER - WA77479	Procedure/Rev: LA-355-131/B-0
Technologist: D. R. JACKSON	Date: 10-01-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5595	11		
2	REAGENT BLANK	R325-5695	12		
3	SAMPLE 791-6A	R326-5795	13		
4	SAM DUP 791-6A	R326-5895	14		
5	SPIKE OF 791-6A	R326-5995	15		
6	FINAL LMCS CHECK STD	R331-5595	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	125B38B/0.5 mL			N/A
SPIKE	125B38B/.250 mL			N/A

A-6000-881 (03/92)

ARSENIC ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.-5595	106AW	9-20-91	10: 6	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
As	LA-355-131	% RECOVERY	W1TE2	0

Sample Size: ? .500 ml — Customer ID: STD

Remarks, Calculations, Results:
EDP R741 AS/HYDRD
STD#/25B38B RESULT 1.09E-1
STD VAL 1.00E-1 %REC 109.0%
0.821
54.45/500 =

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C275				
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]			[signature]	

Date: 10-1-91 — Time Completed: — Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.-5695	106AW	9-20-91	10: 8	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
As	LA-355-131	PPM	W1TE2	0

Sample Size: ? 10.0 ml — Customer ID: REG DL

Remarks, Calculations, Results:
REAGENT BLANK
0.009
<5/10,000 = <5.00E-4 ppm

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C275				
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]				

Date: 10-1-91 — Time Completed: — Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5795	106AW	9-20-91	10:10	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
As	LA-355-131	PPM	W1TE2	0

Sample Size: ? DRY ~~.100 ml~~ .025 ml — Customer ID: 791-6A

Remarks, Calculations, Results:
0.982
65.26/25 = 2.61

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C275				
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]				

Date: 10-1-91 — Time Completed: — Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5895	106AW	9-20-91	10:12	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
As	LA-355-131	PPM	W1TE2	0

Sample Size: ? 10-1-91 ~~.100 ml~~ .025 ml — Customer ID: 791 6A

Remarks, Calculations, Results:
DRY Duplicate
0.884
58.68/.25 = 2.35

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C275				
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]				

Date: 10-1-91 — Time Completed: — Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5995	106AW	9-20-91	10:13	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
As	LA-355-131	% RECOVERY	W1TE2	0

Sample Size: ? DRY ~~.100 ml~~ 10-1-91 .025 ml — Customer ID: 791-6A

Remarks, Calculations, Results:
SAMPLE SPIKED ID
SPIKE ID 125B38B
SPIKE VOLUME .250 ml
1.278 .296
19.21/250 = 76.8E-2 / 1.00E-1
78.8%

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C275				
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]				

Date: 10-1-91 — Time Completed: — Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.-5595	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
As	LA-355-131	% RECOVERY	W1TE2	0

Sample Size: ? .500 ml — Customer ID: STD

Remarks, Calculations, Results:
EDP R741 AS/HYDRD
STD#/25B38B RESULT 9.52E-2
STD VAL 1.00E-1 %REC 95.2%
0.719
47.60/500 = 9.52E-2

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C275				
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]			[signature]	

Date: 10-1-91 — Time Completed: — Lab Unit Mgr: [signature]

9 3 1 2 1 5 3 1 4 1 0

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
CALIBRATION RECORD

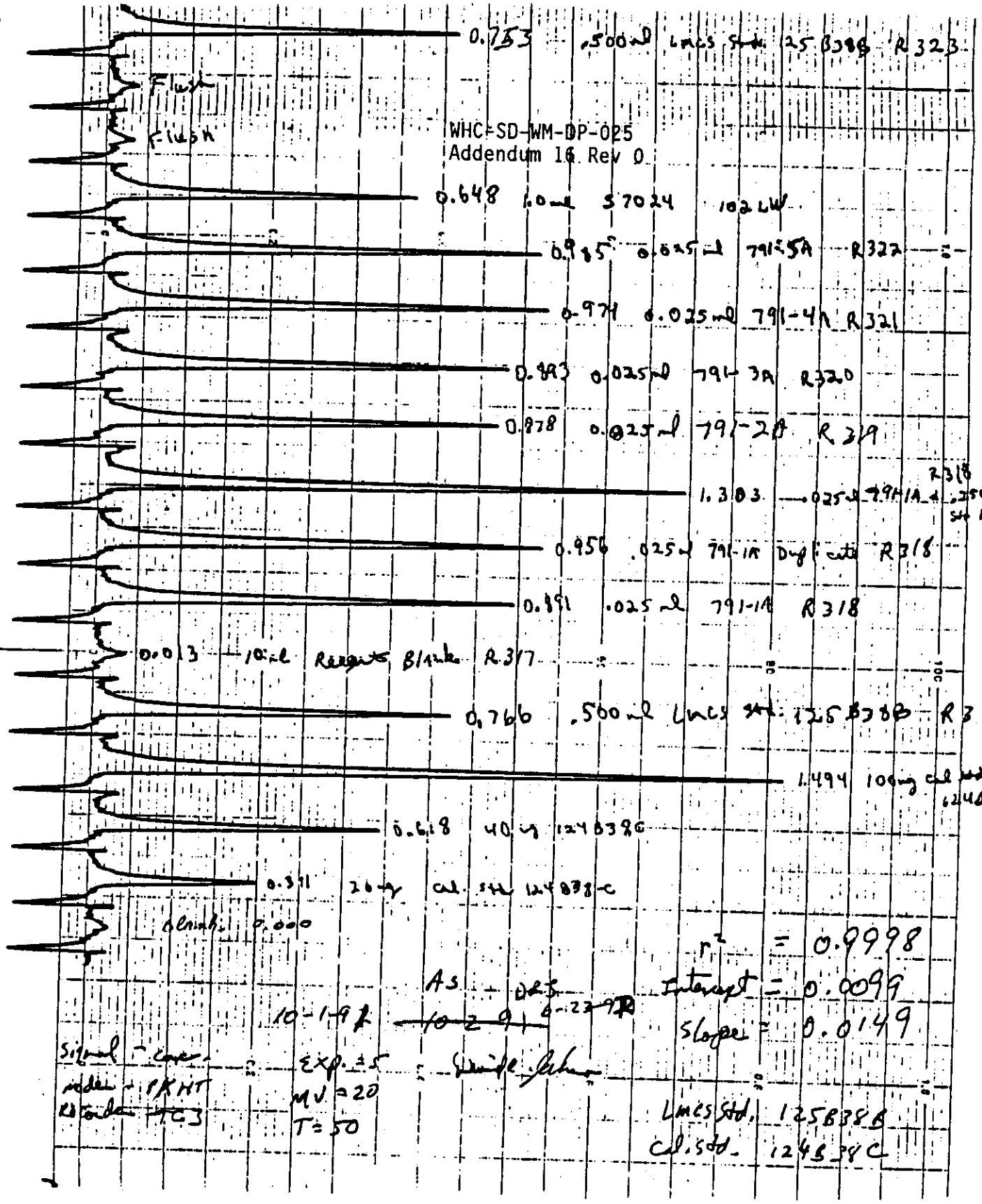
Analyte:	As		
Procedure:	LA-355-131	Revision:	B-0
Instrument:	PERKIN - ELMER	Property No.:	WA77479
Technologist:	D. JACKSON	Payroll No.: 6C275	Date: 10-01-91

Calibration Standard: 124B38C
Analyte Concentration: 0.1000 ppm
Type of Calibration: LINEAR

	Dilution	Concentration	Instrument Reading Unit
1	0.000 mL	0.0 ng	0.000
2	0.200 mL	20.0 ng	0.311
3	0.400 mL	40.0 ng	0.618
4	1.000 mL	100.0 ng	1.494
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Comments:

A-6000-882 (03/92)

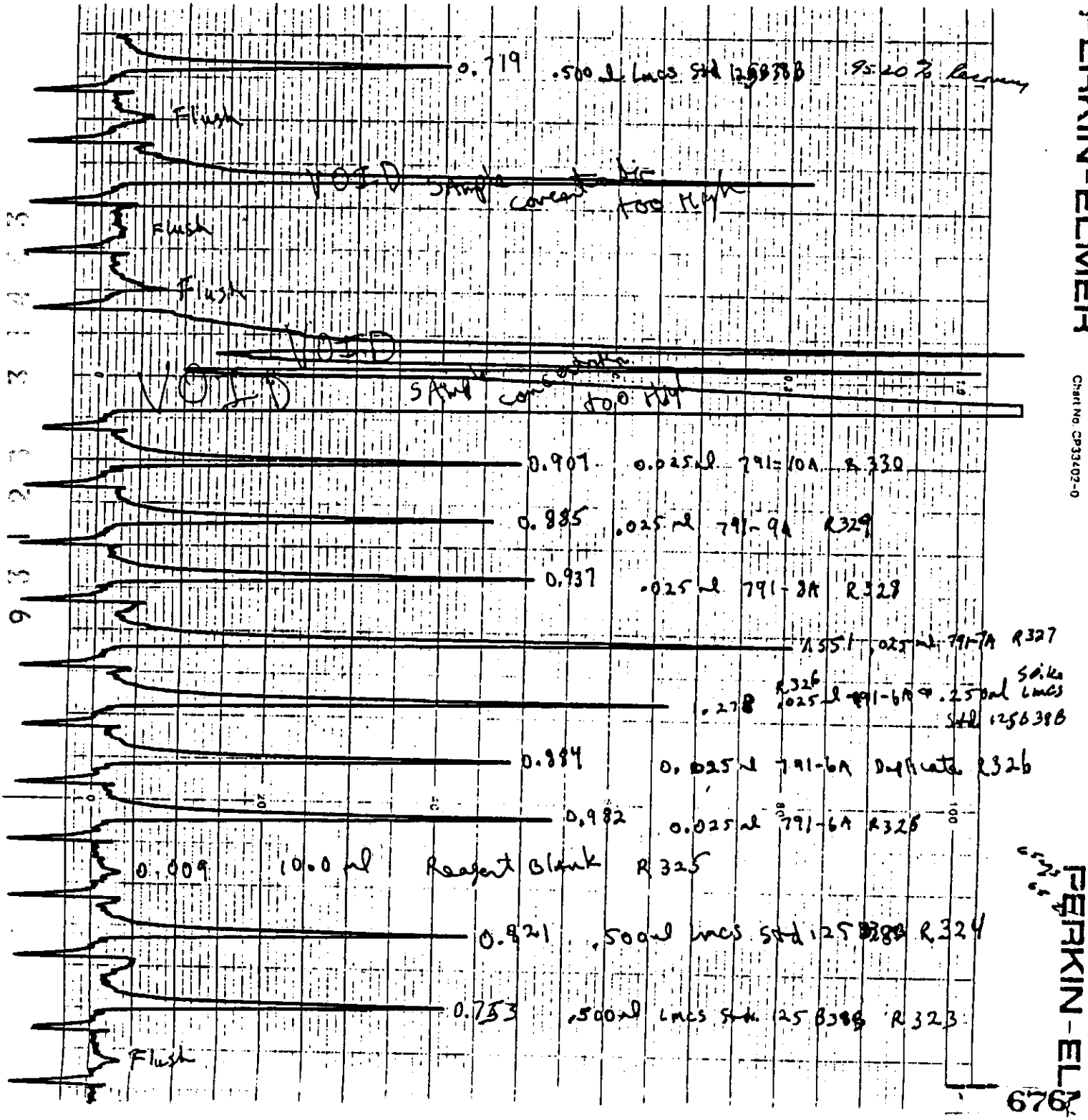


SIGNATURE ABOVE REPRESENT CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED THE ANALYSIS RUN ON PAGES 675 TO 676.

As 10-1-91

David R Jackson

WHC-SD-WM-DP-025
Addendum 16 Rev 0



WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R326	Customer ID: 791-6A
Analysis: CYANIDE	Sample Prep: UNDIGESTED

Instrument: MILTON ROY SPEC 301 - AL10724	Procedure/Rev: LA-695-102/A-4
Technologist: E. COLVIN	Date: 09-27-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5578	11		
2	REAGENT BLANK	R325-5678	12		
3	SAMPLE 791-6A	R326-5778	13		
4	SAM DUP 791-6A	R326-5878	14		
5	SPIKE OF 791-6A	R326-5978	15		
6	FINAL LMCS CHECK STD	R331-5578	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	75C11S/0.100 mL			N/A
SPIKE	75C11S/0.100 mL			N/A

A-6000-881 (03/92)

CYANIDE ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.-5578	106AW	9-20-91	10: 6	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
CN	LA-695-102	% RECOVERY	W1TE2	0

Sample Size: ? 100uL-10mL-500uL
Customer ID: STD

Remarks, Calculations, Results:
S244 KCN
STD# 75C11 S RESULT
STD VAL 8.90E² %REC 100.9%

ABS .738

$$\frac{(.738 - .012) - \cancel{.16025}\ .006547}{.160252} / .5 \times 100 = 8.979E^{2}$$

KST 9-30-91

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
80027				
Hrs	Hrs	Hrs	Hrs	Hrs
Ed Cah				

Date: 9-27-91 Time Completed: Lab Unit Mgr:

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.-5678	106AW	9-20-91	10: 8	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
CN	LA-695-102	PPM	W1TE2	0

Sample Size: ?
Customer ID: REO NL

Remarks, Calculations, Results:
REAGENT BLANK

ABS .012

$$\frac{.012 - .006547}{.160252} = <5.00E^{-1}\ ppm$$

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
80027				
Hrs	Hrs	Hrs	Hrs	Hrs
Ed Cah				

Date: 9-27-91 Time Completed: Lab Unit Mgr:

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5778	106AW	9-20-91	10:10	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
CN	LA-695-102	PPM	W1TE2	0

Sample Size: ? 750uL
Customer ID: 791-6A

Remarks, Calculations, Results:

ABS .117

$$\frac{(.118 - .012) - .006547}{.160252} / .750 = 8.27E^{-1}\ ppm$$

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
80027				
Hrs	Hrs	Hrs	Hrs	Hrs
Ed Cah				

Date: 9-27-91 Time Completed: Lab Unit Mgr:

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5878	106AW	9-20-91	10:12	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
CN	LA-695-102	PPM	W1TE2	0

Sample Size: ? 750uL
Customer ID: 791-6A

Remarks, Calculations, Results:
DUPLICATE SAMPLE

ABS .120

$$\frac{(.120 - .012) - (\cancel{.0054}\ .006547)}{.160252} / .750 = 8.44E^{-1}\ ppm$$

KST 9-30-91

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
80027				
Hrs	Hrs	Hrs	Hrs	Hrs
Ed Cah				

Date: 9-27-91 Time Completed: Lab Unit Mgr:

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5978	106AW	9-20-91	10:13	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
CN	LA-695-102	% RECOVERY	W1TE2	0

Sample Size: ? 750uL
Customer ID: 791-6A

Remarks, Calculations, Results:
SAMPLE SPIKED ID
SPIKE ID 75C11 S
SPIKE VOLUME
100uL-10mL-500uL

ABS .856

KST 9-30-91
~~.856-.012~~

over

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
80027				
Hrs	Hrs	Hrs	Hrs	Hrs
Ed Cah				

Date: 9-27-91 Time Completed: Lab Unit Mgr:

$$\frac{(.118 - .012) - .006547}{.160252} = .6206$$

$$\frac{(.856 - .012) - .006547}{.160252} = 5.226$$

$$\frac{5.226 - .6206}{4.45} \times 100 = 103.5\%$$

9 3 1 2 3 3 1 4 4 5

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.-5578	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Return
CH	LA-695-102	% RECOVERY	W11E2	0

Sample Size	Customer ID
? 100ul-10ml-500ul	STD

Remarks, Calculations, Results

S244 KCN ABS .735
STDN 75C11 S RESULT
STD VAL 8.90e2 %REC 100.4%

$$\frac{(.735-.012)-.006547}{.160252} \div .500 \times 100 = 8.94e^2$$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80027				
HIS	HIS	HIS	HIS	HIS

Date	Time Completed	Lab Unit Mgr
9-27-91		

9 3 1 2 3 5 3 1 4 4 6

TODAYS DATE: 09-27-1991

PAYROLL NO.: 80028

Y-INTERCEPT= .006547
SLOPE= .160252

SAMPLE ID#: R-325 BLANK
SAMPLE SIZE: 0
WVL AND ABS= 580NM 0.012 A

SAMPLE ID#: R-324 75C11-S STD
SAMPLE SIZE: 100UL-10ML-500UL
WVL AND ABS= 580NM 0.738 A

SAMPLE ID#: R-326
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.118 A

SAMPLE ID#: R-326 DUPLICATE
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.120 A

SAMPLE ID#: R-326 + SPIKE
SAMPLE SIZE: 750UL + 100UL-10ML-500UL 75C11-S SPIKE
WVL AND ABS= 580NM 0.856 A

SAMPLE ID#: R-327
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.110 A

SAMPLE ID#: R-328
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.307 A

SAMPLE ID#: R-329
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.063 A

SAMPLE ID#: R-330
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.271 A

SAMPLE ID#: R-331 75C11-S STD
SAMPLE SIZE: 100UL-10ML-500UL
WVL AND ABS= 580NM 0.735 A

CALIBRATION CURVE LACHAT NON-DISTILLED 25ML

CYANIDE DATE: 8-28-1991

CALIBRATION STANDARD # 351-M, 1006 MG/ML CYANIDE

DILUTION FACTOR = 10/.1 = 100, WORKING STANDARD = 1006 /100 = 10.060

PIPET SIZE	MICROGRAMS CYANIDE	TOTAL ABS	NET ABS
BLANK	0	.006	0
50UL	.503	.0930	.0870
500UL	5.030	.8320	.8260
1000UL	10.060	1.6180	1.6120

Y INTERCEPT = .006547
SLOPE = .160252
C C = .999921

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R326	Customer ID: 791-6A
Analysis: DIFFERENTIAL THERMAL	Sample Prep: UNDIGESTED

Instrument: WC16134,WC16129	Procedure/Rev: LA-514-113/A-0
Technologist: M. MYERS	Date: 10-14-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5511	11		
2	REAGENT BLANK	R325-5611	12		
3	SAMPLE 791-6A	R326-5711	13		
4	SAM DUP 791-6A	R326-5811	14		
5	FINAL LMCS CHECK STD	R4-5511	15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	27C11BB/0.10 mL			N/A

A-6000-881 (03/92)

DIFFERENTIAL THERMAL ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5511	106AW	9-20-91	10: 5	[illegible]

Determination	Method/Standard	Result Units	Charge Code	Reruns
DSC	LA 514-113	EXOTHERMS	WHC [illegible]	0

Sample Size	Customer ID
.010 mL	STD

Remarks, Calculations, Results: 27C11AA

100.0%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[illegible]				
60823				

Date	Time Completed	Lab Unit Mgr
10-14-91		[illegible]

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5611	106AW	9-20-91	10: 7	[illegible]

Determination	Method/Standard	Result Units	Charge Code	Reruns
DSC	LA 514-113	EXOTHERMS	WHC [illegible]	[illegible]

Sample Size	Customer ID
.010 mL	REAGENT BLANK

Remarks, Calculations, Results: NO EXOTHERMS

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[illegible]				
60823				

Date	Time Completed	Lab Unit Mgr
10-14-91		[illegible]

Serial No	Sample Point	Date	Time Issued	Priority
R 326.-5711	106AW	9-20-91	10: 9	[illegible]

Determination	Method/Standard	Result Units	Charge Code	Reruns
DSC	LA 514-113	EXOTHERMS	WHC [illegible]	0

Sample Size	Customer ID
.010 mL	291 [illegible]

Remarks, Calculations, Results: NO EXOTHERMS

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[illegible]				
60823				

Date	Time Completed	Lab Unit Mgr
10-14-91		[illegible]

Serial No	Sample Point	Date	Time Issued	Priority
R 326.-5811	106AW	9-20-91	10:11	[illegible]

Determination	Method/Standard	Result Units	Charge Code	Reruns
DSC	LA 514-113	EXOTHERMS	WHC [illegible]	[illegible]

Sample Size	Customer ID
.010 mL	291 [illegible]

Remarks, Calculations, Results: DUPLICATE SAMPLE

NO EXOTHERM

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[illegible]				
60823				

Date	Time Completed	Lab Unit Mgr
10-14-91		[illegible]

Serial No	Sample Point	Date	Time Issued	Priority
R 4.-551	KCRA-1	8-16-91	9:35	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
DSC	LA-514-113	EXOTHERMS	[illegible]	0

Sample Size	Customer ID
.010 mL	STD

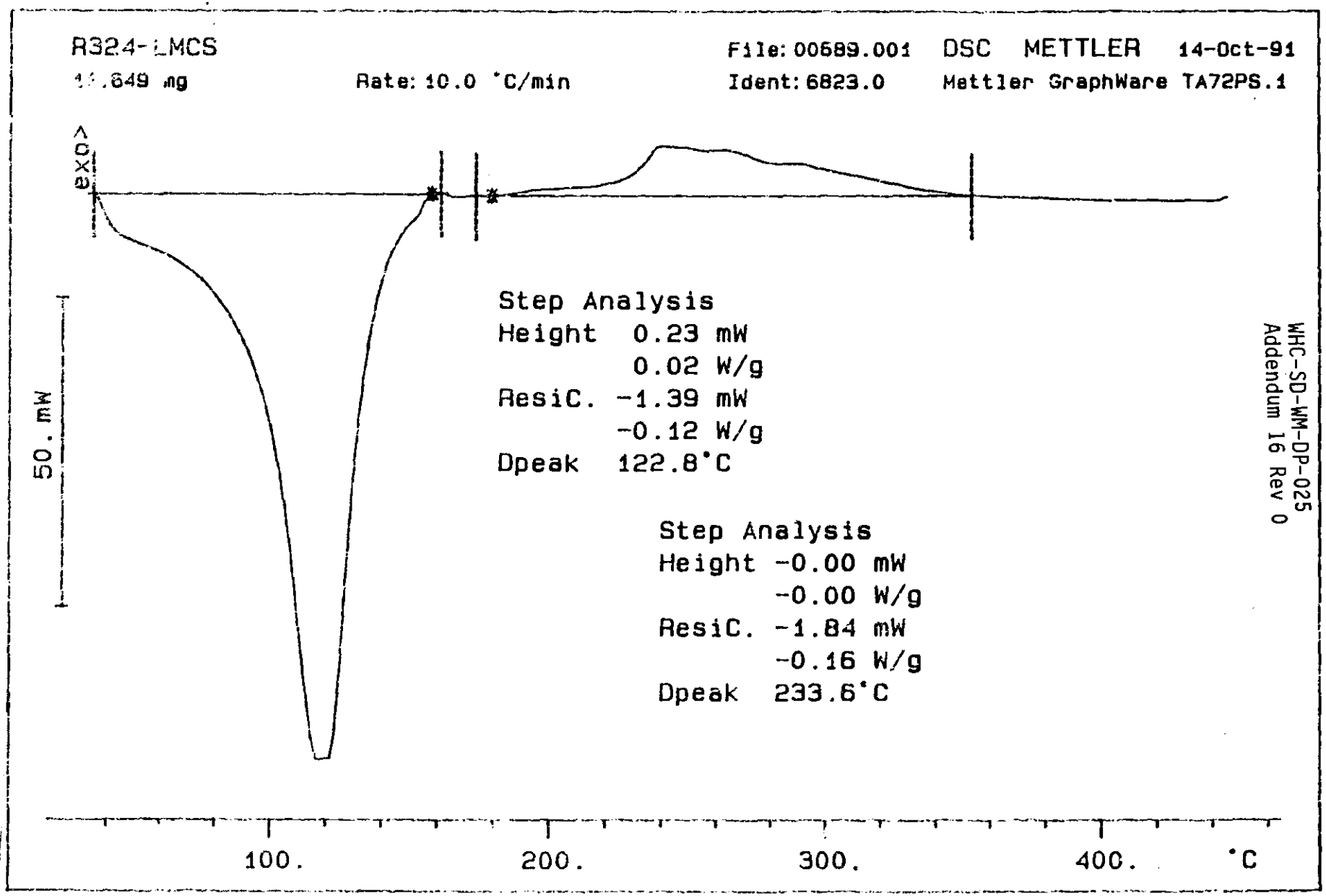
Remarks, Calculations, Results: 27C11AB

100.0%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[illegible]				
60823				

Date	Time Completed	Lab Unit Mgr
10-14-91		[illegible]

9 3 1 2 3 5 3 4 4 7 0



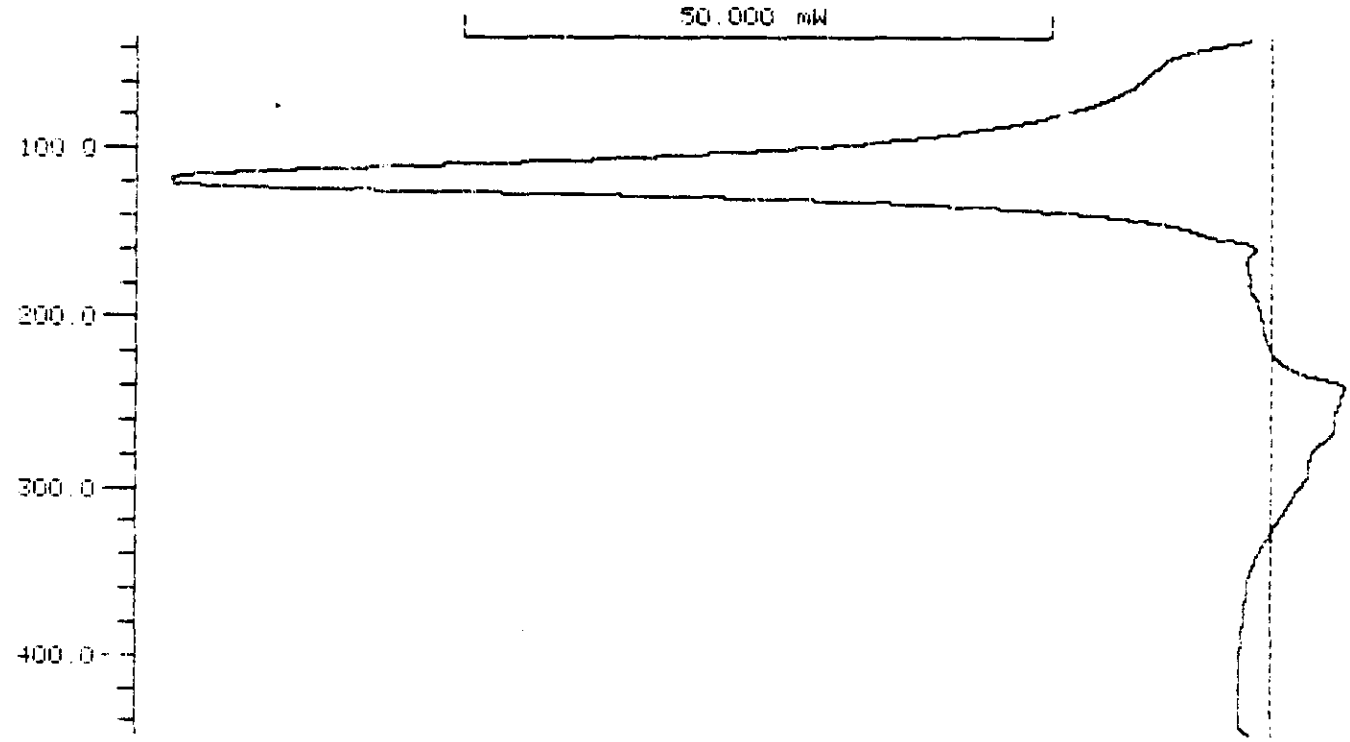
WHC-SD-WM-DP-025
Addendum 16 Rev 0

R324
6-16-92

END SCREEN °C 440.0

TEMPERATURE °C

HEAT FLOW
EXOTHERMAL-->



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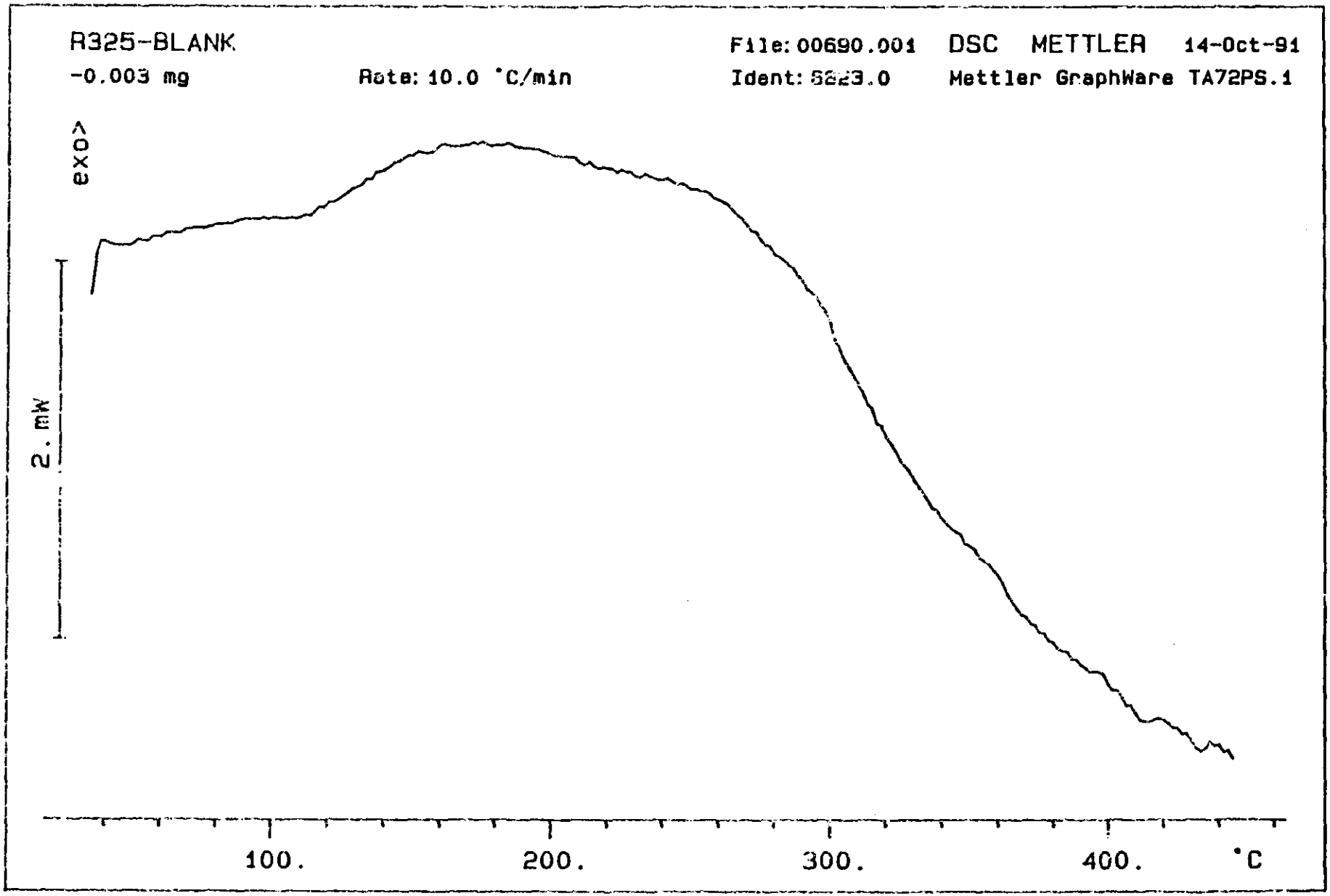
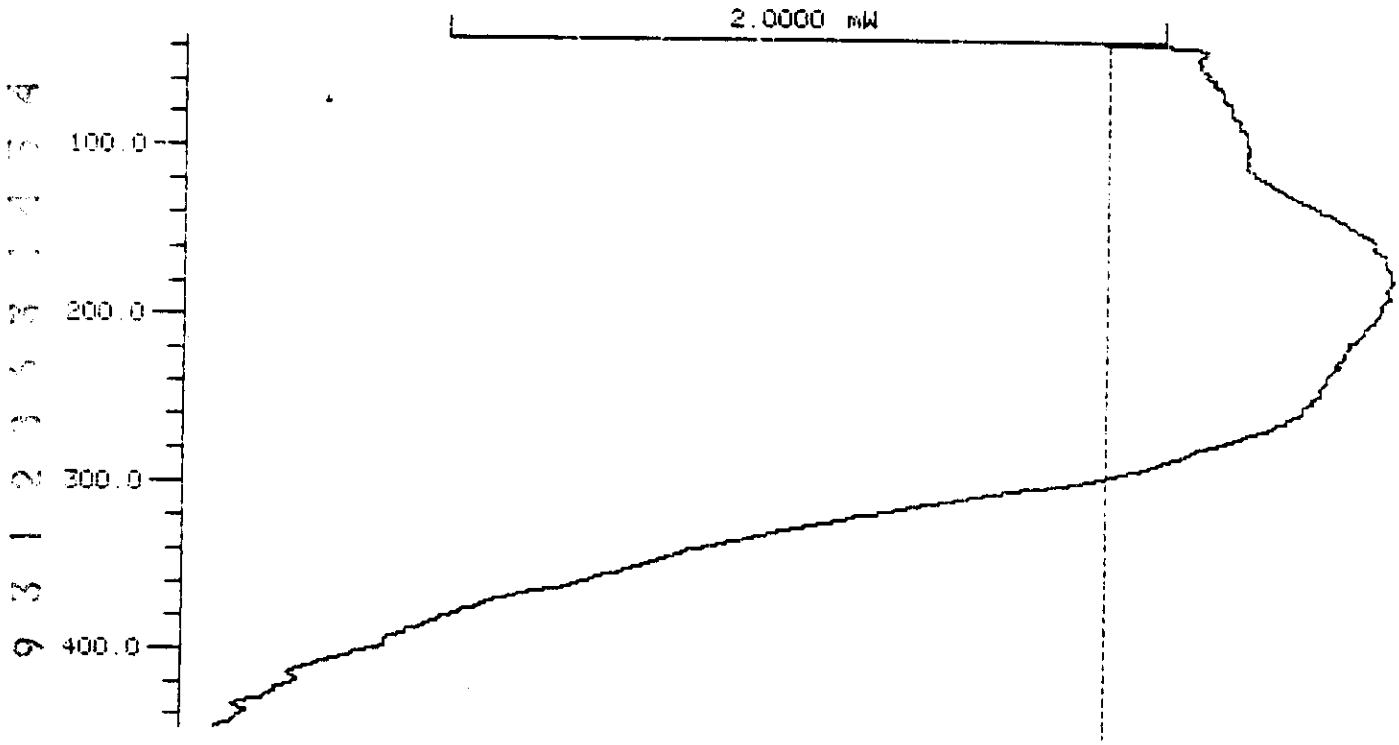

R325-BLANK
-0.003 mg
Rate: 10.0 °C/min
File: 00690.001
Ident: 5223.0
DSC METTLER 14-Oct-91
Mettler GraphWare TA72PS.1
exo>
2. mW
100.
200.
300.
400.
°C

R325
BKL 6-16-92

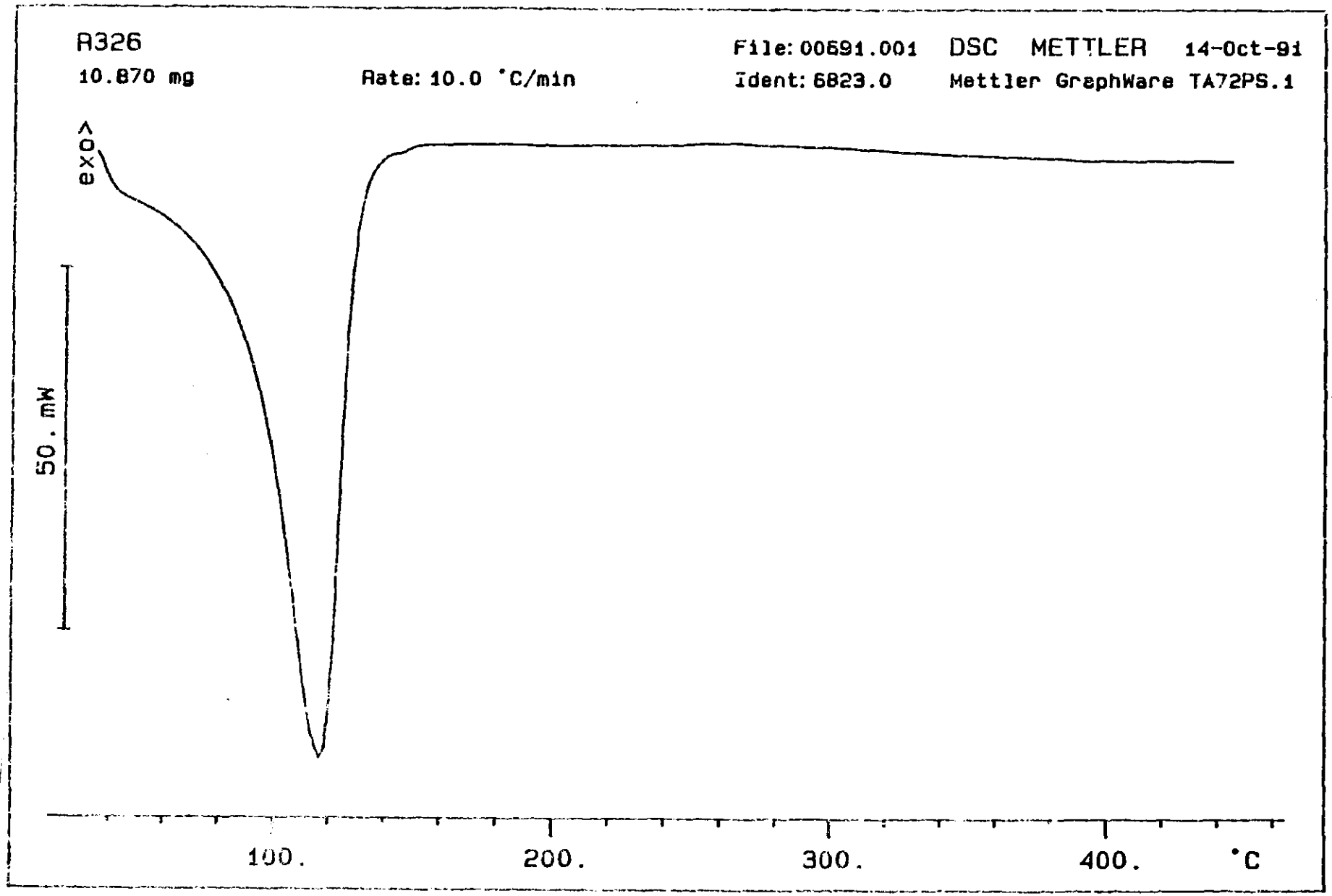
END SCREEN °C 447.8

TEMPERATURE °C

HEAT FLOW
EXOTHERMAL-->



******** METTLER TA4000 SYSTEM *********

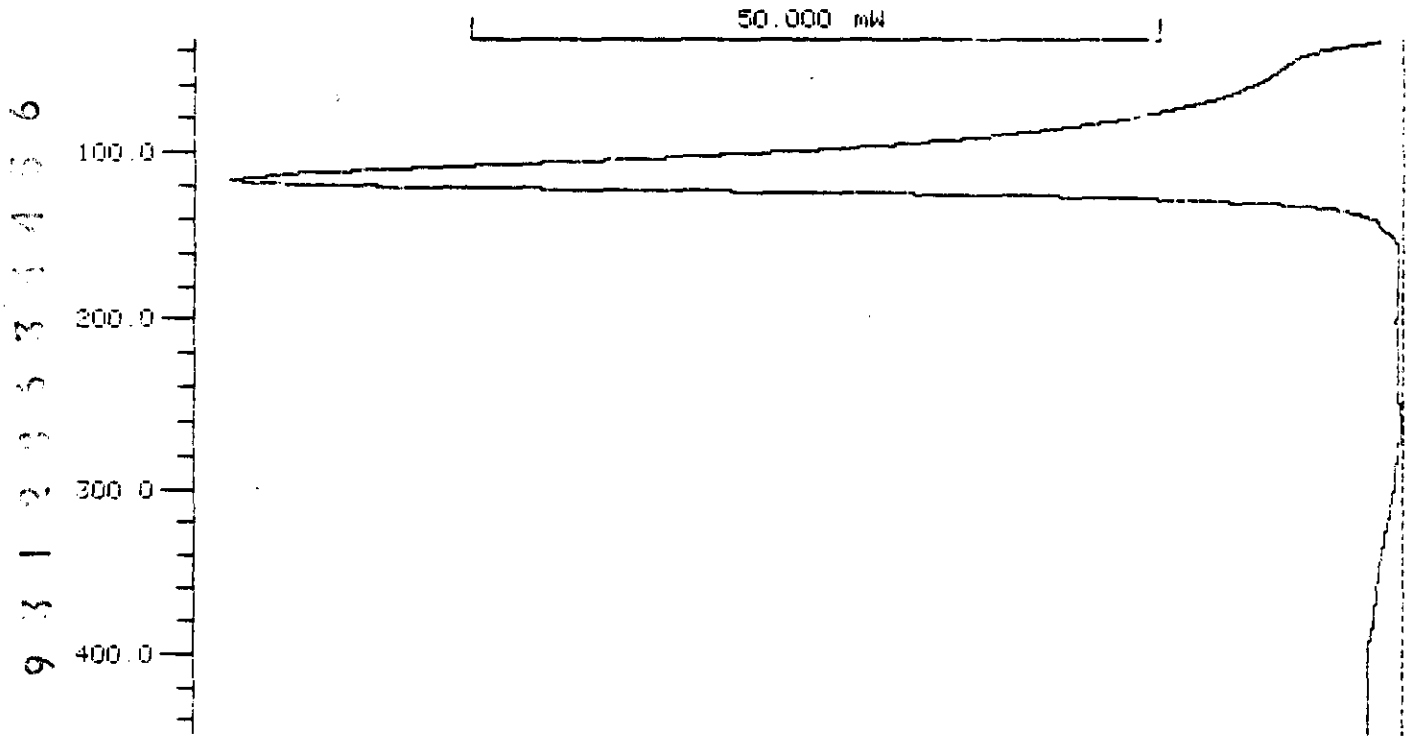

A326
10.870 mg
Rate: 10.0 °C/min
File: 00691.001
Ident: 6823.0
DSC METTLER 14-Oct-91
Mettler GraphWare TA72PS.1
exo>
50. mW
100.
200.
300.
400.
°C

R326
JK 6-18-92

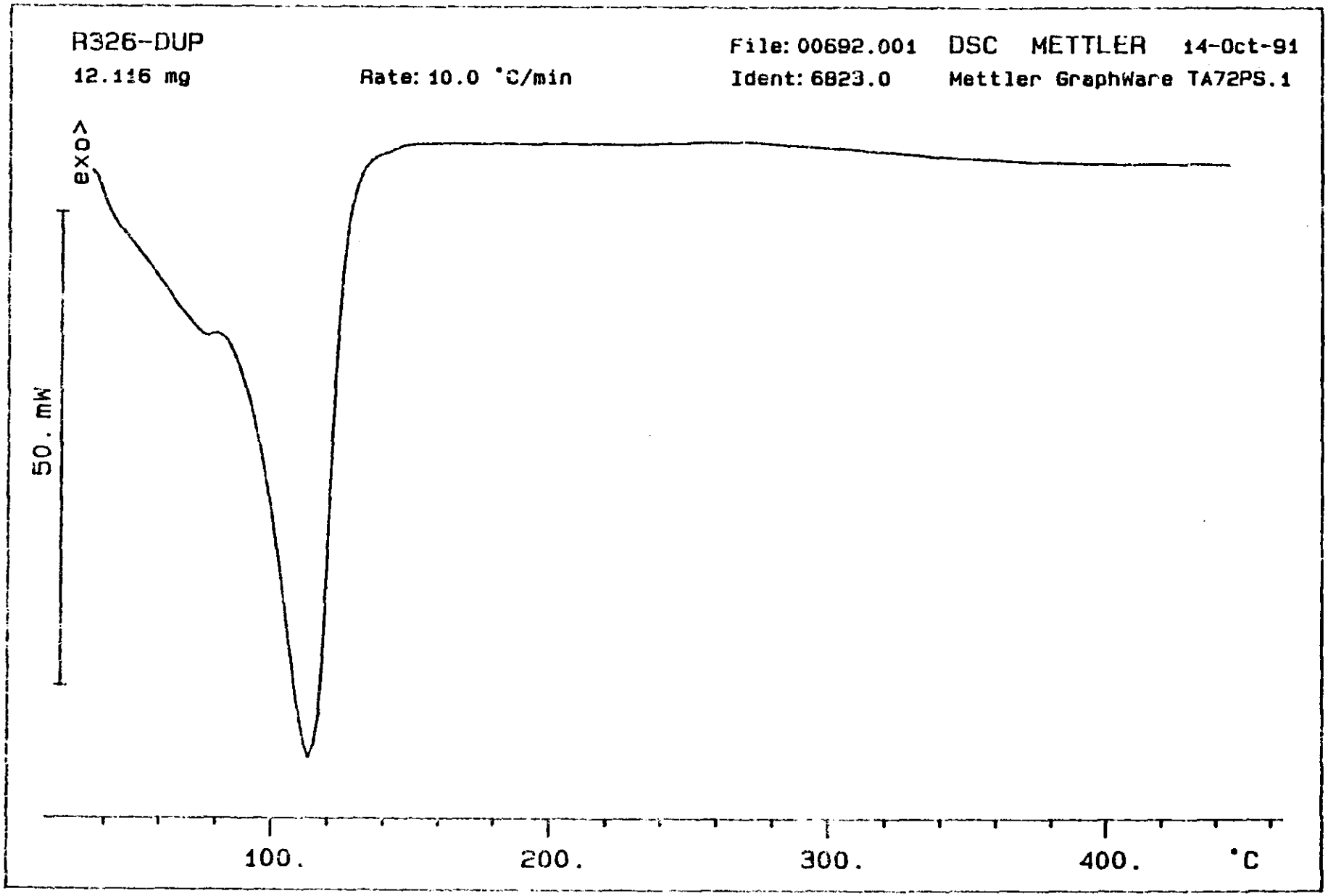
END SCREEN °C 447.8

TEMPERATURE °C

HEAT FLOW
EXOTHERMAL-->



******** METTLER TA4000 SYSTEM *********

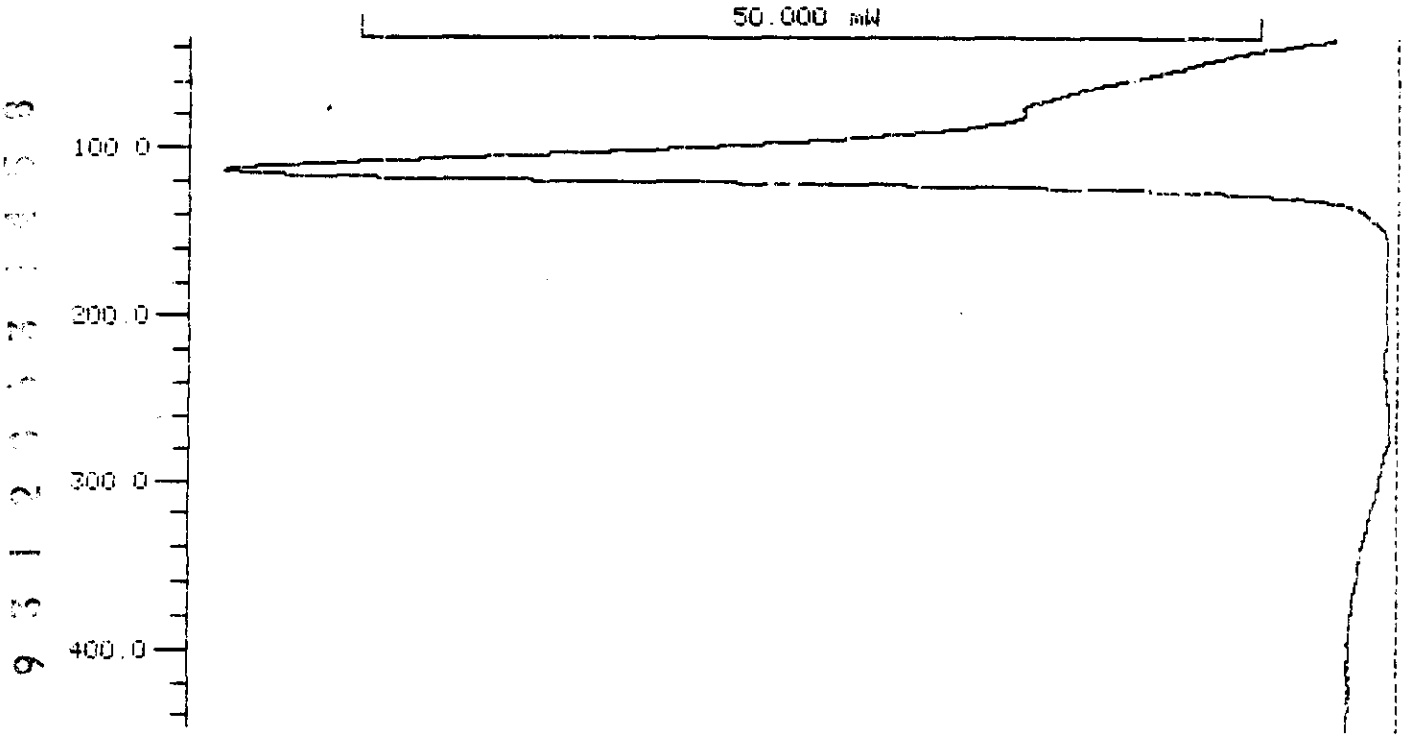

R326-DUP
12.116 mg
Rate: 10.0 °C/min
File: 00692.001
Ident: 6823.0
DSC METTLER 14-Oct-91
Mettler GraphWare TA72PS.1
exo>
50. mW
100.
200.
300.
400.
°C

R32L6 DUP
JK 4-16-92

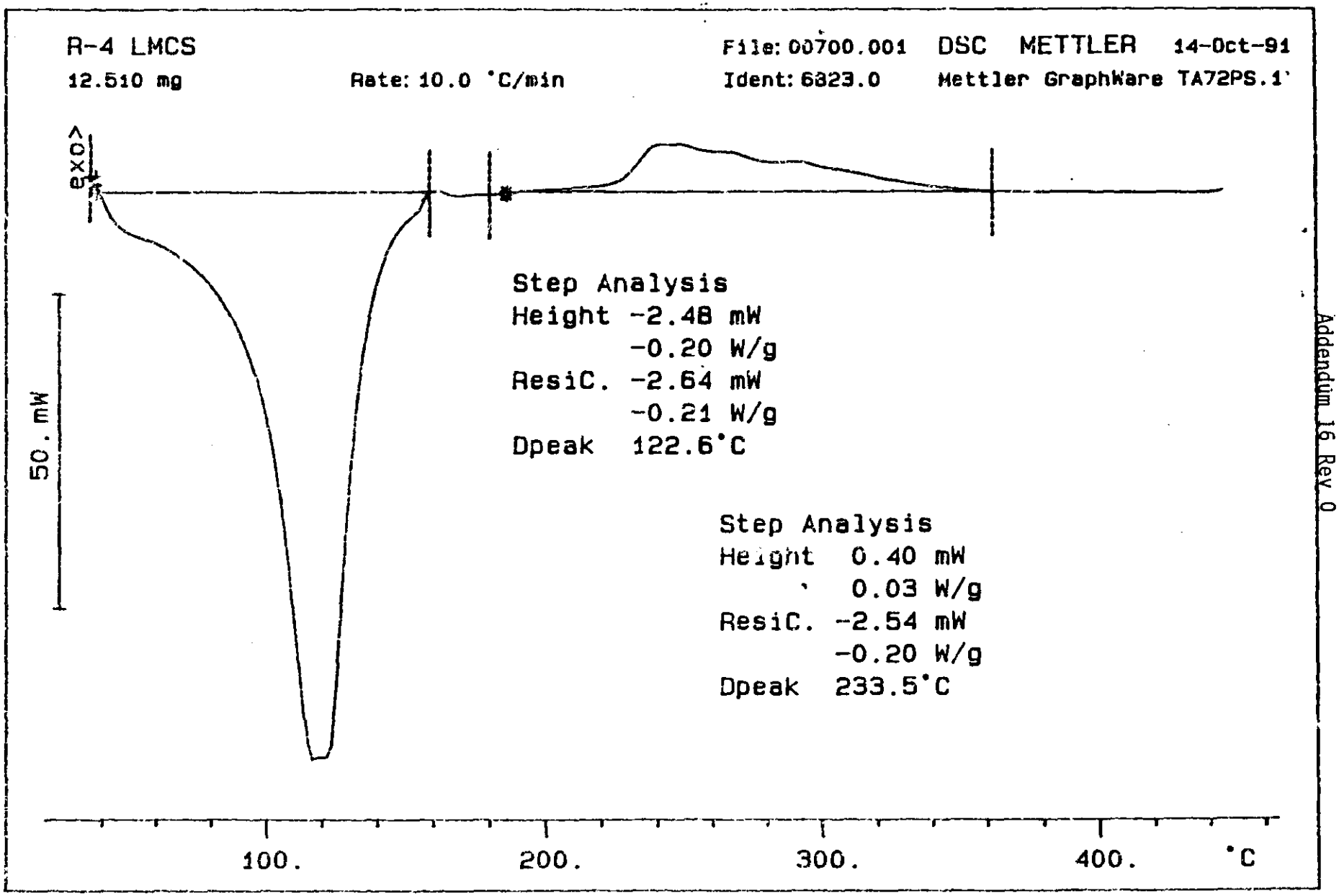
END SCREEN °C 448.0

TEMPERATURE °C

HEAT FLOW
EXOTHERMAL-->



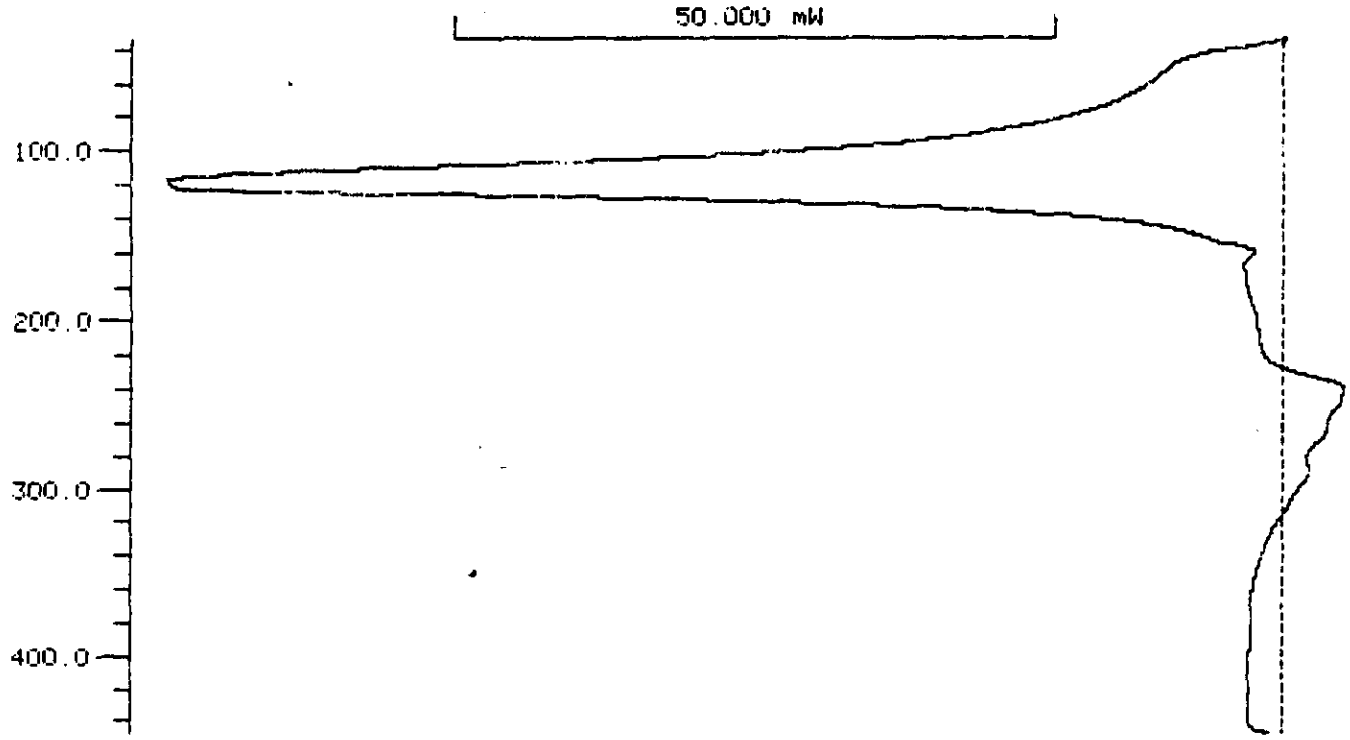
******** METTLER TA4000 SYSTEM *********


R-4 LMCS
12.510 mg
Rate: 10.0 °C/min
File: 00700.001
Ident: 6823.0
DSC METTLER 14-Oct-91
Mettler GraphWare TA72PS.1
exo>
50. mW
Step Analysis
Height -2.48 mW
-0.20 W/g
ResiC. -2.64 mW
-0.21 W/g
Dpeak 122.6°C
Step Analysis
Height 0.40 mW
0.03 W/g
ResiC. -2.54 mW
-0.20 W/g
Dpeak 233.5°C
100.
200.
300.
400.
°C

END SCREEN °C 448.0

TEMPERATURE °C

HEAT FLOW
EXOTHERMAL-->



******** METTLER TA4000 SYSTEM *********

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R326	Customer ID: 791-6A
Analysis: MERCURY	Sample Prep: UNDIGESTED

Instrument: PERKIN ELMER WA77479	Procedure/Rev: LA-325-102/B-0
Technologist: D. R. JACKSON	Date: 10-17-91
Starting Time: 8:00	Temperature: N/A
Ending Time: 2:00	Chemist: R. K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5597	11		
2	REAGENT BLANK	R325-5697	12		
3	SAMPLE 791-6A	R326-5797	13		
4	SAM DUP 791-6A	R326-5897	14		
5	SPIKE OF 791-6A	R326-5997	15		
6	FINAL LMCS CHECK STD	R331-5597	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	125B38D/1.50 mL			N/A
SPIKE	125B38D/1.50 mL			N/A

A-6000-881 (03/92)

9 3 1 2 3 3 1 4 5 1

MERCURY ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Sample No. R 324.-5597 | Sample Point 106AW | Date 9-20-91 | Time Issued 10:6 | Priority 25
Contaminant Hg | Method/Standard LA-325-102 | Result Units % RECOVERY | Charge Code WITE2 | Report 0
Sample Size ? 1.50 ml | Customer ID STD
Remarks, Calculations, Results
EDP R716 HG/HYDRD
STDN 125838D RESULT 1.17E-1
STD VAL 1.00e-1 %REC 117.08
0.561 176.15/1.500 =
Analyst-1 6C275 | Analyst-2 | Analyst-3 | Analyst-4 | Analyst-5
Date 10-16-91 | Time Completed | Lab Unit Mgr

Sample No. R 325.-5697 | Sample Point 106AW | Date 9-20-91 | Time Issued 10:8 | Priority 25
Contaminant Hg | Method/Standard LA-325-102 | Result Units PPM | Charge Code WITE2 | Report 0
Sample Size ? 10.0 ml | Customer ID REG BL
Remarks, Calculations, Results
REAGENT BLANK
-0.002 <5/10,000 = <5.00E-4 ppm
Analyst-1 6C275 | Analyst-2 | Analyst-3 | Analyst-4 | Analyst-5
Date 10-16-91 | Time Completed | Lab Unit Mgr

Sample No. R 326.-5797 | Sample Point 106AW | Date 9-20-91 | Time Issued 10:10 | Priority 25
Contaminant Hg | Method/Standard LA-325-102 | Result Units PPM | Charge Code WITE2 | Report 0
Sample Size ? 1.0 ml | Customer ID 791 6A
Remarks, Calculations, Results
-0.007
<5/1000 = <5.00E-3 ppm
Analyst-1 6C275 | Analyst-2 | Analyst-3 | Analyst-4 | Analyst-5
Date 10-16-91 | Time Completed | Lab Unit Mgr

Sample No. R 326.-5897 | Sample Point 106AW | Date 9-20-91 | Time Issued 10:12 | Priority 25
Contaminant Hg | Method/Standard LA-325-102 | Result Units PPM | Charge Code WITE2 | Report 0
Sample Size ? 1.0 ml | Customer ID 791 6A
Remarks, Calculations, Results
DUPLICATE SAMPLE
-0.012
<5/1000 = <5.00E-3 ppm
Analyst-1 6C275 | Analyst-2 | Analyst-3 | Analyst-4 | Analyst-5
Date 10-16-91 | Time Completed | Lab Unit Mgr

Sample No. R 326.-5997 | Sample Point 106AW | Date 9-20-91 | Time Issued 10:14 | Priority 25
Contaminant Hg | Method/Standard LA-325-102 | Result Units % RECOVERY | Charge Code WITE2 | Report 0
Sample Size ? 1.0 ml | Customer ID 791 6A
Remarks, Calculations, Results
SAMPLE SPIKED TO
SPIKE TO 125838D
SPIKE VOLUME .750 ml
0.224 66.30/750 = 8.84E-2/1.00E-1 =
88.4%
Analyst-1 6C275 | Analyst-2 | Analyst-3 | Analyst-4 | Analyst-5
Date 10-16-91 | Time Completed | Lab Unit Mgr

Sample No. R 331.-5597 | Sample Point 106AW | Date 9-20-91 | Time Issued 10:26 | Priority 25
Contaminant Hg | Method/Standard LA-325-102 | Result Units % RECOVERY | Charge Code WITE2 | Report 0
Sample Size ? 1.50 ml | Customer ID STD
Remarks, Calculations, Results
EDP R716 HG/HYDRD
STDN 125838D RESULT 9.24E-2
STD VAL 1.00e-1 %REC 92.4920
0.446 138.67/1.500 =
Analyst-1 6C275 | Analyst-2 | Analyst-3 | Analyst-4 | Analyst-5
Date 10-16-91 | Time Completed | Lab Unit Mgr

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
CALIBRATION RECORD

Analyte: Hg
Procedure: LA-325-102 | Revision: B-0
Instrument: PERKIN ELMER | Property No.: WA77479
Technologist: D. R. JACKSON | Payroll No.: 6C275 | Date: 10-17-91

Calibration Standard: 124B38D
Analyte Concentration: 0.1000 ppm
Type of Calibration: LINEAR

	Dilution	Concentration	Instrument Reading Unit
1	0.000 mL	0 ng	0.000
2	0.750 mL	75 ng	0.278
3	1.500 mL	150 ng	0.481
4	3.000 mL.	300 ng	0.934
5			
6			
7			
8			
9			
10			
11			
12			
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14			
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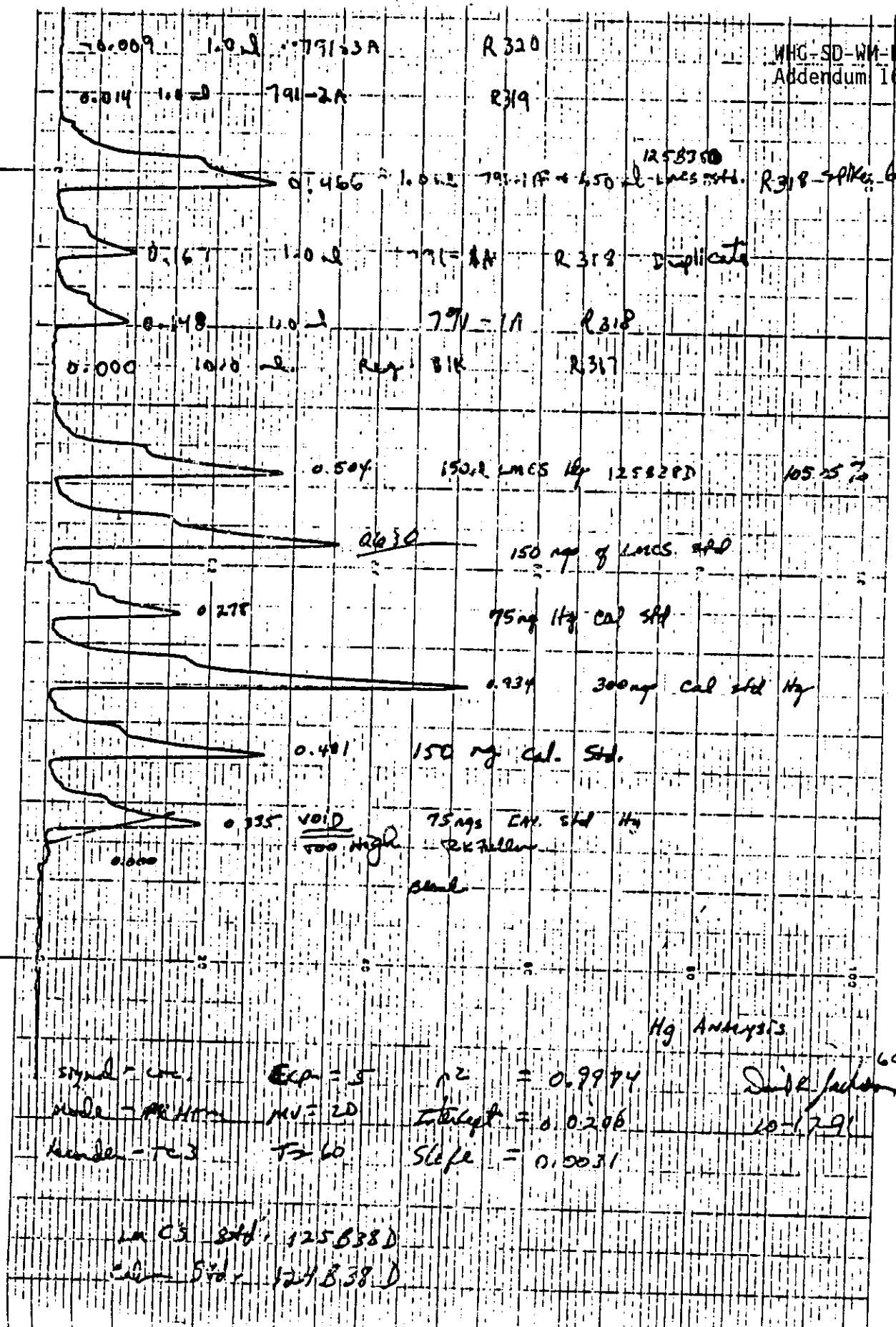
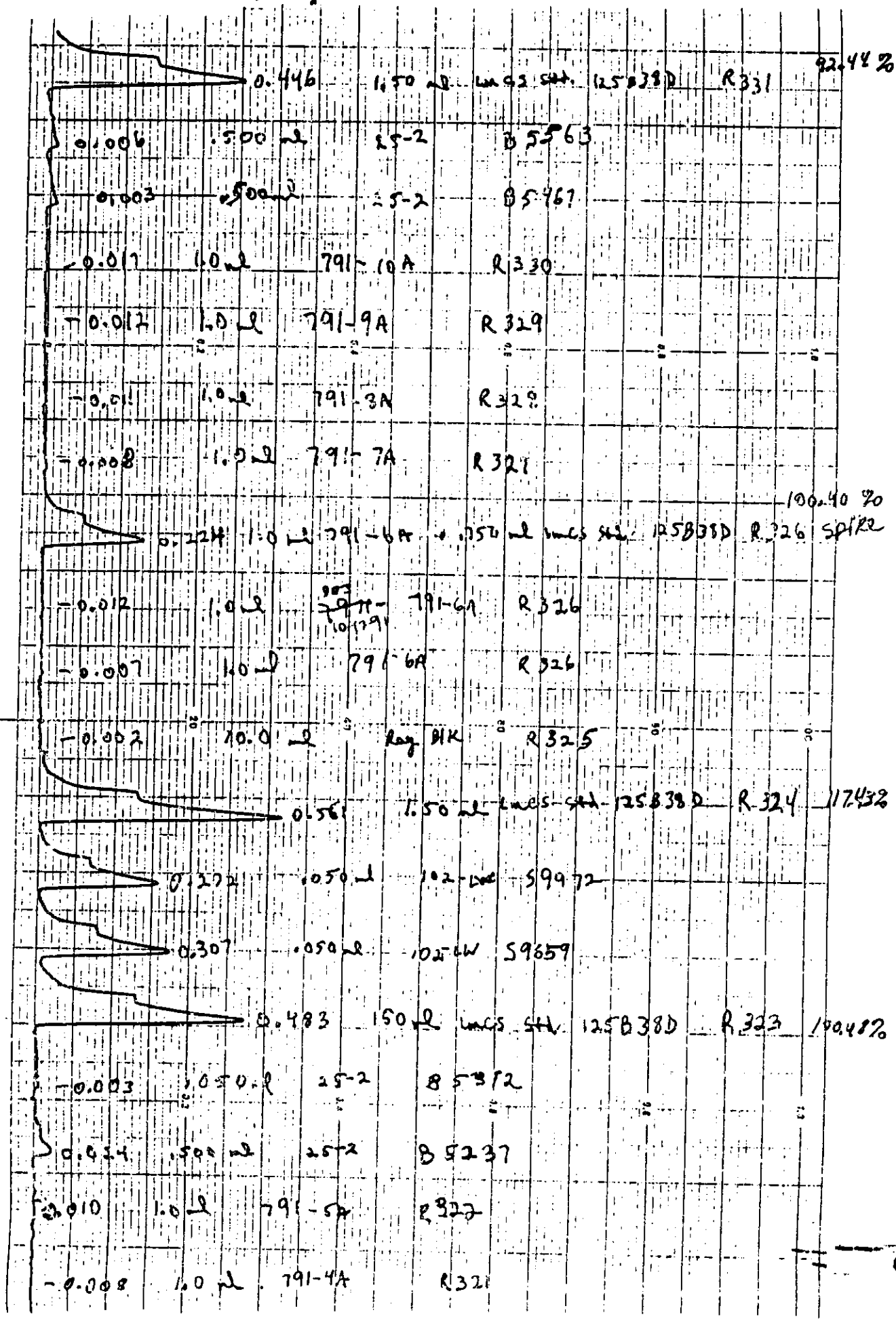
16			
17			
18			
19			
20			
21			

Comments:

A-6000-882 (03/92)



SIGNATURE ABOVE REPRESENTS TECHNOLOGIST/CHEMIST THAT COMPLETED THE ANALYSIS RUN ON PAGES 697 TO 698.


PERKIN-ELMER
0.446 1.50 ml LMCS Std. 125B38D R331 92.44 %
0.006 .500 ml 25-2 B5563
0.003 .500 ml 25-2 B5467
-0.017 1.0 ml 791-10A R330
-0.012 1.0 ml 791-9A R329
-0.011 1.0 ml 791-8A R328
-0.008 1.0 ml 791-7A R327
100.40 %
0.224 1.0 ml 791-6A + .750 ml LMCS Std. 125B38D R326 SPIKE
-0.012 1.0 ml 791-6A R326
-0.007 1.0 ml 791-6A R326
-0.002 10.0 ml Reg BLK R325
0.561 1.50 ml LMCS Std. 125B38D R324 117.43%
0.272 .050 ml 102-LW S9972
0.307 .050 ml 102-LW S9659
0.483 150 ml LMCS Std. 125B38D R323 100.48%
-0.003 .050 ml 25-2 B5312
0.024 .500 ml 25-2 B5237
-0.010 1.0 ml 791-5A R322
-0.008 1.0 ml 791-4A R321
PERKIN-ELMER

9 3 1 2 3 3 1 4 6 5

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R326	Customer ID: 791-6A
Analysis: AMMONIA	Sample Prep: UNDIGESTED

Instrument: WB39927	Procedure/Rev: LA-634-102/D-0
Technologist: S. LAI	Date: 10-03-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5528	11		
2	REAGENT BLANK	R325-5628	12		
3	SAMPLE 791-6A	R326-5728	13		
4	SAM DUP 791-6A	R326-5828	14		
5	SPIKE OF 791-6A	R326-5928	15		
6	FINAL LMCS CHECK STD	R331-5528	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	4C11-QQ/.250 mL			N/A
SPIKE	4C11-QQ/.250 mL			N/A

A-6000-881 (03/92)

AMMONIA ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.-5528	106AW	9-20-91	10: 5	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
NH4	LA-634-102	% RECOVERY	W11E2	0

Sample Size: ? 250 λ — 0.09941M HCl — Customer ID: STD

Remarks, Calculations, Results:
S235 NH4CL
STDN 4C11-aa RESULT 7.90x10^-2 — Blank: 28 λ
STD VAL 5.10x10^-2 %REC 96.08%
(.250-.028)(.09941) / .250 = .099 — STD: 150 λ

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
Sue Lin				
Hrs: 6	Hrs:	Hrs:	Hrs:	Hrs:

Date: 10-3-91 — Time Completed: — Lab Unit Mgr: D M Thornton — Dayne Smith

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.-5628	106AW	9-20-91	10: 7	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
NH4	LA-634-102	PPM	W11E2	0

Sample Size: ? 1 ml — 0.09941M HCl — Customer ID: RED BL

Remarks, Calculations, Results:
REAGENT BLANK
< (.010)(.09941) / 1 = <9.99x10^-4 M (ky) — Blank: 28 λ

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
Sue Lin				
Hrs: 6	Hrs:	Hrs:	Hrs:	Hrs:

Date: 10-3-91 — Time Completed: — Lab Unit Mgr: D M Thornton — Dayne Smith

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5723	106AW	9-20-91	10: 9	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
NH4	LA-634-102	PPM	W11E2	0

Sample Size: ? 1 ml — 0.09941M HCl — Customer ID: 291-6A

Remarks, Calculations, Results:
(.044-.028)(.09941) / 1 = 1.59x10^-3 M — Blank: 28 λ — Sample: 44 λ — 95-26 = 16

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
Sue Lin				
Hrs: 6	Hrs:	Hrs:	Hrs:	Hrs:

Date: 10-3-91 — Time Completed: — Lab Unit Mgr: D M Thornton — Dayne Smith

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5828	106AW	9-20-91	10:11	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
NH4	LA-634-102	PPM	W11E2	0

Sample Size: ? 1 ml — 0.09941M HCl — Customer ID: 291-6A

Remarks, Calculations, Results:
DUPLICATE SAMPLE
(.045-.028)(.09941) / 1 = 1.69x10^-3 M — Blank: 28 λ — Sample: 45 λ

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
Sue Lin				
Hrs: 6	Hrs:	Hrs:	Hrs:	Hrs:

Date: 10-3-91 — Time Completed: — Lab Unit Mgr: D M Thornton — Dayne Smith

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5928	106AW	9-20-91	10:13	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
NH4	LA-634-102	% RECOVERY	W11E2	0

Sample Size: ? 1 ml + (250 λ spike) — 0.09941M HCl — Customer ID: 291-6A

Remarks, Calculations, Results:
SAMPLE SPIKED ID 4C11aa
SPIKE ID
SPIKE VOLUME
90.4% — Blank: 28 λ
~~(.160-.099-.028~~
(.132-.016)(.09941) / .250 = 4.613e^-2 / 5.1e^-2 — Sample: 160 λ — 160-28 =

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
Sue Lin				
Hrs: 6	Hrs:	Hrs:	Hrs:	Hrs:

Date: 10-3-91 — Time Completed: — Lab Unit Mgr: D M Thornton — Dayne Smith

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.-5528	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
NH4	LA-634-102	% RECOVERY	W11E2	0

Sample Size: ? 250 λ — 0.09941M HCl — Customer ID: STD

Remarks, Calculations, Results:
S235 NH4CL
STDN 4C11-aa RESULT 4.93x10^-2 — Blank: 28 λ
STD VAL 5.10x10^-2 %REC 96.67%
(.152-.028)(.09941) / .250 = — STD: 152 λ

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
Sue Lin				
Hrs: 6	Hrs:	Hrs:	Hrs:	Hrs:

Date: 10-3-91 — Time Completed: — Lab Unit Mgr: D M Thornton — Dayne Smith

9 3 1 2 3 3 4 4 5 7

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R326	Customer ID: 791-6A
Analysis: DETERMINATION OF HYDROXIDE IONS IN SOLUTION	Sample Prep: UNDIGESTED

Instrument: FISHER - WA77509	Procedure/Rev: LA-661-102/F-1
Technologist: M. BIERMAN	Date: 09-26-91
Starting Time: NA	Temperature: 25degC
Ending Time: NA	Chemist: S. ISAACSON

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5529	11		
2	REAGENT BLANK	R325-5629	12		
3	SAMPLE 791-6A	R326-5729	13		
4	SAM DUP 791-6A	R326-5829	14		
5	FINAL LMCS CHECK STD	R331-5529	15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	9C11AF/0.100 mL			0.100 mL
THESE SAMPLES WERE RERUN.				

A-6000-881 (03/92)

DETERMINATION OF HYDROXIDE ION IN SOLUTION - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.-5529	106AW	9-20-91	10: 5	25

Determination	Method/Standard	Result Units	Charge Code	Results
OH	LA-661-102	% RECOVERY	W1TE2	0

Sample Size: ? .100 ml — Customer ID: STD

Remarks, Calculations, Results:
S273 ITS-OH
STDN 9611AF RESULT 1.02
STD VAL 1.0136 %REC 100.770
1 ml BaCl
.1905 ∞ HNO3
(542.5 - 9)(.1905)/100 =

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6559				
MB				

Date: 9/26/91 — Time Completed: — Lab Unit Key: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.-5629	106AW	9-20-91	10: 8	25

Determination	Method/Standard	Result Units	Charge Code	Results
OH	LA-661-102	M	W1TE2	0

Sample Size: ? 3 ml Q-H2O — Customer ID: REG DL

Remarks, Calculations, Results:
REAGENT BLANK
.1905 ∞ HNO3

Complete

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6559				
MB				

Date: 9/26/91 — Time Completed: — Lab Unit Key: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5729	106AW	9-20-91	10:10	25

Determination	Method/Standard	Result Units	Charge Code	Results
OH	LA-661-102	M	W1TE2	0

Sample Size: ? .100 ml — Customer ID: 791-6A

Remarks, Calculations, Results:
1 ml BaCl
10 ml Q-H2O
Its-OH-(9611AF) .100 ml
.1905 ∞ HNO3
(795.5-542.5)(.1905)/50 =
4.82E-1 M

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6559				
MB				

Date: 9/26/91 — Time Completed: — Lab Unit Key: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5829	106AW	9-20-91	10:11	25

Determination	Method/Standard	Result Units	Charge Code	Results
OH	LA-661-102	M	W1TE2	0

Sample Size: ? .100 ml — Customer ID: 791-6A

Remarks, Calculations, Results:
DUPLICATE SAMPLE
1 ml BaCl
10 ml Q-H2O
Its-OH(9611AF) .100 ml
.1905 ∞ HNO3
(780.5-542.5)(.1905)/100 =
4.53E-1 M

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6559				
MB				

Date: 9/26/91 — Time Completed: — Lab Unit Key: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.-5529	106AW	9-20-91	10:23	25

Determination	Method/Standard	Result Units	Charge Code	Results
OH	LA-661-102	% RECOVERY	W1TE2	0

Sample Size: ? .100 ml — Customer ID: STD

Remarks, Calculations, Results:
S273 ITS-OH
STDN 9611AF RESULT 9.98E-1 M
STD VAL 1.0136 %REC 98.540
1 ml BaCl
3 ml Q-H2O
.1905 ∞ HNO3
(533-9)(.1905)/100 =

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6559				
MB				

Date: 9/28/91 — Time Completed: — Lab Unit Key: [signature]

9 3 1 2 3 7 1 4 5 9

DOCUMENTATION SEP 26 1991 10:51 AM

WHC-SD-WM-DP-025
Addendum 16 Rev 0

ANALYST: 6C559 LOCATION: 222-S 200West

TITRANT: .1905 M HNO_3

INDICATING ELECTRODE:

REFERENCE ELECTRODE: 98% efficiency

SAMPLE:

SETUP PARAMETERS

MODE:	DIRECT READ PH
ELECTRODE STDZ:	PH
EQUILIBRATION TIME, SEC:	15

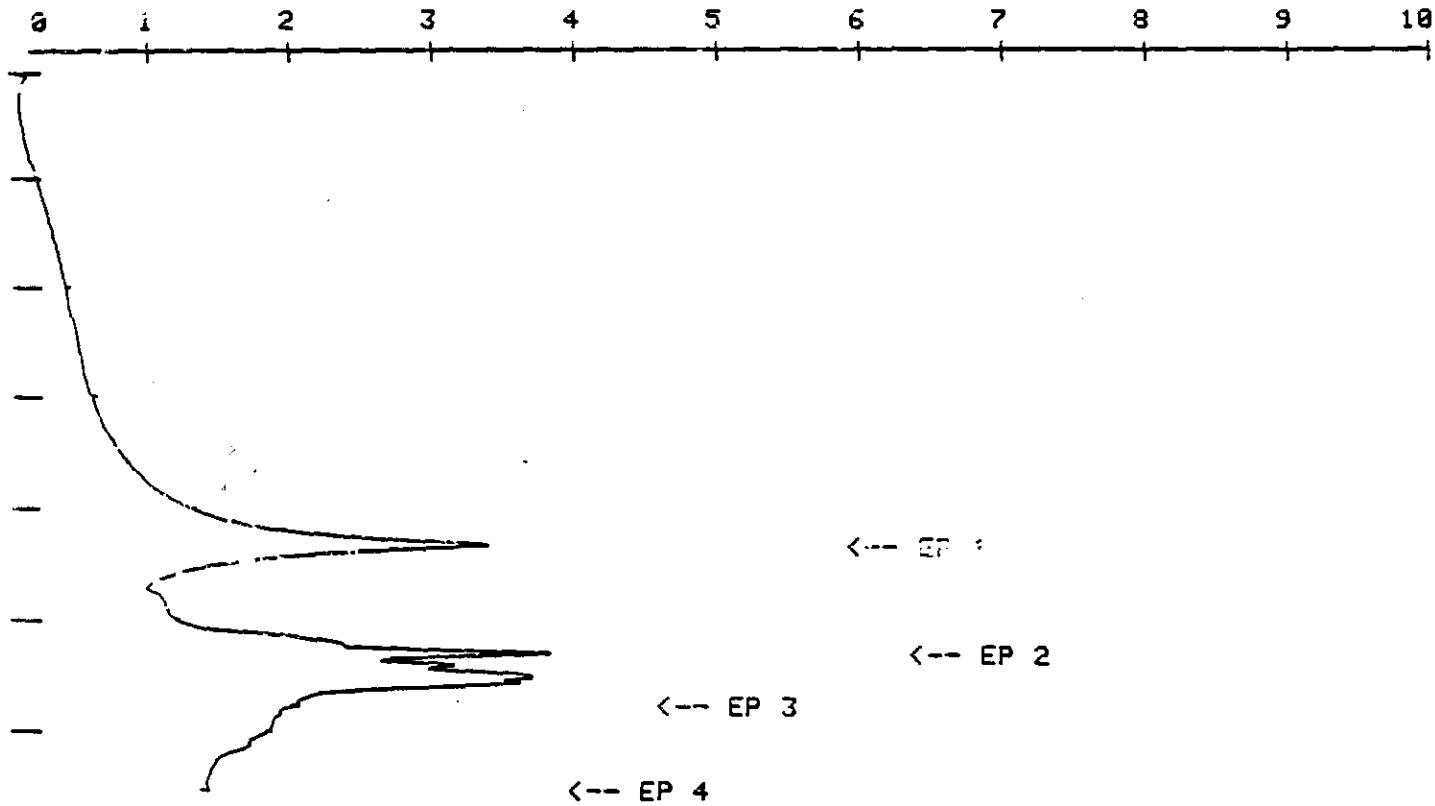
MODE:	DRV TITRATION
ELECTRODE STDZ:	PH
dE/dV SIGN:	+
ML LIMIT:	2.50
PH LIMIT:	3.
TITRATION RATE:	10
SENSITIVITY:	1
DISPENSE, ML:	0.
PLOT GAIN:	5
COMPUTATION:	CONCENTRATION
TITRANT NORMALITY:	0.1900
SOLVENT BLANK:	0.
MULTIPLIER:	0.

LAST ELECTRODE STANDARDIZATION: SEP 26 1991 10:20 AM

SAMPLE NUMBER: 1
SAMPLE DATA: 324.
DIRECT READ PH: 12.022

WHC-SD-WM-DP-025
Addendum 16 Rev 0

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

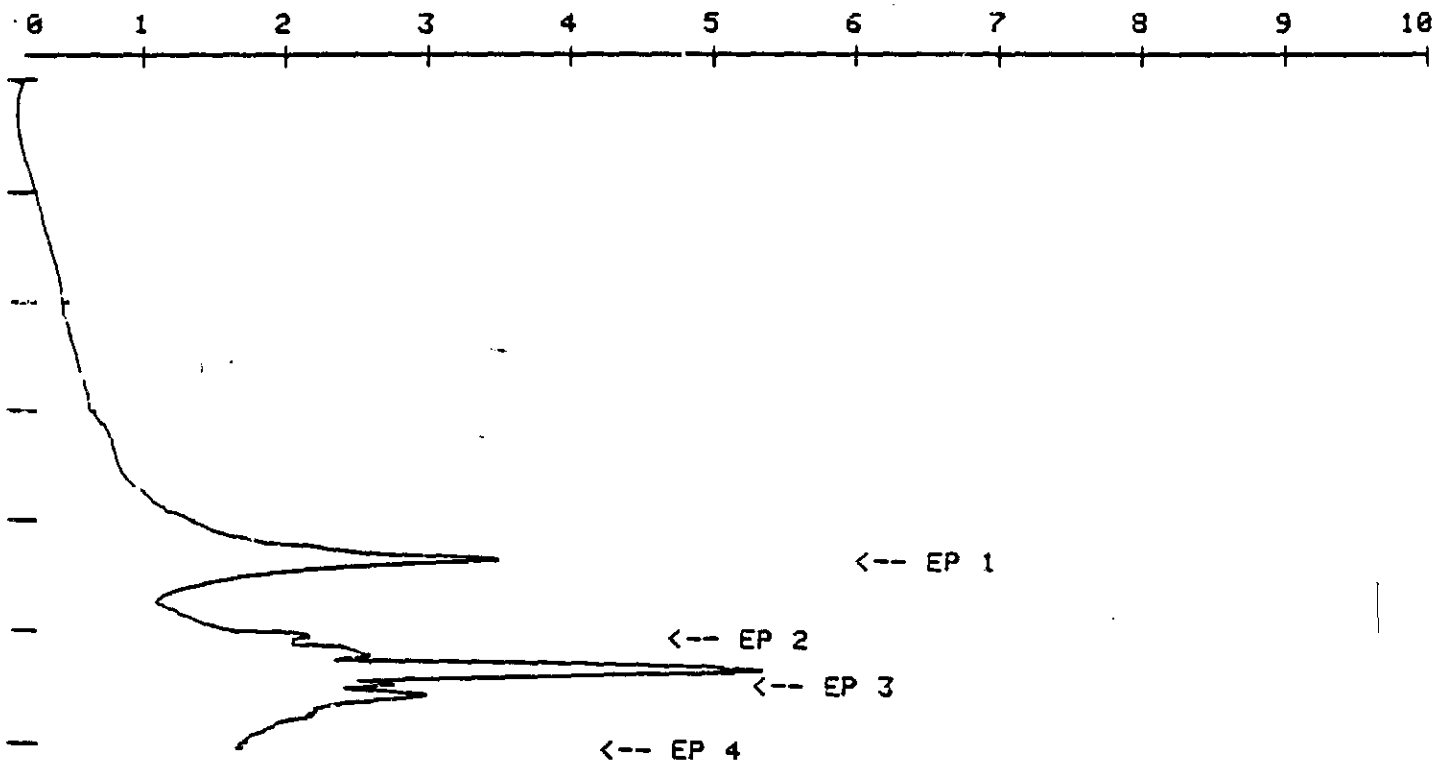
EQUIVALENCE PH	TITRANT VOLUME	CONPUTATION
9.72	0.541	0.0000
7.75	0.662	0.0000
4.85	0.720	0.0000
3.66	0.813	0.0000

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

SEP 26 1991 10:29 AM

SAMPLE NUMBER: 2
SAMPLE DATA: 324.
DIRECT READ PH: 12.041

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.75	0.544	0.0000
8.78	0.632	0.0000
5.78	0.683	0.0000
4.03	0.752	0.0000

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

SEP 26 1991 10:45 AM

SAMPLE NUMBER: 1
SAMPLE DATA: 325.
DIRECT READ PH: 5.668

DERIVATIVE OUTPUT, dE/dV

0 1 2 3 4 5 6 7 8 9 10

.009

DRV TITRATION:

TITRATION TERMINATED BY PH LIMIT.

SEP 26 1991 10:47 AM

SAMPLE NUMBER: 2
SAMPLE DATA: 325.
DIRECT READ PH: 5.735

DERIVATIVE OUTPUT, dE/dV

0 1 2 3 4 5 6 7 8 9 10

.009

DRV TITRATION:

TITRATION TERMINATED BY PH LIMIT.

SEP 26 1991 10:49 AM

SAMPLE NUMBER: 3
SAMPLE DATA: 325.
DIRECT READ PH: 5.727

DERIVATIVE OUTPUT, dE/dV

0 1 2 3 4 5 6 7 8 9 10

.009

DRV TITRATION:

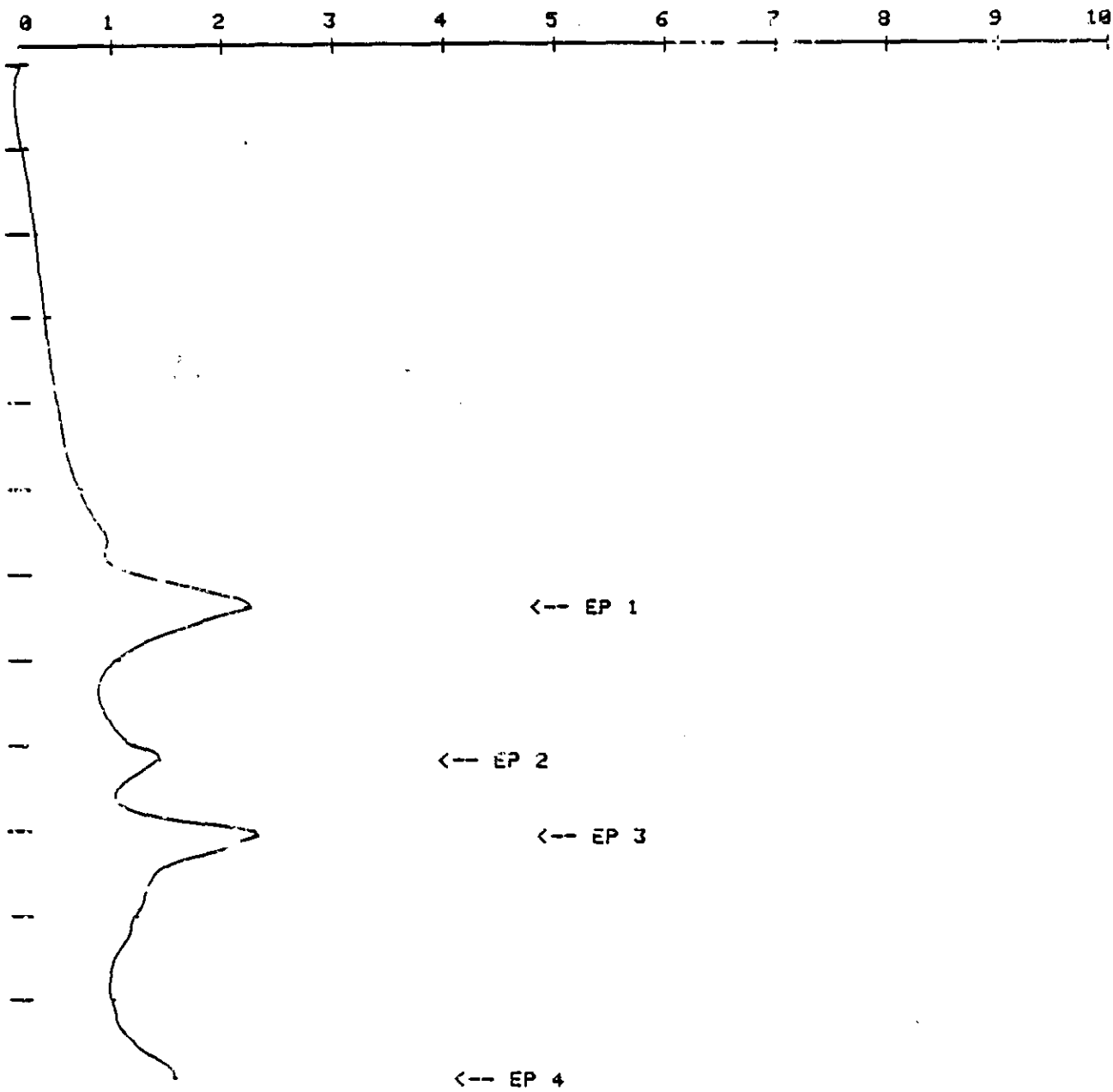
TITRATION TERMINATED BY PH LIMIT.

SEP 26 1991 10:51 AM

SAMPLE NUMBER: 2
SAMPLE DATA: 326.
DIRECT READ PH: 11.922

WHC-SD-WM-DP-025
Addendum 16 Rev 0

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

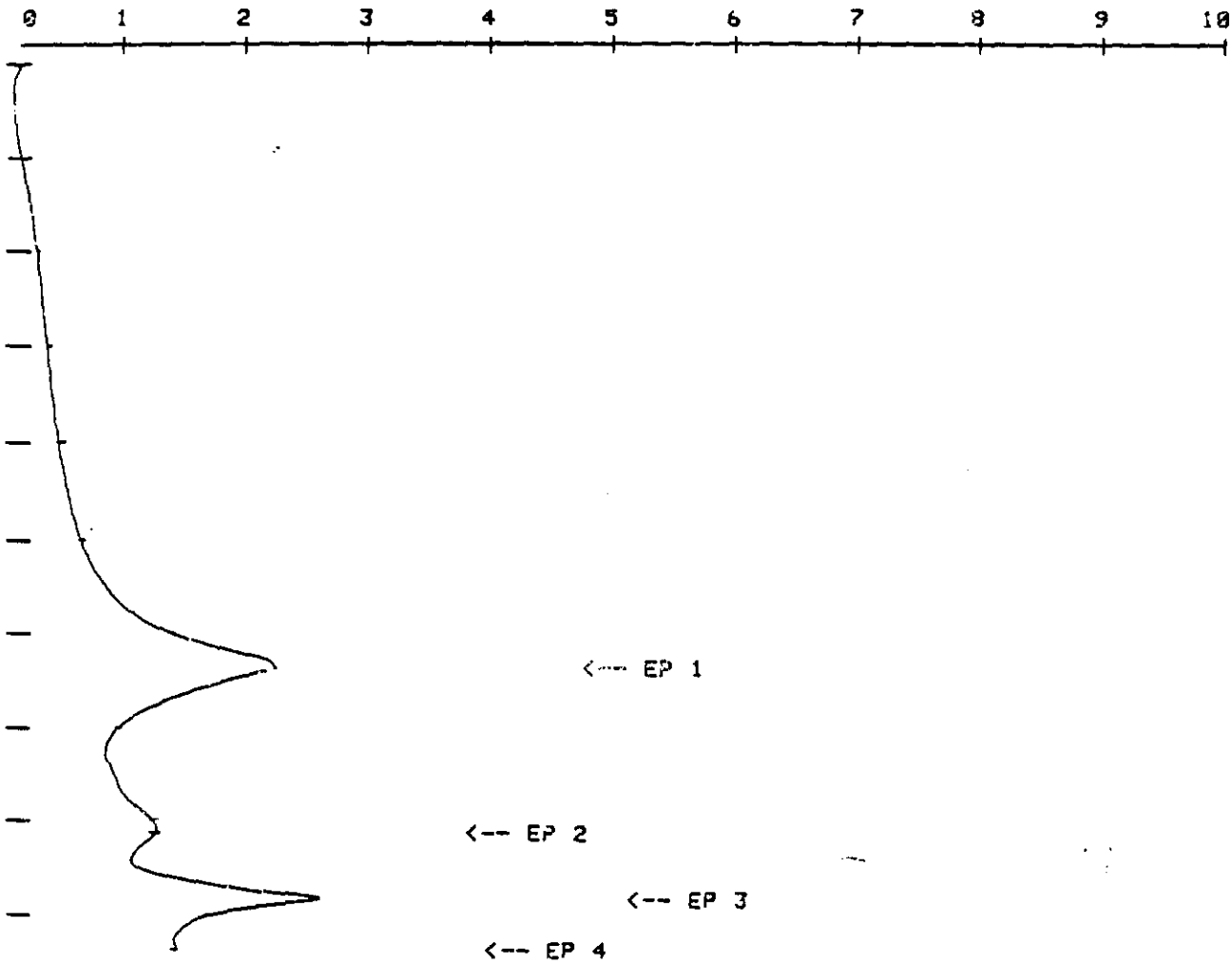
EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.83	0.797	0.0000
8.54	1.028	0.0000
7.43	1.136	0.0000
4.98	1.403	0.0000

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

SEP 26 1991 1:38 PM

SAMPLE NUMBER: 1
SAMPLE DATA: 326.
DIRECT READ PH: 11.907

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

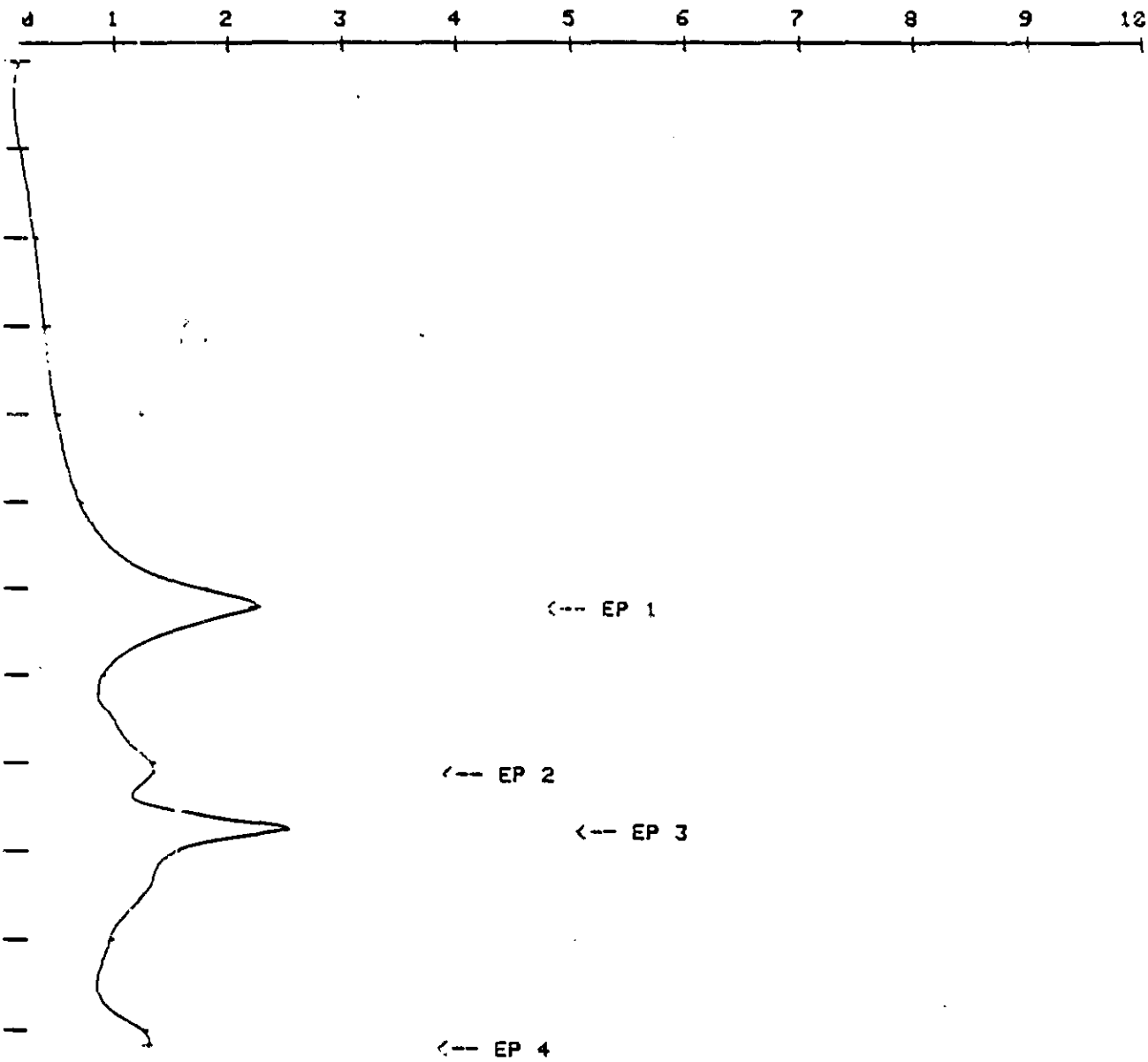
EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.80	0.734	0.0000
9.54	1.015	0.0000
7.39	1.192	0.2020
6.64	1.169	0.0030

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

SEP 26 1991 1:29 PM

SAMPLE NUMBER: 2
SAMPLE DATA: 326.
DIRECT READ PH: 11.898

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

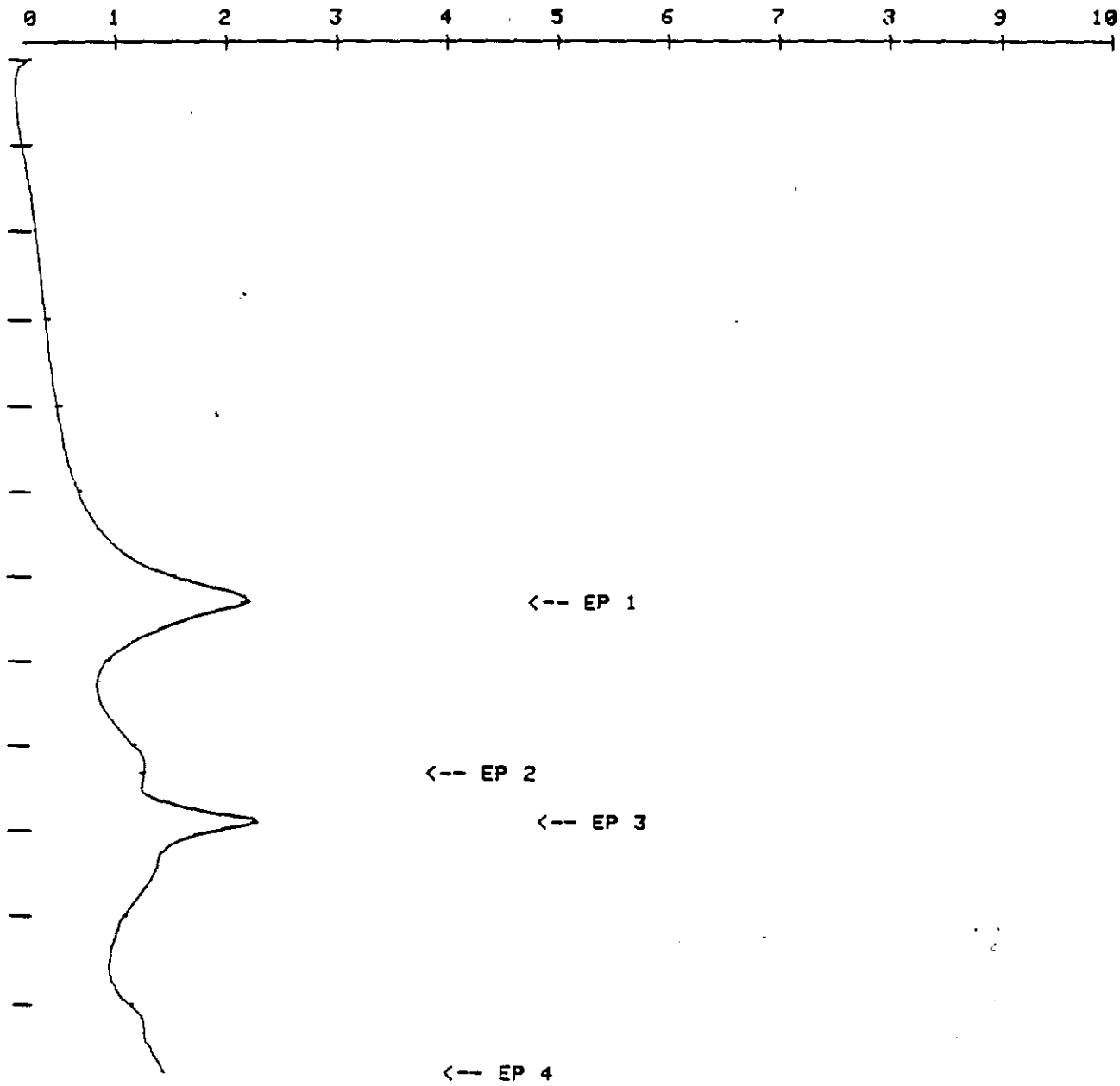
EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.79	0.774	0.0060
8.37	1.012	0.0090
7.24	1.091	0.0008
5.33	1.394	0.0009

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

SEP 26 1991 1:57 PM

SAMPLE NUMBER: 1
SAMPLE DATA: 326.
DIRECT READ PH: 11.907

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.92	0.787	0.0000
8.42	1.039	0.0000
7.42	1.112	0.0000
5.04	1.471	0.0000

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

SEP 26 1991 1:48 PM

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R326	Customer ID: 791-6A
Analysis: SELENIUM	Sample Prep: UNDIGESTED

Instrument: PERKIN ELMER - WA77479	Procedure/Rev: LA-365-131/B-1
Technologist: M. MYERS	Date: 09-24-91
Starting Time: 8:00	Temperature: NA
Ending Time: 11:30	Chemist: K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5596	11		
2	REAGENT BLANK	R325-5696	12		
3	SAMPLE 791-6A	R326-5796	13		
4	SAM DUP 791-6A	R326-5896	14		
5	SPIKE OF 791-6A	R326-5996	15		
6	FINAL LMCS CHECK STD	R331-5596	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	125B38A/0.500 mL			N/A
SPIKE	125B38A/0.500 mL			N/A

A-6000-881 (03/92)

SELENIUM ANALYSIS - UNDIGESTED SAMPLE
WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.-5596	106AW	9-20-91	10: 6	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
Se	LA-365-131	% RECOVERY	W11E2	0

Sample Size: ? .500 ml — Customer ID: STD

Remarks, Calculations, Results:
EDP R743 SE/HYDRD
STDN 125B38A RESULT 1.08E-1
STD VAL 1.00E-1 %REC 108.0%
0.932
54.12ng / 500 = 1.08E-1

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C275				
Date: 9-24-91	Time Completed	Lab Unit Mgr		

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.-5696	106AW	9-20-91	10: 8	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
Se	LA-365-131	PPM	W11E2	0

Sample Size: ? 1.0 ml — Customer ID: REG DL

Remarks, Calculations, Results:
REAGENT BLANK
-0.046
<5ng / 1000 = <5.00E-3 ppm

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C275				
Date: 9-24-91	Time Completed	Lab Unit Mgr		

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5796	106AW	9-20-91	10:10	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
Se	LA-365-131	PPM	W11E2	0

Sample Size: ? .500 ml — Customer ID: 791-6A

Remarks, Calculations, Results:
0.064
<5ng / 500 = <1.0E-2 ppm

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C275				
Date: 9-24-91	Time Completed	Lab Unit Mgr		

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5896	106AW	9-20-91	10:12	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
Se	LA-365-131	PPM	W11E2	0

Sample Size: ? .500 ml — Customer ID: 791-6A

Remarks, Calculations, Results:
DUPLICATE SAMPLE
0.031
<5ng / 500 = 1.00E-2 ppm

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C275				
Date: 9-24-91	Time Completed	Lab Unit Mgr		

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5996	106AW	9-20-91	10:14	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
Se	LA-365-131	% RECOVERY	W11E2	0

Sample Size: ? .500 ml — Customer ID: 791-6A

Remarks, Calculations, Results:
SAMPLE SPIKED ID
SPIKE ID 125B38A
SPIKE VOLUME .500 ml
80.3%
0.691
40.13ng - < / 500 = 8.026E-2 / 1.00E-1

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C275				
Date: 9-24-91	Time Completed	Lab Unit Mgr		

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.-5596	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
Se	LA-365-131	% RECOVERY	W11E2	0

Sample Size: ? .500 ml — Customer ID: STD

Remarks, Calculations, Results:
EDP R743 SE/HYDRD
STDN 125B38A RESULT 9.396E-2
STD VAL 1.00E-1 %REC 94.0%
0.809 46.98ng

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C275				
Date: 9-24-91	Time Completed	Lab Unit Mgr		

9 3 1 2 3 3 1 4 7 9

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
CALIBRATION RECORD

Analyte: Se

Procedure: LA-365-131 | Revision: B-1

Instrument: PERKIN-ELMER | Property No.: WA77479

Technologist: D. R. JACKSON | Payroll No.: 6C275 | Date: 09-24-91

Calibration Standard: 124B38A

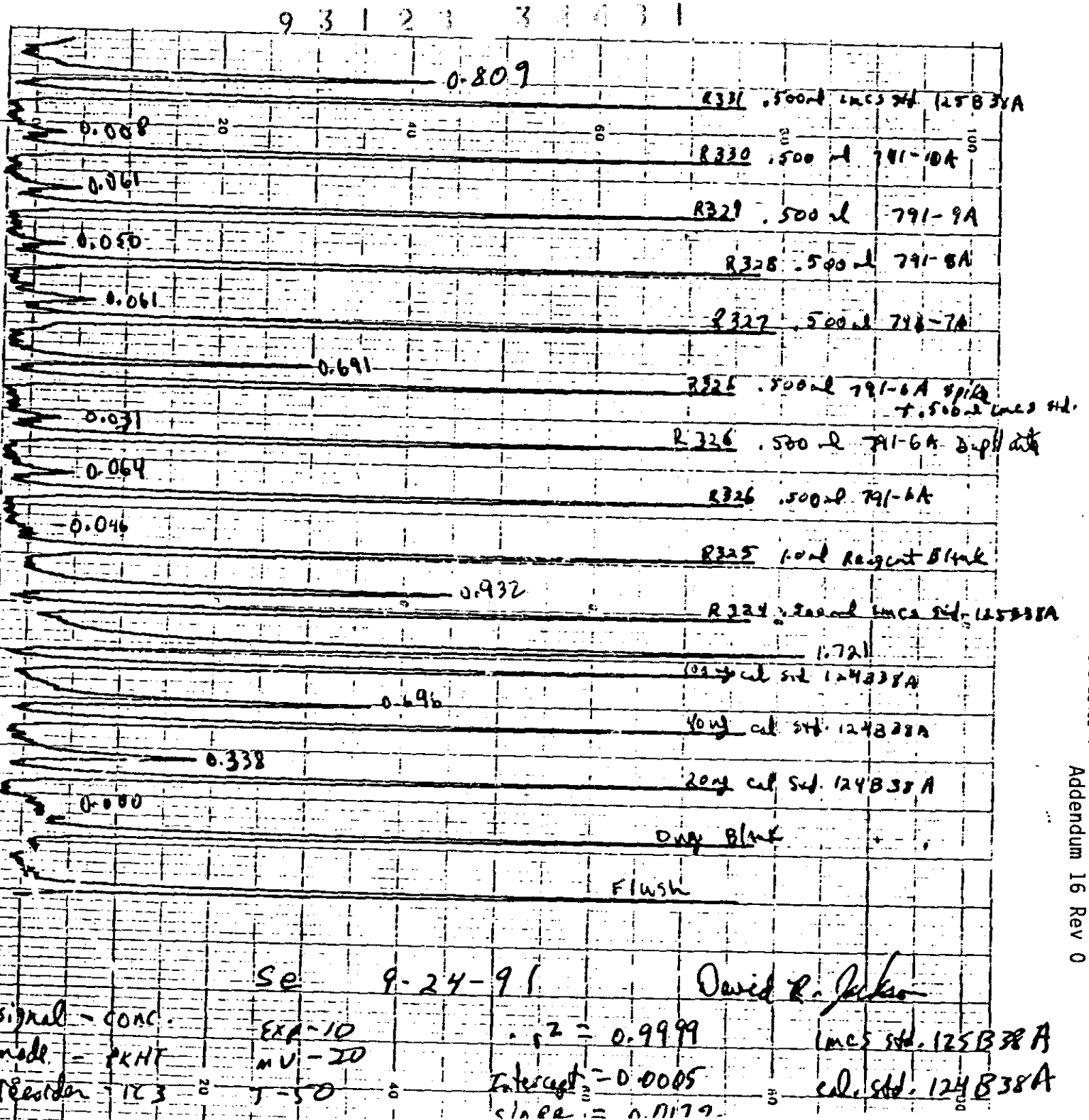
Analyte Concentration: 0.1000 ppm

Type of Calibration: LINEAR

	Dilution	Concentration	Instrument Reading Unit
1	0.000 mL	0.0 ng	0.000
2	0.200 mL	20.0 ng	0.338
3	0.400 mL	40.0 ng	0.696
4	1.000 mL	100.0 ng	1.721
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Comments:

A-6000-882 (03/90)


PERKIN-ELMER
Client No. CP33402-0
WHC-SD-WM-DP-025
Addendum 16 Rev 0
0.809
R331 .500ml lmcs std 125B38A
0.008
R330 .500ml 791-10A
0.061
R329 .500ml 791-9A
0.050
R328 .500ml 791-8A
0.061
R327 .500ml 791-7A
0.691
R325 .500ml 791-6A spike +.500ml lmcs std.
0.031
R326 .500ml 791-6A dupl cat
0.064
R326 .500ml 791-6A
0.046
R325 1.0ml Reagent Blank
0.932
R324 .200ml lmcs std. 125B38A
1.721
100ng cal std 124B38A
0.696
40ng cal std. 124B38A
0.338
20ng cal std. 124B38A
0.000
0ng Blank
Flush
Se 9-24-91
David R. Jackson
signal - conc.
mode - PKHT
Recorder - R3
EXP - 10
mV - 20
T - 50
r² = 0.9999
Intercept = 0.0005
slope = 0.0172
lmcs std. 125B38A
cal. std. 124B38A

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R326	Customer ID: 791-6A
Analysis: SPECIFIC GRAVITY	Sample Prep: UNDIGESTED

Instrument: WA90787	Procedure/Rev: LA-510-112/C-2
Technologist: L. TEMPLE	Date: 10-24-91
Starting Time: 09:30	Temperature: N/A
Ending Time: 11:20	Chemist: R. K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5506	11		
2	REAGENT BLANK	R325-5606	12		
3	SAMPLE 791-6A	R326-5706	13		
4	SAM DUP OF 791-6A	R326-5806	14		
5	FINAL LMCS CHECK STD	R331-5506	15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	15C11BJ/.20019 mL			N/A
SAMPLES RERUN.				

A-6000-881 (03/92)

SPECIFIC GRAVITY ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.-5506	106AW	9-20-91	10: 5	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
SPG	LA-510-112	% RECOVERY	W1TE2	1

Sample Size: ? 200.19 g — Customer ID: STD

Remarks, Calculations, Results:
S332 ZNCL2
STDN 15C11-BJ RESULT 1.402
STD VAL 1.4386 %REC 97.5%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
81808				

Date: 10-24-91 — Time Completed: — Lab Unit Mgr:

RERUN

#1: W_1 = 1.9083, W_2 = 2.1914 — .2831

#2: W_1 = 1.9553, W_2 = 2.2335 — .2782

R324-5506

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.-5606	106AW	9-20-91	10: 7	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
SPG	LA-510-112		W1TE2	1

Sample Size: ? 200.19 g — Customer ID: REG BL

Remarks, Calculations, Results:
REAGENT BLANK
1.0123

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
81808				

Date: 10-24-91 — Time Completed: — Lab Unit Mgr:

RERUN

#1: 1.9385 $-W_1-$ 1.8845 — #2: 2.1495 $-W_2-$ 2.0788

.2110 — .1943

R325-5606

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5706	106AW	9-20-91	10: 9	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
SPG	LA-510		W1TE2	1

Sample Size: ? 200.19 g — Customer ID: 791-6A

Remarks, Calculations, Results:
1.0842

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
81808				

Date: 10-24-91 — Time Completed: — Lab Unit Mgr:

RERUN

#1: 1.9018 $-W_1-$ 1.8644 — #2: 2.1213 $-W_2-$ 2.0790

.2195 — .2146

R 326-5706

9 3 1 2 0 3 4 4 0 3

SPECIFIC GRAVITY ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5806	106AW	9-20-91	1	25

RERUN

Determination	Method/Standard	Result Units	Charge Code	Rerun
SPG	LA-510-112		W1TE2	1

Sample Size	Customer ID
? 200.19	791-6A

Remarks, Calculations, Results:
DUPLICATE SAMPLE

1.0842

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
81808				
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]				

Date	Time Completed	Lab Use Only
10-24-91		[signature]

#1 1.9018 2.1213 .2195

#2 W_1 - 1.8644 W_2 - 2.0790 .2146

R 326 - 5806

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.-5506	106AW	9-20-91	10:25	25

RERUN

Determination	Method/Standard	Result Units	Charge Code	Rerun
SPG	LA-510-112	% RECOVERY	W1TE2	1

Sample Size	Customer ID
? 200.19	STD

Remarks, Calculations, Results:
S332 ZNCL2
STD#15C11-BT RESULT 1.4137
STD VAL 1.4386 %REC 98.3%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
81808				
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]			[signature]	

Date	Time Completed	Lab Use Only
10-24-91		[signature]

#1 1.9257 2.2090 .2833

#2 W_1 - 1.9098 W_2 - 2.1925 .2827

R331-5506

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R326	Customer ID: 791-6A
Analysis: TOTAL INORGANIC CARBON	Sample Prep: UNDIGESTED

Instrument: WB39927	Procedure/Rev: LA-622-102/B-0
Technologist: M. MYERS	Date: 09-26-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5527	11		
2	REAGENT BLANK	R325-5627	12		
3	SAMPLE 791-6A	R326-5727	13		
4	SAM DUP 791-6A	R326-5827	14		
5	SPIKE OF 791-6A	R326-5927	15		
6	FINAL LMCS CHECK STD	R331-5527	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	69C11K/0.050 mL			NA
SPIKE	69C11K/0.100 mL			NA

A-6000-881 (03/92)

TOTAL INORGANIC CARBON ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Sample No	Sample Point	Date	Time Issued	Priority
R 324.-5927	106AW	9-20-91	10:5	25

Determination	Method Standard	Result Units	Charge Code	Repeats
TIC	LA-622-102	% RECOVERY	WITEC	0

Sample Size: 7 .050 ml
Customer ID: STD

Remarks, Calculations, Results:
5923 C03
STDN 69C11K RESULT 2.0006 -1
STD VAL 2.0006 -1 % REC 100.0%

Analyst-1: [illegible] Analyst-2: Analyst-3: Analyst-4: Analyst-5:
Date: 9-26-91

Sample No	Sample Point	Date	Time Issued	Priority
R 325.-5927	106AW	9-20-91	10:7	25

Determination	Method Standard	Result Units	Charge Code	Repeats
TIC	LA-622-102	G/L	WITEC	0

Sample Size: 7 ~~Direct~~ DAB 6/30/92 .050 mL
Customer ID: REID IN.

Remarks, Calculations, Results:
REPLICATE SAMPLE
~~7.99 e-1 g/L carbon~~ 5.60 mgC DAB 6/30/92

Analyst-1: [illegible] Analyst-2: Analyst-3: Analyst-4: Analyst-5: DAB Bierman
Date: 9-26-91

Sample No	Sample Point	Date	Time Issued	Priority
R 326.-5927	106AW	9-20-91	10:9	25

Determination	Method Standard	Result Units	Charge Code	Repeats
TIC	LA-622-102	G/L	WITEC	0

Sample Size: 7 .050 ml
Customer ID: [illegible]

Remarks, Calculations, Results:
~~2.01 g/L carbon~~ 2.00 g/LC
DAB 6/30/92

Analyst-1: [illegible] Analyst-2: Analyst-3: Analyst-4: Analyst-5: DAB Bierman
Date: 9-26-91

Sample No	Sample Point	Date	Time Issued	Priority
R 326.-5927	106AW	9-20-91	10:11	25

Determination	Method Standard	Result Units	Charge Code	Repeats
TIC	LA-622-102	G/L	WITEC	0

Sample Size: 7 .050 ml
Customer ID: [illegible]

Remarks, Calculations, Results:
DUPLICATE SAMPLE
~~1.98 g/L carbon~~ 1.974 g/LC
DAB 6/30/92

Analyst-1: [illegible] Analyst-2: Analyst-3: Analyst-4: Analyst-5: DAB Bierman
Date: 9-26-91

Sample No	Sample Point	Date	Time Issued	Priority
R 326.-5927	106AW	9-20-91	10:13	25

Determination	Method Standard	Result Units	Charge Code	Repeats
TIC	LA-622-102	% RECOVERY	WITEC	0

Sample Size: 7 .05 ~~.100 ml~~ .100 (1)ml = .400 ml spike - .050 ml
Customer ID: [illegible]

Remarks, Calculations, Results:
SAMPLE SPIKED ID
SPIKE ID 69C11K
SPIKE VOLUME .400 ml

$$\frac{(109.7 - \cancel{5.10}\ 5.6)(3) - (105.6 - \cancel{5.1}\ 5.6)(1)}{\cancel{400}\ \cancel{2400}\ \cancel{440}\ 240} \times 100 = \cancel{84.9\%}\ 88.46\%$$

DAB 6/30/92

Analyst-1: [illegible] Analyst-2: Analyst-3: Analyst-4: Analyst-5: DAB Bierman
Date: 9-26-91

Sample No	Sample Point	Date	Time Issued	Priority
R 331.-5927	106AW	9-20-91	10:25	25

Determination	Method Standard	Result Units	Charge Code	Repeats
TIC	LA-622-102	% RECOVERY	WITEC	0

Sample Size: 7 .050 ml
Customer ID: STD

Remarks, Calculations, Results:
5923 C03
STDN 69C11K RESULT ~~2.059 e-1~~ DAB 6/30/92 2.05 E-1M
STD VAL 2.006 -1 % REC ~~102.6%~~ DAB 6/30/92 102.5%

Analyst-1: [illegible] Analyst-2: Analyst-3: Analyst-4: Analyst-5: DAB Bierman
Date: 9-26-91

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R324 Date: 09-26-1991 Time: 00:32:57

Blank = .7279823 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.00	88.40	100.00
3	3.01	112.20	21.21
4	4.00	120.10	6.58
5	5.00	122.90	2.28
6	6.01	124.20	1.05
7	7.00	125.10	0.72

(125.1 - 5.099395)(1)/(50) = 2.400012 g/L Carbon

(125.1 - 5.099395)(1)/(50)(12) = .200001 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: BLANK Date: 09-26-1991 Time: 00:20:54

Blank = N/A Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	1.60	100.00
3	3.01	2.30	30.43
4	4.00	3.00	23.33
5	5.01	3.70	18.92
6	6.01	4.50	17.78
7	7.01	5.10	11.76

BLANK VALUE = 5.1 / 7.005665 = .7279823 g/L/minute

Sample Run By: 6C827_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R325 Date: 09-26-1991 Time: 00:40:41

Blank = .7279823 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	2.00	100.00
3	3.01	2.90	31.03
4	4.01	3.70	21.62
5	5.01	4.30	13.95
6	6.01	5.00	14.00
7	7.01	5.60	10.71

Blank value = 5.60 ug Carbon DY Bisenius 6/30/92

(5.6 - 5.100003)(1)/(50) = 9.999943E-03 g/L Carbon

(5.6 - 5.100003)(1)/(50)(12) = 8.333286E-04 Molar Carbon

Sample Run By: 6C823_____

WHC-SD-WM-DP-025
Addendum 16 Rev 0

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R326 Date: 09-26-1991 Time: 00:49:05

Blank = .7279823 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	66.70	100.00
3	3.01	90.50	26.30
4	4.00	99.70	9.23
5	5.01	103.20	3.39
6	6.01	104.70	1.43
7	7.00	105.60	0.85

5.60 mgC 2.00 g/L C

(105.6 - ~~5.099392~~)(1)/(50) = ~~2.010012~~ g/L Carbon

DyBisenius 6/30/92 DYB 6/30/92

(105.6 - 5.099392)(1)/(50)(12) = .167501 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R326DUP Date: 09-26-1991 Time: 00:57:14

Blank = .7279823 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	67.60	100.00
3	3.01	89.90	24.81
4	4.00	98.50	8.73
5	5.00	101.80	3.24
6	6.01	103.40	1.55
7	7.00	104.30	0.86

(104.3 - ~~5.099389~~ 5.6)(1)/(50) = ~~1.984012~~ 1.974 g/L Carbon
DYB 6/30/92 DYB 6/30/92

(104.3 - 5.099389)(1)/(50)(12) = .1653344 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R326SP Date: 09-26-1991 Time: 01:22:38

Blank = .7279823 Sample Size = 50 Dilution Factor = 3
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	84.70	100.00
3	3.01	100.10	15.38
4	4.00	105.20	4.85
5	5.01	107.30	1.96
6	6.01	108.70	1.29
7	7.00	109.70	0.91

(109.7 - 5.099397)(3)/(50) = 6.276037 o/L Carbon

(109.7 - 5.099397)(3)/(50)(12) = .5230031 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R331 Date: 09-26-1991 Time: 03:40:02

Blank = .7279823 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	71.90	100.00
3	3.01	105.10	31.59
4	4.01	119.50	12.05
5	5.01	125.10	4.48
6	6.01	127.50	1.88
7	7.00	128.60	0.86

(128.6 - 5.099386)(1)/(50) = 2.470013 g/L Carbon

(128.6 - ~~5.099386~~ 5.6)(1)/(50)(12) = ~~.2058344~~ .205 Molar Carbon

DY Bisenius 6/30/92 JYB 6/30/92

Sample Run By: 6C823_____

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R326	Customer ID: 791-6A
Analysis: TOTAL ORGANIC CARBON	Sample Prep: UNDIGESTED

Instrument: MODEL 5011 - WC16130	Procedure/Rev: LA-344-105/B-0
Technologist: M. MYERS	Date: 9-26-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5526	11		
2	REAGENT BLANK	R325-5626	12		
3	SAMPLE 791-6A	R326-5726	13		
4	SAM DUP 791-6A	R326-5826	14		
5	SPIKE OF 791-6A	R326-5926	15		
6	FINAL LMCS CHECK STD	R331-5526	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	70C11I/0.2 mL			N/A
SPIKE	80C11I/0.200 mL			N/A

A-6000-881 (03/92)

TOTAL ORGANIC CARBON ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5526	106AW	9-20-91	10: 5	25

Determination	Method Standard	Result Units	Charge Code	Remarks
TOC	EA-344-105	% RECOVERY	WITE2	0

Sample Size: .200ml - 2ml - .200ml
Customer ID: BTD

Remarks, Calculations, Results:
B354 CO3TOC
STDR TOCALI RESULT 2.95
STD VAL 3.00E REC 98.3%

Analyst-1: [signature] 6CB23
Analyst-2: [signature]
Date: 9-26-91
Time Completed: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5626	106AW	9-20-91	10: 7	25

Determination	Method Standard	Result Units	Charge Code	Remarks
TOC	EA-344-105	G/L	WITE2	0

Sample Size: ~~[illegible]~~ DHB 6/30/92 .200 mL
Customer ID: [illegible]

Remarks, Calculations, Results:
REAGENT BLANK
3.10 ug C
~~4.71E-1 g/L/[illegible]~~
DHB 6/30/92

Analyst-1: [signature] 6CB23
Analyst-2: [signature]
Analyst-3: [signature]
Analyst-4: [signature]
Analyst-5: DHB [signature]
Date: 9-26-91
Time Completed: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 326.-5726	106AW	9-20-91	10: 9	25

Determination	Method Standard	Result Units	Charge Code	Remarks
TOC	EA-344-105	G/L	WITE2	0

Sample Size: .200ml - 2ml - .200ml
Customer ID: [illegible]

Remarks, Calculations, Results:
~~8.74E-1 g/L C~~ DHB 6/30/92
8.855E-1 g/LC

Analyst-1: [signature] 6CB23
Analyst-2: [signature]
Analyst-3: [signature]
Analyst-4: [signature]
Analyst-5: DHB [signature]
Date: 9-26-91
Time Completed: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 326.-5026	106AW	9-20-91	10: 9	25

Determination	Method Standard	Result Units	Charge Code	Remarks
TOC	EA-344-105	G/L	WITE2	0

Sample Size: .200ml - 2ml - .200ml
Customer ID: [illegible]

Remarks, Calculations, Results:
DUPLICATE SAMPLE
~~8.[illegible] g/L C~~
8.80E-1 g/LC 6-30-92
DHB

Analyst-1: [signature] 6CB23
Analyst-2: [signature]
Analyst-3: [signature]
Analyst-4: [signature]
Analyst-5: DHB [signature]
Date: 9-26-91
Time Completed: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 326.-5926	106AW	9-20-91	10: 9	25

Determination	Method Standard	Result Units	Charge Code	Remarks
TOC	EA-344-105	% RECOVERY	WITE2	0

Sample Size: .200ml - 2ml - .200ml + .200ml [illegible]
Customer ID: [illegible]

Remarks, Calculations, Results:
SAMPLE MATRIX ID
SPIKE ID [illegible]
SPIKE VOLUME .200ml
~~93.8%~~ DHB 6/30/92
93.9%
(over)

Analyst-1: [signature] 6CB23
Analyst-2: [signature]
Analyst-3: [signature]
Analyst-4: [signature]
Date: 9-26-91
Time Completed: [signature]

R 326-5426

$$\frac{(51.6 - \underset{\text{DHB 6/30/92}}{3.1})(2)(121) - (19.2 - \underset{\text{DHB 6/30/92}}{3.1})(121)}{(150)(121)} \times 100 =$$

~~93.8%~~ DHB 6/30/92
93.4%

TOTAL ORGANIC CARBON ANALYSIS - UNDIGESTED SAMPLE
WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.-5526	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Reports
TOC	LA 344-105	% RECOVERY	WITE2	0

Sample Size	Customer ID
? .200ml · 2ml · .200ml	STD

Cartridge, Calculations, Results
9354 CO3TOC
STDN TOC11 I RESULT ~~2.99~~ 3.003 g/LC
STD VAL. 3.0 %REC ~~[illegible]~~ 100.1%

Batched with R9998

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[illegible]				[illegible]
60823				

Date	Time Completed	Last Updated
9-26-91		[illegible]

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R324 Date: 09-26-1991 Time: 01:53:19

Blank = .4709794 Sample Size = 200 Dilution Factor = 11
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	13.70	100.00
3	3.01	43.70	68.65
4	4.01	51.90	15.80
5	5.01	54.90	5.46
6	6.01	56.20	2.31
7	7.01	56.90	1.23

(56.9 - 3.299598)(11)/(200) = 2.948022 g/L Carbon

(56.9 - 3.299598)(11)/(200)(12) = .2456685 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: BLANK Date: 09-26-1991 Time: 01:20:10

Blank = N/A Sample Size = 200 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.40	100.00
2	2.01	0.50	20.00
3	3.01	1.30	61.54
4	4.01	2.00	35.00
5	5.01	2.50	20.00
6	6.01	2.90	13.79
7	7.01	3.30	12.12

BLANK VALUE = 3.3 / 7.006676 = .4709794 g/L/minute

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R325 Date: 09-26-1991 Time: 02:01:54

Blank = .4709794 Sample Size = 200 Dilution Factor = ~~11~~ 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	0.80	100.00
3	3.01	1.50	46.67
4	4.01	2.00	25.00
5	5.01	2.40	16.67
6	6.01	2.80	14.29
7	7.01	3.10	9.68

Blank value = 3.10 ug Carbon DY Bisenius 6/30/92
CORRECTED TO DF 1 .0998023

(3.1 - 3.299605)(11)/(200) = -1.097826E-02 g/L Carbon

(3.1 - 3.299605)(11)/(200)(12) = -9.148551E-04 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R326 Date: 09-26-1991 Time: 02:10:38

Blank = .4709794 Sample Size = 200 Dilution Factor = 11
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	0.90	100.00
3	3.01	11.70	92.31
4	4.01	16.20	27.78
5	5.01	17.80	8.99
6	6.01	18.60	4.30
7	7.01	19.20	3.13

3.10 .8855

(19.2 - ~~3.299529~~)(11)/(200) = ~~.8745259~~ g/l. Carbon
DY B 6/30/92 DY Bierman 6/30/92

(19.2 - 3.299529)(11)/(200)(12) = 7.287716E-02 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R326DUP Date: 09-26-1991 Time: 02:18:27

Blank = .4709794 Sample Size = 200 Dilution Factor = 11
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	0.90	100.00
3	3.01	11.70	92.31
4	4.01	15.80	25.95
5	5.01	17.50	9.71
6	6.01	18.50	5.41
7	7.01	19.10	3.14

3.10 .880 g/L C
(19.1 - ~~3.299997~~)(11)/(200) = ~~.8690002~~ g/L Carbon
DUB 6/30/92 D J Bisenius 6/30/92
(19.1 - 3.299997)(11)/(200)(12) = 7.241669E-02 Molar Carbon

Sample Run By: 6C823

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R326SP Date: 09-26-1991 Time: 02:46:09

Blank = .4709794 Sample Size = 200 Dilution Factor = 12
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	1.70	100.00
3	3.01	49.60	96.57
4	4.01	70.90	30.04
5	5.01	77.50	8.52
6	6.01	80.30	3.49
7	7.01	81.60	1.59

(81.6 - 3.299989)(12)/(200) = 4.698001 g/L Carbon

(81.6 - 3.299989)(12)/(200)(12) = .3915 Molar Carbon

Sample Run By: 6C823_____

BATCH WITH R9998

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R331 Date: 09-26-1991 Time: 04:58:31

Blank = .4709794 Sample Size = 200 Dilution Factor = 11
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	8.30	100.00
3	3.01	44.40	81.31
4	4.01	53.20	16.54
5	5.01	55.90	4.83
6	6.01	57.00	1.93
7	7.01	57.70	1.21

(57.7 - ~~3.299989~~ 3.10)(11)/(200) = ~~2.992~~ 3.003 g/L Carbon
DYB 6/30/92 DYBisenius 6/30/92
(57.7 - 3.299989)(11)/(200)(12) = .2493334 Molar Carbon

Sample Run By: 6C823

736

~~718~~ 8-31-92

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R326	Customer ID: 791-6A
Analysis: ION CHROMATOGRAPHIC - CHLORIDE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-04-91
Starting Time: 20:46	Temperature: 24-25degC
Ending Time: 23:36	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5572	11		
2	REAGENT BLANK	R325-5672	12		
3	SAMPLE 791-6A	R326-5772	13		
4	SAM DUP 791-6A	R326-5872	14		
5	SPIKE OF SAMPLE 791-6A	R326-5972	15		
6	FINAL LMCS CHECK STD	R331-5572	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A
SPIKE	73C11CO/0.5 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (CHLORIDE) - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.-5572	106AW	9-20-91	10:5	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
CL	EA 533 105	% RECOVERY	WHTE2	0

Sample Size: .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EPA R972 DIONEX
STDN 73C11CO RESULT 71.429 ppm
STD VAL 75 ppm SREC 95.2%

Analyst-1: [signature] 6CB23
Date: 10-4-91
Time Completed: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.-5672	106AW	9-20-91	10:0	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
CL	EA 533 105	PPM	WHTE2	0

Sample Size: DIRECT
Customer ID: [illegible]

Remarks, Calculations, Results:
[illegible]

$1.00E^{-1}$ ppm

Analyst-1: [signature] 6CB23
Date: 10-4-91
Time Completed: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5772	106AW	9-20-91	10:10	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
CL	EA 533 105	PPM	WHTE2	0

Sample Size: .050ml - 10ml
Customer ID: [illegible]

Remarks, Calculations, Results:

$4.35E^{2}$ ppm

Analyst-1: [signature] 6CB23
Date: 10-4-91
Time Completed: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5872	106AW	9-20-91	10:12	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
CL	EA 533 105	[illegible]	WHTE2	0

Sample Size: .050ml - 10ml
Customer ID: [illegible]

Remarks, Calculations, Results:
[illegible]

$4.30E^{2}$ ppm

Analyst-1: [signature] 6CB23
Date: 10-4-91
Time Completed: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5972	106AW	9-20-91	10:13	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
CL	EA 533 105	% RECOVERY	WHTE2	0

Sample Size: .050ml - 10ml
Customer ID: [illegible]

Remarks, Calculations, Results:
SAMPLE SPIKED ID
SPIKE ID 73C11CO
SPIKE VOLUME .050ml

$$\frac{5.122E^{2} - 4.35E^{2}}{(.05)(75)(201)/10.1} \times 100 = 103.4\%$$

Analyst-1: [signature] 6CB23
Date: 10-4-91
Time Completed: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.-5572	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
CL	EA 533 105	% RECOVERY	WHTE2	0

Sample Size: .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EPA R972 DIONEX
STDN 73C11CO RESULT 70.914 ppm
STD VAL 75 ppm SREC 94.6%

Analyst-1: [signature] 6CB23
Date: 10-4-91
Time Completed: [signature]

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R326	Customer ID: 791-6A
Analysis: ION CHROMATOGRAPHIC - PHOSPHATE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-04-91
Starting Time: 20:46	Temperature: 24-25degC
Ending Time: 23:36	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5574	11		
2	REAGENT BLANK	R325-5674	12		
3	SAMPLE 791-6A	R326-5774	13		
4	SAM DUP 791-6A	R326-5874	14		
5	SPIKE OF SAMPLE 791-6A	R326-5974	15		
6	FINAL LMCS CHECK STD	R331-5574	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A
SPIKE	73C11CO/0.5 mL			N/A

A-6000-881 (03/92)

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5574	106AW	9-20-91	10: 6	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
PO4	LA-533-105	% RECOVERY	WITE2	0

Sample Size: ? .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R976 DIONEX
STD# 73C11CO RESULT ~~583.15~~ 510.5
STD VAL 517 ppm %REC ~~112.8%~~ 98.8%
~~CR #~~ 10-09-91 KOT

Analyst-1: [signature] 6C823
Analyst-2:
Analyst-3:
Analyst-4:
Analyst-5: [signature]
Date: 10-4-91
Time Completed:
Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5674	106AW	9-20-91	10: 8	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
PO4	LA 533 105	PPM	WITE2	0

Sample Size: ? DIRECT
Customer ID: REG BL

Remarks, Calculations, Results:
REAGENT BLANK
<1.00 ppm
~~out for rerun~~ KST 10-09-91

Analyst-1: [signature] 6C823
Analyst-2:
Analyst-3:
Analyst-4:
Analyst-5: [signature]
Date: 10-4-91
Time Completed:
Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 326.-5774	106AW	9-20-91	10:10	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
PO4	LA 533 105	PPM	WITE2	0

Sample Size: ? .050ml - 10ml
Customer ID: 291-6A

Remarks, Calculations, Results:
5.83E² ppm
~~out for rerun~~ KST 10-09-91

Analyst-1: [signature] 6C823
Analyst-2:
Analyst-3:
Analyst-4:
Analyst-5: [signature]
Date: 10-4-91
Time Completed:
Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 326.-5874	106AW	9-20-91	10:12	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
PO4	LA 533 105	PPM	WITE2	0

Sample Size: ? .050ml - 10ml
Customer ID: 291-6A

Remarks, Calculations, Results:
DUPLICATE SAMPLE
5.97E² ppm
~~out for rerun~~ KST 10-09-91

Analyst-1: [signature] 6C823
Analyst-2:
Analyst-3:
Analyst-4:
Analyst-5: [signature]
Date: 10-4-91
Time Completed:
Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 326.-5974	106AW	9-20-91	10:13	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
PO4	LA 533-105	% RECOVERY	WITE2	0

Sample Size: ? .050ml - 10ml
Customer ID: 291-6A

Remarks, Calculations, Results:
SAMPLE SPIKED ID
SPIKE ID 73C11CO
SPIKE VOLUME .050 ml
$\frac{1.122e^3 - 5.83e^2}{(.05)(517)(201)/10.1} \times 100$
KST 10-09-91
~~Out for rerun~~
104.8%

Analyst-1: [signature] 6C823
Analyst-2:
Analyst-3:
Analyst-4:
Analyst-5: [signature]
Date: 10-4-91
Time Completed:
Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 331. 5574	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
PO4	LA 533 105	% RECOVERY	WITE2	0

Sample Size: ? .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R976 DIONEX
STD# 73C11CO RESULT 517
STD VAL 510 %REC 98.9%
~~Out for Rerun~~ 10-10-91

Analyst-1: [signature] 6C823
Analyst-2:
Analyst-3:
Analyst-4:
Analyst-5: [signature]
Date: 10-4-91
Time Completed:
Lab Unit Mgr: [signature]

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R326	Customer ID: 791-6A
Analysis: ION CHROMATOGRAPHIC - SULFATE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-04-91
Starting Time: 20:46	Temperature: 24-25degC
Ending Time: 23:36	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5575	11		
2	REAGENT BLANK	R325-5675	12		
3	SAMPLE 791-6A	R326-5775	13		
4	SAM DUP 791-6A	R326-5875	14		
5	SPIKE OF SAMPLE 791-6A	R326-5975	15		
6	FINAL LMCS CHECK STD	R331-5575	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A
SPIKE	73C11CO/0.5 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (SULFATE) - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5575	106AW	9-20-91	10:6	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
SO4	LA-533-105	% RECOVERY	WITE2	0

Sample Size: .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R970 DIONEX
STD# 73CUCO RESULT 56544 ppm
STD VAL 610 ppm %REC 92.7%

Analyst-1: [signature] Date: 10-4-91
Analyst-2: [signature]
Analyst-3: [signature]
Analyst-4: [signature]
Analyst-5: [signature]
Date: 10-4-91
Time Completed:
Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5675	106AW	9-20-91	10:8	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
SO4	LA-533-105	PPM	WITE2	0

Sample Size: DIRECT
Customer ID: REG 14

Remarks, Calculations, Results:
GRADETH BLANK

<1.00 ppm

Analyst-1: [signature] Date: 10-4-91
Analyst-2: [signature]
Analyst-3: [signature]
Analyst-4: [signature]
Analyst-5: [signature]
Date: 10-4-91
Time Completed:
Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 326.-5775	106AW	9-20-91	10:10	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
SO4	LA-533-105	PPM	WITE2	0

Sample Size: .050ml - 10ml
Customer ID: 791-6A

Remarks, Calculations, Results:

2.35 E^3 ppm

Analyst-1: [signature] Date: 10-4-91
Analyst-2: [signature]
Analyst-3: [signature]
Analyst-4: [signature]
Analyst-5: [signature]
Date: 10-4-91
Time Completed:
Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 326.-5875	106AW	9-20-91	10:12	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
SO4	LA-533-105	PPM	WITE2	0

Sample Size: .050ml - 10ml
Customer ID: 791-6A

Remarks, Calculations, Results:
DUPLICATE SAMPLE

2.32E^3 ppm

Analyst-1: [signature] Date: 10-4-91
Analyst-2: [signature]
Analyst-3: [signature]
Analyst-4: [signature]
Analyst-5: [signature]
Date: 10-4-91
Time Completed:
Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 326.-5975	106AW	9-20-91	10:13	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
SO4	LA-533-105	% RECOVERY	WITE2	0

Sample Size: .050ml - 10ml
Customer ID: 791-6A

Remarks, Calculations, Results:
SAMPLE SPIKED TO
SPIKE TO 73CUCO
SPIKE VOLUME .050ml

$$\frac{3.084E^3 - 2.35E^3}{(.05)(610)(201)/10.1} \times 100 = 120.9\%$$

Analyst-1: [signature] Date: 10-4-91
Analyst-2: [signature]
Analyst-3: [signature]
Analyst-4: [signature]
Analyst-5: [signature]
Date: 10-4-91
Time Completed:
Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 331.-5575	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
SO4	LA-533-105	% RECOVERY	WITE2	0

Sample Size: .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R970 DIONEX
STD# 73CUCO RESULT 61569.9
STD VAL 610 ppm %REC 93.4%

Analyst-1: [signature] Date: 10-4-91
Analyst-2: [signature]
Analyst-3: [signature]
Analyst-4: [signature]
Analyst-5: [signature]
Date: 10-4-91
Time Completed:
Lab Unit Mgr: [signature]

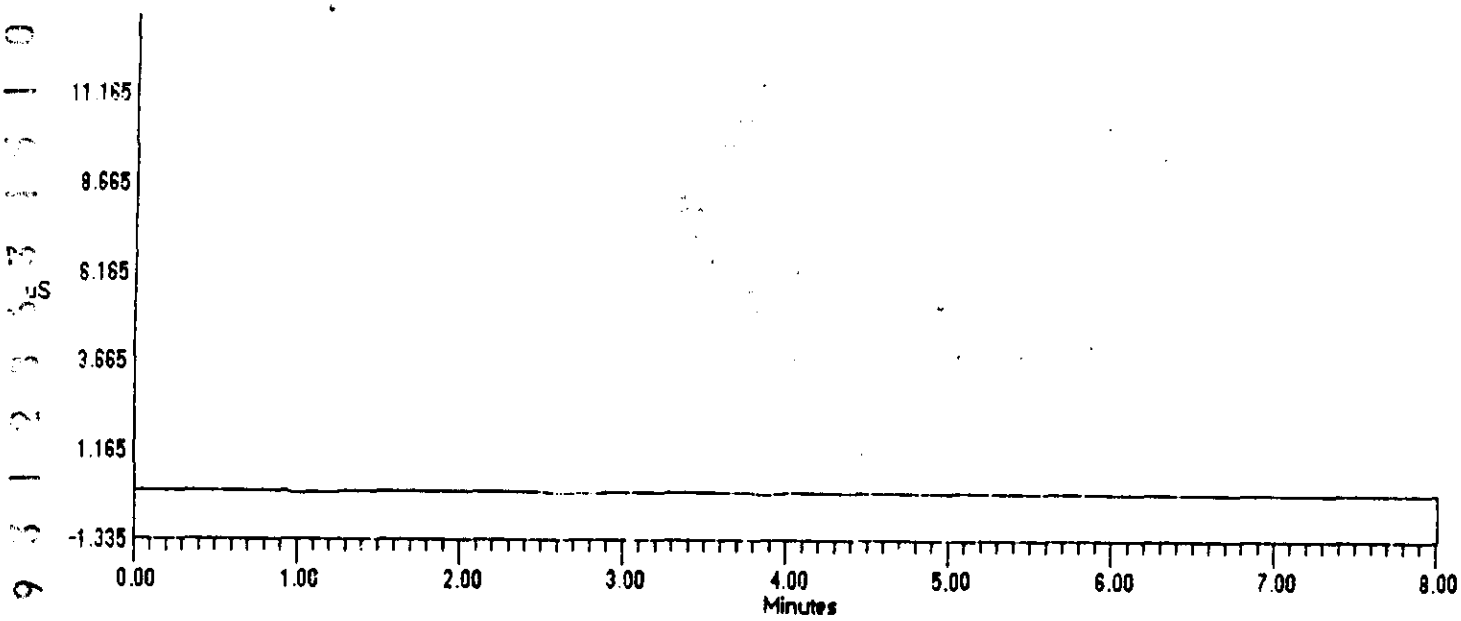
9 3 1 2 3 7 1 0 0 9

```
: Sample Name: BLANK                                  Date: Fri Oct 04 20:37:01 1991:
: Data File  : c:\dx\data\91100431.D02                                              :
: Method     : c:\dx\method\SYSTEM1.met                                             :
  AXI Address: 1        System : 1        Inject#:   2  Detector: CDM-1            :
```

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	1	2405	5Hz	0.00	8.02	1000	

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta

File: c:\dx\data\91100431.D02 Sample: BLANK



R323 → BATCH LMCS
R324 7-14-92

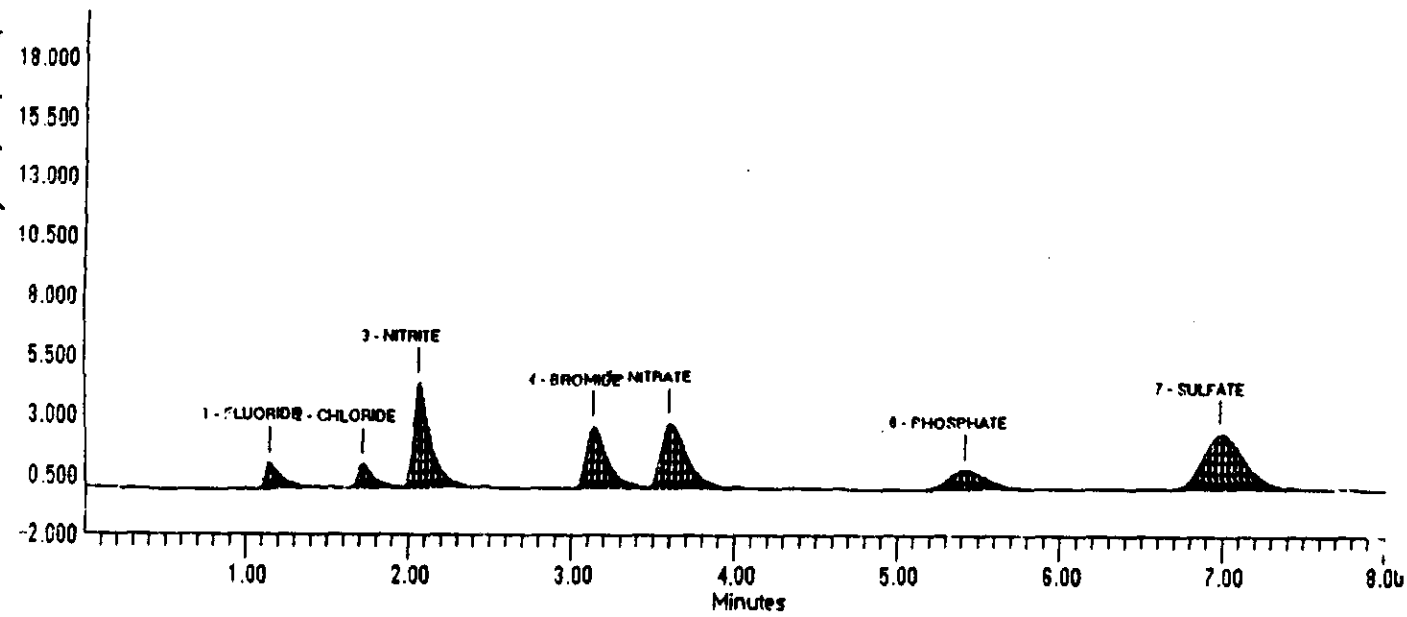
DATA REPROCESSED ON Fri Oct 04 22:43:26 1991

Sample Name: LMCS/73C1100 R324 7-14-92 Date: Fri Oct 04 22:10:28 1991
Data File : C:\DX\DATA\P110411.D10
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 12 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.15	FLUORIDE	52.107	1076	7152	1	0.00
2	1.72	CHLORIDE	71.127	997	6636	2	-0.42
3	2.07	NITRITE	487.247	4367	32321	2	0.33
4	3.13	BROMIDE	475.164	2554	23546	2	1.24
5	3.60	NITRATE	524.183	2723	30545	2	7.51
6	5.42	PHOSPHATE	510.540	824	12909	1	0.40
7	6.98	SULFATE	565.442	2341	41638	1	0.47

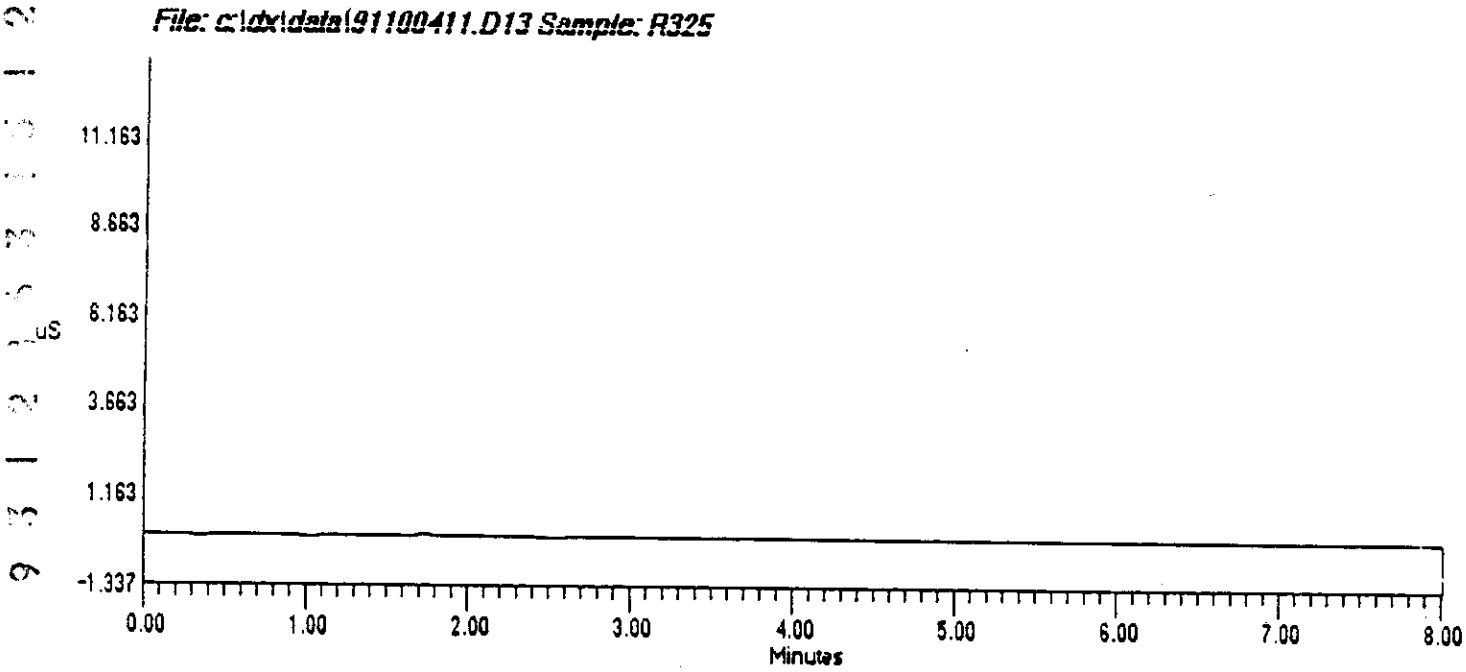
File: C:\DX\DATA\P110411.D10 Sample: LMCS/73C1100



Sample Name: R325 Date: Fri Oct 04 22:17:51 1991
Data File : c:\dx\data\91100411.D13
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 13 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	1	2405	5Hz	0.00	8.00	1000

Pk Num	Ret Time	Component Name	Concentration	Height	Area	Int. Code	%Delta

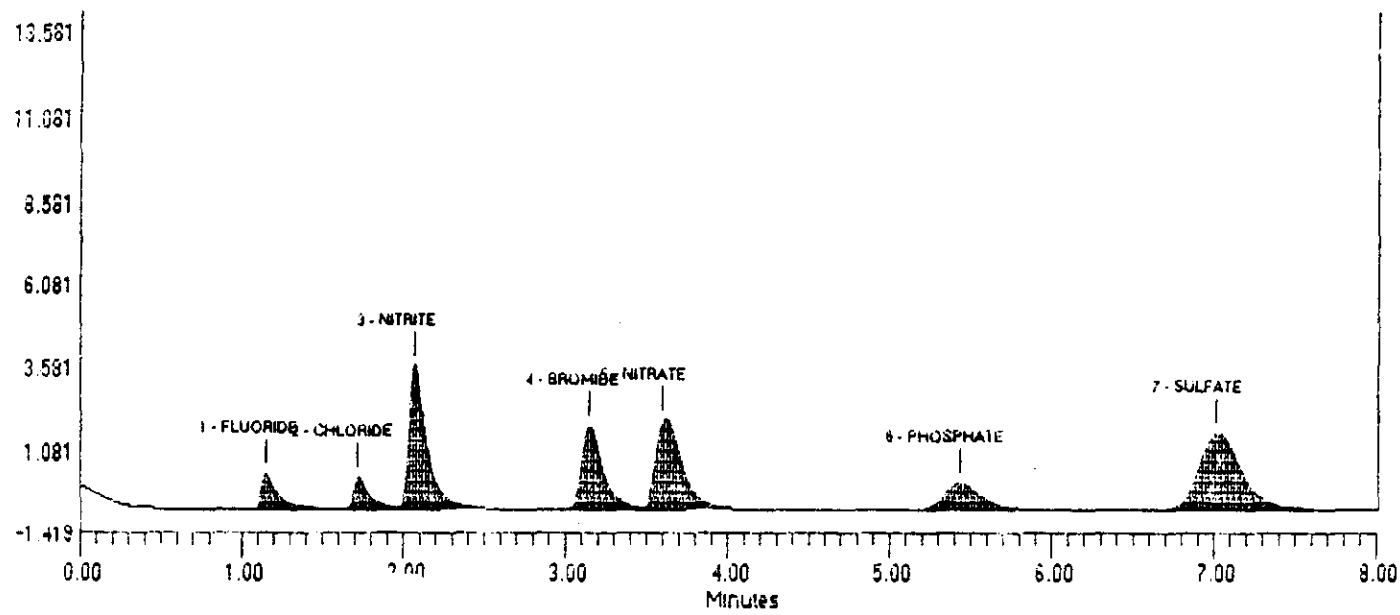


Sample Name: LMCS/73C11C0 R331 Date: Fri Oct 04 23:36:01 1991
Data File : c:\dx\data\91100401.D21
Method : c:\dx\method\SYSTEM1.mot
ACI Address: 1 System : 1 Inject#. 21 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
Channel	1	101	2405	5Hz	0.00	3.02	1000

Pk Num	Rt Time	Component Name	Concentration	Height	Area	El. Code	%Delta
1	1.15	FLUORIDE	54.712	1095	7585	1	0.00
2	1.72	CHLORIDE	70.914	966	6585	2	-0.48
3	2.07	NITRITE	498.014	4275	33115	2	0.33
4	3.15	BROMIDE	463.842	2526	22777	1	1.78
5	3.60	NITRATE	521.687	3675	30387	2	7.51
6	5.43	PHOSPHATE	511.124	814	12926	1	0.71
7	7.02	SULFATE	569.918	2321	41994	1	0.95

File: c:\dx\data\91100401.D21 Sample: LMCS/73C11C0

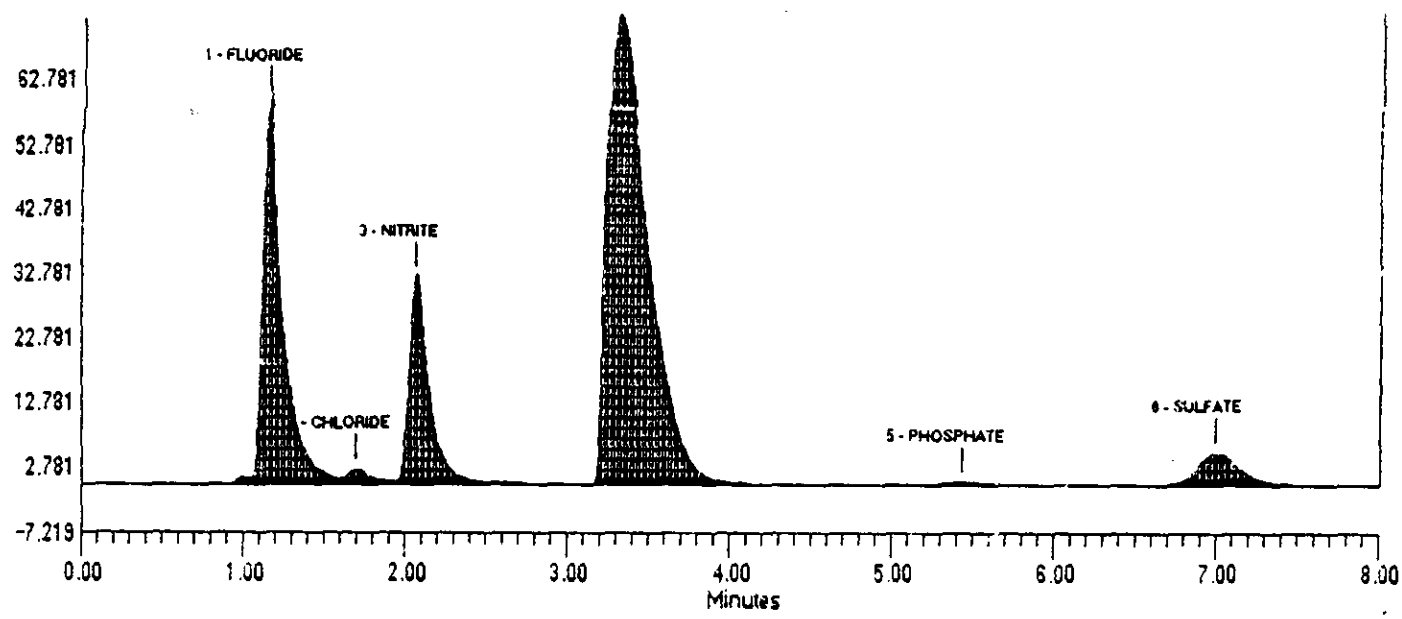


Sample Name: R326 Date: Fri Oct 04 22:28:57 1991
Data File : c:\dx\data\91100411.D14
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 14 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	201	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.15	FLUORIDE	3003.384	58990	516840	3	0.00
2	1.70	CHLORIDE	435.025	2161	21406	4	-1.45
3	2.07	NITRITE	7614.165	32127	275991	2	0.33
4	3.30	BROMIDE	18698.921	71313	1275230	1	6.63
5	5.43	PHOSPHATE	563.151	435	6671	1	0.71
6	7.00	SULFATE	2349.686	4978	91337	1	0.71

File: c:\dx\data\91100411.D14 Sample: R326

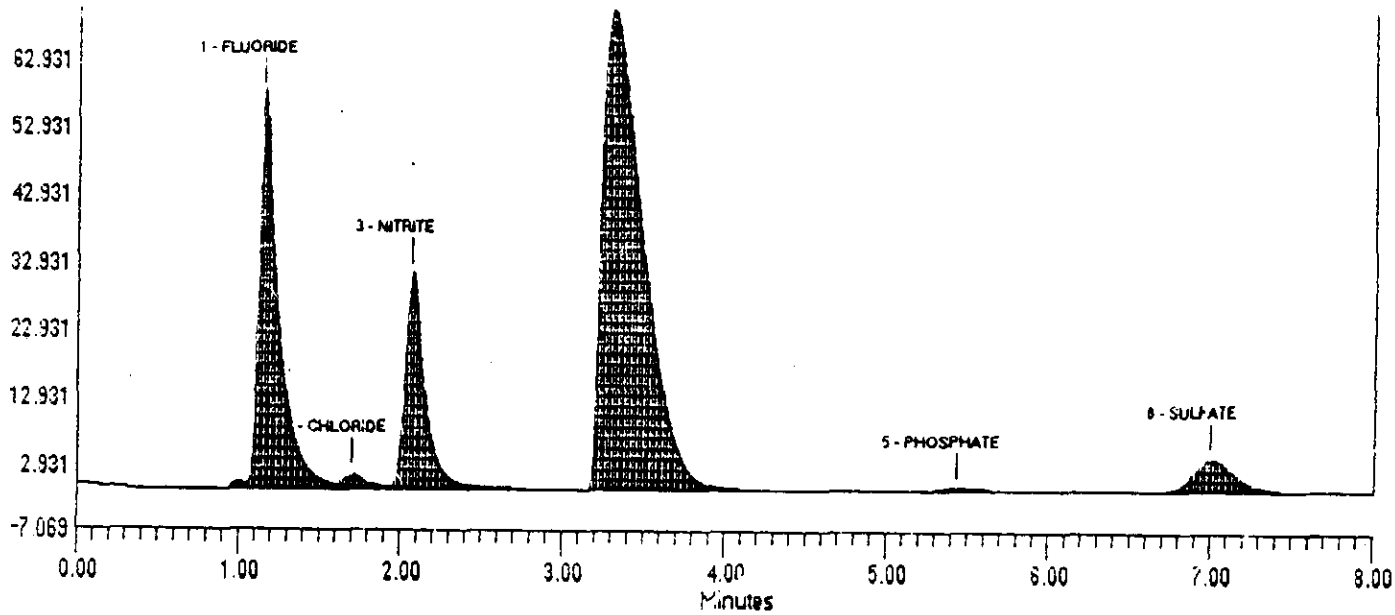


Sample Name: R326DUP Date: Fri Oct 04 22:38:20 1991
Data File : c:\dx\data\91100411.D15
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 15 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	201	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.15	FLUORIDE	3006.932	58674	510437	3	0.00
2	1.70	CHLORIDE	429.961	2123	21147	4	-1.45
3	2.07	NITRITE	7619.139	31876	276172	2	0.33
4	3.30	BROMIDE	18886.714	71165	1257501	1	5.63
5	5.47	PHOSPHATE	593.574	475	6840	1	0.71
6	7.00	SULFATE	2325.122	4921	90374	1	0.71

File: c:\dx\data\91100411.D15 Sample: R326DUP



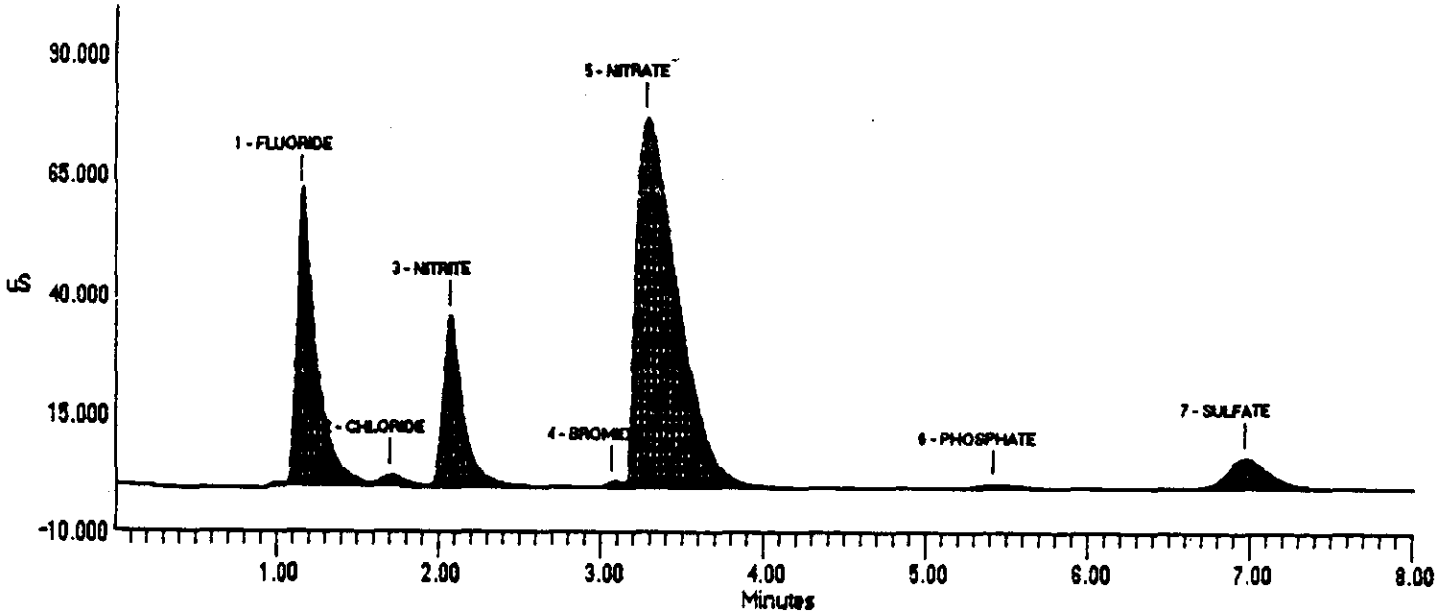
DATA REPROCESSED ON Tue Oct 08 15:15:33 1991
WHC-SD-WM-DP-025
Addendum 16 Rev 0

Sample Name: R326SP Date: Fri Oct 04 22:47:42 1991
Data File : C:\DX\DATA\91100411.D16
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 16 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	201	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.15	FLUORIDE	2988.250	61673	534569	2	0.00
2	1.70	CHLORIDE	512.186	2624	25368	2	-1.45
3	2.07	NITRITE	8553.045	36016	310037	2	0.33
4	3.07	BROMIDE	345.883	1451	8419	2	-0.91
5	3.28	NITRATE	22602.125	77644	1386064	2	-1.95
6	5.42	PHOSPHATE	1121.767	905	14440	1	0.40
7	6.97	SULFATE	3083.951	6663	121983	1	0.23

File: C:\DX\DATA\91100411.D16 Sample: R326SP



WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R326	Customer ID: 791-6A
Analysis: ION CHROMATOGRAPHIC - NITRATE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428, AL10657, WB98659, WB97286, WB24740	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-08-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5573	11		
2	REAGENT BLANK	R325-5673	12		
3	SAMPLE 791-6A	R326-5773	13		
4	SAM DUP OF 791-6A	R326-5873	14		
5	SPIKE OF 791-6A	R326-5973	15		
6	FINAL LMCS CHECK STD	R331-5573	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			NA
SPIKE	73C11CO/.050 mL			NA

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (NITRATE) - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.-5573	106AW	9-20-91	10: 6	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO3	LA-533-105	% RECOVERY	W1TE2	0

Sample Size: ? .100ml - 10ml — Customer ID: STD

Remarks, Calculations, Results:
EDP R978 DIONEX
STD #73C11CO RESULT 558.697 ppm
STD VAL 564 ppm %REC 99.1%

Analyst-1: [signature] Analyst-2: Analyst-3: Analyst-4: Analyst-5: [signature]
Hrs: 6C823
Date: 10-8-91 Time Completed: Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.-5673	106AW	9-20-91	10: 8	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO3	LA-533-105	PPM	W1TE2	0

Sample Size: ? DIRECT — Customer ID: REG IN.

Remarks, Calculations, Results:
REAGENT BLANK

<1.00ppm

Analyst-1: [signature] Analyst-2: Analyst-3: Analyst-4: Analyst-5: [signature]
Hrs: 6C823
Date: 10-8-91 Time Completed: Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5773	106AW	9-20-91	10:10	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO3	LA-533-105	PPM	W1TE2	0

Sample Size: ? .050ml - 10ml - .250ml - 10ml — Customer ID: 791-6A

Remarks, Calculations, Results:

$3.14E^4$ ppm

Analyst-1: [signature] Analyst-2: Analyst-3: Analyst-4: Analyst-5: [signature]
Hrs: 6C823
Date: 10-8-91 Time Completed: Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5873	106AW	9-20-91	10:12	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO3	LA-533-105	PPM	W1TE2	0

Sample Size: ? .050ml - 10ml - .250ml - 10ml — Customer ID: 791-6A

Remarks, Calculations, Results:
DUPLICATE SAMPLE

$3.08E^4$ ppm

Analyst-1: [signature] Analyst-2: Analyst-3: Analyst-4: Analyst-5: [signature]
Hrs: 6C823
Date: 10-8-91 Time Completed: Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5973	106AW	9-20-91	10:13	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO3	LA-533-105	% RECOVERY	W1TE2	0

Sample Size: ? .050ml - 10ml - .250ml - 10ml — Customer ID: 791-6A

Remarks, Calculations, Results:
SAMPLE SPIKED ID: [illegible]
SPIKE ID ~~73C11CO~~ 73C11CO
SPIKE VOLUME .050ml

$$\frac{5.16E^4 - 3.14E^4}{(.05)(564)(8241)/10.3} \times 100 = 89.5\%$$

Analyst-1: [signature] Analyst-2: Analyst-3: Analyst-4: Analyst-5: [signature]
Hrs: 6C823
Date: 10-8-91 Time Completed: Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.-5573	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO3	LA-533-105	% RECOVERY	W1TE2	0

Sample Size: ? .100ml - 10ml — Customer ID: STD

Remarks, Calculations, Results:
EDP R978 DIONEX
STD #73C11CO RESULT 5.4913
STD VAL 564 %REC 97.2%

Analyst-1: [signature] Analyst-2: Analyst-3: Analyst-4: Analyst-5: [signature]
Hrs: 6C823
Date: 10-8-91 Time Completed: Lab Unit Mgr: [signature]

DIONEX METHOD PARAMETERS - SYSTEM1.MET

System Parameters

System Name : system1/qpm

Number of Detectors	1
Detector 1 Type	CDM-1
Detector 1 real time plot scale (uS)	20.00
Run Time (minutes)	8.00
Sampling Rate (seconds)	0.20

-- DETECTOR 1 PARAMETERS --

Report Options

Save Data File	Yes
Data File Name: C:\DX\DATA\91101401.D07	
Create ASCII Report File	No
Print Report	Yes
List Peaks Not Found in this run	No
Report Unknowns Found in this run	Yes
Print Chromatogram	Yes
AutoScale Chromatogram to Highest Peak	Yes
Fill Peaks with Color	Yes
Draw Grid Lines on Chromatogram	No
Label with Peak Number	Yes
Label with Retention Times on Chromatogram	No
Label with Component Name	Yes
Format File Name: c:\dx\method\default.prf	

Integration Parameters

Starting Peak Width (seconds)	10.0
Peak Threshold (mV or uS/data pt interval)	0.500
Peak Area Reject	1000
Area Reject for Reference Peaks	1000
Percent Retention Time Window for Reference Peaks	5.0

Integration Timed Events

Time	Description

Calibration Parameters

Number Of Levels for Calibration	6
Calibration Fit Type	Quadratic
Replace Or Average Calibrations	Replace
External or Internal Calibration	External
Calibrate by Area or Height	Area
Default Injection Volume	1.0
Default Dilution Factor	101.0
Response Factor for Unknown Peaks	1.0
Calibration Standard Volume	1.0
Internal Standard Volume	1.0
Sample Unit	PPM

Component # 1 FLUORIDE Retention Time 1.15
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 1.33141E-002
K1 = 7.35652E-005
K2 = -2.32747E-010

Level	Amount	Area	Height
1	1.10000E-001	1439	225
2	2.80000E-001	3649	553
3	5.60000E-001	7529	1129
4	1.12000E+000	15733	2313
5	2.19000E+000	33154	4704
6	4.22000E+000	74938	9497

Component # 2 CHLORIDE Retention Time 1.72
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 8.88526E-003
K1 = 1.08463E-004
K2 = -3.16779E-010

Level	Amount	Area	Height
1	1.30000E-001	1319	217
2	3.30000E-001	2868	459
3	6.60000E-001	6001	936
4	1.31000E+000	12417	1921
5	2.58000E+000	25701	3883
6	5.00000E+000	54764	7755

Component # 3 NITRITE Retention Time 2.08
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 6.41195E-001
K1 = 1.25938E-004
K2 = 4.84873E-012

Level	Amount	Area	Height
1	1.25000E+000	6239	874
2	3.10000E+000	19929	2672
3	6.18000E+000	42059	5606
4	1.22300E+001	90590	11584
5	2.40000E+001	185584	23728
6	4.62200E+001	356723	42402

Component # 4 BROMIDE Retention Time 3.05
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.01960E-002
K1 = 2.00453E-004
K2 = -1.00008E-010

Level	Amount	Area	Height
1	1.56000E+000	7660	753
2	3.90000E+000	20706	1880
3	7.80000E+000	38868	3455
4	1.54000E+001	78061	6644
5	3.02000E+001	165133	12632
6	5.81000E+001	350930	24386

Component # 5 NITRATE Retention Time 3.42
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 1.12719E+000
K1 = 1.25048E-004
K2 = 1.59899E-010

Level	Amount	Area	Height
1	1.10000E+000	1477	162
2	2.75000E+000	15087	1425
3	5.47000E+000	31133	2883
4	1.08200E+001	66694	5778
5	2.12300E+001	139804	11210
6	5.08900E+001	289865	21262

Component # 6 PHOSPHATE Retention Time 5.37
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.70449E-001
K1 = 3.46513E-004
K2 = -3.83601E-010

Level	Amount	Area	Height
1	1.14000E+000	2277	162
2	2.83000E+000	7242	453
3	5.63000E+000	14732	918
4	1.13600E+001	32263	1962
5	2.18800E+001	67512	4036
6	4.21500E+001	142733	8289

Component # 7 SULFATE Retention Time 7.03
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 1.93428E-001
K1 = 1.28116E-004
K2 = -4.37267E-011

Level	Amount	Area	Height
1	1.26000E+000	9418	543
2	3.14000E+000	24499	1382
3	6.26000E+000	45736	2477
4	1.23900E+001	97310	5267
5	2.43100E+001	203719	10947
6	4.68100E+001	425407	21849

IC Control File: C:\DX\METHOD\SYSTEM1.TE

Step	Time	Description
Init		CDM-1 AutoOffset Off
Init		CDM-1 Recorder Mark OFF
Init		CDM-1 Temp. Comp. = 1.7 / Deg C
Init		CDM-1 Recorder Range = 0.1 uS
Init		CDM-1 Cell ON
Init		CHA Heater = 25 Deg. C
Init		Valve A ON
Init		Valve B ON
Init		Inject Valve OFF
Init		ACI Autosmp OFF
Init		ACI RLY 2 OFF
Init		ACI TTL 1 OFF
Init		ACI TTL 2 OFF
Init		ACI AC 1 ON
Init		GPM Start
Init		GPM Hold Gradient Clock
Init		GPM Reset ON
1	0.0	CDM-1 AutoOffset ON
1	0.0	Start Sampling
1	0.0	GPM Reset OFF
2	0.1	CDM-1 Recorder Range = 10.0 uS
2	0.1	Inject Valve ON
2	0.1	GPM Run Gradient Clock
3	3.0	Inject Valve OFF
4	3.5	ACI Autosmp ON
5	8.0	ACI Autosmp OFF

GpmFile: C:\DX\METHOD\SYSTEM1.GPM
Lo Pressure Limit = 200
Hi Pressure Limit = 2000
Eluant 1 - DI WATER
Eluant 2 - SODIUM CARBONATE
Eluant 3 - SODIUM BICARBONATE
Eluant 4 - Eluant 4

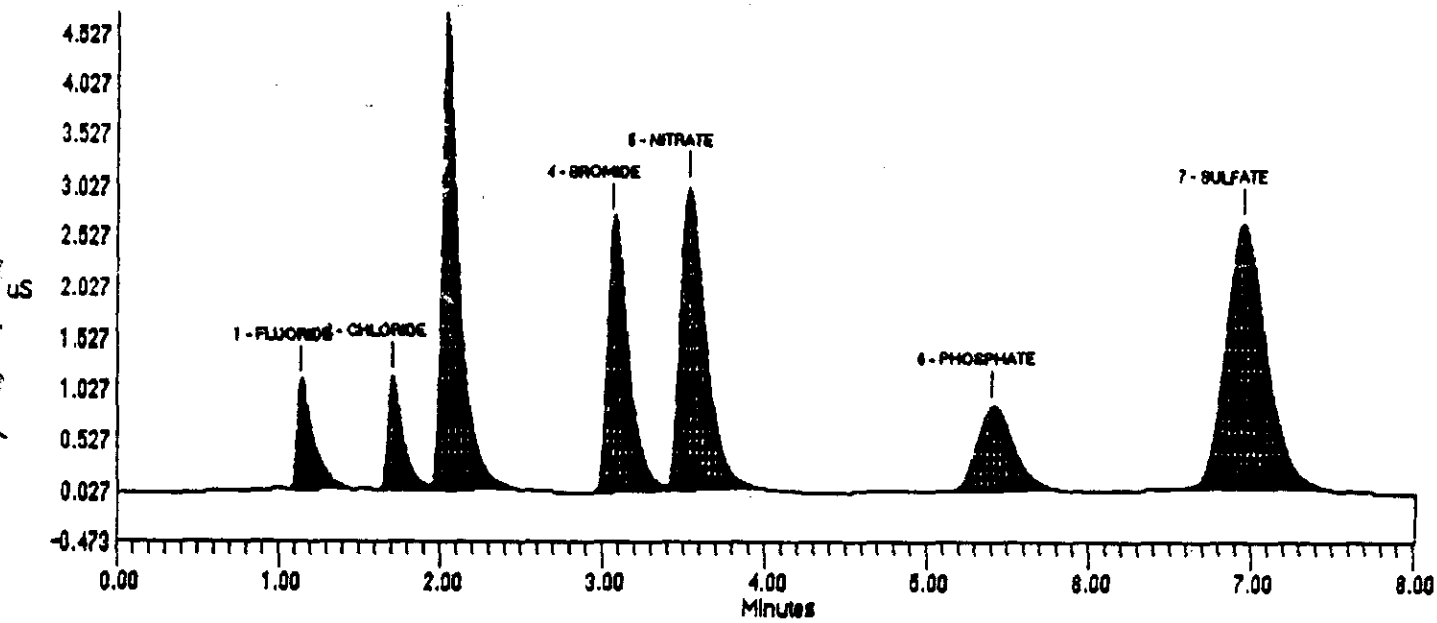
Time	Flow	%1	%2	%3	%4	V5	V6	Comment
0.0	2.0	84	8	8	0	0	0	

Sample Name: LMCS DK 7-14-92		Date: Tue Oct 08 03:34:05 1991
Data File : C:\DX\DATA\91100601.D05		
Method : C:\DX\METHOD\SYSTEM1.MET		
ACI Address: 1	System : 1	Inject#: 5 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	55.187	1060	7664	1	0.00
2	1.70	CHLORIDE	77.560	1095	7243	2	0.00
3	2.03	NITRITE	521.679	4532	34859	2	0.16
4	3.07	BROMIDE	498.532	2688	24729	2	0.55
5	3.53	NITRATE	558.697	2971	32706	2	-3.99
6	5.40	PHOSPHATE	520.892	834	13207	1	1.57
7	6.95	SULFATE	615.216	2602	45606	1	1.46

File: C:\DX\DATA\91100601.D05 Sample:

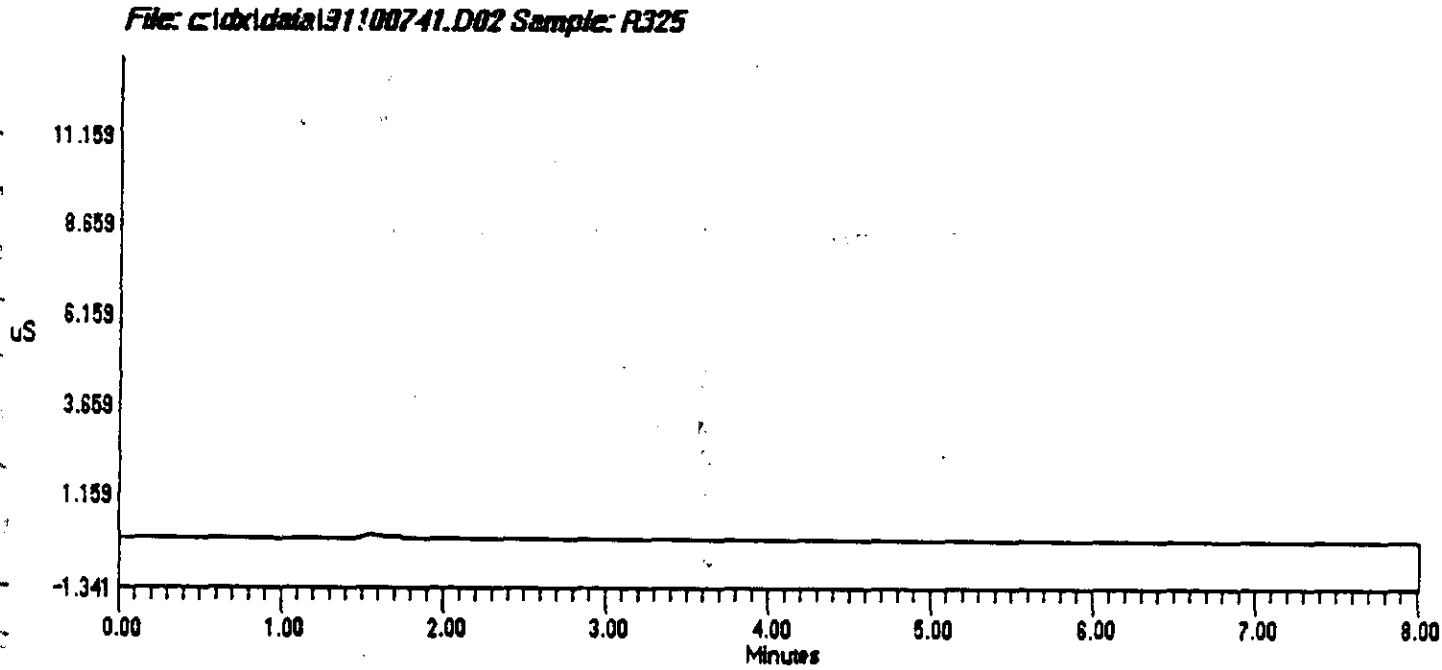


```
Samole Name: R325                                  Date: Tue Oct 08 04:17:54 199
Data File   : c:\dx\data\91100741.D02
Method      : c:\dx\method\SYSTEM1.met
ACI Address: 1        System : 1        Inject#:   2  Detector: CDM-1
```

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	1	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta

File: c:\dx\data\91100741.D02 Sample: R325

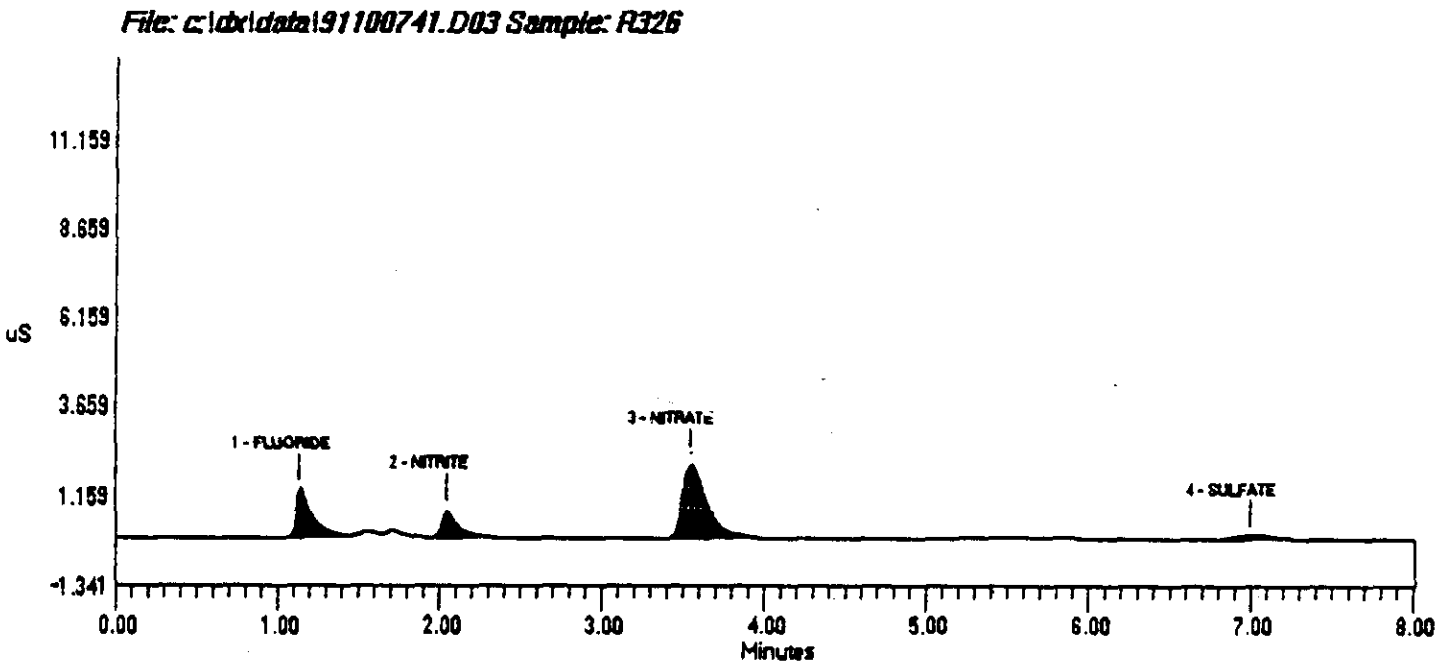


Sample Name: R326	Date: Tue Oct 08 04:27:03 1991
Data File : c:\dx\data\91100741.D03	
Method : c:\dx\method\SYSTEM1.met	
ACI Address: 1 System : 1 Inject#: 3 Detector: CDM-1	

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	8241	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	5427.122	1272	9546	1	0.00
2	2.05	NITRITE	9872.741	757	5294	1	0.99
3	3.55	NITRATE	31418.261	2037	21867	1	-3.53
4	7.00	SULFATE	4446.842	100	1443	1	2.19

File: c:\dx\data\91100741.D03 Sample: R326

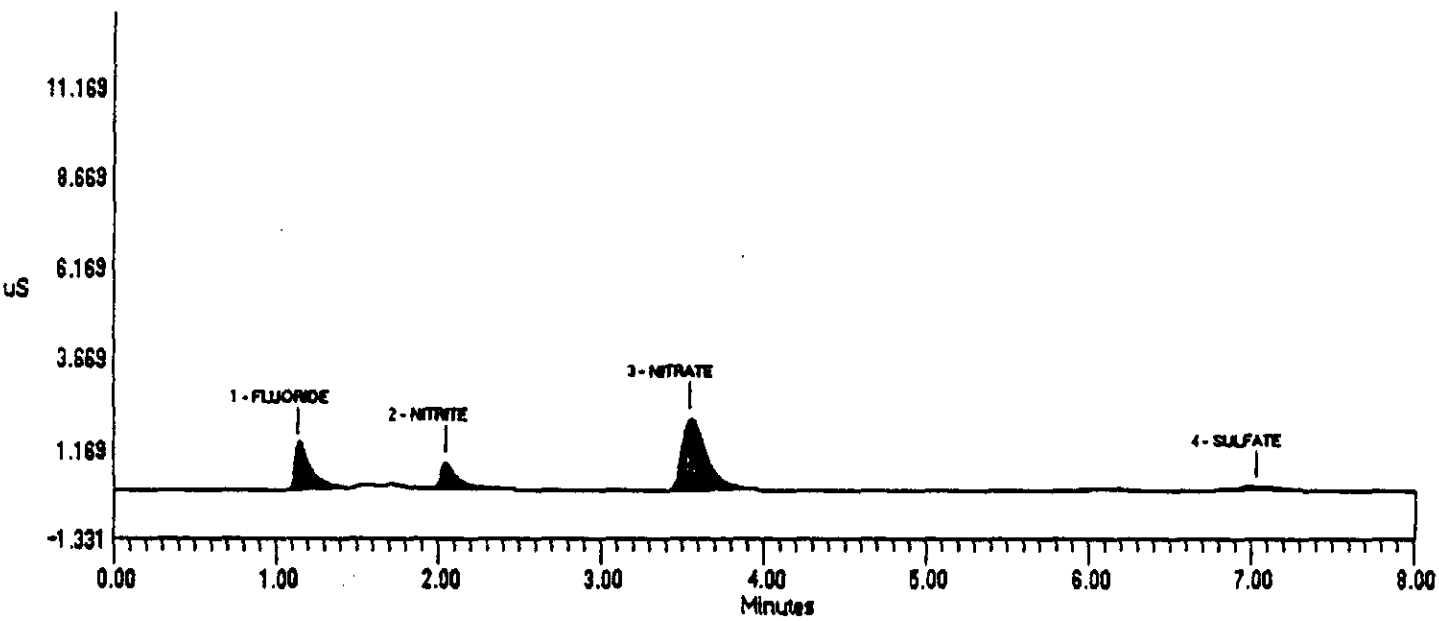


Sample Name: R326DUP Date: Tue Oct 08 04:36:19 1991
Data File : c:\dx\data\91100731.D04
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 4 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	8241	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	5360.563	1281	9410	1	0.00
2	2.05	NITRITE	9777.539	751	5208	1	0.99
3	3.55	NITRATE	30838.807	2010	21425	1	-3.53
4	7.03	SULFATE	4506.257	103	1499	1	2.68

File: c:\dx\data\91100731.D04 Sample: R326DUP

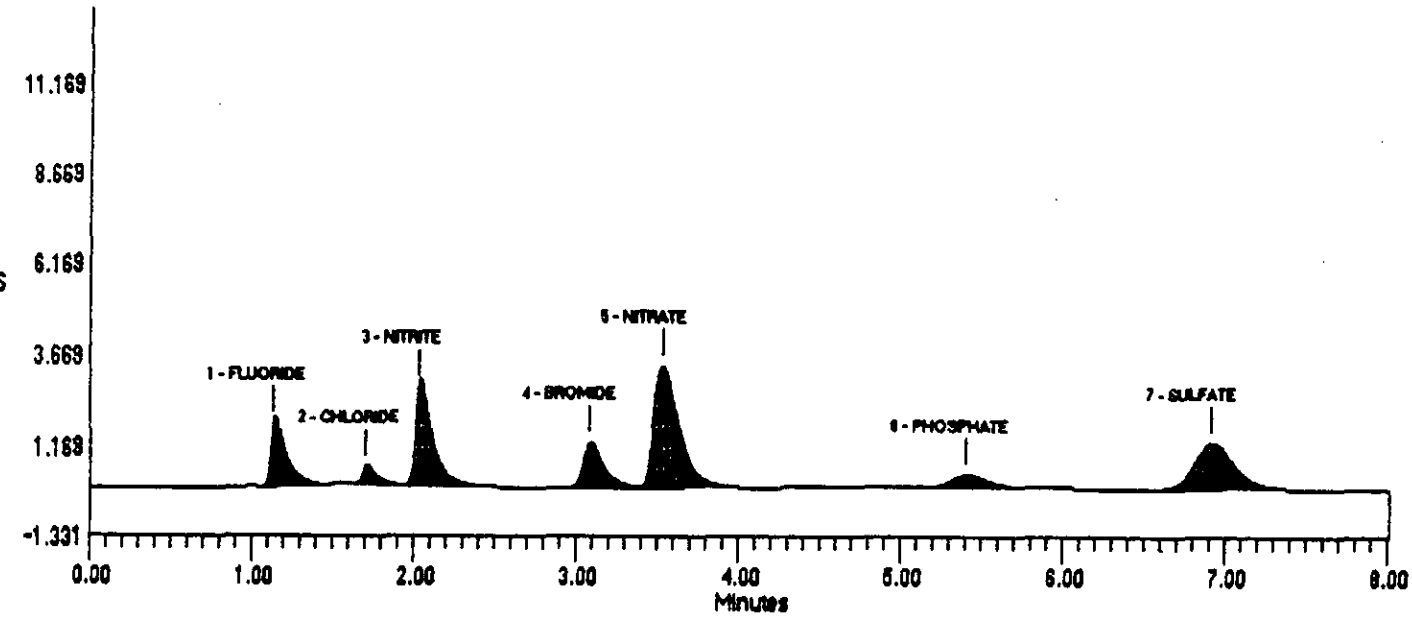


Sample Name: R326SP Date: Tue Oct 08 04:45:35 1991
Data File : c:\dx\data\91100731.D05
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 5 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	8241	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	7039.160	1771	12847	1	0.00
2	1.70	CHLORIDE	3117.688	520	3358	1	0.00
3	2.03	NITRITE	27865.298	2762	21574	1	0.16
4	3.08	BROMIDE	19164.822	1282	11467	2	1.09
5	3.53	NITRATE	51590.400	3397	37326	2	-3.99
6	5.40	PHOSPHATE	20934.634	384	5656	1	1.57
7	6.92	SULFATE	26570.648	1307	22652	1	0.97

File: c:\dx\data\91100731.D05 Sample: R326SP

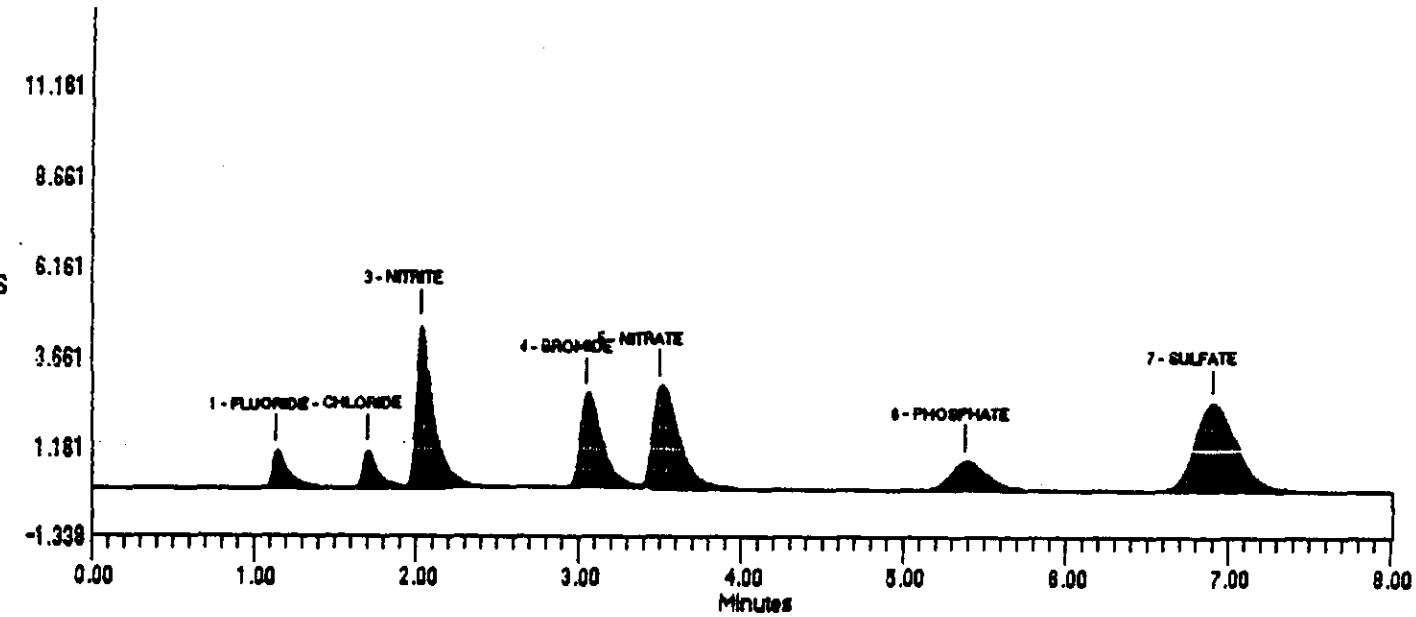


Sample Name: LMCS/73C11C0 Date: Tue Oct 08 06:26:11 199.
Data File : C:\DX\DATA\91100631.D01
Method : C:\DX\METHOD\SYSTEM1.MET
ACI Address: 1 System : 1 Inject#: 1 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	53.303	1037	7351	1	0.00
2	1.70	CHLORIDE	74.524	1067	6942	2	0.00
3	2.03	NITRITE	500.692	4527	33312	2	0.16
4	3.05	BROMIDE	497.450	2633	24674	2	0.00
5	3.50	NITRATE	548.126	2877	32044	2	-4.89
6	5.38	PHOSPHATE	510.599	821	12910	1	1.25
7	6.90	SULFATE	592.399	2453	43786	1	0.73

File: C:\DX\DATA\91100631.D01 Sample: LMCS/73C11C0



WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R326	Customer ID: 791-6A
Analysis: ION CHROMATOGRAPHIC - FLUORIDE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428, AL10657, WB98659, WB97286, WB24740	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-07-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5571	11		
2	REAGENT BLANK	R325-5671	12		
3	SAMPLE 791-6A	R326-5771	13		
4	SAM DUP OF 791-6A	R326-5871	14		
5	SPIKE OF 791-6A	R326-5971	15		
6	FINAL LMCS CHECK STD	R331-5571	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			NA
SPIKE	73C11CO/.050 mL			NA

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (FLUORIDE) - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.-5571	106AW	9-20-91	10: 3	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
F	LA-533-105	% RECOVERY	WITE2	0

Sample Size: ? .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R974 DIONEX
STD# 73CUCO RESULT 56.764
STD VAL 56 %REC 101.49%

Analyst-1: 10-7-91
Date: 10-7-91

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.-5671	106AW	9-20-91	10: 8	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
F	LA-533-105	PPM	WITE2	0

Sample Size: ? DIRECT
Customer ID: REG DL

Remarks, Calculations, Results:
REAGENT BLANK

<1.00E-1 ppm

Analyst-1: 10-7-91
Date: 10-7-91

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5771	106AW	9-20-91	10:10	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
F	LA-533-105	G/G	WITE2	0

Sample Size: ? .050ml - 10ml - .500ml - 10ml
Customer ID: 791-6A

Remarks, Calculations, Results:
ORGANIC INTERFERENCE
Flag - Fluoride peak due to organics - not F⁰

Analyst-1: 10-7-91
Date: 10-7-91

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5871	106AW	9-20-91	10:12	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
F	LA-533-105	PPM	WITE2	0

Sample Size: ? .050ml - 10ml - .500ml - 10ml
Customer ID: 791-6A

Remarks, Calculations, Results:
DUPLICATE SAMPLE
ORGANIC INTERFERENCE
Flag - Fluoride peak due to organics - not F⁰

Analyst-1: 10-7-91
Date: 10-7-91

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5971	106AW	9-20-91	10:13	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
F	LA-533-105	% RECOVERY	WITE2	0

Sample Size: ? .050ml - 10ml - .500ml - 10ml
Customer ID: 791-6A

Remarks, Calculations, Results:
SAMPLE SPIKED ID
SPIKE ID 73CUCO
SPIKE VOLUME .050ml
Organic Interference Present

$$\frac{6.45e^3 - 5.699e^3}{(.05)(4221)(56)/10.55}$$

Flag - Fluoride peak due to organics - not F⁰

Analyst-1: 10-7-91
Date: 10-7-91

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.-5971	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
F	LA-533-105	% RECOVERY	WITE2	0

Sample Size: ? .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R974 DIONEX
STD# 73CUCO RESULT 54.734
STD VAL 56 ppm %REC 97.79%

Analyst-1: 10-7-91
Date: 10-7-91

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R326	Customer ID: 791-6A
Analysis: ION CHROMATOGRAPHIC - NITRITE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428, AL10657, WB98659, WB97286, WB24740	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-07-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5576	11		
2	REAGENT BLANK	R325-5676	12		
3	SAMPLE 791-6A	R326-5776	13		
4	SAM DUP OF 791-6A	R326-5876	14		
5	SPIKE OF 791-6A	R326-5976	15		
6	FINAL LMCS CHECK STD	R331-5576	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			NA
SPIKE	73C11CO/.050 mL			NA

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (NITRITE) - UNDIGESTED SAMPLE
WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.-5576	106AW	9-20-91	10: 6	25

Determination	Method/Standard	Result Units	Charge Code	Repeats
NO2	LA-533-105	% RECOVERY	W1IE2	0

Sample Size: ? .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R968 DIONEX
STDN T3C11C0 RESULT 521.43
STD VAL 510 %REC 102.2070

Analyst - 1: Lulama Hugo
Date: 10-7-91

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.-5676	106AW	9-20-91	10: 8	25

Determination	Method/Standard	Result Units	Charge Code	Repeats
NO2	LA-533-105	PPM	W1IE2	0

Sample Size: ? DIRECT
Customer ID: RED BL

Remarks, Calculations, Results:
REAGENT BLANK
<1.00 ppm

Analyst - 1: Lulama Hugo
Date: 10-7-91

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5776	106AW	9-20-91	10:10	25

Determination	Method/Standard	Result Units	Charge Code	Repeats
NO2	LA-533-105	PPM	W1IE2	0

Sample Size: .050ml - 10ml - .500ml - 10ml
Customer ID: 791-6A

Remarks, Calculations, Results:
$8.06E^3$ ppm

Analyst - 1: Lulama Hugo
Date: 10-7-91

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5876	106AW	9-20-91	10:12	25

Determination	Method/Standard	Result Units	Charge Code	Repeats
NO2	LA-533-105	PPM	W1IE2	0

Sample Size: ? .050ml - 10ml - .50 ml - 10ml
Customer ID: 791-6A

Remarks, Calculations, Results:
DUPLICATE SAMPLE
$8.06E^3$ ppm

Analyst - 1: Lulama Hugo
Date: 10-7-91

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-5976	106AW	9-20-91	10:13	25

Determination	Method/Standard	Result Units	Charge Code	Repeats
NO2	LA-533-105	% RECOVERY	W1IE2	0

Sample Size: ? .050ml - 10ml - .500ml - 10ml
Customer ID: 791-6A

Remarks, Calculations, Results:
SAMPLE SPIKED ID
SPIKE ID T3C11C0
SPIKE VOLUME .050ml

$$\frac{1.75E^3 - 8.06E^3}{(.05)(510)(4221)/10.55} \times 100 = 92.5\%$$

Analyst - 1: Lulama Hugo
Date: 10-7-91

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.-5576	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Repeats
NO2	LA-533-105	% RECOVERY	W1IE2	0

Sample Size: ? .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R968 DIONEX
STDN T3C11C0 RESULT 520.706 ppm
STD VAL 510 ppm %REC 102.107%
BATCH WITH B343 KRT 10-09-91

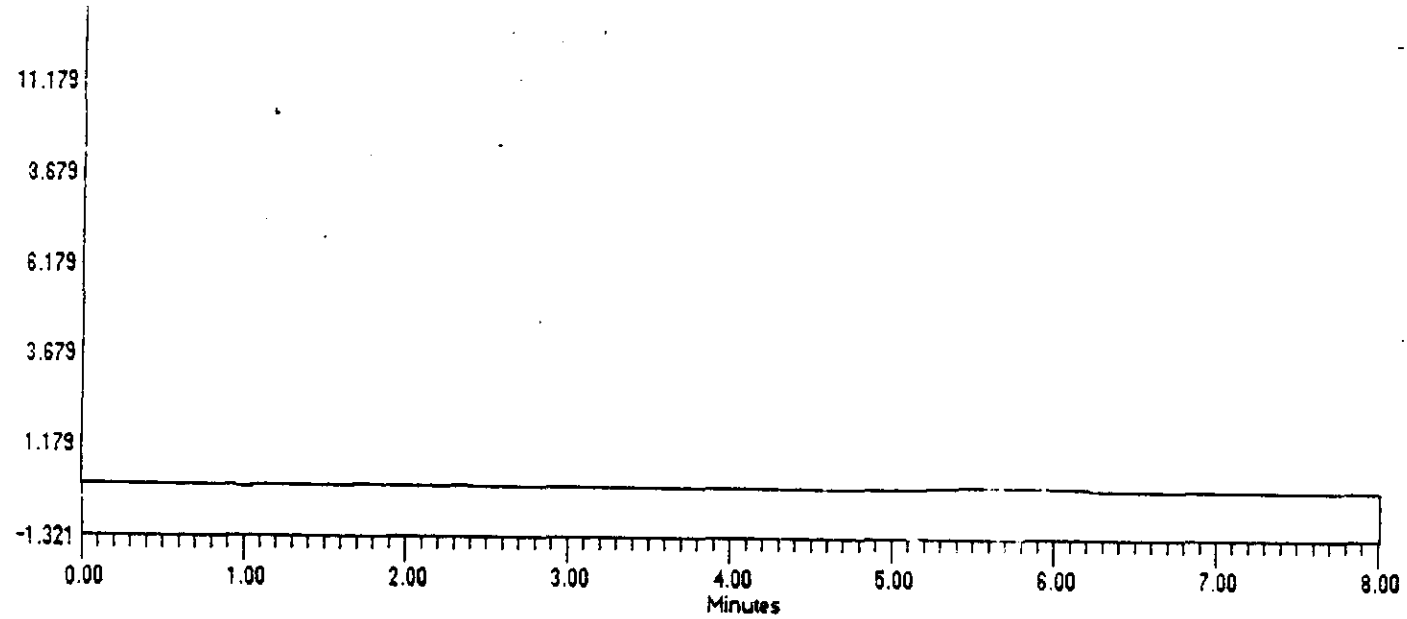
Analyst - 1: Lulama Hugo
Date: 10-7-91

Sample Name: BLANK Date: Sun Oct 06 [illegible]:48 1991
Data File : c:\dx\data\91100521.D02
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 2 Detector: [illegible] 1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REV
External	1	1	2405	5Hz	0.00	8.02	1000	

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta

File: c:\dx\data\91100521.D02 Sample: BLANK



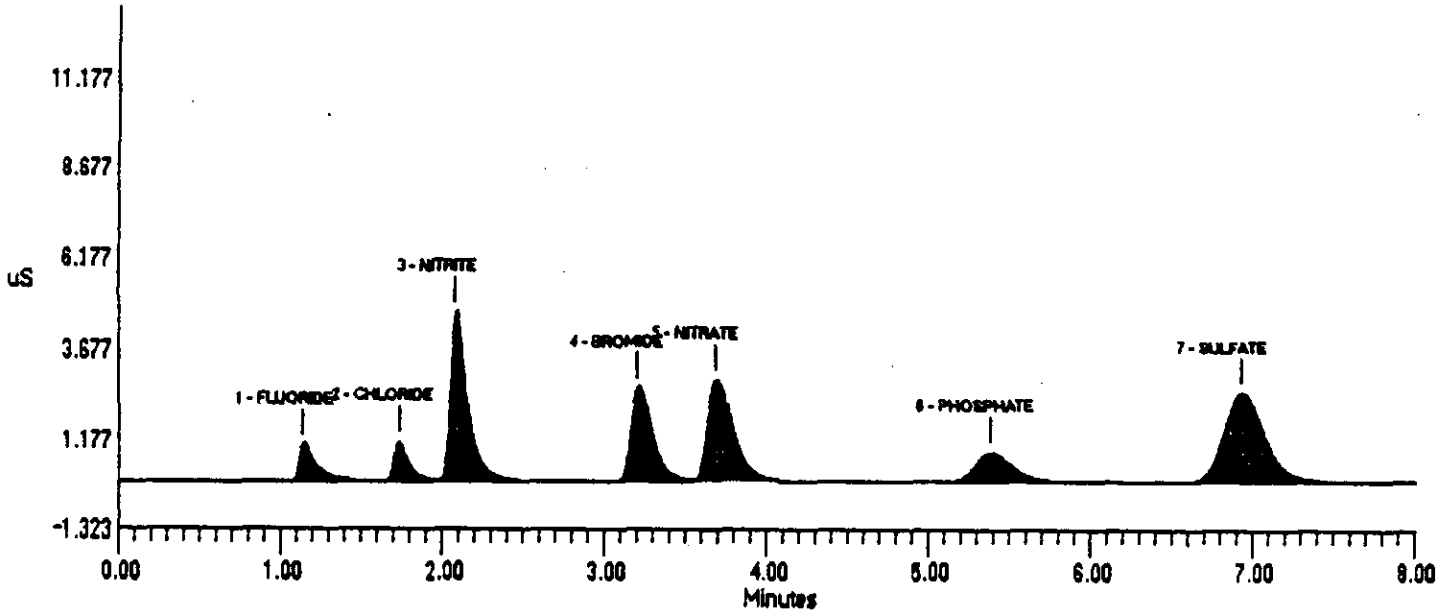
DATA REPROCESSED ON Tue Oct 08 12:07:25 1991
WHC-SD-WM-DP-025
Addendum 16 Rev 0

Sample Name: LMCS/73C11C0	Date: Sun Oct 06 23:57:56 199
Data File : C:\DX\DATA\91100521.D03	
Method : C:\DX\METHOD\SYSTEM1.MET	
ACI Address: 1 System : 1	Inject#: 3 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	56.764	1031	7925	1	0.00
2	1.73	CHLORIDE	78.669	1115	7353	2	1.96
3	2.08	NITRITE	521.434	4668	34841	2	2.63
4	3.20	BROMIDE	496.404	2603	24621	2	4.92
5	3.68	NITRATE	527.942	2829	30780	2	0.09
6	5.38	PHOSPHATE	527.158	846	13387	1	1.25
7	6.93	SULFATE	601.885	2524	44543	1	1.22

File: C:\DX\DATA\91100521.D03 Sample: LMCS/73C11C0

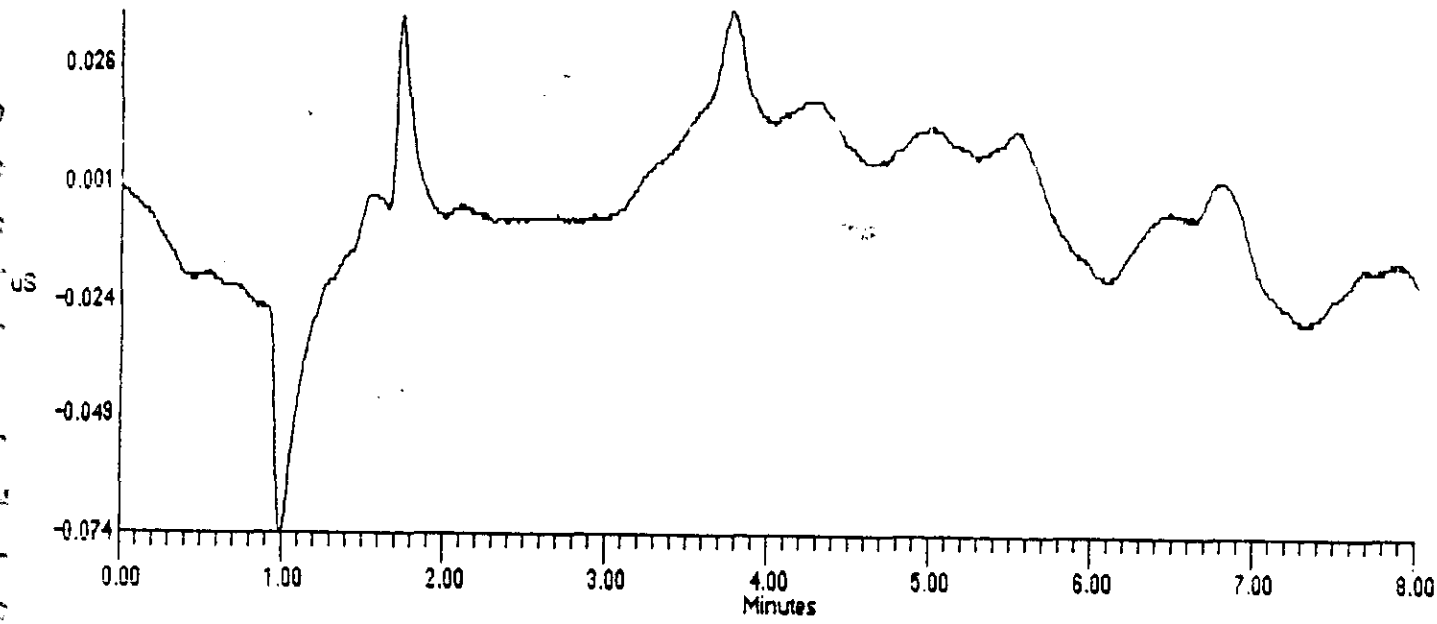


Sample Name: R325 Date: Mon Oct 07 00:07:35 1991
Data File : c:\dx\data\91100521.D04
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 4 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	1	2405	MHz	0.00	8.02	1000	

Pk. Nbr	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta

File: c:\dx\data\91100521.D04 Sample: R325



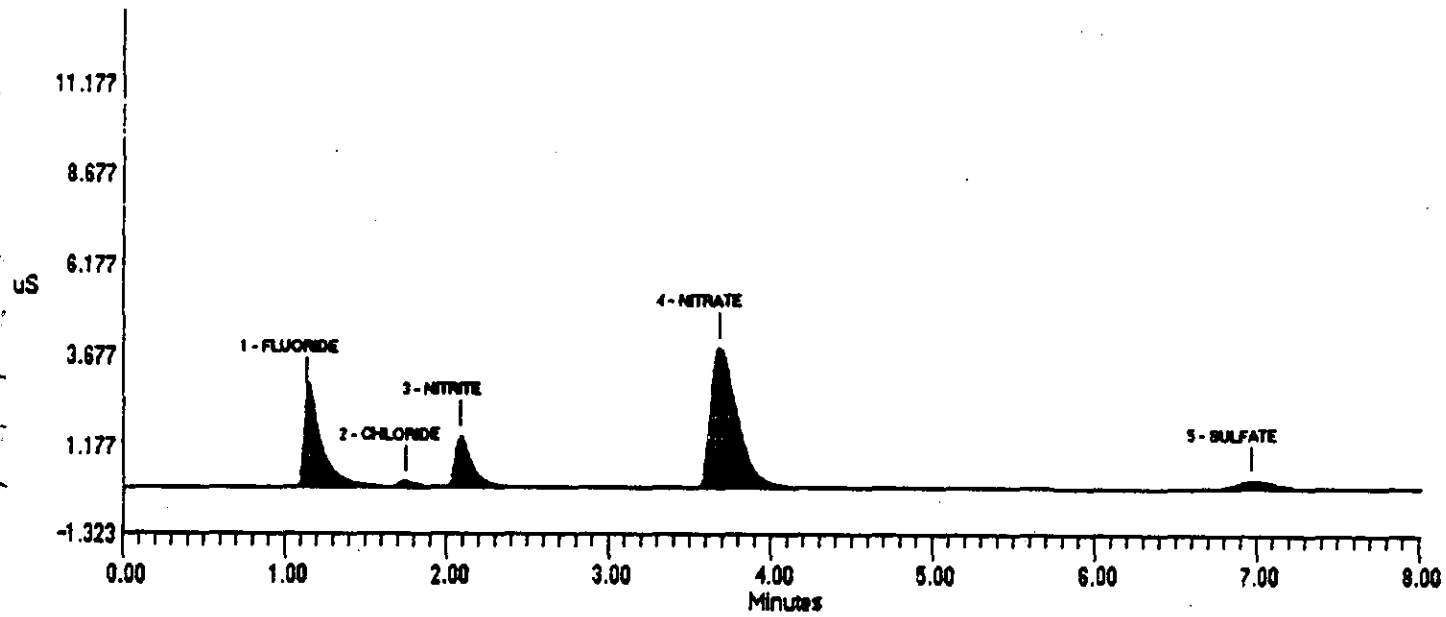
DATA REPROCESSED ON Tue Oct 08 12:08:48 1991

Sample Name: R326 Date: Mon Oct 07 00:16:51 199.
Data File : C:\DX\DATA\91100521.D05
Method : C:\DX\METHOD\SYSTEM1.MET
ACI Address: 1 System : 1 Inject#: 5 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	4221	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	5699.174	2595	21321	2	0.00
2	1.75	CHLORIDE	710.015	185	1274	2	2.94
3	2.08	NITRITE	8057.912	1450	10598	1	2.63
4	3.68	NITRATE	31127.796	3920	44423	1	0.09
5	6.97	SULFATE	3589.722	242	3885	1	1.70

File: C:\DX\DATA\91100521.D05 Sample: R326



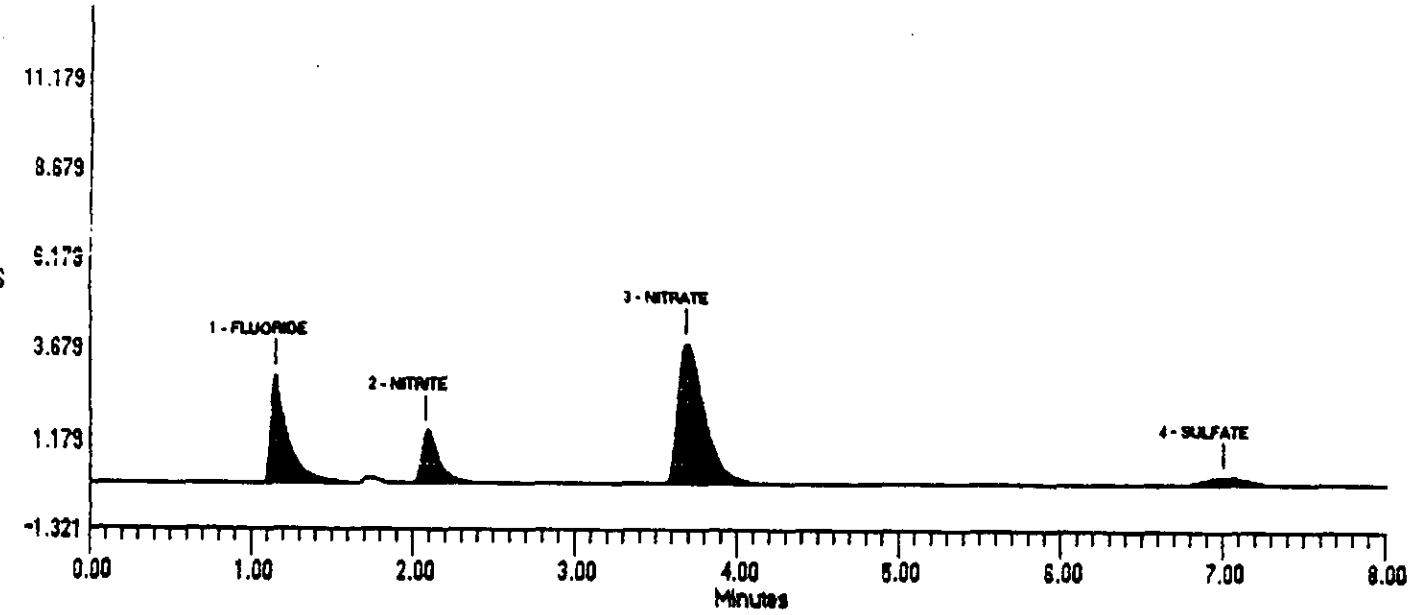
DATA REPROCESSED ON Tue Oct 08 12:41:07 1991
WHC-SD-WM-DP-025
Addendum 16 Rev 0

Sample Name: R326DUP Date: Mon Oct 07 00:26:19 1991
Data File : C:\DX\DATA\91100521.D06
Method : C:\DX\METHOD\SYSTEM1.MET
ACI Address: 1 System : 1 Inject#: 6 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	4221	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.15	FLUORIDE	5607.344	2911	20946	1	0.00
2	2.08	NITRITE	8061.137	1439	10604	1	1.14
3	3.68	NITRATE	30835.842	3889	43981	1	-1.36
4	7.00	SULFATE	3434.638	220	3596	1	0.71

File: C:\DX\DATA\91100521.D06 Sample: R326DUP



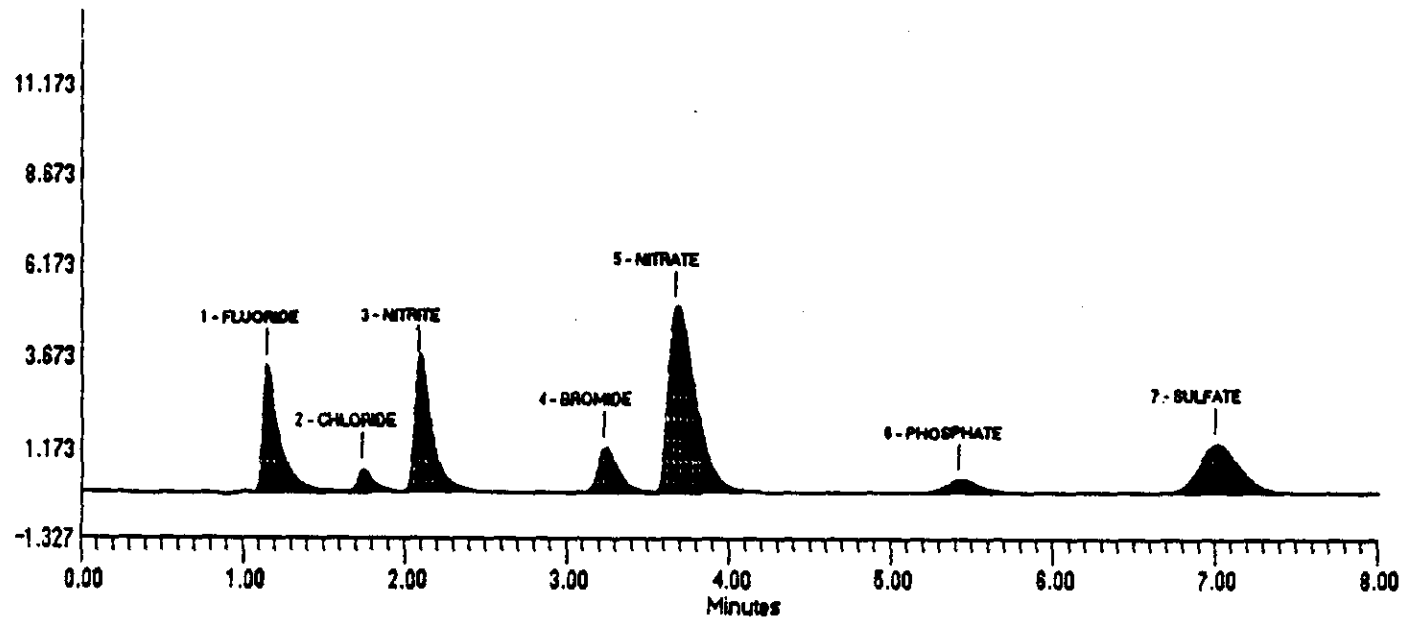
DATA REPROCESSED ON Tue Oct 08 12:42:25 1991

Sample Name: R326SP	Date: Mon Oct 07 00:35:36 1991
Data File : C:\DX\DATA\91100521.D07	
Method : C:\DX\METHOD\SYSTEM1.MET	
ACI Address: 1 System : 1 Inject#: 7 Detector: CDM-1	

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	4221	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.15	FLUORIDE	6451.243	3429	24402	2	0.00
2	1.73	CHLORIDE	2012.121	636	4336	2	0.48
3	2.08	NITRITE	17499.469	3506	27269	2	1.14
4	3.23	BROMIDE	9703.494	1255	11332	2	4.47
5	3.67	NITRATE	41148.642	5074	59669	2	-1.81
6	5.42	PHOSPHATE	10861.776	381	5751	1	0.40
7	7.00	SULFATE	14385.647	1368	24115	1	0.71

File: C:\DX\DATA\91100521.D07 Sample: R326SP



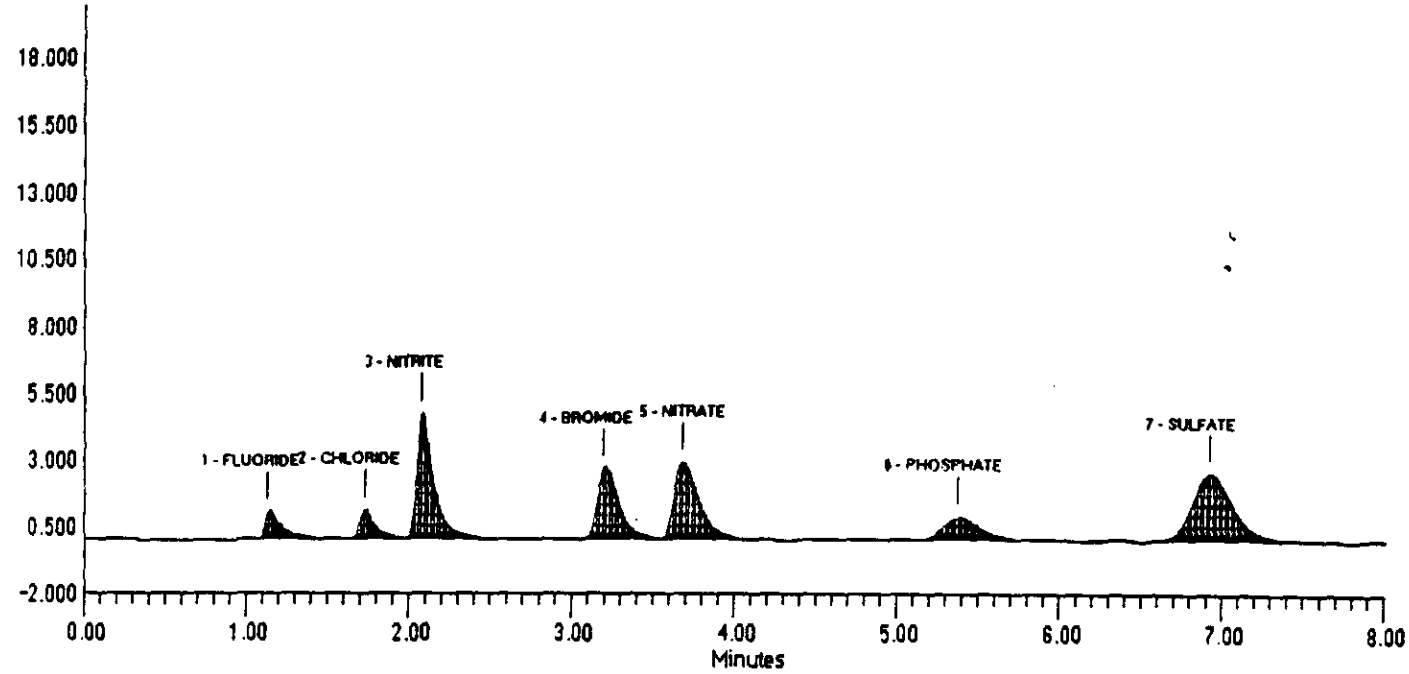
DATA REPROCESSED ON Tue Jul 21 14:56:48 1992

Sample Name: LMCS/73C11C0 – R331 Date: Mon Oct 07 01:22:09 1991
Data File : A:\91100501.D12 JK 7-22-92
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 12 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	54.734	1013	7589	1	0.00
2	1.73	CHLORIDE	77.627	1112	7250	2	1.96
3	2.08	NITRITE	520.706	4730	34787	2	2.63
4	3.20	BROMIDE	507.310	2653	25173	2	4.92
5	3.68	NITRATE	31907[illegible].650	2870	31592	2	0.09
6	5.38	PHOSPHATE	544.860	[illegible]	13897	1	1.25
7	6.93	SULFATE	602.348	3513	44580	1	1.22

File: A:\91100501.D12 Sample: LMCS/73C11C0



9-22-91

4469-AC

DIONEX METHOD PARAMETERS - SYSTEM1.MET

System Parameters

System Name : system1/gpm

Number of Detectors	1
Detector 1 Type	CDM-1
Detector 1 real time plot scale (uS)	20.00
Run Time (minutes)	8.50
Sampling Rate (seconds)	0.20

-- DETECTOR 1 PARAMETERS --

Report Options

Save Data File	Yes
Data File Name: c:\dx\data\91092201.D08	
Create ASCII Report File	No
Print Report	Yes
List Peaks Not Found in this run	No
Report Unknowns Found in this run	Yes
Print Chromatogram	Yes
AutoScale Chromatogram to Highest Peak	Yes
Fill Peaks with Color	Yes
Draw Grid Lines on Chromatogram	No
Label with Peak Number	Yes
Label with Retention Times on Chromatogram	No
Label with Component Name	Yes
Format File Name: c:\dx\method\default.prf	

Integration Parameters

Starting Peak Width (seconds)	10.0
Peak Threshold (mV or uS/data pt interval)	0.500
Peak Area Reject	1000
Area Reject for Reference Peaks	1000
Percent Retention Time Window for Reference Peaks	5.0

Integration Timed Events

Time	Description
1.32	Start peak detection
1.44	Start peak detection
1.46	Start peak detection
1.77	
1.77	Enable end of peak detection

Component # 1 FLUORIDE Retention Time 1.13
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 8.52797E-002
K1 = 6.06440E-005
K2 = -6.17180E-011

Level	Amount	Area	Height
1	1.20000E-001	1439	225
2	3.00000E-001	4035	566
3	6.00000E-001	8217	1141
4	1.20000E+000	16507	2218
5	2.30000E+000	39534	4812
6	4.40000E+000	76890	9371

Component # 2 CHLORIDE Retention Time 1.70
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.93335E-002
K1 = 1.[illegible]1273E-004
K2 = -9.35560E-011

Level	Amount	Area	Height
1	1.60000E-001	1319	217
2	3.90000E-001	3754	568
3	7.80000E-001	6942	1045
4	1.50000E+000	14461	1975
5	3.00000E+000	30287	3987
6	5.90000E+000	61305	8910

Component # 3 NITRITE Retention Time 2.03
Reference Peak FLUORIDE Window Size [illegible].00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.88691E-001
K1 = 1.33960E-004
K2 = 5.52630E-012

Level	Amount	Area	Height
1	1.08000E+000	6239	874
2	2.69000E+000	17299	2252
3	5.37000E+000	34328	4729
4	1.06200E+001	72787	9300
5	2.08500E+001	153501	19401
6	4.01500E+001	292053	34439

Component # 4 BROMIDE Retention Time 2.80
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.01960E-002
K1 = 2.00453E-004
K2 = -1.00008E-010

Level	Amount	Area	Height
1	1.56000E+000	7660	753
2	3.90000E+000	20706	1880
3	7.80000E+000	38868	3453
4	1.54000E+001	78061	6644
5	3.02000E+001	165133	12632
6	5.81000E+001	350930	24386

Component # 5 NITRATE Retention Time 3.30
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.02611E-001
K1 = 1.61787E-004
K2 = -5.83501E-011

Level	Amount	Area	Height
1	1.37000E+000	7543	727
2	3.43000E+000	19321	1803
3	6.83000E+000	40244	3563
4	1.35000E+001	83386	7010
5	2.65000E+001	173503	13640
6	5.11000E+001	360809	25639

Component # 6 PHOSPHATE Retention Time 5.32
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 5.53452E-001
K1 = 3.53243E-004
K2 = -3.51156E-010

Level	Amount	Area	Height
1	1.19000E+000	2277	162
2	2.98000E+000	7242	453
3	5.93000E+000	15025	935
4	1.17400E+001	31660	1933
5	2.30300E+001	69135	4130
6	4.43700E+001	144749	8447

Component # 7 SULFATE Retention Time 6.85
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.55734E-001
K1 = 1.27491E-004
K2 = -3.79358E-011

Level	Amount	Area	Height
1	1.40000E+000	9418	543
2	3.50000E+000	24499	1382
3	6.96000E+000	52303	2890
4	1.37800E+001	107173	5909
5	2.70400E+001	225632	12225
6	5.20700E+001	471630	24686

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R326	Customer ID: 791-6A
Analysis: ACID DIGESTION	Sample Prep: ACID DIGESTION

Instrument: METTLER BAL. SN F04495	Procedure/Rev: LA-508-158/A-2
Technologist: L. MORRISON	Date: 09-25-91
Starting Time: N/A	Temperature: N/A
Ending Time: N/A	Chemist: S. A. JONES

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-8505	11		
2	REAGENT BLANK	R325-8605	12		
3	SAMPLE 791-6A	R326-8705	13		
4	SAM DUP 791-6A	R326-8805	14		
5	SPIKE OF SAMPLE 791-6A	R326-8905	15		
6	FINAL LMCS CHECK STD	R331-8505	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	ICP1-9S4/10 mL	ICP2-6S4/10 mL	ICP3-8S4/10 mL	N/A
SPIKE	ICP1-9S4/10 mL	ICP2-6S4/10 mL	ICP3-8S4/10 mL	N/A

A-6000-881 (03/92)

ACID DIGESTION ANALYSIS
WHC-SD-WM-DP-025
Addendum 16 Rev 0

Complete

Complete

Complete

Complete

Complete

Complete

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R326	Customer ID: 791-6A
Analysis: INDUCTIVELY COUPLED PLASMA	Sample Prep: ACID DIGESTION

Instrument: WB39939	Procedure/Rev: LA-505-151/B-0
Technologist: L. MORRISON	Date: 11-19-91
Starting Time: NA	Temperature: N/A
Ending Time: NA	Chemist: L. OTTMAR

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-8550	11		
2	REAGENT BLANK	R325-8650	12		
3	SAMPLE 791-6A	R326-8750	13		
4	SAM DUP 791-6A	R326-8850	14		
5	SPIKE OF SAMPLE 791-6A	R326-8950	15		
6	FINAL LMCS CHECK STD	R331-8550	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	9S4/ 10 mL	6S4/ 10 mL	8S4/ 10 mL	N/A
SPIKE	9S4/ 10 mL	6S4/ 10 mL	8S4/ 10 mL	N/A

A-6000-881 (03/92)

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.-8550	106AW	9-20-91	10: 7	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	% RECOVERY	W11E2	0

Sample Size	Customer ID
? 10mL ea in 100mL	STD

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID
10PSST1 - 954
10PSST2 - 684
10PSST3 - 889

LMCS
STDS

Al 2.98E2 (10/10³) = 2.98ppm 59.6%
Ca 1.51E3(.01) = 1.51E1ppm = 151%
Cr 4.54E2(.01) = 4.54 ppm = 90.8%
Fe 5.08E2(.01) = 5.08ppm = 102%
Na 9.06E2(.01) = 9.06ppm = 90.6%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6523	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]	Laurine J. Ottman			

Date	Time Completed	Lab Unit Mgr
11/19/91	11/21/91	[signature]

54-6800-081 (R-10-83)

Al 4.55 91.0% wng #7362

Ca 9.94 99.4%

Cr 4.80 96.0%

Fe 4.88 97.6%

Na 9.71 97.1%

LMCS ✓ Teresa L. Figie

~~Undigested~~
~~Ba 10.10~~ JH
~~Cd 9.8~~ 5-29-92

DIGESTED
Ag (4.51E2)(.01) = 90.2%
Ba (9.32E2)(.01) = 93.2%
Cd (9.25E2)(.01) = 92.5%
Mg (488)(.01) 97.6%
Mn (479)(.01) = 95.8%
Pb (507)(.01) = 101.4%
Zn (969)(.01) = 96.9%

Undigested
Ba 10.10 101.0%
Cd 9.82 98.2%
Mg 4.94 98.8%
Mn 4.93 98.6%
Zn 9.96 99.6%
Ag 5.07 101.4%
Pb 5.06 101.6%

R 324-8550

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.-8650	106AW	9-20-91	10:. 9	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	PPM	WITE	0

Sample Size	Customer ID
? Direct	REG BL

Remarks, Calculations, Results:
REAGENT BLANK

AL <55 ppb/10³ < 5.50E-2 ppm
CA 4.18E3/10³ = 4.18 ppm
Cr 1.66E1/10³ = 1.66E-2 ppm
Fe <87/10³ = 8.70E-2 ppm
Na 1.09E2/10³ = 1.09E-1 ppm

Ag <8.0/10³ = <8.0E-3 ppm
Ba <3.0/10³ = <3.0E-3 ppm
Cd <4.0/10³ = <4.0E3 ppm
Mg 4.08E2/10³ = 4.08E-1 ppm
Mn 1.38E1/10³ = 1.38E-2 ppm
Pb <8.0E1/10³ = <8.0E-2 ppm
Zn 2.91E2/10³ = 2.91E-1 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731	82768			
Hrs	Lauriane J. Ottmar	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
11/19/91	11/21/91	[signature]

54-6600-Ind (R-10-89)

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-8750	106AW	9-20-91	10:14	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	ug/g rec	W1TE2	0

Sample Size	Customer ID
? DF = 600	791-6A

Remarks, Calculations, Results:

Al 2.28E3 (600) = 1.37E6 ppb
Ca 1.06E3 (600) = 6.36E5 ppb
Cr 4.29E1 (600) = 2.57E4 ppb
Fe <87 (600) = 5.22E4 ppb
Na 6.23E4 (600) = 3.74E7 ppb

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65231	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
11/19/91	11/21/91			

54-6600-081 (R-10-93)

Ag (<8.0)(600) = <4.80 E3 ppb
Ba (<3.0)(600) = <1.80 E3 ppb
Cd (5.49)(600) = 3.29 E3 ppb
Mg (2.72E1)(600) = 1.63 E4 ppb
Mn (5.68)(600) = 3.41 E3 ppb
Pb (<8.0E1)(600) = <4.80 E4 ppb
Zn (1.74E2)(600) = 1.04 E5 ppb

R 326-8750

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-8850	106AW	9-20-91	10:14	25

Determination	Method/Standard	Result Units	Charge Code	Rerune
ICP	LA-505-151	ug/g rec	W1TE2	0

Sample Size	Customer ID
? 1mL in 100mL, 2mL To 10mL DF=600	791-6A

Remarks, Calculations, Results:

DUPLICATE SAMPLE

Al 2.36E3 (600) = 1.42E6 ppb
Ca 2.10E2 (600) = 1.26E5 ppb *
Cr 4.04E1 (600) = 2.42E4 ppb
Fe <87 (600) = 5.22E4 ppb
Na 6.46E4 (600) = 3.88E7 ppb * FLAG: SAMP/DUP > 20%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]	Laurine J. Ottman			

Date	Time Completed	Lab Unit Mgr
11/19/91	11/21/91	[signature]

84-6800-061 (R-10-90)

Al $\frac{2.28E3 - 2.36E3}{\frac{2.28E3 + 2.36E3}{2}} \times 100 = 3.45\%$

Ca $\frac{1.06E3 - 2.10E2}{\frac{1.06E3 + 2.10E2}{2}} \times 100 = 134\%$

Cr $\frac{4.28E1 - 4.04E1}{\frac{4.28E1 + 4.04E1}{2}} \times 100 = 5.77\%$

Fe LESS THAN VALUES ON BOTH

Na $\frac{6.23E4 - 6.46E4}{\frac{6.23E4 + 6.46E4}{2}} \times 100 = 3.49\%$

Ag (<8.0)(600) = <4.80E3 ppb
Ba (<3.0)(600) = <1.80E3 ppb
Cd (<4.0)(600) = <2.40E3 ppb
Mg (<11)(600) = <6.60E3 ppb
Mn (5.13)(600) = 3.08E3 ppb
Pb (<80)(600) = <4.80E4 ppb
Zn (85)(600) = 5.10E4 ppb

R 326-8850

Serial No.	Sample Point	Date	Time Issued	Priority
R 326.-8950	106AW	9-20-91	10:14	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	% RECOVERY	W1TE2	0

Sample Size	Customer ID
? 1ml in 100ml, 2ml to 10ml	791-6A

Remarks, Calculations, Results:
SPIKE SAMPLE
SPIKE ID
SPIKE VOLUME 10ml ea.

ICPSET1 = 934
ICPSET2 = 654
ICPSET3 = 854

Spike (10ml)(5ppm) / 100ml = 500ppm × 10² / 500ppb

Al 2.4163 - 2.2863 / 500 × 100 = 26%

Ca 3.3082 - 1.0683 / 1000 × 100 not calculated sample > spike

Cr ~~1.2982 - 4.2981 × 100~~ / 500 = 17.2%

tad 4/30/92

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]	Laurine J. Ottman			
Date	Time Completed	Lab Unit Mgr		
11/19/91	11/21/91	[signature]		

54-6800-061 (R-10-88)

Fe ~~1.0182 - 0 / 500~~ ~~Sample~~ ~~NA~~ 11/19/91 × 100 = 20.2%
tad 4/30/92

Na 6.1869 - 6.2364 / 1000 × 100 = not calculated sample larger than spike

5ppm × 1 / 100ppm × 1000 ÷ 6 = 83

Ag 78 - 0/83 × 100 = 93.98%

Ba 161 - 0/166 × 100 = 96.99%

Cd 170 - 5/166 × 100 = 99.40%

Mg 83 - 27/83 × 100 = 67.47%

Mn 89 - 6/83 × 100 = 100.0%

Pb 135 - 0/83 × 100 = 162.65%

Zn 254 - 174/166 × 100 = 48.19%

Cr 129 - 43/83 × 100 = 103.61%

Fe 101 - 0/83 × 100 = 121.69%

~~Cr 330~~

Cr 129 - 42.8/83 × 100 = 103.85

Fe 101 - 0/83 × 100 = 121.69%

R 326-8950

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.-8550	106AW	9-20-91	10:27	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	% RECOVERY	W1TE2	0

Sample Size	Customer ID
? 10 mL an in 100 mL, DF=10	STD

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID_____
ICPSST1 - 954
ICPSST2 - 654
ICPSST3 - 854

AL ~~[illegible]~~ 5-29-92
6.4382(10/10) = 6.43 ppm 128.6%
CA ~~[illegible]~~ 5-29-92
1.5164(.01) = 1.5182 = 151%
Cr 5.1682(.01) = 5.16 ppm = 103%
Fe 8.0682(.01) = 8.06 ppm = 161%
Na 1.2763(.01) = 1.2781 ppm 127%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65231	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]	Laurine J.	Ottman		[signature]

Date	Time Completed	Lab Unit Mgr
11/19/91	11/21/91	[signature]

54-6800-061 (R-10-83)

Al	4.68	93.6%
Ca	9.94	99.4%
Cr	4.82	96.4%
Fe	4.89	97.8%
Na	9.72	97.2%

LMCS ✓ [signature]

DIGESTED

Ag (497)(.01) = 99.4%
Ba (1005)(.01) = 100.5%
Cd (990)(.01) = 99.0%
Mg (2095)(.01) = 419%
Mn (543)(.01) = 108.6%
Pb (508)(.01) = 101.6%
Zn (1579)(.01) = 157.9%

Undigested

Ba	10.10	101.0%
Cd	9.88	98.8%
Mg	4.96	99.2%
Mn	4.94	98.8%
Zn	10.01	100.1%
Ag	5.06	101.2%
Pb	5.04	100.8%

R 331-850

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R327	Customer ID: 791-7A
Analysis: ARSENIC	Sample Prep: UNDIGESTED

Instrument: PERKIN ELMER - WA77479	Procedure/Rev: LA-355-131/B-0
Technologist: D. R. JACKSON	Date: 10-01-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5595	11		
2	REAGENT BLANK	R325-5695	12		
3	SAMPLE 791-7A	R327-5795	13		
4	FINAL LMCS CHECK STD	R331-5595	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	125B38B/0.5 mL			N/A
SAMPLES RERUN.				

A-6000-881 (03/92)

ARSENIC ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Sample No	Sample Point	Date	Time Issued	Priority
K 324.-5595	106AW	9-20-91	10:6	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
As	EA-355-131	% RECOVERY	WITEX	0

Sample Size: .500 ml
Customer ID: STD

Methods, Calculations, Results
LOT R791 AS/HYDRD
STD#/25838B RESULT 1.09E-1
STD VAL 1.00E-1 %REC 109.0%
0.821 54.45/500 =

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
GC275				
Date	Time Completed	Lab Use Only		
10-1-91				

Sample No	Sample Point	Date	Time Issued	Priority
K 325.-5595	135AW	9-20-91	10:8	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
As	EA-355-131	PPM	WITEX	0

Sample Size: 10.0 ml
Customer ID: REF IN

Methods, Calculations, Results
0.009 <5/10,000 = <5.00E-4 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
GC275				
Date	Time Completed	Lab Use Only		
10-1-91				

Sample No	Sample Point	Date	Time Issued	Priority
K 327.-5595	106AW	9-20-91	10:16	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
As	EA-355-131	PPM	WITEX	0

Sample Size: 10-1-91 .025 ml
Customer ID: 271-20

Methods, Calculations, Results
DR 5
103.45/25 = 4.14
1.551

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
GC275				
Date	Time Completed	Lab Use Only		
10-1-91				

Sample No	Sample Point	Date	Time Issued	Priority
K 331.-5595	106AW	9-20-91	10:20	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
As	EA-355-131	% RECOVERY	WITEX	0

Sample Size: .500 ml
Customer ID: STD

Methods, Calculations, Results
LOT R791 AS/HYDRD
STD#/25838B RESULT 9.52E-2
STD VAL 1.00E-1 %REC 95.2%
0.719 47.60/500 = 9.52E-2

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
GC275				
Date	Time Completed	Lab Use Only		
10-1-91				

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
CALIBRATION RECORD

Analyte: As

Procedure: LA-355-131 | Revision: B-0

Instrument: PERKIN - ELMER | Property No.: WA77479

Technologist: D. JACKSON | Payroll No.: 6C275 | Date: 10-01-91

Calibration Standard: 124B38C

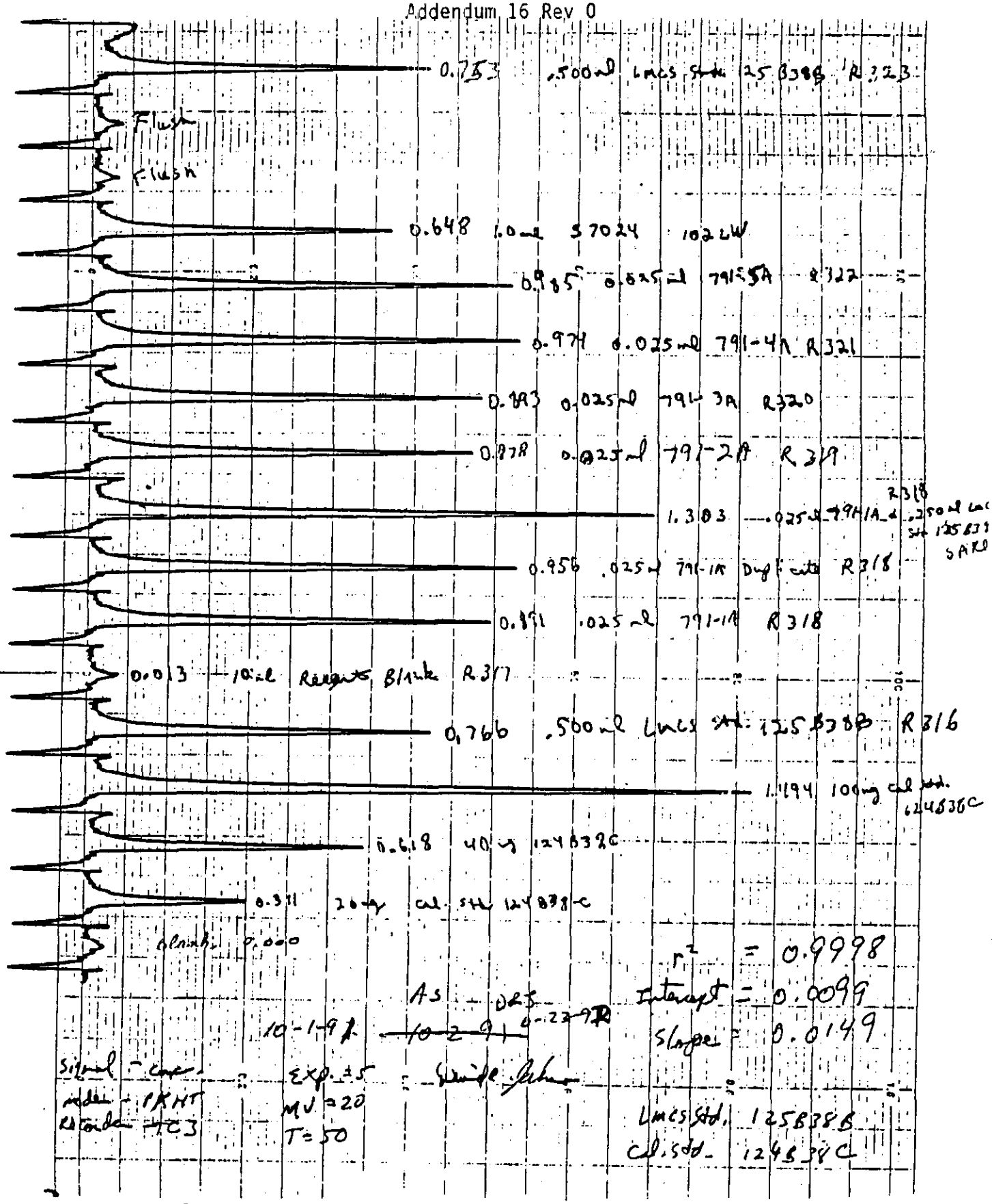
Analyte Concentration: 0.1000 ppm

Type of Calibration: LINEAR

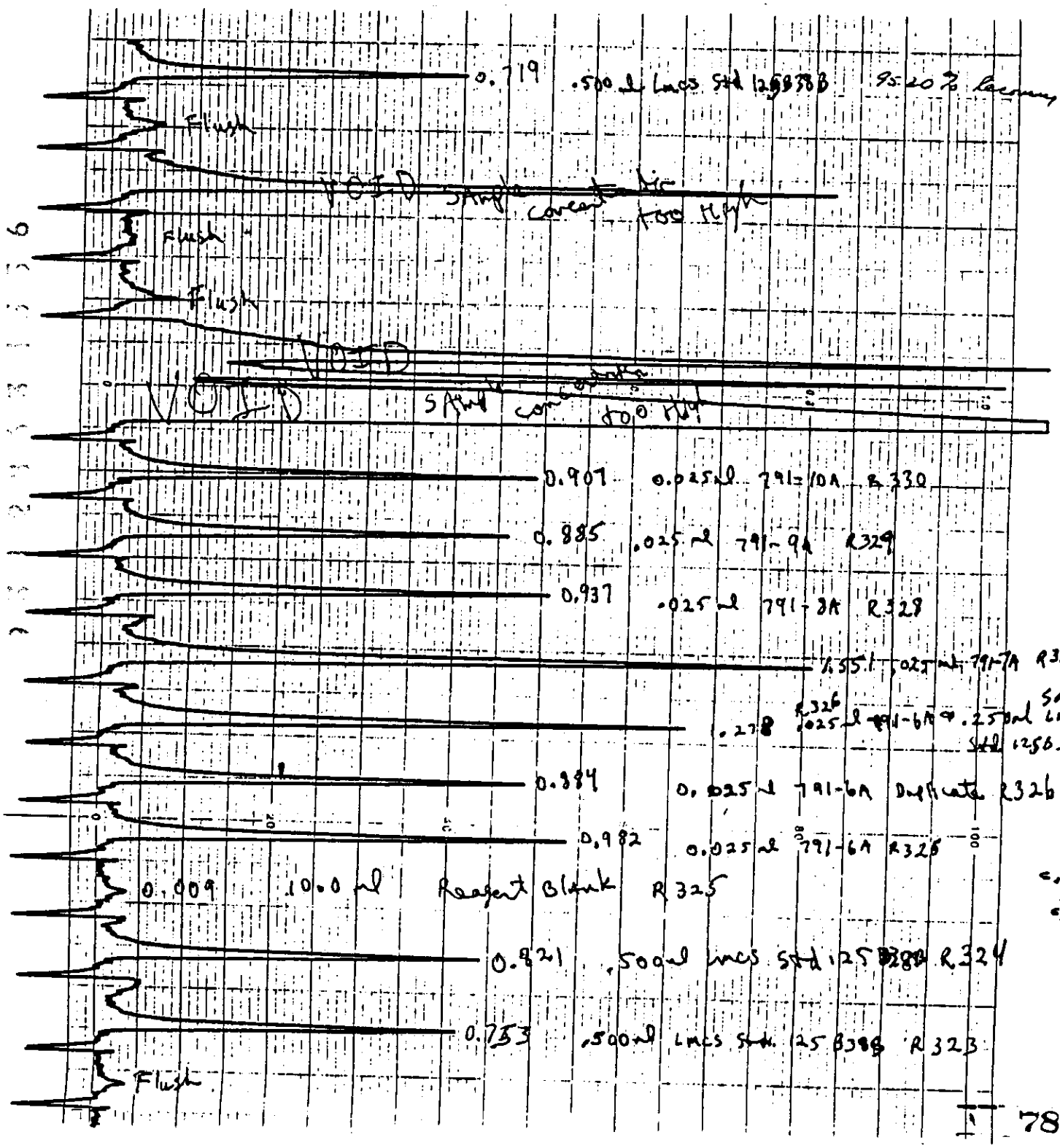
	Dilution	Concentration	Instrument Reading Unit
1	0.000 mL	0.0 ng	0.000
2	0.200 mL	20.0 ng	0.311
3	0.400 mL	40.0 ng	0.618
4	1.000 mL	100.0 ng	1.494
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Comments:

A-6000-882 (03/90)



SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED THE ANALYSIS RUN ON PAGES 784 TO 785.


0.719 .500 ml Lmcs Std 125B38B 95.20% Recovery
Flush
VOID Sample concentration too High
Flush
Flush
VOID
VOID Sample concentration too High
0.907 0.025 ml 791-10A R330
0.885 .025 ml 791-9A R329
0.937 .025 ml 791-8A R328
1.551 .025 ml 791-7A R327
.278 R326 .025 ml 791-6A + .250 ml Spike Lmcs Std 125B38B
0.884 0.025 ml 791-6A Duplicate R326
0.982 0.025 ml 791-6A R326
0.009 10.0 ml Reagent Blank R325
0.821 .500 ml Lmcs Std 125B38B R324
0.753 .500 ml Lmcs Std 125B38B R323
Flush
PERKIN-ELMER
PERKIN-ELMER

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R327	Customer ID: 791-7A
Analysis: CYANIDE	Sample Prep: UNDIGESTED

Instrument: MILTON ROY SPEC 301 - AL10724	Procedure/Rev: LA-695-102/A-4
Technologist: E. COLVIN	Date: 09-27-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5578	11		
2	REAGENT BLANK	R325-5678	12		
3	SAMPLE 791-7A	R327-5778	13		
4	FINAL LMCS CHECK STD	R331-5578	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	75C11S/0.100 mL			N/A

A-6000-881 (03/92)

CYANIDE ANALYSIS - UNDIGESTED SAMPLE
WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5578	06AW	9-20-91	10: 6	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
CN	LA-695-102	% RECOVERY	WITE?	0

Sample Size: 100uL-10mL-500uL — Customer ID: STD

Remarks, Calculations, Results: S244 KCN; STD 75C11 S RESULT; STD VAL 8.90E2 %REC 100.9%

ABS .738

$\frac{(.738 - .012) - .006547}{.160252} / .5 \times 100 = 8.979E^2$ (.006547 9-30-91)

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				
Ed Cole				

Date: 9-27-91 — Time Completed: — Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5678	106AW	9-20-91	10: 8	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
CN	LA 695 102	PPM	WITE?	0

Sample Size: ? — Customer ID: REG BL

Remarks, Calculations, Results: REAGENT BLANK

ABS .012

$\frac{.012 - .006547}{.160252} = < 5.00E^{-1}$ ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				
Ed Cole				

Date: 9-27-91 — Time Completed: — Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 327.-5778	106AW	9-20-91	10:16	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
CN	LA 695-102	PPM	WITE?	0

Sample Size: ? 750uL — Customer ID: 791 7A

Remarks, Calculations, Results: JH 5-4-92

ABS .110

$\left[\frac{(.110 - .012) - .006547}{.160252}\right] \div .750 = 7.61E^{-1}$ ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				
Ed Cole				

Date: 9-27-91 — Time Completed: — Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 331.-5578	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
CN	LA-695-102	% RECOVERY	WITE?	0

Sample Size: ? 100uL-10mL-500uL — Customer ID: STD

Remarks, Calculations, Results: S244 KCN; STD 75C11 S RESULT; STD VAL 8.90E2 %REC 100.4%

ABS .735

$\left[\frac{(.735 - .012) - .006547}{.160252}\right] \div .500 \times 100 = 8.94E^2$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				
Ed Cole				

Date: 9-27-91 — Time Completed: — Lab Unit Mgr: [signature]

TODAYS DATE: 09-27-1991

PAYROLL NO.: 80028

Y-INTERCEPT= .006547
SLOPE= .160252

SAMPLE ID#: R-325 BLANK
SAMPLE SIZE: 0
WVL AND ABS= 580NM 0.012 A

SAMPLE ID#: R-324 75C11-S STD
SAMPLE SIZE: 100UL-10ML-500UL
WVL AND ABS= 580NM 0.738 A

SAMPLE ID#: R-326
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.118 A

SAMPLE ID#: R-326 DUPLICATE
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.120 A

SAMPLE ID#: R-326 + SPIKE
SAMPLE SIZE: 750UL + 100UL-10ML-500UL 75C11-S SPIKE
WVL AND ABS= 580NM 0.856 A

SAMPLE ID#: R-327
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.110 A

SAMPLE ID#: R-328
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.307 A

SAMPLE ID#: R-329
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.063 A

SAMPLE ID#: R-330
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.271 A

SAMPLE ID#: R-331 75C11-S STD
SAMPLE SIZE: 100UL-10ML-500UL
WVL AND ABS= 580NM 0.735 A

CALIBRATION CURVE LACHAT NON-DISTILLED 25ML

CYANIDE DATE: 8-28-1991

CALIBRATION STANDARD # 351-M, 1006 MG/ML CYANIDE

DILUTION FACTOR = 10/.1 = 100, WORKING STANDARD = 1006 /100 = 10.060

PIPET SIZE	MICROGRAMS CYANIDE	TOTAL ABS	NET ABS
BLANK	0	.006	0
50UL	.503	.0930	.0870
500UL	5.030	.8320	.8260
1000UL	10.060	1.6180	1.6120

Y INTERCEPT = .006547
SLOPE = .160252
C C = .999921

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R327	Customer ID: 791-7A
Analysis: DIFFERENTIAL THERMAL	Sample Prep: UNDIGESTED

Instrument: WC16134,WC16129	Procedure/Rev: LA-514-113/A-0
Technologist: M. MYERS	Date: 10-14-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5511	11		
2	REAGENT BLANK	R325-5611	12		
3	SAMPLE 791-7A	R327-5711	13		
4	FINAL LMCS CHECK STD	R4-5511	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	27C11BB/0.10 mL			N/A

A-6000-881 (03/92)

DIFFERENTIAL THERMAL ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No	Sample Point	Date	Time Issued	Priority
R [illegible]-5511	106AW	9-20-91	10:[illegible]	[illegible]

Determination	Method/Standard	Result Units	Charge Code	Results
DSC	LA 514 113	EXOTHERMS	W11F2	0

Sample Size: .010ml
Customer ID: STD
Remarks, Calculations, Results: 27C1148

100.0%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[illegible]				
60823				

Date: 10-14-91
Time Completed:
Lab Use Only:

Serial No	Sample Point	Date	Time Issued	Priority
R [illegible]-5611	106AW	9-20-91	10:[illegible]	[illegible]

Determination	Method/Standard	Result Units	Charge Code	Results
DSC	LA 514 113	EXOTHERMS	W11F2	[illegible]

Sample Size: .010ml
Customer ID: REG BL
Remarks, Calculations, Results: REAGENT BLANK

NO EXOTHERMS

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[illegible]				
60823				

Date: 10-14-91
Time Completed:
Lab Use Only:

Serial No	Sample Point	Date	Time Issued	Priority
R [illegible]-5711	106AW	9-20-91	10:15	[illegible]

Determination	Method/Standard	Result Units	Charge Code	Results
DSC	LA 514 113	EXOTHERMS	W11F2	0

Sample Size: .010ml
Customer ID: [illegible]
Remarks, Calculations, Results:

NO EXOTHERM

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[illegible]				
60823				

Date: 10-14-91
Time Completed:
Lab Use Only:

Serial No	Sample Point	Date	Time Issued	Priority
R 4.-551	RCRA-1	9-16-91	9:35	26

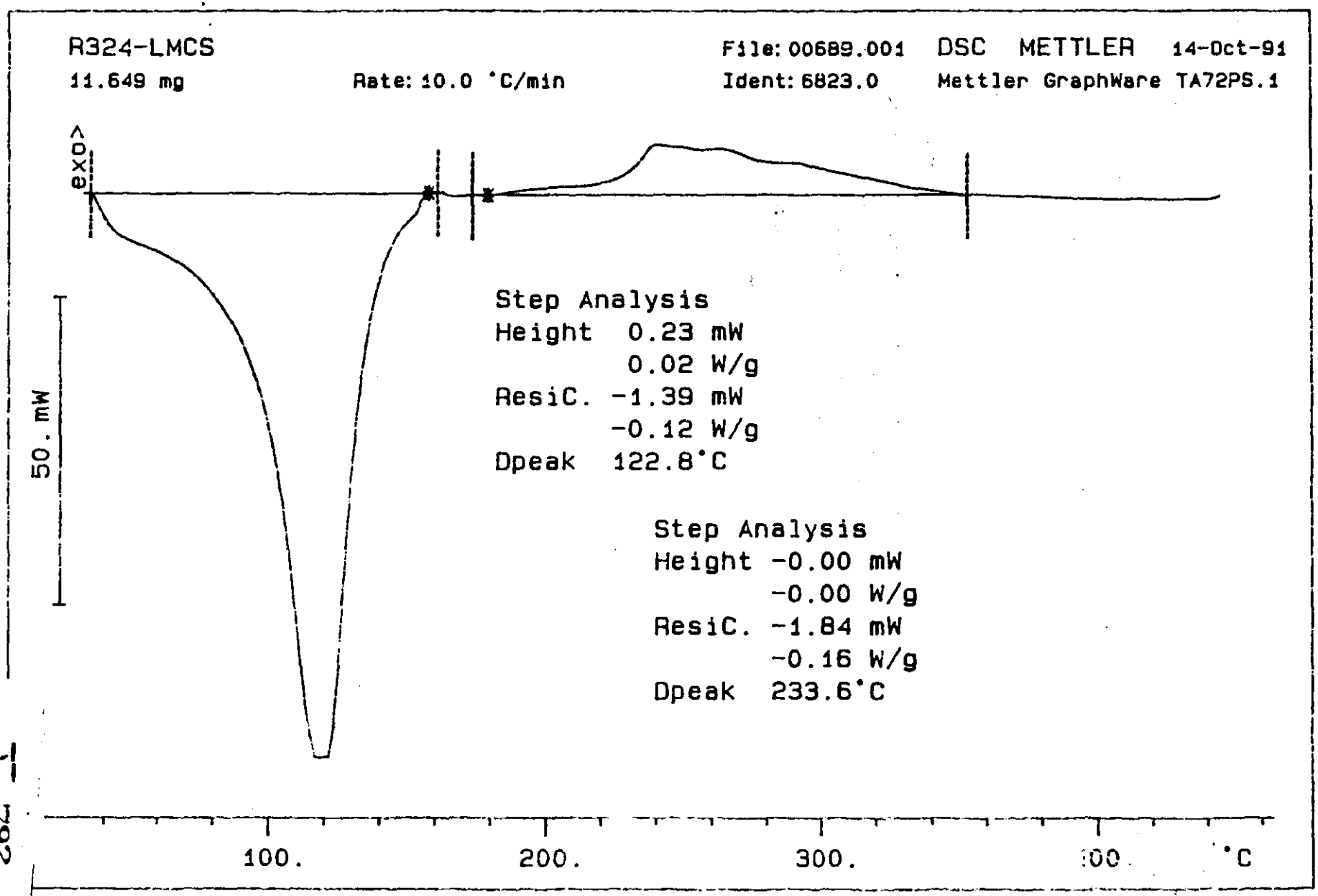
Determination	Method/Standard	Result Units	Charge Code	Results
DSC	LA-514-113	EXOTHERMS	[illegible]	[illegible]

Sample Size: .010ml
Customer ID: STD
Remarks, Calculations, Results: 27C1148

100.0%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[illegible]				
60823				

Date: 10-14-91
Time Completed:
Lab Use Only:

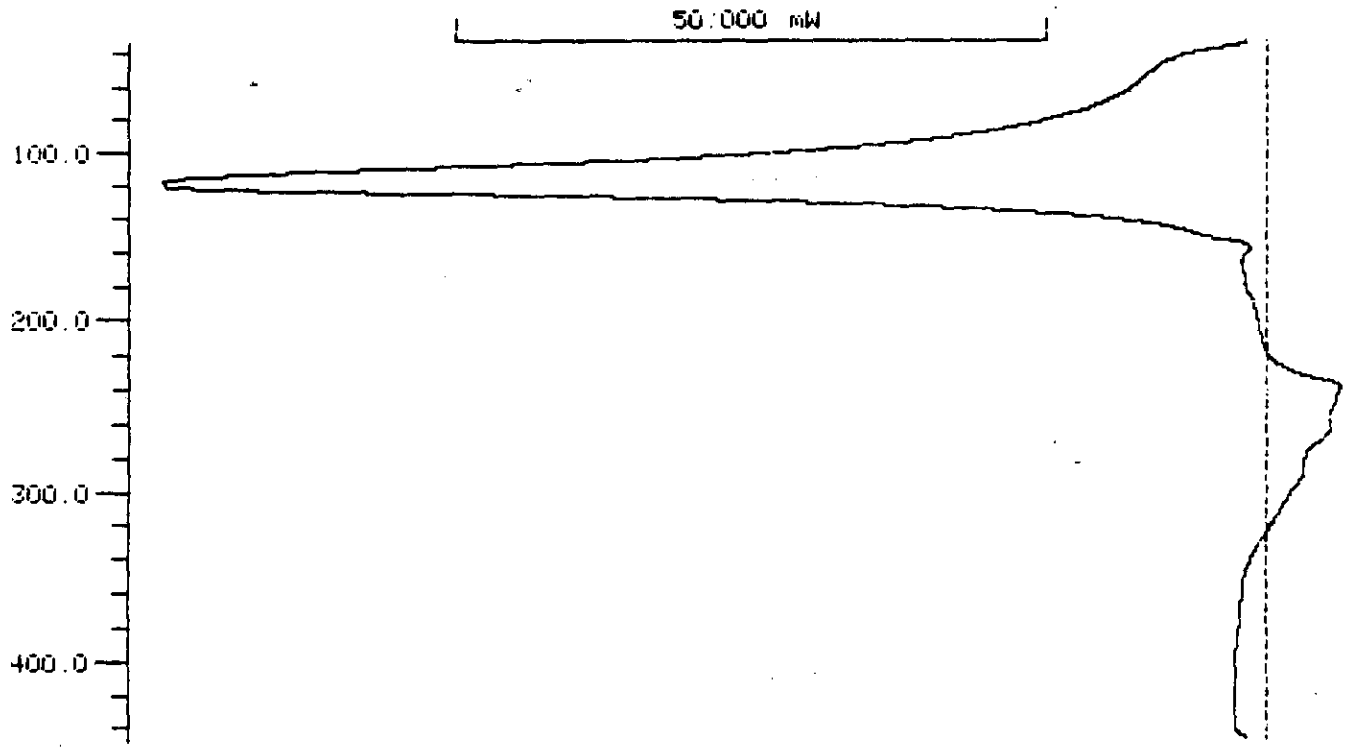

R324-LMCS
11.649 mg
Rate: 10.0 °C/min
File: 00689.001
Ident: 6823.0
DSC METTLER 14-Oct-91
Mettler GraphWare TA72PS.1
exo>
50. mW
Step Analysis
Height 0.23 mW
0.02 W/g
ResiC. -1.39 mW
-0.12 W/g
Dpeak 122.8°C
Step Analysis
Height -0.00 mW
-0.00 W/g
ResiC. -1.84 mW
-0.16 W/g
Dpeak 233.6°C
100.
200.
300.
°C

R324

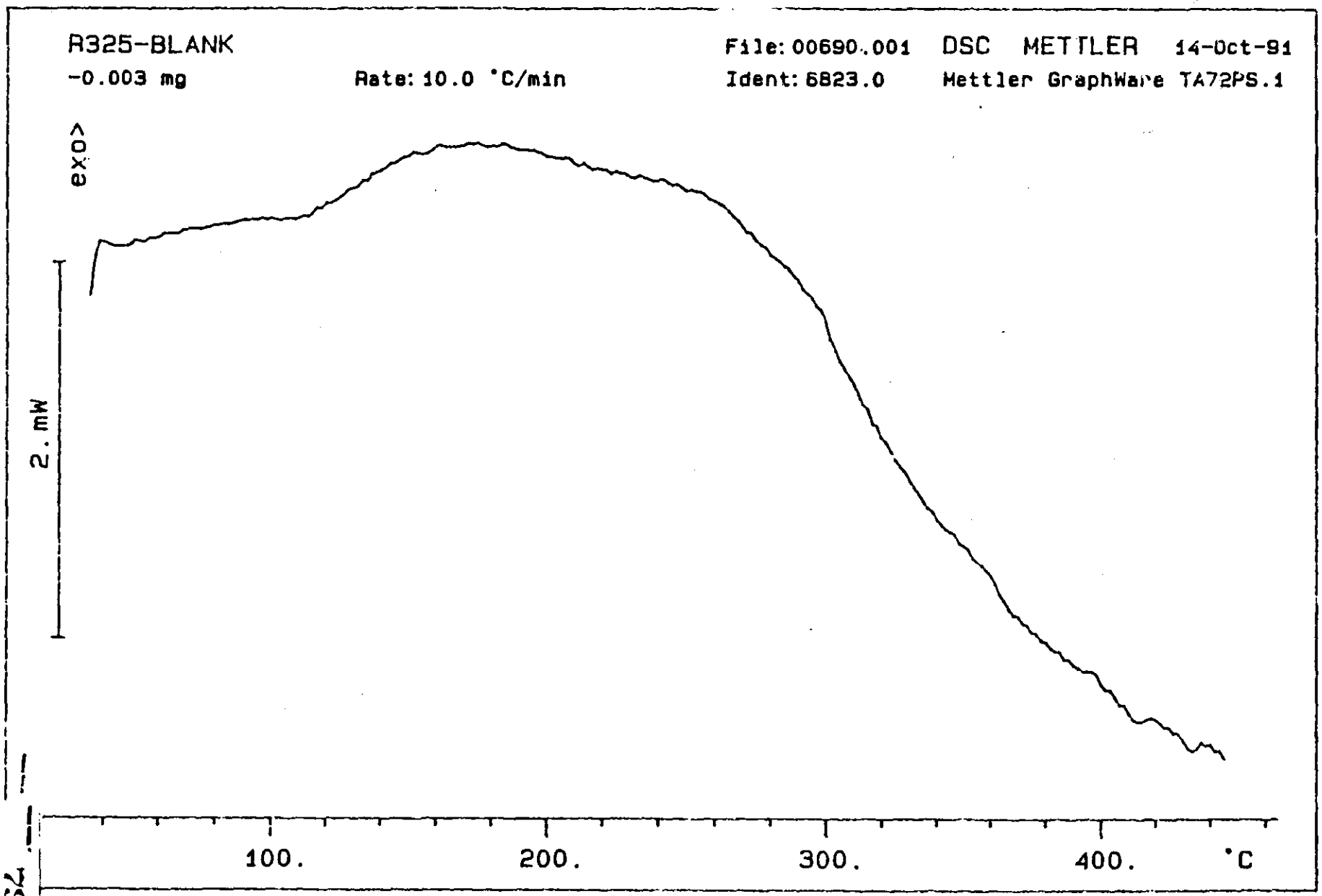
END SCREEN °C 448.0

TEMPERATURE °C

HEAT FLOW
EXOTHERMAL-->



******** METTLER TA4000 SYSTEM *********

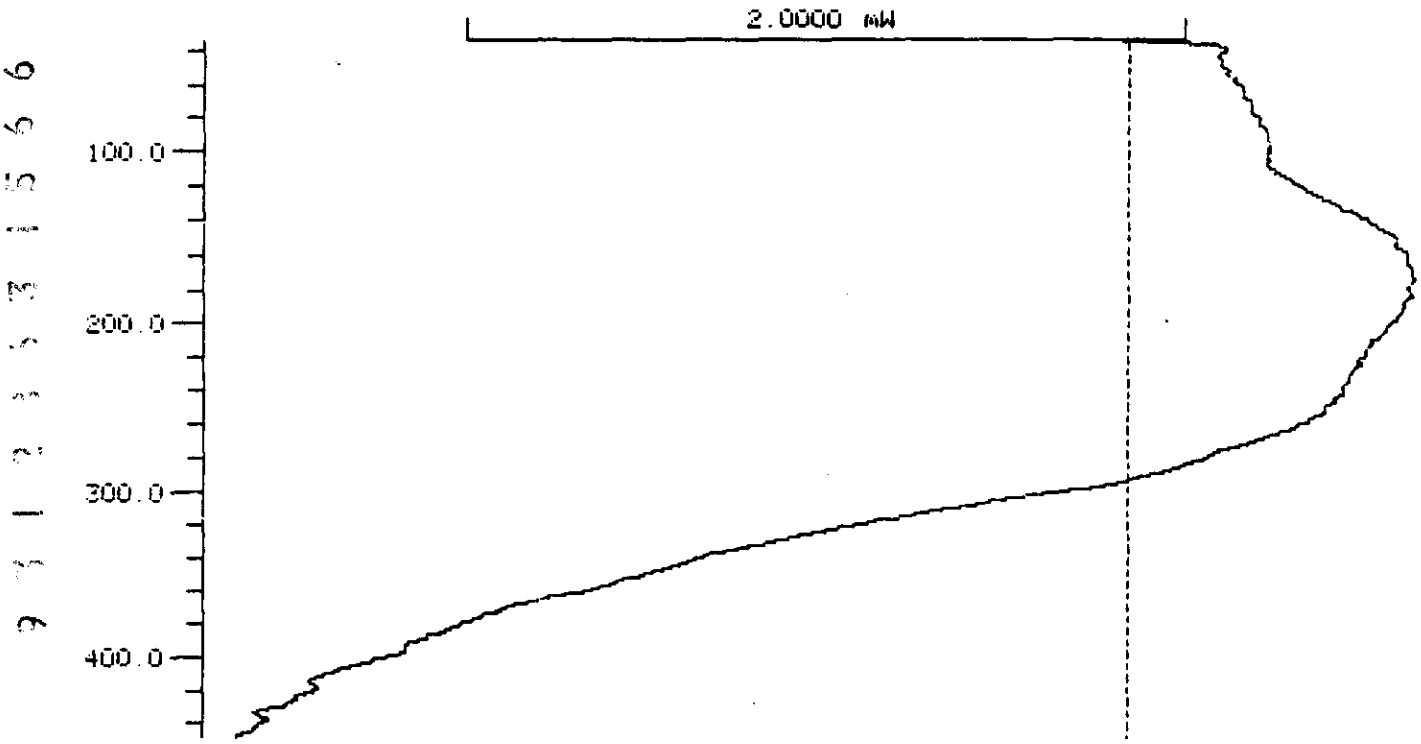

R325-BLANK
-0.003 mg
Rate: 10.0 °C/min
File: 00690.001
Ident: 6823.0
DSC METTLER 14-Oct-91
Mettler GraphWare TA72PS.1
exo>
2. mW
100.
200.
300.
400.
°C

R325

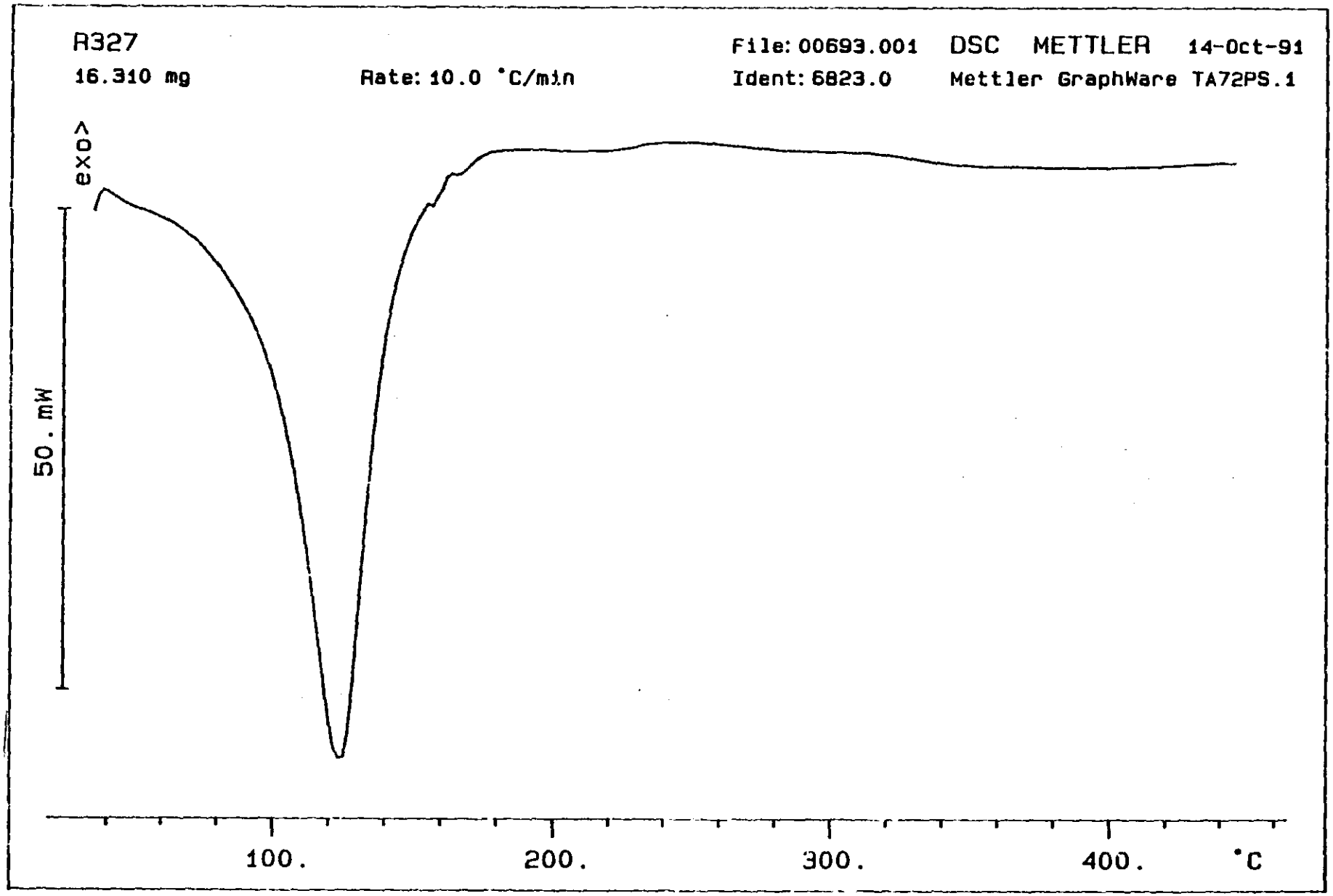
END SCREEN °C 447.8

TEMPERATURE °C

HEAT FLOW
EXOTHERMAL-->



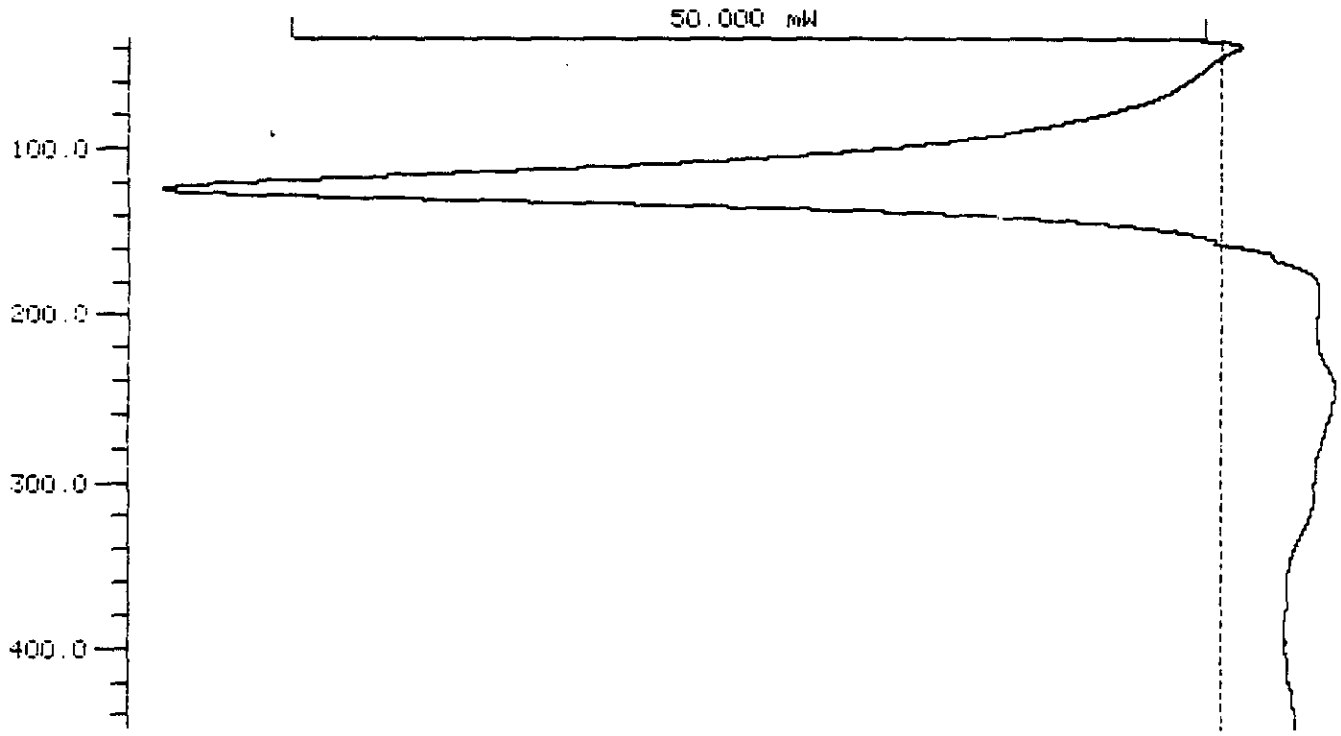
******** METTLER TA4000 SYSTEM *********


R327
16.310 mg
Rate: 10.0 °C/min
File: 00693.001
Ident: 6823.0
DSC METTLER 14-Oct-91
Mettler GraphWare TA72PS.1
exo>
50. mW
100.
200.
300.
400.
°C

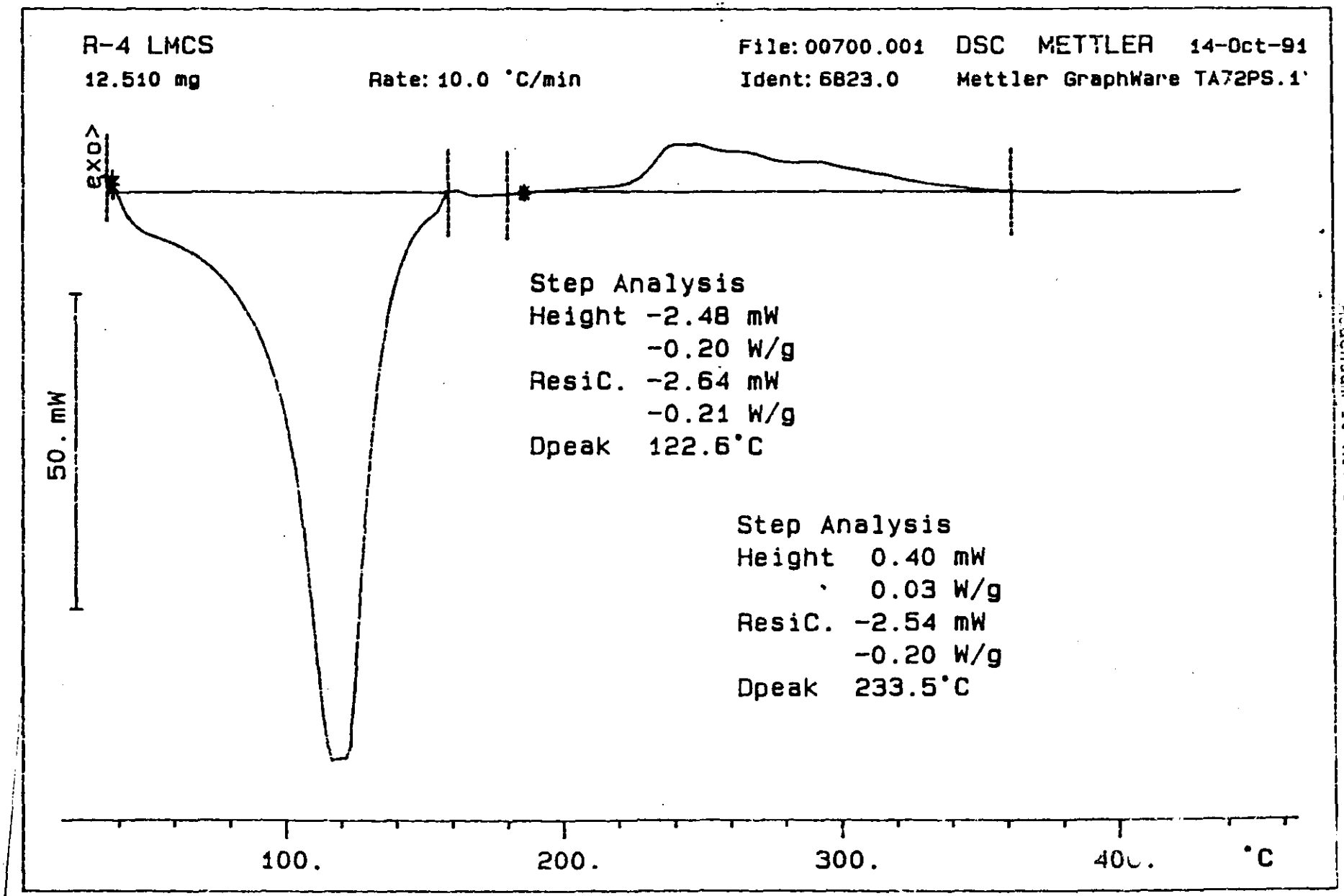
END SCREEN °C 448.0

TEMPERATURE °C

HEAT FLOW
EXOTHERMAL-->



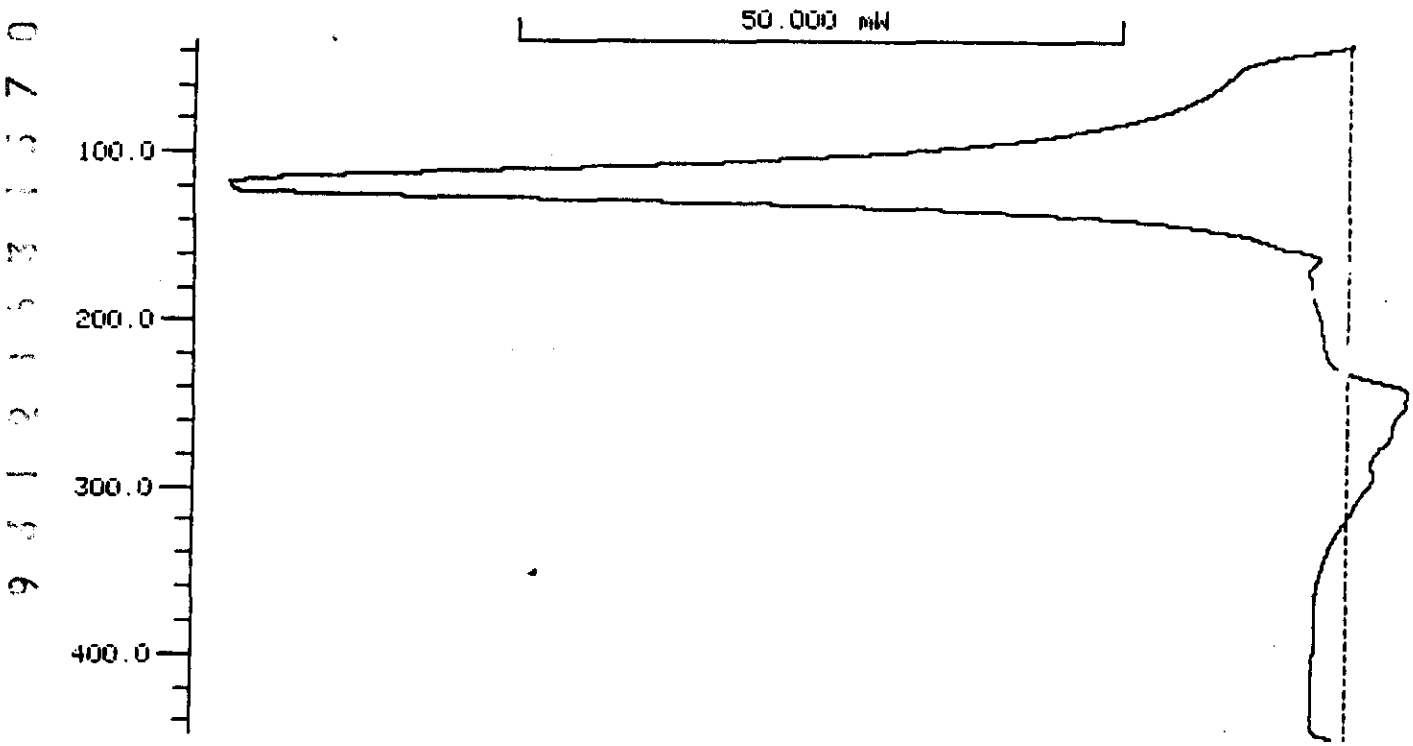
******** METTLER TA4000 SYSTEM *********


R-4 LMCS
12.510 mg
Rate: 10.0 °C/min
File: 00700.001
Ident: 6823.0
DSC METTLER 14-Oct-91
Mettler GraphWare TA72PS.1
exo>
50. mW
Step Analysis
Height -2.48 mW
-0.20 W/g
ResiC. -2.64 mW
-0.21 W/g
Dpeak 122.6°C
Step Analysis
Height 0.40 mW
0.03 W/g
ResiC. -2.54 mW
-0.20 W/g
Dpeak 233.5°C
100.
200.
300.
400.
°C

END SCREEN °C 448.0

TEMPERATURE °C

HEAT FLOW
EXOTHERMAL-->



******** METTLER TA4000 SYSTEM *********

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R327	Customer ID: 791-7A
Analysis: MERCURY	Sample Prep: UNDIGESTED

Instrument: PERKIN ELMER WA77479	Procedure/Rev: LA-325-102/B-0
Technologist: D. R. JACKSON	Date: 10-17-91
Starting Time: 8:00	Temperature: N/A
Ending Time: 2:00	Chemist: R. K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5597	11		
2	REAGENT BLANK	R325-5697	12		
3	SAMPLE 791-7A	R327-5797	13		
4	FINAL LMCS CHECK STD	R331-5597	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	125B38D/1.50 mL			N/A

A-6000-881 (03/92)

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.-5597	106AW	9-20-91	10:6	25

Determination	Method/Standard	Result Units	Charge Code	Results
Hg	LA-325-102	% RECOVERY	WITE?	0

Sample Size: 1.50 ml — Customer ID: STD

Remarks, Calculations, Results
EDF R716 HG/HYDRD
STD# 125838D RESULT 1.17E-1
STD VAL 1.00E-1 %REC 117.0%
0.561 176.15/1500 =

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C275				

Date: 10-17-91 — Time Completed: — Lab Unit Mgr: [signature]
10-16-91 JR 7-7-92

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.-5697	106AW	9-20-91	10:8	25

Determination	Method/Standard	Result Units	Charge Code	Results
Hg	LA-325-102	PPM	WITE?	

Sample Size: 10.0 ml — Customer ID: PEG 10

Remarks, Calculations, Results
REAGENT BLANK
-0.002 <5/10,000 = <5.00E-4 ppm

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C275				

Date: 10-17-91 — Time Completed: — Lab Unit Mgr: [signature]
10-16-91 JR 7-7-92

Serial No.	Sample Point	Date	Time Issued	Priority
R 327.-5797	106AW	9-20-91	10:16	25

Determination	Method/Standard	Result Units	Charge Code	Results
Hg	LA-325-102	PPM	WITE?	0

Sample Size: 1.0 ml — Customer ID: 791 7A

Remarks, Calculations, Results
-0.008 <5/1000 = <5.00E-3 ppm

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C275				

Date: 10-16-91 — Time Completed: — Lab Unit Mgr: [signature]
10-17-91 JR 7-7-92

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.-5597	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Results
Hg	LA-325-102	% RECOVERY	WITE?	0

Sample Size: 1.50 ml — Customer ID: STD

Remarks, Calculations, Results
EDF R716 HG/HYDRD
STD# 125838D RESULT 9.24E-2
STD VAL 1.00E-1 %REC 92.4%
0.446 138.67/1500 =

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C275				

Date: 10-16-91 — Time Completed: — Lab Unit Mgr: [signature]
10-17-91 JR 7-7-92

9 3 1 2 1 5 3 1 5 7 2

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
CALIBRATION RECORD

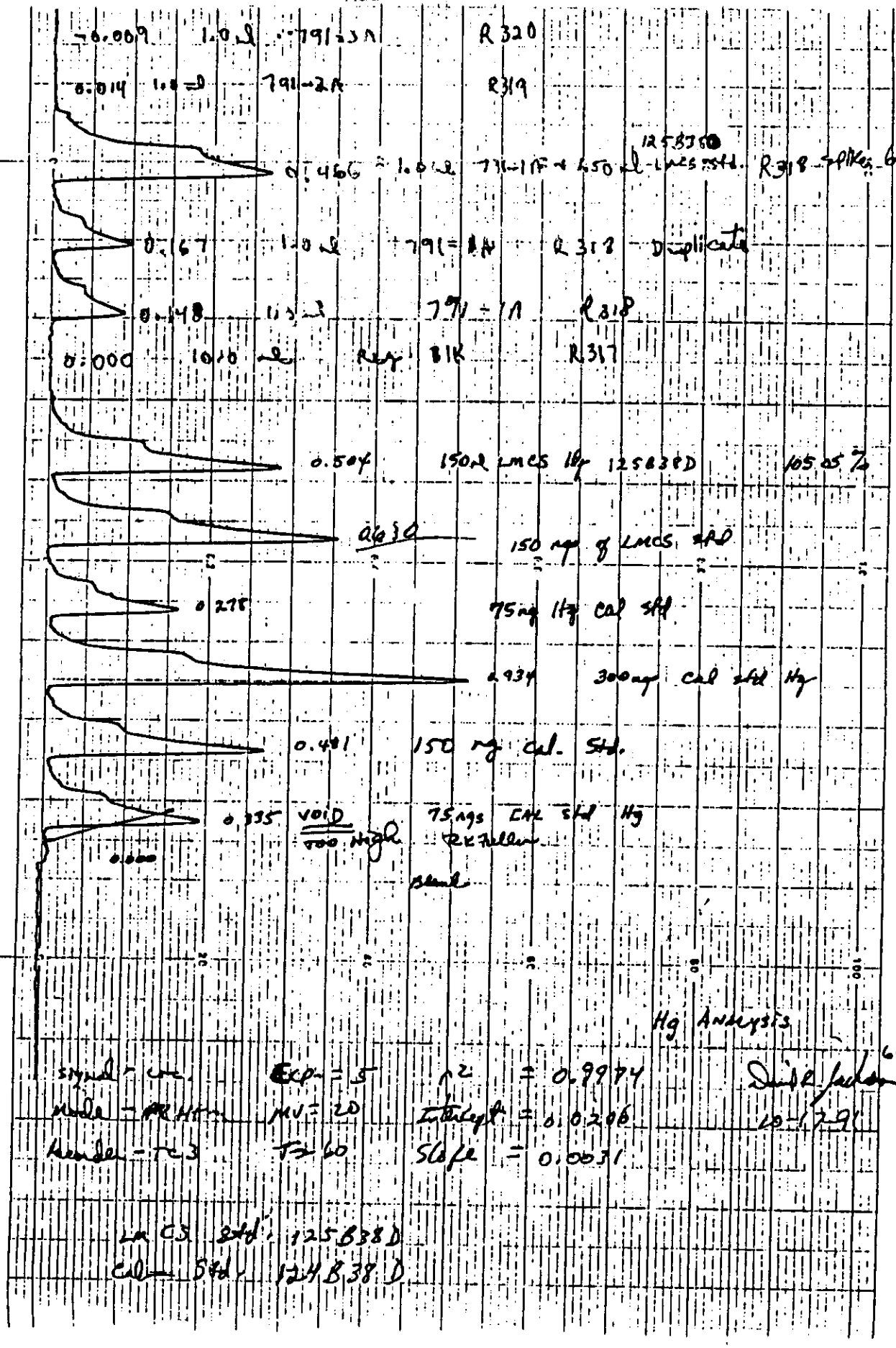
Analyte: Hg
Procedure: LA-325-102 | Revision: B-0
Instrument: PERKIN ELMER | Property No.: WA77479
Technologist: D. R. JACKSON | Payroll No.: 6C275 | Date: 10-17-91

Calibration Standard: 124B38D
Analyte Concentration: 0.1000 ppm
Type of Calibration: LINEAR

	Dilution	Concentration	Instrument Reading Unit
1	0.000 mL	0 ng	0.000
2	0.750 mL	75 ng	0.278
3	1.500 mL	150 ng	0.481
4	3.000 mL	300 ng	0.934
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Comments:

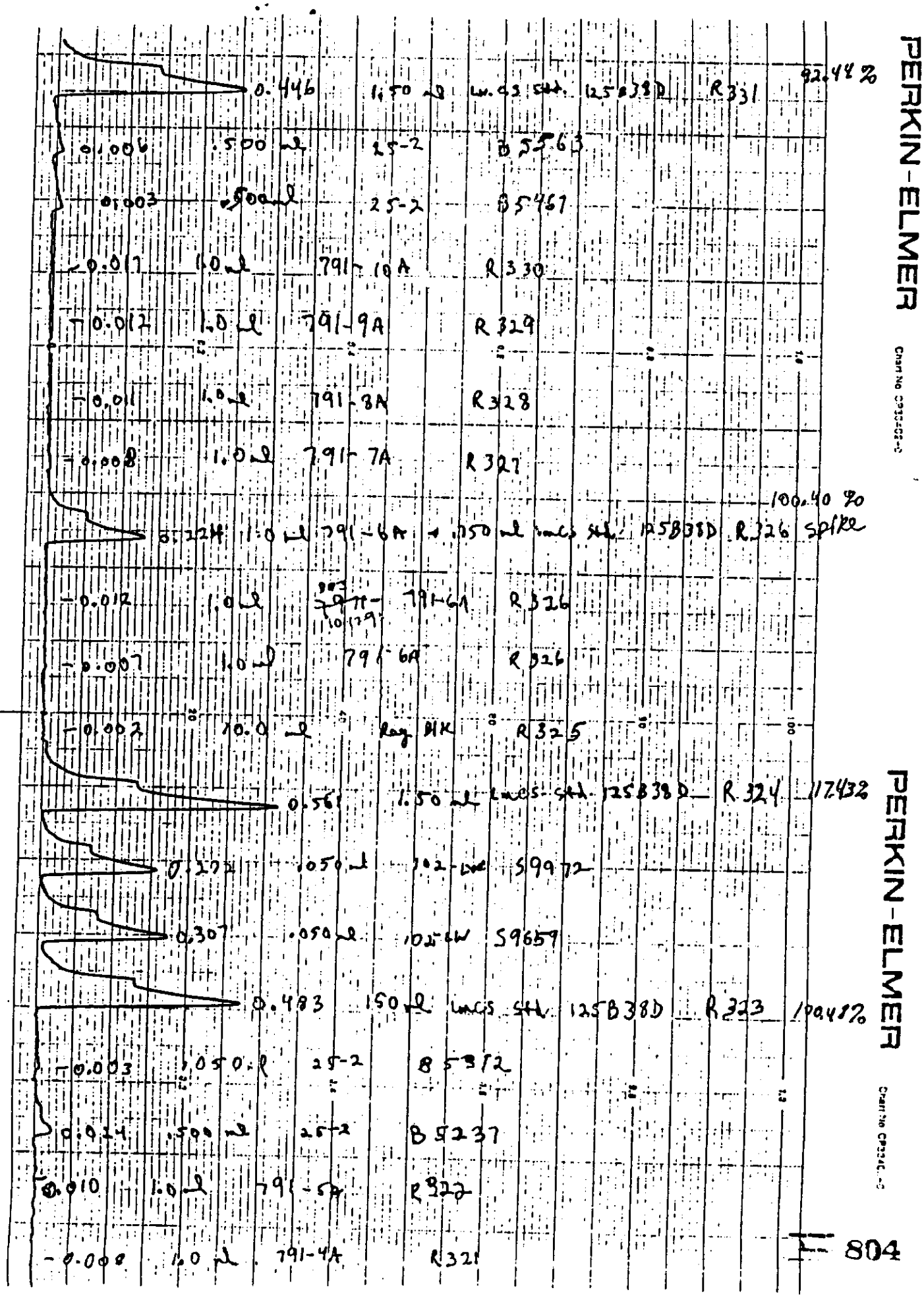
A-6000-882 (03/92)



PERKIN-ELMER

PERKIN-ELMER

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED THE ANALYSIS RUN ON PAGES 803 TO 804.


PERKIN-ELMER
0.446 1.50 ml LMCS Std. 125B38D R331 92.44%
0.006 .500 ml 25-2 B5563
0.003 .500 ml 25-2 B5467
-0.017 1.0 ml 791-10A R330
-0.012 1.0 ml 791-9A R329
-0.011 1.0 ml 791-8A R328
-0.008 1.0 ml 791-7A R327
100.40%
0.224 1.0 ml 791-6A + .750 ml LMCS Std. 125B38D R326 spike
-0.012 1.0 ml 791-6A R326
-0.007 1.0 ml 791-6A R326
-0.002 10.0 ml Reg Blk R325
0.561 1.50 ml LMCS Std. 125B38D R324 117.43%
0.272 .050 ml 102-LW S9972
0.307 .050 ml 102-LW S9659
0.483 150 ml LMCS Std. 125B38D R323 100.48%
-0.003 .050 ml 25-2 B5312
0.024 .500 ml 25-2 B5237
0.010 1.0 ml 791-5A R322
-0.008 1.0 ml 791-4A R321
PERKIN-ELMER

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R327	Customer ID: 791-7A
Analysis: AMMONIA	Sample Prep: UNDIGESTED

Instrument: WB39927	Procedure/Rev: LA-634-102/D-0
Technologist: S. LAI	Date: 10-03-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5528	11		
2	REAGENT BLANK	R325-5628	12		
3	SAMPLE 791-7A	R327-5728	13		
4	FINAL LMCS CHECK STD	R331-5528	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	4C11-QQ/.250 mL			N/A

A-6000-881 (03/92)

AMMONIA ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Sample No	Sample Point	Date	Time Sampled	Priority
K 324.-5529	106AW	9-20-91	10:15	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NH4	LA-634-102	% RECOVERY	WITEP	0

Sample Size: 250 λ — 0.09941 N — Customer ID: STD

Remarks, Calculations, Results: 5255 10MCL

STDN 4C11-AA RESULT 5.90x10^-2 — Blank: 25 λ

STD VAL. 5.10x10^-2 %REC 96.08%

(.150-.025)(.09941) / .250 = .049 — STD: 150 λ

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
Sue Li				
Hrs 6.916	Hrs	Hrs	Hrs	Hrs

Date: 10-2-91 — Time Completed: — Lab Unit Mgr: DM Thomas

Sample No	Sample Point	Date	Time Sampled	Priority
K 325.-5626	106AW	9-20-91	10:2	

Determination	Method/Standard	Result Units	Charge Code	Reruns
NH4	LA-634-102	PPM	WITEP	

Sample Size: 1 ml — 0.09941 N — Customer ID: REG. BL

Remarks, Calculations, Results: REAGENT BLANK

< (.010)(.09941) / 1 = <9.94x10^-4 M — Blank: 25 λ

(4µ) Blank: 25 λ

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
Sue Li				
Hrs 6.916	Hrs	Hrs	Hrs	Hrs

Date: 10-3-91 — Time Completed: — Lab Unit Mgr: DM Thomas

Sample No	Sample Point	Date	Time Sampled	Priority
K 327.-5720	106AW	9-20-91	10:15	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NH4	LA-634-102	PPM	WITEP	0

Sample Size: 1 ml — 0.09941 N — Customer ID: 271-7A

Remarks, Calculations, Results:

(.206-.025)(.09941) / 1 = 1.77x10^-2 M — Blank: 25 λ

Sample: 206 λ

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
Sue Li				
Hrs 6.916	Hrs	Hrs	Hrs	Hrs

Date: 10-3-91 — Time Completed: — Lab Unit Mgr: DM Thomas

Sample No	Sample Point	Date	Time Sampled	Priority
K 331.-5528	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NH4	LA-634-102	% RECOVERY	WITEP	0

Sample Size: 250 λ — 0.09941 N — Customer ID: STD

Remarks, Calculations, Results: 5255 10MCL

STDN 4C11-AA RESULT 4.93x10^-2 — Blank 25 λ

STD VAL. 5.10x10^-2 %REC 96.67%

(.152-.025)(.09941) / .250 — TD: 152 λ

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
Sue Li				
Hrs 6.916	Hrs	Hrs	Hrs	Hrs

Date: 10-3-91 — Time Completed: — Lab Unit Mgr: DM Thomas

9 3 1 2 2 3 1 5 7 7

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R327	Customer ID: 791-7A
Analysis: DETERMINATION OF HYDROXIDE IONS IN SOLUTION	Sample Prep: UNDIGESTED

Instrument: FISHER - WA77509	Procedure/Rev: LA-661-102/F-1
Technologist: M. BIERMAN	Date: 09-26-91
Starting Time: NA	Temperature: 25degC
Ending Time: NA	Chemist: S. ISAACSON

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5529	11		
2	REAGENT BLANK	R325-5629	12		
3	SAMPLE 791-7A	R327-5729	13		
4	FINAL LMCS CHECK STD	R331-5529	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	9C11AF/0.100 mL			0.100 mL

A-6000-881 (03/92)

DETERMINATION OF HYDROXIDE ION IN SOLUTION - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.5529	106AW	9-20-91	10:5	25

Determination	Method/Standard	Result Units	Charge Code	Return
OH	EA 661 102	% RECOVERY	WHE2	0

Sample Size: .100 ml — Customer ID: SID

Remarks, Calculations, Results:
SIDH9611AF RESULT 1.02
SID VOL 1.0136 %REC 100.7%
1 ml BaCl
.1905 ⌀ HNO3
(542.5 - 9)(.1905)/100 =

Analyst 1	Analyst 2	Analyst 3	Analyst 4	Analyst 5
6559				
[signature]				

Date: 9/24/91 — Time Completed — Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.5629	106AW	9-20-91	10:0	25

Determination	Method/Standard	Result Units	Charge Code	Return
OH	EA 661 102	M	WHE2	0

Sample Size: 3 ml Q-H2O — Customer ID: REG BL

Remarks, Calculations, Results:
READ THE BLANK
.1905 ⌀ HNO3

Complete

Analyst 1	Analyst 2	Analyst 3	Analyst 4	Analyst 5
6559				
[signature]				

Date: 9/24/91 — Time Completed — Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 327.5729	106AW	9-20-91	10:15	25

Determination	Method/Standard	Result Units	Charge Code	Return
OH	EA 661 102	M	WHE2	0

Sample Size: .050 ml — Customer ID: 791 ZA

Remarks, Calculations, Results:
1 ml BaCl
10 ml H2O
1 ml OH (SCHAF) .100 ml
.1905 ⌀ HNO3
(884.5 - 542.5)(.1905)/50 =
1.30 M

Analyst 1	Analyst 2	Analyst 3	Analyst 4	Analyst 5
6559				
[signature]				

Date: 9/24/91 — Time Completed — Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.5529	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Return
OH	EA 661 102	% RECOVERY	WHE2	0

Sample Size: .100 ml — Customer ID: SID

Remarks, Calculations, Results:
SIDH9611AF RESULT 9.98E-1 m
SID VOL 1.0136 %REC 98.5%
1 ml BaCl
3 ml Q-H2O
.1905 ⌀ HNO3
(533 - 9)(.1905)/100 =

Analyst 1	Analyst 2	Analyst 3	Analyst 4	Analyst 5
6559				
[signature]				

Date: 9/26/91 — Time Completed — Lab Unit Mgr: [signature]

9 3 1 2 1 3 1 5 7 9

DOCUMENTATION SEP 26 1991 10:51 AM

ANALYST: 6C559 LOCATION: 222-S 200 West

TITRANT: 1905 M HNO_3

INDICATING ELECTRODE:

REFERENCE ELECTRODE: 98% efficiency

SAMPLE:

SETUP PARAMETERS

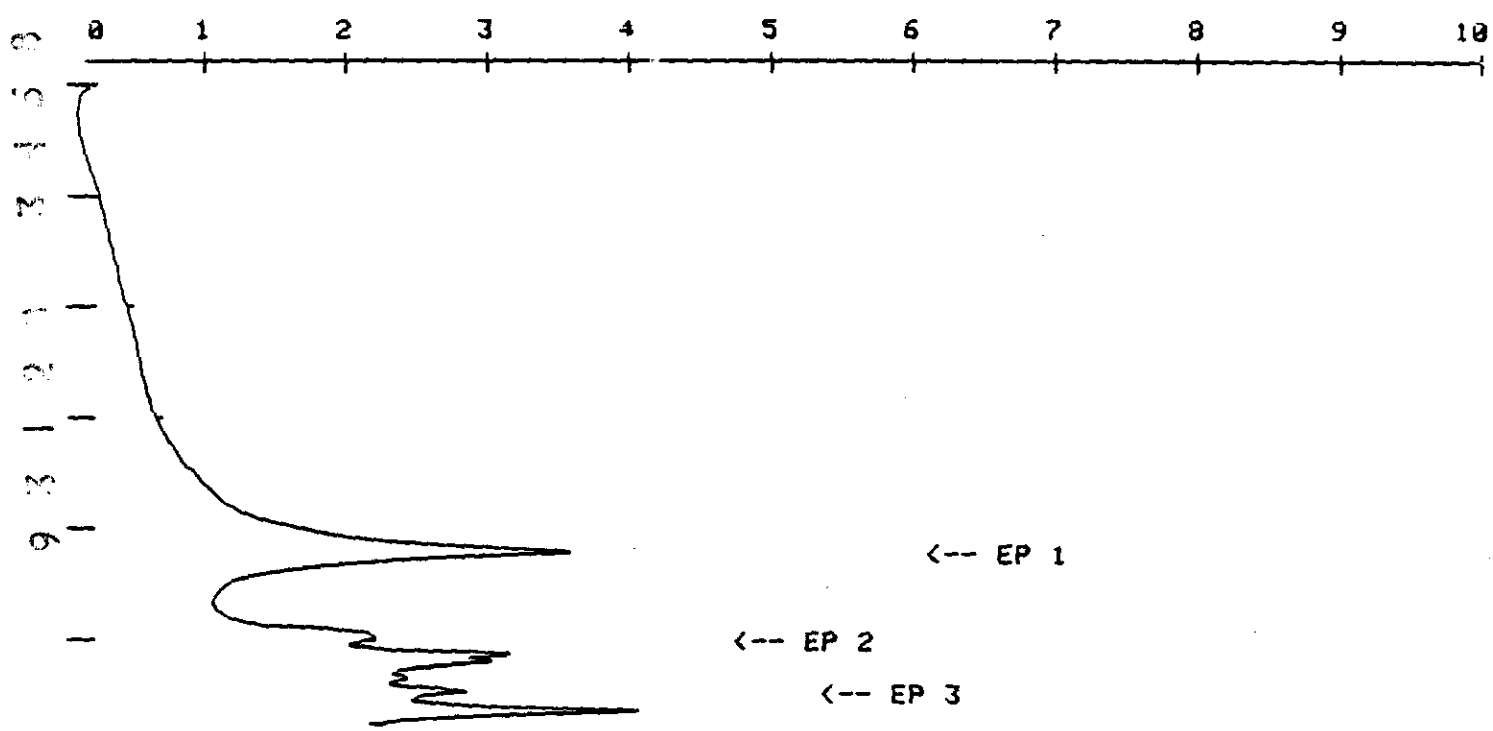
MODE:	DIRECT READ PH
ELECTRODE STDZ:	PH
EQUILIBRATION TIME, SEC:	15

MODE:	ORV TITRATION
ELECTRODE STDZ:	PH
dE/dV SIGN:	+
ML LIMIT:	2.50
PH LIMIT:	3.
TITRATION RATE:	10
SENSITIVITY:	1
DISPENSE, ML:	0.
PLOT GAIN:	5
COMPUTATION:	CONCENTRATION
TITRANT NORMALITY:	0.1900
SOLVENT BLANK:	0.
MULTIPLIER:	0.

LAST ELECTRODE STANDARDIZATION: SEP 26 1991 10:20 AM

SAMPLE NUMBER: 2
SAMPLE DATA: 331.
DIRECT READ PH: 12.055

DERIVATIVE OUTPUT, dE/dU



DRV TITRATION:

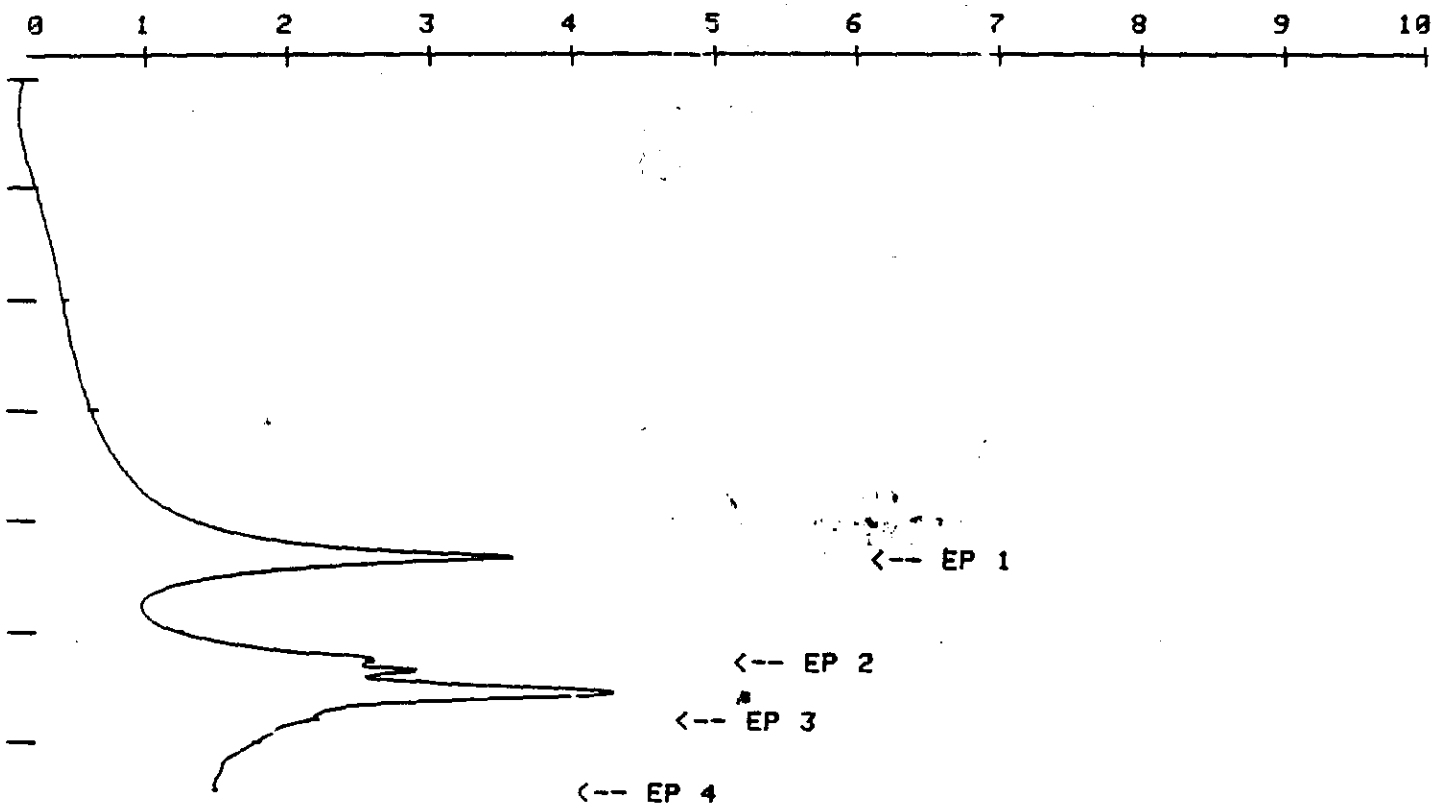
EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.62	0.525	0.0000
8.51	0.623	0.0000
6.29	0.680	0.0000

TITRATION TERMINATED BY PH LIMIT.

SEP 26 1991 2:55 PM

SAMPLE NUMBER: 1
SAMPLE DATA: 331.
DIRECT READ PH: 12.057

DERIVATIVE OUTPUT, dE/dV



ORV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.65	0.541	0.0000
8.24	0.656	0.0000
4.79	0.722	0.0000
3.80	0.802	0.0000

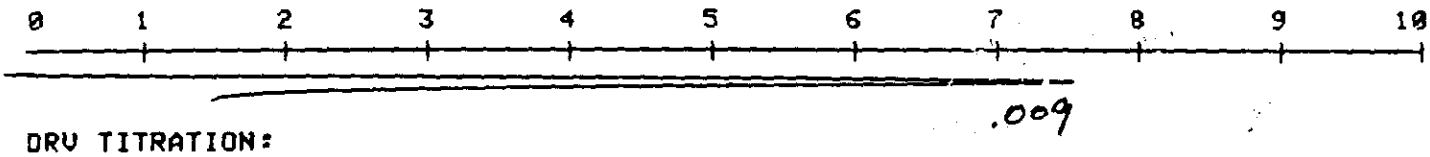
TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

SEP 26 1991 2:48 PM

SAMPLE DATA: 325.
DIRECT READ PH: 5.668

WHC-SD-WM-DP-025
Addendum 16 Rev 0

DERIVATIVE OUTPUT, dE/dV



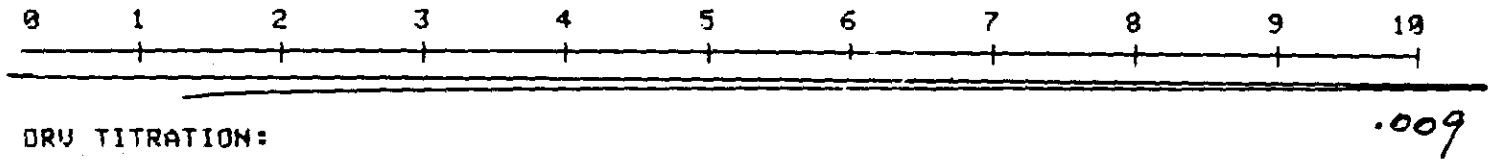
DRV TITRATION:

TITRATION TERMINATED BY PH LIMIT.

SEP 26 1991 10:47 AM

SAMPLE NUMBER: 2
SAMPLE DATA: 325.
DIRECT READ PH: 5.739

DERIVATIVE OUTPUT, dE/dV



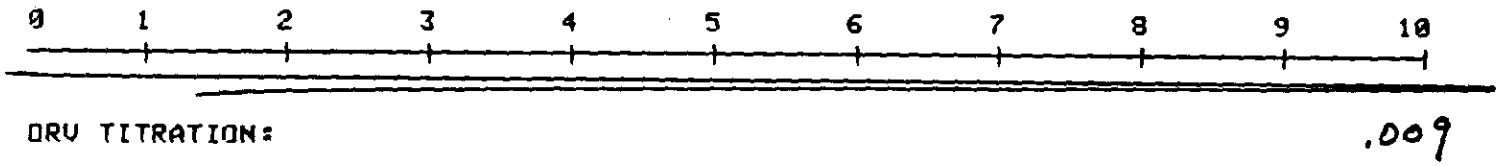
DRV TITRATION:

TITRATION TERMINATED BY PH LIMIT.

SEP 26 1991 10:49 AM

SAMPLE NUMBER: 3
SAMPLE DATA: 325.
DIRECT READ PH: 5.727

DERIVATIVE OUTPUT, dE/dV



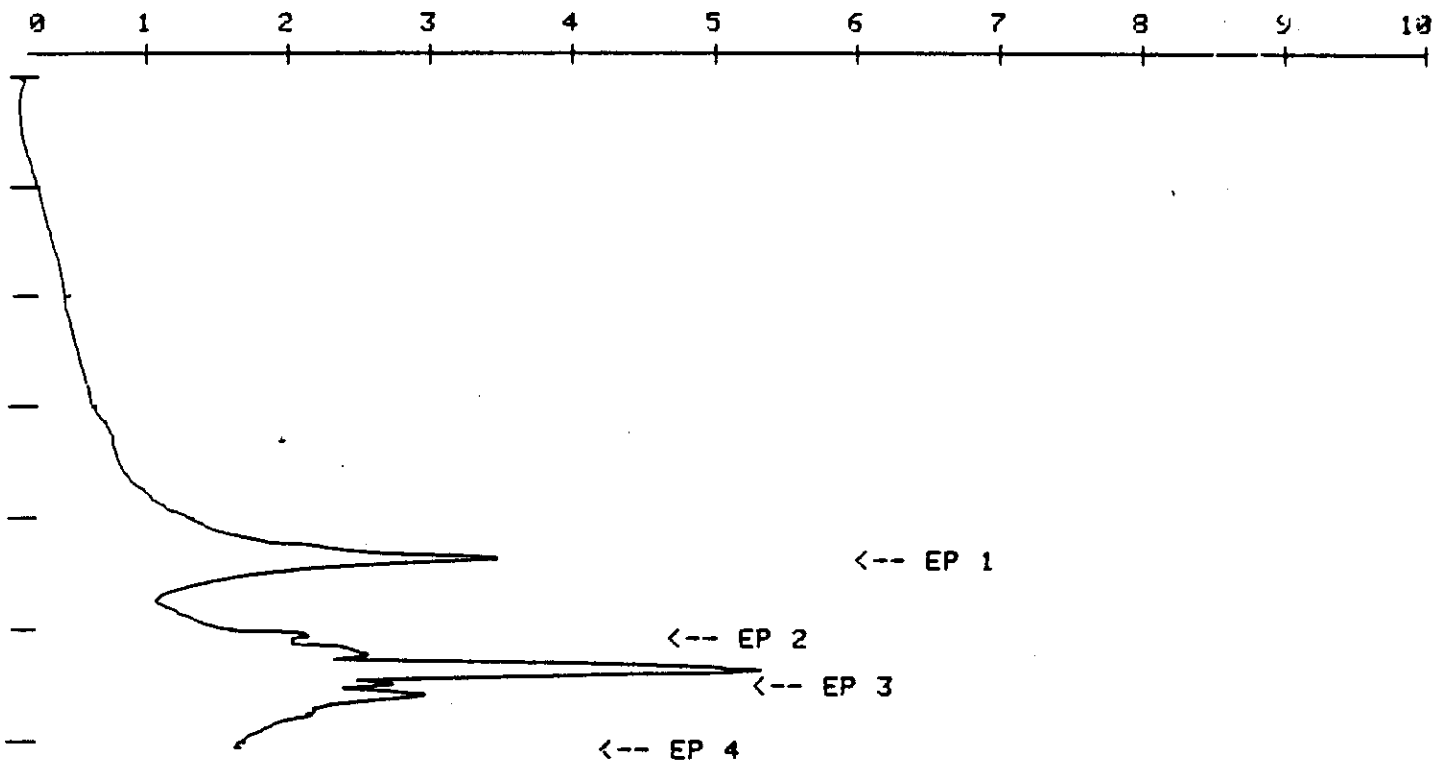
DRV TITRATION:

TITRATION TERMINATED BY PH LIMIT.

EP 26 1991 10:51 AM

SAMPLE NUMBER: 2
SAMPLE DATA: 324.
DIRECT READ PH: 12.041

DERIVATIVE OUTPUT, dE/dV



ORV TITRATION:

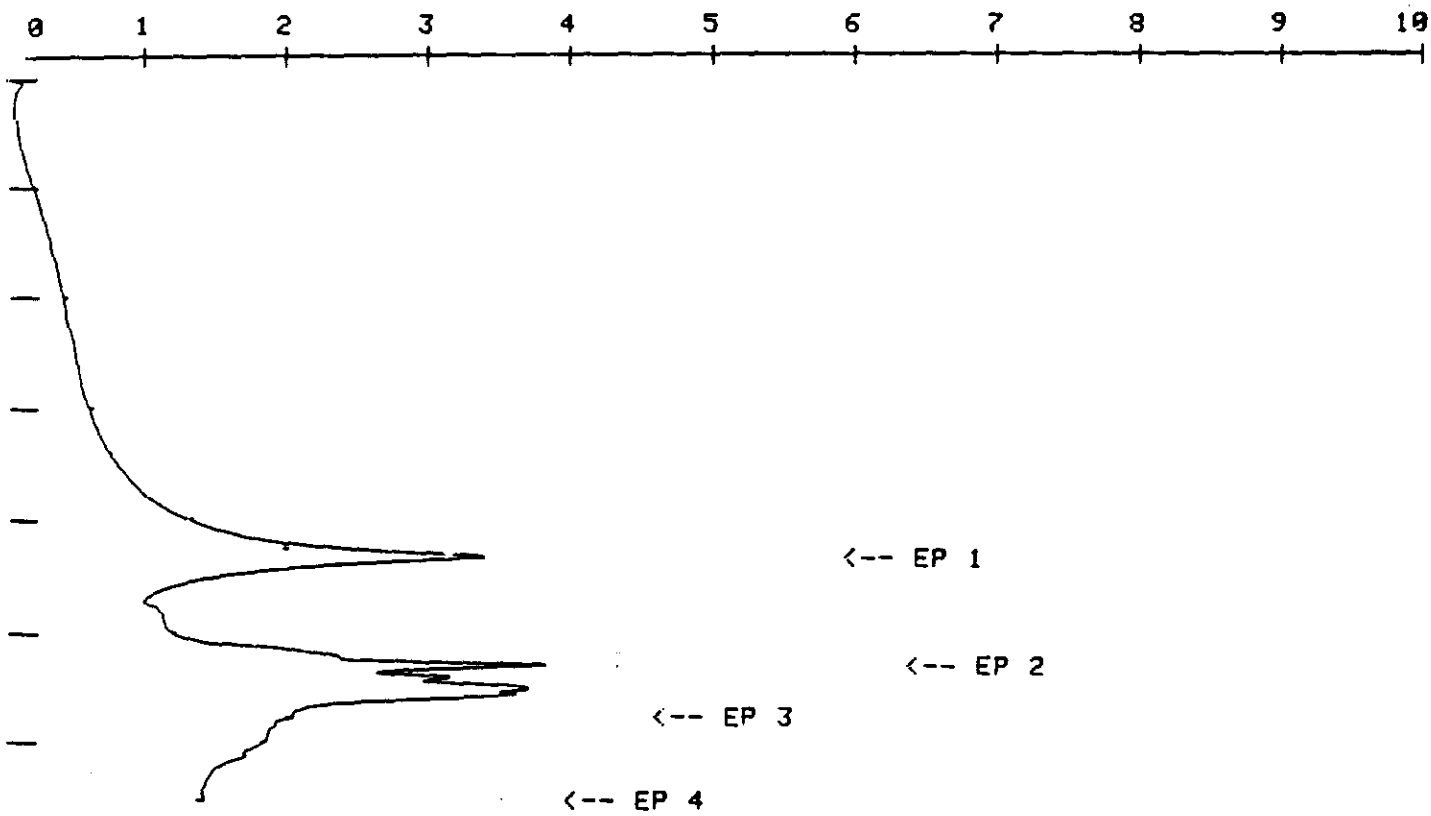
EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.75	0.544	0.0000
8.78	0.632	0.0000
5.78	0.683	0.0000
4.03	0.752	0.0000

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

SEP 26 1991 10:45 AM

SAMPLE DATA: 324.
DIRECT READ PH: 12.022

DERIVATIVE OUTPUT, dE/dV



ORV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.72	0.541	0.0000
7.75	0.662	0.0000
4.85	0.720	0.0000
3.66	0.813	0.0000

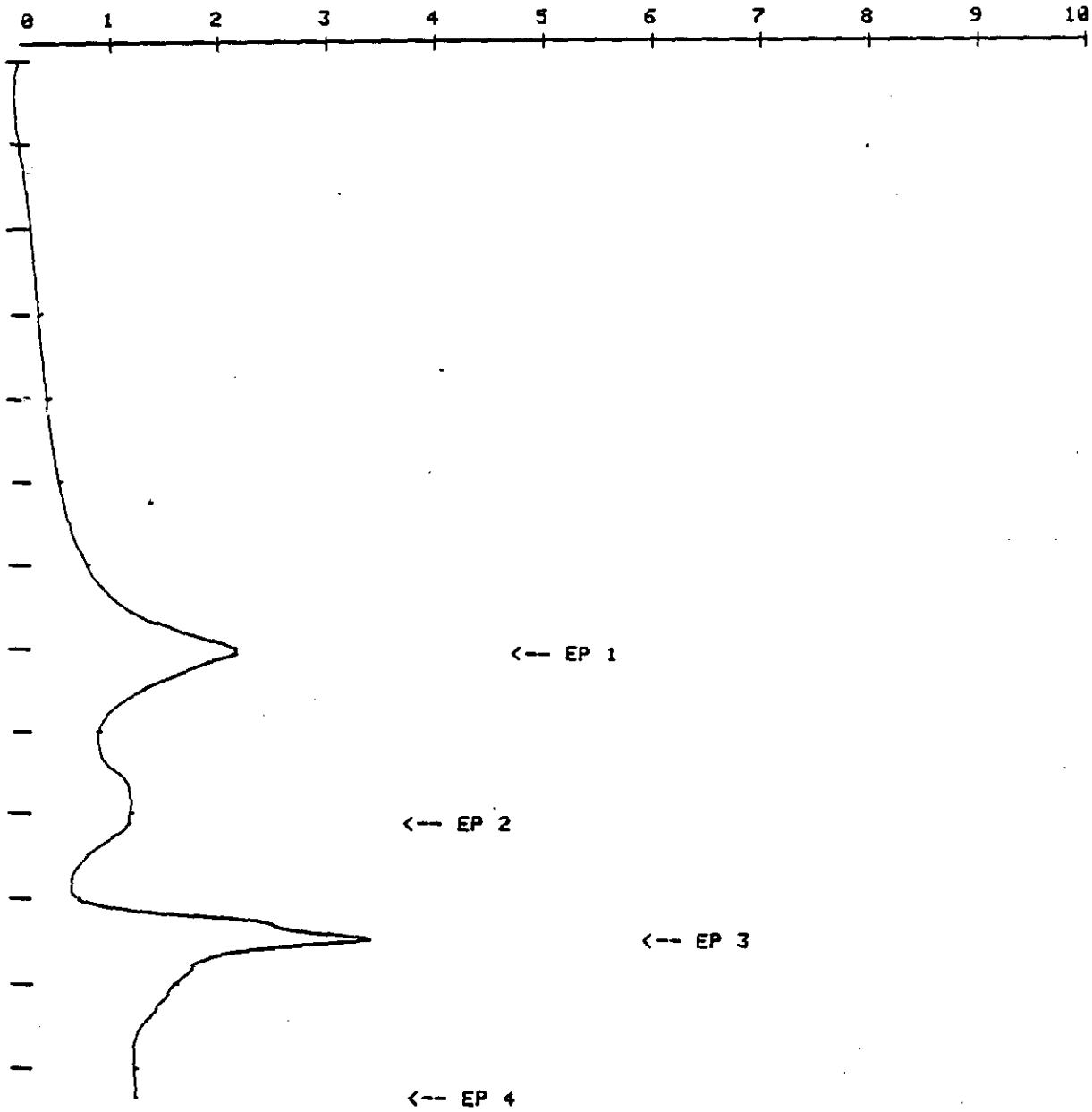
TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

SEP 26 1991 10:29 AM

SAMPLE DATA: 327.
DIRECT READ PH: 11.924

WHC-SD-WM-DP-025
Addendum 16 Rev 0

DERIVATIVE OUTPUT, dE/dV



ORV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.81	0.882	0.0000
8.39	1.139	0.0000
6.17	1.309	0.0000
3.87	1.539	0.0000

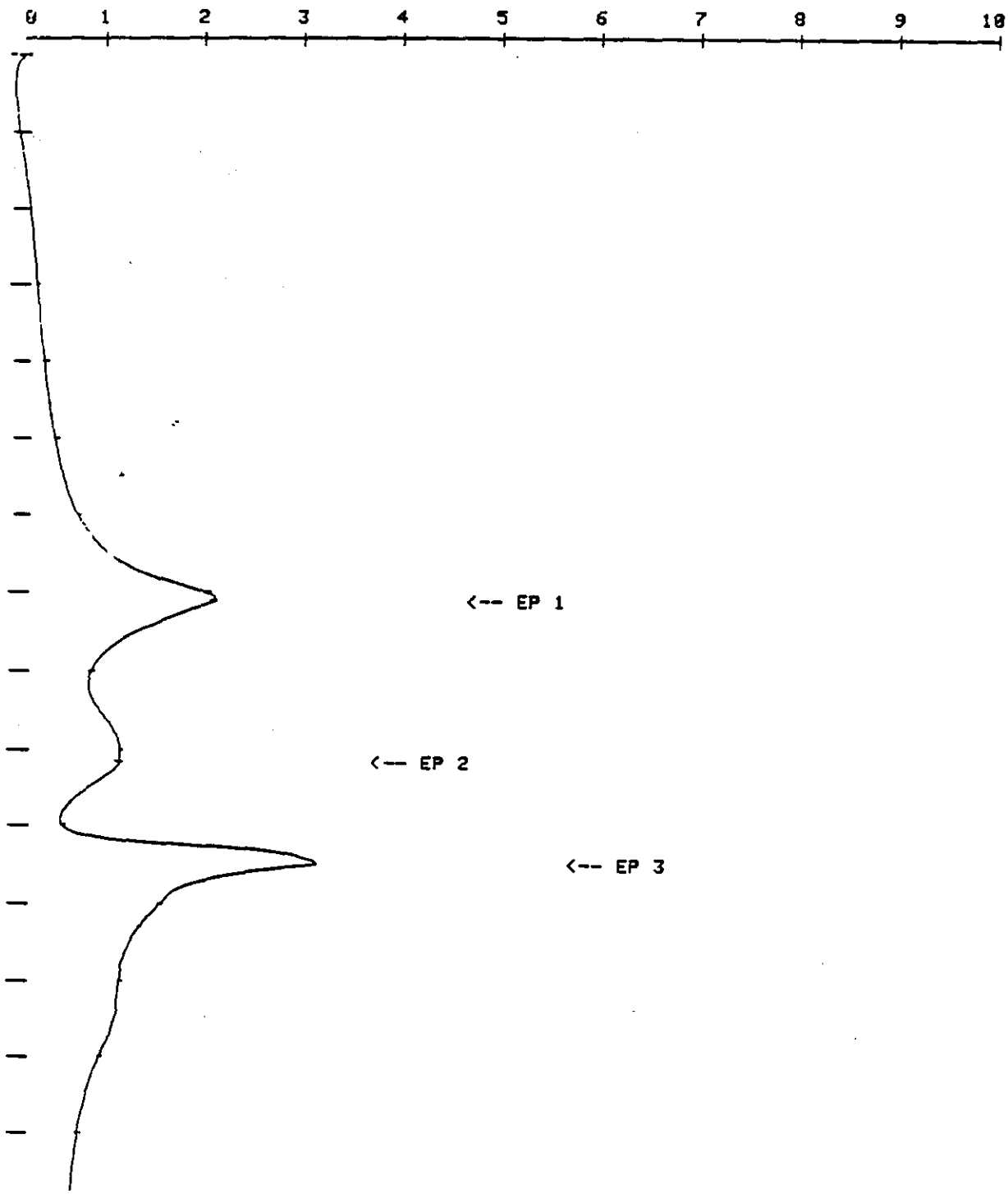
TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

SEP 26 1991 2:12 PM

DIRECT READ PH: 11.969

WHC-SD-WM-DP-025
Addendum 16 Rev 0

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.89	0.887	0.0000
8.48	1.144	0.0000
6.35	1.309	0.0000

TITRATION TERMINATED BY PH LIMIT.

SEP 26 1991 2:41 PM

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R327	Customer ID: 791-7A
Analysis: SELENIUM	Sample Prep: UNDIGESTED

Instrument: PERKIN ELMER - WA77479	Procedure/Rev: LA-365-131/B-1
Technologist: M. MYERS	Date: 09-24-91
Starting Time: 8:00	Temperature: NA
Ending Time: 11:30	Chemist: K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5596	11		
2	REAGENT BLANK	R325-5696	12		
3	SAMPLE 791-7A	R327-5796	13		
4	FINAL LMCS CHECK STD	R331-5596	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	125B38A/0.500 mL			N/A

A-6000-881 (03/92)

SELENIUM ANALYSIS - UNDIGESTED SAMPLE
WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5596	106AW	9-20-91	10: 5	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
Se	LA-365-131	% RECOVERY	WITE2	

Sample Size	Customer ID
.500 ml	STD

Remarks, Calculations, Results
EDF R743 SE/HYDRD
STD# 125B38A RESULT 1.08E-1
STD VAL 1.00E-1 %REC 108.0%
0.932
54.12ng / 500 = 1.08E-1

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				
Date 9-24-91	Time Completed	Lab Unit Mgr		

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5696	106AW	9-20-91	10: 0	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
Se	LA-365 131	PPM	WITE2	

Sample Size	Customer ID
1.0 ml	REG BL

Remarks, Calculations, Results
REAGENT BLANK
-0.046
<5ng / 1000 = <5.00E-3 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				
Date 9-24-91	Time Completed	Lab Unit Mgr		

Serial No	Sample Point	Date	Time Issued	Priority
R 327.-5796	106AW	9-20-91	10:14	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
Se	LA 365 131	PPM	WITE2	0

Sample Size	Customer ID
.500 ml	791 7A

Remarks, Calculations, Results
0.061
<5ng / 500 = <1.00E-2 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				
Date 9-24-91	Time Completed	Lab Unit Mgr		

Serial No	Sample Point	Date	Time Issued	Priority
R 331. 5596	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
Se	LA-365 131	% RECOVERY	WITE2	0

Sample Size	Customer ID
.500 ml	STD

Remarks, Calculations, Results
EDF R743 SE/HYDRD
STD# 125B38A RESULT 9.396E-2
STD VAL 1.00E-1 %REC 94.0%
0.809 46.98ng

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				
Date 9-24-91	Time Completed	Lab Unit Mgr		

9 3 1 2 1 3 4 5 3 9

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
CALIBRATION RECORD

Analyte:	Se				
Procedure:	LA-365-131	Revision:	B-1		
Instrument:	PERKIN-ELMER	Property No.:	WA77479		
Technologist:	D. R. JACKSON	Payroll No.:	6C275	Date:	09-24-91

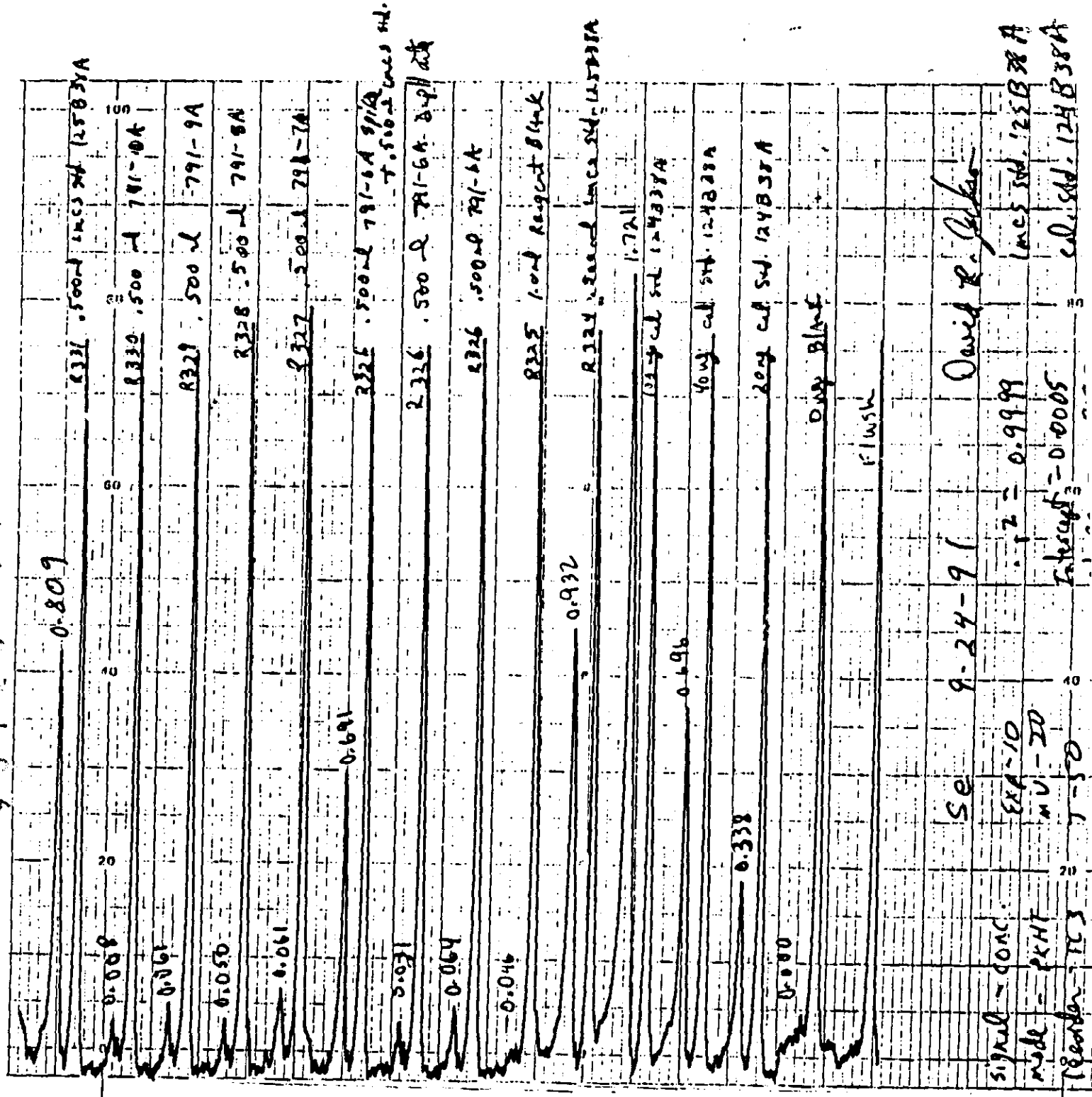
Calibration Standard: 124B38A
Analyte Concentration: 0.1000 ppm
Type of Calibration: LINEAR

	Dilution	Concentration	Instrument Reading Unit
1	0.000 mL	0.0 ng	0.000
2	0.200 mL	20.0 ng	0.338
3	0.400 mL	40.0 ng	0.696
4	1.000 mL	100.0 ng	1.721
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Comments:

A-6000-882 (0

PERKIN-ELMER Chart No. CP33402-0



WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R327	Customer ID: 791-7A
Analysis: SPECIFIC GRAVITY	Sample Prep: UNDIGESTED

Instrument: WA90787	Procedure/Rev: LA-510-112/C-2
Technologist: L. TEMPLE	Date: 10-24-91
Starting Time: 09:30	Temperature: N/A
Ending Time: 11:20	Chemist: R. K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5506	11		
2	REAGENT BLANK	R325-5606	12		
3	SAMPLE 791-7A	R327-5706	13		
4	FINAL LMCS CHECK STD	R331-5506	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	15C11-BJ/0.20019 mL			N/A

A-6000-881 (03/92)

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5506	106AW	9-20-91	10:5	25

Determination	Method Standard	Result Units	Charge Code	Return
SPG	LA-510-112	% REAGENT	W11E2	1

Sample Size: ? 200.19 d
Customer ID: STD

Remarks, Calculations, Results
S332 ZNCL2
STDN 15C11-BJ RESULT 1.402
STD VAL 1.4386 %REC 97.5%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
81808				

Date: 10-24-91

#1
W_1 = 1.9083
W_2 = 2.1914
.2831

#2
W_1 = 1.9553
W_2 = 2.2335
.2782

R324-5506

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5606	106AW	9-20-91	10:7	25

Determination	Method Standard	Result Units	Charge Code	Return
SPG	LA-510-112		W11E2	1

Sample Size: ? 200.19 d
Customer ID: REG BL

Remarks, Calculations, Results
REAGENT BLANK
1.0123

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
81808				

Date: 10-24-91

#1 #2
1.9385 $-W_1-$ 1.8845
2.1495 $-W_2-$ 2.0788
.2110 .1943

R325-5606

Serial No	Sample Point	Date	Time Issued	Priority
R 327.-5706	106AW	9-20-91	10:15	25

Determination	Method Standard	Result Units	Charge Code	Return
SPG	LA-510-112		W11E2	1

Sample Size: ? 200.19 d
Customer ID: 791-7A

Remarks, Calculations, Results
1.1876

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
81808				

Date: 10-24-91

#1 #2
1.9119 $-W_1-$ 1.9055
2.1495 $-W_2-$ 2.1434
.2376 .2379

R 327-5706

9 3 1 2 1 3 4 5 9 3

SPECIFIC GRAVITY ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Sample No	Sample Place	Date	Time Issued	Priority
R 331.-5506	106AW	9-20-91	10:25	[illegible]

RERUN

Determination	Method Reference	Result Units		Results
SPH	LA-510-112	% RECOVERY	[illegible]	1

Sample Size	Customer ID
? 200.19	STD

Reference Calculations, Results

S332 ZNCL2

STDN15C11-85 RESULT 1.4137

STD VAL 1.4386 %REC 98.3%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
91808				
Date	Time Completed	Date Last Mod		
10-24-91				

#1 #2

1.9257 $-W_1-$ 1.9098

2.2090 $-W_2-$ 2.1925

.0833 .0827

R331-5506

9 3 1 2 1 5 3 1 5 9 4

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R327	Customer ID: 791-7A
Analysis: TOTAL INORGANIC CARBON	Sample Prep: UNDIGESTED

Instrument: WB39927	Procedure/Rev: LA-622-102/B-0
Technologist: M. MYERS	Date: 09-26-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5527	11		
2	REAGENT BLANK	R325-5627	12		
3	SAMPLE 791-7A	R327-5727	13		
4	FINAL LMCS CHECK STD	R331-5527	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	69C11K/0.050 mL			NA

A-6000-881 (03/92)

9 3 1 2 3 3 1 5 9 5

TOTAL INORGANIC CARBON ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.-5527	106AW	9-20-91	10:5	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
TIC	LA-422-102	% RECOVERY	WITE2	0

Sample Size: ? .050ml — Customer ID: 816

Remarks, Calculations, Results:
S223 CO3
STDN 6AC11K RESULT 2.000E-1
STD VAL 2.000E-1 % REC 100.0%

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[illegible]				
6CB23				

Date: 9-26-91 — Time Completed: — Lab Verifier: [illegible]

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.-5627	106AW	9-20-91	10:[illegible]	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
TIC	LA-422-102	G/L	WITE2	0

Sample Size: ? Dissolve DYB 6/30/92 .050ml — Customer ID: [illegible]

Remarks, Calculations, Results:
[illegible]
~~7.99E-1~~ 5.60 ug/C g/L/monoxide DYB 6/30/92

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[illegible]				DYB [illegible]
6CB23				

Date: 9-26-91 — Time Completed: — Lab Verifier: [illegible]

Serial No.	Sample Point	Date	Time Issued	Priority
R 327.-5727	106AW	9-20-91	10:15	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
TIC	LA-422-102	G/L	WITE2	0

Sample Size: ? .050ml — Customer ID: 791-7A

Remarks, Calculations, Results:
~~3.97 g/L~~ 3.958 g/LC
DYB 6/30/92

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[illegible]				DYB [illegible]
6CB23				

Date: 9-26-91 — Time Completed: — Lab Verifier: [illegible]

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.-5527	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
TIC	LA-422-102	% RECOVERY	WITE2	0

Sample Size: ? .050ml — Customer ID: 816

Remarks, Calculations, Results:
S223 CO3
STDN 6AC11K RESULT ~~2.05E-1~~ 2.05E-1M DYB 6/30/92
STD VAL 2.00E-1 % REC ~~[illegible]~~ 102.5% DYB 6/30/92

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[illegible]				DYB [illegible]
6CB23				

Date: 9-26-91 — Time Completed: — Lab Verifier: [illegible]

9 3 1 2 0 5 3 4 5 7 6

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R324 Date: 09-26-1991 Time: 00:32:57

Blank = .7279823 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.00	88.40	100.00
3	3.01	112.20	21.21
4	4.00	120.10	6.58
5	5.00	122.90	2.28
6	6.01	124.20	1.05
7	7.00	125.10	0.72

(125.1 - 5.099395)(1)/(50) = 2.400012 g/L Carbon

(125.1 - 5.099395)(1)/(50)(12) = .200001 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: BLANK Date: 09-26-1991 Time: 00:20:54

Blank = N/A Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	1.60	100.00
3	3.01	2.30	30.43
4	4.00	3.00	23.33
5	5.01	3.70	18.92
6	6.01	4.50	17.78
7	7.01	5.10	11.76

BLANK VALUE = 5.1 / 7.005665 = .7279823 g/L/minute

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R325 Date: 09-26-1991 Time: 00:40:41

Blank = .7279823 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	2.00	100.00
3	3.01	2.90	31.03
4	4.01	3.70	21.62
5	5.01	4.30	13.95
6	6.01	5.00	14.00
7	7.01	5.60	10.71

Blank value = 5.60 ug Carbon DH Bisenius 6/30/92

(5.6 - 5.100003)(1)/(50) = 9.999943E-03 g/L Carbon

(5.6 - 5.100003)(1)/(50)(12) = 8.333286E-04 Molar Carbon

Sample Run By: 6C823

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R327 Date: 09-26-1991 Time: 03:22:58

Blank = .7279823 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	135.30	100.00
3	3.01	173.00	21.79
4	4.00	189.30	8.61
5	5.01	197.10	3.96
6	6.01	201.20	2.04
7	7.01	203.50	1.13

(203.5 - ~~5.099997~~ 5.60)(1)/(50) = ~~3.962~~ 3.958 g/LC g/L Carbon
D4B 6/30/92 D4 Bosenius 6/30/92
(203.5 - 5.099997)(1)/(50)(12) = .3306667 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R331 Date: 09-26-1991 Time: 03:40:02

Blank = .7279823 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

Reading	Analysis Time	Coulometer	% Difference
1	1.01	0.00	0.00
2	2.01	71.90	100.00
3	3.01	105.10	31.59
4	4.01	119.50	12.05
5	5.01	125.10	4.48
6	6.01	127.50	1.88
7	7.00	128.60	0.86

(128.6 - 5.099386)(1)/(50) = 2.470013 g/L Carbon
5.60 D4 Bisenius 6/30/92

(128.6 - ~~5.099386~~)(1)/(50)(12) = ~~.2058344~~ Molar Carbon
D4B 6/30/92 .205

Sample Run By: 6C823_____

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R327	Customer ID: 791-7A
Analysis: TOTAL ORGANIC CARBON	Sample Prep: UNDIGESTED

Instrument: MODEL 5011 - WC16130	Procedure/Rev: LA-344-105/B-0
Technologist: M. MYERS	Date: 9-26-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5526	11		
2	REAGENT BLANK	R325-5626	12		
3	SAMPLE 791-7A	R327-5726	13		
4	FINAL LMCS CHECK STD	R331-5526	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	70C11I/0.2 mL			NA

A-6000-881 (03/92)

TOTAL ORGANIC CARBON ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.-5526	106AW	9-20-91	10:5	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
TOC	LA-344-105	% RECOVERY	W1TE2	0

Sample Size: ? .200ml - 2ml - .200ml
Customer ID: STD

Remarks, Calculations, Results:
S356 CO3TOC
STDN 70C11 RESULT 2.95
STD VAL 3.00 %REC 98.3%

Analyst - 1: [signature] Hrs: 60823
Analyst - 2: Hrs:
Analyst - 3: Hrs:
Analyst - 4: [signature] Hrs:
Analyst - 5: Hrs:
Date: 9-26-91
Time Completed:
Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.-5626	106AW	9-20-91	10:7	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
TOC	LA-344-105	G/L	W1TE2	0

Sample Size: ? ~~DIRECT~~ DHB 6/30/92 .200 mL
Customer ID: REG BL

Remarks, Calculations, Results:
REAGENT BLANK
3.10 ug C
~~4.71E-1 g/l/minute~~
DHB 6/30/92

Analyst - 1: [signature] Hrs: 60823
Analyst - 2: Hrs:
Analyst - 3: Hrs:
Analyst - 4: Hrs:
Analyst - 5: DHB [signature] Hrs:
Date: 9-26-91
Time Completed:
Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 327.-5726	106AW	9-20-91	10:15	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
TOC	LA-344-105	G/L	W1TE2	0

Sample Size: ? .200ml - 2ml - .200ml
Customer ID: 791-7A

Remarks, Calculations, Results:
2.39 g/l C
DHB
9/27/91

Analyst - 1: [signature] Hrs: 60823
Analyst - 2: Hrs:
Analyst - 3: Hrs:
Analyst - 4: Hrs:
Analyst - 5: DHB [signature] 6/30/92 Hrs:
Date: 9-26-91
Time Completed:
Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.-5526	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
TOC	LA-344-105	% RECOVERY	W1TE2	0

Sample Size: ? .200ml - 2ml - .200ml
Customer ID: STD

Remarks, Calculations, Results:
S356 CO3TOC
STDN 70C11 I RESULT ~~2.99~~ 3.003 g/LC
DHB 6/30/92
STD VAL 3.0 %REC ~~[illegible]~~
DHB 6/30/92 100.1%

Batched with 79998

Analyst - 1: [signature] Hrs: 60823
Analyst - 2: Hrs:
Analyst - 3: Hrs:
Analyst - 4: Hrs:
Analyst - 5: DHB [signature] Hrs:
Date: 9-26-91
Time Completed:
Lab Unit Mgr: [signature]

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R324 Date: 09-26-1991 Time: 01:53:19

Blank = .4709794 Sample Size = 200 Dilution Factor = 11
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	13.70	100.00
3	3.01	43.70	68.65
4	4.01	51.90	15.80
5	5.01	54.90	5.46
6	6.01	56.20	2.31
7	7.01	56.90	1.23

(56.9 - 3.299598)(11)/(200) = 2.948022 g/L Carbon

(56.9 - 3.299598)(11)/(200)(12) = .2456685 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: BLANK Date: 09-26-1991 Time: 01:20:10

Blank = N/A Sample Size = 200 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.40	100.00
2	2.01	0.50	20.00
3	3.01	1.30	61.54
4	4.01	2.00	35.00
5	5.01	2.50	20.00
6	6.01	2.90	13.79
7	7.01	3.30	12.12

BLANK VALUE = 3.3 / 7.006676 = .4709794 g/L/minute

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R325 Date: 09-26-1991 Time: 02:01:54

Blank = .4709794 Sample Size = 200 Dilution Factor = ~~11~~ 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	0.80	100.00
3	3.01	1.50	46.67
4	4.01	2.00	25.00
5	5.01	2.40	16.67
6	6.01	2.80	14.29
7	7.01	3.10	9.68

Blank value = 3.10 ug Carbon D4 Bisenius 6/30/92
CORRECTED TO DF 1 .0998023

(3.1 - 3.299605)(11)/(200) = -1.097826E-02 g/L Carbon

(3.1 - 3.299605)(11)/(200)(12) = -9.148551E-04 Molar Carbon

Sample Run By: 6C823

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R327 Date: 09-26-1991 Time: 03:00:58

Blank = .4709794 Sample Size = 200 Dilution Factor = 11
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	3.00	100.00
3	3.01	31.80	90.57
4	4.01	42.00	24.29
5	5.01	45.80	8.30
6	6.01	47.70	3.98
7	7.01	48.80	2.25

(48.8 - ~~3.299522~~ 3.10)(11)/(200) = ~~2.502524~~ 2.5135 g/L Carbon
D4 Bisenius 6/30/92 D4B 6/30/92
(48.8 - 3.299522)(11)/(200)(12) = .2085439 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R327 Date: 09-26-1991 Time: 04:18:40

Blank = .4709794 Sample Size = 200 Dilution Factor = 11
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	1.60	100.00
3	3.01	29.10	94.50
4	4.01	39.00	25.38
5	5.01	42.10	7.36
6	6.01	43.60	3.44
7	7.01	44.50	2.02

(44.5 - ~~5.300004~~ 3.10)(11)/(200) = ~~2.266~~ 2.277 g/L Carbon
DY Bisenius 6/30/92
(44.5 - 3.300004)(11)/(200)(12) = .1888333 Molar Carbon

Sample Run By: 6C823_____

BATCH WITH R9998

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R331 Date: 09-26-1991 Time: 04:58:31

Blank = .4709794 Sample Size = 200 Dilution Factor = 11
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	8.30	100.00
3	3.01	44.40	81.31
4	4.01	53.20	16.54
5	5.01	55.90	4.83
6	6.01	57.00	1.93
7	7.01	57.70	1.21

(57.7 - ~~3.299989~~ 3.10)(11)/(200) = ~~2.992~~ 3.003 g/L Carbon
DY Bisenius 6/30/92 DMB 6/30/92

(57.7 - 3.299989)(11)/(200)(12) = .2493334 Molar Carbon

Sample Run By: 6C823

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R327	Customer ID: 791-7A
Analysis: ION CHROMATOGRAPHIC - CHLORIDE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-04-91
Starting Time: 20:46	Temperature: 24-25degC
Ending Time: 23:36	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5572	11		
2	REAGENT BLANK	R325-5672	12		
3	SAMPLE 791-7A	R327-5772	13		
4	FINAL LMCS CHECK STD	R331-5572	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (CHLORIDE) - UNDIGESTED SAMPLE

Sample No	Sample Point	Date	Time Issued	Priority
R 324.-5572	106AW	9-20-91	10:15	25

Determination	Method/Standard	Result Units	Charge Code	Reagent
CL	LA-533-105	% RECOVERY	WITEX	0

Sample Size: .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
LIM: R972 DIONEX
STD# 73C11C0 RESULT 71.429 ppm
STD VAL 75ppm %REC 95.20%

Analyst-1: [signature]
Analyst-2:
Analyst-3:
Analyst-4:
Analyst-5: [signature]
Rev: 6C823
Date: 10-4-91
Time Completed:
Log Book Page:

Sample No	Sample Point	Date	Time Issued	Priority
R 325.-5572	106AW	9-20-91	10:10	25

Determination	Method/Standard	Result Units	Charge Code	Reagent
CL	LA-533-105	PPM	WITEX	0

Sample Size: DIRECT
Customer ID: REG BL

Remarks, Calculations, Results:
REAGENT BLANK

<1.00E-1 ppm

Analyst-1: [signature]
Analyst-2:
Analyst-3:
Analyst-4:
Analyst-5: [signature]
Rev: 6C823
Date: 10-4-91
Time Completed:
Log Book Page:

Sample No	Sample Point	Date	Time Issued	Priority
R 327.-5572	106AW	9-20-91	10:16	25

Determination	Method/Standard	Result Units	Charge Code	Reagent
CL	LA-533-105	PPM	WITEX	0

Sample Size: .050ml - 10ml
Customer ID: 291 7A

Remarks, Calculations, Results:

1.18E 3 ppm

Analyst-1: [signature]
Analyst-2:
Analyst-3:
Analyst-4:
Analyst-5: [signature]
Rev: 6C823
Date: 10-4-91
Time Completed:
Log Book Page:

Sample No	Sample Point	Date	Time Issued	Priority
R 331.-5572	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Reagent
CL	LA-533-105	% RECOVERY	WITEX	0

Sample Size: .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
LIM: R972 DIONEX
STD# 73C11C0 RESULT 70.914 ppm
STD VAL 75ppm %REC 94.60%

Analyst-1: [signature]
Analyst-2:
Analyst-3:
Analyst-4:
Analyst-5: [signature]
Rev: 6C823
Date: 10-4-91
Time Completed:
Log Book Page:

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R327	Customer ID: 791-7A
Analysis: ION CHROMATOGRAPHIC - PHOSPHATE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-04-91
Starting Time: 20:46	Temperature: 24-25degC
Ending Time: 23:36	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5574	11		
2	REAGENT BLANK	R325-5674	12		
3	SAMPLE 791-7A	R327-5774	13		
4	FINAL LMCS CHECK STD	R331-5574	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (PHOSPHATE) - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5574	106AW	9-20-91	10: 6	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
PO4	LA-533-105	% RECOVERY	W11E2	0

Sample Size: .100ml - 10ml — Customer ID: STD

Remarks, Calculations, Results:
EDP R976 DIONEX
STD# 73C11C0 RESULT ~~583.15~~ 510.5
STD VAL 517 ppm %REC ~~112.8%~~ 98.8%
~~CR #~~ 10-09-91 KST

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				[signature]
60823				

Date: 10-4-91 — Time Completed: — Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5674	106AW	9-20-91	10: 8	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
PO4	LA-533-105	PPM	W11E2	0

Sample Size: DIRECT — Customer ID: REG 10

Remarks, Calculations, Results:
REAGENT BLANK
<1.00 ppm
~~out for rerun~~ KST 10-09-91

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				[signature]
60823				

Date: 10-4-91 — Time Completed: — Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 327.-5774	106AW	9-20-91	10:16	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
PO4	LA-533-105	PPM	W11E2	0

Sample Size: .050ml - 10ml — Customer ID: 291-76

Remarks, Calculations, Results:
1.82E3 ppm
~~out for rerun~~ 10-09-91 KST

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				[signature]
60823				

Date: 10-4-91 — Time Completed: — Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 331. 5574	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
PO4	LA 533 105	% RECOVERY	W11E2	0

Sample Size: .100ml - 10ml — Customer ID: STD

Remarks, Calculations, Results:
EDP R976 DIONEX
STD# 73C11C0 RESULT 517
STD VAL 510 %REC 98.9%
~~Out for Rerun~~ 10-10-91

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				[signature]
60823				

Date: 10-4-91 — Time Completed: — Lab Unit Mgr: [signature]

9 3 1 2 1 3 1 5 1 3

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R327	Customer ID: 791-7A
Analysis: ION CHROMATOGRAPHIC - SULFATE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-04-91
Starting Time: 20:46	Temperature: 24-25degC
Ending Time: 23:36	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5575	11		
2	REAGENT BLANK	R325-5675	12		
3	SAMPLE 791-7A	R327-5775	13		
4	FINAL LMCS CHECK STD	R331-5575	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (SULFATE) - UNDIGESTED SAMPLE

Sample No: K 324.-5575 | Sample Point: 106AW | Date: 9-20-91 | Time Issued: 10:6 | Priority: 25
Determination: SO4 | Method/Standard: LA-533-105 | Result Units: % RECOVERY | Charge Code: WITE2 | Remarks: 0
Sample Size: .100ml - 10ml | Customer ID: STD
Remarks, Calculations, Results: LDP 1970 DIONEX
STD# 73CUCO RESULT 56.544 ppm
STD VAL 60 ppm %REC 92.790
Analyst-1: [signature] | Analyst-2: | Analyst-3: | Analyst-4: | Analyst-5: [signature]
Pos: 60823 | Date: 10-4-91 | Time Completed: | Lab Use Only: [signature]

Sample No: K 325.-5575 | Sample Point: 106AW | Date: 9-20-91 | Time Issued: 10:11 | Priority: 25
Determination: SO4 | Method/Standard: LA-533-105 | Result Units: PPM | Charge Code: WITE2 | Remarks: 0
Sample Size: DIRECT | Customer ID: PPM 10
Remarks, Calculations, Results: REAGENT BLANK
<1.00 ppm
Analyst-1: [signature] | Analyst-2: | Analyst-3: | Analyst-4: | Analyst-5: [signature]
Pos: 60823 | Date: 10-4-91 | Time Completed: | Lab Use Only: [signature]

Sample No: K 327.-5575 | Sample Point: 106AW | Date: 9-20-91 | Time Issued: 10:15 | Priority: 25
Determination: SO4 | Method/Standard: LA-533-105 | Result Units: PPM | Charge Code: WITE2 | Remarks: 0
Sample Size: .050ml - 10ml | Customer ID: 291-28
Remarks, Calculations, Results: 1.06 E4 ppm
Analyst-1: [signature] | Analyst-2: | Analyst-3: | Analyst-4: | Analyst-5: [signature]
Pos: 60822 | Date: 10-4-91 | Time Completed: | Lab Use Only: [signature]

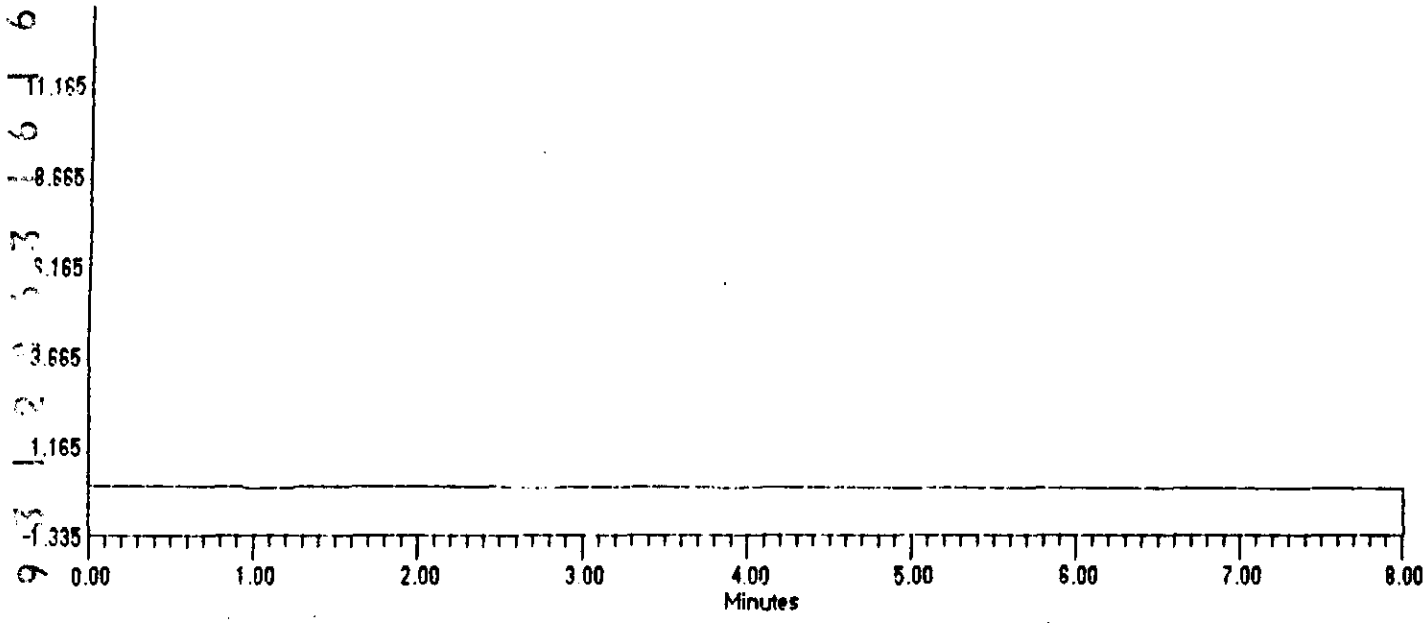
Sample No: K 331.-5575 | Sample Point: 106AW | Date: 9-20-91 | Time Issued: 10:20 | Priority: 25
Determination: SO4 | Method/Standard: LA-533-105 | Result Units: % RECOVERY | Charge Code: WITE2 | Remarks: 0
Sample Size: .100ml - 10ml | Customer ID: STD
Remarks, Calculations, Results: LDP 1970 DIONEX
STD# 73CUCO RESULT 61.569.9
STD VAL 60 ppm %REC 93.490
Analyst-1: [signature] | Analyst-2: | Analyst-3: | Analyst-4: | Analyst-5: [signature]
Pos: 60823 | Date: 10-4-91 | Time Completed: | Lab Use Only: [signature]

```
: Sample Name: BLANK                                  Date: Fri Oct 04 20:37:01 1991:
: Data File  : c:\dx\data\91100431.D02                                              :
: Method     : c:\dx\method\SYSTEM1.met                                             :
: ACI Address: 1        System : 1        Inject#:   2  Detector: CDM-1            :
```

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	1	2405	5Hz	0.00	8.02	1000	

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta

File: c:\dx\data\91100431.D02 Sample: BLANK



843

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TP2 8-31-92

~~825~~

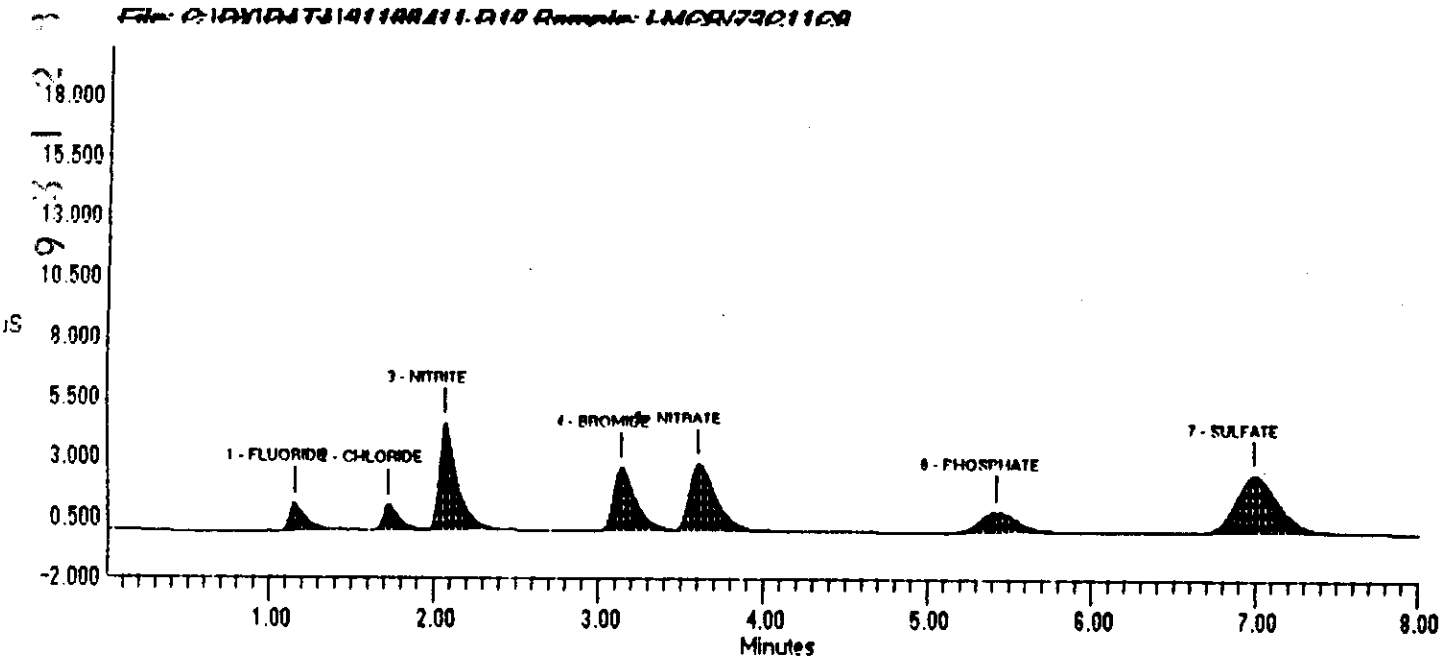
R323 → BATCH LMCS
R324
1-16-92

DATA REPLOCESSED ON Fri Oct 04 22:45:26 1991

Sample Name: LMCS/73C11C0 R324 1-16-92 Date: Fri Oct 04 22:10:28 1991
Data File : C:\DX\DATA\P110411.D12
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 12 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.15	FLUORIDE	32.102	1076	7152	1	0.00
2	1.72	CHLORIDE	21.127	993	6634	2	-0.48
3	2.07	NITRITE	487.247	4387	32321	2	0.33
4	3.13	BROMIDE	475.164	2556	23546	2	1.24
5	3.60	NITRATE	524.183	2723	30545	2	7.51
6	5.42	PHOSPHATE	510.540	921	12909	1	0.40
	6.98	SULFATE	565.442	2341	41638	1	0.47



844

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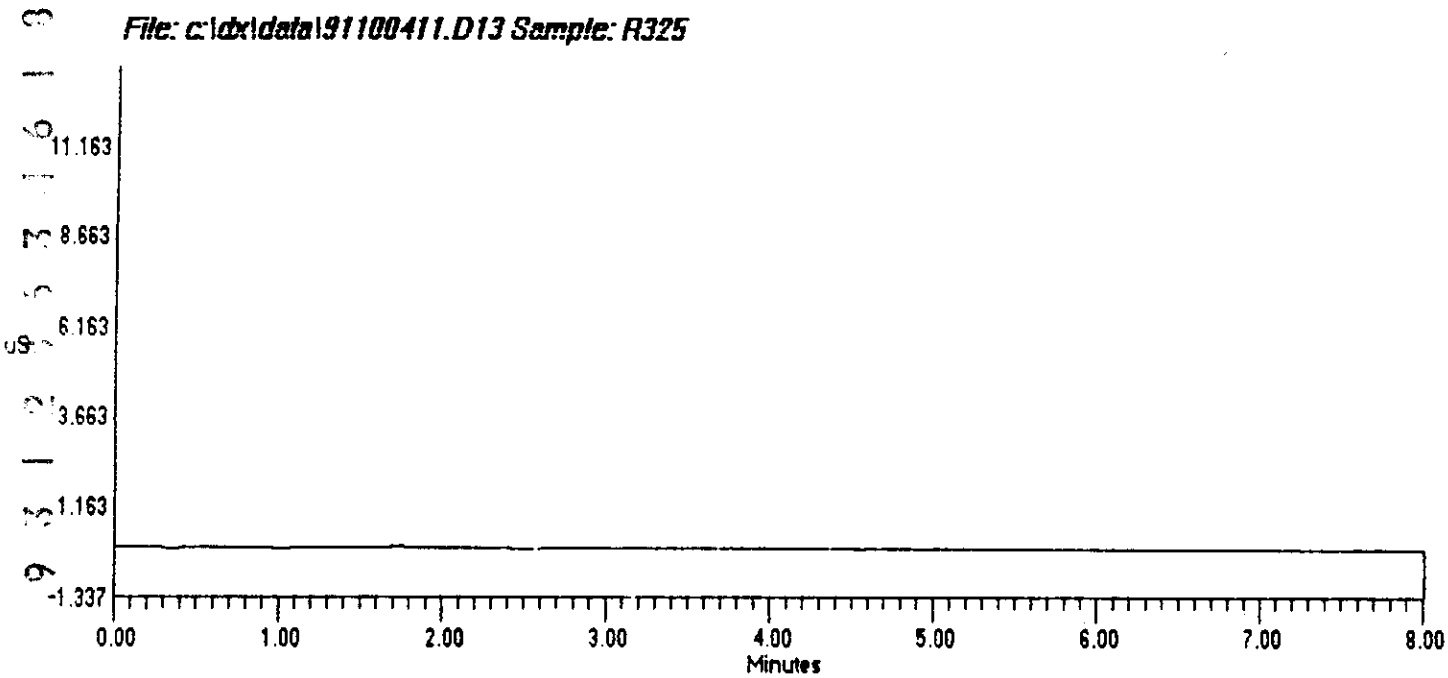
TPL 8-31-92 ~~826~~

Sample Name: R325 Date: Fri Oct 04 22:19:51 1991
Data File : c:\dx\data\91100411.D13
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 13 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	1	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta



845

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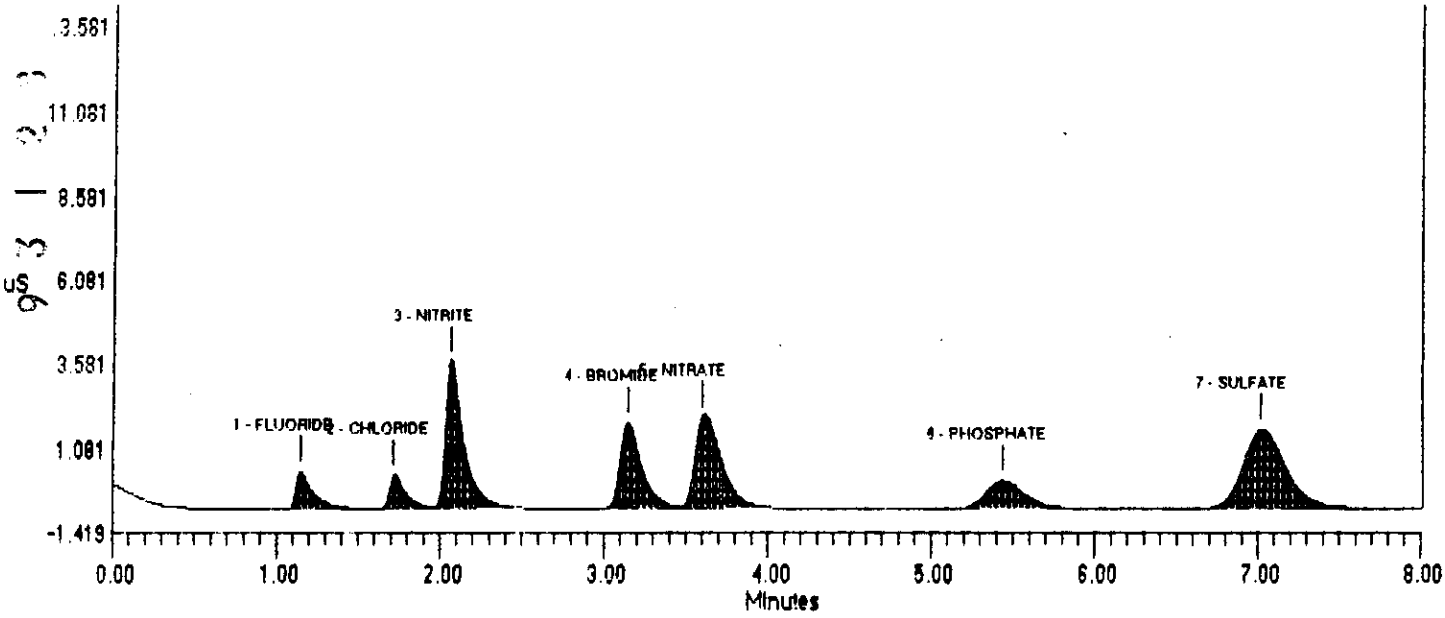
TR 8-31-92
827

Sample Name: LMCS/73C11C0 R331 DK 9/14/91 Date: Fri Oct 04 23:36:01 1991
Data File : c:\dx\data\91100401.D21
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 21 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.15	FLUORIDE	54.712	1095	7585	1	0.00
2	1.72	CHLORIDE	70.914	966	6585	2	-0.48
3	2.07	NITRITE	499.014	4279	33115	2	0.33
4	3.15	BROMIDE	463.842	2526	22973	2	1.78
5	3.60	NITRATE	521.697	3675	30389	2	7.51
6	5.43	PHOSPHATE	511.121	814	12926	1	0.71
7	7.02	SULFATE	569.918	2327	41294	1	0.95

File: c:\dx\data\91100401.D21 Sample: LMCS/73C11C0



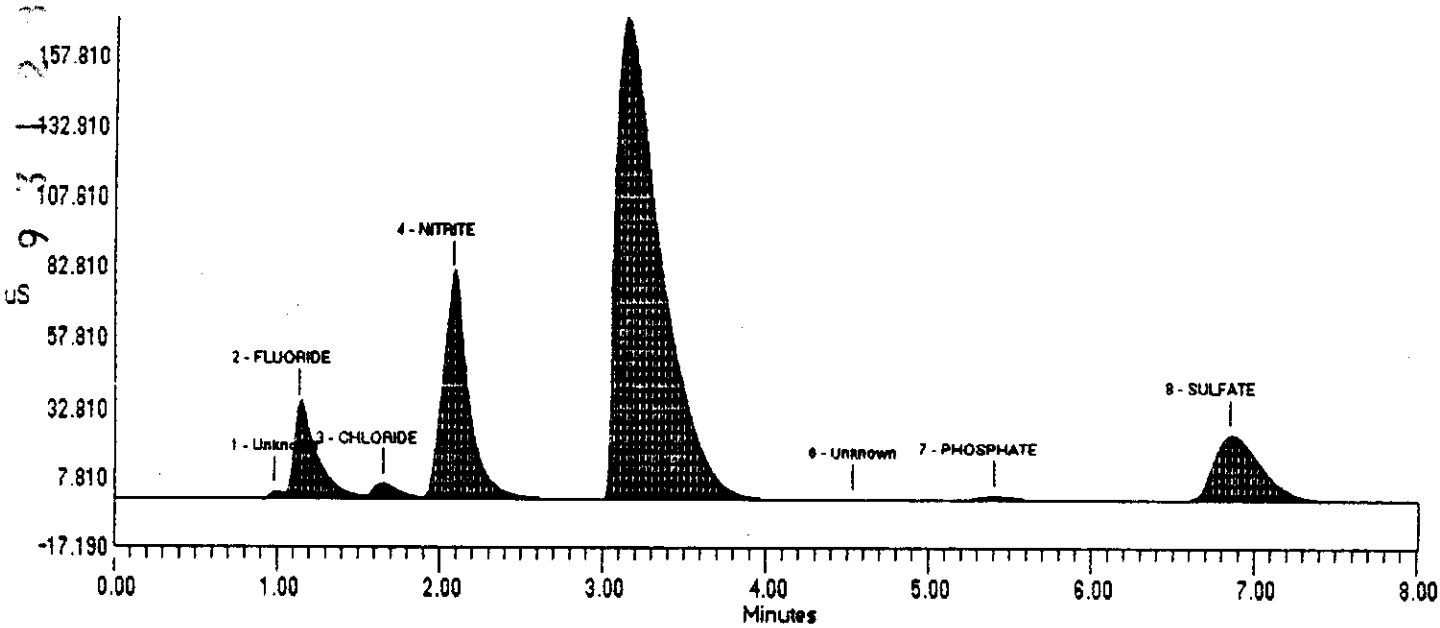
BEST AVAILABLE COPY

```
==========================================================================
| Sample Name: R327                                Date: Fri Oct 04 22:57:42 1991|
| Data File   : c:\dx\data\91100411.D17                                    |
| Method      : c:\dx\method\SYSTEM1.met                                   |
| ACI Address: 1        System : 1        Inject#:  17  Detector: CDM-1    |
==========================================================================
```

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	201	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.98		2473827.736	2553	12308	2	
2	1.13	FLUORIDE	2736.888	33435	342522	2	0.00
3	1.65	CHLORIDE	1176.085	5561	60803	2	-2.94
4	2.08	NITRITE	24753.923	79515	883485	2	2.63
5	3.13	BROMIDE	-85124.055	171662	3291167	2	2.73
6	4.53		990032.019	340	4926	2	
7	5.40	PHOSPHATE	1823.645	1542	24725	1	1.57
8	6.85	SULFATE	10601.140	23671	479241	1	0.00

File: c:\dx\data\91100411.D17 Sample: R327



847

TFZ
8-31-92
~~829~~

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R327	Customer ID: 791-7A
Analysis: ION CHROMATOGRAPHIC - NITRATE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428, AL10657, WB98659, WB97286, WB24740	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-08-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5573	11		
2	REAGENT BLANK	R325-5673	12		
3	SAMPLE 791-7A	R327-5773	13		
4	FINAL LMCS CHECK STD	R331-5573	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

9 3 1 2 3 3 1 6 2 1

ION CHROMATOGRAPHIC ANALYSIS (NITRATE) - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Sample No	Sample Point	Date	Time Issued	Priority
K 324.-5573	106AW	9-20-91	10:6	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO3	LA-533-105	% RECOVERY	WITEX	0

Sample Size: .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDF R970 DIONEX
STD #73C11C0 RESULT 558.677 ppm
STD VAL 564 ppm %REC 99.1%

Analyst 1: Lulama Hoyo
Analyst 2:
Analyst 3:
Analyst 4:
Analyst 5: Maria Gilbert
Date: 10-8-91
Time Completed:
Lab Use Only

Sample No	Sample Point	Date	Time Issued	Priority
K 325.-5673	106AW	9-20-91	10:10	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO3	LA-533-105	PPM	WITEX	0

Sample Size: DIRECT
Customer ID: REAGENT BLANK

Remarks, Calculations, Results:
REAGENT BLANK
<1.00ppm

Analyst 1: Lulama Hoyo
Analyst 2:
Analyst 3:
Analyst 4:
Analyst 5: Maria Gilbert
Date: 10-8-91
Time Completed:
Lab Use Only

Sample No	Sample Point	Date	Time Issued	Priority
K 327.-5773	106AW	9-20-91	10:16	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO3	LA-533-105	PPM	WITEX	0

Sample Size: .050ml - 10ml - .250ml - 10ml
Customer ID: 291 7A

Remarks, Calculations, Results:
7.59 E4 ppm

Analyst 1: Lulama Hoyo
Analyst 2:
Analyst 3:
Analyst 4:
Analyst 5: Maria Gilbert
Date: 10-8-91
Time Completed:
Lab Use Only

Sample No	Sample Point	Date	Time Issued	Priority
K 331.-5573	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO3	LA-533-105	% RECOVERY	WITEX	0

Sample Size: .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDF R970 DIONEX
STD #73C11C0 RESULT 549.13
STD VAL 564 %REC 97.2%

Analyst 1: Lulama Hoyo
Analyst 2:
Analyst 3:
Analyst 4:
Analyst 5: Maria Gilbert
Date: 10-8-91
Time Completed:
Lab Use Only

9312233162 02

4409-AF 10-14-91

DIONEX METHOD PARAMETERS - SYSTEM1.MET

System Parameters

System Name : system1/qpm

Number of Detectors	1
Detector 1 Type	CDM-1
Detector 1 real time plot scale (uS)	20.00
Run Time (minutes)	8.00
Sampling Rate (seconds)	0.20

-- DETECTOR 1 PARAMETERS --

Report Options

Save Data File	Yes
Data File Name: C:\DX\DATA\91101401.D07	
Create ASCII Report File	No
Print Report	Yes
List Peaks Not Found in this run	No
Report Unknowns Found in this run	Yes
Print Chromatogram	Yes
AutoScale Chromatogram to Highest Peak	Yes
Fill Peaks with Color	Yes
Draw Grid Lines on Chromatogram	No
Label with Peak Number	Yes
Label with Retention Times on Chromatogram	No
Label with Component Name	Yes
Format File Name: c:\dx\method\default.prf	

Integration Parameters

Starting Peak Width (seconds)	10.0
Peak Threshold (mV or uS/data pt interval)	0.500
Peak Area Reject	1000
Area Reject for Reference Peaks	1000
Percent Retention Time Window for Reference Peaks	5.0

Integration Timed Events

Time	Description

Calibration Parameters

Number Of Levels for Calibration	6
Calibration Fit Type	Quadratic
Replace Or Average Calibrations	Replace
External or Internal Calibration	External
Calibrate by Area or Height	Area
Default Injection Volume	1.0
Default Dilution Factor	101.0
Response Factor for Unknown Peaks	1.0
Calibration Standard Volume	1.0
Internal Standard Volume	1.0
Sample Unit	PPM

850

Component # 1 FLUORIDE Retention Time 1.15
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 1.33141E-002
K1 = 7.35652E-005
K2 = -2.32747E-010

Level	Amount	Area	Height
1	1.10000E-001	1439	225
2	2.80000E-001	3649	553
3	5.60000E-001	7529	1129
4	1.12000E+000	15733	2313
5	2.19000E+000	33154	4704
6	4.22000E+000	74938	9497

Component # 2 CHLORIDE Retention Time 1.72
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 8.88526E-003
K1 = 1.08463E-004
K2 = -3.16779E-010

Level	Amount	Area	Height
1	1.30000E-001	1319	217
2	3.30000E-001	2868	459
3	6.60000E-001	6001	936
4	1.31000E+000	12417	1921
5	2.58000E+000	25701	3883
6	5.00000E+000	54764	7755

Component # 3 NITRITE Retention Time 2.08
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 6.41195E-001
K1 = 1.25938E-004
K2 = 4.84873E-012

Level	Amount	Area	Height
1	1.25000E+000	6239	874
2	3.10000E+000	19929	2672
3	6.18000E+000	42059	5606
4	1.22300E+001	90590	11584
5	2.40000E+001	185584	23728
6	4.62200E+001	356723	42402

Component # 4 BROMIDE Retention Time 3.05
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.01960E-002
K1 = 2.00453E-004
K2 = -1.00008E-010

Level	Amount	Area	Height
1	1.56000E+000	7660	753
2	3.90000E+000	20706	1880
3	7.80000E+000	38868	3455
4	1.54000E+001	78061	6644
5	3.02000E+001	165133	12632
6	5.81000E+001	350930	24386

Component # 5 NITRATE Retention Time 3.42
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 1.12719E+000
K1 = 1.25048E-004
K2 = 1.59899E-010

Level	Amount	Area	Height
1	1.10000E+000	1477	162
2	2.75000E+000	15087	1425
3	5.47000E+000	31133	2883
4	1.08200E+001	66694	5778
5	2.12300E+001	139804	11210
6	5.08900E+001	289865	21262

Component # 6 PHOSPHATE Retention Time 5.37
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.70449E-001
K1 = 3.46513E-004
K2 = -3.83601E-010

Level	Amount	Area	Height
1	1.14000E+000	2277	162
2	2.83000E+000	7242	453
3	5.63000E+000	14732	918
4	1.15600E+001	32263	1962
5	2.18800E+001	67512	4036
6	4.21500E+001	142733	8289

Component # 7 SULFATE Retention Time 7.03
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 1.93428E-001
K1 = 1.28116E-004
K2 = -4.37267E-011

Level	Amount	Area	Height
1	1.26000E+000	9418	543
2	3.14000E+000	24499	1382
3	6.26000E+000	45736	2477
4	1.23900E+001	97310	5267
5	2.43100E+001	203719	10947
6	4.68100E+001	425407	21849

IC Control File: C:\DX\METHOD\SYSTEM1.TE

Step	Time	Description
Init		CDM-1 AutoOffset Off
Init		CDM-1 Recorder Mark OFF
Init		CDM-1 Temp. Comp. = 1.7 / Deg C
Init		CDM-1 Recorder Range = 0.1 uS
Init		CDM-1 Cell ON
Init		CHA Heater = 25 Deg. C
Init		Valve A ON
Init		Valve B ON
Init		Inject Valve OFF
Init		ACI Autosmp OFF
Init		ACI RLY 2 OFF
Init		ACI TTL 1 OFF
Init		ACI TTL 2 OFF
Init		ACI AC 1 ON
Init		GPM Start
Init		GPM Hold Gradient Clock
Init		GPM Reset ON
1	0.0	CDM-1 AutoOffset ON
1	0.0	Start Sampling
1	0.0	GPM Reset OFF
2	0.1	CDM-1 Recorder Range = 10.0 uS
2	0.1	Inject Valve ON
2	0.1	GPM Run Gradient Clock
3	3.0	Inject Valve OFF
4	3.5	ACI Autosmp ON
5	8.0	ACI Autosmp OFF

GpmFile: C:\DX\METHOD\SYSTEM1.GPM
Lo Pressure Limit = 200
Hi Pressure Limit = 2000
Eluant 1 - DI WATER
Eluant 2 - SODIUM CARBONATE
Eluant 3 - SODIUM BICARBONATE
Eluant 4 - Eluant 4

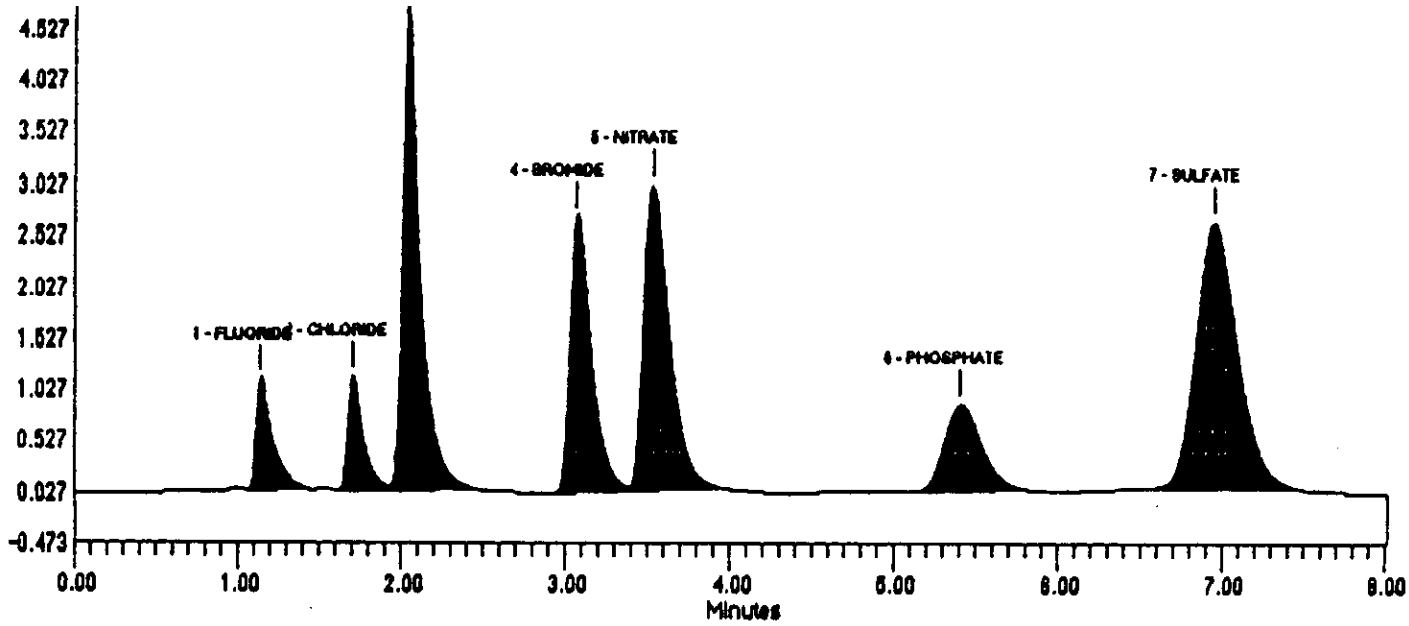
Time	Flow	%1	%2	%3	%4	V5	V6	Comment
0.0	2.0	84	8	8	0	0	0	

Sample Name: LCS 7-14-92 Date: Tue Oct 08 03:34:05 1991
Data File : C:\DX\DATA\91100601.D05
Method : C:\DX\METHOD\SYSTEM1.MET
ACI Address: 1 System : 1 Inject#: 5 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	55.187	1060	7664	1	0.00
2	1.70	CHLORIDE	77.560	1095	7243	2	0.00
3	2.03	NITRITE	521.679	4532	34859	2	0.16
4	3.07	BROMIDE	498.532	2688	24729	2	0.55
5	3.53	NITRATE	558.697	2971	32706	2	-3.99
6	5.40	PHOSPHATE	520.892	834	13207	1	1.57
7	6.95	SULFATE	615.216	2602	45606	1	1.46

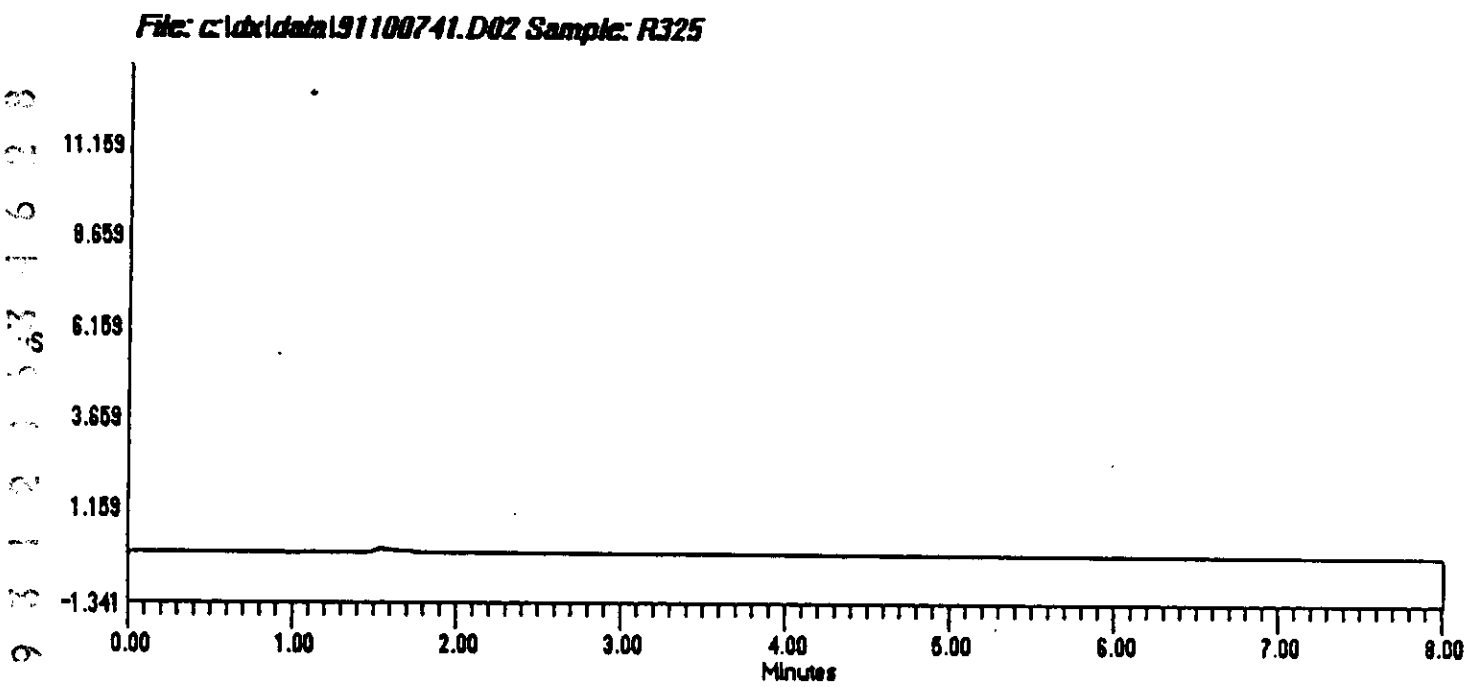
File: C:\DX\DATA\91100601.D05 Sample:



```
==========================================================================
| Sample Name: R325                                Date: Tue Oct 08 04:17:54 1991|
| Data File   : c:\dx\data\91100741.D02                                    |
| Method      : c:\dx\method\SYSTEM1.met                                   |
| ACI Address: 1        System : 1        Inject#:    2  Detector: CDM-1   |
==========================================================================
```

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	1	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta

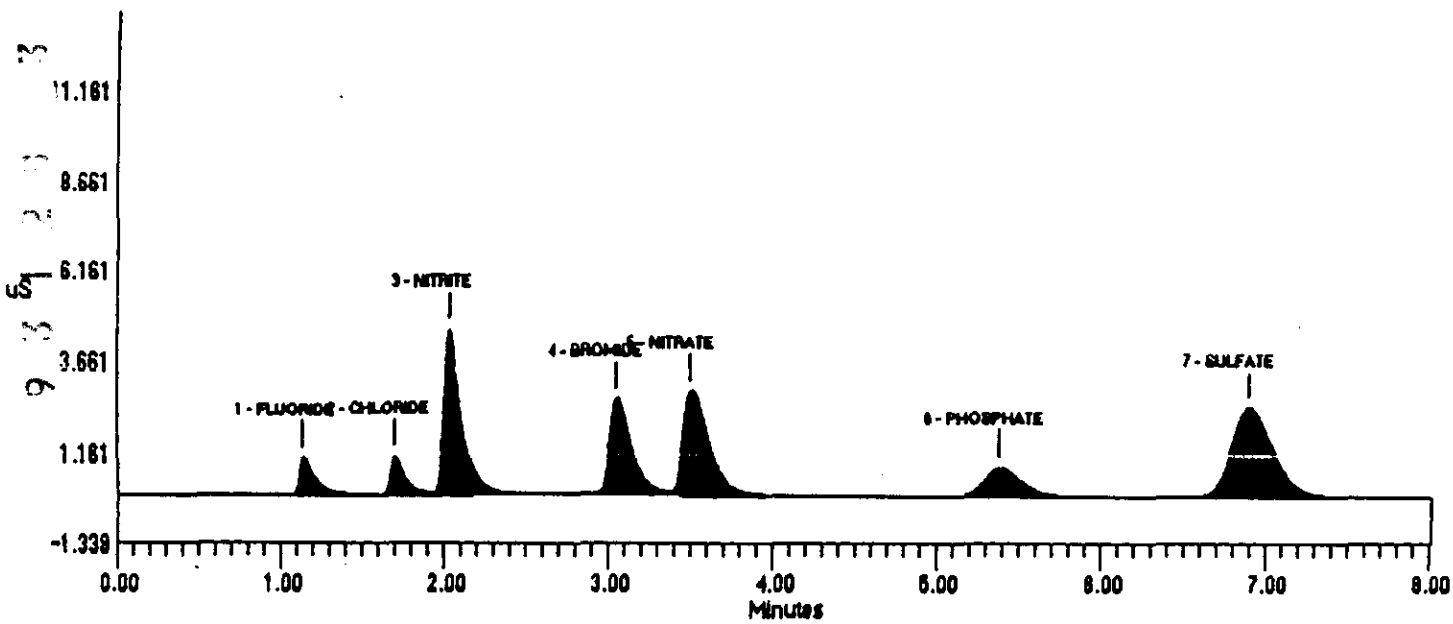


Sample Name: LMCS/73C11C0 Date: Tue Oct 08 06:26:11 1991
Data File : C:\DX\DATA\91100631.D01
Method : C:\DX\METHOD\SYSTEM1.MET
ACI Address: 1 System : 1 Inject#: 1 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	53.303	1037	7351	1	0.00
2	1.70	CHLORIDE	74.524	1067	6942	2	0.00
3	2.03	NITRITE	500.692	4527	33312	2	0.16
4	3.05	BROMIDE	497.450	2633	24674	2	0.00
5	3.50	NITRATE	548.126	2877	32044	2	-4.89
6	5.38	PHOSPHATE	510.599	821	12910	1	1.25
7	6.90	SULFATE	592.399	2453	43786	1	0.73

File: C:\DX\DATA\91100631.D01 Sample: LMCS/73C11C0

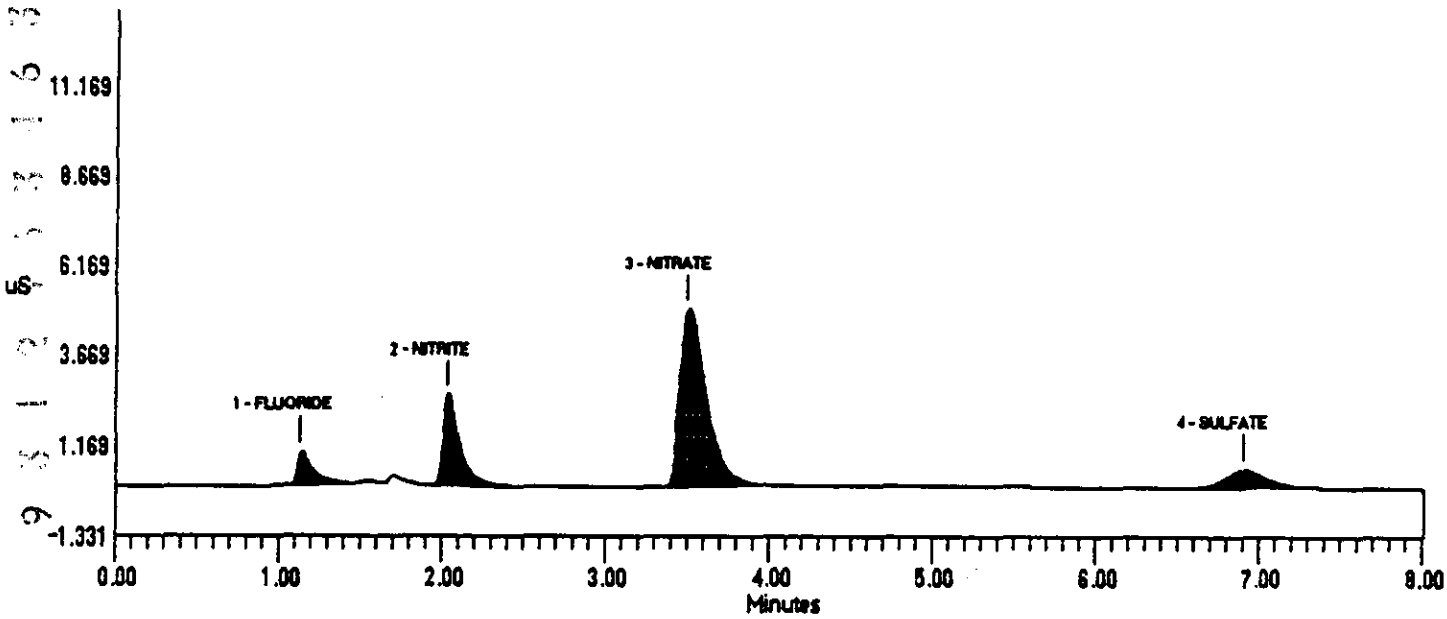


Sample Name: R327 Date: Tue Oct 08 06:05:16 1991
Data File : C:\DX\DATA\91100611.D01
Method : C:\DX\METHOD\SYSTEM1.MET
ACI Address: 1 System : 1 Inject#: 1 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	8241	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	3965.638	915	6573	1	0.00
2	2.03	NITRITE	24346.031	2469	18391	1	0.16
3	3.50	NITRATE	75861.927	4936	56166	1	-4.89
4	6.90	SULFATE	12294.780	527	8936	1	0.73

File: C:\DX\DATA\91100611.D01 Sample: R327



WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R327	Customer ID: 791-7A
Analysis: ION CHROMATOGRAPHIC - FLUORIDE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428, AL10657, WB98659, WB97286, WB24740	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-07-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5571	11		
2	REAGENT BLANK	R325-5671	12		
3	SAMPLE 791-7A	R327-5771	13		
4	FINAL LMCS CHECK STD	R331-5571	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (FLUORIDE) - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5571	106AW	9-20-91	10: 5	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
F	LA-533-105	% RECOVERY	WITE2	0

Sample Size: 100ml - 10ml
Customer ID: BTD

Remarks, Calculations, Results:
EDP R974 DIONEX
STD# 73CHCO RESULT 56764
STD VAL. 56 %REC 101.4%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
10-7-91				
6CB23				

Date: 10-7-91
Time Completed:
Lab Unit Mgr:

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5671	106AW	9-20-91	10: 8	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
F	LA-533-105	PPM	WITE2	0

Sample Size: DIRECT
Customer ID: REG 18

Remarks, Calculations, Results:
REAGENT BLANK

<1.00E-1 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6CB23				

Date: 10-7-91
Time Completed:
Lab Unit Mgr:

Serial No	Sample Point	Date	Time Issued	Priority
R 327.-5771	106AW	9-20-91	10:15	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
F	LA-533-105	G/G	WITE2	0

Sample Size: .050ml - 10ml - .500ml - 10ml
Customer ID: 791 7A

Remarks, Calculations, Results:
ORGANIC INTERFERENCE

Flag. F⊖ peak due to organics - not F⊖ DJH

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6CB23				

Date: 10-7-91
Time Completed:
Lab Unit Mgr:

Serial No	Sample Point	Date	Time Issued	Priority
R 331.-5571	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
F	LA-533-105	% RECOVERY	WITE2	0

Sample Size: .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R974 DIONEX
STD# 73CHCO RESULT 54.734
STD VAL. 56ppm %REC 97.7%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6CB23				

Date: 10-7-91
Time Completed:
Lab Unit Mgr:

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R327	Customer ID: 791-7A
Analysis: ION CHROMATOGRAPHIC - NITRITE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428, AL10657, WB98659, WB97286, WB24740	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-07-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5576	11		
2	REAGENT BLANK	R325-5676	12		
3	SAMPLE 791-7A	R327-5776	13		
4	FINAL LMCS CHECK STD	R331-5576	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (NITRITE) - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Sample No	Sample Point	Date	Time Issued	Priority
K 324.-5576	106AW	9-20-91	10:6	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO2	LA 533-105	% RECOVERY	WTEF	0

Sample Size: .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDF R968 DIONEX
STDH 73CHCO RESULT 521.43
STD VAL 510 %REC 102.2020

Analyst 1: Lulonne Hughes
Date: 10-7-91

Sample No	Sample Point	Date	Time Issued	Priority
K 325.-5676	106AW	9-20-91	10:8	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO2	LA 533-105	PPM	WTEF	0

Sample Size: DIRECT
Customer ID: REA 18

Remarks, Calculations, Results:
REAGENT BLANK
<1.00ppm

Analyst 1: Lulonne Hughes
Date: 10-7-91

Sample No	Sample Point	Date	Time Issued	Priority
K 327.-5776	106AW	9-20-91	10:16	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO2	LA 533-105	PPM	WTEF	0

Sample Size: .050ml - 10ml - .500ml - 10ml
Customer ID: SYL 26

Remarks, Calculations, Results:
2.40E4 ppm

Analyst 1: Lulonne Hughes
Date: 10-7-91
7-7-91

Sample No	Sample Point	Date	Time Issued	Priority
K 331.-5576	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO2	LA 533-105	% RECOVERY	WTEF	0

Sample Size: .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDF R968 DIONEX
STDH 73CHCO RESULT 530.706 ppm
STD VAL 510ppm %REC 102.1970

BATCH WITH B247, KCC 10-09-91

Analyst 1: Lulonne Hughes
Date: 10-7-91

9-22-91

4469-AC

DIONEX METHOD PARAMETERS - SYSTEM1.MET

System Parameters

System Name : system1/gpm
Number of Detectors..... 1
Detector 1 Type..... CDM-1
Detector 1 real time plot scale (uS)..... 20.00
Run Time (minutes)..... 8.50
Sampling Rate (seconds)..... 0.20

-- DETECTOR 1 PARAMETERS --

Report Options

Save Data File..... Yes
Data File Name: c:\dx\data\91092201.D08
Create ASCII Report File..... No
Print Report..... Yes
List Peaks Not Found in this run..... No
Report Unknowns Found in this run..... Yes
Print Chromatogram..... Yes
AutoScale Chromatogram to Highest Peak..... Yes
Fill Peaks with Color ..... Yes
Draw Grid Lines on Chromatogram..... No
Label with Peak Number..... Yes
Label with Retention Times on Chromatogram..... No
Label with Component Name..... Yes
Format File Name: c:\dx\method\default.prf

Integration Parameters

Starting Peak Width (seconds)..... 10.0
Peak Threshold (mV or uS/data pt interval)..... 0.500
Peak Area Reject..... 1000
Area Reject for Reference Peaks..... 1000
Percent Retention Time Window for Reference Peaks..... 5.0

Integration Timed Events

Time	Description
1.32	Start peak detection
1.44	Start peak detection
1.46	Start peak detection
1.77	
1.77	Enable end of peak detection

Component # 1 FLUORIDE Retention Time 1.13
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 8.52797E-002
K1 = 6.06440E-005
K2 = -6.17180E-011

Level	Amount	Area	Height
1	1.20000E-001	1439	225
2	3.00000E-001	4035	566
3	6.00000E-001	8217	1141
4	1.20000E+000	16507	2218
5	2.30000E+000	39534	4812
6	4.40000E+000	76890	9371

Component # 2 CHLORIDE Retention Time 1.70
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.93335E-002
K1 = 1.01273E-004
K2 = -9.35560E-011

Level	Amount	Area	Height
1	1.60000E-001	1319	217
2	3.90000E-001	3754	568
3	7.80000E-001	6942	1045
4	1.50000E+000	14461	1975
5	3.00000E+000	30287	3987
6	5.90000E+000	61305	8910

Component # 3 NITRITE Retention Time 2.03
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.88691E-001
K1 = 1.33960E-004
K2 = 5.52630E-012

Level	Amount	Area	Height
1	1.08000E+000	6239	874
2	2.69000E+000	17299	2252
3	5.37000E+000	34328	4729
4	1.06200E+001	72787	9300
5	2.08500E+001	153501	19401
6	4.01500E+001	292053	34439

Component # 4 BROMIDE Retention Time 2.80
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.01960E-002
K1 = 2.00453E-004
K2 = -1.00008E-010

Level	Amount	Area	Height
1	1.56000E+000	7660	753
2	3.90000E+000	20706	1880
3	7.80000E+000	38868	3455
4	1.54000E+001	78061	6644
5	3.02000E+001	165133	12632
6	5.81000E+001	350930	24386

Component # 5 NITRATE Retention Time 3.30
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.02611E-001
K1 = 1.61787E-004
K2 = -5.83501E-011

Level	Amount	Area	Height
1	1.37000E+000	7543	727
2	3.43000E+000	19321	1803
3	6.83000E+000	40244	3563
4	1.35000E+001	83386	7010
5	2.65000E+001	173503	13640
6	5.11000E+001	360809	25639

Component # 6 PHOSPHATE Retention Time 5.32
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 5.53452E-001
K1 = 3.53243E-004
K2 = -3.51156E-010

Level	Amount	Area	Height
1	1.19000E+000	2277	162
2	2.98000E+000	7242	453
3	5.93000E+000	15025	935
4	1.17400E+001	31660	1933
5	2.30300E+001	69135	4130
6	4.43700E+001	144749	8447

Component # 7 SULFATE Retention Time 6.85
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.55734E-001
K1 = 1.27491E-004
K2 = -3.79358E-011

Level	Amount	Area	Height
1	1.40000E+000	9418	543
2	3.50000E+000	24499	1382
3	6.96000E+000	52303	2890
4	1.37800E+001	107173	5909
5	2.70400E+001	225632	12225
6	5.20700E+001	471630	24686

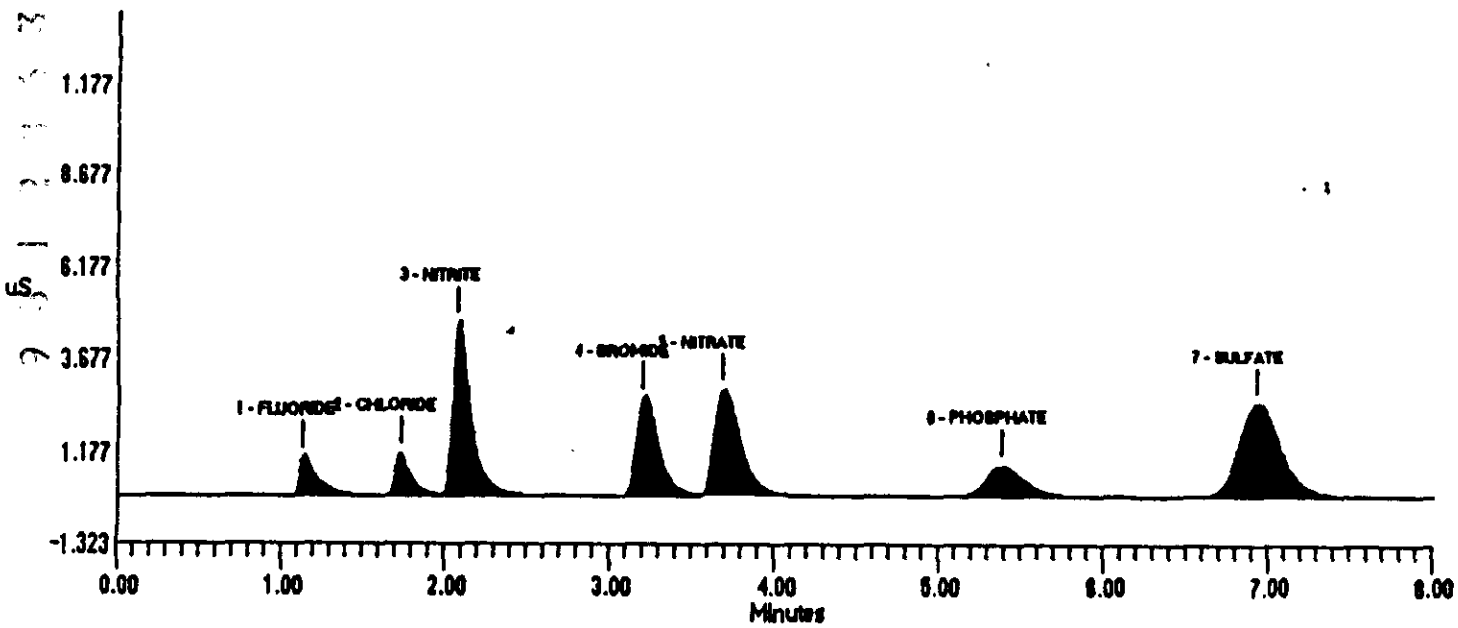
DATA REPROCESSED ON Tue Oct 08 12:07:25 1991

Sample Name: LMCS/73C11C0 Date: Sun Oct 06 23:57:56 1991
Data File : C:\DX\DATA\91100521.D03
Method : C:\DX\METHOD\SYSTEM1.MET
ACI Address: 1 System : 1 Inject#: 3 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	56.764	1031	7925	1	0.00
2	1.73	CHLORIDE	78.669	1115	7353	2	1.96
3	2.08	NITRITE	521.434	4668	34841	2	2.63
4	3.20	BROMIDE	496.404	2603	24621	2	4.92
5	3.68	NITRATE	527.942	2829	30780	2	0.09
6	5.38	PHOSPHATE	527.158	846	13387	1	1.25
7	6.93	SULFATE	601.885	2524	44543	1	1.22

File: C:\DX\DATA\91100521.D03 Sample: LMCS/73C11C0

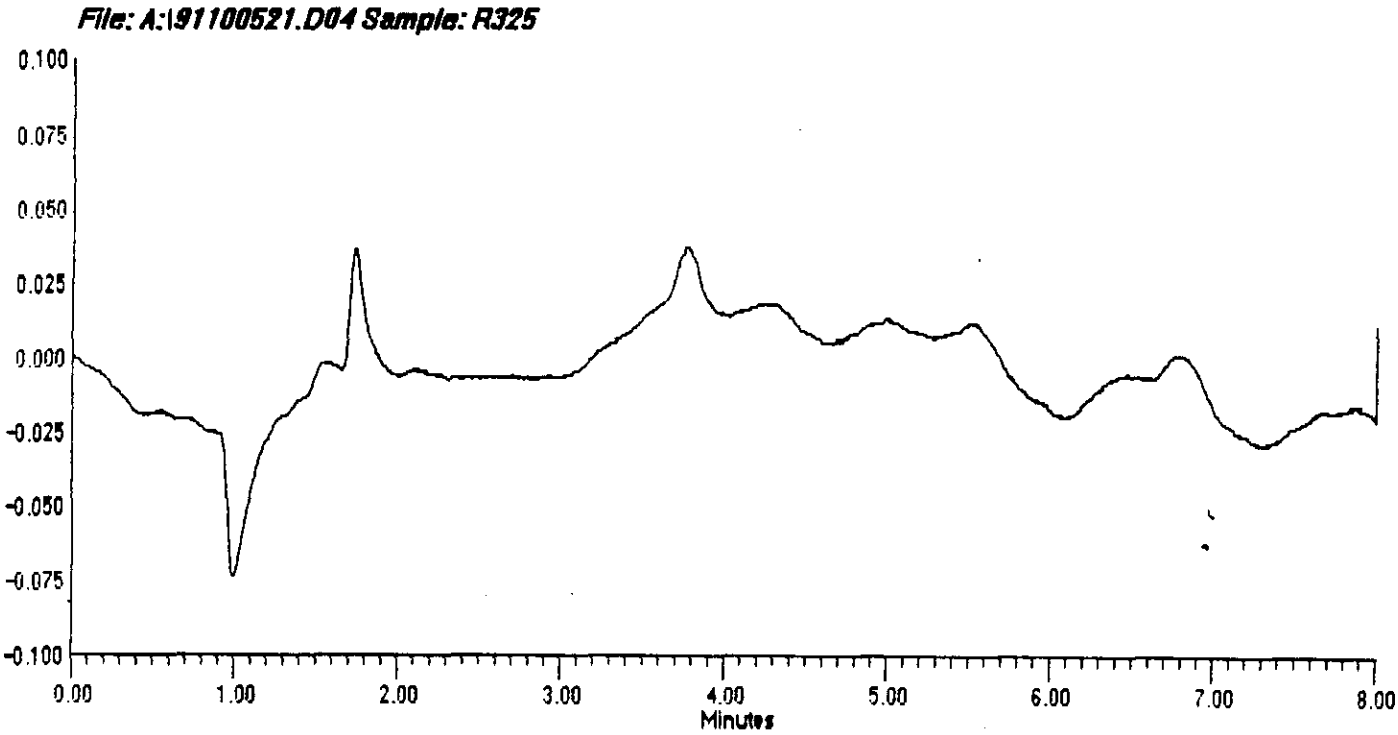


DATA REPROCESSED ON Tue Jul 21 15:20:40 1992

Sample Name: R325	Date: Mon Oct 07 00:07:35 1991
Data File : A:\91100521.D04	
Method : c:\dx\method\SYSTEM1.met	
API Address: 1 System : 1	Inject#: 4 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
C Lernal	1	1	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta



TFL
8-31-92
~~848~~

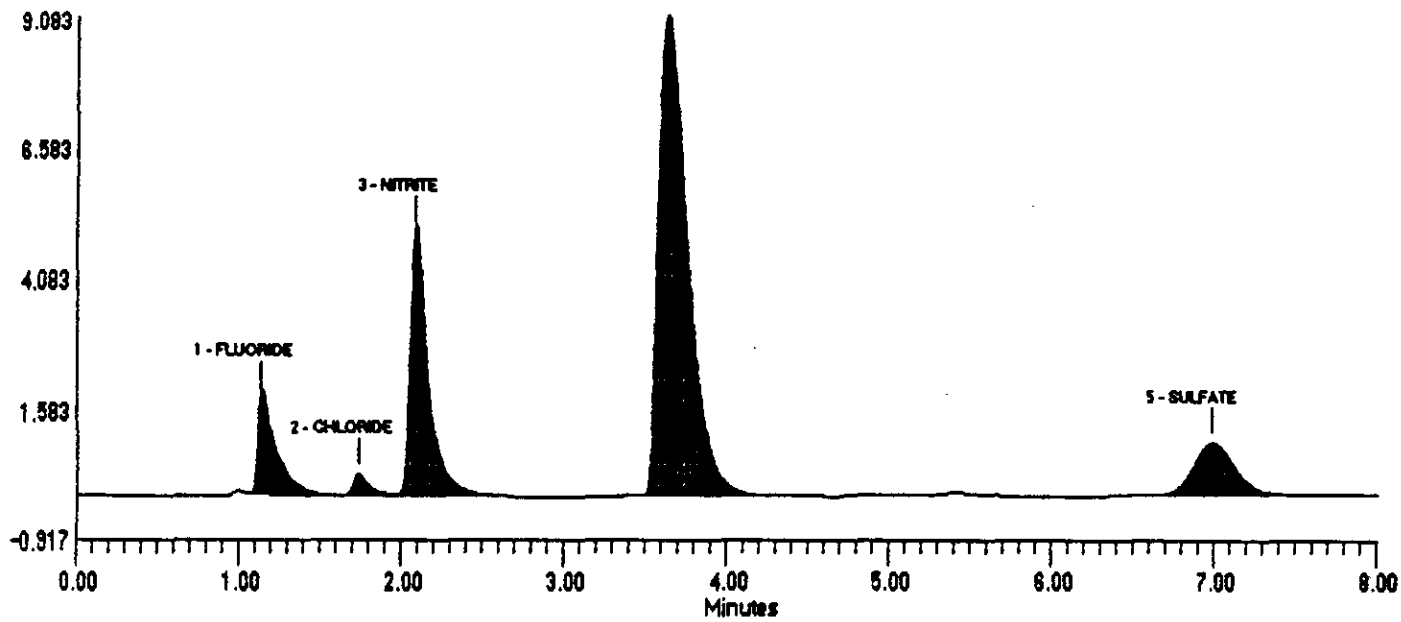
DATA REPROCESSED ON Tue Oct 08 12:43:46 1991

Sample Name: R327 Date: Mon Oct 07 00:44:57 1991
Data File : C:\DX\DATA\91100521.D08
Method : C:\DX\METHOD\SYSTEM1.MET
ACI Address: 1 System : 1 Inject#: 8 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	4221	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	4184.347	1806	15175	1	0.00
2	1.73	CHLORIDE	1355.087	415	2789	2	1.96
3	2.08	NITRITE	23983.674	5032	38706	2	2.63
4	3.62	NITRATE	76317.048	9050	114622	1	-1.72
5	6.98	SULFATE	10885.849	1000	17530	1	1.95

File: C:\DX\DATA\91100521.D08 Sample: R327



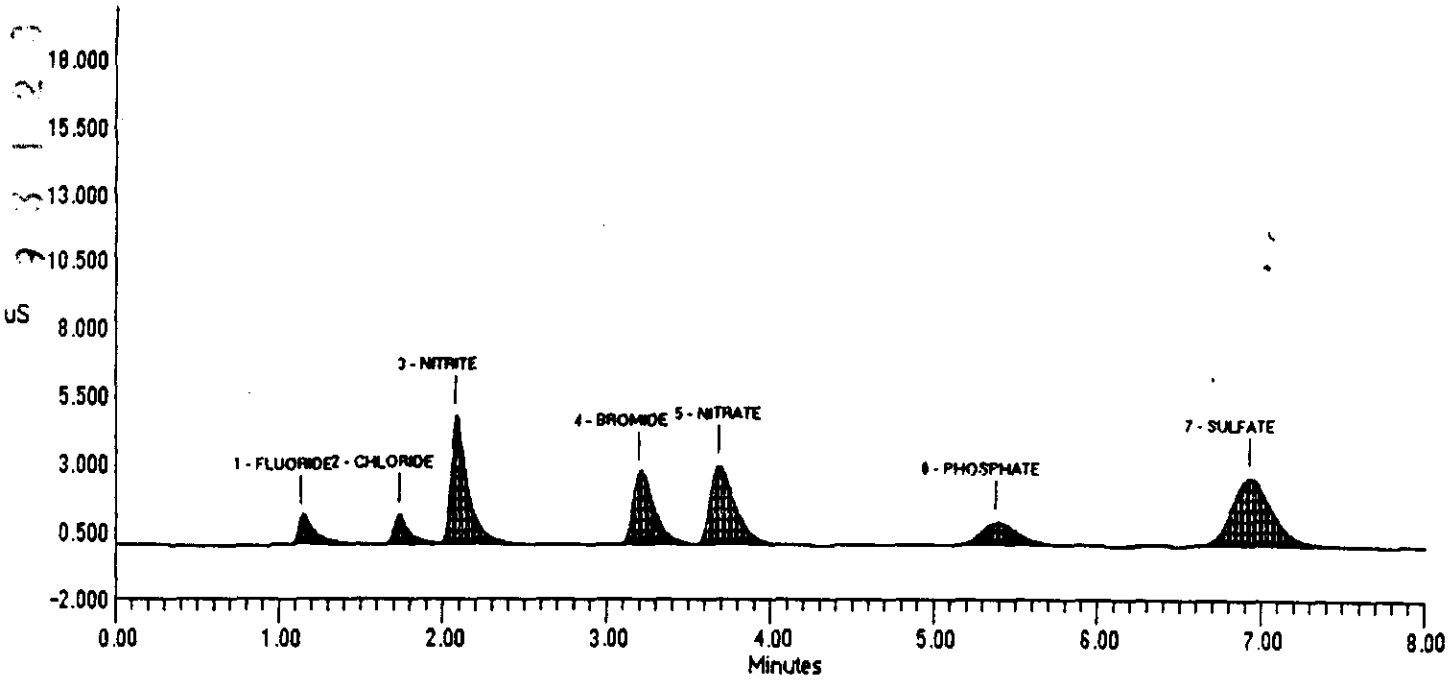
DATA REPROCESSED ON Tue Jul 21 14:56:48 1992

Sample Name: LMCS/73C11C0 – R331		Date: Mon Oct 07 01:22:09 1991	
Data File : A:\91100501.D12 JEL 7-22-92			
Method : c:\dx\method\SYSTEM1.met			
ACI Address: 1	System : 1	Inject#: 12	Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	54.734	1013	7589	1	0.00
2	1.73	CHLORIDE	77.629	1112	7250	2	1.96
3	2.08	NITRITE	520.706	4730	34787	2	2.63
4	3.20	BROMIDE	507.310	2653	25173	2	4.92
5	3.68	NITRATE	3190756.650	2870	31592	2	0.09
6	5.38	PHOSPHATE	544.860	865	13897	1	1.25
7	6.93	SULFATE	602.348	2523	44580	1	1.22

File: A:\91100501.D12 Sample: LMCS/73C11C0



868

TFZ 8-31-92

~~850~~

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R327	Customer ID: 791-7A
Analysis: ACID DIGESTION	Sample Prep: ACID DIGESTION

Instrument: METTLER BAL. SN F04495	Procedure/Rev: LA-508-158/A-2
Technologist: L. MORRISON	Date: 09-25-91
Starting Time: N/A	Temperature: N/A
Ending Time: N/A	Chemist: S. A. JONES

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-8505	11		
2	REAGENT BLANK	R325-8605	12		
3	SAMPLE 791-7A	R327-8705	13		
4	FINAL LMCS CHECK STD	R331-8505	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	ICP1-9S4/10 mL	ICP2-6S4/10 mL	ICP3-8S4/10 mL	N/A

A-6000-881 (03/92)

ACID DIGESTION ANALYSIS

Sample No	Sample Point	Date	Time Issued	Priority
K [illegible] 0505	106AW	9-20-91	101[illegible]	[illegible]

Determination	Method Standard	Result Units	Charge Code	Remarks
[illegible]	[illegible]	% RECOVERY	[illegible]	

Sample Size: 10 mL ea in 100 mL

Customer ID: [illegible]

Remarks, Calculations, Results:
[illegible] CHECK SAMPLE
[illegible]
ICP Test1 - 954
ICP Test2 - 649
ICP Test3 - 939

Complete

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65231				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Date: 9-25-91 Time Completed: [illegible] Lab Use Only: [illegible] DK McSweeney

Sample No	Sample Point	Date	Time Issued	Priority
K [illegible] 0505	106AW	9-20-91	101[illegible]	[illegible]

Determination	Method Standard	Result Units	Charge Code	Remarks
[illegible]	[illegible]	[illegible]	[illegible]	

Sample Size: [illegible]

Customer ID: [illegible]

Remarks, Calculations, Results:
[illegible]
[illegible]
[illegible]

Complete

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65231				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Date: 9-25-91 Time Completed: [illegible] Lab Use Only: [illegible] DK McSweeney

Sample No	Sample Point	Date	Time Issued	Priority
K [illegible] 0505	106AW	9-20-91	101[illegible]	[illegible]

Determination	Method Standard	Result Units	Charge Code	Remarks
[illegible]	[illegible]	[illegible]	[illegible]	

Sample Size: 1 mL in 100 mL

Customer ID: [illegible]

Remarks, Calculations, Results:
[illegible]

Complete

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65231				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Date: 9-25-91 Time Completed: [illegible] Lab Use Only: [illegible] DK McSweeney

Sample No	Sample Point	Date	Time Issued	Priority
K [illegible] 0505	106AW	9-20-91	101[illegible]	[illegible]

Determination	Method Standard	Result Units	Charge Code	Remarks
[illegible]	[illegible]	% RECOVERY	[illegible]	

Sample Size: 10 mL ea in 100 mL

Customer ID: [illegible]

Remarks, Calculations, Results:
[illegible] CHECK SAMPLE
[illegible]
ICP Test1 - 954
ICP Test2 - 649
ICP Test3 - 939

Complete

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65231				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Date: 9-25-91 Time Completed: [illegible] Lab Use Only: [illegible] DK McSweeney

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R327	Customer ID: 791-7A
Analysis: INDUCTIVELY COUPLED PLASMA	Sample Prep: ACID DIGESTION

Instrument: WB39939	Procedure/Rev: LA-505-151/B-0
Technologist: L. MORRISON	Date: 11-19-91
Starting Time: NA	Temperature: N/A
Ending Time: NA	Chemist: L. OTTMAR

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-8550	11		
2	REAGENT BLANK	R325-8650	12		
3	SAMPLE 791-7A	R327-8750	13		
4	FINAL LMCS CHECK STD	R331-8550	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	ICP1-9S4/10 mL	ICP2-6S4/10 mL	ICP3-8S4/10 mL	N/A

A-6000-881 (03/92)

ICP ANALYSIS - ACID DIGESTION

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.-8550	106AW	9-20-91	10: 7	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	% RECOVERY	W1TE2	0

Sample Size	Customer ID
? 10mL EA IN 100mL	STD

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID _____
10PEST1 - 954
10PEST2 - 684
10PEST3 - 889

LMCS
STDS

Al 2.98E2 (10/10³) = 2.98ppm 59.6%
Ca 1.51E3(.01) = 1.5121ppm = 151%
Cr 4.54E2(.01) = 4.54 ppm = 90.8%
Fe 5.08E2(.01) = 5.08ppm = 102%
Na 9.06E2(.01) = 9.06ppm = 90.6%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65231	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]	Laurine J. Ottman			

Date	Time Completed	Lab Unit Mgr
11/19/91	11/21/91	[signature]

84-6800-081 (R-10-83)

Al 4.55 91.0% wng #7362

Ca 9.94 99.4%

Cr 4.80 96.0%

Fe 4.88 97.6%

Na 9.71 97.1%

LMCS ✓ Teresa L. Fizzie

~~Undigested~~
~~Ba 10.10~~ JK
~~Cd 9.8~~ 5-29-92

DIGESTED
Ag (4.51E2)(.01) = 90.2%
Ba (9.32E2)(.01) = 93.2%
Cd (9.25E2)(.01) = 92.5%
Mg (488)(.01) = 97.6%
Mn (479)(.01) = 95.8%
Pb (507)(.01) = 101.4%
Zn (969)(.01) = 96.9%

Undigested
Ba 10.10 101.0%
Cd 9.82 98.2%
Mg 4.94 98.8%
Mn 4.93 98.6%
Zn 9.96 99.6%
Ag 5.07 101.4%
Pb 5.06 101.6%

R 324-8550

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.-8650	106AW	9-20-91	10: 9	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	PPM	W1TE2	0

Sample Size	Customer ID
? Direct	REG BL

Remarks, Calculations, Results:
REAGENT BLANK

AL <55 ppb/10³ < 5.50E-2 ppm
CA 4.18E3/10³ = 4.18 ppm
Cr 1.66E1/10³ = 1.66E-2 ppm
Fe <87/10³ = 8.70E-2 ppm
Na 1.09E2/10³ = 1.09E-1 ppm

Ag <8.0/10³ = <8.0E-3 ppm
Ba <3.0/10³ = <3.0E-3 ppm
Cd <4.0/10³ = <4.0E3 ppm
Mg 4.08E2/10³ = 4.08E-1 ppm
Mn 1.38E1/10³ = 1.38E-2 ppm
Pb <8.0E1/10³ = <8.0E-2 ppm
Zn 2.91E2/10³ = 2.91E-1 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731	82768			
Hrs	Lauriene J. Ottmar	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
11/19/91	11/5/91	[signature]

54-6800-061 (R-10-87)

Serial No.	Sample Point	Date	Time Issued	Priority
R 327.-8750	106AW	9-20-91	10:17	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	ug/g rec	W1TE2	0

Sample Size	Customer ID
? DP = 600 CHECK 1mL in 100mL, 2mL To 10mL, 0.200mL To 10mL	791-7A

Remarks, Calculations, Results:

Al 8.2863(600) = 4.97E6ppb
Ca 1.85E3(600) = 1.11E6ppb
Cr 6.12E1(600) = 3.67E4ppb
Fe <87(600) = <5.22E4ppb
Na 1.42E5(600) = 8.52E7ppb

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]	Lawrine J. Ottmar			[signature]

Date	Time Completed	Lab Unit Mgr
11/19/91	11/21/91	[signature]

54-6800-061 (R-10-83)

Ag (<8.0)(600) = <4.80E3ppb
Ba (<3.0)(600) = <1.80E3ppb
Cd (7.0)(600) = 4.20E3ppb
Mg (5.81E1)(600) = 3.49E4ppb
Mn (1.27E1)(600) = 7.62E3ppb
Pb (<80)(600) = <4.80E4ppb
Zn (324)(600) = 1.94E5ppb

R 327-8750

ICP ANALYSIS - ACID DIGESTION

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.-8550	106AW	9-20-91	10:27	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
ICP	LA-505-151	% RECOVERY	W1TE2	0

Sample Size	Customer ID
? 10 mL SA in 100 mL, DF=10	STD

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID _____
ICPSSTI - 954
ICPSSTZ - 654
ICPSSTD - 854

JK 5.19.92
AL ~~4.6882(.01) = 4.68 ppm 93.6%~~
6.4382(10/.01) = 6.43 ppm 128.6%
CA ~~9.9763(.01) = 9.97~~ JK 5.19.92
1.5164(.01) = 1.5182 = 151%
Cr 5.1682(.01) = 5.16 ppm = 103%
Fe 8.0682(.01) = 8.06 ppm = 161%
Na 1.2763(.01) = 1.2781 ppm 127%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65231	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Sig		
11/19/91	11/21/91			

(4-6803-081) (R-10-93)

Al	4.68	93.6%
Ca	9.94	99.4%
Cr	4.82	96.4%
Fe	4.89	97.8%
Na	9.72	97.2%

LMCS ✓ Teresa L Fraze

DIGESTED

Ag (497)(.01) = 99.4%
Ba (1005)(.01) = 100.5%
Cd (990)(.01) = 99.0%
Mg (2095)(.01) = 419%
Mn (543)(.01) = 108.6%
Pb (506)(.01) = 101.6%
Zn (1579)(.01) = 157.9%

Undigested

Ba	10.10	101.0%
Cd	9.88	98.8%
Mg	4.96	99.2%
Mn	4.94	98.8%
Zn	10.01	100.1%
Ag	5.06	101.2%
Pb	5.04	100.8%

R 331-8550

873.2

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R328	Customer ID: 791-8A
Analysis: ARSENIC	Sample Prep: UNDIGESTED

Instrument: PERKIN ELMER - WA77479	Procedure/Rev: LA-355-131/B-0
Technologist: D. R. JACKSON	Date: 10-01-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5595	11		
2	REAGENT BLANK	R325-5695	12		
3	SAMPLE 791-8A	R328-5795	13		
4	FINAL LMCS CHECK STD	R331-5595	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	125B38B/0.5 mL			N/A
SAMPLES RERUN.				

A-6000-881 (03/92)

ARSENIC ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.-5595	106AW	9-20-91	10: 6	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
As	LA-355-131	% RECOVERY	WITE2	0

Sample Size: ? .500 ml — Customer ID: STD

Remarks, Calculations, Results:
EDP R741 AS/HYDRD
STD#/25B38B RESULT 1.09E-1
STD VAL 1.00E-1 %REC 109.0% 54.45/500 =
0.821

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
GC275				
Date: 10-1-91	Time Completed	Lab Unit Mgr		

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.-5695	106AW	9-20-91	10: 8	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
As	LA-355-131	PPM	WITE2	0

Sample Size: ? 10.0 ml — Customer ID: REG 01

Remarks, Calculations, Results:
REAGENT BLANK
0.009 <5/10,000 = <5.00E-4 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
GC275				
Date: 10-1-91	Time Completed	Lab Unit Mgr		

Serial No.	Sample Point	Date	Time Issued	Priority
R 328.-5795	106AW	9-20-91	10:19	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
As	LA-355-131	PPM	WITE2	0

Sample Size: ? 10-1-91 .025 ml — Customer ID: 791 BA

Remarks, Calculations, Results:
0.937 62.24/25 = 2.49

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
GC275				
Date: 10-1-91	Time Completed	Lab Unit Mgr		

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.-5595	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
As	LA-355-131	% RECOVERY	WITE2	0

Sample Size: ? .500 ml — Customer ID: STD

Remarks, Calculations, Results:
EDP R741 AS/HYDRD
STD#/25B38B RESULT 9.52E-2
STD VAL 1.00E-1 %REC 95.2%
0.719
47.60/500 = 9.52E-2

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
GC275				
Date: 10-1-91	Time Completed	Lab Unit Mgr		

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
CALIBRATION RECORD

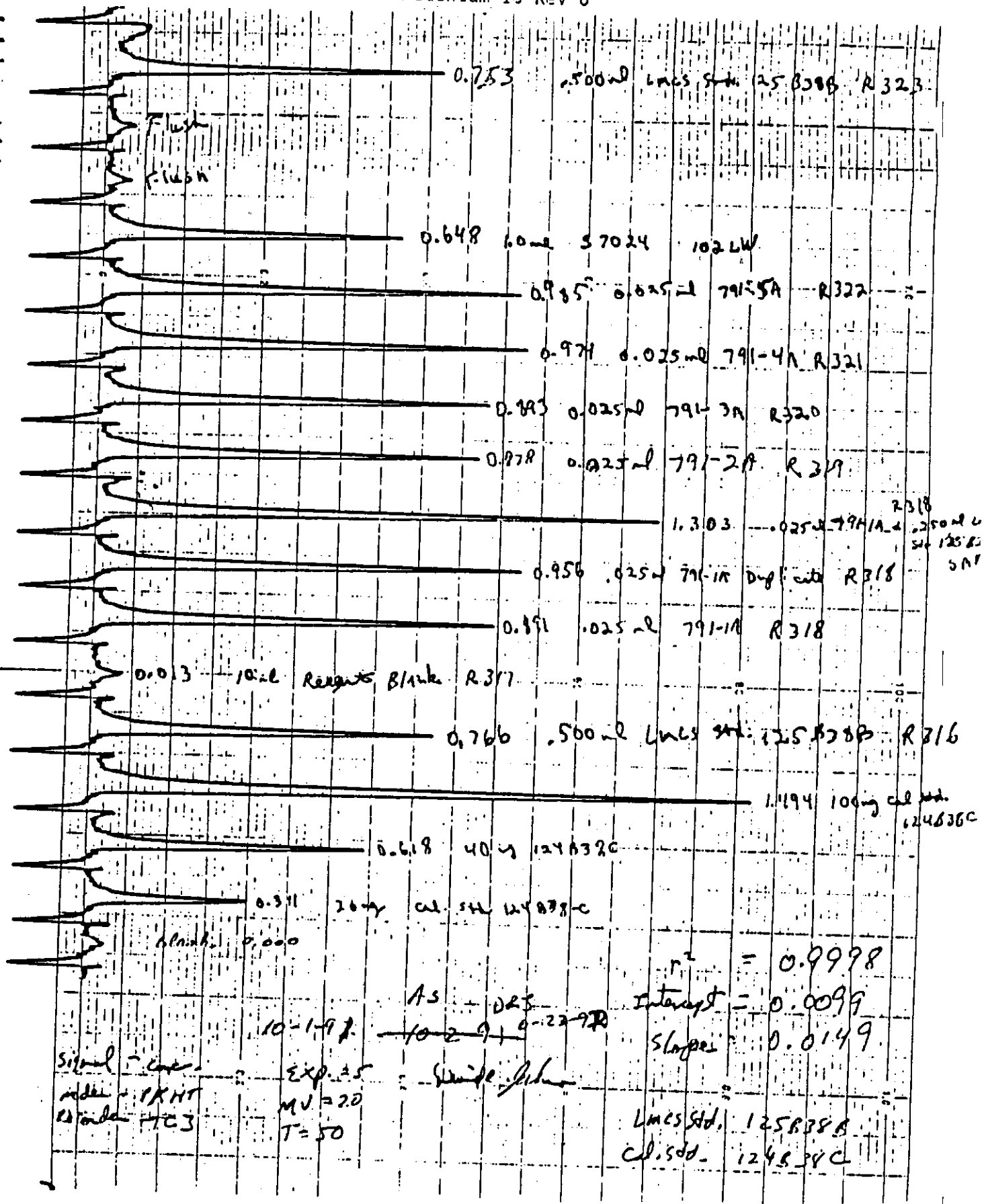
Analyte:	As		
Procedure:	LA-355-131	Revision:	B-0
Instrument:	PERKIN - ELMER	Property No.:	WA77479
Technologist:	D. JACKSON	Payroll No.: 6C275	Date: 10-01-91

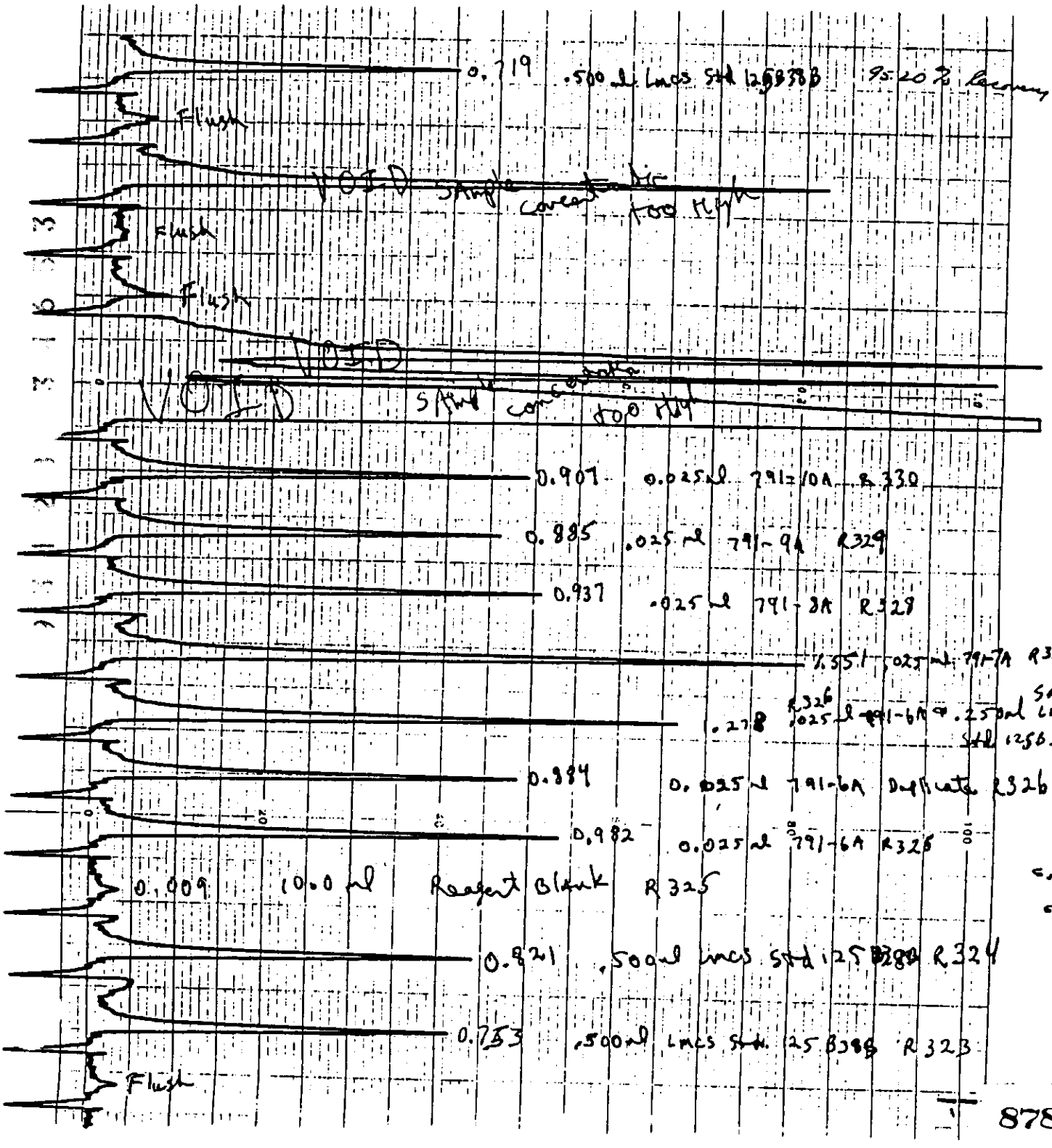
Calibration Standard: 124B38C
Analyte Concentration: 0.1000 ppm
Type of Calibration: LINEAR

	Dilution	Concentration	Instrument Reading Unit
1	0.000 mL	0.0 ng	0.000
2	0.200 mL	20.0 ng	0.311
3	0.400 mL	40.0 ng	0.618
4	1.000 mL	100.0 ng	1.494
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Comments:

A-6000-882 (03/92)


0.753 .500 ml Lmcs Std. 125B38B R323
Flush
Flush
0.648 1.0 ml S7024 102LW
0.985 0.025 ml 791-5A R322
0.974 0.025 ml 791-4A R321
0.893 0.025 ml 791-3A R320
0.878 0.025 ml 791-2A R319
1.303 .025 ml 791-1A R318 .250 ml Lmcs Std 125B38B
0.956 .025 ml 791-1A Duplicate R318
0.891 .025 ml 791-1A R318
0.013 10 ml Reagent Blank R317
0.766 .500 ml Lmcs Std. 125B38B R316
1.494 100 ng Cal Std. 124B38C
0.618 40 ng 124B38C
0.311 20 ng Cal. Std 124B38C
Blank 0.000
r² = 0.9998
Intercept = 0.0099
Slope = 0.0149
AS - DRS
10-1-91 ~~10-2-91~~ 10-22-91
Signal - Conc.
Exp. = 5
MV = 20
T = 50
Lmcs Std. 125B38B
Cal. Std. 124B38C


0.719 .500 ml LMCS Std 125B38B 95.20% Recovery
Flush
VOID sample concentration too high
Flush
Flush
VOID
VOID sample concentration too high
0.907 0.025 ml 791-10A R330
0.885 .025 ml 791-9A R329
0.937 .025 ml 791-8A R328
0.551 .025 ml 791-7A R327
.278 R326 .025 ml 791-6A + .250 ml LMCS Std 125B38B Spike
0.884 0.025 ml 791-6A Duplicate R326
0.982 0.025 ml 791-6A R326
0.009 10.0 ml Reagent Blank R325
0.821 .500 ml LMCS Std 125B38B R324
0.753 .500 ml LMCS Std. 125B38B R323
Flush
PERKIN-ELMER
Chart No. CP33402-0
PERKIN-ELMER

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R328	Customer ID: 791-8A
Analysis: CYANIDE	Sample Prep: UNDIGESTED

Instrument: MILTON ROY SPEC 301 - AL10724	Procedure/Rev: LA-695-102/A-4
Technologist: E. COLVIN	Date: 09-27-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5578	11		
2	REAGENT BLANK	R325-5678	12		
3	SAMPLE 791-8A	R328-5778	13		
4	FINAL LMCS CHECK STD	R331-5578	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	75C11S/0.100 mL			N/A

A-6000-881 (03/92)

CYANIDE ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5570	106AW	9-20-91	10:6	25

Determination	Method/Standard	Result Units	Charge Code	Results
CN	LA-695-102	% RECOVERY	WITEZ	0

Sample Size: 100uL-10mL-500uL — Customer ID: STD

Remarks, Calculations, Results: S2MM KCN; STDH 75C11 S RESULT; STD VAL 8.90E2 %REC 100.9%

ABS .738

$$\frac{(.738-.012)-.006547}{.160252} / .5 \times 100 = 8.979E^2$$

.006547 9-30-91

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
80027				
Ed Cole				

Date: 9-27-91 — Time Completed: — Lab Use Only: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5578	106AW	9-20-91	10:8	25

Determination	Method/Standard	Result Units	Charge Code	Results
CN	LA-695-102	PPM	WITEZ	

Sample Size: ? — Customer ID: REG BL

Remarks, Calculations, Results: REAGENT BLANK

ABS .012

$$\frac{.012-.006547}{.160252} = <5.00E^{-1}\ ppm$$

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
80028				
Ed Cole				

Date: 9-27-91 — Time Completed: — Lab Use Only: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 328.-5770	106AW	9-20-91	10:19	25

Determination	Method/Standard	Result Units	Charge Code	Results
CN	LA-695-102	PPM	WITEZ	0

Sample Size: 750uL — Customer ID: 791 BA

Remarks, Calculations, Results:

ABS .307

$$\left[\frac{(.307-.012)-.006547}{.160252}\right] \div .750 = 2.40\ ppm$$

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
80027				
Ed Cole				

Date: 9-27-91 — Time Completed: — Lab Use Only: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 331.-5578	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Results
CN	LA-695-102	% RECOVERY	WITEZ	

Sample Size: 100uL-10mL-500uL — Customer ID: STD

Remarks, Calculations, Results: S2MM KCN; STDH 75C11 S RESULT; STD VAL 8.90E2 %REC 100.4%

ABS .735

$$\left[\frac{(.735-.012)-.006547}{.160252}\right] \div .500 \times 100 = 8.94e^2$$

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
80027				
Ed Cole				

Date: 9-27-91 — Time Completed: — Lab Use Only: [signature]

TODAYS DATE: 09-27-1991

PAYROLL NO.: 80028

Y-INTERCEPT= .006547
SLOPE= .160252

SAMPLE ID#: R-325 BLANK
SAMPLE SIZE: 0
WVL AND ABS= 580NM 0.012 A

SAMPLE ID#: R-324 75C11-S STD
SAMPLE SIZE: 100UL-10ML-500UL
WVL AND ABS= 580NM 0.738 A

SAMPLE ID#: R-326
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.118 A

SAMPLE ID#: R-326 DUPLICATE
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.120 A

SAMPLE ID#: R-326 + SPIKE
SAMPLE SIZE: 750UL + 100UL-10ML-500UL 75C11-S SPIKE
WVL AND ABS= 580NM 0.856 A

SAMPLE ID#: R-327
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.110 A

SAMPLE ID#: R-328
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.307 A

SAMPLE ID#: R-329
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.063 A

SAMPLE ID#: R-330
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.271 A

SAMPLE ID#: R-331 75C11-S STD
SAMPLE SIZE: 100UL-10ML-500UL
WVL AND ABS= 580NM 0.735 A

CALIBRATION CURVE LACHAT NON-DISTILLED 25ML

CYANIDE DATE: 8-28-1991

CALIBRATION STANDARD # 351-M, 1006 MG/ML CYANIDE

DILUTION FACTOR = 10/.1 = 100, WORKING STANDARD = 1006 /100 = 10.060

PIPET SIZE	MICROGRAMS CYANIDE	TOTAL ABS	NET ABS
BLANK	0	.006	0
50UL	.503	.0930	.0870
500UL	5.030	.8320	.8260
1000UL	10.060	1.6180	1.6120

Y INTERCEPT = .006547
SLOPE = .160252
C C = .999921

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R328	Customer ID: 791-8A
Analysis: DIFFERENTIAL THERMAL	Sample Prep: UNDIGESTED

Instrument: WC16134,WC16129	Procedure/Rev: LA-514-113/A-0
Technologist: M. MYERS	Date: 10-14-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5511	11		
2	REAGENT BLANK	R325-5611	12		
3	SAMPLE 791-8A	R328-5711	13		
4	FINAL LMCS CHECK STD	R331-5511	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	27C11BB/0.10 mL			N/A

A-6000-881 (03/92)

DIFFERENTIAL THERMAL ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5511	106AW	9-20-91	10: 5	[illegible]

Determination	Method/Standard	Result Units	Charge Code	Results
DSC	LA-514-113	EXOTHERMS	W1TE2	0

Sample Size	Customer ID
.010ml	STD

Remarks, Calculations, Results: 27C1188

100.0%

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[illegible]				
60823				

Date	Time Completed	Lab Unit Sign
10-14-91		[illegible]

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5611	106AW	9-20-91	10: 7	[illegible]

Determination	Method/Standard	Result Units	Charge Code	Results
DSC	LA-514-113	EXOTHERMS	W1TE2	[illegible]

Sample Size	Customer ID
.010ml	[illegible]

Remarks, Calculations, Results: REAGENT BLANK

NO EXOTHERMS

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[illegible]				
60823				

Date	Time Completed	Lab Unit Sign
10-14-91		[illegible]

Serial No	Sample Point	Date	Time Issued	Priority
R 328. 5711	106AW	9-20-91	10:17	25

Determination	Method/Standard	Result Units	Charge Code	Results
DSC	LA-514-113	EXOTHERMS	W1TE2	0

Sample Size	Customer ID
.010ml	291 [illegible]

Remarks, Calculations, Results:

NO EXOTHERM

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[illegible]				
60823				

Date	Time Completed	Lab Unit Sign
10-14-91		[illegible]

Serial No	Sample Point	Date	Time Issued	Priority
R 4.-551	RCRA-1	8-15-91	9:35	26

Determination	Method/Standard	Result Units	Charge Code	Results
DSC	LA-514-113	EXOTHERMS	KP3[illegible]	0

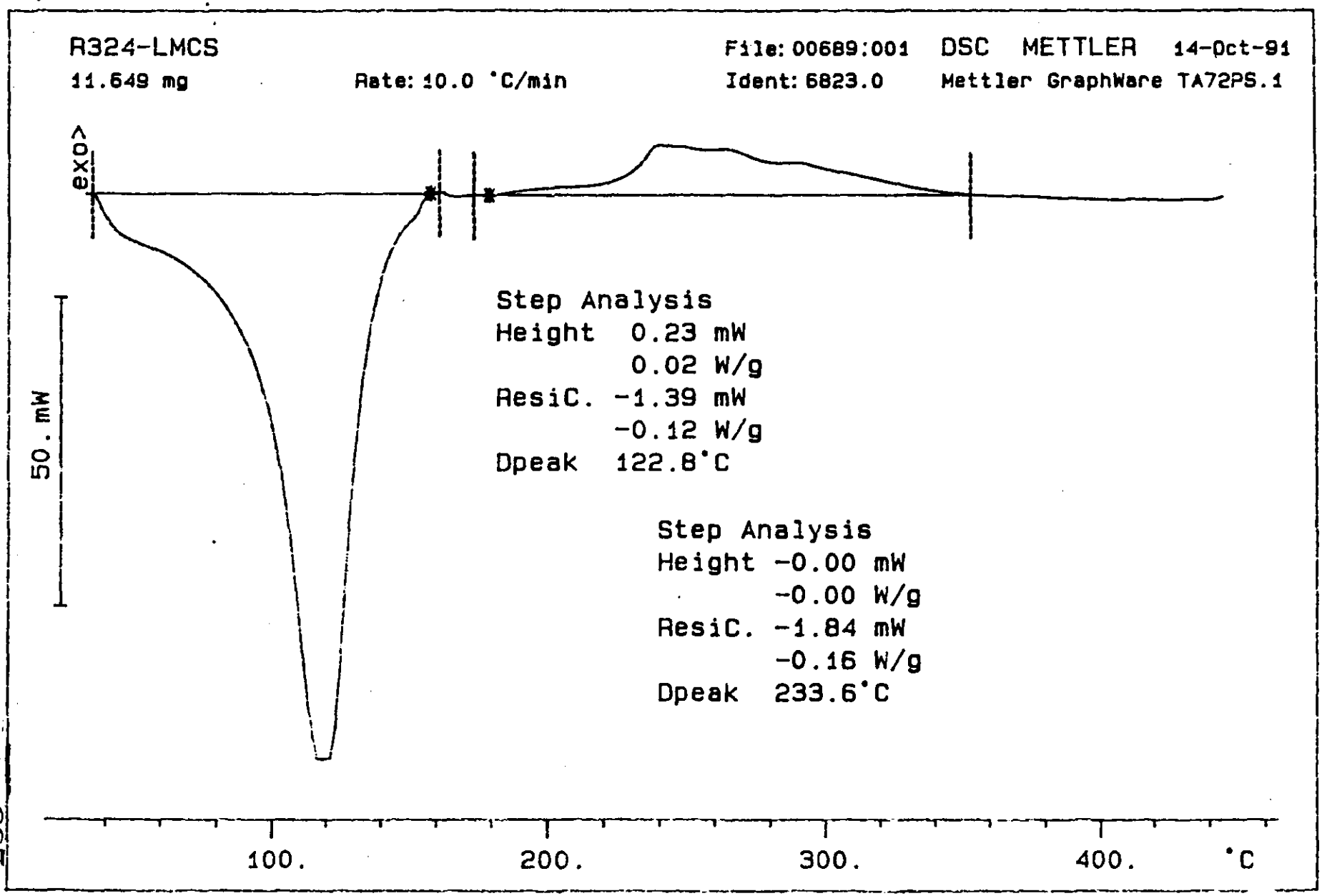
Sample Size	Customer ID
.010ml	STD

Remarks, Calculations, Results: 27C1188

100.0%

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[illegible]				
60823				

Date	Time Completed	Lab Unit Sign
10-14-91		[illegible]

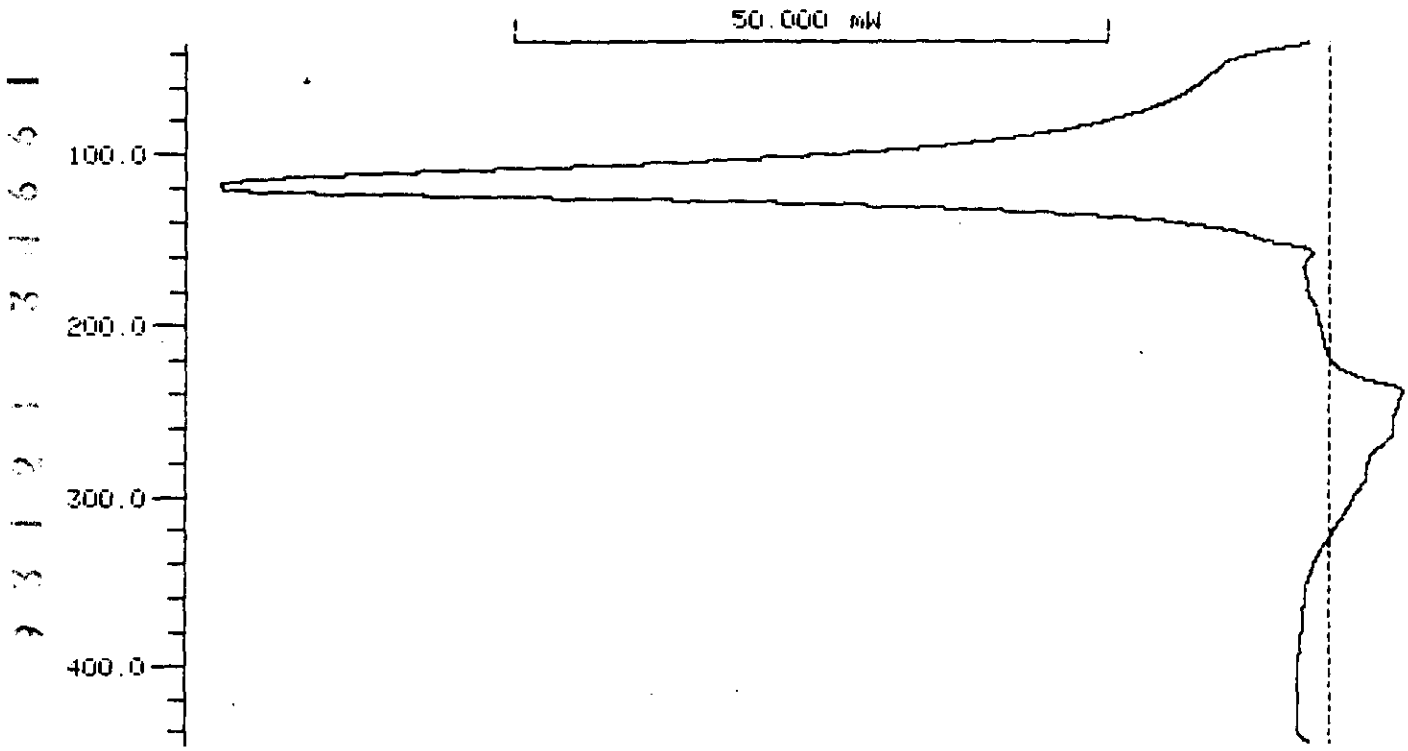

R324-LMCS
11.649 mg
Rate: 10.0 °C/min
File: 00689:001
Ident: 6823.0
DSC METTLER 14-Oct-91
Mettler GraphWare TA72PS.1
exo>
50. mW
Step Analysis
Height 0.23 mW
0.02 W/g
ResiC. -1.39 mW
-0.12 W/g
Dpeak 122.8°C
Step Analysis
Height -0.00 mW
-0.00 W/g
ResiC. -1.84 mW
-0.16 W/g
Dpeak 233.6°C
100.
200.
300.
400.
°C

R324

END SCREEN °C 448.0

TEMPERATURE °C

HEAT FLOW
EXOTHERMAL-->



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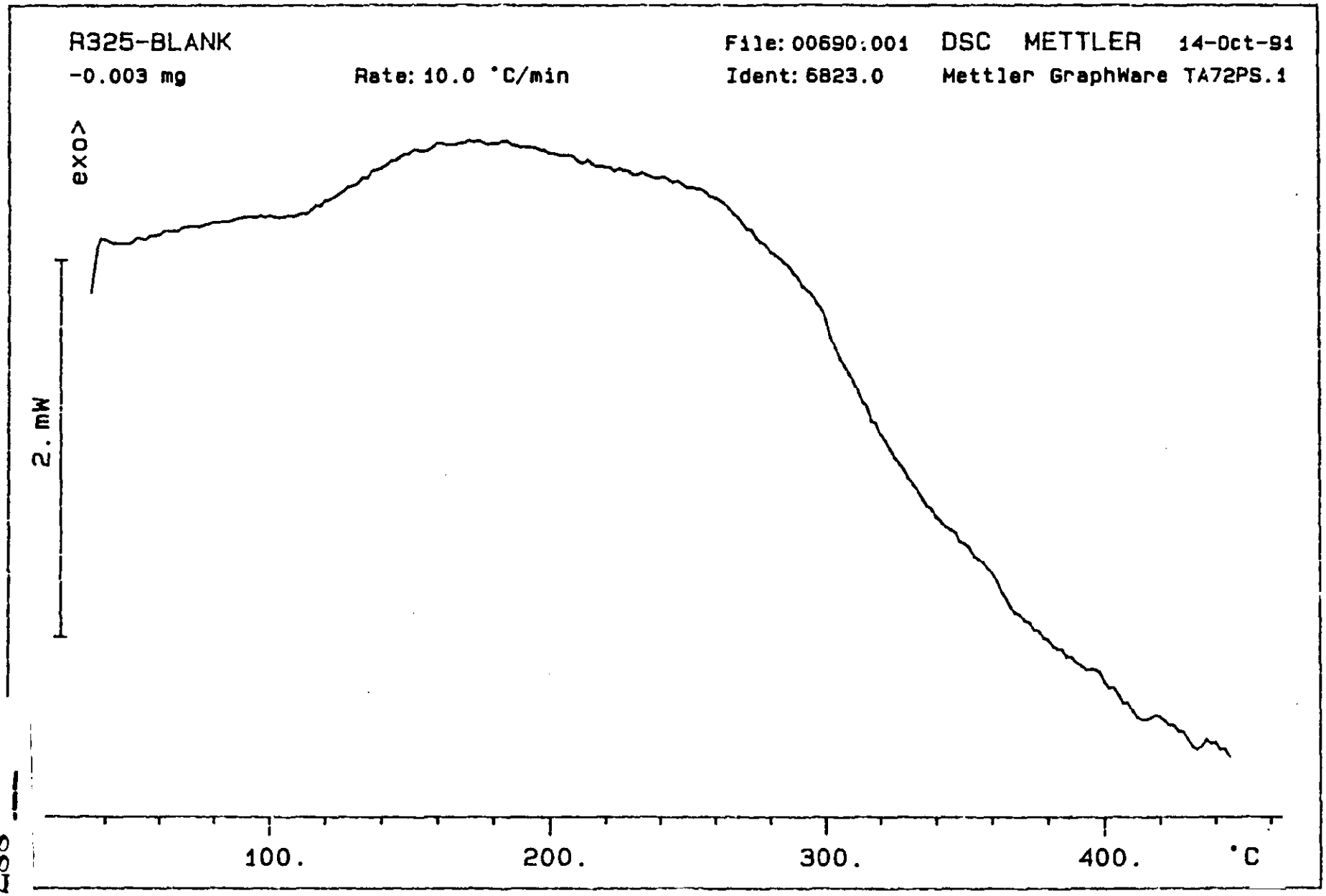
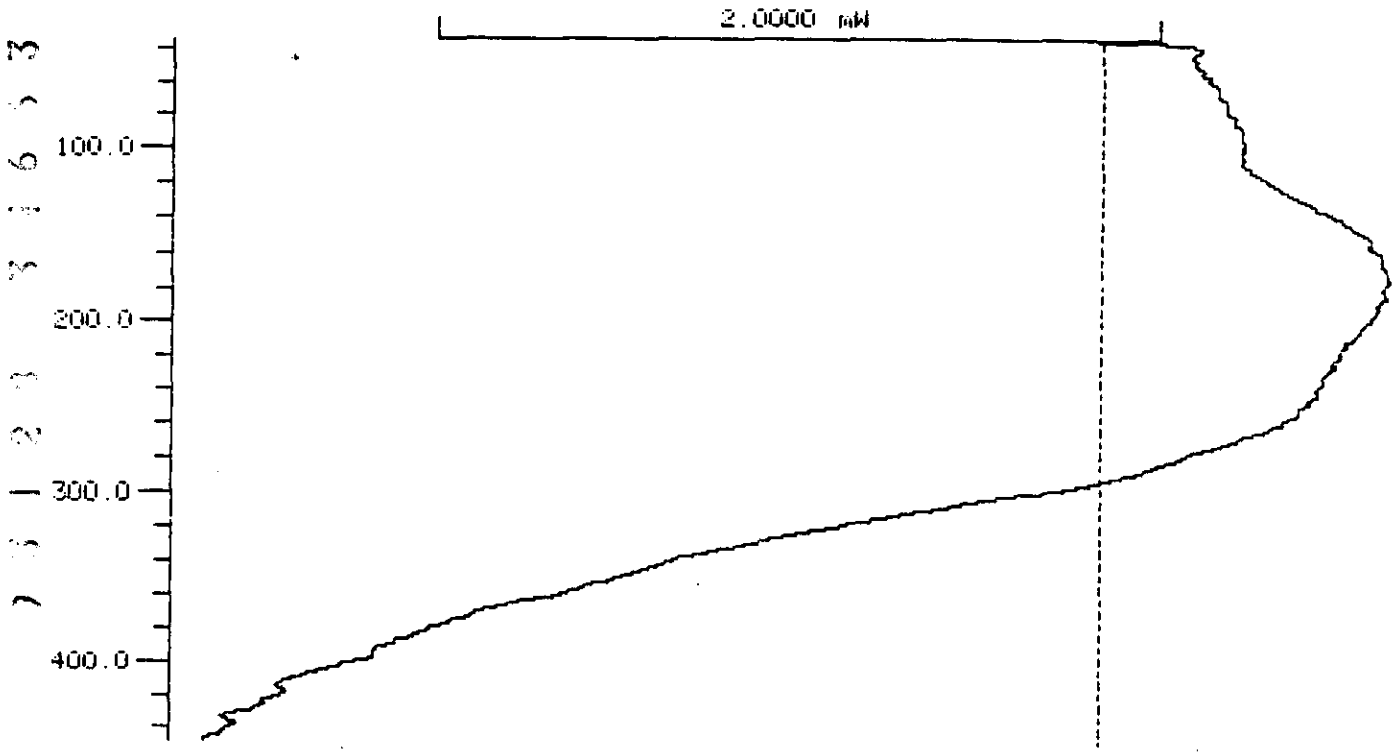

R325-BLANK
-0.003 mg
Rate: 10.0 °C/min
File: 00690.001
Ident: 6823.0
DSC METTLER 14-Oct-91
Mettler GraphWare TA72PS.1
exo>
2. mW
100.
200.
300.
400.
°C

R325

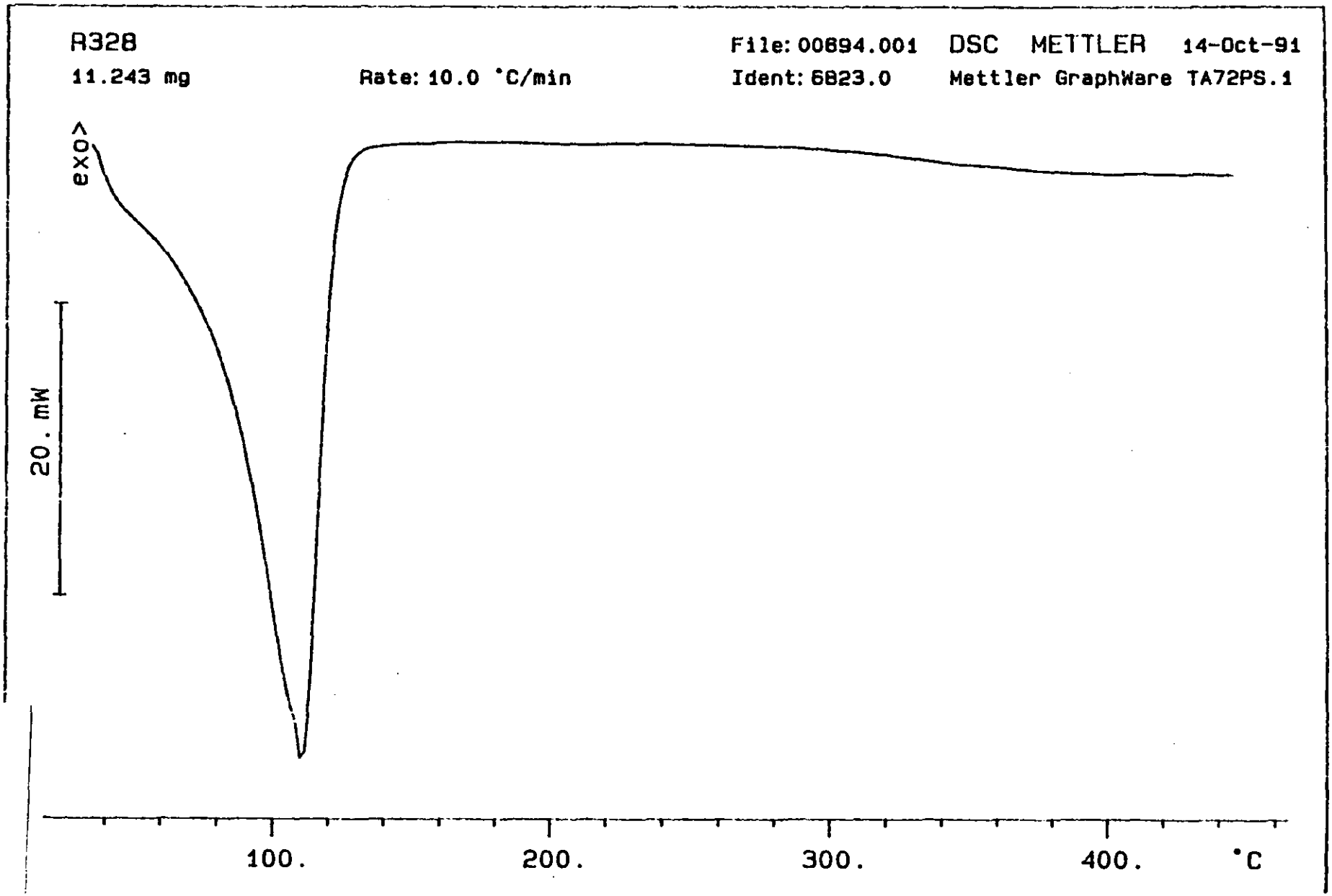
END SCREEN °C 447.8

TEMPERATURE °C

HEAT FLOW
EXOTHERMAL-->



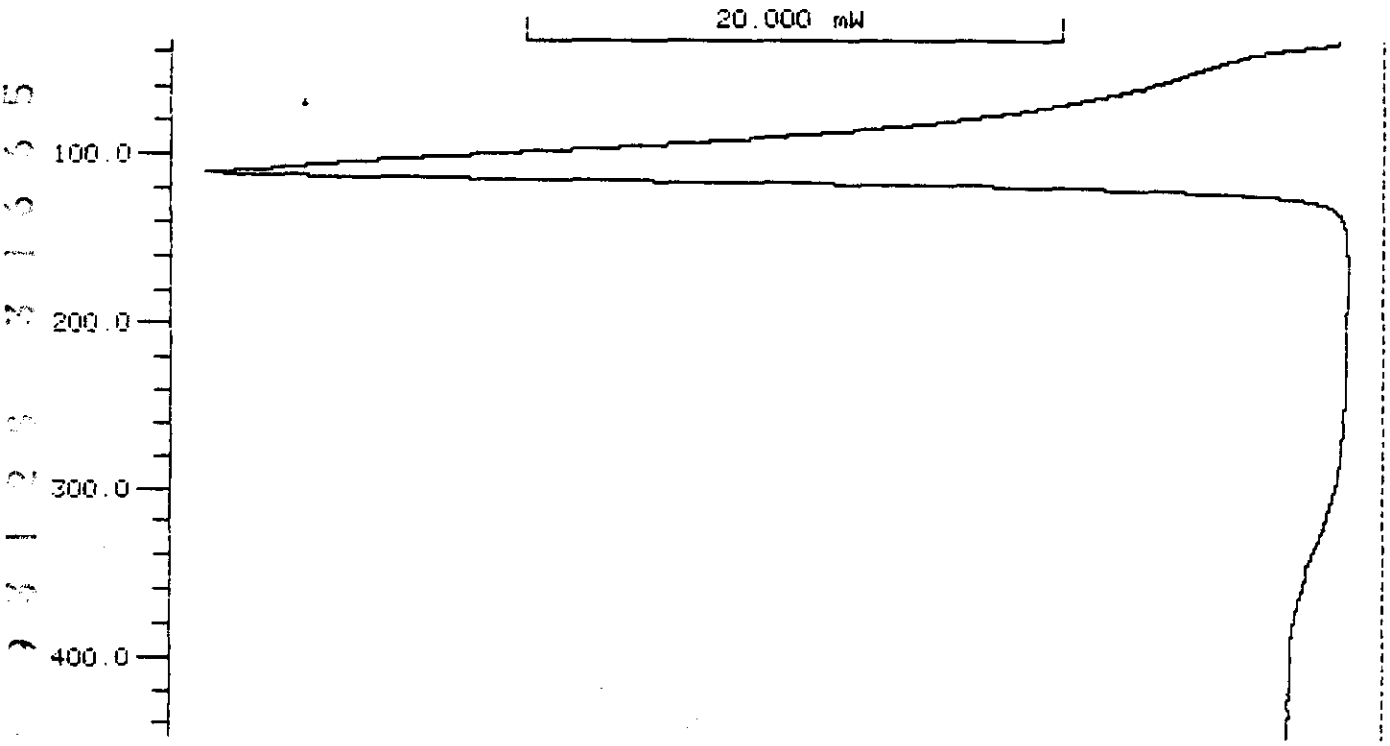
******** METTLER TA4000 SYSTEM *********


R328
11.243 mg
Rate: 10.0 °C/min
File: 00894.001
Ident: 6823.0
DSC METTLER
Mettler GraphWare TA72PS.1
14-Oct-91
exo>
20. mW
100.
200.
300.
400.
°C

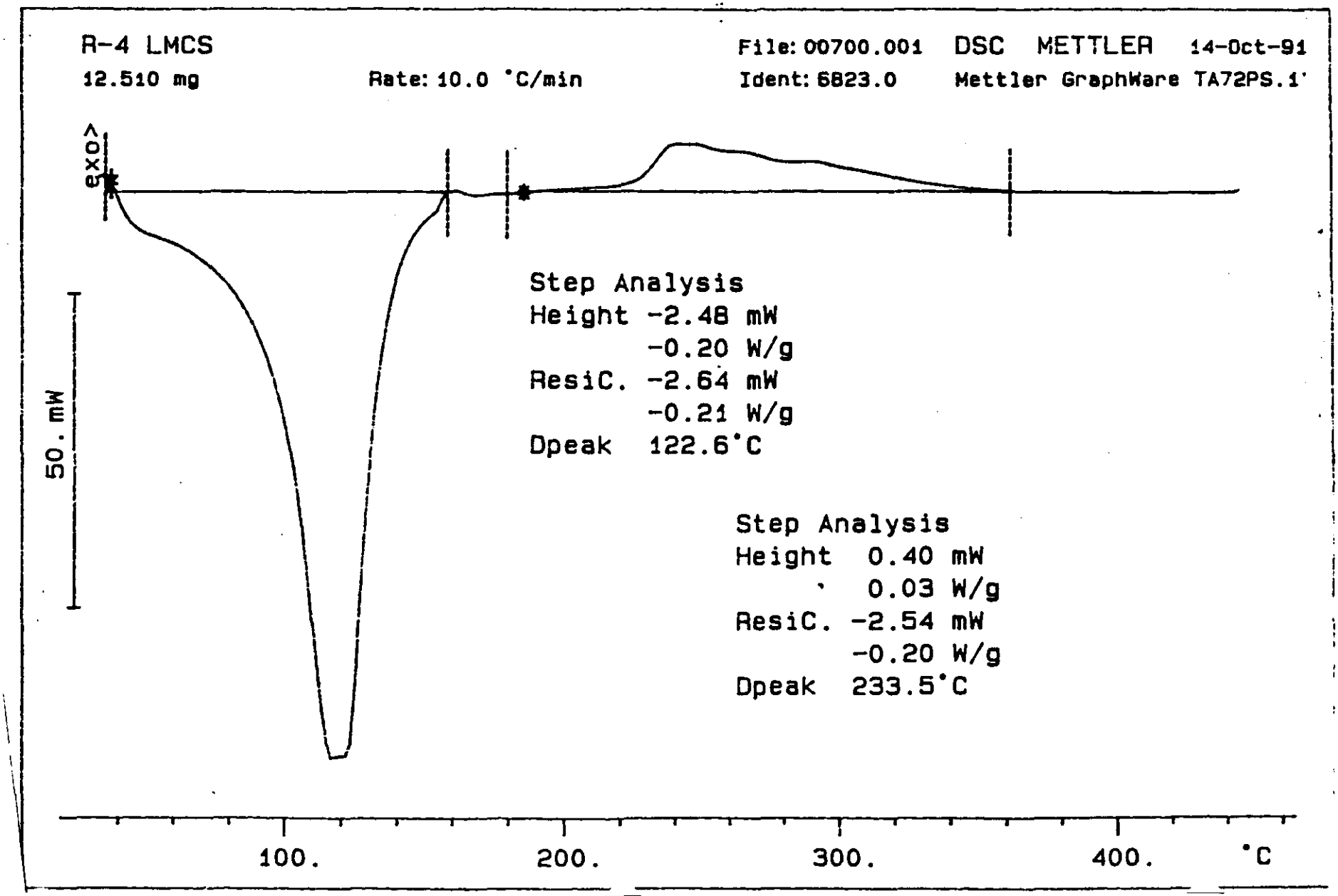
END SCREEN °C 447.8

TEMPERATURE °C

HEAT FLOW
EXOTHERMAL-->



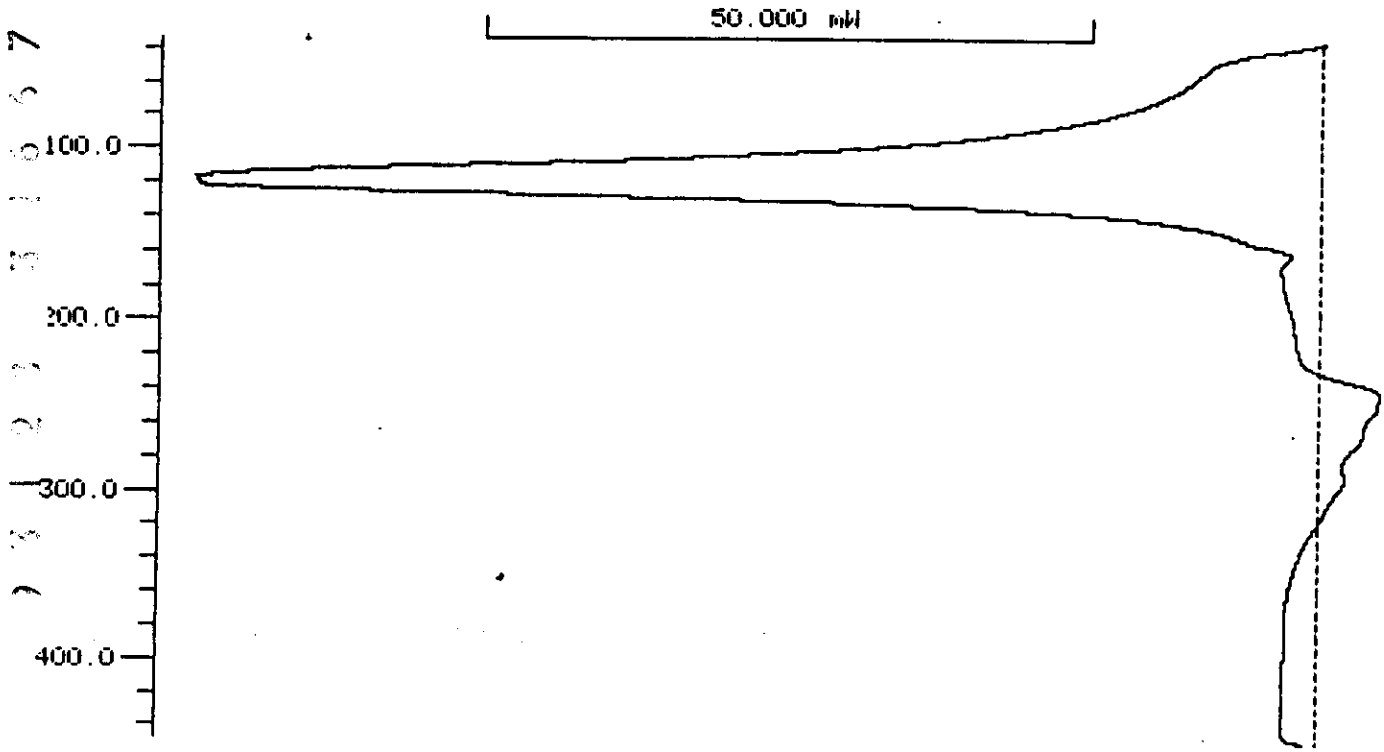
******** METTLER TA4000 SYSTEM *********


R-4 LMCS
12.510 mg
Rate: 10.0 °C/min
File: 00700.001
Ident: 6823.0
DSC METTLER 14-Oct-91
Mettler GraphWare TA72PS.1'
exo>
50. mW
Step Analysis
Height -2.48 mW
-0.20 W/g
ResiC. -2.64 mW
-0.21 W/g
Dpeak 122.6°C
Step Analysis
Height 0.40 mW
0.03 W/g
ResiC. -2.54 mW
-0.20 W/g
Dpeak 233.5°C
100.
200.
300.
400.
°C

END SCREEN °C 448.0

TEMPERATURE °C

HEAT FLOW
EXOTHERMAL-->



******** METTLER TA4000 SYSTEM *********

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R328	Customer ID: 791-8A
Analysis: MERCURY	Sample Prep: UNDIGESTED

Instrument: PERKIN ELMER WA77479	Procedure/Rev: LA-325-102/B-0
Technologist: D. R. JACKSON	Date: 10-17-91
Starting Time: 8:00	Temperature: N/A
Ending Time: 2:00	Chemist: R. K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5597	11		
2	REAGENT BLANK	R325-5697	12		
3	SAMPLE 791-8A	R328-5797	13		
4	FINAL LMCS CHECK STD	R331-5597	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	125B38D/1.50 mL			N/A

A-6000-881 (03/92)

MERCURY ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5597	106AW	9-20-91	10: 6	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
Hg	LA-325-102	% RECOVERY	WITE2	0

Sample Size: 1.50 ml — Customer ID: STD

Remarks, Calculations, Results
EDF R716 HG/HYDRD
STDN 125838D RESULT 1.17E-1
STD VAL 1.00E-1 %REC 117.0%
0.561 176.15/1500 =

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C275				

Date: 10-16-91 — Time Completed — Lab Unit Mgr

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5697	106AW	9-20-91	10: 0	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
Hg	LA-325-102	PPM	WITE2	

Sample Size: 10.0 ml — Customer ID: PEG 1W

Remarks, Calculations, Results
REAGENT BLANK
-0.002 <5/10,000 = <5.00E-4 ppm

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C275				

Date: 10-16-91 — Time Completed — Lab Unit Mgr

Serial No	Sample Point	Date	Time Issued	Priority
R 320.-5797	106AW	9-20-91	10:19	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
Hg	LA-325-102	PPM	WITE2	0

Sample Size: 1.0 ml — Customer ID: 791 DA

Remarks, Calculations, Results
-0.011 <5/1000 = <5.00E-3 ppm

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C275				

Date: 10-16-91 — Time Completed — Lab Unit Mgr
10-17-91

Serial No	Sample Point	Date	Time Issued	Priority
R 331.-5597	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
Hg	LA-325-102	% RECOVERY	WITE2	0

Sample Size: 1.50 ml — Customer ID: STD

Remarks, Calculations, Results
EDF R716 HG/HYDRD
STDN 125838D RESULT 9.24E-2
STD VAL 1.00E-1 %REC 42.4%
0.446 138.67/1500 =

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C275				

Date: 10-16-91 — Time Completed — Lab Unit Mgr
10-17-91

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
CALIBRATION RECORD

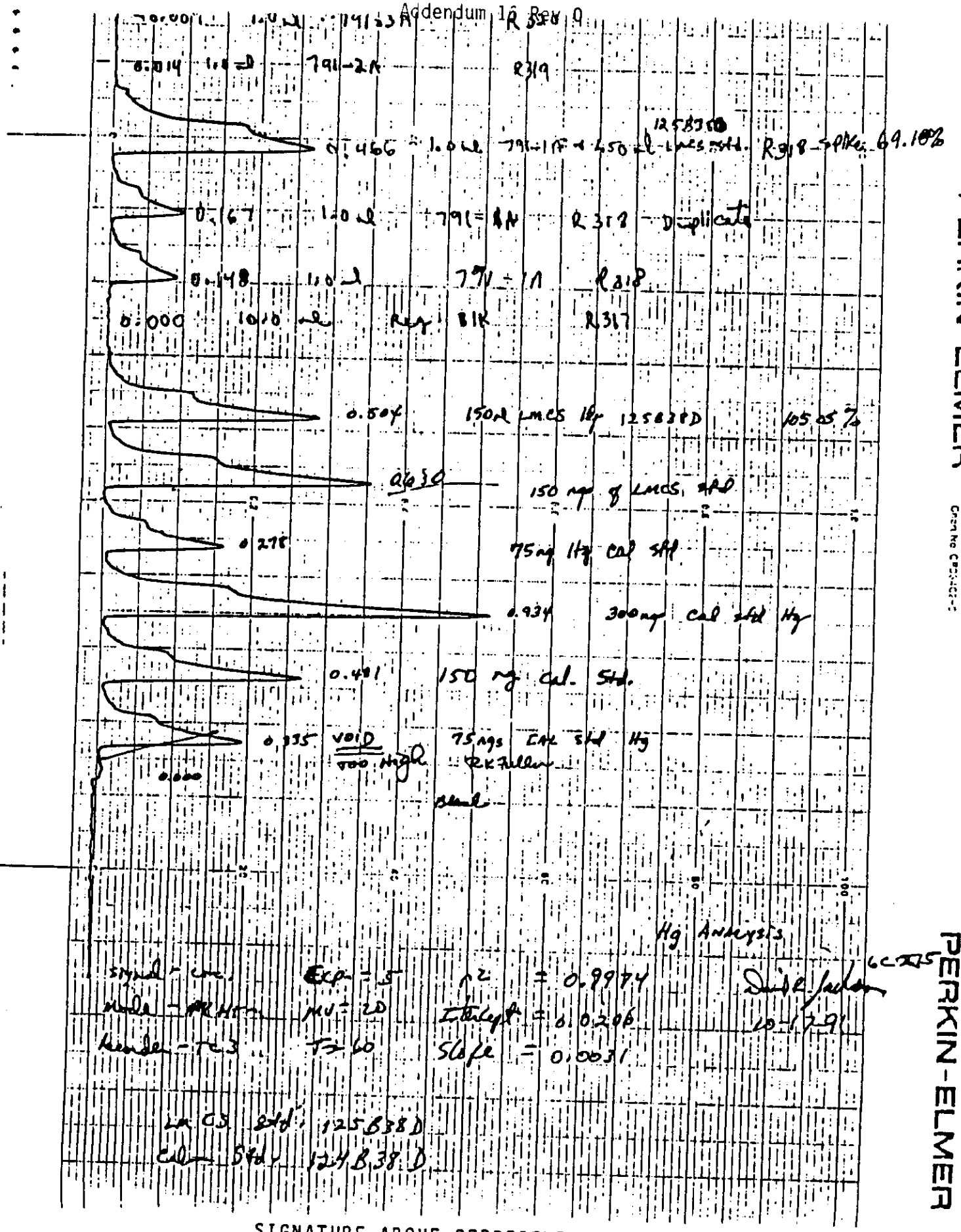
Analyte:	Hg		
Procedure:	LA-325-102	Revision:	B-0
Instrument:	PERKIN ELMER	Property No.:	WA77479
Technologist:	D. R. JACKSON	Payroll No.: 6C275	Date: 10-17-91

Calibration Standard: 124B38D
Analyte Concentration: 0.1000 ppm
Type of Calibration: LINEAR

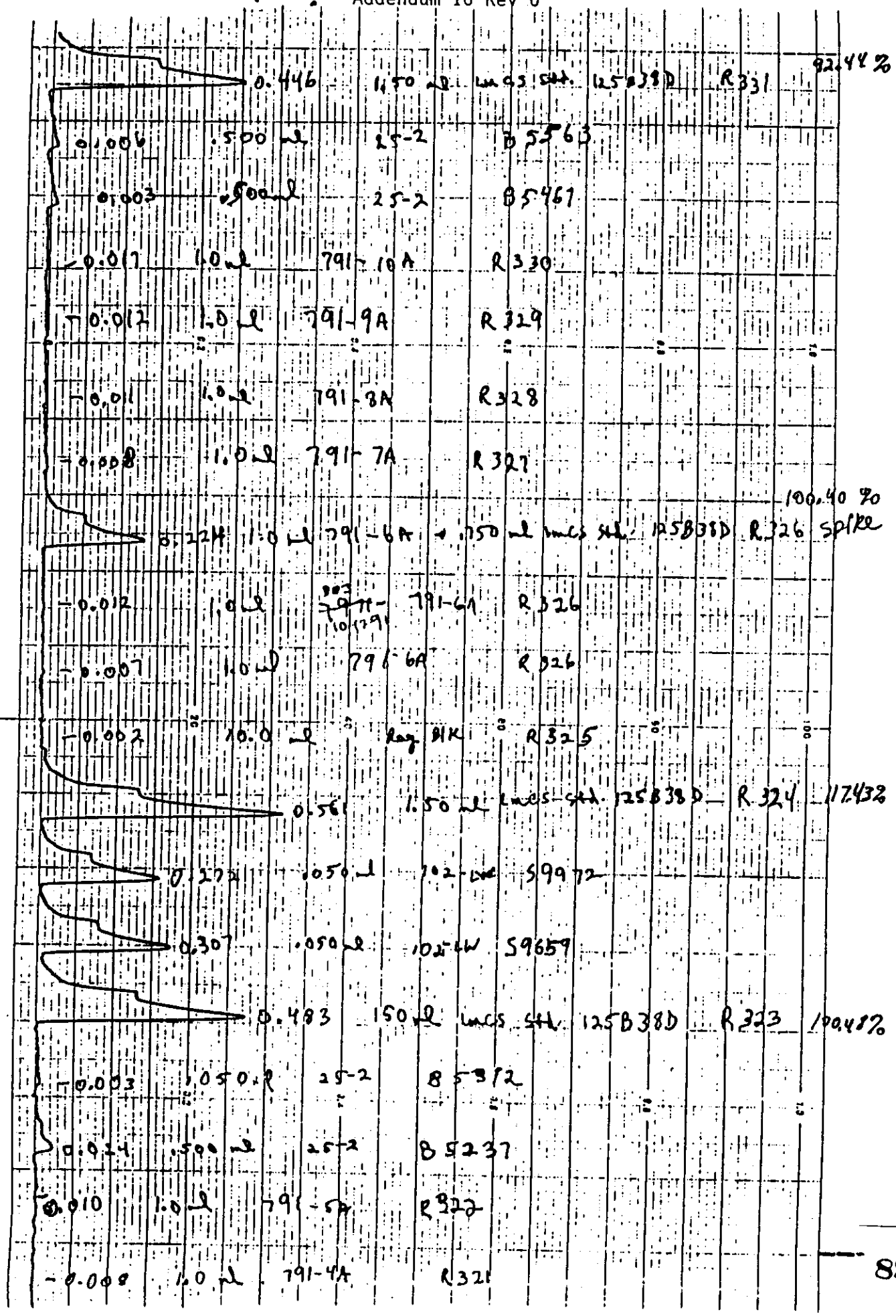
	Dilution	Concentration	Instrument Reading Unit
1	0.000 mL	0 ng	0.000
2	0.750 mL	75 ng	0.278
3	1.500 mL	150 ng	0.481
4	3.000 mL	300 ng	0.934
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Comments:

A-6000-882 (03/90)



SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED THE ANALYSIS RUN ON PAGES 896 TO 897.


PEF 'N-ELMER
PERKIN-ELMER
0.446 1.50 ml lmcs std. 125B38D R331 92.44 %
0.006 .500 ml 25-2 B5563
0.003 .500 ml 25-2 B5461
-0.017 1.0 ml 791-10A R330
-0.012 1.0 ml 791-9A R329
-0.011 1.0 ml 791-8A R328
-0.008 1.0 ml 791-7A R327
0.224 1.0 ml 791-6A .750 ml lmcs std. 125B38D R326 spike 100.40 %
-0.012 1.0 ml 791-6A R326
-0.007 1.0 ml 791-6A R326
-0.002 10.0 ml blank blk R325
0.561 1.50 ml lmcs std. 125B38D R324 117.432
0.274 .050 ml 102-LW 59972
0.307 .050 ml 102-LW 59659
0.483 1.50 ml lmcs std. 125B38D R323 100.48%
-0.003 .050 ml 25-2 B5372
0.024 .500 ml 25-2 B5237
0.010 1.0 ml 791-5A R322
-0.008 1.0 ml 791-4A R321

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R328	Customer ID: 791-8A
Analysis: AMMONIA	Sample Prep: UNDIGESTED

Instrument: WB39927	Procedure/Rev: LA-634-102/D-0
Technologist: S. LAI	Date: 10-03-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5528	11		
2	REAGENT BLANK	R325-5628	12		
3	SAMPLE 791-8A	R328-5728	13		
4	FINAL LMCS CHECK STD	R331-5528	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	4C11-QQ/.250 mL			N/A

A-6000-881 (03/92)

AMMONIA ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Serial No	Sample Point	Date	Time Issued	Priority
K 324.-5528	106AW	9-20-91	10: 5	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
NH4	LA-634-102	% RECOVERY	W11E2	0

Sample Size	Customer ID
250λ 0.09941 HCl	STD

Remarks, Calculations, Results
S23B 1HCL
STDN 4C11-AA RESULT 4.90x10^-2 blank: 25λ
STD VAL 5.10x10^-2 %REC 96.08%
(150-.025)(.09941) / .250 = .099 STD: 150λ

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Sue Li				
No. 6916				

Date	Time Completed	Lab Unit Mgr
10-2-91		DM Thomas

Serial No	Sample Point	Date	Time Issued	Priority
K 325.-5628	106AW	9-20-91	10: 7	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
NH4	LA-634-102	PPM	W11E2	0

Sample Size	Customer ID
1 ml 0.09941 HCl	REAGENT BLANK

Remarks, Calculations, Results
REAGENT BLANK
<(.010)(.09941) / 1 = <9.94x10^-4 M (4μ) blank: 25λ

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Sue Li				
No. 6916				

Date	Time Completed	Lab Unit Mgr
10-3-91		DM Thomas

Serial No	Sample Point	Date	Time Issued	Priority
K 328.-5728	106AW	9-20-91	10:10	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
NH4	LA-634-102	PPM	W11E2	0

Sample Size	Customer ID
1 ml 0.09941 HCl	791 BA

Remarks, Calculations, Results
(.090-.025)(.09941) / 1 = 1.19x10^-3 M blank: 25λ Sample: 40λ

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Sue Li				
No. 6916				

Date	Time Completed	Lab Unit Mgr
10-3-91		DM Thomas

Serial No	Sample Point	Date	Time Issued	Priority
K 331.-5528	106AW	9-20-91	10:15	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
NH4	LA-634-102	% RECOVERY	W11E2	0

Sample Size	Customer ID
250λ 0.09941 HCl	STD

Remarks, Calculations, Results
S23B 1HCL
STDN 4C11-AA RESULT 4.93x10^-2 blank: 25λ
STD VAL 5.10x10^-2 %REC 96.67%
(.152-.025)(.09941) / .250 STD: 152λ

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Sue Li				
No. 6916				

Date	Time Completed	Lab Unit Mgr
10-3-91		DM Thomas

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R328	Customer ID: 791-8A
Analysis: DETERMINATION OF HYDROXIDE IONS IN SOLUTION	Sample Prep: UNDIGESTED

Instrument: FISHER - WA77509	Procedure/Rev: LA-661-102/F-1
Technologist: M. BIERMAN	Date: 10-15-91
Starting Time: NA	Temperature: 25degC
Ending Time: NA	Chemist: S. ISAACSON

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5529	11		
2	REAGENT BLANK	R325-5629	12		
3	SAMPLE 791-8A	R328-5729	13		
4	SAM DUP OF 791-8A	R328-5829	14		
5	FINAL LMCS CHECK STD	R331-5529	15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	9C11AF/0.100 mL			NA

A-6000-881 (03/92)

DETERMINATION OF HYDROXIDE ION IN SOLUTION - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

Sample No: K 324.-5529 | Sample Point: 106AW | Date: 9-20-91 | Time Sampled: 10:5 | Priority: 25
Determination: OH | Method/Standard: LA-661-102 | Result Units: % RE | Charge Code: WIFE2 | Results: 1
RERUN
Sample Size: 100 ml | Customer ID: SID
Remarks, Calculations, Results:
S273 ITS-OH
STD# 9611AF RESULT 1.06E
SID VOL SREC 104.67%
1 ml B.C.
.1905 N HNO3
(564-10)(.1905)/100 =
Analyst 1: LCSS | Analyst 2 | Analyst 3 | Analyst 4 | Analyst 5
Date: 10/15/91

Sample No: K 325.-5629 | Sample Point: 106AW | Date: 9-20-91 | Time Sampled: 10:7 | Priority: 25
Determination: OH | Method/Standard: LA-661-102 | Result Units: M | Charge Code: WIFE2 | Results: 1
RERUN
Sample Size: 3 ml Q-H2O | Customer ID: [illegible]
Remarks, Calculations, Results:
REMOVED IN ANC
.1905 N HNO3
complete
Analyst 1: LCSS | Analyst 2 | Analyst 3 | Analyst 4 | Analyst 5
Date: 10/15/91

Sample No: K 326.-5729 | Sample Point: 106AW | Date: 9-20-91 | Time Sampled: 10:18 | Priority: 25
Determination: OH | Method/Standard: LA-661-102 | Result Units: M | Charge Code: WIFE2 | Results: 1
RERUN
Sample Size: 100 ml | Customer ID: 91 HG
1 ml B.C.
10 ml Q-H2O
Its-OH (9611AF) .100 ml
.1905 N HNO3
(540-.564)(.1905)/100 = 5.26E-1
Analyst 1: LCSS | Analyst 2 | Analyst 3 | Analyst 4 | Analyst 5
Date: 10/15/91

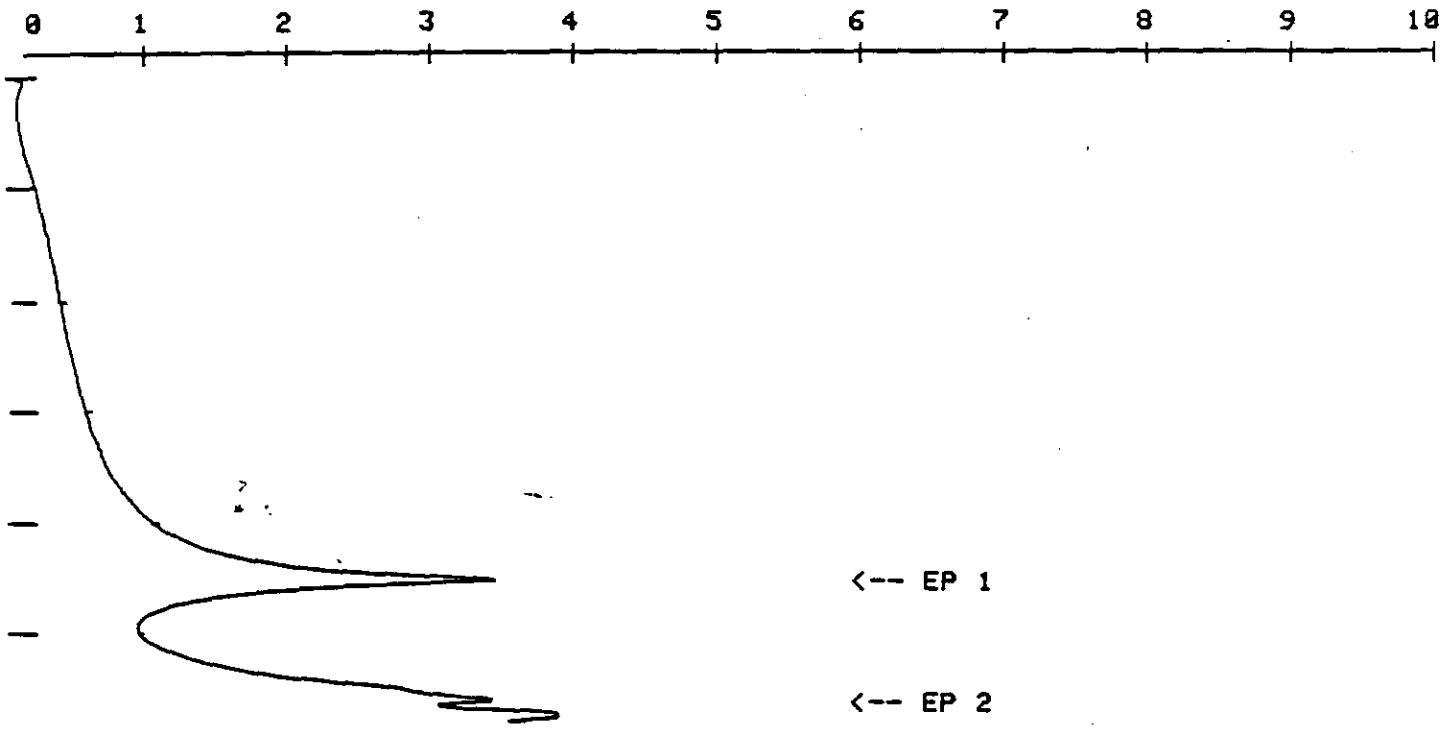
Sample No: K 328.-5829 | Sample Point: 106AW | Date: 9-20-91 | Time Sampled: 10:17 | Priority: 25
Determination: OH | Method/Standard: LA-661-102 | Result Units: M | Charge Code: WIFE2 | Results: 1
RERUN
Sample Size: 100 ml | Customer ID: 91 HG
Remarks, Calculations, Results:
DUPLICATE SAMPLE
1 ml B.C.
10 ml Q-H2O
Its-OH (9611AF) .100 ml
.1905 N HNO3
(543-.564)(.1905)/100 = 5.31E-1
Analyst 1: LCSS | Analyst 2 | Analyst 3 | Analyst 4 | Analyst 5
Date: 10/15/91

Sample No: K 331.-5529 | Sample Point: 106AW | Date: 9-20-91 | Time Sampled: 10:25 | Priority: 25
Determination: OH | Method/Standard: LA-661-102 | Result Units: % RECOVERY | Charge Code: WIFE2 | Results: 1
RERUN
Sample Size: 100 ml | Customer ID: SID
Remarks, Calculations, Results:
S273 ITS-OH
STD# 9611AF RESULT 1.016
SID VOL SREC 99.7%
1 ml B.C.
.1905 N HNO3
(539-10)(.1905)/100 =
Analyst 1: LCSS | Analyst 2 | Analyst 3 | Analyst 4 | Analyst 5
Date: 10/15/91

SAMPLE NUMBER: 1
SAMPLE DATA: 324.
DIRECT READ PH: 12.015

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.63	0.564	0.0000
7.04	0.701	0.0000

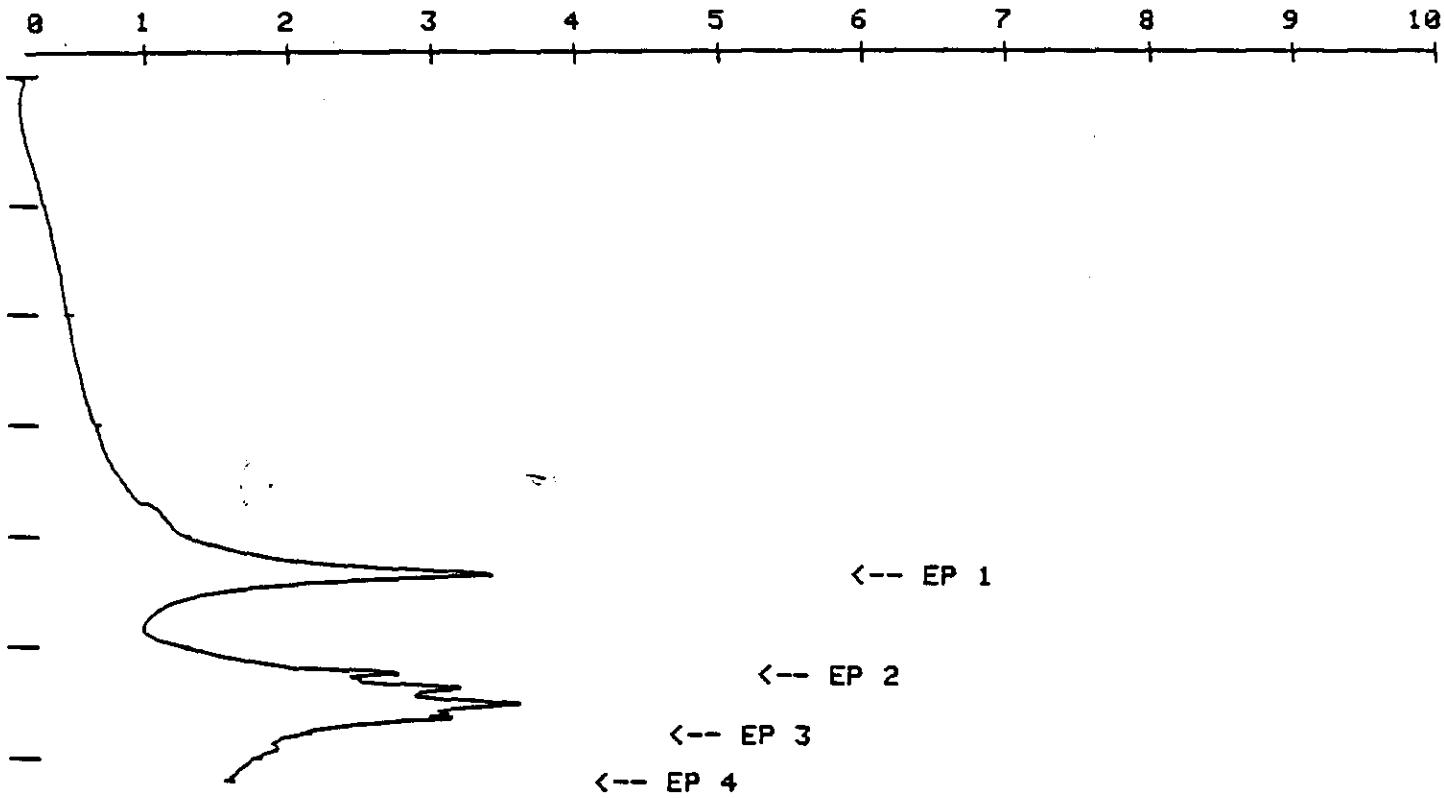
TITRATION TERMINATED BY PH LIMIT.

OCT 15 1991 4:30 PM

SAMPLE NUMBER: 2
SAMPLE DATA: 324.
DIRECT READ PH: 12.020

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.65	0.563	0.0000
8.31	0.674	0.0000
4.86	0.740	0.0000
4.04	0.793	0.0000

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

OCT 15 1991 4:37 PM

SAMPLE NUMBER: 1
SAMPLE DATA: 325.
DIRECT READ PH: 6.116

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

DERIVATIVE OUTPUT, dE/dV

0 1 2 3 4 5 6 7 8 9 10

.010

DRV TITRATION:

TITRATION TERMINATED BY PH LIMIT.

OCT 15 1991 6:49 PM

SAMPLE NUMBER: 2
SAMPLE DATA: 325.
DIRECT READ PH: 6.073

DERIVATIVE OUTPUT, dE/dV

0 1 2 3 4 5 6 7 8 9 10

.010

DRV TITRATION:

TITRATION TERMINATED BY PH LIMIT.

OCT 15 1991 6:51 PM

SAMPLE NUMBER: 3
SAMPLE DATA: 325.
DIRECT READ PH: 6.020

DERIVATIVE OUTPUT, dE/dV

0 1 2 3 4 5 6 7 8 9 10

.010

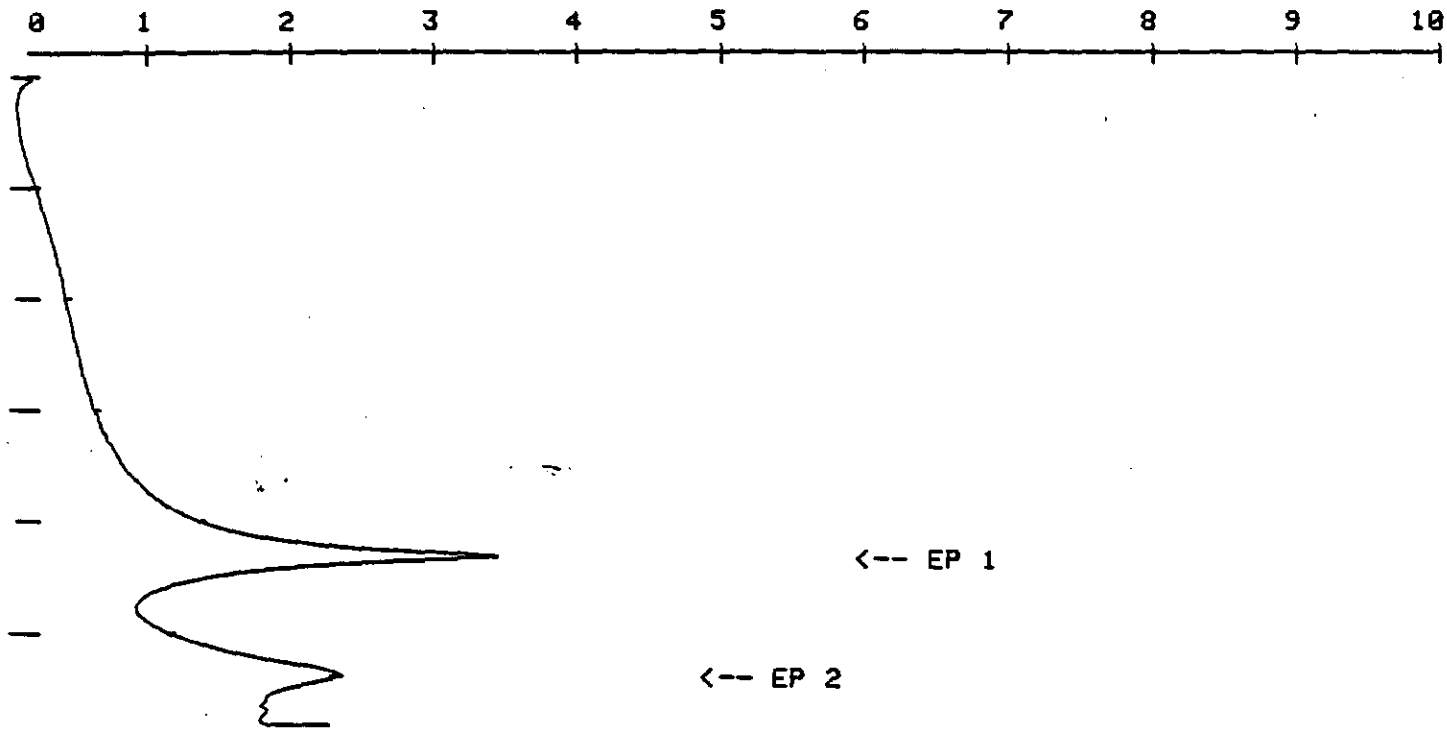
DRV TITRATION:

TITRATION TERMINATED BY PH LIMIT.

OCT 15 1991 6:53 PM

SAMPLE NUMBER: 1
SAMPLE DATA: 331.
DIRECT READ PH: 11.974

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.64	0.539	0.0000
8.15	0.671	0.0000

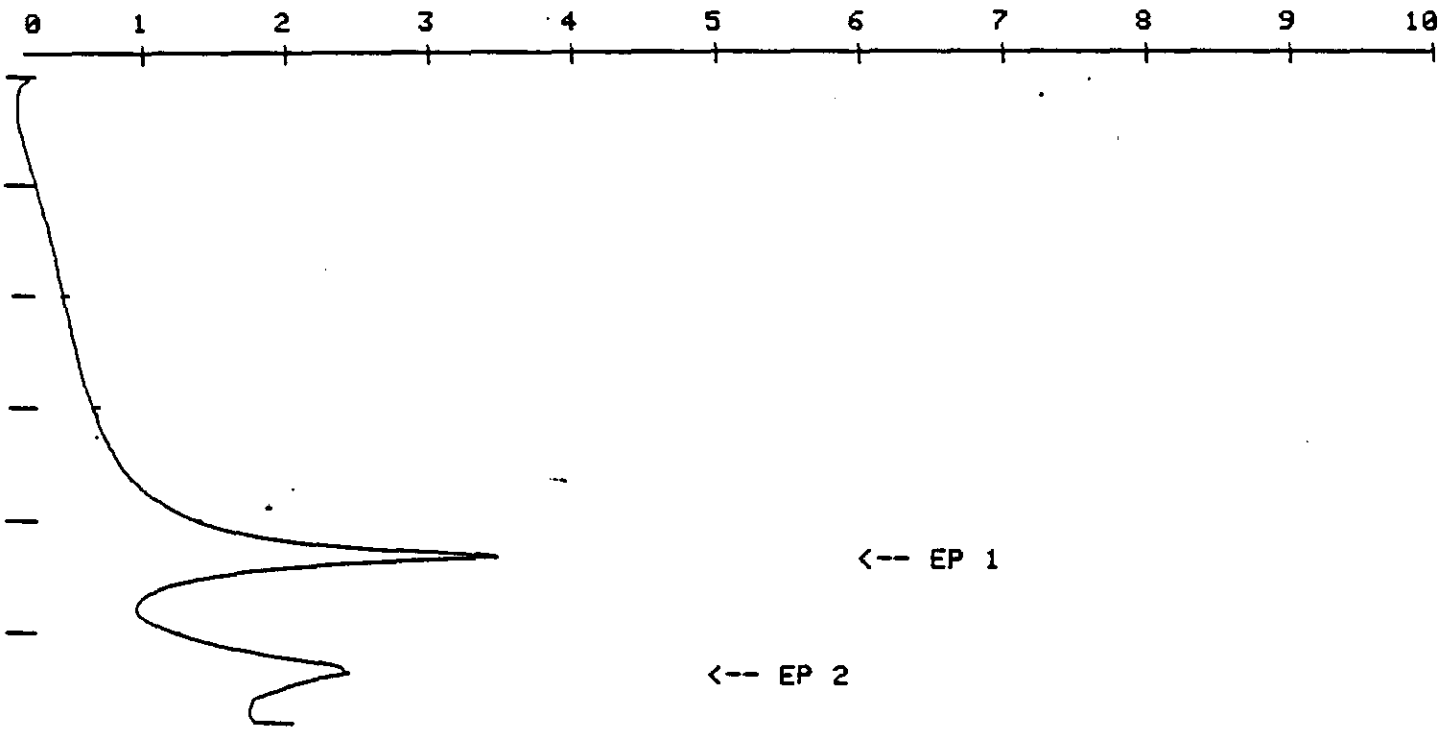
TITRATION TERMINATED BY PH LIMIT.

OCT 15 1991 9:53 PM

SAMPLE NUMBER: 2
SAMPLE DATA: 331.
DIRECT READ PH: 12.015

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.64	0.539	0.0000
8.01	0.671	0.0000

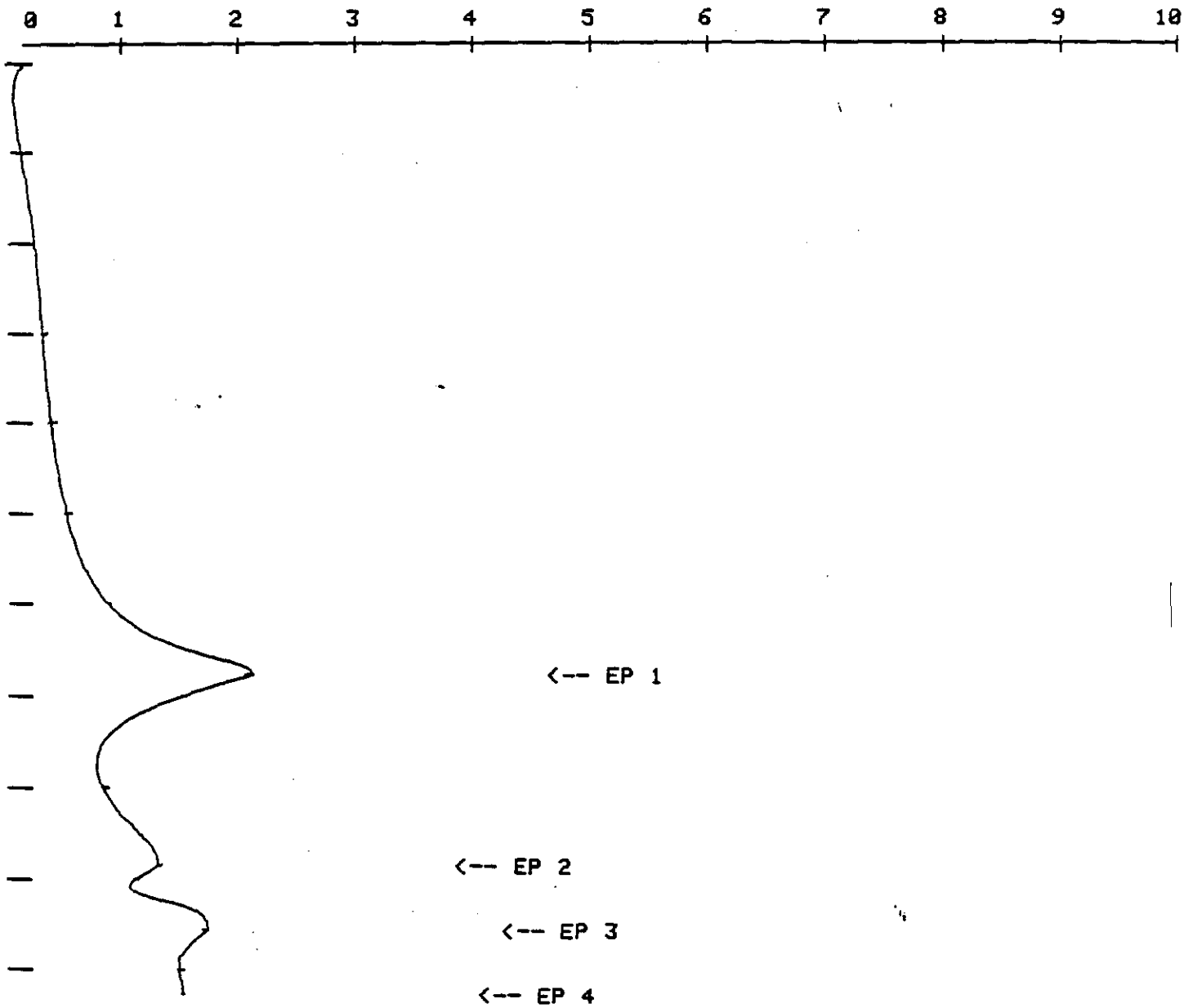
TITRATION TERMINATED BY PH LIMIT.

OCT 15 1991 9:59 PM

SAMPLE NUMBER: 1
SAMPLE DATA: 328.
DIRECT READ PH: 11.883

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.78	0.845	0.0000
8.34	1.104	0.0000
7.44	1.193	0.0000
6.45	1.281	0.0000

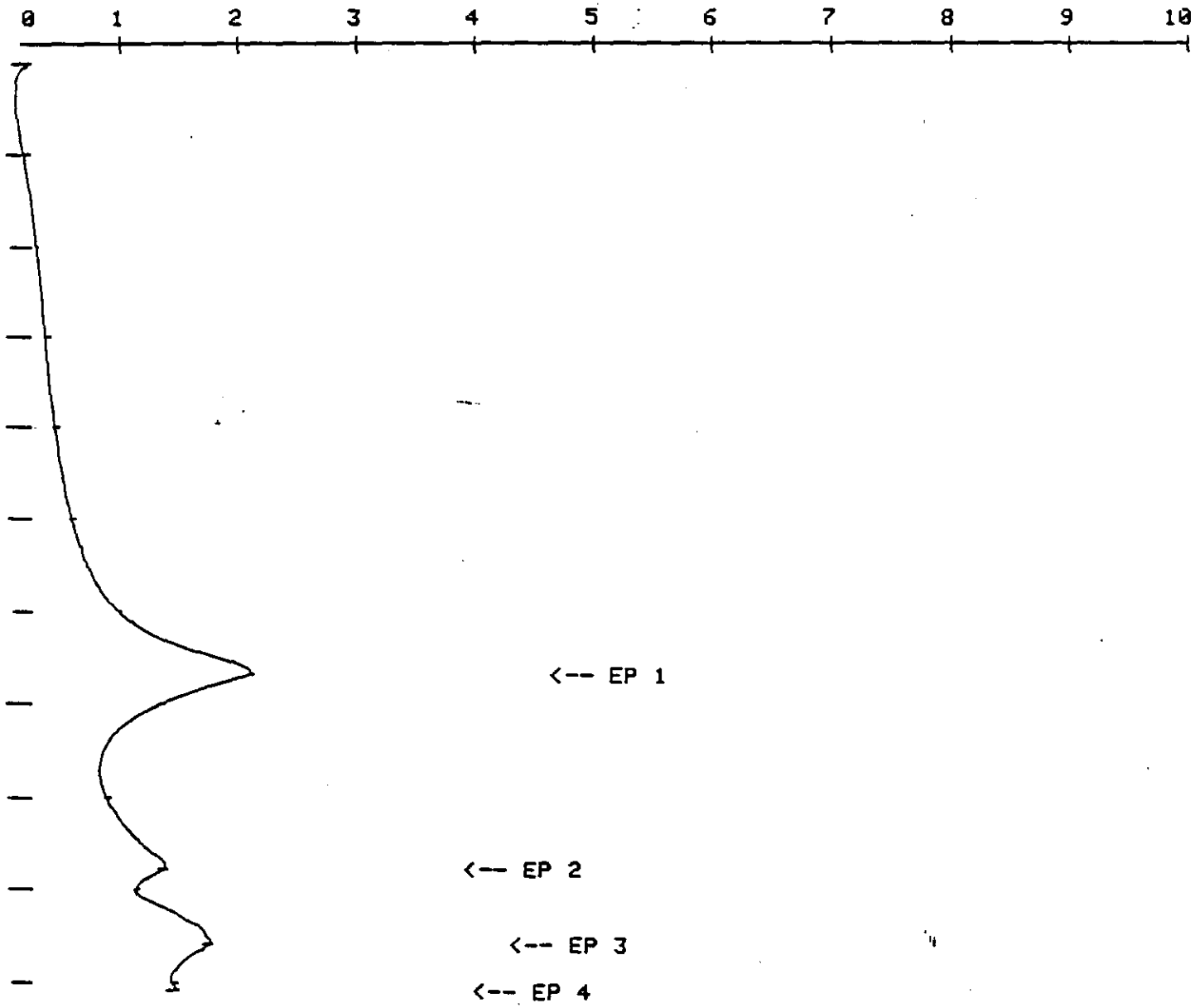
TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

OCT 15 1991 7:09 PM

SAMPLE NUMBER: 2
SAMPLE DATA: 328.
DIRECT READ PH: 11.917

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

DERIVATIVE OUTPUT, dE/dV

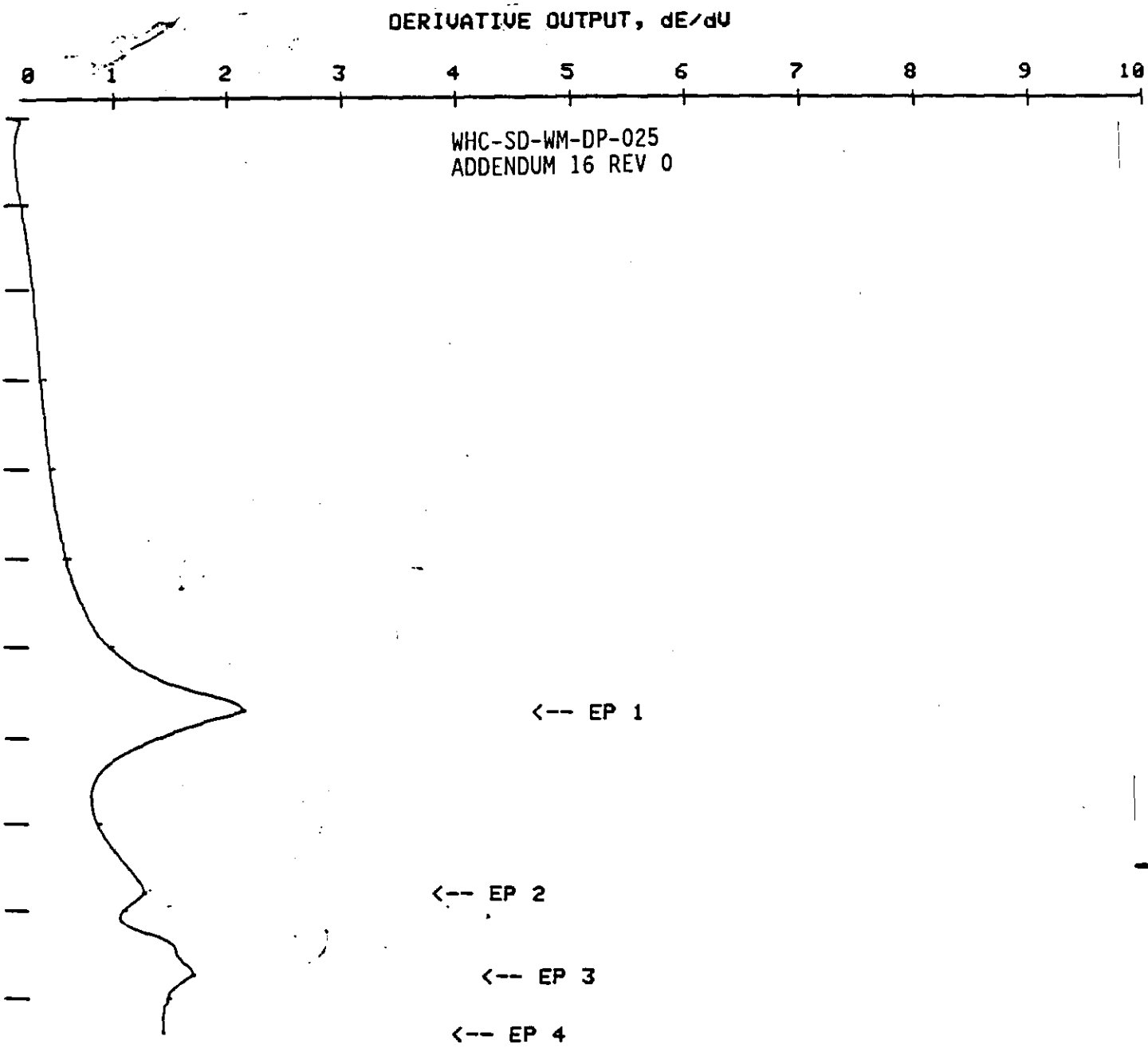


DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.80	0.834	0.0000
8.37	1.095	0.0000
7.36	1.196	0.0000
6.75	1.257	0.0000

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

OCT 15 1991 7:17 PM



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.81	0.837	0.0000
8.45	1.098	0.0000
7.41	1.216	0.0000
6.62	1.297	0.0000

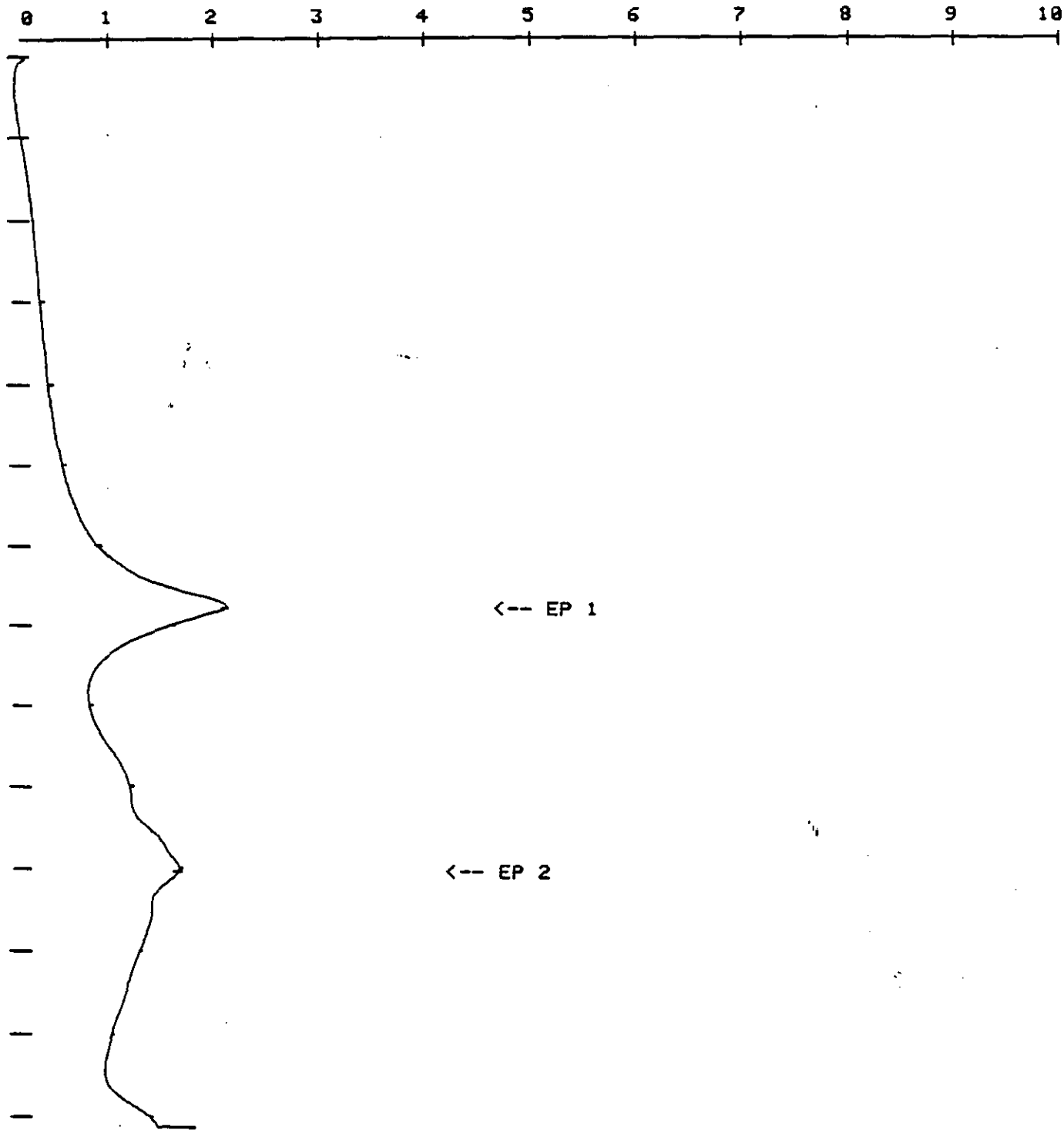
TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

OCT 15 1991 7:24 PM

SAMPLE NUMBER: 2
SAMPLE DATA: 328.
DIRECT READ PH: 11.912

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.85	0.849	0.0000
7.31	1.254	0.0000

TITRATION TERMINATED BY PH LIMIT.

OCT 15 1991 7:34 PM

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R328	Customer ID: 791-8A
Analysis: SELENIUM	Sample Prep: UNDIGESTED

Instrument: PERKIN ELMER - WA77479	Procedure/Rev: LA-365-131/B-1
Technologist: M. MYERS	Date: 09-24-91
Starting Time: 8:00	Temperature: NA
Ending Time: 11:30	Chemist: K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5596	11		
2	REAGENT BLANK	R325-5696	12		
3	SAMPLE 791-8A	R328-5796	13		
4	FINAL LMCS CHECK STD	R331-5596	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	125B38A/0.500 mL			N/A

A-6000-881 (03/92)

SELENIUM ANALYSIS - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5596	106AW	9-20-91	10:6	25

Determination	Method/Standard	Result Units	Charge Code	Results
Se	EA 365-131	% RECOVERY	WHITE	

Sample Size: .500 ml — Customer ID: STD

Remarks, Calculations, Results: EDC R243 SEZHYDRD STDH125B38A RESULT 1.08E-1 STD VAL 1.00E-1 %REC 108.0% 0.932

54.13ng / 500 = 1.08E-1

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				

Date: 9-24-91 — Time Completed: — Lab Dir Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5696	106AW	9-20-91	10:11	25

Determination	Method/Standard	Result Units	Charge Code	Results
Se	EA 365-131	PPM	WHITE	

Sample Size: 1.0 ml — Customer ID: REG BL

Remarks, Calculations, Results: REAGENT BLANK -0.046

<5ng / 1000 = <5.00E-3 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				

Date: 9-24-91 — Time Completed: — Lab Dir Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 320.-5796	106AW	9-20-91	10:17	25

Determination	Method/Standard	Result Units	Charge Code	Results
Se	EA 365-131	PPM	WHITE	

Sample Size: .500 ml — Customer ID: 291 Ha

Remarks, Calculations, Results: 0.050

<5ng / 500 = <1.00E-2 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				

Date: 9-24-91 — Time Completed: — Lab Dir Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 331.-5596	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Results
Se	EA 365-131	% RECOVERY	WHITE	

Sample Size: .500 ml — Customer ID: STD

Remarks, Calculations, Results: EDC R243 SEZHYDRD STDH125B38A RESULT 4.396E-2 STD VAL 1.00E-1 %REC 94.0% 0.809 4678ng

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				

Date: 9-24-91 — Time Completed: — Lab Dir Mgr: [signature]

9 3 1 2 4 3 1 6 3 7

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
CALIBRATION RECORD

Analyte:	Se		
Procedure:	LA-365-131	Revision:	B-1
Instrument:	PERKIN-ELMER	Property No.:	WA77479
Technologist:	D. R. JACKSON	Payroll No.:	6C275
Date:	09-24-91		

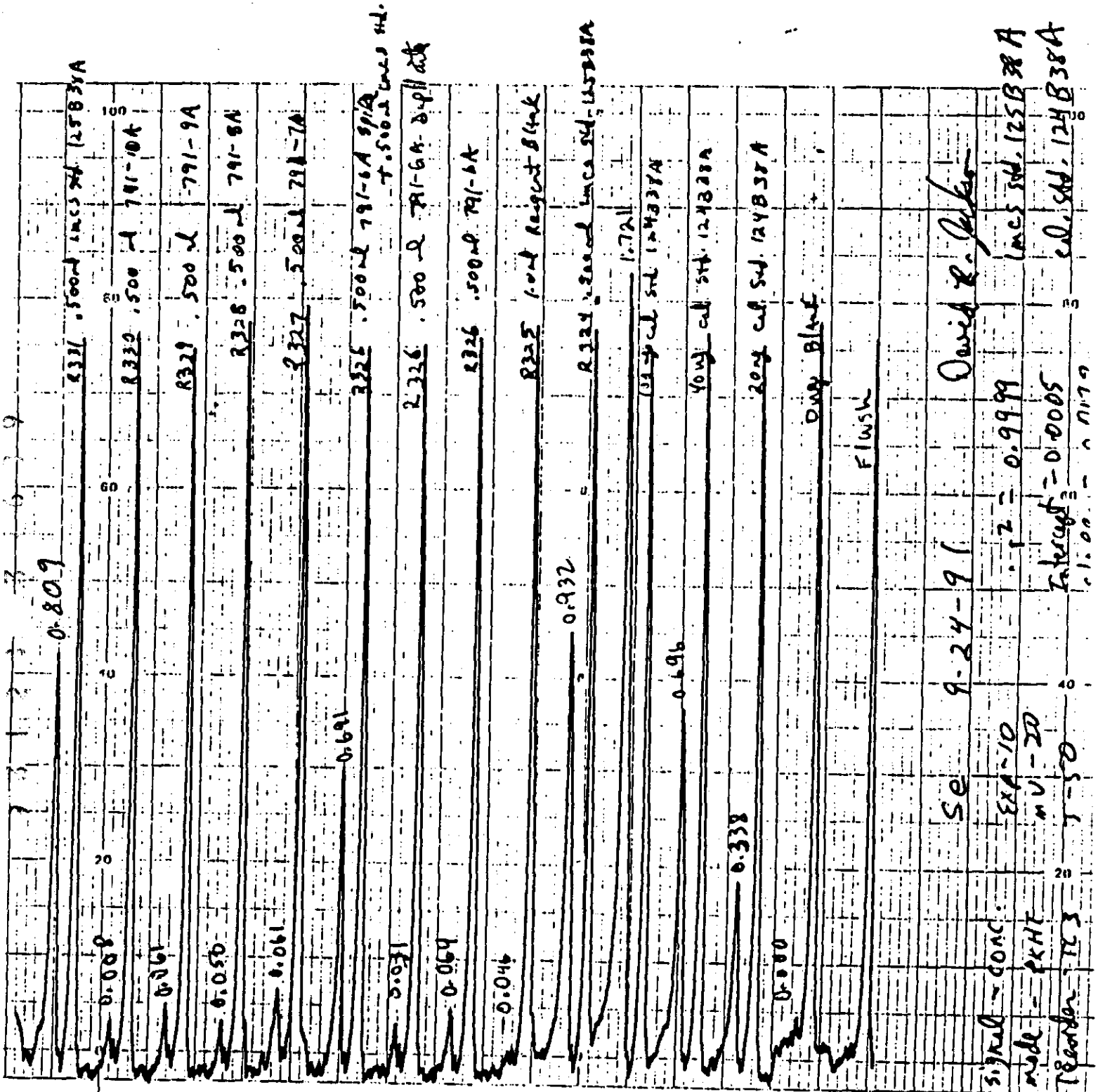
Calibration Standard: 124B38A
Analyte Concentration: 0.1000 ppm
Type of Calibration: LINEAR

	Dilution	Concentration	Instrument Reading Unit
1	0.000 mL	0.0 ng	0.000
2	0.200 mL	20.0 ng	0.338
3	0.400 mL	40.0 ng	0.696
4	1.000 mL	100.0 ng	1.721
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Comments:

A-6000-882 (03/92)

PERKIN-ELMER Chart No. CP33402-0



WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R328	Customer ID: 791-8A
Analysis: SPECIFIC GRAVITY	Sample Prep: UNDIGESTED

Instrument: WA90787	Procedure/Rev: LA-510-112/C-2
Technologist: L. TEMPLE	Date: 10-24-91
Starting Time: 09:30	Temperature: N/A
Ending Time: 11:20	Chemist: R. K. FULLER

	Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5506
2	REAGENT BLANK	R325-5606
3	SAMPLE 791-8A	R328-5706
4	FINAL LMCS CHECK STD	R331-5506
5		
6		
7		
8		
9		
10		

	Description	Lab ID
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	15C11-BJ/0.20019 mL			N/A
SAMPLES RERUN.				

A-6000-881 (03/92)

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5506	106AW	9-20-91	10: 5	25

Determination	Method Standard	Result Units	Charge Code	Return
SPG	LA-510-112	% REC	W11E2	1

RERUN

Sample Size	Customer ID
? 200.19 d	STD

Remarks, Calculations, Results

S332 ZNCL2
STD# 15C11-BT RESULT 1.402
STD VAL 1.4386 %REC 97.5%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
81808				
[signature]			[signature]	

Date	Time Completed	Job Unit
10-24-91		[signature]

#1
W_1 = 1.9083
W_2 = 2.1914
.2831

#2
W_1 = 1.9553
W_2 = 2.2335
.2782

R324-5506

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5606	106AW	9-20-91	10: 7	25

RERUN

Determination	Method Standard	Result Units	Charge Code	Return
SPG	LA-510-112		W11E2	1

Sample Size	Customer ID
? 200.19 d	REG BL

Remarks, Calculations, Results

REAGENT BLANK

1.0123

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
81808				
[signature]				

Date	Time Completed	Job Unit
10-24-91		[signature]

#1 #2
1.9385 - W_1 - 1.8845
2.1495 - W_2 - 2.0788
.2110 .1943

R325-5606

Serial No	Sample Point	Date	Time Issued	Priority
R 328.-5706	106AW	9-20-91	10:17	25

RERUN

Determination	Method Standard	Result Units	Charge Code	Return
SPG	LA-510		W11E2	1

Sample Size	Customer ID
? 200.19 d	791-HA

Remarks, Calculations, Results

1.0790

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
81808				
[signature]				

Date	Time Completed	Job Unit
10-24-91		[signature]

R 328-5706

#1 #2
1.9000 - W_1 - 1.9225
2.1142 - W_2 - 2.1403
.2142 .2178

SPECIFIC GRAVITY ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

Serial No	Sample Point	Date	Time Issued	Priority
R 331.-5506	106AW	9-20-91	10:25	[illegible]

Description	Method Standard	Result Units		Results
SPG	LA-510-112	% RECOVERY	RERUN WITH	1

Sample Size	Customer ID
? 200.19 A	STD

Remarks, Calculations, Results

S332 /NCL2

STD#/SCII-BJ RESULT 1.4137

STD VAL 1.4386 %REC 98.3%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
81808				
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]			[signature]	

Date	Time Completed	Peer Lead Mgr
10-24-91		[signature]

#1 #2

1.9257 $-W_1-$ 1.9098

2.2090 $-W_2-$ 2.1925

.2833 .2827

R331-5506

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R328	Customer ID: 791-8A
Analysis: TOTAL INORGANIC CARBON	Sample Prep: UNDIGESTED

Instrument: WB39927	Procedure/Rev: LA-622-102/B-0
Technologist: M. MYERS	Date: 09-26-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5527	11		
2	REAGENT BLANK	R325-5627	12		
3	SAMPLE 791-8A	R328-5727	13		
4	FINAL LMCS CHECK STD	R331-5527	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	69C11K/0.050 mL			NA

A-6000-881 (03/92)

TOTAL INORGANIC CARBON ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

Event No	Sample Point	Date	Time Issued	Priority
R 324.-5527	106AW	9-20-91	10:5	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
TIC	LA-622-102	% RECOVERY	WITE2	0

Sample Size: 7 .050 mL
Customer ID: STD

Remarks, Calculations, Results:
5223 003
STDN 6ACIIK RESULT 2.0006-1
STD VAL 2.0006-1 % REC 100.0%

Analyst 1: [illegible] Analyst 2: Analyst 3: Analyst 4: Analyst 5:
Date: 9-26-91

Event No	Sample Point	Date	Time Issued	Priority
R 325.-5527	106AW	9-20-91	10:7	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
TIC	LA-622-102	G/L	WITE2	0

Sample Size: 7 ~~Direct~~ D4B 6/30/92 .050 mL
Customer ID: [illegible]

Remarks, Calculations, Results:
REAGENT 0.AHK
~~7.99 E-1 g/L/mmol~~ 5.60 mgC D4B 6/30/92

Analyst 1: [illegible] Analyst 2: Analyst 3: Analyst 4: Analyst 5: D4B [illegible]
Date: 9-26-91

Event No	Sample Point	Date	Time Issued	Priority
R 330.-5527	106AW	9-20-91	10:10	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
TIC	LA-622-102	G/L	WITE2	0

Sample Size: 7 .050 mL
Customer ID: /91 BA

Remarks, Calculations, Results:
~~2.17 g/L~~ 2.162 g/LC
D4B 6/30/92

Analyst 1: [illegible] Analyst 2: Analyst 3: Analyst 4: Analyst 5: D4B [illegible]
Date: 9-26-91

Event No	Sample Point	Date	Time Issued	Priority
R 331.-5527	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
TIC	LA-622-102	% RECOVERY	WITE2	0

Sample Size: 7 .050 mL
Customer ID: STD

Remarks, Calculations, Results:
5223 003
STDN 6ACIIK RESULT ~~2.058e-1~~ D4B 6/30/92 2.05 E-1M
STD VAL 2.006-1 % REC ~~[illegible]~~ D4B 6/30/92 102.5%

Analyst 1: [illegible] Analyst 2: Analyst 3: Analyst 4: Analyst 5: D4B [illegible]
Date: 9-26-91

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R324 Date: 09-26-1991 Time: 00:32:57

Blank = .7279823 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.00	88.40	100.00
3	3.01	112.20	21.21
4	4.00	120.10	6.58
5	5.00	122.90	2.28
6	6.01	124.20	1.05
7	7.00	125.10	0.72

(125.1 - 5.099395)(1)/(50) = 2.400012 g/L Carbon

(125.1 - 5.099395)(1)/(50)(12) = .200001 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: BLANK Date: 09-26-1991 Time: 00:20:54

Blank = N/A Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	1.60	100.00
3	3.01	2.30	30.43
4	4.00	3.00	23.33
5	5.01	3.70	18.92
6	6.01	4.50	17.78
7	7.01	5.10	11.76

BLANK VALUE = 5.1 / 7.005665 = .7279823 g/L/minute

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R325 Date: 09-26-1991 Time: 00:40:41

Blank = .7279823 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	2.00	100.00
3	3.01	2.90	31.03
4	4.01	3.70	21.62
5	5.01	4.30	13.95
6	6.01	5.00	14.00
7	7.01	5.60	10.71

Blank value = 5.60 ug Carbon DH Bisenius 6/30/92

(5.6 - 5.100003)(1)/(50) = 9.999943E-03 g/L Carbon

(5.6 - 5.100003)(1)/(50)(12) = 8.333286E-04 Molar Carbon

Sample Run By: 6C823

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R328 Date: 09-26-1991 Time: 01:47:44

Blank = .7279823 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.00	70.10	100.00
3	3.01	94.20	25.58
4	4.00	105.20	10.46
5	5.01	110.10	4.45
6	6.01	112.50	2.13
7	7.00	113.70	1.06

(113.7 - ~~5.099397~~ 5.60)(1)/(50) = ~~2.172012~~ 2.162 g/L Carbon
DH Bissinus 6/30/92 DHB 6/30/92

(113.7 - 5.099397)(1)/(50)(12) = .181001 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R331 Date: 09-26-1991 Time: 03:40:02

Blank = .7279823 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	71.90	100.00
3	3.01	105.10	31.59
4	4.01	119.50	12.05
5	5.01	125.10	4.48
6	6.01	127.50	1.88
7	7.00	128.60	0.86

(128.6 - 5.099386)(1)/(50) = 2.470013 g/L Carbon

(128.6 - ~~5.099386~~ 5.60)(1)/(50)(12) = ~~.2058344~~ .205 Molar Carbon
DM Bisenius 6/30/92 DMB 6/30/92

Sample Run By: 6C823

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R328	Customer ID: 791-8A
Analysis: TOTAL ORGANIC CARBON	Sample Prep: UNDIGESTED

Instrument: MODEL 5011 - WC16130	Procedure/Rev: LA-344-105/B-0
Technologist: M. MYERS	Date: 9-26-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5526	11		
2	REAGENT BLANK	R325-5626	12		
3	SAMPLE 791-8A	R328-5726	13		
4	FINAL LMCS CHECK STD	R331-5526	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	70C11I/0.2 mL			NA

A-6000-881 (03/92)

TOTAL ORGANIC CARBON ANALYSIS - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5526	106AW	9-20-91	10:5	25

Determination	Method/Standard	Result Units	Charge Code	Returns
TOC	LA-344-105	% RECOVERY	WITE2	0

Sample Size: 2 .200ml - 2ml - .200ml
Customer ID: STD

Remarks, Calculations, Results:
S356 COSTOC
STDH TOCLI RESULT 2.95
STD VAL 3.00 %REC 98.3%

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]			[signature]	
16823				

Date: 9-26-91 Time Completed: Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5626	106AW	9-20-91	10:7	25

Determination	Method/Standard	Result Units	Charge Code	Returns
TOC	LA-344-105	G/L	WITE2	0

Sample Size: 2 ~~[illegible]~~ DHB 6/30/92 .200 mL
Customer ID: REG DL

Remarks, Calculations, Results:
REAGENT BLANK
3.10 ug C
~~4.71E-1 g/l/[illegible]~~
DHB 6/30/92

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				DHB [signature]
16823				

Date: 9-26-91 Time Completed: Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 328.-5726	106AW	9-20-91	10:17	25

Determination	Method/Standard	Result Units	Charge Code	Returns
TOC	LA-344-105	G/L	WITE2	0

Sample Size: .200ml - 2ml - .200ml
Customer ID: 791-HA

Remarks, Calculations, Results:
~~9.52E-1 g/l~~ DHB 6/30/92
9.625 E-1 g/L C

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				DHB [signature]
16823				

Date: 9-26-91 Time Completed: Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 331.-5526	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Returns
TOC	LA-344-105	% RECOVERY	WITE2	0

Sample Size: .200ml - 2ml - .200ml
Customer ID: STD

Remarks, Calculations, Results:
S356 COSTOC
STDH TOCLI RESULT ~~2.95~~ 3.003 g/L C DHB 6/30/92
STD VAL 3.0 %REC ~~[illegible]~~ DHB 6/30/92 99.1%

Batched with 7.9998

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				DHB [signature]
16823				

Date: 9-26-91 Time Completed: Lab Unit Mgr: [signature]

9 3 1 2 3 3 7 0 1

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R324 Date: 09-26-1991 Time: 01:53:19

Blank = .4709794 Sample Size = 200 Dilution Factor = 11
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	13.70	100.00
3	3.01	43.70	68.65
4	4.01	51.90	15.80
5	5.01	54.90	5.46
6	6.01	56.20	2.31
7	7.01	56.90	1.23

(56.9 - 3.299598)(11)/(200) = 2.948022 g/L Carbon

(56.9 - 3.299598)(11)/(200)(12) = .2456685 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: BLANK Date: 09-26-1991 Time: 01:20:10

Blank = N/A Sample Size = 200 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.40	100.00
2	2.01	0.50	20.00
3	3.01	1.30	61.54
4	4.01	2.00	35.00
5	5.01	2.50	20.00
6	6.01	2.90	13.79
7	7.01	3.30	12.12

BLANK VALUE = 3.3 / 7.006676 = .4709794 g/L/minute

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R325 Date: 09-26-1991 Time: 02:01:54

Blank = .4709794 Sample Size = 200 Dilution Factor = ~~11~~ 1 9/26/92
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	0.80	100.00
3	3.01	1.50	46.67
4	4.01	2.00	25.00
5	5.01	2.40	16.67
6	6.01	2.80	14.29
7	7.01	3.10	9.68

Blank value = 3.10 ug Carbon CORRECTED TO DF .0998023 D4 Bisenius 6/30/92

(3.1 - 3.299605)(11)/(200) = -1.097826E-02 g/L Carbon

(3.1 - 3.299605)(11)/(200)(12) = -9.148551E-04 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R328 Date: 09-26-1991 Time: 04:27:27

Blank = .4709794 Sample Size = 200 Dilution Factor = 11
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	3.30	100.00
3	3.01	14.70	77.55
4	4.01	18.00	18.33
5	5.01	19.20	6.25
6	6.01	20.00	4.00
7	7.01	20.60	2.91

(20.6 - ~~3.299529~~ 3.10)(11)/(200) = ~~.7515259~~ .9625 g/L Carbon

(20.6 - 3.299529)(11)/(200)(12) = 7.929383E-02 Molar Carbon

Sample Run By: 6C823_____

BATCH WITH R9998

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R331 Date: 09-26-1991 Time: 04:58:31

Blank = .4709794 Sample Size = 200 Dilution Factor = 11
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	8.30	100.00
3	3.01	44.40	81.31
4	4.01	53.20	16.54
5	5.01	55.90	4.83
6	6.01	57.00	1.93
7	7.01	57.70	1.21

(57.7 - ~~3.299989~~ 3.10)(11)/(200) = ~~2.992~~ 3.003 g/L Carbon
D4 Bisenius 6/30/92 D4B 6/30/92

(57.7 - 3.299989)(11)/(200)(12) = .2493334 Molar Carbon

Sample Run By: 6C823

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R328	Customer ID: 791-8A
Analysis: ION CHROMATOGRAPHIC - CHLORIDE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-04-91
Starting Time: 20:46	Temperature: 24-25degC
Ending Time: 23:36	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5572	11		
2	REAGENT BLANK	R325-5672	12		
3	SAMPLE 791-8A	R328-5772	13		
4	FINAL LMCS CHECK STD	R331-5572	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (CHLORIDE) - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5572	106AW	9-20-91	10: 5	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
CL	LA-533-105	% RECOVERY	WITE2	0

Sample Size: ? .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R972 DIONEX
STD# 73C11C0 RESULT 71.429 ppm
STD VAL 75ppm %REC 95.2%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
6C823				[signature]

Date: 10-5-91
Time Completed:
Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5672	106AW	9-20-91	10: 0	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
CL	LA-533-105	PPM	WITE2	?

Sample Size: ? DIRECT
Customer ID: REG 18

Remarks, Calculations, Results:
REAGENT BLANK

<1.00 E^{-1} ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
6C823				

Date: 10-4-91
Time Completed:
Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 328.-5772	106AW	9-20-91	10:10	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
CL	LA-533-105	PPM	WITE2	0

Sample Size: ? .050ml - 10ml
Customer ID: 791 DA

Remarks, Calculations, Results:

4.55 E^{7} ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
6C823				

Date: 10-4-91
Time Completed:
Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 331.-5572	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
CL	LA-533-105	% RECOVERY	WITE2	?

Sample Size: ? .000ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R972 DIONEX
STD# 73C11C0 RESULT 70.914 ppm
STD VAL 75ppm %REC 94.6%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
6C823				[signature]

Date: 10-4-91
Time Completed:
Lab Unit Mgr: [signature]

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R328	Customer ID: 791-8A
Analysis: ION CHROMATOGRAPHIC - PHOSPHATE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-04-91
Starting Time: 20:46	Temperature: 24-25degC
Ending Time: 23:36	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5574	11		
2	REAGENT BLANK	R325-5674	12		
3	SAMPLE 791-8A	R328-5774	13		
4	FINAL LMCS CHECK STD	R331-5574	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (PHOSPHATE) - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.-5574	106AW	9-20-91	10: 6	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
PO4	LA-533-105	% RECOVERY	W11E2	0

Sample Size: .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R976 DIONEX
STD# 73C11C0 RESULT ~~583.15~~ 510.5
STD VAL 517 ppm %REC ~~112.8%~~ 98.8%
~~CR #~~ 10-09-91 KST

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				[signature]
60823				[signature]

Date: 10-4-91 Time Completed: Lab Unit Mgr. [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.-5674	106AW	9-20-91	10: 8	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
PO4	LA 533 105	PPM	W11E2	0

Sample Size: DIRECT
Customer ID: REG BL

Remarks, Calculations, Results:
REAGENT BLANK
<1.00 ppm
~~out for rerun~~ KST 10-09-91

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				[signature]
60823				

Date: 10-4-91 Time Completed: Lab Unit Mgr. [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 328.-5774	106AW	9-20-91	10:10	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
PO4	LA 533-105	PPM	W11E2	0

Sample Size: .050ml - 10ml
Customer ID: 791 HA

Remarks, Calculations, Results:
~~Out for Rerun~~ 10-09-91 KST
6.05e² ppm

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				[signature]
60823				

Date: 10-4-91 Time Completed: Lab Unit Mgr. [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 331. 5574	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
PO4	LA 533-105	% RECOVERY	W11E2	0

Sample Size: 1100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R976 DIONEX
STD# 73C11C0 RESULT 517
STD VAL 510 %REC 98.9%
~~Out for Rerun~~ 10-10-91

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				[signature]
60823				

Date: 10-4-91 Time Completed: Lab Unit Mgr. [signature]

9 3 1 2 3 5 3 1 7 1 0

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R328	Customer ID: 791-8A
Analysis: ION CHROMATOGRAPHIC - SULFATE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-04-91
Starting Time: 20:46	Temperature: 24-25degC
Ending Time: 23:36	Chemist: D. HERT

	Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5575
2	REAGENT BLANK	R325-5675
3	SAMPLE 791-8A	R328-5775
4	FINAL LMCS CHECK STD	R331-5575
5		
6		
7		
8		
9		
10		

	Description	Lab ID
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (SULFATE) - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

Sample No	Sample Point	Date	Time Issued	Priority
K 324.-5575	106AW	9-20-91	10:6	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
SO4	LA-533-105	% RECOVERY	WTFE	C

Sample Size: .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP K970 DIONEX
STD# 73CLCO RESULT 36.544 ppm
STD VAL 60 ppm %REC 92.79%

Analyst - 1: [signature] Date: 10-4-91
Analyst - 2: Date:
Analyst - 3: Date:
Analyst - 4: Date:
Analyst - 5: [signature] Date:
Date: Time Completed: Lab Use Only:
[signature]

Sample No	Sample Point	Date	Time Issued	Priority
K 325.-5675	106AW	9-20-91	10:11	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
SO4	LA-533-105	PPM	WTFE	C

Sample Size: DIRECT
Customer ID: REG 14

Remarks, Calculations, Results:
REAGENT BLANK
<1.00 ppm

Analyst - 1: [signature] Date: 10-4-91
Analyst - 2: Date:
Analyst - 3: Date:
Analyst - 4: Date:
Analyst - 5: [signature] Date:
Date: Time Completed: Lab Use Only:
[signature]

Sample No	Sample Point	Date	Time Issued	Priority
K 328.-5775	106AW	9-20-91	10:18	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
SO4	LA-533-105	PPM	WTFE	C

Sample Size: .050ml - 10ml
Customer ID: /91-B4

Remarks, Calculations, Results:
$2.55 E^{3}$ ppm

Analyst - 1: [signature] Date: 10-4-91
Analyst - 2: Date:
Analyst - 3: Date:
Analyst - 4: Date:
Analyst - 5: [signature] Date:
Date: Time Completed: Lab Use Only:
[signature]

Sample No	Sample Point	Date	Time Issued	Priority
K 331.-5575	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
SO4	LA-533-105	% RECOVERY	WTFE	C

Sample Size: .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP K970 DIONEX
STD# 73CLCO RESULT 56.9.9
STD VAL 60 ppm %REC 93.40%

Analyst - 1: [signature] Date: 10-4-91
Analyst - 2: Date:
Analyst - 3: Date:
Analyst - 4: Date:
Analyst - 5: [signature] Date:
Date: Time Completed: Lab Use Only:
[signature]

9312233171 2

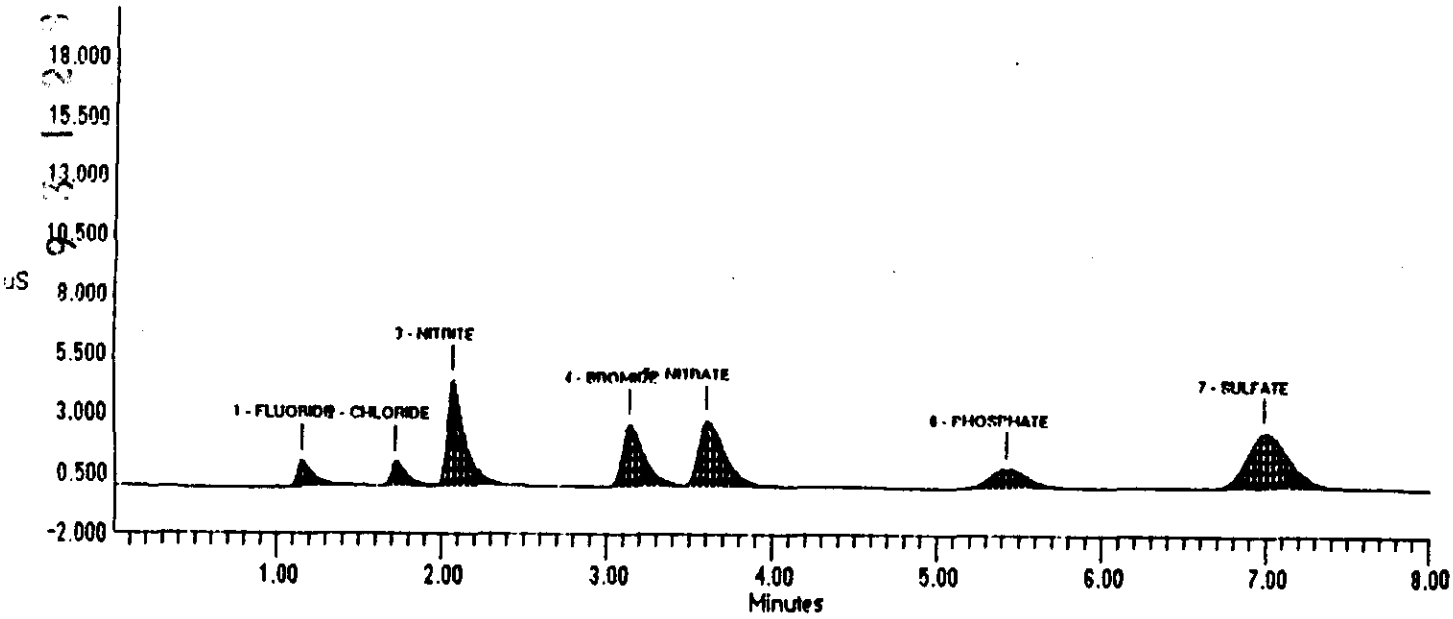
DATA REPROCESSED ON Fri Oct 04 22:45:26 1991

Sample Name: LMCS/73C1100 R324 Date: Fri Oct 04 22:10:28 1991
Data File : C:\DX\DATA\91100411.D12
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 12 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.15	FLUORIDE	52.102	1076	7152	1	0.00
2	1.72	CHLORIDE	71.429	997	6634	2	-0.48
3	2.07	NITRITE	487.247	4387	32321	2	0.33
4	3.13	BROMIDE	475.164	2556	23546	2	1.24
5	3.60	NITRATE	524.183	2723	30545	2	7.51
6	5.42	PHOSPHATE	510.540	821	12909	1	0.40
7	6.98	SULFATE	565.442	2341	41638	1	0.47

File: C:\DX\DATA\91100411.D12 Sample: LMCS/73C1100

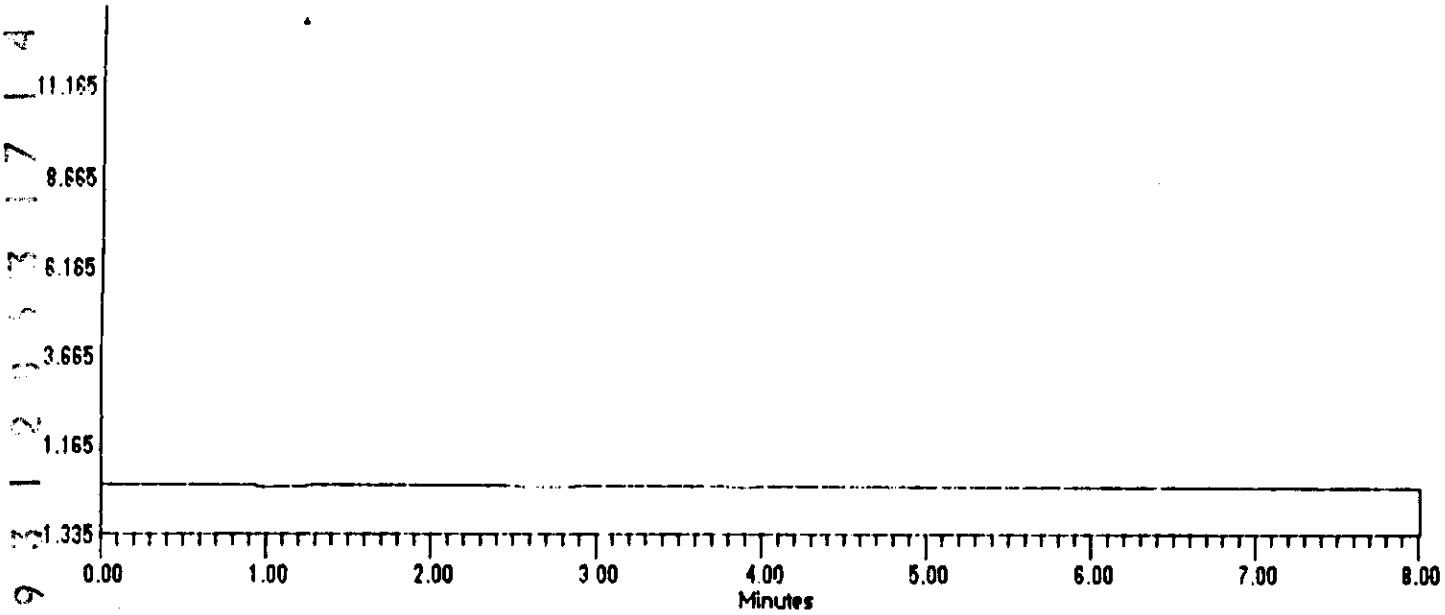


Sample Name: BLANK	Date: Fri Oct 04 20:37:01 1991
Data File : c:\dx\data\91100431.D02	
Method : c:\dx\method\SYSTEM1.met	
ACI Address: 1 System : 1 Injectit: 2 Detector: COM-1	

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	1	2105	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta

File: c:\dx\data\91100431.D02 Sample: BLANK

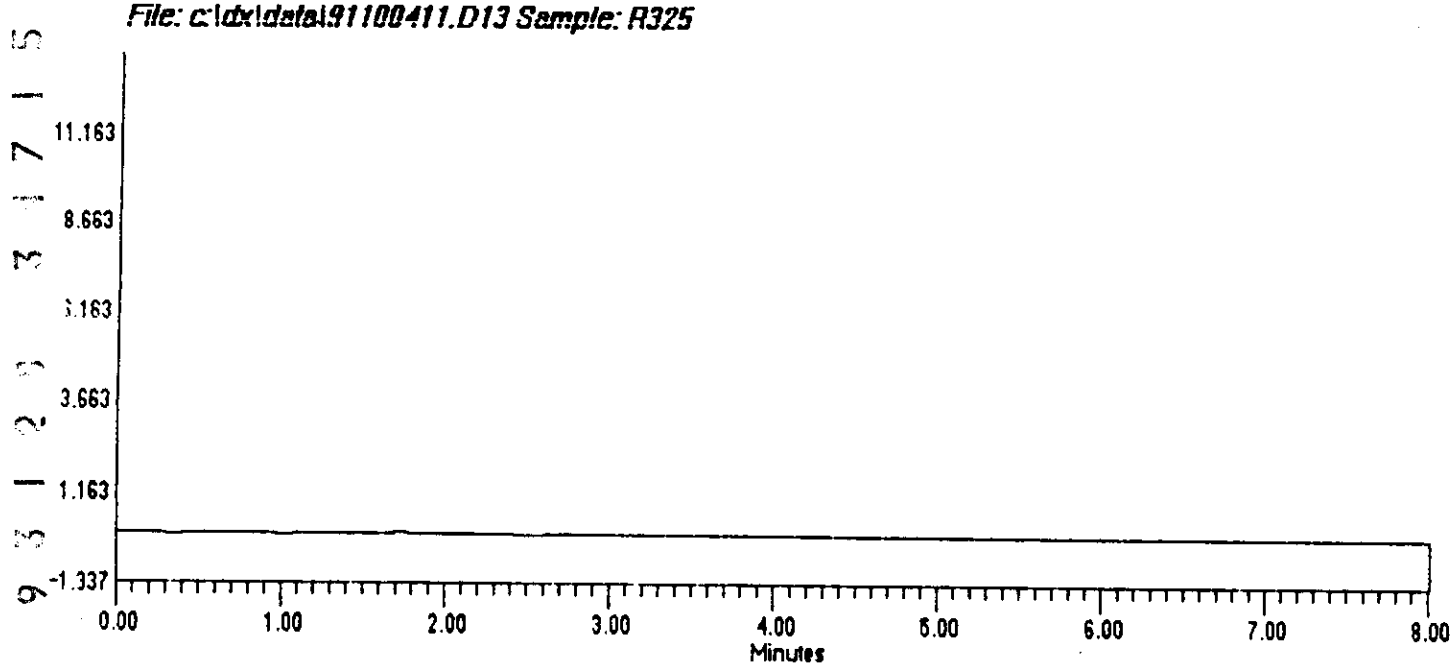


Sample Name: R325 Date: Fri Oct 04 22:17:51 1991
Data File : c:\dx\data\91100411.D13
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 13 Detector: CDN-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	1	2403	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta

File: c:\dx\data\91100411.D13 Sample: R325

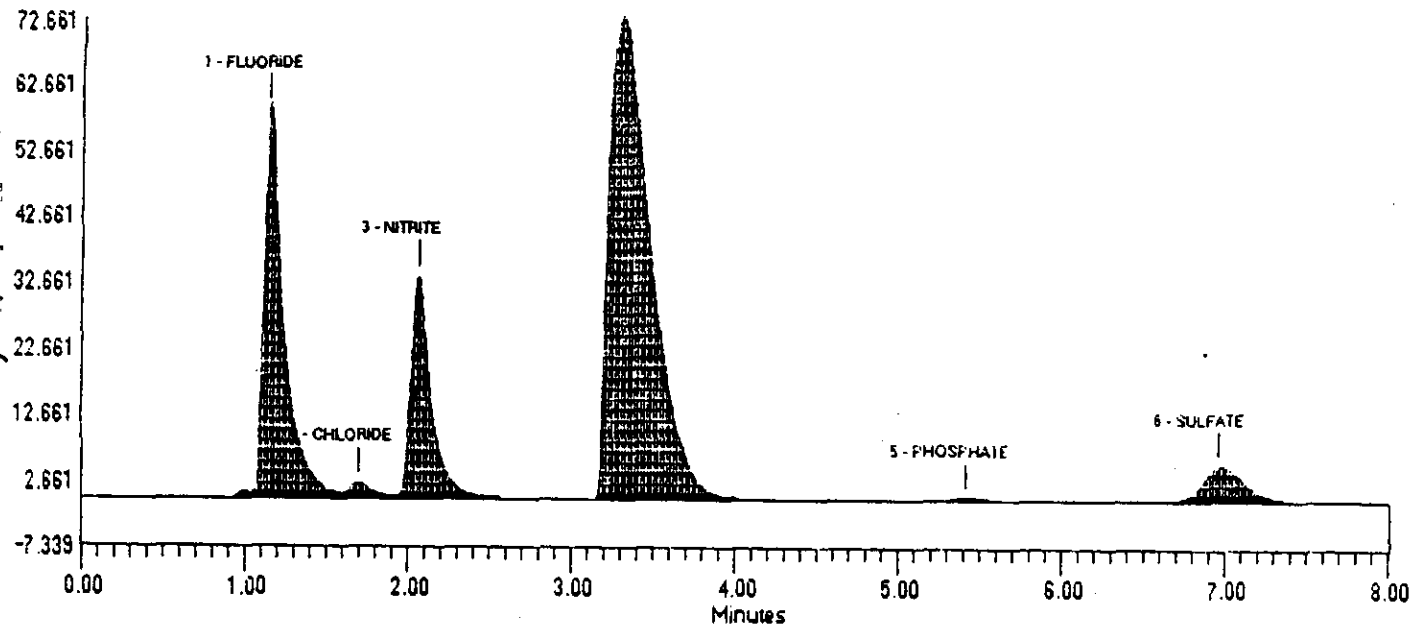


Sample Name: R328 Date: Fri Oct 04 23:07:39 1991
Data File : c:\dx\data\91100411.D18
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Injects: 18 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	201	2405	5Hz	0.00	8.[illegible]	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.15	FLUORIDE	3001.197	58080	520084	3	0.00
2	1.70	CHLORIDE	[illegible].313	[illegible]	[illegible]	1	-1.45
3	2.07	NITRITE	7995.72[illegible]	[illegible]	289979	2	0.33
4	3.28	BROMIDE	18403.548	[illegible]	[illegible]	1	[illegible]
5	5.42	PHOSPHATE	[illegible]04.8[illegible]	[illegible]	[illegible]	1	[illegible]
6	6.97	SULFATE	2551.64[illegible]	5.23	[illegible]744	1	[illegible]

File: c:\dx\data\91100411.D18 Sample: R328

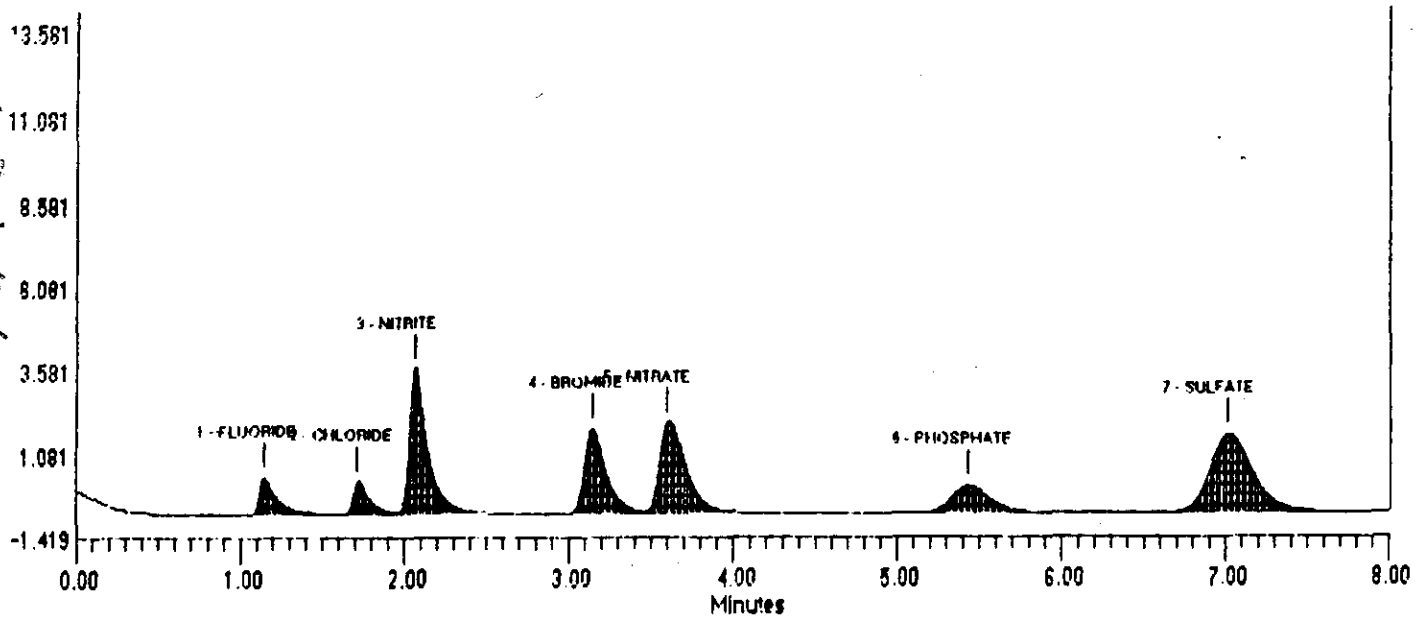


Sample Name: LMCS/73C11C0 R331 JK 7-16-92 Date: Fri Oct 04 23:36:01 1991
Data File : c:\dx\data\91100401.D21
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 21 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.15	FLUORIDE	54.712	1095	7585	1	0.00
2	1.72	CHLORIDE	70.914	966	6585	2	-0.48
3	2.07	NITRITE	498.014	4232	33115	2	0.33
4	3.15	BROMIDE	463.842	2526	22273	2	1.78
5	3.60	NITRATE	521.497	2675	30389	2	7.51
6	5.43	PHOSPHATE	511.121	811	12926	1	0.71
7	7.02	SULFATE	569.918	2327	41994	1	0.95

File: c:\dx\data\91100401.D21 Sample: LMCS/73C11C0



WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R328	Customer ID: 791-8A
Analysis: ION CHROMATOGRAPHIC - NITRATE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428, AL10657, WB98659, WB97286, WB24740	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-08-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5573	11		
2	REAGENT BLANK	R325-5673	12		
3	SAMPLE 791-8A	R328-5773	13		
4	FINAL LMCS CHECK STD	R331-5573	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (NITRATE) - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5573	106AW	9-20-91	10: 6	25

Determination	Method/Standard	Result Units	Charge Code	Results
NO3	LA-533-105	% RECOVERY	WITE2	0

Sample Size: .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R978 DIONEX
STD #73C11C0 RESULT 558.697 ppm
STD VAL 564ppm %REC 99.1%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Lulamae Hayes				Denise J Hart
60823				

Date: 10-8-91
Time Completed:
Lab Unit Mgr: Julie Rick Dyane Smith

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5673	106AW	9-20-91	10: 8	25

Determination	Method/Standard	Result Units	Charge Code	Results
NO3	LA-533-105	PPM	WITE2	

Sample Size: Direct
Customer ID: REG BL

Remarks, Calculations, Results:
REAGENT BLANK

<1.00ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Lulamae Hayes				Denise J Hart
60823				

Date: 10-8-91
Time Completed:
Lab Unit Mgr: Julie Rick Dyane Smith

Serial No	Sample Point	Date	Time Issued	Priority
R 328.-5773	106AW	9-20-91	10:10	25

Determination	Method/Standard	Result Units	Charge Code	Results
NO3	LA-533-105	PPM	WITE2	0

Sample Size: .050ml - 10ml - .250ml - 10ml
Customer ID: 791-BA

Remarks, Calculations, Results:

3.19E4 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Lulamae Hayes				Denise J Hart
60823				

Date: 10-8-91
Time Completed:
Lab Unit Mgr: Julie Rick Dyane Smith

Serial No	Sample Point	Date	Time Issued	Priority
R 331.-5573	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Results
NO3	LA-533-105	% RECOVERY	WITE2	0

Sample Size: .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R978 DIONEX
STD #73C11C0 RESULT 5.4813
STD VAL 564 %REC 97.2%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Lulamae Hayes				Denise J Hart
60823				

Date: 10-8-91
Time Completed:
Lab Unit Mgr: Julie Rick Dyane Smith

9312931719

4409-AF 10-14-91

DIONEX METHOD PARAMETERS - SYSTEM1.MET

System Parameters

System Name : system1/qpm

Number of Detectors	1
Detector 1 Type	CDM-1
Detector 1 real time plot scale (uS)	20.00
Run Time (minutes)	8.00
Sampling Rate (seconds)	0.20

-- DETECTOR 1 PARAMETERS --

Report Options

Save Data File	Yes
Data File Name: C:\DX\DATA\91101401.D07	
Create ASCII Report File	No
Print Report	Yes
List Peaks Not Found in this run	No
Report Unknowns Found in this run	Yes
Print Chromatogram	Yes
AutoScale Chromatogram to Highest Peak	Yes
Fill Peaks with Color	Yes
Draw Grid Lines on Chromatogram	No
Label with Peak Number	Yes
Label with Retention Times on Chromatogram	No
Label with Component Name	Yes
Format File Name: c:\dx\method\default.prf	

Integration Parameters

Starting Peak Width (seconds)	10.0
Peak Threshold (mV or uS/data pt interval)	0.500
Peak Area Reject	1000
Area Reject for Reference Peaks	1000
Percent Retention Time Window for Reference Peaks	5.0

Integration Timed Events

Time	Description

Calibration Parameters

Number Of Levels for Calibration	6
Calibration Fit Type	Quadratic
Replace Or Average Calibrations	Replace
External or Internal Calibration	External
Calibrate by Area or Height	Area
Default Injection Volume	1.0
Default Dilution Factor	101.0
Response Factor for Unknown Peaks	1.0
Calibration Standard Volume	1.0
Internal Standard Volume	1.0
Sample Unit	PPM

Component # 1 FLUORIDE Retention Time 1.15
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 1.33141E-002
K1 = 7.35652E-005
K2 = -2.32747E-010

Level	Amount	Area	Height
1	1.10000E-001	1439	225
2	2.80000E-001	3649	553
3	5.60000E-001	7529	1129
4	1.12000E+000	15733	2313
5	2.19000E+000	33154	4704
6	4.22000E+000	74938	9497

Component # 2 CHLORIDE Retention Time 1.72
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 8.88526E-003
K1 = 1.08463E-004
K2 = -3.16779E-010

Level	Amount	Area	Height
1	1.30000E-001	1319	217
2	3.30000E-001	2868	459
3	6.60000E-001	6001	936
4	1.31000E+000	12417	1921
5	2.58000E+000	25701	3883
6	5.00000E+000	54764	7755

Component # 3 NITRITE Retention Time 2.08
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 6.41195E-001
K1 = 1.25938E-004
K2 = 4.84873E-012

Level	Amount	Area	Height
1	1.25000E+000	6239	874
2	3.10000E+000	19929	2672
3	6.18000E+000	42059	5606
4	1.22300E+001	90590	11584
5	2.40000E+001	185584	23728
6	4.62200E+001	356723	42402

Component # 4 BROMIDE Retention Time 3.05
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.01960E-002
K1 = 2.00453E-004
K2 = -1.00008E-010

Level	Amount	Area	Height
1	1.56000E+000	7660	753
2	3.90000E+000	20706	1880
3	7.80000E+000	38868	3455
4	1.54000E+001	78061	6644
5	3.02000E+001	165133	12632
6	5.81000E+001	350930	24386

Component # 5 NITRATE Retention Time 3.42
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 1.12719E+000
K1 = 1.25048E-004
K2 = 1.59899E-010

Level	Amount	Area	Height
1	1.10000E+000	1477	162
2	2.75000E+000	15087	1425
3	5.47000E+000	31133	2883
4	1.08200E+001	66694	5778
5	2.12300E+001	139804	11210
6	5.08900E+001	289865	21262

Component # 6 PHOSPHATE Retention Time 5.37
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.70449E-001
K1 = 3.46513E-004
K2 = -3.83601E-010

Level	Amount	Area	Height
1	1.14000E+000	2277	162
2	2.83000E+000	7242	453
3	5.63000E+000	14732	918
4	1.15600E+001	32263	1962
5	2.18800E+001	67512	4036
6	4.21500E+001	142733	8289

Component # 7 SULFATE Retention Time 7.03
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 1.93428E-001
K1 = 1.28116E-004
K2 = -4.37267E-011

Level	Amount	Area	Height
1	1.26000E+000	9418	543
2	3.14000E+000	24499	1382
3	6.26000E+000	45736	2477
4	1.23900E+001	97310	5267
5	2.43100E+001	203719	10947
6	4.68100E+001	425407	21849

IC Control File: C:\DX\METHOD\SYSTEM1.TE

Step	Time	Description
Init		CDM-1 AutoOffset Off
Init		CDM-1 Recorder Mark OFF
Init		CDM-1 Temp. Comp. = 1.7 / Deg C
Init		CDM-1 Recorder Range = 0.1 uS
Init		CDM-1 Cell ON
Init		CHA Heater = 25 Deg. C
Init		Valve A ON
Init		Valve B ON
Init		Inject Valve OFF
Init		ACI Autosmp OFF
Init		ACI RLY 2 OFF
Init		ACI TTL 1 OFF
Init		ACI TTL 2 OFF
Init		ACI AC 1 ON
Init		GPM Start
Init		GPM Hold Gradient Clock
Init		GPM Reset ON
1	0.0	CDM-1 AutoOffset ON
1	0.0	Start Sampling
1	0.0	GPM Reset OFF
2	0.1	CDM-1 Recorder Range = 10.0 uS
2	0.1	Inject Valve ON
2	0.1	GPM Run Gradient Clock
3	3.0	Inject Valve OFF
4	3.5	ACI Autosmp ON
5	8.0	ACI Autosmp OFF

GpmFile: C:\DX\METHOD\SYSTEM1.GPM
Lo Pressure Limit = 200
Hi Pressure Limit = 2000
Eluant 1 - DI WATER
Eluant 2 - SODIUM CARBONATE
Eluant 3 - SODIUM BICARBONATE
Eluant 4 - Eluant 4

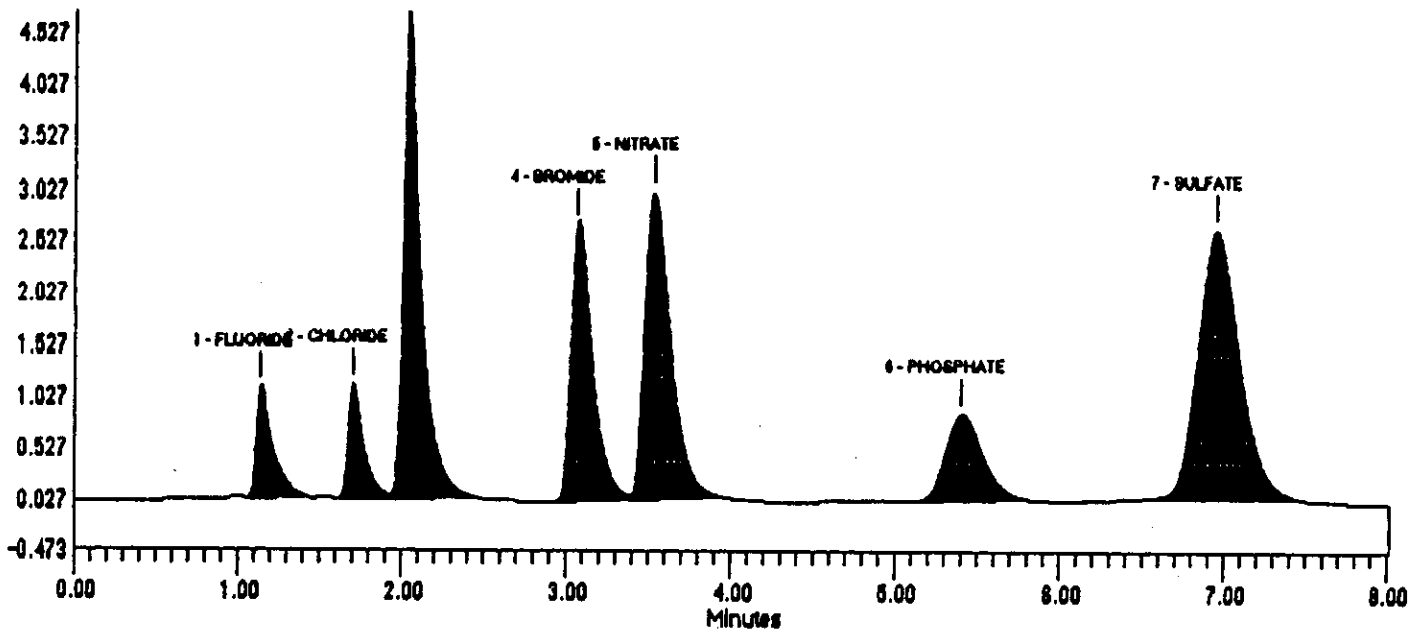
Time	Flow	%1	%2	%3	%4	V5	V6	Comment
0.0	2.0	84	8	8	0	0	0	

Samole Name: LMCS Date: Tue Oct 08 03:34:05 1991
Data File : C:\DX\DATA\91100601.D05
Method : C:\DX\METHOD\SYSTEM1.MET
ACI Address: 1 System : 1 Inject#: 5 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	55.187	1060	7664	1	0.00
2	1.70	CHLORIDE	77.560	1095	7243	2	0.00
3	2.03	NITRITE	521.679	4532	34859	2	0.16
4	3.07	BROMIDE	498.532	2688	24729	2	0.55
5	3.53	NITRATE	558.697	2971	32706	2	-3.99
6	5.40	PHOSPHATE	520.892	834	13207	1	1.57
7	6.95	SULFATE	615.216	2602	45606	1	1.46

File: C:\DX\DATA\91100601.D05 Sample:



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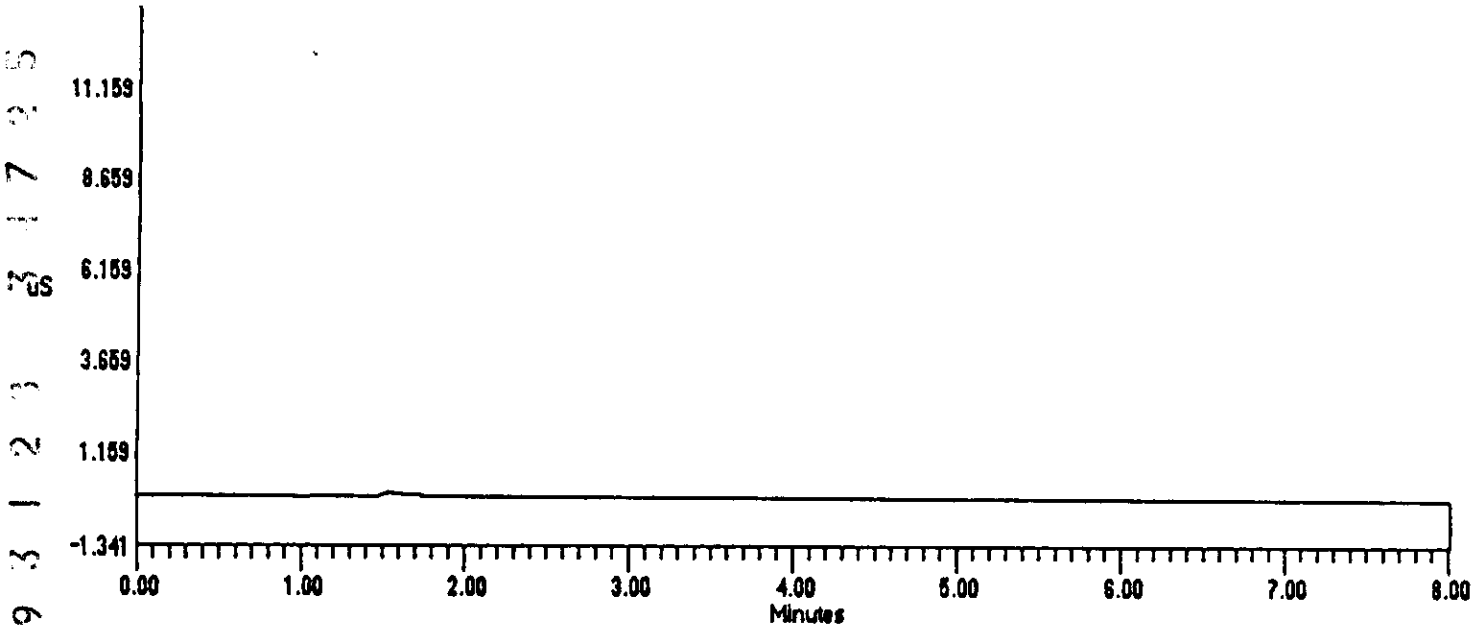
==================================================================================
 Sample Name: R325                                   Date: Tue Oct 08 04:17:54 1991:
: Data File   : c:\dx\data\91100741.D02                                           :
: Method      : c:\dx\method\SYSTEM1.met                                          :
: ACI Address: 1        System : 1        Inject#:   2  Detector: CDM-1           :
==================================================================================
```

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	1	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta

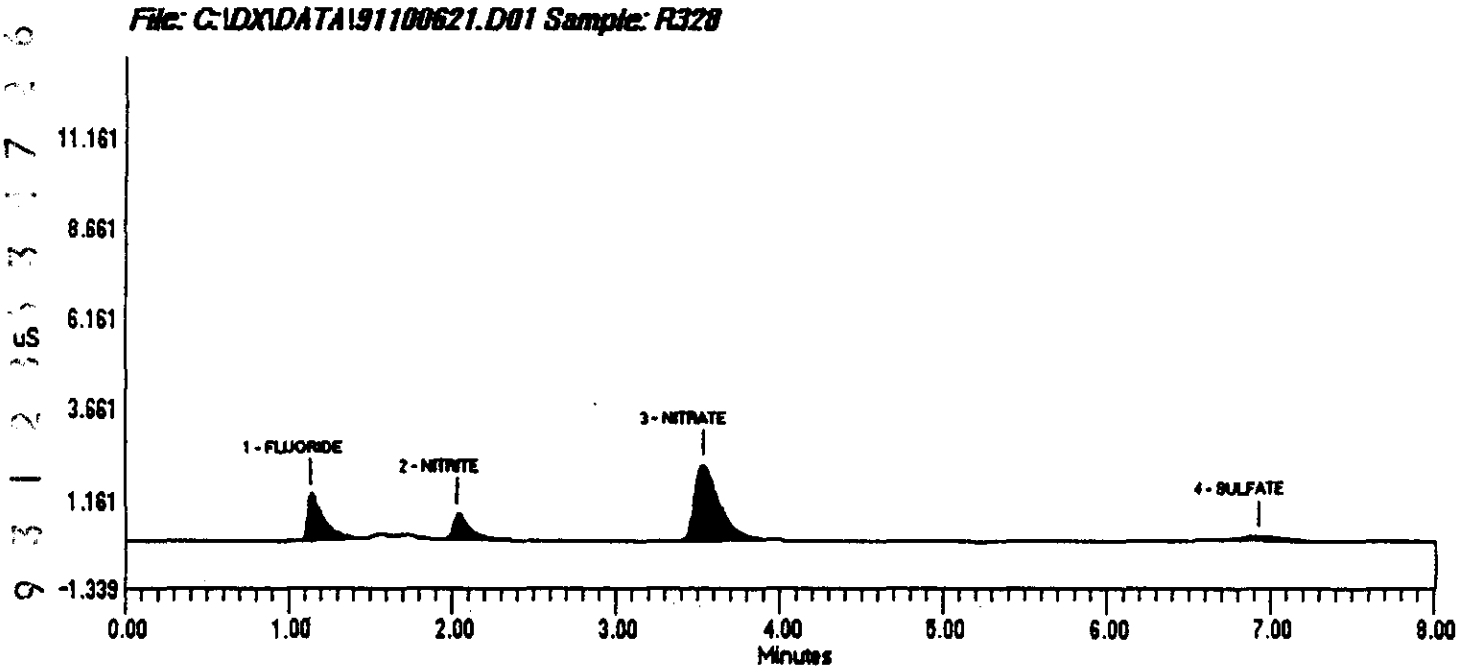
File: c:\dx\data\91100741.D02 Sample: R325



Sample Name: R328 Date: Tue Oct 08 06:15:42 1991
Data File : C:\DX\DATA\91100621.D01
Method : C:\DX\METHOD\SYSTEM1.MET
ACI Address: 1 System : 1 Inject#: 1 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	8241	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	5303.007	1271	9293	1	0.00
2	2.03	NITRITE	9875.613	743	5296	1	0.16
3	3.53	NITRATE	31877.753	2089	22217	1	-3.99
4	6.93	SULFATE	4896.919	124	1872	1	1.22

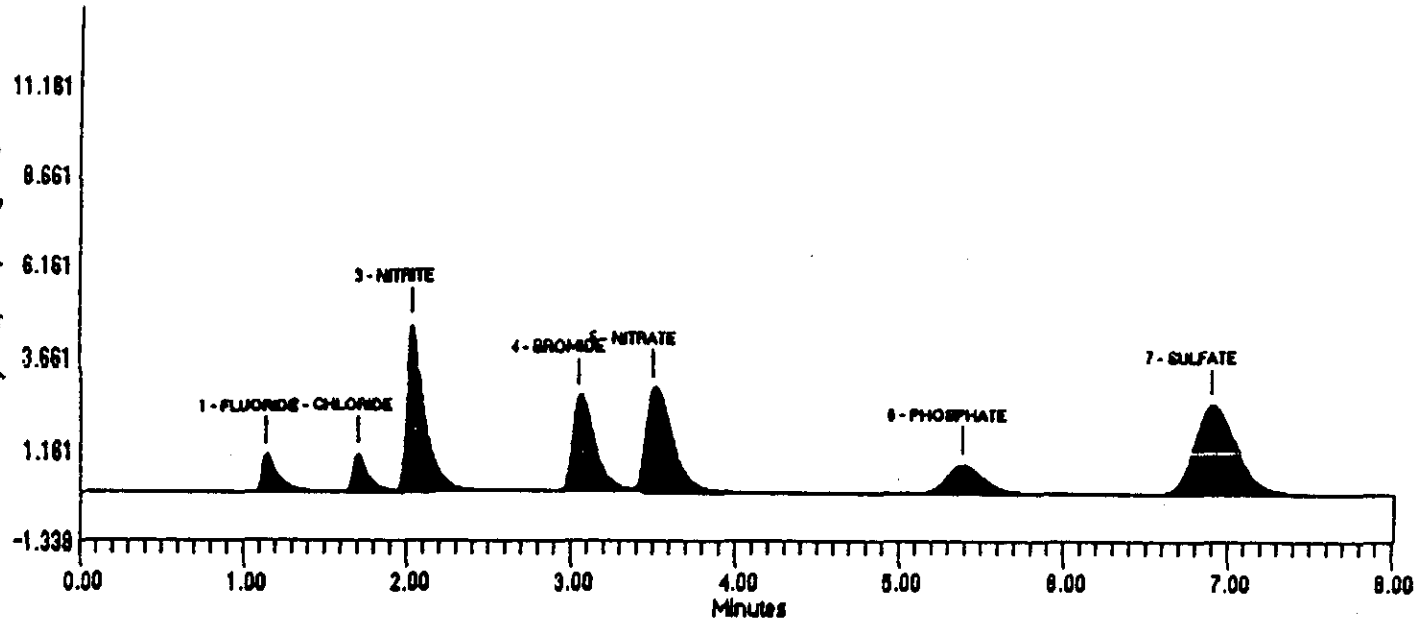


Sample Name: LMCS/73C11C0 Date: Tue Oct 08 06:26:11 1991
Data File : C:\DX\DATA\91100631.D01
Method : C:\DX\METHOD\SYSTEM1.MET
ACI Address: 1 System : 1 Inject#: 1 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	53.303	1037	7351	1	0.00
2	1.70	CHLORIDE	74.524	1067	6942	2	0.00
3	2.03	NITRITE	500.692	4527	33312	2	0.16
4	3.05	BROMIDE	497.450	2633	24674	2	0.00
5	3.50	NITRATE	548.126	2877	32044	2	-4.89
6	5.38	PHOSPHATE	510.599	821	12910	1	1.25
7	6.90	SULFATE	592.399	2453	43786	1	0.73

File: C:\DX\DATA\91100631.D01 Sample: LMCS/73C11C0



WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R328	Customer ID: 791-8A
Analysis: ION CHROMATOGRAPHIC - FLUORIDE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428, AL10657, WB98659, WB97286, WB24740	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-07-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5571	11		
2	REAGENT BLANK	R325-5671	12		
3	SAMPLE 791-8A	R328-5771	13		
4	FINAL LMCS CHECK STD	R331-5571	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (FLUORIDE) - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5571	106AW	9-20-91	10: 5	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
F	LA-533-105	% RECOVERY	WITE2	0

Sample Size: 100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDF R974 DIONEX
STD# 73CHCO RESULT 56764
STD VAL. 56 %REC 101.4%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
10-7-91				
6CB23				

Date: 10-7-91

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5671	106AW	9-20-91	10: 8	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
F	LA-533-105	PPM	WITE2	0

Sample Size: DIRECT
Customer ID: REG BL

Remarks, Calculations, Results:
REAGENT BLANK

<1.00E-1 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6CB23				

Date: 10-7-91

Serial No	Sample Point	Date	Time Issued	Priority
R 328.-5771	106AW	9-20-91	10:18	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
F	LA-533-105	B/G	WITE2	0

Sample Size: .050ml - 10ml - .500ml - 10ml
Customer ID: 291 Bre

Remarks, Calculations, Results:

ORGANIC INTERFERENCE

Flag - Fluoride peak due to organics not F⊖ [illegible]

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6CB23				

Date: 10-7-91

Serial No	Sample Point	Date	Time Issued	Priority
R 331.-5571	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
F	LA-533-105	% RECOVERY	WITE2	0

Sample Size: .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDF R974 DIONEX
STD# 73CHCO RESULT 54.734
STD VAL 56ppm %REC 97.7%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6CB23				

Date: 10-7-91

9 3 1 2 3 3 1 7 2 9

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R328	Customer ID: 791-8A
Analysis: ION CHROMATOGRAPHIC - NITRITE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428, AL10657, WB98659, WB97286, WB24740	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-07-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5576	11		
2	REAGENT BLANK	R325-5676	12		
3	SAMPLE 791-8A	R328-5776	13		
4	FINAL LMCS CHECK STD	R331-5576	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (NITRITE) - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5576	106AW	9-20-91	10: 6	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO2	LA 533-105	% RECOVERY	W1TE2	0

Sample Size	Customer ID
? .100ml - 10ml	STD

Remarks, Calculations, Results
EDP R96H DIONEX
STD# 73CUCO RESULT 521.43
STD VAL 510 %REC 102.2%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
6C823				

Date 10-7-91 Time Completed Lab Unit Date [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5676	106AW	9-20-91	10: 8	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO2	LA-533-105	PPM	W1TE2	0

Sample Size	Customer ID
? DIRECT	REG BL

Remarks, Calculations, Results
REAGENT BLANK

<1.00 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
6C823				

Date 10-7-91 Time Completed Lab Unit Date [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 328.-5776	106AW	9-20-91	10:10	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO2	LA 533 105	PPM	W1TE2	0

Sample Size	Customer ID
? .050ml - 10ml - .500ml - 10ml	791-BA

Remarks, Calculations, Results

~~2.40E4 ppm~~ 10-09-91 KJT
8.27E3 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
6C823				

Date 10-7-91 Time Completed Lab Unit Date [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 331. 5576	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO2	LA 533 105	% RECOVERY	W1TE2	0

Sample Size	Customer ID
? .100ml - 10ml	STD

Remarks, Calculations, Results
EDP R96H DIONEX
STD# 73CUCO RESULT 520.706 ppm
STD VAL 510 ppm %REC 102.1%

BATCH WITH B242 KJT 10-09-91

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
6C823				

Date 10-7-91 Time Completed Lab Unit Date [signature]

9 3 1 2 3 3 1 7 3 1

9-22-91

4469-AC

DIONEX METHOD PARAMETERS - SYSTEM1.MET

System Parameters

System Name : system1/gpm
Number of Detectors..... 1
Detector 1 Type..... CDM-1
Detector 1 real time plot scale (uS)..... 20.00
Run Time (minutes)..... 8.50
Sampling Rate (seconds)..... 0.20

-- DETECTOR 1 PARAMETERS --
Report Options

Save Data File..... Yes
Data File Name: c:\dx\data\91092201.D08
Create ASCII Report File..... No
Print Report..... Yes
List Peaks Not Found in this run..... No
Report Unknowns Found in this run..... Yes
Print Chromatogram..... Yes
AutoScale Chromatogram to Highest Peak..... Yes
Fill Peaks with Color ..... Yes
Draw Grid Lines on Chromatogram..... No
Label with Peak Number..... Yes
Label with Retention Times on Chromatogram..... No
Label with Component Name..... Yes
Format File Name: c:\dx\method\default.prf

Integration Parameters

Starting Peak Width (seconds)..... 10.0
Peak Threshold (mV or uS/data pt interval)..... 0.500
Peak Area Reject..... 1000
Area Reject for Reference Peaks..... 1000
Percent Retention Time Window for Reference Peaks..... 5.0

Integration Timed Events

Time	Description
1.32	Start peak detection
1.44	Start peak detection
1.46	Start peak detection
1.77	
1.77	Enable end of peak detection

Component # 1 FLUORIDE Retention Time 1.13
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 8.52797E-002
K1 = 6.06440E-005
K2 = -6.17180E-011

Level	Amount	Area	Height
1	1.20000E-001	1439	225
2	3.00000E-001	4035	566
3	6.00000E-001	8217	1141
4	1.20000E+000	16507	2218
5	2.30000E+000	39534	4812
6	4.40000E+000	76890	9371

Component # 2 CHLORIDE Retention Time 1.70
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.93335E-002
K1 = 1.01273E-004
K2 = -9.35560E-011

Level	Amount	Area	Height
1	1.60000E-001	1319	217
2	3.90000E-001	3754	568
3	7.80000E-001	6942	1045
4	1.50000E+000	14461	1975
5	3.00000E+000	30287	3987
6	5.90000E+000	61305	8910

Component # 3 NITRITE Retention Time 2.03
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.88691E-001
K1 = 1.33960E-004
K2 = 5.52630E-012

Level	Amount	Area	Height
1	1.08000E+000	6239	874
2	2.69000E+000	17299	2252
3	5.37000E+000	34328	4729
4	1.06200E+001	72787	9300
5	2.08500E+001	153501	19401
6	4.01500E+001	292053	34439

Component # 4 BROMIDE Retention Time 2.80
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.01960E-002
K1 = 2.00453E-004
K2 = -1.00008E-010

Level	Amount	Area	Height
1	1.56000E+000	7660	753
2	3.90000E+000	20706	1880
3	7.80000E+000	38868	3455
4	1.54000E+001	78061	6644
5	3.02000E+001	165133	12632
6	5.81000E+001	350930	24386

Component # 5 NITRATE Retention Time 3.30
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.02611E-001
K1 = 1.61787E-004
K2 = -5.83501E-011

Level	Amount	Area	Height
1	1.37000E+000	7543	727
2	3.43000E+000	19321	1803
3	6.83000E+000	40244	3563
4	1.35000E+001	83386	7010
5	2.65000E+001	173503	13640
6	5.11000E+001	360809	25639

Component # 6 PHOSPHATE Retention Time 5.32
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 5.53452E-001
K1 = 3.53243E-004
K2 = -3.51156E-010

Level	Amount	Area	Height
1	1.19000E+000	2277	162
2	2.98000E+000	7242	453
3	5.93000E+000	15025	935
4	1.17400E+001	31660	1933
5	2.30300E+001	69135	4130
6	4.43700E+001	144749	8447

Component # 7 SULFATE Retention Time 6.85
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.55734E-001
K1 = 1.27491E-004
K2 = -3.79358E-011

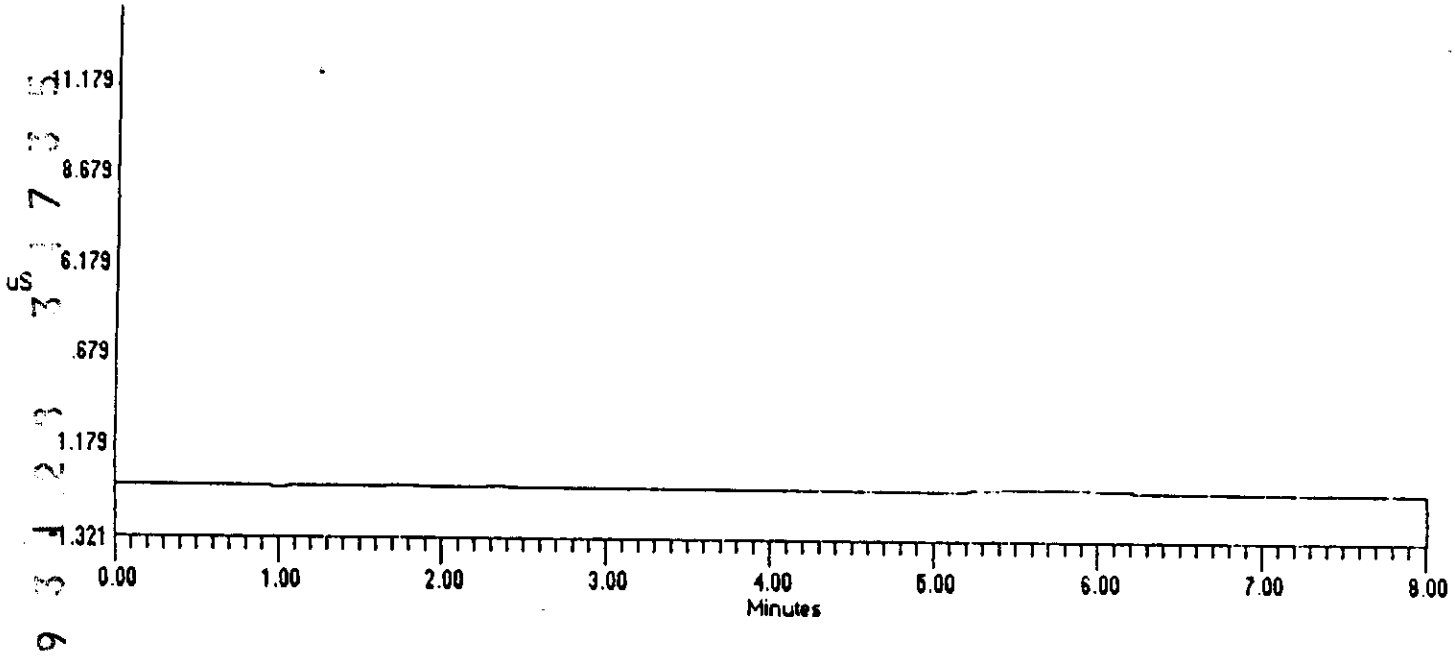
Level	Amount	Area	Height
1	1.40000E+000	9418	543
2	3.50000E+000	24497	1382
3	6.96000E+000	52303	2890
4	1.37800E+001	107173	5909
5	2.70400E+001	225632	12225
6	5.20700E+001	471630	24686

```
ample Name: BLANK                                    Date: Sun Oct 06 23:48:48 1991
Data File   : c:\dx\data\91100521.D02
Method      : c:\dx\method\SYSTEM1.met
ACI Address: 1        System : 1        Inject#:    2  Detector: CDM-1
```

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	RET
External	1	1	2405	5Hz	0.00	8.02	1000	

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta

File: c:\dx\data\91100521.D02 Sample: BLANK

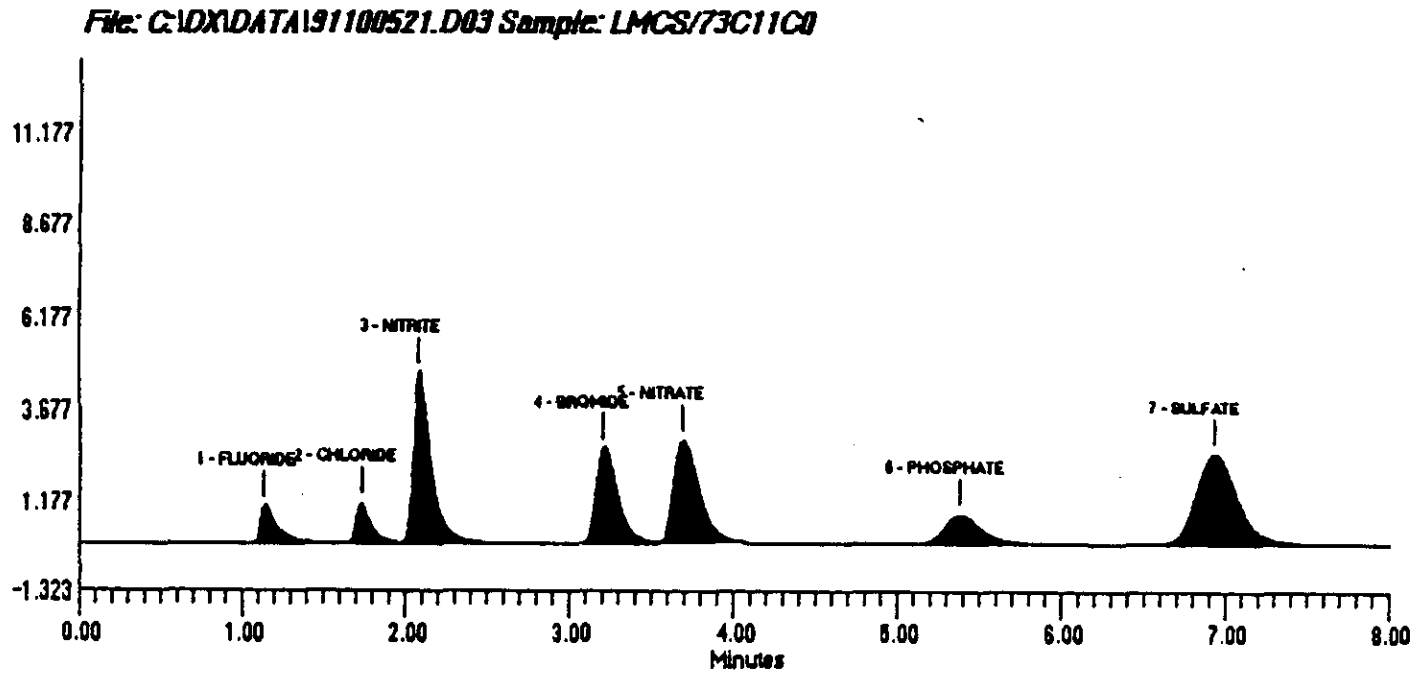


DATA REPROCESSED ON Tue Oct 08 12:07:25 1991

Sample Name: LMCS/73C11C0 1324 DL 7-14-92 Date: Sun Oct 06 23:57:56 1991
Data File : C:\DX\DATA\91100521.D03
Method : C:\DX\METHOD\SYSTEM1.MET
ACI Address: 1 System : 1 Inject#: 3 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	56.764	1031	7925	1	0.00
2	1.73	CHLORIDE	78.669	1115	7353	2	1.96
3	2.08	NITRITE	521.434	4668	34841	2	2.63
4	3.20	BROMIDE	496.404	2603	24621	2	4.92
5	3.68	NITRATE	527.942	2829	30780	2	0.09
6	5.38	PHOSPHATE	527.158	846	13387	1	1.25
7	6.93	SULFATE	601.885	2524	44543	1	1.22

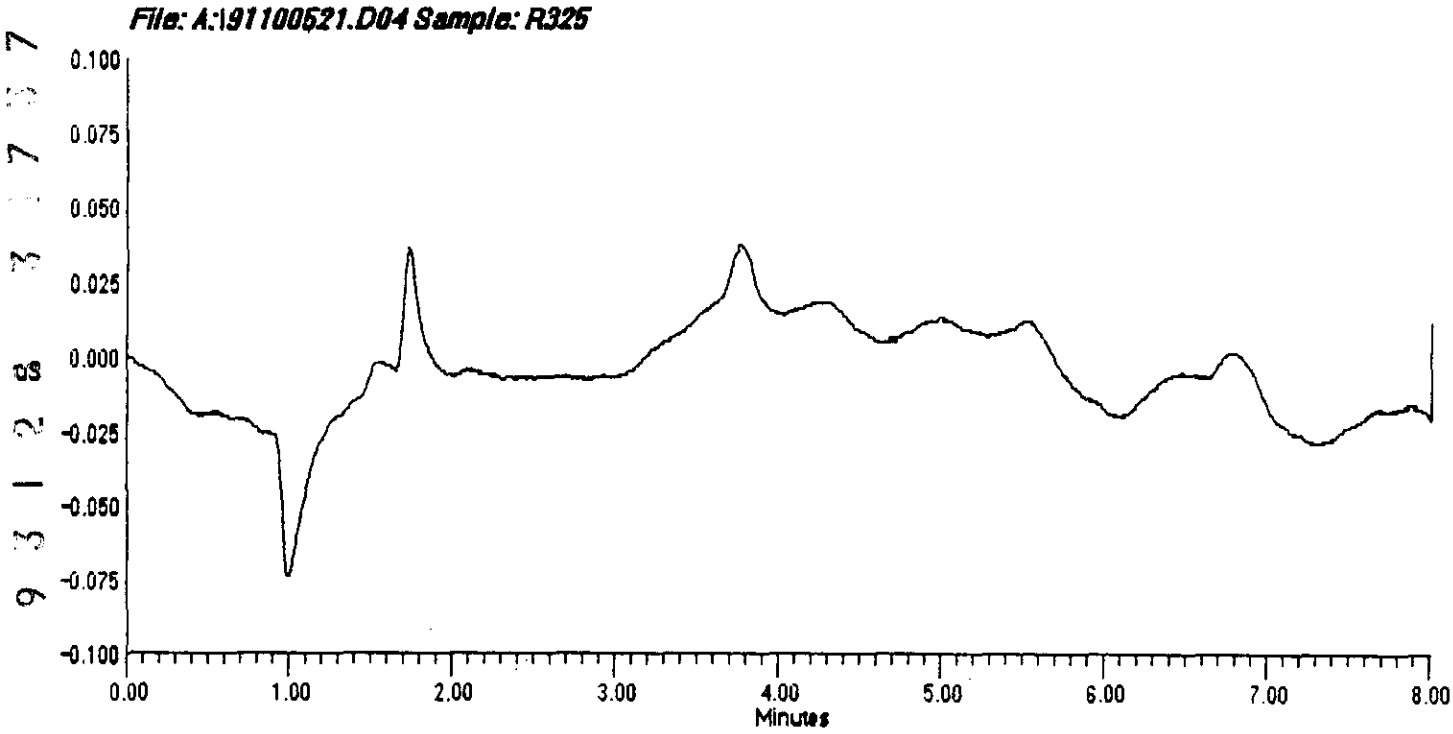


DATA REPROCESSED ON Tue Jul 21 15:20:40 1992

Sample Name: R325			Date: Mon Oct 07 00:07:35 1991
Data File : A:\91100521.D04			
Method : c:\dx\method\SYSTEM1.met			
ACI Address: 1	System : 1	Inject#: 4	Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
[illegible]	1	1	2485	5Hz	0.00	[illegible]	1000	

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta



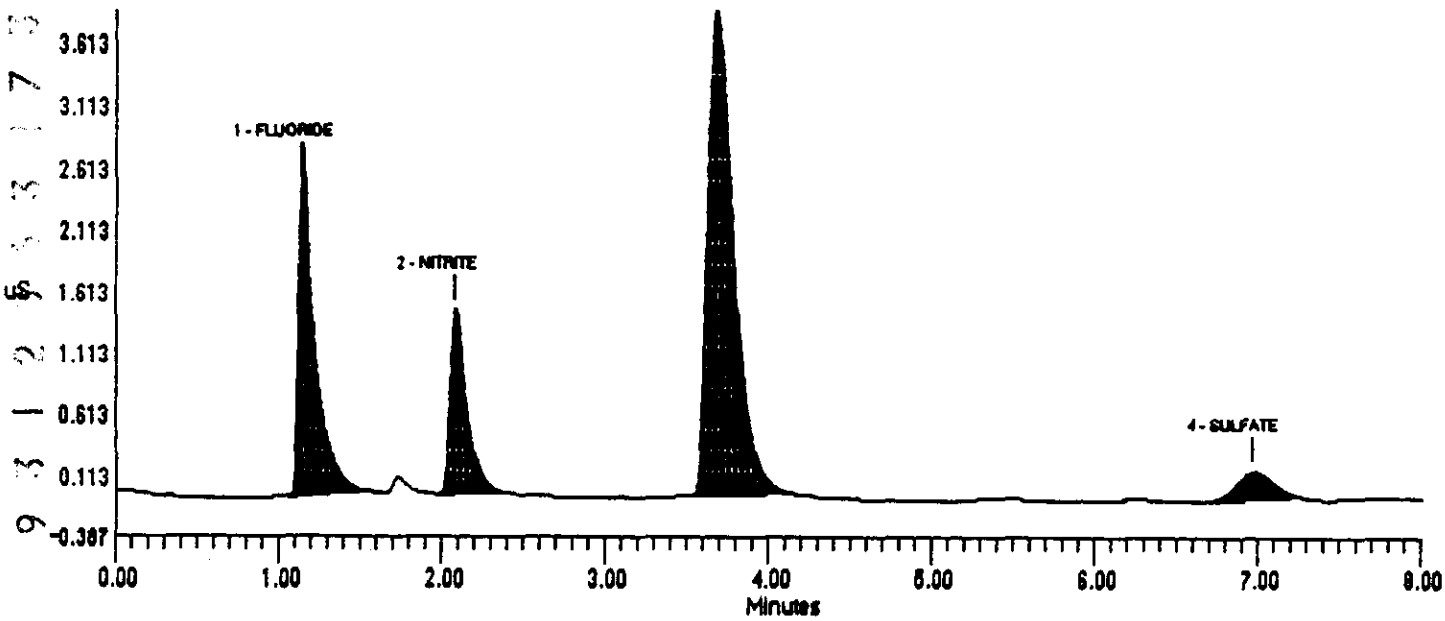
DATA REPROCESSED ON Tue Oct 08 12:00:39 1991
WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

Sample Name: R328 Date: Mon Oct 07 00:54:16 1991
Data File : C:\DX\DATA\91100521.D09
Method : C:\DX\METHOD\SYSTEM1.MET
ACI Address: 1 System : 1 Inject#: 9 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	4221	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	5387.654	2579	20050	1	0.00
2	2.08	NITRITE	8272.236	1507	10977	1	2.63
3	3.67	NITRATE	31492.339	3856	44975	1	-0.36
4	6.97	SULFATE	3554.325	234	3819	1	1.70

File: C:\DX\DATA\91100521.D09 Sample: R328



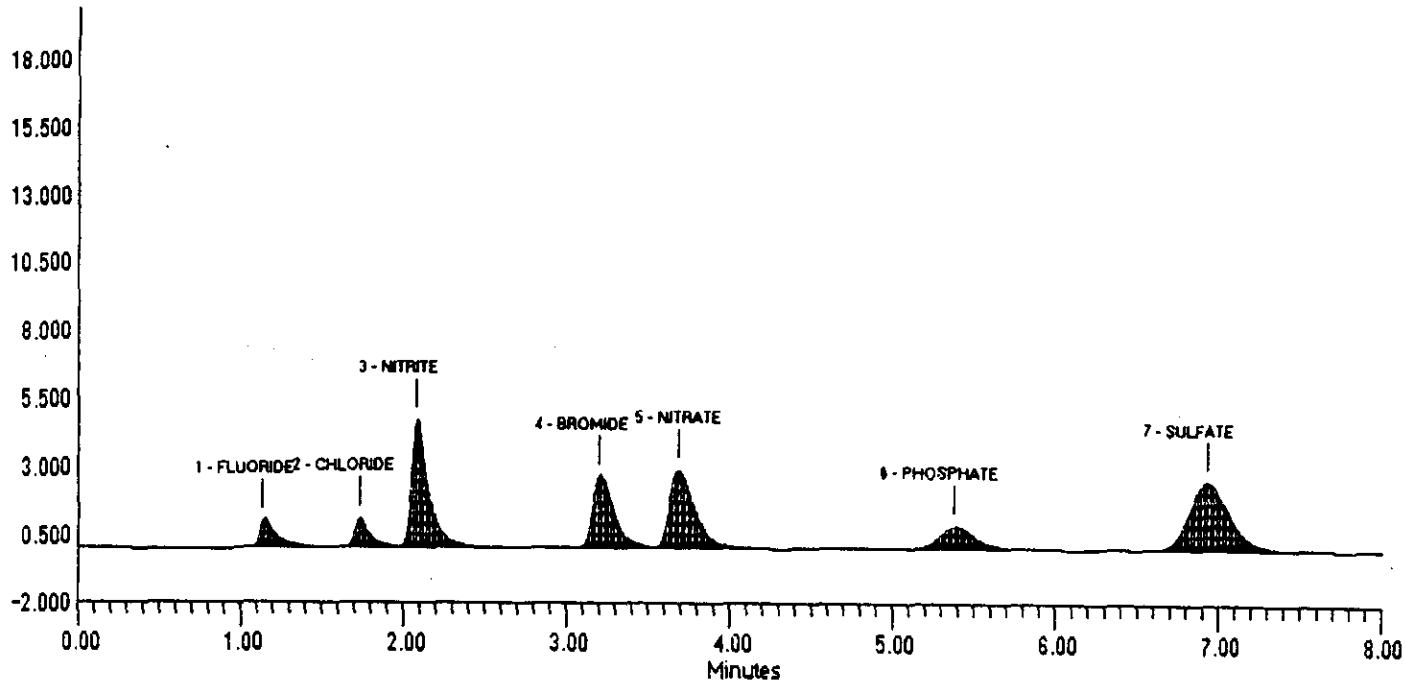
DATA REPROCESSED ON Tue Jul 21 14:56:48 1992

Sample Name: LMCS/73C11C0 - R331		Date: Mon Oct 07 01:22:09 1991	
Data File : A:\91100501.D12 JK 7-22-92			
Method : c:\dx\method\SYSTEM1.met			
ACI Address: 1	System : 1	Inject#: 12	Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	54.734	1013	7589	1	0.00
2	1.73	CHLORIDE	77.629	1112	7250	2	1.96
3	2.08	NITRITE	520.706	4[illegible]	34787	2	2.63
4	3.20	BROMIDE	507.310	2653	25173	2	4.92
5	3.68	NITRATE	3190756.650	2870	31592	2	0.09
6	5.38	PHOSPHATE	544.860	865	13897	1	1.25
7	6.93	SULFATE	602.348	2523	44580	1	1.22

File: A:\91100501.D12 Sample: LMCS/73C11C0



WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R328	Customer ID: 791-8A
Analysis: ACID DIGESTION	Sample Prep: ACID DIGESTION

Instrument: METTLER BAL. SN F04495	Procedure/Rev: LA-508-158/A-2
Technologist: L. MORRISON	Date: 09-25-91
Starting Time: N/A	Temperature: N/A
Ending Time: N/A	Chemist: S. A. JONES

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-8505	11		
2	REAGENT BLANK	R325-8605	12		
3	SAMPLE 791-8A	R328-8705	13		
4	FINAL LMCS CHECK STD	R331-8505	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	ICP1-9S4/10 mL	ICP2-6S4/10 mL	ICP3-8S4/10 mL	N/A

A-6000-881 (03/92)

ACID DIGESTION ANALYSIS

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

[illegible] 8505	100AW	9-20-91	[illegible]	[illegible]
[illegible]	[illegible]	% RECOVERY	[illegible]	[illegible]
10 mL [illegible] to 100 mL			[illegible]	

[illegible] SAMPLE
[illegible]
16PCBT1 - 934
16PCBT2 - 649
16PCBT3 - 934

Complete

Analyte 1	Analyte 2	Analyte 3	Analyte 4	Analyte 5
65231				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9-25-91	[illegible]	[illegible]	[illegible]	[illegible]

[illegible] 8505	100AW	9-20-91	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]			[illegible]	

[illegible]

Complete

Analyte 1	Analyte 2	Analyte 3	Analyte 4	Analyte 5
65231				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9-25-91	[illegible]	[illegible]	[illegible]	[illegible]

[illegible] 8705	100AW	9-20-91	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1 mL to 100 mL			[illegible]	

Complete

Analyte 1	Analyte 2	Analyte 3	Analyte 4	Analyte 5
65231				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9-25-91	[illegible]	[illegible]	[illegible]	[illegible]

[illegible] 8505	100AW	9-20-91	[illegible]	[illegible]
[illegible]	[illegible]	% RECOVERY	[illegible]	[illegible]
10 mL [illegible] to 100 mL			[illegible]	

[illegible] SAMPLE
[illegible]
16PCBT1 - 934
16PCBT2 - 649
16PCBT3 - 934

Complete

Analyte 1	Analyte 2	Analyte 3	Analyte 4	Analyte 5
65231				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9-25-91	[illegible]	[illegible]	[illegible]	[illegible]

9 3 1 2 3 1 7 4 1

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R328	Customer ID: 791-8A
Analysis: INDUCTIVELY COUPLED PLASMA	Sample Prep: ACID DIGESTION

Instrument: WB39939	Procedure/Rev: LA-505-151/B-0
Technologist: L. MORRISON	Date: 11-19-91
Starting Time: NA	Temperature: N/A
Ending Time: NA	Chemist: L. OTTMAR

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-8550	11		
2	REAGENT BLANK	R325-8650	12		
3	SAMPLE 791-8A	R328-8750	13		
4	FINAL LMCS CHECK STD	R331-8550	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	ICP1-9S4/10 mL	ICP2-6S4/10 mL	ICP3-8S4/10 mL	N/A

A-6000-881 (03/92)

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.-8550	106AW	9-20-91	10: 7	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	% RECOVERY	W1TE2	0

Sample Size	Customer ID
? 10mL SA IN 100mL	STD

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID
ICPSST1 - 954
ICPSST2 - 684
ICPSST3 - 889

LMCS STDS

AL 2.98E2 (10/10³) = 2.98ppm 59.6%
Ca 1.51E3(.01) = 1.51E1ppm = 151%
Cr 4.54E2(.01) = 4.54 ppm = 90.8%
Fe 5.08E2(.01) = 5.08ppm = 102%
Na 9.06E2(.01) = 9.06ppm = 90.6%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6523	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]	Laurine J. Ottman			

Date	Time Completed	Lab Unit Mgr
11/19/91	11/21/91	[signature]

54-6800-061 (R-10-83)

Al 4.55 91.0% wng #7362

Ca 9.94 99.4%

Cr 4.80 96.0%

Fe 4.88 97.6%

Na 9.71 97.1%

LMCS ✓ Teresa L. Fizzie

~~Undigested~~
~~Ba 10.10~~ JK
~~Cd 9.8~~ 5-29-92

DIGESTED
Ag (4.51E2)(.01) = 90.2%
Ba (9.32E2)(.01) = 93.2%
Cd (9.25E2)(.01) = 92.5%
Mg (488)(.01) = 97.6%
Mn (479)(.01) = 95.8%
Pb (507)(.01) = 101.4%
Zn (969)(.01) = 96.9%

Undigested
Ba 10.10 101.0%
Cd 9.82 98.2%
Mg 4.94 98.8%
Mn 4.93 98.6%
Zn 9.96 99.6%
Ag 5.07 101.4%
Pb 5.06 101.6%

R 324-8550

9 3 1 2 3 3 1 7 4 3

ICP ANALYSIS - ACID DIGESTION

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.-8650	106AW	9-20-91	10: 9	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	PPM	W1TE2	0

Sample Size	Customer ID
?Direct	REC BL

Remarks, Calculations, Results:

REAGENT BLANK

AL <55 ppb/10² < 5.50E-2 ppm
CA 4.1863/10² = 4.18 ppm
Cr 1.6681/10² = 1.66E-2 ppm
Fe <87/10² = 8.70E-2 ppm
Na 1.0982/10² = 1.09E-1 ppm
Ag <3.0/10² = <3.0E-3 ppm
Ba <3.0/10² = <3.0E-3 ppm
Cd <4.0/10² = <4.0E-3 ppm
Mg 4.0860/10² = 4.08E-1 ppm
Mn 1.3861/10² = 1.38E-2 ppm
Pb <8.0E1/10² = <8.0E-2 ppm
Zn 2.9162/10² = 2.91E-1 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Cal. Unit Mgr		
11/17/91	11/5/91			

54-8600-061 (R-10-91)

ICP ANALYSIS - ACID DIGESTION

Serial No.	Sample Point	Date	Time Issued	Priority
R 328.-8750	106AW	9-20-91	10:20	25

Determination	Method/Standard	Result Units	Charge Code	Rerune
ICP	LA-505-151	ug/g rec	W1TE2	0

Sample Size	Customer ID
? 1mL in 100mL, 2mL to 10mL 8F4600	791-8A

Remarks, Calculations, Results:

Al 2.34E3 (600) = 1.40E6ppb
Ca 1.20E2(600) = 7.20E4ppb
Cr 3.53E1(600) = 2.12E4ppb
Fe <87(600) = <5.22E4ppb
Na 6.19E4(600) = 3.71E7ppb

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]	Laurine J. Ottman			[signature]

Date	Time Completed	Lab Unit Mgr
11/19/91	11/21/91	[signature]

54-6800-061 (R-10-88)

Ag(<8.0)(600)= <4.80 E3 ppb
Ba (<3.0)(600)= <1.80 E3ppb
Cd(7.3)(600)= 4.38 E3ppb
Mg (<11)(600)= <6.60E3ppb
Mn (5.6)(600)= 3.36 E3ppb
Pb (<80)(600)= <4.80E4ppb
Zn (69)(600)= 4.14E4ppb

R 328-8750

9312937745

ICP ANALYSIS - ACID DIGESTION

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.-8550	106AW	9-20-91	10:27	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	% RECOVERY	W1TE2	0

Sample Size	Customer ID
? 10 mL ea in 100 mL, DF=10	STD

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID _____
ICPSST1 - 954
ICPSST2 - 654
ICPSST3 - 854

AL ~~[illegible]~~ 5-29-92
6.4382(10/10) = 6.43ppm 128.6%
CA ~~[illegible]~~ 5-29-92
1.5184(.01) = 1.5182 = 151%
Cr 5.1682(.01) = 5.16ppm = 103%
Fe 8.0682(.01) = 8.06ppm = 161%
Na 1.2763(.01) = 1.2761ppm 127%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65231	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]	[signature]	[signature]		[signature]

Date	Time Completed	Lab Unit Mgr
11/19/91	11/21/91	[signature]

64-6800-061 (R-10-83)

Al	4.68	93.6%
Ca	9.94	99.4%
Cr	4.82	96.4%
Fe	4.89	97.8%
Na	9.72	97.2%

LMCS ✓ [signature]

DIGESTED

Ag (497)(.01) = 99.4%
Ba (1005)(.01) = 100.5%
Cd (990)(.01) = 99.0%
Mg (2095)(.01) = 419%
Mn (543)(.01) = 108.6%
Pb (508)(.01) = 101.6%
Zn (1579)(.01) = 157.9%

Undigested

Ba	10.10	101.0%
Cd	9.88	98.8%
Mg	4.96	99.2%
Mn	4.94	98.8%
Zn	10.01	100.1%
Ag	5.06	101.2%
Pb	5.04	100.8%

R 331-850

9312353746

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R329	Customer ID: 791-9A
Analysis: ARSENIC	Sample Prep: UNDIGESTED

Instrument: PERKIN ELMER - WA77479	Procedure/Rev: LA-355-131/B-0
Technologist: D. R. JACKSON	Date: 10-01-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5595	11		
2	REAGENT BLANK	R325-5695	12		
3	SAMPLE 791-9A	R329-5795	13		
4	FINAL LMCS CHECK STD	R331-5595	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	125B38B/0.5 mL			N/A

A-6000-881 (03/92)

9 3 1 2 3 3 1 7 7

ARSENIC ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.-5595	106AW	9-20-91	10: 6	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
As	LA-355-131	% RECOVERY	W1TE2	0

Sample Size: .500 ml — Customer ID: STD

Remarks, Calculations, Results:
EDP R741 AS/HYDRD
STD#125B38B RESULT 1.09E-1
STD VAL 1.00E-1 %REC 109.0%
54.45/500 = 0.821

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C275				

Date: 10-1-91 — Time Completed: — Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.-5695	106AW	9-20-91	10: 8	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
As	LA-355-131	PPM	W1TE2	0

Sample Size: 10.0 ml — Customer ID: REG 1A

Remarks, Calculations, Results:
REAGENT BLANK
0.009
<5/10,000 = <5.00E-4 ppm

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C275				

Date: 10-1-91 — Time Completed: — Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 329.-5795	106AW	9-20-91	10:21	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
As	LA-355-131	PPM	W1TE2	0

Sample Size: 10.0 ml — Customer ID: 791-9A

Remarks, Calculations, Results:
10-1-91
58.75/25 = 2.35
0.885

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C275				

Date: 10-1-91 — Time Completed: — Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.-5595	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
As	LA-355-131	% RECOVERY	W1TE2	0

Sample Size: .500 ml — Customer ID: STD

Remarks, Calculations, Results:
EDP R741 AS/HYDRD
STD#125B38B RESULT 9.52E-2
STD VAL 1.00E-1 %REC 95.2%
0.719
47.60/500 = 9.52E-2

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6C275				

Date: 10-1-91 — Time Completed: — Lab Unit Mgr: [signature]

9 3 1 2 3 5 3 1 7 3

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
CALIBRATION RECORD

Analyte: As

Procedure: LA-355-131 | Revision: B-0

Instrument: PERKIN - ELMER | Property No.: WA77479

Technologist: D. JACKSON | Payroll No.: 6C275 | Date: 10-01-91

Calibration Standard: 124B38C

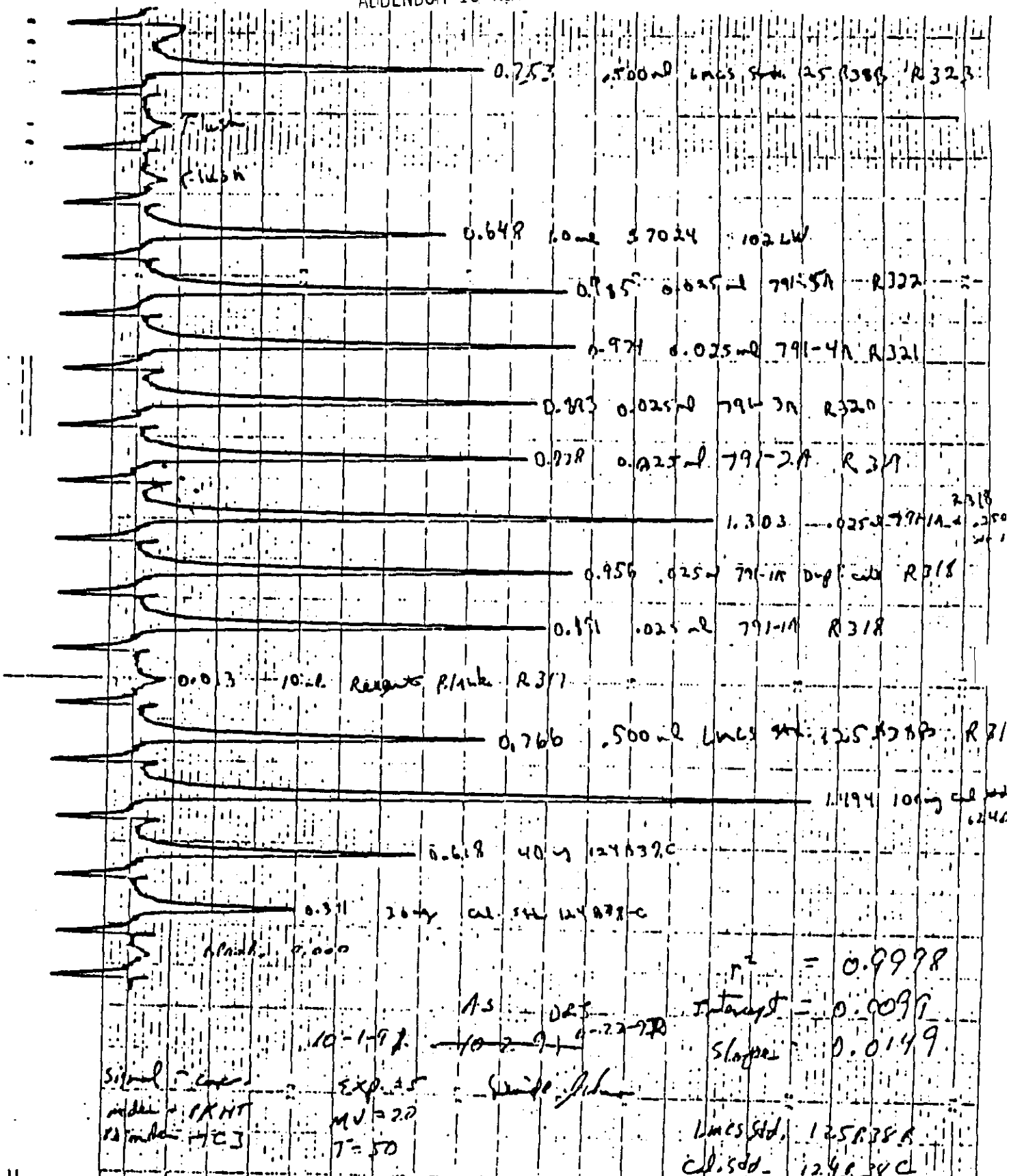
Analyte Concentration: 0.1000 ppm

Type of Calibration: LINEAR

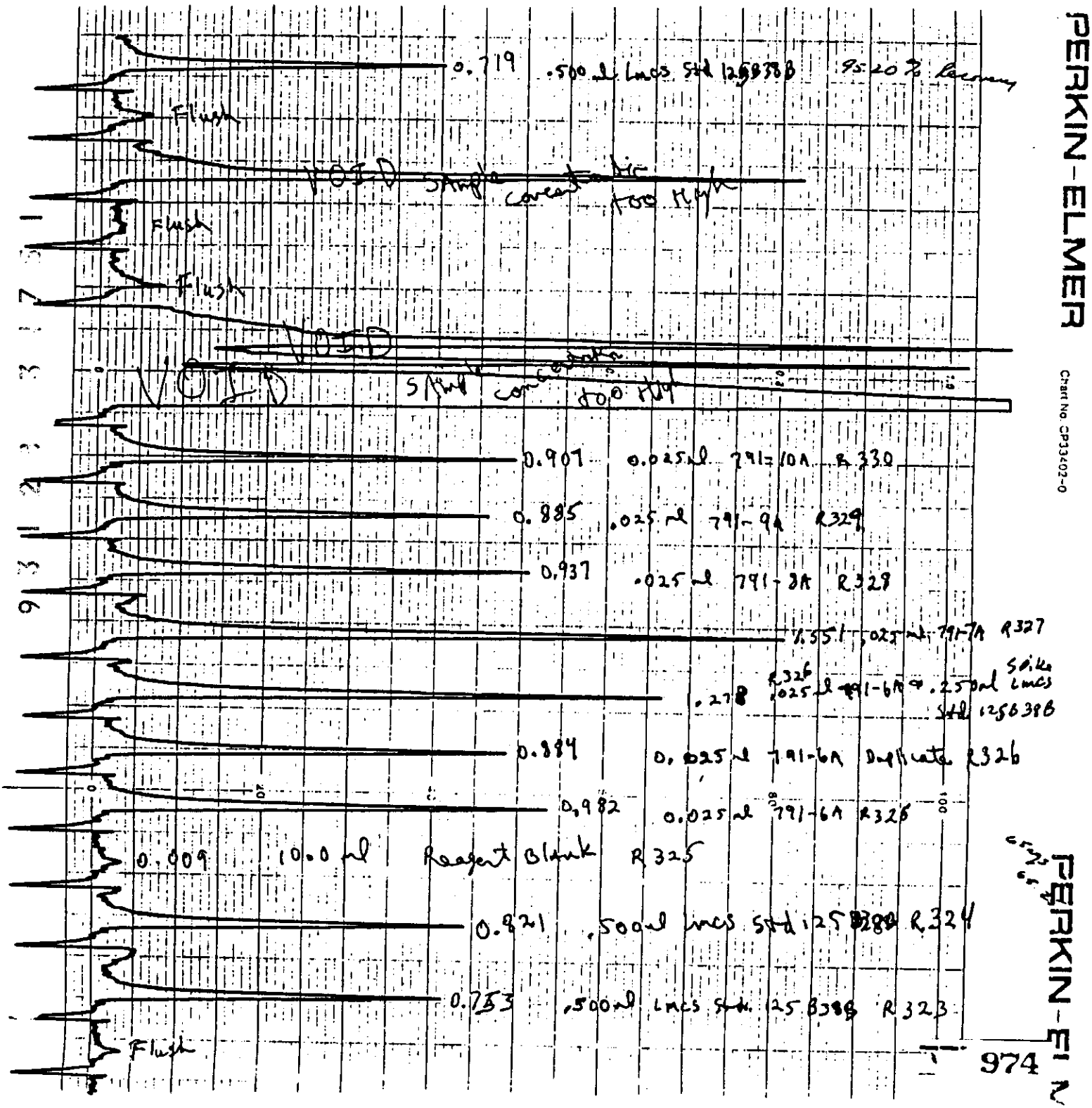
	Dilution	Concentration	Instrument Reading Unit
1	0.000 mL	0.0 ng	0.000
2	0.200 mL	20.0 ng	0.311
3	0.400 mL	40.0 ng	0.618
4	1.000 mL	100.0 ng	1.494
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Comments:

A-6000-882 (03/92)



SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED THE ANALYSIS RUN ON PAGES 973 TO 974.


0.719 .500 ml Lmcs Std 125B38B 95.20% Recovery
Flush
VOID Sample concentration too High
Flush
Flush
VOID
VOID Sample concentration too High
0.907 0.025 ml 791-10A R330
0.885 .025 ml 791-9A R329
0.937 .025 ml 791-8A R328
1.551 .025 ml 791-7A R327
.278 R326 .025 ml 791-6A + .250 ml Spike Lmcs Std 125B38B
0.884 0.025 ml 791-6A Duplicate R326
0.982 0.025 ml 791-6A R326
0.009 10.0 ml Reagent Blank R325
0.821 .500 ml Lmcs Std 125B38B R324
0.753 .500 ml Lmcs Std 125B38B R323
Flush
PERKIN-ELMER
Chart No. CP33402-0
PERKIN-ELMER

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R329	Customer ID: 791-9A
Analysis: CYANIDE	Sample Prep: UNDIGESTED

Instrument: MILTON ROY SPEC 301 - AL10724	Procedure/Rev: LA-695-102/A-4
Technologist: E. COLVIN	Date: 09-27-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5578	11		
2	REAGENT BLANK	R325-5678	12		
3	SAMPLE 791-9A	R329-5778	13		
4	FINAL LMCS CHECK STD	R331-5578	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	75C11S/0.100 mL			N/A

A-6000-881 (03/92)

CYANIDE ANALYSIS - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5570	106AW	9-20-91	10:6	25

Determination	Method/Standard	Result Units	Charge Code	Results
CH	EA 695-102	% RECOVERY	WITE2	0

Sample Size: 100uL-10mL-500uL — Customer ID: STD

Remarks, Calculations, Results: S2MM KCH — ABS .738
STDH 75C11 S RESULT
STD VAL 8.90E² %REC 100.9%

$$\frac{(.738 - .012) - .006547}{.160252} / .5 \times 100 = 8.979E^2$$

.006547 9-30-91

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				
Ed Cah				

Date: 9-27-91 — Time Completed: — Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5678	106AW	9-20-91	10:11	25

Determination	Method/Standard	Result Units	Charge Code	Results
CH	EA 695-102	PPM	WITE2	0

Sample Size: — Customer ID: REG DE

Remarks, Calculations, Results: REAGENT BLANK — ABS .012

$$\frac{.012 - .006547}{.160252} = < 5.00E^{-1} \text{ ppm}$$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				
Ed Cah				

Date: 9-27-91 — Time Completed: — Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 329.-5778	106AW	9-20-91	10:21	25

Determination	Method/Standard	Result Units	Charge Code	Results
CH	EA 695-102	PPM	WITE2	0

Sample Size: 750uL — Customer ID: 791 9A

Remarks, Calculations, Results: ABS .063

$$\frac{(.063 - .012) - .006547}{.160252} \div .750 = 3.70E^{-1} \text{ ppm}$$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				
Ed Cah				

Date: 9-27-91 — Time Completed: — Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 331.-5570	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Results
CH	EA 695-102	% RECOVERY	WITE2	0

Sample Size: 100uL-10mL-500uL — Customer ID: STD

Remarks, Calculations, Results: S2MM KCH — ABS .735
STDH 75C11 S RESULT
STD VAL 8.90E² %REC 100.4%

$$\left[\frac{(.735 - .012) - .006547}{.160252}\right] \div .500 \times 100 = 8.94E^2$$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				
Ed Cah				

Date: 9-27-91 — Time Completed: — Lab Unit Mgr: [signature]

9 3 1 2 3 3 1 7 5 3

TODAYS DATE: 09-27-1991

PAYROLL NO.: 80028

Y-INTERCEPT= .006547
SLOPE= .160252

SAMPLE ID#: R-325 BLANK
SAMPLE SIZE: 0
WVL AND ABS= 580NM 0.012 A

SAMPLE ID#: R-324 75C11-S STD
SAMPLE SIZE: 100UL-10ML-500UL
WVL AND ABS= 580NM 0.738 A

SAMPLE ID#: R-326
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.118 A

SAMPLE ID#: R-326 DUPLICATE
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.120 A

SAMPLE ID#: R-326 + SPIKE
SAMPLE SIZE: 750UL + 100UL-10ML-500UL 75C11-S SPIKE
WVL AND ABS= 580NM 0.856 A

SAMPLE ID#: R-327
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.110 A

SAMPLE ID#: R-328
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.307 A

SAMPLE ID#: R-329
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.063 A

SAMPLE ID#: R-330
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.271 A

SAMPLE ID#: R-331 75C11-S STD
SAMPLE SIZE: 100UL-10ML-500UL
WVL AND ABS= 580NM 0.735 A

CALIBRATION CURVE LACHAT NON-DISTILLED 25ML

CYANIDE DATE: 8-28-1991

CALIBRATION STANDARD # 351-M, 1006 MG/ML CYANIDE

DILUTION FACTOR = 10/.1 = 100, WORKING STANDARD = 1006 /100 = 10.060

PIPET SIZE	MICROGRAMS CYANIDE	TOTAL ABS	NET ABS
BLANK	0	.006	0
50UL	.503	.0930	.0870
500UL	5.030	.8320	.8260
1000UL	10.060	1.6180	1.6120

Y INTERCEPT = .006547
SLOPE = .160252
C C = .999921

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R329	Customer ID: 791-9A
Analysis: DIFFERENTIAL THERMAL	Sample Prep: UNDIGESTED

Instrument: WC16134,WC16129	Procedure/Rev: LA-514-113/A-0
Technologist: M. MYERS	Date: 10-14-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5511	11		
2	REAGENT BLANK	R325-5611	12		
3	SAMPLE 791-9A	R329-5711	13		
4	FINAL LMCS CHECK STD	R4-5511	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	27C11BB/0.10 mL			N/A

A-6000-881 (03/92)

DIFFERENTIAL THERMAL ANALYSIS - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5511	106AW	9-20-91	10: 5	25

Determination	Method Standard	Result Units	Charge Code	Results
DSC	LA-514-113	EXOTHERMS	W11E2	0

Sample Size	Customer ID
.010ml	STD

Remarks, Calculations, Results: 27C1188

100.0%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
6C823				

Date	Time Completed	Lab Use Only
10-14-91		[signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5611	106AW	9-20-91	10: 7	25

Determination	Method Standard	Result Units	Charge Code	Results
DSC	LA-514-113	EXOTHERMS	W11E2	0

Sample Size	Customer ID
.010ml	RED BL

Remarks, Calculations, Results: REAGENT BLANK

NO EXOTHERMS

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
6C823				

Date	Time Completed	Lab Use Only
10-14-91		[signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 329.-5711	106AW	9-20-91	10:20	25

Determination	Method Standard	Result Units	Charge Code	Results
DSC	LA-514-113	EXOTHERMS	W11E2	0

Sample Size	Customer ID
.010ml	791 2A

Remarks, Calculations, Results:

NO EXOTHERM

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
6C823				

Date	Time Completed	Lab Use Only
10-14-91		[signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 4.-551	RCRA-1	8-16-91	9:55	25

Determination	Method Standard	Result Units	Charge Code	Results
DSC	LA-514-113	EXOTHERMS	[illegible]	0

Sample Size	Customer ID
.010ml	STD

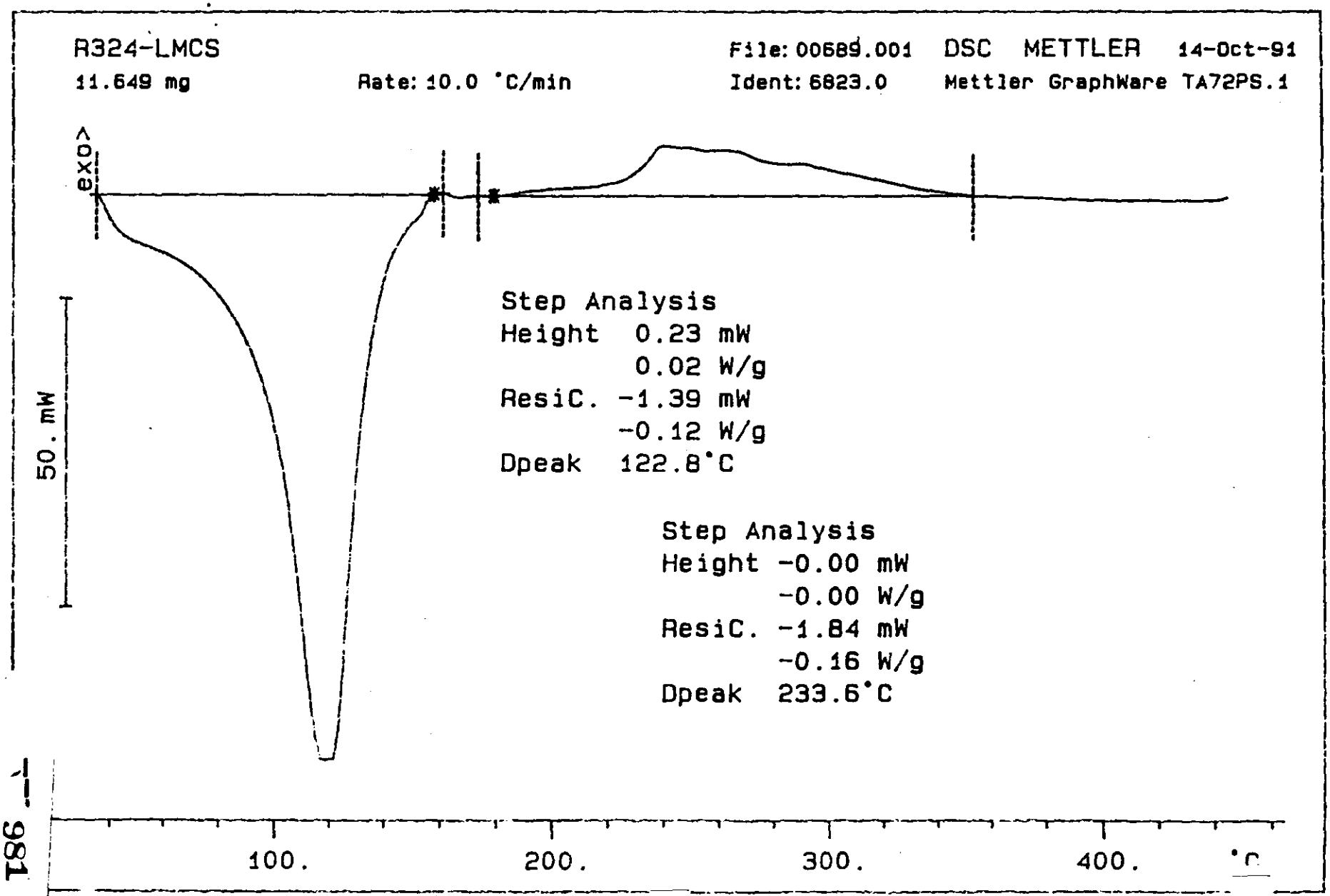
Remarks, Calculations, Results: 27C1188

100.0%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
6C823				

Date	Time Completed	Lab Use Only
10-14-91		[signature]

9 3 1 2 3 7 7 7

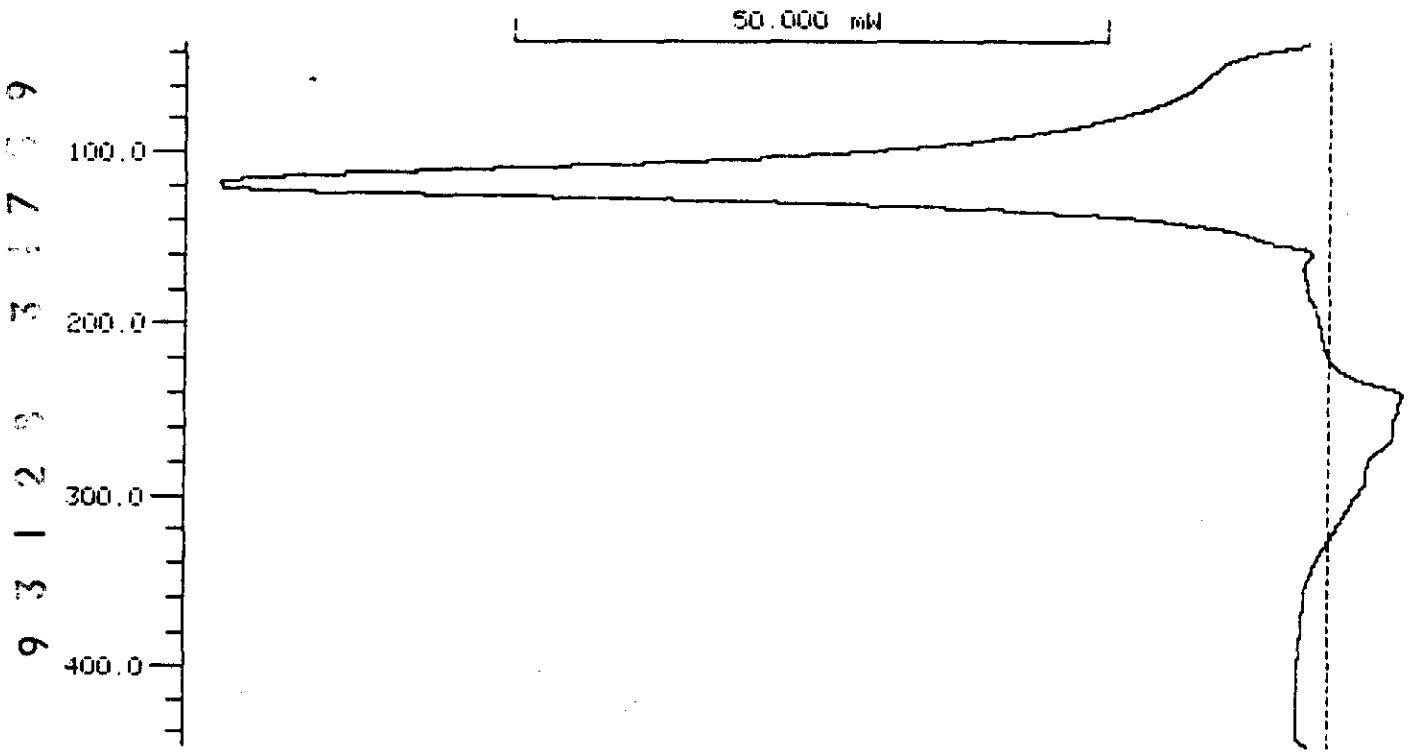

R324-LMCS
11.649 mg
Rate: 10.0 °C/min
File: 00689.001
Ident: 6823.0
DSC METTLER 14-Oct-91
Mettler GraphWare TA72PS.1
exo>
50. mW
Step Analysis
Height 0.23 mW
0.02 W/g
ResiC. -1.39 mW
-0.12 W/g
Dpeak 122.8°C
Step Analysis
Height -0.00 mW
-0.00 W/g
ResiC. -1.84 mW
-0.16 W/g
Dpeak 233.6°C
100.
200.
300.
400.
°C

R324

END SCREEN °C 448.0

TEMPERATURE °C

HEAT FLOW
EXOTHERMAL-->



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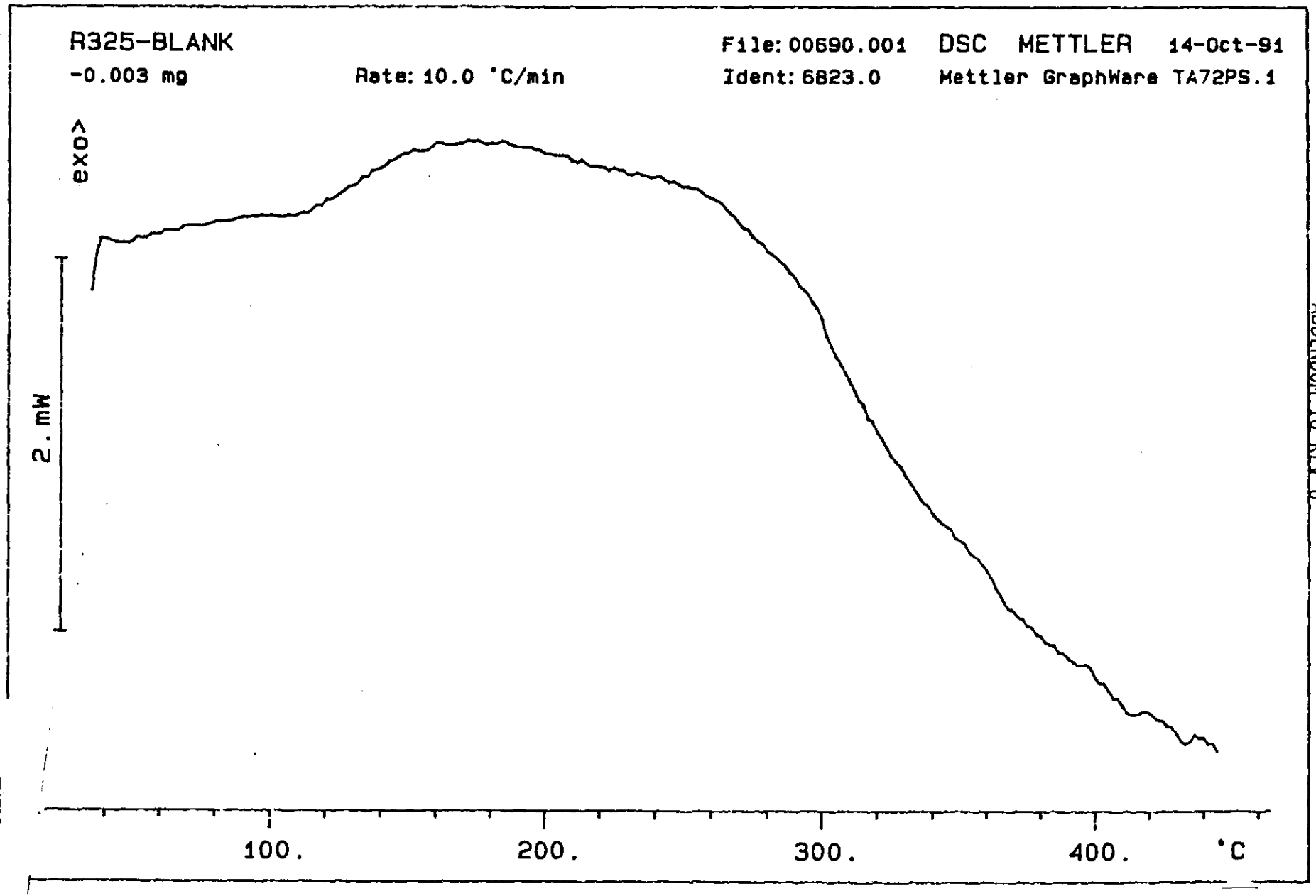
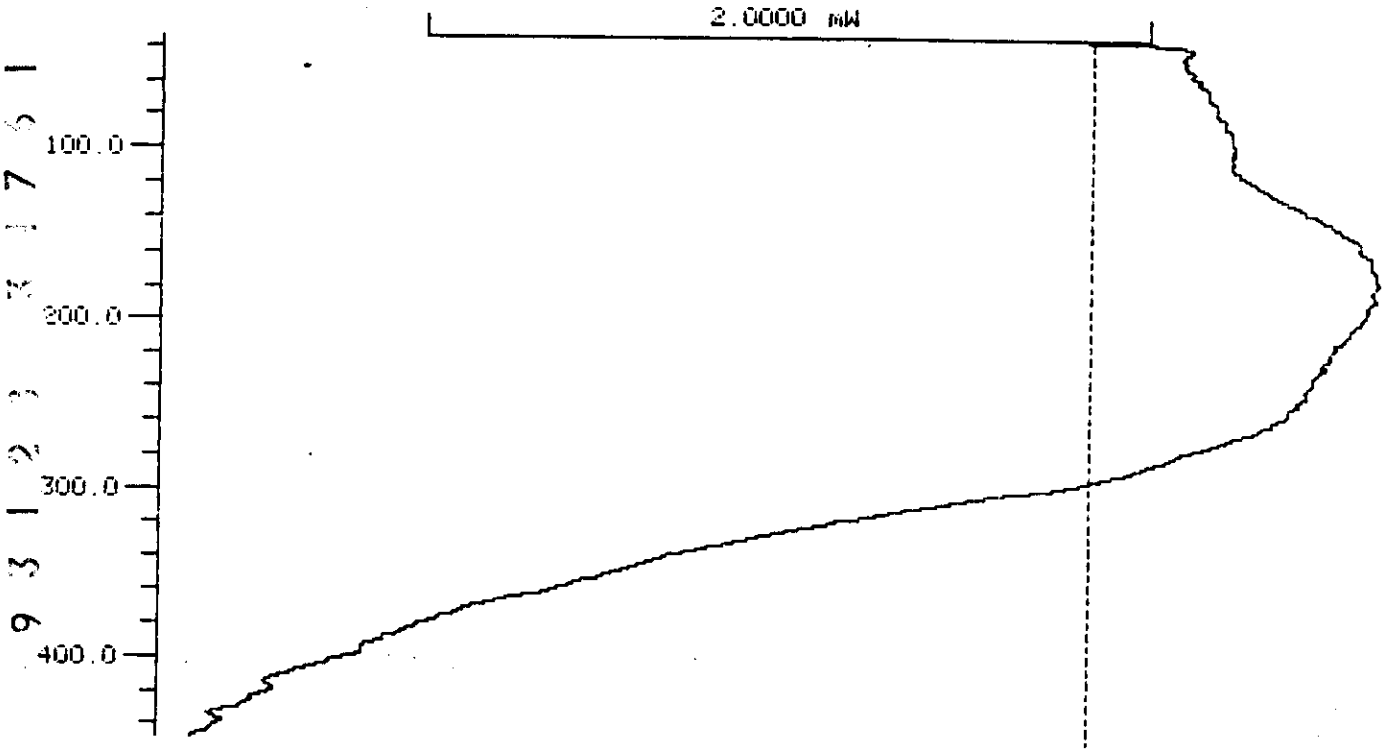

R325-BLANK
-0.003 mg
Rate: 10.0 °C/min
File: 00690.001
Ident: 6823.0
DSC METTLER 14-Oct-91
Mettler GraphWare TA72PS.1
exo>
2. mW
100.
200.
300.
400.
°C

R325

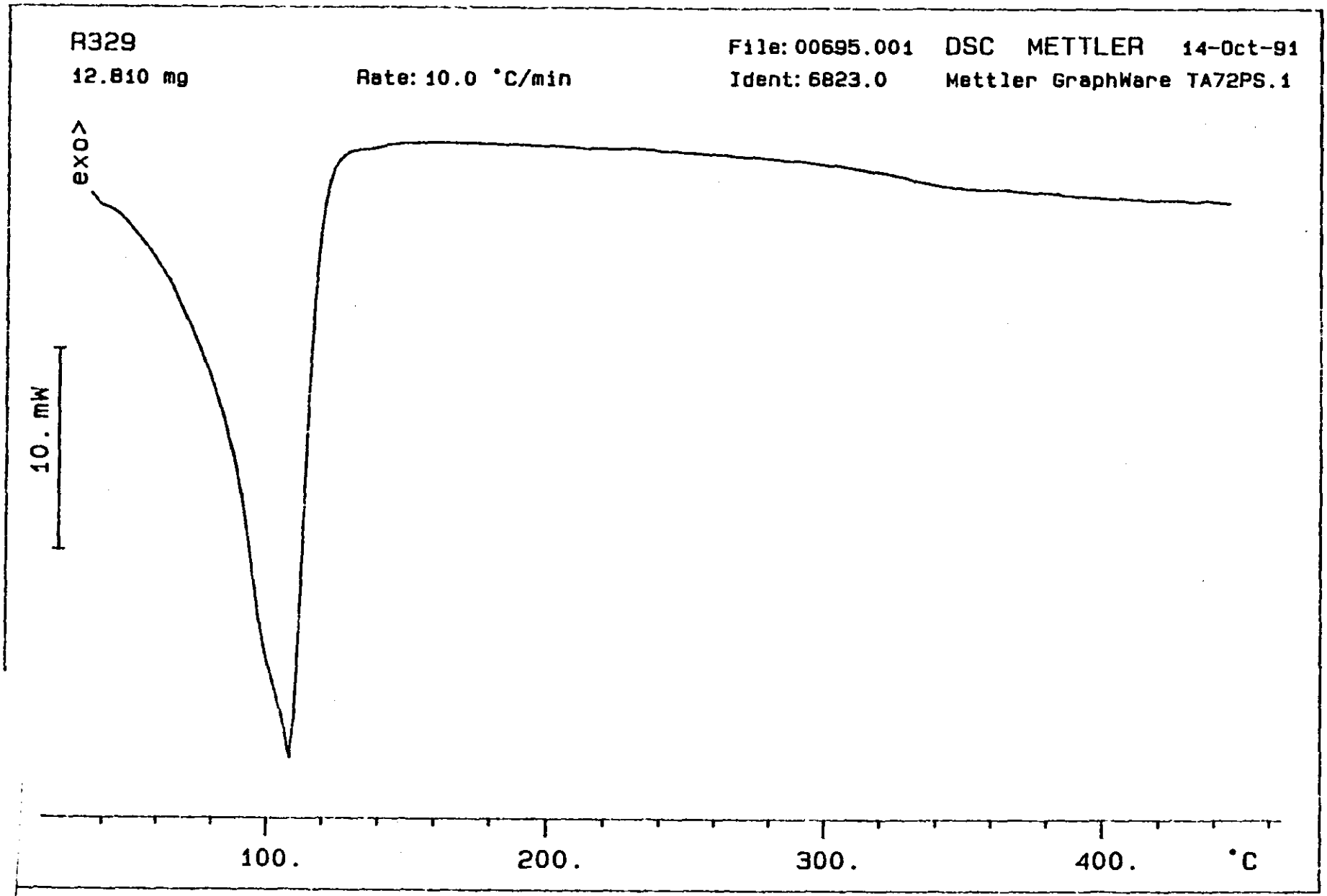
END SCREEN °C 447.8

TEMPERATURE °C

HEAT FLOW
EXOTHERMAL-->



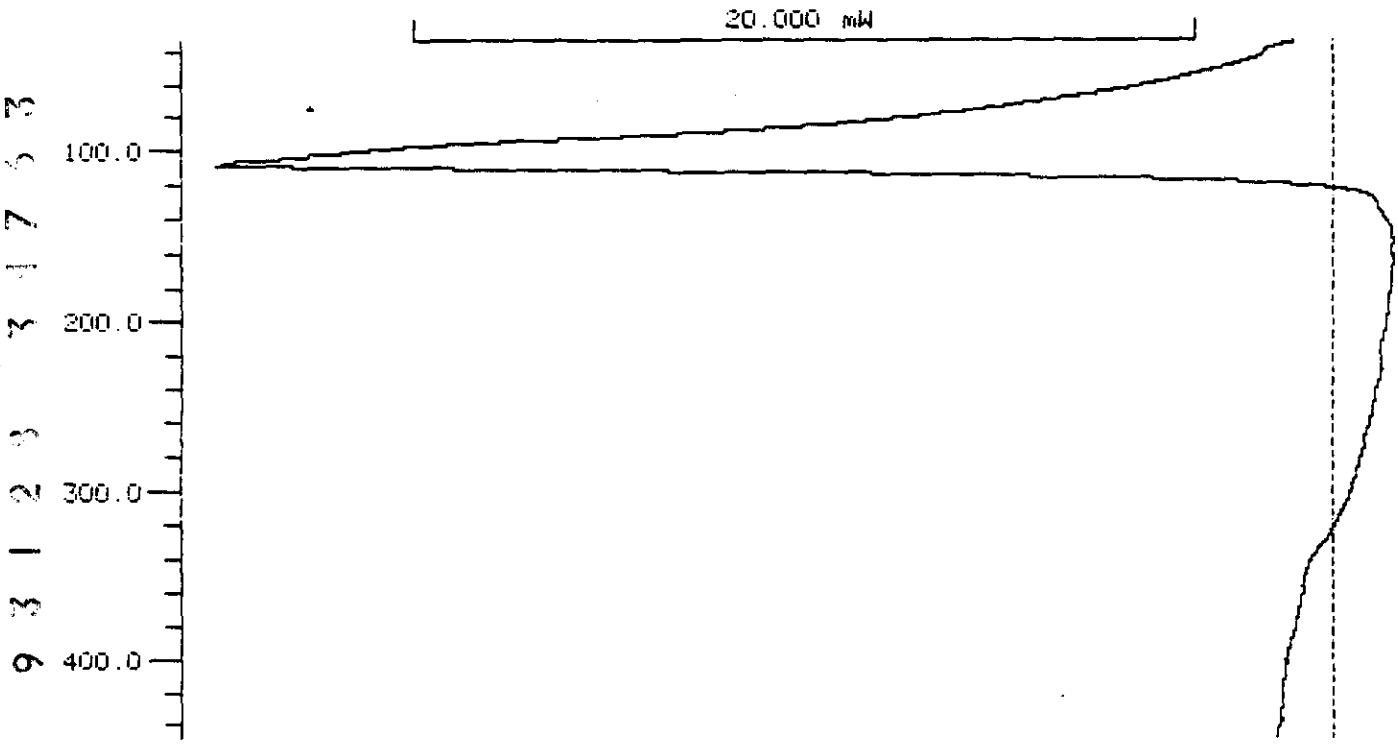
******** METTLER TA4000 SYSTEM *********


R329
12.810 mg
Rate: 10.0 °C/min
File: 00695.001
Ident: 6823.0
DSC METTLER 14-Oct-91
Mettler GraphWare TA72PS.1
exo>
10. mW
100.
200.
300.
400.
°C

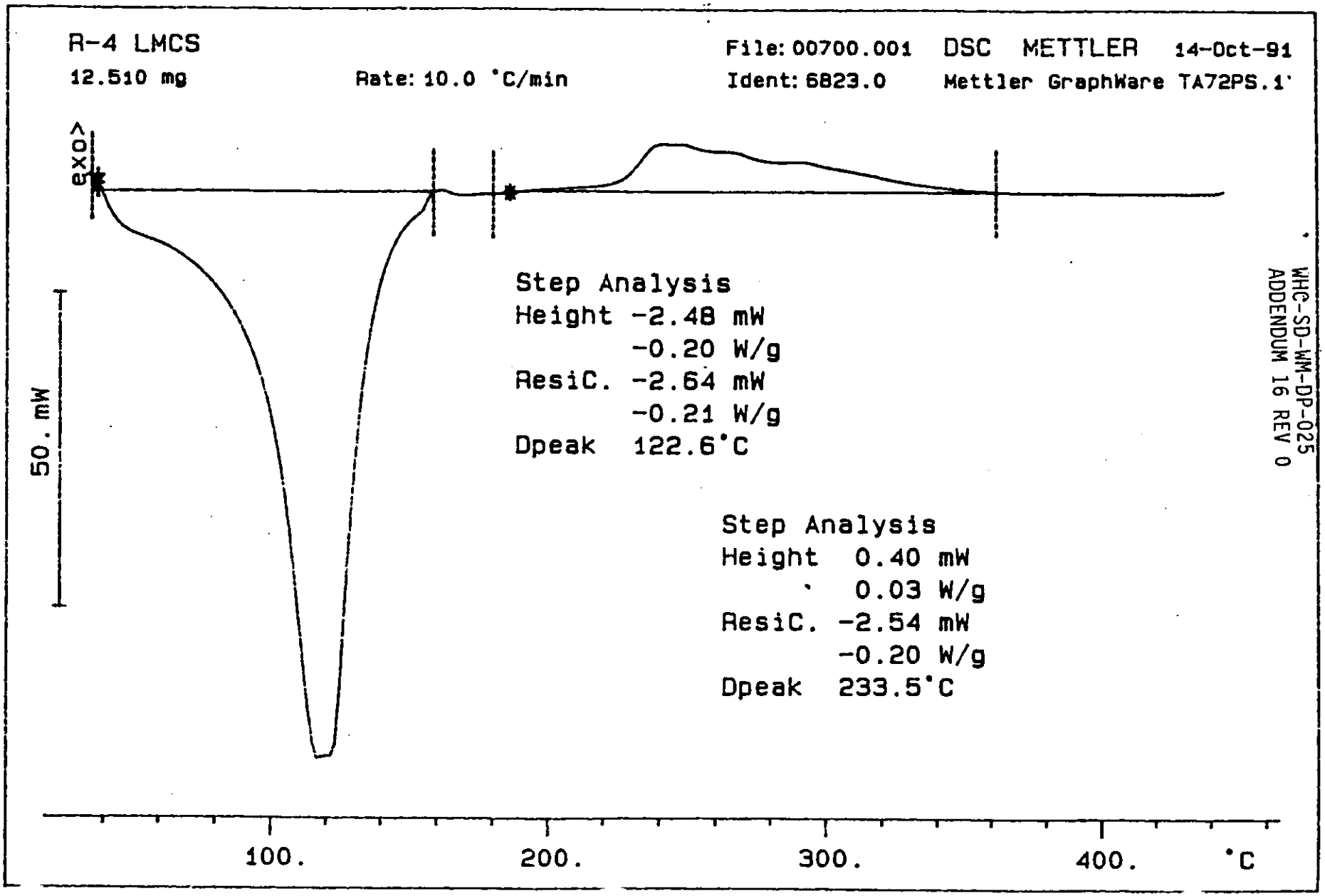
END SCREEN °C 448.0

TEMPERATURE °C

HEAT FLOW
EXOTHERMAL-->



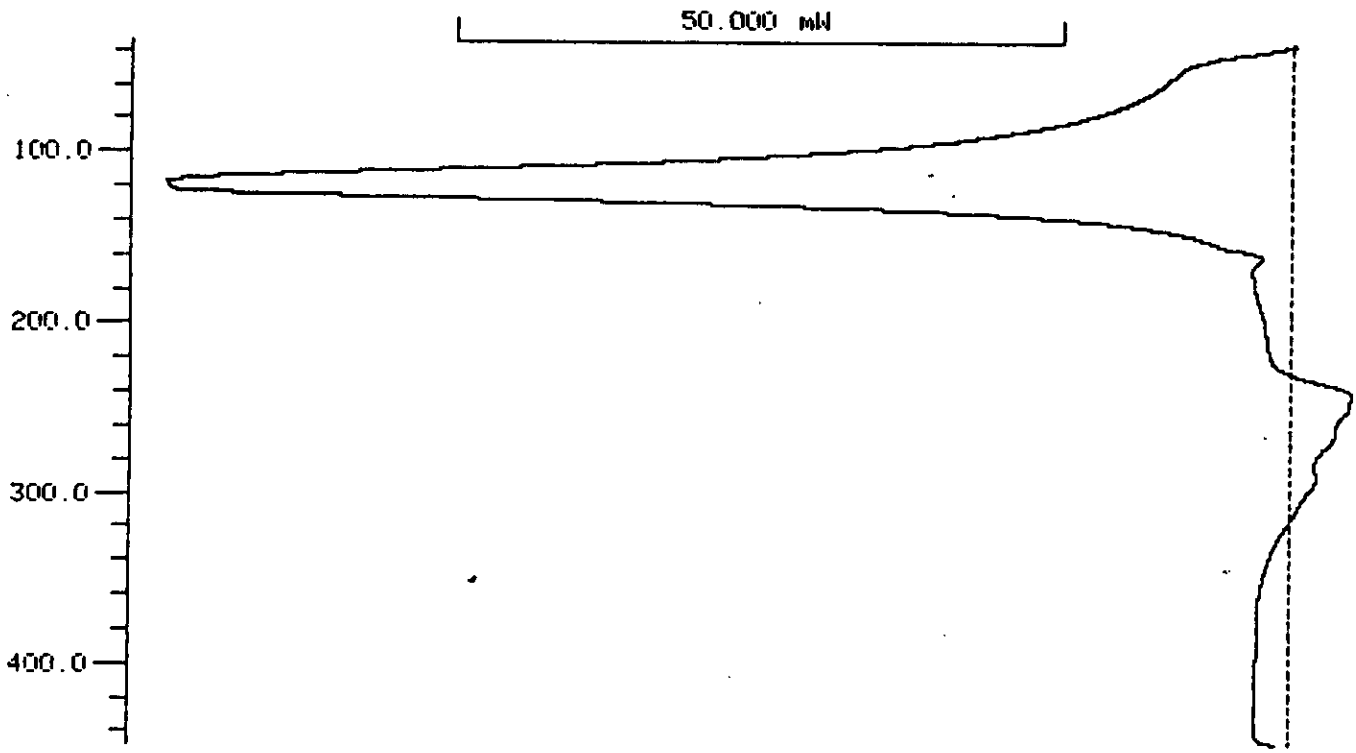
******** METTLER TA4000 SYSTEM *********


R-4 LMCS
12.510 mg
Rate: 10.0 °C/min
File: 00700.001
Ident: 6823.0
DSC METTLER
Mettler GraphWare TA72PS.1
14-Oct-91
exo>
50. mW
Step Analysis
Height -2.48 mW
-0.20 W/g
ResiC. -2.64 mW
-0.21 W/g
Dpeak 122.6°C
Step Analysis
Height 0.40 mW
0.03 W/g
ResiC. -2.54 mW
-0.20 W/g
Dpeak 233.5°C
100.
200.
300.
400.
°C

END SCREEN °C 448.0

TEMPERATURE °C

HEAT FLOW
EXOTHERMAL-->



******** METTLER TA4000 SYSTEM *********

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

93128 34765

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R329	Customer ID: 791-9A
Analysis: MERCURY	Sample Prep: UNDIGESTED

Instrument: PERKIN ELMER WA77479	Procedure/Rev: LA-325-102/B-0
Technologist: D. R. JACKSON	Date: 10-17-91
Starting Time: 8:00	Temperature: N/A
Ending Time: 2:00	Chemist: R. K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5597	11		
2	REAGENT BLANK	R325-5697	12		
3	SAMPLE 791-9A	R329-5797	13		
4	FINAL LMCS CHECK STD	R331-5597	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	125B38D/1.50 mL			N/A

A-6000-881 (03/92)

MERCURY ANALYSIS - UNDIGESTED SAMPLE

Sample No: K 324.-5597	Sample Point: 106AW	Date: 9-20-91	Time Issued: 101 5	Priority: 25
Determination: Hg	Method Standard: LA-325-102	Result Units: % RECOVERY	Charge Code: WITE	Persons: 0
Sample Size: 1.50 ml			Customer ID: SID	

Remarks, Calculations, Results:
EDT: 8/16 HG/HYDRO
STDH 125 ARD RESULT 1.17E-1
STD Vol 1.00E-1 SREC 117.05b
0.561 174.15/1,500 =

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				
Date: 10-16-91	Time Completed	Lab Unit Mgr		

Sample No: K 325.-5597	Sample Point: 106AW	Date: 9-20-91	Time Issued: 101 0	Priority: 25
Determination: Hg	Method Standard: LA-325-102	Result Units: PPM	Charge Code: WITE	Persons:
Sample Size: 10.0 ml			Customer ID: SID	

Remarks, Calculations, Results:
SEDIMENT HG/HYDRO
-0.002 <5/10,000 = <5.00E-4 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				
Date: 10-16-91	Time Completed	Lab Unit Mgr		

Sample No: K 327.-5797	Sample Point: 106AW	Date: 9-20-91	Time Issued: 10:22	Priority: 25
Determination: Hg	Method Standard: LA-325-102	Result Units: PPM	Charge Code: WITE	Persons: 0
Sample Size: 1.0 ml			Customer ID: SID	

Remarks, Calculations, Results:
-0.012 <5/1000 = <5.00E-3 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				
Date: 10-16-91	Time Completed	Lab Unit Mgr		

10-17-91

Sample No: K 331.-5597	Sample Point: 106AW	Date: 9-20-91	Time Issued: 10:26	Priority: 25
Determination: Hg	Method Standard: LA-325-102	Result Units: % RECOVERY	Charge Code: WITE	Persons: 0
Sample Size: 1.50 ml			Customer ID: SID	

Remarks, Calculations, Results:
EDT: 8/16 HG/HYDRO
STDH 125 ARD RESULT 9.24E-2
STD Vol 1.00E-1 SREC 42.490
0.446 138.67/1,500 =

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				
Date: 10-16-91	Time Completed	Lab Unit Mgr		

10-17-91

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
CALIBRATION RECORD

Analyte: Hg

Procedure: LA-325-102 | Revision: B-0

Instrument: PERKIN ELMER | Property No.: WA77479

Technologist: D. R. JACKSON | Payroll No.: 6C275 | Date: 10-17-91

Calibration Standard: 124B38D

Analyte Concentration: 0.1000 ppm

Type of Calibration: LINEAR

	Dilution	Concentration	Instrument Reading Unit
1	0.000 mL	0 ng	0.000
2	0.750 mL	75 ng	0.278
3	1.500 mL	150 ng	0.481
4	3.000 mL	300 ng	0.934
5			
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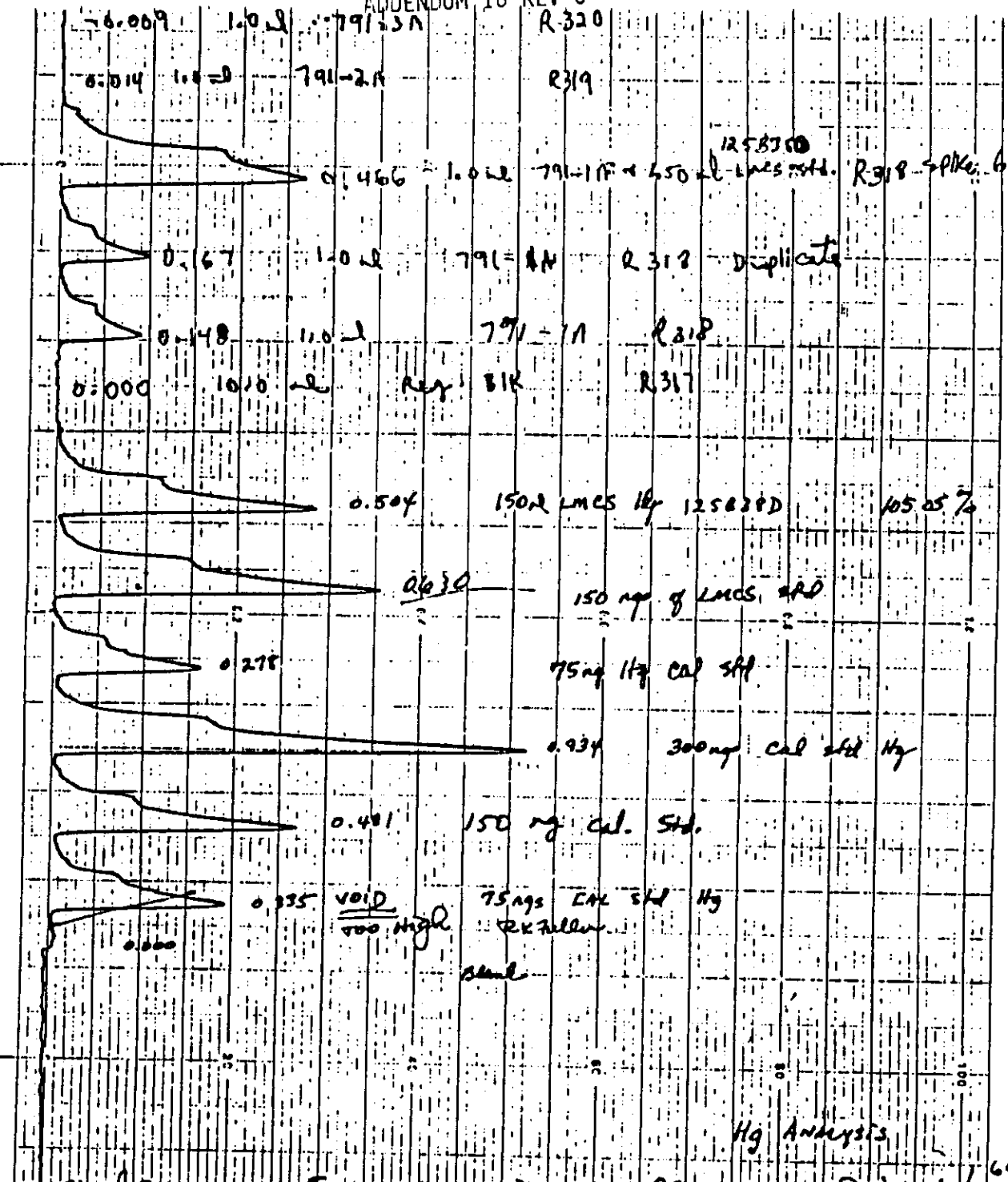
21			

Comments:

A-6000-882 (03/92)



SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED THE ANALYSIS RUN ON PAGES 992 to 993

PERKIN-ELMER

0.446 1.50 µl lmcs std. 125B38D R331 92.44 %

0.006 .500 µl 25-2 B5563

0.003 .500 µl 25-2 B5461

-0.017 1.0 µl 791-10A R330

-0.012 1.0 µl 791-9A R329

-0.01 1.0 µl 791-8A R328

-0.008 1.0 µl 791-7A R327

0.224 1.0 µl 791-6A .750 µl lmcs std. 125B38D R326 spike 100.40 %

-0.012 1.0 µl 791-6A R326

-0.007 1.0 µl 791-6A R326

-0.002 10.0 µl blk R325

0.561 1.50 µl lmcs std. 125B38D R324 117.432

0.274 .050 µl 102-LW 59972

0.307 .050 µl 102-LW 59659

0.483 1.50 µl lmcs std. 125B38D R323 100.48%

-0.003 .050 µl 25-2 B5372

0.024 .500 µl 25-2 B5237

0.010 1.0 µl 791-5A R322

-0.008 1.0 µl 791-4A R321

PERKIN-ELMER

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R329	Customer ID: 791-9A
Analysis: MERCURY	Sample Prep: UNDIGESTED

Instrument: WB26847	Procedure/Rev: LA-325-102/B-0
Technologist: J. MIDDLETON	Date: 07-01-92
Starting Time: 16:00	Temperature: N/A
Ending Time: 18:00	Chemist: R. SKODA

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5597	11		
2	REAGENT BLANK	R325-5697	12		
3	SAMPLE 791-9A	R329-5797	13		
4	SAM DUP 791-9A	R329-5897	14		
5	SPIKE OF SAMPLE 791-9A	R329-5997	15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	58C11DB/0.300 mL			N/A
SPIKE	58C11DB/0.300 mL			N/A

A-6000-881 (03/92)

MERCURY ANALYSIS - UNDIGESTED SAMPLE

Sample Point: 106AW 6-16-91
Date: 9-20-91
Determination: Hg
Method Standard: LA-325-102
Result Units: % RECOVERY
Charge Code: WIIEX
Sample Size: .300 ml
Customer ID: STD
Analyst: 82577
Date: 7-1-92
Time Completed: 1800
Lab Chief: RE Florida 81524 7/7/92

Adding results for both calculated using 0.03235 Lower deposition program

STD 58CHDB
STD VOL 0.100 ppm SPEC 100%
pKbt = 36.0mm

$\frac{22.72ng}{200\mu l} = \frac{0.1091\mu gm}{0.100\ ppm} \times 100$

≈ 109.1%

RUSH

Sample Point: 106AW 6-16-91
Date: 9-20-91
Determination: Hg
Sample Size: 20.0ml
Customer ID: [illegible]
Analyst: 82577
Date: 7-1-92
Time Completed: 1800
Lab Chief: RE Florida 81524 7/7/92

BLANK
pKbt = 0.0mm
= 0.69ng = <5ng / 20000µl = <0.000 ppm

RUSH

Sample Point: 106AW 6-16-91
Date: 9-20-91
Time Issued: 10:20
Priority: 25
Determination: Hg
Method Standard: LA-325-102
Result Units: [illegible]
Charge Code: WIIEX
Sample Size: .250 ml
Customer ID: 791-96
Analyst: 82577
Date: 7-1-92
Time Completed: 1800
Lab Chief: RE Florida 81524 7/7/92

pKbt = 4.0mm
= 4.25ng = <5ng / 250µl = <0.020 µg/ml

RUSH

Sample Point: 106AW 6-16-91
Date: 9-20-91
Time Issued: 10:20
Priority: 25
Determination: Hg
Method Standard: LA-325-102
Result Units: [illegible]
Charge Code: WIIEX
Sample Size: .250 ml
Customer ID: 791-96
Analyst: 82577
Date: 7-1-92
Time Completed: 1800
Lab Chief: RE Florida 81524 7/7/92

DUPLICATE SAMPLE
pKbt = 3.5mm
= 3.81ng = <5ng / 250µl = <0.020 µg/ml

RUSH

Sample Point: 106AW 6-16-91
Date: 9-20-91
Time Issued: 10:20
Priority: 25
Determination: Hg
Method Standard: LA-325-102
Result Units: % RECOVERY
Charge Code: WIIEX
Sample Size: .250 ml
Customer ID: 791-96
Analyst: 82577
Date: 7-1-92
Time Completed: 1800
Lab Chief: RE Florida 81524 7/7/92

SAMPLE SPIKED TO 58CHDB
SPIKE ID
SPIKE VOLUME .100 ml
pKbt = 37.0mm
= 23.61ng - 4.25ng = 19.36ng / 200µl = 0.0979µgm / 0.100 ppm × 100 = 97.9%

RUSH

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
CALIBRATION RECORD

Analyte: Hg

Procedure: LA-325-102 | Revision: B-0

Instrument: PERKIN ELMER | Property No.: WA77479

Technologist: J. MIDDLETON | Payroll No.: 82577 | Date: 07-01-92

Calibration Standard: 102B3 - ALL

Analyte Concentration: 0.152 ppm

Type of Calibration: LINEAR

	Dilution	Concentration	Instrument Reading Unit
1	0.100 mL	15.2 ng	0.147
2	0.250 mL	38.0 ng	0.345
3	0.500 mL	76.0 ng	0.717
4	0.750 mL	114.0 ng	1.130
5			
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21			

Comments:

A-6000-882 (03/92)

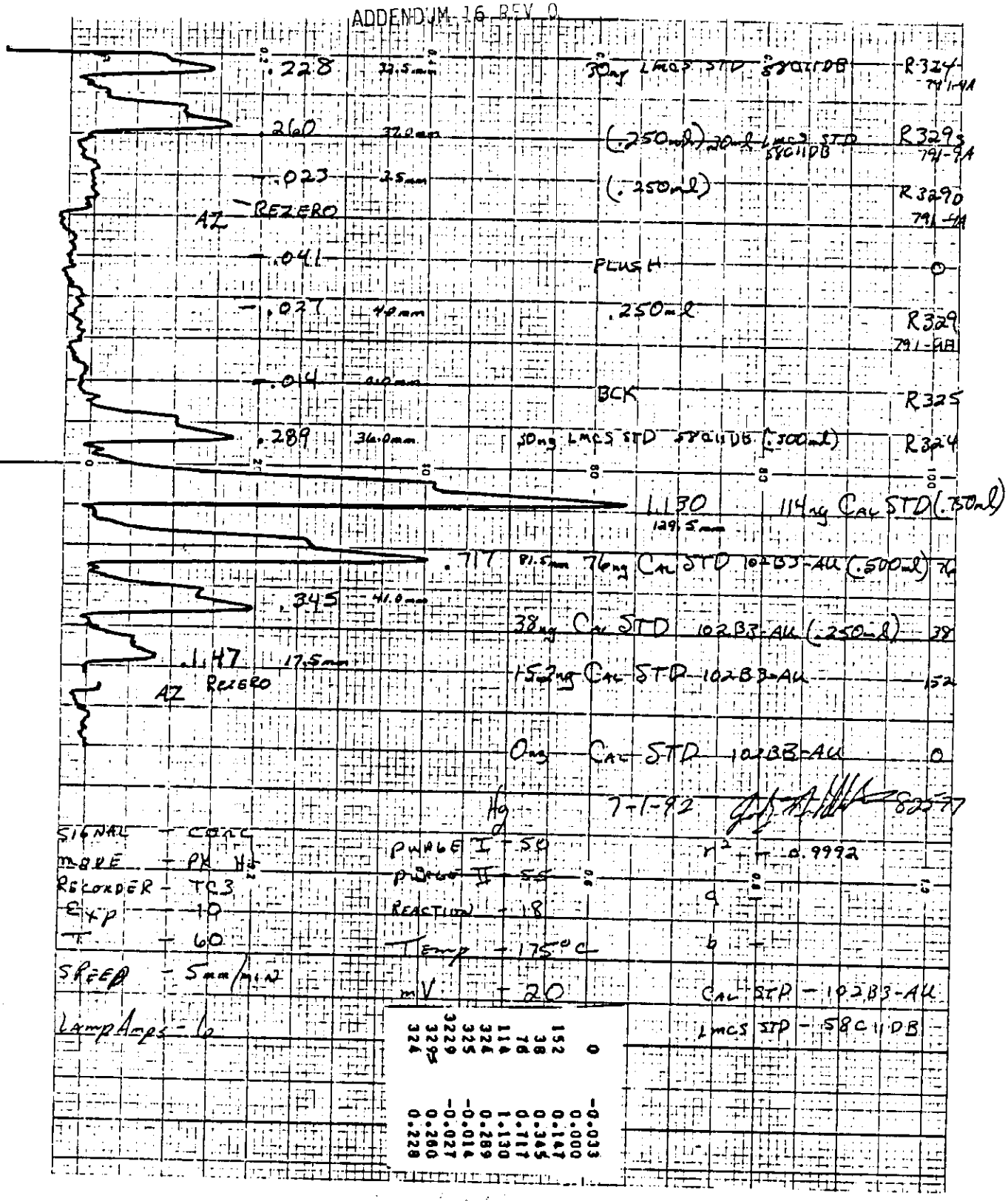


Chart No CP33102-0

PERKIN-ELMER

Chart No CP33102-0

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R329	Customer ID: 791-9A
Analysis: AMMONIA	Sample Prep: UNDIGESTED

Instrument: WB39927	Procedure/Rev: LA-634-102/D-0
Technologist: S. LAI	Date: 10-03-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5528	11		
2	REAGENT BLANK	R325-5628	12		
3	SAMPLE 791-9A	R329-5728	13		
4	FINAL LMCS CHECK STD	R331-5528	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	4C11-QQ/.250 mL			N/A

A-6000-881 (03/92)

AMMONIA ANALYSIS - UNDIGESTED SAMPLE

Sample No	Sample Point	Date	Time Issued	Priority
R 329.-5529	106AW	9-20-91	10:5	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
NH4	EA-634-102	% RECOVERY	WTEF	0

Sample Size: 250λ 0.09941N HCl
Customer ID: STD

Remarks, Calculations, Results:
5235 NH4Cl
STD# 4C11-88 RESULT 4.90x10^-2
STD VAL 5.10x10^-2 %REC 96.08%
(.250-.099)(.09941) / .250 = .099
STD: 150λ

Analyst: Sue Lin
Date: 10-3-91
Lab Unit Mgr: D M Roberts

Sample No	Sample Point	Date	Time Issued	Priority
R 329.-5628	106AW	9-20-91	10:7	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
NH4	EA-634-102	PPM	WTEF	

Sample Size: 1 ml 0.09941N HCl
Customer ID: REG BL

Remarks, Calculations, Results:
REAGENT BLANK
< (.010)(.09941) / 1 = <9.94x10^-4 M (4μ) blank: 28λ
blank: 28λ

Analyst: Sue Lin
Date: 10-3-91
Lab Unit Mgr: D M Roberts

Sample No	Sample Point	Date	Time Issued	Priority
R 329.-5729	106AW	9-20-91	10:20	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
NH4	EA-634-102	PPM	WTEF	0

Sample Size: 1 ml 0.09941N HCl
Customer ID: 291 98

Remarks, Calculations, Results:
(.030-.028)(.09941) / 1 = 2.19x10^-3 M
blank: 28λ
Sample: 50λ

Analyst: Sue Lin
Date: 10-3-91
Lab Unit Mgr: D M Roberts

Sample No	Sample Point	Date	Time Issued	Priority
R 331.-5528	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
NH4	EA-634-102	% RECOVERY	WTEF	0

Sample Size: 250λ 0.09941N HCl
Customer ID: STD

Remarks, Calculations, Results:
5235 NH4Cl
STD# 4C11-88 RESULT 4.93x10^-2
STD VAL 5.10x10^-2 %REC 96.67%
(.152-.028)(.09941) / .250 = .
STD: 152λ

Analyst: Sue Lin
Date: 10-3-91
Lab Unit Mgr: D M Roberts

9312333776

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R329	Customer ID: 791-9A
Analysis: DETERMINATION OF HYDROXIDE IONS IN SOLUTION	Sample Prep: UNDIGESTED

Instrument: FISHER - WA77509	Procedure/Rev: LA-661-102/F-1
Technologist: M. BIERMAN	Date: 10-15-91
Starting Time: NA	Temperature: 25degC
Ending Time: NA	Chemist: S. ISAACSON

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5529	11		
2	REAGENT BLANK	R325-5629	12		
3	SAMPLE 791-9A	R329-5729	13		
4	FINAL LMCS CHECK STD	R331-5529	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	9C11AF/0.100 mL			NA
SAMPLES RERUN.				

A-6000-881 (03/92)

9 3 1 2 3 3 1 7 7 7

DETERMINATION OF HYDROXIDE ION IN SOLUTION - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5529	106AW	9-20-91	10:5	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
OH	LA-661-102	% RE	W11F2	1

RERUN

Sample Size: ? .100 ml — Customer ID: STD

Remarks, Calculations, Results:
S273 ITS-OH
STD# 9C11AF RESULT 1.06E
STD VAL %REC 104.6%
1 ml BaCl
.1905 ml HNO3
(564-10)(.1905)/100 =

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
LC559				
MB				

Date: 10/15/91 — Time Completed — Lab Unit Mgr

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5629	106AW	9-20-91	10:7	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
OH	LA-661-102	M	W11F2	1

RERUN

Sample Size: ? 3 ml Q-H2O — Customer ID: REG DI

Remarks, Calculations, Results:
REAGENT BLANK
.1905 ml HNO3

complete

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
LC559				
MB				

Date: 10/15/91 — Time Completed — Lab Unit Mgr

Serial No	Sample Point	Date	Time Issued	Priority
R 329.-5729	106AW	9-20-91	10:21	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
OH	LA-661-102	M	W11F2	1

RERUN

Sample Size: ? .100 ml — Customer ID: 1 9A

Remarks, Calculations, Results:
1 ml BaCl
10 ml Q-H2O
Ito-OH (9C11AF) .100 ml
.1905 ml HNO3
(843-564)(.1905)/100 = 5.31E-1

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
LC559				
MB				

Date: 10/15/91 — Time Completed — Lab Unit Mgr

Serial No	Sample Point	Date	Time Issued	Priority
R 331.-5529	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
OH	LA-661-102	% RECOVERY	W11F2	1

RERUN

Sample Size: ? 100 ml — Customer ID: STD

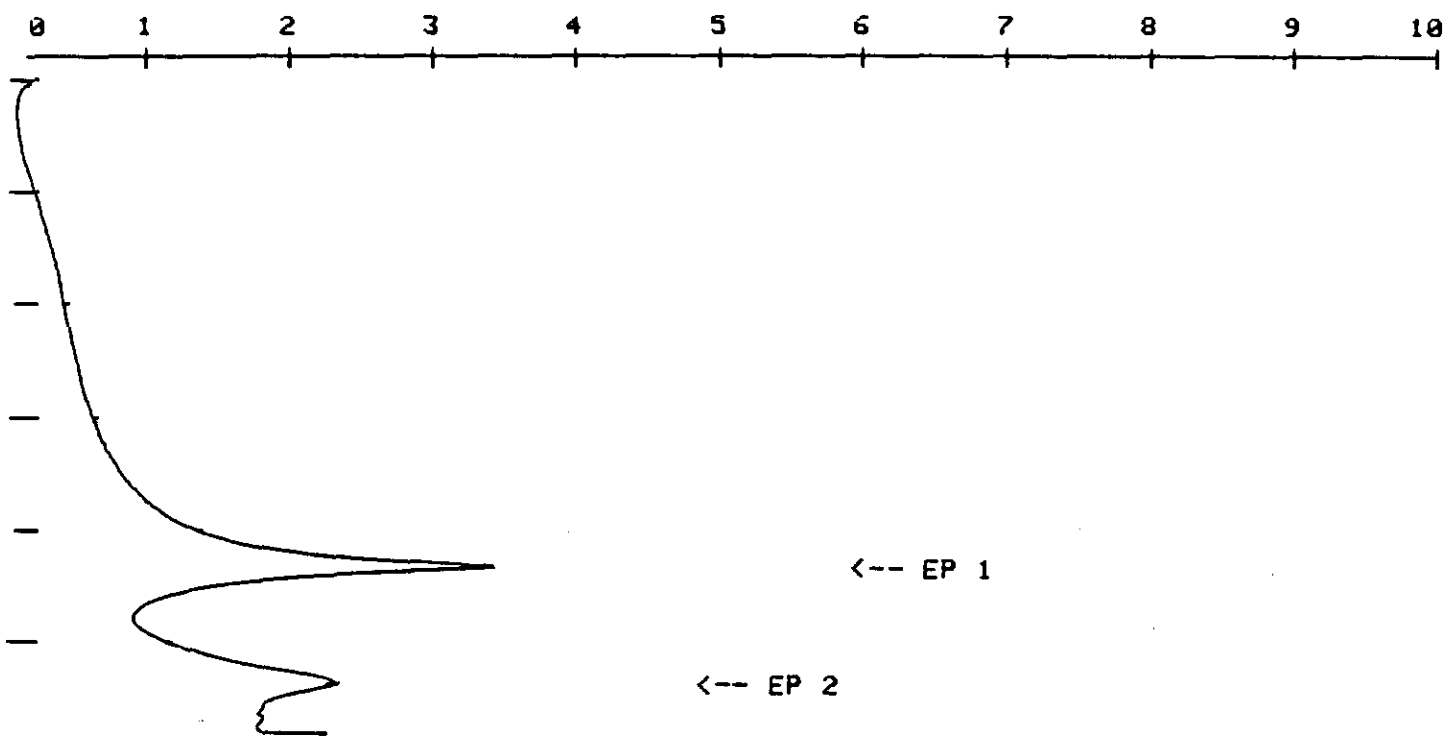
Remarks, Calculations, Results:
S273 ITS-OH
STD# 9C1AF RESULT 1.01E
STD VAL %REC 99.7%
1 ml BaCl
.1905 ml HNO3
(539-10)(.1905)/100 =

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
LC559				
MB				

Date: 10/15/91 — Time Completed — Lab Unit Mgr

SAMPLE NUMBER: 1
SAMPLE DATA: 331.
DIRECT READ PH: 11.974

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.64	0.539	0.0000
8.15	0.671	0.0000

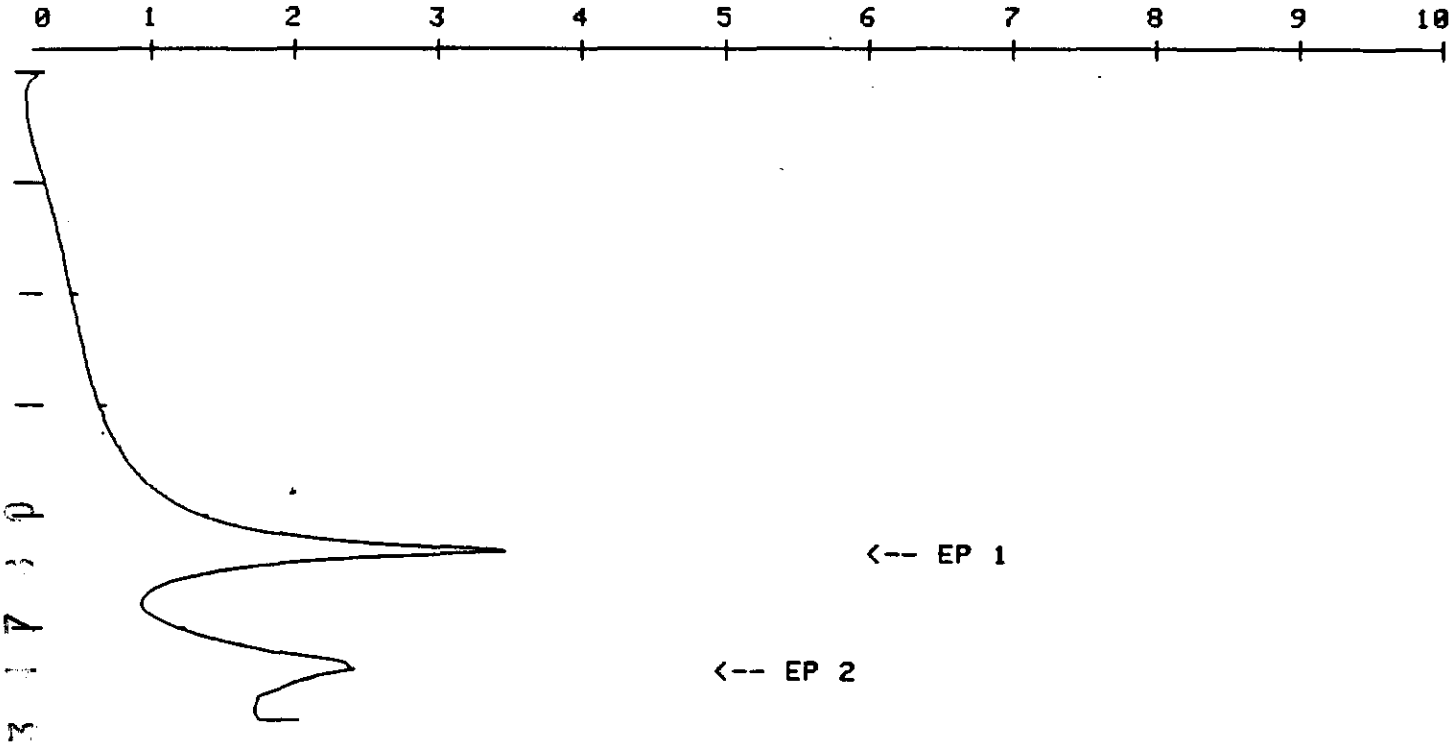
TITRATION TERMINATED BY PH LIMIT.

OCT 15 1991 9:53 PM

SAMPLE NUMBER: 2
SAMPLE DATA: 331.
DIRECT READ PH: 12.015

WHC-SD-WM-DP-025
Addendum 16 Rev 0

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

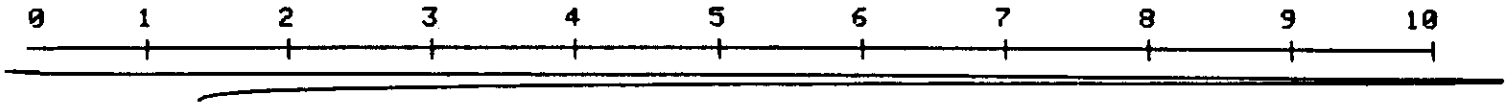
EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.64	0.539	0.0000
8.01	0.671	0.0000

TITRATION TERMINATED BY PH LIMIT.

OCT 15 1991 9:59 PM

SAMPLE NUMBER: 1
SAMPLE DATA: 325.
DIRECT READ PH: 6.116

DERIVATIVE OUTPUT, dE/dV



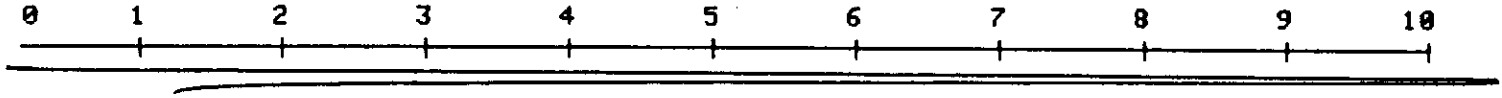
DRV TITRATION: .010

TITRATION TERMINATED BY PH LIMIT.

OCT 15 1991 6:49 PM

SAMPLE NUMBER: 2
SAMPLE DATA: 325.
DIRECT READ PH: 6.073

DERIVATIVE OUTPUT, dE/dV



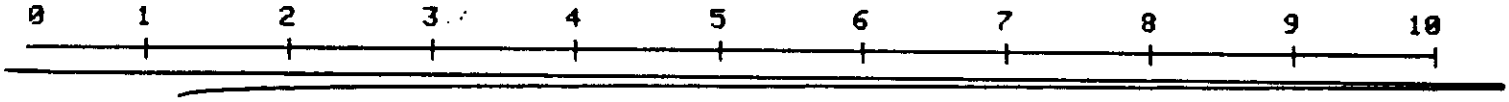
DRV TITRATION: .010

TITRATION TERMINATED BY PH LIMIT.

OCT 15 1991 6:51 PM

SAMPLE NUMBER: 3
SAMPLE DATA: 325.
DIRECT READ PH: 6.020

DERIVATIVE OUTPUT, dE/dV

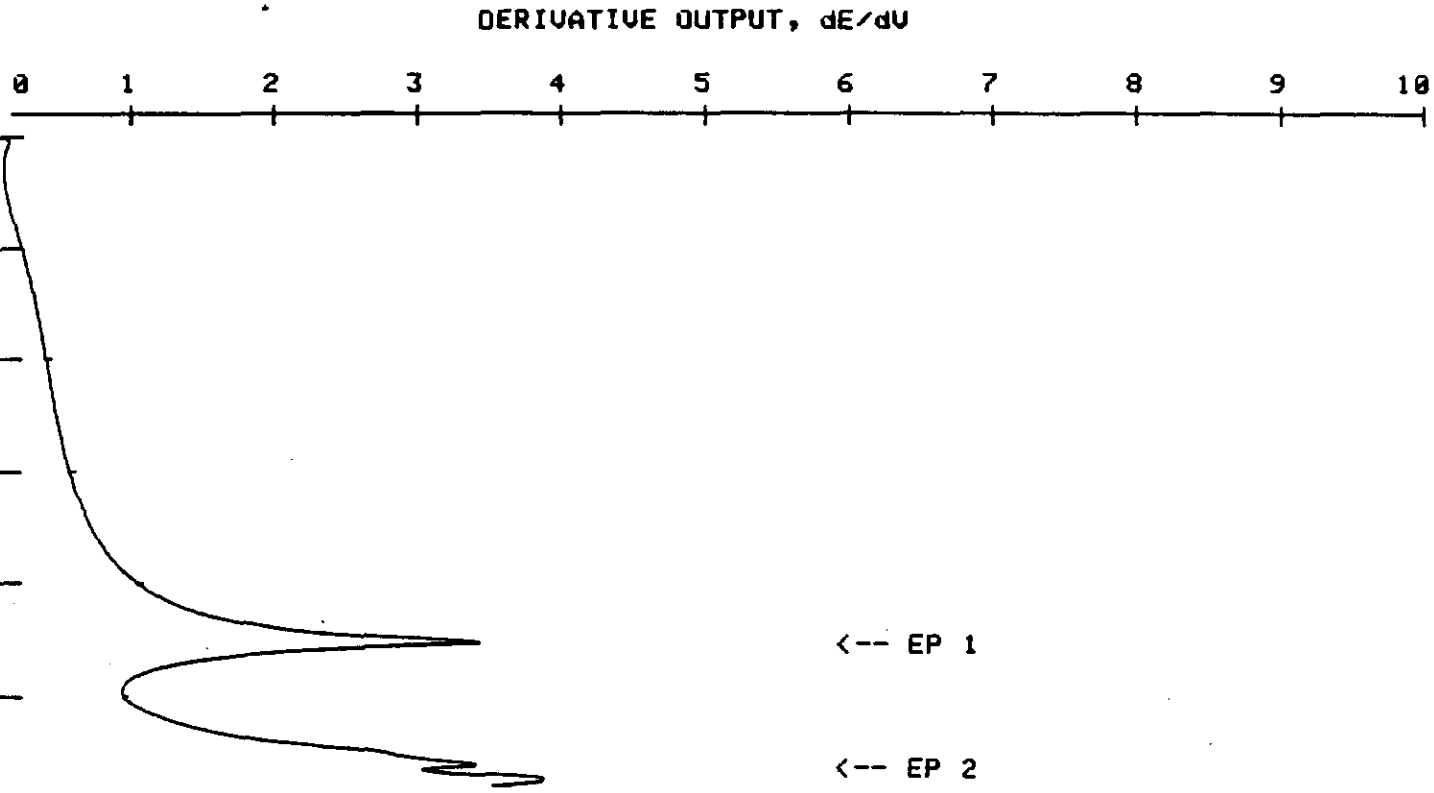


DRV TITRATION: .010

TITRATION TERMINATED BY PH LIMIT.

OCT 15 1991 6:53 PM

SAMPLE NUMBER: 1
SAMPLE DATA: 324.
DIRECT READ PH: 12.015



DRV TITRATION:

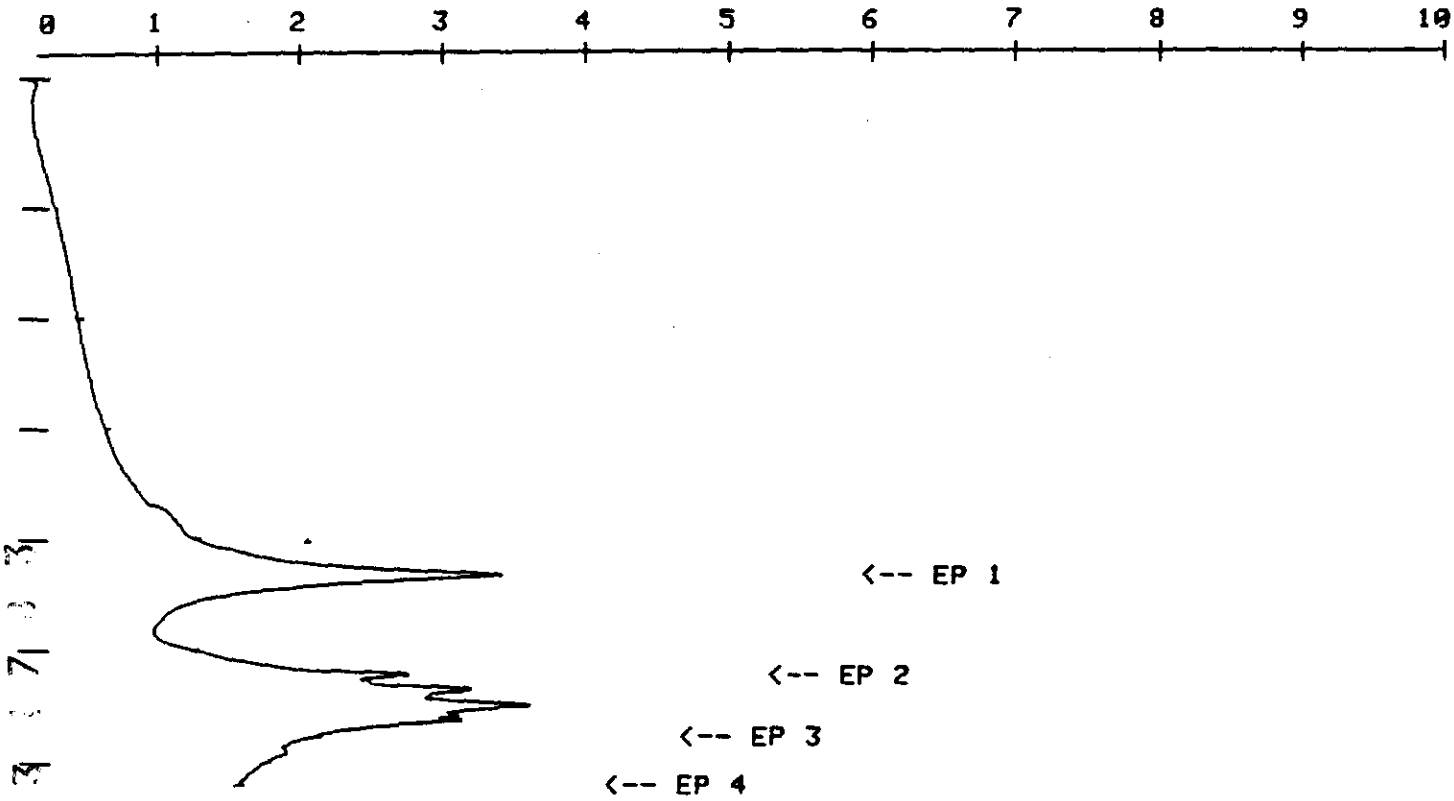
EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.63	0.564	0.0000
7.04	0.701	0.0000

TITRATION TERMINATED BY PH LIMIT.

OCT 15 1991 4:30 PM

SAMPLE WRIM: 329.
DIRECT READ PH: 12.020

DERIVATIVE OUTPUT, dE/dV



RV TITRATION:

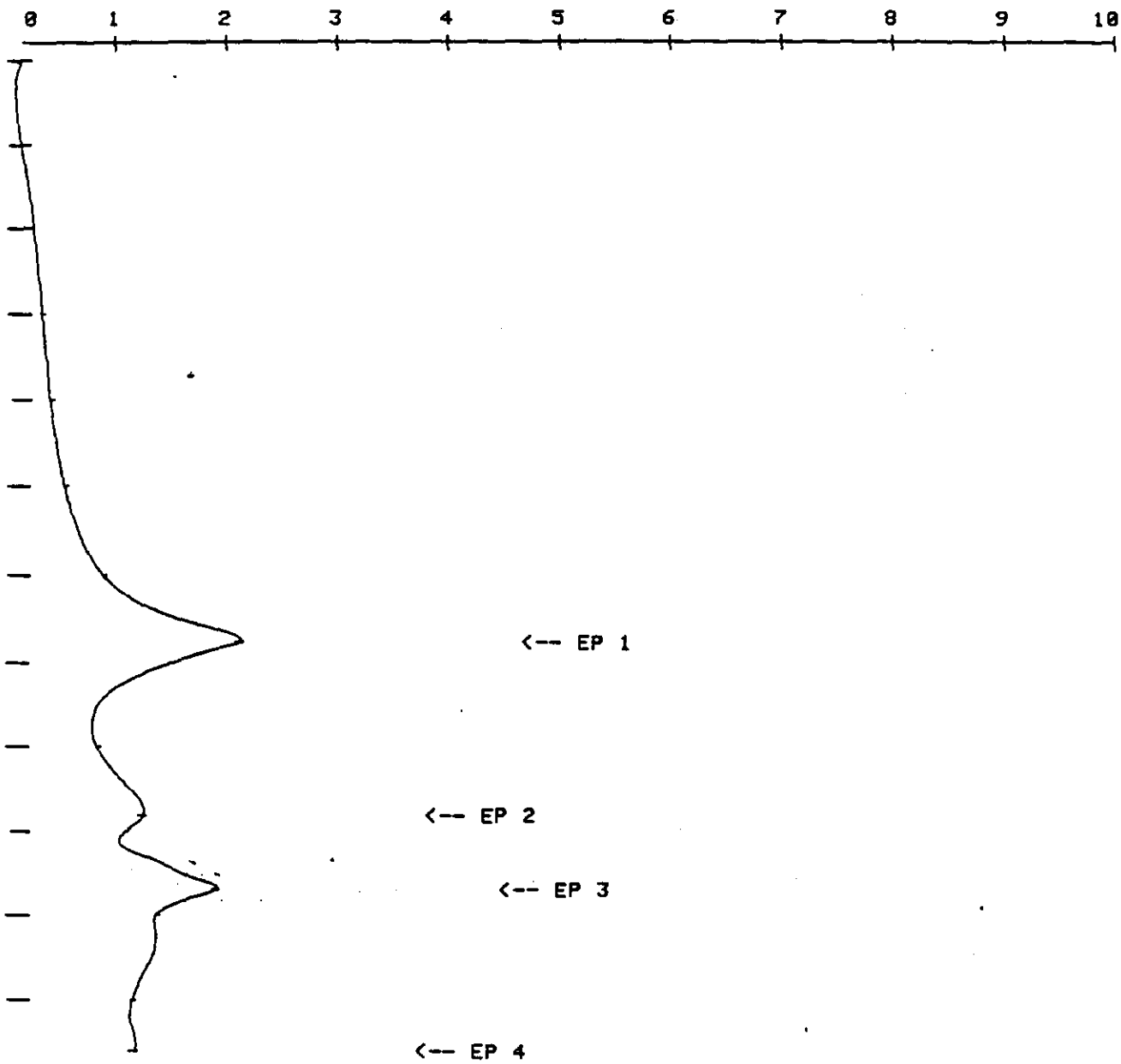
EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.65	0.563	0.0000
8.31	0.674	0.0000
4.86	0.740	0.0000
4.04	0.793	0.0000

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

OCT 15 1991 4:37 PM

SAMPLE NUMBER: 1
SAMPLE DATA: 329.
DIRECT READ PH: 11.879

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

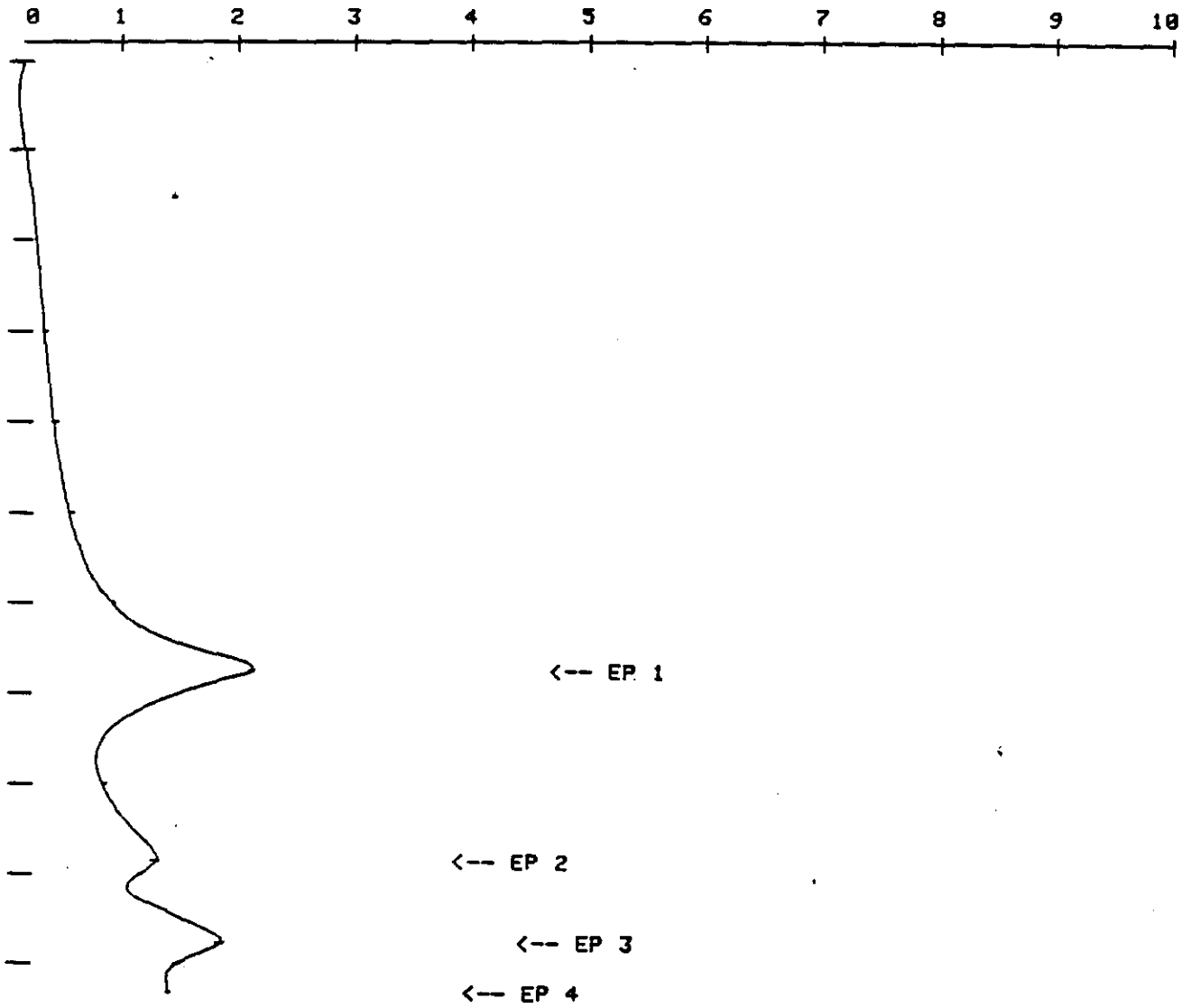
EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.78	0.844	0.0000
8.39	1.101	0.0000
7.33	1.210	0.0000
5.57	1.448	0.0000

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

OCT 15 1991 7:43 PM

SAMPLE NUMBER: 2
SAMPLE DATA: 329.
DIRECT READ PH: 11.909

DERIVATIVE OUTPUT, dE/dV

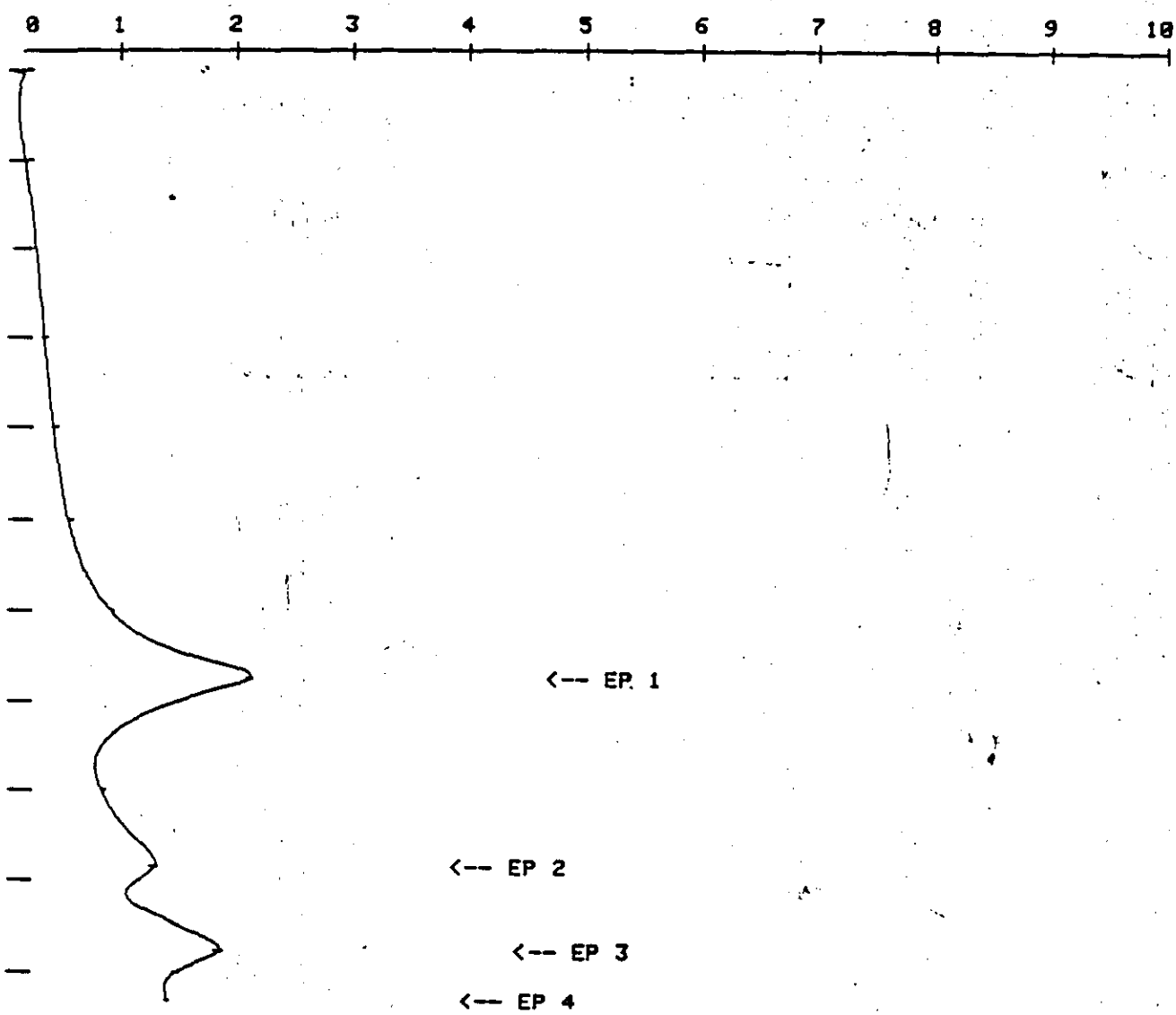


DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.79	0.843	0.0000
8.37	1.105	0.0000
7.29	1.219	0.0000
6.62	1.288	0.0000

SAMPLE NUMBER: 2
SAMPLE DATA: 329.
DIRECT READ PH: 11.909

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.79	0.843	0.0000
8.37	1.105	0.0000
7.29	1.219	0.0000
6.62	1.288	0.0000

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R329	Customer ID: 791-9A
Analysis: SELENIUM	Sample Prep: UNDIGESTED

Instrument: PERKIN ELMER - WA77479	Procedure/Rev: LA-365-131/B-1
Technologist: M. MYERS	Date: 09-24-91
Starting Time: 8:00	Temperature: NA
Ending Time: 11:30	Chemist: K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5596	11		
2	REAGENT BLANK	R325-5696	12		
3	SAMPLE 791-9A	R329-5796	13		
4	FINAL LMCS CHECK STD	R331-5596	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	125B38A/0.500 mL			N/A

A-6000-881 (03/92)

SELENIUM ANALYSIS - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5596	106AW	9-20-91	10: 6	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
Se	LA-365-131	% RECOVERY	WITE2	0

Sample Size	Customer ID
.500 ml	STD

Remarks, Calculations, Results
EDF R/43 SE/HYDRD
STD#125B38A RESULT 1.08E-1
STD VAL 1.00E-1 %REC 108.0%
0.932
54.12ng / 500 = 1.08E-1

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				
Date 9-24-91	Time Completed	Lab Unit Mgr		

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5696	106AW	9-20-91	10: 0	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
Se	LA-365-131	PPM	WITE2	0

Sample Size	Customer ID
1.0 ml	REG BL

Remarks, Calculations, Results
REAGENT BLANK
-0.046
<5ng / 1000 = <5.00E-3 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				
Date 9-24-91	Time Completed	Lab Unit Mgr		

Serial No	Sample Point	Date	Time Issued	Priority
R 329.-5796	106AW	9-20-91	10:21	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
Se	LA-365-131	PPM	WITE2	0

Sample Size	Customer ID
.500 ml	291 9A

Remarks, Calculations, Results
0.061
<5ng / 500 = <1.00E-2 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				
Date 9-24-91	Time Completed	Lab Unit Mgr		

Serial No	Sample Point	Date	Time Issued	Priority
R 331. 5596	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
Se	LA-365-131	% RECOVERY	WITE2	0

Sample Size	Customer ID
.500 ml	STD

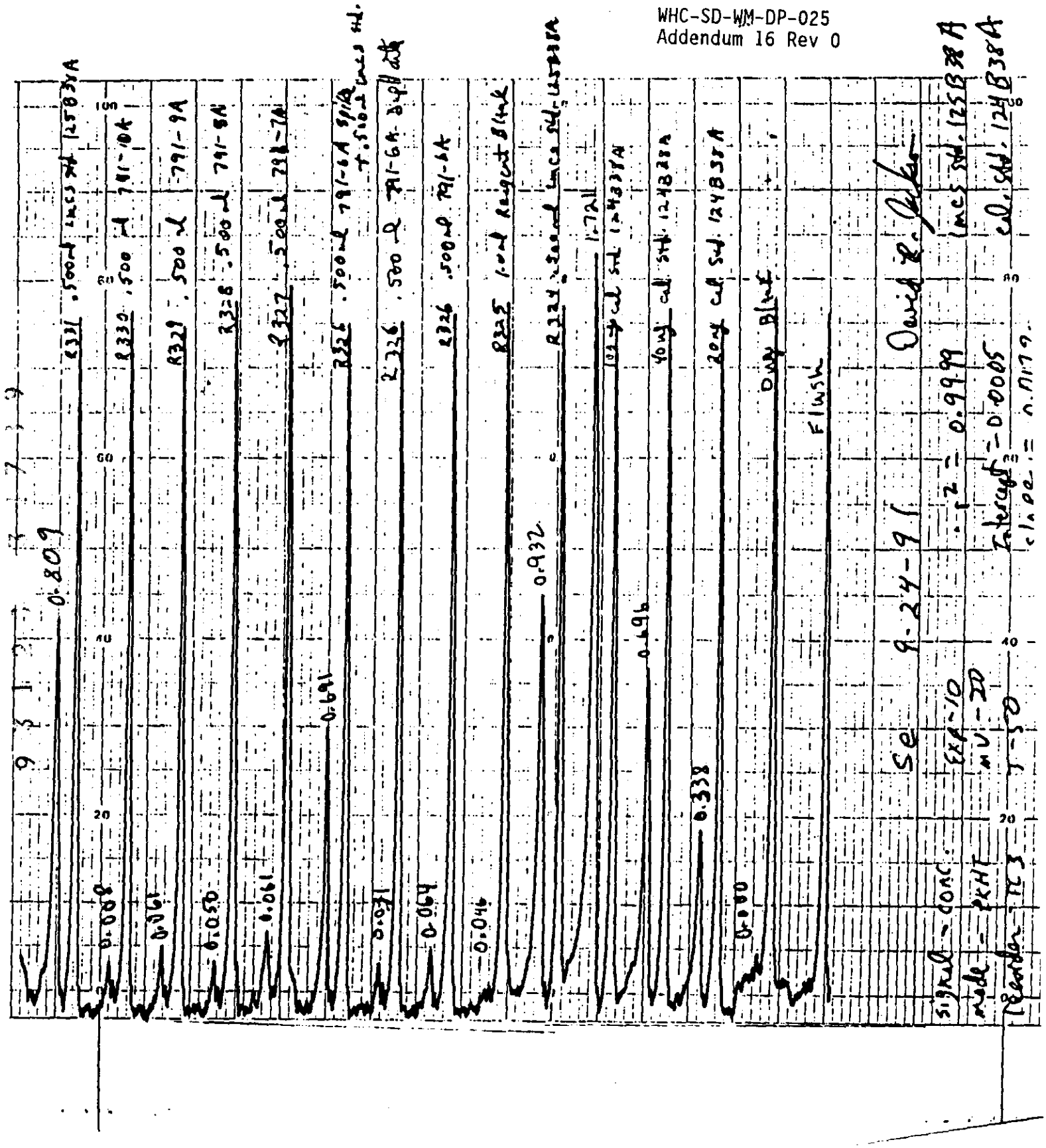
Remarks, Calculations, Results
EDF R/43 SE/HYDRD
STD#125B38A RESULT 9.396E-2
STD VAL 1.00E-1 %REC 94.0%
0.809 46.98ng

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				
Date 9-24-91	Time Completed	Lab Unit Mgr		

PERKIN-ELMER

Chart No. CP33402-0

WHC-SD-WM-DP-025
Addendum 16 Rev 0



WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
CALIBRATION RECORD

Analyte:	Se				
Procedure:	LA-365-131	Revision:	B-1		
Instrument:	PERKIN-ELMER	Property No.:	WA77479		
Technologist:	D. R. JACKSON	Payroll No.:	6C275	Date:	09-24-91

Calibration Standard: 124B38A
Analyte Concentration: 0.1000 ppm
Type of Calibration: LINEAR

	Dilution	Concentration	Instrument Reading Unit
1	0.000 mL	0.0 ng	0.000
2	0.200 mL	20.0 ng	0.338
3	0.400 mL	40.0 ng	0.696
4	1.000 mL	100.0 ng	1.721
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Comments:

A-6000-882 (03

9312153.7790

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R329	Customer ID: 791-9A
Analysis: SPECIFIC GRAVITY	Sample Prep: UNDIGESTED

Instrument: WA90787	Procedure/Rev: LA-510-112/C-2
Technologist: L. TEMPLE	Date: 10-24-91
Starting Time: 09:30	Temperature: N/A
Ending Time: 11:20	Chemist: R. K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5506	11		
2	REAGENT BLANK	R325-5606	12		
3	SAMPLE 791-9A	R329-5706	13		
4	FINAL LMCS CHECK STD	R331-5506	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	15C11BJ/.20019 mL			N/A
SAMPLES RERUN.				

A-6000-881 (03/92)

9 3 1 2 3 3 7 9 1

SPECIFIC GRAVITY ANALYSIS - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5506	106AW	9-20-91	10:5	25

Determination	Method Standard	Result Units	Charge Code	Remarks
SPG	LA-510-112	% REC	W1TE2	1

RERUN

Sample Size: ? 200.19 g
Customer ID: STD

Remarks, Calculations, Results:
S332 7HCL2
STDN 15C11-BJ RESULT 1.402
STD VAL 1.438C %REC 97.5%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
81808				

Date: 10-24-91

#1 W_1 = 1.9083, W_2 = 2.1914 → .2831

#2 W_1 = 1.9553, W_2 = 2.2335 → .2782

R324-5506

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5606	106AW	9-20-91	10:7	25

Determination	Method Standard	Result Units	Charge Code	Remarks
SPG	LA-510-112		W1TE2	1

RERUN

Sample Size: ? 200.19 g
Customer ID: REG BL

Remarks, Calculations, Results:
REAGENT BLANK
1.0123

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
81808				

Date: 10-24-91

#1 1.9385 - W_1 - 1.8845 #2
2.1495 - W_2 - 2.0788
.2110 .1943

R325-5606

Serial No	Sample Point	Date	Time Issued	Priority
R 329.-5706	106AW	9-20-91	10:20	25

Determination	Method Standard	Result Units	Charge Code	Remarks
SPG	LA-510-112			1

RERUN

Sample Size: ? 200.19 g
Customer ID: 791-90

Remarks, Calculations, Results:
1.0747

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
81808				

Date: 10-24-91

#1 1.9017 - W_1 - 1.9225 #2 R329-5706
2.1142 - W_2 - 2.1403
.2125 .2178

SPECIFIC GRAVITY ANALYSIS - UNDIGESTED SAMPLE

Sample No.	Sample Point	Date	Time Issued	Priority
R 331.-5506	106AW	9-20-91	10:25	25

RERUN

Determination	Method Standard	Result Units		Revision
SPG	LA-510-112	% RECOVERY	WTT	1

Sample Size	Customer ID
7 200.19 λ	STD

Remarks, Calculations, Results

9332 ZNCL2

STD#ISCH-BT RESULT 1.4137

STD VAL 1.4386 %REC 98.3%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
81808				
[signature]			[signature]	

Date	Time Completed	Time Unit Use
10-24-91		[signature]

Samples Left on Ice Box

#1 #2

1.9257 $-W_1-$ 1.9098

2.2090 $-W_2-$ 2.1925

.0833 .0827

R331-5506

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R329	Customer ID: 791-9A
Analysis: TOTAL INORGANIC CARBON	Sample Prep: UNDIGESTED

Instrument: WB39927	Procedure/Rev: LA-622-102/B-0
Technologist: M. MYERS	Date: 09-26-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5527	11		
2	REAGENT BLANK	R325-5627	12		
3	SAMPLE 791-9A	R329-5727	13		
4	FINAL LMCS CHECK STD	R331-5527	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	69C11K/0.050 mL			NA

A-6000-881 (03/92)

TOTAL INORGANIC CARBON ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.-5527	106AW	9-20-91	10: 5	25

Determination	Method/Standard	Result Units	Charge Code	Rerunn
TIC	LA-622-102	% RECOVERY	W1TE2	0

Sample Size	Customer ID
? .050mL	STD

Remarks, Calculations, Results:
S223 CO3
STD# 69C11K RESULT 2.000E-1
STD VAL 2.000E-1 % REC 100.0%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
Hrs 6C823	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
9-26-91		[signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.-5627	106AW	9-20-91	10: 7	25

Determination	Method/Standard	Result Units	Charge Code	Rerunn
TIC	LA-622-102	G/L	W1TE2	0

Sample Size	Customer ID
? ~~DIRECT~~ DYB 6/30/92 .050mL	REG BL

Remarks, Calculations, Results:
REAGENT BLANK
~~7.99E-1 g/L/minute~~ 5.60 ug C DYB 6/30/92

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				DYBiscuius
Hrs 6C823	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
9-26-91		[signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 329.-5727	106AW	9-20-91	10:20	25

Determination	Method/Standard	Result Units	Charge Code	Rerunn
TIC	LA-622-102	G/L	W1TE2	0

Sample Size	Customer ID
? .050mL	791-9A

Remarks, Calculations, Results:
2.15 g/L

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
Hrs 6C823	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
9-26-91		[signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.-5527	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Rerunn
TIC	LA-622-102	% RECOVERY	W1TE2	0

Sample Size	Customer ID
? .050mL	STD

Remarks, Calculations, Results:
S223 CO3
STD# 69C11K RESULT ~~2.05E-1~~ DYB 6/30/92 2.05E-1
STD VAL 2.00E-1 % REC ~~102.4%~~ DYB 6/30/92 102.5%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				DYBiscuius
Hrs 6C823	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
9-26-91		[signature]

9312131795

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: BLANK Date: 09-26-1991 Time: 00:20:54

Blank = N/A Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	1.60	100.00
3	3.01	2.30	30.43
4	4.00	3.00	23.33
5	5.01	3.70	18.92
6	6.01	4.50	17.78
7	7.01	5.10	11.76

BLANK VALUE = 5.1 / 7.005665 = .7279823 g/L/minute

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R324 Date: 09-26-1991 Time: 00:32:57

Blank = .7279823 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.00	88.40	100.00
3	3.01	112.20	21.21
4	4.00	120.10	6.58
5	5.00	122.90	2.28
6	6.01	124.20	1.05
7	7.00	125.10	0.72

(125.1 - 5.099395)(1)/(50) = 2.400012 g/L Carbon

(125.1 - 5.099395)(1)/(50)(12) = .200001 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R325 Date: 09-26-1991 Time: 00:40:41

Blank = .7279823 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	2.00	100.00
3	3.01	2.90	31.03
4	4.01	3.70	21.62
5	5.01	4.30	13.95
6	6.01	5.00	14.00
7	7.01	5.60	10.71

(5.6 - 5.100003)(1)/(50) = 9.999943E-03 g/L Carbon

(5.6 - 5.100003)(1)/(50)(12) = 8.333286E-04 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R331 Date: 09-26-1991 Time: 03:40:02

Blank = .7279823 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	71.90	100.00
3	3.01	105.10	31.59
4	4.01	119.50	12.05
5	5.01	125.10	4.48
6	6.01	127.50	1.88
7	7.00	128.60	0.86

(128.6 - 5.099386)(1)/(50) = 2.470013 g/L Carbon

(128.6 - 5.099386)(1)/(50)(12) = .2058344 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R329 Date: 09-26-1991 Time: 03:05:12

Blank = .7279823 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	58.50	100.00
3	3.01	86.70	32.53
4	4.01	100.90	14.07
5	5.01	107.60	6.23
6	6.01	110.90	2.98
7	7.01	112.60	1.51

(112.6 - 5.100008)(1)/(50) = 2.15 g/L Carbon

(112.6 - 5.100008)(1)/(50)(12) = .1791667 Molar Carbon

Sample Run By: 6C823_____

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R329	Customer ID: 791-9A
Analysis: TOTAL ORGANIC CARBON	Sample Prep: UNDIGESTED

Instrument: MODEL 5011 - WC16130	Procedure/Rev: LA-344-105/B-0
Technologist: M. MYERS	Date: 9-26-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5526	11		
2	REAGENT BLANK	R325-5626	12		
3	SAMPLE 791-9A	R329-5726	13		
4	FINAL LMCS CHECK STD	R331-5526	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	70C11I/0.2 mL			NA

A-6000-881 (03/92)

TOTAL ORGANIC CARBON ANALYSIS - UNDIGESTED SAMPLE

Serial No: 324-5526 | Sample Point: 106AW | Date: 9-20-91 | Time Issued: 10:5 | Priority: 25
Parameter: TOC | Method Standard: EPA 9060 | Result Units: % RECOVERY | Charge Code: WTE2 | Remark: 0
Sample Size: .700ml - 2ml - .200ml | Customer ID: STD
Remarks, Calculations, Results: 5356 COSTOC
STDH 70GLI RESULT 2.95
STD VAL 3.006 %REC 98.340
Analyst: 1 | Analyst: 2 | Analyst: 3 | Analyst: 4 | Analyst: 5
Date: 9-26-91

Serial No: 325-5626 | Sample Point: 106AW | Date: 9-20-91 | Time Issued: 10:7 | Priority: 25
Parameter: TOC | Method Standard: EPA 9060 | Result Units: G/L | Charge Code: WTE2 | Remark: 0
Sample Size: PROJECT DUPLICATE .200 mL | Customer ID: SLD DU
Remarks, Calculations, Results: SLD DU
8.10 mg C
~~4.71E-1 g/L~~
DHP 6/30/92
Analyst: 1 | Analyst: 2 | Analyst: 3 | Analyst: 4 | Analyst: 5 DHP
Date: 9-26-91

Serial No: 329-5726 | Sample Point: 106AW | Date: 9-20-91 | Time Issued: 10:20 | Priority: 25
Parameter: TOC | Method Standard: EPA 9060 | Result Units: G/L | Charge Code: WTE2 | Remark: 0
Sample Size: .200ml - 2ml - .200ml | Customer ID: 791 SD
Remarks, Calculations, Results: 9.46E-1 g/L
Analyst: 1 | Analyst: 2 | Analyst: 3 | Analyst: 4 | Analyst: 5
Date: 9-26-91

Serial No: 331-5526 | Sample Point: 106AW | Date: 9-20-91 | Time Issued: 10:25 | Priority: 25
Parameter: TOC | Method Standard: EPA 9060 | Result Units: % RECOVERY | Charge Code: WTE2 | Remark: 0
Sample Size: .700ml - 2ml - .200ml | Customer ID: STD
Remarks, Calculations, Results: 5356 COSTOC
STDH 70GLI RESULT ~~2.96~~ 3.003 g/L C
DHP 6/30/92
STD VAL 3.0 %REC ~~99.0779~~
DHP 6/30/92 100.1%
Purchased with 3.0998
Analyst: 1 | Analyst: 2 | Analyst: 3 | Analyst: 4 | Analyst: 5 DHP
Date: 9-26-91

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R324 Date: 09-26-1991 Time: 01:53:19

Blank = .4709794 Sample Size = 200 Dilution Factor = 11
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	13.70	100.00
3	3.01	43.70	68.65
4	4.01	51.90	15.80
5	5.01	54.90	5.46
6	6.01	56.20	2.31
7	7.01	56.90	1.23

(56.9 - 3.299598)(11)/(200) = 2.948022 g/L Carbon

(56.9 - 3.299598)(11)/(200)(12) = .2456685 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: BLANK Date: 09-26-1991 Time: 01:20:10

Blank = N/A Sample Size = 200 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.40	100.00
2	2.01	0.50	20.00
3	3.01	1.30	61.54
4	4.01	2.00	35.00
5	5.01	2.50	20.00
6	6.01	2.90	13.79
7	7.01	3.30	12.12

BLANK VALUE = 3.3 / 7.006676 = .4709794 g/L/minute

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R325 Date: 09-26-1991 Time: 02:01:54

Blank = .4709794 Sample Size = 200 Dilution Factor = ~~1~~ 1 9/26/91
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	0.80	100.00
3	3.01	1.50	46.67
4	4.01	2.00	25.00
5	5.01	2.40	16.67
6	6.01	2.80	14.29
7	7.01	3.10	9.68

CORRECTED DF 1.0998023

(3.1 - 3.299605)(11)/(200) = -1.097826E-02 g/L Carbon

(3.1 - 3.299605)(11)/(200)(12) = -9.148551E-04 Molar Carbon

Sample Run By: 6C823

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R3298 9/26/91 Date: 09-26-1991 Time: 04:34:54

Blank = .4709794 Sample Size = 200 Dilution Factor = 11
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	0.80	100.00
3	3.01	12.20	93.44
4	4.01	17.30	29.48
5	5.01	18.90	8.47
6	6.01	19.90	5.03
7	7.01	20.50	2.93

(20.5 - 3.299616)(11)/(200) = .9460211 g/L Carbon

(20.5 - 3.299616)(11)/(200)(12) = .0788351 Molar Carbon

Sample Run By: 6C823_____

BATCH WITH R9998

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R331 Date: 09-26-1991 Time: 04:58:31

Blank = .4709794 Sample Size = 200 Dilution Factor = 11
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	8.30	100.00
3	3.01	44.40	81.31
4	4.01	53.20	16.54
5	5.01	55.90	4.83
6	6.01	57.00	1.93
7	7.01	57.70	1.21

(57.7 - 3.299989)(11)/(200) = 2.992 g/L Carbon

(57.7 - 3.299989)(11)/(200)(12) = .2493334 Molar Carbon

Sample Run By: 6C823

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R329	Customer ID: 791-9A
Analysis: ION CHROMATOGRAPHIC - SULFATE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-04-91
Starting Time: 20:46	Temperature: 24-25degC
Ending Time: 23:36	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5575	11		
2	REAGENT BLANK	R325-5675	12		
3	SAMPLE 791-9A	R329-5775	13		
4	FINAL LMCS CHECK STD	R331-5575	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL - 10 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (SULFATE) - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5575	106AW	9-20-91	10: 6	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
SO4	EA-533-105	% RECOVERY	W11E2	0

Sample Size: ? .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R970 DIONEX
STDN 73C11CO RESULT 56544 ppm
STD VAL 610 ppm %REC 92.7%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
10-4-91				

Date: 10-4-91
Time Completed:
Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5675	106AW	9-20-91	10: 11	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
SO4	EA-533-105	PPM	W11E2	0

Sample Size: ? DIRECT
Customer ID: PPM DI

Remarks, Calculations, Results:
REAGENT BLANK

<1.00 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
6C823				

Date: 10-4-91
Time Completed:
Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 329.-5775	106AW	9-20-91	10:21	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
SO4	EA-533-105	PPM	W11E2	0

Sample Size: ? .050ml - 10ml
Customer ID: 791 9A

Remarks, Calculations, Results:

2.35 E 3 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
6C823				

Date: 10-4-91
Time Completed:
Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 331.-5575	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
SO4	EA-533-105	% RECOVERY	W11E2	0

Sample Size: ? .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R970 DIONEX
STDN 73C11CO RESULT 61 569.9
STD VAL 610 ppm %REC 93.4%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
6C823				

Date: 10-4-91
Time Completed:
Lab Unit Mgr: [signature]

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R329	Customer ID: 791-9A
Analysis: ION CHROMATOGRAPHIC - PHOSPHATE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-04-91
Starting Time: 20:46	Temperature: 24-25degC
Ending Time: 23:36	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5574	11		
2	REAGENT BLANK	R325-5674	12		
3	SAMPLE 791-9A	R329-5774	13		
4	FINAL LMCS CHECK STD	R331-5574	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (PHOSPHATE) - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5574	106AW	9-20-91	10: 6	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
PO4	EA-533-105	% RECOVERY	W11E2	0

Sample Size: 100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R976 DIONEX
STDN 73CUCO RESULT ~~583.15~~ 510.5
STD VAL 517 ppm %REC ~~112.8%~~ 98.8%
~~CR #~~ 10-09-91 KOT

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				[signature]
60823				

Date: 10-4-91 Time Completed: Lab Use Only: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5674	106AW	9-20-91	10: 0	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
PO4	EA-533-105	PPM	W11E2	0

Sample Size: DIRECT
Customer ID: REG BL

Remarks, Calculations, Results:
REAGENT BLANK
<1.00 ppm
~~out for rerun~~ KST 10-09-91

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				[signature]
60823				

Date: 10-4-91 Time Completed: Lab Use Only: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 327.-5774	106AW	9-20-91	10:21	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
PO4	EA-533-105	PPM	W11E2	0

Sample Size: 050ml - 10ml
Customer ID: 291 9A

Remarks, Calculations, Results:
~~Out for Rerun~~ KST 10-09-91
5.84E² ppm

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				[signature]
60823				

Date: 10-4-91 Time Completed: Lab Use Only: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 331. 5574	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
PO4	EA-533-105	% RECOVERY	W11E2	0

Sample Size: 100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R976 DIONEX
STDN 73CUCO RESULT 517
STD VAL 510 %REC 98.9%
~~Out for Rerun~~ 10-10-91

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
[signature]				[signature]
60823				

Date: 10-4-91 Time Completed: Lab Use Only: [signature]

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R329	Customer ID: 791-9A
Analysis: ION CHROMATOGRAPHIC - CHLORIDE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-04-91
Starting Time: 20:46	Temperature: 24-25degC
Ending Time: 23:36	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5572	11		
2	REAGENT BLANK	R325-5672	12		
3	SAMPLE 791-9A	R329-5772	13		
4	FINAL LMCS CHECK STD	R331-5572	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (CHLORIDE) - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5572	106AW	9-20-91	10: 5	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
CL	EA-533-105	% RECOVERY	WITE2	0

Sample Size	Customer ID
? .100ml - 10ml	STD

Remarks, Calculations, Results
EDP R972 DIONEX
STDH 73C11C0 RESULT 71.429 ppm
STD VAL 75ppm %REC 95.2%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
6CB23				[signature]

Date	Time Completed	Lab Unit Mgr
10-4-91		[signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5672	106AW	9-20-91	10: 8	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
CL	EA 533 105	PPM	WITE2	

Sample Size	Customer ID
? DIRECT	REG 10

Remarks, Calculations, Results
REAGENT BLANK

<1.00 E^{-1} ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
6CB23				

Date	Time Completed	Lab Unit Mgr
10-4-91		[signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 329.-5772	106AW	9-20-91	10:21	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
CL	EA 533-105	PPM	WITE2	0

Sample Size	Customer ID
? .050ml - 10ml	291-9A

Remarks, Calculations, Results

4.50 E^{2} ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
6CB23				

Date	Time Completed	Lab Unit Mgr
10-4-91		[signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 331.-5572	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
CL	EA 533-105	% RECOVERY	WITE2	0

Sample Size	Customer ID
? .100ml - 10ml	STD

Remarks, Calculations, Results
EDP R972 DIONEX
STDH 73C11C0 RESULT 70.914 ppm
STD VAL 75ppm %REC 94.6%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
6CB23				[signature]

Date	Time Completed	Lab Unit Mgr
10-4-91		[signature]

R323 7 8A
R324

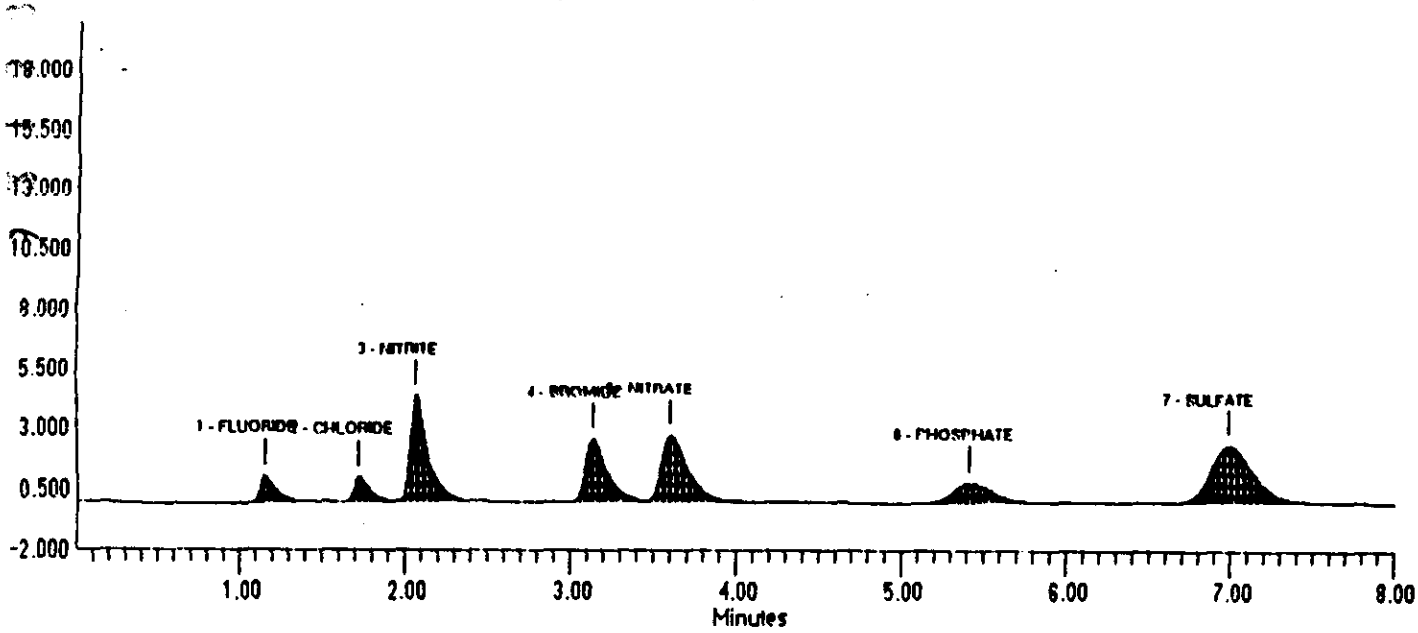
DATA REPROCESSED ON Fri Oct 04 22:45:26 1991

Sample Name: LMCS/73C1100 R324 Date: Fri Oct 04 22:10:28 1991
Data File : C:\DX\DATA\91100411.D12
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 12 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.15	FLUORIDE	52.107	1076	7152	1	0.00
2	1.72	CHLORIDE	71.429	993	6636	2	-0.48
3	2.07	NITRITE	487.247	4387	32321	2	0.33
4	3.13	BROMIDE	475.164	2556	23546	2	1.24
5	3.60	NITRATE	524.183	2723	30545	2	7.51
6	5.42	PHOSPHATE	510.540	821	12909	1	0.40
7	6.98	SULFATE	565.442	2341	41638	1	0.47

File: C:\DX\DATA\91100411.D12 Sample: LMCS/73C1100

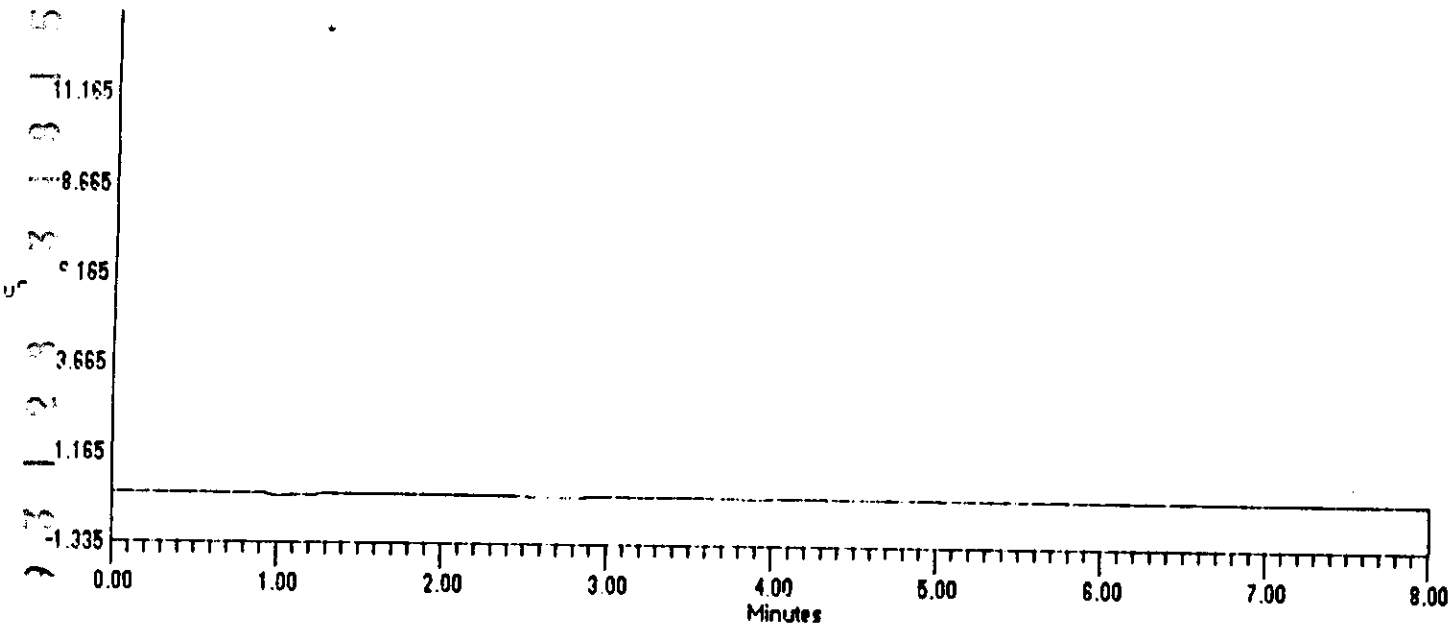


Sample Name: BLANK Date: Fri Oct 04 20:37:01 1991
Data File : c:\dx\data\91100431.D02
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 2 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	1	2405	5Hz	0.00	8.02	1000	

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta

File: c:\dx\data\91100431.D02 Sample: BLANK

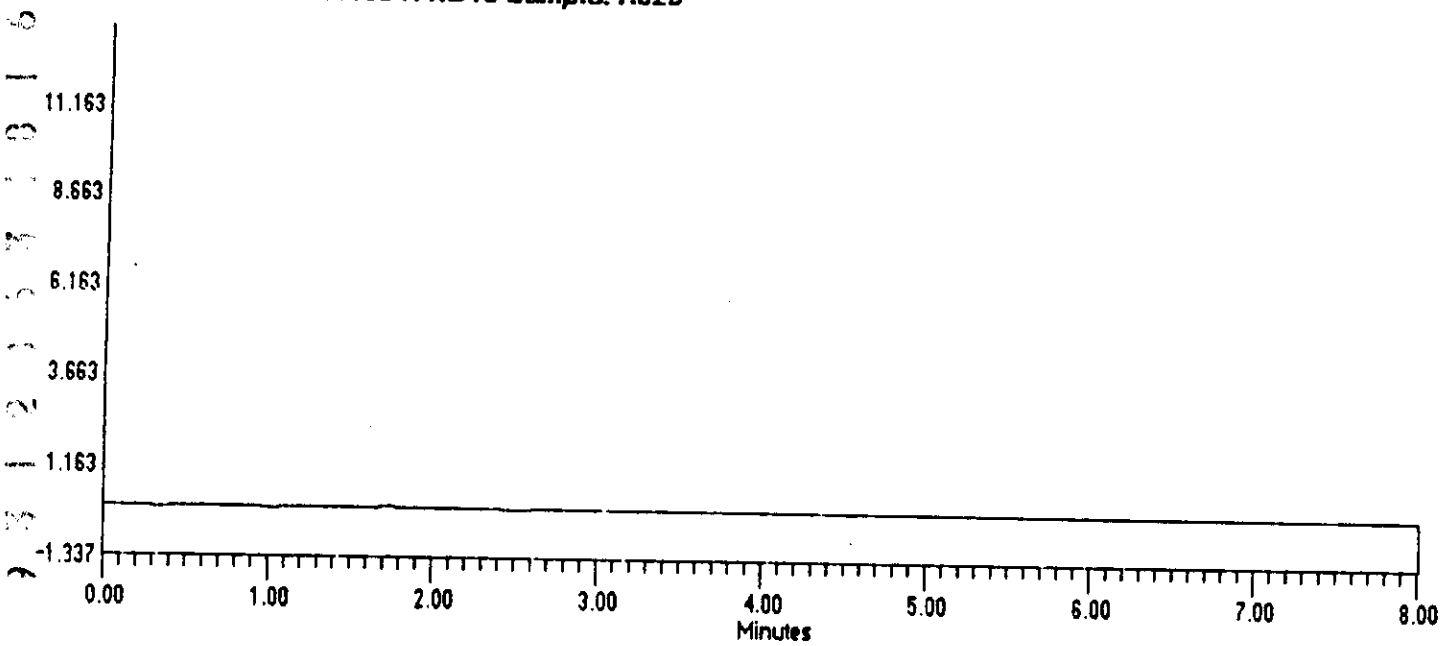


Sample Name: R325 Date: Fri Oct 04 22:17:51 1991
Data File : c:\dx\data\91100411.D13
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 13 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	1	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Rl. Code	%Delta

File: c:\dx\data\91100411.D13 Sample: R325

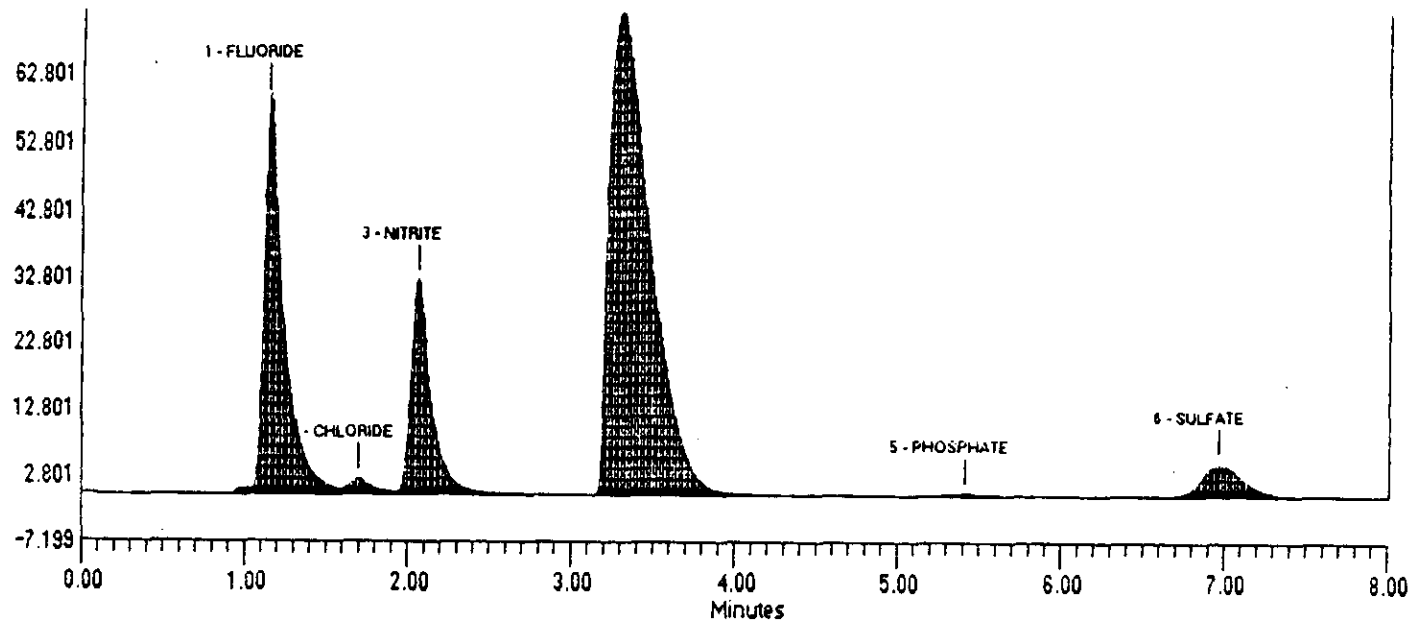


Sample Name: R329 Date: Fri Oct 04 23:17:15 1991
Data File : c:\dx\data\91100411.D19
Method : c:\dx\method\SYSTEM1.met
IC Address: 1 System : 1 Inject#: 19 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	201	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Fl. Code	%Delta
1	1.15	FLUORIDE	3001.685	58978	519104	3	0.00
2	1.70	CHLORIDE	449.487	2226	22144	4	-1.49
3	2.07	NITRITE	7664.194	33432	278533	2	0.33
4	3.30	BROMIDE	10696.282	72216	1275283	1	8.83
5	5.42	PHOSPHATE	534.503	435	6710	1	0.40
6	6.97	SULFATE	2348.986	4963	91358	1	0.23

File: c:\dx\data\91100411.D19 Sample: R329

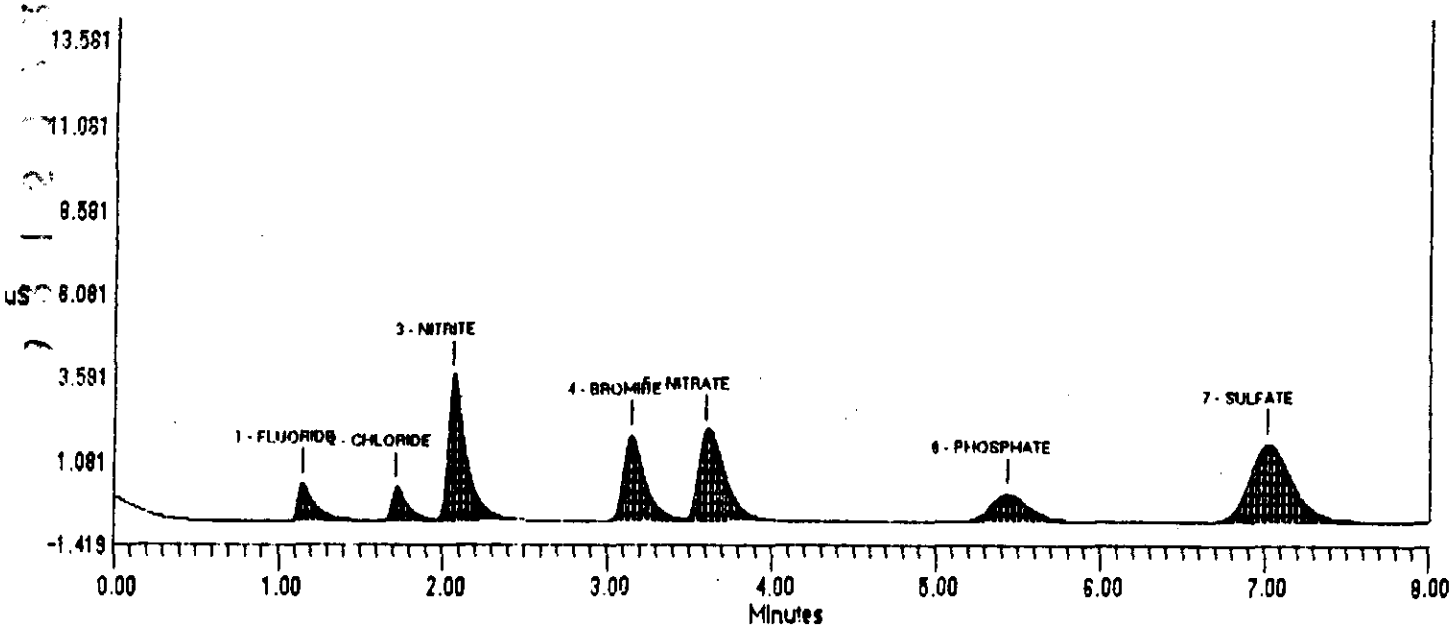


Sample Name: LMCS/73C11C0 R331 Date: Fri Oct 04 23:36:01 1991
Data File : c:\dx\data\91100401.D21
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 21 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2105	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.15	FLUORIDE	54.712	1095	7585	1	0.00
2	1.72	CHLORIDE	70.914	966	6585	2	-0.48
3	2.07	NITRITE	498.014	4279	33115	2	0.33
4	3.15	BROMIDE	463.842	2526	22973	2	1.70
5	3.60	NITRATE	521.697	2675	30387	2	7.51
6	5.43	PHOSPHATE	511.124	814	12926	1	0.71
7	7.02	SULFATE	569.918	2327	41994	1	0.95

File: c:\dx\data\91100401.D21 Sample: LMCS/73C11C0



WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R329	Customer ID: 791-9A
Analysis: ION CHROMATOGRAPHIC - NITRATE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428, AL10657, WB98659, WB97286, WB24740	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-08-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5573	11		
2	REAGENT BLANK	R325-5673	12		
3	SAMPLE 791-9A	R329-5773	13		
4	FINAL LMCS CHECK STD	R331-5573	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (NITRATE) - UNDIGESTED SAMPLE

Sample No	Sample Point	Date	Time Issued	Priority
K 329.-5573	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Report
IRM	LA-533-105	% RECOVERY	W11F2	0

Sample Size: .100ml - 10ml

Customer ID: STD

Reagents, Consumables, Results:
EDF N97H DIONEX
STD #73C11C0 RESULT 658.697 ppm
STD VAL 564ppm %REC 99.1%

Analyst: 1 Analyst: 2 Analyst: 3 Analyst: 4 Analyst: 5
Initials: [illegible] Initials: [illegible]
Date: 10-8-91

Sample No	Sample Point	Date	Time Issued	Priority
K 329.-5573	106AW	9-20-91	10:0	25

Determination	Method/Standard	Result Units	Charge Code	Report
IRM	LA-533-105	PPM	W11F2	0

Sample Size: Direct

Customer ID: STD 14

Reagents, Consumables, Results:
REAGENT BLANK
<1.00ppm

Analyst: 1 Analyst: 2 Analyst: 3 Analyst: 4 Analyst: 5
Initials: [illegible] Initials: [illegible]
Date: 10-8-91

Sample No	Sample Point	Date	Time Issued	Priority
K 329.-5573	106AW	9-20-91	10:21	25

Determination	Method/Standard	Result Units	Charge Code	Report
IRM	LA-533-105	PPM	W11E2	0

Sample Size: .050ml - 10ml - .250ml - 10ml

Customer ID: 7V1 96

Reagents, Consumables, Results:
$3.01E^{4}$ ppm

Analyst: 1 Analyst: 2 Analyst: 3 Analyst: 4 Analyst: 5
Initials: [illegible] Initials: [illegible]
Date: 10-8-91

Sample No	Sample Point	Date	Time Issued	Priority
K 331.-5573	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Report
IRM	LA-533-105	% RECOVERY	W11F2	0

Sample Size: .100ml - 10ml

Customer ID: STD

Reagents, Consumables, Results:
EDF N97H DIONEX
STD #73C11C0 RESULT 5.4913
STD VAL 564 %REC 97.2%

Analyst: 1 Analyst: 2 Analyst: 3 Analyst: 4 Analyst: 5
Initials: [illegible] Initials: [illegible]
Date: 10-8-91

4409-AF 10-14-91

DIONEX METHOD PARAMETERS - SYSTEM1.MET

System Parameters

System Name : system1/qpm
Number of Detectors..... 1
Detector 1 Type..... CDM-1
Detector 1 real time plot scale (uS)..... 20.00
Run Time (minutes)..... 8.00
Sampling Rate (seconds)..... 0.20

-- DETECTOR 1 PARAMETERS --

Report Options

Save Data File..... Yes
Data File Name: C:\DX\DATA\91101401.D07
Create ASCII Report File..... No
Print Report..... Yes
List Peaks Not Found in this run..... No
Report Unknowns Found in this run..... Yes
Print Chromatogram..... Yes
AutoScale Chromatogram to Highest Peak..... Yes
Fill Peaks with Color ..... Yes
Draw Grid Lines on Chromatogram..... No
Label with Peak Number..... Yes
Label with Retention Times on Chromatogram..... No
Label with Component Name..... Yes
Format File Name: c:\dx\method\default.prf

Integration Parameters

Starting Peak Width (seconds)..... 10.0
Peak Threshold (mV or uS/data pt interval)..... 0.500
Peak Area Reject..... 1000
Area Reject for Reference Peaks..... 1000
Percent Retention Time Window for Reference Peaks..... 5.0

Integration Timed Events

Time	Description

Calibration Parameters

Number Of Levels for Calibration..... 6
Calibration Fit Type..... Quadratic
Replace Or Average Calibrations..... Replace
External or Internal Calibration..... External
Calibrate by Area or Height..... Area
Default Injection Volume..... 1.0
Default Dilution Factor..... 101.0
Response Factor for Unknown Peaks..... 1.0
Calibration Standard Volume 1.0
Internal Standard Volume 1.0
Sample Unit ..... PPM

Component # 1 FLUORIDE Retention Time 1.15
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 1.33141E-002
K1 = 7.35652E-005
K2 = -2.32747E-010

Level	Amount	Area	Height
1	1.10000E-001	1439	225
2	2.80000E-001	3649	553
3	5.60000E-001	7529	1129
4	1.12000E+000	15733	2313
5	2.19000E+000	33154	4704
6	4.22000E+000	74938	9497

Component # 2 CHLORIDE Retention Time 1.72
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 8.88526E-003
K1 = 1.08463E-004
K2 = -3.16779E-010

Level	Amount	Area	Height
1	1.30000E-001	1319	217
2	3.30000E-001	2868	459
3	6.60000E-001	6001	936
4	1.31000E+000	12417	1921
5	2.58000E+000	25701	3883
6	5.00000E+000	54764	7755

Component # 3 NITRITE Retention Time 2.08
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 6.41195E-001
K1 = 1.25938E-004
K2 = 4.84873E-012

Level	Amount	Area	Height
1	1.25000E+000	6239	874
2	3.10000E+000	19929	2672
3	6.18000E+000	42059	5606
4	1.22300E+001	90590	11584
5	2.40000E+001	185584	23728
6	4.62200E+001	356723	42402

Component # 4 BROMIDE Retention Time 3.05
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.01960E-002
K1 = 2.00453E-004
K2 = -1.00008E-010

Level	Amount	Area	Height
1	1.56000E+000	7660	753
2	3.90000E+000	20706	1880
3	7.80000E+000	38868	3455
4	1.54000E+001	78061	6644
5	3.02000E+001	165133	12632
6	5.81000E+001	350930	24386

Component # 5 NITRATE Retention Time 3.42
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 1.12719E+000
K1 = 1.25048E-004
K2 = 1.59899E-010

Level	Amount	Area	Height
1	1.10000E+000	1477	162
2	2.75000E+000	15087	1425
3	5.47000E+000	31133	2883
4	1.08200E+001	66694	5778
5	2.12300E+001	139804	11210
6	5.08900E+001	289865	21262

Component # 6 PHOSPHATE Retention Time 5.37
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.70449E-001
K1 = 3.46513E-004
K2 = -3.83601E-010

Level	Amount	Area	Height
1	1.14000E+000	2277	162
2	2.83000E+000	7242	453
3	5.63000E+000	14732	918
4	1.15600E+001	32263	1962
5	2.18800E+001	67512	4036
6	4.21500E+001	142733	8289

Component # 7 SULFATE Retention Time 7.03
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 1.93428E-001
K1 = 1.28116E-004
K2 = -4.37267E-011

Level	Amount	Area	Height
1	1.26000E+000	9418	543
2	3.14000E+000	24499	1382
3	6.26000E+000	45736	2477
4	1.23900E+001	97310	5267
5	2.43100E+001	203719	10947
6	4.68100E+001	425407	21849

IC Control File: C:\DX\METHOD\SYSTEM1.TE

Step	Time	Description
Init		CDM-1 AutoOffset Off
Init		CDM-1 Recorder Mark OFF
Init		CDM-1 Temp. Comp. = 1.7 / Deg C
Init		CDM-1 Recorder Range = 0.1 uS
Init		CDM-1 Cell ON
Init		CHA Heater = 25 Deg. C
Init		Valve A ON
Init		Valve B ON
Init		Inject Valve OFF
Init		ACI Autosmp OFF
Init		ACI RLY 2 OFF
Init		ACI TTL 1 OFF
Init		ACI TTL 2 OFF
Init		ACI AC 1 ON
Init		GPM Start
Init		GPM Hold Gradient Clock
Init		GPM Reset ON
1	0.0	CDM-1 AutoOffset ON
1	0.0	Start Sampling
1	0.0	GPM Reset OFF
2	0.1	CDM-1 Recorder Range = 10.0 uS
2	0.1	Inject Valve ON
2	0.1	GPM Run Gradient Clock
3	3.0	Inject Valve OFF
4	3.5	ACI Autosmp ON
5	8.0	ACI Autosmp OFF

GpmFile: C:\DX\METHOD\SYSTEM1.GPM
Lo Pressure Limit = 200
Hi Pressure Limit = 2000
Eluant 1 - DI WATER
Eluant 2 - SODIUM CARBONATE
Eluant 3 - SODIUM BICARBONATE
Eluant 4 - Eluant 4

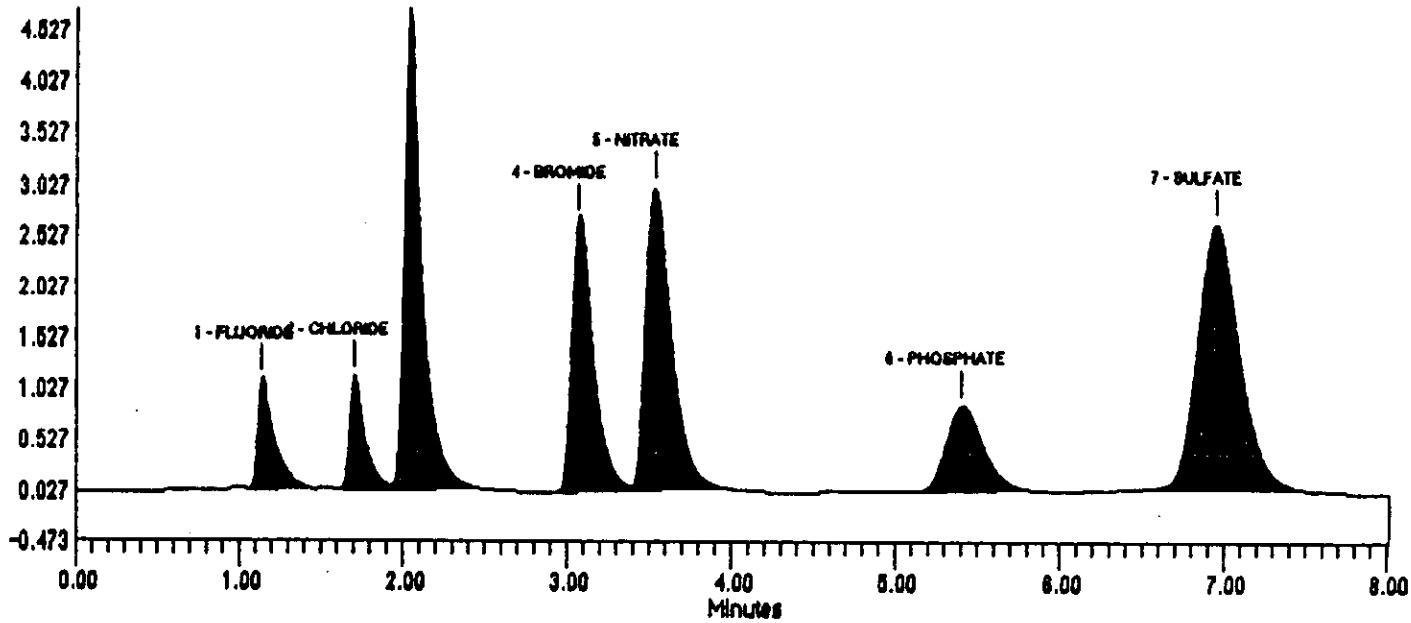
Time	Flow	%1	%2	%3	%4	V5	V6	Comment
0.0	2.0	84	8	8	0	0	0	

Sample Name: LMCS DK 7-14-92 Date: Tue Oct 08 03:34:05 1991
Data File : C:\DX\DATA\91100601.D05
Method : C:\DX\METHOD\SYSTEM1.MET
ACI Address: 1 System : 1 Inject#: 5 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	55.187	1060	7664	1	0.00
2	1.70	CHLORIDE	77.560	1095	7243	2	0.00
3	2.03	NITRITE	521.679	4532	34859	2	0.16
4	3.07	BROMIDE	498.532	2688	24729	2	0.55
5	3.53	NITRATE	558.697	2971	32706	2	-3.99
6	5.40	PHOSPHATE	520.892	834	13207	1	1.57
7	6.95	SULFATE	615.216	2602	45606	1	1.46

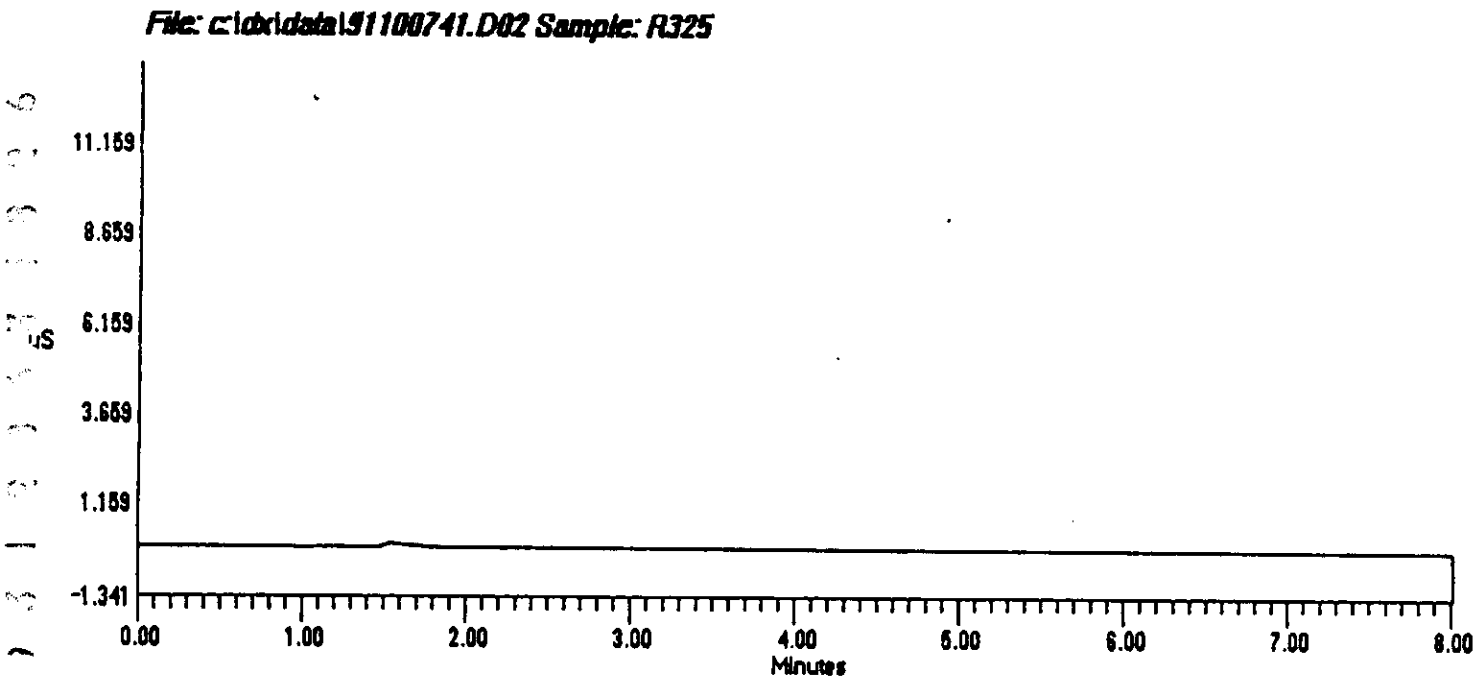
File: C:\DX\DATA\91100601.D05 Sample:



```
==========================================================================
: Sample Name: R325                                Date: Tue Oct 08 04:17:54 1991
: Data File  : c:\dx\data\91100741.D02                                    :
: Method     : c:\dx\method\SYSTEM1.met                                   :
: ACI Address: 1        System : 1        Inject#:   2  Detector: CDM-1   :
==========================================================================
```

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	1	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta



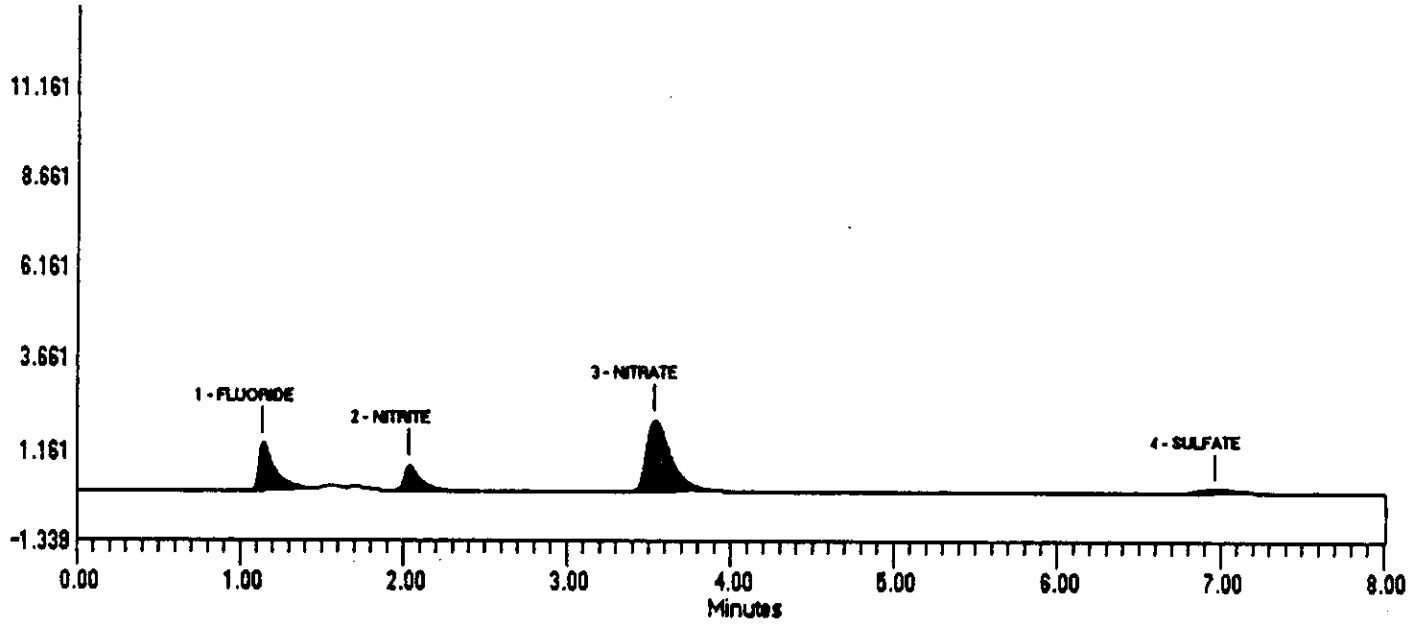
Sample Name: R327 R329SA 10-8-91 Date: Tue Oct 08 04:54:58 1991
Data File : c:\dx\data\91100731.D06
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 6 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	8241	2405	5Hz	0.00	8.02	1000

10-8-91 Dilution Factor 8241 DJH 10-8-91

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	5284.178	1288	9254	1	0.00
2	2.03	NITRITE	9567.255	717	5017	1	0.16
3	3.53	NITRATE	30131.528	1971	20886	1	-3.99
4	6.97	SULFATE	4491.561	102	1485	1	1.70

File: c:\dx\data\91100731.D06 Sample: R327

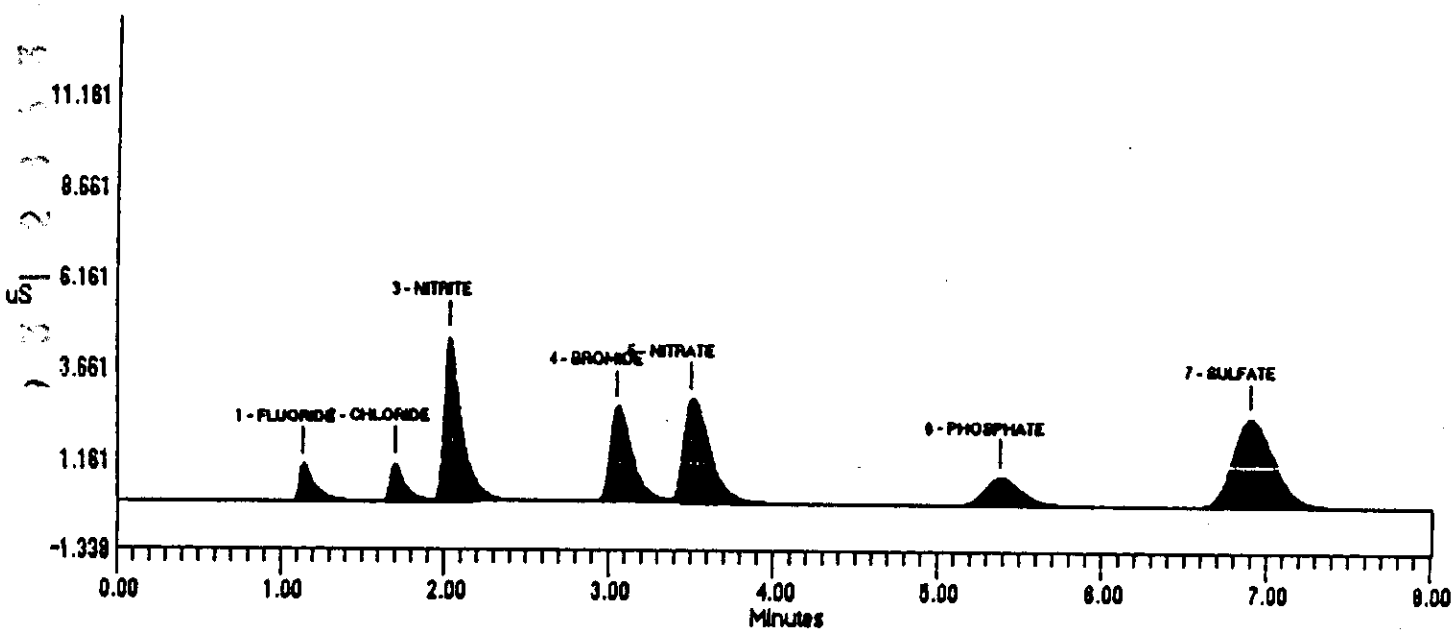


Sample Name: LMCS/73C11C0 Date: Tue Oct 08 06:26:11 1991
Data File : C:\DX\DATA\91100631.D01
Method : C:\DX\METHOD\SYSTEM1.MET
ACI Address: 1 System : 1 Inject#: 1 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	53.303	1037	7351	1	0.00
2	1.70	CHLORIDE	74.524	1067	6942	2	0.00
3	2.03	NITRITE	500.692	4527	33312	2	0.16
4	3.05	BROMIDE	497.450	2633	24674	2	0.00
5	3.50	NITRATE	548.126	2877	32044	2	-4.89
6	5.38	PHOSPHATE	510.599	821	12910	1	1.25
7	6.90	SULFATE	592.399	2453	43786	1	0.73

File: C:\DX\DATA\91100631.D01 Sample: LMCS/73C11C0



WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R329	Customer ID: 791-9A
Analysis: ION CHROMATOGRAPHIC - FLUORIDE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428, AL10657, WB98659, WB97286, WB24740	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-07-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5571	11		
2	REAGENT BLANK	R325-5671	12		
3	SAMPLE 791-9A	R329-5771	13		
4	FINAL LMCS CHECK STD	R331-5571	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (FLUORIDE) - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.-5571	106AW	9-20-91	10: 5	25

Determination	Method/Standard	Result Units	Charge Code	Results
F	EA-533-105	% RECOVERY	WITE2	0

Sample Size: 100ml - 10ml
Customer ID: SID

Remarks, Calculations, Results:
EDP R974 DIONEX
SID# 73CIICO RESULT 56.764
SID VAL 56 %REC 101.4%

Analyst - 1: [signature] 10-7-91
Analyst - 2:
Analyst - 3:
Analyst - 4:
Analyst - 5: [signature]
Date: 10-7-91
Time Completed:
Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.-5671	106AW	9-20-91	10: 8	25

Determination	Method/Standard	Result Units	Charge Code	Results
F	EA-533-105	PPM	WITE2	0

Sample Size: DIRECT
Customer ID: REG. 18

Remarks, Calculations, Results:
REAGENT BLANK

<1.00E-1 ppm

Analyst - 1: [signature] 6CB23
Analyst - 2:
Analyst - 3:
Analyst - 4:
Analyst - 5: [signature]
Date: 10-7-91
Time Completed:
Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 329. 5771	106AW	9-20-91	10:21	25

Determination	Method/Standard	Result Units	Charge Code	Results
F	EA-533-105	G/G	WITE2	0

Sample Size: .050ml - 10ml - .500ml - 10ml
Customer ID: 791 9A

Remarks, Calculations, Results:
ORGANIC INTERFERENCE

Flag-Fluoride peak due to organics - not F⊖ [initials]

Analyst - 1: [signature] 6CB23
Analyst - 2:
Analyst - 3:
Analyst - 4:
Analyst - 5: [signature]
Date: 10-7-91
Time Completed:
Lab Unit Mgr: [signature]

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.-5571	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Results
F	EA-533-105	% RECOVERY	WITE2	0

Sample Size: .100ml - 10ml
Customer ID: SID

Remarks, Calculations, Results:
EDP R974 DIONEX
SID# 73CIICO RESULT 54.734
SID VAL 56ppm %REC 97.7%

Analyst - 1: [signature] 6CB23
Analyst - 2:
Analyst - 3:
Analyst - 4:
Analyst - 5: [signature]
Date: 10-7-91
Time Completed:
Lab Unit Mgr: [signature]

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R329	Customer ID: 791-9A
Analysis: ION CHROMATOGRAPHIC - NITRITE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428, AL10657, WB98659, WB97286, WB24740	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-07-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5576	11		
2	REAGENT BLANK	R325-5676	12		
3	SAMPLE 791-9A	R329-5776	13		
4	FINAL LMCS CHECK STD	R331-5576	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (NITRITE) - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 329.-5576	106AW	9-20-91	10:6	25

Determination	Method Standard	Result Units	Charge Code	Retests
NO2	LA 533-105	% RECOVERY	WIT02	0

Sample Size: 100ml-10ml
Customer ID: STD

Remarks, Calculations, Results:
LOT RY6H DIONEX
STDN 730LCO RESULT 521.43
STD VAL 510 %REC 102.2020

Analyst 1: Lulama Hyo
Date: 10-7-91

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5676	106AW	9-20-91	10:11	25

Determination	Method Standard	Result Units	Charge Code	Retests
NO2	LA 533-105	PPM	WIT02	0

Sample Size: DIRECT
Customer ID: MT. LB.

Remarks, Calculations, Results:
REAGENT BLANK
<1.00 ppm

Analyst 1: Lulama Hyo
Date: 10-7-91

Serial No	Sample Point	Date	Time Issued	Priority
R 329.-5776	106AW	9-20-91	10:21	25

Determination	Method Standard	Result Units	Charge Code	Retests
NO2	LA 533-105	PPM	WIT02	0

Sample Size: .050ml-10ml .500ml-10ml
Customer ID: 291 96

Remarks, Calculations, Results:
8.06 E3 ppm

Analyst 1: Lulama Hyo
Date: 10-7-91

Serial No	Sample Point	Date	Time Issued	Priority
R 331.-5576	106AW	9-20-91	10:25	25

Determination	Method Standard	Result Units	Charge Code	Retests
NO2	LA 533-105	% RECOVERY	WIT02	0

Sample Size: .100ml-10ml
Customer ID: STD

Remarks, Calculations, Results:
LOT RY6H DIONEX
STDN 730LCO RESULT 530.706 ppm
STD VAL 510 ppm %REC 102.1070

BATCH WITH B242 KCT 10-09-91

Analyst 1: Lulama Hyo
Date: 10-7-91

9-22-91
4469-AC

DIONEX METHOD PARAMETERS - SYSTEM1.MET

System Parameters

System Name : system1/gpm
Number of Detectors..... 1
Detector 1 Type..... CDM-1
Detector 1 real time plot scale (uS)..... 20.00
Run Time (minutes)..... 8.50
Sampling Rate (seconds)..... 0.20

-- DETECTOR 1 PARAMETERS --
Report Options

Save Data File..... Yes
Data File Name: c:\dx\data\91092201.D08
Create ASCII Report File..... No
Print Report..... Yes
List Peaks Not Found in this run..... No
Report Unknowns Found in this run..... Yes
Print Chromatogram..... Yes
AutoScale Chromatogram to Highest Peak..... Yes
Fill Peaks with Color ..... Yes
Draw Grid Lines on Chromatogram..... No
Label with Peak Number..... Yes
Label with Retention Times on Chromatogram..... No
Label with Component Name..... Yes
Format File Name: c:\dx\method\default.prf

Integration Parameters

Starting Peak Width (seconds)..... 10.0
Peak Threshold (mV or uS/data pt interval)..... 0.500
Peak Area Reject..... 1000
Area Reject for Reference Peaks..... 1000
Percent Retention Time Window for Reference Peaks..... 5.0

Integration Timed Events

Time	Description
1.32	Start peak detection
1.44	Start peak detection
1.46	Start peak detection
1.77	
1.77	Enable end of peak detection

Component # 1 FLUORIDE Retention Time 1.13
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 8.52797E-002
K1 = 6.06440E-005
K2 = -6.17180E-011

Level	Amount	Area	Height
1	1.20000E-001	1439	225
2	3.00000E-001	4035	566
3	6.00000E-001	8217	1141
4	1.20000E+000	16507	2218
5	2.30000E+000	39534	4812
6	4.40000E+000	76890	9371

Component # 2 CHLORIDE Retention Time 1.70
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.93335E-002
K1 = 1.01273E-004
K2 = -9.35560E-011

Level	Amount	Area	Height
1	1.60000E-001	1319	217
2	3.90000E-001	3754	568
3	7.80000E-001	6942	1045
4	1.50000E+000	14461	1975
5	3.00000E+000	30287	3987
6	5.90000E+000	61305	8910

Component # 3 NITRITE Retention Time 2.03
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.88691E-001
K1 = 1.33960E-004
K2 = 5.52630E-012

Level	Amount	Area	Height
1	1.08000E+000	6239	874
2	2.69000E+000	17299	2252
3	5.37000E+000	34328	4729
4	1.06200E+001	72787	9300
5	2.08500E+001	153501	19401
6	4.01500E+001	292053	34439

Component # 4 BROMIDE Retention Time 2.80
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.01960E-002
K1 = 2.00453E-004
K2 = -1.00008E-010

Level	Amount	Area	Height
1	1.56000E+000	7660	753
2	3.90000E+000	20706	1880
3	7.80000E+000	38868	3455
4	1.54000E+001	78061	6644
5	3.02000E+001	165133	12632
6	5.81000E+001	350930	24386

Component # 5 NITRATE Retention Time 3.30
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.02611E-001
K1 = 1.61787E-004
K2 = -5.83501E-011

Level	Amount	Area	Height
1	1.37000E+000	7543	727
2	3.43000E+000	19321	1803
3	6.83000E+000	40244	3563
4	1.35000E+001	83386	7010
5	2.65000E+001	173503	13640
6	5.11000E+001	360809	25639

Component # 6 PHOSPHATE Retention Time 5.32
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 5.53452E-001
K1 = 3.53243E-004
K2 = -3.51156E-010

Level	Amount	Area	Height
1	1.19000E+000	2277	162
2	2.98000E+000	7242	453
3	5.93000E+000	15025	935
4	1.17400E+001	31660	1933
5	2.30300E+001	69135	4130
6	4.43700E+001	144749	8447

Component # 7 SULFATE Retention Time 6.85
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.55734E-001
K1 = 1.27491E-004
K2 = -3.79358E-011

Level	Amount	Area	Height
1	1.40000E+000	9418	543
2	3.50000E+000	24499	1382
3	6.96000E+000	52303	2890
4	1.37800E+001	107173	5909
5	2.70400E+001	225632	12225
6	5.20700E+001	471630	24686

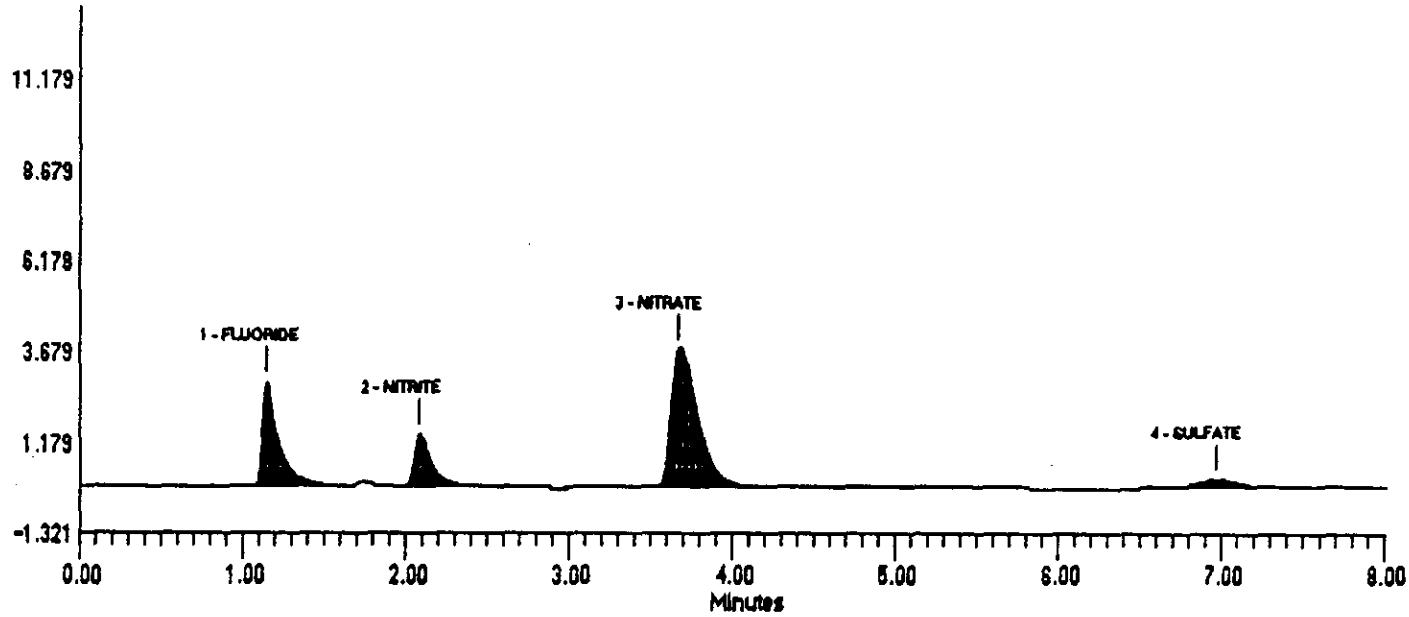
DATA REPROCESSED ON Tue Oct 08 12:51:12 1991

Sample Name: R329 Date: Mon Oct 07 01:03:36 1991
Data File : C:\DX\DATA\91100511.D10
Method : C:\DX\METHOD\SYSTEM1.MET
ACI Address: 1 System : 1 Inject#: 10 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	4221	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.15	FLUORIDE	5429.804	2872	20222	1	0.00
2	2.08	NITRITE	8060.232	1435	10602	1	1.14
3	3.67	NITRATE	30810.516	3779	43943	1	-1.81
4	6.97	SULFATE	3439.042	220	3604	1	0.23

File: C:\DX\DATA\91100511.D10 Sample: R329



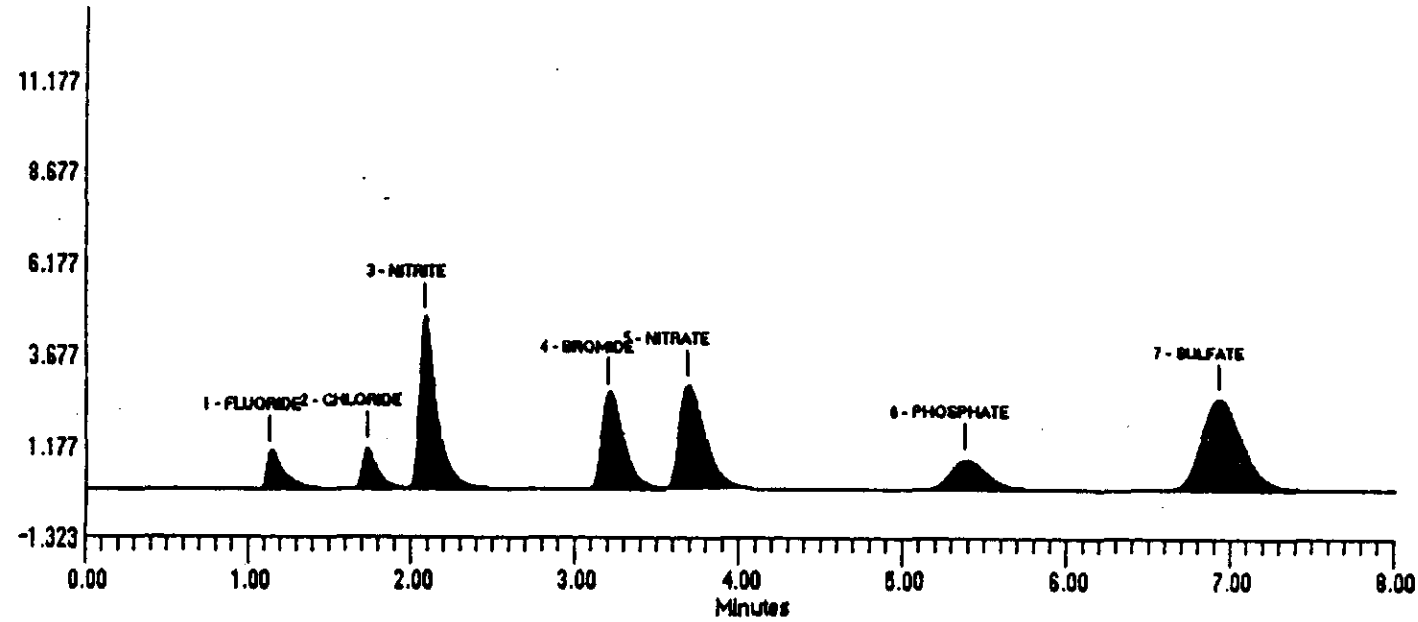
DATA REPROCESSED ON Tue Oct 08 12:07:25 1991

Sample Name: LMCS/73C11C0	Date: Sun Oct 06 23:57:56 1991
Data File : C:\DX\DATA\91100521.D03	
Method : C:\DX\METHOD\SYSTEM1.MET	
ACI Address: 1 System : 1 Inject#: 3 Detector: CDM-1	

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	56.764	1031	7925	1	0.00
2	1.73	CHLORIDE	78.669	1115	7353	2	1.96
3	2.08	NITRITE	521.434	4668	34841	2	2.63
4	3.20	BROMIDE	496.404	2603	24621	2	4.92
5	3.68	NITRATE	527.942	2829	30780	2	0.09
6	5.38	PHOSPHATE	527.158	846	13387	1	1.25
7	6.93	SULFATE	601.885	2524	44543	1	1.22

File: C:\DX\DATA\91100521.D03 Sample: LMCS/73C11C0

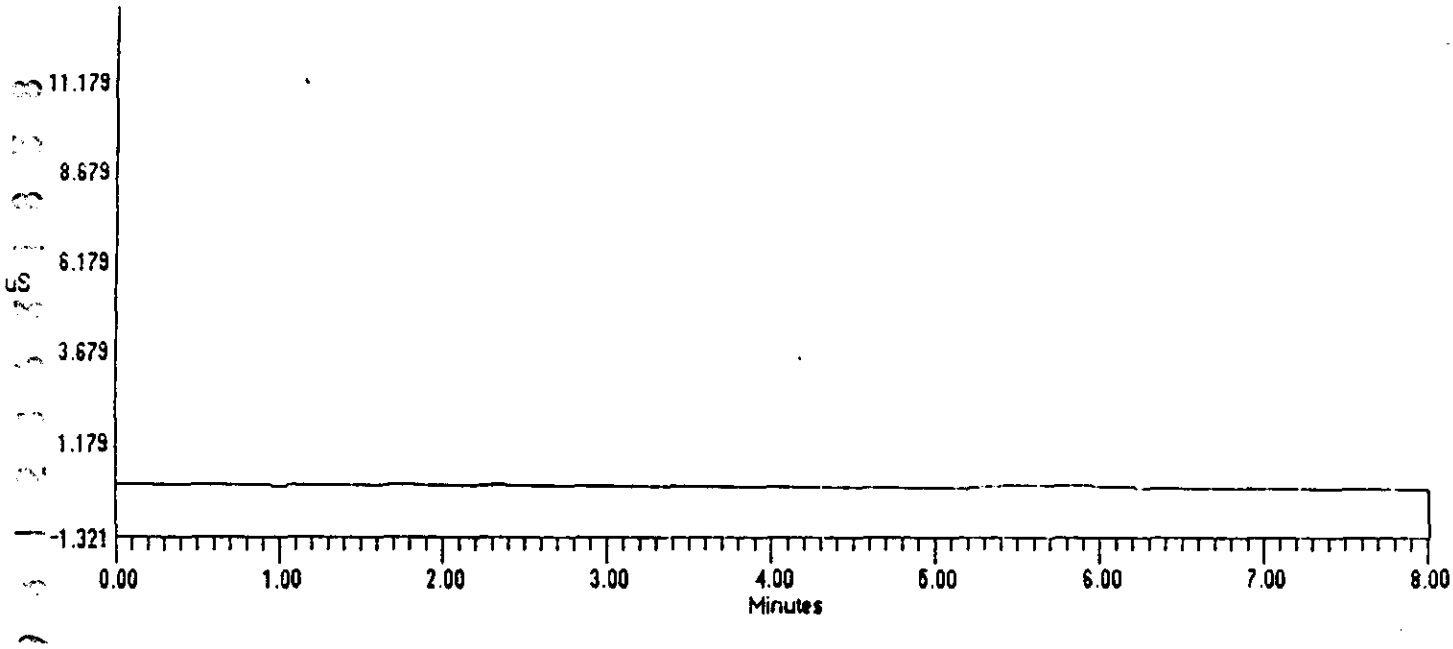


Sample Name: BLANK Date: Sun Oct 06 23:48:48 1991
Data File : c:\dx\data\91100521.D02
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 2 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	RET
External	1	1	2405	5Hz	0.00	8.02	1000	

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta

File: c:\dx\data\91100521.D02 Sample: BLANK



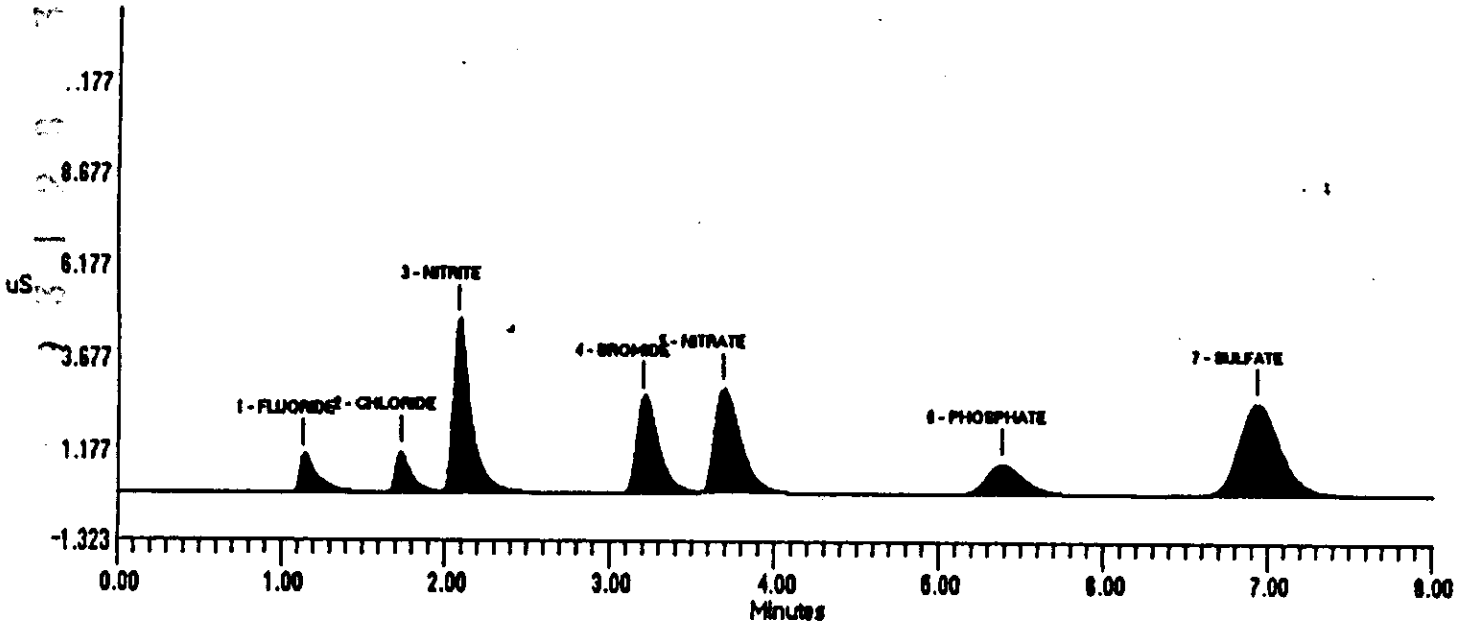
DATA REPROCESSED ON Tue Oct 08 12:07:25 1991

Sample Name: LMCS/73C11C0	Date: Sun Oct 06 23:57:56 1991
Data File : C:\DX\DATA\91100521.D03	
Method : C:\DX\METHOD\SYSTEM1.MET	
ACI Address: 1 System : 1 Inject#: 3 Detector: CDM-1	

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	*56.764	1031	7925	1	0.00
2	1.73	CHLORIDE	78.669	1115	7353	2	1.96
3	2.08	NITRITE	521.434	4668	34841	2	2.63
4	3.20	BROMIDE	496.404	2603	24621	2	4.92
5	3.68	NITRATE	527.942	2829	30780	2	0.09
6	5.38	PHOSPHATE	527.158	846	13387	1	1.25
7	6.93	SULFATE	601.885	2524	44543	1	1.22

File: C:\DX\DATA\91100521.D03 Sample: LMCS/73C11C0



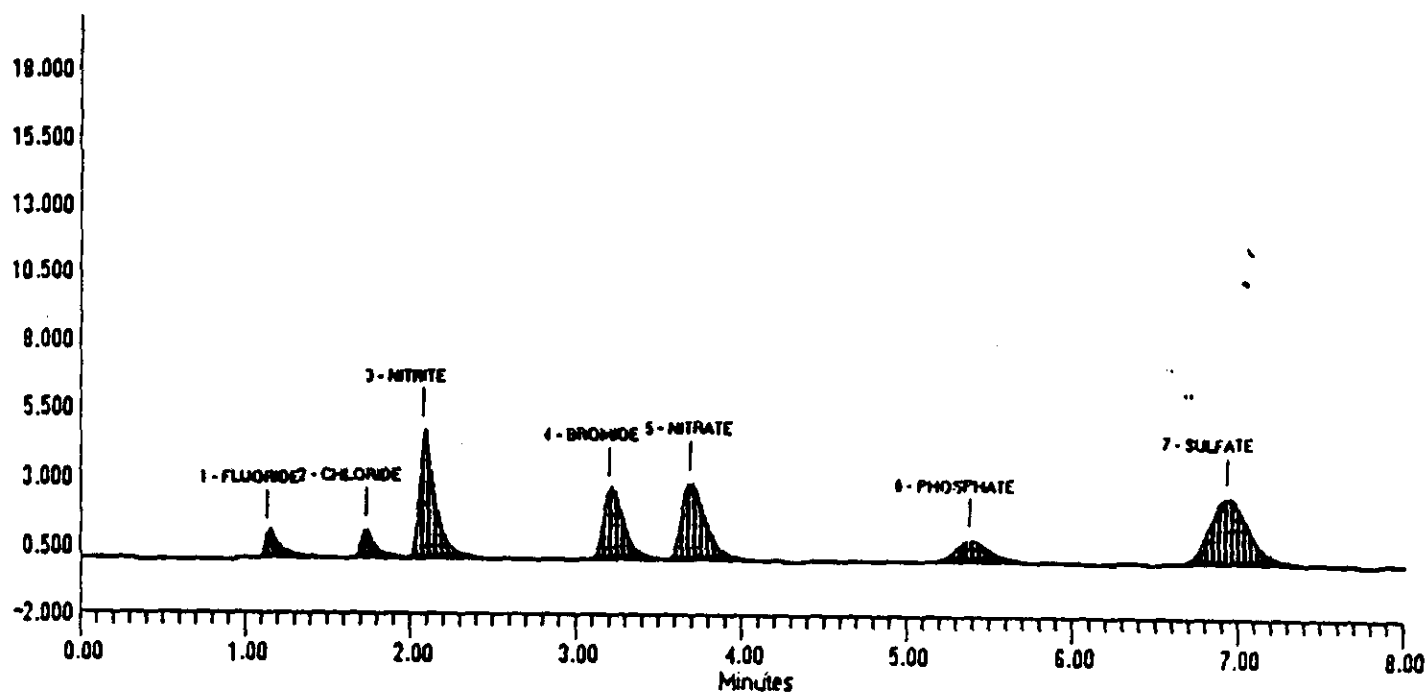
DATA REPROCESSED ON Tue Jul 21 14:56:48 1992

Sample Name: LMCS/73C11C0 - R33 Date: Mon Oct 07 01:22:09 1991
Data File : A:\91100501.D12 JCL 7-21-92
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 12 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	9.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	54.734	1013	7589	1	0.00
2	1.73	CHLORIDE	77.629	1112	7250	2	1.96
3	2.08	NITRITE	520.706	4730	34737	2	2.63
4	3.20	BROMIDE	507.310	2653	25173	2	4.92
5	3.68	NITRATE	3190756.650	2870	31592	2	0.09
6	5.30	PHOSPHATE	544.860	365	13897	1	1.25
7	6.93	SULFATE	603.348	2523	44580	1	1.23

File: A:\91100501.D12 Sample: LMCS/73C11C0



WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R329	Customer ID: 791-9A
Analysis: ACID DIGESTION	Sample Prep: ACID DIGESTION

Instrument: METTLER BAL. SN F04495	Procedure/Rev: LA-508-158/A-2
Technologist: L. MORRISON	Date: 09-25-91
Starting Time: N/A	Temperature: N/A
Ending Time: N/A	Chemist: S. A. JONES

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-8505	11		
2	REAGENT BLANK	R325-8605	12		
3	SAMPLE 791-9A	R329-8705	13		
4	FINAL LMCS CHECK STD	R331-8505	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	ICP1-9S4/10 mL	ICP2-6S4/10 mL	ICP3-8S4/10 mL	N/A

A-6000-881 (03/92)

ACID DIGESTION ANALYSIS

Sample No	Sample Point	Date	Time Sampled	Priority
[illegible]	[illegible]	9-20-91	[illegible]	[illegible]
Determination	Method Standard	Result Units	Charge Code	Reason
[illegible]	[illegible]	% RECOVERY	[illegible]	[illegible]
Sample Size			Customer ID	
10 mL in 100 mL			[illegible]	

Remarks, Calculations, Results

[illegible]
[illegible]
ICPOST1 - 984
ICPOST2 - 649
ICPOST3 - 934

Complete

Analyst 1	Analyst 2	Analyst 3	Analyst 4	Analyst 5
65231				
Date	Date	Date	Date	Date
9-25-91				
Time Completed	Lab Unit Chief			

JK McGarrell

Sample No	Sample Point	Date	Time Sampled	Priority
[illegible]	[illegible]	9-20-91	[illegible]	[illegible]
Determination	Method Standard	Result Units	Charge Code	Reason
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sample Size			Customer ID	
[illegible]			[illegible]	

Remarks, Calculations, Results

[illegible]
[illegible]

Complete

Analyst 1	Analyst 2	Analyst 3	Analyst 4	Analyst 5
65231				
Date	Date	Date	Date	Date
9-25-91				
Time Completed	Lab Unit Chief			

JK McGarrell

Sample No	Sample Point	Date	Time Sampled	Priority
[illegible]	[illegible]	9-20-91	[illegible]	[illegible]
Determination	Method Standard	Result Units	Charge Code	Reason
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sample Size			Customer ID	
10 mL in 100 mL			[illegible]	

Remarks, Calculations, Results

Complete

Analyst 1	Analyst 2	Analyst 3	Analyst 4	Analyst 5
65231				
Date	Date	Date	Date	Date
9-25-91				
Time Completed	Lab Unit Chief			

JK McGarrell

Sample No	Sample Point	Date	Time Sampled	Priority
[illegible]	[illegible]	9-20-91	[illegible]	[illegible]
Determination	Method Standard	Result Units	Charge Code	Reason
[illegible]	[illegible]	% RECOVERY	[illegible]	[illegible]
Sample Size			Customer ID	
10 mL in 100 mL			[illegible]	

Remarks, Calculations, Results

[illegible]
[illegible]
ICPOST1 - 954
ICPOST2 - 649
ICPOST3 - 934

Complete

Analyst 1	Analyst 2	Analyst 3	Analyst 4	Analyst 5
65231				
Date	Date	Date	Date	Date
9-25-91				
Time Completed	Lab Unit Chief			

JK McGarrell

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R329	Customer ID: 791-9A
Analysis: INDUCTIVELY COUPLED PLASMA	Sample Prep: ACID DIGESTION

Instrument: WB39939	Procedure/Rev: LA-505-151/B-0
Technologist: L. MORRISON	Date: 11-19-91
Starting Time: NA	Temperature: N/A
Ending Time: NA	Chemist: L. OTTMAR

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-8550	11		
2	REAGENT BLANK	R325-8650	12		
3	SAMPLE 791-9A	R329-8750	13		
4	FINAL LMCS CHECK STD	R331-8550	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	ICP1-9S4/10 mL	ICP2-6S4/10 mL	ICP3-8S4/10 mL	N/A

A-6000-881 (03/92)

ICP ANALYSIS - ACID DIGESTION

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.-8550	106AW	9-20-91	10: 7	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	% RECOVERY	W1TE2	0

Sample Size	Customer ID
? 10ml ea in 100ml	STD

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID
ICPSST1 - 954
ICPSST2 - 654
ICPSST3 - 889

LMCS
STDS

Al 2.98E2 (10/10³) = 2.98ppm 59.6%
Ca 1.51E3(.01) = 1.51E1ppm = 151%
Cr 4.54E2(.01) = 4.54 ppm = 90.8%
Fe 5.08E2(.01) = 5.08ppm = 102%
Na 9.06E2(.01) = 9.06ppm = 90.6%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65231	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]	Laurine J. Ottman			

Date	Time Completed	Lab Unit Mgr
11/19/91	11/21/91	[signature]

84-6800-081 (R-10-83)

Al 4.55 91.0% wng #7362

Ca 9.94 99.4%

Cr 4.80 96.0%

Fe 4.88 97.6%

Na 9.71 97.1%

LMCS ✓ Teresa L. Frazier

~~Undigested~~
~~Ba 10.10~~
~~Cd 9.8~~ 5-29-92

DIGESTED
Ag (4.51E2)(.01) = 90.2%
Ba (9.32E2)(.01) = 93.2%
Cd (9.25E2)(.01) = 92.5%
Mg (488)(.01) 97.6%
Mn (479)(.01) = 95.8%
Pb (507)(.01) = 101.4%
Zn (969)(.01) = 96.9%

Undigested
Ba 10.10 101.0%
Cd 9.82 98.2%
Mg 4.94 98.8%
Mn 4.93 98.6%
Zn 9.96 99.6%
Ag 5.07 101.4%
Pb 5.06 101.6%

R 324-8550

ICP ANALYSIS - ACID DIGESTION

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.-8650	106AW	9-20-91	10: 9	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	PPM	W1TE2	0

Sample Size	Customer ID
? Direct	REG BL

Remarks, Calculations, Results:
REAGENT BLANK

AL <55 ppb/10³ < 5.50E-2 ppm
CA 4.18E3/10³ = 4.18 ppm
Cr 1.66E1/10³ = 1.66E-2 ppm
Fe <87/10³ = 8.70E-2 ppm
Na 1.09E2/10³ = 1.09E-1 ppm

Ag <8.0/10³ = <8.0E-3 ppm
Ba <3.0/10³ = <3.0E-3 ppm
Cd <4.0/10³ = <4.0E3 ppm
Mg 4.08E2/10³ = 4.08E-1 ppm
Mn 1.38E1/10³ = 1.38E-2 ppm
Pb <8.0E1/10³ = <8.0E-2 ppm
Zn 2.91E2/10³ = 2.91E-1 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731	82768			
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
11/19/91	11/5/91	[signature]	[signature]

54-8800-081 (R-10-82)

ICP ANALYSIS - ACID DIGESTION

Serial No.	Sample Point	Date	Time Issued	Priority
R 329.-8750	106AW	9-20-91	10:22	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	ug/g rec	W1TE2	0

Sample Size	Customer ID
? 1 mL in 100 mL, 2 mL To 10 mL DF=600	791-9A

Remarks, Calculations, Results:

Al 2.30E3 (600) = 1.38E6 ppb
Ca 7.75E2 (600) = ~~1.66E5 ppb~~ 11-25-91 4.66E5 ppb
Cr 4.23E1 (600) = 2.54E4 ppb
Fe 3.37E2 (600) = 2.02E5 ppb
Na 6.18E4 (600) = 3.71E7 ppb

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731	82768			
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
11/19/91	11/21/91	[signature]

54-6800-061 (8-10-83)

Ag (<8)(600) = <4.80E3 ppb ~~ug/l~~ 5/7/92
Ba (<3)(600) = <1.80E3 ppb
Cd (5.6)(600) = 3.36E3 ppb
Mg (18)(600) = 1.08E4 ppb
Mn (7.6)(600) = 4.56E3 ppb
Pb (<80)(600) = 4.80E4 ppb
Zn (175)(600) = 1.05E5 ppb

R 329-8750

ICP ANALYSIS - ACID DIGESTION

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.-8550	106AW	9-20-91	10:27	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	% RECOVERY	W1TE2	0

Sample Size	Customer ID
? 10 mL SA in 100 mL, DF=10	STD

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID_____
ICPSST1 - 954
ICPSST2 - 654
ICPSST3 - 854

AL ~~[illegible]~~ 5-29-92
6.43E2(10/100) = 6.43ppm 128.6%
Ca ~~[illegible]~~ 5-29-92
1.51E4(.01) = 1.51E2 = 151%
Cr 5.16E2(.01) = 5.16ppm = 103%
Fe 8.06E2(.01) = 8.06ppm = 161%
Na 1.27E3(.01) = 1.27E1ppm 127%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65231	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]	Laurine J.	Ottman		[signature]

Date	Time Completed	Lab Unit Mgr
11/19/91	11/21/91	[signature]

54-6800-061 (R-10-83)

Al 4.68 93.6%

Ca 9.94 99.4%

Cr 4.82 96.4%

Fe 4.89 97.8%

Na 9.72 97.2%

LMCS ✓ [signature]

DIGESTED

Ag (497)(.01) = 99.4%
Ba (1005)(.01) = 100.5%
Cd (990)(.01) = 99.0%
Mg (2095)(.01) = 419%
Mn (543)(.01) = 108.6%
Pb (508)(.01) = 101.6%
Zn (1579)(.01) = 157.9%

Undigested

Ba 10.10 101.0%
Cd 9.88 98.8%
Mg 4.96 99.2%
Mn 4.94 98.8%
Zn 10.01 100.1%
Ag 5.06 101.2%
Pb 5.04 100.8%

R 331-8550

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R330	Customer ID: 791-10A
Analysis: ARSENIC	Sample Prep: UNDIGESTED

Instrument: PERKIN ELMER - WA77479	Procedure/Rev: LA-355-131/B-0
Technologist: D. R. JACKSON	Date: 10-01-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5595	11		
2	REAGENT BLANK	R325-5695	12		
3	SAMPLE 791-10A	R330-5795	13		
4	FINAL LMCS CHECK STD	R331-5595	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	125B38B/0.5 mL			N/A

A-6000-881 (03/92)

ARSENIC ANALYSIS - UNDIGESTED SAMPLE

Sample No	Sample Point	Date	Time Issued	Priority
R 324.-5595	106AW	9-20-91	101 6	25

Determination	Method/Standard	Result Units	Charge Code	Repeats
As	LA 355-131	% RECOVERY	WITE2	0

Sample Size: .500 ml
Customer ID: STD

Remarks, Calculations, Results
EDF R741 AS/HYDRD
STD#/25838B RESULT 1.09E-1
STD VAL 1.00E-1 %REC 109.0% 54.45/500 =
0.821

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
GC275				
Date 10-1-91				

Sample No	Sample Point	Date	Time Issued	Priority
R 325.-5695	106AW	9-20-91	101 6	25

Determination	Method/Standard	Result Units	Charge Code	Repeats
As	LA 355 131	PPM	WITE2	0

Sample Size: 10 ml
Customer ID: 106AW

Remarks, Calculations, Results
REMBEIT W.ANK
0.009 <5/10,000 = <5.00E-4 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
GC275				
Date 10-1-91				

Sample No	Sample Point	Date	Time Issued	Priority
R 330.-5795	106AW	9-20-91	10:29	25

Determination	Method/Standard	Result Units	Charge Code	Repeats
As	LA 355 131	PPM	WITE2	0

Sample Size: DRJ .025 ml
Customer ID: 741-106

Remarks, Calculations, Results
10-1-91
0.907 60.22/25 = 2.41

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
GC275				
Date 10-1-91				

Sample No	Sample Point	Date	Time Issued	Priority
R 331.-5595	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Repeats
As	LA 355 131	% RECOVERY	WITE2	0

Sample Size: .500 ml
Customer ID: STD

Remarks, Calculations, Results
EDF R741 AS/HYDRD
STD#/25838B RESULT 9.52E-2
STD VAL 1.00E-1 %REC 95.2%
0.719
47.60/500 = 9.52E-2

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
GC275				
Date 10-1-91				

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
CALIBRATION RECORD

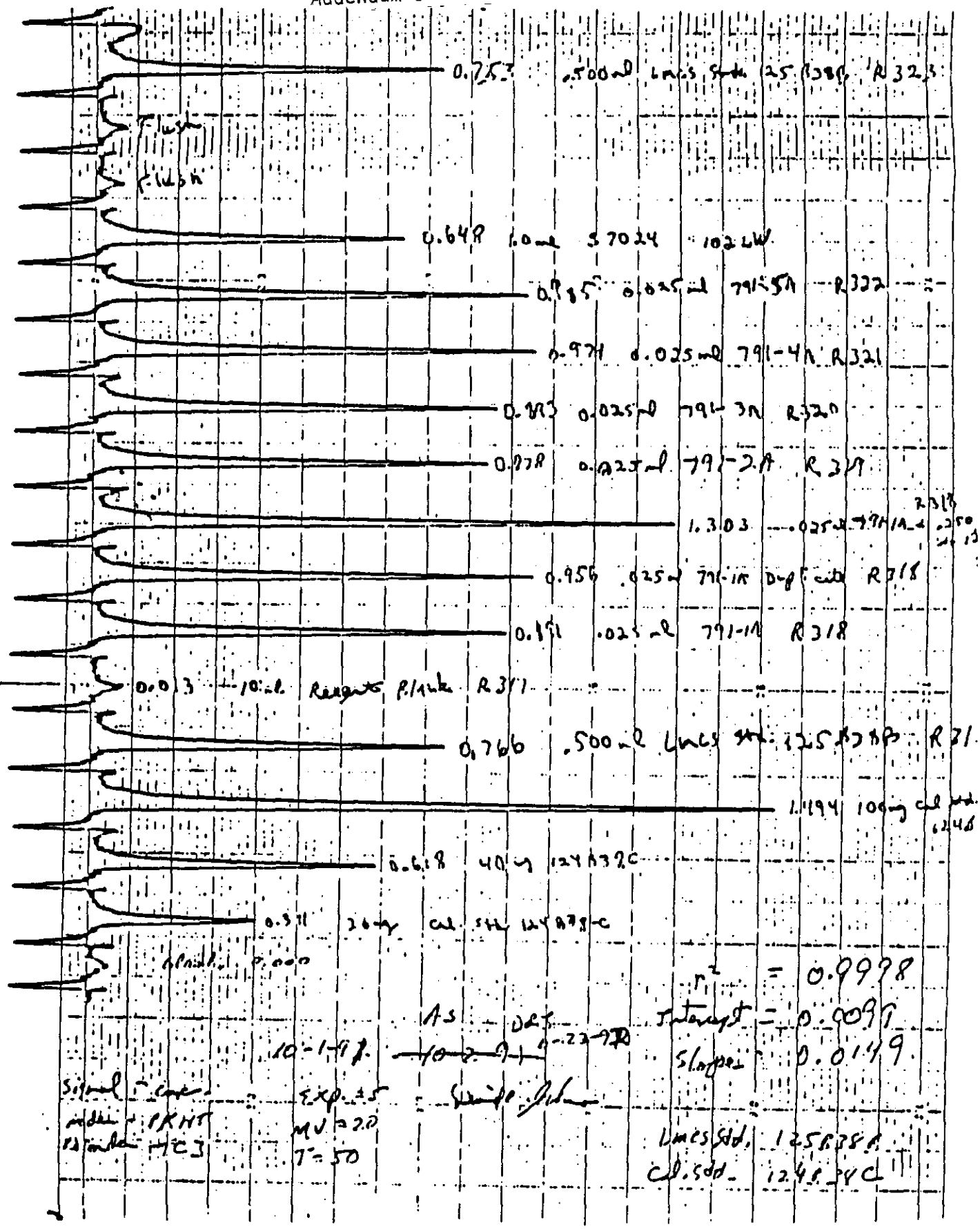
Analyte:	As				
Procedure:	LA-355-131	Revision:	B-0		
Instrument:	PERKIN - ELMER	Property No.:	WA77479		
Technologist:	D. JACKSON	Payroll No.:	6C275	Date:	10-01-91

Calibration Standard: 124B38C
Analyte Concentration: 0.1000 ppm
Type of Calibration: LINEAR

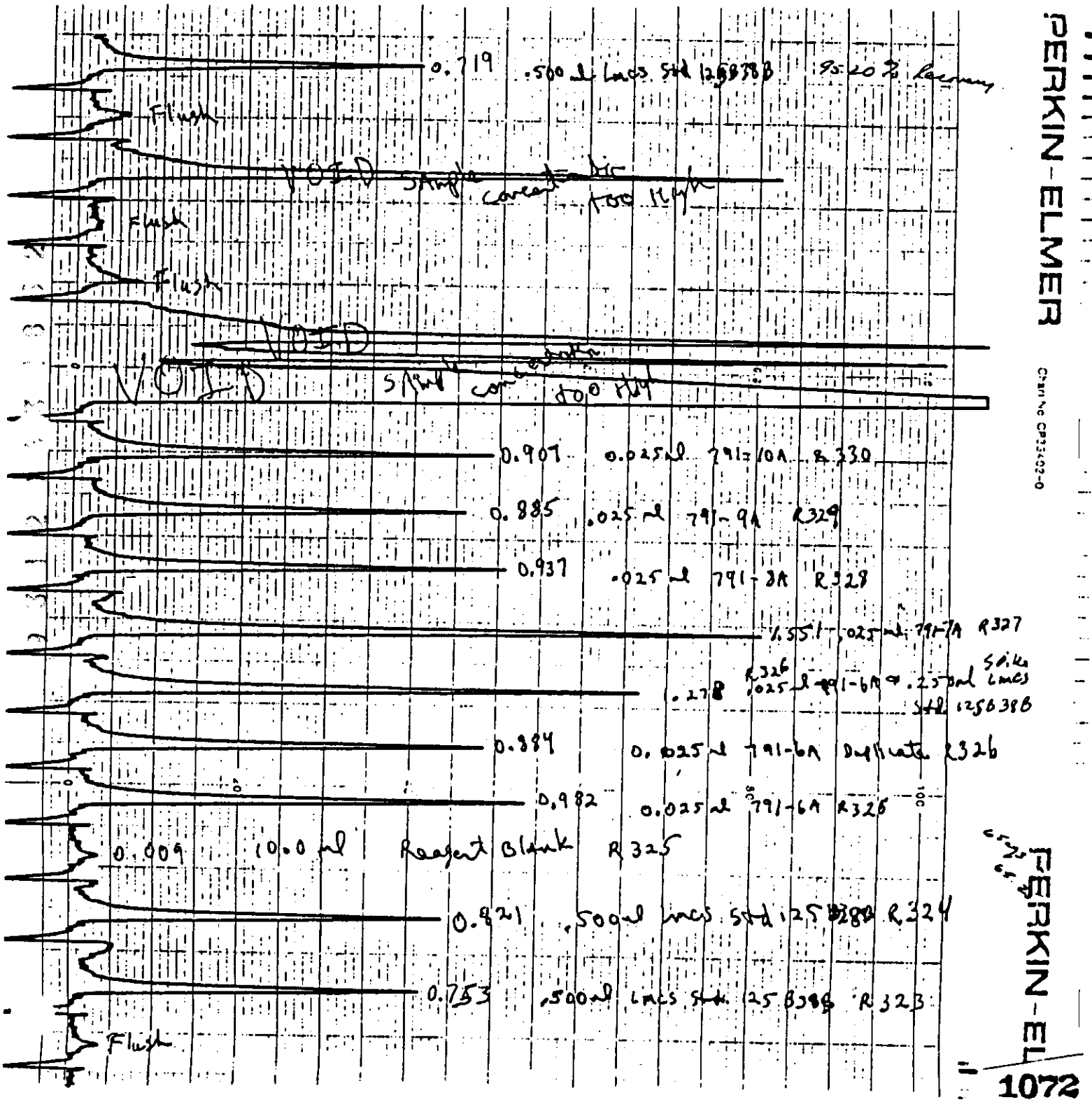
	Dilution	Concentration	Instrument Reading Unit
1	0.000 mL	0.0 ng	0.000
2	0.200 mL	20.0 ng	0.311
3	0.400 mL	40.0 ng	0.618
4	1.000 mL	100.0 ng	1.494
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Comments:

A-6000-882 (03



SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED THE ANALYSIS RUN ON PAGES 1071 TO 1072.


0.719 .500 ml LMCS Std 125838B 95.20 % Recovery
Flush
VOID Sample concentration too High
Flush
Flush
VOID
VOID Sample concentration too High
0.907 0.025 ml 791-10A R330
0.885 .025 ml 791-9A R329
0.937 .025 ml 791-8A R328
1.551 .025 ml 791-7A R327
R326 .025 ml 791-6A + .25 ml LMCS Spike Std 125638B
0.884 0.025 ml 791-6A Duplicate R326
0.982 0.025 ml 791-6A R326
0.009 10.0 ml Reagent Blank R325
0.821 .500 ml LMCS Std 125838B R324
0.753 .500 ml LMCS Std 125838B R323
Flush
PERKIN-ELMER
Chart No CP33402-0
PERKIN-EL

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R330	Customer ID: 791-10A
Analysis: CYANIDE	Sample Prep: UNDIGESTED

Instrument: MILTON ROY SPEC 301 - AL10724	Procedure/Rev: LA-695-102/A-4
Technologist: E. COLVIN	Date: 09-27-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5578	11		
2	REAGENT BLANK	R325-5678	12		
3	SAMPLE 791-10A	R330-5778	13		
4	FINAL LMCS CHECK STD	R331-5578	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	75C11S/0.100 mL			N/A

A-6000-881 (03/92)

CYANIDE ANALYSIS - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5578	106AW	9-20-91	10: 6	25

Determination	Method/Standard	Result Units	Charge Code	Results
CH	LA-695-102	% RECOVERY	WITE2	0

Sample Size	Customer ID
100uL-10mL-500uL	STD

Remarks, Calculations, Results

S244 KCH
STD# 75C11 S RESULT
STD VAL 8.90E² %REC 100.9%

ABS .738

$$\frac{(.738 - .012) - .006547}{.160252} / .5 \times 100 = 8.979E^2$$

.006547 9-30-91

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
80028				
Ed Cah				

Date	Time Completed	Lab Unit Mgr
9-27-91		

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5678	106AW	9-20-91	10: 8	25

Determination	Method/Standard	Result Units	Charge Code	Results
CH	LA-695-102	PPM	WITE2	

Sample Size	Customer ID
?	REG BL

Remarks, Calculations, Results

REAGENT BLANK

ABS .012

$$\frac{.012 - .006547}{.160252} = < 5.00E^{-1} \text{ ppm}$$

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
80028				
Ed Cah				

Date	Time Completed	Lab Unit Mgr
9-27-91		

Serial No	Sample Point	Date	Time Issued	Priority
R 330.-5778	106AW	9-20-91	10:24	25

Determination	Method/Standard	Result Units	Charge Code	Results
CH	LA-695-102	PPM	WITE2	0

Sample Size	Customer ID
750uL	791-10A

Remarks, Calculations, Results

ABS .271

$$\frac{(.271 - .012) - .006547}{.160252} \div .750 = 2.10 \text{ ppm}$$

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
80028				
Ed Cah				

Date	Time Completed	Lab Unit Mgr
9-27-91		

Serial No	Sample Point	Date	Time Issued	Priority
R 331.-5578	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Results
CH	LA-695-102	% RECOVERY	WITE2	

Sample Size	Customer ID
100uL-10mL-500uL	STD

Remarks, Calculations, Results

S244 KCH
STD# 75C11 S RESULT
STD VAL 8.90E² %REC 100.4%

ABS .735

$$\left[\frac{(.735 - .012) - .006547}{.160252}\right] \div .500 \times 100 = 8.94E^2$$

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
80028				
Ed Cah				

Date	Time Completed	Lab Unit Mgr
9-27-91		

TODAYS DATE: 09-27-1991

PAYROLL NO.: 80028

INTERCEPT= .006547
SLOPE= .160252

SAMPLE ID#: R-325 BLANK
SAMPLE SIZE: 0
WVL AND ABS= 580NM 0.012 A

SAMPLE ID#: R-324 75C11-S STD
SAMPLE SIZE: 100UL-10ML-500UL
WVL AND ABS= 580NM 0.738 A

SAMPLE ID#: R-326
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.118 A

SAMPLE ID#: R-326 DUPLICATE
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.120 A

SAMPLE ID#: R-326 + SPIKE
SAMPLE SIZE: 750UL + 100UL-10ML-500UL 75C11-S SPIKE
WVL AND ABS= 580NM 0.856 A

SAMPLE ID#: R-327
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.110 A

SAMPLE ID#: R-328
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.307 A

SAMPLE ID#: R-329
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.063 A

SAMPLE ID#: R-330
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.271 A

SAMPLE ID#: R-331 75C11-S STD
SAMPLE SIZE: 100UL-10ML-500UL
WVL AND ABS= 580NM 0.735 A

CALIBRATION CURVE LACHAT NON-DISTILLED 25ML

CYANIDE DATE: 8-28-1991

CALIBRATION STANDARD # 351-M, 1006 MG/ML CYANIDE

DILUTION FACTOR = 10/.1 = 100, WORKING STANDARD = 1006 /100 = 10.060

PIPET SIZE	MICROGRAMS CYANIDE	TOTAL ABS	NET ABS
BLANK	0	.006	0
50UL	.503	.0930	.0870
500UL	5.030	.8320	.8260
1000UL	10.060	1.6180	1.6120

Y INTERCEPT = .006547
SLOPE = .160252
C C = .999921

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R330	Customer ID: 791-10A
Analysis: DIFFERENTIAL THERMAL	Sample Prep: UNDIGESTED

Instrument: WC16134,WC16129	Procedure/Rev: LA-514-113/A-0
Technologist: M. MYERS	Date: 10-14-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5511	11		
2	REAGENT BLANK	R325-5611	12		
3	SAMPLE 791-10A	R330-5711	13		
4	FINAL LMCS CHECK STD	R4-5511	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	27C11BB/0.10 mL			N/A

A-6000-881 (03/92)

DIFFERENTIAL THERMAL ANALYSIS - UNDIGESTED SAMPLE

Sample No.	Sample Point	Date	Time Issued	Priority
R 324.-5511	106AW	9-20-91	10: 5	25

Determination	Method Standard	Result Units	Charge Code	Reruns
DSC	LA-514-113	EXOTHERMS	WITE2	0

Sample Size	Customer ID
.010mL	STD

Remarks, Calculations, Results: 27C11AA

100.0%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
60823				

Date	Time Completed	Lab Manager
10-14-91		[signature]

Sample No.	Sample Point	Date	Time Issued	Priority
R 325.-5611	106AW	9-20-91	10: 7	25

Determination	Method Standard	Result Units	Charge Code	Reruns
DSC	LA-514-113	EXOTHERMS	WITE2	0

Sample Size	Customer ID
.010mL	REG BL

Remarks, Calculations, Results: REAGENT BLANK

NO EXOTHERMS

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
60823				

Date	Time Completed	Lab Manager
10-14-91		[signature]

Sample No.	Sample Point	Date	Time Issued	Priority
R 330.-5711	106AW	9-20-91	10:23	25

Determination	Method Standard	Result Units	Charge Code	Reruns
DSC	LA-514-113	EXOTHERMS	WITE2	0

Sample Size	Customer ID
.010mL	771-10A

Remarks, Calculations, Results:

NO EXOTHERM

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
60823				

Date	Time Completed	Lab Manager
10-14-91		[signature]

Sample No.	Sample Point	Date	Time Issued	Priority
R 4.-551	RCRA-1	8-16-91	9:35	26

Determination	Method Standard	Result Units	Charge Code	Reruns
DSC	LA-514-113	EXOTHERMS	[illegible]	0

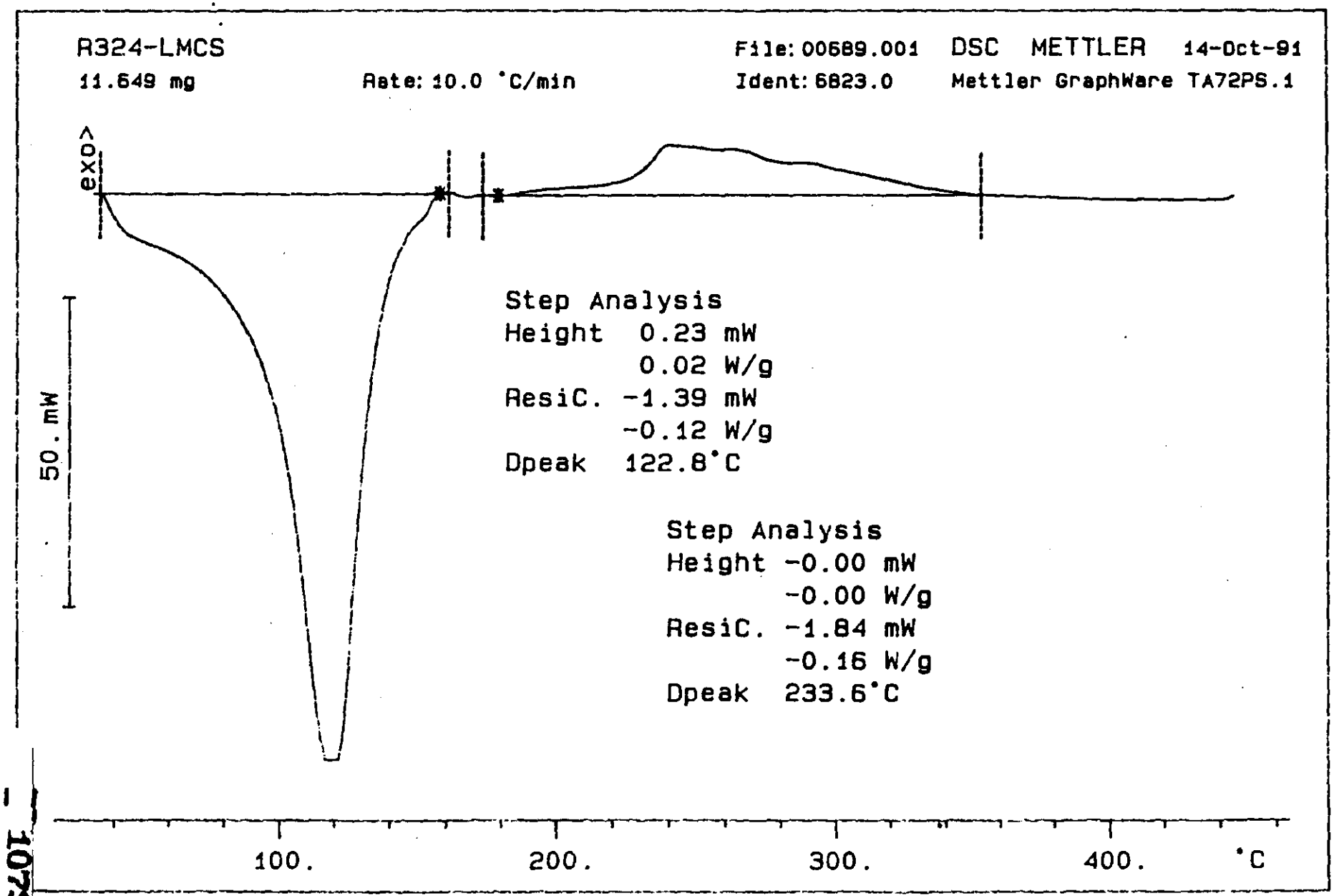
Sample Size	Customer ID
.010mL	STD

Remarks, Calculations, Results: 27C11AA

100.0%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
60823				

Date	Time Completed	Lab Manager
10-14-91		[signature]

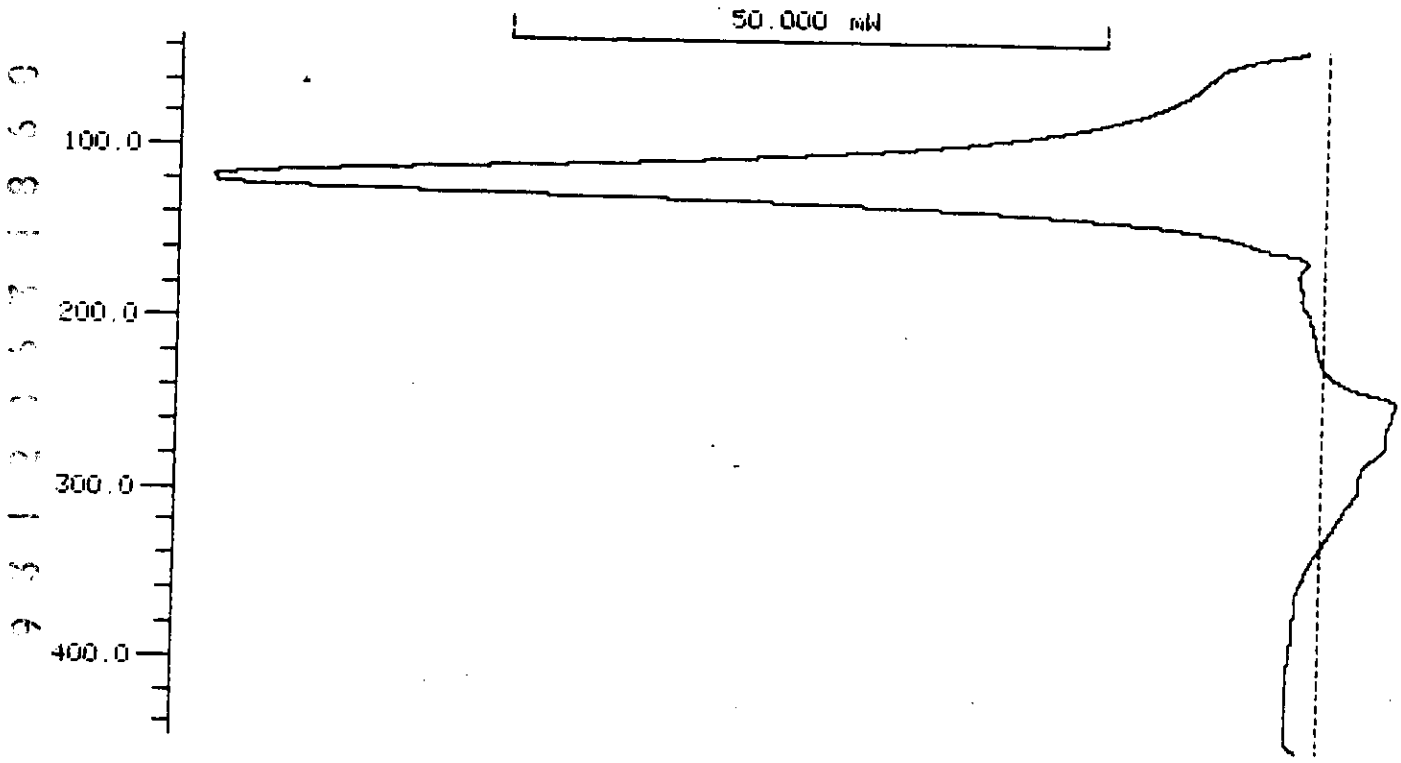

R324-LMCS
11.649 mg
Rate: 10.0 °C/min
File: 00689.001
Ident: 6823.0
DSC METTLER 14-Oct-91
Mettler GraphWare TA72PS.1
exo>
50. mW
Step Analysis
Height 0.23 mW
0.02 W/g
ResiC. -1.39 mW
-0.12 W/g
Dpeak 122.8°C
Step Analysis
Height -0.00 mW
-0.00 W/g
ResiC. -1.84 mW
-0.16 W/g
Dpeak 233.6°C
100.
200.
300.
400.
°C

R324

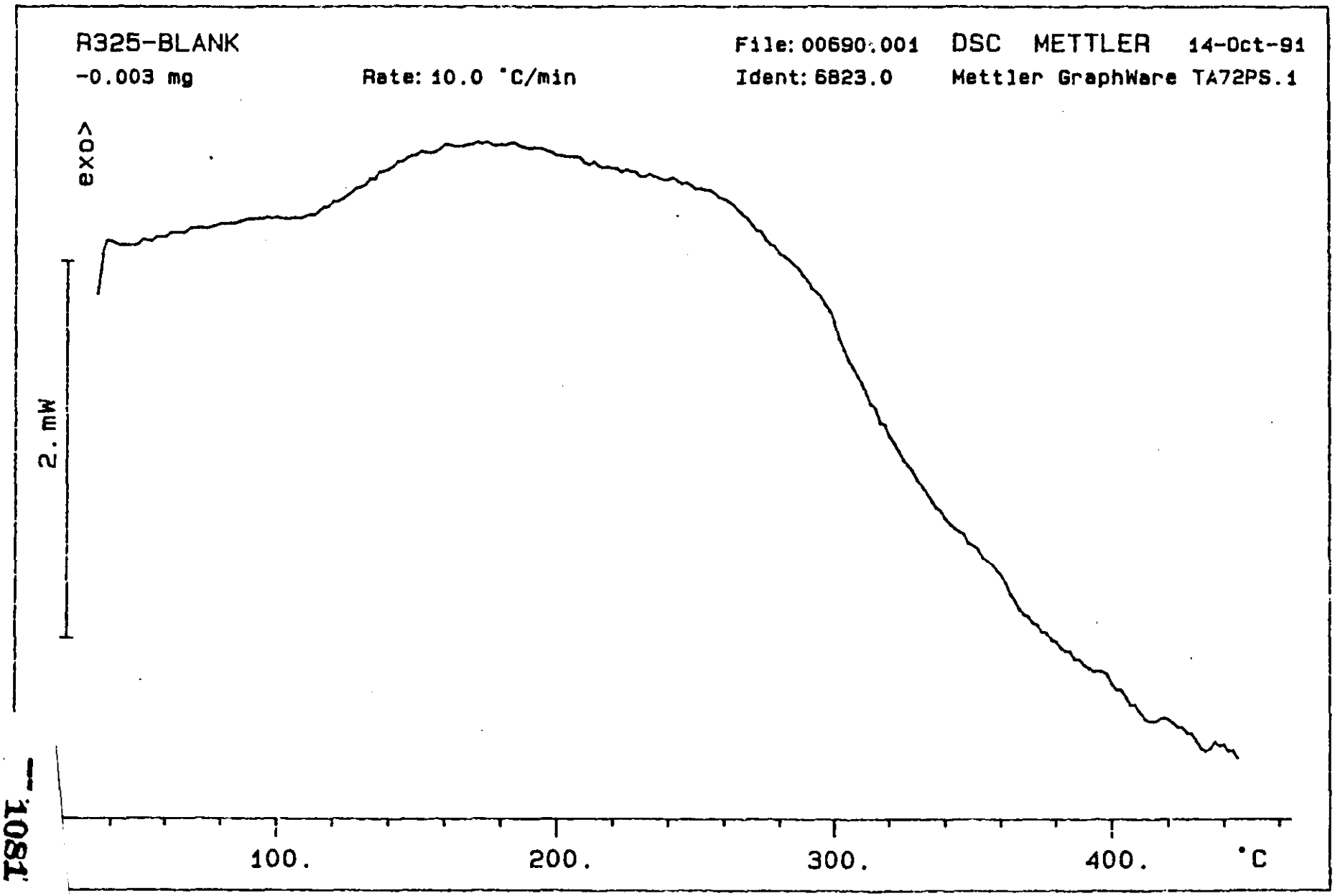
END SCREEN °C 448.0

TEMPERATURE °C

HEAT FLOW
EXOTHERMAL-->



******** METTLER TA4000 SYSTEM *********

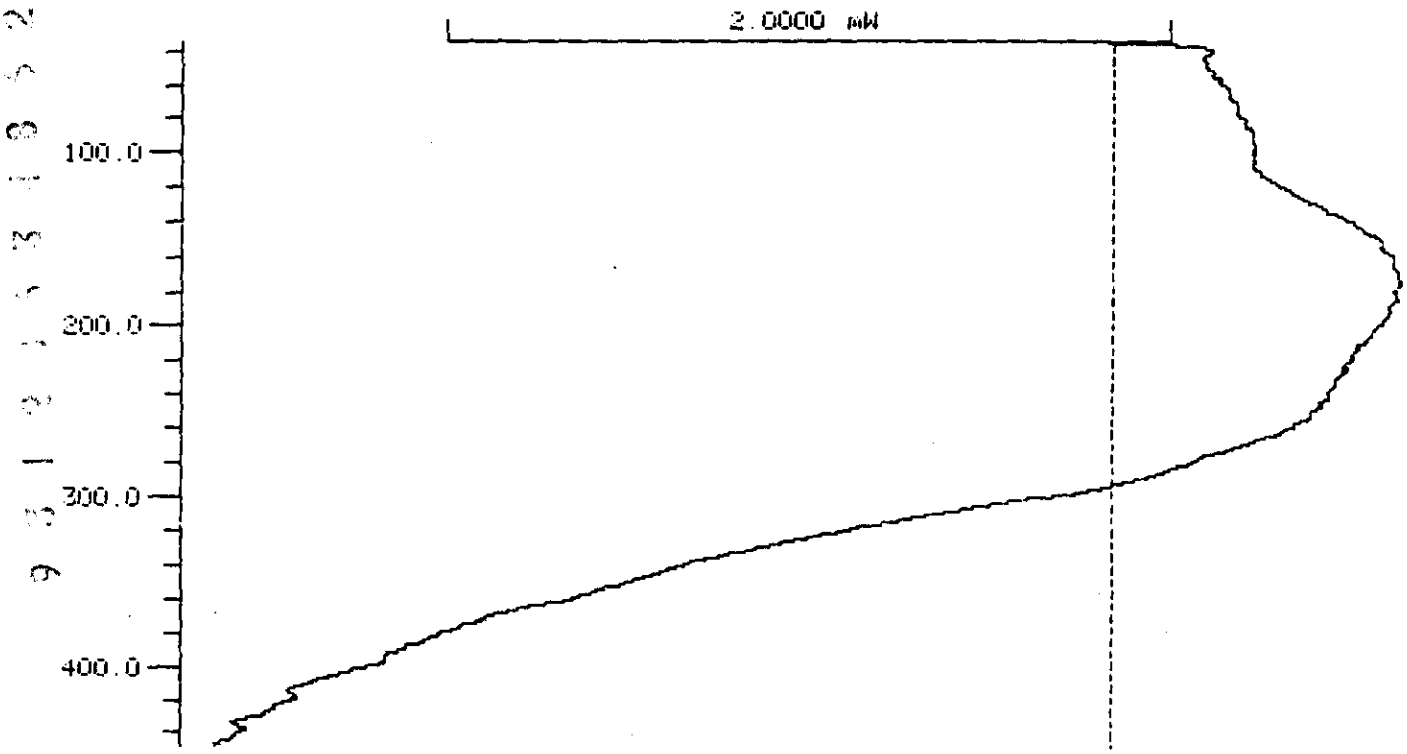

R325-BLANK
-0.003 mg
Rate: 10.0 °C/min
File: 00690.001
Ident: 6823.0
DSC METTLER 14-Oct-91
Mettler GraphWare TA72PS.1
exo>
2. mW
100.
200.
300.
400.
°C

R325

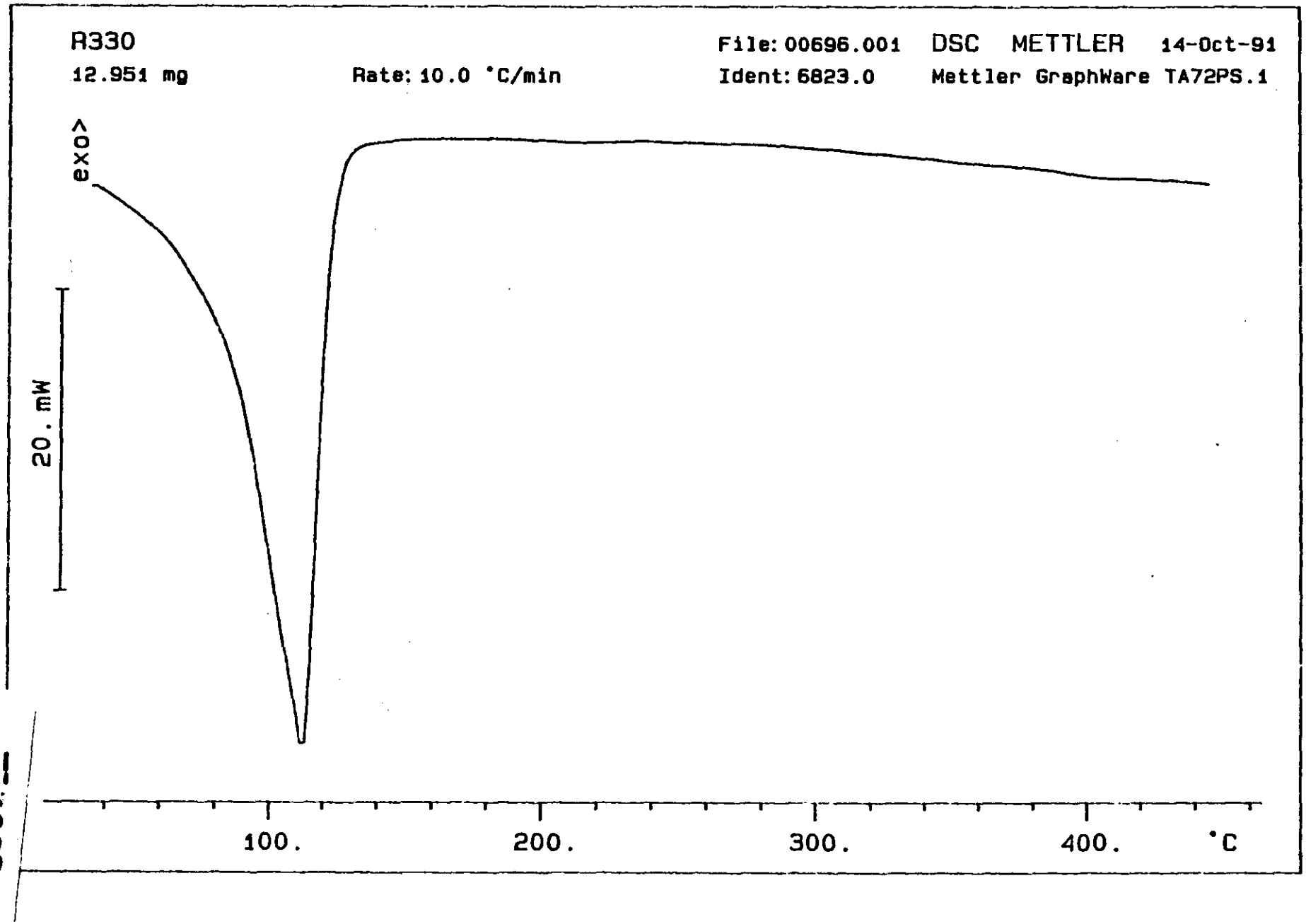
END SCREEN °C 447.8

TEMPERATURE °C

HEAT FLOW
EXOTHERMAL-->



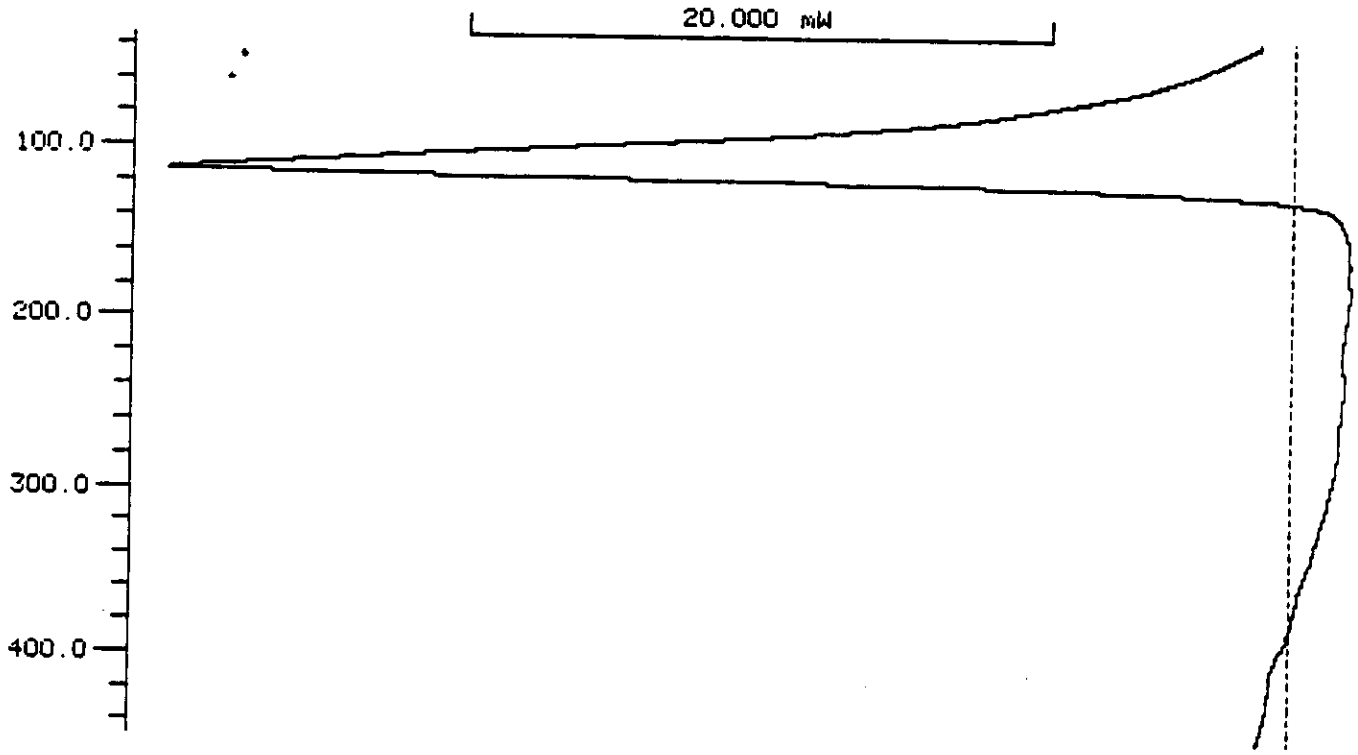
******** METTLER TA4000 SYSTEM *********


R330
12.951 mg
Rate: 10.0 °C/min
File: 00696.001
Ident: 6823.0
DSC METTLER 14-Oct-91
Mettler GraphWare TA72PS.1
exo>
20. mW
100.
200.
300.
400.
°C

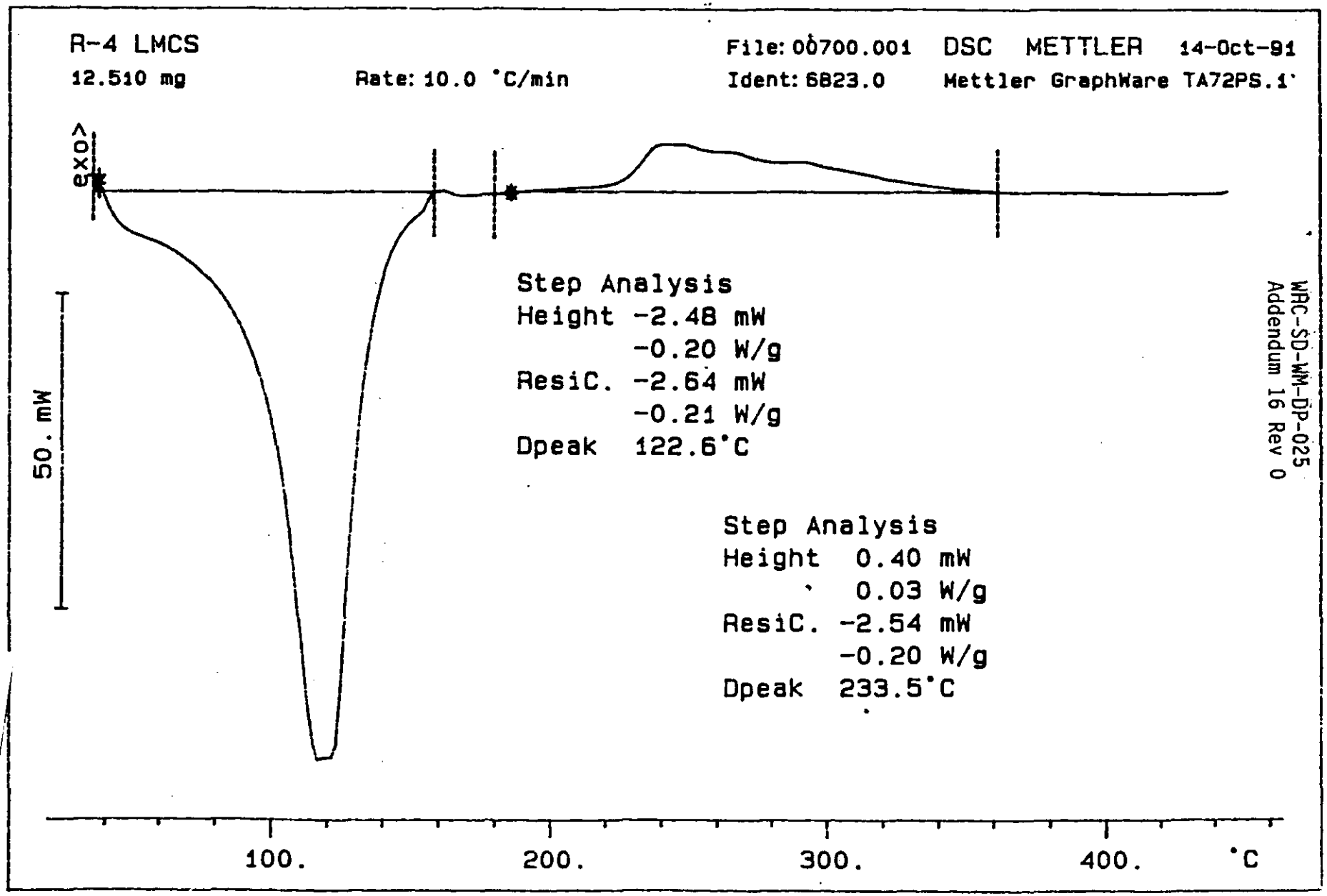
END SCREEN °C 447.8

TEMPERATURE °C

HEAT FLOW
EXOTHERMAL-->



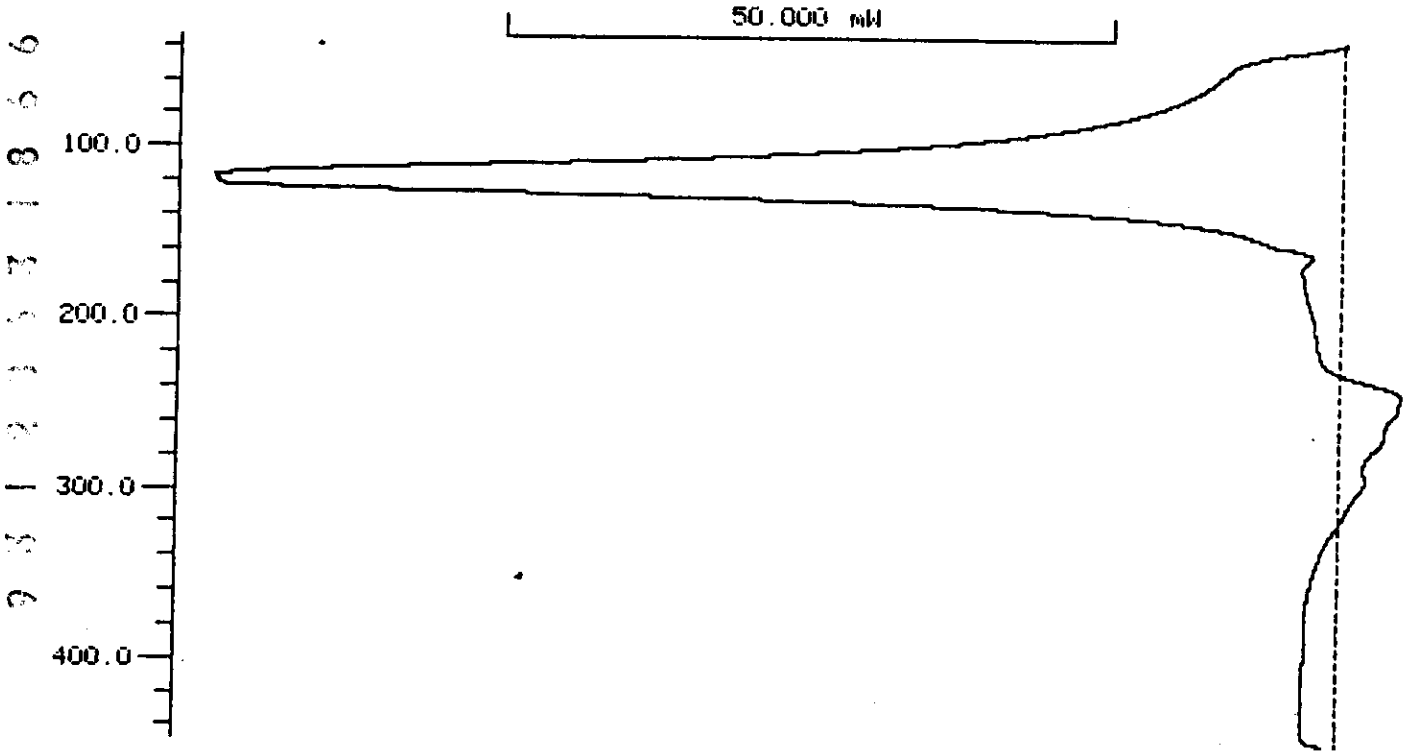
******** METTLER TA4000 SYSTEM *********


R-4 LMCS
12.510 mg
Rate: 10.0 °C/min
File: 00700.001
Ident: 6823.0
DSC METTLER 14-Oct-91
Mettler GraphWare TA72PS.1
exo>
50. mW
Step Analysis
Height -2.48 mW
-0.20 W/g
ResiC. -2.64 mW
-0.21 W/g
Dpeak 122.6°C
Step Analysis
Height 0.40 mW
0.03 W/g
ResiC. -2.54 mW
-0.20 W/g
Dpeak 233.5°C
100.
200.
300.
400.
°C

END SCREEN °C 448.0

TEMPERATURE °C

HEAT FLOW
EXOTHERMAL-->



******** METTLER TA4000 SYSTEM *********

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R330	Customer ID: 791-10A
Analysis: MERCURY	Sample Prep: UNDIGESTED

Instrument: PERKIN ELMER WA77479	Procedure/Rev: LA-325-102/B-0
Technologist: D. R. JACKSON	Date: 10-17-91
Starting Time: 8:00	Temperature: N/A
Ending Time: 2:00	Chemist: R. K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5597	11		
2	REAGENT BLANK	R325-5697	12		
3	SAMPLE 791-10A	R330-5797	13		
4	FINAL LMCS CHECK STD	R331-5597	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	125B38D/1.50 mL			N/A

A-6000-881 (03/92)

9 3 1 2 1 3 1 8 5 7

MERCURY ANALYSIS - UNDIGESTED SAMPLE

K 324.-5597	106AW	9-20-91	10:[illegible]	25
Hg	Method Standard: Hg 325-102	Result Units: % RECOVERY	Charge Code: WIEC	Remarks: 0
Sample Size: 1.50 ml			Customer ID: STD	

Methods, Calculations, Results
EDT: 1.71e TRI/HYDRO
STD# 125AD RESULT 1.17E-1
STD WT 1.00E-1 SREC 117.056
0.561 176.15/1500 =

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C225				
Date: 10-16-91	Time Completed	Lab Unit Mgr		

10-17-91 JR 1-7-92

K 325.-5597	106AW	9-20-91	10:[illegible]	25
Hg	Method Standard: Hg 325-102	Result Units: PPM	Charge Code: WIEC	Remarks: 0
Sample Size: 10.0 ml			Customer ID: [illegible]	

Methods, Calculations, Results
RESULT TRI/HYDRO
-0.002 <5/10,000 = <5.00E-4 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C225				
Date: 10-16-91	Time Completed	Lab Unit Mgr		

10-17-91 JR 1-7-92

K 330.-5597	106AW	9-20-91	10:24	25
Hg	Method Standard: Hg 325-102	Result Units: PPM	Charge Code: WIEC	Remarks: 0
Sample Size: 1.0 ml			Customer ID: 291-106	

Methods, Calculations, Results
-0.017 <5/1000 = <5.00E-3 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C225				
Date: 10-16-91	Time Completed	Lab Unit Mgr		

10-17-91 JR 1-7-92

K 331.-5597	106AW	9-20-91	10:26	25
Hg	Method Standard: Hg 325-102	Result Units: % RECOVERY	Charge Code: WIEC	Remarks: 0
Sample Size: 1.50 ml			Customer ID: STD	

Methods, Calculations, Results
EDT: 1.71e TRI/HYDRO
STD# 125BAD RESULT 9.24E-2
STD WT 1.00E-1 SREC 92.4020
0.446 138.67/1500 =

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C225				
Date: 10-16-91	Time Completed	Lab Unit Mgr		

10-17-91 JR 1-7-92

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
CALIBRATION RECORD

Analyte: Hg

Procedure: LA-325-102 | Revision: B-0

Instrument: PERKIN ELMER | Property No.: WA77479

Technologist: D. R. JACKSON | Payroll No.: 6C275 | Date: 10-17-91

Calibration Standard: 124B38D

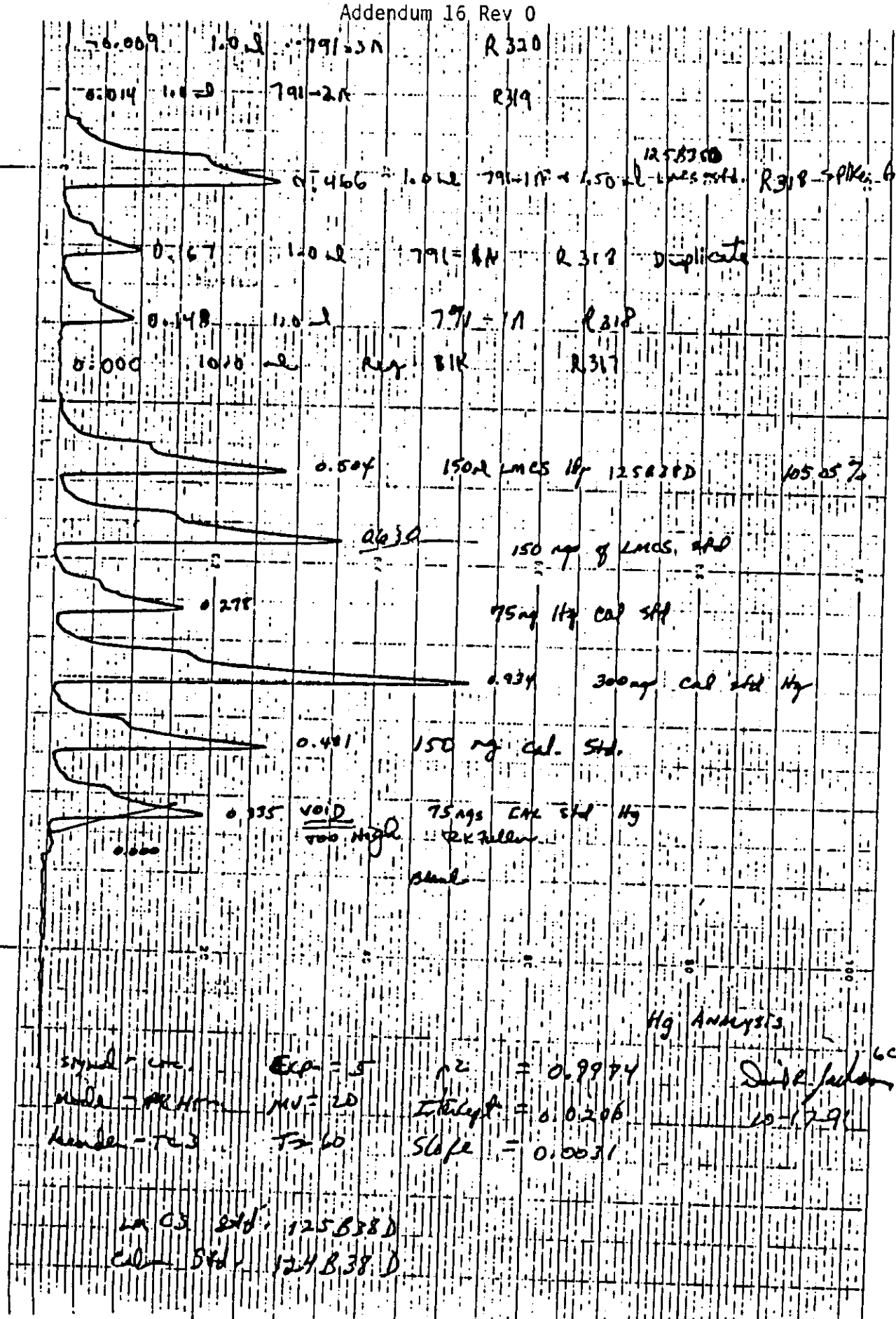
Analyte Concentration: 0.1000 ppm

Type of Calibration: LINEAR

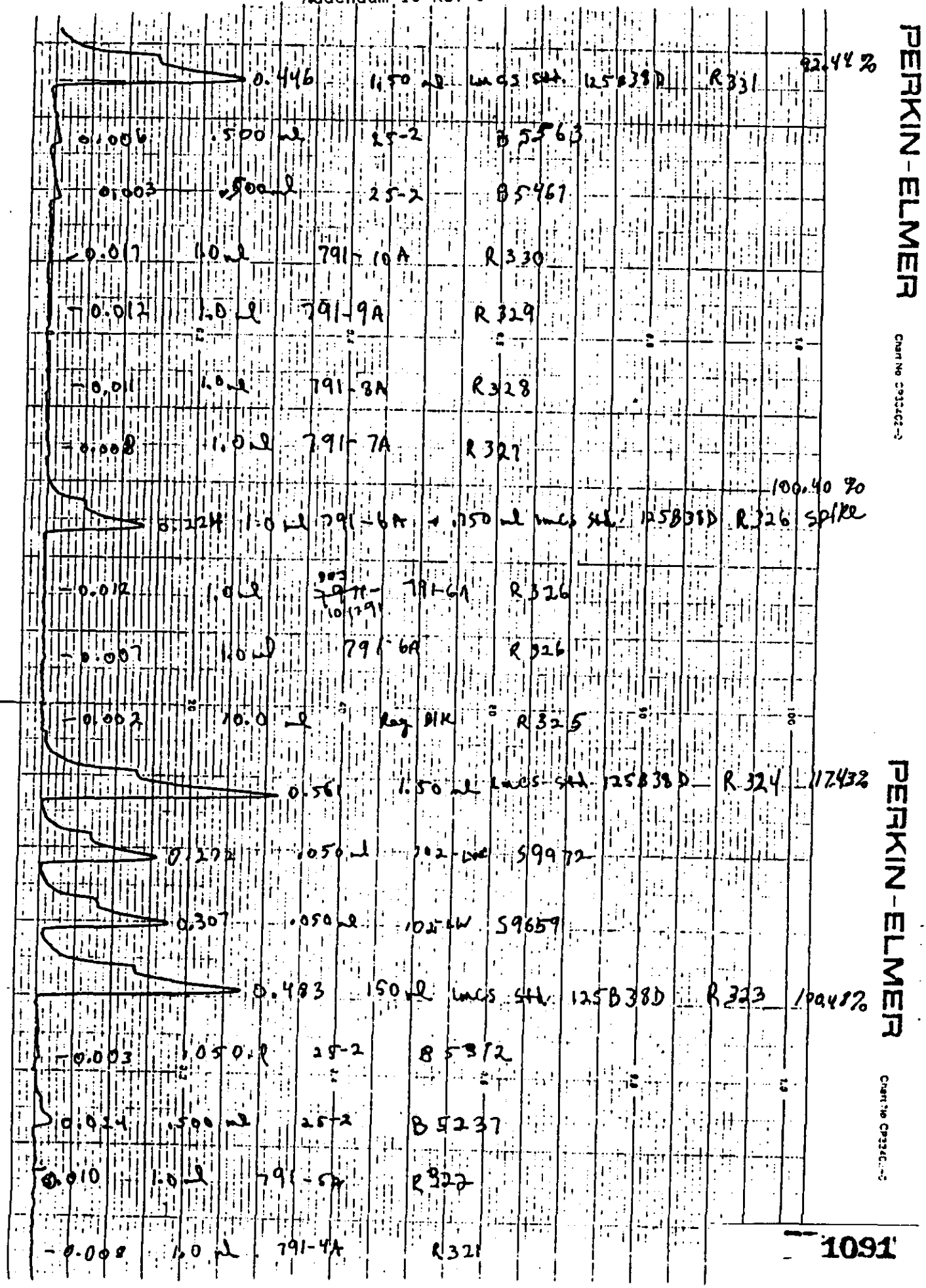
	Dilution	Concentration	Instrument Reading Unit
1	0.000 mL	0 ng	0.000
2	0.750 mL	75 ng	0.278
3	1.500 mL	150 ng	0.481
4	3.000 mL	300 ng	0.934
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Comments:

A-6000-882 (03/92)



SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED THE ANALYSIS RUN ON PAGES 1090 TO 1091.


PERKIN-ELMER
0.446 1.50 ml LMCS Std. 125B38D R331 92.44 %
0.006 .500 ml 25-2 B5563
0.003 .500 ml 25-2 B5467
-0.017 1.0 ml 791-10A R330
-0.012 1.0 ml 791-9A R329
-0.011 1.0 ml 791-8A R328
-0.008 1.0 ml 791-7A R327
100.40 %
0.224 1.0 ml 791-6A + .750 ml LMCS Std. 125B38D R326 Spike
-0.012 1.0 ml 791-6A R326
-0.007 1.0 ml 791-6A R326
-0.002 10.0 ml Reg Blk R325
0.561 1.50 ml LMCS Std. 125B38D R324 117.43%
0.272 .050 ml 702-LW S9972
0.307 .050 ml 102-LW S9659
0.483 150 ml LMCS Std. 125B38D R323 100.48%
-0.003 .050 ml 25-2 B5312
0.024 .500 ml 25-2 B5237
-0.010 1.0 ml 791-5A R322
-0.008 1.0 ml 791-4A R321
PERKIN-ELMER

9 3 1 2 3 3 4 8 7 1

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R330	Customer ID: 791-10A
Analysis: AMMONIA	Sample Prep: UNDIGESTED

Instrument: WB39927	Procedure/Rev: LA-634-102/D-0
Technologist: S. LAI	Date: 10-03-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5528	11		
2	REAGENT BLANK	R325-5628	12		
3	SAMPLE 791-10A	R330-5728	13		
4	FINAL LMCS CHECK STD	R331-5528	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	4C11-QQ/.250 mL			N/A

A-6000-881 (03/92)

9 3 1 2 1 5 3 1 3 7 2

AMMONIA ANALYSIS - UNDIGESTED SAMPLE

Sample No	Sample Point	Date	Time Issued	Priority
K 324.-5520	106AW	9-20-91	10:5	25

Determination	Method/Standard	Result Units	Charge Code	Repeats
NH4	LA-634-102	% RECOVERY	WITEP	0

Sample Size: 250λ — 0.09941M HCl — Customer ID: STD

Remarks, Calculations, Results:
S235 1HHCL
STDH 4C11-88 RESULT 4.90x10^-2
STD VAL 5.10x10^-2 %REC 96.08%
(.150-.028)(.09941) / .250 = .049
Blank: 28λ
STD: 150λ

Analyst-1: Sue Li — Analyst-2 — Analyst-3 — Analyst-4 — Analyst-5
Hrs: 1c916
Date: 10-7-91 — Time Completed — Lab Unit Mgr: D M Thomas

Sample No	Sample Point	Date	Time Issued	Priority
K 325.-5620	106AW	9-20-91	10:7	25

Determination	Method/Standard	Result Units	Charge Code	Repeats
NH4	LA-634-102	PPM	WITEP	0

Sample Size: 1ml — 0.09941M HCl — Customer ID: REG BL.

Remarks, Calculations, Results:
REAGENT BLANK
< (.010)(.09941) / 1 = <9.94x10^-4 M (4μ)
Blank: 28λ

Analyst-1: Sue Li — Analyst-2 — Analyst-3 — Analyst-4 — Analyst-5
Hrs: 1c916
Date: 10-3-91 — Time Completed — Lab Unit Mgr: D M Thomas

Sample No	Sample Point	Date	Time Issued	Priority
K 330.-5728	106AW	9-20-91	10:23	25

Determination	Method/Standard	Result Units	Charge Code	Repeats
NH4	LA-634-102	PPM	WITEP	0

Sample Size: 1ml — 0.09941M HCl — Customer ID: 791-10A

Remarks, Calculations, Results:
(.039-.028)(.09941) / 1 = 1.09x10^-3 M
Blank: 28λ
Sample: 39λ

Analyst-1: Sue Li — Analyst-2 — Analyst-3 — Analyst-4 — Analyst-5
Hrs: 1c916
Date: 10-03-91 — Time Completed — Lab Unit Mgr: D M Thomas

Sample No	Sample Point	Date	Time Issued	Priority
K 331.-5528	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Repeats
NH4	LA-634-102	% RECOVERY	WITEP	0

Sample Size: 250λ — 0.09941M HCl — Customer ID: STD

Remarks, Calculations, Results:
S235 1HHCL
STDH 4C11-88 RESULT 4.93x10^-2
STD VAL 5.00x10^-2 %REC 96.67%
(.152-.028)(.09941) / .250
Blank: 28λ
STD: 152λ

Analyst-1: Sue Li — Analyst-2 — Analyst-3 — Analyst-4 — Analyst-5
Hrs: 1c916
Date: 10-3-91 — Time Completed — Lab Unit Mgr: D M Thomas

9312933187 3

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R330	Customer ID: 791-10A
Analysis: DETERMINATION OF HYDROXIDE IONS IN SOLUTION	Sample Prep: UNDIGESTED

Instrument: FISHER - WA77509	Procedure/Rev: LA-661-102/F-1
Technologist: M. BIERMAN	Date: 10-15-91
Starting Time: NA	Temperature: 25degC
Ending Time: NA	Chemist: S. ISAACSON

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5529	11		
2	REAGENT BLANK	R325-5629	12		
3	SAMPLE 791-10A	R330-5729	13		
4	FINAL LMCS CHECK STD	R331-5529	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	9C11AF/0.100 mL			NA
SAMPLES RERUN.				

A-6000-881 (03/92)

9 5 1 2 3 3 1 3 7 4

DETERMINATION OF HYDROXIDE ION IN SOLUTION - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 329.-5529	106AW	9-20-91	10:5	25

Determination	Method/Standard	Result Units	Charge Code	Results
OH	LA-661-102	% RE RERUN	W11E2	1

Sample Size: 100 ml — Customer ID: STD

Remarks, Calculations, Results:
S273 ITS-OH
STDH9C11AF RESULT 1.06E —
STD VAL %REC 104.6%
1 ml BaCl
.1905 ~~00~~ HNO3
(564-10)(.1905)/100 =

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
LC559				
MLB				

Date: 10/15/91 — Time Completed — Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5629	106AW	9-20-91	10:7	25

Determination	Method/Standard	Result Units	Charge Code	Results
OH	LA-661-102	M RERUN	W11E2	1

Sample Size: 3 ml Q-H2O — Customer ID: REG BL

Remarks, Calculations, Results:
READEUT BLANK
.1905 ~~00~~ HNO3
complete

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
LC559				
MLB				

Date: 10/15/91 — Time Completed — Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 330.-5729	106AW	9-20-91	10:23	25

Determination	Method/Standard	Result Units	Charge Code	Results
OH	LA-661-102	M RERUN	W11E2	1

Sample Size: 100 ml — Customer ID: 291-10A

Remarks, Calculations, Results:
1 ml BaCl
10 ml Q-H2O
ITS-OH (9C11AF) .100 ml
.1905 ~~00~~ HNO3
(731-564)(.1905)/100 = 3.18E-1

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
LC559				
MLB				

Date: 10/15/91 — Time Completed — Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 331.-5529	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Results
OH	LA-661-102	% RE RERUN	W11E2	1

Sample Size: 100 ml — Customer ID: STD

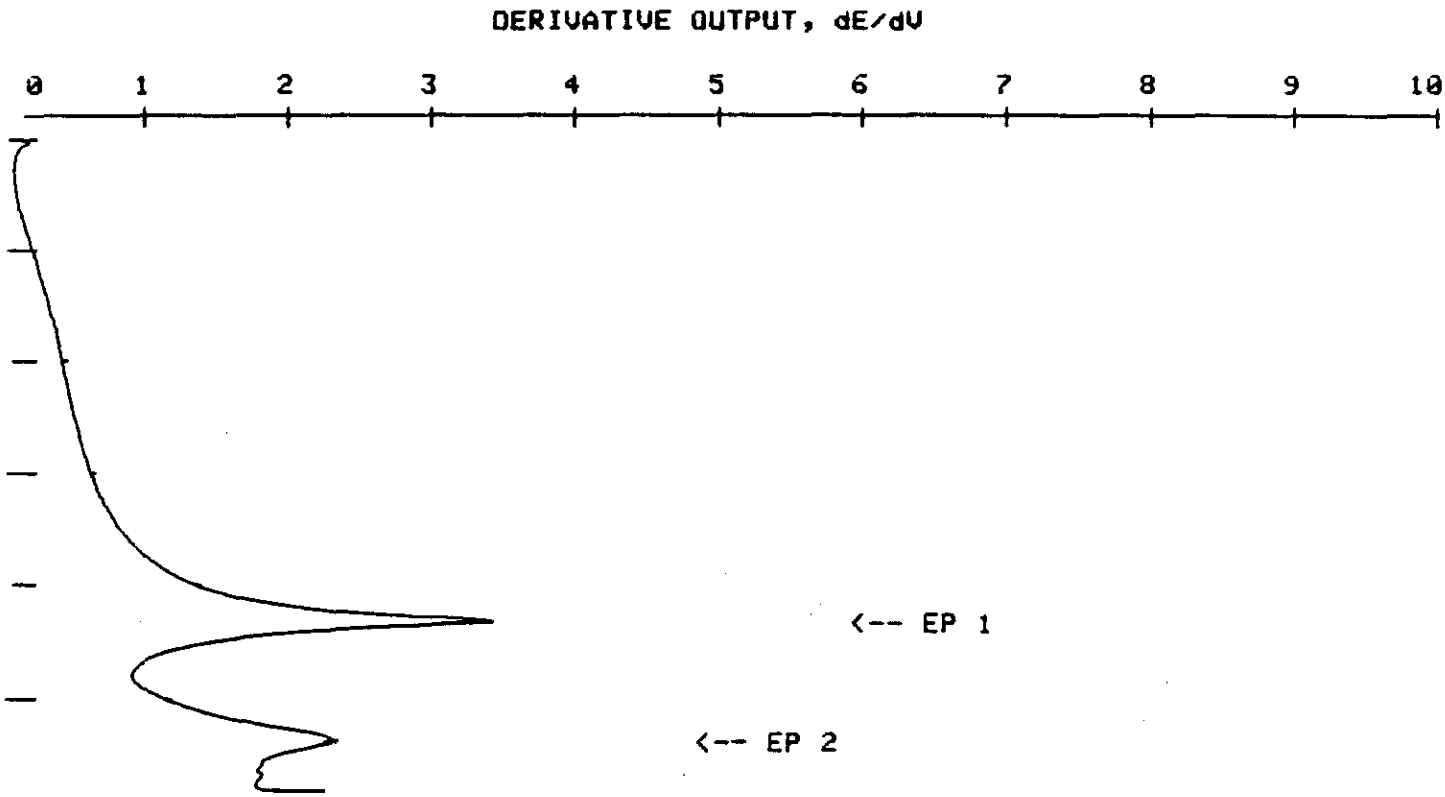
Remarks, Calculations, Results:
S273 ITS-OH
STDH9C1AF RESULT 1.01E —
STD VAL %REC 99.7%
1 ml BaCl
.1905 ~~00~~ HNO3
(539-10)(.1905)/100 =

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
LC559				
MLB				

Date: 10/15/91 — Time Completed — Lab Unit Mgr: [signature]

9312534875

SAMPLE NUMBER: 1
SAMPLE DATA: 331.
DIRECT READ PH: 11.974



ORV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.64	0.539	0.0000
8.15	0.671	0.0000

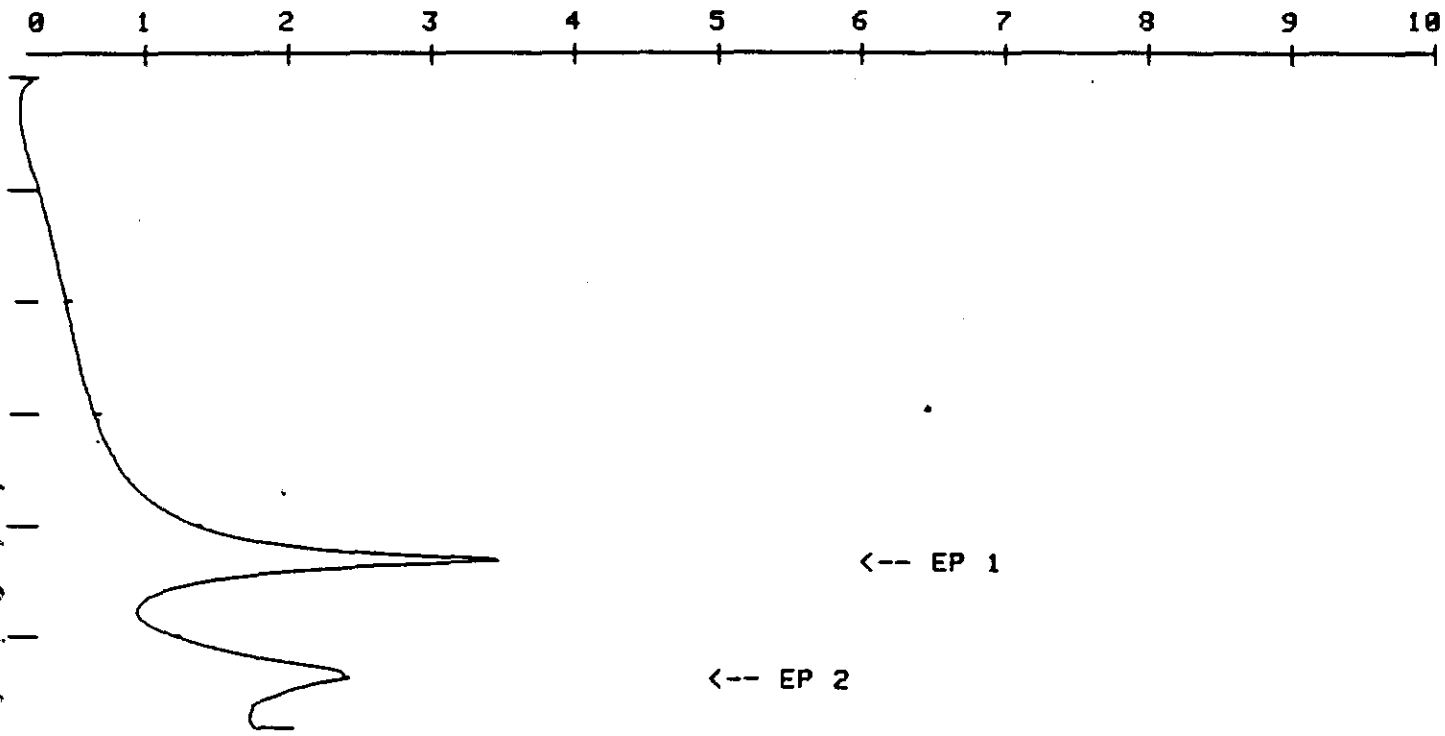
TITRATION TERMINATED BY PH LIMIT.

OCT 15 1991 9:53 PM

SAMPLE NUMBER: 2
SAMPLE DATA: 331.
DIRECT READ PH: 12.015

WMC-SD-WM-DP-025
Addendum 16 Rev 0

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

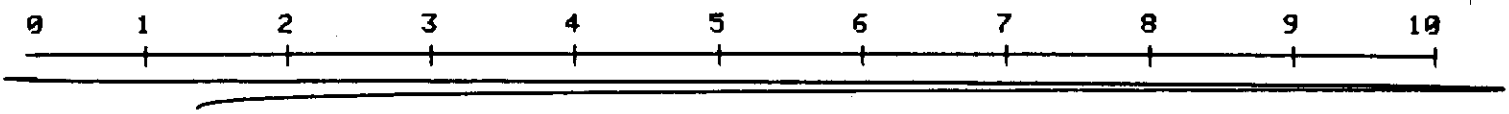
EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.64	0.539	0.0000
8.01	0.671	0.0000

TITRATION TERMINATED BY PH LIMIT.

OCT 15 1991 9:59 PM

SAMPLE NUMBER: 1
SAMPLE DATA: 325.
DIRECT READ PH: 6.116

DERIVATIVE OUTPUT, dE/dV



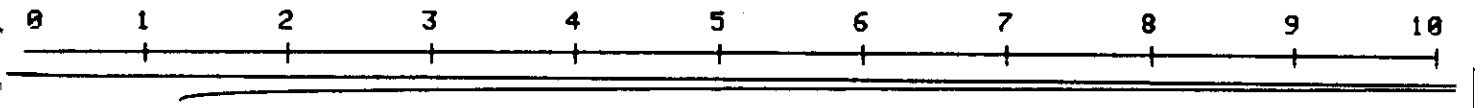
DRV TITRATION: .010

TITRATION TERMINATED BY PH LIMIT.

OCT 15 1991 6:49 PM

SAMPLE NUMBER: 2
SAMPLE DATA: 325.
DIRECT READ PH: 6.073

DERIVATIVE OUTPUT, dE/dV



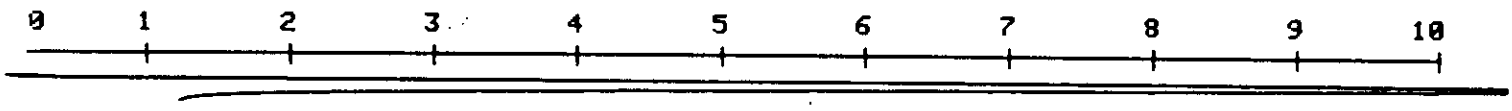
DRV TITRATION: .01

TITRATION TERMINATED BY PH LIMIT.

OCT 15 1991 6:51 PM

SAMPLE NUMBER: 3
SAMPLE DATA: 325.
DIRECT READ PH: 6.020

DERIVATIVE OUTPUT, dE/dV

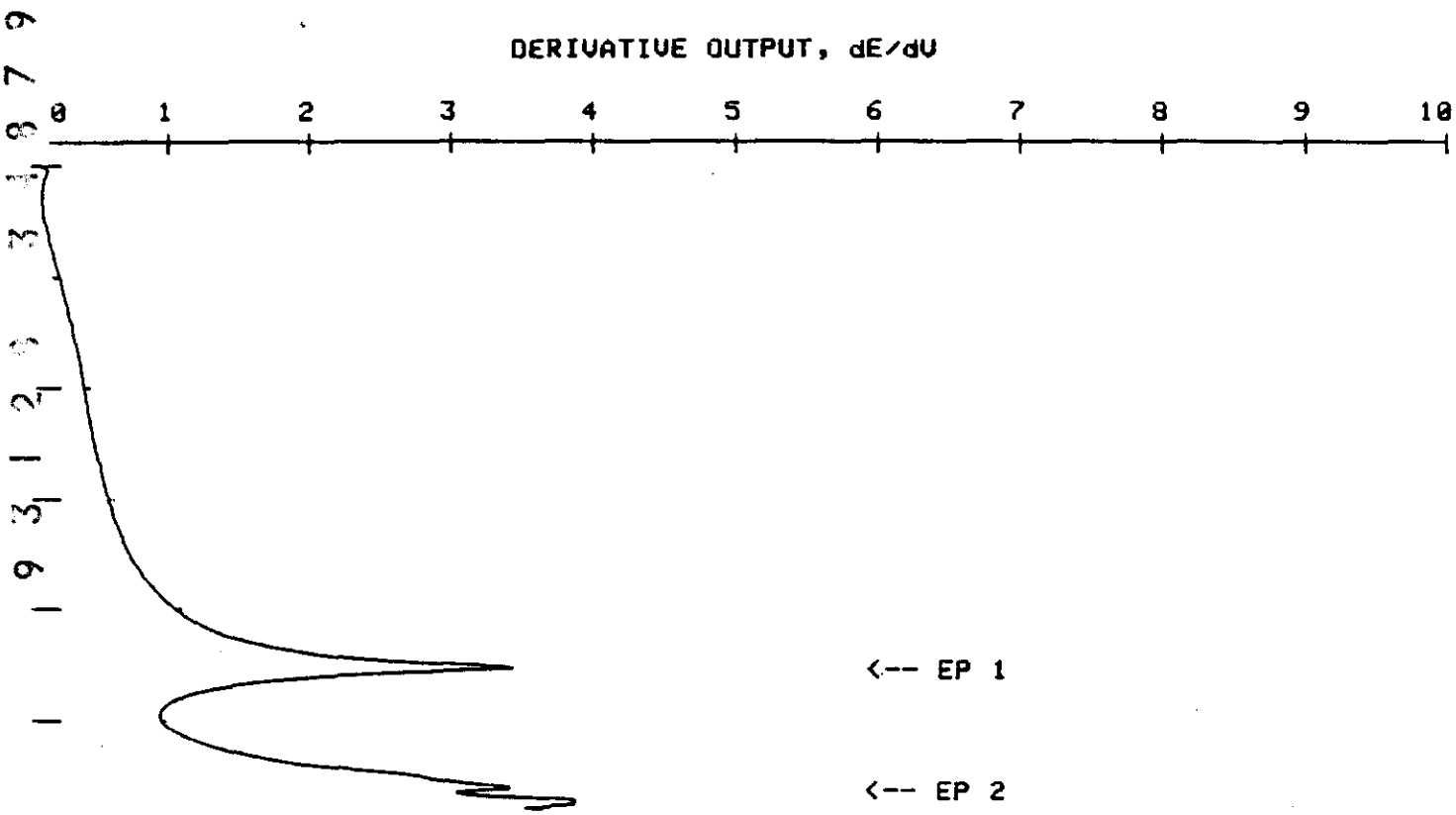


DRV TITRATION: .010

TITRATION TERMINATED BY PH LIMIT.

OCT 15 1991 6:53 PM

SAMPLE NUMBER: 1
SAMPLE DATA: 324.
DIRECT READ PH: 12.015



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.63	0.564	0.0000
7.04	0.701	0.0000

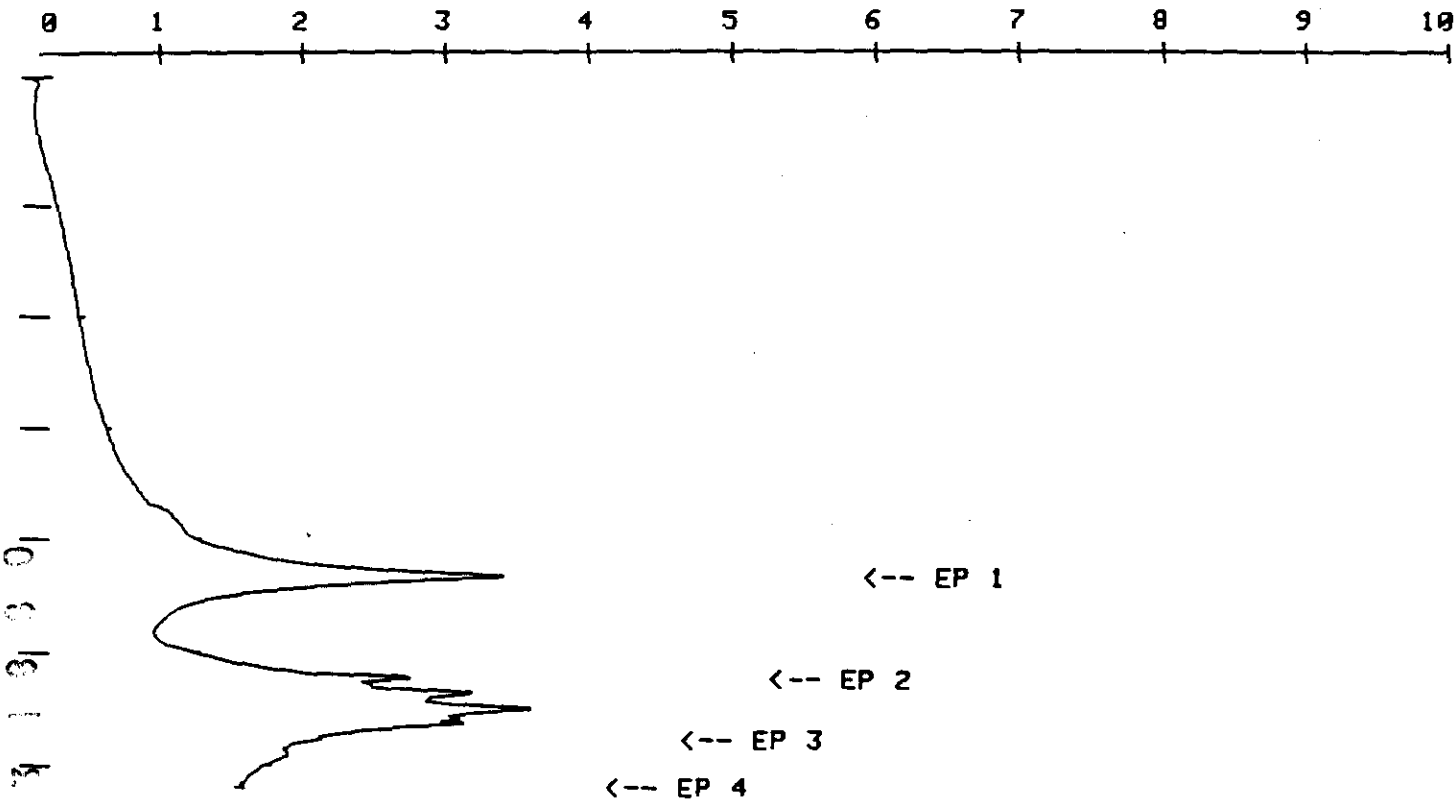
TITRATION TERMINATED BY PH LIMIT.

OCT 15 1991 4:30 PM

SAMPLE DATA: 324.
DIRECT READ PH: 12.020

WHC-SD-WM-DP-025
Addendum 16 Rev 0

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

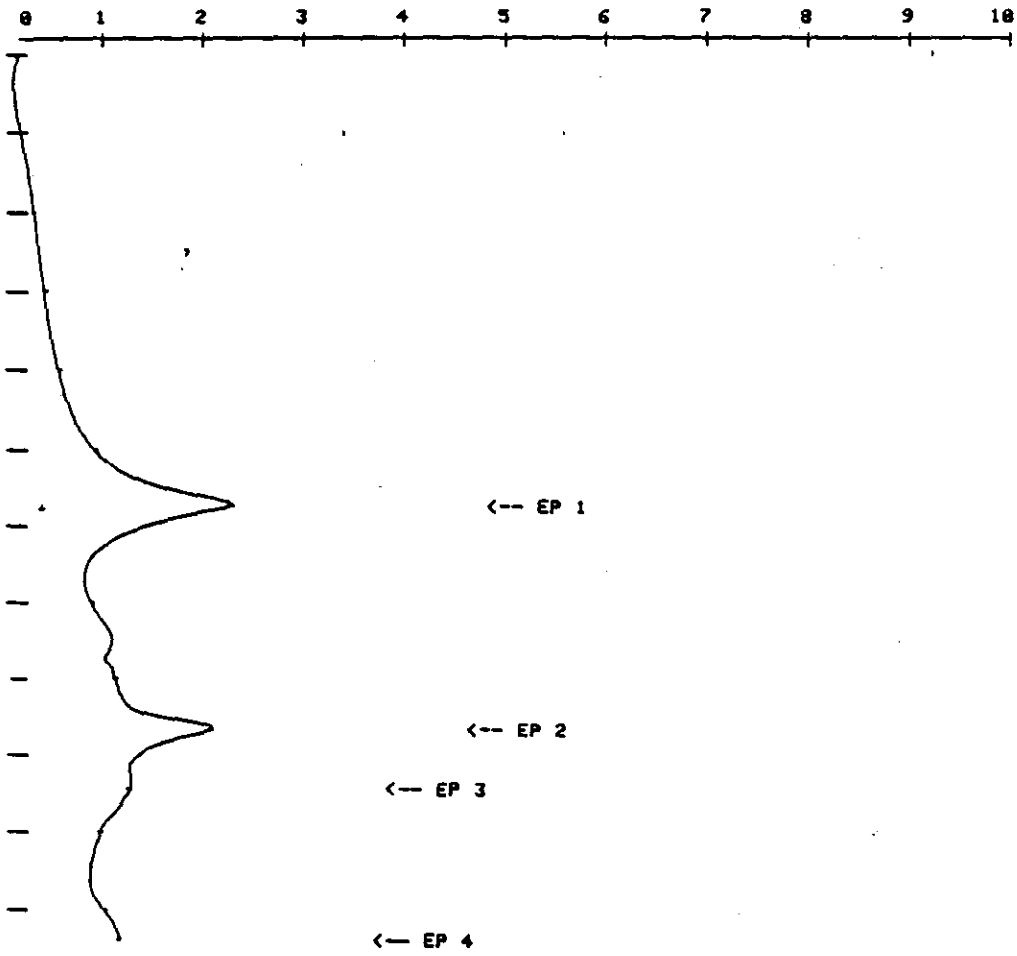
EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.65	0.563	0.0000
8.31	0.674	0.0000
4.86	0.740	0.0000
4.04	0.793	0.0000

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

OCT 15 1991 4:37 PM

SAMPLE NUMBER: 2
SAMPLE DATA: 330.
DIRECT READ PH: 11.864

DERIVATIVE OUTPUT, dE/dV



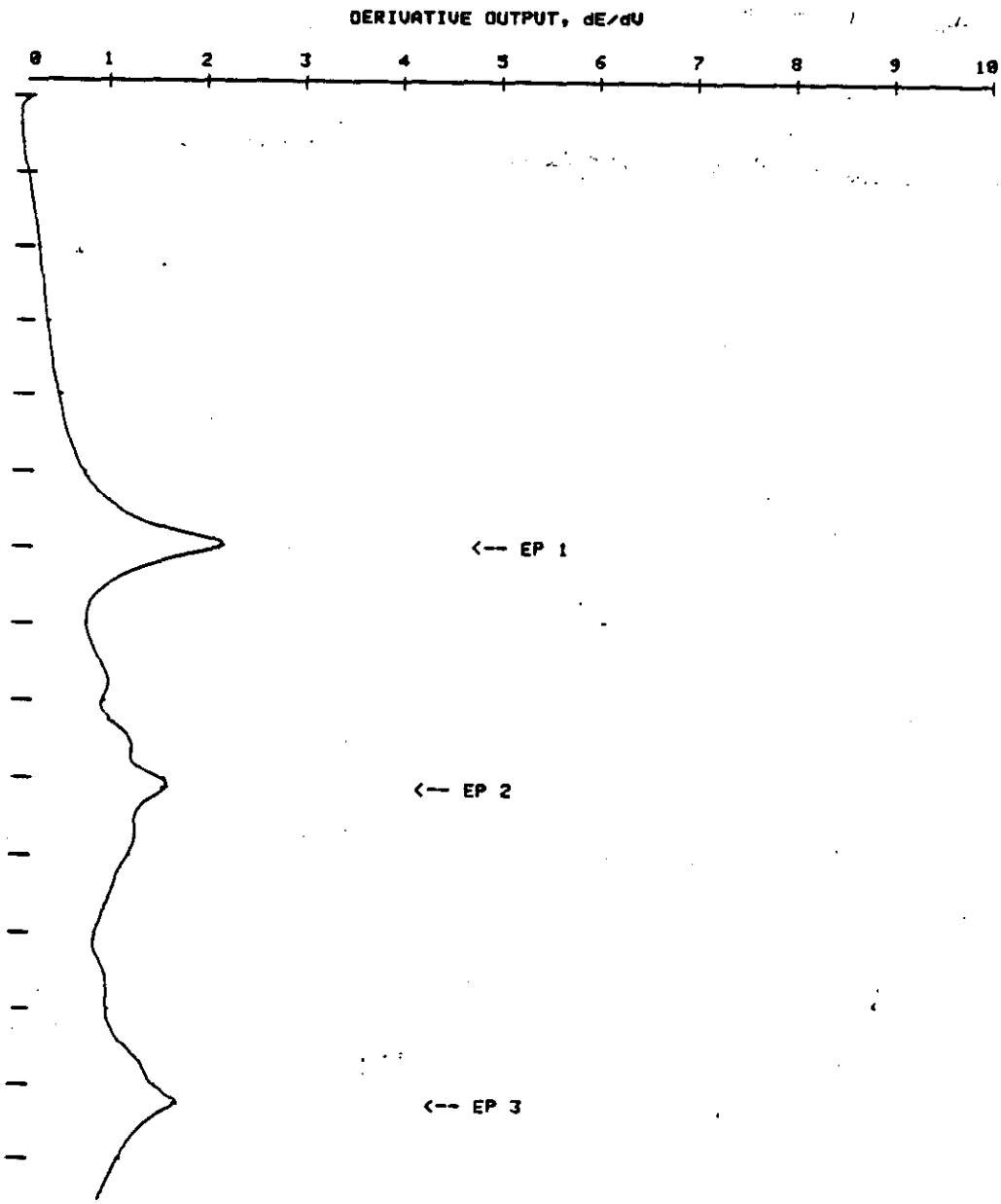
DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.82	0.716	0.0000
7.51	1.082	0.0000
6.70	1.179	0.0000
5.61	1.419	0.0000

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

OCT 15 1991 9:47 PM

SAMPLE NUMBER:
SAMPLE DATA: 330.
DIRECT READ PH: 11.876



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.84	0.746	0.0000
7.52	1.138	0.0000
4.84	1.655	0.0000

TITRATION TERMINATED BY PH LIMIT.

OCT 15 1991 9:39 PM

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R330	Customer ID: 791-10A
Analysis: SELENIUM	Sample Prep: UNDIGESTED

Instrument: PERKIN ELMER - WA77479	Procedure/Rev: LA-365-131/B-1
Technologist: D.R. JACKSON	Date: 09-24-91
Starting Time: 8:00	Temperature: NA
Ending Time: 11:30	Chemist: K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5596	11		
2	REAGENT BLANK	R325-5696	12		
3	SAMPLE 791-10A	R330-5796	13		
4	FINAL LMCS CHECK STD	R331-5596	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	125B38A/0.500 mL			N/A

A-6000-881 (03/92)

9 3 1 2 1 3 1 8 3 3

SELENIUM ANALYSIS - UNDIGESTED SAMPLE

Sample No	Sample Point	Date	Time Issued	Priority
R 324.-5596	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Reports
Se	LA-365-131	% RECOVERY	WTEF	0

Sample Size: .500 ml
Customer ID: STD

Remarks, Calculations, Results:
EDF 8243 SE/HYDRD
STD#125838A RESULT 1.08E-1
STD VAL 1.00E-1 %REC 108.0%
0.932
54.13 ng / 500 = 1.08E-1

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				
Initials: Dwight R. Jack				
Date: 9-24-91	Time Completed	Lab Director		

Sample No	Sample Point	Date	Time Issued	Priority
R 325.-5596	106AW	9-20-91	10:[illegible]	25

Determination	Method/Standard	Result Units	Charge Code	Reports
Se	LA-365-131	PPM	WTEF	0

Sample Size: 1.0 ml
Customer ID: [illegible]

Remarks, Calculations, Results:
REPORTED BELOW
-0.046
<5 ng / 1000 = <5.00E-3 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				
Initials: Dwight R. Jack				
Date: 9-24-91	Time Completed	Lab Director		

Sample No	Sample Point	Date	Time Issued	Priority
R 330.-5596	106AW	9-20-91	10:29	25

Determination	Method/Standard	Result Units	Charge Code	Reports
Se	LA-365-131	PPM	WTEF	0

Sample Size: .500 ml
Customer ID: [illegible]

Remarks, Calculations, Results:
0.008
<5 ng / 500 = <1.00E-2 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				
Initials: Dwight R. Jack				
Date: 9-24-91	Time Completed	Lab Director		

Sample No	Sample Point	Date	Time Issued	Priority
R 331.-5596	106AW	9-20-91	10:[illegible]	25

Determination	Method/Standard	Result Units	Charge Code	Reports
Se	LA-365-131	% RECOVERY	WTEF	0

Sample Size: .500 ml
Customer ID: STD

Remarks, Calculations, Results:
EDF 8241 SE/HYDRD
STD#125838A RESULT 9.396E-2
STD VAL 1.00E-1 %REC 94.0%
0.809 46.98 ng

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				
Initials: Dwight R. Jack				
Date: 9-24-91	Time Completed	Lab Director		

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
CALIBRATION RECORD

Analyte:	Se		
Procedure:	LA-365-131	Revision:	B-1
Instrument:	PERKIN-ELMER	Property No.:	WA77479
Technologist:	D. R. JACKSON	Payroll No.:	6C275
Date:	09-24-91		

Calibration Standard: 124B38A
Analyte Concentration: 0.1000 ppm
Type of Calibration: LINEAR

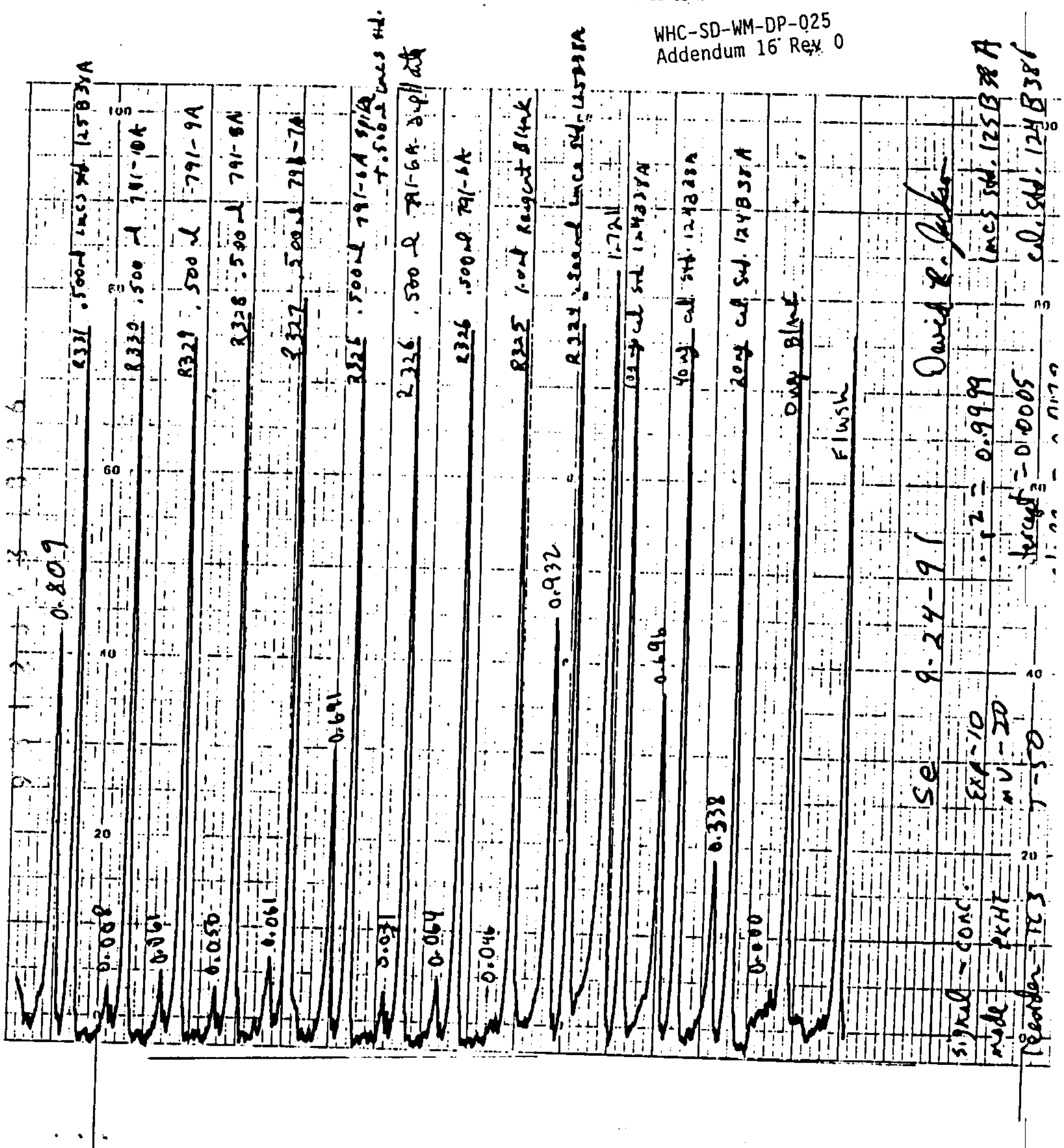
	Dilution	Concentration	Instrument Reading Unit
1	0.000 mL	0.0 ng	0.000
2	0.200 mL	20.0 ng	0.338
3	0.400 mL	40.0 ng	0.696
4	1.000 mL	100.0 ng	1.721
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Comments:

A-6000-882 (03/92)

PERKIN-ELMER

Chart No. CP33402-0



WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R330	Customer ID: 791-10A
Analysis: SPECIFIC GRAVITY	Sample Prep: UNDIGESTED

Instrument: WA90787	Procedure/Rev: LA-510-112/C-2
Technologist: L. TEMPLE	Date: 10-24-91
Starting Time: 09:30	Temperature: N/A
Ending Time: 11:20	Chemist: R. K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5506	11		
2	REAGENT BLANK	R325-5606	12		
3	SAMPLE 791-10A	R330-5706	13		
4	FINAL LMCS CHECK STD	R331-5506	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	15C11BJ/.20019 mL			N/A
SAMPLES RERUN.				

A-6000-881 (03/92)

9 3 1 2 1 3 1 3 3 7

SPECIFIC GRAVITY ANALYSIS - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5506	106AW	9-20-91	10: 5	25

Determination	Method Standard	Result Units	Charge Code	Results
SPU	LA-510-112	% REC	WITE2	1

RERUN

Sample Size: ? 200.19 g

Customer ID: STD

Remarks, Calculations, Results:
S332 ZNCL2
STDH15C11-BT RESULT 1.402
STD VAL 1.4386 %REC 97.5%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
81808				
Date: 10-24-91	Time Completed			

#1
W_1 = 1.9083
W_2 = 2.1914
.2831

#2
W_1 = 1.9553
W_2 = 2.2335
.2782

R324-5506

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5606	106AW	9-20	7	25

RERUN

Determination	Method Standard	Result Units	Charge Code	Results
SPU	LA-510-112		WITE2	1

Sample Size: ? 200.19 g

Customer ID: REU BL

Remarks, Calculations, Results:
REAGENT BLANK
1.0123

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
81808				
Date: 10-24-91	Time Completed			

#1 #2
1.9385 $-W_1-$ 1.8845
2.1495 $-W_2-$ 2.0788
.2110 .1943

R325-5606

Serial No	Sample Point	Date	Time Issued	Priority
R 330.-5706	106AW	9-20-91	10:23	25

RERUN

Determination	Method Standard	Result Units	Charge Code	Results
SPU	LA-510-112		WITE2	1

Sample Size: ? 200.19 g

Customer ID: 791-10A

Remarks, Calculations, Results:
1.1019

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
81808				
Date: 10-24-91	Time Completed			

#1 #2
1.9215 $-W_1-$ 1.8880
2.1412 $-W_2-$ 2.1095
.2197 .2215

R 330-5706

SPECIFIC GRAVITY ANALYSIS - UNDIGESTED SAMPLE

Sample No.	Sample Point	Date	Time Issued	Priority
R 331.-5506	106AW	9-20-91	10:25	25

RERUN

Determination	Method/Standard	Result Units		Reason
SPG	LA-510-112	% RECOVERY	WITF.	1

Sample Size	Customer ID
? 200.19 ±	STD

Remarks, Calculations, Results

S332 ZNCL2

STD#15CH-BT RESULT 1.4137

STD VAL 1.4386 %REC 98.3%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
81808				
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]			[signature]	

Date	Time Completed	Date Used Here
10-24-91		[signature]

#1 #2

1.9257 $-W_1-$ 1.9098

2.2090 $-W_2-$ 2.1925

.0833 .0827

R331-5506

9312313339

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R330	Customer ID: 791-10A
Analysis: TOTAL INORGANIC CARBON	Sample Prep: UNDIGESTED

Instrument: WB39927	Procedure/Rev: LA-622-102/B-0
Technologist: M. MYERS	Date: 09-26-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5527	11		
2	REAGENT BLANK	R325-5627	12		
3	SAMPLE 791-10A	R330-5727	13		
4	FINAL LMCS CHECK STD	R331-5527	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	69C11K/0.050 mL			NA

A-6000-881 (03/92)

TOTAL INORGANIC CARBON ANALYSIS - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5527	106AW	9-20-91	10: 5	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
TIC	EA 622 102	% RECOVERY	WITE2	0

Sample Size	Customer ID
? .050ml	STD

Remarks, Calculations, Results
S223 CO3
STD# 6ACIIK RESULT 2.000E-1
STD VAL 2.000E-1 % REC 100.0%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
6C823				

Date	Time Completed	Lab Unit Mgr
9-26-91		[signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5627	106AW	9-20-91	10: 7	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
TIC	EA 622 102	G/L	WITE2	0

Sample Size	Customer ID
? ~~DIRECT~~ DYB 6/30/92 .050mL	RED DL

Remarks, Calculations, Results
REAGENT BLANK
~~7.99E-1 g/L/minute~~ 5.60 ug C DYB 6/30/92

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				DYBivenius
6C823				

Date	Time Completed	Lab Unit Mgr
9-26-91		[signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 330.-5727	106AW	9-20-91	10:23	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
TIC	EA 622 102	G/L	WITE2	0

Sample Size	Customer ID
? .050ml	~~291 106~~

Remarks, Calculations, Results
2.03g/L

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
6C823				

Date	Time Completed	Lab Unit Mgr
9-26-91		[signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 331. 5527	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
TIC	EA 622 102	% RECOVERY	WITE2	0

Sample Size	Customer ID
? .050ml	STD

Remarks, Calculations, Results
S223 CO3
STD# 6ACIIK RESULT ~~2.05E-1~~ DYB 6/30/92 2.05 E-1M
STD VAL 2.00E-1 % REC ~~102.446~~ DYB 6/30/92 102.5%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				DYBivenius
6C823				

Date	Time Completed	Lab Unit Mgr
9-26-91		[signature]

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R324 Date: 09-26-1991 Time: 00:32:57

Blank = .7279823 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.00	88.40	100.00
3	3.01	112.20	21.21
4	4.00	120.10	6.58
5	5.00	122.90	2.28
6	6.01	124.20	1.05
7	7.00	125.10	0.72

(125.1 - 5.099395)(1)/(50) = 2.400012 g/L Carbon

(125.1 - 5.099395)(1)/(50)(12) = .200001 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: BLANK Date: 09-26-1991 Time: 00:20:54

Blank = N/A Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	1.60	100.00
3	3.01	2.30	30.43
4	4.00	3.00	23.33
5	5.01	3.70	18.92
6	6.01	4.50	17.78
7	7.01	5.10	11.76

BLANK VALUE = 5.1 / 7.005665 = .7279823 g/L/minute

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R325 Date: 09-26-1991 Time: 00:40:41

Blank = .7279823 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	2.00	100.00
3	3.01	2.90	31.03
4	4.01	3.70	21.62
5	5.01	4.30	13.95
6	6.01	5.00	14.00
7	7.01	5.60	10.71

(5.6 - 5.100003)(1)/(50) = 9.999943E-03 g/L Carbon

(5.6 - 5.100003)(1)/(50)(12) = 8.333286E-04 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R330 Date: 09-26-1991 Time: 03:14:49

Blank = .7279823 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	78.80	100.00
3	3.01	95.50	17.49
4	4.01	101.50	5.91
5	5.01	104.20	2.59
6	6.01	105.70	1.42
7	7.00	106.70	0.94

(106.7 - 5.099397)(1)/(50) = 2.032012 g/L Carbon

(106.7 - 5.099397)(1)/(50)(12) = .1693343 Molar Carbon

Sample Run By: 6C823_____

9 3 1 2 1 3 1 3 9 5

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R331 Date: 09-26-1991 Time: 03:40:02

Blank = .7279823 Sample Size = 50 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	71.90	100.00
3	3.01	105.10	31.59
4	4.01	119.50	12.05
5	5.01	125.10	4.48
6	6.01	127.50	1.88
7	7.00	128.60	0.86

(128.6 - 5.099386)(1)/(50) = 2.470013 g/L Carbon

(128.6 - 5.099386)(1)/(50)(12) = .2058344 Molar Carbon

Sample Run By: 6C823_____

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R330	Customer ID: 791-10A
Analysis: TOTAL ORGANIC CARBON	Sample Prep: UNDIGESTED

Instrument: MODEL 5011 - WC16130	Procedure/Rev: LA-344-105/B-0
Technologist: M. MYERS	Date: 9-26-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5526	11		
2	REAGENT BLANK	R325-5626	12		
3	SAMPLE 791-10A	R330-5726	13		
4	FINAL LMCS CHECK STD	R331-5526	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	70C11I/0.2 mL			NA

A-6000-881 (03/92)

9312931397

TOTAL ORGANIC CARBON ANALYSIS - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5526	106AW	9-20-91	10:5	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
TOC	EA 344 105	% RECOVERY	WTTF2	0

Sample Size: .200ml - 2ml - .200ml
Customer ID: STD

Remarks, Calculations, Results
S356 COSTOC
STD# 70CHI RESULT 2.95
STD VAL 3.00E %REC 98.3%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]			[signature]	
Hrs	Hrs	Hrs	Hrs	Hrs
6C823				

Date: 9-26-91 | Time Completed | Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5626	106AW	9-20-91	10:7	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
TOC	EA 344 105	G/L	WTTF2	0

Sample Size: ~~[illegible]~~ DUB 6/30/92 .200 mL
Customer ID: REG UI

Remarks, Calculations, Results
REAGENT BLANK
3.10 ug C
~~4.71E-1 g/l/minute~~
DUB 6/30/92

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				DUB [signature]
Hrs	Hrs	Hrs	Hrs	Hrs
6C823				

Date: 9-26-91 | Time Completed | Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 330.-5726	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
TOC	EA 344 105	G/L	WTTF2	0

Sample Size: .200ml - 2ml - .200ml
Customer ID: 791 106

Remarks, Calculations, Results
8.75E-1 g/l C

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
Hrs	Hrs	Hrs	Hrs	Hrs
6C823				

Date: 9-26-91 | Time Completed | Lab Unit Mgr: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 331.-5526	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
TOC	EA 344 105	% RECOVERY	WTTF2	0

Sample Size: .200ml - 2ml - .200ml
Customer ID: STD

Remarks, Calculations, Results
S356 COSTOC
STD# 70CHI RESULT ~~2.99~~ 3.003 g/LC
DUB 6/30/92
STD VAL 3.0 %REC ~~[illegible]~~
DUB 6/30/92 100.1%

Batched with R9998

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				DUB [signature]
Hrs	Hrs	Hrs	Hrs	Hrs
6C823				

Date: 9-26-91 | Time Completed | Lab Unit Mgr: [signature]

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: BLANK Date: 09-26-1991 Time: 01:20:10

Blank = N/A Sample Size = 200 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.40	100.00
2	2.01	0.50	20.00
3	3.01	1.30	61.54
4	4.01	2.00	35.00
5	5.01	2.50	20.00
6	6.01	2.90	13.79
7	7.01	3.30	12.12

BLANK VALUE = 3.3 / 7.006676 = .4709794 g/L/minute

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R324 Date: 09-26-1991 Time: 01:53:19

Blank = .4709794 Sample Size = 200 Dilution Factor = 11
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	13.70	100.00
3	3.01	43.70	68.65
4	4.01	51.90	15.80
5	5.01	54.90	5.46
6	6.01	56.20	2.31
7	7.01	56.90	1.23

(56.9 - 3.299598)(11)/(200) = 2.948022 g/L Carbon

(56.9 - 3.299598)(11)/(200)(12) = .2456685 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R325 Date: 09-26-1991 Time: 02:01:54

Blank = .4709794 Sample Size = 200 Dilution Factor = ~~11~~ 1
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	0.80	100.00
3	3.01	1.50	46.67
4	4.01	2.00	25.00
5	5.01	2.40	16.67
6	6.01	2.80	14.29
7	7.01	3.10	9.68

CORRECTEDTO DE 1.0998023

(3.1 - 3.299605)(11)/(200) = -1.097826E-02 g/L Carbon

(3.1 - 3.299605)(11)/(200)(12) = -9.148551E-04 Molar Carbon

Sample Run By: 6C823_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R330 Date: 09-26-1991 Time: 04:42:35

Blank = .4709794 Sample Size = 200 Dilution Factor = 11
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.30	%-6533.33
2	2.01	3.80	92.11
3	3.01	13.80	72.46
4	4.01	16.70	17.37
5	5.01	17.90	6.70
6	6.01	18.60	3.76
7	7.01	19.20	3.13

(19.2 - 3.300004)(11)/(200) = .8744999 g/L Carbon

(19.2 - 3.300004)(11)/(200)(12) = .072875 Molar Carbon

Sample Run By: 6C823_____

BATCH WITH R9998

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: R331 Date: 09-26-1991 Time: 04:58:31

Blank = .4709794 Sample Size = 200 Dilution Factor = 11
% Difference = 10 Min Readings = 7 Max Readings = 7

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	1.01	0.00	0.00
2	2.01	8.30	100.00
3	3.01	44.40	81.31
4	4.01	53.20	16.54
5	5.01	55.90	4.83
6	6.01	57.00	1.93
7	7.01	57.70	1.21

(57.7 - 3.299989)(11)/(200) ≐ 2.992 g/L Carbon

(57.7 - 3.299989)(11)/(200)(12) = .2493334 Molar Carbon

Sample Run By: 6C823

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R330	Customer ID: 791-10A
Analysis: ION CHROMATOGRAPHIC - SULFATE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-04-91
Starting Time: 20:46	Temperature: 24-25degC
Ending Time: 23:36	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5575	11		
2	REAGENT BLANK	R325-5675	12		
3	SAMPLE 791-10A	R330-5775	13		
4	FINAL LMCS CHECK STD	R331-5575	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (SULFATE) - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.-5575	106AW	9-20-91	10:[illegible]	[illegible]

Determination	Method/Standard	Result Units	Charge Code	Reason
SOH	EA 533 105	% RECOVERY	WHT 2	[illegible]

Sample Size	Customer ID
.100mL - 10mL	STD

Remarks, Calculations, Results
EDF R770 DIONEX
STDH 73C11CO RESULT 56544 ppm
STD VAL 610 ppm %REC 92.7%

Analyst 1	Analyst 2	Analyst 3	Analyst 4	Analyst 5
[illegible]				[illegible]
10-4-91				

Date | Time Completed | Lab Unit Mgr

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.-5675	106AW	9-20-91	10:[illegible]	[illegible]

Determination	Method/Standard	Result Units	Charge Code	Reason
SOH	EA 533 105	PPM	WHT 2	[illegible]

Sample Size	Customer ID
DIRECT	[illegible]

Remarks, Calculations, Results
[illegible]

<1.00 ppm

Analyst 1	Analyst 2	Analyst 3	Analyst 4	Analyst 5
[illegible]				[illegible]
60873				

Date 10-4-91 | Time Completed | Lab Unit Mgr

Serial No.	Sample Point	Date	Time Issued	Priority
R 330.-5775	106AW	9-20-91	10:24	25

Determination	Method/Standard	Result Units	Charge Code	Reason
SOH	EA 533 105	PPM	WHT 2	[illegible]

Sample Size	Customer ID
.050mL - 10mL	[illegible] 106

Remarks, Calculations, Results

2.35 E^3 ppm

Analyst 1	Analyst 2	Analyst 3	Analyst 4	Analyst 5
[illegible]				[illegible]
60873				

Date 10-4-91 | Time Completed | Lab Unit Mgr

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.-5575	106AW	9-20-91	10:[illegible]	[illegible]

Determination	Method/Standard	Result Units	Charge Code	Reason
SOH	EA 533 105	% RECOVERY	WHT 2	[illegible]

Sample Size	Customer ID
.100mL - 10mL	STD

Remarks, Calculations, Results
EDF R770 DIONEX
STDH 73C11CO RESULT 569.9
STD VAL 610 ppm %REC 93.4%

Analyst 1	Analyst 2	Analyst 3	Analyst 4	Analyst 5
[illegible]				[illegible]
60873				

Date 10-4-91 | Time Completed | Lab Unit Mgr

9 3 1 2 3 3 4 9 0 5

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R330	Customer ID: 791-10A
Analysis: ION CHROMATOGRAPHIC - PHOSPHATE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-04-91
Starting Time: 20:46	Temperature: 24-25degC
Ending Time: 23:36	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5574	11		
2	REAGENT BLANK	R325-5674	12		
3	SAMPLE 791-10A	R330-5774	13		
4	FINAL LMCS CHECK STD	R331-5574	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (PHOSPHATE) - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5574	106AW	9-20-91	10: 6	25

Determination	Method/Standard	Result Units	Charge Code	Results
PO4	EA-533-105	% RECOVERY	W11E2	0

Sample Size: 1.00ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R976 DIONEX
STD# 73C11C0 RESULT ~~583.151~~ 510.5
STD VAL 517 ppm %REC ~~112.8%~~ 98.8%
~~CR #~~ 10-09-91 KOT

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
60823				[signature]

Date: 10-4-91 Time Completed: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5674	106AW	9-20-91	10: 11	25

Determination	Method/Standard	Result Units	Charge Code	Results
PO4	EA-533-105	PPM	W11E2	0

Sample Size: DIRECT
Customer ID: REG. BL.

Remarks, Calculations, Results:
REAGENT BLANK
<1.00 ppm
~~out for rerun~~ KST 10-09-91

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
60823				

Date: 10-4-91 Time Completed: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 330.-5774	106AW	9-20-91	10:24	25

Determination	Method/Standard	Result Units	Charge Code	Results
PO4	EA-533-105	PPM	W11E2	0

Sample Size: .050ml - 10ml
Customer ID: 791-10A

Remarks, Calculations, Results:
~~Out for Rerun~~ 10-09-91 KST
6.53E² ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
60823				

Date: 10-4-91 Time Completed: [signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 331. 5574	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Results
PO4	EA-533-105	% RECOVERY	W11E2	0

Sample Size: 1.00ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R976 DIONEX
STD# 73C11C0 RESULT 517
STD VAL 510 %REC 98.9%
~~Out for Rerun~~ 10-10-91

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
60823				

Date: 10-4-91 Time Completed: [signature]

9312334907

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R330	Customer ID: 791-10A
Analysis: ION CHROMATOGRAPHIC - CHLORIDE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-04-91
Starting Time: 20:46	Temperature: 24-25degC
Ending Time: 23:36	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5572	11		
2	REAGENT BLANK	R325-5672	12		
3	SAMPLE 791-10A	R330-5772	13		
4	FINAL LMCS CHECK STD	R331-5572	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (CHLORIDE) - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5572	106AW	9-20-91	10: 5	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
CL	EA-533-105	% RECOVERY	WITE2	0

Sample Size	Customer ID
? .100ml - 10ml	STD

Remarks, Calculations, Results
EDP R972 DIONEX
STD# 73C11C0 RESULT 71.429 ppm
STD VAL 75ppm %REC 95.2%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
6C823				[signature]

Date	Time Completed	Lab Unit Mgr
10-5-91		[signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5672	106AW	9-20-91	10: 0	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
CL	EA-533-105	PPM	WITE2	

Sample Size	Customer ID
? DIRECT	REG 10

Remarks, Calculations, Results
REAGENT BLANK

<1.00E^{-1} ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
6C823				

Date	Time Completed	Lab Unit Mgr
10-4-91		[signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 330.-5772	106AW	9-20-91	10:24	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
CL	EA-533-105	PPM	WITE2	0

Sample Size	Customer ID
? .050ml - 10ml	791 10A

Remarks, Calculations, Results

4.41E^{2} ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
6C823				

Date	Time Completed	Lab Unit Mgr
10-4-91		[signature]

Serial No	Sample Point	Date	Time Issued	Priority
R 331.-5572	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
CL	EA 533 105	% RECOVERY	WITE2	

Sample Size	Customer ID
? .000ml - 10ml	STD

Remarks, Calculations, Results
EDP R972 DIONEX
STD# 73C11C0 RESULT 70.914 ppm
STD VAL 75ppm %REC 94.6%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				[signature]
6C823				[signature]

Date	Time Completed	Lab Unit Mgr
10-4-91		[signature]

9 3 1 2 3 1 9 0 9 1

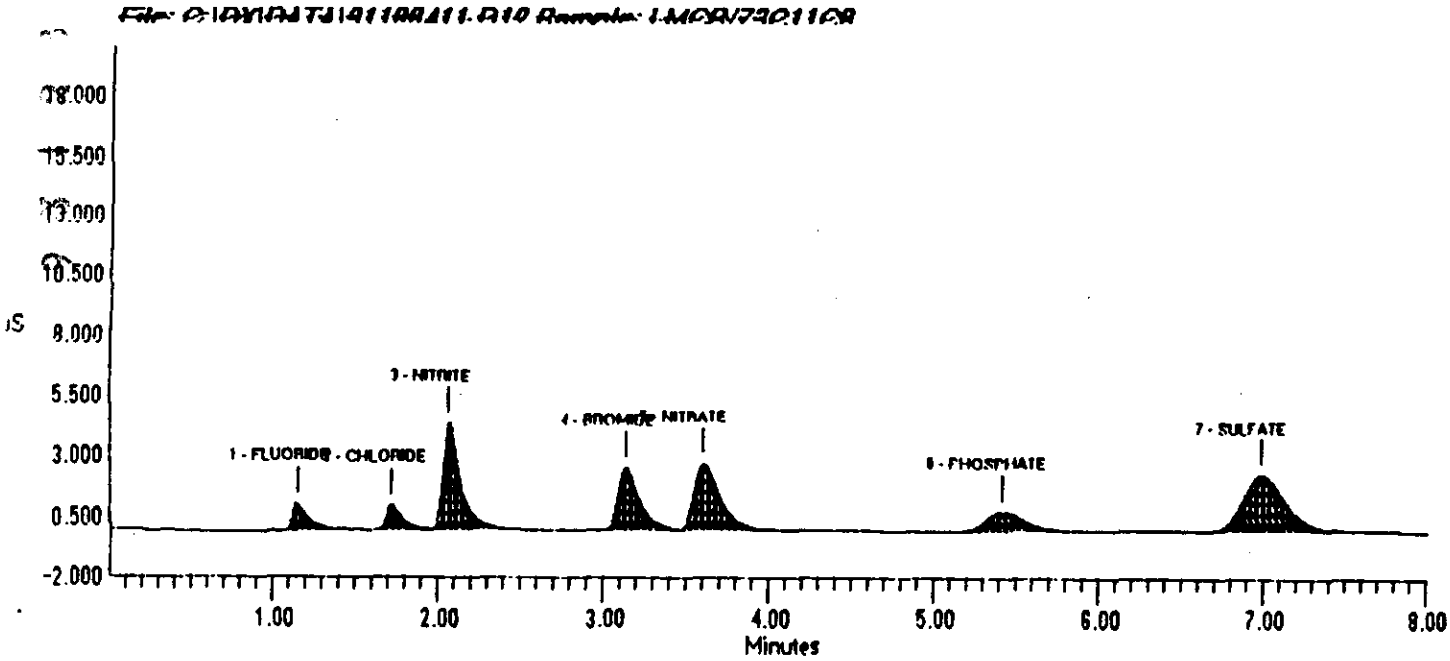
R323 → Br⁻
R324

DATA REPROCESSED ON Fri Oct 04 22:45:26 1991

Sample Name: LMCS/73C1100 R324 Date: Fri Oct 04 22:10:28 1991
Data File : C:\DX\DATA\91100411.D12
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 12 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.15	FLUORIDE	52.192	1076	7152	1	0.00
2	1.72	CHLORIDE	11.127	992	6636	2	-0.48
3	2.07	NITRITE	487.247	4387	32321	2	0.33
4	3.13	BROMIDE	475.164	2376	23546	2	1.24
5	3.60	NITRATE	524.183	2723	30545	2	7.51
6	5.42	PHOSPHATE	510.540	821	12909	1	0.40
7	6.98	SULFATE	565.442	2341	41638	1	0.47

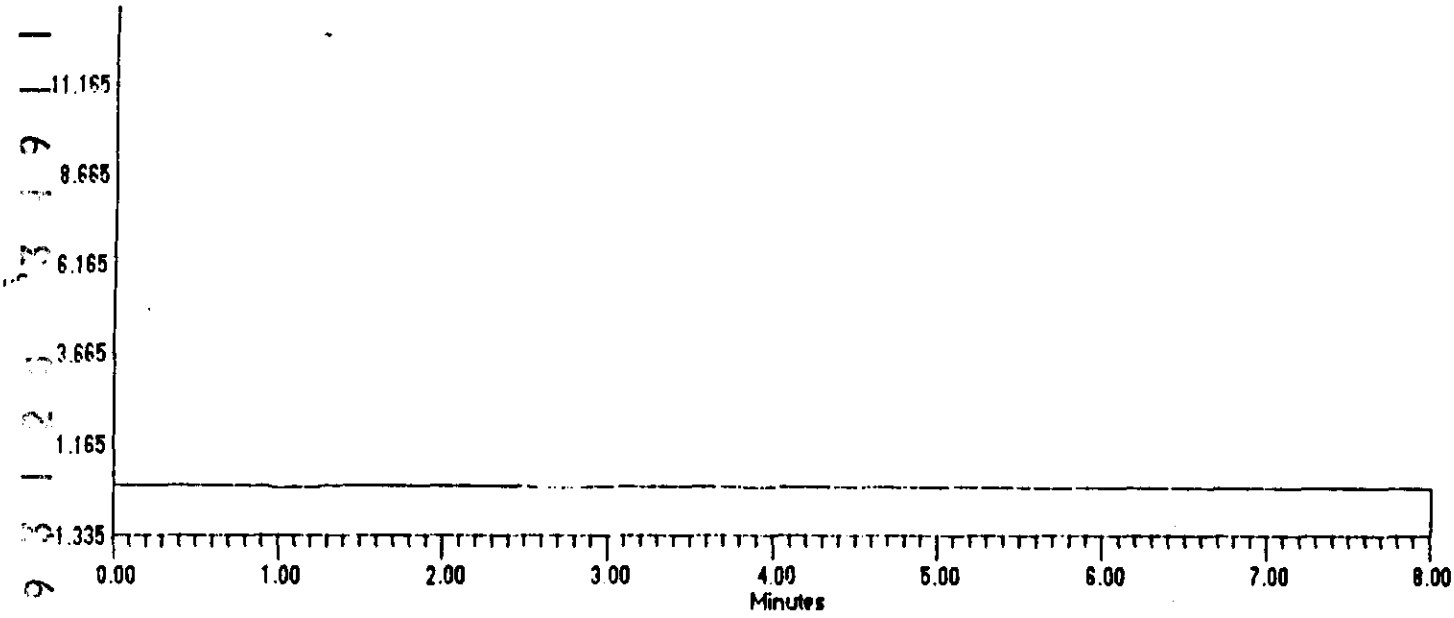


```
Sample Name: BLANK                                    Date: Fri Oct 04 20:37:01 1991
Data File  : c:\dx\data\91100431.D02
Method     : c:\dx\method\SYSTEM1.met
ACI Address: 1        System : 1        Inject#:   2  Detector: CDM-1
```

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	1	2405	5Hz	0.00	8.02	1000	

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta

File: c:\dx\data\91100431.D02 Sample: BLANK

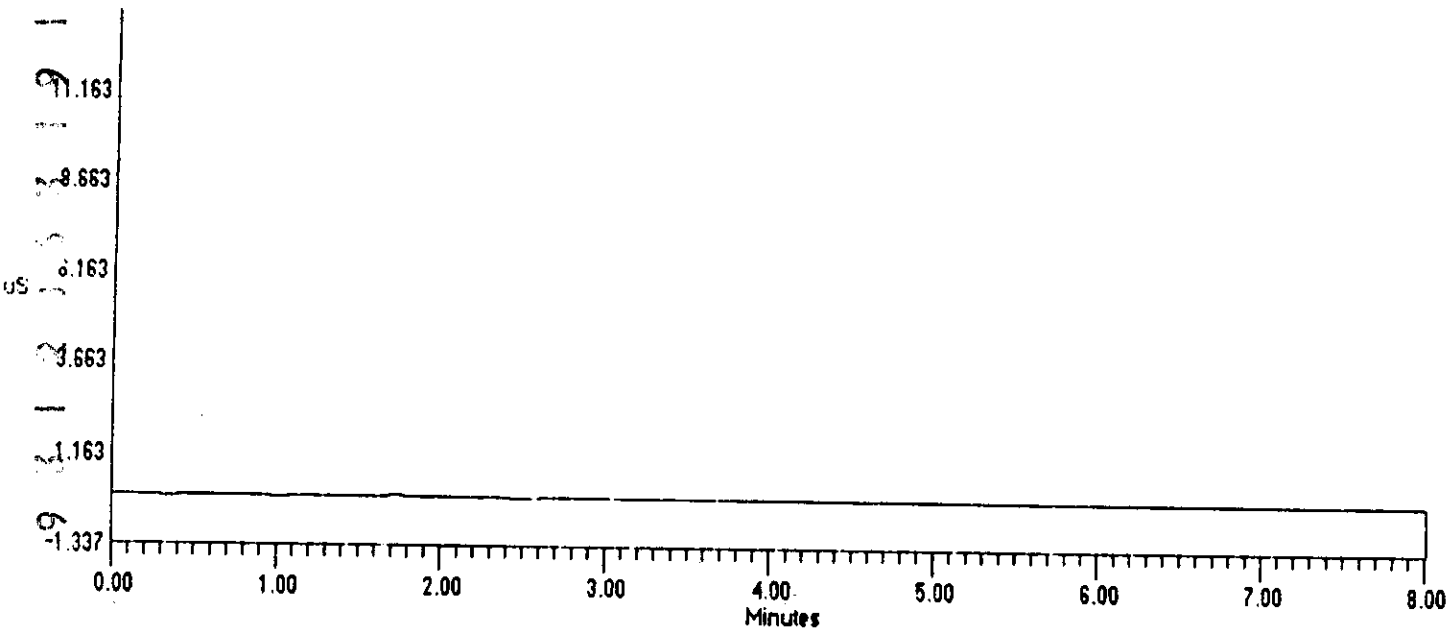


Sample Name: R325 Date: Fri Oct 04 22:17:51 1991
Data File : c:\dx\data\91100411.D13
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 13 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	1	2405	5Hz	0.00	8.02	1000	

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta

File: c:\dx\data\91100411.D13 Sample: R325

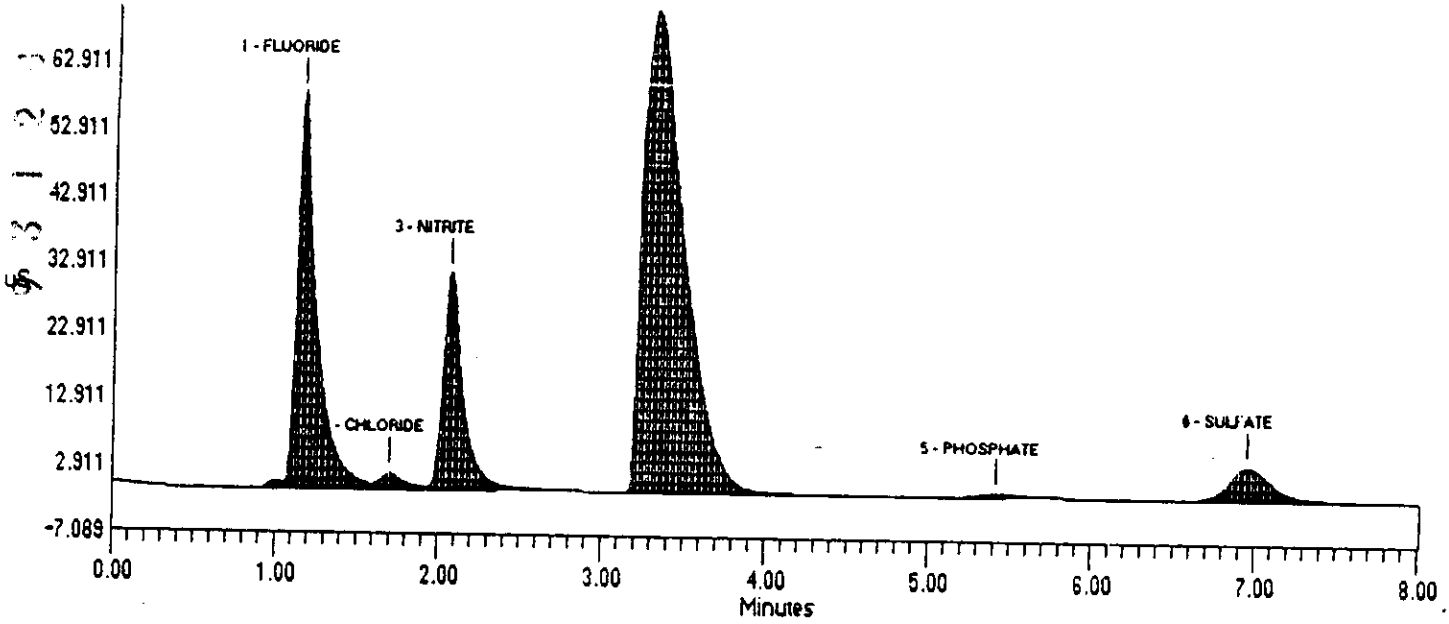


Sample Name: R330 Date: Fri Oct 04 23:21:38 1991
Data File : c:\dx\data\91100411.D20
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 20 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	RIJ
External	1	201	2403	5Hz	0.00	8.02	1000	

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Di. Code	%Delta
1	1.15	FLUORIDE	3006.797	38735	516720	3	0.00
2	1.70	CHLORIDE	441.169	2222	21720	4	-1.45
3	1.97	NITRITE	7005.062	32043	277839	2	0.33
4	3.30	BROMIDE	10837.222	71426	1353281	1	6.63
5	5.42	PHOSPHATE	653.396	471	7695	1	0.40
6	6.95	SULFATE	2348.995	5002	91357	1	-0.01

File: c:\dx\data\91100411.D20 Sample: R330

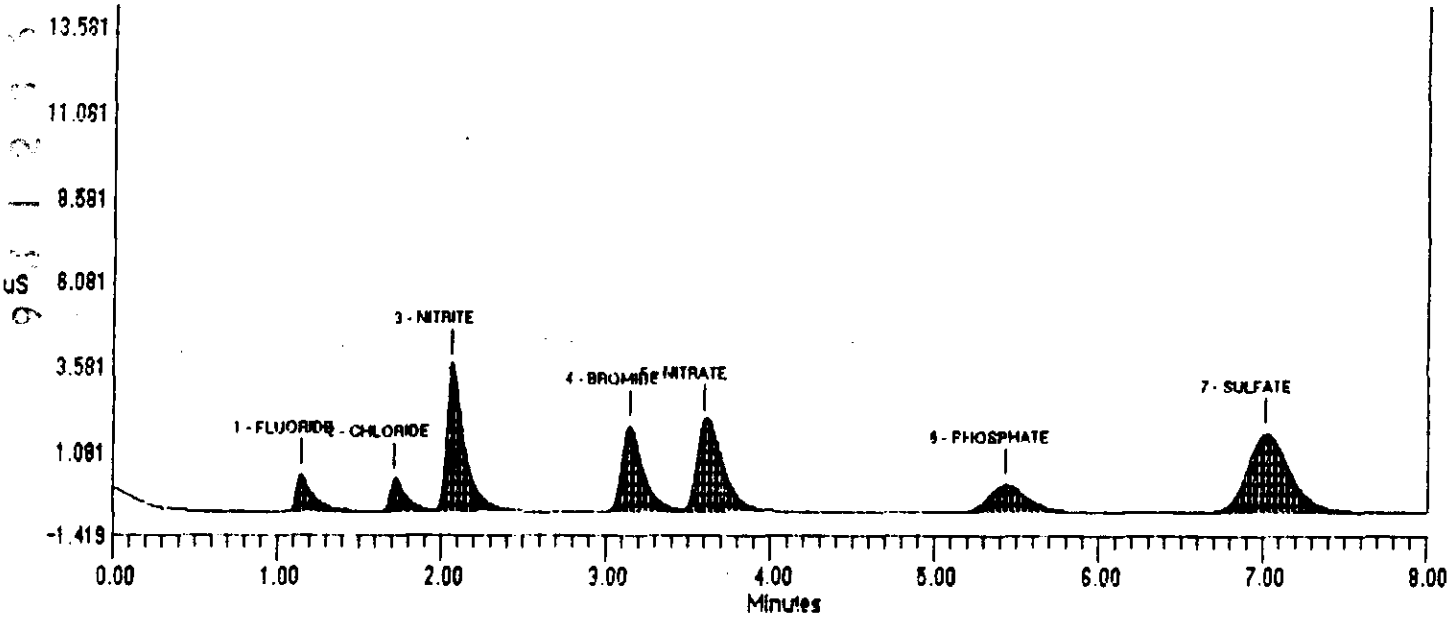


Sample Name: LMCS/73C11C0 R331		Date: Fri Oct 04 23:36:01 1991	
Data File : c:\dx\data\91100401.D21			
Method : c:\dx\method\SYSTEM1.met			
ACI Address: 1	System : 1	Inject#: 21	Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.15	FLUORIDE	54.712	1095	7585	1	0.00
2	1.72	CHLORIDE	70.914	966	6585	2	-0.18
3	2.07	NITRITE	499.014	4279	33115	2	0.33
4	3.15	BROMIDE	463.842	2526	22973	2	1.78
5	3.60	NITRATE	521.687	2675	30389	2	7.51
6	5.43	PHOSPHATE	511.121	814	12926	1	0.71
7	7.02	SULFATE	569.918	2323	41994	1	0.95

File: c:\dx\data\91100401.D21 Sample: LMCS/73C11C0



WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R330	Customer ID: 791-10A
Analysis: ION CHROMATOGRAPHIC - FLUORIDE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428, AL10657, WB98659, WB97286, WB24740	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-07-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5571	11		
2	REAGENT BLANK	R325-5671	12		
3	SAMPLE 791-10A	R330-5771	13		
4	FINAL LMCS CHECK STD	R331-5571	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (FLUORIDE) - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 324.-5571	106AW	9-20-91	10: 5	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
F	EA-533 105	% RECOVERY	WITE2	0

Sample Size: .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R974 DIONEX
STD# 73CICO RESULT 56.764
STD VAL 56 %REC 101.4%

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
10-7-91				
6CP23				

Date: 10-7-91

Serial No	Sample Point	Date	Time Issued	Priority
R 325.-5671	106AW	9-20-91	10: 8	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
F	EA-533 105	PPM	WITE2	0

Sample Size: DIRECT
Customer ID: REG. 18

Remarks, Calculations, Results:
REAGENT BLANK

<1.00E-1 ppm

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6CP23				

Date: 10-7-91

Serial No	Sample Point	Date	Time Issued	Priority
R 330.-5771	106AW	9-20-91	10:24	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
F	EA-533 105	G/B	WITE2	0

Sample Size: .050ml - 10ml - .500ml - 10ml
Customer ID: 291 10A

Remarks, Calculations, Results:

ORGANIC INTERFERENCE

Flag - F⊖ peak due to organics - not F⊖

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6CP23				

Date: 10-7-91

Serial No	Sample Point	Date	Time Issued	Priority
R 331.-5571	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
F	EA-533 105	% RECOVERY	WITE2	0

Sample Size: .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R974 DIONEX
STD# 73CICO RESULT 54.734
STD VAL 56ppm %REC 97.7%

Analyst-1	Analyst-2	Analyst-3	Analyst-4	Analyst-5
6CP23				

Date: 10-7-91

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R330	Customer ID: 791-10A
Analysis: ION CHROMATOGRAPHIC - NITRITE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428, AL10657, WB98659, WB97286, WB24740	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-07-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5576	11		
2	REAGENT BLANK	R325-5676	12		
3	SAMPLE 791-10A	R330-5776	13		
4	FINAL LMCS CHECK STD	R331-5576	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

9 3 1 2 3 3 1 9 1 7

ION CHROMATOGRAPHIC ANALYSIS (NITRITE) - UNDIGESTED SAMPLE

Serial No: K 324.-5576 | Sample Point: 106AW | Date: 9-20-91 | Time Issued: 10:6 | Priority: 25
Determination: IRC | Analytical Standard: LA-533-105 | Result Units: % RECOVERY | Charge Code: WIT02 | Remarks: 0
Sample Size: .100ml - 10ml | Customer ID: STD
Methods, Calculations, Results: LDF R9GH DIONEX
STDN 73CUCO RESULT 521.43
STD VAL 510 %REC 102.2970
Analyst - 1: Indonna Hayes | Analyst - 2: | Analyst - 3: | Analyst - 4: | Analyst - 5: Denise Jolivet
Date: 10-7-91

Serial No: K 325.-5676 | Sample Point: 106AW | Date: 9-20-91 | Time Issued: 10:11 | Priority: 25
Determination: IRC | Analytical Standard: LA-533-105 | Result Units: PPM | Charge Code: WIT02 | Remarks: 0
Sample Size: DIRECT | Customer ID: RED 10
Methods, Calculations, Results: REMARK: BLANK
<1.00ppm
Analyst - 1: Indonna Hayes | Analyst - 2: | Analyst - 3: | Analyst - 4: | Analyst - 5: Denise Jolivet
Date: 10-7-91

Serial No: K 330.-5776 | Sample Point: 106AW | Date: 9-20-91 | Time Issued: 10:24 | Priority: 25
Determination: IRC | Analytical Standard: LA-533-105 | Result Units: PPM | Charge Code: WIT02 | Remarks: 0
Sample Size: .050ml - 10ml - .500ml - 10ml | Customer ID: 791 10A
Methods, Calculations, Results: 7.8 KOT 10-09-91
7.90E3 ppm
Analyst - 1: Indonna Hayes | Analyst - 2: | Analyst - 3: | Analyst - 4: | Analyst - 5: Denise Jolivet
Date: 10-7-91

Serial No: K 331.-5576 | Sample Point: 106AW | Date: 9-20-91 | Time Issued: 10:25 | Priority: 25
Determination: IRC | Analytical Standard: LA-533-105 | Result Units: % RECOVERY | Charge Code: WIT02 | Remarks: 0
Sample Size: .100ml - 10ml | Customer ID: STD
Methods, Calculations, Results: LDF R9GH DIONEX
STDN 73CUCO RESULT 520.706 ppm
STD VAL 510ppm %REC 102.1970
BATCH 1217HW-R247 KOT 10-09-91
Analyst - 1: Indonna Hayes | Analyst - 2: | Analyst - 3: | Analyst - 4: | Analyst - 5: Denise Jolivet
Date: 10-7-91

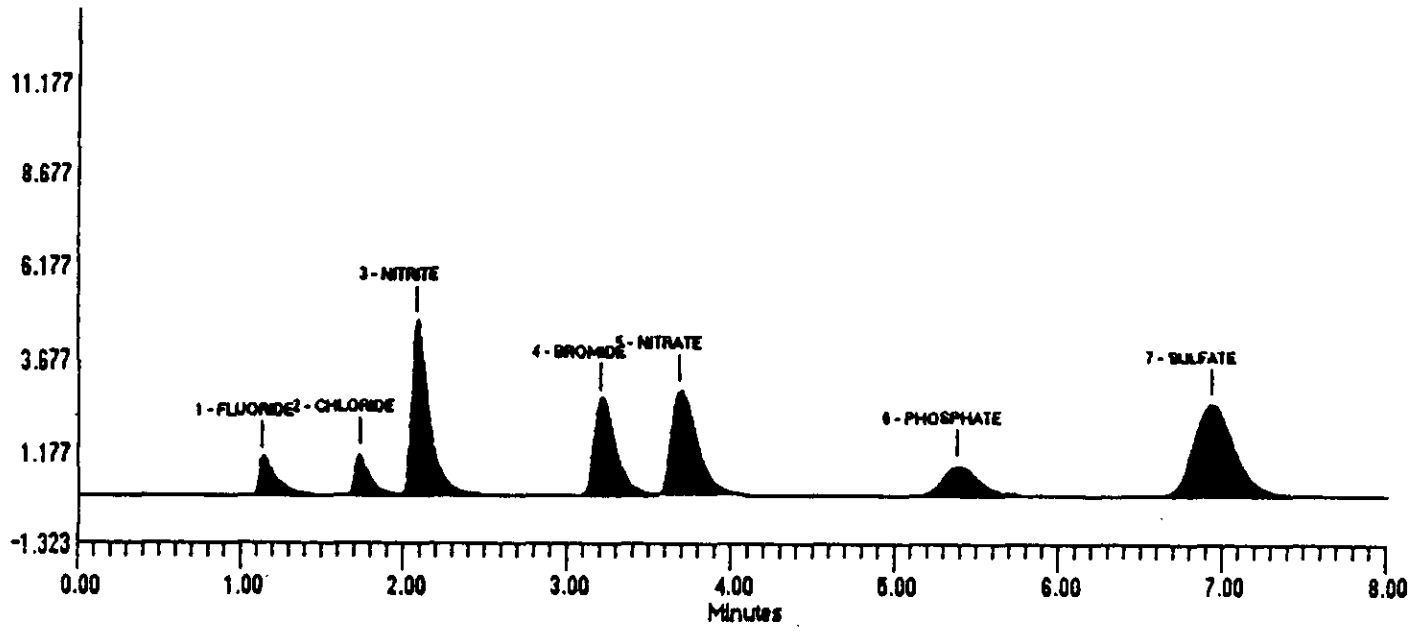
DATA REPROCESSED ON Tue Oct 08 12:07:25 1991

Sample Name: LMCS/73C11C0 Date: Sun Oct 06 23:57:56 1991
Data File : C:\DX\DATA\91100521.D03
Method : C:\DX\METHOD\SYSTEM1.MET
ACI Address: 1 System : 1 Inject#: 3 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	56.764	1031	7925	1	0.00
2	1.73	CHLORIDE	78.669	1115	7353	2	1.96
3	2.08	NITRITE	521.434	4668	34841	2	2.63
4	3.20	BROMIDE	496.404	2603	24621	2	4.92
5	3.68	NITRATE	527.942	2829	30780	2	0.09
6	5.38	PHOSPHATE	527.158	846	13387	1	1.25
7	6.93	SULFATE	601.885	2524	44543	1	1.22

File: C:\DX\DATA\91100521.D03 Sample: LMCS/73C11C0

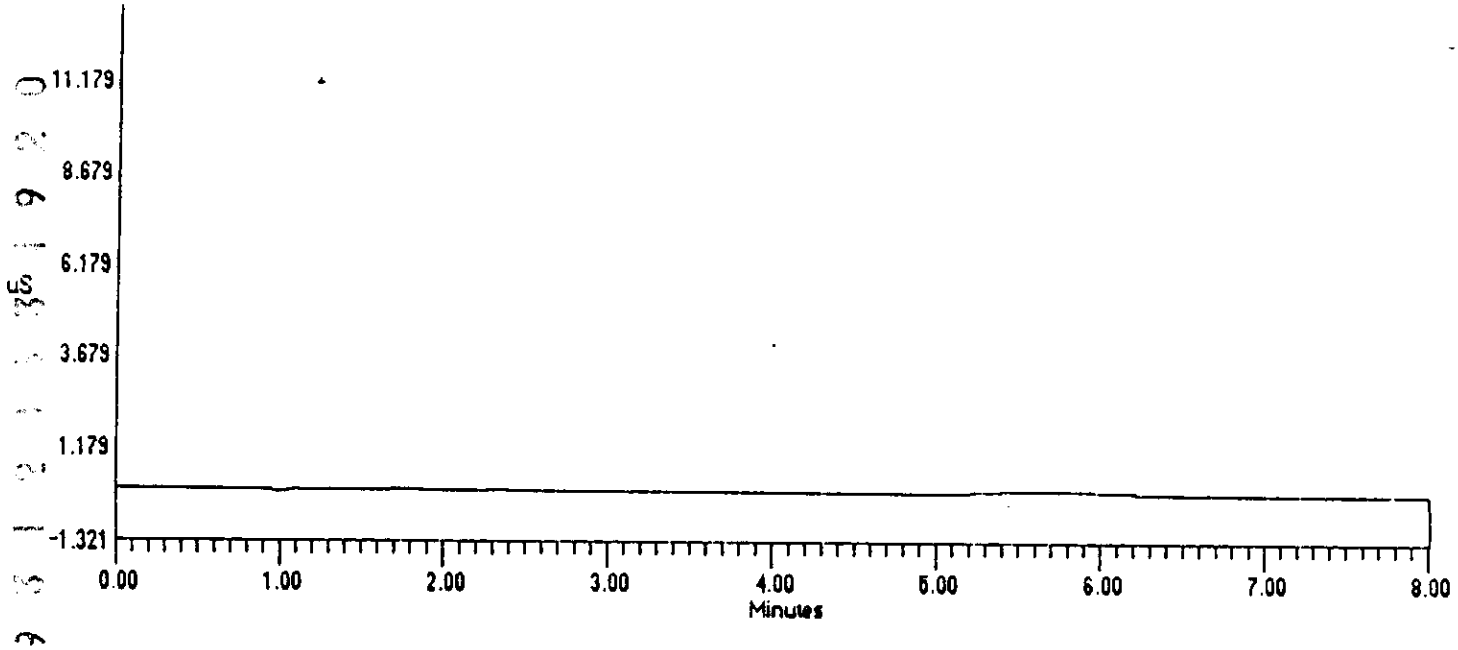


Sample Name: BLANK Date: Sun Oct 06 23:46:48 1991
Data File : c:\dx\data\91100521.D02
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 2 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	1	2405	5Hz	0.00	8.02	1000	

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta

File: c:\dx\data\91100521.D02 Sample: BLANK



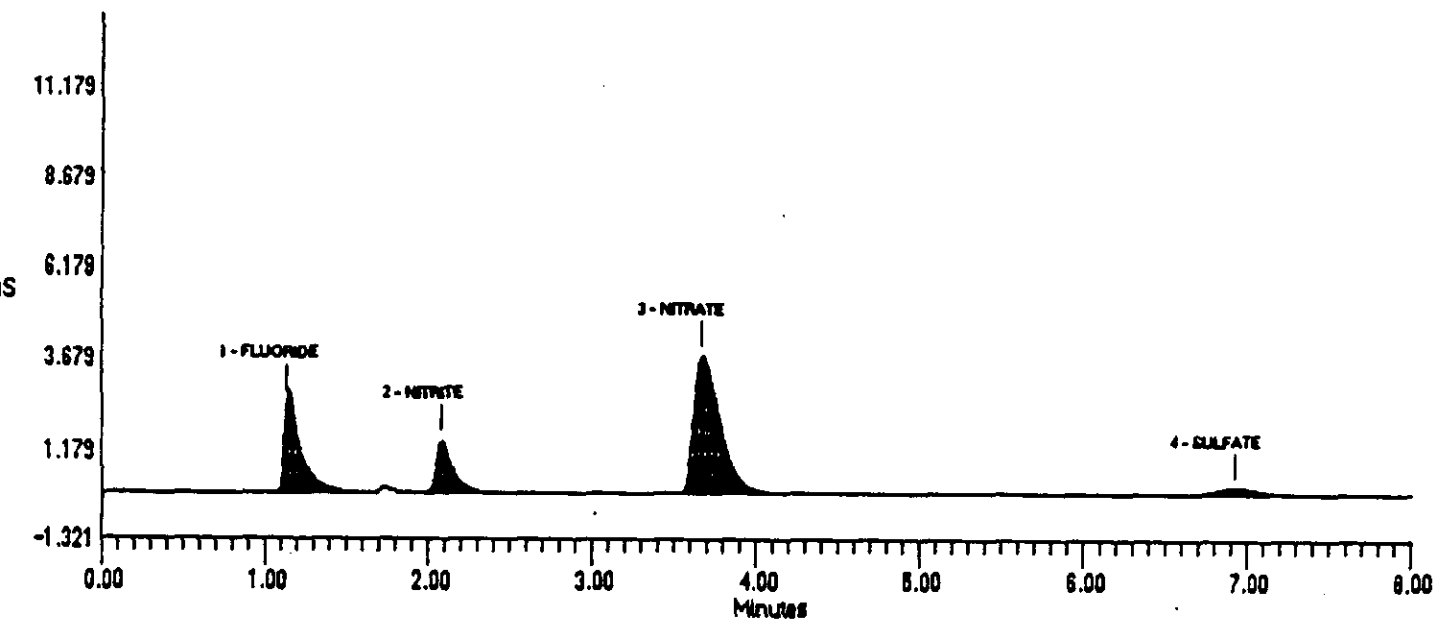
DATA REPROCESSED ON Tue Oct 08 11:59:25 1991

Sample Name: R330 Date: Mon Oct 07 01:12:52 1991
Data File : C:\DX\DATA\91100511.D11
Method : C:\DX\METHOD\SYSTEM1.MET
ACI Address: 1 System : 1 Inject#: 11 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	4221	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	5405.626	2562	20123	1	0.00
2	2.08	NITRITE	7895.772	1438	10311	1	2.63
3	3.67	NITRATE	30091.110	3761	42856	1	-0.36
4	6.93	SULFATE	3403.170	219	3537	1	1.22

File: C:\DX\DATA\91100511.D11 Sample: R330



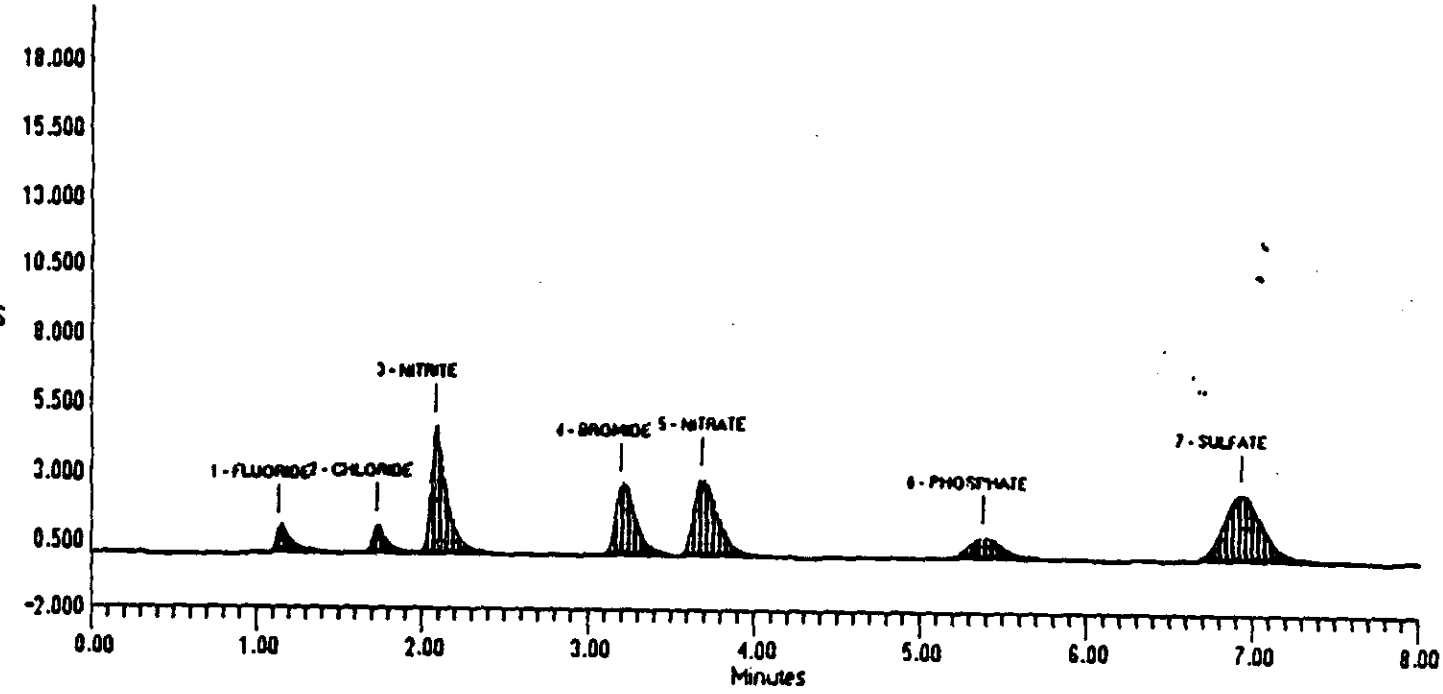
DATA REPROCESSED ON Tue Jul 21 14:56:48 1992

Sample Name: LMCS/73C11C0 - R33 Date: Mon Oct 07 01:22:09 1991
Data File : A:\91100501.D12 JCL 7-21-92
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 12 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	54.734	1013	7589	1	0.00
2	1.73	CHLORIDE	77.627	1112	7250	2	1.96
3	2.08	NITRITE	520.706	4730	34787	2	2.63
4	3.20	BROMIDE	507.310	2653	25173	2	4.92
5	3.68	NITRATE	3190756.650	2870	31592	2	0.09
6	5.30	PHOSPHATE	544.860	865	13897	1	1.25
7	6.93	SULFATE	603.348	2523	44580	1	1.22

File: A:\91100501.D12 Sample: LMCS/73C11C0



9-22-91
4469-AC

DIONEX METHOD PARAMETERS - SYSTEM1.MET

System Parameters

System Name : system1/gpm
Number of Detectors..... 1
Detector 1 Type..... CDM-1
Detector 1 real time plot scale (uS)..... 20.00
Run Time (minutes)..... 8.50
Sampling Rate (seconds)..... 0.20

-- DETECTOR 1 PARAMETERS --

Report Options

Save Data File..... Yes
Data File Name: c:\dx\data\91092201.D08
Create ASCII Report File..... No
Print Report..... Yes
List Peaks Not Found in this run..... No
Report Unknowns Found in this run..... Yes
Print Chromatogram..... Yes
AutoScale Chromatogram to Highest Peak..... Yes
Fill Peaks with Color ..... Yes
Draw Grid Lines on Chromatogram..... No
Label with Peak Number..... Yes
Label with Retention Times on Chromatogram..... No
Label with Component Name..... Yes
Format File Name: c:\dx\method\default.prf

Integration Parameters

Starting Peak Width (seconds)..... 10.0
Peak Threshold (mV or uS/data pt interval)..... 0.500
Peak Area Reject..... 1000
Area Reject for Reference Peaks..... 1000
Percent Retention Time Window for Reference Peaks..... 5.0

Integration Timed Events

Time	Description
1.32	Start peak detection
1.44	Start peak detection
1.46	Start peak detection
1.77	
1.77	Enable end of peak detection

Component # 1 FLUORIDE Retention Time 1.13
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 8.52797E-002
K1 = 6.06440E-005
K2 = -6.17180E-011

Level	Amount	Area	Height
1	1.20000E-001	1439	225
2	3.00000E-001	4035	566
3	6.00000E-001	8217	1141
4	1.20000E+000	16507	2218
5	2.30000E+000	39534	4812
6	4.40000E+000	76890	9371

Component # 2 CHLORIDE Retention Time 1.70
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.93335E-002
K1 = 1.01273E-004
K2 = -9.35560E-011

Level	Amount	Area	Height
1	1.60000E-001	1319	217
2	3.90000E-001	3754	568
3	7.80000E-001	6942	1045
4	1.50000E+000	14461	1975
5	3.00000E+000	30287	3987
6	5.90000E+000	61305	8910

Component # 3 NITRITE Retention Time 2.03
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.88691E-001
K1 = 1.33960E-004
K2 = 5.52630E-012

Level	Amount	Area	Height
1	1.08000E+000	6239	874
2	2.69000E+000	17299	2252
3	5.37000E+000	34328	4729
4	1.06200E+001	72787	9300
5	2.08500E+001	153501	19401
6	4.01500E+001	292053	34439

Component # 4 BROMIDE Retention Time 2.80
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.01960E-002
K1 = 2.00453E-004
K2 = -1.00008E-010

Level	Amount	Area	Height
1	1.56000E+000	7660	753
2	3.90000E+000	20706	1880
3	7.80000E+000	38868	3455
4	1.54000E+001	78061	6644
5	3.02000E+001	165133	12632
6	5.81000E+001	350930	24386

Component # 5 NITRATE Retention Time 3.30
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.02611E-001
K1 = 1.61787E-004
K2 = -5.83501E-011

Level	Amount	Area	Height
1	1.37000E+000	7543	727
2	3.43000E+000	19321	1803
3	6.83000E+000	40244	3563
4	1.35000E+001	83386	7010
5	2.65000E+001	173503	13640
6	5.11000E+001	360809	25639

Component # 6 PHOSPHATE Retention Time 5.32
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 5.53452E-001
K1 = 3.53243E-004
K2 = -3.51156E-010

Level	Amount	Area	Height
1	1.19000E+000	2277	162
2	2.98000E+000	7242	453
3	5.93000E+000	15025	935
4	1.17400E+001	31660	1933
5	2.30300E+001	69135	4130
6	4.43700E+001	144749	8447

Component # 7 SULFATE Retention Time 6.85
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.55734E-001
K1 = 1.27491E-004
K2 = -3.79358E-011

Level	Amount	Area	Height
1	1.40000E+000	9418	543
2	3.50000E+000	24499	1382
3	6.96000E+000	52303	2890
4	1.37800E+001	107173	5909
5	2.70400E+001	225632	12225
6	5.20700E+001	471630	24686

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R330	Customer ID: 791-10A
Analysis: ION CHROMATOGRAPHIC - NITRATE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000 - WB54428, AL10657, WB98659, WB97286, WB24740	Procedure/Rev: LA-533-105/B-0
Technologist: M. MYERS	Date: 10-08-91
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-5573	11		
2	REAGENT BLANK	R325-5673	12		
3	SAMPLE 791-10A	R330-5773	13		
4	FINAL LMCS CHECK STD	R331-5573	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11CO/0.1 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (NITRATE) - UNDIGESTED SAMPLE

Sample No	Sample Point	Date	Time Issued	Priority
K 324.-5573	106AW	9-20-91	10: 6	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
IRIS	LA-533-105	% RECOVERY	WITEX	0

Sample Size: .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results
EDP 1978 DIONEX
STD #73CCCO RESULT 558.677 ppm
STD VAL 564 ppm %REC 99.1%

Analyst 1: Lulama Hoyo; Analyst 2: Marie Gilbert; Date: 10-8-91

Sample No	Sample Point	Date	Time Issued	Priority
K 325.-5573	106AW	9-20-91	10: 0	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
IRIS	LA-533-105	PPM	WITEX	0

Sample Size: Direct
Customer ID: [illegible]

Remarks, Calculations, Results
REMARK BLANK
<1.00ppm

Analyst 1: Lulama Hoyo; Analyst 2: Marie Gilbert; Date: 10-8-91

Sample No	Sample Point	Date	Time Issued	Priority
K 330. 5573	106AW	9-20-91	10:24	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
IRIS	LA-533-105	PPM	WITEX	0

Sample Size: .050ml - 10ml - .250ml - 10ml
Customer ID: 221 10A

Remarks, Calculations, Results
2.98E4 ppm

Analyst 1: Lulama Hoyo; Analyst 2: Marie Gilbert; Date: 10-8-91

Sample No	Sample Point	Date	Time Issued	Priority
K 331. 5573	106AW	9-20-91	10:26	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
IRIS	LA-533-105	% RECOVERY	WITEX	0

Sample Size: .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results
EDP 1978 DIONEX
STD #73CCCO RESULT 5.4913
STD VAL 5.64 %REC 97.3%

Analyst 1: Lulama Hoyo; Analyst 2: Marie Gilbert; Date: 10-8-91

4409-AF 10-14-91

DIONEX METHOD PARAMETERS - SYSTEM1.MET

System Parameters

System Name : system1/qpm
Number of Detectors..... 1
Detector 1 Type..... CDM-1
Detector 1 real time plot scale (uS)..... 20.00
Run Time (minutes)..... 8.00
Sampling Rate (seconds)..... 0.20

-- DETECTOR 1 PARAMETERS --

Report Options

Save Data File..... Yes
Data File Name: C:\DX\DATA\91101401.D07
Create ASCII Report File..... No
Print Report..... Yes
List Peaks Not Found in this run..... No
Report Unknowns Found in this run..... Yes
Print Chromatogram..... Yes
AutoScale Chromatogram to Highest Peak..... Yes
Fill Peaks with Color ..... Yes
Draw Grid Lines on Chromatogram..... No
Label with Peak Number..... Yes
Label with Retention Times on Chromatogram..... No
Label with Component Name..... Yes
Format File Name: c:\dx\method\default.prf

Integration Parameters

Starting Peak Width (seconds)..... 10.0
Peak Threshold (mV or uS/data pt interval)..... 0.500
Peak Area Reject..... 1000
Area Reject for Reference Peaks..... 1000
Percent Retention Time Window for Reference Peaks..... 5.0

Integration Timed Events

Time	Description

Calibration Parameters

Number Of Levels for Calibration..... 6
Calibration Fit Type..... Quadratic
Replace Or Average Calibrations..... Replace
External or Internal Calibration..... External
Calibrate by Area or Height..... Area
Default Injection Volume..... 1.0
Default Dilution Factor..... 101.0
Response Factor for Unknown Peaks..... 1.0
Calibration Standard Volume 1.0
Internal Standard Volume 1.0
Sample Unit ..... PPM

Component # 1 FLUORIDE Retention Time 1.15
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 1.33141E-002
K1 = 7.35652E-005
K2 = -2.32747E-010

Level	Amount	Area	Height
1	1.10000E-001	1439	225
2	2.80000E-001	3649	553
3	5.60000E-001	7529	1129
4	1.12000E+000	15733	2313
5	2.19000E+000	33154	4704
6	4.22000E+000	74938	9497

Component # 2 CHLORIDE Retention Time 1.72
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 8.88526E-003
K1 = 1.08463E-004
K2 = -3.16779E-010

Level	Amount	Area	Height
1	1.30000E-001	1319	217
2	3.30000E-001	2868	459
3	6.60000E-001	6001	936
4	1.31000E+000	12417	1921
5	2.58000E+000	25701	3883
6	5.00000E+000	54764	7755

Component # 3 NITRITE Retention Time 2.08
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 6.41195E-001
K1 = 1.25938E-004
K2 = 4.84873E-012

Level	Amount	Area	Height
1	1.25000E+000	6239	874
2	3.10000E+000	19929	2672
3	6.18000E+000	42059	5606
4	1.22300E+001	90590	11584
5	2.40000E+001	185584	23728
6	4.62200E+001	356723	42402

Component # 4 BROMIDE Retention Time 3.05
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.01960E-002
K1 = 2.00453E-004
K2 = -1.00008E-010

Level	Amount	Area	Height
1	1.56000E+000	7660	753
2	3.90000E+000	20706	1880
3	7.80000E+000	38868	3455
4	1.54000E+001	78061	6644
5	3.02000E+001	165133	12632
6	5.81000E+001	350930	24386

Component # 5 NITRATE Retention Time 3.42
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 1.12719E+000
K1 = 1.25048E-004
K2 = 1.59899E-010

Level	Amount	Area	Height
1	1.10000E+000	1477	162
2	2.75000E+000	15087	1425
3	5.47000E+000	31133	2883
4	1.08200E+001	66694	5778
5	2.12300E+001	139804	11210
6	5.08900E+001	289865	21262

Component # 6 PHOSPHATE Retention Time 5.37
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.70449E-001
K1 = 3.46513E-004
K2 = -3.83601E-010

Level	Amount	Area	Height
1	1.14000E+000	2277	162
2	2.83000E+000	7242	453
3	5.63000E+000	14732	918
4	1.15600E+001	32263	1962
5	2.18800E+001	67512	4036
6	4.21500E+001	142733	8289

Component # 7 SULFATE Retention Time 7.03
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 1.93428E-001
K1 = 1.28116E-004
K2 = -4.37267E-011

Level	Amount	Area	Height
1	1.26000E+000	9418	543
2	3.14000E+000	24499	1382
3	6.26000E+000	45736	2477
4	1.23900E+001	97310	5267
5	2.43100E+001	203719	10947
6	4.68100E+001	425407	21849

IC Control File: C:\DX\METHOD\SYSTEM1.TE

Step	Time	Description
Init		CDM-1 AutoOffset Off
Init		CDM-1 Recorder Mark OFF
Init		CDM-1 Temp. Comp. = 1.7 / Deg C
Init		CDM-1 Recorder Range = 0.1 uS
Init		CDM-1 Cell ON
Init		CHA Heater = 25 Deg. C
Init		Valve A ON
Init		Valve B ON
Init		Inject Valve OFF
Init		ACI Autosmp OFF
Init		ACI RLY 2 OFF
Init		ACI TTL 1 OFF
Init		ACI TTL 2 OFF
Init		ACI AC 1 ON
Init		GPM Start
Init		GPM Hold Gradient Clock
Init		GPM Reset ON
1	0.0	CDM-1 AutoOffset ON
1	0.0	Start Sampling
1	0.0	GPM Reset OFF
2	0.1	CDM-1 Recorder Range = 10.0 uS
2	0.1	Inject Valve ON
2	0.1	GPM Run Gradient Clock
3	3.0	Inject Valve OFF
4	3.5	ACI Autosmp ON
5	8.0	ACI Autosmp OFF

GpmFile: C:\DX\METHOD\SYSTEM1.GPM
Lo Pressure Limit = 200
Hi Pressure Limit = 2000
Eluant 1 - DI WATER
Eluant 2 - SODIUM CARBONATE
Eluant 3 - SODIUM BICARBONATE
Eluant 4 - Eluant 4

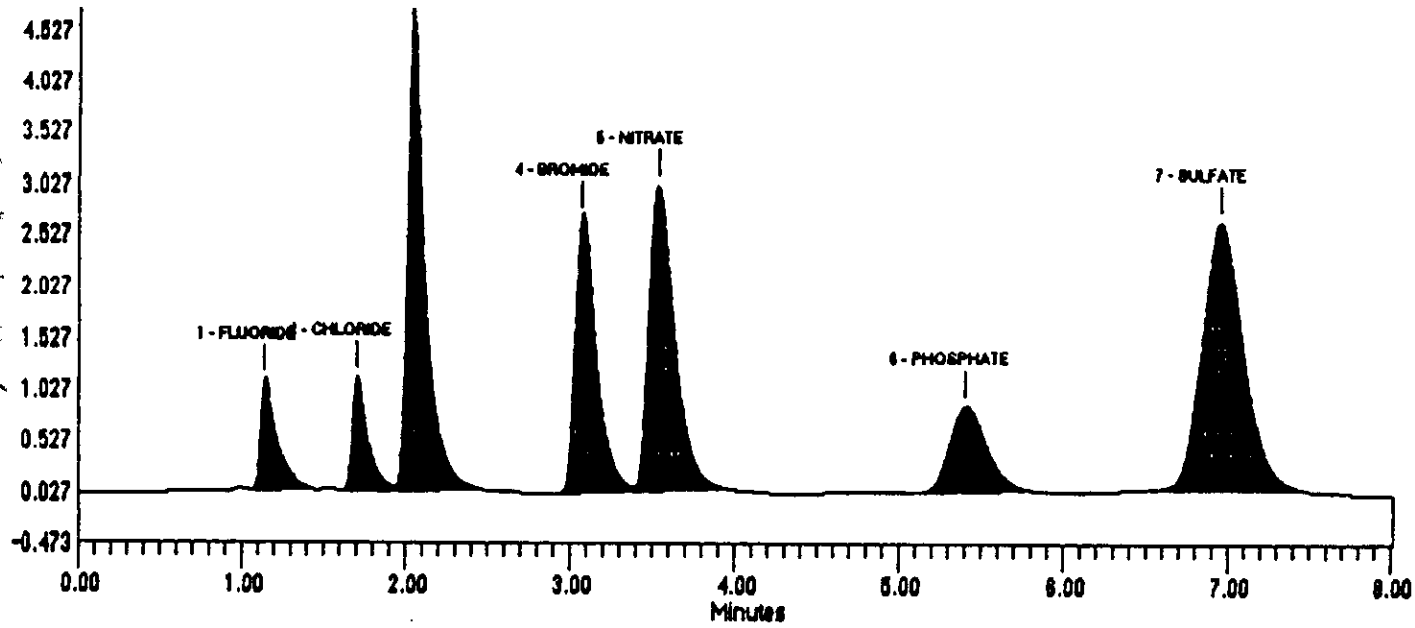
Time	Flow	%1	%2	%3	%4	V5	V6	Comment
0.0	2.0	84	8	8	0	0	0	

Samole Name: LMCS Date: Tue Oct 08 03:34:05 1991
Data File : C:\DX\DATA\91100601.D05
Method : C:\DX\METHOD\SYSTEM1.MET
ACI Address: 1 System : 1 Inject#: 5 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	55.187	1060	7664	1	0.00
2	1.70	CHLORIDE	77.560	1095	7243	2	0.00
3	2.03	NITRITE	521.679	4532	34859	2	0.16
4	3.07	BROMIDE	498.532	2688	24729	2	0.55
5	3.53	NITRATE	558.697	2971	32706	2	-3.99
6	5.40	PHOSPHATE	520.892	834	13207	1	1.57
7	6.95	SULFATE	615.216	2602	45606	1	1.46

File: C:\DX\DATA\91100601.D05 Sample:

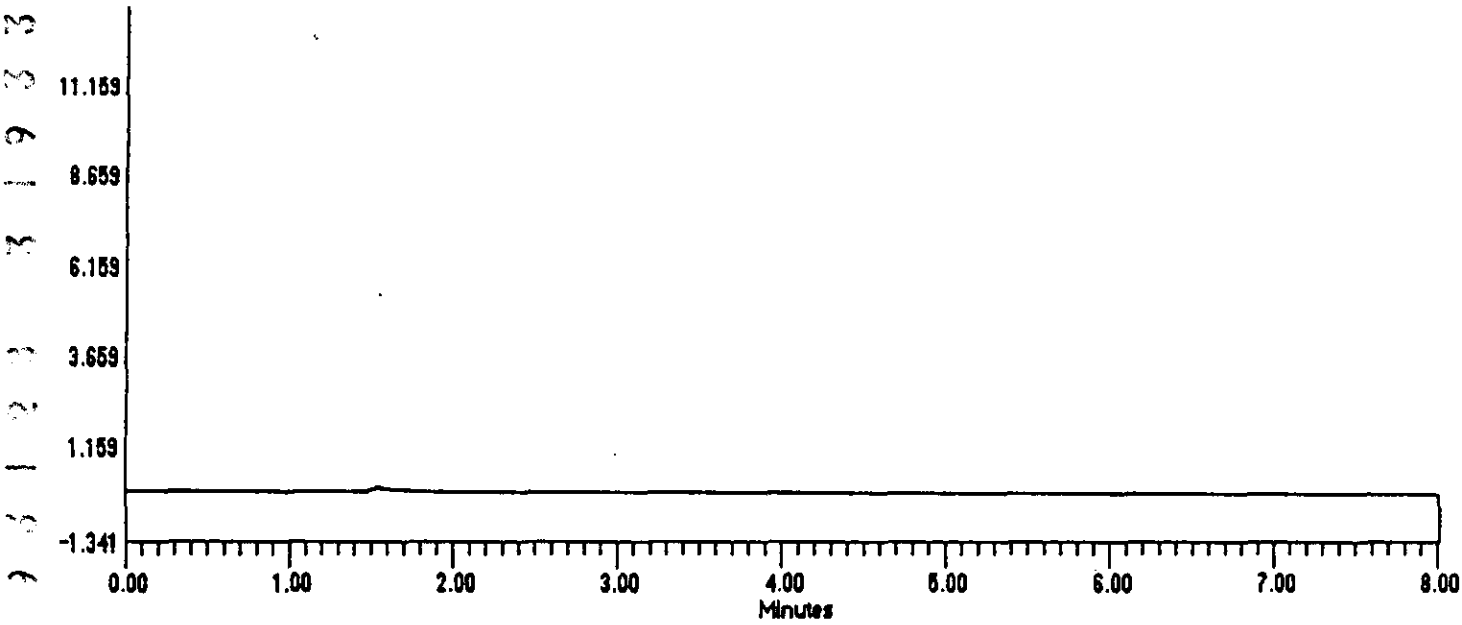


```
: Sample Name: R325                                  Date: Tue Oct 08 04:17:54 1991:
: Data File   : c:\dx\data\91100741.D02                                            :
: Method      : c:\dx\method\SYSTEM1.met                                           :
: ACI Address: 1        System : 1        Inject#:    2  Detector: CDM-1          :
```

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	1	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta

File: c:\dx\data\91100741.D02 Sample: R325

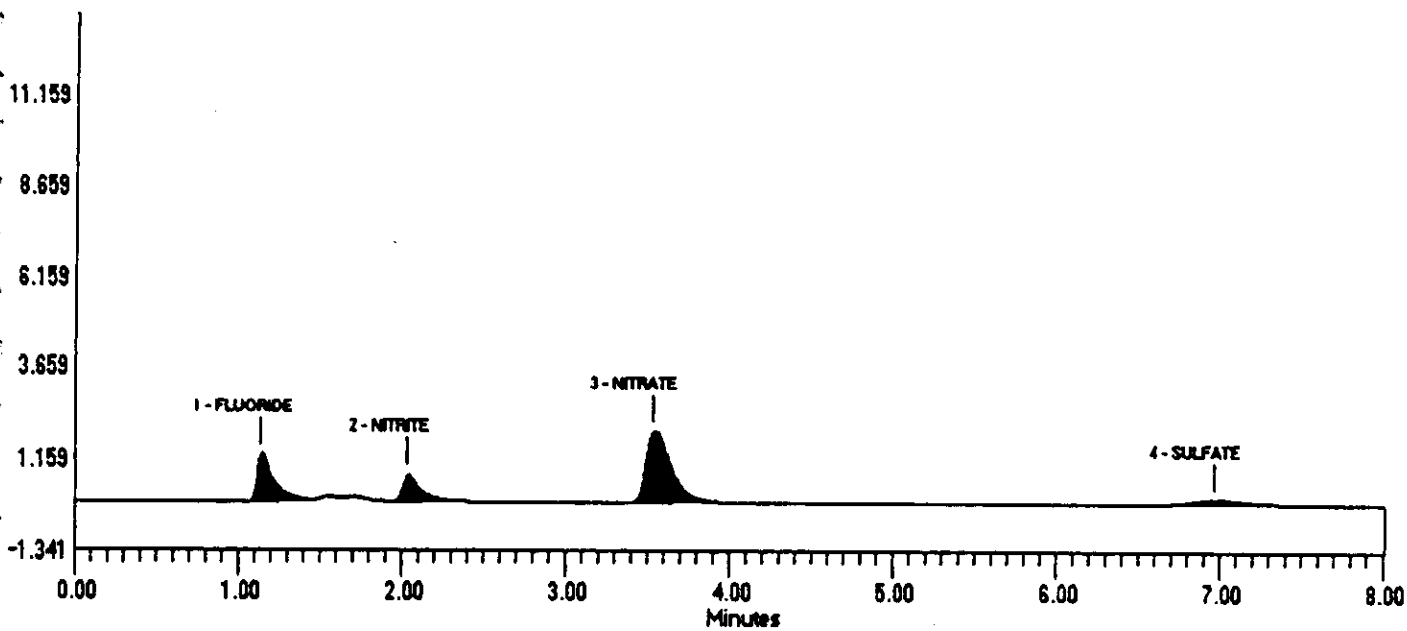


Sample Name: ~~R328~~ R330 Date: Tue Oct 08 05:04:15 1991
Data File : c:\dx\data\91100731.D07
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 7 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	~~8241~~ 8241	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	5270.546	1231	9226	1	0.00
2	2.03	NITRITE	9685.981	705	5125	1	0.16
3	3.53	NITRATE	29781.527	1910	20620	1	-3.99
4	6.97	SULFATE	4712.725	115	1696	1	1.70

File: c:\dx\data\91100731.D07 Sample: R328

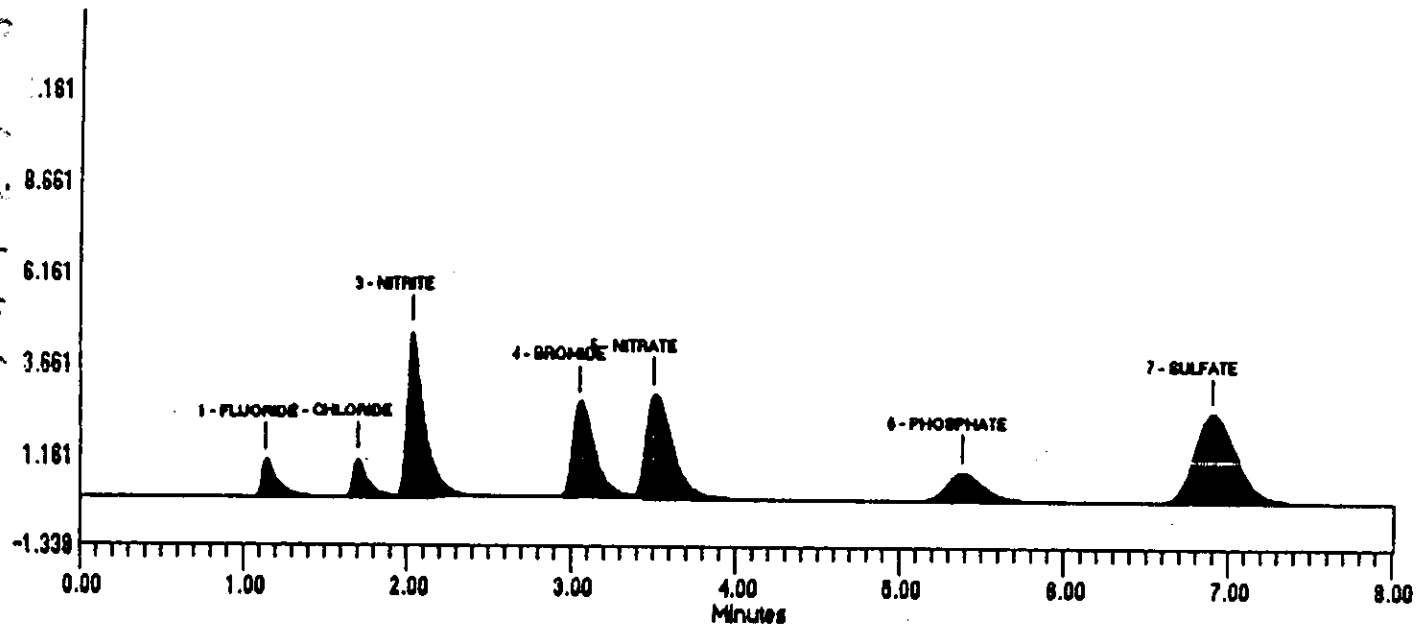


Sample Name: LMCS/73C11C0 Date: Tue Oct 08 06:26:11 1991
Data File : C:\DX\DATA\91100631.D01
Method : C:\DX\METHOD\SYSTEM1.MET
ACI Address: 1 System : 1 Inject#: 1 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	2405	5Hz	0.00	8.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.13	FLUORIDE	53.303	1037	7351	1	0.00
2	1.70	CHLORIDE	74.524	1067	6942	2	0.00
3	2.03	NITRITE	500.692	4527	33312	2	0.16
4	3.05	BROMIDE	497.450	2633	24674	2	0.00
5	3.50	NITRATE	548.126	2877	32044	2	-4.89
6	5.38	PHOSPHATE	510.599	821	12910	1	1.25
7	6.90	SULFATE	592.399	2453	43786	1	0.73

File: C:\DX\DATA\91100631.D01 Sample: LMCS/73C11C0



WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R330	Customer ID: 791-10A
Analysis: ACID DIGESTION	Sample Prep: ACID DIGESTION

Instrument: METTLER BAL. SN F04495	Procedure/Rev: LA-508-158/A-2
Technologist: L. MORRISON	Date: 09-25-91
Starting Time: N/A	Temperature: N/A
Ending Time: N/A	Chemist: S. A. JONES

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-8505	11		
2	REAGENT BLANK	R325-8605	12		
3	SAMPLE 791-10A	R330-8705	13		
4	FINAL LMCS CHECK STD	R331-8505	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	ICP1-9S4/10 mL	ICP2-6S4/10 mL	ICP3-8S4/10 mL	N/A

A-6000-881 (03/92)

ACID DIGESTION ANALYSIS

Complete

Complete

Complete

Complete

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R330	Customer ID: 791-10A
Analysis: INDUCTIVELY COUPLED PLASMA	Sample Prep: ACID DIGESTION

Instrument: WB39939	Procedure/Rev: LA-505-151/B-0
Technologist: L. MORRISON	Date: 11-19-91
Starting Time: NA	Temperature: N/A
Ending Time: NA	Chemist: L. OTTMAR

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R324-8550	11		
2	REAGENT BLANK	R325-8650	12		
3	SAMPLE 791-10A	R330-8750	13		
4	FINAL LMCS CHECK STD	R331-8550	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	ICP1-9S4/10 mL	ICP2-6S4/10 mL	ICP3-8S4/10 mL	N/A

A-6000-881 (03/92)

ICP ANALYSIS - ACID DIGESTION

Serial No.	Sample Point	Date	Time Issued	Priority
R 324.-8550	106AW	9-20-91	10: 7	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	% RECOVERY	W1TE2	0

Sample Size	Customer ID
? 10mL EA IN 100mL	STD

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID _____
ICPSST1 - 954
ICPSST2 - 654
ICPSST3 - 889

LMCS
STDS

AL 2.98E2 (10/10³) = 2.98ppm 59.6%
Ca 1.51E3(.01) = 1.51E1ppm = 151%
Cr 4.54E2(.01) = 4.54 ppm = 90.8%
Fe 5.08E2(.01) = 5.08ppm = 102%
Na 9.06E2(.01) = 9.06ppm = 90.6%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65231	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]	Laurine J. Ottman			

Date	Time Completed	Lab Unit Mgr
11/19/91	11/21/91	[signature]

54-6800-061 (R-10-83)

Al 4.55 91.0% wng #7362

Ca 9.94 99.4%

Cr 4.80 96.0%

Fe 4.88 97.6%

Na 9.71 97.1%

LMCS ✓ Teresa L. Fizzie

~~Undigested~~
~~Ba 10.10~~ JK
~~Cd 9.8~~ 5-29-92

DIGESTED
Ag (4.51E2)(.01) = 90.2%
Ba (9.32E2)(.01) = 93.2%
Cd (9.25E2)(.01) = 92.5%
Mg (488)(.01) 97.6%
Mn (479)(.01) = 95.8%
Pb (507)(.01) = 101.4%
Zn (969)(.01) = 96.9%

Undigested
Ba 10.10 101.0%
Cd 9.82 98.2%
Mg 4.94 98.8%
Mn 4.93 98.6%
Zn 9.96 99.6%
Ag 5.07 101.4%
Pb 5.06 101.6%

R 324-8550

ICP ANALYSIS - ACID DIGESTION

Serial No.	Sample Point	Date	Time Issued	Priority
R 325.-8650	106AW	9-20-91	10: 9	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	PPM	W1TE2	0

Sample Size	Customer ID
? Direct	REG BL

Remarks, Calculations, Results:
REAGENT BLANK

AL<55ppb/10³ < 5.50E-2ppm
CA 4.18E3/10³ = 4.18ppm
Cr 1.66E1/10³ = 1.66E-2ppm
Fe <87/10³ = 8.70E-2ppm
Na 1.09E2/10³ = 1.09E-1ppm

Ag <8.0/10³ = <8.0E-3ppm
Ba <3.0/10³ = <3.0E-3ppm
Cd <4.0/10³ = <4.0E3ppm
Mg 4.08E2/10³ = 4.08E-1ppm
Mn 1.38E1/10³ = 1.38E-2ppm
Pb <8.0E1/10³ = <8.0E-2ppm
Zn 2.91E2/10³ = 2.91E-1ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731	82768			
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
11/19/91	11/[illegible]/91	[illegible]

54-6800-061 (R-10-87)

ICP ANALYSIS - ACID DIGESTION

Serial No.	Sample Point	Date	Time Issued	Priority
R 330.-8750	106AW	9-20-91	10:25	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	ug/g rec	W1TE2	0

Sample Size	Customer ID
? 1mL in 100mL, 2mL To 10mL DF 600	791-10A

Remarks, Calculations, Results:

Al 2.33E3 (600) = 1.40E6ppb
Ca 7.50E2 (600) = 4.50E5ppb
Cr 3.80E1 (600) = 2.28E4ppb
Fe <87(600) <5.22E4 ppb
Na 6.19E4(600) = 3.71E7ppb

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
60231.	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Sub Visit No.		
11/19/91	11/21/91			

54-8800-061 (R-10-93)

Ag (<8.0)(600) = <4.80E3ppb
Ba (<3.0)(600) = <1.80E3ppb
Cd (5.55)(600) = 3.33E3ppb
Mg (1.63E1)(600) = 9.78E3ppb
Mn (5.85)(600) = 3.51E3ppb
Pb (<50)(600) = <4.80E4ppb
Zn (122)(600) = 7.32E4ppb

R 330-8750

ICP ANALYSIS - ACID DIGESTION

Serial No.	Sample Point	Date	Time Issued	Priority
R 331.-8550	106AW	9-20-91	10:27	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	% RECOVERY	W1TE2	0

Sample Size	Customer ID
? 10 mL SA in 100 mL, DF=10	STD

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID _____
ICPSST1 - 954
ICPSST2 - 654
ICPSST3 - 854

AL ~~[illegible]~~ 5-29-92
6.9382(10/.01) = 6.93 ppm 128.6%
Ca ~~[illegible]~~ 5-29-92
1.5124(.01) = 1.5182 = 151%
Cr 5.1682(.01) = 5.16 ppm = 103%
Fe 8.0682(.01) = 8.06 ppm = 161%
Na 1.2753(.01) = 1.2781 ppm 127%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65231	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
[signature]	[signature]	[signature]		[signature]

Date	Time Completed	Lab Unit Mgr
11/19/91	11/21/91	[signature]

54-6800-061 (R-10-83)

Al	4.68	93.6%
Ca	9.94	99.4%
Cr	4.82	96.4%
Fe	4.89	97.8%
Na	9.72	97.2%

LMCS ✓ [signature]

DIGESTED

Ag (497)(.01) = 99.4%
Ba (1005)(.01) = 100.5%
Cd (990)(.01) = 99.0%
Mg (2095)(.01) = 419%
Mn (543)(.01) = 108.6%
Pb (508)(.01) = 101.6%
Zn (1579)(.01) = 157.9%

Undigested

Ba	10.10	101.0%
Cd	9.88	98.8%
Mg	4.96	99.2%
Mn	4.94	98.8%
Zn	10.01	100.1%
Ag	5.06	101.2%
Pb	5.04	100.8%

R 331-8550

[illegible]

[redacted] [illegible] [redacted] [illegible]

[illegible] [redacted] [illegible]

[illegible] [redacted] [redacted] [illegible] [redacted] [illegible]

[illegible]

9 3 1 2 5 3 1 9 4 3

	[illegible]	Ba	Tl
	(ppb)	(ppb)	(ppb)
Mean	[illegible]	[illegible]	[illegible]
S.D.	[illegible]	[illegible]	[illegible]
N.F.S.D.	[illegible]	[illegible]	[illegible]

1162

TF2
8-31-92
~~1147~~

Standard Quick Statistics Sat, [illegible] November 19, 1991
[illegible]
Sample Weight : [illegible] Solution Volume : [illegible]
Integration : [illegible] Background Integration : [illegible]

Anal. Ca Channel	Net Values	S.D. Values	%R.S.D. Values
[illegible]	[illegible]	[illegible]	[illegible]

Operator: [redacted] Operator ID: [redacted] Sat, [illegible] November 19, 1991
[illegible]
Sample Weight : [illegible] Solution Volume : [illegible]
Integration : [illegible] Background Integration : [illegible]

	Ca	Al	Al	Ba	Cd	Cr	Cu	Fe
[illegible]	[illegible]	[illegible]	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]	[redacted]

	Ge	K	La	Li	Mg	Mn	Na	Ni
[illegible]	[redacted]	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]	[redacted]	[illegible]

1163

TPZ
8-31-92

~~1148~~

[illegible]

[illegible] [redacted] [illegible] [redacted] [illegible]

[illegible]

Mean	-3.798	-24.970	[redacted]	-0.132	-3.358	-33.733	[illegible]	[redacted]
S.D.	0.519	9.865	24.445	0.240	1.937	0.159	[illegible]	[illegible]
% R.S.D.	13.667	37.104	31.800	257.565	50.339	0.799	[illegible]	153.564

	Ca (ppb)	Cr (ppb)	Ba (ppb)	B (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)
Mean	[redacted]	[redacted]	-7.198	-21.414	-5.870	1.649	[redacted]	5.965
S.D.	[illegible]	8.574	1.934	10.633	0.110	7.819	[illegible]	8.149
% R.S.D.	3.615	31.534	18.997	49.656	1.840	437.141	55.794	[illegible]

	Se (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)	K (ppb)	(ppb)	Mn (ppb)	Sb (ppb)
Mean	93.483	7.366	118.865	6.108	-10.817	171.549	[illegible]	178.664
S.D.	9.418	8.375	25.491	1.044	7.045	41.757	[illegible]	55.789
% R.S.D.	11.274	30.189	22.556	17.114	65.131	22.759	15.955	32.376

	Al (ppb)	Ba (ppb)	Tl (ppb)
Mean	3.578	5.271	-725.504
S.D.	9.361	0.173	94.865
% R.S.D.	260.021	3.280	13.993

Connected Counts Statistics 5:18 PM November 19, 1991
The Mean is 60.0%
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte Channel		Mean Volumes	S.D. Volumes	% R.S.D. Volumes
[illegible]	3	[illegible]	2.353	
[illegible]	3	[illegible]	[illegible]	
[illegible]	9	[illegible]	[illegible]	
[illegible]	1	133.333	[illegible]	
[illegible]	13	31.199	0.345	
[illegible]	15	53.025	0.584	
[illegible]	16	37.130	0.321	
Fe	19	51.994	0.584	
[illegible]	20	60.591	0.705	
[illegible]	21	14.543	[illegible]	
[illegible]	26	157.915	[illegible]	
[illegible]	28	[illegible]	[illegible]	
[illegible]	29	[illegible]	[illegible]	
[illegible]	30	[illegible]	[illegible]	
[illegible]	31	17.613	[illegible]	
[illegible]	32	[illegible]	[illegible]	
[illegible]	33	[illegible]	[illegible]	
Ag	34	[illegible]	[illegible]	
Pb	35	[illegible]	[illegible]	
Tl	37	225.144	3.573	
[illegible]	39	33.611	[illegible]	
[illegible]	39	[illegible]	[illegible]	
[illegible]	[illegible]	59.786	[illegible]	

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

I 1165

TPZ
8-31-92
~~1150~~

[illegible] [redacted] [illegible] [redacted] [illegible]

[illegible]

[redacted]

[illegible]

[redacted]

[illegible]

[redacted]

[illegible]

[illegible]

[illegible] [redacted] [illegible] [redacted] [illegible]

[illegible] [redacted] [illegible]

[illegible] [redacted] [illegible]

[illegible]

[illegible]

[illegible]	13	0.??8	0.008
[illegible]	15	-0.002	0.010
[illegible]	1?	-0.11?	0.003
[illegible]	1?	1.075	1.010
[illegible]	2?	1.387	0.?04
[illegible]	21	-0.005	0.013
[illegible]	24	-0.4?1	1.107
[illegible]	25	1.045	0.109
[illegible]	2?	1.00?	0.001
[illegible]	2?	1.105	0.0??
[illegible]	31	1.075	0.00?
[illegible]	32	0.013	1.009
[illegible]	33	-0.037	0.006
[illegible]	34	17.840	0.171
[illegible]	35	3.926	0.016
[illegible]	37	-0.101	0.084
[illegible]	38	0.003	0.014
	39	-0.059	0.003
	41	-0.089	0.001
[illegible]	42	1.01	[illegible]
	43	-0.257	0.009
[illegible]	44	1.213	0.001
[illegible]	45	3.451	0.006

[illegible] [redacted] [illegible] [redacted] [illegible]
[illegible]
Sample weight : [illegible] Solution volume : [illegible]
[illegible] Integrations : [illegible] [illegible] Integrations : [illegible]

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Mean	-1.513	-104.113	41.764	15.1?3	[illegible]	-85.1??	-1.???	5.???
S.D.	1.8?1	4.735	10.815	1.613	[illegible]	[illegible]	[illegible]	1.491
% R.S.D.	15.997	[illegible]	3.849	[illegible]	99.???	[illegible]	[illegible]	13.???

	Ca	Cr	Fe	[illegible]	Mg	[illegible]	Na	[illegible]
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Mean	-7.312	5.671	-41.284	15.986	-3.485	[illegible]	-75.194	3.594
S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% R.S.D.	[illegible]	[illegible]	[illegible]	[illegible]	3.261	[illegible]	[illegible]	[illegible]

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Mean	[illegible]	[redacted]	[redacted]	[illegible]	-11.???	[illegible]	[illegible]	[illegible]
S.D.	[illegible]	[redacted]	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% R.S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	[illegible]	[illegible]	[illegible]
	ppm	ppm	ppm
Mean	-331.???	[illegible]	-??1.???
S.D.	[illegible]	[illegible]	46.734
% R.S.D.	[illegible]	[illegible]	14.701

[illegible] November [illegible]

[illegible]

[redacted] [illegible] [redacted] [illegible] November [illegible]

[illegible] [redacted] [illegible]

[illegible] [redacted] [illegible] [redacted] [illegible] [redacted] [illegible] [redacted] [illegible]

[illegible]

S.D.	[redacted]	3.295	18.375	[illegible]	[illegible]	54.559	[illegible]	67.373	
% R.S.D.	1.045	15.216	60.931	37.925	5.419	17.255	[illegible]	33.792	

		Be	Tl
	ppb	ppb	ppb
Mean	[redacted]	[redacted]	[redacted]
S.D.	[illegible]	[illegible]	[illegible]
% R.S.D.	[illegible]	[illegible]	3.251

Corrected Counts Statistics 3:27 PM November 19, 1991
Test name : [illegible]
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Element Channel		Mean Pulses	S.D. Pulses	%R.S.D. Pulses
[illegible]	[illegible]	4.273	0.085	
[illegible]	[illegible]	15.761	0.267	
[illegible]	9	11.561	1.466	
[illegible]	11	1.664	0.326	
[illegible]	13	[illegible]	0.055	
[illegible]	15	[illegible]	0.151	
[illegible]	16	[illegible]	0.069	
[illegible]	19	0.197	0.131	
[illegible]	20	[illegible]	0.294	
[illegible]	21	1.052	0.085	
[illegible]	24	[illegible]	0.032	
[illegible]	28	[illegible]	0.147	
[illegible]	29	[illegible]	[illegible]	
[illegible]	31	4.791	0.045	
[illegible]	[illegible]	0.261	0.216	
[illegible]	32	[illegible]	[illegible]	
[illegible]	33	[illegible]	0.131	
[illegible]	34	[illegible]	0.054	
[illegible]	35	[illegible]	0.133	
[illegible]	37	-0.279	[illegible]	
[illegible]	38	0.253	0.133	
[illegible]	39	[illegible]	0.168	
[illegible]	40	[illegible]	0.016	
[illegible]	42	1.005	[illegible]	
	43	1.553	0.333	
[illegible]	44	15.537	3.754	
[illegible]	45	4.187	[illegible]	

Comment: [redacted] Identity: [redacted] [illegible] AM November 19, 1991
Test name : [illegible]
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fe
	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Mean	[illegible]	[redacted]	[redacted]	[illegible]	3.335	[illegible]	[illegible]	[illegible]

9 1 1 3 5 7 1 9 9 2

Increased Dilute Estimates [illegible] November 13, 1991
Test Date : [illegible]
Sample Weight : [illegible] Solution Volume : [illegible]
Interfer. Integration : [illegible] Peak Integration : [illegible]

Analyte Or Mass	Mean Blank	S.D. Blank	95% C.I. Blank
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

WHC-SD-WM-DP-025
Addendum 16 Rev 0

Identity : [redacted] Ident: Identity : [redacted] 5:20 PM November 19, 1991
Task name : [illegible]
Sample weight : [illegible] Solution volume : 1.00
On-Peak integrations : 3 Off-Peak integrations : 1

	[illegible] (ppb)	[illegible] (ppb)	[illegible] (ppb)	[illegible] (ppb)	[illegible] (ppb)	[illegible] (ppb)	[illegible] (ppb)	[illegible] (ppb)
Mean	-8.049	[redacted]	[redacted]	116.875	-8.495	-41.433	78.135	1.313
S.D.	1.44	50.755	9.511	5.762	11.502	2.394	3.158	3.145
% R.S.D.	7.186	0.475	0.208	2.547	15.983	5.940	4.04	37.951

	[illegible] (ppb)	Cr (ppb)	Ba (ppb)	B (ppb)	Mg (ppb)	[illegible] (ppb)	[illegible] (ppb)	[illegible] (ppb)
Mean	[redacted]	19.199	-11.418	[redacted]	7.960	[redacted]	-51.504	[redacted]
S.D.	[illegible]	1.846	0.449	[illegible]	0.281	10.354	5.866	34.536
% R.S.D.	3.155	10.367	4.307	0.999	4.737	1.974	11.331	1.357

	[redacted]	Ag (ppb)	[illegible] (ppb)	[illegible] (ppb)	[illegible] (ppb)	[illegible] (ppb)	[illegible] (ppb)	[illegible] (ppb)
Mean	[redacted]	10.337	-90.511	-5.791	-4.976	87.040	6.991	344.354
S.D.	27.539	1.348	12.751	.796	3.155	-47.912	0.557	36.771
% R.S.D.	1.574	13.135	14.086	13.731	331.774	55.151	7.971	10.689

	[redacted]	[illegible]	[illegible]
Mean	[redacted]	[redacted]	[redacted]
S.D.	97.330	-6.503	87.026
% R.S.D.	0.375	0.493	1.355

[illegible] 5:22 PM November 19, 1991
Task name : [illegible]
Sample weight : 1.0000 Solution volume : 1.00
On-Peak integrations : 3 Off-Peak integrations : 1

Analyte Channel		Mean Volt	S.D. Volt	%R S.D. Volt
[illegible]	3	-.559	0.006	
[illegible]	6	0.195	.004	
[illegible]	9	[illegible]	0.050	
[illegible]	11	0.171	[illegible]	
[illegible]	13	0.199	[illegible]	
[illegible]	17	-0.018	[illegible]	
[illegible]	[illegible]	-0.149	[illegible]	
Fe	19	0.071	0.156	
[illegible]	21	[illegible]	[illegible]	
[illegible]	21	-0.184	.018	
[illegible]	26	[illegible]	[illegible]	
[illegible]	25	1.102	[illegible]	
[illegible]	27	[illegible]	[illegible]	
Ag	31	-0.102	[illegible]	

1172

TF2 [illegible]
~~1157~~

[illegible]	3	[illegible]	[illegible]
[illegible]	73	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
Ag	34	-0.093	0.004
Pb	35	-0.017	0.019
Cd	37	-0.160	0.018
[illegible]	38	[illegible]	[illegible]
	39	-0.157	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
Sb	-5	-[illegible]	[illegible]
[illegible]	-3	-[illegible]	[illegible]
Ba	-4	[illegible]	[illegible]
[illegible]	45	[illegible]	[illegible]

Identification: [redacted] Identity By: [redacted] [illegible]
Test Name: [illegible]
Sample Weight: [illegible] Solution Volume: [illegible]
On-Peak Integration: [illegible] Off-Peak Integration: [illegible]

	Cr	Cu	Ni	Cr	Co	Zn	[illegible]	Fe
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Mean	[illegible]	[illegible]	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
S.D.	[illegible]	[illegible]	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	Ca	Cr	Ba	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Mean	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[redacted]	[illegible]
S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	Ca	Ag	Pb	Cd	[illegible]	[illegible]	[illegible]	Sb
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Mean	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	[illegible]	Ba	[illegible]
	[illegible]	[illegible]	[illegible]
Mean	[illegible]	[illegible]	[illegible]
S.D.	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Internal Volume Statistics [illegible]
Test Name: [illegible]
Sample Weight: [illegible] Solution Volume: [illegible]
On-Peak Integration: [illegible] Off-Peak Integration: [illegible]

Analyte Channel	Mean Counts	S.D. Counts	%S.D. Counts
Cr	[illegible]	[illegible]	[illegible]
Cu	[illegible]	[illegible]	[illegible]
Ni	[illegible]	[illegible]	[illegible]

Cr	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

1173

TF-2
8-31-92
~~1158~~

Ni	16	2.477	0.027
Fe	19	5.422	0.022
Ca	20	9.541	0.244
Cr	21	1.352	0.008
Sr	22	14.693	0.011
S	23	1.552	0.017
Mg	29	2.614	0.006
As	30	0.462	0.014
Na	31	1.429	0.028
Mn	32	3.441	0.008
Ba	33	1.814	0.013
Ag	34	1.492	0.009
Pb	35	0.342	0.012
Cd	37	30.391	0.082
Si	38	2.767	0.005
K	39	-0.082	0.014
Mn	40	5.699	0.022
Sb	42	0.010	0.005
	43	2.933	0.024
Ba	44	7.496	0.013
Tl	45	3.452	0.012

Identity 1 [redacted] Identity 2 [redacted] 5:35 PM November 19, 1991
Test Name : [illegible]
Sample Weight : 1.0000 Solution Volume : 1.0
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Pb	Si	Al	Cr	Cu	Cd	Ni	Fe
	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Mean	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
S.D.	[illegible]	2.519	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% R.S.D.	[illegible]	1.057	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	Ca	Cr	Ba	S	Mg	As	Na	Mn
	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Mean	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
S.D.	[illegible]	2.517	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% R.S.D.	[illegible]	1.554	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	Ba	Ag	Pb	Cd	S	K	Mn	Sb
	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Mean	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[illegible]	[redacted]	[redacted]
S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% R.S.D.	[illegible]	1.598	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	K	Ba	Tl
	ppb	ppb	ppb
Mean	[illegible]	[redacted]	[illegible]
S.D.	[illegible]	[illegible]	[illegible]
% R.S.D.	[illegible]	[illegible]	[illegible]

1174

TFZ
8-31-92
~~1159~~

Corrected Counts Statistics 5:37 PM November 19, 1991

Sample Weight : [illegible] Solution Volume : [illegible]
On-Peak Integrations : [illegible] Off-Peak Integrations : [illegible]

Isotope Channel	Net Values	2.0 Values	MDA Values
[illegible]	[illegible]	[illegible]	[illegible]

[redacted]

Sample Weight : [illegible] Solution Volume : [illegible]
On-Peak Integrations : [illegible] Off-Peak Integrations : [illegible]

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[redacted]	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]	[redacted]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[redacted]	[redacted]	[illegible]	[illegible]	[redacted]	[illegible]	[redacted]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

1175

TPZ
8-24-93
~~1160~~

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	V	Be	Tl
	(ppb)	(ppb)	(ppb)
Best	[illegible]	[illegible]	[illegible]
S.D.	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Corrected Blank Statistics [illegible]
Tag Date : [illegible]
Sample weight : [illegible] Solution volume : [illegible]
Dilution Integration : [illegible] Diff-Peak Integration : [illegible]

Analyte Channel	Mean Blanks	S.D. Blanks	%R.S.D. Blanks
[illegible]	[illegible]	[illegible]	[illegible]

Client : [redacted] Identity : [redacted] [illegible]
Tag Date : [illegible]
Sample weight : [illegible] Solution volume : [illegible]
Dilution Integration : [illegible] Diff-Peak Integration : [illegible]

	Si	Sb	Al	Ca	Cd	Co	Cr	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	[illegible]	[illegible]	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]	[redacted]
S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

117

TFZ
8-31-92
~~1161~~

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[redacted]

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

Corrected Counts Statistics Ei-3 Fri November 15, 199[illegible]
Tag [illegible]
Sample Weight [illegible] Dilution Volume [illegible]
Chi-Squ. Integrations [illegible] Off-Peak Integrations [illegible]

Isotope	Channel	Peak Counts	B.G. Counts	Net Counts
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

1177

TF2
8-31-92
~~1162~~

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[illegible]

[illegible] [redacted] [illegible] [redacted] [illegible]

[illegible] [redacted] [illegible] [redacted] [illegible]

[illegible] [redacted] [illegible] [redacted] [illegible] [redacted] [illegible]

[illegible]

[illegible]

[illegible]

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
[illegible]	8	4.216	0.018	
[illegible]	9	1.361	0.009	
[illegible]	9	3.344	0.033	
[illegible]	11	1.988	0.003	
[illegible]	13	0.034	0.018	
[illegible]	15	-0.010	0.013	
[illegible]	16	-0.183	0.005	
Fe	19	[illegible]	0.034	
[illegible]	20	0.355	0.009	
[illegible]	21	-0.005	0.009	
[illegible]	24	-0.086	[illegible]	
[illegible]	25	1.953	0.019	
[illegible]	29	1.053	0.008	
Ag	30	0.015	0.009	
[illegible]	31	39.353	0.319	
[illegible]	33	0.013	0.017	
[illegible]	34	-1.146	0.008	
[illegible]	[illegible]	[illegible]	0.006	
[illegible]	35	-0.155	0.015	
[illegible]	37	-0.104	0.134	
[illegible]	38	-0.014	0.007	
	39	1.366	0.015	
[illegible]	40	1.017	0.003	
[illegible]	42	-0.001	0.006	
	43	-0.019	0.003	
[illegible]	44	1.397	0.001	
[illegible]	45	3.411	0.008	

[illegible] [redacted] Identity [redacted] [illegible]

[illegible]

[redacted]

[redacted]

[redacted]

[redacted]

[illegible]

1181

TF2
8-31-92
~~1166~~

S.D.	[illegible]	[illegible]	[illegible]
% R.S.D.	[illegible]	[illegible]	[illegible]

Corrected Counts Statistics 5:50 PM November 19, 1991
[illegible]
Sample weight : [illegible] Solution volume : [illegible]
Off-Peak Integrations : 0 Off-Peak Integrations : [illegible]

Analyte Channel		Mean #pulses	S.D. #pulses	%R.S.D. pulses
[illegible]	[illegible]	4.886	[illegible]	
[illegible]	[illegible]	0.265	0.010	
[illegible]	[illegible]	5.995	[illegible]	
[illegible]	[illegible]	[illegible]	0.019	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
Fe	[illegible]	0.894	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	

[illegible] [redacted] [illegible] [redacted] [illegible]
[illegible]
Sample weight : [illegible] Solution volume : [illegible]
Off-Peak Integrations : 0 Off-Peak Integrations : [illegible]

	[illegible]	[illegible]	Al	[illegible]	[illegible]	[illegible]	[illegible]	Fe
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Mean	[illegible]	[illegible]	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]	[redacted]
S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% R.S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	Ca	Cr	Ba	[illegible]	Mg	[illegible]	[illegible]	[illegible]
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Mean	[redacted]	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]	[redacted]	[illegible]

I 1182
TF2
8-4-92
~~1167~~

%RSD	0.377	1.118	1.6-6	0.586	14.755	298.791	0.182	19.811

	Ba	Ag	Pb	Cd	B	[illegible]	[illegible]	Sb
	ppb	ppb	ppb	ppb	ppb	[illegible]	ppb	ppb
Mean	-133.833	-8.311	-9.942	7.230	74.794	18834.49	5.5[illegible]	-68.377
S.D.	10.303	1.348	7.016	1.366	3.775	[illegible]	0.555	61.225
%RSD	7.775	56.233	14.091	19.522	4.952	0.345	[illegible]	90.55

	[illegible]	Se	Tl
	ppb	ppb	ppb
Mean	-7.191	3.776	-621.994
S.D.	1.713	1.377	10.555
%RSD	23.517	6.530	1.759

WHC-SD-WM-DP-025
ADDENDUM 16 REV 0

Corrected Counts Statistics 5:59 PM November 19, 1991
Test name : [illegible]
Sample weight : [illegible] Solution volume : [illegible]
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte Channel		Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
[illegible]	[illegible]	4.551	0.014	
[illegible]	[illegible]	1.991	0.009	
[illegible]	[illegible]	5.333	0.012	
[illegible]	[illegible]	3.351	0.019	
[illegible]	[illegible]	0.781	0.019	
[illegible]	[illegible]	-0.157	0.015	
[illegible]	[illegible]	-0.153	0.016	
[illegible]	[illegible]	3.507	0.049	
[illegible]	[illegible]	3.071	0.039	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	-0.131	0.051	
[illegible]	[illegible]	3.579	0.016	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	25.591	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	0.195	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	0.873	[illegible]	
[illegible]	[illegible]	0.391	0.013	

Operator: [redacted] Station: [redacted] [illegible] PM November 19, 1991

1183

TFZ 8-31-92
~~1168~~

Test name : [illegible]
Sample weight : [illegible] Solution volume : [illegible]

	Sr (ppm)	Y (ppm)	Zr (ppm)	Nb (ppm)	Mo (ppm)	Cs (ppm)	Ba (ppm)	Ce (ppm)
Mean	-2.722	561.573	[redacted]	155.113	-14.556	-31.759	-1.46	[redacted]
S.D.	1.551	1.771	1.691	0.141	3.071	3.243	5.51	4.871
% R.S.D.	81.431	1.315	0.214	1.344	21.134	7.079	5131.416	1.225

	Pr (ppm)	Nd (ppm)	Sm (ppm)	Eu (ppm)	Gd (ppm)	Tb (ppm)	Dy (ppm)	Ho (ppm)
Mean	[redacted]	[redacted]	-1.514	15.655	13.455	-5.21	[redacted]	5.274
S.D.	1.377	3.630	1.335	5.515	1.191	3.713	[illegible]	3.124
% R.S.D.	1.335	5.571	11.191	3.422	1.733	171.332	[illegible]	25.245

	Er (ppm)	Tm (ppm)	Yb (ppm)	Lu (ppm)	Hf (ppm)	Ta (ppm)	W (ppm)	Pb (ppm)
Mean	-21.7 3	-5.672	73.791	5.579	74.724	(25619.225)	7.57	-113.576
S.D.	35.585	3.755	7.372	1.256	1.554	[illegible]	1.315	17.373
% R.S.D.	144.551	59.281	10.169	22.517	2.191	1.332	4.157	55.177

	Th (ppm)	Sc (ppm)	Ti (ppm)
Mean	-5.875	5.421	-754.007
S.D.	1.115	1.73	58.178
% R.S.D.	21.339	3.159	13.772

Corrected Calcite Statistics [illegible] November 19, 199[illegible]
Test Mode : [illegible]
Sample Weight : [illegible] Solution Volume : [illegible]
Peak Integration : [illegible] Off-Peak Integration : [illegible]

Element Symbol	Mean (ppbbbb)	S.D. (ppbbbb)	% R.S.D. (ppbbbb)
Sr	3	4.245	1.115
Sr	3	1.468	0.116
[illegible]	3	5.945	1.133
[illegible]	11	1.372	0.111
[illegible]	13	1.743	0.114
[illegible]	15	[illegible]	[illegible]
[illegible]	16	-1.075	[illegible]
[illegible]	19	1.179	1.135
[illegible]	21	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	1.13
[illegible]	24	-1.112	1.134
[illegible]	25	3.561	1.144
[illegible]	27	[illegible]	[illegible]
[illegible]	27	-1.009	[illegible]
[illegible]	31	55.515	1.135
[illegible]	32	[illegible]	[illegible]
[illegible]	33	-1.149	1.113
[illegible]	34	[illegible]	[illegible]
[illegible]	35	-1.122	[illegible]
[illegible]	37	-1.151	1.153
[illegible]	39	[illegible]	[illegible]
[illegible]	39	3.125	[illegible]

1184

TFZ
8-31-22
~~1169~~

Sb	45	[illegible]	[illegible]
[illegible]	46	[illegible]	[illegible]
Sn	44	[illegible]	[illegible]
Te	45	[illegible]	[illegible]

Identity: [redacted] Identity: [redacted] [illegible] Nitrogen [illegible]
Test [illegible]
Sample weight: [illegible] Solution volume: [illegible]
Dry-Ash Integration: [illegible] Dry-Ash Integration: [illegible]

	Sr	Sb	Al	Cr	Ca	Cu	Fe	Ba
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Mean	[illegible]	[illegible]	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]	[redacted]
S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% R.S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	Co	Cr	Ba	S	Ni	Mg	Si	K
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Mean	[redacted]	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]	[redacted]	[illegible]
S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% R.S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	Na	Mo	Mn	Ti	P	[illegible]	[illegible]	Zn
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
Mean	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% R.S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

		Pb	Tl
	[illegible]	[illegible]	[illegible]
Mean	[illegible]	[illegible]	[illegible]
S.D.	[illegible]	[illegible]	[illegible]
% R.S.D.	[illegible]	[illegible]	[illegible]

Dissolved Solids Statistics [illegible] Nitrogen [illegible]
Test [illegible]
Sample weight: [illegible] Solution volume: [illegible]
Dry-Ash Integration: [illegible] Dry-Ash Integration: [illegible]

Analyte	Mean Value	S.D.	% R.S.D.
Al	[illegible]	[illegible]	[illegible]
Ca	[illegible]	[illegible]	[illegible]
Cr	[illegible]	[illegible]	[illegible]
Fe	[illegible]	[illegible]	[illegible]
K	[illegible]	[illegible]	[illegible]
Mg	[illegible]	[illegible]	[illegible]
Na	[illegible]	[illegible]	[illegible]
Ni	[illegible]	[illegible]	[illegible]
P	[illegible]	[illegible]	[illegible]
Si	[illegible]	[illegible]	[illegible]
Ti	[illegible]	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible] [redacted] [illegible] [illegible]
[illegible]
[illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible]

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[redacted]	[redacted]	[illegible]	[illegible]	[illegible]	[redacted]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

[illegible] [illegible] [illegible] [illegible]
[illegible]
[illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible]

1186

TPZ
8-31-92
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[illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

9 3 1 2 3 3 1 9 5 9

[illegible]

[illegible] [redacted] [illegible] [redacted] [illegible]

[illegible]

[redacted]

[illegible]

[illegible] Counts Statistics 9:19 PM November 19, 1991
Test name : [illegible]
Sample weight : [illegible] Solution volume : [illegible]
On-Peak Integrations : 3 Off-Peak Integrations : 0

Analyte	Channel	Mean	S.D.	%R.S.D.
[illegible]	3	346.613	0.307	
[illegible]	3	0.136	0.008	
[illegible]	9	-0.223	0.025	
[illegible]	11	130.105	0.348	
[illegible]	12	90.864	0.111	
[illegible]	15	58.113	0.383	
[illegible]	16	26.261	0.177	
Fe	19	51.540	0.273	
[illegible]	20	20.783	0.257	
[illegible]	21	14.224	0.175	
[illegible]	22	135.063	0.189	
[illegible]	28	0.247	0.008	
[illegible]	29	55.613	0.177	
[illegible]	30	0.034	0.015	
[illegible]	31	13.433	0.082	
[illegible]	32	0.111	0.018	
[illegible]	33	0.364	0.134	
[illegible]	34	0.471	0.018	
[illegible]	35	-1.028	0.014	
[illegible]	37	321.079	0.985	
[illegible]	38	52.251	0.311	
	39	0.787	0.011	
	41	55.480	0.070	
[illegible]	3	0.616	0.015	
	43	-0.181	0.008	
[illegible]	44	0.277	0.003	
[illegible]	45	3.431	0.005	

[illegible] [redacted] [illegible] [redacted] 9:19 PM November 19, 1991
Test name : [illegible]
Sample weight : [illegible] Solution volume : [illegible]
On-Peak Integrations : 3 Off-Peak Integrations : 0

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fe
	ppm	ppb	ppb	ppm	ppm	ppm	ppm	ppm
Mean	[redacted]	-343.173	-124.688	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
S.D.	[illegible]	[illegible]	1.453	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
%R.S.D.	[illegible]	-1.383	1.078	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	[illegible]	[illegible]	[illegible]	B	[illegible]	[illegible]	[illegible]	[illegible]
	ppm	ppm	ppb	ppb	ppm	ppb	ppm	ppb
Mean	[redacted]	[redacted]	[redacted]	174.073	[redacted]	17.033	[redacted]	3.073
S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

118
TPR 8-31-92
~~1173~~

%R.S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible] [redacted]

Mean [illegible]
S.D. [illegible]
%RSD [illegible]

[illegible]

Corrected Counts Statistics [illegible] November [illegible], 1991

[illegible]

Quantit [redacted] Identity [redacted] [illegible] November [illegible], 1991

[illegible]

9 3 1 2 3 3 1 9 7 1

TF2 7-31-92
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1190

TF2
8-31-92
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[redacted]

Identity [redacted] Identity [redacted] [illegible] PM November 19, 1991
Test Date [illegible]
Sample Weight [illegible] Solution Volume [illegible]
In-Peak Integration [illegible] Off-Peak Integration [illegible]

	B	Ba	Al	Zn	Cu	Cr	Ni	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Test	[illegible]	[redacted]	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]	[redacted]
S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	Ca	Cd	Co	K	Mg	Mn	Na	Ni
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Test	[illegible]	[illegible]	[illegible]	[redacted]	[illegible]	[redacted]	[illegible]	[redacted]
S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	Se	Ag	Sr	Sn	Ti	V	Zn	Zr
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Test	[redacted]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% S.D.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	[illegible]	Sb	Tl
	(ppb)	(ppb)	(ppb)
Test	[redacted]	[redacted]	[redacted]
S.D.	[illegible]	[illegible]	[illegible]
% S.D.	[illegible]	[illegible]	[illegible]

1191

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8-31-92
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