TABLE OF CONTENTS

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F064**

SECTION		PAGE
Cover Letter, COC/Sample Receipt Form		1000 – 1007
GC/MS-VOA	**	2000 –
GC/MS-SVOA	**	3000 –
GC-VOA	**	4000 –
GC-SVOA	**	5000 –
HPLC	**	6000 –
METALS	METHOD 200.7	7000 – 7013
WET	METHOD 310.1	8000 – 8005
	METHOD 350.2	8006 – 8011
	METHOD 120.1	8012 – 8014
	METHOD 300.0	8015 – 8039
	METHOD 314.0	8040 – 8057
	METHOD 376.1	8058 – 8061
	METHOD 351.3	8062 – 8067
	METHOD 160.1	8068 – 8073
	SM3500	8074 – 8080
	METHOD 415.1 (DOC)	8081 – 8089
	METHOD 415.1 (TOC)	8090 – 8098
OTHERS	**	9000 –

** - Not Requested

EMAX
LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 06-27-2005
EMAX Batch No.: 05F064

Attn: Tien Shao

Battelle Memorial Institute
505 King Ave.
Columbus OH 43201

Subject: Laboratory Report
Project: JPL

Enclosed is the Laboratory report for samples received on 06/07/05. The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
MW1	F064-01	06/05/05	WATER	ANIONS BY IC
				FERROUS IRON
				PERCHLORATE BY IC
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				SOLIDS TOTAL DISSOLVED
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				ALKALINITY
				TKN

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

Battelle
Columbus Laboratories

I9

CHAIN OF CUSTODY RECORD

Form No. 05F064

Proj. No.: 6486111-T3

Project Title: Source Determination Study

SAMPLERS: (Signature) G. Headington / D. Conner / B. Headington

PO # 191943

DATE	TIME	SAMPLE I.D.	DOC (Filtered)	TOC	Ferrous Iron	Nitrite, Nitrate	Sulfate, Chloride	TDS	Perchlorate (24 hr)	Alkalinity	Specific Electrical Conductance	Ferric Iron	Calcium, Sodium, Potassium, Magnesium	Sulfide	Ammonia	Total Kjeldahl Nitrogen			Container No.	Number of Containers	Remarks
(1) 05JUN05	1130	MW1	X	X	X	X	X	X	X	X	X	X	X	X	X	X					

1001

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	6-7-2005 0810	[signature]			
Relinquished by: (Signature) [signature]	Date/Time 6-7-05 0925	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature) [signature]	Date/Time 6/7/05 0925	Remarks TO: EMAX LABS T= 2.8°C	

Page ____ of ____

Hanh Bui

From: Shiao, Tien [shiaoh@BATTELLE.ORG]
Sent: Thursday, June 16, 2005 12:40 PM
To: Hanh Bui
Cc: Ohart, Carolyn J; Headington, Gregory; Conner, David J
Subject: RE: Review Login Sheet SDG: 05F064 (Battelle/JPL)

Hi Hanh,

Based on recent discussions, we have reverted to our original list of analytes for MW-1. If you wouldn't mind, could we get the list of analytes below analyzed? The analytes below should be the same as the original COC for MW-1 to you.

(1) DOC, TOC, Ferrous Iron, Sulfide, Anion (Nitrite), Metals (Iron, Sodium), Perchlorate, Ammonia, TKN, Specific Electrical Conductance
(2) TDS, Alkalinity, Anions (Nitrate, Sulfate, Chloride), Metals (Calcium, Potassium, Magnesium).

I can send the original COC to you or the original login sheet if you need.

Sorry for the trouble. Please give me a call if you have any questions or need any clarification.

Best Regards,

Tien

Tien Shiao
Battelle Memorial Institute
Environmental Restoration Dept.
505 King Ave., Columbus, OH 43204
Room: 10-1-80
Business: (614) 424-3754
Mobile: (614) 370-3939
Fax: (614) 458-3754
shiaoh@battelle.org
www.battelle.org

From: Hanh Bui [mailto:HDBui@emaxlabs.com]
Sent: Friday, June 10, 2005 5:03 PM
To: Shiao, Tien
Subject: Review Login Sheet SDG: 05F064 (Battelle/JPL)

Hi Tien,
Please find the attached of revised review login sheet SDG 05F064, thanks.
Hanh

-----Original Message-----
From: Shiao, Tien [mailto:shiaoh@BATTELLE.ORG]
Sent: Friday, June 10, 2005 7:18 AM
To: Hanh Bui
Cc: Ohart, Carolyn J; Headington, Gregory; Conner, David J
Subject: RE: Review Login Sheet SDG: 05F064 (Battelle/JPL)

Hanh,

1002

After discussing the list of analytes, I need to make a correction on the analytes requested for MW-1. The analytes we need analyzed and should keep are:

(1) DOC, TOC, Ferrous Iron, Sulfide, Anion (Nitrite), Metals (Iron, Sodium), Perchlorate, Ammonia, TKN, Specific Electrical Conductance

The analytes which we do not need analyzed and should be taken out of Battelle's COC and your login sheet are:

(2) TDS, Alkalinity, Anions (Nitrate, Sulfate, Chloride), Metals (Calcium, Potassium, Magnesium)

I hope this doesn't cause any problems and thanks for your help. Please let me know if you have any questions.

Thanks,
Tien

Hanh Bui

From: Shiao, Tien [shiaoh@BATTELLE.ORG]
Sent: Friday, June 10, 2005 7:18 AM
To: Hanh Bui
Cc: Ohart, Carolyn J; Headington, Gregory; Conner, David J
Subject: RE: Review Login Sheet SDG: 05F064 (Battelle/JPL)

Hanh,

After discussing the list of analytes, I need to make a correction on the analytes requested for MW-1. The analytes we need analyzed and should keep are:

(1) DOC, TOC, Ferrous Iron, Sulfide, Anion (Nitrite), Metals (Iron, Sodium), Perchlorate, Ammonia, TKN, Specific Electrical Conductance

The analytes which we do not need analyzed and should be taken out of Battelle's COC and your login sheet are:

(2) TDS, Alkalinity, Anions (Nitrate, Sulfate, Chloride), Metals (Calcium, Potassium, Magnesium)

I hope this doesn't cause any problems and thanks for your help. Please let me know if you have any questions.

Thanks,
Tien

From: Hanh Bui [mailto:HDBui@emaxlabs.com]
Sent: Thursday, June 09, 2005 5:26 PM
To: Shiao, Tien
Subject: RE: Review Login Sheet SDG: 05F064 (Battelle/JPL)

Hi Tien,
Yes, besides Perchlorate 24 hour, the other analysis is 14 days TAT. PQL is the same as RL (reporting limit) which is usually 3 to 10 times MDL, thanks.
Hanh

-----Original Message-----
From: Shiao, Tien [mailto:shiaoh@BATTELLE.ORG]
Sent: Thursday, June 09, 2005 2:14 PM
To: Hanh Bui
Cc: Ohart, Carolyn J; Headington, Gregory
Subject: RE: Review Login Sheet SDG: 05F064 (Battelle/JPL)

Hanh,

The login sheet for MW-1 looks good. All the analytes we requested are accounted for. The login review sheet for Garfield, Sunset, Bangham, LFWC-2, and LAWC-3 also look good. I wanted to double check the turnaround time (TAT). Besides perchlorate, is the TAT for the results of all other analytes 14 days? Also, what is the difference between MDL (Method Detection Limit) and PQL (Practical Quantitization Limit)?

Thanks,
Tien

From: Hanh Bui [mailto:HDBui@emaxlabs.com]
Sent: Thursday, June 09, 2005 4:19 PM
To: Shiao, Tien

1004

Subject: Review Login Sheet SDG: 05F064 (Battelle/JPL)

Hi Tien,
Thanks for your information, enclosed COC and review Login sheet for samples we received on June/7. For Anions 300 (Cl/ NO3, NO2, SO4), Metals 200-7 included Ca, Fe, Mg, K, and Na. Please review that, thanks.
Hanh

-----Original Message-----
From: Shiao, Tien [mailto:shiaoh@BATTELLE.ORG]
Sent: Thursday, June 09, 2005 12:54 PM
To: hdbui@emaxlabs.com
Subject: EMAX Chain of Custody

Hanh,

Thanks for faxing the chain of custodies and the EMAX laboratories review sheet. So far everything looks good at my end. However I want to double check something. Can you tell me which metals are included in the analysis "Metals in Water and Waste" and which analytes are included in "Anions" by IC?

Below is my contact information.

Best Regards,

Tien Shiao

Battelle Memorial Institute
Environmental Restoration Dept.
505 King Ave., Columbus, OH 43204
Room: 10-1-80
Business: (614) 424-3754
Mobile: (614) 370-3939
Fax: (614) 458-3754
shiaoh@battelle.org
www.battelle.org

SAMPLE RECEIPT FORM 1

Type of Delivery	Delivered By/Airbill	ECN	05F064
☑ EMAX Courier		Recepient	J. LUNA
☐ Client Delivery		Date	06-7-05
☐ Third Party		Time	09:25

COC Inspection

☑ Client Name	☑ Sampler Name	☑ Sampling Date/Time/Location
☑ Address	☐ Courier Signature/Date/Time	☑ Analysis Required
☐ Client PM/FC	☐ TAT	☐ Matrix
☑ Tel #/Fax #	☑ Sample ID	☐ Preservative (if any)
Safety Issues ☐ None	☐ High Concentrations expected	☐ Superfund Site Samples
Comments: ☐ Rad Screening Required		

Packaging Inspection

Container	☑ Cooler	☐ Box	☐	☐
Condition	☐ Custody Seal	☐ Intact	☐ Damaged	☐
Packaging	☑ Bubble Pack	☐ Styrofoam	☐ Sufficient	☐
Temperatures	☑ Cooler 1 7-2.8°C	☑ Cooler 2 ____	☐ Cooler 3 ____	☐ Cooler 4 ____
	☐ Cooler 5 ____	☐ Cooler 6 ____	☐ Cooler 7 ____	☐ Cooler 8 ____
	☐ Cooler 9 ____	☐ Cooler 10 ____	☐ Cooler 11 ____	☐ Cooler 12 ____

Comments:

LSCID	Client ID	Discrepancy	Corrective Action

LSCID : Lab Sample Container ID

REVIEWS

Sample Labeling [signature] Date 6-7-05

SRF [signature] Date 6/7/05

PM [signature] Date 6/7/05

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

BATTELLE MEMORIAL INSTITUTE

JPL

METHOD 200.7
METALS BY ICP-AES

SDG#: 05F064

7000

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F064**

METHOD 200.7
METALS BY ICP-AES

One (1) water sample was received on 06/07/05 for Metals analysis by Method 200.7 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition.

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Sample F027-01 from another SDG was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

MS/MSD sample was not designated in this SDG.

6. Sample Analysis

Sample was analyzed according to the prescribed QC procedure. All criteria were met.

LAB CHRONICLE
METALS BY ICP-AES

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL

SDG NO. : 05F064
Instrument ID : T-107

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	IPF029WB	1	NA	06/09/0519:25	06/09/0508:00	I07F029012	I07F029010	IPF029W	Method Blank
LCS1W	IPF029WL	1	NA	06/09/0519:29	06/09/0508:00	I07F029013	I07F029010	IPF029W	Lab Control Sample (LCS)
LCD1W	IPF029WC	1	NA	06/09/0519:33	06/09/0508:00	I07F029014	I07F029010	IPF029W	LCS Duplicate
MW1	F064-01	1	NA	06/09/0520:24	06/09/0508:00	I07F029026	I07F029022	IPF029W	Field Sample
GARFIELD	F027-01	1	NA	06/09/0519:55	06/09/0508:00	I07F029019	I07F029010	IPF029W	Field Sample
GARFIELDDL	F027-01T	5	NA	06/09/0519:59	06/09/0508:00	I07F029020	I07F029010	IPF029W	Diluted Sample
GARFIELDAS	F027-01A	1	NA	06/09/0520:03	06/09/0508:00	I07F029021	I07F029010	IPF029W	Analytical Spike Sample

FN - Filename
% Moist - Percent Moisture

7002

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	06/05/05
ect	: JPL	Date Received:	06/07/05
S.. NO.	: 05F064	Date Extracted:	06/09/05 08:00
Sample ID:	MW1	Date Analyzed:	06/09/05 20:24
Lab Samp ID:	F064-01	Dilution Factor:	1
Lab File ID:	I07F029026	Matrix :	WATER
Ext Btch ID:	IPF029W	% Moisture :	NA
Calib. Ref.:	I07F029022	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	68.3	1	.1
Iron	.311	.2	.04
Magnesium	21.4	1	.1
Potassium	3.93	2	1.4
Sodium	30	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	NA
Project	: JPL	Date Received:	06/09/05
Sub NO.	: 05F064	Date Extracted:	06/09/05 08:00
Sample ID:	MBLK1W	Date Analyzed:	06/09/05 19:25
Lab Samp ID:	IPF029WB	Dilution Factor:	1
Lab File ID:	I07F029012	Matrix :	WATER
Ext Btch ID:	IPF029W	% Moisture :	NA
Calib. Ref.:	I07F029010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	ND	1	.1
Iron	ND	.2	.04
Magnesium	ND	1	.1
Potassium	ND	2	1.4
Sodium	ND	1	.25

7004

yu

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
NO.: 05F064
METHOD: METHOD 200.7

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	MBLK1W				
CONTROL NO.:	IPF029WB	IPF029WL	IPF029WC		
LAB FILE ID:	I07F029012	I07F029013	I07F029014		
DATIME EXTRCTD:	06/09/0508:00	06/09/0508:00	06/09/0508:00	DATE COLLECTED:	NA
DATIME ANALYZD:	06/09/0519:25	06/09/0519:29	06/09/0519:33	DATE RECEIVED:	06/09/05
PREP. BATCH:	IPF029W	IPF029W	IPF029W		
CALIB. REF:	I07F029010	I07F029010	I07F029010		

ACCESSION:

PARAMETER	BLNK RSLT mg/L	SPIKE AMT mg/L	BS RSLT mg/L	BS % REC	SPIKE AMT mg/L	BSD RSLT mg/L	BSD % REC	RPD %	QC LIMIT %	MAX RPD %
Calcium	ND	50	48.7	97	50	48.7	97	0	85-115	20
Iron	ND	10	10.2	102	10	10.2	102	0	85-115	20
Magnesium	ND	50	49.2	98	50	49.3	99	0	85-115	20
Potassium	ND	50	48.3	97	50	48.6	97	1	85-115	20
Sodium	ND	50	48.4	97	50	48.8	98	1	85-115	20

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F064
METHOD: METHOD 200.7

==========

MATRIX: WATER % MOISTURE: NA

DILUTION FACTOR:	1	5		
SAMPLE ID:	GARFIELD	GARFIELDDL		
EMAX SAMP ID:	F027-01	F027-01T		
LAB FILE ID:	I07F029019	I07F029020		
DATE EXTRACTED:	06/09/0508:00	06/09/0508:00	DATE COLLECTED:	06/02/05
DATE ANALYZED:	06/09/0519:55	06/09/0519:59	DATE RECEIVED:	06/02/05
PREP. BATCH:	IPF029W	IPF029W		
CALIB. REF:	I07F029010	I07F029010		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SERIAL DIL RSLT (mg/L)	DIF RSLT %	QC LIMIT (%)
Calcium	41.6	41.3	1	10
Iron	ND	ND	0	10
Magnesium	12.5	12.2	3	10
Potassium	ND	10.1	NA	10
Sodium	35.1	36	2	10

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
SDG NO.: 05F064
METHOD: METHOD 200.7

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	GARFIELD			
CONTROL NO.:	F027-01	F027-01A		
LAB FILE ID:	I07F029019	I07F029021		
DATIME EXTRCTD:	06/09/0508:00	06/09/0508:00	DATE COLLECTED:	06/02/05
DATIME ANALYZD:	06/09/0519:55	06/09/0520:03	DATE RECEIVED:	06/02/05
PREP. BATCH:	IPF029W	IPF029W		
CALIB. REF:	I07F029010	I07F029010		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	AS RSLT (mg/L)	AS % REC	QC LIMIT (%)
Calcium	41.6	50	88.3	93	70-130
Iron	ND	10	10.1	101	70-130
Magnesium	12.5	50	60.8	97	70-130
Potassium	ND	50	50.3	101	70-130
Sodium	35.1	50	81.8	93	70-130

REGULAR ICP QC CHECK TABLE

QC	ICV HIGH	ICV	CCV	ICSAB	ICSA
Limit%	95-105	90-110	90-110	80-120	80-120
Comp	mg/L	mg/L	mg/L	mg/L	mg/L
Al	10	5	5	500	500
Sb	2	1	1	1	0
As	2	1	1	1	0
Ba	2	1	1	0.5	0
Be	2	1	1	0.5	0
B	2	1	1	0.5	0
Cd	2	1	1	1	0
Ca	100	50	50	500	500
Cr	2	1	1	0.5	0
Co	2	1	1	0.5	0
Cu	2	1	1	0.5	0
Fe	10	5	5	200	200
Pb	2	1	1	1	0
Mg	100	50	50	500	500
Mn	2	1	1	0.5	0
Mo	2	1	1	1	0
Ni	2	1	1	1	0
K	100	50	50	50	0
Se	2	1	1	3.6	0
Ag	2	1	1	1	0
Na	100	50	50	10	0
Sr	2	1	1	0.5	0
Tl	2	1	1	3.6	0
Sn	10	5	5	1	0
Ti	2	1	1	1	0
V	2	1	1	0.5	0
Zn	2	1	1	1	0

ANALYSIS RUN LOG FOR ICP

SOP ☐ EMAX-6010-Rev. 3 ☐ EMAX-CLP-TAL ☑ 200.7 Method File: 6010PI Autosampler Table: BAP

Matrix: Water Start Date: 06/09/05 Time: 18:37 End Date: 06/09/05 Time: 20:50 Book# A24 -037

ANALYTICAL BATCH* FC04

Data File Name	Prep. Batch	Lab Sample ID	DF	Matrix	Notes
01		SC			
02		SS			
03		SG			
04		ICV (GCS)			
05		ICB			
06		CCV (IRC)			
07		CCB			
08		ICSAI			
09		ICSABI			
10		CCVI (IRC)			
11		CCBI			
12	IPF029W	IPF029WB	1	W	(LRB)
13		↓ WL	1		(LFB)
14		↓ WC	1		(LFB)
15		F410-04	1		
16		↓ 05	1		
17		F041-01	1		
18		↓ 02	1		
19		F027-01	1		
20		↓ 01T	5		
21		↓ 01A	1		
22		CCV2 (IRC)	1		
23		CCB2	1		
24		F027-02	1		
25		↓ 03	1		

ANALYTICAL BATCH * _____

Data File Name	Prep. Batch	Lab Sample ID	DF	Matrix	Notes
26	IPF029W	F004-01			F455-01
27	27	ICSAF			gmb 6/9/05
28	28 29	ICSABF			
29	30	CCV3			
30	31	CCB3			
31					
32					
33					
34					
35					
36					
37					
38					
39					
40		R2 06/10/05			
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					

Instrument No.	24
Std.	ID
S_0	SMIB09-38-01
S_1	N/A
S_2	↓
S_3	SMIB09-44-04
S_4	N/A
S_5	↓
S_6	SMIB09-45-02
ICV	↓ -42-01
ICVH1	N/A
ICVH2	↓
CCV	SMIB09-60-02
ICSA	SMIB09-63-03
ICSAB	↓ -60-01
MRL	N/A

Comments:

Analyzed By: [illegible]

Date Disposed:

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

SEQUENCE FILE : I07F029

4-18	19-33	34-43	44-53	54-63
LFID	LSID	TIME	DATE	DF
I07F029001	S0	18:37	06/09/05	1
I07F029002	S3	18:41	06/09/05	1
I07F029003	S6	18:45	06/09/05	1
I07F029004	ICV	18:49	06/09/05	1
I07F029005	ICB	18:55	06/09/05	1
I07F029006	CCV	18:59	06/09/05	1
I07F029007	CCB	19:03	06/09/05	1
I07F029008	ICSAI	19:07	06/09/05	1
I07F029009	ICSABI	19:11	06/09/05	1
I07F029010	CCV1	19:17	06/09/05	1
I07F029011	CCB1	19:21	06/09/05	1
I07F029012	IPF029WB	19:25	06/09/05	1
I07F029013	IPF029WL	19:29	06/09/05	1
I07F029014	IPF029WC	19:33	06/09/05	1
I07F029015	F410-04	19:38	06/09/05	1
I07F029016	F410-05	19:42	06/09/05	1
I07F029017	F041-01	19:46	06/09/05	1
I07F029018	F041-02	19:50	06/09/05	1
I07F029019	F027-01	19:55	06/09/05	1
I07F029020	F027-01T	19:59	06/09/05	5
I07F029021	F027-01A	20:03	06/09/05	1
I07F029022	CCV2	20:07	06/09/05	1
I07F029023	CCB2	20:12	06/09/05	1
I07F029024	F027-02	20:16	06/09/05	1
I07F029025	F027-03	20:20	06/09/05	1
I07F029026	F064-01	20:24	06/09/05	1
I07F029027	F455-01	20:28	06/09/05	1
I07F029028	ICSAF	20:36	06/09/05	1
I07F029029	ICSABF	20:40	06/09/05	1
I07F029030	CCV3	20:46	06/09/05	1
I07F029031	CCB3	20:50	06/09/05	1

SDG : 05. 69 UNIT : % ICP CHECK : I07F029 DATE : 06/09/05 INST : EMAXTI07

ANALYTE	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
S0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICV	99	101	102	91	100	102	97	103	98	97	97	102	98	104	98	99	96	101	103	96	103	97	92	97	100	98	98
ICB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV	98	99	101	97	97	97	98	101	97	97	96	100	95	100	97	99	95	99	107	97	99	96	94	97	97	97	97
CCB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAI	95	----	----	----	----	----	----	91	----	----	----	89	----	97	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSABI	96	91	94	94	93	94	91	92	88	86	96	89	92	97	90	90	85	99	104	96	103	90	90	92	92	98	93
CCV1	98	99	96	96	97	96	98	100	96	96	96	99	96	98	96	98	95	97	103	97	98	96	94	96	96	96	97
CCB1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPF029WB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPF029WL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPF029WC	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F410-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F410-05	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F041-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F041-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F027-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F027-01T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F027-01A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV2	97	97	99	96	96	95	97	99	96	95	95	99	95	98	95	96	94	98	99	96	99	95	92	96	96	96	96
CCB2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F027-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F027-03	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F064-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F455-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAF	89	----	----	----	----	----	----	89	----	----	----	85	----	92	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSABF	89	85	88	84	88	88	89	89	84	82	88	85	91	92	85	84	82	91	97	91	93	82	81	85	85	92	91
CCV3	92	94	92	88*	92	91	95	98	93	92	88*	95	95	94	92	93	91	92	99	92	90	88*	93	94	90	91	95
CCB3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

QC limit of each parameter are listed in a table attached next to all the ICP check forms
* : Out of QC Limit

7011

SDG : 05.064 UNIT : UG/L SUMMARY of CALIBRATION BLANKS : I07F029 (WATER) DATE : 06/09/05 INST : EMAXTI07

ANALYTE	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
S0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICV	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICB	2.59	1.32	.000	.000	.060	-1.31	-.790	1.82	1.13	-1.25	-1.53	-1.03	17.2	-10.6	.000	1.25	-6.64	588	31.7	-2.95	.000	.000	-24.5	-31.4	.590	-.780	.720
CCV	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB	-9.43	-2.38	-15.3	-.180	.000	-1.31	.260	.080	.560	-.490	-.380	-1.81	7.51	-5.90	-.120	1.25	-5.62	-187	5.54	-2.79	.000	.000	-31.4	-8.15	-.290	.970	-.880
ICSAI	----	17.6	-46.3	-.170	.060	9.74	1.17	----	-8.80	-1.22	5.47	----	56.3	----	-4.16	-8.06	-8.85	457	315	8.57	7.35	-2.09	-50.2	11.9	-14.5	-4.66	.030
ICSABI	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB1	-8.83	10.1	8.12	-.280	-.060	-1.31	-.130	.250	-1.69	-1.62	-1.91	-1.03	5.06	-13.1	-.370	-2.50	-5.10	226	54.0	-4.66	.000	.000	-9.41	-13.9	.000	-1.51	-1.11
IPF029WB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPF029WL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPF029WC	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F410-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F410-05	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F041-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F041-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F027-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F027-01T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F027-01A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB2	-7.86	-.770	-7.18	.000	-.130	-1.74	.720	-4.20	1.13	-1.62	-1.53	-.770	13.0	-8.27	.500	1.25	-9.02	222	28.6	.000	.000	.000	-18.2	-29.1	-.140	.980	-1.29
F027-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F027-03	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F064-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F455-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAF	----	5.96	65.9	-.010	-.060	13.4	-.420	----	-6.82	-3.87	4.43	----	34.5	----	-2.95	-4.27	-1.36	115	296	6.84	-29.4	-1.84	-115	-7.90	-13.3	-3.16	.100
ICSABF	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB3	-9.49	20.8	-.880	.000	.000	.000	.810	.610	.000	.370	-.760	.250	1.11	-11.7	-.250	5.01	-2.89	807	15.1	-6.21	-73.5	.960	-15.7	-17.4	.310	.820	-.610

QC limit of each parameter are listed in a table attached next to all the ICP check forms
* : Out of QC Limit

7012

DIGESTION LOG FOR ICP METALS

SOP ☐ EMAX-3005 Rev. No. 3 ☐ EMAX-3010 Rev. No. 2 ☐ EMAX-3050 Rev. No. 2 ☐ EMAX-CLP-TAL ☑ 200.7 Book # EIP-045

Matrix: WATER Start Date: 6-9-05 Time: 8:00 Temp: 85 °C Ending Date: 6-9-05 Time: ~~12:00~~ 10:00 mc 6/9/05 Temp.: 85 °C

Sample Prep ID	Lab Sample ID	Matrix Description: Color	Matrix Description: Texture / Clarity	Matrix Description: Artifacts	Turbidity <1 NTU	Sample Amount (g | ml)	pH	Extract Volume (ml)	Digestate Description: Color	Digestate Description: Clarity
01	mc 6/9/05 ~~IPF02~~ IPF029-WB					50	–	50		
02	-WL					50	–	50		
03	-WC					50	–	50		
04	F010-04					50	<2	50		
05	-05					50		50		
06	F041-01					50		50		
07	-02					50		50		
08	F027-01					50		50		
09	-02					50		50		
10	-03					50		50		
11	F064-01					50		50		
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										

6-9-05 mc

BATCH: TPF029-W

Standards	ID	Amount Added (ml)
LCS -1	SM1A - 09 - 27	0.5
LCS -2	SM1A - 09 - 28	0.5
LCS -3	SM1A - 09 - 29	0.5
MS	N/A	
Reagent	**Lot# / ID**	**Amount Added (ml)**
HNO_3	SW1A - 03 - 089	0.5
HCl	SW1A - 03 - 093	0.25
H_2O_2		
HNO3 (1:1)		
Digestate Location	ICP LAB	
Extract Location		

Legend:

Texture	Cs = Coarse	Md = Medium	Fn = Fine
Clarity	Cr = Clear	Cy = Cloudy	Td = Turbid
Artifacts	Rk = rocks	Sl = Shale	Vg=Vegetation
Color	Bu = blue	Bk = Black	Bn = Brown
	Gn = Green	Og = Orange	Rd = Red
	Yw = Yellow	Cl = Colorless	

Comments: Samples for Methods 200.7 or 200.8 Analyses

If turbidity ≤ 1 NTU no digestion is required unless otherwise required by the project

Prepared By: mc Standard Added By: mc

Witnessed By: NT Extracts Rcvd. By: AZ 6/9/05

Checked By: AZ

Date Disposed: Disposed by:

EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

LABORATORY REPORT FOR

BATTELLE MEMORIAL INSTITUTE

JPL

WET CHEMICAL ANALYSES

SDG#: 05F064

8000

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F064**

METHOD 310.1
TOTAL ALKALINITY

One (1) water sample was received on 06/07/05 for Total Alkalinity analysis by Method 310.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Duplicate sample was not designated in this SDG.

5. Sample Analysis

Sample was analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 310.1
TOTAL ALKALINITY

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F064

Matrix : WATER
Instrument ID : I53

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ALF009WB	ND	1	NA	5	1	06/14/0513:10	NA	ALF009W-03	ALF009W-01	ALF009W	NA	NA
LCS1W	ALF009WL	54.6	1	NA	5	1	06/14/0513:15	NA	ALF009W-04	ALF009W-01	ALF009W	NA	NA
LCD1W	ALF009WC	57.2	1	NA	5	1	06/14/0513:20	NA	ALF009W-05	ALF009W-01	ALF009W	NA	NA
MW1	F064-01	200	1	NA	5	1	06/14/0514:40	NA	ALF009W-21	ALF009W-13	ALF009W	06/05/05	06/07/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 310.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05F064
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: ALF009WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 06/14/05 13:15/13:20

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Total Alkalinity	ND	58.90	54.60	93	58.90	57.20	97	5	80-120	20

8003

ANALYSIS LOG FOR ALKALINITY

SOP ☑ EMAX-310.1 Rev. No. 2 ☐ SM2320B Rev. No. 0 ☐ Book # AAL-009

Start Date: 6/14/05 Time: 13:00 Ending Date: 6/14/05 Time: 15:30 Instrument No: ☑ 53 ☐ 97

	Data File Name	Lab Sample ID	Time	Sample Amt. (ml)	Initial pH	Acid Titrant pH=8.3	Acid Titrant pH=4.5	Acid Titrant pH=4.2	Final pH	ALKALINITY (mg/L) Total	Hydroxide (OH)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Notes
*01		ICV	13:00	20	10.05	NA	1.10	NA	4.48	57.2	NA	NA	57.2	
*02		ICB	13:05	↓	5.14	↓	0.010	↓	4.42	ND	ND	ND	ND	
*03		AL F009 WB	13:10	↓	5.12	↓	0.010	↓	4.41	ND	ND	ND	ND	
*04		WL	13:15	↓	8.85	↓	1.05	↓	4.52	54.6	NA	NA	54.6	
*05		WC	13:20	↓	8.85	↓	1.10	↓	4.47	57.2	NA	NA	57.2	
*06		F046-01	13:25	↓	7.73	↓	2.40	↓	4.49	125	ND	ND	125	
*07		-02	13:30	↓	7.67	↓	2.45	↓	4.47	127	ND	ND	127	
*08		-04	13:35	↓	8.10	↓	5.70	↓	4.47	297	ND	ND	297	
*09		-04D	13:40	↓	8.06	↓	5.70	↓	4.48	297	ND	ND	297	
*10		-04MS	13:45	20+0.5	8.81	↓	6.90	↓	4.47	350	NA	NA	350	
*11		-05	13:50	20	8.01	↓	5.85	↓	4.50	304	ND	ND	304	
*12		F046-06	13:55	↓	8.10	↓	5.80	↓	4.52	302	ND	ND	302	
*13		CCV1	14:00	↓	10.01	↓	1.10	↓	4.48	57.2	NA	NA	57.2	
*14		CCB1	14:05	↓	5.08	↓	0.010	↓	4.42	ND	ND	ND	ND	
*15		F047-01	14:10	↓	6.86	↓	20+	↓	overranged	-	-	-		
*16		-01R	14:15	10	6.85	↓	9.40	↓	4.53	978				
*17		-02	14:20	20	7.07	↓	18+	↓	overranged					
*18		-02R	14:25	10	6.93	↓	8.20	↓	4.53	853				
*19		-03	14:30	20	7.67	↓	3.45	↓	4.47	179				
*20		-04	14:35	↓	6.80	↓	1.85	↓	4.50	96.2				
*21		F064-01	14:40	↓	8.15	↓	3.85	↓	4.48	200				
*22		F048-02	14:45	100	5.84	↓	0.15	0.30	4.22	ND	ND	ND	ND	
*23		-04	14:50	20	11.32	↓	3.45	NA	4.49	179	ND	ND	179	
*24		-06	14:55	↓	9.07	↓	1.30	↓	4.48	67.6	ND	ND	67.6	
*25		CCV2	15:00	↓	10.08	↓	1.15	↓	4.47	59.8	NA	NA	59.8	

ANALYTICAL BATCH # AL F009 WB

8004

Standard Reagent	ID	Conc. mg/L
LCS	SW7A-06-146	58.9
Spike	SW7A-06-120	57.6
Na_2CO_3 Soln	SW7A-06-120	2360
Acid Titrant HCL	SW3B-02-711	0.02N

Standardization

Na_2CO_3 Soln. (ml)	Acid Titrant (ml)	Normality, N
BLK	0.010	ND
5	11.30	0.02087
5	11.35	0.02078
5	11.35	0.02078

Ave N: 0.02081

pH METER CALIBRATION

pH Buffer	ID	Reading
pH 4	SW7A-06-097	4.01
pH 7	-098	7.02
pH 10	-100	10.01
Slope	101.0	

Comments:

ICV/CCV TV: 60 mg/L

Analyzed By: RM

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

ANALYSIS LOG FOR ALKALINITY

Book # AAL-009

SOP ☑ EMAX-310.1 Rev. No. 2 ☐ SM2320B Rev. No. 0 ☐ Instrument No: ☑ 53 ☐ 97

Start Date: 6/14/05 Time: 13:00 Ending Date: 6/14/05 Time: 15:30

Data File Name	Lab Sample ID	Time	Sample Amt. (ml)	Initial pH	Acid Titrant pH=8.3	Acid Titrant pH=4.5	Acid Titrant pH=4.2	Final pH	ALKALINITY (mg/L) Total	Hydroxide (OH)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Notes
26 *01	CCB2	15:05	20	5.06	NA	0.010	NA	4.42	ND	ND	ND	ND	
27 *02	FOS4-01	15:10	↓	8.04	↓	6.00	↓	4.47	312	ND	ND	312	
28 *03	↓ -02	15:15	↓	7.85	↓	5.85	↓	4.91	304	ND	ND	304	
29 *04	FOS4-03	15:20	↓	7.97	↓	5.95	↓	4.48	310	ND	ND	310	
30 *05	CCV3	15:25	↓	10.06	NA	1.10	NA	4.53	57.2	NA	NA	57.2	
31 *06	CCB3	15:30	↓	5.07	↓	0.010	↓	4.42	ND	ND	ND	ND	
*07													
*08													
*09													
*10													
*11													
*12													
*13													
*14													
*15													
*16													
*17													
*18													
*19													
*20													
*21													
*22													
*23													
*24													
*25													

RM 6/15/05

ANALYTICAL BATCH # AL PPG IN

Standard Reagent	ID	Conc. mg/L
LCS	SW7A-06-146	58.9
Spike		
Na_2CO_3 Soln		
Acid Titrant		

Standardization

Na_2CO_3 Soln. (ml)	Acid Titrant (ml)	Normality, N
same	as p.	22/RM

Ave. N: 0.02081

pH METER CALIBRATION

pH Buffer	ID	Reading
pH 4	Same as p. 22/RM	
pH 7		
pH 10		
Slope		

Comments:

Analyzed By: RM

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W 205th St, Torrance, CA 90501

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F064**

METHOD 350.2
AMMONIA (NH3-N)

One (1) water sample was received on 06/07/05 for Ammonia analysis by Method 350.2 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

No duplicate sample was designated in this SDG.

5. Matrix Spike

No MS sample was designated in this SDG.

6. Sample Analysis

Sample was analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 350.2
AMMONIA (NH3-N)

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F064

Matrix : WATER
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	NHF004WB	ND	1	NA	.1	.03	06/16/0516:41	06/16/0509:00	NHF004W-12	NHF004W-10	NHF004W	NA	06/16/05
LCS1W	NHF004WL	1.02	1	NA	.1	.03	06/16/0516:42	06/16/0509:00	NHF004W-13	NHF004W-10	NHF004W	NA	06/16/05
LCD1W	NHF004WC	1.01	1	NA	.1	.03	06/16/0516:43	06/16/0509:00	NHF004W-14	NHF004W-10	NHF004W	NA	06/16/05
MW1	F064-01	ND	1	NA	.1	.03	06/16/0516:54	06/16/0509:00	NHF004W-25	NHF004W-22	NHF004W	06/05/05	06/07/05

8007

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 350.2
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05F064
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: NHF004WL/C

DATE RECEIVED: 06/16/05
DATE EXTRACTED: 06/16/05 09:00
DATE ANALYZED: 06/16/05 16:42/16:43

ACCESSION:

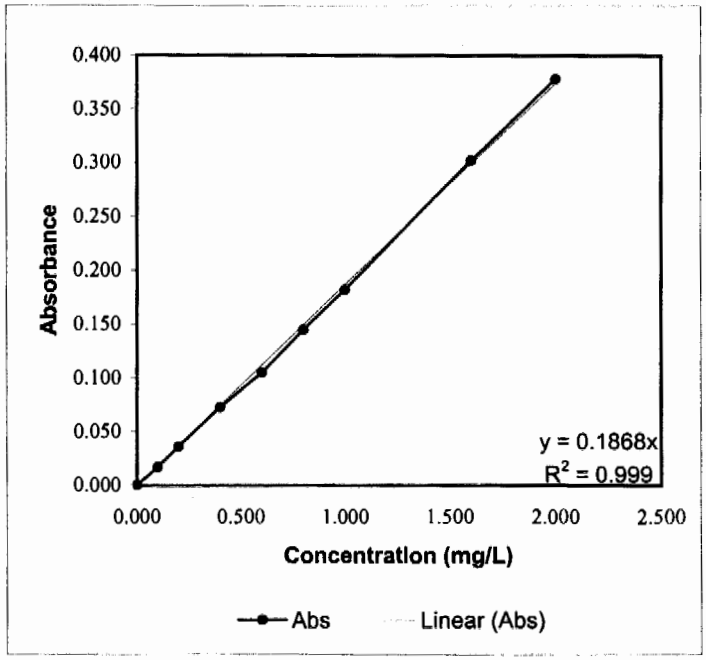
PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Ammonia (NH3-N)	ND	1.00	1.02	102	1.00	1.01	101	1	80-120	20

8008

27

CALIBRATION CURVE
AMMONIA _NH3 _TKN

Conc.	Abs
0.000	0.000
0.100	0.017
0.200	0.036
0.400	0.073
0.600	0.105
0.800	0.145
1.000	0.182
1.600	0.302
2.000	0.378



R^2	0.999397
y	0.1868
CF	5.3531

Comments: **PASSED**

Analyzed by: LA

8009

ANALYSIS LOG FOR AMMONIA-N

SOP ☑ EMAX-350.2 Rev. No. 2 ☐ EMAX-350.1 ☐ Rev. No. 0 ☐ Book # A70-NH_3-005

Starting Date: 6-16-05 Time: 16:32 Ending Date: 6-16-05 Time: 16:56

	Data File Name	Prep. Batch	Lab Sample ID	Matrix S	Matrix W	Time	Vol.Colored (ml)	DF	Absorbance	Notes mg/L
*	1	NHF004W	S-00			16:30	20	1	0.000	
*	2		S-0.1			-31			0.017	
*	3		S-0.2			-32			0.036	
*	4		S-0.4			-33			0.073	
*	5		S-0.6			-34			0.105	
*	6		S-0.8			-35			0.145	
*	7		S-1.0			-36			0.182	
*	8		S-1.6			-37			0.302	
*	9		S-2.0			-38			0.378	
*	10		ICV			-39			0.185	0.990
*	11		ICB			-40			0.000	ND
*	12		NHF 00 40B			-41			0.000	ND
*	13		WL			-42			0.190	1.017
*	14		WL			-43			0.188	1.006
*	5		F039-05			-44			0.002	ND
*	6		-08D			-45			0.001	ND
*	7		-08M			-46			0.192	1.028
*	8		-09			-47			0.001	ND
*	9		-10			-48			0.002	ND
*	0		-11			-49			0.001	ND
*	1		-12			-50			0.003	ND
*	22		CCV1			-51			0.187	1.001
*	3		CCB1			-52			0.000	ND
*	4		F039-13			-53			0.002	ND
*	25		F064-01			-54			0.010	ND
*	6		CCV2			-55			0.185	0.990
*	7		CCB2			-56	20	1	0.000	ND
*	8									
*	9									
*	0		6-16-05							

ANALYTICAL BATCH # NHF004W

8610

Instrument No: 70	Wavelength: 425 nm

Standard	ID	Conc. (mg/L)
S_0	zero pure	0.0
S_1	SW2B-03-152	0.1
S_2		0.2
S_3		0.4
S_4		0.6
S_5		0.8
S_6		1.0
S_7		1.6
S_8	SW2B-03-152	2.0
ICV/MS	-151	1.0
CCV	-152	1.0
LCS	-151	1.0

Reagent	ID
Color Reagent	SW7A-06-141

Standard Curve	
R	0.9994
Y	0.1868
CF	5.3521

Comments:

Results are based on: ☐ Dry Weight ☐ Wet Weight

Analyzed By: de

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

DISTILLATION LOG FOR NH_3 / DIGESTION AND DISTILLATION FOR TKN

SOP ☐ EMAX-350.2 Rev. No.: 2 ☐ EMAX-351.3 Rev. No.: 2 ☐ Book # EKN-005

Start Date 6-16-05 Time 9:00 End Date 6-16-05 Time 16:00

PREPARATION BATCH * NHF004W

Sample Prep ID	Lab Sample ID	Sample pH	NaOH Added (ml)	Boric Acid	Borate Buffer (ml)	Sample Amount (ml)	Extract Volume (ml)	Notes
		9.5						
*01	S-0.0		0.1	10	5	100	100	
*02	S-0.1							
*03	S-1.0							
*04	S-2.0							
*05	100							
*06	ICB							
*07	NHF004W							
*08	WC							
*09	LIC		0.1					
*10	F037-08		0.7					
*11	-08D		0.7					
*12	-08M	9.0	0.8					
*13	-09		0.7					
*14	-10	9.7	0.6					
*15	-11		0.8					
*16	-12		0.8					
*17	~~-13~~		0.7					
*18	F004P-01	9.5	0.6	10	5	100	100	
*19								
*20								
*21								
*22								
*23								
*24								
*25								
*26								

Standards	ID	Amount Added (ml)
ICV/MS	SW2B-08-151	10 ml/L
LCS	↓ -151	10 ml

Reagent	Lot# / ID
NaOH	SW7A-06-112
Borate Buffer	↓ -152
H_3BO_3	SW7B-04-315A
Digestion Mixture	NA
Distilling Soln.	↓

SDG #	Extract Location
NA	

Comments

Prepared By: [illegible]

Standard Added By: [illegible]

Checked By:

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8011

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F064**

METHOD 120.1
SPECIFIC CONDUCTIVITY

One (1) water sample was received on 06/07/05 for Specific Conductivity analysis by Method 120.1 in accordance with "Methods for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

3. Duplicate

No duplicate sample was designated in this SDG.

4. Sample Analysis

Sample was analyzed according to the prescribed QC procedures. All criteria were met.

METHOL J.1
SPECIFIC CONDUCTIVITY

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F064

Matrix : WATER
Instrument ID : I29

SAMPLE ID	EMAX SAMPLE ID	RESULTS (umhos/cm)	DLF	MOIST	RL (umhos/cm)	MDL (umhos/cm)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
LCS1W	ECF001WL	683	1	NA	1	.5	06/14/0514:12	NA	ECF001W-02	NA	ECF001W	NA	NA
LCD1W	ECF001WC	683	1	NA	1	.5	06/14/0514:14	NA	ECF001W-03	NA	ECF001W	NA	NA
MW1	F064-01	595	1	NA	1	.5	06/14/0514:38	NA	ECF001W-15	NA	ECF001W	06/05/05	06/07/05

8019

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 120.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05F064
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: ECF001WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 06/14/05 14:12/14:14

ACCESSION:

PARAMETER	BLNK RSLT (umhos/cm)	SPIKE AMT (umhos/cm)	BS RSLT (umhos/cm)	BS % REC	SPIKE AMT (umhos/cm)	BSD RSLT (umhos/cm)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Specific Conductivity	ND	682	683	100	682	683	100	0	80-120	20

6014

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F064**

METHOD 300.0
ANIONS

One (1) water sample was received on 06/07/05 for Chloride, Nitrate-N, Nitrite-N and Sulfate analyses by method 300.0 in accordance with "Method for Determination of Inorganic Anions by Ion Chromatography", EPA 600/84-017.

1. Holding Time

Analyses met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limits.

4. Duplicate

No duplicate sample was designated in this SDG.

5. Matrix Spike

No MS sample was designated in this SDG.

6. Sample Analysis

Sample was analyzed according to the prescribed QC procedures. All criteria were met.

SAMPLE RESULTS

METHOD 300.0
CHLORIDE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F064

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICF011WB	ND	1	NA	.2	.1	06/07/0510:32	NA	AF07-04	AF07-01	ICF011W	NA	NA
LCS1W	ICF011WL	4.96	1	NA	.2	.1	06/07/0510:46	NA	AF07-05	AF07-01	ICF011W	NA	NA
LCD1W	ICF011WC	4.96	1	NA	.2	.1	06/07/0511:00	NA	AF07-06	AF07-01	ICF011W	NA	NA
MW1	F064-01	26.4	5	NA	1	.5	06/07/0511:28	NA	AF07-07	AF07-01	ICF011W	06/05/05	06/07/05

8017 7108

METHOD 300.0
NITRATE-N

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F064

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICF011WB	ND	1	NA	.1	.05	06/07/0510:32	NA	AF07-04	AF07-01	ICF011W	NA	NA
LCS1W	ICF011WL	4.82	1	NA	.1	.05	06/07/0510:46	NA	AF07-05	AF07-01	ICF011W	NA	NA
LCD1W	ICF011WC	4.83	1	NA	.1	.05	06/07/0511:00	NA	AF07-06	AF07-01	ICF011W	NA	NA
MW1	F064-01	1.32	1	NA	.1	.05	06/07/0510:17	NA	AF07-03	AF07-01	ICF011W	06/05/05	06/07/05

METHOD 300.0
NITRITE-N

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F064

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICF011WB	ND	1	NA	.1	.05	06/07/0510:32	NA	AF07-04	AF07-01	ICF011W	NA	NA
LCS1W	ICF011WL	4.88	1	NA	.1	.05	06/07/0510:46	NA	AF07-05	AF07-01	ICF011W	NA	NA
LCD1W	ICF011WC	4.89	1	NA	.1	.05	06/07/0511:00	NA	AF07-06	AF07-01	ICF011W	NA	NA
MW1	F064-01	ND	1	NA	.1	.05	06/07/0510:17	NA	AF07-03	AF07-01	ICF011W	06/05/05	06/07/05

8019

Pc

METHOD 300.0
SULFATE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F064

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICF011WB	ND	1	NA	.5	.25	06/07/0510:32	NA	AF07-04	AF07-01	ICF011W	NA	NA
LCS1W	ICF011WL	14.8	1	NA	.5	.25	06/07/0510:46	NA	AF07-05	AF07-01	ICF011W	NA	NA
LCD1W	ICF011WC	14.9	1	NA	.5	.25	06/07/0511:00	NA	AF07-06	AF07-01	ICF011W	NA	NA
MW1	F064-01	54.8	5	NA	2.5	1.25	06/07/0511:28	NA	AF07-07	AF07-01	ICF011W	06/05/05	06/07/05

0230

QC SUMMARIES

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F064
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICF011WB	ICF011WL	ICF011WC		
LAB FILE ID:	AF07-04	AF07-05	AF07-06		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	06/07/0510:32	06/07/0510:46	06/07/0511:00	DATE RECEIVED:	NA
PREP. BATCH:	ICF011W	ICF011W	ICF011W		
CALIB. REF:	AF07-01	AF07-01	AF07-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride-Cl	ND	5	4.96	99	5	4.96	99	0	90-110	20

8022

Rcl

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F064
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICF011WB	ICF011WL	ICF011WC		
LAB FILE ID:	AF07-04	AF07-05	AF07-06		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	06/07/0510:32	06/07/0510:46	06/07/0511:00	DATE RECEIVED:	NA
PREP. BATCH:	ICF011W	ICF011W	ICF011W		
CALIB. REF:	AF07-01	AF07-01	AF07-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrate-N	ND	5	4.82	96	5	4.83	97	0	90-110	20

8023

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F064
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICF011WB	ICF011WL	ICF011WC		
LAB FILE ID:	AF07-04	AF07-05	AF07-06		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	06/07/0510:32	06/07/0510:46	06/07/0511:00	DATE RECEIVED:	NA
PREP. BATCH:	ICF011W	ICF011W	ICF011W		
CALIB. REF:	AF07-01	AF07-01	AF07-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrite-N	ND	5	4.88	98	5	4.89	98	0	90-110	20

8024

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F064
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICF011WB	ICF011WL	ICF011WC		
LAB FILE ID:	AF07-04	AF07-05	AF07-06		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	06/07/0510:32	06/07/0510:46	06/07/0511:00	DATE RECEIVED:	NA
PREP. BATCH:	ICF011W	ICF011W	ICF011W		
CALIB. REF:	AF07-01	AF07-01	AF07-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Sulfate	ND	15	14.8	99	15	14.9	99	0	90-110	20

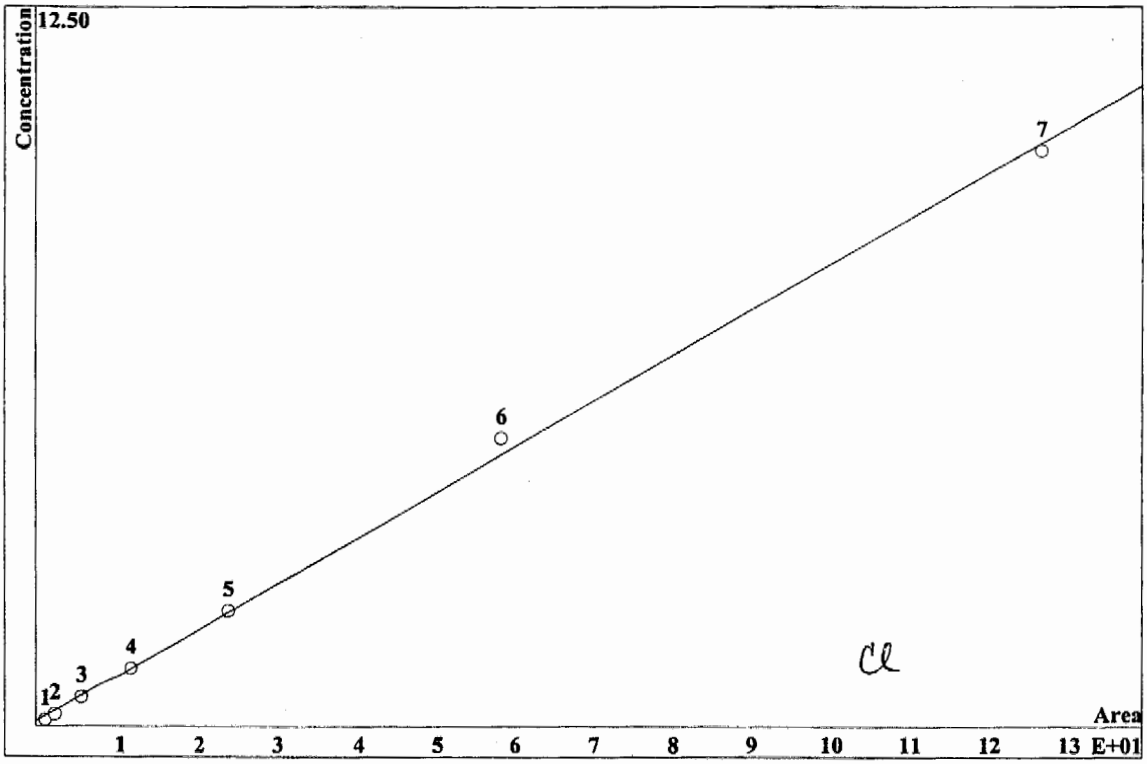
8025

RCA

INITIAL CALIBRATION

CALIBRATION OF COMPONENT chloride

Method: IC100-E23.mtw
Equation: Q = 0.0794095·A + 0.0841087
RSD: 5.497 %
Correlation coefficient: 0.999317

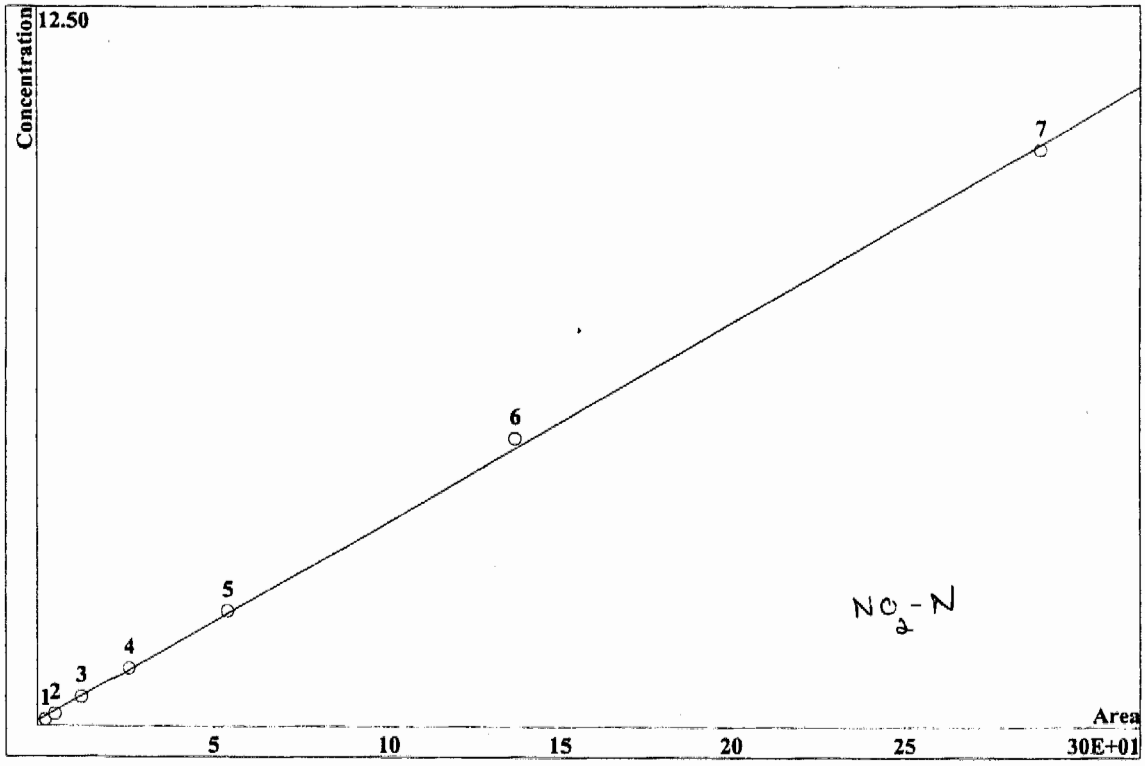


K3 = 0 K2 = 0 K1 = 0.0794095 K0 = 0.0841087
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.144	1.201 ✓	0.1	1	3.54	Yes	p5231616.chw
2	0.2844	2.348 ✓	0.2	1	3.54	Yes	p5231630.chw
3	0.691	5.671 ✓	0.5	1	3.54	Yes	p5231644.chw
4	1.368	11.4 ✓	1	1	3.54	Yes	p5231658.chw
5	2.938	23.82 ✓	2	1	3.54	Yes	p5231712.chw
6	7.344	58.38 ✓	5	1	3.54	Yes	p5231726.chw
7	16.43	126.5 ✓	10	1	3.54	Yes	p5231755.chw

CALIBRATION OF COMPONENT nitrite

Method: IC100-E23.mtw
Equation: Q = 0.034601·A + 0.0821293
RSD: 3.606 %
Correlation coefficient: 0.999706

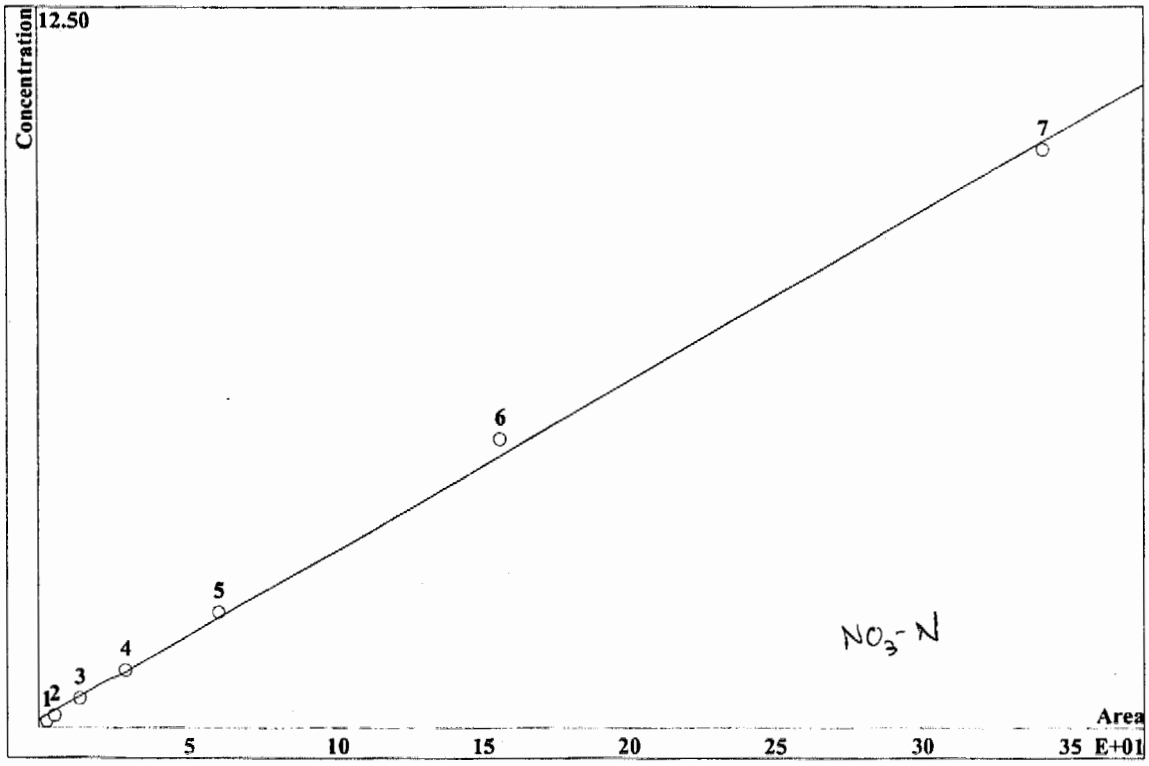


K3 = 0 K2 = 0 K1 = 0.034601 K0 = 0.0821293
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.253	2.457 ✓	0.1	1	4.24	Yes	p5231616.chw
2	0.53	5.182 ✓	0.2	1	4.24	Yes	p5231630.chw
3	1.3	12.79 ✓	0.5	1	4.24	Yes	p5231644.chw
4	2.581	25.57 ✓	1	1	4.24	Yes	p5231658.chw
5	5.528	54.26 ✓	2	1	4.24	Yes	p5231712.chw
6	13.58	137.3 ✓	5	1	4.24	Yes	p5231726.chw
7	27.15	289.1 ✓	10	1	4.24	Yes	p5231755.chw

CALIBRATION OF COMPONENT nitrate

Method: IC100-E23.mtw
Equation: Q = 0.0293514·A + 0.132291
RSD: 6.208 %
Correlation coefficient: 0.999129



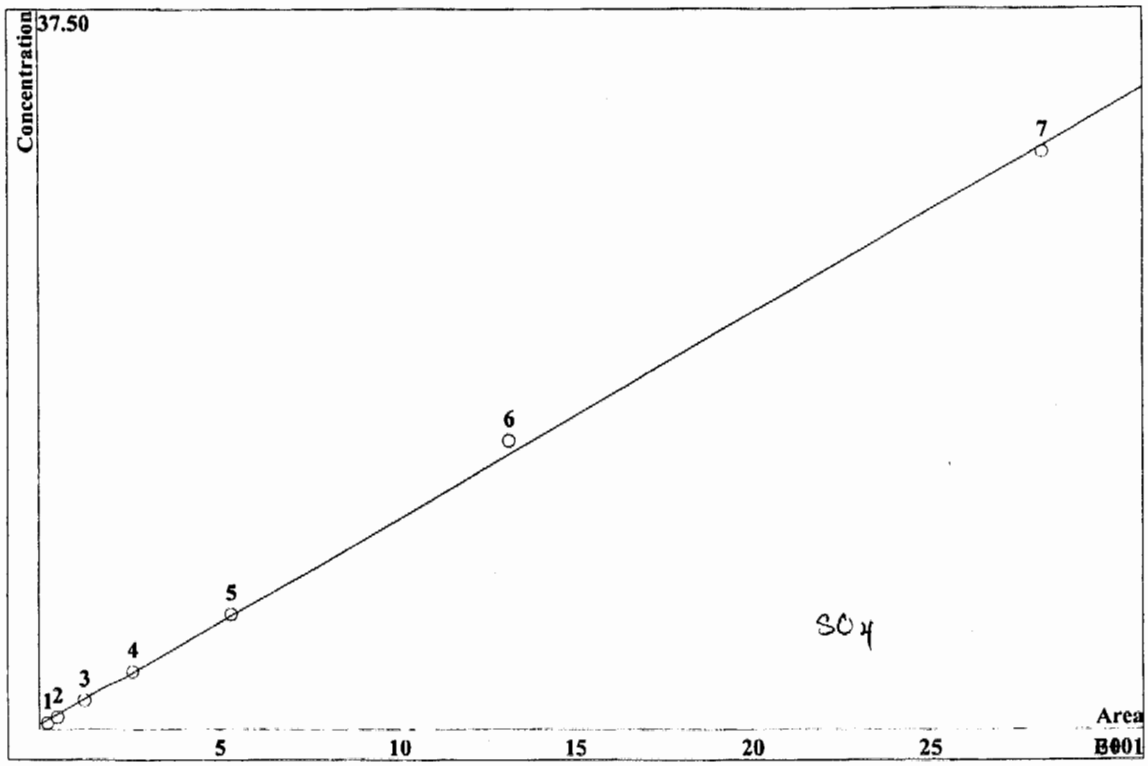
K3 = 0 K2 = 0 K1 = 0.0293514 K0 = 0.132291
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.2107	2.88 ✓	0.1	1	6.07	Yes	p5231616.chw
2	0.4297	5.634 ✓	0.2	1	6.07	Yes	p5231630.chw
3	1.068	14.14 ✓	0.5	1	6.07	Yes	p5231644.chw
4	2.165	28.55 ✓	1	1	6.07	Yes	p5231658.chw
5	4.699	60.6 ✓	2	1	6.07	Yes	p5231712.chw
6	12.37	156 ✓	5	1	6.07	Yes	p5231726.chw
7	27.53	341.2 ✓	10	1	6.07	Yes	p5231755.chw

RU 5/26/05

CALIBRATION OF COMPONENT sulfate

Method: IC100-E23.mtw
Equation: Q = 0.106939·A + 0.221575
RSD: 4.572 %
Correlation coefficient: 0.999528



K3 = 0 K2 = 0 K1 = 0.106939 K0 = 0.221575
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.1462	2.505	0.3	1	8.98	Yes	p5231616.chw
2	0.3032	5.252	0.6	1	8.98	Yes	p5231630.chw
3	0.7444	12.87	1.5	1	8.98	Yes	p5231644.chw
4	1.483	25.51	3	1	8.98	Yes	p5231658.chw
5	3.146	53.53	6	1	8.98	Yes	p5231712.chw
6	7.889	131.7	15	1	8.98	Yes	p5231726.chw
7	17.28	281.6	30	1	8.98	Yes	p5231755.chw

JCL
5/26/05

8030

SECOND SOURCE

IC Result Check Form

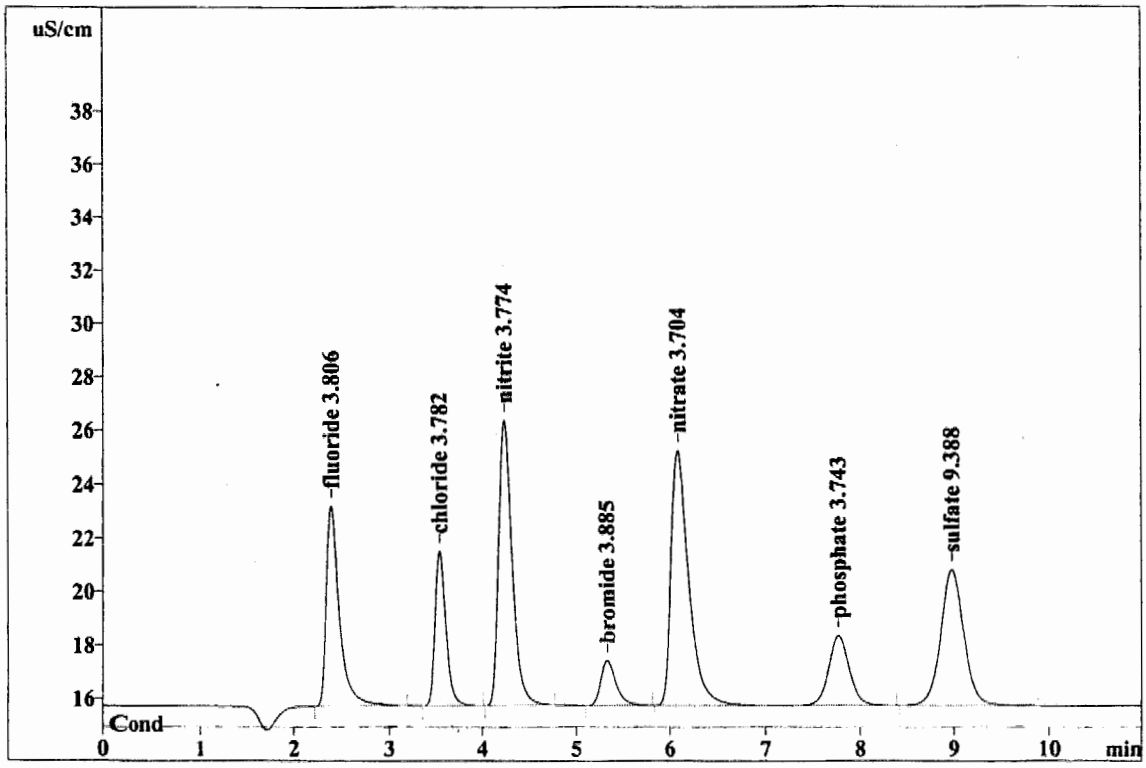
LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AE23-01	IB	FCIBNPS	0	0	0	0	0	0	0	p5231548	1
AE23-02	S0	FCIBNPS	0	0	0	0	0	0	0	p5231602	1
AE23-03	S1	FCIBNPS	0.14971	0.1795	0.16713	0.11545	0.21682	0.15242	0.48945	p5231616	1
AE23-04	S2	FCIBNPS	0.23859	0.27058	0.26142	0.21108	0.29766	0.2482	0.78322	p5231630	1
-05	S3	FCIBNPS	0.50007	0.53447	0.52479	0.50327	0.54746	0.51511	1.5975	p5231644	1
-06	S4	FCIBNPS	0.99644	0.98902	0.9668	0.99627	0.97025	0.97995	2.9492	p5231658	1
AE23-07	S5	FCIBNPS	2.0111	1.9753	1.9595	2.0554	1.9109	1.9657	5.9457	p5231712	1
AE23-08	S6	FCIBNPS	4.8228	4.7198	4.8335	4.8645	4.7111	4.8697	14.304	p5231726	1
AE23-09	S7	FCIBNPS	10.081	10.131	10.087	10.054	10.146	10.069	30.331	p5231755	1
AE23-10	ICV	FCIBNPS	95.2%	94.5%	94.3%	97.1%	92.6%	93.6%	93.9%	p5231809	1
AE23-11	ICB	FCIBNPS	0	0	0	0	0	0	0	p5231823	1

Report date: 5/23/2005 7:25:58 PM
Printed by: Cherry Dam

Ident: AE23-10 ICV
Analysis from: 5/23/2005 6:09:09 PM
File: p5231809.CHW Last save: 5/23/2005 7:25:58 PM

Method: IC100-E23.mtw Last save: 5/23/2005 5:08:00 PM
Run operator: Cherry Dam
Analysis number: 1694

SAMPLE:
:
Vial number: 10
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name	% Rec.
1	2.39	7.48	71.163	3.806 ✓	fluoride	95
2	3.55	5.80	46.565	3.782 ✓	chloride	95
3	4.25	10.62	106.691	3.774 ✓	nitrite	94
4	5.34	1.68	19.215	3.885 ✓	bromide	97
5	6.09	9.52	121.691	3.704 ✓	nitrate	93
6	7.77	2.60	40.208	3.743 ✓	phosphate	94
7	8.98	5.08	85.716	9.388 ✓	sulfate	94
7	11.00	42.78	491.249	32.082		

This report has been created by IC Net
METROHM LTD

pw 5/26/05

TV = 4 except SO_4 = 10

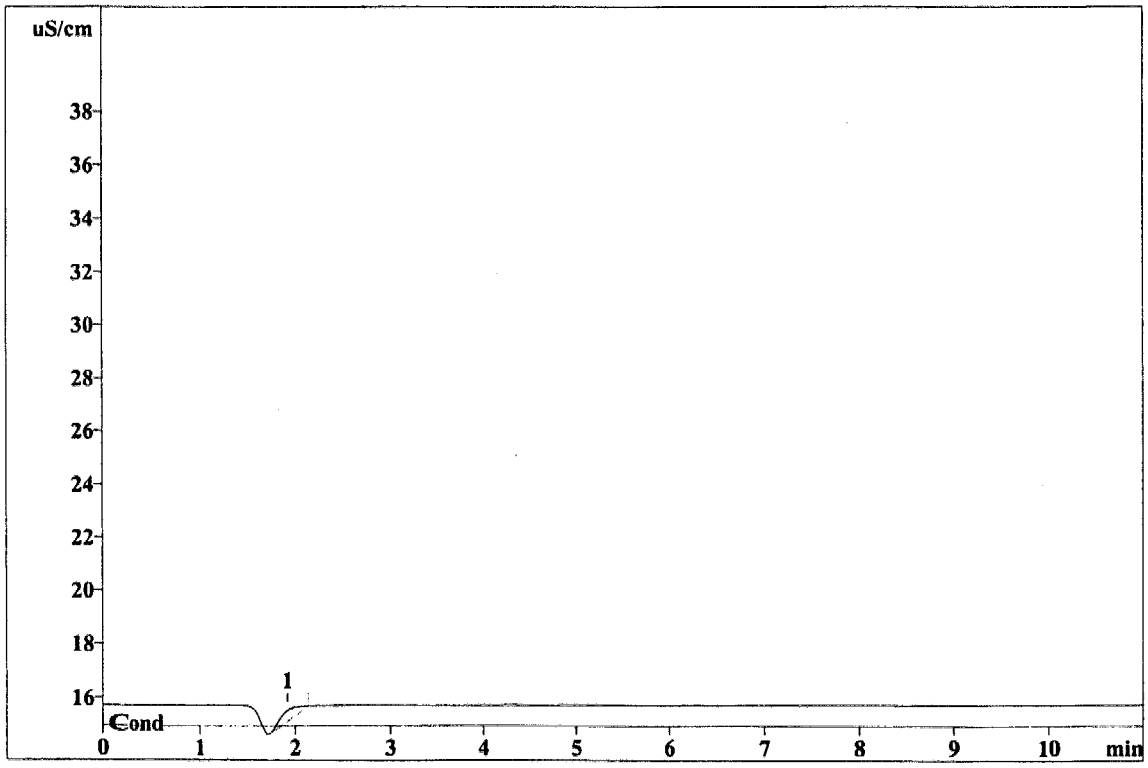
8033

Report date: 5/23/2005 7:25:59 PM
Printed by: Cherry Dam

Ident: AE23-11 ICB
Analysis from: 5/23/2005 6:23:14 PM
File: p5231823.CHW Last save: 5/23/2005 7:25:59 PM

Method: IC100-E23.mtw Last save: 5/23/2005 5:08:00 PM
Run operator: Cherry Dam
Analysis number: 1695

SAMPLE:
:
Vial number: 11
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	1.92	0.41	5.585	0.000	

This report has been created by IC Net
METROHM LTD

RW 5/26/05

8034

DAILY CALIBRATION

IC Result Check FormVersion : QE2

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AF07-01	CCV60	FCIBNPS	99.2%	98.5%	97.3%	101.9%	94.6%	98.8%	99.2%	p6070949	1
AF07-02	CCB60	FCIBNPS	0	0	0	0	0	0	0	p6071003	1
AF07-13	CCV61	FCIBNPS	101.9%	98.8%	98.1%	102.5%	95.4%	98.3%	99.6%	p6071326	1
A[illegible]-14	CCB61	FCIBNPS	0	0	0	0	0	0	0	p6071340	1
A[illegible]25	CCV62	FCIBNPS	100%	98.9%	97.2%	102.6%	95.6%	100.1%	99.9%	p6071637	1
AF07-26	CCB62	FCIBNPS	0	0	0	0	0	0	0	p6071651	1
AF07-33	CCV63	FCIBNPS	99.9%	98.8%	97.4%	102.7%	95.7%	100.6%	99.8%	p6071829	1
AF07-34	CCB63	FCIBNPS	0	0	0	0	0	0	0	p6071843	1
AF07-43	CCV64	FCIBNPS	101.2%	98.9%	97%	102.5%	95.5%	99%	99.8%	p6072119	1
AF07-44	CCB64	FCIBNPS	0	0	0	0	0	0	0	p6072133	1
AF07-55	CCV65	FCIBNPS	100.6%	99.2%	97.4%	102.6%	95.5%	99.2%	99.8%	p6080008	1
AF07-56	CCB65	FCIBNPS	0	0	0	0	0	0	0	p6080022	1
AF07-57	CCV66	FCIBNPS	95.9%	99.4%	97.6%	101.9%	96.7%	97.9%	99.2%	p6080036	1
AF07-58	CCB66	FCIBNPS	0	0	0	0	0	0	0	p6080050	1

ANALYTICAL LOG

8037

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No. 0 ☐

Start Date: 05/23/05 Time: 15:48 Ending Date: 05/23/05 Time: 21:12 Book # A22-025 100 ak 05/23/05

ANALYTICAL BATCH # IC

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
* 1	AE23-01	IB	1		✓	
* 2	02	SO				
* 3	03	1				
* 4	04	2				
* 5	05	3				
* 6	06	4				
* 7	07	5				
* 8	08	6				
* 9	09	7				
* 10	10	ICV				
* 11	11	ICB				
* 12	12 ak 05/23/05					
* 13	13 ak 05/23/05					
* 14						
* 15						
* 16						
* 17						
* 18						
* 19						
* 20						
* 21						
* 22						
* 23						
* 24						
* 25						
* 26						
* 27						
* 28						
* 29						
* 30						

ak 05/23/05

Instrument Number	22 100 ak 05/23/05

INITIAL CALIBRATION REFERENCE

Method File	IC 100 - E23.mtw	Date
ICAL ID	SW5B-12-288 - 294	05/23/05
ICV ID	295 - 301	

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1	SW5B-12-288	0.1						0.3
	S_2	289	0.2						0.6
	S_3	290	0.5						1.5
	S_4	291	1						3
	S_5	292	2						6
ICV ak 05/23/05	S6	293	5						15
CCV ak 05/23/05	S7	294	10						30
LCS ICV ak 05/23/05		SW5B-12-295-301	8.4 ak 05/23/05						10
MS									

~~Standards B~~

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3
ICAL	S_1				
	S_2				
	S_3				
	S_4				
ICV		~~SW5B-12-295-301~~	ak 05/23/05		
CCV					
LCS					

11/A ak 05/23/05

Comments:

Analyzed By: ak

This page is checked during the data review process.

EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

8038

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No.0 ☐

Start Date: 06/07/05 Time: 09:49 Ending Date: 06/08/05 Time: 01:04 Book # A100-001

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
* 1	AF07-01	CCV60	1		✓	
* 2	02	CCB60				
* 3	03	F064-01				
* 4	04	ICF011WB				
* 5	05	WL				
* 6	06	WC				
* 7	07	F064-01	5			
* 8	08	F063-01	1			
* 9	09	02				
* 10	10	03				
* 11	11	04				
* 12	12	RINSE				
* 13	13	CCV61				
* 14	14	CCB61				
* 15	15	F063-04D				
* 16	16	04M				
* 17	17	05				
* 18	18	E163-01	5			
* 19	19	F067-02	1			
* 20	20	03				
* 21	21	05				
* 22	22	15				
* 23	23	F441-01				
* 24	23A ok w/ notes	RINSE				
* 25	25	CCV62				
* 26	26	CCB62				
* 27	27	F441-02				
* 28	28	RINSE				
** 29	29	ICF012WB				
** 30	30	WL				

ANALYTICAL BATCH * ICF011W ** ICF012W

Instrument Number	~~22~~ 100 ok 06/07/05

INITIAL CALIBRATION REFERENCE

Method File	IC100-E23.mtw	Date
ICAL ID	SW5B-12-288-294	05/23/05
ICV ID	SW5B-12-295-301	05/23/05

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1								
	S_2								
	S_3								
	S_4								
	S_5								
ICV									
CCV		SW5B-12-435-438	5	5	5	5	5	5	15
LCS		SW5B-12-439-442	↓	↓	↓	↓	↓	↓	↓
MS xDF		LCS Source	↓	↓	↓	↓	↓	↓	↓

Refer to book # A22/A100-005 pg. 81

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3
ICAL	S_1	N/A			
	S_2	↓			
	S_3				
	S_4				
ICV					
CCV					
LCS		✓			

Comments:

Analyzed By: al

This page is checked during the data review process.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F064**

METHOD 314.0
PERCHLORATE

One (1) water sample was received on 06/07/05 for Perchlorate analysis by Method 314.0 in accordance with "Method for Determination of Perchlorate by Ion Chromatography", EPA 600/98-118.

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at half of the method reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control sample results were within QC limits.

4. Duplicate

No Duplicate sample was designated in this SDG.

5. Matrix Spike

No MS sample was designated in this SDG.

6. Sample Analysis

Sample was analyzed according to the prescribed QC procedures. All criteria were met.

SAMPLE RESULTS

METHOD _.+.0
PERCHLORATE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F064

Matrix : WATER
Instrument ID : TI057

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DLF	MOIST	RL (ug/L)	MDL (ug/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	PCF004WB	ND	1	NA	2	.5	06/07/0501:06	NA	JF06-28	JF06-27	PCF004W	NA	NA
LCS1W	PCF004WL	8.44	1	NA	2	.5	06/07/0501:26	NA	JF06-29	JF06-27	PCF004W	NA	NA
LCD1W	PCF004WC	9.78	1	NA	2	.5	06/07/0501:46	NA	JF06-30	JF06-27	PCF004W	NA	NA
MW1	F064-01	ND	1	NA	2	.5	06/07/0511:55	NA	JF06-44	JF06-43	PCF004W	06/05/05	06/07/05

8042

QC SUMMARY

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F064
METHOD: METHOD 314.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	PCF004WB	PCF004WL	PCF004WC		
LAB FILE ID:	JF06-28	JF06-29	JF06-30		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	06/07/0501:06	06/07/0501:26	06/07/0501:46	DATE RECEIVED:	NA
PREP. BATCH:	PCF004W	PCF004W	PCF004W		
CALIB. REF:	JF06-27	JF06-27	JF06-27		

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Perchlorate	ND	10	8.44	84	10	9.78	98	15	80-120	20

8044

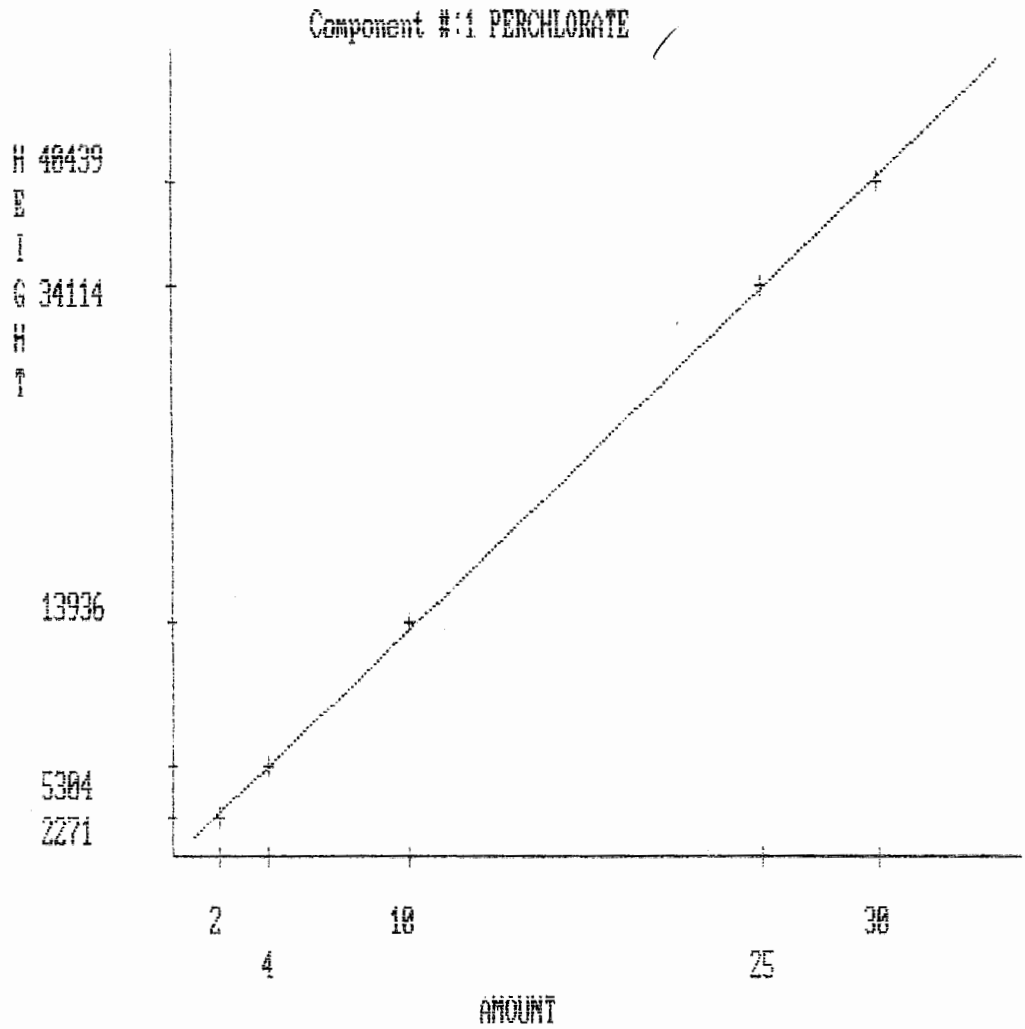
INITIAL CALIBRATION

8045

IC SEQUENCE FORM

INDX	LSID	LFID	DF	METNAME	SELCOMP	DateTime
1	IB	JC22-1	1	IC57C22	ALL	03/22/0512:32
2	S-0.0	JC22-2	1	IC57C22	ALL	03/22/0512:52
3	S-2.0	JC22-3	1	IC57C22	ALL	02/22/0522:36
	S-4.0	JC22-4	1	IC57C22	ALL	03/22/0513:33
5	S-10.0	JC22-5	1	IC57C22	ALL	03/22/0513:53
6	S-25.0	JC22-6	1	IC57C22	ALL	03/22/0514:13
7	S-30.0	JC22-7	1	IC57C22	ALL	03/22/0514:33
8	ICV	JC22-8	1	IC57C22	ALL	03/22/0515:52
9	ICB	JC22-9	1	IC57C22	ALL	03/22/0516:12
10	IPCS	JC22-10	1	IC57C22	ALL	03/22/0516:34
11	PC007WB	JC22-11	1	IC57C22	ALL	03/22/0516:55
12	MRL	JC22-12	1	IC57C22	ALL	03/22/0517:15
13	PCC007WL	JC22-13	1	IC57C22	ALL	03/22/0517:35
14	PCC007WC	JC22-14	1	IC57C22	ALL	03/22/0518:22
15	C135-01	JC22-15	1	IC57C22	ALL	03/22/0518:42
16	C135-02	JC22-16	1	IC57C22	ALL	03/22/0519:38
17	C135-02D	JC22-17	1	IC57C22	ALL	03/22/0519:59
18	C135-02M	JC22-18	1	IC57C22	ALL	03/22/0520:19
19	CCV1-15	JC22-19	1	IC57C22	ALL	03/22/0520:39
20	C141-11	JC22-20	1	IC57C22	ALL	03/22/0520:59
21	C141-12	JC22-21	1	IC57C22	ALL	03/22/0521:20
22	C141-13	JC22-22	1	IC57C22	ALL	03/22/0521:40
23	C141-14	JC22-23	1	IC57C22	ALL	03/22/0522:00
24	CCV2-30	JC22-24	1	IC57C22	ALL	03/22/0522:20
25	PCC008SB	JC22-25	1	IC57C22	ALL	03/22/0522:41
26	PCC008SL	JC22-26	1	IC57C22	ALL	03/22/0523:01
27	PCC008SC	JC22-27	1	IC57C22	ALL	03/22/0523:21
28	C041-01	JC22-28	10	IC57C22	ALL	03/22/0523:41
29	C041-02	JC22-29	10	IC57C22	ALL	03/23/0500:02
30	C041-03	JC22-30	10	IC57C22	ALL	03/23/0500:22
31	C041-04	JC22-31	10	IC57C22	ALL	03/23/0500:42
32	C041-05	JC22-32	10	IC57C22	ALL	03/23/0501:02
33	C041-06	JC22-33	10	IC57C22	ALL	03/23/0501:23
34	C041-07	JC22-34	10	IC57C22	ALL	03/23/0501:43
35	CCV3-15	JC22-35	1	IC57C22	ALL	03/23/0502:03
3	C041-08	JC22-36	10	IC57C22	ALL	03/23/0502:23
3.	C041-09	JC22-37	10	IC57C22	ALL	03/23/0502:44
38	C041-10	JC22-38	10	IC57C22	ALL	03/23/0503:04
39	C041-11	JC22-39	10	IC57C22	ALL	03/23/0503:24
40	C041-11D	JC22-40	10	IC57C22	ALL	03/23/0503:44
41	C041-11M	JC22-41	10	IC57C22	ALL	03/23/0504:05
42	C041-12	JC22-42	10	IC57C22	ALL	03/23/0504:25
43	C041-13	JC22-43	10	IC57C22	ALL	03/23/0504:45
44	C041-14	JC22-44	10	IC57C22	ALL	03/23/0505:05
45	C041-15	JC22-45	10	IC57C22	ALL	03/23/0505:26
46	CCV4-30	JC22-46	1	IC57C22	ALL	03/23/0505:46
47	PCC009SB	JC22-47	1	IC57C22	ALL	03/23/0506:06
48	PCC009SL	JC22-48	1	IC57C22	ALL	03/23/0506:26
49	PCC009SC	JC22-49	1	IC57C22	ALL	03/23/0506:47
50	C041-16	JC22-50	10	IC57C22	ALL	03/23/0507:07
51	C041-17	JC22-51	10	IC57C22	ALL	03/23/0507:27
52	C041-18	JC22-52	10	IC57C22	ALL	03/23/0507:47
53	C041-19	JC22-53	10	IC57C22	ALL	03/23/0508:08
54	C041-20	JC22-54	10	IC57C22	ALL	03/23/0508:28
55	C041-21	JC22-55	10	IC57C22	ALL	03/23/0508:48
56	C041-22	JC22-56	10	IC57C22	ALL	03/23/0509:08
57	C041-23	JC22-57	10	IC57C22	ALL	03/23/0509:29
58	CCV5-15	JC22-58	1	IC57C22	ALL	03/23/0509:50

Method IC57C22
Sample CL04
Operator JKN
Run date 03-22-2005 14:53:31 Version: 142
Printed on 03-22-2005 AT 14:53:44
Straight Line fit



Component 1 = PERCHLORATE
EXTERNAL STANDARD CALIBRATION

LEVEL	AMOUNT	HEIGHT
1	2.0000	2271
2	4.0000	5304
3	10.0000	13936
4	25.0000	34114
5	30.0000	40439

3/22/05

Y = SLOPE * X + INTERCEPT

Height = 1.3615E+03 * Amount + -1.2108E+02
Amount = 7.3446E-04 * Height + 8.8928E-02
R squared = 0.9996

8047

SECOND SOURCE

IC RESULT FORM

LFID$	LSID$	DF$	PERCHLORATE
JC22-1	IB	1	ND
JC22-2	S-0.0	1	ND
JC22-3	S-2.0	1	111%
[illegible] 4	S-4.0	1	127%
JC22-5	S-10.0	1	133%
JC22-6	S-25.0	1	129%
JC22-7	S-30.0	1	128%
JC22-8	ICV	1	99.3%
JC22-9	ICB	1	ND
JC22-10	IPCS	1	87%
JC22-11	PC007WB	1	ND
JC22-12	MRL	1	118%
JC22-13	PCC007WL	1	9.93
JC22-14	PCC007WC	1	9.35
JC22-15	C135-01	1	ND
JC22-16	C135-02	1	ND
JC22-17	C135-02D	1	ND
JC22-18	C135-02M	1	7.5
JC22-19	CCV1-15	1	88.3%
JC22-20	C141-11	1	7.35
JC22-21	C141-12	1	ND
JC22-22	C141-13	1	ND
JC22-23	C141-14	1	ND
JC22-24	CCV2-30	1	101%
JC22-25	PCC008SB	1	ND
JC22-26	PCC008SL	1	10.4
JC22-27	PCC008SC	1	10.3
JC22-28	C041-01	10	ND
JC22-29	C041-02	10	ND
JC22-30	C041-03	10	ND
JC22-31	C041-04	10	ND
JC22-32	C041-05	10	ND
JC22-33	C041-06	10	ND
JC22-34	C041-07	10	ND
JC22-35	CCV3-15	1	100%
[illegible] 36	C041-08	10	ND
[illegible]-37	C041-09	10	ND
JC22-38	C041-10	10	ND
JC22-39	C041-11	10	ND
JC22-40	C041-11D	10	ND
JC22-41	C041-11M	10	97.2
JC22-42	C041-12	10	43.1
JC22-43	C041-13	10	ND
JC22-44	C041-14	10	ND
JC22-45	C041-15	10	ND
JC22-46	CCV4-30	1	99.7%
JC22-47	PCC009SB	1	ND
JC22-48	PCC009SL	1	10.3
JC22-49	PCC009SC	1	10.1
JC22-50	C041-16	10	ND
JC22-51	C041-17	10	ND
JC22-52	C041-18	10	ND
JC22-53	C041-19	10	ND
JC22-54	C041-20	10	ND
JC22-55	C041-21	10	ND
JC22-56	C041-22	10	ND
JC22-57	C041-23	10	ND
JC22-58	CCV5-15	1	99.9%

DAILY CALIBRATION

IC SEQUENCE FORM

INDX	LSID	LFID	DF	METNAME	SELCOMP	DateTime
1	IPCS	JF06-1	1	IC57C22	ALL	06/06/0514:45
2	PCF003WB	JF06-2	1	IC57C22	ALL	06/06/0515:05
3	MRL	JF06-3	1	IC57C22	ALL	06/06/0515:25
4	PCF003WL	JF06-4	1	IC57C22	ALL	06/06/0515:45
5	PCF003WC	JF06-5	1	IC57C22	ALL	06/06/0516:06
6	E116-08	JF06-6	1	IC57C22	ALL	06/06/0516:26
7	E140-01	JF06-7	1	IC57C22	ALL	06/06/0516:46
8	E140-02	JF06-8	1	IC57C22	ALL	06/06/0517:06
9	E140-03	JF06-9	1	IC57C22	ALL	06/06/0517:27
10	E140-04	JF06-10	1	IC57C22	ALL	06/06/0517:47
11	E140-05	JF06-11	1	IC57C22	ALL	06/06/0518:07
12	E140-05D	JF06-12	1	IC57C22	ALL	06/06/0518:27
13	E140-05M	JF06-13	1	IC57C22	ALL	06/06/0518:48
14	E153-01	JF06-14	1	IC57C22	ALL	06/06/0520:00
15	E153-02	JF06-15	1	IC57C22	ALL	06/06/0520:43
16	CCV33-15	JF06-16	1	IC57C22	ALL	06/06/0521:03
17	E153-03	JF06-17	1	IC57C22	ALL	06/06/0521:23
18	E153-04	JF06-18	1	IC57C22	ALL	06/06/0521:43
19	E153-05	JF06-19	1	IC57C22	ALL	06/06/0522:04
20	E175-01	JF06-20	1	IC57C22	ALL	06/06/0522:24
21	E175-02	JF06-21	1	IC57C22	ALL	06/06/0522:44
22	E175-03	JF06-22	1	IC57C22	ALL	06/06/0523:04
23	E175-04	JF06-23	1	IC57C22	ALL	06/06/0523:25
24	E175-05	JF06-24	1	IC57C22	ALL	06/06/0523:45
25	E175-06	JF06-25	1	IC57C22	ALL	06/07/0500:05
26	E175-07	JF06-26	1	IC57C22	ALL	06/07/0500:25
27	CCV34-30	JF06-27	1	IC57C22	ALL	06/07/0500:46
28	PCF004WB	JF06-28	1	IC57C22	ALL	06/07/0501:06
29	PCF004WL	JF06-29	1	IC57C22	ALL	06/07/0501:26
30	PCF004WC	JF06-30	1	IC57C22	ALL	06/07/0501:46
31	E189-01	JF06-31	1	IC57C22	ALL	06/07/0502:07
32	E189-02	JF06-32	1	IC57C22	ALL	06/07/0502:27
33	E189-03	JF06-33	1	IC57C22	ALL	06/07/0502:47
34	E189-04	JF06-34	1	IC57C22	ALL	06/07/0503:07
35	E183-01	JF06-35	1	IC57C22	ALL	06/07/0503:28
36	E183-02	JF06-36	1	IC57C22	ALL	06/07/0503:48
37	E183-02D	JF06-37	1	IC57C22	ALL	06/07/0504:08
38	E183-02M	JF06-38	1	IC57C22	ALL	06/07/0504:28
39	E183-03	JF06-39	1	IC57C22	ALL	06/07/0504:49
40	E183-04	JF06-40	1	IC57C22	ALL	06/07/0505:09
41	CCV35-15	JF06-41	1	IC57C22	ALL	06/07/0505:29
42	CCB35-15	JF06-42	1	IC57C22	ALL	06/07/0505:49
43	CCV36-30	JF06-43	1	IC57C22	ALL	06/07/0511:35
44	F064-01	JF06-44	1	IC57C22	ALL	06/07/0511:55
45	E244-01	JF06-45	1	IC57C22	ALL	06/07/0512:19
46	E244-02	JF06-46	1	IC57C22	ALL	06/07/0512:39
47	E244-03	JF06-47	1	IC57C22	ALL	06/07/0512:59
48	E244-04	JF06-48	1	IC57C22	ALL	06/07/0513:20
49	E244-05	JF06-49	1	IC57C22	ALL	06/07/0513:40
50	E244-06	JF06-50	1	IC57C22	ALL	06/07/0514:00
51	E244-06D	JF06-51	1	IC57C22	ALL	06/07/0514:20
52	E244-06M	JF06-52	1	IC57C22	ALL	06/07/0514:41
53	E244-06S	JF06-53	1	IC57C22	ALL	06/07/0515:01
54	CCV37-15	JF06-54	1	IC57C22	ALL	06/07/0515:21
55	PCF005WB	JF06-55	1	IC57C22	ALL	06/07/0515:41
56	PCF005WL	JF06-56	1	IC57C22	ALL	06/07/0516:02
57	PCF005WC	JF06-57	1	IC57C22	ALL	06/07/0516:22
58	E200-01	JF06-58	1	IC57C22	ALL	06/07/0516:42
59	E200-02	JF06-59	1	IC57C22	ALL	06/07/0517:04
60	E200-03	JF06-60	1	IC57C22	ALL	06/07/0517:24
61	E200-04	JF06-61	1	IC57C22	ALL	06/07/0517:44
62	E200-05	JF06-62	1	IC57C22	ALL	06/07/0518:05
63	E200-06	JF06-63	1	IC57C22	ALL	06/07/0518:25
64	E200-07	JF06-64	1	IC57C22	ALL	06/07/0518:46
65	E213-08	JF06-65	1	IC57C22	ALL	06/07/0519:06
66	E200-05	JF06-66	10	IC57C22	ALL	06/07/0519:26
67	E200-03	JF06-67	4	IC57C22	ALL	06/07/0519:46
68	E200-08	JF06-68	20	IC57C22	ALL	06/07/0520:07
69	CCV38-30	JF06-69	1	IC57C22	ALL	06/07/0520:27

IC RESULT FORM

LFID$	LSID$	DF$	PERCHLORATE
JF06-1	IPCS	1	87%
JF06-2	PCF003WB	1	ND
JF06-3	MRL	1	117%
[illegible]-4	PCF003WL	1	10.5
[illegible]-5	PCF003WC	1	10.3
JF06-6	E116-08	1	ND
JF06-7	E140-01	1	ND
JF06-8	E140-02	1	ND
JF06-9	E140-03	1	ND
JF06-10	E140-04	1	ND
JF06-11	E140-05	1	ND
JF06-12	E140-05D	1	.993
JF06-13	E140-05M	1	10.8
JF06-14	E153-01	1	ND
JF06-15	E153-02	1	ND
JF06-16	CCV33-15	1	102%
JF06-17	E153-03	1	ND
JF06-18	E153-04	1	ND
JF06-19	E153-05	1	ND
JF06-20	E175-01	1	ND
JF06-21	E175-02	1	ND
JF06-22	E175-03	1	ND
JF06-23	E175-04	1	ND
JF06-24	E175-05	1	ND
JF06-25	E175-06	1	ND
JF06-26	E175-07	1	ND
JF06-27	CCV34-30	1	94.9%
JF06-28	PCF004WB	1	ND
JF06-29	PCF004WL	1	8.44
JF06-30	PCF004WC	1	9.78
JF06-31	E189-01	1	1.07
JF06-32	E189-02	1	ND
JF06-33	E189-03	1	1.4
JF06-34	E189-04	1	ND
JF06-35	E183-01	1	4.05
[illegible]-36	E183-02	1	2.49
[illegible]37	E183-02D	1	2.31
JF06-38	E183-02M	1	12.7
JF06-39	E183-03	1	.842
JF06-40	E183-04	1	1.13
JF06-41	CCV35-15	1	101%
JF06-42	CCB35-15	1	ND
JF06-43	CCV36-30	1	102%
JF06-44	F064-01	1	ND
JF06-45	E244-01	1	ND
JF06-46	E244-02	1	ND
JF06-47	E244-03	1	2.51
JF06-48	E244-04	1	ND
JF06-49	E244-05	1	ND
JF06-50	E244-06	1	ND
JF06-51	E244-06D	1	ND
JF06-52	E244-06M	1	9.82
JF06-53	E244-06S	1	10.1
JF06-54	CCV37-15	1	102%
JF06-55	PCF005WB	1	ND
JF06-56	PCF005WL	1	10.1
JF06-57	PCF005WC	1	10.1
JF06-58	E200-01	1	ND
JF06-59	E200-02	1	1.34
JF06-60	E200-03	1	41.4
JF06-61	E200-04	1	12.5
JF06-62	E200-05	1	32.7
JF06-63	E200-06	1	ND
JF06-64	E200-07	1	ND
JF06-65	E213-08	1	52.5
JF06-66	E200-05	10	43
JF06-67	E200-03	4	40.4
JF[illegible]-68	E200-08	20	138
[illegible]69	CCV38-30	1	101%

ANALYTICAL LOGS

ANALYSIS RUN LOG FOR IC - PERCHLORATE

SOP ☑ EMAX-314.0 Revision No. 2 ☐

Book # A57-008

Start Date 3/22/05 Time 12:32 Ending Date 3/23/05 Time 09:50

BATCH * PCC0071W ** PCC0085

	Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Conductivity, (us/cm)	Notes
*	1	JC22-1	IB	1		X		
*	2	2	S-0.0					
*	3	3	S-2.0					
*	4	4	S-4.0					
*	5	5	S-10.0					
*	6	6	S-25.0					
*	7	7	S-30.0					
*	8	8	ICV					
*	9	9	ICB					
*	0	10	3/23/05 ~~CCV~~ IPCS				5030	
*	1	11	3/23/05 ~~CCB1~~ PCC0071WB					* BAH
*	2	12	MRL					
*	3	13	PCC0071WL					* BAH
*	4	14	WC					*
*	5	15	C135-01				3960	*
*	6	16	02				4130	*
*	7	17	02D					*
*	8	18	02M					*
*	9	19	CCV1-15					
*	0	20	C141-11				2223	* BAH
*	1	21	12				8290	*
*	2	22	13				8329	*
*	3	23	14				2550	*
*	4	24	CCV2-30					
* *	5	25	PCC0085B		X			
* *	6	26	SL					
* *	7	27	SC					
* *	8	28	COA1-01	10			89.7	
* *	9	29	02				27.8	
* *	0	30	03				11.4	

Instrument Number	57

INITIAL CALIBRATION REFERENCE	
Method File	1057C22.MRT
ICAL ID	SWBB-02-695
ICV ID	SWBB-02-696

Standards

Name		ID	Conc. (ug/L)
ICAL	S1	SWBB-02-695	2
	S2		4
	S3		10
	S4		25
	S5		30
ICV		SWBB-02-696	25
CCV-15		691	15
CCV-30		692	30
LCS		693	10
MS		693	10
IPC		694	600/25
CMC		SW3B-02-565	1413 us/cm

Comments:

CMC Reading, (us/cm)	QC Criteria (us/cm)	Temp. (°C)
1404	±30	25°C

Electronic Data Archival	
Location	Date

Analyzed By: [illegible]

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8054

ANALYSIS RUN LOG FOR IC - PERCHLORATE

SOP ☑ EMAX-314.0 Revision No. 2 ☐ Book # A57-008

Start Date 6/6/05 Time 14:45 Ending Date 6/7/05 Time 20:27

BATCH * PCF003W ** PCF004W

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Conductivity, (us/cm)	Notes
* 1	JF06-1	IBCS	1		X		
* 2	2	PCF003WB					* BATH
* 3	3	MDL					
* 4	4	PCF003WL					* BATH
* 5	5	WC					*
* 6	6	E116-08					*
* 7	7	E140-01				1450	*
* 8	8	02				1121	*
* 9	9	03				2100	*
* 0	10	04				854	*
* 1	11	05				581	*
* 2	12	05D					*
* 3	13	05M					*
* 4	14	E153-01				1432	*
* 5	15	02				1425	*
* 6	16	CCV33-15					
* 7	17	E153-03				531	* BATH
* 8	18	04				762	*
* 9	19	05				719	*
* 0	20	E175-01				2060	*
* 1	21	02				549	*
* 2	22	03				470	*
* 3	23	04				985	*
* 4	24	05				1030	*
* 5	25	06				1215	*
* 6	26	07				1258	*
* 7	27	CCV34-30					
** 8	28	PCF004WB					* BATH
** 9	29	WL					*
** 0	30	WC					*

Instrument Number	57

INITIAL CALIBRATION REFERENCE	
Method File	IC57C22
ICAL ID	SWBB-02-695
ICV ID	696

Standards

Name		ID	Conc. (ug/L)
ICAL	S1		
	S2		
	S3		
	S4		
	S5		
ICV		SEE ICAL PAGE 46	
CCV-15		SWBB-02-709	15
CCV-30		710	30
LCS		713	10
MS		712	10
IPC		708	600/25
CMC		SW3B-02-565	1413 µs/cm

Comments:

CMC Reading, (us/cm)	QC Criteria (us/cm)	Temp. (°C)
1401	±30	25°C

Electronic Data Archival	
Location	Date

Analyzed By: [illegible]

This page is checked during the data review process.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8055

ANALYSIS RUN LOG FOR IC - PERCHLORATE

SOP ☑ EMAX-314.0 Revision No. 2 ☐ Book # A57-008

Start Date 6/6/05 Time 14:45 Ending Date 6/7/05 Time 20:27

BATCH # PCF004W *** PCF005W

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Conductivity, (us/cm)	Notes
*** 1	JF06-31	E189-01	1		X	580	* BAH
*** 2	32	02				1780	*
*** 3	33	03				1800	*
*** 4	34	04				582	*
*** 5	35	E183-01				801	*
*** 6	36	02				835	*
*** 7	37	02D					*
*** 8	38	02M					*
*** 9	39	03				748	*
*** 0	40	04				753	*
* 1	41	CCV35-15					
* 2	42	CCB35-					
* 3	43	CCV36-30					
*** 4	44	F064-01				738	* BAH
*** 5	45	E244-01				18.27	*
*** 6	46	02				150.6	*
*** 7	47	03				43.0	*
*** 8	48	04				151.3	*
*** 9	49	05				130.6	*
*** 0	50	06				130.2	*
*** 1	51	06D					*
*** 2	52	06M					*
*** 3	53	06S					*
* 4	54	CCV37-15					
*** 5	55	PCF005WB					* BAH
*** 6	56	WL					*
*** 7	57	WC					*
*** 8	58	E20D-01				2.47	*
*** 9	59	02				613	*
*** 0	60	03				821	*

Instrument Number	57

INITIAL CALIBRATION REFERENCE	
Method File	IC57C22
ICAL ID	SW8B-02-695
ICV ID	696

Standards

Name		ID	Conc. (ug/L)
ICAL	S1		
	S2		
	S3		
	S4		
	S5		
ICV			
CCV-15		SW8B-02-709	15
CCV-30		710	30
LCS		713	10
MS		712	10
IPC		708	600/25
CMC		SW3B-02-565	1413 µs/cm

See ICAL Page 46

Comments:

CMC Reading, (us/cm)	QC Criteria (us/cm)	Temp. (°C)
1401	±30	25°C

Electronic Data Archival

Location	Date

Analyzed By: m

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EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

8056

ANALYSIS RUN LOG FOR IC - PERCHLORATE

SOP ☑ EMAX-314.0 Revision No. 2 ☐

Book # A57-008

Start Date 6/6/05 Time 14:45 Ending Date 6/7/05 Time 20:27

BATCH ***PER005W** ____

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Conductivity, (us/cm)	Notes
*** 1	JF06-61	E200-04	1		X	862	* BAH
*** 2	62	05				850.1	*
*** 3	63	06				1656	*
*** 4	64	07				652	*
*** 5	65	08				904	*
*** 6	66	05	10				*
*** 7	67	03	4				*
*** 8	68	08	20				*
* 9	69	CCV38-30	1				
* 0							
* 1							
* 2							
* 3							
* 4							
* 5							
* 6							
* 7							
* 8						2	6/7/05
* 9							
* 0							
* 1							
* 2							
* 3							
* 4							
* 5							
* 6							
* 7							
* 8							
* 9							
* 0							

Instrument Number	57

INITIAL CALIBRATION REFERENCE	
Method File	IC57C22
ICAL ID	SW8B-02-695
ICV ID	696

Standards

Name		ID	Conc. (ug/L)
ICAL	S1		
	S2		
	S3		
	S4		
	S5		
ICV			
CCV-15		SW8B-02-709	15
CCV-30		710	30
LCS		713	10
MS		712	10
IPC		708	600/25
CMC		SW3B-02-565	1413µs/cm

See ICAL PAGE 46

Comments:

CMC Reading, (us/cm)	QC Criteria (us/cm)	Temp. (°C)
1401	±30	25°c

Electronic Data Archival	
Location	Date

Analyzed By: 2

This page is checked during the data review process.

EMAX LABORATORIES, INC. 1835 W. 228th St. Torrance, CA 90501

8657

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F064**

METHOD 376.1
SULFIDE

One (1) water sample was received on 06/07/05 for Sulfide analysis by Method 376.1 in accordance with "Methods for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

No duplicate sample was designated in this SDG.

5. Sample Analysis

Sample was analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 5.1
SULFIDE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F064

Matrix : WATER
Instrument ID : NA

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	SDF003WB	ND	1	NA	1	.4	06/07/0511:30	NA	SDF003W-01	NA	SDF003W	NA	NA
LCS1W	SDF003WL	5.15	1	NA	1	.4	06/07/0511:33	NA	SDF003W-02	NA	SDF003W	NA	NA
LCD1W	SDF003WC	5.06	1	NA	1	.4	06/07/0511:36	NA	SDF003W-03	NA	SDF003W	NA	NA
MW1	F064-01	ND	1	NA	1	.4	06/07/0511:45	NA	SDF003W-06	NA	SDF003W	06/05/05	06/07/05

8059

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 376.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05F064
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: SDF003WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 06/07/05 11:33/11:36

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Sulfide	ND	5.00	5.15	103	5.00	5.06	101	2	80-120	20

ANALYSIS LOG FOR SULFIDE

SOP ☑ EMAX-376.1 Rev. No. 1 ☐ EMAX-9034 Rev. No. 0 ☐ Starting Date: 6-07-06 Time: 11:30 Ending Date: 6-07-06 Time: 11:45 Book # ASD-006

ANALYTICAL BATCH * SDF003WD

Data File Name		Lab Sample ID	Time	Sample Amt. (ml)	Volume of Iodine (ml)	Volume of PAO/$Na_2S_2O_3$ (ml)	Notes mg/L
*	1	SDF003WD	11:30	100	10	10.2	ND
*	2	WL	-33			4.9	5.15
*	3	WC	-36			4.8	5.06
*	4	F037-12	-39			10.0	ND
*	5	-12D	-42			10.1	ND
*	6	F064-01	-45	100	10	10.2	ND
*	7						
*	8						
*	9						
*	0						
*	1						
*	2						
*	3						
*	4						
*	5						
*	6						
*	7						
*	8						
*	9						
*	0						
*	1						
*	2						
*	3						
*	4						
*	5						
*	6						
*	7						
*	8						
*	9						
*	0						

Standard	ID	Conc. (mg/L)
LCS	2007A-06-178	5.0
Spike	NA	
$Na_2S_2O_3$	5W3B-02-697	0.00587
~~PAO~~ I2	-696	0.00587
Indicator	2007B-06-206	NA

STANDARDIZATION

Vol. Of Iodine (ml)	Volume of PAO/Na2S2O3 (ml)	Conc. Of Iodine (N)
10	10.4	0.00587
10	10.4	0.00587
10	10.4	0.00587
	Average Iodine Conc. (N)	0.00587

Comments:

Analyzed By: [signature] 6-07-06

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F064**

METHOD 351.3
TKN

One (1) water sample was received on 06/07/05 for TKN analysis by Method 351.3 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

No duplicate sample was designated in this SDG.

5. Matrix Spike

No MS sample was designated in this SDG.

6. Sample Analysis

Sample was analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 351.3
TKN

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F064

Matrix : WATER
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	KNF004WB	ND	1	NA	.1	.035	06/16/0518:10	06/16/0510:00	KNF004W-11	KNF004W-09	KNF004W	NA	06/16/05
LCS1W	KNF004WL	1.04	1	NA	.1	.035	06/16/0518:11	06/16/0510:00	KNF004W-12	KNF004W-09	KNF004W	NA	06/16/05
LCD1W	KNF004WC	1.06	1	NA	.1	.035	06/16/0518:12	06/16/0510:00	KNF004W-13	KNF004W-09	KNF004W	NA	06/16/05
MW1	F064-01	.135	1	NA	.1	.035	06/16/0518:23	06/16/0510:00	KNF004W-24	KNF004W-21	KNF004W	06/05/05	06/07/05

8083

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 351.3
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05F064
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: KNF004WL/C

DATE RECEIVED: 06/16/05
DATE EXTRACTED: 06/16/05 10:00
DATE ANALYZED: 06/16/05 18:11/18:12

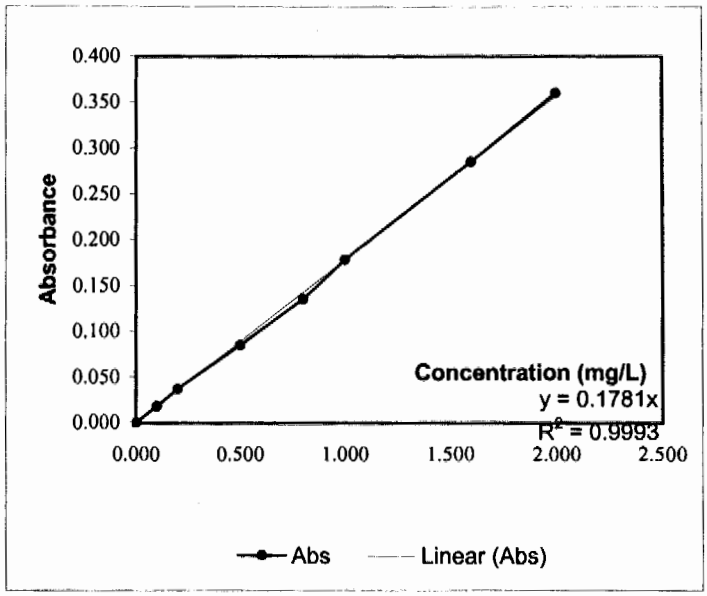
ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
TKN	ND	1.00	1.04	104	1.00	1.06	106	2	80-120	20

8064

CALIBRATION CURVE
AMMONIA _NH3 _TKN

Conc.	Abs
0.000	0.000
0.100	0.018
0.200	0.037
0.500	0.085
0.800	0.135
1.000	0.178
1.600	0.285
2.000	0.360



R^2	0.999344
y	0.1781
CF	5.6154

Comments: **PASSED**

Analyzed by: LA

ANALYSIS LOG FOR TOTAL KJELDAHL NITROGEN (TKN)

SOP ☐ EMAX-351.3 Rev. No. 1 ☐ Start Date: 6-16-05 Time: 18:00 End Date: 6-16-05 Time: 18:25 Book # A70-KN-004

ANALYTICAL BATCH # KNF004W

	Data File Name	Prep. Batch	Lab Sample ID	Matrix S	Matrix W	Time	Vol.Colored (ml)	DF	Absorbance	Notes/ mg/L
*	1	KNF004W	S-0.0		✓	18:00	20	1	0.000	
*	2		S-0.1			-01			~~0.006~~ 0.018	
*	3		S-0.2			-02			~~0.013~~ 0.037	
*	4		S-0.5			-03			~~0.022~~ 0.066	
*	5		S-0.8			-04			0.135	
*	6		S-1.0			-05			0.174	
*	7		S-1.6			-06			0.285	
*	8		S-2.0			-07			0.360	
*	9		ICV			-08			0.180	1.011
*	0		ICB			-09			0.000	ND
*	1		KNF004WB			-10			0.000	ND
*	2		WL			-11			0.185	1.039
*	3		WL			-12			0.188	1.057
*	4		F037-08			-13			0.020	0.112
*	5		-08D			-14			0.019	0.107
*	6		-08M			-15			0.208	1.168
*	7		-09			-16			0.043	0.241
*	8		-10			-17			0.026	0.146
*	9		-11			-18			0.060	0.337
*	0		-12			-19			0.066	0.371
*	1		CCV			-20			0.182	1.022
*	2		CCB			-21			0.000	ND
*	3		F037-13			-22			0.027	0.152
*	24		F046-01			-23			0.024	0.135
*	5		CCV		✓	-24	✓	✓	0.181	1.016
*	6	✓	CCB		✓	-25	20	1	0.000	ND
*	7									
*	8									
*	9									
*	0		6-16-05							

Instrument No: 70	Wavelength: 425 nm	
Standard	**ID**	**Conc. (mg/L)**
S_0	nanopure	0.0
S_1	SW2B-03-152	0.1
S_2		0.2
S_3		0.5
S_4		0.8
S_5		1.0
S_6		1.6
S_7	SW2B-03-152	2.0
ICV/MS	-151	1.0
CCV	-152	1.0
LCS	-156	1.0
Reagent	**ID**	
Color Reagent	SW7A-04-141	
	Standard Curve	
R^2	~~0.99806~~	0.9994
Y	~~0.00357~~	0.1791
CF	~~4499.7749~~	5.6154

6-21-05

Comments:

Results are based on: ☐ Dry Weight ☐ Wet Weight

Analyzed By: [illegible]

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

6666

DISTILLATION LOG FOR NH_3 / DIGESTION AND DISTILLATION FOR TKN

SOP ☐ EMAX-350.2 Rev. No.: 2 ☑ EMAX-351.3 Rev. No.: 2 ☐ Book # EKN-005

Start Date 6-16-05 Time 10:00 End Date 6-16-05 Time 17:30

PREPARATION BATCH * KNF004W

Sample Prep ID	Lab Sample ID	Sample pH	NaOH Added (ml)	Boric Acid	Borate Buffer (ml)	Sample Amount (ml)	Extract Volume (ml)	Notes
*01	S-0.0	9.5	10	5	4	50	50	
*02	S-0.1							
*03	S-1.0							
*04	S-2.0							
*05	ICV							
*06	ICB							
*07	KNF004WB							
*08	WL							
*09	WC							
*10	F037-08							
*11	-08D							
*12	-08M							
*13	-09							
*14	-10							
*15	-11							
*16	-12							
*17	-13							
*18	F064-01	9.5	10	5	4	50	50	
*19								
*20								
*21								
*22								
*23								
*24								
*25								
*26								

Standards	ID	Amount Added (ml)
ICV/MS	SW7B-03-151	5 ml of 10 ppm
LCS	-156	50 ml

Reagent	Lot# / ID
NaOH	NA
Borate Buffer	SW7A-06-152
H_3BO_3	SW7B-06-315A
Digestion Mixture	SW7A-06-055
Distilling Soln.	SW7B-06-215B

SDG #	Extract Location
NA	

Comments

Prepared By: [illegible]

Standard Added By: [illegible] 6-16-05

Checked By:

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8087

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F064**

METHOD 160.1
TOTAL DISSOLVED SOLIDS

One (1) water sample was received on 06/07/05 for Total Dissolved Solids analysis by Method 160.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

No duplicate sample was designated in this SDG.

5. Sample Analysis

Sample was analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 160.1
TOTAL DISSOLVED SOLIDS

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F064

Matrix : WATER
Instrument ID : NA

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TDF012WB	ND	1	NA	10	5	06/09/0516:15	NA	TDF012W-01	NA	TDF012W	NA	NA
LCS1W	TDF012WL	164	1	NA	10	5	06/09/0516:16	NA	TDF012W-02	NA	TDF012W	NA	NA
LCD1W	TDF012WC	162	1	NA	10	5	06/09/0516:17	NA	TDF012W-03	NA	TDF012W	NA	NA
MW1	F064-01	360	1	NA	10	5	06/09/0516:20	NA	TDF012W-06	NA	TDF012W	06/05/05	06/07/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 160.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05F064
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: TDF012WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 06/09/05 16:16/16:17

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
TDS	ND	162.00	164.00	101	162.00	162.00	100	1	80-120	20

0170

GRAVIMETRIC ANALYSIS LOG

SOP ☑ EMAX-160.1 Rev. No. 3 ☐ EMAX-160.2 Rev. No. 2 ☐ EMAX-160.3 Rev. No. 1 ☐ EMAX-160.4 Rev. No. 0 ☐ EMAX-160.5 Rev. No. 0

Book # AGV-017

Oven/Furnace Temp. 105°C Starting Date 6/8/05 Time 2115 Ending Date 6/9/05 Time 1545

Comments: 180°C

LCS ID EMA-06-133

LCSTV 162 mg/L

Balance:

I60-4070636

I -37030058

ANALYTICAL BATCH # SS TD F012 WB S VS

	Data File Name	Lab Sample ID	Sample Amt. (ml)	Dish Wt. (g)	Dry Wt. Dish + Solids(g) 1st	Time	2nd	Time	3rd	Time	Solids (mg)	Result (mg/L)	Settleable Solids Vol. of SS	Result (ml/L)
1		TDF012 WB	100	62.4182	62.4182	1215	62.4179	1415	62.4180	1615	-0.2	ND		
2		WC	50	60.5117	60.5207	16	60.5201	16	60.5199	16	8.2	164		
3		WC	50	66.0825	66.0915	17	66.0910	17	66.0906	17	8.1	162		
4		F442-01	50	63.9642	63.9849	18	63.9841	18	63.9840	18	19.8	396		
5		-01D	50	66.5243	66.5449	19	66.5441	19	66.5440	19	19.7	394		
6		F064-01	50	62.9219	62.9406	20	62.9398	20	62.9399	20	18.0	360		
7		F063-01	50	62.9686	63.0088	21	63.0077	21	63.0076	21	39.0	780		
8		-02	50	66.0374	66.0815	22	66.0804	22	66.0801	22	42.7	854		
9		-03	50	66.0960	66.1257	23	66.1250	23	66.1248	23	28.8	576		
10		-04	50	63.0399	63.0695	24	63.0686	24	63.0686	24	28.7	574		
11		-05	50	66.8329	66.8643	25	66.8635	25	66.8631	25	30.2	604		
12		F070-01	5	13.0373	13.3815	26	13.3805	26	13.3800	26	342.7	68540		
13		-02	5	13.0163	13.2825	27	13.2809	27	13.2805	27	264.2	52840		
14		-03	5	13.0376	13.3318	28	13.3303	28	13.3301	28	292.5	58500		
15		-04	5	13.0670	13.2396	29	13.2388	29	13.2384	29	171.4	34280		
16		-01	1	13.2121	13.2816	30	13.2810	30	13.2807	30	68.6	68600		
17		-02	1	13.0567	13.1108	31	13.1100	31	13.1097	31	53.0	53000		
18		-03	1	12.9915	13.0511	32	13.0502	32	13.0501	32	58.6	58600		
19		-04	1	12.0378	12.0739	33	12.0730	33	12.0728	33	35.0	35000		
20		F063-01D	50	64.0819	66.1220	34	66.1215	34	66.1212	34	39.3	786	RPD	1%

Analyzed By: NB/RA

This page is checked during the data review process.

EMAX LABORATORIES, INC. 1835 W 205th St, Torrance, CA 90501

8071

BALANCE CALIBRATION VERIFICATION LOG (DOE)

SOP ☐ **EMAX-QC04 Revision No.: 1** **QC04-036**

Balance ID 10601202 Date 6-9-05

Range Min: 1 Max: 600 g

TV	200	100	30	5	1
1	200.003	100.001	30.000	5.000	1.000
2	200.002	100.001	29.999	5.000	1.000
3	200.002	100.001	29.999	5.000	1.000
Criteria (±0.1%)	0.2	0.1	0.03	0.005	0.001
LL	199.8	99.9	29.97	4.995	0.999
UL	200.2	100.1	30.03	5.005	1.001

Comment: passed

Balance ID J77299 Date 6-9-05

Range Min: 1 Max: 300 g

TV	200	100	50	30	20
1	199.99	100.00	50.00	30.00	20.00
2	199.99	100.00	50.00	30.00	20.00
3	199.99	100.00	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment: passed

Balance ID 10203192 Date 6-9-05

Range Min: 1 Max: 6000 g

TV	200	100	50	30	20
1	200.00	100.00	50.00	30.00	20.00
2	200.00	100.00	50.00	30.00	20.00
3	200.00	100.00	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment: passed

Balance ID 10304418 Date 6-9-05

Range Min: 1 Max: 6000 g

TV	200	100	50	30	20
1	200.05	100.03	50.00	30.00	20.00
2	200.05	100.03	50.00	30.00	20.00
3	200.05	100.03	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment: passed

Balance ID 40706360 Date 6-9-05

Range Min: 1 Max: 205 g

TV	200	100	30	1	0.02
1	199.9972	99.9985	29.9999	1.0000	0.0200
2	199.9974	99.9987	29.9998	1.0000	0.0200
3	199.9977	99.9988	29.9998	1.0000	0.0200
Criteria (±0.1%)	0.2	0.1	0.03	0.001	0.00002
LL	199.8	99.9	29.97	0.999	0.01998
UL	200.2	100.1	30.03	1.001	0.02002

Comment: passed

Balance ID 40706360 Date

Range Min: 1 Max: 205 g

TV	200	100	30	1	0.02
1					
2					
3					
Criteria (±0.1%)	0.2	0.1	0.03	0.001	0.00002
LL	199.8	99.9	29.97	0.999	0.01998
UL	200.2	100.1	30.03	1.001	0.02002

Comment:

BALANCE CALIBRATION VERIFICATION LOG (DOE)

SOP ☐ EMAX-QC04 Revision No.: 1 QC04-036

1 ice ID 10601202 Date 6-8-05

Range Min: 1 Max: 600 g

TV	200	100	30	5	1
1	199.995	99.998	30.000	5.000	1.000
2	199.997	99.996	30.000	5.000	1.000
3	199.997	99.996	30.000	5.000	1.000
Criteria (±0.1%)	0.2	0.1	0.03	0.005	0.001
LL	199.8	99.9	29.97	4.995	0.999
UL	200.2	100.1	30.03	5.005	1.001

Comment: pass QC

Balance ID J77299 Date 6-8-05

Range Min: 1 Max: 300 g

TV	200	100	50	30	20
1	200.00	100.00	50.00	30.00	20.00
2	200.00	100.00	50.00	30.00	20.00
3	200.00	100.00	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment: pass QC

Balance ID 10203192 Date 6-8-05

Range Min: 1 Max: 6000 g

TV	200	100	50	30	20
1	200.00	100.00	50.00	30.00	20.00
2	200.00	100.00	50.00	30.00	20.00
3	200.00	100.00	50.00	30.00	20.00
Criteria (	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment: pass QC

Balance ID 10304418 Date 6-8-05

Range Min: 1 Max: 6000 g

TV	200	100	50	30	20
1	200.04	100.03	50.00	30.00	20.00
2	200.04	100.03	50.00	30.00	20.00
3	200.04	100.03	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment: pass QC

Balance ID 40706360 Date

Range Min: 1 Max: 205 g

TV	200	100	30	1	0.02
1	199.9976	99.9991	30.0001	1.0000	0.0200
2	199.9978	99.9992	30.0001	1.0000	0.0200
3	199.9974	99.9993	30.0001	1.0000	0.0200
Criteria (±0.1%)	0.2	0.1	0.03	0.001	0.00002
LL	199.8	99.9	29.97	0.999	0.01998
UL	200.2	100.1	30.03	1.001	0.02002

Comment: pass QC

Balance ID 40706360 Date

Range Min: 1 Max: 205 g

TV	200	100	30	1	0.02
1					
2					
3					
Criteria (±0.1%)	0.2	0.1	0.03	0.001	0.00002
LL	199.8	99.9	29.97	0.999	0.01998
UL	200.2	100.1	30.03	1.001	0.02002

Comment:

Verified by: MC

Checked by:

8073

Calibration Report No.: 3950-05
3949-05

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F064**

SM3500
FERROUS IRON

One (1) water sample was received on 06/07/05 for Ferrous Iron analysis by Method SM3500 in accordance with "Standard Methods for the Examination of Water and Wastewater", 18th edition (1990).

1. Holding Time

Analysis met holding time criteria. Sample was analyzed upon receipt.

2. Method Blank

Method blanks were free of contamination at the reporting limit.

3. Lab Control Sample

Lab control result was within QC limit.

4. Duplicate

Sample F064-01 was analyzed for duplicate. %RPD was within QC limit.

5. Matrix Spike

Sample F064-01 was spiked. %Recovery was within QC limit.

6. Sample Analysis

Sample was analyzed according to the prescribed QC procedures. All criteria were met.

SM3500
FERROUS IRON

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F064

Matrix : WATER
Instrument ID : 170

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	FEF005WB	ND	1	NA	5	2.5	06/07/0510:08	NA	FEF005W-09	FEF005W-07	FEF005W	NA	NA
LCS1W	FEF005WL	21.6	1	NA	5	2.5	06/07/0510:09	NA	FEF005W-10	FEF005W-07	FEF005W	NA	NA
MW1	F064-01	ND	1	NA	5	2.5	06/07/0510:10	NA	FEF005W-11	FEF005W-07	FEF005W	06/05/05	06/07/05
MW1DUP	F064-01D	ND	1	NA	5	2.5	06/07/0510:11	NA	FEF005W-12	FEF005W-07	FEF005W	06/05/05	06/07/05
MW1MS	F064-01M	21.6	1	NA	5	2.5	06/07/0510:12	NA	FEF005W-13	FEF005W-07	FEF005W	06/05/05	06/07/05

8075

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: SM3500
MATRIX: WATER
% MOISTURE: NA

==========

BATCH NO.: 05F064
SAMPLE ID: LCS1W
CONTROL NO.: FEF005WL

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 06/07/05 10:09

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	LCS RSLT (mg/L)	LCS % REC	QC LIMIT (%)
Ferrous Iron	ND	20.00	21.60	108	80-120

8076

Ag

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: SM3500
MATRIX: WATER
% MOISTURE: NA

==========

BATCH NO.: 05F064 DATE RECEIVED: 06/07/05
SAMPLE ID: MW1MS DATE EXTRACTED: NA
CONTROL NO.: F064-01M DATE ANALYZED: 06/07/05 10:12

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
Ferrous Iron	ND	20.00	21.60	108	75-125

8077

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: SM3500
MATRIX: WATER
% MOISTURE: NA

==========

BATCH NO.: 05F064 DATE RECEIVED: 06/07/05
SAMPLE ID: MW1DUP DATE EXTRACTED: NA
CONTROL NO.: F064-01D DATE ANALYZED: 06/07/05 10:11

ACCESSION:

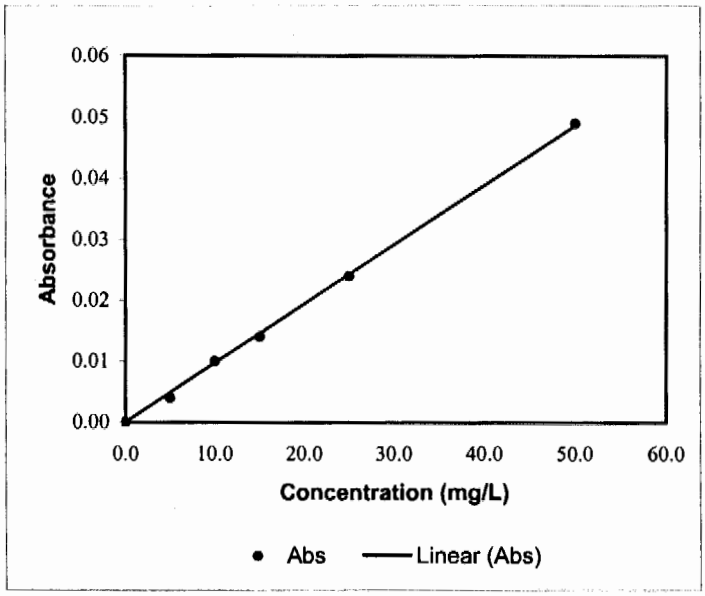
PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
Ferrous Iron	ND	ND	0	20

F

8078

CALIBRATION CURVE
FERROUS FE

Conc.	Abs
0.0	0.000
5.0	0.004
10.0	0.010
15.0	0.014
25.0	0.024
50.0	0.049



R^2	0.9994
Eq.Line	0.0010
CF	1028.1065

Comments: **PASSED**

Analyzed by: LA

ANALYSIS LOG FOR FERROUS IRON

SOP ☑ EMAX-3500-Fe D/C Rev. No. 0 ☐ Starting Date 6-07-05 Time 10:00 Ending Date 6-07-05 Time 10:14 Book # A70-Fe D/C-001

	Data File Name	Preparative Batch	Lab Sample ID	Matrix S	Matrix W	Sample Amount (ml)	DF	Abs. (510 nm)	Time	Ferrous Iron (mg/L)	Notes
*	1	FEF005W	S-0.0		✓	50	1	0.000	10:00		
*	2		S-5					0.004	-01		
*	3		S-10					0.010	-02		
*	4		S-15					0.014	-03		
*	5		S-25					0.024	-04		
*	6		S-50					0.049	-05		
*	7		ICV					~~0.990~~ 0.019	-06	19.5	
*	8		ICB					0.000	-07	ND	
*	9		FEF005WB					0.000	-08	ND	
*	0		↓ WC					.021	-09	21.59	
*	1		F064-01					0.002	-10	ND	
*	2		-01D					0.002	-11	ND	
*	3		↓ -01M					0.021	-12	21.59	
*	4		CCV		↓	↓	✓	0.020	-13	20.56	
*	5	✓	CCB		✓	50	1	0.000	-14	ND	
*	6										
*	7										
*	8										
*	9										
*	0										
*	1										
*	2										
*	3										
*	4										
*	5										
*	6										
*	7										
*	8	xu									
*	9		6-07-05								
*	0										

ANALYTICAL BATCH * FEF005W

6-07-05

Instrument No.: 70	Wavelength: 510 nm

Standard	ID	Conc. (mg/L)
S_0	nanopure	0.0
S_1	SW2B-03-095	5
S_2	↓	10
S_3	↓	15
S_4	↓	25
S_5	SW20-03-095	50
ICV/LCS/MS	↓ -096	20
CCV	↓ -095	20

Reagents	
Name	ID
HCl	SW1A-02-1539
$NH_4C_2H_3O_2$ Buffer	SW7B-06-2280
Phenanthroline Sol'n	↓ -2254
$NaC_2H_3O_2$ Sol'n	NA
Hydroxylamine Soln	↓

Standard Curve	
R (≤0.995)	0.9994
Y	0.0010
CF	1028.1065

Comments:

Analyzed By: xu

Disposal Date:

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 208th St. Torrance, CA 90501

0030

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F064**

METHOD 415.1
DISSOLVED ORGANIC CARBON

One (1) water sample was received on 06/07/05 for Dissolved Organic Carbon analysis by Method 415.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

No duplicate sample was designated in this SDG.

5. Matrix Spike

No MS sample was designated in this SDG.

6. Sample Analysis

Sample was analyzed according to the prescribed QC procedures. All criteria were met.

It was noticed that result of Dissolved Organic Carbon was higher than Total Organic Carbon. The sample was analyzed according to bottle label.

METHOD ~.5.1
DOC

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F064

Matrix : WATER
Instrument ID : 62

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TCF005WB	ND	1.00	NA	1	.5	06/10/0518:13	NA	TCF005-5	TCF005-2	TCF005W	NA	NA
LCS1W	TCF005WL	24.5	1.00	NA	1	.5	06/10/0518:24	NA	TCF005-6	TCF005-2	TCF005W	NA	NA
LCD1W	TCF005WC	24	1.00	NA	1	.5	06/10/0518:34	NA	TCF005-7	TCF005-2	TCF005W	NA	NA
MW1	F064-01	14.9	1.00	NA	1	.5	06/10/0520:44	NA	TCF005-21	TCF005-14	TCF005W	06/05/05	06/07/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F064
METHOD: METHOD 415.1

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1.00	1.00	1.00		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	TCF005WB	TCF005WL	TCF005WC		
LAB FILE ID:	TCF005-5	TCF005-6	TCF005-7		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	06/10/0518:13	06/10/0518:24	06/10/0518:34	DATE RECEIVED:	NA
PREP. BATCH:	TCF005W	TCF005W	TCF005W		
CALIB. REF:	TCF005-2	TCF005-2	TCF005-2		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
DOC	ND	25	24.5	98	25	24	96	2	80-120	20

	Type	Analysis	Sample Name	Sample ID	ObjectID	Origin	Dilution	Result	Notes
1	Standard	NPOC	ICAL	TCF005-1	0A-123456-0	C:\Pro	1.000		
2	Control	NPOC	ICV	TCF005-2	0A-123456-0	C:\Pro	1.000	NPOC:25.15 mg/L	Control value:
3	Unknown	NPOC	ICB	TCF005-3	0A-123456-0	C:\Pro	1.000	NPOC:0.06167 m	
4	Unknown	NPOC	HCO3/CO3	TCF005-4	0A-123456-0	C:\Pro	1.000	NPOC:0.1932 mg	
5	Unknown	NPOC	TCF005WB	TCF005-5	0A-123456-0	C:\Pro	1.000	NPOC:0.05997 m	
6	Unknown	NPOC	TCF005WL	TCF005-6	0A-123456-0	C:\Pro	1.000	NPOC:24.53 mg/L	
7	Unknown	NPOC	TCF005WC	TCF005-7	0A-123456-0	C:\Pro	1.000	NPOC:24.01 mg/L	
8	Unknown	NPOC	05E175-01	TCF005-8	0A-123456-0	C:\Pro	1.000	NPOC:1.663 mg/L	
9	Unknown	NPOC	05E175-02	TCF005-9	0A-123456-0	C:\Pro	1.000	NPOC:1.693 mg/L	
10	Unknown	NPOC	05E175-03	TCF005-10	0A-123456-0	C:\Pro	1.000	NPOC:0.4687 mg	
11	Unknown	NPOC	05E175-04	TCF005-11	0A-123456-0	C:\Pro	1.000	NPOC:1.003 mg/L	
12	Unknown	NPOC	05E175-05	TCF005-12	0A-123456-0	C:\Pro	1.000	NPOC:1.089 mg/L	
13	Unknown	NPOC	05E175-06	TCF005-13	0A-123456-0	C:\Pro	1.000	NPOC:1.302 mg/L	
14	Control	NPOC	CCV1	TCF005-14	0A-123456-0	C:\Pro	1.000	NPOC:24.79 mg/L	Control value:
15	Unknown	NPOC	CCB1	TCF005-15	0A-123456-0	C:\Pro	1.000	NPOC:0.000 mg/L	
16	Unknown	NPOC	05E175-07	TCF005-16	0A-123456-0	C:\Pro	1.000	NPOC:0.3987 mg	
17	Unknown	NPOC	05E189-01	TCF005-17	0A-123456-0	C:\Pro	1.000	NPOC:0.6302 mg	
18	Unknown	NPOC	05E189-02	TCF005-18	0A-123456-0	C:\Pro	1.000	NPOC:1.183 mg/L	
19	Unknown	NPOC	05E189-03	TCF005-19	0A-123456-0	C:\Pro	1.000	NPOC:1.710 mg/L	
20	Unknown	NPOC	05E189-04	TCF005-20	0A-123456-0	C:\Pro	1.000	NPOC:0.5658 mg	
21	Unknown	NPOC	05F064-01	TCF005-21	0A-123456-0	C:\Pro	1.000	NPOC:14.91 mg/L	
22	Unknown	NPOC	05F027-01	TCF005-22	0A-123456-0	C:\Pro	1.000	NPOC:9.288 mg/L	
23	Unknown	NPOC	05F027-02	TCF005-23	0A-123456-0	C:\Pro	1.000	NPOC:17.13 mg/L	
24	Unknown	NPOC	05F027-03	TCF005-24	0A-123456-0	C:\Pro	1.000	NPOC:6.665 mg/L	
25	Unknown	NPOC	05F041-01	TCF005-25	0A-123456-0	C:\Pro	1.000	NPOC:0.9232 mg	
26	Control	NPOC	CCV2	TCF005-26	0A-123456-0	C:\Pro	1.000	NPOC:24.49 mg/L	Control value:
27	Unknown	NPOC	CCB2	TCF005-27	0A-123456-0	C:\Pro	1.000	NPOC:0.000 mg/L	
28	Unknown	NPOC	05F041-02	TCF005-28	0A-123456-0	C:\Pro	1.000	NPOC:12.76 mg/L	
29	Unknown	NPOC	05F041-02D	TCF005-29	0A-123456-0	C:\Pro	1.000	NPOC:12.87 mg/L	
30	Unknown	NPOC	05F041-02M	TCF005-30	0A-123456-0	C:\Pro	1.000	NPOC:35.76 mg/L	
31	Unknown	NPOC	05F064-01	TCF005-31	0A-123456-0	C:\Pro	1.000	NPOC:0.8298 mg	
32	Unknown	NPOC	TCF006WB	TCF005-32	0A-123456-0	C:\Pro	1.000	NPOC:0.1326 mg	
33	Unknown	NPOC	TCF006WL	TCF005-33	0A-123456-0	C:\Pro	1.000	NPOC:24.77 mg/L	
34	Unknown	NPOC	TCF006WC	TCF005-34	0A-123456-0	C:\Pro	1.000	NPOC:24.73 mg/L	
35	Unknown	NPOC	05E175-01	TCF005-35	0A-123456-0	C:\Pro	1.000	NPOC:1.451 mg/L	
36	Unknown	NPOC	05E175-02	TCF005-36	0A-123456-0	C:\Pro	1.000	NPOC:0.6567 mg	
37	Unknown	NPOC	05E175-03	TCF005-37	0A-123456-0	C:\Pro	1.000	NPOC:0.4543 mg	
38	Control	NPOC	CCV3	TCF005-38	0A-123456-0	C:\Pro	1.000	NPOC:24.57 mg/L	Control value:
39	Unknown	NPOC	CCB3	TCF005-39	0A-123456-0	C:\Pro	1.000	NPOC:0.05422 m	
40	Unknown	NPOC	05E175-04	TCF005-40	0A-123456-0	C:\Pro	1.000	NPOC:0.4391 mg	
41	Unknown	NPOC	05E175-05	TCF005-41	0A-123456-0	C:\Pro	1.000	NPOC:1.097 mg/L	
42	Unknown	NPOC	05E175-06	TCF005-42	0A-123456-0	C:\Pro	1.000	NPOC:1.008 mg/L	
43	Unknown	NPOC	05E175-07	TCF005-43	0A-123456-0	C:\Pro	1.000	NPOC:0.3261 mg	
44	Unknown	NPOC	05E189-01	TCF005-44	0A-123456-0	C:\Pro	1.000	NPOC:0.5660 mg	
45	Unknown	NPOC	05E189-02	TCF005-45	0A-123456-0	C:\Pro	1.000	NPOC:1.110 mg/L	
46	Unknown	NPOC	05E189-03	TCF005-46	0A-123456-0	C:\Pro	1.000	NPOC:1.839 mg/L	
47	Unknown	NPOC	05E189-04	TCF005-47	0A-123456-0	C:\Pro	1.000	NPOC:0.4890 mg	
48	Unknown	NPOC	05F027-01	TCF005-48	0A-123456-0	C:\Pro	1.000	NPOC:0.3541 mg	
49	Unknown	NPOC	05F027-02	TCF005-49	0A-123456-0	C:\Pro	1.000	NPOC:0.9690 mg	
50	Control	NPOC	CCV4	TCF005-50	0A-123456-0	C:\Pro	1.000	NPOC:24.22 mg/L	Control value:
51	Unknown	NPOC	CCB4	TCF005-51	0A-123456-0	C:\Pro	1.000	NPOC:0.05882 m	
52	Unknown	NPOC	05F027-03	TCF005-52	0A-123456-0	C:\Pro	1.000	NPOC:0.7103 mg	
53	Unknown	NPOC	05F041-01	TCF005-53	0A-123456-0	C:\Pro	1.000	NPOC:0.5763 mg	
54	Unknown	NPOC	05F041-02	TCF005-54	0A-123456-0	C:\Pro	1.000	NPOC:0.5965 mg	
55	Unknown	NPOC	05F041-02D	TCF005-55	0A-123456-0	C:\Pro	1.000	NPOC:0.6222 mg	
56	Unknown	NPOC	05F041-02M	TCF005-56	0A-123456-0	C:\Pro	1.000	NPOC:24.42 mg/L	
57	Unknown	NPOC	05F048-02	TCF005-57	0A-123456-0	C:\Pro	1.000	NPOC:2.061 mg/L	
58	Unknown	NPOC	05F048-04	TCF005-58	0A-123456-0	C:\Pro	1.000	NPOC:18.25 mg/L	
59	Unknown	NPOC	05F048-06	TCF005-59	0A-123456-0	C:\Pro	1.000	NPOC:5.965 mg/L	
60	Unknown	NPOC	05E526-01	TCF005-60	0A-123456-0	C:\Pro	5.000	NPOC:118.0 mg/L	
61	Control	NPOC	CCV5	TCF005-61	0A-123456-0	C:\Pro	1.000	NPOC:24.76 mg/L	Control value:
62	Unknown	NPOC	CCB5	TCF005-62	0A-123456-0	C:\Pro	1.000	NPOC:0.000 mg/L	
63									
64									
65									
66								8084	

Instr.Information

System	toc
Detector	Combustion
Catalyst	Regular Sensitivity
Cell Length	long

Cal. Curve

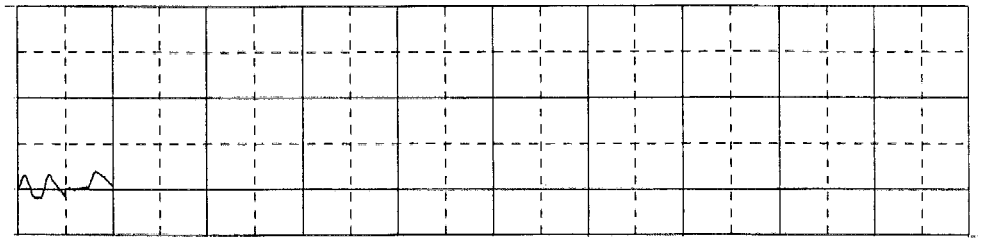
Sample Name:	ICAL
Sample ID:	TCF005-1
Cal. Curve:	tcf005.2005_06_10_16_40_16.cal

Type	Anal.
Standard	NPOC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	0.3586	50uL	1	*******		06/10/05 04:47:30 PM
2	0.2707	50uL	1	*******		06/10/05 04:48:40 PM

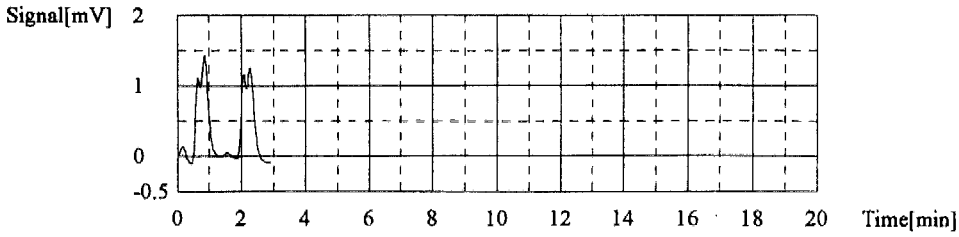
Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	0.3146



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	3.482	50uL	10	*******		06/10/05 04:57:17 PM
2	3.214	50uL	10	*******		06/10/05 04:58:57 PM

Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	3.348

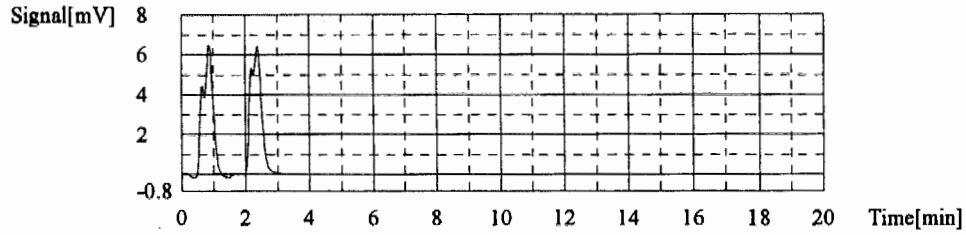


Conc: 5.000mg/L

6085

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	15.04	50uL	2	*******		06/10/05 05:05:47 PM
2	15.17	50uL	2	*******		06/10/05 05:07:35 PM

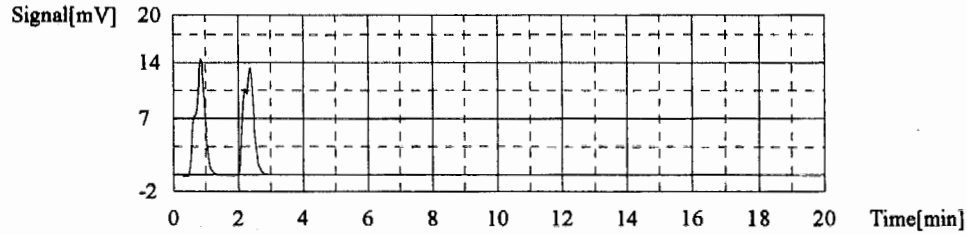
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 15.11



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	29.63	50uL	1	*******		06/10/05 05:13:42 PM
2	30.03	50uL	1	*******		06/10/05 05:15:22 PM

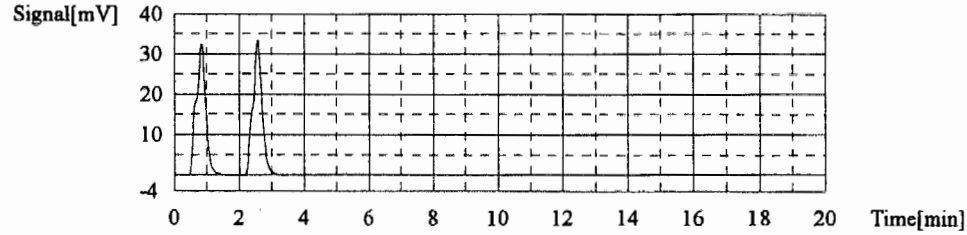
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 29.83



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	67.87	50uL	2	*******		06/10/05 05:24:19 PM
2	67.50	50uL	2	*******		06/10/05 05:26:13 PM

Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 67.69

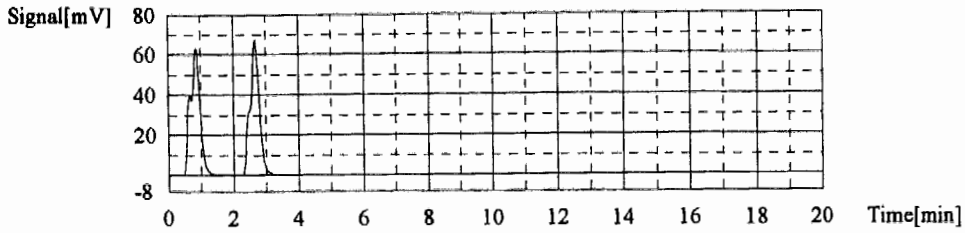


Conc: 50.00mg/L

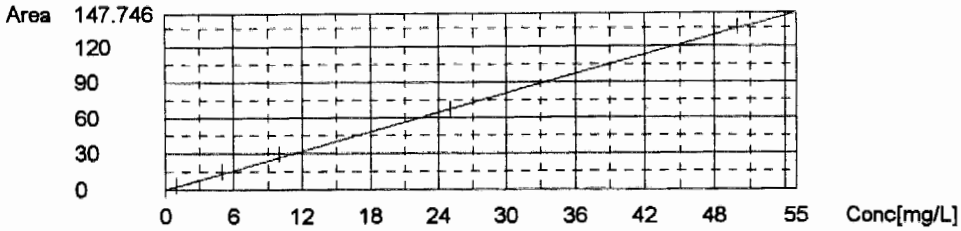
No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	135.6	50uL	1	*******		06/10/05 05:32:37 PM
2	135.4	50uL	1	*******		06/10/05 05:34:36 PM

6086

Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	135.5



Slope:	2.686
Intercept	0.000
r^2	0.999639



Control Sample

Sample Name:	ICV
Sample ID:	TCF005-2
Method:	tcf005.tpl
Chk. Result	Control value: 3.30% / Control within range!

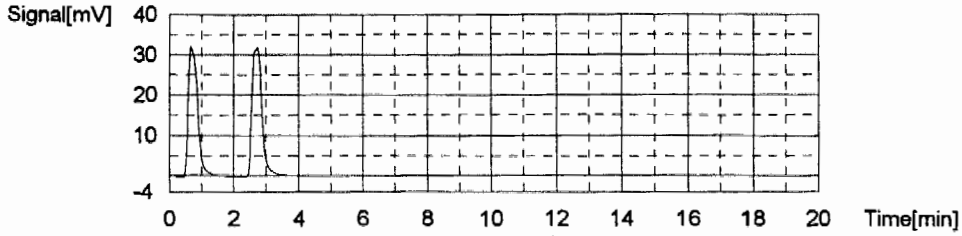
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:25.15 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	66.45	24.74mg/L	50uL	1		tcf005.2005_06_10_16_40_16.cal	06/10/05 05:43:20 PM
2	68.68	25.57mg/L	50uL	1		tcf005.2005_06_10_16_40_16.cal	06/10/05 05:45:30 PM

Mean Area	67.56
Mean Conc.	25.15mg/L



Sample

8087

Sample Name: ICB
Sample ID: TCF005-3
Origin: tcf005.met
Chk. Result

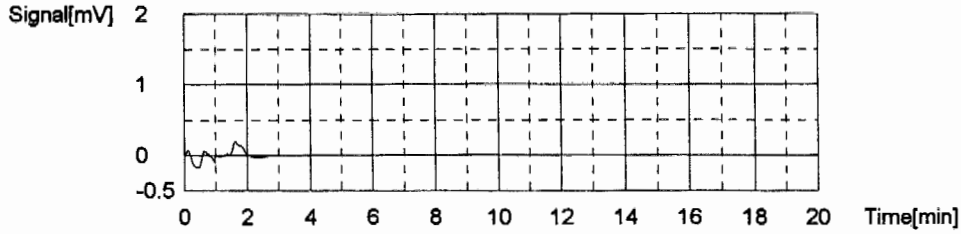
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.06167 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.3313	0.1233mg/L	50uL	1		tcf005.2005_06_10_16_40_16.cal	06/10/05 05:53:00 PM
2	0.000	0.000mg/L	50uL	1		tcf005.2005_06_10_16_40_16.cal	06/10/05 05:55:05 PM

Mean Area 0.1657
Mean Conc. 0.06167mg/L



Sample

Sample Name: HCO3/CO3
Sample ID: TCF005-4
Origin: tcf005.met
Chk. Result

Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.1932 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.5246	0.1953mg/L	50uL	1		tcf005.2005_06_10_16_40_16.cal	06/10/05 06:02:44 PM
2	0.5136	0.1912mg/L	50uL	1		tcf005.2005_06_10_16_40_16.cal	06/10/05 06:04:02 PM

8083

ANALYSIS RUN LOG FOR TOC

SOP: o EMAX-9060 **Revision No. 1** ✓ EMAX-415.1 **Revision No. 1** o

Book # A62-006

Start Date: 6/10/05 **Time:** ~~04:~~ 6/10/05 16:47 **EndingDate:** 06/11/05 **Time:** 03:13

Sample Prep. ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Run Time	Notes
* 1							
* 2							
* 3							
* 4							
* 5							
* 6							
* 7							
* 8							
* 9							
* 0							
* 1							
* 2							
* 3							
* 4							
* 5							
* 6							
* 7							
* 8							
* 9							
* 0							
* 1							
* 2							
* 3							
* 4							
* 5							
* 6							
* 7							
* 8							
* 9							
* 0							

SEE ATTACHED INSTRUMENT SEQ. ~ 6/10/05 ~ 6/10/05

ANALYTICAL BATCH * TCF005U ** TCF006U

Instrument No.	62
INITIAL CALIBRATION REFERENCE	
Method File	TCF005
ICAL ID	SW10B-01-594
ICV ID	↓ 593

STANDARDS

ICAL Level		Conc.(mg/L)
S_0	Nanopure	0
S_1	SW10B-01-594	1
S_2	↓	5
S_3		10
S_4		25
S_5		50
S_6	~ 6/9/05	
ICV/LCS	SW10B-01-593	25
CCV	↓ 595	25

Comments:

Analyzed By: ~

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F064**

METHOD 415.1
TOTAL ORGANIC CARBON

One (1) water sample was received on 06/07/05 for Total Organic Carbon analysis by Method 415.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. **Holding Time**

   Analysis met holding time criteria.

2. **Method Blank**

   Method blank was free of contamination at the reporting limit.

3. **Lab Control Sample/Lab Control Sample Duplicate**

   Lab control results were within QC limit.

4. **Duplicate**

   No duplicate sample was designated in this SDG.

5. **Matrix Spike**

   No MS sample was designated in this SDG.

6. **Sample Analysis**

   Sample was analyzed according to the prescribed QC procedures. All criteria were met.

   It was noticed that result of Total Organic Carbon was lower than Dissolved Organic Carbon. The sample was analyzed according to bottle label.

METHOD 415.1
TOC

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F064

Matrix : WATER
Instrument ID : 62

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TCF005WB	ND	1.00	NA	1	.5	06/10/0518:13	NA	TCF005-5	TCF005-2	TCF005W	NA	NA
LCS1W	TCF005WL	24.5	1.00	NA	1	.5	06/10/0518:24	NA	TCF005-6	TCF005-2	TCF005W	NA	NA
LCD1W	TCF005WC	24	1.00	NA	1	.5	06/10/0518:34	NA	TCF005-7	TCF005-2	TCF005W	NA	NA
MW1	F064-01	.83J	1.00	NA	1	.5	06/10/0522:21	NA	TCF005-31	TCF005-26	TCF005W	06/05/05	06/07/05

1608

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F064
METHOD: METHOD 415.1

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1.00	1.00	1.00		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	TCF005WB	TCF005WL	TCF005WC		
LAB FILE ID:	TCF005-5	TCF005-6	TCF005-7		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	06/10/0518:13	06/10/0518:24	06/10/0518:34	DATE RECEIVED:	NA
PREP. BATCH:	TCF005W	TCF005W	TCF005W		
CALIB. REF:	TCF005-2	TCF005-2	TCF005-2		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
TOC	ND	25	24.5	98	25	24	96	2	80-120	20

8092

	Type	Analysis	Sample Name	Sample ID	ObjectID	Origin	Dilution	Result	Notes
1	Standard	NPOC	ICAL	TCF005-1	0A-123456-0	C:\Pro	1.000		
2	Control	NPOC	ICV	TCF005-2	0A-123456-0	C:\Pro	1.000	NPOC:25.15 mg/L	Control value:
3	Unknown	NPOC	ICB	TCF005-3	0A-123456-0	C:\Pro	1.000	NPOC:0.06167 m	
4	Unknown	NPOC	HCO3/CO3	TCF005-4	0A-123456-0	C:\Pro	1.000	NPOC:0.1932 mg	
5	Unknown	NPOC	TCF005WB	TCF005-5	0A-123456-0	C:\Pro	1.000	NPOC:0.05997 m	
6	Unknown	NPOC	TCF005WL	TCF005-6	0A-123456-0	C:\Pro	1.000	NPOC:24.53 mg/L	
7	Unknown	NPOC	TCF005WC	TCF005-7	0A-123456-0	C:\Pro	1.000	NPOC:24.01 mg/L	
8	Unknown	NPOC	05E175-01	TCF005-8	0A-123456-0	C:\Pro	1.000	NPOC:1.663 mg/L	
9	Unknown	NPOC	05E175-02	TCF005-9	0A-123456-0	C:\Pro	1.000	NPOC:1.693 mg/L	
10	Unknown	NPOC	05E175-03	TCF005-10	0A-123456-0	C:\Pro	1.000	NPOC:0.4687 mg	
11	Unknown	NPOC	05E175-04	TCF005-11	0A-123456-0	C:\Pro	1.000	NPOC:1.003 mg/L	
12	Unknown	NPOC	05E175-05	TCF005-12	0A-123456-0	C:\Pro	1.000	NPOC:1.089 mg/L	
13	Unknown	NPOC	05E175-06	TCF005-13	0A-123456-0	C:\Pro	1.000	NPOC:1.302 mg/L	
14	Control	NPOC	CCV1	TCF005-14	0A-123456-0	C:\Pro	1.000	NPOC:24.79 mg/L	Control value:
15	Unknown	NPOC	CCB1	TCF005-15	0A-123456-0	C:\Pro	1.000	NPOC:0.000 mg/L	
16	Unknown	NPOC	05E175-07	TCF005-16	0A-123456-0	C:\Pro	1.000	NPOC:0.3987 mg	
17	Unknown	NPOC	05E189-01	TCF005-17	0A-123456-0	C:\Pro	1.000	NPOC:0.6302 mg	
18	Unknown	NPOC	05E189-02	TCF005-18	0A-123456-0	C:\Pro	1.000	NPOC:1.183 mg/L	
19	Unknown	NPOC	05E189-03	TCF005-19	0A-123456-0	C:\Pro	1.000	NPOC:1.710 mg/L	
20	Unknown	NPOC	05E189-04	TCF005-20	0A-123456-0	C:\Pro	1.000	NPOC:0.5658 mg	
21	Unknown	NPOC	05F064-01	TCF005-21	0A-123456-0	C:\Pro	1.000	NPOC:14.91 mg/L	✓
22	Unknown	NPOC	05F027-01	TCF005-22	0A-123456-0	C:\Pro	1.000	NPOC:9.288 mg/L	
23	Unknown	NPOC	05F027-02	TCF005-23	0A-123456-0	C:\Pro	1.000	NPOC:17.13 mg/L	
24	Unknown	NPOC	05F027-03	TCF005-24	0A-123456-0	C:\Pro	1.000	NPOC:6.665 mg/L	
25	Unknown	NPOC	05F041-01	TCF005-25	0A-123456-0	C:\Pro	1.000	NPOC:0.9232 mg	
26	Control	NPOC	CCV2	TCF005-26	0A-123456-0	C:\Pro	1.000	NPOC:24.49 mg/L	Control value:
27	Unknown	NPOC	CCB2	TCF005-27	0A-123456-0	C:\Pro	1.000	NPOC:0.000 mg/L	
28	Unknown	NPOC	05F041-02	TCF005-28	0A-123456-0	C:\Pro	1.000	NPOC:12.76 mg/L	
29	Unknown	NPOC	05F041-02D	TCF005-29	0A-123456-0	C:\Pro	1.000	NPOC:12.87 mg/L	
30	Unknown	NPOC	05F041-02M	TCF005-30	0A-123456-0	C:\Pro	1.000	NPOC:35.76 mg/L	
31	Unknown	NPOC	05F064-01	TCF005-31	0A-123456-0	C:\Pro	1.000	NPOC:0.8298 mg	
32	Unknown	NPOC	TCF006WB	TCF005-32	0A-123456-0	C:\Pro	1.000	NPOC:0.1326 mg	
33	Unknown	NPOC	TCF006WL	TCF005-33	0A-123456-0	C:\Pro	1.000	NPOC:24.77 mg/L	
34	Unknown	NPOC	TCF006WC	TCF005-34	0A-123456-0	C:\Pro	1.000	NPOC:24.73 mg/L	
35	Unknown	NPOC	05E175-01	TCF005-35	0A-123456-0	C:\Pro	1.000	NPOC:1.451 mg/L	
36	Unknown	NPOC	05E175-02	TCF005-36	0A-123456-0	C:\Pro	1.000	NPOC:0.6567 mg	
37	Unknown	NPOC	05E175-03	TCF005-37	0A-123456-0	C:\Pro	1.000	NPOC:0.4543 mg	
38	Control	NPOC	CCV3	TCF005-38	0A-123456-0	C:\Pro	1.000	NPOC:24.57 mg/L	Control value:
39	Unknown	NPOC	CCB3	TCF005-39	0A-123456-0	C:\Pro	1.000	NPOC:0.05422 m	
40	Unknown	NPOC	05E175-04	TCF005-40	0A-123456-0	C:\Pro	1.000	NPOC:0.4391 mg	
41	Unknown	NPOC	05E175-05	TCF005-41	0A-123456-0	C:\Pro	1.000	NPOC:1.097 mg/L	
42	Unknown	NPOC	05E175-06	TCF005-42	0A-123456-0	C:\Pro	1.000	NPOC:1.008 mg/L	
43	Unknown	NPOC	05E175-07	TCF005-43	0A-123456-0	C:\Pro	1.000	NPOC:0.3261 mg	
44	Unknown	NPOC	05E189-01	TCF005-44	0A-123456-0	C:\Pro	1.000	NPOC:0.5660 mg	
45	Unknown	NPOC	05E189-02	TCF005-45	0A-123456-0	C:\Pro	1.000	NPOC:1.110 mg/L	
46	Unknown	NPOC	05E189-03	TCF005-46	0A-123456-0	C:\Pro	1.000	NPOC:1.839 mg/L	
47	Unknown	NPOC	05E189-04	TCF005-47	0A-123456-0	C:\Pro	1.000	NPOC:0.4890 mg	
48	Unknown	NPOC	05F027-01	TCF005-48	0A-123456-0	C:\Pro	1.000	NPOC:0.3541 mg	
49	Unknown	NPOC	05F027-02	TCF005-49	0A-123456-0	C:\Pro	1.000	NPOC:0.9690 mg	
50	Control	NPOC	CCV4	TCF005-50	0A-123456-0	C:\Pro	1.000	NPOC:24.22 mg/L	Control value:
51	Unknown	NPOC	CCB4	TCF005-51	0A-123456-0	C:\Pro	1.000	NPOC:0.05882 m	
52	Unknown	NPOC	05F027-03	TCF005-52	0A-123456-0	C:\Pro	1.000	NPOC:0.7103 mg	
53	Unknown	NPOC	05F041-01	TCF005-53	0A-123456-0	C:\Pro	1.000	NPOC:0.5763 mg	
54	Unknown	NPOC	05F041-02	TCF005-54	0A-123456-0	C:\Pro	1.000	NPOC:0.5965 mg	
55	Unknown	NPOC	05F041-02D	TCF005-55	0A-123456-0	C:\Pro	1.000	NPOC:0.6222 mg	
56	Unknown	NPOC	05F041-02M	TCF005-56	0A-123456-0	C:\Pro	1.000	NPOC:24.42 mg/L	
57	Unknown	NPOC	05F048-02	TCF005-57	0A-123456-0	C:\Pro	1.000	NPOC:2.061 mg/L	
58	Unknown	NPOC	05F048-04	TCF005-58	0A-123456-0	C:\Pro	1.000	NPOC:18.25 mg/L	
59	Unknown	NPOC	05F048-06	TCF005-59	0A-123456-0	C:\Pro	1.000	NPOC:5.965 mg/L	
60	Unknown	NPOC	05E526-01	TCF005-60	0A-123456-0	C:\Pro	5.000	NPOC:118.0 mg/L	
61	Control	NPOC	CCV5	TCF005-61	0A-123456-0	C:\Pro	1.000	NPOC:24.76 mg/L	Control value:
62	Unknown	NPOC	CCB5	TCF005-62	0A-123456-0	C:\Pro	1.000	NPOC:0.000 mg/L	
63									
64									
65								8093	
66									

Instr.Information

System	toc
Detector	Combustion
Catalyst	Regular Sensitivity
Cell Length	long

Cal. Curve

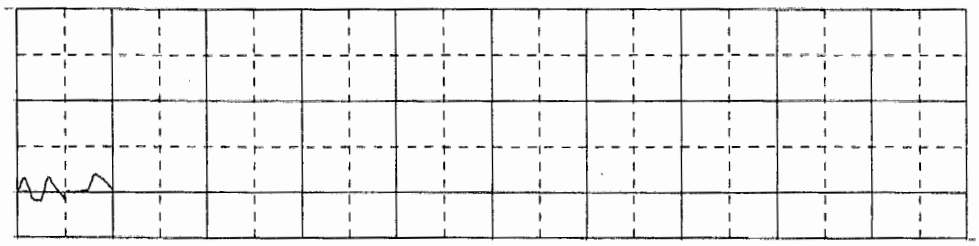
Sample Name:	ICAL
Sample ID:	TCF005-1
Cal. Curve:	tcf005.2005_06_10_16_40_16.cal

Type	Anal.
Standard	NPOC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	0.3586	50uL	1	*******		06/10/05 04:47:30 PM
2	0.2707	50uL	1	*******		06/10/05 04:48:40 PM

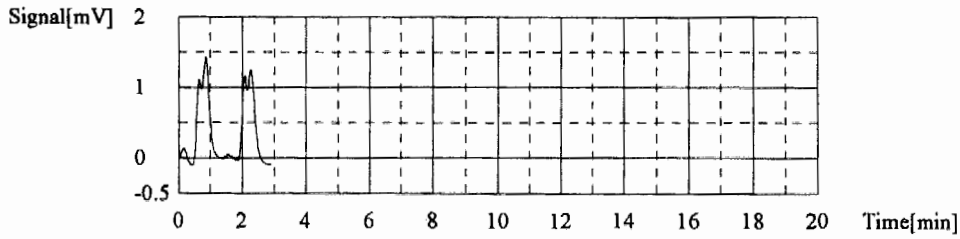
Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	0.3146



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	3.482	50uL	10	*******		06/10/05 04:57:17 PM
2	3.214	50uL	10	*******		06/10/05 04:58:57 PM

Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	3.348

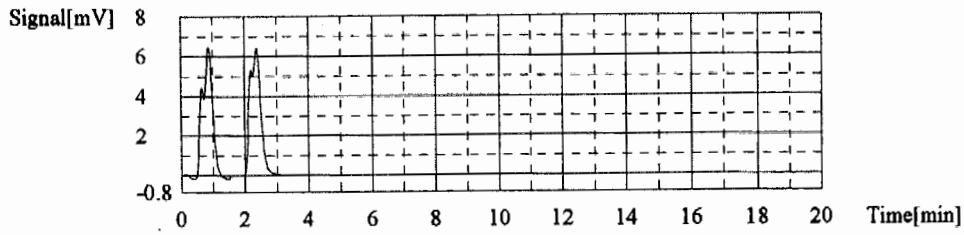


Conc: 5.000mg/L

8094

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	15.04	50uL	2	*******		06/10/05 05:05:47 PM
2	15.17	50uL	2	*******		06/10/05 05:07:35 PM

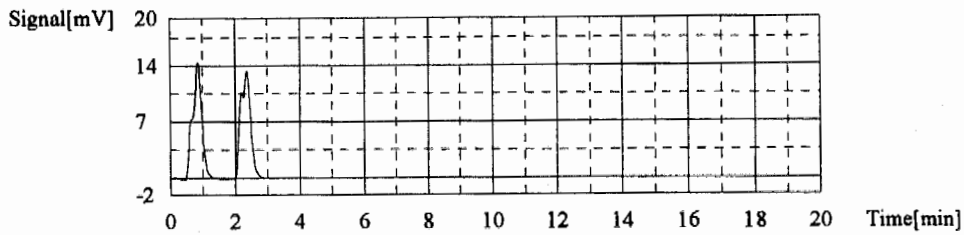
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 15.11



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	29.63	50uL	1	*******		06/10/05 05:13:42 PM
2	30.03	50uL	1	*******		06/10/05 05:15:22 PM

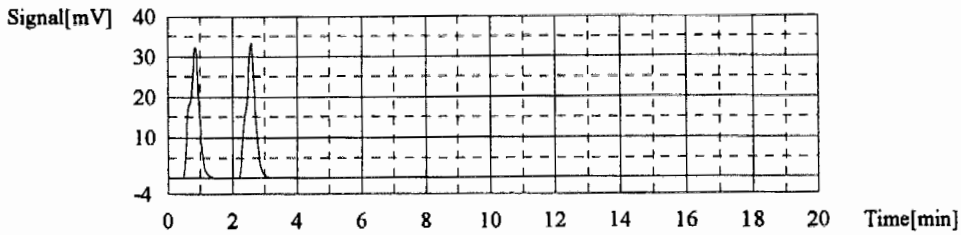
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 29.83



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	67.87	50uL	2	*******		06/10/05 05:24:19 PM
2	67.50	50uL	2	*******		06/10/05 05:26:13 PM

Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 67.69

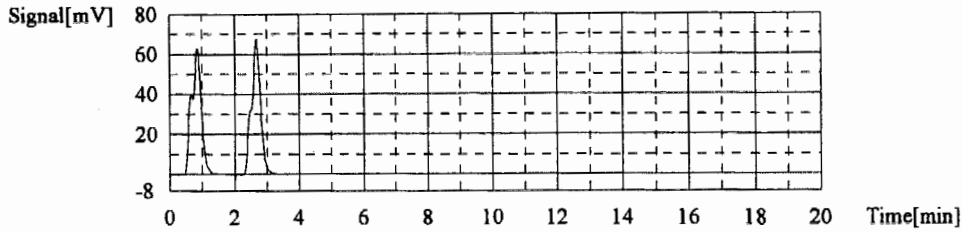


Conc: 50.00mg/L

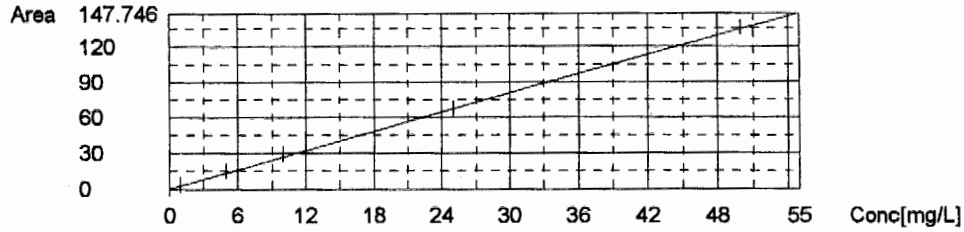
No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	135.6	50uL	1	*******		06/10/05 05:32:37 PM
2	135.4	50uL	1	*******		06/10/05 05:34:36 PM

8095

Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	135.5



Slope:	2.686
Intercept	0.000
r^2	0.999639



Control Sample

Sample Name:	ICV
Sample ID:	TCF005-2
Method:	tcf005.tpl
Chk. Result	Control value: 3.30% / Control within range!

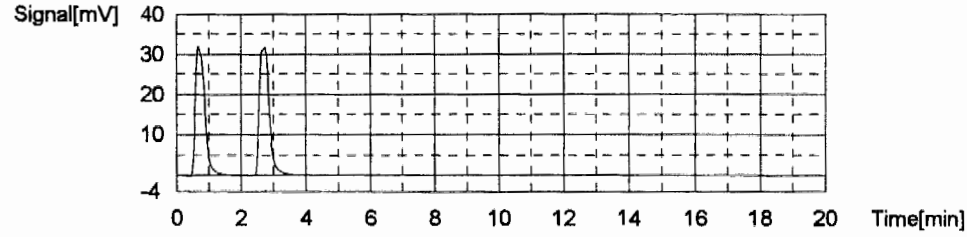
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:25.15 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	66.45	24.74mg/L	50uL	1		tcf005.2005_06_10_16_40_16.cal	06/10/05 05:43:20 PM
2	68.68	25.57mg/L	50uL	1		tcf005.2005_06_10_16_40_16.cal	06/10/05 05:45:30 PM

Mean Area	67.56
Mean Conc.	25.15mg/L



Sample

8096

Sample Name: ICB
Sample ID: TCF005-3
Origin: tcf005.met
Chk. Result

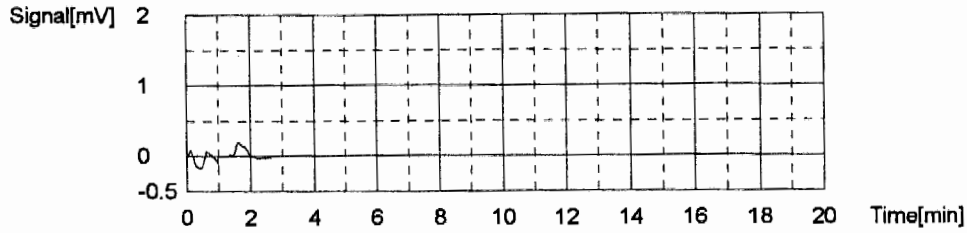
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.06167 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.3313	0.1233mg/L	50uL	1		tcf005.2005_06_10_16_40_16.cal	06/10/05 05:53:00 PM
2	0.000	0.000mg/L	50uL	1		tcf005.2005_06_10_16_40_16.cal	06/10/05 05:55:05 PM

Mean Area 0.1657
Mean Conc. 0.06167mg/L



Sample

Sample Name: HCO3/CO3
Sample ID: TCF005-4
Origin: tcf005.met
Chk. Result

Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.1932 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.5246	0.1953mg/L	50uL	1		tcf005.2005_06_10_16_40_16.cal	06/10/05 06:02:44 PM
2	0.5136	0.1912mg/L	50uL	1		tcf005.2005_06_10_16_40_16.cal	06/10/05 06:04:02 PM

8097

ANALYSIS RUN LOG FOR TOC

SOP: o EMAX-9060 **Revision No. 1** ✓ EMAX-415.1 **Revision No. 1** o

Book # A62-006

Start Date: 6/10/05 **Time:** ~~04:~~ 16:47 ~ 6/10/05 **EndingDate:** 06/11/05 **Time:** 03:13

Sample Prep. ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Run Time	Notes
* 1							
* 2							
* 3							
* 4							
* 5							
* 6							
* 7							
* 8							
* 9							
* 0							
* 1							
* 2							
* 3							
* 4							
* 5							
* 6							
* 7							
* 8							
* 9							
* 0							
* 1							
* 2							
* 3							
* 4							
* 5							
* 6							
* 7							
* 8							
* 9							
* 0							

SEE ATTACHED INSTRUMENT SEQ. ~ 6/10/05 ~ 6/10/05

ANALYTICAL BATCH * TCF005U ** TCF006U

Instrument No.	62
INITIAL CALIBRATION REFERENCE	
Method File	TCF005
ICAL ID	SW10B-01-594
ICV ID	↓ 593

STANDARDS

ICAL Level		Conc.(mg/L)
S_0	Nanopure	0
S_1	SW10B-01-594	1
S_2	↓	5
S_3		10
S_4		25
S_5		50
S_6	~ 6/9/05	
ICV/LCS	SW10B-01-593	25
CCV	↓ 595	25

Comments:

Analyzed By: ~ [illegible]

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 208th St. Torrance, CA 90501

8098

TABLE OF CONTENTS

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F027**

SECTION		PAGE
Cover Letter, COC/Sample Receipt Form		1000 – 1006
GC/MS-VOA	**	2000 –
GC/MS-SVOA	**	3000 –
GC-VOA	**	4000 –
GC-SVOA	**	5000 –
HPLC	**	6000 –
METALS	METHOD 200.7	7000 – 7017
WET	METHOD 120.1	8000 – 8004
	METHOD 300.0	8005 – 8039
	METHOD 310.1	8040 – 8046
	METHOD 350.2	8047 – 8052
	METHOD 314.0	8053 – 8071
	SM3500	8072 – 8083
	METHOD 351.3	8084 – 8091
	METHOD 376.1	8092 – 8096
	METHOD 160.1	8097 – 8103
	METHOD 415.1 (DOC)	8104 – 8114
	METHOD 415.1 (TOC)	8115 – 8126
OTHERS	**	9000 –

** - Not Requested

EMAX
LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 06-27-2005
EMAX Batch No.: 05F027

Attn: Tien Shao

Battelle Memorial Institute
505 King Ave.
Columbus OH 43201

Subject: Laboratory Report
Project: JPL

Enclosed is the Laboratory report for samples received on 06/02/05 and 06/03/05. The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
GARFIELD	F027-01	06/02/05	WATER	ANIONS BY IC
				FERROUS IRON
				PERCHLORATE BY IC
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
SUNSET	F027-02	06/02/05	WATER	ANIONS BY IC
				FERROUS IRON
				PERCHLORATE BY IC
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY

Sample ID	Control #	Col Date	Matrix	Analysis
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
BANGHAM	F027-03	06/02/05	WATER	ANIONS BY IC
				FERROUS IRON
				PERCHLORATE BY IC
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
LFWC-2	F041-01	06/03/05	WATER	ANIONS BY IC
				FERROUS IRON
				PERCHLORATE BY IC
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
LAWC-3	F041-02	06/03/05	WATER	ANIONS BY IC
				FERROUS IRON
				PERCHLORATE BY IC
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

EMAX LABORATORIES, INC. 1835 W. 205th Street, Torrance, CA 90501 Tel: (310) 618-8889 Fax: (310) 618-0818

Battelle
Columbus Laboratories

CHAIN OF CUSTODY RECORD

Form No. 05F027

K3

Proj. No.	Project Title
G486111-T3	Source Determination Study

SAMPLERS: (Signature) Greg Heddington / Dave Conner / Ben Heddington

PO# 191943

SAMPLE TYPE (Preserved)

DATE	TIME	SAMPLE I.D.	DOC (Filtered)	TDC	Ferrous Iron	Ferric Iron	Nitrite (N)	Nitrate (N)	Sulfate, Chloride	Perchlorate (24 HR)	ALK, Specific Elect Conductance	SULFIDE	Calcium, Sodium, Potassium, Magnesium	Ammonia	Total Kjeldahl Nitrogen	TDS	Container No.	Number of Containers	Remarks
1. 02JUN05	1340	GARFIELD	X	X	X	X	X	X	X	X	X	X	X	X	X	X			Perchlorate 24 HR TAT
2. 02JUN05	1052	SUNSET	X	X	X	X	X	X	X	X	X	X	X	X	X	X			" "
3. 02JUN05	1530	BANGHAM	X	X	X	X	X	X	X	X	X	X	X	X	X	X			" "

T=4.2°C

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Greg Heddington	02JUN05 1600	[signature]			
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	02June/05 17:10				
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks	
		[signature]	06.02.05. 17:10	SENT TO: EMAX LABORATORIES CALL (614) 374 2722 with 24 HR TAT Results	

Page ___ of ___

1002

Battelle
Columbus Laboratories

05F041

Form No. _____

CHAIN OF CUSTODY RECORD

K1

Proj. No.: G486111-T3

Project Title: Source Determination Study

SAMPLERS: (Signature) GREG HEADINGTON / DAVE CONNER / BEN HEADINGTON

PO # 191943

	DATE	TIME	SAMPLE I.D.	DOC (Filtered)	TOC	Ferrous Iron	Nitrite, Nitrate	Sulfate, Chloride TDS	Perchlorate 24 HR TAT	Alkalinity Specific Electrical Conductance	Ferric Iron	Calcium, Sodium Potassium, Magnesium	Sulfide	Ammonia	Total Kjeldahl Nitrogen			Container No.	Number of Containers	Remarks
1	03 JUN 05	0930	LFWC-2	X	X	X	X	X	X	X	X	X	X	X	X					
2	03 JUN 05	1330	LAWC-3	X	X	X	X	X	X	X	X	X	X	X	X					

T = 3.2°C

1003

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Dave Henry Jr	03JUN05 1554	[signature]			
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	03 Jun/05 17:01				
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks	
		[signature]	6/3/05 1701	Sent to: EMAX LABORATORIES perchlorate -24 HR-TAT. CALL DAVE CONNER with results (619) 726-7311	

Page ____ of ____

SAMPLE RECEIPT FORM 1

Type of Delivery	Delivered By/Airbill	ECN	05F027
☑ EMAX Courier	GEORGE SEE C.O.C.	Recepient	SIKHIKOV
☐ Client Delivery		Date	6-2-05
☐ Third Party		Time	17:10

COC Inspection

☑ Client Name	☑ Sampler Name	☑ Sampling Date/Time/Location
☑ Address	☐ Courier Signature/Date/Time	☑ Analysis Required
☐ Client PM/FC	☑ TAT	☐ Matrix
☑ Tel #/Fax #	☑ Sample ID	☐ Preservative (if any)
Safety Issues ☑ None	☐ High Concentrations expected	☐ Superfund Site Samples
Comments: ☐ Rad Screening Required		

Packaging Inspection

Container	☑ Cooler	☐ Box	☐	☐
Condition	☐ Custody Seal	☑ Intact	☐ Damaged	☐
Packaging	☐ Bubble Pack	☐ Styrofoam	☑ Sufficient	☑ PLASTIC BAG
Temperatures	☑ Cooler 1 4.2°C	☑ Cooler 2 ____	☐ Cooler 3 ____	☐ Cooler 4 ____
	☐ Cooler 5 ____	☐ Cooler 6 ____	☐ Cooler 7 ____	☐ Cooler 8 ____
	☐ Cooler 9 ____	☐ Cooler 10 ____	☐ Cooler 11 ____	☐ Cooler 12 ____

Comments:

LSCID	Client ID	Discrepancy	Corrective Action

LSCID : Lab Sample Container ID

REVIEWS

Sample Labeling [signature] Date 6-2-05

SRF [signature] Date 6/3/05

PM [signature] Date 6/6/05

SAMPLE RECEIPT FORM 1

Type of Delivery	Delivered By/Airbill	ECN	05F041
☑ EMAX Courier	SEE C.O.C.	Recepient	J. LUNA
☐ Client Delivery		Date	06.03.05.
☐ Third Party		Time	17:01

COC Inspection

☑ Client Name	☑ Sampler Name	☑ Sampling Date/Time/Location
☐ Address	☑ Courier Signature/Date/Time	☑ Analysis Required
☑ Client PM/FC	☑ TAT	☑ Matrix
☑ Tel #/Fax #	☑ Sample ID	☐ Preservative (if any)
Safety Issues ☑ None	☐ High Concentrations expected	☐ Superfund Site Samples
Comments: ☐ Rad Screening Required		

Packaging Inspection

Container	☑ Cooler ONE	☐ Box	☐	☐
Condition	☐ Custody Seal	☑ Intact	☐ Damaged	☐
Packaging	☐ Bubble Pack	☐ Styrofoam	☑ Sufficient	☑ PLASTIC BAGS
Temperatures	☑ Cooler 1 3.2°C	☑ Cooler 2 ____	☐ Cooler 3 ____	☐ Cooler 4 ____
	☐ Cooler 5 ____	☐ Cooler 6 ____	☐ Cooler 7 ____	☐ Cooler 8 ____
	☐ Cooler 9 ____	☐ Cooler 10 ____	☐ Cooler 11 ____	☐ Cooler 12 ____

Comments:

LSCID	Client ID	Discrepancy	Corrective Action

LSCID : Lab Sample Container ID

REVIEWS

Sample Labeling _____ Date 06.03.05.

SRF _____ Date 6/3/05

PM _____ Date 6/6/05

1005

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

BATTELLE MEMORIAL INSTITUTE

JPL

METHOD 200.7
METALS BY ICP-AES

SDG#: 05F027

7000

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F027**

METHOD 200.7
METALS BY ICP-AES

Five (5) water samples were received on 06/02/05 and 06/03/05 for Metals analysis by Method 200.7 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition.

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blanks were free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Sample F027-01 was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

MS/MSD sample was not designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedure. All criteria were met.

LAB CHRONICLE
METALS BY ICP-AES

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL

SDG NO. : 05F027
Instrument ID : T-107

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	IPF029WB	1	NA	06/09/0519:25	06/09/0508:00	I07F029012	I07F029010	IPF029W	Method Blank
LCS1W	IPF029WL	1	NA	06/09/0519:29	06/09/0508:00	I07F029013	I07F029010	IPF029W	Lab Control Sample (LCS)
LCD1W	IPF029WC	1	NA	06/09/0519:33	06/09/0508:00	I07F029014	I07F029010	IPF029W	LCS Duplicate
LFWC-2	F041-01	1	NA	06/09/0519:46	06/09/0508:00	I07F029017	I07F029010	IPF029W	Field Sample
LAWC-3	F041-02	1	NA	06/09/0519:50	06/09/0508:00	I07F029018	I07F029010	IPF029W	Field Sample
GARFIELD	F027-01	1	NA	06/09/0519:55	06/09/0508:00	I07F029019	I07F029010	IPF029W	Field Sample
GARFIELDDL	F027-01T	5	NA	06/09/0519:59	06/09/0508:00	I07F029020	I07F029010	IPF029W	Diluted Sample
GARFIELDAS	F027-01A	1	NA	06/09/0520:03	06/09/0508:00	I07F029021	I07F029010	IPF029W	Analytical Spike Sample
SUNSET	F027-02	1	NA	06/09/0520:16	06/09/0508:00	I07F029024	I07F029022	IPF029W	Field Sample
BANGHAM	F027-03	1	NA	06/09/0520:20	06/09/0508:00	I07F029025	I07F029022	IPF029W	Field Sample

FN - Filename
% Moist - Percent Moisture

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	06/02/05
...ject	: JPL	Date Received:	06/02/05
... NO.	: 05F027	Date Extracted:	06/09/05 08:00
Sample ID:	GARFIELD	Date Analyzed:	06/09/05 19:55
Lab Samp ID:	F027-01	Dilution Factor:	1
Lab File ID:	I07F029019	Matrix :	WATER
Ext Btch ID:	IPF029W	% Moisture :	NA
Calib. Ref.:	I07F029010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	41.6	1	.1
Iron	ND	.2	.04
Magnesium	12.5	1	.1
Potassium	ND	2	1.4
Sodium	35.1	1	.25

7003

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	06/02/05
ject	: JPL	Date Received:	06/02/05
. NO.	: 05F027	Date Extracted:	06/09/05 08:00
Sample ID:	SUNSET	Date Analyzed:	06/09/05 20:16
Lab Samp ID:	F027-02	Dilution Factor:	1
Lab File ID:	I07F029024	Matrix :	WATER
Ext Btch ID:	IPF029W	% Moisture :	NA
Calib. Ref.:	I07F029022	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	108	1	.1
Iron	ND	.2	.04
Magnesium	34.6	1	.1
Potassium	3.52	2	1.4
Sodium	36.7	1	.25

7004

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	06/02/05
Project	: JPL	Date Received:	06/02/05
Job NO.	: 05F027	Date Extracted:	06/09/05 08:00
Sample ID:	BANGHAM	Date Analyzed:	06/09/05 20:20
Lab Samp ID:	F027-03	Dilution Factor:	1
Lab File ID:	I07F029025	Matrix :	WATER
Ext Btch ID:	IPF029W	% Moisture :	NA
Calib. Ref.:	I07F029022	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	55.5	1	.1
Iron	ND	.2	.04
Magnesium	19.8	1	.1
Potassium	3.66	2	1.4
Sodium	49.9	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	06/03/05
ect	: JPL	Date Received:	06/03/05
NO.	: 05F027	Date Extracted:	06/09/05 08:00
Sample ID:	LFWC-2	Date Analyzed:	06/09/05 19:46
Lab Samp ID:	F041-01	Dilution Factor:	1
Lab File ID:	I07F029017	Matrix :	WATER
Ext Btch ID:	IPF029W	% Moisture :	NA
Calib. Ref.:	I07F029010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	73.5	1	.1
Iron	ND	.2	.04
Magnesium	24.8	1	.1
Potassium	ND	2	1.4
Sodium	24	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	06/03/05
ect	: JPL	Date Received:	06/03/05
NO.	: 05F027	Date Extracted:	06/09/05 08:00
Sample ID:	LAWC-3	Date Analyzed:	06/09/05 19:50
Lab Samp ID:	F041-02	Dilution Factor:	1
Lab File ID:	I07F029018	Matrix :	WATER
Ext Btch ID:	IPF029W	% Moisture :	NA
Calib. Ref.:	I07F029010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	61.2	1	.1
Iron	ND	.2	.04
Magnesium	20.6	1	.1
Potassium	ND	2	1.4
Sodium	19.3	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	NA
ect	: JPL	Date Received:	06/09/05
NO.	: 05F027	Date Extracted:	06/09/05 08:00
Sample ID:	MBLK1W	Date Analyzed:	06/09/05 19:25
Lab Samp ID:	IPF029WB	Dilution Factor:	1
Lab File ID:	I07F029012	Matrix :	WATER
Ext Btch ID:	IPF029W	% Moisture :	NA
Calib. Ref.:	I07F029010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	ND	1	.1
Iron	ND	.2	.04
Magnesium	ND	1	.1
Potassium	ND	2	1.4
Sodium	ND	1	.25

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
NO.: 05F027
METHOD: METHOD 200.7

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	MBLK1W				
CONTROL NO.:	IPF029WB	IPF029WL	IPF029WC		
LAB FILE ID:	I07F029012	I07F029013	I07F029014		
DATIME EXTRCTD:	06/09/0508:00	06/09/0508:00	06/09/0508:00	DATE COLLECTED:	NA
DATIME ANALYZD:	06/09/0519:25	06/09/0519:29	06/09/0519:33	DATE RECEIVED:	06/09/05
PREP. BATCH:	IPF029W	IPF029W	IPF029W		
CALIB. REF:	I07F029010	I07F029010	I07F029010		

ACCESSION:

PARAMETER	BLNK RSLT mg/L	SPIKE AMT mg/L	BS RSLT mg/L	BS % REC	SPIKE AMT mg/L	BSD RSLT mg/L	BSD % REC	RPD %	QC LIMIT %	MAX RPD %
Calcium	ND	50	48.7	97	50	48.7	97	0	85-115	20
Iron	ND	10	10.2	102	10	10.2	102	0	85-115	20
Magnesium	ND	50	49.2	98	50	49.3	99	0	85-115	20
Potassium	ND	50	48.3	97	50	48.6	97	1	85-115	20
Sodium	ND	50	48.4	97	50	48.8	98	1	85-115	20

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F027
METHOD: METHOD 200.7

==========

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	5		
SAMPLE ID:	GARFIELD	GARFIELDDL		
EMAX SAMP ID:	F027-01	F027-01T		
LAB FILE ID:	I07F029019	I07F029020		
DATE EXTRACTED:	06/09/0508:00	06/09/0508:00	DATE COLLECTED:	06/02/05
DATE ANALYZED:	06/09/0519:55	06/09/0519:59	DATE RECEIVED:	06/02/05
PREP. BATCH:	IPF029W	IPF029W		
CALIB. REF:	I07F029010	I07F029010		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SERIAL DIL RSLT (mg/L)	DIF RSLT %	QC LIMIT (%)
Calcium	41.6	41.3	1	10
Iron	ND	ND	0	10
Magnesium	12.5	12.2	3	10
Potassium	ND	10.1	NA	10
Sodium	35.1	36	2	10

7010

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
SDG NO.: 05F027
METHOD: METHOD 200.7

==========

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	GARFIELD			
CONTROL NO.:	F027-01	F027-01A		
LAB FILE ID:	I07F029019	I07F029021		
DATIME EXTRCTD:	06/09/0508:00	06/09/0508:00	DATE COLLECTED:	06/02/05
DATIME ANALYZD:	06/09/0519:55	06/09/0520:03	DATE RECEIVED:	06/02/05
PREP. BATCH:	IPF029W	IPF029W		
CALIB. REF:	I07F029010	I07F029010		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	AS RSLT (mg/L)	AS % REC	QC LIMIT (%)
Calcium	41.6	50	88.3	93	70-130
Iron	ND	10	10.1	101	70-130
Magnesium	12.5	50	60.8	97	70-130
Potassium	ND	50	50.3	101	70-130
Sodium	35.1	50	81.8	93	70-130

7011

REGULAR ICP QC CHECK TABLE

QC	ICV HIGH	ICV	CCV	ICSAB	ICSA
Limit%	95-105	90-110	90-110	80-120	80-120
Comp	mg/L	mg/L	mg/L	mg/L	mg/L
Al	10	5	5	500	500
Sb	2	1	1	1	0
As	2	1	1	1	0
Ba	2	1	1	0.5	0
Be	2	1	1	0.5	0
B	2	1	1	0.5	0
Cd	2	1	1	1	0
Ca	100	50	50	500	500
Cr	2	1	1	0.5	0
Co	2	1	1	0.5	0
Cu	2	1	1	0.5	0
Fe	10	5	5	200	200
Pb	2	1	1	1	0
Mg	100	50	50	500	500
Mn	2	1	1	0.5	0
Mo	2	1	1	1	0
Ni	2	1	1	1	0
K	100	50	50	50	0
Se	2	1	1	3.6	0
Ag	2	1	1	1	0
Na	100	50	50	10	0
Sr	2	1	1	0.5	0
Tl	2	1	1	3.6	0
Sn	10	5	5	1	0
Ti	2	1	1	1	0
V	2	1	1	0.5	0
Zn	2	1	1	1	0

ANALYSIS RUN LOG FOR ICP

SOP ☐ EMAX-6010-Rev. 3 ☐ EMAX-CLP-TAL ☑ 200.7 **Method File:** 6010PI **Autosampler Table:** BOP

Matrix: Water **Start Date:** 06/09/05 **Time:** 18:37 **End Date:** 06/09/05 **Time:** 20:50 **Book#** A24 -037

ANALYTICAL BATCH* IPF029W

Data File Name	Prep. Batch	Lab Sample ID	DF	Matrix	Notes
01		SO			
02		SS			
03		SG			
04		ICV (GCS)			
05		ICB			
06		CCV (IRC)			
07		CCB			
08		ICSA1			
09		ICSAB1			
10		CCV1 (IRC)			
11		CCB1			
12	IPF029W	IPF029WB	1	W	(LRB)
13		↓ WL	1		(LFB)
14		↓ WC	1		(LFB)
15		F410-04	1		
16		↓ 05	1		
17		F041-01	1		
18		↓ 02	1		
19		F027-01	1		
20		01T	5		
21		↓ 01A	1		
22		CCV2 (IRC)	1		
23		CCB2	1		
24		F027-02	1		
25		↓ 03	1		

ANALYTICAL BATCH *

Data File Name	Prep. Batch	Lab Sample ID	DF	Matrix	Notes
26	IPF029W	F004-01			F455-01
27	27 28	ICSAF			gwm 6/9/05
28	29	ICSABF			
29	30	CCV7			
30	31	CCB7			
31					
32					
33					
34					
35					
36					
37					
38					
39					
40		R2 06/10/05			
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					

Instrument No.	24
Std.	ID
S_0	8M1B09-38-01
S_1	N/A
S_2	↓
S_3	8M1B09-44-04
S_4	N/A
S_5	↓
S_6	8M1B09-45-02
ICV	↓ -42-01
ICVH1	N/A
ICVH2	↓
CCV	8M1B09-60-02
ICSA	8M1B09-63-03
ICSAB	↓ -60-01
MRL	N/A

Comments:

Analyzed By: [illegible]

Date Disposed:

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

SEQUENCE FILE : I07F029

4-18	19-33	34-43	44-53	54-63
LFID	LSID	TIME	DATE	DF
I07F029001	S0	18:37	06/09/05	1
I07F029002	S3	18:41	06/09/05	1
I07F029003	S6	18:45	06/09/05	1
I07F029004	ICV	18:49	06/09/05	1
I07F029005	ICB	18:55	06/09/05	1
I07F029006	CCV	18:59	06/09/05	1
I07F029007	CCB	19:03	06/09/05	1
I07F029008	ICSAI	19:07	06/09/05	1
I07F029009	ICSABI	19:11	06/09/05	1
I07F029010	CCV1	19:17	06/09/05	1
I07F029011	CCB1	19:21	06/09/05	1
I07F029012	IPF029WB	19:25	06/09/05	1
I07F029013	IPF029WL	19:29	06/09/05	1
I07F029014	IPF029WC	19:33	06/09/05	1
I07F029015	F410-04	19:38	06/09/05	1
I07F029016	F410-05	19:42	06/09/05	1
I07F029017	F041-01	19:46	06/09/05	1
I07F029018	F041-02	19:50	06/09/05	1
I07F029019	F027-01	19:55	06/09/05	1
I07F029020	F027-01T	19:59	06/09/05	5
I07F029021	F027-01A	20:03	06/09/05	1
I07F029022	CCV2	20:07	06/09/05	1
I07F029023	CCB2	20:12	06/09/05	1
I07F029024	F027-02	20:16	06/09/05	1
I07F029025	F027-03	20:20	06/09/05	1
I07F029026	F064-01	20:24	06/09/05	1
I07F029027	F455-01	20:28	06/09/05	1
I07F029028	ICSAF	20:36	06/09/05	1
I07F029029	ICSABF	20:40	06/09/05	1
I07F029030	CCV3	20:46	06/09/05	1
I07F029031	CCB3	20:50	06/09/05	1

SDG : 05-27 UNIT : % ICP CHECK : 107F029 DATE : 06/09/05 INST : EMAXTI07

ANALYTE	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
S0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICV	99	101	102	91	100	102	97	103	98	97	97	102	98	104	98	99	96	101	103	96	103	97	92	97	100	98	98
ICB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV	98	99	101	97	97	97	98	101	97	97	96	100	95	100	97	99	95	99	107	97	99	96	94	97	97	97	97
CCB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAI	95	----	----	----	----	----	----	91	----	----	----	89	----	97	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSABI	96	91	94	94	93	94	91	92	88	86	96	89	92	97	90	90	85	99	104	96	103	90	90	92	92	98	93
CCV1	98	99	96	96	97	96	98	100	96	96	96	99	96	98	96	98	95	97	103	97	98	96	94	96	96	96	97
CCB1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPF029WB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPF029WL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPF029WC	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F410-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F410-05	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F041-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F041-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F027-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F027-01T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F027-01A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV2	97	97	99	96	96	95	97	99	96	95	95	99	95	98	95	96	94	98	99	96	99	95	92	96	96	96	96
CCB2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F027-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F027-03	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F064-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F455-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAF	89	----	----	----	----	----	----	89	----	----	----	85	----	92	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSABF	89	85	88	84	88	88	89	89	84	82	88	85	91	92	85	84	82	91	97	91	93	82	81	85	85	92	91
CCV3	92	94	92	88*	92	91	95	98	93	92	88*	95	95	94	92	93	91	92	99	92	90	88*	93	94	90	91	95
CCB3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

QC limit of each parameter are listed in a table attached next to all the ICP check forms
* : Out of QC Limit

7015

SDG : 05F027 UNIT : UG/L SUMMARY of CALIBRATION BLANKS : I07F029 (WATER) DATE : 06/09/05 INST : EMAATI07

ANALYTE	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
S0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICV	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICB	2.59	1.32	.000	.000	.060	-1.31	-.790	1.82	1.13	-1.25	-1.53	-1.03	17.2	-10.6	.000	1.25	-6.64	588	31.7	-2.95	.000	.000	-24.5	-31.4	.590	-.780	.720
CCV	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB	-9.43	-2.38	-15.3	-.180	.000	-1.31	.260	.080	.560	-.490	-.380	-1.81	7.51	-5.90	-.120	1.25	-5.62	-187	5.54	-2.79	.000	.000	-31.4	-8.15	-.290	.970	-.880
ICSAI	----	17.6	-46.3	-.170	.060	9.74	1.17	----	-8.80	-1.22	5.47	----	56.3	----	-4.16	-8.06	-8.85	457	315	8.57	7.35	-2.09	-50.2	11.9	-14.5	-4.66	.030
ICSABI	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB1	-8.83	10.1	8.12	-.280	-.060	-1.31	-.130	.250	-1.69	-1.62	-1.91	-1.03	5.06	-13.1	-.370	-2.50	-5.10	226	54.0	-4.66	.000	.000	-9.41	-13.9	.000	-1.51	-1.11
IPF029WB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPF029WL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPF029WC	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F410-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F410-05	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F041-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F041-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F027-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F027-01T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F027-01A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB2	-7.86	-.770	-7.18	.000	-.130	-1.74	.720	-4.20	1.13	-1.62	-1.53	-.770	13.0	-8.27	.500	1.25	-9.02	222	28.6	.000	.000	.000	-18.2	-29.1	-.140	.980	-1.29
F027-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F027-03	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F064-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
F455-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAF	----	5.96	65.9	-.010	-.060	13.4	-.420	----	-6.82	-3.87	4.43	----	34.5	----	-2.95	-4.27	-1.36	115	296	6.84	-29.4	-1.84	-115	-7.90	-13.3	-3.16	.100
ICSABF	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB3	-9.49	20.8	-.880	.000	.000	.000	.810	.610	.000	.370	-.760	.250	1.11	-11.7	-.250	5.01	-2.89	807	15.1	-6.21	-73.5	.960	-15.7	-17.4	.310	.820	-.610

QC limit of each parameter are listed in a table attached next to all the ICP check forms
* : Out of QC Limit

DIGESTION LOG FOR ICP METALS

SOP ☐ EMAX-3005 Rev. No. 3 ☐ EMAX-3010 Rev. No. 2 ☐ EMAX-3050 Rev. No. 2 ☐ EMAX-CLP-TAL ☑ 200.7 Book # EIP-045

Matrix: WATER Start Date: 6-9-05 Time: 8:00 Temp: 85 °C Ending Date: 6-9-05 Time: ~~12:00~~ 10:00 mc 6/9/05 Temp.: 85 °C

Sample Prep ID	Lab Sample ID	Matrix Description: Color	Matrix Description: Texture / Clarity	Matrix Description: Artifacts	Turbidity <1 NTU	Sample Amount (g | ml)	pH	Extract Volume (ml)	Digestate Description: Color	Digestate Description: Clarity
01	mc 6/9/05 ~~IPF02~~ IPF029-WB					50	–	50		
02	-WL					50	–	50		
03	-WC					50	–	50		
04	F010-04					50	<2	50		
05	-05					50		50		
06	F041-01					50		50		
07	-02					50		50		
08	F027-01					50		50		
09	-02					50		50		
10	-03					50		50		
11	F064-01					50		50		
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										

6-9-05 MC

Standards	ID	Amount Added (ml)
LCS -1	SM1A - 09 - 27	0.5
LCS -2	SM1A - 09 - 28	0.5
LCS -3	SM1A - 09 - 29	0.5
MS	N/A	
Reagent	**Lot# / ID**	**Amount Added (ml)**
HNO_3	SW1A - 03 - 089	0.5
HCl	SW1A - 03 - 093	0.25
H_2O_2		
HNO3 (1:1)		
Digestate Location	ICP LAB	
Extract Location		

Legend:

Texture	Cs = Coarse	Md = Medium	Fn = Fine
Clarity	Cr = Clear	Cy = Cloudy	Td = Turbid
Artifacts	Rk = rocks	Sl = Shale	Vg=Vegetation
Color	Bu = blue	Bk = Black	Bn = Brown
	Gn = Green	Og = Orange	Rd = Red
	Yw = Yellow	Cl = Colorless	

Comments: Samples for Methods 200.7 or 200.8 Analyses

If turbidity ≤ 1 NTU no digestion is required unless otherwise required by the project

Prepared By: mc Standard Added By: mc

Witnessed By: NT Extracts Rcvd. By: AZ 6/9/05

Checked By: AZ

Date Disposed: Disposed by:

BATCH: TPF029-W

7017

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

LABORATORY REPORT FOR

BATTELLE MEMORIAL INSTITUTE

JPL

WET CHEMICAL ANALYSES

SDG#: 05F027

8000

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F027**

METHOD 120.1
SPECIFIC CONDUCTIVITY

Five (5) water samples were received on 06/02/05 and 06/03/05 for Specific Conductivity analysis by Method 120.1 in accordance with "Methods for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

3. Duplicate

No duplicate sample was designated in this SDG.

4. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD ...1
SPECIFIC CONDUCTIVITY

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F027

Matrix : WATER
Instrument ID : I29

SAMPLE ID	EMAX SAMPLE ID	RESULTS (umhos/cm)	DLF	MOIST	RL (umhos/cm)	MDL (umhos/cm)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
LCS1W	ECF001WL	683	1	NA	1	.5	06/14/0514:12	NA	ECF001W-02	NA	ECF001W	NA	NA
LCD1W	ECF001WC	683	1	NA	1	.5	06/14/0514:14	NA	ECF001W-03	NA	ECF001W	NA	NA
GARFIELD	F027-01	472	1	NA	1	.5	06/14/0514:20	NA	ECF001W-06	NA	ECF001W	06/02/05	06/02/05
SUNSET	F027-02	875	1	NA	1	.5	06/14/0514:22	NA	ECF001W-07	NA	ECF001W	06/02/05	06/02/05
BANGHAM	F027-03	631	1	NA	1	.5	06/14/0514:24	NA	ECF001W-08	NA	ECF001W	06/02/05	06/02/05
LFWC-2	F041-01	638	1	NA	1	.5	06/14/0514:26	NA	ECF001W-09	NA	ECF001W	06/03/05	06/03/05
LAWC-3	F041-02	511	1	NA	1	.5	06/14/0514:28	NA	ECF001W-10	NA	ECF001W	06/03/05	06/03/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 120.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05F027
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: ECF001WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 06/14/05 14:12/14:14

ACCESSION:

PARAMETER	BLNK RSLT (umhos/cm)	SPIKE AMT (umhos/cm)	BS RSLT (umhos/cm)	BS % REC	SPIKE AMT (umhos/cm)	BSD RSLT (umhos/cm)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Specific Conductivity	ND	682	682	100	682	683	100	0	80-120	20

8003

ANALYSIS LOG FOR SPECIFIC CONDUCTIVITY

SOP ☑ EMAX-120.1 Revision No. 1 ☐ Book # AEC-002

Start Date 6/14/05 Time 1400 End Date 6/14/05 Time 1498

ANALYTICAL BATCH * ECF001W

	Data File Name	Lab Sample ID	Time	Temp. °C	Temp. Correction Factor QT @ 25 °C	DF	Measured Resistance (ohms)	EC @25°C Notes µmhos/cm
*	1	STD HIGH 7065	1410	20.1	0.906	1	6910	7070
*	2	ECF001WL	12	20.1	0.906		668	683
*	3	WC	14	20.1	0.906		668	683
*	4	F004-13	16	20.2	0.908		1824	1860 (186½)
*	5	-13D	18	20.2	0.908		1824	1860
*	6	F027-01	20	20.2	0.908		462	472
*	7	-02	22	20.3	0.910		859	875
*	8	-03	24	20.2	0.908		618	631
*	9	F041-01	26	20.2	0.908		625	638
*	0	-02	28	20.2	0.908		501	511
*	1	F048-02	30	20.1	0.906		4.44	4.54
*	2	-04	32	20.1	0.906		826	845
*	3	-04D	34	20.1	0.906		826	845
*	4	-06	36	20.1	0.906		215	220
*	5	F064-01	38	20.2	0.908		583	595
*	6	F441-01	40	20.2	0.908		573	585
*	7	-02	42	20.3	0.910		598	609
*	8	-02D	44	20.3	0.910		598	609
*	9	F037-12	46	20.1	0.906	✓	1310	1340
*	0	STD LOW DI	1498	20.3	0.910	1	1.18	1.20

Instrument No:	29

Trial	ID	Resistance ohms
KCl Standard	SW2A-01-55	ASSAY
1	SW3B-02-654	722
2	Qt 0.908	722
3		722
LCS	SW7A-06-116	682 µmhos/cm
Calibration Temperature	20.2 °C	
True Value	1413	µmhos/cm
Cell Constant (C)	0.927	

KCl Standard	ID ~~Temp. °C~~ 6/14/05	µmhos/cm
Low-point	DI Water	0.5 - 4
Mid-point	SW3B-02-654	1413
High-point	SW7B-06-316A	7065

Comments:

Analyzed By: NO / LA

This page is checked during the data review process.

EMAX LABORATORIES, INC. 1835 W. 205 St. Torrance, CA 90501 www.emaxlab.com

8004

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F027**

METHOD 300.0
ANIONS

Five (5) water samples were received on 06/02/05 and 06/03/05 for Chloride, Nitrate-N, Nitrite-N and Sulfate analyses by method 300.0 in accordance with "Method for Determination of Inorganic Anions by Ion Chromatography", EPA 600/84-017.

1. Holding Time

Analyses met holding time criteria.

2. Method Blank

Method blanks were free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limits.

4. Duplicate

No duplicate sample was designated in this SDG.

5. Matrix Spike

No MS sample was designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SAMPLE RESULTS

METHOD 300.0
CHLORIDE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F027

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICF005WB	.22	1	NA	.2	.1	06/02/0523:35	NA	AF02-44	AF02-37	ICF005W	NA	NA
LCS1W	ICF005WL	5.09	1	NA	.2	.1	06/02/0523:49	NA	AF02-45	AF02-37	ICF005W	NA	NA
LCD1W	ICF005WC	5.12	1	NA	.2	.1	06/03/0500:03	NA	AF02-46	AF02-37	ICF005W	NA	NA
GARFIELD	F027-01	28.3	10	NA	2	1	06/03/0502:38	NA	AF02-57	AF02-49	ICF005W	06/02/05	06/02/05
SUNSET	F027-02	58.4	10	NA	2	1	06/03/0502:52	NA	AF02-58	AF02-49	ICF005W	06/02/05	06/02/05
BANGHAM	F027-03	35.3	10	NA	2	1	06/03/0503:06	NA	AF02-59	AF02-49	ICF005W	06/02/05	06/02/05
MBLK2W	ICF006WB	ND	1	NA	.2	.1	06/03/0515:16	NA	AF03-03	AF03-01	ICF006W	NA	NA
LCS2W	ICF006WL	5.03	1	NA	.2	.1	06/03/0515:30	NA	AF03-04	AF03-01	ICF006W	NA	NA
LCD2W	ICF006WC	5.05	1	NA	.2	.1	06/03/0515:44	NA	AF03-05	AF03-01	ICF006W	NA	NA
LFWC-2	F041-01	38.9	10	NA	2	1	06/03/0521:06	NA	AF03-27	AF03-25	ICF006W	06/03/05	06/03/05
LAWC-3	F041-02	23.1	10	NA	2	1	06/03/0521:20	NA	AF03-28	AF03-25	ICF006W	06/03/05	06/03/05

METHOD 300.0
NITRATE-N

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F041

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICF004WB	ND	1	NA	.1	.05	06/02/0516:03	NA	AF02-17	AF02-13	ICF004W	NA	NA
LCS1W	ICF004WL	4.77	1	NA	.1	.05	06/02/0516:17	NA	AF02-18	AF02-13	ICF004W	NA	NA
LCD1W	ICF004WC	4.77	1	NA	.1	.05	06/02/0516:40	NA	AF02-19	AF02-13	ICF004W	NA	NA
GARFIELD	F027-01	7.28	1	NA	.1	.05	06/02/0520:03	NA	AF02-29	AF02-26	ICF004W	06/02/05	06/02/05
SUNSET	F027-02	8.52	1	NA	.1	.05	06/02/0520:17	NA	AF02-30	AF02-26	ICF004W	06/02/05	06/02/05
BANGHAM	F027-03	5.22	1	NA	.1	.05	06/02/0520:32	NA	AF02-31	AF02-26	ICF004W	06/02/05	06/02/05
MBLK2W	ICF006WB	ND	1	NA	.1	.05	06/03/0515:16	NA	AF03-03	AF03-01	ICF006W	NA	NA
LCS2W	ICF006WL	4.8	1	NA	.1	.05	06/03/0515:30	NA	AF03-04	AF03-01	ICF006W	NA	NA
LCD2W	ICF006WC	4.81	1	NA	.1	.05	06/03/0515:44	NA	AF03-05	AF03-01	ICF006W	NA	NA
LFWC-2	F041-01	8.99	1	NA	.1	.05	06/03/0519:55	NA	AF03-22	AF03-13	ICF006W	06/03/05	06/03/05
LAWC-3	F041-02	2.72	1	NA	.1	.05	06/03/0520:09	NA	AF03-23	AF03-13	ICF006W	06/03/05	06/03/05

8008

METHOD 300.0
NITRITE-N

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F041

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICF004WB	ND	1	NA	.1	.05	06/02/0516:03	NA	AF02-17	AF02-13	ICF004W	NA	NA
LCS1W	ICF004WL	4.77	1	NA	.1	.05	06/02/0516:17	NA	AF02-18	AF02-13	ICF004W	NA	NA
LCD1W	ICF004WC	4.78	1	NA	.1	.05	06/02/0516:40	NA	AF02-19	AF02-13	ICF004W	NA	NA
GARFIELD	F027-01	ND	1	NA	.1	.05	06/02/0520:03	NA	AF02-29	AF02-26	ICF004W	06/02/05	06/02/05
SUNSET	F027-02	ND	1	NA	.1	.05	06/02/0520:17	NA	AF02-30	AF02-26	ICF004W	06/02/05	06/02/05
BANGHAM	F027-03	ND	1	NA	.1	.05	06/02/0520:32	NA	AF02-31	AF02-26	ICF004W	06/02/05	06/02/05
MBLK2W	ICF006WB	ND	1	NA	.1	.05	06/03/0515:16	NA	AF03-03	AF03-01	ICF006W	NA	NA
LCS2W	ICF006WL	4.85	1	NA	.1	.05	06/03/0515:30	NA	AF03-04	AF03-01	ICF006W	NA	NA
LCD2W	ICF006WC	4.85	1	NA	.1	.05	06/03/0515:44	NA	AF03-05	AF03-01	ICF006W	NA	NA
LFWC-2	F041-01	ND	1	NA	.1	.05	06/03/0519:55	NA	AF03-22	AF03-13	ICF006W	06/03/05	06/03/05
LAWC-3	F041-02	ND	1	NA	.1	.05	06/03/0520:09	NA	AF03-23	AF03-13	ICF006W	06/03/05	06/03/05

6008

METHOD 300.0
SULFATE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F041

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICF005WB	ND	1	NA	.5	.25	06/02/0523:35	NA	AF02-44	AF02-37	ICF005W	NA	NA
LCS1W	ICF005WL	15.5	1	NA	.5	.25	06/02/0523:49	NA	AF02-45	AF02-37	ICF005W	NA	NA
LCD1W	ICF005WC	13.9	1	NA	.5	.25	06/03/0500:03	NA	AF02-46	AF02-37	ICF005W	NA	NA
GARFIELD	F027-01	56.7	10	NA	5	2.5	06/03/0502:38	NA	AF02-57	AF02-49	ICF005W	06/02/05	06/02/05
SUNSET	F027-02	119	10	NA	5	2.5	06/03/0502:52	NA	AF02-58	AF02-49	ICF005W	06/02/05	06/02/05
BANGHAM	F027-03	70.8	10	NA	5	2.5	06/03/0503:06	NA	AF02-59	AF02-49	ICF005W	06/02/05	06/02/05
MBLK2W	ICF006WB	ND	1	NA	.5	.25	06/03/0515:16	NA	AF03-03	AF03-01	ICF006W	NA	NA
LCS2W	ICF006WL	15.2	1	NA	.5	.25	06/03/0515:30	NA	AF03-04	AF03-01	ICF006W	NA	NA
LCD2W	ICF006WC	15.2	1	NA	.5	.25	06/03/0515:44	NA	AF03-05	AF03-01	ICF006W	NA	NA
LFWC-2	F041-01	73	10	NA	5	2.5	06/03/0521:06	NA	AF03-27	AF03-25	ICF006W	06/03/05	06/03/05
LAWC-3	F041-02	45.7	10	NA	5	2.5	06/03/0521:20	NA	AF03-28	AF03-25	ICF006W	06/03/05	06/03/05

QC SUMMARIES

8011

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F027
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICF005WB	ICF005WL	ICF005WC		
LAB FILE ID:	AF02-44	AF02-45	AF02-46		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	06/02/0523:35	06/02/0523:49	06/03/0500:03	DATE RECEIVED:	NA
PREP. BATCH:	ICF005W	ICF005W	ICF005W		
CALIB. REF:	AF02-37	AF02-37	AF02-37		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride-Cl	.22	5	5.09	97	5	5.12	98	1	90-110	20

8012

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F027
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK2W				
LAB SAMP ID:	ICF006WB	ICF006WL	ICF006WC		
LAB FILE ID:	AF03-03	AF03-04	AF03-05		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	06/03/0515:16	06/03/0515:30	06/03/0515:44	DATE RECEIVED:	NA
PREP. BATCH:	ICF006W	ICF006W	ICF006W		
CALIB. REF:	AF03-01	AF03-01	AF03-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride-Cl	ND	5	5.03	101	5	5.05	101	0	90-110	20

8013

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F041
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICF004WB	ICF004WL	ICF004WC		
LAB FILE ID:	AF02-17	AF02-18	AF02-19		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	06/02/0516:03	06/02/0516:17	06/02/0516:40	DATE RECEIVED:	NA
PREP. BATCH:	ICF004W	ICF004W	ICF004W		
CALIB. REF:	AF02-13	AF02-13	AF02-13		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrate-N	ND	5	4.77	95	5	4.77	95	0	90-110	20

8014

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EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F041
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK2W				
LAB SAMP ID:	ICF006WB	ICF006WL	ICF006WC		
LAB FILE ID:	AF03-03	AF03-04	AF03-05		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	06/03/0515:16	06/03/0515:30	06/03/0515:44	DATE RECEIVED:	NA
PREP. BATCH:	ICF006W	ICF006W	ICF006W		
CALIB. REF:	AF03-01	AF03-01	AF03-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrate-N	ND	5	4.8	96	5	4.81	96	0	90-110	20

8015

RM

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F041
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICF004WB	ICF004WL	ICF004WC		
LAB FILE ID:	AF02-17	AF02-18	AF02-19		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	06/02/0516:03	06/02/0516:17	06/02/0516:40	DATE RECEIVED:	NA
PREP. BATCH:	ICF004W	ICF004W	ICF004W		
CALIB. REF:	AF02-13	AF02-13	AF02-13		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrite-N	ND	5	4.77	95	5	4.78	96	0	90-110	20

8016

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F041
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK2W				
LAB SAMP ID:	ICF006WB	ICF006WL	ICF006WC		
LAB FILE ID:	AF03-03	AF03-04	AF03-05		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	06/03/0515:16	06/03/0515:30	06/03/0515:44	DATE RECEIVED:	NA
PREP. BATCH:	ICF006W	ICF006W	ICF006W		
CALIB. REF:	AF03-01	AF03-01	AF03-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrite-N	ND	5	4.85	97	5	4.85	97	0	90-110	20

8017

24

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F041
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICF005WB	ICF005WL	ICF005WC		
LAB FILE ID:	AF02-44	AF02-45	AF02-46		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	06/02/0523:35	06/02/0523:49	06/03/0500:03	DATE RECEIVED:	NA
PREP. BATCH:	ICF005W	ICF005W	ICF005W		
CALIB. REF:	AF02-37	AF02-37	AF02-37		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Sulfate	ND	15	15.5	103	15	13.9	93	11	90-110	20

8018

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F041
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK2W				
LAB SAMP ID:	ICF006WB	ICF006WL	ICF006WC		
LAB FILE ID:	AF03-03	AF03-04	AF03-05		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	06/03/0515:16	06/03/0515:30	06/03/0515:44	DATE RECEIVED:	NA
PREP. BATCH:	ICF006W	ICF006W	ICF006W		
CALIB. REF:	AF03-01	AF03-01	AF03-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Sulfate	ND	15	15.2	101	15	15.2	101	0	90-110	20

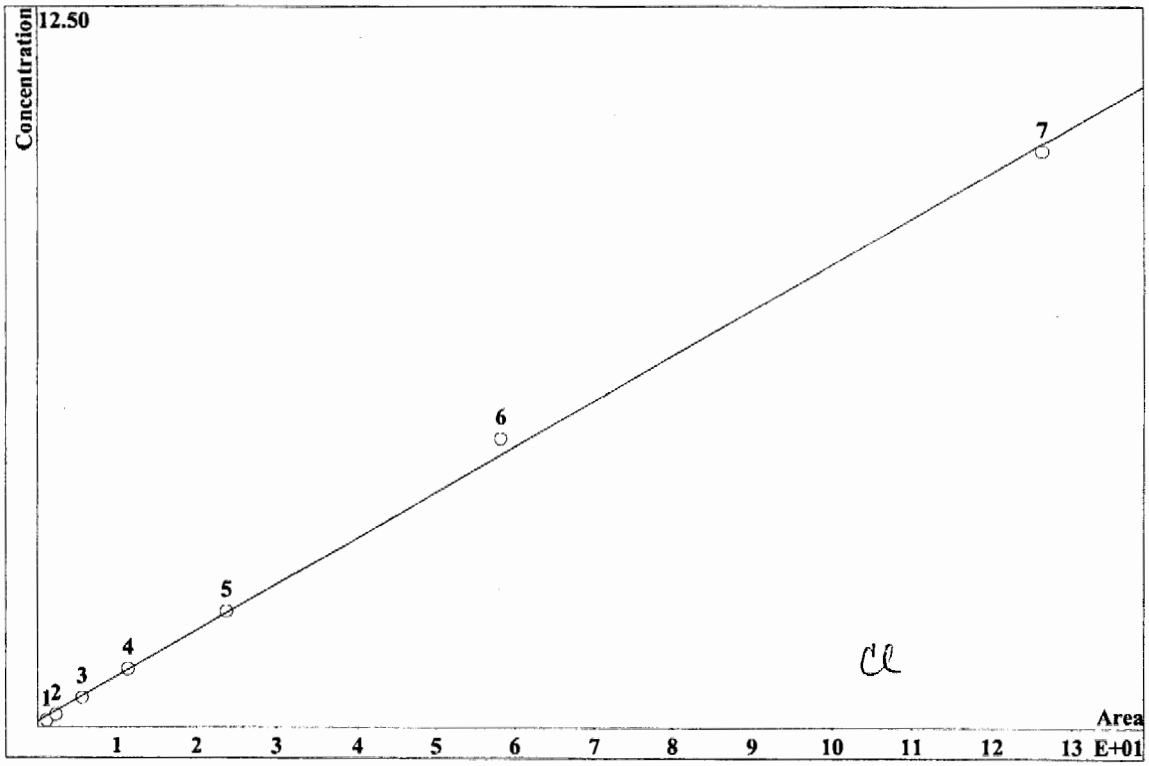
8019

Rey

INITIAL CALIBRATION

CALIBRATION OF COMPONENT chloride

Method: IC100-E23.mtw
Equation: Q = 0.0794095·A + 0.0841087
RSD: 5.497 %
Correlation coefficient: 0.999317

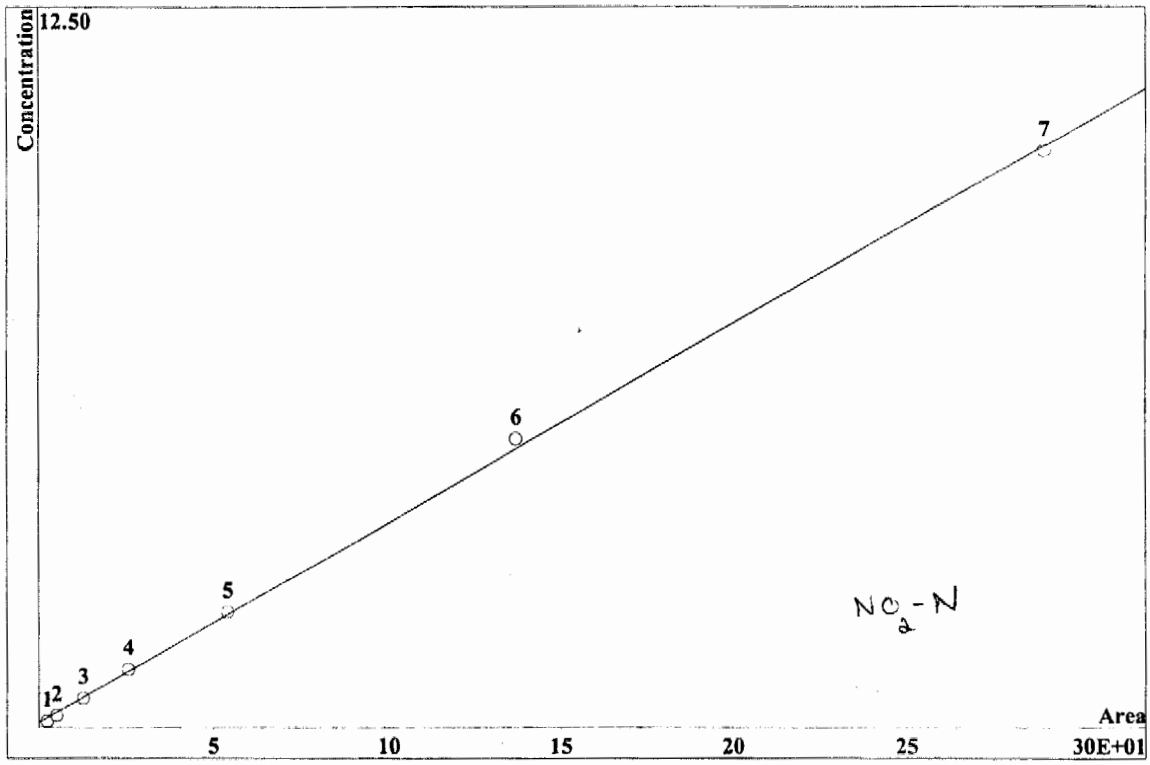


K3 = 0 K2 = 0 K1 = 0.0794095 K0 = 0.0841087
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.144	1.201 ✓	0.1	1	3.54	Yes	p5231616.chw
2	0.2844	2.348 ✓	0.2	1	3.54	Yes	p5231630.chw
3	0.691	5.671 ✓	0.5	1	3.54	Yes	p5231644.chw
4	1.368	11.4 ✓	1	1	3.54	Yes	p5231658.chw
5	2.938	23.82 ✓	2	1	3.54	Yes	p5231712.chw
6	7.344	58.38 ✓	5	1	3.54	Yes	p5231726.chw
7	16.43	126.5 ✓	10	1	3.54	Yes	p5231755.chw

CALIBRATION OF COMPONENT nitrite

Method: IC100-E23.mtw
Equation: Q = 0.034601·A + 0.0821293
RSD: 3.606 %
Correlation coefficient: 0.999706

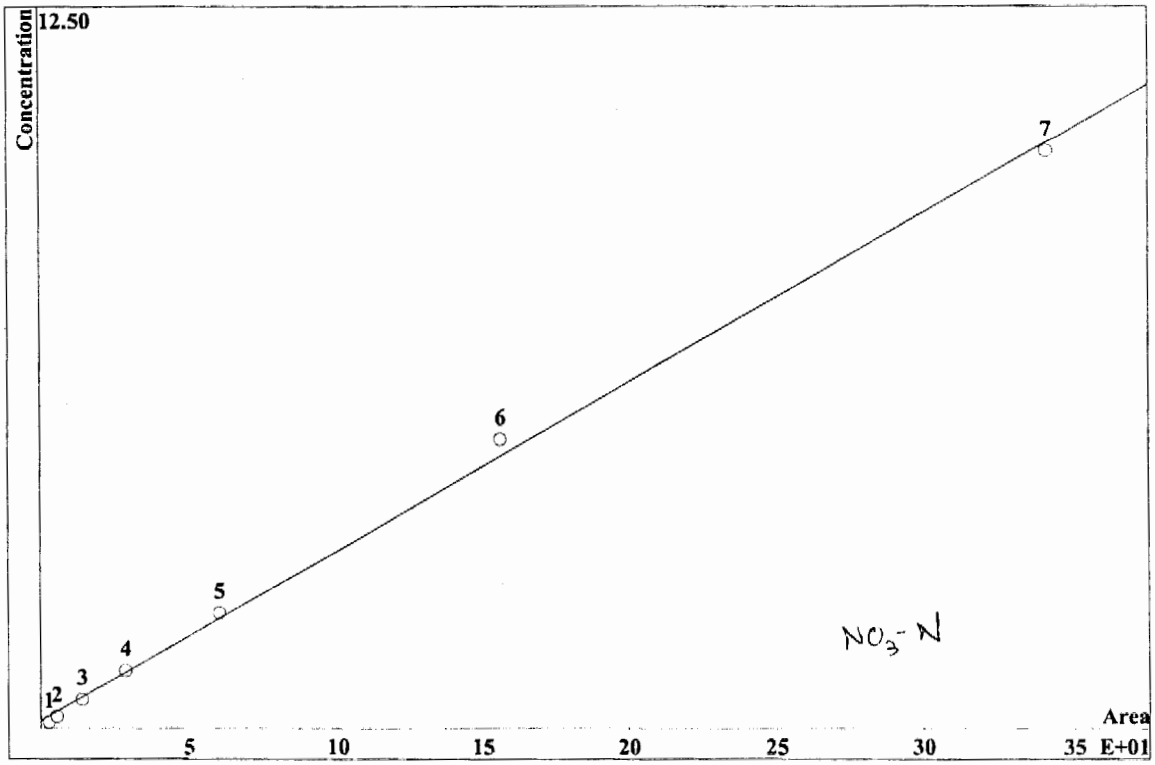


K3 = 0 K2 = 0 K1 = 0.034601 K0 = 0.0821293
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.253	2.457 ✓	0.1	1	4.24	Yes	p5231616.chw
2	0.53	5.182 ✓	0.2	1	4.24	Yes	p5231630.chw
3	1.3	12.79 ✓	0.5	1	4.24	Yes	p5231644.chw
4	2.581	25.57 ✓	1	1	4.24	Yes	p5231658.chw
5	5.528	54.26 ✓	2	1	4.24	Yes	p5231712.chw
6	13.58	137.3 ✓	5	1	4.24	Yes	p5231726.chw
7	27.15	289.1 ✓	10	1	4.24	Yes	p5231755.chw

CALIBRATION OF COMPONENT nitrate

Method: IC100-E23.mtw
Equation: Q = 0.0293514·A + 0.132291
RSD: 6.208 %
Correlation coefficient: 0.999129



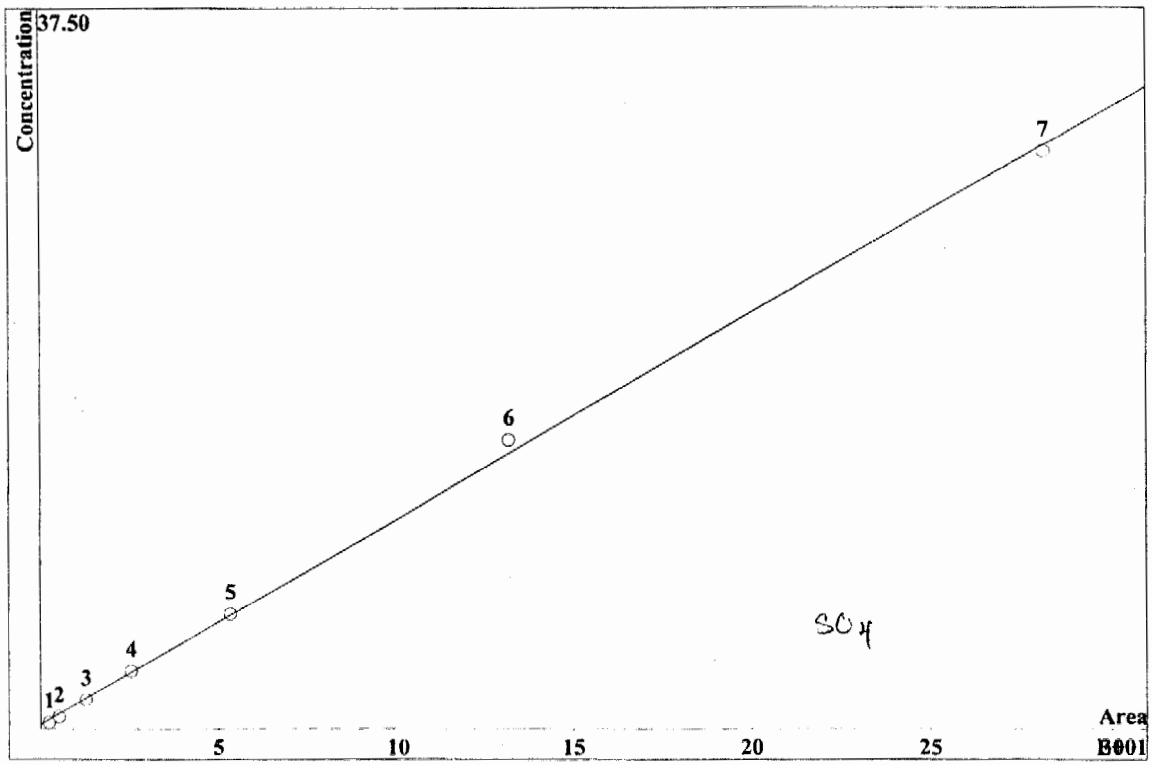
K3 = 0 K2 = 0 K1 = 0.0293514 K0 = 0.132291
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.2107	2.88 ✓	0.1	1	6.07	Yes	p5231616.chw
2	0.4297	5.634 ✓	0.2	1	6.07	Yes	p5231630.chw
3	1.068	14.14 ✓	0.5	1	6.07	Yes	p5231644.chw
4	2.165	28.55 ✓	1	1	6.07	Yes	p5231658.chw
5	4.699	60.6 ✓	2	1	6.07	Yes	p5231712.chw
6	12.37	156 ✓	5	1	6.07	Yes	p5231726.chw
7	27.53	341.2 ✓	10	1	6.07	Yes	p5231755.chw

SEL 5/26/05

CALIBRATION OF COMPONENT sulfate

Method: IC100-E23.mtw
Equation: Q = 0.106939·A + 0.221575
RSD: 4.572 %
Correlation coefficient: 0.999528



K3 = 0 K2 = 0 K1 = 0.106939 K0 = 0.221575
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.1462	2.505	0.3	1	8.98	Yes	p5231616.chw
2	0.3032	5.252	0.6	1	8.98	Yes	p5231630.chw
3	0.7444	12.87	1.5	1	8.98	Yes	p5231644.chw
4	1.483	25.51	3	1	8.98	Yes	p5231658.chw
5	3.146	53.53	6	1	8.98	Yes	p5231712.chw
6	7.889	131.7	15	1	8.98	Yes	p5231726.chw
7	17.28	281.6	30	1	8.98	Yes	p5231755.chw

tcc
5/26/05

SECOND SOURCE

IC Result Check Form

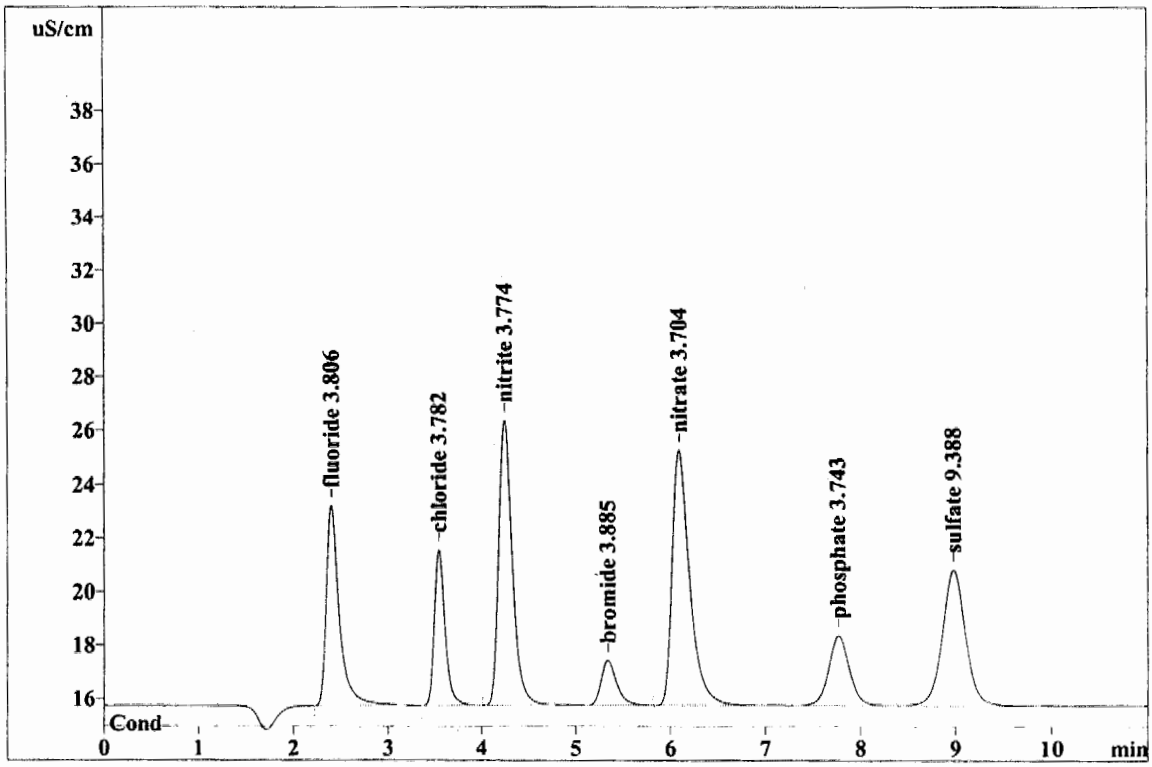
LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AE23-01	IB	FCIBNPS	0	0	0	0	0	0	0	p5231548	1
AE23-02	S0	FCIBNPS	0	0	0	0	0	0	0	p5231602	1
AE23-03	S1	FCIBNPS	0.14971	0.1795	0.16713	0.11545	0.21682	0.15242	0.48945	p5231616	1
3-04	S2	FCIBNPS	0.23859	0.27058	0.26142	0.21108	0.29766	0.2482	0.78322	p5231630	1
-05	S3	FCIBNPS	0.50007	0.53447	0.52479	0.50327	0.54746	0.51511	1.5975	p5231644	1
AE23-06	S4	FCIBNPS	0.99644	0.98902	0.9668	0.99627	0.97025	0.97995	2.9492	p5231658	1
AE23-07	S5	FCIBNPS	2.0111	1.9753	1.9595	2.0554	1.9109	1.9657	5.9457	p5231712	1
AE23-08	S6	FCIBNPS	4.8228	4.7198	4.8335	4.8645	4.7111	4.8697	14.304	p5231726	1
AE23-09	S7	FCIBNPS	10.081	10.131	10.087	10.054	10.146	10.069	30.331	p5231755	1
AE23-10	ICV	FCIBNPS	95.2%	94.5%	94.3%	97.1%	92.6%	93.6%	93.9%	p5231809	1
AE23-11	ICB	FCIBNPS	0	0	0	0	0	0	0	p5231823	1

Report date: 5/23/2005 7:25:58 PM
Printed by: Cherry Dam

Ident: AE23-10 ICV
Analysis from: 5/23/2005 6:09:09 PM
File: p5231809.CHW Last save: 5/23/2005 7:25:58 PM

Method: IC100-E23.mtw Last save: 5/23/2005 5:08:00 PM
Run operator: Cherry Dam
Analysis number: 1694

SAMPLE:
:
Vial number: 10
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name	% Rec.
1	2.39	7.48	71.163	3.806 ✓	fluoride	95
2	3.55	5.80	46.565	3.782 ✓	chloride	95
3	4.25	10.62	106.691	3.774 ✓	nitrite	94
4	5.34	1.68	19.215	3.885 ✓	bromide	97
5	6.09	9.52	121.691	3.704 ✓	nitrate	93
6	7.77	2.60	40.208	3.743 ✓	phosphate	94
7	8.98	5.08	85.716	9.388 ✓	sulfate	94
7	11.00	42.78	491.249	32.082		

This report has been created by IC Net
METROHM LTD

TV = 4 except SO_4 = 10

AW 5/26/05

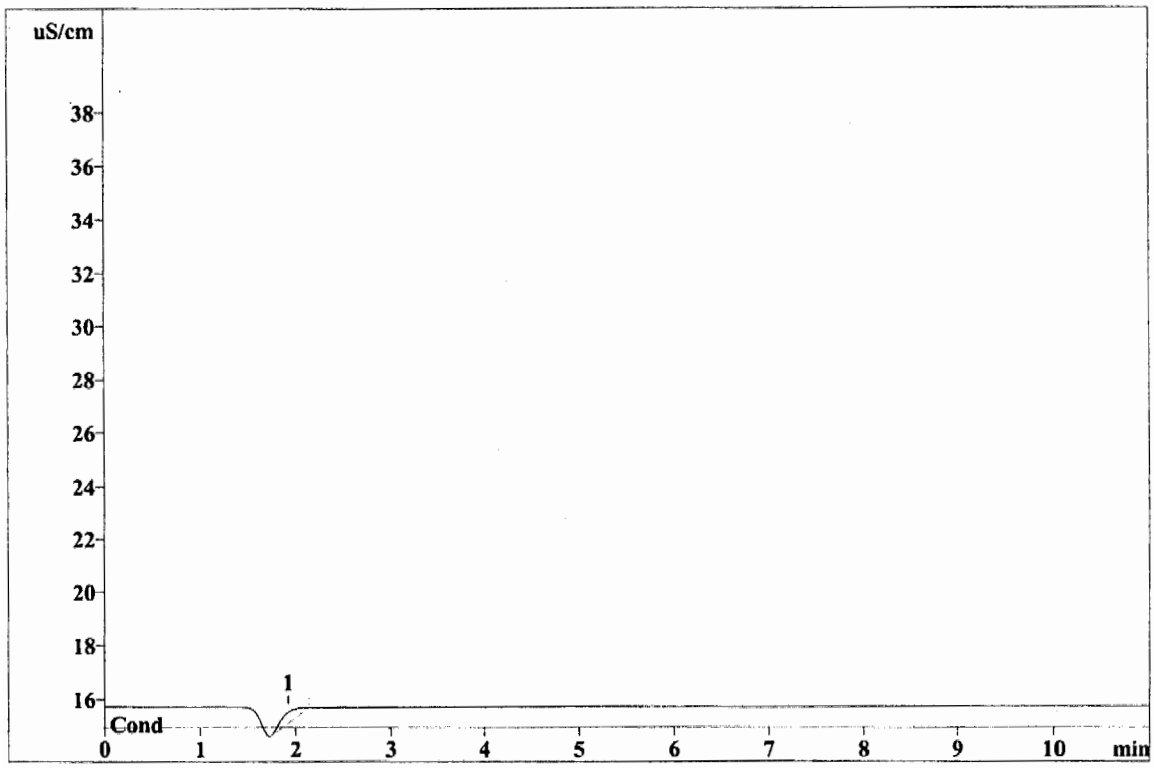
8027

Report date: 5/23/2005 7:25:59 PM
Printed by: Cherry Dam

Ident: AE23-11 ICB
Analysis from: 5/23/2005 6:23:14 PM
File: p5231823.CHW Last save: 5/23/2005 7:25:59 PM

Method: IC100-E23.mtw Last save: 5/23/2005 5:08:00 PM
Run operator: Cherry Dam
Analysis number: 1695

SAMPLE:
:
Vial number: 11
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	1.92	0.41	5.585	0.000	

This report has been created by IC Net
METROHM LTD

RW 5/26/05

8028

DAILY CALIBRATION

IC Result Check FormVersion : QE2

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AF03-01	CCV47	FCIBNPS	100.4%	100.8%	97.7%	102.6%	99.5%	98.3%	105.1%	p6031447	1
AF03-02	CCB47	FCIBNPS	0	0	0	0	0	0	0	p6031502	1
AF03-13	CCV48	FCIBNPS	101.6%	101.4%	97.9%	103.7%	99%	102.6%	104.1%	p6031737	1
[illegible]-14	CCB48	FCIBNPS	0	0	0	0	0	0	0	p6031751	1
[illegible]3-25	CCV49	FCIBNPS	102.2%	103.4%	99%	104.4%	98.9%	101.9%	104.4%	p6032037	1
AF03-26	CCB49	FCIBNPS	0	0	0	0	0	0	0	p6032051	1
AF03-37	CCV50	FCIBNPS	101.6%	102.7%	98.2%	104.1%	99%	102.8%	104.3%	p6032327	1
AF03-38	CCB50	FCIBNPS	0	0	0	0	0	0	0	p6032341	1
AF03-49	CCV51	FCIBNPS	86.3%*	90.5%	85.1%*	91.1%	85%*	79.9%*	85.2%*	p6040216	1
AF03-50	CCB51	FCIBNPS	0	0	0	0	0	0	0	p6040230	1
AF03-61	CCV52	FCIBNPS	99.7%	101.8%	96.8%	103%	97.7%	99.6%	102.4%	p6040505	1
AF03-62	CCB52	FCIBNPS	0	0	0	0	0	0	0	p6040519	1
AF03-69	CCV53	FCIBNPS	99.3%	101.3%	97.2%	103.5%	98.1%	99.6%	102.6%	p6040658	1
AF03-70	CCB53	FCIBNPS	0	0	0	0	0	0	0	p6040712	1

IC Result Check FormVersion : QE2

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AF02-01	CCV41	FCIBNPS	95.4%	96.6%	95%	99.5%	95.7%	90.7%	100.4%	p6021210	1
AF02-02	CCB41	FCIBNPS	0	0	0	0	0	0	0	p6021225	1
A 13	CCV42	FCIBNPS	95.3%	97.8%	95.3%	100.6%	96.8%	96.4%	101.8%	p6021505	1
A 14	CCB42	FCIBNPS	0	0	0	0	0	0	0	p6021519	1
AF02-26	CCV43	FCIBNPS	98.2%	101.1%	98%	103.6%	98.1%	100.3%	101.9%	p6021921	1
AF02-28	CCB43	FCIBNPS	0	0	0	0	0	0	0	p6021949	1
AF02-37	CCV44	FCIBNPS	100.2%	108.2%	98.7%	104.8%	98.4%	103.2%	103%	p6022157	1
AF02-38	CCB44	FCIBNPS	0	0	0	0	0	0	0	p6022211	1
AF02-49	CCV45	FCIBNPS	102.3%	102.9%	98.7%	104.7%	98.7%	101.4%	103.1%	p6030046	1
AF02-50	CCB45	FCIBNPS	0	0	0	0	0	0	0	p6030100	1
AF02-60	CCV46	FCIBNPS	102.4%	102.3%	98.7%	105.2%	99.1%	99%	103.3%	p6030320	1
AF02-61	CCB46	FCIBNPS	0	0	0	0	0	0	0	p6030334	1

ANALYTICAL LOG

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No. 0 ☐

Start Date: 05/23/05 **Time:** 15:48 **Ending Date:** 05/23/05 **Time:** 21:12 **Book #** A22-025 (10 ad 05/23/05)

ANALYTICAL BATCH * ___ IC ___

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
* 1	AE23-01	IB	1		✓	
* 2	02	S0				
* 3	03	1				
* 4	04	2				
* 5	05	3				
* 6	06	4				
* 7	07	5				
* 8	08	6				
* 9	09	7				
* 10	10	ICV				
* 11	11	ICB				
* 12	~~12~~ ad 05/23/05					
* 13	1 ad 05/23/05					
* 14						
* 15						
* 16						
* 17						
* 18						
* 19						
* 20						
* 21						
* 22						
* 23						
* 24						
* 25						
* 26						
* 27						
* 28						
* 29						
* 30						

ad 05/23/05

Instrument Number ~~22~~ 100 ad 05/23/05

INITIAL CALIBRATION REFERENCE

Method File	IC 100 - E23.mtw	Date
ICAL ID	SW5B-12-288 - 294	05/23/05
ICV ID	295 - 301	

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1	SW5B-12-288	0.1	—	—	—	—	→	0.3
	S_2	289	0.2	—	—	—	—	→	0.6
	S_3	290	0.5	—	—	—	—	→	1.5
	S_4	291	1	—	—	—	—	→	3
	S_5	292	2	—	—	—	—	→	6
~~ICV~~ ad 05/23/05	S6	293	5	—	—	—	—	→	15
~~CCV~~ ad 05/23/05	S7	294	10	—	—	—	—	→	30
~~LCS~~ ad 05/23/05 ICV		SW5B-12-295-301	10.4 ad 05/23/05	—	—	—	—	→	10
MS									

~~Standards-B~~

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3	
ICAL	S_1					
	S_2	12/A ad 05/23/05				
	S_3					
	S_4					
ICV		~~SW5B-12-295-301~~ ad 05/23/05				
CCV						
~~LCS~~						

Comments:

Analyzed By: ad

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8033

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No. 0 ☐

Start Date: 06/02/05 **Time:** 12:10 **Ending Date:** 06/03/05 **Time:** 03:48 **Book # A100-001**

ANALYTICAL BATCH * IC F003** ICF004W

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
* 1	AF02-01	CCV41	1		✓	
* 2	02	CCB41				
* 3	03	ICF003WB				
* 4	04	WL				
* 5	05	WC				
* 6	06	F004-05	10			
* 7	07	06				
* 8	08	07				
* 9	09	F020-01	1			
* 10	10	02	1			
* 11	11	F004-07D	10			
* 12	12	14	10			
* 13	13	CCV42	1			
* 14	14	CCB42	1			
* 15	15	F004-07M	10			
* 16	16	07S	10			
** 17	17	ICF004WB	1			
* 18	18	WL				
* 19	19	WC				
* 20	20	F014-10				
* 21	21	11				
* 22	22	02				
* 23	23	RINSE				
* 24	24	RINSE				
* 25	25	CCV43				* Bad Injection (Bubbles); NOT USE
* 26	26	CCB43				CCV43
* 27	27	CCB43				CCB43 * Not Use; wrong sample
* 28	28	CCB43				CCB43
* 29	29	F027-01				
* 30	30	02				

Instrument Number	22100

INITIAL CALIBRATION REFERENCE

Method File	IC100-E23.mtw	Date
ICAL ID	SW5B-12-288-294	05/23/05
ICV ID	SW5B-12-295-301	05/23/05

Standards-A

Name		ID	F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1								
	S_2								
	S_3								
	S_4								
	S_5								
ICV									
CCV		SW5B-12-361-364	5	5	5	5	5	5	10.15
LCS		SW5B-12-365-368	↓	↓	↓	↓	↓	↓	↓
MS × DF		LCS source	↓	↓	↓	↓	↓	↓	↓

Refer to Pg 8 in Book # A100-006

Standards-B

Name		ID	BrO_3	DCA	ClO_3
ICAL	S_1	N/A			
	S_2				
	S_3				
	S_4				
ICV					
CCV					
LCS					

Comments:

Analyzed By: ad

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8034

ANALYSIS RUN LOG FOR IC

SOP ☒ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No. 0 ☐

Start Date: 06/02/05 **Time:** 12:10 **Ending Date:** 06/03/05 **Time:** 03:48 **Book # A100-001**

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
** 31	AF02-31	F027-03	1		✓	
* 2	32	F014-10	10			
* 3	33	11	10			
* 4	34	F411-02	10			
* 5	35	F017-01	20			
* 6	36	RINSE	1			
* 7	37	CCV44				
* 8	38	CCB44				
* 39	39	F017-02	20			
* 40	40	03				
* 1	41	04				
* 2	42	05				
* 3	43	RINSE	1			
** 4	44	ICFC05WB				
* 5	45	WL				
* 6	46	WG				*Not Use
* 7	47	F017-06	20			
* 8	48	RINSE	1			
* 49	49	CCV45				
* 50	50	CCB45				
* 1	51	F017-06D	20			
* 2	52	06M				
* 3	53	07				
* 4	54	RINSE	1			
* 5	55	F020-01	25			
* 6	56	02	25			
* 7	57	F027-01	10			
* 8	58	02				
* 59	59	03				
* 60	60	CCV46	1			

ANALYTICAL BATCH ** IC F004W *** ICF005W

Instrument Number		22 (W) or 10/02/05
INITIAL CALIBRATION REFERENCE		
Method File		Date
ICAL ID	Refer to Pg 1	
ICV ID		

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1								
	S_2								
	S_3								
	S_4								
	S_5								
ICV				Refer to Pg 1					
CCV									
LCS									
MS									

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3	
ICAL	S_1	N/A				
	S_2					
	S_3					
	S_4					
ICV						
CCV						
LCS						

Comments:

Analyzed By: [illegible]

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EMAX LABORATORIES, INC. 1835 W. 208th St. Torrance, CA 90501

8035

ANALYSIS RUN LOG FOR IC

SOP ☒ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No.0 ☐

Start Date: 06/02/05 **Time:** 12:10 **Ending Date:** 06/02/05 **Time:** 03:48 **Book # A100-001**

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
* 61	AF02 - 61	OCB46	1		✓	
* 62	AF02 - 62	OCB46	1		✓	
* 3						
* 4						
* 5						
* 6						
* 7						
* 8						
* 9						
* 0						
* 1						
* 2						
* 3						
* 4						
* 5						
* 6						
* 7						
* 8						
* 9						
* 0						
* 1						
* 2						
* 3						
* 4						
* 5						
* 6						
* 7						
* 8						
* 9						
* 0						

ANALYTICAL BATCH * IC

ad 06/02/05

Instrument Number		2210 at 06/02/05
INITIAL CALIBRATION REFERENCE		
Method File		Date
ICAL ID	Refer to pg 1	
ICV ID		

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1								
	S_2								
	S_3								
	S_4								
	S_5								
ICV									
CCV									
LCS									
MS									

Refer to pg 1

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3	
ICAL	S_1	N/A				
	S_2					
	S_3					
	S_4					
ICV						
CCV						
LCS						

Comments:

Analyzed By: ad

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8036

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No.0 ☐

Start Date: 06/03/05 Time: 14:47 Ending Date: 06/04/05 Time: 07:12 Book # A100-001

ANALYTICAL BATCH * ICF006W ** ICF007W

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
* 1	AF03 - 01	CCV47	1		✓	
* 2	02	CCB47				
* 3	03	ICF006WB				
* 4	04	WL				
* 5	05	WC				
* 6	06	F023-01	10			
* 7	07	02	10			
* 8	08	F037-02	1			
* 9	09	06				
* 10	10	08				
* 11	11	09				
* 12	12	RINSE				
* 13	13	CCV48				
* 14	14	CCB48				
* 15	15	F037-10				
* 16	16	10D				
* 17	17	10M				
* 18	18	10S				
* 19	19	11				
* 20	20	12				
* 1	21	13				
* 2	22	F041-01				
* 3	23	02				
* 4	24	RINSE				
* 5	25	CCV49				
* 6	26	CCB49				
* 7	27	F041-01	10			
* 8	28	02	10			
** 29	29	ICF007WB	1			
** 30	30	WL	1			

Instrument Number	22 IC	06/03/05

INITIAL CALIBRATION REFERENCE

Method File	IC100-E23.mtw	Date
ICAL ID	SWSB-12-288-294	05/23/05
ICV ID	SWSB-12-295-301	05/23/05

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1								
	S_2								
	S_3								
	S_4								
	S_5								
ICV									
CCV		SWSB-12-409-412	5	5	5	5	5	5	15
LCS		SWSB-12-413-416							
MS × DF		LCS Source							

Refer to pg. 81 in book * A12/A100-025

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3	
ICAL	S_1	N/A				
	S_2					
	S_3					
	S_4					
ICV						
CCV						
LCS						

Comments:

Analyzed By: [illegible]

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8037

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No.0 ☐

Start Date: 06/03/05 **Time:** 14:47 **Ending Date:** 06/04/05 **Time:** 07:12 **Book #** A100-001

ANALYTICAL BATCH ** ICF007W *** ICF008W

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
** 31	AF03-31	ICF007WC	1		✓	
* 2	32	F039-01				
* 3	33	02				
* 4	34	03				
* 5	35	04				
* 6	36	01	5			Not Used
* 7	37	CCV50	1			
* 8	38	CCB50	1			
* 39	39	F039-02	5			Not Used
* 40	40	03				
* 1	41	04				
* 2	42	F033-01	20			Re-run for F⁻
* 3	43	02				
* 4	44	03				
* 5	45	04				
* 6	46	06				
* 7	47	RINSE	1			
* 8	48	RINSE				
* 49	49	CCV51				F=96%, NO2=85%, NO3=85%
* 50	50	CCB51				PO4=80%; Br=ok; SO4=Low
* 1	51	F021-~~01~~ 02				
* 2	52	~~02~~ 03				
* 3	53	~~03~~ 04				Re-run for SO4⁻ only
* 4	54	F021 ~~RINSE~~ - 06				
* 5	55	RINSE ~~ICF008WB~~				
*** 6	56	ICF008 WB				
* 7	57	ICF008 WC				
* 8	58	ICF008 ~~F021-07~~ WC				
* 59	59	F021-07				
* 60	60	F021-09				

Instrument Number		22 100

INITIAL CALIBRATION REFERENCE

Method File		Date
ICAL ID		
ICV ID		

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1								
	S_2								
	S_3								
	S_4								
	S_5								
ICV									
CCV									
LCS									
MS									

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3
ICAL	S_1				
	S_2				
	S_3				
	S_4				
ICV					
CCV					
LCS					

Comments:

Analyzed By: [illegible]

This page is checked during the data review process.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

6038

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No.0 ☐

Start Date: 06/03/05 **Time:** 14:47 **Ending Date:** 06/04/05 **Time:** 07:12 **Book #** A100-001

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
*** 61	AF03-61	CCV52	1		✓	
* 2	62	CCB52				
* 3	63	F021-08				
* 4	64	08D				
* 5	65	08M				
* 6	66	08S				
* 7	67	10				
* 8	68	RINSE				
* 69	69	CCV53				
* 70	70	CCB53				
* 1						
* 2						
* 3						
* 4						
* 5						
* 6						
* 7						
* 8						
* 9						
* 0						
* 1						
* 2						
* 3						
* 4						
* 5						
* 6						
* 7						
* 8						
* 9						
* 0						

ANALYTICAL BATCH *** IC F008W

ad 06/03/05

Instrument Number		~~22~~ 100 ex cylinder
INITIAL CALIBRATION REFERENCE		
Method File		Date
ICAL ID		
ICV ID		

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1								
	S_2								
	S_3								
	S_4								
	S_5								
ICV									
CCV									
LCS									
MS									

Refer to pg 4

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3	
ICAL	S_1					
	S_2					
	S_3					
	S_4					
ICV						
CCV						
LCS						

Comments:

Analyzed By: ad

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F027**

METHOD 310.1
TOTAL ALKALINITY

Five (5) water samples were received on 06/02/05 and 06/03/05 for Total Alkalinity analysis by Method 310.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blanks were free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Duplicate sample was not designated in this SDG.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 310.1
TOTAL ALKALINITY

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F027

Matrix : WATER
Instrument ID : I53

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ALF005WB	ND	1	NA	5	1	06/09/0512:40	NA	ALF005W-03	ALF005W-01	ALF005W	NA	NA
LCS1W	ALF005WL	55.9	1	NA	5	1	06/09/0512:45	NA	ALF005W-04	ALF005W-01	ALF005W	NA	NA
LCD1W	ALF005WC	55.9	1	NA	5	1	06/09/0512:50	NA	ALF005W-05	ALF005W-01	ALF005W	NA	NA
GARFIELD	F027-01	91.5	1	NA	5	1	06/09/0514:10	NA	ALF005W-21	ALF005W-13	ALF005W	06/02/05	06/02/05
SUNSET	F027-02	221	1	NA	5	1	06/09/0514:15	NA	ALF005W-22	ALF005W-13	ALF005W	06/02/05	06/02/05
BANGHAM	F027-03	170	1	NA	5	1	06/09/0514:20	NA	ALF005W-23	ALF005W-13	ALF005W	06/02/05	06/02/05
MBLK2W	ALF007WB	ND	1	NA	5	1	06/11/0512:40	NA	ALF007W-03	ALF007W-01	ALF007W	NA	NA
LCS2W	ALF007WL	55.6	1	NA	5	1	06/11/0512:45	NA	ALF007W-04	ALF007W-01	ALF007W	NA	NA
LCD2W	ALF007WC	55.6	1	NA	5	1	06/11/0512:50	NA	ALF007W-05	ALF007W-01	ALF007W	NA	NA
LFWC-2	F041-01	157	1	NA	5	1	06/11/0514:25	NA	ALF007W-24	ALF007W-13	ALF007W	06/03/05	06/03/05
LAWC-3	F041-02	169	1	NA	5	1	06/11/0514:40	NA	ALF007W-27	ALF007W-25	ALF007W	06/03/05	06/03/05

8041

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 310.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05F027
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: ALF005WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 06/09/05 12:45/12:50

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Total Alkalinity	ND	58.90	55.90	95	58.90	55.90	95	0	80-120	20

8042

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 310.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05F027
SAMPLE ID: LCS2W/LCD2W
CONTROL NO.: ALF007WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 06/11/05 12:45/12:50

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Total Alkalinity	ND	58.90	55.60	94	58.90	55.60	94	0	80-120	20

8043

ANALYSIS LOG FOR ALKALINITY

SOP ☑ EMAX-310.1 Rev. No. 2 ☐ SM2320B Rev. No. 0 ☐ Book # AAL-009

Start Date: 6/9/05 Time: 12:30 Ending Date: 6/9/05 Time: 14:30 Instrument No: ☑ 53 ☐ 97

	Data File Name	Lab Sample ID	Time	Sample Amt. (ml)	Initial pH	Acid Titrant pH=8.3	Acid Titrant pH=4.5	Acid Titrant pH=4.2	Final pH	ALKALINITY (mg/L) Total	Hydroxide (OH)	Carbonate (CO3)	Bicarbonate (HCO3)	Notes
*01		ICV	1230	20.	9.98	NA	1.15	NA	4.50	58.4				
*02		ICB	12:35	↓	5.10	↓	0.015	↓	4.41	ND				
*03		AL F005WB	12:40	↓	5.08	↓	0.015	↓	4.40	ND	ND	ND	ND	
*04		WL	12:45	↓	8.80	↓	1.10	↓	4.53	55.9	NA	NA	55.9	
*05		WC	12:50	↓	8.80	↓	1.10	↓	4.52	55.9	NA	NA	55.9	
*06		F017-01	12:55	↓	6.20	↓	2.75	↓	4.50	140				
*07		-02	13:00	↓	6.27	↓	2.70	↓	4.53	137				
*08		-03	13:05	↓	6.31	↓	8.30	↓	4.48	422				
*09		-04	13:10	↓	6.40	↓	7.75	↓	4.53	394				
*10		-05	13:15	↓	6.11	↓	11.25	↓	4.53	572				
*11		-05D	13:20	↓	6.15	↓	11.30	↓	4.52	574				
*12		F017-05M	13:25	10+0.5	6.40	↓	6.95	↓	4.47	673				
*13		CCV1	13:30	20	9.98	↓	1.15	↓	4.48	58.4				
*14		CCB1	13:35	↓	5.04	↓	0.015	↓	4.46	ND				
*15		F017-06	13:40	↓	6.86	↓	12+	↓	overranged					
*16		-06R	13:45	10	6.90	↓	6.95	↓	4.50	706				
*17		-07	13:50	20	6.83	↓	14+	↓	overranged					
*18		F017-07R	13:55	10	6.88	↓	7.10	↓	4.48	722				
*19		F020-01	14:00	20	8.05	↓	2.40	↓	4.49	122	ND	ND	122	
*20		-02	14:05	↓	8.06	↓	3.75	↓	4.50	191	ND	ND	191	
*21		F027-01	14:10	↓	8.01	↓	1.80	↓	4.52	91.5				
*22		-02	14:15	↓	7.91	↓	4.35	↓	4.53	221				
*23		-03	14:20	↓	7.96	↓	3.35	↓	4.49	170				
*24		CCV2	14:25	↓	9.97	↓	1.10	↓	4.53	55.9				
*25		CCB2	14:30	↓	5.06	↓	0.015	↓	4.40	ND				

Standard Reagent	ID	Conc. mg/L
LCS	SW7A-06-146	58.9
Spike	SW7A-06-120	112
Na_2CO_3 Soln	SW7A-06-120	2360
Acid Titrant HCL	SW3B-02-711	0.02N

Standardization

Na_2CO_3 Soln. (ml)	Acid Titrant (ml)	Normality, N
BLK	0.015	ND
5	11.60	0.02033
5	11.60	0.02033
5	11.60	0.02033

Ave. N: 0.02033

pH METER CALIBRATION

pH Buffer	ID	Reading
pH 4	SW7A-06-097	3.99
pH 7	-098	7.00
pH 10	-100	10.00
Slope	100.4	

Comments:

Analyzed By: RM

This page is checked during data review.

ANALYTICAL BATCH # AL F005W

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8044

ANALYSIS LOG FOR ALKALINITY

SOP ☑ EMAX-310.1 Rev. No. 2 ☐ SM2320B Rev. No. 0 ☐ Book # AAL-009

Start Date: 6/11/05 Time: 12:30 Ending Date: 6/11/05 Time: 15:05 Instrument No: ☑ 53 ☐ 97

	Data File Name	Lab Sample ID	Time	Sample Amt. (ml)	Initial pH	Acid Titrant pH=8.3	Acid Titrant pH=4.5	Acid Titrant pH=4.2	Final pH	ALKALINITY (mg/L) Total	Hydroxide (OH)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Notes
*01		1CV	12:30	20	10.02	NA	1.15	~~1.15~~ NA	4.50	58.1	NA	NA	58.1	
*02		1CB	12:35	↓	5.08	↓	0.015	~~0.015~~	4.42	ND	ND	ND	ND	
*03		AL F007WB	12:40	↓	5.10	↓	0.015	~~0.015~~	4.42	ND	ND	ND	ND	
*04		WL	12:45	↓	8.85	↓	1.10	~~1.10~~	4.50	55.6	NA	NA	55.6	
*05		WC	12:50	↓	8.84	↓	1.10	~~1.10~~	4.49	55.6	NA	NA	55.6	
*06		F033-01	12:55	↓	7.02	↓	3.70	~~3.70~~	4.53	187				
*07		-02	13:00	↓	7.50	↓	4.15	~~4.15~~	4.53	210				
*08		-03	13:05	↓	6.98	↓	4.75	~~4.75~~ 4.75	4.49	240				
*09		-03D	13:10	↓	7.00	↓	4.60	~~4.60~~	4.47	243				
*10		-03M	13:15	20+0.50	7.25	↓	6.00	~~6.00~~	4.48	296				
*11		-04	13:20	20	7.05	↓	4.55	NA	4.53	230				
*12		F033-06	13:25	↓	7.28	↓	3.70	↓	4.48	187				
*13		CCV1	13:30	↓	10.08	↓	1.15	↓	4.52	58.1				
*14		CCB1	13:35	↓	5.09	↓	0.015	↓	4.41	ND				
*15		F037-06	13:40	↓	7.34	↓	4.85	↓	4.49	245				
*16		-08	13:45	100	5.35	↓	0.10	0.20	4.23	ND				
*17		-10	13:50	20	~~6.12~~	↓	3.45	NA	4.51	174				
*18		-11	13:55	↓	7.26	↓	5.30	↓	4.51	268				
*19		F037-12	14:00	↓	7.30	↓	4.70	↓	4.53	238				
*20		F039-01	14:05	↓	7.76	↓	2.75	↓	4.49	139	ND	ND	139	
*21		-02	14:10	↓	7.64	↓	2.75	↓	4.48	139	ND	ND	139	
*22		-03	14:15	↓	7.88	↓	2.85	↓	4.50	144	ND	ND	144	
*23		-04	14:20	↓	7.71	↓	2.35	↓	4.49	119	ND	ND	119	
*24		F041-01	14:25	↓	7.54	↓	3.10	↓	4.51	157				
*25		CCV2	14:30	↓	10.08	↓	1.15	↓	4.53	58.1	NA	NA	58.1	

Standard Reagent	ID	Conc. mg/L
LCS	SW7A-06-146	58.9
Spike	SW7A-06-120	57.6
Na_2CO_3 Soln	SW7A-06-120	2360
Acid Titrant HCL	SW3B 02-711	0.02N

Standardization

Na_2CO_3 Soln. (ml)	Acid Titrant (ml)	Normality, N
BLK	0.015	ND
5	11.60	0.02033
5	11.70	0.02016
5	11.70	0.02016

Ave. N: 0.02022

pH METER CALIBRATION

pH Buffer	ID	Reading
pH 4	SW7A-06-097	4.00
pH 7	↓ -098	7.02
pH 10	↓ -100	10.00
Slope	100.4	

Comments:

Analyzed By: RMA

This page is checked during data review.

ANALYTICAL BATCH # AL F007W

EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

8045

ANALYSIS LOG FOR ALKALINITY

SOP ☑ EMAX-310.1 Rev. No. 2 ☐ SM2320B Rev. No. 0 ☐ Book # AAL-009

Start Date: 6/11/05 Time: 12:30 Ending Date: 6/11/05 Time: 15:05 Instrument No: ☑ 53 ☐ 97

Data File Name	Lab Sample ID	Time	Sample Amt. (ml)	Initial pH	Acid Titrant pH=8.3	Acid Titrant pH=4.5	Acid Titrant pH=4.2	Final pH	ALKALINITY (mg/L) Total	Hydroxide (OH)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Notes
26 ~~*01~~	CCB2	14:35	20	5.10	NA	0.015	NA	4.40	ND	ND	ND	ND	
27 ~~*02~~	F041-02	14:40	↓	7.77		3.35	↓	4.91	169				
28 ~~*03~~	F037-02	14:45	100	5.25		0.10	0.20	4.23	ND				
29 ~~*04~~	-09	14:50	20	7.03		3.30	NA	4.49	167				
30 ~~*05~~	-13	14:55		7.06		4.95		4.48	250				
31 ~~*06~~	CCV3	15:00		9.98		1.15		4.52	58.1				
32 ~~*07~~	CCB3	15:05	↓	5.06	↓	0.015	↓	4.42	ND				
*08													
*09													
*10													
*11													
*12													
*13													
*14													
*15													
*16													
*17													
*18													
*19													
*20													
*21													
*22													
*23													
*24													
*25													

Standard Reagent	ID	Conc.
LCS	Same as p. 19/RM	
Spike		
Na_2CO_3 Soln		
Acid Titrant		

Standardization

Na_2CO_3 Soln. (ml)	Acid Titrant (ml)	Normality, N
Same as p. 19/RM		

Ave N: 0.02022

pH METER CALIBRATION

pH Buffer	ID	Reading
pH 4	Same as p. 19/RM	
pH 7		
pH 10		
Slope		

Comments:

Analyzed By: RM

RM 6/15/05

This page is checked during data review.

ANALYTICAL BATCH # AL F037W

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8046

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F027**

METHOD 350.2
AMMONIA (NH3-N)

Five (5) water samples were received on 06/02/05 and 06/03/05 for Ammonia analysis by Method 350.2 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Duplicate sample was not designated in this SDG.

5. Matrix Spike

MS sample was not designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 350.2
AMMONIA (NH3-N)

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F027

Matrix : WATER
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	NHF003WB	ND	1	NA	.1	.03	06/15/0509:11	06/14/0510:30	NHF003W-12	NHF003W-10	NHF003W	NA	06/14/05
LCS1W	NHF003WL	1.02	1	NA	.1	.03	06/15/0509:12	06/14/0510:30	NHF003W-13	NHF003W-10	NHF003W	NA	06/14/05
LCD1W	NHF003WC	1.02	1	NA	.1	.03	06/15/0509:13	06/14/0510:30	NHF003W-14	NHF003W-10	NHF003W	NA	06/14/05
GARFIELD	F027-01	ND	1	NA	.1	.03	06/15/0509:20	06/14/0510:30	NHF003W-21	NHF003W-10	NHF003W	06/02/05	06/02/05
SUNSET	F027-02	ND	1	NA	.1	.03	06/15/0509:23	06/14/0510:30	NHF003W-24	NHF003W-22	NHF003W	06/02/05	06/02/05
BANGHAM	F027-03	ND	1	NA	.1	.03	06/15/0509:24	06/14/0510:30	NHF003W-25	NHF003W-22	NHF003W	06/02/05	06/02/05
LFWC-2	F041-01	ND	1	NA	.1	.03	06/15/0509:25	06/14/0510:30	NHF003W-26	NHF003W-22	NHF003W	06/03/05	06/03/05
LAWC-3	F041-02	ND	1	NA	.1	.03	06/15/0509:26	06/14/0510:30	NHF003W-27	NHF003W-22	NHF003W	06/03/05	06/03/05

8048

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 350.2
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05F027
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: NHF003WL/C

DATE RECEIVED: 06/14/05
DATE EXTRACTED: 06/14/05 10:30
DATE ANALYZED: 06/15/05 09:12/09:13

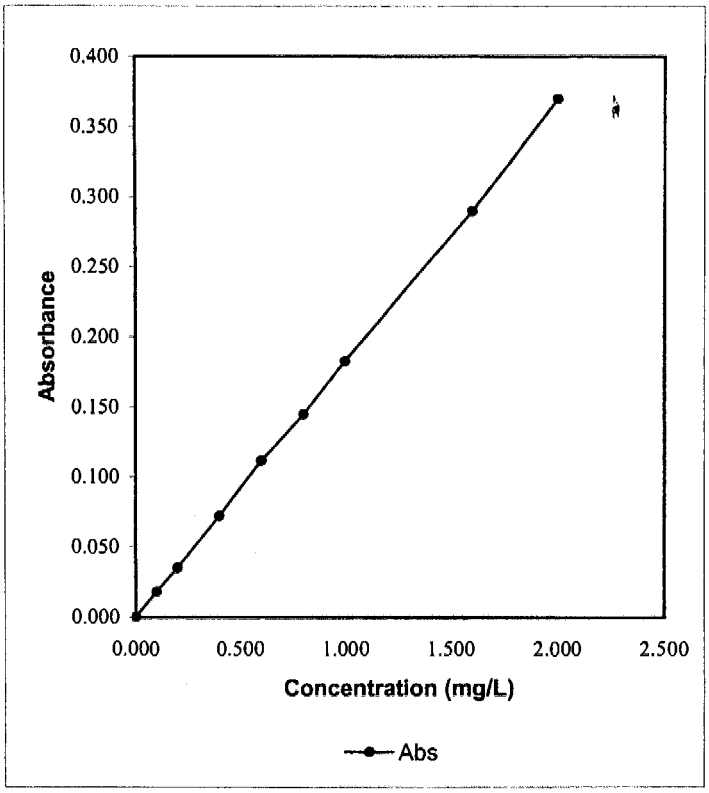
ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Ammonia (NH3-N)	ND	1.00	1.02	102	1.00	1.02	102	0	80-120	20

8049

CALIBRATION CURVE
AMMONIA _NH3 _TKN

Conc.	Abs
0.000	0.000
0.100	0.018
0.200	0.035
0.400	0.072
0.600	0.112
0.800	0.145
1.000	0.183
1.600	0.290
2.000	0.370



R^2	0.999758	Comments:	**PASSED**
Y	0.1833		
CF	5.4547	Analyzed by:	LA

ANALYSIS LOG FOR AMMONIA-N

SOP ☒ EMAX-350.2 Rev. No. 2 ☐ EMAX-350.1 ☐ Rev. No. 0 ☐ Book # A70-NH_3-005

Starting Date: 6-15-05 Time: 9:20 Ending Date: 6-15-05 Time: 9:20

ANALYTICAL BATCH # NHF003W

Data File Name	Prep. Batch	Lab Sample ID	Matrix S	Matrix W	Time	Vol.Colored (ml)	DF	Absorbance	Notes/ mg/L
* 1	NHF003W	S-0.0		/	9:00	20	1	0.000	
* 2		S-0.1			-01			0.018	
* 3		S-0.2			-02			0.025	
* 4		S-0.4			-03			0.072	
* 5		S-0.6			-04			0.112	
* 6		S-0.8			-05			0.145	
* 7		S-1.0			-06			0.183	
* 8		S-1.6			-07			0.290	
* 9		S-2.0			-08			0.370	
* 0		ICV			-09			0.150	0.482
* 1		ICB			-10			0.000	ND
* 2		NHF003WB			-11			~~0.187~~ 0.000	ND
* 3		WL			-12			0.187	1.020
* 4		WC			-13			0.186	1.015
* 5		F021-08			-14			0.001	ND
* 6		-08D			-15			0.002	ND
* 7		-08M			-16			0.185	1.009
* 8		-06			-17			0.001	ND
* 9		-09			-18			0.002	ND
* 0		-10			-19			0.001	ND
* 1		F027-01			-20			0.001	ND
* 2		CCV1			-21			0.184	1.004 ~~ND~~
* 3		CCB1			-22			0.000	ND
* 4		F027-02			-23			0.011	ND
* 5		-03			-24			0.002	ND
* 6		F041-01			-25			0.008	ND
* 7		-02			-26			0.001	ND
* 8		F056-03			-27			0.006	ND
* 9		F067-02			-28			0.042	~~ND~~ 0.229
* 0		CCV2			-29			0.185	1.009
		CCB2			-30	20	1	0.000	ND

Instrument No: 70	Wavelength: 425 nm

Standard	ID	Conc. (mg/L)
S_0	nanopure	0.0
S_1	SW2B-03-152	0.1
S_2		0.2
S_3		0.4
S_4		0.6
S_5		0.8
S_6		1.0
S_7		1.6
S_8	SW2B-03-152	2.0
ICV/MS	-151	1.0
CCV	-152	1.0
LCS	-157	1.0

Reagent	ID
Color Reagent	SW7A-06-141

Standard Curve	
R	0.9991
Y	0.1883
CF	5.4647

Comments:

Results are based on: ☐ Dry Weight ☐ Wet Weight

Analyzed By: [illegible]

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8051

DISTILLATION LOG FOR NH_3 / DIGESTION AND DISTILLATION FOR TKN

SOP ☑ EMAX-350.2 Rev. No.: 2 ☐ EMAX-351.3 Rev. No.: 2 ☐ Book # EKN-005

Start Date 6-14-05 Time 10:30 End Date 6-14-05 Time 16:00

PREPARATION BATCH * NHF003W

Sample Prep ID	Lab Sample ID	Sample pH	NaOH Added (ml)	Boric Acid	Borate Buffer (ml)	Sample Amount (ml)	Extract Volume (ml)	Notes
*01	S-0.0	9.5	0.1	10	5	100	100	
*02	S-0.1							
*03	S-1.0							
*04	S-2.0							
*05	ICV							
*06	ICB							
*07	NHF003WB							
*08	WC							
*09	WC		01					
*10	F021-08		0.7					
*11	-08D		0.7					
*12	-08M		0.8					
*13	-09		0.9					
*14	-10		0.7					
*15	F027-01		0.6					
*16	-02		0.8					
*17	-03		0.7					
*18	F049-01		0.7					
*19	-02		0.8					
*20	F461-02		0.7					
*21	F452-03	9.5	0.6	10	5	100	100	
*22	F031-06	9.5	0.6	10	5	100	100	
*23								
*24								
*25								
*26								

Standards	ID	Amount Added (ml)
ICV/MS	SW283-03-157	10 µg/L
LCS	-157	100 ml

Reagent	Lot# / ID
NaOH	SW7A-06-112
Borate Buffer	-152
H_3BO_3	SW7B-06-315A
Digestion Mixture	NA
Distilling Soln.	

SDG #	Extract Location
NA	

Comments

Prepared By: da

Standard Added By: da

Checked By:

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8052

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F027**

METHOD 314.0
PERCHLORATE

Five (5) water samples were received on 06/02/05 and 06/03/05 for Perchlorate analysis by Method 314.0 in accordance with "Method for Determination of Perchlorate by Ion Chromatography", EPA 600/98-118.

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at half the method reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control sample results were within QC limits.

4. Duplicate

Sample F041-02 was analyzed for Duplicate. % RPD was within QC limit.

5. Matrix Spike

Sample F041-02 was spiked. % Recovery was within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SAMPLE RESULTS

METHOD 314.0
PERCHLORATE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F027

Matrix : WATER
Instrument ID : TI057

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DLF	MOIST	RL (ug/L)	MDL (ug/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	PCF001WB	ND	1	NA	2	.5	06/03/0522:44	NA	JF03-2	JF03-1	PCF001W	NA	NA
LCS1W	PCF001WL	10	1	NA	2	.5	06/03/0523:24	NA	JF03-4	JF03-1	PCF001W	NA	NA
LCD1W	PCF001WC	10.1	1	NA	2	.5	06/03/0523:45	NA	JF03-5	JF03-1	PCF001W	NA	NA
GARFIELD	F027-01	3.63	1	NA	2	.5	06/04/0500:05	NA	JF03-6	JF03-1	PCF001W	06/02/05	06/02/05
SUNSET	F027-02	12.3	1	NA	2	.5	06/04/0500:25	NA	JF03-7	JF03-1	PCF001W	06/02/05	06/02/05
BANGHAM	F027-03	5.46	1	NA	2	.5	06/04/0500:45	NA	JF03-8	JF03-1	PCF001W	06/02/05	06/02/05
LFWC-2	F041-01	6.15	1	NA	2	.5	06/04/0501:06	NA	JF03-9	JF03-1	PCF001W	06/03/05	06/03/05
LAWC-3	F041-02	25.7	1	NA	2	.5	06/04/0501:26	NA	JF03-10	JF03-1	PCF001W	06/03/05	06/03/05
LAWC-3MS	F041-02M	35	1	NA	2	.5	06/04/0502:27	NA	JF03-13	JF03-11	PCF001W	06/03/05	06/03/05
LAWC-3DUP	F041-02D	25.5	1	NA	2	.5	06/04/0502:06	NA	JF03-12	JF03-11	PCF001W	06/03/05	06/03/05

8055

QC SUMMARY

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F027
METHOD: METHOD 314.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	PCF001WB	PCF001WL	PCF001WC		
LAB FILE ID:	JF03-2	JF03-4	JF03-5		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	06/03/0522:44	06/03/0523:24	06/03/0523:45	DATE RECEIVED:	NA
PREP. BATCH:	PCF001W	PCF001W	PCF001W		
CALIB. REF:	JF03-1	JF03-1	JF03-1		

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Perchlorate	ND	10	10	100	10	10.1	101	0	80-120	20

8057

EMAX QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F027
METHOD: METHOD 314.0

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	LAWC-3	LAWC-3DUP		
EMAX SAMP ID:	F041-02	F041-02D		
LAB FILE ID:	JF03-10	JF03-12		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	06/03/05
DATE ANALYZED:	06/04/0501:26	06/04/0502:06	DATE RECEIVED:	06/03/05
PREP. BATCH:	PCF001W	PCF001W		
CALIB. REF:	JF03-1	JF03-11		

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	DUPL RSLT (ug/L)	RPD RSLT %	QC LIMIT (%)
Perchlorate	25.7	25.5	1	20

8058

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F027
METHOD: METHOD 314.0

==========

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	LAWC-3			
LAB SAMP ID:	F041-02	F041-02M		
LAB FILE ID:	JF03-10	JF03-13		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	06/03/05
DATE ANALYZED:	06/04/0501:26	06/04/0502:27	DATE RECEIVED:	06/03/05
PREP. BATCH:	PCF001W	PCF001W		
CALIB. REF:	JF03-1	JF03-11		

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	QC LIMIT (%)
Perchlorate	25.7	10	35	93	75-125

8059

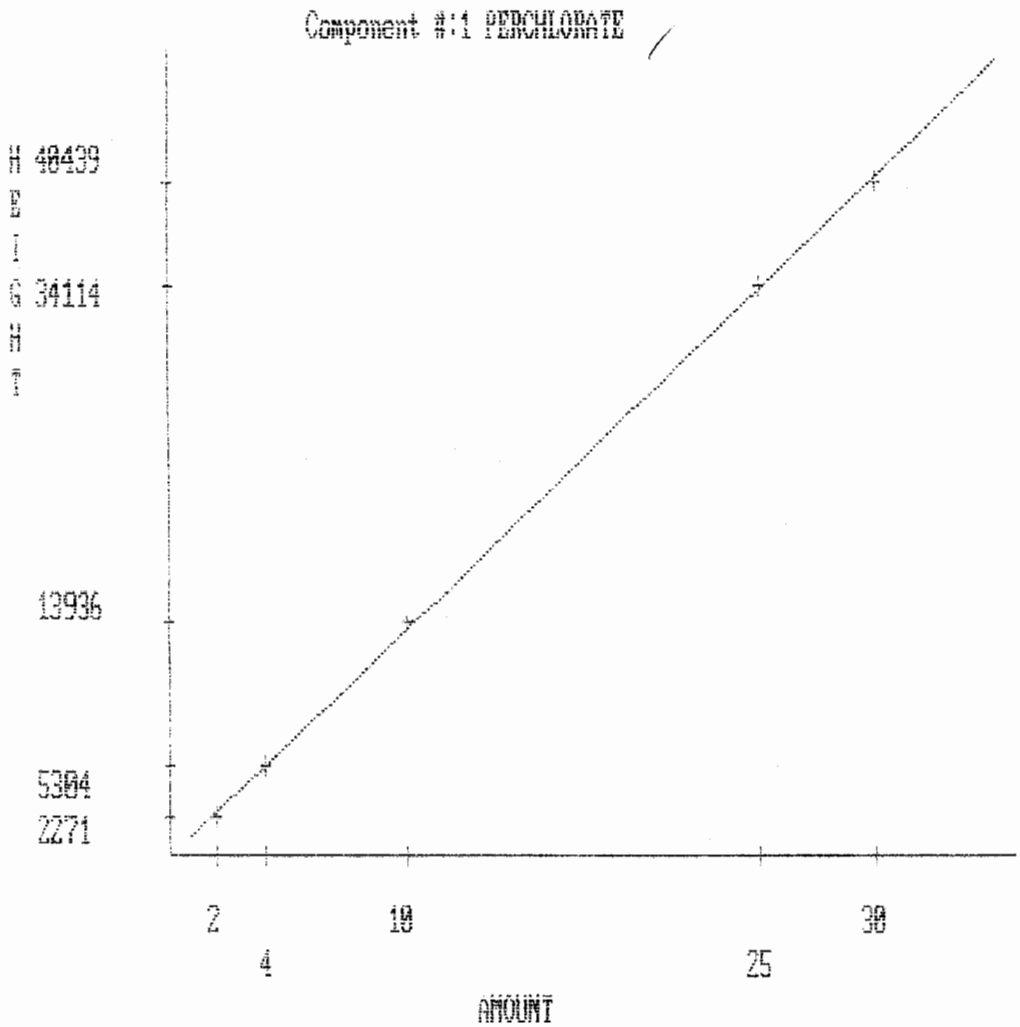
INITIAL CALIBRATION

8060

IC SEQUENCE FORM

INDX	LSID	LFID	DF	METNAME	SELCOMP	DateTime
	IB	JC22-1	1	IC57C22	ALL	03/22/0512:32
	S-0.0	JC22-2	1	IC57C22	ALL	03/22/0512:52
	S-2.0	JC22-3	1	IC57C22	ALL	02/22/0522:36
	S-4.0	JC22-4	1	IC57C22	ALL	03/22/0513:33
	S-10.0	JC22-5	1	IC57C22	ALL	03/22/0513:53
	S-25.0	JC22-6	1	IC57C22	ALL	03/22/0514:13
	S-30.0	JC22-7	1	IC57C22	ALL	03/22/0514:33
	ICV	JC22-8	1	IC57C22	ALL	03/22/0515:52
9	ICB	JC22-9	1	IC57C22	ALL	03/22/0516:12
10	IPCS	JC22-10	1	IC57C22	ALL	03/22/0516:34
11	PC007WB	JC22-11	1	IC57C22	ALL	03/22/0516:55
12	MRL	JC22-12	1	IC57C22	ALL	03/22/0517:15
13	PCC007WL	JC22-13	1	IC57C22	ALL	03/22/0517:35
14	PCC007WC	JC22-14	1	IC57C22	ALL	03/22/0518:22
15	C135-01	JC22-15	1	IC57C22	ALL	03/22/0518:42
16	C135-02	JC22-16	1	IC57C22	ALL	03/22/0519:38
17	C135-02D	JC22-17	1	IC57C22	ALL	03/22/0519:59
18	C135-02M	JC22-18	1	IC57C22	ALL	03/22/0520:19
19	CCV1-15	JC22-19	1	IC57C22	ALL	03/22/0520:39
20	C141-11	JC22-20	1	IC57C22	ALL	03/22/0520:59
21	C141-12	JC22-21	1	IC57C22	ALL	03/22/0521:20
22	C141-13	JC22-22	1	IC57C22	ALL	03/22/0521:40
23	C141-14	JC22-23	1	IC57C22	ALL	03/22/0522:00
24	CCV2-30	JC22-24	1	IC57C22	ALL	03/22/0522:20
	PCC008SB	JC22-25	1	IC57C22	ALL	03/22/0522:41
	PCC008SL	JC22-26	1	IC57C22	ALL	03/22/0523:01
	PCC008SC	JC22-27	1	IC57C22	ALL	03/22/0523:21
	C041-01	JC22-28	10	IC57C22	ALL	03/22/0523:41
29	C041-02	JC22-29	10	IC57C22	ALL	03/23/0500:02
30	C041-03	JC22-30	10	IC57C22	ALL	03/23/0500:22
31	C041-04	JC22-31	10	IC57C22	ALL	03/23/0500:42
32	C041-05	JC22-32	10	IC57C22	ALL	03/23/0501:02
33	C041-06	JC22-33	10	IC57C22	ALL	03/23/0501:23
34	C041-07	JC22-34	10	IC57C22	ALL	03/23/0501:43
35	CCV3-15	JC22-35	1	IC57C22	ALL	03/23/0502:03
36	C041-08	JC22-36	10	IC57C22	ALL	03/23/0502:23
	C041-09	JC22-37	10	IC57C22	ALL	03/23/0502:44
38	C041-10	JC22-38	10	IC57C22	ALL	03/23/0503:04
39	C041-11	JC22-39	10	IC57C22	ALL	03/23/0503:24
40	C041-11D	JC22-40	10	IC57C22	ALL	03/23/0503:44
41	C041-11M	JC22-41	10	IC57C22	ALL	03/23/0504:05
42	C041-12	JC22-42	10	IC57C22	ALL	03/23/0504:25
43	C041-13	JC22-43	10	IC57C22	ALL	03/23/0504:45
44	C041-14	JC22-44	10	IC57C22	ALL	03/23/0505:05
45	C041-15	JC22-45	10	IC57C22	ALL	03/23/0505:26
	CCV4-30	JC22-46	1	IC57C22	ALL	03/23/0505:46
	PCC009SB	JC22-47	1	IC57C22	ALL	03/23/0506:06
	PCC009SL	JC22-48	1	IC57C22	ALL	03/23/0506:26
	PCC009SC	JC22-49	1	IC57C22	ALL	03/23/0506:47
	C041-16	JC22-50	10	IC57C22	ALL	03/23/0507:07
51	C041-17	JC22-51	10	IC57C22	ALL	03/23/0507:27
52	C041-18	JC22-52	10	IC57C22	ALL	03/23/0507:47
53	C041-19	JC22-53	10	IC57C22	ALL	03/23/0508:08
54	C041-20	JC22-54	10	IC57C22	ALL	03/23/0508:28
55	C041-21	JC22-55	10	IC57C22	ALL	03/23/0508:48
56	C041-22	JC22-56	10	IC57C22	ALL	03/23/0509:08
57	C041-23	JC22-57	10	IC57C22	ALL	03/23/0509:29
58	CCV5-15	JC22-58	1	IC57C22	ALL	03/23/0509:50

Method IC57C22
Sample CL04
Operator JKN
Run date 03-22-2005 14:53:31 Version: 142
Printed on 03-22-2005 AT 14:53:44
Straight Line fit



Component 1 = PERCHLORATE
EXTERNAL STANDARD CALIBRATION

LEVEL	AMOUNT	HEIGHT
1	2.0000	2271
2	4.0000	5304
3	10.0000	13936
4	25.0000	34114
5	30.0000	40439

3/22/05

Y = SLOPE * X + INTERCEPT

Height = 1.3615E+03 * Amount + -1.2108E+02
Amount = 7.3446E-04 * Height + 8.8928E-02
R squared = 0.9996

8062

SECOND SOURCE

IC RESULT FORM

FID$	LSID$	DF$	PERCHLORATE
JC22-1	IB	1	ND
JC22-2	S-0.0	1	ND
JC22-3	S-2.0	1	111%
-4	S-4.0	1	127%
-5	S-10.0	1	133%
JC22-6	S-25.0	1	129%
JC22-7	S-30.0	1	128%
JC22-8	ICV	1	99.3%
JC22-9	ICB	1	ND
JC22-10	IPCS	1	87%
JC22-11	PC007WB	1	ND
JC22-12	MRL	1	118%
JC22-13	PCC007WL	1	9.93
JC22-14	PCC007WC	1	9.35
JC22-15	C135-01	1	ND
JC22-16	C135-02	1	ND
JC22-17	C135-02D	1	ND
JC22-18	C135-02M	1	7.5
JC22-19	CCV1-15	1	88.3%
JC22-20	C141-11	1	7.35
JC22-21	C141-12	1	ND
JC22-22	C141-13	1	ND
JC22-23	C141-14	1	ND
JC22-24	CCV2-30	1	101%
JC22-25	PCC008SB	1	ND
JC22-26	PCC008SL	1	10.4
JC22-27	PCC008SC	1	10.3
JC22-28	C041-01	10	ND
JC22-29	C041-02	10	ND
JC22-30	C041-03	10	ND
JC22-31	C041-04	10	ND
JC22-32	C041-05	10	ND
JC22-33	C041-06	10	ND
JC22-34	C041-07	10	ND
JC22-35	CCV3-15	1	100%
JC22-36	C041-08	10	ND
-37	C041-09	10	ND
JC22-38	C041-10	10	ND
JC22-39	C041-11	10	ND
JC22-40	C041-11D	10	ND
JC22-41	C041-11M	10	97.2
JC22-42	C041-12	10	43.1
JC22-43	C041-13	10	ND
JC22-44	C041-14	10	ND
JC22-45	C041-15	10	ND
JC22-46	CCV4-30	1	99.7%
JC22-47	PCC009SB	1	ND
JC22-48	PCC009SL	1	10.3
JC22-49	PCC009SC	1	10.1
JC22-50	C041-16	10	ND
JC22-51	C041-17	10	ND
JC22-52	C041-18	10	ND
JC22-53	C041-19	10	ND
JC22-54	C041-20	10	ND
JC22-55	C041-21	10	ND
JC22-56	C041-22	10	ND
JC22-57	C041-23	10	ND
JC22-58	CCV5-15	1	99.9%

DAILY CALIBRATION

IC SEQUENCE FORM

INDX	LSID	LFID	DF	METNAME	SELCOMP	DateTime
1	IPCS	JF03-1	1	IC57C22	ALL	06/03/0522:24
2	PCF001WB	JF03-2	1	IC57C22	ALL	06/03/0522:44
3	MRL	JF03-3	1	IC57C22	ALL	06/03/0523:04
	PCF001WL	JF03-4	1	IC57C22	ALL	06/03/0523:24
	PCF001WC	JF03-5	1	IC57C22	ALL	06/03/0523:45
6	F027-01	JF03-6	1	IC57C22	ALL	06/04/0500:05
7	F027-02	JF03-7	1	IC57C22	ALL	06/04/0500:25
8	F027-03	JF03-8	1	IC57C22	ALL	06/04/0500:45
9	F041-01	JF03-9	1	IC57C22	ALL	06/04/0501:06
10	F041-02	JF03-10	1	IC57C22	ALL	06/04/0501:26
11	CCV28-30	JF03-11	1	IC57C22	ALL	06/04/0501:46
12	F041-02D	JF03-12	1	IC57C22	ALL	06/04/0502:06
13	F041-02M	JF03-13	1	IC57C22	ALL	06/04/0502:27
14	E130-01	JF03-14	2	IC57C22	ALL	06/04/0502:47
15	E130-02	JF03-15	2	IC57C22	ALL	06/04/0503:07
16	E186-01	JF03-16	2	IC57C22	ALL	06/04/0503:27
17	E186-02	JF03-17	2	IC57C22	ALL	06/04/0503:48
18	E251-01	JF03-18	2	IC57C22	ALL	06/04/0504:08
19	F023-01	JF03-19	2	IC57C22	ALL	06/04/0504:28
20	F023-02	JF03-20	2	IC57C22	ALL	06/04/0504:48
21	CCV29-15	JF03-21	1	IC57C22	ALL	06/04/0505:09
22	E130-01	JF03-22	1	IC57C22	ALL	06/04/0505:29
23	E130-02	JF03-23	1	IC57C22	ALL	06/04/0510:23
24	E186-01	JF03-24	1	IC57C22	ALL	06/04/0510:43
25	E186-02	JF03-25	1	IC57C22	ALL	06/04/0511:04
26	E251-01	JF03-26	1	IC57C22	ALL	06/04/0511:24
27	F023-01	JF03-27	1	IC57C22	ALL	06/04/0511:44
28	F023-02	JF03-28	1	IC57C22	ALL	06/04/0512:04
29	RINSE	JF03-29	1	IC57C22	ALL	06/04/0512:25
30	RINSE	JF03-30	1	IC57C22	ALL	06/04/0512:45
31	CCV30-30	JF03-31	1	IC57C22	ALL	06/04/0513:05
32	PCF002WB	JF03-32	1	IC57C22	ALL	06/04/0513:25
33	PCF002WL	JF03-33	1	IC57C22	ALL	06/04/0513:46
34	PCF002WC	JF03-34	1	IC57C22	ALL	06/04/0514:06
35	E116-01	JF03-35	1	IC57C22	ALL	06/04/0514:26
	E116-02	JF03-36	1	IC57C22	ALL	06/04/0514:46
	E116-03	JF03-37	1	IC57C22	ALL	06/04/0515:07
38	E116-04	JF03-38	1	IC57C22	ALL	06/04/0515:27
39	E116-06	JF03-39	1	IC57C22	ALL	06/04/0515:47
40	E116-08	JF03-40	1	IC57C22	ALL	06/04/0516:07
41	RINSE	JF03-41	1	IC57C22	ALL	06/04/0516:28
42	CCV31-15	JF03-42	1	IC57C22	ALL	06/04/0516:48
43	E105-01	JF03-43	1	IC57C22	ALL	06/04/0517:08
44	E105-02	JF03-44	1	IC57C22	ALL	06/04/0517:28
45	E105-03	JF03-45	1	IC57C22	ALL	06/04/0517:49
46	E105-04	JF03-46	1	IC57C22	ALL	06/04/0518:09
47	E105-04D	JF03-47	1	IC57C22	ALL	06/04/0518:29
48	E105-04M	JF03-48	1	IC57C22	ALL	06/04/0518:49
49	E116-05	JF03-49	5	IC57C22	ALL	06/04/0519:10
50	E116-05	JF03-50	2	IC57C22	ALL	06/04/0519:30
51	E116-05	JF03-51	1	IC57C22	ALL	06/04/0519:50
52	RINSE	JF03-52	1	IC57C22	ALL	06/04/0520:10
53	CCV32-30	JF03-53	1	IC57C22	ALL	06/04/0520:31

IC RESULT FORM

LFID$	LSID$	DF$	PERCHLORATE
JF03-1	IPCS	1	85%
JF03-2	PCF001WB	1	ND
JF03-3	MRL	1	111%
[illegible] 4	PCF001WL	1	10
JF03-5	PCF001WC	1	10.1
JF03-6	F027-01	1	3.63
JF03-7	F027-02	1	12.3
JF03-8	F027-03	1	5.46
JF03-9	F041-01	1	6.15
JF03-10	F041-02	1	25.7
JF03-11	CCV28-30	1	100%
JF03-12	F041-02D	1	25.5
JF03-13	F041-02M	1	35
JF03-14	E130-01	2	ND
JF03-15	E130-02	2	ND
JF03-16	E186-01	2	ND
JF03-17	E186-02	2	ND
JF03-18	E251-01	2	ND
JF03-19	F023-01	2	2.58
JF03-20	F023-02	2	ND
JF03-21	CCV29-15	1	101%
JF03-22	E130-01	1	ND
JF03-23	E130-02	1	ND
JF03-24	E186-01	1	ND
JF03-25	E186-02	1	ND
JF03-26	E251-01	1	ND
JF03-27	F023-01	1	ND
JF03-28	F023-02	1	ND
JF03-29	RINSE	1	ND
JF03-30	RINSE	1	ND
JF03-31	CCV30-30	1	100%
JF03-32	PCF002WB	1	ND
JF03-33	PCF002WL	1	10.2
JF03-34	PCF002WC	1	10.1
JF03-35	E116-01	1	3
[illegible] 36	E116-02	1	ND
[illegible] 37	E116-03	1	1.54
JF03-38	E116-04	1	ND
JF03-39	E116-06	1	ND
JF03-40	E116-08	1	ND
JF03-41	RINSE	1	ND
JF03-42	CCV31-15	1	102%
JF03-43	E105-01	1	ND
JF03-44	E105-02	1	1.23
JF03-45	E105-03	1	ND
JF03-46	E105-04	1	ND
JF03-47	E105-04D	1	ND
JF03-48	E105-04M	1	9.81
JF03-49	E116-05	5	ND
JF03-50	E116-05	2	ND
JF03-51	E116-05	1	ND
JF03-52	RINSE	1	ND
JF03-53	CCV32-30	1	99.9%

ANALYTICAL LOGS

ANALYSIS RUN LOG FOR IC - PERCHLORATE

SOP ☑ EMAX-314.0 Revision No. 2 ☐

Book # A57-008

Start Date 3/22/05 Time 12:32 Ending Date 3/23/05 Time 09:50

BATCH * PCC007W ** PCC005

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Conductivity, (us/cm)	Notes
* 1	JC22-1	IB	1		X		
* 2	2	S-0.0					
* 3	3	S-2.0					
* 4	4	S-4.0					
* 5	5	S-10.0					
* 6	6	S-25.0					
* 7	7	S-30.0					
* 8	8	ICV					
* 9	9	ICB					
* 0	10	3/22/05 ~~CCVT~~ IPCS				5030	
* 1	11	3/22/05 ~~CCBA~~ PCC007WB					* BAH
* 2	12	MRL					
* 3	13	PCC007WL					* BAH
* 4	14	WL					*
* 5	15	C135-01				3960	*
* 6	16	02				4130	*
* 7	17	02D					*
* 8	18	02M					*
* 9	19	CCV1-15					
* 0	20	C141-11				2223	* BAH
* 1	21	12				8290	*
* 2	22	13				8329	*
* 3	23	14				2550	*
* 4	24	CCV2-30					
** 5	25	PCC005B		X			
*# 6	26	SL					
*# 7	27	SL					
*# 8	28	C041-01	10			89.7	
** 9	29	02				27.8	
** 0	30	03				11.4	

Instrument Number	57

INITIAL CALIBRATION REFERENCE	
Method File	1057C22.MET
ICAL ID	SWBB-02-695
ICV ID	SWBB-02-696

Standards

Name		ID	Conc. (ug/L)
ICAL	S1	SWBB-02-695	2
	S2		4
	S3		10
	S4		25
	S5		30
ICV		SWBB-02-696	25
CCV-15		691	15
CCV-30		692	30
LCS		693	10
MS		693	10
IPC		694	600/25
CMC		SW3B-02-565	1413 us/cm

Comments:

CMC Reading, (us/cm)	QC Criteria (us/cm)	Temp. (°C)
1404	±30	25°C

Electronic Data Archival	
Location	Date

Analyzed By: [illegible]

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8069

ANALYSIS RUN LOG FOR IC - PERCHLORATE

SOP ☑ EMAX-314.0 Revision No. 2 ☐

Book # A57-008

Start Date 06/03/05 Time 22:24 Ending Date 6/4/05 Time 20:31

BATCH * PCF001W ** PCF002W

	Sample Prep ID	Data File Name ✓ 6/3/05	Lab Sample ID	DF	Matrix S	Matrix W	Conductivity, (us/cm)	Notes
*	1	~~IPCS~~ JF03-1	IPCS	1		X		
*	2	JF03-2	PCF001WB	↓		↓		* BAH
*	3	3	MRL					
*	4	4	PCF001WL					* BAH
*	5	5	↓ WC					*
*	6	6	F027-01				495	*
*	7	7	02				916	*
*	8	8	↓ 03				657	*
*	9	9	F041-01				698	*
*	0	10	↓ 02				569	* ↓
*	1	11	CCV28-30					
*	2	12	F041-02D					* BAH
*	3	13	↓ 02M	↓				*
*	4	14	E130-01	2				*
*	5	15	↓ 02	2				*
*	6	16	E186-01	2				*
*	7	17	↓ 02	2				*
*	8	18	E251-01	2				*
*	9	19	F023-01	2				* ↓
*	0	20	↓ 02	2				*
*	1	21	CCV29-15	1				
*	2	22	E130-01				3730	* BAH
*	3	23	↓ 02				3750	*
*	4	24	E186-01				3640	*
*	5	25	↓ 02				3670	*
*	6	26	E251-01				3630	*
*	7	27	F023-01				3440	*
*	8	28	↓ 02				3440	* ↓
*	9	29	Rinse					
*	0	↓ 30	Rinse	↓		↓		

Instrument Number	57

INITIAL CALIBRATION REFERENCE	
Method File	IC57C22
ICAL ID	SW8B-02-695
ICV ID	↓ 696

Standards

Name	ID	Conc. (ug/L)
ICAL S1		
S2		
S3		
S4		
S5		
ICV		
CCV-15	SW8B-02-709	15
CCV-30	710	30
LCS	↓ 713	10
MS	SW8B-02-712	10
IPC	SW8B-02-708	600/25
CMC	SW3B-02-565	1413 µs/cm

See ICAL page 60

Comments:

CMC Reading, (us/cm)	QC Criteria (us/cm)	Temp. (°C)
1404	±30	25°C

Electronic Data Archival	
Location	Date

Analyzed By: [illegible]

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8070

ANALYSIS RUN LOG FOR IC - PERCHLORATE

SOP ☐ EMAX-314.0 Revision No. 2 ☐ Book # A57-008

Start Date 6/3/05 Time 22:24 Ending Date 6/4/05 Time 20:31

BATCH * PCF001W ** PCF002W

	Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Conductivity, (us/cm)	Notes
*	1	JF03-31	CCV 30-30	1		X		
*	2	32	PCF002WB					X BAH
*	3	33	WL					X
*	4	34	WC					X
*	5	35	E116-01				1632	X
*	6	36	02				668	X
*	7	37	03				1095	X
*	8	38	04				1266	X
*	9	39	06				~~5233~~ 1220 6/3/05	X
*	0	40	08				1220	X
*	1	41	Rinse					
*	2	42	CCV31-15					
*	3	43	E105-01				420	X BAH
*	4	44	02				1500	X
*	5	45	03				1310	X
*	6	46	04				980	X
*	7	47	04D					X
*	8	48	04M					X
*	9	49	E116-05	5			5233	X
*	0	50	05	2				X
*	1	51	05	1				X
*	2	52	Rinse					
*	3	53	CCV32-30					
*	4	54						
*	5							
*	6							
*	7							6/4/05
*	8							
*	9							
*	0							

Instrument Number	57

INITIAL CALIBRATION REFERENCE	
Method File	IC57C22
ICAL ID	SW8B-02-695
ICV ID	696

Standards

Name	ID	Conc. (ug/L)
ICAL S1		
S2		
S3		
S4		
S5	See ICAL PREP d6	
ICV		
CCV-15	SW8B-02-709	15
CCV-30	710	30
LCS	713	10
MS	712	10
IPC	708	600/25
CMC	SW3B-02-565	1413 µs/cm

Comments:

CMC Reading, (us/cm)	QC Criteria (us/cm)	Temp. (°C)
1404	±30	25°C

Electronic Data Archival	
Location	Date

Analyzed By: [illegible]

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8071

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F027**

SM3500
FERROUS IRON

Five (5) water samples were received on 06/02/05 and 06/03/05 for Ferrous Iron analysis by Method SM3500 in accordance with "Standard Methods for the Examination of Water and Wastewater", 18th edition (1990).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blanks were free of contamination at the reporting limit.

3. Lab Control Sample

Lab control results were within QC limit.

4. Duplicate

Samples F027-01 and F041-01 were analyzed for duplicate. %RPDs were within QC limit.

5. Matrix Spike/Matrix Spike Duplicate

Samples F027-01 and F041-01 were spiked. %Recoveries were within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SM
FERROUS IRON

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F027

Matrix : WATER
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	FEF002WB	ND	1	NA	5	2.5	06/02/0518:38	NA	FEF002W-09	FEF002W-07	FEF002W	NA	NA
LCS1W	FEF002WL	20.5	1	NA	5	2.5	06/02/0518:39	NA	FEF002W-10	FEF002W-07	FEF002W	NA	NA
GARFIELD	F027-01	ND	1	NA	5	2.5	06/02/0518:40	NA	FEF002W-11	FEF002W-07	FEF002W	06/02/05	06/02/05
GARFIELDDUP	F027-01D	ND	1	NA	5	2.5	06/02/0518:41	NA	FEF002W-12	FEF002W-07	FEF002W	06/02/05	06/02/05
GARFIELDMS	F027-01M	21.4	1	NA	5	2.5	06/02/0518:42	NA	FEF002W-13	FEF002W-07	FEF002W	06/02/05	06/02/05
SUNSET	F027-02	ND	1	NA	5	2.5	06/02/0518:43	NA	FEF002W-14	FEF002W-07	FEF002W	06/02/05	06/02/05
BANGHAM	F027-03	ND	1	NA	5	2.5	06/02/0518:44	NA	FEF002W-15	FEF002W-07	FEF002W	06/02/05	06/02/05
MBLK2W	FEF003WB	ND	1	NA	5	2.5	06/03/0519:08	NA	FEF003W-09	FEF003W-07	FEF003W	NA	NA
LCS2W	FEF003WL	20.6	1	NA	5	2.5	06/03/0519:09	NA	FEF003W-10	FEF003W-07	FEF003W	NA	NA
LFWC-2	F041-01	ND	1	NA	5	2.5	06/03/0519:10	NA	FEF003W-11	FEF003W-07	FEF003W	06/03/05	06/03/05
LFWC-2DUP	F041-01D	ND	1	NA	5	2.5	06/03/0519:11	NA	FEF003W-12	FEF003W-07	FEF003W	06/03/05	06/03/05
LFWC-2MS	F041-01M	21.5	1	NA	5	2.5	06/03/0519:12	NA	FEF003W-13	FEF003W-07	FEF003W	06/03/05	06/03/05
LAWC-3	F041-02	ND	1	NA	5	2.5	06/03/0519:13	NA	FEF003W-14	FEF003W-07	FEF003W	06/03/05	06/03/05

8073

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: SM3500
MATRIX: WATER
% MOISTURE: NA

==========

BATCH NO.: 05F027 DATE RECEIVED: NA
SAMPLE ID: LCS1W DATE EXTRACTED: NA
CONTROL NO.: FEF002WL DATE ANALYZED: 06/02/05 18:39

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	LCS RSLT (mg/L)	LCS % REC	QC LIMIT (%)
Ferrous Iron	ND	20.00	20.50	102	80-120

8074

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: SM3500
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05F027
SAMPLE ID: LCS2W
CONTROL NO.: FEF003WL

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 06/03/05 19:09

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	LCS RSLT (mg/L)	LCS % REC	QC LIMIT (%)
Ferrous Iron	ND	20.00	20.60	103	80-120

8075

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: SM3500
MATRIX: WATER
% MOISTURE: NA

==========

BATCH NO.: 05F027 DATE RECEIVED: 06/02/05
SAMPLE ID: GARFIELDMS DATE EXTRACTED: NA
CONTROL NO.: F027-01M DATE ANALYZED: 06/02/05 18:42

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
Ferrous Iron	ND	20.00	21.40	107	75-125

8076

Fe

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: SM3500
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05F027
SAMPLE ID: LFWC-2MS
CONTROL NO.: F041-01M

DATE RECEIVED: 06/03/05
DATE EXTRACTED: NA
DATE ANALYZED: 06/03/05 19:12

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
Ferrous Iron	ND	20.00	21.50	108	75-125

8077

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: SM3500
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05F027 DATE RECEIVED: 06/02/05
SAMPLE ID: GARFIELDDUP DATE EXTRACTED: NA
CONTROL NO.: F027-01D DATE ANALYZED: 06/02/05 18:41

ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
Ferrous Iron	ND	ND	0	20

8078

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: SM3500
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05F027
SAMPLE ID: LFWC-2DUP
CONTROL NO.: F041-01D

DATE RECEIVED: 06/03/05
DATE EXTRACTED: NA
DATE ANALYZED: 06/03/05 19:11

ACCESSION:

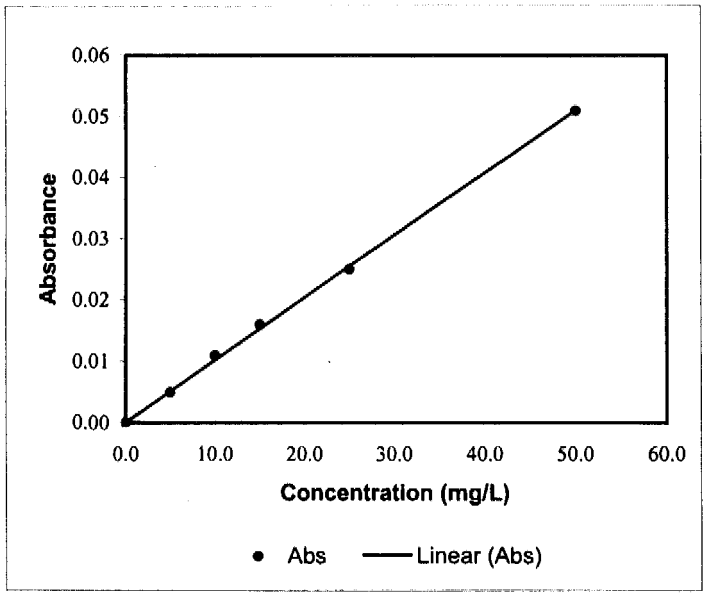
PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
Ferrous Iron	ND	ND	0	20

8079

Fe

CALIBRATION CURVE
FERROUS FE

Conc.	Abs
0.0	0.000
5.0	0.005
10.0	0.011
15.0	0.016
25.0	0.025
50.0	0.051

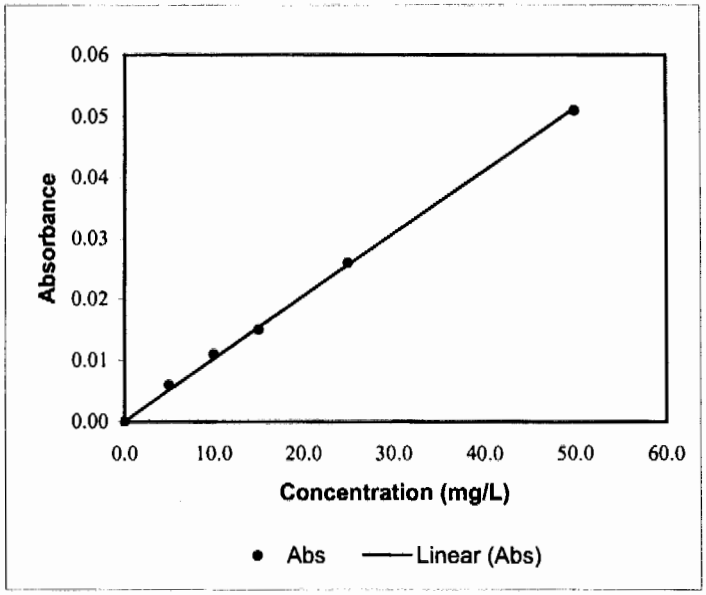


R^2	0.9993	Comments: **PASSED**
Eq.Line	0.0010	
CF	978.8732	Analyzed by: LA

8080

CALIBRATION CURVE
FERROUS FE

Conc.	Abs
0.0	0.000
5.0	0.006
10.0	0.011
15.0	0.015
25.0	0.026
50.0	0.051



R^2	0.9994	Comments:	**PASSED**
Eq.Line	0.0010		
CF	974.7546	Analyzed by:	LA

ANALYSIS LOG FOR FERROUS IRON

SOP ☑ EMAX-3500-Fe D/C Rev. No. 0 ☐ Starting Date 6/02/05 Time 18:20 Ending Date 6/02/05 Time Book # A70-Fe D/C-001

ANALYTICAL BATCH * FEF0024

	Data File Name	Preparative Batch	Lab Sample ID	Matrix S	Matrix W	Sample Amount (ml)	DF	Abs. (510 nm)	Time	Ferrous Iron (mg/L)	Notes
*	1	FEF0024	S-0.0		✓	50	1	0.000	18:20		
*	2	↓	S-5		↓	↓	↓	0.006	-31		
*	3		S-10					0.011	-32		
*	4		S-15					0.015	-33		
*	5		S-25					0.026	-34		
*	6		S-50					0.051	-35		
*	7		ICV					0.020	-36	19.50	
*	8		ICB					0.000	-37	ND	
*	9		FEF0024003					0.000	-38	ND	
*	0		↓ WC					0.021	-39	20.46	
*	1		F027-01					0.002	-40	ND	
*	2		-01D					0.002	-41	ND	
*	3		-01M					0.022	-42	21.44	
*	4		-02					0.001	-43	ND	
*	5		↓ -03					0.001	-44	ND	
*	6		CCV		✓	✓	✓	0.020	-45	19.50	
*	7	↓	CCB		✓	50	1	0.000	-46	ND	
*	8										
*	9										
*	0										
*	1										
*	2										
*	3										
*	4										
*	5										
*	6										
*	7										
*	8										
*	9	2u	6-02-05								
*	0										

Instrument No.: 70 **Wavelength:** 510 nm

Standard	ID	Conc. (mg/L)
S_0	nanopure	0.0
S_1	SW2B-03-095	5
S_2	↓	10
S_3	↓	15
S_4	↓	25
S_5	SW2B-03-095	50
ICV/LCS/MS	↓ -096	20
CCV	↓ -097	20

Reagents	
Name	ID
HCl	SW1A-02-1539
$NH_4C_2H_3O_2$ Buffer	SW1B-06-228B
Phenanthroline Sol'n	↓ -228A
$NaC_2H_3O_2$ Sol'n	NA
Hydroxylamine Soln	↓

Standard Curve	
R (≤0.995)	0.9994
Y	0.0010
CF	974.7544

Comments:

Analyzed By: NB/LA

Disposal Date:

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8082

ANALYSIS LOG FOR FERROUS IRON

SOP ☑ EMAX-3500-Fe D/C Rev. No. 0 ☐ Starting Date 6-03-05 Time 19:00 Ending Date 6-03-05 Time 19:15 Book # A70-Fe D/C-001

ANALYTICAL BATCH * FEF003W

	Data File Name	Preparative Batch	Lab Sample ID	Matrix S	Matrix W	Sample Amount (ml)	DF	Abs. (510 nm)	Time	Ferrous Iron (mg/L)	Notes
* 1		FEF003W	S-0.0		✓	50	1	0.000	19:00		
* 2			S-5					0.003	-01		
* 3			S-10					0.011	-02		
* 4			S-15					0.016	-03		
* 5			S-25					0.030	-04		
* 6			S-50					0.051	-05		
* 7			ICV					0.020	-06	19.58	
* 8			ICB					0.000	-07	ND	
* 9			FEF003WB					0.000	-08	ND	
* 0			↓ WC					0.021	-09	20.02	
* 1			F041-01					0.001	-10	ND	
* 2			-01D					0.002	-11	ND	
* 3			-01M					0.022	-12	21.64	
* 4			-02					0.001	-13	ND	
* 5			CCV		↓	↓	↓	0.020	-14	19.68	
* 6		↓	CCB		✓	50	1	0.000	-15	ND	
* 7											
* 8											
* 9											
* 0											
* 1											
* 2											
* 3											
* 4											
* 5											
* 6											
* 7											
* 8											
* 9			6-03-05								
* 0											

Instrument No.: 70	Wavelength: 510 nm

Standard	ID	Conc. (mg/L)
S_0	na no pure	0.0
S_1	SW2B-03-095	5
S_2	↓	10
S_3	↓	15
S_4	↓	25
S_5	SW2B-03-095	50
ICV/LCS/MS	↓ -094	20
CCV	↓ -095	20

Reagents

Name	ID
HCl	SW1A-02-1529
$NH_4C_2H_3O_2$ Buffer	SW7B-06-1285
Phenanthroline Sol'n	↓ -1285A
$NaC_2H_3O_2$ Sol'n	N/A
Hydroxylamine Soln	↓

Standard Curve

R (≤0.995)	0.9993
Y	0.0010
CF	778.9752

Comments:

Analyzed By: HB/LA

Disposal Date:

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8083

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F027**

METHOD 351.3
TKN

Five (5) water samples were received on 06/02/05 and 06/03/05 for TKN analysis by Method 351.3 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. **Holding Time**

   Analysis met holding time criteria.

2. **Method Blank**

   Method blank was free of contamination at the reporting limit.

3. **Lab Control Sample/Lab Control Sample Duplicate**

   Lab control results were within QC limit.

4. **Duplicate**

   Sample F027-01 was analyzed for duplicate. %RPD was within QC limit.

5. **Matrix Spike**

   Sample F027-01 was spiked. %Recovery was within QC limit.

6. **Sample Analysis**

   Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 1.3
TKN

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F027

Matrix : WATER
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
NBLK1W	KNF003WB	ND	1	NA	.1	.035	06/15/0510:10	06/14/0511:30	KNF003W-11	KNF003W-09	KNF003W	NA	06/14/05
LCS1W	KNF003WL	1.07	1	NA	.1	.035	06/15/0510:11	06/14/0511:30	KNF003W-12	KNF003W-09	KNF003W	NA	06/14/05
LCD1W	KNF003WC	1.04	1	NA	.1	.035	06/15/0510:12	06/14/0511:30	KNF003W-13	KNF003W-09	KNF003W	NA	06/14/05
GARFIELD	F027-01	.595	1	NA	.1	.035	06/15/0510:13	06/14/0511:30	KNF003W-14	KNF003W-09	KNF003W	06/02/05	06/02/05
GARFIELDDUP	F027-01D	.610	1	NA	.1	.035	06/15/0510:14	06/14/0511:30	KNF003W-15	KNF003W-09	KNF003W	06/02/05	06/02/05
GARFIELDMS	F027-01M	1.53	1	NA	.1	.035	06/15/0510:15	06/14/0511:30	KNF003W-16	KNF003W-09	KNF003W	06/02/05	06/02/05
SUNSET	F027-02	.322	1	NA	.1	.035	06/15/0510:16	06/14/0511:30	KNF003W-17	KNF003W-09	KNF003W	06/02/05	06/02/05
BANGHAM	F027-03	.397	1	NA	.1	.035	06/15/0510:17	06/14/0511:30	KNF003W-18	KNF003W-09	KNF003W	06/02/05	06/02/05
LFWC-2	F041-01	.327	1	NA	.1	.035	06/15/0510:18	06/14/0511:30	KNF003W-19	KNF003W-09	KNF003W	06/03/05	06/03/05
LAWC-3	F041-02	.526	1	NA	.1	.035	06/15/0510:19	06/14/0511:30	KNF003W-20	KNF003W-09	KNF003W	06/03/05	06/03/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 351.3
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05F027
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: KNF003WL/C

DATE RECEIVED: 06/14/05
DATE EXTRACTED: 06/14/05 11:30
DATE ANALYZED: 06/15/05 10:11/10:12

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
TKN	ND	1.00	1.07	107	1.00	1.04	104	3	80-120	20

8086

4

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 351.3
MATRIX: WATER
% MOISTURE: NA

==========

BATCH NO.: 05F027 DATE RECEIVED: 06/02/05
SAMPLE ID: GARFIELDMS DATE EXTRACTED: 06/14/05 11:30
CONTROL NO.: F027-01M DATE ANALYZED: 06/15/05 10:15

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
TKN	.595	1.00	1.53	93	75-125

8087

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 351.3
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05F027 DATE RECEIVED: 06/02/05
SAMPLE ID: GARFIELDDUP DATE EXTRACTED: 06/14/05 11:30
CONTROL NO.: F027-01D DATE ANALYZED: 06/15/05 10:14

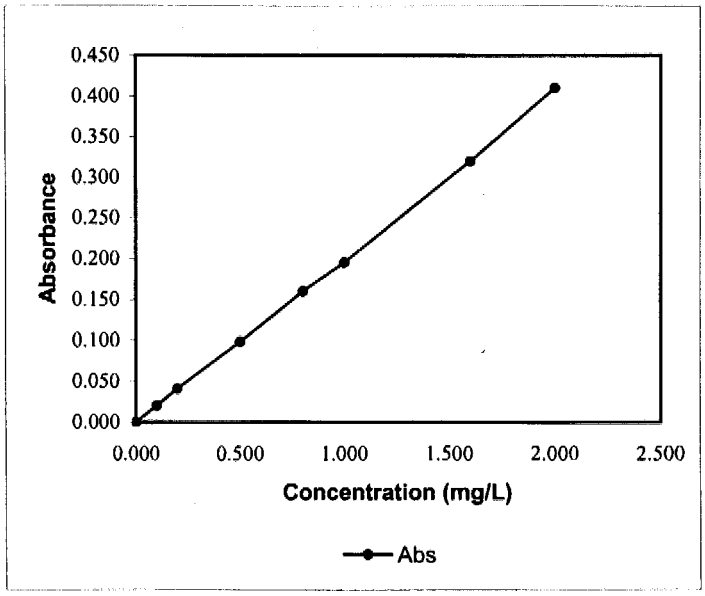
ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
TKN	.595	.61	2	20

8088

CALIBRATION CURVE
AMMONIA _NH3 _TKN

Conc.	Abs
0.000	0.000
0.100	0.020
0.200	0.041
0.500	0.098
0.800	0.160
1.000	0.195
1.600	0.320
2.000	0.410



R^2	0.999379	Comments:	**PASSED**
Y	0.2017		
CF	4.9586	Analyzed by:	LA

8089

ANALYSIS LOG FOR TOTAL KJELDAHL NITROGEN (TKN)

SOP ☑ EMAX-351.3 Rev. No. 1 ☐ Start Date: 6-15-05 Time: 10:00 End Date: 6-15-05 Time: 10:24 Book # A70-KN-004

ANALYTICAL BATCH * KNF003W

Data File Name	Prep. Batch	Lab Sample ID	Matrix S	Matrix W	Time	Vol.Colored (ml)	DF	Absorbance	Notes mg/L
* 1	KNF004W	S-0.0		✓	10:00	20	1	0.000	
* 2		S-0.1			-01			0.020	
* 3		S-0.2			-02			0.041	
* 4		S-0.5			-03			0.098	
* 5		S-0.8			-04			0.160	
* 6		S-1.0			-05			0.195	
* 7		S-1.6			-06			0.320	
* 8		S-2.0			-07			0.410	
* 9		ICV			-08			0.198	0.982
* 0		ICB			-09			0.000	ND
* 1		KNF003WB			-10			0.000	ND
* 2		WC			-11			0.215	1.066
* 3		WC			-12			0.210	1.041
* 4		F027-01			-13			0.120	0.595
* 5		-01D			-14			0.123	0.610
* 6		-01M			-15			0.309	1.532
* 7		-02			-16			0.065	0.322
* 8		-03			-17			0.080	0.397
* 9		F041-01			-18			0.066	0.327
* 0		-02			-19			0.106	0.526
* 1		CCV1			-20			0.201	0.997
* 2		CCB1			-21			0.000	ND
* 3		F456-03			-22			0.121	0.600
* 4		CCV2		✓	-23	✓	✓	0.200	0.992
* 5	✓	CCB2		✓	-24	20	1	0.000	ND
* 6									
* 7									
* 8									
* 9									
* 0		6-15-05							

Instrument No: 70	Wavelength: 425 nm

Standard	ID	Conc. (mg/L)
S_0	zero pure	0.0
S_1	SW2B-03-152	0.1
S_2	↓	0.2
S_3	↓	0.5
S_4	↓	0.8
S_5	↓	1.0
S_6	↓	1.6
S_7	SW2B-03-152	2.0
ICV/MS	-151	1.0
CCV	-152	1.0
LCS	-156	1.0

Reagent	ID
Color Reagent	SW9A-06-14

Standard Curve	
R^2	0.9996
Y	0.2017
CF	4.9586

Comments:

Results are based on: ☐ Dry Weight ☐ Wet Weight

Analyzed By: [illegible]

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8090

DISTILLATION LOG FOR NH_3 / DIGESTION AND DISTILLATION FOR TKN

SOP ☐ EMAX-350.2 Rev. No.: 2 ☑ EMAX-351.3 Rev. No.: 2 ☐ Book # EKN-005

Start Date 6-14-05 Time 11:30 End Date 16-14-05 Time 18:00

PREPARATION BATCH # KNF-003 ow

Sample Prep ID	Lab Sample ID	Sample pH	NaOH Added (ml)	Boric Acid	Borate Buffer (ml)	Sample Amount (ml)	Extract Volume (ml)	Notes
*01	S-0.0	9.5	10	5	4	50	50	
*02	S-0.1							
*03	S-1.0							
*04	S-2.0							
*05	ICV							
*06	ICB							
*07	KNF003 OB							
*08	WL							
*09	WC							
*10	F027-01							
*11	-01D							
*12	-01M							
*13	-02							
*14	-03							
*15	F041-01							
*16	-02							
*17	F041-03	9.5	10	5	4	50	50	
*18								
*19								
*20								
*21								
*22								
*23								
*24								
*25								
*26								

Standards	ID	Amount Added (ml)
ICV/MS	SW2B-03-151	5 ml of 10 ppm
LCS	-156	50 ml

Reagent	Lot# / ID
NaOH	NA
Borate Buffer	SW7A-06-152
H_3BO_3	SW7B-06-315A
Digestion Mixture	SW7A-06-053
Distilling Soln.	SW7B-06-515B

SDG #	Extract Location
NA	

Comments

Prepared By: Xa

Standard Added By: Xa

Checked By:

6-14-05

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

1001

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F027**

METHOD 376.1
SULFIDE

Five (5) water samples were received on 06/02/05 and 06/03/05 for Sulfide analysis by Method 376.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Sample F041-02 was analyzed for duplicate. %RPD was within QC limit.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 3[illegible].1
SULFIDE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F027

Matrix : WATER
Instrument ID : NA

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	SDF002WB	ND	1	NA	1	.4	06/06/0510:30	NA	SDF002W-01	NA	SDF002W	NA	NA
LCS1W	SDF002WL	5.20	1	NA	1	.4	06/06/0510:33	NA	SDF002W-02	NA	SDF002W	NA	NA
LCD1W	SDF002WC	5.24	1	NA	1	.4	06/06/0510:36	NA	SDF002W-03	NA	SDF002W	NA	NA
GARFIELD	F027-01	ND	1	NA	1	.4	06/06/0510:39	NA	SDF002W-04	NA	SDF002W	06/02/05	06/02/05
SUNSET	F027-02	ND	1	NA	1	.4	06/06/0510:42	NA	SDF002W-05	NA	SDF002W	06/02/05	06/02/05
BANGHAM	F027-03	ND	1	NA	1	.4	06/06/0510:45	NA	SDF002W-06	NA	SDF002W	06/02/05	06/02/05
LFWC-2	F041-01	ND	1	NA	1	.4	06/06/0510:48	NA	SDF002W-07	NA	SDF002W	06/03/05	06/03/05
LAWC-3	F041-02	ND	1	NA	1	.4	06/06/0510:51	NA	SDF002W-08	NA	SDF002W	06/03/05	06/03/05
LAWC-3DUP	F041-02D	ND	1	NA	1	.4	06/06/0510:54	NA	SDF002W-09	NA	SDF002W	06/03/05	06/03/05

8093

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 376.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05F027
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: SDF002WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 06/06/05 10:33/10:36

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Sulfide	ND	5.62	5.20	93	5.62	5.24	93	1	80-120	20

8094

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 376.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05F027
SAMPLE ID: LAWC-3DUP
CONTROL NO.: F041-02D

DATE RECEIVED: 06/03/05
DATE EXTRACTED: NA
DATE ANALYZED: 06/06/05 10:54

ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
Sulfide	ND	ND	0	20

8095

ANALYSIS LOG FOR SULFIDE

SOP ☑ EMAX-376.1 Rev. No. 1 ☐ EMAX-9034 Rev. No. 0 ☐ Starting Date: 6-06-05 Time: 10:30 Ending Date: 6-06-05 Time: 10:54 Book # ASD-006

ANALYTICAL BATCH * SDF00200

Data File Name	Lab Sample ID	Time	Sample Amt. (ml)	Volume of Iodine (ml)	Volume of PAO/$Na_2S_2O_3$ (ml)	Notes mg/L
* 1	~~SFD~~ SDF00200B	10:30	100	10	10.4	ND
* 2	WL	.33			4.65	5.20
* 3	WC	-36			4.60	5.24
* 4	F027-01	-39			10.3	ND
* 5	-02	-42			10.2	ND
* 6	-03	-45			10.0	ND
* 7	F041-01	-48			10.4	ND
* 8	-02	-51			10.3	ND
* 9	-02D	-54			10.3	ND
* 0						
* 1						
* 2						
* 3						
* 4						
* 5						
* 6						
* 7						
* 8						
* 9						
* 0						
* 1						
* 2						
* 3						
* 4						
* 5						
* 6						
* 7	6-06-05					
* 8						
* 9						
* 0						

Standard	ID	Conc. (mg/L)
LCS	2007A-05-265	5.62
Spike	NA	
$Na_2S_2O_3$	5033-02-697	0.00264
PAO	↓ -69C	0.00264
Indicator	2007B-06-266	NA

STANDARDIZATION

Vol. Of Iodine (ml)	Volume of PAO/Na2S2O3 (ml)	Conc. Of Iodine (N)
10	10.4	0.00587
10	10.4	0.00587
10	10.4	0.00587
Average Iodine Conc. (N)		0.00587

Comments:

Analyzed By:

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F027**

METHOD 160.1
TOTAL DISSOLVED SOLIDS

Five (5) water samples were received on 06/02/05 and 06/03/05 for Total Dissolved Solids analysis by Method 160.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 160.1
TOTAL DISSOLVED SOLIDS

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F027

Matrix : WATER
Instrument ID : NA

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TDF005WB	ND	1	NA	10	5	06/04/0512:00	NA	TDF005W-01	NA	TDF005W	NA	NA
LCS1W	TDF005WL	276	1	NA	10	5	06/04/0512:01	NA	TDF005W-02	NA	TDF005W	NA	NA
LCD1W	TDF005WC	270	1	NA	10	5	06/04/0512:02	NA	TDF005W-03	NA	TDF005W	NA	NA
GARFIELD	F027-01	274	1	NA	10	5	06/04/0512:03	NA	TDF005W-04	NA	TDF005W	06/02/05	06/02/05
SUNSET	F027-02	420	1	NA	10	5	06/04/0512:04	NA	TDF005W-05	NA	TDF005W	06/02/05	06/02/05
BANGHAM	F027-03	380	1	NA	10	5	06/04/0512:05	NA	TDF005W-06	NA	TDF005W	06/02/05	06/02/05
LFWC-2	F041-01	460	1	NA	10	5	06/04/0512:06	NA	TDF005W-07	NA	TDF005W	06/03/05	06/03/05
LAWC-3	F041-02	324	1	NA	10	5	06/04/0512:07	NA	TDF005W-08	NA	TDF005W	06/03/05	06/03/05

8098

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 160.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05F027
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: TDF005WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 06/04/05 12:01/12:02

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
TDS	ND	270.00	276.00	102	270.00	270.00	100	2	80-120	20

8099

Method ☑ 160.1 ☐ 160.2 ☐ 160.3 ☐ 160.4 ☐ 160.5 Book # GV-006 **Page** 40

Temp. 105 &180oC Starting Date Time Ending Date 6/4/05 Time

Prep. Sample ID		Lab Sample ID	Sample Amt. (ml)	Dish Wt. (g)	Dry Wt. + Dish 3rd	Solids (mg)	Result (mg/L)	Result (mg/L)	TIME
ANALYTICAL] * TDF005W	* 1	TDF005WB	100.0	66.2008	66.2008	0.0000	0.000	ND	12:00
	* 2	TDF005WL	50.0	66.6187	66.6325	13.8000	276	276	12:01
	* 3	TDF005WC	50.0	60.0899	60.1034	13.5000	270	270	12:02
	* 4	F027-01	50.0	62.9426	62.9563	13.7000	274	274	12:03
	* 5	F027-02	50.0	55.8818	55.9028	21.0000	420.0	420	12:04
	* 6	F027-03	50.0	62.9659	62.9849	19.0000	380	380	12:05
	* 7	F041-01	50.0	62.9897	63.0127	23.0000	460	460	12:06
	* 8	F041-02	50.0	64.8770	64.8932	16.2000	324	324	12:07
	* 9	F021-02	50.0	66.9802	66.9802	0.0000	0	ND	12:08
	* 10	F021-03	50.0	73.0195	73.0602	40.7000	814	814	12:09
	* 11	F021-04	50.0	62.9345	62.9700	35.5000	710	710	12:10
	* 12	F021-06	50.0	65.9562	65.9560	-0.2000	-4	ND	12:11
	* 13	F021-08	50.0	63.9220	63.9562	34.2000	684	684	12:12
	* 14	F021-08D	50.0	60.0409	60.0749	34.0000	680	680	12:13
	* 15	F021-09	50.0	70.9820	71.0125	30.5000	610	610	12:14
	* 16	F021-10	50.0	66.0452	66.0942	49.0000	980	980	12:15
	* 17	F020-01	50.0	56.9107	56.9364	25.7000	514	514	12:16
	* 18	F020-02	50.0	62.8564	62.8816	25.2000	504	504	12:17
	* 19	F417-01	50.0	59.9582	59.9804	22.2000	444	444	12:18
	* 20	F418-01	50.0	64.9426	64.9788	36.2000	724	724	12:19
	* 21								

Comments:

RL(mg/L)= 10

LCS TV (mg/L)= 269.9

LCS(%Rec.)= 102

Reviewed By:

This page is checked during data ew.

8100

GRAVIMETRIC ANALYSIS LOG

SOP ☐ EMAX-160.1 Rev. No. 3 ☐ EMAX-160.2 Rev. No. 2 ☐ EMAX-160.3 Rev. No. 1 ☐ EMAX-160.4 Rev. No. 0 ☐ EMAX-160.5 Rev. No. 0

Book # AGV-017

Oven/Furnace Temp. 105 Starting Date 6/3/05 Time 1800 Ending Date 6/4/05 Time 1030

ANALYTICAL BATCH # SS TD F005W S VS

	Data File Name	Lab Sample ID	Sample Amt. (ml)	Dish Wt. (g)	Dry Wt. Dish + Solids(g) 1st	Time	2nd	Time	3rd	Time	Solids (mg)	Result (mg/L)	Settleable Solids Vol. of SS	Settleable Solids Result (ml/L)
1	TDF005W3		100	66.2008	66.2010	715	66.2006	910	66.2008	1100	0	ND		
2		WL	50	66.6187	66.6330	16	66.6323	11	66.6325	01	13.8	276		
3		WC	50	60.0899	60.1039	17	60.1035	12	60.1034	02	13.5	270		
4	F027-01		50	62.9426	62.9577	18	62.9565	13	62.9563	03	13.7	274		
5		-02	50	55.8818	55.9036	19	55.9030	14	55.9028	04	21.0	420		
6		-03	50	62.9659	62.9864	20	62.9848	15	62.9849	05	19.0	380		
7	F041-01		50	62.9897	63.0136	21	63.0126	16	63.0127	06	23.0	460	✓	
8		-02	50	64.8770	64.8940	22	64.8930	17	64.8932	07	16.2	324	✓	
9	F021-02		50	66.9802	66.9810	23	66.9803	18	66.9802	08	0	ND		
0		-03	50	73.0195	73.0612	24	73.0605	19	73.0602	09	40.7	814		
1		-04	50	62.9345	62.9708	25	62.9698	20	62.9700	10	35.5	710		
2		-06	50	65.9562	65.9571	26	65.9560	21	65.9560	11	-0.2	ND		
3		-08	50	63.9220	63.9577	27	63.9563	22	63.9562	12	34.2	684		
4		-08D 80	50	60.0409	60.0764	28	60.0753	23	60.0749	13	34	680		
5		09	50	70.9820	71.0133	29	71.0122	24	71.0125	14	30.5	610		
6		-10	50	66.0452	66.0956	30	66.0940	25	66.0942	15	49.0	980		
7	F020-01		50	56.9107	56.9370	31	56.9366	26	56.9364	16	25.7	514		
8		-02	50	62.8764	62.8825	32	62.8818	27	62.8816	17	26.2	524		
9	F417-01		50	59.9582	59.9811	33	59.9802	28	59.9804	18	22.2	444		
0	F418-01		50	64.9726	64.9796	34	64.9790	29	64.9788	19	36.2	724		

Comments: 180°C

LCS ID SW7A-06-155

LCSTV 269.9 mg/L

Balance:

I60-4070636

I -37030058

Analyzed By: NB/RM

This page is checked during the data review process.

EMAX Laboratories, Inc. 1835 W. 205th St. Torrance, CA 90501

8101

BALANCE CALIBRATION VERIFICATION LOG (DOE)

SOP ☐ EMAX-QC04 Revision No.: 1 QC04-036

Balance ID 10601202 Date 6-3-05

Range Min: 1 Max: 600 g

TV	200	100	30	5	1
1	199.999	99.998	29.999	5.000	1.000
2	199.999	99.997	29.999	5.000	1.000
3	199.999	99.998	29.999	5.000	1.000
Criteria (±0.1%)	0.2	0.1	0.03	0.005	0.001
LL	199.8	99.9	29.97	4.995	0.999
UL	200.2	100.1	30.03	5.005	1.001

Comment: passed

Balance ID J77299 Date 6-3-05

Range Min: 1 Max: 300 g

TV	200	100	50	30	20
1	200.00	100.00	50.00	30.00	20.00
2	200.00	100.00	50.00	30.00	20.00
3	200.00	100.00	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment: passed

Balance ID 10203192 Date 6-3-05

Range Min: 1 Max: 6000 g

TV	200	100	50	30	20
1	200.00	100.00	50.00	30.00	20.00
2	200.00	100.00	50.00	30.00	20.00
3	200.00	100.00	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment: passed

Balance ID 10304418 Date 6-3-05

Range Min: 1 Max: 6000 g

TV	200	100	50	30	20
1	200.04	100.03	50.00	30.00	20.00
2	200.04	100.03	50.00	30.00	20.00
3	200.04	100.03	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment: passed

Balance ID 40706360 Date 6-3-05

Range Min: 1 Max: 205 g

TV	200	100	30	1	0.02
1	199.9983	99.9974	29.9993	1.0000	0.0200
2	199.9984	99.9975	29.9987	1.0000	0.0200
3	199.9982	99.9977	29.9986	1.0000	0.0200
Criteria (±0.1%)	0.2	0.1	0.03	0.001	0.00002
LL	199.8	99.9	29.97	0.999	0.01998
UL	200.2	100.1	30.03	1.001	0.02002

Comment: passed

Balance ID 40706360 Date

Range Min: 1 Max: 205 g

TV	200	100	30	1	0.02
1					
2					
3					
Criteria (±0.1%)	0.2	0.1	0.03	0.001	0.00002
LL	199.8	99.9	29.97	0.999	0.01998
UL	200.2	100.1	30.03	1.001	0.02002

Comment:

Verified by: WC

Checked by:

Calibration Report No.: 3950-05
3949-05

8102

BALANCE CALIBRATION VERIFICATION LOG (DOE)

SOP ☐ **EMAX-QC04 Revision No.: 1** **QC04-036**

Balance ID 10601202 Date 6-4-05

Range Min: 1 Max: 600 g

TV	200	100	30	5	1
1	200.003	100.004	30.001	4.999	1.000
2	200.002	100.002	30.001	4.998	1.000
3	200.001	100.002	30.001	4.998	1.000
Criteria (±0.1%)	0.2	0.1	0.03	0.005	0.001
LL	199.8	99.9	29.97	4.995	0.999
UL	200.2	100.1	30.03	5.005	1.001

Comment: passed

Balance ID J77299 Date

Range Min: 1 Max: 300 g

TV	200	100	50	30	20
1					
2					
3					
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment: N/A

Balance ID 10203192 Date

Range Min: 1 Max: 6000 g

TV	200	100	50	30	20
1					
2					
3					
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment: N/A

Balance ID 10304418 Date

Range Min: 1 Max: 6000 g

TV	200	100	50	30	20
1					
2					
3					
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment: N/A

Balance ID 40706360 Date 6/4/05

Range Min: 1 Max: 205 g

TV	200	100	30	1	0.02
1	199.9995	99.9990	30.0000	1.0000	0.0020
2	199.9996	99.9987	29.9999	1.0000	0.0020
3	199.9998	99.9984	29.9998	0.9999	0.0020
Criteria (±0.1%)	0.2	0.1	0.03	0.001	0.00002
LL	199.8	99.9	29.97	0.999	0.01998
UL	200.2	100.1	30.03	1.001	0.02002

Comment: passed

6/4/05

Balance ID 40706360 Date

Range Min: 1 Max: 205 g

TV	200	100	30	1	0.02
1					
2					
3					
Criteria (±0.1%)	0.2	0.1	0.03	0.001	0.00002
LL	199.8	99.9	29.97	0.999	0.01998
UL	200.2	100.1	30.03	1.001	0.02002

Comment:

Verified by:

Checked by: 6/4/05

Calibration Report No.: 3950-05
3949-05

8103

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F027**

METHOD 415.1
DISSOLVED ORGANIC CARBON

Five (5) water samples were received on 06/02/05 and 06/03/05 for Dissolved Organic Carbon analysis by Method 415.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. **Holding Time**

   Analysis met holding time criteria.

2. **Method Blank**

   Method blank was free of contamination at the reporting limit.

3. **Lab Control Sample/Lab Control Sample Duplicate**

   Lab control results were within QC limit.

4. **Duplicate**

   Sample F041-02 was analyzed for Duplicate. % RPD was within QC limit.

5. **Matrix Spike**

   Sample F041-02 was spiked. % Recovery was within QC limit.

6. **Sample Analysis**

   Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD ..1
DOC

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F041

Matrix : WATER
Instrument ID : 62

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TCF005WB	ND	1.00	NA	1	.5	06/10/0518:13	NA	TCF005-5	TCF005-2	TCF005W	NA	NA
LCS1W	TCF005WL	24.5	1.00	NA	1	.5	06/10/0518:24	NA	TCF005-6	TCF005-2	TCF005W	NA	NA
LCD1W	TCF005WC	24	1.00	NA	1	.5	06/10/0518:34	NA	TCF005-7	TCF005-2	TCF005W	NA	NA
GARFIELD	F027-01	9.29	1.00	NA	1	.5	06/10/0520:54	NA	TCF005-22	TCF005-14	TCF005W	06/02/05	06/02/05
SUNSET	F027-02	17.1	1.00	NA	1	.5	06/10/0521:04	NA	TCF005-23	TCF005-14	TCF005W	06/02/05	06/02/05
BANGHAM	F027-03	6.66	1.00	NA	1	.5	06/10/0521:13	NA	TCF005-24	TCF005-14	TCF005W	06/02/05	06/02/05
LAWC-2	F041-01	.923J	1.00	NA	1	.5	06/10/0521:22	NA	TCF005-25	TCF005-14	TCF005W	06/03/05	06/03/05
LAWC-3	F041-02	12.8	1.00	NA	1	.5	06/10/0521:53	NA	TCF005-28	TCF005-26	TCF005W	06/03/05	06/03/05
LAWC-3DUP	F041-02D	12.9	1.00	NA	1	.5	06/10/0522:02	NA	TCF005-29	TCF005-26	TCF005W	06/03/05	06/03/05
LAWC-3MS	F041-02M	35.8	1.00	NA	1	.5	06/10/0522:12	NA	TCF005-30	TCF005-26	TCF005W	06/03/05	06/03/05

8103

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F041
METHOD: METHOD 415.1

==========

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1.00	1.00	1.00		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	TCF005WB	TCF005WL	TCF005WC		
LAB FILE ID:	TCF005-5	TCF005-6	TCF005-7		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	06/10/0518:13	06/10/0518:24	06/10/0518:34	DATE RECEIVED:	NA
PREP. BATCH:	TCF005W	TCF005W	TCF005W		
CALIB. REF:	TCF005-2	TCF005-2	TCF005-2		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
DOC	ND	25	24.5	98	25	24	96	2	80-120	20

8106

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F041
METHOD: METHOD 415.1

==========

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1.00	1.00		
SAMPLE ID:	LAWC-3			
LAB SAMP ID:	F041-02	F041-02M		
LAB FILE ID:	TCF005-28	TCF005-30		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	06/03/05
DATE ANALYZED:	06/10/0521:53	06/10/0522:12	DATE RECEIVED:	06/03/05
PREP. BATCH:	TCF005W	TCF005W		
CALIB. REF:	TCF005-26	TCF005-26		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
DOC	12.8	25	35.8	92	75-125

8107

EMAX QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F041
METHOD: METHOD 415.1

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1.00	1.00		
SAMPLE ID:	LAWC-3	LAWC-3DUP		
EMAX SAMP ID:	F041-02	F041-02D		
LAB FILE ID:	TCF005-28	TCF005-29		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	06/03/05
DATE ANALYZED:	06/10/0521:53	06/10/0522:02	DATE RECEIVED:	06/03/05
PREP. BATCH:	TCF005W	TCF005W		
CALIB. REF:	TCF005-26	TCF005-26		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	DUPL RSLT (mg/L)	RPD RSLT %	QC LIMIT (%)
DOC	12.8	12.9	1	20

8108

	Type	Analysis	Sample Name	Sample ID	ObjectID	Origin	Dilution	Result	Notes
1	Standard	NPOC	ICAL	TCF005-1	0A-123456-0	C:\Pro	1.000		
2	Control	NPOC	ICV	TCF005-2	0A-123456-0	C:\Pro	1.000	NPOC:25.15 mg/L	Control value:
3	Unknown	NPOC	ICB	TCF005-3	0A-123456-0	C:\Pro	1.000	NPOC:0.06167 m	
4	Unknown	NPOC	HCO3/CO3	TCF005-4	0A-123456-0	C:\Pro	1.000	NPOC:0.1932 mg	
5	Unknown	NPOC	TCF005WB	TCF005-5	0A-123456-0	C:\Pro	1.000	NPOC:0.05997 m	
6	Unknown	NPOC	TCF005WL	TCF005-6	0A-123456-0	C:\Pro	1.000	NPOC:24.53 mg/L	
7	Unknown	NPOC	TCF005WC	TCF005-7	0A-123456-0	C:\Pro	1.000	NPOC:24.01 mg/L	
8	Unknown	NPOC	05E175-01	TCF005-8	0A-123456-0	C:\Pro	1.000	NPOC:1.663 mg/L	
9	Unknown	NPOC	05E175-02	TCF005-9	0A-123456-0	C:\Pro	1.000	NPOC:1.693 mg/L	
10	Unknown	NPOC	05E175-03	TCF005-10	0A-123456-0	C:\Pro	1.000	NPOC:0.4687 mg	
11	Unknown	NPOC	05E175-04	TCF005-11	0A-123456-0	C:\Pro	1.000	NPOC:1.003 mg/L	
12	Unknown	NPOC	05E175-05	TCF005-12	0A-123456-0	C:\Pro	1.000	NPOC:1.089 mg/L	
13	Unknown	NPOC	05E175-06	TCF005-13	0A-123456-0	C:\Pro	1.000	NPOC:1.302 mg/L	
14	Control	NPOC	CCV1	TCF005-14	0A-123456-0	C:\Pro	1.000	NPOC:24.79 mg/L	Control value:
15	Unknown	NPOC	CCB1	TCF005-15	0A-123456-0	C:\Pro	1.000	NPOC:0.000 mg/L	
16	Unknown	NPOC	05E175-07	TCF005-16	0A-123456-0	C:\Pro	1.000	NPOC:0.3987 mg	
17	Unknown	NPOC	05E189-01	TCF005-17	0A-123456-0	C:\Pro	1.000	NPOC:0.6302 mg	
18	Unknown	NPOC	05E189-02	TCF005-18	0A-123456-0	C:\Pro	1.000	NPOC:1.183 mg/L	
19	Unknown	NPOC	05E189-03	TCF005-19	0A-123456-0	C:\Pro	1.000	NPOC:1.710 mg/L	
20	Unknown	NPOC	05E189-04	TCF005-20	0A-123456-0	C:\Pro	1.000	NPOC:0.5658 mg	
21	Unknown	NPOC	05F064-01	TCF005-21	0A-123456-0	C:\Pro	1.000	NPOC:14.91 mg/L	
22	Unknown	NPOC	05F027-01	TCF005-22	0A-123456-0	C:\Pro	1.000	NPOC:9.288 mg/L	
23	Unknown	NPOC	05F027-02	TCF005-23	0A-123456-0	C:\Pro	1.000	NPOC:17.13 mg/L	
24	Unknown	NPOC	05F027-03	TCF005-24	0A-123456-0	C:\Pro	1.000	NPOC:6.665 mg/L	
25	Unknown	NPOC	05F041-01	TCF005-25	0A-123456-0	C:\Pro	1.000	NPOC:0.9232 mg	
26	Control	NPOC	CCV2	TCF005-26	0A-123456-0	C:\Pro	1.000	NPOC:24.49 mg/L	Control value:
27	Unknown	NPOC	CCB2	TCF005-27	0A-123456-0	C:\Pro	1.000	NPOC:0.000 mg/L	
28	Unknown	NPOC	05F041-02	TCF005-28	0A-123456-0	C:\Pro	1.000	NPOC:12.76 mg/L	
29	Unknown	NPOC	05F041-02D	TCF005-29	0A-123456-0	C:\Pro	1.000	NPOC:12.87 mg/L	
30	Unknown	NPOC	05F041-02M	TCF005-30	0A-123456-0	C:\Pro	1.000	NPOC:35.76 mg/L	
31	Unknown	NPOC	05F064-01	TCF005-31	0A-123456-0	C:\Pro	1.000	NPOC:0.8298 mg	
32	Unknown	NPOC	TCF006WB	TCF005-32	0A-123456-0	C:\Pro	1.000	NPOC:0.1326 mg	
33	Unknown	NPOC	TCF006WL	TCF005-33	0A-123456-0	C:\Pro	1.000	NPOC:24.77 mg/L	
34	Unknown	NPOC	TCF006WC	TCF005-34	0A-123456-0	C:\Pro	1.000	NPOC:24.73 mg/L	
35	Unknown	NPOC	05E175-01	TCF005-35	0A-123456-0	C:\Pro	1.000	NPOC:1.451 mg/L	
36	Unknown	NPOC	05E175-02	TCF005-36	0A-123456-0	C:\Pro	1.000	NPOC:0.6567 mg	
37	Unknown	NPOC	05E175-03	TCF005-37	0A-123456-0	C:\Pro	1.000	NPOC:0.4543 mg	
38	Control	NPOC	CCV3	TCF005-38	0A-123456-0	C:\Pro	1.000	NPOC:24.57 mg/L	Control value:
39	Unknown	NPOC	CCB3	TCF005-39	0A-123456-0	C:\Pro	1.000	NPOC:0.05422 m	
40	Unknown	NPOC	05E175-04	TCF005-40	0A-123456-0	C:\Pro	1.000	NPOC:0.4391 mg	
41	Unknown	NPOC	05E175-05	TCF005-41	0A-123456-0	C:\Pro	1.000	NPOC:1.097 mg/L	
42	Unknown	NPOC	05E175-06	TCF005-42	0A-123456-0	C:\Pro	1.000	NPOC:1.008 mg/L	
43	Unknown	NPOC	05E175-07	TCF005-43	0A-123456-0	C:\Pro	1.000	NPOC:0.3261 mg	
44	Unknown	NPOC	05E189-01	TCF005-44	0A-123456-0	C:\Pro	1.000	NPOC:0.5660 mg	
45	Unknown	NPOC	05E189-02	TCF005-45	0A-123456-0	C:\Pro	1.000	NPOC:1.110 mg/L	
46	Unknown	NPOC	05E189-03	TCF005-46	0A-123456-0	C:\Pro	1.000	NPOC:1.839 mg/L	
47	Unknown	NPOC	05E189-04	TCF005-47	0A-123456-0	C:\Pro	1.000	NPOC:0.4890 mg	
48	Unknown	NPOC	05F027-01	TCF005-48	0A-123456-0	C:\Pro	1.000	NPOC:0.3541 mg	
49	Unknown	NPOC	05F027-02	TCF005-49	0A-123456-0	C:\Pro	1.000	NPOC:0.9690 mg	
50	Control	NPOC	CCV4	TCF005-50	0A-123456-0	C:\Pro	1.000	NPOC:24.22 mg/L	Control value:
51	Unknown	NPOC	CCB4	TCF005-51	0A-123456-0	C:\Pro	1.000	NPOC:0.05882 m	
52	Unknown	NPOC	05F027-03	TCF005-52	0A-123456-0	C:\Pro	1.000	NPOC:0.7103 mg	
53	Unknown	NPOC	05F041-01	TCF005-53	0A-123456-0	C:\Pro	1.000	NPOC:0.5763 mg	
54	Unknown	NPOC	05F041-02	TCF005-54	0A-123456-0	C:\Pro	1.000	NPOC:0.5965 mg	
55	Unknown	NPOC	05F041-02D	TCF005-55	0A-123456-0	C:\Pro	1.000	NPOC:0.6222 mg	
56	Unknown	NPOC	05F041-02M	TCF005-56	0A-123456-0	C:\Pro	1.000	NPOC:24.42 mg/L	
57	Unknown	NPOC	05F048-02	TCF005-57	0A-123456-0	C:\Pro	1.000	NPOC:2.061 mg/L	
58	Unknown	NPOC	05F048-04	TCF005-58	0A-123456-0	C:\Pro	1.000	NPOC:18.25 mg/L	
59	Unknown	NPOC	05F048-06	TCF005-59	0A-123456-0	C:\Pro	1.000	NPOC:5.965 mg/L	
60	Unknown	NPOC	05E526-01	TCF005-60	0A-123456-0	C:\Pro	5.000	NPOC:118.0 mg/L	
61	Control	NPOC	CCV5	TCF005-61	0A-123456-0	C:\Pro	1.000	NPOC:24.76 mg/L	Control value:
62	Unknown	NPOC	CCB5	TCF005-62	0A-123456-0	C:\Pro	1.000	NPOC:0.000 mg/L	
63									
64									
65									
66									

8109

Instr.Information

System	toc
Detector	Combustion
Catalyst	Regular Sensitivity
Cell Length	long

Cal. Curve

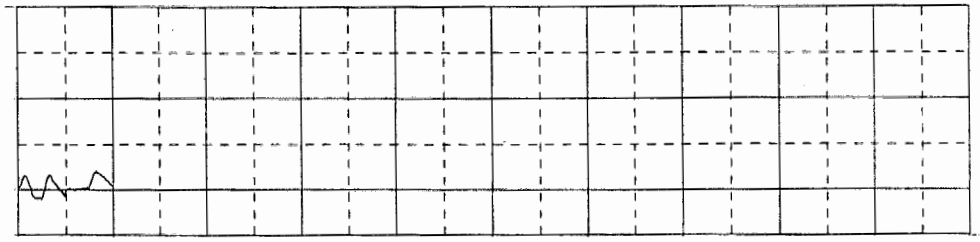
Sample Name:	ICAL
Sample ID:	TCF005-1
Cal. Curve:	tcf005.2005_06_10_16_40_16.cal

Type	Anal.
Standard	NPOC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	0.3586	50uL	1	*******		06/10/05 04:47:30 PM
2	0.2707	50uL	1	*******		06/10/05 04:48:40 PM

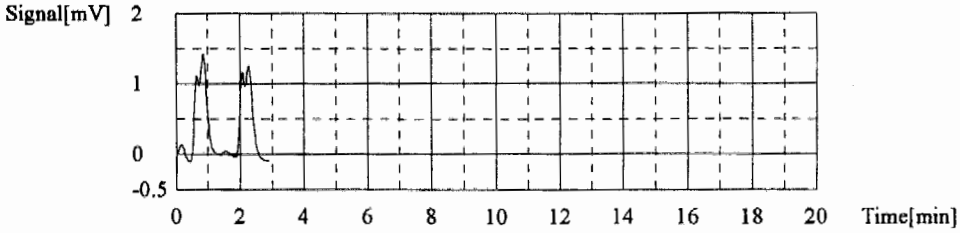
Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	0.3146



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	3.482	50uL	10	*******		06/10/05 04:57:17 PM
2	3.214	50uL	10	*******		06/10/05 04:58:57 PM

Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	3.348

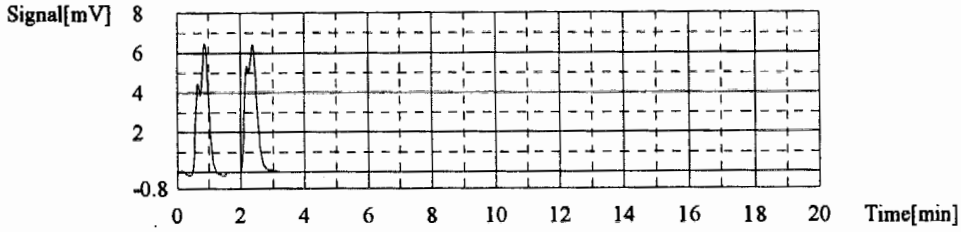


Conc: 5.000mg/L

8110

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	15.04	50uL	2	*******		06/10/05 05:05:47 PM
2	15.17	50uL	2	*******		06/10/05 05:07:35 PM

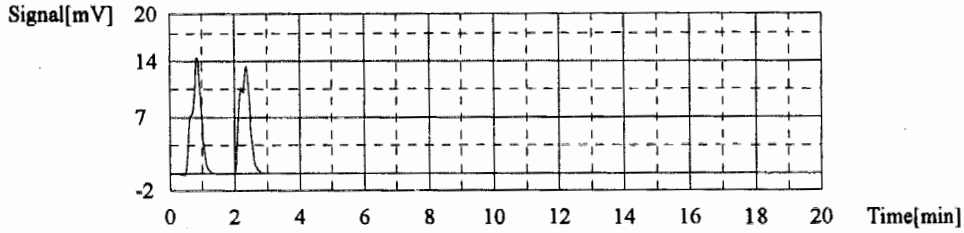
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 15.11



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	29.63	50uL	1	*******		06/10/05 05:13:42 PM
2	30.03	50uL	1	*******		06/10/05 05:15:22 PM

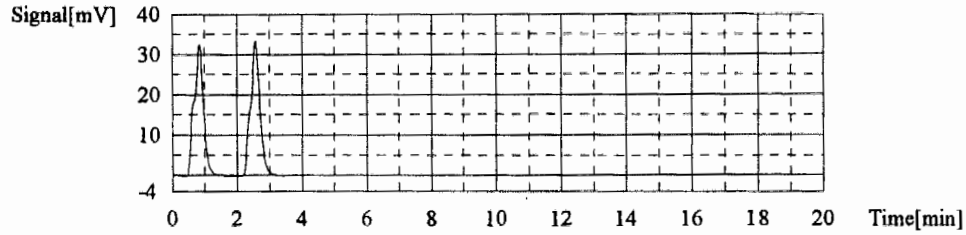
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 29.83



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	67.87	50uL	2	*******		06/10/05 05:24:19 PM
2	67.50	50uL	2	*******		06/10/05 05:26:13 PM

Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 67.69

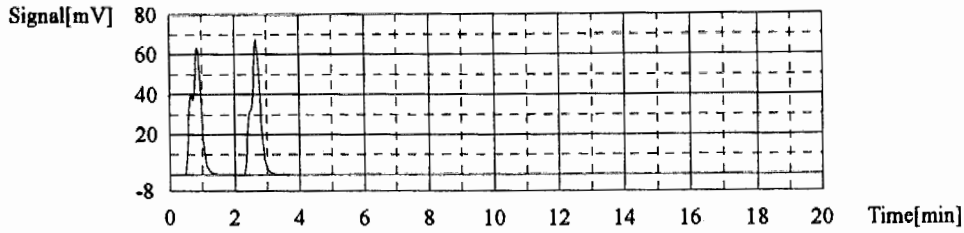


Conc: 50.00mg/L

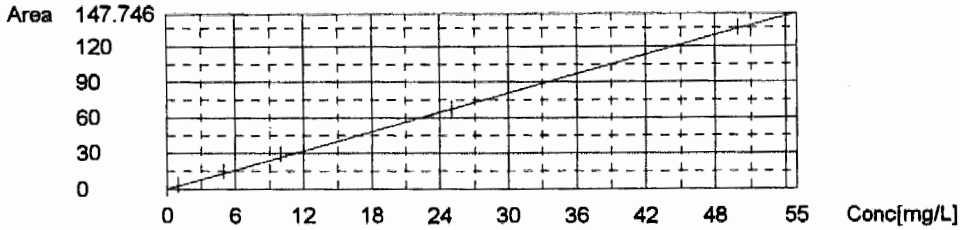
No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	135.6	50uL	1	*******		06/10/05 05:32:37 PM
2	135.4	50uL	1	*******		06/10/05 05:34:36 PM

8111

Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	135.5



Slope:	2.686
Intercept	0.000
r^2	0.999639



Control Sample

Sample Name:	ICV
Sample ID:	TCF005-2
Method:	tcf005.tpl
Chk. Result	Control value: 3.30% / Control within range!

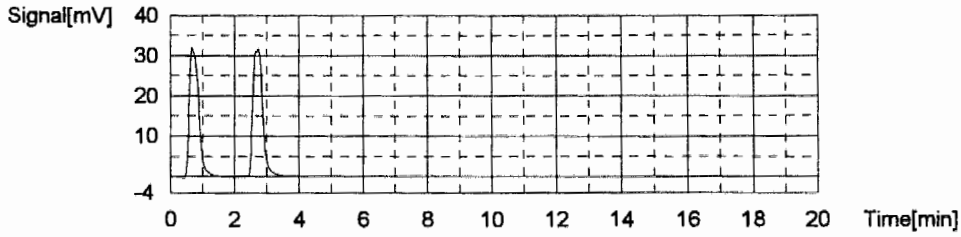
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:25.15 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	66.45	24.74mg/L	50uL	1		tcf005.2005_06_10_16_40_18.cal	06/10/05 05:43:20 PM
2	68.68	25.57mg/L	50uL	1		tcf005.2005_06_10_16_40_18.cal	06/10/05 05:45:30 PM

Mean Area	67.56
Mean Conc.	25.15mg/L



Sample

8112

Sample Name: ICB
Sample ID: TCF005-3
Origin: tcf005.met
Chk. Result

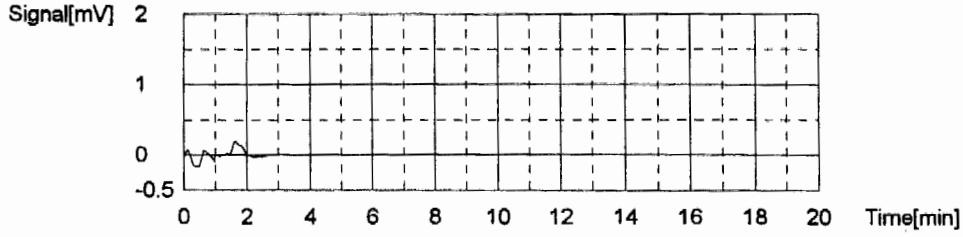
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.06167 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.3313	0.1233mg/L	50uL	1		tcf005.2005_06_10_16_40_16.cal	06/10/05 05:53:00 PM
2	0.000	0.000mg/L	50uL	1		tcf005.2005_06_10_16_40_16.cal	06/10/05 05:55:05 PM

Mean Area 0.1657
Mean Conc. 0.06167mg/L



Sample

Sample Name: HCO3/CO3
Sample ID: TCF005-4
Origin: tcf005.met
Chk. Result

Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.1932 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.5246	0.1953mg/L	50uL	1		tcf005.2005_06_10_16_40_16.cal	06/10/05 06:02:44 PM
2	0.5136	0.1912mg/L	50uL	1		tcf005.2005_06_10_16_40_16.cal	06/10/05 06:04:02 PM

ANALYSIS RUN LOG FOR TOC

SOP: o EMAX-9060 Revision No. 1 ✓ EMAX-415.1 Revision No. 1 o

Book # A62-006

Start Date: 6/10/05 Time: ~~04:~~ 16:47 EndingDate: 06/11/05 Time: 03:13

Sample Prep. ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Run Time	Notes
* 1							
* 2							
* 3							
* 4							
* 5							
* 6							
* 7							
* 8							
* 9							
* 0							
* 1							
* 2							
* 3							
* 4							
* 5							
* 6							
* 7							
* 8							
* 9							
* 0							
* 1							
* 2							
* 3							
* 4							
* 5							
* 6							
* 7							
* 8							
* 9							
* 0							

ANALYTICAL BATCH * TCF005W ** TCF006W

SEE ATTACHED INSTRUMENT SEQ. ~ 6/10/05 ~ 6/10/05

Instrument No.	62
INITIAL CALIBRATION REFERENCE	
Method File	TCF005
ICAL ID	SW10B-01-594
ICV ID	↓ 593

STANDARDS

ICAL Level		Conc.(mg/L)
S_0	Nanopure	0
S_1	SW10B-01-594	1
S_2	↓	5
S_3		10
S_4		25
S_5		50
S_6	~ 6/9/05	
ICV/LCS	SW10B-01-593	25
CCV	↓ 595	25

Comments:

Analyzed By: ~

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8114

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05F027**

METHOD 415.1
TOTAL ORGANIC CARBON

Five (5) water samples were received on 06/02/05 and 06/03/05 for Total Organic Carbon analysis by Method 415.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. **Holding Time**

   Analysis met holding time criteria.

2. **Method Blank**

   Method blank was free of contamination at the reporting limit.

3. **Lab Control Sample/Lab Control Sample Duplicate**

   Lab control results were within QC limit.

4. **Duplicate**

   Sample F041-02 was analyzed for Duplicate. % RPD was within QC limit.

5. **Matrix Spike**

   Sample F041-02 was spiked. % Recovery was within QC limit.

6. **Sample Analysis**

   Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 9.1
TOC

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05F041

Matrix : WATER
Instrument ID : 62

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TCF006WB	ND	1.00	NA	1	.5	06/10/0522:30	NA	TCF005-32	TCF005-26	TCF006W	NA	NA
LCS1W	TCF006WL	24.8	1.00	NA	1	.5	06/10/0522:40	NA	TCF005-33	TCF005-26	TCF006W	NA	NA
LCD1W	TCF006WC	24.7	1.00	NA	1	.5	06/10/0522:50	NA	TCF005-34	TCF005-26	TCF006W	NA	NA
GARFIELD	F027-01	ND	1.00	NA	1	.5	06/11/0500:58	NA	TCF005-48	TCF005-38	TCF006W	06/02/05	06/02/05
SUNSET	F027-02	.969J	1.00	NA	1	.5	06/11/0501:07	NA	TCF005-49	TCF005-38	TCF006W	06/02/05	06/02/05
BANGHAM	F027-03	.71J	1.00	NA	1	.5	06/11/0501:36	NA	TCF005-52	TCF005-50	TCF006W	06/02/05	06/02/05
LFWC-2	F041-01	ND	1.00	NA	1	.5	06/11/0501:45	NA	TCF005-53	TCF005-50	TCF006W	06/03/05	06/03/05
LAWC-3	F041-02	ND	1.00	NA	1	.5	06/11/0501:54	NA	TCF005-54	TCF005-50	TCF006W	06/03/05	06/03/05
LAWC-3DUP	F041-02D	ND	1.00	NA	1	.5	06/11/0502:03	NA	TCF005-55	TCF005-50	TCF006W	06/03/05	06/03/05
LAWC-3MS	F041-02M	24.4	1.00	NA	1	.5	06/11/0502:13	NA	TCF005-56	TCF005-50	TCF006W	06/03/05	06/03/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F041
METHOD: METHOD 415.1

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1.00	1.00	1.00		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	TCF006WB	TCF006WL	TCF006WC		
LAB FILE ID:	TCF005-32	TCF005-33	TCF005-34		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	06/10/0522:30	06/10/0522:40	06/10/0522:50	DATE RECEIVED:	NA
PREP. BATCH:	TCF006W	TCF006W	TCF006W		
CALIB. REF:	TCF005-26	TCF005-26	TCF005-26		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
TOC	ND	25	24.8	99	25	24.7	99	0	80-120	20

8117

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F041
METHOD: METHOD 415.1

==========

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1.00	1.00		
SAMPLE ID:	LAWC-3			
LAB SAMP ID:	F041-02	F041-02M		
LAB FILE ID:	TCF005-54	TCF005-56		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	06/03/05
DATE ANALYZED:	06/11/0501:54	06/11/0502:13	DATE RECEIVED:	06/03/05
PREP. BATCH:	TCF006W	TCF006W		
CALIB. REF:	TCF005-50	TCF005-50		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
TOC	.597	25	24.4	95	75-125

8118

EMAX QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05F041
METHOD: METHOD 415.1

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1.00	1.00		
SAMPLE ID:	LAWC-3	LAWC-3DUP		
EMAX SAMP ID:	F041-02	F041-02D		
LAB FILE ID:	TCF005-54	TCF005-55		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	06/03/05
DATE ANALYZED:	06/11/0501:54	06/11/0502:03	DATE RECEIVED:	06/03/05
PREP. BATCH:	TCF006W	TCF006W		
CALIB. REF:	TCF005-50	TCF005-50		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	DUPL RSLT (mg/L)	RPD RSLT %	QC LIMIT (%)
TOC	.597J	.622J	NA	20

8119

	Type	Analysis	Sample Name	Sample ID	ObjectID	Origin	Dilution	Result	Notes
1	Standard	NPOC	ICAL	TCF005-1	0A-123456-0	C:\Pro	1.000		
2	Control	NPOC	ICV	TCF005-2	0A-123456-0	C:\Pro	1.000		
3	Unknown	NPOC	ICB	TCF005-3	0A-123456-0	C:\Pro	1.000		
4	Unknown	NPOC	HCO3/CO3	TCF005-4	0A-123456-0	C:\Pro	1.000		
5	Unknown	NPOC	TCF005WB	TCF005-5	0A-123456-0	C:\Pro	1.000		
6	Unknown	NPOC	TCF005WL	TCF005-6	0A-123456-0	C:\Pro	1.000		
7	Unknown	NPOC	TCF005WC	TCF005-7	0A-123456-0	C:\Pro	1.000		
8	Unknown	NPOC	05E175-01	TCF005-8	0A-123456-0	C:\Pro	1.000		DOC
9	Unknown	NPOC	05E175-02	TCF005-9	0A-123456-0	C:\Pro	1.000		
10	Unknown	NPOC	05E175-03	TCF005-10	0A-123456-0	C:\Pro	1.000		
11	Unknown	NPOC	05E175-04	TCF005-11	0A-123456-0	C:\Pro	1.000		
12	Unknown	NPOC	05E175-05	TCF005-12	0A-123456-0	C:\Pro	1.000		
13	Unknown	NPOC	05E175-06	TCF005-13	0A-123456-0	C:\Pro	1.000		
14	Control	NPOC	CCV1	TCF005-14	0A-123456-0	C:\Pro	1.000		
15	Unknown	NPOC	CCB1	TCF005-15	0A-123456-0	C:\Pro	1.000		
16	Unknown	NPOC	05E175-07	TCF005-16	0A-123456-0	C:\Pro	1.000		DOC
17	Unknown	NPOC	05E189-01	TCF005-17	0A-123456-0	C:\Pro	1.000		
18	Unknown	NPOC	05E189-02	TCF005-18	0A-123456-0	C:\Pro	1.000		
19	Unknown	NPOC	05E189-03	TCF005-19	0A-123456-0	C:\Pro	1.000		
20	Unknown	NPOC	05E189-04	TCF005-20	0A-123456-0	C:\Pro	1.000		
21	Unknown	NPOC	05F064-01	TCF005-21	0A-123456-0	C:\Pro	1.000		
22	Unknown	NPOC	05F027-01	TCF005-22	0A-123456-0	C:\Pro	1.000		
23	Unknown	NPOC	05F027-02	TCF005-23	0A-123456-0	C:\Pro	1.000		
24	Unknown	NPOC	05F027-03	TCF005-24	0A-123456-0	C:\Pro	1.000		
25	Unknown	NPOC	05F041-01	TCF005-25	0A-123456-0	C:\Pro	1.000		
26	Control	NPOC	CCV2	TCF005-26	0A-123456-0	C:\Pro	1.000		
27	Unknown	NPOC	CCB2	TCF005-27	0A-123456-0	C:\Pro	1.000		
28	Unknown	NPOC	05F041-02	TCF005-28	0A-123456-0	C:\Pro	1.000		DOC
29	Unknown	NPOC	05F041-02D	TCF005-29	0A-123456-0	C:\Pro	1.000		
30	Unknown	NPOC	05F041-02M	TCF005-30	0A-123456-0	C:\Pro	1.000		
31	Unknown	NPOC	05F064-01	TCF005-31	0A-123456-0	C:\Pro	1.000		TOC
32	Unknown	NPOC	TCF006WB	TCF005-32	0A-123456-0	C:\Pro	1.000	✓	
33	Unknown	NPOC	TCF006WL	TCF005-33	0A-123456-0	C:\Pro	1.000	✓	
34	Unknown	NPOC	TCF006WC	TCF005-34	0A-123456-0	C:\Pro	1.000	✓	
35	Unknown	NPOC	05E175-01	TCF005-35	0A-123456-0	C:\Pro	1.000		TOC
36	Unknown	NPOC	05E175-02	TCF005-36	0A-123456-0	C:\Pro	1.000		
37	Unknown	NPOC	05E175-03	TCF005-37	0A-123456-0	C:\Pro	1.000		
38	Control	NPOC	CCV3	TCF005-38	0A-123456-0	C:\Pro	1.000		
39	Unknown	NPOC	CCB3	TCF005-39	0A-123456-0	C:\Pro	1.000		
40	Unknown	NPOC	05E175-04	TCF005-40	0A-123456-0	C:\Pro	1.000		TOC
41	Unknown	NPOC	05E175-05	TCF005-41	0A-123456-0	C:\Pro	1.000		
42	Unknown	NPOC	05E175-06	TCF005-42	0A-123456-0	C:\Pro	1.000		
43	Unknown	NPOC	05E175-07	TCF005-43	0A-123456-0	C:\Pro	1.000		
44	Unknown	NPOC	05E189-01	TCF005-44	0A-123456-0	C:\Pro	1.000		
45	Unknown	NPOC	05E189-02	TCF005-45	0A-123456-0	C:\Pro	1.000		
46	Unknown	NPOC	05E189-03	TCF005-46	0A-123456-0	C:\Pro	1.000		
47	Unknown	NPOC	05E189-04	TCF005-47	0A-123456-0	C:\Pro	1.000		
48	Unknown	NPOC	05F027-01	TCF005-48	0A-123456-0	C:\Pro	1.000	✓	
49	Unknown	NPOC	05F027-02	TCF005-49	0A-123456-0	C:\Pro	1.000	✓	
50	Control	NPOC	CCV4	TCF005-50	0A-123456-0	C:\Pro	1.000		
51	Unknown	NPOC	CCB4	TCF005-51	0A-123456-0	C:\Pro	1.000		
52	Unknown	NPOC	05F027-03	TCF005-52	0A-123456-0	C:\Pro	1.000	✓	TOC
53	Unknown	NPOC	05F041-01	TCF005-53	0A-123456-0	C:\Pro	1.000	✓	
54	Unknown	NPOC	05F041-02	TCF005-54	0A-123456-0	C:\Pro	1.000	✓	
55	Unknown	NPOC	05F041-02D	TCF005-55	0A-123456-0	C:\Pro	1.000		
56	Unknown	NPOC	05F041-02M	TCF005-56	0A-123456-0	C:\Pro	1.000		
57	Unknown	NPOC	05F048-02	TCF005-57	0A-123456-0	C:\Pro	1.000		
58	Unknown	NPOC	05F048-04	TCF005-58	0A-123456-0	C:\Pro	1.000		
59	Unknown	NPOC	05F048-06	TCF005-59	0A-123456-0	C:\Pro	1.000		
60	Unknown	NPOC	05E526-01	TCF005-60	0A-123456-0	C:\Pro	1.000	← DF=5x	
61	Control	NPOC	CCV5	TCF005-61	0A-123456-0	C:\Pro	1.000		
62	Unknown	NPOC	CCB5	TCF005-62	0A-123456-0	C:\Pro	1.000		
63									
64									
65									
66									

6/10/05

6/10/05

6/9/05

8420

	Type	Analysis	Sample Name	Sample ID	ObjectID	Origin	Dilution	Result	Notes
1	Standard	NPOC	ICAL	TCF005-1	0A-123456-0	C:\Pro	1.000		
2	Control	NPOC	ICV	TCF005-2	0A-123456-0	C:\Pro	1.000	NPOC:25.15 mg/L	Control value:
3	Unknown	NPOC	ICB	TCF005-3	0A-123456-0	C:\Pro	1.000	NPOC:0.06167 m	
4	Unknown	NPOC	HCO3/CO3	TCF005-4	0A-123456-0	C:\Pro	1.000	NPOC:0.1932 mg	
5	Unknown	NPOC	TCF005WB	TCF005-5	0A-123456-0	C:\Pro	1.000	NPOC:0.05997 m	
6	Unknown	NPOC	TCF005WL	TCF005-6	0A-123456-0	C:\Pro	1.000	NPOC:24.53 mg/L	
7	Unknown	NPOC	TCF005WC	TCF005-7	0A-123456-0	C:\Pro	1.000	NPOC:24.01 mg/L	
8	Unknown	NPOC	05E175-01	TCF005-8	0A-123456-0	C:\Pro	1.000	NPOC:1.663 mg/L	
9	Unknown	NPOC	05E175-02	TCF005-9	0A-123456-0	C:\Pro	1.000	NPOC:1.693 mg/L	
10	Unknown	NPOC	05E175-03	TCF005-10	0A-123456-0	C:\Pro	1.000	NPOC:0.4687 mg	
11	Unknown	NPOC	05E175-04	TCF005-11	0A-123456-0	C:\Pro	1.000	NPOC:1.003 mg/L	
12	Unknown	NPOC	05E175-05	TCF005-12	0A-123456-0	C:\Pro	1.000	NPOC:1.089 mg/L	
13	Unknown	NPOC	05E175-06	TCF005-13	0A-123456-0	C:\Pro	1.000	NPOC:1.302 mg/L	
14	Control	NPOC	CCV1	TCF005-14	0A-123456-0	C:\Pro	1.000	NPOC:24.79 mg/L	Control value:
15	Unknown	NPOC	CCB1	TCF005-15	0A-123456-0	C:\Pro	1.000	NPOC:0.000 mg/L	
16	Unknown	NPOC	05E175-07	TCF005-16	0A-123456-0	C:\Pro	1.000	NPOC:0.3987 mg	
17	Unknown	NPOC	05E189-01	TCF005-17	0A-123456-0	C:\Pro	1.000	NPOC:0.6302 mg	
18	Unknown	NPOC	05E189-02	TCF005-18	0A-123456-0	C:\Pro	1.000	NPOC:1.183 mg/L	
19	Unknown	NPOC	05E189-03	TCF005-19	0A-123456-0	C:\Pro	1.000	NPOC:1.710 mg/L	
20	Unknown	NPOC	05E189-04	TCF005-20	0A-123456-0	C:\Pro	1.000	NPOC:0.5658 mg	
21	Unknown	NPOC	05F064-01	TCF005-21	0A-123456-0	C:\Pro	1.000	NPOC:14.91 mg/L	
22	Unknown	NPOC	05F027-01	TCF005-22	0A-123456-0	C:\Pro	1.000	NPOC:9.288 mg/L	
23	Unknown	NPOC	05F027-02	TCF005-23	0A-123456-0	C:\Pro	1.000	NPOC:17.13 mg/L	
24	Unknown	NPOC	05F027-03	TCF005-24	0A-123456-0	C:\Pro	1.000	NPOC:6.665 mg/L	
25	Unknown	NPOC	05F041-01	TCF005-25	0A-123456-0	C:\Pro	1.000	NPOC:0.9232 mg	
26	Control	NPOC	CCV2	TCF005-26	0A-123456-0	C:\Pro	1.000	NPOC:24.49 mg/L	Control value:
27	Unknown	NPOC	CCB2	TCF005-27	0A-123456-0	C:\Pro	1.000	NPOC:0.000 mg/L	
28	Unknown	NPOC	05F041-02	TCF005-28	0A-123456-0	C:\Pro	1.000	NPOC:12.76 mg/L	
29	Unknown	NPOC	05F041-02D	TCF005-29	0A-123456-0	C:\Pro	1.000	NPOC:12.87 mg/L	
30	Unknown	NPOC	05F041-02M	TCF005-30	0A-123456-0	C:\Pro	1.000	NPOC:35.76 mg/L	
31	Unknown	NPOC	05F064-01	TCF005-31	0A-123456-0	C:\Pro	1.000	NPOC:0.8298 mg	
32	Unknown	NPOC	TCF006WB	TCF005-32	0A-123456-0	C:\Pro	1.000	NPOC:0.1326 mg	
33	Unknown	NPOC	TCF006WL	TCF005-33	0A-123456-0	C:\Pro	1.000	NPOC:24.77 mg/L	
34	Unknown	NPOC	TCF006WC	TCF005-34	0A-123456-0	C:\Pro	1.000	NPOC:24.73 mg/L	
35	Unknown	NPOC	05E175-01	TCF005-35	0A-123456-0	C:\Pro	1.000	NPOC:1.451 mg/L	
36	Unknown	NPOC	05E175-02	TCF005-36	0A-123456-0	C:\Pro	1.000	NPOC:0.6567 mg	
37	Unknown	NPOC	05E175-03	TCF005-37	0A-123456-0	C:\Pro	1.000	NPOC:0.4543 mg	
38	Control	NPOC	CCV3	TCF005-38	0A-123456-0	C:\Pro	1.000	NPOC:24.57 mg/L	Control value:
39	Unknown	NPOC	CCB3	TCF005-39	0A-123456-0	C:\Pro	1.000	NPOC:0.05422 m	
40	Unknown	NPOC	05E175-04	TCF005-40	0A-123456-0	C:\Pro	1.000	NPOC:0.4391 mg	
41	Unknown	NPOC	05E175-05	TCF005-41	0A-123456-0	C:\Pro	1.000	NPOC:1.097 mg/L	
42	Unknown	NPOC	05E175-06	TCF005-42	0A-123456-0	C:\Pro	1.000	NPOC:1.008 mg/L	
43	Unknown	NPOC	05E175-07	TCF005-43	0A-123456-0	C:\Pro	1.000	NPOC:0.3261 mg	
44	Unknown	NPOC	05E189-01	TCF005-44	0A-123456-0	C:\Pro	1.000	NPOC:0.5660 mg	
45	Unknown	NPOC	05E189-02	TCF005-45	0A-123456-0	C:\Pro	1.000	NPOC:1.110 mg/L	
46	Unknown	NPOC	05E189-03	TCF005-46	0A-123456-0	C:\Pro	1.000	NPOC:1.839 mg/L	
47	Unknown	NPOC	05E189-04	TCF005-47	0A-123456-0	C:\Pro	1.000	NPOC:0.4890 mg	
48	Unknown	NPOC	05F027-01	TCF005-48	0A-123456-0	C:\Pro	1.000	NPOC:0.3541 mg	
49	Unknown	NPOC	05F027-02	TCF005-49	0A-123456-0	C:\Pro	1.000	NPOC:0.9690 mg	
50	Control	NPOC	CCV4	TCF005-50	0A-123456-0	C:\Pro	1.000	NPOC:24.22 mg/L	Control value:
51	Unknown	NPOC	CCB4	TCF005-51	0A-123456-0	C:\Pro	1.000	NPOC:0.05882 m	
52	Unknown	NPOC	05F027-03	TCF005-52	0A-123456-0	C:\Pro	1.000	NPOC:0.7103 mg	
53	Unknown	NPOC	05F041-01	TCF005-53	0A-123456-0	C:\Pro	1.000	NPOC:0.5763 mg	
54	Unknown	NPOC	05F041-02	TCF005-54	0A-123456-0	C:\Pro	1.000	NPOC:0.5965 mg	
55	Unknown	NPOC	05F041-02D	TCF005-55	0A-123456-0	C:\Pro	1.000	NPOC:0.6222 mg	
56	Unknown	NPOC	05F041-02M	TCF005-56	0A-123456-0	C:\Pro	1.000	NPOC:24.42 mg/L	
57	Unknown	NPOC	05F048-02	TCF005-57	0A-123456-0	C:\Pro	1.000	NPOC:2.061 mg/L	
58	Unknown	NPOC	05F048-04	TCF005-58	0A-123456-0	C:\Pro	1.000	NPOC:18.25 mg/L	
59	Unknown	NPOC	05F048-06	TCF005-59	0A-123456-0	C:\Pro	1.000	NPOC:5.965 mg/L	
60	Unknown	NPOC	05E526-01	TCF005-60	0A-123456-0	C:\Pro	5.000	NPOC:118.0 mg/L	
61	Control	NPOC	CCV5	TCF005-61	0A-123456-0	C:\Pro	1.000	NPOC:24.76 mg/L	Control value:
62	Unknown	NPOC	CCB5	TCF005-62	0A-123456-0	C:\Pro	1.000	NPOC:0.000 mg/L	
63									
64									
65									
66									

8121

Instr.Information

System	toc
Detector	Combustion
Catalyst	Regular Sensitivity
Cell Length	long

Cal. Curve

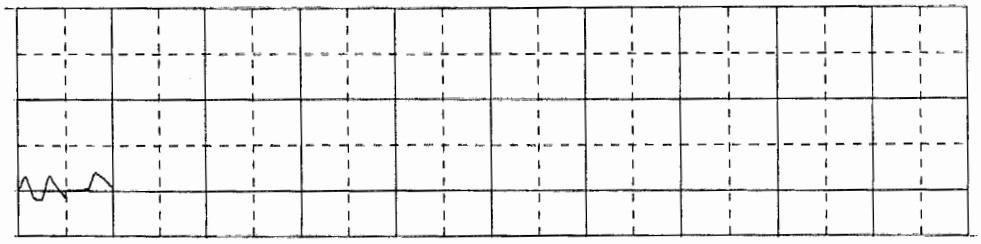
Sample Name:	ICAL
Sample ID:	TCF005-1
Cal. Curve:	tcf005.2005_06_10_16_40_16.cal

Type	Anal.
Standard	NPOC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	0.3586	50uL	1	*******		06/10/05 04:47:30 PM
2	0.2707	50uL	1	*******		06/10/05 04:48:40 PM

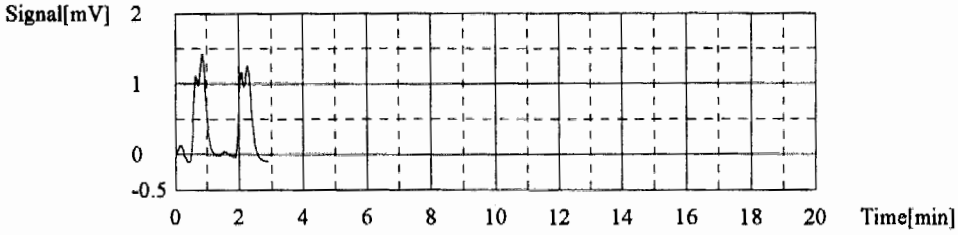
Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	0.3146



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	3.482	50uL	10	*******		06/10/05 04:57:17 PM
2	3.214	50uL	10	*******		06/10/05 04:58:57 PM

Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	3.348

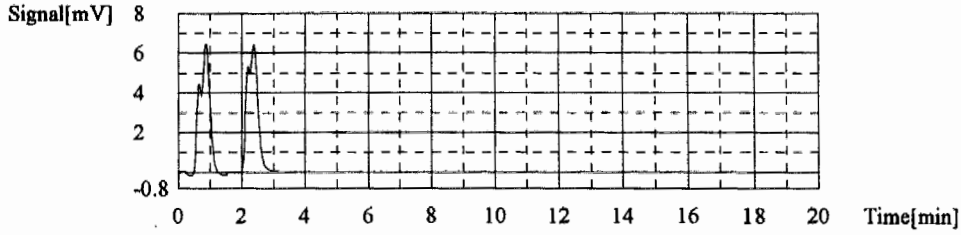


Conc: 5.000mg/L

8122

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	15.04	50uL	2	*******		06/10/05 05:05:47 PM
2	15.17	50uL	2	*******		06/10/05 05:07:35 PM

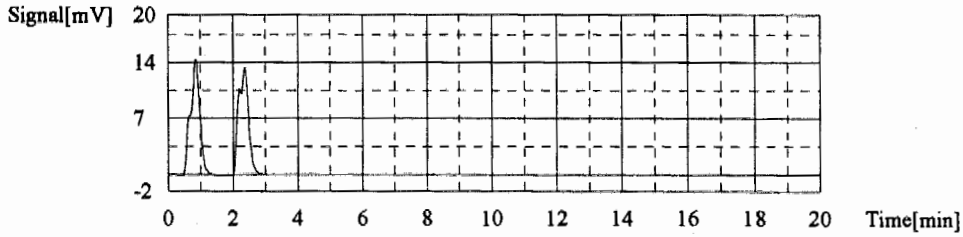
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 15.11



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	29.63	50uL	1	*******		06/10/05 05:13:42 PM
2	30.03	50uL	1	*******		06/10/05 05:15:22 PM

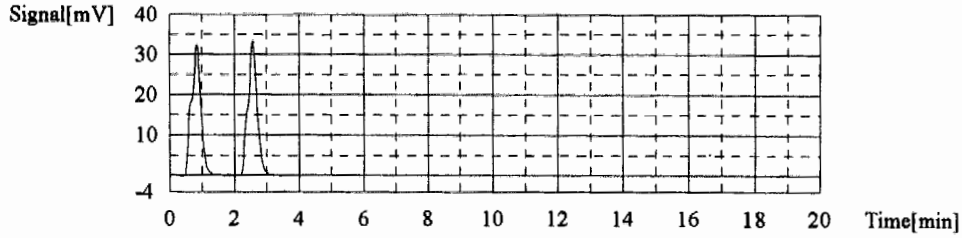
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 29.83



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	67.87	50uL	2	*******		06/10/05 05:24:19 PM
2	67.50	50uL	2	*******		06/10/05 05:26:13 PM

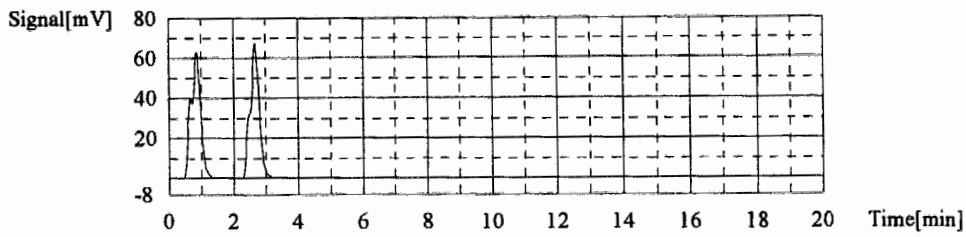
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 67.69



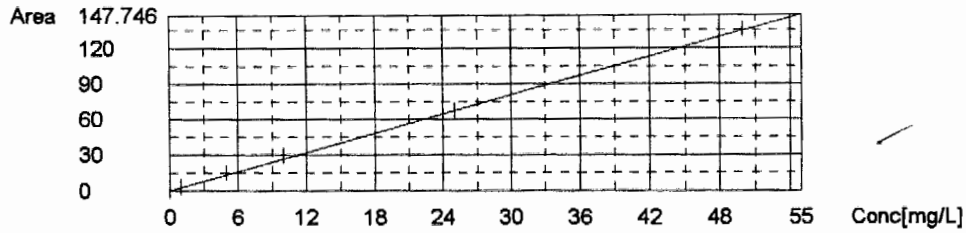
Conc: 50.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	135.6	50uL	1	*******		06/10/05 05:32:37 PM
2	135.4	50uL	1	*******		06/10/05 05:34:36 PM

Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	135.5



Slope:	2.686
Intercept	0.000
r^2	0.999639



Control Sample

Sample Name:	ICV
Sample ID:	TCF005-2
Method:	tcf005.tpl
Chk. Result	Control value: 3.30% / Control within range!

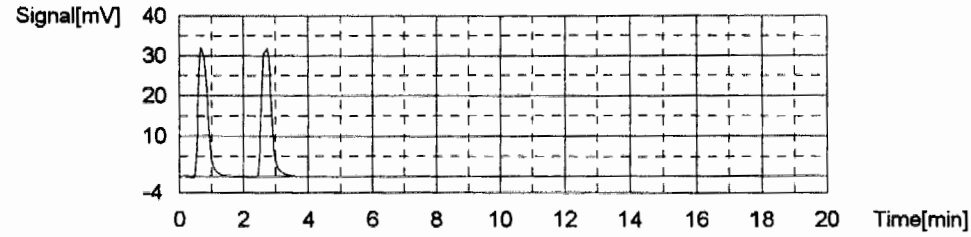
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:25.15 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	66.45	24.74mg/L	50uL	1		tcf005.2005_06_10_16_40_16.cal	06/10/05 05:43:20 PM
2	68.68	25.57mg/L	50uL	1		tcf005.2005_06_10_16_40_16.cal	06/10/05 05:45:30 PM

Mean Area	67.56
Mean Conc.	25.15mg/L



Sample

8124

Sample Name: ICB
Sample ID: TCF005-3
Origin: tcf005.met
Chk. Result

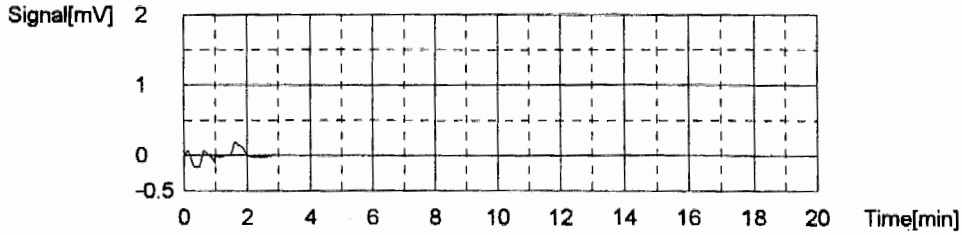
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.06167 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.3313	0.1233mg/L	50uL	1		tcf005.2005_06_10_16_40_16.cal	06/10/05 05:53:00 PM
2	0.000	0.000mg/L	50uL	1		tcf005.2005_06_10_16_40_16.cal	06/10/05 05:55:05 PM

Mean Area 0.1657
Mean Conc. 0.06167mg/L



Sample

Sample Name: HCO3/CO3
Sample ID: TCF005-4
Origin: tcf005.met
Chk. Result

Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.1932 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.5246	0.1953mg/L	50uL	1		tcf005.2005_06_10_16_40_16.cal	06/10/05 06:02:44 PM
2	0.5136	0.1912mg/L	50uL	1		tcf005.2005_06_10_16_40_16.cal	06/10/05 06:04:02 PM

8125

ANALYSIS RUN LOG FOR TOC

SOP: o EMAX-9060 **Revision No.** 1 ✓ EMAX-415.1 **Revision No.** 1 o **Book #** A62-006

Start Date: 6/10/05 **Time:** ~~04:~~ 16:47 **EndingDate:** 06/11/05 **Time:** 03:13

Sample Prep. ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Run Time	Notes
* 1							
* 2							
* 3							
* 4							
* 5							
* 6							
* 7							
* 8							
* 9							
* 0							
* 1							
* 2							
* 3							
* 4							
* 5							
* 6							
* 7							
* 8							
* 9							
* 0							
* 1							
* 2							
* 3							
* 4							
* 5							
* 6							
* 7							
* 8							
* 9							
* 0							

SEE ATTACHED INSTRUMENT SEQ. ~ 6/10/05 ~ 6/10/05

ANALYTICAL BATCH * TCF005U ** TCF006W

Instrument No.	62
INITIAL CALIBRATION REFERENCE	
Method File	TCF005
ICAL ID	SW10B-01-594
ICV ID	↓ 593

STANDARDS

ICAL Level		Conc.(mg/L)
S_0	Nanopure	0
S_1	SW10B-01-594	1
S_2	↓	5
S_3		10
S_4		25
S_5		50
S_6	~ 6/9/05	
ICV/LCS	SW10B-01-593	25
CCV	↓ 595	25

Comments:

Analyzed By: ~ /

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8126

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H132**

METHOD 310.1
TOTAL ALKALINITY

Five (5) water samples were received on 08/16/05 for Total Alkalinity analysis by Method 310.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Sample H132-05 was analyzed for duplicate. %RPD was within QC limit.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 310.1
TOTAL ALKALINITY

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H132

Matrix : WATER
Instrument ID : I53

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ALH010WB	ND	1	NA	5	1	08/17/0515:30	NA	ALH010W-01	NA	ALH010W	NA	NA
LCS1W	ALH010WL	47.2	1	NA	5	1	08/17/0515:35	NA	ALH010W-02	NA	ALH010W	NA	NA
LCD1W	ALH010WC	47.2	1	NA	5	1	08/17/0515:40	NA	ALH010W-03	NA	ALH010W	NA	NA
MW-17-5	H132-01	123	1	NA	5	1	08/17/0515:45	NA	ALH010W-04	NA	ALH010W	08/15/05	08/16/05
MW-17-4	H132-02	126	1	NA	5	1	08/17/0515:50	NA	ALH010W-05	NA	ALH010W	08/15/05	08/16/05
MW-17-3	H132-03	183	1	NA	5	1	08/17/0515:55	NA	ALH010W-06	NA	ALH010W	08/15/05	08/16/05
MW-17-2	H132-04	212	1	NA	5	1	08/17/0516:00	NA	ALH010W-07	NA	ALH010W	08/15/05	08/16/05
MW-17-1	H132-05	126	1	NA	5	1	08/17/0516:05	NA	ALH010W-08	NA	ALH010W	08/15/05	08/16/05
MW-17-1DUP	H132-05D	126	1	NA	5	1	08/17/0516:10	NA	ALH010W-09	NA	ALH010W	08/15/05	08/16/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 310.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05H132
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: ALH010WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 08/17/05 15:35/15:40

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Total Alkalinity	ND	49.20	47.20	96	49.20	47.20	96	0	80-120	20

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 310.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05H132
SAMPLE ID: MW-17-1DUP
CONTROL NO.: H132-05D

DATE RECEIVED: 08/16/05
DATE EXTRACTED: NA
DATE ANALYZED: 08/17/05 16:10

ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
Total Alkalinity	126.00	126.00	0	20

8004

ANALYSIS LOG FOR ALKALINITY

SOP ☑ EMAX-310.1 Rev. No. 2 ☐ SM2320B Rev. No. 0 ☐ Book # AAL-009

Start Date: 8/17/05 Time: 15:30 Ending Date: 8/17/05 Time: 16:25 Instrument No: ☒ 53 ☐ 97

	Data File Name	Lab Sample ID	Time	Sample Amt. (ml)	Initial pH	Acid Titrant pH=8.3	Acid Titrant pH=4.5	Acid Titrant pH=4.2	Final pH	ALKALINITY (mg/L) Total	Hydroxide (OH)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Notes
*01		ALHOIO WB	15:30	20	5.20	NA	0.020	NA	4.44	ND				
*02		WC	35		8.92		0.90		4.49	47.2				
*03		WC	40		8.94		0.90		4.53	47.2				
*04		H132-01	45		8.24		2.35		4.51	123				
*05		-02	50		8.26		2.40		4.53	126				
*06		-03	55		8.09		3.50		4.47	183				
*07		-04	16:00		7.76		4.05		4.46	212				
*08		-05	05		7.61		2.40		4.47	126				
*09		-05D	10		7.64		2.40		4.51	126				
*10		H133-01	15		8.66		1.35		4.49	70.7				
*11		-03	20		8.70		1.40		4.47	73.4				
*12		-03D	16:25		8.68		1.35		4.49	70.7				
*13														
*14														
*15														
*16														
*17														
*18														
*19														
*20														
*21														
*22														
*23														
*24														
*25														

KM 8/25/05

Standard Reagent	ID	Conc. mg/L
LCS	SW7A-06-174	49.2
Spike	NA	
Na_2CO_3 Soln	SW7A-06-170	2360
Acid Titrant HCl	SW3B-02-740	0.02N

Standardization

Na_2CO_3 Soln. (ml)	Acid Titrant (ml)	Normality, N
BLK	0.020	ND
5	11.25	0.02096
5	11.25	0.02096
5	11.25	0.02096

Avg N: 0.02096

pH METER CALIBRATION

pH Buffer	ID	Reading
pH 4	SW7A-06-201	4.00
pH 7	-202	7.00
pH 10	-203	10.00
Slope	100.1	

Comments:

Analyzed By: PM

This page is checked during data review.

ANALYTICAL BATCH # ALHOIOW

EMAX LABORATORIES, INC. 1835 W. 208th St. Torrance, CA 90501

8005

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H132**

METHOD 350.2
AMMONIA (NH3-N)

Five (5) water samples were received on 08/16/05 for Ammonia analysis by Method 350.2 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Sample H132-05 was analyzed for duplicate. %RPD was within QC limit.

5. Matrix Spike

Sample H132-05 was spiked. Recovery was within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

All results were reported as Nitrogen concentration.

METHOD 350.2
AMMONIA (NH3-N)

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H132

Matrix : WATER
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	NHH008WB	ND	1	NA	.1	.03	08/24/0515:11	08/24/0510:00	NHH008W-12	NHH008W-10	NHH008W	NA	08/24/05
LCS1W	NHH008WL	1.01	1	NA	.1	.03	08/24/0515:12	08/24/0510:00	NHH008W-13	NHH008W-10	NHH008W	NA	08/24/05
LCD1W	NHH008WC	.998	1	NA	.1	.03	08/24/0515:13	08/24/0510:00	NHH008W-14	NHH008W-10	NHH008W	NA	08/24/05
MW-17-5	H132-01	ND	1	NA	.1	.03	08/24/0515:14	08/24/0510:00	NHH008W-15	NHH008W-10	NHH008W	08/15/05	08/16/05
MW-17-4	H132-02	ND	1	NA	.1	.03	08/24/0515:15	08/24/0510:00	NHH008W-16	NHH008W-10	NHH008W	08/15/05	08/16/05
MW-17-3	H132-03	ND	1	NA	.1	.03	08/24/0515:16	08/24/0510:00	NHH008W-17	NHH008W-10	NHH008W	08/15/05	08/16/05
MW-17-2	H132-04	ND	1	NA	.1	.03	08/24/0515:17	08/24/0510:00	NHH008W-18	NHH008W-10	NHH008W	08/15/05	08/16/05
MW-17-1	H132-05	ND	1	NA	.1	.03	08/24/0515:18	08/24/0510:00	NHH008W-19	NHH008W-10	NHH008W	08/15/05	08/16/05
MW-17-1DUP	H132-05D	ND	1	NA	.1	.03	08/24/0515:19	08/24/0510:00	NHH008W-20	NHH008W-10	NHH008W	08/15/05	08/16/05
MW-17-1MS	H132-05M	.903	1	NA	.1	.03	08/24/0515:20	08/24/0510:00	NHH008W-21	NHH008W-10	NHH008W	08/15/05	08/16/05

8007

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 350.2
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05H132
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: NHH008WL/C

DATE RECEIVED: 08/24/05
DATE EXTRACTED: 08/24/05 10:00
DATE ANALYZED: 08/24/05 15:12/15:13

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Ammonia (NH3-N)	ND	1.00	1.01	101	1.00	.998	100	1	80-120	20

8008

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 350.2
MATRIX: WATER
% MOISTURE: NA

==========

BATCH NO.: 05H132
SAMPLE ID: MW-17-1MS
CONTROL NO.: H132-05M

DATE RECEIVED: 08/16/05
DATE EXTRACTED: 08/24/05 10:00
DATE ANALYZED: 08/24/05 15:20

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
Ammonia (NH3-N)	ND	1.00	.903	90	75-125

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 350.2
MATRIX: WATER
% MOISTURE: NA

==========

BATCH NO.: 05H132
SAMPLE ID: MW-17-1DUP
CONTROL NO.: H132-05D

DATE RECEIVED: 08/16/05
DATE EXTRACTED: 08/24/05 10:00
DATE ANALYZED: 08/24/05 15:19

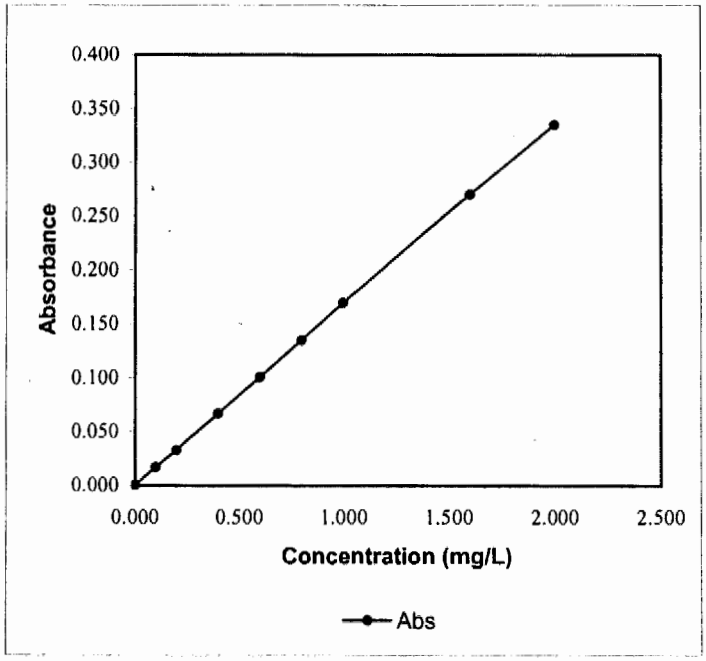
ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
Ammonia (NH3-N)	ND	ND	0	20

8010

CALIBRATION CURVE
AMMONIA _NH3 _TKN

Conc.	Abs
0.000	0.000
0.100	0.017
0.200	0.033
0.400	0.067
0.600	0.101
0.800	0.135
1.000	0.170
1.600	0.270
2.000	0.335



R^2	0.999939	Comments:	**PASSED**
Y	0.1683		
CF	5.9429	Analyzed by:	NT/LA

ANALYSIS LOG FOR AMMONIA-N

SOP ☑ EMAX-350.2 Rev. No. 2 ☐ EMAX-350.1 ☐ Rev. No. 0 ☐ Book # A70-NH_3-005

Starting Date: 8/24/05 Time: 15:00 Ending Date: 8/24/05 Time: 15:25

ANALYTICAL BATCH * NHH008W

	Data File Name	Prep. Batch	Lab Sample ID	Matrix S	Matrix W	Time	Vol.Colored (ml)	DF	Absorbance	Notes
* 1		NHH008W	S-0			15:00	20	1	0.000	
* 2			0.1			01			0.017	
* 3			0.2			02			0.033	
* 4			0.4			03			0.067	
* 5			0.6			04			0.101	
* 6			0.8			05			0.135	
* 7			1.0			06			0.170	
* 8			1.6			07			0.270	
* 9			2.0			08			0.335	
* 10			ICV			09			0.171	1.016
* 11			ICB			10			0.000	ND
* 12			NHH008WB		✓	11			0.000	ND
* 13			WL			12			0.170	1.010
* 14			WC			13			0.168	0.998
* 15			H132-01			14			0.002	ND
* 16			02			15			0.001	ND
* 17			03			16			0.014	ND
* 18			04			17			0.010	ND
* 19			05			18			0.004	ND
* 20			05D		✓	19			0.009	ND
* 21			05M		✓	20			0.152	0.903
* 22			CCV1			21			0.168	0.998
* 23			CCB1			22			0.000	ND
* 24			H178-01		✓	23			0.005	ND
* 25			CCV2			29			0.168	0.998
* 26			CCB2			15:25			0.000	ND
* 7										
* 8							NT	8	29/05	
* 9										
* 0										

Instrument No: 70 Wavelength: 425 nm

Standard	ID	Conc. (mg/L)
S_0	Nanopure	0.0
S_1	SW2B-03-182	0.1
S_2		0.2
S_3		0.4
S_4		0.6
S_5		0.8
S_6		1.0
S_7		1.6
S_8		2.0
ICV/MS	SW2B-03-181	1.0
CCV	182	1.0
LCS	179	1.0

Reagent	ID
Color Reagent	SW7A-06-141

Standard Curve	
R	0.999939
Y	0.1683
CF	5.9429

Comments:

Results are based on: ☐ Dry Weight ☐ Wet Weight

Analyzed By: NT/LA

This page is checked during data review.

EMAX LABORATORIES, INC. 1835-27 204th St Torrance, CA 90501

8012

DISTILLATION LOG FOR NH_3 / DIGESTION AND DISTILLATION FOR TKN

SOP ☑ EMAX-350.2 Rev. No.: 2 ☐ EMAX-351.3 Rev. No.: 2 ☐

Book # EKN-006

Start Date 8/24/05 Time 10:00 End Date 8/24/05 Time 14:30

PREPARATION BATCH # NHH008W

Sample Prep ID	Lab Sample ID	Sample pH	NaOH Added (ml)	Boric Acid (ml)	Borate Buffer (ml)	Sample Amount (ml)	Extract Volume (ml)	Notes
*01	S-0	9.5	0.1	10	5	100	100	
*02	0.1							
*03	1.0							
*04	2.0							
*05	ICV							
*06	ICB							
*07	NHH008WB							
*08	WL							
*09	WC							
*10	H132-01		0.7					
*11	02		0.9					
*12	03		0.7					
*13	04		0.8					
*14	05		0.9					
*15	05D		0.9					
*16	05M		0.9					
*17	H178-01		0.8					
*18								
*19								
*20								
*21						NT 8/24/05		
*22								
*23								
*24								
*25								
*26								

Standards	ID	Amount Added (ml)
ICV/MS	SW2B-03-181	10mL of 10ppm
LCS	179	100

Reagent	Lot# / ID
NaOH	SW7A-06-112
Digestion Mixture	N/A
Borate Buffer	SW7A-06-152
H_3BO_3	SW7B-06-322
Distilling Soln.	N/A

Comments:

Prepared By: NT/LA

Standard Added By: NT/LA

Checked By:

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8013

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H132**

METHOD 300.0
ANIONS

Five (5) water samples were received on 08/16/05 for Chloride, Nitrate-N, Nitrite-N and Sulfate analyses by method 300.0 in accordance with "Method for Determination of Inorganic Anions by Ion Chromatography", EPA 600/84-017.

1. Holding Time

Analyses met holding time criteria.

2. Method Blank

Method blanks were free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limits.

4. Duplicate

No duplicate sample was designated in this SDG.

5. Matrix Spike

No MS sample was designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

Nitrate-N and Nitrite-N results were reported as Nitrogen concentration.

SAMPLE RESULTS

METHOD 300.0
CHLORIDE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H132

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICH020WB	ND	1	NA	.2	.1	08/16/0515:11	NA	AH16-03	AH16-01	ICH020W	NA	NA
LCS1W	ICH020WL	4.8	1	NA	.2	.1	08/16/0515:25	NA	AH16-04	AH16-01	ICH020W	NA	NA
LCD1W	ICH020WC	4.8	1	NA	.2	.1	08/16/0515:39	NA	AH16-05	AH16-01	ICH020W	NA	NA
MW-17-5	H132-01	48.1	5	NA	1	.5	08/16/0518:00	NA	AH16-15	AH16-13	ICH020W	08/15/05	08/16/05
MW-17-1	H132-05	6.52	1	NA	.2	.1	08/16/0519:19	NA	AH16-19	AH16-13	ICH020W	08/15/05	08/16/05
MBLK2W	ICH021WB	ND	1	NA	.2	.1	08/16/0523:15	NA	AH16-34	AH16-25	ICH021W	NA	NA
LCS2W	ICH021WL	4.79	1	NA	.2	.1	08/16/0523:29	NA	AH16-35	AH16-25	ICH021W	NA	NA
LCD2W	ICH021WC	4.81	1	NA	.2	.1	08/16/0523:43	NA	AH16-36	AH16-25	ICH021W	NA	NA
MW-17-4	H132-02	10.1	2	NA	.4	.2	08/17/0501:35	NA	AH16-44	AH16-37	ICH021W	08/15/05	08/16/05
MW-17-2	H132-04	68.2	10	NA	2	1	08/17/0502:03	NA	AH16-46	AH16-37	ICH021W	08/15/05	08/16/05
MBLK3W	ICH029WB	ND	1	NA	.2	.1	08/23/0502:01	NA	AH22-34	AH22-25	ICH029W	NA	NA
LCS3W	ICH029WL	1.89	1	NA	.2	.1	08/23/0502:15	NA	AH22-35	AH22-25	ICH029W	NA	NA
LCD3W	ICH029WC	1.91	1	NA	.2	.1	08/23/0502:30	NA	AH22-36	AH22-25	ICH029W	NA	NA
MW-17-3	H132-03	51	10	NA	2	1	08/23/0503:26	NA	AH22-40	AH22-37	ICH029W	08/15/05	08/16/05

8016

METHOD 300.0
NITRATE-N

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H132

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICH020WB	ND	1	NA	.1	.05	08/16/0515:11	NA	AH16-03	AH16-01	ICH020W	NA	NA
LCS1W	ICH020WL	2.36	1	NA	.1	.05	08/16/0515:25	NA	AH16-04	AH16-01	ICH020W	NA	NA
LCD1W	ICH020WC	2.39	1	NA	.1	.05	08/16/0515:39	NA	AH16-05	AH16-01	ICH020W	NA	NA
MW-17-4	H132-02	.211	1	NA	.1	.05	08/16/0518:14	NA	AH16-16	AH16-13	ICH020W	08/15/05	08/16/05
MW-17-3	H132-03	6.5	1	NA	.1	.05	08/16/0518:41	NA	AH16-17	AH16-13	ICH020W	08/15/05	08/16/05
MW-17-2	H132-04	7.79	1	NA	.1	.05	08/16/0518:55	NA	AH16-18	AH16-13	ICH020W	08/15/05	08/16/05
MW-17-1	H132-05	.634	1	NA	.1	.05	08/16/0519:19	NA	AH16-19	AH16-13	ICH020W	08/15/05	08/16/05
MBLK2W	ICH021WB	ND	1	NA	.1	.05	08/16/0523:15	NA	AH16-34	AH16-25	ICH021W	NA	NA
LCS2W	ICH021WL	2.44	1	NA	.1	.05	08/16/0523:29	NA	AH16-35	AH16-25	ICH021W	NA	NA
LCD2W	ICH021WC	2.47	1	NA	.1	.05	08/16/0523:43	NA	AH16-36	AH16-25	ICH021W	NA	NA
MW-17-5	H132-01	ND	1	NA	.1	.05	08/17/0501:21	NA	AH16-43	AH16-37	ICH021W	08/15/05	08/16/05

METHOD 300.0
NITRITE-N

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H132

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICH020WB	ND	1	NA	.1	.05	08/16/0515:11	NA	AH16-03	AH16-01	ICH020W	NA	NA
LCS1W	ICH020WL	2.37	1	NA	.1	.05	08/16/0515:25	NA	AH16-04	AH16-01	ICH020W	NA	NA
LCD1W	ICH020WC	2.4	1	NA	.1	.05	08/16/0515:39	NA	AH16-05	AH16-01	ICH020W	NA	NA
MW-17-4	H132-02	ND	1	NA	.1	.05	08/16/0518:14	NA	AH16-16	AH16-13	ICH020W	08/15/05	08/16/05
MW-17-3	H132-03	ND	1	NA	.1	.05	08/16/0518:41	NA	AH16-17	AH16-13	ICH020W	08/15/05	08/16/05
MW-17-2	H132-04	ND	1	NA	.1	.05	08/16/0518:55	NA	AH16-18	AH16-13	ICH020W	08/15/05	08/16/05
MW-17-1	H132-05	ND	1	NA	.1	.05	08/16/0519:19	NA	AH16-19	AH16-13	ICH020W	08/15/05	08/16/05
MBLK2W	ICH021WB	ND	1	NA	.1	.05	08/16/0523:15	NA	AH16-34	AH16-25	ICH021W	NA	NA
LCS2W	ICH021WL	2.38	1	NA	.1	.05	08/16/0523:29	NA	AH16-35	AH16-25	ICH021W	NA	NA
LCD2W	ICH021WC	2.39	1	NA	.1	.05	08/16/0523:43	NA	AH16-36	AH16-25	ICH021W	NA	NA
MW-17-5	H132-01	ND	1	NA	.1	.05	08/17/0501:21	NA	AH16-43	AH16-37	ICH021W	08/15/05	08/16/05

METHOD 300.0
SULFATE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H132

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICH020WB	ND	1	NA	.5	.25	08/16/0515:11	NA	AH16-03	AH16-01	ICH020W	NA	NA
LCS1W	ICH020WL	6.97	1	NA	.5	.25	08/16/0515:25	NA	AH16-04	AH16-01	ICH020W	NA	NA
LCD1W	ICH020WC	6.98	1	NA	.5	.25	08/16/0515:39	NA	AH16-05	AH16-01	ICH020W	NA	NA
MW-17-5	H132-01	95.3	5	NA	2.5	1.25	08/16/0518:00	NA	AH16-15	AH16-13	ICH020W	08/15/05	08/16/05
MW-17-4	H132-02	19	1	NA	.5	.25	08/16/0518:14	NA	AH16-16	AH16-13	ICH020W	08/15/05	08/16/05
MBLK2W	ICH021WB	ND	1	NA	.5	.25	08/16/0523:15	NA	AH16-34	AH16-25	ICH021W	NA	NA
LCS2W	ICH021WL	7.34	1	NA	.5	.25	08/16/0523:29	NA	AH16-35	AH16-25	ICH021W	NA	NA
LCD2W	ICH021WC	7.3	1	NA	.5	.25	08/16/0523:43	NA	AH16-36	AH16-25	ICH021W	NA	NA
MW-17-3	H132-03	70	5	NA	2.5	1.25	08/17/0501:49	NA	AH16-45	AH16-37	ICH021W	08/15/05	08/16/05
MW-17-2	H132-04	98.7	10	NA	5	2.5	08/17/0502:03	NA	AH16-46	AH16-37	ICH021W	08/15/05	08/16/05
MW-17-1	H132-05	19.4	5	NA	2.5	1.25	08/17/0502:17	NA	AH16-47	AH16-37	ICH021W	08/15/05	08/16/05

8019

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QC SUMMARIES

8020

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H132
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICH020WB	ICH020WL	ICH020WC		
LAB FILE ID:	AH16-03	AH16-04	AH16-05		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/16/0515:11	08/16/0515:25	08/16/0515:39	DATE RECEIVED:	NA
PREP. BATCH:	ICH020W	ICH020W	ICH020W		
CALIB. REF:	AH16-01	AH16-01	AH16-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride-Cl	ND	5	4.8	96	5	4.8	96	0	90-110	20

8021

04

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H132
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK2W				
LAB SAMP ID:	ICH021WB	ICH021WL	ICH021WC		
LAB FILE ID:	AH16-34	AH16-35	AH16-36		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/16/0523:15	08/16/0523:29	08/16/0523:43	DATE RECEIVED:	NA
PREP. BATCH:	ICH021W	ICH021W	ICH021W		
CALIB. REF:	AH16-25	AH16-25	AH16-25		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride-Cl	ND	5	4.79	96	5	4.81	96	1	90-110	20

8022

a

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H132
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK3W				
LAB SAMP ID:	ICH029WB	ICH029WL	ICH029WC		
LAB FILE ID:	AH22-34	AH22-35	AH22-36		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/23/0502:01	08/23/0502:15	08/23/0502:30	DATE RECEIVED:	NA
PREP. BATCH:	ICH029W	ICH029W	ICH029W		
CALIB. REF:	AH22-25	AH22-25	AH22-25		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride-Cl	ND	2	1.89	95	2	1.91	96	1	90-110	20

8023

94

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H132
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICH020WB	ICH020WL	ICH020WC		
LAB FILE ID:	AH16-03	AH16-04	AH16-05		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/16/0515:11	08/16/0515:25	08/16/0515:39	DATE RECEIVED:	NA
PREP. BATCH:	ICH020W	ICH020W	ICH020W		
CALIB. REF:	AH16-01	AH16-01	AH16-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrate-N	ND	2.5	2.36	94	2.5	2.39	96	1	90-110	20

8024

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H132
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK2W				
LAB SAMP ID:	ICH021WB	ICH021WL	ICH021WC		
LAB FILE ID:	AH16-34	AH16-35	AH16-36		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/16/0523:15	08/16/0523:29	08/16/0523:43	DATE RECEIVED:	NA
PREP. BATCH:	ICH021W	ICH021W	ICH021W		
CALIB. REF:	AH16-25	AH16-25	AH16-25		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrate-N	ND	2.5	2.44	98	2.5	2.47	99	1	90-110	20

8025

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H132
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICH020WB	ICH020WL	ICH020WC		
LAB FILE ID:	AH16-03	AH16-04	AH16-05		
DATE EXTRACTED:	NA	NA	NA		
DATE ANALYZED:	08/16/0515:11	08/16/0515:25	08/16/0515:39	DATE COLLECTED:	NA
PREP. BATCH:	ICH020W	ICH020W	ICH020W	DATE RECEIVED:	NA
CALIB. REF:	AH16-01	AH16-01	AH16-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrite-N	ND	2.5	2.37	95	2.5	2.4	96	1	90-110	20

80 of 80

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H132
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK2W				
LAB SAMP ID:	ICH021WB	ICH021WL	ICH021WC		
LAB FILE ID:	AH16-34	AH16-35	AH16-36		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/16/0523:15	08/16/0523:29	08/16/0523:43	DATE RECEIVED:	NA
PREP. BATCH:	ICH021W	ICH021W	ICH021W		
CALIB. REF:	AH16-25	AH16-25	AH16-25		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrite-N	ND	2.5	2.38	95	2.5	2.39	96	0	90-110	20

8027

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H132
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICH020WB	ICH020WL	ICH020WC		
LAB FILE ID:	AH16-03	AH16-04	AH16-05		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/16/0515:11	08/16/0515:25	08/16/0515:39	DATE RECEIVED:	NA
PREP. BATCH:	ICH020W	ICH020W	ICH020W		
CALIB. REF:	AH16-01	AH16-01	AH16-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Sulfate	ND	7.5	6.97	93	7.5	6.98	93	0	90-110	20

8028

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H132
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK2W				
LAB SAMP ID:	ICH021WB	ICH021WL	ICH021WC		
LAB FILE ID:	AH16-34	AH16-35	AH16-36		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/16/0523:15	08/16/0523:29	08/16/0523:43	DATE RECEIVED:	NA
PREP. BATCH:	ICH021W	ICH021W	ICH021W		
CALIB. REF:	AH16-25	AH16-25	AH16-25		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Sulfate	ND	7.5	7.34	98	7.5	7.3	97	1	90-110	20

8029

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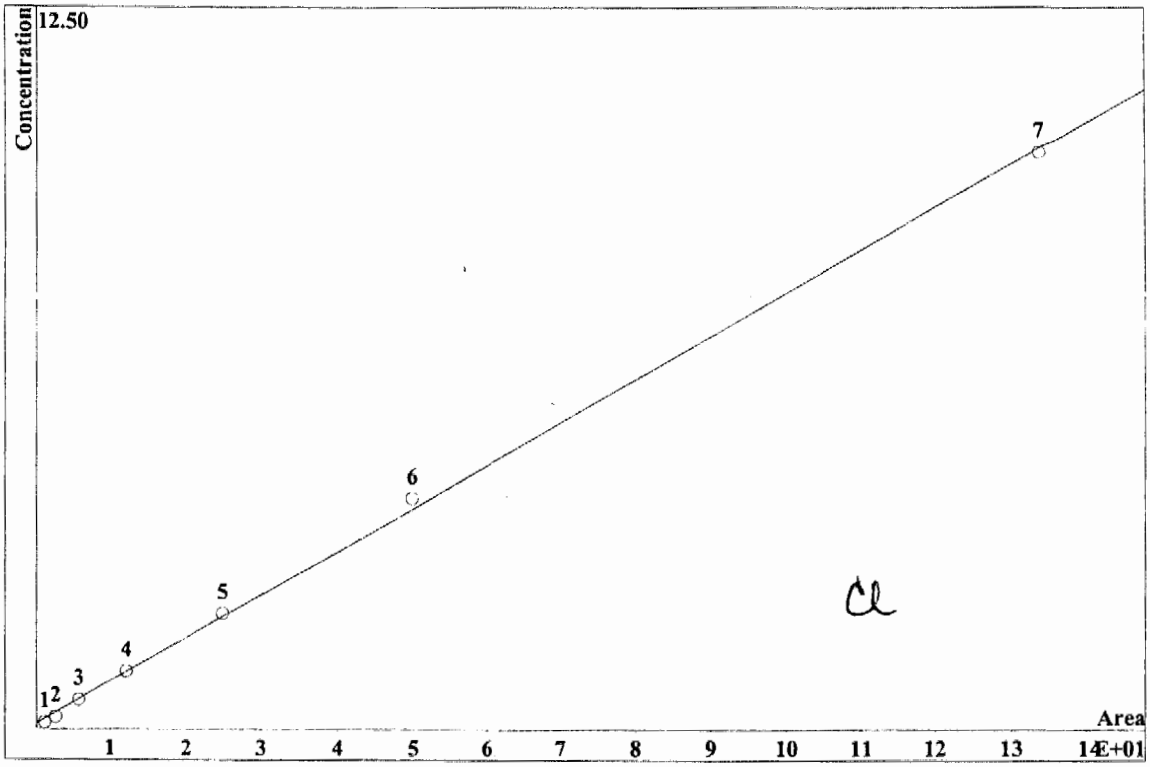
INITIAL CALIBRATIONS

IC Result Check FormVersion : QH2

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH18-01	IB	FCIBNPS	0	0	0	0	0	0	0	p8181936	1
AH18-02	S0	FCIBNPS	0	0	0	0	0	0	0	p8181950	1
AH18-03	S1	FCIBNPS	0.166	0.17262	0.13231	0.12813	0.13644	0.22927	0.14104	p8182004	1
AH18-04	S2	FCIBNPS	0.28466	0.28623	0.22239	0.22088	0.22213	0.31227	0.24604	p8182018	1
AH18-05	S3	FCIBNPS	0.51393	0.51514	0.50265	0.50493	0.50026	0.56154	0.52244	p8182032	1
AH18-06	S4	FCIBNPS	0.96429	0.99164	0.95545	0.95771	0.95423	0.9672	0.9792	p8182047	1
AH18-07	S5	FCIBNPS	1.9297	1.9476	1.9596	2.0373	1.9583	1.8503	1.9613	p8182101	1
AH18-08	S6	FCIBNPS	3.8838	3.8076	4.0276	3.9271	4.0286	3.7744	3.9072	p8182115	1
AH18-09	S7	FCIBNPS	10.058	10.079	10.533	10.024	11.158	10.105	10.043	p8182129	1
AH18-10	ICV	FCIBNPS	94.6%	95.5%	98%	99.9%	98.2%	93%	97.2%	p8182143	1
AH18-11	ICB	FCIBNPS	0	0	0	0	0	0	0	p8182157	1
AH18-12	ICH025WB	FCIBNPS	0	0	0	0	0	0	0	p8182211	1
AH18-13	ICH025WL	FCIBNPS	1.9633	1.9339	1.884	2.1091	1.9384	1.8022	1.9892	p8182225	1
AH18-14	ICH025WC	FCIBNPS	1.9405	1.927	1.8843	2.0871	1.9384	1.8038	2.0248	p8182239	1
AH18-15	H023-01	F*IBNPS	0	11823E	0	-7.8039	0	0	1470.9	p8182253	200
AH18-16	H023-03	F*IBNPS	0	11711E	0	0	0	0	1420.9	p8182307	200
AH18-17	H023-01	*C*****	0	9274.5	0	0	0	0	1588.2	p8182321	2000
AH18-18	H023-02	FCIBNPS	0	8909.8	0	0	0	0	1504.6	p8182335	2000
AH18-19	H023-03	*C*****	0	9111	0	0	0	0	1525.4	p8182349	2000
AH18-20	H023-04	FCIBNPS	0	9589.9	0	0	0	0	1558.3	p8190004	2000
AH18-21	CCV1	FCIBNPS	95.3%	99%	97.2%	96.8%	97.9%	92.8%	99.3%	p8190018	1
AH18-22	CCB1	FCIBNPS	0	0	0	0	0	0	0	p8190032	1
AH18-23	H169-01	F*IBNP*	0.58784	557.84E	0	3.9834	0.30268	0	222.2E	p8190046	1
AH18-24	H169-01D	F*IBNP*	0.54415	557.56E	0	3.8987	0.26518	0	222.08E	p8190100	1
AH18-25	H169-01M	F*IBNP*	2.3279	551.74E	2.2881	5.3508	2.2308	2.1545	221.61E	p8190114	1
AH18-26	H614-01	F*IBNP*	0.30333	24.22E	0	0.84928	3.8374	0.23597	25.147E	p8190128	1
AH18-27	H614-02	F*IB*P*	0.24861	17.85E	0	0.85627	5.8152E	0	15.634E	p8190142	1
AH18-28	H614-02D	F*IB*P*	0.42543	18.124E	0	1.1955	5.8532E	0.23178	15.667E	p8190156	1
AH18-29	H614-02M	F*IB*P*	2.2519	20.146E	2.0242	3.1702	8.3464E	2.4015	18.076E	p8190210	1
AH18-30	H614-01	*C****S	0.7526	19.853	0	0.84668	3.6036	0	22.543	p8190224	5
AH18-31	H614-02	*C**N*S	0.57712	14.626	0	0.8431	5.0755	0	13.896	p8190238	5
AH18-32	H614-02D	*C**N*S	0.5948	14.546	0	0.80981	5.0759	0	13.937	p8190252	5
AH18-33	CCV2	FCIBNPS	95.5%	99.2%	97.8%	101.7%	98.2%	95.2%	98.8%	p8190306	1
AH18-34	CCB2	FCIBNPS	0	0	0	0	0	0	0	p8190320	1
AH18-35	H614-02M	*C**N*S	9.666	24.294	9.0355	10.763	15.204	10.183	23.849	p8190335	5
AH18-36	H169-01	*******	1.2771	462.51E	0	3.1323	0	0	162.61E	p8190349	10
AH18-37	H169-01D	*******	1.1563	462.25E	0	2.6472	0	0	162.5E	p8190403	10
AH18-38	H169-10M	F*IBNP*	19.589	483.82E	19.02	22.753	19.898	20.393	183.19E	p8190417	10
AH18-39	RINSE	FCIBNPS	0	0.12789	0	0	0	0.23054	0	p8190431	1
AH18-40	RINSE	FCIBNPS	0	0	0	0.049699	0	0	0	p8190445	1
AH18-41	CCV3	FCIBNPS	97.4%	98.2%	96.2%	103.3%	96.9%	124.7%*	102%	p8190459	1
AH18-42	CCB3	FCIBNPS	0	0	0	0	0	0	0	p8190513	1

CALIBRATION OF COMPONENT chloride

Method: IC100-H18.mtw
Equation: Q = 0.0746236·A + 0.0865749
RSD: 4.273 %
Correlation coefficient: 0.999612



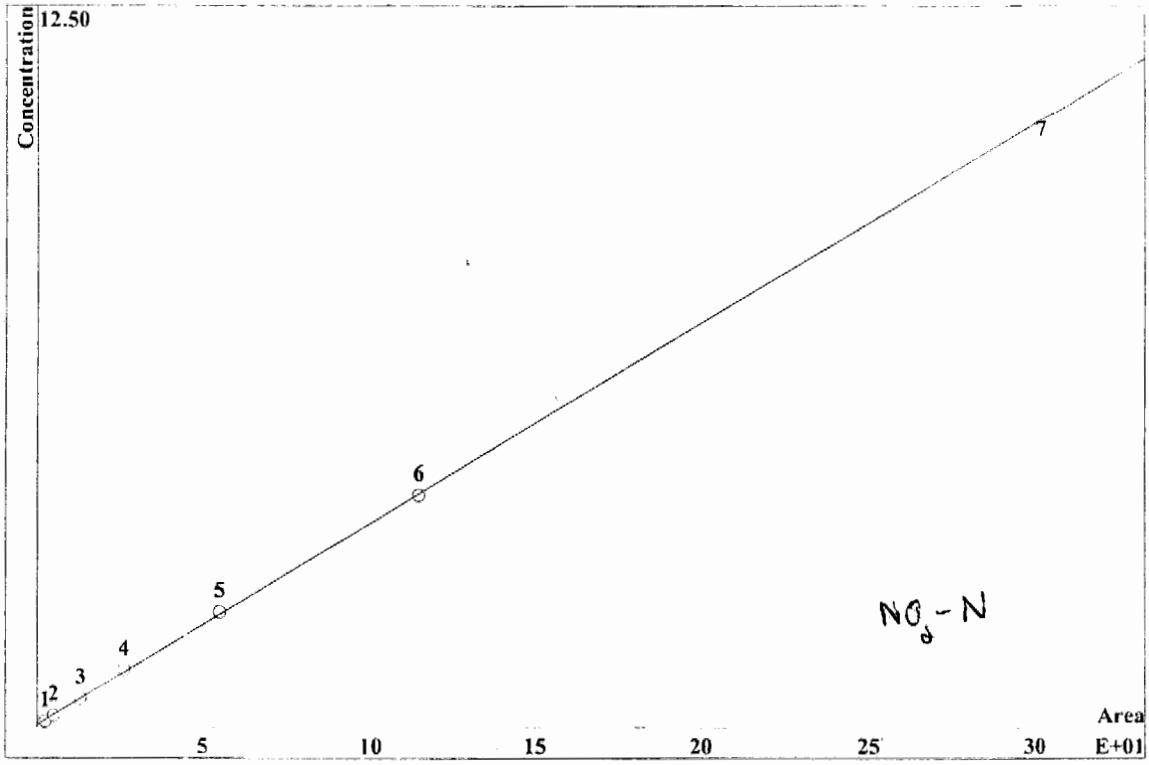
K3 = 0 K2 = 0 K1 = 0.0746236 K0 = 0.0865749
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.1069	1.153	0.1	1	3.37	Yes	p8182004.chw
2	0.2322	2.675	0.2	1	3.37	Yes	p8182018.chw
3	0.5371	5.743	0.5	1	3.37	Yes	p8182032.chw
4	1.091	12.13	1	1	3.37	Yes	p8182047.chw
5	2.293	24.94	2	1	3.37	Yes	p8182101.chw
6	4.737	49.86	4	1	3.37	Yes	p8182115.chw
7	13.01	133.9	10	1	3.37	Yes	p8182129.chw

8/18/05

CALIBRATION OF COMPONENT nitrite

Method: IC100-H18.mtw
Equation: Q = 0.0346959·A + 0.043272
RSD: 2.962 %
Correlation coefficient: 0.999734



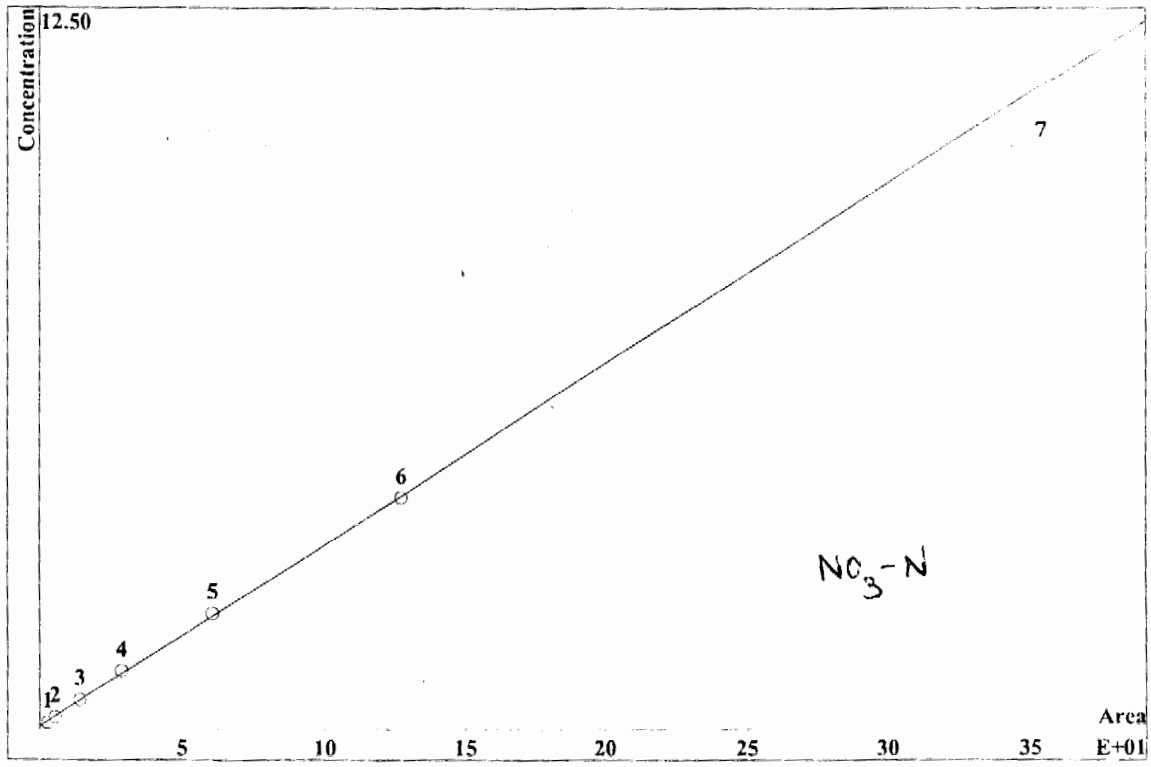
K3 = 0 K2 = 0 K1 = 0.0346959 K0 = 0.043272
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.2049	2.566	0.1	1	3.98	Yes	p8182004.chw
2	0.4151	5.163	0.2	1	3.98	Yes	p8182018.chw
3	1.077	13.24	0.5	1	3.98	Yes	p8182032.chw
4	2.113	26.29	1	1	3.98	Yes	p8182047.chw
5	4.455	55.23	2	1	3.98	Yes	p8182101.chw
6	9.454	114.8	4	1	3.98	Yes	p8182115.chw
7	24.1	302.3	10	1	3.98	No	p8182129.chw

8/18/05

CALIBRATION OF COMPONENT nitrate

Method: IC100-H18.mtw
Equation: Q = 0.0313474·A + 0.0465038
RSD: 3.094 %
Correlation coefficient: 0.999710



K3 = 0 K2 = 0 K1 = 0.0313474 K0 = 0.0465038
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

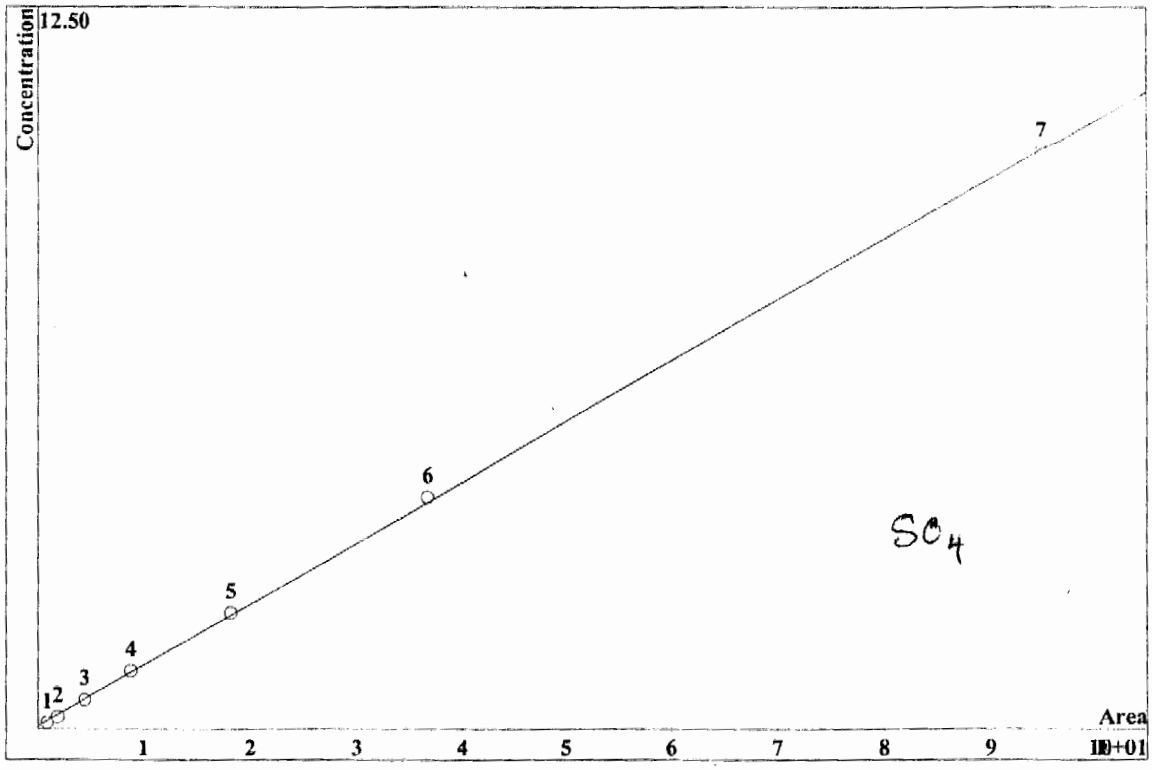
Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.1627	2.869	0.1	1	5.56	Yes	p8182004.chw
2	0.329	5.603	0.2	1	5.56	Yes	p8182018.chw
3	0.8519	14.48	0.5	1	5.56	Yes	p8182032.chw
4	1.718	28.96	1	1	5.56	Yes	p8182047.chw
5	3.662	60.99	2	1	5.56	Yes	p8182101.chw
6	7.807	127	4	1	5.56	Yes	p8182115.chw
7	22.1	354.5	10	1	5.56	No	p8182129.chw

8/18/05

8034

CALIBRATION OF COMPONENT sulfate

Method: IC100-H18.mtw
Equation: Q = 0.105352·A + 0.0443227
RSD: 2.272 %
Correlation coefficient: 0.999890



K3 = 0 K2 = 0 K1 = 0.105352 K0 = 0.0443227
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.04363	0.918	0.1	1	8.329	Yes	p8182004.chw
2	0.08724	1.915	0.2	1	8.329	Yes	p8182018.chw
3	0.2067	4.538	0.5	1	8.329	Yes	p8182032.chw
4	0.4025	8.874	1	1	8.329	Yes	p8182047.chw
5	0.8301	18.2	2	1	8.329	Yes	p8182101.chw
6	1.668	36.67	4	1	8.329	Yes	p8182115.chw
7	4.326	94.91	10	1	8.329	Yes	p8182129.chw

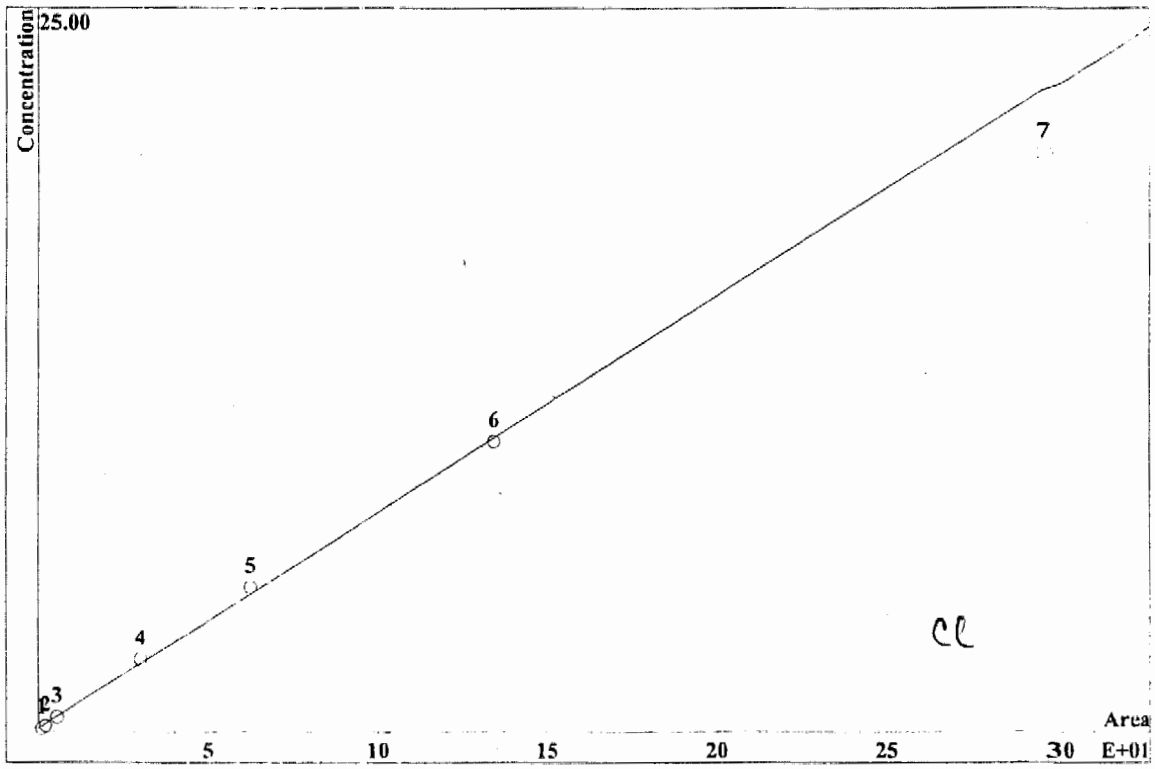
8/18/05

IC Result Check FormVersion : QH1

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH01-01	IB	FCIBNPS	0	0	0	0	0	0	0	p8011625	1
AH01-02	S0	FCIBNPS	0	0	0	0	0	0	0	p8011639	1
AH01-03	S1	FCIBNPS	0.18836	0.20113	0.17432	0.2216	0.23129	0.23666	0.21269	p8011653	1
AH01-04	S2	FCIBNPS	0.27278	0.28754	0.25434	0.31636	0.304	0.31331	0.2938	p8011707	1
AH01-05	S3	FCIBNPS	0.53025	0.54412	0.50474	0.57579	0.53797	0.52755	0.55595	p8011721	1
AH01-06	S4	FCIBNPS	2.3695	2.3621	2.3884	2.4564	2.3144	2.2205	2.46	p8011735	1
AH01-07	S5	FCIBNPS	4.8345	4.7729	4.9114	4.8164	4.7699	4.9004	4.8979	p8011749	1
AH01-08	S6	FCIBNPS	10.105	10.132	10.067	9.7475	10.142	10.102	9.8172	p8011803	1
AH01-09	S7	FCIBNPS	20.268	22.156	20.839	20.166	22.614	21.9	20.324	p8011818	1
AH01-10	ICV	FCIBNPS	95.6%	93.6%	92.2%	99.1%	93.3%	90.6%	98.5%	p8011832	1
AH01-11	ICB	FCIBNPS	0	0	0	0	0	0	0	p8011846	1
AH01-12	ICH001WB	FCIBNPS	0	0	0	0	0	0	0	p8011900	1
AH01-13	ICH001WL	FCIBNPS	4.8635	4.7236	4.6805	4.8835	4.6546	4.6229	4.7245	p8011914	1
AH01-14	ICH001WC	FCIBNPS	4.9057	4.722	4.6814	4.8697	4.6509	4.6182	4.7516	p8011928	1
AH01-15	G126-01T	FCIBNPS	1.1839	138.72	0	0	6.1591	0	65.298	p8012025	5
AH01-16	G126-02T	FCIBNPS	3.2244	215.94	0	1.2074	9.0006	0	192.41	p8012040	5
AH01-17	G126-03T	FCIBNPS	2.2603	137.59	0	0	5.4868	0	162.34	p8012054	5
AH01-18	G126-04T	FCIBNPS	4.9866	306.58	0	1.3846	14.847	0	244.28	p8012108	5
AH01-19	G126-06T	FCIBNPS	4.8433	139.79	0	0	7.0632	0	159.73	p8012122	5
AH01-20	G126-07T	FCIBNPS	1.8163	100.33	0	0	15.019	0	285.93	p8012136	10
AH01-21	G818-02	FCIBNPS	5.67	181.29	0	0	8.4455	0	86.102	p8012150	50
AH01-22	CCV1	FCIBNPS	97.7%	95.4%	98.2%	93.7%	94.5%	96.9%	90.9%	p8012204	1
AH01-23	CCB1	FCIBNPS	0	0	0	0	0	0	0	p8012218	1
AH01-24	G818-02D	FCIBNPS	0	182.67	0	0	8.5372	0	85.987	p8012233	50
AH01-25	G818-02M	FCIBNPS	245.13	430.51	238.71	234.77	240.79	119.04	305.82	p8012247	50
AH01-26	G818-03	FCIBNPS	0	179.51	0	6.961	0	0	85.432	p8012301	50
AH01-27	G818-04	FCIBNPS	2.3845	69.544	0	0	3.6042	0	116.42	p8012315	20
AH01-28	G818-05	FCIBNPS	2.3472	74.139	0	0	3.8114	0	124.21	p8012329	20
AH01-29	G820-02	FCIBNPS	0	153.08	0	0	0	0	167.66	p8012343	200
AH01-30	G184-05	FCIBNPS	2.2847	11.049	0	0	4.0779	0	32.802	p8012357	20
AH01-31	G147-01	FCIBNPS	1.0454	13208	0	50.116	0	0	1977.7	p8020011	5
AH01-32	G147-02	FCIBNPS	0	13488	0	2.8757	0	0	2019.9	p8020025	5
AH01-33	CCV2	FCIBNPS	97.7%	108.6%	97.8%	93.6%	94.4%	93.3%	92.5%	p8020039	1
AH01-34	CCB2	FCIBNPS	0	0	0	0	0	0	0	p8020053	1

CALIBRATION OF COMPONENT chloride

Method: IC100-H01.mtw
Equation: Q = 0.0743917·A + 0.117752
RSD: 5.386 %
Correlation coefficient: 0.999287 ✓



K3 = 0 K2 = 0 K1 = 0.0743917 K0 = 0.117752 LR = 10

Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

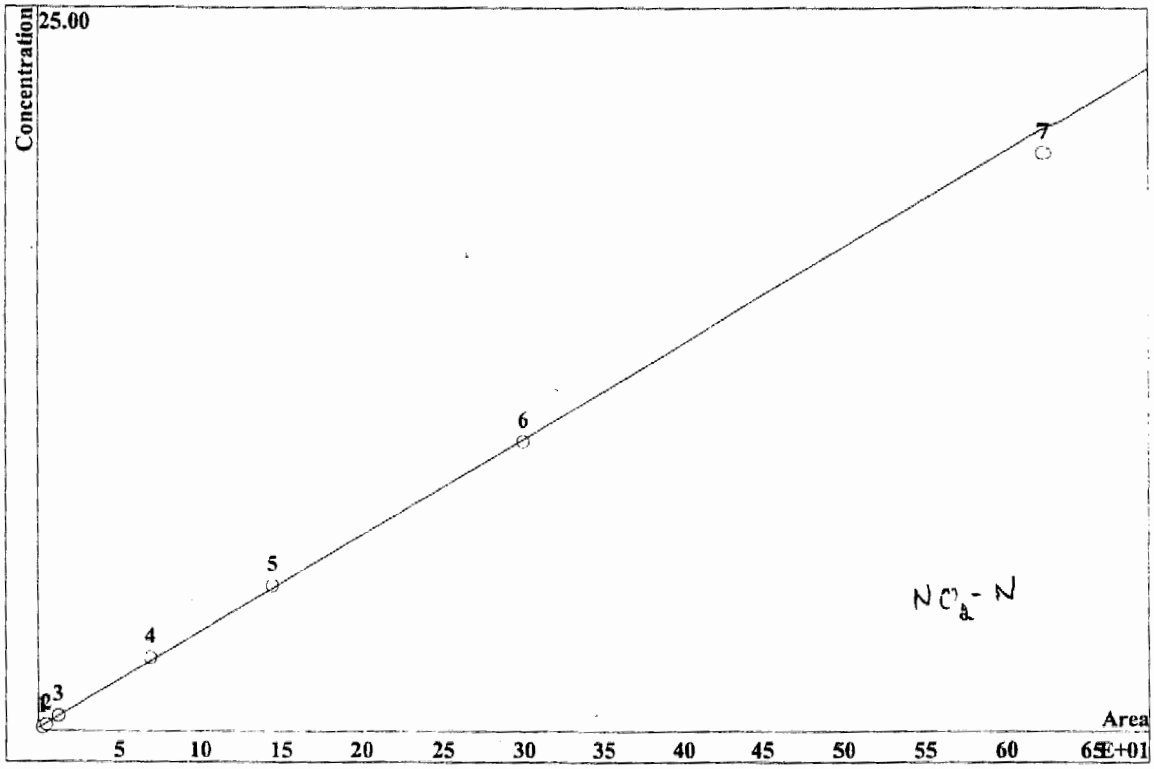
Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.1281	1.121	0.1	1	3.37	Yes	p8O11653.chw
2	0.2568	2.282 ✓	0.2	1	3.37	Yes	p8O11707.chw
3	0.6501	5.731 ✓	0.5	1	3.37	Yes	p8O11721.chw
4	3.457	30.17 ✓	2.5	1	3.37	Yes	p8O11735.chw
5	7.342	62.58 ✓	5	1	3.37	Yes	p8O11749.chw
6	16.29	134.6 ✓	10	1	3.37	Yes	p8O11803.chw
7	36.06	296.2 x	20	1	3.37	No	p8O11818.chw

8/2/05

8037

CALIBRATION OF COMPONENT nitrite

Method: IC100-H01.mtw
Equation: Q = 0.0333061·A + 0.0871128
RSD: 2.990 %
Correlation coefficient: 0.999780 ✓



K3 = 0 K2 = 0 K1 = 0.0333061 K0 = 0.0871128 LR = 10

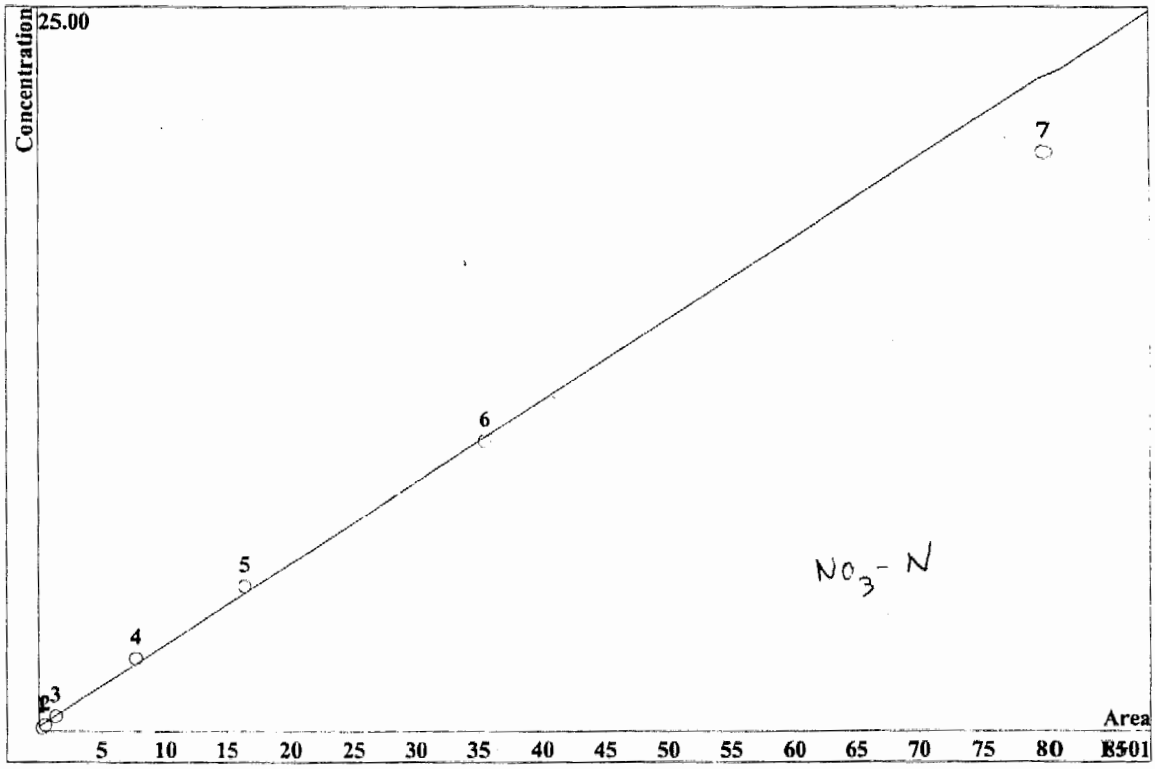
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.2534	2.618 ✓	0.1	1	3.98	Yes	p8011653.chw
2	0.4871	5.021 ✓	0.2	1	3.98	Yes	p8011707.chw
3	1.231	12.54 ✓	0.5	1	3.98	Yes	p8011721.chw
4	6.737	69.09 ✓	2.5	1	3.98	Yes	p8011735.chw
5	14.03	144.8 ✓	5	1	3.98	Yes	p8011749.chw
6	28.16	299.6 ✓	10	1	3.98	Yes	p8011803.chw
7	54.14	623.1 X	20	1	3.98	No	p8011818.chw

du 8/2/05

CALIBRATION OF COMPONENT nitrate

Method: IC100-H01.mtw
Equation: Q = 0.0281219·A + 0.154267
RSD: 6.071 %
Correlation coefficient: 0.999094



LR = 10

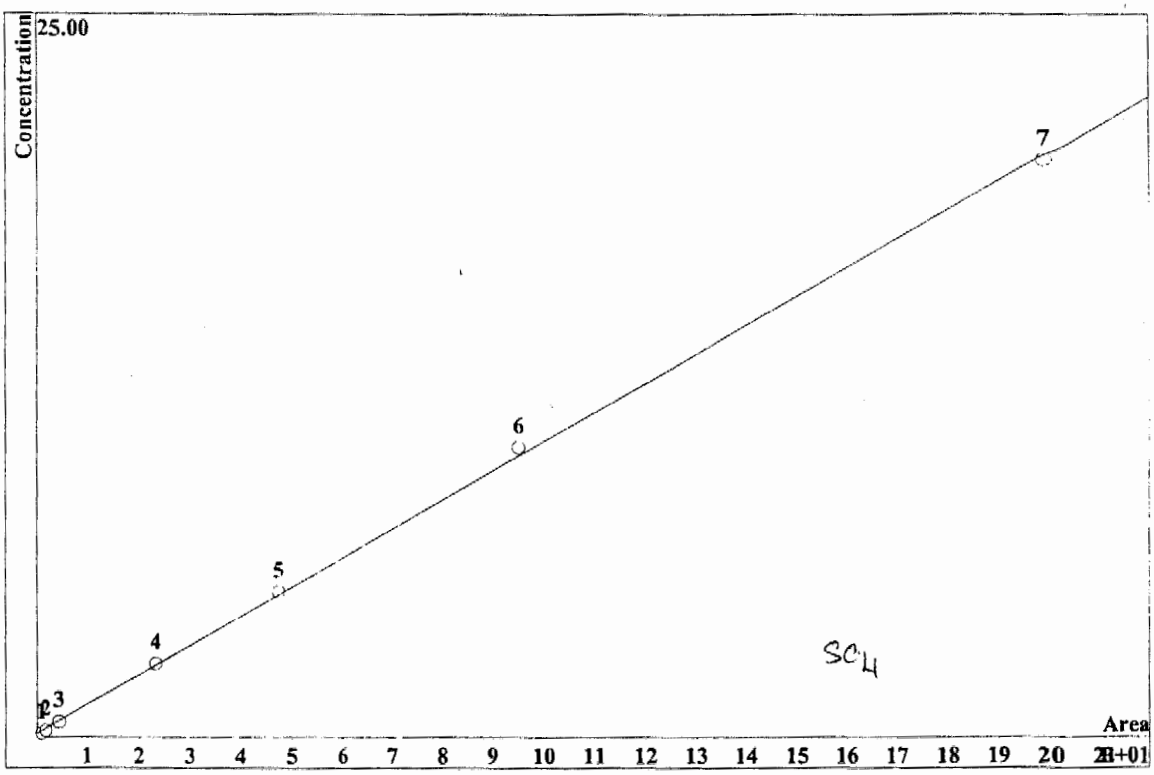
K3 = 0 K2 = 0 K1 = 0.0281219 K0 = 0.154267
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.203	2.739	0.1	1	5.56	Yes	p8011653.chw
2	0.3959	5.324	0.2	1	5.56	Yes	p8011707.chw
3	1.02	13.64	0.5	1	5.56	Yes	p8011721.chw
4	5.865	76.81	2.5	1	5.56	Yes	p8011735.chw
5	12.87	164.1	5	1	5.56	Yes	p8011749.chw
6	28.43	355.2	10	1	5.56	Yes	p8011803.chw
7	62.62	798.7	20	1	5.56	No	p8011818.chw

8/12/05

CALIBRATION OF COMPONENT sulfate

Method: IC100-H01.mtw
Equation: Q = 0.100694·A + 0.113285
RSD: 3.081 %
Correlation coefficient: 0.999779



K3 = 0 K2 = 0 K1 = 0.100694 K0 = 0.113285 LR = 20

Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.05823	0.9872	0.1	1	8.35	Yes	p8011653.chw
2	0.1026	1.793	0.2	1	8.35	Yes	p8011707.chw
3	0.2493	4.396	0.5	1	8.35	Yes	p8011721.chw
4	1.262	23.31	2.5	1	8.35	Yes	p8011735.chw
5	2.566	47.52	5	1	8.35	Yes	p8011749.chw
6	5.337	95.39	10	1	8.35	Yes	p8011803.chw
7	11.44	199.1	20	1	8.35	Yes	p8011818.chw

8/12/05

8040

IC Result Check FormVersion : QH2

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH18-10	ICV	FCIBNPS	94.6%	95.5%	98%	99.9%	98.2%	93%	97.2%	p8182143	1
AH18-11	ICB	FCIBNPS	0	0	0	0	0	0	0	p8182157	1
AH18-21	CCV1	FCIBNPS	95.3%	99%	97.2%	96.8%	97.9%	92.8%	99.3%	p8190018	1
AH18-22	CCB1	FCIBNPS	0	0	0	0	0	0	0	p8190032	1
AH18-33	CCV2	FCIBNPS	95.5%	99.2%	97.8%	101.7%	98.2%	95.2%	98.8%	p8190306	1
AH18-34	CCB2	FCIBNPS	0	0	0	0	0	0	0	p8190320	1
AH18-41	CCV3	FCIBNPS	97.4%	98.2%	96.2%	103.3%	96.9%	124.7%*	102%	p8190459	1
AH18-42	CCB3	FCIBNPS	0	0	0	0	0	0	0	p8190513	1

IC Result Check FormVersion : QH1

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH01-01	IB	FCIBNPS	0	0	0	0	0	0	0	p8011625	1
AH01-10	ICV	FCIBNPS	95.6%	93.6%	92.2%	99.1%	93.3%	90.6%	98.5%	p8011832	1
AH01-11	ICB	FCIBNPS	0	0	0	0	0	0	0	p8011846	1
AH01-22	CCV1	FCIBNPS	97.7%	95.4%	98.2%	93.7%	94.5%	96.9%	90.9%	p8012204	1
AH01-23	CCB1	FCIBNPS	0	0	0	0	0	0	0	p8012218	1
AH01-33	CCV2	FCIBNPS	97.7%	108.6%	97.8%	93.6%	94.4%	93.3%	92.5%	p8020039	1
AH01-34	CCB2	FCIBNPS	0	0	0	0	0	0	0	p8020053	1

DAILY CALIBRATIONS

IC Result Check FormVersion : QH1

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH16-01	CCV52	FCIBNPS	95.7%	95.6%	96.2%	98.4%	92.4%	97.1%	93%	p8161438	1
AH16-02	CCB52	FCIBNPS	0	0	0	0	0	0	0	p8161457	1
AH16-13	CCV53	FCIBNPS	95.9%	96.7%	95.4%	99.8%	98.2%	101.8%	97.9%	p8161732	1
AH16-14	CCB53	FCIBNPS	0	0	0	0	0	0	0	p8161746	1
AH16-25	CCV54	FCIBNPS	96.4%	96.1%	95.4%	99.4%	98.6%	101.9%	97.6%	p8162108	1
AH16-26	CCB54	FCIBNPS	0	0	0	0	0	0	0	p8162122	1
AH16-37	CCV55	FCIBNPS	96.4%	95.9%	95.3%	98.7%	98%	104.2%	96.8%	p8162357	1
AH16-38	CCB55	FCIBNPS	0	0	0	0	0	0	0	p8170011	1
AH16-49	CCV56	FCIBNPS	95.7%	96.4%	96.1%	98.9%	98.6%	75.5%*	96.6%	p8170246	1
AH16-50	CCB56	FCIBNPS	0	0	0	0	0	0	0	p8170300	1
AH16-61	CCV57	FCIBNPS	93.8%	96.3%	92.4%	96.8%	96.1%	97.9%	99.4%	p8170534	1
AH16-63	CCB57	FCIBNPS	0.22401	0	0	0	0	0	0	p8170603	1
AH16-71	CCV58	FCIBNPS	95.1%	95.2%	95.4%	97.3%	97.2%	94.2%	96.4%	p8170756	1
AH16-72	CCB58	FCIBNPS	0	0	0	0	0	0	0	p8170810	1
AH16-75	CCV59	FCIBNPS	94.4%	95.4%	94.8%	97.7%	96.1%	98.1%	96.6%	p8170852	1
AH16-76	CCB59	FCIBNPS	0	0	0	0	0	0	0	p8170906	1

IC Result Check FormVersion : qh2

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH22-01	CCV11	FCIBNPS	94.2%	96.1%	105.1%	100.3%	99.3%	92.6%	93.1%	p8221803	1
AH22-02	CCB11	FCIBNPS	0	0	0	0	0	0	0	p8221817	1
AH22-13	CCV12	FCIBNPS	93.2%	97.5%	104.6%	99%	99%	92.6%	99.4%	p8222106	1
AH22-14	CCB12	FCIBNPS	0	0	0	0	0	0	0	p8222120	1
AH22-25✓	CCV13	FCIBNPS	94.1%	96.9%	105%	99.9%	99.3%	81.8%*	99.8%	p8222355	1
AH22-26	CCB13	FCIBNPS	0	0	0	0	0	0	0	p8230009	1
AH22-37✓	CCV14	FCIBNPS	94.8%	96%	104.8%	99.3%	99.1%	75.4%*	97.1%	p8230244	1
AH22-38	CCB14	FCIBNPS	0	0	0	0	0	0	0	p8230258	1
AH22-49✓	CCV15	FCIBNPS	94.9%	96.2%	105.2%	103.2%	100.7%	75.8%*	98.5%	p8230532	1
AH22-50	CCB15	FCIBNPS	0	0	0	0	0	0	0	p8230547	1
AH22-61	CCV16	FCIBNPS	92.6%	95.3%	103.2%	99.3%	97.8%	88.5%*	96.1%	p8230821	1
AH22-62	CCB16	FCIBNPS	0	0	0	0	0	0	0	p8230835	1
AH22-67	CCV17	FCIBNPS	93%	95.6%	103.9%	101.6%	99%	85.2%*	96.3%	p8230948	1
AH22-68	CCB17	FCIBNPS	0	0	0	0	0	0	0	p8231002	1

ANALYTICAL LOGS

ANALYSIS RUN LOG FOR IC I CAL

SOP ☒ EMAX-300.0-Rev. 3 ☐ EMAX-300.1 Rev. No.0 ☐ EMAX-9056 Rev. No. 2

Book# A100 003

Start Date: 08/01/05 Time: 16:25 End Date: 08/02/05 Time: 00:53

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes Conc = (mg/L)
* 1	AH01-01	IB	1	W	
* 2	02	S0			
* 3	03	S1			0.1 ppm
* 4	04	S2			0.2
* 5	05	S3			0.5
* 6	06	S4			2.5
* 7	07	S5			5
* 8	08	S6			10
* 9	09	S7			20
* 10	10	ICV			
* 11	11	ICB			
* 12	12	ICH001WP			
* 13	13	WL			
* 14	14	WL			
* 15	15	G120-01T	5		
* 16	16	02			
* 17	17	03			
* 18	18	04			
* 19	19	05			
* 20	20	07	10		
* 21	21	G818-02	50		
* 22	22	CCV1	1		
* 23	23	CCB1	1		
* 24	24	G816-02D	50		
* 25	25	02M	50		

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 26	AH01-26	G818-03	50	W	
* 27	27	04	20		
* 28	28	05	20		
* 29	29	G820-02	100		
* 30	30	G184-05	20		
* 1	31	G147-01	5		
* 2	32	02	5		
* 3	33	CCV2	1		
* 4	34	CCB2	1		
* 5					
* 6					
* 7					
* 8					
* 9					
* 10					
* 1					
* 2					
* 3					
* 4					
* 5					
* 6					
* 7					
* 8					
* 9					
* 50					

Instrument No.	100
STANDARD	
Date	08/01/05
Method File	IC100-H01.mthv
ICAL ID	S1B-01-2-01 ok 08/01/05
ICV/~~LCS/MS~~ ID (ok 08/01/05)	2
CCV ID	3 (5ppm)
LCS ID	3-1 (5ppm)
MS ID	5ppm Acc Std.

ELECTRONIC DATA ARCHIVAL

Location	Date
☐ IC METROHM	
☐	

Comments:

Analyzed By: al

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* Sample Prep ID Prefix: ICH001W

** Sample Prep ID Prefix:

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8048

ANALYSIS RUN LOG FOR IC

ICAL

8049

SOP ☑ EMAX-300.0-Rev. 3 ☐ EMAX-300.1 Rev. No.0 ☐ EMAX-9056 Rev. No. 2

Book# A100 003

Start Date: 08/18/05 Time: 19:36 End Date: 08/19/05 Time: 05:13

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes (conc.= mg/L)
* 1	AH18-01	IB	1	W	
* 2	02	S0			
* 3	03	S1			0.1 ppm
* 4	04	S2			0.2
* 5	05	S3			0.5
* 6	06	S4			1
* 7	07	S5			2
* 8	08	S6			4
* 9	09	S7			10
* 10	10	ICV			
* 1	11	ICB			
* 2	12	ICH025WB			
* 3	13	WL			
* 4	14	WG			
* 5	15	H023-01	100		
* 6	16	13			
* 7	17	04	2000		
* 8	18	02			
* 9	19	03			
* 20	20	04			
* 1	21	CCV1	1		
* 2	22	CCB1	1		
* 3	23	H169-01			
* 4	24	01D			
* 5	25	01M			

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 26	AH18-26	H614-01	1	W	
* 7	27	02			
* 8	28	02D			
* 9	29	02M			
* 30	30	01	5		
* 1	31	02			
* 2	32	02D			
* 3	33	CCV2	1		
* 4	34	CCB2	1		
* 5	35	H614-02M	5		
* 6	36	H169-01	10		
* 7	37	01D			
* 8	38	01M			
* 9	39	RINSE	1		
* 40	40	RINSE			
* 1	41	CCV3			
* 2	42	CCB3			
* 3					
* 4					
* 5					
* 6					
* 7					
* 8					
* 9					
* 50					

Instrument No.	100
STANDARD	
Date	08/18/05
Method File	IC100 - H18.mthv
ICAL ID	SIB - C1 - 11 - 1
ICV/~~LCS/MS~~ ID	2
CCV ID	3 (2ppm)
LCS ID	12-1 (2ppm)
MS ID	25 ppm Acc Std
ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC METROHM	
☐	

Comments:

Analyzed By: al

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* Sample Prep ID Prefix: IC H025W

** Sample Prep ID Prefix:

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0-Rev. 3 ☐ EMAX-300.1 Rev. No.0 ☐ EMAX-9056 Rev. No. 2 **Book# A100 003**

Start Date: 08/16/05 **Time:** 14:38 **End Date:** 08/17/05 **Time:** 09:06

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 1	AH16-01	CCV52	1	W	
* 2	02	CCB52	↓	↓	
* 3	03	ICH020WB	↓	↓	
* 4	04	WL	↓	↓	
* 5	05	WC	↓	↓	
* 6	06	H129-01	↓	↓	
* 7	07	02	↓	↓	
* 8	08	03	↓	↓	
* 9	09	04	↓	↓	
* 10	10	04D	↓	↓	
* 11	11	04M	↓	↓	* NO_2^-+NO_3^- = spiked @ 2.5 ppm; SO_4^{2-} = spiked @ 7.5 ppm; All=5 ppm
* 12	12	RINSE	↓	↓	
* 13	13	CCV53	↓	↓	
* 14	14	CCB53	↓	↓	
* 15	15	H132-01	5	↓	
* 16	16	02	1	↓	
* 17	17	03	↓	↓	
* 18	18	04	↓	↓	
* 19	19	05	↓	↓	
* 20	20	H451-01	5	↓	
* 21	21	02	↓	↓	
* 22	22	03	↓	↓	
* 23	23	H133-01	20	↓	
* 24	24	RINSE	1	↓	
* 25	25	CCV54	1	↓	

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 26	AH16-26	CCV~~5B~~54	1	W	
* 27	AH16-27	H133-03	20	↓	
* 28	28	H150-01	1	↓	
* 29	29	02	↓	↓	
* 30	30	03	↓	↓	
* 31	31	04	↓	↓	
* 32	32	05	↓	↓	
* 33	33	RINSE	↓	↓	
** 34	34	ICH021WB	↓	↓	
* 35	35	WL	↓	↓	
* 36	36	WC	↓	↓	
* 37	37	CCV55	↓	↓	
* 38	38	CCB55	↓	↓	
* 39	39	H150-06	↓	↓	
* 40	40	07	↓	↓	
* 41	41	09	↓	↓	
* 42	42	10	↓	↓	
* 43	43	H132-01	↓	↓	
* 44	44	02	2	↓	
* 45	45	03	5	↓	
* 46	46	04	10	↓	
* 47	47	H132-05	5	↓	
* 48	48	H129-01	20	↓	
* 49	49	CCV56	1	↓	
* 50	50	CCB56	1	↓	

Instrument No.	100
STANDARD	
Date	08/01/05
Method File	IC100
ICAL ID	S1B-01-2-1
ICV/~~LCSMS~~ ID	↓ 2
CCV ID	8-3
LCS ID	9-1
MS ID	Acc Std.
ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC METROHM	
☐	

Comments:

Analyzed By: ae

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* Sample Prep ID Prefix: ICH020W

** Sample Prep ID Prefix: ICH021W

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8050

ANALYSIS RUN LOG FOR IC

SOP ☐ **EMAX-300.0-Rev. 3** ☐ **EMAX-300.1 Rev. No.0** ☐ **EMAX-9056 Rev. No. 2** **Book# A100 003**

Start Date: 08/22/05 **Time:** 18:03 **End Date:** 08/23/05 **Time:** 10:02

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 1	AH22-01	CCV11	1	W	
* 2	02	CCB11			
* 3	03	ICH029WB			
* 4	04	WL			
* 5	05	WC			
* 6	06	H211-01			
* 7	07	02D			
* 8	08	02M			
* 9	09	03			
* 10	10	04			
* 11	11	05			
* 12	12	RINSE			
* 13	13	CCV12			
* 14	14	CCB12			
* 15	15	H211-07	2		* Dark Grey Sample ∴ DF=2
* 16	16	RINSE	1		
* 17	17	HC48-13	200		
* 18	18	13D			
* 19	19	13M			
* 20	20	H086-01	100		
* 21	21	03			
* 22	22	05			
* 23	23	07			
* 24	24	09			
* 25	25	CCV13	1		

* Sample Prep ID Prefix: ICH029W

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 26	AH22-26	CCB13	1	W	
* 27	27	H086-11	100		
* 28	28	H045-01 (ac 09/22/05)	20		
* 29	29	02	40		
* 30	30	03	25		
* 31	31	H112-01	500		
* 32	32	H153-01			
* 33	33	RINSE ~~ICH029WB~~	1		RINSE
** 34	34	ICH029 WB			
* 35	35	WCL			ICH029 WL
* 36	36	ICH029 ~~CCV14~~ WC			ICH029 WC
* 37	37	CCB14			CCV14
* 38	38	CCB14 ~~H129-02~~			CCB14
* 39	39	H129-02 ~~H132-03~~	200		H129-02 DF=200
* 40	40	H132-03 ~~H099-01~~	10		H132-03 DF=10
* 41	41	H099-01 (ac 08/22/05)	500		H099-01 DF=500
* 42	42	03	500		03 DF=
* 43	43	05			05 DF=
* 44	44	07			07 DF=
* 45	45	10			10 DF=
* 46	46	12			12 DF=
* 47	47	H099-13 ~~RINSE~~			13 DF=
* 48	48	RINSE ~~CCV15~~	1		RINSE
* 49	49	CCV15 ~~CCB15~~			CCV15
* 50	50	CCB15 ~~H099-~~			CCB15

** Sample Prep ID Prefix: ICH029W (ac 08/22/05)

Instrument No.	100
STANDARD	
Date	08/18/05
Method File	IC100-H18.mtw
ICAL ID	S18-01-11-1
ICV/~~LCS/MS~~ ID (ac 09/22/05)	2
CCV ID	1316-V1
LCS ID	1316-V2 (ac 09/22/05)
MS ID	2 ppm Acc Std.
ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC METROHM	
☐	

Comments:

Analyzed By: ac

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8051

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H132**

METHOD 120.1
SPECIFIC CONDUCTIVITY

Five (5) water samples were received on 08/16/05 for Specific Conductivity analysis by Method 120.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

3. Duplicate

Duplicate sample was not designated in this SDG.

4. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 120.1
SPECIFIC CONDUCTIVITY

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H132

Matrix : WATER
Instrument ID : 129

SAMPLE ID	EMAX SAMPLE ID	RESULTS (umhos/cm)	DLF	MOIST	RL (umhos/cm)	MDL (umhos/cm)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MW-17-5	H132-01	317	1	NA	1	.5	08/22/0516:16	NA	ECH007W-04	NA	ECH007W	08/15/05	08/16/05
MW-17-4	H132-02	323	1	NA	1	.5	08/22/0516:18	NA	ECH007W-05	NA	ECH007W	08/15/05	08/16/05
MW-17-3	H132-03	719	1	NA	1	.5	08/22/0516:20	NA	ECH007W-06	NA	ECH007W	08/15/05	08/16/05
MW-17-2	H132-04	875	1	NA	1	.5	08/22/0516:22	NA	ECH007W-07	NA	ECH007W	08/15/05	08/16/05
MW-17-1	H132-05	311	1	NA	1	.5	08/22/0516:24	NA	ECH007W-08	NA	ECH007W	08/15/05	08/16/05

8053

ANALYSIS LOG FOR SPECIFIC CONDUCTIVITY

SOP ☑ EMAX-120.1 Revision No. 1 ☐ Book # AEC-003

Start Date 8/22/05 Time 1600 End Date 8/22/05 Time 1634

	Data File Name	Lab Sample ID	Time	Temp. °C	Temp. Correction Factor QT @ 25 oC	DF	Measured Resistance (ohms)	EC@ 25°C Notes µmhos/cm
*	1	STDLow 141	1610	22.4	0.950	1	141.5	142.1 101%
*	2	EC Hoot WL	12	22.2	0.947		401.1	404 100%
*	3	WC	14	22.2	0.941		400.8	404
*	4	H132-01 *	16	22.4	0.950		316	317
*	5	-02	18				322	323
*	6	-03	20				716	719
*	7	-04	22				871	875
*	8	-05	24	22.4	0.950		310	311
*	9	H483-11	26	22.3	0.948		1000	1006 ≈ 1010
*	10	-12	28	22.4	0.950		1022	1026 ≈ 1030
*	11	H505-01	30				1076	1080
*	12	-010	32			✓	1076	1080
*	13	STD High 1413	1634	22.4	0.950	1	1408	1414
*	14							
*	15							
*	16							
*	17							
*	18							
*	19							
*	20							

ANALYTICAL BATCH * EC Hoot

8051

8/24/05

Instrument No:	29

Trial	ID	Resistance ohms
KCl Standard	SW2A-02-55	ASSAY
1	SW3B-02-654	704.5
2	@t = 0.958	704.5
3		704.5
LCS	SW7A-06-174	402 µmhos/cm
Calibration Temperature	22.8 °C	
True Value	1413	µmhos/cm
Cell Constant (C)	0.954	

KCl Standard	ID	µmhos/cm
Low-point	SW3B-02-789	141
Mid-point	—	
High-point	SW3B-02-654	1413

Comments: * Turbid brown sample

Analyzed By: NB / RM

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H132**

METHOD SM3500
FERROUS IRON

Five (5) water samples were received on 08/16/05 for Ferrous Iron analysis by Method SM3500 in accordance with "Standard Methods for the Examination of Water and Wastewater", 18th edition (1990).

1. **Holding Time**

   Analysis met holding time criteria.

2. **Method Blank**

   Method blank was free of contamination at the reporting limit.

3. **Lab Control Sample**

   Lab control result was within QC limit.

4. **Duplicate**

   Sample H132-05 was analyzed for duplicate. %RPD was within QC limit.

5. **Sample Analysis**

   Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SM3500
FERROUS IRON

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H132

Matrix : WATER
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	FEH002WB	ND	1	NA	5	2.5	08/25/0519:38	NA	FEH002W-09	FEH002W-07	FEH002W	NA	NA
LCS1W	FEH002WL	19.1	1	NA	5	2.5	08/25/0519:39	NA	FEH002W-10	FEH002W-07	FEH002W	NA	NA
MW-17-5	H132-01	8.02	1	NA	5	2.5	08/25/0519:40	NA	FEH002W-11	FEH002W-07	FEH002W	08/15/05	08/16/05
MW-17-4	H132-02	ND	1	NA	5	2.5	08/25/0519:41	NA	FEH002W-12	FEH002W-07	FEH002W	08/15/05	08/16/05
MW-17-3	H132-03	8.02	1	NA	5	2.5	08/25/0519:42	NA	FEH002W-13	FEH002W-07	FEH002W	08/15/05	08/16/05
MW-17-2	H132-04	ND	1	NA	5	2.5	08/25/0519:43	NA	FEH002W-14	FEH002W-07	FEH002W	08/15/05	08/16/05
MW-17-1	H132-05	ND	1	NA	5	2.5	08/25/0519:44	NA	FEH002W-15	FEH002W-07	FEH002W	08/15/05	08/16/05
MW-17-1DUP	H132-05D	ND	1	NA	5	2.5	08/25/0519:45	NA	FEH002W-16	FEH002W-07	FEH002W	08/15/05	08/16/05

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: SM3500
MATRIX: WATER
% MOISTURE: NA

==========

BATCH NO.: 05H132
SAMPLE ID: LCS1W
CONTROL NO.: FEH002WL

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 08/25/05 19:39

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	LCS RSLT (mg/L)	LCS % REC	QC LIMIT (%)
Ferrous Iron	ND	20.00	19.10	96	80-120

8057

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: SM3500
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05H132
SAMPLE ID: MW-17-1DUP
CONTROL NO.: H132-05D

DATE RECEIVED: 08/16/05
DATE EXTRACTED: NA
DATE ANALYZED: 08/25/05 19:45

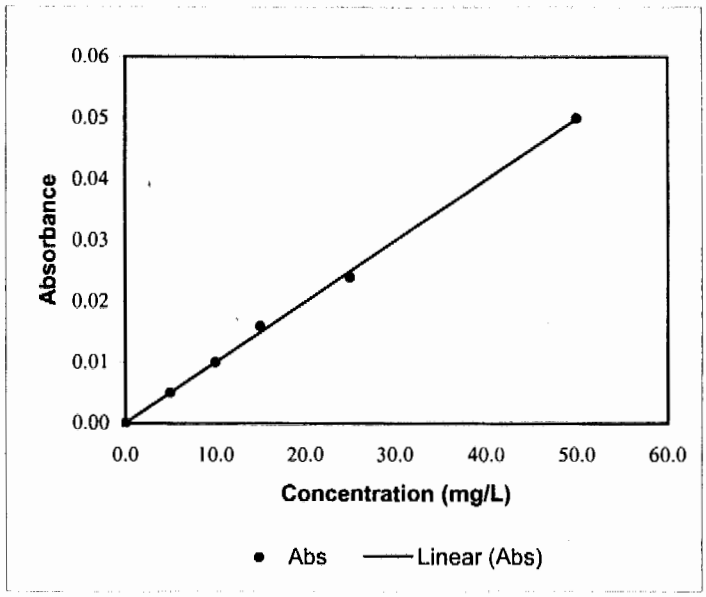
ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
Ferrous Iron	ND	ND	0	20

8058

CALIBRATION CURVE
FERROUS FE

Conc.	Abs
0.0	0.000
5.0	0.005
10.0	0.010
15.0	0.016
25.0	0.024
50.0	0.050



R^2	0.9988
Eq.Line	0.0010
CF	1002.8860

Comments: **PASSED**

Analyzed by: LA

8059

ANALYSIS LOG FOR FERROUS IRON

SOP ☑ EMAX-3500-Fe D/C Rev. No. 0 ☐ Starting Date 08-25-05 Time 19:30 Ending Date 08-25-05 Time 19:47 Book # A70-Fe D/C-001

ANALYTICAL BATCH * FEH0024

	Data File Name	Preparative Batch	Lab Sample ID	Matrix S	Matrix W	Sample Amount (ml)	DF	Abs. (510 nm)	Time	Ferrous Iron (mg/L)	Notes
*	1	FEH0024	S - 0.0		√	50	1	0.000	19:30		
*	2		S - 5.0					0.005	19:31		
*	3		S - 10					0.010	19:32		
*	4		S - 15					0.016	19:33		
*	5		S - 25					0.024	19:34		
*	6		S - 50					0.050	19:35		
*	7		ICV					0.018	19:36	18.05	
*	8		ICB					0.000	19:37	ND	
*	9		FEH002WB					0.000	19:38	ND	
*	0		WL					0.019	19:39	19.05	
*	1		H132-01					0.008	19:40	8.02B	
*	2		-02					0.002	19:41	ND	
*	3		-03					0.008	19:42	8.02B	
*	4		-04					0.002	19:43	ND	
*	5		-05					0.002	19:44	ND	
*	6		-050					0.002	19:45	ND	
*	7		CCV1					0.019	19:46	19.05	
*	8		CCB1					0.000	19:47	ND	
*	9										
*	0										
*	1										
*	2										
*	3										
*	4										
*	5										
*	6										
*	7										
*	8										
*	9										
*	0										

MM 8/25/05

Instrument No.: 70 **Wavelength: 510 nm**

Standard	ID	Conc. (mg/L)
S_0	Nanopure	0.0
S_1	S-02B-03-095	5
S_2		10
S_3		15
S_4		25
S_5		50
ICV/LCS/MS	S-02B-03-096	20
CCV	S-02B-03-095	20

Reagents	
Name	ID
HCl	S01A-02-1539
$NH_4C_2H_3O_2$ Buffer	S07B-06-228B
Phenanthroline Sol'n	S07B-06-228A
$NaC_2H_3O_2$ Sol'n	N/A
Hydroxylamine Soln	

Standard Curve	
R (≤0.995)	0.9988
Y	0.0010
CF	1002.8860

Comments:

Analyzed By: MM

Disposal Date:

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8060

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H132**

METHOD 160.1
TOTAL DISSOLVED SOLIDS

Five (5) water samples were received on 08/16/05 for Total Dissolved Solids analysis by Method 160.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Duplicate sample was not designated in this SDG.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 160.1
TOTAL DISSOLVED SOLIDS

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H132

Matrix : WATER
Instrument ID : NA

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TDH012WB	ND	1	NA	10	5	08/17/0513:15	NA	TDH012W-01	NA	TDH012W	NA	NA
LCS1W	TDH012WL	335	1	NA	10	5	08/17/0513:16	NA	TDH012W-02	NA	TDH012W	NA	NA
LCD1W	TDH012WC	340	1	NA	10	5	08/17/0513:17	NA	TDH012W-03	NA	TDH012W	NA	NA
MW-17-4	H132-02	235	1	NA	10	5	08/17/0513:23	NA	TDH012W-09	NA	TDH012W	08/15/05	08/16/05
MW-17-3	H132-03	535	1	NA	10	5	08/17/0513:24	NA	TDH012W-10	NA	TDH012W	08/15/05	08/16/05
MW-17-2	H132-04	695	1	NA	10	5	08/17/0513:25	NA	TDH012W-11	NA	TDH012W	08/15/05	08/16/05
MW-17-1	H132-05	190	1	NA	10	5	08/17/0513:26	NA	TDH012W-12	NA	TDH012W	08/15/05	08/16/05
MBLK2W	TDH014WB	ND	1	NA	10	5	08/19/0513:00	NA	TDH014W-01	NA	TDH014W	NA	NA
LCS2W	TDH014WL	330	1	NA	10	5	08/19/0513:01	NA	TDH014W-02	NA	TDH014W	NA	NA
LCD2W	TDH014WC	335	1	NA	10	5	08/19/0513:02	NA	TDH014W-03	NA	TDH014W	NA	NA
MW-17-5	H132-01	185	1	NA	10	5	08/19/0513:19	NA	TDH014W-20	NA	TDH014W	08/15/05	08/16/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 160.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05H132
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: TDH012WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 08/17/05 13:16/13:17

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
TDS	ND	336.00	335.00	100	336.00	340.00	101	1	80-120	20

8063

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 160.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05H132
SAMPLE ID: LCS2W/LCD2W
CONTROL NO.: TDH014WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 08/19/05 13:01/13:02

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
TDS	ND	336.00	330.00	98	336.00	335.00	100	2	80-120	20

1908

GRAVIMETRIC ANALYSIS LOG

SOP ☑ EMAX-160.1 Rev. No. 3 ☐ EMAX-160.2 Rev. No. 2 ☐ EMAX-160.3 Rev. No. 1 ☐ EMAX-160.4 Rev. No. 0 ☐ EMAX-160.5 Rev. No. 0 Book # AGV-019

Starting Date: 8/18/05 Time: 20:30 Oven Temp. 105 °C Ending Date: 8/19/05 Time: 1430 Oven Temp. 180 °C

ANALYTICAL BATCH # SS TD H0140 S

	Data File Name	Lab Sample ID	Sample Amt. (ml)	Dish Wt. (g)	Dry Wt. Dish + Solids(g) 1st	Time	2nd	Time	3rd	Time	Solids (mg)	Result (mg/L)	Settleable Solids Vol. of SS	Result (ml/L/hr)
1		TD H0140 WB	100	65.2113	65.2117	1100	65.2114	1300	65.2112	1500	-0.1	NO		
2		WA	20	13.8435	13.8512	01	13.8505	01	13.8501	01	6.6	330	98%	
3		WC	20	13.5551	13.5627	02	13.5620	02	13.5618	02	6.7	335	100%	
4		H150-01	20	13.3904	13.4034	03	13.4025	03	13.4022	03	11.8	590		
5		-02	20	13.5303	13.5483	04	13.5477	04	13.5473	04	17.0	850		
6		-03	20	13.4556	13.4672	05	13.4663	05	13.4660	05	10.4	520		
7		-04	20	13.5513	13.5677	06	13.5670	06	13.5667	06	15.4	770		
8		-05	20	13.4141	13.4242	07	13.4237	07	13.4238	07	9.7	485		
9		-06	20	13.4593	13.4973	08	13.4966	08	13.4964	08	37.1	1855 *	1860	
10		-07	20	13.3998	13.4369	09	13.4366	09	13.4367	09	36.9	1845 *	1850	
11		-08	20	13.4400	13.4945	10	13.4940	10	13.4937	10	53.7	2685 *	2690	
12		-10	20	13.4878	13.5005	11	13.4993	11	13.4992	11	11.4	570	RPD	
13		-10D	20	13.3985	13.4111	12	13.4105	12	13.4102	12	11.7	585	3%	
14		H163-01	20	13.6897	13.7027	13	13.7020	13	13.7016	13	11.9	595		
15		-02	20	13.6938	13.7084	14	13.7070	14	13.7069	14	13.1	655		
16		-03	20	13.3313	13.3415	15	13.3407	15	13.3405	15	9.2	460		
17		-04	20	13.5564	13.5707	16	13.5700	16	13.5701	16	13.7	685		
18		H169-01	20	13.5098	13.5359	17	13.5354	17	13.5355	17	25.7	1285 *	1290	
19		-01D	20	13.3554	13.3817	18	13.3812	18	13.3812	18	25.8	1290		
20		H132-01	20	13.5137	13.5182	1119	13.5177	1519	13.5174	1519	3.7	~~185~~		

Standard

LCS ID SW7A-06-146

LCSTV(mg/L) 334

Balance ID:

40706360	✓
37030058	

Comments:

* Sample H132-01 initially filtered w/ 934 A H Whatman has brown color, further filtered with Acrodisk 0.45 & 0.2 µm

8/20/05

Analyzed By: PM / NB

$R_{(mg/L)} = \frac{(DS - DW) \times 1000}{S}$

where: $R_{(mg/L)}$ = concentration of solids; $DS_{(mg)}$ = Dry weight of Dish + Solids; $DW_{(mg)}$ = Dish weight; $S_{(ml)}$ = sample amount

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8065

GRAVIMETRIC ANALYSIS LOG

SOP ☑ EMAX-160.1 Rev. No. 3 ☐ EMAX-160.2 Rev. No. 2 ☐ EMAX-160.3 Rev. No. 1 ☐ EMAX-160.4 Rev. No. 0 ☐ EMAX-160.5 Rev. No. 0 Book # AGV-019

Starting Date: 8/16/05 Time: 2030 Oven Temp. 105 °C Ending Date: 8/17/05 Time: 1245 Oven Temp. 180°C

ANALYTICAL BATCH # SS TD 8/17/05 S

	Data File Name	Lab Sample ID	Sample Amt. (ml)	Dish Wt. (g)	Dry Wt. Dish + Solids(g) 1st	Time	2nd	Time	3rd	Time	Solids (mg)	Result (mg/L)	Settleable Solids Vol. of SS	Result (ml/L/hr)
1		TCH012WD	100	58.3759	58.3762	0925	58.3759	1115	58.3760	1315	0.1	ND		
2		WL	20	13.3535	13.3610	26	13.3604	16	13.3602	16	6.7	335	100%	
3		WC	20	13.3851	13.3922	27	13.3920	17	13.3919	17	6.8	340	101	
4		H129-01	20	13.4001	13.4414	28	13.4405	18	13.4401	18	40.0	2000		
5		-02	20	13.4200	13.4542	29	13.4536	19	13.4532	19	33.2	1660		
6		-03	20	13.3538	13.3852	30	13.3850	20	13.3847	20	30.9	1545	1550	
7		-04	20	13.3309	13.3611	31	13.3606	21	13.3605	21	29.6	1480		
8		H132-01*	20	13.3781	13.3919	32	13.3910	22	13.3907	22	12.6	630	(Noted)	
9		-02	20	13.4977	13.5033	33	13.5025	23	13.5024	23	4.7	235	✓	Color
10		-03	20	13.3930	13.4045	34	13.4040	24	13.4037	24	10.7	535	✓	
11		-04	20	13.4493	13.4641	35	13.4631	25	13.4632	25	13.9	695	✓	
12		H132-05	20	13.4880	13.4935	36	13.4925	26	13.4922	26	3.8	190	✓	
13		H133-01	20	13.4460	13.4498	37	13.4491	27	13.4490	27	3.0	150		
14		-03	20	13.5129	13.5162	38	13.5157	28	13.5156	28	2.9	145	RPD	0%
15		-03D	20	13.4966	13.5003	39	13.4999	29	13.4997	29	2.9	145		
16					8/17/05									
17														
18														
19														
20														

Standard	
LCS ID	SW7A-06 146
LCSTV(mg/L)	334

Balance ID:	
40706360	✓
37030058	

Comments:

*Tinted filtrate, brown & black residue after drying

Analyzed By: NB/AC

$$R_{(mg/L)} = \frac{(DS - DW) \times 1000}{S}$$

where: $R_{(mg/L)}$ = concentration of solids; $DS_{(mg)}$ = Dry weight of Dish + Solids; $DW_{(mg)}$ = Dish weight; $S_{(ml)}$ = sample amount

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8066

BALANCE CALIBRATION VERIFICATION LOG (DOE)

SOP ☐ **EMAX-QC04 Revision No.: 1** **QC04-036**

Balance ID 10601202 Date 8-16-05

Range Min: 1 Max: 600 g

TV	200	100	30	5	1
1	200.003	100.001	29.999	5.000	1.000
2	200.004	100.002	29.998	5.000	1.000
3	200.004	100.002	29.998	5.000	1.000
Criteria (±0.1%)	0.2	0.1	0.03	0.005	0.001
LL	199.8	99.9	29.97	4.995	0.999
UL	200.2	100.1	30.03	5.005	1.001

Comment:

Balance ID J77299 Date 8-16-05

Range Min: 1 Max: 300 g

TV	200	100	50	30	20
1	200.00	100.00	50.00	30.00	20.00
2	200.00	100.00	50.00	30.00	20.00
3	200.00	100.00	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment:

Balance ID 10203192 Date 8-16-05

Range Min: 1 Max: 6000 g

TV	200	100	50	30	20
1	200.01	100.01	50.00	30.00	20.00
2	200.01	100.01	50.00	30.00	20.00
3	200.01	~~50.00~~ 100.01	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment:

Balance ID 10304418 Date 8-16-05

Range Min: 1 Max: 6000 g

TV	200	100	50	30	20
1	200.02	100.00	50.00	30.00	20.00
2	200.02	100.01	50.00	30.00	20.00
3	200.02	100.01	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment:

Balance ID 40706360 Date 8/16/05

Range Min: 1 Max: 205 g

TV	200	100	30	1	0.02
1	199.9985	100.0003	29.9998	1.0000	0.0200
2	199.9984	100.0004	29.9997	1.0000	0.0200
3	199.9985	100.0003	29.9994	1.0000	0.0200
Criteria (±0.1%)	0.2	0.1	0.03	0.001	0.00002
LL	199.8	99.9	29.97	0.999	0.01998
UL	200.2	100.1	30.03	1.001	0.02002

Comment:

Balance ID 40706360 Date 8/16/05

Range Min: 1 Max: 205 g

TV	200	100	30	1	0.02
1					
2					
3					
Criteria (±0.1%)	0.2	0.1	0.03	0.001	0.00002
LL	199.8	99.9	29.97	0.999	0.01998
UL	200.2	100.1	30.03	1.001	0.02002

Comment:

BALANCE CALIBRATION VERIFICATION LOG (DOE)

SOP ☐ **EMAX-QC04 Revision No.: 1** **QC04-036**

Balance ID 10601202 Date 8-17-05

Range Min: 1 Max: 600 g

TV	200	100	30	5	1
1	200.005	100.003	29.996	5.000	1.000
2	200.006	100.004	29.999	5.000	1.000
3	200.004	100.006	29.997	5.000	1.000
Criteria (±0.1%)	0.2	0.1	0.03	0.005	0.001
LL	199.8	99.9	29.97	4.995	0.999
UL	200.2	100.1	30.03	5.005	1.001

Comment:

Balance ID J77299 Date 8-17-05

Range Min: 1 Max: 300 g

TV	200	100	50	30	20
1	200.01	100.01	50.00	30.00	20.00
2	200.01	100.01	50.00	30.00	20.00
3	200.01	100.01	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment:

Balance ID 10203192 Date 8-17-05

Range Min: 1 Max: 6000 g

TV	200	100	50	30	20
1	200.00	100.00	50.00	30.00	20.00
2	200.00	100.00	50.00	30.00	20.00
3	200.00	100.00	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment:

Balance ID 10304418 Date 8-17-05

Range Min: 1 Max: 6000 g

TV	200	100	50	30	20
1	200.03	100.00	50.00	30.00	20.00
2	200.03	100.02	50.00	30.00	20.00
3	200.03	100.01	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment:

Balance ID 40706360 Date 8/17/05

Range Min: 1 Max: 205 g

TV	200	100	30	1	0.02
1	199.9996	100.0013	29.9991	1.0000	0.0200
2	199.9994	100.0014	29.9985	1.0000	0.0200
3	199.9997	100.0015	29.9983	1.0000	0.0200
Criteria (±0.1%)	0.2	0.1	0.03	0.001	0.00002
LL	199.8	99.9	29.97	0.999	0.01998
UL	200.2	100.1	30.03	1.001	0.02002

Comment:

Balance ID 40706360 Date

Range Min: 1 Max: 205 g

TV	200	100	30	1	0.02
1					
2					
3					
Criteria (±0.1%)	0.2	0.1	0.03	0.001	0.00002
LL	199.8	99.9	29.97	0.999	0.01998
UL	200.2	100.1	30.03	1.001	0.02002

Comment:

Verified by: MC

Checked by:

Calibration Report No.: 3950-05
3949-05

8068

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H132**

METHOD 351.3
TKN

Five (5) water samples were received on 08/16/05 for TKN analysis by Method 351.3 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. **Holding Time**

   Analysis met holding time criteria.

2. **Method Blank**

   Method blank was free of contamination at the reporting limit.

3. **Lab Control Sample/Lab Control Sample Duplicate**

   Lab control results were within QC limit.

4. **Duplicate**

   Sample H132-05 was analyzed for duplicate. %RPD was within QC limit.

5. **Matrix Spike**

   Sample H132-05 was spiked. Recovery was within QC limit.

6. **Sample Analysis**

   Samples were analyzed according to the prescribed QC procedures. All criteria were met.

   All results were reported as Nitrogen concentration.

METHOD 351.3

TKN

Client : BATTELLE MEMORIAL INSTITUTE

Project : JPL

Batch No. : 05H132

Matrix : WATER

Instrument ID : NA

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	KNH008WB	ND	1	NA	.1	.035	08/24/0516:10	08/24/0511:00	KNH008W-11	KNH008W-09	KNH008W	NA	08/24/05
LCS1W	KNH008WL	.960	1	NA	.1	.035	08/24/0516:11	08/24/0511:00	KNH008W-12	KNH008W-09	KNH008W	NA	08/24/05
LCD1W	KNH008WC	.955	1	NA	.1	.035	08/24/0516:12	08/24/0511:00	KNH008W-13	KNH008W-09	KNH008W	NA	08/24/05
MW-17-5	H132-01	.181	1	NA	.1	.035	08/24/0516:13	08/24/0511:00	KNH008W-14	KNH008W-09	KNH008W	08/15/05	08/16/05
MW-17-4	H132-02	.549	1	NA	.1	.035	08/24/0516:14	08/24/0511:00	KNH008W-15	KNH008W-09	KNH008W	08/15/05	08/16/05
MW-17-3	H132-03	.315	1	NA	.1	.035	08/24/0516:15	08/24/0511:00	KNH008W-16	KNH008W-09	KNH008W	08/15/05	08/16/05
MW-17-2	H132-04	.304	1	NA	.1	.035	08/24/0516:16	08/24/0511:00	KNH008W-17	KNH008W-09	KNH008W	08/15/05	08/16/05
MW-17-1	H132-05	.277	1	NA	.1	.035	08/24/0516:17	08/24/0511:00	KNH008W-18	KNH008W-09	KNH008W	08/15/05	08/16/05
MW-17-1DUP	H132-05D	.320	1	NA	.1	.035	08/24/0516:18	08/24/0511:00	KNH008W-19	KNH008W-09	KNH008W	08/15/05	08/16/05
MW-17-1MS	H132-05M	1.25	1	NA	.1	.035	08/24/0516:19	08/24/0511:00	KNH008W-20	KNH008W-09	KNH008W	08/15/05	08/16/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 351.3
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05H132
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: KNH008WL/C

DATE RECEIVED: 08/24/05
DATE EXTRACTED: 08/24/05 11:00
DATE ANALYZED: 08/24/05 16:11/16:12

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
TKN	ND	1.00	.96	96	1.00	.955	96	1	80-120	20

1708

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 351.3
MATRIX: WATER
% MOISTURE: NA

==========

BATCH NO.: 05H132 DATE RECEIVED: 08/16/05
SAMPLE ID: MW-17-1MS DATE EXTRACTED: 08/24/05 11:00
CONTROL NO.: H132-05M DATE ANALYZED: 08/24/05 16:19

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
TKN	.277	1.00	1.25	97	75-125

8072

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 351.3
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05H132
SAMPLE ID: MW-17-1DUP
CONTROL NO.: H132-05D

DATE RECEIVED: 08/16/05
DATE EXTRACTED: 08/24/05 11:00
DATE ANALYZED: 08/24/05 16:18

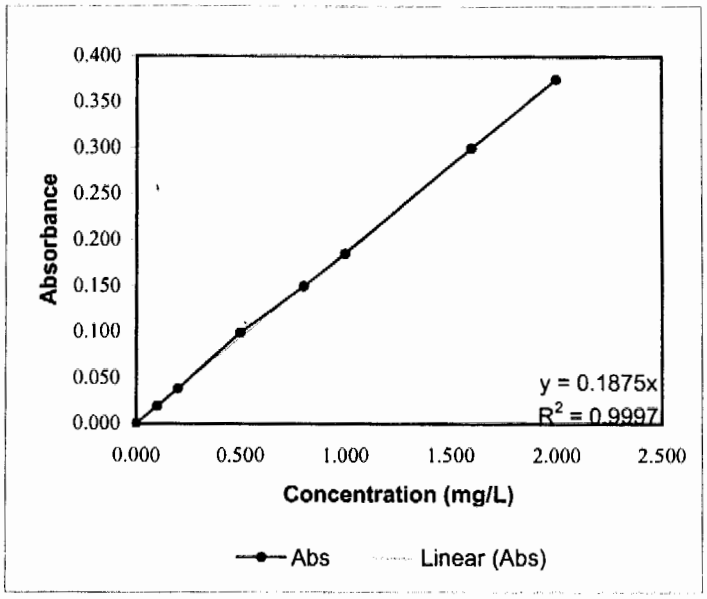
ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
TKN	.277	.32	14	20

8073

CALIBRATION CURVE
AMMONIA _NH3 _TKN

Conc.	Abs
0.000	0.000
0.100	0.019
0.200	0.038
0.500	0.099
0.800	0.150
1.000	0.185
1.600	0.300
2.000	0.375



R^2	0.999760
y	0.1875
CF	5.3325

Comments: **PASSED**

Analyzed by: NT/LA

8071

ANALYSIS LOG FOR TOTAL KJELDAHL NITROGEN (TKN)

SOP ☑ EMAX-351.3 Rev. No. 1 ☐ Start Date: 8/24/05 Time: 16:00 End Date: 8/24/05 Time: 16:24 Book # A70-KN-004

ANALYTICAL BATCH * KNH008W

	Data File Name	Prep. Batch	Lab Sample ID	Matrix S	Matrix W	Time	Vol.Colored (ml)	DF	Absorbance	Notes
* 1		KNH008W	S-0			16:00	20	1	0.000	
* 2			0.1			01			0.019	
* 3			0.2			02			0.038	
* 4			0.5			03			0.099	
* 5			0.8			04			0.150	
* 6			1.0			05			0.185	
* 7			1.6			06			0.300	
* 8			2.0			07			0.375	
* 9			ICV			08			0.176	0.939
* 10			ICB			09			0.000	ND
* 11			KNH008WB		✓	10			0.000	ND
* 12			WL			11			0.180	0.960
* 13			WC			12			0.179	0.955
* 14			H132-01			13			0.034	0.181
* 15			02			14			0.103	0.549
* 16			03			15			0.059	0.315
* 17			04			16			0.057	0.304
* 18			05			17			0.052	0.277
* 19			05D		✓	18			0.060	0.320
* 20			05M		✓	19			0.235	1.253
* 21			CCV1			20			0.177	0.944
* 22			CCB1			21			0.000	ND
* 23			H178-01		✓	22			0.031	0.165
* 24			CCV2			23			0.175	0.933
* 25			CCB2			16:24			0.000	ND
* 6										
* 7										
* 8							NT	8/24/05		
* 9										
* 0										

Instrument No: 70	Wavelength: 425 nm	
Standard	**ID**	**Conc. (mg/L)**
S_0	SW2B-03-182	0.0
S_1		0.1
S_2		0.2
S_3		0.5
S_4		0.8
S_5		1.0
S_6		1.6
S_7		2.0
ICV/MS	SW2B-03-181	1.0
CCV	182	1.0
LCS	178	1.0
Reagent	**ID**	
Color Reagent	SW7A-06-141	
Standard Curve		
R^2	0.999760	
Y	0.1875	
CF	5.3325	

Comments:

Results are based on: ☐ Dry Weight ☐ Wet Weight

Analyzed By: NT/LA

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8075

DISTILLATION LOG FOR NH_3 / DIGESTION AND DISTILLATION FOR TKN

SOP ☐ EMAX-350.2 Rev. No.: 2 ☑ EMAX-351.3 Rev. No.: 2 ☐ Book # EKN-006

Start Date 8/24/05 Time 11:00 End Date 8/25/05 Time 15:00

PREPARATION BATCH # KNH008W

Sample Prep ID	Lab Sample ID	Sample pH	NaOH Added (ml)	Boric Acid (ml)	Borate Buffer (ml)	Sample Amount (ml)	Extract Volume (ml)	Notes
*01	S-0	9.5	10	5	4	50	50	
*02	0.1							
*03	1.0							
*04	2.0							
*05	ICV							
*06	ICB							
*07	KNH008WB							
*08	WL							
*09	WC							
*10	H132-01							
*11	02							
*12	03							
*13	04							
*14	05							
*15	05D							
*16	05M							
*17	H178-01							
*18								
*19								
*20								
*21						NT		
*22						8/24/05		
*23								
*24								
*25								
*26								

Standards	ID	Amount Added (ml)
ICV/MS	SW2B-03-181	5ml of 10ppm
LCS	178	50

Reagent	Lot# / ID
NaOH	N/A
Digestion Mixture	SW7A-06-204
Borate Buffer	152
H_3BO_3	SW7B-06-322
Distilling Soln.	331

Comments:

Prepared By: NT/LA

Standard Added By: NT/LA

Checked By:

EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

8076

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H132**

METHOD 376.1
SULFIDE

Five (5) water samples were received on 08/16/05 for Sulfide analysis by Method 376.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Sample H132-01 was analyzed for duplicate. %RPD was within QC limit.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 376.1
SULFIDE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H132

Matrix : WATER
Instrument ID : NA

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	SDH005WB	ND	1	NA	1	.4	08/16/0516:30	NA	SDH005W-01	NA	SDH005W	NA	NA
LCS1W	SDH005WL	4.69	1	NA	1	.4	08/16/0516:33	NA	SDH005W-02	NA	SDH005W	NA	NA
LCD1W	SDH005WC	4.65	1	NA	1	.4	08/16/0516:36	NA	SDH005W-03	NA	SDH005W	NA	NA
MW-17-5	H132-01	ND	1	NA	1	.4	08/16/0516:45	NA	SDH005W-06	NA	SDH005W	08/15/05	08/16/05
MW-17-5DUP	H132-01D	ND	1	NA	1	.4	08/16/0516:48	NA	SDH005W-07	NA	SDH005W	08/15/05	08/16/05
MW-17-4	H132-02	ND	1	NA	1	.4	08/16/0516:51	NA	SDH005W-08	NA	SDH005W	08/15/05	08/16/05
MW-17-3	H132-03	ND	1	NA	1	.4	08/16/0516:54	NA	SDH005W-09	NA	SDH005W	08/15/05	08/16/05
MW-17-2	H132-04	ND	1	NA	1	.4	08/16/0516:57	NA	SDH005W-10	NA	SDH005W	08/15/05	08/16/05
MW-17-1	H132-05	ND	1	NA	1	.4	08/16/0517:00	NA	SDH005W-11	NA	SDH005W	08/15/05	08/16/05

8078

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 376.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05H132
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: SDH005WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 08/16/05 16:33/16:36

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Sulfide	ND	5.00	4.69	94	5.00	4.65	93	1	80-120	20

8079

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 376.1
MATRIX: WATER
% MOISTURE: NA

==========

BATCH NO.: 05H132 DATE RECEIVED: 08/16/05
SAMPLE ID: MW-17-5DUP DATE EXTRACTED: NA
CONTROL NO.: H132-01D DATE ANALYZED: 08/16/05 16:48

ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
Sulfide	ND	ND	0	20

0808

ANALYSIS LOG FOR SULFIDE

SOP ☐ EMAX-376.1 Rev. No. 1 ☐ EMAX-9034 Rev. No. 0 Start Date: 8-16-05 Time: 16:30 End Date: 8-16-05 Time: 17:00 Book # ASD-007

	Data File Name	Lab Sample ID	Time	Sample Amt. (ml)	Volume of Iodine (ml)	Volume of PAO/$Na_2S_2O_3$ (ml)	Notes mg/L
*	1	SDA005 WB	16:30	100	10	9.6	ND
*	2	WC	-33			4.4	4.69
*	3	WC	-36			4.45	4.65
*	4	H122-01	-39			9.6	ND
*	5	-02	-42			9.5	ND
*	6	H132-01	-45			9.4	ND
*	7	-01D	-48			9.5	ND
*	8	-02	-51			9.6	ND
*	9	-03	-54			9.5	ND
*	0	-04	-57			9.5	ND
*	1	-05	17:00	100	10	9.6	ND
*	2						
*	3						
*	4						
*	5						
*	6						
*	7						
*	8						
*	9						
*	0						
*	1						
*	2						
*	3						
*	4						
*	5						
*	6						
*	7						
*	0						

Standard	ID	Conc. (mg/L)
LCS	SWTA-06-178	5.0
Spike	NA	
$Na_2S_2O_3$	SWBB-02-735	0.00220
PAO		
Iodine	SWBB-02-754	0.00224
HCL	SWTB-06-281C	1:1
Indicator	SWTA-06-190	

STANDARDIZATION

Vol. Of Iodine (ml)	Volume of PAO/Na2S2O3 (ml)	Conc. Of Iodine (N)
10	9.6	0.00544
10	9.6	0.00544
10	9.6	0.00544
Average Iodine Conc. (N)		0.00544

$$Sulfide(mg/L) = \frac{\left(V_{I_2} \times N_{I_2} - V_{PAO} \times N_{PAO}\right) \times 16{,}000}{V_{sample}}$$

Comments:

Analyzed By: DL

ANALYTICAL BATCH # SDA005-W

8081

EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H132**

METHOD 415.1
DISSOLVED ORGANIC CARBON

Five (5) water samples were received on 08/16/05 for Dissolved Organic Carbon analysis by Method SW9060 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Method", SW846, 3rd edition.

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

No Duplicate sample was designated in this SDG.

5. Matrix Spike

No MS sample was designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 415.1
DOC

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H132

Matrix : WATER
Instrument ID : 62

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TCH019WB	ND	1	NA	1	.5	08/25/0521:20	NA	TCH019-5	TCH019-2	TCH019W	NA	NA
LCS1W	TCH019WL	24.6	1	NA	1	.5	08/25/0521:31	NA	TCH019-6	TCH019-2	TCH019W	NA	NA
LCD1W	TCH019WC	24.2	1	NA	1	.5	08/25/0521:41	NA	TCH019-7	TCH019-2	TCH019W	NA	NA
MW-17-5	H132-01	1.87	1	NA	1	.5	08/25/0522:40	NA	TCH019-13	TCH019-2	TCH019W	08/15/05	08/16/05
MW-17-4	H132-02	2.79	1	NA	1	.5	08/25/0523:09	NA	TCH019-16	TCH019-14	TCH019W	08/15/05	08/16/05
MW-17-3	H132-03	3.49	1	NA	1	.5	08/25/0523:18	NA	TCH019-17	TCH019-14	TCH019W	08/15/05	08/16/05
MW-17-2	H132-04	3.39	1	NA	1	.5	08/25/0523:27	NA	TCH019-18	TCH019-14	TCH019W	08/15/05	08/16/05
MW-17-1	H132-05	4.32	1	NA	1	.5	08/25/0523:37	NA	TCH019-19	TCH019-14	TCH019W	08/15/05	08/16/05

8083

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H132
METHOD: METHOD 415.1

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	TCH019WB	TCH019WL	TCH019WC		
LAB FILE ID:	TCH019-5	TCH019-6	TCH019-7		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/25/0521:20	08/25/0521:31	08/25/0521:41	DATE RECEIVED:	NA
PREP. BATCH:	TCH019W	TCH019W	TCH019W		
CALIB. REF:	TCH019-2	TCH019-2	TCH019-2		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
DOC	ND	25	24.6	98	25	24.2	97	2	80-120	20

8084

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H132**

METHOD 415.1
TOTAL ORGANIC CARBON

Five (5) water samples were received on 08/16/05 for Total Organic Carbon analysis by Method SW9060 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Method", SW846, 3rd edition.

1. **Holding Time**

   Analysis met holding time criteria.

2. **Method Blank**

   Method blank was free of contamination at the reporting limit.

3. **Lab Control Sample/Lab Control Sample Duplicate**

   Lab control results were within QC limit.

4. **Duplicate**

   No Duplicate sample was designated in this SDG.

5. **Matrix Spike**

   No MS sample was designated in this SDG.

6. **Sample Analysis**

   Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 415.1
TOC

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H132

Matrix : WATER
Instrument ID : 62

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TCH020WB	ND	1	NA	1	.5	08/26/0501:38	NA	TCH019-32	TCH019-26	TCH020W	NA	NA
LCS1W	TCH020WL	24.8	1	NA	1	.5	08/26/0501:48	NA	TCH019-33	TCH019-26	TCH020W	NA	NA
LCD1W	TCH020WC	25.1	1	NA	1	.5	08/26/0501:58	NA	TCH019-34	TCH019-26	TCH020W	NA	NA
MW-17-5	H132-01	1.85	1	NA	1	.5	08/26/0502:07	NA	TCH019-35	TCH019-26	TCH020W	08/15/05	08/16/05
MW-17-4	H132-02	2.31	1	NA	1	.5	08/26/0502:17	NA	TCH019-36	TCH019-26	TCH020W	08/15/05	08/16/05
MW-17-3	H132-03	2.29	1	NA	1	.5	08/26/0502:26	NA	TCH019-37	TCH019-26	TCH020W	08/15/05	08/16/05
MW-17-2	H132-04	2.64	1	NA	1	.5	08/26/0502:35	NA	TCH019-38	TCH019-26	TCH020W	08/15/05	08/16/05
MW-17-1	H132-05	2.39	1	NA	1	.5	08/26/0502:44	NA	TCH019-39	TCH019-26	TCH020W	08/15/05	08/16/05

8086

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H132
METHOD: METHOD 415.1

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	TCH020WB	TCH020WL	TCH020WC		
LAB FILE ID:	TCH019-32	TCH019-33	TCH019-34		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/26/0501:38	08/26/0501:48	08/26/0501:58	DATE RECEIVED:	NA
PREP. BATCH:	TCH020W	TCH020W	TCH020W		
CALIB. REF:	TCH019-26	TCH019-26	TCH019-26		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
TOC	ND	25	24.8	99	25	25.1	100	1	80-120	20

Total + DIS H132

	Type	Analysis	Sample Name	Sample ID	ObjectID	Origin	Dilutio	Result	Notes
1	Standard	NPOC	ICAL	TCH019-1	0A-123456-	C:\Program F	1.000		
2	Control	NPOC	ICV	TCH019-2	0A-123456-	C:\Program F	1.000	NPOC:24.57	Control valu
3	Unknown	NPOC	ICB	TCH019-3	0A-123456-	C:\Program F	1.000	NPOC:0.4446	
4	Unknown	NPOC	HCO3/CO3	TCH019-4	0A-123456-	C:\Program F	1.000	NPOC:0.6484	
5	Unknown	NPOC	TCH019WB	TCH019-5	0A-123456-	C:\Program F	1.000	NPOC:0.1429	
6	Unknown	NPOC	TCH019WL	TCH019-6	0A-123456-	C:\Program F	1.000	NPOC:24.62	
7	Unknown	NPOC	TCH019WC	TCH019-7	0A-123456-	C:\Program F	1.000	NPOC:24.25	
8	Unknown	NPOC	05H074-02	TCH019-8	0A-123456-	C:\Program F	5.000	NPOC:117.3	
9	Unknown	NPOC	05H074-06	TCH019-9	0A-123456-	C:\Program F	5.000	NPOC:96.20	
10	Unknown	NPOC	05H118-01	TCH019-10	0A-123456-	C:\Program F	1.000	NPOC:19.09	
11	Unknown	NPOC	05H118-01D	TCH019-11	0A-123456-	C:\Program F	1.000	NPOC:19.06	
12	Unknown	NPOC	05H118-01M	TCH019-12	0A-123456-	C:\Program F	1.000	NPOC:42.66	
13	Unknown	NPOC	05H132-01	TCH019-13	0A-123456-	C:\Program F	1.000	NPOC:1.869	
14	Control	NPOC	CCV1	TCH019-14	0A-123456-	C:\Program F	1.000	NPOC:25.02	Control valu
15	Unknown	NPOC	CCB1	TCH019-15	0A-123456-	C:\Program F	1.000	NPOC:0.4697	
16	Unknown	NPOC	05H132-02	TCH019-16	0A-123456-	C:\Program F	1.000	NPOC:2.788	
17	Unknown	NPOC	05H132-03	TCH019-17	0A-123456-	C:\Program F	1.000	NPOC:3.494	
18	Unknown	NPOC	05H132-04	TCH019-18	0A-123456-	C:\Program F	1.000	NPOC:3.389	
19	Unknown	NPOC	05H132-05	TCH019-19	0A-123456-	C:\Program F	1.000	NPOC:4.324	
20	Unknown	NPOC	05H150-01	TCH019-20	0A-123456-	C:\Program F	1.000	NPOC:0.9213	
21	Unknown	NPOC	05H150-02	TCH019-21	0A-123456-	C:\Program F	1.000	NPOC:2.474	
22	Unknown	NPOC	05H150-03	TCH019-22	0A-123456-	C:\Program F	1.000	NPOC:1.119	
23	Unknown	NPOC	05H150-04	TCH019-23	0A-123456-	C:\Program F	1.000	NPOC:1.690	
24	Unknown	NPOC	05H150-05	TCH019-24	0A-123456-	C:\Program F	1.000	NPOC:1.335	
25	Unknown	NPOC	05H150-06	TCH019-25	0A-123456-	C:\Program F	1.000	NPOC:16.45	
26	Control	NPOC	CCV2	TCH019-26	0A-123456-	C:\Program F	1.000	NPOC:24.55	Control valu
27	Unknown	NPOC	CCB2	TCH019-27	0A-123456-	C:\Program F	1.000	NPOC:0.4336	
28	Unknown	NPOC	05H150-07	TCH019-28	0A-123456-	C:\Program F	1.000	NPOC:16.14	
29	Unknown	NPOC	05H150-08	TCH019-29	0A-123456-	C:\Program F	1.000	NPOC:10.81	
30	Unknown	NPOC	05H150-10	TCH019-30	0A-123456-	C:\Program F	1.000	NPOC:1.018	
31	Unknown	NPOC	RINSE	TCH019-31	0A-123456-	C:\Program F	1.000	NPOC:0.4563	
32	Unknown	NPOC	TCH020WB	TCH019-32	0A-123456-	C:\Program F	1.000	NPOC:0.4028	
33	Unknown	NPOC	TCH020WL	TCH019-33	0A-123456-	C:\Program F	1.000	NPOC:24.77	
34	Unknown	NPOC	TCH020WC	TCH019-34	0A-123456-	C:\Program F	1.000	NPOC:25.09	
35	Unknown	NPOC	05H132-01	TCH019-35	0A-123456-	C:\Program F	1.000	NPOC:1.846	
36	Unknown	NPOC	05H132-02	TCH019-36	0A-123456-	C:\Program F	1.000	NPOC:2.312	
37	Unknown	NPOC	05H132-03	TCH019-37	0A-123456-	C:\Program F	1.000	NPOC:2.287	
38	Unknown	NPOC	05H132-04	TCH019-38	0A-123456-	C:\Program F	1.000	NPOC:2.641	
39	Unknown	NPOC	05H132-05	TCH019-39	0A-123456-	C:\Program F	1.000	NPOC:2.394	
40	Unknown	NPOC	05H163-01	TCH019-40	0A-123456-	C:\Program F	1.000	NPOC:1.426	
41	Control	NPOC	CCV3	TCH019-41	0A-123456-	C:\Program F	1.000	NPOC:25.26	Control valu
42	Unknown	NPOC	CCB3	TCH019-42	0A-123456-	C:\Program F	1.000	NPOC:0.3947	
43	Unknown	NPOC	05H163-02	TCH019-43	0A-123456-	C:\Program F	1.000	NPOC:2.111	
44	Unknown	NPOC	05H163-03	TCH019-44	0A-123456-	C:\Program F	1.000	NPOC:1.043	
45	Unknown	NPOC	05H163-04	TCH019-45	0A-123456-	C:\Program F	1.000	NPOC:2.142	
46	Unknown	NPOC	05H176-01	TCH019-46	0A-123456-	C:\Program F	1.000	NPOC:1.754	
47	Unknown	NPOC	05H176-02	TCH019-47	0A-123456-	C:\Program F	1.000	NPOC:2.471	
48	Unknown	NPOC	05H176-03	TCH019-48	0A-123456-	C:\Program F	1.000	NPOC:1.493	
49	Unknown	NPOC	05H176-04	TCH019-49	0A-123456-	C:\Program F	1.000	NPOC:1.635	
50	Unknown	NPOC	05H133-01	TCH019-50	0A-123456-	C:\Program F	1.000	NPOC:1.122	
51	Unknown	NPOC	05H133-03	TCH019-51	0A-123456-	C:\Program F	1.000	NPOC:0.7613	
52	Unknown	NPOC	05H133-03D	TCH019-52	0A-123456-	C:\Program F	1.000	NPOC:0.7830	
53	Control	NPOC	CCV4	TCH019-53	0A-123456-	C:\Program F	1.000	NPOC:25.06	Control valu
54	Unknown	NPOC	CCB4	TCH019-54	0A-123456-	C:\Program F	1.000	NPOC:0.4882	
55	Unknown	NPOC	05H133-03M	TCH019-55	0A-123456-	C:\Program F	1.000	NPOC:24.15	
56	Control	NPOC	CCV5	TCH019-56	0A-123456-	C:\Program F	1.000	NPOC:25.32	Control valu
57	Unknown	NPOC	CCB5	TCH019-57	0A-123456-	C:\Program F	1.000	NPOC:0.8666	
58									
59									
60									
61									
62									
63									
64									
65									
66									

Instr.Information

System	toc
Detector	Combustion
Catalyst	Regular Sensitivity
Cell Length	long

Cal. Curve

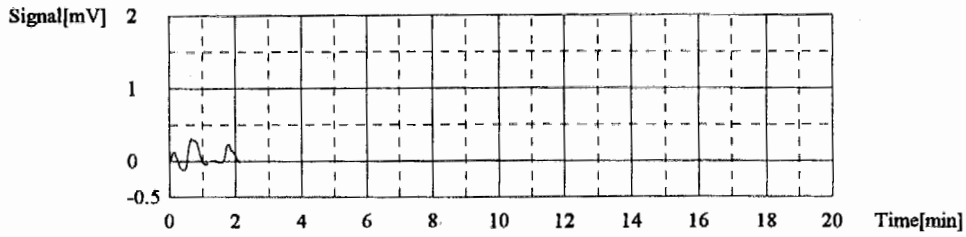
Sample Name:	ICAL
Sample ID:	TCH019-1
Cal. Curve:	TCH019.2005_08_25_19_49_28.cal

Type	Anal.
Standard	NPOC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	0.8045	50uL	1	*******		08/25/05 07:56:51 PM
2	0.3271	50uL	1	*******		08/25/05 07:58:00 PM

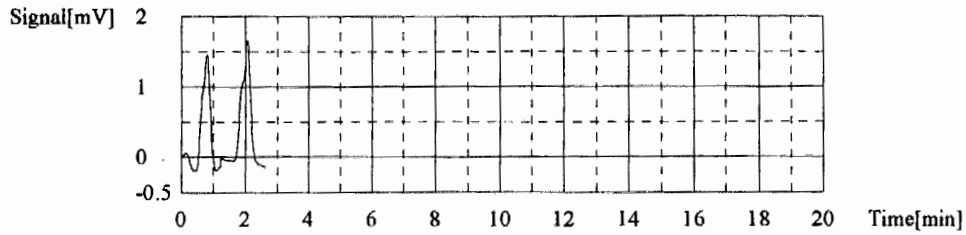
Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	0.5658



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	2.795	50uL	10	*******		08/25/05 08:06:26 PM
2	3.339	50uL	10	*******		08/25/05 08:08:00 PM

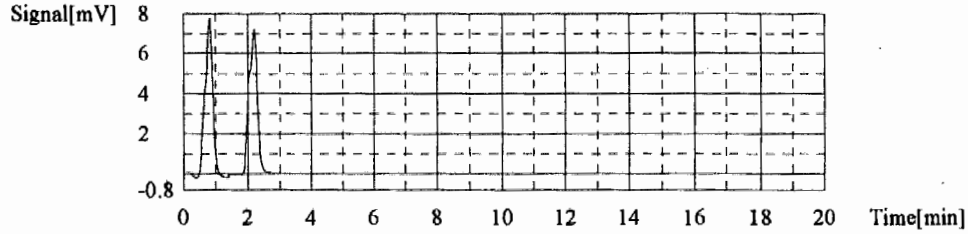
Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	3.067



Conc: 5.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	13.86	50uL	2	*******		08/25/05 08:14:41 PM
2	14.01	50uL	2	*******		08/25/05 08:16:16 PM

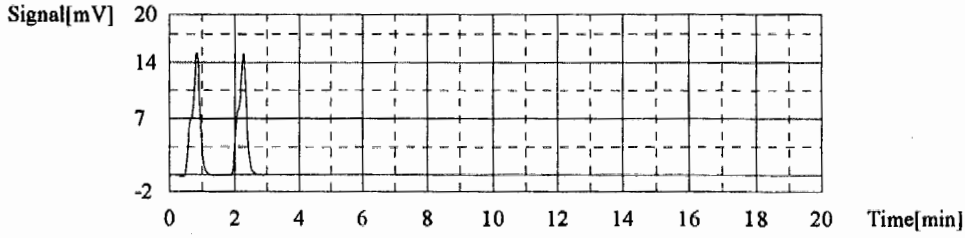
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 13.94



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	27.28	50uL	1	*******		08/25/05 08:22:17 PM
2	27.41	50uL	1	*******		08/25/05 08:23:54 PM

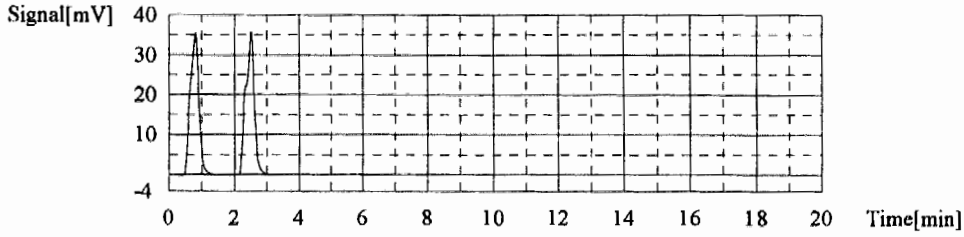
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 27.34



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	67.99	50uL	2	*******		08/25/05 08:32:48 PM
2	69.63	50uL	2	*******		08/25/05 08:34:50 PM

Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 68.81

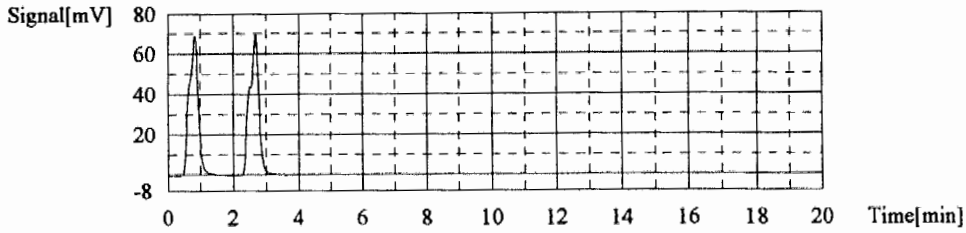


Conc: 50.00mg/L

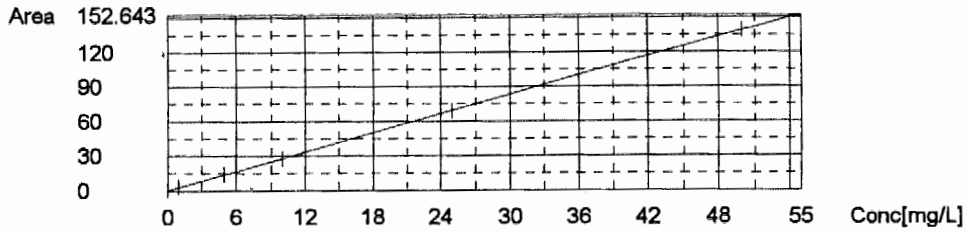
No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	138.7	50uL	1	*******		08/25/05 08:41:15 PM
2	139.8	50uL	1	*******		08/25/05 08:43:15 PM

8090

Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	139.3



Slope:	2.775
Intercept	0.000
r^2	0.999923



Control Sample

Sample Name:	ICV
Sample ID:	TCH019-2
Method:	TCH019.tpl
Chk. Result	Control value: 1.55% / Control within range!

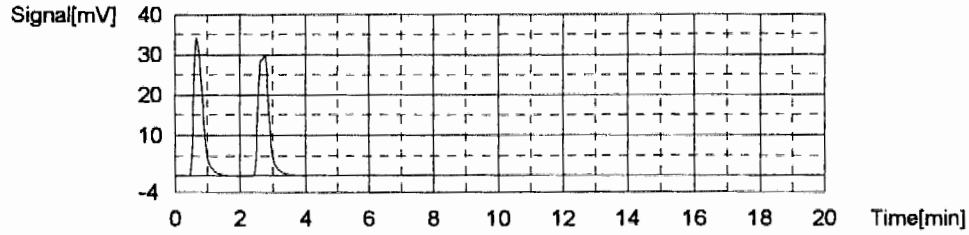
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.57 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	67.65	24.38mg/L	50uL	1		TCH019.2005_08_25_19_49_28.cal	08/25/05 08:51:59 PM
2	68.71	24.76mg/L	50uL	1		TCH019.2005_08_25_19_49_28.cal	08/25/05 08:54:12 PM

Mean Area	68.18
Mean Conc.	24.57mg/L



Sample

Sample Name: ICB
Sample ID: TCH019-3
Origin: TCH019.met
Chk. Result

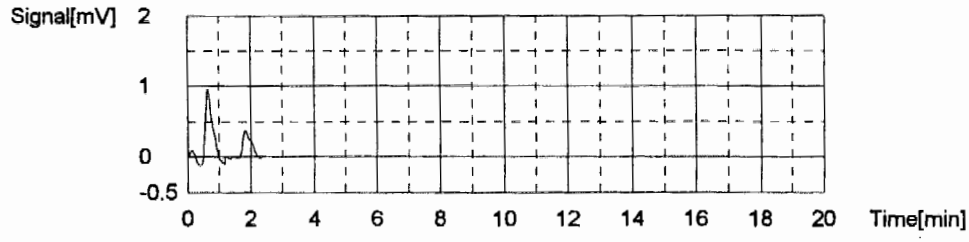
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.4446 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.755	0.6324mg/L	50uL	1		TCH019.2005_08_25_19_49_28.cal	08/25/05 09:01:55 PM
2	0.7126	0.2568mg/L	50uL	1		TCH019.2005_08_25_19_49_28.cal	08/25/05 09:03:14 PM

Mean Area 1.234
Mean Conc. 0.4446mg/L



Sample

Sample Name: HCO3/CO3
Sample ID: TCH019-4
Origin: TCH019.met
Chk. Result

Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.6484 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.856	0.6687mg/L	50uL	1		TCH019.2005_08_25_19_49_28.cal	08/25/05 09:10:56 PM
2	1.743	0.6280mg/L	50uL	1		TCH019.2005_08_25_19_49_28.cal	08/25/05 09:12:17 PM

ANALYSIS RUN LOG FOR TOC

SOP: o EMAX-9060 Revision No. 1 o EMAX-415.1 Revision No. 1 o **Book # A62-006**

Start Date: 8/25/2005 **Time:** 19:56 **EndingDate:** 8/26/05 **Time:** 17:38

Sample Prep. ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Run Time	Notes
* 1	TCH019-						
* 2							
* 3							
* 4							
* 5							
* 6							
* 7							
* 8							
* 9							
* 0							
* 1							
* 2							
* 3							
* 4							
* 5							
* 6							
* 7							
* 8							
* 9							
* 0							
* 1							
* 2							
* 3							
* 4							
* 5							
* 6							
* 7							
* 8							
* 9							
* 0							

SEE ATTACHED INSTRUMENT SEQ.
8/25/05

ANALYTICAL BATCH * TCH019 ** TCH020

Instrument No.	62
INITIAL CALIBRATION REFERENCE	
Method File	TCH09
ICAL ID	SW10B-01-615
ICV ID	↓ 617

STANDARDS

ICAL Level		Conc.(mg/L)
S_0	Nanopure	0
S_1	SW10B-01-615	1
S_2	↓	5
S_3		10
S_4		25
S_5		50
S_6	8/25/05	
ICV/LCS	SW10B-01-617	25
CCV	↓ 616	25

Comments:

NPOC Run pH < 2

Analyzed By:

This page is checked during data review.

EMAX Laboratories, Inc. 1835 W 205th St Torrance, CA 90501

8091

T + D H13Q

	Type	Analysis	Sample Name	Sample ID	ObjectID	Origin	Dilutio	Result	Notes
1	Standard	NPOC	ICAL	TCH019-1	0A-123456-	C:\Program F	1.000		
2	Control	NPOC	ICV	TCH019-2	0A-123456-	C:\Program F	1.000		
3	Unknown	NPOC	ICB	TCH019-3	0A-123456-	C:\Program F	1.000		
4	Unknown	NPOC	HCO3/CO3	TCH019-4	0A-123456-	C:\Program F	1.000		
5	Unknown	NPOC	TCH019WB	TCH019-5	0A-123456-	C:\Program F	1.000		
6	Unknown	NPOC	TCH019WL	TCH019-6	0A-123456-	C:\Program F	1.000		
7	Unknown	NPOC	TCH019WC	TCH019-7	0A-123456-	C:\Program F	1.000		
8	Unknown	NPOC	05H074-02	TCH019-8	0A-123456-	C:\Program F	5.000		
9	Unknown	NPOC	05H074-06	TCH019-9	0A-123456-	C:\Program F	5.000		
10	Unknown	NPOC	05H118-01	TCH019-10	0A-123456-	C:\Program F	1.000		
11	Unknown	NPOC	05H118-01D	TCH019-11	0A-123456-	C:\Program F	1.000		
12	Unknown	NPOC	05H118-01M	TCH019-12	0A-123456-	C:\Program F	1.000		
13	Unknown	NPOC	05H132-01	TCH019-13	0A-123456-	C:\Program F	1.000		
14	Control	NPOC	CCV1	TCH019-14	0A-123456-	C:\Program F	1.000		
15	Unknown	NPOC	CCB1	TCH019-15	0A-123456-	C:\Program F	1.000		
16	Unknown	NPOC	05H132-02	TCH019-16	0A-123456-	C:\Program F	1.000		
17	Unknown	NPOC	05H132-03	TCH019-17	0A-123456-	C:\Program F	1.000		
18	Unknown	NPOC	05H132-04	TCH019-18	0A-123456-	C:\Program F	1.000		
19	Unknown	NPOC	05H132-05	TCH019-19	0A-123456-	C:\Program F	1.000		
20	Unknown	NPOC	05H150-01	TCH019-20	0A-123456-	C:\Program F	1.000		
21	Unknown	NPOC	05H150-02	TCH019-21	0A-123456-	C:\Program F	1.000		
22	Unknown	NPOC	05H150-03	TCH019-22	0A-123456-	C:\Program F	1.000		
23	Unknown	NPOC	05H150-04	TCH019-23	0A-123456-	C:\Program F	1.000		
24	Unknown	NPOC	05H150-05	TCH019-24	0A-123456-	C:\Program F	1.000		
25	Unknown	NPOC	05H150-06	TCH019-25	0A-123456-	C:\Program F	1.000		
26	Control	NPOC	CCV2	TCH019-26	0A-123456-	C:\Program F	1.000		
27	Unknown	NPOC	CCB2	TCH019-27	0A-123456-	C:\Program F	1.000		
28	Unknown	NPOC	05H150-07	TCH019-28	0A-123456-	C:\Program F	1.000		
29	Unknown	NPOC	05H150-08	TCH019-29	0A-123456-	C:\Program F	1.000		
30	Unknown	NPOC	05H150-10	TCH019-30	0A-123456-	C:\Program F	1.000		
31	Unknown	NPOC	RINSE	TCH019-31	0A-123456-	C:\Program F	1.000		
32	Unknown	NPOC	TCH020WB	TCH019-32	0A-123456-	C:\Program F	1.000		
33	Unknown	NPOC	TCH020WL	TCH019-33	0A-123456-	C:\Program F	1.000		
34	Unknown	NPOC	TCH020WC	TCH019-34	0A-123456-	C:\Program F	1.000		
35	Unknown	NPOC	05H132-01	TCH019-35	0A-123456-	C:\Program F	1.000		
36	Unknown	NPOC	05H132-02	TCH019-36	0A-123456-	C:\Program F	1.000		
37	Unknown	NPOC	05H132-03	TCH019-37	0A-123456-	C:\Program F	1.000		
38	Unknown	NPOC	05H132-04	TCH019-38	0A-123456-	C:\Program F	1.000		
39	Unknown	NPOC	05H132-05	TCH019-39	0A-123456-	C:\Program F	1.000		
40	Unknown	NPOC	05H163-01	TCH019-40	0A-123456-	C:\Program F	1.000		
41	Control	NPOC	CCV3	TCH019-41	0A-123456-	C:\Program F	1.000		
42	Unknown	NPOC	CCB3	TCH019-42	0A-123456-	C:\Program F	1.000		
43	Unknown	NPOC	05H163-02	TCH019-43	0A-123456-	C:\Program F	1.000		
44	Unknown	NPOC	05H163-03	TCH019-44	0A-123456-	C:\Program F	1.000		
45	Unknown	NPOC	05H163-04	TCH019-45	0A-123456-	C:\Program F	1.000		
46	Unknown	NPOC	05H176-01	TCH019-46	0A-123456-	C:\Program F	1.000		
47	Unknown	NPOC	05H176-02	TCH019-47	0A-123456-	C:\Program F	1.000		
48	Unknown	NPOC	05H176-03	TCH019-48	0A-123456-	C:\Program F	1.000		
49	Unknown	NPOC	05H176-04	TCH019-49	0A-123456-	C:\Program F	1.000		
50	Unknown	NPOC	05H133-01	TCH019-50	0A-123456-	C:\Program F	1.000		
51	Unknown	NPOC	05H133-03	TCH019-51	0A-123456-	C:\Program F	1.000		
52	Unknown	NPOC	05H133-03D	TCH019-52	0A-123456-	C:\Program F	1.000		
53	Control	NPOC	CCV4	TCH019-53	0A-123456-	C:\Program F	1.000		
54	Unknown	NPOC	CCB4	TCH019-54	0A-123456-	C:\Program F	1.000		
55	Unknown	NPOC	05H133-03M	TCH019-55	0A-123456-	C:\Program F	1.000		
56	Control	NPOC	CCV5	TCH019-56	0A-123456-	C:\Program F	1.000		
57	Unknown	NPOC	CCB5	TCH019-57	0A-123456-	C:\Program F	1.000		
58									
59									
60									
61									
62									
63									
64									
65									
66									

8/25/05

8094

TABLE OF CONTENTS

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H132**

SECTION		PAGE
Cover Letter, COC/Sample Receipt Form		1000 – 1005
GC/MS-VOA	**	2000 –
GC/MS-SVOA	**	3000 –
GC-VOA	**	4000 –
GC-SVOA	**	5000 –
HPLC	**	6000 –
METALS	METHOD 200.7	7000 – 7016
WET	METHOD 310.1	8000 – 8005
	METHOD 350.2	8006 – 8013
	METHOD 300.0	8014 – 8051
	METHOD 120.1	8052 – 8054
	METHOD SM3500	8055 – 8060
	METHOD 160.1	8061 – 8068
	METHOD 351.3	8069 – 8076
	METHOD 376.1	8077 – 8081
	METHOD 415.1 (DISSOLVED)	8082 – 8084
	METHOD 415.1 (TOTAL)	8085 – 8094
OTHERS	**	9000 –

** - Not Requested

EMAX
LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 09-26-2005
EMAX Batch No.: 05H132

Attn: Tien Shiao

Battelle Memorial Institute
505 King Ave.
Columbus OH 43201

Subject: Laboratory Report
Project: JPL

Enclosed is the Laboratory report for samples received on 08/16/05.
The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
MW-17-5	H132-01	08/15/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
MW-17-4	H132-02	08/15/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N

Sample ID	Control #	Col Date	Matrix	Analysis
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
MW-17-3	H132-03	08/15/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
MW-17-2	H132-04	08/15/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
MW-17-1	H132-05	08/15/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

EMAX LABORATORIES, INC. 1835 W. 205th Street, Torrance, CA 90501 Tel: (310) 618-8889 Fax: (310) 618-0818

Battelle
The Business of Innovation

A5

CHAIN OF CUSTODY RECORD

Form No. _____

05H132

Proj. No.	Project Title
G486111-T3	Source Determination Study

SAMPLERS: (Signature) D. Lorner

PO # 191943

DATE	TIME	SAMPLE I.D.	DOC (Filtered)	TOC	Ferrous Iron	Nitrite, Nitrate	Sulfide, Chloride, TDS	Alk. SEC (Spec. Elec. Conductance)	Ferric Iron	Ca, Na, K, Mg	Sulfide	Ammonia	TKN				Container No.	Number of Containers	Remarks
1. 8/15/05	09:30	MW-17-5	X	X	X	X	X	X	X	X	X	X	X						0.45 mm filter
2. 8/15/05	10:45	MW-17-4	X	X	X	X	X	X	X	X	X	X	X						rinsed w/ 500 mL
3. 8/15/05	12:45	MW-17-3	X	X	X	X	X	X	X	X	X	X	X						of distilled H_2O
4. 8/15/05	13:45	MW-17-2	X	X	X	X	X	X	X	X	X	X	X						before filtering
5. 8/15/05	15:30	MW-17-1	X	X	X	X	X	X	X	X	X	X	X						DOC in the field.

Note: Nitrite + Nitrite 48 Hour TAT

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	8-16-05 0822	Phil Hatcher			
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Phil Hatcher	8/16/05 9:20				
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks	
			08.16.05 09:20	To: EMAX	

$T_1 = 2.8°C$
$T_2 = 2.7°C$

Page _____ of _____

002

Hanh Bui

From: Shiao, Tien [shiaoh@BATTELLE.ORG]
Sent: Tuesday, August 16, 2005 1:25 PM
To: Hanh Bui
Cc: Conner, David J
Subject: RE: COC for samples receive 8/16 SDG: 05H132 (Battelle/JPL)

Hanh,

You're right. Instead of two sulfides, there should be one sulfide and one sulfate on the COC. Please change the COC accordingly and thanks for checking.

Also, please let me know when we will be receiving the results for MW-21 (Screens 1 through 5 + duplicate) (samples were collected on 07/26) and MW-20 (Screens 1 through 5) (samples were collected on 08/01). With a 14 day TAT, we should receive the results any day now.

Thanks,
Tien

From: Hanh Bui [mailto:HDBui@emaxlabs.com]
Sent: Tuesday, August 16, 2005 4:07 PM
To: Shiao, Tien
Subject: COC for samples receive 8/16 SDG: 05H132 (Battelle/JPL)

Hi Tien,
Just confirm with you that COC indicated sulfide twice. I think Anions included sulfate/nitrate/nitrite/chloride.
Thanks
Hanh

SAMPLE RECEIPT FORM 1

Type of Delivery	Delivered By/Airbill	ECN	05H132
☑ EMAX Courier		Recepient	SITNIKOV
☐ Client Delivery		Date	8-16-05
☑ Third Party		Time	09:20

COC Inspection

☑ Client Name	☑ Sampler Name	☑ Sampling Date/Time/Location
☑ Address	☑ Courier Signature/Date/Time	☑ Analysis Required
☐ Client PM/FC	☑ TAT	☐ Matrix
☑ Tel #/Fax #	☑ Sample ID	☑ Preservative (if any)
Safety Issues ☑ None	☐ High Concentrations expected	☐ Superfund Site Samples
Comments: ☐ Rad Screening Required		

Packaging Inspection

Container	☑ Cooler	☐ Box	☐	☐
Condition	☐ Custody Seal	☑ Intact	☐ Damaged	☐
Packaging	☑ Bubble Pack	☐ Styrofoam	☑ Sufficient	☑ PLASTIC BAG
Temperatures	☑ Cooler 1 T-2.8°C	☑ Cooler 2 T-2.7°C	☐ Cooler 3 _____	☐ Cooler 4 _____
	☐ Cooler 5 _____	☐ Cooler 6 _____	☐ Cooler 7 _____	☐ Cooler 8 _____
	☐ Cooler 9 _____	☐ Cooler 10 _____	☐ Cooler 11 _____	☐ Cooler 12 _____

Comments:

LSCID	Client ID	Discrepancy	Corrective Action
		NJ 8-16-05	

LSCID : Lab Sample Container ID

REVIEWS

Sample Labeling _____ Date 8-16-05

SRF _____ Date 8/16/05

PM _____ Date 8/16/05

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

BATTELLE MEMORIAL INSTITUTE

JPL

METHOD 200.7
METALS BY ICP-AES

SDG#: 05H132

7000

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H132**

METHOD 200.7
METALS BY ICP-AES

Five (5) water samples were received on 08/16/05 for Metals analysis by Method 200.7 in accordance with "Methods for Chemical Analysis of Water and Wastes", EPA 600/R-94-111-May 1994.

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Sample H132-01 was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

LAB CHRONICLE
METALS BY ICP-AES

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL

SDG NO. : 05H132
Instrument ID : T-I07

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	IPH044WB	1	NA	08/19/0517:10	08/17/0514:00	I07H050012	I07H050010	IPH044W	Method Blank
LCS1W	IPH044WL	1	NA	08/19/0517:14	08/17/0514:00	I07H050013	I07H050010	IPH044W	Lab Control Sample (LCS)
LCD1W	IPH044WC	1	NA	08/19/0517:18	08/17/0514:00	I07H050014	I07H050010	IPH044W	LCS Duplicate
MW-17-5AS	H132-01A	1	NA	08/19/0517:23	08/17/0514:00	I07H050015	I07H050010	IPH044W	Analytical Spike Sample
MW-17-5	H132-01	1	NA	08/19/0517:27	08/17/0514:00	I07H050016	I07H050010	IPH044W	Field Sample
MW-17-5DL	H132-01T	5	NA	08/19/0517:31	08/17/0514:00	I07H050017	I07H050010	IPH044W	Diluted Sample
MW-17-4	H132-02	1	NA	08/19/0517:35	08/17/0514:00	I07H050018	I07H050010	IPH044W	Field Sample
MW-17-3	H132-03	1	NA	08/19/0517:39	08/17/0514:00	I07H050019	I07H050010	IPH044W	Field Sample
MW-17-2	H132-04	1	NA	08/19/0517:43	08/17/0514:00	I07H050020	I07H050010	IPH044W	Field Sample
MW-17-1	H132-05	1	NA	08/19/0517:46	08/17/0514:00	I07H050021	I07H050010	IPH044W	Field Sample

FN - Filename
% Moist - Percent Moisture

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	08/15/05
Project	: JPL	Date Received:	08/16/05
SDG NO.	: 05H132	Date Extracted:	08/17/05 14:00
Sample ID:	MW-17-5	Date Analyzed:	08/19/05 17:27
Lab Samp ID:	H132-01	Dilution Factor:	1
Lab File ID:	I07H050016	Matrix :	WATER
Ext Btch ID:	IPH044W	% Moisture :	NA
Calib. Ref.:	I07H050010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	65.7	1	.1
Iron	63	.2	.04
Magnesium	23.5	1	.1
Potassium	5.05	2	1.4
Sodium	59.8	1	.25

7002A

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	08/15/05
Project	: JPL	Date Received:	08/16/05
SDG NO.	: 05H132	Date Extracted:	08/17/05 14:00
Sample ID:	MW-17-4	Date Analyzed:	08/19/05 17:35
Lab Samp ID:	H132-02	Dilution Factor:	1
Lab File ID:	I07H050018	Matrix :	WATER
Ext Btch ID:	IPH044W	% Moisture :	NA
Calib. Ref.:	I07H050010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	18.1	1	.1
Iron	ND	.2	.04
Magnesium	4.82	1	.1
Potassium	2.41	2	1.4
Sodium	46.9	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	08/15/05
Project	: JPL	Date Received:	08/16/05
SDG NO.	: 05H132	Date Extracted:	08/17/05 14:00
Sample ID:	MW-17-3	Date Analyzed:	08/19/05 17:39
Lab Samp ID:	H132-03	Dilution Factor:	1
Lab File ID:	I07H050019	Matrix :	WATER
Ext Btch ID:	IPH044W	% Moisture :	NA
Calib. Ref.:	I07H050010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	73.6	1	.1
Iron	1.62	.2	.04
Magnesium	30	1	.1
Potassium	ND	2	1.4
Sodium	25.6	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	08/15/05
Project	: JPL	Date Received:	08/16/05
SDG NO.	: 05H132	Date Extracted:	08/17/05 14:00
Sample ID:	MW-17-2	Date Analyzed:	08/19/05 17:43
Lab Samp ID:	H132-04	Dilution Factor:	1
Lab File ID:	I07H050020	Matrix :	WATER
Ext Btch ID:	IPH044W	% Moisture :	NA
Calib. Ref.:	I07H050010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	106	1	.1
Iron	.292	.2	.04
Magnesium	36.6	1	.1
Potassium	3.82	2	1.4
Sodium	24.5	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	08/15/05
Project	: JPL	Date Received:	08/16/05
SDG NO.	: 05H132	Date Extracted:	08/17/05 14:00
Sample ID:	MW-17-1	Date Analyzed:	08/19/05 17:46
Lab Samp ID:	H132-05	Dilution Factor:	1
Lab File ID:	I07H050021	Matrix :	WATER
Ext Btch ID:	IPH044W	% Moisture :	NA
Calib. Ref.:	I07H050010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	35.5	1	.1
Iron	ND	.2	.04
Magnesium	11.6	1	.1
Potassium	ND	2	1.4
Sodium	14.4	1	.25

7006

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	NA
Project	: JPL	Date Received:	08/17/05
SDG NO.	: 05H132	Date Extracted:	08/17/05 14:00
Sample ID:	MBLK1W	Date Analyzed:	08/19/05 17:10
Lab Samp ID:	IPH044WB	Dilution Factor:	1
Lab File ID:	I07H050012	Matrix :	WATER
Ext Btch ID:	IPH044W	% Moisture :	NA
Calib. Ref.:	I07H050010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	ND	1	.1
Iron	ND	.2	.04
Magnesium	ND	1	.1
Potassium	ND	2	1.4
Sodium	ND	1	.25

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
SDG NO.: 05H132
METHOD: METHOD 200.7

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	MBLK1W				
CONTROL NO.:	IPH044WB	IPH044WL	IPH044WC		
LAB FILE ID:	I07H050012	I07H050013	I07H050014		
DATIME EXTRCTD:	08/17/0514:00	08/17/0514:00	08/17/0514:00	DATE COLLECTED:	NA
DATIME ANALYZD:	08/19/0517:10	08/19/0517:14	08/19/0517:18	DATE RECEIVED:	08/17/05
PREP. BATCH:	IPH044W	IPH044W	IPH044W		
CALIB. REF:	I07H050010	I07H050010	I07H050010		

ACCESSION:

PARAMETER	BLNK RSLT mg/L	SPIKE AMT mg/L	BS RSLT mg/L	BS % REC	SPIKE AMT mg/L	BSD RSLT mg/L	BSD % REC	RPD %	QC LIMIT %	MAX RPD %
Calcium	ND	50	50.5	101	50	51.8	104	3	85-115	20
Iron	ND	10	10.6	106	10	10.8	108	2	85-115	20
Magnesium	ND	50	51.1	102	50	52.5	105	3	85-115	20
Potassium	ND	50	50	100	50	50.6	101	1	85-115	20
Sodium	ND	50	51	102	50	52.7	105	3	85-115	20

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H132
METHOD: METHOD 200.7

==========

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	5		
SAMPLE ID:	MW-17-5	MW-17-5DL		
EMAX SAMP ID:	H132-01	H132-01T		
LAB FILE ID:	I07H050016	I07H050017		
DATE EXTRACTED:	08/17/0514:00	08/17/0514:00	DATE COLLECTED:	08/15/05
DATE ANALYZED:	08/19/0517:27	08/19/0517:31	DATE RECEIVED:	08/16/05
PREP. BATCH:	IPH044W	IPH044W		
CALIB. REF:	I07H050010	I07H050010		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SERIAL DIL RSLT (mg/L)	DIF RSLT %	QC LIMIT (%)
Calcium	65.7	62.6	5	10
Iron	63	60.9	3	10
Magnesium	23.5	22.3	5	10
Potassium	5.05	ND	NA	10
Sodium	59.8	57.9	3	10

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
SDG NO.: 05H132
METHOD: METHOD 200.7

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MW-17-5			
CONTROL NO.:	H132-01	H132-01A		
LAB FILE ID:	I07H050016	I07H050015		
DATIME EXTRCTD:	08/17/0514:00	08/17/0514:00	DATE COLLECTED:	08/15/05
DATIME ANALYZD:	08/19/0517:27	08/19/0517:23	DATE RECEIVED:	08/16/05
PREP. BATCH:	IPH044W	IPH044W		
CALIB. REF:	I07H050010	I07H050010		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	AS RSLT (mg/L)	AS % REC	QC LIMIT (%)
Calcium	65.7	50	113	94	85-115
Iron	63	10	70	70*	85-115
Magnesium	23.5	50	72.2	97	85-115
Potassium	5.05	50	53.3	97	85-115
Sodium	59.8	50	107	94	85-115

REGULAR ICP QC CHECK TABLE

QC	ICV HIGH	ICV	CCV	ICSAB	ICSA
Limit%	95-105	90-110	90-110	80-120	80-120
Comp	mg/L	mg/L	mg/L	mg/L	mg/L
Al	10	5	5	500	500
Sb	2	1	1	1	0
As	2	1	1	1	0
Ba	2	1	1	0.5	0
Be	2	1	1	0.5	0
B	2	1	1	0.5	0
Cd	2	1	1	1	0
Ca	100	50	50	500	500
Cr	2	1	1	0.5	0
Co	2	1	1	0.5	0
Cu	2	1	1	0.5	0
Fe	10	5	5	200	200
Pb	2	1	1	1	0
Mg	100	50	50	500	500
Mn	2	1	1	0.5	0
Mo	2	1	1	1	0
Ni	2	1	1	1	0
K	100	50	50	50	0
Se	2	1	1	3.6	0
Ag	2	1	1	1	0
Na	100	50	50	10	0
Sr	2	1	1	0.5	0
Tl	2	1	1	3.6	0
Sn	10	5	5	1	0
Ti	2	1	1	1	0
V	2	1	1	0.5	0
Zn	2	1	1	1	0

ANALYSIS RUN LOG FOR ICP

SOP ☐ EMAX-6010-Rev. 3 ☐ EMAX-CLP-TAL ☑ 200.7 **Method File:** 6010B2 **Autosampler Table:** ICP

Matrix: WATER **Start Date:** 8/19/05 **Time:** 16:22 **End Date:** 8/19/5 **Time:** 18:14 **Book#** A24 -038

ANALYTICAL BATCH* T07H050

	Data File Name	Prep. Batch	Lab Sample ID	DF	Matrix	Notes
01			S0			
02			S1			
03			S2			
04			ICV			
05			ICB			
06			CCV			
07			CCB			
08			ICSA1			
09			ICSAB1			
10			CCV1			
11			CCB1			
12	IPH044W		IPH044WB	1	W	
13			WL	1		
14			WC	1		
15			H132-01A	1		Fe + Cations
16			01	1		
17			01T	5		
18			02	1		
19			03	1		
20			04	1		
21			05	1		
22			CCV2	1		
23			CCB2	1		
24			ICSAF	1		
25			ICSABF	1		

ANALYTICAL BATCH *

	Data File Name	Prep. Batch	Lab Sample ID	DF	Matrix	Notes
26			CCV3	1	W	
27			CCB3	1	↓	
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						

A28/19/05

Instrument No.	24
Std.	ID
S_0	SMIB.09.38.01
S_1	NA
S_2	NA
S_3	SMIB.09.44.04
S_4	NA
S_5	NA
S_6	SMIB.09.45.02
ICV	↓ 09.69.02
ICVH1	NA
ICVH2	NA
CCV	SMIB.09.60.02
ICSA	↓ 09.63.03
ICSAB	↓ 09.60.01
MRL	NA

Comments:

OK

Analyzed By: A2

Date Disposed:

This page is checked during data review.

7012

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

SEQUENCE FILE : I07H050

4-18	19-33	34-43	44-53	54-63
LFID	LSID	TIME	DATE	DF
I07H050001	S0	16:22	08/19/05	1
I07H050002	S3	16:26	08/19/05	1
I07H050003	S6	16:30	08/19/05	1
I07H050004	ICV	16:34	08/19/05	1
I07H050005	ICB	16:39	08/19/05	1
I07H050006	CCV	16:43	08/19/05	1
I07H050007	CCB	16:48	08/19/05	1
I07H050008	ICSAI	16:52	08/19/05	1
I07H050009	ICSABI	16:56	08/19/05	1
I07H050010	CCV1	17:01	08/19/05	1
I07H050011	CCB1	17:06	08/19/05	1
I07H050012	IPH044WB	17:10	08/19/05	1
I07H050013	IPH044WL	17:14	08/19/05	1
I07H050014	IPH044WC	17:18	08/19/05	1
I07H050015	H132-01A	17:23	08/19/05	1
I07H050016	H132-01	17:27	08/19/05	1
I07H050017	H132-01T	17:31	08/19/05	5
I07H050018	H132-02	17:35	08/19/05	1
I07H050019	H132-03	17:39	08/19/05	1
I07H050020	H132-04	17:43	08/19/05	1
I07H050021	H132-05	17:46	08/19/05	1
I07H050022	CCV2	17:52	08/19/05	1
I07H050023	CCB2	17:57	08/19/05	1
I07H050024	ICSAF	18:01	08/19/05	1
I07H050025	ICSABF	18:05	08/19/05	1
I07H050026	CCV3	18:10	08/19/05	1
I07H050027	CCB3	18:14	08/19/05	1

SDG : 05H132 UNIT : % ICP CHECK : I07H050 DATE : 08/19/05 INST : EMAXTI07

ANALYTE	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
S0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICV	100	101	104	96	100	102	96	101	97	97	97	103	96	102	97	97	96	99	99	96	101	96	98	97	100	98	98
ICB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV	99	102	102	97	98	99	99	103	99	98	97	103	99	100	98	99	97	99	102	98	101	97	98	98	98	98	100
CCB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAI	96	----	----	----	----	----	----	93	----	----	----	91	----	98	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSABI	94	86	104	91	91	92	88	89	84	83	94	88	91	95	87	86	83	97	104	93	103	88	90	80	89	94	91
CCV1	99	99	98	96	96	97	97	99	96	97	96	101	97	98	96	97	95	99	102	97	101	96	94	95	97	96	98
CCB1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH044WB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH044WL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH044WC	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H132-01A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H132-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H132-01T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H132-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H132-03	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H132-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H132-05	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV2	96	97	103	92	95	95	98	101	97	98	93	101	97	97	96	99	95	94	107	95	95	93	92	98	95	96	100
CCB2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAF	93	----	----	----	----	----	----	93	----	----	----	90	----	96	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSABF	93	90	108	88	91	92	91	93	88	87	91	90	95	95	89	89	84	93	106	93	101	86	95	88	88	95	96
CCV3	97	100	101	93	95	94	99	101	98	98	94	101	100	98	96	98	96	96	103	96	97	93	98	99	95	96	100
CCB3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

QC limit of each parameter are listed in a table attached next to all the ICP check forms
* : Out of QC Limit

SDG : 05H132 UNIT : UG/L SUMMARY of CALIBRATION BLANKS : I07H050 (WATER) DATE : 08/19/05 INST : EMAXTI07

ANALYTE	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
S0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICV	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICB	15.6	11.7	3.38	-.160	.160	1.15	-.430	7.83	1.48	-1.20	-2.38	.690	20.9	2.10	-.210	-2.19	-2.78	407	8.95	2.03	.000	.000	-4.84	-16.2	.650	.990	2.46
CCV	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB	-3.81	-1.42	5.11	-.080	.100	-3.07	-.270	-18.4	.490	.110	-1.70	-4.40	.000	-6.42	.210	1.09	-6.34	419	12.0	3.33	.000	.000	-8.26	-2.16	.390	2.01	1.45
ICSAI	----	11.6	72.1	-.580	.000	10.2	-1.31	----	-12.0	-2.39	2.24	----	58.5	----	.490	22.4	4.79	-1094	313	15.7	.000	-2.32	97.2	-40.8	-11.5	-1.39	6.04
ICSABI	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCVI	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCBI	5.14	19.2	6.80	.080	.100	-1.91	-1.25	4.02	.000	.550	-2.72	1.39	6.77	-3.14	.220	3.28	-8.81	-363	-7.50	.720	6.70	-.020	-7.60	-12.9	.660	.630	1.58
IPH044WB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH044WL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH044WC	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H132-01A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H132-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H132-01T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H132-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H132-03	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H132-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H132-05	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB2	34.6	20.0	17.0	.000	.210	-.380	-.670	55.6	.000	-1.41	-2.72	13.0	11.8	41.8	-.430	-3.28	-5.25	148	-6.01	1.30	-26.8	.860	1.29	-21.5	.250	-1.02	2.96
ICSAF	----	-20.8	57.1	-.490	.110	13.0	-1.08	----	-11.6	-4.02	3.38	----	25.6	----	-2.03	-4.91	-4.79	-176	194	16.0	-26.8	-2.23	80.1	1.23	-10.3	-2.37	4.96
ICSABF	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB3	21.4	6.06	-1.73	-.160	.110	-3.46	-.150	55.5	-.990	-2.72	-4.42	11.8	4.63	11.7	.000	-4.37	-8.04	-651	-6.77	-3.33	-60.3	.860	-21.5	-25.9	-.400	-2.26	2.32

QC limit of each parameter are listed in a table attached next to all the ICP check forms
* : Out of QC Limit

DIGESTION LOG FOR ICP METALS

SOP ☐ EMAX-3005 Rev. No. 3 ☐ EMAX-3010 Rev. No. 2 ☐ EMAX-3050 Rev. No. 2 ☐ EMAX-CLP-TAL ☑ 200.7

Book # EIP-047

Matrix: WATER Start Date: 8-17-05 Time: 14:00 Temp: 85 °C Ending Date: 8-17-05 Time: 16:00 Temp.: 85 °C

BATCH: IPH044-W

Sample Prep ID	Lab Sample ID	Matrix Description Color	Matrix Description Texture / Clarity	Matrix Description Artifacts	Turbidity <1 NTU	Sample Amount (µg | ml)	pH	Extract Volume (ml)	Digestate Description Color	Digestate Description Clarity
01	IPH044-WB					50	–	50		
02	-WL					50	–	50		
03	-WC					50	–	50		
04	H132-01					50	<2	50		
05	-02					50		50		
06	03					50		50		
07	-04					50		50		
08	-05					50		50		
09										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										

8-17-05 MC

Standards	ID	Amount Added (ml)
LCS -1	SM1A - 09 - 42	0.5
LCS -2	SM1A - 09 - 43	0.5
LCS -3	SM1A - 09 - 44	0.5
MS		
Reagent	**Lot# / ID**	**Amount Added (ml)**
HNO_3	SW1A - 03 - 120	0.5
HCl	SW1A - 03 - 115	0.25
H_2O_2	N/A	
HNO3 (1:1)	N/A	

Digestate Location	ICP LAB
Extract Location	

Legend:

Texture	Cs = Coarse	Md = Medium	Fn = Fine
Clarity	Cr = Clear	Cy = Cloudy	Td = Turbid
Artifacts	Rk = rocks	Sl = Shale	Vg=Vegetation
Color	Bu = blue	Bk = Black	Bn = Brown
	Gn = Green	Og = Orange	Rd = Red
	Yw = Yellow	Cl = Colorless	

Comments: Samples for Methods 200.7 or 200.8 Analyses

If turbidity ≤ 1 NTU no digestion is required unless otherwise required by the project

Prepared By: MC Standard Added By: MC

Witnessed By: AZ Extracts Rcvd. By: AZ 8-17-05

Checked By: AZ

Date Disposed: Disposed by:

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

TABLE OF CONTENTS

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H213**

SECTION		PAGE
Cover Letter, COC/Sample Receipt Form		1000 – 1005
GC/MS-VOA	**	2000 –
GC/MS-SVOA	**	3000 –
GC-VOA	**	4000 –
GC-SVOA	**	5000 –
HPLC	**	6000 –
METALS	METHOD 200.7	7000 – 7013
WET	METHOD 300.0	8000 – 8022
	METHOD 160.1	8023 – 8028
	METHOD 376.1	8029 – 8033
OTHERS	**	9000 –

** - Not Requested

EMAX
LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 09-06-2005
EMAX Batch No.: 05H213

Attn: Tien Shiao

Battelle Memorial Institute
505 King Ave.
Columbus OH 43201

Subject: Laboratory Report
Project: JPL

Enclosed is the Laboratory report for samples received on 08/23/05.
The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
MW-20-1	H213-01	08/22/05	WATER	METALS IN WATER & WASTE
MW-25-5	H213-02	08/22/05	WATER	NITRATE-N BY IC
MW-25-4	H213-03	08/22/05	WATER	NITRATE-N BY IC
MW-25-3	H213-04	08/22/05	WATER	NITRATE-N BY IC
MW-25-2	H213-05	08/22/05	WATER	NITRATE-N BY IC
MW-25-1	H213-06	08/22/05	WATER	NITRATE-N BY IC
MW-21-5	H213-07	08/22/05	WATER	SULFIDE
				SOLIDS TOTAL DISSOLVED
				NITRATE-N BY IC
				NITRITE-N BY IC
MW-21-4	H213-08	08/22/05	WATER	SULFIDE
				SOLIDS TOTAL DISSOLVED
				NITRATE-N BY IC
				NITRITE-N BY IC
MW-21-3	H213-09	08/22/05	WATER	SULFIDE
				SOLIDS TOTAL DISSOLVED
				NITRATE-N BY IC
				NITRITE-N BY IC
DUPE-1-8/22/05	H213-10	08/22/05	WATER	SULFIDE

Sample ID	Control #	Col Date	Matrix	Analysis
				SOLIDS TOTAL DISSOLVED
				NITRATE-N BY IC
				NITRITE-N BY IC
MW-21-2	H213-11	08/22/05	WATER	SULFIDE
				SOLIDS TOTAL DISSOLVED
				NITRATE-N BY IC
				NITRITE-N BY IC
MW-21-1	H213-12	08/22/05	WATER	SULFIDE
				SOLIDS TOTAL DISSOLVED
				NITRATE-N BY IC
				NITRITE-N BY IC

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

Battelle
The Business of Innovation

A5

CHAIN OF CUSTODY RECORD

Form No. _____

05 H213

Proj. No.	Project Title
G486111-73	Source Determination Study

SAMPLERS: (Signature) D. Lorner

PO# 191943

DATE	TIME	SAMPLE I.D.	Ca, Mg, Na, K	Nitrate	Ferric Iron	Nitrite + Nitrate	TDS	Sulfide	Container No.	Number of Containers	Remarks
1. 8/22/05	0745	MW-20-1	X		X						
2. 8/22/05	0850	MW-25-5		X							
3. 8/22/05	0918	MW-25-4		X							
4. 8/22/05	0936	MW-25-3		X							
5. 8/22/05	0952	MW-25-2		X							
6. 8/22/05	1015	MW-25-1		X							
7. 8/22/05	1113	MW-21-5				X	X	X			
8. 8/22/05	1130	MW-21-4				X	X	X			
9. 8/22/05	1154	MW-21-3				X	X	X			
10. 8/22/05	1154	DUPE-1-8/22/05				X	X	X			
11. 8/22/05	1207	MW-21-2				X	X	X			
12. 8/22/05	1221	MW-21-1				X	X	X			

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	8-23-05 0800	Phil Hatten			
Relinquished by: (Signature) [signature]	Date/Time 8-23-05 915	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature) [signature]	Date/Time 08.23.05 09:15	Remarks TO: EMAX T = 2.8°C	

Page _____ of _____

Hanh Bui

From: Shiao, Tien [shiaoh@BATTELLE.ORG]
Sent: Wednesday, August 24, 2005 11:33 AM
To: Hanh Bui
Cc: Ohart, Carolyn J
Subject: FW: COC SDG: 05H213 (Battelle/JPL)

Hi Hanh,

I reviewed the COCs and they look correct. And yes, nitrate will be the only parameter re-sampled for MW-25.

Sorry for the late reply.

Thanks,
Tien

From: Hanh Bui [mailto:HDBui@emaxlabs.com]
Sent: Tuesday, August 23, 2005 4:57 PM
To: Shiao, Tien
Subject: COC SDG: 05H213 (Battelle/JPL)

Hi Tien,
Here is the COC for samples receive today, Nitrate only for MW-25 samples? thanks.
Hanh

SAMPLE RECEIPT FORM 1

Type of Delivery	Delivered By/Airbill	ECN	05H213
☑ EMAX Courier	PHIL HATCHER	Recepient	SITNIKOV
☐ Client Delivery		Date	8-23-05
☐ Third Party		Time	0915

COC Inspection

☑ Client Name	☑ Sampler Name	☑ Sampling Date/Time/Location
☐ Address	☑ Courier Signature/Date/Time	☑ Analysis Required
☑ Client PM/FC	☐ TAT	☐ Matrix
☐ Tel #/Fax #	☑ Sample ID	☐ Preservative (if any)
Safety Issues ☑ None	☐ High Concentrations expected	☐ Superfund Site Samples
Comments: ☐ Rad Screening Required		

Packaging Inspection

Container	☑ Cooler	☐ Box	☐	☐
Condition	☐ Custody Seal	☐ Intact	☐ Damaged	☐
Packaging	☑ Bubble Pack	☐ Styrofoam	☑ Sufficient	☑ plastic bag
Temperatures	☑ Cooler 1 2.8°C	☑ Cooler 2 ____	☐ Cooler 3 ____	☐ Cooler 4 ____
	☐ Cooler 5 ____	☐ Cooler 6 ____	☐ Cooler 7 ____	☐ Cooler 8 ____
	☐ Cooler 9 ____	☐ Cooler 10 ____	☐ Cooler 11 ____	☐ Cooler 12 ____

Comments:

LSCID	Client ID	Discrepancy	Corrective Action

LSCID : Lab Sample Container ID

REVIEWS

Sample Labeling [signature] Date 8-23-05

SRF [signature] Date 8/23/05

PM [signature] Date 8/25/05

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

BATTELLE MEMORIAL INSTITUTE

JPL

METHOD 200.7
METALS BY ICP-AES

SDG#: 05H213

7000

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H213**

METHOD 200.7
METALS BY ICP-AES

One (1) water sample was received on 08/23/05 for Metals analysis by Method 200.7 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition.

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Sample H213-01 was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

6. Sample Analysis

Sample was analyzed according to the prescribed QC procedures. All criteria were met.

LAB CHRONICLE
METALS BY ICP-AES

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL

SDG NO. : 05H213
Instrument ID : T-107

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	IPH056WB	1	NA	09/01/0519:55	08/24/0513:35	I071003023	I071003021	IPH056W	Method Blank
LCS1W	IPH056WL	1	NA	09/01/0519:59	08/24/0513:35	I071003024	I071003021	IPH056W	Lab Control Sample (LCS)
LCD1W	IPH056WC	1	NA	09/01/0520:03	08/24/0513:35	I071003025	I071003021	IPH056W	LCS Duplicate
MW-20-1AS	H213-01A	1	NA	09/01/0520:07	08/24/0513:35	I071003026	I071003021	IPH056W	Analytical Spike Sample
MW-20-1	H213-01	1	NA	09/01/0520:13	08/24/0513:35	I071003027	I071003021	IPH056W	Field Sample
MW-20-1DL	H213-01T	5	NA	09/01/0520:17	08/24/0513:35	I071003028	I071003021	IPH056W	Diluted Sample

FN - Filename
% Moist - Percent Moisture

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	08/22/05
Project	: JPL	Date Received:	08/23/05
SDG NO.	: 05H213	Date Extracted:	08/24/05 13:35
Sample ID:	MW-20-1	Date Analyzed:	09/01/05 20:13
Lab Samp ID:	H213-01	Dilution Factor:	1
Lab File ID:	I071003027	Matrix :	WATER
Ext Btch ID:	IPH056W	% Moisture :	NA
Calib. Ref.:	I071003021	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	82.3	1	.1
Iron	ND	.2	.04
Magnesium	26.3	1	.1
Potassium	2.72	2	1.4
Sodium	20	1	.25

7003

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	NA
Project	: JPL	Date Received:	08/24/05
SDG NO.	: 05H213	Date Extracted:	08/24/05 13:35
Sample ID:	MBLK1W	Date Analyzed:	09/01/05 19:55
Lab Samp ID:	IPH056WB	Dilution Factor:	1
Lab File ID:	I07I003023	Matrix :	WATER
Ext Btch ID:	IPH056W	% Moisture :	NA
Calib. Ref.:	I07I003021	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	ND	1	.1
Iron	ND	.2	.04
Magnesium	ND	1	.1
Potassium	ND	2	1.4
Sodium	ND	1	.25

7004

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
SDG NO.: 05H213
METHOD: METHOD 200.7

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	MBLK1W				
CONTROL NO.:	IPH056WB	IPH056WL	IPH056WC		
LAB FILE ID:	I071003023	I071003024	I071003025		
DATIME EXTRCTD:	08/24/0513:35	08/24/0513:35	08/24/0513:35	DATE COLLECTED:	NA
DATIME ANALYZD:	09/01/0519:55	09/01/0519:59	09/01/0520:03	DATE RECEIVED:	08/24/05
PREP. BATCH:	IPH056W	IPH056W	IPH056W		
CALIB. REF:	I071003021	I071003021	I071003021		

ACCESSION:

PARAMETER	BLNK RSLT mg/L	SPIKE AMT mg/L	BS RSLT mg/L	BS % REC	SPIKE AMT mg/L	BSD RSLT mg/L	BSD % REC	RPD %	QC LIMIT %	MAX RPD %
Calcium	ND	50	49.5	99	50	49.9	100	1	85-115	20
Iron	ND	10	10.1	101	10	9.99	100	1	85-115	20
Magnesium	ND	50	48.8	98	50	49.5	99	1	85-115	20
Potassium	ND	50	49.8	100	50	51.2	102	3	85-115	20
Sodium	ND	50	48.6	97	50	49.6	99	2	85-115	20

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H213
METHOD: METHOD 200.7

==========

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 5
SAMPLE ID: MW-20-1 MW-20-1DL
EMAX SAMP ID: H213-01 H213-01T
LAB FILE ID: I071003027 I071003028
DATE EXTRACTED: 08/24/0513:35 08/24/0513:35 DATE COLLECTED: 08/22/05
DATE ANALYZED: 09/01/0520:13 09/01/0520:17 DATE RECEIVED: 08/23/05
PREP. BATCH: IPH056W IPH056W
CALIB. REF: I071003021 I071003021

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SERIAL DIL RSLT (mg/L)	DIF RSLT %	QC LIMIT (%)
Calcium	82.3	78.9	4	10
Iron	ND	ND	0	10
Magnesium	26.3	25.1	5	10
Potassium	2.72	ND	NA	10
Sodium	20	20.3	1	10

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
SDG NO.: 05H213
METHOD: METHOD 200.7

==========

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MW-20-1			
CONTROL NO.:	H213-01	H213-01A		
LAB FILE ID:	I071003027	I071003026		
DATIME EXTRCTD:	08/24/0513:35	08/24/0513:35	DATE COLLECTED:	08/22/05
DATIME ANALYZD:	09/01/0520:13	09/01/0520:07	DATE RECEIVED:	08/23/05
PREP. BATCH:	IPH056W	IPH056W		
CALIB. REF:	I071003021	I071003021		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	AS RSLT (mg/L)	AS % REC	QC LIMIT (%)
Calcium	82.3	50	127	89	85-115
Iron	ND	10	9.78	98	85-115
Magnesium	26.3	50	73.2	94	85-115
Potassium	2.72	50	52.8	100	85-115
Sodium	20	50	67.4	95	85-115

7007

REGULAR ICP QC CHECK TABLE

QC	ICV HIGH	ICV	CCV	ICSAB	ICSA
Limit%	95-105	90-110	90-110	80-120	80-120
Comp	mg/L	mg/L	mg/L	mg/L	mg/L
Al	10	5	5	500	500
Sb	2	1	1	1	0
As	2	1	1	1	0
Ba	2	1	1	0.5	0
Be	2	1	1	0.5	0
B	2	1	1	0.5	0
Cd	2	1	1	1	0
Ca	100	50	50	500	500
Cr	2	1	1	0.5	0
Co	2	1	1	0.5	0
Cu	2	1	1	0.5	0
Fe	10	5	5	200	200
Pb	2	1	1	1	0
Mg	100	50	50	500	500
Mn	2	1	1	0.5	0
Mo	2	1	1	1	0
Ni	2	1	1	1	0
K	100	50	50	50	0
Se	2	1	1	3.6	0
Ag	2	1	1	1	0
Na	100	50	50	10	0
Sr	2	1	1	0.5	0
Tl	2	1	1	3.6	0
Sn	10	5	5	1	0
Ti	2	1	1	1	0
V	2	1	1	0.5	0
Zn	2	1	1	1	0

ANALYSIS RUN LOG FOR ICP

SOP ☑ EMAX-6010-Rev. 3 ☐ EMAX-CLP-TAL ☐ Method File: 6010B1 Autosampler Table: ICP

Matrix: WATER Start Date: 9/1/05 Time: 18:31 End Date: 9/1/05 Time: 20:36 Book# A24 -038

ANALYTICAL BATCH* 10T1003

	Data File Name	Prep. Batch	Lab Sample ID	DF	Matrix	Notes
01			SO			
02			S1			
03			S6			
04			ICV (GCS)			
05			ICB			
06			CCV (IPC)			
07			CCB			
08			ICSA1			
09			ICSAB1			
10			CCV1 (IPC)			
11			CCB1			
12		IP11076W	IP11076WB	1	W	LRB
13			WL	1		LFB
14			WC	1		LFB
15			H870-01A	1		*
16			01	1		
17			01T	5		
18			02	1		
19			03	1		
20			04	1		
21			CCV2 (IPC)	1		
22			CCB2	1		
23		IP10506W	IP10506WB	1		LRB
24			WL	1		LFB
25			WC	1	W	LFB

ANALYTICAL BATCH* _____

	Data File Name	Prep. Batch	Lab Sample ID	DF	Matrix	Notes
26		IP10506W	H213-01A	1	W	
27			01	1		
28			01T	5		
29			ICSA7	1		
30			ICSAB7	1		
31			CCV3 (IPC)	1		
32			CCB3	1		
33						
34						
35						
36						
37						
38				Qwel		
39				9/1/05		
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						

Instrument No.	24
Std.	ID
S_0	SM1P009.77.05
S_1	NA
S_2	NA
S_3	SM1P009.44.04
S_4	NA
S_5	NA
S_6	SM1P009.45.02
ICV(GCS)	09.09.02
ICVH1	NA
ICVH2	NA
CCV(IPC)	SM1P009.00.02
ICSA	09.07.03
ICSAB	09.00.01
MRL	NA

Comments:

* NOT SPIKED ; FOR CONFIRMATION

O/C

Analyzed By: [signature]

Date Disposed:

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

7009

SEQUENCE FILE : I07I003

4-18	19-33	34-43	44-53	54-63
LFID	LSID	TIME	DATE	DF
I07I003001	S0	18:21	09/01/05	1
I07I003002	S3	18:25	09/01/05	1
I07I003003	S6	18:29	09/01/05	1
I07I003004	ICV	18:33	09/01/05	1
I07I003005	ICB	18:39	09/01/05	1
I07I003006	CCV	18:43	09/01/05	1
I07I003007	CCB	18:47	09/01/05	1
I07I003008	ICSAI	18:51	09/01/05	1
I07I003009	ICSABI	18:55	09/01/05	1
I07I003010	CCV1	19:01	09/01/05	1
I07I003011	CCB1	19:05	09/01/05	1
I07I003012	IPH076WB	19:09	09/01/05	1
I07I003013	IPH076WL	19:13	09/01/05	1
I07I003014	IPH076WC	19:17	09/01/05	1
I07I003015	H870-01A	19:21	09/01/05	1
I07I003016	H870-01	19:27	09/01/05	1
I07I003017	H870-01T	19:31	09/01/05	5
I07I003018	H870-02	19:35	09/01/05	1
I07I003019	H870-03	19:39	09/01/05	1
I07I003020	H870-04	19:43	09/01/05	1
I07I003021	CCV2	19:47	09/01/05	1
I07I003022	CCB2	19:51	09/01/05	1
I07I003023	IPH056WB	19:55	09/01/05	1
I07I003024	IPH056WL	19:59	09/01/05	1
I07I003025	IPH056WC	20:03	09/01/05	1
I07I003026	H213-01A	20:07	09/01/05	1
I07I003027	H213-01	20:13	09/01/05	1
I07I003028	H213-01T	20:17	09/01/05	5
I07I003029	ICSAF	20:22	09/01/05	1
I07I003030	ICSABF	20:26	09/01/05	1
I07I003031	CCV3	20:32	09/01/05	1
I07I003032	CCB3	20:36	09/01/05	1

SDG : 05H213 UNIT : % ICP CHECK : I07I003 DATE : 09/01/05 INST : EMAXTI07

ANALYTE	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
S0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICV	98	100	101	97	100	101	96	99	98	97	97	102	100	99	99	97	96	98	97	96	98	96	101	97	100	97	99
ICB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV	99	102	99	99	99	99	99	101	98	98	98	101	100	99	98	100	97	101	101	99	100	99	100	99	99	98	99
CCB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAI	91	----	----	----	----	----	----	89	----	----	----	87	----	93	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSABI	91	85	98	90	91	91	91	89	88	84	93	87	97	93	89	85	84	96	96	94	99	88	96	84	88	93	92
CCV1	96	98	102	95	96	97	98	99	96	95	95	99	96	96	95	96	96	97	100	97	97	95	95	96	96	96	97
CCB1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH076WB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH076WL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH076WC	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H870-01A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H870-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H870-01T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H870-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H870-03	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H870-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV2	93	100	100	90	93	95	97	97	93	92	91	96	98	94	93	93	94	94	97	95	94	91	94	94	93	93	95
CCB2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH056WB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH056WL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH056WC	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H213-01A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H213-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H213-01T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAF	91	----	----	----	----	----	----	88	----	----	----	85	----	93	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSABF	93	92	113	91	92	95	92	89	88	83	93	87	100	94	89	86	84	99	98	96	104	88	97	87	89	93	91
CCV3	99	102	104	97	98	101	99	99	96	94	96	99	97	98	95	95	97	102	105	98	101	97	95	95	97	96	96
CCB3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

QC limit of each parameter are listed in a table attached next to all the ICP check forms
* : Out of QC Limit

SDG : 05H213 UNIT : UG/L SUMMARY of CALIBRATION BLANKS : I071003 (WATER) DATE : 09/01/05 INST : EMAXTI07

ANALYTE	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
S0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICV	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICB	-3.52	7.58	6.19	.300	.000	.830	-.330	1.64	1.20	1.59	.000	1.64	-16.8	-1.34	.000	-6.63	-3.23	246	10.1	.510	-7.06	.000	34.9	-15.1	-.330	-.500	-.580
CCV	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB	-5.11	27.1	-16.5	.100	.050	1.68	-.410	-6.95	.900	.530	1.15	.820	-22.6	-.120	-.260	-5.30	-2.09	346	37.8	.510	.000	.000	39.3	-1.29	-.010	.980	-1.16
ICSAI	----	16.1	102	.000	-.050	5.39	-1.17	----	.150	-3.54	-.990	----	18.5	----	2.56	-12.5	-9.51	140	72.4	12.9	-14.1	-.720	555	-23.2	-12.3	-9.56	-3.53
ICSABI	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB1	-19.2	14.6	20.6	.100	.060	2.53	.110	-.450	1.51	.000	1.15	-.270	17.1	-4.83	-.530	-1.32	-3.04	261	33.6	-2.22	-14.1	.700	41.0	-6.85	.150	-.090	-1.46
IPH076WB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH076WL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH076WC	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H870-01A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H870-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H870-01T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H870-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H870-03	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H870-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB2	-16.6	13.5	10.3	.100	-.060	3.37	.520	-6.43	-1.21	-1.32	-.380	.820	-7.43	-6.02	.260	-1.32	-1.71	-406	-23.5	-.680	-35.3	.860	22.7	-5.47	.300	-.100	-.800
IPH056WB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH056WL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH056WC	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H213-01A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H213-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H213-01T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAF	----	-11.8	56.5	-.070	-.110	1.49	.030	----	-.220	-4.34	-1.04	----	28.5	----	1.54	-5.81	.190	-256	39.6	10.8	-21.2	-.590	414	-39.8	-12.7	-9.11	-5.83
ICSABF	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB3	-7.67	21.4	17.5	.300	-.110	2.52	-.760	-6.47	.300	-1.85	-1.15	.270	7.41	-13.3	-.530	-6.63	3.99	160	31.9	-3.42	.000	.000	55.8	-6.82	.290	-2.35	-1.80

QC limit of each parameter are listed in a table attached next to all the ICP check forms
* : Out of QC Limit

7012

DIGESTION LOG FOR ICP METALS

SOP ☐ EMAX-3005 Rev. No.3 ☐ EMAX-3010 Rev. No. 2 ☐ EMAX-3050 Rev. No. 2 ☐ EMAX-CLP-TAL ☑ 200.7 Book # EIP-047

Matrix: WATER Start Date: 8-24-05 Time: 13:35 Temp: 85°C Ending Date: 8-24-05 Time: 15:35 Temp.: 85°C

Sample Prep ID	Lab Sample ID	Matrix Description Color	Texture / Clarity	Artifacts	Turbidity <1 NTU	Sample Amount (g | ml)	pH	Extract Volume (ml)	Digestate Description Color	Clarity
01	IPH056-WB					50	–	50		
02	-WL					50	–	50		
03	-WC					50	–	50		
04	H147-01					50	<2	50		
05	-02					50		50		
06	-04					50		50		
07	-05					50		50		
08	H162-01					50		50		
09	-02					50		50		
10	-03					50		50		
11	-04					50		50		
12	H213-01					50		50		
13	H521-04					50		50		
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										

8-24-05 MC

Standards	ID	Amount Added (ml)
LCS -1	SMIA-09-42	0.5
LCS -2	SMIA-09-43	0.5
LCS -3	SMIA-09-44	0.5
MS	N/A	

Reagent	Lot# / ID	Amount Added (ml)
HNO_3	SWIA-03-120	0.5
HCl	SWIA-03-115	0.25
H_2O_2	N/A	
HNO3 (1:1)	N/A	

Digestate Location	ICP LAB
Extract Location	

Legend:

Texture	Cs = Coarse	Md = Medium	Fn = Fine
Clarity	Cr = Clear	Cy = Cloudy	Td = Turbid
Artifacts	Rk = rocks	Sl = Shale	Vg=Vegetation
Color	Bu = blue	Bk = Black	Bn = Brown
	Gn = Green	Og = Orange	Rd = Red
	Yw = Yellow	Cl = Colorless	

Comments: Samples for Methods 200.7 or 200.8 Analyses

If turbidity ≤ 1 NTU no digestion is required unless otherwise required by the project

Prepared By: MC Standard Added By: MC

Witnessed By: AZ Extracts Rcvd. By: AZ 8/24/05

Checked By: AZ

Date Disposed: Disposed by:

BATCH: IPH056-W

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

7013

LABORATORY REPORT FOR

BATTELLE MEMORIAL INSTITUTE

JPL

WET CHEMICAL ANALYSES

SDG#: 05H213

8600

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H213**

METHOD 300.0
NITRATE-N AND NITRITE-N

Eleven (11) water for Nitrate-N and six (6) water samples for Nitrite-N were received on 08/23/05 to be analyzed by method 300.0 in accordance with "Method for Determination of Inorganic Anions by Ion Chromatography", EPA 600/84-017.

1. Holding Time

Analyses met holding time criteria except dilution runs of H213-06 and -07 for Nitrate-N analysis.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limits.

4. Duplicate

No duplicate sample was designated in this SDG.

5. Matrix Spike

No MS sample was designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

Nitrate-N analysis in the initial runs of samples H213-06 and -07 were within 48-hours holding time criteria. The samples were reanalyzed at DF 5 due to exceeded calibration range in the initial runs, however, the dilution runs were approximately analyzed two-hour out of 48-hour holding time criteria. Both initial and dilution results were reported.

All results were reported as Nitrogen concentration.

SAMPLE RESULTS

METHOD 300.0
NITRATE-N

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H213

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICH030WB	ND	1	NA	.1	.05	08/23/0515:31	NA	AH23-03	AH23-01	ICH030W	NA	NA
LCS1W	ICH030WL	2.08	1	NA	.1	.05	08/23/0515:45	NA	AH23-04	AH23-01	ICH030W	NA	NA
LCD1W	ICH030WC	2.08	1	NA	.1	.05	08/23/0515:59	NA	AH23-05	AH23-01	ICH030W	NA	NA
MW-25-5	H213-02	ND	1	NA	.1	.05	08/23/0519:41	NA	AH23-15	AH23-13	ICH030W	08/22/05	08/23/05
MW-25-1	H213-06	12.8E	1	NA	.1	.05	08/23/0520:38	NA	AH23-19	AH23-13	ICH030W	08/22/05	08/23/05
MW-21-5	H213-07	7.13E	1	NA	.1	.05	08/23/0520:52	NA	AH23-20	AH23-13	ICH030W	08/22/05	08/23/05
MW-25-4	H213-03	4.5	2	NA	.2	.1	08/23/0522:45	NA	AH23-28	AH23-25	ICH030W	08/22/05	08/23/05
MW-25-3	H213-04	8.59	5	NA	.5	.25	08/23/0522:59	NA	AH23-29	AH23-25	ICH030W	08/22/05	08/23/05
MBLK2W	ICH031WB	ND	1	NA	.1	.05	08/23/0523:27	NA	AH23-31	AH23-25	ICH031W	NA	NA
LCS2W	ICH031WL	2.05	1	NA	.1	.05	08/23/0523:41	NA	AH23-32	AH23-25	ICH031W	NA	NA
LCD2W	ICH031WC	2.03	1	NA	.1	.05	08/23/0523:55	NA	AH23-33	AH23-25	ICH031W	NA	NA
MW-25-2	H213-05	6.31	5	NA	.5	.25	08/24/0500:37	NA	AH23-36	AH23-25	ICH031W	08/22/05	08/23/05
MBLK3W	ICH033WB	ND	1	NA	.1	.05	08/24/0513:02	NA	AH24-09	AH24-01	ICH033W	NA	NA
LCS3W	ICH033WL	2.09	1	NA	.1	.05	08/24/0513:16	NA	AH24-10	AH24-01	ICH033W	NA	NA
LCD3W	ICH033WC	2.09	1	NA	.1	.05	08/24/0513:30	NA	AH24-11	AH24-01	ICH033W	NA	NA
MW-21-4	H213-08	6.53	5	NA	.5	.25	08/24/0511:24	NA	AH24-02	AH24-01	ICH033W	08/22/05	08/23/05
MW-21-3	H213-09	9.53	5	NA	.5	.25	08/24/0511:38	NA	AH24-03	AH24-01	ICH033W	08/22/05	08/23/05
DUPE-1-8/22/05	H213-10	9.69	5	NA	.5	.25	08/24/0511:52	NA	AH24-04	AH24-01	ICH033W	08/22/05	08/23/05
MW-21-2	H213-11	10.7	5	NA	.5	.25	08/24/0512:06	NA	AH24-05	AH24-01	ICH033W	08/22/05	08/23/05
MW-21-1	H213-12	14.2	5	NA	.5	.25	08/24/0512:20	NA	AH24-06	AH24-01	ICH033W	08/22/05	08/23/05
MW-25-1DL	H213-06T	10.5	5	NA	.5	.25	08/24/0512:34	NA	AH24-07	AH24-01	ICH033W	08/22/05	08/23/05
MW-21-5DL	H213-07T	6.35	5	NA	.5	.25	08/24/0512:48	NA	AH24-08	AH24-01	ICH033W	08/22/05	08/23/05

METHOD 300.0
NITRITE-N

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H213

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICH030WB	ND	1	NA	.1	.05	08/23/0515:31	NA	AH23-03	AH23-01	ICH030W	NA	NA
LCS1W	ICH030WL	1.98	1	NA	.1	.05	08/23/0515:45	NA	AH23-04	AH23-01	ICH030W	NA	NA
LCD1W	ICH030WC	2	1	NA	.1	.05	08/23/0515:59	NA	AH23-05	AH23-01	ICH030W	NA	NA
MW-21-5	H213-07	ND	1	NA	.1	.05	08/23/0520:52	NA	AH23-20	AH23-13	ICH030W	08/22/05	08/23/05
MW-21-4	H213-08	ND	1	NA	.1	.05	08/23/0521:06	NA	AH23-21	AH23-13	ICH030W	08/22/05	08/23/05
MW-21-3	H213-09	ND	1	NA	.1	.05	08/23/0521:20	NA	AH23-22	AH23-13	ICH030W	08/22/05	08/23/05
DUPE-1-8/22/05	H213-10	ND	1	NA	.1	.05	08/23/0521:34	NA	AH23-23	AH23-13	ICH030W	08/22/05	08/23/05
MW-21-2	H213-11	ND	1	NA	.1	.05	08/23/0521:48	NA	AH23-24	AH23-13	ICH030W	08/22/05	08/23/05
MW-21-1	H213-12	ND	1	NA	.1	.05	08/23/0522:30	NA	AH23-27	AH23-25	ICH030W	08/22/05	08/23/05

QC SUMMARIES

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H213
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICH030WB	ICH030WL	ICH030WC		
LAB FILE ID:	AH23-03	AH23-04	AH23-05		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/23/0515:31	08/23/0515:45	08/23/0515:59	DATE RECEIVED:	NA
PREP. BATCH:	ICH030W	ICH030W	ICH030W		
CALIB. REF:	AH23-01	AH23-01	AH23-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrate-N	ND	2	2.08	104	2	2.08	104	0	90-110	20

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H213
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK2W				
LAB SAMP ID:	ICH031WB	ICH031WL	ICH031WC		
LAB FILE ID:	AH23-31	AH23-32	AH23-33		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/23/0523:27	08/23/0523:41	08/23/0523:55	DATE RECEIVED:	NA
PREP. BATCH:	ICH031W	ICH031W	ICH031W		
CALIB. REF:	AH23-25	AH23-25	AH23-25		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrate-N	ND	2	2.05	103	2	2.03	102	1	90-110	20

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H213
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK3W				
LAB SAMP ID:	ICH033WB	ICH033WL	ICH033WC		
LAB FILE ID:	AH24-09	AH24-10	AH24-11		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/24/0513:02	08/24/0513:16	08/24/0513:30	DATE RECEIVED:	NA
PREP. BATCH:	ICH033W	ICH033W	ICH033W		
CALIB. REF:	AH24-01	AH24-01	AH24-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrate-N	ND	2	2.09	105	2	2.09	105	0	90-110	20

8008

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H213
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICH030WB	ICH030WL	ICH030WC		
LAB FILE ID:	AH23-03	AH23-04	AH23-05		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/23/0515:31	08/23/0515:45	08/23/0515:59	DATE RECEIVED:	NA
PREP. BATCH:	ICH030W	ICH030W	ICH030W		
CALIB. REF:	AH23-01	AH23-01	AH23-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrite-N	ND	2	1.98	99	2	2	100	1	90-110	20

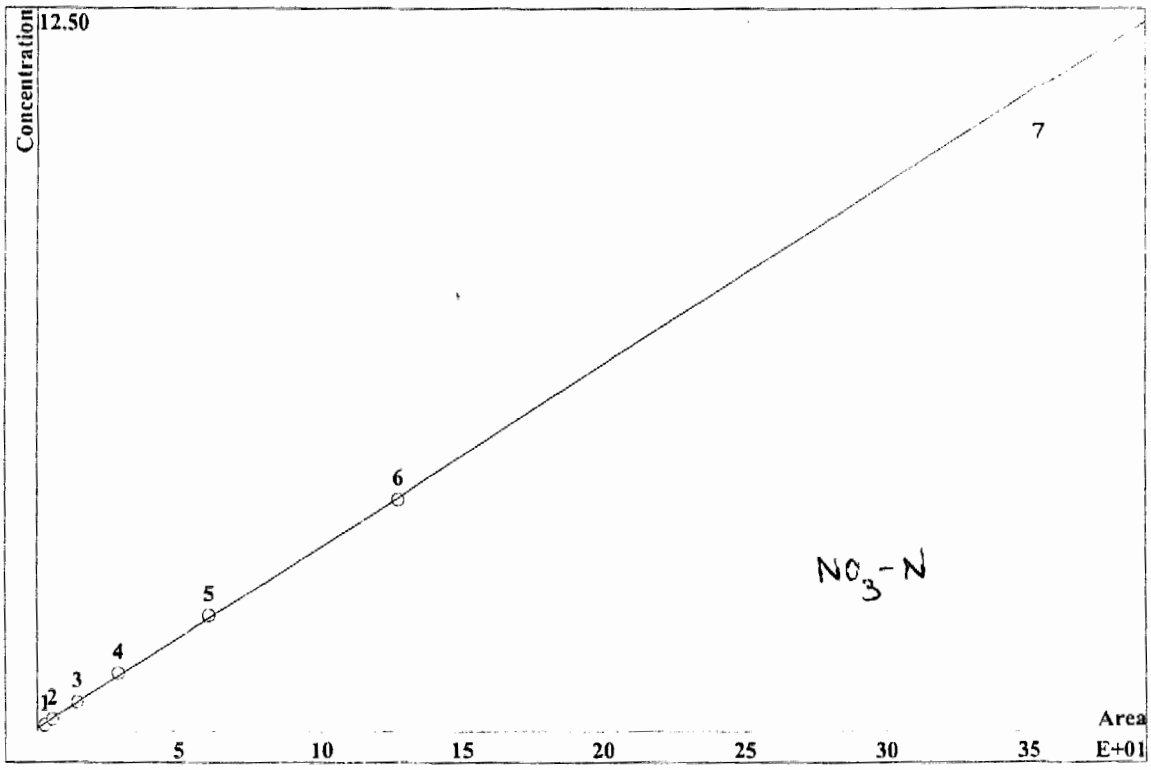
INITIAL CALIBRATIONS

IC Result Check FormVersion : QH2

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH18-01	IB	FCIBNPS	0	0	0	0	0	0	0	p8181936	1
AH18-02	S0	FCIBNPS	0	0	0	0	0	0	0	p8181950	1
AH18-03	S1	FCIBNPS	0.166	0.17262	0.13231	0.12813	0.13644	0.22927	0.14104	p8182004	1
AH18-04	S2	FCIBNPS	0.28466	0.28623	0.22239	0.22088	0.22213	0.31227	0.24604	p8182018	1
AH18-05	S3	FCIBNPS	0.51393	0.51514	0.50265	0.50493	0.50026	0.56154	0.52244	p8182032	1
AH18-06	S4	FCIBNPS	0.96429	0.99164	0.95545	0.95771	0.95423	0.9672	0.9792	p8182047	1
AH18-07	S5	FCIBNPS	1.9297	1.9476	1.9596	2.0373	1.9583	1.8503	1.9613	p8182101	1
AH18-08	S6	FCIBNPS	3.8838	3.8076	4.0276	3.9271	4.0286	3.7744	3.9072	p8182115	1
AH18-09	S7	FCIBNPS	10.058	10.079	10.533	10.024	11.158	10.105	10.043	p8182129	1
AH18-10	ICV	FCIBNPS	94.6%	95.5%	98%	99.9%	98.2%	93%	97.2%	p8182143	1
AH18-11	ICB	FCIBNPS	0	0	0	0	0	0	0	p8182157	1
AH18-12	ICH025WB	FCIBNPS	0	0	0	0	0	0	0	p8182211	1
AH18-13	ICH025WL	FCIBNPS	1.9633	1.9339	1.884	2.1091	1.9384	1.8022	1.9892	p8182225	1
AH18-14	ICH025WC	FCIBNPS	1.9405	1.927	1.8843	2.0871	1.9384	1.8038	2.0248	p8182239	1
AH18-15	H023-01	F*IBNPS	0	11823E	0	-7.8039	0	0	1470.9	p8182253	200
AH18-16	H023-03	F*IBNPS	0	11711E	0	0	0	0	1420.9	p8182307	200
AH18-17	H023-01	*C*****	0	9274.5	0	0	0	0	1588.2	p8182321	2000
AH18-18	H023-02	FCIBNPS	0	8909.8	0	0	0	0	1504.6	p8182335	2000
AH18-19	H023-03	*C*****	0	9111	0	0	0	0	1525.4	p8182349	2000
AH18-20	H023-04	FCIBNPS	0	9589.9	0	0	0	0	1558.3	p8190004	2000
AH18-21	CCV1	FCIBNPS	95.3%	99%	97.2%	96.8%	97.9%	92.8%	99.3%	p8190018	1
AH18-22	CCB1	FCIBNPS	0	0	0	0	0	0	0	p8190032	1
AH18-23	H169-01	F*IBNP*	0.58784	557.84E	0	3.9834	0.30268	0	222.2E	p8190046	1
AH18-24	H169-01D	F*IBNP*	0.54415	557.56E	0	3.8987	0.26518	0	222.08E	p8190100	1
AH18-25	H169-01M	F*IBNP*	2.3279	551.74E	2.2881	5.3508	2.2308	2.1545	221.61E	p8190114	1
AH18-26	H614-01	F*IBNP*	0.30333	24.22E	0	0.84928	3.8374	0.23597	25.147E	p8190128	1
AH18-27	H614-02	F*IB*P*	0.24861	17.85E	0	0.85627	5.8152E	0	15.634E	p8190142	1
AH18-28	H614-02D	F*IB*P*	0.42543	18.124E	0	1.1955	5.8532E	0.23178	15.667E	p8190156	1
AH18-29	H614-02M	F*IB*P*	2.2519	20.146E	2.0242	3.1702	8.3464E	2.4015	18.076E	p8190210	1
AH18-30	H614-01	*C****S	0.7526	19.853	0	0.84668	3.6036	0	22.543	p8190224	5
AH18-31	H614-02	*C**N*S	0.57712	14.626	0	0.8431	5.0755	0	13.896	p8190238	5
AH18-32	H614-02D	*C**N*S	0.5948	14.546	0	0.80981	5.0759	0	13.937	p8190252	5
AH18-33	CCV2	FCIBNPS	95.5%	99.2%	97.8%	101.7%	98.2%	95.2%	98.8%	p8190306	1
AH18-34	CCB2	FCIBNPS	0	0	0	0	0	0	0	p8190320	1
AH18-35	H614-02M	*C**N*S	9.666	24.294	9.0355	10.763	15.204	10.183	23.849	p8190335	5
AH18-36	H169-01	*******	1.2771	462.51E	0	3.1323	0	0	162.61E	p8190349	10
AH18-37	H169-01D	*******	1.1563	462.25E	0	2.6472	0	0	162.5E	p8190403	10
AH18-38	H169-10M	F*IBNP*	19.589	483.82E	19.02	22.753	19.898	20.393	183.19E	p8190417	10
AH18-39	RINSE	FCIBNPS	0	0.12789	0	0	0	0.23054	0	p8190431	1
AH18-40	RINSE	FCIBNPS	0	0	0	0.049699	0	0	0	p8190445	1
AH18-41	CCV3	FCIBNPS	97.4%	98.2%	96.2%	103.3%	96.9%	124.7%*	102%	p8190459	1
AH18-42	CCB3	FCIBNPS	0	0	0	0	0	0	0	p8190513	1

CALIBRATION OF COMPONENT nitrate

Method: IC100-H18.mtw
Equation: Q = 0.0313474·A + 0.0465038
RSD: 3.094 %
Correlation coefficient: 0.999710



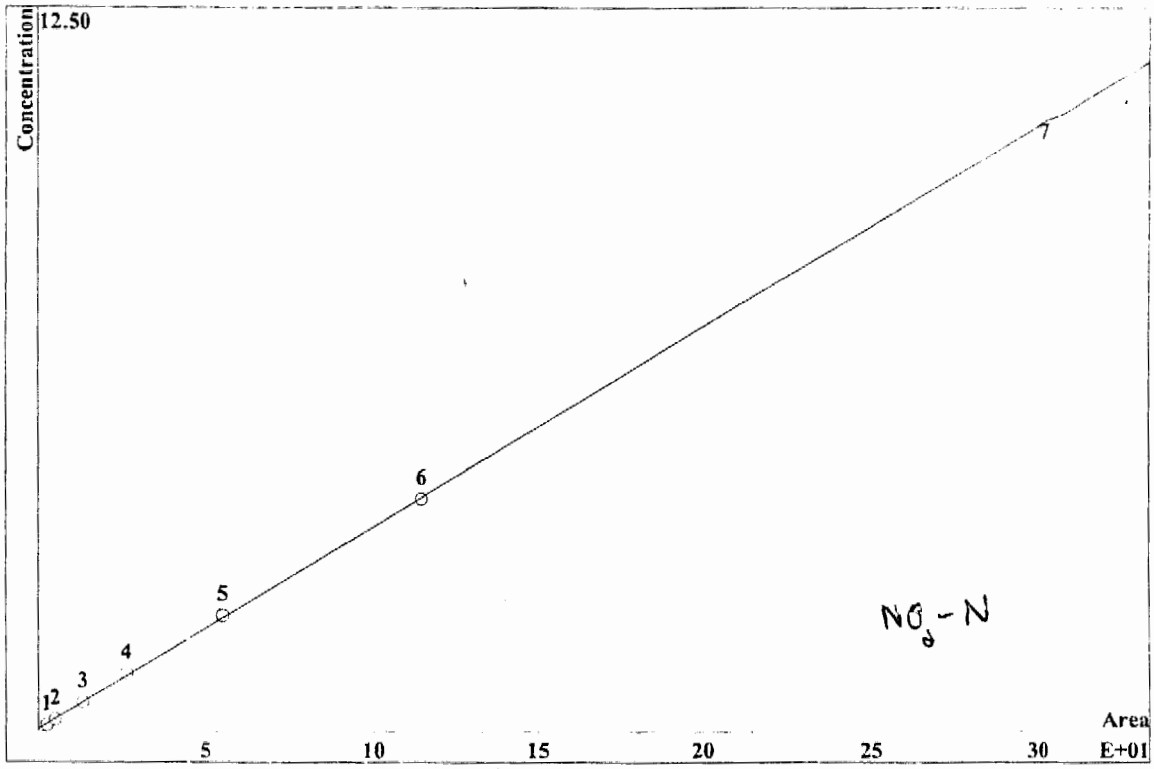
K3 = 0 K2 = 0 K1 = 0.0313474 K0 = 0.0465038
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.1627	2.869	0.1	1	5.56	Yes	p8182004.chw
2	0.329	5.603	0.2	1	5.56	Yes	p8182018.chw
3	0.8519	14.48	0.5	1	5.56	Yes	p8182032.chw
4	1.718	28.96	1	1	5.56	Yes	p8182047.chw
5	3.662	60.99	2	1	5.56	Yes	p8182101.chw
6	7.807	127	4	1	5.56	Yes	p8182115.chw
7	22.1	354.5	10	1	5.56	No	p8182129.chw

AC 8/18/05

CALIBRATION OF COMPONENT nitrite

Method: IC100-H18.mtw
Equation: Q = 0.0346959·A + 0.043272
RSD: 2.962 %
Correlation coefficient: 0.999734



K3 = 0 K2 = 0 K1 = 0.0346959 K0 = 0.043272
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.2049	2.566	0.1	1	3.98	Yes	p8182004.chw
2	0.4151	5.163	0.2	1	3.98	Yes	p8182018.chw
3	1.077	13.24	0.5	1	3.98	Yes	p8182032.chw
4	2.113	26.29	1	1	3.98	Yes	p8182047.chw
5	4.455	55.23	2	1	3.98	Yes	p8182101.chw
6	9.454	114.8	4	1	3.98	Yes	p8182115.chw
7	24.1	302.3	10	1	3.98	No	p8182129.chw

8/18/05

SECOND SOURCE VERIFICATION

IC Result Check FormVersion : QH2

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH18-10	ICV	FCIBNPS	94.6%	95.5%	98%	99.9%	98.2%	93%	97.2%	p8182143	1
AH18-11	ICB	FCIBNPS	0	0	0	0	0	0	0	p8182157	1
AH18-21	CCV1	FCIBNPS	95.3%	99%	97.2%	96.8%	97.9%	92.8%	99.3%	p8190018	1
AH18-22	CCB1	FCIBNPS	0	0	0	0	0	0	0	p8190032	1
AH18-33	CCV2	FCIBNPS	95.5%	99.2%	97.8%	101.7%	98.2%	95.2%	98.8%	p8190306	1
AH18-34	CCB2	FCIBNPS	0	0	0	0	0	0	0	p8190320	1
AH18-41	CCV3	FCIBNPS	97.4%	98.2%	96.2%	103.3%	96.9%	124.7%*	102%	p8190459	1
AH18-42	CCB3	FCIBNPS	0	0	0	0	0	0	0	p8190513	1

DAILY CALIBRATIONS

IC Result Check FormVersion : QH2

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH23-01	CCV18	FCIBNPS	94.1%	93.9%	105.1%	97.4%	101.1%	93%	99.5%	p8231503	1
AH23-02	CCB18	FCIBNPS	0	0	0	0	0	0	0	p8231517	1
AH23-13	CCV19	FCIBNPS	92.1%	94.8%	97.1%	98.8%	101.8%	90%	94.6%	p8231856	1
AH23-14	CCB19	FCIBNPS	0	0	0	0	0	0	0	p8231910	1
AH23-25	CCV20	FCIBNPS	93.2%	95.5%	96.8%	97.9%	101.2%	91.5%	97.1%	p8232202	1
AH23-26	CCB20	FCIBNPS	0	0	0	0	0	0	0	p8232216	1
AH23-37	CCV21	FCIBNPS	94.1%	94.5%	95.1%	98.9%	103.1%	84.3%*	90.8%	p8240051	1
AH23-38	CCB21	FCIBNPS	0	0	0	0	0	0	0	p8240105	1
AH23-50	CCV22	FCIBNPS	96.1%	97.9%	93.8%	102.9%	103.7%	113.9%*	99.7%	p8240354	1
AH23-51	CCB22	FCIBNPS	0	0	0	0	0	0.58609	0	p8240408	1

IC Result Check FormVersion : QH2

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH24-01 ✓	CCV25	FCIBNPS	90.5%	95.8%	99.1%	99.7%	104.3%	80.4%*	97.6%	p8241109	1
AH24-12 ✓	CCV26	FCIBNPS	96.1%	95.1%	98%	98%	104.2%	86.7%*	92.2%	p8241344	1
AH24-13 ✓	CCB26	FCIBNPS	0	0	0	0	0	0	0	p8241358	1
AH24-24	CCV27	FCIBNPS	94.9%	92.4%	96.6%	97.5%	98.6%	87.8%*	93.7%	p8241633	1
AH24-25	CCB27	FCIBNPS	0	0	0	0	0	0	0	p8241647	1
AH24-36	CCV28	FCIBNPS	93.3%	94.6%	95.6%	98.2%	98.6%	91.3%	94.7%	p8241952	1
AH24-37	CCB28	FCIBNPS	0	0	0	0	0	0	0	p8242015	1
AH24-48	CCV29	FCIBNPS	93.9%	94.4%	96%	98.8%	98.7%	88.6%*	91.9%	p8242256	1
AH24-49	CCB29	FCIBNPS	0	0	0	0	0	0	0	p8242310	1
AH24-60	CCV30	FCIBNPS	93.7%	91.1%	97%	95%	98.6%	89.3%*	94.4%	p8250957	1
AH24-61	CCB30	FCIBNPS	0	0	0	0	0	0	0	p8251011	1
AH24.72	CCV31	FCIBNPS	95.4%	100.1%	97.9%	100.3%	99.2%	91.6%	98.5%	p8251250	1
AH24-83	CCV32	FCIBNPS	94.6%	95.9%	96%	99.2%	99.2%	91.5%	97.8%	p8251533	1
AH24-84	CCB32	FCIBNPS	0	0	0	0	0	0	0	p8251547	1
AH24-95	CCV33	FCIBNPS	91.9%	92.8%	94.1%	94%	97.5%	86.9%*	93.4%	p8251923	1
AH24-96	CCB33	FCIBNPS	0	0	0	0	0	0	0	p8251937	1
AH24-107	CCV34	FCIBNPS	94.8%	95%	97%	102.3%	101.2%	92.4%	95.5%	p8252334	1
AH24-108	CCB34	FCIBNPS	0	0	0	0	0	0	0	p8252348	1
AH24-119	CCV35	FCIBNPS	93.5%	96%	96.6%	99.2%	99.4%	86.8%*	90.8%	p8260222	1
AH24-120	CCB35	FCIBNPS	0	0	0	0	0	0	0	p8260236	1
AH24-131	CCV36	FCIBNPS	94.5%	94.7%	96.4%	99.8%	99.7%	90.2%	95.5%	p8260511	1
AH24-132	CCB36	FCIBNPS	0	0	0	0	0	0	0	p8260525	1
AH24-137	CCV37	FCIBNPS	94.4%	94.4%	96.7%	99.4%	99.5%	87.4%*	90.8%	p8260636	1
AH24-138	CCB37	FCIBNPS	0	0	0	0	0	0	0	p8260650	1
AH24-145	CCV38	FCIBNPS	92.4%	93.5%	95.2%	94.6%	98%	86.5%*	92.2%	p8260848	1
AH24-146	CCB38	FCIBNPS	0	0	0	0	0	0	0	p8260902	1

ANALYTICAL LOGS

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0-Rev. 3 ☐ EMAX-300.1 Rev. No.0 ☐ EMAX-9056 Rev. No. 2

Book# A100 003

Start Date: 08/18/05 Time: 19:36 End Date: 08/19/05 Time: 05:13

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes (conc.= mg/L)
* 1	AH18-01	IB	1	W	
* 2	02	S0			
* 3	03	S1			0.1 ppm
* 4	04	S2			0.2
* 5	05	S3			0.5
* 6	06	S4			1
* 7	07	S5			2
* 8	08	S6			4
* 9	09	S7			10
* 10	10	ICV			
* 1	11	ICB			
* 2	12	ICH025WB			
* 3	13	WL			
* 4	14	WG			
* 5	15	H023-01	200		
* 6	16	03			
* 7	17	01	2000		
* 8	18	02			
* 9	19	03			
* 20	20	04			
* 1	21	CCV1	1		
* 2	22	CCB1	1		
* 3	23	H169-01			
* 4	24	01D			
* 5	25	01M			

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 26	AH18-26	H614-01	1	W	
* 7	27	02			
* 8	28	02D			
* 9	29	02M			
* 30	30	01	5		
* 1	31	02			
* 2	32	02D			
* 3	33	CCV2	1		
* 4	34	CCB2	1		
* 5	35	H614-02M	5		
* 6	36	H169-01	10		
* 7	37	01D			
* 8	38	01M			
* 9	39	RINSE	1		
* 40	40	RINSE			
* 1	41	CCV3			
* 2	42	CCB3			
* 3					
* 4					
* 5					
* 6					
* 7					
* 8					
* 9					
* 50					

Instrument No.	100
STANDARD	
Date	08/18/05
Method File	IC100-H18.mlw
ICAL ID	SIB-01-11-1
ICV/~~LCS/MS~~ ID	2
CCV ID	3 (2ppm)
LCS ID	12-1 (2ppm)
MS ID	2.5 ppm Acc Std.
ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC METROHM	
☐	

Comments:

Analyzed By: al

This page is checked during data review.

* Sample Prep ID Prefix: IC H025W

** Sample Prep ID Prefix:

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8020

ANALYSIS RUN LOG FOR IC

SOP ☑ **EMAX-300.0-Rev. 3** ☐ **EMAX-300.1 Rev. No.0** ☐ **EMAX-9056 Rev. No. 2** **Book# A100 003**

Start Date: 06/24/05 **Time:** 11:09 **End Date:** 06/26/05 **Time:** 09:02

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 1	AH24-01	CCV25	1	W	
* 2	02	H213-08	5		
* 3	03	09			
* 4	04	10			
* 5	05	11			
* 6	06	12			
* 7	07	06			
* 8	08	07			
* 9	09	ICH033WB	1		
* 10	10	WL			
* 1	11	WC			
* 2	12	CCV26			
* 3	13	CCB26			
* 4	14	G212-04	2		
* 5	15	04D			
* 6	16	04R			
* 7	17	04Z			
* 8	18	H223-02	5		
* 9	19	03			
* 20	20	04			
* 1	21	05			
* 2	22	06			
* 3	23	RINSE	1		
* 4	24	CCV26/27			CCV27
* 5	25	CCB26/27			CCB27

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 26	AH24-26	H223-07	5	W	
* 7	27	H230-01	1		
* 8	28	0M			
* 9	29	01D			
* 30	30	RINSE			
** 1	31	ICH034WB			
* 2	32	WL			
* 3	33	WG			
* 4	34	H230-02			
* 5	35	03			
* 6	36	CCV28			
* 7	37	CCB28			
* 8	38	H230-04			
* 9	39	05			
* 40	40	06			
* 1	41	07			
* 2	42	08			
* 3	43	09			
* 4	44	10			
* 5	45	11			
* 6	46	12			
* 7	47	H610-01	5		
* 8	48	CCV29	1		
* 9	49	CCB29	1		
* 50	50	H610-02	5	✓	

Instrument No.	100
STANDARD	
Date	06/18/05
Method File	IC100-H18.mhw
ICAL ID	S1B-01 - 11-1
ICV/LCS/MS ID	2
CCV ID	15-13 (2ppm)
LCS ID	16-A1 (2ppm)
MS ID	2ppm Acc Std.
ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC METROHM	
☐	

Comments:

Analyzed By: CR/JL

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* Sample Prep ID Prefix: ICH033W

** Sample Prep ID Prefix: ICH034W

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8021

ANALYSIS RUN LOG FOR IC

SOP ☒ **EMAX-300.0-Rev. 3** ☐ **EMAX-300.1 Rev. No.0** ☐ **EMAX-9056 Rev. No. 2** **Book# A100 003**

Start Date: 08/23/05 **Time:** 15:03 **End Date:** 08/24/05 **Time:** 19:18

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 1	AH23-01	CCV18	1	W	
* 2	02	CCB18			
* 3	03	ICH030WB			
* 4	04	WL			
* 5	05	WC			
* 6	06	G111-06	10		
* 7	07	06	50		
* 8	08	G212-04	2		
* 9	09	04D			
* 10	10	04R			
* 1	11	04Z			
* 2	12	RINSE	1		
* 3	13	CCV19			
* 4	14	CCB19			
* 5	AH23-15	H-213-02	1	W	
* 6	16	H213-03			
* 7	17	04			
* 8	18	05			
* 9	19	06			
* 10	20	07			
* 1	21	08			
* 2	22	09			
* 3	23	10			
* 4	24	11			
* 5	25	CCV20			

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 26	AH23-26	CCB20	1	W	
* 7	27	H213-12	1 2		
* 8	28	03	2		
* 9	29	04	5		
* 30	30	RINSE	1		
** 1	31	ICH031WB			
* 2	32	WL			
* 3	33	WC			
* 4	34	H216-02			
* 5	35	03			
* 6	36	H213-05	5		
* 7	37	CCV21	1		
* 8	38	CCB21			
* 9	39	H216-03D			
* 40	40	03M			
* 1	41	02	20		
* 2	42	03			
* 3	43	03D			
* 4	44	03M			
* 5	45	H451-02	100		
* 6	46	H118-01	50		
* 7	47	H099-01	20		
* 8	48	03	50		
* 9	49	Sample ~~CCV22~~	1		
* 50	50	CCV22 ~~CCB22~~	1		* Autosampler skipped CCV22

08/24/05 *Data not used due to instrumentation error; so re-run samples.

+ picked up sample before (again)
+ moved 1 sample over.

Instrument No.	100
STANDARD	
Date	08/18/05
Method File	IC100-H18.mtw
ICAL ID	S1B-01-11-1
ICV/~~LCS/MS~~ ID	2
CCV ID	1/5-1 (2ppm)
LCS ID	2 (2ppm)
MS ID	2 ppm Acc Std
ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC METROHM	
☐	

Comments:

Analyzed By: cl/JL

This page is checked during data review.

* Sample Prep ID Prefix: ICH030W

** Sample Prep ID Prefix: ICH031W

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, Ca 90501

8022

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H213**

METHOD 160.1
TOTAL DISSOLVED SOLIDS

Six (6) water samples were received on 08/23/05 for Total Dissolved Solids analysis by Method 160.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

No duplicate sample was designated in this SDG.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 160.1
TOTAL DISSOLVED SOLIDS

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H213

Matrix : WATER
Instrument ID : NA

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TDH017WB	ND	1	NA	10	5	08/24/0514:15	NA	TDH017W-1	NA	TDH017W	NA	NA
LCS1W	TDH017WL	335	1	NA	10	5	08/24/0514:16	NA	TDH017W-2	NA	TDH017W	NA	NA
LCD1W	TDH017WC	330	1	NA	10	5	08/24/0516:17	NA	TDH017W-3	NA	TDH017W	NA	NA
MW-21-5	H213-07	590	1	NA	10	5	08/24/0514:18	NA	TDH017W-4	NA	TDH017W	08/22/05	08/23/05
MW-21-4	H213-08	545	1	NA	10	5	08/24/0514:19	NA	TDH017W-5	NA	TDH017W	08/22/05	08/23/05
MW-21-3	H213-09	900	1	NA	10	5	08/24/0514:20	NA	TDH017W-6	NA	TDH017W	08/22/05	08/23/05
DUPE-1-8/22/05	H213-10	825	1	NA	10	5	08/24/0514:21	NA	TDH017W-7	NA	TDH017W	08/22/05	08/23/05
MW-21-2	H213-11	925	1	NA	10	5	08/24/0514:22	NA	TDH017W-8	NA	TDH017W	08/22/05	08/23/05
MW-21-1	H213-12	760	1	NA	10	5	08/24/0514:23	NA	TDH017W-9	NA	TDH017W	08/22/05	08/23/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 160.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05H213
SAMPLE ID: LCS1W
CONTROL NO.: TDH017WL

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 08/24/05 14:16

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
TDS	ND	336.00	335.00	100	336.00	330.00	98	2	80-120	20

8025

GRAVIMETRIC ANALYSIS LOG

SOP ☑ EMAX-160.1 Rev. No. 3 ☐ EMAX-160.2 Rev. No. 2 ☐ EMAX-160.3 Rev. No. 1 ☐ EMAX-160.4 Rev. No. 0 ☐ EMAX-160.5 Rev. No. 0

Book # AGV-019

Starting Date: 8/23/05 Time: 2000 Oven Temp. 105 °C Ending Date: 8/24/05 Time: 1345 Oven Temp. 180 °C

	Data File Name	Lab Sample ID	Sample Amt. (ml)	Dish Wt. (g)	Dry Wt. Dish + Solids(g) 1st	Time	2nd	Time	3rd	Time	Solids (mg)	Result (mg/L)	Settleable Solids Vol. of SS	Result (ml/L/hr)
1		TDH017WB	100	59.3549	59.3553	1015	59 B.3552 8/24/05	1215	59.3550	1415	0.10	ND		
2		WL	20	13.4175	13.4248	16	13.4244	16	13.4242	16	6.7	335	100%	
3		WC	20	13.4793	13.4867	17	13.4860	17	13.4859	17	6.6	330	98%	
4		H213-07	20	13.4202	13.4331	18	13.4322	18	13.4320	18	11.8	590		
5		08	20	13.4078	13.4196	19	13.4189	19	13.4187	19	10.9	545		
6		09	20	13.3527	13.3715	20	13.3708	20	13.3707	20	18.0	900		
7		10	20	13.4531	13.4708	21	13.4700	21	13.4696	21	16.5	825		
8		11	20	13.3671	13.3866	22	13.3857	22	13.3856	22	18.5	925		
9		H213-12	20	13.4144	13.4302	23	13.4299	23	13.4296	23	15.2	760		
0		H223-02	20	13.4333	13.4584	24	13.4575	24	13.4573	24	24	1200		
1		-03	20	13.4838	13.5143	25	13.5141	25	13.5141	25	30.3	1515	1520	
2		-04	20	13.4056	13.4388	26	13.4385	26	13.4383	26	32.7	1635 ≈	1640	
3		-05	20	13.5093	13.5500	27	13.5495	27	13.5492	27	41.9	2095 ≈	2100	
4		-06	20	13.4112	13.4425	28	13.4420	28	13.449	28	30.7	1535 ≈	1540	
5		-07	20	13.4305	13.4459	29	13.4454	29	13.4455	29	15.0	750	RPD 1%	
6		-07D	20	13.5340	13.5498	30	13.5490	30	13.5491	30	15.1	755		
7														
8														
9														
0														

ANALYTICAL BATCH # SS 20 HD 17rd S

Standard	
LCS ID	SW7A-06-~~133~~ 140 8/23/05
LCSTV(mg/L)	33 ~~32.6~~ 8/23/05

Balance ID:	
40706360	✓
37030058	

Comments:

Analyzed By: LA / NS

$R_{(mg/L)} = \frac{(DS - DW) \times 1000}{S}$

where: $R_{(mg/L)}$ = concentration of solids; $DS_{(mg)}$ = Dry weight of Dish + Solids; $DW_{(mg)}$ = Dish weight; $S_{(ml)}$ = sample amount

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8026

BALANCE CALIBRATION VERIFICATION LOG (DOE)

SOP ☐ EMAX-QC04 Revision No.: 1 QC04-036

Balance ID 10601202 Date 8-23-05

Range Min: 1 Max: 600 g

TV	200	100	30	5	1
1	200.004	100.002	29.999	5.000	1.000
2	200.005	100.003	30.000	5.000	1.000
3	200.005	100.003	30.001	5.000	1.000
Criteria (±0.1%)	0.2	0.1	0.03	0.005	0.001
LL	199.8	99.9	29.97	4.995	0.999
UL	200.2	100.1	30.03	5.005	1.001

Comment:

Balance ID J77299 Date 8-23-05

Range Min: 1 Max: 300 g

TV	200	100	50	30	20
1	199.99	100.00	50.00	30.00	20.00
2	199.99	100.00	50.00	30.00	20.00
3	199.99	100.00	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment:

Balance ID 10203192 Date 8-23-05

Range Min: 1 Max: 6000 g

TV	200	100	50	30	20
1	200.00	100.00	50.00	30.00	20.00
2	200.00	100.00	50.00	30.00	20.00
3	200.00	100.00	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment:

Balance ID 10304418 Date 8-23-05

Range Min: 1 Max: 6000 g

TV	200	100	50	30	20
1	200.03	100.02	50.00	30.00	20.00
2	200.03	100.02	50.00	30.00	20.00
3	200.03	100.02	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment:

Balance ID 40706360 Date 8-23-05

Range Min: 1 Max: 205 g

TV	200	100	30	1	0.02
1	199.9996	100.0005	29.9999	1.0000	0.0200
2	199.9988	100.0004	30.0001	1.0000	0.0200
3	199.9989	100.0003	30.0002	1.0000	0.0200
Criteria (±0.1%)	0.2	0.1	0.03	0.001	0.00002
LL	199.8	99.9	29.97	0.999	0.01998
UL	200.2	100.1	30.03	1.001	0.02002

Comment:

Balance ID 40706360 Date

Range Min: 1 Max: 205 g

TV	200	100	30	1	0.02
1					
2					
3					
Criteria (±0.1%)	0.2	0.1	0.03	0.001	0.00002
LL	199.8	99.9	29.97	0.999	0.01998
UL	200.2	100.1	30.03	1.001	0.02002

Comment:

Verified by: [illegible]

Checked by:

8027

Calibration Report No.: 3950-05
3949-05

BALANCE CALIBRATION VERIFICATION LOG (DOE)

SOP ☐ EMAX-QC04 Revision No.: 1 QC04-036

Balance ID 10601202 Date 8-24-05

Range Min: 1 Max: 600 g

TV	200	100	30	5	1
1	200.008	100.006	30.000	5.000	1.000
2	200.009	100.005	30.000	5.000	1.000
3	200.007	100.006	30.000	5.000	1.000
Criteria (±0.1%)	0.2	0.1	0.03	0.005	0.001
LL	199.8	99.9	29.97	4.995	0.999
UL	200.2	100.1	30.03	5.005	1.001

Comment:

Balance ID J77299 Date 8-24-05

Range Min: 1 Max: 300 g

TV	200	100	50	30	20
1	199.99	100.00	50.00	30.00	20.00
2	199.99	100.00	50.00	30.00	20.00
3	199.99	100.00	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment:

Balance ID 10203192 Date 8-24-05

Range Min: 1 Max: 6000 g

TV	200	100	50	30	20
1	200.00	100.00	50.00	30.00	20.00
2	200.00	100.00	50.00	30.00	20.00
3	200.00	100.00	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment:

Balance ID 10304418 Date 8-24-05

Range Min: 1 Max: 6000 g

TV	200	100	50	30	20
1	200.04	100.03	50.00	30.00	20.00
2	200.04	100.03	50.00	30.00	20.00
3	200.04	100.03	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment:

Balance ID 40706360 Date 8-24-05

Range Min: 1 Max: 205 g

TV	200	100	30	1	0.02
1	199.9985	99.9999	29.9984	1.0000	0.0200
2	199.9987	99.9998	29.9978	1.0000	0.0200
3	199.9986	99.9998	29.9982	1.0000	0.0200
Criteria (±0.1%)	0.2	0.1	0.03	0.001	0.00002
LL	199.8	99.9	29.97	0.999	0.01998
UL	200.2	100.1	30.03	1.001	0.02002

Comment:

Balance ID 40706360 Date 8

Range Min: 1 Max: 205 g

TV	200	100	30	1	0.02
1					
2					
3					
Criteria (±0.1%)	0.2	0.1	0.03	0.001	0.00002
LL	199.8	99.9	29.97	0.999	0.01998
UL	200.2	100.1	30.03	1.001	0.02002

Comment:

Verified by: MC

Checked by:

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H213**

METHOD 376.1
SULFIDE

Six (6) water samples were received on 08/23/05 for Sulfide analysis by Method 376.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample

Lab control result was within QC limit.

4. Duplicate

Sample H213-12 was analyzed for duplicate. %RPD was within QC limit.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 376.1
SULFIDE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H213

Matrix : WATER
Instrument ID : NA

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	SDH009WB	ND	1	NA	1	.4	08/23/0512:00	NA	SDH009W-01	NA	SDH009W	NA	NA
LCS1W	SDH009WL	4.65	1	NA	1	.4	08/23/0512:03	NA	SDH009W-02	NA	SDH009W	NA	NA
MW-21-5	H213-07	ND	1	NA	1	.4	08/23/0512:06	NA	SDH009W-03	NA	SDH009W	08/22/05	08/23/05
MW-21-4	H213-08	ND	1	NA	1	.4	08/23/0512:09	NA	SDH009W-04	NA	SDH009W	08/22/05	08/23/05
MW-21-3	H213-09	ND	1	NA	1	.4	08/23/0512:12	NA	SDH009W-05	NA	SDH009W	08/22/05	08/23/05
DUPE-1-8/22/05	H213-10	ND	1	NA	1	.4	08/23/0512:15	NA	SDH009W-06	NA	SDH009W	08/22/05	08/23/05
MW-21-2	H213-11	ND	1	NA	1	.4	08/23/0512:18	NA	SDH009W-07	NA	SDH009W	08/22/05	08/23/05
MW-21-1	H213-12	ND	1	NA	1	.4	08/23/0512:21	NA	SDH009W-08	NA	SDH009W	08/22/05	08/23/05
MW-21-1DUP	H213-12D	ND	1	NA	1	.4	08/23/0512:24	NA	SDH009W-09	NA	SDH009W	08/22/05	08/23/05

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 376.1
MATRIX: WATER
% MOISTURE: NA

==========

BATCH NO.: 05H213 DATE RECEIVED: NA
SAMPLE ID: LCS1W DATE EXTRACTED: NA
CONTROL NO.: SDH009WL DATE ANALYZED: 08/23/05 12:03

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	LCS RSLT (mg/L)	LCS % REC	QC LIMIT (%)
Sulfide	ND	5.00	4.65	93	80-120

80031

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 376.1
MATRIX: WATER
% MOISTURE: NA

==========

BATCH NO.: 05H213
SAMPLE ID: MW-21-1DUP
CONTROL NO.: H213-12D

DATE RECEIVED: 08/23/05
DATE EXTRACTED: NA
DATE ANALYZED: 08/23/05 12:24

ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
Sulfide	ND	ND	0	20

8032

ANALYSIS LOG FOR SULFIDE

SOP ☑ EMAX-376.1 Rev. No. 1 ☐ EMAX-9034 Rev. No. 0 Start Date: 08-23-05 Time: 12:00 End Date: 08-23-05 Time: 12:24 Book # ASD-007

	Data File Name	Lab Sample ID	Time	Sample Amt. (ml)	Volume of Iodine (ml)	Volume of PAO/$Na_2S_2O_3$ (ml)	Notes
*	1	SDH009-03	12:00	100	10	9.7	ND
*	2	10L	12:03			4.45	4.65
*	3	H213B-07	12:06			9.8	ND
*	4	-08	12:09			9.7	ND
*	5	-09	12:12			9.9	ND
*	6	-10	12:15			9.6	ND
*	7	-11	12:18			9.7	ND
*	8	-12	12:21			9.4	ND
*	9	-12D	12:24			9.6	ND
*	0						
*	1						
*	2						
*	3						
*	4						
*	5						
*	6						
*	7						
*	8						
*	9						
*	0						
*	1						
*	2						
*	3						
*	4						
*	5						
*	6						
*	7						
*	0						

ANALYTICAL BATCH # SDH009-03

Standard	ID	Conc. (mg/L)
LCS	S07A-06-178	5.0
Spike	N/a	
$Na_2S_2O_3$	S03B-02-735	0.00564
PAO		
Iodine	S03B-02-734	0.00564
HCL	S07B-06-281C	1:1
Indicator	S07A-06-190	

STANDARDIZATION

Vol. Of Iodine (ml)	Volume of PAO/Na2S2O3 (ml)	Conc. Of Iodine (N)
10	9.6	0.005414
10	9.6	0.005414
10	9.6	0.005414
Average Iodine Conc. (N)		0.005414

$$Sulfide(mg/L) = \frac{\left(V_{I_2} \times N_{I_2} - V_{PAO} \times N_{PAO}\right) \times 16{,}000}{V_{sample}}$$

Comments:

Analyzed By: AJ

8/23/05

EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

8033

TABLE OF CONTENTS

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H213**

SECTION		PAGE
Cover Letter, COC/Sample Receipt Form		1000 – 1005
GC/MS-VOA	**	2000 –
GC/MS-SVOA	**	3000 –
GC-VOA	**	4000 –
GC-SVOA	**	5000 –
HPLC	**	6000 –
METALS	METHOD 200.7	7000 – 7013
WET	METHOD 300.0	8000 – 8022
	METHOD 160.1	8023 – 8028
	METHOD 376.1	8029 – 8033
OTHERS	**	9000 –

** - Not Requested

EMAX
LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 09-06-2005
EMAX Batch No.: 05H213

Attn: Tien Shiao

Battelle Memorial Institute
505 King Ave.
Columbus OH 43201

Subject: Laboratory Report
Project: JPL

Enclosed is the Laboratory report for samples received on 08/23/05.
The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
MW-20-1	H213-01	08/22/05	WATER	METALS IN WATER & WASTE
MW-25-5	H213-02	08/22/05	WATER	NITRATE-N BY IC
MW-25-4	H213-03	08/22/05	WATER	NITRATE-N BY IC
MW-25-3	H213-04	08/22/05	WATER	NITRATE-N BY IC
MW-25-2	H213-05	08/22/05	WATER	NITRATE-N BY IC
MW-25-1	H213-06	08/22/05	WATER	NITRATE-N BY IC
MW-21-5	H213-07	08/22/05	WATER	SULFIDE
				SOLIDS TOTAL DISSOLVED
				NITRATE-N BY IC
				NITRITE-N BY IC
MW-21-4	H213-08	08/22/05	WATER	SULFIDE
				SOLIDS TOTAL DISSOLVED
				NITRATE-N BY IC
				NITRITE-N BY IC
MW-21-3	H213-09	08/22/05	WATER	SULFIDE
				SOLIDS TOTAL DISSOLVED
				NITRATE-N BY IC
				NITRITE-N BY IC
DUPE-1-8/22/05	H213-10	08/22/05	WATER	SULFIDE

Sample ID	Control #	Col Date	Matrix	Analysis
				SOLIDS TOTAL DISSOLVED
				NITRATE-N BY IC
				NITRITE-N BY IC
MW-21-2	H213-11	08/22/05	WATER	SULFIDE
				SOLIDS TOTAL DISSOLVED
				NITRATE-N BY IC
				NITRITE-N BY IC
MW-21-1	H213-12	08/22/05	WATER	SULFIDE
				SOLIDS TOTAL DISSOLVED
				NITRATE-N BY IC
				NITRITE-N BY IC

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

Battelle
The Business of Innovation

A5

CHAIN OF CUSTODY RECORD

Form No. _____

05 H213

Proj. No.	Project Title
G486111-73	Source Determination Study

SAMPLERS: (Signature) D. Lerner

PO# 191943

DATE	TIME	SAMPLE I.D.	Ca, Mg, Na, K	Nitrate	Ferric Iron	Nitrite + Nitrate	TDS	Sulfide	Container No.	Number of Containers	Remarks
1. 8/22/05	0745	MW-20-1	X		X						
2. 8/22/05	0850	MW-25-5		X							
3. 8/22/05	0918	MW-25-4		X							
4. 8/22/05	0936	MW-25-3		X							
5. 8/22/05	0952	MW-25-2		X							
6. 8/22/05	1015	MW-25-1		X							
7. 8/22/05	1113	MW-21-5			X	X	X				
8. 8/22/05	1130	MW-21-4			X	X	X				
9. 8/22/05	1154	MW-21-3			X	X	X				
10. 8/22/05	1154	DUPE-1-8/22/05			X	X	X				
11. 8/22/05	1207	MW-21-2			X	X	X				
12. 8/22/05	1221	MW-21-1			X	X	X				

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	8-23-05 0800	Phil Hatten			

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	8-23-05 915				

Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks
		[signature]	08.23.05 09:15	TO: EMAX T=2.8°C

Page _____ of _____

Hanh Bui

From: Shiao, Tien [shiaoh@BATTELLE.ORG]
Sent: Wednesday, August 24, 2005 11:33 AM
To: Hanh Bui
Cc: Ohart, Carolyn J
Subject: FW: COC SDG: 05H213 (Battelle/JPL)

Hi Hanh,

I reviewed the COCs and they look correct. And yes, nitrate will be the only parameter re-sampled for MW-25.

Sorry for the late reply.

Thanks,
Tien

From: Hanh Bui [mailto:HDBui@emaxlabs.com]
Sent: Tuesday, August 23, 2005 4:57 PM
To: Shiao, Tien
Subject: COC SDG: 05H213 (Battelle/JPL)

Hi Tien,
Here is the COC for samples receive today, Nitrate only for MW-25 samples? thanks.
Hanh

SAMPLE RECEIPT FORM 1

Type of Delivery	Delivered By/Airbill	ECN	05H213
☑ EMAX Courier	PHIL HATCHER	Recepient	SITNIKOV
☐ Client Delivery		Date	8-23-05
☐ Third Party		Time	0915

COC Inspection

☑ Client Name	☑ Sampler Name	☑ Sampling Date/Time/Location
☐ Address	☑ Courier Signature/Date/Time	☑ Analysis Required
☑ Client PM/FC	☐ TAT	☐ Matrix
☐ Tel #/Fax #	☑ Sample ID	☐ Preservative (if any)
Safety Issues ☑ None	☐ High Concentrations expected	☐ Superfund Site Samples
Comments: ☐ Rad Screening Required		

Packaging Inspection

Container	☑ Cooler	☐ Box	☐	☐
Condition	☐ Custody Seal	☐ Intact	☐ Damaged	☐
Packaging	☑ Bubble Pack	☐ Styrofoam	☑ Sufficient	☑ plastic bag
Temperatures	☑ Cooler 1 2.8°C	☑ Cooler 2 ____	☐ Cooler 3 ____	☐ Cooler 4 ____
	☐ Cooler 5 ____	☐ Cooler 6 ____	☐ Cooler 7 ____	☐ Cooler 8 ____
	☐ Cooler 9 ____	☐ Cooler 10 ____	☐ Cooler 11 ____	☐ Cooler 12 ____

Comments:

LSCID	Client ID	Discrepancy	Corrective Action

LSCID : Lab Sample Container ID

REVIEWS

Sample Labeling [signature] Date 8-23-05

SRF [signature] Date 8/23/05

PM [signature] Date 8/25/05

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

BATTELLE MEMORIAL INSTITUTE

JPL

METHOD 200.7
METALS BY ICP-AES

SDG#: 05H213

7000

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H213**

METHOD 200.7
METALS BY ICP-AES

One (1) water sample was received on 08/23/05 for Metals analysis by Method 200.7 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition.

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Sample H213-01 was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

6. Sample Analysis

Sample was analyzed according to the prescribed QC procedures. All criteria were met.

LAB CHRONICLE
METALS BY ICP-AES

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL

SDG NO. : 05H213
Instrument ID : T-I07

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	IPH056WB	1	NA	09/01/0519:55	08/24/0513:35	I07I003023	I07I003021	IPH056W	Method Blank
LCS1W	IPH056WL	1	NA	09/01/0519:59	08/24/0513:35	I07I003024	I07I003021	IPH056W	Lab Control Sample (LCS)
LCD1W	IPH056WC	1	NA	09/01/0520:03	08/24/0513:35	I07I003025	I07I003021	IPH056W	LCS Duplicate
MW-20-1AS	H213-01A	1	NA	09/01/0520:07	08/24/0513:35	I07I003026	I07I003021	IPH056W	Analytical Spike Sample
MW-20-1	H213-01	1	NA	09/01/0520:13	08/24/0513:35	I07I003027	I07I003021	IPH056W	Field Sample
MW-20-1DL	H213-01T	5	NA	09/01/0520:17	08/24/0513:35	I07I003028	I07I003021	IPH056W	Diluted Sample

FN - Filename
% Moist - Percent Moisture

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	08/22/05
Project	: JPL	Date Received:	08/23/05
SDG NO.	: 05H213	Date Extracted:	08/24/05 13:35
Sample ID:	MW-20-1	Date Analyzed:	09/01/05 20:13
Lab Samp ID:	H213-01	Dilution Factor:	1
Lab File ID:	I071003027	Matrix :	WATER
Ext Btch ID:	IPH056W	% Moisture :	NA
Calib. Ref.:	I071003021	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	82.3	1	.1
Iron	ND	.2	.04
Magnesium	26.3	1	.1
Potassium	2.72	2	1.4
Sodium	20	1	.25

7003

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	NA
Project	: JPL	Date Received:	08/24/05
SDG NO.	: 05H213	Date Extracted:	08/24/05 13:35
Sample ID:	MBLK1W	Date Analyzed:	09/01/05 19:55
Lab Samp ID:	IPH056WB	Dilution Factor:	1
Lab File ID:	I071003023	Matrix :	WATER
Ext Btch ID:	IPH056W	% Moisture :	NA
Calib. Ref.:	I071003021	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	ND	1	.1
Iron	ND	.2	.04
Magnesium	ND	1	.1
Potassium	ND	2	1.4
Sodium	ND	1	.25

7004

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
SDG NO.: 05H213
METHOD: METHOD 200.7

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	MBLK1W				
CONTROL NO.:	IPH056WB	IPH056WL	IPH056WC		
LAB FILE ID:	I071003023	I071003024	I071003025		
DATIME EXTRCTD:	08/24/0513:35	08/24/0513:35	08/24/0513:35	DATE COLLECTED:	NA
DATIME ANALYZD:	09/01/0519:55	09/01/0519:59	09/01/0520:03	DATE RECEIVED:	08/24/05
PREP. BATCH:	IPH056W	IPH056W	IPH056W		
CALIB. REF:	I071003021	I071003021	I071003021		

ACCESSION:

PARAMETER	BLNK RSLT mg/L	SPIKE AMT mg/L	BS RSLT mg/L	BS % REC	SPIKE AMT mg/L	BSD RSLT mg/L	BSD % REC	RPD %	QC LIMIT %	MAX RPD %
Calcium	ND	50	49.5	99	50	49.9	100	1	85-115	20
Iron	ND	10	10.1	101	10	9.99	100	1	85-115	20
Magnesium	ND	50	48.8	98	50	49.5	99	1	85-115	20
Potassium	ND	50	49.8	100	50	51.2	102	3	85-115	20
Sodium	ND	50	48.6	97	50	49.6	99	2	85-115	20

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H213
METHOD: METHOD 200.7

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MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 5
SAMPLE ID: MW-20-1 MW-20-1DL
EMAX SAMP ID: H213-01 H213-01T
LAB FILE ID: I071003027 I071003028
DATE EXTRACTED: 08/24/0513:35 08/24/0513:35 DATE COLLECTED: 08/22/05
DATE ANALYZED: 09/01/0520:13 09/01/0520:17 DATE RECEIVED: 08/23/05
PREP. BATCH: IPH056W IPH056W
CALIB. REF: I071003021 I071003021

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SERIAL DIL RSLT (mg/L)	DIF RSLT %	QC LIMIT (%)
Calcium	82.3	78.9	4	10
Iron	ND	ND	0	10
Magnesium	26.3	25.1	5	10
Potassium	2.72	ND	NA	10
Sodium	20	20.3	1	10

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
SDG NO.: 05H213
METHOD: METHOD 200.7

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MW-20-1			
CONTROL NO.:	H213-01	H213-01A		
LAB FILE ID:	I071003027	I071003026		
DATIME EXTRCTD:	08/24/0513:35	08/24/0513:35	DATE COLLECTED:	08/22/05
DATIME ANALYZD:	09/01/0520:13	09/01/0520:07	DATE RECEIVED:	08/23/05
PREP. BATCH:	IPH056W	IPH056W		
CALIB. REF:	I071003021	I071003021		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	AS RSLT (mg/L)	AS % REC	QC LIMIT (%)
Calcium	82.3	50	127	89	85-115
Iron	ND	10	9.78	98	85-115
Magnesium	26.3	50	73.2	94	85-115
Potassium	2.72	50	52.8	100	85-115
Sodium	20	50	67.4	95	85-115

7007

REGULAR ICP QC CHECK TABLE

QC	ICV HIGH	ICV	CCV	ICSAB	ICSA
Limit%	95-105	90-110	90-110	80-120	80-120
Comp	mg/L	mg/L	mg/L	mg/L	mg/L
Al	10	5	5	500	500
Sb	2	1	1	1	0
As	2	1	1	1	0
Ba	2	1	1	0.5	0
Be	2	1	1	0.5	0
B	2	1	1	0.5	0
Cd	2	1	1	1	0
Ca	100	50	50	500	500
Cr	2	1	1	0.5	0
Co	2	1	1	0.5	0
Cu	2	1	1	0.5	0
Fe	10	5	5	200	200
Pb	2	1	1	1	0
Mg	100	50	50	500	500
Mn	2	1	1	0.5	0
Mo	2	1	1	1	0
Ni	2	1	1	1	0
K	100	50	50	50	0
Se	2	1	1	3.6	0
Ag	2	1	1	1	0
Na	100	50	50	10	0
Sr	2	1	1	0.5	0
Tl	2	1	1	3.6	0
Sn	10	5	5	1	0
Ti	2	1	1	1	0
V	2	1	1	0.5	0
Zn	2	1	1	1	0

ANALYSIS RUN LOG FOR ICP

SOP ☑ EMAX-6010-Rev. 3 ☐ EMAX-CLP-TAL ☐ Method File: 6010B1 Autosampler Table: ICP

Matrix: WATER Start Date: 9/1/05 Time: 18:21 End Date: 9/1/05 Time: 20:36 Book# A24 -038

ANALYTICAL BATCH* 1071003

Data File Name	Prep. Batch	Lab Sample ID	DF	Matrix	Notes
01		SO			
02		S7			
03		S6			
04		ICV (QCS)			
05		ICB			
06		CCV (IPC)			
07		CCB			
08		ICSA1			
09		ICSAB1			
10		CCV1 (IPC)			
11		CCB1			
12	IPH076W	IPH076WB	1	W	LRB
13		ML	1		LFB
14		MC	1		LFB
15		H870-01A	1		*
16		01	1		
17		01T	5		
18		02	1		
19		03	1		
20		04	1		
21		CCV2 (IPC)	1		
22		CCB2	1		
23	IPH056W	IPH056WB	1		LRB
24		ML	1		LFB
25		MC	1		LFB

ANALYTICAL BATCH *

Data File Name	Prep. Batch	Lab Sample ID	DF	Matrix	Notes
26	IPH056W	H213-01A	1	W	
27		01	1		
28		01T	5		
29		ICSA7	1		
30		ICSAB7	1		
31		CCV3 (IPC)	1		
32		CCB3	1		
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					

Instrument No.	24
Std.	ID
S_0	SM1#009.77.05
S_1	NA
S_2	NA
S_3	SM1#009.44.04
S_4	NA
S_5	NA
S_6	SM1#009.45.02
ICV(QCS)	09.09.02
ICVH1	NA
ICVH2	NA
CCV(IPC)	SM1#009.90.02
ICSA	09.07.07
ICSAB	09.60.01
MRL	NA

Comments:

* NOT SPIKED ; FOR CONFIRMATION

O/C

Analyzed By: [signature]

Date Disposed:

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

SEQUENCE FILE : I07I003

4-18	19-33	34-43	44-53	54-63
LFID	LSID	TIME	DATE	DF
I07I003001	S0	18:21	09/01/05	1
I07I003002	S3	18:25	09/01/05	1
I07I003003	S6	18:29	09/01/05	1
I07I003004	ICV	18:33	09/01/05	1
I07I003005	ICB	18:39	09/01/05	1
I07I003006	CCV	18:43	09/01/05	1
I07I003007	CCB	18:47	09/01/05	1
I07I003008	ICSAI	18:51	09/01/05	1
I07I003009	ICSABI	18:55	09/01/05	1
I07I003010	CCV1	19:01	09/01/05	1
I07I003011	CCB1	19:05	09/01/05	1
I07I003012	IPH076WB	19:09	09/01/05	1
I07I003013	IPH076WL	19:13	09/01/05	1
I07I003014	IPH076WC	19:17	09/01/05	1
I07I003015	H870-01A	19:21	09/01/05	1
I07I003016	H870-01	19:27	09/01/05	1
I07I003017	H870-01T	19:31	09/01/05	5
I07I003018	H870-02	19:35	09/01/05	1
I07I003019	H870-03	19:39	09/01/05	1
I07I003020	H870-04	19:43	09/01/05	1
I07I003021	CCV2	19:47	09/01/05	1
I07I003022	CCB2	19:51	09/01/05	1
I07I003023	IPH056WB	19:55	09/01/05	1
I07I003024	IPH056WL	19:59	09/01/05	1
I07I003025	IPH056WC	20:03	09/01/05	1
I07I003026	H213-01A	20:07	09/01/05	1
I07I003027	H213-01	20:13	09/01/05	1
I07I003028	H213-01T	20:17	09/01/05	5
I07I003029	ICSAF	20:22	09/01/05	1
I07I003030	ICSABF	20:26	09/01/05	1
I07I003031	CCV3	20:32	09/01/05	1
I07I003032	CCB3	20:36	09/01/05	1

SDG : 05H213 UNIT : % ICP CHECK : I07I003 DATE : 09/01/05 INST : EMAXTI07

ANALYTE	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
S0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICV	98	100	101	97	100	101	96	99	98	97	97	102	100	99	99	97	96	98	97	96	98	96	101	97	100	97	99
ICB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV	99	102	99	99	99	99	99	101	98	98	98	101	100	99	98	100	97	101	101	99	100	99	100	99	99	98	99
CCB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAI	91	----	----	----	----	----	----	89	----	----	----	87	----	93	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSABI	91	85	98	90	91	91	91	89	88	84	93	87	97	93	89	85	84	96	96	94	99	88	96	84	88	93	92
CCV1	96	98	102	95	96	97	98	99	96	95	95	99	96	96	95	96	96	97	100	97	97	95	95	96	96	96	97
CCB1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH076WB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH076WL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH076WC	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H870-01A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H870-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H870-01T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H870-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H870-03	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H870-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV2	93	100	100	90	93	95	97	97	93	92	91	96	98	94	93	93	94	94	97	95	94	91	94	94	93	93	95
CCB2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH056WB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH056WL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH056WC	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H213-01A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H213-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H213-01T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAF	91	----	----	----	----	----	----	88	----	----	----	85	----	93	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSABF	93	92	113	91	92	95	92	89	88	83	93	87	100	94	89	86	84	99	98	96	104	88	97	87	89	93	91
CCV3	99	102	104	97	98	101	99	99	96	94	96	99	97	98	95	95	97	102	105	98	101	97	95	95	97	96	96
CCB3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

QC limit of each parameter are listed in a table attached next to all the ICP check forms
* : Out of QC Limit

SDG : 05H213 UNIT : UG/L SUMMARY of CALIBRATION BLANKS : I071003 (WATER) DATE : 09/01/05 INST : EMAXTI07

ANALYTE	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
S0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICV	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICB	-3.52	7.58	6.19	.300	.000	.830	-.330	1.64	1.20	1.59	.000	1.64	-16.8	-1.34	.000	-6.63	-3.23	246	10.1	.510	-7.06	.000	34.9	-15.1	-.330	-.500	-.580
CCV	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB	-5.11	27.1	-16.5	.100	.050	1.68	-.410	-6.95	.900	.530	1.15	.820	-22.6	-.120	-.260	-5.30	-2.09	346	37.8	.510	.000	.000	39.3	-1.29	-.010	.980	-1.16
ICSAI	----	16.1	102	.000	-.050	5.39	-1.17	----	.150	-3.54	-.990	----	18.5	----	2.56	-12.5	-9.51	140	72.4	12.9	-14.1	-.720	555	-23.2	-12.3	-9.56	-3.53
ICSABI	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB1	-19.2	14.6	20.6	.100	.060	2.53	.110	-.450	1.51	.000	1.15	-.270	17.1	-4.83	-.530	-1.32	-3.04	261	33.6	-2.22	-14.1	.700	41.0	-6.85	.150	-.090	-1.46
IPH076WB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH076WL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH076WC	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H870-01A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H870-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H870-01T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H870-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H870-03	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H870-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB2	-16.6	13.5	10.3	.100	-.060	3.37	.520	-6.43	-1.21	-1.32	-.380	.820	-7.43	-6.02	.260	-1.32	-1.71	-406	-23.5	-.680	-35.3	.860	22.7	-5.47	.300	-.100	-.800
IPH056WB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH056WL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH056WC	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H213-01A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H213-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H213-01T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAF	----	-11.8	56.5	-.070	-.110	1.49	.030	----	-.220	-4.34	-1.04	----	28.5	----	1.54	-5.81	.190	-256	39.6	10.8	-21.2	-.590	414	-39.8	-12.7	-9.11	-5.83
ICSABF	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB3	-7.67	21.4	17.5	.300	-.110	2.52	-.760	-6.47	.300	-1.85	-1.15	.270	7.41	-13.3	-.530	-6.63	3.99	160	31.9	-3.42	.000	.000	55.8	-6.82	.290	-2.35	-1.80

QC limit of each parameter are listed in a table attached next to all the ICP check forms
* : Out of QC Limit

7012

DIGESTION LOG FOR ICP METALS

SOP ☐ EMAX-3005 Rev. No.3 ☐ EMAX-3010 Rev. No. 2 ☐ EMAX-3050 Rev. No. 2 ☐ EMAX-CLP-TAL ☑ 200.7 Book # EIP-047

Matrix: WATER Start Date: 8-24-05 Time: 13:35 Temp: 85 °C Ending Date: 8-24-05 Time: 15:35 Temp.: 85 °C

BATCH: IPH056-W

Sample Prep ID	Lab Sample ID	Matrix Description: Color	Matrix Description: Texture / Clarity	Matrix Description: Artifacts	Turbidity <1 NTU	Sample Amount (g | ml)	pH	Extract Volume (ml)	Digestate Description: Color	Digestate Description: Clarity
01	IPH056-WB					50	–	50		
02	-WL					50	–	50		
03	-WC					50	–	50		
04	H147-01					50	<2	50		
05	-02					50		50		
06	-04					50		50		
07	-05					50		50		
08	H162-01					50		50		
09	-02					50		50		
10	-03					50		50		
11	-04					50		50		
12	H213-01					50		50		
13	H521-04					50		50		
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										

8-24-05 MC

Standards	ID	Amount Added (ml)
LCS -1	SMIA-09-42	0.5
LCS -2	SMIA-09-43	0.5
LCS -3	SMIA-09-44	0.5
MS	N/A	
Reagent	**Lot# / ID**	**Amount Added (ml)**
HNO_3	SWIA-03-120	0.5
HCl	SWIA-03-115	0.25
H_2O_2	N/A	
HNO3 (1:1)	N/A	
Digestate Location	ICP LAB	
Extract Location		

Legend:

Texture	Cs = Coarse	Md = Medium	Fn = Fine
Clarity	Cr = Clear	Cy = Cloudy	Td = Turbid
Artifacts	Rk = rocks	Sl = Shale	Vg=Vegetation
Color	Bu = blue	Bk = Black	Bn = Brown
	Gn = Green	Og = Orange	Rd = Red
	Yw = Yellow	Cl = Colorless	

Comments: Samples for Methods 200.7 or 200.8 Analyses

If turbidity ≤ 1 NTU no digestion is required unless otherwise required by the project

Prepared By: MC Standard Added By: MC

Witnessed By: AZ Extracts Rcvd. By: AZ 8/24/05

Checked By: AZ

Date Disposed: Disposed by:

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

LABORATORY REPORT FOR

BATTELLE MEMORIAL INSTITUTE

JPL

WET CHEMICAL ANALYSES

SDG#: 05H213

8000

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H213**

METHOD 300.0
NITRATE-N AND NITRITE-N

Eleven (11) water for Nitrate-N and six (6) water samples for Nitrite-N were received on 08/23/05 to be analyzed by method 300.0 in accordance with "Method for Determination of Inorganic Anions by Ion Chromatography", EPA 600/84-017.

1. Holding Time

Analyses met holding time criteria except dilution runs of H213-06 and -07 for Nitrate-N analysis.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limits.

4. Duplicate

No duplicate sample was designated in this SDG.

5. Matrix Spike

No MS sample was designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

Nitrate-N analysis in the initial runs of samples H213-06 and -07 were within 48-hours holding time criteria. The samples were reanalyzed at DF 5 due to exceeded calibration range in the initial runs, however, the dilution runs were approximately analyzed two-hour out of 48-hour holding time criteria. Both initial and dilution results were reported.

All results were reported as Nitrogen concentration.

SAMPLE RESULTS

METHOD 300.0
NITRATE-N

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H213

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICH030WB	ND	1	NA	.1	.05	08/23/0515:31	NA	AH23-03	AH23-01	ICH030W	NA	NA
LCS1W	ICH030WL	2.08	1	NA	.1	.05	08/23/0515:45	NA	AH23-04	AH23-01	ICH030W	NA	NA
LCD1W	ICH030WC	2.08	1	NA	.1	.05	08/23/0515:59	NA	AH23-05	AH23-01	ICH030W	NA	NA
MW-25-5	H213-02	ND	1	NA	.1	.05	08/23/0519:41	NA	AH23-15	AH23-13	ICH030W	08/22/05	08/23/05
MW-25-1	H213-06	12.8E	1	NA	.1	.05	08/23/0520:38	NA	AH23-19	AH23-13	ICH030W	08/22/05	08/23/05
MW-21-5	H213-07	7.13E	1	NA	.1	.05	08/23/0520:52	NA	AH23-20	AH23-13	ICH030W	08/22/05	08/23/05
MW-25-4	H213-03	4.5	2	NA	.2	.1	08/23/0522:45	NA	AH23-28	AH23-25	ICH030W	08/22/05	08/23/05
MW-25-3	H213-04	8.59	5	NA	.5	.25	08/23/0522:59	NA	AH23-29	AH23-25	ICH030W	08/22/05	08/23/05
MBLK2W	ICH031WB	ND	1	NA	.1	.05	08/23/0523:27	NA	AH23-31	AH23-25	ICH031W	NA	NA
LCS2W	ICH031WL	2.05	1	NA	.1	.05	08/23/0523:41	NA	AH23-32	AH23-25	ICH031W	NA	NA
LCD2W	ICH031WC	2.03	1	NA	.1	.05	08/23/0523:55	NA	AH23-33	AH23-25	ICH031W	NA	NA
MW-25-2	H213-05	6.31	5	NA	.5	.25	08/24/0500:37	NA	AH23-36	AH23-25	ICH031W	08/22/05	08/23/05
MBLK3W	ICH033WB	ND	1	NA	.1	.05	08/24/0513:02	NA	AH24-09	AH24-01	ICH033W	NA	NA
LCS3W	ICH033WL	2.09	1	NA	.1	.05	08/24/0513:16	NA	AH24-10	AH24-01	ICH033W	NA	NA
LCD3W	ICH033WC	2.09	1	NA	.1	.05	08/24/0513:30	NA	AH24-11	AH24-01	ICH033W	NA	NA
MW-21-4	H213-08	6.53	5	NA	.5	.25	08/24/0511:24	NA	AH24-02	AH24-01	ICH033W	08/22/05	08/23/05
MW-21-3	H213-09	9.53	5	NA	.5	.25	08/24/0511:38	NA	AH24-03	AH24-01	ICH033W	08/22/05	08/23/05
DUPE-1-8/22/05	H213-10	9.69	5	NA	.5	.25	08/24/0511:52	NA	AH24-04	AH24-01	ICH033W	08/22/05	08/23/05
MW-21-2	H213-11	10.7	5	NA	.5	.25	08/24/0512:06	NA	AH24-05	AH24-01	ICH033W	08/22/05	08/23/05
MW-21-1	H213-12	14.2	5	NA	.5	.25	08/24/0512:20	NA	AH24-06	AH24-01	ICH033W	08/22/05	08/23/05
MW-25-1DL	H213-06T	10.5	5	NA	.5	.25	08/24/0512:34	NA	AH24-07	AH24-01	ICH033W	08/22/05	08/23/05
MW-21-5DL	H213-07T	6.35	5	NA	.5	.25	08/24/0512:48	NA	AH24-08	AH24-01	ICH033W	08/22/05	08/23/05

METHOD 300.0
NITRITE-N

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H213

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICH030WB	ND	1	NA	.1	.05	08/23/0515:31	NA	AH23-03	AH23-01	ICH030W	NA	NA
LCS1W	ICH030WL	1.98	1	NA	.1	.05	08/23/0515:45	NA	AH23-04	AH23-01	ICH030W	NA	NA
LCD1W	ICH030WC	2	1	NA	.1	.05	08/23/0515:59	NA	AH23-05	AH23-01	ICH030W	NA	NA
MW-21-5	H213-07	ND	1	NA	.1	.05	08/23/0520:52	NA	AH23-20	AH23-13	ICH030W	08/22/05	08/23/05
MW-21-4	H213-08	ND	1	NA	.1	.05	08/23/0521:06	NA	AH23-21	AH23-13	ICH030W	08/22/05	08/23/05
MW-21-3	H213-09	ND	1	NA	.1	.05	08/23/0521:20	NA	AH23-22	AH23-13	ICH030W	08/22/05	08/23/05
DUPE-1-8/22/05	H213-10	ND	1	NA	.1	.05	08/23/0521:34	NA	AH23-23	AH23-13	ICH030W	08/22/05	08/23/05
MW-21-2	H213-11	ND	1	NA	.1	.05	08/23/0521:48	NA	AH23-24	AH23-13	ICH030W	08/22/05	08/23/05
MW-21-1	H213-12	ND	1	NA	.1	.05	08/23/0522:30	NA	AH23-27	AH23-25	ICH030W	08/22/05	08/23/05

QC SUMMARIES

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H213
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICH030WB	ICH030WL	ICH030WC		
LAB FILE ID:	AH23-03	AH23-04	AH23-05		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/23/0515:31	08/23/0515:45	08/23/0515:59	DATE RECEIVED:	NA
PREP. BATCH:	ICH030W	ICH030W	ICH030W		
CALIB. REF:	AH23-01	AH23-01	AH23-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrate-N	ND	2	2.08	104	2	2.08	104	0	90-110	20

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H213
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK2W				
LAB SAMP ID:	ICH031WB	ICH031WL	ICH031WC		
LAB FILE ID:	AH23-31	AH23-32	AH23-33		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/23/0523:27	08/23/0523:41	08/23/0523:55	DATE RECEIVED:	NA
PREP. BATCH:	ICH031W	ICH031W	ICH031W		
CALIB. REF:	AH23-25	AH23-25	AH23-25		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrate-N	ND	2	2.05	103	2	2.03	102	1	90-110	20

8007

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H213
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK3W				
LAB SAMP ID:	ICH033WB	ICH033WL	ICH033WC		
LAB FILE ID:	AH24-09	AH24-10	AH24-11		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/24/0513:02	08/24/0513:16	08/24/0513:30	DATE RECEIVED:	NA
PREP. BATCH:	ICH033W	ICH033W	ICH033W		
CALIB. REF:	AH24-01	AH24-01	AH24-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrate-N	ND	2	2.09	105	2	2.09	105	0	90-110	20

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H213
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICH030WB	ICH030WL	ICH030WC		
LAB FILE ID:	AH23-03	AH23-04	AH23-05		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/23/0515:31	08/23/0515:45	08/23/0515:59	DATE RECEIVED:	NA
PREP. BATCH:	ICH030W	ICH030W	ICH030W		
CALIB. REF:	AH23-01	AH23-01	AH23-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrite-N	ND	2	1.98	99	2	2	100	1	90-110	20

8009

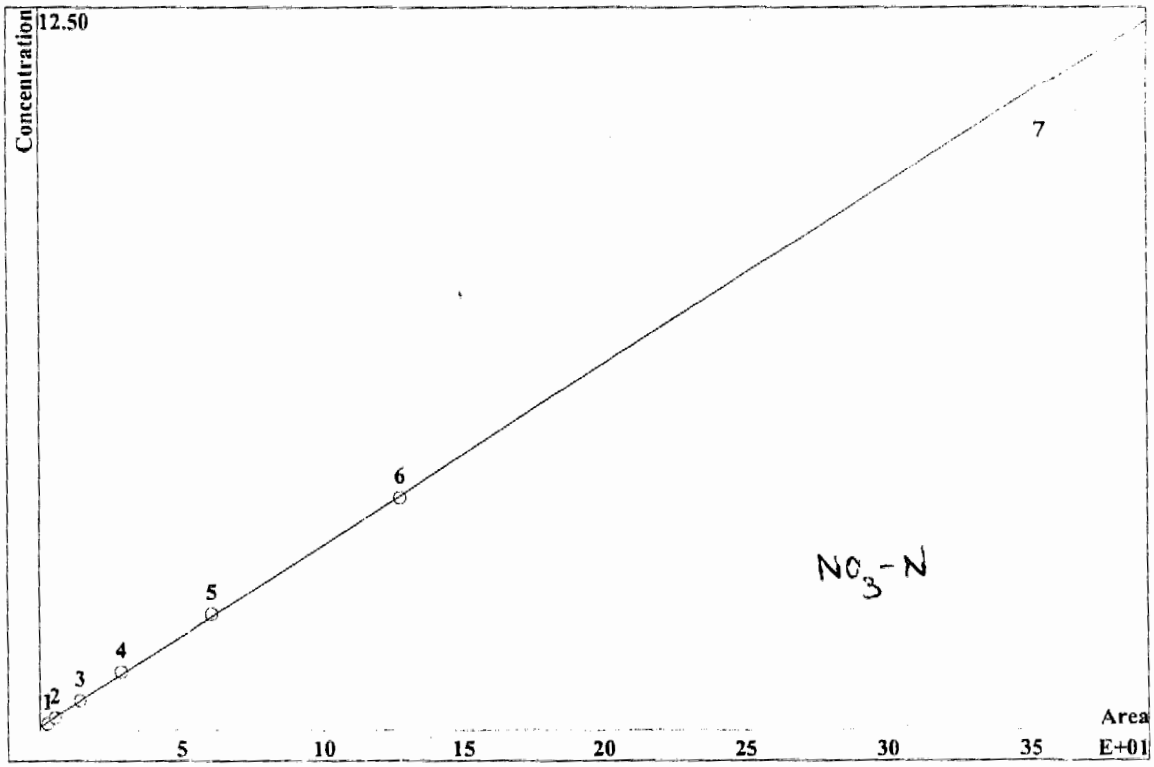
INITIAL CALIBRATIONS

IC Result Check FormVersion : QH2

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH18-01	IB	FCIBNPS	0	0	0	0	0	0	0	p8181936	1
AH18-02	S0	FCIBNPS	0	0	0	0	0	0	0	p8181950	1
AH18-03	S1	FCIBNPS	0.166	0.17262	0.13231	0.12813	0.13644	0.22927	0.14104	p8182004	1
AH18-04	S2	FCIBNPS	0.28466	0.28623	0.22239	0.22088	0.22213	0.31227	0.24604	p8182018	1
AH18-05	S3	FCIBNPS	0.51393	0.51514	0.50265	0.50493	0.50026	0.56154	0.52244	p8182032	1
AH18-06	S4	FCIBNPS	0.96429	0.99164	0.95545	0.95771	0.95423	0.9672	0.9792	p8182047	1
AH18-07	S5	FCIBNPS	1.9297	1.9476	1.9596	2.0373	1.9583	1.8503	1.9613	p8182101	1
AH18-08	S6	FCIBNPS	3.8838	3.8076	4.0276	3.9271	4.0286	3.7744	3.9072	p8182115	1
AH18-09	S7	FCIBNPS	10.058	10.079	10.533	10.024	11.158	10.105	10.043	p8182129	1
AH18-10	ICV	FCIBNPS	94.6%	95.5%	98%	99.9%	98.2%	93%	97.2%	p8182143	1
AH18-11	ICB	FCIBNPS	0	0	0	0	0	0	0	p8182157	1
AH18-12	ICH025WB	FCIBNPS	0	0	0	0	0	0	0	p8182211	1
AH18-13	ICH025WL	FCIBNPS	1.9633	1.9339	1.884	2.1091	1.9384	1.8022	1.9892	p8182225	1
AH18-14	ICH025WC	FCIBNPS	1.9405	1.927	1.8843	2.0871	1.9384	1.8038	2.0248	p8182239	1
AH18-15	H023-01	F*IBNPS	0	11823E	0	-7.8039	0	0	1470.9	p8182253	200
AH18-16	H023-03	F*IBNPS	0	11711E	0	0	0	0	1420.9	p8182307	200
AH18-17	H023-01	*C*****	0	9274.5	0	0	0	0	1588.2	p8182321	2000
AH18-18	H023-02	FCIBNPS	0	8909.8	0	0	0	0	1504.6	p8182335	2000
AH18-19	H023-03	*C*****	0	9111	0	0	0	0	1525.4	p8182349	2000
AH18-20	H023-04	FCIBNPS	0	9589.9	0	0	0	0	1558.3	p8190004	2000
AH18-21	CCV1	FCIBNPS	95.3%	99%	97.2%	96.8%	97.9%	92.8%	99.3%	p8190018	1
AH18-22	CCB1	FCIBNPS	0	0	0	0	0	0	0	p8190032	1
AH18-23	H169-01	F*IBNP*	0.58784	557.84E	0	3.9834	0.30268	0	222.2E	p8190046	1
AH18-24	H169-01D	F*IBNP*	0.54415	557.56E	0	3.8987	0.26518	0	222.08E	p8190100	1
AH18-25	H169-01M	F*IBNP*	2.3279	551.74E	2.2881	5.3508	2.2308	2.1545	221.61E	p8190114	1
AH18-26	H614-01	F*IBNP*	0.30333	24.22E	0	0.84928	3.8374	0.23597	25.147E	p8190128	1
AH18-27	H614-02	F*IB*P*	0.24861	17.85E	0	0.85627	5.8152E	0	15.634E	p8190142	1
AH18-28	H614-02D	F*IB*P*	0.42543	18.124E	0	1.1955	5.8532E	0.23178	15.667E	p8190156	1
AH18-29	H614-02M	F*IB*P*	2.2519	20.146E	2.0242	3.1702	8.3464E	2.4015	18.076E	p8190210	1
AH18-30	H614-01	*C****S	0.7526	19.853	0	0.84668	3.6036	0	22.543	p8190224	5
AH18-31	H614-02	*C**N*S	0.57712	14.626	0	0.8431	5.0755	0	13.896	p8190238	5
AH18-32	H614-02D	*C**N*S	0.5948	14.546	0	0.80981	5.0759	0	13.937	p8190252	5
AH18-33	CCV2	FCIBNPS	95.5%	99.2%	97.8%	101.7%	98.2%	95.2%	98.8%	p8190306	1
AH18-34	CCB2	FCIBNPS	0	0	0	0	0	0	0	p8190320	1
AH18-35	H614-02M	*C**N*S	9.666	24.294	9.0355	10.763	15.204	10.183	23.849	p8190335	5
AH18-36	H169-01	*******	1.2771	462.51E	0	3.1323	0	0	162.61E	p8190349	10
AH18-37	H169-01D	*******	1.1563	462.25E	0	2.6472	0	0	162.5E	p8190403	10
AH18-38	H169-10M	F*IBNP*	19.589	483.82E	19.02	22.753	19.898	20.393	183.19E	p8190417	10
AH18-39	RINSE	FCIBNPS	0	0.12789	0	0	0	0.23054	0	p8190431	1
AH18-40	RINSE	FCIBNPS	0	0	0	0.049699	0	0	0	p8190445	1
AH18-41	CCV3	FCIBNPS	97.4%	98.2%	96.2%	103.3%	96.9%	124.7%*	102%	p8190459	1
AH18-42	CCB3	FCIBNPS	0	0	0	0	0	0	0	p8190513	1

CALIBRATION OF COMPONENT nitrate

Method: IC100-H18.mtw
Equation: Q = 0.0313474·A + 0.0465038
RSD: 3.094 %
Correlation coefficient: 0.999710



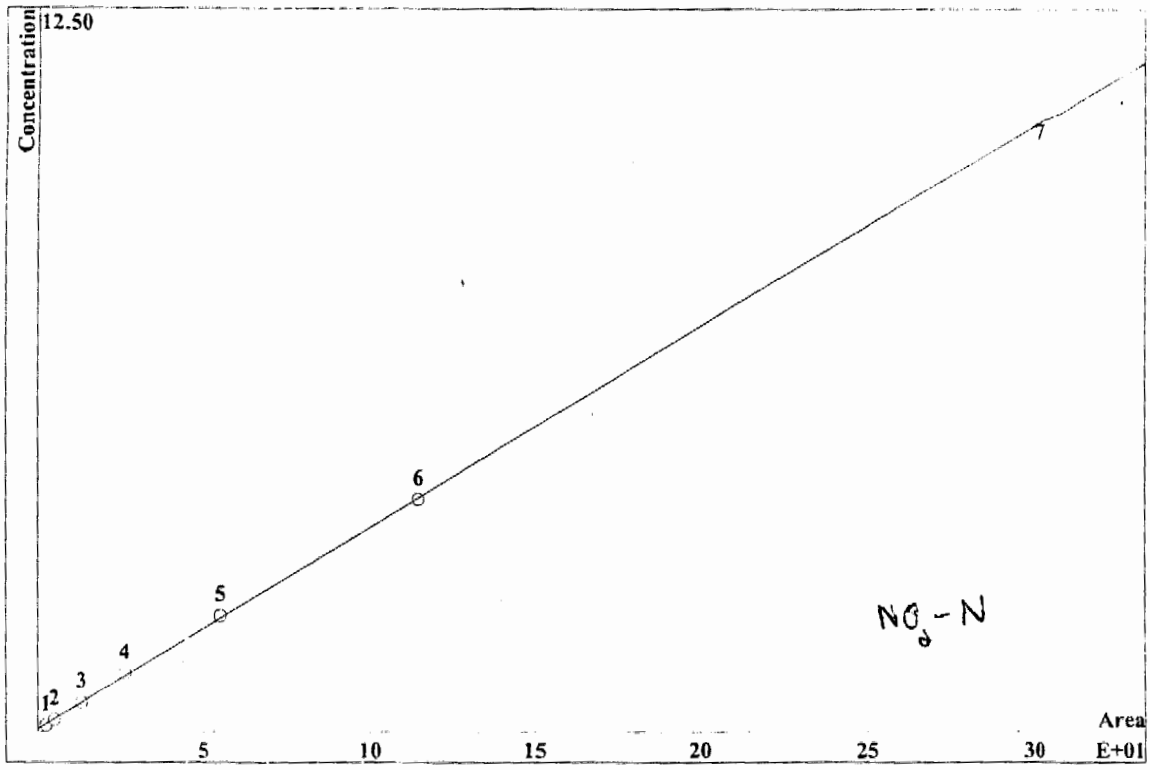
K3 = 0 K2 = 0 K1 = 0.0313474 K0 = 0.0465038
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.1627	2.869	0.1	1	5.56	Yes	p8182004.chw
2	0.329	5.603	0.2	1	5.56	Yes	p8182018.chw
3	0.8519	14.48	0.5	1	5.56	Yes	p8182032.chw
4	1.718	28.96	1	1	5.56	Yes	p8182047.chw
5	3.662	60.99	2	1	5.56	Yes	p8182101.chw
6	7.807	127	4	1	5.56	Yes	p8182115.chw
7	22.1	354.5	10	1	5.56	No	p8182129.chw

8/18/05

CALIBRATION OF COMPONENT nitrite

Method: IC100-H18.mtw
Equation: Q = 0.0346959·A + 0.043272
RSD: 2.962 %
Correlation coefficient: 0.999734



K3 = 0 K2 = 0 K1 = 0.0346959 K0 = 0.043272
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.2049	2.566	0.1	1	3.98	Yes	p8182004.chw
2	0.4151	5.163	0.2	1	3.98	Yes	p8182018.chw
3	1.077	13.24	0.5	1	3.98	Yes	p8182032.chw
4	2.113	26.29	1	1	3.98	Yes	p8182047.chw
5	4.455	55.23	2	1	3.98	Yes	p8182101.chw
6	9.454	114.8	4	1	3.98	Yes	p8182115.chw
7	24.1	302.3	10	1	3.98	No	p8182129.chw

8/18/05

SECOND SOURCE VERIFICATION

IC Result Check FormVersion : QH2

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH18-10	ICV	FCIBNPS	94.6%	95.5%	98%	99.9%	98.2%	93%	97.2%	p8182143	1
AH18-11	ICB	FCIBNPS	0	0	0	0	0	0	0	p8182157	1
AH18-21	CCV1	FCIBNPS	95.3%	99%	97.2%	96.8%	97.9%	92.8%	99.3%	p8190018	1
AH18-22	CCB1	FCIBNPS	0	0	0	0	0	0	0	p8190032	1
AH18-33	CCV2	FCIBNPS	95.5%	99.2%	97.8%	101.7%	98.2%	95.2%	98.8%	p8190306	1
AH18-34	CCB2	FCIBNPS	0	0	0	0	0	0	0	p8190320	1
AH18-41	CCV3	FCIBNPS	97.4%	98.2%	96.2%	103.3%	96.9%	124.7%*	102%	p8190459	1
AH18-42	CCB3	FCIBNPS	0	0	0	0	0	0	0	p8190513	1

DAILY CALIBRATIONS

IC Result Check FormVersion : QH2

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH23-01	CCV18	FCIBNPS	94.1%	93.9%	105.1%	97.4%	101.1%	93%	99.5%	p8231503	1
AH23-02	CCB18	FCIBNPS	0	0	0	0	0	0	0	p8231517	1
AH23-13	CCV19	FCIBNPS	92.1%	94.8%	97.1%	98.8%	101.8%	90%	94.6%	p8231856	1
AH23-14	CCB19	FCIBNPS	0	0	0	0	0	0	0	p8231910	1
AH23-25	CCV20	FCIBNPS	93.2%	95.5%	96.8%	97.9%	101.2%	91.5%	97.1%	p8232202	1
AH23-26	CCB20	FCIBNPS	0	0	0	0	0	0	0	p8232216	1
AH23-37	CCV21	FCIBNPS	94.1%	94.5%	95.1%	98.9%	103.1%	84.3%*	90.8%	p8240051	1
AH23-38	CCB21	FCIBNPS	0	0	0	0	0	0	0	p8240105	1
AH23-50	CCV22	FCIBNPS	96.1%	97.9%	93.8%	102.9%	103.7%	113.9%*	99.7%	p8240354	1
AH23-51	CCB22	FCIBNPS	0	0	0	0	0	0.58609	0	p8240408	1

IC Result Check FormVersion : QH2

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH24-01 ✓	CCV25	FCIBNPS	90.5%	95.8%	99.1%	99.7%	104.3%	80.4%*	97.6%	p8241109	1
AH24-12 /	CCV26	FCIBNPS	96.1%	95.1%	98%	98%	104.2%	86.7%*	92.2%	p8241344	1
AH24-13 ✓	CCB26	FCIBNPS	0	0	0	0	0	0	0	p8241358	1
AH24-24	CCV27	FCIBNPS	94.9%	92.4%	96.6%	97.5%	98.6%	87.8%*	93.7%	p8241633	1
AH24-25	CCB27	FCIBNPS	0	0	0	0	0	0	0	p8241647	1
AH24-36	CCV28	FCIBNPS	93.3%	94.6%	95.6%	98.2%	98.6%	91.3%	94.7%	p8241952	1
AH24-37	CCB28	FCIBNPS	0	0	0	0	0	0	0	p8242015	1
AH24-48	CCV29	FCIBNPS	93.9%	94.4%	96%	98.8%	98.7%	88.6%*	91.9%	p8242256	1
AH24-49	CCB29	FCIBNPS	0	0	0	0	0	0	0	p8242310	1
AH24-60	CCV30	FCIBNPS	93.7%	91.1%	97%	95%	98.6%	89.3%*	94.4%	p8250957	1
AH24-61	CCB30	FCIBNPS	0	0	0	0	0	0	0	p8251011	1
AH24.72	CCV31	FCIBNPS	95.4%	100.1%	97.9%	100.3%	99.2%	91.6%	98.5%	p8251250	1
AH24-83	CCV32	FCIBNPS	94.6%	95.9%	96%	99.2%	99.2%	91.5%	97.8%	p8251533	1
AH24-84	CCB32	FCIBNPS	0	0	0	0	0	0	0	p8251547	1
AH24-95	CCV33	FCIBNPS	91.9%	92.8%	94.1%	94%	97.5%	86.9%*	93.4%	p8251923	1
AH24-96	CCB33	FCIBNPS	0	0	0	0	0	0	0	p8251937	1
AH24-107	CCV34	FCIBNPS	94.8%	95%	97%	102.3%	101.2%	92.4%	95.5%	p8252334	1
AH24-108	CCB34	FCIBNPS	0	0	0	0	0	0	0	p8252348	1
AH24-119	CCV35	FCIBNPS	93.5%	96%	96.6%	99.2%	99.4%	86.8%*	90.8%	p8260222	1
AH24-120	CCB35	FCIBNPS	0	0	0	0	0	0	0	p8260236	1
AH24-131	CCV36	FCIBNPS	94.5%	94.7%	96.4%	99.8%	99.7%	90.2%	95.5%	p8260511	1
AH24-132	CCB36	FCIBNPS	0	0	0	0	0	0	0	p8260525	1
AH24-137	CCV37	FCIBNPS	94.4%	94.4%	96.7%	99.4%	99.5%	87.4%*	90.8%	p8260636	1
AH24-138	CCB37	FCIBNPS	0	0	0	0	0	0	0	p8260650	1
AH24-145	CCV38	FCIBNPS	92.4%	93.5%	95.2%	94.6%	98%	86.5%*	92.2%	p8260848	1
AH24-146	CCB38	FCIBNPS	0	0	0	0	0	0	0	p8260902	1

ANALYTICAL LOGS

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0-Rev. 3 ☐ EMAX-300.1 Rev. No.0 ☐ EMAX-9056 Rev. No. 2

Book# A100 003

Start Date: 08/18/05 Time: 19:36 End Date: 08/19/05 Time: 05:13

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes (conc.= mg/L)
* 1	A118-01	IB	1	W	
* 2	02	S0			
* 3	03	S1			0.1 ppm
* 4	04	S2			0.2
* 5	05	S3			0.5
* 6	06	S4			1
* 7	07	S5			2
* 8	08	S6			4
* 9	09	S7			10
* 10	10	ICV			
* 1	11	ICB			
* 2	12	ICH025WB			
* 3	13	WL			
* 4	14	WG			
* 5	15	H023-01	200		
* 6	16	03			
* 7	17	01	2000		
* 8	18	02			
* 9	19	03			
* 20	20	04			
* 1	21	CCV1	1		
* 2	22	CCB1	1		
* 3	23	H169-01			
* 4	24	01D			
* 5	25	01M			

* Sample Prep ID Prefix: ICH025W

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 26	A118-26	H614-01	1	W	
* 7	27	02			
* 8	28	02D			
* 9	29	02M			
* 30	30	01	5		
* 1	31	02			
* 2	32	02D			
* 3	33	CCV2	1		
* 4	34	CCB2	1		
* 5	35	H614-02M	5		
* 6	36	H169-01	10		
* 7	37	01D			
* 8	38	01M			
* 9	39	RINSE	1		
* 40	40	RINSE			
* 1	41	CCV3			
* 2	42	CCB3			
* 3					
* 4					
* 5					
* 6					
* 7					
* 8					
* 9					
* 50					

** Sample Prep ID Prefix:

Instrument No.	100
STANDARD	
Date	08/18/05
Method File	IC100-H18.mtw
ICAL ID	SIB-01-11-1
ICV/~~LCS/MS~~ ID	2
CCV ID	3 (2ppm)
LCS ID	12-1 (2ppm)
MS ID	25 ppm Acc Std.
ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC METROHM	
☐	

Comments:

Analyzed By: al

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8020

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0-Rev. 3 ☐ EMAX-300.1 Rev. No.0 ☐ EMAX-9056 Rev. No. 2

Book# A100 003

Start Date: 06/24/05 Time: 11:09 End Date: 06/26/05 Time: 09:02

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 1	AH24-01	CCV25	1	W	
* 2	02	H213-08	5		
* 3	03	09			
* 4	04	10			
* 5	05	11			
* 6	06	12			
* 7	07	06			
* 8	08	07			
* 9	09	ICH033WB	1		
* 10	10	WL			
* 11	11	WC			
* 12	12	CCV26			
* 13	13	CCB26			
* 14	14	G212-04	2		
* 15	15	04D			
* 16	16	04R			
* 17	17	04T			
* 18	18	H223-02	5		
* 19	19	03			
* 20	20	04			
* 21	21	05			
* 22	22	06			
* 23	23	RINSE	1		
* 24	24	CCV26~~27~~			CCV27
* 25	25	CCB26~~27~~			CCB27

* Sample Prep ID Prefix: ICH033W

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 26	AH24-26	H223-07	5	W	
* 27	27	H230-01	1		
* 28	28	04			
* 29	29	01D			
* 30	30	RINSE			
** 1	31	ICH034WB			
* 2	32	WL			
* 3	33	WC			
* 4	34	H230-02			
* 5	35	03			
* 6	36	CCV28			
* 7	37	CCB28			
* 8	38	H230-04			
* 9	39	05			
* 40	40	06			
* 1	41	07			
* 2	42	08			
* 3	43	09			
* 4	44	10			
* 5	45	11			
* 6	46	12			
* 7	47	H616-01	5		
* 8	48	CCV29	1		
* 9	49	CCB29	1		
* 50	50	H616-02	5		

** Sample Prep ID Prefix: ICH034W

Instrument No.	100
STANDARD	
Date	06/18/05
Method File	IC100-H18.mhw
ICAL ID	S1B-01-11-1
ICV/LCS/MS ID	2
CCV ID	15-132 (2ppm)
LCS ID	16-21 (2ppm)
MS ID	2ppm Acc Std.
ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC METROHM	
☐	

Comments:

Analyzed By: aa/JL

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

8021

ANALYSIS RUN LOG FOR IC

SOP ☑ **EMAX-300.0-Rev. 3** ☐ **EMAX-300.1 Rev. No.0** ☐ **EMAX-9056 Rev. No. 2** **Book# A100 003**

Start Date: 08/23/05 **Time:** 15:03 **End Date:** 08/24/05 **Time:** 19:18

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 1	AH23-01	CCV18	1	W	
* 2	02	CCB18			
* 3	03	ICH030WB			
* 4	04	WL			
* 5	05	WC			
* 6	06	G111-06	10		
* 7	07	06	50		
* 8	08	G212-04	2		
* 9	09	04D			
* 10	10	04R			
* 11	11	04Z			
* 12	12	RINSE	1		
* 13	13	CCV19			
* 14	14	CCB19			
* 15	AH23-15	H-213-02	1	W	
* 16	16	H213-03			
* 17	17	04			
* 18	18	05			
* 19	19	06			
* 20	20	07			
* 21	21	08			
* 22	22	09			
* 23	23	10			
* 24	24	11			
* 25	25	CCV20			

* Sample Prep ID Prefix: ICH030W

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 26	AH23-26	CCB20	1	W	
* 27	27	H213-12	1 2		
* 28	28	03	2		
* 29	29	04	5		
* 30	30	RINSE	1		
** 1	31	ICH031WB			
* 2	32	WL			
* 3	33	WC			
* 4	34	H216-02			
* 5	35	03			
* 6	36	H213-05	5		
* 7	37	CCV21	1		
* 8	38	CCB21			
* 9	39	H216-03D			
* 40	40	03M			
* 1	41	02	20		
* 2	42	03			
* 3	43	03D			
* 4	44	03M			
* 5	45	H451-02	100		
* 6	46	H116-01	50		
* 7	47	H099-01	20		08/24/05 *Datas not used
* 8	48	03	50		due to instrumentation
* 9	49	sample ~~CCV22~~	1		error; so re-run samples.
* 50	50	CCV22 ~~CCB22~~	1		* Autosampler skipped CCV22

** Sample Prep ID Prefix: ICH031W

* picked up sample before (again)
\+ moved 1 sample over.

Instrument No.	100
STANDARD	
Date	08/18/05
Method File	IC100-H18.mhv
ICAL ID	S1B-01-11-1
ICV/~~LCS/MS~~ ID	2
CCV ID	1/5-1 (2ppm)
LCS ID	2 (2ppm)
MS ID	2 ppm Acc Std.
ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC METROHM	
☐	

Comments:

Analyzed By: CR/JL

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8022

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H213**

METHOD 160.1
TOTAL DISSOLVED SOLIDS

Six (6) water samples were received on 08/23/05 for Total Dissolved Solids analysis by Method 160.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

No duplicate sample was designated in this SDG.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 160.1
TOTAL DISSOLVED SOLIDS

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H213

Matrix : WATER
Instrument ID : NA

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TDH017WB	ND	1	NA	10	5	08/24/0514:15	NA	TDH017W-1	NA	TDH017W	NA	NA
LCS1W	TDH017WL	335	1	NA	10	5	08/24/0514:16	NA	TDH017W-2	NA	TDH017W	NA	NA
LCD1W	TDH017WC	330	1	NA	10	5	08/24/0516:17	NA	TDH017W-3	NA	TDH017W	NA	NA
MW-21-5	H213-07	590	1	NA	10	5	08/24/0514:18	NA	TDH017W-4	NA	TDH017W	08/22/05	08/23/05
MW-21-4	H213-08	545	1	NA	10	5	08/24/0514:19	NA	TDH017W-5	NA	TDH017W	08/22/05	08/23/05
MW-21-3	H213-09	900	1	NA	10	5	08/24/0514:20	NA	TDH017W-6	NA	TDH017W	08/22/05	08/23/05
DUPE-1-8/22/05	H213-10	825	1	NA	10	5	08/24/0514:21	NA	TDH017W-7	NA	TDH017W	08/22/05	08/23/05
MW-21-2	H213-11	925	1	NA	10	5	08/24/0514:22	NA	TDH017W-8	NA	TDH017W	08/22/05	08/23/05
MW-21-1	H213-12	760	1	NA	10	5	08/24/0514:23	NA	TDH017W-9	NA	TDH017W	08/22/05	08/23/05

8024

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 160.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05H213
SAMPLE ID: LCS1W
CONTROL NO.: TDH017WL

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 08/24/05 14:16

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
TDS	ND	336.00	335.00	100	336.00	330.00	98	2	80-120	20

8025

GRAVIMETRIC ANALYSIS LOG

SOP ☑ EMAX-160.1 Rev. No. 3 ☐ EMAX-160.2 Rev. No. 2 ☐ EMAX-160.3 Rev. No. 1 ☐ EMAX-160.4 Rev. No. 0 ☐ EMAX-160.5 Rev. No. 0

Book # AGV-019

Starting Date: 8/23/05 Time: 2010 Oven Temp. 105 °C Ending Date: 8/24/05 Time: 1345 Oven Temp. 180 °C

ANALYTICAL BATCH # SS ID H017wd S

	Data File Name	Lab Sample ID	Sample Amt. (ml)	Dish Wt. (g)	Dry Wt. Dish + Solids(g) 1st	Time	2nd	Time	3rd	Time	Solids (mg)	Result (mg/L)	Settleable Solids Vol. of SS	Result (ml/L/hr)
1		TDH017WB	100	59.3549	59.3553	1015	59.3552	1215	59.3550	1415	0.10	ND		
2		WL	20	13.4175	13.4248	16	13.4244	16	13.4242	16	6.7	335	100%	
3		WC	20	13.4793	13.4867	17	13.4860	17	13.4859	17	6.6	330	98%	
4		H213-07	20	13.4202	13.4331	18	13.4322	18	13.4320	18	11.8	590		
5		08	20	13.4078	13.4196	19	13.4189	19	13.4187	19	10.9	545		
6		09	20	13.3527	13.3715	20	13.3708	20	13.3707	20	18.0	900		
7		10	20	13.4531	13.4708	21	13.4700	21	13.4696	21	16.5	825		
8		11	20	13.3671	13.3866	22	13.3857	22	13.3856	22	18.5	925		
9		H213-12	20	13.4144	13.4302	23	13.4299	23	13.4296	23	15.2	760		
0		H223-02	20	13.4333	13.4584	24	13.4575	24	13.4573	24	24	1200		
1		-03	20	13.4838	13.5143	25	13.5141	25	13.5141	25	30.3	1515	1520	
2		-04	20	13.4056	13.4388	26	13.4385	26	13.4383	26	32.7	1635	1640	
3		-05	20	13.5093	13.5500	27	13.5495	27	13.5492	27	41.9	2095	2100	
4		-06	20	13.4112	13.4425	28	13.4420	28	13.4419	28	30.7	1535	1540	
5		-07	20	13.4305	13.4459	29	13.4454	29	13.4455	29	15.0	750		
6		-07D	20	13.5340	13.5498	30	13.5490	30	13.5491	30	15.1	755		
7														
8														
9														
0														

RRD1 %

Standard 8/23/05

LCS ID SW7A-06-133

LCSTV(mg/L) 33

Balance ID:	
40706360	✓
37030058	

Comments:

Analyzed By: LA/NS

$R_{(mg/L)} = \frac{(DS - DW) \times 1000}{S}$

where: $R_{(mg/L)}$ = concentration of solids; $DS_{(mg)}$ = Dry weight of Dish + Solids; $DW_{(mg)}$ = Dish weight; $S_{(ml)}$ = sample amount

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8026

BALANCE CALIBRATION VERIFICATION LOG (DOE)

SOP ☐ EMAX-QC04 Revision No.: 1

QC04-036

Balance ID 10601202 Date 8-23-05

Range Min: 1 Max: 600 g

TV	200	100	30	5	1
1	200.004	100.002	29.999	5.000	1.000
2	200.005	100.003	30.000	5.000	1.000
3	200.005	100.003	30.001	5.000	1.000
Criteria (±0.1%)	0.2	0.1	0.03	0.005	0.001
LL	199.8	99.9	29.97	4.995	0.999
UL	200.2	100.1	30.03	5.005	1.001

Comment:

Balance ID J77299 Date 8-23-05

Range Min: 1 Max: 300 g

TV	200	100	50	30	20
1	199.99	100.00	50.00	30.00	20.00
2	199.99	100.00	50.00	30.00	20.00
3	199.99	100.00	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment:

Balance ID 10203192 Date 8-23-05

Range Min: 1 Max: 6000 g

TV	200	100	50	30	20
1	200.00	100.00	50.00	30.00	20.00
2	200.00	100.00	50.00	30.00	20.00
3	200.00	100.00	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment:

Balance ID 10304418 Date 8-23-05

Range Min: 1 Max: 6000 g

TV	200	100	50	30	20
1	200.03	100.02	50.00	30.00	20.00
2	200.03	100.02	50.00	30.00	20.00
3	200.03	100.02	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment:

Balance ID 40706360 Date 8-23-05

Range Min: 1 Max: 205 g

TV	200	100	30	1	0.02
1	199.9996	100.0005	29.9999	1.0000	0.0200
2	199.9989	100.0004	30.0001	1.0000	0.0200
3	199.9989	100.0003	30.0002	1.0000	0.0200
Criteria (±0.1%)	0.2	0.1	0.03	0.001	0.00002
LL	199.8	99.9	29.97	0.999	0.01998
UL	200.2	100.1	30.03	1.001	0.02002

Comment:

Balance ID 40706360 Date

Range Min: 1 Max: 205 g

TV	200	100	30	1	0.02
1					
2					
3					
Criteria (±0.1%)	0.2	0.1	0.03	0.001	0.00002
LL	199.8	99.9	29.97	0.999	0.01998
UL	200.2	100.1	30.03	1.001	0.02002

Comment:

BALANCE CALIBRATION VERIFICATION LOG (DOE)

SOP ☐ EMAX-QC04 Revision No.: 1 QC04-036

Balance ID 10601202 Date 8-24-05

Range Min: 1 Max: 600 g

TV	200	100	30	5	1
1	200.008	100.006	30.000	5.000	1.000
2	200.009	100.005	30.000	5.000	1.000
3	200.007	100.006	30.000	5.000	1.000
Criteria (±0.1%)	0.2	0.1	0.03	0.005	0.001
LL	199.8	99.9	29.97	4.995	0.999
UL	200.2	100.1	30.03	5.005	1.001

Comment:

Balance ID J77299 Date 8-24-05

Range Min: 1 Max: 300 g

TV	200	100	50	30	20
1	199.99	100.00	50.00	30.00	20.00
2	199.99	100.00	50.00	30.00	20.00
3	199.99	100.00	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment:

Balance ID 10203192 Date 8-24-05

Range Min: 1 Max: 6000 g

TV	200	100	50	30	20
1	200.00	100.00	50.00	30.00	20.00
2	200.00	100.00	50.00	30.00	20.00
3	200.00	100.00	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment:

Balance ID 10304418 Date 8-24-05

Range Min: 1 Max: 6000 g

TV	200	100	50	30	20
1	200.04	100.03	50.00	30.00	20.00
2	200.04	100.03	50.00	30.00	20.00
3	200.04	100.03	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment:

Balance ID 40706360 Date 8-24-05

Range Min: 1 Max: 205 g

TV	200	100	30	1	0.02
1	199.9985	99.9999	29.9984	1.0000	0.0200
2	199.9987	99.9998	29.9978	1.0000	0.0200
3	199.9986	99.9998	29.9982	1.0000	0.0200
Criteria (±0.1%)	0.2	0.1	0.03	0.001	0.00002
LL	199.8	99.9	29.97	0.999	0.01998
UL	200.2	100.1	30.03	1.001	0.02002

Comment:

Balance ID 40706360 Date 8

Range Min: 1 Max: 205 g

TV	200	100	30	1	0.02
1					
2					
3					
Criteria (±0.1%)	0.2	0.1	0.03	0.001	0.00002
LL	199.8	99.9	29.97	0.999	0.01998
UL	200.2	100.1	30.03	1.001	0.02002

Comment:

Verified by: MC

Checked by:

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H213**

METHOD 376.1
SULFIDE

Six (6) water samples were received on 08/23/05 for Sulfide analysis by Method 376.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample

Lab control result was within QC limit.

4. Duplicate

Sample H213-12 was analyzed for duplicate. %RPD was within QC limit.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 376.1
SULFIDE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H213

Matrix : WATER
Instrument ID : NA

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	SDH009WB	ND	1	NA	1	.4	08/23/0512:00	NA	SDH009W-01	NA	SDH009W	NA	NA
LCS1W	SDH009WL	4.65	1	NA	1	.4	08/23/0512:03	NA	SDH009W-02	NA	SDH009W	NA	NA
MW-21-5	H213-07	ND	1	NA	1	.4	08/23/0512:06	NA	SDH009W-03	NA	SDH009W	08/22/05	08/23/05
MW-21-4	H213-08	ND	1	NA	1	.4	08/23/0512:09	NA	SDH009W-04	NA	SDH009W	08/22/05	08/23/05
MW-21-3	H213-09	ND	1	NA	1	.4	08/23/0512:12	NA	SDH009W-05	NA	SDH009W	08/22/05	08/23/05
DUPE-1-8/22/05	H213-10	ND	1	NA	1	.4	08/23/0512:15	NA	SDH009W-06	NA	SDH009W	08/22/05	08/23/05
MW-21-2	H213-11	ND	1	NA	1	.4	08/23/0512:18	NA	SDH009W-07	NA	SDH009W	08/22/05	08/23/05
MW-21-1	H213-12	ND	1	NA	1	.4	08/23/0512:21	NA	SDH009W-08	NA	SDH009W	08/22/05	08/23/05
MW-21-1DUP	H213-12D	ND	1	NA	1	.4	08/23/0512:24	NA	SDH009W-09	NA	SDH009W	08/22/05	08/23/05

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 376.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05H213
SAMPLE ID: LCS1W
CONTROL NO.: SDH009WL

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 08/23/05 12:03

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	LCS RSLT (mg/L)	LCS % REC	QC LIMIT (%)
Sulfide	ND	5.00	4.65	93	80-120

80031

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 376.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05H213
SAMPLE ID: MW-21-1DUP
CONTROL NO.: H213-12D

DATE RECEIVED: 08/23/05
DATE EXTRACTED: NA
DATE ANALYZED: 08/23/05 12:24

ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
Sulfide	ND	ND	0	20

80032

ANALYSIS LOG FOR SULFIDE

SOP ☑ EMAX-376.1 Rev. No. 1 ☐ EMAX-9034 Rev. No. 0 Start Date: 08-23-05 Time: 12:00 End Date: 08-23-05 Time: 12:24 Book # ASD-007

	Data File Name	Lab Sample ID	Time	Sample Amt. (ml)	Volume of Iodine (ml)	Volume of PAO/$Na_2S_2O_3$ (ml)	Notes
*	1	SDH009.03	12:00	100	10	9.7	ND
*	2	10L	12:03			4.45	4.65
*	3	H213S.07	12:06			9.8	ND
*	4	.08	12:09			9.7	ND
*	5	.09	12:12			9.9	ND
*	6	.10	12:15			9.6	ND
*	7	.11	12:18			9.7	ND
*	8	.12	12:21			9.4	ND
*	9	.12D	12:24			9.6	ND
*	0						
*	1						
*	2						
*	3						
*	4						
*	5						
*	6						
*	7						
*	8						
*	9						
*	0						
*	1						
*	2						
*	3						
*	4						
*	5						
*	6						
*	7						
*	0						

ANALYTICAL BATCH # SDH009.03

Standard	ID	Conc. (mg/L)
LCS	S07A-06-178	5.0
Spike	N/a	
$Na_2S_2O_3$	S03B-02-735	0.00564
PAO		
Iodine	S03B-02-734	0.00564
HCL	S07B-06-281C	1:1
Indicator	S07A-06-190	

STANDARDIZATION

Vol. Of Iodine (ml)	Volume of PAO/Na2S2O3 (ml)	Conc. Of Iodine (N)
10	9.6	0.005414
10	9.6	0.005414
10	9.6	0.005414
Average Iodine Conc. (N)		0.005414

$$Sulfide(mg/L) = \frac{\left(V_{I_2} \times N_{I_2} - V_{PAO} \times N_{PAO}\right) \times 16{,}000}{V_{sample}}$$

Comments:

Analyzed By: AJ

8/23/05

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8033

TABLE OF CONTENTS

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H231**

SECTION		PAGE
Cover Letter, COC/Sample Receipt Form		1000 – 1003
GC/MS-VOA	**	2000 –
GC/MS-SVOA	**	3000 –
GC-VOA	**	4000 –
GC-SVOA	**	5000 –
HPLC	**	6000 –
METALS	**	7000 –
WET	METHOD 300.0	8000 – 8016
OTHERS	**	9000 –

** - Not Requested

EMAX
LABORATORIES, INC.
1835 205th Street
Torrance, CA 90501
(310) 618-8889
(310) 618-0818

Date: 09-08-2005
EMAX Batch No.: 05H231

Attn: Tien Shiao

Battelle Memorial Institute
505 King Ave.
Columbus OH 43201

Subject: Laboratory Report
Project: JPL

Enclosed is the Laboratory report for samples received on 08/24/05.
The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
MW-19-5	H231-01	08/23/05	WATER	NITRATE-N BY IC
MW-19-4	H231-02	08/23/05	WATER	NITRATE-N BY IC
DUPE-2-8/23/05	H231-03	08/23/05	WATER	NITRATE-N BY IC
MW-19-3	H231-04	08/23/05	WATER	NITRATE-N BY IC
MW-19-2	H231-05	08/23/05	WATER	NITRATE-N BY IC

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning
these results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

Battelle
The Business of Innovation E4

CHAIN OF CUSTODY RECORD

Form No. 05H231

Proj. No.	Project Title
G4861111 T3	Source Determination Study

SAMPLERS: (Signature) D. Conner

	DATE	TIME	SAMPLE I.D.	SAMPLE TYPE (√) Nitrate													Container No.	Number of Containers	Remarks
1	8/23/05	0800	MW-19-5	X															
2	8/23/05	0847	MW-19-4	X															
3	8/23/05	0847	DUPE-2-8/23/05	X															
4	8/23/05	0903	MW-19-3	X															
5	8/23/05	0941	MW-19-2	X															

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	8/24/05 0730	Phil Hater			
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Phil Hater	8-24-05 1020				
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks	
		[signature]	8/24/05 1020	T = 3.2°C	

Page ____ of ____

SAMPLE RECEIPT FORM 1

Type of Delivery	Delivered By/Airbill	ECN	05H231
☑ EMAX Courier		Recepient	Luna
☐ Client Delivery		Date	8/24/05
☐ Third Party		Time	10:20

COC Inspection

☑ Client Name	☐ Sampler Name	☑ Sampling Date/Time/Location
☐ Address	☐ Courier Signature/Date/Time	☑ Analysis Required
☐ Client PM/FC	☐ TAT	☐ Matrix
☐ Tel #/Fax #	☑ Sample ID	☐ Preservative (if any)
Safety Issues ☑ None	☐ High Concentrations expected	☐ Superfund Site Samples
Comments: ☐ Rad Screening Required		

Packaging Inspection

Container	☑ Cooler	☐ Box	☐	☐
Condition	☐ Custody Seal	☑ Intact	☐ Damaged	☐
Packaging	☐ Bubble Pack	☐ Styrofoam	☑ Sufficient	☐
Temperatures	☑ Cooler 1 3.2	☑ Cooler 2 ____	☐ Cooler 3 ____	☐ Cooler 4 ____
	☐ Cooler 5 ____	☐ Cooler 6 ____	☐ Cooler 7 ____	☐ Cooler 8 ____
	☐ Cooler 9 ____	☐ Cooler 10 ____	☐ Cooler 11 ____	☐ Cooler 12 ____

Comments:

LSCID	Client ID	Discrepancy	Corrective Action
H231-1 thru H231-5		All labels request Nitrate/Nitrite vs. COC only Nitrate	Follow COC Analyze Nitrate per Tien's instruction 8/24/05

LSCID : Lab Sample Container ID

REVIEWS

Sample Labeling [signature] Date 8/24/05

SRF [signature] Date 8/24/05

PM [signature] Date 8/25/05

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

BATTELLE MEMORIAL INSTITUTE

JPL

METHOD 300.0
NITRATE-N

SDG#: 05H231

8000

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H231**

METHOD 300.0
NITRATE-N

Five (5) water samples were received on 08/24/05 for Nitrate-N analysis by method 300.0 in accordance with "Method for Determination of Inorganic Anions by Ion Chromatography", EPA 600/84-017.

1. Holding Time

Analysis met holding time criteria except samples H231-03 and 04 were analyzed at 13 minutes and 12 minutes out of 48-hour holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limits.

4. Duplicate

No duplicate sample was designated in this SDG.

5. Matrix Spike

No MS sample was designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met except as aforementioned.

Results were reported as nitrogen concentration.

SAMPLE RESULTS

METHOD 300.0
NITRATE-N

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H231

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICH034WB	ND	1	NA	.1	.05	08/24/0518:36	NA	AH24-31	AH24-24	ICH034W	NA	NA
LCS1W	ICH034WL	1.97	1	NA	.1	.05	08/24/0518:50	NA	AH24-32	AH24-24	ICH034W	NA	NA
LCD1W	ICH034WC	1.99	1	NA	.1	.05	08/24/0519:05	NA	AH24-33	AH24-24	ICH034W	NA	NA
MW-19-5	H231-01	2.93	5	NA	.5	.25	08/25/0500:31	NA	AH24-54	AH24-48	ICH034W	08/23/05	08/24/05
MW-19-4	H231-02	7.35	5	NA	.5	.25	08/25/0508:46	NA	AH24-55	AH24-48	ICH034W	08/23/05	08/24/05
DUPE-2-8/23/05	H231-03	7.28	5	NA	.5	.25	08/25/0509:00	NA	AH24-56	AH24-48	ICH034W	08/23/05	08/24/05
MW-19-3	H231-04	8.46	5	NA	.5	.25	08/25/0509:15	NA	AH24-57	AH24-48	ICH034W	08/23/05	08/24/05
MW-19-2	H231-05	12	5	NA	.5	.25	08/25/0509:29	NA	AH24-58	AH24-48	ICH034W	08/23/05	08/24/05

QC SUMMARIES

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H231
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICH034WB	ICH034WL	ICH034WC		
LAB FILE ID:	AH24-31	AH24-32	AH24-33		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/24/0518:36	08/24/0518:50	08/24/0519:05	DATE RECEIVED:	NA
PREP. BATCH:	ICH034W	ICH034W	ICH034W		
CALIB. REF:	AH24-24	AH24-24	AH24-24		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrate-N	ND	2	1.97	98	2	1.99	100	1	90-110	20

8005

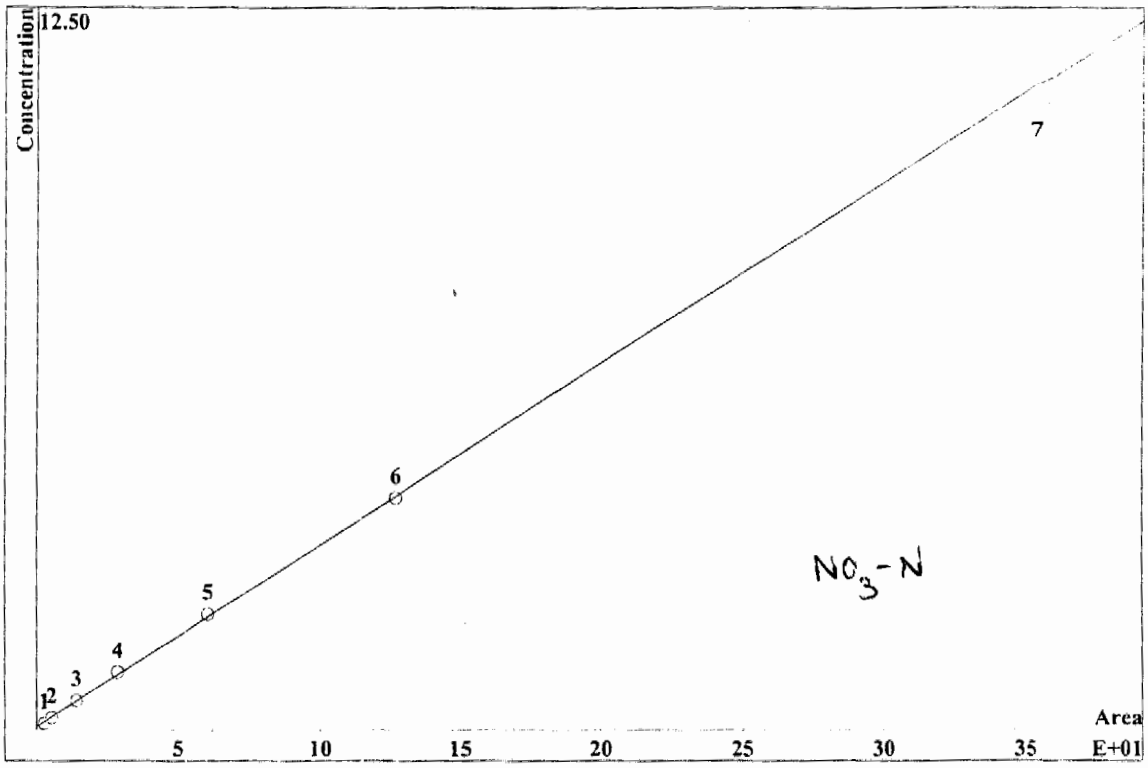
INITIAL CALIBRATIONS

IC Result Check FormVersion : QH2

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH18-01	IB	FCIBNPS	0	0	0	0	0	0	0	p8181936	1
AH18-02	S0	FCIBNPS	0	0	0	0	0	0	0	p8181950	1
AH18-03	S1	FCIBNPS	0.166	0.17262	0.13231	0.12813	0.13644	0.22927	0.14104	p8182004	1
AH18-04	S2	FCIBNPS	0.28466	0.28623	0.22239	0.22088	0.22213	0.31227	0.24604	p8182018	1
AH18-05	S3	FCIBNPS	0.51393	0.51514	0.50265	0.50493	0.50026	0.56154	0.52244	p8182032	1
AH18-06	S4	FCIBNPS	0.96429	0.99164	0.95545	0.95771	0.95423	0.9672	0.9792	p8182047	1
AH18-07	S5	FCIBNPS	1.9297	1.9476	1.9596	2.0373	1.9583	1.8503	1.9613	p8182101	1
AH18-08	S6	FCIBNPS	3.8838	3.8076	4.0276	3.9271	4.0286	3.7744	3.9072	p8182115	1
AH18-09	S7	FCIBNPS	10.058	10.079	10.533	10.024	11.158	10.105	10.043	p8182129	1
AH18-10	ICV	FCIBNPS	94.6%	95.5%	98%	99.9%	98.2%	93%	97.2%	p8182143	1
AH18-11	ICB	FCIBNPS	0	0	0	0	0	0	0	p8182157	1
AH18-12	ICH025WB	FCIBNPS	0	0	0	0	0	0	0	p8182211	1
AH18-13	ICH025WL	FCIBNPS	1.9633	1.9339	1.884	2.1091	1.9384	1.8022	1.9892	p8182225	1
AH18-14	ICH025WC	FCIBNPS	1.9405	1.927	1.8843	2.0871	1.9384	1.8038	2.0248	p8182239	1
AH18-15	H023-01	F*IBNPS	0	11823E	0	-7.8039	0	0	1470.9	p8182253	200
AH18-16	H023-03	F*IBNPS	0	11711E	0	0	0	0	1420.9	p8182307	200
AH18-17	H023-01	*C*****	0	9274.5	0	0	0	0	1588.2	p8182321	2000
AH18-18	H023-02	FCIBNPS	0	8909.8	0	0	0	0	1504.6	p8182335	2000
AH18-19	H023-03	*C*****	0	9111	0	0	0	0	1525.4	p8182349	2000
AH18-20	H023-04	FCIBNPS	0	9589.9	0	0	0	0	1558.3	p8190004	2000
AH18-21	CCV1	FCIBNPS	95.3%	99%	97.2%	96.8%	97.9%	92.8%	99.3%	p8190018	1
AH18-22	CCB1	FCIBNPS	0	0	0	0	0	0	0	p8190032	1
AH18-23	H169-01	F*IBNP*	0.58784	557.84E	0	3.9834	0.30268	0	222.2E	p8190046	1
AH18-24	H169-01D	F*IBNP*	0.54415	557.56E	0	3.8987	0.26518	0	222.08E	p8190100	1
AH18-25	H169-01M	F*IBNP*	2.3279	551.74E	2.2881	5.3508	2.2308	2.1545	221.61E	p8190114	1
AH18-26	H614-01	F*IBNP*	0.30333	24.22E	0	0.84928	3.8374	0.23597	25.147E	p8190128	1
AH18-27	H614-02	F*IB*P*	0.24861	17.85E	0	0.85627	5.8152E	0	15.634E	p8190142	1
AH18-28	H614-02D	F*IB*P*	0.42543	18.124E	0	1.1955	5.8532E	0.23178	15.667E	p8190156	1
AH18-29	H614-02M	F*IB*P*	2.2519	20.146E	2.0242	3.1702	8.3464E	2.4015	18.076E	p8190210	1
AH18-30	H614-01	*C****S	0.7526	19.853	0	0.84668	3.6036	0	22.543	p8190224	5
AH18-31	H614-02	*C**N*S	0.57712	14.626	0	0.8431	5.0755	0	13.896	p8190238	5
AH18-32	H614-02D	*C**N*S	0.5948	14.546	0	0.80981	5.0759	0	13.937	p8190252	5
AH18-33	CCV2	FCIBNPS	95.5%	99.2%	97.8%	101.7%	98.2%	95.2%	98.8%	p8190306	1
AH18-34	CCB2	FCIBNPS	0	0	0	0	0	0	0	p8190320	1
AH18-35	H614-02M	*C**N*S	9.666	24.294	9.0355	10.763	15.204	10.183	23.849	p8190335	5
AH18-36	H169-01	*******	1.2771	462.51E	0	3.1323	0	0	162.61E	p8190349	10
AH18-37	H169-01D	*******	1.1563	462.25E	0	2.6472	0	0	162.5E	p8190403	10
AH18-38	H169-10M	F*IBNP*	19.589	483.82E	19.02	22.753	19.898	20.393	183.19E	p8190417	10
AH18-39	RINSE	FCIBNPS	0	0.12789	0	0	0	0.23054	0	p8190431	1
AH18-40	RINSE	FCIBNPS	0	0	0	0.049699	0	0	0	p8190445	1
AH18-41	CCV3	FCIBNPS	97.4%	98.2%	96.2%	103.3%	96.9%	124.7%*	102%	p8190459	1
AH18-42	CCB3	FCIBNPS	0	0	0	0	0	0	0	p8190513	1

CALIBRATION OF COMPONENT nitrate

Method: IC100-H18.mtw
Equation: Q = 0.0313474·A + 0.0465038
RSD: 3.094 %
Correlation coefficient: 0.999710



K3 = 0 K2 = 0 K1 = 0.0313474 K0 = 0.0465038
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.1627	2.869	0.1	1	5.56	Yes	p8182004.chw
2	0.329	5.603	0.2	1	5.56	Yes	p8182018.chw
3	0.8519	14.48	0.5	1	5.56	Yes	p8182032.chw
4	1.718	28.96	1	1	5.56	Yes	p8182047.chw
5	3.662	60.99	2	1	5.56	Yes	p8182101.chw
6	7.807	127	4	1	5.56	Yes	p8182115.chw
7	22.1	354.5	10	1	5.56	No	p8182129.chw

8/18/05

8008

SECOND SOURCE VERIFICATION

IC Result Check FormVersion : QH2

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH18-10	ICV	FCIBNPS	94.6%	95.5%	98%	99.9%	98.2%	93%	97.2%	p8182143	1
AH18-11	ICB	FCIBNPS	0	0	0	0	0	0	0	p8182157	1
AH18-21	CCV1	FCIBNPS	95.3%	99%	97.2%	96.8%	97.9%	92.8%	99.3%	p8190018	1
AH18-22	CCB1	FCIBNPS	0	0	0	0	0	0	0	p8190032	1
AH18-33	CCV2	FCIBNPS	95.5%	99.2%	97.8%	101.7%	98.2%	95.2%	98.8%	p8190306	1
AH18-34	CCB2	FCIBNPS	0	0	0	0	0	0	0	p8190320	1
AH18-41	CCV3	FCIBNPS	97.4%	98.2%	96.2%	103.3%	96.9%	124.7%*	102%	p8190459	1
AH18-42	CCB3	FCIBNPS	0	0	0	0	0	0	0	p8190513	1

DAILY CALIBRATIONS

IC Result Check FormVersion : QH2

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH24-01	CCV25	FCIBNPS	90.5%	95.8%	99.1%	99.7%	104.3%	80.4%*	97.6%	p8241109	1
AH24-12	CCV26	FCIBNPS	96.1%	95.1%	98%	98%	104.2%	86.7%*	92.2%	p8241344	1
AH24-13	CCB26	FCIBNPS	0	0	0	0	0	0	0	p8241358	1
AH24-24✓	CCV27	FCIBNPS	94.9%	92.4%	96.6%	97.5%	98.6%	87.8%*	93.7%	p8241633	1
AH24-25	CCB27	FCIBNPS	0	0	0	0	0	0	0	p8241647	1
AH24-36✓	CCV28	FCIBNPS	93.3%	94.6%	95.6%	98.2%	98.6%	91.3%	94.7%	p8241952	1
AH24-37	CCB28	FCIBNPS	0	0	0	0	0	0	0	p8242015	1
AH24-48✓	CCV29	FCIBNPS	93.9%	94.4%	96%	98.8%	98.7%	88.6%*	91.9%	p8242256	1
AH24-49	CCB29	FCIBNPS	0	0	0	0	0	0	0	p8242310	1
AH24-60✓	CCV30	FCIBNPS	93.7%	91.1%	97%	95%	98.6%	89.3%*	94.4%	p8250957	1
AH24-61	CCB30	FCIBNPS	0	0	0	0	0	0	0	p8251011	1
AH24.72	CCV31	FCIBNPS	95.4%	100.1%	97.9%	100.3%	99.2%	91.6%	98.5%	p8251250	1
AH24-83	CCV32	FCIBNPS	94.6%	95.9%	96%	99.2%	99.2%	91.5%	97.8%	p8251533	1
AH24-84	CCB32	FCIBNPS	0	0	0	0	0	0	0	p8251547	1
AH24-95	CCV33	FCIBNPS	91.9%	92.8%	94.1%	94%	97.5%	86.9%*	93.4%	p8251923	1
AH24-96	CCB33	FCIBNPS	0	0	0	0	0	0	0	p8251937	1
AH24-107	CCV34	FCIBNPS	94.8%	95%	97%	102.3%	101.2%	92.4%	95.5%	p8252334	1
AH24-108	CCB34	FCIBNPS	0	0	0	0	0	0	0	p8252348	1
AH24-119	CCV35	FCIBNPS	93.5%	96%	96.6%	99.2%	99.4%	86.8%*	90.8%	p8260222	1
AH24-120	CCB35	FCIBNPS	0	0	0	0	0	0	0	p8260236	1
AH24-131	CCV36	FCIBNPS	94.5%	94.7%	96.4%	99.8%	99.7%	90.2%	95.5%	p8260511	1
AH24-132	CCB36	FCIBNPS	0	0	0	0	0	0	0	p8260525	1
AH24-137	CCV37	FCIBNPS	94.4%	94.4%	96.7%	99.4%	99.5%	87.4%*	90.8%	p8260636	1
AH24-138	CCB37	FCIBNPS	0	0	0	0	0	0	0	p8260650	1
AH24-145	CCV38	FCIBNPS	92.4%	93.5%	95.2%	94.6%	98%	86.5%*	92.2%	p8260848	1
AH24-146	CCB38	FCIBNPS	0	0	0	0	0	0	0	p8260902	1

ANALYTICAL LOGS

ANALYSIS RUN LOG FOR IC

SOP ☒ EMAX-300.0-Rev. 3 ☐ EMAX-300.1 Rev. No.0 ☐ EMAX-9056 Rev. No. 2

Book# A100 003

Start Date: 08/18/05 Time: 19:36 End Date: 08/19/05 Time: 05:13

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes (conc.= mg/L)
* 1	AH18-01	IB	1	W	
* 2	02	S0			
* 3	03	S1			0.1 ppm
* 4	04	S2			0.2
* 5	05	S3			0.5
* 6	06	S4			1
* 7	07	S5			2
* 8	08	S6			4
* 9	09	S7			10
* 10	10	ICV			
* 1	11	ICB			
* 2	12	IC1025WB			
* 3	13	WL			
* 4	14	WG			
* 5	15	H023-01	200		
* 6	16	03			
* 7	17	04	2000		
* 8	18	02			
* 9	19	03			
* 20	20	04			
* 1	21	CCV1	1		
* 2	22	CCB1	1		
* 3	23	H169-01			
* 4	24	01D			
* 5	25	01M			

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 26	AH18-26	H614-01	1	W	
* 7	27	02			
* 8	28	02D			
* 9	29	02M			
* 30	30	01	5		
* 1	31	02			
* 2	32	02D			
* 3	33	CCV2	1		
* 4	34	CCB2	1		
* 5	35	H614-02M	5		
* 6	36	H169-01	10		
* 7	37	01D			
* 8	38	01M			
* 9	39	RINSE	1		
* 40	40	RINSE			
* 1	41	CCV3			
* 2	42	CCB3			
* 3					
* 4					
* 5					
* 6					
* 7					
* 8					
* 9					
* 50					

Instrument No.	100
STANDARD	
Date	08/18/05
Method File	IC100-H18.mhw
ICAL ID	SIB-01-11-1
ICV/~~LCS/MS~~ ID	2
CCV ID	3 (2ppm)
LCS ID	12-1 (2ppm)
MS ID	25 ppm Acc Std.
ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC METROHM	
☐	

Comments:

Analyzed By: al

This page is checked during data review.

* Sample Prep ID Prefix: IC1025W

** Sample Prep ID Prefix:

EMAX LABORATORIES, INC. 1835 W. 205th St., Torrance, CA 90501

8014

ANALYSIS RUN LOG FOR IC

SOP ☑ **EMAX-300.0-Rev. 3** ☐ **EMAX-300.1 Rev. No.0** ☐ **EMAX-9056 Rev. No. 2** **Book# A100 003**

Start Date: 06/24/05 **Time:** 11:09 **End Date:** 06/26/05 **Time:** 09:02

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 1	AH24-01	CCV25	1	W	
* 2	02	H213-08	5		
* 3	03	09			
* 4	04	10			
* 5	05	11			
* 6	06	12			
* 7	07	06			
* 8	08	07			
* 9	09	ICH033WB	1		
* 10	10	WL			
* 11	11	WC			
* 12	12	CCV26			
* 13	13	CCB26			
* 14	14	G212-04	2		
* 15	15	04D			
* 16	16	04R			
* 17	17	04Z			
* 18	18	H223-02	5		
* 19	19	03			
* 20	20	04			
* 21	21	05			
* 22	22	06			
* 23	23	RINSE	1		
* 24	24	CCV2~~6~~7			CCV27
* 25	25	CCB2~~6~~7			CCB27

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 26	AH24-26	H223-07	5	W	
* 7	27	H230-01	1		
* 8	28	04			
* 9	29	01D			
* 30	30	RINSE			
** 1	31	ICH034WB			
* 2	32	WL			
* 3	33	WC			
* 4	34	H230-02			
* 5	35	03			
* 6	36	CCV28			
* 7	37	CCB28			
* 8	38	H230-04			
* 9	39	05			
* 40	40	06			
* 1	41	07			
* 2	42	08			
* 3	43	09			
* 4	44	10			
* 5	45	11			
* 6	46	12			
* 7	47	H616-01	5		
* 8	48	CCV29	1		
* 9	49	CCB29	1		
* 50	50	H616-02	5	W	

Instrument No.	100
STANDARD	
Date	06/18/05
Method File	IC100-H18.mbv
ICAL ID	S1B-01 - 11-1
ICV/LCS/MS ID	2
CCV ID	15-13 (2ppm)
LCS ID	16-21 (2ppm)
MB ID	2ppm Acu Std
ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC METROHM	
☐	

Comments:

Analyzed By: CR/JL

This page is checked during data review.

* Sample Prep ID Prefix: ICH033W

** Sample Prep ID Prefix: ICH034W

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8015

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0-Rev. 3 ☐ EMAX-300.1 Rev. No.0 ☐ EMAX-9056 Rev. No. 2 Book# A100 003

Start Date: 08/24/05 Time: 11:09 End Date: 08/26/15 Time: 09:02

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
** 51	AH24-51	H616-02D	5	W	
* 2	52	02H			
* 3	53	03			
* 4	54	H231-01			
* 5	55	02			
* 6	56	03			
* 7	57	04			
* 8	58	05			
* 9	59	H230-1B3 ok 08/24/05	10		
* 60	60	CCV30	1		
* 1	61	CCB30			
* 2	62	H228-04			
* 3	63	06			
* 4	64	H230-04	10		
*** 5	65	ICH035WB	1		
* 6	66	WL			
* 7	67	WL			
* 8	68	H230-05	10		
* 9	69	H240-01	1		
* 70	70	H230-10	10		
* 1	71	H240-02	1		
* 2	72	CCV31			
* 3	73	H228-07			
* 4	74	H230-09	10		
* 5	75	07			

*** Sample Prep ID Prefix: ICH035W

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
*** 76	AH24-76	H230-08	10	W	
* 7	77	H228-08	1		
* 8	78	09			
* 9	79	02			
* 80	80	03			
* 1	81	H616-02			
* 2	82	02D			
* 3	83	CCV32			
* 4	84	CCB32			
* 5	85	H616-02N			
* 6	86	H241-02	5		
* 7	87	03	5		
* 8	88	03	1		
* 9	89	05	5		
* 90	90	05	1 ok		dF=1 ok 08/25/05
* 1	91	04	10		
* 2	92	RINSE	1		
* 3	93				
* 4	94	H133-02			
* 5	95	CCV33			
* 6	96	CCB33			
* 7	97	H247-01			
* 8	98	01	10		
* 9	99	01D			
** 100	100	01M			

ok 08/24/05 *** Sample Prep ID Prefix: ICH035W

Instrument No.	100
STANDARD	
Date	
Method File	
ICAL ID	
ICV/LCS/MS ID	
CCV ID	
ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC METROHM	
☐	

Refer to pg 29

Comments:

Analyzed By: al/JL

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501
8016

TABLE OF CONTENTS

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G218**

SECTION		PAGE
Cover Letter, COC/Sample Receipt Form		1000 – 1006
GC/MS-VOA	**	2000 –
GC/MS-SVOA	**	3000 –
GC-VOA	**	4000 –
GC-SVOA	**	5000 –
HPLC	**	6000 –
METALS	METHOD 200.7	7000 – 7018
WET	METHOD 300.0	8000 – 8042
	METHOD 310.1	8043 – 8046
	METHOD 350.2	8047 – 8055
	METHOD 120.1	8056 – 8061
	METHOD SM3500	8062 – 8067
	METHOD 160.1	8068 – 8072
	METHOD 351.3	8073 – 8080
	METHOD 376.1	8081 – 8084
	METHOD 415.1 (DISSOLVED)	8085 – 8090
	METHOD 415.1 (TOTAL)	8091 – 8109
OTHERS	**	9000 –

** - Not Requested

EMAX
LABORATORIES, INC.
183 . 205th Street
Torr e, CA 90501
l: (310) 618-8889
x: (310) 618-0818

Date: 08-15-2005
EMAX Batch No.: 05G218

Attn: Tien Shiao

Battelle Memorial Institute
505 King Ave.
Columbus OH 43201

Subject: Laboratory Report
Project: JPL

Enclosed is the Laboratory report for samples received on 07/26/05.
The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
MW-24-4	G218-01	07/25/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
MW-24-3	G218-02	07/25/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N

Sample ID	Control #	Col Date	Matrix	Analysis
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
MW-24-2	G218-03	07/25/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
MW-24-1	G218-04	07/25/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
DUPE-3-7/25/05	G218-05	07/25/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
MW-24-5	G218-06	07/25/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON

EMAX LABORATORIES, INC. 1835 W. 205th S t, Torrance, CA 90501 Tel: (310) 8889 Fax: (310) 618-0818

Sample ID	Control #	Col Date	Matrix	Analysis
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

EMAX LABORATORIES, INC. 1835 W. 205th St t, Torrance, CA 90501 Tel: (310) 6 3889 Fax: (310) 618-0818

Battelle
Columbus Laboratories

E3

CHAIN OF CUSTODY RECORD

Form No. 056218

Proj. No. G486011-T3

Project Title: Source Determination Study

PO # 191943

SAMPLERS: (Signature) D. Gower

	DATE	TIME	SAMPLE I.D.	DOC (Filtered)	TOC	Ferrous Iron	Nitrite, Nitrate	Sulfate, Chloride, TDS	Alkalinity, Spec. Elec. Conductance	Ferric Iron	Ca, Na, K, Mg	Sulfide	Ammonia	TKN				Container No.	Number of Containers	Remarks
1	7/25/2005	09:00	MW-24-4	X	X	X	X	X	X	X	X	X	X	X						0.45 mm filter
2	7/25/2005	10:30	MW-24-3	X	X	X	X	X	X	X	X	X	X	X						rinsed w/ 500 mL
3	7/25/2005	12:00	MW-24-2	X	X	X	X	X	X	X	X	X	X	X						of distilled H_2O
4	7/25/2005	13:15	MW-24-1	X	X	X	X	X	X	X	X	X	X	X						before filtering
5	7/25/2005	14:15	DUPE-3-7/25/05	X	X	X	X	X	X	X	X	X	X	X						DOC in the field.
6	7/25/2005	15:30	MW-24-5	X	X	X	X	X	X	X	X	X	X	X						

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	7/26/05 0900	[signature]			
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	7-26-05 1445				
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks	
		[signature]	7/26/05 1445	T = 3.7°C	

003

Page ____ of ____

Hanh Bui

From: Shiao, Tien [shiaoh@BATTELLE.ORG]
Sent: Wednesday, July 27, 2005 3:30 PM
To: Hanh Bui
Cc: Conner, David J
Subject: RE: COC for samples received on 7/26 SDG: 05G218 (Battelle/JPL)

Hi Hanh,

The COC for MW-24 looks good. You're correct that we're not analyzing any perchlorate at EMAX.

I see a note on the "sample receipt form" that says perchlorate was requested on label but not on COC. Please go with the COC and not the sample labels. Sorry about the confusion.

Thanks,
Tien

From: Hanh Bui [mailto:HDBui@emaxlabs.com]
Sent: Wednesday, July 27, 2005 5:11 PM
To: Shiao, Tien
Subject: COC for samples received on 7/26 SDG: 05G218 (Battelle/JPL)

Hi Tien,
Enclosed the COC for sample received on 7/26. I think all samples for Perchlorate you sent to APC labs. Thanks
Hanh

SAMPLE RECEIPT FORM 1

Type of Delivery	Delivered By/Airbill	ECN	05G218
☑ EMAX Courier		Recepient	Luna
☐ Client Delivery		Date	7-26-05
☐ Third Party		Time	14:45

COC Inspection

☑ Client Name	☑ Sampler Name	☑ Sampling Date/Time/Location
☑ Address	☐ Courier Signature/Date/Time	☑ Analysis Required
☑ Client PM/FC	☐ TAT	☐ Matrix
☑ Tel #/Fax #	☑ Sample ID	☐ Preservative (if any)
Safety Issues ☑ None	☐ High Concentrations expected	☐ Superfund Site Samples
Comments: ☐ Rad Screening Required		

Packaging Inspection

Container	☑ Cooler	☐ Box	☐	☐
Condition	☐ Custody Seal	☑ Intact	☐ Damaged	☐
Packaging	☐ Bubble Pack	☐ Styrofoam	☑ Sufficient	☐
Temperatures	☑ Cooler 1 3.7	☑ Cooler 2 ____	☐ Cooler 3 ____	☐ Cooler 4 ____
	☐ Cooler 5 ____	☐ Cooler 6 ____	☐ Cooler 7 ____	☐ Cooler 8 ____
	☐ Cooler 9 ____	☐ Cooler 10 ____	☐ Cooler 11 ____	☐ Cooler 12 ____

Comments:

LSCID	Client ID	Discrepancy	Corrective Action
G218-1 thru	MW-24-4	Perchlorate requested	Follow COC
G218-6	MW-24-3	on label, but not on	"
	MW-24-2	COC.	
	MW-24-1		
	DUPE-3 7/25/05		
	MW-24-5		

LSCID : Lab Sample Container ID

REVIEWS

Sample Labeling [signature] Date 7-26-05

SRF [signature] Date 7/26/05

PM [signature] Date 7/27/05

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

BATTELLE MEMORIAL INSTITUTE

JPL

METHOD 200.7
METALS BY ICP-AES

SDG#: 05G218

7000

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G218**

METHOD 200.7
METALS BY ICP-AES

Six (6) water samples were received on 07/26/05 for Metals analysis by Method 200.7 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition.

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Sample G183-07 from another SDG was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

LAB CHRONICLE
METALS BY ICP-AES

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL

SDG NO. : 05G218
Instrument ID : T-I07

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	IPG052WB	1	NA	08/03/0519:11	07/29/0511:30	I07H007012	I07H007010	IPG052W	Method Blank
LCS1W	IPG052WL	1	NA	08/03/0519:15	07/29/0511:30	I07H007013	I07H007010	IPG052W	Lab Control Sample (LCS)
LCD1W	IPG052WC	1	NA	08/03/0519:20	07/29/0511:30	I07H007014	I07H007010	IPG052W	LCS Duplicate
MW-24-4	G218-01	1	NA	08/03/0520:23	07/29/0511:30	I07H007028	I07H007022	IPG052W	Field Sample
MW-24-3	G218-02	1	NA	08/03/0520:27	07/29/0511:30	I07H007029	I07H007022	IPG052W	Field Sample
MW-24-2	G218-03	1	NA	08/03/0520:31	07/29/0511:30	I07H007030	I07H007022	IPG052W	Field Sample
MW-24-1	G218-04	1	NA	08/03/0520:35	07/29/0511:30	I07H007031	I07H007022	IPG052W	Field Sample
DUPE-3-7/25/05	G218-05	1	NA	08/03/0520:39	07/29/0511:30	I07H007032	I07H007022	IPG052W	Field Sample
MW-24-5	G218-06	1	NA	08/03/0520:43	07/29/0511:30	I07H007033	I07H007022	IPG052W	Field Sample
DUPE-2-7/21/05	G183-07	1	NA	08/03/0519:49	07/29/0511:30	I07H007021	I07H007010	IPG052W	Field Sample
DUPE-2-7/21/05DL	G183-07T	5	NA	08/03/0520:05	07/29/0511:30	I07H007024	I07H007022	IPG052W	Diluted Sample
DUPE-2-7/21/05AS	G183-07A	1	NA	08/03/0520:09	07/29/0511:30	I07H007025	I07H007022	IPG052W	Analytical Spike Sample

FN - Filename
% Moist - Percent Moisture

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/25/05
Project	: JPL	Date Received:	07/26/05
SDG NO.	: 05G218	Date Extracted:	07/29/05 11:30
Sample ID:	MW-24-4	Date Analyzed:	08/03/05 20:23
Lab Samp ID:	G218-01	Dilution Factor:	1
Lab File ID:	I07H007028	Matrix :	WATER
Ext Btch ID:	IPG052W	% Moisture :	NA
Calib. Ref.:	I07H007022	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	9.76	1	.1
Iron	ND	.2	.04
Magnesium	9.46	1	.1
Potassium	2.48	2	1.4
Sodium	43.3	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/25/05
Project	: JPL	Date Received:	07/26/05
SDG NO.	: 05G218	Date Extracted:	07/29/05 11:30
Sample ID:	MW-24-3	Date Analyzed:	08/03/05 20:27
Lab Samp ID:	G218-02	Dilution Factor:	1
Lab File ID:	I07H007029	Matrix :	WATER
Ext Btch ID:	IPG052W	% Moisture :	NA
Calib. Ref.:	I07H007022	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	18.9	1	.1
Iron	ND	.2	.04
Magnesium	13.3	1	.1
Potassium	ND	2	1.4
Sodium	44.8	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/25/05
Project	: JPL	Date Received:	07/26/05
SDG NO.	: 05G218	Date Extracted:	07/29/05 11:30
Sample ID:	MW-24-2	Date Analyzed:	08/03/05 20:31
Lab Samp ID:	G218-03	Dilution Factor:	1
Lab File ID:	I07H007030	Matrix :	WATER
Ext Btch ID:	IPG052W	% Moisture :	NA
Calib. Ref.:	I07H007022	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	32.9	1	.1
Iron	ND	.2	.04
Magnesium	13.6	1	.1
Potassium	3.07	2	1.4
Sodium	43.6	1	.25

7005

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/25/05
Project	: JPL	Date Received:	07/26/05
SDG NO.	: 05G218	Date Extracted:	07/29/05 11:30
Sample ID:	MW-24-1	Date Analyzed:	08/03/05 20:35
Lab Samp ID:	G218-04	Dilution Factor:	1
Lab File ID:	I07H007031	Matrix :	WATER
Ext Btch ID:	IPG052W	% Moisture :	NA
Calib. Ref.:	I07H007022	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	55.6	1	.1
Iron	ND	.2	.04
Magnesium	18.2	1	.1
Potassium	ND	2	1.4
Sodium	19.4	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/25/05
Project	: JPL	Date Received:	07/26/05
SDG NO.	: 05G218	Date Extracted:	07/29/05 11:30
Sample ID:	DUPE-3-7/25/05	Date Analyzed:	08/03/05 20:39
Lab Samp ID:	G218-05	Dilution Factor:	1
Lab File ID:	I07H007032	Matrix :	WATER
Ext Btch ID:	IPG052W	% Moisture :	NA
Calib. Ref.:	I07H007022	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	55.1	1	.1
Iron	ND	.2	.04
Magnesium	18.2	1	.1
Potassium	ND	2	1.4
Sodium	19.4	1	.25

7007

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/25/05
Project	: JPL	Date Received:	07/26/05
SDG NO.	: 05G218	Date Extracted:	07/29/05 11:30
Sample ID:	MW-24-5	Date Analyzed:	08/03/05 20:43
Lab Samp ID:	G218-06	Dilution Factor:	1
Lab File ID:	I07H007033	Matrix :	WATER
Ext Btch ID:	IPG052W	% Moisture :	NA
Calib. Ref.:	I07H007022	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	34.3	1	.1
Iron	ND	.2	.04
Magnesium	9.28	1	.1
Potassium	2.24	2	1.4
Sodium	39.9	1	.25

7008

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	NA
Project	: JPL	Date Received:	07/29/05
SDG NO.	: 05G218	Date Extracted:	07/29/05 11:30
Sample ID:	MBLK1W	Date Analyzed:	08/03/05 19:11
Lab Samp ID:	IPG052WB	Dilution Factor:	1
Lab File ID:	I07H007012	Matrix :	WATER
Ext Btch ID:	IPG052W	% Moisture :	NA
Calib. Ref.:	I07H007010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	ND	1	.1
Iron	ND	.2	.04
Magnesium	ND	1	.1
Potassium	ND	2	1.4
Sodium	ND	1	.25

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
SDG NO.: 05G218
METHOD: METHOD 200.7

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	MBLK1W				
CONTROL NO.:	IPG052WB	IPG052WL	IPG052WC		
LAB FILE ID:	I07H007012	I07H007013	I07H007014		
DATIME EXTRCTD:	07/29/0511:30	07/29/0511:30	07/29/0511:30	DATE COLLECTED:	NA
DATIME ANALYZD:	08/03/0519:11	08/03/0519:15	08/03/0519:20	DATE RECEIVED:	07/29/05
PREP. BATCH:	IPG052W	IPG052W	IPG052W		
CALIB. REF:	I07H007010	I07H007010	I07H007010		

ACCESSION:

PARAMETER	BLNK RSLT mg/L	SPIKE AMT mg/L	BS RSLT mg/L	BS % REC	SPIKE AMT mg/L	BSD RSLT mg/L	BSD % REC	RPD %	QC LIMIT %	MAX RPD %
Calcium	ND	50	50.9	102	50	50.4	101	1	85-115	20
Iron	ND	10	10.6	106	10	10.4	104	2	85-115	20
Magnesium	ND	50	51.6	103	50	50.8	102	2	85-115	20
Potassium	ND	50	51.1	102	50	50.6	101	1	85-115	20
Sodium	ND	50	50.9	102	50	50.5	101	1	85-115	20

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G218
METHOD: METHOD 200.7

==========

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 5
SAMPLE ID: DUPE-2-7/21/05 DUPE-2-7/21/05DL
EMAX SAMP ID: G183-07 G183-07T
LAB FILE ID: I07H007021 I07H007024
DATE EXTRACTED: 07/29/0511:30 07/29/0511:30 DATE COLLECTED: 07/21/05
DATE ANALYZED: 08/03/0519:49 08/03/0520:05 DATE RECEIVED: 07/22/05
PREP. BATCH: IPG052W IPG052W
CALIB. REF: I07H007010 I07H007022

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SERIAL DIL RSLT (mg/L)	DIF RSLT %	QC LIMIT (%)
Calcium	56.5	56.6	0	10
Iron	ND	ND	0	10
Magnesium	18.7	18.8	0	10
Potassium	2.51	ND	NA	10
Sodium	19.8	21.1	7	10

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
SDG NO.: 05G218
METHOD: METHOD 200.7

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	DUPE-2-7/21/05			
CONTROL NO.:	G183-07	G183-07A		
LAB FILE ID:	I07H007021	I07H007025		
DATIME EXTRCTD:	07/29/0511:30	07/29/0511:30	DATE COLLECTED:	07/21/05
DATIME ANALYZD:	08/03/0519:49	08/03/0520:09	DATE RECEIVED:	07/22/05
PREP. BATCH:	IPG052W	IPG052W		
CALIB. REF:	I07H007010	I07H007022		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	AS RSLT (mg/L)	AS % REC	QC LIMIT (%)
Calcium	56.5	50	104	95	75-125
Iron	ND	10	10.2	102	75-125
Magnesium	18.7	50	68.9	100	75-125
Potassium	2.51	50	53.6	102	75-125
Sodium	19.8	50	69	98	75-125

REGULAR ICP QC CHECK TABLE

QC	ICV HIGH	ICV	CCV	ICSAB	ICSA
Limit%	95-105	90-110	90-110	80-120	80-120
Comp	mg/L	mg/L	mg/L	mg/L	mg/L
Al	10	5	5	500	500
Sb	2	1	1	1	0
As	2	1	1	1	0
Ba	2	1	1	0.5	0
Be	2	1	1	0.5	0
B	2	1	1	0.5	0
Cd	2	1	1	1	0
Ca	100	50	50	500	500
Cr	2	1	1	0.5	0
Co	2	1	1	0.5	0
Cu	2	1	1	0.5	0
Fe	10	5	5	200	200
Pb	2	1	1	1	0
Mg	100	50	50	500	500
Mn	2	1	1	0.5	0
Mo	2	1	1	1	0
Ni	2	1	1	1	0
K	100	50	50	50	0
Se	2	1	1	3.6	0
Ag	2	1	1	1	0
Na	100	50	50	10	0
Sr	2	1	1	0.5	0
Tl	2	1	1	3.6	0
Sn	10	5	5	1	0
Ti	2	1	1	1	0
V	2	1	1	0.5	0
Zn	2	1	1	1	0

ANALYSIS RUN LOG FOR ICP

SOP ☒ EMAX-6010-Rev. 3 ☐ EMAX-CLP-TAL ☐ 200.7 Method File: 6010B2 Autosampler Table:

Matrix: WATER Start Date: 8/3/05 Time: 18:22 End Date: 8/3/05 Time: 21:10 Book# A24 -038

ANALYTICAL BATCH* 07HCC7

Data File Name	Prep. Batch	Lab Sample ID	DF	Matrix	Notes
01		S0			
02		S3			
03		S6			
04		ICV (QCS)			
05		ICB			
06		CCV (IPC)			
07		CCB			
08		ICSA1			
09		ICSAB1			
10		CCV1 (IPC)			
11		CCB1			
12	IPG052W	IPG052WB	1	W	(LRB)
13		NL	1		(LFB)
14		NC	1		(LFB)
15		G187 01	1		
16		02	1		
17		03	1		
18		04	1		
19		05	1		
20		06	1		
21		07	1		
22		CCV2 (IPC)	1		
23		CCB2	1		
24		G187-07T	5		
25		07A	1		

ANALYTICAL BATCH* _____

Data File Name	Prep. Batch	Lab Sample ID	DF	Matrix	Notes
26	IPG052W	G187-07M	1	W	(LRM)
27		07S	1		(LRM)
28		G218-01	1		
29		02	1		
30		03	1		
31		04	1		
32		05	1		
33		06	1		
34		CCV3 (IPC)	1		
35		CCB3	1		
36		ICSA1	1		
37		ICSAB1	1		
38		CCV4 (IPC)	1		
39		CCB4	1		
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					

Instrument No.	24
Std.	ID
S_0	SM1B09-78-01
S_1	NA
S_2	NA
S_3	SM1B09-44-04
S_4	NA
S_5	NA
S_6	SM1B09-46-02
(QCS) CV	09-69-02
ICVH1	NA
ICVH2	NA
(QC) CCV	SM1B09-60-02
ICSA	09-63-07
ICSAB	09-60-01
MRL	NA

Comments:

OK

Analyzed By: [illegible]

Date Disposed:

This page is checked during data review.

7014

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

SEQUENCE FILE : I07H007

4-18	19-33	34-43	44-53	54-63
LFID	LSID	TIME	DATE	DF
I07H007001	S0	18:22	08/03/05	1
I07H007002	S3	18:26	08/03/05	1
I07H007003	S6	18:31	08/03/05	1
I07H007004	ICV	18:34	08/03/05	1
I07H007005	ICB	18:40	08/03/05	1
I07H007006	CCV	18:44	08/03/05	1
I07H007007	CCB	18:48	08/03/05	1
I07H007008	ICSAI	18:54	08/03/05	1
I07H007009	ICSABI	18:58	08/03/05	1
I07H007010	CCV1	19:02	08/03/05	1
I07H007011	CCB1	19:07	08/03/05	1
I07H007012	IPG052WB	19:11	08/03/05	1
I07H007013	IPG052WL	19:15	08/03/05	1
I07H007014	IPG052WC	19:20	08/03/05	1
I07H007015	G183-01	19:25	08/03/05	1
I07H007016	G183-02	19:29	08/03/05	1
I07H007017	G183-03	19:33	08/03/05	1
I07H007018	G183-04	19:37	08/03/05	1
I07H007019	G183-05	19:41	08/03/05	1
I07H007020	G183-06	19:45	08/03/05	1
I07H007021	G183-07	19:49	08/03/05	1
I07H007022	CCV2	19:55	08/03/05	1
I07H007023	CCB2	20:01	08/03/05	1
I07H007024	G183-07T	20:05	08/03/05	5
I07H007025	G183-07A	20:09	08/03/05	1
I07H007026	G183-07M	20:13	08/03/05	1
I07H007027	G183-07S	20:17	08/03/05	1
I07H007028	G218-01	20:23	08/03/05	1
I07H007029	G218-02	20:27	08/03/05	1
I07H007030	G218-03	20:31	08/03/05	1
I07H007031	G218-04	20:35	08/03/05	1
I07H007032	G218-05	20:39	08/03/05	1
I07H007033	G218-06	20:43	08/03/05	1
I07H007034	CCV2	20:49	08/03/05	1
I07H007035	CCB2	20:54	08/03/05	1
I07H007036	ICSAF	20:58	08/03/05	1
I07H007037	ICSABF	21:02	08/03/05	1
I07H007038	CCV3	21:06	08/03/05	1
I07H007039	CCB3	21:10	08/03/05	1

SDG : 03G218 UNIT : % ICP CHECK : I07H007 DATE : 08/03/05 INST : EMAXTI07

ANALYTE	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
S0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICV	99	98	99	97	100	102	97	99	97	97	98	101	97	101	98	98	96	98	105	97	100	97	98	98	100	98	97
ICB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV	100	96	101	98	98	98	99	100	98	97	98	101	98	100	98	99	97	100	104	99	99	98	96	98	98	98	98
CCB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAI	97	----	----	----	----	----	----	93	----	----	----	91	----	99	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSABI	96	88	106	94	94	95	92	92	88	86	98	90	96	98	90	89	86	100	106	97	104	92	102	86	92	97	93
CCV1	100	96	98	99	98	98	99	100	97	96	98	101	97	99	97	98	96	98	99	99	100	98	102	98	98	97	97
CCB1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPG052WB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPG052WL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPG052WC	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-03	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-05	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-07	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV2	101	98	97	99	99	99	100	101	97	96	98	101	99	100	97	99	98	102	100	100	99	98	100	99	98	98	97
CCB2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-07T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-07A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-07M	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-07S	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G218-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G218-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G218-03	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G218-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G218-05	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G218-06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV2	100	97	95	98	97	99	98	99	95	93	96	99	97	99	95	96	96	101	98	99	99	97	101	96	97	96	94
CCB2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAF	95	----	----	----	----	----	----	91	----	----	----	88	----	97	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSABF	95	88	99	93	91	95	92	91	85	83	96	87	90	96	88	85	86	105	102	97	104	90	99	84	90	93	90
CCV3	99	99	97	98	97	98	99	99	95	93	96	99	99	98	95	95	97	102	98	99	98	97	98	96	97	96	94
CCB3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

QC limit of each parameter are listed in a table attached next to all the ICP check forms
* : Out of QC Limit

SDG : 056218 UNIT : UG/L SUMMARY of CALIBRATION BLANKS : I07H007 (WATER) DATE : 08/03/05 INST : EMAXTI07

ANALYTE	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
SD	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICV	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICB	4.74	19.9	11.5	.090	-.060	3.65	.260	.600	.000	.660	1.16	1.11	14.7	7.82	1.49	9.24	-3.46	619	-54.5	-.170	7.41	.120	-19.0	27.2	-.120	2.10	.940
CCV	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB	4.75	-5.03	3.13	-.090	-.060	1.83	-.520	4.70	-2.11	2.12	.000	3.05	-1.60	7.81	.000	9.24	-.380	277	-4.71	-2.25	.000	.090	13.8	-9.52	.020	1.62	.470
ICSAI	----	34.0	145	-.210	-.120	7.23	-1.13	----	-8.79	.280	8.11	----	78.8	----	-1.37	3.41	1.92	-659	219	14.7	7.41	-1.84	297	-6.46	-11.3	-3.64	2.06
ICSABI	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB1	-4.59	16.2	-2.09	.000	.050	.920	.030	3.38	1.81	2.26	1.16	1.66	5.74	28.2	.670	11.9	-4.04	906	-47.0	-1.03	7.41	.090	37.9	21.8	-.110	4.63	.350
IPG052WB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPG052WL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPG052WC	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-03	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-05	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-07	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB2	2.08	7.32	2.09	.090	-.130	1.37	-.260	-3.04	.300	.520	-.390	1.11	2.18	12.8	1.49	5.28	2.88	431	-36.7	-1.55	7.41	.120	20.7	-12.2	.320	1.80	.380
G183-07T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-07A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-07M	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-07S	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G218-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G218-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G218-03	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G218-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G218-05	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G218-06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB2	-15.9	6.32	-13.6	-.090	-.260	1.37	1.16	-1.27	1.21	3.45	1.17	.830	.290	-6.22	.810	5.28	4.81	4.95	-41.4	.510	7.41	.220	-7.76	-4.05	-.760	2.73	-1.14
ICSAF	----	45.3	23.9	-.270	-.250	14.2	.880	----	-9.77	1.34	8.96	----	5.97	----	-2.92	14.0	-.570	1179	259	15.1	7.41	-1.57	190	-5.06	-12.1	-7.11	1.67
ICSABF	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB3	-1.32	16.4	3.14	.090	-.260	2.29	-.280	-5.08	-2.10	1.59	.000	2.22	-10.3	-8.57	.810	13.2	2.11	-267	-31.9	-.510	.000	.250	18.1	13.6	.660	2.86	1.39

QC limit of each parameter are listed in a table attached next to all the ICP check forms
* : Out of QC Limit

DIGESTION LOG FOR ICP METALS

SOP ☐ EMAX-3005 Rev. No.3 ☐ EMAX-3010 Rev. No. 2 ☐ EMAX-3050 Rev. No. 2 ☐ EMAX-CLP-TAL ☒ 200.7 Book # EIP-046

Matrix: WATER Start Date: 7-29-05 Time: 11:30 Temp: 85 °C Ending Date: 7-29-05 Time: 13:30 Temp.: 85 °C

BATCH: IPG052-W

Sample Prep ID	Lab Sample ID	Matrix Description Color	Matrix Description Texture / Clarity	Matrix Description Artifacts	Turbidity <1 NTU	Sample Amount (g | ml)	pH	Extract Volume (ml)	Digestate Description Color	Digestate Description Clarity
01	IPG052-WB					50	–	50		
02	-WL					50	–	50		
03	-WC					50	–	50		
04	G183-01					50	<2	50		
05	-02					50		50		
06	-03					50		50		
07	-04					50		50		
08	-05					50		50		
09	-06					50		50		
10	-07					50		50		
11	-07M					50		50		
12	-07S					50		50		
13	G158-01					50		50		
14	-02					50		50		
15	G539-01					50		50		
16	G218-01					50		50		
17	-02					50		50		
18	-03					50		50		
19	-04					50		50		
20	-05					50		50		
21	-06					50		50		
22										
23										
24										
25										

7-29-05 MC

Standards	ID	Amount Added (ml)
LCS -1	SM1A-09-42	0.5
LCS -2	SM1A-09-43	0.5
LCS -3	SM1A-09-44	0.5
MS		

Reagent	Lot# / ID	Amount Added (ml)
HNO_3	SW1A-03-120	0.5
HCl	SW1A-03-115	0.25
H_2O_2	N/A	
HNO3 (1:1)	N/A	

Digestate Location	ICP LAB
Extract Location	

Legend:

Texture	Cs = Coarse	Md = Medium	Fn = Fine
Clarity	Cr = Clear	Cy = Cloudy	Td = Turbid
Artifacts	Rk = rocks	Sl = Shale	Vg=Vegetation
Color	Bu = blue	Bk = Black	Bn = Brown
	Gn = Green	Og = Orange	Rd = Red
	Yw = Yellow	Cl = Colorless	

Comments: Samples for Methods 200.7 or 200.8 Analyses

If turbidity ≤ 1 NTU no digestion is required unless otherwise required by the project

Prepared By: MC Standard Added By: MC

Witnessed By: AZ Extracts Rcvd. By: AZ 7/29/05

Checked By: AZ

Date Disposed: Disposed by:

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

7018

LABORATORY REPORT FOR

BATTELLE MEMORIAL INSTITUTE

JPL

WET CHEMICAL ANALYSES

SDG#: 05G218

8000

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G218**

METHOD 300.0
ANIONS

Six (6) water samples were received on 07/26/05 for Chloride, Nitrate-N, Nitrite-N and Sulfate analyses by method 300.0 in accordance with "Method for Determination of Inorganic Anions by Ion Chromatography", EPA 600/84-017.

1. Holding Time

Analyses met holding time criteria.

2. Method Blank

Method blanks were free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limits.

4. Duplicate

Sample G218-02 was analyzed for duplicate. %RPDs were within QC limit.

5. Matrix Spike

Sample G218-02 was spiked. Recoveries were within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

Nitrate-N and Nitrite-N results were reported as Nitrogen concentration.

SAMPLE RESULTS

METHOD 300.0
CHLORIDE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G218

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICG033WB	ND	1	NA	.2	.1	07/27/0500:38	NA	AG26-34	AG26-25	ICG033W	NA	NA
LCS1W	ICG033WL	4.87	1	NA	.2	.1	07/27/0500:52	NA	AG26-35	AG26-25	ICG033W	NA	NA
LCD1W	ICG033WC	4.84	1	NA	.2	.1	07/27/0501:06	NA	AG26-36	AG26-25	ICG033W	NA	NA
MW-24-5	G218-06	9.48	1	NA	.2	.1	07/27/0502:30	NA	AG26-42	AG26-37	ICG033W	07/25/05	07/26/05
MBLK2W	ICG044WB	ND	1	NA	.2	.1	07/30/0523:12	NA	AG29-142	AG29-133	ICG044W	NA	NA
LCS2W	ICG044WL	4.76	1	NA	.2	.1	07/30/0523:26	NA	AG29-143	AG29-133	ICG044W	NA	NA
LCD2W	ICG044WC	4.77	1	NA	.2	.1	07/30/0523:40	NA	AG29-144	AG29-133	ICG044W	NA	NA
MW-24-4	G218-01	13.5	5	NA	1	.5	07/31/0504:21	NA	AG29-164	AG29-158	ICG044W	07/25/05	07/26/05
MW-24-3	G218-02	18.3	5	NA	1	.5	07/31/0504:35	NA	AG29-165	AG29-158	ICG044W	07/25/05	07/26/05
MW-24-3DUP	G218-02D	18.3	5	NA	1	.5	07/31/0504:49	NA	AG29-166	AG29-158	ICG044W	07/25/05	07/26/05
MW-24-3MS	G218-02M	41	5	NA	1	.5	07/31/0505:03	NA	AG29-167	AG29-158	ICG044W	07/25/05	07/26/05
MW-24-2	G218-03	36.1	10	NA	2	1	07/31/0505:17	NA	AG29-168	AG29-158	ICG044W	07/25/05	07/26/05
MW-24-1	G218-04	28.2	5	NA	1	.5	07/31/0507:10	NA	AG29-176	AG29-170	ICG044W	07/25/05	07/26/05
DUPE-3-7/25/05	G218-05	28.4	5	NA	1	.5	07/31/0507:24	NA	AG29-177	AG29-170	ICG044W	07/25/05	07/26/05

ak

METHOD 300.0
NITRATE-N

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G218

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICG032WB	ND	1	NA	.1	.05	07/26/0514:50	NA	AG26-04	AG26-01	ICG032W	NA	NA
LCS2W	ICG032WL	2.48	1	NA	.1	.05	07/26/0515:04	NA	AG26-05	AG26-01	ICG032W	NA	NA
LCD2W	ICG032WC	2.47	1	NA	.1	.05	07/26/0515:18	NA	AG26-06	AG26-01	ICG032W	NA	NA
MW-24-4	G218-01	.264	1	NA	.1	.05	07/26/0523:27	NA	AG26-29	AG26-25	ICG032W	07/25/05	07/26/05
MW-24-3	G218-02	.424	1	NA	.1	.05	07/26/0523:41	NA	AG26-30	AG26-25	ICG032W	07/25/05	07/26/05
MW-24-3MS	G218-02M	2.84	1	NA	.1	.05	07/26/0523:56	NA	AG26-31	AG26-25	ICG032W	07/25/05	07/26/05
MW-24-3DUP	G218-02D	.422	1	NA	.1	.05	07/27/0500:10	NA	AG26-32	AG26-25	ICG032W	07/25/05	07/26/05
MBLK2W	ICG033WB	ND	1	NA	.1	.05	07/27/0500:38	NA	AG26-34	AG26-25	ICG033W	NA	NA
LCS3W	ICG033WL	2.43	1	NA	.1	.05	07/27/0500:52	NA	AG26-35	AG26-25	ICG033W	NA	NA
LCD3W	ICG033WC	2.41	1	NA	.1	.05	07/27/0501:06	NA	AG26-36	AG26-25	ICG033W	NA	NA
MW-24-2	G218-03	1.77	1	NA	.1	.05	07/27/0501:48	NA	AG26-39	AG26-37	ICG033W	07/25/05	07/26/05
MW-24-1	G218-04	1.54	1	NA	.1	.05	07/27/0502:02	NA	AG26-40	AG26-37	ICG033W	07/25/05	07/26/05
DUPE-3-7/25/05	G218-05	1.5	1	NA	.1	.05	07/27/0502:16	NA	AG26-41	AG26-37	ICG033W	07/25/05	07/26/05
MW-24-5	G218-06	1.26	1	NA	.1	.05	07/27/0502:30	NA	AG26-42	AG26-37	ICG033W	07/25/05	07/26/05

8704

METHOD 300.0
NITRITE-N

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G218

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICG032WB	ND	1	NA	.1	.05	07/26/0514:50	NA	AG26-04	AG26-01	ICG032W	NA	NA
LCS1W	ICG032WL	2.45	1	NA	.1	.05	07/26/0515:04	NA	AG26-05	AG26-01	ICG032W	NA	NA
LCD1W	ICG032WC	2.49	1	NA	.1	.05	07/26/0515:18	NA	AG26-06	AG26-01	ICG032W	NA	NA
MW-24-4	G218-01	ND	1	NA	.1	.05	07/26/0523:27	NA	AG26-29	AG26-25	ICG032W	07/25/05	07/26/05
MW-24-3	G218-02	ND	1	NA	.1	.05	07/26/0523:41	NA	AG26-30	AG26-25	ICG032W	07/25/05	07/26/05
MW-24-3MS	G218-02M	2.31	1	NA	.1	.05	07/26/0523:56	NA	AG26-31	AG26-25	ICG032W	07/25/05	07/26/05
MW-24-3DUP	G218-02D	ND	1	NA	.1	.05	07/27/0500:10	NA	AG26-32	AG26-25	ICG032W	07/25/05	07/26/05
MBLK2W	ICG033WB	ND	1	NA	.1	.05	07/27/0500:38	NA	AG26-34	AG26-25	ICG033W	NA	NA
LCS2W	ICG033WL	2.38	1	NA	.1	.05	07/27/0500:52	NA	AG26-35	AG26-25	ICG033W	NA	NA
LCD2W	ICG033WC	2.38	1	NA	.1	.05	07/27/0501:06	NA	AG26-36	AG26-25	ICG033W	NA	NA
MW-24-2	G218-03	ND	1	NA	.1	.05	07/27/0501:48	NA	AG26-39	AG26-37	ICG033W	07/25/05	07/26/05
MW-24-1	G218-04	ND	1	NA	.1	.05	07/27/0502:02	NA	AG26-40	AG26-37	ICG033W	07/25/05	07/26/05
DUPE-3-7/25/05	G218-05	ND	1	NA	.1	.05	07/27/0502:16	NA	AG26-41	AG26-37	ICG033W	07/25/05	07/26/05
MW-24-5	G218-06	ND	1	NA	.1	.05	07/27/0502:30	NA	AG26-42	AG26-37	ICG033W	07/25/05	07/26/05

80005

METHOD 300.0
SULFATE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G218

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICG032WB	ND	1	NA	.5	.25	07/26/0514:50	NA	AG26-04	AG26-01	ICG032W	NA	NA
LCS1W	ICG032WL	7.35	1	NA	.5	.25	07/26/0515:04	NA	AG26-05	AG26-01	ICG032W	NA	NA
LCD1W	ICG032WC	7.33	1	NA	.5	.25	07/26/0515:18	NA	AG26-06	AG26-01	ICG032W	NA	NA
MW-24-4	G218-01	7.79	1	NA	.5	.25	07/26/0523:27	NA	AG26-29	AG26-25	ICG032W	07/25/05	07/26/05
MW-24-3	G218-02	14.9	1	NA	.5	.25	07/26/0523:41	NA	AG26-30	AG26-25	ICG032W	07/25/05	07/26/05
MW-24-3MS	G218-02M	22.4	1	NA	.5	.25	07/26/0523:56	NA	AG26-31	AG26-25	ICG032W	07/25/05	07/26/05
MW-24-3DUP	G218-02D	14.8	1	NA	.5	.25	07/27/0500:10	NA	AG26-32	AG26-25	ICG032W	07/25/05	07/26/05
MBLK2W	ICG044WB	ND	1	NA	.5	.25	07/30/0523:12	NA	AG29-142	AG29-133	ICG044W	NA	NA
LCS2W	ICG044WL	7.16	1	NA	.5	.25	07/30/0523:26	NA	AG29-143	AG29-133	ICG044W	NA	NA
LCD2W	ICG044WC	7.22	1	NA	.5	.25	07/30/0523:40	NA	AG29-144	AG29-133	ICG044W	NA	NA
MW-24-2	G218-03	18.9	10	NA	5	2.5	07/31/0505:17	NA	AG29-168	AG29-158	ICG044W	07/25/05	07/26/05
MW-24-1	G218-04	40	5	NA	2.5	1.25	07/31/0507:10	NA	AG29-176	AG29-170	ICG044W	07/25/05	07/26/05
DUPE-3-7/25/05	G218-05	40.5	5	NA	2.5	1.25	07/31/0507:24	NA	AG29-177	AG29-170	ICG044W	07/25/05	07/26/05
MW-24-5	G218-06	19	5	NA	2.5	1.25	07/31/0507:38	NA	AG29-178	AG29-170	ICG044W	07/25/05	07/26/05

QC SUMMARIES

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G218
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICG033WB	ICG033WL	ICG033WC		
LAB FILE ID:	AG26-34	AG26-35	AG26-36		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	07/27/0500:38	07/27/0500:52	07/27/0501:06	DATE RECEIVED:	NA
PREP. BATCH:	ICG033W	ICG033W	ICG033W		
CALIB. REF:	AG26-25	AG26-25	AG26-25		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride-Cl	ND	5	4.87	97	5	4.84	97	1	90-110	20

8708

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G218
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK2W				
LAB SAMP ID:	ICG044WB	ICG044WL	ICG044WC		
LAB FILE ID:	AG29-142	AG29-143	AG29-144		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	07/30/0523:12	07/30/0523:26	07/30/0523:40	DATE RECEIVED:	NA
PREP. BATCH:	ICG044W	ICG044W	ICG044W		
CALIB. REF:	AG29-133	AG29-133	AG29-133		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride-Cl	ND	5	4.76	95	5	4.77	95	0	90-110	20

60098

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G218
METHOD: METHOD 300.0

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	5	5		
SAMPLE ID:	MW-24-3			
LAB SAMP ID:	G218-02	G218-02M		
LAB FILE ID:	AG29-165	AG29-167		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/25/05
DATE ANALYZED:	07/31/0504:35	07/31/0505:03	DATE RECEIVED:	07/26/05
PREP. BATCH:	ICG044W	ICG044W		
CALIB. REF:	AG29-158	AG29-158		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
Chloride-Cl	18.3	25	41	91	80-120

80140

EMAX QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G218
METHOD: METHOD 300.0

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	5	5		
SAMPLE ID:	MW-24-3	MW-24-3DUP		
EMAX SAMP ID:	G218-02	G218-02D		
LAB FILE ID:	AG29-165	AG29-166		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/25/05
DATE ANALYZED:	07/31/0504:35	07/31/0504:49	DATE RECEIVED:	07/26/05
PREP. BATCH:	ICG044W	ICG044W		
CALIB. REF:	AG29-158	AG29-158		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	DUPL RSLT (mg/L)	RPD RSLT %	QC LIMIT (%)
Chloride-Cl	18.3	18.3	0	20

8011

6

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G218
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICG032WB	ICG032WL	ICG032WC		
LAB FILE ID:	AG26-04	AG26-05	AG26-06		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	07/26/0514:50	07/26/0515:04	07/26/0515:18	DATE RECEIVED:	NA
PREP. BATCH:	ICG032W	ICG032W	ICG032W		
CALIB. REF:	AG26-01	AG26-01	AG26-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrate-N	ND	2.5	2.48	99	2.5	2.47	99	0	90-110	20

8012

dr

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G218
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK2W				
LAB SAMP ID:	ICG033WB	ICG033WL	ICG033WC		
LAB FILE ID:	AG26-34	AG26-35	AG26-36		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	07/27/0500:38	07/27/0500:52	07/27/0501:06	DATE RECEIVED:	NA
PREP. BATCH:	ICG033W	ICG033W	ICG033W		
CALIB. REF:	AG26-25	AG26-25	AG26-25		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrate-N	ND	2.5	2.43	97	2.5	2.41	97	1	90-110	20

8013

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G218
METHOD: METHOD 300.0

==========

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-24-3			
LAB SAMP ID:	G218-02	G218-02M		
LAB FILE ID:	AG26-30	AG26-31		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/25/05
DATE ANALYZED:	07/26/0523:41	07/26/0523:56	DATE RECEIVED:	07/26/05
PREP. BATCH:	ICG032W	ICG032W		
CALIB. REF:	AG26-25	AG26-25		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
Nitrate-N	.424	2.5	2.84	97	80-120

8014

EMAX QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G218
METHOD: METHOD 300.0

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-24-3	MW-24-3DUP		
EMAX SAMP ID:	G218-02	G218-02D		
LAB FILE ID:	AG26-30	AG26-32		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/25/05
DATE ANALYZED:	07/26/0523:41	07/27/0500:10	DATE RECEIVED:	07/26/05
PREP. BATCH:	ICG032W	ICG032W		
CALIB. REF:	AG26-25	AG26-25		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	DUPL RSLT (mg/L)	RPD RSLT %	QC LIMIT (%)
Nitrate-N	.424	.422	1	20

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G218
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICG032WB	ICG032WL	ICG032WC		
LAB FILE ID:	AG26-04	AG26-05	AG26-06		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	07/26/0514:50	07/26/0515:04	07/26/0515:18	DATE RECEIVED:	NA
PREP. BATCH:	ICG032W	ICG032W	ICG032W		
CALIB. REF:	AG26-01	AG26-01	AG26-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrite-N	ND	2.5	2.45	98	2.5	2.49	99	1	90-110	20

8016

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G218
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK2W				
LAB SAMP ID:	ICG033WB	ICG033WL	ICG033WC		
LAB FILE ID:	AG26-34	AG26-35	AG26-36		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	07/27/0500:38	07/27/0500:52	07/27/0501:06	DATE RECEIVED:	NA
PREP. BATCH:	ICG033W	ICG033W	ICG033W		
CALIB. REF:	AG26-25	AG26-25	AG26-25		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrite-N	ND	2.5	2.38	95	2.5	2.38	95	0	90-110	20

8017

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G218
METHOD: METHOD 300.0

==========

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-24-3			
LAB SAMP ID:	G218-02	G218-02M		
LAB FILE ID:	AG26-30	AG26-31		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/25/05
DATE ANALYZED:	07/26/0523:41	07/26/0523:56	DATE RECEIVED:	07/26/05
PREP. BATCH:	ICG032W	ICG032W		
CALIB. REF:	AG26-25	AG26-25		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
Nitrite-N	ND	2.5	2.31	93	80-120

8018

QL

EMAX QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G218
METHOD: METHOD 300.0

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-24-3	MW-24-3DUP		
EMAX SAMP ID:	G218-02	G218-02D		
LAB FILE ID:	AG26-30	AG26-32		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/25/05
DATE ANALYZED:	07/26/0523:41	07/27/0500:10	DATE RECEIVED:	07/26/05
PREP. BATCH:	ICG032W	ICG032W		
CALIB. REF:	AG26-25	AG26-25		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	DUPL RSLT (mg/L)	RPD RSLT %	QC LIMIT (%)
Nitrite-N	ND	ND	0	20

8019

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G218
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICG032WB	ICG032WL	ICG032WC		
LAB FILE ID:	AG26-04	AG26-05	AG26-06		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	07/26/0514:50	07/26/0515:04	07/26/0515:18	DATE RECEIVED:	NA
PREP. BATCH:	ICG032W	ICG032W	ICG032W		
CALIB. REF:	AG26-01	AG26-01	AG26-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Sulfate	ND	7.5	7.35	98	7.5	7.33	98	0	90-110	20

8020

01

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G218
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK2W				
LAB SAMP ID:	ICG044WB	ICG044WL	ICG044WC		
LAB FILE ID:	AG29-142	AG29-143	AG29-144		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	07/30/0523:12	07/30/0523:26	07/30/0523:40	DATE RECEIVED:	NA
PREP. BATCH:	ICG044W	ICG044W	ICG044W		
CALIB. REF:	AG29-133	AG29-133	AG29-133		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Sulfate	ND	7.5	7.16	95	7.5	7.22	96	1	90-110	20

8021

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G218
METHOD: METHOD 300.0

==========

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-24-3			
LAB SAMP ID:	G218-02	G218-02M		
LAB FILE ID:	AG26-30	AG26-31		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/25/05
DATE ANALYZED:	07/26/0523:41	07/26/0523:56	DATE RECEIVED:	07/26/05
PREP. BATCH:	ICG032W	ICG032W		
CALIB. REF:	AG26-25	AG26-25		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
Sulfate	14.9	7.5	22.4	100	80-120

80022

d

EMAX QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G218
METHOD: METHOD 300.0

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-24-3	MW-24-3DUP		
EMAX SAMP ID:	G218-02	G218-02D		
LAB FILE ID:	AG26-30	AG26-32		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/25/05
DATE ANALYZED:	07/26/0523:41	07/27/0500:10	DATE RECEIVED:	07/26/05
PREP. BATCH:	ICG032W	ICG032W		
CALIB. REF:	AG26-25	AG26-25		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	DUPL RSLT (mg/L)	RPD RSLT %	QC LIMIT (%)
Sulfate	14.9	14.8	0	20

80123

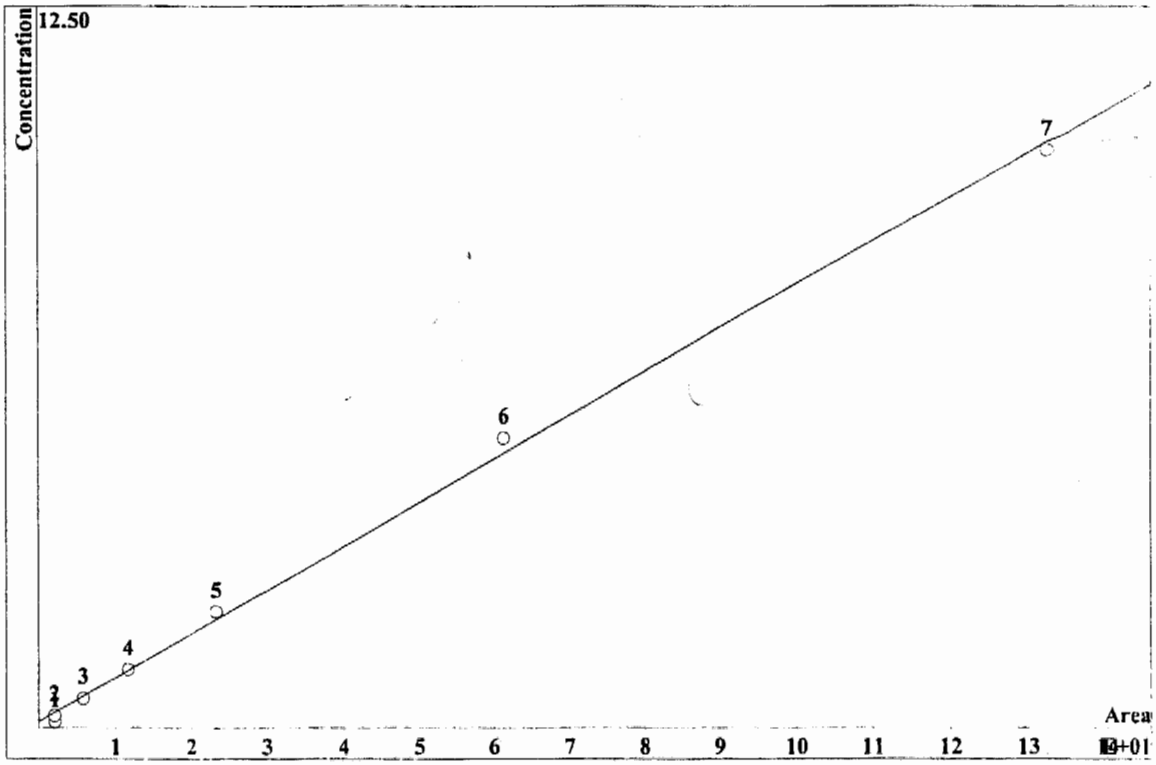
INITIAL CALIBRATIONS

IC Result Check FormVersion : qG1

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AG12-01	IB	FCIBNPS	0	0	0	0	0	0	0	p7121933	1
AG12-02	S0	FCIBNPS	0	0	0	0	0	0	0	p7121947	1
AG12-03	S1	FCIBNPS	0.20922	0.26528	0.13263	0.17713	0.15064	0.23059	0.62598	p7122001	1
AG12-04	S2	FCIBNPS	0.27777	0.26131	0.22143	0.24989	0.23142	0.30903	0.72351	p7122016	1
AG12-05	S3	FCIBNPS	0.58991	0.54378	0.49016	0.55127	0.49616	0.56439	1.454	p7122030	1
AG12-06	S4	FCIBNPS	1.0109	0.98258	0.97309	1.0085	0.95747	1.027	2.868	p7122044	1
AG12-07	S5	FCIBNPS	1.9049	1.8679	1.9644	1.9839	1.9331	2.0024	5.7811	p7122058	1
AG12-08	S6	FCIBNPS	4.9656	4.7397	5.0183	4.9153	5.0312	4.8329	15.101	p7122112	1
AG12-09	S7	FCIBNPS	10.029	10.139	10.729	10.041	11.159	10.073	32.87	p7122126	1
AG12-10	ICV	FCIBNPS	97.2%	92.9%	97.1%	99.8%	97%	97.6%	97.4%	p7122140	1
AG12-11	ICB	FCIBNPS	0	0	0	0	0	0	0	p7122154	1
AG12-12	CCV1	FCIBNPS	93.8%	90%	94.6%	96.4%	93.3%	97%	94.4%	p7122208	1
AG12-13	CCB1	FCIBNPS	0	0	0	0	0	0	0	p7122222	1
AG12-14	ICG011WB	FCIBNPS	0	0	0	0	0	0	0	p7122236	1
AG12-15	ICG011WL	FCIBNPS	4.9443	2.4394	2.4005	5.0644	2.3517	4.8648	7.0588	p7122250	1
AG12-16	ICG011WC	FCIBNPS	4.9971	2.4088	2.3901	5.0721	2.3585	5.016	7.2809	p7122305	1
AG12-17	MRL	FCIBNPS	0	0.25633	0	0	0.14022	0	0.49989	p7122319	1
AG12-18	G608-01	FCIBNPS	0	17.852	0	0	4.4945	0	15.463	p7122333	5
AG12-19	G608-02	FCIBNPS	0	19.873	0	0	2.0438	0	15.346	p7122347	5
AG12-20	G608-02D	FCIBNPS	0	19.907	0	0	2.0568	0	15.409	p7130001	5
AG12-21	G608-02M	FCIBNPS	25.496	32.238	12.127	24.026	14.648	25.773	51.746	p7130015	5
AG12-22	G058-17	FCIBNPS	0	0.86159	0	0	0.13449	0	5.2827	p7130029	1
AG12-23	RINSE	FCIBNPS	0	0	0	0	0	0	0	p7130043	1
AG12-24	CCV2	FCIBNPS	100.4%	95.6%	95.5%	101.3%	94.3%	100.6%	97.8%	p7130057	1
AG12-25	CCB2	FCIBNPS	0	0	0	0	0	0	0	p7130111	1
AG12-26	G058-18	F*IBNP*	0.42065	23.035E	0	2.6521	0	0	69.943E	p7130125	1
AG12-27	G058-19	FCIBNP*	0.52238	8.3145	0	0	0	0	63.422E	p7130139	1
AG12-28	G058-20	FCIBNP*	0.52701	8.2627	0	0	0	0	63.425E	p7130153	1
AG12-29	G058-21	FCIBNP*	0.49273	6.0643	0	0	0.091894	0	61.446E	p7130208	1
AG12-30	G058-22	F*IBNP*	0	995.75E	0	0.23033	0	0	15.385E	p7130222	1
AG12-31	G058-23	FCIBNPS	0.61192	6.4321	0	0.2531	0	0	7.0539	p7130236	1
AG12-32	G058-24	FCIBNPS	0.32896	2.8076	0	3.1748	0	0	10.156	p7130250	1
AG12-33	G058-25	F*IBNP*	0.34649	11.301E	0	2.5751	0	0	89.86E	p7130304	1
AG12-34	RINSE	FCIBNPS	0	0	0	0	0	0	0	p7130318	1
AG12-35	RINSE	FCIBNPS	0	0	0	0	0	0	0	p7130332	1
AG12-36	CCV3	FCIBNPS	100.2%	95.6%	95.6%	101.8%	94.8%	96.8%	97.9%	p7130346	1
AG12-37	CCB3	FCIBNPS	0	0	0	0	0	0.1887	0	p7130400	1
AG12-38	MRL	FCIBNPS	0	0.25923	0	0	0.13842	0	0.49672	p7130414	1
AG12-39	MDL	FCIBNPS	0	0.25447	0	0	0.13519	0	0.48865	p7130428	1
AG12-40	CCV4	FCIBNPS	96.9%	93.9%	92.9%	99.9%	92.5%	98%	95.5%	p7130442	1
AG12-41	CCB4	FCIBNPS	0.21534	0	0.090606	0	0	0.92427	0	p7130456	1

CALIBRATION OF COMPONENT chloride

Method: IC100-G12.mtw
Equation: Q = 0.0757087·A + 0.100061
RSD: 6.184 %
Correlation coefficient: 0.999136



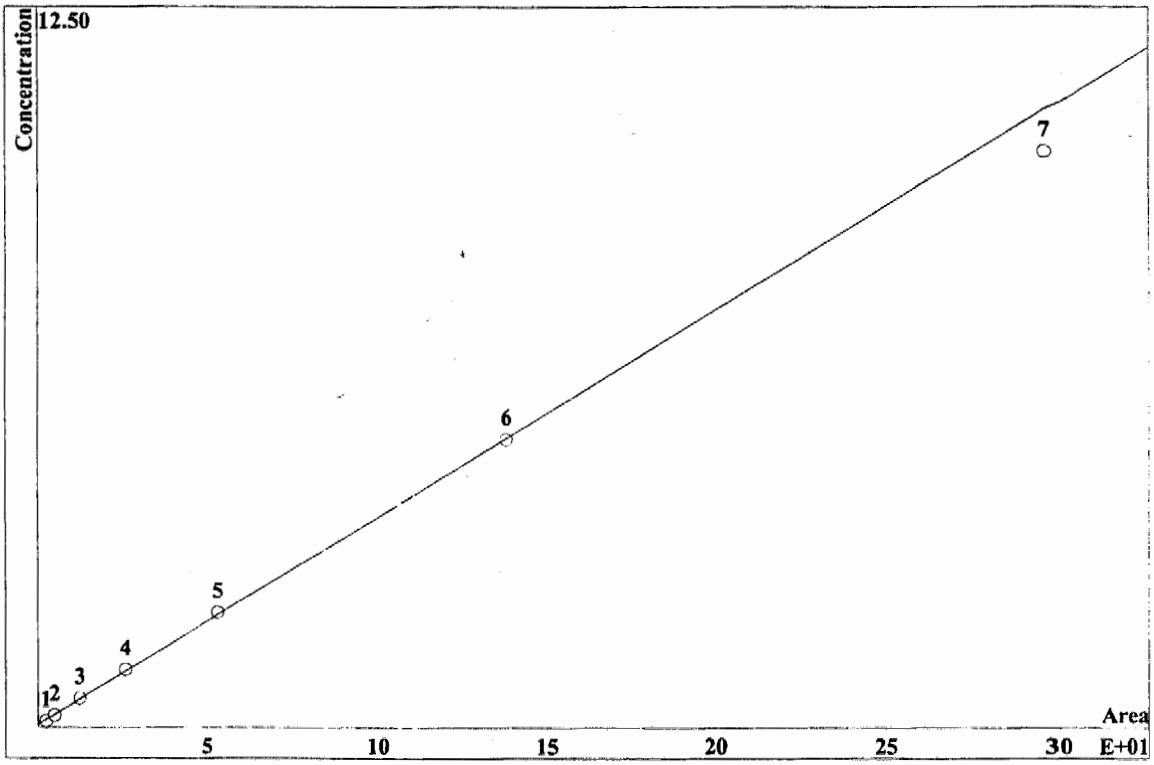
K3 = 0 K2 = 0 K1 = 0.0757087 K0 = 0.100061
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.2455	2.182 ✓	0.1	1	3.4	Yes	p7122001.chw
2	0.2371	2.13 ✓	0.2	1	3.4	Yes	p7122016.chw
3	0.6644	5.861 ✓	0.5	1	3.4	Yes	p7122030.chw
4	1.319	11.66 ✓	1	1	3.4	Yes	p7122044.chw
5	2.661	23.35 ✓	2	1	3.4	Yes	p7122058.chw
6	7.225	61.28 ✓	5	1	3.4	Yes	p7122112.chw
7	15.92	132.6 ✓	10	1	3.4	Yes	p7122126.chw

7-15-05 8026

CALIBRATION OF COMPONENT nitrite

Method: IC100-G12.mtw
Equation: Q = 0.0360261·A + 0.0453635
RSD: 2.142 %
Correlation coefficient: 0.999886



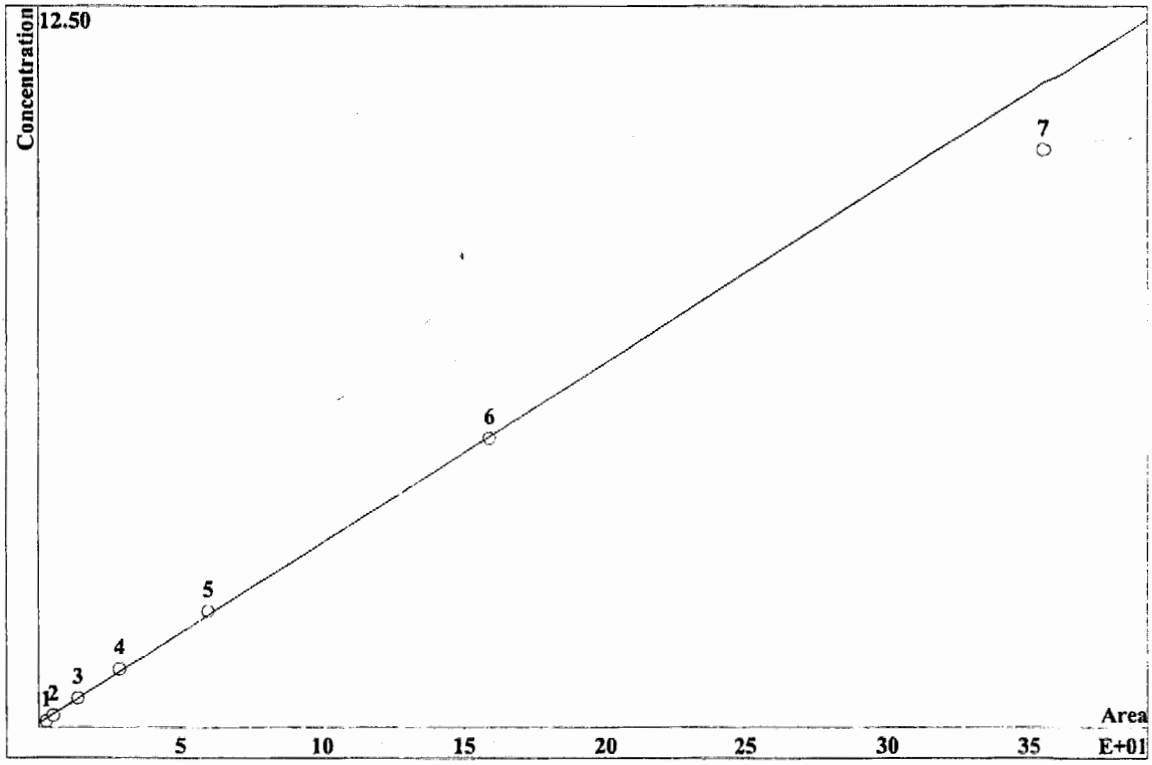
K3 = 0 K2 = 0 K1 = 0.0360261 K0 = 0.0453635
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.2338	2.422	0.1	1	4.04	Yes	p7122001.chw
2	0.4699	4.887	0.2	1	4.04	Yes	p7122016.chw
3	1.199	12.35	0.5	1	4.04	Yes	p7122030.chw
4	2.505	25.75	1	1	4.04	Yes	p7122044.chw
5	5.149	53.27	2	1	4.04	Yes	p7122058.chw
6	13.25	138	5	1	4.04	Yes	p7122112.chw
7	27.46	296.6	10	1	4.04	No	p7122126.chw

1-18-05
18027

CALIBRATION OF COMPONENT nitrate

Method: IC100-G12.mtw
Equation: Q = 0.0311912·A + 0.0620763
RSD: 3.547 %
Correlation coefficient: 0.999689

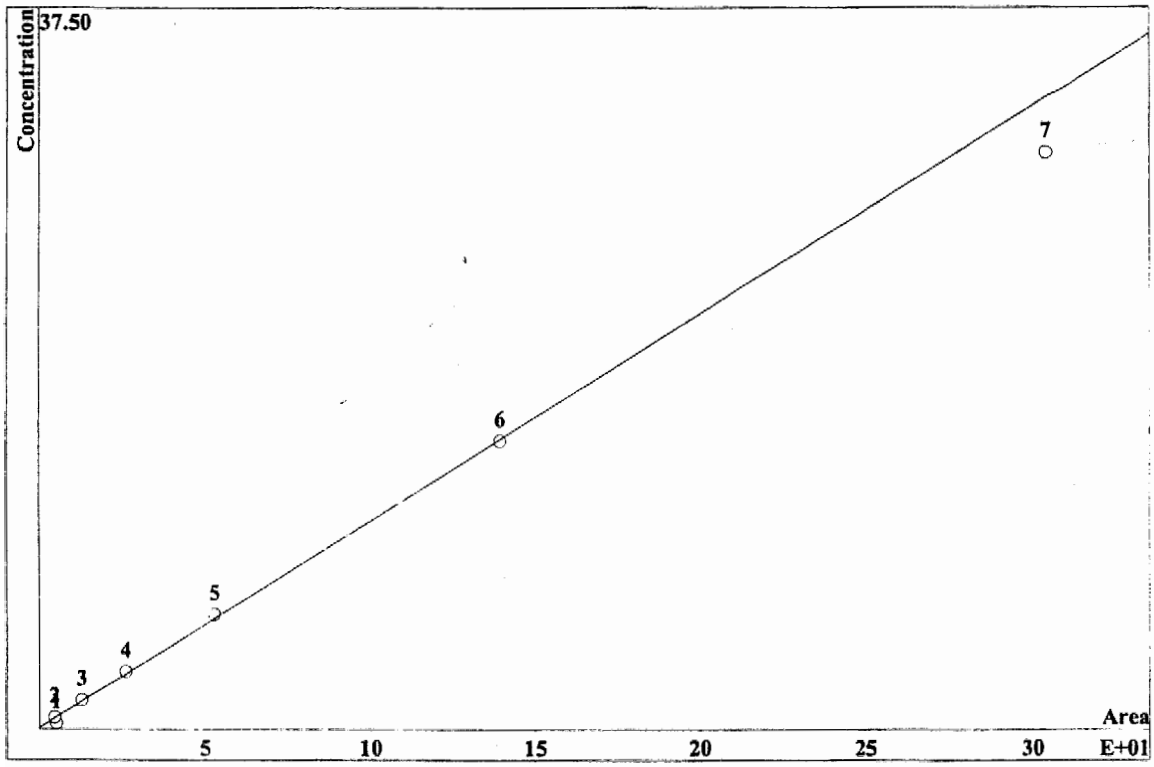


K3 = 0 K2 = 0 K1 = 0.0311912 K0 = 0.0620763
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.2165	2.84 ✓	0.1	1	5.72	Yes	p7122001.chw
2	0.415	5.429 ✓	0.2	1	5.72	Yes	p7122016.chw
3	1.072	13.92 ✓	0.5	1	5.72	Yes	p7122030.chw
4	2.23	28.71 ✓	1	1	5.72	Yes	p7122044.chw
5	4.699	59.99 ✓	2	1	5.72	Yes	p7122058.chw
6	12.88	159.3 ✓	5	1	5.72	Yes	p7122112.chw
7	29.17	355.8 ✗	10	1	5.72	No	p7122126.chw

CALIBRATION OF COMPONENT sulfate

Method: IC100-G12.mtw
Equation: Q = 0.10777·A + 0.0673535
RSD: 4.885 %
Correlation coefficient: 0.999410



K3 = 0 K2 = 0 K1 = 0.10777 K0 = 0.0673535
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.3229	5.184	0.3	1	8.36	Yes	p7122001.chw
2	0.2916	4.664	0.6	1	8.36	Yes	p7122016.chw
3	0.8086	12.87	1.5	1	8.36	Yes	p7122030.chw
4	1.631	25.99	3	1	8.36	Yes	p7122044.chw
5	3.365	53.02	6	1	8.36	Yes	p7122058.chw
6	9.065	139.5	15	1	8.36	Yes	p7122112.chw
7	20.13	304.4	30	1	8.36	No	p7122126.chw

1-15-05

8029

SECOND SOURCE VERIFICATION

IC Result Check FormVersion : QG1

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AG12-10	ICV	FCIBNPS	97.2%	92.9%	97.1%	99.8%	97%	97.6%	97.4%	p7122140	1
AG12-11	ICB	FCIBNPS	0	0	0	0	0	0	0	p7122154	1
AG12-12	CCV1	FCIBNPS	93.8%	90%	94.6%	96.4%	93.3%	97%	94.4%	p7122208	1
AG12-13	CCB1	FCIBNPS	0	0	0	0	0	0	0	p7122222	1
AG12-24	CCV2	FCIBNPS	100.4%	95.6%	95.5%	101.3%	94.3%	100.6%	97.8%	p7130057	1
AG12-25	CCB2	FCIBNPS	0	0	0	0	0	0	0	p7130111	1
AG12-36	CCV3	FCIBNPS	100.2%	95.6%	95.6%	101.8%	94.8%	96.8%	97.9%	p7130346	1
AG12-37	CCB3	FCIBNPS	0	0	0	0	0	0.1887	0	p7130400	1
AG12-40	CCV4	FCIBNPS	96.9%	93.9%	92.9%	99.9%	92.5%	98%	95.5%	p7130442	1
AG12-41	CCB4	FCIBNPS	0.21534	0	0.090606	0	0	0.92427	0	p7130456	1

DAILY CALIBRATIONS

IC Result Check FormVersion : QG1

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AG26-01	CCV64	FCIBNPS	91.3%	91%	98.9%	96.6%	96.1%	93.8%	92.2%	p7261407	1
AG26-02	CCB64	FCIBNPS	0	0	0	0	0	0	0	p7261421	1
AG26-13	CCV65	FCIBNPS	93%	92.1%	99.3%	97.8%	95.6%	97.2%	92.8%	p7261656	1
AG26-14	CCB65	FCIBNPS	0	0	0	0	0	0	0	p7261710	1
AG26-25	CCV66	FCIBNPS	93.6%	99.1%	102.7%	104.1%	97.1%	92.2%	93.8%	p7262231	1
AG26-26	CCB66	FCIBNPS	0	0	0	0	0	0	0	p7262245	1
AG26-37	CCV67	FCIBNPS	92%	91.2%	98%	96.9%	94.4%	91.2%	91.5%	p7270120	1
AG26-38	CCB67	FCIBNPS	0	0	0	0	0	0	0	p7270134	1
AG26-49	CCV68	FCIBNPS	92.2%	91.1%	98.1%	96.7%	94.2%	90.3%	91.4%	p7270409	1
AG26-50	CCB68	FCIBNPS	0	0	0	0	0	0	0	p7270423	1
AG26-59	CCV69	FCIBNPS	93.4%	91.2%	97.7%	96.6%	93.8%	84%*	91%	p7270629	1
AG26-60	CCB69	FCIBNPS	0	0	0	0	0	0.20794	0	p7270644	1
AG26-61	CCV69	FCIBNPS	91.6%	91.2%	98.2%	96.4%	94.1%	82.2%*	91.3%	p7270658	1
AG26-62	CCB69	FCIBNPS	0	0	0	0	0	0.19777	0	p7270712	1

IC Result Check FormVersion : qg1

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AG29-01	CCV86	FCIBNPS	91.1%	94.2%	99.6%	99.6%	96.5%	93.4%	98.8%	p7291246	1
AG29-02	CCB86	FCIBNPS	0	0	0	0	0	0	0	p7291301	1
AG29-13	CCV87	FCIBNPS	95.3%	94.9%	99.1%	100.4%	97%	99%	99.8%	p7291549	1
AG29-14	CCB87	FCIBNPS	0	0	0	0	0	0	0	p7291603	1
AG29-25	CCV88	FCIBNPS	95.3%	94.7%	99.2%	100.4%	97.1%	99.6%	99.4%	p7291838	1
AG29-26	CCB88	FCIBNPS	0	0	0	0	0	0	0	p7291852	1
AG29-37	CCV89	FCIBNPS	93%	93.8%	98.8%	98.8%	102.5%	94.4%	98.5%	p7292153	1
AG29-38	CCB89	FCIBNPS	0	0	0	0	0	0	0	p7292208	1
AG29-49	CCV90	FCIBNPS	95.6%	95.3%	99.4%	100.8%	104.1%	100.8%	99.6%	p7300043	1
AG29-50	CCB90	FCIBNPS	0	0	0	0	0	0	0	p7300057	1
AG29-61	CCV91	FCIBNPS	95.4%	94.7%	99.1%	100.5%	103.7%	101.7%	99.4%	p7300332	1
AG29-62	CCB91	FCIBNPS	0	0	0	0	0	0	0	p7300346	1
AG29-73	CCV92	FCIBNPS	95.1%	96.4%	99.6%	100.7%	104.1%	99.8%	99.9%	p7300620	1
AG29-74	CCB92	FCIBNPS	0	0	0	0	0	0	0	p7300635	1
AG29-85	CCV93	FCIBNPS	93%	94.4%	99.4%	99.5%	102.7%	93.2%	97.8%	p7300909	1
AG29-86	CCB93	FCIBNPS	0	0	0	0	0	0	0	p7300923	1
AG29-97	CCV94	FCIBNPS	93.2%	94.6%	99.1%	99.6%	102.8%	87.6%*	98%	p7301158	1
AG29-98	CCB94	FCIBNPS	0	0	0	0	0	0	0	p7301212	1
AG29-109	CCV95	FCIBNPS	95%	95.1%	99.5%	100.4%	104.3%	99.9%	99.7%	p7301514	1
AG29-110	CCB95	FCIBNPS	0	0	0	0	0	0	0	p7301528	1
AG29-121	CCV96	FCIBNPS	97.6%	95%	99.3%	100.2%	103.5%	92.3%	99.9%	p7301816	1
AG29-122	CCB96	FCIBNPS	0	0	0	0	0	0	0	p7301830	1
AG29-133	CCV97	FCIBNPS	104.8%	97%	99.9%	100.6%	104.2%	89%*	99.7%	p7302105	1
AG29-134	CCB97	FCIBNPS	0	0	0	0	0	0	0	p7302119	1
AG29-145	CCV98	FCIBNPS	107%	96.8%	100.1%	101.1%	104.7%	89.3%*	100%	p7302354	1
AG29-146	CCB98	FCIBNPS	0	0	0	0	0	0	0	p7310008	1
AG29-147	CCB98	FCIBNPS	0	0	0	0	0	0	0	p7310022	1
AG29-158	CCV99	FCIBNPS	108.4%	96.7%	99.7%	100.9%	104.2%	89.4%*	100%	p7310257	1
AG29-159	CCB99	FCIBNPS	0	0	0	0	0	0	0	p7310311	1
AG29-170	CCV100	FCIBNPS	107%	95.5%	99.2%	99.8%	103%	86.9%*	98.2%	p7310546	1
AG29-171	CCB100	FCIBNPS	0	0	0	0	0	0	0	p7310600	1
AG29-179	CCV101	FCIBNPS	108.5%	95.7%	92.8%	100.5%	98.4%	94%	96.3%	p7310752	1
AG29-180	CCB101	FCIBNPS	0	0	0	0	0	0	0	p7310806	1
AG29-181	CCV102	FCIBNPS	108.8%	95.6%	98.4%	100.8%	100.7%	96.8%	96.2%	p7310820	1

ANALYTICAL LOG

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No. 0 ☐

Start Date: 07/12/05 **Time:** 19:33 **Ending Date:** 07/13/05 **Time:** 04:56 **Book #** A100-001

ANALYTICAL BATCH # IC 6011W

	Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
*	1	AG12-01	IB	1		✓	
*	2	02	SC				
*	3	03	S1				
*	4	04	S2				
*	5	05	S3				
*	6	06	S4				
*	7	07	S5				
*	8	08	S6				
*	9	09	S7				
*	10	10	ICV				
*	1	11	ICB				
*	2	12	CCVI				
*	3	13	CCBI				
*	4	14	ICG011WB				
*	5	15	ICG011WCL 07/12/05				
*	6	16	ICG011WC ~~MRL~~ 07/12/05				
*	7	17	MRL				
*	8	18	G608-01	10			DF=10
*	9	19	G608-02				
*	10	20	G608-02D				
*	1	21	G608-02M				
*	2	22	G058-17				
*	3	23	RINSE				
*	4	24	CCV2				
*	5	25	CCB2				
*	6	26	G058-18				
*	7	27	G058-19				
*	8	28	G058-20				
*	9	29	G058-21				
*	30	30	G058-22				

Instrument Number	~~22~~ 100 cd 07/12/05

INITIAL CALIBRATION REFERENCE

Method File	IC100-G12.mtw	Date
ICAL ID	SW5B-12-628-634	07/12/05
ICV ID	SW5B-12-635-641	07/12/05

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1	SW5B-12-628	0.1	—	—	—	—	→	0.3
	S_2	629	0.2	—	—	—	—	→	0.6
	S_3	630	0.5	—	—	—	—	→	1.5
	S_4	631	1	—	—	—	—	→	3
	S_5	632	2	—	—	—	—	→	6
~~ICV~~ 07/12/05	S_6	633	5	—	—	—	—	→	15
~~CCV~~ 07/12/05	S_7	↓ 634	10	—	—	—	—	→	30
~~LCS~~ ICV		SW5B-12-635-641	3	—	.	—	—	→	10
MS x10		LCS source	5	5	2.5	5	2.5	5	7.5

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3
ICAL	S_1				
	S_2	N/A cd 07/12/05			
	S_3				
	S_4				

		Standards-A (Conc. mg/L)						
ICV cd 07/12/05		F	Cl	NO_2	Br	NO_3	P	SO_4
CCV	SW5B-12-642-645	5	5	2.5	5	2.5	5	7.5
LCS	SW5B-12-646-652	5	5	2.5	5	2.5	5	7.5

Comments:

Analyzed By: cd

This page is checked during the data review process.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

80,36

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No.0 ☐

Start Date: 07/12/05 **Time:** 14:33 **Ending Date:** 07/13/05 **Time:** 04:56 **Book # A100-001**

ANALYTICAL BATCH # IC G011W

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
* 1	AG12-31	G058-23	1		✓	
* 2	32	G058-24				
* 3	33	G058-25				
* 4	34	RINSE				
* 5	35	RINSE				
* 6	36	CCV3				
* 7	37	CCB3				
* 8	38	MRL				
* 9	39	MDL				
* 10	40	CCV4				
* 11	41	CCB4				
* 2						
* 3						
* 4						
* 5						
* 6						
* 7						
* 8						
* 9						
* 0						
* 1						
* 2						
* 3						
* 4						
* 5						
* 6						
* 7						
* 8						
* 9						
* 0						

cd 07/12/05

Instrument Number		22100 cd 07/12/05
INITIAL CALIBRATION REFERENCE		
Method File		Date
ICAL ID		
ICV ID		

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1								
	S_2								
	S_3								
	S_4								
	S_5								
ICV									
CCV									
LCS									
MS									

RSD to RL-54

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3
ICAL	S_1				
	S_2				
	S_3				
	S_4				
ICV					
CCV					
LCS					

Comments:

Analyzed By: cd

This page is checked during the data review process.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No.0 ☐

Start Date: 07/26/05 **Time:** 1407 **Ending Date:** 07/27/05 **Time:** 07:54 **Book # A100-001**

ANALYTICAL BATCH * IC A032W

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
* 1	AG26-01	CCV64	1		✓	
* 2	02	CCB64	↓		↓	
* 3	03	MRL	↓		↓	
* 4	04	ICG032WB	↓		↓	
* 5	05	WL	↓		↓	
* 6	06	WC	↓		↓	
* 7	07	G136-02	10		↓	
* 8	08	03	20		↓	
* 9	09	04	10		↓	
* 10	10	05	5		↓	
* 11	11	06	10		↓	
* 12	12	07	10		↓	
* 13	13	CCV65	1		↓	
* 14	14	CCB65	↓		↓	
* 15	15	G842-02	↓		↓	
* 16	16	02	50		↓	*Re-run due to
* 17	17	02R	50		↓	possible air bubble in
* 18	18	G222-01	20		↓	instrument.
* 19	19	02	↓		↓	
* 20	20	03	↓		↓	
* 21	21	04	↓		↓	
* 22	22	05	↓		↓	
* 23	23	06	↓		↓	
* 24	24	RINSE	1		↓	
* 25	25	CCV66	↓		↓	
* 26	26	CCB66	↓		↓	
* 27	27	MRL	↓		↓	
* 28	28	G22-17	20		↓	
* 29	29	G219-01	1		↓	
* 30	30	02	1		↓	

Instrument Number	22 100 cd 07/26/05

INITIAL CALIBRATION REFERENCE

Method File	ICIW-G12 mtw	Date
ICAL ID	SW5B-12-628-634	07/12/05
ICV ID	SW5B-12-635-641	07/12/05

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1								
	S_2	-	-						
	S_3								
	S_4		Refer to pg 57						
	S_5								
ICV									
CCV		SW5B-12-757-760	5	5	2.5	5	2.5	5	7.5
LCS		SW5B-12-761-764	↓	↓	↓	↓	↓	↓	↓
MS		LCS source	↓	↓	↓	↓	↓	↓	↓

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3
ICAL	S_1	N/A			
	S_2	↓			
	S_3				
	S_4				
ICV					
CCV					
LCS		↓			

Comments:

Analyzed By: cd

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EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

8038

ANALYSIS RUN LOG FOR IC

SOP ☐ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No. 0 ☐

Start Date: 07/26/05 Time: 14:07 Ending Date: 07/27/05 Time: 07:54 Book # A100-001

ANALYTICAL BATCH * IC G034V ** ICG039W

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
* 31	AG26-31	G218-02M	1		✓	
* 2	32	02D				
* 3	33	RINSE				
* 4	34	ICGD33WB				
* 5	07/26/05 35	WL				
* 6	36	WC				
* 7	37	CCV67				
* 8	38	CCB67				
* 9	39	G218-03				
* 40	40	04				
* 1	41	05				
* 2	42	06				
* 3	43	G219-02	5			
* 4	44	03				
* 5	45	04				
* 6	46	05				
* 7	47	RINSE	1			
* 8	48	RINSE				
* 9	49	CCV68				
* 50	50	CCB68				
* 1	51	G221-02				
* 2	52	02D				
* 3	53	02M				
* 4	54	03				
* 5	07/27/05 55	04				
* 6	56	05	5			
* 7	57	06	1			
* 8	58	RINSE				
* 9	59	CCV69				
* 60	60	CCB69				

Instrument Number	22100 07/26/05

INITIAL CALIBRATION REFERENCE

Method File		Date
ICAL ID		
ICV ID		

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1								
	S_2								
	S_3								
	S_4								
	S_5								
ICV									
CCV									
LCS									
MS									

Refer to pg 83

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3	
ICAL	S_1					
	S_2					
	S_3					
	S_4					
ICV						
CCV						
LCS						

Comments:

Analyzed By: ae

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EMAX LABORATORIES, INC. 1835 W. 10th St. Torrance, CA 90501

8039

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No.0 ☐

Start Date: 07/29/05 **Time:** 12:46 **Ending Date:** 07/30/05 **Time:** 08:20 **Book # A100-001**

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
* 1	AG29-01	CCV 86	1		✓	
* 2	02	CCB 86				
* 3	03	ICG039WB				
* 4	04	ICG039WL				
* 5	05	ICG039WC				
* 6	06	G182-01				
* 7	07	G182-02				
* 8	08	G182-03				
* 9	09	G182-04				
* 10	10	G182-05				
* 11	11	G182-06				
* 12	12	BL				
* 13	13	CCV 87				
* 14	14	CCB 87				
* 15	15	G182-07				
* 16	16	G252-01	50			
* 17	17	RINSE	1			
* 18	18	G827-01	1			
* 19	19	G622-01	5			
* 20	20	G622-02	5			
* 21	21	G150-01	1			
* 22	22	G150-01D				
* 23	23	G150-01M				
* 24	24	RINSE				
* 25	25	CCV 88				
* 26	26	CCB 88				
* 27	27	G150-02				
* 28	28	G150-03				
* 29	29	RINSE				
** 30	30	ICG040WB				

ANALYTICAL BATCH # IC G049W ** TCG049W

EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

80140

Instrument Number	~~22~~ 100

INITIAL CALIBRATION REFERENCE

Method File	IC100-G12.mtw	Date
ICAL ID	SW5B-12-628-634	07/12/05
ICV ID	SW5B-12-635-641	07/12/05

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1								
	S_2								
	S_3								
	S_4								
	S_5								
ICV									
CCV		SW5B-12-793-796	5	5	2.5	5	2.5	5	7.5
LCS		SW5B-12-797-800							
MS × DF		LCS Source							

Refer to pg 54

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3
ICAL	S_1	N/A			
	S_2				
	S_3				
	S_4				
ICV					
CCV					
LCS					

Comments:

Analyzed By: od

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ANALYSIS RUN LOG FOR IC

SOP ☒ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No.0 ☐

Start Date: 07/29/05 **Time:** 12:46 **Ending Date:** 07/31/05 **Time:** 08:20 **Book # A100-001**

ANALYTICAL BATCH ******IC G03W******* ICG04W

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
******12 1	AG29-121	CCV96	1		✓	
* 2	122	CCB96	1			
* 3	123	G232-04	1			
* 4	124	G232-01	200			
* 5	125	G232-03	25			
* 6	126	G232-04	25			
* 7	127	G232-05	100			
* 8	128	G232-06	100			
* 9	129	G232-07	50			
* 13 0	130	G244-01	50			
* 1	131	G244-02	250			
* 2	132	RINSE	1			
* 3	133	CCV97	1			
* 4	134	CCB97	1			
* 5	135	G184-01	500			
* 6	136	G184-02	200			
* 7	137	G184-03	50			
* 8	138	G184-04	50			
* 9	139	RINSE	1			
* 14 0	140	RINSE				
* 1	141	RINSE				
****** 2	142	ICG044WB				ICG044WB
* 3	143	ICG044WL 8/1/05				ICG044WL
* 4	144	ICG044WC				ICG044WC
* 5	145	CCV98				
* 6	146	CCB98				
* 7	147	CCB98				
* 8	148	RINSE	↓			
* 9	149	G829-02	20			
* 15 0	150	G829-02D	20		↓	

Instrument Number		22 100 ok 07/31/05
INITIAL CALIBRATION REFERENCE		
Method File		Date
ICAL ID		
ICV ID		

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1								
	S_2								
	S_3								
	S_4								
	S_5								
ICV									
CCV									
LCS									
MS									

Refer to 7/1-03

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3
ICAL	S_1				
	S_2				
	S_3				
	S_4				
ICV					
CCV					
LCS					

Comments:

Analyzed By: [illegible]

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8041

ANALYSIS RUN LOG FOR IC

SOP ☒ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No.0 ☐

Start Date: 07/29/05 **Time:** 12:46 **Ending Date:** 07/31/05 **Time:** 08:20 **Book # A100-001**

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
******151	AG29-151	G823-02M	20		✓	
* 2	152	G266-02	20			
* 3	153	G266-03	50			
* 4	154	G266-04	100			
* 5	155	G266-05	200			
* 6	156	G266-05D	200			
* 7	157	G266-05M	200			
* 8	158	CCL99	1			
* 9	159	CCB99	1			
* 160	160	G219-02	10			
* 1	161	G219-03	1000			
* 2	162	G219-04	500			
* 3	163	G219-05	10			
* 4	164	G218-01	5			
* 5	165	G218-02	5			
* 6	166	G218-02D	5			
* 7	167	G218-02M	5			
* 8	168	G218-03	10			
* 9	169	RINSE	1			
* 170	170	CCV100				
* 1	171	CCB100				
****** 2	172	ICG045WB (5)				ICG045WB
* 3	173	ICG045WL (5) cd 7/31/05				ICG045WL
* 4	174	ICG045WL (5)				ICG045WL
* 5	175	RINSE	✓			
* 6	176	G218-04	5			
* 7	177	G218-05	5			
* 8	178	G218-06	5			
* 9	179	CCV101	1			
* 180	180	CCB101	1			

ANALYTICAL BATCH ******IC G044W ******* ICG045W

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

Instrument Number		100 22 cd 07/31/05
INITIAL CALIBRATION REFERENCE		
Method File		Date
ICAL ID		
ICV ID		

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1								
	S_2								
	S_3								
	S_4								
	S_5								
ICV									
CCV									
LCS									
MS									

Recal to pg 97

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3	
ICAL	S_1					
	S_2					
	S_3					
	S_4					
ICV						
CCV						
LCS						

Comments:

Analyzed By: cd

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8042

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G218**

METHOD 310.1
TOTAL ALKALINITY

Six (6) water samples were received on 07/26/05 for Total Alkalinity analysis by Method 310.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Duplicate sample was not designated in this SDG.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 310.1
TOTAL ALKALINITY

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G218

Matrix : WATER
Instrument ID : I53

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ALG020WB	ND	1	NA	5	1	07/29/0511:30	NA	ALG020W-01	NA	ALG020W	NA	NA
LCS1W	ALG020WL	48.1	1	NA	5	1	07/29/0511:35	NA	ALG020W-02	NA	ALG020W	NA	NA
LCD1W	ALG020WC	48.1	1	NA	5	1	07/29/0511:40	NA	ALG020W-03	NA	ALG020W	NA	NA
MW-24-4	G218-01	127	1	NA	5	1	07/29/0512:20	NA	ALG020W-11	NA	ALG020W	07/25/05	07/26/05
MW-24-3	G218-02	142	1	NA	5	1	07/29/0512:25	NA	ALG020W-12	NA	ALG020W	07/25/05	07/26/05
MW-24-2	G218-03	144	1	NA	5	1	07/29/0512:30	NA	ALG020W-13	NA	ALG020W	07/25/05	07/26/05
MW-24-1	G218-04	154	1	NA	5	1	07/29/0512:35	NA	ALG020W-14	NA	ALG020W	07/25/05	07/26/05
DUPE-3-7/25/05	G218-05	159	1	NA	5	1	07/29/0512:40	NA	ALG020W-15	NA	ALG020W	07/25/05	07/26/05
MW-24-5	G218-06	164	1	NA	5	1	07/29/0512:45	NA	ALG020W-16	NA	ALG020W	07/25/05	07/26/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 310.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G218
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: ALG020WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 07/29/05 11:35/11:40

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Total Alkalinity	ND	49.20	48.10	98	49.20	48.10	98	0	80-120	20

8045

ANALYSIS LOG FOR ALKALINITY

SOP ☐ EMAX-310.1 Rev. No. 2 ☐ SM2320B Rev. No. 0 ☐ Book # AAL-009

Start Date: 7/29/05 Time: 11:30 Ending Date: 7/29/05 Time: Instrument No: ☐53 ☐97

	Data File Name	Lab Sample ID	Time	Sample Amt. (ml)	Initial pH	Acid Titrant pH=8.3	Acid Titrant pH=4.5	Acid Titrant pH=4.2	Final pH	ALKALINITY (mg/L) Total	Hydroxide (OH)	Carbonate (CO_3)	Bicarbonate (HCO3)	Notes
*01		ALG020 WB	11:30	20	5.20	NA	0.025	NA	4.45	ND				
*02		WL	11:35		8.27		0.95		4.53	48.1				
*03		WC	11:40		8.25		0.95		4.51	48.1				
*04		G169-02	11:45		6.93		7.75		4.50	392				
*05		-03	11:50		10.48		1.85		4.51	94				
*06		-04	11:55		7.55		7.95		4.53	402				
*07		-04D	12:00		7.58		7.95		4.47	402				
*08		-05	12:05		7.39		8.85		4.53	448				
*09		-06	12:10		9.52		2.35		4.51	119				
*10		-07	12:15	100	5.80		0.35	0.45	4.21	2.53 = ND				
*11		G218-01	12:20	20	8.69		2.50	NA	4.47	127				
*12		-02	12:25		8.45		2.80		4.51	142				
*13		-03	12:30		8.06		2.85		4.48	144				
*14		-04	12:35		7.58		3.05		4.52	154				
*15		-05	12:40		7.58		3.15		4.50	159				
*16		-06	12:45		7.94		3.25		4.49	164				
*17														
*18														
*19														
*20														
*21														
*22														
*23														
*24														
*25														

PM 8/4/05

Standard Reagent	ID	Conc. mg/L
LCS	SW7A-06-174	49.2
Spike	NA	
Na_2CO_3 Soln	SW7A-06-120	2360
Acid Titrant HCL	SW3B-02-732	0.02N

Standardization

Na_2CO_3 Soln. (ml)	Acid Titrant (ml)	Normality, N
BLK	0.025	ND
5	11.65	.02024
5	11.66	.02033
5	11.70	.02016

Avg. N: .02024

pH METER CALIBRATION

pH Buffer	ID	Reading
pH 4	SW7A-06-097	4.01
pH 7	-098	7.00
pH 10	-100	10.00
Slope	100.2	

Comments:

Analyzed By: MB / PM

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ANALYTICAL BATCH # ALG020 W

8046

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G218**

METHOD 350.2
AMMONIA (NH3-N)

Six (6) water samples were received on 07/26/05 for Ammonia analysis by Method 350.2 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Sample G218-06 was analyzed for duplicate. %RPD was within QC limit.

5. Matrix Spike

Sample G218-06 was spiked. %Recovery was within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 350.2
AMMONIA (NH3-N)

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G218

Matrix : WATER
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	NHH002WB	ND	1	NA	.1	.03	08/05/0515:11	08/05/0514:00	NHH002W-12	NHH002W-10	NHH002W	NA	08/05/05
LCS1W	NHH002WL	.927	1	NA	.1	.03	08/05/0515:12	08/05/0514:00	NHH002W-13	NHH002W-10	NHH002W	NA	08/05/05
LCD1W	NHH002WC	.940	1	NA	.1	.03	08/05/0515:13	08/05/0514:00	NHH002W-14	NHH002W-10	NHH002W	NA	08/05/05
MW-24-4	G218-01	.254	1	NA	.1	.03	08/05/0515:14	08/05/0514:00	NHH002W-15	NHH002W-10	NHH002W	07/25/05	07/26/05
MW-24-3	G218-02	.117	1	NA	.1	.03	08/05/0515:15	08/05/0514:00	NHH002W-16	NHH002W-10	NHH002W	07/25/05	07/26/05
MW-24-2	G218-03	.111	1	NA	.1	.03	08/05/0515:16	08/05/0514:00	NHH002W-17	NHH002W-10	NHH002W	07/25/05	07/26/05
MW-24-1	G218-04	ND	1	NA	.1	.03	08/05/0515:17	08/05/0514:00	NHH002W-18	NHH002W-10	NHH002W	07/25/05	07/26/05
DUPE-3-7/25/05	G218-05	ND	1	NA	.1	.03	08/05/0515:18	08/05/0514:00	NHH002W-19	NHH002W-10	NHH002W	07/25/05	07/26/05
MW-24-5	G218-06	ND	1	NA	.1	.03	08/05/0515:19	08/05/0514:00	NHH002W-20	NHH002W-10	NHH002W	07/25/05	07/26/05
MW-24-5DUP	G218-06D	ND	1	NA	.1	.03	08/05/0515:20	08/05/0514:00	NHH002W-21	NHH002W-10	NHH002W	07/25/05	07/26/05
MW-24-5MS	G218-06M	.952	1	NA	.1	.03	08/05/0515:23	08/05/0514:00	NHH002W-24	NHH002W-22	NHH002W	07/25/05	07/26/05

8(148

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 350.2
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G218
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: NHH002WL/C

DATE RECEIVED: 08/05/05
DATE EXTRACTED: 08/05/05 14:00
DATE ANALYZED: 08/05/05 15:12/15:13

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Ammonia (NH3-N)	ND	1.00	.927	93	1.00	.94	94	1	80-120	20

8049

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 350.2
MATRIX: WATER
% MOISTURE: NA

==========

BATCH NO.: 05G218
SAMPLE ID: MW-24-5MS
CONTROL NO.: G218-06M

DATE RECEIVED: 07/26/05
DATE EXTRACTED: 08/05/05 14:00
DATE ANALYZED: 08/05/05 15:23

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
Ammonia (NH3-N)	ND	1.00	.952	95	75-125

8150

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 350.2
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G218
SAMPLE ID: MW-24-5DUP
CONTROL NO.: G218-06D

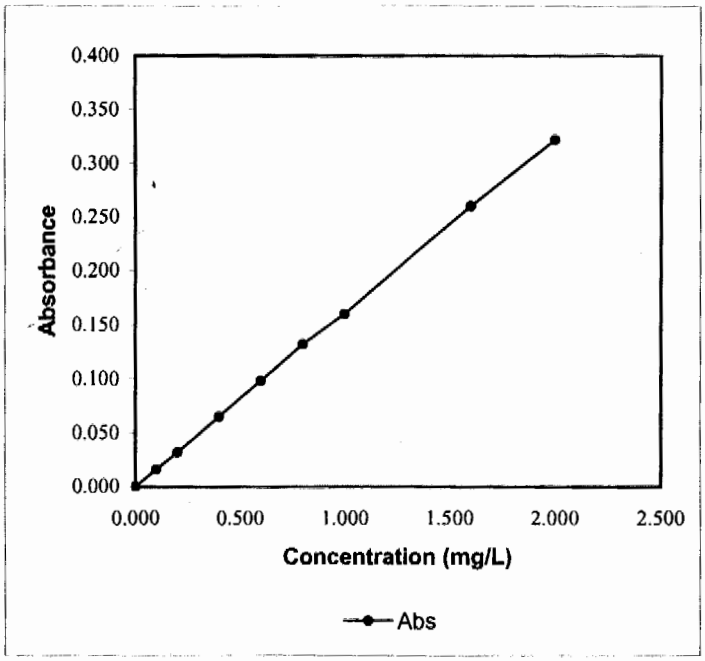
DATE RECEIVED: 07/26/05
DATE EXTRACTED: 08/05/05 14:00
DATE ANALYZED: 08/05/05 15:20

ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
Ammonia (NH3-N)	ND	ND	0	20

CALIBRATION CURVE
AMMONIA _NH3 _TKN

Conc.	Abs
0.000	0.000
0.100	0.016
0.200	0.032
0.400	0.065
0.600	0.098
0.800	0.132
1.000	0.160
1.600	0.260
2.000	0.322



R^2	0.999856	Comments:	**PASSED**
Y	0.1617		
CF	6.1830	Analyzed by:	NT/LA

ANALYSIS LOG FOR AMMONIA-N

SOP ☑ EMAX-350.2 Rev. No. 2 ☐ EMAX-350.1 ☐ Rev. No. 0 ☐ Book # A70-NH_3-005

Starting Date: 8/5/05 Time: 15:00 Ending Date: 8/5/05 Time: 15:37

ANALYTICAL BATCH * NHH002W

Data File Name	Prep. Batch	Lab Sample ID	Matrix S	Matrix W	Time	Vol.Colored (ml)	DF	Absorbance	Notes mg/L
* 1	NH002W	S-0			15:00	20	1	0.000	
* 2		0.1			01			0.016	
* 3		0.2			02			0.032	
* 4		0.4			03			0.065	
* 5		0.6			04			0.098	
* 6		0.8			05			0.0132	
* 7		1.0			06			0.160	
* 8		1.6			07			0.260	
* 9		2.0			08			0.322	
* 10		ICV			09			0.158	0.977
* 11		ICB			10			0.000	ND
* 12		NHH002WB		✓	11			0.000	ND
* 13		WL			12			0.150	0.927
* 14		WC			13			0.152	0.940
* 15		G218-01			14			0.041	0.254
* 16		02			15			0.019	0.117
* 17		03			16			0.018	0.111
* 18		04			17			0.002	ND
* 19		05			18			0.000	ND
* 20		NT 06			19			0.000	ND
* 21		8/5/05 06D			20			0.000	ND
* 22		CCV1 06M			21			0.160	0.989
* 23		CCB1			22			0.000	ND
* 24		G218-06M			23			0.154	0.952
* 25		G244-01			24			0.034	0.210
* 26		02			25			0.000	ND
* 27		G265-01			26			0.002	ND
* 28		02			27			0.000	ND
* 29		03			28			0.000	ND
* 30		04			29			0.000	ND

Instrument No: 70 Wavelength: 425 nm

Standard	ID	Conc. (mg/L)
S_0	Nanopure	0.0
S_1	SW2B-03-182	0.1
S_2		0.2
S_3		0.4
S_4		0.6
S_5		0.8
S_6		1.0
S_7		1.6
S_8		2.0
ICV/MS	SW2B-03-181	1.0
CCV	182	1.0
LCS	179	1.0

Reagent	ID
Color Reagent	SW7A-06-141

Standard Curve	
R	0.999856
Y	0.1617
CF	6.1830

Comments:

Results are based on: ☐ Dry Weight ☐ Wet Weight

Analyzed By: NT/LA

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8053

ANALYSIS LOG FOR AMMONIA-N

SOP ☑ EMAX-350.2 Rev. No. 2 ☐ EMAX-350.1 ☐ Rev. No. 0 ☐ Book # A70-NH_3-005

Starting Date: 8/5/05 Time: 15:00 Ending Date: 8/5/05 Time: 15:37

ANALYTICAL BATCH * NH002W

Data File Name	Prep. Batch	Lab Sample ID	Matrix S	Matrix W	Time	Vol.Colored (ml)	DF	Absorbance	Notes mg/L
* 31	NH002W	G265-05		✓	15:30	20	1	0.000	ND
* 32	↓	↓ 06		✓	31	↓	↓	0.000	ND
* 33	↓	↓ 07		✓	32	↓	↓	0.000	ND
* 34	↓	CCV2			33	↓	↓	0.158	0.977
* 35	↓	CCB2			34	↓	↓	0.000	ND
* 36	↓	G265-08		✓	35	↓	↓	0.000	ND
* 37	↓	CCV3			36	↓	↓	0.160	0.989
* 38	↓	CCB3			15:37	↓	↓	0.000	ND
* 9									
* 0									
* 1									
* 2									
* 3									
* 4									
* 5									
* 6									
* 7									
* 8									
* 9						NT 8/5/05			
* 0									
* 1									
* 2									
* 3									
* 4									
* 5									
* 6									
* 7									
* 8									
* 9									
* 0									

Instrument No: 70 Wavelength: 425 nm

Standard	ID	Conc. (mg/L)
S_0		0.0
S_1		0.1
S_2		0.2
S_3		0.4
S_4		0.6
S_5		0.8
S_6		1.0
S_7		1.6
S_8		2.0
ICV/MS		1.0
CCV		1.0
LCS		1.0

SAME AS PAGE 71

Reagent	ID
Color Reagent	

Standard Curve	
R	
Y	
CF	

Comments:

Results are based on: ☐ Dry Weight ☐ Wet Weight

Analyzed By: NT/LA

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W 205th St Torrance, CA 90501

DISTILLATION LOG FOR NH_3 / DIGESTION AND DISTILLATION FOR TKN

SOP ☑ EMAX-350.2 Rev. No.: 2 ☐ EMAX-351.3 Rev. No.: 2 ☐ Book # EKN-006

Start Date 8/5/05 Time 9:00 End Date 8/5/05 Time 14:00

PREPARATION BATCH # NHH002W

Sample Prep ID	Lab Sample ID	Sample pH	NaOH Added (ml)	Boric Acid (ml)	Borate Buffer (ml)	Sample Amount (ml)	Extract Volume (ml)	Notes
*01	S-0	9.5	0.1	10	5	100	100	
*02	0.1							
*03	1.0							
*04	2.0							
*05	ICV							
*06	ICB							
*07	NHH002WB							
*08	WL							
*09	WC							
*10	G218-01		0.8					
*11	02		0.7					
*12	03		0.8					
*13	04		0.9					
*14	05		0.9					
*15	06		0.8					
*16	06D		0.8					
*17	06M		0.8					
*18	G244-01		0.9					
*19	02		0.7					
*20	G265-01		0.7					
*21	02		0.8					
*22	03		0.7					
*23	04		0.7					
*24	05		0.7					
*25	06		0.7					
*26	07		0.7					
27	08		0.6					

Standards	ID	Amount Added (ml)
ICV/MS	SW2B-03-180	10ml of 10ppm
LCS	↓ 179	100mL

Reagent	Lot# / ID
NaOH	SW7A-06-112
Digestion Mixture	NA
Borate Buffer	SW7A-06-152
H_3BO_3	SW7B-06-322
Distilling Soln.	N/A

Comments:

Prepared By: NT/LA

Standard Added By: NT/LA

Checked By:

EMAX LABORATORIES, Inc. 1835 W 205th St. Torrance, CA 90501

8055

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G218**

METHOD 120.1
SPECIFIC CONDUCTIVITY

Six (6) water samples were received on 07/26/05 for Specific Conductivity analysis by Method 120.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Sample G218-05 was analyzed for duplicate. %RPD was within QC limit.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 120.1
SPECIFIC CONDUCTIVITY

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G218

Matrix : WATER
Instrument ID : I29

SAMPLE ID	EMAX SAMPLE ID	RESULTS (umhos/cm)	DLF	MOIST	RL (umhos/cm)	MDL (umhos/cm)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
LCSW	ECG008WL	403	1	NA	1	.5	07/28/0515:02	NA	ECG008W-02	NA	ECG008W	NA	NA
LCDW	ECG008WC	403	1	NA	1	.5	07/28/0515:04	NA	ECG008W-03	NA	ECG008W	NA	NA
MW-24-4	G218-01	297	1	NA	1	.5	07/28/0515:32	NA	ECG008W-17	NA	ECG008W	07/25/05	07/26/05
MW-24-3	G218-02	365	1	NA	1	.5	07/28/0515:34	NA	ECG008W-18	NA	ECG008W	07/25/05	07/26/05
MW-24-2	G218-03	451	1	NA	1	.5	07/28/0515:36	NA	ECG008W-19	NA	ECG008W	07/25/05	07/26/05
MW-24-1	G218-04	487	1	NA	1	.5	07/28/0515:38	NA	ECG008W-20	NA	ECG008W	07/25/05	07/26/05
DUPE-3-7/25/05	G218-05	488	1	NA	1	.5	07/28/0515:40	NA	ECG008W-21	NA	ECG008W	07/25/05	07/26/05
DUPE-3-7/25/05DUP	G218-05D	488	1	NA	1	.5	07/28/0515:42	NA	ECG008W-22	NA	ECG008W	07/25/05	07/26/05
MW-24-5	G218-06	394	1	NA	1	.5	07/28/0515:44	NA	ECG008W-23	NA	ECG008W	07/25/05	07/26/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 120.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G218
SAMPLE ID: LCSW/LCD1W
CONTROL NO.: ECG008WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 07/28/05 15:02/15:04

ACCESSION:

PARAMETER	BLNK RSLT (umhos/cm)	SPIKE AMT (umhos/cm)	BS RSLT (umhos/cm)	BS % REC	SPIKE AMT (umhos/cm)	BSD RSLT (umhos/cm)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Specific Conductivity	ND	402.00	403.00	100	402.00	403.00	100	0	80-120	20

8/58

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 120.1
MATRIX: WATER
% MOISTURE: NA

==========

BATCH NO.: 05G218
SAMPLE ID: DUPE-3-7/25/05DUP
CONTROL NO.: G218-05D

DATE RECEIVED: 07/26/05
DATE EXTRACTED: NA
DATE ANALYZED: 07/28/05 15:42

ACCESSION:

PARAMETER	SAMPLE (umhos/cm)	DUP. SAMPLE (umhos/cm)	RPD (%)	RPD LIMIT (%)
Specific Conductivity	488.00	488.00	0	5

8059

ANALYSIS LOG FOR SPECIFIC CONDUCTIVITY

SOP ☑ EMAX-120.1 Revision No. 1 ☐ Book # AEC-003

Start Date 7/28/05 Time 1500 End Date 7/28/05 Time 15:46

Data File Name		Lab Sample ID	Time	Temp. °C	Temp. Correction Factor QT @ 25 oC	DF	Measured Resistance (ohms)	Notes
	* 1	STD high 1413	1500	21.8	0.939	1	1338	1412
	* 2	EC9008WL 7/28/05	-02	21.8	↓		381.5	403
	* 3	↓ WC	-04	21.8	0.939		381.5	403
	* 4	G145-01	-06	21.7	0.937		412	435.72 ≈ 436
	* 5	-02	-08	21.7	↓		642	678.9 ≈ 679
	* 6	-03	-10	21.7	0.937		613	648
	* 7	-04	-12	21.7	0.937		548	579.6 ≈ 580
	* 8	-05	-14	21.8	0.939		818	863
	* 9	G183-1	-16	21.8	↓		388	409
	* 10	-2	-18	21.8	0.939		273	288
	* 1	-3	-20	21.7	0.937		383	405
	* 2	-4	-22	21.7	↓		517	546.8 ≈ 547
	* 3	-5	-24	21.8	0.939		345	364
	* 4	-6	-26	21.8			463	488.5 ≈ 489
	* 5	-7	-28	21.8			462	488
	* 6	-7D	-30	21.8			462	488
	* 7	G218-1	-32	21.8			281	297
	* 8	2	-34	21.8			346	365
	* 19	3	-36	21.8			427	451
	* 20	4	-38	21.8	↓	1	461	487

ANALYTICAL BATCH * TC6W8W

8060

Instrument No:	29

Trial	ID	Resistance ohms
KCl Standard	SW7A02-55	Assay
1	SW3B02-654	747
2	QC = .939	747
3		747
LCS	SW7A-06-174	402 µmhos/cm
Calibration Temperature	21.8 °C	
True Value	1413	µmhos/cm
Cell Constant (C)	0.991	

KCl Standard	ID	µmhos/cm
Low-point	SW7A02729	141.3
Mid-point	N/A	
High-point	SW7A02650	1413

Comments:

Analyzed By: [illegible]

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ANALYSIS LOG FOR SPECIFIC CONDUCTIVITY

SOP ☐ EMAX-120.1 Revision No. 1 ☐ Book # AEC-003

Start Date 7-28-05 Time 1520 End Date 7-28-05 Time 15:45

Data File Name		Lab Sample ID	Time	Temp. °C	Temp. Correction Factor QT @ 25 oC	DF	Measured Resistance (ohms)	EC @ 25°C Notes µmhos/c
	*21	G218-05	15:40	21.8	0.939	1	462	488
	* 2	-05D	-42	21.8			462	488
	* 3	-06	-44	21.8			373	394
	* 4	STD CDW141	-46	21.8	0.939		134.1	142
	* 5							
	* 6							
	* 7							
	* 8							
	* 9							
	* 0							
	* 1							
	* 2							
	* 3							
	* 4							
	* 5							
	* 6							
	* 7							
	* 8							
	* 9							
	* 0							

7-28-05

ANALYTICAL BATCH * EC 080528

80061

Instrument No:	29

Trial	ID	Resistance ohms
KCl Standard	Same as pg. 11	
1		
2		
3		
LCS		µmhos/cm
Calibration Temperature	°C	
True Value		µmhos/cm
Cell Constant (C)		

KCl Standard	ID	µmhos/cm
Low-point	Same as pg. 11	
Mid-point		
High-point		

Comments:

Analyzed By: MB / LA

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G218**

METHOD SM3500
FERROUS IRON

Six (6) water samples were received on 07/26/05 for Ferrous Iron analysis by Method SM3500 in accordance with "Standard Methods for the Examination of Water and Wastewater", 18th edition (1990).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample

Lab control result was within QC limit.

4. Duplicate

Sample G218-06 was analyzed for duplicate. %RPD was within QC limit.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SM3500
FERROUS IRON

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G218

Matrix : WATER
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	FEG004WB	ND	1	NA	5	2.5	07/26/0519:08	NA	FEG004W-09	FEG004W-07	FEG004W	NA	NA
LCS1W	FEG004WL	21.6	1	NA	5	2.5	07/26/0519:09	NA	FEG004W-10	FEG004W-07	FEG004W	NA	NA
MW-24-4	G218-01	ND	1	NA	5	2.5	07/26/0519:10	NA	FEG004W-11	FEG004W-07	FEG004W	07/25/05	07/26/05
MW-24-3	G218-02	ND	1	NA	5	2.5	07/26/0519:11	NA	FEG004W-12	FEG004W-07	FEG004W	07/25/05	07/26/05
MW-24-2	G218-03	ND	1	NA	5	2.5	07/26/0519:12	NA	FEG004W-13	FEG004W-07	FEG004W	07/25/05	07/26/05
MW-24-1	G218-04	ND	1	NA	5	2.5	07/26/0519:13	NA	FEG004W-14	FEG004W-07	FEG004W	07/25/05	07/26/05
DUPE-3-7/25/05	G218-05	ND	1	NA	5	2.5	07/26/0519:14	NA	FEG004W-15	FEG004W-07	FEG004W	07/25/05	07/26/05
MW-24-5	G218-06	ND	1	NA	5	2.5	07/26/0519:15	NA	FEG004W-16	FEG004W-07	FEG004W	07/25/05	07/26/05
MW-24-5DUP	G218-06D	ND	1	NA	5	2.5	07/26/0519:16	NA	FEG004W-17	FEG004W-07	FEG004W	07/25/05	07/26/05

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: SM3500
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G218
SAMPLE ID: LCS1W
CONTROL NO.: FEG004WL

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 07/26/05 19:09

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	LCS RSLT (mg/L)	LCS % REC	QC LIMIT (%)
Ferrous Iron	ND	20.00	21.60	108	80-120

8064

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: SM3500
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G218
SAMPLE ID: MW-24-5DUP
CONTROL NO.: G218-06D

DATE RECEIVED: 07/26/05
DATE EXTRACTED: NA
DATE ANALYZED: 07/26/05 19:16

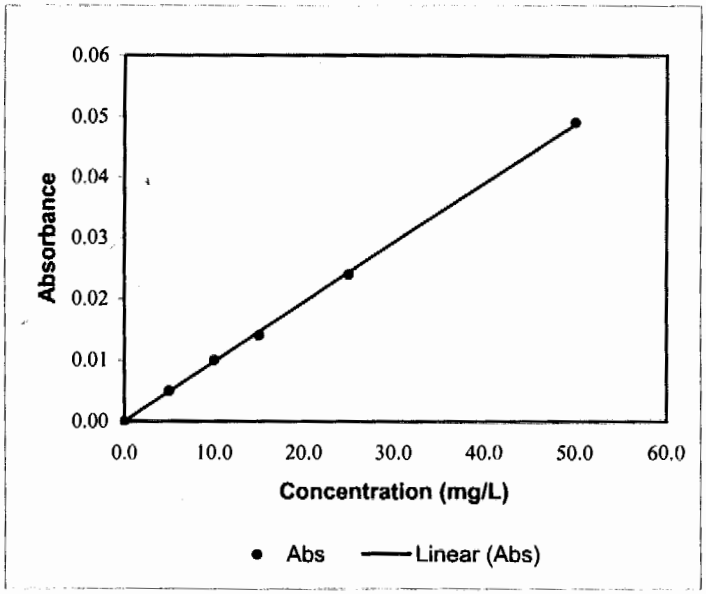
ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
Ferrous Iron	ND	ND	0	20

80065

CALIBRATION CURVE
FERROUS FE

Conc.	Abs
0.0	0.000
5.0	0.005
10.0	0.010
15.0	0.014
25.0	0.024
50.0	0.049



R^2	0.9996
Eq.Line	0.0010
CF	1026.5879

Comments: **PASSED**

Analyzed by: LA

8068

ANALYSIS LOG FOR FERROUS IRON

SOP ☑ EMAX-3500-Fe D/C Rev. No. 0 ☐ Starting Date 7-26-05 Time 19:20 Ending Date 7-26-05 Time 19:19 Book # A70-Fe D/C-001

ANALYTICAL BATCH * FEGood4W

	Data File Name	Preparative Batch	Lab Sample ID	Matrix S	Matrix W	Sample Amount (ml)	DF	Abs. (510 nm)	Time	Ferrous Iron (mg/L)	Notes
* 1		FEGood4W	S-0.0		✓	50	1	0.000	19:00		
* 2			S-5					0.006	-01		
* 3			S-10					0.010	-02		
* 4			S-15					0.014	-03		
* 5			S-25					0.020	-04		
* 6			S-50					0.049	-05		
* 7			S ICV					0.020	-06	20.53	
* 8			ICB					0.000	-07	ND	
* 9			FEGood4W					0.000	-08	ND	
* 10			↓ W					0.021	-09	21.53	
* 1			G218-01					0.006	-10	ND	
* 2			-02					0.008	-11	ND	
* 3			-03					0.009	-12	ND	
* 4			-04					0.002	-13	ND	
* 5			-05					0.007	-14	ND	
* 6			-06					0.001	-15	ND	
* 7			-06D					0.001	-16	ND	
* 8			-06M					0.022	-17	22.56	
* 9			CCV		✓	✓	✓	0.021	-18	21.06	
* 0		✓	CCB		✓	50	1	0.000	-19	ND	
* 1											
* 2											
* 3											
* 4											
* 5											
* 6											
* 7											
* 8											
* 9											
* 0											

Instrument No.: 70 **Wavelength: 510 nm**

Standard	ID	Conc. (mg/L)
S_0	zero fuel	0.0
S_1	SW 213-03-095	5
S_2	↓	10
S_3		15
S_4	✓	25
S_5	SW 213-03-096	50
ICV/LCS/MS	↓ -096	20
CCV	✓ -095	20

Reagents

Name	ID
HCl	SW1A-06-1539
$NH_4C_2H_3O_2$ Buffer	SW1B-06-1288
Phenanthroline Sol'n	↓ -1284
$NaC_2H_3O_2$ Sol'n	NA
Hydroxylamine Soln	↓

Standard Curve

R (≤0.995)	0.9994
Y	0.0010
CF	1026.5879

Comments:

Analyzed By: [illegible]

Disposal Date:

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501
www.emaxlab.com

8067

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G218**

METHOD 160.1
TOTAL DISSOLVED SOLIDS

Six (6) water samples were received on 07/26/05 for Total Dissolved Solids analysis by Method 160.1in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Sample G218-06 was analyzed for duplicate. %RPD was within QC limit.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 160.1
TOTAL DISSOLVED SOLIDS

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G218

Matrix : WATER
Instrument ID : NA

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TDG025WB	ND	1	NA	10	5	07/29/0514:31	NA	TDG025W-01	NA	TDG025W	NA	NA
LCS1W	TDG025WL	165	1	NA	10	5	07/29/0514:32	NA	TDG025W-02	NA	TDG025W	NA	NA
LCD1W	TDG025WC	165	1	NA	10	5	07/29/0514:33	NA	TDG025W-03	NA	TDG025W	NA	NA
MW-24-4	G218-01	175	1	NA	10	5	07/29/0514:39	NA	TDG025W-09	NA	TDG025W	07/25/05	07/26/05
MW-24-3	G218-02	235	1	NA	10	5	07/29/0514:40	NA	TDG025W-10	NA	TDG025W	07/25/05	07/26/05
MW-24-2	G218-03	270	1	NA	10	5	07/29/0514:41	NA	TDG025W-11	NA	TDG025W	07/25/05	07/26/05
MW-24-1	G218-04	300	1	NA	10	5	07/29/0514:42	NA	TDG025W-12	NA	TDG025W	07/25/05	07/26/05
DUPE-3-7/25/05	G218-05	310	1	NA	10	5	07/29/0514:43	NA	TDG025W-13	NA	TDG025W	07/25/05	07/26/05
MW-24-5	G218-06	235	1	NA	10	5	07/29/0514:44	NA	TDG025W-14	NA	TDG025W	07/25/05	07/26/05
MW-24-5DUP	G218-06D	235	1	NA	10	5	07/29/0514:45	NA	TDG025W-15	NA	TDG025W	07/25/05	07/26/05

8069

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 160.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G218
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: TDG025WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 07/29/05 14:32/14:33

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
TDS	ND	162.00	165.00	102	162.00	165.00	102	0	80-120	20

80170

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 160.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G218
SAMPLE ID: MW-24-5DUP
CONTROL NO.: G218-06D

DATE RECEIVED: 07/26/05
DATE EXTRACTED: NA
DATE ANALYZED: 07/29/05 14:45

ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
TDS	235.00	235.00	0	20

8071

GRAVIMETRIC ANALYSIS LOG

SOP ☑ EMAX-160.1 Rev. No. 3 ☐ EMAX-160.2 Rev. No. 2 ☐ EMAX-160.3 Rev. No. 1 ☐ EMAX-160.4 Rev. No. 0 ☐ EMAX-160.5 Rev. No. 0

Book # AGV-017

Oven/Furnace Temp. 105 °C Starting Date 07-28-05 Time 20:30 Ending Date 07-29-05 Time 14:00

ANALYTICAL BATCH # SS TDG025W S VS

	Data File Name	Lab Sample ID	Sample Amt. (ml)	Dish Wt. (g)	Dry Wt. Dish + Solids(g) 1st	Time	2nd	Time	3rd	Time	Solids (mg)	Result (mg/L)	Settleable Solids Vol. of SS	Settleable Solids Result (ml/L)
1		TDG025WB	20.	13.8750	13.8750	11:00	13.8750	12:45	13.8750	14:31	0.0	ND		
2		WL	20	13.9597	13.9655	11:01	13.9685	12:46	13.9630	14:32	3.3	165		
3		WC	20	13.4548	13.4606	11:02	13.4584	12:47	13.4581	14:33	3.3	165		
4		G842-02	20	12.9202	12.9485	11:03	12.9458	12:48	12.9455	14:34	25.3	1260		
5		G839-02	20	12.8762	12.8865	11:04	12.8870	12:49	12.8865	14:35	10.3	515		
6		-03	20	12.9998	13.0123	11:05	13.0098	12:50	13.0103	14:36	10.5	525		
7		G113-01	20	12.9903	13.0500	11:06	13.0488	12:51	13.0470	14:37	56.7	2840		
8		-02	20	12.8654	12.9241	11:07	12.9234	12:52	12.9221	14:38	56.7	2840		
9		G218-01	20	12.9661	12.9716	11:08	12.9696	12:53	12.9696	14:39	3.5	175		
0		-02	20	12.9294	12.9371	11:09	12.9344	12:54	12.9341	14:40	4.7	235		
1		-03	20	13.0422	13.0501	11:10	13.0480	12:55	13.0476	14:41	5.4	270		
2		-04	20	12.9840	12.9921	11:11	12.9899	12:56	12.9900	14:42	6.0	300		
3		-05	20	12.8815	12.8906	11:12	12.8882	12:57	12.8877	14:43	6.2	310		
4		-06	20	12.9840	12.9934	11:13	12.9889	12:58	12.9887	14:44	4.7	235		
5		-06D	20	13.0102	13.0172	11:14	13.0145	12:59	13.0149	14:45	4.7	235		
6														
7														
8														
9														
0														

Comments: 180°C

LCS ID S-07A-06-133

LCSTV 162 mg/L

Balance:

I60-4070636 ✓

I -37030058

VB 7/29/05

Analyzed By: VB/MJ

This page is checked during the data review process.

EMAX Laboratories, Inc. 1835 W. 205th St., Torrance, CA 90501

8072

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G218**

METHOD 351.3
TKN

Six (6) water samples were received on 07/26/05 for TKN analysis by Method 351.3 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Duplicate sample was not designated in this SDG.

5. Matrix Spike

MS sample was not designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 351.3
TKN

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G218

Matrix : WATER
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	KNH002WB	ND	1	NA	.1	.035	08/05/0516:10	08/05/0509:30	KNH002W-11	KNH002W-09	KNH002W	NA	08/05/05
LCS1W	KNH002WL	1.04	1	NA	.1	.035	08/05/0516:11	08/05/0509:30	KNH002W-12	KNH002W-09	KNH002W	NA	08/05/05
LCD1W	KNH002WC	1.01	1	NA	.1	.035	08/05/0516:12	08/05/0509:30	KNH002W-13	KNH002W-09	KNH002W	NA	08/05/05
MW-24-4	G218-01	.681	1	NA	.1	.035	08/05/0516:23	08/05/0509:30	KNH002W-24	KNH002W-21	KNH002W	07/25/05	07/26/05
MW-24-3	G218-02	.393	1	NA	.1	.035	08/05/0516:24	08/05/0509:30	KNH002W-25	KNH002W-21	KNH002W	07/25/05	07/26/05
MW-24-2	G218-03	.308	1	NA	.1	.035	08/05/0516:25	08/05/0509:30	KNH002W-26	KNH002W-21	KNH002W	07/25/05	07/26/05
MW-24-1	G218-04	.595	1	NA	.1	.035	08/05/0516:26	08/05/0509:30	KNH002W-27	KNH002W-21	KNH002W	07/25/05	07/26/05
DUPE-3-7/25/05	G218-05	.766	1	NA	.1	.035	08/05/0516:27	08/05/0509:30	KNH002W-28	KNH002W-21	KNH002W	07/25/05	07/26/05
MW-24-5	G218-06	.340	1	NA	.1	.035	08/05/0516:28	08/05/0509:30	KNH002W-29	KNH002W-21	KNH002W	07/25/05	07/26/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 351.3
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G218
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: KNH002WL/C

DATE RECEIVED: 08/05/05
DATE EXTRACTED: 08/05/05 09:30
DATE ANALYZED: 08/05/05 16:11/16:12

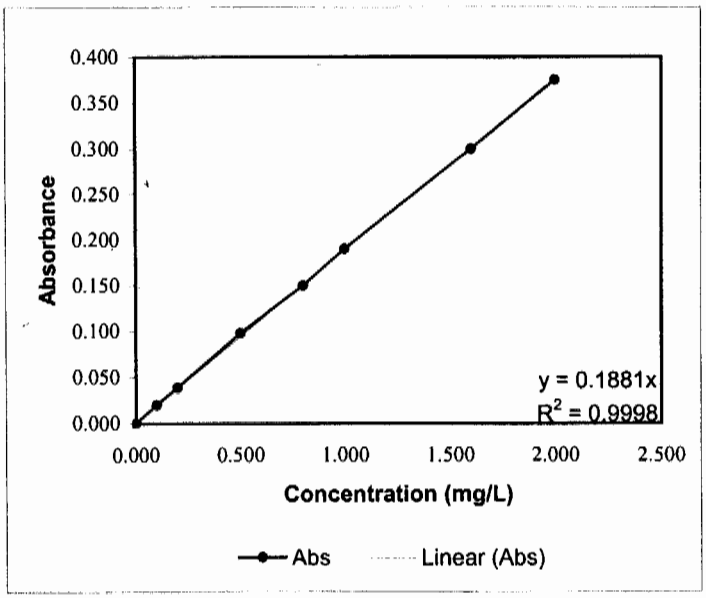
ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
TKN	ND	1.00	1.04	104	1.00	1.01	101	3	80-120	20

80175
04

CALIBRATION CURVE
AMMONIA _NH3 _TKN

Conc.	Abs
0.000	0.000
0.100	0.020
0.200	0.039
0.500	0.098
0.800	0.150
1.000	0.190
1.600	0.300
2.000	0.375



R^2	0.999881	Comments:	**PASSED**
y	0.1881	K191	
CF	5.3165	Analyzed by:	NT/LA

ANALYSIS LOG FOR TOTAL KJELDAHL NITROGEN (TKN)

SOP ☑ EMAX-351.3 Rev. No. 1 ☐ Start Date: 8/5/05 Time: 16:00 End Date: 8/5/05 Time: 16:38 Book # A70-KN-004

ANALYTICAL BATCH # KNH002W

	Data File Name	Prep. Batch	Lab Sample ID	Matrix S	Matrix W	Time	Vol.Colored (ml)	DF	Absorbance	Notes mg/L
* 1		KNH002W	S-0			16:00	20	1	0.000	
* 2			0.1			01			0.020	
* 3			0.2			02			0.039	
* 4			0.5			03			0.098	
* 5			0.8			04			0.150	
* 6			1.0			05			0.190	
* 7			1.6			06			0.300	
* 8			2.0			07			0.375	
* 9			ICV			08			0.190	1.010
* 10			ICB			09			0.000	ND
* 11			KNH002WB		✓	10			0.000	ND
* 12			WL			11			0.195	1.037
* 13			WC			12			0.190	1.010
* 14			G152-02			13			0.118	0.627
* 15			02D			14			0.100	0.532
* 16			02M			15			0.312	1.659
* 17			03			16			0.046	0.245
* 18			04			17			0.076	0.404
* 19			05			18			0.052	0.276
* 20			06		✓	19			0.586	3.115
* 21			CCV1			20			0.190	1.010
* 22			CCB1			21			0.000	ND
* 23			G152-07		✓	22			0.064	0.340
* 24			G218-01			23			0.128	0.681
* 25			02			24			0.074	0.393
* 26			03			25			0.058	0.308
* 27			04			26			0.112	0.595
* 28			05			27			0.144	0.766
* 29			06			28			0.064	0.340
* 30			G136-02			16:29			0.050	0.266

Instrument No: 70 **Wavelength: 425 nm**

Standard	ID	Conc. (mg/L)
S_0	SW2B-03-182	0.0
S_1		0.1
S_2		0.2
S_3		0.5
S_4		0.8
S_5		1.0
S_6		1.6
S_7		2.0
ICV/MS	SW2B-03-181	1.0
CCV	182	1.0
LCS	178	1.0

Reagent	ID
Color Reagent	SW7A-06-141

Standard Curve	
R^2	0.999881
Y	0.1881
CF	5.3165

Comments:

Results are based on: ☐ Dry Weight ☐ Wet Weight

Analyzed By: NT/LA

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

80177

DISTILLATION LOG FOR NH_3 / DIGESTION AND DISTILLATION FOR TKN

SOP ☐ EMAX-350.2 Rev. No.: 2 ☑ EMAX-351.3 Rev. No.: 2 ☐ Book # EKN-006

Start Date 8/5/05 Time 9:30 End Date 8/5/05 Time 15:00

PREPARATION BATCH # KNH002W

Sample Prep ID	Lab Sample ID	Sample pH	NaOH Added (ml)	Boric Acid (ml)	Borate Buffer (ml)	Sample Amount (ml)	Extract Volume (ml)	Notes
*01	S-0	9.5	10	5	4	50	50	
*02	0.1							
*03	1.0							
*04	2.0							
*05	ICV							
*06	ICB							
*07	KNH002 WB							
*08	WL							
*09	WC							
*10	G152-02							
*11	02D							
*12	02M							
*13	03							
*14	04							
*15	05							
*16	06							
*17	07							
*18	G218-01							
*19	02							
*20	03							
*21	04							
*22	05							
*23	06							
*24	G136-02							
*25	03							
*26	04							

Standards	ID	Amount Added (ml)
ICV/MS	SW2B-03-180	5ml of 10ppm
LCS	178	50 mL

Reagent	Lot# / ID
NaOH	NA
Digestion Mixture	SW7A-06-204
Borate Buffer	152
H_3BO_3	SW7B-06-322
Distilling Soln.	315B

Comments:

Prepared By: NT / LA

Standard Added By: NT / LA

Checked By:

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

80178

ANALYSIS LOG FOR TOTAL KJELDAHL NITROGEN (TKN)

SOP ☑ EMAX-351.3 Rev. No. 1 ☐ Start Date: 8/5/05 Time: 16:00 End Date: 8/5/05 Time: 16:38 Book # A70-KN-004

Data File Name	Prep. Batch	Lab Sample ID	Matrix S	Matrix W	Time	Vol.Colored (ml)	DF	Absorbance	Notes mg/L
* 31	KNH002W	G136-03		✓	16:30	20	1	0.114	0.606
* 32	↓	↓ 04		✓	31	↓	↓	0.084	0.447
* 33	8/5/05 NT	CCV2 05			32	↓	↓	0.195	1.037
* 34	↓	CCB2 06			33	↓	↓	0.000	ND
* 35	↓	G136-05 07		✓	34	↓	↓	0.088	0.468
* 36	↓	G136-06		✓	35	↓	↓	0.110	0.585
* 37	↓	↓ 07		✓	36	↓	↓	0.086	0.457
* 38	↓	CCV3			37	↓	↓	0.190	1.01
* 39	↓	CCB3			16:38	↓	↓	0.000	ND
* 0									
* 1									
* 2									
* 3									
* 4									
* 5									
* 6									
* 7									
* 8						NT 8/5/05			
* 9									
* 0									
* 1									
* 2									
* 3									
* 4									
* 5									
* 6									
* 7									
* 8									
* 9									
* 0									

ANALYTICAL BATCH * KNH002W

Instrument No: 70	Wavelength: 425 nm
Standard	**ID**	**Conc. (mg/L)**
S_0		0.0
S_1		0.1
S_2		0.2
S_3		0.5
S_4		0.8
S_5		1.0
S_6		1.6
S_7		2.0
ICV/MS		1.0
CCV		1.0
LCS		1.0
Reagent	**ID**
Color Reagent	
Standard Curve	
R^2	
Y	
CF	

SAME AS PAGE 89

Comments:

Results are based on: ☐ Dry Weight ☐ Wet Weight

Analyzed By: NT/LA

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

80179

DISTILLATION LOG FOR NH_3 / DIGESTION AND DISTILLATION FOR TKN

SOP ☐ EMAX-350.2 Rev. No.: 2 ☑ EMAX-351.3 Rev. No.: 2 ☐ Book # EKN-006

Start Date 8/5/05 Time 9:30 End Date 8/5/05 Time 15:00

PREPARATION BATCH # KNH002W

Sample Prep ID	Lab Sample ID	Sample pH	NaOH Added (ml)	Boric Acid (ml)	Borate Buffer (ml)	Sample Amount (ml)	Extract Volume (ml)	Notes
*01	G136-05	9.5	10	5	4	50	50	
*02	06							
*03	07							
*04								
*05								
*06								
*07								
*08								
*09								
*10								
*11								
*12						NT		
*13						8/5/05		
*14								
*15								
*16								
*17								
*18								
*19								
*20								
*21								
*22								
*23								
*24								
*25								
*26								

Standards	ID	Amount Added (ml)
ICV/MS		
LCS		

Reagent	Lot# / ID
NaOH	
Digestion Mixture	
Borate Buffer	
H_3BO_3	
Distilling Soln.	

SAME AS PAGE 9

Comments:

Prepared By: NT / LA

Standard Added By: NT / LA

Checked By:

8080

EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G218**

METHOD 376.1
SULFIDE

Six (6) water samples were received on 07/26/05 for Sulfide analysis by Method 376.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Duplicate sample was not designated in this SDG.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 376.1
SULFIDE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G218

Matrix : WATER
Instrument ID : NA

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	SDG011WB	ND	1	NA	1	.4	07/28/0508:05	NA	SDG011W-01	NA	SDG011W	NA	NA
LCS1W	SDG011WL	4.87	1	NA	1	.4	07/28/0508:08	NA	SDG011W-02	NA	SDG011W	NA	NA
LCD1W	SDG011WC	4.92	1	NA	1	.4	07/28/0508:11	NA	SDG011W-03	NA	SDG011W	NA	NA
MW-24-4	G218-01	ND	1	NA	1	.4	07/28/0508:14	NA	SDG011W-04	NA	SDG011W	07/25/05	07/26/05
MW-24-3	G218-02	ND	1	NA	1	.4	07/28/0508:17	NA	SDG011W-05	NA	SDG011W	07/25/05	07/26/05
MW-24-2	G218-03	ND	1	NA	1	.4	07/28/0508:20	NA	SDG011W-06	NA	SDG011W	07/25/05	07/26/05
MW-24-1	G218-04	ND	1	NA	1	.4	07/28/0508:23	NA	SDG011W-07	NA	SDG011W	07/25/05	07/26/05
DUPE-3-7/25/05	G218-05	ND	1	NA	1	.4	07/28/0508:26	NA	SDG011W-08	NA	SDG011W	07/25/05	07/26/05
MW-24-5	G218-06	ND	1	NA	1	.4	07/28/0508:29	NA	SDG011W-09	NA	SDG011W	07/25/05	07/26/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 376.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G218
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: SDG011WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 07/28/05 08:08/08:11

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Sulfide	ND	5.00	4.87	97	5.00	4.92	98	1	80-120	20

80083

ANALYSIS LOG FOR SULFIDE

SOP ☑ EMAX-376.1 Rev. No. 1 ☐ EMAX-9034 Rev. No. 0 Start Date: 07/28/05 Time: 8:05 End Date: 07/28/05 Time: 8:53 Book # ASD-007

	Data File Name	Lab Sample ID	Time	Sample Amt. (ml)	Volume of Iodine (ml)	Volume of PAO/$Na_2S_2O_3$ (ml)	Notes mg/mL
*	1	30G0780WB	8:05	100	10	10.0	ND
*	2	WL	8:08			4.6	4.87
*	3	WC	8:11			4.55	4.92
*	4	G218-01	8:14			9.7	ND
*	5	-02	8:17			9.9	ND
*	6	-03	8:20			9.6	ND
*	7	-04	8:23			9.8	ND
*	8	-05	8:26			9.7	ND
*	9	-06	8:29			9.9	ND
*	10	G222-01	8:32			9.9	ND
*	11	-02	8:35			9.6	ND
*	12	-03	8:38			9.7	ND
*	13	-04	8:41			9.8	ND
*	14	-05	8:44			9.8	ND
*	15	-06	8:47			9.7	ND
*	16	-07	8:50			9.9	ND
*	17	-07D	8:53			9.9	ND
*	18						
*	19						
*	20						
*	1						
*	2						
*	3						
*	4						
*	5						
*	6						
*	7						
*	0						

Standard	ID	Conc. (mg/L)
LCS	SW7A-06-178	5.0
Spike		
$Na_2S_2O_3$	SW3B-02-735	0.00564
PAO		
Iodine	SW3B-02-734	0.00564
HCL	SW7B-06-281C	1:1(6N)
Indicator	SW7A-06-190	

STANDARDIZATION

Vol. Of Iodine (ml)	Volume of PAO/Na2S2O3 (ml)	Conc. Of Iodine (N)
10	10.0	0.00564
10	10.0	0.00564
10	10.0	0.00564
Average Iodine Conc. (N)		0.00564

$$Sulfide(mg/L) = \frac{\left(V_{I_2} \times N_{I_2} - V_{PAO} \times N_{PAO}\right) \times 16{,}000}{V_{sample}}$$

Comments:

Analyzed By:

ANALYTICAL BATCH # 30G0780

8/9/05

80984

EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G218**

METHOD 415.1
DISSOLVED ORGANIC CARBON

Six (6) water samples were received on 07/26/05 for Dissolved Organic Carbon analysis by Method 415.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blanks were free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Sample G218-06 was analyzed for Duplicate. % RPD was slightly bias high.

5. Matrix Spike

Sample G218-06 was spiked. % Recovery was within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 415.1
DOC

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G218

Matrix : WATER
Instrument ID : 62

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TCH006WB	ND	1	NA	1	.5	08/08/0514:11	NA	TCH006-5	TCH006-2	TCH006W	NA	NA
LCS1W	TCH006WL	24.4	1	NA	1	.5	08/08/0514:21	NA	TCH006-6	TCH006-2	TCH006W	NA	NA
LCD1W	TCH006WC	24.4	1	NA	1	.5	08/08/0514:32	NA	TCH006-7	TCH006-2	TCH006W	NA	NA
MW-24-4	G218-01	1.83	1	NA	1	.5	08/08/0514:41	NA	TCH006-8	TCH006-2	TCH006W	07/25/05	07/26/05
MW-24-3	G218-02	5.38	1	NA	1	.5	08/08/0514:50	NA	TCH006-9	TCH006-2	TCH006W	07/25/05	07/26/05
MW-24-2	G218-03	2.08	1	NA	1	.5	08/08/0515:00	NA	TCH006-10	TCH006-2	TCH006W	07/25/05	07/26/05
MW-24-1	G218-04	3.35	1	NA	1	.5	08/08/0515:09	NA	TCH006-11	TCH006-2	TCH006W	07/25/05	07/26/05
DUPE-3-7/25/05	G218-05	1.74	1	NA	1	.5	08/08/0515:18	NA	TCH006-12	TCH006-2	TCH006W	07/25/05	07/26/05
MBLK2W	TCH009WB	ND	1	NA	1	.5	08/11/0500:37	NA	TCH009-5	TCH009-2	TCH009W	NA	NA
LCS2W	TCH009WL	24.1	1	NA	1	.5	08/11/0500:47	NA	TCH009-6	TCH009-2	TCH009W	NA	NA
LCD2W	TCH009WC	24.6	1	NA	1	.5	08/11/0500:57	NA	TCH009-7	TCH009-2	TCH009W	NA	NA
MW-24-5	G218-06	4.22	1	NA	1	.5	08/11/0501:06	NA	TCH009-8	TCH009-2	TCH009W	07/25/05	07/26/05
MW-24-5DUP	G218-06D	3.43	1	NA	1	.5	08/11/0501:16	NA	TCH009-9	TCH009-2	TCH009W	07/25/05	07/26/05
MW-24-5MS	G218-06M	26.6	1	NA	1	.5	08/11/0501:25	NA	TCH009-10	TCH009-2	TCH009W	07/25/05	07/26/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G218
METHOD: METHOD 415.1

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	TCH006WB	TCH006WL	TCH006WC		
LAB FILE ID:	TCH006-5	TCH006-6	TCH006-7		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/08/0514:11	08/08/0514:21	08/08/0514:32	DATE RECEIVED:	NA
PREP. BATCH:	TCH006W	TCH006W	TCH006W		
CALIB. REF:	TCH006-2	TCH006-2	TCH006-2		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
DOC	ND	25	24.4	97	25	24.4	98	0	80-120	20

8087

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G218
METHOD: METHOD 415.1

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK2W				
LAB SAMP ID:	TCH009WB	TCH009WL	TCH009WC		
LAB FILE ID:	TCH009-5	TCH009-6	TCH009-7		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/11/0500:37	08/11/0500:47	08/11/0500:57	DATE RECEIVED:	NA
PREP. BATCH:	TCH009W	TCH009W	TCH009W		
CALIB. REF:	TCH009-2	TCH009-2	TCH009-2		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
DOC	ND	25	24.1	96	25	24.6	99	2	80-120	20

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G218
METHOD: METHOD 415.1

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MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-24-5			
LAB SAMP ID:	G218-06	G218-06M		
LAB FILE ID:	TCH009-8	TCH009-10		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/25/05
DATE ANALYZED:	08/11/0501:06	08/11/0501:25	DATE RECEIVED:	07/26/05
PREP. BATCH:	TCH009W	TCH009W		
CALIB. REF:	TCH009-2	TCH009-2		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
DOC	4.22	25	26.6	89	75-125

EMAX QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G218
METHOD: METHOD 415.1

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-24-5	MW-24-5DUP		
EMAX SAMP ID:	G218-06	G218-06D		
LAB FILE ID:	TCH009-8	TCH009-9		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/25/05
DATE ANALYZED:	08/11/0501:06	08/11/0501:16	DATE RECEIVED:	07/26/05
PREP. BATCH:	TCH009W	TCH009W		
CALIB. REF:	TCH009-2	TCH009-2		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	DUPL RSLT (mg/L)	RPD RSLT %	QC LIMIT (%)
DOC	4.22	3.43	21*	20

0690

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G218**

METHOD 415.1
TOTAL ORGANIC CARBON

Six (6) water samples were received on 07/26/05 for Total Organic Carbon analysis by Method 415.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Sample G218-06 was analyzed for Duplicate. % RPD was within QC limit.

5. Matrix Spike

Sample G218-06 was spiked. % Recovery was within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 415.1
TOC

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G218

Matrix : WATER
Instrument ID : 62

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TCH007WB	ND	1	NA	1	.5	08/08/0519:25	NA	TCH006-36	TCH006-26	TCH007W	NA	NA
LCS1W	TCH007WL	24.8	1	NA	1	.5	08/08/0519:36	NA	TCH006-37	TCH006-26	TCH007W	NA	NA
LCD1W	TCH007WC	24.8	1	NA	1	.5	08/08/0520:06	NA	TCH006-40	TCH006-38	TCH007W	NA	NA
MW-24-4	G218-01	1.67	1	NA	1	.5	08/08/0520:15	NA	TCH006-41	TCH006-38	TCH007W	07/25/05	07/26/05
MW-24-3	G218-02	1.5	1	NA	1	.5	08/08/0520:24	NA	TCH006-42	TCH006-38	TCH007W	07/25/05	07/26/05
MW-24-2	G218-03	1.6	1	NA	1	.5	08/08/0520:33	NA	TCH006-43	TCH006-38	TCH007W	07/25/05	07/26/05
MW-24-1	G218-04	1.65	1	NA	1	.5	08/08/0520:42	NA	TCH006-44	TCH006-38	TCH007W	07/25/05	07/26/05
DUPE-3-7/25/05	G218-05	1.59	1	NA	1	.5	08/08/0520:51	NA	TCH006-45	TCH006-38	TCH007W	07/25/05	07/26/05
MW-24-5	G218-06	1.52	1	NA	1	.5	08/08/0521:01	NA	TCH006-46	TCH006-38	TCH007W	07/25/05	07/26/05
MW-24-5DUP	G218-06D	1.47	1	NA	1	.5	08/08/0521:10	NA	TCH006-47	TCH006-38	TCH007W	07/25/05	07/26/05
MW-24-5MS	G218-06M	24.6	1	NA	1	.5	08/08/0521:20	NA	TCH006-48	TCH006-38	TCH007W	07/25/05	07/26/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G218
METHOD: METHOD 415.1

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	TCH007WB	TCH007WL	TCH007WC		
LAB FILE ID:	TCH006-36	TCH006-37	TCH006-40		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/08/0519:25	08/08/0519:36	08/08/0520:06	DATE RECEIVED:	NA
PREP. BATCH:	TCH007W	TCH007W	TCH007W		
CALIB. REF:	TCH006-26	TCH006-26	TCH006-38		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
TOC	ND	25	24.8	99	25	24.8	99	0	80-120	20

80093

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G218
METHOD: METHOD 415.1

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MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-24-5			
LAB SAMP ID:	G218-06	G218-06M		
LAB FILE ID:	TCH006-46	TCH006-48		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/25/05
DATE ANALYZED:	08/08/0521:01	08/08/0521:20	DATE RECEIVED:	07/26/05
PREP. BATCH:	TCH007W	TCH007W		
CALIB. REF:	TCH006-38	TCH006-38		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
TOC	1.52	25	24.6	92	75-125

8094

EMAX QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G218
METHOD: METHOD 415.1

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-24-5	MW-24-5DUP		
EMAX SAMP ID:	G218-06	G218-06D		
LAB FILE ID:	TCH006-46	TCH006-47		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/25/05
DATE ANALYZED:	08/08/0521:01	08/08/0521:10	DATE RECEIVED:	07/26/05
PREP. BATCH:	TCH007W	TCH007W		
CALIB. REF:	TCH006-38	TCH006-38		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	DUPL RSLT (mg/L)	RPD RSLT %	QC LIMIT (%)
TOC	1.52	1.47	3	20

8095

	Type	Analysis	Sample Name	Sample ID	Object	Origin	Dilution	Result	Notes	Comment
1	Standard	NPOC	ICAL	TCH006-1	0A-12	C:\Progra	1.000			
2	Control	NPOC	ICV	TCH006-2	0A-12	C:\Progra	1.000	NPOC:24.34 m	Control valu	
3	Unknown	NPOC	ICB	TCH006-3	0A-12	C:\Progra	1.000	NPOC:0.3346		
4	Unknown	NPOC	HCO3/CO3	TCH006-4	0A-12	C:\Progra	1.000	NPOC:0.6327		
5	Unknown	NPOC	TCH006WB	TCH006-5	0A-12	C:\Progra	1.000	NPOC:0.05212	✓	
6	Unknown	NPOC	TCH006WL	TCH006-6	0A-12	C:\Progra	1.000	NPOC:24.37 m	✓	
7	Unknown	NPOC	TCH006WC	TCH006-7	0A-12	C:\Progra	1.000	NPOC:24.43 m	✓	
8	Unknown	NPOC	05G218-01	TCH006-8	0A-12	C:\Progra	1.000	NPOC:1.828 m	✓	DOC
9	Unknown	NPOC	05G218-02	TCH006-9	0A-12	C:\Progra	1.000	NPOC:5.383 m	✓	DOC
10	Unknown	NPOC	05G218-03	TCH006-10	0A-12	C:\Progra	1.000	NPOC:2.081 m	✓	DOC
11	Unknown	NPOC	05G218-04	TCH006-11	0A-12	C:\Progra	1.000	NPOC:3.346 m	✓	DOC
12	Unknown	NPOC	05G218-05	TCH006-12	0A-12	C:\Progra	1.000	NPOC:1.735 m	✓	DOC
13	Unknown	NPOC	05G218-06	TCH006-13	0A-12	C:\Progra	1.000	NPOC:5.865 m	✓ Re-run	DOC
14	Control	NPOC	CCV1	TCH006-14	0A-12	C:\Progra	1.000	NPOC:24.49 m	Control valu	
15	Unknown	NPOC	CCB1	TCH006-15	0A-12	C:\Progra	1.000	NPOC:0.05638		
16	Unknown	NPOC	05G218-06D	TCH006-16	0A-12	C:\Progra	1.000	NPOC:3.477 m	} Not used	DOC
17	Unknown	NPOC	05G218-06M	TCH006-17	0A-12	C:\Progra	1.000	NPOC:26.86 m		DOC
18	Unknown	NPOC	05G219-02	TCH006-18	0A-12	C:\Progra	1.000	NPOC:8.670 m		
19	Unknown	NPOC	05G219-03	TCH006-19	0A-12	C:\Progra	1.000	NPOC:33.09 m		
20	Unknown	NPOC	05G219-04	TCH006-20	0A-12	C:\Progra	1.000	NPOC:25.47 m		
21	Unknown	NPOC	05G219-05	TCH006-21	0A-12	C:\Progra	1.000	NPOC:17.95 m		
22	Unknown	NPOC	05G231-02	TCH006-22	0A-12	C:\Progra	1.000	NPOC:9.674 m		
23	Unknown	NPOC	05G231-02D	TCH006-23	0A-12	C:\Progra	1.000	NPOC:9.472 m		
24	Unknown	NPOC	05G231-02M	TCH006-24	0A-12	C:\Progra	1.000	NPOC:32.75 m		
25	Unknown	NPOC	05G231-03	TCH006-25	0A-12	C:\Progra	1.000	NPOC:333.6 m		
26	Control	NPOC	CCV2	TCH006-26	0A-12	C:\Progra	1.000	NPOC:25.70 m	Control valu	
27	Unknown	NPOC	CCB2	TCH006-27	0A-12	C:\Progra	1.000	NPOC:0.2423	✓	
28	Unknown	NPOC	05G231-04	TCH006-28	0A-12	C:\Progra	1.000	NPOC:25.80 m		
29	Unknown	NPOC	05G231-05	TCH006-29	0A-12	C:\Progra	1.000	NPOC:18.82 m		
30	Unknown	NPOC	05G231-06	TCH006-30	0A-12	C:\Progra	1.000	NPOC:30.00 m		
31	Unknown	NPOC	05G231-07	TCH006-31	0A-12	C:\Progra	1.000	NPOC:30.21 m		
32	Unknown	NPOC	05G231-08	TCH006-32	0A-12	C:\Progra	1.000	NPOC:8.969 m		
33	Unknown	NPOC	05G839-02	TCH006-33	0A-12	C:\Progra	1.000	NPOC:1.293 m		
34	Unknown	NPOC	05G839-03	TCH006-34	0A-12	C:\Progra	1.000	NPOC:2.031 m		
35	Unknown	NPOC	05G842-02	TCH006-35	0A-12	C:\Progra	1.000	NPOC:2.845 m		
36	Unknown	NPOC	TCH007WB	TCH006-36	0A-12	C:\Progra	1.000	NPOC:0.3662		
37	Unknown	NPOC	TCH007WL	TCH006-37	0A-12	C:\Progra	1.000	NPOC:24.84 m		
38	Control	NPOC	CCV3	TCH006-38	0A-12	C:\Progra	1.000	NPOC:24.92 m	Control valu	
39	Unknown	NPOC	CCB3	TCH006-39	0A-12	C:\Progra	1.000	NPOC:0.3039		
40	Unknown	NPOC	TCH007WC	TCH006-40	0A-12	C:\Progra	1.000	NPOC:24.85 m		
41	Unknown	NPOC	05G218-01	TCH006-41	0A-12	C:\Progra	1.000	NPOC:1.670 m		
42	Unknown	NPOC	05G218-02	TCH006-42	0A-12	C:\Progra	1.000	NPOC:1.497 m		
43	Unknown	NPOC	05G218-03	TCH006-43	0A-12	C:\Progra	1.000	NPOC:1.595 m		
44	Unknown	NPOC	05G218-04	TCH006-44	0A-12	C:\Progra	1.000	NPOC:1.650 m		
45	Unknown	NPOC	05G218-05	TCH006-45	0A-12	C:\Progra	1.000	NPOC:1.586 m	TOC	
46	Unknown	NPOC	05G218-06	TCH006-46	0A-12	C:\Progra	1.000	NPOC:1.521 m		
47	Unknown	NPOC	05G218-06D	TCH006-47	0A-12	C:\Progra	1.000	NPOC:1.474 m		
48	Unknown	NPOC	05G218-06M	TCH006-48	0A-12	C:\Progra	1.000	NPOC:24.63 m		
49	Control	NPOC	CCV4	TCH006-49	0A-12	C:\Progra	1.000	NPOC:24.65 m	Control valu	
50	Unknown	NPOC	CCB4	TCH006-50	0A-12	C:\Progra	1.000	NPOC:0.2706		
51	Unknown	NPOC	05G247-02	TCH006-51	0A-12	C:\Progra	1.000	NPOC:48.61 m		
52	Unknown	NPOC	05G247-03	TCH006-52	0A-12	C:\Progra	1.000	NPOC:104.8 m		
53	Unknown	NPOC	05G247-04	TCH006-53	0A-12	C:\Progra	1.000	NPOC:29.68 m		
54	Unknown	NPOC	05G247-05	TCH006-54	0A-12	C:\Progra	1.000	NPOC:28.31 m		
55	Unknown	NPOC	05G247-06	TCH006-55	0A-12	C:\Progra	1.000	NPOC:29.81 m		
56	Unknown	NPOC	05G247-07	TCH006-56	0A-12	C:\Progra	1.000	NPOC:9.548 m		
57	Unknown	NPOC	05G247-08	TCH006-57	0A-12	C:\Progra	1.000	NPOC:0.8519		
58	Unknown	NPOC	05G247-08D	TCH006-58	0A-12	C:\Progra	1.000	NPOC:0.8026		
59	Unknown	NPOC	05G247-08M	TCH006-59	0A-12	C:\Progra	1.000	NPOC:23.98 m		
60	Unknown	NPOC	05G260-01	TCH006-60	0A-12	C:\Progra	1.000	NPOC:2.384 m		DOC
61	Control	NPOC	CCV5	TCH006-61	0A-12	C:\Progra	1.000	NPOC:24.75 m	Control valu	
62	Unknown	NPOC	CCB5	TCH006-62	0A-12	C:\Progra	1.000	NPOC:0.3611		
63	Unknown	NPOC	05G260-02	TCH006-63	0A-12	C:\Progra	1.000	NPOC:2.484 m		DOC
64	Unknown	NPOC	05G260-03	TCH006-64	0A-12	C:\Progra	1.000	NPOC:3.286 m		DOC
65	Unknown	NPOC	05G260-04	TCH006-65	0A-12	C:\Progra	1.000	NPOC:8.444 m		DOC
66	Unknown	NPOC	05G260-05	TCH006-66	0A-12	C:\Progra	1.000	NPOC:4.181 m		DOC

Instr.Information

System	toc
Detector	Combustion
Catalyst	Regular Sensitivity
Cell Length	long

Cal. Curve

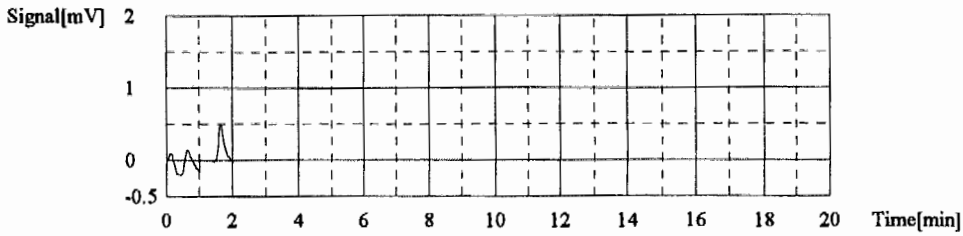
Sample Name:	ICAL
Sample ID:	TCH006-1
Cal. Curve:	TCH006.2005_08_08_12_38_44.cal

Type	Anal.
Standard	NPOC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	0.4887	50uL	1	*******		08/08/05 12:46:00 PM
2	0.5994	50uL	1	*******		08/08/05 12:47:11 PM

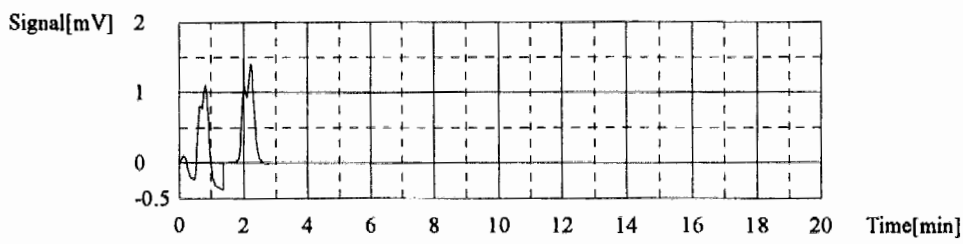
Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	0.5441



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	2.825	50uL	10	*******		08/08/05 12:55:45 PM
2	3.085	50uL	10	*******		08/08/05 12:57:20 PM

Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	2.955

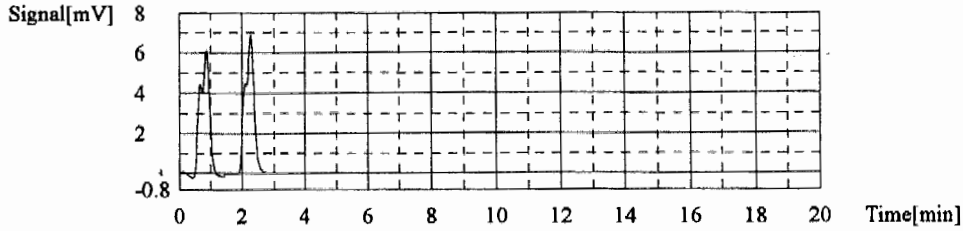


Conc: 5.000mg/L

8097

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	13.66	50uL	2	*******		08/08/05 01:04:04 PM
2	13.91	50uL	2	*******		08/08/05 01:05:43 PM

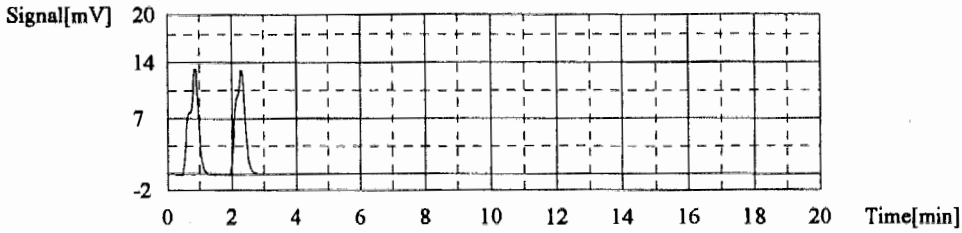
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 13.79



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	27.40	50uL	1	*******		08/08/05 01:11:47 PM
2	27.39	50uL	1	*******		08/08/05 01:13:24 PM

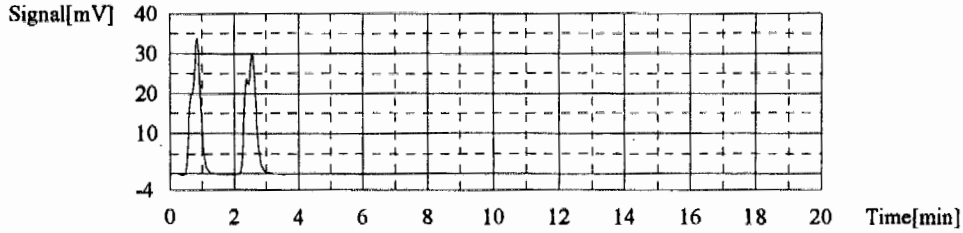
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 27.40



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	67.41	50uL	2	*******		08/08/05 01:22:20 PM
2	68.59	50uL	2	*******		08/08/05 01:24:21 PM

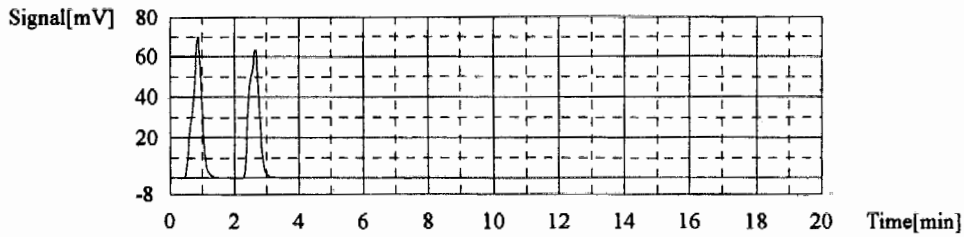
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 68.00



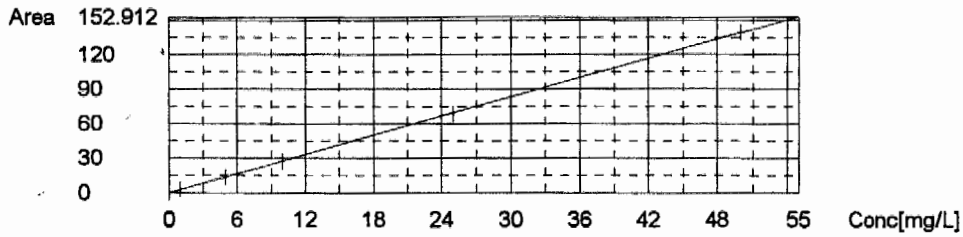
Conc: 50.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	139.4	50uL	1	*******		08/08/05 01:30:45 PM
2	139.9	50uL	1	*******		08/08/05 01:32:42 PM

Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	139.7



Slope:	2.780
Intercept	0.000
r^2	0.999785



Control Sample

Sample Name:	ICV
Sample ID:	TCH006-2
Method:	TCH006.tpl
Chk. Result	Control value: 1.14% / Control within range!

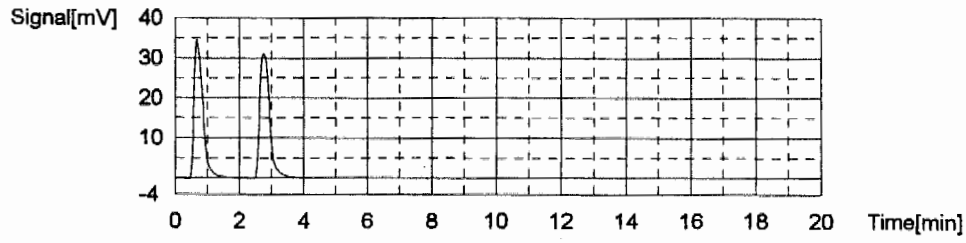
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.34 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	67.28	24.20mg/L	50uL	1		TCH006.2005_08_08_12_38_44.cal	08/08/05 01:41:30 PM
2	68.05	24.48mg/L	50uL	1		TCH006.2005_08_08_12_38_44.cal	08/08/05 01:43:48 PM

Mean Area	67.66
Mean Conc.	24.34mg/L



Sample

	Type	Analysis	Sample Name	Sample ID	Object	Origin	Dilution	Result	Notes	Comment
1	Standard	NPOC	ICAL	TCH009-1	0A-12	C:\Progra	1.000			
2	Control	NPOC	ICV	TCH009-2	0A-12	C:\Progra	1.000	NPOC:24.67 m	Control valu	
3	Unknown	NPOC	ICB	TCH009-3	0A-12	C:\Progra	1.000	NPOC:0.1949		
4	Unknown	NPOC	HCO3/CO3	TCH009-4	0A-12	C:\Progra	1.000	NPOC:0.7640		
5	Unknown	NPOC	TCH009WB	TCH009-5	0A-12	C:\Progra	1.000	NPOC:0.1857		
6	Unknown	NPOC	TCH009WL	TCH009-6	0A-12	C:\Progra	1.000	NPOC:24.07 m		
7	Unknown	NPOC	TCH009WC	TCH009-7	0A-12	C:\Progra	1.000	NPOC:24.63 m		
8	Unknown	NPOC	05G218-06	TCH009-8	0A-12	C:\Progra	1.000	NPOC:4.221 m	✓	
9	Unknown	NPOC	05G218-06D	TCH009-9	0A-12	C:\Progra	1.000	NPOC:3.431 m	✓	
10	Unknown	NPOC	05G218-06M	TCH009-10	0A-12	C:\Progra	1.000	NPOC:26.59 m	✓	
11	Unknown	NPOC	05G231-03	TCH009-11	0A-12	C:\Progra	20.00	NPOC:289.2 m		
12	Unknown	NPOC	05G247-03	TCH009-12	0A-12	C:\Progra	10.00	NPOC:98.57 m		
13	Unknown	NPOC	05H421-01	TCH009-13	0A-12	C:\Progra	1.000	NPOC:0.8802		
14	Control	NPOC	CCV1	TCH009-14	0A-12	C:\Progra	1.000	NPOC:24.26 m	Control valu	
15	Unknown	NPOC	CCB1	TCH009-15	0A-12	C:\Progra	1.000	NPOC:0.2533		
16	Unknown	NPOC	05H421-02	TCH009-16	0A-12	C:\Progra	1.000	NPOC:0.3291		
17	Unknown	NPOC	05H421-03	TCH009-17	0A-12	C:\Progra	1.000	NPOC:0.3251		
18	Unknown	NPOC	05H006-01	TCH009-18	0A-12	C:\Progra	1.000	NPOC:2.616 m		
19	Unknown	NPOC	05H006-02	TCH009-19	0A-12	C:\Progra	1.000	NPOC:2.101 m		
20	Unknown	NPOC	05H006-03	TCH009-20	0A-12	C:\Progra	1.000	NPOC:2.468 m		
21	Unknown	NPOC	05H006-04	TCH009-21	0A-12	C:\Progra	1.000	NPOC:2.623 m		
22	Unknown	NPOC	05H006-05	TCH009-22	0A-12	C:\Progra	1.000	NPOC:3.621 m		
23	Unknown	NPOC	05H056-01	TCH009-23	0A-12	C:\Progra	1.000	NPOC:0.9740		
24	Unknown	NPOC	05H056-03	TCH009-24	0A-12	C:\Progra	1.000	NPOC:1.799 m		
25	Unknown	NPOC	05H056-03D	TCH009-25	0A-12	C:\Progra	1.000	NPOC:1.574 m		
26	Control	NPOC	CCV2	TCH009-26	0A-12	C:\Progra	1.000	NPOC:24.67 m	Control valu	
27	Unknown	NPOC	CCB2	TCH009-27	0A-12	C:\Progra	1.000	NPOC:0.3041		
28	Unknown	NPOC	05H056-03M	TCH009-28	0A-12	C:\Progra	1.000	NPOC:24.83 m		
29	Unknown	NPOC	TCH010WB	TCH009-29	0A-12	C:\Progra	1.000	NPOC:0.4161		
30	Unknown	NPOC	TCH010WL	TCH009-30	0A-12	C:\Progra	1.000	NPOC:24.82 m		
31	Unknown	NPOC	TCH010WC	TCH009-31	0A-12	C:\Progra	1.000	NPOC:24.87 m		
32	Unknown	NPOC	05H020-05	TCH009-32	0A-12	C:\Progra	1.000	NPOC:12.19 m		
33	Unknown	NPOC	05H020-11	TCH009-33	0A-12	C:\Progra	1.000	NPOC:0.3111		
34	Unknown	NPOC	05H020-15	THC009-34	0A-12	C:\Progra	1.000	NPOC:6.952 m		
35	Unknown	NPOC	05H033-04	TCH009-35	0A-12	C:\Progra	1.000	NPOC:23.26 m		
36	Unknown	NPOC	05H033-06	TCH009-36	0A-12	C:\Progra	1.000	NPOC:4.615 m		
37	Unknown	NPOC	05H033-08	TCH009-37	0A-12	C:\Progra	1.000	NPOC:4.757 m		
38	Control	NPOC	CCV3	TCH009-38	0A-12	C:\Progra	1.000	NPOC:24.91 m	Control valu	
39	Unknown	NPOC	CCB3	TCH009-39	0A-12	C:\Progra	1.000	NPOC:0.3356		
40	Unknown	NPOC	05H033-10	TCH009-40	0A-12	C:\Progra	1.000	NPOC:26.52 m		
41	Unknown	NPOC	05H033-12	TCH009-41	0A-12	C:\Progra	1.000	NPOC:28.61 m		
42	Unknown	NPOC	05H033-18	TCH009-40	0A-12	C:\Progra	1.000	NPOC:0.3647		
43	Unknown	NPOC	05H032-03	TCH009-40	0A-12	C:\Progra	1.000	NPOC:29.17 m		
44	Unknown	NPOC	05H048-02	TCH009-41	0A-12	C:\Progra	1.000	NPOC:12.30 m		
45	Unknown	NPOC	05H048-04	TCH009-42	0A-12	C:\Progra	1.000	NPOC:9.733 m		
46	Unknown	NPOC	05H048-06	TCH009-43	0A-12	C:\Progra	1.000	NPOC:21.25 m		
47	Unknown	NPOC	05H048-10	TCH009-44	0A-12	C:\Progra	1.000	NPOC:0.3925		
48	Unknown	NPOC	05H048-13	TCH009-45	0A-12	C:\Progra	1.000	NPOC:7.608 m		
49	Unknown	NPOC	05H048-13D	TCH009-46	0A-12	C:\Progra	1.000	NPOC:7.837 m		
50	Unknown	NPOC	05H048-13M	TCH009-47	0A-12	C:\Progra	1.000	NPOC:31.31 m		
51	Control	NPOC	CCV4	TCH009-48	0A-12	C:\Progra	1.000	NPOC:24.97 m	Control valu	
52	Unknown	NPOC	CCB4	TCH009-49	0A-12	C:\Progra	1.000	NPOC:0.3625		
53	Unknown	NPOC	05H006-01	TCH009-50	0A-12	C:\Progra	1.000	NPOC:1.776 m		
54	Unknown	NPOC	05H006-02	TCH009-51	0A-12	C:\Progra	1.000	NPOC:1.579 m		
55	Unknown	NPOC	05H006-03	TCH009-52	0A-12	C:\Progra	1.000	NPOC:2.270 m		
56	Unknown	NPOC	05H006-04	TCH009-56	0A-12	C:\Progra	1.000	NPOC:1.949 m		
57	Unknown	NPOC	05H006-05	TCH009-54	0A-12	C:\Progra	1.000	NPOC:1.941 m		
58	Unknown	NPOC	05H006-05D	TCH009-55	0A-12	C:\Progra	1.000	NPOC:1.876 m		
59	Unknown	NPOC	05H006-05M	TCH009-59	0A-12	C:\Progra	1.000	NPOC:25.05 m		
60	Control	NPOC	CCV5	TCH009-60	0A-12	C:\Progra	1.000	NPOC:24.82 m	Control valu	
61	Unknown	NPOC	CCB5	TCH009-61	0A-12	C:\Progra	1.000	NPOC:0.4095		
62										
63										
64										
65										
66										

Instr.Information

System	toc
Detector	Combustion
Catalyst	Regular Sensitivity
Cell Length	long

Cal. Curve

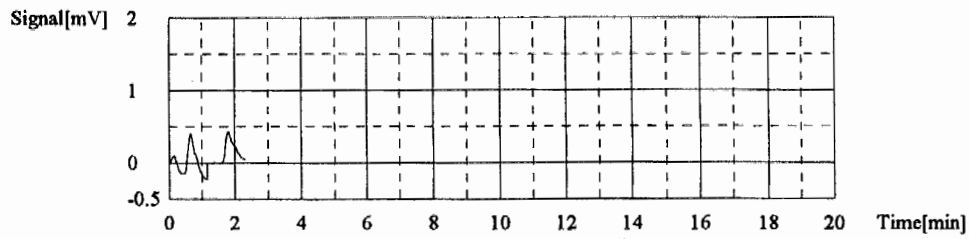
Sample Name:	ICAL
Sample ID:	TCH009-1
Cal. Curve:	TCH009.2005_08_10_23_05_40.cal

Type	Anal.
Standard	NPOC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	0.8982	50uL	1	*******		08/10/05 11:13:04 PM
2	0.6816	50uL	1	*******		08/10/05 11:14:24 PM

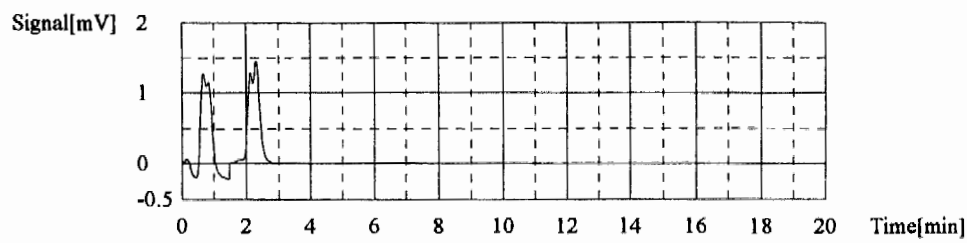
Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	0.7899



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	3.392	50uL	10	*******		08/10/05 11:23:04 PM
2	3.273	50uL	10	*******		08/10/05 11:24:41 PM

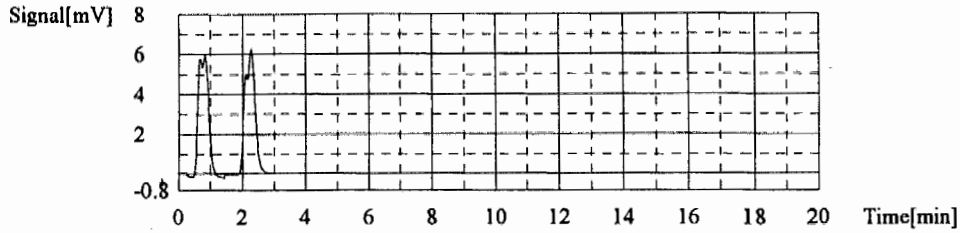
Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	3.333



Conc: 5.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	14.40	50uL	2	*******		08/10/05 11:31:24 PM
2	14.51	50uL	2	*******		08/10/05 11:33:05 PM

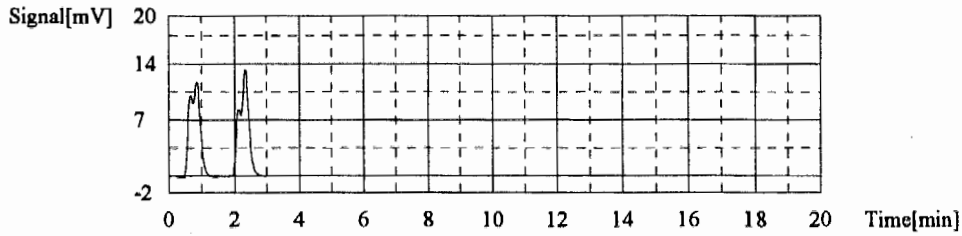
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 14.46



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	28.03	50uL	1	*******		08/10/05 11:39:08 PM
2	28.16	50uL	1	*******		08/10/05 11:40:49 PM

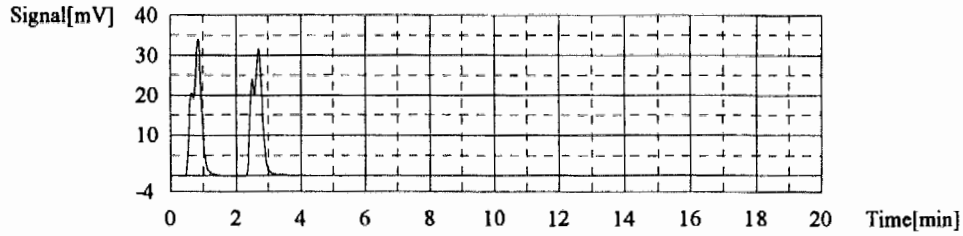
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 28.09



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	68.77	50uL	2	*******		08/10/05 11:49:53 PM
2	69.52	50uL	2	*******		08/10/05 11:52:08 PM

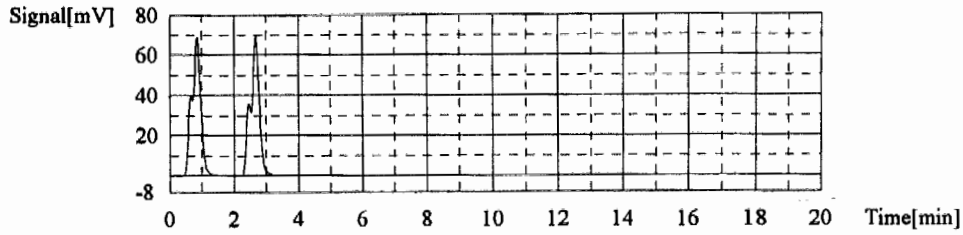
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 69.15



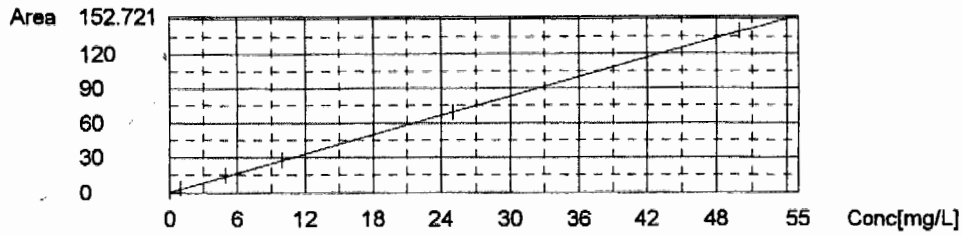
Conc: 50.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	139.5	50uL	1	*******		08/10/05 11:58:31 PM
2	139.9	50uL	1	*******		08/11/05 12:00:31 AM

Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	139.7



Slope:	2.777
Intercept	0.000
r^2	0.999941



Control Sample

Sample Name:	ICV
Sample ID:	TCH009-2
Method:	TCH009.tpl
Chk. Result	Control value: 0.73% / Control within range!

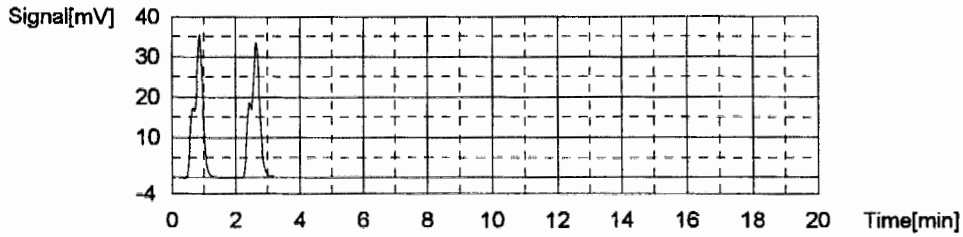
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.67 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	68.25	24.58mg/L	50uL	1		TCH009.2005_08_10_23_05_40.cal	08/11/05 12:09:03 AM
2	68.75	24.76mg/L	50uL	1		TCH009.2005_08_10_23_05_40.cal	08/11/05 12:11:02 AM

Mean Area	68.50
Mean Conc.	24.67mg/L



Sample

8103

Sample Name: ICB
Sample ID: TCH009-3
Origin: TCH009.met
Chk. Result

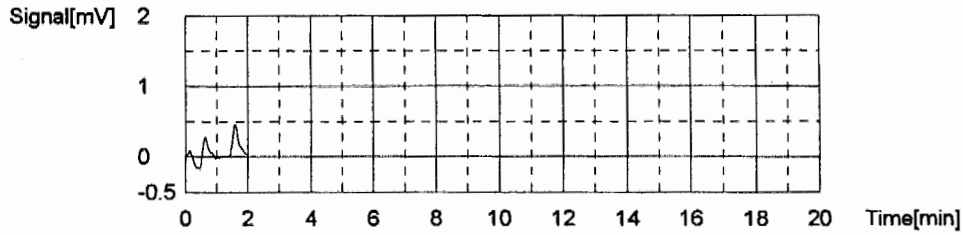
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.1949 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.5402	0.1945mg/L	50uL	1		TCH009.2005_08_10_23_05_40.cal	08/11/05 12:18:30 AM
2	0.5419	0.1952mg/L	50uL	1		TCH009.2005_08_10_23_05_40.cal	08/11/05 12:19:43 AM

Mean Area 0.5411
Mean Conc. 0.1949mg/L



Sample

Sample Name: HCO3/CO3
Sample ID: TCH009-4
Origin: TCH009.met
Chk. Result

Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.7640 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.098	0.7556mg/L	50uL	1		TCH009.2005_08_10_23_05_40.cal	08/11/05 12:27:26 AM
2	2.145	0.7725mg/L	50uL	1		TCH009.2005_08_10_23_05_40.cal	08/11/05 12:28:50 AM

ANALYSIS RUN LOG FOR TOC

SOP: o EMAX-9060 **Revision No. 1** ✓EMAX-415.1 **Revision No. 1** o **Book # A62-006**

Start Date: 8/8/05 **Time:** 12:46 **EndingDate:** 8/9/05 **Time:** 03:38

ANALYTICAL BATCH * TCH006W

Sample Prep. ID		Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Run Time	Notes
*	1	TCH006-1	ICAL	1		X	13:32	NPOC Run
*	2	2	ICV				~~13:40~~ 8/9/05 13:43	pH<2
*	3	3	ICB				13:52	
*	4	4	HCO3/CO3				14:01	
*	5	5	TCH006WB				14:11	
*	6	6	WL				14:21	
*	7	7	WC				14:32	
*	8	8	056218-01				14:41	
*	9	9	02				14:50	
*	0	10	03				15:00	
*	1	11	04				15:09	
*	2	12	05				15:18	
*	3	13	06				15:27	
*	4	14	CCV1				15:38	
*	5	15	CCB1				16:01	
*	6	16	056218-06D				16:10	
*	7	17	06M				16:20	
*	8	18	056219-02				16:29	
*	9	19	03				16:39	
*	0	20	04				16:49	
*	1	21	05				16:59	
*	2	22	056231-02				17:09	
*	3	23	02D				17:18	
*	4	24	02M				17:28	
*	5	25	03				17:40	
*	6	26	CCV2				17:50	
*	7	27	CCB2				17:59	
*	8	28	056231-04				18:10	
*	9	29	05				18:19	
*	0	30	06				18:29	

Instrument No.	62
INITIAL CALIBRATION REFERENCE	
Method File	TCH006
ICAL ID	SW10B-01-611
ICV ID	612

STANDARDS

ICAL Level		Conc.(mg/L)
S_0	Nanopure	0
S_1	SW10B-01-611	1
S_2		5
S_3		10
S_4		25
S_5		50
S_6		8/8/05
ICV/LCS	SW10B-01-612	25
CCV	613	25

Comments:

Analyzed By:

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8105

ANALYSIS RUN LOG FOR TOC

SOP: o EMAX-9060 Revision No. 1 o EMAX-415.1 Revision No. 1 o **Book # A62-006**

Start Date: 8/8/05 **Time:** 12:46 **EndingDate:** 8/9/05 **Time:** 03:38

Sample Prep. ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Run Time	Notes
* 1	TCH006-31	056231-07	1		X	18:39	NPOC Run
* 2	32	↓ 08				18:49	pH<2
* 3	33	056839-02				18:58	
* 4	34	↓ 03				19:07	
* 5	35	056842-02				19:16	
* 6	36	TCH007WB				19:25	
* 7	37	↓ WL				19:36	
* 8	38	CCV3				19:46	
* 9	39	CCB3				19:55	
* 0	40	TCH007WC				20:06	
* 1	41	056218-01				20:15	
* 2	42	02				20:24	
* 3	43	03				20:33	
* 4	44	04				20:42	
* 5	45	05				20:51	
* 6	46	06				21:01	
* 7	47	06D				21:10	
* 8	48	06M				21:20	
* 9	49	CCV4				21:30	
* 0	50	CCB4				21:39	
* 1	51	056247-02				21:50	
* 2	52	03				22:01	
* 3	53	04				~~22:02~~ 22:11 8/8/05	
* 4	54	05				22:21	
* 5	55	06				22:31	
* 6	56	07				22:41	
* 7	57	08				22:50	
* 8	58	08D				22:59	
* 9	59	08M				23:09	
* 0	60	050260-01				23:18	

ANALYTICAL BATCH * TCH007W

Instrument No.	62
INITIAL CALIBRATION REFERENCE	
Method File	TCH006
ICAL ID	(see ICAL page 82)
ICV ID	

STANDARDS

ICAL Level		Conc.(mg/L)
S_0		
S_1		
S_2		
S_3		
S_4		
S_5		
S_6		
ICV/LCS		
CCV		

same as page 82

Comments:

Analyzed By: ✓

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8106

ANALYSIS RUN LOG FOR TOC

SOP: o EMAX-9060 Revision No. 1 o EMAX-415.1 Revision No. 1 o **Book # A62-006**

Start Date: 8/8/05 **Time:** 12:46 **EndingDate:** 8/9/05 **Time:** 03:38

Sample Prep. ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Run Time	Notes
* 1	TCH006-61	CCV5	1		X	23:28	NPOC Run
* 2	62	CCB5				23:37	pH<2
* 3	63	056260-02				23:46	
* 4	64	03				23:56	
* 5	65	04				00:05	
* 6	66	05				00:14	
* 7	67	06				00:24	
* 8	68	CCV6				00:34	
* 9	69	CCB6				00:44	
* 0	70	TCH008CCB				00:53	
* 1	71	MK				01:03	
* 2	72	KK				01:14	
* 3	73	056260-01				01:24	
* 4	74	02				01:33	
* 5	75	03				01:42	
* 6	76	04				01:51	
* 7	77	05				02:01	
* 8	78	06				02:10	
* 9	79	CCV7				02:20	
* 0	80	CCB7				02:29	
* 1	81	056260-06D				02:39	
* 2	82	06M				02:49	
* 3	83	056183-01				02:58	DOC
* 4	84	01				03:08	TOC
* 5	85	056159-03	2			03:18	
* 6	86	CCV8	1			03:29	
* 7	89	CCB8	1			03:38	
* 8							
* 9							
* 0							

ANALYTICAL BATCH * TCH008W

Instrument No.	62
INITIAL CALIBRATION REFERENCE	
Method File	TCH006
ICAL ID	(see ICAL on page 82)
ICV ID	

STANDARDS

ICAL Level		Conc.(mg/L)
S_0		
S_1		
S_2		
S_3		
S_4		
S_5		
S_6		
ICV/LCS		
CCV		

Same as page 82

Comments:

Analyzed By:

8/8/05

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8107

ANALYSIS RUN LOG FOR TOC

SOP: o EMAX-9060 **Revision No.** 1 ✓ EMAX-415.1 **Revision No.** 1 o **Book #** A62-006

Start Date: 8/10/05 **Time:** 23:13 **EndingDate:** 8/11/05 **Time:** 09:28

Sample Prep. ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Run Time	Notes
* 1	TCH009-1	ICAL	1		X	00:00	NPOC Run
* 2	2	ICV				00:11	pH<2
* 3	3	ICB				00:19	
* 4	4	HCO_3/CO_3				00:28	
* 5	5	TCH009WB				00:37	
* 6	6	WL				00:47	
* 7	7	WC				00:57	
* 8	8	056218-06				~~13:06~~ 01:06	
* 9	9	06D				01:16	
* 0	10	06M				01:25	
* 1	11	056231-03	20			01:35	
* 2	12	056247-03	10			01:45	
* 3	13	05H421-01	1			01:54	
* 4	14	CCV1				02:04	
* 5	15	CCB1				02:13	
* 6	16	05H421-02				02:22	
* 7	17	03				02:31	
* 8	18	05H006-01				02:40	
* 9	19	02				02:50	
* 0	20	03				02:59	
* 1	21	04				03:08	
* 2	22	05				03:17	
* 3	23	05H056-01				03:26	
* 4	24	03				03:35	
* 5	25	03D				03:45	
* 6	26	CCV2				03:55	
* 7	27	CCB2				04:04	
* 8	28	05H056-03M				04:14	
* 9	29	TCH010WB				04:23	
* 0	30	WL				04:33	

ANALYTICAL BATCH * TCH009W ** TCH010W

Instrument No.	62
INITIAL CALIBRATION REFERENCE	
Method File	TCH009W
ICAL ID	SW10B-01-611
ICV ID	612

STANDARDS

ICAL Level		Conc.(mg/L)
S_0	Nanopure	0
S_1	SW10B-01-611	1
S_2		5
S_3		10
S_4		25
S_5		50
S_6		8/10/05
ICV/LCS	SW10B-01-612	25
CCV	613	25

Comments:

Analyzed By:

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

8108

ANALYSIS RUN LOG FOR TOC

SOP: o EMAX-9060 **Revision No.** 1 o/ EMAX-415.1 **Revision No.** 1 o **Book #** A62-006

Start Date: 5/10/05 **Time:** 25:13 **EndingDate:** 5/10/05 **Time:** 09:28

Sample Prep. ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Run Time	Notes
* 1	TCH009-31	TCH010WC	1		X	04:43	NPOC Run
* 2	32	05H020-05				04:52	pH<2
* 3	33	11				05:01	
* 4	34	15				05:11	
* 5	35	05H033-04				05:21	
* 6	36	06				05:30	5/10/05
* 7	37	08				05:39	
* 8	38	CCV3				05:50	
* 9	39	CCB3				05:59	
* 0	40	05H033-10				06:09	
* 1	41	12				06:19	
* 2	42	18				06:28	
* 3	43	05H032-03				06:38	
* 4	44	05H048-02				06:47	
* 5	45	04				06:57	
* 6	46	06				07:07	
* 7	47	10				07:16	
* 8	48	13				07:25	
* 9	49	13D				07:35	
* 0	50	13M				07:45	
* 1	51	CCV4				07:55	
* 2	52	CCB4				08:04	
* 3	53	05H006-01				08:13	
* 4	54	02				08:23	
* 5	55	03				08:32	
* 6	56	04				08:41	
* 7	57	05				08:50	
* 8	58	05D				08:59	
* 9	59	05M				09:09	
* 0	60	CCV5				09:20	
	61	CCB5				09:28	

ANALYTICAL BATCH # TCH010WC

Instrument No.	62
INITIAL CALIBRATION REFERENCE	
Method File	TCH009
ICAL ID	(see previous page 86)
ICV ID	

STANDARDS

ICAL Level		Conc.(mg/L)
S_0		
S_1		
S_2		
S_3		
S_4		
S_5		
S_6		
ICV/LCS		
CCV		

(same as page 86)

Comments:

Analyzed By: [illegible]

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8109

TABLE OF CONTENTS

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G260**

SECTION		PAGE
Cover Letter, COC/Sample Receipt Form		1000 – 1008
GC/MS-VOA	**	2000 –
GC/MS-SVOA	**	3000 –
GC-VOA	**	4000 –
GC-SVOA	**	5000 –
HPLC	**	6000 –
METALS	METHOD 200.7	7000 – 7019
WET	METHOD 310.1	8000 – 8005
	METHOD 300.0	8006 – 8023
	METHOD 350.2	8024 – 8030
	METHOD 120.1	8031 – 8035
	METHOD SM3500	8036 – 8041
	METHOD 351.3	8042 – 8049
	METHOD 415.1 (DOC)	8050 – 8061
	METHOD 415.1 (TOC)	8062 – 8075
OTHERS	**	9000 –

** - Not Requested

EMAX
LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 08-22-2005
EMAX Batch No.: 05G260

Attn: Tien Shiao

Battelle Memorial Institute
505 King Ave.
Columbus OH 43201

Subject: Laboratory Report
Project: JPL

Enclosed is the Laboratory report for samples received on 07/29/05.
The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
MW-21-5	G260-01	07/26/05	WATER	FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				TKN
				SULFATE BY IC
				CHLORIDE BY IC
MW-21-4	G260-02	07/26/05	WATER	FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				TKN
				SULFATE BY IC

Sample ID	Control #	Col Date	Matrix	Analysis
				CHLORIDE BY IC
MW-21-3	G260-03	07/26/05	WATER	FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				TKN
				SULFATE BY IC
				CHLORIDE BY IC
MW-21-2	G260-04	07/26/05	WATER	FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				TKN
				SULFATE BY IC
				CHLORIDE BY IC
MW-21-1	G260-05	07/26/05	WATER	FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				TKN
				SULFATE BY IC
				CHLORIDE BY IC
DUPE-4-7/26/2005	G260-06	07/26/05	WATER	FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				TKN
				SULFATE BY IC
				CHLORIDE BY IC

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

Battelle
Columbus Laboratories

Form No. 05 G 260

CHAIN OF CUSTODY RECORD

C17

Proj. No.	Project Title
G486111-T3	Source Determination Study

SAMPLERS: (Signature)

DATE	TIME	SAMPLE I.D.	DOC (Filtered)	TDC	Ferrous Iron	Nitrite, Nitrate	Sulfate, Chloride	TDS	Alkalinity, Spec. Elec. Cond.	Ferric Iron	Ca, Na, K, Mg	Sulfide	Ammonia	TKN				Container No.	Number of Containers	Remarks
(1) 7/26/2005	08:30	MW-21-5	X	X	X	X	X	X	X	X	X	X	X							0.45 µm filter
(2) 7/26/2005	10:30	MW-21-4	X	X	X	X	X	X	X	X	X	X	X							rinsed w/ 500 mL
(3) 7/26/2005	12:15	MW-21-3	X	X	X	X	X	X	X	X	X	X	X							of distilled H_2O
(4) 7/26/2005	14:45	MW-21-2	X	X	X	X	X	X	X	X	X	X	X							before filtering
(5) 7/26/2005	16:00	MW-21-1	X	X	X	X	X	X	X	X	X	X	X							DOC in the field
(6) 7/26/2005	13:15	DUPE-4-7/26/2005	X	X	X	X	X	X	X	X	X	X	X							

PO # 191943

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Mike Woolfe	7/29/05 1:30	[signature] 7/29/05 10:50 A.			
Relinquished by: (Signature) [signature]	Date/Time 7/29/05 ~~10:30~~ 11:30 A	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature) [signature]	Date/Time 7-29-05 11:30	Remarks Cooler #1 T = 3.8 C To: FMAX Cooler #2 T = 4.2 C	

Page ____ of ____

Hanh Bui

From: Shiao, Tien [shiaoh@BATTELLE.ORG]
Sent: Wednesday, August 03, 2005 6:56 AM
To: Hanh Bui
Cc: Ohart, Carolyn J; Conner, David J
Subject: RE: COC for samples received on 8/2 SDG: 05H006 (Battelle/JPL)

Hanh,

For the MW-25 samples (MW-25-1, MW-25-2, MW-25-3, MW-25-4, MW-25-5, Dupe-4-7/26/05) please analyze the rest of the parameters on the COCs. But FIRST be sure to check whether the rest of the analytes are out of hold time, it they are let me know before you analyze, so we can figure out what to do.

As for the metals sample for MW-20-1, please confirm that MW-20-1 is the only location where the metal sample was collected in the wrong bottle. If this is the case, than please don't analyze the metals (Method 200.7 for Ca, Fe, Mg, K, Na) for MW-20-1. We will re-sample the metals for MW-20-1. But do analyze all other parameters on the COC for MW-20-1.

Please give me a call if you have any questions.

Thanks and hope to hear from you soon.

Tien

From: Hanh Bui [mailto:HDBui@emaxlabs.com]
Sent: Tuesday, August 02, 2005 8:29 PM
To: Shiao, Tien
Subject: RE: COC for samples received on 8/2 SDG: 05H006 (Battelle/JPL)

Tien,
Yes, it will affect the metals result. It should be preserved with HNO3 instead of H2SO4 as we received. Thus, we will get some sample from bottle with no preservation to analyze Metal (only sample MW-20-1).

We received your email on 8/1, and chemist already analyzed on 7/29 for Nitrate and Nitrite.
All analysis of this SDG 05G260 were on hold now. Please let me know about that.
Best regards,
Hanh

> -----Original Message-----
> **From:** Shiao, Tien [mailto:shiaoh@BATTELLE.ORG]
> **Sent:** Tuesday, August 02, 2005 4:37 PM
> **To:** Hanh Bui
> **Subject:** RE: COC for samples received on 8/2 SDG: 05H006 (Battelle/JPL)
>
> Hahn,
>
> In the email 08/01/05 I thought I said to hold off on the analysis for MW-21 Screens 1 through 5 and the duplicate analysis:
>
> Hanh,
>
> The sampling collection date on the COC is correct and the samples are out of hold time for nitrate and nitrite.
>
> Please hold off the analysis until I get back to you tomorrow.

Thanks for your patience,
Tien

Also, for the COC that you just attached, what does the discrepancy for MW-20-1 mean and will it affect the sample result?

Other than the discrepancy, the COC looks good.

Thanks,
Tien

From: Hanh Bui [mailto:HDBui@emaxlabs.com]
Sent: Tuesday, August 02, 2005 7:16 PM
To: Shiao, Tien
Subject: COC for samples received on 8/2 SDG: 05H006 (Battelle/JPL)

Hi Tien,
Here is the COC for samples we received today. Do you want to change something, please let me know.

However, chemist already analyzed Nitrate/Nitrite for these samples MW-21- (out of holding time, SDG 05G260, sampled on 7/29). We will charge for that. If you have any question, please feel free to contact with Kam, thanks.
Hanh

-----Original Message-----
From: Shiao, Tien [mailto:shiaoh@BATTELLE.ORG]
Sent: Tuesday, August 02, 2005 2:48 PM
To: Hanh Bui
Cc: Conner, David J
Subject: RE: COC for samples received on 7/29 SDG: 05G260 (Battelle/JPL)

Hahn,

I really hate to do this to you but can you hold of discarding the samples? I need to confirm whether we will be re-sampling all the anions or re-sampling all the geochemical parameters on the COCs.

Sorry for the trouble,
Tien

From: Shiao, Tien
Sent: Tuesday, August 02, 2005 4:30 PM
To: 'Hanh Bui'
Subject: RE: COC for samples received on 7/29 SDG: 05G260 (Battelle/JPL)

Thanks for the confirmation.

From: Hanh Bui [mailto:HDBui@emaxlabs.com]
Sent: Tuesday, August 02, 2005 4:28 PM
To: Shiao, Tien
Subject: RE: COC for samples received on 7/29 SDG: 05G260 (Battelle/JPL)

Hi Tien,
All analysis will be cancelled for samples received on 7/29. Thanks for your information.

Hanh

-----Original Message-----
From: Shiao, Tien [mailto:shiaoh@BATTELLE.ORG]
Sent: Tuesday, August 02, 2005 1:21 PM
To: Hanh Bui
Cc: Ohart, Carolyn J; Conner, David J
Subject: RE: COC for samples received on 7/29 SDG: 05G260 (Battelle/JPL)

Hahn,

We're going to re-sample MW-21.

MW-21-5
MW-21-4
MW-21-3
MW-21-2
MW-21-1
Dupe-4-7/26/2005

Therefore, please don't analyze any of the samples you received 07/29.

Let me know if you have any questions. Thank you for your patience.

Tien

From: Hanh Bui [mailto:HDBui@emaxlabs.com]
Sent: Friday, July 29, 2005 7:53 PM
To: Shiao, Tien
Subject: COC for samples received on 7/29 SDG: 05G260 (Battelle/JPL)

Hi Tien,
Please give me advise for discrepancy the samples we received today. Anions samples are out of holding time, thanks.
Hanh

Hanh Bui

From: Hanh Bui

Sent: Wednesday, August 03, 2005 11:06 AM

To: 'Shiao, Tien'

Subject: RE: COC for samples received on 7/29 SDG: 05G260 (Battelle/JPL)

Tien,
Sulfide is out of holding time too. Could you please re-samples next time. Thus, we will cancel Nitrate/Nitrite, TDS, and sulfide for samples MW-21-.....on 7/26. I send the login review sheet later, thanks.
Hanh

-----Original Message-----
From: Hanh Bui
Sent: Wednesday, August 03, 2005 10:41 AM
To: 'Shiao, Tien'
Subject: COC for samples received on 7/29 SDG: 05G260 (Battelle/JPL)

Hi Tien,
For samples MW-21-5, -4, -3, -2, -1, and Dupe-4-7/26/05 sampled on 7/26, all TDS samples are out of holding time now (7 days HT for TDS). Thus, can you re-sample those next time with Nitrate/nitrite? Please let me know. Sorry about that. Thanks
Hanh

SAMPLE RECEIPT FORM 1

Type of Delivery	Delivered By/Airbill	ECN	05G260
☑ EMAX Courier	SEE C.O.C.	Recepient	I. PATEL
☐ Client Delivery		Date	07.29.05.
☐ Third Party		Time	11:30

COC Inspection

☑ Client Name	☑ Sampler Name	☑ Sampling Date/Time/Location
☐ Address	☑ Courier Signature/Date/Time	☑ Analysis Required
☑ Client PM/FC	☐ TAT	☐ Matrix
☐ Tel #/Fax #	☑ Sample ID	☐ Preservative (if any)
Safety Issues ☑ None	☐ High Concentrations expected	☐ Superfund Site Samples
Comments: ☐ Rad Screening Required		

Packaging Inspection

Container	☑ Cooler STW0	☐ Box	☐	☐
Condition	☐ Custody Seal	☑ Intact	☐ Damaged	☐
Packaging	☐ Bubble Pack	☐ Styrofoam	☑ Sufficient	☑ PLASTIC BAGS
Temperatures	☑ Cooler 1 3.8°C	☑ Cooler 2 4.2°C	☐ Cooler 3 _____	☐ Cooler 4 _____
	☐ Cooler 5 _____	☐ Cooler 6 _____	☐ Cooler 7 _____	☐ Cooler 8 _____
	☐ Cooler 9 _____	☐ Cooler 10 _____	☐ Cooler 11 _____	☐ Cooler 12 _____

Comments:

LSCID	Client ID	Discrepancy	Corrective Action
		ALL SAMPLES FOR	Cancel Nitrate / Nitrite
		300.0 ANALYSIS REQ'D	
		OUT OF HOLDING TIME.	
			Cancel TDS / Sulfide
			(out of HT), re-sample
			per Tien / Hanh conversation
			8/3/05

LSCID : Lab Sample Container ID

REVIEWS

Sample Labeling _____ Date 07.29.05.

SRF _____ Date 7/29/05

PM _____ Date 8/3/05

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

BATTELLE MEMORIAL INSTITUTE

JPL

METHOD 200.7
METALS BY ICP

SDG#: 05G260

7000

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G260**

METHOD 200.7
METALS BY ICP

Six (6) water samples were received on 07/29/05 for Metals analysis by Method 200.7 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition.

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blanks were free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Sample G260-06 was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

Sample G260-06 was spiked. All recoveries were within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

LAB CHRONICLE
METALS BY ICP-AES

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL

SDG NO. : 05G260
Instrument ID : T-I07

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	IPH009WB	1	NA	08/11/0515:06	08/03/0511:30	I07H024012	I07H024010	IPH009W	Method Blank
LCS1W	IPH009WL	1	NA	08/11/0515:10	08/03/0511:30	I07H024013	I07H024010	IPH009W	Lab Control Sample (LCS)
LCD1W	IPH009WC	1	NA	08/11/0515:15	08/03/0511:30	I07H024014	I07H024010	IPH009W	LCS Duplicate
MW-21-5	G260-01	1	NA	08/11/0515:41	08/03/0511:30	I07H024020	I07H024010	IPH009W	Field Sample
MW-21-4	G260-02	1	NA	08/11/0515:56	08/03/0511:30	I07H024023	I07H024021	IPH009W	Field Sample
MW-21-3	G260-03	1	NA	08/11/0516:00	08/03/0511:30	I07H024024	I07H024021	IPH009W	Field Sample
MW-21-2	G260-04	1	NA	08/11/0516:04	08/03/0511:30	I07H024025	I07H024021	IPH009W	Field Sample
MW-21-1	G260-05	1	NA	08/11/0516:09	08/03/0511:30	I07H024026	I07H024021	IPH009W	Field Sample
DUPE-4-7/26/2005	G260-06	1	NA	08/11/0516:13	08/03/0511:30	I07H024027	I07H024021	IPH009W	Field Sample
DUPE-4-7/26/2005DL	G260-06T	5	NA	08/11/0516:17	08/03/0511:30	I07H024028	I07H024021	IPH009W	Diluted Sample
DUPE-4-7/26/2005AS	G260-06A	1	NA	08/11/0516:21	08/03/0511:30	I07H024029	I07H024021	IPH009W	Analytical Spike Sample
DUPE-4-7/26/2005MS	G260-06M	1	NA	08/11/0516:25	08/03/0511:30	I07H024030	I07H024021	IPH009W	Matrix Spike Sample (MS)
DUPE-4-7/26/2005MSD	G260-06S	1	NA	08/11/0516:29	08/03/0511:30	I07H024031	I07H024021	IPH009W	MS Duplicate (MSD)

FN - Filename
% Moist - Percent Moisture

71102

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/26/05
Project	: JPL	Date Received:	07/29/05
SDG NO.	: 05G260	Date Extracted:	08/03/05 11:30
Sample ID:	MW-21-5	Date Analyzed:	08/11/05 15:41
Lab Samp ID:	G260-01	Dilution Factor:	1
Lab File ID:	I07H024020	Matrix :	WATER
Ext Btch ID:	IPH009W	% Moisture :	NA
Calib. Ref.:	I07H024010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	99.6	1	.1
Iron	ND	.2	.04
Magnesium	32.9	1	.1
Potassium	2.3	2	1.4
Sodium	35.3	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/26/05
Project	: JPL	Date Received:	07/29/05
SDG NO.	: 05G260	Date Extracted:	08/03/05 11:30
Sample ID:	MW-21-4	Date Analyzed:	08/11/05 15:56
Lab Samp ID:	G260-02	Dilution Factor:	1
Lab File ID:	I07H024023	Matrix :	WATER
Ext Btch ID:	IPH009W	% Moisture :	NA
Calib. Ref.:	I07H024021	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	96.8	1	.1
Iron	ND	.2	.04
Magnesium	29.9	1	.1
Potassium	2.42	2	1.4
Sodium	30.5	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/26/05
Project	: JPL	Date Received:	07/29/05
SDG NO.	: 05G260	Date Extracted:	08/03/05 11:30
Sample ID:	MW-21-3	Date Analyzed:	08/11/05 16:00
Lab Samp ID:	G260-03	Dilution Factor:	1
Lab File ID:	I07H024024	Matrix :	WATER
Ext Btch ID:	IPH009W	% Moisture :	NA
Calib. Ref.:	I07H024021	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	150	1	.1
Iron	ND	.2	.04
Magnesium	47	1	.1
Potassium	3.38	2	1.4
Sodium	44.4	1	.25

7005

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/26/05
Project	: JPL	Date Received:	07/29/05
SDG NO.	: 05G260	Date Extracted:	08/03/05 11:30
Sample ID:	MW-21-2	Date Analyzed:	08/11/05 16:04
Lab Samp ID:	G260-04	Dilution Factor:	1
Lab File ID:	I07H024025	Matrix :	WATER
Ext Btch ID:	IPH009W	% Moisture :	NA
Calib. Ref.:	I07H024021	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	152	1	.1
Iron	ND	.2	.04
Magnesium	50.3	1	.1
Potassium	2.82	2	1.4
Sodium	70.5	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/26/05
Project	: JPL	Date Received:	07/29/05
SDG NO.	: 05G260	Date Extracted:	08/03/05 11:30
Sample ID:	MW-21-1	Date Analyzed:	08/11/05 16:09
Lab Samp ID:	G260-05	Dilution Factor:	1
Lab File ID:	I07H024026	Matrix :	WATER
Ext Btch ID:	IPH009W	% Moisture :	NA
Calib. Ref.:	I07H024021	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	126	1	.1
Iron	ND	.2	.04
Magnesium	40.9	1	.1
Potassium	2.72	2	1.4
Sodium	34.2	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/26/05
Project	: JPL	Date Received:	07/29/05
SDG NO.	: 05G260	Date Extracted:	08/03/05 11:30
Sample ID:	DUPE-4-7/26/2005	Date Analyzed:	08/11/05 16:13
Lab Samp ID:	G260-06	Dilution Factor:	1
Lab File ID:	I07H024027	Matrix :	WATER
Ext Btch ID:	IPH009W	% Moisture :	NA
Calib. Ref.:	I07H024021	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	156	1	.1
Iron	.253	.2	.04
Magnesium	49.3	1	.1
Potassium	2.96	2	1.4
Sodium	46.3	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	NA
Project	: JPL	Date Received:	08/03/05
SDG NO.	: 05G260	Date Extracted:	08/03/05 11:30
Sample ID:	MBLK1W	Date Analyzed:	08/11/05 15:06
Lab Samp ID:	IPH009WB	Dilution Factor:	1
Lab File ID:	I07H024012	Matrix :	WATER
Ext Btch ID:	IPH009W	% Moisture :	NA
Calib. Ref.:	I07H024010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	ND	1	.1
Iron	ND	.2	.04
Magnesium	ND	1	.1
Potassium	ND	2	1.4
Sodium	ND	1	.25

7009

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
SDG NO.: 05G260
METHOD: METHOD 200.7

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	MBLK1W				
CONTROL NO.:	IPH009WB	IPH009WL	IPH009WC		
LAB FILE ID:	I07H024012	I07H024013	I07H024014		
DATIME EXTRCTD:	08/03/0511:30	08/03/0511:30	08/03/0511:30	DATE COLLECTED:	NA
DATIME ANALYZD:	08/11/0515:06	08/11/0515:10	08/11/0515:15	DATE RECEIVED:	08/03/05
PREP. BATCH:	IPH009W	IPH009W	IPH009W		
CALIB. REF:	I07H024010	I07H024010	I07H024010		

ACCESSION:

PARAMETER	BLNK RSLT mg/L	SPIKE AMT mg/L	BS RSLT mg/L	BS % REC	SPIKE AMT mg/L	BSD RSLT mg/L	BSD % REC	RPD %	QC LIMIT %	MAX RPD %
Calcium	ND	50	51	102	50	51.6	103	1	85-115	20
Iron	ND	10	10.5	105	10	10.8	108	3	85-115	20
Magnesium	ND	50	50.7	101	50	50.9	102	0	85-115	20
Potassium	ND	50	48.5	97	50	48.9	98	1	85-115	20
Sodium	ND	50	49.9	100	50	50.5	101	1	85-115	20

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
SDG NO.: 05G260
METHOD: METHOD 200.7

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	DUPE-4-7/26/2005				
CONTROL NO.:	G260-06	G260-06M	G260-06S		
LAB FILE ID:	I07H024027	I07H024030	I07H024031		
DATIME EXTRCTD:	08/03/0511:30	08/03/0511:30	08/03/0511:30	DATE COLLECTED:	07/26/05
DATIME ANALYZD:	08/11/0516:13	08/11/0516:25	08/11/0516:29	DATE RECEIVED:	07/29/05
PREP. BATCH:	IPH009W	IPH009W	IPH009W		
CALIB. REF:	I07H024021	I07H024021	I07H024021		

ACCESSION:

PARAMETER	SMPL RSLT mg/L	SPIKE AMT mg/L	MS RSLT mg/L	MS % REC	SPIKE AMT mg/L	MSD RSLT mg/L	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Calcium	156	50	201	90	50	202	91	0	70-130	20
Iron	.253	10	10.5	103	10	10.6	104	1	70-130	20
Magnesium	49.3	50	98.7	99	50	98.5	98	0	70-130	20
Potassium	2.96	50	50.9	96	50	51.4	97	1	70-130	20
Sodium	46.3	50	95.8	99	50	95.4	98	0	70-130	20

7011

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G260
METHOD: METHOD 200.7

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	5		
SAMPLE ID:	DUPE-4-7/26/2005	DUPE-4-7/26/2005DL		
EMAX SAMP ID:	G260-06	G260-06T		
LAB FILE ID:	I07H024027	I07H024028		
DATE EXTRACTED:	08/03/0511:30	08/03/0511:30	DATE COLLECTED:	07/26/05
DATE ANALYZED:	08/11/0516:13	08/11/0516:17	DATE RECEIVED:	07/29/05
PREP. BATCH:	IPH009W	IPH009W		
CALIB. REF:	I07H024021	I07H024021		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SERIAL DIL RSLT (mg/L)	DIF RSLT %	QC LIMIT (%)
Calcium	156	150	4	10
Iron	.253	ND	NA	10
Magnesium	49.3	46.7	5	10
Potassium	2.96	ND	NA	10
Sodium	46.3	44.4	4	10

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
SDG NO.: 05G260
METHOD: METHOD 200.7

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MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	DUPE-4-7/26/2005			
CONTROL NO.:	G260-06	G260-06A		
LAB FILE ID:	I07H024027	I07H024029		
DATIME EXTRCTD:	08/03/0511:30	08/03/0511:30	DATE COLLECTED:	07/26/05
DATIME ANALYZD:	08/11/0516:13	08/11/0516:21	DATE RECEIVED:	07/29/05
PREP. BATCH:	IPH009W	IPH009W		
CALIB. REF:	I07H024021	I07H024021		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	AS RSLT (mg/L)	AS % REC	QC LIMIT (%)
Calcium	156	50	200	87	85-115
Iron	.253	10	10.5	103	85-115
Magnesium	49.3	50	97.8	97	85-115
Potassium	2.96	50	51.3	97	85-115
Sodium	46.3	50	94.9	97	85-115

REGULAR ICP QC CHECK TABLE

QC	ICV HIGH	ICV	CCV	ICSAB	ICSA
Limit%	95-105	90-110	90-110	80-120	80-120
Comp	mg/L	mg/L	mg/L	mg/L	mg/L
Al	10	5	5	500	500
Sb	2	1	1	1	0
As	2	1	1	1	0
Ba	2	1	1	0.5	0
Be	2	1	1	0.5	0
B	2	1	1	0.5	0
Cd	2	1	1	1	0
Ca	100	50	50	500	500
Cr	2	1	1	0.5	0
Co	2	1	1	0.5	0
Cu	2	1	1	0.5	0
Fe	10	5	5	200	200
Pb	2	1	1	1	0
Mg	100	50	50	500	500
Mn	2	1	1	0.5	0
Mo	2	1	1	1	0
Ni	2	1	1	1	0
K	100	50	50	50	0
Se	2	1	1	3.6	0
Ag	2	1	1	1	0
Na	100	50	50	10	0
Sr	2	1	1	0.5	0
Tl	2	1	1	3.6	0
Sn	10	5	5	1	0
Ti	2	1	1	1	0
V	2	1	1	0.5	0
Zn	2	1	1	1	0

ANALYSIS RUN LOG FOR ICP

SOP ☐ EMAX-6010-Rev. 3 ☐ EMAX-CLP-TAL ☑ 200.7 Method File: 601CFI Autosampler Table: ICP

Matrix: WATER Start Date: 8/11/05 Time: 14:18 End Date: 8/11/05 Time: 17:21 Book# A24 -038

ANALYTICAL BATCH* 07H021

	Data File Name	Prep. Batch	Lab Sample ID	DF	Matrix	Notes
01			S0			
02			S1			
03			S6			
04			ICV (QCS)			
05			ICB			
06			CCV (IPC)			
07			CCB			
08			ICSA1			
09			ICSAB1			
10			CCV1 (IPC)			
11			CCB1			
12		IPH009W	IPH009WB	1	W	(LFB)
13			WL	1		(LFB)
14			WC	1		(LFB)
15			G242-01	1		
16			02	1		
17			04	1		
18			05	1		
19			07	1		
20		8/11/05	G260-01	1		
21			CCV2 (IPC)	1		
22			CCB2	1		
23			G260-02	1		
24			03	1		
25			04	1		

ANALYTICAL BATCH* _____

	Data File Name	Prep. Batch	Lab Sample ID	DF	Matrix	Notes
26		IPH009W	G260-05	1	W	
27			06	1		
28			06T	5		
29			06A	1		
30			06M	1		
31			06S	1		
32			H001-01	1		
33			CCV3 (IPC)	1		
34			CCB3	1		
35			H001-02	1		G242-08
36	36 37		ICSA#	1		8/11/05
37	38		ICSAB#	1		
38	39		CCV4 (IPC)	1		
39	40		CCB4	1		
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						

Instrument No.	24
Std.	ID
S_0	SMB009 38-9
S_1	NA
S_2	NA
S_3	SMB 09-44-04
S_4	NA
S_5	NA
S_6	SMB 09-45-02
ICV (QCS)	09-69-02
ICVH1	NA
ICVH2	NA
CCV (IPC)	SMB 09-60-02
ICSA	09-67-03
ICSAB	09-68-01
MRL	NA

Comments:

RERUN FOR G242/H001
2ND CCV FOR As, Pb, Se 73%
OK FOR G260

Analyzed By: [signature]

Date Disposed:

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

7115

SEQUENCE FILE : I07H024

4-18	19-33	34-43	44-53	54-63
LFID	LSID	TIME	DATE	DF
I07H024001	S0	14:18	08/11/05	1
I07H024002	S3	14:22	08/11/05	1
I07H024003	S6	14:26	08/11/05	1
I07H024004	ICV	14:30	08/11/05	1
I07H024005	ICB	14:36	08/11/05	1
I07H024006	CCV	14:40	08/11/05	1
I07H024007	CCB	14:44	08/11/05	1
I07H024008	ICSAI	14:48	08/11/05	1
I07H024009	ICSABI	14:52	08/11/05	1
I07H024010	CCV1	14:58	08/11/05	1
I07H024011	CCB1	15:02	08/11/05	1
I07H024012	IPH009WB	15:06	08/11/05	1
I07H024013	IPH009WL	15:10	08/11/05	1
I07H024014	IPH009WC	15:15	08/11/05	1
I07H024015	G242-01	15:20	08/11/05	1
I07H024016	G242-02	15:25	08/11/05	1
I07H024017	G242-04	15:29	08/11/05	1
I07H024018	G242-05	15:33	08/11/05	1
I07H024019	G242-07	15:37	08/11/05	1
I07H024020	G260-01	15:41	08/11/05	1
I07H024021	CCV2	15:47	08/11/05	1
I07H024022	CCB2	15:52	08/11/05	1
I07H024023	G260-02	15:56	08/11/05	1
I07H024024	G260-03	16:00	08/11/05	1
I07H024025	G260-04	16:04	08/11/05	1
I07H024026	G260-05	16:09	08/11/05	1
I07H024027	G260-06	16:13	08/11/05	1
I07H024028	G260-06T	16:17	08/11/05	5
I07H024029	G260-06A	16:21	08/11/05	1
I07H024030	G260-06M	16:25	08/11/05	1
I07H024031	G260-06S	16:29	08/11/05	1
I07H024032	H001-01	16:34	08/11/05	1
I07H024033	CCV3	16:40	08/11/05	1
I07H024034	CCB3	16:46	08/11/05	1
I07H024035	H001-02	16:50	08/11/05	1
I07H024036	G242-08	17:01	08/11/05	1
I07H024037	ICSAF	17:07	08/11/05	1
I07H024038	ICSAB	17:11	08/11/05	1
I07H024039	CCV4	17:17	08/11/05	1
I07H024040	CCB4	17:21	08/11/05	1

SDG : 05G260 UNIT : % ICP CHECK : I07H024 DATE : 08/11/05 INST : EMAXTI07

ANALYTE	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
S0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICV	99	100	97	96	100	102	97	101	97	97	97	104	96	102	98	97	97	98	105	96	100	97	100	98	100	97	98
ICB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV	100	96	96	98	98	98	99	101	97	97	97	103	96	100	97	99	97	98	99	98	100	97	101	97	97	97	97
CCB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAI	95	----	----	----	----	----	----	93	----	----	----	91	----	97	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSABI	95	90	82	92	91	93	91	93	89	86	95	90	93	96	89	86	85	98	95	94	103	89	97	87	90	95	93
CCV1	100	98	96	97	97	96	99	101	97	97	96	102	97	100	97	98	94	97	91	97	100	97	98	98	97	97	98
CCB1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH009WB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH009WL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH009WC	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G242-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G242-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G242-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G242-05	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G242-07	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G260-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV2	98	95	92	95	96	95	98	101	97	97	95	102	97	98	96	98	93	94	91	96	97	95	100	99	95	96	99
CCB2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G260-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G260-03	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G260-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G260-05	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G260-06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G260-06T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G260-06A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G260-06M	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G260-06S	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H001-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV3	100	98	95	96	97	95	98	102	99	99	96	103	96	99	98	100	96	93	97	97	98	96	102	101	96	97	100
CCB3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H001-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G242-08	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAF	92	----	----	----	----	----	----	91	----	----	----	89	----	94	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAB	93	88	93	90	90	89	92	93	89	86	94	91	94	95	90	89	84	93	92	92	98	88	94	88	89	96	95
CCV4	99	97	92	95	97	94	98	102	99	99	95	103	96	98	98	101	95	91	93	96	97	95	100	99	96	97	101
CCB4	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

QC limit of each parameter are listed in a table attached next to all the ICP check forms
* : Out of QC Limit

SDG : 05G260 UNIT : UG/L SUMMARY of CALIBRATION BLANKS : I07H024 (WATER) DATE : 08/11/05 INST : EMAXTI07

ANALYTE	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
S0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICV	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICB	8.78	3.86	-7.71	.280	.130	2.27	.660*	1.62	-.330	-3.42	.000	-.600	3.02	-6.51	-.730	-5.80	-.850	-210	-20.1	-6.31	-6.99	.740	20.1	32.5	.610	-2.42	-.010
CCV	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB	4.93	-3.81	-29.7	.280	.130	3.18	1.56	-2.59	-2.67	-1.78	-.740	-2.10	-17.7	-12.8	-.590	-2.90	-4.92	59.5	-45.8	-2.70	-6.99	.680	25.8	3.08	-.640	-1.22	1.61
ICSAI	----	-.570	-6.08	-.010	.130	-2.88	-.970	----	-1.10	-8.30	1.66	----	40.2	----	1.07	-6.35	-12.8	-339	-138	-4.97	-6.99	-1.27	192	-4.43	-7.32	-6.29	-.810
ICSAB1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB1	9.24	7.10	1.08	.180	.260	.450	.500	7.49	-2.67	-.290	-.370	-1.80	-6.70	-7.70	-.590	-1.45	3.21	-856	-12.8	-6.13	-14.0	.710	30.6	4.66	.000	-1.11	.650
IPH009WB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH009WL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH009WC	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G242-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G242-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G242-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G242-05	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G242-07	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G260-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB2	10.4	-11.4	-52.8	.280	.270	1.36	.900	-.090	-1.67	-3.71	-1.12	-2.41	-2.76	-19.3	-1.17	-5.80	-2.99	-45.7	-18.3	-.900	-14.0	.930	6.71	10.8	-1.45	-3.41	1.25
G260-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G260-03	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G260-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G260-05	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G260-06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G260-06T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G260-06A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G260-06M	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G260-06S	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H001-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB3	3.35	-17.4	-13.2	.180	.400	1.35	.490	3.23	-.670	-1.48	-1.12	-2.40	-10.1	-10.4	-.880	-5.80	3.21	-627	33.9	-2.52	-21.0	.740	23.9	15.4	-.490	-1.43	-.270
H001-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G242-08	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAF	----	-13.1	-78.5	-.050	.460	8.42	1.29	----	2.15	-3.99	1.97	----	-43.2	----	-1.41	-4.89	-12.2	-174	-52.5	-2.79	-14.0	-1.49	217	-33.8	-6.74	-2.76	4.63
ICSAB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV4	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB4	22.8	2.45	-7.74	.280	.590	2.27	.130	10.3	2.67	-.590	-.370	2.39	-25.0	.000	-.440	.000	-.420	572	18.4	-.360	-21.0	.960	6.67	29.4	.310	.010	1.77

QC limit of each parameter are listed in a table attached next to all the ICP check forms
* : Out of QC Limit

71118

DIGESTION LOG FOR ICP METALS

SOP ☐ EMAX-3005 Rev. No.3 ☐ EMAX-3010 Rev. No. 2 ☐ EMAX-3050 Rev. No. 2 ☐ EMAX-CLP-TAL ☑ 200.7 Book # EIP-046

Matrix: WATER Start Date: 8-3-05 Time: 11:30 Temp: ~~98~~ 85 °C Ending Date: 8-3-05 Time: 13:35 Temp.: ~~98~~ 85 °C

BATCH: TPH009-W

Sample Prep ID	Lab Sample ID	Matrix Description: Color	Matrix Description: Texture / Clarity	Matrix Description: Artifacts	Turbidity <1 NTU	Sample Amount (~~g~~ ml)	pH	Extract Volume (ml)	Digestate Description: Color	Digestate Description: Clarity
01	TPH 009-WB					50	–	50		
02	-WL					50	–	50		
03	-WC					50	–	50		
04	G242-01					50	<2	50		
05	-02					50		50		
06	-04					50		50		
07	-05					50		50		
08	-07					50		50		
09	-08					50		50		
10	G260-01					50		50		
11	-02					50		50		
12	-03					50		50		
13	-04					50		50		
14	-05					50		50		
15	-06					50		50		
16	-06M					50		50		
17	-06S					50		50		
18	H001-01					50		50		
19	-02					50		50		
20										
21										
22										
23										
24										
25										

8-3-05 mc

Standards	ID	Amount Added (ml)
LCS -1	SM1A-09-42	0.5
LCS -2	SM1A-09-43	0.5
LCS -3	SM1A-09-44	0.5
MS		

Reagent	Lot# / ID	Amount Added (ml)
HNO_3	SW1A-03-120	~~1.5~~ 1.5 mc
HCl	SW1A-03-115	~~2.5~~ 0.25
H_2O_2	N/A	
HNO3 (1:1)	N/A	

Digestate Location	ICP LAB
Extract Location	

Legend:

Texture	Cs = Coarse	Md = Medium	Fn = Fine
Clarity	Cr = Clear	Cy = Cloudy	Td = Turbid
Artifacts	Rk = rocks	Sl = Shale	Vg=Vegetation
Color	Bu = blue	Bk = Black	Bn = Brown
	Gn = Green	Og = Orange	Rd = Red
	Yw = Yellow	Cl = Colorless	

Comments: Samples for Methods 200.7 or 200.8 Analyses

If turbidity ≤ 1 NTU no digestion is required unless otherwise required by the project

Prepared By: mc Standard Added By: mc

Witnessed By: NT Extracts Rcvd. By: NT 8/3/05

Checked By: NT

Date Disposed: Disposed by:

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

7019

LABORATORY REPORT FOR

BATTELLE MEMORIAL INSTITUTE

JPL

WET CHEMICAL ANALYSES

SDG#: 05G260

8000

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G260**

METHOD 310.1
TOTAL ALKALINITY

Six (6) water samples were received on 07/29/05 for Total Alkalinity analysis by Method 310.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Sample G260-01 was analyzed for duplicate. %RPD was within QC limit.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 310.1
TOTAL ALKALINITY

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G260

Matrix : WATER
Instrument ID : I53

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ALH001W8	ND	1	NA	5	1	08/03/0514:30	NA	ALH001W-01	NA	ALH001W	NA	NA
LCS1W	ALH001WL	45.8	1	NA	5	1	08/03/0514:35	NA	ALH001W-02	NA	ALH001W	NA	NA
LCD1W	ALH001WC	45.8	1	NA	5	1	08/03/0514:40	NA	ALH001W-03	NA	ALH001W	NA	NA
MW-21-5	G260-01	181	1	NA	5	1	08/03/0514:45	NA	ALH001W-04	NA	ALH001W	07/26/05	07/29/05
MW-21-5DUP	G260-01D	181	1	NA	5	1	08/03/0514:50	NA	ALH001W-05	NA	ALH001W	07/26/05	07/29/05
MW-21-4	G260-02	178	1	NA	5	1	08/03/0514:55	NA	ALH001W-06	NA	ALH001W	07/26/05	07/29/05
MW-21-3	G260-03	275	1	NA	5	1	08/03/0515:00	NA	ALH001W-07	NA	ALH001W	07/26/05	07/29/05
MW-21-2	G260-04	275	1	NA	5	1	08/03/0515:05	NA	ALH001W-08	NA	ALH001W	07/26/05	07/29/05
MW-21-1	G260-05	147	1	NA	5	1	08/03/0515:10	NA	ALH001W-09	NA	ALH001W	07/26/05	07/29/05
DUPE-4-7/26/2005	G260-06	277	1	NA	5	1	08/03/0515:15	NA	ALH001W-10	NA	ALH001W	07/26/05	07/29/05

8102

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 310.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G260
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: ALH001WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 08/03/05 14:35/14:40

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Total Alkalinity	ND	49.20	45.80	93	49.20	45.80	93	0	80-120	20

8003

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 310.1
MATRIX: WATER
% MOISTURE: NA

==========

BATCH NO.: 05G260
SAMPLE ID: MW-21-5DUP
CONTROL NO.: G260-01D

DATE RECEIVED: 07/29/05
DATE EXTRACTED: NA
DATE ANALYZED: 08/03/05 14:50

ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
Total Alkalinity	181.00	181.00	0	20

8004

ANALYSIS LOG FOR ALKALINITY

SOP ☑ EMAX-310.1 Rev. No. 2 ☐ SM2320B Rev. No. 0 ☐ Book: AL-009

Start Date: 8/3/04 Time: 14:30 Ending Date: 8/3/05 Time: 15:45 Instrument No: ☑ 53 ☐ 97

	Data File Name	Lab Sample ID	Time	Sample Amt. (ml)	Initial pH	Acid Titrant pH=8.3	Acid Titrant pH=4.5	Acid Titrant pH=4.2	Final pH	ALKALINITY (mg/L) Total	Hydroxide (OH)	Carbonate (CO3)	Bicarbonate (HCO3)	Notes
*01		~~ALG001~~ H001 WB	14:30	20	5.18	NA	0.025	NA	4.45	ND				
*02		RM 8/3/05 WL	14:35	↓	8.87	↓	0.95	↓	4.50	45.8				
*03		WC	14:40	↓	8.91	↓	0.95	↓	4.49	45.8				
*04		G260-01	14:45	↓	7.76	↓	3.75	↓	4.52	181				
*05		-01D	14:50	↓	7.75	↓	3.75	↓	4.47	181				
*06		-02	14:55	↓	7.46	↓	3.70	↓	4.50	178				
*07		-03	15:00	↓	7.52	↓	5.70	↓	4.53	275				
*08		-04	15:05	↓	7.19	↓	5.70	↓	4.52	275				
*09		-05	15:10	↓	6.75	↓	3.05	↓	4.52	147				
*10		G260-06	15:15	↓	7.53	↓	5.75	↓	4.53	277				
*11		G195-02	15:20	↓	7.37	↓	8.15	↓	4.48	393				
*12		-03	15:25	↓	7.47	↓	8.10	↓	4.53	390				
*13		-04	15:30	↓	7.40	↓	7.65	↓	4.49	369				
*14		-06	15:35	↓	7.50	↓	8.20	↓	4.52	395				
*15		-07	15:40	↓	7.48	↓	7.70	↓	4.52	371				
*16		G195-10	15:45	↓	7.14	↓	6.55	↓	4.50	316				
*17														
*18														
*19														
*20														
*21														
*22														
*23														
*24														
*25														

KM 8/9/05

Standard Reagent	ID	Conc. mg/L
LCS	SW7A-06-174	49.2
Spike	NA	
Na_2CO_3 Soln	SW7A-06-176	2360
Acid Titrant	SW3B-02732	0.02N

Standardization

Na_2CO_3 Soln. (ml)	Acid Titrant (ml)	Normality, N
BLK	0.025	ND
5	12.25	0.01925
5	12.20	0.01933
5	12.25	0.01925

Ave. N: 0.01928

pH METER CALIBRATION

pH Buffer	ID	Reading
pH 4	SW7A-06-201	4.00
pH 7	↓ -202	7.00
pH 10	↓ -203	10.00
Slope	100.5	

Comments:

Analyzed By: MG/RM

This page is checked during data review.

ANALYTICAL BATCH * AL-H001 IW

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8005

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G260**

METHOD 300.0
ANIONS

Six (6) water samples were received on 07/29/05 for Chloride and Sulfate analyses by method 300.0 in accordance with "Method for Determination of Inorganic Anions by Ion Chromatography", EPA 600/84-017.

1. Holding Time

Analyses met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limits.

4. Duplicate

No duplicate sample was designated in this SDG.

5. Matrix Spike

No MS sample was designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SAMPLE RESULTS

METHOD 300.0
CHLORIDE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G260

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICH008WB	ND	1	NA	.2	.1	08/05/0512:15	NA	AH05-03	AH05-01	ICH008W	NA	NA
LCS1W	ICH008WL	4.77	1	NA	.2	.1	08/05/0512:30	NA	AH05-04	AH05-01	ICH008W	NA	NA
LCD1W	ICH008WC	4.77	1	NA	.2	.1	08/05/0512:44	NA	AH05-05	AH05-01	ICH008W	NA	NA
MW-21-5	G260-01	66.5	10	NA	2	1	08/05/0516:02	NA	AH05-19	AH05-13	ICH008W	07/26/05	07/29/05
MW-21-4	G260-02	64.3	10	NA	2	1	08/05/0516:16	NA	AH05-20	AH05-13	ICH008W	07/26/05	07/29/05
MW-21-3	G260-03	108	20	NA	4	2	08/05/0516:30	NA	AH05-21	AH05-13	ICH008W	07/26/05	07/29/05
MW-21-2	G260-04	133	20	NA	4	2	08/05/0516:45	NA	AH05-22	AH05-13	ICH008W	07/26/05	07/29/05
MW-21-1	G260-05	103	20	NA	4	2	08/05/0516:59	NA	AH05-23	AH05-13	ICH008W	07/26/05	07/29/05
DUPE-4-7/26/2005	G260-06	112	20	NA	4	2	08/05/0517:13	NA	AH05-24	AH05-13	ICH008W	07/26/05	07/29/05

8108

METHOD 300.0
SULFATE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G260

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICH008WB	ND	1	NA	.5	.25	08/05/0512:15	NA	AH05-03	AH05-01	ICH008W	NA	NA
LCS1W	ICH008WL	5.12	1	NA	.5	.25	08/05/0512:30	NA	AH05-04	AH05-01	ICH008W	NA	NA
LCD1W	ICH008WC	5.02	1	NA	.5	.25	08/05/0512:44	NA	AH05-05	AH05-01	ICH008W	NA	NA
MW-21-5	G260-01	117	10	NA	5	2.5	08/05/0516:02	NA	AH05-19	AH05-13	ICH008W	07/26/05	07/29/05
MW-21-4	G260-02	96.5	10	NA	5	2.5	08/05/0516:16	NA	AH05-20	AH05-13	ICH008W	07/26/05	07/29/05
MW-21-3	G260-03	140	20	NA	10	5	08/05/0516:30	NA	AH05-21	AH05-13	ICH008W	07/26/05	07/29/05
MW-21-2	G260-04	178	20	NA	10	5	08/05/0516:45	NA	AH05-22	AH05-13	ICH008W	07/26/05	07/29/05
MW-21-1	G260-05	152	20	NA	10	5	08/05/0516:59	NA	AH05-23	AH05-13	ICH008W	07/26/05	07/29/05
DUPE-4-7/26/2005	G260-06	144	20	NA	10	5	08/05/0517:13	NA	AH05-24	AH05-13	ICH008W	07/26/05	07/29/05

QC SUMMARIES

8010

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G260
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICH008WB	ICH008WL	ICH008WC		
LAB FILE ID:	AH05-03	AH05-04	AH05-05		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/05/0512:15	08/05/0512:30	08/05/0512:44	DATE RECEIVED:	NA
PREP. BATCH:	ICH008W	ICH008W	ICH008W		
CALIB. REF:	AH05-01	AH05-01	AH05-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride-Cl	ND	5	4.77	95	5	4.77	95	0	90-110	20

01

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G260
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICH008WB	ICH008WL	ICH008WC		
LAB FILE ID:	AH05-03	AH05-04	AH05-05		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/05/0512:15	08/05/0512:30	08/05/0512:44	DATE RECEIVED:	NA
PREP. BATCH:	ICH008W	ICH008W	ICH008W		
CALIB. REF:	AH05-01	AH05-01	AH05-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Sulfate	ND	5	5.12	102	5	5.02	100	2	90-110	20

80112

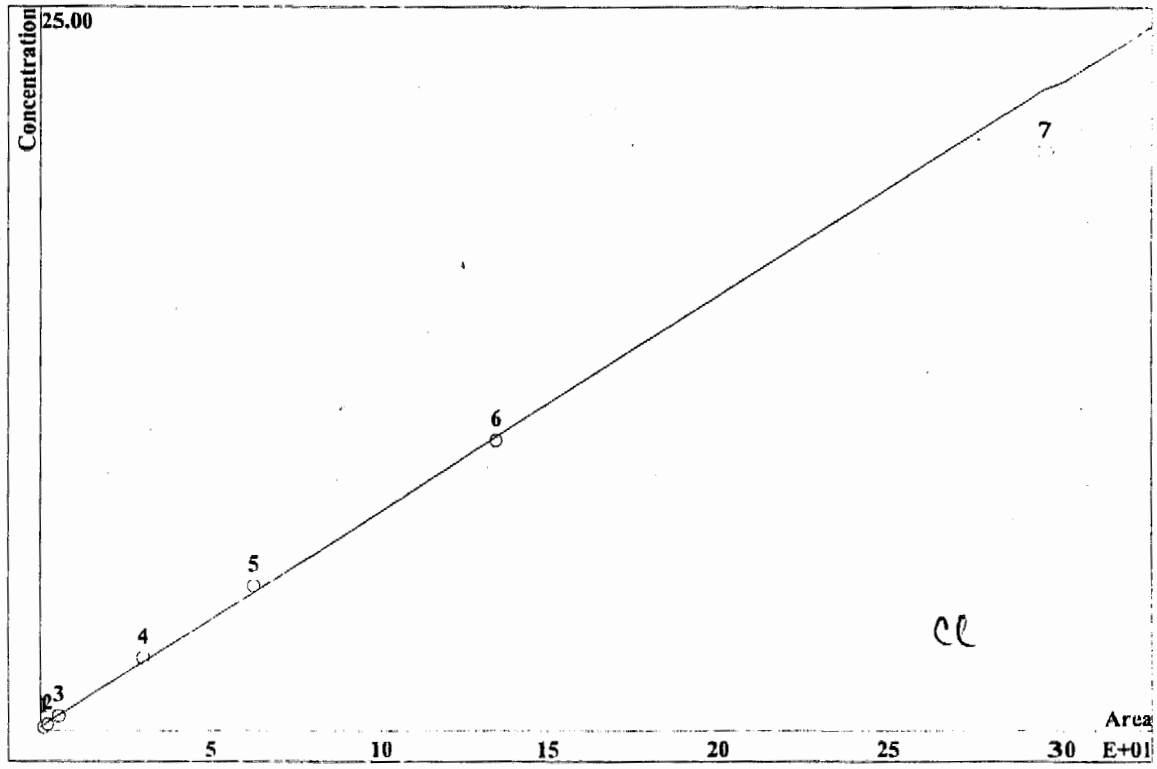
INITIAL CALIBRATIONS

IC Result Check FormVersion : QH1

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH01-01	IB	FCIBNPS	0	0	0	0	0	0	0	p8011625	1
AH01-02	S0	FCIBNPS	0	0	0	0	0	0	0	p8011639	1
AH01-03	S1	FCIBNPS	0.18836	0.20113	0.17432	0.2216	0.23129	0.23666	0.21269	p8011653	1
AH01-04	S2	FCIBNPS	0.27278	0.28754	0.25434	0.31636	0.304	0.31331	0.2938	p8011707	1
AH01-05	S3	FCIBNPS	0.53025	0.54412	0.50474	0.57579	0.53797	0.52755	0.55595	p8011721	1
AH01-06	S4	FCIBNPS	2.3695	2.3621	2.3884	2.4564	2.3144	2.2205	2.46	p8011735	1
AH01-07	S5	FCIBNPS	4.8345	4.7729	4.9114	4.8164	4.7699	4.9004	4.8979	p8011749	1
AH01-08	S6	FCIBNPS	10.105	10.132	10.067	9.7475	10.142	10.102	9.8172	p8011803	1
AH01-09	S7	FCIBNPS	20.268	22.156	20.839	20.166	22.614	21.9	20.324	p8011818	1
AH01-10	ICV	FCIBNPS	95.6%	93.6%	92.2%	99.1%	93.3%	90.6%	98.5%	p8011832	1
AH01-11	ICB	FCIBNPS	0	0	0	0	0	0	0	p8011846	1
AH01-12	ICH001WB	FCIBNPS	0	0	0	0	0	0	0	p8011900	1
AH01-13	ICH001WL	FCIBNPS	4.8635	4.7236	4.6805	4.8835	4.6546	4.6229	4.7245	p8011914	1
AH01-14	ICH001WC	FCIBNPS	4.9057	4.722	4.6814	4.8697	4.6509	4.6182	4.7516	p8011928	1
AH01-15	G126-01T	FCIBNPS	1.1839	138.72	0	0	6.1591	0	65.298	p8012025	5
AH01-16	G126-02T	FCIBNPS	3.2244	215.94	0	1.2074	9.0006	0	192.41	p8012040	5
AH01-17	G126-03T	FCIBNPS	2.2603	137.59	0	0	5.4868	0	162.34	p8012054	5
AH01-18	G126-04T	FCIBNPS	4.9866	306.58	0	1.3846	14.847	0	244.28	p8012108	5
AH01-19	G126-06T	FCIBNPS	4.8433	139.79	0	0	7.0632	0	159.73	p8012122	5
AH01-20	G126-07T	FCIBNPS	1.8163	100.33	0	0	15.019	0	285.93	p8012136	10
AH01-21	G818-02	FCIBNPS	5.67	181.29	0	0	8.4455	0	86.102	p8012150	50
AH01-22	CCV1	FCIBNPS	97.7%	95.4%	98.2%	93.7%	94.5%	96.9%	90.9%	p8012204	1
AH01-23	CCB1	FCIBNPS	0	0	0	0	0	0	0	p8012218	1
AH01-24	G818-02D	FCIBNPS	0	182.67	0	0	8.5372	0	85.987	p8012233	50
AH01-25	G818-02M	FCIBNPS	245.13	430.51	238.71	234.77	240.79	119.04	305.82	p8012247	50
AH01-26	G818-03	FCIBNPS	0	179.51	0	6.961	0	0	85.432	p8012301	50
AH01-27	G818-04	FCIBNPS	2.3845	69.544	0	0	3.6042	0	116.42	p8012315	20
AH01-28	G818-05	FCIBNPS	2.3472	74.139	0	0	3.8114	0	124.21	p8012329	20
AH01-29	G820-02	FCIBNPS	0	153.08	0	0	0	0	167.66	p8012343	200
AH01-30	G184-05	FCIBNPS	2.2847	11.049	0	0	4.0779	0	32.802	p8012357	20
AH01-31	G147-01	FCIBNPS	1.0454	13208	0	50.116	0	0	1977.7	p8020011	5
AH01-32	G147-02	FCIBNPS	0	13488	0	2.8757	0	0	2019.9	p8020025	5
AH01-33	CCV2	FCIBNPS	97.7%	108.6%	97.8%	93.6%	94.4%	93.3%	92.5%	p8020039	1
AH01-34	CCB2	FCIBNPS	0	0	0	0	0	0	0	p8020053	1

CALIBRATION OF COMPONENT chloride

Method: IC100-H01.mtw
Equation: Q = 0.0743917·A + 0.117752
RSD: 5.386 %
Correlation coefficient: 0.999287



K3 = 0 K2 = 0 K1 = 0.0743917 K0 = 0.117752 LR = 10

Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

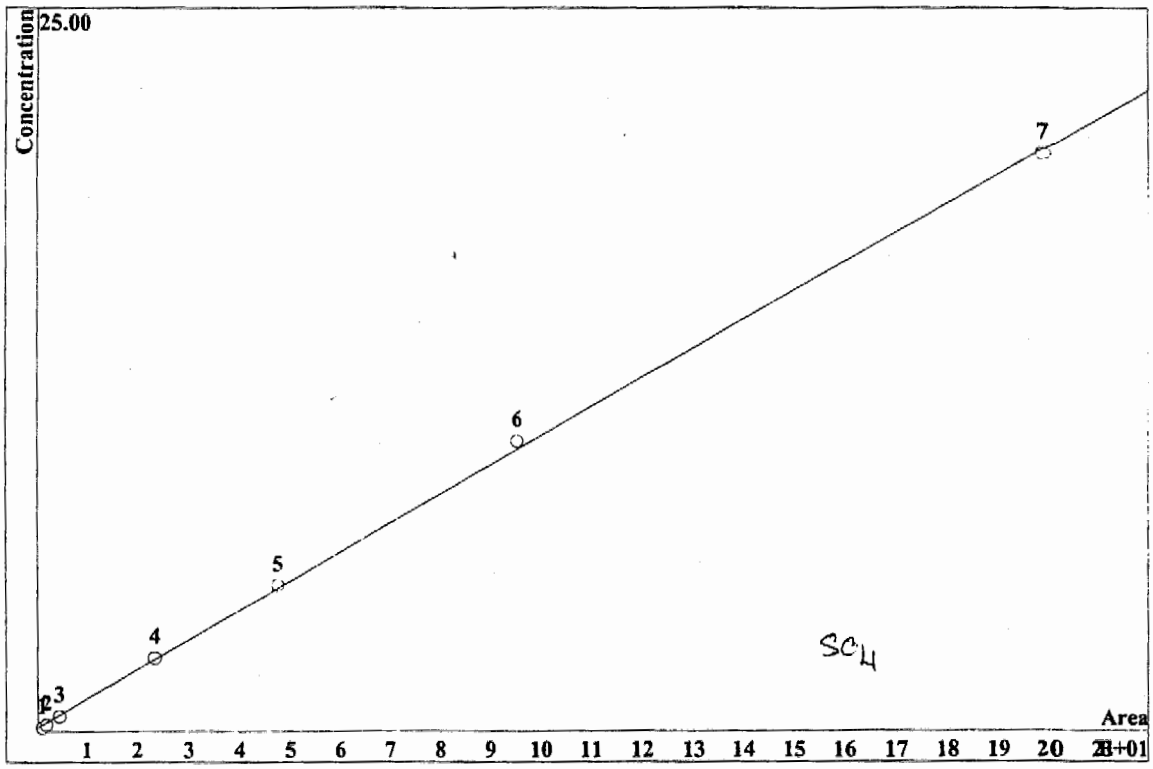
Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.1281	1.121	0.1	1	3.37	Yes	p8O11653.chw
2	0.2568	2.282	0.2	1	3.37	Yes	p8O11707.chw
3	0.6501	5.731	0.5	1	3.37	Yes	p8O11721.chw
4	3.457	30.17	2.5	1	3.37	Yes	p8O11735.chw
5	7.342	62.58	5	1	3.37	Yes	p8O11749.chw
6	16.29	134.6	10	1	3.37	Yes	p8O11803.chw
7	36.06	296.2	20	1	3.37	No	p8O11818.chw

8/2/05

8015

CALIBRATION OF COMPONENT sulfate

Method: IC100-H01.mtw
Equation: Q = 0.100694·A + 0.113285
RSD: 3.081 %
Correlation coefficient: 0.999779



K3 = 0 K2 = 0 K1 = 0.100694 K0 = 0.113285 LR = 20
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.05823	0.9872	0.1	1	8.35	Yes	p8011653.chw
2	0.1026	1.793	0.2	1	8.35	Yes	p8011707.chw
3	0.2493	4.396	0.5	1	8.35	Yes	p8011721.chw
4	1.262	23.31	2.5	1	8.35	Yes	p8011735.chw
5	2.566	47.52	5	1	8.35	Yes	p8011749.chw
6	5.337	95.39	10	1	8.35	Yes	p8011803.chw
7	11.44	199.1	20	1	8.35	Yes	p8011818.chw

8/12/05

SECOND SOURCE VERIFICATION

IC Result Check FormVersion : QH1

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH01-01	IB	FCIBNPS	0	0	0	0	0	0	0	p8011625	1
AH01-10	ICV	FCIBNPS	95.6%	93.6%	92.2%	99.1%	93.3%	90.6%	98.5%	p8011832	1
AH01-11	ICB	FCIBNPS	0	0	0	0	0	0	0	p8011846	1
AH01-22	CCV1	FCIBNPS	97.7%	95.4%	98.2%	93.7%	94.5%	96.9%	90.9%	p8012204	1
AH01-23	CCB1	FCIBNPS	0	0	0	0	0	0	0	p8012218	1
AH01-33	CCV2	FCIBNPS	97.7%	108.6%	97.8%	93.6%	94.4%	93.3%	92.5%	p8020039	1
AH01-34	CCB2	FCIBNPS	0	0	0	0	0	0	0	p8020053	1

DAILY CALIBRATIONS

IC Result Check FormVersion : QH1

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH05-01	CCV19	FCIBNPS	98%	98.3%	96.3%	100.1%	92.5%	102.2%	98.3%	p8051147	1
AH05-02	CCB19	FCIBNPS	0	0	0	0	0	0	0	p8051201	1
AH05-13	CCV20	FCIBNPS	98.7%	98.7%	96.1%	100.8%	93.8%	103.2%	97.8%	p8051437	1
AH05-14	CCB20	FCIBNPS	0	0	0	0	0	0	0	p8051451	1
AH05-25	CCV21	FCIBNPS	97.3%	95.8%	94.3%	97.2%	92.2%	101.8%	95.2%	p8051727	1
AH05-26	CCB21	FCIBNPS	0	0	0	0	0	0	0	p8051741	1
AH05-37	CCV22	FCIBNPS	98.8%	98.1%	95.8%	99.5%	93.3%	101.6%	96.1%	p8052018	1
AH05-38	CCB22	FCIBNPS	0	0	0	0	0	0	0	p8052032	1
AH05-43	CCV23	FCIBNPS	98.5%	97.4%	95%	96.2%	92.6%	102.8%	98.7%	p8052143	1
AH05-44	CCB23	FCIBNPS	0	0	0	0	0	0	0	p8052157	1

EXTRACTION LOG

ICAL

ANALYSIS RUN LOG FOR IC

SOP ☒ EMAX-300.0-Rev. 3 ☐ EMAX-300.1 Rev. No.0 ☐ EMAX-9056 Rev. No. 2

Book# A100 003

Start Date: 08/01/05 Time: 16:25 End Date: 08/02/05 Time: 00:53

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes Conc = (mg/L)
* 1	AH01-01	IB	1	W	
* 2	02	S0			
* 3	03	S1			0.1 ppm
* 4	04	S2			0.2
* 5	05	S3			0.5
* 6	06	S4			2.5
* 7	07	S5			5
* 8	08	S6			10
* 9	09	S7			20
* 10	10	ICV			
* 11	11	ICB			
* 12	12	ICH001WP			
* 13	13	WL			
* 14	14	WC			
* 15	15	G126-01T	5		
* 16	16	02			
* 17	17	03			
* 18	18	04			
* 19	19	05			
* 20	20	07	10		
* 21	21	G818-02	50		
* 22	22	CCV1	1		
* 23	23	CCB1	1		
* 24	24	G818-02D	50		
* 25	25	02M	50		

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 26	AH01-26	G818-03	50	W	
* 27	27	04	20		
* 28	28	05	20		
* 29	29	G826-02	200		
* 30	30	G184-05	20		
* 31	31	G147-01	5		
* 32	32	02	5		
* 33	33	CCV2	1		
* 34	34	CCB2	1		
* 35					
* 36					
* 37					
* 38					
* 39					
* 40					
* 1					
* 2					
* 3					
* 4					
* 5					
* 6					
* 7					
* 8					
* 9					
* 50					

Instrument No.	100
STANDARD	
Date	08/01/05
Method File	IC100-H01.mtw
ICAL ID	S1B-01-2-~~01~~ 01
ICV/~~LCS/MS~~ ID	2
CCV ID	3 (5ppm)
LCS ID	3-1 (5ppm)
MS ID	5ppm Acc Std.
ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC METROHM	
☐	

Comments:

Analyzed By: al

This page is checked during data review.

* Sample Prep ID Prefix: ICH001W

** Sample Prep ID Prefix:

al 08/01/05

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

81122

ANALYSIS RUN LOG FOR IC

SOP ☑ **EMAX-300.0-Rev. 3** ☐ **EMAX-300.1 Rev. No.0** ☐ **EMAX-9056 Rev. No. 2** **Book# A100 003**

Start Date: 08/05/05 **Time:** 11:47 **End Date:** 08/05/05 **Time:** 22:11

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 1	AH05-01	CCV19	1	W	
* 2	02	CCB19			
* 3	03	ICH008WB			
* 4	04	WL			
* 5	05	WG			
* 6	06	G247-02	200		
* 7	07	03	50		
* 8	08	04	100		
* 9	09	05	100		
* 10	10	06	200		
* 11	11	07	50		
* 12	12	07	1000		
* 13	13	CCV20	1		
* 14	14	CCB20	1		
* 15	15	G039-02	20		
* 16	16	03			
* 17	17	03D			
* 18	18	03M			
* 19	19	G260-01	10		
* 20	20	02	10		
* 21	21	03	20		
* 22	22	04			
* 23	23	05			
* 24	24	06			
* 25	25	CCV21	1		

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 26	AH05-26	CCV2B21	1	W	
* 27	27	G022-02	50		
* 28	28	G231-03	250		
* 29	29	04			
* 30	30	05			
* 31	31	06			
** 32	32	ICH009WB	1		
* 33	33	WL			
* 34	34	WG			
* 35	35	G231-07	250		
* 36	36	08	250		
* 37	37	CCV22	1		
* 38	38	CCB22	1		
* 39	39	G231-02D	500		
* 40	40	02			
* 41	41	02M			
* 42	42	H050-01	5		
* 43	43	CCV23	1		
* 44	44	CCB23	1		
* 45	45	G094-01	1		
* 46					
* 47					
* 48					
* 49					
* 50					

ad 08/05/05

Instrument No.	100
STANDARD	
Date	08/01/05
Method File	IC100-Hol. mtw
ICAL ID	SIB-821-2-1
ICV/LCS/MS ID	2
CCV ID	4-3
LCS ID	5-1
MS ID	5ppm Acc Std.
ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC METROHM	
☐	

Comments:

Analyzed By: ad

This page is checked during data review.

* Sample Prep ID Prefix: ICH008W

** Sample Prep ID Prefix: ICH009W

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

81123

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G260**

METHOD 350.2
AMMONIA (NH3-N)

Six (6) water samples were received on 07/29/05 for Ammonia analysis by Method 350.2 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. **Holding Time**

   Analysis met holding time criteria.

2. **Method Blank**

   Method blank was free of contamination at the reporting limit.

3. **Lab Control Sample/Lab Control Sample Duplicate**

   Lab control results were within QC limit.

4. **Duplicate**

   Duplicate sample was not designated in this SDG.

5. **Matrix Spike**

   MS sample was not designated in this SDG.

6. **Sample Analysis**

   Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 350.2
AMMONIA (NH3-N)

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G260

Matrix : WATER
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	NHH003WB	ND	1	NA	.1	.03	08/11/0515:11	08/11/0509:30	NHH003W-12	NHH003W-10	NHH003W	NA	08/11/05
LCS1W	NHH003WL	1.01	1	NA	.1	.03	08/11/0515:12	08/11/0509:30	NHH003W-13	NHH003W-10	NHH003W	NA	08/11/05
LCD1W	NHH003WC	1.03	1	NA	.1	.03	08/11/0515:13	08/11/0509:30	NHH003W-14	NHH003W-10	NHH003W	NA	08/11/05
MW-21-5	G260-01	ND	1	NA	.1	.03	08/11/0515:24	08/11/0509:30	NHH003W-25	NHH003W-22	NHH003W	07/26/05	07/29/05
MW-21-4	G260-02	ND	1	NA	.1	.03	08/11/0515:25	08/11/0509:30	NHH003W-26	NHH003W-22	NHH003W	07/26/05	07/29/05
MW-21-3	G260-03	ND	1	NA	.1	.03	08/11/0515:26	08/11/0509:30	NHH003W-27	NHH003W-22	NHH003W	07/26/05	07/29/05
MW-21-2	G260-04	ND	1	NA	.1	.03	08/11/0515:27	08/11/0509:30	NHH003W-28	NHH003W-22	NHH003W	07/26/05	07/29/05
MW-21-1	G260-05	.159	1	NA	.1	.03	08/11/0515:28	08/11/0509:30	NHH003W-29	NHH003W-22	NHH003W	07/26/05	07/29/05
DUPE-4-7/26/2005	G260-06	ND	1	NA	.1	.03	08/11/0515:29	08/11/0509:30	NHH003W-30	NHH003W-22	NHH003W	07/26/05	07/29/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 350.2
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G260
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: NHH003WL/C

DATE RECEIVED: 08/11/05
DATE EXTRACTED: 08/11/05 09:30
DATE ANALYZED: 08/11/05 15:12/15:13

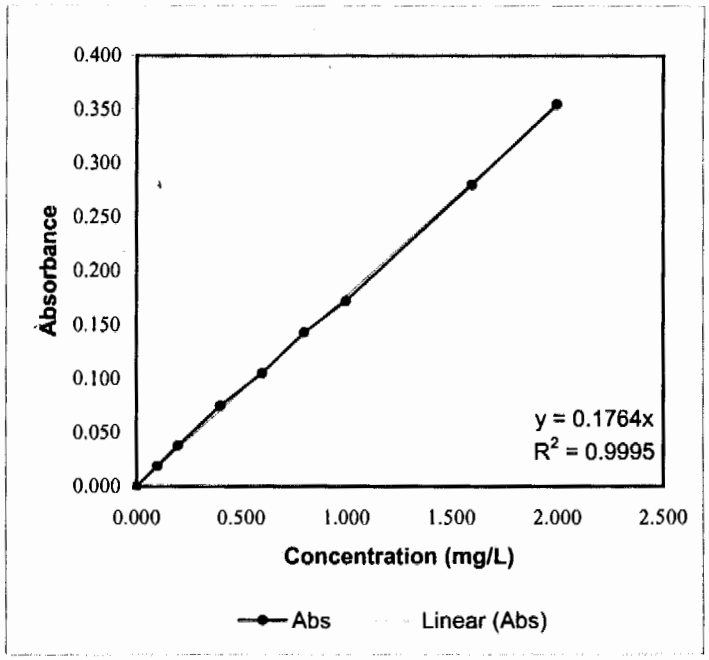
ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Ammonia (NH3-N)	ND	1.00	1.01	101	1.00	1.03	103	2	80-120	20

80126

CALIBRATION CURVE
AMMONIA _NH3 _TKN

Conc.	Abs
0.000	0.000
0.100	0.019
0.200	0.038
0.400	0.075
0.600	0.105
0.800	0.143
1.000	0.172
1.600	0.280
2.000	0.355



R^2	0.999524	Comments:	**PASSED**
y	0.1764		
CF	5.6694	Analyzed by:	NT/LA

8027

ANALYSIS LOG FOR AMMONIA-N

SOP ☑ EMAX-350.2 Rev. No. 2 ☐ EMAX-350.1 ☐ Rev. No. 0 ☐ Book # A70-NH_3-005

Starting Date: 8-11-05 Time: 15:00 Ending Date: 8-11-05 Time: 15:32

ANALYTICAL BATCH * NH4005W

	Data File Name	Prep. Batch	Lab Sample ID	Matrix S	Matrix W	Time	Vol.Colored (ml)	DF	Absorbance	Notes mg/L
*	1	NH4005W	S-0.0		✓	15:00	20	1	0.000	
*	2	↓	S-0.1		↓	-01	↓	↓	0.019	
*	3		S-0.2			-02			0.038	
*	4		S-0.4			-03			0.075	
*	5		S-0.6			-04			0.105	
*	6		S-0.8			-05			0.143	
*	7		S-1.0			-06			0.172	
*	8		S-1.6			-07			0.280	
*	9		S-2.0			-08			0.356	
*	10		ICV			-09			0.160	1.02
*	11		ICB			-10			0.000	ND
*	12		NH4003OB-			-11			0.000	ND
*	13		WL			-12			0.178	1.609
*	14		WL			-13			0.182	1.032
*	15		H006-01			-14			0.012	ND
*	16		-02			-15			0.017	ND
*	17		-03			-16			0.027	0.153
*	18		-04			-17			0.021	0.119
*	19		-05			-18			0.008	ND
*	20		H050-01			-19			0.016	ND
*	21		-01D			-20			0.016	ND
*	22		CCV1			-21			0.178	0.964
*	23		CCB1			-22			0.000	ND
*	24		H050-01M			-23			0.190	1.077
*	25		G260-01			-24			0.005	ND
*	26		-02			-25			0.009	ND
*	27		-03			-26			0.005	ND
*	28		-04			-27			0.016	ND
*	29		-05		✓	-28			0.028	0.159
*	30	✓	↓ -06	✓		-29	✓	✓	0.016	ND

Instrument No: 70	Wavelength: 425 nm

Standard	ID	Conc. (mg/L)
S_0	Nanopure	0.0
S_1	SW2B-03-182	0.1
S_2	↓	0.2
S_3		0.4
S_4		0.6
S_5		0.8
S_6		1.0
S_7		1.6
S_8	SW2B-03-182	2.0
ICV/MS	-151	1.0
CCV	-182	1.0
LCS	-179	1.0

Reagent	ID
Color Reagent	SW7A-06-141

Standard Curve	
R	0.9996
Y	0.1764
CF	5.6694

Comments:

Results are based on: ☐ Dry Weight ☐ Wet Weight

Analyzed By: NT / LA

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

80128

ANALYSIS LOG FOR AMMONIA-N

SOP ☑ EMAX-350.2 Rev. No. 2 ☐ EMAX-350.1 ☐ Rev. No. 0 ☐ Book # A70-NH_3-005

Starting Date: 8-11-05 Time: 15:00 Ending Date: 8-11-05 Time: 15:32

ANALYTICAL BATCH * NH4H00310

Data File Name	Prep. Batch	Lab Sample ID	Matrix S	Matrix W	Time	Vol.Colored (ml)	DF	Absorbance	Notes mg/L
*31	NH4H00310	H ~~050~~ 418-02			15:36	20	1	0.023	0.187
* 2		CCV2			15:31			0.182	1.092
* 3		CCB2			15:32			0.000	ND
* 4									
* 5									
* 6									
* 7									
* 8									
* 9									
* 0									
* 1									
* 2									
* 3									
* 4									
* 5									
* 6									
* 7									
* 8									
* 9									
* 0									
* 1									
* 2									
* 3									
* 4									
* 5									
* 6									
* 7									
* 8									
* 9									
* 0									

du 8-11-05

Instrument No: 70	Wavelength: 425 nm

Standard	ID	Conc. (mg/L)
S_0	Same as 29-73	0.0
S_1		0.1
S_2		0.2
S_3		0.4
S_4		0.6
S_5		0.8
S_6		1.0
S_7		1.6
S_8		2.0
ICV/MS		1.0
CCV		1.0
LCS		1.0

Reagent	ID
Color Reagent	

Standard Curve	
R	0.9995
Y	0.1760
CF	5.6694

Comments:

Results are based on: ☐ Dry Weight ☐ Wet Weight

Analyzed By: NT/LA

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W 205th St Torrance, CA 90501

80129

DISTILLATION LOG FOR NH_3 / DIGESTION AND DISTILLATION FOR TKN

SOP ☐ EMAX-350.2 Rev. No.: 2 ☐ EMAX-351.3 Rev. No.: 2 ☐ Book # EKN-006

Start Date 5-11-05 Time 9:30 End Date 5-11-05 Time 14:00

PREPARATION BATCH# NH4 003 W

Sample Prep ID	Lab Sample ID	Sample pH	NaOH Added (ml)	Boric Acid (ml)	Borate Buffer (ml)	Sample Amount (ml)	Extract Volume (ml)	Notes
*01	S-0.0	9.5	0.1	10	5	100	100	
*02	S-0.1							
*03	S-1.0							
*04	S-2.0							
*05	ICV							
*06	ICB							
*07	NH4003WB							
*08	WL							
*09	WC		0.1					
*10	H006-01		0.7					
*11	-02		0.8					
*12	-03		0.8					
*13	-04		0.9					
*14	-05		0.7					
*15	H090-01		0.8					
*16	-01D		0.9					
*17	-01N		0.8					
*18	G260-01		0.9					
*19	-02		0.8					
*20	-03		0.7					
*21	-04		0.8					
*22	-05		0.9					
*23	-06		0.7					
*24	H415-02	9.5	0.8					
*25		NT						
*26			5-11-05					

Standards	ID	Amount Added (ml)
ICV/MS	SW2B-03-181	10 ml of 10 ppm
LCS	-179	10 ml

Reagent	Lot# / ID
NaOH	SW7A-06-211
Digestion Mixture	NA
Borate Buffer	
H_3BO_3	SW7B-06-322
Distilling Soln.	NA

Comments:

Prepared By: NT/LA

Standard Added By: NT

Checked By:

EMAX LABORATORIES, INC. 1835 W 208th St. Torrance, CA 90501

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G260**

METHOD 120.1
SPECIFIC CONDUCTIVITY

Six (6) water samples were received on 07/29/05 for Specific Conductivity analysis by Method 120.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

3. Duplicate

Sample G260-05 was analyzed for duplicate. %RPD was within QC limit.

4. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 120.1
SPECIFIC CONDUCTIVITY

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G260

Matrix : WATER
Instrument ID : I29

SAMPLE ID	EMAX SAMPLE ID	RESULTS (umhos/cm)	DLF	MOIST	RL (umhos/cm)	MDL (umhos/cm)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
LCS1W	ECH002WL	518	1	NA	1	.5	08/09/0515:12	NA	ECH002W-02	NA	ECH002W	NA	NA
LCD1W	ECH002WC	516	1	NA	1	.5	08/09/0515:14	NA	ECH002W-03	NA	ECH002W	NA	NA
MW-21-5	G260-01	808	1	NA	1	.5	08/09/0515:16	NA	ECH002W-04	NA	ECH002W	07/26/05	07/29/05
MW-21-4	G260-02	761	1	NA	1	.5	08/09/0515:18	NA	ECH002W-05	NA	ECH002W	07/26/05	07/29/05
MW-21-3	G260-03	1160	1	NA	1	.5	08/09/0515:20	NA	ECH002W-06	NA	ECH002W	07/26/05	07/29/05
MW-21-2	G260-04	1290	1	NA	1	.5	08/09/0515:22	NA	ECH002W-07	NA	ECH002W	07/26/05	07/29/05
MW-21-1	G260-05	988	1	NA	1	.5	08/09/0515:24	NA	ECH002W-08	NA	ECH002W	07/26/05	07/29/05
MW-21-1DUP	G260-05D	988	1	NA	1	.5	08/09/0515:26	NA	ECH002W-09	NA	ECH002W	07/26/05	07/29/05
DUPE-4-7/26/2005	G260-06	1160	1	NA	1	.5	08/09/0515:28	NA	ECH002W-10	NA	ECH002W	07/26/05	07/29/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 120.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G260
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: ECH002WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 08/09/05 15:12/15:14

ACCESSION:

PARAMETER	BLNK RSLT (umhos/cm)	SPIKE AMT (umhos/cm)	BS RSLT (umhos/cm)	BS % REC	SPIKE AMT (umhos/cm)	BSD RSLT (umhos/cm)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Specific Conductivity	ND	510.00	518.00	102	510.00	516.00	101	0	80-120	20

8033

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 120.1
MATRIX: WATER
% MOISTURE: NA

==========

BATCH NO.: 05G260 DATE RECEIVED: 07/29/05
SAMPLE ID: MW-21-1DUP DATE EXTRACTED: NA
CONTROL NO.: G260-05D DATE ANALYZED: 08/09/05 15:26

ACCESSION:

PARAMETER	SAMPLE (umhos/cm)	DUP. SAMPLE (umhos/cm)	RPD (%)	RPD LIMIT (%)
Specific Conductivity	988.00	988.00	0	5

81134

ANALYSIS LOG FOR SPECIFIC CONDUCTIVITY

SOP ☑ EMAX-120.1 Revision No. 1 ☐ Book # AEC-003

Start Date 8/9/05 Time 1500 End Date 8/9/05 Time 1627

Data File Name	Lab Sample ID	Time	Temp. °C	Temp. Correction Factor QT @ 25 oC	DF	Measured Resistance (ohms)	EC @ 25° C Notes µmhos/cm
* 1	STDLOW 141	1510	22.9	0.960	1	146.8	140.8
* 2	ECH002WL	12	22.8	0.956		538	518
* 3	WC	14	↓	↓		536	516
* 4	G260-01	16	23.3	0.968		849	808
* 5	-02	18	23.6	0.973		804	761
* 6	-03	20				1222	1157 ≈ 1160
* 7	-04	22				1359	1286 ≈ 1290
* 8	-05	24	23.5	0.971		1042	988
* 9	-05D	26				1042	988
* 10	G260-06	28				1223	1160
* 1	G265-01	30	22.2	0.947		2168	2110
* 2	-02	32	↓			2160	2100
* 3	-03	34	22.0	0.943		1940	1895 ≈ 1900
* 4	-04	36				7240	7070
* 5	-05	38	23.0	0.962		14300	13,691 ≈ 13,700
* 6	-06	40	22.8	0.956		1811	1745 ≈ 1750
* 7	-07	42				9454	9108 ≈ 9110
* 8	-07D	44				9455	9110
* 19	-08	46	22.2	0.947		12700	12351 ≈ 12300
* 20	STD HIGH 14130	15 48	22.7	0.959		14690	14110

ANALYTICAL BATCH * ECH002W

Instrument No:	29

Trial	ID	Resistance ohms
KCl Standard	SW2A-02-55	Assay
1	SW3B-02-654	700.3
2	QT = 0.931	↓
3		
LCS	SW7A-06-146	510 µmhos/cm
Calibration Temperature	21.4 °C	
True Value	1413	µmhos/cm
Cell Constant (C)	0.921	

KCl Standard	ID	µmhos/cm
Low-point	SW3B-02-727	141.3
Mid-point	SW7B-06-B160	3530
High-point	SW3B-02-715	14130

Comments:

more →

Analyzed By: NB/JK

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

81135

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G260**

METHOD SM3500
FERROUS IRON

Six (6) water samples were received on 07/29/05 for Ferrous Iron analysis by Method SM3500 in accordance with "Standard Methods for the Examination of Water and Wastewater", 18th edition (1990).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample

Lab control result was within QC limit.

4. Duplicate

Sample G260-06 was analyzed for duplicate. %RPD was within QC limit.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SM3500
FERROUS IRON

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G260

Matrix : WATER
Instrument ID : 170

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	FEG005WB	ND	1	NA	5	2.5	07/29/0515:38	NA	FEG005W-09	FEG005W-07	FEG005W	NA	NA
LCS1W	FEG005WL	19.9	1	NA	5	2.5	07/29/0515:39	NA	FEG005W-10	FEG005W-07	FEG005W	NA	NA
MW-21-5	G260-01	ND	1	NA	5	2.5	07/29/0515:40	NA	FEG005W-11	FEG005W-07	FEG005W	07/26/05	07/29/05
MW-21-4	G260-02	ND	1	NA	5	2.5	07/29/0515:41	NA	FEG005W-12	FEG005W-07	FEG005W	07/26/05	07/29/05
MW-21-3	G260-03	ND	1	NA	5	2.5	07/29/0515:42	NA	FEG005W-13	FEG005W-07	FEG005W	07/26/05	07/29/05
MW-21-2	G260-04	ND	1	NA	5	2.5	07/29/0515:43	NA	FEG005W-14	FEG005W-07	FEG005W	07/26/05	07/29/05
MW-21-1	G260-05	ND	1	NA	5	2.5	07/29/0515:44	NA	FEG005W-15	FEG005W-07	FEG005W	07/26/05	07/29/05
DUPE-4-7/26/2005	G260-06	ND	1	NA	5	2.5	07/29/0515:45	NA	FEG005W-16	FEG005W-07	FEG005W	07/26/05	07/29/05
DUPE-4-7/26/2005	G260-06D	ND	1	NA	5	2.5	07/29/0515:46	NA	FEG005W-17	FEG005W-07	FEG005W	07/26/05	07/29/05

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: SM3500
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G260
SAMPLE ID: LCS1W
CONTROL NO.: FEG005WL

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 07/29/05 15:39

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	LCS RSLT (mg/L)	LCS % REC	QC LIMIT (%)
Ferrous Iron	ND	20.00	19.90	99	80-120

81138

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: SM3500
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G260
SAMPLE ID: DUPE-4-7/26/2005
CONTROL NO.: G260-06D

DATE RECEIVED: 07/29/05
DATE EXTRACTED: NA
DATE ANALYZED: 07/29/05 15:46

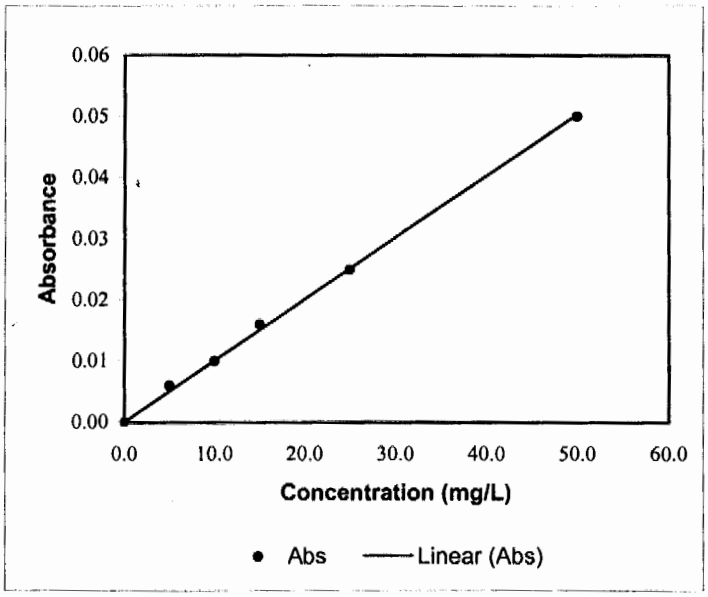
ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
Ferrous Iron	ND	ND	0	20

80139

CALIBRATION CURVE
FERROUS FE

Conc.	Abs
0.0	0.000
5.0	0.006
10.0	0.010
15.0	0.016
25.0	0.025
50.0	0.050



R^2	0.9993	Comments:	**PASSED**
Eq.Line	0.0010		
CF	994.2775	Analyzed by:	LA

ANALYSIS LOG FOR FERROUS IRON

SOP ☑ EMAX-3500-Fe D/C Rev. No. 0 ☐ Starting Date 07-29-05 Time 15:30 Ending Date 07-29-05 Time 15:48 Book # A70-Fe D/C-001

ANALYTICAL BATCH # FEG005W

Data File Name		Preparative Batch	Lab Sample ID	Matrix S	Matrix W	Sample Amount (ml)	DF	Abs. (510 nm)	Time	Ferrous Iron (mg/L)	Notes
	* 1	FEG005W	S - 0.0		✓	50	1	0.000	15:30		
	* 2		S - 5					0.006	15:31		
	* 3		S - 10					0.010	15:32		
	* 4		S - 15					0.016	15:33		
	* 5		S - 25					0.025	15:34		
	* 6		S - 50					0.050	15:35		
	* 7		ICV					0.019	15:36	18.89	
	* 8		ICB					0.000	15:37	ND	
	* 9		FEG005WB					0.000	15:38	ND	
	* 0		WL					0.020	15:39	19.89	
	* 1		G260-01					0.003	15:40	ND	
	* 2		-02					0.004	15:41	ND	
	* 3		-03					0.001	15:42	ND	
	* 4		-04					0.003	15:43	ND	
	* 5		-05					0.002	15:44	ND	
	* 6		-06					0.002	15:45	ND	
	* 7		-06D					0.002	15:46	ND	
	* 8		CCV1					0.020	15:47	19.89	
	* 9		CCB1					0.000	15:48	ND	
	* 0										
	* 1										
	* 2										
	* 3										
	* 4										
	* 5										
	* 6										
	* 7										
	* 8										
	* 9										
	* 0										

AMK 8/1/05

Instrument No.: 70 **Wavelength: 510 nm**

Standard	ID	Conc. (mg/L)
S_0	Nanopure	0.0
S_1	SW2B-03-095	5
S_2	↓	10
S_3	↓	15
S_4	↓	25
S_5	↓	50
ICV/LCS/MS	SW2B-03-096	20
CCV	SW2B-03-095	20

Reagents

Name	ID
HCl	SW1A-02-1539
$NH_4C_2H_3O_2$ Buffer	SW7B-06-228B
Phenanthroline Sol'n	SW7B-06-228A
$NaC_2H_3O_2$ Sol'n	N/A
Hydroxylamine Soln	↓

Standard Curve

R (≤0.995)	0.9993
Y	0.0010
CF	994.2775

Comments:

Analyzed By: AMK

Disposal Date:

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8041

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G260**

METHOD 351.3
TKN

Six (6) water samples were received on 07/29/05 for TKN analysis by Method 351.3 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Sample G260-05 was analyzed for duplicate. %RPD was within QC limit.

5. Matrix Spike

Sample G260-05 was spiked. %Recovery was within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 351.3
TKN

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G260

Matrix : WATER
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	KNH004WB	ND	1	NA	.1	.035	08/11/0516:10	08/11/0510:30	KNH004W-11	KNH004W-09	KNH004W	NA	08/11/05
LCS1W	KNH004WL	1.02	1	NA	.1	.035	08/11/0516:11	08/11/0510:30	KNH004W-12	KNH004W-09	KNH004W	NA	08/11/05
LCD1W	KNH004WC	1.01	1	NA	.1	.035	08/11/0516:12	08/11/0510:30	KNH004W-13	KNH004W-09	KNH004W	NA	08/11/05
MW-21-5	G260-01	.420	1	NA	.1	.035	08/11/0516:13	08/11/0510:30	KNH004W-14	KNH004W-09	KNH004W	07/26/05	07/29/05
MW-21-4	G260-02	.514	1	NA	.1	.035	08/11/0516:14	08/11/0510:30	KNH004W-15	KNH004W-09	KNH004W	07/26/05	07/29/05
MW-21-3	G260-03	.567	1	NA	.1	.035	08/11/0516:15	08/11/0510:30	KNH004W-16	KNH004W-09	KNH004W	07/26/05	07/29/05
MW-21-2	G260-04	.577	1	NA	.1	.035	08/11/0516:16	08/11/0510:30	KNH004W-17	KNH004W-09	KNH004W	07/26/05	07/29/05
MW-21-1	G260-05	.430	1	NA	.1	.035	08/11/0516:17	08/11/0510:30	KNH004W-18	KNH004W-09	KNH004W	07/26/05	07/29/05
MW-21-1DUP	G260-05D	.483	1	NA	.1	.035	08/11/0516:18	08/11/0510:30	KNH004W-19	KNH004W-09	KNH004W	07/26/05	07/29/05
MW-21-1MS	G260-05M	1.43	1	NA	.1	.035	08/11/0516:19	08/11/0510:30	KNH004W-20	KNH004W-09	KNH004W	07/26/05	07/29/05
DUPE-4-7/26/2005	G260-06	.745	1	NA	.1	.035	08/11/0516:22	08/11/0510:30	KNH004W-23	KNH004W-21	KNH004W	07/26/05	07/29/05

80143

f

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 351.3
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G260
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: KNH004WL/C

DATE RECEIVED: 08/11/05
DATE EXTRACTED: 08/11/05 10:30
DATE ANALYZED: 08/11/05 16:11/16:12

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
TKN	ND	1.00	1.02	102	1.00	1.01	101	1	80-120	20

80144

dm

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 351.3
MATRIX: WATER
% MOISTURE: NA

==========

BATCH NO.: 05G260
SAMPLE ID: MW-21-1MS
CONTROL NO.: G260-05M

DATE RECEIVED: 07/29/05
DATE EXTRACTED: 08/11/05 10:30
DATE ANALYZED: 08/11/05 16:19

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
TKN	.43	1.00	1.43	100	75-125

80145

6

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 351.3
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G260
SAMPLE ID: MW-21-1DUP
CONTROL NO.: G260-05D

DATE RECEIVED: 07/29/05
DATE EXTRACTED: 08/11/05 10:30
DATE ANALYZED: 08/11/05 16:18

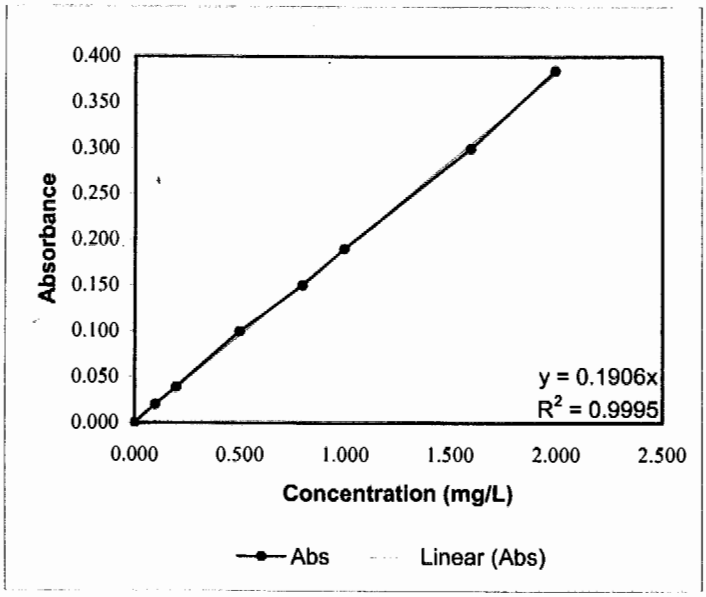
ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
TKN	.43	.483	12	20

8146

CALIBRATION CURVE
AMMONIA _NH3 _TKN

Conc.	Abs
0.000	0.000
0.100	0.020
0.200	0.039
0.500	0.100
0.800	0.150
1.000	0.190
1.600	0.300
2.000	0.385



R^2	0.999494	Comments:	**PASSED**
y	0.1906	K191	
CF	5.2476	Analyzed by:	NT/LA

8047

ANALYSIS LOG FOR TOTAL KJELDAHL NITROGEN (TKN)

SOP ☑ EMAX-351.3 Rev. No. 1 ☐ Start Date: 8/11/05 Time: 16:00 End Date: 8/11/05 Time: 16:30 Book # A70-KN-004

ANALYTICAL BATCH * KNH004W

	Data File Name	Prep. Batch	Lab Sample ID	Matrix S	Matrix W	Time	Vol.Colored (ml)	DF	Absorbance	Notes mg/L
*	1	KNH004W	S-0			16:00	20	1	0.000	
*	2		0.1			01			0.020	
*	3		0.2			02			0.039	
*	4		0.5			03			0.100	
*	5		0.8			04			0.150	
*	6		1.0			05			0.190	
*	7		1.6			06			0.300	
*	8		2.0			07			0.385	
*	9		ICV			08			0.197	1.034
*	10		ICB			09	NT		0.~~08~~00	ND
*	11		KNH004WB		✓	10	8/11/5		0.0~~98~~00	ND
*	12		WL			11			0.194	1.018
*	13		WC			12			0.192	1.008
*	14		G260-01			13			0.080	0.420
*	15		02			14			0.098	0.514
*	16		03			15			0.108	0.567
*	17		04			16			0.110	0.577
*	18		05			17			0.082	0.430
*	19		05D			18			0.092	0.483
*	20		05M		✓	19			0.~~273~~	~~0.908~~ 1.432
*	21		CCV1			20			0.194	1.018
*	22		CCB1			21			0.000	ND
*	23		G260-06		✓	22			0.142	0.745
*	24		H006-01			23			0.074	0.388
*	25		02			24			0.080	0.420
*	26		03			25			0.100	0.525
*	27		04			26			0.068	0.357
*	28		05			27			0.112	0.588
*	29		H418-02		✓	28			0.164	0.861
*	30		CCV2			29			0.192	1.008
	31		CCB2			16:30			0.000	ND

Instrument No: 70	Wavelength: 425 nm

Standard	ID	Conc. (mg/L)
S_0	SW2B-03-182	0.0
S_1		0.1
S_2		0.2
S_3		0.5
S_4		0.8
S_5		1.0
S_6		1.6
S_7		2.0
ICV/MS	SW2B-03-181	1.0
CCV	182	1.0
LCS	178	1.0

Reagent	ID
Color Reagent	SW7A-06-141

Standard Curve	
R^2	0.999494
Y	0.1906
CF	5.2476

Comments:

Results are based on: ☐ Dry Weight ☐ Wet Weight

Analyzed By: NT/LA

This page is checked during data review.

NT 8/11/05

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

80148

DISTILLATION LOG FOR NH_3 / DIGESTION AND DISTILLATION FOR TKN

SOP ☐ EMAX-350.2 Rev. No.: 2 ☑ EMAX-351.3 Rev. No.: 2 ☐ Book # EKN-006

Start Date 8/11/05 Time 10:30 End Date 8/11/05 Time 15:30

PREPARATION BATCH # KNH004W

Sample Prep ID	Lab Sample ID	Sample pH	NaOH Added (ml)	Boric Acid (ml)	Borate Buffer (ml)	Sample Amount (ml)	Extract Volume (ml)	Notes
*01	S-0	9.5	10	5	4	50	50	
*02	0.1							
*03	1.0							
*04	2.0							
*05	ICV							
*06	ICB							
*07	KNH004WB							
*08	WL							
*09	WC							
*10	G260-01							
*11	02							
*12	03							
*13	04							
*14	05							
*15	05D							
*16	05M							
*17	06							
*18	H006-01							
*19	02							
*20	03							
*21	04							
*22	05							
*23	H418-02							
*24								
*25					NT	8/11/05		
*26								

Standards	ID	Amount Added (ml)
ICV/MS	SW2B-03-181	5mL of 10ppm
LCS	178	50mL

Reagent	Lot# / ID
NaOH	N/A
Digestion Mixture	SW7A-06-204
Borate Buffer	152
H_3BO_3	SW7B-06-322
Distilling Soln.	331

Comments:

Prepared By: NT/LA

Standard Added By: NT/LA

Checked By:

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8149

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G260**

METHOD 415.1
DISSOLVED ORGANIC CARBON

Six (6) water samples were received on 07/29/05 for Dissolved Organic Carbon analysis by Method 415.1 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Method", SW846, 3rd edition.

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

No Duplicate sample was designated in this SDG.

5. Matrix Spike

No MS sample was designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 415.1
DOC

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G260

Matrix : WATER
Instrument ID : 62

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TCH007WB	ND	1	NA	1	.5	08/08/0519:25	NA	TCH006-36	TCH006-26	TCH007W	NA	NA
LCS1W	TCH007WL	24.8	1	NA	1	.5	08/08/0519:36	NA	TCH006-37	TCH006-26	TCH007W	NA	NA
LCD1W	TCH007WC	24.8	1	NA	1	.5	08/08/0520:06	NA	TCH006-40	TCH006-38	TCH007W	NA	NA
MW-21-5	G260-01	2.38	1	NA	1	.5	08/08/0523:18	NA	TCH006-60	TCH006-49	TCH007W	07/26/05	07/29/05
MW-21-4	G260-02	2.48	1	NA	1	.5	08/08/0523:46	NA	TCH006-63	TCH006-61	TCH007W	07/26/05	07/29/05
MW-21-3	G260-03	3.29	1	NA	1	.5	08/08/0523:56	NA	TCH006-64	TCH006-61	TCH007W	07/26/05	07/29/05
MW-21-2	G260-04	8.44	1	NA	1	.5	08/09/0500:05	NA	TCH006-65	TCH006-61	TCH007W	07/26/05	07/29/05
MW-21-1	G260-05	4.18	1	NA	1	.5	08/09/0500:14	NA	TCH006-66	TCH006-61	TCH007W	07/26/05	07/29/05
DUPE-4-7/26/2005	G260-06	3.04	1	NA	1	.5	08/09/0500:24	NA	TCH006-67	TCH006-61	TCH007W	07/26/05	07/29/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G260
METHOD: METHOD 415.1

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	TCH007WB	TCH007WL	TCH007WC		
LAB FILE ID:	TCH006-36	TCH006-37	TCH006-40		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/08/0519:25	08/08/0519:36	08/08/0520:06	DATE RECEIVED:	NA
PREP. BATCH:	TCH007W	TCH007W	TCH007W		
CALIB. REF:	TCH006-26	TCH006-26	TCH006-38		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
DOC	ND	25	24.8	99	25	24.8	99	0	80-120	20

8152

	Type	Analysis	Sample Name	Sample ID	Object	Origin	Dilution	Result	Notes	Comment
1	Standard	NPOC	ICAL	TCH006-1	0A-12	C:\Progra	1.000			
2	Control	NPOC	ICV	TCH006-2	0A-12	C:\Progra	1.000	NPOC:24.34 m	Control valu	
3	Unknown	NPOC	ICB	TCH006-3	0A-12	C:\Progra	1.000	NPOC:0.3346		
4	Unknown	NPOC	HCO3/CO3	TCH006-4	0A-12	C:\Progra	1.000	NPOC:0.6327		
5	Unknown	NPOC	TCH006WB	TCH006-5	0A-12	C:\Progra	1.000	NPOC:0.05212		
6	Unknown	NPOC	TCH006WL	TCH006-6	0A-12	C:\Progra	1.000	NPOC:24.37 m		
7	Unknown	NPOC	TCH006WC	TCH006-7	0A-12	C:\Progra	1.000	NPOC:24.43 m		
8	Unknown	NPOC	05G218-01	TCH006-8	0A-12	C:\Progra	1.000	NPOC:1.828 m		DOC
9	Unknown	NPOC	05G218-02	TCH006-9	0A-12	C:\Progra	1.000	NPOC:5.383 m		DOC
10	Unknown	NPOC	05G218-03	TCH006-10	0A-12	C:\Progra	1.000	NPOC:2.081 m		DOC
11	Unknown	NPOC	05G218-04	TCH006-11	0A-12	C:\Progra	1.000	NPOC:3.346 m		DOC
12	Unknown	NPOC	05G218-05	TCH006-12	0A-12	C:\Progra	1.000	NPOC:1.735 m		DOC
13	Unknown	NPOC	05G218-06	TCH006-13	0A-12	C:\Progra	1.000	NPOC:5.865 m		DOC
14	Control	NPOC	CCV1	TCH006-14	0A-12	C:\Progra	1.000	NPOC:24.49 m	Control valu	
15	Unknown	NPOC	CCB1	TCH006-15	0A-12	C:\Progra	1.000	NPOC:0.05638		
16	Unknown	NPOC	05G218-06D	TCH006-16	0A-12	C:\Progra	1.000	NPOC:3.477 m		DOC
17	Unknown	NPOC	05G218-06M	TCH006-17	0A-12	C:\Progra	1.000	NPOC:26.86 m		DOC
18	Unknown	NPOC	05G219-02	TCH006-18	0A-12	C:\Progra	1.000	NPOC:8.670 m		
19	Unknown	NPOC	05G219-03	TCH006-19	0A-12	C:\Progra	1.000	NPOC:33.09 m		
20	Unknown	NPOC	05G219-04	TCH006-20	0A-12	C:\Progra	1.000	NPOC:25.47 m		
21	Unknown	NPOC	05G219-05	TCH006-21	0A-12	C:\Progra	1.000	NPOC:17.95 m		
22	Unknown	NPOC	05G231-02	TCH006-22	0A-12	C:\Progra	1.000	NPOC:9.674 m		
23	Unknown	NPOC	05G231-02D	TCH006-23	0A-12	C:\Progra	1.000	NPOC:9.472 m		
24	Unknown	NPOC	05G231-02M	TCH006-24	0A-12	C:\Progra	1.000	NPOC:32.75 m		
25	Unknown	NPOC	05G231-03	TCH006-25	0A-12	C:\Progra	1.000	NPOC:333.6 m		
26	Control	NPOC	CCV2	TCH006-26	0A-12	C:\Progra	1.000	NPOC:25.70 m	Control valu	
27	Unknown	NPOC	CCB2	TCH006-27	0A-12	C:\Progra	1.000	NPOC:0.2423		
28	Unknown	NPOC	05G231-04	TCH006-28	0A-12	C:\Progra	1.000	NPOC:25.80 m		
29	Unknown	NPOC	05G231-05	TCH006-29	0A-12	C:\Progra	1.000	NPOC:18.82 m		
30	Unknown	NPOC	05G231-06	TCH006-30	0A-12	C:\Progra	1.000	NPOC:30.00 m		
31	Unknown	NPOC	05G231-07	TCH006-31	0A-12	C:\Progra	1.000	NPOC:30.21 m		
32	Unknown	NPOC	05G231-08	TCH006-32	0A-12	C:\Progra	1.000	NPOC:8.969 m		
33	Unknown	NPOC	05G839-02	TCH006-33	0A-12	C:\Progra	1.000	NPOC:1.293 m		
34	Unknown	NPOC	05G839-03	TCH006-34	0A-12	C:\Progra	1.000	NPOC:2.031 m		
35	Unknown	NPOC	05G842-02	TCH006-35	0A-12	C:\Progra	1.000	NPOC:2.845 m		
36	Unknown	NPOC	TCH007WB	TCH006-36	0A-12	C:\Progra	1.000	NPOC:0.3662		
37	Unknown	NPOC	TCH007WL	TCH006-37	0A-12	C:\Progra	1.000	NPOC:24.84 m		
38	Control	NPOC	CCV3	TCH006-38	0A-12	C:\Progra	1.000	NPOC:24.92 m	Control valu	
39	Unknown	NPOC	CCB3	TCH006-39	0A-12	C:\Progra	1.000	NPOC:0.3039		
40	Unknown	NPOC	TCH007WC	TCH006-40	0A-12	C:\Progra	1.000	NPOC:24.85 m		
41	Unknown	NPOC	05G218-01	TCH006-41	0A-12	C:\Progra	1.000	NPOC:1.670 m		
42	Unknown	NPOC	05G218-02	TCH006-42	0A-12	C:\Progra	1.000	NPOC:1.497 m		
43	Unknown	NPOC	05G218-03	TCH006-43	0A-12	C:\Progra	1.000	NPOC:1.595 m		
44	Unknown	NPOC	05G218-04	TCH006-44	0A-12	C:\Progra	1.000	NPOC:1.650 m		
45	Unknown	NPOC	05G218-05	TCH006-45	0A-12	C:\Progra	1.000	NPOC:1.586 m		
46	Unknown	NPOC	05G218-06	TCH006-46	0A-12	C:\Progra	1.000	NPOC:1.521 m		
47	Unknown	NPOC	05G218-06D	TCH006-47	0A-12	C:\Progra	1.000	NPOC:1.474 m		
48	Unknown	NPOC	05G218-06M	TCH006-48	0A-12	C:\Progra	1.000	NPOC:24.63 m		
49	Control	NPOC	CCV4	TCH006-49	0A-12	C:\Progra	1.000	NPOC:24.65 m	Control valu	
50	Unknown	NPOC	CCB4	TCH006-50	0A-12	C:\Progra	1.000	NPOC:0.2706		
51	Unknown	NPOC	05G247-02	TCH006-51	0A-12	C:\Progra	1.000	NPOC:48.61 m		
52	Unknown	NPOC	05G247-03	TCH006-52	0A-12	C:\Progra	1.000	NPOC:104.8 m		
53	Unknown	NPOC	05G247-04	TCH006-53	0A-12	C:\Progra	1.000	NPOC:29.68 m		
54	Unknown	NPOC	05G247-05	TCH006-54	0A-12	C:\Progra	1.000	NPOC:28.31 m		
55	Unknown	NPOC	05G247-06	TCH006-55	0A-12	C:\Progra	1.000	NPOC:29.81 m		
56	Unknown	NPOC	05G247-07	TCH006-56	0A-12	C:\Progra	1.000	NPOC:9.548 m		
57	Unknown	NPOC	05G247-08	TCH006-57	0A-12	C:\Progra	1.000	NPOC:0.8519		
58	Unknown	NPOC	05G247-08D	TCH006-58	0A-12	C:\Progra	1.000	NPOC:0.8026		
59	Unknown	NPOC	05G247-08M	TCH006-59	0A-12	C:\Progra	1.000	NPOC:23.98 m		
60	Unknown	NPOC	05G260-01	TCH006-60	0A-12	C:\Progra	1.000	NPOC:2.384 m		DOC
61	Control	NPOC	CCV5	TCH006-61	0A-12	C:\Progra	1.000	NPOC:24.75 m	Control valu	
62	Unknown	NPOC	CCB5	TCH006-62	0A-12	C:\Progra	1.000	NPOC:0.3611		
63	Unknown	NPOC	05G260-02	TCH006-63	0A-12	C:\Progra	1.000	NPOC:2.484 m		DOC
64	Unknown	NPOC	05G260-03	TCH006-64	0A-12	C:\Progra	1.000	NPOC:3.286 m		DOC
65	Unknown	NPOC	05G260-04	TCH006-65	0A-12	C:\Progra	1.000	NPOC:8.444 m		DOC
66	Unknown	NPOC	05G260-05	TCH006-66	0A-12	C:\Progra	1.000	NPOC:4.181 m		DOC

	Type	Analysis	Sample Nam	Sample ID	ObjectID	Origin	Dil	Result	Notes	Comment
67	Unknown	NPOC	05G260-06	TCH006-67	0A-123456-	C:\Program File	1.	NPOC:3.03		DOC
68	Control	NPOC	CCV6	TCH006-68	0A-123456-	C:\Program File	1.	NPOC:24.2	Control valu	
69	Unknown	NPOC	CCB6	TCH006-69	0A-123456-	C:\Program File	1.	NPOC:1.61		
70	Unknown	NPOC	TCH008WB	TCH006-70	0A-123456-	C:\Program File	1.	NPOC:0.50		
71	Unknown	NPOC	TCH008WL	TCH006-71	0A-123456-	C:\Program File	1.	NPOC:23.9		
72	Unknown	NPOC	TCH008WC	TCH006-72	0A-123456-	C:\Program File	1.	NPOC:24.3		
73	Unknown	NPOC	05G260-01	TCH006-73	0A-123456-	C:\Program File	1.	NPOC:1.96		
74	Unknown	NPOC	05G260-02	TCH006-74	0A-123456-	C:\Program File	1.	NPOC:2.06		
75	Unknown	NPOC	05G260-03	TCH006-75	0A-123456-	C:\Program File	1.	NPOC:2.37		
76	Unknown	NPOC	05G260-04	TCH006-76	0A-123456-	C:\Program File	1.	NPOC:2.70		
77	Unknown	NPOC	05G260-05	TCH006-77	0A-123456-	C:\Program File	1.	NPOC:2.58		
78	Unknown	NPOC	05G260-06	TCH006-78	0A-123456-	C:\Program File	1.	NPOC:2.39		
79	Control	NPOC	CCV7	TCH006-79	0A-123456-	C:\Program File	1.	NPOC:24.8	Control valu	
80	Unknown	NPOC	CCB7	TCH006-80	0A-123456-	C:\Program File	1.	NPOC:0.49		
81	Unknown	NPOC	05G260-06	TCH006-81	0A-123456-	C:\Program File	1.	NPOC:2.41		
82	Unknown	NPOC	05G260-06	TCH006-82	0A-123456-	C:\Program File	1.	NPOC:25.1		
83	Unknown	NPOC	05G183-01	TCH006-83	0A-123456-	C:\Program File	1.	NPOC:36.7		DOC
84	Unknown	NPOC	05G183-01	TCH006-84	0A-123456-	C:\Program File	1.	NPOC:35.4		TOC
85	Unknown	NPOC	05G159-03	TCH006-85	0A-123456-	C:\Program File	2.	NPOC:51.2		
86	Control	NPOC	CCV8	TCH006-86	0A-123456-	C:\Program File	1.	NPOC:24.8	Control valu	
87	Unknown	NPOC	CCB8	TCH006-87	0A-123456-	C:\Program File	1.	NPOC:0.48		
88										
89										
90										
91										
92										
93										
94										
95										
96										
97										
98										
99										
100										

Instr.Information

System	toc
Detector	Combustion
Catalyst	Regular Sensitivity
Cell Length	long

Cal. Curve

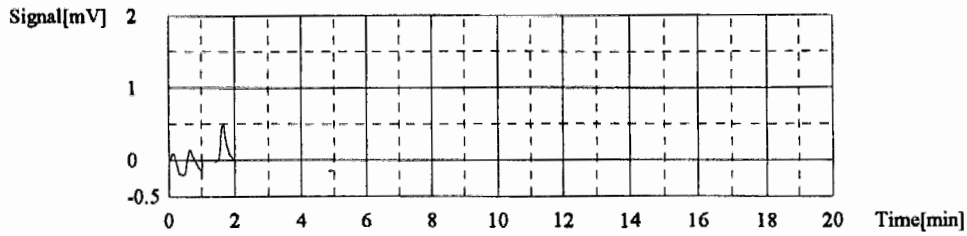
Sample Name:	ICAL
Sample ID:	TCH006-1
Cal. Curve:	TCH006.2005_08_08_12_38_44.cal

Type	Anal.
Standard	NPOC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	0.4887	50uL	1	*******		08/08/05 12:46:00 PM
2	0.5994	50uL	1	*******		08/08/05 12:47:11 PM

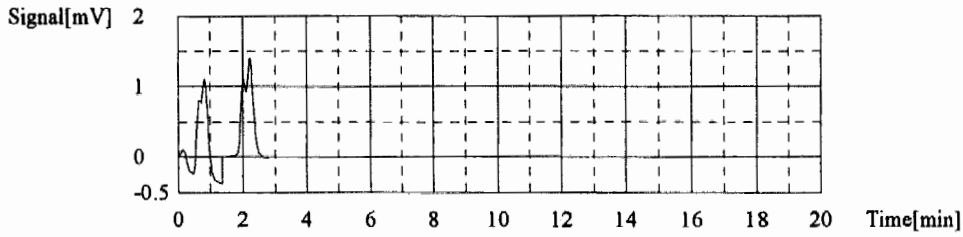
Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	0.5441



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	2.825	50uL	10	*******		08/08/05 12:55:45 PM
2	3.085	50uL	10	*******		08/08/05 12:57:20 PM

Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	2.955

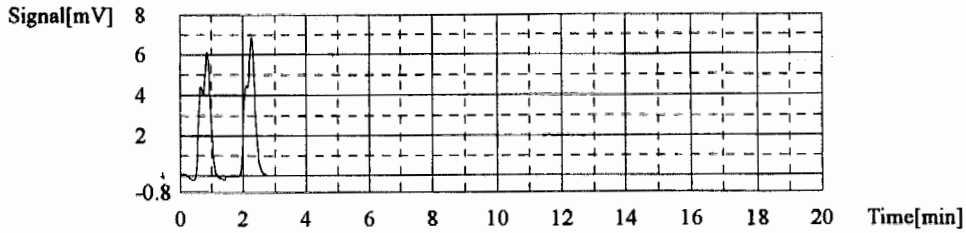


Conc: 5.000mg/L

8055

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	13.66	50uL	2	*******		08/08/05 01:04:04 PM
2	13.91	50uL	2	*******		08/08/05 01:05:43 PM

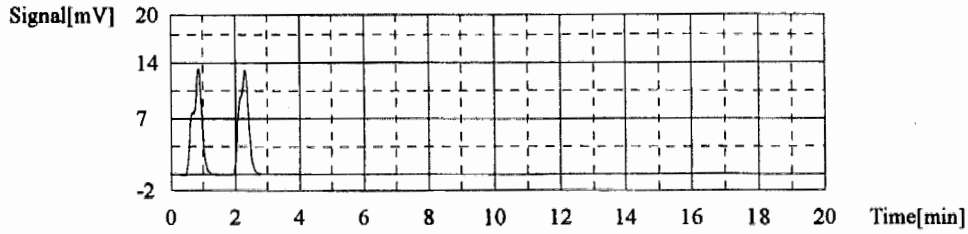
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 13.79



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	27.40	50uL	1	*******		08/08/05 01:11:47 PM
2	27.39	50uL	1	*******		08/08/05 01:13:24 PM

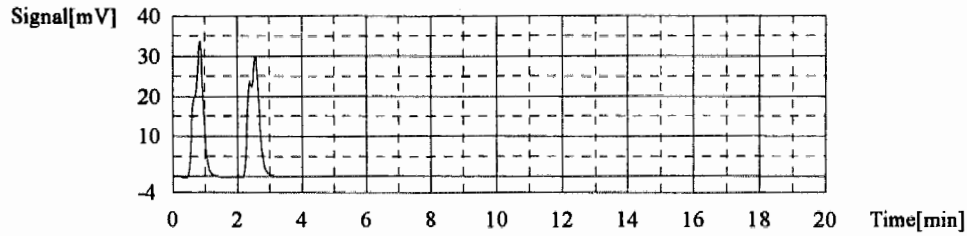
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 27.40



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	67.41	50uL	2	*******		08/08/05 01:22:20 PM
2	68.59	50uL	2	*******		08/08/05 01:24:21 PM

Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 68.00

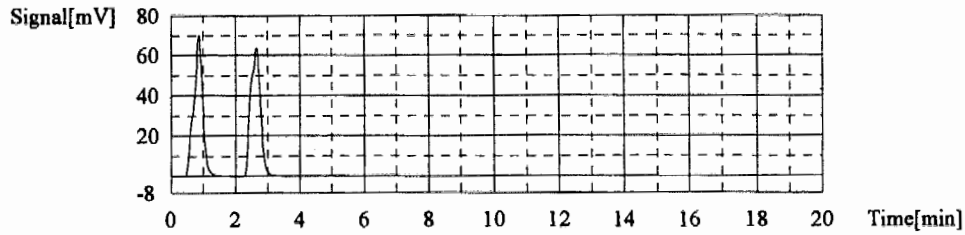


Conc: 50.00mg/L

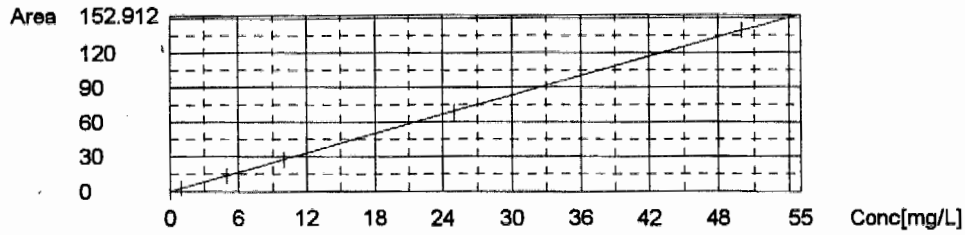
No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	139.4	50uL	1	*******		08/08/05 01:30:45 PM
2	139.9	50uL	1	*******		08/08/05 01:32:42 PM

8056

Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	139.7



Slope:	2.780
Intercept	0.000
r^2	0.999785



Control Sample

Sample Name:	ICV
Sample ID:	TCH006-2
Method:	TCH006.tpl
Chk. Result	Control value: 1.14% / Control within range!

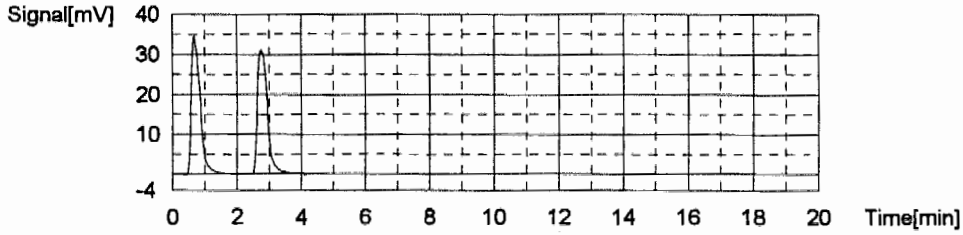
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.34 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	67.28	24.20mg/L	50uL	1		TCH006.2005_08_08_12_38_44.cal	08/08/05 01:41:30 PM
2	68.05	24.48mg/L	50uL	1		TCH006.2005_08_08_12_38_44.cal	08/08/05 01:43:48 PM

Mean Area	67.66
Mean Conc.	24.34mg/L



Sample

8057

Sample Name: ICB
Sample ID: TCH006-3
Origin: TCH006.met
Chk. Result

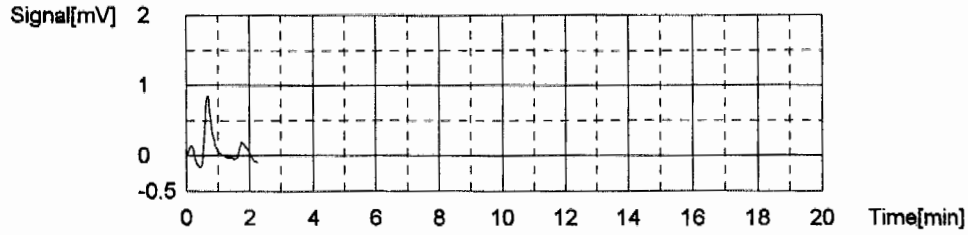
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.3346 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.461	0.5255mg/L	50uL	1		TCH006.2005_08_08_12_38_44.cal	08/08/05 01:51:26 PM
2	0.3993	0.1436mg/L	50uL	1		TCH006.2005_08_08_12_38_44.cal	08/08/05 01:52:45 PM

Mean Area 0.9302
Mean Conc. 0.3346mg/L



Sample

Sample Name: HCO3/CO3
Sample ID: TCH006-4
Origin: TCH006.met
Chk. Result

Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.6327 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.717	0.6176mg/L	50uL	1		TCH006.2005_08_08_12_38_44.cal	08/08/05 02:00:26 PM
2	1.801	0.6478mg/L	50uL	1		TCH006.2005_08_08_12_38_44.cal	08/08/05 02:01:51 PM

ANALYSIS RUN LOG FOR TOC

SOP: o EMAX-9060 **Revision No. 1** ✓EMAX-415.1 **Revision No. 1** o **Book # A62-006**

Start Date: 8/8/05 **Time:** 12:46 **EndingDate:** 8/9/05 **Time:** 03:38

Sample Prep. ID		Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Run Time	Notes
*	1	TCH006-1	ICAL	1		X	13:32	NPOC Run
*	2	2	ICV				~~12:40~~ 8/9/05 13:43	pH<2
*	3	3	ICB				13:52	
*	4	4	HCO3/CO3				14:01	
*	5	5	TCH006WB				14:11	
*	6	6	WV				14:21	
*	7	7	WC				14:32	
*	8	8	056218-01				14:41	
*	9	9	02				14:50	
*	0	10	03				15:00	
*	1	11	04				15:09	
*	2	12	05				15:18	
*	3	13	06				15:27	
*	4	14	CCV1				15:38	
*	5	15	CCB1				16:01	
*	6	16	056218-06D				16:10	
*	7	17	06M				16:20	
*	8	18	056219-02				16:29	
*	9	19	03				16:39	
*	0	20	04				16:49	
*	1	21	05				16:59	
*	2	22	056231-02				17:09	
*	3	23	02D				17:18	
*	4	24	02M				17:28	
*	5	25	03				17:40	
*	6	26	CCV2				17:50	
*	7	27	CCB2				17:59	
*	8	28	056231-04				18:10	
*	9	29	05				18:19	
*	0	30	06				18:29	

ANALYTICAL BATCH # TCH006W

Instrument No.	62
INITIAL CALIBRATION REFERENCE	
Method File	TCH006
ICAL ID	SW10B-01-611
ICV ID	612

STANDARDS

ICAL Level		Conc.(mg/L)
S_0	Nanopure	0
S_1	SW10B-01-611	1
S_2		5
S_3		10
S_4		25
S_5		50
S_6		8/8/05
ICV/LCS	SW10B-01-612	25
CCV	613	25

Comments:

Analyzed By:

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

81159

ANALYSIS RUN LOG FOR TOC

SOP: o EMAX-9060 Revision No. 1 o EMAX-415.1 Revision No. 1 o **Book # A62-006**

Start Date: 8/8/05 **Time:** 12:46 **EndingDate:** 8/9/05 **Time:** 03:38

Sample Prep. ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Run Time	Notes
* 1	TCH006-31	056231-07	1		X	18:39	NPOC Run
* 2	32	↓ 08				18:49	pH<2
* 3	33	056839-02				18:58	
* 4	34	↓ 03				19:07	
* 5	35	056842-02				19:16	
* 6	36	TCH007WB				19:25	
* 7	37	↓ WL				19:36	
* 8	38	CCV3				19:46	
* 9	39	CCB3				19:55	
* 0	40	TCH007WC				20:06	
* 1	41	058218-01				20:15	
* 2	42	02				20:24	
* 3	43	03				20:33	
* 4	44	04				20:42	
* 5	45	05				20:51	
* 6	46	06				21:01	
* 7	47	06D				21:10	
* 8	48	06M				21:20	
* 9	49	CCV4				21:30	
* 0	50	CCB4				21:39	
* 1	51	056247-02				21:50	
* 2	52	03				22:01	
* 3	53	04				~~22:02~~ 22:11 8/8/05	
* 4	54	05				22:21	
* 5	55	06				22:31	
* 6	56	07				22:41	
* 7	57	08				22:50	
* 8	58	08D				22:59	
* 9	59	08M				23:09	
* 0	60	058260-01				23:18	

ANALYTICAL BATCH * TCH007W

Instrument No.	62
INITIAL CALIBRATION REFERENCE	
Method File	TCH006
ICAL ID	(see ICAL page 82)
ICV ID	

STANDARDS

ICAL Level		Conc.(mg/L)
S_0		
S_1		
S_2		
S_3		
S_4		
S_5		
S_6		
ICV/LCS		
CCV		

same as page 82

Comments:

Analyzed By: [illegible]

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

09160

ANALYSIS RUN LOG FOR TOC

SOP: o EMAX-9060 **Revision No.** 1 o EMAX-415.1 **Revision No.** 1 o **Book # A62-006**

Start Date: 8/8/~~04~~ 05 **Time:** 12:46 **EndingDate:** 8/9/05 **Time:** 03:38

ANALYTICAL BATCH * TCH008W

Sample Prep. ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Run Time	Notes
* 1	TCH006-61	CCV5	1		X	23:28	NPOC Run
* 2	62	CCB5				23:37	pH<2
* 3	63	056260-02				23:46	
* 4	64	03				23:56	
* 5	65	04				00:05	
* 6	66	05				00:14	
* 7	67	06				00:24	
* 8	68	CCV6				00:34	
* 9	69	CCB6				00:44	
* 0	70	TCH008WB				00:53	
* 1	71	WL				01:03	
* 2	72	LCC				01:14	
* 3	73	056260-01				01:24	
* 4	74	02				01:33	
* 5	75	03				01:42	
* 6	76	04				01:51	
* 7	77	05				02:01	
* 8	78	06				02:10	
* 9	79	CCV7				02:20	
* 0	80	CCB7				02:29	
* 1	81	056260-06D				02:39	
* 2	82	06M				02:49	
* 3	83	056183-01				02:58	DOC
* 4	84	01				03:08	TOC
* 5	85	056159-03	2			03:19	
* 6	86	CCV8	1			03:29	
* 7	87	CCB8	1			03:38	
* 8							
* 9							
* 0							

Instrument No.	62
INITIAL CALIBRATION REFERENCE	
Method File	TCH006
ICAL ID	(see ICAL on page 82)
ICV ID	

STANDARDS

ICAL Level		Conc.(mg/L)
S_0		
S_1		
S_2		
S_3		
S_4		
S_5		
S_6		
ICV/LCS		
CCV		

Same as page 82

Comments:

Analyzed By:

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G260**

METHOD 415.1
TOTAL ORGANIC CARBON

Six (6) water samples were received on 07/29/05 for Total Organic Carbon analysis by Method 415.1 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Method", SW846, 3rd edition.

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Sample G260-06 was analyzed for Duplicate. % RPD was within QC limit.

5. Matrix Spike

Sample G260-06 was spiked. % Recovery was within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 415.1
TOC

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G260

Matrix : WATER
Instrument ID : 62

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TCH008WB	ND	1	NA	1	.5	08/09/0500:53	NA	TCH006-70	TCH006-68	TCH008W	NA	NA
LCS1W	TCH008WL	24	1	NA	1	.5	08/09/0501:03	NA	TCH006-71	TCH006-68	TCH008W	NA	NA
LCD1W	TCH008WC	24.4	1	NA	1	.5	08/09/0501:14	NA	TCH006-72	TCH006-68	TCH008W	NA	NA
NW-21-5	G260-01	1.97	1	NA	1	.5	08/09/0501:24	NA	TCH006-73	TCH006-68	TCH008W	07/26/05	07/29/05
NW-21-4	G260-02	2.07	1	NA	1	.5	08/09/0501:33	NA	TCH006-74	TCH006-68	TCH008W	07/26/05	07/29/05
NW-21-3	G260-03	2.37	1	NA	1	.5	08/09/0501:42	NA	TCH006-75	TCH006-68	TCH008W	07/26/05	07/29/05
NW-21-2	G260-04	2.7	1	NA	1	.5	08/09/0501:51	NA	TCH006-76	TCH006-68	TCH008W	07/26/05	07/29/05
NW-21-1	G260-05	2.58	1	NA	1	.5	08/09/0502:01	NA	TCH006-77	TCH006-68	TCH008W	07/26/05	07/29/05
DUPE-4-7/26/2005	G260-06	2.39	1	NA	1	.5	08/09/0502:10	NA	TCH006-78	TCH006-68	TCH008W	07/26/05	07/29/05
DUPE-4-7/26/2005DUP	G260-06D	2.41	1	NA	1	.5	08/09/0502:39	NA	TCH006-81	TCH006-79	TCH008W	07/26/05	07/29/05
DUPE-4-7/26/2005MS	G260-06M	25.1	1	NA	1	.5	08/09/0502:49	NA	TCH006-82	TCH006-79	TCH008W	07/26/05	07/29/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G260
METHOD: METHOD 415.1

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	TCH008WB	TCH008WL	TCH008WC		
LAB FILE ID:	TCH006-70	TCH006-71	TCH006-72		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/09/0500:53	08/09/0501:03	08/09/0501:14	DATE RECEIVED:	NA
PREP. BATCH:	TCH008W	TCH008W	TCH008W		
CALIB. REF:	TCH006-68	TCH006-68	TCH006-68		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
TOC	ND	25	24	96	25	24.4	97	2	80-120	20

8064

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G260
METHOD: METHOD 415.1

==========

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	DUPE-4-7/26/2005			
LAB SAMP ID:	G260-06	G260-06M		
LAB FILE ID:	TCH006-78	TCH006-82		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/26/05
DATE ANALYZED:	08/09/0502:10	08/09/0502:49	DATE RECEIVED:	07/29/05
PREP. BATCH:	TCH008W	TCH008W		
CALIB. REF:	TCH006-68	TCH006-79		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
TOC	2.39	25	25.1	91	75-125

81165

EMAX QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G260
METHOD: METHOD 415.1

==========

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	DUPE-4-7/26/2005	DUPE-4-7/26/2005DUP		
EMAX SAMP ID:	G260-06	G260-06D		
LAB FILE ID:	TCH006-78	TCH006-81		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/26/05
DATE ANALYZED:	08/09/0502:10	08/09/0502:39	DATE RECEIVED:	07/29/05
PREP. BATCH:	TCH008W	TCH008W		
CALIB. REF:	TCH006-68	TCH006-79		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	DUPL RSLT (mg/L)	RPD RSLT %	QC LIMIT (%)
TOC	2.39	2.41	1	20

8/9/05

	Type	Analysis	Sample Name	Sample ID	Object	Origin	Dilution	Result	Notes	Comment
1	Standard	NPOC	ICAL	TCH006-1	0A-12	C:\Progra	1.000			
2	Control	NPOC	ICV	TCH006-2	0A-12	C:\Progra	1.000	NPOC:24.34 m	Control valu	
3	Unknown	NPOC	ICB	TCH006-3	0A-12	C:\Progra	1.000	NPOC:0.3346		
4	Unknown	NPOC	HCO3/CO3	TCH006-4	0A-12	C:\Progra	1.000	NPOC:0.6327		
5	Unknown	NPOC	TCH006WB	TCH006-5	0A-12	C:\Progra	1.000	NPOC:0.05212		
6	Unknown	NPOC	TCH006WL	TCH006-6	0A-12	C:\Progra	1.000	NPOC:24.37 m		
7	Unknown	NPOC	TCH006WC	TCH006-7	0A-12	C:\Progra	1.000	NPOC:24.43 m		
8	Unknown	NPOC	05G218-01	TCH006-8	0A-12	C:\Progra	1.000	NPOC:1.828 m		DOC
9	Unknown	NPOC	05G218-02	TCH006-9	0A-12	C:\Progra	1.000	NPOC:5.383 m		DOC
10	Unknown	NPOC	05G218-03	TCH006-10	0A-12	C:\Progra	1.000	NPOC:2.081 m		DOC
11	Unknown	NPOC	05G218-04	TCH006-11	0A-12	C:\Progra	1.000	NPOC:3.346 m		DOC
12	Unknown	NPOC	05G218-05	TCH006-12	0A-12	C:\Progra	1.000	NPOC:1.735 m		DOC
13	Unknown	NPOC	05G218-06	TCH006-13	0A-12	C:\Progra	1.000	NPOC:5.865 m		DOC
14	Control	NPOC	CCV1	TCH006-14	0A-12	C:\Progra	1.000	NPOC:24.49 m	Control valu	
15	Unknown	NPOC	CCB1	TCH006-15	0A-12	C:\Progra	1.000	NPOC:0.05638		
16	Unknown	NPOC	05G218-06D	TCH006-16	0A-12	C:\Progra	1.000	NPOC:3.477 m		DOC
17	Unknown	NPOC	05G218-06M	TCH006-17	0A-12	C:\Progra	1.000	NPOC:26.86 m		DOC
18	Unknown	NPOC	05G219-02	TCH006-18	0A-12	C:\Progra	1.000	NPOC:8.670 m		
19	Unknown	NPOC	05G219-03	TCH006-19	0A-12	C:\Progra	1.000	NPOC:33.09 m		
20	Unknown	NPOC	05G219-04	TCH006-20	0A-12	C:\Progra	1.000	NPOC:25.47 m		
21	Unknown	NPOC	05G219-05	TCH006-21	0A-12	C:\Progra	1.000	NPOC:17.95 m		
22	Unknown	NPOC	05G231-02	TCH006-22	0A-12	C:\Progra	1.000	NPOC:9.674 m		
23	Unknown	NPOC	05G231-02D	TCH006-23	0A-12	C:\Progra	1.000	NPOC:9.472 m		
24	Unknown	NPOC	05G231-02M	TCH006-24	0A-12	C:\Progra	1.000	NPOC:32.75 m		
25	Unknown	NPOC	05G231-03	TCH006-25	0A-12	C:\Progra	1.000	NPOC:333.6 m		
26	Control	NPOC	CCV2	TCH006-26	0A-12	C:\Progra	1.000	NPOC:25.70 m	Control valu	
27	Unknown	NPOC	CCB2	TCH006-27	0A-12	C:\Progra	1.000	NPOC:0.2423		
28	Unknown	NPOC	05G231-04	TCH006-28	0A-12	C:\Progra	1.000	NPOC:25.80 m		
29	Unknown	NPOC	05G231-05	TCH006-29	0A-12	C:\Progra	1.000	NPOC:18.82 m		
30	Unknown	NPOC	05G231-06	TCH006-30	0A-12	C:\Progra	1.000	NPOC:30.00 m		
31	Unknown	NPOC	05G231-07	TCH006-31	0A-12	C:\Progra	1.000	NPOC:30.21 m		
32	Unknown	NPOC	05G231-08	TCH006-32	0A-12	C:\Progra	1.000	NPOC:8.969 m		
33	Unknown	NPOC	05G839-02	TCH006-33	0A-12	C:\Progra	1.000	NPOC:1.293 m		
34	Unknown	NPOC	05G839-03	TCH006-34	0A-12	C:\Progra	1.000	NPOC:2.031 m		
35	Unknown	NPOC	05G842-02	TCH006-35	0A-12	C:\Progra	1.000	NPOC:2.845 m		
36	Unknown	NPOC	TCH007WB	TCH006-36	0A-12	C:\Progra	1.000	NPOC:0.3662		
37	Unknown	NPOC	TCH007WL	TCH006-37	0A-12	C:\Progra	1.000	NPOC:24.84 m		
38	Control	NPOC	CCV3	TCH006-38	0A-12	C:\Progra	1.000	NPOC:24.92 m	Control valu	
39	Unknown	NPOC	CCB3	TCH006-39	0A-12	C:\Progra	1.000	NPOC:0.3039		
40	Unknown	NPOC	TCH007WC	TCH006-40	0A-12	C:\Progra	1.000	NPOC:24.85 m		
41	Unknown	NPOC	05G218-01	TCH006-41	0A-12	C:\Progra	1.000	NPOC:1.670 m		
42	Unknown	NPOC	05G218-02	TCH006-42	0A-12	C:\Progra	1.000	NPOC:1.497 m		
43	Unknown	NPOC	05G218-03	TCH006-43	0A-12	C:\Progra	1.000	NPOC:1.595 m		
44	Unknown	NPOC	05G218-04	TCH006-44	0A-12	C:\Progra	1.000	NPOC:1.650 m		
45	Unknown	NPOC	05G218-05	TCH006-45	0A-12	C:\Progra	1.000	NPOC:1.586 m		
46	Unknown	NPOC	05G218-06	TCH006-46	0A-12	C:\Progra	1.000	NPOC:1.521 m		
47	Unknown	NPOC	05G218-06D	TCH006-47	0A-12	C:\Progra	1.000	NPOC:1.474 m		
48	Unknown	NPOC	05G218-06M	TCH006-48	0A-12	C:\Progra	1.000	NPOC:24.63 m		
49	Control	NPOC	CCV4	TCH006-49	0A-12	C:\Progra	1.000	NPOC:24.65 m	Control valu	
50	Unknown	NPOC	CCB4	TCH006-50	0A-12	C:\Progra	1.000	NPOC:0.2706		
51	Unknown	NPOC	05G247-02	TCH006-51	0A-12	C:\Progra	1.000	NPOC:48.61 m		
52	Unknown	NPOC	05G247-03	TCH006-52	0A-12	C:\Progra	1.000	NPOC:104.8 m		
53	Unknown	NPOC	05G247-04	TCH006-53	0A-12	C:\Progra	1.000	NPOC:29.68 m		
54	Unknown	NPOC	05G247-05	TCH006-54	0A-12	C:\Progra	1.000	NPOC:28.31 m		
55	Unknown	NPOC	05G247-06	TCH006-55	0A-12	C:\Progra	1.000	NPOC:29.81 m		
56	Unknown	NPOC	05G247-07	TCH006-56	0A-12	C:\Progra	1.000	NPOC:9.548 m		
57	Unknown	NPOC	05G247-08	TCH006-57	0A-12	C:\Progra	1.000	NPOC:0.8519		
58	Unknown	NPOC	05G247-08D	TCH006-58	0A-12	C:\Progra	1.000	NPOC:0.8026		
59	Unknown	NPOC	05G247-08M	TCH006-59	0A-12	C:\Progra	1.000	NPOC:23.98 m		
60	Unknown	NPOC	05G260-01	TCH006-60	0A-12	C:\Progra	1.000	NPOC:2.384 m		DOC
61	Control	NPOC	CCV5	TCH006-61	0A-12	C:\Progra	1.000	NPOC:24.75 m	Control valu	
62	Unknown	NPOC	CCB5	TCH006-62	0A-12	C:\Progra	1.000	NPOC:0.3611		
63	Unknown	NPOC	05G260-02	TCH006-63	0A-12	C:\Progra	1.000	NPOC:2.484 m		DOC
64	Unknown	NPOC	05G260-03	TCH006-64	0A-12	C:\Progra	1.000	NPOC:3.286 m		DOC
65	Unknown	NPOC	05G260-04	TCH006-65	0A-12	C:\Progra	1.000	NPOC:8.444 m		DOC
66	Unknown	NPOC	05G260-05	TCH006-66	0A-12	C:\Progra	1.000	NPOC:4.181 m		DOC

	Type	Analysis	Sample Nam	Sample ID	ObjectID	Origin	Dil	Result	Notes	Comment
67	Unknown	NPOC	05G260-06	TCH006-67	0A-123456-	C:\Program File	1.	NPOC:3.03		DOC
68	Control	NPOC	CCV6	TCH006-68	0A-123456-	C:\Program File	1.	NPOC:24.2	Control valu	
69	Unknown	NPOC	CCB6	TCH006-69	0A-123456-	C:\Program File	1.	NPOC:1.61		
70	Unknown	NPOC	TCH008WB	TCH006-70	0A-123456-	C:\Program File	1.	NPOC:0.50		
71	Unknown	NPOC	TCH008WL	TCH006-71	0A-123456-	C:\Program File	1.	NPOC:23.9		
72	Unknown	NPOC	TCH008WC	TCH006-72	0A-123456-	C:\Program File	1.	NPOC:24.3		
73	Unknown	NPOC	05G260-01	TCH006-73	0A-123456-	C:\Program File	1.	NPOC:1.96		
74	Unknown	NPOC	05G260-02	TCH006-74	0A-123456-	C:\Program File	1.	NPOC:2.06		
75	Unknown	NPOC	05G260-03	TCH006-75	0A-123456-	C:\Program File	1.	NPOC:2.37		
76	Unknown	NPOC	05G260-04	TCH006-76	0A-123456-	C:\Program File	1.	NPOC:2.70		
77	Unknown	NPOC	05G260-05	TCH006-77	0A-123456-	C:\Program File	1.	NPOC:2.58		
78	Unknown	NPOC	05G260-06	TCH006-78	0A-123456-	C:\Program File	1.	NPOC:2.39		
79	Control	NPOC	CCV7	TCH006-79	0A-123456-	C:\Program File	1.	NPOC:24.8	Control valu	
80	Unknown	NPOC	CCB7	TCH006-80	0A-123456-	C:\Program File	1.	NPOC:0.49		
81	Unknown	NPOC	05G260-06	TCH006-81	0A-123456-	C:\Program File	1.	NPOC:2.41		
82	Unknown	NPOC	05G260-06	TCH006-82	0A-123456-	C:\Program File	1.	NPOC:25.1		
83	Unknown	NPOC	05G183-01	TCH006-83	0A-123456-	C:\Program File	1.	NPOC:36.7		DOC
84	Unknown	NPOC	05G183-01	TCH006-84	0A-123456-	C:\Program File	1.	NPOC:35.4		TOC
85	Unknown	NPOC	05G159-03	TCH006-85	0A-123456-	C:\Program File	2.	NPOC:51.2		
86	Control	NPOC	CCV8	TCH006-86	0A-123456-	C:\Program File	1.	NPOC:24.8	Control valu	
87	Unknown	NPOC	CCB8	TCH006-87	0A-123456-	C:\Program File	1.	NPOC:0.48		
88										
89										
90										
91										
92										
93										
94										
95										
96										
97										
98										
99										
100										

Instr.Information

System	toc
Detector	Combustion
Catalyst	Regular Sensitivity
Cell Length	long

Cal. Curve

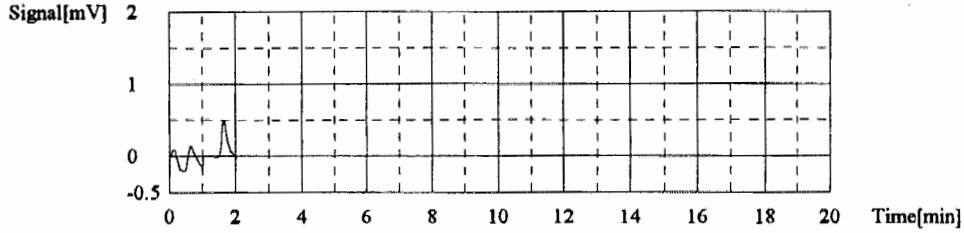
Sample Name:	ICAL
Sample ID:	TCH006-1
Cal. Curve:	TCH006.2005_08_08_12_38_44.cal

Type	Anal.
Standard	NPOC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	0.4887	50uL	1	*******		08/08/05 12:46:00 PM
2	0.5994	50uL	1	*******		08/08/05 12:47:11 PM

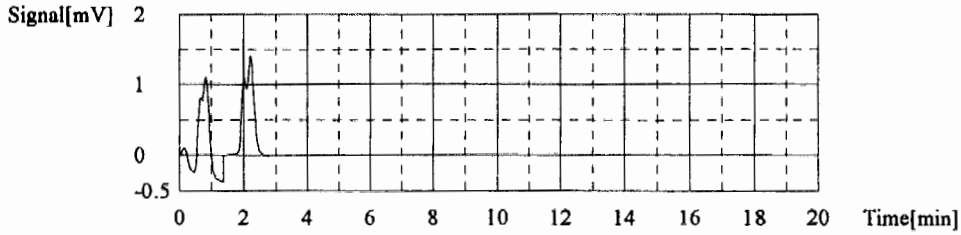
Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	0.5441



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	2.825	50uL	10	*******		08/08/05 12:55:45 PM
2	3.085	50uL	10	*******		08/08/05 12:57:20 PM

Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	2.955

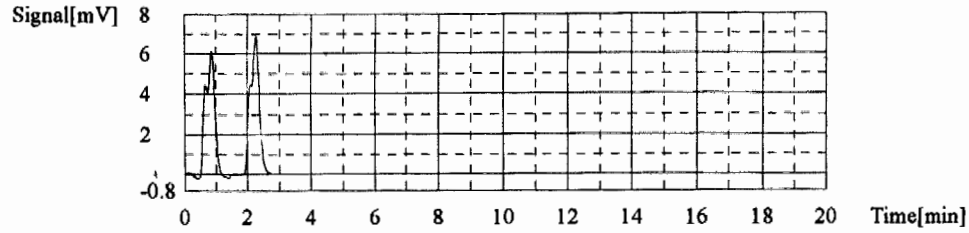


Conc: 5.000mg/L

8069

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	13.66	50uL	2	*******		08/08/05 01:04:04 PM
2	13.91	50uL	2	*******		08/08/05 01:05:43 PM

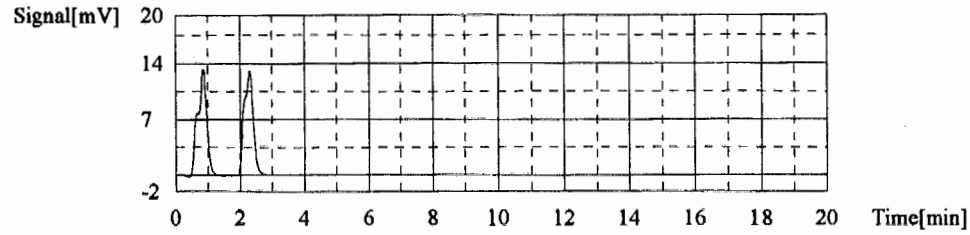
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 13.79



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	27.40	50uL	1	*******		08/08/05 01:11:47 PM
2	27.39	50uL	1	*******		08/08/05 01:13:24 PM

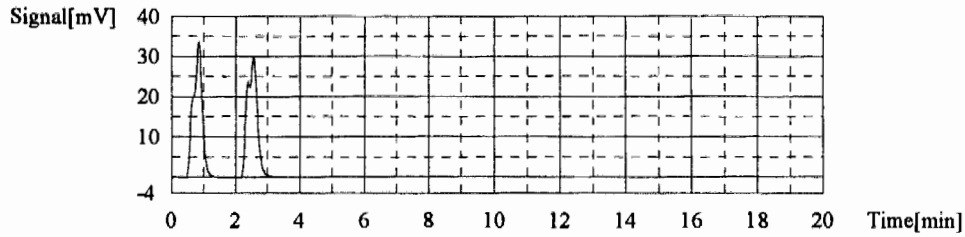
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 27.40



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	67.41	50uL	2	*******		08/08/05 01:22:20 PM
2	68.59	50uL	2	*******		08/08/05 01:24:21 PM

Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 68.00

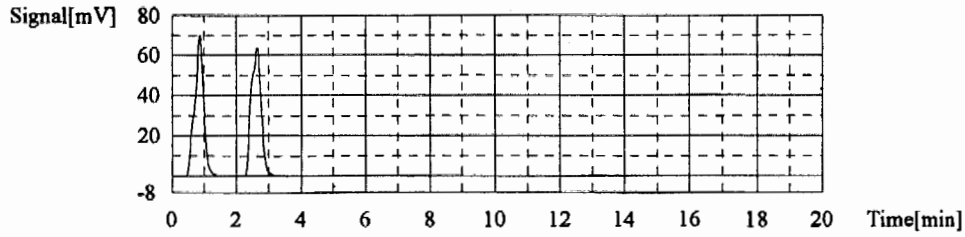


Conc: 50.00mg/L

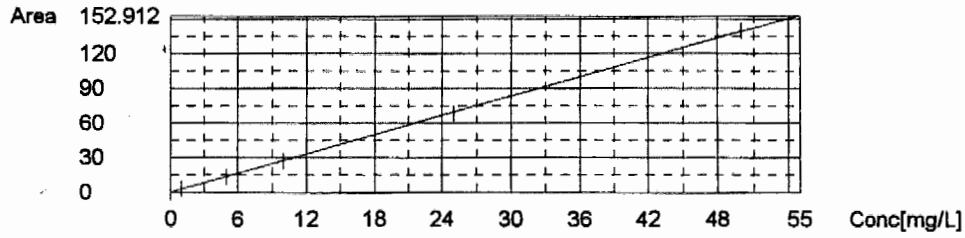
No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	139.4	50uL	1	*******		08/08/05 01:30:45 PM
2	139.9	50uL	1	*******		08/08/05 01:32:42 PM

8070

Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	139.7



Slope:	2.780
Intercept	0.000
r^2	0.999785



Control Sample

Sample Name:	ICV
Sample ID:	TCH006-2
Method:	TCH006.tpl
Chk. Result	Control value: 1.14% / Control within range!

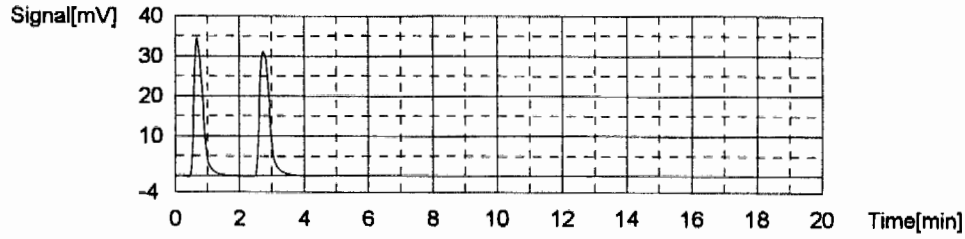
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.34 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	67.28	24.20mg/L	50uL	1		TCH006.2005_08_08_12_38_44.cal	08/08/05 01:41:30 PM
2	68.05	24.48mg/L	50uL	1		TCH006.2005_08_08_12_38_44.cal	08/08/05 01:43:48 PM

Mean Area	67.66
Mean Conc.	24.34mg/L



Sample

Sample Name: ICB
Sample ID: TCH006-3
Origin: TCH006.met
Chk. Result

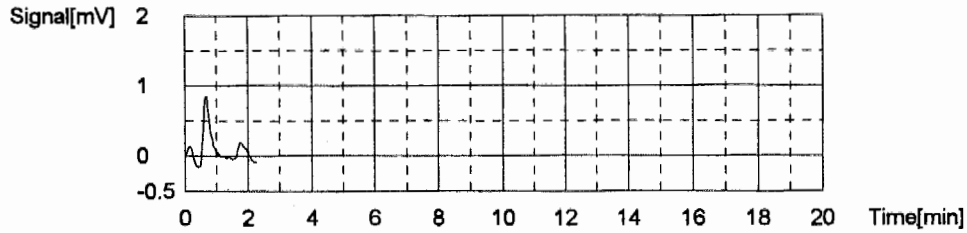
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.3346 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.461	0.5255mg/L	50uL	1		TCH006.2005_08_08_12_38_44.cal	08/08/05 01:51:26 PM
2	0.3993	0.1436mg/L	50uL	1		TCH006.2005_08_08_12_38_44.cal	08/08/05 01:52:45 PM

Mean Area 0.9302
Mean Conc. 0.3346mg/L



Sample

Sample Name: HCO3/CO3
Sample ID: TCH006-4
Origin: TCH006.met
Chk. Result

Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.6327 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.717	0.6176mg/L	50uL	1		TCH006.2005_08_08_12_38_44.cal	08/08/05 02:00:26 PM
2	1.801	0.6478mg/L	50uL	1		TCH006.2005_08_08_12_38_44.cal	08/08/05 02:01:51 PM

8072

ANALYSIS RUN LOG FOR TOC

SOP: o EMAX-9060 Revision No. 1 ✓EMAX-415.1 Revision No. 1 o Book # A62-006

Start Date: 8/8/05 Time: 12:46 EndingDate: 8/9/05 Time: 03:38

Sample Prep. ID		Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Run Time	Notes
*	1	TCH006-1	ICAL	1		X	13:32	NPOC Run
*	2	2	ICV				~~13:40~~ 8/9/05 13:43	pH<2
*	3	3	ICB				13:52	
*	4	4	HCO3/CO3				14:01	
*	5	5	TCH006WB				14:11	
*	6	6	WL				14:21	
*	7	7	WL				14:32	
*	8	8	056218-01				14:41	
*	9	9	02				14:50	
*	0	10	03				15:00	
*	1	11	04				15:09	
*	2	12	05				15:18	
*	3	13	06				15:27	
*	4	14	CCV1				15:38	
*	5	15	CCB1				16:01	
*	6	16	056218-06D				16:10	
*	7	17	06M				16:20	
*	8	18	056219-02				16:29	
*	9	19	03				16:39	
*	0	20	04				16:49	
*	1	21	05				16:59	
*	2	22	056231-02				17:09	
*	3	23	02D				17:18	
*	4	24	02M				17:28	
*	5	25	03				17:40	
*	6	26	CCV2				17:50	
*	7	27	CCB2				17:59	
*	8	28	056231-04				18:10	
*	9	29	05				18:19	
*	0	30	06				18:29	

ANALYTICAL BATCH * TCH006W

Instrument No.	62
INITIAL CALIBRATION REFERENCE	
Method File	TCH006
ICAL ID	SW10B-01-611
ICV ID	612

STANDARDS

ICAL Level		Conc.(mg/L)
S_0	Nanopure	0
S_1	SW10B-01-611	1
S_2		5
S_3		10
S_4		25
S_5		50
S_6		8/8/05
ICV/LCS	SW10B-01-612	25
CCV	613	25

Comments:

Analyzed By:

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W 205th St Torrance, CA 90501

81173

ANALYSIS RUN LOG FOR TOC

SOP: o EMAX-9060 Revision No. 1 o EMAX-415.1 Revision No. 1 o

Book # A62-006

Start Date: 8/8/05 **Time:** 12:46 **EndingDate:** 8/9/05 **Time:** 03:38

Sample Prep. ID		Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Run Time	Notes
*	1	TCH006-31	056231-07	1		X	18:39	NPOC Run
*	2	32	↓ 08				18:49	pH<2
*	3	33	056839-02				18:58	
*	4	34	↓ 03				19:07	
*	5	35	056842-02				19:16	
*	6	36	TCH007WB				19:25	
*	7	37	↓ WL				19:36	
*	8	38	CCV3				19:46	
*	9	39	CCB3				19:55	
*	0	40	TCH007WC				20:04	
*	1	41	056218-01				20:15	
*	2	42	02				20:24	
*	3	43	03				20:33	
*	4	44	04				20:42	
*	5	45	05				20:51	
*	6	46	06				21:01	
*	7	47	06D				21:10	
*	8	48	06M				21:20	
*	9	49	CCV4				21:30	
*	0	50	CCB4				21:39	
*	1	51	056247-02				21:50	
*	2	52	03				22:01	
*	3	53	04				~~22:12~~ 22:11 8/9/05	
*	4	54	05				22:21	
*	5	55	06				22:31	
*	6	56	07				22:41	
*	7	57	08				22:50	
*	8	58	08D				22:59	
*	9	59	08M				23:09	
*	0	60	050260-01				23:18	

ANALYTICAL BATCH * TCH007W

Instrument No.	62
INITIAL CALIBRATION REFERENCE	
Method File	TCH006
ICAL ID	(see ICAL page 82)
ICV ID	

STANDARDS

ICAL Level		Conc.(mg/L)
S_0		
S_1		
S_2		
S_3		
S_4		
S_5		
S_6		
ICV/LCS		
CCV		

Same as page 82

Comments:

Analyzed By: [illegible]

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

81174

ANALYSIS RUN LOG FOR TOC

SOP: o EMAX-9060 Revision No. 1 o EMAX-415.1 Revision No. 1 o **Book # A62-006**

Start Date: 8/8/~~05~~ 8/9/05 **Time:** 12:46 **EndingDate:** 8/9/05 **Time:** 03:38

Sample Prep. ID		Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Run Time	Notes
*	1	TCH006-61	CCV5	1		X	23:28	NPOC Run
*	2	62	CCB5				23:37	pH<2
*	3	63	056260-02				23:46	
*	4	64	03				23:56	
*	5	65	04				00:05	
*	6	66	05				00:14	
*	7	67	06				00:24	
*	8	68	CCV6				00:34	
*	9	69	CCB6				00:44	
*	0	70	TCH008WB				00:53	
*	1	71	WL				01:03	
*	2	72	LCC				01:14	
*	3	73	056260-01				01:24	
*	4	74	02				01:33	
*	5	75	03				01:42	
*	6	76	04				01:51	
*	7	77	05				02:01	
*	8	78	06				02:10	
*	9	79	CCV7				02:20	
*	0	80	CCB7				02:29	
*	1	81	056260-06D				02:39	
*	2	82	06M				02:49	
*	3	83	056183-01				02:58	DOC
*	4	84	01				03:08	TOC
*	5	85	056159-03	2			03:18	
*	6	86	CCV8	1			03:29	
*	7	87	CCB8	1			03:38	
*	8							
*	9							
*	0							

ANALYTICAL BATCH * TCH008W

Instrument No.	62
INITIAL CALIBRATION REFERENCE	
Method File	TCH006
ICAL ID	(see ICAL on page 82)
ICV ID	

STANDARDS

ICAL Level		Conc.(mg/L)
S_0		
S_1		
S_2		
S_3		
S_4		
S_5		
S_6		
ICV/LCS		
CCV		

same as page 82

Comments:

Analyzed By:

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

81175

TABLE OF CONTENTS

CLIENT: BATTELLE MEMORIAL INSTITUTE

PROJECT: JPL

SDG: 05H006

SECTION		PAGE
Cover Letter, COC/Sample Receipt Form		1000 – 1005
GC/MS-VOA	**	2000 –
GC/MS-SVOA	**	3000 –
GC-VOA	**	4000 –
GC-SVOA	**	5000 –
HPLC	**	6000 –
METALS	METHOD 200.7	7000 – 7016
WET	METHOD 310.1	8000 – 8004
	METHOD 350.2	8005 – 8011
	METHOD 300.0	8012 – 8038
	METHOD 120.1	8039 – 8042
	METHOD SM3500	8043 – 8048
	METHOD 376.1	8049 – 8052
	METHOD 160.1	8053 – 8059
	METHOD 351.3	8060 – 8065
	METHOD 415.1 (DISSOLVED)	8066 – 8075
	METHOD 415.1 (TOTAL)	8076 – 8087
OTHERS	**	9000 –

** - Not Requested

EMAX
LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 08-19-2005
EMAX Batch No.: 05H006

Attn: Tien Shiao

Battelle Memorial Institute
505 King Ave.
Columbus OH 43201

Subject: Laboratory Report
Project: JPL

Enclosed is the Laboratory report for samples received on 08/02/05.
The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
MW-20-5	H006-01	08/01/05	WATER	ANIONS BY IC
				FERROUS IRON
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
				METALS IN WATER & WASTE
MW-20-4	H006-02	08/01/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N

Sample ID	Control #	Col Date	Matrix	Analysis
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
MW-20-3	H006-03	08/01/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
MW-20-2	H006-04	08/01/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
MW-20-1	H006-05	08/01/05	WATER	ANIONS BY IC
				FERROUS IRON
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

EMAX LABORATORIES, INC. 1835 W. 205th Street, Torrance, CA 90501 Tel: (310) 618-8889 Fax: (310) 618-0818

Battelle
Columbus Laboratories

E9/E4

CHAIN OF CUSTODY RECORD

Form No. 05H006

Proj. No.: G486111-T3

Project Title: Source Determination study

SAMPLERS: (Signature) D. Conner

PO # 191943

DATE	TIME	SAMPLE I.D.	DOC (Filtered)	TOC	Ferrous Iron	Nitrite, Nitrate	Sulfate, Chloride, TDS	Alk, Spec. Elec. Conductance	Ferric Iron	Ca, Na, K, Mg	Sulfide	Ammonia	TKN				Container No.	Number of Containers	Remarks
1-Aug-05	0857	MW-20-5	X	X	X	X	X	X	X	X	X	X	X						0.45 µm filter rinsed w/ 500 mL of distilled H_2O before filtering DOC in the field
1-Aug-05	1050	MW-20-4	X	X	X	X	X	X	X	X	X	X	X						
1-Aug-05	1230	MW-20-3	X	X	X	X	X	X	X	X	X	X	X						
1-Aug-05	1407	MW-20-2	X	X	X	X	X	X	X	X	X	X	X						
1-Aug-05	1608	MW-20-1	X	X	X	X	X	X	X	X	X	X	X						

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Mike Wolf	8/2/05 1245	Phil Hatten			
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Phil Hatten	8-2-05 1330				
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks	
			8-2-05 1330	To: EMAX T=3.9°C	

Page ____ of ____

Hanh Bui

From: Shiao, Tien [shiaoh@BATTELLE.ORG]
Sent: Wednesday, August 03, 2005 6:56 AM
To: Hanh Bui
Cc: Ohart, Carolyn J; Conner, David J
Subject: RE: COC for samples received on 8/2 SDG: 05H006 (Battelle/JPL)

Hanh,

For the MW-25 samples (MW-25-1, MW-25-2, MW-25-3, MW-25-4, MW-25-5, Dupe-4-7/26/05) please analyze the rest of the parameters on the COCs. But FIRST be sure to check whether the rest of the analytes are out of hold time, it they are let me know before you analyze, so we can figure out what to do.

As for the metals sample for MW-20-1, please confirm that MW-20-1 is the only location where the metal sample was collected in the wrong bottle. If this is the case, than please don't analyze the metals (Method 200.7 for Ca, Fe, Mg, K, Na) for MW-20-1. We will re-sample the metals for MW-20-1. But do analyze all other parameters on the COC for MW-20-1.

Please give me a call if you have any questions.

Thanks and hope to hear from you soon.

Tien

From: Hanh Bui [mailto:HDBui@emaxlabs.com]
Sent: Tuesday, August 02, 2005 8:29 PM
To: Shiao, Tien
Subject: RE: COC for samples received on 8/2 SDG: 05H006 (Battelle/JPL)

Tien,
Yes, it will affect the metals result. It should be preserved with HNO3 instead of H2SO4 as we received. Thus, we will get some sample from bottle with no preservation to analyze Metal (only sample MW-20-1).

We received your email on 8/1, and chemist already analyzed on 7/29 for Nitrate and Nitrite.
All analysis of this SDG 05G260 were on hold now. Please let me know about that.
Best regards,
Hanh

> -----Original Message-----
> **From:** Shiao, Tien [mailto:shiaoh@BATTELLE.ORG]
> **Sent:** Tuesday, August 02, 2005 4:37 PM
> **To:** Hanh Bui
> **Subject:** RE: COC for samples received on 8/2 SDG: 05H006 (Battelle/JPL)
>
> Hahn,
>
> In the email 08/01/05 I thought I said to hold off on the analysis for MW-21 Screens 1 through 5 and the duplicate analysis:
>
> Hanh,
>
> The sampling collection date on the COC is correct and the samples are out of hold time for nitrate and nitrite.
>
> Please hold off the analysis until I get back to you tomorrow.

1003

SAMPLE RECEIPT FORM 1

Type of Delivery	Delivered By/Airbill	ECN	05H006
☑ EMAX Courier	PHIL HATCHER	Recepient	T. PATEL
☐ Client Delivery		Date	8-2-05
☐ Third Party		Time	13:30

COC Inspection

☑ Client Name	☑ Sampler Name	☑ Sampling Date/Time/Location
☑ Address	☑ Courier Signature/Date/Time	☑ Analysis Required
☐ Client PM/FC	☐ TAT	☑ Matrix
☑ Tel #/Fax #	☑ Sample ID	☑ Preservative (if any)
Safety Issues ☑ None	☐ High Concentrations expected	☐ Superfund Site Samples
Comments: ☐ Rad Screening Required		

Packaging Inspection

Container	☑ Cooler	☐ Box	☐	☐
Condition	☐ Custody Seal	☑ Intact	☐ Damaged	☐
Packaging	☑ Bubble Pack	☐ Styrofoam	☑ Sufficient	☑ PLASTIC BAG
Temperatures	☑ Cooler 1 T-3.9°C	☑ Cooler 2 ____	☐ Cooler 3 ____	☐ Cooler 4 ____
	☐ Cooler 5 ____	☐ Cooler 6 ____	☐ Cooler 7 ____	☐ Cooler 8 ____
	☐ Cooler 9 ____	☐ Cooler 10 ____	☐ Cooler 11 ____	☐ Cooler 12 ____

Comments:

LSCID	Client ID	Discrepancy	Corrective Action
-05#030	MW-20-1	WRONG PRESERVATIVE ON CONTAINER LABELED READS H_2SO_4 - BOTTLE is for Metals	Do not analyze Metals re-sample next time per Tien 8/3/05

LSCID : Lab Sample Container ID

REVIEWS

Sample Labeling ____ Date 8-2-05

SRF ____ Date 8/2/05

PM ____ Date 8/4/05

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

BATTELLE MEMORIAL INSTITUTE

JPL

METALS BY ICP-AES

SDG#: 05H006

7000

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H006**

METHOD 200.7
METALS BY ICP-AES

Four (4) water samples were received on 08/02/05 for Metals analysis by Method 200.7 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition.

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Sample H006-01 was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

LAB CHRONICLE
METALS BY ICP-AES

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL

SDG NO. : 05H006
Instrument ID : T-I07

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	IPH017WB	1	NA	08/12/0510:02	08/08/0511:35	I07H027012	I07H027010	IPH017W	Method Blank
LCS1W	IPH017WL	1	NA	08/12/0510:06	08/08/0511:35	I07H027013	I07H027010	IPH017W	Lab Control Sample (LCS)
LCD1W	IPH017WC	1	NA	08/12/0510:11	08/08/0511:35	I07H027014	I07H027010	IPH017W	LCS Duplicate
MW-20-5AS	H006-01A	1	NA	08/12/0510:15	08/08/0511:35	I07H027015	I07H027010	IPH017W	Analytical Spike Sample
MW-20-5	H006-01	1	NA	08/12/0510:20	08/08/0511:35	I07H027016	I07H027010	IPH017W	Field Sample
MW-20-5DL	H006-01T	5	NA	08/12/0510:24	08/08/0511:35	I07H027017	I07H027010	IPH017W	Diluted Sample
MW-20-4	H006-02	1	NA	08/12/0510:28	08/08/0511:35	I07H027018	I07H027010	IPH017W	Field Sample
MW-20-3	H006-03	1	NA	08/12/0510:33	08/08/0511:35	I07H027019	I07H027010	IPH017W	Field Sample
MW-20-2	H006-04	1	NA	08/12/0510:37	08/08/0511:35	I07H027020	I07H027010	IPH017W	Field Sample

FN - Filename
% Moist - Percent Moisture

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	08/01/05
Project	: JPL	Date Received:	08/02/05
SDG NO.	: 05H006	Date Extracted:	08/08/05 11:35
Sample ID:	MW-20-5	Date Analyzed:	08/12/05 10:20
Lab Samp ID:	H006-01	Dilution Factor:	1
Lab File ID:	I07H027016	Matrix :	WATER
Ext Btch ID:	IPH017W	% Moisture :	NA
Calib. Ref.:	I07H027010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	5.28	1	.1
Iron	ND	.2	.04
Magnesium	1.27	1	.1
Potassium	ND	2	1.4
Sodium	64	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	08/01/05
Project	: JPL	Date Received:	08/02/05
SDG NO.	: 05H006	Date Extracted:	08/08/05 11:35
Sample ID:	MW-20-4	Date Analyzed:	08/12/05 10:28
Lab Samp ID:	H006-02	Dilution Factor:	1
Lab File ID:	I07H027018	Matrix :	WATER
Ext Btch ID:	IPH017W	% Moisture :	NA
Calib. Ref.:	I07H027010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	12.8	1	.1
Iron	.502	.2	.04
Magnesium	3.45	1	.1
Potassium	ND	2	1.4
Sodium	59.1	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	08/01/05
Project	: JPL	Date Received:	08/02/05
SDG NO.	: 05H006	Date Extracted:	08/08/05 11:35
Sample ID:	MW-20-3	Date Analyzed:	08/12/05 10:33
Lab Samp ID:	H006-03	Dilution Factor:	1
Lab File ID:	I07H027019	Matrix :	WATER
Ext Btch ID:	IPH017W	% Moisture :	NA
Calib. Ref.:	I07H027010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	50.6	1	.1
Iron	ND	.2	.04
Magnesium	15.6	1	.1
Potassium	ND	2	1.4
Sodium	58.1	1	.25

7005

A

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	08/01/05
Project	: JPL	Date Received:	08/02/05
SDG NO.	: 05H006	Date Extracted:	08/08/05 11:35
Sample ID:	MW-20-2	Date Analyzed:	08/12/05 10:37
Lab Samp ID:	H006-04	Dilution Factor:	1
Lab File ID:	I07H027020	Matrix :	WATER
Ext Btch ID:	IPH017W	% Moisture :	NA
Calib. Ref.:	I07H027010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	51.2	1	.1
Iron	ND	.2	.04
Magnesium	16.9	1	.1
Potassium	2.5	2	1.4
Sodium	13.8	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	NA
Project	: JPL	Date Received:	08/08/05
SDG NO.	: 05H006	Date Extracted:	08/08/05 11:35
Sample ID:	MBLK1W	Date Analyzed:	08/12/05 10:02
Lab Samp ID:	IPH017WB	Dilution Factor:	1
Lab File ID:	I07H027012	Matrix :	WATER
Ext Btch ID:	IPH017W	% Moisture :	NA
Calib. Ref.:	I07H027010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	ND	1	.1
Iron	ND	.2	.04
Magnesium	ND	1	.1
Potassium	ND	2	1.4
Sodium	ND	1	.25

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
SDG NO.: 05H006
METHOD: METHOD 200.7

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	MBLK1W				
CONTROL NO.:	IPH017WB	IPH017WL	IPH017WC		
LAB FILE ID:	I07H027012	I07H027013	I07H027014		
DATIME EXTRCTD:	08/08/0511:35	08/08/0511:35	08/08/0511:35	DATE COLLECTED:	NA
DATIME ANALYZD:	08/12/0510:02	08/12/0510:06	08/12/0510:11	DATE RECEIVED:	08/08/05
PREP. BATCH:	IPH017W	IPH017W	IPH017W		
CALIB. REF:	I07H027010	I07H027010	I07H027010		

ACCESSION:

PARAMETER	BLNK RSLT mg/L	SPIKE AMT mg/L	BS RSLT mg/L	BS % REC	SPIKE AMT mg/L	BSD RSLT mg/L	BSD % REC	RPD %	QC LIMIT %	MAX RPD %
Calcium	ND	50	51.6	103	50	52.7	105	2	85-115	20
Iron	ND	10	10.5	105	10	10.8	108	3	85-115	20
Magnesium	ND	50	51	102	50	52.3	105	2	85-115	20
Potassium	ND	50	50.1	100	50	51.1	102	2	85-115	20
Sodium	ND	50	49.6	99	50	51	102	3	85-115	20

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H006
METHOD: METHOD 200.7

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	5		
SAMPLE ID:	MW-20-5	MW-20-5DL		
EMAX SAMP ID:	H006-01	H006-01T		
LAB FILE ID:	I07H027016	I07H027017		
DATE EXTRACTED:	08/08/0511:35	08/08/0511:35	DATE COLLECTED:	08/01/05
DATE ANALYZED:	08/12/0510:20	08/12/0510:24	DATE RECEIVED:	08/02/05
PREP. BATCH:	IPH017W	IPH017W		
CALIB. REF:	I07H027010	I07H027010		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SERIAL DIL RSLT (mg/L)	DIF RSLT %	QC LIMIT (%)
Calcium	5.28	ND	NA	10
Iron	ND	ND	0	10
Magnesium	1.27	ND	NA	10
Potassium	ND	ND	0	10
Sodium	64	58.5	9	10

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
SDG NO.: 05H006
METHOD: METHOD 200.7

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MW-20-5			
CONTROL NO.:	H006-01	H006-01A		
LAB FILE ID:	I07H027016	I07H027015		
DATIME EXTRCTD:	08/08/0511:35	08/08/0511:35	DATE COLLECTED:	08/01/05
DATIME ANALYZD:	08/12/0510:20	08/12/0510:15	DATE RECEIVED:	08/02/05
PREP. BATCH:	IPH017W	IPH017W		
CALIB. REF:	I07H027010	I07H027010		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	AS RSLT (mg/L)	AS % REC	QC LIMIT (%)
Calcium	5.28	50	57.2	104	70-130
Iron	ND	10	11	110	70-130
Magnesium	1.27	50	53.1	104	70-130
Potassium	ND	50	51.7	103	70-130
Sodium	64	50	113	98	70-130

7010

REGULAR ICP QC CHECK TABLE

QC	ICV HIGH	ICV	CCV	ICSAB	ICSA
Limit%	95-105	90-110	90-110	80-120	80-120
Comp	mg/L	mg/L	mg/L	mg/L	mg/L
Al	10	5	5	500	500
Sb	2	1	1	1	0
As	2	1	1	1	0
Ba	2	1	1	0.5	0
Be	2	1	1	0.5	0
B	2	1	1	0.5	0
Cd	2	1	1	1	0
Ca	100	50	50	500	500
Cr	2	1	1	0.5	0
Co	2	1	1	0.5	0
Cu	2	1	1	0.5	0
Fe	10	5	5	200	200
Pb	2	1	1	1	0
Mg	100	50	50	500	500
Mn	2	1	1	0.5	0
Mo	2	1	1	1	0
Ni	2	1	1	1	0
K	100	50	50	50	0
Se	2	1	1	3.6	0
Ag	2	1	1	1	0
Na	100	50	50	10	0
Sr	2	1	1	0.5	0
Tl	2	1	1	3.6	0
Sn	10	5	5	1	0
Ti	2	1	1	1	0
V	2	1	1	0.5	0
Zn	2	1	1	1	0

ANALYSIS RUN LOG FOR ICP

SOP ☑ EMAX-6010-Rev. 3 ☐ EMAX-CLP-TAL ☐ 200.7 Method File: 6010B1 Autosampler Table: ICP

Matrix: WATER Start Date: 8/12/05 Time: 09:19 End Date: 8/12/05 Time: 11:02 Book# A24 -038

ANALYTICAL BATCH* 107H027

	Data File Name	Prep. Batch	Lab Sample ID	DF	Matrix	Notes
01			SO			
02			S3			
03			S6			
04			ICV (QCS)			
05			ICB			
06			CCV (IPC)			
07			CCB			
08			ICSA1			
09			ICSAB1			
10			CCV1 (IPC)			
11			CCB1			
12		IPH017W	IPH017WB	1	W	(LRB)
13		↓	WL	1	↓	(LFB)
14			WC	1		(LFB)
15			H006-01A	1		
16			01	1		
17			01	5		
18			02	1		
19			03	1		
20			04	1		
21			CCV2 (IPC)	1		
22			CCB2	1		
23			ICSAF	1		
24			ICSABF	1		
25		↓	CCV3 (IPC)	1	↓	

ANALYTICAL BATCH* 7012

	Data File Name	Prep. Batch	Lab Sample ID	DF	Matrix	Notes
26			CCB3			
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						

Qwh 8/12/05

Instrument No.	24
Std.	ID
S_0	SMIP09.38-01
S_1	NA
S_2	NA
S_3	SMIP09.44-04
S_4	NA
S_5	NA
S_6	SMIP09.45-02
ICV (QCS)	↓ 09-GQ-02
ICVH1	NA
ICVH2	NA
CCV(IPC)	SMIP09.60-02
ICSA	↓ 09.07-03
ICSAB	↓ 09.60-01
MRL	

Comments:

OK

Analyzed By: Qwh

Date Disposed:

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

SEQUENCE FILE : I07H027

4-18	19-33	34-43	44-53	54-63
LFID	LSID	TIME	DATE	DF
I07H027001	S0	09:13	08/12/05	1
I07H027002	S3	09:18	08/12/05	1
I07H027003	S6	09:22	08/12/05	1
I07H027004	ICV	09:25	08/12/05	1
I07H027005	ICB	09:31	08/12/05	1
I07H027006	CCV	09:35	08/12/05	1
I07H027007	CCB	09:40	08/12/05	1
I07H027008	ICSAI	09:44	08/12/05	1
I07H027009	ICSABI	09:48	08/12/05	1
I07H027010	CCV1	09:54	08/12/05	1
I07H027011	CCB1	09:58	08/12/05	1
I07H027012	IPH017WB	10:02	08/12/05	1
I07H027013	IPH017WL	10:06	08/12/05	1
I07H027014	IPH017WC	10:11	08/12/05	1
I07H027015	H006-01A	10:15	08/12/05	1
I07H027016	H006-01	10:20	08/12/05	1
I07H027017	H006-01T	10:24	08/12/05	5
I07H027018	H006-02	10:28	08/12/05	1
I07H027019	H006-03	10:33	08/12/05	1
I07H027020	H006-04	10:37	08/12/05	1
I07H027021	CCV2	10:41	08/12/05	1
I07H027022	CCB2	10:45	08/12/05	1
I07H027023	ICSAF	10:49	08/12/05	1
I07H027024	ICSABF	10:53	08/12/05	1
I07H027025	CCV3	10:58	08/12/05	1
I07H027026	CCB3	11:02	08/12/05	1

SDG : 05H006 UNIT : % ICP CHECK : I07H027 DATE : 08/12/05 INST : EMAXTI07

ANALYTE	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
S0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICV	100	101	101	97	100	102	97	100	98	98	98	103	99	102	99	97	97	99	98	97	101	98	89*	99	101	98	98
ICB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV	100	100	101	99	97	97	98	99	97	96	98	101	99	100	97	96	96	98	100	98	99	98	92	96	97	97	98
CCB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAI	96	----	----	----	----	----	----	94	----	----	----	91	----	98	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSABI	97	93	102	95	95	95	93	94	92	88	98	91	99	98	93	91	87	99	103	96	104	93	99	87	93	100	97
CCV1	100	97	98	98	97	96	98	100	97	97	98	101	101	99	97	98	95	99	104	98	99	98	96	99	97	97	98
CCB1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH017WB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH017WL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH017WC	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H006-01A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H006-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H006-01T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H006-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H006-03	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H006-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV2	100	101	101	99	99	97	100	103	101	101	98	103	100	99	100	101	99	98	105	99	98	99	94	103	98	100	102
CCB2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAF	96	----	----	----	----	----	----	96	----	----	----	92	----	98	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSABF	96	94	101	94	95	93	93	96	94	92	97	92	100	97	93	93	88	99	101	96	103	92	96	92	92	101	98
CCV3	101	101	105	99	100	98	100	104	102	103	99	103	103	100	101	102	97	97	106	100	98	99	101	104	99	100	103
CCB3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

QC limit of each parameter are listed in a table attached next to all the ICP check forms
* : Out of QC Limit

SDG : 05H006 UNIT : UG/L SUMMARY of CALIBRATION BLANKS : I07H027 (WATER) DATE : 08/12/05 INST : EMAXTI07

ANALYTE	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
S0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICV	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICB	7.15	-6.50	20.4	.390	-.060	-1.68	-1.56	3.34	.000	4.56	-1.22	-3.63	32.2	-7.62	.150	5.00	.610	186	17.9	-3.93	.000	.220	11.5	-14.0	.180	-.130	.940
CCV	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB	-18.3	-5.91	35.2	-.580	-.060	-1.69	-.840	2.87	.710	-.640	.400	-1.51	34.3	3.75	.150	-5.00	-1.83	-909	-21.0	-.350	-13.6	.220	-1.90	-24.5	-.340	-.380	-.370
ICSAI	----	-8.47	-70.5	-.350	.000	.110	.370	----	5.64	-.470	.430	----	77.4	----	-.320	-5.55	-.400	-179	-37.1	-10.4	-6.81	-1.36	117	-3.31	-9.21	-4.06	-2.52
ICSABI	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB1	4.45	-3.47	12.5	.190	-.060	-.420	-.210	-.450	-.710	2.61	-.400	-2.72	14.1	15.5	-.460	.000	-1.22	-477	20.9	-.530	-13.6	.260	10.6	-15.8	.330	.510	-.360
IPH017WB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH017WL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPH017WC	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H006-01A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H006-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H006-01T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H006-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H006-03	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
H006-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB2	5.02	5.42	32.9	.090	-.130	.840	-2.02	5.96	.000	4.57	.400	-.910	44.5	18.0	-.460	-1.66	-2.04	212	-.010	3.03	-13.6	.260	12.4	-10.5	.320	1.95	.020
ICSAF	----	17.3	148	-.400	-.060	.080	-2.39	----	4.63	-4.06	-.870	----	51.5	----	-.290	11.1	-1.83	-626	-38.3	-6.67	-13.6	-1.62	84.7	10.8	-9.32	-1.19	-3.03
ICSABF	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB3	13.7	13.1	-10.2	.000	.000	-2.10	-.300	4.28	-.700	3.26	-.410	1.51	28.2	6.75	-.300	13.3	-9.59	78.3	55.9	1.07	-13.6	.260	-25.9	15.8	.530	1.53	-.420

QC limit of each parameter are listed in a table attached next to all the ICP check forms
* : Out of QC Limit

2015

DIGESTION LOG FOR ICP METALS

SOP ☐ EMAX-3005 Rev. No.3 ☐ EMAX-3010 Rev. No.2 ☐ EMAX-3050 Rev. No.2 ☐ EMAX-CLP-TAL ☑ 200.7 Book # EIP-046

Matrix: WATER Start Date: 8-8-05 Time: 11:35 Temp: 85 °C Ending Date: 8-8-05 Time: 13:35 Temp.: 85 °C

BATCH: IPH017-W

Sample Prep ID	Lab Sample ID	Matrix Description Color	Texture / Clarity	Artifacts	Turbidity <1 NTU	Sample Amount (g | ml)	pH	Extract Volume (ml)	Digestate Description Color	Clarity
01	IPH017-WB					50	–	50		
02	-WL					50	–	50		
03	-WC					50	–	50		
04	H006-01					50	<2	50		
05	-02					50		50		
06	-03					50		50		
07	-04					50		50		
08	H010-01					50		50		
09	-02					50		50		
10	-04					50		50		
11	-05					50		50		
12	-07					50		50		
13	-08					50		50		
14	H036-01					50		50		
15	-02					50		50		
16	-03					50		50		
17	-04					50		50		
18	-06					50		50		
19	-07					50		50		
20	-09					50		50		
21	-10					50		50		
22	-10M					50		50		
23	-10S					50		50		
24			8-8-05 MC							
25										

Standards	ID	Amount Added (ml)
LCS -1	SMIA - 09 - 42	0.5
LCS -2	SMIA - 09 - 43	0.5
LCS -3	SMIA - 09 - 44	0.5
MS		

Reagent	Lot# / ID	Amount Added (ml)
HNO_3	SWIA - 03 - 120	0.5
HCl	SWIA - 03 - 115	0.25
H_2O_2	N/A	
HNO3 (1:1)	N/A	

Digestate Location	ICP LAB
Extract Location	

Legend:

Texture	Cs = Coarse	Md = Medium	Fn = Fine
Clarity	Cr = Clear	Cy = Cloudy	Td = Turbid
Artifacts	Rk = rocks	Sl = Shale	Vg=Vegetation
Color	Bu = blue	Bk = Black	Bn = Brown
	Gn = Green	Og = Orange	Rd = Red
	Yw = Yellow	Cl = Colorless	

Comments: Samples for Methods 200.7 or 200.8 Analyses

If turbidity ≤ 1 NTU no digestion is required unless otherwise required by the project

Prepared By: MC Standard Added By: MC

Witnessed By: AZ Extracts Rcvd. By: AZ 8-9-05

Checked By: AZ

Date Disposed: Disposed by:

7016

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

LABORATORY REPORT FOR

BATTELLE MEMORIAL INSTITUTE

JPL

WET CHEMICAL ANALYSES

SDG#: 05H006

8000

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H006**

METHOD 310.1
TOTAL ALKALINITY

Five (5) water samples were received on 08/02/05 for Total Alkalinity analysis by Method 310.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Duplicate sample was not designated in this SDG.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 310.1
TOTAL ALKALINITY

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H006

Matrix : WATER
Instrument ID : I53

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ALH003WB	ND	1	NA	5	1	08/05/0513:30	NA	ALH003W-01	NA	ALH003W	NA	NA
LCS1W	ALH003WL	45.7	1	NA	5	1	08/05/0513:35	NA	ALH003W-02	NA	ALH003W	NA	NA
LCD1W	ALH003WC	45.7	1	NA	5	1	08/05/0513:40	NA	ALH003W-03	NA	ALH003W	NA	NA
MW-20-5	H006-01	125	1	NA	5	1	08/05/0513:45	NA	ALH003W-04	NA	ALH003W	08/01/05	08/02/05
MW-20-4	H006-02	128	1	NA	5	1	08/05/0513:50	NA	ALH003W-05	NA	ALH003W	08/01/05	08/02/05
MW-20-3	H006-03	195	1	NA	5	1	08/05/0513:55	NA	ALH003W-06	NA	ALH003W	08/01/05	08/02/05
MW-20-2	H006-04	144	1	NA	5	1	08/05/0514:00	NA	ALH003W-07	NA	ALH003W	08/01/05	08/02/05
MW-20-1	H006-05	274	1	NA	5	1	08/05/0514:05	NA	ALH003W-08	NA	ALH003W	08/01/05	08/02/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 310.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05H006
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: ALH003WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 08/05/05 13:35/13:40

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Total Alkalinity	ND	49.20	45.70	93	49.20	45.70	93	0	80-120	20

8003

ANALYSIS LOG FOR ALKALINITY

SOP ☑ EMAX-310.1 Rev. No. 2 ☐ SM2320B Rev. No. 0 ☐ Book # AAL-009

Start Date: 8/5/05 Time: 13:30 Ending Date: 8/5/05 Time: 14:50 Instrument No: ☑ 53 ☐ 97

	Data File Name	Lab Sample ID	Time	Sample Amt. (ml)	Initial pH	Acid Titrant pH=8.3	Acid Titrant pH=4.5	Acid Titrant pH=4.2	Final pH	ALKALINITY (mg/L) Total	Hydroxide (OH)	Carbonate (CO3)	Bicarbonate (HCO3)	Notes
*01		ALH003 WB	13:30	20	5.18	NA	0.025	NA	4.46	ND				
*02		WL	35		8.95		0.95		4.53	45.7				
*03		WC	40		8.93		0.95		4.48	45.7				
*04		H006-01	45		9.02		2.60		4.52	125				
*05		-02	50		8.79		2.65		4.47	128				
*06		-03	55		8.05		4.05		4.47	195				
*07		-04	14:00		7.79		3.00		4.53	144				
*08		-05	15		6.85		5.70		4.52	274				
*09		H007-09	10	100	5.94		0.15	0.25	4.20	ND				
*10		H008-05	15	20	6.79		2.65	NA	4.53	128				
*11		-07	20		6.49		2.55		4.49	123				
*12		-13	25		7.14		5.10		4.52	245				
*13		-15	30		6.71		2.45		4.50	118				
*14		H020-05	35		7.80		3.10		4.50	149				
*15		-11	40	100	5.88		0.20	0.30	4.22	ND				
*16		-15	45	20	6.99		3.20		4.50	154				
*17		H020-15D	14:50		6.52		3.20		4.51	154				
*18														
*19														
*20														
*21														
*22														
*23														
*24														
*25														

Standard Reagent	ID	Conc. mg/L
LCS	SW7A-06-174	49.2
Spike	NA	
Na_2CO_3 Soln	SW7A-06-120	2360
Acid Titrant HCl	SW3B-02-732	0.02N

Standardization

Na_2CO_3 Soln. (ml)	Acid Titrant (ml)	Normality, N
BIK	0.025	ND
5	12.25	0.01925
5	12.25	0.01925
5	12.25	0.01925

Ave. N: 0.01925

pH METER CALIBRATION

pH Buffer	ID	Reading
pH 4	SW7A-06-201	3.98
pH 7	-202	6.98
pH 10	-203	9.98
Slope	98.9	

Comments:

Analyzed By: MG/RM

This page is checked during data review.

RM 8/15/05

ANALYTICAL BATCH # ALH003W

8004

EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H006**

METHOD 350.2
AMMONIA (NH3-N)

Five (5) water samples were received on 08/02/05 for Ammonia analysis by Method 350.2 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Duplicate sample was not designated in this SDG.

5. Matrix Spike

MS sample was not designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

All results were reported as Nitrogen concentration.

METHOD 350.2
AMMONIA (NH3-N)

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H006

Matrix : WATER
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	NHH003WB	ND	1	NA	.1	.03	08/11/0515:11	08/11/0509:30	NHH003W-12	NHH003W-10	NHH003W	NA	08/11/05
LCS1W	NHH003WL	1.01	1	NA	.1	.03	08/11/0515:12	08/11/0509:30	NHH003W-13	NHH003W-10	NHH003W	NA	08/11/05
LCD1W	NHH003WC	1.03	1	NA	.1	.03	08/11/0515:13	08/11/0509:30	NHH003W-14	NHH003W-10	NHH003W	NA	08/11/05
MW-20-5	H006-01	ND	1	NA	.1	.03	08/11/0515:14	08/11/0509:30	NHH003W-15	NHH003W-10	NHH003W	08/01/05	08/02/05
MW-20-4	H006-02	ND	1	NA	.1	.03	08/11/0515:15	08/11/0509:30	NHH003W-16	NHH003W-10	NHH003W	08/01/05	08/02/05
MW-20-3	H006-03	.153	1	NA	.1	.03	08/11/0515:16	08/11/0509:30	NHH003W-17	NHH003W-10	NHH003W	08/01/05	08/02/05
MW-20-2	H006-04	.119	1	NA	.1	.03	08/11/0515:17	08/11/0509:30	NHH003W-18	NHH003W-10	NHH003W	08/01/05	08/02/05
MW-20-1	H006-05	ND	1	NA	.1	.03	08/11/0515:18	08/11/0509:30	NHH003W-19	NHH003W-10	NHH003W	08/01/05	08/02/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 350.2
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05H006
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: NHH003WL/C

DATE RECEIVED: 08/11/05
DATE EXTRACTED: 08/11/05 09:30
DATE ANALYZED: 08/11/05 15:12/15:13

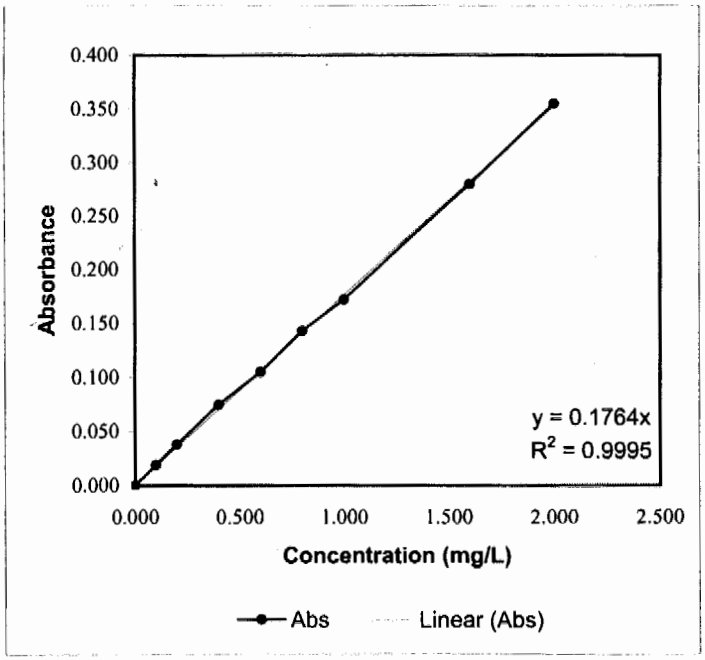
ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Ammonia (NH3-N)	ND	1.00	1.01	101	1.00	1.03	103	2	80-120	20

8007

CALIBRATION CURVE
AMMONIA _NH3 _TKN

Conc.	Abs
0.000	0.000
0.100	0.019
0.200	0.038
0.400	0.075
0.600	0.105
0.800	0.143
1.000	0.172
1.600	0.280
2.000	0.355



R^2	0.999524	Comments:	**PASSED**
y	0.1764		
CF	5.6694	Analyzed by:	NT/LA

ANALYSIS LOG FOR AMMONIA-N

SOP ☑ EMAX-350.2 Rev. No. 2 ☐ EMAX-350.1 ☐ Rev. No. 0 ☐ Book # A70-NH_3-005

Starting Date: 8-11-05 Time: 15:00 Ending Date: 8-11-05 Time: 15:32

	Data File Name	Prep. Batch	Lab Sample ID	Matrix S	Matrix W	Time	Vol.Colored (ml)	DF	Absorbance	Notes mg/L
*	1	NHH005W	S-0.0		✓	15:00	20	1	0.000	
*	2		S-0.1			-01			0.019	
*	3		S-0.2			-02			0.058	
*	4		S-0.4			-03			0.075	
*	5		S-0.6			-04			0.105	
*	6		S-0.8			-05			0.143	
*	7		S-1.0			-06			0.172	
*	8		S-1.6			-07			0.250	
*	9		S-2.0			-08			0.350	
*	10		ICV			-09			0.180	1.02
*	11		ICB			-10			0.000	ND
*	12		NHH003WB			-11			0.000	ND
*	13		WL			-12			0.178	1.009
*	14		WL			-13			0.182	1.032
*	15		H006-01			-14			0.012	ND
*	16		-02			-15			0.017	ND
*	17		-03			-16			0.027	0.153
*	18		-04			-17			0.021	0.119
*	19		-05			-18			0.008	ND
*	20		H050-01			-19			0.016	ND
*	21		-01D			-20			0.016	ND
*	22		CCV1			-21			0.178	0.964
*	23		CCB1			-22			0.000	ND
*	24		H050-01M			-23			0.190	1.077
*	25		G260-01			-24			0.005	ND
*	26		-02			-25			0.009	ND
*	27		-03			-26			0.006	ND
*	28		-04			-27			0.016	ND
*	29		-05		✓	-28			0.028	0.159
*	30		-06			-29			0.016	ND

Instrument No: 70	Wavelength: 425 nm

Standard	ID	Conc. (mg/L)
S_0	Nanopure	0.0
S_1	SW2B-03-182	0.1
S_2		0.2
S_3		0.4
S_4		0.6
S_5		0.8
S_6		1.0
S_7		1.6
S_8	SW2B-03-182	2.0
ICV/MS	-151	1.0
CCV	-182	1.0
LCS	-179	1.0

Reagent	ID
Color Reagent	SW7A-06-141

Standard Curve	
R	0.9996
Y	0.1764
CF	5.6694

Comments:

Results are based on: ☐ Dry Weight ☐ Wet Weight

Analyzed By: NT / LA

This page is checked during data review.

ANALYTICAL BATCH * NHH005W

8009

EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

ANALYSIS LOG FOR AMMONIA-N

SOP ☑ EMAX-350.2 Rev. No. 2 ☐ EMAX-350.1 ☐ Rev. No. 0 ☐ Book # A70-NH_3-005

Starting Date: 8-11-05 Time: 15:00 Ending Date: 8-11-05 Time: 15:32

Data File Name	Prep. Batch	Lab Sample ID	Matrix S	Matrix W	Time	Vol.Colored (ml)	DF	Absorbance	Notes
*31	NH400311	419-02			15:30	20	1	0.023	0.187
* 2		CCV2			1-31			0.182	1.032
* 3		CCB2			1-32			0.000	ND
* 4									
* 5									
* 6									
* 7									
* 8									
* 9									
* 0									
* 1									
* 2									
* 3									
* 4									
* 5									
* 6									
* 7									
* 8									
* 9									
* 0									
* 1									
* 2									
* 3									
* 4									
* 5									
* 6									
* 7									
* 8									
* 9									
* 0									

ANALYTICAL BATCH * NH400311

8010

Instrument No: 70	Wavelength: 425 nm

Standard	ID	Conc. (mg/L)
S_0	Same as 19.73	0.0
S_1		0.1
S_2		0.2
S_3		0.4
S_4		0.6
S_5		0.8
S_6		1.0
S_7		1.6
S_8		2.0
ICV/MS		1.0
CCV		1.0
LCS		1.0

Reagent	ID
Color Reagent	

Standard Curve	
R	0.9995
Y	0.1760
CF	5.6694

Comments:

Results are based on: ☐ Dry Weight ☐ Wet Weight

Analyzed By: NT/LA

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W 205th St. Torrance CA 90501

DISTILLATION LOG FOR NH_3 / DIGESTION AND DISTILLATION FOR TKN

SOP ☐ EMAX-353.2 Rev. No.: 2 ☐ EMAX-351.3 Rev. No.: 2 ☐ Book # EKN-006

Start Date 5-11-05 Time 9:30 End Date 5-11-05 Time 14:00

Sample Prep ID	Lab Sample ID	Sample pH	NaOH Added (ml)	Boric Acid (ml)	Borate Buffer (ml)	Sample Amount (ml)	Extract Volume (ml)	Notes
*01	S-0.0	9.6	0.1	10	5	100	100	
*02	S-0.1							
*03	S-1.0							
*04	S-2.0							
*05	ICV							
*06	ICB							
*07	MHH003WB							
*08	WL							
*09	WC		0.1					
*10	H006-01		0.7					
*11	-02		0.8					
*12	-03		0.8					
*13	-04		0.9					
*14	-05		0.7					
*15	H050-01		0.8					
*16	-01D		0.9					
*17	-01N		0.8					
*18	G260-01		0.9					
*19	-02		0.8					
*20	-03		0.7					
*21	-04		0.8					
*22	-05		0.9					
*23	-06		0.7					
*24	H418-02	9.5	0.8					
*25		NT						
*26			5-11-05					

Standards	ID	Amount Added (ml)
ICV/MS	SWB-03-181	10 ml/ml
LCS	-179	10 ml

Reagent	Lot# / ID
NaOH	SW7A-06-211
Digestion Mixture	NA
Borate Buffer	
H_3BO_3	SW7B-06-322
Distilling Soln.	NA

Comments:

Prepared By: NT/LA

Standard Added By: NT

Checked By:

PREPARATION BATCH # HHH003W

8011

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H006**

METHOD 300.0
ANIONS

Five (5) water samples were received on 08/02/05 for Chloride, Nitrate-N, Nitrite-N and Sulfate analyses by method 300.0 in accordance with "Method for Determination of Inorganic Anions by Ion Chromatography", EPA 600/84-017.

1. Holding Time

Analyses met holding time criteria.

2. Method Blank

Method blanks were free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limits.

4. Duplicate

No duplicate sample was designated in this SDG.

5. Matrix Spike

No MS sample was not designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

Nitrate-N and Nitrite-N results were reported as Nitrogen concentration.

SAMPLE RESULTS

METHOD 300.0
CHLORIDE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H006

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICH002WB	ND	1	NA	.2	.1	08/02/0522:03	NA	AH02-04	AH02-01	ICH002W	NA	NA
LCS1W	ICH002WL	4.73	1	NA	.2	.1	08/02/0522:17	NA	AH02-05	AH02-01	ICH002W	NA	NA
LCD1W	ICH002WC	4.71	1	NA	.2	.1	08/02/0522:31	NA	AH02-06	AH02-01	ICH002W	NA	NA
MW-20-5	H006-01	9.2	1	NA	.2	.1	08/02/0522:45	NA	AH02-07	AH02-01	ICH002W	08/01/05	08/02/05
MBLK2W	ICH010WB	ND	1	NA	.2	.1	08/08/0520:15	NA	AH08-03	AH08-01	ICH010W	NA	NA
LCS2W	ICH010WL	4.78	1	NA	.2	.1	08/08/0520:29	NA	AH08-04	AH08-01	ICH010W	NA	NA
LCD2W	ICH010WC	4.79	1	NA	.2	.1	08/08/0520:46	NA	AH08-05	AH08-01	ICH010W	NA	NA
MW-20-4	H006-02	10.1	2	NA	.4	.2	08/08/0523:27	NA	AH08-16	AH08-13	ICH010W	08/01/05	08/02/05
MW-20-3	H006-03	32.5	5	NA	1	.5	08/08/0523:41	NA	AH08-17	AH08-13	ICH010W	08/01/05	08/02/05
MW-20-2	H006-04	13.4	5	NA	1	.5	08/08/0523:55	NA	AH08-18	AH08-13	ICH010W	08/01/05	08/02/05
MW-20-1	H006-05	31	10	NA	2	1	08/09/0500:09	NA	AH08-19	AH08-13	ICH010W	08/01/05	08/02/05

METHOD 300.0
NITRATE-N

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H006

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICH002WB	ND	1	NA	.1	.05	08/02/0522:03	NA	AH02-04	AH02-01	ICH002W	NA	NA
LCS1W	ICH002WL	4.8	1	NA	.1	.05	08/02/0522:17	NA	AH02-05	AH02-01	ICH002W	NA	NA
LCD1W	ICH002WC	4.8	1	NA	.1	.05	08/02/0522:31	NA	AH02-06	AH02-01	ICH002W	NA	NA
MW-20-5	H006-01	ND	1	NA	.1	.05	08/02/0522:45	NA	AH02-07	AH02-01	ICH002W	08/01/05	08/02/05
MW-20-4	H006-02	ND	1	NA	.1	.05	08/02/0522:59	NA	AH02-08	AH02-01	ICH002W	08/01/05	08/02/05
MW-20-3	H006-03	2.94	1	NA	.1	.05	08/02/0523:13	NA	AH02-09	AH02-01	ICH002W	08/01/05	08/02/05
MW-20-2	H006-04	2.18	1	NA	.1	.05	08/02/0523:27	NA	AH02-10	AH02-01	ICH002W	08/01/05	08/02/05
MW-20-1	H006-05	6.11	1	NA	.1	.05	08/02/0523:42	NA	AH02-11	AH02-01	ICH002W	08/01/05	08/02/05

METHOD 300.0
NITRITE-N

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H006

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICH002WB	ND	1	NA	.1	.05	08/02/0522:03	NA	AH02-04	AH02-01	ICH002W	NA	NA
LCS1W	ICH002WL	4.8	1	NA	.1	.05	08/02/0522:17	NA	AH02-05	AH02-01	ICH002W	NA	NA
LCD1W	ICH002WC	4.8	1	NA	.1	.05	08/02/0522:31	NA	AH02-06	AH02-01	ICH002W	NA	NA
MW-20-5	H006-01	ND	1	NA	.1	.05	08/02/0522:45	NA	AH02-07	AH02-01	ICH002W	08/01/05	08/02/05
MW-20-4	H006-02	ND	1	NA	.1	.05	08/02/0522:59	NA	AH02-08	AH02-01	ICH002W	08/01/05	08/02/05
MW-20-3	H006-03	ND	1	NA	.1	.05	08/02/0523:13	NA	AH02-09	AH02-01	ICH002W	08/01/05	08/02/05
MW-20-2	H006-04	ND	1	NA	.1	.05	08/02/0523:27	NA	AH02-10	AH02-01	ICH002W	08/01/05	08/02/05
MW-20-1	H006-05	ND	1	NA	.1	.05	08/02/0523:42	NA	AH02-11	AH02-01	ICH002W	08/01/05	08/02/05

METHOD 300.0
SULFATE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H006

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICH002WB	ND	1	NA	.5	.25	08/02/0522:03	NA	AH02-04	AH02-01	ICH002W	NA	NA
LCS1W	ICH002WL	4.53	1	NA	.5	.25	08/02/0522:17	NA	AH02-05	AH02-01	ICH002W	NA	NA
LCD1W	ICH002WC	4.52	1	NA	.5	.25	08/02/0522:31	NA	AH02-06	AH02-01	ICH002W	NA	NA
MW-20-5	H006-01	5.2	1	NA	.5	.25	08/02/0522:45	NA	AH02-07	AH02-01	ICH002W	08/01/05	08/02/05
MW-20-4	H006-02	14.6	1	NA	.5	.25	08/02/0522:59	NA	AH02-08	AH02-01	ICH002W	08/01/05	08/02/05
MBLK2W	ICH010WB	ND	1	NA	.5	.25	08/08/0520:15	NA	AH08-03	AH08-01	ICH010W	NA	NA
LCS2W	ICH010WL	4.75	1	NA	.5	.25	08/08/0520:29	NA	AH08-04	AH08-01	ICH010W	NA	NA
LCD2W	ICH010WC	4.82	1	NA	.5	.25	08/08/0520:46	NA	AH08-05	AH08-01	ICH010W	NA	NA
MW-20-3	H006-03	25.6	5	NA	2.5	1.25	08/08/0523:41	NA	AH08-17	AH08-13	ICH010W	08/01/05	08/02/05
MW-20-2	H006-04	28.7	5	NA	2.5	1.25	08/08/0523:55	NA	AH08-18	AH08-13	ICH010W	08/01/05	08/02/05
MW-20-1	H006-05	78.7	10	NA	5	2.5	08/09/0500:09	NA	AH08-19	AH08-13	ICH010W	08/01/05	08/02/05

8017

QC SUMMARIES

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H006
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICH002WB	ICH002WL	ICH002WC		
LAB FILE ID:	AH02-04	AH02-05	AH02-06		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/02/0522:03	08/02/0522:17	08/02/0522:31	DATE RECEIVED:	NA
PREP. BATCH:	ICH002W	ICH002W	ICH002W		
CALIB. REF:	AH02-01	AH02-01	AH02-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride-Cl	ND	5	4.73	95	5	4.71	94	0	90-110	20

8013

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H006
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK2W				
LAB SAMP ID:	ICH010WB	ICH010WL	ICH010WC		
LAB FILE ID:	AH08-03	AH08-04	AH08-05		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/08/0520:15	08/08/0520:29	08/08/0520:46	DATE RECEIVED:	NA
PREP. BATCH:	ICH010W	ICH010W	ICH010W		
CALIB. REF:	AH08-01	AH08-01	AH08-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride-Cl	ND	5	4.78	96	5	4.79	96	0	90-110	20

8020

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H006
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICH002WB	ICH002WL	ICH002WC		
LAB FILE ID:	AH02-04	AH02-05	AH02-06		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/02/0522:03	08/02/0522:17	08/02/0522:31	DATE RECEIVED:	NA
PREP. BATCH:	ICH002W	ICH002W	ICH002W		
CALIB. REF:	AH02-01	AH02-01	AH02-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrate-N	ND	5.0	4.8	96	5.0	4.8	96	0	90-110	20

8021

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H006
METHOD: METHOD 300.0

MATRIX: WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICH002WB	ICH002WL	ICH002WC		
LAB FILE ID:	AH02-04	AH02-05	AH02-06		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/02/0522:03	08/02/0522:17	08/02/0522:31	DATE RECEIVED:	NA
PREP. BATCH:	ICH002W	ICH002W	ICH002W		
CALIB. REF:	AH02-01	AH02-01	AH02-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrite-N	ND	5.0	4.8	96	5.0	4.8	96	0	90-110	20

8022

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H006
METHOD: METHOD 300.0

==========

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICH002WB	ICH002WL	ICH002WC		
LAB FILE ID:	AH02-04	AH02-05	AH02-06		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/02/0522:03	08/02/0522:17	08/02/0522:31	DATE RECEIVED:	NA
PREP. BATCH:	ICH002W	ICH002W	ICH002W		
CALIB. REF:	AH02-01	AH02-01	AH02-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Sulfate	ND	5	4.53	91	5	4.52	90	0	90-110	20

8023

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H006
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK2W				
LAB SAMP ID:	ICH010WB	ICH010WL	ICH010WC		
LAB FILE ID:	AH08-03	AH08-04	AH08-05		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/08/0520:15	08/08/0520:29	08/08/0520:46	DATE RECEIVED:	NA
PREP. BATCH:	ICH010W	ICH010W	ICH010W		
CALIB. REF:	AH08-01	AH08-01	AH08-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Sulfate	ND	5	4.75	95	5	4.82	96	1	90-110	20

8024

INITIAL CALIBRATIONS

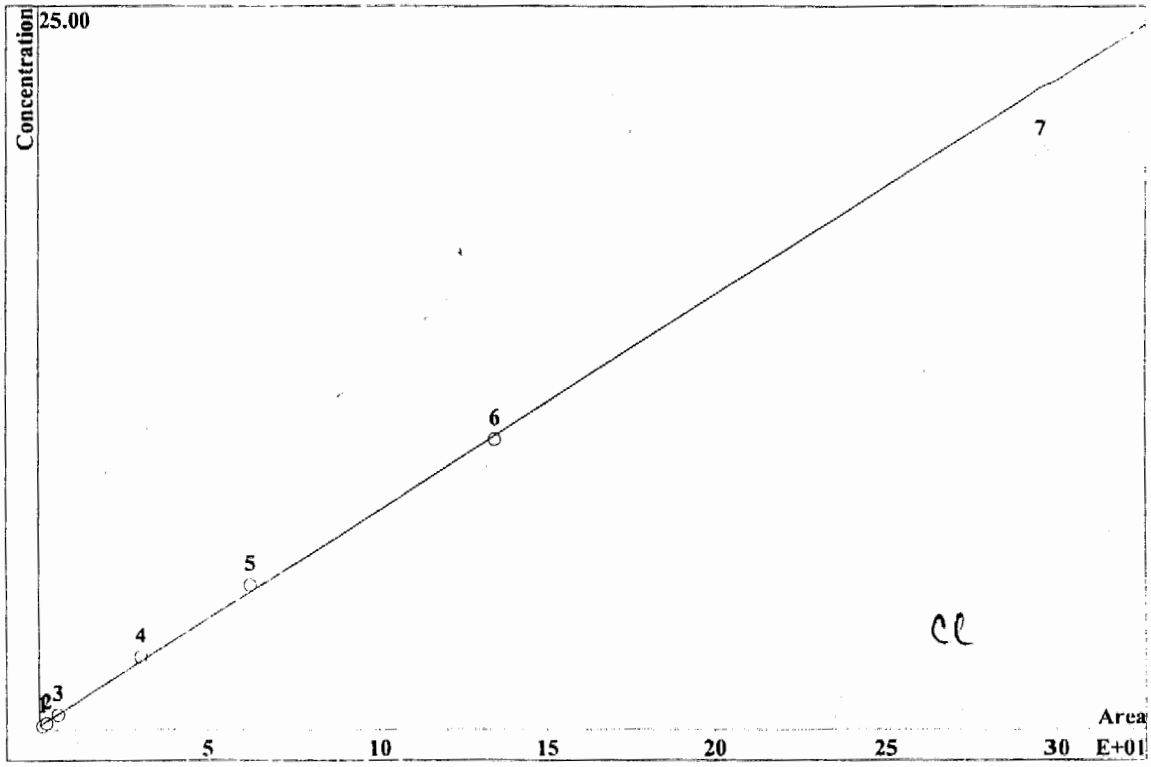
IC Result Check FormVersion : QH1

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH01-01	IB	FCIBNPS	0	0	0	0	0	0	0	p8011625	1
AH01-02	S0	FCIBNPS	0	0	0	0	0	0	0	p8011639	1
AH01-03	S1	FCIBNPS	0.18836	0.20113	0.17432	0.2216	0.23129	0.23666	0.21269	p8011653	1
AH01-04	S2	FCIBNPS	0.27278	0.28754	0.25434	0.31636	0.304	0.31331	0.2938	p8011707	1
AH01-05	S3	FCIBNPS	0.53025	0.54412	0.50474	0.57579	0.53797	0.52755	0.55595	p8011721	1
AH01-06	S4	FCIBNPS	2.3695	2.3621	2.3884	2.4564	2.3144	2.2205	2.46	p8011735	1
AH01-07	S5	FCIBNPS	4.8345	4.7729	4.9114	4.8164	4.7699	4.9004	4.8979	p8011749	1
AH01-08	S6	FCIBNPS	10.105	10.132	10.067	9.7475	10.142	10.102	9.8172	p8011803	1
AH01-09	S7	FCIBNPS	20.268	22.156	20.839	20.166	22.614	21.9	20.324	p8011818	1
AH01-10	ICV	FCIBNPS	95.6%	93.6%	92.2%	99.1%	93.3%	90.6%	98.5%	p8011832	1
AH01-11	ICB	FCIBNPS	0	0	0	0	0	0	0	p8011846	1
AH01-12	ICH001WB	FCIBNPS	0	0	0	0	0	0	0	p8011900	1
AH01-13	ICH001WL	FCIBNPS	4.8635	4.7236	4.6805	4.8835	4.6546	4.6229	4.7245	p8011914	1
AH01-14	ICH001WC	FCIBNPS	4.9057	4.722	4.6814	4.8697	4.6509	4.6182	4.7516	p8011928	1
AH01-15	G126-01T	FCIBNPS	1.1839	138.72	0	0	6.1591	0	65.298	p8012025	5
AH01-16	G126-02T	FCIBNPS	3.2244	215.94	0	1.2074	9.0006	0	192.41	p8012040	5
AH01-17	G126-03T	FCIBNPS	2.2603	137.59	0	0	5.4868	0	162.34	p8012054	5
AH01-18	G126-04T	FCIBNPS	4.9866	306.58	0	1.3846	14.847	0	244.28	p8012108	5
AH01-19	G126-06T	FCIBNPS	4.8433	139.79	0	0	7.0632	0	159.73	p8012122	5
AH01-20	G126-07T	FCIBNPS	1.8163	100.33	0	0	15.019	0	285.93	p8012136	10
AH01-21	G818-02	FCIBNPS	5.67	181.29	0	0	8.4455	0	86.102	p8012150	50
AH01-22	CCV1	FCIBNPS	97.7%	95.4%	98.2%	93.7%	94.5%	96.9%	90.9%	p8012204	1
AH01-23	CCB1	FCIBNPS	0	0	0	0	0	0	0	p8012218	1
AH01-24	G818-02D	FCIBNPS	0	182.67	0	0	8.5372	0	85.987	p8012233	50
AH01-25	G818-02M	FCIBNPS	245.13	430.51	238.71	234.77	240.79	119.04	305.82	p8012247	50
AH01-26	G818-03	FCIBNPS	0	179.51	0	6.961	0	0	85.432	p8012301	50
AH01-27	G818-04	FCIBNPS	2.3845	69.544	0	0	3.6042	0	116.42	p8012315	20
AH01-28	G818-05	FCIBNPS	2.3472	74.139	0	0	3.8114	0	124.21	p8012329	20
AH01-29	G820-02	FCIBNPS	0	153.08	0	0	0	0	167.66	p8012343	200
AH01-30	G184-05	FCIBNPS	2.2847	11.049	0	0	4.0779	0	32.802	p8012357	20
AH01-31	G147-01	FCIBNPS	1.0454	13208	0	50.116	0	0	1977.7	p8020011	5
AH01-32	G147-02	FCIBNPS	0	13488	0	2.8757	0	0	2019.9	p8020025	5
AH01-33	CCV2	FCIBNPS	97.7%	108.6%	97.8%	93.6%	94.4%	93.3%	92.5%	p8020039	1
AH01-34	CCB2	FCIBNPS	0	0	0	0	0	0	0	p8020053	1

8025A

CALIBRATION OF COMPONENT chloride

Method: IC100-H01.mtw
Equation: Q = 0.0743917·A + 0.117752
RSD: 5.386 %
Correlation coefficient: 0.999287



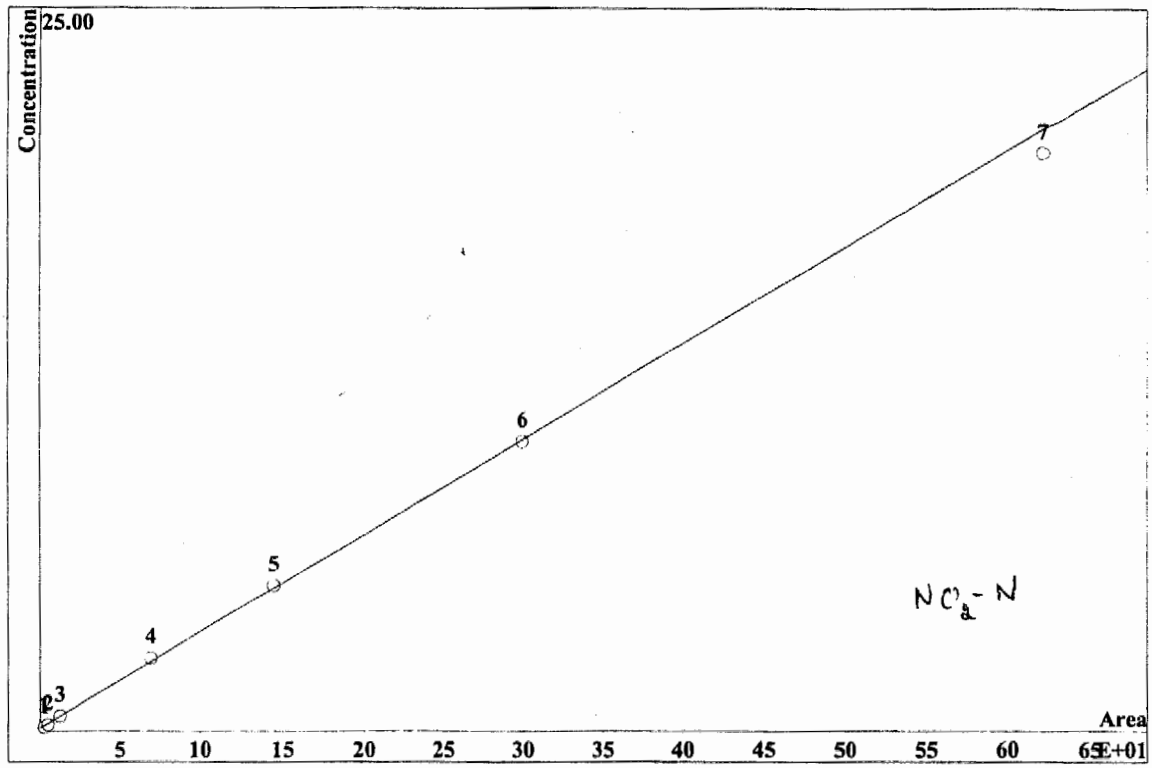
K3 = 0 K2 = 0 K1 = 0.0743917 K0 = 0.117752 LR = 10
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.1281	1.121	0.1	1	3.37	Yes	p8011653.chw
2	0.2568	2.282	0.2	1	3.37	Yes	p8011707.chw
3	0.6501	5.731	0.5	1	3.37	Yes	p8011721.chw
4	3.457	30.17	2.5	1	3.37	Yes	p8011735.chw
5	7.342	62.58	5	1	3.37	Yes	p8011749.chw
6	16.29	134.6	10	1	3.37	Yes	p8011803.chw
7	36.06	296.2	20	1	3.37	No	p8011818.chw

8/2/05

CALIBRATION OF COMPONENT nitrite

Method: IC100-H01.mtw
Equation: Q = 0.0333061·A + 0.0871128
RSD: 2.990 %
Correlation coefficient: 0.999780 ✓



K3 = 0 K2 = 0 K1 = 0.0333061 K0 = 0.0871128 LR = 10

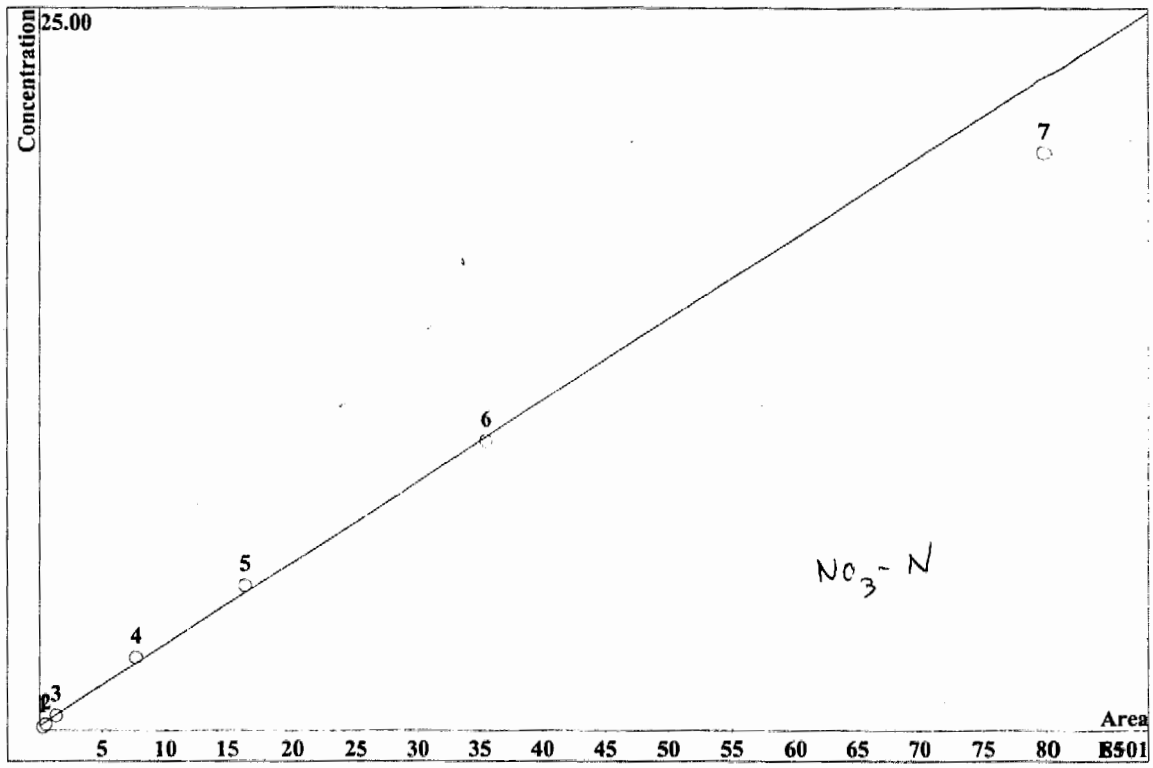
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.2534	2.618 ✓	0.1	1	3.98	Yes	p8011653.chw
2	0.4871	5.021 ✓	0.2	1	3.98	Yes	p8011707.chw
3	1.231	12.54 ✓	0.5	1	3.98	Yes	p8011721.chw
4	6.737	69.09 ✓	2.5	1	3.98	Yes	p8011735.chw
5	14.03	144.8 ✓	5	1	3.98	Yes	p8011749.chw
6	28.16	299.6 ✓	10	1	3.98	Yes	p8011803.chw
7	54.14	623.1 X	20	1	3.98	No	p8011818.chw

du 8/2/05

CALIBRATION OF COMPONENT nitrate

Method: IC100-H01.mtw
Equation: Q = 0.0281219·A + 0.154267
RSD: 6.071 %
Correlation coefficient: 0.999094



LR = 10

K3 = 0 K2 = 0 K1 = 0.0281219 K0 = 0.154267
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

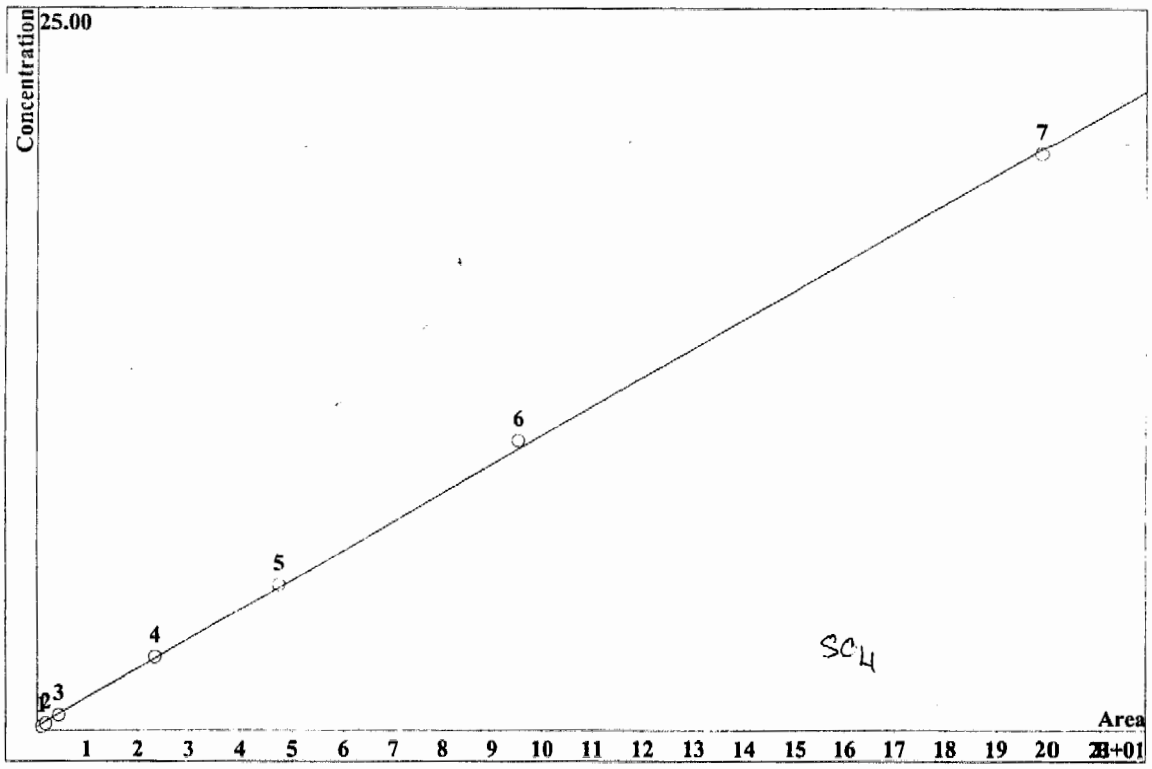
Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.203	2.739	0.1	1	5.56	Yes	p8011653.chw
2	0.3959	5.324	0.2	1	5.56	Yes	p8011707.chw
3	1.02	13.64	0.5	1	5.56	Yes	p8011721.chw
4	5.865	76.81	2.5	1	5.56	Yes	p8011735.chw
5	12.87	164.1	5	1	5.56	Yes	p8011749.chw
6	28.43	355.2	10	1	5.56	Yes	p8011803.chw
7	62.62	798.7	20	1	5.56	No	p8011818.chw

8/2/05

8028

CALIBRATION OF COMPONENT sulfate

Method: IC100-H01.mtw
Equation: Q = 0.100694·A + 0.113285
RSD: 3.081 %
Correlation coefficient: 0.999779



K3 = 0 K2 = 0 K1 = 0.100694 K0 = 0.113285 LR = 20
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.05823	0.9872	0.1	1	8.35	Yes	p8011653.chw
2	0.1026	1.793	0.2	1	8.35	Yes	p8011707.chw
3	0.2493	4.396	0.5	1	8.35	Yes	p8011721.chw
4	1.262	23.31	2.5	1	8.35	Yes	p8011735.chw
5	2.566	47.52	5	1	8.35	Yes	p8011749.chw
6	5.337	95.39	10	1	8.35	Yes	p8011803.chw
7	11.44	199.1	20	1	8.35	Yes	p8011818.chw

8/2/05

SECOND SOURCE VERIFICATION

IC Result Check FormVersion : QH1

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH01-01	IB	FCIBNPS	0	0	0	0	0	0	0	p8011625	1
AH01-10	ICV	FCIBNPS	95.6%	93.6%	92.2%	99.1%	93.3%	90.6%	98.5%	p8011832	1
AH01-11	ICB	FCIBNPS	0	0	0	0	0	0	0	p8011846	1
AH01-22	CCV1	FCIBNPS	97.7%	95.4%	98.2%	93.7%	94.5%	96.9%	90.9%	p8012204	1
AH01-23	CCB1	FCIBNPS	0	0	0	0	0	0	0	p8012218	1
AH01-33	CCV2	FCIBNPS	97.7%	108.6%	97.8%	93.6%	94.4%	93.3%	92.5%	p8020039	1
AH01-34	CCB2	FCIBNPS	0	0	0	0	0	0	0	p8020053	1

DAILY CALIBRATIONS

IC Result Check FormVersion : QH1

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH08-01	CCV24	FCIBNPS	95.4%	96.8%	96.8%	98.4%	92.7%	95.8%	94.2%	p8081947	1
AH08-02	CCB24	FCIBNPS	0	0	0	0	0	0	0	p8082001	1
AH08-13	CCV25	FCIBNPS	96.5%	95.1%	95.4%	96.4%	92.4%	101.5%	95.2%	p8082244	1
AH08-14	CCB25	FCIBNPS	0	0	0	0	0	0	0	p8082259	1
AH08-25	CCV26	FCIBNPS	97%	96.7%	95.8%	99%	92.8%	100.5%	95.3%	p8090133	1
AH08-26	CCB26	FCIBNPS	0	0	0	0	0	0	0	p8090147	1
AH08-37	CCV27	FCIBNPS	96.7%	96.6%	95.4%	97.6%	92.2%	99.1%	95.9%	p8090422	1
AH08-38	CCB27	FCIBNPS	0	0	0	0	0	0	0	p8090436	1
AH08-49	CCV28	FCIBNPS	94.8%	97.2%	95.2%	97.3%	91%	90.2%	92%	p8090711	1
AH08-50	CCB28	FCIBNPS	0	0	0	0	0	0	0	p8090725	1
AH08-61	CCV29	FCIBNPS	95.8%	97.9%	96.3%	101.6%	93%	93.2%	95.6%	p8091000	1
AH08-62	CCB29	FCIBNPS	0	0	0	0	0	0	0	p8091014	1

IC Result Check FormVersion : QH1

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AH02-01	CCV3	FCIBNPS	98.4%	96.5%	98.7%	95.2%	94.5%	101.1%	96.4%	p8022050	1
AH02-02	CCB3	FCIBNPS	0	0	0	0	0	0	0	p8022105	1
AH02-13	CCV4	FCIBNPS	98.2%	95.8%	98.2%	93.8%	94.6%	99.7%	91.1%	p8030010	1
AH02-14	CCB4	FCIBNPS	0	0	0	0	0	0	0	p8030024	1
AH02-25	CCV5	FCIBNPS	98.4%	95.8%	98.1%	93.9%	94.6%	99.5%	91%	p8030259	1
AH02-26	CCB5	FCIBNPS	0	0	0	0	0	0	0	p8030313	1
AH02-37	CCV6	FCIBNPS	98.1%	95.7%	98.3%	94.1%	94.6%	99.4%	91%	p8030547	1
AH02-38	CCB6	FCIBNPS	0	0	0	0	0	0	0	p8030602	1
AH02-49	CCV7	FCIBNPS	97.3%	95.8%	98.6%	94.2%	94.8%	98.3%	91.3%	p8030836	1
AH02-50	CCB7	FCIBNPS	0	0	0	0	0	0	0	p8030851	1
AH02-57	CCV8	FCIBNPS	99.3%	94.5%	96.3%	94.4%	96%	91%	90.9%	p8031037	1
AH02-58	CCB8	FCIBNPS	0	0	0	0	0	0	0	p8031053	1
AH02-69	CCV9	FCIBNPS	98.5%	95.2%	97.6%	93.8%	94.6%	97.4%	90.8%	p8031330	1
AH02-70	CCB9	FCIBNPS	0	0	0	0	0	0	0	p8031344	1
AH02-81	CCV10	FCIBNPS	98.7%	95.6%	97.8%	94%	95%	96.9%	91.2%	p8031637	1
AH02-82	CCB10	FCIBNPS	0	0	0	0	0	0	0	p8031651	1
AH02-93	CCV11	FCIBNPS	100%	94.3%	95.9%	94.7%	96.6%	96.8%	90.7%	p8032021	1
AH02-94	CCB11	FCIBNPS	0	0	0	0	0	0	0	p8032035	1
AH02-105	CCV12	FCIBNPS	99.8%	94.5%	96.1%	94.7%	96.5%	93.1%	90.9%	p8032310	1
AH02-106	CCB12	FCIBNPS	0	0	0	0	0	0	0	p8032324	1

EXTRACTION LOG

ANALYSIS RUN LOG FOR IC

SOP ☒ **EMAX-300.0-Rev. 3** ☐ **EMAX-300.1 Rev. No.0** ☐ **EMAX-9056 Rev. No. 2**

Book# A100 003

Start Date: 08/01/05 **Time:** 16:25 **End Date:** 08/02/05 **Time:** 00:53

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes CONC = (mg/L)
* 1	AH01-01	IB	1	W	
* 2	02	S0			
* 3	03	S1			0.1 ppm
* 4	04	S2			0.2
* 5	05	S3			0.5
* 6	06	S4			2.5
* 7	07	S5			5
* 8	08	S6			10
* 9	09	S7			20
* 10	10	ICV			
* 11	11	ICB			
* 12	12	ICH001WB			
* 13	13	WL			
* 14	14	WL			
* 15	15	G126-01T	5		
* 16	16	02			
* 17	17	03			
* 18	18	04			
* 19	19	06			
* 20	20	07	10		
* 21	21	G818-02	50		
* 22	22	CCV1	1		
* 23	23	CCB1	1		
* 24	24	G818-02D	50		
* 25	25	02M	50		

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 26	AH01-26	G818-03	50	W	
* 27	27	04	20		
* 28	28	05	20		
* 29	29	G820-02	200		
* 30	30	G184-05	20		
* 31	31	G147-01	5		
* 32	32	02	5		
* 33	33	CCV2	1		
* 34	34	CCB2	1		
* 35					
* 36					
* 37					
* 38					
* 39					
* 40					
* 41					
* 42					
* 43					
* 44					
* 45					
* 46					
* 47					
* 48					
* 49					
* 50					

Instrument No.	100
STANDARD	
Date	08/01/05
Method File	IC100-H01.mtw
ICAL ID	S1B-01-2-01 ok 08/01/05
ICV/~~LCS/MS~~ ID	2
CCV ID	3 (5ppm)
LCS ID	3-1 (5ppm)
MS ID	5ppm Acc Std.

ELECTRONIC DATA ARCHIVAL		
Location		Date
☐ IC METROHM		
☐		

Comments:

Analyzed By: al

This page is checked during data review.

* Sample Prep ID Prefix: ICH001W

** Sample Prep ID Prefix:

al 08/01/05

8030

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

ANALYSIS RUN LOG FOR IC

SOP ☒ EMAX-300.0-Rev. 3 ☐ EMAX-300.1 Rev. No.0 ☐ EMAX-9056 Rev. No. 2 **Book# A100 003**

Start Date: 08/08/05 **Time:** 19:47 **End Date:** 08/09/05 **Time:** 10:14

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 1	AH08-01	CCV24	1	W	
* 2	02	CCB24			
* 3	03	ICH010WB			
* 4	04	WL			
* 5	05	WC			
* 6	06	G219-04	50		
* 7	07	G237-01	200		
* 8	08	01	2000		
* 9	09	02	2000		
* 10	10	03	200		
* 11	11	03	2000		
* 12	12	04	2000		
* 13	13	CCV25	1		
* 14	14	CCB25	1		
* 15	15	H418-02	10		
* 16	16	H006-02	2		
* 17	17	03	5		
* 18	18	04	5		
* 19	19	05	10		
* 20	20	H022-1009	5		
* 21	21	H022-0810	5		
* 22	22	H05	1000		
* 23	23	11	5		
* 24	24	11	1000		
* 25	25	CCV26	1		

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 26	AH08-26	CCV26	1	W	
* 27	27	H023-01	200		
* 28	28	01	2000		
* 29	29	02	2000		
* 30	30	03	200		
* 31	31	03	2000		
* 32	32	04	2000		
* 33	33	G112-04	1		
* 34	34	10			
* 35	35	RINSE			
* 36	36	RINSE			
* 37	37	CCV27			
* 38	38	CCB27			
* 39	39	G111-06			
* 40	40	08			
* 41	41	RINSE			
* 42	42	RINSE			
** 43	43	ICH011WB			
* 44	44	WL			
* 45	45	WC			
* 46	46	G022-02			
* 47	47	RINSE			
* 48	48	RINSE			
* 49	49	CCV28			
* 50	50	CCB28			

Instrument No.	100
STANDARD	
Date	08/01/05
Method File	IC100-Hof.mtw
ICAL ID	SIB-01-2-1
ICV/~~LCS/MS ID~~	2
CCV ID	5-2 (5ppm)
LCS ID	3 (5ppm)
MS ID	5ppm Acc Std.
ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ IC METROHM	
☐	

Comments:

Analyzed By: cl

This page is checked during data review.

* Sample Prep ID Prefix: ICH010W

** Sample Prep ID Prefix: ICH011W

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8034

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0-Rev. 3 ☐ EMAX-300.1 Rev. No.0 ☐ EMAX-9056 Rev. No. 2 **Book# A100 003**

Start Date: 08/02/05 **Time:** 20:50 **End Date:** 08/03/05 **Time:** 23:24

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes ~~Conc~~ Conc. (mg/l)
* 1	AH02-01	CCV3	1	W	
* 2	02	CCB3			
* 3	03	MRL			Cl^- = 0.2 ppm ; SO_4^{2-} = 0.5 ppm
* 4	04	ICH002WB			
* 5	05	WL			
* 6	06	WC			
* 7	07	H006-01			
* 8	08	02			
* 9	09	03			
* 10	10	04			
* 1	11	05			
* 2	12	RINSE			
* 3	13	CCV4			
* 4	14	CCB4			
* 5	15	H601-01	5		
* 6	16	02	5		
* 7	17	G820-02	200		
* 8	18	G184-05	20		
* 9	19	G147-01	5		
* 20	20	02	5		
* 1	21	RINSE	1		
* 2	22	G169-02	1		
* 3	23	03	5		
* 4	24	04	5		
* 5	25	CCV5	1		

* Sample Prep ID Prefix: ICH002W ~~** ICH003W~~ ** 08/02/05

Sample Prep ID	Data Filename	Lab Sample ID	DF	Matrix	Notes
* 26	AH02-26	CCB5	1	W	
* 7	27	G169-05	5		
* 8	28	05D			
* 9	29	05M			
* 30	30	06			
* 1	31	07	1		
** 2	32	ICH003WB			
* 3	33	WL			
* 4	34	WC			
* 5	35	G094-01	200		
* 6	36	01	2000		
* 7	37	CCV6	1		
* 8	38	CCB6	1		
* 9	39	G094-02	200		
* 40	40	02	2000		
* 1	41	03	200		
* 2	42	03	2000		
* 3	43	04	200		
* 4	44	04	12000		
* 5	45	05	200		
* 6	46	05	1000		
* 7	47	06	200		
* 8	48	06	1000		
* 9	49	CCV7	1		
* 50	50	CCB7	1		

** Sample Prep ID Prefix: ICH003W

Instrument No.	100
STANDARD	
Date	08/01/05
Method File	IC100-H01.mtw
ICAL ID	S18-01-2-1
ICV ~~/LCS/MS~~ ID	2
CCV ID	3-2 (5 ppm)
LCS ID	3 (5 ppm)
MB ID	5 ppm Acc Std.

ELECTRONIC DATA ARCHIVAL		
Location		Date
☐ IC METROHM		
☐		

Comments:

Analyzed By: ad

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8033

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H006**

METHOD 120.1
SPECIFIC CONDUCTIVITY

Five (5) water samples were received on 08/02/05 for Specific Conductivity analysis by Method 120.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

No duplicate sample was designated in this SDG.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 120.1
SPECIFIC CONDUCTIVITY

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H006

Matrix : WATER
Instrument ID : I29

SAMPLE ID	EMAX SAMPLE ID	RESULTS (umhos/cm)	DLF	MOIST	RL (umhos/cm)	MDL (umhos/cm)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
LCS1W	ECH005WL	512	1	NA	1	.5	08/16/0514:36	NA	ECH005W-02	NA	ECH005W	NA	NA
LCD1W	ECH005WC	510	1	NA	1	.5	08/16/0514:38	NA	ECH005W-03	NA	ECH005W	NA	NA
MW-20-5	H006-01	307	1	NA	1	.5	08/16/0514:46	NA	ECH005W-07	NA	ECH005W	08/01/05	08/02/05
MW-20-4	H006-02	331	1	NA	1	.5	08/16/0514:48	NA	ECH005W-08	NA	ECH005W	08/01/05	08/02/05
MW-20-3	H006-03	576	1	NA	1	.5	08/16/0514:50	NA	ECH005W-09	NA	ECH005W	08/01/05	08/02/05
MW-20-2	H006-04	424	1	NA	1	.5	08/16/0514:52	NA	ECH005W-10	NA	ECH005W	08/01/05	08/02/05
MW-20-1	H006-05	636	1	NA	1	.5	08/16/0514:54	NA	ECH005W-11	NA	ECH005W	08/01/05	08/02/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 120.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05H006
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: ECH005WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 08/16/05 14:36/14:38

ACCESSION:

PARAMETER	SPIKE AMT (umhos/cm)	BS RSLT (umhos/cm)	BS % REC	SPIKE AMT (umhos/cm)	BSD RSLT (umhos/cm)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Specific Conductivity	510.00	512.00	100	510.00	510.00	100	0	80-120	20

8041

ANALYSIS LOG FOR SPECIFIC CONDUCTIVITY

SOP ☑ EMAX-120.1 Revision No. 1 ☐ Book # AEC-003

Start Date 8/16/05 Time 14:34 End Date 8/16/05 Time 15:02

	Data File Name	Lab Sample ID	Time	Temp. °C	Temp. Correction Factor QT @ 25 oC	DF	Measured Resistance (ohms)	Notes
*	1	STD LOW 141.3	14:34	21.8	0.938		143.9	139.95 ≈ 140.0
*	2	ECH005 WL	14:36	21.8	0.938		526	512 100%
*	3	↓ WC	14:38	21.4	0.932		521	510 100%
*	4	H133-01	14:40	21.4	0.931		209	205
*	5	↓ 03	14:42	21.0	0.924		207	205
*	6	↓ 03D	14:44	21.3	0.930		209	205
*	7	H006-01	14:46	21.2	0.928		312	307
*	8	↓ 02	14:48	21.3	0.929		337	331
*	9	↓ 03	14:50	21.3	0.930		587	576
*	0	↓ 04	14:52	21.3	0.929		432	424
*	1	↓ 05	14:54	21.5	0.933		650	636
*	2	H056-01	14:56	21.6	0.934		5.63	5.50
*	3	↓ 03	14:58	21.6	0.934		216	211.0 ≈ 211
*	4	↓ 03D	~~14~~ 15:00 VV 8/16/05	21.8	0.938		217	211.1 ≈ 211
*	5	STD High 14130	15:02	21.8	0.938	✓	14560	14160 100%
*	6							
*	7							
*	8						VV 8/16/05	
*	9							
*	0							

Instrument No:	29

99% Trial	ID	Resistance ohms
KCl Standard	SW2A-02-55	Assay
1	SW3B-02-654	693
2	Qt = 0.932	↓
3		↓
LCS	SW7A-06-146	510 µmhos/cm
Calibration Temperature	21.4 °C	
True Value	1413	µmhos/cm
Cell Constant (C)	0.913	

KCl Standard	ID	µmhos/cm
Low-point	SW3B-02-729	141.3
Mid-point	SW7B-02-3160	3530
High-point	SW3B-02-715	14130

Comments:

Analyzed By: [illegible]

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ANALYTICAL BATCH # ECH005W

8042

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H006**

METHOD SM3500
FERROUS IRON

Five (5) water samples were received on 08/02/05 for Ferrous Iron analysis by Method SM3500 in accordance with "Standard Methods for the Examination of Water and Wastewater", 18th edition (1990).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample

Lab control result was within QC limit.

4. Duplicate

Sample H006-05 was analyzed for duplicate. %RPD was within QC limit.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SM3500
FERROUS IRON

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H006

Matrix : WATER
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	FEH001WB	ND	1	NA	5	2.5	08/02/0520:58	NA	FEH001W-09	FEH001W-07	FEH001W	NA	NA
LCS1W	FEH001WL	21.2	1	NA	5	2.5	08/02/0520:59	NA	FEH001W-10	FEH001W-07	FEH001W	NA	NA
MW-20-5	H006-01	ND	1	NA	5	2.5	08/02/0521:00	NA	FEH001W-11	FEH001W-07	FEH001W	08/01/05	08/02/05
MW-20-4	H006-02	ND	1	NA	5	2.5	08/02/0521:01	NA	FEH001W-12	FEH001W-07	FEH001W	08/01/05	08/02/05
MW-20-3	H006-03	ND	1	NA	5	2.5	08/02/0521:02	NA	FEH001W-13	FEH001W-07	FEH001W	08/01/05	08/02/05
MW-20-2	H006-04	ND	1	NA	5	2.5	08/02/0521:03	NA	FEH001W-14	FEH001W-07	FEH001W	08/01/05	08/02/05
MW-20-1	H006-05	ND	1	NA	5	2.5	08/02/0521:04	NA	FEH001W-15	FEH001W-07	FEH001W	08/01/05	08/02/05
MW-20-1DUP	H006-05D	ND	1	NA	5	2.5	08/02/0521:05	NA	FEH001W-16	FEH001W-07	FEH001W	08/01/05	08/02/05

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: SM3500
MATRIX: WATER
% MOISTURE: NA

==========

BATCH NO.: 05H006
SAMPLE ID: LCS1W
CONTROL NO.: FEH001WL

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 08/02/05 20:59

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	LCS RSLT (mg/L)	LCS % REC	QC LIMIT (%)
Ferrous Iron	ND	20.00	21.20	106	80-120

8043

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: SM3500
MATRIX: WATER
% MOISTURE: NA

==========

BATCH NO.: 05H006
SAMPLE ID: MW-20-1DUP
CONTROL NO.: H006-05D

DATE RECEIVED: 08/02/05
DATE EXTRACTED: NA
DATE ANALYZED: 08/02/05 21:05

ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
Ferrous Iron	ND	ND	0	20

8040

ANALYSIS LOG FOR FERROUS IRON

SOP ☑ EMAX-3500-Fe D/C Rev. No. 0 ☐ Starting Date 08-02-05 Time 20:50 Ending Date 08-02-05 Time 21:07 Book # A70-Fe D/C-001

ANALYTICAL BATCH # FEH001W

	Data File Name	Preparative Batch	Lab Sample ID	Matrix S	Matrix W	Sample Amount (ml)	DF	Abs. (510 nm)	Time	Ferrous Iron (mg/L)	Notes
*	1	FEH001W	S - 0.0		✓	50	1	0.000	20:50		
*	2		S - 5					0.005	20:51		
*	3		S - 10					0.009	20:52		
*	4		S - 15					0.015	20:53		
*	5		S - 25					0.024	20:54		
*	6		S - 50					0.050	20:55		
*	7		ICV					0.020	20:56	20.20	
*	8		ICB					0.000	20:57	ND	
*	9		FEH001WB					0.000	20:58	ND	
*	10		WL					0.021	20:59	21.21	
*	1		H006-01					0.002	21:00	ND	
*	2		-02					0.003	21:01	ND	
*	3		-03					0.002	21:02	ND	
*	4		-04					0.001	21:03	ND	
*	5		-05					0.003	21:04	ND	
*	6		-05D					0.003	21:05	ND	
*	7		CCV1					0.021	21:06	21.21	
*	8		CCB1					0.000	21:07	ND	
*	9										
*	0										
*	1										
*	2										
*	3										
*	4										
*	5										
*	6										
*	7										
*	8										
*	9										
*	0										

mll 8/2/05

Instrument No.: 70 **Wavelength: 510 nm**

Standard	ID	Conc. (mg/L)
S_0	Nanopure	0.0
S_1	SW2B-03-095	5
S_2		10
S_3		15
S_4		25
S_5		50
ICV/LCS/MS	SW2B-03-096	20
CCV	SW2B-03-095	20

Reagents	
Name	ID
HCl	SW1A-02-1539
$NH_4C_2H_3O_2$ Buffer	SW7B-06-228B
Phenanthroline Sol'n	SW7B-06-228A
$NaC_2H_3O_2$ Sol'n	N/a
Hydroxylamine Soln	↓

Standard Curve	
R (≤0.995)	0.9992
Y	0.0010
CF	1010.1744

Comments:

Analyzed By: mll

Disposal Date:

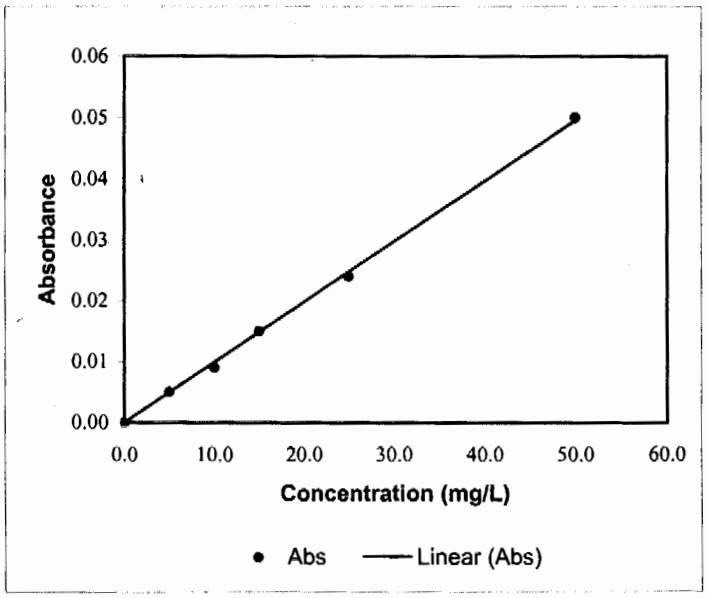
This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8047

CALIBRATION CURVE
FERROUS FE

Conc.	Abs
0.0	0.000
5.0	0.005
10.0	0.009
15.0	0.015
25.0	0.024
50.0	0.050



R^2	0.9992	Comments:	**PASSED**
Eq.Line	0.0010		
CF	1010.1744	Analyzed by:	LA

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H006**

METHOD 376.1
SULFIDE

Five (5) water samples were received on 08/02/05 for Sulfide analysis by Method 376.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. **Holding Time**

   Analysis met holding time criteria.

2. **Method Blank**

   Method blank was free of contamination at the reporting limit.

3. **Lab Control Sample/Lab Control Sample Duplicate**

   Lab control results were within QC limit.

4. **Duplicate**

   Duplicate sample was not designated in this SDG.

5. **Sample Analysis**

   Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 376.1
SULFIDE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H006

Matrix : WATER
Instrument ID : NA

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	BDH002WB	ND	1	NA	1	.4	08/05/0510:30	NA	BDH002W-01	NA	BDH002W	NA	NA
LCS1W	BDH002WL	4.96	1	NA	1	.4	08/05/0510:33	NA	BDH002W-02	NA	BDH002W	NA	NA
LCD1W	BDH002WC	4.96	1	NA	1	.4	08/05/0510:36	NA	BDH002W-03	NA	BDH002W	NA	NA
MW-20-5	H006-01	ND	1	NA	1	.4	08/05/0510:39	NA	BDH002W-04	NA	BDH002W	08/01/05	08/02/05
MW-20-4	H006-02	3.25	1	NA	1	.4	08/05/0510:42	NA	BDH002W-05	NA	BDH002W	08/01/05	08/02/05
MW-20-3	H006-03	ND	1	NA	1	.4	08/05/0510:45	NA	BDH002W-06	NA	BDH002W	08/01/05	08/02/05
MW-20-2	H006-04	ND	1	NA	1	.4	08/05/0510:48	NA	BDH002W-07	NA	BDH002W	08/01/05	08/02/05
MW-20-1	H006-05	ND	1	NA	1	.4	08/05/0510:51	NA	BDH002W-08	NA	BDH002W	08/01/05	08/02/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 376.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05H006
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: BDH002WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 08/05/05 10:33/10:36

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Sulfide	ND	5.00	4.96	99	5.00	4.96	99	0	80-120	20

8051

ANALYSIS LOG FOR SULFIDE

SOP ☑ EMAX-376.1 Rev. No. 1 ☐ EMAX-9034 Rev. No. 0 Start Date: 08/05/05 Time: 10:30 End Date: 08/05/05 Time: 11:18 Boo[illegible]D-007

	Data File Name	Lab Sample ID	Time	Sample Amt. (ml)	Volume of Iodine (ml)	Volume of PAO/$Na_2S_2O_3$ (ml)	Notes mg/ml
*	1	8DH002WB	10:30	100	10	10.0	ND
*	2	WL	10:33			4.5	4.96
*	3	WC	10:36			4.5	4.96
*	4	H006-01	10:39			9.8	ND
*	5	-02	10:42			6.4	3.25
*	6	-03	10:45			9.7	ND
*	7	-04	10:48			9.9	ND
*	8	-05	10:51			9.8	ND
*	9	H010-01	10:54			—	*Overranged
*	0	-01R	10:57	25		4.8	18.77
*	1	-02	11:00	100		3.4	5.77
*	2	-04	11:03			6.4	3.25
*	3	-05	11:06			1.4	7.76
*	4	-07	11:09			3.2	6.14
*	5	-08	11:12			—	*Overranged
*	6	-08R	11:15	25		6.1	14.08
*	7	-08D	11:18			6.1	14.08
*	8						
*	9						
*	0						
*	1						
*	2						
*	3						
*	4						
*	5						
*	6						
*	7						
*	0						

ANALYTICAL BATCH # SOH002WB

8052

Standard	ID	Conc. (mg/L)
LCS	S107A-06-178	5.0
Spike		
$Na_2S_2O_3$	S103B 02-735	0.00564
PAO		
Iodine	S103B-02-734	0.00564
HCL	S107B-06-231C	1:1 (v/v)
Indicator	S107A-06-190	

STANDARDIZATION

Vol. Of Iodine (ml)	Volume of PAO/Na2S2O3 (ml)	Conc. Of Iodine (N)
10	12.0	0.00564
10	10.0	0.00564
10	12.0	0.00564
Average Iodine Conc. (N)		

$$Sulfide(mg/L) = \frac{\left(V_{I_2} \times N_{I_2} - V_{PAO} \times N_{PAO}\right) \times 16{,}000}{V_{sample}}$$

Comments:

Analyzed By: [illegible]

EMAX LABORATORIES, INC. 1835 W. 208th St. Torrance, CA 90501

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H006**

METHOD 160.1
TOTAL DISSOLVED SOLIDS

Five (5) water samples were received on 08/02/05 for Total Dissolved Solids analysis by Method 160.1in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. **Holding Time**

   Analysis met holding time criteria.

2. **Method Blank**

   Method blank was free of contamination at the reporting limit.

3. **Lab Control Sample/Lab Control Sample Duplicate**

   Lab control results were within QC limit.

4. **Duplicate**

   Sample H006-01 was analyzed for duplicate. %RPD was within QC limit.

5. **Sample Analysis**

   Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 160.1
TOTAL DISSOLVED SOLIDS

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H006

Matrix : WATER
Instrument ID : NA

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TDH004WB	ND	1	NA	10	5	08/06/0515:00	NA	TDH004W-01	NA	TDH004W	NA	NA
LCS1W	TDH004WL	332	1	NA	10	5	08/06/0515:01	NA	TDH004W-02	NA	TDH004W	NA	NA
LCD1W	TDH004WC	330	1	NA	10	5	08/06/0515:02	NA	TDH004W-03	NA	TDH004W	NA	NA
MW-20-5	H006-01	180	1	NA	10	5	08/06/0515:03	NA	TDH004W-04	NA	TDH004W	08/01/05	08/02/05
MW-20-5DUP	H006-01D	182	1	NA	10	5	08/06/0515:04	NA	TDH004W-05	NA	TDH004W	08/01/05	08/02/05
MW-20-4	H006-02	205	1	NA	10	5	08/06/0515:05	NA	TDH004W-06	NA	TDH004W	08/01/05	08/02/05
MW-20-3	H006-03	340	1	NA	10	5	08/06/0515:06	NA	TDH004W-07	NA	TDH004W	08/01/05	08/02/05
MW-20-2	H006-04	275	1	NA	10	5	08/06/0515:07	NA	TDH004W-08	NA	TDH004W	08/01/05	08/02/05
MW-20-1	H006-05	440	1	NA	10	5	08/06/0515:08	NA	TDH004W-09	NA	TDH004W	08/01/05	08/02/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 160.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05H006
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: TDH004WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 08/06/05 15:01/15:02

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
TDS	ND	336.00	332.00	99	336.00	330.00	98	1	80-120	20

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 160.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05H006
SAMPLE ID: MW-20-5DUP
CONTROL NO.: H006-01D

DATE RECEIVED: 08/02/05
DATE EXTRACTED: NA
DATE ANALYZED: 08/06/05 15:04

ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
TDS	180.00	182.00	1	20

8050

GRAVIMETRIC ANALYSIS LOG

SOP ☑ EMAX-160.1 Rev. No. 3 ☐ EMAX-160.2 Rev. No. 2 ☐ EMAX-160.3 Rev. No. 1 ☐ EMAX-160.4 Rev. No. 0 ☐ EMAX-160.5 Rev. No. 0 Book # AGV-019

Starting Date: 8/5/05 Time: 1930 Oven Temp. 105 °C Ending Date: 8/6/05 Time: 1430 Oven Temp. 180 °C

	Data File Name	Lab Sample ID	Sample Amt. (ml)	Dish Wt. (g)	Dry Wt. Dish + Solids(g) 1st	Time	2nd	Time	3rd	Time	Solids (mg)	Result (mg/L)	Settleable Solids Vol. of SS	Result (ml/L/hr)
1		TD H004 WB	100	63.7187	63.7190	1100	63.7187	1300	63.7188	1500	0.1	ND		
2		WL	50	66.3125	66.3301	01	66.3293	01	66.3291	01	16.6	332		
3		WC	50	64.2116	64.2295	02	64.2283	02	64.2281	02	16.5	330		
4		H006-01	100	62.4154	62.4344	03	62.4335	03	62.4334	03	18.0	180		
5		01D	100	51.3667	51.3857	04	51.3851	04	51.3849	04	18.2	182		
6		02	100	63.4300	63.4511	05	63.4504	05	63.4505	05	20.5	205		
7		03	100	67.3595	67.3896	06	67.3888	06	67.3885	06	34.0	340		
8		04	100	66.6612	66.6899	07	66.6886	07	66.6887	07	27.5	275		
9		H006 05	100	66.3859	66.4311	08	66.4301	08	66.4299	08	44.0	440		
10		H427-01	100	66.5306	66.6078	09	66.6065	09	66.6066	09	76.0	760		
11		01D	100	63.4194	63.4962	10	63.4952	10	63.4950	10	75.6	756		
12		H428-01	100	59.7044	59.7829	11	59.7820	11	59.7819	11	77.5	775		
13		H429-01	100	64.3824	64.4183	12	64.4177	12	64.4174	12	35.0	350		
14		02	100	64.6240	64.6663	13	64.6651	13	64.6650	13	41.0	410		
15		02D	100	65.5185	65.5615	14	65.5603	14	65.5599	14	41.4	414		
16		H430-01	100	68.6977	68.7155	15	68.7147	15	68.7146	15	37.5	375		
17														
18														
19														
20														

ANALYTICAL BATCH # SS TD H004 W S

Standard	
LCS ID	SW7A 06-146
LCSTV(mg/L)	336

Balance ID:	
40706360	✓
37030058	

Comments:

Analyzed By: AL/LA

$R_{(mg/L)} = \frac{(DS - DW) \times 1000}{S}$

where: $R_{(mg/L)}$ = concentration of solids; $DS_{(mg)}$ = Dry weight of Dish + Solids; $DW_{(mg)}$ = Dish weight; $S_{(ml)}$ = sample amount

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8057

BALANCE CALIBRATION VERIFICATION LOG (DOE)

SOP ☐ EMAX-QC04 Revision No.: 1 QC04-036

Balance ID 10601202 Date 8/6/05

Range Min: 1 Max: 600 g

TV	200	100	30	5	1
1	200.011	100.004	30.002	5.000	1.000
2	200.010	100.005	30.002	5.000	1.000
3	200.008	100.006	30.001	5.001	1.000
Criteria (±0.1%)	0.2	0.1	0.03	0.005	0.001
LL	199.8	99.9	29.97	4.995	0.999
UL	200.2	100.1	30.03	5.005	1.001

Comment:

Balance ID J77299 Date 8/6/05

Range Min: 1 Max: 300 g

TV	200	100	50	30	20
1	200.00	100.00	50.00	30.00	20.00
2	200.00	100.00	50.00	30.00	20.00
3	200.00	100.00	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment:

Balance ID 10203192 Date 8/6/05

Range Min: 1 Max: 6000 g

TV	200	100	50	30	20
1					20.00
2					20.00
3					20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment:

Balance ID 10304418 Date

Range Min: 1 Max: 6000 g

TV	200	100	50	30	20
1					
2					
3					
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment:

Balance ID 40706360 Date 8/6/05

Range Min: 1 Max: 205 g

TV	200	100	30	1	0.02
1	199.9999	100.0010	30.0000	1.0000	0.0200
2	199.9996	100.0008	30.0001	0.9999	0.0200
3	199.9997	100.0008	30.0002	1.0001	0.0200
Criteria (±0.1%)	0.2	0.1	0.03	0.001	0.00002
LL	199.8	99.9	29.97	0.999	0.01998
UL	200.2	100.1	30.03	1.001	0.02002

Comment: RM

Balance ID 40706360 Date

Range Min: 1 Max: 205 g

TV	200	100	30	1	0.02
1					
2					
3					
Criteria (±0.1%)	0.2	0.1	0.03	0.001	0.00002
LL	199.8	99.9	29.97	0.999	0.01998
UL	200.2	100.1	30.03	1.001	0.02002

Comment:

8053

Verified by: RM

Checked by:

Calibration Report No.: 3950-05
3949-05

BALANCE CALIBRATION VERIFICATION LOG (DOE)

OP ☐ EMAX-QC04 Revision No.: 1 QC04-036

Balance ID 10601202 Date 8-05-05

Range Min: 1 Max: 600 g

TV	200	100	30	5	1
1	200.005	100.002	30.001	5.000	1.000
2	200.006	100.002	30.001	5.000	1.000
3	200.006	100.003	30.001	5.000	1.000
Criteria (±0.1%)	0.2	0.1	0.03	0.005	0.001
LL	199.8	99.9	29.97	4.995	0.999
UL	200.2	100.1	30.03	5.005	1.001

Comment:

Balance ID J77299 Date 8-5-05

Range Min: 1 Max: 300 g

TV	200	100	50	30	20
1	200.00	100.00	50.00	30.00	20.00
2	200.00	100.00	50.00	30.00	20.00
3	200.00	100.00	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment:

Balance ID 10203192 Date 8-5-05

Range Min: 1 Max: 6000 g

TV	200	100	50	30	20
1	200.00	100.00	30.00	30.00	20.00
2	200.00	100.00	30.00	30.00	20.00
3	200.00	100.00	30.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment:

Balance ID 10304418 Date 8-5-05

Range Min: 1 Max: 6000 g

TV	200	100	50	30	20
1	200.05	100.02	50.00	30.00	20.00
2	200.03	100.01	50.00	30.00	20.00
3	200.03	100.01	50.00	30.00	20.00
Criteria (±0.1%)	0.2	0.1	0.05	0.03	0.02
LL	199.8	99.9	49.95	29.97	19.98
UL	200.2	100.1	50.05	30.03	20.02

Comment:

Balance ID 40706360 Date 8-5-05

Range Min: 1 Max: 205 g

TV	200	100	30	1	0.02
1	199.9996	100.0009	29.9995	1.0000	0.0200
2	199.9995	100.0008	30.0000	1.0000	0.0200
3	199.9997	100.0011	30.0000	1.0002	0.0200
Criteria (±0.1%)	0.2	0.1	0.03	0.001	0.00002
LL	199.8	99.9	29.97	0.999	0.01998
UL	200.2	100.1	30.03	1.001	0.02002

Comment:

Balance ID 40706360 Date

Range Min: 1 Max: 205 g

TV	200	100	30	1	0.02
1					
2					
3					
Criteria (±0.1%)	0.2	0.1	0.03	0.001	0.00002
LL	199.8	99.9	29.97	0.999	0.01998
UL	200.2	100.1	30.03	1.001	0.02002

Comment:

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H006**

METHOD 351.3
TKN

Five (5) water samples were received on 08/02/05 for TKN analysis by Method 351.3 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. **Holding Time**

   Analysis met holding time criteria.

2. **Method Blank**

   Method blank was free of contamination at the reporting limit.

3. **Lab Control Sample/Lab Control Sample Duplicate**

   Lab control results were within QC limit.

4. **Duplicate**

   Duplicate sample was not designated in this SDG.

5. **Matrix Spike**

   MS sample was not designated in this SDG.

6. **Sample Analysis**

   Samples were analyzed according to the prescribed QC procedures. All criteria were met.

   All results were reported as Nitrogen concentration.

METHOD 351.3
TKN

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H006

Matrix : WATER
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	KNH004WB	ND	1	NA	.1	.035	08/11/0516:10	08/11/0510:30	KNH004W-11	KNH004W-09	KNH004W	NA	08/11/05
LCS1W	KNH004WL	1.02	1	NA	.1	.035	08/11/0516:11	08/11/0510:30	KNH004W-12	KNH004W-09	KNH004W	NA	08/11/05
LCD1W	KNH004WC	1.01	1	NA	.1	.035	08/11/0516:12	08/11/0510:30	KNH004W-13	KNH004W-09	KNH004W	NA	08/11/05
MW-20-5	H006-01	.388	1	NA	.1	.035	08/11/0516:23	08/11/0510:30	KNH004W-24	KNH004W-21	KNH004W	08/01/05	08/02/05
MW-20-4	H006-02	.420	1	NA	.1	.035	08/11/0516:24	08/11/0510:30	KNH004W-25	KNH004W-21	KNH004W	08/01/05	08/02/05
MW-20-3	H006-03	.525	1	NA	.1	.035	08/11/0516:25	08/11/0510:30	KNH004W-26	KNH004W-21	KNH004W	08/01/05	08/02/05
MW-20-2	H006-04	.357	1	NA	.1	.035	08/11/0516:26	08/11/0510:30	KNH004W-27	KNH004W-21	KNH004W	08/01/05	08/02/05
MW-20-1	H006-05	.588	1	NA	.1	.035	08/11/0516:27	08/11/0510:30	KNH004W-28	KNH004W-21	KNH004W	08/01/05	08/02/05

8 of 8

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 351.3
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05H006
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: KNH004WL/C

DATE RECEIVED: 08/11/05
DATE EXTRACTED: 08/11/05 10:30
DATE ANALYZED: 08/11/05 16:11/16:12

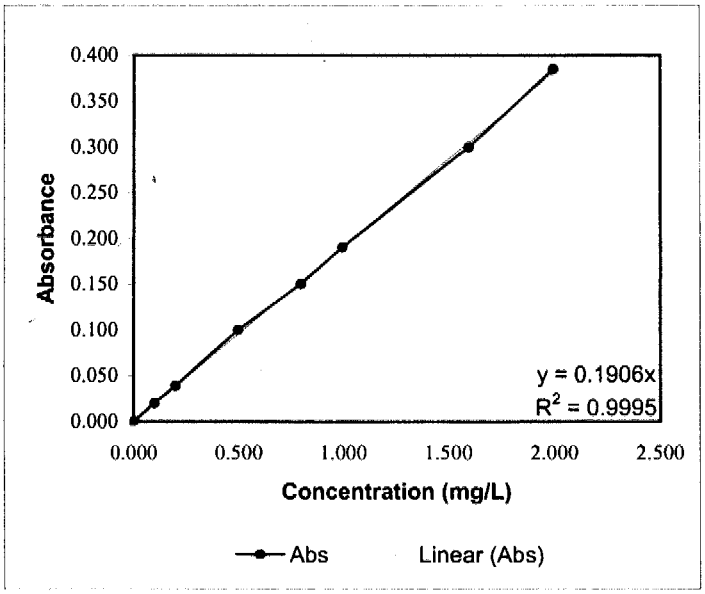
ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
TKN	ND	1.00	1.02	102	1.00	1.01	101	1	80-120	20

8062

CALIBRATION CURVE
AMMONIA _NH3 _TKN

Conc.	Abs
0.000	0.000
0.100	0.020
0.200	0.039
0.500	0.100
0.800	0.150
1.000	0.190
1.600	0.300
2.000	0.385



R^2	0.999494
y	0.1906
CF	5.2476

Comments: **PASSED**

K191

Analyzed by: NT/LA

ANALYSIS LOG FOR TOTAL KJELDAHL NITROGEN (TKN)

SOP ☑ EMAX-351.3 Rev. No. 1 ☐ Start Date: 8/11/05 Time: 16:00 End Date: 8/11/05 Time: 16:30 Book # A70-KN-004

ANALYTICAL BATCH # KN4004W

	Data File Name	Prep. Batch	Lab Sample ID	Matrix S	Matrix W	Time	Vol.Colored (ml)	DF	Absorbance	Notes mg/L
*	1	KN4004W	S-0			16:00	20	1	0.000	
*	2		0.1			01			0.020	
*	3		0.2			02			0.039	
*	4		0.5			03			0.100	
*	5		0.8			04			0.150	
*	6		1.0			05			0.190	
*	7		1.6			06			0.300	
*	8		2.0			07			0.385	
*	9		ICV			08			0.197	1.034
*	10		ICB			09	NT		0.0800	ND
*	11		KN4004LB		✓	10	8/11/5		0.04800	ND
*	12		WL			11			0.194	1.018
*	13		WC			12			0.192	1.008
*	14		G260-01			13			0.080	0.420
*	15		02			14			0.098	0.514
*	16		03			15			0.108	0.567
*	17		04			16			0.110	0.577
*	18		05			17			0.082	0.430
*	19		05D			18			0.092	0.483
*	20		05M		✓	19			0.273	~~0.908~~ 1.432
*	21		CCV1			20			0.194	1.018
*	22		CCB1			21			0.000	ND
*	23		G260-06		✓	22			0.142	0.745
*	24		H006-01			23			0.074	0.388
*	25		02			24			0.080	0.420
*	26		03			25			0.100	0.525
*	27		04			26			0.068	0.357
*	28		05			27			0.112	0.588
*	29		H418-02		✓	28			0.164	0.861
*	30		CCV2			29			0.192	1.008
	31		CCB2			16:30			0.000	ND

Instrument No: 70 | Wavelength: 425 nm

Standard	ID	Conc. (mg/L)
S_0	SW2B-03-182	0.0
S_1		0.1
S_2		0.2
S_3		0.5
S_4		0.8
S_5		1.0
S_6		1.6
S_7		2.0
ICV/MS	SW2B-03-181	1.0
CCV	182	1.0
LCS	178	1.0

Reagent	ID
Color Reagent	SW7A-06-141

Standard Curve	
R^2	0.999494
Y	0.1906
CF	5.2476

Comments:

Results are based on: ☐ Dry Weight ☐ Wet Weight

Analyzed By: NT/LA

This page is checked during data review.

NT 8/11/05

8064

EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

DISTILLATION LOG FOR NH_3 / DIGESTION AND DISTILLATION FOR TKN

SOP ☐ EMAX-350.2 Rev. No.: 2 ☑ EMAX-351.3 Rev. No.: 2 ☐ Book # EKN-006

Start Date 8/11/05 Time 10:30 End Date 8/11/05 Time 15:30

PREPARATION BATCH # KNH004W

Sample Prep ID	Lab Sample ID	Sample pH	NaOH Added (ml)	Boric Acid (ml)	Borate Buffer (ml)	Sample Amount (ml)	Extract Volume (ml)	Notes
*01	S-0	9.5	10	5	4	50	50	
*02	0.1							
*03	1.0							
*04	2.0							
*05	ICV							
*06	ICB							
*07	KNH004WB							
*08	WL							
*09	WC							
*10	G260-01							
*11	02							
*12	03							
*13	04							
*14	05							
*15	05D							
*16	05M							
*17	06							
*18	H006-01							
*19	02							
*20	03							
*21	04							
*22	05							
*23	H418-02							
*24								
*25					NT	8/11/05		
*26								

Standards	ID	Amount Added (ml)
ICV/MS	SW2B-03-181	5mL of 10ppm
LCS	178	50mL

Reagent	Lot# / ID
NaOH	N/A
Digestion Mixture	SW7A-06-204
Borate Buffer	152
H_3BO_3	SW7B-06-322
Distilling Soln.	331

Comments:

Prepared By: NT/LA

Standard Added By: NT/LA

Checked By:

EMAX Laboratories, Inc. 1835 W. 205th St. Torrance, CA 90501

8065

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H006**

METHOD 415.1
DISSOLVED ORGANIC CARBON

Five (5) water samples were received on 08/02/05 for Dissolved Organic Carbon analysis by Method SW9060 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Method", SW846, 3rd edition.

1. **Holding Time**

   Analysis met holding time criteria.

2. **Method Blank**

   Method blank was free of contamination at the reporting limit.

3. **Lab Control Sample/Lab Control Sample Duplicate**

   Lab control results were within QC limit.

4. **Duplicate**

   No Duplicate sample was designated in this SDG.

5. **Matrix Spike**

   No MS sample was designated in this SDG.

6. **Sample Analysis**

   Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 415.1
DOC

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H006

Matrix : WATER
Instrument ID : 62

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TCH009WB	ND	1	NA	1	.5	08/11/0500:37	NA	TCH009-5	TCH009-2	TCH009W	NA	NA
LCS1W	TCH009WL	24.1	1	NA	1	.5	08/11/0500:47	NA	TCH009-6	TCH009-2	TCH009W	NA	NA
LCD1W	TCH009WC	24.6	1	NA	1	.5	08/11/0500:57	NA	TCH009-7	TCH009-2	TCH009W	NA	NA
MW-20-5	H006-01	2.62	1	NA	1	.5	08/11/0502:40	NA	TCH009-18	TCH009-14	TCH009W	08/01/05	08/02/05
MW-20-4	H006-02	2.1	1	NA	1	.5	08/11/0502:50	NA	TCH009-19	TCH009-14	TCH009W	08/01/05	08/02/05
MW-20-3	H006-03	2.47	1	NA	1	.5	08/11/0502:59	NA	TCH009-20	TCH009-14	TCH009W	08/01/05	08/02/05
MW-20-2	H006-04	2.62	1	NA	1	.5	08/11/0503:08	NA	TCH009-21	TCH009-14	TCH009W	08/01/05	08/02/05
MW-20-1	H006-05	3.62	1	NA	1	.5	08/11/0503:17	NA	TCH009-22	TCH009-14	TCH009W	08/01/05	08/02/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H006
METHOD: METHOD 415.1

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	TCH009WB	TCH009WL	TCH009WC		
LAB FILE ID:	TCH009-5	TCH009-6	TCH009-7		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/11/0500:37	08/11/0500:47	08/11/0500:57	DATE RECEIVED:	NA
PREP. BATCH:	TCH009W	TCH009W	TCH009W		
CALIB. REF:	TCH009-2	TCH009-2	TCH009-2		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
DOC	ND	25	24.1	96	25	24.6	99	2	80-120	20

	Type	Analysis	Sample Name	Sample ID	Object	Origin	Dilution	Result	Notes	Comment
1	Standard	NPOC	ICAL	TCH009-1	0A-12	C:\Progra	1.000			
2	Control	NPOC	ICV	TCH009-2	0A-12	C:\Progra	1.000	NPOC:24.67 m	Control valu	
3	Unknown	NPOC	ICB	TCH009-3	0A-12	C:\Progra	1.000	NPOC:0.1949		
4	Unknown	NPOC	HCO3/CO3	TCH009-4	0A-12	C:\Progra	1.000	NPOC:0.7640		
5	Unknown	NPOC	TCH009WB	TCH009-5	0A-12	C:\Progra	1.000	NPOC:0.1857		
6	Unknown	NPOC	TCH009WL	TCH009-6	0A-12	C:\Progra	1.000	NPOC:24.07 m		
7	Unknown	NPOC	TCH009WC	TCH009-7	0A-12	C:\Progra	1.000	NPOC:24.63 m		
8	Unknown	NPOC	05G218-06	TCH009-8	0A-12	C:\Progra	1.000	NPOC:4.221 m		
9	Unknown	NPOC	05G218-06D	TCH009-9	0A-12	C:\Progra	1.000	NPOC:3.431 m		
10	Unknown	NPOC	05G218-06M	TCH009-10	0A-12	C:\Progra	1.000	NPOC:26.59 m		
11	Unknown	NPOC	05G231-03	TCH009-11	0A-12	C:\Progra	20.00	NPOC:289.2 m		
12	Unknown	NPOC	05G247-03	TCH009-12	0A-12	C:\Progra	10.00	NPOC:98.57 m		
13	Unknown	NPOC	05H421-01	TCH009-13	0A-12	C:\Progra	1.000	NPOC:0.8802		
14	Control	NPOC	CCV1	TCH009-14	0A-12	C:\Progra	1.000	NPOC:24.26 m	Control valu	
15	Unknown	NPOC	CCB1	TCH009-15	0A-12	C:\Progra	1.000	NPOC:0.2533		
16	Unknown	NPOC	05H421-02	TCH009-16	0A-12	C:\Progra	1.000	NPOC:0.3291		
17	Unknown	NPOC	05H421-03	TCH009-17	0A-12	C:\Progra	1.000	NPOC:0.3251		
18	Unknown	NPOC	05H006-01	TCH009-18	0A-12	C:\Progra	1.000	NPOC:2.616 m		
19	Unknown	NPOC	05H006-02	TCH009-19	0A-12	C:\Progra	1.000	NPOC:2.101 m		
20	Unknown	NPOC	05H006-03	TCH009-20	0A-12	C:\Progra	1.000	NPOC:2.468 m		
21	Unknown	NPOC	05H006-04	TCH009-21	0A-12	C:\Progra	1.000	NPOC:2.623 m		
22	Unknown	NPOC	05H006-05	TCH009-22	0A-12	C:\Progra	1.000	NPOC:3.621 m		
23	Unknown	NPOC	05H056-01	TCH009-23	0A-12	C:\Progra	1.000	NPOC:0.9740		
24	Unknown	NPOC	05H056-03	TCH009-24	0A-12	C:\Progra	1.000	NPOC:1.799 m		
25	Unknown	NPOC	05H056-03D	TCH009-25	0A-12	C:\Progra	1.000	NPOC:1.574 m		
26	Control	NPOC	CCV2	TCH009-26	0A-12	C:\Progra	1.000	NPOC:24.67 m	Control valu	
27	Unknown	NPOC	CCB2	TCH009-27	0A-12	C:\Progra	1.000	NPOC:0.3041		
28	Unknown	NPOC	05H056-03M	TCH009-28	0A-12	C:\Progra	1.000	NPOC:24.83 m		
29	Unknown	NPOC	TCH010WB	TCH009-29	0A-12	C:\Progra	1.000	NPOC:0.4161		
30	Unknown	NPOC	TCH010WL	TCH009-30	0A-12	C:\Progra	1.000	NPOC:24.82 m		
31	Unknown	NPOC	TCH010WC	TCH009-31	0A-12	C:\Progra	1.000	NPOC:24.87 m		
32	Unknown	NPOC	05H020-05	TCH009-32	0A-12	C:\Progra	1.000	NPOC:12.19 m		
33	Unknown	NPOC	05H020-11	TCH009-33	0A-12	C:\Progra	1.000	NPOC:0.3111		
34	Unknown	NPOC	05H020-15	TCH009-34	0A-12	C:\Progra	1.000	NPOC:6.952 m		
35	Unknown	NPOC	05H033-04	TCH009-35	0A-12	C:\Progra	1.000	NPOC:23.26 m		
36	Unknown	NPOC	05H033-06	TCH009-36	0A-12	C:\Progra	1.000	NPOC:4.615 m		
37	Unknown	NPOC	05H033-08	TCH009-37	0A-12	C:\Progra	1.000	NPOC:4.757 m		
38	Control	NPOC	CCV3	TCH009-38	0A-12	C:\Progra	1.000	NPOC:24.91 m	Control valu	
39	Unknown	NPOC	CCB3	TCH009-39	0A-12	C:\Progra	1.000	NPOC:0.3356		
40	Unknown	NPOC	05H033-10	TCH009-40	0A-12	C:\Progra	1.000	NPOC:26.52 m		
41	Unknown	NPOC	05H033-12	TCH009-41	0A-12	C:\Progra	1.000	NPOC:28.61 m		
42	Unknown	NPOC	05H033-18	TCH009-42	0A-12	C:\Progra	1.000	NPOC:0.3647		
43	Unknown	NPOC	05H032-03	TCH009-43	0A-12	C:\Progra	1.000	NPOC:29.17 m		
44	Unknown	NPOC	05H048-02	TCH009-44	0A-12	C:\Progra	1.000	NPOC:12.30 m		
45	Unknown	NPOC	05H048-04	TCH009-45	0A-12	C:\Progra	1.000	NPOC:9.733 m		
46	Unknown	NPOC	05H048-06	TCH009-46	0A-12	C:\Progra	1.000	NPOC:21.25 m		
47	Unknown	NPOC	05H048-10	TCH009-47	0A-12	C:\Progra	1.000	NPOC:0.3925		
48	Unknown	NPOC	05H048-13	TCH009-48	0A-12	C:\Progra	1.000	NPOC:7.608 m		
49	Unknown	NPOC	05H048-13D	TCH009-49	0A-12	C:\Progra	1.000	NPOC:7.837 m		
50	Unknown	NPOC	05H048-13M	TCH009-50	0A-12	C:\Progra	1.000	NPOC:31.31 m		
51	Control	NPOC	CCV4	TCH009-51	0A-12	C:\Progra	1.000	NPOC:24.97 m	Control valu	
52	Unknown	NPOC	CCB4	TCH009-52	0A-12	C:\Progra	1.000	NPOC:0.3625		
53	Unknown	NPOC	05H006-01	TCH009-53	0A-12	C:\Progra	1.000	NPOC:1.776 m		
54	Unknown	NPOC	05H006-02	TCH009-54	0A-12	C:\Progra	1.000	NPOC:1.579 m		
55	Unknown	NPOC	05H006-03	TCH009-55	0A-12	C:\Progra	1.000	NPOC:2.270 m		
56	Unknown	NPOC	05H006-04	TCH009-56	0A-12	C:\Progra	1.000	NPOC:1.949 m		
57	Unknown	NPOC	05H006-05	TCH009-57	0A-12	C:\Progra	1.000	NPOC:1.941 m		
58	Unknown	NPOC	05H006-05D	TCH009-58	0A-12	C:\Progra	1.000	NPOC:1.876 m		
59	Unknown	NPOC	05H006-05M	TCH009-59	0A-12	C:\Progra	1.000	NPOC:25.05 m		
60	Control	NPOC	CCV5	TCH009-60	0A-12	C:\Progra	1.000	NPOC:24.82 m	Control valu	
61	Unknown	NPOC	CCB5	TCH009-61	0A-12	C:\Progra	1.000	NPOC:0.4095		
62										
63										
64										
65										
66										

8069

Instr.Information

System	toc
Detector	Combustion
Catalyst	Regular Sensitivity
Cell Length	long

Cal. Curve

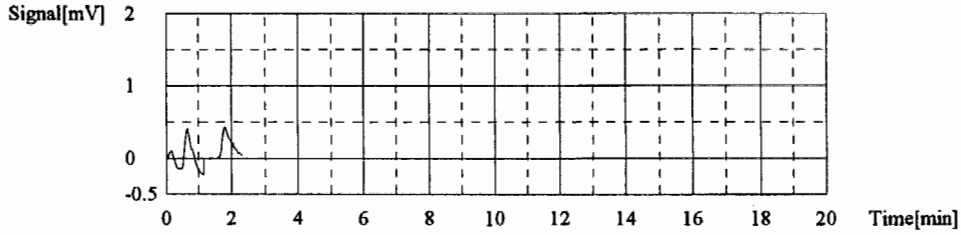
Sample Name:	ICAL
Sample ID:	TCH009-1
Cal. Curve:	TCH009.2005_08_10_23_05_40.cal

Type	Anal.
Standard	NPOC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	0.8982	50uL	1	*******		08/10/05 11:13:04 PM
2	0.6816	50uL	1	*******		08/10/05 11:14:24 PM

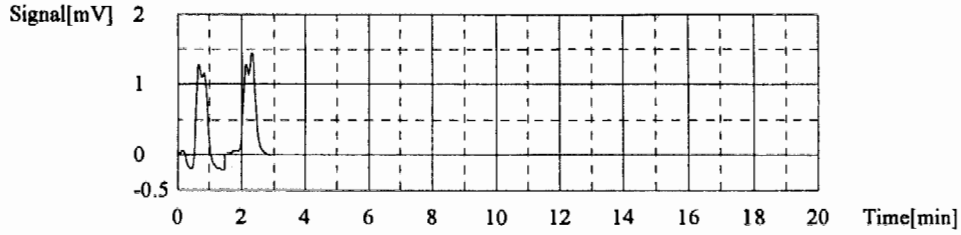
Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	0.7899



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	3.392	50uL	10	*******		08/10/05 11:23:04 PM
2	3.273	50uL	10	*******		08/10/05 11:24:41 PM

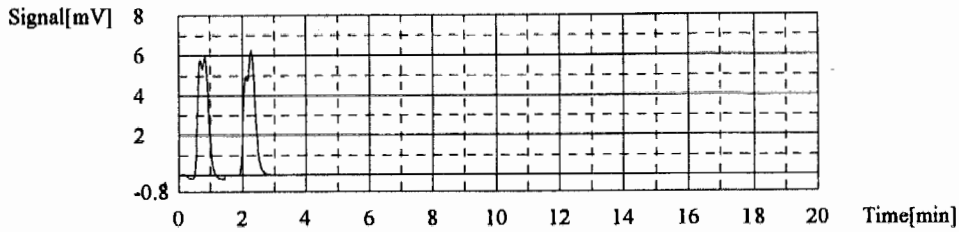
Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	3.333



Conc: 5.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	14.40	50uL	2	*******		08/10/05 11:31:24 PM
2	14.51	50uL	2	*******		08/10/05 11:33:05 PM

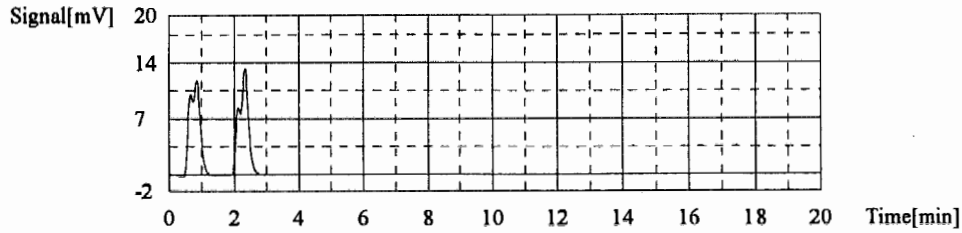
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 14.46



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	28.03	50uL	1	*******		08/10/05 11:39:08 PM
2	28.16	50uL	1	*******		08/10/05 11:40:49 PM

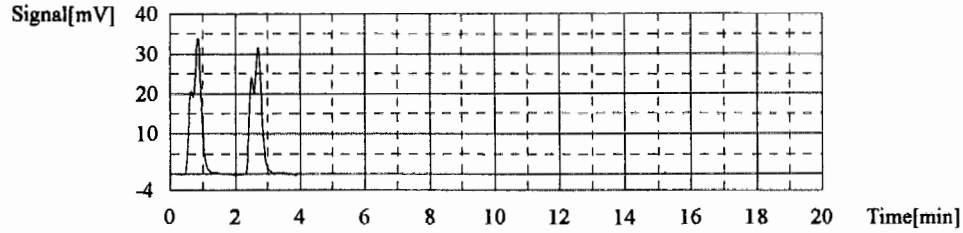
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 28.09



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	68.77	50uL	2	*******		08/10/05 11:49:53 PM
2	69.52	50uL	2	*******		08/10/05 11:52:08 PM

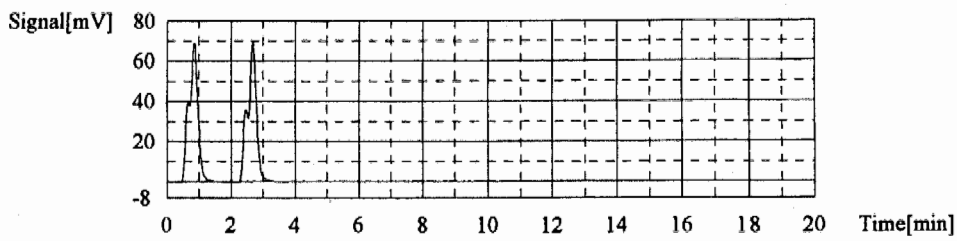
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 69.15



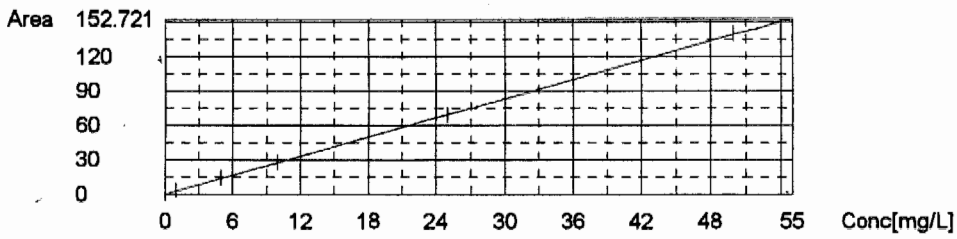
Conc: 50.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	139.5	50uL	1	*******		08/10/05 11:58:31 PM
2	139.9	50uL	1	*******		08/11/05 12:00:31 AM

Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	139.7



Slope:	2.777
Intercept	0.000
r^2	0.999941



Control Sample

Sample Name:	ICV
Sample ID:	TCH009-2
Method:	TCH009.tpl
Chk. Result	Control value: 0.73% / Control within range!

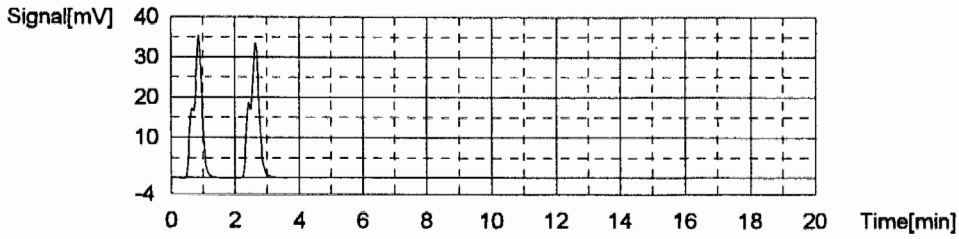
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.67 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	68.25	24.58mg/L	50uL	1		TCH009.2005_08_10_23_05_40.cal	08/11/05 12:09:03 AM
2	68.75	24.76mg/L	50uL	1		TCH009.2005_08_10_23_05_40.cal	08/11/05 12:11:02 AM

Mean Area	68.50
Mean Conc.	24.67mg/L



Sample

Sample Name: ICB
Sample ID: TCH009-3
Origin: TCH009.met
Chk. Result

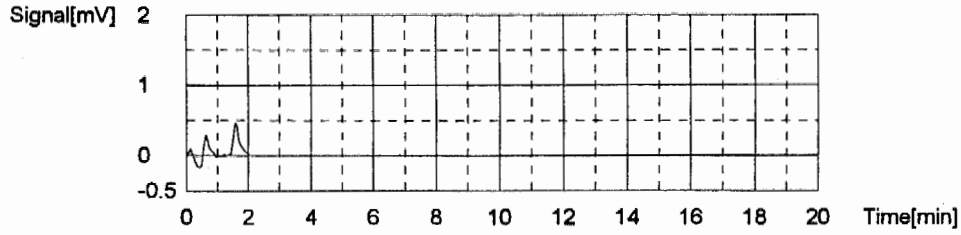
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.1949 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.5402	0.1945mg/L	50uL	1		TCH009.2005_08_10_23_05_40.cal	08/11/05 12:18:30 AM
2	0.5419	0.1952mg/L	50uL	1		TCH009.2005_08_10_23_05_40.cal	08/11/05 12:19:43 AM

Mean Area 0.5411
Mean Conc. 0.1949mg/L



Sample

Sample Name: HCO3/CO3
Sample ID: TCH009-4
Origin: TCH009.met
Chk. Result

Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.7640 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.098	0.7556mg/L	50uL	1		TCH009.2005_08_10_23_05_40.cal	08/11/05 12:27:26 AM
2	2.145	0.7725mg/L	50uL	1		TCH009.2005_08_10_23_05_40.cal	08/11/05 12:28:50 AM

ANALYSIS RUN LOG FOR TOC

SOP: o EMAX-9060 **Revision No. 1** ✓ EMAX-415.1 **Revision No. 1** o **Book # A62-006**

Start Date: 8/10/05 **Time:** 23:13 **EndingDate:** 8/11/05 **Time:** 09:28

Sample Prep. ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Run Time	Notes
* 1	TCH009-1	ICAL	1		X	00:00	NPOC Run
* 2	2	ICV				00:11	pH<2
* 3	3	ICB				00:19	
* 4	4	HCO_3/CO_3				00:28	
* 5	5	TCH009WB				00:37	
* 6	6	WL				00:47	
* 7	7	WC				00:57	
* 8	8	056218-06				~~13:06~~ m 8/11/05 01:06	
* 9	9	06D				01:16	
* 0	10	06M				01:25	
* 1	11	056231-03	20			01:35	
* 2	12	056247-03	10			01:45	
* 3	13	m 8/11/05 05~~6~~H421-01	1			01:54	
* 4	14	CCV1				02:04	
* 5	15	CCB1				02:13	
* 6	16	05H421-02				02:22	
* 7	17	03				02:31	
* 8	18	05H006-01				02:40	
* 9	19	02				02:50	
* 0	20	03				02:59	
* 1	21	04				03:08	
* 2	22	05				03:17	
* 3	23	05H056-01				03:26	
* 4	24	03				03:35	
* 5	25	03D				03:45	
* 6	26	CCV2				03:55	
* 7	27	CCB2				04:04	
* 8	28	05H056-03M				04:14	
* 9	29	TCH010WB				04:23	
* 0	30	WL				04:33	

Instrument No.	62
INITIAL CALIBRATION REFERENCE	
Method File	TCH009W
ICAL ID	SW10B-01-611
ICV ID	612

STANDARDS

ICAL Level		Conc.(mg/L)
S_0	Nanopure	0
S_1	SW10B-01-611	1
S_2		5
S_3		10
S_4		25
S_5		50
S_6	m	8/10/05
ICV/LCS	SW10B-01-612	25
CCV	613	25

Comments:

Analyzed By: m

This page is checked during data review.

ANALYTICAL BATCH # TCH009W

EMAX LABORATORIES, INC. 1835 W. 139th St. Torrance, CA 90501

8074

ANALYSIS RUN LOG FOR TOC

SOP: o EMAX-9060 Revision No. 1 ✓ EMAX-415.1 Revision No. 1 o **Book # A62-006**

Start Date: 8/10/05 **Time:** 25:13 **EndingDate:** 8/10/05 **Time:** 09:28

Sample Prep. ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Run Time	Notes
* 1	TCH009-31	TCH010WC	1		X	04:43	NPOC Run
* 2	32	05H020-05				04:52	pH<2
* 3	33	11				05:01	
* 4	34	15				05:11	
* 5	35	05H033-04				05:21	
* 6	36	06				05:30	8/10/05
* 7	37	08				05:39	
* 8	38	CCV3				05:50	
* 9	39	CCB3				05:59	
* 0	40	05H033-10				06:09	
* 1	41	12				06:19	
* 2	42	18				06:28	
* 3	43	05H032-03				06:38	
* 4	44	05H048-02				06:47	
* 5	45	04				06:57	
* 6	46	06				07:07	
* 7	47	10				07:16	
* 8	48	13				07:25	
* 9	49	13D				07:35	
* 0	50	13M				07:45	
* 1	51	CCV4				07:55	
* 2	52	CCB4				08:04	
* 3	53	05H006-01				08:13	
* 4	54	02				08:23	
* 5	55	03				08:32	
* 6	56	04				08:41	
* 7	57	05				08:50	
* 8	58	05D				08:59	
* 9	59	05M				09:09	
* 0	60	CCV5				09:20	
	61	CCB5				09:28	

ANALYTICAL BATCH # TCH010WC

Instrument No.	62
INITIAL CALIBRATION REFERENCE	
Method File	TCH009
ICAL ID	(see previous page 86)
ICV ID	

STANDARDS

ICAL Level		Conc.(mg/L)
S_0		
S_1		
S_2		
S_3		
S_4		
S_5		
S_6		
ICV/LCS	(same as page 86)	
CCV		

Comments:

Analyzed By: [illegible]

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8075

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05H006**

METHOD 415.1
TOTAL ORGANIC CARBON

Five (5) water samples were received on 08/02/05 for Total Organic Carbon analysis by Method SW9060 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Method", SW846, 3rd edition.

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Sample H006-05 was analyzed for Duplicate. % RPD was within QC limit.

5. Matrix Spike

Sample H006-05 was spiked. % Recovery was within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 415.1
TOC

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05H006

Matrix : WATER
Instrument ID : 62

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TCH010WB	ND	1	NA	1	.5	08/11/0504:23	NA	TCH009-29	TCH009-26	TCH010W	NA	NA
LCS1W	TCH010WL	24.8	1	NA	1	.5	08/11/0504:33	NA	TCH009-30	TCH009-26	TCH010W	NA	NA
LCD1W	TCH010WC	24.9	1	NA	1	.5	08/11/0504:43	NA	TCH009-31	TCH009-26	TCH010W	NA	NA
MW-20-5	H006-01	1.78	1	NA	1	.5	08/11/0508:13	NA	TCH009-50	TCH009-48	TCH010W	08/01/05	08/02/05
MW-20-4	H006-02	1.58	1	NA	1	.5	08/11/0508:23	NA	TCH009-51	TCH009-48	TCH010W	08/01/05	08/02/05
MW-20-3	H006-03	2.27	1	NA	1	.5	08/11/0508:32	NA	TCH009-52	TCH009-48	TCH010W	08/01/05	08/02/05
MW-20-2	H006-04	1.95	1	NA	1	.5	08/11/0508:41	NA	TCH009-56	TCH009-48	TCH010W	08/01/05	08/02/05
MW-20-1	H006-05	1.94	1	NA	1	.5	08/11/0508:50	NA	TCH009-54	TCH009-48	TCH010W	08/01/05	08/02/05
MW-20-1DUP	H006-05D	1.88	1	NA	1	.5	08/11/0508:59	NA	TCH009-55	TCH009-48	TCH010W	08/01/05	08/02/05
MW-20-1MS	H006-05M	25	1	NA	1	.5	08/11/0509:09	NA	TCH009-59	TCH009-48	TCH010W	08/01/05	08/02/05

8077

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H006
METHOD: METHOD 415.1

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	TCH010WB	TCH010WL	TCH010WC		
LAB FILE ID:	TCH009-29	TCH009-30	TCH009-31		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/11/0504:23	08/11/0504:33	08/11/0504:43	DATE RECEIVED:	NA
PREP. BATCH:	TCH010W	TCH010W	TCH010W		
CALIB. REF:	TCH009-26	TCH009-26	TCH009-26		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
TOC	ND	25	24.8	99	25	24.9	99	0	80-120	20

8108

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H006
METHOD: METHOD 415.1

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-20-1			
LAB SAMP ID:	H006-05	H006-05M		
LAB FILE ID:	TCH009-54	TCH009-59		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	08/01/05
DATE ANALYZED:	08/11/0508:50	08/11/0509:09	DATE RECEIVED:	08/02/05
PREP. BATCH:	TCH010W	TCH010W		
CALIB. REF:	TCH009-48	TCH009-48		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
TOC	1.94	25	25	92	75-125

8079

EMAX QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05H006
METHOD: METHOD 415.1

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-20-1	MW-20-1DUP		
EMAX SAMP ID:	H006-05	H006-05D		
LAB FILE ID:	TCH009-54	TCH009-55		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	08/01/05
DATE ANALYZED:	08/11/0508:50	08/11/0508:59	DATE RECEIVED:	08/02/05
PREP. BATCH:	TCH010W	TCH010W		
CALIB. REF:	TCH009-48	TCH009-48		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	DUPL RSLT (mg/L)	RPD RSLT %	QC LIMIT (%)
TOC	1.94	1.88	3	20

	Type	Analysis	Sample Name	Sample ID	Object	Origin	Dilution	Result	Notes	Comment
1	Standard	NPOC	ICAL	TCH009-1	0A-12	C:\Progra	1.000			
2	Control	NPOC	ICV	TCH009-2	0A-12	C:\Progra	1.000	NPOC:24.67 m	Control valu	
3	Unknown	NPOC	ICB	TCH009-3	0A-12	C:\Progra	1.000	NPOC:0.1949		
4	Unknown	NPOC	HCO3/CO3	TCH009-4	0A-12	C:\Progra	1.000	NPOC:0.7640		
5	Unknown	NPOC	TCH009WB	TCH009-5	0A-12	C:\Progra	1.000	NPOC:0.1857		
6	Unknown	NPOC	TCH009WL	TCH009-6	0A-12	C:\Progra	1.000	NPOC:24.07 m		
7	Unknown	NPOC	TCH009WC	TCH009-7	0A-12	C:\Progra	1.000	NPOC:24.63 m		
8	Unknown	NPOC	05G218-06	TCH009-8	0A-12	C:\Progra	1.000	NPOC:4.221 m		
9	Unknown	NPOC	05G218-06D	TCH009-9	0A-12	C:\Progra	1.000	NPOC:3.431 m		
10	Unknown	NPOC	05G218-06M	TCH009-10	0A-12	C:\Progra	1.000	NPOC:26.59 m		
11	Unknown	NPOC	05G231-03	TCH009-11	0A-12	C:\Progra	20.00	NPOC:289.2 m		
12	Unknown	NPOC	05G247-03	TCH009-12	0A-12	C:\Progra	10.00	NPOC:98.57 m		
13	Unknown	NPOC	05H421-01	TCH009-13	0A-12	C:\Progra	1.000	NPOC:0.8802		
14	Control	NPOC	CCV1	TCH009-14	0A-12	C:\Progra	1.000	NPOC:24.26 m	Control valu	
15	Unknown	NPOC	CCB1	TCH009-15	0A-12	C:\Progra	1.000	NPOC:0.2533		
16	Unknown	NPOC	05H421-02	TCH009-16	0A-12	C:\Progra	1.000	NPOC:0.3291		
17	Unknown	NPOC	05H421-03	TCH009-17	0A-12	C:\Progra	1.000	NPOC:0.3251		
18	Unknown	NPOC	05H006-01	TCH009-18	0A-12	C:\Progra	1.000	NPOC:2.616 m		
19	Unknown	NPOC	05H006-02	TCH009-19	0A-12	C:\Progra	1.000	NPOC:2.101 m		
20	Unknown	NPOC	05H006-03	TCH009-20	0A-12	C:\Progra	1.000	NPOC:2.468 m		
21	Unknown	NPOC	05H006-04	TCH009-21	0A-12	C:\Progra	1.000	NPOC:2.623 m		
22	Unknown	NPOC	05H006-05	TCH009-22	0A-12	C:\Progra	1.000	NPOC:3.621 m		
23	Unknown	NPOC	05H056-01	TCH009-23	0A-12	C:\Progra	1.000	NPOC:0.9740		
24	Unknown	NPOC	05H056-03	TCH009-24	0A-12	C:\Progra	1.000	NPOC:1.799 m		
25	Unknown	NPOC	05H056-03D	TCH009-25	0A-12	C:\Progra	1.000	NPOC:1.574 m		
26	Control	NPOC	CCV2	TCH009-26	0A-12	C:\Progra	1.000	NPOC:24.67 m	Control valu	✓
27	Unknown	NPOC	CCB2	TCH009-27	0A-12	C:\Progra	1.000	NPOC:0.3041		
28	Unknown	NPOC	05H056-03M	TCH009-28	0A-12	C:\Progra	1.000	NPOC:24.83 m		
29	Unknown	NPOC	TCH010WB	TCH009-29	0A-12	C:\Progra	1.000	NPOC:0.4161		
30	Unknown	NPOC	TCH010WL	TCH009-30	0A-12	C:\Progra	1.000	NPOC:24.82 m		
31	Unknown	NPOC	TCH010WC	TCH009-31	0A-12	C:\Progra	1.000	NPOC:24.87 m		
32	Unknown	NPOC	05H020-05	TCH009-32	0A-12	C:\Progra	1.000	NPOC:12.19 m		
33	Unknown	NPOC	05H020-11	TCH009-33	0A-12	C:\Progra	1.000	NPOC:0.3111		
34	Unknown	NPOC	05H020-15	TCH009-34	0A-12	C:\Progra	1.000	NPOC:6.952 m		
35	Unknown	NPOC	05H033-04	TCH009-35	0A-12	C:\Progra	1.000	NPOC:23.26 m		
36	Unknown	NPOC	05H033-06	TCH009-36	0A-12	C:\Progra	1.000	NPOC:4.615 m		
37	Unknown	NPOC	05H033-08	TCH009-37	0A-12	C:\Progra	1.000	NPOC:4.757 m		
38	Control	NPOC	CCV3	TCH009-38	0A-12	C:\Progra	1.000	NPOC:24.91 m	Control valu	
39	Unknown	NPOC	CCB3	TCH009-39	0A-12	C:\Progra	1.000	NPOC:0.3356		
40	Unknown	NPOC	05H033-10	TCH009-40	0A-12	C:\Progra	1.000	NPOC:26.52 m		
41	Unknown	NPOC	05H033-12	TCH009-41	0A-12	C:\Progra	1.000	NPOC:28.61 m		
42	Unknown	NPOC	05H033-18	TCH009-42	0A-12	C:\Progra	1.000	NPOC:0.3647		
43	Unknown	NPOC	05H032-03	TCH009-43	0A-12	C:\Progra	1.000	NPOC:29.17 m		
44	Unknown	NPOC	05H048-02	TCH009-44	0A-12	C:\Progra	1.000	NPOC:12.30 m		
45	Unknown	NPOC	05H048-04	TCH009-45	0A-12	C:\Progra	1.000	NPOC:9.733 m		
46	Unknown	NPOC	05H048-06	TCH009-46	0A-12	C:\Progra	1.000	NPOC:21.25 m		
47	Unknown	NPOC	05H048-10	TCH009-47	0A-12	C:\Progra	1.000	NPOC:0.3925		
48	Unknown	NPOC	05H048-13	TCH009-48	0A-12	C:\Progra	1.000	NPOC:7.608 m		
49	Unknown	NPOC	05H048-13D	TCH009-49	0A-12	C:\Progra	1.000	NPOC:7.837 m		
50	Unknown	NPOC	05H048-13M	TCH009-50	0A-12	C:\Progra	1.000	NPOC:31.31 m		
51	Control	NPOC	CCV4	TCH009-51	0A-12	C:\Progra	1.000	NPOC:24.97 m	Control valu	
52	Unknown	NPOC	CCB4	TCH009-52	0A-12	C:\Progra	1.000	NPOC:0.3625	✓	
53	Unknown	NPOC	05H006-01	TCH009-53	0A-12	C:\Progra	1.000	NPOC:1.776 m		
54	Unknown	NPOC	05H006-02	TCH009-54	0A-12	C:\Progra	1.000	NPOC:1.579 m		
55	Unknown	NPOC	05H006-03	TCH009-55	0A-12	C:\Progra	1.000	NPOC:2.270 m		
56	Unknown	NPOC	05H006-04	TCH009-56	0A-12	C:\Progra	1.000	NPOC:1.949 m		
57	Unknown	NPOC	05H006-05	TCH009-57	0A-12	C:\Progra	1.000	NPOC:1.941 m		
58	Unknown	NPOC	05H006-05D	TCH009-58	0A-12	C:\Progra	1.000	NPOC:1.876 m		
59	Unknown	NPOC	05H006-05M	TCH009-59	0A-12	C:\Progra	1.000	NPOC:25.05 m		
60	Control	NPOC	CCV5	TCH009-60	0A-12	C:\Progra	1.000	NPOC:24.82 m	Control valu	
61	Unknown	NPOC	CCB5	TCH009-61	0A-12	C:\Progra	1.000	NPOC:0.4095		
62										
63										
64										
65										
66										8081

Instr.Information

System	toc
Detector	Combustion
Catalyst	Regular Sensitivity
Cell Length	long

Cal. Curve

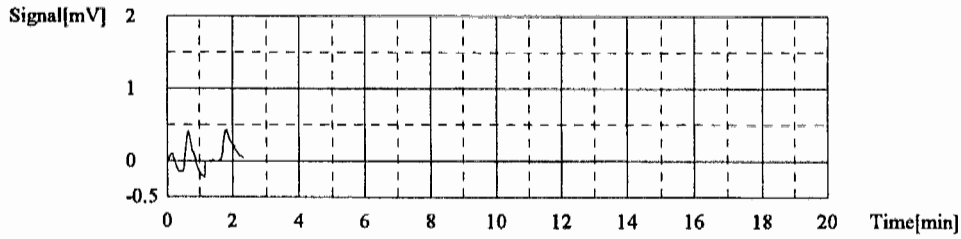
Sample Name:	ICAL
Sample ID:	TCH009-1
Cal. Curve:	TCH009.2005_08_10_23_05_40.cal

Type	Anal.
Standard	NPOC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	0.8982	50uL	1	*******		08/10/05 11:13:04 PM
2	0.6816	50uL	1	*******		08/10/05 11:14:24 PM

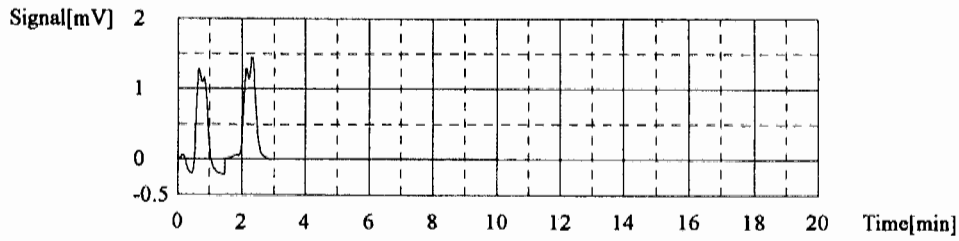
Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	0.7899



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	3.392	50uL	10	*******		08/10/05 11:23:04 PM
2	3.273	50uL	10	*******		08/10/05 11:24:41 PM

Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	3.333

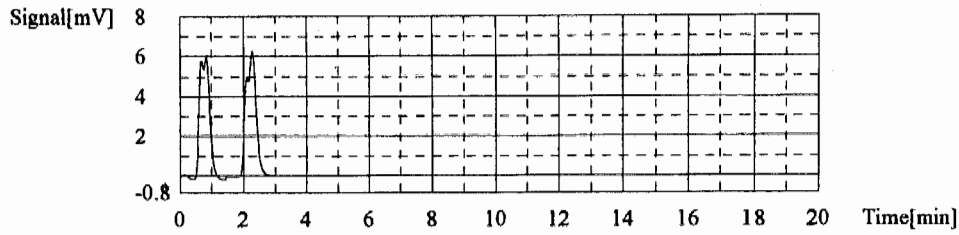


Conc: 5.000mg/L

8082

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	14.40	50uL	2	*******		08/10/05 11:31:24 PM
2	14.51	50uL	2	*******		08/10/05 11:33:05 PM

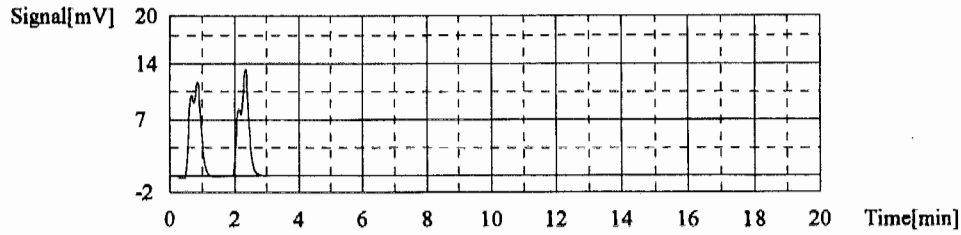
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 14.46



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	28.03	50uL	1	*******		08/10/05 11:39:08 PM
2	28.16	50uL	1	*******		08/10/05 11:40:49 PM

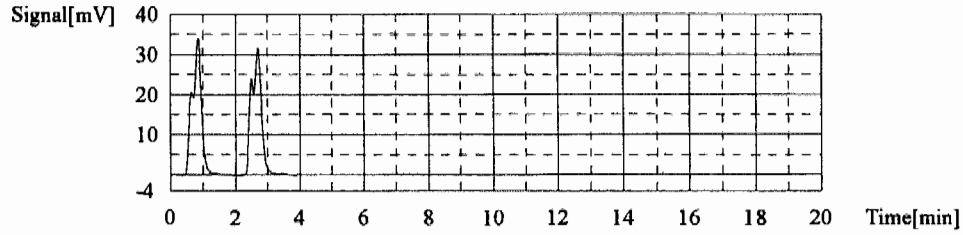
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 28.09



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	68.77	50uL	2	*******		08/10/05 11:49:53 PM
2	69.52	50uL	2	*******		08/10/05 11:52:08 PM

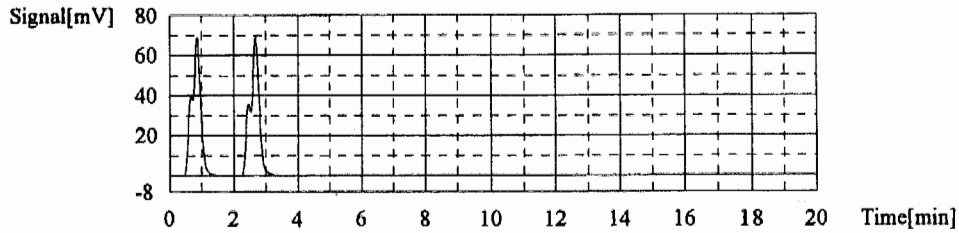
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 69.15



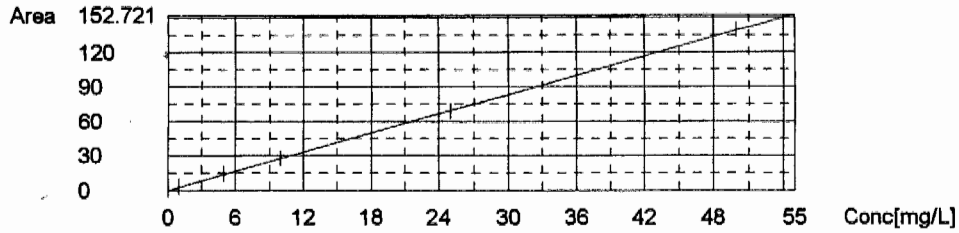
Conc: 50.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	139.5	50uL	1	*******		08/10/05 11:58:31 PM
2	139.9	50uL	1	*******		08/11/05 12:00:31 AM

Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	139.7



Slope:	2.777
Intercept	0.000
r^2	0.999941



Control Sample

Sample Name:	ICV
Sample ID:	TCH009-2
Method:	TCH009.tpl
Chk. Result	Control value: 0.73% / Control within range!

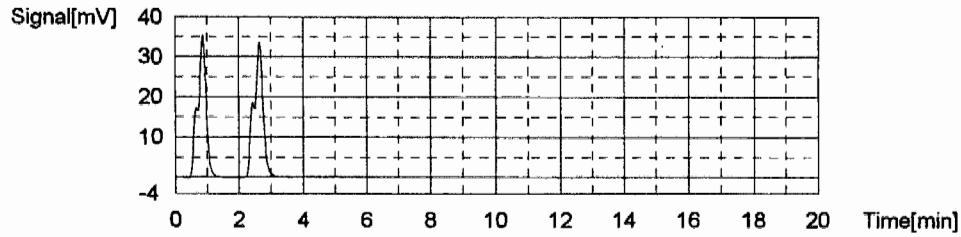
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.67 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	68.25	24.58mg/L	50uL	1		TCH009.2005_08_10_23_05_40.cal	08/11/05 12:09:03 AM
2	68.75	24.76mg/L	50uL	1		TCH009.2005_08_10_23_05_40.cal	08/11/05 12:11:02 AM

Mean Area	68.50
Mean Conc.	24.67mg/L



Sample

Sample Name: ICB
Sample ID: TCH009-3
Origin: TCH009.met
Chk. Result

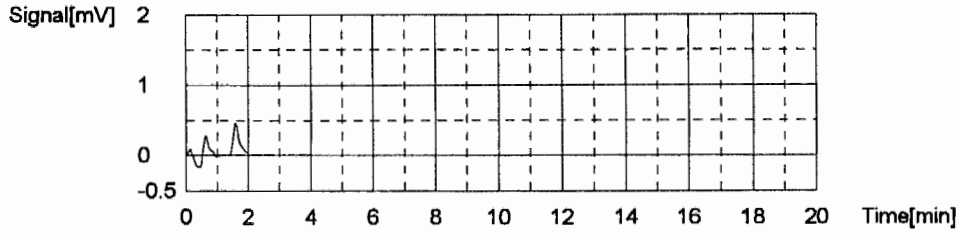
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.1949 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.5402	0.1945mg/L	50uL	1		TCH009.2005_08_10_23_05_40.cal	08/11/05 12:18:30 AM
2	0.5419	0.1952mg/L	50uL	1		TCH009.2005_08_10_23_05_40.cal	08/11/05 12:19:43 AM

Mean Area 0.5411
Mean Conc. 0.1949mg/L



Sample

Sample Name: HCO3/CO3
Sample ID: TCH009-4
Origin: TCH009.met
Chk. Result

Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.7640 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	2.098	0.7556mg/L	50uL	1		TCH009.2005_08_10_23_05_40.cal	08/11/05 12:27:26 AM
2	2.145	0.7725mg/L	50uL	1		TCH009.2005_08_10_23_05_40.cal	08/11/05 12:28:50 AM

ANALYSIS RUN LOG FOR TOC

SOP: o EMAX-9060 Revision No. 1 ✓ EMAX-415.1 Revision No. 1 o **Book # A62-006**

Start Date: 8/10/05 **Time:** 23:13 **EndingDate:** 8/11/05 **Time:** 09:28

Sample Prep. ID		Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Run Time	Notes
*	1	TCH009-1	ICAL	1		X	00:00	NPOC Run
*	2	2	ICV				00:11	pH<2
*	3	3	ICB				00:19	
*	4	4	HCO3/CO3				00:28	
*	5	5	TCH009WB				00:37	
*	6	6	WL				00:47	
*	7	7	WC				00:57	
*	8	8	056218-06				~~13:06~~ 01:06	
*	9	9	06D				01:16	
*	0	10	06M				01:25	
*	1	11	056231-03	20			01:35	
*	2	12	056247-03	10			01:45	
*	3	13	05H421-01	1			01:54	
*	4	14	CCV1				02:04	
*	5	15	CCB1				02:13	
*	6	16	05H421-02				02:22	
*	7	17	03				02:31	
*	8	18	05H006-01				02:40	
*	9	19	02				02:50	
*	0	20	03				02:59	
*	1	21	04				03:08	
*	2	22	05				03:17	
*	3	23	05H056-01				03:26	
*	4	24	03				03:35	
*	5	25	03D				03:45	
*	6	26	CCV2				03:55	
*	7	27	CCB2				04:04	
*	8	28	05H056-03M				04:14	
*	9	29	TCH010WB				04:23	
*	0	30	WL				04:33	

ANALYTICAL BATCH # TCH009W ** TCH010W

Instrument No.	62
INITIAL CALIBRATION REFERENCE	
Method File	TCH009W
ICAL ID	SW10B-01-611
ICV ID	612

STANDARDS

ICAL Level		Conc.(mg/L)
S_0	Nanopure	0
S_1	SW10B-01-611	1
S_2		5
S_3		10
S_4		25
S_5		50
S_6		8/10/05
ICV/LCS	SW10B-01-612	25
CCV	613	25

Comments:

Analyzed By:

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

8086

ANALYSIS RUN LOG FOR TOC

SOP: o EMAX-9060 **Revision No.** 1 o/ EMAX-415.1 **Revision No.** 1 o **Book #** A62-006

Start Date: 8/10/05 **Time:** 23:13 **EndingDate:** 8/11/05 **Time:** 09:28

Sample Prep. ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Run Time	Notes
* 1	TCH009-31	TCH010WC	1		X	04:43	NPOC Run
* 2	32	05H020-05				04:52	pH<2
* 3	33	11				05:01	
* 4	34	15				05:11	
* 5	35	05H033-04				05:21	
* 6	36	06				05:30	8/11/05
* 7	37	08				05:39	
* 8	38	CCV3				05:50	
* 9	39	CCB3				05:59	
* 0	40	05H033-10				06:09	
* 1	41	12				06:19	
* 2	42	18				06:28	
* 3	43	05H032-03				06:38	
* 4	44	05H048-02				06:47	
* 5	45	04				06:57	
* 6	46	06				07:07	
* 7	47	10				07:16	
* 8	48	13				07:25	
* 9	49	13D				07:35	
* 0	50	13M				07:45	
* 1	51	CCV4				07:55	
* 2	52	CCB4				08:04	
* 3	53	05H006-01				08:13	
* 4	54	02				08:23	
* 5	55	03				08:32	
* 6	56	04				08:41	
* 7	57	05				08:50	
* 8	58	05D				08:59	
* 9	59	05M				09:09	
* 0	60	CCV5				09:20	
	61	CCB5				09:28	

ANALYTICAL BATCH * TCH010WC

Instrument No.	62
INITIAL CALIBRATION REFERENCE	
Method File	TCH009
ICAL ID	(see previous page 86)
ICV ID	

STANDARDS

ICAL Level		Conc.(mg/L)
S_0		
S_1		
S_2		
S_3		
S_4		
S_5		
S_6		
ICV/LCS		
CCV		

(same as page 86)

Comments:

Analyzed By:

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

TABLE OF CONTENTS

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G183**

SECTION		PAGE
Cover Letter, COC/Sample Receipt Form		1000 – 1005
GC/MS-VOA	**	2000 –
GC/MS-SVOA	**	3000 –
GC-VOA	**	4000 –
GC-SVOA	**	5000 –
HPLC	**	6000 –
METALS	METHOD 200.7	7000 – 7020
WET	METHOD 300.0	8000 – 8043
	METHOD 350.2	8044 – 8051
	SM3500	8052 – 8057
	METHOD 310.1	8058 – 8063
	METHOD 120.1	8064 – 8066
	METHOD 376.1	8067 – 8072
	METHOD 160.1	8073 – 8076
	METHOD 351.3	8077 – 8084
	METHOD 415.1	8085 – 8097
OTHERS	**	9000 –

** - Not Requested

EMAX
LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 08-05-2005
EMAX Batch No.: 05G183

Attn: Tien Shiao

Battelle Memorial Institute
505 King Ave.
Columbus OH 43201

Subject: Laboratory Report
Project: JPL

Enclosed is the Laboratory report for samples received on 07/22/05.
The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
MW-19-1	G183-01	07/20/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
MW-18-5	G183-02	07/21/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N

Sample ID	Control #	Col Date	Matrix	Analysis
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
MW-18-4	G183-03	07/21/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
MW-18-3	G183-04	07/21/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
MW-18-1	G183-05	07/21/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
MW-18-2	G183-06	07/21/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON

EMAX LABORATORIES, INC. 1835 W. 205th Street, Torrance, CA 90501 Tel: (310) 618-8889 Fax: (310) 618-0818

Sample ID	Control #	Col Date	Matrix	Analysis
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
DUPE-2-7/21/05	G183-07	07/21/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

EMAX LABORATORIES, INC. 1835 W. 205th Street, Torrance, CA 90501 Tel: (310) 618-8889 Fax: (310) 618-0818

Battelle
Columbus Laboratories

CHAIN OF CUSTODY RECORD

Form No. 05G183

J9

Proj. No. G486111-T3

Project Title: Source Determination Study

SAMPLERS: (Signature) D. Conner

PO # 191943

DATE	TIME	SAMPLE I.D.	DOC (Filtered)	TOC	Ferrous Iron	Nitrite, Nitrate	Sulfate, Chloride	Alkalinity, Specific Conductance	Ferric Iron	Ca, Na, K, Mg	Sulfide	Ammonia	TKN				Container No.	Number of Containers	Remarks
7/20/05	15:00	MW-19-1	X	X	X	X	X	X	X	X	X	X	X						0.45 µm filter
7/21/05	0915	MW-18-5	X	X	X	X	X	X	X	X	X	X	X						rinsed w/ 500 mL
7/21/05	1030	MW-18-4	X	X	X	X	X	X	X	X	X	X	X						of distilled H_2O
7/21/05	1245	MW-18-3	X	X	X	X	X	X	X	X	X	X	X						before filtering
7/21/05	1500	MW-18-1	X	X	X	X	X	X	X	X	X	X	X						DOC in the field.
7/21/05	1630	MW-18-2	X	X	X	X	X	X	X	X	X	X	X						
7/21/05	1645	DUPE-2-7/21/05	X	X	X	X	X	X	X	X	X	X	X						

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	7/22/05 0730	[signature]			
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	7-22-05 1415	[signature]			
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks	
				To: EMAX	

T-3.2

Page ____ of ____

SAMPLE RECEIPT FORM 1

Type of Delivery	Delivered By/Airbill	ECN	056183
☑ EMAX Courier	SEE C.O.C.	Recepient	I. PATEL
☐ Client Delivery		Date	07.22.05.
☐ Third Party		Time	14:15.

COC Inspection

☑ Client Name	☑ Sampler Name	☑ Sampling Date/Time/Location
☑ Address	☑ Courier Signature/Date/Time	☑ Analysis Required
☑ Client PM/FC	☐ TAT	☐ Matrix
☑ Tel #/Fax #	☑ Sample ID	☐ Preservative (if any)
Safety Issues ☑ None	☐ High Concentrations expected	☐ Superfund Site Samples
Comments: ☐ Rad Screening Required		

Packaging Inspection

Container	☑ Cooler ONE	☐ Box	☐	☐
Condition	☐ Custody Seal	☑ Intact	☐ Damaged	☐
Packaging	☐ Bubble Pack	☐ Styrofoam	☑ Sufficient	☑ PLASTIC BAGS
Temperatures	☑ Cooler 1 3.2°C	☑ Cooler 2 ____	☐ Cooler 3 ____	☐ Cooler 4 ____
	☐ Cooler 5 ____	☐ Cooler 6 ____	☐ Cooler 7 ____	☐ Cooler 8 ____
	☐ Cooler 9 ____	☐ Cooler 10 ____	☐ Cooler 11 ____	☐ Cooler 12 ____

Comments:

LSCID	Client ID	Discrepancy	Corrective Action

LSCID : Lab Sample Container ID

REVIEWS

Sample Labeling ____ Date 07.22.05.

SRF ____ Date 7/25/05

PM ____ Date 7/25/05

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

BATTELLE MEMORIAL INSTITUTE

JPL

METHOD 200.7
METALS BY ICP-AES

SDG#: 05G183

7000

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G183**

METHOD 200.7
METALS BY ICP-AES

Seven (7) water samples were received on 07/22/05 for Metals analysis by Method 200.7 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition.

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Sample G183-07 was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

Sample G183-07 was spiked. All recoveries were within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

LAB CHRONICLE
METALS BY ICP-AES

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL

SDG NO. : 05G183
Instrument ID : T-107

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	IPG052WB	1	NA	08/03/0519:11	07/29/0511:30	I07H007012	I07H007010	IPG052W	Method Blank
LCS1W	IPG052WL	1	NA	08/03/0519:15	07/29/0511:30	I07H007013	I07H007010	IPG052W	Lab Control Sample (LCS)
LCD1W	IPG052WC	1	NA	08/03/0519:20	07/29/0511:30	I07H007014	I07H007010	IPG052W	LCS Duplicate
MW-19-1	G183-01	1	NA	08/03/0519:25	07/29/0511:30	I07H007015	I07H007010	IPG052W	Field Sample
MW-18-5	G183-02	1	NA	08/03/0519:29	07/29/0511:30	I07H007016	I07H007010	IPG052W	Field Sample
MW-18-4	G183-03	1	NA	08/03/0519:33	07/29/0511:30	I07H007017	I07H007010	IPG052W	Field Sample
MW-18-3	G183-04	1	NA	08/03/0519:37	07/29/0511:30	I07H007018	I07H007010	IPG052W	Field Sample
MW-18-1	G183-05	1	NA	08/03/0519:41	07/29/0511:30	I07H007019	I07H007010	IPG052W	Field Sample
MW-18-2	G183-06	1	NA	08/03/0519:45	07/29/0511:30	I07H007020	I07H007010	IPG052W	Field Sample
DUPE-2-7/21/05	G183-07	1	NA	08/03/0519:49	07/29/0511:30	I07H007021	I07H007010	IPG052W	Field Sample
DUPE-2-7/21/05DL	G183-07T	5	NA	08/03/0520:05	07/29/0511:30	I07H007024	I07H007022	IPG052W	Diluted Sample
DUPE-2-7/21/05AS	G183-07A	1	NA	08/03/0520:09	07/29/0511:30	I07H007025	I07H007022	IPG052W	Analytical Spike Sample
DUPE-2-7/21/05MS	G183-07M	1	NA	08/03/0520:13	07/29/0511:30	I07H007026	I07H007022	IPG052W	Matrix Spike Sample (MS)
DUPE-2-7/21/05MSD	G183-07S	1	NA	08/03/0520:17	07/29/0511:30	I07H007027	I07H007022	IPG052W	MS Duplicate (MSD)

FN - Filename
% Moist - Percent Moisture

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/20/05
Project	: JPL	Date Received:	07/22/05
SDG NO.	: 05G183	Date Extracted:	07/29/05 11:30
Sample ID:	MW-19-1	Date Analyzed:	08/03/05 19:25
Lab Samp ID:	G183-01	Dilution Factor:	1
Lab File ID:	I07H007015	Matrix :	WATER
Ext Btch ID:	IPG052W	% Moisture :	NA
Calib. Ref.:	I07H007010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	42.5	1	.1
Iron	2.52	.2	.04
Magnesium	16.8	1	.1
Potassium	3.41	2	1.4
Sodium	19.8	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/21/05
Project	: JPL	Date Received:	07/22/05
SDG NO.	: 05G183	Date Extracted:	07/29/05 11:30
Sample ID:	MW-18-5	Date Analyzed:	08/03/05 19:29
Lab Samp ID:	G183-02	Dilution Factor:	1
Lab File ID:	I07H007016	Matrix :	WATER
Ext Btch ID:	IPG052W	% Moisture :	NA
Calib. Ref.:	I07H007010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	9.25	1	.1
Iron	ND	.2	.04
Magnesium	4.39	1	.1
Potassium	ND	2	1.4
Sodium	53.1	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/21/05
Project	: JPL	Date Received:	07/22/05
SDG NO.	: 05G183	Date Extracted:	07/29/05 11:30
Sample ID:	MW-18-4	Date Analyzed:	08/03/05 19:33
Lab Samp ID:	G183-03	Dilution Factor:	1
Lab File ID:	I07H007017	Matrix :	WATER
Ext Btch ID:	IPG052W	% Moisture :	NA
Calib. Ref.:	I07H007010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	39	1	.1
Iron	.215	.2	.04
Magnesium	13.4	1	.1
Potassium	2.06	2	1.4
Sodium	29.3	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/21/05
Project	: JPL	Date Received:	07/22/05
SDG NO.	: 05G183	Date Extracted:	07/29/05 11:30
Sample ID:	MW-18-3	Date Analyzed:	08/03/05 19:37
Lab Samp ID:	G183-04	Dilution Factor:	1
Lab File ID:	I07H007018	Matrix :	WATER
Ext Btch ID:	IPG052W	% Moisture :	NA
Calib. Ref.:	I07H007010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	66.2	1	.1
Iron	ND	.2	.04
Magnesium	19.7	1	.1
Potassium	2.94	2	1.4
Sodium	23.8	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/21/05
Project	: JPL	Date Received:	07/22/05
SDG NO.	: 05G183	Date Extracted:	07/29/05 11:30
Sample ID:	MW-18-1	Date Analyzed:	08/03/05 19:41
Lab Samp ID:	G183-05	Dilution Factor:	1
Lab File ID:	I07H007019	Matrix :	WATER
Ext Btch ID:	IPG052W	% Moisture :	NA
Calib. Ref.:	I07H007010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	41.9	1	.1
Iron	ND	.2	.04
Magnesium	14	1	.1
Potassium	2.59	2	1.4
Sodium	15.8	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/21/05
Project	: JPL	Date Received:	07/22/05
SDG NO.	: 05G183	Date Extracted:	07/29/05 11:30
Sample ID:	MW-18-2	Date Analyzed:	08/03/05 19:45
Lab Samp ID:	G183-06	Dilution Factor:	1
Lab File ID:	I07H007020	Matrix :	WATER
Ext Btch ID:	IPG052W	% Moisture :	NA
Calib. Ref.:	I07H007010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	56.8	1	.1
Iron	.269	.2	.04
Magnesium	18.8	1	.1
Potassium	2.35	2	1.4
Sodium	20.3	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/21/05
Project	: JPL	Date Received:	07/22/05
SDG NO.	: 05G183	Date Extracted:	07/29/05 11:30
Sample ID:	DUPE-2-7/21/05	Date Analyzed:	08/03/05 19:49
Lab Samp ID:	G183-07	Dilution Factor:	1
Lab File ID:	I07H007021	Matrix :	WATER
Ext Btch ID:	IPG052W	% Moisture :	NA
Calib. Ref.:	I07H007010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	56.5	1	.1
Iron	ND	.2	.04
Magnesium	18.7	1	.1
Potassium	2.51	2	1.4
Sodium	19.8	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	NA
Project	: JPL	Date Received:	07/29/05
SDG NO.	: 05G183	Date Extracted:	07/29/05 11:30
Sample ID:	MBLK1W	Date Analyzed:	08/03/05 19:11
Lab Samp ID:	IPG052WB	Dilution Factor:	1
Lab File ID:	I07H007012	Matrix :	WATER
Ext Btch ID:	IPG052W	% Moisture :	NA
Calib. Ref.:	I07H007010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	ND	1	.1
Iron	ND	.2	.04
Magnesium	ND	1	.1
Potassium	ND	2	1.4
Sodium	ND	1	.25

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
SDG NO.: 05G183
METHOD: METHOD 200.7

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	MBLK1W				
CONTROL NO.:	IPG052WB	IPG052WL	IPG052WC		
LAB FILE ID:	I07H007012	I07H007013	I07H007014		
DATIME EXTRCTD:	07/29/0511:30	07/29/0511:30	07/29/0511:30	DATE COLLECTED:	NA
DATIME ANALYZD:	08/03/0519:11	08/03/0519:15	08/03/0519:20	DATE RECEIVED:	07/29/05
PREP. BATCH:	IPG052W	IPG052W	IPG052W		
CALIB. REF:	I07H007010	I07H007010	I07H007010		

ACCESSION:

PARAMETER	BLNK RSLT mg/L	SPIKE AMT mg/L	BS RSLT mg/L	BS % REC	SPIKE AMT mg/L	BSD RSLT mg/L	BSD % REC	RPD %	QC LIMIT %	MAX RPD %
Calcium	ND	50	50.9	102	50	50.4	101	1	85-115	20
Iron	ND	10	10.6	106	10	10.4	104	2	85-115	20
Magnesium	ND	50	51.6	103	50	50.8	102	2	85-115	20
Potassium	ND	50	51.1	102	50	50.6	101	1	85-115	20
Sodium	ND	50	50.9	102	50	50.5	101	1	85-115	20

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
SDG NO.: 05G183
METHOD: METHOD 200.7

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	DUPE-2-7/21/05				
CONTROL NO.:	G183-07	G183-07M	G183-07S		
LAB FILE ID:	I07H007021	I07H007026	I07H007027		
DATIME EXTRCTD:	07/29/0511:30	07/29/0511:30	07/29/0511:30	DATE COLLECTED:	07/21/05
DATIME ANALYZD:	08/03/0519:49	08/03/0520:13	08/03/0520:17	DATE RECEIVED:	07/22/05
PREP. BATCH:	IPG052W	IPG052W	IPG052W		
CALIB. REF:	I07H007010	I07H007022	I07H007022		

ACCESSION:

PARAMETER	SMPL RSLT mg/L	SPIKE AMT mg/L	MS RSLT mg/L	MS % REC	SPIKE AMT mg/L	MSD RSLT mg/L	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Calcium	56.5	50	108	102	50	107	101	1	70-130	20
Iron	ND	10	10.6	106	10	10.6	106	0	70-130	20
Magnesium	18.7	50	71.1	105	50	69.6	102	2	70-130	20
Potassium	2.51	50	55.3	106	50	55.1	105	0	70-130	20
Sodium	19.8	50	71.4	103	50	70.2	101	2	70-130	20

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G183
METHOD: METHOD 200.7

==========

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 5
SAMPLE ID: DUPE-2-7/21/05 DUPE-2-7/21/05DL
EMAX SAMP ID: G183-07 G183-07T
LAB FILE ID: I07H007021 I07H007024
DATE EXTRACTED: 07/29/0511:30 07/29/0511:30 DATE COLLECTED: 07/21/05
DATE ANALYZED: 08/03/0519:49 08/03/0520:05 DATE RECEIVED: 07/22/05
PREP. BATCH: IPG052W IPG052W
CALIB. REF: I07H007010 I07H007022

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SERIAL DIL RSLT (mg/L)	DIF RSLT %	QC LIMIT (%)
Calcium	56.5	56.6	0	10
Iron	ND	ND	0	10
Magnesium	18.7	18.8	0	10
Potassium	2.51	ND	NA	10
Sodium	19.8	21.1	7	10

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
SDG NO.: 05G183
METHOD: METHOD 200.7

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	DUPE-2-7/21/05			
CONTROL NO.:	G183-07	G183-07A		
LAB FILE ID:	I07H007021	I07H007025		
DATIME EXTRCTD:	07/29/0511:30	07/29/0511:30	DATE COLLECTED:	07/21/05
DATIME ANALYZD:	08/03/0519:49	08/03/0520:09	DATE RECEIVED:	07/22/05
PREP. BATCH:	IPG052W	IPG052W		
CALIB. REF:	I07H007010	I07H007022		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	AS RSLT (mg/L)	AS % REC	QC LIMIT (%)
Calcium	56.5	50	104	95	75-125
Iron	ND	10	10.2	102	75-125
Magnesium	18.7	50	68.9	100	75-125
Potassium	2.51	50	53.6	102	75-125
Sodium	19.8	50	69	98	75-125

REGULAR ICP QC CHECK TABLE

QC	ICV HIGH	ICV	CCV	ICSAB	ICSA
Limit%	95-105	90-110	90-110	80-120	80-120
Comp	mg/L	mg/L	mg/L	mg/L	mg/L
Al	10	5	5	500	500
Sb	2	1	1	1	0
As	2	1	1	1	0
Ba	2	1	1	0.5	0
Be	2	1	1	0.5	0
B	2	1	1	0.5	0
Cd	2	1	1	1	0
Ca	100	50	50	500	500
Cr	2	1	1	0.5	0
Co	2	1	1	0.5	0
Cu	2	1	1	0.5	0
Fe	10	5	5	200	200
Pb	2	1	1	1	0
Mg	100	50	50	500	500
Mn	2	1	1	0.5	0
Mo	2	1	1	1	0
Ni	2	1	1	1	0
K	100	50	50	50	0
Se	2	1	1	3.6	0
Ag	2	1	1	1	0
Na	100	50	50	10	0
Sr	2	1	1	0.5	0
Tl	2	1	1	3.6	0
Sn	10	5	5	1	0
Ti	2	1	1	1	0
V	2	1	1	0.5	0
Zn	2	1	1	1	0

ANALYSIS RUN LOG FOR ICP

SOP ☒ EMAX-6010-Rev. 3 ☐ EMAX-CLP-TAL ☒ 200.7 **Method File:** 6010B2 **Autosampler Table:**

Matrix: WATER **Start Date:** 8/3/05 **Time:** 18:22 **End Date:** 8/3/05 **Time:** 21:10 **Book#** A24 -038

ANALYTICAL BATCH* 707HCC7

	Data File Name	Prep. Batch	Lab Sample ID	DF	Matrix	Notes
01			S0			
02			S3			
03			S6			
04			ICV (QCS)			
05			ICB			
06			CCV (IPC)			
07			CCB			
08			ICSA1			
09			ICSAB1			
10			CCV1 (IPC)			
11			CCB1			
12		IPG052W	IPG052WB	1	W	(LRB)
13			NL	1		(LFB)
14			NC	1		(LFB)
15			G1837 01	1		
16			02	1		
17			03	1		
18			04	1		
19			05	1		
20			06	1		
21			07	1		
22			CCV2 (IPC)	1		
23			CCB2	1		
24			G1837 07T	5		
25			07A	1		

ANALYTICAL BATCH * _____

	Data File Name	Prep. Batch	Lab Sample ID	DF	Matrix	Notes
26		IPG052W	G1837 07M	1	W	(LRM)
27			07S	1		(LRM)
28			G218-01	1		
29			02	1		
30			03	1		
31			04	1		
32			05	1		
33			06	1		
34			CCV3 (IPC)	1		
35			CCB3	1		
36			ICSA1	1		
37			ICSAB1	1		
38			CCV4 (IPC)	1		
39			CCB4	1		
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						

Instrument No. 24

Std.	ID
S_0	SMIP09-38-01
S_1	NA
S_2	NA
S_3	SMIP09-44-04
S_4	NA
S_5	NA
S_6	SMIP09-46-02
(QCS) CV	09-69-02
ICVH1	NA
ICVH2	NA
(QC) CCV	SMIP09-60-02
ICSA	09-63-03
ICSAB	09-60-01
MRL	NA

Comments:

OK

Analyzed By: JWM

Date Disposed:

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

SEQUENCE FILE : I07H007

4-18	19-33	34-43	44-53	54-63
LFID	LSID	TIME	DATE	DF
I07H007001	S0	18:22	08/03/05	1
I07H007002	S3	18:26	08/03/05	1
I07H007003	S6	18:31	08/03/05	1
I07H007004	ICV	18:34	08/03/05	1
I07H007005	ICB	18:40	08/03/05	1
I07H007006	CCV	18:44	08/03/05	1
I07H007007	CCB	18:48	08/03/05	1
I07H007008	ICSAI	18:54	08/03/05	1
I07H007009	ICSABI	18:58	08/03/05	1
I07H007010	CCV1	19:02	08/03/05	1
I07H007011	CCB1	19:07	08/03/05	1
I07H007012	IPG052WB	19:11	08/03/05	1
I07H007013	IPG052WL	19:15	08/03/05	1
I07H007014	IPG052WC	19:20	08/03/05	1
I07H007015	G183-01	19:25	08/03/05	1
I07H007016	G183-02	19:29	08/03/05	1
I07H007017	G183-03	19:33	08/03/05	1
I07H007018	G183-04	19:37	08/03/05	1
I07H007019	G183-05	19:41	08/03/05	1
I07H007020	G183-06	19:45	08/03/05	1
I07H007021	G183-07	19:49	08/03/05	1
I07H007022	CCV2	19:55	08/03/05	1
I07H007023	CCB2	20:01	08/03/05	1
I07H007024	G183-07T	20:05	08/03/05	5
I07H007025	G183-07A	20:09	08/03/05	1
I07H007026	G183-07M	20:13	08/03/05	1
I07H007027	G183-07S	20:17	08/03/05	1
I07H007028	G218-01	20:23	08/03/05	1
I07H007029	G218-02	20:27	08/03/05	1
I07H007030	G218-03	20:31	08/03/05	1
I07H007031	G218-04	20:35	08/03/05	1
I07H007032	G218-05	20:39	08/03/05	1
I07H007033	G218-06	20:43	08/03/05	1
I07H007034	CCV2	20:49	08/03/05	1
I07H007035	CCB2	20:54	08/03/05	1
I07H007036	ICSAF	20:58	08/03/05	1
I07H007037	ICSABF	21:02	08/03/05	1
I07H007038	CCV3	21:06	08/03/05	1
I07H007039	CCB3	21:10	08/03/05	1

SDG : 056183 UNIT : % ICP CHECK : I07H007 DATE : 08/03/05 INST : EMAXTI07

ANALYTE	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
S0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICV	99	98	99	97	100	102	97	99	97	97	98	101	97	101	98	98	96	98	105	97	100	97	98	98	100	98	97
ICB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV	100	96	101	98	98	98	99	100	98	97	98	101	98	100	98	99	97	100	104	99	99	98	96	98	98	98	98
CCB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAI	97	----	----	----	----	----	----	93	----	----	----	91	----	99	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSABI	96	88	106	94	94	95	92	92	88	86	98	90	96	98	90	89	86	100	106	97	104	92	102	86	92	97	93
CCV1	100	96	98	99	98	98	99	100	97	96	98	101	97	99	97	98	96	98	99	99	100	98	102	98	98	97	97
CCB1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPG052WB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPG052WL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPG052WC	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-03	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-05	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-07	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV2	101	98	97	99	99	99	100	101	97	96	98	101	99	100	97	99	98	102	100	100	99	98	100	99	98	98	97
CCB2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-07T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-07A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-07M	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-07S	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G218-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G218-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G218-03	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G218-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G218-05	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G218-06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV2	100	97	95	98	97	99	98	99	95	93	96	99	97	99	95	96	96	101	98	99	99	97	101	96	97	96	94
CCB2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAF	95	----	----	----	----	----	----	91	----	----	----	88	----	97	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSABF	95	88	99	93	91	95	92	91	85	83	96	87	90	96	88	85	86	105	102	97	104	90	99	84	90	93	90
CCV3	99	99	97	98	97	98	99	99	95	93	96	99	99	98	95	95	97	102	98	99	98	97	98	96	97	96	94
CCB3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

QC limit of each parameter are listed in a table attached next to all the ICP check forms
* : Out of QC Limit

SDG : 035183 UNIT : UG/L SUMMARY of CALIBRATION BLANKS : I07H007 (WATER) DATE : 08/03/05 INST : EMAXTI07

ANALYTE	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
SD	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICV	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICB	4.74	19.9	11.5	.090	-.060	3.65	.260	.600	.000	.660	1.16	1.11	14.7	7.82	1.49	9.24	-3.46	619	-54.5	-.170	7.41	.120	-19.0	27.2	-.120	2.10	.940
CCV	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB	4.75	-5.03	3.13	-.090	-.060	1.83	-.520	4.70	-2.11	2.12	.000	3.05	-1.60	7.81	.000	9.24	-.380	277	-4.71	-2.25	.000	.090	13.8	-9.52	.020	1.62	.470
ICSAI	----	34.0	145	-.210	-.120	7.23	-1.13	----	-8.79	.280	8.11	----	78.8	----	-1.37	3.41	1.92	-659	219	14.7	7.41	-1.84	297	-6.46	-11.3	-3.64	2.06
ICSABI	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB1	-4.59	16.2	-2.09	.000	.050	.920	.030	3.38	1.81	2.26	1.16	1.66	5.74	28.2	.670	11.9	-4.04	906	-47.0	-1.03	7.41	.090	37.9	21.8	-.110	4.63	.350
IPG052WB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPG052WL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPG052WC	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-03	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-05	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-07	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB2	2.08	7.32	2.09	.090	-.130	1.37	-.260	-3.04	.300	.520	-.390	1.11	2.18	12.8	1.49	5.28	2.88	431	-36.7	-1.55	7.41	.120	20.7	-12.2	.320	1.80	.380
G183-07T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-07A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-07M	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G183-07S	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G218-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G218-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G218-03	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G218-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G218-05	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G218-06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB2	-15.9	6.32	-13.6	-.090	-.260	1.37	1.16	-1.27	1.21	3.45	1.17	.830	.290	-6.22	.810	5.28	4.81	4.95	-41.4	.510	7.41	.220	-7.76	-4.05	-.760	2.73	-1.14
ICSAF	----	45.3	23.9	-.270	-.250	14.2	.880	----	-9.77	1.34	8.96	----	5.97	----	-2.92	14.0	-.570	1179	259	15.1	7.41	-1.57	190	-5.06	-12.1	-7.11	1.67
ICSABF	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB3	-1.32	16.4	3.14	.090	-.260	2.29	-.280	-5.08	-2.10	1.59	.000	2.22	-10.3	-8.57	.810	13.2	2.11	-267	-31.9	-.510	.000	.250	18.1	13.6	.660	2.86	1.39

QC limit of each parameter are listed in a table attached next to all the ICP check forms
* : Out of QC Limit

DIGESTION LOG FOR ICP METALS

SOP ☐ EMAX-3005 Rev. No.3 ☐ EMAX-3010 Rev. No. 2 ☐ EMAX-3050 Rev. No. 2 ☐ EMAX-CLP-TAL ☑ 200.7 Book # EIP-046

Matrix: WATER Start Date: 7-29-05 Time: 11:30 Temp: 85 °C Ending Date: 7-29-05 Time: 13:30 Temp.: 85 °C

BATCH: IPG052-W

Sample Prep ID	Lab Sample ID	Matrix Description Color	Matrix Description Texture / Clarity	Matrix Description Artifacts	Turbidity <1 NTU	Sample Amount (g | ml)	pH	Extract Volume (ml)	Digestate Description Color	Digestate Description Clarity
01	IPG052-WB					50	–	50		
02	-WL					50	–	50		
03	-WC					50	–	50		
04	G183-01					50	<2	50		
05	-02					50		50		
06	-03					50		50		
07	-04					50		50		
08	-05					50		50		
09	-06					50		50		
10	-07					50		50		
11	-07M					50		50		
12	-07S					50		50		
13	G158-01					50		50		
14	-02					50		50		
15	G539-01					50		50		
16	G218-01					50		50		
17	-02					50		50		
18	-03					50		50		
19	-04					50		50		
20	-05					50		50		
21	-06					50		50		
22										
23										
24										
25										

7-29-05 MC

Standards	ID	Amount Added (ml)
LCS -1	SM1A-09-42	0.5
LCS -2	SM1A-09-43	0.5
LCS -3	SM1A-09-44	0.5
MS		

Reagent	Lot# / ID	Amount Added (ml)
HNO_3	SW1A-03-120	0.5
HCl	SW1A-03-115	0.25
H_2O_2	N/A	
HNO3 (1:1)	N/A	

Digestate Location	ICP LAB
Extract Location	

Legend:

Texture	Cs = Coarse	Md = Medium	Fn = Fine
Clarity	Cr = Clear	Cy = Cloudy	Td = Turbid
Artifacts	Rk = rocks	Sl = Shale	Vg=Vegetation
Color	Bu = blue	Bk = Black	Bn = Brown
	Gn = Green	Og = Orange	Rd = Red
	Yw = Yellow	Cl = Colorless	

Comments: Samples for Methods 200.7 or 200.8 Analyses

If turbidity ≤ 1 NTU no digestion is required unless otherwise required by the project

Prepared By: MC Standard Added By: MC

Witnessed By: AZ Extracts Rcvd. By: AZ 7/29/05

Checked By: AZ

Date Disposed: Disposed by:

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

7020

LABORATORY REPORT FOR

BATTELLE MEMORIAL INSTITUTE

JPL

WET CHEMICAL ANALYSES

SDG#: 05G183

8000

CASE NARRATIVE

CLIENT: **BATTELL MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G183**

METHOD 300.0
ANIONS

Seven (7) water samples were received on 07/22/05 for Chloride, Nitrate-N, Nitrite-N and Sulfate analyses by method 300.0 in accordance with "Method for Determination of Inorganic Anions by Ion Chromatography", EPA 600/84-017.

1. Holding Time

Analyses met holding time criteria.

2. Method Blank

Method blanks were free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limits.

4. Duplicate

Sample G183-03 was analyzed for duplicate. %RPDs were within QC limit.

5. Matrix Spike

Sample G183-03 was spiked. Recoveries were within QC limit except Chloride was out of the limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

Two DCCS associated with Nitrate-N and Nitrite-N were bias high. The samples were not reanalyzed due to holding time criteria.

Nitrate/Nitrite-N were reported as Nitrogen concentration.

SAMPLE RESULTS

METHOD 300.0
CHLORIDE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G183

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICG038WB	ND	1	NA	.2	.1	07/29/0504:18	NA	AG28-64	AG28-61	ICG038W	NA	NA
LCS1W	ICG038WL	4.7	1	NA	.2	.1	07/29/0504:33	NA	AG28-65	AG28-61	ICG038W	NA	NA
LCD1W	ICG038WC	4.68	1	NA	.2	.1	07/29/0504:47	NA	AG28-66	AG28-61	ICG038W	NA	NA
MW-19-1	G183-01	20.1	5	NA	1	.5	07/29/0505:01	NA	AG28-67	AG28-61	ICG038W	07/20/05	07/22/05
MW-18-5	G183-02	10.4	2	NA	.4	.2	07/29/0505:15	NA	AG28-68	AG28-61	ICG038W	07/21/05	07/22/05
MW-18-4	G183-03	10.7	5	NA	1	.5	07/29/0505:29	NA	AG28-69	AG28-61	ICG038W	07/21/05	07/22/05
MW-18-4DUP	G183-03D	10.8	5	NA	1	.5	07/29/0505:43	NA	AG28-70	AG28-61	ICG038W	07/21/05	07/22/05
MW-18-4MS	G183-03M	29.7	5	NA	1	.5	07/29/0505:57	NA	AG28-71	AG28-61	ICG038W	07/21/05	07/22/05
MW-18-3	G183-04	16.1	5	NA	1	.5	07/29/0506:11	NA	AG28-72	AG28-61	ICG038W	07/21/05	07/22/05
MW-18-1	G183-05	9.52	5	NA	1	.5	07/29/0506:53	NA	AG28-75	AG28-73	ICG038W	07/21/05	07/22/05
MW-18-2	G183-06	14.3	5	NA	1	.5	07/29/0507:07	NA	AG28-76	AG28-73	ICG038W	07/21/05	07/22/05
DUPE-2-7/21/05	G183-07	14.2	5	NA	1	.5	07/29/0507:21	NA	AG28-77	AG28-73	ICG038W	07/21/05	07/22/05

METHOD 300.0
NITRATE-N

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G183

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICG026WB	ND	1	NA	.1	.05	07/22/0521:44	NA	AG22-04	AG22-01	ICG026W	NA	NA
LCS1W	ICG026WL	2.4	1	NA	.1	.05	07/22/0521:58	NA	AG22-05	AG22-01	ICG026W	NA	NA
LCD1W	ICG026WC	2.41	1	NA	.1	.05	07/22/0522:12	NA	AG22-06	AG22-01	ICG026W	NA	NA
MW-19-1	G183-01	1.38	1	NA	.1	.05	07/22/0522:26	NA	AG22-07	AG22-01	ICG026W	07/20/05	07/22/05
MW-18-5	G183-02	ND	1	NA	.1	.05	07/22/0522:40	NA	AG22-08	AG22-01	ICG026W	07/21/05	07/22/05
MW-18-4	G183-03	1.13	1	NA	.1	.05	07/22/0522:54	NA	AG22-09	AG22-01	ICG026W	07/21/05	07/22/05
MW-18-4DUP	G183-03D	1.13	1	NA	.1	.05	07/22/0523:08	NA	AG22-10	AG22-01	ICG026W	07/21/05	07/22/05
MW-18-4MS	G183-03M	3.71	1	NA	.1	.05	07/22/0523:22	NA	AG22-11	AG22-01	ICG026W	07/21/05	07/22/05
MW-18-3	G183-04	1.33	1	NA	.1	.05	07/22/0523:37	NA	AG22-12	AG22-01	ICG026W	07/21/05	07/22/05
MW-18-1	G183-05	1.58	1	NA	.1	.05	07/23/0500:33	NA	AG22-16	AG22-14	ICG026W	07/21/05	07/22/05
MW-18-2	G183-06	1.05	1	NA	.1	.05	07/23/0500:47	NA	AG22-17	AG22-14	ICG026W	07/21/05	07/22/05
DUPE-2-7/21/05	G183-07	1.3	1	NA	.1	.05	07/23/0501:01	NA	AG22-18	AG22-14	ICG026W	07/21/05	07/22/05

8004

dh

METHOD 300.0
NITRITE-N

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G183

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICG026WB	ND	1	NA	.1	.05	07/22/0521:44	NA	AG22-04	AG22-01	ICG026W	NA	NA
LCS1W	ICG026WL	2.45	1	NA	.1	.05	07/22/0521:58	NA	AG22-05	AG22-01	ICG026W	NA	NA
LCD1W	ICG026WC	2.39	1	NA	.1	.05	07/22/0522:12	NA	AG22-06	AG22-01	ICG026W	NA	NA
MW-19-1	G183-01	ND	1	NA	.1	.05	07/22/0522:26	NA	AG22-07	AG22-01	ICG026W	07/20/05	07/22/05
MW-18-5	G183-02	ND	1	NA	.1	.05	07/22/0522:40	NA	AG22-08	AG22-01	ICG026W	07/21/05	07/22/05
MW-18-4	G183-03	ND	1	NA	.1	.05	07/22/0522:54	NA	AG22-09	AG22-01	ICG026W	07/21/05	07/22/05
MW-18-4DUP	G183-03D	ND	1	NA	.1	.05	07/22/0523:08	NA	AG22-10	AG22-01	ICG026W	07/21/05	07/22/05
MW-18-4MS	G183-03M	2.46	1	NA	.1	.05	07/22/0523:22	NA	AG22-11	AG22-01	ICG026W	07/21/05	07/22/05
MW-18-3	G183-04	ND	1	NA	.1	.05	07/22/0523:37	NA	AG22-12	AG22-01	ICG026W	07/21/05	07/22/05
MW-18-1	G183-05	ND	1	NA	.1	.05	07/23/0500:33	NA	AG22-16	AG22-14	ICG026W	07/21/05	07/22/05
MW-18-2	G183-06	ND	1	NA	.1	.05	07/23/0500:47	NA	AG22-17	AG22-14	ICG026W	07/21/05	07/22/05
DUPE-2-7/21/05	G183-07	ND	1	NA	.1	.05	07/23/0501:01	NA	AG22-18	AG22-14	ICG026W	07/21/05	07/22/05

METHOD 300.0
SULFATE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G183

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICG038WB	ND	1	NA	.5	.25	07/29/0504:18	NA	AG28-64	AG28-61	ICG038W	NA	NA
LCS1W	ICG038WL	7.1	1	NA	.5	.25	07/29/0504:33	NA	AG28-65	AG28-61	ICG038W	NA	NA
LCD1W	ICG038WC	7.12	1	NA	.5	.25	07/29/0504:47	NA	AG28-66	AG28-61	ICG038W	NA	NA
MW-19-1	G183-01	26.3	5	NA	2.5	1.25	07/29/0505:01	NA	AG28-67	AG28-61	ICG038W	07/20/05	07/22/05
MW-18-5	G183-02	4.87	2	NA	1	.5	07/29/0505:15	NA	AG28-68	AG28-61	ICG038W	07/21/05	07/22/05
MW-18-4	G183-03	24.2	5	NA	2.5	1.25	07/29/0505:29	NA	AG28-69	AG28-61	ICG038W	07/21/05	07/22/05
MW-18-4DUP	G183-03D	24.2	5	NA	2.5	1.25	07/29/0505:43	NA	AG28-70	AG28-61	ICG038W	07/21/05	07/22/05
MW-18-4MS	G183-03M	60.7	5	NA	2.5	1.25	07/29/0505:57	NA	AG28-71	AG28-61	ICG038W	07/21/05	07/22/05
MW-18-3	G183-04	40.7	5	NA	2.5	1.25	07/29/0506:11	NA	AG28-72	AG28-61	ICG038W	07/21/05	07/22/05
MW-18-1	G183-05	33.1	5	NA	2.5	1.25	07/29/0506:53	NA	AG28-75	AG28-73	ICG038W	07/21/05	07/22/05
MW-18-2	G183-06	39.3	5	NA	2.5	1.25	07/29/0507:07	NA	AG28-76	AG28-73	ICG038W	07/21/05	07/22/05
DUPE-2-7/21/05	G183-07	39.2	5	NA	2.5	1.25	07/29/0507:21	NA	AG28-77	AG28-73	ICG038W	07/21/05	07/22/05

QC SUMMARIES

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G183
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICG038WB	ICG038WL	ICG038WC		
LAB FILE ID:	AG28-64	AG28-65	AG28-66		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	07/29/0504:18	07/29/0504:33	07/29/0504:47	DATE RECEIVED:	NA
PREP. BATCH:	ICG038W	ICG038W	ICG038W		
CALIB. REF:	AG28-61	AG28-61	AG28-61		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride-Cl	ND	5	4.7	94	5	4.68	94	0	90-110	20

8008

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G183
METHOD: METHOD 300.0

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MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	5	5		
SAMPLE ID:	MW-18-4			
LAB SAMP ID:	G183-03	G183-03M		
LAB FILE ID:	AG28-69	AG28-71		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/21/05
DATE ANALYZED:	07/29/0505:29	07/29/0505:57	DATE RECEIVED:	07/22/05
PREP. BATCH:	ICG038W	ICG038W		
CALIB. REF:	AG28-61	AG28-61		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
Chloride-Cl	10.7	25	29.7	76*	80-120

6009

EMAX QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G183
METHOD: METHOD 300.0

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	5	5		
SAMPLE ID:	MW-18-4	MW-18-4DUP		
EMAX SAMP ID:	G183-03	G183-03D		
LAB FILE ID:	AG28-69	AG28-70		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/21/05
DATE ANALYZED:	07/29/0505:29	07/29/0505:43	DATE RECEIVED:	07/22/05
PREP. BATCH:	ICG038W	ICG038W		
CALIB. REF:	AG28-61	AG28-61		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	DUPL RSLT (mg/L)	RPD RSLT %	QC LIMIT (%)
Chloride-Cl	10.7	10.8	0	20

8010

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G183
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICG026WB	ICG026WL	ICG026WC		
LAB FILE ID:	AG22-04	AG22-05	AG22-06		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	07/22/0521:44	07/22/0521:58	07/22/0522:12	DATE RECEIVED:	NA
PREP. BATCH:	ICG026W	ICG026W	ICG026W		
CALIB. REF:	AG22-01	AG22-01	AG22-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrate-N	ND	2.5	2.4	96	2.5	2.41	96	0	90-110	20

8011

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G183
METHOD: METHOD 300.0

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MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-18-4			
LAB SAMP ID:	G183-03	G183-03M		
LAB FILE ID:	AG22-09	AG22-11		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/21/05
DATE ANALYZED:	07/22/0522:54	07/22/0523:22	DATE RECEIVED:	07/22/05
PREP. BATCH:	ICG026W	ICG026W		
CALIB. REF:	AG22-01	AG22-01		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
Nitrate-N	1.13	2.5	3.71	103	80-120

8012

EMAX QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G183
METHOD: METHOD 300.0

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-18-4	MW-18-4DUP		
EMAX SAMP ID:	G183-03	G183-03D		
LAB FILE ID:	AG22-09	AG22-10		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/21/05
DATE ANALYZED:	07/22/0522:54	07/22/0523:08	DATE RECEIVED:	07/22/05
PREP. BATCH:	ICG026W	ICG026W		
CALIB. REF:	AG22-01	AG22-01		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	DUPL RSLT (mg/L)	RPD RSLT %	QC LIMIT (%)
Nitrate-N	1.13	1.13	0	20

8013

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G183
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICG026WB	ICG026WL	ICG026WC		
LAB FILE ID:	AG22-04	AG22-05	AG22-06		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	07/22/0521:44	07/22/0521:58	07/22/0522:12	DATE RECEIVED:	NA
PREP. BATCH:	ICG026W	ICG026W	ICG026W		
CALIB. REF:	AG22-01	AG22-01	AG22-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrite-N	ND	2.5	2.45	98	2.5	2.39	96	3	90-110	20

8014

dn

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G183
METHOD: METHOD 300.0

==========

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-18-4			
LAB SAMP ID:	G183-03	G183-03M		
LAB FILE ID:	AG22-09	AG22-11		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/21/05
DATE ANALYZED:	07/22/0522:54	07/22/0523:22	DATE RECEIVED:	07/22/05
PREP. BATCH:	ICG026W	ICG026W		
CALIB. REF:	AG22-01	AG22-01		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
Nitrite-N	ND	2.5	2.46	98	80-120

EMAX QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G183
METHOD: METHOD 300.0

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-18-4	MW-18-4DUP		
EMAX SAMP ID:	G183-03	G183-03D		
LAB FILE ID:	AG22-09	AG22-10		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/21/05
DATE ANALYZED:	07/22/0522:54	07/22/0523:08	DATE RECEIVED:	07/22/05
PREP. BATCH:	ICG026W	ICG026W		
CALIB. REF:	AG22-01	AG22-01		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	DUPL RSLT (mg/L)	RPD RSLT %	QC LIMIT (%)
Nitrite-N	ND	ND	0	20

8016

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G183
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICG038WB	ICG038WL	ICG038WC		
LAB FILE ID:	AG28-64	AG28-65	AG28-66		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	07/29/0504:18	07/29/0504:33	07/29/0504:47	DATE RECEIVED:	NA
PREP. BATCH:	ICG038W	ICG038W	ICG038W		
CALIB. REF:	AG28-61	AG28-61	AG28-61		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Sulfate	ND	7.5	7.1	95	7.5	7.12	95	0	90-110	20

8017

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G183
METHOD: METHOD 300.0

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MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	5	5		
SAMPLE ID:	MW-18-4			
LAB SAMP ID:	G183-03	G183-03M		
LAB FILE ID:	AG28-69	AG28-71		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/21/05
DATE ANALYZED:	07/29/0505:29	07/29/0505:57	DATE RECEIVED:	07/22/05
PREP. BATCH:	ICG038W	ICG038W		
CALIB. REF:	AG28-61	AG28-61		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
Sulfate	24.2	37.5	60.7	97	80-120

3018

4

EMAX QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G183
METHOD: METHOD 300.0

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	5	5		
SAMPLE ID:	MW-18-4	MW-18-4DUP		
EMAX SAMP ID:	G183-03	G183-03D		
LAB FILE ID:	AG28-69	AG28-70		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/21/05
DATE ANALYZED:	07/29/0505:29	07/29/0505:43	DATE RECEIVED:	07/22/05
PREP. BATCH:	ICG038W	ICG038W		
CALIB. REF:	AG28-61	AG28-61		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	DUPL RSLT (mg/L)	RPD RSLT %	QC LIMIT (%)
Sulfate	24.2	24.2	0	20

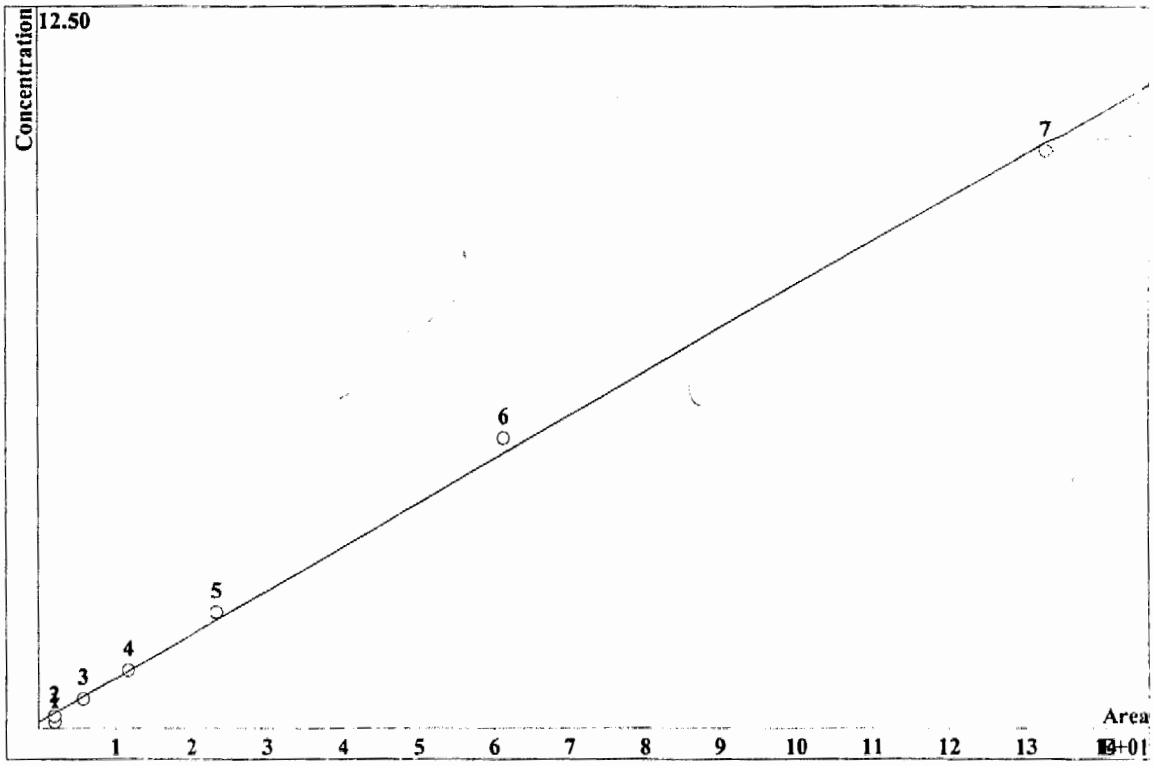
INITIAL CALIBRATIONS

IC Result Check FormVersion : qG1

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AG12-01	IB	FCIBNPS	0	0	0	0	0	0	0	p7121933	1
AG12-02	S0	FCIBNPS	0	0	0	0	0	0	0	p7121947	1
AG12-03	S1	FCIBNPS	0.20922	0.26528	0.13263	0.17713	0.15064	0.23059	0.62598	p7122001	1
AG12-04	S2	FCIBNPS	0.27777	0.26131	0.22143	0.24989	0.23142	0.30903	0.72351	p7122016	1
AG12-05	S3	FCIBNPS	0.58991	0.54378	0.49016	0.55127	0.49616	0.56439	1.454	p7122030	1
AG12-06	S4	FCIBNPS	1.0109	0.98258	0.97309	1.0085	0.95747	1.027	2.868	p7122044	1
AG12-07	S5	FCIBNPS	1.9049	1.8679	1.9644	1.9839	1.9331	2.0024	5.7811	p7122058	1
AG12-08	S6	FCIBNPS	4.9656	4.7397	5.0183	4.9153	5.0312	4.8329	15.101	p7122112	1
AG12-09	S7	FCIBNPS	10.029	10.139	10.729	10.041	11.159	10.073	32.87	p7122126	1
AG12-10	ICV	FCIBNPS	97.2%	92.9%	97.1%	99.8%	97%	97.6%	97.4%	p7122140	1
AG12-11	ICB	FCIBNPS	0	0	0	0	0	0	0	p7122154	1
AG12-12	CCV1	FCIBNPS	93.8%	90%	94.6%	96.4%	93.3%	97%	94.4%	p7122208	1
AG12-13	CCB1	FCIBNPS	0	0	0	0	0	0	0	p7122222	1
AG12-14	ICG011WB	FCIBNPS	0	0	0	0	0	0	0	p7122236	1
AG12-15	ICG011WL	FCIBNPS	4.9443	2.4394	2.4005	5.0644	2.3517	4.8648	7.0588	p7122250	1
AG12-16	ICG011WC	FCIBNPS	4.9971	2.4088	2.3901	5.0721	2.3585	5.016	7.2809	p7122305	1
AG12-17	MRL	FCIBNPS	0	0.25633	0	0	0.14022	0	0.49989	p7122319	1
AG12-18	G608-01	FCIBNPS	0	17.852	0	0	4.4945	0	15.463	p7122333	5
AG12-19	G608-02	FCIBNPS	0	19.873	0	0	2.0438	0	15.346	p7122347	5
AG12-20	G608-02D	FCIBNPS	0	19.907	0	0	2.0568	0	15.409	p7130001	5
AG12-21	G608-02M	FCIBNPS	25.496	32.238	12.127	24.026	14.648	25.773	51.746	p7130015	5
AG12-22	G058-17	FCIBNPS	0	0.86159	0	0	0.13449	0	5.2827	p7130029	1
AG12-23	RINSE	FCIBNPS	0	0	0	0	0	0	0	p7130043	1
AG12-24	CCV2	FCIBNPS	100.4%	95.6%	95.5%	101.3%	94.3%	100.6%	97.8%	p7130057	1
AG12-25	CCB2	FCIBNPS	0	0	0	0	0	0	0	p7130111	1
AG12-26	G058-18	F*IBNP*	0.42065	23.035E	0	2.6521	0	0	69.943E	p7130125	1
AG12-27	G058-19	FCIBNP*	0.52238	8.3145	0	0	0	0	63.422E	p7130139	1
AG12-28	G058-20	FCIBNP*	0.52701	8.2627	0	0	0	0	63.425E	p7130153	1
AG12-29	G058-21	FCIBNP*	0.49273	6.0643	0	0	0.091894	0	61.446E	p7130208	1
AG12-30	G058-22	F*IBNP*	0	995.75E	0	0.23033	0	0	15.385E	p7130222	1
AG12-31	G058-23	FCIBNPS	0.61192	6.4321	0	0.2531	0	0	7.0539	p7130236	1
AG12-32	G058-24	FCIBNPS	0.32896	2.8076	0	3.1748	0	0	10.156	p7130250	1
AG12-33	G058-25	F*IBNP*	0.34649	11.301E	0	2.5751	0	0	89.86E	p7130304	1
AG12-34	RINSE	FCIBNPS	0	0	0	0	0	0	0	p7130318	1
AG12-35	RINSE	FCIBNPS	0	0	0	0	0	0	0	p7130332	1
AG12-36	CCV3	FCIBNPS	100.2%	95.6%	95.6%	101.8%	94.8%	96.8%	97.9%	p7130346	1
AG12-37	CCB3	FCIBNPS	0	0	0	0	0	0.1887	0	p7130400	1
AG12-38	MRL	FCIBNPS	0	0.25923	0	0	0.13842	0	0.49672	p7130414	1
AG12-39	MDL	FCIBNPS	0	0.25447	0	0	0.13519	0	0.48865	p7130428	1
AG12-40	CCV4	FCIBNPS	96.9%	93.9%	92.9%	99.9%	92.5%	98%	95.5%	p7130442	1
AG12-41	CCB4	FCIBNPS	0.21534	0	0.090606	0	0	0.92427	0	p7130456	1

CALIBRATION OF COMPONENT chloride

Method: IC100-G12.mtw
Equation: Q = 0.0757087·A + 0.100061
RSD: 6.184 %
Correlation coefficient: 0.999136



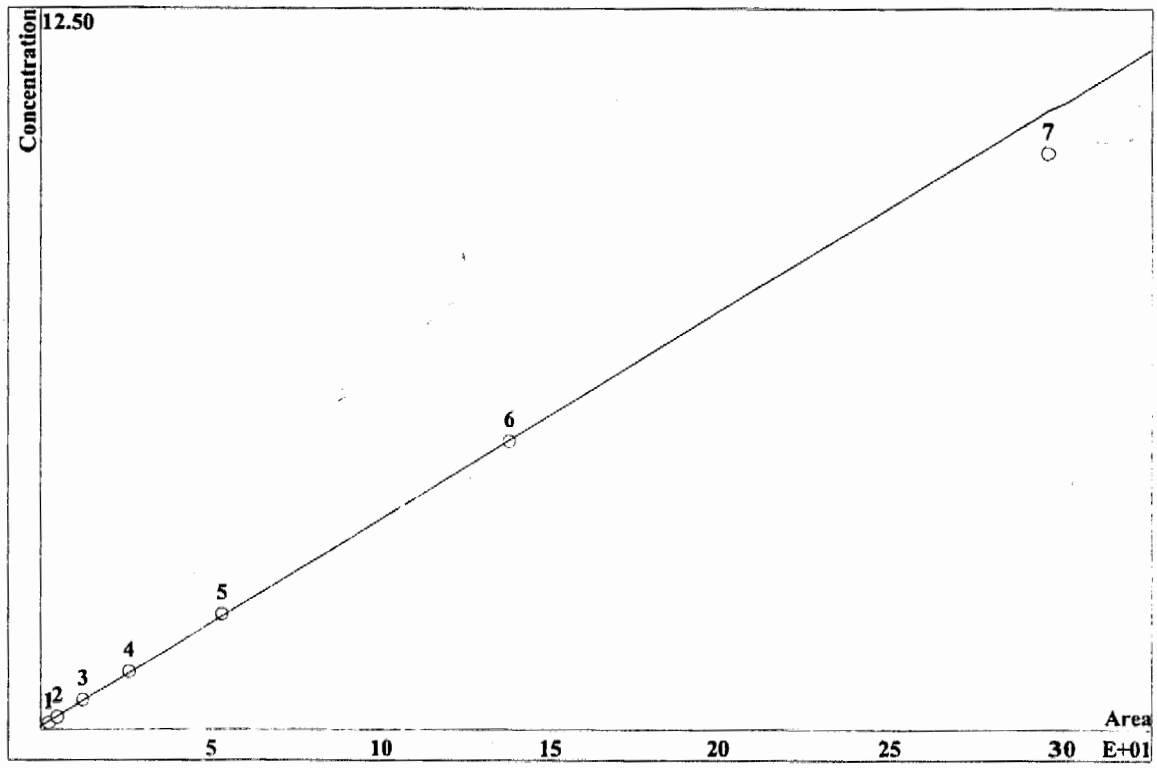
K3 = 0 K2 = 0 K1 = 0.0757087 K0 = 0.100061
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.2455	2.182 ✓	0.1	1	3.4	Yes	p7122001.chw
2	0.2371	2.13 ✓	0.2	1	3.4	Yes	p7122016.chw
3	0.6644	5.861 ✓	0.5	1	3.4	Yes	p7122030.chw
4	1.319	11.66 ✓	1	1	3.4	Yes	p7122044.chw
5	2.661	23.35 ✓	2	1	3.4	Yes	p7122058.chw
6	7.225	61.28 ✓	5	1	3.4	Yes	p7122112.chw
7	15.92	132.6 ✓	10	1	3.4	Yes	p7122126.chw

7-15-05
8022

CALIBRATION OF COMPONENT nitrite

Method: IC100-G12.mtw
Equation: Q = 0.0360261·A + 0.0453635
RSD: 2.142 %
Correlation coefficient: 0.999886



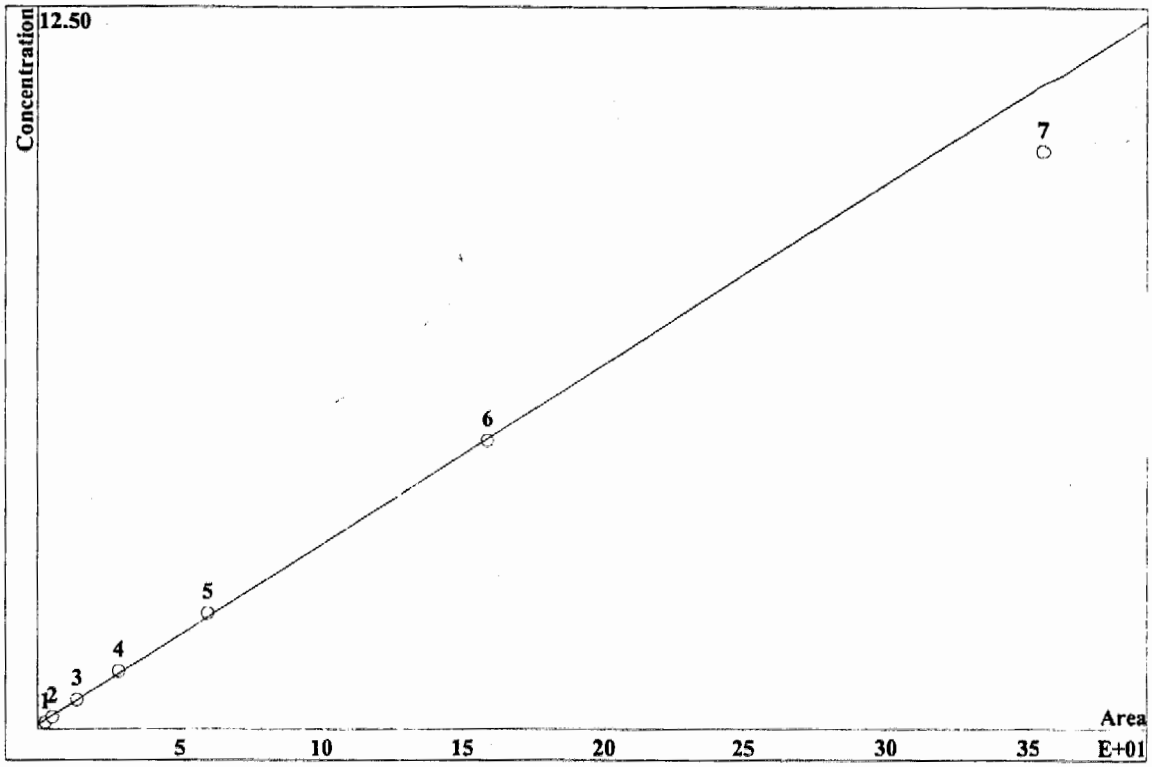
K3 = 0 K2 = 0 K1 = 0.0360261 K0 = 0.0453635
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.2338	2.422	0.1	1	4.04	Yes	p7122001.chw
2	0.4699	4.887	0.2	1	4.04	Yes	p7122016.chw
3	1.199	12.35	0.5	1	4.04	Yes	p7122030.chw
4	2.505	25.75	1	1	4.04	Yes	p7122044.chw
5	5.149	53.27	2	1	4.04	Yes	p7122058.chw
6	13.25	138	5	1	4.04	Yes	p7122112.chw
7	27.46	296.6	10	1	4.04	No	p7122126.chw

7-15-05

CALIBRATION OF COMPONENT nitrate

Method: IC100-G12.mtw
Equation: Q = 0.0311912·A + 0.0620763
RSD: 3.547 %
Correlation coefficient: 0.999689



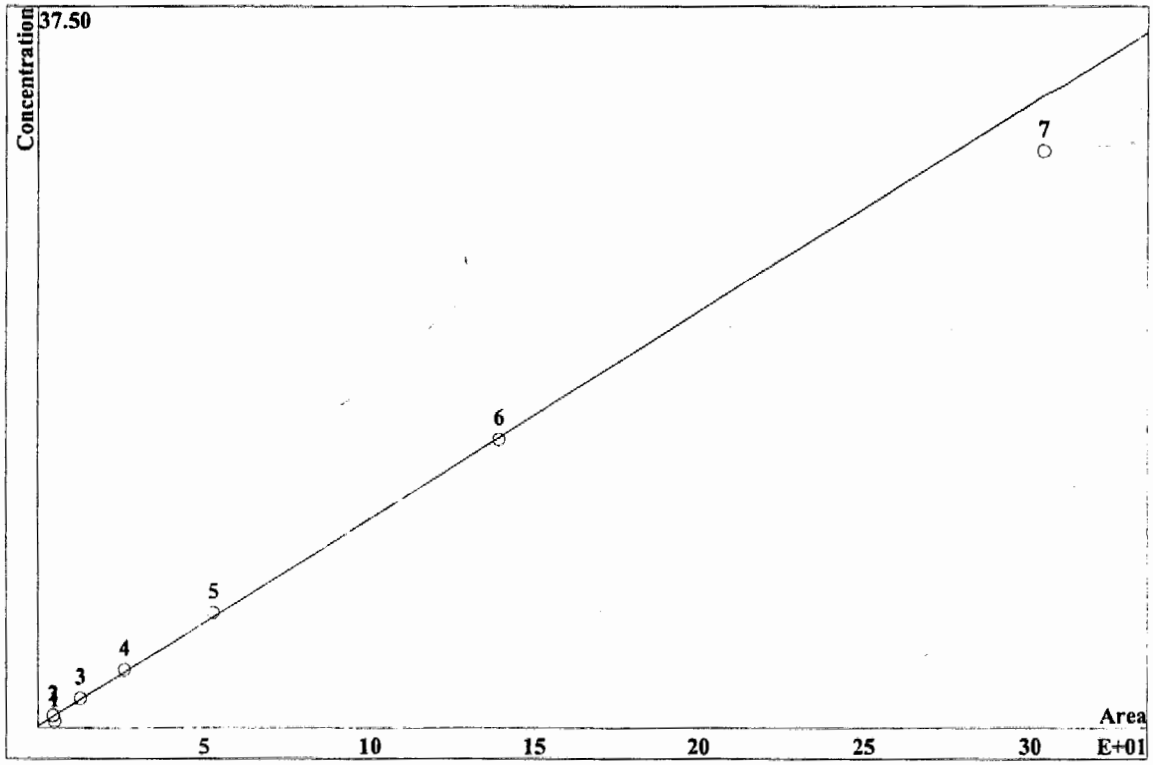
K3 = 0 K2 = 0 K1 = 0.0311912 K0 = 0.0620763
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.2165	2.84 ✓	0.1	1	5.72	Yes	p7122001.chw
2	0.415	5.429 ✓	0.2	1	5.72	Yes	p7122016.chw
3	1.072	13.92 ✓	0.5	1	5.72	Yes	p7122030.chw
4	2.23	28.71 ✓	1	1	5.72	Yes	p7122044.chw
5	4.699	59.99 ✓	2	1	5.72	Yes	p7122058.chw
6	12.88	159.3 ✓	5	1	5.72	Yes	p7122112.chw
7	29.17	355.8 ✗	10	1	5.72	No	p7122126.chw

PW 1-15-05

CALIBRATION OF COMPONENT sulfate

Method: IC100-G12.mtw
Equation: Q = 0.10777·A + 0.0673535
RSD: 4.885 %
Correlation coefficient: 0.999410



K3 = 0 K2 = 0 K1 = 0.10777 K0 = 0.0673535
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.3229	5.184	0.3	1	8.36	Yes	p7122001.chw
2	0.2916	4.664	0.6	1	8.36	Yes	p7122016.chw
3	0.8086	12.87	1.5	1	8.36	Yes	p7122030.chw
4	1.631	25.99	3	1	8.36	Yes	p7122044.chw
5	3.365	53.02	6	1	8.36	Yes	p7122058.chw
6	9.065	139.5	15	1	8.36	Yes	p7122112.chw
7	20.13	304.4	30	1	8.36	No	p7122126.chw

7-15-05

8025

SECOND SOURCE VERIFICATION

IC Result Check FormVersion : QG1

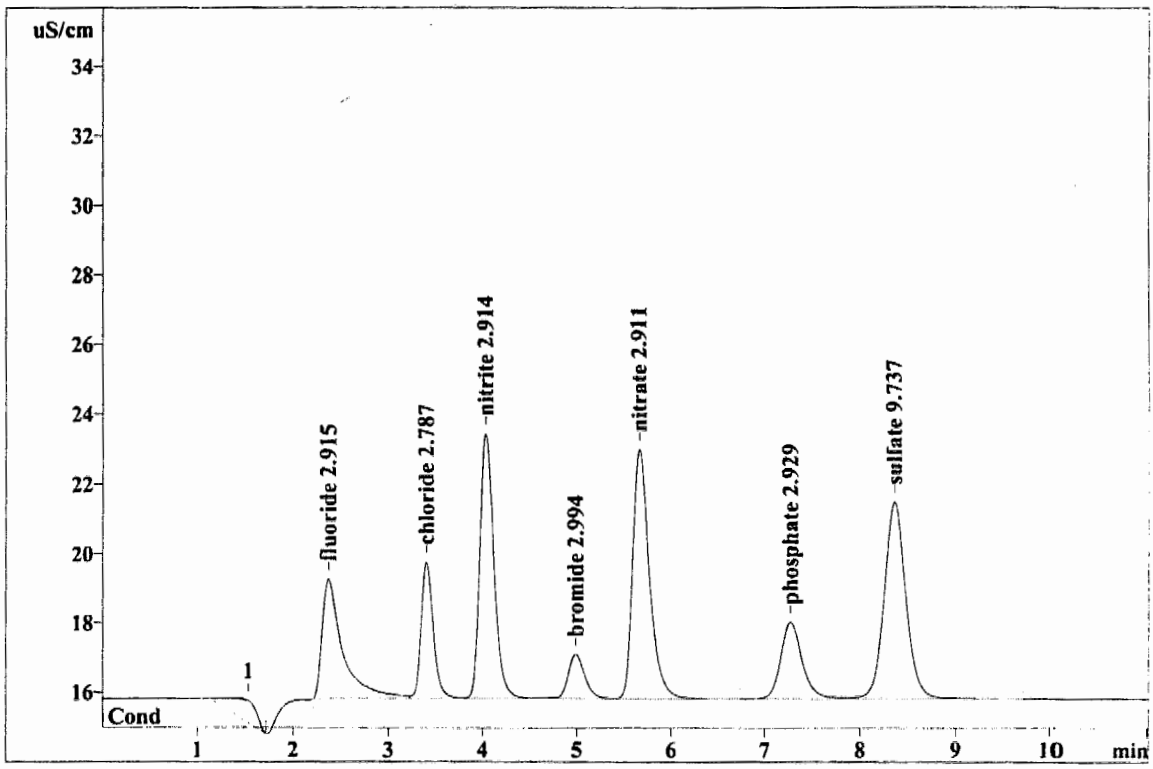
LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AG12-10	ICV	FCIBNPS	97.2%	92.9%	97.1%	99.8%	97%	97.6%	97.4%	p7122140	1
AG12-11	ICB	FCIBNPS	0	0	0	0	0	0	0	p7122154	1
AG12-12	CCV1	FCIBNPS	93.8%	90%	94.6%	96.4%	93.3%	97%	94.4%	p7122208	1
AG12-13	CCB1	FCIBNPS	0	0	0	0	0	0	0	p7122222	1
AG12-24	CCV2	FCIBNPS	100.4%	95.6%	95.5%	101.3%	94.3%	100.6%	97.8%	p7130057	1
AG12-25	CCB2	FCIBNPS	0	0	0	0	0	0	0	p7130111	1
AG12-36	CCV3	FCIBNPS	100.2%	95.6%	95.6%	101.8%	94.8%	96.8%	97.9%	p7130346	1
AG12-37	CCB3	FCIBNPS	0	0	0	0	0	0.1887	0	p7130400	1
AG12-40	CCV4	FCIBNPS	96.9%	93.9%	92.9%	99.9%	92.5%	98%	95.5%	p7130442	1
AG12-41	CCB4	FCIBNPS	0.21534	0	0.090606	0	0	0.92427	0	p7130456	1

Report date: 7/15/2005 11:36:34 AM
Printed by: Cherry Dam

Ident: AG12-10 ICV
Analysis from: 7/12/2005 9:40:38 PM
File: p7122140.CHW Last save: 7/15/2005 11:36:34 AM

Method: IC100-G12.mtw Last save: 7/12/2005 6:10:15 PM
Run operator: Cherry Dam
Analysis number: 3519

SAMPLE:
:
Vial number: 10
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	1.54	0.65	12.518	0.000	
2	2.37	3.45	50.967	2.915	fluoride
3	3.40	3.95	35.486	2.787	chloride
4	4.04	7.62	79.620	2.914	nitrite
5	4.99	1.27	15.285	2.994	bromide
6	5.67	7.18	91.323	2.911	nitrate
7	7.27	2.21	34.497	2.929	phosphate
8	8.36	5.67	89.728	9.737	sulfate
8	11.00	32.01	409.423	27.185	

This report has been created by IC Net
METROHM LTD

PM 7-15-05

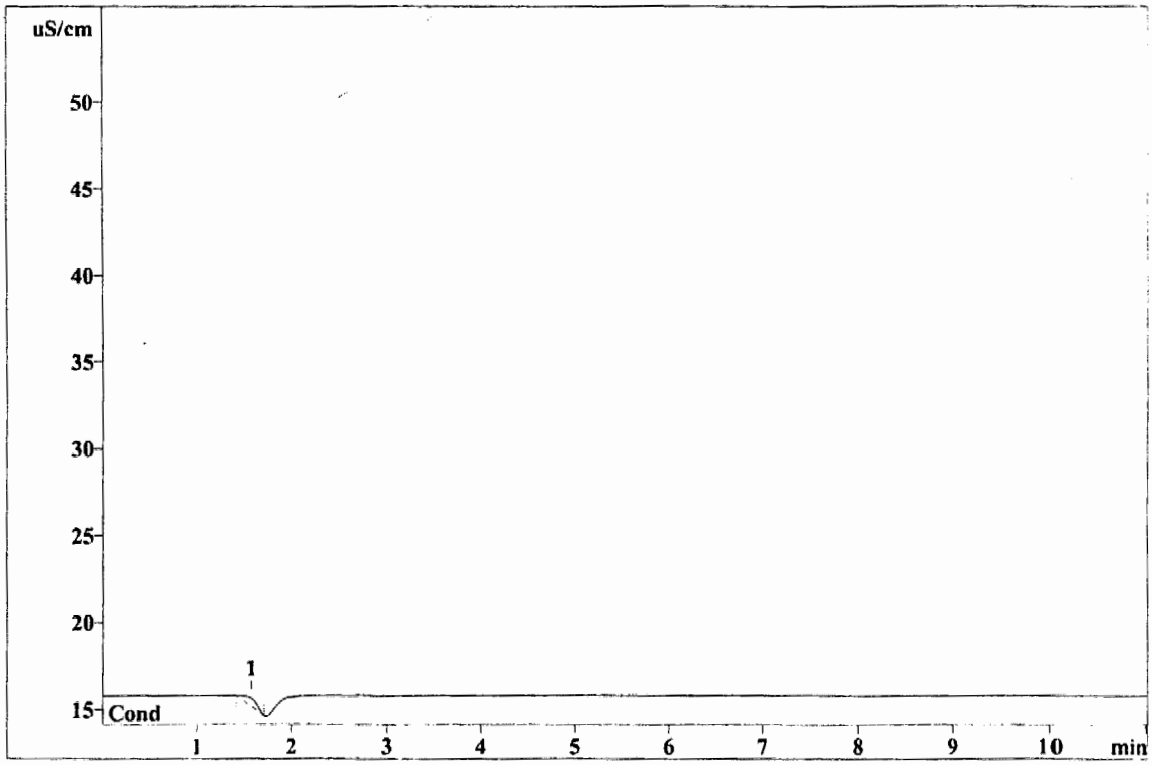
8028

Report date: 7/15/2005 11:36:34 AM
Printed by: Cherry Dam

Ident: AG12-11 ICB
Analysis from: 7/12/2005 9:54:42 PM
File: p7122154.CHW Last save: 7/15/2005 11:36:34 AM

Method: IC100-G12.mtw Last save: 7/12/2005 6:10:15 PM
Run operator: Cherry Dam
Analysis number: 3520

SAMPLE:
:
Vial number: 11
Volume: 1.0 µL
Dilution: 1.00
Amount: 1.0000



Quantitation method: Custom

No	Retention min	Height uS/cm	Area uS/cm*sec	Conc. mg/L	Name
1	1.58	0.47	4.654	0.000	

This report has been created by IC Net
METROHM LTD

MW 7-15-05

8029

DAILY CALIBRATIONS

IC Result Check FormVersion : QG1

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AG22-01	CCV48	FCIBNPS	94.1%	91.5%	95.1%	94.6%	92.6%	94.9%	92.1%	p7222101	1
AG22-02	CCB48	FCIBNPS	0	0	0	0	0	0	0	p7222116	1
AG22-03	MRL	FCIBNPS	0	0.24891	0	0	0.12667	0	0.47194	p7222130	1
AG22-04	ICG026WB	FCIBNPS	0	0	0	0	0	0	0	p7222144	1
AG22-05	ICG026WL	FCIBNPS	4.9954	4.5709	2.4501	4.6767	2.402	4.4521	6.9072	p7222158	1
AG22-06	ICG026WC	FCIBNPS	4.7085	4.5398	2.3879	4.7714	2.4061	4.7977	6.9765	p7222212	1
AG22-07	G183-01	F*IBNP*	0.39903	23.833E	0.097786	0	1.382	0	29.371E	p7222226	1
AG22-08	G183-02	F*IBNPS	0.69479	10.991E	0	0	0.072099	0	4.8437	p7222240	1
AG22-09	G183-03	F*IBNP*	0.70961	11.901E	0	0	1.1296	0	27.061E	p7222254	1
AG22-10	G183-03D	F*IBNP*	0.71597	11.884E	0	0	1.1293	0	27.008E	p7222308	1
AG22-11	G183-03M	F*IBNP*	6.0839	17.533E	2.4625	4.7959	3.7133	5.0657	34.906E	p7222322	1
AG22-12	G183-04	F*IBNP*	0.77037	18.517E	0	0	1.3297	0.18886	47.768E	p7222337	1
AG22-13	RINSE	FCIBNPS	0	0	0	0	0	0	0	p7222351	1
AG22-14	CCV49	FCIBNPS	104.1%	113.7%*	131.8%*	93.1%	113.8%*	94.2%	92.2%	p7230005	1
AG22-15	CCB49	FCIBNPS	0	0	0	0	0	0	0	p7230019	1
AG22-16	G183-05	F*IBNP*	0.41561	10.275E	0	0	1.5821	0	38.065E	p7230033	1
AG22-17	G183-06	F*IBNP*	0.64824	16.147E	0	0	1.0471	0	45.517E	p7230047	1
AG22-18	G183-07	F*IBNP*	0.62503	16.125E	0.097307	0	1.3044	0	45.754E	p7230101	1
AG22-19	G182-01	F*IBNP*	0.55394	102.95E	0	0	0	0	206.39E	p7230115	1
AG22-20	G182-02	F*IBNP*	4.5107	600.83E	0	0.21877	1.9486	0	134.69E	p7230129	1
AG22-21	G182-03	F*IBNP*	2.27	468.38E	0	0	3.1874	0	73.939E	p7230143	1
AG22-22	G182-04	F*IBNP*	0.71822	143.1E	0	0	0.23316	0	393.89E	p7230157	1
AG22-23	G182-05	F*IBNP*	1.695	439.8E	0	0.30126	1.7509	0	662.09E	p7230211	1
AG22-24	G182-06	F*IBNP*	0.78219	361.16E	0	0.10913	0.69841	0	803.86E	p7230225	1
AG22-25	RINSE	FCIBNPS	0	0.14002	0	0	0	0	0	p7230239	1
AG22-26	CCV50	FCIBNPS	101.9%	113.8%*	130.8%*	93.7%	113.8%*	95.3%	92.9%	p7230254	1
AG22-27	CCB50	FCIBNPS	0	0	0	0	0	0	0	p7230308	1
AG22-28	MRL	FCIBNPS	0	0.25601	0	0	0.1288	0	0.49503	p7230322	1
AG22-29	MDL	FCIBNPS	0	0.25764	0	0	0.12844	0	0.49774	p7230336	1
AG22-30	G182-07	F*IBNP*	2.2662	472.75E	0	0	3.1866	0	74.459E	p7230350	1
AG22-31	G169-02	FCIBNPS	0.29182	2.3834	0	2.9682	0	0	7.939	p7230404	1
AG22-32	G169-03	F*IBNPS	0.27275	18.789E	0	0.359	0.20904	0	8.7321	p7230418	1
AG22-33	RINSE	FCIBNPS	0	0	0	0	0	0	0	p7230432	1
AG22-34	RINSE	FCIBNPS	0	0	0	0	0	0	0	p7230446	1
AG22-35	ICG027WB	FCIBNPS	0	0	0	0	0	0	0	p7230500	1
AG22-36	ICG027WL	FCIBNPS	4.7431	5.6657	3.2298	4.7467	2.8517	4.7855	6.9654	p7230514	1
AG22-37	ICG027WC	FCIBNPS	4.6747	5.6629	3.2333	4.7449	2.8519	4.8254	6.9684	p7230528	1
AG22-38	CCV51	FCIBNPS	89.5%*	102.2%	94.2%	94.6%	95.5%	110.2%*	99.4%	p7230542	1
AG22-39	CCB51	FCIBNPS	0	0	0	0	0	0	0	p7230556	1
AG22-40	G169-04	F*IBNPS	0.45644	16.779E	0	2.4019	0.20349	0	8.3516	p7230611	1
AG22-41	G169-05	F*IBNPS	0.41501	16.584E	0	2.759	0.077496	0	7.9264	p7230625	1
AG22-42	G169-05D	F*IBNPS	0.45763	16.632E	0	0	0.077874	0	7.9135	p7230639	1
AG22-43	G169-05M	F*IBNP*	5.174	21.926E	0	4.3023	2.4463	5.3041	15.251E	p7230653	1
AG22-44	G169-06	F*IBNPS	0.29744	14.559E	0.065165	0.2042	0.1411	0	7.1493	p7230707	1
AG22-45	G169-07	FCIBNPS	0	0.31002	0	0	0	0	0.27111	p7230721	1
AG22-46	G184-01	F*IBNP*	0.46619	516.95E	0	0.69232	0.074378	0	2069.7E	p7230735	1
AG22-47	G184-02	F*IBNP*	0.57969	894.58E	0	1.3494	0.22368	0	1362E	p7230749	1
AG22-48	G184-03	F*IBNP*	0.26082	1469.1E	0	2.2235	0.25331	0.24301	319.48E	p7230803	1
AG22-49	RINSE	FCIBNPS	0	14.898	0	0	0	0.2154	5.4194	p7230817	1
AG22-50	CCV52	FCIBNPS	92.2%	129.2%*	92.8%	93.9%	94.6%	114.8%*	108.6%	p7230831	1
AG22-51	CCB52	FCIBNPS	0.23819	0.52768	0.10893	0.20018	0.12318	0.98052	0.49653	p7230845	1
AG22-52	G184-04	F*IBNP*	0.27953	1306.5E	0	1.7752	0.24829	0.36439	265.7E	p7230859	1
AG22-53	G184-05	F*IB*P*	0.31256	650.24E	0	0.826	6.002E	0.35311	127.96E	p7230914	1
AG22-54	G184-06	F*IBNPS	0.30499	553.96E	0	0.75846	0	0	0.9173	p7230928	1
AG22-55	G184-07	F*IBNPS	0.26084	576.65E	0	1.3837	0	0	0.78738	p7230942	1
AG22-56	G180-01	FC*BNP*	0	0	5084.8E	0	0.33683	0	106.97E	p7230956	1
AG22-57	G180-02	F*IBNP*	0.26271	1301.9E	0	0.70809	0	0	1808.5E	p7231010	1
AG22-58	G180-03	F*IB*P*	0.56603	708.44E	0	0.60003	18.677E	1.0033	778.97E	p7231024	1
AG22-59	G178-02	F*IBNP*	0.16077	51.708E	0	0	2.3869	0	391.64E	p7231038	5
AG22-60	MRL	FCIBNPS	0	0.28015	0	0	0.12641	0	0.58287	p7231052	1
AG22-61	MDL	FCIBNPS	0	0.26158	0	0	0.12585	0	0.51058	p7231106	1
AG22-62	CCV53	FCIBNPS	92.1%	102.3%	93.8%	94.3%	95%	100.2%	98.9%	p7231120	1
AG22-63	CCB53	FCIBNPS	0	0	0	0	0	0	0	p7231134	1

IC Result Check FormVersion : QG1

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AG22-01 ✓	CCV48	FCIBNPS	94.1%	91.5%	95.1%	94.6%	92.6%	94.9%	92.1%	p7222101	1
AG22-02	CCB48	FCIBNPS	0	0	0	0	0	0	0	p7222116	1
AG22-14 ✓	CCV49	FCIBNPS	104.1%	113.7%*	131.8%*	93.1%	113.8%*	94.2%	92.2%	p7230005	1
AG22-15	CCB49	FCIBNPS	0	0	0	0	0	0	0	p7230019	1
AG22-26 ✓	CCV50	FCIBNPS	101.9%	113.8%*	130.8%*	93.7%	113.8%*	95.3%	92.9%	p7230254	1
AG22-27	CCB50	FCIBNPS	0	0	0	0	0	0	0	p7230308	1
AG22-38	CCV51	FCIBNPS	89.5%*	102.2%	94.2%	94.6%	95.5%	110.2%*	99.4%	p7230542	1
AG22-39	CCB51	FCIBNPS	0	0	0	0	0	0	0	p7230556	1
AG22-50	CCV52	FCIBNPS	92.2%	129.2%*	92.8%	93.9%	94.6%	114.8%*	108.6%	p7230831	1
AG22-51	CCB52	FCIBNPS	0.23819	0.52768	0.10893	0.20018	0.12318	0.98052	0.49653	p7230845	1
AG22-62	CCV53	FCIBNPS	92.1%	102.3%	93.8%	94.3%	95%	100.2%	98.9%	p7231120	1
AG22-63	CCB53	FCIBNPS	0	0	0	0	0	0	0	p7231134	1

IC Result Check FormVersion : QG1

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AG28-01	CCV77	FCIBNPS	92%	92.8%	99%	97.6%	97.9%	93.8%	94.2%	p7281114	1
AG28-02	CCB77	FCIBNPS	0	0	0	0	0	0	0	p7281128	1
AG28-03	MRL	FCIBNPS	0	0.24789	0	0	0.12898	0	0.49823	p7281142	1
AG28-04	ICG036WB	FCIBNPS	0	0	0	0	0	0	0	p7281200	1
AG28-05	ICG036WL	FCIBNPS	4.8275	4.8051	2.6152	4.9819	2.5044	5.0095	7.193	p7281214	1
AG28-06	ICG036WC	FCIBNPS	4.5569	4.7075	2.5262	4.9393	2.4966	4.9065	7.1103	p7281229	1
AG28-07	G230-06	F*IBNPS	0	2664.8E	0	3.3458	0	0	0.61569	p7281255	5
AG28-08	G230-08	F*IBNPS	0	231.69E	0	0.10913	0	0.32824	1.969	p7281309	1
AG28-09	G237-01	F*IBNP*	0	12985E	0	27.442	0	0	2062.4E	p7281323	5
AG28-10	G237-02	F*IBNP*	0	13571E	0	29.232	0	0	2159.8E	p7281337	5
AG28-11	G237-03	F*IBNP*	3.2518	13366E	0	28.735	0	0	2025E	p7281351	5
AG28-12	RINSE	FCIBNPS	0	0.68151	0	0	0	0	0.18725	p7281405	1
AG28-13	CCV78	FCIBNPS	94.5%	96.5%	100.5%	99.1%	100%	99.7%	95.3%	p7281419	1
AG28-14	CCB78	FCIBNPS	0	0	0	0	0	0	0	p7281433	1
AG28-15	G237-04	F*I*NP*	2.5331	13263E	0	54.47E	0	0	2055.3E	p7281447	5
AG28-16	G221-02	FCIBNPS	0	325.51	0	0	0	0	73.96	p7281502	50
AG28-17	G221-02D	FCIBNPS	0	297.27	0	0	0	0	71.431	p7281516	50
AG28-18	G221-02M	F*IBNPS	234.71	548.93E	121.26	246.8	122.88	181.08	415.7	p7281530	50
AG28-19	G221-03	FCIBNPS	0	497	0	0	0	0	187.55	p7281544	100
AG28-20	G221-04	FCIBNPS	0	98.917	0	0	0	0	72.183	p7281558	20
AG28-21	G221-05	FCIBNPS	0	231.43	0	0	0	0	73.196	p7281612	50
AG28-22	G221-06	F*IBNPS	0	230.83E	0	0	0	0	24.322	p7281626	10
AG28-23	G221-06	*C*****	0	231.44	0	0	0	0	67.19	p7281640	500
AG28-24	G134-03	FCIBNPS	0	41.113	0	0	1.4665	0	225.32	p7281654	20
AG28-25	CCV79	FCIBNPS	96.3%	96.3%	105.2%	100.2%	100.9%	89.1%*	97.8%	p7281708	1
AG28-26	CCB79	FCIBNPS	0	0	0	0	0	0	0	p7281722	1
AG28-27	G134-04	FCIBNPS	0	40.066	0	0	0	0	226.75	p7281736	20
AG28-28	G134-06	FCIBNPS	0	34.391	0	0	1.6336	0	208.5	p7281750	20
AG28-29	G244-01	FC*BNP*	1.1428	0	4468.8E	0	0.34043	0	585.51E	p7281805	1
AG28-30	G244-02	F*IBNP*	2.306	2408.9E	0	0	0.99788	0	437.19E	p7281819	1
AG28-31	RINSE	FCIBNPS	0	0.65252	0	0	0	0	0.21185	p7281833	1
AG28-32	RINSE	FCIBNPS	0	0.20112	0	0	0	0	0.12225	p7281847	1
AG28-33	ICG037WB	FCIBNPS	0	0	0	0	0	0	0	p7281901	1
AG28-34	ICG037WL	FCIBNPS	4.7424	4.6994	2.4778	4.9426	2.465	4.2726	7.1342	p7281915	1
AG28-35	ICG037WC	FCIBNPS	4.8137	4.6992	2.4716	4.9508	2.47	4.3879	7.1465	p7281929	1
AG28-36	RINSE	FCIBNPS	0	0	0	0	0	0	0	p7282144	1
AG28-37	CCV80	FCIBNPS	96.7%	94.7%	104.7%	99.8%	100.3%	101.7%	95.4%	p7282158	1
AG28-38	CCB80	FCIBNPS	0	0	0	0	0	0	0	p7282213	1
AG28-39	G247-02	F*IBNP*	1.392	1595E	0	3.0535	0	0	238.84E	p7282227	5
AG28-40	G247-03	F*IBNP*	1.0729	294.68E	0	0	0	1.5996	169.02E	p7282241	5
AG28-41	G247-04	F*IBNP*	1.596	629.06E	0	1.0759	0	0	708.1E	p7282255	5
AG28-42	G247-05	F*IBNP*	1.3667	630.26E	0	0	0	0	704.32E	p7282309	5
AG28-43	G247-06	F*IBNP*	2.678	1058.7E	0	1.7847	0	0	618.68E	p7282323	5
AG28-44	G247-07	F*IBNP*	1.871	5821E	0	13.323	0	0	431.61E	p7282337	5
AG28-45	RINSE	FCIBNPS	0	0.20008	0	0	0	0	0	p7282351	1
AG28-46	G247-08	FCIBNPS	0	0	0	0	0	0	0	p7290005	1
AG28-47	G124-01	F*IBNPS	0	1092.9E	0	0	0	0	203.9	p7290019	50
AG28-48	G124-02	F*IBNPS	0	584.56E	0	1.7681	0	0	70.314	p7290033	10
AG28-49	CCV81	FCIBNPS	95.3%	95%	101%	99.8%	100.6%	102%	95%	p7290047	1
AG28-50	CCB81	FCIBNPS	0	0	0	0	0	0	0	p7290102	1
AG28-51	G124-03	F*IBNPS	0	1257.3E	0	0	0	0	335.6	p7290116	50
AG28-52	G124-04	F*IBNPS	0	1944.8E	0	0	0	0	378.8	p7290130	50
AG28-53	G124-07	F*IBNPS	0	42849E	0	0	0	0	597.7	p7290144	500
AG28-54	G124-07D	F*IBNPS	0	42808E	0	0	0	0	590.73	p7290158	500
AG28-55	G124-07M	F*IBNPS	2305.7	44754E	1199.3	1608.7	1234.1	2581.6	4169	p7290212	500
AG28-56	G124-08	F*IBNPS	0	1028.7E	0	0	0	0	548.99	p7290226	100
AG28-57	G150-02	FCIBNPS	0	30.784	0	0	0	0	146.14	p7290240	20
AG28-58	G150-04	FCIBNPS	0	28.826	0	0	2.0751	0	168	p7290254	20
AG28-59	G150-05	FCIBNPS	1.6035	32.621	0	0	0	0	57.708	p7290308	10
AG28-60	G150-06	FCIBNPS	0	32.835	0	0	0	0	102.79	p7290322	10
AG28-61	CCV82	FCIBNPS	95.1%	94.8%	100.8%	99.7%	100.3%	102.1%	95%	p7290336	1
AG28-62	CCB82	FCIBNPS	0	0	0	0	0	0	0	p7290350	1
AG28-63	G150-07	FCIBNPS	0	34.134	0	0	0	0	169.25	p7290404	20
AG28-64	ICG038WB	FCIBNPS	0	0	0	0	0	0	0	p7290418	1
AG28-65	ICG038WL	FCIBNPS	4.5783	4.6951	2.4683	4.952	2.4681	4.8839	7.1024	p7290433	1
AG28-66	ICG038WC	FCIBNPS	4.7008	4.6826	2.4704	4.9573	2.4686	4.9304	7.1172	p7290447	1
AG28-67	G183-01	FCIBNPS	0.8649	20.148	0	0	1.5098	0	26.297	p7290501	5
AG28-68	G183-02	FCIBNPS	0.76333	10.38	0	0	0	0	4.8653	p7290515	2
AG28-69	G183-03	FCIBNPS	1.1183	10.73	0	0	1.0774	0	24.157	p7290529	5
AG28-70	G183-03D	FCIBNPS	1.1146	10.777	0	0	1.0799	0	24.16	p7290543	5
AG28-71	G183-03M	FCIBNPS	23.618	29.661	11.975	23.781	13.25	24.054	60.697	p7290557	5
AG28-72	G183-04	FCIBNPS	1.1683	16.056	0	0	1.1379	0	40.73	p7290611	5
AG28-73	CCV83	FCIBNPS	95.7%	95.2%	105.3%	100.2%	100.5%	102.5%	96.3%	p7290625	1
AG28-74	CCB83	FCIBNPS	0	0	0	0	0	0	0	p7290639	1

AG28-75	G183-05	FCIBNPS	0.84937	9.5159	0	0	1.6658	0	33.12	p7290653	5
AG28-76	G183-06	FCIBNPS	1.0308	14.28	0	0	1.082	0	39.335	p7290707	5
AG28-77	G183-07	FCIBNPS	1.0069	14.209	0.29357	0	1.2965	0	39.183	p7290721	5
AG28-78	G146-02	F*IBNPS	2.4869	4647.8E	0	10.654	0	0	73.93	p7290736	10
AG28-79	G146-02	*C*****	0	3090	0	0	0	0	0	p7290750	1000
AG28-80	G146-03	F*IBNPS	2.2767	4733.5E	0	10.88	0	0	66.386	p7290804	10
AG28-81	G146-03	*C*****	0	3142	0	0	0	0	0	p7290818	1000
AG28-82	G146-04	F*IBNPS	0	2561.3E	0	0	0	0	331.9	p7290832	50
AG28-83	G146-04	*C*****	0	1929.5	0	0	0	0	382.51	p7290846	1000
AG28-84	G146-05	F*IBNPS	2.0687	552.02E	0	0	0	3.7389	112.26	p7290900	10
AG28-85	CCV84	FCIBNPS	95.6%	95.5%	105.3%	100.3%	100.6%	100.2%	96.5%	p7290914	1
AG28-86	CCB84	FCIBNPS	0	0	0	0	0	0	0	p7290928	1
AG28-87	G146-05	*C*****	0	408.78	0	0	0	0	109.82	p7290942	100
AG28-88	G159-01	FCIBNPS	0	2088.3	0	0	0	0	539.64	p7290956	500
AG28-89	G159-02	FCIBNPS	0	6183.9	0	0	0	0	1019.6	p7291010	1000
AG28-90	G159-03	FCIBNPS	0	588.72	0	0	0	0	387.13	p7291024	100
AG28-91	CCV85	FCIBNPS	95.5%	95.2%	105.2%	100.2%	100.5%	99.5%	96.4%	p7291038	1
AG28-92	CCB85	FCIBNPS	0	0	0	0	0	0	0	p7291053	1

IC Result Check FormVersion : QG1

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AG28-01	CCV77	FCIBNPS	92%	92.8%	99%	97.6%	97.9%	93.8%	94.2%	p7281114	1
AG28-02	CCB77	FCIBNPS	0	0	0	0	0	0	0	p7281128	1
AG28-13	CCV78	FCIBNPS	94.5%	96.5%	100.5%	99.1%	100%	99.7%	95.3%	p7281419	1
AG28-14	CCB78	FCIBNPS	0	0	0	0	0	0	0	p7281433	1
AG28-25	CCV79	FCIBNPS	96.3%	96.3%	105.2%	100.2%	100.9%	89.1%*	97.8%	p7281708	1
AG28-26	CCB79	FCIBNPS	0	0	0	0	0	0	0	p7281722	1
AG28-37	CCV80	FCIBNPS	96.7%	94.7%	104.7%	99.8%	100.3%	101.7%	95.4%	p7282158	1
AG28-38	CCB80	FCIBNPS	0	0	0	0	0	0	0	p7282213	1
AG28-49	CCV81	FCIBNPS	95.3%	95%	101%	99.8%	100.6%	102%	95%	p7290047	1
AG28-50	CCB81	FCIBNPS	0	0	0	0	0	0	0	p7290102	1
AG28-61	CCV82	FCIBNPS	95.1%	94.8%	100.8%	99.7%	100.3%	102.1%	95%	p7290336	1
AG28-62	CCB82	FCIBNPS	0	0	0	0	0	0	0	p7290350	1
AG28-73	CCV83	FCIBNPS	95.7%	95.2%	105.3%	100.2%	100.5%	102.5%	96.3%	p7290625	1
AG28-74	CCB83	FCIBNPS	0	0	0	0	0	0	0	p7290639	1
AG28-85	CCV84	FCIBNPS	95.6%	95.5%	105.3%	100.3%	100.6%	100.2%	96.5%	p7290914	1
AG28-86	CCB84	FCIBNPS	0	0	0	0	0	0	0	p7290928	1

ANALYTICAL LOG

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No.0 ☐

Start Date: 07/12/05 **Time:** 19:33 **Ending Date:** 07/13/05 **Time:** 04:56 **Book # A100-001**

ANALYTICAL BATCH * IC G011W

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
* 1	AG12-01	IB	1		✓	
* 2	02	SC				
* 3	03	S1				
* 4	04	S2				
* 5	05	S3				
* 6	06	S4				
* 7	07	S5				
* 8	08	S6				
* 9	09	S7				
* 10	10	ICV				
* 1	11	ICB				
* 2	12	CCVI				
* 3	13	CCBI				
* 4	14	ICG011WB				
* 5	15	ICG011WC L 07/12/05				
* 6	16	ICG011WC ~~MRL~~ 07/12/05				
* 7	17	MRL				
* 8	18	G608-01	10			DF=10
* 9	19	G608-02				
* 10	20	G608-02D				
* 1	21	G608-02M				
* 2	22	G058-17	1			
* 3	23	RINSE				
* 4	24	CCV2				
* 5	25	CCB2				
* 6	26	G058-18				
* 7	27	G058-19				
* 8	28	G058-20				
* 9	29	G058-21				
* 30	30	G058-22				

Instrument Number	22 100 cl 07/12/05

INITIAL CALIBRATION REFERENCE

Method File	IC100-G12.mhw	Date
ICAL ID	SW5B-12-628-634	07/12/05
ICV ID	SW5B-12-635-641	07/12/05

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1	SW5B-12-628	0.1	—	—	—	—	→	0.3
	S_2	629	0.2	—	—	—	—	→	0.6
	S_3	630	0.5	—	—	—	—	→	1.5
	S_4	631	1	—	—	—	—	→	3
	S_5	632	2	—	—	—	—	→	6
~~ICV~~ 07/12/05	S_6	633	5	—	—	—	—	→	15
~~CCV~~ 07/12/05	S_7	634	10	—	—	—	—	→	30
~~LCS~~ ICV 07/12/05		SW5B-12-635-641	3	—	—	—	—	→	10
MS x10		LCS source	5	5	2.5	5	2.5	5	7.5

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3
ICAL	S_1				
	S_2		N/A cl 07/12/05		
	S_3				
	S_4				

Standards-A (Conc. mg/L)

		F	Cl	NO_2	Br	NO_3	P	SO_4
ICV 07/12/05								
CCV	SW5B-12-642-645	5	5	2.5	5	2.5	5	7.5
LCS	SW5B-12-646-652	5	5	2.5	5	2.5	5	7.5

Comments:

Analyzed By: cl

This page is checked during the data review process.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8037

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No.0 ☐

Start Date: 07/12/05 Time: 19:33 Ending Date: 07/13/05 Time: 04:56 Book # A100-001

ANALYTICAL BATCH * IC G011W

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
* 1	AG12-31	G058-23	1		✓	
* 2	32	G058-24				
* 3	33	G058-25				
* 4	34	RINSE				
* 5	35	RINSE				
* 6	36	CCV3				
* 7	37	CCB3				
* 8	38	MRL				
* 9	39	MDL				
* 10	40	CCV4				
* 11	41	CCB4				
* 2						
* 3						
* 4						
* 5						
* 6						
* 7						
* 8						
* 9						
* 0						
* 1						
* 2						
* 3						
* 4						
* 5						
* 6						
* 7						
* 8						
* 9						
* 0						

cd 07/12/05

Instrument Number		22 (10) cd 07/12/05
INITIAL CALIBRATION REFERENCE		
Method File		Date
ICAL ID		
ICV ID		

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1								
	S_2								
	S_3								
	S_4								
	S_5								
ICV									
CCV									
LCS									
MS									

RSC for pg. 54

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3	
ICAL	S_1					
	S_2					
	S_3					
	S_4					
ICV						
CCV						
LCS						

Comments:

Analyzed By: cd

This page is checked during the data review process.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8038

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No.0 ☐

Start Date: 07/22/05 **Time:** 21:01 **Ending Date:** 07/23/05 **Time:** 11:34 **Book # A100-001**

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
* 1	AG22-01	CCV46	1		✓	
* 2	02	CCB46	1			
* 3	03	MRL				
* 4	04	ICG026WB				
* 5	05	ICG026WL				
* 6	06	ICG026WC				
* 7	07	G163-01				
* 8	08	G163-02				
* 9	09	G163-03				
* 10	10	G163-03D				
* 1	11	G163-03M				
* 2	12	G163-04				
* 3	13	RINSE				
* 4	14	CCV49				* Cl, NO3N, NO2N failed due
* 5	15	CCB49				to bad injection
* 6	16	G163-05				
* 7	17	G163-06				
* 8	18	G163-07				
* 9	19	G162-01				
* 20	20	G162-02				
* 1	21	G162-03				
* 2	22	G162-04				
* 3	23	G162-05				
* 4	24	G162-06				
* 5	25	~~G162-07~~ RINSE				
* 6	26	CCV50				* Cl, NO3N, NO2N failed
* 7	27	CCB50				due to bad injection.
* 8	28	MRL				
* 9	29	MDL				
* 30	30	G162-07				

ANALYTICAL BATCH # IC G021DW

8039

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

Instrument Number	22 ICC 02 07/6

INITIAL CALIBRATION REFERENCE

Method File	ICICC-G12.mtw	Date
ICAL ID	SW5B-12-628-639	07/19/06
ICV ID	SW5B-12-635-641	07/19/06

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1								
	S_2								
	S_3								
	S_4								
	S_5								
ICV									
CCV		SW5B-12-721-724	5	5	2.5	5	2.5	5	7.5
LCS		SW5B-12-725-728	↓	↓	↓	↓	↓	↓	↓
MS x DF		LCS source	↓	↓	↓	↓	↓	↓	↓

Refer to 7/19/06 Std

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3
ICAL	S_1	N/A			
	S_2				
	S_3				
	S_4				
ICV					
CCV					
LCS		↓			

Comments:

Analyzed By: ae

This page is checked during the data review process.

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No.0 ☐

Start Date: 07/28/05 **Time:** 11:14 **Ending Date:** 07/29/05 **Time:** 10:53 **Book # A100-001**

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
* 1	G28 - 01	CCV 77	1		✓	
* 2	02	CCB77				
* 3	03	MRL				
* 4	04	ICG036WB				
* 5	05	ICG036WL				
* 6	06	ICG036WC				
* 7	07	G230 -06	5			
* 8	08	G230-08	1			
* 9	09	G237 -01	5			
* 10	10	G237-02	5			
* 11	11	G237-03	5			
* 12	12	RINSE	1			
* 13	13	CCV78	1			
* 14	14	CCB78	1			
* 15	15	G237-04	5			
* 16	16	G221-02	50			
* 17	17	G221-02D	50			
* 18	18	G221-02H	50			
* 19	19	G221-03	100			
* 20	20	G221-04	20			
* 21	21	G221-05	50			
* 22	22	G221-06	10			
* 23	23	G221-06	500			
* 24	24	G134-03	20			
* 25	25	CCV79	1			
* 26	26	CCB79	1			
* 27	27	G234-04	20			
* 28	28	G234-06	20			
* 29	29	G244-01	1			
* 30	30	G244-02	1			

ANALYTICAL BATCH * IC G036W

Instrument Number	22 100 7/28/05

INITIAL CALIBRATION REFERENCE

Method File	IC100 - G12 . mtw	Date
ICAL ID	SW5B-12-628 - 634	07/12/05
ICV ID	SW5B-12-635 - 641	07/12/05

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1								
	S_2								
	S_3								
	S_4								
	S_5								
ICV									
CCV		SW5B-12-781-784	5	5	2.5	5	2.5	5	7.5
LCS		SW5B-12-785-788	↓	↓	↓	↓	↓	↓	↓
MS xDF		LCS Source	↓	↓	↓	↓	↓	↓	↓

Refer to pg. 54

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3
ICAL	S_1	N/A			
	S_2	↓			
	S_3				
	S_4				
ICV					
CCV					
LCS		↓			

Comments:

Analyzed By:

This page is checked during the data review process.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8040

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No.0 ☐

Start Date: 07/28/05 Time: 11:10 Ending Date: 07/29/05 Time: 10:53 Book # A100-001

	Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
*	31	AG28-31	RINSE	1		✓	
*	2	32	RINSE				
**	3	33	ICG037WB				
*	4	34	ICG037WL				
*	5	35	ICG037WC				
*	6	36	RINSE				
*	7	37	CCV8C				
*	8	38	CCB6C	↓			
*	9	39	G247-02	5			
*	40	40	G247-03				
*	1	41	G247-04				
*	2	42	G247-05				
*	3	43	G247-06				
*	4	44	G247-07	↓			
*	5	45	RINSE				
*	6	46	G247-08				
*	7	47	G124-01	50			
*	8	48	G124-02	10			
*	9	49	CCV81	1			
*	50	50	CCB81	1			
*	1	51	G124-03	50			
*	2	52	G124-04	50			
*	3	53	G124-07	500			
*	4	54	G124-07D	500			
*	5	55	G124-07M	500			
*	6	56	G124-08	100			
*	7	57	G150-02	20			
*	8	58	G150-04	20			
*	9	59	G150-05	10			
*	60	60	G150-06	10			

ANALYTICAL BATCH * IC G030W ** IC G037W

Instrument Number	2200 03 07/28/05

INITIAL CALIBRATION REFERENCE

Method File		Date
ICAL ID		
ICV ID		

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1								
	S_2								
	S_3								
	S_4								
	S_5								
ICV									
CCV									
LCS									
MS									

Carry to pg. 89

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3	
ICAL	S_1					
	S_2					
	S_3					
	S_4					
ICV						
CCV						
LCS						

Comments:

Analyzed By: cl

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8041

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No.0 ☐

Start Date: 07/28/05 **Time:** 11:14 **Ending Date:** 07/29/05 **Time:** 10:53 **Book #** A100-001

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
** 61	AG28-61	CCV82	1		✓	
* 2	62	CCB82	1			
* 3	63	G150-07	20			
*** 4	64	ICG038WB	1			
* 5	65	ICG038WL	1			
* 6	66	ICG038WC	1			
* 7	67	G183-01	5			
* 8	68	G183-02	2			
* 9	69	G183-03	5			
* 70	70	G183-03D	5			
* 1	71	G183-03H	5			
* 2	72	G183-04	5			
* 3	73	CCV83	1			
* 4	74	CCB83	1			
* 5	75	G183-05	5			
* 6	76	G183-06	5			
* 7	77	G183-07	5			
* 8	78	G146-02	10			
* 9	79	G146-02	1000			
* 80	80	G146-03	10			
* 1	81	G146-03	1000			
* 2	82	G146-04	50			
* 3	83	G146-04	1000			
* 4	84	G146-05	10			
* 5	85	CCV84	1			
* 6	86	CCB84	1			
* 7	87	G146-05	100			
* 8	88	G159-01	500			
* 9	89	G159-02	1000			
* 90	90	G159-03	100			

ANALYTICAL BATCH ** IC G038W ***IC G038W

Instrument Number		22 al 07/29/05
INITIAL CALIBRATION REFERENCE		
Method File		Date
ICAL ID		
ICV ID		

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1								
	S_2								
	S_3								
	S_4								
	S_5								
ICV									
CCV									
LCS									
MS									

Ready to run 80

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3	
ICAL	S_1					
	S_2					
	S_3					
	S_4					
ICV						
CCV						
LCS						

Comments:

Analyzed By: al

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8042

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No. 0 ☐

Start Date: 07/28/05 Time: 1114 Ending Date: 07/29/05 Time: 10:53 Book # A100-001

ANALYTICAL BATCH *** IC G0358W

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
***S1	AG28-S1	CCV85	1		✓	
***S2	AG28-S2	CCB85	1		✓	
* 3						
* 4						
* 5						
* 6						
* 7						
* 8						
* 9						
* 0						
* 1						
* 2						
* 3						
* 4						
* 5						
* 6						
* 7						
* 8						
* 9						
* 0						
* 1						
* 2						
* 3						
* 4						
* 5						
* 6						
* 7						
* 8						
* 9						
* 0						

ad 07/29/05

Instrument Number		22100 ad 07/28/05
INITIAL CALIBRATION REFERENCE		
Method File		Date
ICAL ID		
ICV ID		

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1								
	S_2								
	S_3								
	S_4								
	S_5								
ICV									
CCV									
LCS									
MS									

Refer to pg. 69

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3	
ICAL	S_1					
	S_2					
	S_3					
	S_4					
ICV						
CCV						
LCS						

Comments:

Analyzed By: ad

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8043

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G183**

METHOD 350.2
AMMONIA (NH3-N)

Seven (7) water samples were received on 07/22/05 for Ammonia analysis by Method 350.2 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

No duplicate sample was designated in this SDG.

5. Matrix Spike

No MS sample was designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

All results were reported as Nitrogen concentration.

METHOD 350.2
AMMONIA (NH3-N)

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G183

Matrix : WATER
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	NHG008WB	ND	1	NA	.1	.03	07/31/0510:11	07/30/0509:30	NHG008W-12	NHG008W-10	NHG008W	NA	07/30/05
LCS1W	NHG008WL	1.01	1	NA	.1	.03	07/31/0510:12	07/30/0509:30	NHG008W-13	NHG008W-10	NHG008W	NA	07/30/05
LCD1W	NHG008WC	1.005	1	NA	.1	.03	07/31/0510:13	07/30/0509:30	NHG008W-14	NHG008W-10	NHG008W	NA	07/30/05
MW-19-1	G183-01	.202	1	NA	.1	.03	07/31/0510:28	07/30/0509:30	NHG008W-29	NHG008W-22	NHG008W	07/20/05	07/22/05
MW-18-5	G183-02	ND	1	NA	.1	.03	07/31/0510:29	07/30/0509:30	NHG008W-30	NHG008W-22	NHG008W	07/21/05	07/22/05
MW-18-4	G183-03	ND	1	NA	.1	.03	07/31/0510:30	07/30/0509:30	NHG008W-31	NHG008W-22	NHG008W	07/21/05	07/22/05
MW-18-3	G183-04	ND	1	NA	.1	.03	07/31/0510:31	07/30/0509:30	NHG008W-32	NHG008W-22	NHG008W	07/21/05	07/22/05
MW-18-1	G183-05	ND	1	NA	.1	.03	07/31/0510:32	07/30/0509:30	NHG008W-33	NHG008W-22	NHG008W	07/21/05	07/22/05
MW-18-2	G183-06	ND	1	NA	.1	.03	07/31/0510:35	07/30/0509:30	NHG008W-36	NHG008W-34	NHG008W	07/21/05	07/22/05
DUPE-2-7/21/05	G183-07	ND	1	NA	.1	.03	07/31/0510:36	07/30/0509:30	NHG008W-37	NHG008W-34	NHG008W	07/21/05	07/22/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 350.2
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G183
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: NHG008WL/C

DATE RECEIVED: 07/30/05
DATE EXTRACTED: 07/30/05 09:30
DATE ANALYZED: 07/31/05 10:12/10:13

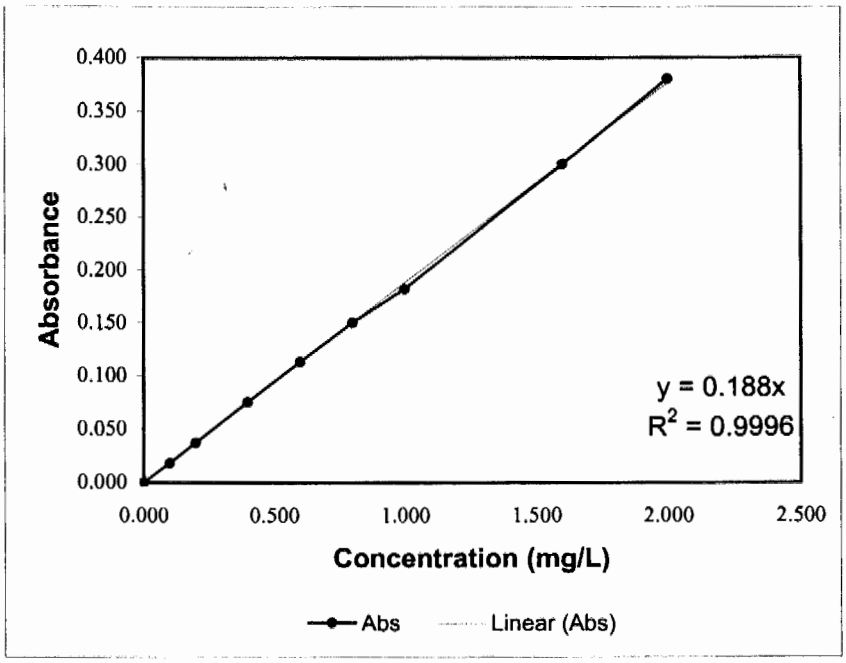
ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Ammonia (NH3-N)	ND	1.00	1.01	101	1.00	1.00	100	0	80-120	20

80460

CALIBRATION CURVE
AMMONIA _NH3 _TKN

Conc.	Abs
0.000	0.000
0.100	0.018
0.200	0.037
0.400	0.075
0.600	0.113
0.800	0.150
1.000	0.182
1.600	0.300
2.000	0.380



R^2	0.999645	Comments:	**PASSED**
y	0.1880		
CF	5.3184	Analyzed by:	RM/LA

ANALYSIS LOG FOR AMMONIA-N

SOP ☑ EMAX-350.2 Rev. No. 2 ☐ EMAX-350.1 ☐ Rev. No. 0 ☐ Book # A70-NH_3-005

Starting Date: 7-21-06 Time: 10:00 Ending Date: 7-21-06 Time: 10:50

ANALYTICAL BATCH * NHG0850

	Data File Name	Prep. Batch	Lab Sample ID	Matrix S	Matrix W	Time	Vol.Colored (ml)	DF	Absorbance	Notes
*	1	NHG0850	S-0.0		✓	10:00	20	1	0.000	mg/L
*	2		S-0.1			-01			0.018	
*	3		S-0.2			-02			0.037	
*	4		S-0.4			-03			0.075	
*	5		S-0.6			-04			0.113	
*	6		S-0.8			-05			0.150	
*	7		S-1.0			-06			0.182	
*	8		S-1.6			-07			0.300	
*	9		S-2.0			-08			0.340	
*	10		ICV			-09			0.186	0.989
*	11		ICB			-10			0.000	NP
*	12		NHG0850B			-11			0.000	NP
*	13		WC			-12			0.190	1.01
*	14		WC			-13			0.189	1.006
*	15		G145-01			-14			0.001	ND
*	16		01D			-15			0.002	ND
*	17		-01M			-16			0.188	1.000
*	18		-02			-17			0.009	ND
*	19		-03			-18			0.006	ND
*	20		-04			-19			0.013	ND
*	21		-05			-20			0.020	0.106
*	22		CCV1			-21			0.187	0.995
*	23		CCB1			-22			0.000	ND
*	24		G145-04			-23			0.007	ND
*	25		-07			-24			0.052	0.277
*	26		-08			-25			0.008	ND
*	27		-09			-26			0.006	ND
*	28		-10			-27			0.027	0.144
*	29		G183-01		✓	-28	✓	✓	0.038	0.202
*	30	✓	-02		✓	-29	20	1	0.001	ND

Instrument No: 70	Wavelength: 425 nm

Standard	ID	Conc. (mg/L)
S_0	Nanopure	0.0
S_1	SW2B-05-152	0.1
S_2		0.2
S_3		0.4
S_4		0.6
S_5		0.8
S_6		1.0
S_7		1.6
S_8	SW2B-05-152	2.0
ICV/MS	-157	1.0
CCV	-152	1.0
LCS	-177	1.0

Reagent	ID
Color Reagent	SW7A-06-141

Standard Curve	
R	0.9996
Y	0.1880
CF	5.2184

Comments:

Results are based on: ☐ Dry Weight ☐ Wet Weight

Analyzed By: MM LA

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8048

ANALYSIS LOG FOR AMMONIA-N

SOP ☑ EMAX-350.2 Rev. No. 2 ☐ EMAX-350.1 ☐ Rev. No. 0 ☐ Book # A70-NH_3-005

Starting Date: 7-31-05 Time: 10:00 Ending Date: 7-31-05 Time: 10:50

ANALYTICAL BATCH * NH6008W

	Data File Name	Prep. Batch	Lab Sample ID	Matrix S	Matrix W	Time	Vol.Colored (ml)	DF	Absorbance	Notes mg/L
*	1	NH6008W	G183-03		✓	1030	20	1	0.002	ND
*	2		-04			-31			0.001	ND
*	3		-05			-32			0.017	0.09 = ND
*	4		CCV2			-33			0.182	0.989
*	5		CCB2			-34			0.000	ND
*	6		G183-06			-35			0.001	ND
*	7		-07			-36			0.002	ND
*	8		NH6 0090B			-37			0.000	ND
*	9		WC			-38			0.189	1.005
*	0		G190-01			-39			0.001	ND
*	1		-01D			-40			0.002	ND
*	2		-01M			-41			0.187	0.995
*	3		-02			-42			0.002	ND
*	4		-03			-43			0.001	ND
*	5		-04			-44			0.002	ND
*	6		CCV3			-45			0.185	0.984
*	7		CCB3			-46			0.000	ND
*	8		G190-05			-47			0.001	ND
*	9		-06			-48			0.019	0.101
*	0		CCV4		✓	-49	✓	✓	0.188	1.000
*	1	✓	CCB4		✓	-50	20	1	0.000	ND
*	2									
*	3									
*	4									
*	5									
*	6									
*	7									
*	8									
*	9									
*	0									

Instrument No: 70 Wavelength: 425 nm

Standard	ID	Conc. (mg/L)
S_0	Same as pg 66	0.0
S_1		0.1
S_2		0.2
S_3		0.4
S_4		0.6
S_5		0.8
S_6		1.0
S_7		1.6
S_8		2.0
ICV/MS		1.0
CCV		1.0
LCS	✓	1.0

Reagent	ID
Color Reagent	SW7A-06-141

Standard Curve	
R	0.9996
Y	0.1880
CF	5.3184

Comments:

Results are based on: ☐ Dry Weight ☐ Wet Weight

Analyzed By: [illegible]

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

DISTILLATION LOG FOR NH_3 / DIGESTION AND DISTILLATION FOR TKN

SOP ☑ EMAX-350.2 Rev. No.: 2 ☐ EMAX-351.3 Rev. No.: 2 ☐ Book # EKN-006

Start Date 7-20-05 Time 9:30 End Date 7-20-05 Time 14:00

PREPARATION BATCH # AN-720-5A

Sample Prep ID	Lab Sample ID	Sample pH	NaOH Added (ml)	Boric Acid (ml)	Borate Buffer (ml)	Sample Amount (ml)	Extract Volume (ml)	Notes
*01	S-0.0	9.5	0.1	10	5	100	100	
*02	S-0.1							
*03	S-1.0							
*04	S-2.0							
*05	ICV							
*06	ICB							
*07	NH4Cl2 SWB							
*08	WC		✓					
*09	WC		0.1					
*10	G145-01		0.9					
*11	-01D		0.8					
*12	-01M		0.8					
*13	-02		0.7					
*14	-03		0.8					
*15	-04		0.9					
*16	-05		0.8					
*17	-06		0.7					
*18	-07		0.8					
*19	-08		0.9					
*20	-09		0.9					
*21	-10		0.8					
*22	G153-01		0.8					
*23	-02		0.9					
*24	-03		0.7					
*25	-04		0.8					
*26	-05	✓	0.7	✓	✓	✓	✓	

Standards	ID	Amount Added (ml)
ICV/MS	SWTB-03-157	10 ml of pyr
LCS	L-171	

Reagent	Lot# / ID
NaOH	SWTA-06-112
Digestion Mixture	NA
Borate Buffer	SWTA-06-152
H_3BO_3	SWTB-06-922
Distilling Soln.	NA

Comments:

Prepared By: RM

Standard Added By: RM

Checked By:

EMAX LABORATORIES, INC. 1835 W. 205th St., Torrance, CA 90501

8050

DISTILLATION LOG FOR NH_3 / DIGESTION AND DISTILLATION FOR TKN

SOP ☑ EMAX-350.2 Rev. No.: 2 ☐ EMAX-351.3 Rev. No.: 2 ☐ Book # EKN-006

Start Date 7-20-05 Time 9:20 End Date 7-30-05 Time 1400

PREPARATION BATCH # _____

Sample Prep ID	Lab Sample ID	Sample pH	NaOH Added (ml)	Boric Acid (ml)	Borate Buffer (ml)	Sample Amount (ml)	Extract Volume (ml)	Notes
*01 27	G183-06	9.5	0.8	10	5	100	100	
*02 28	-07		0.7					
*03 29	G190-01		0.9					
*04 30	-01D		0.8					
*05 31	-01M		0.9					
*06 32	-02		0.8					
*07 33	-03		0.9					
*08 34	-04		0.8					
*09 35	-05		0.7					
*10 36	-06		0.8					
*11 37	ZHG040903		0.1					
*12 38	WC	9.5	0.1	10	5	100	100	
*13 39								
*14 40								
*15								
*16								
*17								
*18								
*19								
*20								
*21								
*22								
*23								
*24								
*25								
*26								

Standards	ID	Amount Added (ml)
ICV/MS	same as pg. 2	
LCS	↓	

Reagent	Lot# / ID
NaOH	same as pg. 2
Digestion Mixture	
Borate Buffer	
H_3BO_3	
Distilling Soln.	

Comments:

Prepared By: PM

Standard Added By: PM

Checked By: _____

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8051

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G183**

SM3500
FERROUS IRON

Seven (7) water samples were received on 07/22/05 for Ferrous Iron analysis by Method SM3500 in accordance with "Standard Methods for the Examination of Water and Wastewater", 18th edition (1990).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample

Lab control result was within QC limit.

4. Duplicate

Sample G183-07 was analyzed for duplicate. %RPD was within QC limit.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SM3500
FERROUS IRON

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G183

Matrix : WATER
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	FEG003WB	ND	1	NA	5	2.5	07/22/0517:38	NA	FEG003W-09	FEG003W-07	FEG003W	NA	NA
LCS1W	FEG003WL	20.8	1	NA	5	2.5	07/22/0517:39	NA	FEG003W-10	FEG003W-07	FEG003W	NA	NA
MW-19-1	G183-01	ND	1	NA	5	2.5	07/22/0517:40	NA	FEG003W-11	FEG003W-07	FEG003W	07/20/05	07/22/05
MW-18-5	G183-02	ND	1	NA	5	2.5	07/22/0517:41	NA	FEG003W-12	FEG003W-07	FEG003W	07/21/05	07/22/05
MW-18-4	G183-03	ND	1	NA	5	2.5	07/22/0517:42	NA	FEG003W-13	FEG003W-07	FEG003W	07/21/05	07/22/05
MW-18-3	G183-04	ND	1	NA	5	2.5	07/22/0517:43	NA	FEG003W-14	FEG003W-07	FEG003W	07/21/05	07/22/05
MW-18-1	G183-05	ND	1	NA	5	2.5	07/22/0517:44	NA	FEG003W-15	FEG003W-07	FEG003W	07/21/05	07/22/05
MW-18-2	G183-06	ND	1	NA	5	2.5	07/22/0517:45	NA	FEG003W-16	FEG003W-07	FEG003W	07/21/05	07/22/05
DUPE-2-7/21/05	G183-07	ND	1	NA	5	2.5	07/22/0517:46	NA	FEG003W-17	FEG003W-07	FEG003W	07/21/05	07/22/05
DUPE-2-7/21/05DUP	G183-07D	ND	1	NA	5	2.5	07/22/0517:47	NA	FEG003W-18	FEG003W-07	FEG003W	07/21/05	07/22/05

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: SM3500
MATRIX: WATER
% MOISTURE: NA

==========

BATCH NO.: 05G183
SAMPLE ID: LCS1W
CONTROL NO.: FEG003WL

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 07/22/05 17:39

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	LCS RSLT (mg/L)	LCS % REC	QC LIMIT (%)
Ferrous Iron	ND	20.00	20.80	104	80-120

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: SM3500
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G183
SAMPLE ID: DUPE-2-7/21/05DUP
CONTROL NO.: G183-07D

DATE RECEIVED: 07/22/05
DATE EXTRACTED: NA
DATE ANALYZED: 07/22/05 17:47

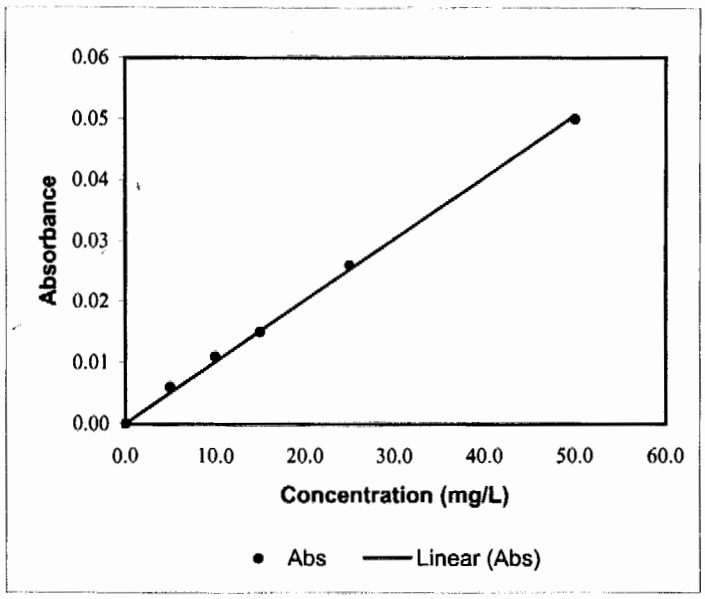
ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
Ferrous Iron	ND	ND	0	20

8055

CALIBRATION CURVE
FERROUS FE

Conc.	Abs
0.0	0.000
5.0	0.006
10.0	0.011
15.0	0.015
25.0	0.026
50.0	0.050



R^2	0.9991	Comments:	**PASSED**
Eq.Line	0.0010		
CF	988.6202	Analyzed by:	LA

ANALYSIS LOG FOR FERROUS IRON

SOP ☑ EMAX-3500-Fe D/C Rev. No. 0 ☐ Starting Date 7-22-05 Time 17:20 Ending Date 7-22-05 Time 17:49 Book # A70-Fe D/C-001

Data File Name		Preparative Batch	Lab Sample ID	Matrix S	Matrix W	Sample Amount (ml)	DF	Abs. (510 nm)	Time	Ferrous Iron (mg/L)	Notes
	* 1	FEG003W	S-0		✓	50	1	0.000	17:20		
	* 2		S-5					0.006	-31		
	* 3		S-10					0.011	-32		
	* 4		S-15					0.015	-33		
	* 5		S-25					0.024	-34		
	* 6		S-50					0.050	-35		
	* 7		ICV					0.019	-36	19.78	
	* 8		ICB					0.000	-37	ND	
	* 9		FEG003W3					0.000	-38	ND	
	* 0		↓ NC					0.021	-39	20.76	
	* 1		G183-01					0.002	-40	ND	
	* 2		-02					0.006	-41	ND	
	* 3		-03					0.007	-42	ND	
	* 4		-04					0.002	-43	ND	
	* 5		-05					0.004	-44	ND	
	* 6		-06					0.001	-45	ND	
	* 7		-07					0.004	-46	ND	
	* 8		↓ -07D					0.005	-47	ND	
	* 9		CCV1		✓	✓	✓	0.020	-48	19.77	
	* 0	✓	CCB1		✓	50	1	0.000	-49	ND	
	* 1										
	* 2										
	* 3										
	* 4										
	* 5										
	* 6										
	* 7		Zu								
	* 8										
	* 9		7-22-05								
	* 0										

ANALYTICAL BATCH * FEG003W

Instrument No.: 70 **Wavelength: 510 nm**

Standard	ID	Conc. (mg/L)
S_0	zero pure	0.0
S_1	SW2B-03-095	5
S_2	↓	10
S_3	↓	15
S_4	↓	25
S_5	SW2B-03-095	50
ICV/LCS/MS	↓ -096	20
CCV	↓ -095	20

Reagents	
Name	ID
HCl	SW1A-02-1527
$NH_4C_2H_3O_2$ Buffer	SW7B-06-228B
Phenanthroline Sol'n	↓ -228A
$NaC_2H_3O_2$ Sol'n	N/A
Hydroxylamine Soln	↓

Standard Curve	
R (≤0.995)	0.9991
Y	0.0010
CF	958.6202

Comments:

Analyzed By: AA / AB

Disposal Date:

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8057

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G183**

METHOD 310.1
TOTAL ALKALINITY

Seven (7) water samples were received on 07/22/05 for Total Alkalinity analysis by Method 310.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Sample G183-07 was analyzed for duplicate. %RPD was within QC limit.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 310.1
TOTAL ALKALINITY

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G183

Matrix : WATER
Instrument ID : I53

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ALG016WB	ND	1	NA	5	1	07/27/0513:15	NA	ALG016W-01	NA	ALG016W	NA	NA
LCS1W	ALG016WL	45.7	1	NA	5	1	07/27/0513:20	NA	ALG016W-02	NA	ALG016W	NA	NA
LCD1W	ALG016WC	45.7	1	NA	5	1	07/27/0513:25	NA	ALG016W-03	NA	ALG016W	NA	NA
MW-19-1	G183-01	145	1	NA	5	1	07/27/0514:35	NA	ALG016W-17	NA	ALG016W	07/20/05	07/22/05
MW-18-5	G183-02	127	1	NA	5	1	07/27/0514:40	NA	ALG016W-18	NA	ALG016W	07/21/05	07/22/05
MW-18-4	G183-03	163	1	NA	5	1	07/27/0514:45	NA	ALG016W-19	NA	ALG016W	07/21/05	07/22/05
MW-18-3	G183-04	211	1	NA	5	1	07/27/0514:50	NA	ALG016W-20	NA	ALG016W	07/21/05	07/22/05
MW-18-1	G183-05	127	1	NA	5	1	07/27/0514:55	NA	ALG016W-21	NA	ALG016W	07/21/05	07/22/05
MW-18-2	G183-06	183	1	NA	5	1	07/27/0515:00	NA	ALG016W-22	NA	ALG016W	07/21/05	07/22/05
DUPE-2-7/21/05	G183-07	183	1	NA	5	1	07/27/0515:05	NA	ALG016W-23	NA	ALG016W	07/21/05	07/22/05
DUPE-2-7/21/05DUP	G183-07D	186	1	NA	5	1	07/27/0515:10	NA	ALG016W-24	NA	ALG016W	07/21/05	07/22/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 310.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G183
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: ALG016WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 07/27/05 13:20/13:25

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Total Alkalinity	ND	49.20	45.70	93	49.20	45.70	93	0	80-120	20

8960

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 310.1
MATRIX: WATER
% MOISTURE: NA

==========

BATCH NO.: 05G183
SAMPLE ID: DUPE-2-7/21/05DUP
CONTROL NO.: G183-07D

DATE RECEIVED: 07/22/05
DATE EXTRACTED: NA
DATE ANALYZED: 07/27/05 15:10

ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
Total Alkalinity	183.00	186.00	2	20

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 310.1
MATRIX: WATER
% MOISTURE: NA

==========

BATCH NO.: 05G183 DATE RECEIVED: 07/22/05
SAMPLE ID: DUPE-2-7/21/05DUP DATE EXTRACTED: NA
CONTROL NO.: G183-07D DATE ANALYZED: 07/27/05 15:10

ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
Total Alkalinity	183.00	186.00	2	20

8062

ANALYSIS LOG FOR ALKALINITY

SOP ☑ EMAX-310.1 Rev. No. 2 ☐ SM2320B Rev. No. 0 ☐ Book # AAL-009

Start Date: 7/27/05 Time: 13:15 Ending Date: 7/27/05 Time: 15:10 Instrument No: ☐ 53 ☐ 97

ANALYTICAL BATCH # ALG016W

	Data File Name	Lab Sample ID	Time	Sample Amt. (ml)	Initial pH	Acid Titrant pH=8.3	Acid Titrant pH=4.5	Acid Titrant pH=4.2	Final pH	ALKALINITY (mg/L) Total	Hydroxide (OH)	Carbonate (CO3)	Bicarbonate (HCO3)	Notes
*01		ALG016 WB	13:15	20	5.18	NA	0.025	NA	4.46	ND				
*02		WL	13:20		8.55		0.90		4.53	145.7				
*03		WC	13:25		8.43		0.90		4.50	145.1				
*04		G145-01	13:30		8.33		2.85		4.52	145				
*05		-02	13:35		7.87		4.15		4.50	211				
*06		-03	13:40		7.98		3.45		4.49	175				
*07		-04	13:45		9.19		2.65		4.52	135				
*08		-05	13:50		7.43		3.00		4.51	152				
*09		-06	13:55		7.94		3.75		4.47	191				
*10		-07	14:00		7.95		3.75		4.47	191				
*11		-08	14:05		7.94		3.65		4.47	186				
*12		-09	14:10		7.60		3.45		4.52	175				
*13		-10	14:15		7.20		3.95		4.47	201				
*14		G190-01	14:20	10	7.35		10.45		4.53	1062				
*15		-02	14:25	20	7.65		9.60		4.51	488				
*16		-03	14:30		7.45		8.65		4.47	440				
*17		G193-01	14:35		7.65		2.85		4.48	145	✓			
*18		-02	14:40		8.63		2.50		4.53	127	✓			
*19		-03	14:45		8.02		3.20		4.52	163	✓			
*20		-04	14:50		7.88		4.15		4.52	211	✓			
*21		-05	14:55		7.37		2.50		4.47	127	✓			
*22		-06	15:00		7.98		3.60		4.52	183	✓			
*23		-07	15:05		7.88		3.60		4.47	183	✓			
*24		-07D	15:10		7.83		3.65		4.53	186	✓			
*25														

RM 7/29/05

Standard Reagent	ID	Conc. mg/L
LCS	SW7A-06-174	49.2
Spike	NA	
Na_2CO_3 Soln	SW7A-06-120	2360
Acid Titrant HCL	SW3B-02-732	0.02N

Standardization

Na_2CO_3 Soln. (ml)	Acid Titrant (ml)	Normality, N
BLK	0.625	ND
5	11.65	.02024
5	11.55	.02042
5	11.60	.02033

Avg. N .02033

pH METER CALIBRATION

pH Buffer	ID	Reading
pH 4	SW7A-06-047	4.01
pH 7	-096	7.00
pH 10	-100	10.00
Slope	100.2	

Comments:

G190-01 - 1x overrange

Analyzed By: MB / RM

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W 228th St, Torrance, CA 90501

8063

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G183**

METHOD 120.1
SPECIFIC CONDUCTIVITY

Seven (7) water samples were received on 07/22/05 for Specific Conductivity analysis by Method 120.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Duplicate

Sample G183-07 was analyzed for duplicate. %RPD was within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 120.1
SPECIFIC CONDUCTIVITY

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G183

Matrix : WATER
Instrument ID : I29

SAMPLE ID	EMAX SAMPLE ID	RESULTS (umhos/cm)	DLF	MOIST	RL DATETIME	MDL	Analysis DATETIME	Extraction LFID	CAL REF	PREP BATCH	DATETIME	Collection DATETIME	Received
MW-19-1	G183-01	409	1	NA	1	.5	07/28/0515:16	NA	ECH001W-9	ECH001W-1	ECH001W	07/20/05	07/22/05
MW-18-5	G183-02	288	1	NA	1	.5	07/28/0515:18	NA	ECH001W-10	ECH001W-1	ECH001W	07/21/05	07/22/05
MW-18-4	G183-03	405	1	NA	1	.5	07/28/0515:20	NA	ECH001W-11	ECH001W-1	ECH001W	07/21/05	07/22/05
MW-18-3	G183-04	547	1	NA	1	.5	07/28/0515:22	NA	ECH001W-12	ECH001W-1	ECH001W	07/21/05	07/22/05
MW-18-1	G183-05	364	1	NA	1	.5	07/28/0515:24	NA	ECH001W-13	ECH001W-1	ECH001W	07/21/05	07/22/05
MW-18-2	G183-06	489	1	NA	1	.5	07/28/0515:26	NA	ECH001W-14	ECH001W-1	ECH001W	07/21/05	07/22/05
DUPE-2-7/21/05	G183-07	488	1	NA	1	.5	07/28/0515:28	NA	ECH001W-15	ECH001W-1	ECH001W	07/21/05	07/22/05
DUPE-2-7/21/05DUP	G183-07D	488	1	NA	1	.5	07/28/0515:30	NA	ECH001W-16	ECH001W-1	ECH001W	07/21/05	07/22/05

ANALYSIS LOG FOR SPECIFIC CONDUCTIVITY

SOP ☑ EMAX-120.1 Revision No. 1 ☐ Book # AEC-003

Start Date 7/28/05 Time 1500 End Date 7/28/05 Time 15:46

Data File Name		Lab Sample ID	Time	Temp. °C	Temp. Correction Factor QT @ 25 oC	DF	Measured Resistance (ohms)	Notes
ANALYTICAL BATCH * TCG4884	* 1	STD high 1413 EC7/15/05	1500	21.8	0.939	1	1338	1412
	* 2	EC9008WL	-02	21.8	↓		381.5	403
	* 3	↓ WC	-04	21.8	0.939		381.5	403
	* 4	G145-01	-06	21.7	0.937		412	435.7 ≈ 436
	* 5	-02	-08	21.7	↓		642	678.9 ≈ 679
	* 6	-03	-10	21.7	0.937		619	648
	* 7	-04	-12	21.7	0.937		548	579.6 ≈ 580
	* 8	-05	-14	21.8	0.939		818	863
	* 9	G183-1	-16	21.8	↓		388	409 ✓
	* 10	-2	-18	21.8	0.939		273	288 ✓
	* 1	-3	-20	21.7	0.937		383	405 ✓
	* 2	-4	-22	21.7	↓		517	546.8 ≈ 547 ✓
	* 3	-5	-24	21.8	0.939		345	364 ✓
	* 4	-6	-26	21.8			463	488.5 ≈ 489 ✓
	* 5	-7	-28	21.8			462	488 ✓
	* 6	-7D	-30	21.8			462	488 ✓
	* 7	G218-1	-32	21.8			281	297
	* 8	2	-34	21.8			346	365
	* 19	3	-36	21.8			427	451
	* 20	4	-38	21.8	↓	1	461	487

8 below

Instrument No:	29

Trial	ID	Resistance ohms
KCl Standard	SW7A02-55	Assay
1	SW3B02-654	747
2	QT = .939	747
3	-	747
LCS	SW7A-06-174	402 µmhos/cm
Calibration Temperature	21.8 °C	
True Value	1413	µmhos/cm
Cell Constant (C)	0.991	

KCl Standard	ID	µmhos/cm
Low-point	SW7A02729	141.3
Mid-point	N/A	
High-point	SW7A02650	1413

Comments:

Analyzed By: MD /da

This page is checked during the data review process.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8066

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G183**

METHOD 376.1
SULFIDE

Seven (7) water samples were received on 07/22/05 for Sulfide analysis by Method 376.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Sample G183-07 was analyzed for duplicate. %RPD was within QC limit.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 376.1
SULFIDE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G183

Matrix : WATER
Instrument ID : NA

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	SDG010WB	ND	1	NA	1	.4	07/26/0518:09	NA	SDG010W-24	NA	SDG010W	NA	NA
LCS1W	SDG010WL	4.87	1	NA	1	.4	07/26/0518:12	NA	SDG010W-25	NA	SDG010W	NA	NA
LCD1W	SDG010WC	4.92	1	NA	1	.4	07/26/0518:15	NA	SDG010W-26	NA	SDG010W	NA	NA
MW-19-1	G183-01	ND	1	NA	1	.4	07/26/0518:18	NA	SDG010W-27	NA	SDG010W	07/20/05	07/22/05
MW-18-5	G183-02	ND	1	NA	1	.4	07/26/0518:21	NA	SDG010W-30	NA	SDG010W	07/21/05	07/22/05
MW-18-4	G183-03	ND	1	NA	1	.4	07/26/0518:24	NA	SDG010W-31	NA	SDG010W	07/21/05	07/22/05
MW-18-3	G183-04	ND	1	NA	1	.4	07/26/0518:27	NA	SDG010W-32	NA	SDG010W	07/21/05	07/22/05
MW-18-1	G183-05	ND	1	NA	1	.4	07/26/0518:30	NA	SDG010W-33	NA	SDG010W	07/21/05	07/22/05
MW-18-2	G183-06	ND	1	NA	1	.4	07/26/0518:33	NA	SDG010W-34	NA	SDG010W	07/21/05	07/22/05
DUPE-2-7/21/05	G183-07	ND	1	NA	1	.4	07/26/0518:36	NA	SDG010W-35	NA	SDG010W	07/21/05	07/22/05
DUPE-2-7/21/05DUP	G183-07D	ND	1	NA	1	.4	07/26/0518:39	NA	SDG010W-36	NA	SDG010W	07/21/05	07/22/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 376.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G183
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: SDG010WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 07/26/05 18:12/18:15

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Sulfide	ND	5.00	4.87	97	5.00	4.92	98	1	80-120	20

6069

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 376.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G183
SAMPLE ID: DUPE-2-7/21/05DUP
CONTROL NO.: G183-07D

DATE RECEIVED: 07/22/05
DATE EXTRACTED: NA
DATE ANALYZED: 07/26/05 18:39

ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
Sulfide	ND	ND	0	20

8070

ANALYSIS LOG FOR SULFIDE

SOP ☒ EMAX-376.1 Rev. No. 1 ☐ EMAX-9034 Rev. No. 0 Start Date: 7-26-05 Time: 17:00 End Date: 7-26-05 Time: 19:00 Book # ASD-007

Data File Name	Lab Sample ID	Time	Sample Amt. (ml)	Volume of Iodine (ml)	Volume of PAO/$Na_2S_2O_3$ (ml)	Notes mg/L
* 1	5DG0009WB	17:00	100	10	10.0	ND
* 2	WC -03				4.90	4.96
* 3	WC -06				4.85	4.92
* 4	G169-02	-09			9.8	ND
* 5	-03	-12			9.7	ND
* 6	-04	-15			9.8	ND
* 7	-04D	-18			9.6	ND
* 8	-05	-21			9.3	ND
* 9	-06	-24			9.5	ND
* 10	-07	-27			9.7	ND
* 11	G195-02	-30			9.4	ND
* 12	-03	-33			9.5	ND
* 13	-05	-36			9.6	ND
* 14	-06	-39			9.7	ND
* 15	-07	-42			9.8	ND
* 16	-10	-45			9.2	ND
* 17	G182-01	-48			9.4	ND
* 18	-02	-51			9.5	ND
* 19	-03	-54			9.6	ND
* 20	-04	-57			9.7	ND
* 21	-05	18:00			9.8	ND
* 22	-06	-03			9.7	ND
* 23	-07	-06			9.5	ND
* 24	5DG0010WB	-09			10.0	ND
* 25	WC	-12			4.6	4.87
* 26	WC	-15			4.85	4.92
* 27	G182-01	-18			9.6	ND
30	-02	-21	100	10	9.7	ND

ANALYTICAL BATCH # 5DG0007W

Standard	ID	Conc. (mg/L)
LCS	SW7A-06-178	5.0
Spike		
$Na_2S_2O_3$	SWBB-02-785	0.00564
PAO		
Iodine	SWBB-02-784	0.00564
HCL	SW7B-06-281C	1:1
Indicator	SW7A-06-190	

STANDARDIZATION

Vol. Of Iodine (ml)	Volume of PAO/Na2S2O3 (ml)	Conc. Of Iodine (N)
10	10.0	0.00564
10	10.0	0.00564
10	10.0	0.00564
Average Iodine Conc. (N)		0.00564

$$Sulfide(mg/L) = \frac{\left(V_{I_2} \times N_{I_2} - V_{PAO} \times N_{PAO}\right) \times 16{,}000}{V_{sample}}$$

Comments:

Analyzed By: [illegible]

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

ANALYSIS LOG FOR SULFIDE

SOP ☐ EMAX-376.1 Rev. No. 1 ☐ EMAX-9034 Rev. No. 0 Start Date: 7-26-05 Time: End Date: 7-26-05 Time: 19:00 Book # ASD-007

Data File Name	Lab Sample ID	Time	Sample Amt. (ml)	Volume of Iodine (ml)	Volume of PAO/$Na_2S_2O_3$ (ml)	Notes mg/L
* 31	G182-03	18:24	100	10	9.8	ND
* 2	-04	-27			9.6	ND
* 3	-05	-30			9.4	ND
* 4	-06	-33			9.3	ND
* 5	-07	-36			9.5	ND
* 6	-07D	-39			9.7	ND
* 7	G190-01	-42			9.8	ND
* 8	-02	-45			9.7	ND
* 9	-03	-48			9.8	ND
* 40	-04	-51			9.9	ND
* 1	-05	-54			9.2	ND
* 2	-06	19:00	100	10	9.4	ND
* 3						
* 4						
* 5						
* 6						
* 7						
* 8						
* 9						
* 0						
* 1						
* 2						
* 3						
* 4						
* 5						
* 6						
* 7						
* 0						

Standard	ID	Conc. (mg/L)
LCS	Same as pg 13	
Spike		
$Na_2S_2O_3$		
PAO		
Iodine		
HCL		
Indicator		

STANDARDIZATION

Vol. Of Iodine (ml)	Volume of PAO/Na2S2O3 (ml)	Conc. Of Iodine (N)
10	10.0	0.0076
10	10.0	
10	10.0	
Average Iodine Conc. (N)		0.0076

$$Sulfide(mg/L) = \frac{\left(V_{I_2} \times N_{I_2} - V_{PAO} \times N_{PAO}\right) \times 16{,}000}{V_{sample}}$$

Comments:

Analyzed By:

ANALYTICAL BATCH # RD0000 [illegible]

7-26-05

EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

8072

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G183**

METHOD 160.1
TOTAL DISSOLVED SOLIDS

Seven (7) water samples were received on 07/22/05 for Total Dissolved Solids analysis by Method 160.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

No duplicate sample was designated in this SDG.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 160.1
TOTAL DISSOLVED SOLIDS

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G183

Matrix : WATER
Instrument ID : NA

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TDG022WB	ND	1	NA	10	5	07/23/0514:00	NA	TDG022W-01	NA	TDG022W	NA	NA
LCS1W	TDG022WL	164	1	NA	10	5	07/23/0514:01	NA	TDG022W-02	NA	TDG022W	NA	NA
LCD1W	TDG022WC	162	1	NA	10	5	07/31/0514:02	NA	TDG022W-03	NA	TDG022W	NA	NA
MW-19-1	G183-01	600	1	NA	10	5	07/23/0514:11	NA	TDG022W-12	NA	TDG022W	07/20/05	07/22/05
MW-18-5	G183-02	400	1	NA	10	5	07/23/0514:12	NA	TDG022W-13	NA	TDG022W	07/21/05	07/22/05
MW-18-4	G183-03	560	1	NA	10	5	07/23/0514:13	NA	TDG022W-14	NA	TDG022W	07/21/05	07/22/05
MW-18-3	G183-04	790	1	NA	10	5	07/23/0514:14	NA	TDG022W-15	NA	TDG022W	07/21/05	07/22/05
MW-18-1	G183-05	235	1	NA	10	5	07/23/0514:15	NA	TDG022W-16	NA	TDG022W	07/21/05	07/22/05
MW-18-2	G183-06	690	1	NA	10	5	07/31/0514:16	NA	TDG022W-17	NA	TDG022W	07/21/05	07/22/05
DUPE-2-7/21/05	G183-07	665	1	NA	10	5	07/31/0514:17	NA	TDG022W-18	NA	TDG022W	07/21/05	07/22/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 160.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G183
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: TDG022WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 07/23/05 14:01/14:02

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
TDS	ND	162.00	164.00	101	162.00	1620.00	1002	163	80-120	20

8075

GRAVIMETRIC ANALYSIS LOG

SOP ☑ EMAX-160.1 Rev. No. 3 ☐ EMAX-160.2 Rev. No. 2 ☐ EMAX-160.3 Rev. No. 1 ☐ EMAX-160.4 Rev. No. 0 ☐ EMAX-160.5 Rev. No. 0

Book # AGV-017

Oven/Furnace Temp. 105 0C Starting Date 7/22/05 Time 1945 Ending Date 7/23/05 Time 1330

ANALYTICAL BATCH # SS TD G0220 S VS

	Data File Name	Lab Sample ID	Sample Amt. (ml)	Dish Wt. (g)	Dry Wt. Dish + Solids(g) 1st	Time	2nd	Time	3rd	Time	Solids (mg)	Result (mg/L)	Settleable Solids Vol. of SS	Result (ml/L)
1		TDG0220UB	100	45.8812	45.8818	1000	45.8816	1200	45.8816	1400	2.00	ND		
2		UL	50	61.8152	61.8244	01	61.8233	01	61.8234	01	~~16.4~~ 8.200	164		
3		UC	50	66.0809	66.0899	02	66.0891	02	66.0890	02	8.100	162		
4		G182-01	20	12.9899	13.0033	03	13.0030	03	13.0027	03	12.8	640		
5		-01D	20	12.8555	12.8679	04	12.8677	04	12.8677	04	12.2	610		
6		-02	20	12.8512	12.8720	06	12.8710	05	12.8707	05	19.5	975		
7		-03	20	12.8876	12.9051	07	12.9045	06	12.9046	06	17.0	850		
8		-04	20	12.9063	12.9220	08	12.9215	07	12.9216	07	15.3	765		
9		-05	20	12.9336	12.9648	09	12.9643	08	12.9642	08	30.6	1530		
0		-06	20	12.9213	12.9538	10	12.9535	09	12.9533	09	32.0	1600		
1		-07	20	12.9343	12.9526	11	12.9518	10	12.9517	10	17.4	870		
2		G183-01	20	12.9224	12.9347	12	12.9343	11	12.9346	11	12.0	~~240~~	600	
3		-02	20	13.0671	13.0757	13	13.0750	12	13.0751	12	8.0	~~160~~	400	
4		-03	20	12.8864	12.8922	14	12.8917	13	12.8916	13	11.2	224	560	
5		-04	20	12.9990	13.0108	15	13.0107	14	13.0108	14	15.8	316	790	
6		-05	20	12.9352	12.9477	16	12.9471	15	12.9470 9309 8/3/05	15	11.8	~~236~~	235	
7		-06	20	13.0170	13.0215	17	13.0210	16	13.0208	16	13.8	~~276~~	690	
8		-07	20	12.9505	12.9646	18	12.9638	17	12.9636	17	13.3	~~266~~	665	
9														
0														

Comments: 180 ox

LCS ID 8047A-06-133

LCSTV 162 mg/L

Balance:

I60-4070636 D

I -37030058

Analyzed By: NB/LA

This page is checked during the data review process.

RM 7/30/05

8/3/05

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8076

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G183**

METHOD 351.3
TKN

Seven (7) water samples were received on 07/22/05 for TKN analysis by Method 351.3 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

No duplicate sample was designated in this SDG.

5. Matrix Spiked

No MS sample was designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

All results were reported as Nitrogen concentration.

METHOD 351.3
TKN

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G183

Matrix : WATER
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	KNG010WB	ND	1	NA	.1	.035	07/31/0511:10	07/30/0510:30	KNG010W-11	KNG010W-09	KNG010W	NA	07/30/05
LCS1W	KNG010WL	1.03	1	NA	.1	.035	07/31/0511:11	07/30/0510:30	KNG010W-12	KNG010W-09	KNG010W	NA	07/30/05
LCD1W	KNG010WC	1.04	1	NA	.1	.035	07/31/0511:12	07/30/0510:30	KNG010W-13	KNG010W-09	KNG010W	NA	07/30/05
MW-19-1	G183-01	.473	1	NA	.1	.035	07/31/0511:27	07/30/0510:30	KNG010W-28	KNG010W-21	KNG010W	07/20/05	07/22/05
MW-18-5	G183-02	ND	1	NA	.1	.035	07/31/0511:28	07/30/0510:30	KNG010W-29	KNG010W-21	KNG010W	07/21/05	07/22/05
MW-18-4	G183-03	ND	1	NA	.1	.035	07/31/0511:29	07/30/0510:30	KNG010W-30	KNG010W-21	KNG010W	07/21/05	07/22/05
MW-18-3	G183-04	ND	1	NA	.1	.035	07/31/0511:30	07/30/0510:30	KNG010W-31	KNG010W-21	KNG010W	07/21/05	07/22/05
MW-18-1	G183-05	.244	1	NA	.1	.035	07/31/0511:31	07/30/0510:30	KNG010W-32	KNG010W-21	KNG010W	07/21/05	07/22/05
MW-18-2	G183-06	ND	1	NA	.1	.035	07/31/0511:34	07/30/0510:30	KNG010W-35	KNG010W-33	KNG010W	07/21/05	07/22/05
DUPE-2-7/21/05	G183-07	ND	1	NA	.1	.035	07/31/0511:35	07/30/0510:30	KNG010W-36	KNG010W-33	KNG010W	07/21/05	07/22/05

8078

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 351.3
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G183
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: KNG010WL/C

DATE RECEIVED: 07/30/05
DATE EXTRACTED: 07/30/05 10:30
DATE ANALYZED: 07/31/05 11:11/11:12

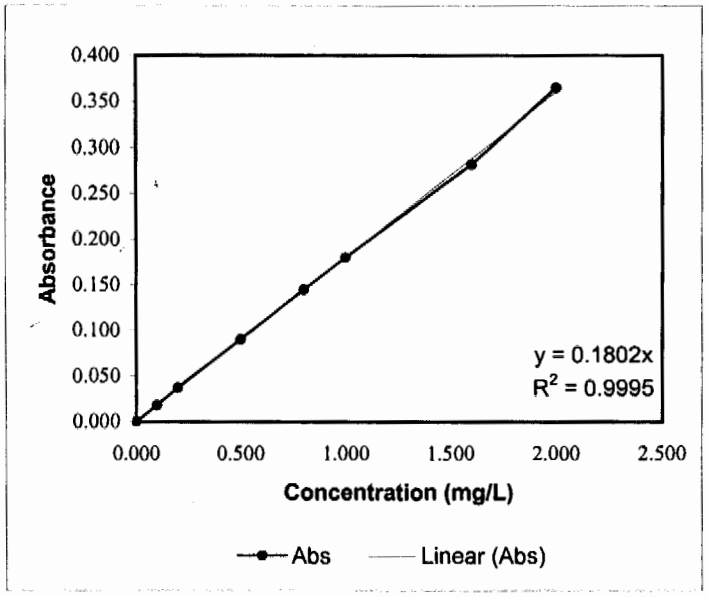
ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
TKN	ND	1.00	1.03	103	1.00	1.04	104	1	80-120	20

8079

CALIBRATION CURVE
AMMONIA _NH3 _TKN

Conc.	Abs
0.000	0.000
0.100	0.018
0.200	0.037
0.500	0.090
0.800	0.145
1.000	0.180
1.600	0.282
2.000	0.365



R^2	0.999477	Comments:	**PASSED**
y	0.1802		
CF	5.5505	Analyzed by:	RM/LA

ANALYSIS LOG FOR TOTAL KJELDAHL NITROGEN (TKN)

SOP ☑ EMAX-351.3 Rev. No. 1 ☐ Start Date: 7-31-05 Time: 11:00 End Date: 7-31-05 Time: 11:09 Book # A70-KN-004

ANALYTICAL BATCH * KN6010W

Data File Name	Prep. Batch	Lab Sample ID	Matrix S	Matrix W	Time	Vol.Colored (ml)	DF	Absorbance	Notes mg/L
* 1	KN6010W	S-0.0		✓	11:00	20	1	0.000	
* 2	↓	S-0.1		↓	-01	↓	↓	0.018	
* 3		S-0.2			-02			0.037	
* 4		S-0.5			-03			0.090	
* 5		S-0.8			-04			0.145	
* 6		S-1.0			-05			0.180	
* 7		S-1.6			-06			0.282	
* 8		S-2.0			-07			0.365	
* 9		ICV			-08			0.182	1.01
*10		ICB			-09			0.000	ND
* 1		KN6010WB			-10			0.000	ND
* 2		↓ WC			-11			0.185	1.027
* 3		↓ WC			-12			0.187	1.038
* 4		G145-0.1			-13			0.012	ND
* 5		↓ -01D			-14			0.012	ND
* 6		-01M			-15			0.197	1.093
* 7		-02			-16			0.080	0.444
* 8		-03			-17			0.094	0.522
* 9		-04			-18			0.060	0.333
*20		↓ -05			-19			0.092	0.511
* 1		CCV1			-20			0.184	1.021
* 2		CCB1			-21			0.000	ND
* 3		G145-0.6			-22			0.142	0.788
* 4		↓ -07			-23			0.094	0.523
* 5		-08			-24			0.110	0.611
* 6		-09			-25			0.068	0.377
* 7		↓ -10			-26			0.070	0.389
* 8		G183-0.1			-27			0.086	0.473
* 9		↓ -02		↓	-28	↓	↓	0.002	ND
*30	↓	↓ -03			-29	20	1	0.004	ND

Instrument No: 70	Wavelength: 425 nm	
Standard	**ID**	**Conc. (mg/L)**
S_0	nano pure	0.0
S_1	SW2B-03-152	0.1
S_2	↓	0.2
S_3	↓	0.5
S_4	↓	0.8
S_5	↓	1.0
S_6	↓	1.6
S_7	SW2B-03-152	2.0
ICV/MS	↓ -151	1.0
CCV	↓ -152	1.0
LCS	↓ -178	1.0
Reagent	**ID**	
Color Reagent	SW7A-06-141	
Standard Curve		
R^2	0.9995	
Y	0.1802	
CF	5.5505	

Comments:

Results are based on: ☐ Dry Weight ☐ Wet Weight

Analyzed By: RM 12

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

ANALYSIS LOG FOR TOTAL KJELDAHL NITROGEN (TKN)

SOP ☑ EMAX-351.3 Rev. No. 1 ☐ Start Date: 7-31-05 Time: 11:00 End Date: 7-31-05 Time: 11:49 Book # A70-KN-004

Data File Name		Prep. Batch	Lab Sample ID	Matrix S	Matrix W	Time	Vol.Colored (ml)	DF	Absorbance	Notes mg/L
21	1	KN60010	G183-04		✓	11:30	20	1	0.012	ND
*	2		-05			-31			0.044	0.244
*	3		CCV2			-32			0.183	1.016
*	4		CCB2			-33			0.000	ND
*	5		G183-06			-34			0.008	ND
*	6		-07			-35			0.010	ND
*	7		KN60110B			-36			0.000	ND
*	8		WL			-37			0.186	1.032
*	9		G190-01			-38			0.029	0.161
21	0		-01D			-39			0.028	0.155
*	1		-01M			-40			0.220	1.221
*	2		-02			-41			0.022	0.122
*	3		-03			-42			0.090	0.500
*	4		-04			-43			0.044	0.244
*	5		CCV3			-44			0.184	1.021
*	6		CCB3			-45			0.000	ND
*	7		G190-05			-46			0.072	0.400
*	8		-06			-47			0.064	0.355
*	9		CCV4		✓	-48	✓	✓	0.183	1.016
5	0	✓	CCB4		✓	-49	20	1	0.000	ND
*	1									
*	2									
*	3									
*	4									
*	5									
*	6									
*	7									
*	8									
*	9									
*	0									

ANALYTICAL BATCH * KN60110

Instrument No: 70	Wavelength: 425 nm

Standard	ID	Conc. (mg/L)
S_0	Same as pg. 84	0.0
S_1		0.1
S_2		0.2
S_3		0.5
S_4		0.8
S_5		1.0
S_6		1.6
S_7		2.0
ICV/MS		1.0
CCV		1.0
LCS	✓	1.0

Reagent	ID
Color Reagent	SW7A-06-141

Standard Curve	
R^2	0.9995
Y	0.1502
CF	5.5505

Comments:

Results are based on: ☐ Dry Weight ☐ Wet Weight

Analyzed By: PM LA

This page is checked during data review.

8-01-05

EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

8082

DISTILLATION LOG FOR NH_3 / DIGESTION AND DISTILLATION FOR TKN

SOP ☐ EMAX-350.2 Rev. No.: 2 ☑ EMAX-351.3 Rev. No.: 2 ☐

Book # EKN-006

Start Date 7-30-05 Time 10:30 End Date 7-30-05 Time 15:30

PREPARATION BATCH KHG0100

Sample Prep ID	Lab Sample ID	Sample pH	NaOH Added (ml)	Boric Acid (ml)	Borate Buffer (ml)	Sample Amount (ml)	Extract Volume (ml)	Notes
*01	S-0.0	9.5	10	5	4	50	50	
*02	S-0.1	↓	↓	↓	↓	↓	↓	
*03	S-1.0							
*04	S-2.0							
*05	ICV							
*06	ICB							
*07	KHG0100B							
*08	WC							
*09	WC							
*10	G145-01							
*11	-02							
*12	-03							
*13	-04							
*14	-05							
*15	-06							
*16	-07							
*17	-08							
*18	-09							
*19	-10							
*20	G185-01							
*21	-02							
*22	-03							
*23	-04							
*24	-05							
*25	-06							
*26	-07	↓	↓	↓	↓	↓	↓	

Standards	ID	Amount Added (ml)
ICV/MS	SW2B-03-151	5ml of 10 ppm
LCS	↓-178	50 ml

Reagent	Lot# / ID
NaOH	NA
Digestion Mixture	SW7A-06-204
Borate Buffer	↓-152
H_3BO_3	SW7B-06-322
Distilling Soln.	↓-315B

Comments:

Prepared By: KM

Standard Added By: KM

Checked By:

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

DISTILLATION LOG FOR NH_3 / DIGESTION AND DISTILLATION FOR TKN

SOP ☐ EMAX-350.2 Rev. No.: 2 ☑ EMAX-351.3 Rev. No.: 2 ☐ Book # EKN-006

Start Date 7-30-05 Time 10:20 End Date 7-30-05 Time 15:20

Sample Prep ID	Lab Sample ID	Sample pH	NaOH Added (ml)	Boric Acid (ml)	Borate Buffer (ml)	Sample Amount (ml)	Extract Volume (ml)	Notes
*01 27	G145-01D	9.5	10	5	4	20	50	
*02 28	-01M							
*03 29	G190-01							
*04 30	-02							
*05 31	-03							
*06 32	-04							
*07 33	-05							
*08 34	-06							
*09 35	KMG011 WB							
*10	WL	9.5						
*11								
*12								
*13								
*14								
*15								
*16								
*17								
*18								
*19								
*20								
*21								
*22								
*23								
*24								
*25								
*26								

Standards	ID	Amount Added (ml)
ICV/MS	Same as pg. 4	
LCS		

Reagent	Lot# / ID
NaOH	Same as pg. 4
Digestion Mixture	
Borate Buffer	
H_3BO_3	
Distilling Soln.	

Comments:

Prepared By: RM

Standard Added By: RM

Checked By:

PREPARATION BATCH # KMG010 WL

8-01-05

EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

8084

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G183**

METHOD 415.1
DOC

Seven (7) water samples were received on 07/22/05 for DOC analysis by Method 415.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

No duplicate sample was designated in this SDG.

5. Matrix Spike

No MS sample was designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 415.1
DOC

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G183

Matrix : WATER
Instrument ID : 62

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TCG021WB	ND	1	NA	1	.5	07/31/0521:08	NA	TCG021-5	TCG021-2	TCG021W	NA	NA
LCS1W	TCG021WL	24.8	1	NA	1	.5	07/31/0521:18	NA	TCG021-6	TCG021-2	TCG021W	NA	NA
LCD1W	TCG021WC	25	1	NA	1	.5	07/31/0521:28	NA	TCG021-7	TCG021-2	TCG021W	NA	NA
MW-19-1	G183-01	8.67	1	NA	1	.5	07/31/0523:50	NA	TCG021-22	TCG021-14	TCG021W	07/20/05	07/22/05
MW-18-5	G183-02	2.53	1	NA	1	.5	07/31/0523:59	NA	TCG021-23	TCG021-14	TCG021W	07/21/05	07/22/05
MW-18-4	G183-03	7.29	1	NA	1	.5	08/01/0500:12	NA	TCG021-24	TCG021-14	TCG021W	07/21/05	07/22/05
MW-18-3	G183-04	6.72	1	NA	1	.5	08/01/0500:22	NA	TCG021-25	TCG021-14	TCG021W	07/21/05	07/22/05
MW-18-1	G183-05	7.82	1	NA	1	.5	08/01/0500:53	NA	TCG021-28	TCG021-26	TCG021W	07/21/05	07/22/05
MW-18-2	G183-06	7.02	1	NA	1	.5	08/01/0501:02	NA	TCG021-29	TCG021-26	TCG021W	07/21/05	07/22/05
DUPE-2-7/21/05	G183-07	3.27	1	NA	1	.5	08/01/0501:11	NA	TCG021-30	TCG021-26	TCG021W	07/21/05	07/22/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G183
METHOD: METHOD 415.1

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	TCG021WB	TCG021WL	TCG021WC		
LAB FILE ID:	TCG021-5	TCG021-6	TCG021-7		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	07/31/0521:08	07/31/0521:18	07/31/0521:28	DATE RECEIVED:	NA
PREP. BATCH:	TCG021W	TCG021W	TCG021W		
CALIB. REF:	TCG021-2	TCG021-2	TCG021-2		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
DOC	ND	25	24.8	99	25	25	100	1	80-120	20

3087

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G183**

METHOD 415.1
TOC

Seven (7) water samples were received on 07/22/05 for TOC analysis by Method 415.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

No duplicate sample was designated in this SDG.

5. Matrix Spike

No MS sample was designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 415.1
TOC

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G183

Matrix : WATER
Instrument ID : 62

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TCG022WB	ND	1	NA	1	.5	08/01/0501:20	NA	TCG021-31	TCG021-26	TCG022W	NA	NA
LCS1W	TCG022WL	24.5	1	NA	1	.5	08/01/0501:30	NA	TCG021-32	TCG021-26	TCG022W	NA	NA
LCD1W	TCG022WC	24.6	1	NA	1	.5	08/01/0501:41	NA	TCG021-33	TCG021-26	TCG022W	NA	NA
MW-19-1	G183-01	2.98	1	NA	1	.5	08/01/0504:01	NA	TCG021-48	TCG021-38	TCG022W	07/20/05	07/22/05
MW-18-5	G183-02	1.15	1	NA	1	.5	08/01/0504:10	NA	TCG021-49	TCG021-38	TCG022W	07/21/05	07/22/05
MW-18-4	G183-03	1.36	1	NA	1	.5	08/01/0504:40	NA	TCG021-52	TCG021-50	TCG022W	07/21/05	07/22/05
MW-18-3	G183-04	1.63	1	NA	1	.5	08/01/0504:49	NA	TCG021-53	TCG021-50	TCG022W	07/21/05	07/22/05
MW-18-1	G183-05	1.91	1	NA	1	.5	08/01/0504:58	NA	TCG021-54	TCG021-50	TCG022W	07/21/05	07/22/05
MW-18-2	G183-06	2.48	1	NA	1	.5	08/01/0505:07	NA	TCG021-55	TCG021-50	TCG022W	07/21/05	07/22/05
DUPE-2-7/21/05	G183-07	1.92	1	NA	1	.5	08/01/0505:16	NA	TCG021-56	TCG021-50	TCG022W	07/21/05	07/22/05

6089

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G183
METHOD: METHOD 415.1

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	TCG022WB	TCG022WL	TCG022WC		
LAB FILE ID:	TCG021-31	TCG021-32	TCG021-33		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/01/0501:20	08/01/0501:30	08/01/0501:41	DATE RECEIVED:	NA
PREP. BATCH:	TCG022W	TCG022W	TCG022W		
CALIB. REF:	TCG021-26	TCG021-26	TCG021-26		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
TOC	ND	25	24.5	98	25	24.6	98	0	80-120	20

0603

	Type	Analysis	Sample Name	Sample ID	Object	Origin	Dilution	Result	Notes	Comment
1	Standard	NPOC	ICAL	TCG021-1	0A-12	C:\Progra	1.000			
2	Control	NPOC	ICV	TCG021-2	0A-12	C:\Progra	1.000	NPOC:24.08 m	Control valu	
3	Unknown	NPOC	ICB	TCG021-3	0A-12	C:\Progra	1.000	NPOC:0.06296		
4	Unknown	NPOC	HCO3/CO3	TCG021-4	0A-12	C:\Progra	1.000	NPOC:0.5766		
5	Unknown	NPOC	TCG021WB	TCG021-5	0A-12	C:\Progra	1.000	NPOC:0.000 m		
6	Unknown	NPOC	TCG021WL	TCG021-6	0A-12	C:\Progra	1.000	NPOC:24.84 m		
7	Unknown	NPOC	TCG021WC	TCG021-7	0A-12	C:\Progra	1.000	NPOC:25.03 m		
8	Unknown	NPOC	05G145-01	TCG021-8	0A-12	C:\Progra	1.000	NPOC:2.822 m		DOC
9	Unknown	NPOC	05G145-02	TCG021-9	0A-12	C:\Progra	1.000	NPOC:6.448 m		DOC
10	Unknown	NPOC	05G145-03	TCG021-10	0A-12	C:\Progra	1.000	NPOC:2.921 m		DOC
11	Unknown	NPOC	05G145-04	TCG021-11	0A-12	C:\Progra	1.000	NPOC:3.161 m		DOC
12	Unknown	NPOC	05G145-05	TCG021-12	0A-12	C:\Progra	1.000	NPOC:12.06 m		DOC
13	Unknown	NPOC	05G145-06	TCG021-13	0A-12	C:\Progra	1.000	NPOC:5.107 m		DOC
14	Control	NPOC	CCV1	TCG021-14	0A-12	C:\Progra	1.000	NPOC:24.81 m	Control valu	
15	Unknown	NPOC	CCB1	TCG021-15	0A-12	C:\Progra	1.000	NPOC:0.06106		
16	Unknown	NPOC	05G145-07	TCG021-16	0A-12	C:\Progra	1.000	NPOC:1.793 m		DOC
17	Unknown	NPOC	05G145-08	TCG021-17	0A-12	C:\Progra	1.000	NPOC:1.842 m		DOC
18	Unknown	NPOC	05G145-09	TCG021-18	0A-12	C:\Progra	1.000	NPOC:8.597 m		DOC
19	Unknown	NPOC	05G145-10	TCG021-19	0A-12	C:\Progra	1.000	NPOC:8.069 m		DOC
20	Unknown	NPOC	05G145-10D	TCG021-20	0A-12	C:\Progra	1.000	NPOC:7.922 m		DOC
21	Unknown	NPOC	05G145-10M	TCG021-21	0A-12	C:\Progra	1.000	NPOC:32.14 m		DOC
22	Unknown	NPOC	05G183-01	TCG021-22	0A-12	C:\Progra	1.000	NPOC:8.667 m		DOC
23	Unknown	NPOC	05G183-02	TCG021-23	0A-12	C:\Progra	1.000	NPOC:2.531 m		DOC
24	Unknown	NPOC	05G183-03	TCG021-24	0A-12	C:\Progra	1.000	NPOC:7.289 m		DOC
25	Unknown	NPOC	05G183-04	TCG021-25	0A-12	C:\Progra	1.000	NPOC:6.715 m		DOC
26	Control	NPOC	CCV2	TCG021-26	0A-12	C:\Progra	1.000	NPOC:24.60 m	Control valu	
27	Unknown	NPOC	CCB2	TCG021-27	0A-12	C:\Progra	1.000	NPOC:0.000 m		
28	Unknown	NPOC	05G183-05	TCG021-28	0A-12	C:\Progra	1.000	NPOC:7.824 m		DOC
29	Unknown	NPOC	05G183-06	TCG021-29	0A-12	C:\Progra	1.000	NPOC:7.021 m		DOC
30	Unknown	NPOC	05G183-07	TCG021-30	0A-12	C:\Progra	1.000	NPOC:3.269 m		DOC
31	Unknown	NPOC	TCG022WB	TCG021-31	0A-12	C:\Progra	1.000	NPOC:0.2118		
32	Unknown	NPOC	TCG022WL	TCG021-32	0A-12	C:\Progra	1.000	NPOC:24.55 m		
33	Unknown	NPOC	TCG022WC	TCG021-33	0A-12	C:\Progra	1.000	NPOC:24.62 m		
34	Unknown	NPOC	05G145-01	TCG021-34	0A-12	C:\Progra	1.000	NPOC:1.217 m		
35	Unknown	NPOC	05G145-02	TCG021-35	0A-12	C:\Progra	1.000	NPOC:1.293 m		
36	Unknown	NPOC	05G145-03	TCG021-36	0A-12	C:\Progra	1.000	NPOC:1.349 m		
37	Unknown	NPOC	05G145-04	TCG021-37	0A-12	C:\Progra	1.000	NPOC:1.491 m		
38	Control	NPOC	CCV3	TCG021-38	0A-12	C:\Progra	1.000	NPOC:24.56 m	Control valu	
39	Unknown	NPOC	CCB3	TCG021-39	0A-12	C:\Progra	1.000	NPOC:0.000 m		
40	Unknown	NPOC	05G145-05	TCG021-40	0A-12	C:\Progra	1.000	NPOC:1.692 m		
41	Unknown	NPOC	05G145-06	TCG021-41	0A-12	C:\Progra	1.000	NPOC:1.480 m		
42	Unknown	NPOC	05G145-07	TCG021-42	0A-12	C:\Progra	1.000	NPOC:1.338 m		
43	Unknown	NPOC	05G145-08	TCG021-43	0A-12	C:\Progra	1.000	NPOC:1.625 m		
44	Unknown	NPOC	05G145-09	TCG021-44	0A-12	C:\Progra	1.000	NPOC:1.299 m		
45	Unknown	NPOC	05G145-10	TCG021-45	0A-12	C:\Progra	1.000	NPOC:1.778 m		
46	Unknown	NPOC	05G145-10D	TCG021-46	0A-12	C:\Progra	1.000	NPOC:1.778 m		
47	Unknown	NPOC	05G145-10M	TCG021-47	0A-12	C:\Progra	1.000	NPOC:25.65 m		
48	Unknown	NPOC	05G183-01	TCG021-48	0A-12	C:\Progra	1.000	NPOC:2.979 m		
49	Unknown	NPOC	05G183-02	TCG021-49	0A-12	C:\Progra	1.000	NPOC:1.155 m		
50	Control	NPOC	CCV4	TCG021-50	0A-12	C:\Progra	1.000	NPOC:24.64 m	Control valu	
51	Unknown	NPOC	CCB4	TCG021-51	0A-12	C:\Progra	1.000	NPOC:0.04559		
52	Unknown	NPOC	05G183-03	TCG021-52	0A-12	C:\Progra	1.000	NPOC:1.356 m		
53	Unknown	NPOC	05G183-04	TCG021-53	0A-12	C:\Progra	1.000	NPOC:1.629 m		
54	Unknown	NPOC	05G183-05	TCG021-54	0A-12	C:\Progra	1.000	NPOC:1.910 m		
55	Unknown	NPOC	05G183-06	TCG021-55	0A-12	C:\Progra	1.000	NPOC:2.484 m		
56	Unknown	NPOC	05G183-07	TCG021-56	0A-12	C:\Progra	1.000	NPOC:1.923 m		
57	Control	NPOC	CCV5	TCG021-57	0A-12	C:\Progra	1.000	NPOC:24.69 m	Control valu	
58	Unknown	NPOC	CCB5	TCG021-58	0A-12	C:\Progra	1.000	NPOC:0.05648		
59										
60										
61										
62										
63										
64										
65										
66										

Instr.Information

System	toc
Detector	Combustion
Catalyst	Regular Sensitivity
Cell Length	long

Cal. Curve

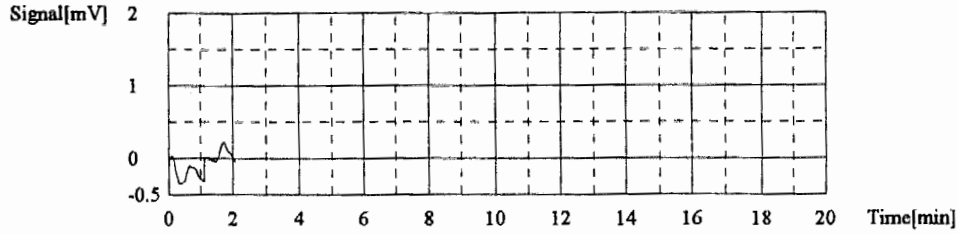
Sample Name:	ICAL
Sample ID:	TCG021-1
Cal. Curve:	TCG021.2005_07_31_19_35_03.cal

Type	Anal.
Standard	NPOC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	0.3965	50uL	1	*******		07/31/05 07:42:25 PM
2	0.4240	50uL	1	*******		07/31/05 07:43:33 PM

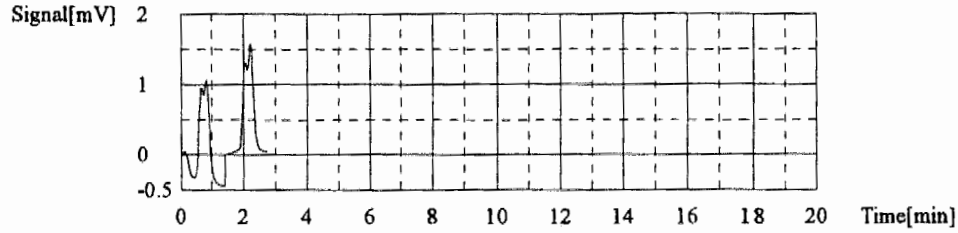
Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	0.4103



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	3.052	50uL	10	*******		07/31/05 07:52:09 PM
2	3.177	50uL	10	*******		07/31/05 07:53:38 PM

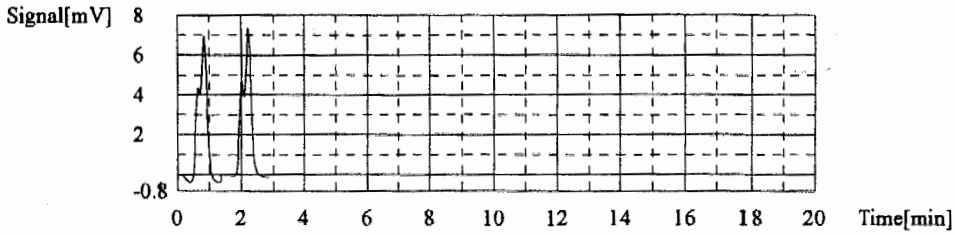
Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	3.115



Conc: 5.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	13.65	50uL	2	*******		07/31/05 08:00:18 PM
2	14.30	50uL	2	*******		07/31/05 08:01:56 PM

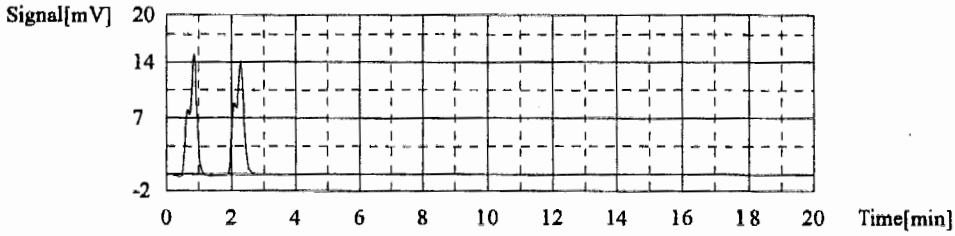
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 13.98



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	27.15	50uL	1	*******		07/31/05 08:07:58 PM
2	27.91	50uL	1	*******		07/31/05 08:09:40 PM

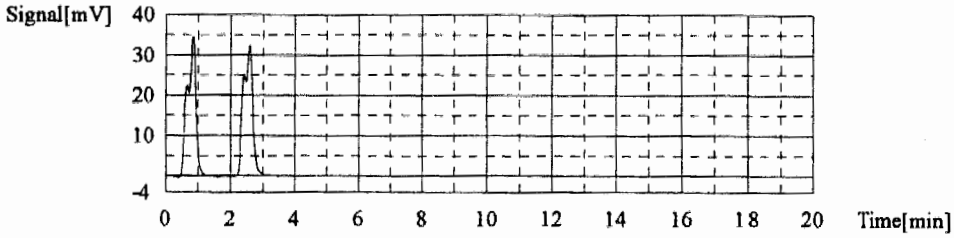
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 27.53



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	66.75	50uL	2	*******		07/31/05 08:18:39 PM
2	68.02	50uL	2	*******		07/31/05 08:20:34 PM

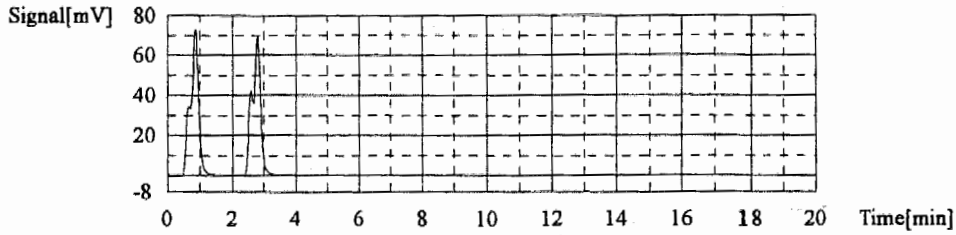
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 67.39



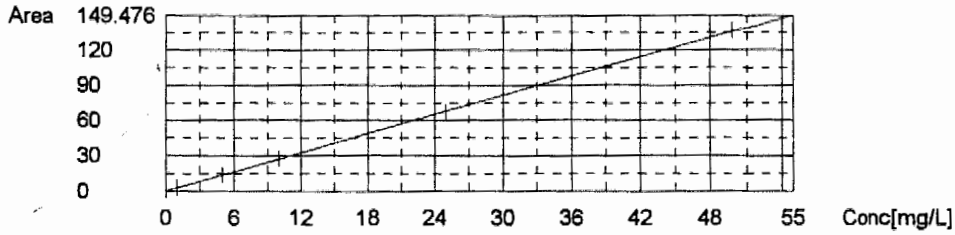
Conc: 50.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	135.2	50uL	1	*******		07/31/05 08:27:05 PM
2	137.9	50uL	1	*******		07/31/05 08:29:10 PM

Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	136.6



Slope:	2.718
Intercept	0.000
r^2	0.999935



Control Sample

Sample Name:	ICV
Sample ID:	TCG021-2
Method:	TCG021.tpl
Chk. Result	Control value: 0.09% / Control within range!

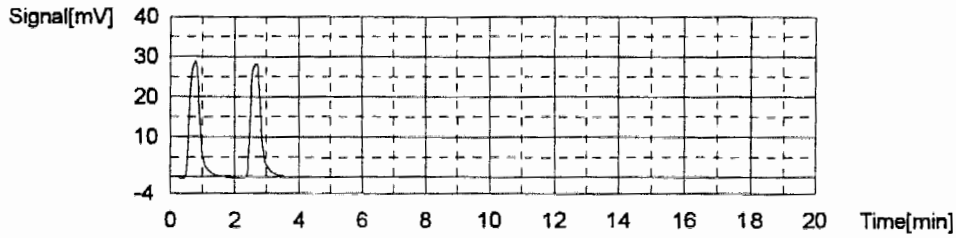
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.08 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	65.42	24.07mg/L	50uL	1		TCG021.2005_07_31_19_35_03.cal	07/31/05 08:37:50 PM
2	65.48	24.09mg/L	50uL	1		TCG021.2005_07_31_19_35_03.cal	07/31/05 08:39:52 PM

Mean Area	65.45
Mean Conc.	24.08mg/L



Sample

8094

Sample Name: ICB
Sample ID: TCG021-3
Origin: TCG021.met
Chk. Result

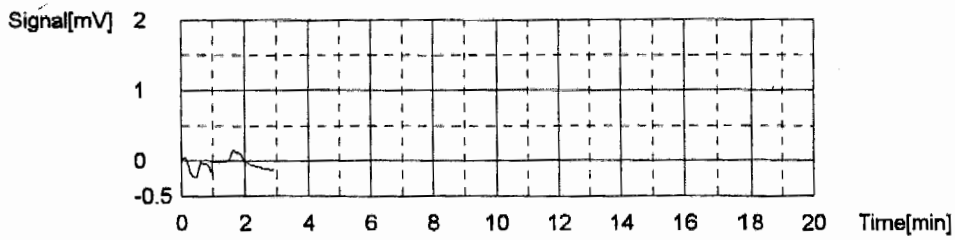
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.06296 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.3422	0.1259mg/L	50uL	1		TCG021.2005_07_31_19_35_03.cal	07/31/05 08:47:23 PM
2	0.000	0.000mg/L	50uL	1		TCG021.2005_07_31_19_35_03.cal	07/31/05 08:49:27 PM

Mean Area 0.1711
Mean Conc. 0.06296mg/L



Sample

Sample Name: HCO3/CO3
Sample ID: TCG021-4
Origin: TCG021.met
Chk. Result

Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.5766 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.591	0.5854mg/L	50uL	1		TCG021.2005_07_31_19_35_03.cal	07/31/05 08:57:07 PM
2	1.543	0.5677mg/L	50uL	1		TCG021.2005_07_31_19_35_03.cal	07/31/05 08:58:28 PM

ANALYSIS RUN LOG FOR TOC

SOP: o EMAX-9060 Revision No. 1 o EMAX-415.1 Revision No. 1 o

Book # A62-006

Start Date: 7/31/05 Time: 19:42 EndingDate: 8/01/05 Time: 05:36

Sample Prep. ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Run Time	Notes
* 1	TC6021						
* 2							
* 3							
* 4							
* 5							
* 6							
* 7							
* 8							
* 9							
* 0							
* 1							
* 2							
* 3							
* 4							
* 5							
* 6							
* 7							
* 8							
* 9							
* 0							
* 1							
* 2							
* 3							
* 4							
* 5							
* 6							
* 7							
* 8							
* 9							
* 0							

SEE ATTACHED INSTRUMENT SEQ.
7/31/05

ANALYTICAL BATCH * TC6021 ** TC6022

Instrument No.	62
INITIAL CALIBRATION REFERENCE	
Method File	TC6021
ICAL ID	SW10B-01-605
ICV ID	↓ -606

STANDARDS

ICAL Level		Conc.(mg/L)
S_0	Nanopure	0
S_1	SW10B-01-605	1
S_2	↓	5
S_3		10
S_4		25
S_5		50
S_6		7/31/05
ICV/LCS	SW10B-01-606	25
CCV	↓ 607	25

Comments:

Analyzed By: ✓

This page is checked during data review

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8096

	Type	Analysis	Sample Name	Sample ID	Object	Origin	Dilution	Result	Notes	Comment
1	Standard	NPOC	ICAL	TCG021-1	0A-12	C:\Progra	1.000			
2	Control	NPOC	ICV	TCG021-2	0A-12	C:\Progra	1.000			
3	Unknown	NPOC	ICB	TCG021-3	0A-12	C:\Progra	1.000			
4	Unknown	NPOC	HCO3/CO3	TCG021-4	0A-12	C:\Progra	1.000			
5	Unknown	NPOC	TCG021WB	TCG021-5	0A-12	C:\Progra	1.000	X		
6	Unknown	NPOC	TCG021WL	TCG021-6	0A-12	C:\Progra	1.000	X		
7	Unknown	NPOC	TCG021WC	TCG021-7	0A-12	C:\Progra	1.000	X		
8	Unknown	NPOC	05G145-01	TCG021-8	0A-12	C:\Progra	1.000			DOC
9	Unknown	NPOC	05G145-02	TCG021-9	0A-12	C:\Progra	1.000			DOC
10	Unknown	NPOC	05G145-03	TCG021-10	0A-12	C:\Progra	1.000			DOC
11	Unknown	NPOC	05G145-04	TCG021-11	0A-12	C:\Progra	1.000			DOC
12	Unknown	NPOC	05G145-05	TCG021-12	0A-12	C:\Progra	1.000			DOC
13	Unknown	NPOC	05G145-06	TCG021-13	0A-12	C:\Progra	1.000			DOC
14	Control	NPOC	CCV1	TCG021-14	0A-12	C:\Progra	1.000			
15	Unknown	NPOC	CCB1	TCG021-15	0A-12	C:\Progra	1.000			
16	Unknown	NPOC	05G145-07	TCG021-16	0A-12	C:\Progra	1.000			DOC
17	Unknown	NPOC	05G145-08	TCG021-17	0A-12	C:\Progra	1.000			DOC
18	Unknown	NPOC	05G145-09	TCG021-18	0A-12	C:\Progra	1.000			DOC
19	Unknown	NPOC	05G145-10	TCG021-19	0A-12	C:\Progra	1.000			DOC
20	Unknown	NPOC	05G145-10D	TCG021-20	0A-12	C:\Progra	1.000			DOC
21	Unknown	NPOC	05G145-10M	TCG021-21	0A-12	C:\Progra	1.000			DOC
22	Unknown	NPOC	05G183-01	TCG021-22	0A-12	C:\Progra	1.000	X		DOC
23	Unknown	NPOC	05G183-02	TCG021-23	0A-12	C:\Progra	1.000	X		DOC
24	Unknown	NPOC	05G183-03	TCG021-24	0A-12	C:\Progra	1.000	X		DOC
25	Unknown	NPOC	05G183-04	TCG021-25	0A-12	C:\Progra	1.000	X		DOC
26	Control	NPOC	CCV2	TCG021-26	0A-12	C:\Progra	1.000			
27	Unknown	NPOC	CCB2	TCG021-27	0A-12	C:\Progra	1.000			
28	Unknown	NPOC	05G183-05	TCG021-28	0A-12	C:\Progra	1.000	X		DOC
29	Unknown	NPOC	05G183-06	TCG021-29	0A-12	C:\Progra	1.000	X		DOC
30	Unknown	NPOC	05G183-07	TCG021-30	0A-12	C:\Progra	1.000	X		DOC
31	Unknown	NPOC	TCG022WB	~~TCG021~~ TCG021-31	0A-12	C:\Progra	1.000	TCG021-31		
32	Unknown	NPOC	TCG022WL	TCG021-32	0A-12	C:\Progra	1.000	✓		
33	Unknown	NPOC	TCG022WC	TCG021-33	0A-12	C:\Progra	1.000	✓		
34	Unknown	NPOC	05G145-01	TCG021-34	0A-12	C:\Progra	1.000	✓		
35	Unknown	NPOC	05G145-02	TCG021-35	0A-12	C:\Progra	1.000			
36	Unknown	NPOC	05G145-03	TCG021-36	0A-12	C:\Progra	1.000			
37	Unknown	NPOC	05G145-04	TCG021-37	0A-12	C:\Progra	1.000			
38	Control	NPOC	CCV3	TCG021-38	0A-12	C:\Progra	1.000			
39	Unknown	NPOC	CCB3	TCG021-39	0A-12	C:\Progra	1.000			
40	Unknown	NPOC	05G145-05	TCG021-40	0A-12	C:\Progra	1.000			
41	Unknown	NPOC	05G145-06	TCG021-41	0A-12	C:\Progra	1.000			
42	Unknown	NPOC	05G145-07	TCG021-42	0A-12	C:\Progra	1.000			
43	Unknown	NPOC	05G145-08	TCG021-43	0A-12	C:\Progra	1.000			
44	Unknown	NPOC	05G145-09	TCG021-44	0A-12	C:\Progra	1.000			
45	Unknown	NPOC	05G145-10	TCG021-45	0A-12	C:\Progra	1.000			
46	Unknown	NPOC	05G145-10D	TCG021-46	0A-12	C:\Progra	1.000			
47	Unknown	NPOC	05G145-10M	TCG021-47	0A-12	C:\Progra	1.000			
48	Unknown	NPOC	05G183-01	TCG021-48	0A-12	C:\Progra	1.000	✓		
49	Unknown	NPOC	05G183-02	TCG021-49	0A-12	C:\Progra	1.000	✓		
50	Control	NPOC	CCV4	TCG021-50	0A-12	C:\Progra	1.000			
51	Unknown	NPOC	CCB4	TCG021-51	0A-12	C:\Progra	1.000			
52	Unknown	NPOC	05G183-03	TCG021-52	0A-12	C:\Progra	1.000	✓		
53	Unknown	NPOC	05G183-04	TCG021-53	0A-12	C:\Progra	1.000	✓		
54	Unknown	NPOC	05G183-05	TCG021-54	0A-12	C:\Progra	1.000	✓		
55	Unknown	NPOC	05G183-06	TCG021-55	0A-12	C:\Progra	1.000	✓		
56	Unknown	NPOC	05G183-07	TCG021-56	0A-12	C:\Progra	1.000	✓		
57	Control	NPOC	CCV5	TCG021-57	0A-12	C:\Progra	1.000			
58	Unknown	NPOC	CCB5	TCG021-58	0A-12	C:\Progra	1.000			
59										
60										
61								✓ = TOC		
62										
63								X = DOC		
64										
65										
66										

8/1/05

07/31/05 06:49:36 PM

TABLE OF CONTENTS

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G145**

SECTION		PAGE
Cover Letter, COC/Sample Receipt Form		1000 – 1010
GC/MS-VOA	**	2000 –
GC/MS-SVOA	**	3000 –
GC-VOA	**	4000 –
GC-SVOA	**	5000 –
HPLC	**	6000 –
METALS	METHOD 200.7	7000 – 7023
WET	METHOD 300.0	8000 – 8041
	METHOD 310.1	8042 – 8045
	METHOD 350.2	8046 – 8055
	METHOD 120.1	8056 – 8059
	SM3500	8060 – 8065
	METHOD 376.1	8066 – 8070
	METHOD 351.3	8071 – 8080
	METHOD 160.1	8081 – 8085
	METHOD 415.1 (DOC)	8086 – 8090
	METHOD 415.1 (TOC)	8091 – 8102
OTHERS	**	9000 –

** - Not Requested

EMAX
LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 08-04-2005
EMAX Batch No.: 05G145

Attn: Tien Shiao

Battelle Memorial Institute
505 King Ave.
Columbus OH 43201

Subject: Laboratory Report
Project: JPL

Enclosed is the Laboratory report for samples received on 07/20/05.
The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
MW-25-5	G145-01	07/19/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
MW-25-4	G145-02	07/19/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N

Sample ID	Control #	Col Date	Matrix	Analysis
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
MW-25-3	G145-03	07/19/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
MW-25-2	G145-04	07/19/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
MW-25-1	G145-05	07/19/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
MW-19-5	G145-06	07/20/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON

EMAX LABORATORIES, INC. 1835 W. 205th Street, Torrance, CA 90501 Tel: (310) 618-8889 Fax: (310) 618-0818

Sample ID	Control #	Col Date	Matrix	Analysis
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
MW-19-4	G145-07	07/20/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
DUPE-1-7/20/05	G145-08	07/20/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
MW-19-3	G145-09	07/20/05	WATER	ANIONS BY IC
				FERROUS IRON
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN
MW-19-2	G145-10	07/20/05	WATER	ANIONS BY IC
				FERROUS IRON

EMAX LABORATORIES, INC. 1835 W. 205th Street, Torrance, CA 90501 Tel: (310) 618-8889 Fax: (310) 618-0818

Sample ID	Control #	Col Date	Matrix	Analysis
				METALS IN WATER & WASTE
				TOTAL ORGANIC CARBON
				DISSOLVED ORGANIC CARBON
				ALKALINITY
				SULFIDE
				AMMONIA-N
				SPECIFIC CONDUCTANCE
				SOLIDS TOTAL DISSOLVED
				TKN

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

EMAX LABORATORIES, INC. 1835 W. 205th Street, Torrance, CA 90501 Tel: (310) 618-8889 Fax: (310) 618-0818

Battelle
Columbus Laboratories

I16/I17

CHAIN OF CUSTODY RECORD

056145
Form No.

Proj. No.	Project Title
G486111-T3	Source Determination Study

SAMPLERS: (Signature) D. Lemmel

PO # 191943

	DATE	TIME	SAMPLE I.D.	DOC (Filtered)	TOC	Ferrous Iron	Nitrite, Nitrate	Sulfate, Chloride, TDS	Perchlorate	Alkalinity, Spec. Elec. Conductance	Ferric Iron	Ca, Na, K, Mg	Sulfide	Ammonia	TKN			Container No.	Number of Containers	Remarks
1	7/19/2005	12:30	MW-25-5	X	X	X	X	X	X	X	X	X	X	X	X					0.45 µm
2	7/19/2005	14:00	MW-25-4	X	X	X	X	X	X	X	X	X	X	X	X					filter rinsed
3	7/19/2005	15:10	MW-25-3	X	X	X	X	X	X	X	X	X	X	X	X					w/ 500 mL of
4	7/19/2005	16:15	MW-25-2	X	X	X	X	X	X	X	X	X	X	X	X					distilled H_2O
5	7/19/2005	17:30	MW-25-1	X	X	X	X	X	X	X	X	X	X	X	X					before filtering
																				DOC in the
																				field.

T=3.4°C, T=3.2°C, T=3.6°C, T=3.0°C

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	7/20/05 15:00	[signature]			
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	72005 1545	[signature]			
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks	
				To: EMAX LABS	

Page ____ of ____

Battelle
Columbus Laboratories

I16/I17

CHAIN OF CUSTODY RECORD

Form No. 05G145

Proj. No.	Project Title
64461 11-T3	Source Determination Study

SAMPLERS: (Signature) D. Lowry

DATE	TIME	SAMPLE I.D.	DOC (Filtered)	TOC	Ferrous Iron	Nitrite, Nitrate	Sulfate, Chloride, TDS	Alkalinity, Elec. Cond., Sulfate	Ferric Iron	Ca, Na, K, Mg	Sulfide	Ammonia	TKN			Container No.	Number of Containers	Remarks
(6) 7/20/05	0900	MW-19-5	X	X	X	X	X	X	X	X	X	X	X					0.45 µm filter
(7) 7/20/05	1100	MW-19-4	X	X	X	X	X	X	X	X	X	X	X					rinsed w/ 500 mL
(8) 7/20/05	1115	DUPE-1-7/20/05	X	X	X	X	X	X	X	X	X	X	X					of distilled H_2O before
(9) 7/20/05	1210	MW-19-3	X	X	X	X	X	X	X	X	X	X	X					filtering DOC in
(10) 7/20/05	14:00	MW-19-2	X	X	X	X	X	X	X	X	X	X	X					the field.
		~~[illegible]~~ DOC																
		T- 3.4°C																

PO # 191943

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	7/20/05 15:00	[signature]			
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	7 20 05 1545	[signature]			
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks	
				To: EMAX Labs	

Page ____ of ____

Battelle
Columbus Laboratories

I16/I17

CHAIN OF CUSTODY RECORD

Form No. 056145

Proj. No.	Project Title
G486111-T3	Source Determination Study

SAMPLERS: (Signature) D. Lumer

PO # 191943

	DATE	TIME	SAMPLE I.D.	DOC (Filtered)	TOC	Ferrous Iron	Nitrite, Nitrate	Sulfate/Chloride/TDS	Specific Conductance	Alkalinity	Ferric Iron	Ca, Na, K, Mg	Sulfide	Ammonia	TKN			Container No.	Number of Containers	Remarks
1	7/19/2005	12:30	MW-25-5	X	X	X	X	X	X	X	X	X	X	X	X					0.45 µm
2	7/19/2005	14:00	MW-25-4	X	X	X	X	X	X	X	X	X	X	X	X					filter rinsed
3	7/19/2005	15:10	MW-25-3	X	X	X	X	X	X	X	X	X	X	X	X					w/ 500 mL of
4	7/19/2005	16:15	MW-25-2	X	X	X	X	X	X	X	X	X	X	X	X					distilled H_2O
5	7/19/2005	17:30	MW-25-1	X	X	X	X	X	X	X	X	X	X	X	X					before filtering
																				DOC in the
																				field.

T=3.4°C, T=3.2°C, T=3.6°C, T=3.0°C

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	7/20/05 15:00	[signature]			
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	7/20/05 1545	[signature]			
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks	
				To: EMAX LABS	

Page ___ of ___

1006

Hanh Bui

From: Shiao, Tien [shiaoh@BATTELLE.ORG]
Sent: Monday, July 25, 2005 6:09 AM
To: Hanh Bui
Cc: Fields, Keith A; Ohart, Carolyn J; Conner, David J
Subject: RE: COC for samples received on 7/20 SDG: 05G145 (Battelle/JPL)

Hi Hanh,

Below is the address and GW sampling contact for APC labs:

Eric Wendland
Manager, Laboratory Services
Applied Physics and Chemistry Laboratory 13760 Magnolia Ave.
Chino, CA 91710

909-590-1828 x104
email: ericw@apclab.com

When sending the samples, send to **Sample Receiving.**

Our FedEx number is: 04320127-1.

Please send the perchlorate samples (125 mL each) for MW-19 -4, MW-19-4-dupe-1, MW-18-2, and MW-18-2-dupe-2 to APC labs. There should be **4** bottles total. Wait until MW-18-2 is received before sending all 4 bottles together and let me know the date the bottles are sent.

MW-19 -4 & MW-19-4-dupe-1 were sent to EMAX by FedEx on Wed 07/20/05 and MW-18-2 & MW-18-2-dupe-2 were sent to EMAX by FedEx on Fri 07/22/05.

Thanks for your help!
Tien

From: Hanh Bui [mailto:HDBui@emaxlabs.com]
Sent: Friday, July 22, 2005 4:34 PM
To: Shiao, Tien
Subject: RE: COC for samples received on 7/20 SDG: 05G145 (Battelle/JPL)

Hi Tien,
I just checked the bottles of all Perchlorate. On labels of all 500mL HDPE bottles were shown Perchlorate/Ferrous Iron/Anion (Nitrate/Nitrite/Chloride/Sulfate)/TDS/ Alkalinity/Specific Conductivity. Could you please give us the information of the other lab to send 125mL Perchlorate samples, and the FedEx # too. We will ship these samples on Monday 7/25, thanks.
Hanh

Hanh Bui

From: Shiao, Tien [shiaoh@BATTELLE.ORG]
Sent: Friday, July 22, 2005 9:28 AM
To: Hanh Bui
Subject: RE: COC for samples received on 7/20 SDG: 05G145 (Battelle/JPL)

Hanh,

Thanks for checking. Yes we will need the perchlorate results for the sample ID DUPE-1-7/20/05.

Tien

From: Hanh Bui [mailto:HDBui@emaxlabs.com]
Sent: Friday, July 22, 2005 11:32 AM
To: Shiao, Tien
Subject: RE: COC for samples received on 7/20 SDG: 05G145 (Battelle/JPL)

Hi Tien,
We will cancel Perchlorate analysis for all samples MW-19- and MW-25- ..... on COC. Thus, there is one sample ID
DUPE-1-7/20/05 11:15 still requested for perchlorate, isn't it? Please let me know, thanks.
Hanh

> -----Original Message-----
> **From:** Shiao, Tien [mailto:shiaoh@BATTELLE.ORG]
> **Sent:** Friday, July 22, 2005 6:53 AM
> **To:** Hanh Bui
> **Subject:** RE: COC for samples received on 7/20 SDG: 05G145 (Battelle/JPL)
>
> Hanh,
>
> Can you take out perchlorate analysis for all locations on both the MW-25 COC and MW-19 COC? Otherwise, they look good to me.
>
> Thanks,
> Tien
>
> ---
>
> **From:** Hanh Bui [mailto:HDBui@emaxlabs.com]
> **Sent:** Thursday, July 21, 2005 7:53 PM
> **To:** Shiao, Tien
> **Subject:** COC for samples received on 7/20 SDG: 05G145 (Battelle/JPL)
>
> Hi Tien,
> Enclosed the COC for samples we received on 7/20. If you want to change something, please let me know, thanks.
> Hanh

SAMPLE RECEIPT FORM 1

Type of Delivery	Delivered By/Airbill	ECN	056145
☑ EMAX Courier	SEE C.O.C.	Recepient	ANTHONY F.
☐ Client Delivery		Date	07.20.05.
☐ Third Party		Time	15:45

COC Inspection

☑ Client Name	☑ Sampler Name	☑ Sampling Date/Time/Location
☑ Address	☐ Courier Signature/Date/Time	☑ Analysis Required
☑ Client PM/FC	☐ TAT	☐ Matrix
☑ Tel #/Fax #	☑ Sample ID	☐ Preservative (if any)
Safety Issues ☑ None	☐ High Concentrations expected	☐ Superfund Site Samples
Comments: ☐ Rad Screening Required		

Packaging Inspection

Container	☑ Cooler 5 FOUR	☐ Box	☐	☐
Condition	☐ Custody Seal	☑ Intact	☐ Damaged	☐
Packaging	☐ Bubble Pack	☐ Styrofoam	☑ Sufficient	☑ PLASTIC BAGS
Temperatures	☑ Cooler 1 3.4°C	☑ Cooler 2 3.2°C	☑ Cooler 3 3.6°C	☑ Cooler 4 3.0°C
	☐ Cooler 5 ____	☐ Cooler 6 ____	☐ Cooler 7 ____	☐ Cooler 8 ____
	☐ Cooler 9 ____	☐ Cooler 10 ____	☐ Cooler 11 ____	☐ Cooler 12 ____

Comments:

LSCID	Client ID	Discrepancy	Corrective Action

LSCID : Lab Sample Container ID

REVIEWS

Sample Labeling _____ Date 07.20.05.

SRF _____ Date 7/21/05

PM _____ Date 7/26/05

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

BATTELLE MEMORIAL INSTITUTE

JPL

METALS

SDG#: 05G145

7000

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G145**

METHOD 200.7
METALS BY ICP

Ten (10) water samples were received on 07/20/05 for Metals analysis by Method 200.7 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition.

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blanks were free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Sample G145-10 was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

Sample G145-10 was spiked. All recoveries were within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

LAB CHRONICLE
METALS BY ICP-AES

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL

SDG NO. : 05G145
Instrument ID : T-I07

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	IPG037WB	1	NA	07/27/0518:48	07/25/0510:30	I07G027012	I07G027010	IPG037W	Method Blank
LCS1W	IPG037WL	1	NA	07/27/0518:52	07/25/0510:30	I07G027013	I07G027010	IPG037W	Lab Control Sample (LCS)
LCD1W	IPG037WC	1	NA	07/27/0518:57	07/25/0510:30	I07G027014	I07G027010	IPG037W	LCS Duplicate
MW-25-5	G145-01	1	NA	07/27/0519:49	07/25/0510:30	I07G027025	I07G027022	IPG037W	Field Sample
MW-25-4	G145-02	1	NA	07/27/0519:53	07/25/0510:30	I07G027026	I07G027022	IPG037W	Field Sample
MW-25-3	G145-03	1	NA	07/27/0519:57	07/25/0510:30	I07G027027	I07G027022	IPG037W	Field Sample
MW-25-2	G145-04	1	NA	07/27/0520:01	07/25/0510:30	I07G027028	I07G027022	IPG037W	Field Sample
MW-25-1	G145-05	1	NA	07/27/0520:05	07/25/0510:30	I07G027029	I07G027022	IPG037W	Field Sample
MW-19-5	G145-06	1	NA	07/27/0520:09	07/25/0510:30	I07G027030	I07G027022	IPG037W	Field Sample
MW-19-4	G145-07	1	NA	07/27/0520:13	07/25/0510:30	I07G027031	I07G027022	IPG037W	Field Sample
DUPE-1-7/20/05	G145-08	1	NA	07/27/0520:18	07/25/0510:30	I07G027032	I07G027022	IPG037W	Field Sample
MW-19-3	G145-09	1	NA	07/27/0520:22	07/25/0510:30	I07G027033	I07G027022	IPG037W	Field Sample
MW-19-2DL	G145-10T	5	NA	07/27/0520:43	07/25/0510:30	I07G027037	I07G027034	IPG037W	Diluted Sample
MW-19-2	G145-10	1	NA	07/27/0520:47	07/25/0510:30	I07G027038	I07G027034	IPG037W	Field Sample
MW-19-2AS	G145-10A	1	NA	07/27/0520:51	07/25/0510:30	I07G027039	I07G027034	IPG037W	Analytical Spike Sample
MW-19-2MS	G145-10M	1	NA	07/27/0520:55	07/25/0510:30	I07G027040	I07G027034	IPG037W	Matrix Spike Sample (MS)
MW-19-2MSD	G145-10S	1	NA	07/27/0520:59	07/25/0510:30	I07G027041	I07G027034	IPG037W	MS Duplicate (MSD)

FN - Filename
% Moist - Percent Moisture

2002

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/19/05
Project	: JPL	Date Received:	07/20/05
SDG NO.	: 05G145	Date Extracted:	07/25/05 10:30
Sample ID:	MW-25-5	Date Analyzed:	07/27/05 19:49
Lab Samp ID:	G145-01	Dilution Factor:	1
Lab File ID:	I07G027025	Matrix :	WATER
Ext Btch ID:	IPG037W	% Moisture :	NA
Calib. Ref.:	I07G027022	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	21.9	1	.1
Iron	ND	.2	.04
Magnesium	6.08	1	.1
Potassium	ND	2	1.4
Sodium	68.4	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/19/05
Project	: JPL	Date Received:	07/20/05
SDG NO.	: 05G145	Date Extracted:	07/25/05 10:30
Sample ID:	MW-25-4	Date Analyzed:	07/27/05 19:53
Lab Samp ID:	G145-02	Dilution Factor:	1
Lab File ID:	I07G027026	Matrix :	WATER
Ext Btch ID:	IPG037W	% Moisture :	NA
Calib. Ref.:	I07G027022	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	64.5	1	.1
Iron	ND	.2	.04
Magnesium	19.5	1	.1
Potassium	ND	2	1.4
Sodium	58.4	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/19/05
Project	: JPL	Date Received:	07/20/05
SDG NO.	: 05G145	Date Extracted:	07/25/05 10:30
Sample ID:	MW-25-3	Date Analyzed:	07/27/05 19:57
Lab Samp ID:	G145-03	Dilution Factor:	1
Lab File ID:	I07G027027	Matrix :	WATER
Ext Btch ID:	IPG037W	% Moisture :	NA
Calib. Ref.:	I07G027022	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	68.4	1	.1
Iron	.323	.2	.04
Magnesium	25.1	1	.1
Potassium	2.08	2	1.4
Sodium	39.5	1	.25

7005

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/19/05
Project	: JPL	Date Received:	07/20/05
SDG NO.	: 05G145	Date Extracted:	07/25/05 10:30
Sample ID:	MW-25-2	Date Analyzed:	07/27/05 20:01
Lab Samp ID:	G145-04	Dilution Factor:	1
Lab File ID:	I07G027028	Matrix :	WATER
Ext Btch ID:	IPG037W	% Moisture :	NA
Calib. Ref.:	I07G027022	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	14.9	1	.1
Iron	.44	.2	.04
Magnesium	19.8	1	.1
Potassium	2.49	2	1.4
Sodium	81.2	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/19/05
Project	: JPL	Date Received:	07/20/05
SDG NO.	: 05G145	Date Extracted:	07/25/05 10:30
Sample ID:	MW-25-1	Date Analyzed:	07/27/05 20:05
Lab Samp ID:	G145-05	Dilution Factor:	1
Lab File ID:	I07G027029	Matrix :	WATER
Ext Btch ID:	IPG037W	% Moisture :	NA
Calib. Ref.:	I07G027022	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	98.7	1	.1
Iron	.338	.2	.04
Magnesium	32.9	1	.1
Potassium	2.98	2	1.4
Sodium	32	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/20/05
Project	: JPL	Date Received:	07/20/05
SDG NO.	: 05G145	Date Extracted:	07/25/05 10:30
Sample ID:	MW-19-5	Date Analyzed:	07/27/05 20:09
Lab Samp ID:	G145-06	Dilution Factor:	1
Lab File ID:	I07G027030	Matrix :	WATER
Ext Btch ID:	IPG037W	% Moisture :	NA
Calib. Ref.:	I07G027022	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	67.8	1	.1
Iron	.763	.2	.04
Magnesium	41.5	1	.1
Potassium	2.51	2	1.4
Sodium	35.9	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/20/05
Project	: JPL	Date Received:	07/20/05
SDG NO.	: 05G145	Date Extracted:	07/25/05 10:30
Sample ID:	MW-19-4	Date Analyzed:	07/27/05 20:13
Lab Samp ID:	G145-07	Dilution Factor:	1
Lab File ID:	I07G027031	Matrix :	WATER
Ext Btch ID:	IPG037W	% Moisture :	NA
Calib. Ref.:	I07G027022	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	69.7	1	.1
Iron	ND	.2	.04
Magnesium	31.9	1	.1
Potassium	ND	2	1.4
Sodium	33.3	1	.25

7009

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/20/05
Project	: JPL	Date Received:	07/20/05
SDG NO.	: 05G145	Date Extracted:	07/25/05 10:30
Sample ID:	DUPE-1-7/20/05	Date Analyzed:	07/27/05 20:18
Lab Samp ID:	G145-08	Dilution Factor:	1
Lab File ID:	I07G027032	Matrix :	WATER
Ext Btch ID:	IPG037W	% Moisture :	NA
Calib. Ref.:	I07G027022	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	71.5	1	.1
Iron	ND	.2	.04
Magnesium	32.7	1	.1
Potassium	2.24	2	1.4
Sodium	33.9	1	.25

7010

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/20/05
Project	: JPL	Date Received:	07/20/05
SDG NO.	: 05G145	Date Extracted:	07/25/05 10:30
Sample ID:	MW-19-3	Date Analyzed:	07/27/05 20:22
Lab Samp ID:	G145-09	Dilution Factor:	1
Lab File ID:	I07G027033	Matrix :	WATER
Ext Btch ID:	IPG037W	% Moisture :	NA
Calib. Ref.:	I07G027022	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	64.8	1	.1
Iron	ND	.2	.04
Magnesium	25.4	1	.1
Potassium	ND	2	1.4
Sodium	28.9	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	07/20/05
Project	: JPL	Date Received:	07/20/05
SDG NO.	: 05G145	Date Extracted:	07/25/05 10:30
Sample ID:	MW-19-2	Date Analyzed:	07/27/05 20:47
Lab Samp ID:	G145-10	Dilution Factor:	1
Lab File ID:	I07G027038	Matrix :	WATER
Ext Btch ID:	IPG037W	% Moisture :	NA
Calib. Ref.:	I07G027034	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	115	1	.1
Iron	.473	.2	.04
Magnesium	43.1	1	.1
Potassium	ND	2	1.4
Sodium	34.4	1	.25

METHOD 200.7
METALS BY ICP-AES

Client	: BATTELLE MEMORIAL INSTITUTE	Date Collected:	NA
Project	: JPL	Date Received:	07/25/05
SDG NO.	: 05G145	Date Extracted:	07/25/05 10:30
Sample ID:	MBLK1W	Date Analyzed:	07/27/05 18:48
Lab Samp ID:	IPG037WB	Dilution Factor:	1
Lab File ID:	I07G027012	Matrix :	WATER
Ext Btch ID:	IPG037W	% Moisture :	NA
Calib. Ref.:	I07G027010	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Calcium	ND	1	.1
Iron	ND	.2	.04
Magnesium	ND	1	.1
Potassium	ND	2	1.4
Sodium	ND	1	.25

7013

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
SDG NO.: 05G145
METHOD: METHOD 200.7

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	MBLK1W				
CONTROL NO.:	IPG037WB	IPG037WL	IPG037WC		
LAB FILE ID:	I07G027012	I07G027013	I07G027014		
DATIME EXTRCTD:	07/25/0510:30	07/25/0510:30	07/25/0510:30	DATE COLLECTED:	NA
DATIME ANALYZD:	07/27/0518:48	07/27/0518:52	07/27/0518:57	DATE RECEIVED:	07/25/05
PREP. BATCH:	IPG037W	IPG037W	IPG037W		
CALIB. REF:	I07G027010	I07G027010	I07G027010		

ACCESSION:

PARAMETER	BLNK RSLT mg/L	SPIKE AMT mg/L	BS RSLT mg/L	BS % REC	SPIKE AMT mg/L	BSD RSLT mg/L	BSD % REC	RPD %	QC LIMIT %	MAX RPD %
Calcium	ND	50	52.7	105	50	51.7	103	2	85-115	20
Iron	ND	10	11	110	10	11.2	112	2	85-115	20
Magnesium	ND	50	52.7	105	50	52.5	105	0	85-115	20
Potassium	ND	50	53.4	107	50	52	104	3	85-115	20
Sodium	ND	50	53.6	107	50	53	106	1	85-115	20

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
SDG NO.: 05G145
METHOD: METHOD 200.7

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	MW-19-2				
CONTROL NO.:	G145-10	G145-10M	G145-10S		
LAB FILE ID:	I07G027038	I07G027040	I07G027041		
DATIME EXTRCTD:	07/25/0510:30	07/25/0510:30	07/25/0510:30	DATE COLLECTED:	07/20/05
DATIME ANALYZD:	07/27/0520:47	07/27/0520:55	07/27/0520:59	DATE RECEIVED:	07/20/05
PREP. BATCH:	IPG037W	IPG037W	IPG037W		
CALIB. REF:	I07G027034	I07G027034	I07G027034		

ACCESSION:

PARAMETER	SMPL RSLT mg/L	SPIKE AMT mg/L	MS RSLT mg/L	MS % REC	SPIKE AMT mg/L	MSD RSLT mg/L	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Calcium	115	50	155	81	50	162	94	4	70-130	20
Iron	.473	10	10.2	97	10	10.7	102	4	70-130	20
Magnesium	43.1	50	89.5	93	50	93.2	100	4	70-130	20
Potassium	ND	50	55.4	111	50	58	116	5	70-130	20
Sodium	34.4	50	80.8	93	50	84.3	100	4	70-130	20

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G145
METHOD: METHOD 200.7

==========

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	5		
SAMPLE ID:	MW-19-2	MW-19-2DL		
EMAX SAMP ID:	G145-10	G145-10T		
LAB FILE ID:	I07G027038	I07G027037		
DATE EXTRACTED:	07/25/0510:30	07/25/0510:30	DATE COLLECTED:	07/20/05
DATE ANALYZED:	07/27/0520:47	07/27/0520:43	DATE RECEIVED:	07/20/05
PREP. BATCH:	IPG037W	IPG037W		
CALIB. REF:	I07G027034	I07G027034		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SERIAL DIL RSLT (mg/L)	DIF RSLT %	QC LIMIT (%)
Calcium	115	109	5	10
Iron	.473	ND	NA	10
Magnesium	43.1	40.5	6	10
Potassium	ND	ND	0	10
Sodium	34.4	31.3	9	10

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
SDG NO.: 05G145
METHOD: METHOD 200.7

==========

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MW-19-2			
CONTROL NO.:	G145-10	G145-10A		
LAB FILE ID:	I07G027038	I07G027039		
DATIME EXTRCTD:	07/25/0510:30	07/25/0510:30	DATE COLLECTED:	07/20/05
DATIME ANALYZD:	07/27/0520:47	07/27/0520:51	DATE RECEIVED:	07/20/05
PREP. BATCH:	IPG037W	IPG037W		
CALIB. REF:	I07G027034	I07G027034		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	AS RSLT (mg/L)	AS % REC	QC LIMIT (%)
Calcium	115	50	156	83	75-125
Iron	.473	10	9.91	94	75-125
Magnesium	43.1	50	88.7	91	75-125
Potassium	ND	50	53	106	75-125
Sodium	34.4	50	80	91	75-125

REGULAR ICP QC CHECK TABLE

QC	ICV HIGH	ICV	CCV	ICSAB	ICSA
Limit%	95-105	90-110	90-110	80-120	80-120
Comp	mg/L	mg/L	mg/L	mg/L	mg/L
Al	10	5	5	500	500
Sb	2	1	1	1	0
As	2	1	1	1	0
Ba	2	1	1	0.5	0
Be	2	1	1	0.5	0
B	2	1	1	0.5	0
Cd	2	1	1	1	0
Ca	100	50	50	500	500
Cr	2	1	1	0.5	0
Co	2	1	1	0.5	0
Cu	2	1	1	0.5	0
Fe	10	5	5	200	200
Pb	2	1	1	1	0
Mg	100	50	50	500	500
Mn	2	1	1	0.5	0
Mo	2	1	1	1	0
Ni	2	1	1	1	0
K	100	50	50	50	0
Se	2	1	1	3.6	0
Ag	2	1	1	1	0
Na	100	50	50	10	0
Sr	2	1	1	0.5	0
Tl	2	1	1	3.6	0
Sn	10	5	5	1	0
Ti	2	1	1	1	0
V	2	1	1	0.5	0
Zn	2	1	1	1	0

ANALYSIS RUN LOG FOR ICP

SOP ☑ EMAX-6010-Rev. 3 ☐ EMAX-CLP-TAL ☐ 200.7 Method File: 6010B1 Autosampler Table: ICP

Matrix: WATER Start Date: 7/27/05 Time: 18:01 End Date: 7/27/05 Time: 21:20 Book# A24 -037

ANALYTICAL BATCH* 07G027

Data File Name	Prep. Batch	Lab Sample ID	DF	Matrix	Notes
01		S0			
02		S1			
03		S6			
04		ICV			
05		ICB			
06		CCV			
07		CCB			
08		ICSA1			
09		ICSAB1			
10		CCV1			
11		CCB1			
12	IPG037W	IPG037WB	1	W	
13		MC	1		
14		MC	1		
15		G115-01	1		
16		02	1		
17		G125-01	1		
18		02	1		
19		04	1		
20		05	1		
21		07	1		
22		CCV2	1		*Se
23		CCB2	1		
24		G125-09	1		
25		G145-01	1		

ANALYTICAL BATCH *

Data File Name	Prep. Batch	Lab Sample ID	DF	Matrix	Notes
26	IPG037W	G145-02	1	W	
27		03	1		
28		04	1		
29		05	1		
30		06	1		
31		07	1		
32		08	1		
33		09	1		
34		CCV3	1		*Se
35		CCB3	1		
36	G470-01	~~G145-10~~	1		
37	Gwa 7/27/05	G145-10T	5		
38		10	1		
39		10A	1		
40		10M	1		
41		10S	1		
42		ICSAF	1		
43		ICSABF	1		
44		CCV4	1		*Se, Tl
45		CCB4	1		
46					
47					
48		Gwa			
49		7/27/05			
50					

Instrument No.	24
Std.	ID
S_0	SMIB09-38-01
S_1	NA
S_2	NA
S_3	SMIB09-44-04
S_4	NA
S_5	NA
S_6	SMIB09-45-02
ICV	09-42-01
ICVH1	NA
ICVH2	NA
CCV	SMIB09-60-02
ICSA	09-63-03
ICSAB	09-60-01
MRL	NA

Comments:

RERUN FOR G115/G125

OK FOR G145/G470

Analyzed By: Gwa

Date Disposed:

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

SEQUENCE FILE : I07G027

4-18	19-33	34-43	44-53	54-63
LFID	LSID	TIME	DATE	DF
I07G027001	S0	18:01	07/27/05	1
I07G027002	S3	18:05	07/27/05	1
I07G027003	S6	18:09	07/27/05	1
I07G027004	ICV	18:13	07/27/05	1
I07G027005	ICB	18:19	07/27/05	1
I07G027006	CCV	18:23	07/27/05	1
I07G027007	CCB	18:27	07/27/05	1
I07G027008	ICSAI	18:31	07/27/05	1
I07G027009	ICSABI	18:35	07/27/05	1
I07G027010	CCV1	18:40	07/27/05	1
I07G027011	CCB1	18:44	07/27/05	1
I07G027012	IPG037WB	18:48	07/27/05	1
I07G027013	IPG037WL	18:52	07/27/05	1
I07G027014	IPG037WC	18:57	07/27/05	1
I07G027015	G115-01	19:02	07/27/05	1
I07G027016	G115-02	19:08	07/27/05	1
I07G027017	G125-01	19:14	07/27/05	1
I07G027018	G125-02	19:18	07/27/05	1
I07G027019	G125-04	19:22	07/27/05	1
I07G027020	G125-05	19:26	07/27/05	1
I07G027021	G125-07	19:30	07/27/05	1
I07G027022	CCV2	19:36	07/27/05	1
I07G027023	CCB2	19:41	07/27/05	1
I07G027024	G125-09	19:45	07/27/05	1
I07G027025	G145-01	19:49	07/27/05	1
I07G027026	G145-02	19:53	07/27/05	1
I07G027027	G145-03	19:57	07/27/05	1
I07G027028	G145-04	20:01	07/27/05	1
I07G027029	G145-05	20:05	07/27/05	1
I07G027030	G145-06	20:09	07/27/05	1
I07G027031	G145-07	20:13	07/27/05	1
I07G027032	G145-08	20:18	07/27/05	1
I07G027033	G145-09	20:22	07/27/05	1
I07G027034	CCV3	20:27	07/27/05	1
I07G027035	CCB3	20:33	07/27/05	1
I07G027036	G470-01	20:37	07/27/05	1
I07G027037	G145-10T	20:43	07/27/05	5
I07G027038	G145-10	20:47	07/27/05	1
I07G027039	G145-10A	20:51	07/27/05	1
I07G027040	G145-10M	20:55	07/27/05	1
I07G027041	G145-10S	20:59	07/27/05	1
I07G027042	ICSAF	21:06	07/27/05	1
I07G027043	ICSABF	21:10	07/27/05	1
I07G027044	CCV4	21:16	07/27/05	1
I07G027045	CCB4	21:20	07/27/05	1

SDG : 05G145 UNIT : % ICP CHECK : I07G027 DATE : 07/27/05 INST : EMAXTI07

ANALYTE	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
S0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICV	100	100	102	97	101	102	99	101	98	98	99	104	102	102	99	98	98	100	96	98	101	98	92	97	101	99	99
ICB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV	101	96	98	98	98	98	99	101	97	97	97	102	96	99	97	97	97	98	95	98	100	98	94	98	98	97	98
CCB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAI	96	----	----	----	----	----	----	92	----	----	----	90	----	97	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAB1	96	86	89	93	93	92	92	92	89	86	96	89	100	96	90	87	86	102	94	95	106	91	83	88	91	96	93
CCV1	101	97	98	98	98	98	99	100	97	97	97	101	99	99	97	98	97	99	90	99	101	97	94	96	97	97	98
CCB1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPG037WB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPG037WL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPG037WC	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G115-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G115-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G125-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G125-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G125-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G125-05	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G125-07	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV2	100	96	99	97	97	98	98	98	94	93	97	99	98	98	95	95	96	101	88*	98	100	97	90	93	96	95	95
CCB2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G125-09	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-03	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-05	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-07	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-08	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-09	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV3	99	96	95	96	96	98	98	97	92	91	95	97	99	97	93	92	94	101	93	98	99	95	90	92	95	94	93
CCB3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G470-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-10T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-10	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-10A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-10M	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-10S	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAF	93	----	----	----	----	----	----	88	----	----	----	85	----	93	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSABF	93	84	85	89	88	91	91	88	84	78*	91	84	94	93	85	81	83	104	89	94	99	87	82	83	87	90	87
CCV4	97	96	99	94	93	97	97	96	90	89*	92	95	99	95	91	89*	93	102	83*	96	96	93	88*	90	93	92	91
CCB4	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

QC limit of each parameter are listed in a table attached next to all the ICP check forms
* : Out of QC Limit

SDG : 056145 UNIT : UG/L SUMMARY of CALIBRATION BLANKS : I07G027 (WATER) DATE : 07/27/05 INST : EMAXTI07

ANALYTE	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
S0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
S6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICV	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICB	-12.6	-17.9	38.8	-.180	.000	-.890	2.18	.120	-1.76	-.900	-1.47	2.17	4.44	4.88	.130	.000	-8.15	-244	-23.0	-.840	.000	.140	15.7	-.050	-.440	1.79	1.91
CCV	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB	-6.39	-13.9	20.4	.090	-.060	-2.68	2.02	-2.82	-1.17	-1.56	-1.47	-.810	4.72	4.97	-.520	3.79	-.190	-1153	-25.5	.000	.000	.030	11.7	-.040	-.280	2.08	1.29
ICSAI	----	-21.4	-73.5	-.120	.130	-.300	3.30	----	.180	-4.14	-1.45	----	22.5	----	2.88	3.25	-3.10	-1225	-124	-.760	.000	-2.13	-10.3	-13.0	-9.95	-5.22	-.760
ICSABI	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB1	-17.9	-3.57	8.19	-.180	.060	-.900	2.23	-2.07	.580	1.04	-1.84	3.26	-6.94	2.35	.000	-3.79	-5.62	-550	-64.6	-2.37	-7.04	.110	.750	1.30	-.310	.610	1.22
IPG037WB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPG037WL	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
IPG037WC	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G115-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G115-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G125-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G125-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G125-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G125-05	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G125-07	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB2	-12.1	-7.17	27.6	.000	-.060	-2.69	2.61	-6.58	-.580	-.520	-2.58	1.35	8.32	-15.9	-.660	1.26	-3.49	-1392	-17.0	-2.88	.000	.030	-6.28	-.020	-.440	.090	.010
G125-09	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-02	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-03	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-04	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-05	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-06	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-07	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-08	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-09	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB3	-27.4	-19.9	-15.2	-.180	-.180	-.890	2.40	-3.30	-2.06	2.08	-1.47	-.540	-1.10	-2.51	-1.19	-2.53	-6.40	-358	-34.0	-3.05	.000	.060	-1.57	-.060	-.750	.690	-.410
G470-01	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-10T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-10	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-10A	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-10M	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
G145-10S	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
ICSAF	----	4.66	-41.3	-.380	-.300	6.63	3.35	----	-3.07	-5.83	-2.39	----	14.2	----	3.56	-6.83	-2.32	-1734	120	-2.77	.000	-1.37	40.0	-20.8	-11.1	-10.7	-1.40
ICSABF	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCV4	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
CCB4	-23.2	-5.57	-14.2	.090	-.250	1.34	.480	-2.29	.000	-.260	-1.10	-.260	-8.59	11.0	.390	-1.26	-.190	-317	-37.4	-2.03	.000	.290	-25.1	-.020	.890	1.70	-.950

QC limit of each parameter are listed in a table attached next to all the ICP check forms
* : Out of QC Limit

DIGESTION LOG FOR ICP METALS

SOP ☐ EMAX-3005 Rev. No.3 ☐ EMAX-3010 Rev. No. 2 ☐ EMAX-3050 Rev. No. 2 ☐ EMAX-CLP-TAL ☑ 200.7 Book # EIP-046

Matrix: WATER Start Date: 7/25/05 Time: 10:30 Temp: 85 °C Ending Date: 7-25-05 Time: 12:30 Temp.: 85 °C

BATCH: IPG037-W

Sample Prep ID	Lab Sample ID	Matrix Description Color	Matrix Description Texture / Clarity	Matrix Description Artifacts	Turbidity <1 NTU	Sample Amount (g | ml)	pH	Extract Volume (ml)	Digestate Description Color	Digestate Description Clarity
01	IPG037-WB					50	–	50		
02	-WL					50	–	50		
03	-WC					50	–	50		
04	G115-01					50	L2	50		
05	-02					50		50		
06	G125-01					50		50		
07	-02					50		50		
08	-04					50		50		
09	-05					50		50		
10	-07					50		50		
11	-09					50		50		
12	G145-01					50		50		
13	-02					50		50		
14	-03					50		50		
15	-04					50		50		
16	-05					50		50		
17	-06					50		50		
18	-07					50		50		
19	-08					50		50		
20	-09					50		50		
21	-10					50		50		
22	-10M					50		50		
23	-10S					50		50		
24	G470-01					50		50		
25		7-25-05 mc								

Standards	ID	Amount Added (ml)
LCS -1	SMIA - 09 - 42	0.5
LCS -2	SMIA - 09 - 43	0.5
LCS -3	SMIA - 09 - 44	0.5
MS		

Reagent	Lot# / ID	Amount Added (ml)
HNO_3	SWIA - 03 - 120	0.5
HCl	SWIA - 03 - 115	0.25
H_2O_2	N/A	
HNO3 (1:1)	N/A	

Digestate Location	ICP LAB
Extract Location	

Legend:

Texture	Cs = Coarse	Md = Medium	Fn = Fine
Clarity	Cr = Clear	Cy = Cloudy	Td = Turbid
Artifacts	Rk = rocks	Sl = Shale	Vg=Vegetation
Color	Bu = blue	Bk = Black	Bn = Brown
	Gn = Green	Og = Orange	Rd = Red
	Yw = Yellow	Cl = Colorless	

Comments: Samples for Methods 200.7 or 200.8 Analyses

If turbidity ≤ 1 NTU no digestion is required unless otherwise required by the project

Prepared By: MC Standard Added By: MC

Witnessed By: NT Extracts Rcvd. By: NT 7/25/05

Checked By: NT

Date Disposed: Disposed by:

EMAX LABORATORIES, INC., 1835 W. 205th St. Torrance, CA 90501

LABORATORY REPORT FOR

BATTELLE MEMORIAL INSTITUTE

JPL

WET CHEMICAL ANALYSES

SDG#: 05G145

8000

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G145**

METHOD 300.0
ANIONS

Ten (10) water samples were received on 07/20/05 for Chloride, Nitrate-N, Nitrite-N and Sulfate analyses by method 300.0 in accordance with "Method for Determination of Inorganic Anions by Ion Chromatography", EPA 600/84-017.

1. Holding Time

Analyses met holding time criteria.

2. Method Blank

Method blanks were free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limits.

4. Duplicate

Sample G145-02 was analyzed for duplicate. %RPDs were within QC limit.

5. Matrix Spike

Sample G145-02 was spiked. Recoveries were within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

All results were reported as Nitrogen concentration.

SAMPLE RESULTS

METHOD 300.0
CHLORIDE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G145

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICG029WB	ND	1	NA	.2	.1	07/25/0513:06	NA	AG25-04	AG25-01	ICG029W	NA	NA
LCS1W	ICG029WL	4.52	1	NA	.2	.1	07/25/0513:20	NA	AG25-05	AG25-01	ICG029W	NA	NA
LCD1W	ICG029WC	4.58	1	NA	.2	.1	07/25/0513:34	NA	AG25-06	AG25-01	ICG029W	NA	NA
MW-25-5	G145-01	13.4	5	NA	1	.5	07/25/0516:01	NA	AG25-16	AG25-13	ICG029W	07/19/05	07/20/05
MW-25-4	G145-02	32.6	10	NA	2	1	07/25/0516:15	NA	AG25-17	AG25-13	ICG029W	07/19/05	07/20/05
MW-25-4DUP	G145-02D	32.6	10	NA	2	1	07/25/0516:29	NA	AG25-18	AG25-13	ICG029W	07/19/05	07/20/05
MW-25-4MS	G145-02M	82.3	10	NA	2	1	07/25/0516:44	NA	AG25-19	AG25-13	ICG029W	07/19/05	07/20/05
MW-25-3	G145-03	33.4	10	NA	2	1	07/25/0517:03	NA	AG25-20	AG25-13	ICG029W	07/19/05	07/20/05
MW-25-2	G145-04	34	10	NA	2	1	07/25/0517:17	NA	AG25-21	AG25-13	ICG029W	07/19/05	07/20/05
MW-25-1	G145-05	70	20	NA	4	2	07/25/0517:31	NA	AG25-22	AG25-13	ICG029W	07/19/05	07/20/05
MW-19-5	G145-06	68.4	10	NA	2	1	07/25/0517:45	NA	AG25-23	AG25-13	ICG029W	07/20/05	07/20/05
MW-19-4	G145-07	54.4	10	NA	2	1	07/25/0517:59	NA	AG25-24	AG25-13	ICG029W	07/20/05	07/20/05
DUPE-1-7/20/05	G145-08	54.8	10	NA	2	1	07/25/0518:42	NA	AG25-27	AG25-25	ICG029W	07/20/05	07/20/05
MW-19-3	G145-09	39.9	10	NA	2	1	07/25/0518:56	NA	AG25-28	AG25-25	ICG029W	07/20/05	07/20/05
MW-19-2	G145-10	92	20	NA	4	2	07/25/0519:10	NA	AG25-29	AG25-25	ICG029W	07/20/05	07/20/05

8003

dr

METHOD 300.0
NITRATE-N

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G145

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICG023WB	ND	1	NA	.1	.05	07/20/0519:41	NA	AG20-33	AG20-25	ICG023W	NA	NA
LCS1W	ICG023WL	2.44	1	NA	.1	.05	07/20/0519:59	NA	AG20-34	AG20-25	ICG023W	NA	NA
LCD1W	ICG023WC	2.43	1	NA	.1	.05	07/20/0520:13	NA	AG20-35	AG20-25	ICG023W	NA	NA
MW-25-5	G145-01	ND	1	NA	.1	.05	07/20/0521:10	NA	AG20-39	AG20-36	ICG023W	07/19/05	07/20/05
MW-25-4	G145-02	5.38E	1	NA	.1	.05	07/20/0521:24	NA	AG20-40	AG20-36	ICG023W	07/19/05	07/20/05
MW-25-4DUP	G145-02D	5.37E	1	NA	.1	.05	07/20/0521:38	NA	AG20-41	AG20-36	ICG023W	07/19/05	07/20/05
MW-25-4MS	G145-02M	7.86E	1	NA	.1	.05	07/20/0521:52	NA	AG20-42	AG20-36	ICG023W	07/19/05	07/20/05
MW-25-3	G145-03	9.7E	1	NA	.1	.05	07/20/0522:06	NA	AG20-43	AG20-36	ICG023W	07/19/05	07/20/05
MW-25-2	G145-04	3.01	1	NA	.1	.05	07/20/0522:20	NA	AG20-44	AG20-36	ICG023W	07/19/05	07/20/05
MW-25-1	G145-05	13.1E	1	NA	.1	.05	07/20/0522:34	NA	AG20-45	AG20-36	ICG023W	07/19/05	07/20/05
MW-19-5	G145-06	6.67E	1	NA	.1	.05	07/20/0522:48	NA	AG20-46	AG20-36	ICG023W	07/20/05	07/20/05
MW-19-4	G145-07	8.44E	1	NA	.1	.05	07/21/0500:13	NA	AG20-52	AG20-48	ICG023W	07/20/05	07/20/05
DUPE-1-7/20/05	G145-08	8.89E	1	NA	.1	.05	07/21/0500:27	NA	AG20-53	AG20-48	ICG023W	07/20/05	07/20/05
MW-19-3	G145-09	10.3E	1	NA	.1	.05	07/21/0500:41	NA	AG20-54	AG20-48	ICG023W	07/20/05	07/20/05
MW-19-2	G145-10	18.1E	1	NA	.1	.05	07/21/0500:55	NA	AG20-55	AG20-48	ICG023W	07/20/05	07/20/05
MBLK2W	ICG029WB	ND	1	NA	.1	.05	07/25/0513:06	NA	AG25-04	AG25-01	ICG029W	NA	NA
LCS2W	ICG029WL	2.42	1	NA	.1	.05	07/25/0513:20	NA	AG25-05	AG25-01	ICG029W	NA	NA
LCD2W	ICG029WC	2.43	1	NA	.1	.05	07/25/0513:34	NA	AG25-06	AG25-01	ICG029W	NA	NA
MW-25-4DL	G145-02T	4.99	10	NA	1	.5	07/25/0516:15	NA	AG25-17	AG25-13	ICG029W	07/19/05	07/20/05
MW-25-4DUP	G145-02Z	5.03	10	NA	1	.5	07/25/0516:29	NA	AG25-18	AG25-13	ICG029W	07/19/05	07/20/05
MW-25-4MS	G145-02G	29.7	10	NA	1	.5	07/25/0516:44	NA	AG25-19	AG25-13	ICG029W	07/19/05	07/20/05
MW-25-3DL	G145-03T	7.98	10	NA	1	.5	07/25/0517:03	NA	AG25-20	AG25-13	ICG029W	07/19/05	07/20/05
MW-25-1DL	G145-05T	10.9	20	NA	2	1	07/25/0517:31	NA	AG25-22	AG25-13	ICG029W	07/19/05	07/20/05
MW-19-5DL	G145-06T	5.99	10	NA	1	.5	07/25/0517:45	NA	AG25-23	AG25-13	ICG029W	07/20/05	07/20/05
MW-19-4DL	G145-07T	7.19	10	NA	1	.5	07/25/0517:59	NA	AG25-24	AG25-13	ICG029W	07/20/05	07/20/05
DUPE-1-7/20/05DL	G145-08T	7.6	10	NA	1	.5	07/25/0518:42	NA	AG25-27	AG25-25	ICG029W	07/20/05	07/20/05
MW-19-3DL	G145-09T	8.49	10	NA	1	.5	07/25/0518:56	NA	AG25-28	AG25-25	ICG029W	07/20/05	07/20/05
MW-19-2DL	G145-10T	14.2	20	NA	2	1	07/25/0519:10	NA	AG25-29	AG25-25	ICG029W	07/20/05	07/20/05

METHOD 300.0
NITRITE-N

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G145

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICG023WB	ND	1	NA	.1	.05	07/20/0519:41	NA	AG20-33	AG20-25	ICG023W	NA	NA
LCS1W	ICG023WL	2.41	1	NA	.1	.05	07/20/0519:59	NA	AG20-34	AG20-25	ICG023W	NA	NA
LCD1W	ICG023WC	2.39	1	NA	.1	.05	07/20/0520:13	NA	AG20-35	AG20-25	ICG023W	NA	NA
MW-25-5	G145-01	ND	1	NA	.1	.05	07/20/0521:10	NA	AG20-39	AG20-36	ICG023W	07/19/05	07/20/05
MW-25-4	G145-02	ND	1	NA	.1	.05	07/20/0521:24	NA	AG20-40	AG20-36	ICG023W	07/19/05	07/20/05
MW-25-4DUP	G145-02D	ND	1	NA	.1	.05	07/20/0521:38	NA	AG20-41	AG20-36	ICG023W	07/19/05	07/20/05
MW-25-4MS	G145-02M	2.21	1	NA	.1	.05	07/20/0521:52	NA	AG20-42	AG20-36	ICG023W	07/19/05	07/20/05
MW-25-3	G145-03	ND	1	NA	.1	.05	07/20/0522:06	NA	AG20-43	AG20-36	ICG023W	07/19/05	07/20/05
MW-25-2	G145-04	ND	1	NA	.1	.05	07/20/0522:20	NA	AG20-44	AG20-36	ICG023W	07/19/05	07/20/05
MW-25-1	G145-05	ND	1	NA	.1	.05	07/20/0522:34	NA	AG20-45	AG20-36	ICG023W	07/19/05	07/20/05
MW-19-5	G145-06	ND	1	NA	.1	.05	07/20/0522:48	NA	AG20-46	AG20-36	ICG023W	07/20/05	07/20/05
MW-19-4	G145-07	ND	1	NA	.1	.05	07/21/0500:13	NA	AG20-52	AG20-48	ICG023W	07/20/05	07/20/05
DUPE-1-7/20/05	G145-08	.101	1	NA	.1	.05	07/21/0500:27	NA	AG20-53	AG20-48	ICG023W	07/20/05	07/20/05
MW-19-3	G145-09	ND	1	NA	.1	.05	07/21/0500:41	NA	AG20-54	AG20-48	ICG023W	07/20/05	07/20/05
MW-19-2	G145-10	ND	1	NA	.1	.05	07/21/0500:55	NA	AG20-55	AG20-48	ICG023W	07/20/05	07/20/05

METHOD 300.0
SULFATE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G145

Matrix : WATER
Instrument ID : 100

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICG029WB	ND	1	NA	.5	.25	07/25/0513:06	NA	AG25-04	AG25-01	ICG029W	NA	NA
LCS1W	ICG029WL	6.91	1	NA	.5	.25	07/25/0513:20	NA	AG25-05	AG25-01	ICG029W	NA	NA
LCD1W	ICG029WC	6.92	1	NA	.5	.25	07/25/0513:34	NA	AG25-06	AG25-01	ICG029W	NA	NA
MW-25-5	G145-01	54.1	5	NA	2.5	1.25	07/25/0516:01	NA	AG25-16	AG25-13	ICG029W	07/19/05	07/20/05
MW-25-4	G145-02	63.6	10	NA	5	2.5	07/25/0516:15	NA	AG25-17	AG25-13	ICG029W	07/19/05	07/20/05
MW-25-4DUP	G145-02D	63.6	10	NA	5	2.5	07/25/0516:29	NA	AG25-18	AG25-13	ICG029W	07/19/05	07/20/05
MW-25-4MS	G145-02M	138	10	NA	5	2.5	07/25/0516:44	NA	AG25-19	AG25-13	ICG029W	07/19/05	07/20/05
MW-25-3	G145-03	62.3	10	NA	5	2.5	07/25/0517:03	NA	AG25-20	AG25-13	ICG029W	07/19/05	07/20/05
MW-25-2	G145-04	82.4	10	NA	5	2.5	07/25/0517:17	NA	AG25-21	AG25-13	ICG029W	07/19/05	07/20/05
MW-25-1	G145-05	127	20	NA	10	5	07/25/0517:31	NA	AG25-22	AG25-13	ICG029W	07/19/05	07/20/05
MW-19-5	G145-06	75.3	10	NA	5	2.5	07/25/0517:45	NA	AG25-23	AG25-13	ICG029W	07/20/05	07/20/05
MW-19-4	G145-07	57.8	10	NA	5	2.5	07/25/0517:59	NA	AG25-24	AG25-13	ICG029W	07/20/05	07/20/05
DUPE-1-7/20/05	G145-08	58.1	10	NA	5	2.5	07/25/0518:42	NA	AG25-27	AG25-25	ICG029W	07/20/05	07/20/05
MW-19-3	G145-09	42.2	10	NA	5	2.5	07/25/0518:56	NA	AG25-28	AG25-25	ICG029W	07/20/05	07/20/05
MW-19-2	G145-10	135	20	NA	10	5	07/25/0519:10	NA	AG25-29	AG25-25	ICG029W	07/20/05	07/20/05

QC SUMMARIES

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G145
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICG029WB	ICG029WL	ICG029WC		
LAB FILE ID:	AG25-04	AG25-05	AG25-06		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	07/25/0513:06	07/25/0513:20	07/25/0513:34	DATE RECEIVED:	NA
PREP. BATCH:	ICG029W	ICG029W	ICG029W		
CALIB. REF:	AG25-01	AG25-01	AG25-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride-Cl	ND	5	4.52	90	5	4.58	92	1	90-110	20

8008

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G145
METHOD: METHOD 300.0

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MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	10	10		
SAMPLE ID:	MW-25-4			
LAB SAMP ID:	G145-02	G145-02M		
LAB FILE ID:	AG25-17	AG25-19		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/19/05
DATE ANALYZED:	07/25/0516:15	07/25/0516:44	DATE RECEIVED:	07/20/05
PREP. BATCH:	ICG029W	ICG029W		
CALIB. REF:	AG25-13	AG25-13		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
Chloride-Cl	32.6	50	82.3	99	80-120

6008

EMAX QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G145
METHOD: METHOD 300.0

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	10	10		
SAMPLE ID:	MW-25-4	MW-25-4DUP		
EMAX SAMP ID:	G145-02	G145-02D		
LAB FILE ID:	AG25-17	AG25-18		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/19/05
DATE ANALYZED:	07/25/0516:15	07/25/0516:29	DATE RECEIVED:	07/20/05
PREP. BATCH:	ICG029W	ICG029W		
CALIB. REF:	AG25-13	AG25-13		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	DUPL RSLT (mg/L)	RPD RSLT %	QC LIMIT (%)
Chloride-Cl	32.6	32.6	0	20

8010

jr

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G145
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICG023WB	ICG023WL	ICG023WC		
LAB FILE ID:	AG20-33	AG20-34	AG20-35		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	07/20/0519:41	07/20/0519:59	07/20/0520:13	DATE RECEIVED:	NA
PREP. BATCH:	ICG023W	ICG023W	ICG023W		
CALIB. REF:	AG20-25	AG20-25	AG20-25		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrite-N	ND	2.5	2.41	96	2.5	2.39	96	1	90-110	20

8011

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G145
METHOD: METHOD 300.0

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MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-25-4			
LAB SAMP ID:	G145-02	G145-02M		
LAB FILE ID:	AG20-40	AG20-42		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/19/05
DATE ANALYZED:	07/20/0521:24	07/20/0521:52	DATE RECEIVED:	07/20/05
PREP. BATCH:	ICG023W	ICG023W		
CALIB. REF:	AG20-36	AG20-36		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
Nitrite-N	ND	2.5	2.21	88	80-120

00140

EMAX QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G145
METHOD: METHOD 300.0

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-25-4	MW-25-4DUP		
EMAX SAMP ID:	G145-02	G145-02D		
LAB FILE ID:	AG20-40	AG20-41		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/19/05
DATE ANALYZED:	07/20/0521:24	07/20/0521:38	DATE RECEIVED:	07/20/05
PREP. BATCH:	ICG023W	ICG023W		
CALIB. REF:	AG20-36	AG20-36		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	DUPL RSLT (mg/L)	RPD RSLT %	QC LIMIT (%)
Nitrite-N	ND	ND	0	20

8013

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G145
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICG023WB	ICG023WL	ICG023WC		
LAB FILE ID:	AG20-33	AG20-34	AG20-35		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	07/20/0519:41	07/20/0519:59	07/20/0520:13	DATE RECEIVED:	NA
PREP. BATCH:	ICG023W	ICG023W	ICG023W		
CALIB. REF:	AG20-25	AG20-25	AG20-25		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrate-N	ND	2.5	2.44	97	2.5	2.43	97	0	90-110	20

8014

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G145
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK2W				
LAB SAMP ID:	ICG029WB	ICG029WL	ICG029WC		
LAB FILE ID:	AG25-04	AG25-05	AG25-06		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	07/25/0513:06	07/25/0513:20	07/25/0513:34	DATE RECEIVED:	NA
PREP. BATCH:	ICG029W	ICG029W	ICG029W		
CALIB. REF:	AG25-01	AG25-01	AG25-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Nitrate-N	ND	2.5	2.42	97	2.5	2.43	97	0	90-110	20

8015

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G145
METHOD: METHOD 300.0

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MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-25-4			
LAB SAMP ID:	G145-02	G145-02M		
LAB FILE ID:	AG20-40	AG20-42		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/19/05
DATE ANALYZED:	07/20/0521:24	07/20/0521:52	DATE RECEIVED:	07/20/05
PREP. BATCH:	ICG023W	ICG023W		
CALIB. REF:	AG20-36	AG20-36		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
Nitrate-N	5.38	2.5	7.86	99	80-120

80L6

27

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G145
METHOD: METHOD 300.0

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MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	10	10		
SAMPLE ID:	MW-25-4DL			
LAB SAMP ID:	G145-02T	G145-02G		
LAB FILE ID:	AG25-17	AG25-19		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/19/05
DATE ANALYZED:	07/25/0516:15	07/25/0516:44	DATE RECEIVED:	07/20/05
PREP. BATCH:	ICG029W	ICG029W		
CALIB. REF:	AG25-13	AG25-13		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
Nitrate-N	4.99	25	29.7	99	80-120

80 17

EMAX QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G145
METHOD: METHOD 300.0

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-25-4	MW-25-4DUP		
EMAX SAMP ID:	G145-02	G145-02D		
LAB FILE ID:	AG20-40	AG20-41		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/19/05
DATE ANALYZED:	07/20/0521:24	07/20/0521:38	DATE RECEIVED:	07/20/05
PREP. BATCH:	ICG023W	ICG023W		
CALIB. REF:	AG20-36	AG20-36		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	DUPL RSLT (mg/L)	RPD RSLT %	QC LIMIT (%)
Nitrate-N	5.38	5.37	0	20

8048

EMAX QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G145
METHOD: METHOD 300.0

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MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	10	10		
SAMPLE ID:	MW-25-4DL	MW-25-4DLDUP		
EMAX SAMP ID:	G145-02T	G145-02D		
LAB FILE ID:	AG25-17	AG25-18		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/19/05
DATE ANALYZED:	07/25/0516:15	07/25/0516:29	DATE RECEIVED:	07/20/05
PREP. BATCH:	ICG029W	ICG029W		
CALIB. REF:	AG25-13	AG25-13		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	DUPL RSLT (mg/L)	RPD RSLT %	QC LIMIT (%)
Nitrate-N	4.99	5.03	1	20

8019

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G145
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICG029WB	ICG029WL	ICG029WC		
LAB FILE ID:	AG25-04	AG25-05	AG25-06		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	07/25/0513:06	07/25/0513:20	07/25/0513:34	DATE RECEIVED:	NA
PREP. BATCH:	ICG029W	ICG029W	ICG029W		
CALIB. REF:	AG25-01	AG25-01	AG25-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Sulfate	ND	7.5	6.91	92	7.5	6.92	92	0	90-110	20

8020

dr

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G145
METHOD: METHOD 300.0

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MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	10	10		
SAMPLE ID:	MW-25-4			
LAB SAMP ID:	G145-02	G145-02M		
LAB FILE ID:	AG25-17	AG25-19		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/19/05
DATE ANALYZED:	07/25/0516:15	07/25/0516:44	DATE RECEIVED:	07/20/05
PREP. BATCH:	ICG029W	ICG029W		
CALIB. REF:	AG25-13	AG25-13		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
Sulfate	63.6	75	138	100	80-120

8021

EMAX QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G145
METHOD: METHOD 300.0

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	10	10		
SAMPLE ID:	MW-25-4	MW-25-4DUP		
EMAX SAMP ID:	G145-02	G145-02D		
LAB FILE ID:	AG25-17	AG25-18		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/19/05
DATE ANALYZED:	07/25/0516:15	07/25/0516:29	DATE RECEIVED:	07/20/05
PREP. BATCH:	ICG029W	ICG029W		
CALIB. REF:	AG25-13	AG25-13		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	DUPL RSLT (mg/L)	RPD RSLT %	QC LIMIT (%)
Sulfate	63.6	63.6	0	20

8022

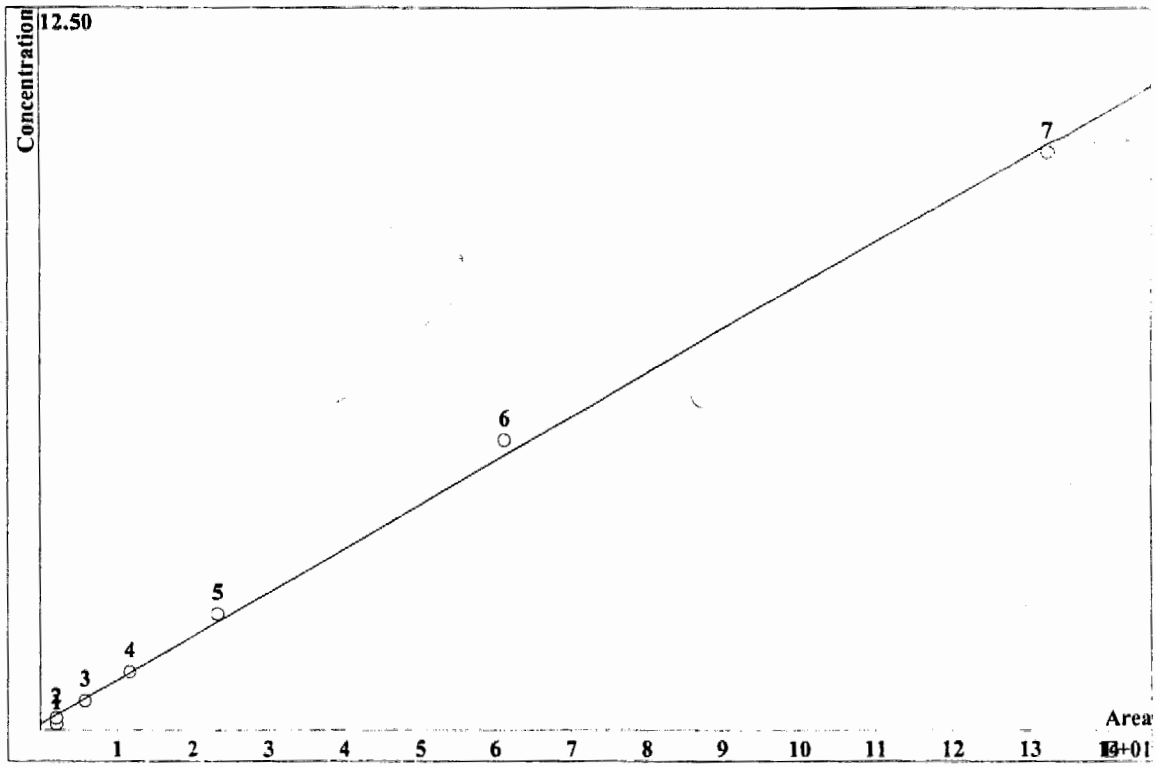
INITIAL CALIBRATIONS

IC Result Check FormVersion : qG1

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AG12-01	IB	FCIBNPS	0	0	0	0	0	0	0	p7121933	1
AG12-02	S0	FCIBNPS	0	0	0	0	0	0	0	p7121947	1
AG12-03	S1	FCIBNPS	0.20922	0.26528	0.13263	0.17713	0.15064	0.23059	0.62598	p7122001	1
AG12-04	S2	FCIBNPS	0.27777	0.26131	0.22143	0.24989	0.23142	0.30903	0.72351	p7122016	1
AG12-05	S3	FCIBNPS	0.58991	0.54378	0.49016	0.55127	0.49616	0.56439	1.454	p7122030	1
AG12-06	S4	FCIBNPS	1.0109	0.98258	0.97309	1.0085	0.95747	1.027	2.868	p7122044	1
AG12-07	S5	FCIBNPS	1.9049	1.8679	1.9644	1.9839	1.9331	2.0024	5.7811	p7122058	1
AG12-08	S6	FCIBNPS	4.9656	4.7397	5.0183	4.9153	5.0312	4.8329	15.101	p7122112	1
AG12-09	S7	FCIBNPS	10.029	10.139	10.729	10.041	11.159	10.073	32.87	p7122126	1
AG12-10	ICV	FCIBNPS	97.2%	92.9%	97.1%	99.8%	97%	97.6%	97.4%	p7122140	1
AG12-11	ICB	FCIBNPS	0	0	0	0	0	0	0	p7122154	1
AG12-12	CCV1	FCIBNPS	93.8%	90%	94.6%	96.4%	93.3%	97%	94.4%	p7122208	1
AG12-13	CCB1	FCIBNPS	0	0	0	0	0	0	0	p7122222	1
AG12-14	ICG011WB	FCIBNPS	0	0	0	0	0	0	0	p7122236	1
AG12-15	ICG011WL	FCIBNPS	4.9443	2.4394	2.4005	5.0644	2.3517	4.8648	7.0588	p7122250	1
AG12-16	ICG011WC	FCIBNPS	4.9971	2.4088	2.3901	5.0721	2.3585	5.016	7.2809	p7122305	1
AG12-17	MRL	FCIBNPS	0	0.25633	0	0	0.14022	0	0.49989	p7122319	1
AG12-18	G608-01	FCIBNPS	0	17.852	0	0	4.4945	0	15.463	p7122333	5
AG12-19	G608-02	FCIBNPS	0	19.873	0	0	2.0438	0	15.346	p7122347	5
AG12-20	G608-02D	FCIBNPS	0	19.907	0	0	2.0568	0	15.409	p7130001	5
AG12-21	G608-02M	FCIBNPS	25.496	32.238	12.127	24.026	14.648	25.773	51.746	p7130015	5
AG12-22	G058-17	FCIBNPS	0	0.86159	0	0	0.13449	0	5.2827	p7130029	1
AG12-23	RINSE	FCIBNPS	0	0	0	0	0	0	0	p7130043	1
AG12-24	CCV2	FCIBNPS	100.4%	95.6%	95.5%	101.3%	94.3%	100.6%	97.8%	p7130057	1
AG12-25	CCB2	FCIBNPS	0	0	0	0	0	0	0	p7130111	1
AG12-26	G058-18	F*IBNP*	0.42065	23.035E	0	2.6521	0	0	69.943E	p7130125	1
AG12-27	G058-19	FCIBNP*	0.52238	8.3145	0	0	0	0	63.422E	p7130139	1
AG12-28	G058-20	FCIBNP*	0.52701	8.2627	0	0	0	0	63.425E	p7130153	1
AG12-29	G058-21	FCIBNP*	0.49273	6.0643	0	0	0.091894	0	61.446E	p7130208	1
AG12-30	G058-22	F*IBNP*	0	995.75E	0	0.23033	0	0	15.385E	p7130222	1
AG12-31	G058-23	FCIBNPS	0.61192	6.4321	0	0.2531	0	0	7.0539	p7130236	1
AG12-32	G058-24	FCIBNPS	0.32896	2.8076	0	3.1748	0	0	10.156	p7130250	1
AG12-33	G058-25	F*IBNP*	0.34649	11.301E	0	2.5751	0	0	89.86E	p7130304	1
AG12-34	RINSE	FCIBNPS	0	0	0	0	0	0	0	p7130318	1
AG12-35	RINSE	FCIBNPS	0	0	0	0	0	0	0	p7130332	1
AG12-36	CCV3	FCIBNPS	100.2%	95.6%	95.6%	101.8%	94.8%	96.8%	97.9%	p7130346	1
AG12-37	CCB3	FCIBNPS	0	0	0	0	0	0.1887	0	p7130400	1
AG12-38	MRL	FCIBNPS	0	0.25923	0	0	0.13842	0	0.49672	p7130414	1
AG12-39	MDL	FCIBNPS	0	0.25447	0	0	0.13519	0	0.48865	p7130428	1
AG12-40	CCV4	FCIBNPS	96.9%	93.9%	92.9%	99.9%	92.5%	98%	95.5%	p7130442	1
AG12-41	CCB4	FCIBNPS	0.21534	0	0.090606	0	0	0.92427	0	p7130456	1

CALIBRATION OF COMPONENT chloride

Method: IC100-G12.mtw
Equation: Q = 0.0757087·A + 0.100061
RSD: 6.184 %
Correlation coefficient: 0.999136



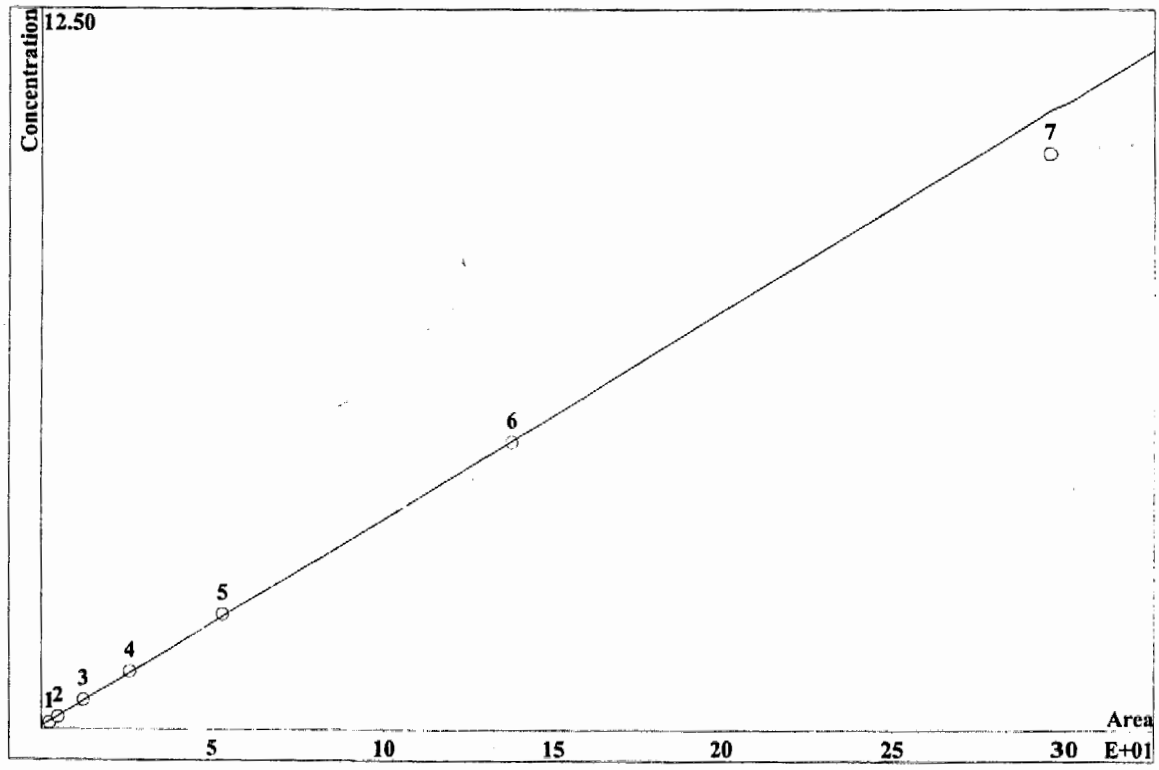
K3 = 0 K2 = 0 K1 = 0.0757087 K0 = 0.100061
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.2455	2.182 ✓	0.1	1	3.4	Yes	p7122001.chw
2	0.2371	2.13 ✓	0.2	1	3.4	Yes	p7122016.chw
3	0.6644	5.861 ✓	0.5	1	3.4	Yes	p7122030.chw
4	1.319	11.66 ✓	1	1	3.4	Yes	p7122044.chw
5	2.661	23.35 ✓	2	1	3.4	Yes	p7122058.chw
6	7.225	61.28 ✓	5	1	3.4	Yes	p7122112.chw
7	15.92	132.6 ✓	10	1	3.4	Yes	p7122126.chw

7-15-05

CALIBRATION OF COMPONENT nitrite

Method: IC100-G12.mtw
Equation: Q = 0.0360261·A + 0.0453635
RSD: 2.142 %
Correlation coefficient: 0.999886



K3 = 0 K2 = 0 K1 = 0.0360261 K0 = 0.0453635
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

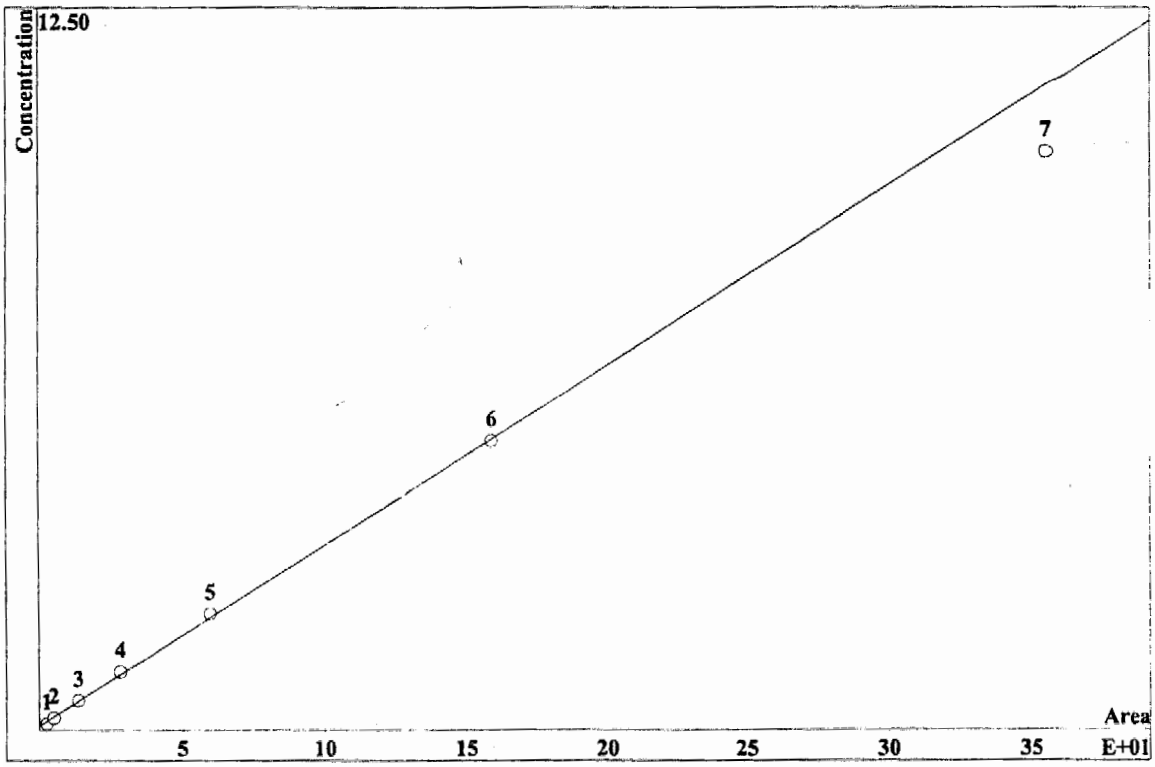
Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.2338	2.422	0.1	1	4.04	Yes	p7122001.chw
2	0.4699	4.887	0.2	1	4.04	Yes	p7122016.chw
3	1.199	12.35	0.5	1	4.04	Yes	p7122030.chw
4	2.505	25.75	1	1	4.04	Yes	p7122044.chw
5	5.149	53.27	2	1	4.04	Yes	p7122058.chw
6	13.25	138	5	1	4.04	Yes	p7122112.chw
7	27.46	296.6	10	1	4.04	No	p7122126.chw

7-15-05

8026

CALIBRATION OF COMPONENT nitrate

Method: IC100-G12.mtw
Equation: Q = 0.0311912·A + 0.0620763
RSD: 3.547 %
Correlation coefficient: 0.999689



K3 = 0 K2 = 0 K1 = 0.0311912 K0 = 0.0620763
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

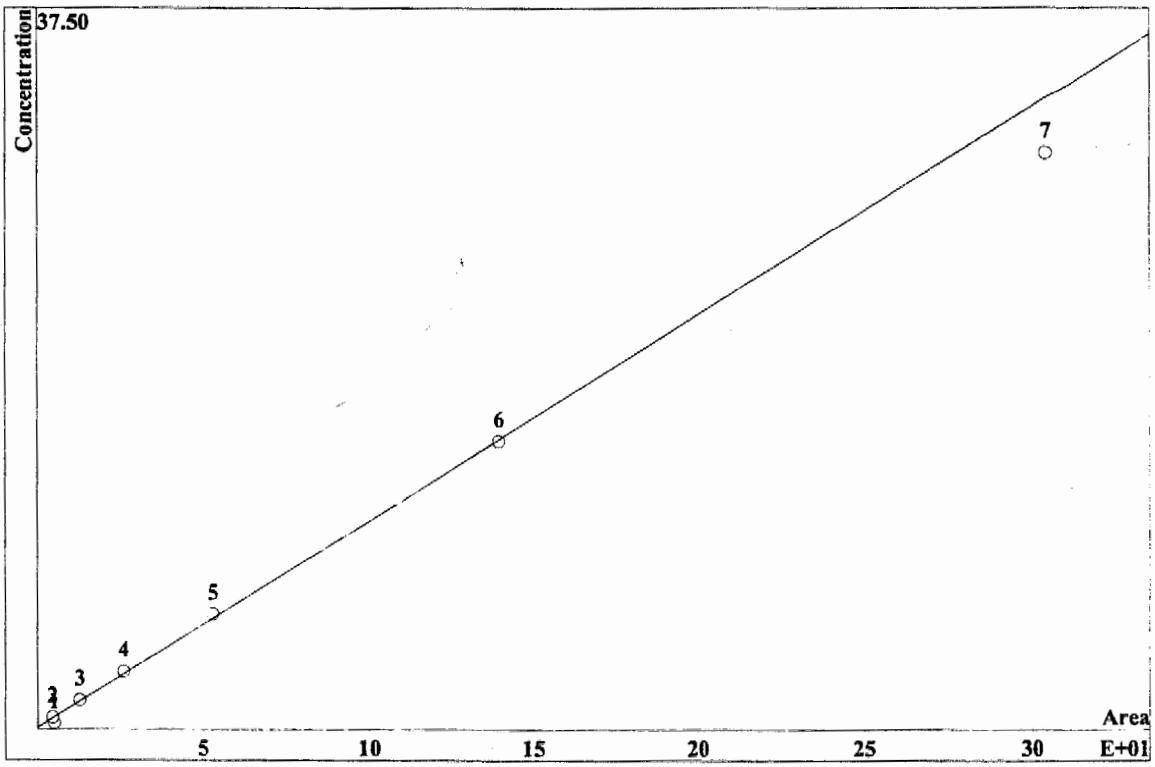
Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.2165	2.84 ✓	0.1	1	5.72	Yes	p7122001.chw
2	0.415	5.429 ✓	0.2	1	5.72	Yes	p7122016.chw
3	1.072	13.92 ✓	0.5	1	5.72	Yes	p7122030.chw
4	2.23	28.71 ✓	1	1	5.72	Yes	p7122044.chw
5	4.699	59.99 ✓	2	1	5.72	Yes	p7122058.chw
6	12.88	159.3 ✓	5	1	5.72	Yes	p7122112.chw
7	29.17	355.8 ✗	10	1	5.72	No	p7122126.chw

PW 1-15-05

8027

CALIBRATION OF COMPONENT sulfate

Method: IC100-G12.mtw
Equation: Q = 0.10777·A + 0.0673535
RSD: 4.885 %
Correlation coefficient: 0.999410



K3 = 0 K2 = 0 K1 = 0.10777 K0 = 0.0673535
Base: Area
Ref.channel: Cond
ISTD:
Formula: Linear
Weight: 1

Level	Height	Area	Conc.	Vol/Dil	Retention	Used	File
1	0.3229	5.184	0.3	1	8.36	Yes	p7122001.chw
2	0.2916	4.664	0.6	1	8.36	Yes	p7122016.chw
3	0.8086	12.87	1.5	1	8.36	Yes	p7122030.chw
4	1.631	25.99	3	1	8.36	Yes	p7122044.chw
5	3.365	53.02	6	1	8.36	Yes	p7122058.chw
6	9.065	139.5	15	1	8.36	Yes	p7122112.chw
7	20.13	304.4	30	1	8.36	No	p7122126.chw

7-15-05

SECOND SOURCE VERIFICATION

IC Result Check FormVersion : QG1

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AG12-10	ICV	FCIBNPS	97.2%	92.9%	97.1%	99.8%	97%	97.6%	97.4%	p7122140	1
AG12-11	ICB	FCIBNPS	0	0	0	0	0	0	0	p7122154	1
AG12-12	CCV1	FCIBNPS	93.8%	90%	94.6%	96.4%	93.3%	97%	94.4%	p7122208	1
AG12-13	CCB1	FCIBNPS	0	0	0	0	0	0	0	p7122222	1
AG12-24	CCV2	FCIBNPS	100.4%	95.6%	95.5%	101.3%	94.3%	100.6%	97.8%	p7130057	1
AG12-25	CCB2	FCIBNPS	0	0	0	0	0	0	0	p7130111	1
AG12-36	CCV3	FCIBNPS	100.2%	95.6%	95.6%	101.8%	94.8%	96.8%	97.9%	p7130346	1
AG12-37	CCB3	FCIBNPS	0	0	0	0	0	0.1887	0	p7130400	1
AG12-40	CCV4	FCIBNPS	96.9%	93.9%	92.9%	99.9%	92.5%	98%	95.5%	p7130442	1
AG12-41	CCB4	FCIBNPS	0.21534	0	0.090606	0	0	0.92427	0	p7130456	1

DAILY CALIBRATIONS

IC Result Check FormVersion : QG1

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AG20-01	CCV34	FCIBNPS	96%	91%	100.7%	96.1%	96.2%	99.1%	92.6%	p7201128	1
AG20-02	CCB34	FCIBNPS	0	0	0	0	0	0	0	p7201143	1
AG20-13	CCV35	FCIBNPS	107.5%	91%	100.4%	96.8%	96.4%	108.8%	105.4%	p7201420	1
AG20-14	CCB35	FCIBNPS	0	0	0	0	0	0	0	p7201434	1
AG20-25	CCV36	FCIBNPS	108.9%	105.4%	100.4%	97.1%	96.6%	109.1%	104.9%	p7201721	1
AG20-26	CCB36	FCIBNPS	0	0	0	0	0	0	0	p7201735	1
AG20-36	CCV37	FCIBNPS	106.8%	105.4%	100.5%	96.8%	96.5%	107.6%	104.7%	p7202027	1
AG20-37	CCB37	FCIBNPS	0	0	0	0	0	0	0	p7202041	1
AG20-48	CCV38	FCIBNPS	107.7%	105.6%	99.4%	95.4%	96.7%	105.1%	105.1%	p7202316	1
AG20-49	CCB38	FCIBNPS	0	0	0	0	0	0	0	p7202330	1
AG20-60	CCV39	FCIBNPS	108.6%	106.5%	100%	96.8%	96.6%	104%	105.1%	p7210205	1
AG20-61	CCB39	FCIBNPS	0	0	0	0	0	0	0	p7210219	1
AG20-67	CCV40	FCIBNPS	109.6%	105.9%	100.3%	96.6%	96.5%	103.8%	105%	p7210344	1
AG20-68	CCB40	FCIBNPS	0	0	0	0	0	0	0	p7210358	1
AG20-69	CCB40	FCIBNPS	0	0	0	0	0	0	0	p7210412	1

IC Result Check FormVersion : QG1

LFID	LSID	Selection	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate	RawNetID	DF
AG25-01	CCV57	FCIBNPS	94.2%	91%	100.7%	96.4%	96.6%	94.7%	92.8%	p7251224	1
AG25-02	CCB57	FCIBNPS	0	0	0	0	0	0	0	p7251238	1
AG25-13	CCV58	FCIBNPS	95.6%	91.2%	100.4%	97.1%	96.9%	97.1%	93%	p7251519	1
AG25-14	CCB58	FCIBNPS	0	0	0	0	0	0	0	p7251533	1
AG25-25	CCV59	FCIBNPS	95.3%	91.4%	100.6%	97.3%	97.4%	97.4%	93.4%	p7251813	1
AG25-26	CCB59	FCIBNPS	0	0.14142	0	0	0	0	0	p7251827	1
AG25-37	CCV60	FCIBNPS	95.8%	91.5%	100.6%	97.3%	96.8%	97.7%	93.9%	p7252102	1
AG25-38	CCB60	FCIBNPS	0	0	0	0	0	0	0	p7252116	1
AG25-49	CCV61	FCIBNPS	96.1%	91.2%	100.5%	97.3%	96.9%	96.7%	93.2%	p7252353	1
AG25-50	CCB61	FCIBNPS	0	0	0	0	0	0	0	p7260007	1
AG25-61	CCV62	FCIBNPS	95.8%	91.5%	100.7%	97.5%	97.1%	96.6%	93.5%	p7260242	1
AG25-62	CCB62	FCIBNPS	0	0	0	0	0	0	0	p7260256	1
AG25-73	CCV63	FCIBNPS	94.3%	91.2%	97.3%	96.1%	97.7%	96.3%	94%	p7260530	1
AG25-74	CCB63	FCIBNPS	0	0	0	0	0	0	0	p7260544	1
AG25-75	CCV63	FCIBNPS	95.9%	91.3%	97.3%	96.2%	97.7%	94.6%	93.4%	p7260559	1
AG25-76	CCB63	FCIBNPS	0	0	0	0	0	0	0	p7260613	1

ANALYTICAL LOG

ANALYSIS RUN LOG FOR IC

SOP ☑ **EMAX-300.0 Rev. No. 3** ☐ **EMAX-9056 Rev. No. 2** ☐ **EMAX-300.1 Rev. No.0** ☐

Start Date: 07/12/05 **Time:** 19:33 **Ending Date:** 07/13/05 **Time:** 04:56 **Book # A100-001**

ANALYTICAL BATCH * IC G011W

	Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
*	1	AG12-01	IB	1		✓	
*	2	02	S0				
*	3	03	S1				
*	4	04	S2				
*	5	05	S3				
*	6	06	S4				
*	7	07	S5				
*	8	08	S6				
*	9	09	S7				
*	10	10	ICV				
*	11	11	ICB				
*	12	12	CCV1				
*	13	13	CCB1				
*	14	14	ICG011WB				
*	15	15	ICG011WC ✓ 7/12/05				
*	16	16	ICG011WC ~~MRL~~ ✓ 7/12/05				
*	17	17	MRL				
*	18	18	G608-01	8/10			DF=10
*	19	19	G608-02				
*	20	20	G608-02D				
*	21	21	G608-02M				
*	22	22	G058-17	1			
*	23	23	RINSE				
*	24	24	CCV2				
*	25	25	CCB2				
*	26	26	G058-18				
*	27	27	G058-19				
*	28	28	G058-20				
*	29	29	G058-21				
*	30	30	G058-22				

Instrument Number	22 100 cd 07/12/05

INITIAL CALIBRATION REFERENCE

Method File	IC100-G12.mhw	Date
ICAL ID	SW5B-12-628-634	07/12/05
ICV ID	SW5B-12-635-641	07/12/05

Standards-A

Name		ID	F	Cl	NO_2	Br	NO_3	P	SO_4
			Conc. (mg/L)						
ICAL	S_1	SW5B-12-628	0.1						0.3
	S_2	629	0.2						0.6
	S_3	630	0.5						1.5
	S_4	631	1						3
	S_5	632	2						6
~~ICV~~ 2d 2/25	S_6	633	5						15
~~CCV~~ 2d 2/25	S_7	634	10						30
~~LCS~~ ICV 2d 2/25		SW5B-12-635-641	3						10
MS x10		LCS source	5	5	2.5	5	2.5	5	7.5

Standards-B

Name		ID	BrO_3	DCA	ClO_3
			Conc. (mg/L)		
ICAL	S_1				
	S_2	N/A cd 07/12/05			
	S_3				
	S_4				

Standards-A (Conc. mg/L)

		F	Cl	NO_2	Br	NO_3	P	SO_4
ICV cd 07/12/05								
CCV	SW5B-12-642-645	5	5	2.5	5	2.5	5	7.5
LCS	SW5B-12-646-652	5	5	2.5	5	2.5	5	7.5

Comments:

Analyzed By: cd

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8035

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No.0 ☐

Start Date: 07/12/05 **Time:** 19:33 **Ending Date:** 07/13/05 **Time:** 04:56 **Book # A100-001**

ANALYTICAL BATCH * IC G011W

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
* 1	AG12-31	G058-23	1		✓	
* 2	32	G058-24	↑		↑	
* 3	33	G058-25				
* 4	34	RINSE				
* 5	35	RINSE				
* 6	36	CCV3				
* 7	37	CCB3				
* 8	38	MRL				
* 9	39	MDL				
* 10	40	CCV4				
* 11	41	CCB4	↓		↓	
* 2						
* 3						
* 4						
* 5						
* 6						
* 7						
* 8						
* 9						
* 0						
* 1						
* 2						
* 3						
* 4						
* 5						
* 6						
* 7						
* 8						
* 9						
* 0						

cd 07/12/05

Instrument Number		22 (10) cd 07/12/05
INITIAL CALIBRATION REFERENCE		
Method File		Date
ICAL ID		
ICV ID		

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1								
	S_2								
	S_3								
	S_4								
	S_5								
ICV									
CCV									
LCS									
MS									

Refer to pg. 54

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3	
ICAL	S_1					
	S_2					
	S_3					
	S_4					
ICV						
CCV						
LCS						

Comments:

Analyzed By: cd

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8038

ANALYSIS RUN LOG FOR IC

SOP ☒ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No.0 ☐

Start Date: 07/20/05 **Time:** 0:18 **Ending Date:** 07/21/05 **Time:** 04:26 **Book # A100-001**

	Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
*	1	A0720-01	CCV34	1		✓	
*	2	02	CCB34				
*	3	03	ICG022WB				
*	4	04	WL				
*	5	05	WL				
*	6	06	G134-02				
*	7	07	03				
*	8	08	04				
*	9	09	06				
*	10	10	07				
*	11	11	RINSE				
*	12	12					
*	13	13	CCV35				
*	14	14	CCB35				
*	15	15	MRL				
*	16	16	G134-08				
*	17	17	09				
*	18	18	09D				
*	19	19	09M				
*	20	20	RINSE				
*	1	21	G136-02				
*	2	22	03				
*	3	23	RINSE				
*	4	24					
*	5	25	CCV136				
*	6	26	CCB136				
*	7	27	G136-04				
*	8	28	05				
*	9	29	06				
*	30	30	07				

ANALYTICAL BATCH * IC G022W

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8037

Instrument Number	22 100 ml injection

INITIAL CALIBRATION REFERENCE

Method File	IC100-G12.mtw	Date
ICAL ID	SWSB-12-628-634	07/12/05
ICV ID	SWSB-12-635-641	07/12/05

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1								
	S_2								
	S_3								
	S_4			Refer to PA FSA					
	S_5								
ICV									
CCV		SWSB-12-697-700	5	5	2.5	5	2.5	5	7.5
LCS		SWSB-12-701-704	↓	↓	↓	↓	↓	↓	↓
MS × DF		LCS source	↓	↓	↓	↓	↓	↓	↓

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3
ICAL	S_1	N/A			
	S_2				
	S_3				
	S_4				
ICV					
CCV					
LCS		↓			

Comments:

Analyzed By: dd

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ANALYSIS RUN LOG FOR IC

SOP ☒ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No.0 ☐

Start Date: 07/20/05 **Time:** 11:28 **Ending Date:** 07/21/05 **Time:** 04:26 **Book # A100-001**

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
* 31	AG20-31	G104-01	100		✓	
* 2	32	01	500			
** 3	33	ICG025WB	1			
* 4	34	WL				
* 5	35	WL				
* 6	36	CCV137				
* 7	37	CCB137				
* 8	38	G144-01				
* 9	39	G145-01				
* 40	40	02				
* 1	41	02D				
* 2	42	02M				
* 3	43	03				
* 4	44	04				
* 5	45	05				
* 6	46	06				
* 7	47	RINSE				
* 8	48	CCV138				
* 9	49	CCB138				
* 50	50	MRL				
* 1	51	MDL				
* 2	52	G145-07				
* 3	53	08				
* 4	54	09				
* 5	55	10				
* 6	56	G146-02				
* 7	57	03				
* 8	58	RINSE				
* 9	59					
* 60	60	CCV139				

ANALYTICAL BATCH * IC G022W ** ICG025W

Instrument Number		22 (100) ok 07/30/05
INITIAL CALIBRATION REFERENCE		
Method File		Date
ICAL ID		
ICV ID		

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1								
	S_2								
	S_3								
	S_4								
	S_5								
ICV									
CCV									
LCS									
MS									

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3	
ICAL	S_1					
	S_2					
	S_3					
	S_4					
ICV						
CCV						
LCS						

Comments:

Analyzed By: OL

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EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

8038

ANALYSIS RUN LOG FOR IC

SOP ☒ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No.0 ☐

Start Date: 07/20/05 Time: 11:29 Ending Date: 07/21/05 Time: 04:26 Book # A100-001

ANALYTICAL BATCH ** IC G025W

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
** 61	AG20-61	CCB 139	1		✓	
* 2	62	G146-04				
* 3	63	05				
* 4	64	RINSE				
* 5	65					
* 6	66					
* 7	67	CCV140				
* 8	68	CCB140				
* 9	69	BL				
* 70	70	BL				
* 1						
* 2						
* 3						
* 4						
* 5						
* 6						
* 7						
* 8						
* 9						
* 80						
* 1						
* 2						
* 3						
* 4						
* 5						
* 6						
* 7						
* 8						
* 9						
* 90						

a.c. 07/20/05

Instrument Number		22 100	
INITIAL CALIBRATION REFERENCE			
Method File		Date	
ICAL ID			
ICV ID			

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1								
	S_2								
	S_3								
	S_4								
	S_5								
ICV									
CCV									
LCS									
MS									

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3	
ICAL	S_1					
	S_2					
	S_3					
	S_4					
ICV						
CCV						
LCS						

Comments:

Analyzed By:

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8039

ANALYSIS RUN LOG FOR IC

SOP ☒ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No.0 ☐

Start Date: 07/25/05 **Time:** 12:24 **Ending Date:** 07/26/05 **Time:** 06:41 **Book # A100-001**

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
* 1	AG25 - 01	CCV57	1		✓	
* 2	02	CCB57				
* 3	03	MPI				
* 4	04	ICG029WB				
* 5	05	WL				
* 6	06	WL				
* 7	07	G126 - 01	20			
* 8	08	02	50			
* 9	09	03	20			
* 10	10	04	50			
* 1	11	05	10			
* 2	12	06	20			
* 3	13	CCV58	1			
* 4	14	CCB58	1			
* 5	15	G127 - 07	20			
* 6	16	G145 - 01	5			
* 7	17	02	10			
* 8	18	02D	10			
* 9	19	02M	10			
* 20	20	03	10			
* 1	21	04	10			
* 2	22	05	20			
* 3	23	06	10			
* 4	24	07	10			
* 5	25	CCV59	1			
* 6	26	CCB59	1			
* 7	27	G143 - 08	10			
* 8	28	09	10			
* 9	29	10	20			
* 30	30	G127 - 01	1000		✓	

ANALYTICAL BATCH * IC G029W

Instrument Number	22 IC ✓ 07/26/05

INITIAL CALIBRATION REFERENCE

Method File	IC100 - G12 .mtw	Date
ICAL ID	SW5B-12-628-634	07/12/05
ICV ID	SW5B-12-635-641	07/12/05

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1								
	S_2								
	S_3								
	S_4								
	S_5								
ICV									
CCV		SW5B-12-745-748	5	5	2.5	5	2.5	5	7.5
LCS		SW5B-12-749-752	↓	↓	↓	↓	↓	↓	↓
MS x DF		LCS source	↓	↓	↓	↓	↓	↓	↓

Refer to pg 54

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3
ICAL	S_1	N/A			
	S_2	↓			
	S_3				
	S_4				
ICV					
CCV					
LCS		↓			

Comments:

Analyzed By: dl

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8040

ANALYSIS RUN LOG FOR IC

SOP ☑ EMAX-300.0 Rev. No. 3 ☐ EMAX-9056 Rev. No. 2 ☐ EMAX-300.1 Rev. No.0 ☐

Start Date: 07/25/05 **Time:** 12:24 **Ending Date:** 07/26/05 **Time:** 06:41 **Book # A100-001**

Sample Prep ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Notes
* 31	A025 - 31	G127 - 02	50		✓	
* 2	32	G144 - 01	200			
* 3	33	ICG036WB	1			
* 4	34	WL	1			
* 5	35	WC	1			
* 6	36	G178 - 02	5			
* 7	37	CCV60	1			
* 8	38	CCB60				
* 9	39	G139 - 02				
* 40	40	03				
* 1	41	03D				
* 2	42	03M				
* 3	43	G162 - 01	5			
* 4	44	02	500			
* 5	45	03	500			
* 6	46	04	50			
* 7	47	05				
* 8	48	06				
* 9	49	CCV61	1			
* 50	50	CCB61	1			
* 1	51	3149 - 02	20			
* 2	52	02D				
* 3	53	02M				
* 4	54	G182 - 01				
* 5	55	02	100			
* 6	56	03	50			
* 7	57	04	50			
* 8	58	05	100			
* 9	59	06	100			
* 60	60	07	50			

Instrument Number		22 100 ok 07/25/05
INITIAL CALIBRATION REFERENCE		
Method File		Date
ICAL ID		
ICV ID		

Standards-A

Name		ID	Conc. (mg/L) F	Cl	NO_2	Br	NO_3	P	SO_4
ICAL	S_1								
	S_2								
	S_3								
	S_4								
	S_5								
ICV									
CCV									
LCS									
MS									

Refer to 24 SOP

Standards-B

Name		ID	Conc. (mg/L) BrO_3	DCA	ClO_3
ICAL	S_1				
	S_2				
	S_3				
	S_4				
ICV					
CCV					
LCS					

Comments:

Analyzed By: ok

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ANALYTICAL BATCH # IC 0029W ## IC4030W

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8041

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G145**

METHOD 310.1
TOTAL ALKALINITY

Ten (10) water samples were received on 07/20/05 for Total Alkalinity analysis by Method 310.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Duplicate sample was not designated in this SDG.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 310.1
TOTAL ALKALINITY

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G145

Matrix : WATER
Instrument ID : I53

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ALG016WB	ND	1	NA	5	1	07/27/0513:15	NA	ALG016W-01	NA	ALG016W	NA	NA
LCS1W	ALG016WL	45.7	1	NA	5	1	07/27/0513:20	NA	ALG016W-02	NA	ALG016W	NA	NA
LCD1W	ALG016WC	45.7	1	NA	5	1	07/27/0513:25	NA	ALG016W-03	NA	ALG016W	NA	NA
MW-25-5	G145-01	145	1	NA	5	1	07/27/0513:30	NA	ALG016W-04	NA	ALG016W	07/19/05	07/20/05
MW-25-4	G145-02	211	1	NA	5	1	07/27/0513:35	NA	ALG016W-05	NA	ALG016W	07/19/05	07/20/05
MW-25-3	G145-03	175	1	NA	5	1	07/27/0513:40	NA	ALG016W-06	NA	ALG016W	07/19/05	07/20/05
MW-25-2	G145-04	135	1	NA	5	1	07/27/0513:45	NA	ALG016W-07	NA	ALG016W	07/19/05	07/20/05
MW-25-1	G145-05	152	1	NA	5	1	07/27/0513:50	NA	ALG016W-08	NA	ALG016W	07/19/05	07/20/05
MW-19-5	G145-06	191	1	NA	5	1	07/27/0513:55	NA	ALG016W-09	NA	ALG016W	07/20/05	07/20/05
MW-19-4	G145-07	191	1	NA	5	1	07/27/0514:00	NA	ALG016W-10	NA	ALG016W	07/20/05	07/20/05
DUPE-1-7/20/05	G145-08	186	1	NA	5	1	07/27/0514:05	NA	ALG016W-11	NA	ALG016W	07/20/05	07/20/05
MW-19-3	G145-09	175	1	NA	5	1	07/27/0514:10	NA	ALG016W-12	NA	ALG016W	07/20/05	07/20/05
MW-19-2	G145-10	201	1	NA	5	1	07/27/0514:15	NA	ALG016W-13	NA	ALG016W	07/20/05	07/20/05

80443

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 310.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G145
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: ALG016WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 07/27/05 13:20/13:25

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Total Alkalinity	ND	49.20	45.70	93	49.20	45.70	93	0	80-120	20

8044

ANALYSIS LOG FOR ALKALINITY

SOP ☑ EMAX-310.1 Rev. No. 2 ☐ SM2320B Rev. No. 0 ☐ Book # AAL-009

Start Date: 7/27/05 Time: 13:15 Ending Date: 7/27/05 Time: 15:10 Instrument No: ☐ 53 ☐ 97

ANALYTICAL BATCH # AL6016W

	Data File Name	Lab Sample ID	Time	Sample Amt. (ml)	Initial pH	Acid Titrant pH=8.3	Acid Titrant pH=4.5	Acid Titrant pH=4.2	Final pH	ALKALINITY (mg/L) Total	Hydroxide (OH)	Carbonate (CO_3)	Bicarbonate (HCO_3)	Notes
*01		AL6016 WB	13:15	20	5.18	NA	0.025	NA	4.46	ND				
*02		WL	13:20		8.55		0.90		4.53	45.7				
*03		WC	13:25		8.43		0.90		4.50	45.7				
*04		G145-01	13:30		8.33		2.85		4.52	145	✓			
*05		-02	13:35		7.87		4.15		4.50	~~811~~	211	DC 8/4/05		
*06		-03	13:40		7.98		3.45		4.49	175	✓			
*07		-04	13:45		9.19		2.65		4.52	135	✓			
*08		-05	13:50		7.43		3.00		4.51	152	✓			
*09		-06	13:55		7.94		3.75		4.47	191	✓			
*10		-07	14:00		7.95		3.75		4.47	191	✓			
*11		-08	14:05		7.94		3.65		4.47	186	✓			
*12		-09	14:10		7.60		3.45		4.52	175	✓			
*13		-10	14:15		7.26		3.95		4.47	201	✓			
*14		G120-01	14:20	10	7.35		10.45		4.53	1062				
*15		-02	14:25	20	7.65		9.60		4.51	488				
*16		-03	14:30		7.45		8.65		4.47	440				
*17		G183-01	14:35		7.65		2.85		4.48	145				
*18		-02	14:40		8.63		2.50		4.53	127				
*19		-03	14:45		8.02		3.20		4.52	163				
*20		-04	14:50		7.88		4.15		4.52	211				
*21		-05	14:55		7.37		2.50		4.47	127				
*22		-06	15:00		7.98		3.60		4.52	183				
*23		-07	15:05		7.88		3.60		4.47	183				
*24		-07D	15:10		7.83		3.65		4.53	186				
*25														

Standard Reagent	ID	Conc. mg/L
LCS	SW7A-06-174	49.2
Spike	NA	
Na_2CO_3 Soln	SW7A-06-120	2360
Acid Titrant HCL	SW3B-02-732	0.02N

Standardization

Na_2CO_3 Soln. (ml)	Acid Titrant (ml)	Normality, N
BLK	0.025	ND
5	11.65	.02024
5	11.55	.02042
5	11.60	.02033

Avg. N .02033

pH METER CALIBRATION

pH Buffer	ID	Reading
pH 4	SW7A-06-047	4.01
pH 7	-098	7.00
pH 10	-100	10.00
Slope	100.2	

Comments:

G120-01 - 1x overrange

Analyzed By: MC

This page is checked during data review.

MC 7/29/05

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8045

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G145**

METHOD 350.2
AMMONIA (NH3-N)

Ten (10) water samples were received on 07/20/05 for Ammonia analysis by Method 350.2 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Sample G145-01 was analyzed for duplicate. %RPD was within QC limit.

5. Matrix Spike

Sample G145-01 was spiked. Recovery was within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

All results were reported as Nitrogen concentration.

METHOD 350.2
AMMONIA (NH3-N)

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G145

Matrix : WATER
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	NHG008WB	ND	1	NA	.1	.03	07/31/0510:11	07/30/0509:30	NHG008W-12	NHG008W-10	NHG008W	NA	07/30/05
LCS1W	NHG008WL	1.01	1	NA	.1	.03	07/31/0510:12	07/30/0509:30	NHG008W-13	NHG008W-10	NHG008W	NA	07/30/05
LCD1W	NHG008WC	1.00	1	NA	.1	.03	07/31/0510:13	07/30/0509:30	NHG008W-14	NHG008W-10	NHG008W	NA	07/30/05
MW-25-5	G145-01	ND	1	NA	.1	.03	07/31/0510:14	07/30/0509:30	NHG008W-15	NHG008W-10	NHG008W	07/19/05	07/20/05
MW-25-5DUP	G145-01D	ND	1	NA	.1	.03	07/31/0510:15	07/30/0509:30	NHG008W-16	NHG008W-10	NHG008W	07/19/05	07/20/05
MW-25-5MS	G145-01M	1.00	1	NA	.1	.03	07/31/0510:16	07/30/0509:30	NHG008W-17	NHG008W-10	NHG008W	07/19/05	07/20/05
MW-25-4	G145-02	ND	1	NA	.1	.03	07/31/0510:17	07/30/0509:30	NHG008W-18	NHG008W-10	NHG008W	07/19/05	07/20/05
MW-25-3	G145-03	ND	1	NA	.1	.03	07/31/0510:18	07/30/0509:30	NHG008W-19	NHG008W-10	NHG008W	07/19/05	07/20/05
MW-25-2	G145-04	ND	1	NA	.1	.03	07/31/0510:19	07/30/0509:30	NHG008W-20	NHG008W-10	NHG008W	07/19/05	07/20/05
MW-25-1	G145-05	.106	1	NA	.1	.03	07/31/0510:20	07/30/0509:30	NHG008W-21	NHG008W-10	NHG008W	07/19/05	07/20/05
MW-19-5	G145-06	ND	1	NA	.1	.03	07/31/0510:23	07/30/0509:30	NHG008W-24	NHG008W-22	NHG008W	07/20/05	07/20/05
MW-19-4	G145-07	.277	1	NA	.1	.03	07/31/0510:24	07/30/0509:30	NHG008W-25	NHG008W-22	NHG008W	07/20/05	07/20/05
DUPE-1-7/20/05	G145-08	ND	1	NA	.1	.03	07/31/0510:25	07/30/0509:30	NHG008W-26	NHG008W-22	NHG008W	07/20/05	07/20/05
MW-19-3	G145-09	ND	1	NA	.1	.03	07/31/0510:26	07/30/0509:30	NHG008W-27	NHG008W-22	NHG008W	07/20/05	07/20/05
MW-19-2	G145-10	.144	1	NA	.1	.03	07/31/0510:27	07/30/0509:30	NHG008W-28	NHG008W-22	NHG008W	07/20/05	07/20/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 350.2
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G145
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: NHG008WL/C

DATE RECEIVED: 07/30/05
DATE EXTRACTED: 07/30/05 09:30
DATE ANALYZED: 07/31/05 10:12/10:13

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
Ammonia (NH3-N)	ND	1.00	1.01	101	1.00	1.00	100	0	80-120	20

80488

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 350.2
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G145
SAMPLE ID: MW-25-5MS
CONTROL NO.: G145-01M

DATE RECEIVED: 07/20/05
DATE EXTRACTED: 07/30/05 09:30
DATE ANALYZED: 07/31/05 10:16

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
Ammonia (NH3-N)	ND	1.00	1.00	100.00	75-125

8049

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 350.2
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G145
SAMPLE ID: MW-25-5DUP
CONTROL NO.: G145-01D

DATE RECEIVED: 07/20/05
DATE EXTRACTED: 07/30/05 09:30
DATE ANALYZED: 07/31/05 10:15

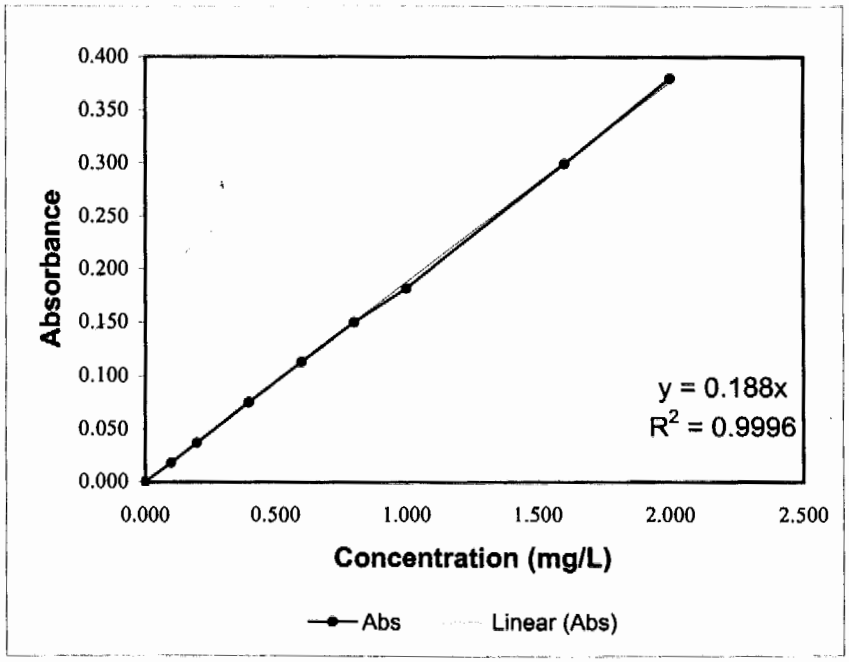
ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
Ammonia (NH3-N)	ND	ND	0	20

0050

CALIBRATION CURVE
AMMONIA _NH3 _TKN

Conc.	Abs
0.000	0.000
0.100	0.018
0.200	0.037
0.400	0.075
0.600	0.113
0.800	0.150
1.000	0.182
1.600	0.300
2.000	0.380



R^2	0.999645	Comments:	**PASSED**
y	0.1880		
CF	5.3184	Analyzed by:	RM/LA

ANALYSIS LOG FOR AMMONIA-N

SOP ☑ EMAX-350.2 Rev. No. 2 ☐ EMAX-350.1 ☐ Rev. No. 0 ☐ Book # A70-NH_3-005

Starting Date: 7-31-05 Time: 10:00 Ending Date: 7-31-05 Time: 10:50

ANALYTICAL BATCH * NHG008W

	Data File Name	Prep. Batch	Lab Sample ID	Matrix S	Matrix W	Time	Vol.Colored (ml)	DF	Absorbance	Notes mg/L
*	1	NHG008W	S-0.0		✓	10:00	20	1	0.000	
*	2		S-0.1			-01			0.018	
*	3		S-0.2			-02			0.037	
*	4		S-0.4			-03			0.075	
*	5		S-0.6			-04			0.113	
*	6		S-0.8			-05			0.150	
*	7		S-1.0			-06			0.182	
*	8		S-1.6			-07			0.300	
*	9		S-2.0			-08			0.390	
*	10		ICV			-09			0.186	0.989
*	11		ICB			-10			0.000	NP
*	12		NHG008WB			-11			0.000	NP
*	13		WC			-12			0.190	1.01
*	14		WC			-13			0.189	1.005
*	15		G145-01			-14			0.001	ND
*	16		01D			-15			0.002	ND
*	17		-01M			-16			0.188	1.000
*	18		-02			-17			0.009	ND
*	19		-03			-18			0.006	ND
*	20		-04			-19			0.013	ND
*	21		-05			-20			0.020	0.106
*	22		CCV1			-21			0.187	0.995
*	23		CCB1			-22			0.000	ND
*	24		G145-06			-23			0.007	ND
*	25		-07			-24			0.052	0.277
*	26		-08			-25			0.008	ND
*	27		-09			-26			0.006	ND
*	28		-10			-27			0.027	0.144
*	29		G153-01		✓	-28	✓	✓	0.038	0.202
*	30	✓	-02		✓	-29	20	1	0.001	ND

Instrument No: 70	Wavelength: 425 nm

Standard	ID	Conc. (mg/L)
S_0	Ammonia free	0.0
S_1	SW2B-05-152	0.1
S_2		0.2
S_3		0.4
S_4		0.6
S_5		0.8
S_6		1.0
S_7		1.6
S_8	SW2B-05-152	2.0
ICV/MS	-157	1.0
CCV	-152	1.0
LCS	-177	1.0

Reagent	ID
Color Reagent	SW7A-06-141

Standard Curve	
R	0.9996
Y	0.1880
CF	5.8184

Comments:

Results are based on: ☐ Dry Weight ☐ Wet Weight

Analyzed By: RM LA

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 79 200th St. Torrance, CA 90501

8052

ANALYSIS LOG FOR AMMONIA-N

SOP ☑ EMAX-350.2 Rev. No. 2 ☐ EMAX-350.1 ☐ Rev. No. 0 ☐ Book # A70-NH_3-005

Starting Date: 7-31-05 Time: 10:50 Ending Date: 7-31-05 Time: 10:50

ANALYTICAL BATCH # NH4G008W

	Data File Name	Prep. Batch	Lab Sample ID	Matrix S	Matrix W	Time	Vol.Colored (ml)	DF	Absorbance	Notes mg/L
* 1		NH4G008W	G183-03		✓	1050	20	1	0.002	ND
* 2			-04			-51			0.001	ND
* 3			-05			-52			0.017	0.09 = ND
* 4			CCV2			-53			0.182	0.989
* 5			CCB2			-54			0.000	ND
* 6			G183-06			-55			0.001	ND
* 7			-07			-56			0.002	ND
* 8			NH4G0090B			-57			0.000	ND
* 9			WC			-58			0.189	1.005
* 0			G190-01			-59			0.001	ND
* 1			-01D			-60			0.002	ND
* 2			-01M			-61			0.187	0.993
* 3			-02			-62			0.002	ND
* 4			-03			-63			0.001	ND
* 5			-04			-64			0.002	ND
* 6			CCV3			-65			0.155	0.934
* 7			CCB3			-66			0.000	ND
* 8			G190-05			-67			0.001	ND
* 9			-06			-68			0.019	0.101
* 0			CCV4		✓	-69	✓	✓	0.188	1.000
* 1		✓	CCB4		✓	-70	20	1	0.000	ND
* 2										
* 3										
* 4										
* 5										
* 6										
* 7										
* 8										
* 9		du								
* 0			8-01-05							

Instrument No: 70 | Wavelength: 425 nm

Standard	ID	Conc. (mg/L)
S_0	Same as pg.66	0.0
S_1		0.1
S_2		0.2
S_3		0.4
S_4		0.6
S_5		0.8
S_6		1.0
S_7		1.6
S_8		2.0
ICV/MS		1.0
CCV		1.0
LCS	✓	1.0

Reagent	ID
Color Reagent	2W7A-06-141

Standard Curve	
R	0.9996
Y	0.1880
CF	5.3184

Comments:

Results are based on: ☐ Dry Weight ☐ Wet Weight

Analyzed By: [illegible]

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8053

DISTILLATION LOG FOR NH_3 / DIGESTION AND DISTILLATION FOR TKN

SOP ☑ EMAX-350.2 Rev. No.: 2 ☐ EMAX-351.3 Rev. No.: 2 ☐ Book # EKN-006

Start Date 7-20-05 Time 9:30 End Date 7-20-05 Time 14:00

PREPARATION BATCH # NH3/TKN 5K

Sample Prep ID	Lab Sample ID	Sample pH	NaOH Added (ml)	Boric Acid (ml)	Borate Buffer (ml)	Sample Amount (ml)	Extract Volume (ml)	Notes
*01	S-0.0	9.5	0.1	10	5	100	100	
*02	S-0.1							
*03	S-1.0							
*04	S-2.0							
*05	ICV							
*06	ICB							
*07	NH4Cl 2WB							
*08	WC							
*09	WC		0.1					
*10	G145-01		0.9					
*11	-01D		0.8					
*12	-01M		0.8					
*13	-02		0.7					
*14	-03		0.8					
*15	-04		0.9					
*16	-05		0.8					
*17	-06		0.7					
*18	-07		0.8					
*19	-08		0.9					
*20	-09		0.9					
*21	-10		0.8					
*22	G153-01		0.8					
*23	-02		0.9					
*24	-03		0.7					
*25	-04		0.8					
*26	-05		0.7					

Standards	ID	Amount Added (ml)
ICV/MS	SW7B-03-157	10 ml of 10 ppm
LCS	L-171	

Reagent	Lot# / ID
NaOH	SW7A-06-112
Digestion Mixture	NA
Borate Buffer	SW7A-06-152
H_3BO_3	SW7B-06-522
Distilling Soln.	NA

Comments:

Prepared By: [illegible]

Standard Added By:

Checked By:

EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

8054

DISTILLATION LOG FOR NH_3 / DIGESTION AND DISTILLATION FOR TKN

SOP ☒ EMAX-350.2 Rev. No.: 2 ☐ EMAX-351.3 Rev. No.: 2 ☐ Book # EKN-006

Start Date 7-30-05 Time 9:30 End Date 7-30-05 Time 1400

PREPARATION BATCH # _____

Sample Prep ID	Lab Sample ID	Sample pH	NaOH Added (ml)	Boric Acid (ml)	Borate Buffer (ml)	Sample Amount (ml)	Extract Volume (ml)	Notes
*01 27	G183-06	9.5	0.8	10	5	100	100	
*02 28	-07		0.7					
*03 29	G190-01		0.9					
*04 30	-01D		0.8					
*05 31	-01M		0.9					
*06 32	-02		0.8					
*07 33	-03		0.9					
*08 34	-04		0.8					
*09 35	-05		0.7					
*10 36	-06		0.8					
*11 37	LIHG0490B		0.1					
*12 38	WC	9.5	0.1	10	5	100	100	
*13 39								
*14 40								
*15								
*16								
*17								
*18								
*19								
*20								
*21								
*22								
*23								
*24								
*25								
*26								

Standards	ID	Amount Added (ml)
ICV/MS	Same as pg. 2	
LCS		

Reagent	Lot# / ID
NaOH	Same as pg. 2
Digestion Mixture	
Borate Buffer	
H_3BO_3	
Distilling Soln.	

Comments:

Prepared By: PM

Standard Added By: PM

Checked By:

EMAX LABORATORIES, INC. 1835 W. 205th St., Torrance, CA 90501

8055

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G145**

METHOD 120.1
SPECIFIC CONDUCTIVITY

Ten (10) water samples were received on 07/20/05 for Specific Conductivity analysis by Method 120.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Duplicate

Duplicate sample was not designated in this SDG.

3. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 120.1
SPECIFIC CONDUCTIVITY

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G145

Matrix : WATER
Instrument ID : 129

SAMPLE ID	EMAX SAMPLE ID	RESULTS (umhos/cm)	DLF	MOIST	RL (umhos/cm)	MDL (umhos/cm)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MW-25-5	G145-01	436	1	NA	1	.5	07/28/0515:06	NA	ECG008W-4	ECG008W-1	ECG008W	07/19/05	07/20/05
MW-25-4	G145-02	679	1	NA	1	.5	07/28/0515:08	NA	ECG008W-5	ECG008W-1	ECG008W	07/19/05	07/20/05
MW-25-3	G145-03	648	1	NA	1	.5	07/28/0515:10	NA	ECG008W-6	ECG008W-1	ECG008W	07/19/05	07/20/05
MW-25-2	G145-04	580	1	NA	1	.5	07/28/0515:12	NA	ECG008W-7	ECG008W-1	ECG008W	07/19/05	07/20/05
MW-25-1	G145-05	863	1	NA	1	.5	07/28/0515:14	NA	ECG008W-8	ECG008W-1	ECG008W	07/19/05	07/20/05
MW-19-5	G145-06	785	1	NA	1	.5	08/02/0514:16	NA	ECH001W-4	ECH001W-1	ECH001W	07/20/05	07/20/05
MW-19-4	G145-07	718	1	NA	1	.5	08/02/0514:18	NA	ECH001W-5	ECH001W-1	ECH001W	07/20/05	07/20/05
DUPE-1-7/20/05	G145-08	706	1	NA	1	.5	08/02/0514:20	NA	ECH001W-6	ECH001W-1	ECH001W	07/20/05	07/20/05
MW-19-3	G145-09	629	1	NA	1	.5	08/02/0514:22	NA	ECH001W-7	ECH001W-1	ECH001W	07/20/05	07/20/05
MW-19-2	G145-10	1040	1	NA	1	.5	08/02/0514:24	NA	ECH001W-8	ECH001W-1	ECH001W	07/20/05	07/20/05

ANALYSIS LOG FOR SPECIFIC CONDUCTIVITY

SOP ☑ EMAX-120.1 Revision No. 1 ☐ Book # AEC-003

Start Date 7/28/05 Time 1500 End Date 7/28/05 Time 15:46

Data File Name		Lab Sample ID	Time	Temp. °C	Temp. Correction Factor QT @ 25 oC	DF	Measured Resistance (ohms)	Notes
	* 1	STD high ~~1405~~ 1413	1500	21.8	0.939	1	1338	1412
	* 2	EC9008WL 07/28/05	-02	21.8	↓		381.5	403
	* 3	↓ WC	-04	21.8	0.939		381.5	403
	* 4	G145-01	-06	21.7	0.937		412	435.7 ≈ 436
	* 5	-02	-08	21.7	↓		642	678.9 ≈ 679
	* 6	-03	-10	21.7	0.937		613	648
	* 7	-04	-12	21.7	0.937		548	579.6 ≈ 580
	* 8	-05	-14	21.8	0.939		818	863
	* 9	G183-1	-16	21.8	↓		388	409
	* 10	-2	-18	21.8	0.939		273	288
	* 1	-3	-20	21.7	0.937		383	405
	* 2	-4	-22	21.7	↓		517	546.8 ≈ 547
	* 3	-5	-24	21.8	0.939		345	364
	* 4	-6	-26	21.8			463	488.5 ≈ 489
	* 5	-7	-28	21.8			462	488
	* 6	-7b	-30	21.8			462	488
	* 7	G218-1	-32	21.8			281	297
	* 8	2	-34	21.8			346	365
	* 19	3	-36	21.8			427	451
	* 20	4	-38	21.8		1	461	487

8b low

ANALYTICAL BATCH # TCG6W84

Instrument No:	29

Trial	ID	Resistance ohms
KCl Standard	SW7A02-55	Assay
1	SW3B-02-654	747
2	QC = .939	747
3		747
LCS	SW7A-06-174	402 µmhos/cm
Calibration Temperature	21.8	°C
True Value	1413	µmhos/cm
Cell Constant (C)	0.991	

KCl Standard	ID	µmhos/cm
Low-point	SW7A02729	141.3
Mid-point	N/A	
High-point	SW7A02658	1413

Comments:

Analyzed By: MD Ida

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8058

ANALYSIS LOG FOR SPECIFIC CONDUCTIVITY

SOP ☐ EMAX-120.1 Revision No. 1 ☐ Book # AEC-003

Start Date 8/2/05 Time 14:10 End Date 8/2/05 Time 14:46

Data File Name		Lab Sample ID	Time	Temp. °C	Temp. Correction Factor QT @ 25 oC	DF	Measured Resistance (ohms)	Notes
	* 1	STD High 1413	14:10	21.3	0.930	1x	1307	1409 ≈ 1410
	* 2	ECH001 WL	14:12	21.8	0.938		375	401
	* 3	↓ WC	14:14	21.4	0.932		373	401
	* 4	G145-06	14:16	20.7	0.918		~~785~~ 719 ✓ 8/2/05	785
	* 5	07	14:18	19.7	0.898		~~718~~ 643 ✓ 8/2/05	718
	* 6	08	14:20	19.7	0.898		~~706~~ 633 ✓ 8/2/05	706
	* 7	09	14:22	19.2	0.889		558	629
	* 8	10	14:24	19.6	0.896		934	1040
	* 9	G265-01	14:26	21.3	0.930		1971	2120
	* 0	02	14:28	21.1	0.925		1950	2110
	* 1	03	14:30	22.2	0.946		1786	1890
	* 2	04	14:32	21.6	0.934		6620	7100
	* 3	05	14:34	21.9	0.941		13390	14300
	* 4	06	14:36	22.1	0.944		1644	1750
	* 5	07	14:38	21.0	0.924		8410	9130
	* 6	↓ 08	14:40	21.1	0.926		11350	12300
	* 7	G244-01	14:42	21.4	0.931		9660	10400
	* 8	↓ 02	14:44	22.0	0.943		5700	6060
	* 9	STD LOW 141.3	14:46	21.8	0.938	↓	132.7	142. (141.7)
	* 0							✓ 8/2/05

ANALYTICAL BATCH * ECH001W

Instrument No:	29

Trial	ID	Resistance ohms
KCl Standard	SW7A-02-55	Assay
1	SW3B-02-654	763
2	Qt = 0.930	763
3		763
LCS	SW7A-06-174	402 µmhos/cm
Calibration Temperature	21.3 °C	
True Value	1413	µmhos/cm
Cell Constant (C)	1.0023	

KCl Standard	ID	µmhos/cm
Low-point	SW7A-02-729	141.3
Mid-point	N/A	
High-point	SW7A-02-654	1413

Comments:

Analyzed By: [illegible]

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G145**

SM3500
FERROUS IRON

Ten (10) water samples were received on 07/20/05 for Ferrous Iron analysis by Method SM3500 in accordance with "Standard Methods for the Examination of Water and Wastewater", 18th edition (1990).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample

Lab control result was within QC limit.

4. Duplicate

Sample G145-01 was analyzed for duplicate. %RPD was within QC limit.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

SM3500
FERROUS IRON

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G145

Matrix : WATER
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	FEG002WB	ND	1	NA	5	2.5	07/20/0519:08	NA	FEG002W-09	FEG002W-07	FEG002W	NA	NA
LCS1W	FEG002WL	20.79	1	NA	5	2.5	07/20/0519:09	NA	FEG002W-10	FEG002W-07	FEG002W	NA	NA
MW-25-5	G145-01	ND	1	NA	5	2.5	07/20/0519:10	NA	FEG002W-11	FEG002W-07	FEG002W	07/19/05	07/20/05
MW-25-5DUP	G145-01D	ND	1	NA	5	2.5	07/20/0519:11	NA	FEG002W-12	FEG002W-07	FEG002W	07/19/05	07/20/05
MW-25-4	G145-02	ND	1	NA	5	2.5	07/20/0519:12	NA	FEG002W-13	FEG002W-07	FEG002W	07/19/05	07/20/05
MW-25-3	G145-03	ND	1	NA	5	2.5	07/20/0519:13	NA	FEG002W-14	FEG002W-07	FEG002W	07/19/05	07/20/05
MW-25-2	G145-04	ND	1	NA	5	2.5	07/20/0519:14	NA	FEG002W-15	FEG002W-07	FEG002W	07/19/05	07/20/05
MW-25-1	G145-05	ND	1	NA	5	2.5	07/20/0519:15	NA	FEG002W-16	FEG002W-07	FEG002W	07/19/05	07/20/05
MW-19-5	G145-06	ND	1	NA	5	2.5	07/20/0519:24	NA	FEG002W-25	FEG002W-23	FEG002W	07/20/05	07/20/05
MW-19-4	G145-07	ND	1	NA	5	2.5	07/20/0519:16	NA	FEG002W-17	FEG002W-07	FEG002W	07/20/05	07/20/05
DUPE-1-7/20/05	G145-08	ND	1	NA	5	2.5	07/20/0519:17	NA	FEG002W-18	FEG002W-07	FEG002W	07/20/05	07/20/05
MW-19-3	G145-09	ND	1	NA	5	2.5	07/20/0519:20	NA	FEG002W-21	FEG002W-19	FEG002W	07/20/05	07/20/05
MW-19-2	G145-10	ND	1	NA	5	2.5	07/20/0519:21	NA	FEG002W-22	FEG002W-19	FEG002W	07/20/05	07/20/05

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: SM3500
MATRIX: WATER
% MOISTURE: NA

==========

BATCH NO.: 05G145 DATE RECEIVED: NA
SAMPLE ID: LCS1W DATE EXTRACTED: NA
CONTROL NO.: FEG002WL DATE ANALYZED: 07/20/05 19:09

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	LCS RSLT (mg/L)	LCS % REC	QC LIMIT (%)
Ferrous Iron	ND	20.00	20.80	104	80-120

80062

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: SM3500
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G145
SAMPLE ID: MW-25-5DUP
CONTROL NO.: G145-01D

DATE RECEIVED: 07/20/05
DATE EXTRACTED: NA
DATE ANALYZED: 07/20/05 19:11

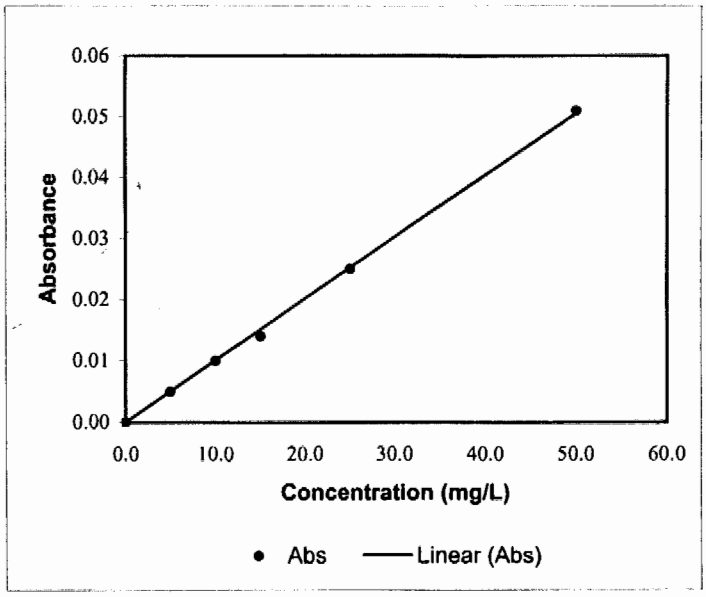
ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
Ferrous Iron	ND	ND	0	20

8063

CALIBRATION CURVE
FERROUS FE

Conc.	Abs
0.0	0.000
5.0	0.005
10.0	0.010
15.0	0.014
25.0	0.025
50.0	0.051



R^2	0.9993
Eq.Line	0.0010
CF	990.0285

Comments: **PASSED**

Analyzed by: LA

ANALYSIS LOG FOR FERROUS IRON

SOP ☒ EMAX-3500-Fe D/C Rev. No. 0 ☐ Starting Date 7/20/05 Time 19:00 Ending Date 7/20/05 Time 19:26 7/20/05 Book # A70-Fe D/C-001

	Data File Name	Preparative Batch	Lab Sample ID	Matrix S	Matrix W	Sample Amount (ml)	DF	Abs. (510 nm)	Time	Ferrous Iron (mg/L)	Notes
*	1	FEG002W	S-0		✓	50	1	0.000	19:00		
*	2		S-5					0.005	-01		
*	3		S-10					0.010	-02		
*	4		S-15					0.014	-03		
*	5		S-25					0.025	-04		
*	6		S-50					0.05	-05		
*	7		ICV					0.019	-06	18.81	
*	8		ICB					0.000	-07	ND	
*	9		FEG002WB					0.020	-08	ND	
*	10		↓ WC					0.021	-09	20.79	
*	1		G145-01					0.001	-10	ND	
*	2		-01D					0.002	-11	ND	
*	3		-02					0.001	-12	ND	
*	4		-03					0.003	-13	ND	
*	5		-04					0.002	-14	ND	
*	6		-05					0.001	-15	ND	
*	7		-07					0.004	-16	ND	
*	8		↓ -08					0.004	-17	ND	
*	9		CCV1					0.020	-18	19.80	
*	20		CCB1					0.000	-19	ND	
*	1		G145-09					0.001	-20	ND	
*	2		↓ -10					0.006	-21	ND	
*	3		CCV2		↓	↓	↓	0.021	-22	20.79	
*	4	↓	CCB2		—	50	1	0.000	-23	ND	
*	5		G145-06		—	50	1	0.001	-24	ND	
*	6		CCV3		—	↓	↓	0.019	-25	18.81	
*	7	↓	CCV3		—	↓	50	0.000	-26	ND	
*	8										
*	9										
*	0		7-20-05								

ANALYTICAL BATCH * FEG002W

Instrument No.: 70	Wavelength: 510 nm

Standard	ID	Conc. (mg/L)
S_0	Nanopure	0.0
S_1	SW2B-05-095	5
S_2	↓	10
S_3	↓	15
S_4	↓	25
S_5	SW2B-05-095	50
ICV/LCS/MS	↓ -096	20
CCV	↓ -095	20

Reagents	
Name	ID
HCl	SW1A-02-1529
$NH_4C_2H_3O_2$ Buffer	SW7B-06-228B
Phenanthroline Sol'n	-228A
$NaC_2H_3O_2$ Sol'n	NA
Hydroxylamine Soln	↓

Standard Curve	
R (≤0.995)	0.9993
Y	0.0010
CF	99.0285

Comments:

Analyzed By: AD / MB

Disposal Date:

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EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8065

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G145**

METHOD 376.1
SULFIDE

Ten (10) water samples were received on 07/20/05 for Sulfide analysis by Method 376.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample

Lab control result was within QC limit.

4. Duplicate

Sample G145-05 was analyzed for duplicate. %RPD was within QC limit.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 376.1
SULFIDE

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G145

Matrix : WATER
Instrument ID : NA

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	SDG008WB	ND	1	NA	1	.4	07/25/0518:45	NA	SDG008W-01	NA	SDG008W	NA	NA
LCS1W	SDG008WL	4.87	1	NA	1	.4	07/25/0518:48	NA	SDG008W-02	NA	SDG008W	NA	NA
MW-25-5	G145-01	ND	1	NA	1	.4	07/25/0518:51	NA	SDG008W-03	NA	SDG008W	07/19/05	07/20/05
MW-25-4	G145-02	ND	1	NA	1	.4	07/25/0518:54	NA	SDG008W-04	NA	SDG008W	07/19/05	07/20/05
MW-25-3	G145-03	ND	1	NA	1	.4	07/25/0518:57	NA	SDG008W-05	NA	SDG008W	07/19/05	07/20/05
MW-25-2	G145-04	ND	1	NA	1	.4	07/25/0519:00	NA	SDG008W-06	NA	SDG008W	07/19/05	07/20/05
MW-25-1	G145-05	ND	1	NA	1	.4	07/25/0519:03	NA	SDG008W-07	NA	SDG008W	07/19/05	07/20/05
MW-25-1DUP	G145-05D	ND	1	NA	1	.4	07/25/0519:06	NA	SDG008W-08	NA	SDG008W	07/19/05	07/20/05
MW-19-5	G145-06	ND	1	NA	1	.4	07/25/0519:09	NA	SDG008W-09	NA	SDG008W	07/20/05	07/20/05
MW-19-4	G145-07	ND	1	NA	1	.4	07/25/0519:12	NA	SDG008W-10	NA	SDG008W	07/20/05	07/20/05
DUPE-1-7/20/05	G145-08	ND	1	NA	1	.4	07/25/0519:15	NA	SDG008W-11	NA	SDG008W	07/20/05	07/20/05
MW-19-3	G145-09	ND	1	NA	1	.4	07/25/0519:18	NA	SDG008W-12	NA	SDG008W	07/20/05	07/20/05
MW-19-2	G145-10	ND	1	NA	1	.4	07/25/0519:21	NA	SDG008W-13	NA	SDG008W	07/20/05	07/20/05

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 376.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G145
SAMPLE ID: LCD1W
CONTROL NO.: SDG008WC

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 07/25/05 18:48

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	LCS RSLT (mg/L)	LCS % REC	QC LIMIT (%)
Sulfide	ND	5.00	4.87	97	80-120

8908

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 376.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G145
SAMPLE ID: MW-25-1DUP
CONTROL NO.: G145-05D

DATE RECEIVED: 07/20/05
DATE EXTRACTED: NA
DATE ANALYZED: 07/25/05 19:06

ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
Sulfide	ND	ND	0	20

8069

ANALYSIS LOG FOR SULFIDE

SOP ☑ EMAX-376.1 Rev. No. 1 ☐ EMAX-9034 Rev. No. 0 Start Date: 7-25-05 Time: 18:46 End Date: 7-25-05 Time: 19:21 Book # ASD-007

	Data File Name	Lab Sample ID	Time	Sample Amt. (ml)	Volume of Iodine (ml)	Volume of PAO/$Na_2S_2O_3$ (ml)	Notes
*	1	SDGW08 WD	18:46	100	10	9.9	ND
*	2	WC	-48			4.6	4.87
*	3	G145-01	-51			9.8	ND
*	4	-02	-54			9.7	ND
*	5	-03	-57			9.6	ND
*	6	-04	19:00			9.8	ND
*	7	-05	-09			9.7	ND
*	8	-06D	-06			9.7	ND
*	9	-06	-09			9.8	ND
*	0	-07	-12			9.9	ND
*	1	-08	-15			9.8	ND
*	2	-09	-18			9.7	ND
*	3	-10	-21	100	10	9.6	ND
*	4						
*	5						
*	6						
*	7						
*	8						
*	9						
*	0						
*	1						
*	2						
*	3						
*	4						
*	5						
*	6						
*	7						
*	0						

ANALYTICAL BATCH # SDGW08 8 20

Standard	ID	Conc. (mg/L)
LCS	SW7A-06-178	5.0
Spike	NA	
$Na_2S_2O_3$	SW9B-02-785	0.00564
PAO		
Iodine	SW9B-02-784	0.00564
HCL	SW7B-06-481C	1:1
Indicator	SW7A-06-190	

STANDARDIZATION

Vol. Of Iodine (ml)	Volume of PAO/Na2S2O3 (ml)	Conc. Of Iodine (N)
10	10.0	0.00564
10	10.0	0.00564
10	10.0	0.00564
Average Iodine Conc. (N)		

$$Sulfide(mg/L) = \frac{\left(V_{I_2} \times N_{I_2} - V_{PAO} \times N_{PAO}\right) \times 16{,}000}{V_{sample}}$$

Comments:

Analyzed By:

EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

8070

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G145**

METHOD 351.3
TKN

Ten (10) water samples were received on 07/20/05 for TKN analysis by Method 351.3 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. **Holding Time**

   Analysis met holding time criteria.

2. **Method Blank**

   Method blank was free of contamination at the reporting limit.

3. **Lab Control Sample/Lab Control Sample Duplicate**

   Lab control results were within QC limit.

4. **Duplicate**

   Sample G145-01 was analyzed for duplicate. %RPD was within QC limit.

5. **Matrix Spiked**

   Sample G145-01 was spiked. Recovery was within QC limit.

6. **Sample Analysis**

   Samples were analyzed according to the prescribed QC procedures. All criteria were met.

   All results were reported as Nitrogen concentration.

METHOD 351.3
TKN

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G145

Matrix : WATER
Instrument ID : I70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	KNG010WB	ND	1	NA	.1	.035	07/31/0511:10	07/30/0510:30	KNG010W-11	KNG010W-09	KNG010W	NA	07/30/05
LCS1W	KNG010WL	1.03	1	NA	.1	.035	07/31/0511:11	07/30/0510:30	KNG010W-12	KNG010W-09	KNG010W	NA	07/30/05
LCD1W	KNG010WC	1.04	1	NA	.1	.035	07/31/0511:12	07/30/0510:30	KNG010W-13	KNG010W-09	KNG010W	NA	07/30/05
MW-25-5	G145-01	ND	1	NA	.1	.035	07/31/0511:13	07/30/0510:30	KNG010W-14	KNG010W-09	KNG010W	07/19/05	07/20/05
MW-25-5DUP	G145-01D	ND	1	NA	.1	.035	07/31/0511:14	07/30/0510:30	KNG010W-15	KNG010W-09	KNG010W	07/19/05	07/20/05
MW-25-5MS	G145-01M	1.09	1	NA	.1	.035	07/31/0511:15	07/30/0510:30	KNG010W-16	KNG010W-09	KNG010W	07/19/05	07/20/05
MW-25-4	G145-02	.444	1	NA	.1	.035	07/31/0511:16	07/30/0510:30	KNG010W-17	KNG010W-09	KNG010W	07/19/05	07/20/05
MW-25-3	G145-03	.522	1	NA	.1	.035	07/31/0511:17	07/30/0510:30	KNG010W-18	KNG010W-09	KNG010W	07/19/05	07/20/05
MW-25-2	G145-04	.333	1	NA	.1	.035	07/31/0511:18	07/30/0510:30	KNG010W-19	KNG010W-09	KNG010W	07/19/05	07/20/05
MW-25-1	G145-05	.511	1	NA	.1	.035	07/31/0511:19	07/30/0510:30	KNG010W-20	KNG010W-09	KNG010W	07/19/05	07/20/05
MW-19-5	G145-06	.788	1	NA	.1	.035	07/31/0511:22	07/30/0510:30	KNG010W-23	KNG010W-21	KNG010W	07/20/05	07/20/05
MW-19-4	G145-07	.533	1	NA	.1	.035	07/31/0511:23	07/30/0510:30	KNG010W-24	KNG010W-21	KNG010W	07/20/05	07/20/05
DUPE-1-7/20/05	G145-08	.611	1	NA	.1	.035	07/31/0511:24	07/30/0510:30	KNG010W-25	KNG010W-21	KNG010W	07/20/05	07/20/05
MW-19-3	G145-09	.377	1	NA	.1	.035	07/31/0511:25	07/30/0510:30	KNG010W-26	KNG010W-21	KNG010W	07/20/05	07/20/05
MW-19-2	G145-10	.389	1	NA	.1	.035	07/31/0511:26	07/30/0510:30	KNG010W-27	KNG010W-21	KNG010W	07/20/05	07/20/05

8072

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 351.3
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G145
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: KNG010WL/C

DATE RECEIVED: 07/30/05
DATE EXTRACTED: 07/30/05 10:30
DATE ANALYZED: 07/31/05 11:11/11:12

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
TKN	ND	1.00	1.03	103	1.00	1.04	104	1	80-120	20

8073

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 351.3
MATRIX: WATER
% MOISTURE: NA

==========

BATCH NO.: 05G145
SAMPLE ID: MW-25-5MS
CONTROL NO.: G145-01M

DATE RECEIVED: 07/20/05
DATE EXTRACTED: 07/30/05 10:30
DATE ANALYZED: 07/31/05 11:15

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
TKN	ND	1.00	1.09	109	75-125

80174

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 351.3
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G145
SAMPLE ID: MW-25-5DUP
CONTROL NO.: G145-01D

DATE RECEIVED: 07/20/05
DATE EXTRACTED: 07/30/05 10:30
DATE ANALYZED: 07/31/05 11:14

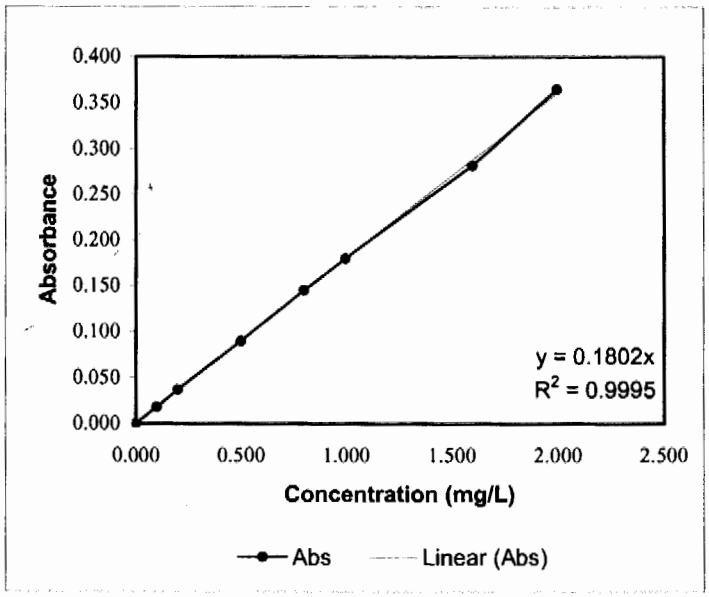
ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
TKN	ND	ND	0	20

8075

CALIBRATION CURVE
AMMONIA _NH3 _TKN

Conc.	Abs
0.000	0.000
0.100	0.018
0.200	0.037
0.500	0.090
0.800	0.145
1.000	0.180
1.600	0.282
2.000	0.365



R^2	0.999477
y	0.1802
CF	5.5505

Comments: **PASSED**

Analyzed by: RM/LA

ANALYSIS LOG FOR TOTAL KJELDAHL NITROGEN (TKN)

SOP ☑ EMAX-351.3 Rev. No. 1 ☐ Start Date: 7-31-05 Time: 11:00 End Date: 7-31-05 Time: 11:49 Book # A70-KN-004

ANALYTICAL BATCH * KN6010W

	Data File Name	Prep. Batch	Lab Sample ID	Matrix S	Matrix W	Time	Vol.Colored (ml)	DF	Absorbance	Notes mg/L
*	1	KN6010W	S-0.0		✓	11:00	20	1	0.000	
*	2		S-0.1			-01			0.018	
*	3		S-0.2			-02			0.037	
*	4		S-0.5			-03			0.090	
*	5		S-0.8			-04			0.145	
*	6		S-1.0			-05			0.180	
*	7		S-1.6			-06			0.282	
*	8		S-2.0			-07			0.365	
*	9		ICV			-08			0.182	1.01
*	10		ICB			-09			0.000	ND
*	11		KN6010WB			-10			0.000	ND
*	12		WC			-11			0.185	1.027
*	13		WC			-12			0.187	1.038 ✓
*	14		G145-0.1			-13			0.012	ND
*	15		-0.1D			-14			0.012	ND
*	16		-0.1M			-15			0.197	1.093 ✓
*	17		-0.2			-16			0.080	0.444 ✓
*	18		-0.3			-17			0.094	0.522 ✓
*	19		-0.4			-18			0.060	0.333 ✓
*	20		-0.5			-19			0.092	0.511 ✓
*	21		CCV1			-20			0.184	1.021
*	22		CCB1			-21			0.000	ND
*	23		G145-0.6			-22			0.142	0.788 ✓
*	24		-0.7			-23			0.096	0.533 ✓
*	25		-0.8			-24			0.110	0.611 ✓
*	26		-0.9			-25			0.068	0.377 ✓
*	27		-1.0			-26			0.070	0.389 ✓
*	28		G183-0.1			-27			0.084	0.473
*	29		-0.2		✓	-28	↓	✓	0.002	ND
*	30	↓	-0.3		✓	-29	20	1	0.004	ND

Instrument No: 70		Wavelength: 425 nm
Standard	**ID**	**Conc. (mg/L)**
S_0	nano pure	0.0
S_1	SW2B-03-152	0.1
S_2		0.2
S_3		0.5
S_4		0.8
S_5		1.0
S_6		1.6
S_7	SW2B-03-152	2.0
ICV/MS	-151	1.0
CCV	-152	1.0
LCS	-178	1.0
Reagent	**ID**	
Color Reagent	SW7A-06-141	
Standard Curve		
R^2	0.9995	
Y	0.1802	
CF	5.5505	

Comments:

Results are based on: ☐ Dry Weight ☐ Wet Weight

Analyzed By: RM /12

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8077

ANALYSIS LOG FOR TOTAL KJELDAHL NITROGEN (TKN)

SOP ☑ EMAX-351.3 Rev. No. 1 ☐ Start Date: 7-31-05 Time: 11:00 End Date: 7-31-05 Time: 11:49 Book # A70-KN-004

ANALYTICAL BATCH * KN601W

Data File Name	Prep. Batch	Lab Sample ID	Matrix S	Matrix W	Time	Vol.Colored (ml)	DF	Absorbance	Notes mg/L
1	KN601W	G183-04		✓	11:30	20	1	0.012	ND
* 2		-05			-31			0.044	0.244
* 3		CCV2			-32			0.185	1.016
* 4		CCB2			-33			0.000	ND
* 5		G183-06			-34			0.008	ND
* 6		-07			-35			0.010	ND
* 7		KN601WB			-36			0.000	ND
* 8		WL			-37			0.186	.092
* 9		G190-01			-38			0.020	0.147
10		-01D			-39			0.028	0.155
* 1		-01M			-40			0.220	1.221
* 2		-02			-41			0.022	0.122
* 3		-03			-42			0.090	0.500
* 4		-04			-43			0.044	0.244
* 5		CCV3			-44			0.184	1.021
* 6		CCB3			-45			0.000	ND
* 7		G190-05			-46			0.072	0.400
* 8		-06			-47			0.064	0.355
* 9		CCV4		✓	-48	✓	✓	0.183	1.016
50	✓	CCB4		✓	-49	20	1	0.000	ND
* 1									
* 2									
* 3									
* 4									
* 5									
* 6									
* 7									
* 8									
* 9									
* 0									

Instrument No: 70 | **Wavelength: 425 nm**

Standard	ID	Conc. (mg/L)
S_0	Same as pg. 84	0.0
S_1		0.1
S_2		0.2
S_3		0.5
S_4		0.8
S_5		1.0
S_6		1.6
S_7		2.0
ICV/MS		1.0
CCV		1.0
LCS	✓	1.0

Reagent	ID
Color Reagent	SW7A-06-141

Standard Curve

R^2	0.9995
Y	0.1802
CF	5.5505

Comments:

Results are based on: ☐ Dry Weight ☐ Wet Weight

Analyzed By: PM LA

This page is checked during data review.

EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

DISTILLATION LOG FOR NH_3 / DIGESTION AND DISTILLATION FOR TKN

SOP ☐ EMAX-350.2 Rev. No.: 2 ☒ EMAX-351.3 Rev. No.: 2 ☐ Book # EKN-006

Start Date 7-30-05 Time 10:30 End Date 7-30-05 Time 15:30

PREPARATION BATCH KNG0006

Sample Prep ID	Lab Sample ID	Sample pH	NaOH Added (ml)	Boric Acid (ml)	Borate Buffer (ml)	Sample Amount (ml)	Extract Volume (ml)	Notes
*01	S-0.0	9.5	10	5	4	50	50	
*02	S-0.1							
*03	S-1.0							
*04	S-2.0							
*05	ICV							
*06	ICB							
*07	KNG0006B							
*08	WC							
*09	WC							
*10	G145-01							
*11	-02							
*12	-03							
*13	-04							
*14	-05							
*15	-06							
*16	-07							
*17	-08							
*18	-09							
*19	-10							
*20	G183-01							
*21	-02							
*22	-03							
*23	-04							
*24	-05							
*25	-06							
*26	-07							

Standards	ID	Amount Added (ml)
ICV/MS	SW2B-03-151	5 ml of 10 ppm
LCS	-178	50 ml

Reagent	Lot# / ID
NaOH	NA
Digestion Mixture	SW7A-06-204
Borate Buffer	-152
H_3BO_3	SW7B-06-322
Distilling Soln.	-315B

Comments:

Prepared By: RM

Standard Added By: RM

Checked By:

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

DISTILLATION LOG FOR NH_3 / DIGESTION AND DISTILLATION FOR TKN

SOP ☐ EMAX-350.2 Rev. No.: 2 ☑ EMAX-351.3 Rev. No.: 2 ☐ Book # EKN-006

Start Date 7-20-05 Time 10:20 End Date 7-20-05 Time 15:20

PREPARATION BATCH # KNG010

Sample Prep ID	Lab Sample ID	Sample pH	NaOH Added (ml)	Boric Acid (ml)	Borate Buffer (ml)	Sample Amount (ml)	Extract Volume (ml)	Notes
*01 27	G145-01D	9.5	10	5	4	20	50	
*02 28	-01M							
*03 29	G190-01							
*04 30	-02							
*05 31	-03							
*06 32	-04							
*07 33	-05							
*08 34	-06							
*09 35	KNG011 WB							
*10	WL	9.5						
*11								
*12								
*13								
*14								
*15								
*16								
*17								
*18								
*19								
*20								
*21								
*22								
*23								
*24								
*25								
*26								

Standards	ID	Amount Added (ml)
ICV/MS	Same as pg. 4	
LCS		

Reagent	Lot# / ID
NaOH	Same as pg. 4
Digestion Mixture	
Borate Buffer	
H_3BO_3	
Distilling Soln.	

Comments:

Prepared By: RM

Standard Added By: RM

Checked By:

8-01-05

EMAX LABORATORIES, INC. 1835 W 205th St. Torrance, CA 90501

80080

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G145**

METHOD 160.1
TOTAL DISSOLVED SOLIDS

Ten (10) water samples were received on 07/20/05 for Total Dissolved Solids analysis by Method 160.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Sample G145-10 was analyzed for duplicate. %RPD was within QC limit.

5. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 160.1
TOTAL DISSOLVED SOLIDS

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G145

Matrix : WATER
Instrument ID : NA

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TDG020WB	ND	1	NA	10	5	07/21/0513:00	NA	TDG020W-01	NA	TDG020W	NA	NA
LCS1W	TDG020WL	164	1	NA	10	5	07/21/0513:01	NA	TDG020W-02	NA	TDG020W	NA	NA
LCD1W	TDG020WC	162	1	NA	10	5	07/21/0513:02	NA	TDG020W-03	NA	TDG020W	NA	NA
MW-25-5	G145-01	264	1	NA	10	5	07/21/0513:04	NA	TDG020W-05	NA	TDG020W	07/19/05	07/20/05
MW-25-4	G145-02	420	1	NA	10	5	07/21/0513:05	NA	TDG020W-06	NA	TDG020W	07/19/05	07/20/05
MW-25-3	G145-03	414	1	NA	10	5	07/21/0513:06	NA	TDG020W-07	NA	TDG020W	07/19/05	07/20/05
MW-25-2	G145-04	324	1	NA	10	5	07/21/0513:07	NA	TDG020W-08	NA	TDG020W	07/19/05	07/20/05
MW-25-1	G145-05	610	1	NA	10	5	07/21/0513:08	NA	TDG020W-09	NA	TDG020W	07/19/05	07/20/05
MW-19-5	G145-06	504	1	NA	10	5	07/21/0513:09	NA	TDG020W-10	NA	TDG020W	07/20/05	07/20/05
MW-19-4	G145-07	494	1	NA	10	5	07/21/0513:10	NA	TDG020W-11	NA	TDG020W	07/20/05	07/20/05
DUPE-1-7/20/05	G145-08	450	1	NA	10	5	07/21/0513:11	NA	TDG020W-12	NA	TDG020W	07/20/05	07/20/05
MW-19-3	G145-09	426	1	NA	10	5	07/21/0513:12	NA	TDG020W-13	NA	TDG020W	07/20/05	07/20/05
MW-19-2	G145-10	736	1	NA	10	5	07/21/0513:13	NA	TDG020W-14	NA	TDG020W	07/20/05	07/20/05
MW-19-2DUP	G145-10D	736	1	NA	10	5	07/21/0513:14	NA	TDG020W-15	NA	TDG020W	07/20/05	07/20/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 160.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G145
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: TDG020WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 07/21/05 13:01/13:02

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
TDS	ND	162.00	164.00	101	162.00	162.00	100	1	80-120	20

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
METHOD: METHOD 160.1
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 05G145
SAMPLE ID: MW-19-2DUP
CONTROL NO.: G145-10D

DATE RECEIVED: 07/20/05
DATE EXTRACTED: NA
DATE ANALYZED: 07/21/05 13:14

ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
TDS	736.00	736.00	0	20

GRAVIMETRIC ANALYSIS LOG

SOP ☑ EMAX-160.1 Rev. No. 3 ☐ EMAX-160.2 Rev. No. 2 ☐ EMAX-160.3 Rev. No. 1 ☐ EMAX-160.4 Rev. No. 0 ☐ EMAX-160.5 Rev. No. 0

Book # AGV-017

Oven/Furnace Temp. 105° C Starting Date 7/20/05 Time 1930 Ending Date 9/21/05 Time 1230

Comments: 180° C

LCS ID SW7A-06-133

LCSTV 162 mg/L

Balance:

I60-40706360

I -37030058

ANALYTICAL BATCH # SS TD G0204 S VS

	Data File Name	Lab Sample ID	Sample Amt. (ml)	Dish Wt. (g)	Dry Wt. Dish + Solids(g) 1st	Time	2nd	Time	3rd	Time	Solids (mg)	Result (mg/L)	Settleable Solids Vol. of SS	Result (ml/L)
1		TDG0204WB	100	65.2178	65.2180	0900	65.2175	1100	65.2177	1300	-0.1	ND		
2		WL	50	60.5543	60.5631	01	60.5625	01	60.5625	01	8.2	164		
3		WC	50	61.2849	61.2933	02	61.2928	02	61.2930	02	8.1	162		
4		G829-02	50	52.9003	52.9262	03	52.9256	03	52.9255	03	25.2	504		
5		G145-01	50	48.9452	48.9589	04	48.9585	04	48.9589	04	13.2	264	✓	
6		-02	50	60.9590	60.9808	05	60.9803	05	60.9800	05	21.0	420	✓	
7		03	50	56.9048	56.9261	06	56.9254	06	56.9255	06	20.7	414	✓	
8		-04	50	66.9237	66.9408	07	66.9398	07	66.9399	07	16.2	324	✓	
9		-05	50	72.9828	73.0137	08	73.0132	08	73.0133	08	30.5	610		
10		-06	50	52.8389	52.8649	09	52.8640	09	52.8641	09	25.2	504		
11		-07	50	67.9397	67.9648	10	67.9642	10	67.9644	10	24.7	494		
12		-08	50	52.9961	53.0195	11	53.0188	11	53.0186	11	22.5	450		
13		-09	50	55.9035	55.9255	12	55.9250	12	55.9248	12	21.3	426		
14		-10	50	63.9891	64.0266	13	64.0260	13	64.0259	13	36.8	736		
15		-10D	50	62.8726	62.9099	14	62.9093	14	62.9094	14	36.8	736		
16														
17														
18														
19														
20														

Analyzed By: DMVS/AC

This page is checked during the data review process.

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G145**

METHOD 415.1
DOC

Ten (10) water samples were received on 07/20/05 for DOC analysis by Method 415.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Sample G145-10 was analyzed for duplicate. %RPD was within QC limit.

5. Matrix Spike

Sample G145-10 was spiked. Recovery was within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 415.1
DOC

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G145

Matrix : WATER
Instrument ID : 62

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TCG021WB	ND	1	NA	1	.5	07/31/0521:08	NA	TCG021-5	TCG021-2	TCG021W	NA	NA
LCS1W	TCG021WL	24.8	1	NA	1	.5	07/31/0521:18	NA	TCG021-6	TCG021-2	TCG021W	NA	NA
LCD1W	TCG021WC	25	1	NA	1	.5	07/31/0521:28	NA	TCG021-7	TCG021-2	TCG021W	NA	NA
MW-25-5	G145-01	2.82	1	NA	1	.5	07/31/0521:38	NA	TCG021-8	TCG021-2	TCG021W	07/19/05	07/20/05
MW-25-4	G145-02	6.45	1	NA	1	.5	07/31/0521:47	NA	TCG021-9	TCG021-2	TCG021W	07/19/05	07/20/05
MW-25-3	G145-03	2.92	1	NA	1	.5	07/31/0521:56	NA	TCG021-10	TCG021-2	TCG021W	07/19/05	07/20/05
MW-25-2	G145-04	3.16	1	NA	1	.5	07/31/0522:05	NA	TCG021-11	TCG021-2	TCG021W	07/19/05	07/20/05
MW-25-1	G145-05	12.1	1	NA	1	.5	07/31/0522:15	NA	TCG021-12	TCG021-2	TCG021W	07/19/05	07/20/05
MW-19-5	G145-06	5.11	1	NA	1	.5	07/31/0522:24	NA	TCG021-13	TCG021-2	TCG021W	07/20/05	07/20/05
MW-19-4	G145-07	1.79	1	NA	1	.5	07/31/0522:53	NA	TCG021-16	TCG021-14	TCG021W	07/20/05	07/20/05
DUPE-1-7/20/05	G145-08	1.84	1	NA	1	.5	07/31/0523:02	NA	TCG021-17	TCG021-14	TCG021W	07/20/05	07/20/05
MW-19-3	G145-09	8.6	1	NA	1	.5	07/31/0523:12	NA	TCG021-18	TCG021-14	TCG021W	07/20/05	07/20/05
MW-19-2	G145-10	8.07	1	NA	1	.5	07/31/0523:21	NA	TCG021-19	TCG021-14	TCG021W	07/20/05	07/20/05
MW-19-2DUP	G145-10D	7.92	1	NA	1	.5	07/31/0523:31	NA	TCG021-20	TCG021-14	TCG021W	07/20/05	07/20/05
MW-19-2MS	G145-10M	32.1	1	NA	1	.5	07/31/0523:41	NA	TCG021-21	TCG021-14	TCG021W	07/20/05	07/20/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G145
METHOD: METHOD 415.1

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	TCG021WB	TCG021WL	TCG021WC		
LAB FILE ID:	TCG021-5	TCG021-6	TCG021-7		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	07/31/0521:08	07/31/0521:18	07/31/0521:28	DATE RECEIVED:	NA
PREP. BATCH:	TCG021W	TCG021W	TCG021W		
CALIB. REF:	TCG021-2	TCG021-2	TCG021-2		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
DOC	ND	25	24.8	99	25	25	100	1	80-120	20

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G145
METHOD: METHOD 415.1

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MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-19-2			
LAB SAMP ID:	G145-10	G145-10M		
LAB FILE ID:	TCG021-19	TCG021-21		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/20/05
DATE ANALYZED:	07/31/0523:21	07/31/0523:41	DATE RECEIVED:	07/20/05
PREP. BATCH:	TCG021W	TCG021W		
CALIB. REF:	TCG021-14	TCG021-14		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
DOC	8.07	25	32.1	96	75-125

6808

EMAX QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G145
METHOD: METHOD 415.1

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-19-2	MW-19-2DUP		
EMAX SAMP ID:	G145-10	G145-10D		
LAB FILE ID:	TCG021-19	TCG021-20		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/20/05
DATE ANALYZED:	07/31/0523:21	07/31/0523:31	DATE RECEIVED:	07/20/05
PREP. BATCH:	TCG021W	TCG021W		
CALIB. REF:	TCG021-14	TCG021-14		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	DUPL RSLT (mg/L)	RPD RSLT %	QC LIMIT (%)
DOC	8.07	7.92	2	20

0690

CASE NARRATIVE

CLIENT: **BATTELLE MEMORIAL INSTITUTE**

PROJECT: **JPL**

SDG: **05G145**

METHOD 415.1
TOC

Ten (10) water samples were received on 07/20/05 for TOC analysis by Method 415.1 in accordance with "Method for Chemical Analysis of Water and Wastewater", EPA 600/4-79-020 (1983).

1. **Holding Time**

   Analysis met holding time criteria.

2. **Method Blank**

   Method blank was free of contamination at the reporting limit.

3. **Lab Control Sample/Lab Control Sample Duplicate**

   Lab control results were within QC limit.

4. **Duplicate**

   Sample G145-10 was analyzed for duplicate. %RPD was within QC limit.

5. **Matrix Spike**

   Sample G145-10 was spiked. Recovery was within QC limit.

6. **Sample Analysis**

   Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 415.1
TOC

Client : BATTELLE MEMORIAL INSTITUTE
Project : JPL
Batch No. : 05G145

Matrix : WATER
Instrument ID : 62

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	TCG022WB	ND	1	NA	1	.5	08/01/0501:20	NA	TCG021-31	TCG021-26	TCG022W	NA	NA
LCS1W	TCG022WL	24.5	1	NA	1	.5	08/01/0501:30	NA	TCG021-32	TCG021-26	TCG022W	NA	NA
LCD1W	TCG022WC	24.6	1	NA	1	.5	08/01/0501:41	NA	TCG021-33	TCG021-26	TCG022W	NA	NA
MW-25-5	G145-01	1.22	1	NA	1	.5	08/01/0501:50	NA	TCG021-34	TCG021-26	TCG022W	07/19/05	07/20/05
MW-25-4	G145-02	1.29	1	NA	1	.5	08/01/0501:59	NA	TCG021-35	TCG021-26	TCG022W	07/19/05	07/20/05
MW-25-3	G145-03	1.35	1	NA	1	.5	08/01/0502:08	NA	TCG021-36	TCG021-26	TCG022W	07/19/05	07/20/05
MW-25-2	G145-04	1.49	1	NA	1	.5	08/01/0502:17	NA	TCG021-37	TCG021-26	TCG022W	07/19/05	07/20/05
MW-25-1	G145-05	1.69	1	NA	1	.5	08/01/0502:47	NA	TCG021-40	TCG021-38	TCG022W	07/19/05	07/20/05
MW-19-5	G145-06	1.48	1	NA	1	.5	08/01/0502:56	NA	TCG021-41	TCG021-38	TCG022W	07/20/05	07/20/05
MW-19-4	G145-07	1.34	1	NA	1	.5	08/01/0503:06	NA	TCG021-42	TCG021-38	TCG022W	07/20/05	07/20/05
DUPE-1-7/20/05	G145-08	1.62	1	NA	1	.5	08/01/0503:15	NA	TCG021-43	TCG021-38	TCG022W	07/20/05	07/20/05
MW-19-3	G145-09	1.3	1	NA	1	.5	08/01/0503:24	NA	TCG021-44	TCG021-38	TCG022W	07/20/05	07/20/05
MW-19-2	G145-10	1.78	1	NA	1	.5	08/01/0503:33	NA	TCG021-45	TCG021-38	TCG022W	07/20/05	07/20/05
MW-19-2DUP	G145-10D	1.78	1	NA	1	.5	08/01/0503:42	NA	TCG021-46	TCG021-38	TCG022W	07/20/05	07/20/05
MW-19-2MS	G145-10M	25.6	1	NA	1	.5	08/01/0503:52	NA	TCG021-47	TCG021-38	TCG022W	07/20/05	07/20/05

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G145
METHOD: METHOD 415.1

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	TCG022WB	TCG022WL	TCG022WC		
LAB FILE ID:	TCG021-31	TCG021-32	TCG021-33		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	08/01/0501:20	08/01/0501:30	08/01/0501:41	DATE RECEIVED:	NA
PREP. BATCH:	TCG022W	TCG022W	TCG022W		
CALIB. REF:	TCG021-26	TCG021-26	TCG021-26		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
TOC	ND	25	24.5	98	25	24.6	98	0	80-120	20

80093

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G145
METHOD: METHOD 415.1

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MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-19-2			
LAB SAMP ID:	G145-10	G145-10M		
LAB FILE ID:	TCG021-45	TCG021-47		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/20/05
DATE ANALYZED:	08/01/0503:33	08/01/0503:52	DATE RECEIVED:	07/20/05
PREP. BATCH:	TCG022W	TCG022W		
CALIB. REF:	TCG021-38	TCG021-38		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
TOC	1.78	25	25.6	95	75-125

8094

EMAX QUALITY CONTROL DATA
DUPLICATE SAMPLE ANALYSIS

CLIENT: BATTELLE MEMORIAL INSTITUTE
PROJECT: JPL
BATCH NO.: 05G145
METHOD: METHOD 415.1

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-19-2	MW-19-2DUP		
EMAX SAMP ID:	G145-10	G145-10D		
LAB FILE ID:	TCG021-45	TCG021-46		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	07/20/05
DATE ANALYZED:	08/01/0503:33	08/01/0503:42	DATE RECEIVED:	07/20/05
PREP. BATCH:	TCG022W	TCG022W		
CALIB. REF:	TCG021-38	TCG021-38		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	DUPL RSLT (mg/L)	RPD RSLT %	QC LIMIT (%)
TOC	1.78	1.78	0	20

8095

Instr.Information

System	toc
Detector	Combustion
Catalyst	Regular Sensitivity
Cell Length	long

Cal. Curve

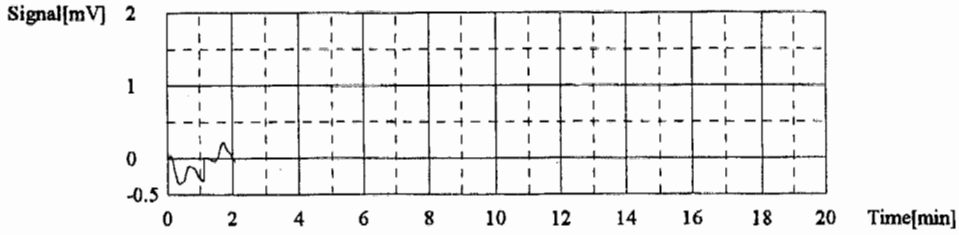
Sample Name:	ICAL
Sample ID:	TCG021-1
Cal. Curve:	TCG021.2005_07_31_19_35_03.cal

Type	Anal.
Standard	NPOC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	0.3965	50uL	1	*******		07/31/05 07:42:25 PM
2	0.4240	50uL	1	*******		07/31/05 07:43:33 PM

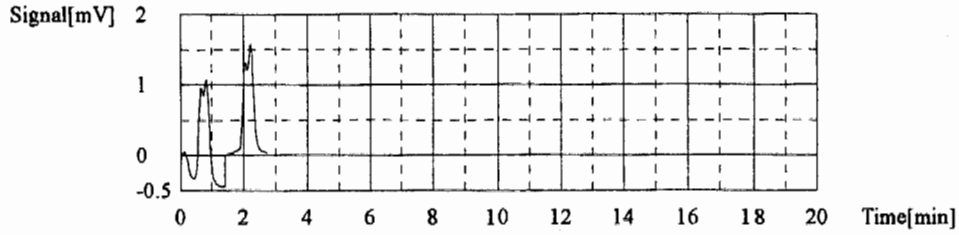
Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	0.4103



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	3.052	50uL	10	*******		07/31/05 07:52:09 PM
2	3.177	50uL	10	*******		07/31/05 07:53:38 PM

Acid Add.	2.500%
Sp. Time	90.00sec
Mean Area	3.115

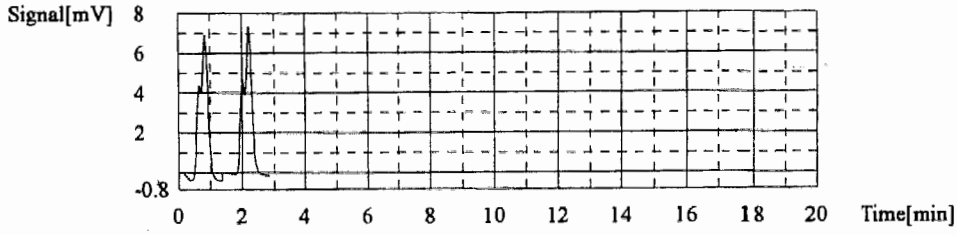


Conc: 5.000mg/L

8096

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	13.65	50uL	2	*******		07/31/05 08:00:18 PM
2	14.30	50uL	2	*******		07/31/05 08:01:56 PM

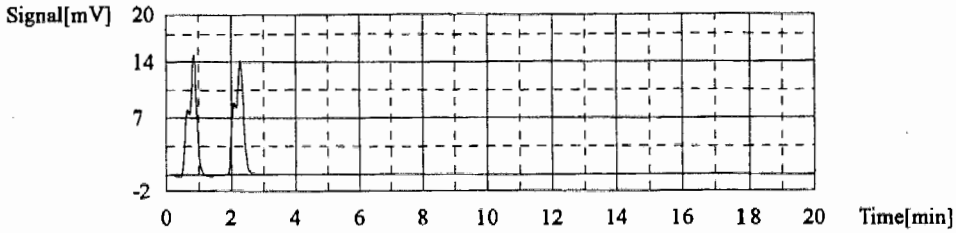
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 13.98



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	27.15	50uL	1	*******		07/31/05 08:07:58 PM
2	27.91	50uL	1	*******		07/31/05 08:09:40 PM

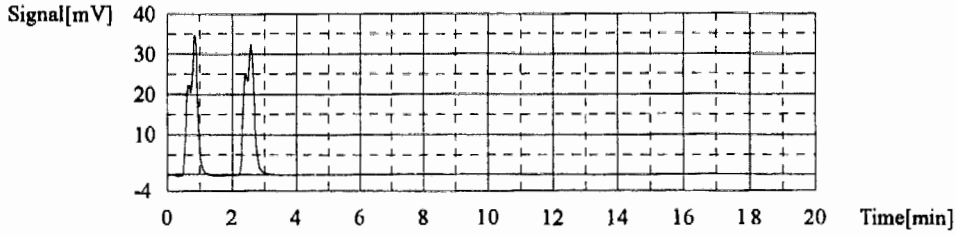
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 27.53



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	66.75	50uL	2	*******		07/31/05 08:18:39 PM
2	68.02	50uL	2	*******		07/31/05 08:20:34 PM

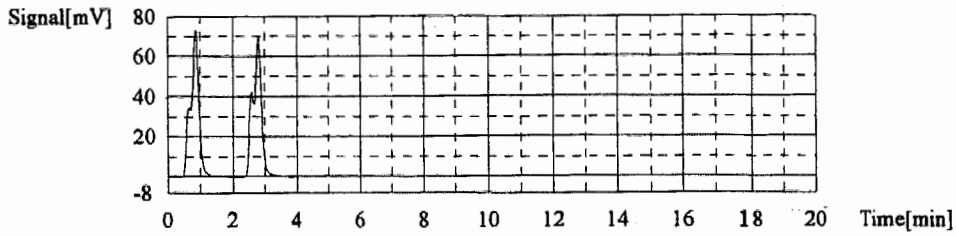
Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 67.39



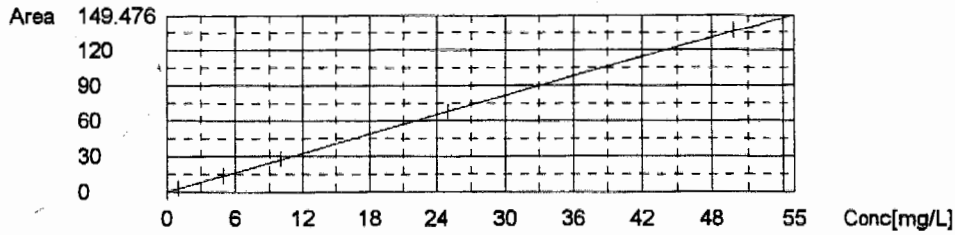
Conc: 50.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	135.2	50uL	1	*******		07/31/05 08:27:05 PM
2	137.9	50uL	1	*******		07/31/05 08:29:10 PM

Acid Add. 2.500%
Sp. Time 90.00sec
Mean Area 136.6



Slope: 2.718
Intercept 0.000
r^2 0.999935



Control Sample

Sample Name: ICV
Sample ID: TCG021-2
Method: TCG021.tpl
Chk. Result Control value: 0.09% / Control within range!

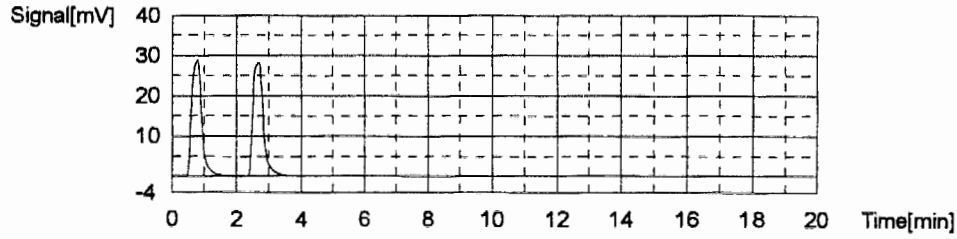
Type	Anal.	Dil.	Result
Control	NPOC	1.000	NPOC:24.08 mg/L

1. Det.

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	65.42	24.07mg/L	50uL	1		TCG021.2005_07_31_19_35_03.cal	07/31/05 08:37:50 PM
2	65.48	24.09mg/L	50uL	1		TCG021.2005_07_31_19_35_03.cal	07/31/05 08:39:52 PM

Mean Area 65.45
Mean Conc. 24.08mg/L



Sample

8098

Sample Name: ICB
Sample ID: TCG021-3
Origin: TCG021.met
Chk. Result

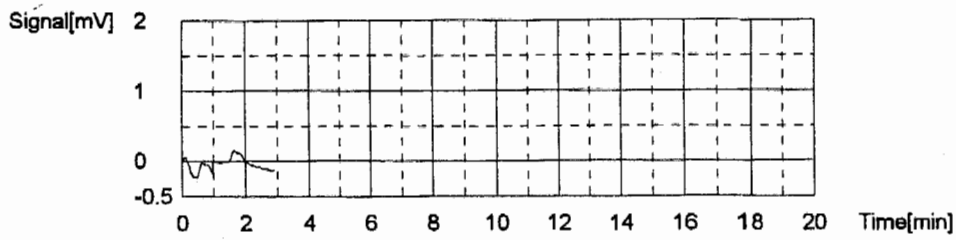
Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.06296 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.3422	0.1259mg/L	50uL	1		TCG021.2005_07_31_19_35_03.cal	07/31/05 08:47:23 PM
2	0.000	0.000mg/L	50uL	1		TCG021.2005_07_31_19_35_03.cal	07/31/05 08:49:27 PM

Mean Area 0.1711
Mean Conc. 0.06296mg/L



Sample

Sample Name: HCO3/CO3
Sample ID: TCG021-4
Origin: TCG021.met
Chk. Result

Type	Anal.	Dil.	Result
Unknown	NPOC	1.000	NPOC:0.5766 mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.591	0.5854mg/L	50uL	1		TCG021.2005_07_31_19_35_03.cal	07/31/05 08:57:07 PM
2	1.543	0.5677mg/L	50uL	1		TCG021.2005_07_31_19_35_03.cal	07/31/05 08:58:28 PM

ANALYSIS RUN LOG FOR TOC

SOP: o EMAX-9060 **Revision No.** 1 o ✓ EMAX-415.1 **Revision No.** 1 o **Book #** A62-006

Start Date: 7/31/05 **Time:** 19:42 **EndingDate:** 8/01/05 **Time:** 05:36

Sample Prep. ID	Data File Name	Lab Sample ID	DF	Matrix S	Matrix W	Run Time	Notes
* 1	TC6021						
* 2							
* 3							
* 4							
* 5							
* 6							
* 7							
* 8							
* 9							
* 0							
* 1							
* 2							
* 3							
* 4							
* 5							
* 6							
* 7							
* 8							
* 9							
* 0							
* 1							
* 2							
* 3							
* 4							
* 5							
* 6							
* 7							
* 8							
* 9							
* 0							

SEE ATTACHED INSTRUMENT SEQ.
7/31/05

ANALYTICAL BATCH * TC6021 ** TC6022

Instrument No.	62
INITIAL CALIBRATION REFERENCE	
Method File	TC6021
ICAL ID	SW10B-01-605
ICV ID	↓ -606

STANDARDS

ICAL Level		Conc.(mg/L)
S_0	Nanopure	0
S_1	SW10B-01-605	1
S_2	↓	5
S_3		10
S_4		25
S_5		50
S_6		7/31/05
ICV/LCS	SW10B-01-606	25
CCV	↓ 607	25

Comments:

Analyzed By: ✓

This page is checked during data review

EMAX LABORATORIES, INC. 1835 W. 205th St. Torrance, CA 90501

8100

	Type	Analysis	Sample Name	Sample ID	Object	Origin	Dilution	Result	Notes	Comment
1	Standard	NPOC	ICAL	TCG021-1	0A-12	C:\Progra	1.000			
2	Control	NPOC	ICV	TCG021-2	0A-12	C:\Progra	1.000			
3	Unknown	NPOC	ICB	TCG021-3	0A-12	C:\Progra	1.000			
4	Unknown	NPOC	HCO3/CO3	TCG021-4	0A-12	C:\Progra	1.000			
5	Unknown	NPOC	TCG021WB	TCG021-5	0A-12	C:\Progra	1.000			
6	Unknown	NPOC	TCG021WL	TCG021-6	0A-12	C:\Progra	1.000			
7	Unknown	NPOC	TCG021WC	TCG021-7	0A-12	C:\Progra	1.000			
8	Unknown	NPOC	05G145-01	TCG021-8	0A-12	C:\Progra	1.000			DOC
9	Unknown	NPOC	05G145-02	TCG021-9	0A-12	C:\Progra	1.000			DOC
10	Unknown	NPOC	05G145-03	TCG021-10	0A-12	C:\Progra	1.000			DOC
11	Unknown	NPOC	05G145-04	TCG021-11	0A-12	C:\Progra	1.000			DOC
12	Unknown	NPOC	05G145-05	TCG021-12	0A-12	C:\Progra	1.000			DOC
13	Unknown	NPOC	05G145-06	TCG021-13	0A-12	C:\Progra	1.000			DOC
14	Control	NPOC	CCV1	TCG021-14	0A-12	C:\Progra	1.000			
15	Unknown	NPOC	CCB1	TCG021-15	0A-12	C:\Progra	1.000			
16	Unknown	NPOC	05G145-07	TCG021-16	0A-12	C:\Progra	1.000			DOC
17	Unknown	NPOC	05G145-08	TCG021-17	0A-12	C:\Progra	1.000			DOC
18	Unknown	NPOC	05G145-09	TCG021-18	0A-12	C:\Progra	1.000			DOC
19	Unknown	NPOC	05G145-10	TCG021-19	0A-12	C:\Progra	1.000			DOC
20	Unknown	NPOC	05G145-10D	TCG021-20	0A-12	C:\Progra	1.000			DOC
21	Unknown	NPOC	05G145-10M	TCG021-21	0A-12	C:\Progra	1.000			DOC
22	Unknown	NPOC	05G183-01	TCG021-22	0A-12	C:\Progra	1.000			DOC
23	Unknown	NPOC	05G183-02	TCG021-23	0A-12	C:\Progra	1.000			DOC
24	Unknown	NPOC	05G183-03	TCG021-24	0A-12	C:\Progra	1.000			DOC
25	Unknown	NPOC	05G183-04	TCG021-25	0A-12	C:\Progra	1.000			DOC
26	Control	NPOC	CCV2	TCG021-26	0A-12	C:\Progra	1.000			
27	Unknown	NPOC	CCB2	TCG021-27	0A-12	C:\Progra	1.000			
28	Unknown	NPOC	05G183-05	TCG021-28	0A-12	C:\Progra	1.000			DOC
29	Unknown	NPOC	05G183-06	TCG021-29	0A-12	C:\Progra	1.000			DOC
30	Unknown	NPOC	05G183-07	TCG021-30	0A-12	C:\Progra	1.000			DOC
31	Unknown	NPOC	TCG022WB	TGC021-31	0A-12	C:\Progra	1.000			
32	Unknown	NPOC	TCG022WL	TCG021-32	0A-12	C:\Progra	1.000			
33	Unknown	NPOC	TCG022WC	TCG021-33	0A-12	C:\Progra	1.000			
34	Unknown	NPOC	05G145-01	TCG021-34	0A-12	C:\Progra	1.000			
35	Unknown	NPOC	05G145-02	TCG021-35	0A-12	C:\Progra	1.000			
36	Unknown	NPOC	05G145-03	TCG021-36	0A-12	C:\Progra	1.000			
37	Unknown	NPOC	05G145-04	TCG021-37	0A-12	C:\Progra	1.000			
38	Control	NPOC	CCV3	TCG021-38	0A-12	C:\Progra	1.000			
39	Unknown	NPOC	CCB3	TCG021-39	0A-12	C:\Progra	1.000			
40	Unknown	NPOC	05G145-05	TCG021-40	0A-12	C:\Progra	1.000			
41	Unknown	NPOC	05G145-06	TCG021-41	0A-12	C:\Progra	1.000			
42	Unknown	NPOC	05G145-07	TCG021-42	0A-12	C:\Progra	1.000			
43	Unknown	NPOC	05G145-08	TCG021-43	0A-12	C:\Progra	1.000			
44	Unknown	NPOC	05G145-09	TCG021-44	0A-12	C:\Progra	1.000			
45	Unknown	NPOC	05G145-10	TCG021-45	0A-12	C:\Progra	1.000			
46	Unknown	NPOC	05G145-10D	TCG021-46	0A-12	C:\Progra	1.000			
47	Unknown	NPOC	05G145-10M	TCG021-47	0A-12	C:\Progra	1.000			
48	Unknown	NPOC	05G183-01	TCG021-48	0A-12	C:\Progra	1.000			
49	Unknown	NPOC	05G183-02	TCG021-49	0A-12	C:\Progra	1.000			
50	Control	NPOC	CCV4	TCG021-50	0A-12	C:\Progra	1.000			
51	Unknown	NPOC	CCB4	TCG021-51	0A-12	C:\Progra	1.000			
52	Unknown	NPOC	05G183-03	TCG021-52	0A-12	C:\Progra	1.000			
53	Unknown	NPOC	05G183-04	TCG021-53	0A-12	C:\Progra	1.000			
54	Unknown	NPOC	05G183-05	TCG021-54	0A-12	C:\Progra	1.000			
55	Unknown	NPOC	05G183-06	TCG021-55	0A-12	C:\Progra	1.000			
56	Unknown	NPOC	05G183-07	TCG021-56	0A-12	C:\Progra	1.000			
57	Control	NPOC	CCV5	TCG021-57	0A-12	C:\Progra	1.000			
58	Unknown	NPOC	CCB5	TCG021-58	0A-12	C:\Progra	1.000			
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	Type	Analysis	Sample Name	Sample ID	Object	Origin	Dilution	Result	Notes	Comment
1	Standard	NPOC	ICAL	TCG021-1	0A-12	C:\Progra	1.000			
2	Control	NPOC	ICV	TCG021-2	0A-12	C:\Progra	1.000	NPOC:24.08 m	Control valu	
3	Unknown	NPOC	ICB	TCG021-3	0A-12	C:\Progra	1.000	NPOC:0.06296		
4	Unknown	NPOC	HCO3/CO3	TCG021-4	0A-12	C:\Progra	1.000	NPOC:0.5766		
5	Unknown	NPOC	TCG021WB	TCG021-5	0A-12	C:\Progra	1.000	NPOC:0.000 m	X	
6	Unknown	NPOC	TCG021WL	TCG021-6	0A-12	C:\Progra	1.000	NPOC:24.84 m	X	
7	Unknown	NPOC	TCG021WC	TCG021-7	0A-12	C:\Progra	1.000	NPOC:25.03 m	X	
8	Unknown	NPOC	05G145-01	TCG021-8	0A-12	C:\Progra	1.000	NPOC:2.822 m	X	DOC
9	Unknown	NPOC	05G145-02	TCG021-9	0A-12	C:\Progra	1.000	NPOC:6.448 m	X	DOC
10	Unknown	NPOC	05G145-03	TCG021-10	0A-12	C:\Progra	1.000	NPOC:2.921 m	X	DOC
11	Unknown	NPOC	05G145-04	TCG021-11	0A-12	C:\Progra	1.000	NPOC:3.161 m	X	DOC
12	Unknown	NPOC	05G145-05	TCG021-12	0A-12	C:\Progra	1.000	NPOC:12.06 m	X	DOC
13	Unknown	NPOC	05G145-06	TCG021-13	0A-12	C:\Progra	1.000	NPOC:5.107 m	X	DOC
14	Control	NPOC	CCV1	TCG021-14	0A-12	C:\Progra	1.000	NPOC:24.81 m	Control valu	
15	Unknown	NPOC	CCB1	TCG021-15	0A-12	C:\Progra	1.000	NPOC:0.06106	X	
16	Unknown	NPOC	05G145-07	TCG021-16	0A-12	C:\Progra	1.000	NPOC:1.793 m	X	DOC
17	Unknown	NPOC	05G145-08	TCG021-17	0A-12	C:\Progra	1.000	NPOC:1.842 m	X	DOC
18	Unknown	NPOC	05G145-09	TCG021-18	0A-12	C:\Progra	1.000	NPOC:8.597 m	X	DOC
19	Unknown	NPOC	05G145-10	TCG021-19	0A-12	C:\Progra	1.000	NPOC:8.069 m	X	DOC
20	Unknown	NPOC	05G145-10D	TCG021-20	0A-12	C:\Progra	1.000	NPOC:7.922 m	X	DOC
21	Unknown	NPOC	05G145-10M	TCG021-21	0A-12	C:\Progra	1.000	NPOC:32.14 m		DOC
22	Unknown	NPOC	05G183-01	TCG021-22	0A-12	C:\Progra	1.000	NPOC:8.667 m		DOC
23	Unknown	NPOC	05G183-02	TCG021-23	0A-12	C:\Progra	1.000	NPOC:2.531 m		DOC
24	Unknown	NPOC	05G183-03	TCG021-24	0A-12	C:\Progra	1.000	NPOC:7.289 m		DOC
25	Unknown	NPOC	05G183-04	TCG021-25	0A-12	C:\Progra	1.000	NPOC:6.715 m		DOC
26	Control	NPOC	CCV2	TCG021-26	0A-12	C:\Progra	1.000	NPOC:24.60 m	Control valu	
27	Unknown	NPOC	CCB2	TCG021-27	0A-12	C:\Progra	1.000	NPOC:0.000 m		
28	Unknown	NPOC	05G183-05	TCG021-28	0A-12	C:\Progra	1.000	NPOC:7.824 m		DOC
29	Unknown	NPOC	05G183-06	TCG021-29	0A-12	C:\Progra	1.000	NPOC:7.021 m		DOC
30	Unknown	NPOC	05G183-07	TCG021-30	0A-12	C:\Progra	1.000	NPOC:3.269 m		DOC
31	Unknown	NPOC	TCG022WB	TCG021-31	0A-12	C:\Progra	1.000	NPOC:0.2118	✓	
32	Unknown	NPOC	TCG022WL	TCG021-32	0A-12	C:\Progra	1.000	NPOC:24.55 m	✓	
33	Unknown	NPOC	TCG022WC	TCG021-33	0A-12	C:\Progra	1.000	NPOC:24.62 m	✓	
34	Unknown	NPOC	05G145-01	TCG021-34	0A-12	C:\Progra	1.000	NPOC:1.217 m	✓	
35	Unknown	NPOC	05G145-02	TCG021-35	0A-12	C:\Progra	1.000	NPOC:1.293 m	✓	
36	Unknown	NPOC	05G145-03	TCG021-36	0A-12	C:\Progra	1.000	NPOC:1.349 m	✓	
37	Unknown	NPOC	05G145-04	TCG021-37	0A-12	C:\Progra	1.000	NPOC:1.491 m	✓	
38	Control	NPOC	CCV3	TCG021-38	0A-12	C:\Progra	1.000	NPOC:24.56 m	Control valu	
39	Unknown	NPOC	CCB3	TCG021-39	0A-12	C:\Progra	1.000	NPOC:0.000 m		
40	Unknown	NPOC	05G145-05	TCG021-40	0A-12	C:\Progra	1.000	NPOC:1.692 m	✓	
41	Unknown	NPOC	05G145-06	TCG021-41	0A-12	C:\Progra	1.000	NPOC:1.480 m	✓	
42	Unknown	NPOC	05G145-07	TCG021-42	0A-12	C:\Progra	1.000	NPOC:1.338 m	✓	
43	Unknown	NPOC	05G145-08	TCG021-43	0A-12	C:\Progra	1.000	NPOC:1.625 m	✓	
44	Unknown	NPOC	05G145-09	TCG021-44	0A-12	C:\Progra	1.000	NPOC:1.299 m	✓	
45	Unknown	NPOC	05G145-10	TCG021-45	0A-12	C:\Progra	1.000	NPOC:1.778 m	✓	
46	Unknown	NPOC	05G145-10D	TCG021-46	0A-12	C:\Progra	1.000	NPOC:1.778 m	✓	
47	Unknown	NPOC	05G145-10M	TCG021-47	0A-12	C:\Progra	1.000	NPOC:25.65 m	✓	
48	Unknown	NPOC	05G183-01	TCG021-48	0A-12	C:\Progra	1.000	NPOC:2.979 m		
49	Unknown	NPOC	05G183-02	TCG021-49	0A-12	C:\Progra	1.000	NPOC:1.155 m		
50	Control	NPOC	CCV4	TCG021-50	0A-12	C:\Progra	1.000	NPOC:24.64 m	Control valu	
51	Unknown	NPOC	CCB4	TCG021-51	0A-12	C:\Progra	1.000	NPOC:0.04559		
52	Unknown	NPOC	05G183-03	TCG021-52	0A-12	C:\Progra	1.000	NPOC:1.356 m		
53	Unknown	NPOC	05G183-04	TCG021-53	0A-12	C:\Progra	1.000	NPOC:1.629 m		
54	Unknown	NPOC	05G183-05	TCG021-54	0A-12	C:\Progra	1.000	NPOC:1.910 m		
55	Unknown	NPOC	05G183-06	TCG021-55	0A-12	C:\Progra	1.000	NPOC:2.484 m		
56	Unknown	NPOC	05G183-07	TCG021-56	0A-12	C:\Progra	1.000	NPOC:1.923 m		
57	Control	NPOC	CCV5	TCG021-57	0A-12	C:\Progra	1.000	NPOC:24.69 m	Control valu	
58	Unknown	NPOC	CCB5	TCG021-58	0A-12	C:\Progra	1.000	NPOC:0.05648		
59										
60										
61				✓ = TOC			X = DOC		for	05G145
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