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Level IV Data Package

MWH Group 223000

Method: EPA 218.6

2711200572
2711200573

by MUE12107

No.	Sample Name	Time	Dil.Fac.	Amount	Comment	Analyst:	tlh
				CRVI-LOW			
				UV VIS 1		Criteria	
1,	Standard 1 - 0.1 ppb	10/18/07 12:46,	1.0,	0.094	Diluted from Std. 3		
2,	Standard 2 - 0.2ppb	10/18/07 12:54,	1.0,	0.215	TLH071018-4		
3,	Standard 3 - 2.0 ppb	10/18/07 13:02,	1.0,	1.989	TLH071018-5		
4,	Standard 4 - 10 ppb	10/18/07 13:10,	1.0,	10.086	TLH071018-6		
5,	Standard 5 - 20 ppb	10/18/07 13:18,	1.0,	20.034	TLH071018-7		
6,	Standard 6 - 50ppb	10/18/07 13:26,	1.0,	49.970	TLH071018-8		
7,	IPC 20	11/20/07 08:14,	1.0,	20.189			
8,	LRB	11/20/07 08:22,	1.0,	0.003			
9,	LRB BUFFER	11/20/07 08:30,	1.0,	n.a.			
10,	MRL 0.1ppb	11/20/07 08:38,	1.0,	0.087		MRL 50%-150%	
11,	LCS 2.0ppb	11/20/07 08:46,	1.0,	2.035		0.05 - 0.15ppb	
12,	LCS 2.0ppb Dup	11/20/07 08:54,	1.0,	2.031		LCS 90%-110%	
13,	2711200572	11/20/07 11:32,	1.0,	0.010		Range: 1.80 - 2.20	
14,	2711200572_MS ✓	11/20/07 11:40,	1.0,	2.139	2.13 - 106% recovery	MS/MSD 90%-110%	
15,	2711200572_MSD	11/20/07 11:48,	1.0,	2.218	rerun	True Value = 2.0	
16,	2711200573 ✓	11/20/07 11:56,	1.0,	11.545		IPC 95%-105%	
17,	2711200241 (1:5)	11/20/07 12:04,	5.0,	48.229		20ppb - 19-21ppb	
18,	2711200328	11/20/07 12:12,	1.0,	7.190		10ppb - 9.5-10.5 ppb	
19,	2711200572_MSD	11/20/07 12:21,	1.0,	2.157	2.15 - 107% recovery		
20,	IPC 20	11/20/07 12:29,	1.0,	20.257			
21,	LRB	11/20/07 12:37,	1.0,	n.a.			

VB mm 11/21/07

Sequence: 112007-IC5-CRVI
Operator: tlh

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Printed: 11/21/2007 7:27:27 AM

Title: CRVI-LOW
Datasource: Dionex_USPAS2SDIO2
Location: IC\IC5_ CRVI-LOW\2007\November
Timebase: IC-#5
#Samples: 21

Created: 11/20/2007 8:13:35 AM by tlh
(Modified, not saved)

No.	Name	Dil. Factor	Type	Comment	Pos.	Inj. Vol.	Program	Method
1	Standard 1 - 0.1 ppb	1.0000	Standard	Diluted from Std. 3	841	1.0	CRVI-LOW-loop	1-IC#5-CRVI
2	Standard 2 - 0.2ppb	1.0000	Standard	TLH071018-4	842	1.0	CRVI-LOW-loop	1-IC#5-CRVI
3	Standard 3 - 2.0 ppb	1.0000	Standard	TLH071018-5	843	1.0	CRVI-LOW-loop	1-IC#5-CRVI
4	Standard 4 - 10 ppb	1.0000	Standard	TLH071018-6	844	1.0	CRVI-LOW-loop	1-IC#5-CRVI
5	Standard 5 - 20 ppb	1.0000	Standard	TLH071018-7	845	1.0	CRVI-LOW-loop	1-IC#5-CRVI
6	Standard 6 - 50ppb	1.0000	Standard	TLH071018-8	846	1.0	CRVI-LOW-loop	1-IC#5-CRVI
7	IPC 20	1.0000	Unknown		856	1.0	CRVI-LOW-loop	1-IC#5-CRVI
8	LRB	1.0000	Unknown		856	1.0	CRVI-LOW-loop	1-IC#5-CRVI
9	LRB BUFFER	1.0000	Unknown		856	1.0	CRVI-LOW-loop	1-IC#5-CRVI
10	MRL 0.1ppb	1.0000	Unknown		856	1.0	CRVI-LOW-loop	1-IC#5-CRVI
11	LCS 2.0ppb	1.0000	Unknown		857	1.0	CRVI-LOW-loop	1-IC#5-CRVI
12	LCS 2.0ppb Dup	1.0000	Unknown		857	1.0	CRVI-LOW-loop	1-IC#5-CRVI
13	2711200572	1.0000	Unknown		858	1.0	CRVI-LOW-loop	1-IC#5-CRVI
14	2711200572_MS	1.0000	Unknown	2.13 - 106% recovery	859	1.0	CRVI-LOW-loop	1-IC#5-CRVI
15	2711200572_MSD	1.0000	Unknown	rerun	860	1.0	CRVI-LOW-loop	1-IC#5-CRVI
16	2711200573	1.0000	Unknown		861	1.0	CRVI-LOW-loop	1-IC#5-CRVI
17	2711200241 (1:5)	5.0000	Unknown		862	1.0	CRVI-LOW-loop	1-IC#5-CRVI
18	2711200328	1.0000	Unknown		863	1.0	CRVI-LOW-loop	1-IC#5-CRVI
19	2711200572_MSD	1.0000	Unknown	2.15 - 107% recovery	864	1.0	CRVI-LOW-loop	1-IC#5-CRVI
20	IPC 20	1.0000	Unknown		865	1.0	CRVI-LOW-loop	1-IC#5-CRVI
21	LRB	1.0000	Unknown		865	1.0	CRVI-LOW-loop	1-IC#5-CRVI

Sequence: 112007-IC5-CRVI
Operator: tih

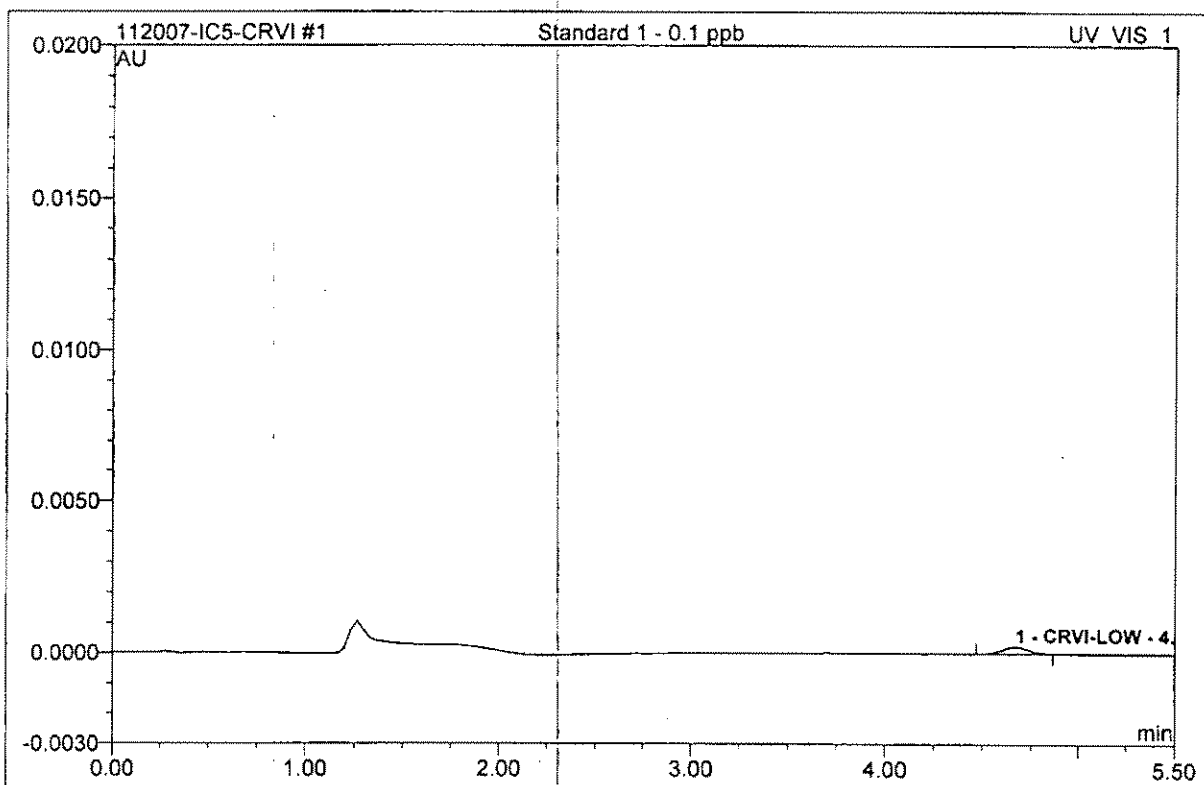
Page 2 of 2
Printed: 11/21/2007 7:27:27 AM

Title: CRVI-LOW
Datasource: Dionex_USPAS2SDIO2
Location: IC/IC5_CRVI-LOW\2007\November
Timebase: IC-#5
#Samples: 21

Created: 11/20/2007 8:13:35 AM by tih
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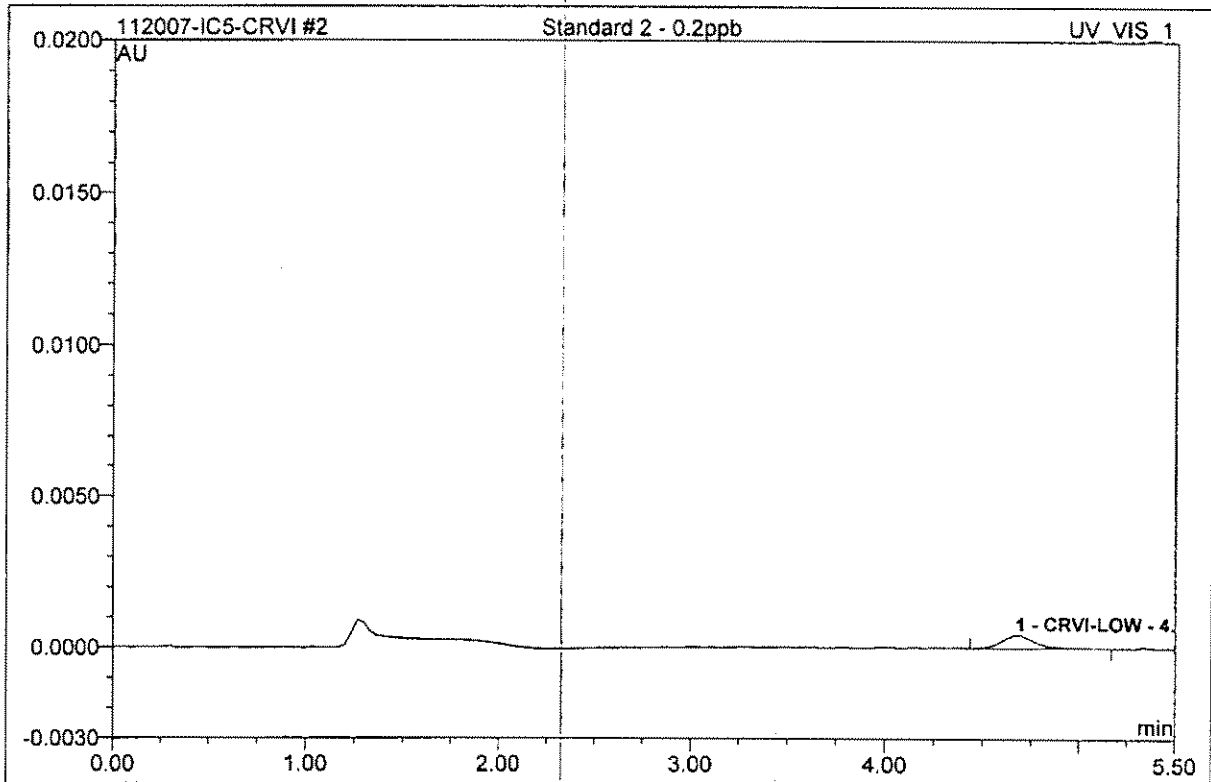
No.	Status	Inj. Date/Time	*Analyst	*operator	*Spike
1	Finished	10/18/2007 12:46:14 PM	tih		
2	Finished	10/18/2007 12:54:20 PM	tih		
3	Finished	10/18/2007 1:02:26 PM	tih		
4	Finished	10/18/2007 1:10:32 PM	tih		
5	Finished	10/18/2007 1:18:38 PM	tih		
6	Finished	10/18/2007 1:26:44 PM	tih		
7	Finished	11/20/2007 8:14:16 AM	tih		
8	Finished	11/20/2007 8:22:22 AM	tih		
9	Finished	11/20/2007 8:30:28 AM	tih		
10	Finished	11/20/2007 8:38:34 AM	tih		
11	Finished	11/20/2007 8:46:40 AM	tih		
12	Finished	11/20/2007 8:54:46 AM	tih		
13	Finished	11/20/2007 11:32:26 AM	tih		
14	Finished	11/20/2007 11:40:32 AM	tih		
15	Finished	11/20/2007 11:48:38 AM	tih		
16	Finished	11/20/2007 11:56:44 AM	tih		
17	Finished	11/20/2007 12:04:50 PM	tih		
18	Finished	11/20/2007 12:12:56 PM	tih		
19	Finished	11/20/2007 12:21:02 PM	tih		
20	Finished	11/20/2007 12:29:08 PM	tih		
21	Finished	11/20/2007 12:37:14 PM	tih		

1 Standard 1 - 0.1 ppb			
Sample Name:	Standard 1 - 0.1 ppb	Control Program:	CRVI-LOW-loop
Dilution Factor:	1.0000	Quantif. Method:	1-IC#5-CRVI
Sample Type:	standard	Recording Time:	10/18/2007 12:46
Analyst:	tlh	Channel:	UV_VIS_1



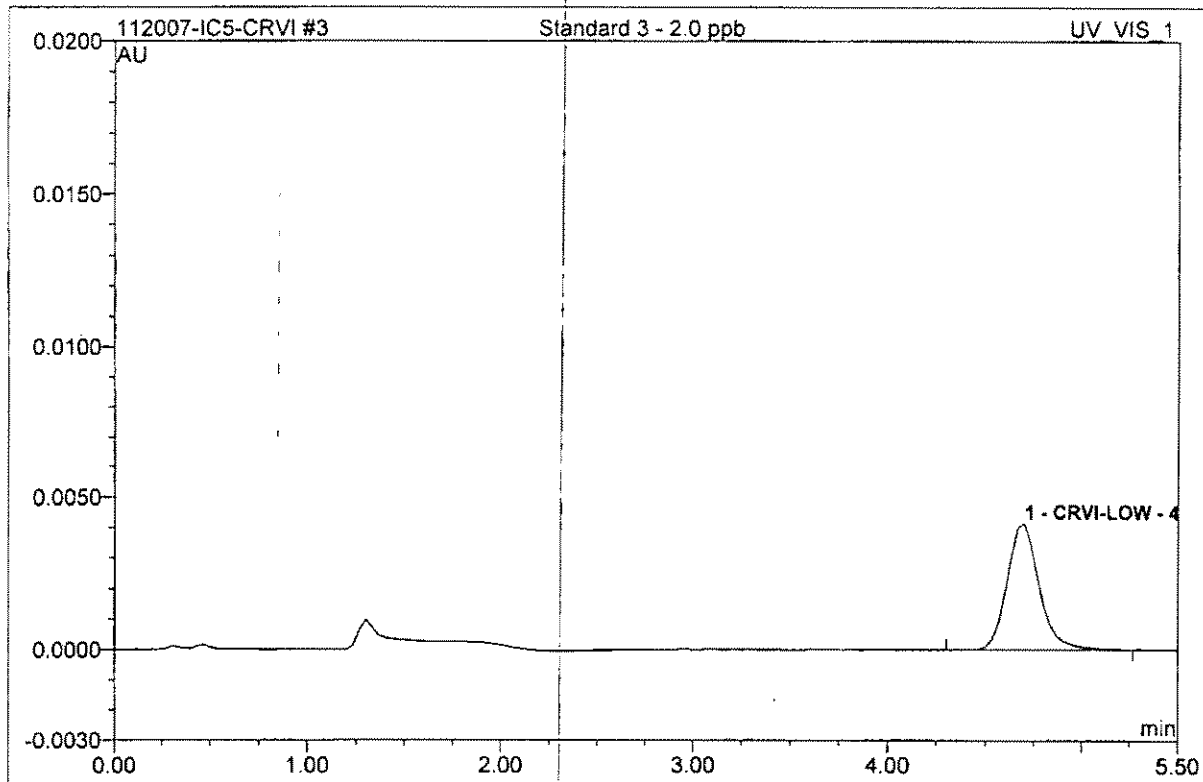
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.67	CRVI-LOW	0.000	0.0000379	100.00	0.094	BMB
Total:			0.000	0.000	100.00	0.094	

2 Standard 2 - 0.2ppb			
Sample Name:	Standard 2 - 0.2ppb	Control Program:	CRVI-LOW-loop
Dilution Factor:	1.0000	Quantif. Method:	1-IC#5-CRVI
Sample Type:	standard	Recording Time:	10/18/2007 12:54
Analyst:	tlh	Channel:	UV_VIS_1



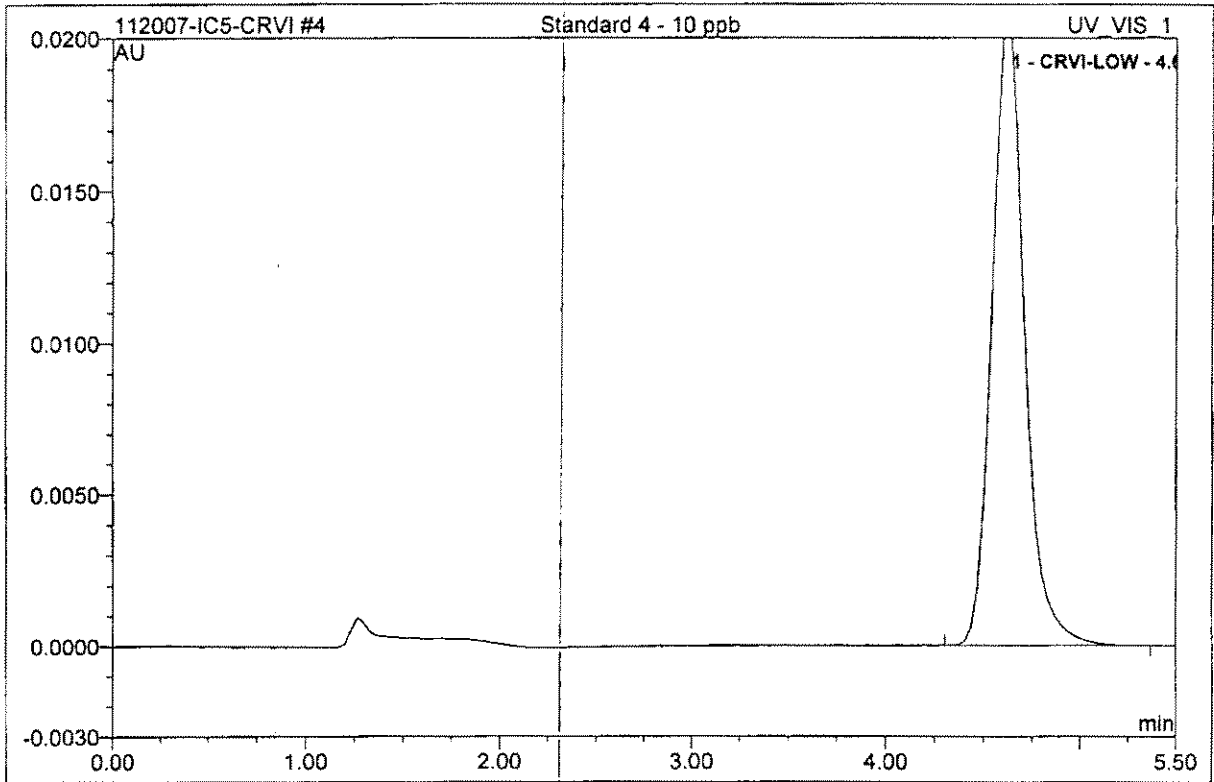
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.67	CRVI-LOW	0.000	0.0000863	100.00	0.215	BMB
Total:			0.000	0.000	100.00	0.215	

3 Standard 3 - 2.0 ppb			
Sample Name:	Standard 3 - 2.0 ppb	Control Program:	CRVI-LOW-loop
Dilution Factor:	1.0000	Quantif. Method:	1-IC#5-CRVI
Sample Type:	standard	Recording Time:	10/18/2007 13:02
Analyst:	tlh	Channel:	UV_VIS_1



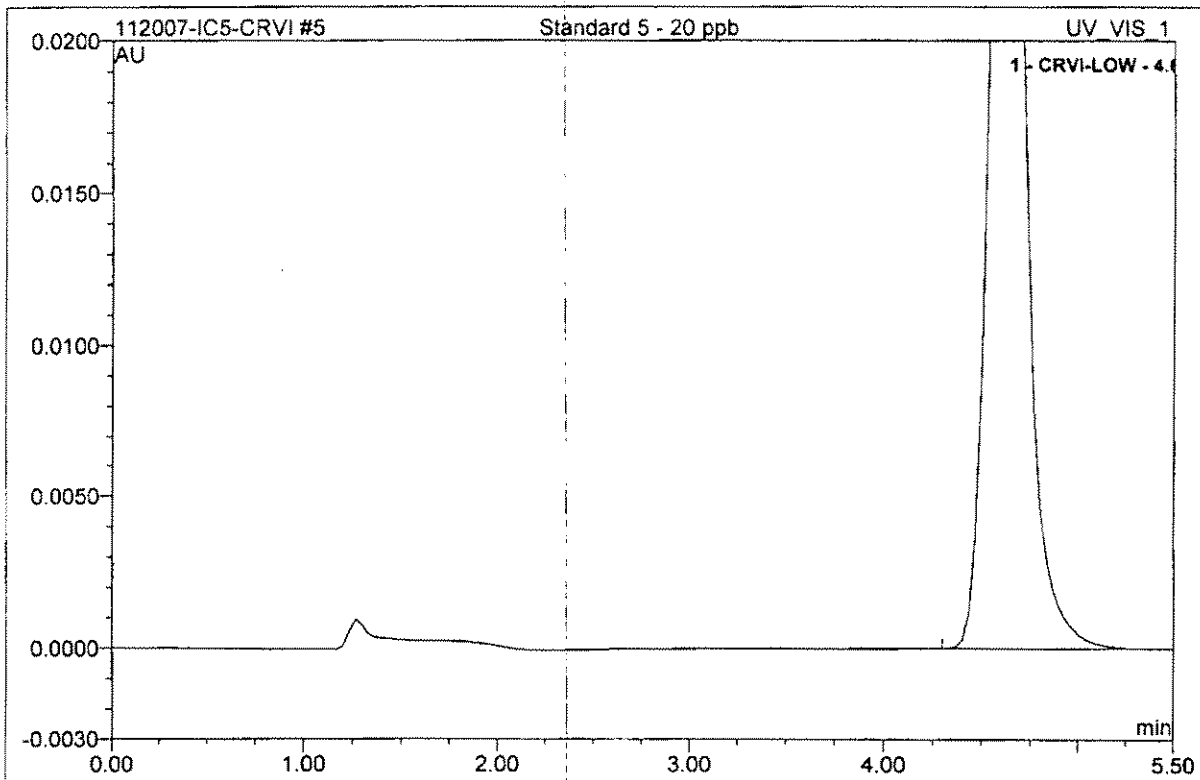
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.70	CRVI-LOW	0.004	0.0007989	100.00	1.989	BMB
Total:			0.004	0.001	100.00	1.989	

4 Standard 4 - 10 ppb			
Sample Name:	Standard 4 - 10 ppb	Control Program:	CRVI-LOW-loop
Dilution Factor:	1.0000	Quantif. Method:	1-IC#5-CRVI
Sample Type:	standard	Recording Time:	10/18/2007 13:10
Analyst:	tlh	Channel:	UV_VIS_1



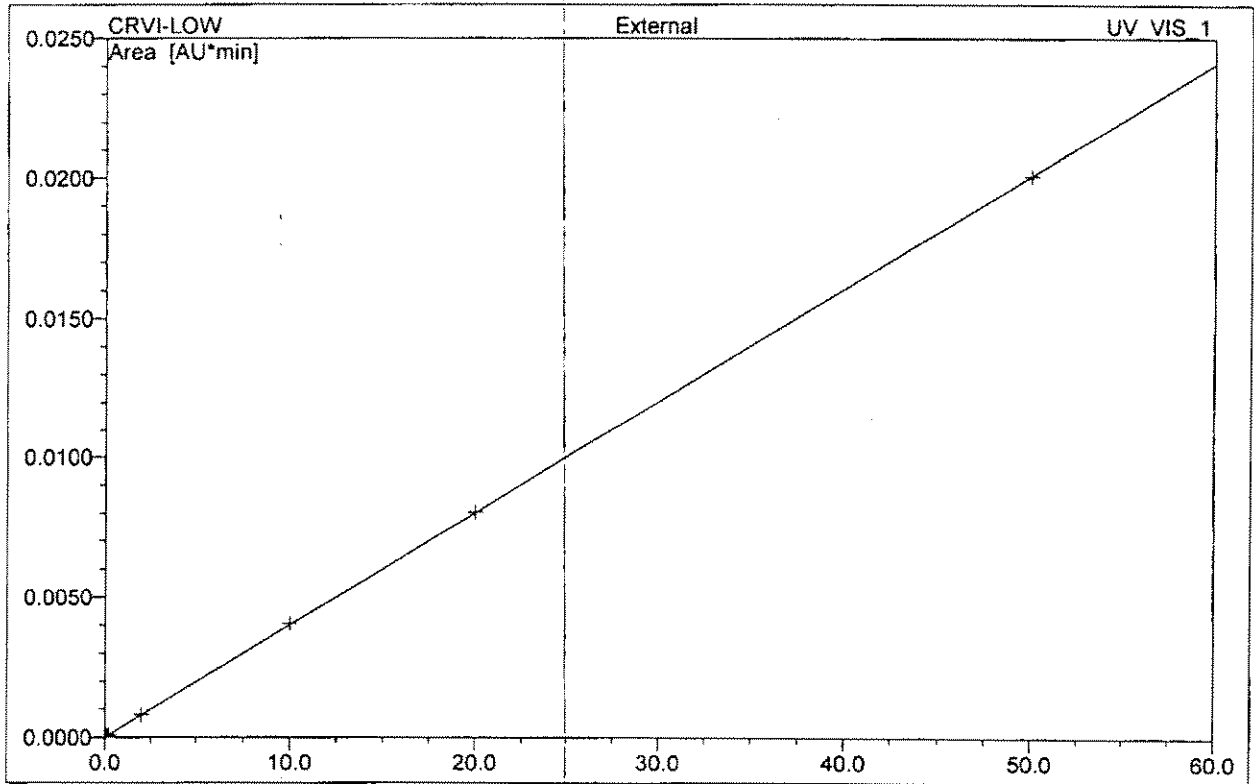
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.63	CRVI-LOW	0.021	0.0040518	100.00	10.086	BMB
Total:			0.021	0.004	100.00	10.086	

5 Standard 5 - 20 ppb			
Sample Name:	Standard 5 - 20 ppb	Control Program:	CRVI-LOW-loop
Dilution Factor:	1.0000	Quantif. Method:	1-IC#5-CRVI
Sample Type:	standard	Recording Time:	10/18/2007 13:18
Analyst:	tlh	Channel:	UV_VIS_1



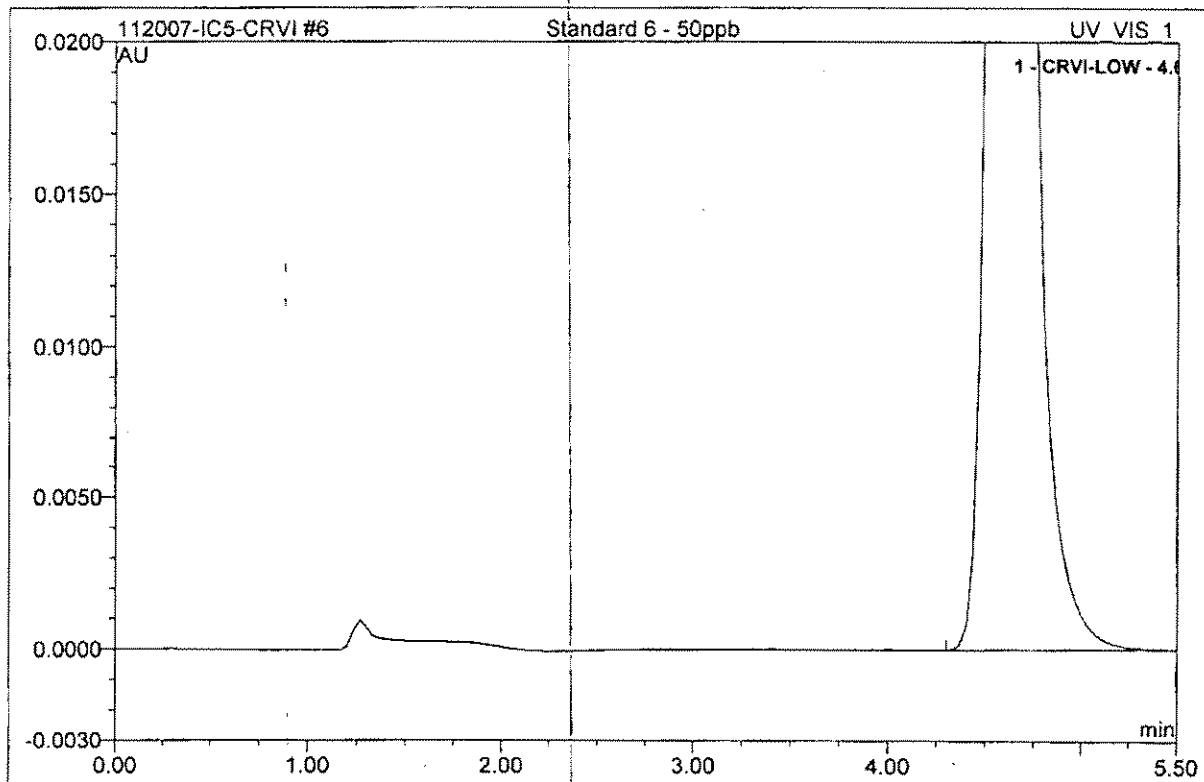
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.63	CRVI-LOW	0.041	0.0080484	100.00	20.034	BMB
Total:			0.041	0.008	100.00	20.034	

6 Standard 6 - 50ppb			
Sample Name:	Standard 6 - 50ppb	Control Program:	CRVI-LOW-loop
Sample Type:	standard	Quantif. Method:	1-IC#5-CRVI
Recording Time:	10/18/2007 13:26	Channel:	UV_VIS_1



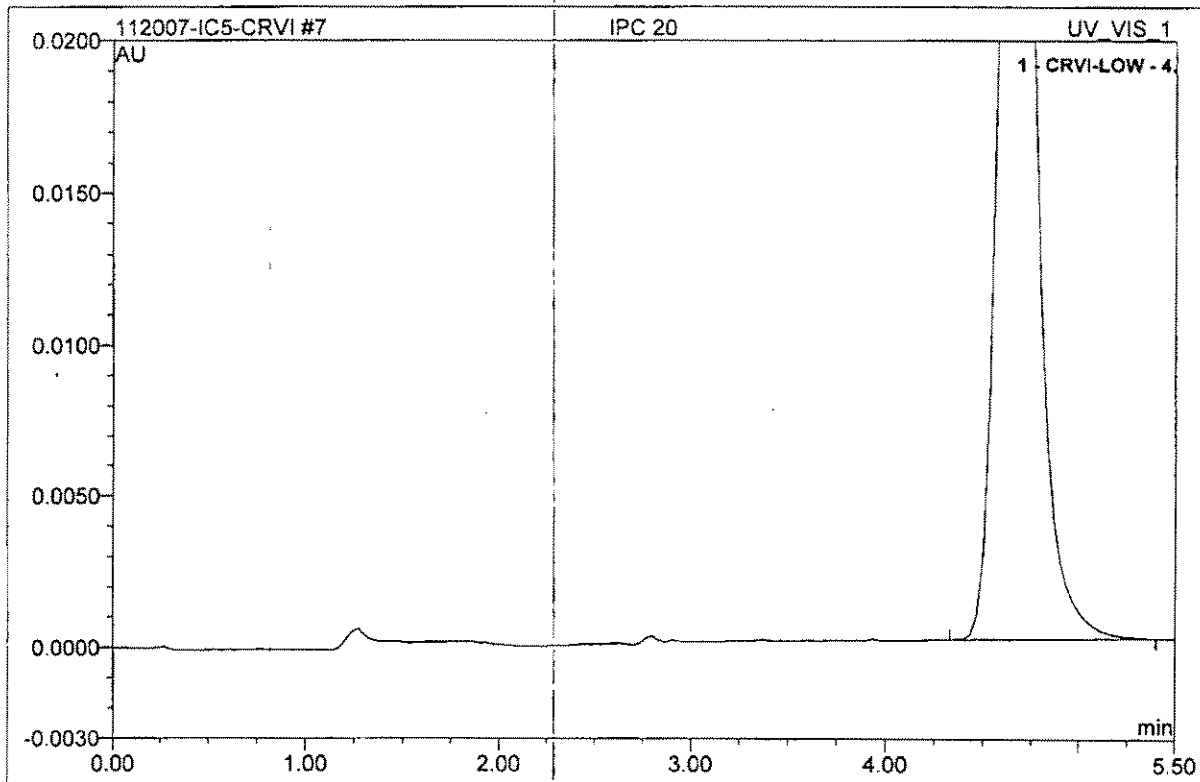
No.	Ret. Time min	Peak Name	Cal. Type	Points	Corr. Coeff. %	Offset	Slope	Curve
1	4.63	CRVI-LOW	Lin	6	99.9998	0.0000	0.0004017	0.0000
Average:					99.9998	0.0000	0.0004	0.0000

6 Standard 6 - 50ppb			
Sample Name:	Standard 6 - 50ppb	Control Program:	CRVI-LOW-loop
Dilution Factor:	1.0000	Quantif. Method:	1-IC#5-CRVI
Sample Type:	standard	Recording Time:	10/18/2007 13:26
Analyst:	tlh	Channel:	UV_VIS_1



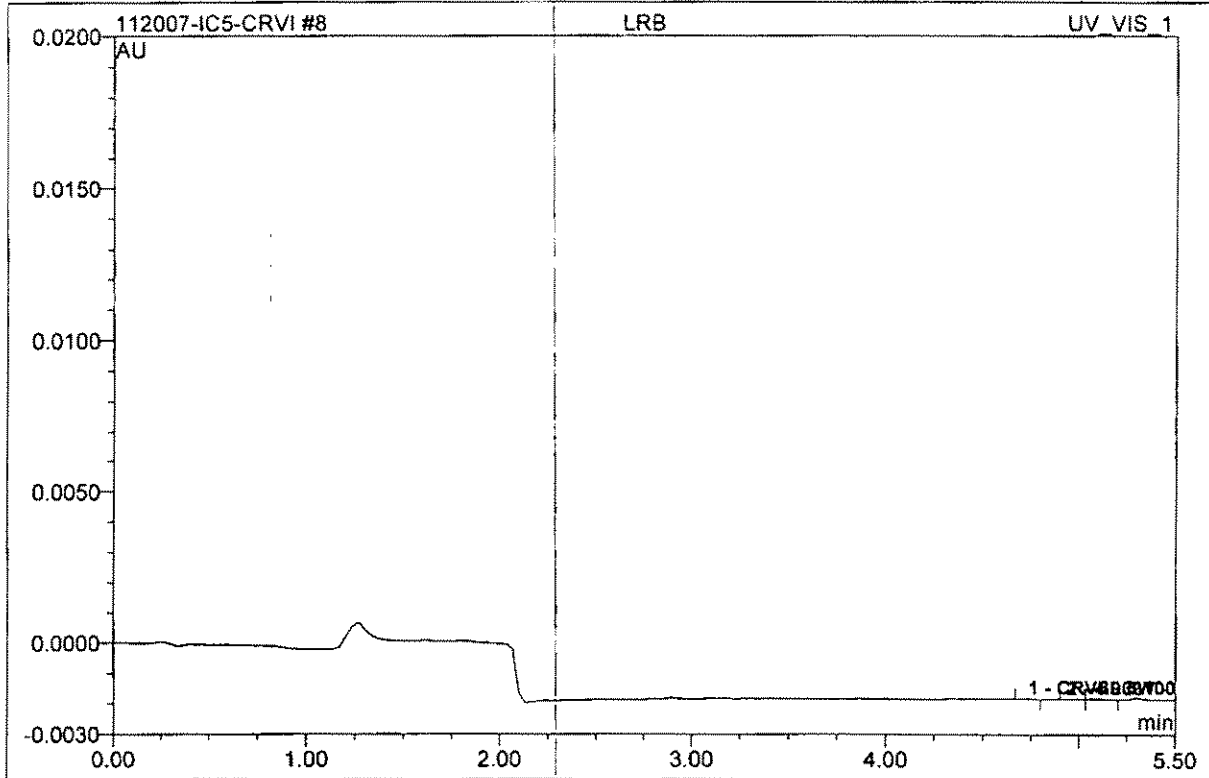
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.63	CRVI-LOW	0.102	0.0200751	100.00	49.970	BMB
Total:			0.102	0.020	100.00	49.970	

7 IPC 20			
Sample Name:	IPC 20	Control Program:	CRVI-LOW-loop
Dilution Factor:	1.0000	Quantif. Method:	1-IC#5-CRVI
Sample Type:	unknown	Recording Time:	11/20/2007 8:14
Analyst:	tlh	Channel:	UV_VIS_1



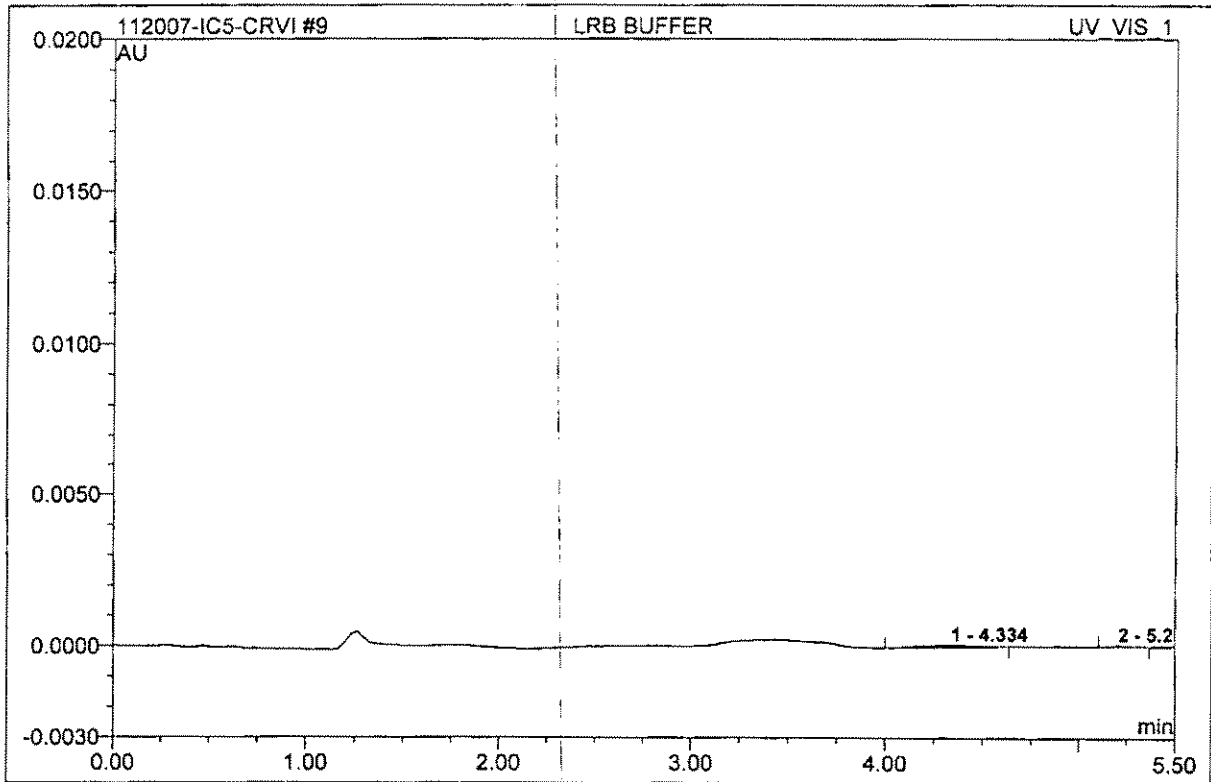
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.67	CRVI-LOW	0.039	0.0081106	100.00	20.189	BMB
Total:			0.039	0.008	100.00	20.189	

8 LRB			
Sample Name:	LRB	Control Program:	CRVI-LOW-loop
Dilution Factor:	1.0000	Quantif. Method:	1-IC#5-CRVI
Sample Type:	unknown	Recording Time:	11/20/2007 8:22
Analyst:	tlh	Channel:	UV_VIS_1



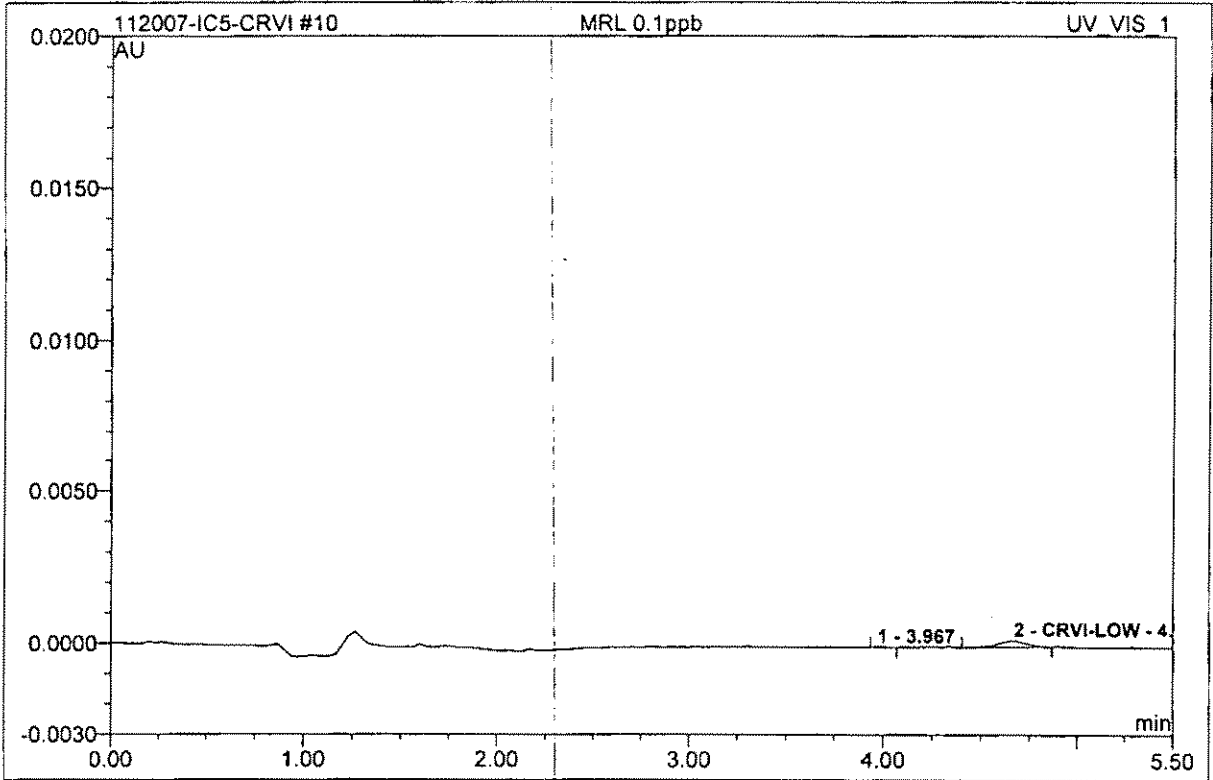
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.73	CRVI-LOW	0.000	0.0000011	31.46	0.003	BMB
2	4.93	n.a.	0.000	0.0000006	16.43	n.a.	BM
3	5.10	n.a.	0.000	0.0000018	52.11	n.a.	MB
Total:			0.000	0.000	100.00	0.003	

9 LRB BUFFER			
Sample Name:	LRB BUFFER	Control Program:	CRVI-LOW-loop
Dilution Factor:	1.0000	Quantif. Method:	1-IC#5-CRVI
Sample Type:	unknown	Recording Time:	11/20/2007 8:30
Analyst:	tlh	Channel:	UV_VIS_1



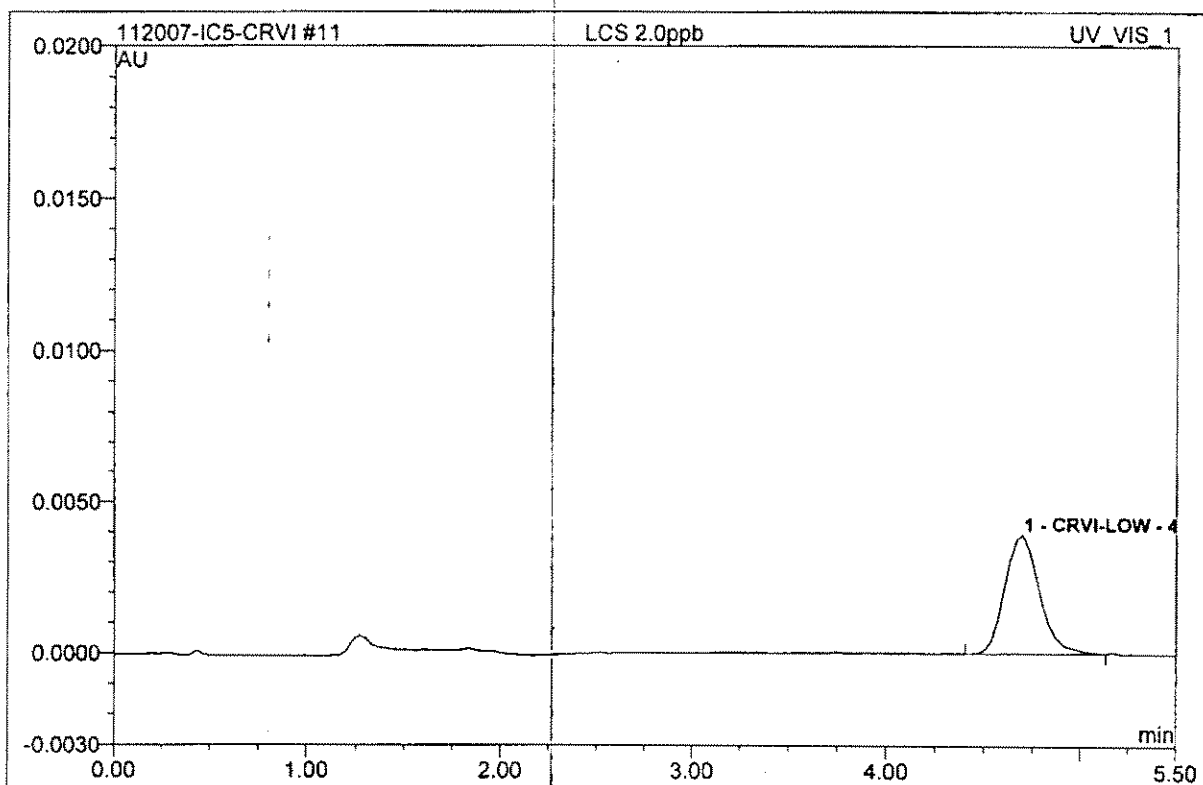
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.33	n.a.	0.000	0.0000217	89.87	n.a.	BMB
2	5.20	n.a.	0.000	0.0000024	10.13	n.a.	BMB
Total:			0.000	0.000	100.00	0.000	

10 MRL 0.1ppb			
Sample Name:	MRL 0.1ppb	Control Program:	CRVI-LOW-loop
Dilution Factor:	1.0000	Quantif. Method:	1-IC#5-CRVI
Sample Type:	unknown	Recording Time:	11/20/2007 8:38
Analyst:	tlh	Channel:	UV_VIS_1



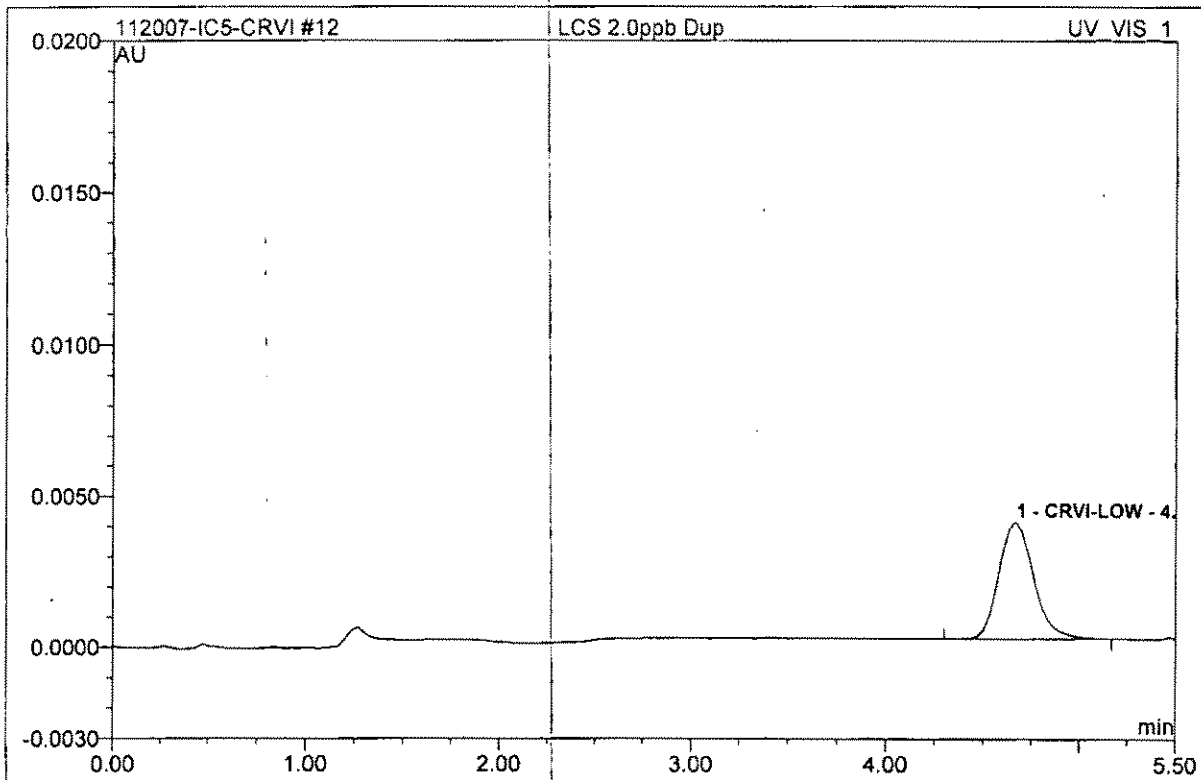
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Ref.Area %	Amount	Type
1	3.97	n.a.	0.000	0.0000005	1.51	n.a.	BMB
2	4.67	CRVI-LOW	0.000	0.0000349	98.49	0.087	BMB
Total:			0.000	0.000	100.00	0.087	

11 LCS 2.0ppb			
Sample Name:	LCS 2.0ppb	Control Program:	CRVI-LOW-loop
Dilution Factor:	1.0000	Quantif. Method:	1-IC#5-CRVI
Sample Type:	unknown	Recording Time:	11/20/2007 8:46
Analyst:	tlh	Channel:	UV_VIS_1



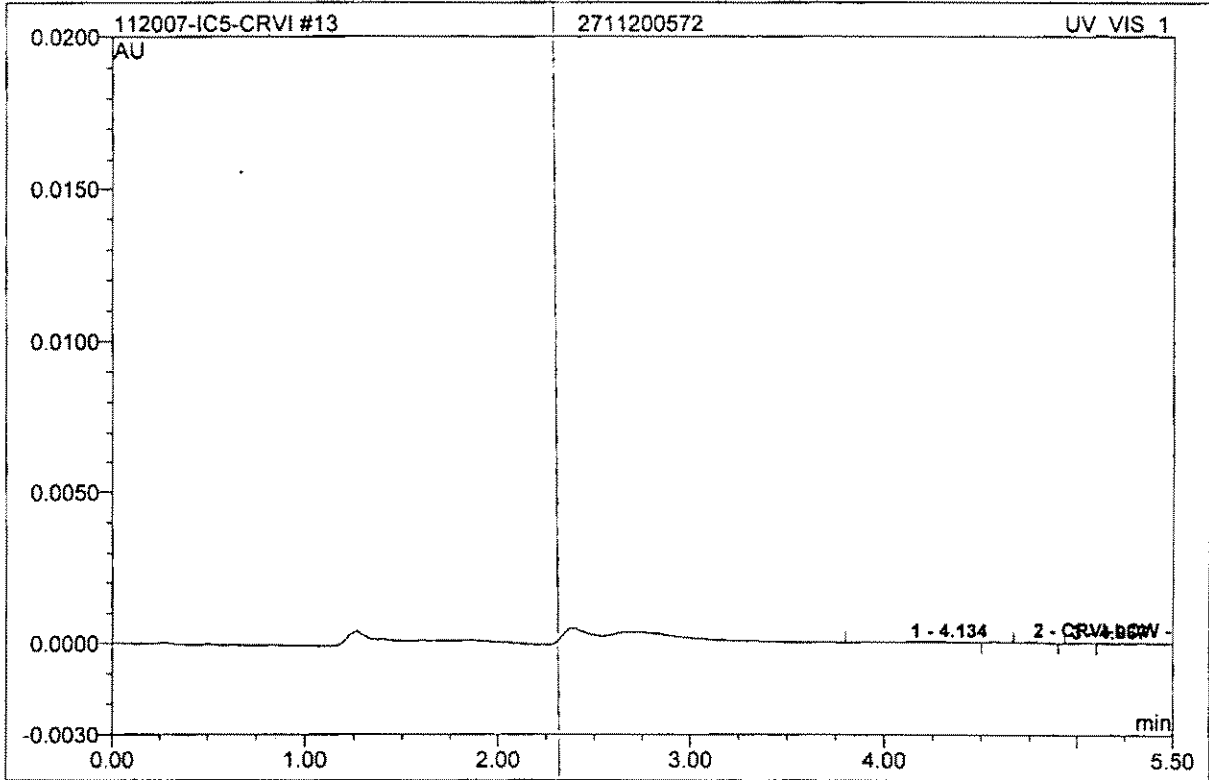
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.70	CRVI-LOW	0.004	0.0008176	100.00	2.035	BMB
Total:			0.004	0.001	100.00	2.035	

12 LCS 2.0ppb Dup			
Sample Name:	LCS 2.0ppb Dup	Control Program:	CRVI-LOW-loop
Dilution Factor:	1.0000	Quantif. Method:	1-IC#5-CRVI
Sample Type:	unknown	Recording Time:	11/20/2007 8:54
Analyst:	tlh	Channel:	UV_VIS_1



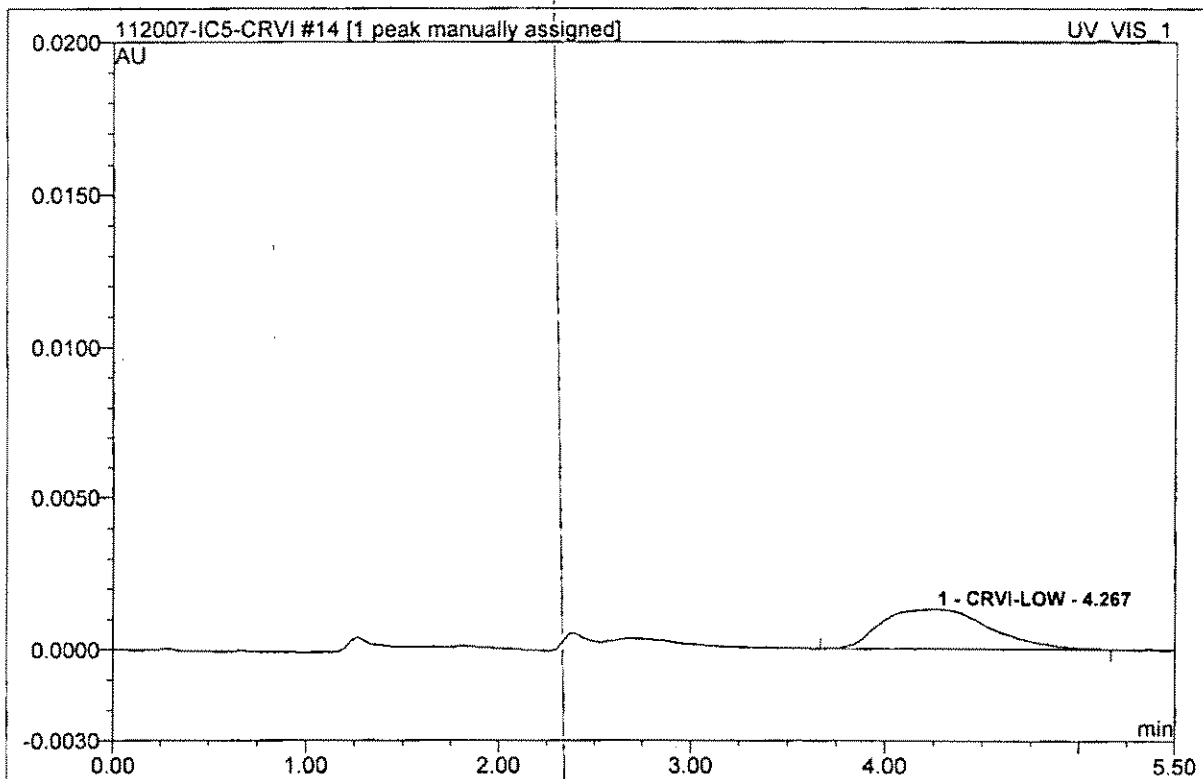
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.67	CRVI-LOW	0.004	0.0008160	100.00	2.031	BMB
Total:			0.004	0.001	100.00	2.031	

13 2711200572			
Sample Name:	2711200572	Control Program:	CRVI-LOW-loop
Dilution Factor:	1.0000	Quantif. Method:	1-IC#5-CRVI
Sample Type:	unknown	Recording Time:	11/20/2007 11:32
Analyst:	tlh	Channel:	UV_VIS_1



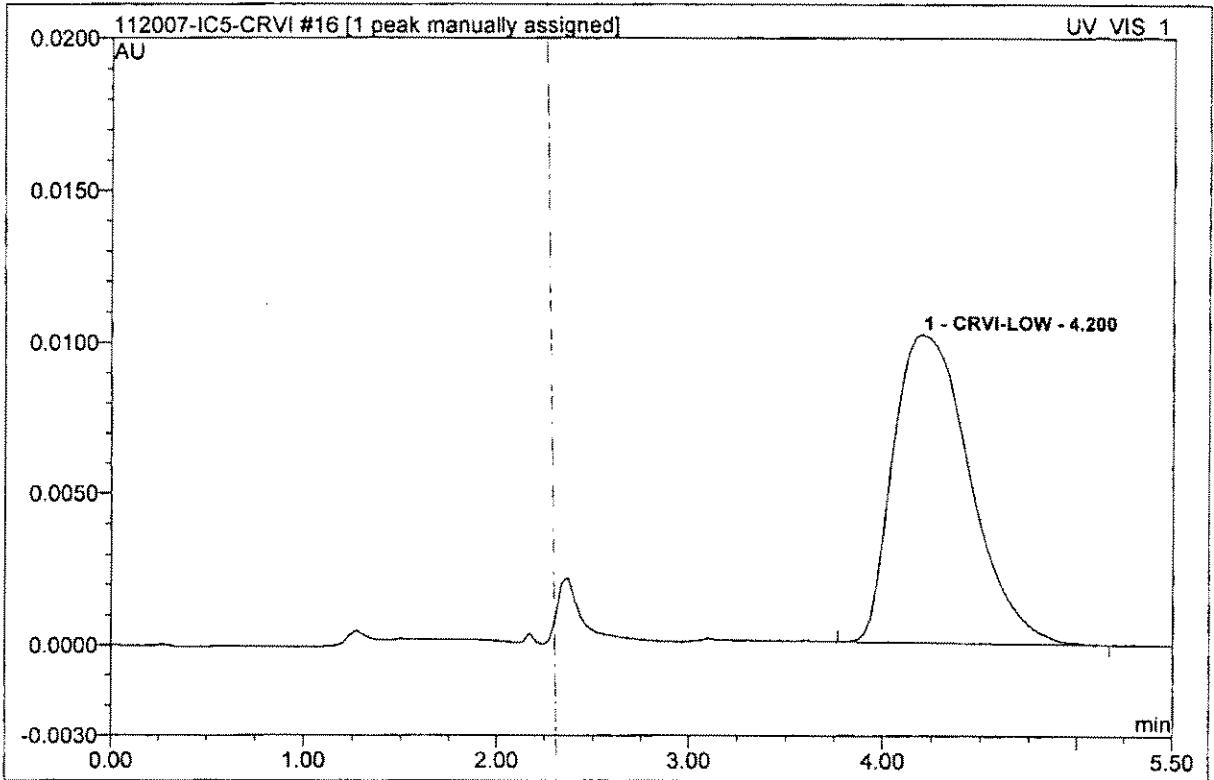
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.13	n.a.	0.000	0.0000122	72.48	n.a.	BMB
2	4.77	CRVI-LOW	0.000	0.0000041	24.55	0.010	BMB
3	4.97	n.a.	0.000	0.0000005	2.97	n.a.	BMB
Total:			0.000	0.000	100.00	0.010	

14 2711200572_MS			
Sample Name:	2711200572_MS	Control Program:	CRVI-LOW-loop
Dilution Factor:	1.0000	Quantif. Method:	1-IC#5-CRVI
Sample Type:	unknown	Recording Time:	11/20/2007 11:40
Analyst:	tlh	Channel:	UV_VIS_1



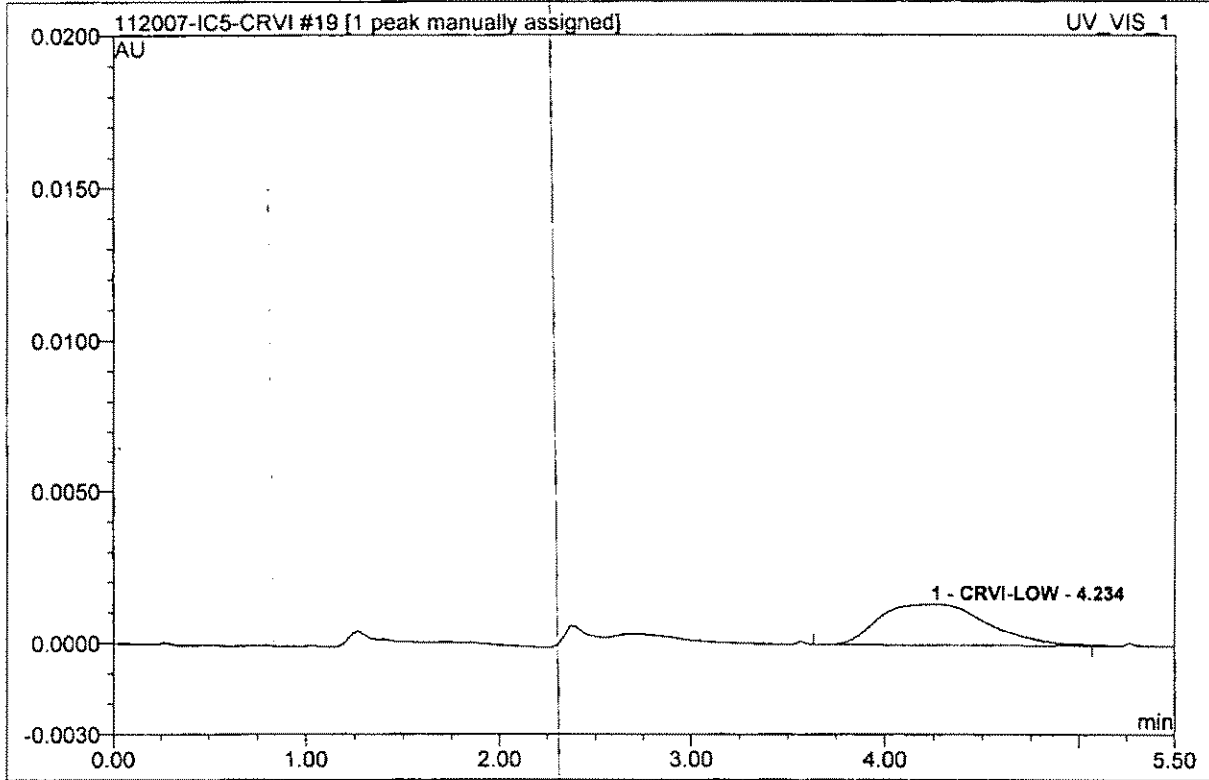
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.27	CRVI-LOW	0.001	0.0008594	100.00	2.139	BMB^
Total:			0.001	0.001	100.00	2.139	

16 2711200573			
Sample Name:	2711200573	Control Program:	CRVI-LOW-loop
Dilution Factor:	1.0000	Quantif. Method:	1-IC#5-CRVI
Sample Type:	unknown	Recording Time:	11/20/2007 11:56
Analyst:	tlh	Channel:	UV_VIS_1



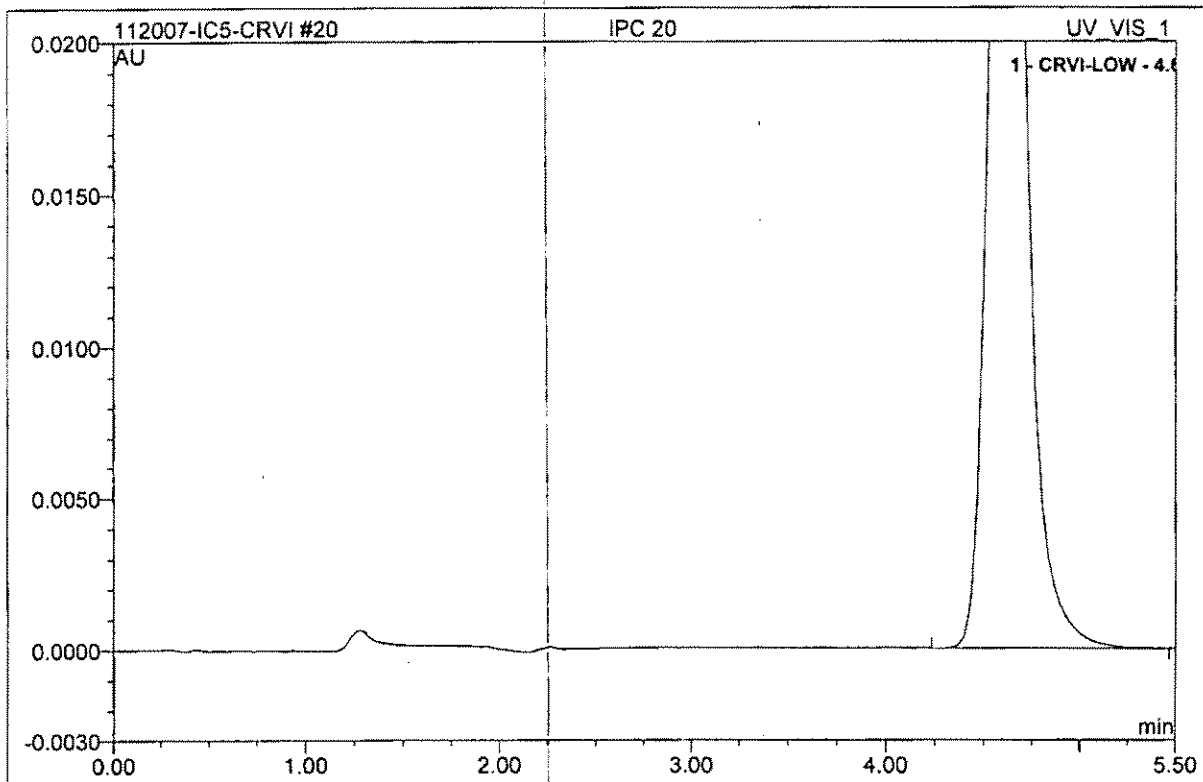
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.20	CRVI-LOW	0.010	0.0046382	100.00	11.545	BMB^
Total:			0.010	0.005	100.00	11.545	

19 2711200572_MSD			
Sample Name:	2711200572_MSD	Control Program:	CRVI-LOW-loop
Dilution Factor:	1.0000	Quantif. Method:	1-IC#5-CRVI
Sample Type:	unknown	Recording Time:	11/20/2007 12:21
Analyst:	tlh	Channel:	UV_VIS_1



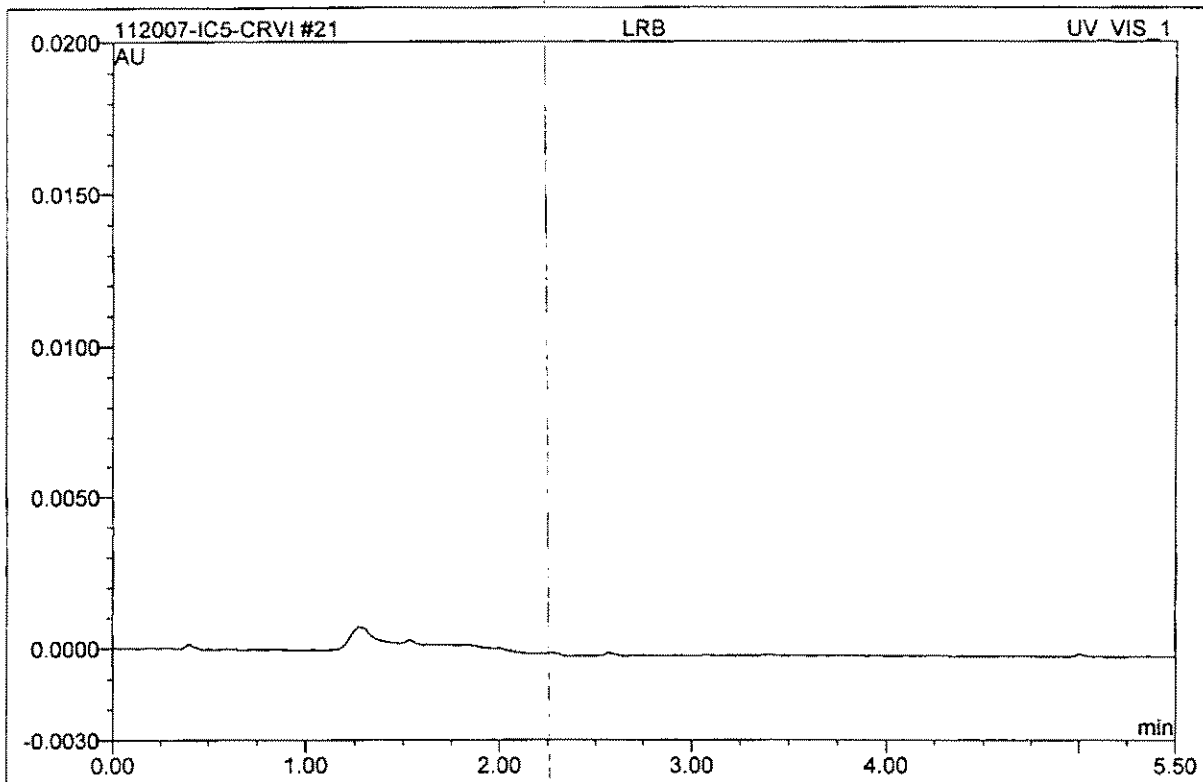
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.23	CRVI-LOW	0.001	0.0008666	100.00	2.157	BMB^
Total:			0.001	0.001	100.00	2.157	

20 IPC 20			
Sample Name:	IPC 20	Control Program:	CRVI-LOW-loop
Dilution Factor:	1.0000	Quantif. Method:	1-IC#5-CRVI
Sample Type:	unknown	Recording Time:	11/20/2007 12:29
Analyst:	tlh	Channel:	UV_VIS_1



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.63	CRVI-LOW	0.038	0.0081382	100.00	20.257	BMB
Total:			0.038	0.008	100.00	20.257	

21 LRB			
Sample Name:	LRB	Control Program:	CRVI-LOW-loop
Dilution Factor:	1.0000	Quantif. Method:	1-IC#5-CRVI
Sample Type:	unknown	Recording Time:	11/20/2007 12:37
Analyst:	tlh	Channel:	UV_VIS_1



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

**Standard
Preparation
Worksheet
&
Certificate of
Analysis**

Reagent Preparation Documentation

Reagent: Cr^{+6} Low LIS Stock Solution - 1ppm
 Date Received/Prepped: 10/18/07 3/7/08 7/30/08 10/20/08 |
 Date Expired: | | | | |
 Manufacturer: _____
 Storage Condition: room temperature

MW #: 72H071018-1
 By: 92H
 Matrix: ag
 Amount: 100mL
 Lot #: _____

Component	Comment	Standard	Concentration
Stock 1000ppm exp Jan 2010	100ul diluted to 100ml w/ DI H ₂ O	R201090	1ppm

Comment: _____

Reagent: Cr^{+6} Low LIS Working Std. - 2ppb
 Date Received/Prepped: 10/19/07 11/12/07 11/24/07 12/16/07 12/18/07 1/15/08
 Date Expired: 8/20/08 2/13/08 2/26/08 3/17/08 3/29/08 4/9/08
 Manufacturer: _____
 Storage Condition: room temperature

MW #: 72H071018-2
 By: 92H
 Matrix: ag
 Amount: 100mL
 Lot #: _____

Component	Comment	Standard	Concentration
Cr^{+6} Low LIS Stock (72H071018-1)	200ul diluted to 100ml w/ DI H ₂ O	72H071018-1	2ppb
Cr^{+6} Buffer Soln	1.0ml added AFTER soln @ final volume.	72H0608-154	

Comment: 4/21/08 5/2/08 5/15/08 5/28/08 6/11/08 6/23/08 7/8/08 7/21/08 7/30/08
 8/12/08 8/25/08 9/8/08 9/23/08 10/7/08 10/20/08 10/31/08

Reagent: Cr^{+6} Low Calibration Stock Soln - 1ppm
 Date Received/Prepped: 10/18/07 3/7/08 | | | |
 Date Expired: | | | | |
 Manufacturer: _____
 Storage Condition: room temperature

MW #: 72H071018-3
 By: 92H
 Matrix: ag
 Amount: 100mL
 Lot #: _____

Component	Comment	Standard	Concentration
Inorganic Ventures 1000ppm exp 01-Jun-08 vial 5 opened 5-11-07 Lot # Z-CR02152	100ul diluted to 100ml w/ DI H ₂ O	R201632	1ppm

Comment: _____

Reagent Preparation Documentation

Reagent: Cr⁶⁺ Low Calibration Std - 0.2ppb
 Date Received/Prepped: 10/18/07 11/26/07 | | |
 Date Expired: * | | | | |
 Manufacturer: _____
 Storage Condition: room temperature

MW #: 71H071018-4
 By: 92H
 Matrix: aq
 Amount: 100mL
 Lot #: _____

Component	Comment	Standard	Concentration
<u>Cr⁶⁺ Low Calibration Stock</u>	<u>20ul diluted to 100ml w/ DI H₂O</u>	<u>71H071018-3</u>	<u>0.2ppb</u>
<u>Cr⁶⁺ Buffer Soln.</u>	<u>1.0ml added AFTER diluted to final volume</u>	<u>71H060815-4</u>	

Comment: * make fresh for each calibration

Reagent: Cr⁶⁺ Low Calibration Std - 2.0ppb
 Date Received/Prepped: 10/18/07 11/26/07 11/26/07 | | |
 Date Expired: | | | | |
 Manufacturer: _____
 Storage Condition: room temperature

MW #: 92H071018-5
 By: 92H
 Matrix: aq
 Amount: 100mL
 Lot #: _____

Component	Comment	Standard	Concentration
<u>Cr⁶⁺ Low Calibration Stock</u>	<u>20ul diluted to 100ml w/ DI H₂O</u>	<u>71H071018-3</u>	<u>2.0ppb</u>
<u>Cr⁶⁺ Buffer Soln.</u>	<u>1.0ml added AFTER diluted to final volume</u>	<u>71H060815-4</u>	

Comment: _____

Reagent: Cr⁶⁺ Low Calibration Std - 10ppb
 Date Received/Prepped: 10/18/07 11/26/07 | | |
 Date Expired: * | | | | |
 Manufacturer: _____
 Storage Condition: room temperature

MW #: 92H071018-6
 By: 92H
 Matrix: aq
 Amount: 100mL
 Lot #: _____

Component	Comment	Standard	Concentration
<u>Cr⁶⁺ Low Calibration Stock</u>	<u>1000ul diluted to 100mL w/ DI H₂O</u>	<u>71H071018-3</u>	<u>10ppb</u>
<u>Cr⁶⁺ Buffer Soln.</u>	<u>1.0ml added AFTER diluted to final volume</u>	<u>71H060815-4</u>	

Comment: * make fresh for each calibration

Reagent Preparation Documentation

Reagent: Cr¹⁶ Low Calibration Std. - 20ppb
Date Received/Prepped: 10/18/07 10/29/07 11/12/07 11/26/07 12/11/07
Date Expired:
Manufacturer:
Storage Condition: room temperature

MW #: TLH071018-7
By: 9LH
Matrix: aq
Amount: 100ml
Lot #:

Component	Comment	Standard	Concentration
<u>Cr¹⁶ Low Calibration Stock</u>	<u>2.0ml diluted to 100ml w/ DTH₂O</u>	<u>TLH071018-3</u>	<u>20ppb</u>
<u>Cr¹⁶ Buffer Soln</u>	<u>1.0ml added AFTER diluted to final volume</u>	<u>TLH060815-4</u>	<u> </u>

Comment:

Reagent: Cr¹⁶ Low Calibration Std. - 50ppb
Date Received/Prepped: 10/18/07 11/26/07
Date Expired: *
Manufacturer:
Storage Condition: room temperature

MW #: TLH071018-8
By: 9LH
Matrix: aq
Amount: 100ml
Lot #:

Component	Comment	Standard	Concentration
<u>Cr¹⁶ Low Calibration Stock</u>	<u>5.0ml diluted to 100ml w/ DTH₂O</u>	<u>TLH071018-3</u>	<u>50ppb</u>
<u>Cr¹⁶ Buffer Soln</u>	<u>1.0ml added AFTER diluted to final volume</u>	<u>TLH060815-4</u>	<u> </u>

Comment: * make fresh for each calibration

Reagent: 300.1 Multi-element Calibration Std-4
Date Received/Prepped: 10/18/07
Date Expired: 12/18/07
Manufacturer:
Storage Condition: room temperature

MW #: TLH071018-9
By: 9LH
Matrix: aq
Amount: 100ml
Lot #:

Component	Comment	Standard	Concentration
<u>BrO₃ - 1000ppb</u>	<u>1000uL</u>	<u>Combine and dilute to 100ml w/ DTH₂O</u>	
<u>ClO₂/ClO₃ - 10ppm</u>	<u>200uL</u>		
<u>Anion Cal mix</u>	<u>200uL</u>		
<u>EDA (100,100ppm)</u>	<u>50uL</u>		

Comment:

Reagent Documentation

Reagent:
Date Received:
Date Expired:
Manufacturer:
Storage Condition:

Antifoam B Silicone Emulsion
08 May 07
May 2010
IT Baker
room temp

Reagent #: 201630

By: RH

Matrix: ag

Amount: 125 mL

Lot #: C47613

Component	Comment	Standard	Concentration
	IT Baker # B531-05		

Comment:

Reagent:
Date Received:
Date Expired:
Manufacturer:
Storage Condition:

Cyanide 1000ug/mL
09 May 07
30 April 08
High Purity Standards
room temp

Reagent #: 201631

By: RH

Matrix: ag

Amount: 125 mL

Lot #: 629323

Component	Comment	Standard	Concentration
	HP # 1C-CN-M		

Comment:

Reagent:
Date Received:
Date Expired:
Manufacturer:
Storage Condition:

Chromium +6 Cr+6 1000ppm
5/11/07
6/1/08
Inorganic Ventures

Reagent #: 201632

By: NBSH

Matrix: AR

Amount: 125 mL

Lot #: 2-CR02152

Component	Comment	Standard	Concentration
Cr+6	PN = CGCR(6)1-1		

Comment:

1.0 INORGANIC VENTURES is an ISO Guide 34:2000 registered Certified Reference Material (CRM) Manufacturer (Certificate #883-02). The certificate is designed and the data is determined in accordance with ISO Guide 31:2000 (Reference Materials-Contents of Certificates and Labels), ISO Guide 34:2000 "Quality System Guidelines for the Production of Reference Materials," and ISO Guide 35:1989 "Certification of Reference Materials - General and Statistical Principles."

2.0 DESCRIPTION OF CRM **1000 µg/mL Chromium (+6) in H2O**

R# 201632

Catalog Number: CGCR(6)1-1, CGCR(6)1-2, and CGCR(6)1-5
 Lot Number: **Z-CR02152**
 Starting Material: (NH₄)₂Cr₂O₇
 Starting Material Purity (%): 99.989259
 Starting Material Lot No: F04N14
 Matrix: H₂O

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1000 ± 3 µg/mL

Certified Density: 0.999 g/mL (measured at 22° C)

The Certified Value is based upon the most precise method used to analyze this CRM. The following equations are used in the calculation of the certified value and the uncertainty:

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

(\bar{x}) = mean
 x_i = individual results
 n = number of measurements

$$\text{Uncertainty } (\pm) = \frac{2[(\sum s_i)^2]^{1/2}}{(n)^{1/2}}$$

$\sum s_i$ = The summation of all significant estimated errors (Most common are the errors from instrumental measurement, weighing, dilution to volume, and the fixed error reported on the NIST SRM certificate of analysis.)

The independent samples t-test was used to determine if there is agreement between the above assay methods at the 95% confidence interval. Both methods were compared and showed agreement within the stated uncertainties. This agreement is a confirmation of the accuracy of this CRM.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 Assay Method #1 **1000 ± 3 µg/mL**
 Redox NIST SRM 136e Lot Number: 980702

Assay Method #2 **1001 ± 4 µg/mL**
 ICP Assay NIST SRM 3112a Lot Number: 990607

Reagent Documentation

Reagent: Chromium VI Std 1000 ppm
Date Received: 31 Jan 05
Date Expired: Jan '10
Manufacturer: HACH
Storage Condition: room temp 10-30°C

Reagent #: 201090
By: LMR
Matrix: ag
Amount: 100 ml
Lot #: A5 005

Component	Comment	Standard	Concentration
	HACH cat # 14664-42		

Comment: _____

Reagent: Turbidity Std -20 NTU
Date Received: 3 Feb 05
Date Expired: Jan 2006
Manufacturer: GFS Chemicals
Storage Condition: room temp

Reagent #: 201091
By: LMR
Matrix: ag
Amount: 1-L
Lot #: P410346

Component	Comment	Standard	Concentration
	VWR # 66115-150		

Comment: _____

Reagent: Potassium Phosphate Monobasic
Date Received: 8 Feb 05
Date Expired: Feb 10
Manufacturer: JT Baker
Storage Condition: room temp

Reagent #: 201092
By: LMR
Matrix: solid
Amount: 2 x 500g
Lot #: A38742

Component	Comment	Standard	Concentration
	VWR # JT3246-1		

Comment: _____



An ISO 9001 Certified Company

Certificate of Analysis

Page 1

COMMODITY: Chromium Reference Standard Solution 1000 | 10 mg/L as total Cr
 COMMODITY NUMBER: 14664-42 MANUFACTURE DATE: DATE OF ANALYSIS:
 LOT NUMBER: A5005 12/31/2004 1/4/2005

<i>TEST</i>	<i>SPECIFICATIONS</i>	<i>RESULTS</i>
Hexavalent Chromium Concentration	995 to 1005 ppm	1001.0 ppm
pH of the solution	12 to 14	12.0

The expiration date is Jan 2010

The item 1466442 is traceable to NIST standards SRM 136e Potassium Dichromate LOT N/A.

R 201090

Certified by _____

Paul Kleinwolterink
Analytical Services Chemist