Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Client:	Cardno - Hawaii	Work Order:	WBB0717
Address:	737 Bishop St., Ste. 3050	Project:	ADC Water Quality Monitoring
	Honolulu, HI 96813	Reported:	5/6/2021 16:39
Attn:	Benjamin Berridge		

Case Narrative

Laboratory ID	Sample Name
WBB0717-01	DW-1/WW-1
WBB0717-02	DW-2
WBB0717-03	DW-3
WBB0717-04	WW-2
WBB0717-05	WW-3
WBB0717-06	W-1
WBB0717-07	I-1
WBB0717-08	E-2
WBB0717-09	WW-3 DUP
WBB0717-10	W-2
WBB0717-11	U-1/WW-7
WBB0717-12	U-2/WW-5 WET
WBB0717-13	U-3/WW-4
WBB0717-14	D-2
WBB0717-15	D-3
WBB0717-16	D-4
WBB0717-17	D-5
WBB0717-18	D-6
WBB0717-19	D-7
WBB0717-20	D-8

QA/QC Checks

Parameters	Yes / No	Exceptions / Deviations
Sample Holding Time Valid?	N	See Comments Section
Surrogate Recoveries Valid?	Y	NA
QC Sample(s) Recoveries Valid?	Y	See Comments Section
Method Blank(s) Valid?	Y	NA
Comments	**N**	**See Comments Section**

1. Holding Time Requirements

Some of the EPA 625 samples were extracted past holding time but analyzed within holding time.

2. Calibration Requirements

No problems encountered.

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

3. Surrogate Recovery Requirements

No problems encountered.

4. QC Sample (LCS/MS/MSD) Recovery Requirements

Matrix spike for HCID was low due to matrix interference. Atrazine LCS failed high.

5. Method Blank Requirements

The method blanks were non-detect for all analytes. No problems encountered.

6. Internal Standard(s) Response Requirements

No problems encountered

7. Comments

I certify that this data package is in compliance with the terms and conditions of the contract. Release of the data contained in this data package has been authorized by the Laboratory Manager or his or her designee.

Kathleen A. Sattler, Lab Manager

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Analytical Results Report

Sample Location: DW-1/WW-1

Lab/Sample Number: WBB0717-01 Collect Date: 02/20/21 17:45

Date Received: 02/25/21 13:20 Collected By: Benjamin Berridge

Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Metals by ICP-MS								
Arsenic	0.00224	mg/L	0.0000600	0.00100	3/3/21 13:15	TRC	EPA 200.8	
Mercury								
Mercury	<0.006	ug/L	0.00600	0.100	3/4/21 11:29	TRC	EPA 245.1	
Semivolatiles								
Diesel	0.370	mg/L	0.0520	0.0800	3/5/21 9:41	ARC	NWTPH-HCID	M2, T10
Gasoline	<0.160	mg/L	0.160	0.400	3/5/21 9:41	ARC	NWTPH-HCID	M2
Lube Oil	0.502	mg/L	0.0460	0.0800	3/5/21 9:41	ARC	NWTPH-HCID	M2, T10
Mineral Oil	<0.160	mg/L	0.160	0.400	3/5/21 9:41	ARC	NWTPH-HCID	M2
Surrogate: n-Hexacosane	*85.4%*		*50-150*		*3/5/21 9:41*	*ARC*	*NWTPH-HCID*	*M2*

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Analytical Results Report

(Continued)

Sample Location: DW-2

Lab/Sample Number: WBB0717-02 Collect Date: 02/20/21 15:30

Date Received: 02/25/21 13:20 Collected By: Benjamin Berridge

Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Metals by ICP-MS								
Arsenic	0.00164	mg/L	0.0000600	0.00100	3/3/21 13:18	TRC	EPA 200.8	
Mercury								
Mercury	<0.006	ug/L	0.00600	0.100	3/4/21 11:32	TRC	EPA 245.1	
Semivolatiles								
Diesel	0.333	mg/L	0.0520	0.0800	3/5/21 10:37	ARC	NWTPH-HCID	M2, T10
Gasoline	<0.160	mg/L	0.160	0.400	3/5/21 10:37	ARC	NWTPH-HCID	M2
Lube Oil	0.466	mg/L	0.0460	0.0800	3/5/21 10:37	ARC	NWTPH-HCID	M2, T10
Mineral Oil	<0.160	mg/L	0.160	0.400	3/5/21 10:37	ARC	NWTPH-HCID	M2
Surrogate: n-Hexacosane	*92.2%*		*50-150*		*3/5/21 10:37*	*ARC*	*NWTPH-HCID*	*M2*

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Analytical Results Report

(Continued)

Sample Location: DW-3
Lab/Sample Number: WBB0717-03 Collect Date: 02/20/21 14:15
Date Received: 02/25/21 13:20 Collected By: Benjamin Berridge
Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Metals by ICP-MS								
Arsenic	0.00127	mg/L	0.0000600	0.00100	3/3/21 13:20	TRC	EPA 200.8	
Mercury								
Mercury	<0.006	ug/L	0.00600	0.100	3/4/21 11:34	TRC	EPA 245.1	
Semivolatiles								
Diesel	0.505	mg/L	0.0520	0.0800	3/5/21 11:34	ARC	NWTPH-HCID	M2, T10
Gasoline	<0.160	mg/L	0.160	0.400	3/5/21 11:34	ARC	NWTPH-HCID	M2
Lube Oil	0.639	mg/L	0.0460	0.0800	3/5/21 11:34	ARC	NWTPH-HCID	M2, T10
Mineral Oil	<0.160	mg/L	0.160	0.400	3/5/21 11:34	ARC	NWTPH-HCID	M2
Surrogate: n-Hexacosane	*95.1%*		*50-150*		*3/5/21 11:34*	*ARC*	*NWTPH-HCID*	*M2*

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Analytical Results Report

(Continued)

Sample Location: WW-2

Lab/Sample Number: WBB0717-04 Collect Date: 02/20/21 12:00

Date Received: 02/25/21 13:20 Collected By: Benjamin Berridge

Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Metals by ICP-MS								
Arsenic	0.000243	mg/L	0.0000600	0.00100	3/3/21 13:22	TRC	EPA 200.8	J
Mercury								
Mercury	<0.006	ug/L	0.00600	0.100	3/4/21 11:36	TRC	EPA 245.1	
Semivolatiles								
Diesel	<0.052	mg/L	0.0520	0.0800	3/5/21 14:24	ARC	NWTPH-HCID	
Gasoline	<0.160	mg/L	0.160	0.400	3/5/21 14:24	ARC	NWTPH-HCID	
Lube Oil	<0.046	mg/L	0.0460	0.0800	3/5/21 14:24	ARC	NWTPH-HCID	
Mineral Oil	<0.160	mg/L	0.160	0.400	3/5/21 14:24	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	*88.2%*		*50-150*		*3/5/21 14:24*	*ARC*	*NWTPH-HCID*	

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Analytical Results Report

(Continued)

Sample Location: WW-3

Lab/Sample Number: WBB0717-05 Collect Date: 02/20/21 12:30

Date Received: 02/25/21 13:20 Collected By: Benjamin Berridge

Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Metals by ICP-MS								
Arsenic	0.000739	mg/L	0.0000600	0.00100	3/3/21 13:25	TRC	EPA 200.8	J
Mercury								
Mercury	0.162	ug/L	0.00600	0.100	3/4/21 11:38	TRC	EPA 245.1	
Semivolatiles								
AMPA	<2	ug/L	2.00	10.0	3/2/21 11:05	MER	EPA 547	*
Glyphosate	<1	ug/L	1.00	5.00	3/2/21 11:05	MER	EPA 547	*
Atrazine	<0.200	ug/L	0.200	0.400	3/3/21 20:54	TGT	EPA 625.1	* H4
Chlorpyrifos	<0.2	ug/L	0.200	0.400	3/3/21 20:54	TGT	EPA 625.1	* H4
Metolachlor	<0.2	ug/L	0.200	0.400	3/3/21 20:54	TGT	EPA 625.1	* H4
Surrogate: Terphenyl-d14	*88.0%*		*25-135*		*3/3/21 20:54*	*TGT*	*EPA 625.1*	
Diesel	0.388	mg/L	0.0520	0.0800	3/5/21 17:14	ARC	NWTPH-HCID	T10
Gasoline	<0.160	mg/L	0.160	0.400	3/5/21 17:14	ARC	NWTPH-HCID	
Lube Oil	0.546	mg/L	0.0460	0.0800	3/5/21 17:14	ARC	NWTPH-HCID	T10
Mineral Oil	<0.160	mg/L	0.160	0.400	3/5/21 17:14	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	*88.3%*		*50-150*		*3/5/21 17:14*	*ARC*	*NWTPH-HCID*	

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Analytical Results Report

(Continued)

Sample Location: W-1

Lab/Sample Number: WBB0717-06 Collect Date: 02/20/21 13:15

Date Received: 02/25/21 13:20 Collected By: Benjamin Berridge

Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Metals by ICP-MS								
Arsenic	0.0000870	mg/L	0.0000600	0.00100	3/3/21 13:32	TRC	EPA 200.8	J
Mercury								
Mercury	<0.006	ug/L	0.00600	0.100	3/4/21 11:45	TRC	EPA 245.1	
Semivolatiles								
Diesel	0.189	mg/L	0.0520	0.0800	3/5/21 19:06	ARC	NWTPH-HCID	T10
Gasoline	0.343	mg/L	0.160	0.400	3/5/21 19:06	ARC	NWTPH-HCID	J
Lube Oil	0.397	mg/L	0.0460	0.0800	3/5/21 19:06	ARC	NWTPH-HCID	T10
Mineral Oil	<0.160	mg/L	0.160	0.400	3/5/21 19:06	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	*70.3%*		*50-150*		*3/5/21 19:06*	*ARC*	*NWTPH-HCID*	

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Analytical Results Report

(Continued)

Sample Location: I-1

Lab/Sample Number: WBB0717-07 Collect Date: 02/20/21 18:30

Date Received: 02/25/21 13:20 Collected By: Benjamin Berridge

Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Metals by ICP-MS								
Arsenic	0.000163	mg/L	0.0000600	0.00100	3/3/21 13:34	TRC	EPA 200.8	J
Mercury								
Mercury	0.0939	ug/L	0.00600	0.100	3/4/21 11:48	TRC	EPA 245.1	J
Semivolatiles								
Diesel	0.301	mg/L	0.0520	0.0800	3/5/21 20:02	ARC	NWTPH-HCID	T10
Gasoline	<0.160	mg/L	0.160	0.400	3/5/21 20:02	ARC	NWTPH-HCID	
Lube Oil	0.422	mg/L	0.0460	0.0800	3/5/21 20:02	ARC	NWTPH-HCID	T10
Mineral Oil	<0.160	mg/L	0.160	0.400	3/5/21 20:02	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	*85.3%*		*50-150*		*3/5/21 20:02*	*ARC*	*NWTPH-HCID*	

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Analytical Results Report

(Continued)

Sample Location: E-2

Lab/Sample Number: WBB0717-08 Collect Date: 02/20/21 11:00

Date Received: 02/25/21 13:20 Collected By: Benjamin Berridge

Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Metals by ICP-MS								
Arsenic	0.0125	mg/L	0.0000600	0.00100	3/3/21 13:36	TRC	EPA 200.8	
Mercury								
Mercury	<0.006	ug/L	0.00600	0.100	3/4/21 11:54	TRC	EPA 245.1	
Semivolatiles								
AMPA	<2	ug/L	2.00	10.0	3/2/21 11:11	MER	EPA 547	*
Glyphosate	<1.00	ug/L	1.00	5.00	3/2/21 11:11	MER	EPA 547	*
Atrazine	<0.05	ug/L	0.0500	0.100	3/3/21 21:21	TGT	EPA 625.1	* H4
Chlorpyrifos	<0.05	ug/L	0.0500	0.100	3/3/21 21:21	TGT	EPA 625.1	* H4
Metolachlor	<0.05	ug/L	0.0500	0.100	3/3/21 21:21	TGT	EPA 625.1	* H4
Surrogate: Terphenyl-d14	*45.9%*		*25-135*		*3/3/21 21:21*	*TGT*	*EPA 625.1*	
Diesel	0.425	mg/L	0.0520	0.0800	3/5/21 20:57	ARC	NWTPH-HCID	T10
Gasoline	<0.160	mg/L	0.160	0.400	3/5/21 20:57	ARC	NWTPH-HCID	
Lube Oil	0.681	mg/L	0.0460	0.0800	3/5/21 20:57	ARC	NWTPH-HCID	T10
Mineral Oil	<0.160	mg/L	0.160	0.400	3/5/21 20:57	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	*90.6%*		*50-150*		*3/5/21 20:57*	*ARC*	*NWTPH-HCID*	

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Analytical Results Report

(Continued)

Sample Location: WW-3 DUP

Lab/Sample Number: WBB0717-09 Collect Date: 02/20/21 12:30

Date Received: 02/25/21 13:20 Collected By: Benjamin Berridge

Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Metals by ICP-MS								
Arsenic	0.000798	mg/L	0.0000600	0.00100	3/3/21 13:48	TRC	EPA 200.8	J
Mercury								
Mercury	0.134	ug/L	0.00600	0.100	3/4/21 12:40	TRC	EPA 245.1	
Semivolatiles								
Diesel	0.439	mg/L	0.0520	0.0800	3/6/21 2:29	ARC	NWTPH-HCID	T10
Gasoline	<0.160	mg/L	0.160	0.400	3/6/21 2:29	ARC	NWTPH-HCID	
Lube Oil	0.494	mg/L	0.0460	0.0800	3/6/21 2:29	ARC	NWTPH-HCID	T10
Mineral Oil	<0.160	mg/L	0.160	0.400	3/6/21 2:29	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	*88.0%*		*50-150*		*3/6/21 2:29*	*ARC*	*NWTPH-HCID*	

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Analytical Results Report

(Continued)

Sample Location: W-2
Lab/Sample Number: WBB0717-10 Collect Date: 02/20/21 13:00
Date Received: 02/25/21 13:20 Collected By: Benjamin Berridge
Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Metals by ICP-MS								
Arsenic	0.000176	mg/L	0.0000600	0.00100	3/3/21 13:51	TRC	EPA 200.8	J
Mercury								
Mercury	0.0239	ug/L	0.00600	0.100	3/4/21 11:59	TRC	EPA 245.1	J
Semivolatiles								
Diesel	0.322	mg/L	0.0520	0.0800	3/6/21 3:24	ARC	NWTPH-HCID	T10
Gasoline	<0.160	mg/L	0.160	0.400	3/6/21 3:24	ARC	NWTPH-HCID	
Lube Oil	0.498	mg/L	0.0460	0.0800	3/6/21 3:24	ARC	NWTPH-HCID	T10
Mineral Oil	<0.160	mg/L	0.160	0.400	3/6/21 3:24	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	*92.6%*		*50-150*		*3/6/21 3:24*	*ARC*	*NWTPH-HCID*	

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Analytical Results Report

(Continued)

Sample Location: U-1/WW-7

Lab/Sample Number: WBB0717-11 Collect Date: 02/20/21 16:30

Date Received: 02/25/21 13:20 Collected By: Benjamin Berridge

Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Metals by ICP-MS								
Arsenic	0.000791	mg/L	0.0000600	0.00100	3/3/21 13:53	TRC	EPA 200.8	J
Mercury								
Mercury	0.198	ug/L	0.00600	0.100	3/4/21 12:01	TRC	EPA 245.1	
Semivolatiles								
Diesel	<0.052	mg/L	0.0520	0.0800	3/6/21 4:19	ARC	NWTPH-HCID	
Gasoline	<0.160	mg/L	0.160	0.400	3/6/21 4:19	ARC	NWTPH-HCID	
Lube Oil	<0.046	mg/L	0.0460	0.0800	3/6/21 4:19	ARC	NWTPH-HCID	
Mineral Oil	<0.160	mg/L	0.160	0.400	3/6/21 4:19	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	*94.3%*		*50-150*		*3/6/21 4:19*	*ARC*	*NWTPH-HCID*	

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Analytical Results Report

(Continued)

Sample Location: U-2/WW-5 WET

Lab/Sample Number: WBB0717-12 Collect Date: 02/20/21 14:50

Date Received: 02/25/21 13:20 Collected By: Benjamin Berridge

Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Metals by ICP-MS								
Arsenic	0.000308	mg/L	0.0000600	0.00100	3/3/21 13:55	TRC	EPA 200.8	J
Mercury								
Mercury	0.0266	ug/L	0.00600	0.100	3/4/21 12:04	TRC	EPA 245.1	J
Semivolatiles								
Diesel	<0.052	mg/L	0.0520	0.0800	3/6/21 5:14	ARC	NWTPH-HCID	
Gasoline	<0.160	mg/L	0.160	0.400	3/6/21 5:14	ARC	NWTPH-HCID	
Lube Oil	<0.046	mg/L	0.0460	0.0800	3/6/21 5:14	ARC	NWTPH-HCID	
Mineral Oil	<0.160	mg/L	0.160	0.400	3/6/21 5:14	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	*97.3%*		*50-150*		*3/6/21 5:14*	*ARC*	*NWTPH-HCID*	

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Analytical Results Report

(Continued)

Sample Location: U-3/WW-4

Lab/Sample Number: WBB0717-13 Collect Date: 02/20/21 14:45

Date Received: 02/25/21 13:20 Collected By: Benjamin Berridge

Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Metals by ICP-MS								
Arsenic	0.000468	mg/L	0.0000600	0.00100	3/3/21 13:58	TRC	EPA 200.8	J
Mercury								
Mercury	0.0496	ug/L	0.00600	0.100	3/4/21 12:06	TRC	EPA 245.1	J
Semivolatiles								
Diesel	<0.052	mg/L	0.0520	0.0800	3/6/21 6:09	ARC	NWTPH-HCID	
Gasoline	<0.160	mg/L	0.160	0.400	3/6/21 6:09	ARC	NWTPH-HCID	
Lube Oil	<0.046	mg/L	0.0460	0.0800	3/6/21 6:09	ARC	NWTPH-HCID	
Mineral Oil	<0.160	mg/L	0.160	0.400	3/6/21 6:09	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	*94.6%*		*50-150*		*3/6/21 6:09*	*ARC*	*NWTPH-HCID*	

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Analytical Results Report

(Continued)

Sample Location: D-2

Lab/Sample Number: WBB0717-14 Collect Date: 02/20/21 10:40

Date Received: 02/25/21 13:20 Collected By: Benjamin Berridge

Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Metals by ICP-MS								
Arsenic	0.0143	mg/L	0.0000600	0.00100	3/3/21 14:00	TRC	EPA 200.8	
Mercury								
Mercury	<0.006	ug/L	0.00600	0.100	3/4/21 12:08	TRC	EPA 245.1	
Semivolatiles								
Diesel	0.331	mg/L	0.0520	0.0800	3/6/21 7:05	ARC	NWTPH-HCID	T10
Gasoline	<0.160	mg/L	0.160	0.400	3/6/21 7:05	ARC	NWTPH-HCID	
Lube Oil	0.447	mg/L	0.0460	0.0800	3/6/21 7:05	ARC	NWTPH-HCID	T10
Mineral Oil	<0.160	mg/L	0.160	0.400	3/6/21 7:05	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	*73.7%*		*50-150*		*3/6/21 7:05*	*ARC*	*NWTPH-HCID*	

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Analytical Results Report

(Continued)

Sample Location: D-3

Lab/Sample Number: WBB0717-15 Collect Date: 02/20/21 15:10

Date Received: 02/25/21 13:20 Collected By: Benjamin Berridge

Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Metals by ICP-MS								
Arsenic	0.00217	mg/L	0.0000600	0.00100	3/3/21 14:02	TRC	EPA 200.8	
Mercury								
Mercury	0.00890	ug/L	0.00600	0.100	3/4/21 12:11	TRC	EPA 245.1	J
Semivolatiles								
Diesel	0.358	mg/L	0.0520	0.0800	3/6/21 8:01	ARC	NWTPH-HCID	T10
Gasoline	<0.160	mg/L	0.160	0.400	3/6/21 8:01	ARC	NWTPH-HCID	
Lube Oil	0.391	mg/L	0.0460	0.0800	3/6/21 8:01	ARC	NWTPH-HCID	T10
Mineral Oil	<0.160	mg/L	0.160	0.400	3/6/21 8:01	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	*88.3%*		*50-150*		*3/6/21 8:01*	*ARC*	*NWTPH-HCID*	

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Analytical Results Report

(Continued)

Sample Location: D-4

Lab/Sample Number: WBB0717-16 Collect Date: 02/20/21 11:30

Date Received: 02/25/21 13:20 Collected By: Benjamin Berridge

Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Metals by ICP-MS								
Arsenic	0.00206	mg/L	0.0000600	0.00100	3/3/21 14:09	TRC	EPA 200.8	
Mercury								
Mercury	0.0468	ug/L	0.00600	0.100	3/4/21 12:17	TRC	EPA 245.1	J
Semivolatiles								
Diesel	0.275	mg/L	0.0520	0.0800	3/6/21 8:57	ARC	NWTPH-HCID	T10
Gasoline	<0.160	mg/L	0.160	0.400	3/6/21 8:57	ARC	NWTPH-HCID	
Lube Oil	0.563	mg/L	0.0460	0.0800	3/6/21 8:57	ARC	NWTPH-HCID	T10
Mineral Oil	<0.160	mg/L	0.160	0.400	3/6/21 8:57	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	*93.7%*		*50-150*		*3/6/21 8:57*	*ARC*	*NWTPH-HCID*	

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Analytical Results Report

(Continued)

Sample Location: D-5

Lab/Sample Number: WBB0717-17 Collect Date: 02/20/21 11:40

Date Received: 02/25/21 13:20 Collected By: Benjamin Berridge

Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Metals by ICP-MS								
Arsenic	0.00166	mg/L	0.0000600	0.00100	3/3/21 14:12	TRC	EPA 200.8	
Mercury								
Mercury	0.0391	ug/L	0.00600	0.100	3/4/21 12:20	TRC	EPA 245.1	J
Semivolatiles								
Diesel	<0.052	mg/L	0.0520	0.0800	3/6/21 9:53	ARC	NWTPH-HCID	T10
Gasoline	<0.160	mg/L	0.160	0.400	3/6/21 9:53	ARC	NWTPH-HCID	
Lube Oil	0.426	mg/L	0.0460	0.0800	3/6/21 9:53	ARC	NWTPH-HCID	T10
Mineral Oil	<0.160	mg/L	0.160	0.400	3/6/21 9:53	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	*91.1%*		*50-150*		*3/6/21 9:53*	*ARC*	*NWTPH-HCID*	

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Analytical Results Report

(Continued)

Sample Location: D-6

Lab/Sample Number: WBB0717-18 Collect Date: 02/20/21 16:00

Date Received: 02/25/21 13:20 Collected By: Benjamin Berridge

Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Metals by ICP-MS								
Arsenic	0.00150	mg/L	0.0000600	0.00100	3/3/21 14:14	TRC	EPA 200.8	
Mercury								
Mercury	<0.006	ug/L	0.00600	0.100	3/4/21 12:26	TRC	EPA 245.1	
Semivolatiles								
Diesel	<0.052	mg/L	0.0520	0.0800	3/6/21 10:49	ARC	NWTPH-HCID	
Gasoline	<0.160	mg/L	0.160	0.400	3/6/21 10:49	ARC	NWTPH-HCID	
Lube Oil	<0.046	mg/L	0.0460	0.0800	3/6/21 10:49	ARC	NWTPH-HCID	
Mineral Oil	<0.160	mg/L	0.160	0.400	3/6/21 10:49	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	*95.3%*		*50-150*		*3/6/21 10:49*	*ARC*	*NWTPH-HCID*	

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Analytical Results Report

(Continued)

Sample Location: D-7

Lab/Sample Number: WBB0717-19 Collect Date: 02/20/21 17:30

Date Received: 02/25/21 13:20 Collected By: Benjamin Berridge

Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Metals by ICP-MS								
Arsenic	0.000734	mg/L	0.0000600	0.00100	3/3/21 14:26	TRC	EPA 200.8	J
Mercury								
Mercury	0.101	ug/L	0.00600	0.100	3/4/21 12:29	TRC	EPA 245.1	
Semivolatiles								
Diesel	<0.052	mg/L	0.0520	0.0800	3/6/21 16:26	ARC	NWTPH-HCID	
Gasoline	<0.160	mg/L	0.160	0.400	3/6/21 16:26	ARC	NWTPH-HCID	
Lube Oil	5.67	mg/L	0.0460	0.0800	3/6/21 16:26	ARC	NWTPH-HCID	
Mineral Oil	<0.160	mg/L	0.160	0.400	3/6/21 16:26	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	*87.2%*		*50-150*		*3/6/21 16:26*	*ARC*	*NWTPH-HCID*	

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

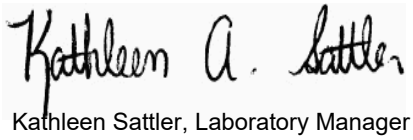
Analytical Results Report

(Continued)

Sample Location: D-8
Lab/Sample Number: WBB0717-20 Collect Date: 02/20/21 17:00
Date Received: 02/25/21 13:20 Collected By: Benjamin Berridge
Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Metals by ICP-MS								
Arsenic	0.00322	mg/L	0.0000600	0.00100	3/3/21 14:28	TRC	EPA 200.8	
Mercury								
Mercury	<0.006	ug/L	0.00600	0.100	3/4/21 12:31	TRC	EPA 245.1	
Semivolatiles								
Diesel	0.488	mg/L	0.0520	0.0800	3/6/21 17:22	ARC	NWTPH-HCID	T10
Gasoline	<0.160	mg/L	0.160	0.400	3/6/21 17:22	ARC	NWTPH-HCID	
Lube Oil	0.999	mg/L	0.0460	0.0800	3/6/21 17:22	ARC	NWTPH-HCID	T10
Mineral Oil	<0.160	mg/L	0.160	0.400	3/6/21 17:22	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	*93.3%*		*50-150*		*3/6/21 17:22*	*ARC*	*NWTPH-HCID*	

Authorized Signature,



Kathleen Sattler, Laboratory Manager

H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time.
J	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
L5	The associated blank spike recovery was above laboratory/method acceptance limits. This analyte was not detected in the sample
M2	Matrix spike recovery was low; the associated blank spike recovery was acceptable. Potential matrix effect.
T10	Non-target analyte in diesel and lube oil range, tentatively identified as heavy fuel oil.
PQL	Practical Quantitation Limit
ND	Not Detected
MDL	Method Detection Limit
Dry	Sample results reported on a dry weight basis
*	Not a state-certified analyte
RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was spiked or duplicated.

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Certifications

Code	Description	Facility	Number
W WA DOE	Washington Department of Ecology	Anatek-Spokane, WA	C585
W FLDOH	Florida Department of Health (NELAC)	Anatek-Spokane, WA	E871099

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Quality Control Data

Metals by ICP-MS

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBC0061 - W 3010 Digest										
Blank (BBC0061-BLK1)					Prepared: 3/2/2021 Analyzed: 3/3/2021					
Arsenic	0.0000770	J	0.00100	mg/L						
LCS (BBC0061-BS1)					Prepared: 3/2/2021 Analyzed: 3/3/2021					
Arsenic	0.0523		0.00100	mg/L	0.0500		105	85-115		
Matrix Spike (BBC0061-MS2)		**Source: WBB0717-15**			Prepared: 3/2/2021 Analyzed: 3/3/2021					
Arsenic	0.0522		0.00100	mg/L	0.0500	0.00217	100	70-130		
Matrix Spike Dup (BBC0061-MSD2)		**Source: WBB0717-15**			Prepared: 3/2/2021 Analyzed: 3/3/2021					
Arsenic	0.0531		0.00100	mg/L	0.0500	0.00217	102	70-130	1.63	20

Quality Control Data

Mercury

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBC0100 - W 245.1 Digest										
Blank (BBC0100-BLK1)					Prepared: 3/3/2021 Analyzed: 3/4/2021					
Mercury	ND		0.100	ug/L						
LCS (BBC0100-BS1)					Prepared: 3/3/2021 Analyzed: 3/4/2021					
Mercury	1.98		0.100	ug/L	2.00		99.2	85-115		
Matrix Spike (BBC0100-MS1)		**Source: WBB0717-05**			Prepared: 3/3/2021 Analyzed: 3/4/2021					
Mercury	2.01		0.100	ug/L	2.00	0.162	92.3	70-130		
Matrix Spike (BBC0100-MS2)		**Source: WBB0717-15**			Prepared: 3/3/2021 Analyzed: 3/4/2021					
Mercury	9.65		0.500	ug/L	10.0	ND	96.5	70-130		
Matrix Spike Dup (BBC0100-MSD1)		**Source: WBB0717-05**			Prepared: 3/3/2021 Analyzed: 3/4/2021					
Mercury	1.97		0.100	ug/L	2.00	0.162	90.5	70-130	1.86	20
Matrix Spike Dup (BBC0100-MSD2)		**Source: WBB0717-15**			Prepared: 3/3/2021 Analyzed: 3/4/2021					
Mercury	10.5		0.500	ug/L	10.0	ND	105	70-130	8.44	20

Quality Control Data

Semivolatiles

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBB0734 - W TPH-Dx										

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Quality Control Data
(Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBB0734 - W TPH-Dx (Continued)										
Blank (BBB0734-BLK1)					Prepared: 2/25/2021 Analyzed: 3/4/2021					
Lube Oil	ND	M2	0.0800	mg/L						
Mineral Oil	ND	M2	0.400	mg/L						
Gasoline	ND	M2	0.400	mg/L						
Diesel	ND	M2	0.0800	mg/L						
Surrogate: n-Hexacosane		*M2*	*45.1*	*mg/L*	*50.0*		*90.3*	*50-150*		
LCS (BBB0734-BS1)					Prepared: 2/25/2021 Analyzed: 3/4/2021					
Diesel	0.783	M2	0.0800	mg/L	1.00		77.9	0-200		
Surrogate: n-Hexacosane		*M2*	*39.1*	*mg/L*	*50.0*		*78.3*	*50-150*		
Duplicate (BBB0734-DUP1)		**Source: WBB0617-22**			Prepared: 2/25/2021 Analyzed: 3/5/2021					
Lube Oil	ND	M2	0.0800	mg/L		ND				200
Mineral Oil	ND	M2	0.400	mg/L		ND				200
Gasoline	ND	M2	0.400	mg/L		ND				200
Diesel	ND	M2	0.0800	mg/L		ND				200
Surrogate: n-Hexacosane		*M2*	*45.5*	*mg/L*	*50.0*		*91.0*	*50-150*		
Matrix Spike (BBB0734-MS1)		**Source: WBB0617-23**			Prepared: 2/25/2021 Analyzed: 3/5/2021					
Diesel	1.02	M2	0.0800	mg/L	1.00	0.531	48.2	0-200		
Surrogate: n-Hexacosane		*M2*	*45.4*	*mg/L*	*50.0*		*90.8*	*50-150*		
Matrix Spike Dup (BBB0734-MSD1)		**Source: WBB0617-23**			Prepared: 2/25/2021 Analyzed: 3/5/2021					
Diesel	1.04	M2	0.0800	mg/L	1.00	0.531	50.6	0-200	2.28	200
Surrogate: n-Hexacosane		*M2*	*48.0*	*mg/L*	*50.0*		*96.0*	*50-150*		
Batch: BBC0012 - Glyphosate										
Blank (BBC0012-BLK1)					Prepared: 3/1/2021 Analyzed: 3/2/2021					
Glyphosate	ND		5.00	ug/L						
AMPA	ND		10.0	ug/L						

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Quality Control Data
(Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBC0012 - Glyphosate (Continued)										
LCS (BBC0012-BS1)					Prepared: 3/1/2021 Analyzed: 3/2/2021					
Glyphosate	42.0		5.00	ug/L	50.0		84.0	70-130		
AMPA	79.1		10.0	ug/L	100		79.1	70-130		
Matrix Spike (BBC0012-MS1)		**Source: WBB0717-05**			Prepared: 3/1/2021 Analyzed: 3/2/2021					
Glyphosate	49.1		5.00	ug/L	50.0	<1	98.2	70-130		
AMPA	76.2		10.0	ug/L	100	<2	76.2	70-130		
Matrix Spike Dup (BBC0012-MSD1)		**Source: WBB0717-05**			Prepared: 3/1/2021 Analyzed: 3/2/2021					
Glyphosate	47.6		5.00	ug/L	50.0	<1	95.2	70-130	3.10	25
AMPA	76.3		10.0	ug/L	100	<2	76.3	70-130	0.131	25
Batch: BBC0111 - SVOC Water										
Blank (BBC0111-BLK1)					Prepared: 3/1/2021 Analyzed: 3/3/2021					
Metolachlor	ND		0.100	ug/L						
Chlorpyrifos	ND		0.100	ug/L						
Atrazine	ND		0.100	ug/L						
Surrogate: Terphenyl-d14			*23.7*	*ug/L*	*25.8*		*92.0*	*25-135*		
LCS (BBC0111-BS1)					Prepared: 3/1/2021 Analyzed: 3/3/2021					
Atrazine	3.39	L5	0.100	ug/L	2.50		136	60-135		
Chlorpyrifos	2.80		0.100	ug/L	2.50		112	50-125		
Metolachlor	3.27		0.100	ug/L	2.50		131	50-135		
Surrogate: Terphenyl-d14			*24.0*	*ug/L*	*25.8*		*93.1*	*25-135*		
LCS Dup (BBC0111-BSD1)					Prepared: 3/1/2021 Analyzed: 3/3/2021					
Atrazine	3.40	L5	0.100	ug/L	2.50		136	60-135	0.295	20
Chlorpyrifos	2.84		0.100	ug/L	2.50		114	50-125	1.42	20
Metolachlor	3.23		0.100	ug/L	2.50		129	50-135	1.23	20
Surrogate: Terphenyl-d14			*21.6*	*ug/L*	*25.8*		*84.1*	*25-135*		

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Quality Control Data
(Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBC0111 - SVOC Water (Continued)										
Duplicate (BBC0111-DUP1)		**Source: WBB0717-05**			Prepared: 3/1/2021 Analyzed: 3/3/2021					
Atrazine	ND		0.100	ug/L		<0.200				200
Chlorpyrifos	ND		0.100	ug/L		<0.2				200
Metolachlor	ND		0.100	ug/L		<0.2				200
Surrogate: Terphenyl-d14			*22.5*	*ug/L*	*25.8*		*87.5*	*25-135*		
Matrix Spike (BBC0111-MS1)		**Source: WBB0717-05**			Prepared: 3/1/2021 Analyzed: 3/3/2021					
Atrazine	13.6		0.400	ug/L	10.0	<0.200	136	40-140		
Chlorpyrifos	11.2		0.400	ug/L	10.0	<0.2	112	40-140		
Metolachlor	13.4		0.400	ug/L	10.0	<0.2	134	40-140		
Surrogate: Terphenyl-d14			*94.4*	*ug/L*	*103*		*91.6*	*60-130*		
Matrix Spike Dup (BBC0111-MSD1)		**Source: WBB0717-05**			Prepared: 3/1/2021 Analyzed: 3/3/2021					
Metolachlor	12.9		0.400	ug/L	10.0	<0.2	129	40-140	3.66	20
Atrazine	13.4		0.400	ug/L	10.0	<0.200	134	40-140	1.78	20
Chlorpyrifos	11.0		0.400	ug/L	10.0	<0.2	110	40-140	1.44	20
Surrogate: Terphenyl-d14			*91.0*	*ug/L*	*103*		*88.3*	*60-130*		
Batch: BBC0132 - W TPH-Dx										
Blank (BBC0132-BLK1)					Prepared: 3/4/2021 Analyzed: 3/5/2021					
Lube Oil	ND		0.0800	mg/L						
Mineral Oil	ND		0.400	mg/L						
Gasoline	ND		0.400	mg/L						
Diesel	ND		0.0800	mg/L						
Surrogate: n-Hexacosane			*43.4*	*mg/L*	*50.0*		*86.7*	*50-150*		
LCS (BBC0132-BS1)					Prepared: 3/4/2021 Analyzed: 3/5/2021					
Diesel	0.981		0.0800	mg/L	1.00		97.6	0-200		
Surrogate: n-Hexacosane			*47.4*	*mg/L*	*50.0*		*94.8*	*50-150*		

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Quality Control Data
(Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBC0132 - W TPH-Dx (Continued)										
Matrix Spike (BBC0132-MS1)		**Source: WBB0717-04**			Prepared: 3/4/2021 Analyzed: 3/5/2021					
Diesel	1.13		0.0800	mg/L	1.00	<0.052	112	0-200		
Surrogate: n-Hexacosane			*48.1*	*mg/L*	*50.0*		*96.3*	*50-150*		
Matrix Spike Dup (BBC0132-MSD1)		**Source: WBB0717-04**			Prepared: 3/4/2021 Analyzed: 3/5/2021					
Diesel	1.07		0.0800	mg/L	1.00	<0.052	106	0-200	5.07	200
Surrogate: n-Hexacosane			*45.0*	*mg/L*	*50.0*		*90.0*	*50-150*		

Anatek Labs, Inc.

Chain of Custody Record

1282 Alturas Drive, Moscow ID 83843 (208) 883-2839 FAX 882-9246
504 E Sprague Ste D, Spokane WA 99202 (509) 838-3999 FAX 838-4433

Anatek Log-In #

WBB0717

Due: 03/11/21

Company Name:	Cardno-GS	Project Manager:	Benjamin Berridge
Address:	737 Bishop St Suite 3050	Project Name & # :	ADC Water Quality Monitoring
City: Honolulu	State: HI Zip: 96813	Email Address :	benjamin.berridge@cardno-gs.com
Phone:	(808) 476-0067	Purchase Order #:	
Fax:		Sampler Name & phone:	

Turn Around

Please refer to our normal turn around times at:
http://www.anateklabs.com/services/guidelines/reporting.asp

- ✓ Normal
- __ Next Day*
- __ 2nd Day*
- __ Other*_____

*All rush order requests must be prior approved.

- __ Phone
- __ Mail
- __ Fax
- x Email

Provide Sample Description / **List Analyses Requested**

Lab ID	Sample Identification	Sampling Date/Time	Matrix	# of Containers	Sample Volume	Preservative	TSS EPA 160.2	TPH HCID - SW 846 MOD 8015	**TPH GRO SW846M8015	Arsenic EPA 200.8	Mercury EPA 245.1	Pesticides EPA 625 SIM	Glyphosate EPA 547	Pesticides Sed EPA 827D	Glyphosate Sed EPA 8321B	
	DW-1/WW-1	2/20/2021 17:45 HST	W	5				x		x	x					
	DW-2	2/20/2021 15:30 HST	W	5				x		x	x					
	DW-3	2/20/2021 14:15 HST	W	5				x		x	x					
	WW-2	2/20/2021 12:00 HST	W	5				x		x	x					
	WW-3	2/20/2021 12:30 HST	W	8				x		x	x	x	x			
	W-1	2/20/2021 13:15 HST	W	5				x		x	x					
	I-1	2/20/2021 18:30 HST	W	5				x		x	x					
	E-2	2/20/2021 11:00 HST	W	8				x		x	x	x	x			
	WW-3 DUP	2/20/2021 12:30 HST	W	8				x		x	x	x	x			
	WW-3 MS/MSD	2/20/2021 12:30 HST	W	8			x	x		x	x	x	x			

Note Special Instructions/Comments

**Please do not conduct TPH GRO analysis until Cardno confirms it should be run.

Inspection Checklist

Received Intact?	(Y)	N
Labels & Chains Agree?	(Y)	N
Containers Sealed?	(Y)	N
VOC Head Space?	Y	(N)

Cooler | Tec | Fed Ex

Temperature (°C): (C1 2.3)(C2 3.4)(C3 2.8)(C4 4.7) (C5)

Preservative: HCl 2003851 HNO_3 2002280

pH<2 2001015

Date & Time:

Inspected By:

	Printed Name	Signature	Company	Date	Time
Relinquished by	Ben Berridge		Cardno	2/22/21	14:00
Received by	Kathy Sattler	Kathy Sattler	Anatek Labs	2-25-21	1320
Relinquished by					
Received by					
Relinquished by					
Received by					

WBB0717

Due: 03/11/21

Anatek Labs, Inc.

Chain of Custody Record

1282 Alturas Drive, Moscow ID 83843 (208) 883-2839 FAX 882-9246
504 E Sprague Ste D, Spokane WA 99202 (509) 838-3999 FAX 838-4433

Anatek Log-In #

Company Name:	Cardno-GS	Project Manager:	Benjamin Berridge
Address:	737 Bishop St Suite 3050	Project Name & # :	ADC Water Quality Monitoring
City: Honolulu	State: HI Zip: 96813	Email Address :	benjamin.berridge@cardno-gs.com
Phone:	(808) 476-0067	Purchase Order #:	
Fax:		Sampler Name & phone:	

Turn A

Please refer to our normal turn around times at:
http://www.anateklabs.com/services/guidelines/reporting.asp

✓ Normal
__Next Day*
__2nd Day*
__Other*_____

*All rush order requests must be prior approved.

__Phone
__Mail
__Fax
x Email

Provide Sample Description / **List Analyses Requested**

Lab ID	Sample Identification	Sampling Date/Time	Matrix	Preservative:	# of Containers	Sample Volume	TSS EPA 160.2	TPH HCID - SW846 MOD 8015	**TPH GRO SW846M8015	Arsenic EPA 200.8	Mercury EPA 245.1
	W-2	2/20/2021 13:00 HST	W		5			x		x	x
	U-1/WW-7	2/20/2021 16:30 HST	W		5			x		x	x
	U-2/WW-5 WET	2/20/2021 14:50 HST	W		5			x		x	x
	U-3/WW-4	2/20/2021 14:45 HST	W		5			x		x	x
	D-2	2/20/2021 10:40 HST	W		5			x		x	x
	D-3	2/20/2021 15:10 HST	W		5			x		x	x
	D-4	2/20/2021 11:30 HST	W		5			x		x	x
	D-5	2/20/2021 11:40 HST	W		5			x		x	x
	D-6	2/20/2021 16:00 HST	W		5			x		x	x
	D-7	2/20/2021 17:30 HST	W		5			x		x	x
	D-8	2/20/2021 17:00 HST	W		5			x		x	x

Note Special Instructions/Comments

**Please do not conduct TPH GRO analysis until Cardno confirms it should be run.

Inspection Checklist

Received Intact?	(Y)	N
Labels & Chains Agree?	(Y)	N
Containers Sealed?	(Y)	N
VOC Head Space?	Y	(N)

Cooler Ice FedEx

Temperature (°C): See Page 1

Preservative:

Date & Time:

Inspected By:

	Printed Name	Signature	Company	Date	Time
Relinquished by	Ben Berridge		Cardno	2-22-21	14:00
Received by	Kathy Sattler	Kathy Sattler	Anatek Labs	2-25-21	1320
Relinquished by					
Received by					
Relinquished by					
Received by					

Form COC01.00 - Eff 1 Mar 2015

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10055.D Vial: 41
Acq On : 05 Mar 2021 12:30 Operator: ARC
Sample : BBC0132-BLK1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 05 13:18:50 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1) I	Pentacosane	24.94	98795895	50.000	ppm	m
	System Monitoring Compounds					
2) S	Hexacosane	25.65	83287904	43.367	ppm	m
Spiked Amount	50.000	Range 50 - 150	Recovery =	86.73%		
	Target Compounds					
3) H	TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4) H	TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5) H	Mineral Oil	0.00	0	N.D.	ppm	
6) h	HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7) h	HCID Diesel (C12-C14)	0.00	0	N.D.	ppm	
8) h	HCID Oil (>C14)	0.00	0	N.D.	ppm	

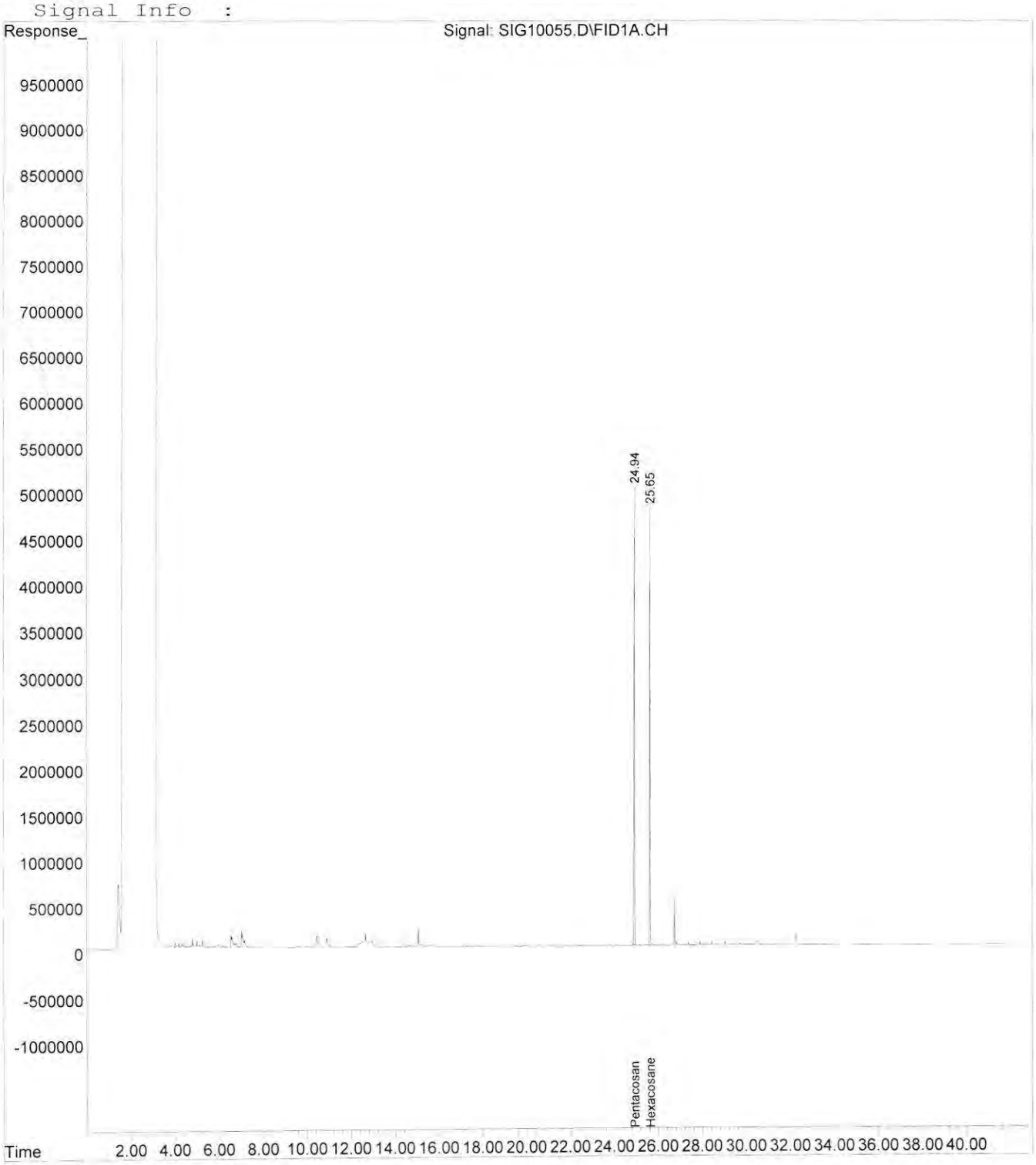
(f)=RT Delta > 1/2 Window (m)=manual in

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10055.D Vial: 41
Acq On : 05 Mar 2021 12:30 Operator: ARC
Sample : BBC0132-BLK1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 5 13:19 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10056.D Vial: 42
Acq On : 05 Mar 2021 13:27 Operator: ARC
Sample : BBC0132-BS1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 05 14:13:07 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

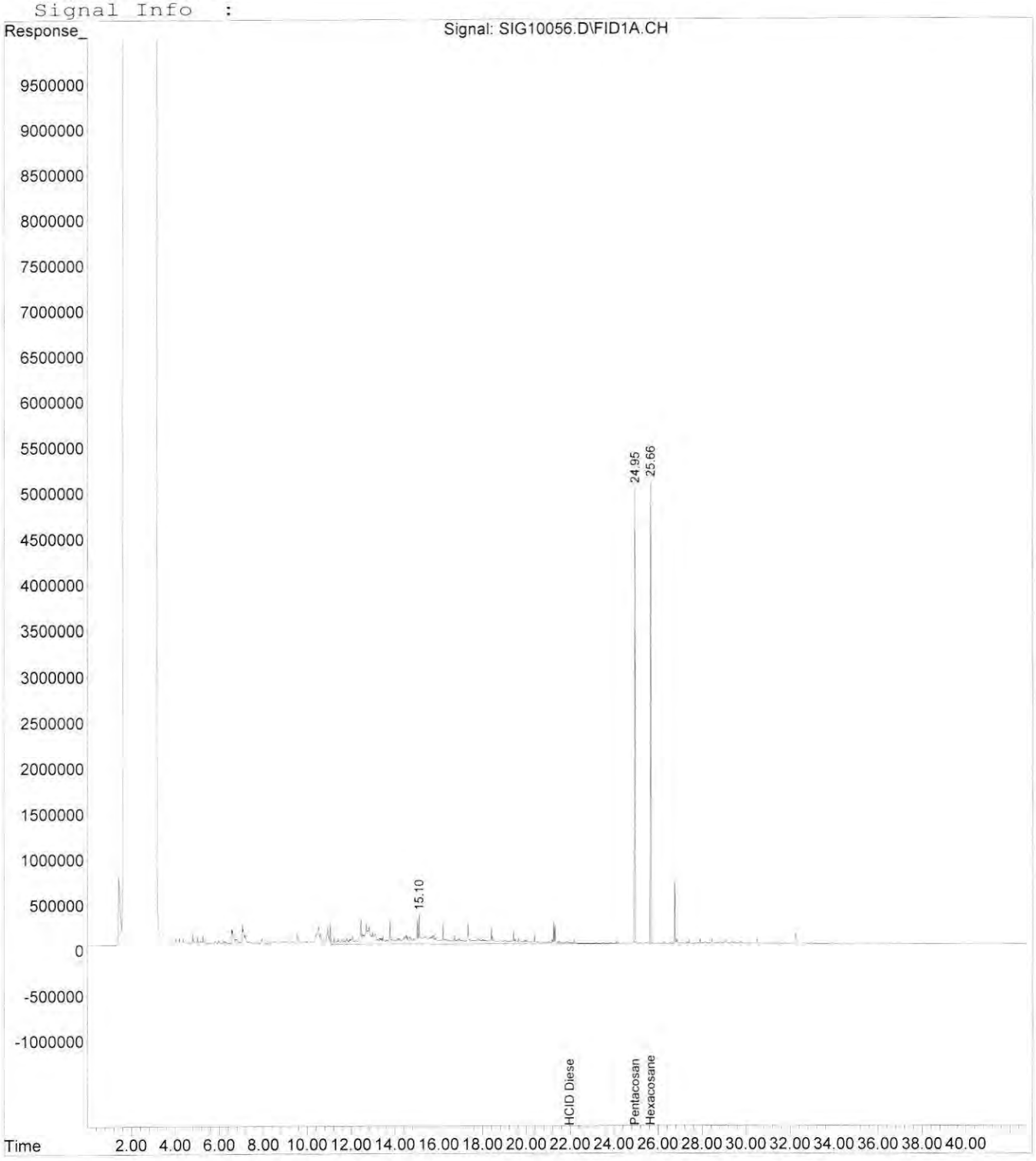
	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1)	I Pentacosane	24.95	106633815	50.000	ppm	m
	System Monitoring Compounds					
2)	S Hexacosane	25.66	98241839	47.393	ppm	m
Spiked Amount	50.000	Range 50 - 150	Recovery =	94.79%		
	Target Compounds					
3)	H TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H Mineral Oil	0.00	0	N.D.	ppm	
6)	h HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h HCID Diesel (C12-C14)	21.97	306180794	245.334	ppm	
8)	h HCID Oil (>C14)	0.00	0	N.D.	ppm	

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10056.D Vial: 42
Acq On : 05 Mar 2021 13:27 Operator: ARC
Sample : BBC0132-BS1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 5 14:13 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10057.D Vial: 43
Acq On : 05 Mar 2021 14:24 Operator: ARC
Sample : WBB0717-04 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 05 15:09:40 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc	Units	
Internal Standards					
1) I Pentacosane	24.95	103803250	50.000	ppm	m
System Monitoring Compounds					
2) S Hexacosane	25.65	89009654	44.111	ppm	m
Spiked Amount 50.000 Range 50 - 150		Recovery =	88.22%		
Target Compounds					
3) H TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4) H TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5) H Mineral Oil	0.00	0	N.D.	ppm	
6) h HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7) h HCID Diesel (C12-C14)	0.00	0	N.D.	ppm	
8) h HCID Oil (>C14)	0.00	0	N.D.	ppm	

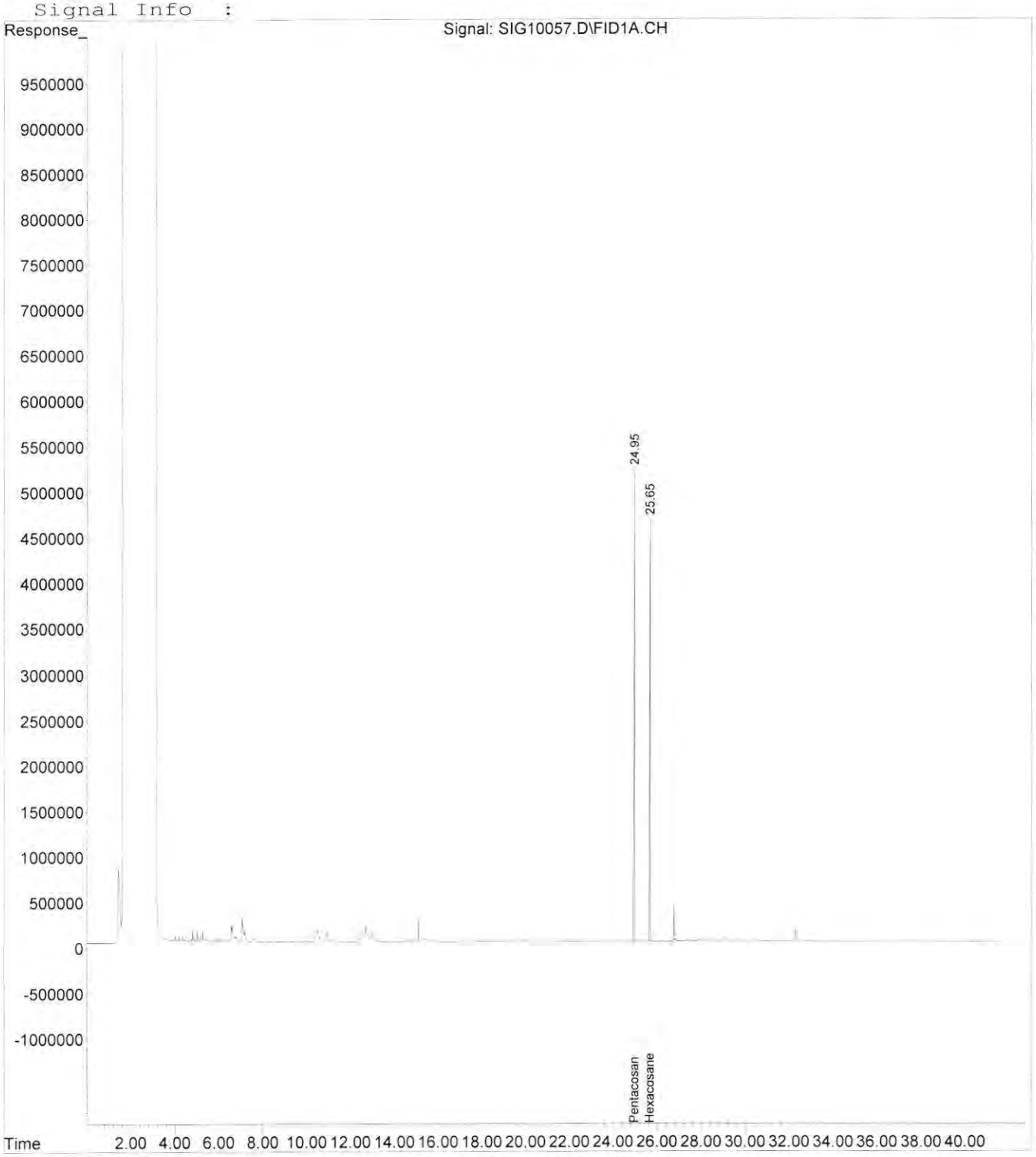
(f)=RT Delta > 1/2 Window (m)=manual int
SIG10057.D 210301LOW.M Mon Mar 08 10:13:17 2021

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10057.D Vial: 43
Acq On : 05 Mar 2021 14:24 Operator: ARC
Sample : WBB0717-04 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 5 15:10 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10058.D Vial: 44
Acq On : 05 Mar 2021 15:21 Operator: ARC
Sample : BBC0132-MS1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 05 16:09:56 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1)	I Pentacosane	24.95	98643988	50.000	ppm	m
	System Monitoring Compounds					
2)	S Hexacosane	25.65	92296361	48.132	ppm	m
Spiked Amount	50.000	Range 50 - 150	Recovery =	96.26%		
	Target Compounds					
3)	H TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H Mineral Oil	0.00	0	N.D.	ppm	
6)	h HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h HCID Diesel (C12-C14)	21.97	324813831	281.345	ppm	
8)	h HCID Oil (>C14)	0.00	0	N.D.	ppm	

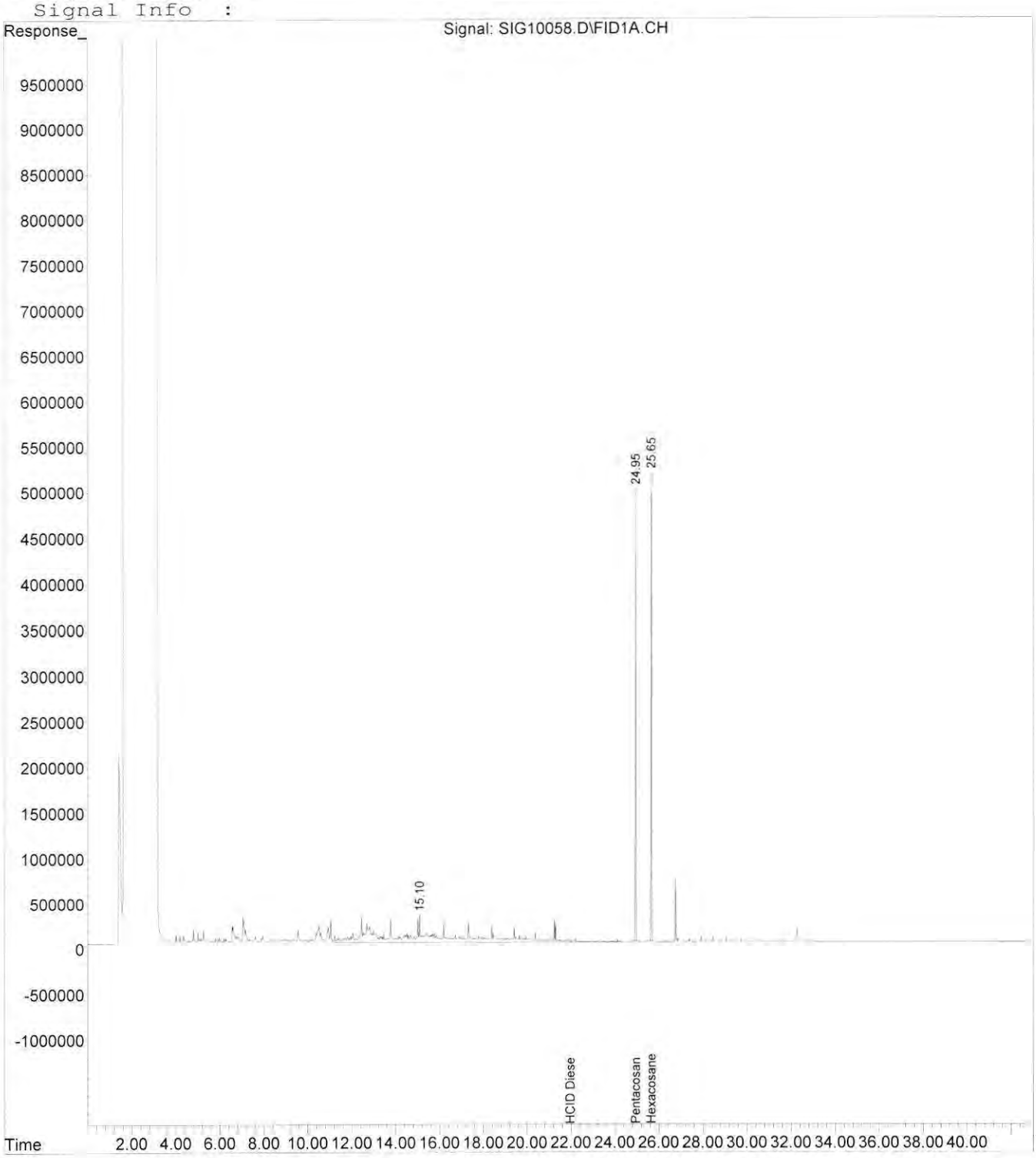
(f)=RT Delta > 1/2 Window (m)=manual in

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10058.D Vial: 44
Acq On : 05 Mar 2021 15:21 Operator: ARC
Sample : BBC0132-MS1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 5 16:10 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10059.D Vial: 45
Acq On : 05 Mar 2021 16:18 Operator: ARC
Sample : BBC0132-MSD1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 08 07:54:31 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

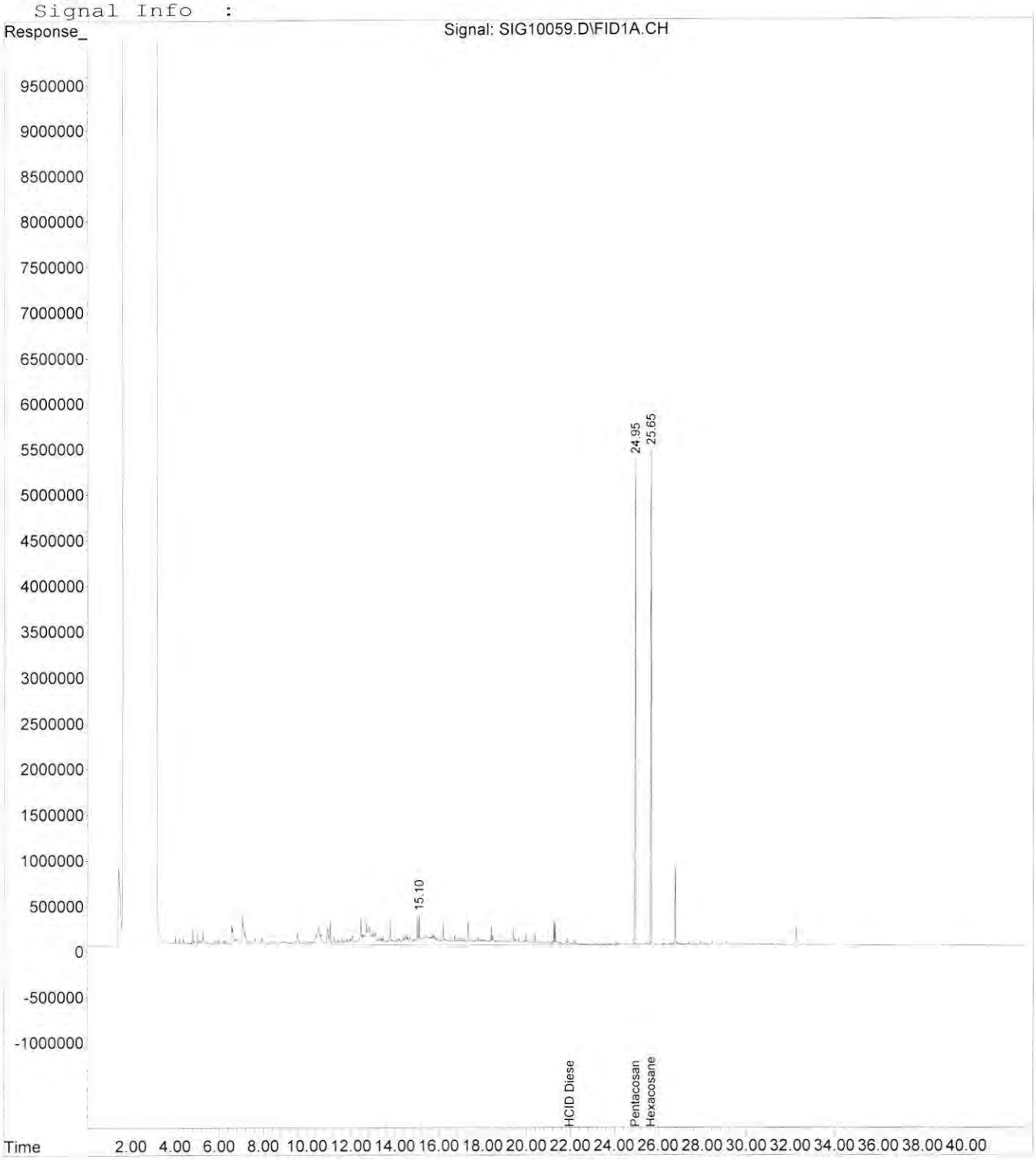
		Compound	R.T.	Response	Conc	Units	
		Internal Standards					
1)	I	Pentacosane	24.95	117045999	50.000	ppm	m
		System Monitoring Compounds					
2)	S	Hexacosane	25.65	102390030	45.000	ppm	m
Spiked Amount		50.000	Range 50 - 150		Recovery =	90.00%	
		Target Compounds					
3)	H	TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H	TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H	Mineral Oil	0.00	0	N.D.	ppm	
6)	h	HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h	HCID Diesel (C12-C14)	21.97	366351052	267.434	ppm	
8)	h	HCID Oil (>C14)	0.00	0	N.D.	ppm	

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10059.D Vial: 45
Acq On : 05 Mar 2021 16:18 Operator: ARC
Sample : BBC0132-MSD1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 8 8:01 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10060.D Vial: 46
Acq On : 05 Mar 2021 17:14 Operator: ARC
Sample : WBB0717-05 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 08 07:54:32 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

		Compound	R.T.	Response	Conc	Units	
		Internal Standards					
1)	I	Pentacosane	24.95	121617696	50.000	ppm	m
		System Monitoring Compounds					
2)	S	Hexacosane	25.66	104379975	44.151	ppm	m
Spiked Amount		50.000 Range 50 - 150		Recovery =	88.30%		
		Target Compounds					
3)	H	TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H	TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H	Mineral Oil	0.00	0	N.D.	ppm	
6)	h	HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h	HCID Diesel (C12-C14)	21.97	138170528	97.072	ppm	
8)	h	HCID Oil (>C14)	26.20	146814581	136.590	ppm	

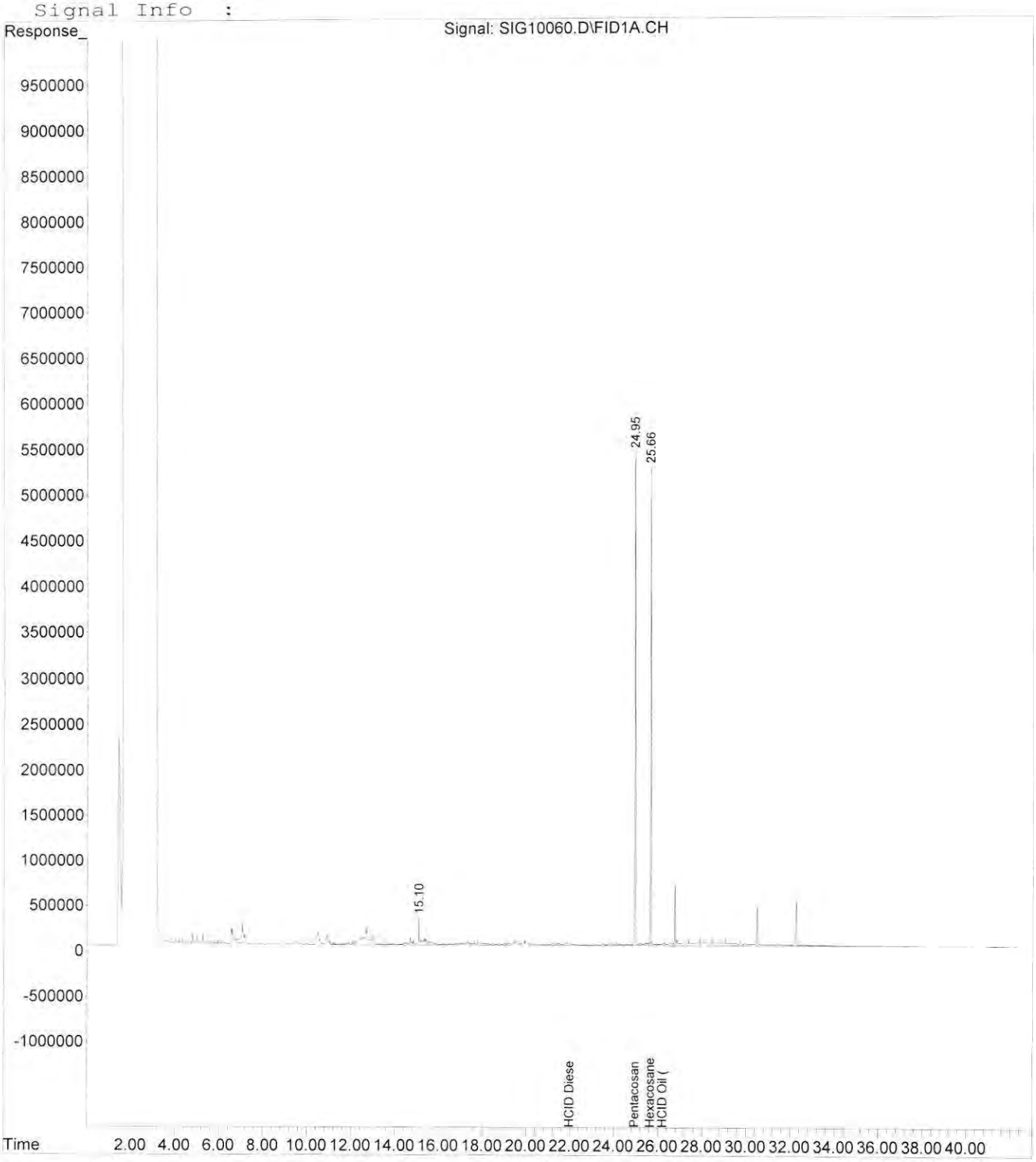
(f)=RT Delta > 1/2 Window (m)=manual int

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10060.D Vial: 46
Acq On : 05 Mar 2021 17:14 Operator: ARC
Sample : WBB0717-05 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 8 13:59 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10062.D Vial: 48
Acq On : 05 Mar 2021 19:06 Operator: ARC
Sample : WBB0717-06 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 08 07:54:34 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1)	I Pentacosane	24.96	136053476	50.000	ppm	m
	System Monitoring Compounds					
2)	S Hexacosane	25.66	92943028	35.142	ppm	m
Spiked Amount	50.000	Range 50 - 150	Recovery =	70.28%		
	Target Compounds					
3)	H TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H Mineral Oil	0.00	0	N.D.	ppm	
6)	h HCID Gas (C7-C12)	5.05	142755148	85.699	ppm	
7)	h HCID Diesel (C12-C14)	21.97	75152168	47.196	ppm	
8)	h HCID Oil (>C14)	26.20	119378572	99.280	ppm	

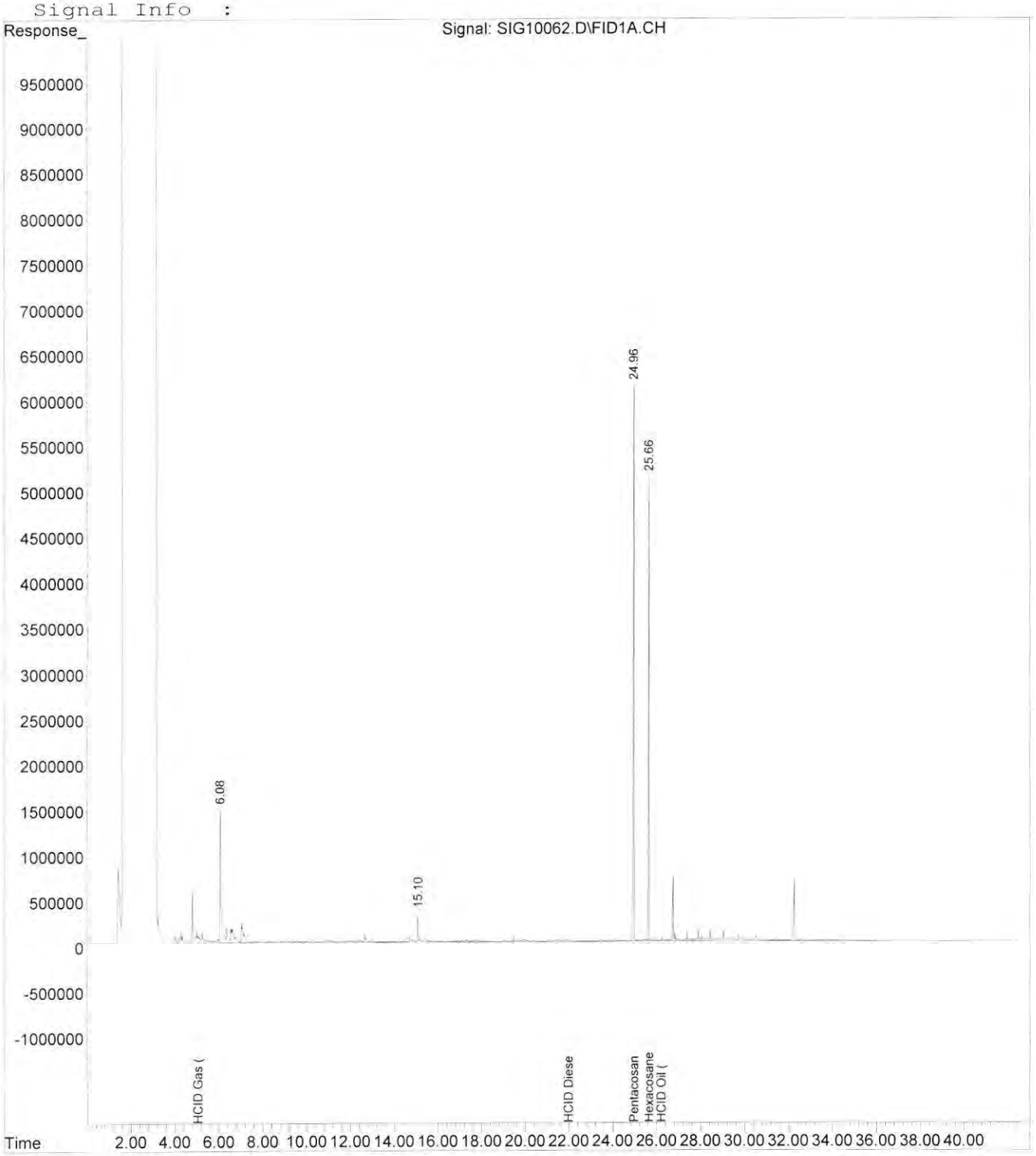
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10062.D Vial: 48
Acq On : 05 Mar 2021 19:06 Operator: ARC
Sample : WBB0717-06 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 8 14:04 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10063.D Vial: 49
Acq On : 05 Mar 2021 20:02 Operator: ARC
Sample : WBB0717-07 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 08 07:54:35 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1)	I Pentacosane	24.95	126275573	50.000	ppm	m
	System Monitoring Compounds					
2)	S Hexacosane	25.66	104660395	42.636	ppm	m
Spiked Amount	50.000	Range 50 - 150	Recovery =	85.27%		
	Target Compounds					
3)	H TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H Mineral Oil	0.00	0	N.D.	ppm	
6)	h HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h HCID Diesel (C12-C14)	21.97	111290887	75.304	ppm	
8)	h HCID Oil (>C14)	26.20	117749963	105.508	ppm	

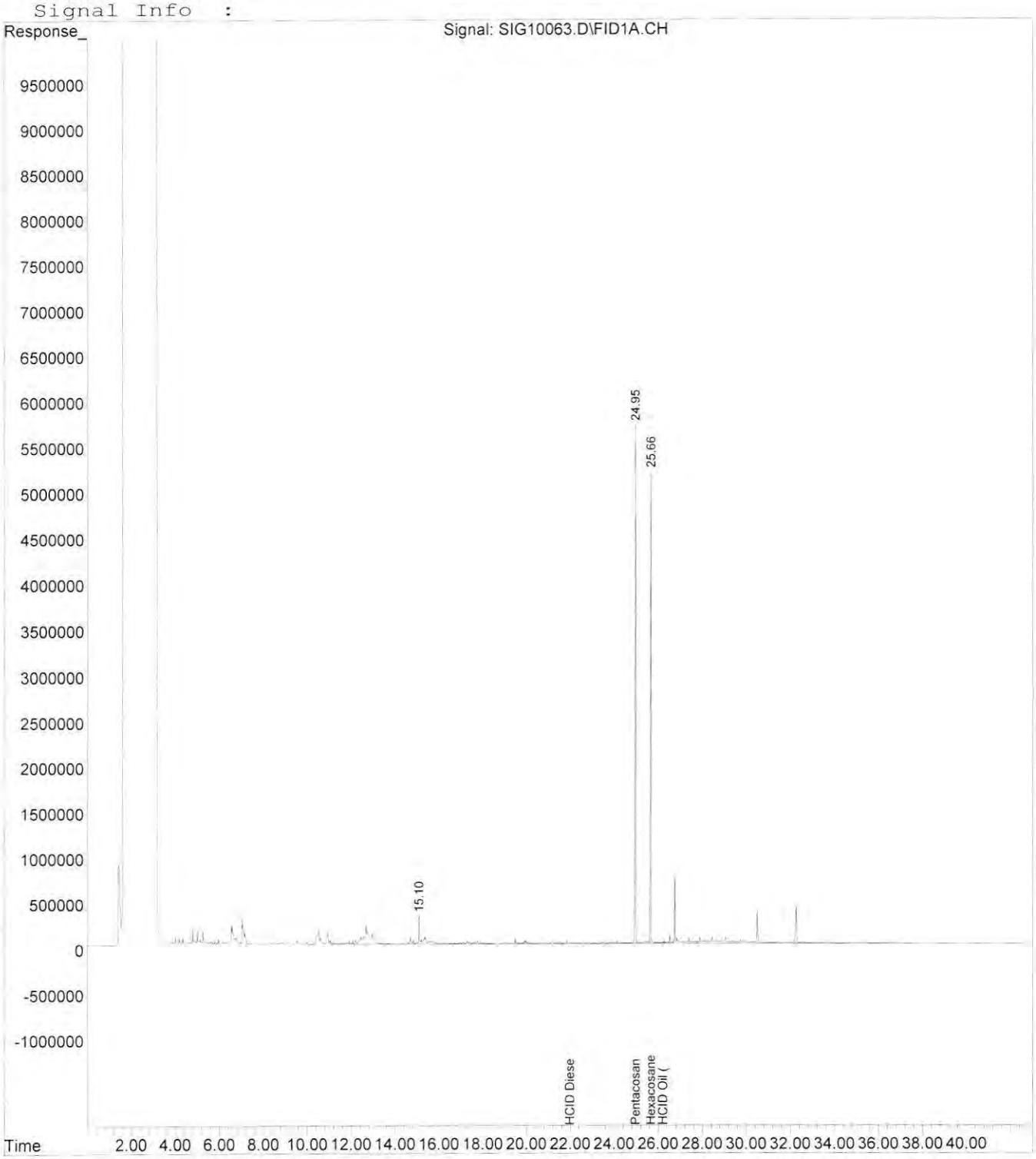
(f)=RT Delta > 1/2 Window (m)=manual int
SIG10063.D 210301LOW.M Mon Mar 08 14:13:08 2021

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10063.D Vial: 49
Acq On : 05 Mar 2021 20:02 Operator: ARC
Sample : WBB0717-07 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 8 14:05 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10064.D Vial: 50
Acq On : 05 Mar 2021 20:57 Operator: ARC
Sample : WBB0717-08 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 08 07:54:36 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

		Compound	R.T.	Response	Conc	Units	
		Internal Standards					
1)	I	Pentacosane	24.95	115832795	50.000	ppm	m
		System Monitoring Compounds					
2)	S	Hexacosane	25.66	102029538	45.312	ppm	m
Spiked Amount		50.000	Range	50 - 150	Recovery	=	90.62%
		Target Compounds					
3)	H	TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H	TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H	Mineral Oil	0.00	0	N.D.	ppm	
6)	h	HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h	HCID Diesel (C12-C14)	21.97	143958102	106.189	ppm	
8)	h	HCID Oil (>C14)	26.20	174288998	170.249	ppm	

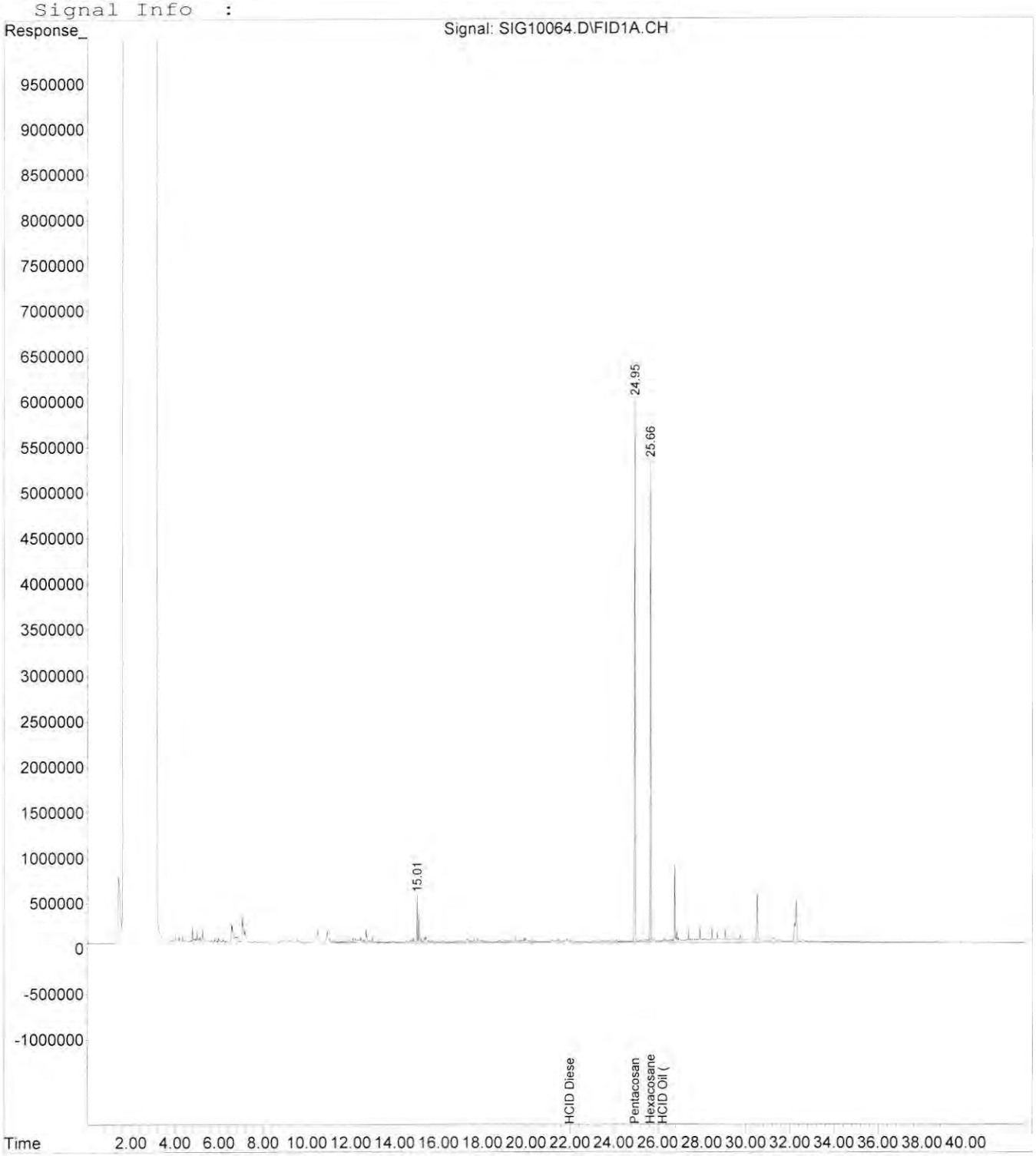
(f)=RT Delta > 1/2 Window (m)=manual int

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10064.D Vial: 50
Acq On : 05 Mar 2021 20:57 Operator: ARC
Sample : WBB0717-08 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 8 8:05 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10070.D Vial: 51
Acq On : 06 Mar 2021 2:29 Operator: ARC
Sample : WBB0717-09 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 08 07:54:42 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1)	I Pentacosane	24.95	116898947	50.000	ppm	m
	System Monitoring Compounds					
2)	S Hexacosane	25.65	99930227	43.975	ppm	m
Spiked Amount	50.000	Range 50 - 150	Recovery =	87.95%		
	Target Compounds					
3)	H TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H Mineral Oil	0.00	0	N.D.	ppm	
6)	h HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h HCID Diesel (C12-C14)	21.97	150067253	109.686	ppm	
8)	h HCID Oil (>C14)	26.20	127620959	123.525	ppm	

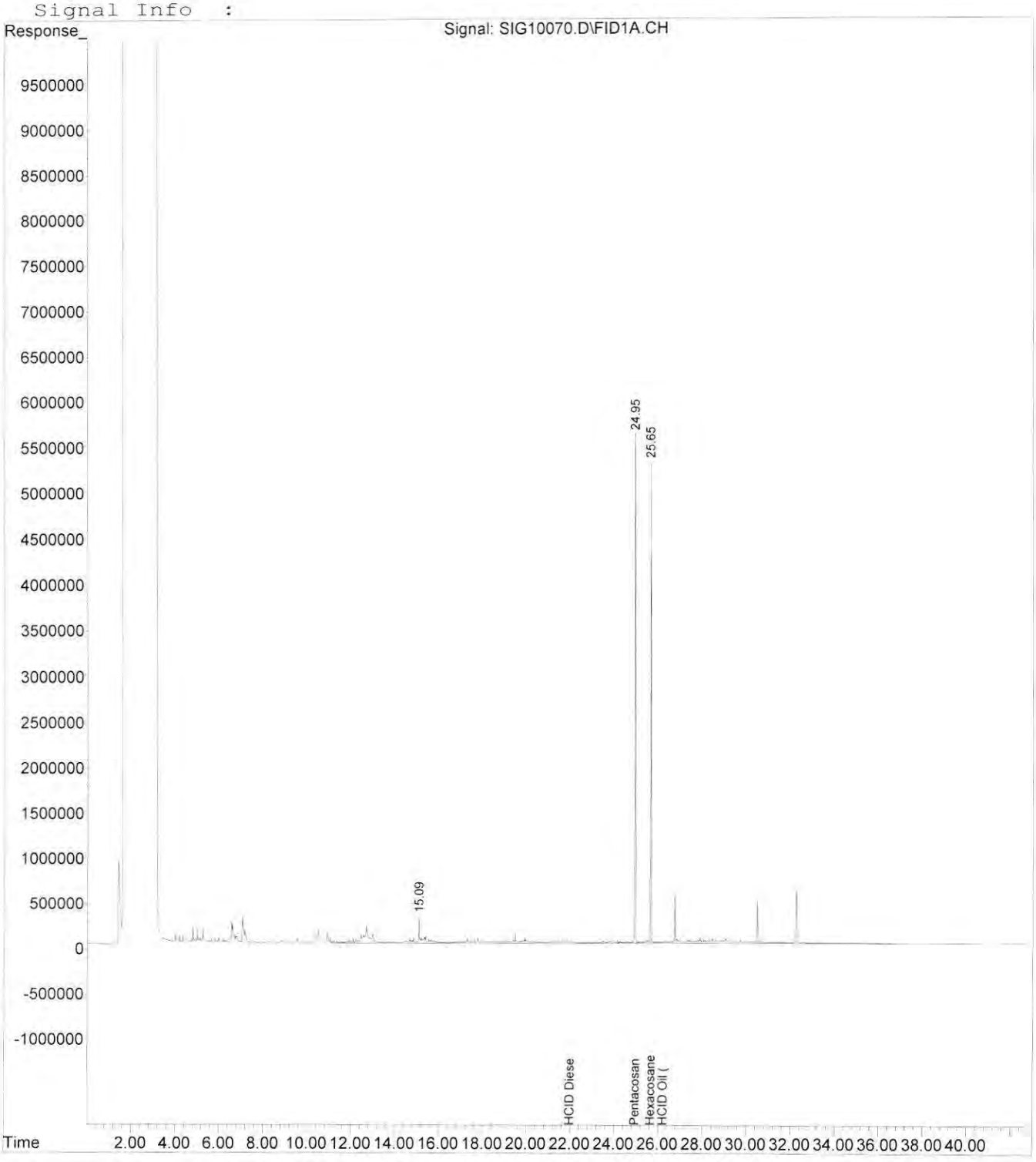
(f)=RT Delta > 1/2 Window (m)=manual int

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10070.D Vial: 51
Acq On : 06 Mar 2021 2:29 Operator: ARC
Sample : WBB0717-09 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 8 8:08 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10071.D Vial: 52
Acq On : 06 Mar 2021 3:24 Operator: ARC
Sample : WBB0717-10 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 08 07:54:43 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1)	I Pentacosane	24.94	91249751	50.000	ppm	m
	System Monitoring Compounds					
2)	S Hexacosane	25.65	82173249	46.325	ppm	m
Spiked Amount	50.000	Range 50 - 150	Recovery =	92.65%		
	Target Compounds					
3)	H TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H Mineral Oil	0.00	0	N.D.	ppm	
6)	h HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h HCID Diesel (C12-C14)	21.97	86071532	80.594	ppm	
8)	h HCID Oil (>C14)	26.20	100312433	124.385	ppm	

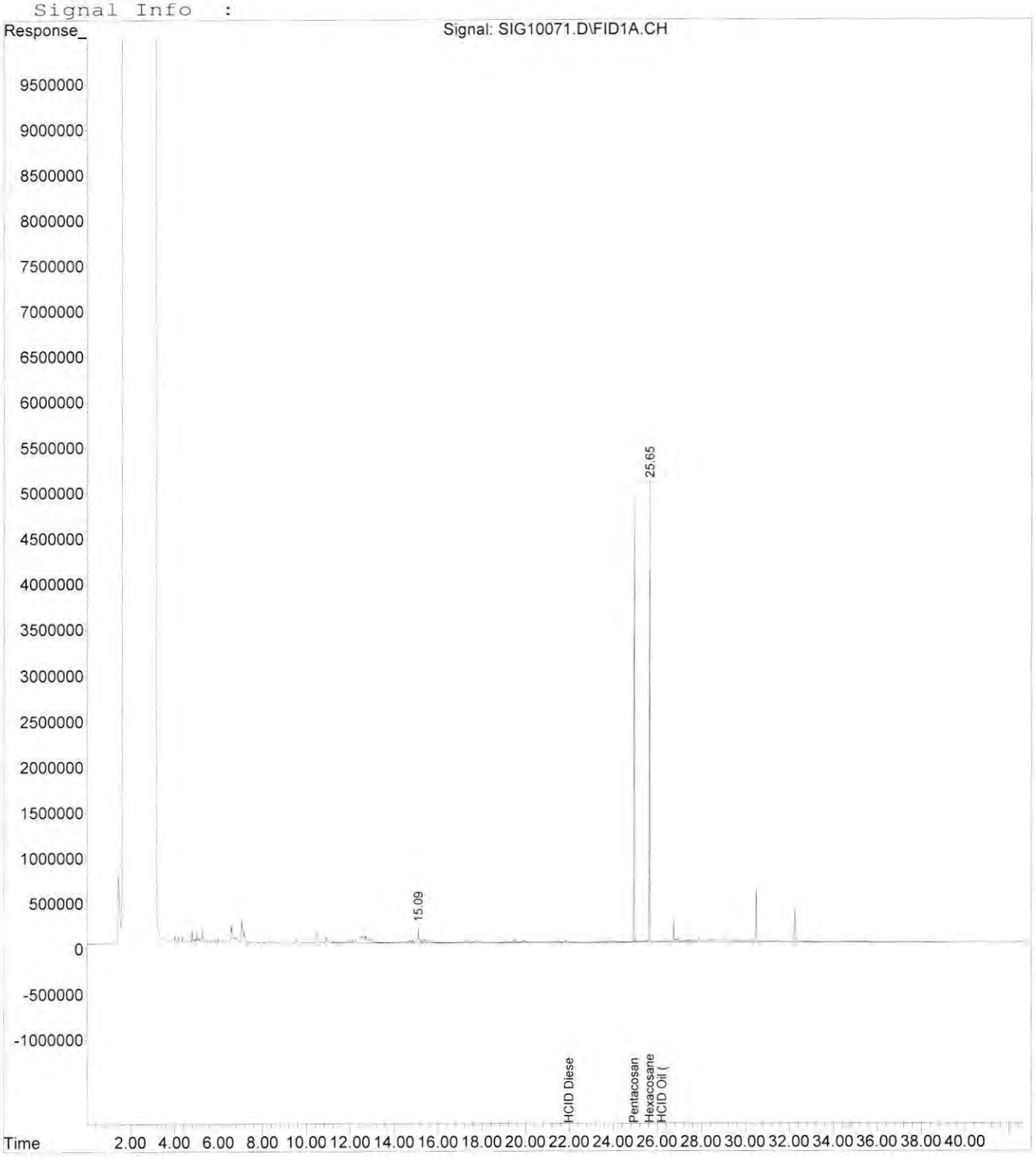
(f)=RT Delta > 1/2 Window (m)=manual int

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10071.D Vial: 52
Acq On : 06 Mar 2021 3:24 Operator: ARC
Sample : WBB0717-10 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 8 8:09 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10072.D Vial: 53
Acq On : 06 Mar 2021 4:19 Operator: ARC
Sample : WBB0717-11 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 08 07:54:44 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

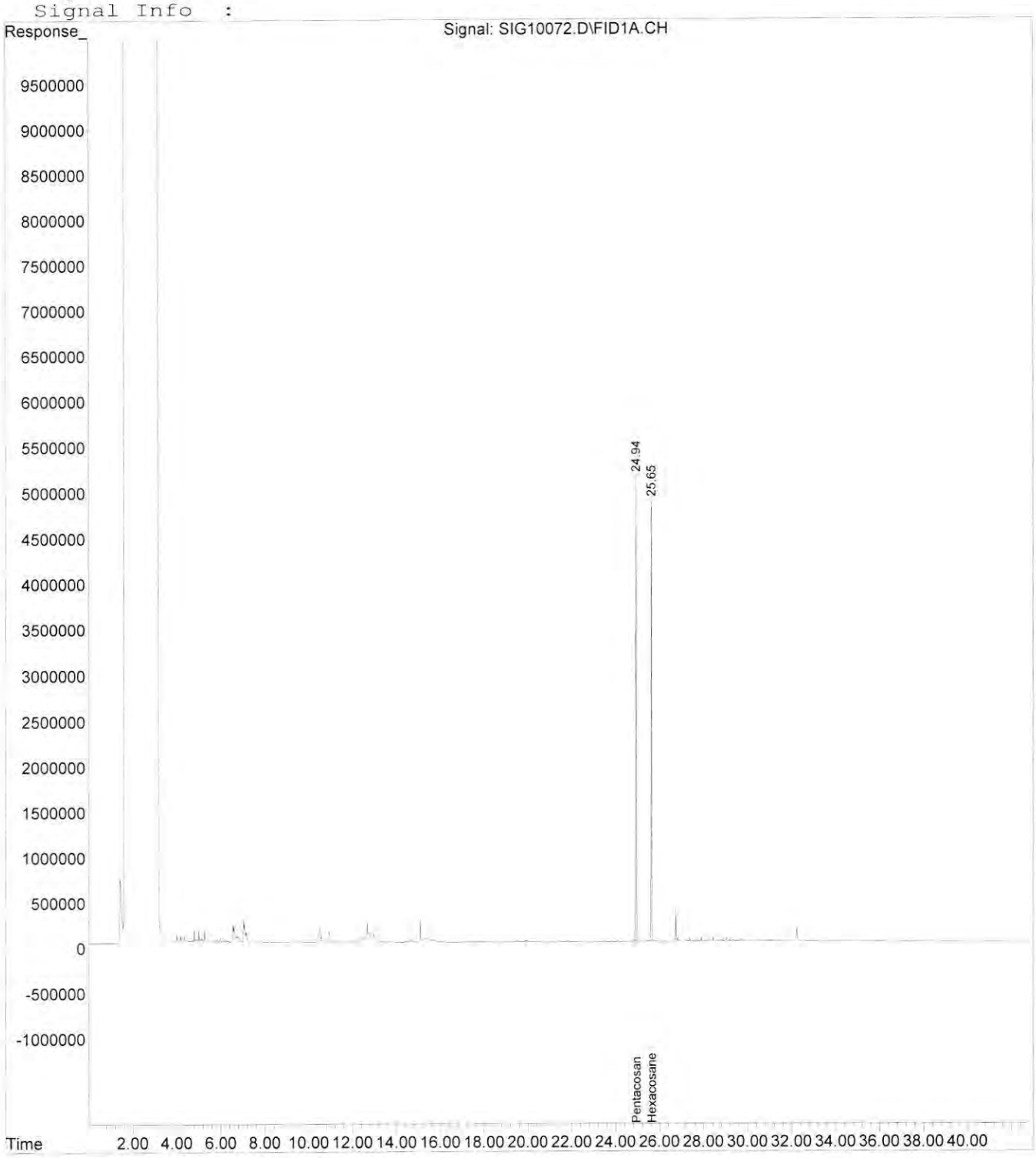
		Compound	R.T.	Response	Conc	Units	
		Internal Standards					
1)	I	Pentacosane	24.94	102738420	50.000	ppm	m
		System Monitoring Compounds					
2)	S	Hexacosane	25.65	94178211	47.156	ppm	m
Spiked Amount 50.000 Range 50 - 150 Recovery = 94.31%							
		Target Compounds					
3)	H	TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H	TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H	Mineral Oil	0.00	0	N.D.	ppm	
6)	h	HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h	HCID Diesel (C12-C14)	0.00	0	N.D.	ppm	
8)	h	HCID Oil (>C14)	0.00	0	N.D.	ppm	

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10072.D Vial: 53
Acq On : 06 Mar 2021 4:19 Operator: ARC
Sample : WBB0717-11 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 8 8:09 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10073.D Vial: 54
Acq On : 06 Mar 2021 5:14 Operator: ARC
Sample : WBB0717-12 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 08 07:54:45 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1)	I Pentacosane	24.95	135752285	50.000	ppm	m
	System Monitoring Compounds					
2)	S Hexacosane	25.66	128426267	48.666	ppm	m
Spiked Amount	50.000	Range 50 - 150	Recovery =	97.33%		
	Target Compounds					
3)	H TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H Mineral Oil	0.00	0	N.D.	ppm	
6)	h HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h HCID Diesel (C12-C14)	0.00	0	N.D.	ppm	
8)	h HCID Oil (>C14)	0.00	0	N.D.	ppm	

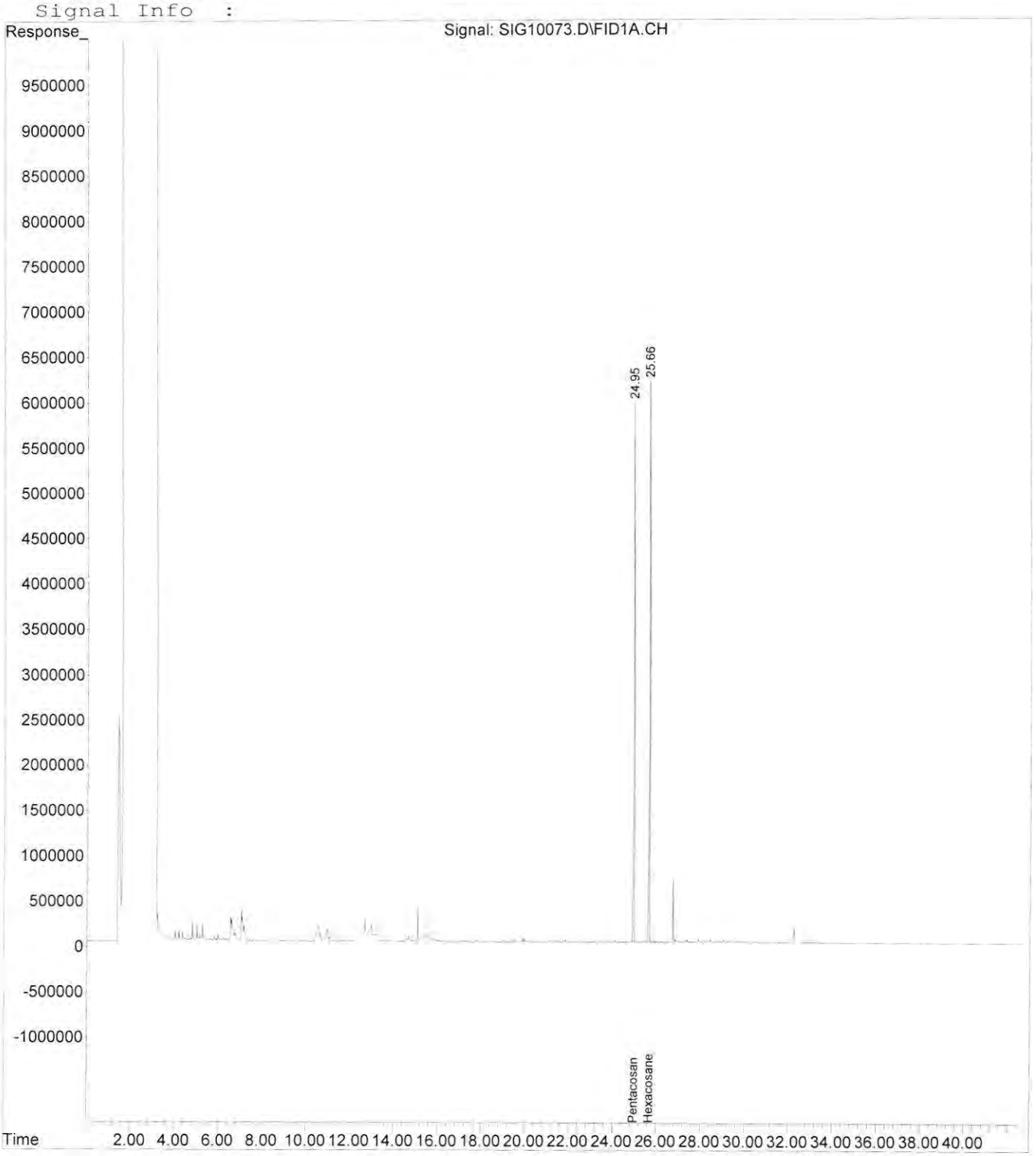
(f)=RT Delta > 1/2 Window (m)=manual int

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10073.D Vial: 54
Acq On : 06 Mar 2021 5:14 Operator: ARC
Sample : WBB0717-12 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 8 8:10 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10074.D Vial: 55
Acq On : 06 Mar 2021 6:09 Operator: ARC
Sample : WBB0717-13 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 08 07:54:46 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1) I	Pentacosane	24.95	129287671	50.000	ppm	m
	System Monitoring Compounds					
2) S	Hexacosane	25.66	118878552	47.300	ppm	m
Spiked Amount	50.000	Range 50 - 150	Recovery =	94.60%		
	Target Compounds					
3) H	TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4) H	TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5) H	Mineral Oil	0.00	0	N.D.	ppm	
6) h	HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7) h	HCID Diesel (C12-C14)	0.00	0	N.D.	ppm	
8) h	HCID Oil (>C14)	0.00	0	N.D.	ppm	

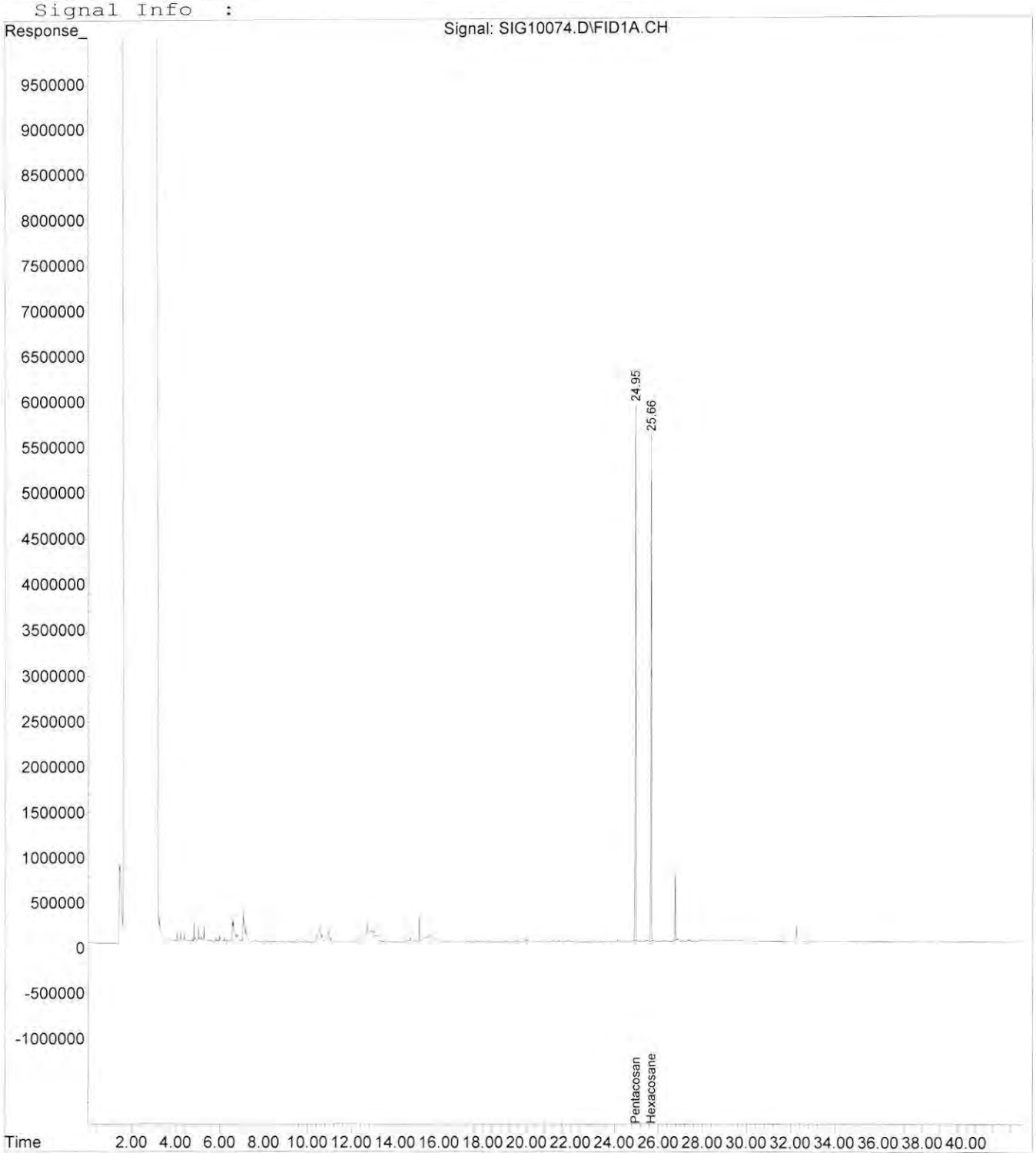
(f)=RT Delta > 1/2 Window
(m)=manual in

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10074.D Vial: 55
Acq On : 06 Mar 2021 6:09 Operator: ARC
Sample : WBB0717-13 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 8 8:10 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10075.D Vial: 56
Acq On : 06 Mar 2021 7:05 Operator: ARC
Sample : WBB0717-14 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 08 07:54:47 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

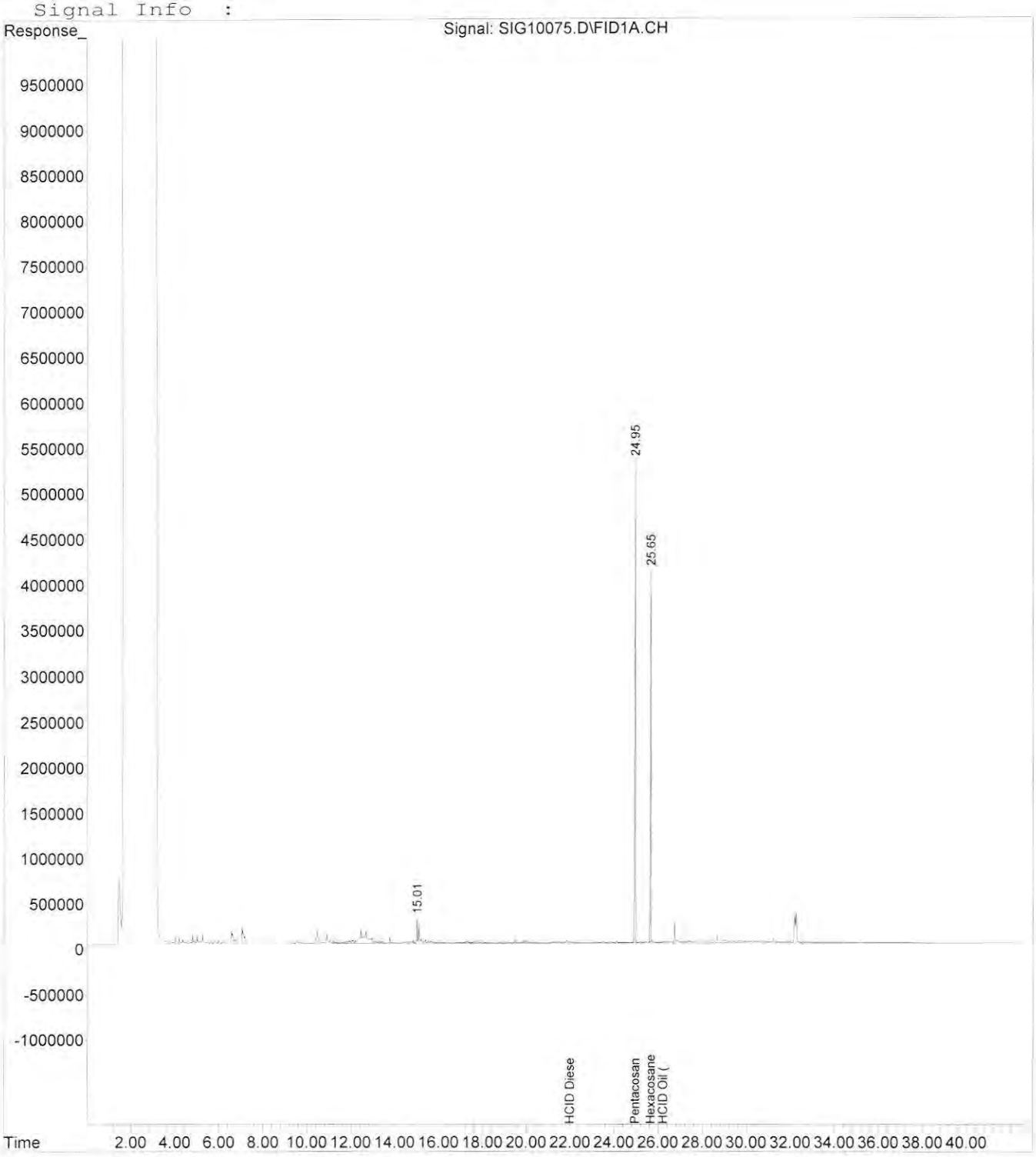
		Compound	R.T.	Response	Conc	Units	
		Internal Standards					
1)	I	Pentacosane	24.95	106897955	50.000	ppm	m
		System Monitoring Compounds					
2)	S	Hexacosane	25.65f	76604235	36.864	ppm	m
Spiked Amount		50.000	Range	50 - 150	Recovery	=	73.73%
		Target Compounds					
3)	H	TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H	TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H	Mineral Oil	0.00	0	N.D.	ppm	
6)	h	HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h	HCID Diesel (C12-C14)	21.97	103380775	82.631	ppm	
8)	h	HCID Oil (>C14)	26.20	105482645	111.649	ppm	

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10075.D Vial: 56
Acq On : 06 Mar 2021 7:05 Operator: ARC
Sample : WBB0717-14 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 8 14:06 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10076.D Vial: 57
Acq On : 06 Mar 2021 8:01 Operator: ARC
Sample : WBB0717-15 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 08 07:54:48 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1)	I Pentacosane	24.96	151839422	50.000	ppm	m
	System Monitoring Compounds					
2)	S Hexacosane	25.66	130254916	44.129	ppm	m
Spiked Amount	50.000	Range 50 - 150	Recovery =	88.26%		
	Target Compounds					
3)	H TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H Mineral Oil	0.00	0	N.D.	ppm	
6)	h HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h HCID Diesel (C12-C14)	21.97	159209650	89.590	ppm	
8)	h HCID Oil (>C14)	26.20	131205311	97.771	ppm	

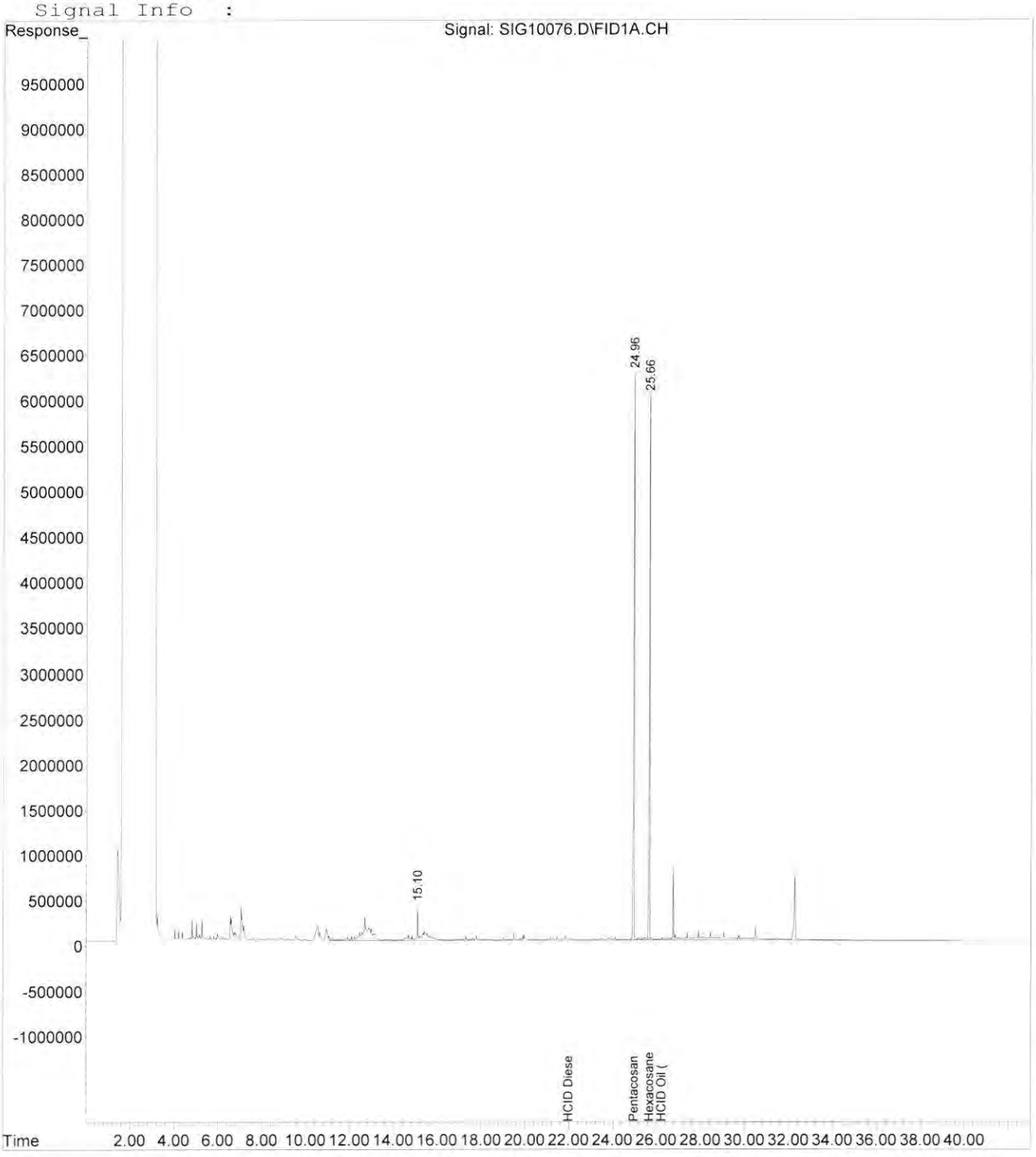
(f)=RT Delta > 1/2 Window (m)=manual in

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10076.D Vial: 57
Acq On : 06 Mar 2021 8:01 Operator: ARC
Sample : WBB0717-15 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 8 8:11 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10077.D Vial: 58
Acq On : 06 Mar 2021 8:57 Operator: ARC
Sample : WBB0717-16 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 08 07:54:49 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc	Units	
Internal Standards					
1) I Pentacosane	24.94	94275874	50.000	ppm	m
System Monitoring Compounds					
2) S Hexacosane	25.65	85867122	46.854	ppm	m
Spiked Amount 50.000	Range 50 - 150	Recovery = 93.71%			
Target Compounds					
3) H TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4) H TPHDX-Lube Oil (>C14)	26.20	~~126695886~~	~~134.178~~	~~ppm~~	
5) H Mineral Oil	0.00	0	N.D.	ppm	
6) h HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7) h HCID Diesel (C12-C14)	21.97	75868653	68.760	ppm	
8) h HCID Oil (>C14)	26.20	117334008	140.821	ppm	

SMC 3/8/21

(f)=RT Delta > 1/2 Window (m)=manual int

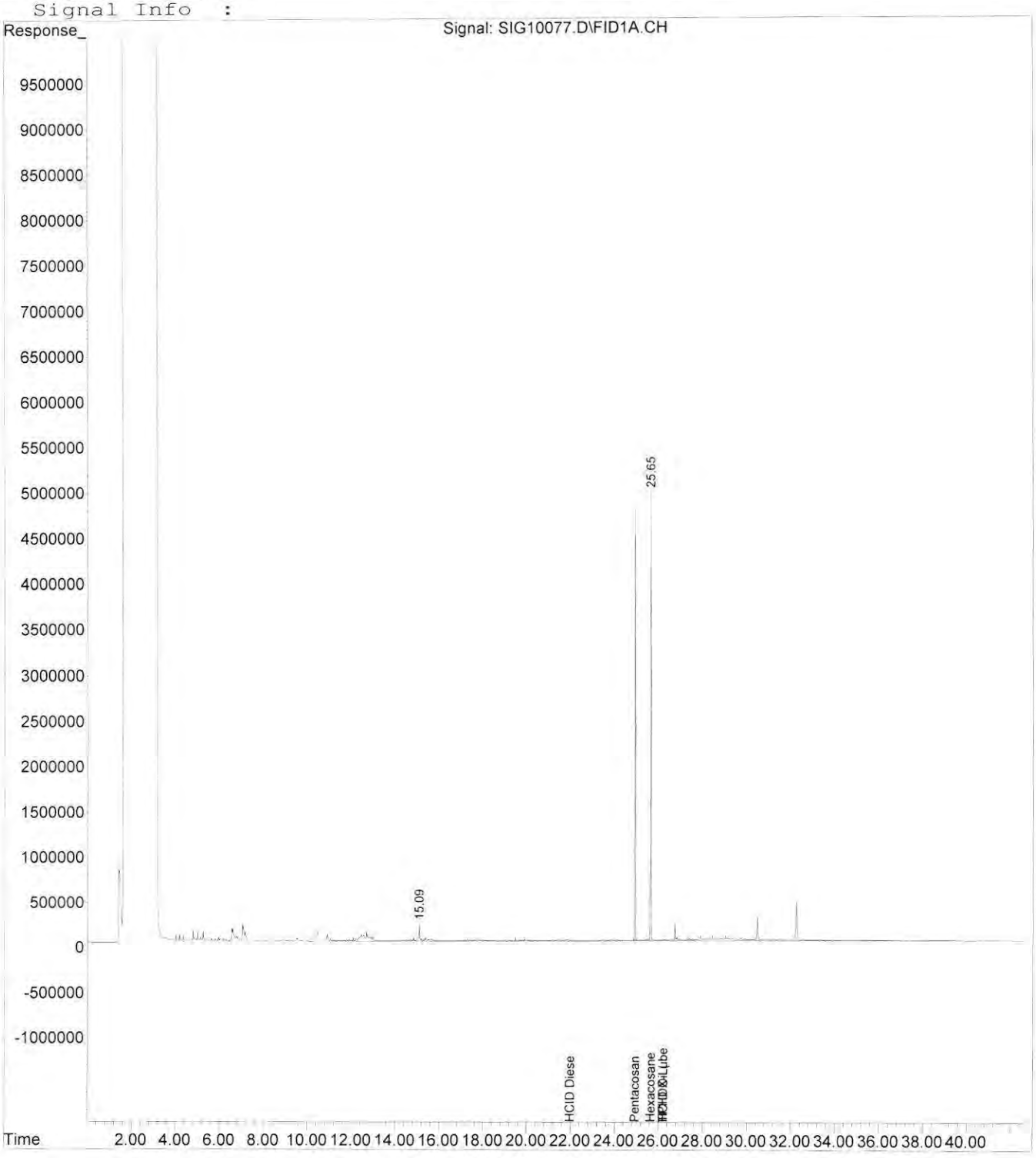
Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10077.D
Acq On : 06 Mar 2021 8:57
Sample : WBB0717-16
Misc :
IntFile : EVENTS1.E
Quant Time: Mar 8 8:12 2021 Quant Results File: 210301LOW.RES

Vial: 58
Operator: ARC
Inst : HP G1530A
Multiplr: 1.00

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10078.D Vial: 59
Acq On : 06 Mar 2021 9:53 Operator: ARC
Sample : WBB0717-17 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 08 07:54:50 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1)	I Pentacosane	24.95	125203767	50.000	ppm	m
	System Monitoring Compounds					
2)	S Hexacosane	25.66	110832010	45.537	ppm	m
Spiked Amount	50.000	Range 50 - 150	Recovery =	91.07%		
	Target Compounds					
3)	H TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H Mineral Oil	0.00	0	N.D.	ppm	
6)	h HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h HCID Diesel (C12-C14)	0.00	0	N.D.	ppm	
8)	h HCID Oil (>C14)	26.20	117726511	106.390	ppm	

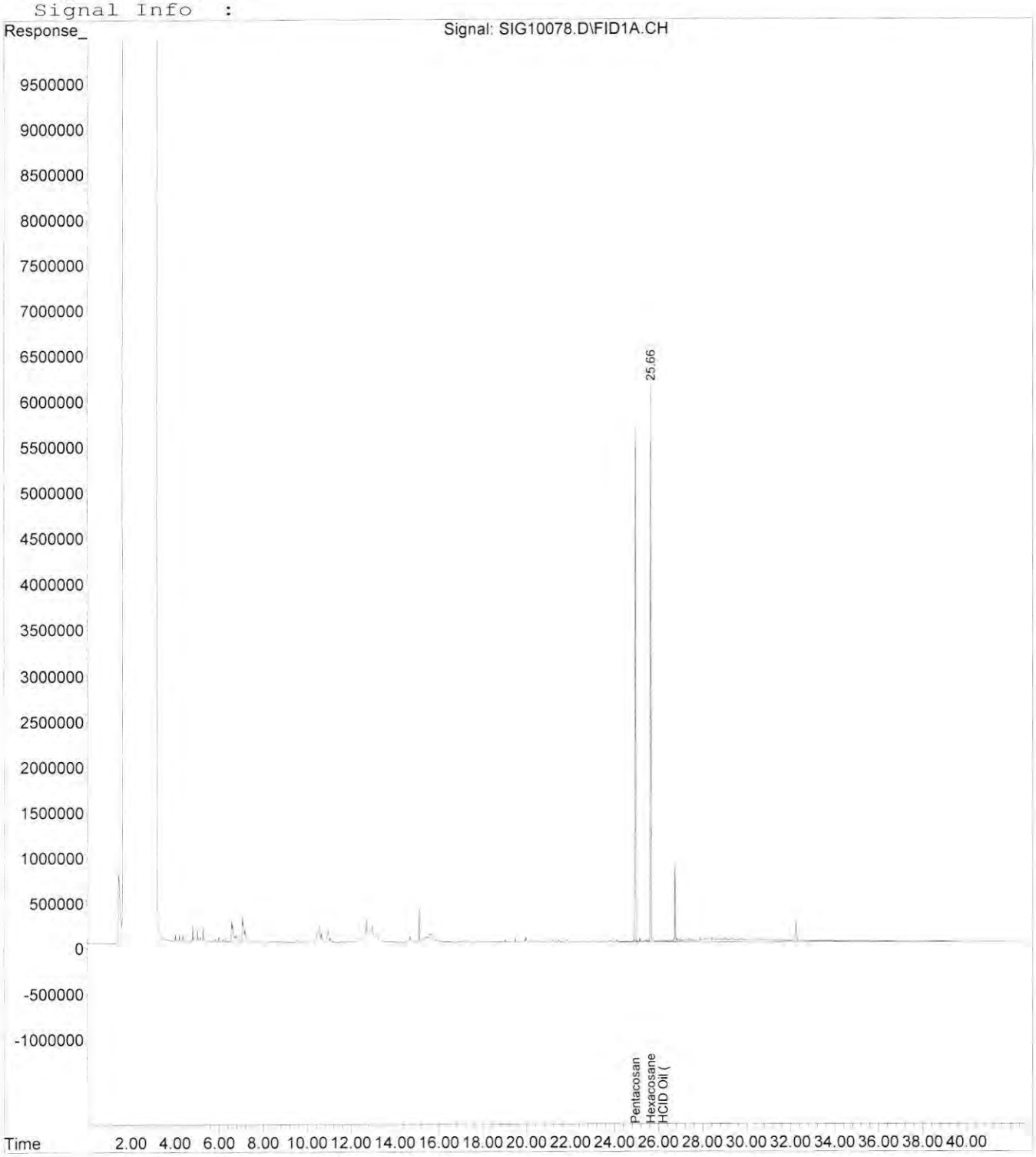
(f)=RT Delta > 1/2 Window (m)=manual in

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10078.D Vial: 59
Acq On : 06 Mar 2021 9:53 Operator: ARC
Sample : WBB0717-17 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 8 8:12 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10079.D Vial: 60
Acq On : 06 Mar 2021 10:49 Operator: ARC
Sample : WBB0717-18 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 08 07:54:51 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1)	I Pentacosane	24.95	112493120	50.000	ppm	m
	System Monitoring Compounds					
2)	S Hexacosane	25.65	104188727	47.644	ppm	m
Spiked Amount	50.000	Range 50 - 150	Recovery =	95.29%		
	Target Compounds					
3)	H TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H Mineral Oil	0.00	0	N.D.	ppm	
6)	h HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h HCID Diesel (C12-C14)	0.00	0	N.D.	ppm	
8)	h HCID Oil (>C14)	0.00	0	N.D.	ppm	

(f)=RT Delta > 1/2 Window (m)=manual in

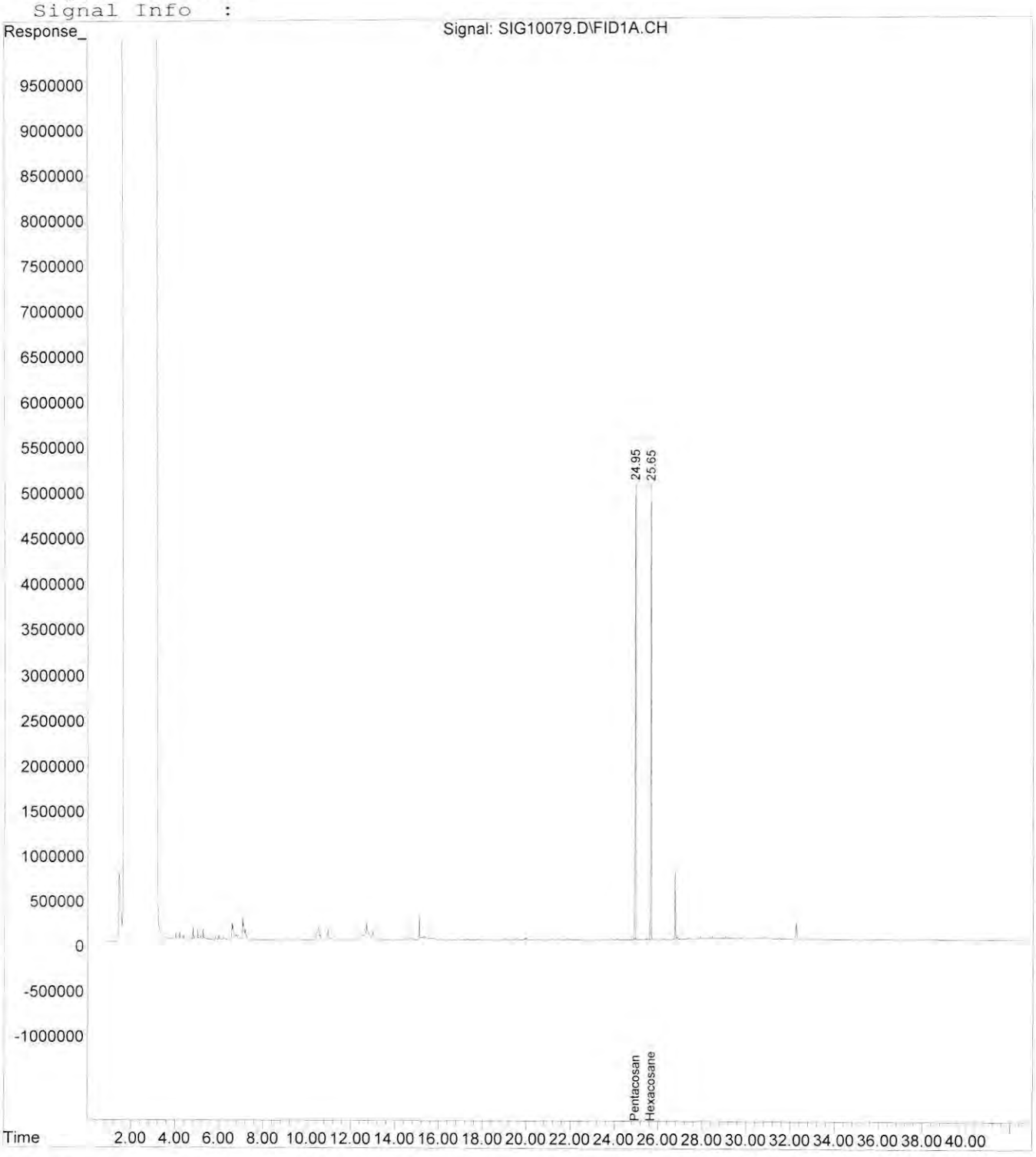
Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10079.D
Acq On : 06 Mar 2021 10:49
Sample : WBB0717-18
Misc :
IntFile : EVENTS1.E
Quant Time: Mar 8 8:12 2021 Quant Results File: 210301LOW.RES

Vial: 60
Operator: ARC
Inst : HP G1530A
Multiplr: 1.00

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10085.D Vial: 61
Acq On : 06 Mar 2021 16:26 Operator: ARC
Sample : WBB0717-19 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 08 07:54:57 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1)	I Pentacosane	24.95	116987909	50.000	ppm	m
	System Monitoring Compounds					
2)	S Hexacosane	25.66	99105980	43.579	ppm	m
Spiked Amount	50.000	Range 50 - 150	Recovery =	87.16%		
	Target Compounds					
3)	H TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H Mineral Oil	0.00	0	N.D.	ppm	
6)	h HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h HCID Diesel (C12-C14)	0.00	0	N.D.	ppm	
8)	h HCID Oil (>C14)	26.20	1465348954	1417.246	ppm	

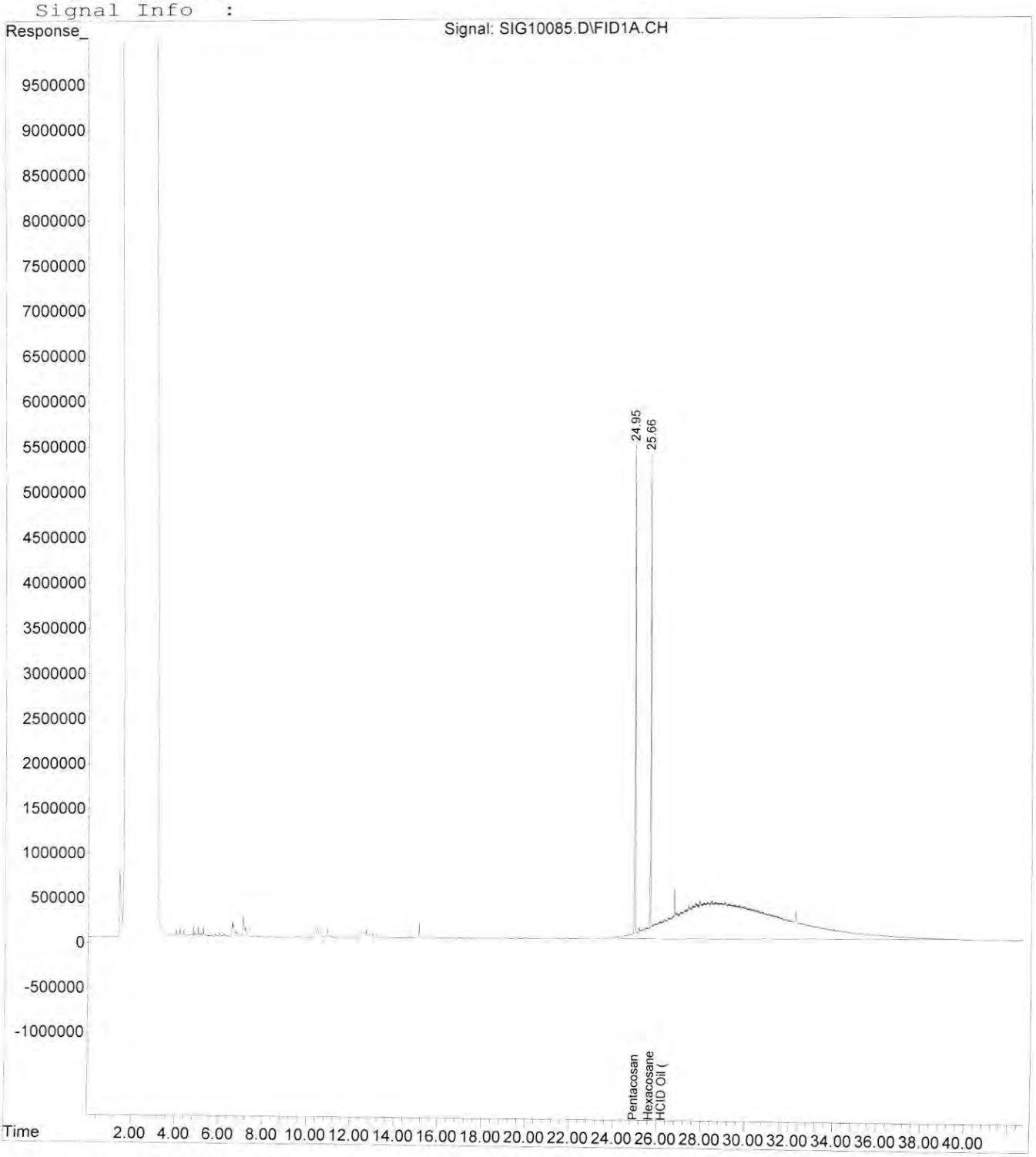
(f)=RT Delta > 1/2 Window (m)=manual int

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10085.D Vial: 61
Acq On : 06 Mar 2021 16:26 Operator: ARC
Sample : WBB0717-19 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 8 8:15 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10086.D Vial: 62
Acq On : 06 Mar 2021 17:22 Operator: ARC
Sample : WBB0717-20 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 08 07:54:58 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

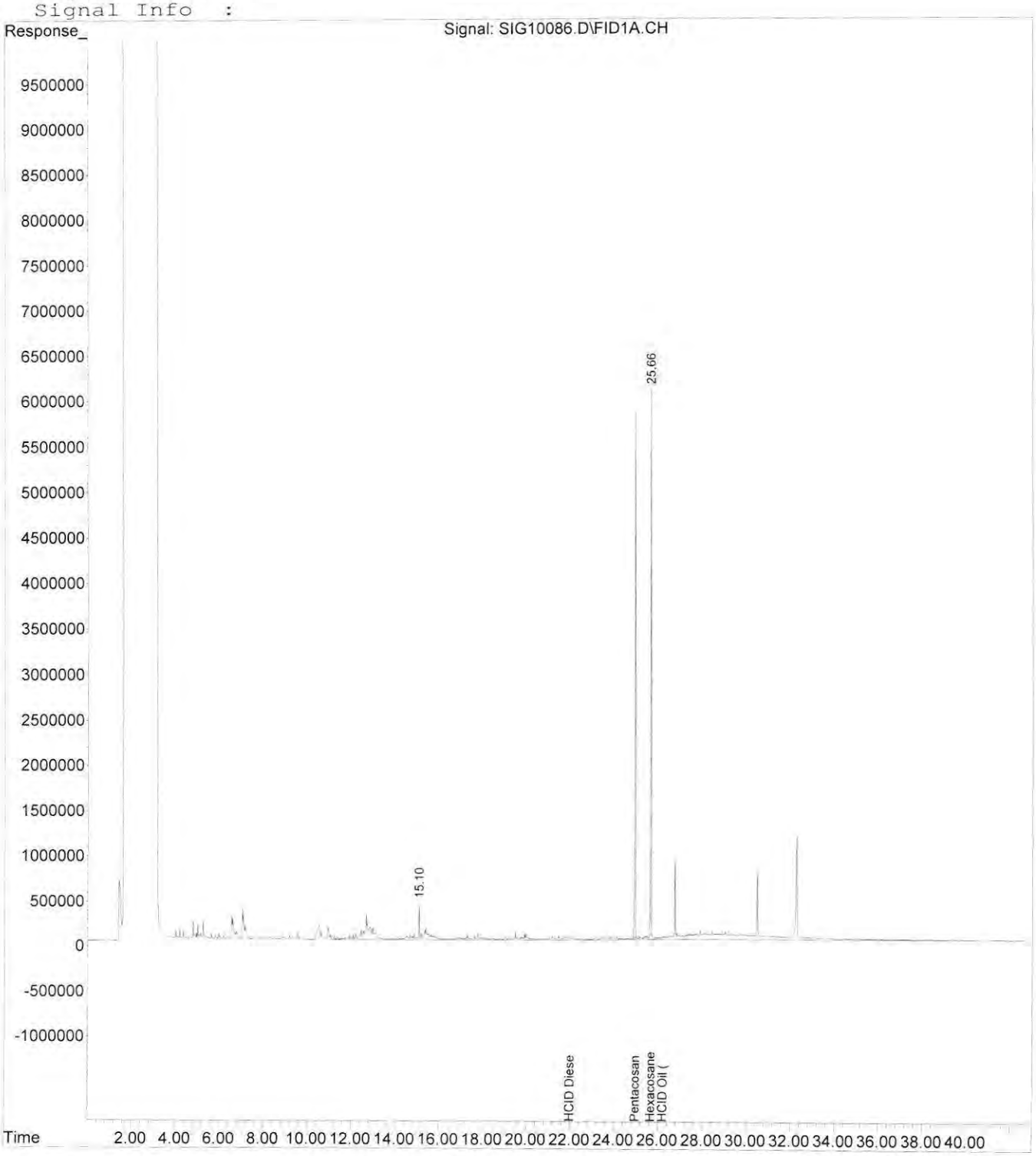
	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1)	I Pentacosane	24.96	132835418	50.000	ppm	m
	System Monitoring Compounds					
2)	S Hexacosane	25.66	120466519	46.652	ppm	m
Spiked Amount	50.000	Range 50 - 150	Recovery =	93.30%		
	Target Compounds					
3)	H TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H Mineral Oil	0.00	0	N.D.	ppm	
6)	h HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h HCID Diesel (C12-C14)	21.97	189832130	122.104	ppm	
8)	h HCID Oil (>C14)	26.20	293242257	249.780	ppm	

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10086.D Vial: 62
Acq On : 06 Mar 2021 17:22 Operator: ARC
Sample : WBB0717-20 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 8 8:16 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10037.D Vial: 29
Acq On : 04 Mar 2021 19:52 Operator: ARC
Sample : BBB0734-BLK1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 05 07:54:49 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1) I	Pentacosane	24.95	108911736	50.000	ppm	m
	System Monitoring Compounds					
2) S	Hexacosane	25.65	95543019	45.127	ppm	m
Spiked Amount	50.000	Range 50 - 150	Recovery =	90.25%		
	Target Compounds					
3) H	TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4) H	TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5) H	Mineral Oil	0.00	0	N.D.	ppm	
6) h	HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7) h	HCID Diesel (C12-C14)	0.00	0	N.D.	ppm	
8) h	HCID Oil (>C14)	0.00	0	N.D.	ppm	

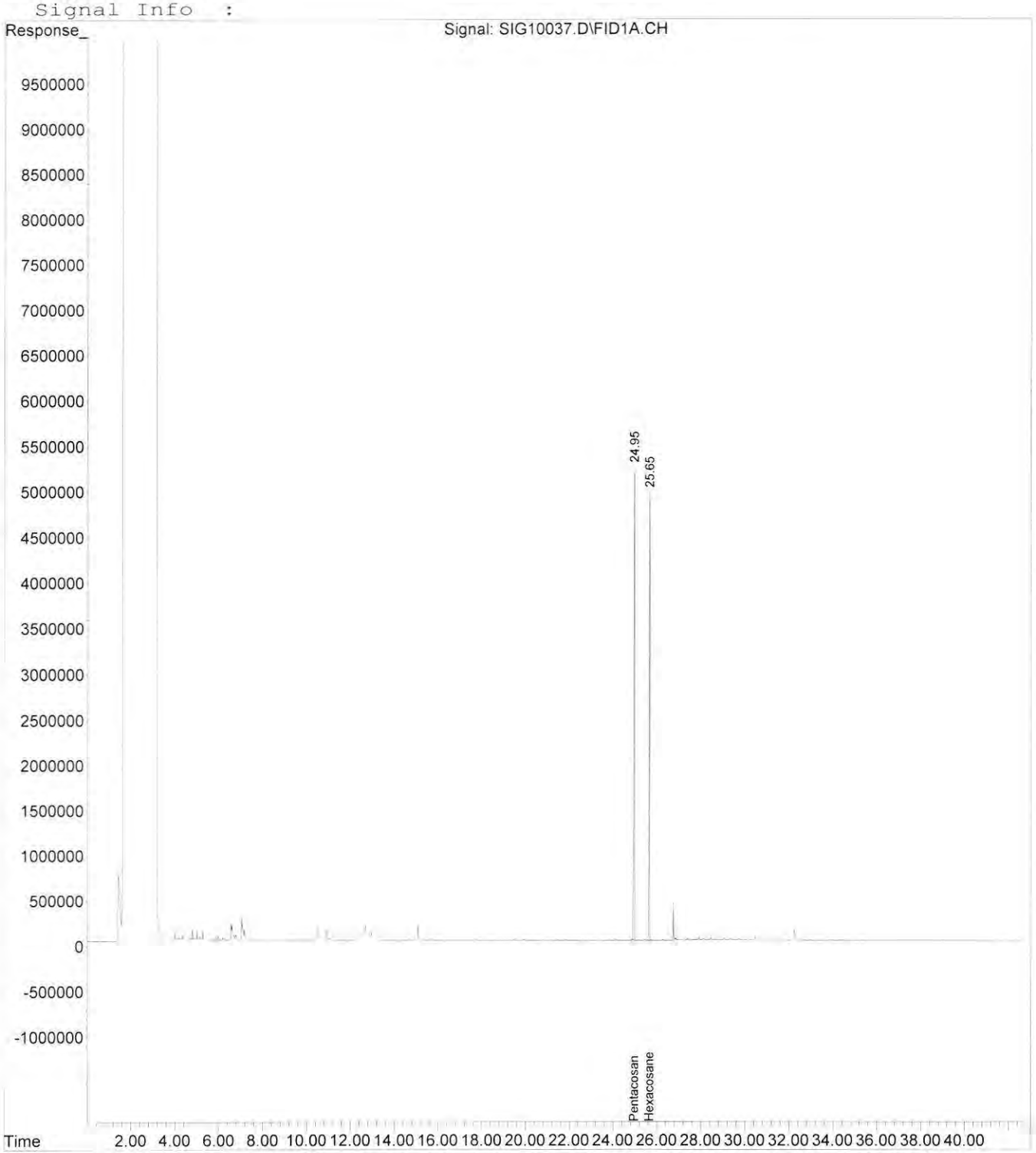
(f)=RT Delta > 1/2 Window (m)=manual int

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10037.D Vial: 29
Acq On : 04 Mar 2021 19:52 Operator: ARC
Sample : BBB0734-BLK1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 5 7:57 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10038.D Vial: 30
Acq On : 04 Mar 2021 20:47 Operator: ARC
Sample : BBB0734-BS1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 05 07:54:50 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

		Compound	R.T.	Response	Conc	Units	
		Internal Standards					
1)	I	Pentacosane	24.95	122394431	50.000	ppm	m
		System Monitoring Compounds					
2)	S	Hexacosane	25.65	93118267	39.137	ppm	m
Spiked Amount		50.000	Range 50 - 150		Recovery =	78.27%	
		Target Compounds					
3)	H	TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H	TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H	Mineral Oil	0.00	0	N.D.	ppm	
6)	h	HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h	HCID Diesel (C12-C14)	21.97	280343923	195.706	ppm	
8)	h	HCID Oil (>C14)	0.00	0	N.D.	ppm	

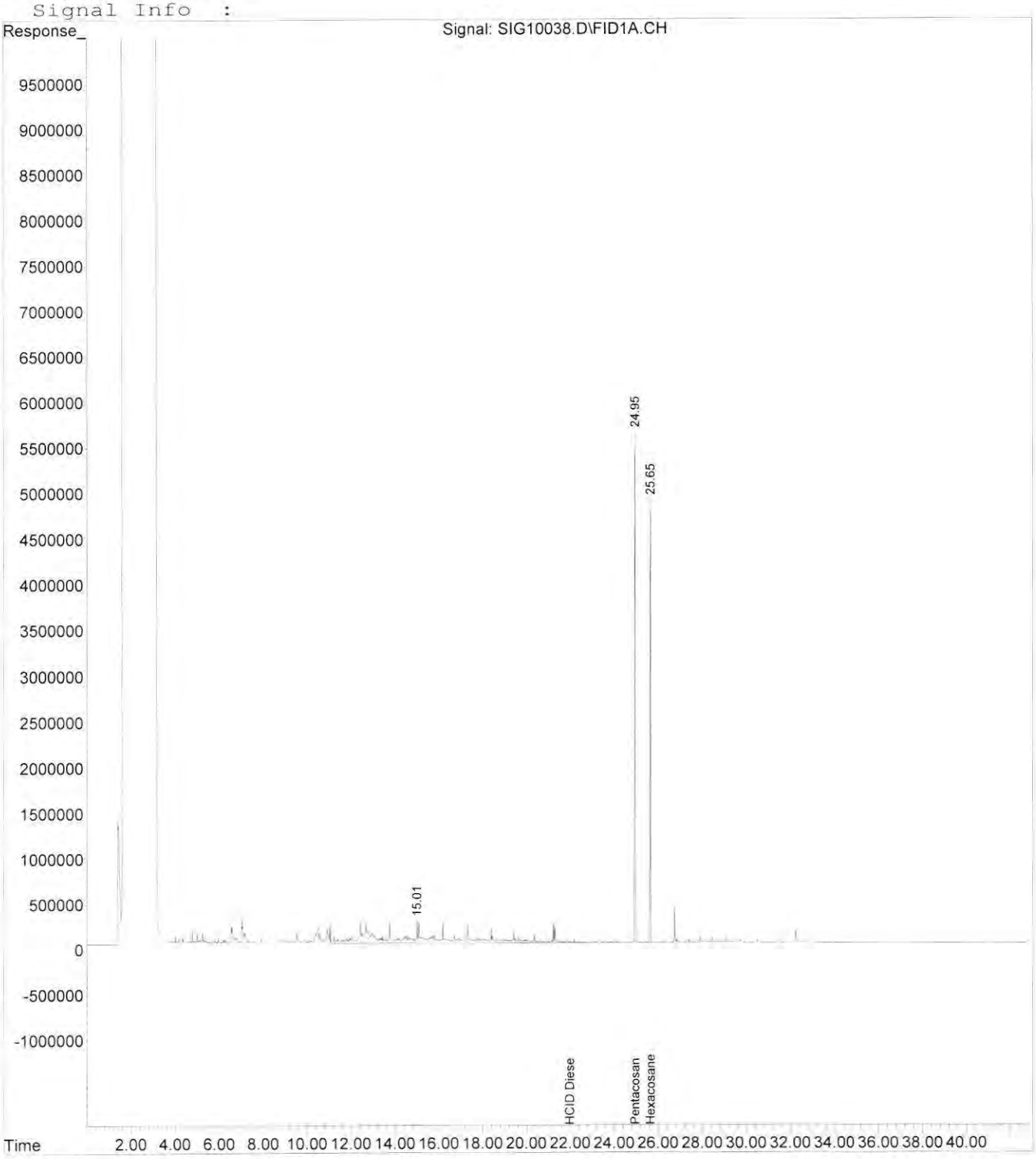
Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10038.D
Acq On : 04 Mar 2021 20:47
Sample : BBB0734-BS1
Misc :
IntFile : EVENTS1.E
Quant Time: Mar 5 7:58 2021 Quant Results File: 210301LOW.RES

Vial: 30
Operator: ARC
Inst : HP G1530A
Multiplr: 1.00

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10039.D Vial: 31
Acq On : 04 Mar 2021 21:43 Operator: ARC
Sample : WBB0617-20 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 05 07:54:51 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

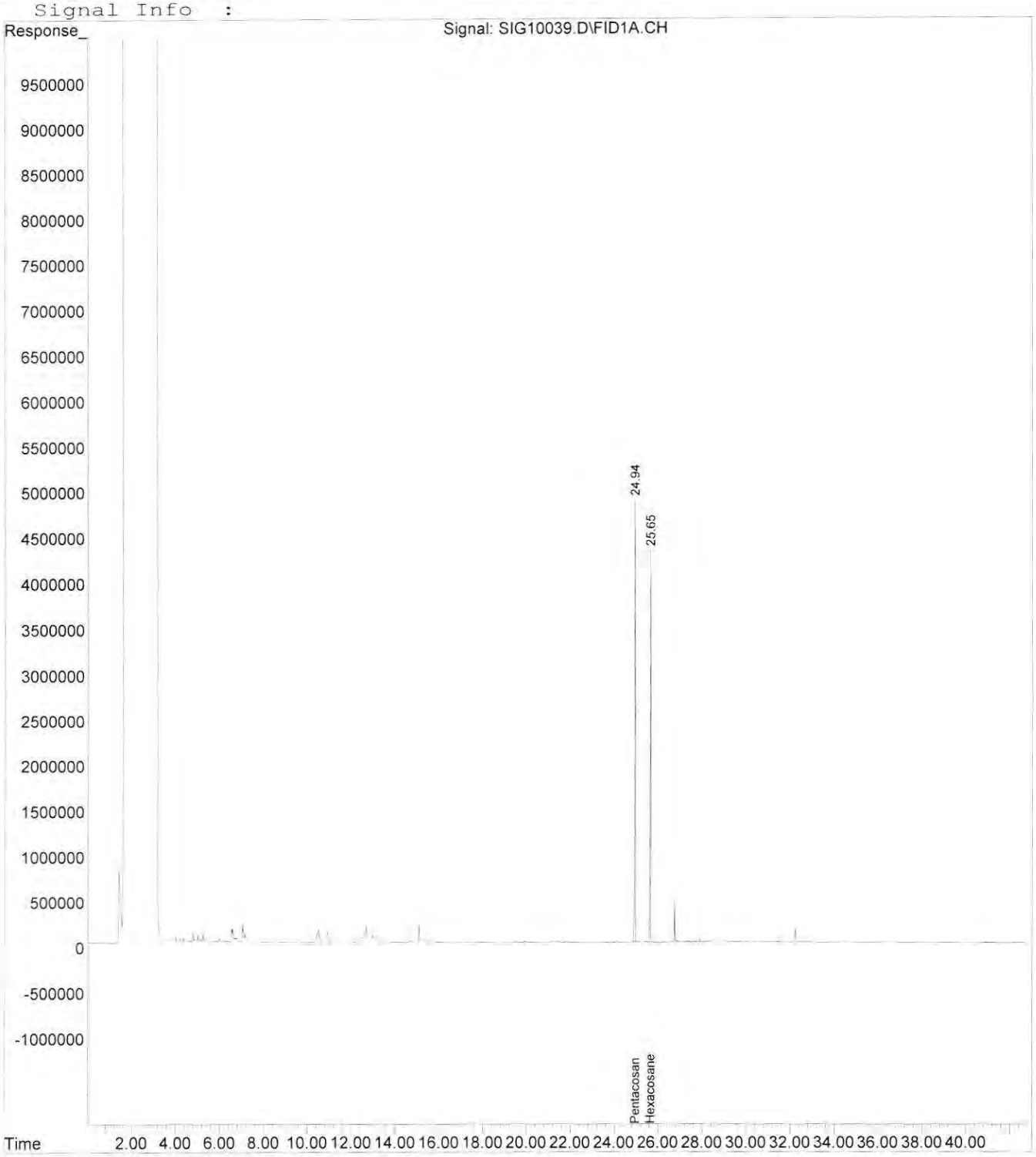
	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1) I	Pentacosane	24.94	103798109	50.000	ppm	m
	System Monitoring Compounds					
2) S	Hexacosane	25.65f	76987078	38.154	ppm	m
Spiked Amount	50.000	Range 50 - 150	Recovery =	76.31%		
	Target Compounds					
3) H	TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4) H	TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5) H	Mineral Oil	0.00	0	N.D.	ppm	
6) h	HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7) h	HCID Diesel (C12-C14)	0.00	0	N.D.	ppm	
8) h	HCID Oil (>C14)	0.00	0	N.D.	ppm	

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10039.D Vial: 31
Acq On : 04 Mar 2021 21:43 Operator: ARC
Sample : WBB0617-20 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 5 7:59 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10040.D Vial: 32
Acq On : 04 Mar 2021 22:38 Operator: ARC
Sample : WBB0617-21 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 05 07:54:52 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1)	I Pentacosane	24.94	102987784	50.000	ppm	m
	System Monitoring Compounds					
2)	S Hexacosane	25.65f	84602151	42.258	ppm	m
Spiked Amount	50.000	Range 50 - 150	Recovery =	84.52%		
	Target Compounds					
3)	H TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H Mineral Oil	0.00	0	N.D.	ppm	
6)	h HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h HCID Diesel (C12-C14)	21.97	148861859	123.502	ppm	
8)	h HCID Oil (>C14)	26.20	156822226	172.293	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int

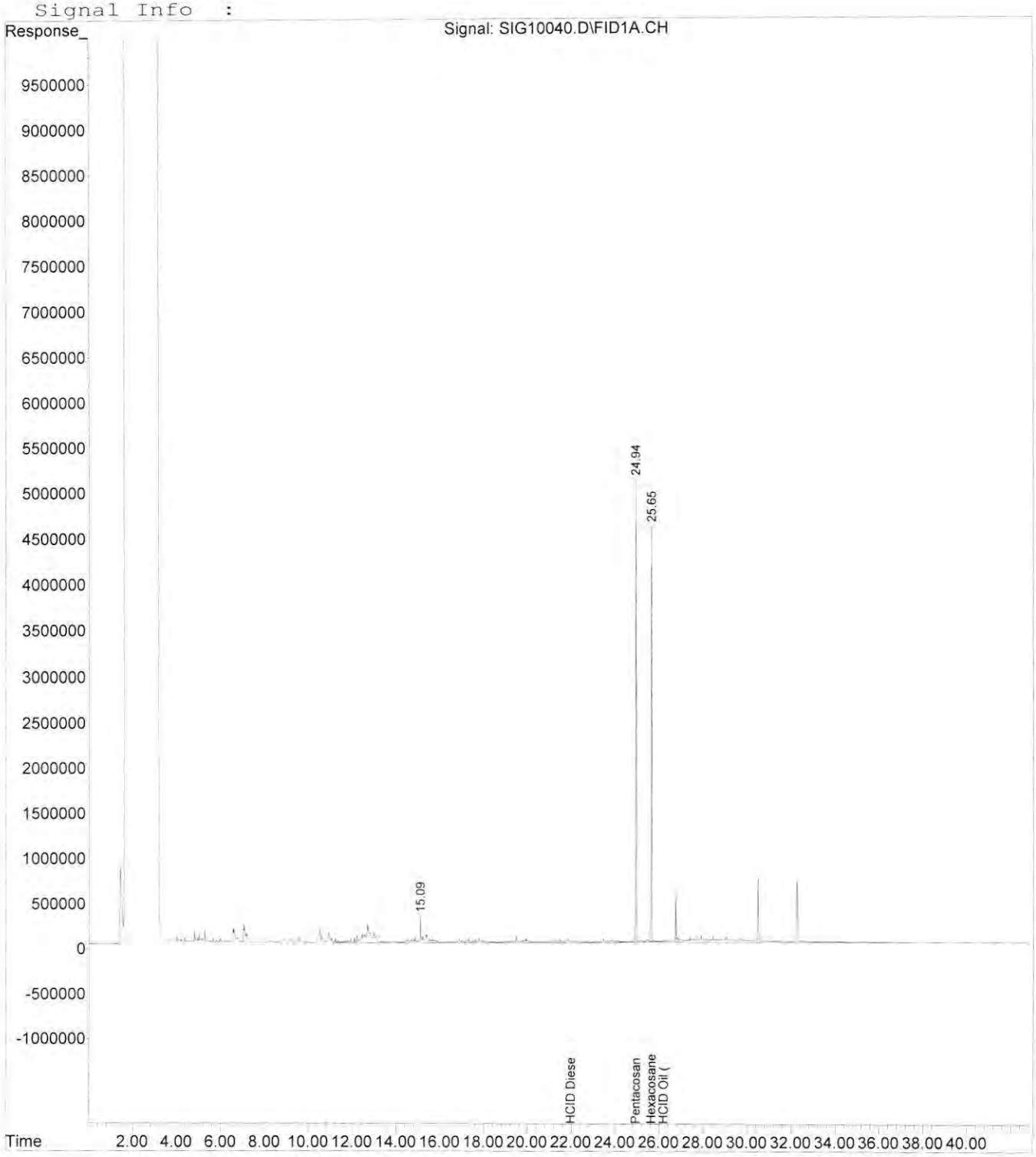
Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10040.D
Acq On : 04 Mar 2021 22:38
Sample : WBB0617-21
Misc :
IntFile : EVENTS1.E
Quant Time: Mar 5 7:59 2021 Quant Results File: 210301LOW.RES

Vial: 32
Operator: ARC
Inst : HP G1530A
Multiplr: 1.00

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10046.D Vial: 33
Acq On : 05 Mar 2021 4:08 Operator: ARC
Sample : WBB0617-22 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 05 07:55:13 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1)	I Pentacosane	24.95	114743355	50.000	ppm	m
	System Monitoring Compounds					
2)	S Hexacosane	25.65	89264714	40.019	ppm	m
Spiked Amount	50.000	Range 50 - 150	Recovery =	80.04%		
	Target Compounds					
3)	H TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H Mineral Oil	0.00	0	N.D.	ppm	
6)	h HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h HCID Diesel (C12-C14)	0.00	0	N.D.	ppm	
8)	h HCID Oil (>C14)	0.00	0	N.D.	ppm	

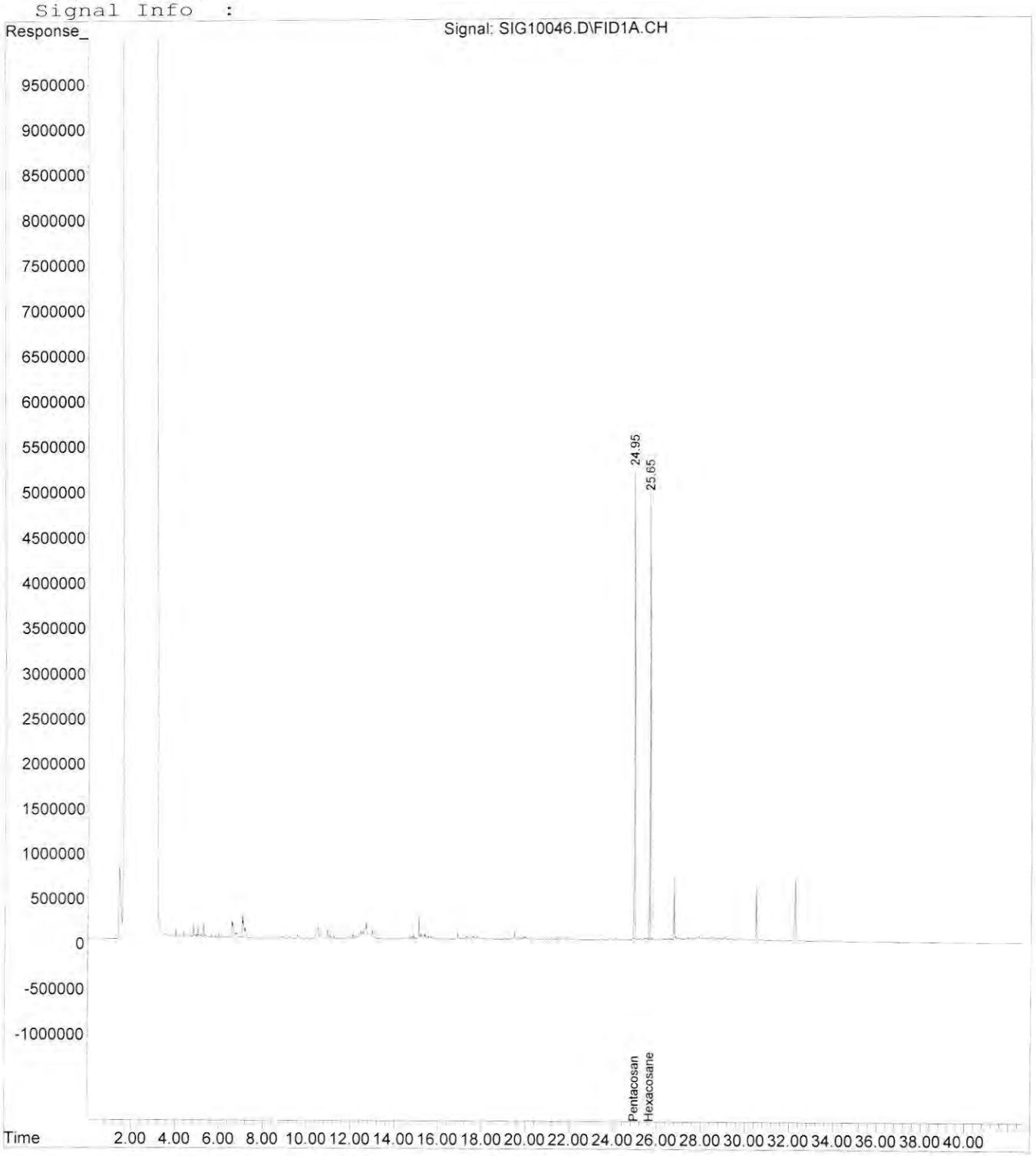
(f)=RT Delta > 1/2 Window (m)=manual int

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10046.D Vial: 33
Acq On : 05 Mar 2021 4:08 Operator: ARC
Sample : WBB0617-22 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 5 8:07 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10047.D Vial: 34
Acq On : 05 Mar 2021 5:03 Operator: ARC
Sample : BBB0734-DUP1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 05 07:55:14 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1)	I Pentacosane	24.94	105410658	50.000	ppm	m
	System Monitoring Compounds					
2)	S Hexacosane	25.65f	93230800	45.498	ppm	m
Spiked Amount	50.000	Range 50 - 150	Recovery =	91.00%		
	Target Compounds					
3)	H TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H Mineral Oil	0.00	0	N.D.	ppm	
6)	h HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h HCID Diesel (C12-C14)	0.00	0	N.D.	ppm	
8)	h HCID Oil (>C14)	0.00	0	N.D.	ppm	

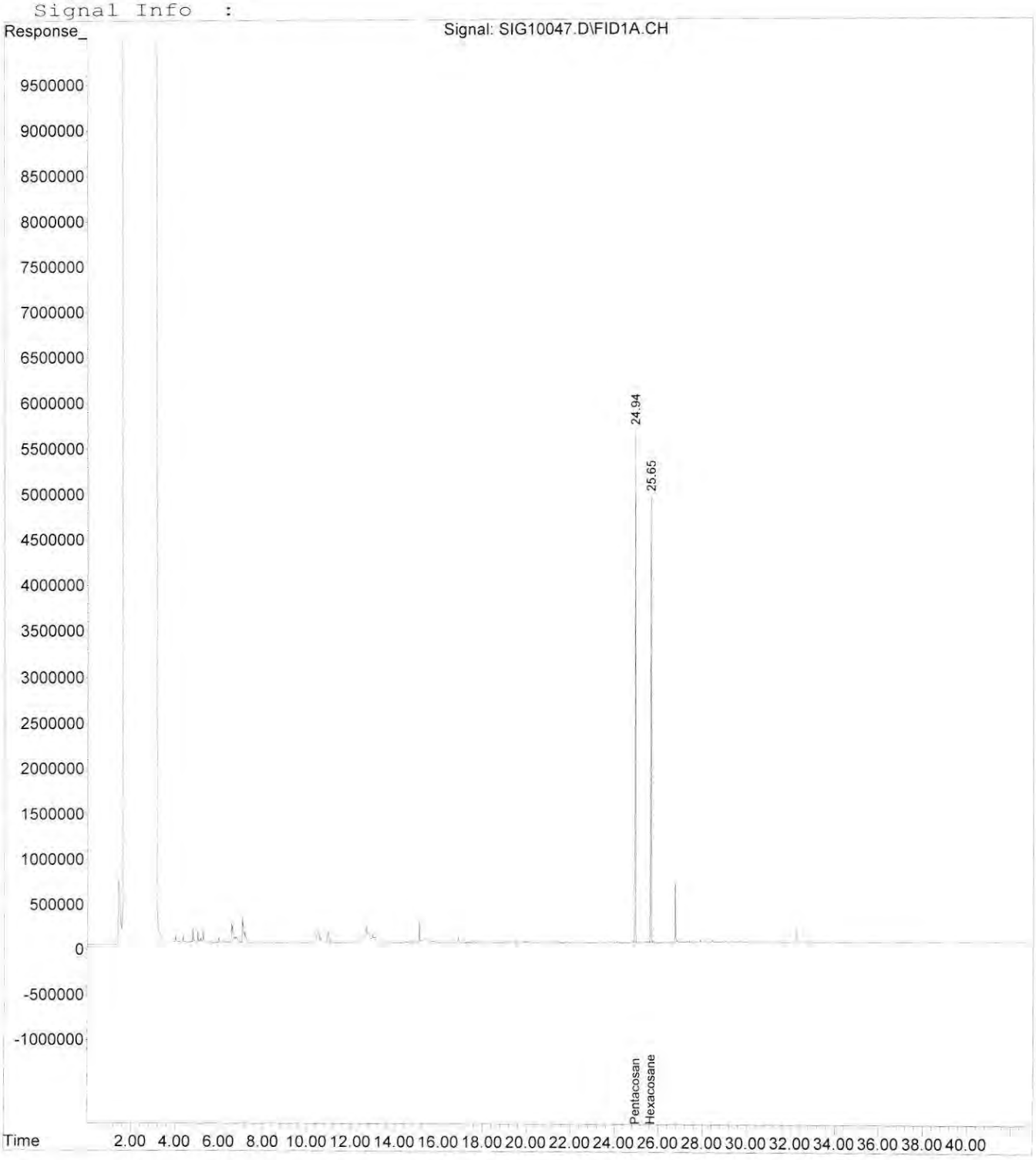
(f)=RT Delta > 1/2 Window (m)=manual int

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10047.D Vial: 34
Acq On : 05 Mar 2021 5:03 Operator: ARC
Sample : BBB0734-DUP1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 5 8:07 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10048.D Vial: 35
Acq On : 05 Mar 2021 5:58 Operator: ARC
Sample : WBB0617-23 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 05 08:07:51 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

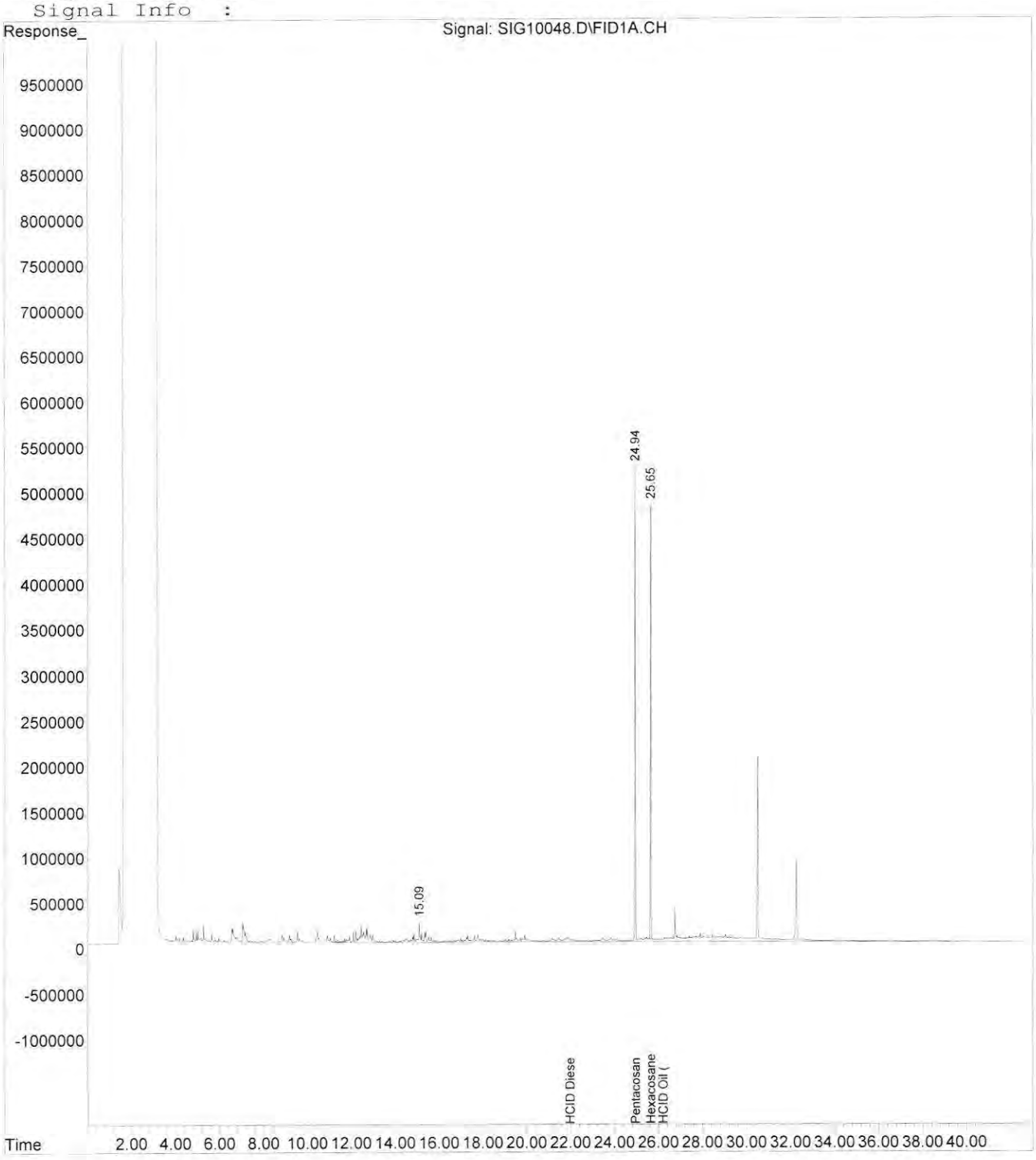
	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1)	I Pentacosane	24.94	104990200	50.000	ppm	m
	System Monitoring Compounds					
2)	S Hexacosane	25.65	91191582	44.681	ppm	m
Spiked Amount	50.000	Range 50 - 150	Recovery =	89.36%		
	Target Compounds					
3)	H TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H Mineral Oil	0.00	0	N.D.	ppm	
6)	h HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h HCID Diesel (C12-C14)	21.97	163079072	132.716	ppm	
8)	h HCID Oil (>C14)	26.20	261665848	281.996	ppm	

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10048.D Vial: 35
Acq On : 05 Mar 2021 5:58 Operator: ARC
Sample : WBB0617-23 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 5 8:09 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10049.D Vial: 36
Acq On : 05 Mar 2021 6:53 Operator: ARC
Sample : BBB0734-MS1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 05 08:07:52 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

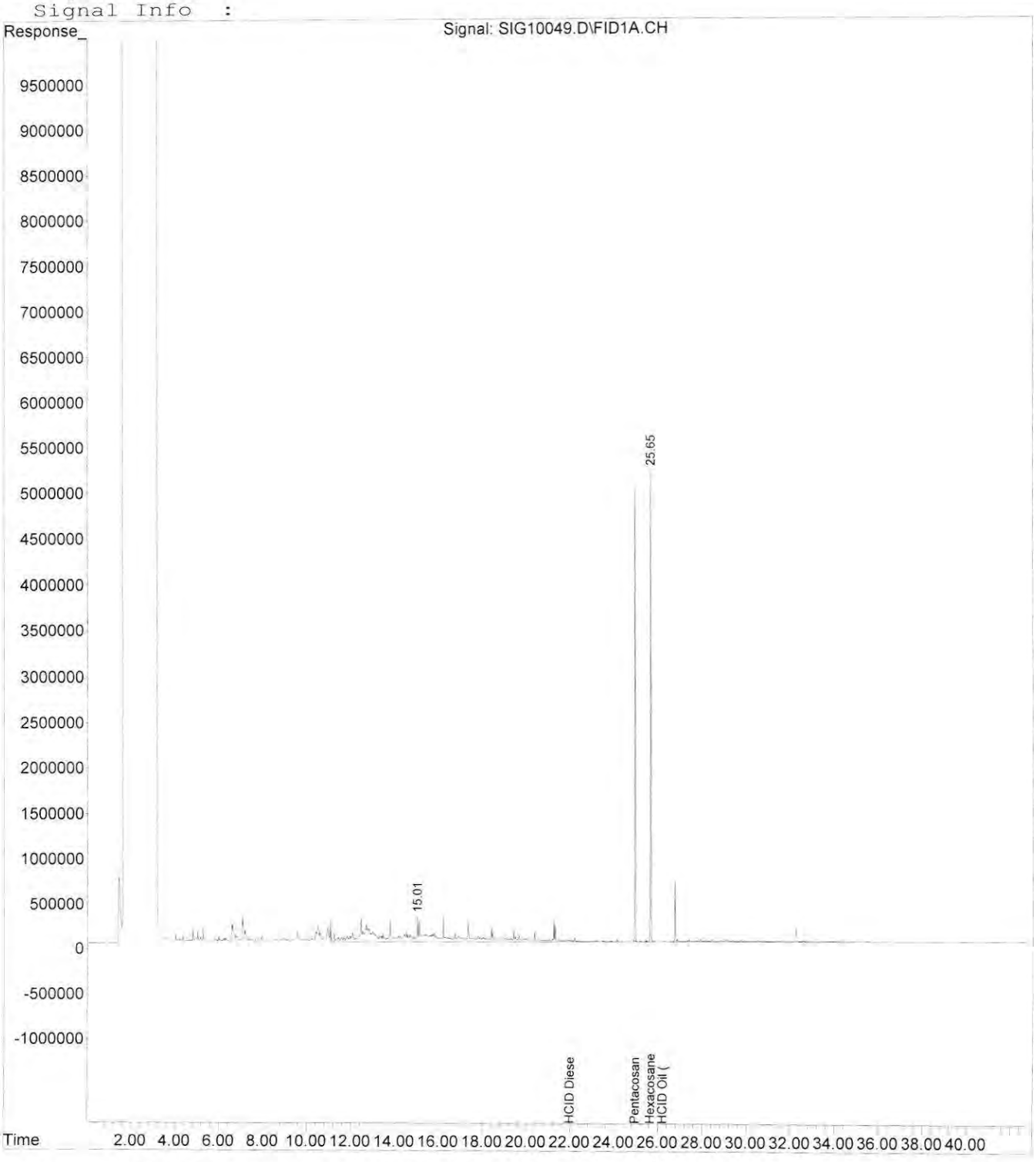
		Compound	R.T.	Response	Conc	Units	
		Internal Standards					
1)	I	Pentacosane	24.94	105563618	50.000	ppm	m
		System Monitoring Compounds					
2)	S	Hexacosane	25.65	93198666	45.416	ppm	m
Spiked Amount 50.000 Range 50 - 150 Recovery = 90.83%							
		Target Compounds					
3)	H	TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H	TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H	Mineral Oil	0.00	0	N.D.	ppm	
6)	h	HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h	HCID Diesel (C12-C14)	21.97	313686399	253.896	ppm	
8)	h	HCID Oil (>C14)	26.20	53403775	57.240	ppm	

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10049.D Vial: 36
Acq On : 05 Mar 2021 6:53 Operator: ARC
Sample : BBB0734-MS1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 5 8:10 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10050.D Vial: 37
Acq On : 05 Mar 2021 7:49 Operator: ARC
Sample : BBB0734-MSD1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 05 08:32:17 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

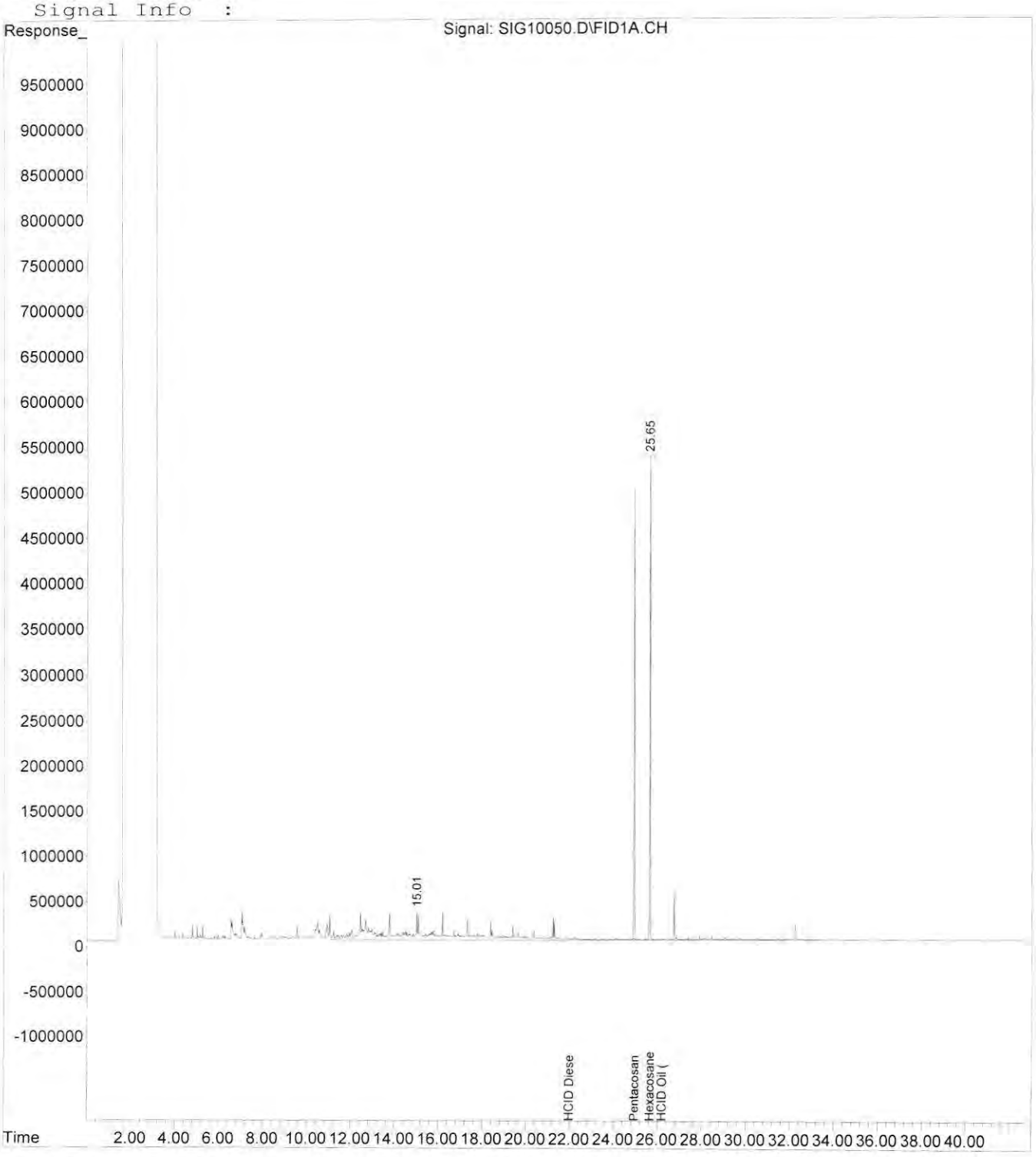
	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1)	I Pentacosane	24.94	105451950	50.000	ppm	m
	System Monitoring Compounds					
2)	S Hexacosane	25.65	98442119	48.022	ppm	m
Spiked Amount	50.000	Range 50 - 150	Recovery =	96.04%		
	Target Compounds					
3)	H TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H Mineral Oil	0.00	0	N.D.	ppm	
6)	h HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h HCID Diesel (C12-C14)	21.97	320581845	259.752	ppm	
8)	h HCID Oil (>C14)	26.20	47776515	51.263	ppm	

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10050.D Vial: 37
Acq On : 05 Mar 2021 7:49 Operator: ARC
Sample : BBB0734-MSD1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 5 8:32 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10052.D Vial: 38
Acq On : 05 Mar 2021 9:41 Operator: ARC
Sample : WBB0717-01 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 05 10:33:13 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1)	I Pentacosane	24.95	103445420	50.000	ppm	m
	System Monitoring Compounds					
2)	S Hexacosane	25.65	85827395	42.681	ppm	m
Spiked Amount	50.000 Range 50 - 150		Recovery =	85.36%		
	Target Compounds					
3)	H TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H Mineral Oil	0.00	0	N.D.	ppm	
6)	h HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h HCID Diesel (C12-C14)	21.97	111989599	92.500	ppm	
8)	h HCID Oil (>C14)	26.20	114848539	125.620	ppm	

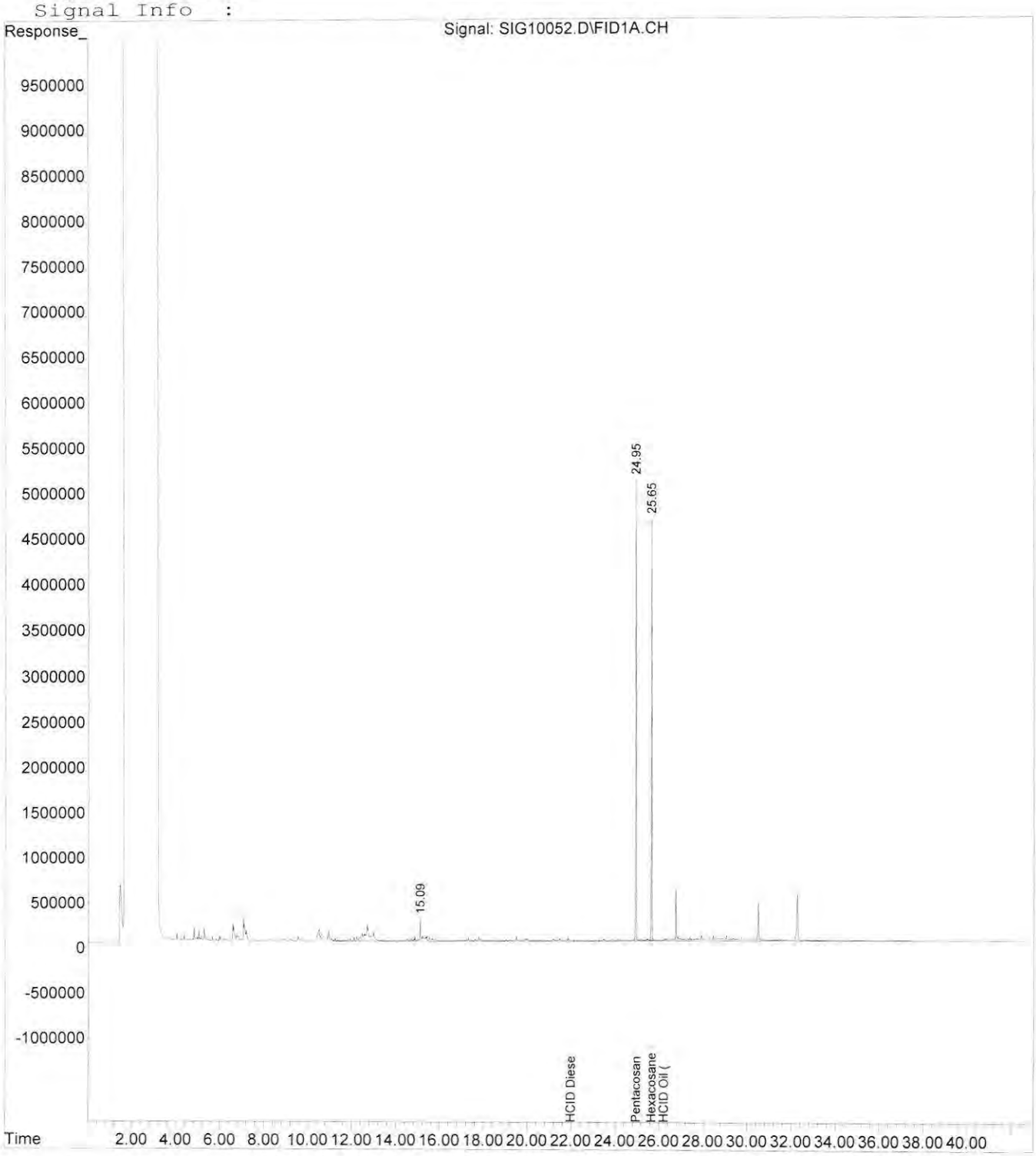
(f)=RT Delta > 1/2 Window (m)=manual int

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10052.D Vial: 38
Acq On : 05 Mar 2021 9:41 Operator: ARC
Sample : WBB0717-01 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 5 10:33 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10053.D Vial: 39
Acq On : 05 Mar 2021 10:37 Operator: ARC
Sample : WBB0717-02 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 05 11:46:46 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1)	I Pentacosane	24.95	121069639	50.000	ppm	m
	System Monitoring Compounds					
2)	S Hexacosane	25.66	108531754	46.115	ppm	m
Spiked Amount	50.000	Range 50 - 150	Recovery =	92.23%		
	Target Compounds					
3)	H TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H Mineral Oil	0.00	0	N.D.	ppm	
6)	h HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h HCID Diesel (C12-C14)	21.97	118117667	83.359	ppm	
8)	h HCID Oil (>C14)	26.20	124733104	116.571	ppm	

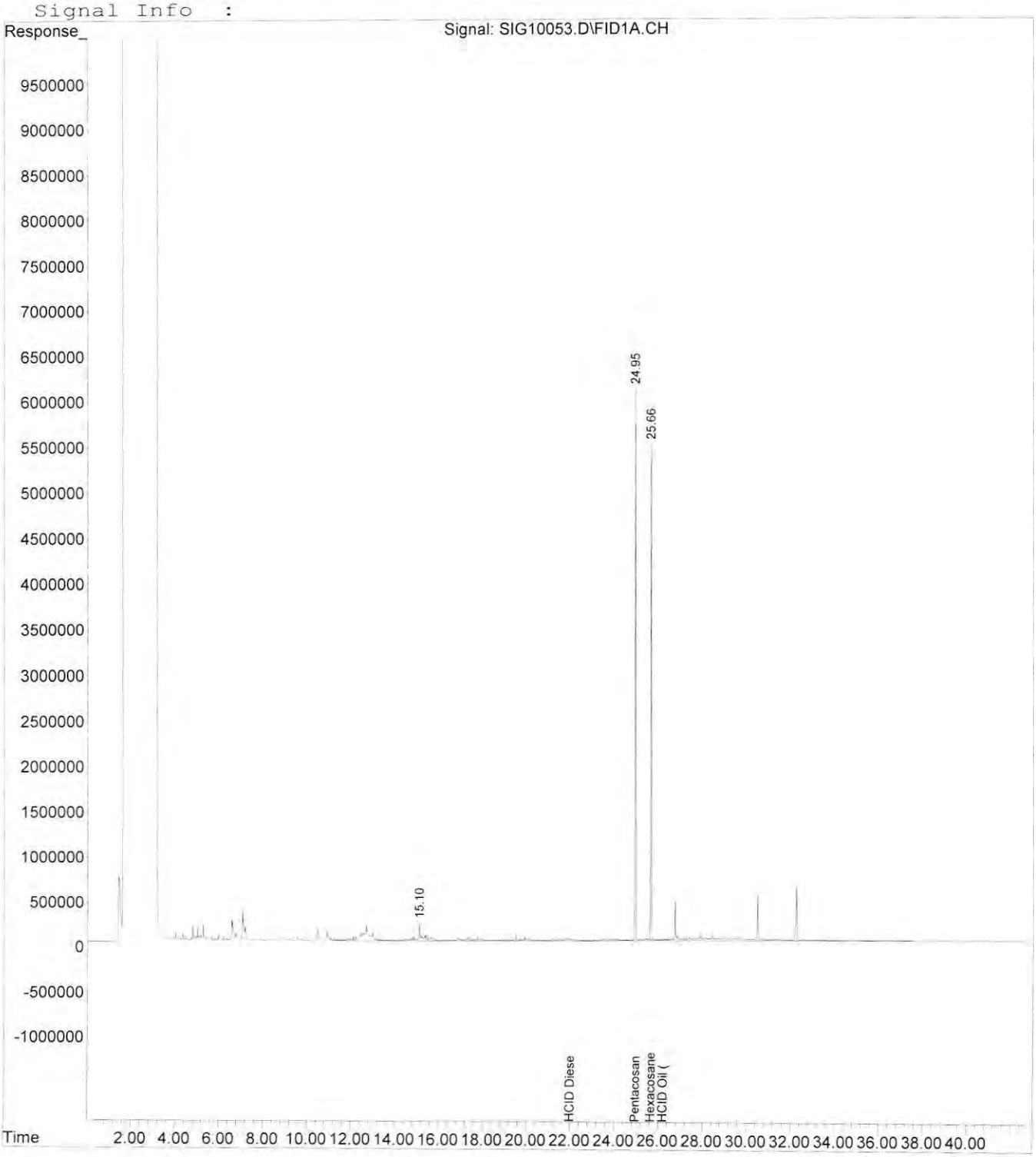
(f)=RT Delta > 1/2 Window (m)=manual int

Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10053.D Vial: 39
Acq On : 05 Mar 2021 10:37 Operator: ARC
Sample : WBB0717-02 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 5 11:48 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10054.D Vial: 40
Acq On : 05 Mar 2021 11:34 Operator: ARC
Sample : WBB0717-03 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Mar 05 12:35:07 2021 Quant Results File: 210301LOW.RES

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
	Internal Standards					
1)	I Pentacosane	24.95	110795519	50.000	ppm	m
	System Monitoring Compounds					
2)	S Hexacosane	25.65	102436065	47.561	ppm	m
Spiked Amount	50.000	Range 50 - 150	Recovery =	95.12%		
	Target Compounds					
3)	H TPH Diesel (C12-C14)	0.00	0	N.D.	ppm	
4)	H TPHDX-Lube Oil (>C14)	0.00	0	N.D.	ppm	
5)	H Mineral Oil	0.00	0	N.D.	ppm	
6)	h HCID Gas (C7-C12)	0.00	0	N.D.	ppm	
7)	h HCID Diesel (C12-C14)	21.97	163818375	126.333	ppm	
8)	h HCID Oil (>C14)	26.20	156320703	159.639	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int

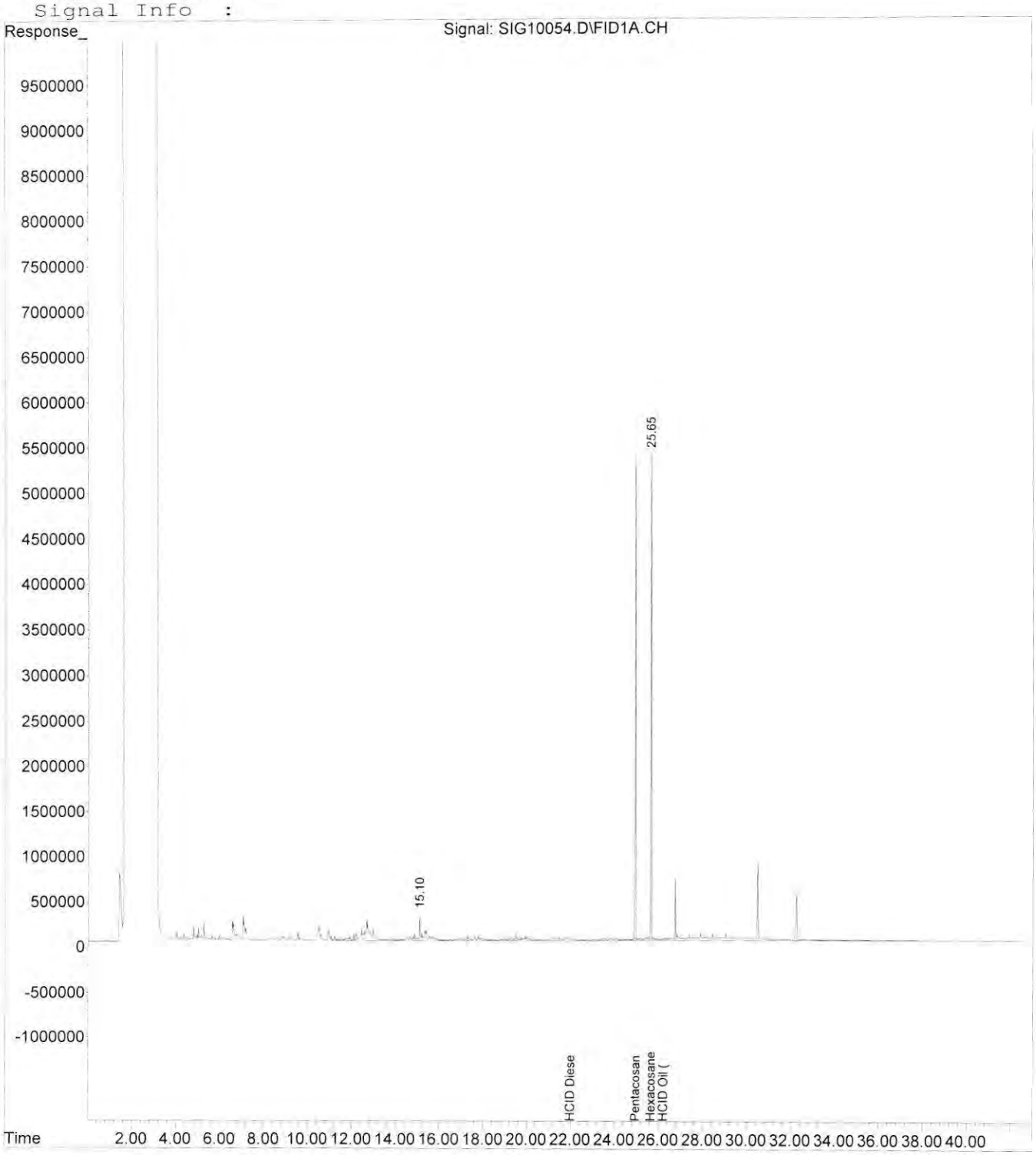
Quantitation Report (QT Reviewed)

Data File : W:\HPCHEM\1\2021DATA\030321\SIG10054.D
Acq On : 05 Mar 2021 11:34
Sample : WBB0717-03
Misc :
IntFile : EVENTS1.E
Quant Time: Mar 5 12:35 2021 Quant Results File: 210301LOW.RES

Vial: 40
Operator: ARC
Inst : HP G1530A
Multiplr: 1.00

Quant Method : W:\HPCHEM\1\METHODS\210301LOW.M (Chemstation Integrator)
Title :
Last Update : Tue Mar 02 09:08:48 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Starting sequence Wed Mar 03 10:56:13 2021

Instrument Name: MSD4
Sequence File: T:\Data1\MSD4\SEQUENCES\2021\MAR\02PSUP.s
Comment:
Operator: MAH
Data Path: T:\DATA1\MSD4\2021\MAR\03\
Method Path: C:\MSDCHEM\1\METHODS\

Line	Type	Vial	DataFile	Method	Sample Name
1)	Sample	1	00101001	SVOCT1	SYS CHECK
2)	Sample	1	00102002	SVOCT1	SYS CHECK
3)	Sample	2	00201003	CARDSIM	10 PPM PEST ICAL
4)	Sample	3	00301004	CARDSIM	5 PPM PEST ICAL
5)	Sample	4	00401005	CARDSIM	2.5 PPM PEST ICAL
6)	Sample	5	00501006	CARDSIM	1 PPM PEST ICAL
7)	Sample	6	00601007	CARDSIM	0.5 PPM PEST ICAL
8)	Sample	7	00701008	CARDSIM	0.10 PPM PEST ICAL
9)	Sample	8	00801009	CARDSIM	0.05 PPM PEST ICAL
10)	Sample	11	01101010	CARDSIM	BBC0110-BS1
11)	Sample	12	01201011	CARDSIM	BBC0110-BSD1
12)	Sample	21	02101012	CARDSIM	BBC0111-BS1
13)	Sample	22	02201013	CARDSIM	BBC0111-BSD1
14)	Sample	13	01301014	CARDSIM	BBC0110-BLK1
15)	Sample	14	01401015	CARDSIM	WBB0617-05
16)	Sample	15	01501016	CARDSIM	WBB0617-08
17)	Sample	21	02101017	CARDSIM	BBC0111-BS1
18)	Sample	22	02201018	CARDSIM	BBC0111-BSD1
19)	Sample	23	02301019	CARDSIM	BBC0111-MS1
20)	Sample	24	02401020	CARDSIM	BBC0111-MSD1
21)	Sample	25	02501021	CARDSIM	BBC0111-BLK1
22)	Sample	26	02601022	CARDSIM	BBC0111-DUP1
23)	Sample	27	02701023	CARDSIM	WBB0717-05
24)	Sample	28	02801024	CARDSIM	WBB0717-08

Sequence completed Wed Mar 03 21:42:22 2021

T:\DATA1\MSD4\2021\MAR\03\2021 Mar 03 1056 Quality Log.LOG
T:\DATA1\MSD4\2021\MAR\03\2021 Mar 03 1056 Sequence Log .LOG

Anatek Labs, Inc
1282 Alturas Drive
Moscow, ID 83843

1,4-Dioxane Cal. Standard Prep. Form **Method: EPA 625.1/8270D**

IS/Surrogate Standards

Standard	Reagent ID	Expiration	Concentration (ppm)
CLP B/N Surrogate	2002553	2/22	1000
CLP Internal Standard	2003865	11/21	2000

Target Compound Standards

Standard	Reagent ID	Expiration	Concentration (ppm)
Chlorpyrifos	2003215	6/25/23	1000
Metolachlor	2003216	3/5/23	1000
Atrazine	2003218	11/21/24	1000

Calibration Dilution Template

Desired Concentration (ppm)	Stock Concentration (ppm) **	uL Standard Added	Final Volume (uL)
10	100	100	1000
5	100	50	1000
2.5	100	25	1000
1.0	100	10	1000
0.5	100	5	1000
0.1	100	1	1000
0.05	100	0.5	1000

Calibration made from target compound standards in the table. 25 uL of surrogate and 10 uL of IS stock added to each standard point. Dilutions were made in $MeCl_2$ (2003529).

Analyst Initials: _____ Date of Preparation: 9/28/20 by TGT

Response Factor Report MSD4

Method Path : T:\Data1\MSD4\METHODS\2021\
Method File : Cardno0303.m
Title : EPA 8270D - GC MSD4
Last Update : Wed Mar 03 15:03:00 2021
Response Via : Initial Calibration

Calibration Files
0.05=00801009.D 10 =00201003.D 5 =00301004.D 2.5 =00401005.D 1 =00501006.D 0.5 =00601007.D
0.1 =00701008.D

		Compound	0.05	10	5	2.5	1	0.5	0.1	Avg	%RSD
1)	I	Dichlorobenzene-d5	ISTD								
2)	S	2-Fluorobiphenyl	1.822	1.821	1.821	1.778	1.767	1.845	1.837	1.813	1.60
3)	I	Acenaphthene-d10	ISTD								
4)		Atrazine	0.134	0.299	0.302	0.222	0.193	0.155	0.126	0.204	36.11
5)	I	Phenanthrene-d10	ISTD								
6)		Metolachlor	0.214	0.553	0.524	0.410	0.309	0.246	0.405	0.380	34.38
7)		Chlorpyrifos	0.049	0.119	0.120	0.101	0.087	0.072	0.098	0.092	27.72
8)	I	Chrysene-d12	ISTD								
9)	S	Terphenyl-d14	0.909	0.945	0.972	0.959	0.949	1.032	0.971	0.962	3.89

(#) = Out of Range

PREPARATION BENCH SHEET
Organics

BBC0110

Print Date/Time: 03/12/2021 3:28 pm

Matrix: Water

Prepared using: SVOC - SVOC Water

Analyses
SVOC 625 MISC

Spiking Solution(s)

Surrogate Solution(s)
2002552 CLP Acid Surr 2000
2002553 CLP B/N 1000

Lab Number	Sample and Source ID	Date Due	Extract by	Prepared	Initial (mL)	Final (mL)	ul Spike	ul Surrogate	Extraction Comments
BBC0110-BLK1	Blank			2/24/2021 11:10:00AM	1000	1		25	
BBC0110-BS1	LCS			2/24/2021 11:10:00AM	1000	1		25	
BBC0110-BSD1	LCS Dup			2/24/2021 11:10:00AM	1000	1		25	
WBB0617-05	WW-3	03/05/2021	02/23/2021	2/24/2021 11:10:00AM	250	1		25	
WBB0617-08	E-2	03/05/2021	02/23/2021	2/24/2021 11:10:00AM	534	1		25	

Reagents

Standard	Description	LotNum
2000154	Acetone - GC grade	59074
2000155	H2SO4	58115
2003324	Dichloromethane	60192

Batch Comments:
Acidic start/stop time: 3PM- 8AM
Basic start/stop tiime: 8AM-3PM
Instrument: 7890/5975 GCMS
Ext. Method: 3520C liq-liq/Waste Dilution/Microextr
TurboVap: 01
Balance: 04
I.S2003865 2000ppm EXP 11/21

Analyst: _____ Date _____

Run Date: 3/3/21 Date _____

PREPARATION BENCH SHEET
Organics

Print Date/Time: 03/12/2021 3:29 pm

BBC0111

Matrix: Water

Prepared using: SVOC - SVOC Water

Analyses
SVOC 625 MISC

Spiking Solution(s)

Surrogate Solution(s)
2002552 CLP Acid Surr 2000
2002553 CLP B/N 1000

Lab Number	Sample and Source ID	Date Due	Extract by	Prepared	Initial (mL)	Final (mL)	ul Spike	ul Surrogate	Extraction Comments
BBC0111-BLK1	Blank			3/1/2021 11:13:00AM	1000	1		25	
BBC0111-BS1	LCS			3/1/2021 11:13:00AM	1000	1		25	
BBC0111-BSD1	LCS Dup			3/1/2021 11:13:00AM	1000	1		25	
BBC0111-DUP1	Duplicate [WBB0717-05]			3/1/2021 11:13:00AM	1000	1		25	
BBC0111-MS1	Matrix Spike [WBB0717-05]			3/1/2021 11:13:00AM	250	1		25	
BBC0111-MSD1	Matrix Spike Dup [WBB0717-05]			3/1/2021 11:13:00AM	250	1		25	
WBB0717-05	WW-3	03/09/2021	02/27/2021	3/1/2021 11:13:00AM	250	1		25	
WBB0717-08	E-2	03/09/2021	02/27/2021	3/1/2021 11:13:00AM	1000	1		25	

Reagents

Standard	Description	LotNum
2000154	Acetone - GC grade	59074
2000155	H2SO4	58115
2003324	Dichloromethane	60192

Batch Comments:
Acidic start/stop time: 3PM- 8AM
Basic start/stop tiime: 8AM-3PM
Instrument: 7890/5975 GCMS
Ext. Method: 3520C liq-liq/Waste Dilution/Microextr
TurboVap: 01
Balance: 04
I.S2003865 2000ppm EXP 11/21

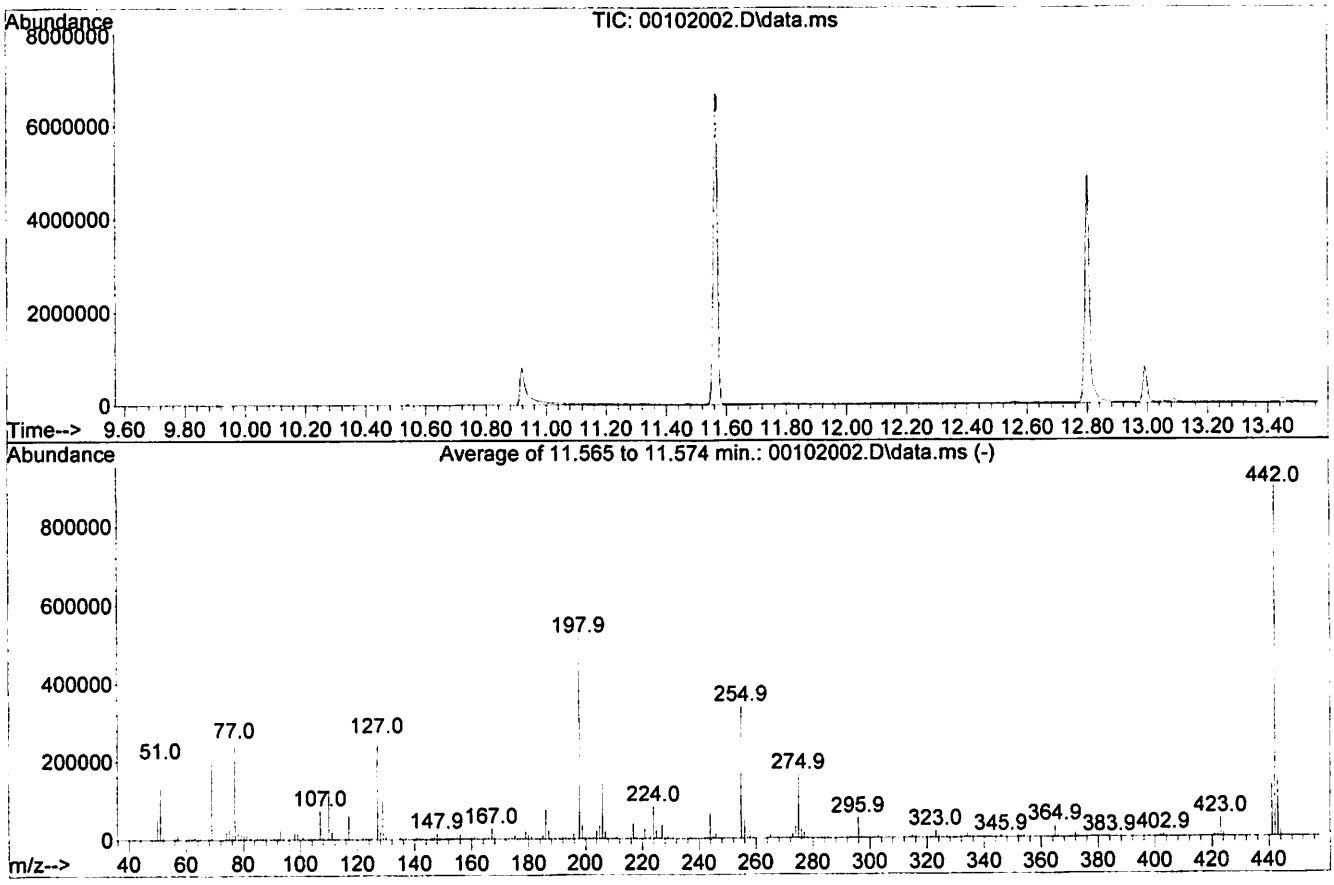
Analyst: _____ Date _____

Run Date: 3/5/21 Date _____

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 00102002.D
Acq On : 3 Mar 2021 11:25 am
Operator : MAH
Sample : SYS CHECK
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: events.e

Method : T:\Data1\MSD4\METHODS\2021\Cardno0311.m
Title : EPA 8270D - GC MSD4
Last Update : Fri Mar 12 09:37:25 2021



AutoFind: Scans 1968, 1969, 1970; Background Corrected with Scan 1944

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	38.0	196273	PASS
68	69	0.00	2	1.7	3338	PASS
69	198	0.00	100	37.8	195536	PASS
70	69	0.00	2	0.6	1089	PASS
127	198	25	75	50.4	260786	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	516928	PASS
199	198	5	9	6.8	35033	PASS
275	198	10	60	31.7	163888	PASS
365	198	0.00	100	5.7	29581	PASS
441	443	0.01	100	75.0	133203	PASS
442	198	39	200	175.7	908480	PASS
443	442	15	24	19.5	177536	PASS

Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 00201003.D
Acq On : 3 Mar 2021 11:52 am
Operator : MAH
Sample : 10 PPM PEST ICAL
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 03 15:00:31 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:00:12 2021
Response via : Initial Calibration

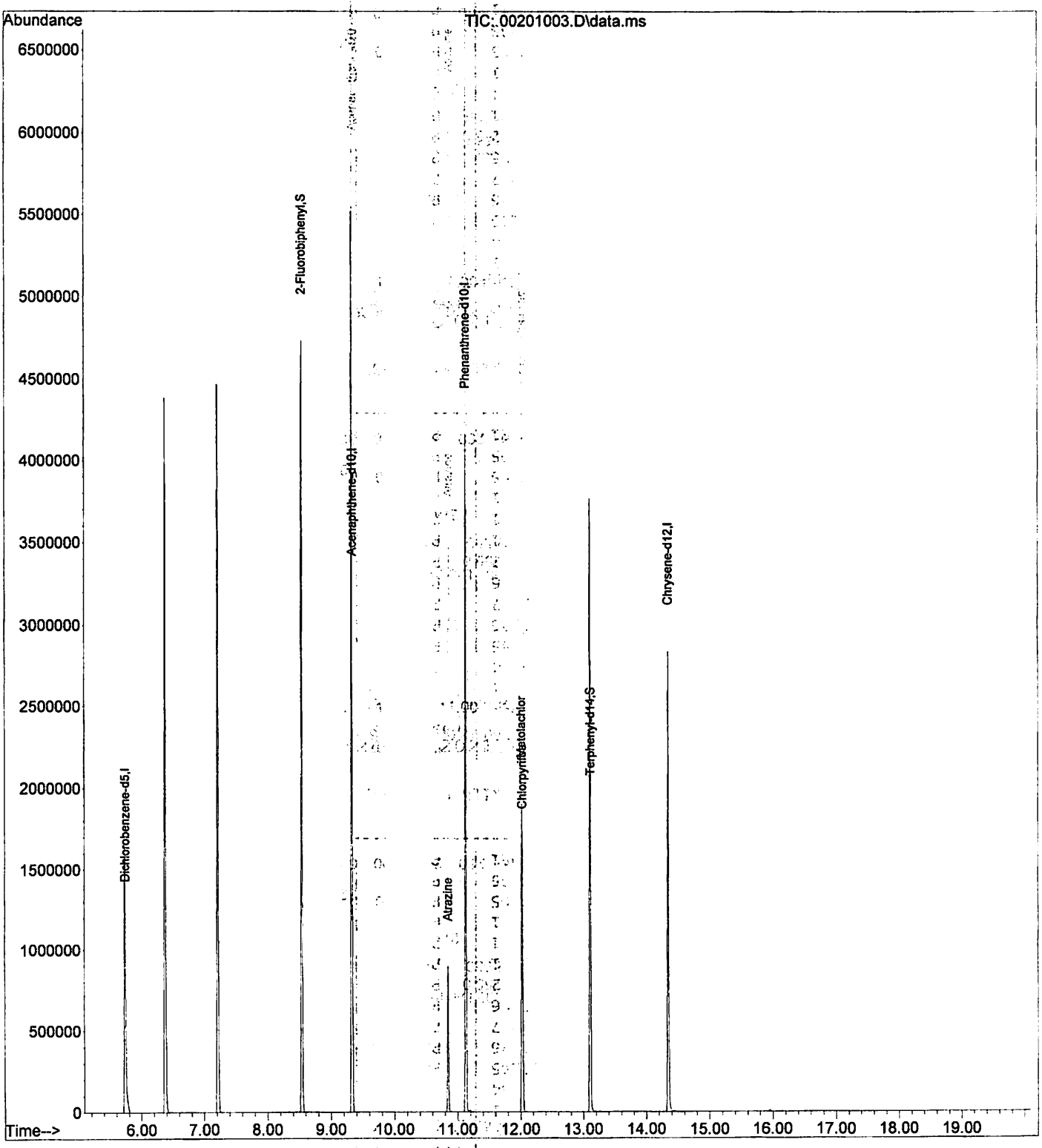
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Dichlorobenzene-d5	5.739	150	22796020	20.00	ppm	0.00
3) Acenaphthene-d10	9.333	164	30045722	20.00	ppm	# 0.00
5) Phenanthrene-d10	11.134	188	41931881	20.00	ppm	# 0.00
8) Chrysene-d12	14.352	240	29748632	20.00	ppm	# 0.00
System Monitoring Compounds						
2) 2-Fluorobiphenyl	8.545	172	51900614	25.11	ppm	0.00
9) Terphenyl-d14	13.111	244	35125371	24.54	ppm	0.00
Spiked Amount 25.000			Recovery =	98.16%		
Target Compounds						Qvalue
4) Atrazine	10.851	200	4492395m	9.77	ppm	
6) Metolachlor	12.020	162	11598004m	9.83	ppm	
7) Chlorpyrifos	12.030	197	2501650m	9.84	ppm	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 00201003.D
Acq On : 3 Mar 2021 11:52 am
Operator : MAH
Sample : 10 PPM PEST ICAL
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 03 15:00:31 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:00:12 2021
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 00301004.D
Acq On : 3 Mar 2021 12:19 pm
Operator : MAH
Sample : 5 PPM PEST ICAL
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Mar 03 15:02:03 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:00:12 2021
Response via : Initial Calibration

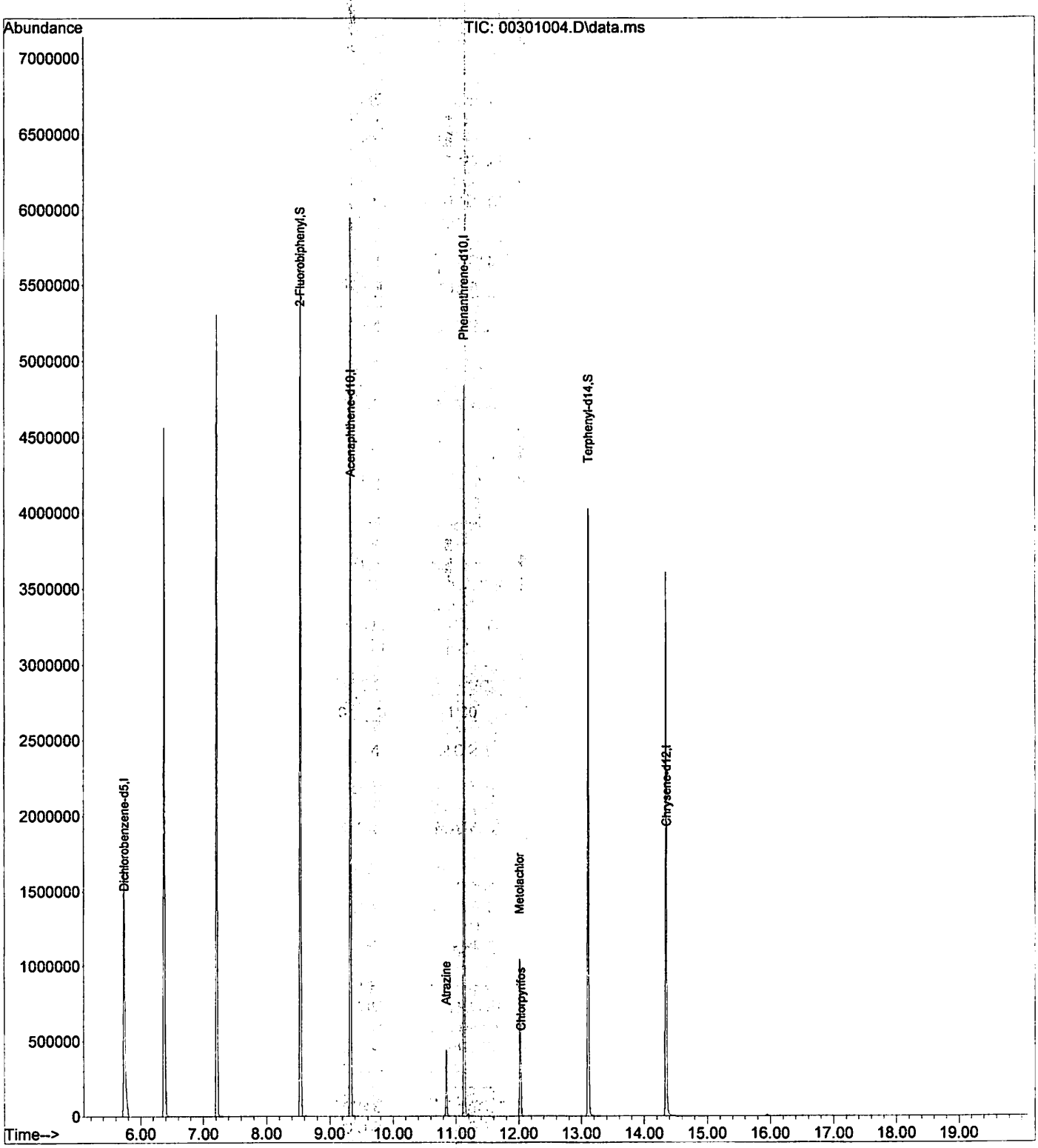
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Dichlorobenzene-d5	5.740	150	24938660	20.00	ug/mL	0.00
3) Acenaphthene-d10	9.333	164	33741577	20.00	ug/mL	# 0.00
5) Phenanthrene-d10	11.134	188	50988130	20.00	ug/mL	# 0.00
8) Chrysene-d12	14.352	240	38515824	20.00	ug/mL	# 0.00
System Monitoring Compounds						
2) 2-Fluorobiphenyl	8.546	172	56754750	25.10	ug/mL	0.00
9) Terphenyl-d14	13.114	244	46786293	25.25	ug/mL	0.00
Spiked Amount 25.000			Recovery = 101.00%			
Target Compounds						Qvalue
4) Atrazine	10.851	200	2548042	5.65	ug/mL	98
6) Metolachlor	12.023	162	6673132	5.50	ug/mL	99
7) Chlorpyrifos	12.035	197	1532975	5.46	ug/mL	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 00301004.D
Acq On : 3 Mar 2021 12:19 pm
Operator : MAH
Sample : 5 PPM PEST ICAL
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Mar 03 15:02:03 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:00:12 2021
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 00401005.D
Acq On : 3 Mar 2021 12:46 pm
Operator : MAH
Sample : 2.5 PPM PEST ICAL
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 03 15:03:26 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration

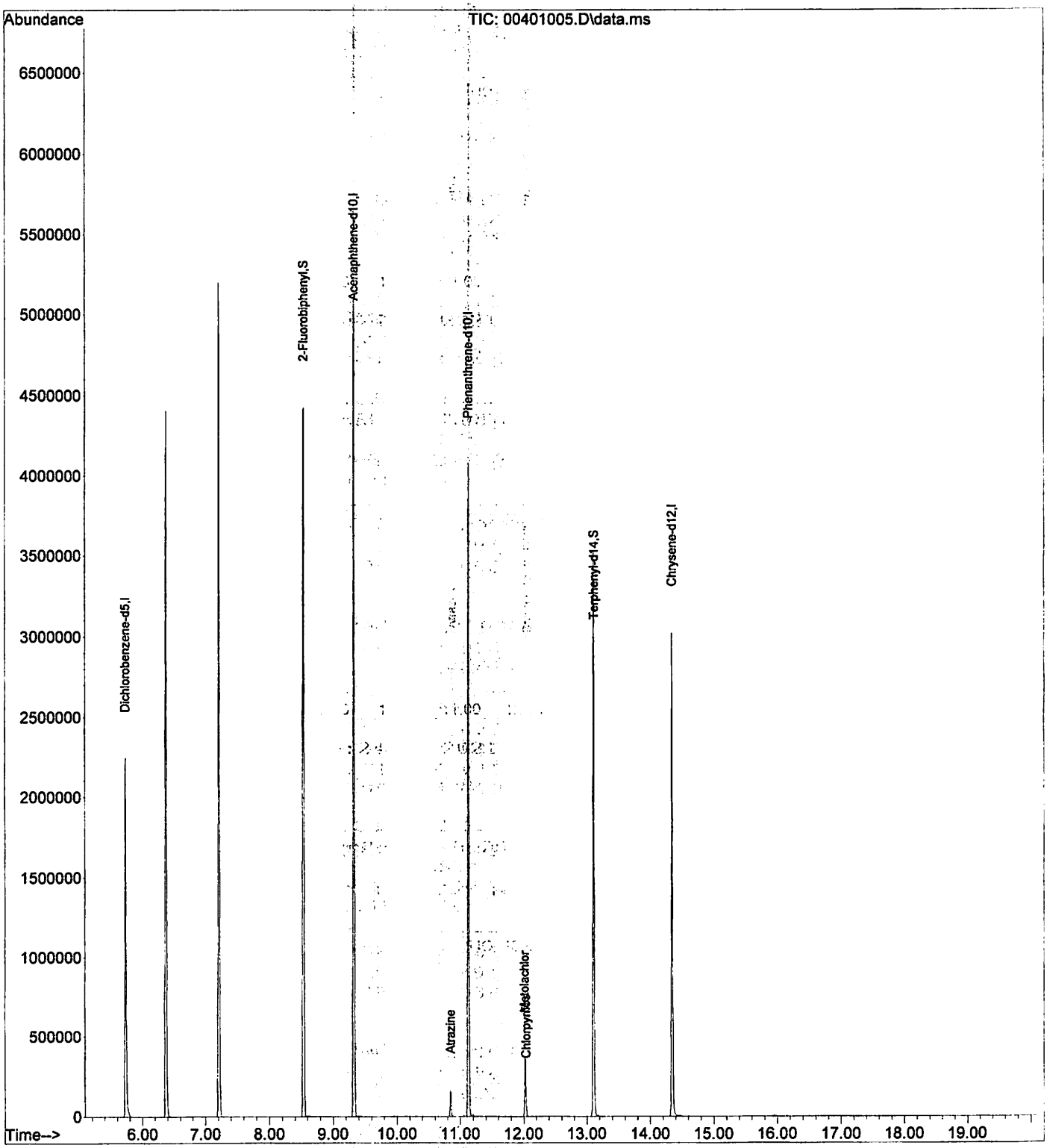
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Dichlorobenzene-d5	5.737	150	24302016	20.00	ug/mL	0.00
3) Acenaphthene-d10	9.332	164	31846420	20.00	ug/mL	# 0.00
5) Phenanthrene-d10	11.133	188	43806348	20.00	ug/mL	# 0.00
8) Chrysene-d12	14.351	240	32685342	20.00	ug/mL	# 0.00
System Monitoring Compounds						
2) 2-Fluorobiphenyl	8.544	172	54024092	24.52	ug/mL	0.00
9) Terphenyl-d14	13.112	244	39172820	24.91	ug/mL	0.00
Spiked Amount 25.000			Recovery =	99.64%		
Target Compounds						Qvalue
4) Atrazine	10.848	200	882761	2.30	ug/mL	98
6) Metolachlor	12.023	162	2242671	2.44	ug/mL	98
7) Chlorpyrifos	12.034	197	551215	2.43	ug/mL	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 00401005.D
Acq On : 3 Mar 2021 12:46 pm
Operator : MAH
Sample : 2.5 PPM PEST ICAL
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 03 15:03:26 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 00501006.D
Acq On : 3 Mar 2021 1:13 pm
Operator : MAH
Sample : 1 PPM PEST ICAL
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 03 15:03:08 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration

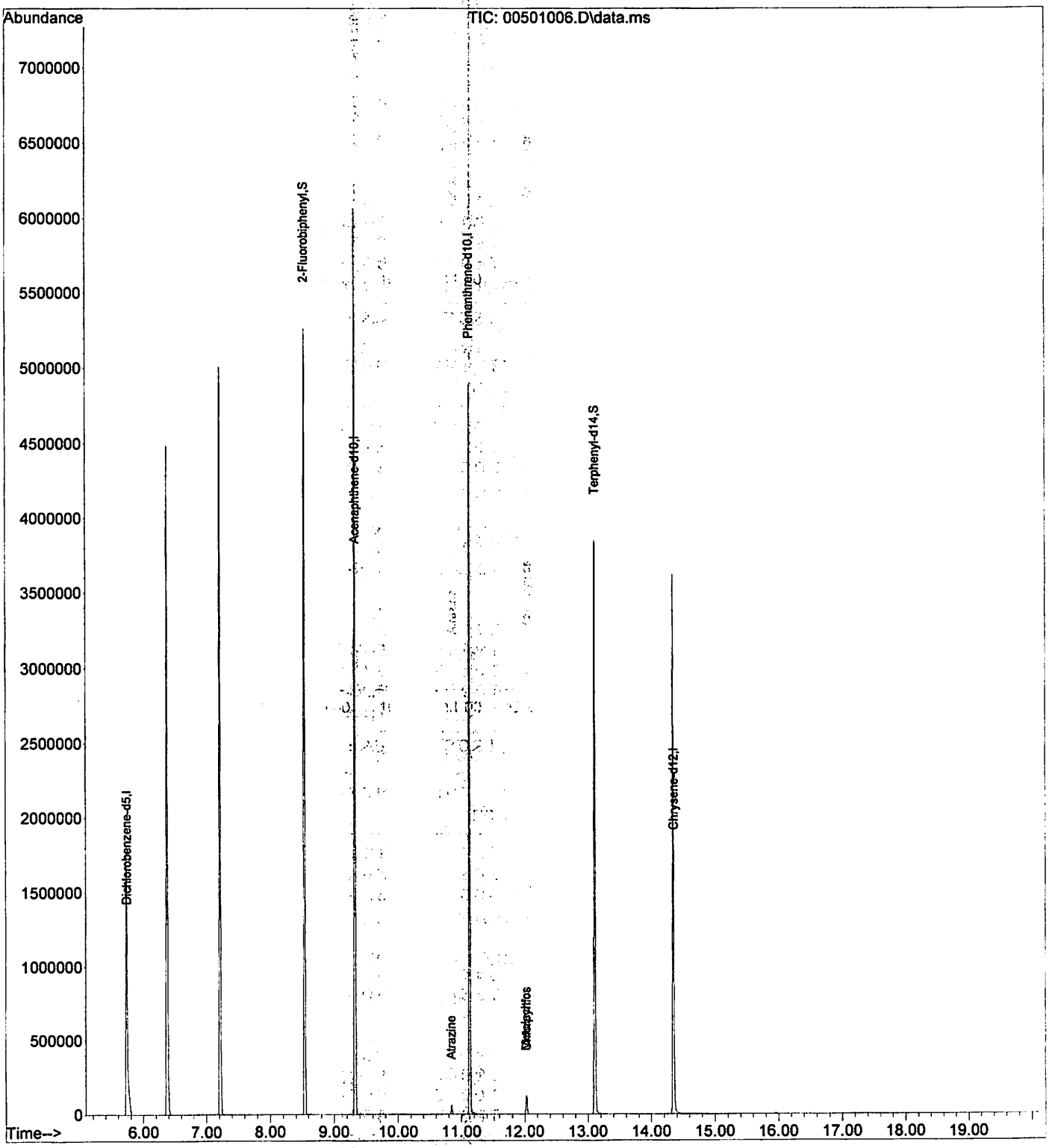
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Dichlorobenzene-d5	5.739	150	25176537	20.00	ug/mL		0.00
3) Acenaphthene-d10	9.333	164	33418737	20.00	ug/mL	#	0.00
5) Phenanthrene-d10	11.134	188	49599812	20.00	ug/mL	#	0.00
8) Chrysene-d12	14.351	240	38470261	20.00	ug/mL	#	0.00
System Monitoring Compounds							
2) 2-Fluorobiphenyl	8.545	172	55621124	24.37	ug/mL		0.00
9) Terphenyl-d14	13.114	244	45634731	24.66	ug/mL		0.00
Spiked Amount 25.000			Recovery =	98.64%			
Target Compounds							Qvalue
4) Atrazine	10.843	200	334250m	0.90	ug/mL		
6) Metolachlor	12.018	162	779590m	0.82	ug/mL		
7) Chlorpyrifos	12.029	197	220554m	0.90	ug/mL		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 00501006.D
Acq On : 3 Mar 2021 1:13 pm
Operator : MAH
Sample : 1 PPM PEST ICAL
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 03 15:03:08 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 00601007.D
Acq On : 3 Mar 2021 1:40 pm
Operator : MAH
Sample : 0.5 PPM PEST ICAL
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 03 15:04:41 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration

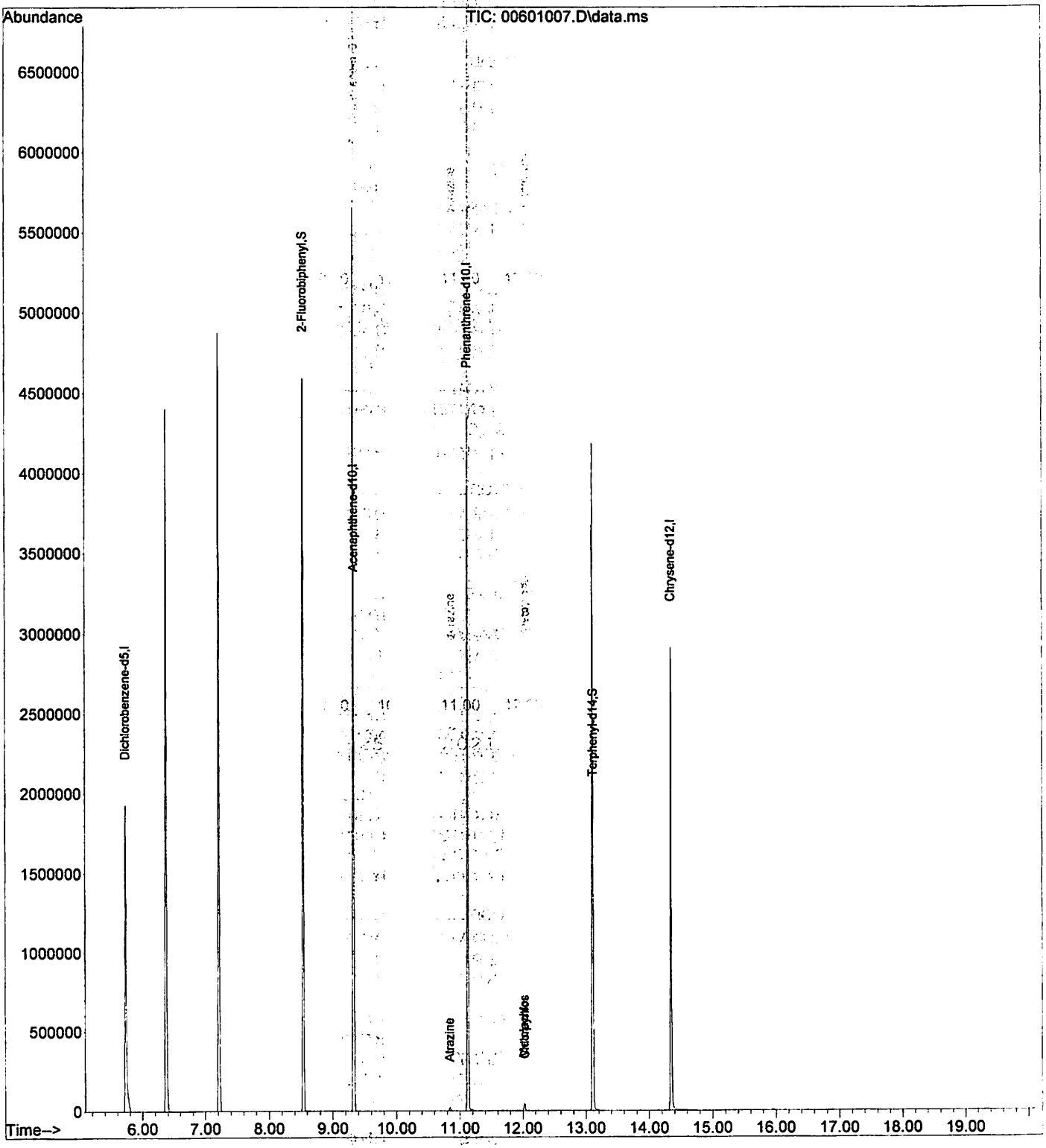
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Dichlorobenzene-d5	5.738	150	22967569	20.00	ug/mL	0.00
3) Acenaphthene-d10	9.332	164	31327656	20.00	ug/mL	# 0.00
5) Phenanthrene-d10	11.134	188	45347405	20.00	ug/mL	# 0.00
8) Chrysene-d12	14.352	240	30021765	20.00	ug/mL	# 0.00
System Monitoring Compounds						
2) 2-Fluorobiphenyl	8.544	172	52967470	25.44	ug/mL	0.00
9) Terphenyl-d14	13.111	244	38726755	26.81	ug/mL	0.00
Spiked Amount 25.000			Recovery = 107.24%			
Target Compounds						Qvalue
4) Atrazine	10.843	200	124321m	0.39	ug/mL	
6) Metolachlor	12.020	162	283927m	0.35	ug/mL	
7) Chlorpyrifos	12.034	197	81118	0.38	ug/mL	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 00601007.D
Acq On : 3 Mar 2021 1:40 pm
Operator : MAH
Sample : 0.5 PPM PEST ICAL
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 03 15:04:41 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 00701008.D
Acq On : 3 Mar 2021 2:07 pm
Operator : MAH
Sample : 0.10 PPM PEST ICAL
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 03 15:03:39 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration

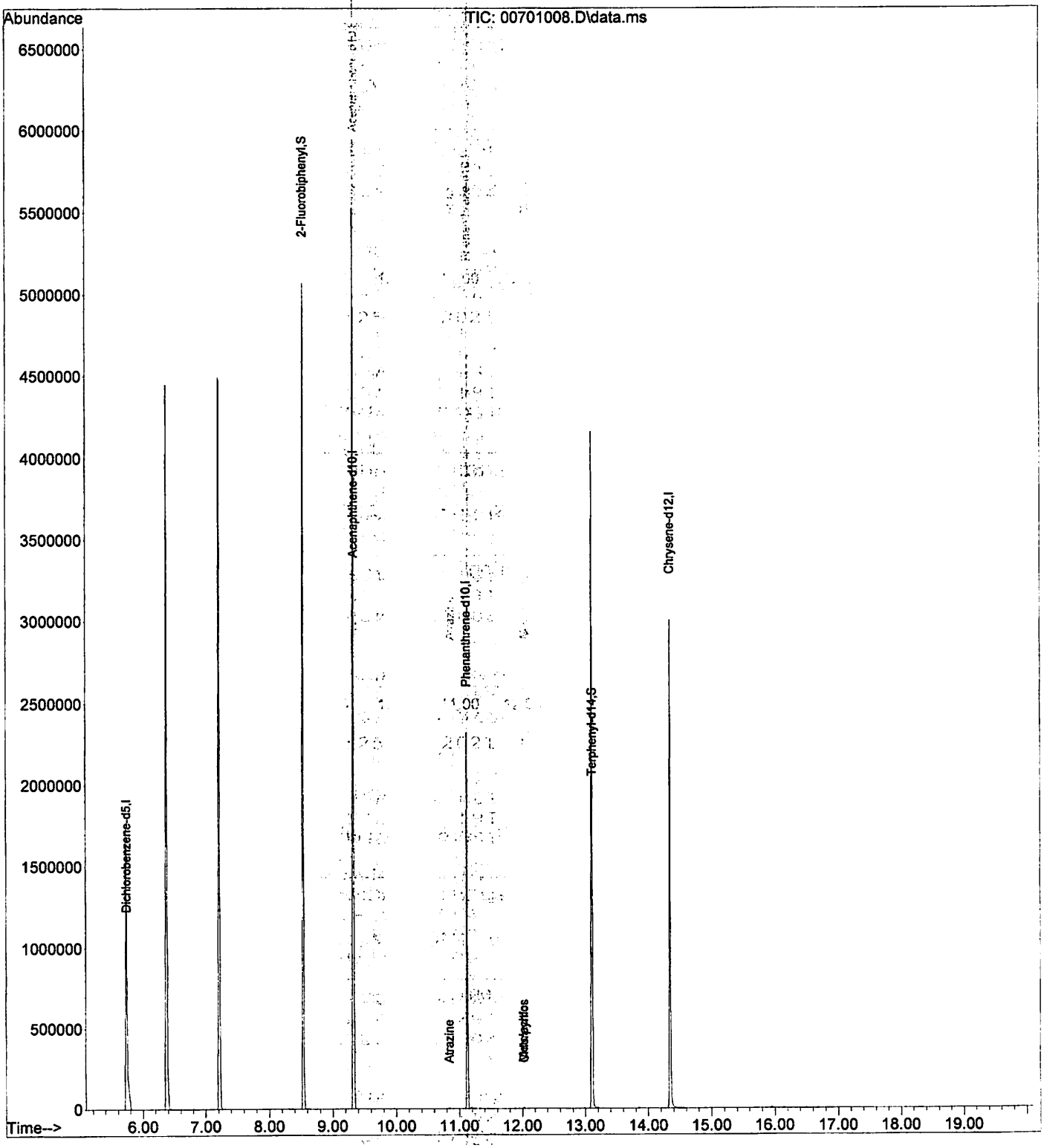
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Dichlorobenzene-d5	5.739	150	23325242	20.00	ug/mL		0.00
3) Acenaphthene-d10	9.332	164	30679135	20.00	ug/mL	#	0.00
5) Phenanthrene-d10	11.127	188	22078888	20.00	ug/mL	#	0.00
8) Chrysene-d12	14.352	240	30790476	20.00	ug/mL	#	0.00
System Monitoring Compounds							
2) 2-Fluorobiphenyl	8.545	172	53562048	25.33	ug/mL		0.00
9) Terphenyl-d14	13.111	244	37366169	25.22	ug/mL		0.00
Spiked Amount 25.000			Recovery =	100.88%			
Target Compounds							Qvalue
4) Atrazine	10.843	200	19090m	0.10	ug/mL		
6) Metolachlor	12.021	162	44673	0.13	ug/mL		98
7) Chlorpyrifos	12.030	197	10551m	0.12	ug/mL		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 00701008.D
Acq On : 3 Mar 2021 2:07 pm
Operator : MAH
Sample : 0.10 PPM PEST ICAL
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 03 15:03:39 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 00801009.D
Acq On : 3 Mar 2021 2:34 pm
Operator : MAH
Sample : 0.05 PPM PEST ICAL
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 03 15:04:04 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration

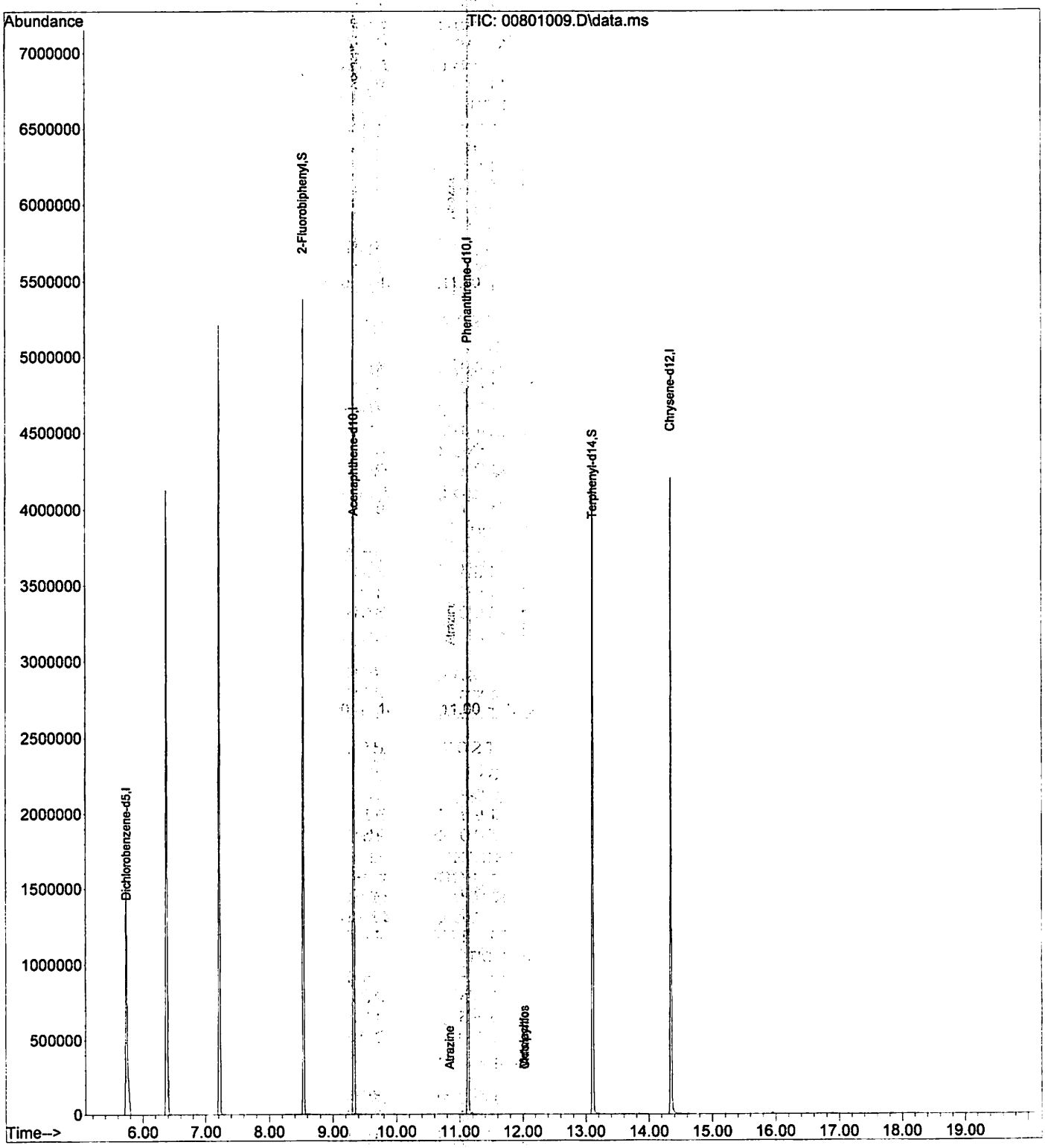
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Dichlorobenzene-d5	5.740	150	24399123	20.00	ug/mL		0.00
3) Acenaphthene-d10	9.333	164	33303470	20.00	ug/mL	#	0.00
5) Phenanthrene-d10	11.135	188	50824187	20.00	ug/mL	#	0.00
8) Chrysene-d12	14.353	240	42655800	20.00	ug/mL	#	0.00
System Monitoring Compounds							
2) 2-Fluorobiphenyl	8.545	172	55555798	25.12	ug/mL		0.00
9) Terphenyl-d14	13.114	244	48454665	23.61	ug/mL		0.00
Spiked Amount 25.000			Recovery = 94.44%				
Target Compounds							Qvalue
4) Atrazine	10.843	200	10705m	0.07	ug/mL		
6) Metolachlor	12.021	162	26741	0.05	ug/mL	#	29
7) Chlorpyrifos	12.030	197	6185m	0.05	ug/mL		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 00801009.D
Acq On : 3 Mar 2021 2:34 pm
Operator : MAH
Sample : 0.05 PPM PEST ICAL
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 03 15:04:04 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration



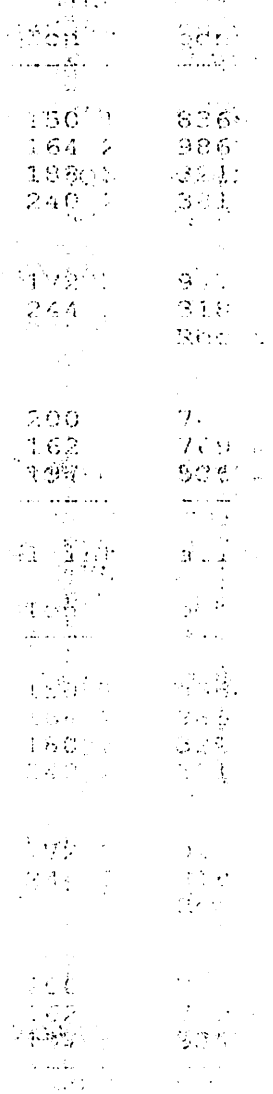
Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 01101010.D
Acq On : 3 Mar 2021 3:02 pm
Operator : MAH
Sample : BBC0110-BS1
Misc :
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Mar 03 15:26:12 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Dichlorobenzene-d5	5.739	150	18738368	20.00	ug/mL	0.00
3) Acenaphthene-d10	9.331	164	26059862	20.00	ug/mL	# 0.00
5) Phenanthrene-d10	11.133	188	38863219	20.00	ug/mL	# 0.00
8) Chrysene-d12	14.351	240	28023813	20.00	ug/mL	# 0.00
System Monitoring Compounds						
2) 2-Fluorobiphenyl	8.542	172	34989475	20.60	ug/mL	0.00
9) Terphenyl-d14	13.111	244	30633183	22.72	ug/mL	0.00
Spiked Amount 25.000			Recovery =	90.88%		
Target Compounds						Qvalue
4) Atrazine	10.843	200	1007475m	3.11	ug/mL	
6) Metolachlor	12.020	162	2527691m	3.02	ug/mL	
7) Chlorpyrifos	12.031	197	615361m	3.01	ug/mL	

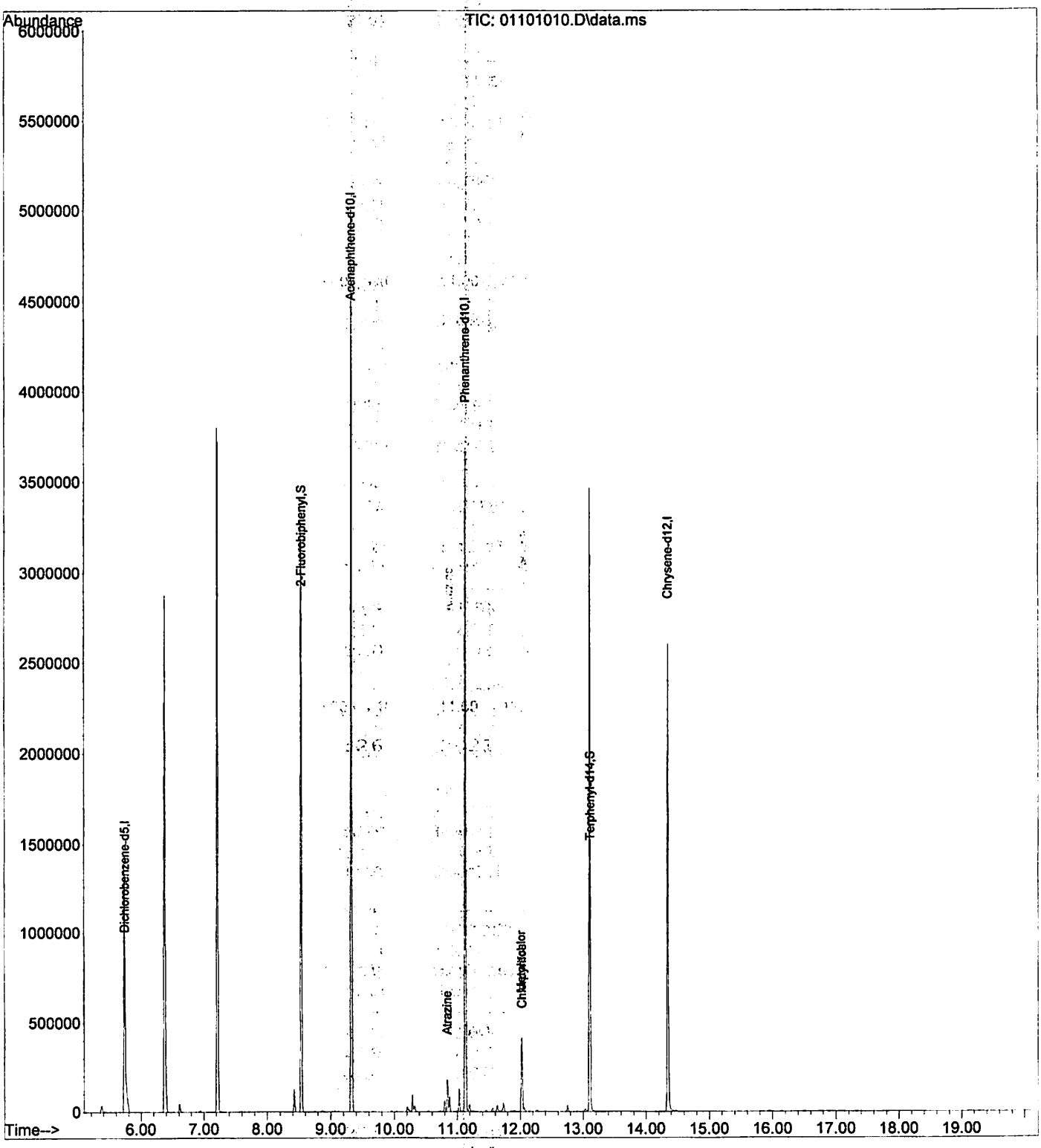
(#) = qualifier out of range (m) = manual integration (+) = signals summed



Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 01101010.D
Acq On : 3 Mar 2021 3:02 pm
Operator : MAH
Sample : BBC0110-BS1
Misc :
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Mar 03 15:26:12 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration



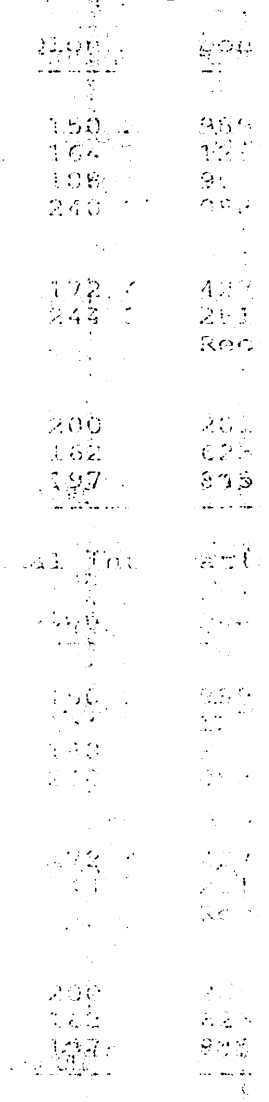
Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 01201011.D
Acq On : 3 Mar 2021 3:29 pm
Operator : MAH
Sample : BBC0110-BSD1
Misc :
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 04 09:29:02 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Dichlorobenzene-d5	5.738	150	22359891	20.00	ug/mL		0.00
3) Acenaphthene-d10	9.331	164	30521283	20.00	ug/mL	#	0.00
5) Phenanthrene-d10	11.134	188	44619007	20.00	ug/mL	#	0.00
8) Chrysene-d12	14.351	240	29920881	20.00	ug/mL	#	0.00
System Monitoring Compounds							
2) 2-Fluorobiphenyl	8.542	172	40894275	20.17	ug/mL		0.00
9) Terphenyl-d14	13.111	244	36672818	25.47	ug/mL		0.00
Spiked Amount 25.000			Recovery =	101.88%			
Target Compounds							Qvalue
4) Atrazine	10.850	200	1142812	3.02	ug/mL	#	87
6) Metolachlor	12.022	162	2926230	3.04	ug/mL		100
7) Chlorpyrifos	12.034	197	698456	2.98	ug/mL		99

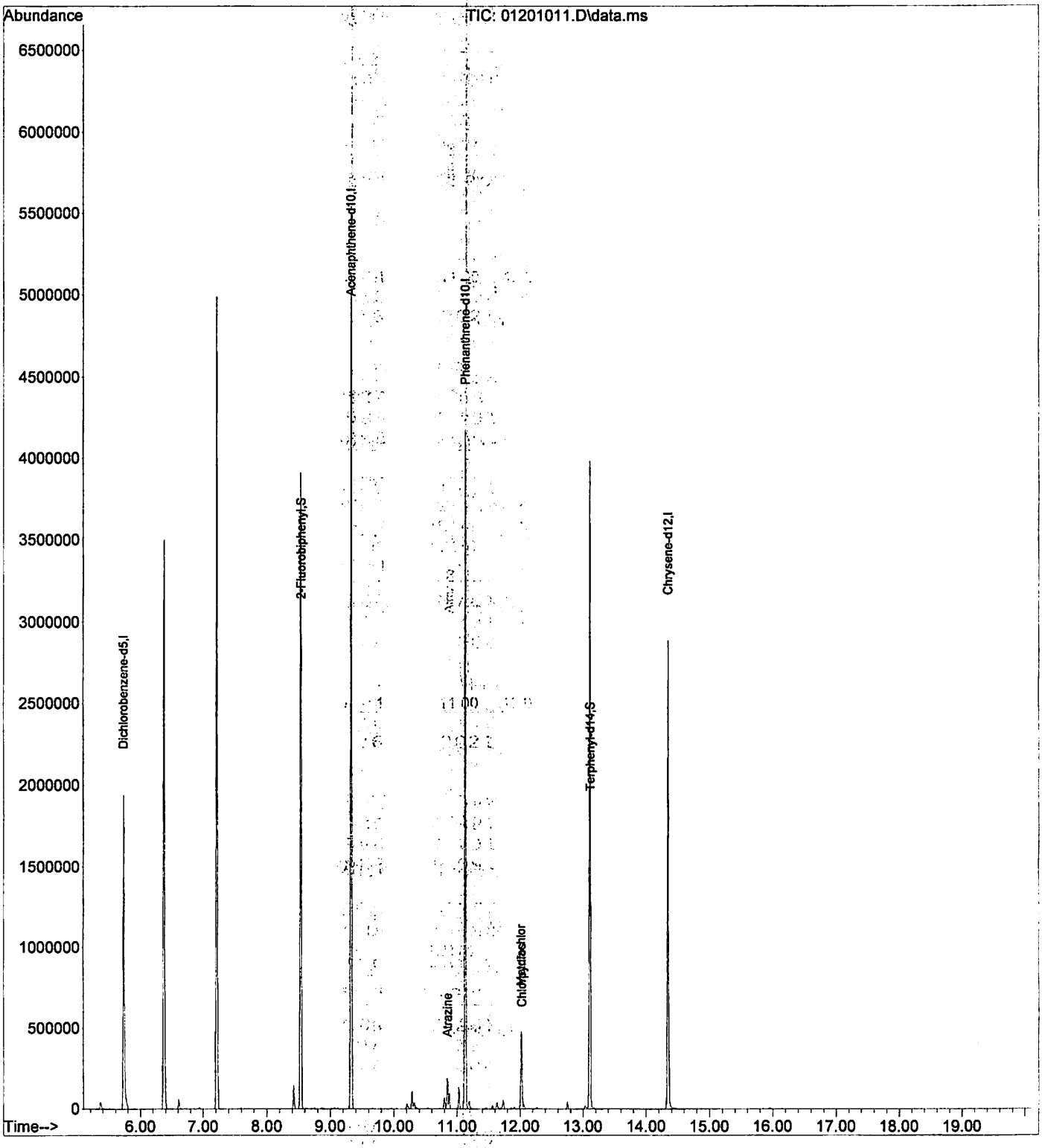
(#) = qualifier out of range (m) = manual integration (+) = signals summed



Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 01201011.D
Acq On : 3 Mar 2021 3:29 pm
Operator : MAH
Sample : BBC0110-BSD1
Misc :
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 04 09:29:02 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 01301014.D
Acq On : 3 Mar 2021 4:50 pm
Operator : MAH
Sample : BBC0110-BLK1
Misc :
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 04 09:29:20 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration

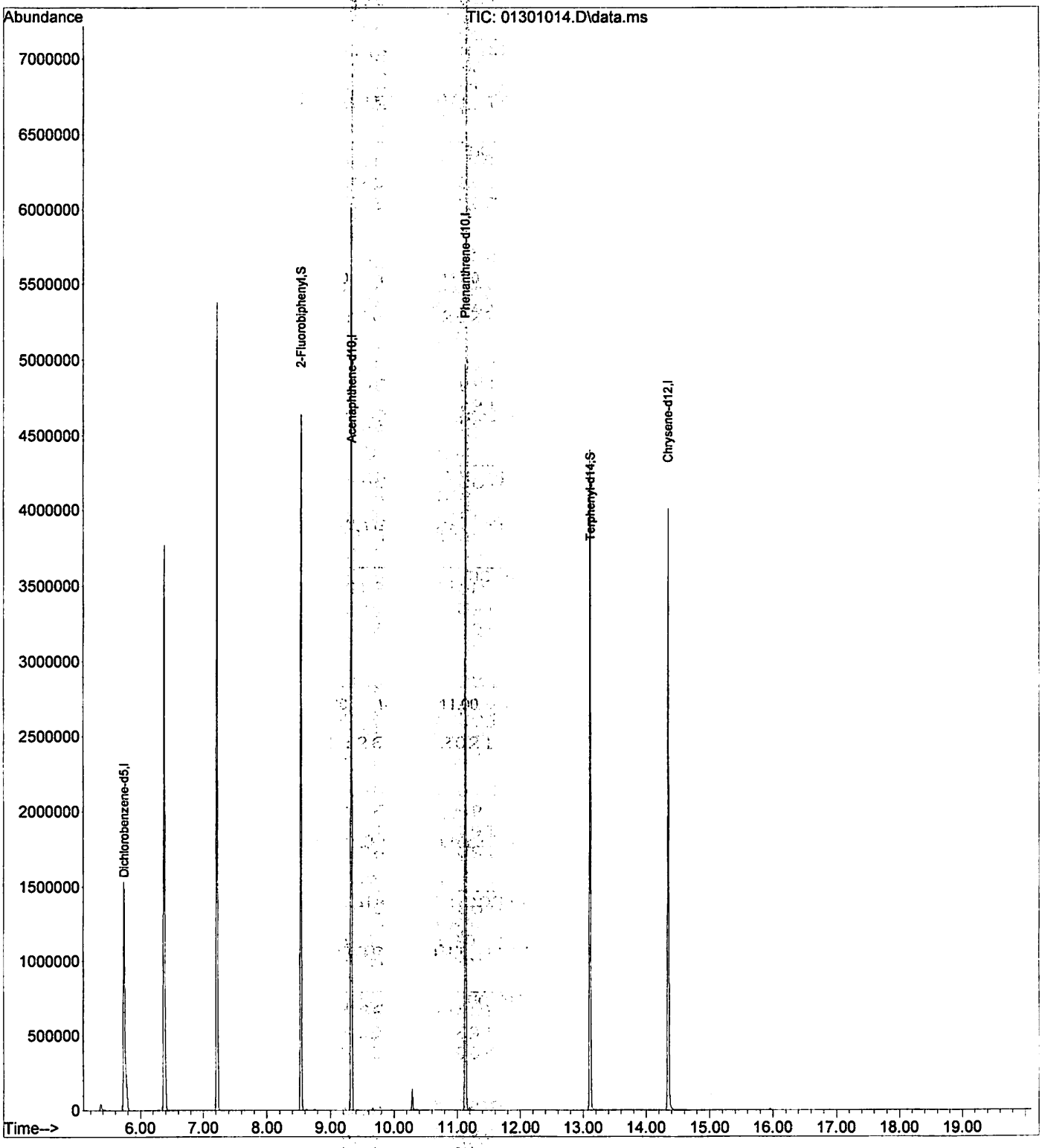
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Dichlorobenzene-d5	5.741	150	25367891	20.00	ug/mL		0.00
3) Acenaphthene-d10	9.334	164	34825981	20.00	ug/mL	#	0.00
5) Phenanthrene-d10	11.136	188	53085416	20.00	ug/mL	#	0.00
8) Chrysene-d12	14.353	240	43579985	20.00	ug/mL	#	0.00
System Monitoring Compounds							
2) 2-Fluorobiphenyl	8.545	172	49202112	21.40	ug/mL		0.00
9) Terphenyl-d14	13.114	244	47925156	22.86	ug/mL		0.00
Spiked Amount 25.000			Recovery = 91.44%				
Target Compounds							Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 01301014.D
Acq On : 3 Mar 2021 4:50 pm
Operator : MAH
Sample : BBC0110-BLK1
Misc :
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 04 09:29:20 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 01401015.D
Acq On : 3 Mar 2021 5:17 pm
Operator : MAH
Sample : WBB0617-05
Misc :
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Mar 04 09:29:30 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration

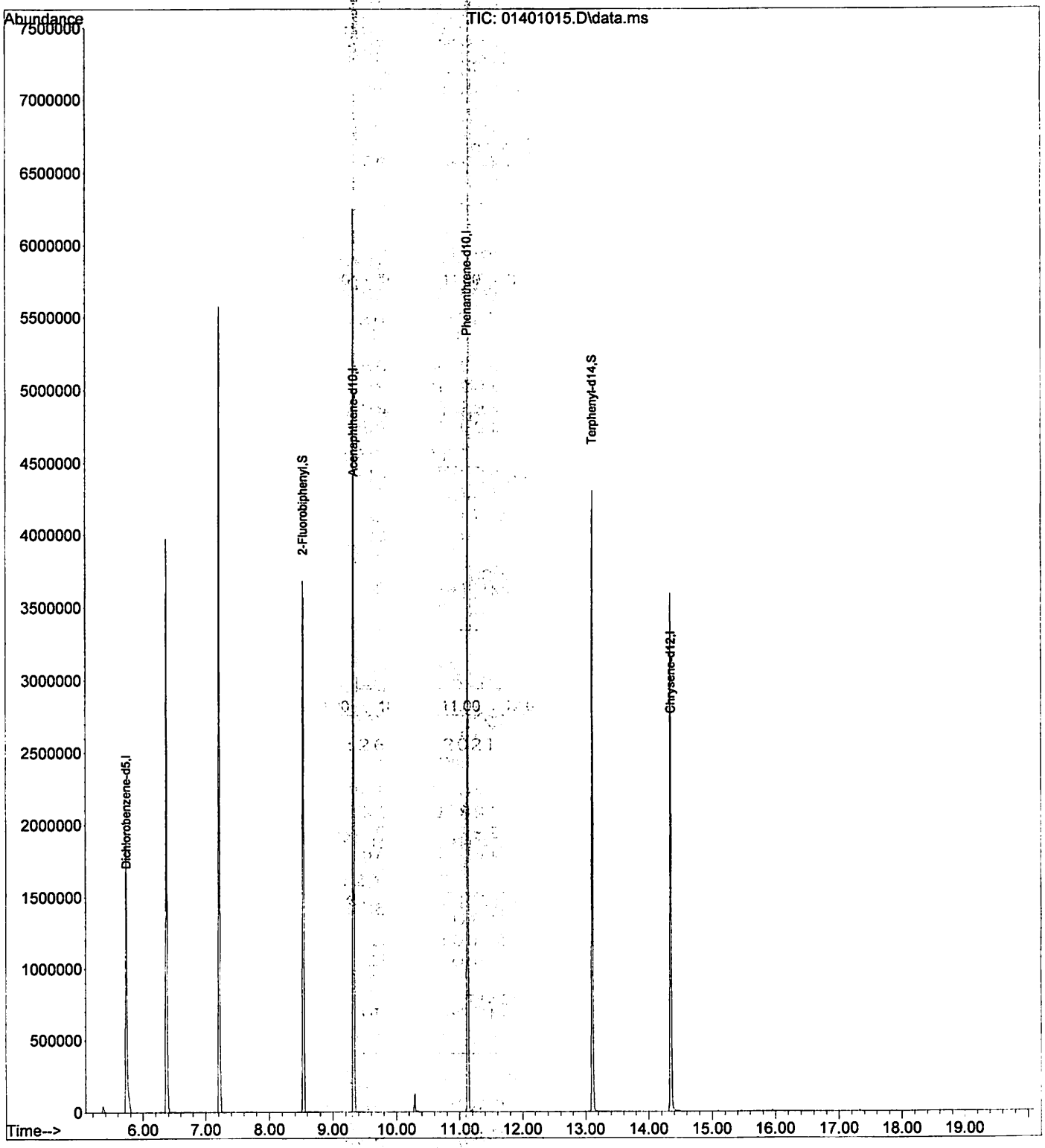
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Dichlorobenzene-d5	5.740	150	26785490	20.00	ug/mL		0.00
3) Acenaphthene-d10	9.333	164	36087048	20.00	ug/mL	#	0.00
5) Phenanthrene-d10	11.135	188	54753314	20.00	ug/mL	#	0.00
8) Chrysene-d12	14.353	240	43319961	20.00	ug/mL	#	0.00
System Monitoring Compounds							
2) 2-Fluorobiphenyl	8.543	172	41943708	17.27	ug/mL		0.00
9) Terphenyl-d14	13.115	244	47926526	22.99	ug/mL		0.00
Spiked Amount 25.000			Recovery = 91.96%				
Target Compounds							Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 01401015.D
Acq On : 3 Mar 2021 5:17 pm
Operator : MAH
Sample : WBB0617-05
Misc :
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Mar 04 09:29:30 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 01501016.D
Acq On : 3 Mar 2021 5:44 pm
Operator : MAH
Sample : WBB0617-08
Misc :
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 04 09:29:40 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration

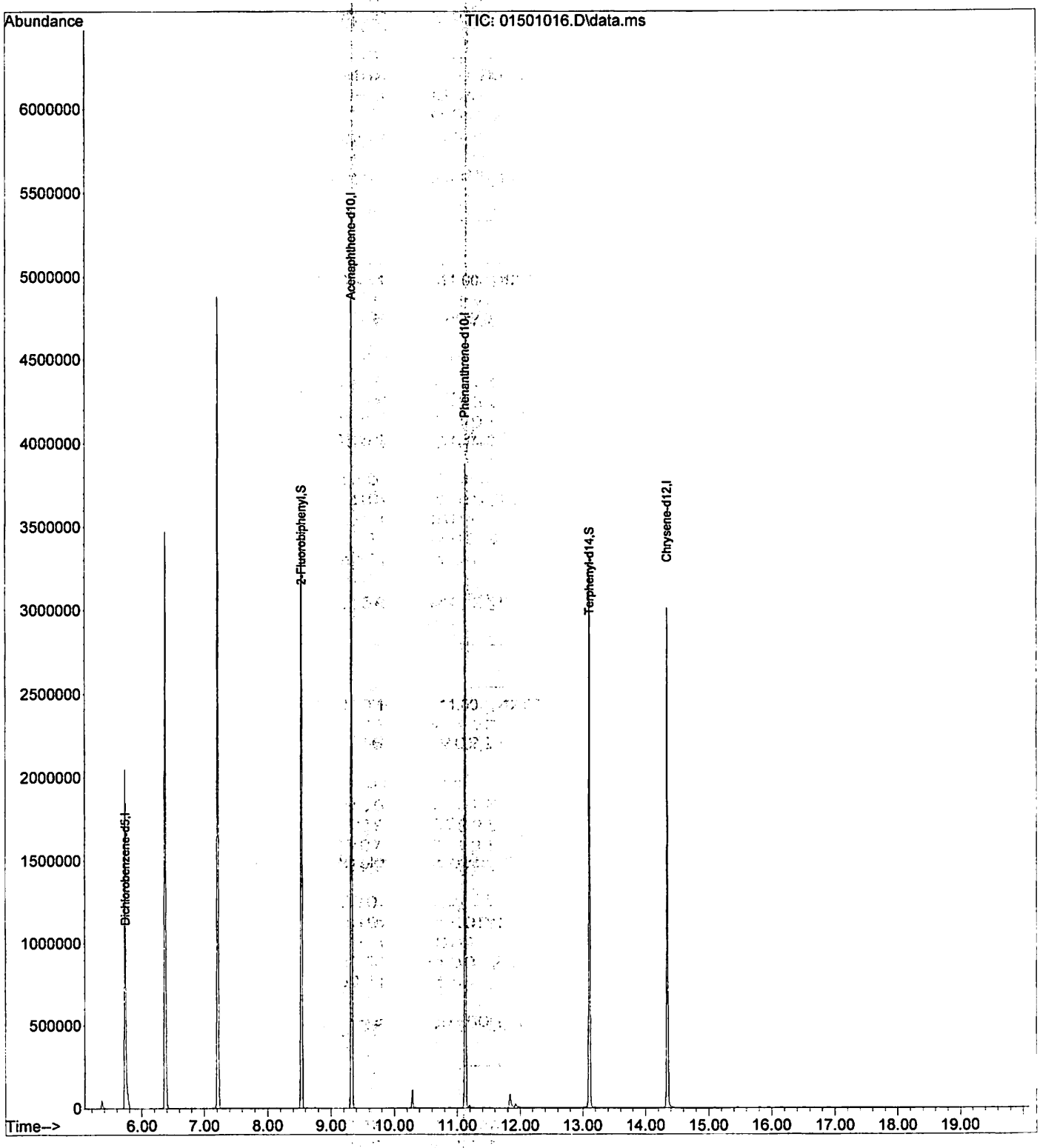
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Dichlorobenzene-d5	5.738	150	24181390	20.00	ug/mL		0.00
3) Acenaphthene-d10	9.332	164	30513193	20.00	ug/mL	#	0.00
5) Phenanthrene-d10	11.133	188	42681433	20.00	ug/mL	#	0.00
8) Chrysene-d12	14.351	240	30896390	20.00	ug/mL	#	0.00
System Monitoring Compounds							
2) 2-Fluorobiphenyl	8.542	172	39109762	17.84	ug/mL		0.00
9) Terphenyl-d14	13.112	244	36803510	24.76	ug/mL		0.00
Spiked Amount 25.000			Recovery = 99.04%				
Target Compounds							Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 01501016.D
Acq On : 3 Mar 2021 5:44 pm
Operator : MAH
Sample : WBB0617-08
Misc :
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 04 09:29:40 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 02101012.D
Acq On : 3 Mar 2021 3:56 pm
Operator : MAH
Sample : BBC0111-BS1
Misc :
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Mar 04 09:30:14 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration

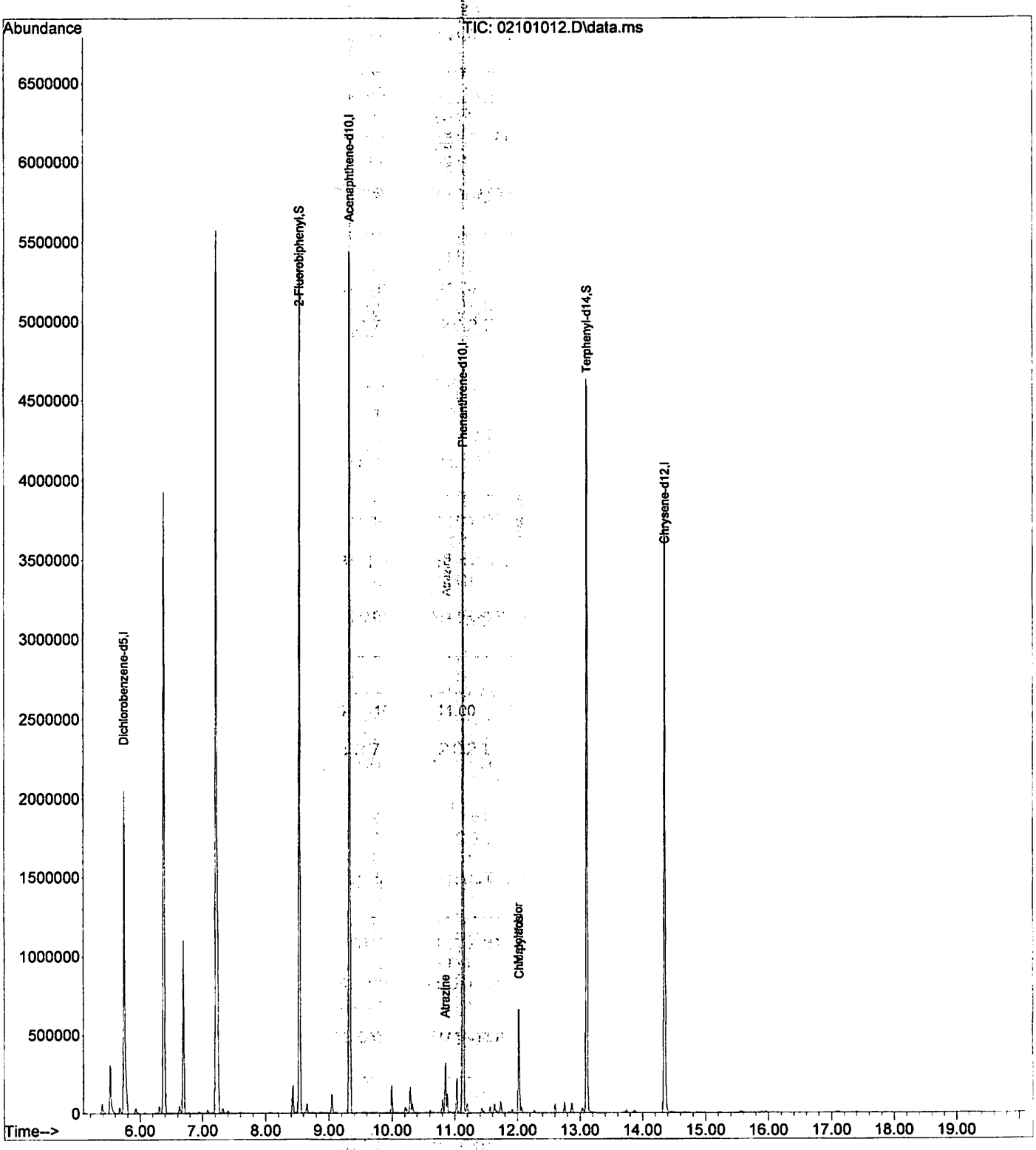
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Dichlorobenzene-d5	5.747	150	27535360	20.00	ug/mL	0.00
3) Acenaphthene-d10	9.335	164	37675143	20.00	ug/mL	# 0.00
5) Phenanthrene-d10	11.138	188	59979689	20.00	ug/mL	# 0.00
8) Chrysene-d12	14.356	240	50319396	20.00	ug/mL	# 0.00
System Monitoring Compounds						
2) 2-Fluorobiphenyl	8.546	172	58831873	23.57	ug/mL	0.00
9) Terphenyl-d14	13.115	244	54601292	22.55	ug/mL	0.00
Spiked Amount 25.000			Recovery =	90.20%		
Target Compounds						Qvalue
4) Atrazine	10.854	200	1642033	3.46	ug/mL	93
6) Metolachlor	12.024	162	4245643	3.25	ug/mL	100
7) Chlorpyrifos	12.030	197	885938m	2.82	ug/mL	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 02101012.D
Acq On : 3 Mar 2021 3:56 pm
Operator : MAH
Sample : BBC0111-BS1
Misc :
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Mar 04 09:30:14 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 02101017.D
Acq On : 3 Mar 2021 6:11 pm
Operator : MAH
Sample : BBC0111-BS1
Misc :
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Mar 04 09:30:35 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration

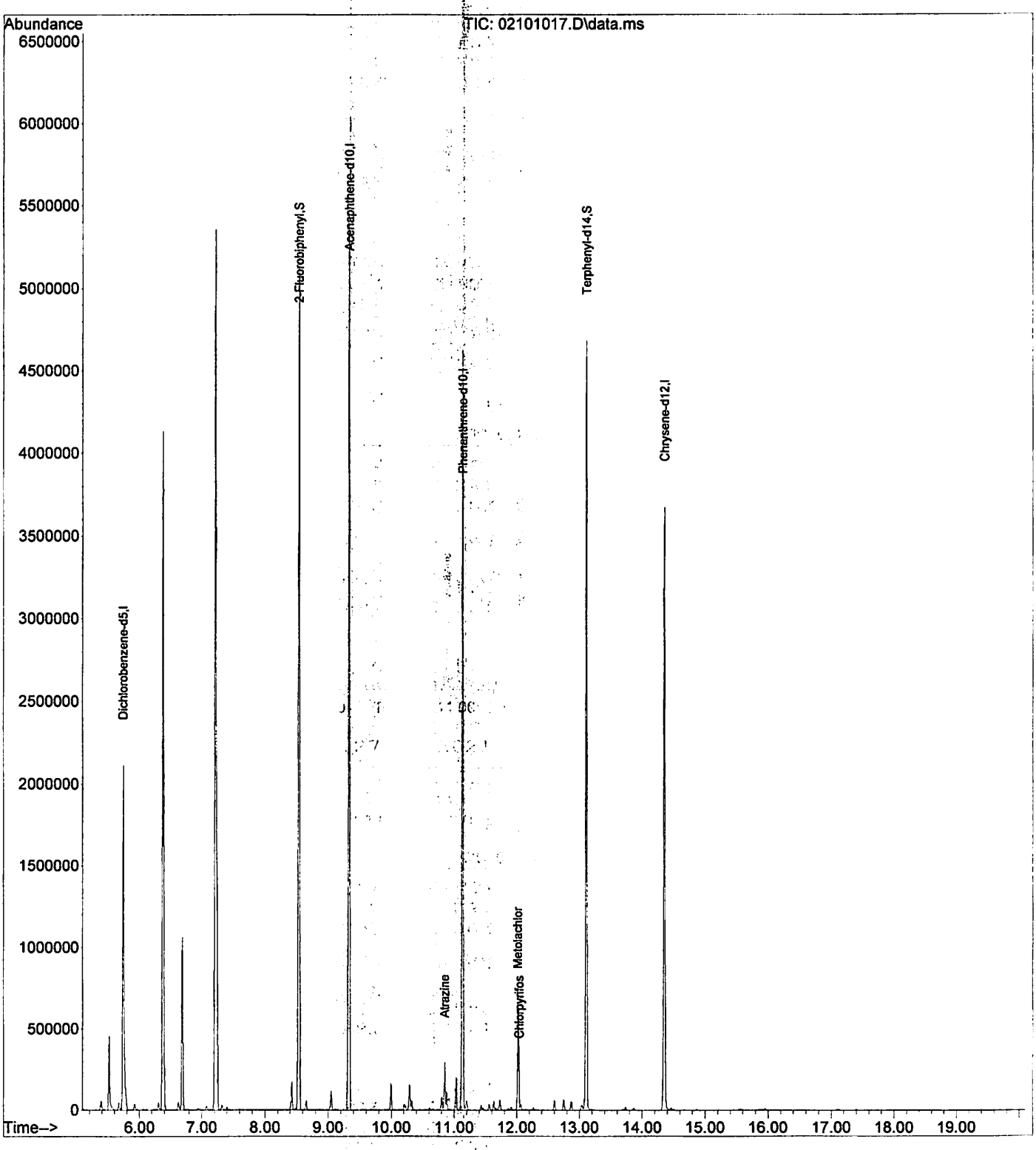
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Dichlorobenzene-d5	5.745	150	27819682	20.00	ug/mL		0.00
3) Acenaphthene-d10	9.335	164	37222514	20.00	ug/mL	#	0.00
5) Phenanthrene-d10	11.138	188	58085285	20.00	ug/mL	#	0.00
8) Chrysene-d12	14.357	240	46901164	20.00	ug/mL	#	0.00
System Monitoring Compounds							
2) 2-Fluorobiphenyl	8.545	172	57965516	22.98	ug/mL		0.00
9) Terphenyl-d14	13.114	244	54094844	23.97	ug/mL		0.00
Spiked Amount 25.000			Recovery =	95.88%			
Target Compounds							Qvalue
4) Atrazine	10.853	200	1583175	3.39	ug/mL		96
6) Metolachlor	12.023	162	4150374	3.27	ug/mL		99
7) Chlorpyrifos	12.035	197	852209	2.80	ug/mL		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 02101017.D
Acq On : 3 Mar 2021 6:11 pm
Operator : MAH
Sample : BBC0111-BS1
Misc :
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Mar 04 09:30:35 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 02201013.D
Acq On : 3 Mar 2021 4:23 pm
Operator : MAH
Sample : BBC0111-BSD1
Misc :
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Mar 04 09:30:43 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration

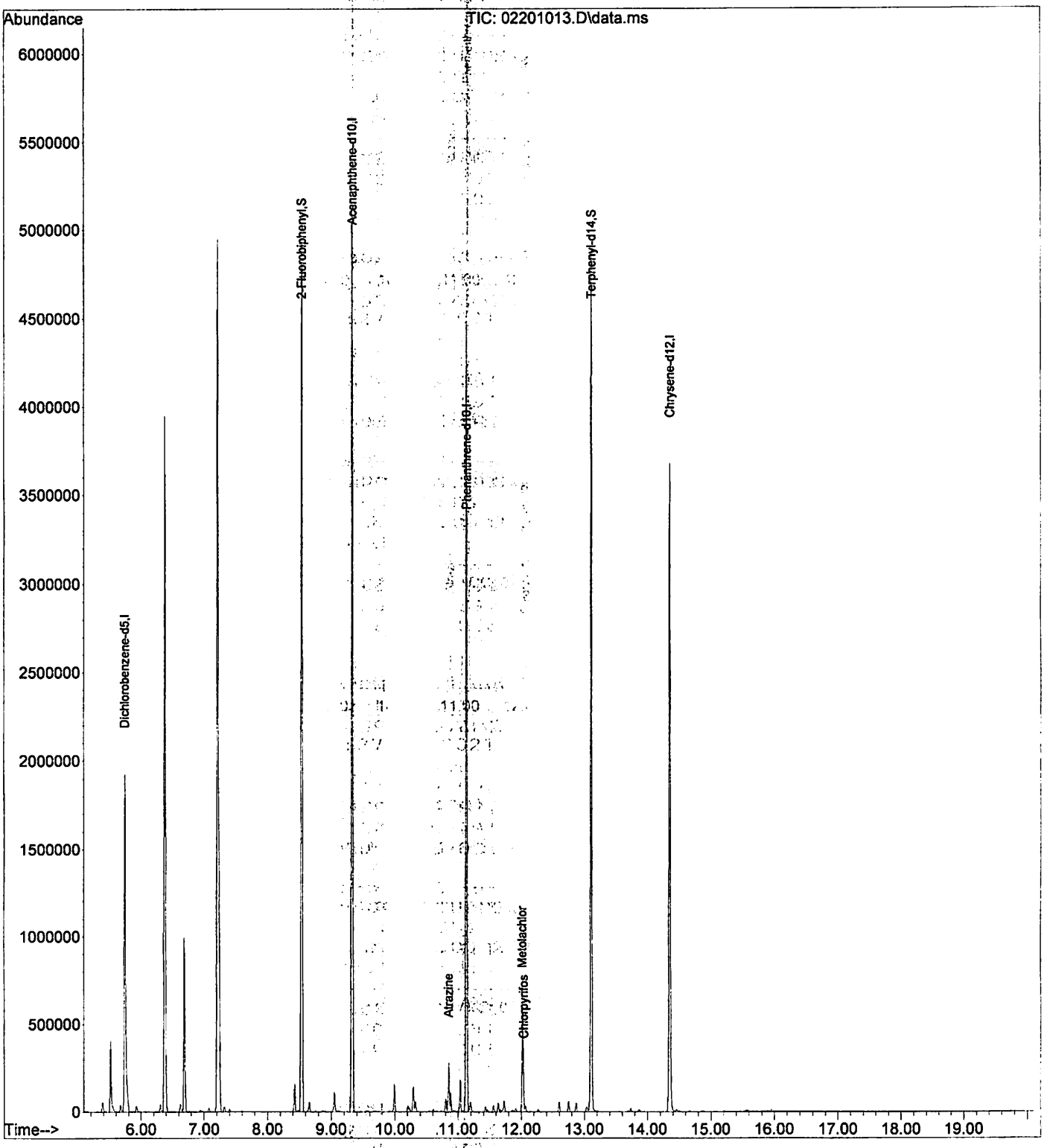
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Dichlorobenzene-d5	5.745	150	26121119	20.00	ug/mL		0.00
3) Acenaphthene-d10	9.335	164	35158593	20.00	ug/mL	#	0.00
5) Phenanthrene-d10	11.137	188	55868519	20.00	ug/mL	#	0.00
8) Chrysene-d12	14.357	240	47886027	20.00	ug/mL	#	0.00
System Monitoring Compounds							
2) 2-Fluorobiphenyl	8.545	172	55308522	23.36	ug/mL		0.00
9) Terphenyl-d14	13.116	244	53092748	23.04	ug/mL		0.00
Spiked Amount 25.000			Recovery =	92.16%			
Target Compounds							Qvalue
4) Atrazine	10.853	200	1501308	3.40	ug/mL		93
6) Metolachlor	12.023	162	3935831	3.23	ug/mL		100
7) Chlorpyrifos	12.035	197	819343	2.80	ug/mL		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 02201013.D
Acq On : 3 Mar 2021 4:23 pm
Operator : MAH
Sample : BBC0111-BSD1
Misc :
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Mar 04 09:30:43 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 02301019.D
Acq On : 3 Mar 2021 7:05 pm
Operator : MAH
Sample : BBC0111-MS1
Misc :
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Mar 04 09:31:23 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration

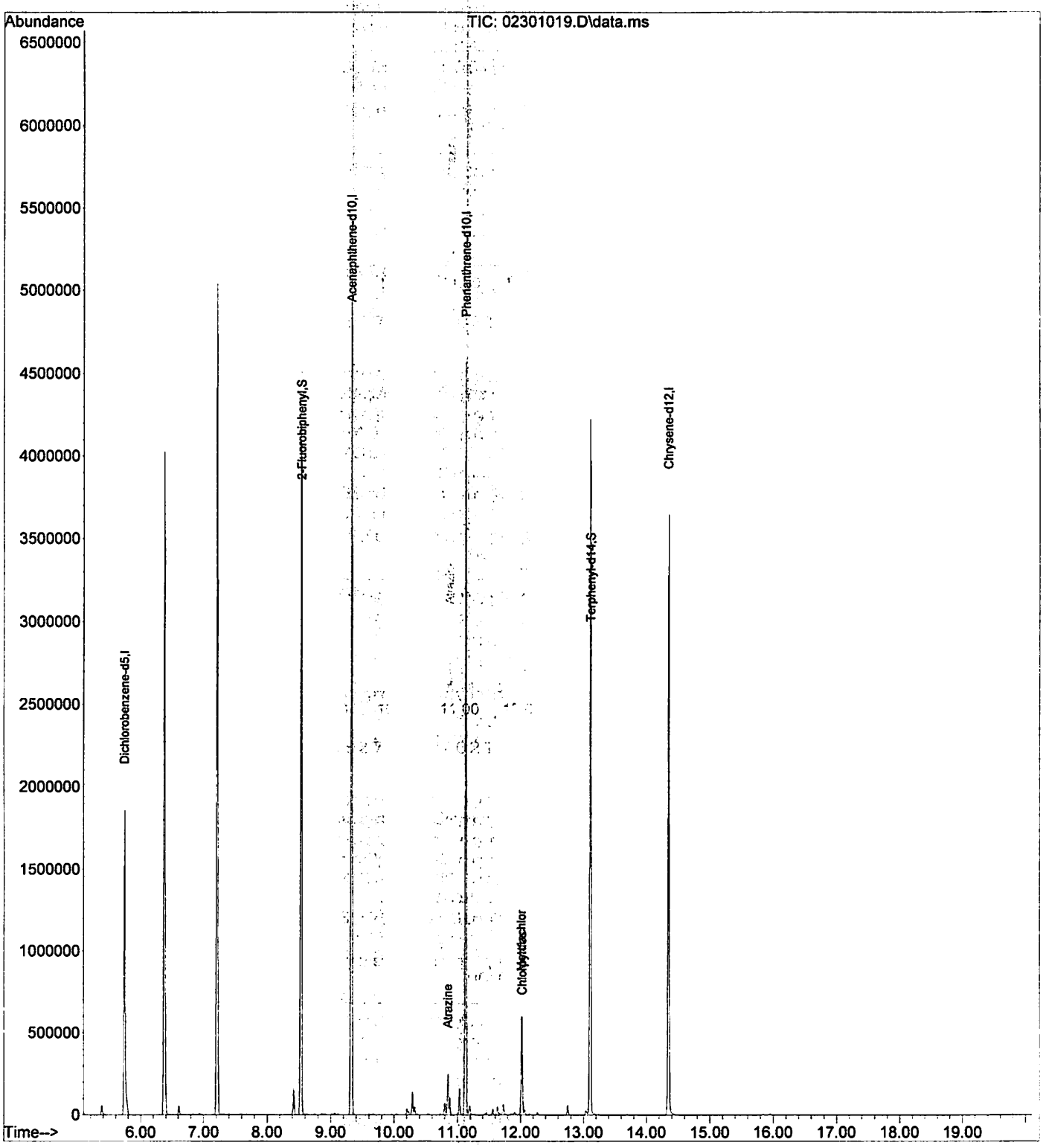
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Dichlorobenzene-d5	5.745	150	23916728	20.00	ug/mL		0.00
3) Acenaphthene-d10	9.331	164	32903573	20.00	ug/mL	#	0.00
5) Phenanthrene-d10	11.135	188	50669607	20.00	ug/mL	#	0.00
8) Chrysene-d12	14.352	240	38140715	20.00	ug/mL	#	0.00
System Monitoring Compounds							
2) 2-Fluorobiphenyl	8.542	172	49911479	23.02	ug/mL		0.00
9) Terphenyl-d14	13.112	244	43293559	23.59	ug/mL		0.00
Spiked Amount 25.000			Recovery = 94.36%				
Target Compounds							Qvalue
4) Atrazine	10.852	200	1402797	3.40	ug/mL		96
6) Metolachlor	12.023	162	3710827	3.34	ug/mL		100
7) Chlorpyrifos	12.035	197	740001	2.79	ug/mL		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 02301019.D
Acq On : 3 Mar 2021 7:05 pm
Operator : MAH
Sample : BBC0111-MS1
Misc :
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Mar 04 09:31:23 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 02401020.D
Acq On : 3 Mar 2021 7:32 pm
Operator : MAH
Sample : BBC0111-MSD1
Misc :
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Mar 04 09:31:33 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration

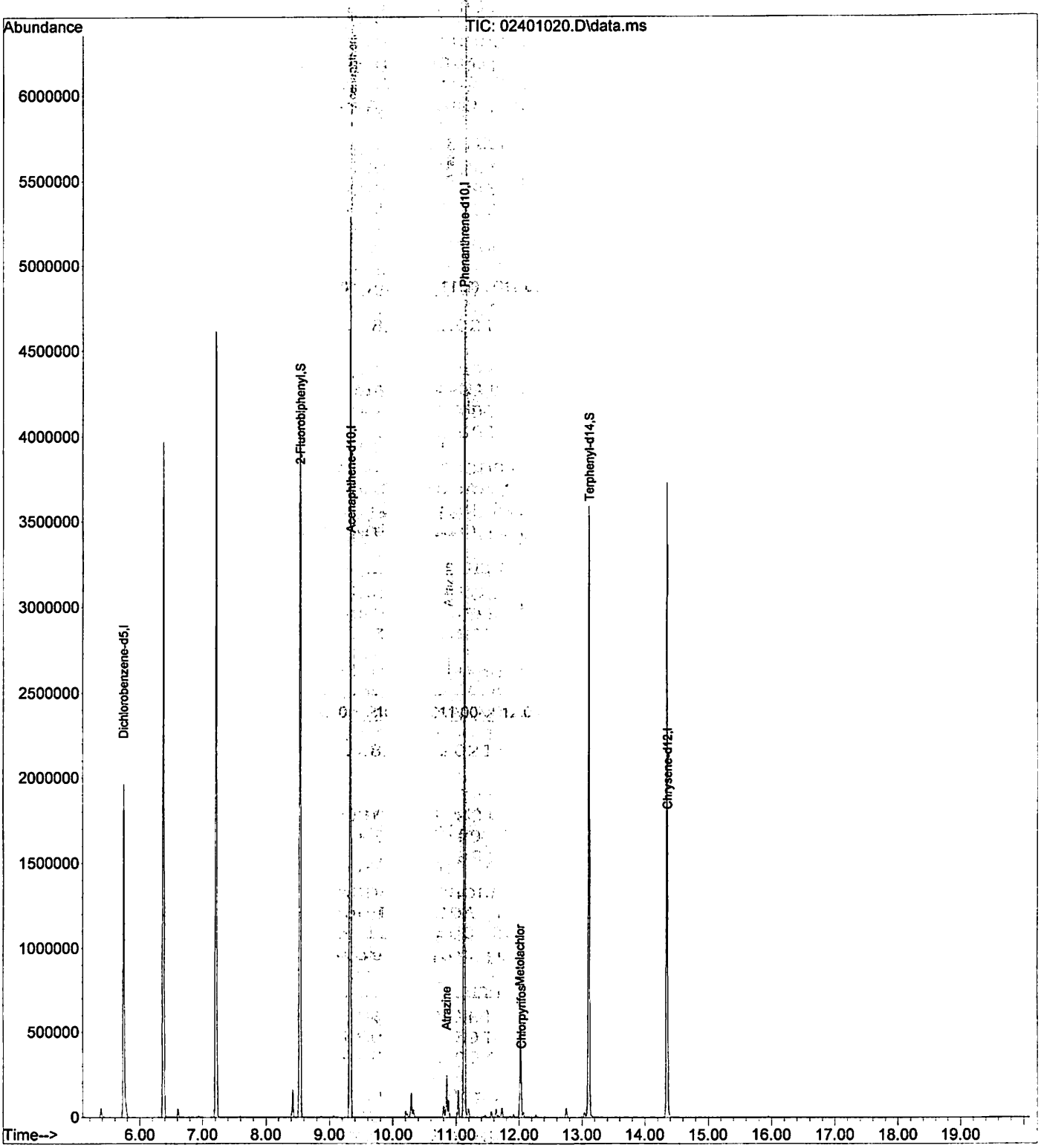
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Dichlorobenzene-d5	5.745	150	23419195	20.00	ug/mL		0.00
3) Acenaphthene-d10	9.332	164	33182429	20.00	ug/mL	#	0.00
5) Phenanthrene-d10	11.135	188	51645173	20.00	ug/mL	#	0.00
8) Chrysene-d12	14.351	240	38673808	20.00	ug/mL	#	0.00
System Monitoring Compounds							
2) 2-Fluorobiphenyl	8.542	172	48996076	23.08	ug/mL		0.00
9) Terphenyl-d14	13.113	244	42316236	22.74	ug/mL		0.00
Spiked Amount 25.000			Recovery =	90.96%			
Target Compounds							Qvalue
4) Atrazine	10.852	200	1390397	3.34	ug/mL		98
6) Metolachlor	12.023	162	3622184	3.22	ug/mL		98
7) Chlorpyrifos	12.035	197	742196	2.75	ug/mL		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 02401020.D
Acq On : 3 Mar 2021 7:32 pm
Operator : MAH
Sample : BBC0111-MSD1
Misc :
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Mar 04 09:31:33 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 02501021.D
Acq On : 3 Mar 2021 8:00 pm
Operator : MAH
Sample : BBC0111-BLK1
Misc :
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Mar 04 09:31:42 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration

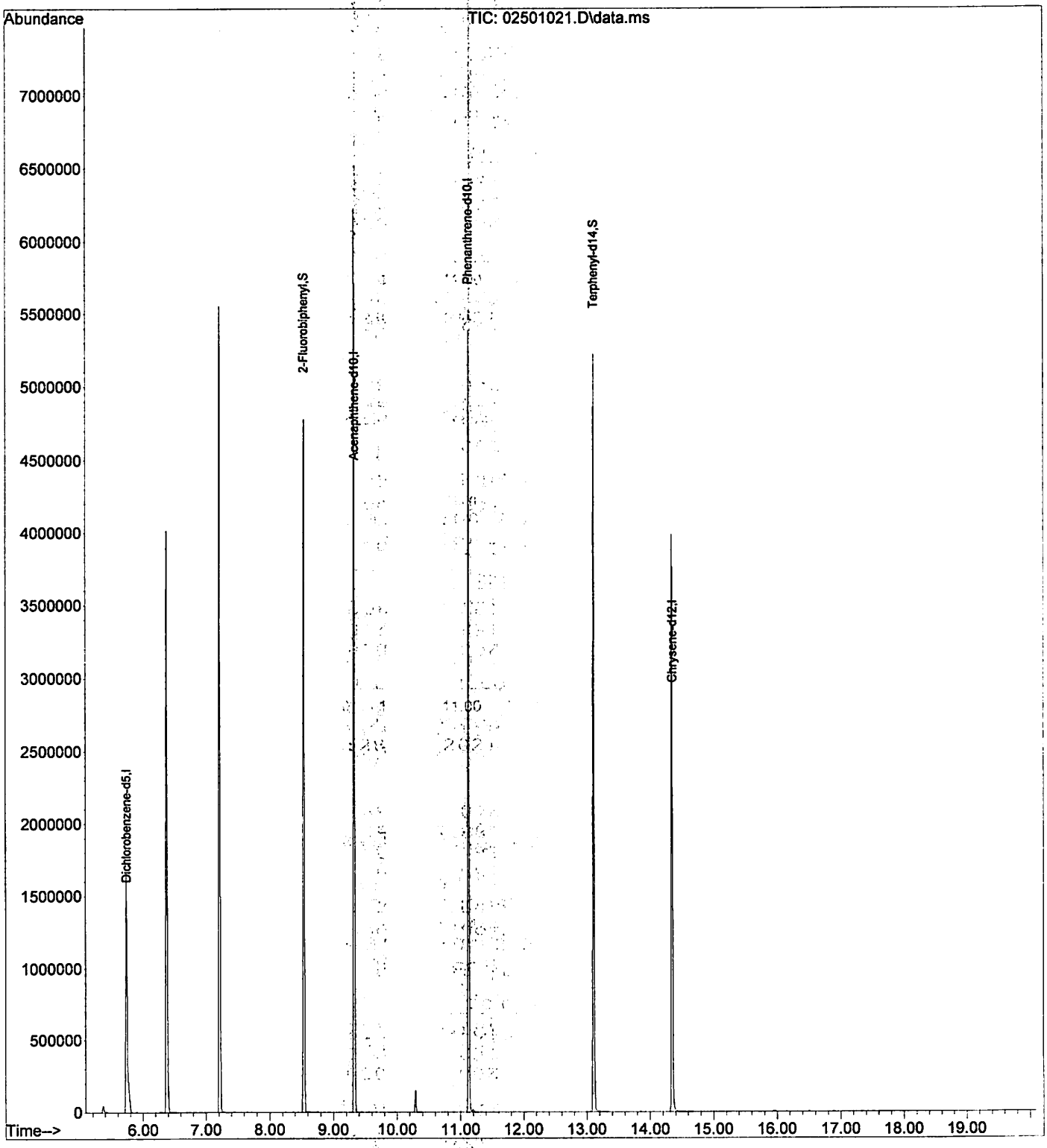
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Dichlorobenzene-d5	5.740	150	25754539	20.00	ug/mL		0.00
3) Acenaphthene-d10	9.333	164	35768609	20.00	ug/mL	#	0.00
5) Phenanthrene-d10	11.136	188	57778977	20.00	ug/mL	#	0.00
8) Chrysene-d12	14.353	240	46941770	20.00	ug/mL	#	0.00
System Monitoring Compounds							
2) 2-Fluorobiphenyl	8.545	172	50202090	21.50	ug/mL		0.00
9) Terphenyl-d14	13.116	244	53526581	23.70	ug/mL		0.00
Spiked Amount 25.000			Recovery =	94.80%			
Target Compounds							Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 02501021.D
Acq On : 3 Mar 2021 8:00 pm
Operator : MAH
Sample : BBC0111-BLK1
Misc :
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Mar 04 09:31:42 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 02601022.D
Acq On : 3 Mar 2021 8:27 pm
Operator : MAH
Sample : BBC0111-DUP1
Misc :
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Mar 04 09:32:04 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration

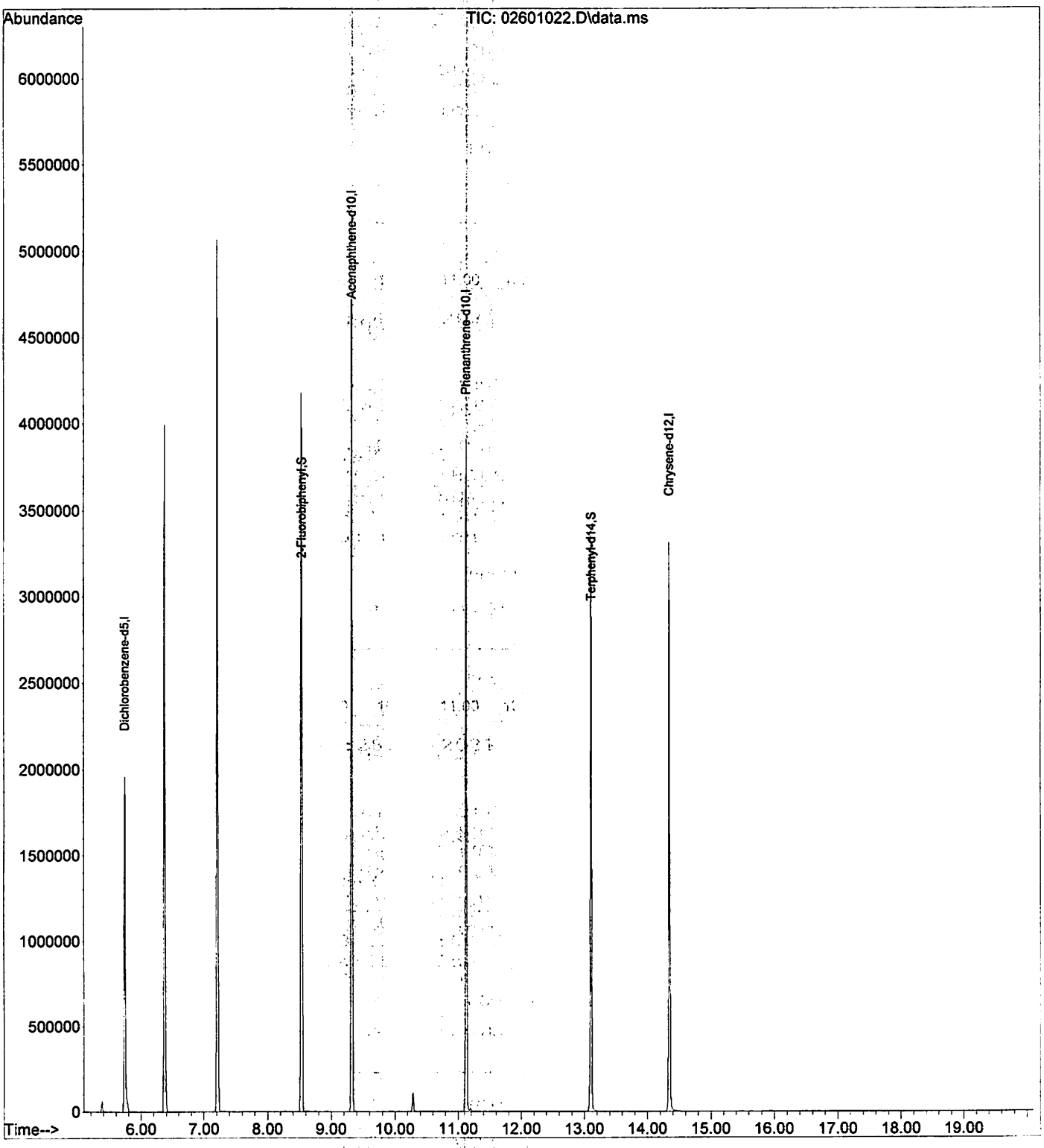
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Dichlorobenzene-d5	5.744	150	24208361	20.00	ug/mL		0.00
3) Acenaphthene-d10	9.330	164	32184406	20.00	ug/mL	#	0.00
5) Phenanthrene-d10	11.133	188	46892632	20.00	ug/mL	#	0.00
8) Chrysene-d12	14.351	240	35727402	20.00	ug/mL	#	0.00
System Monitoring Compounds							
2) 2-Fluorobiphenyl	8.541	172	48766804	22.22	ug/mL		0.00
9) Terphenyl-d14	13.112	244	38725862	22.53	ug/mL		0.00
Spiked Amount 25.000			Recovery = 90.12%				
Target Compounds							Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 02601022.D
Acq On : 3 Mar 2021 8:27 pm
Operator : MAH
Sample : BBC0111-DUP1
Misc :
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Mar 04 09:32:04 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 02701023.D
Acq On : 3 Mar 2021 8:54 pm
Operator : MAH
Sample : WBB0717-05
Misc :
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Mar 12 15:32:56 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Fri Mar 12 15:32:34 2021
Response via : Initial Calibration

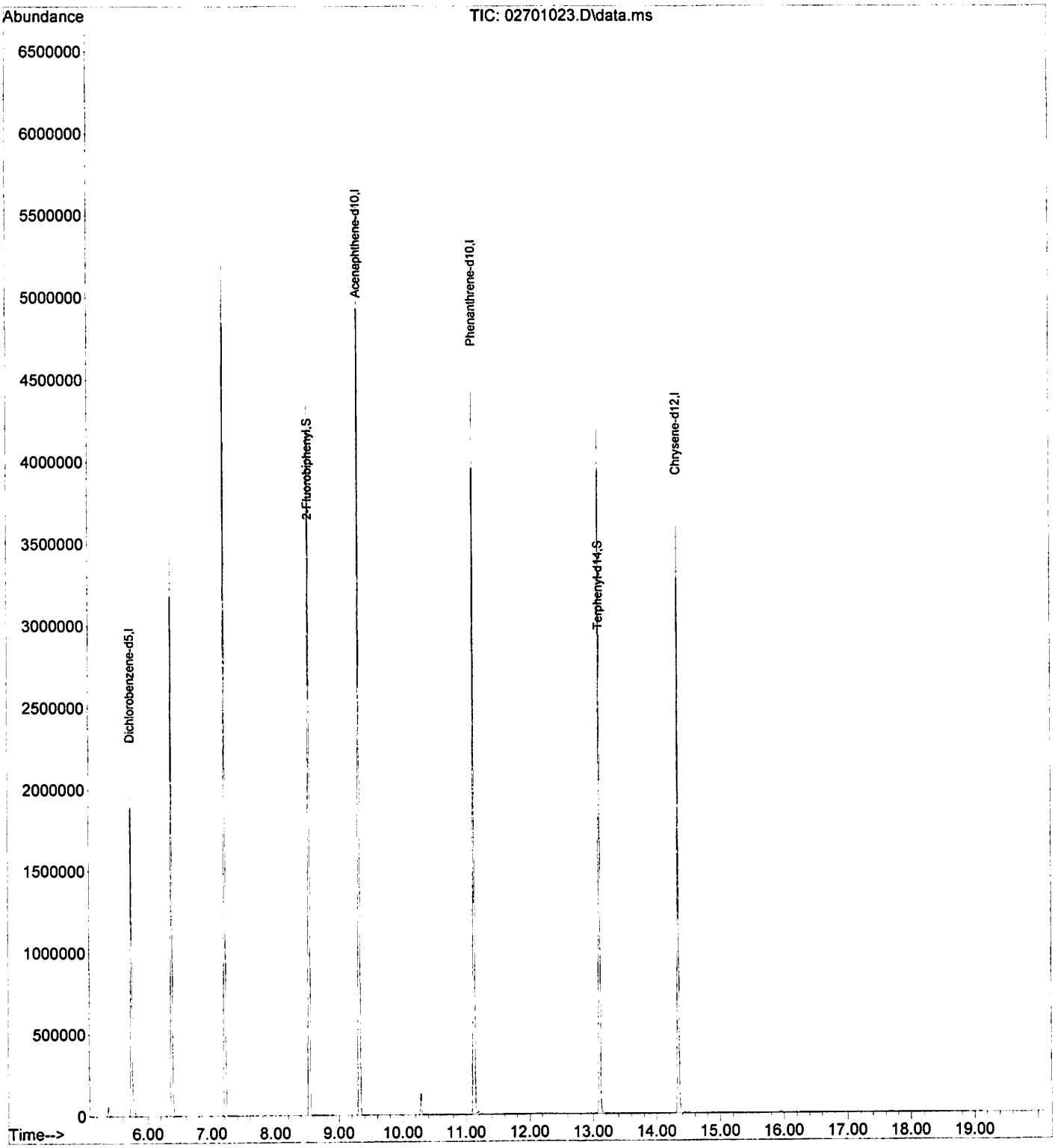
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Dichlorobenzene-d5	5.745	150	25179693	20.00	ug/mL		0.00
3) Acenaphthene-d10	9.331	164	34150900	20.00	ug/mL	#	0.00
5) Phenanthrene-d10	11.134	188	51406796	20.00	ug/mL	#	0.00
8) Chrysene-d12	14.352	240	40764218	20.00	ug/mL	#	0.00
System Monitoring Compounds							
2) 2-Fluorobiphenyl	8.541	172	51481888	22.55	ug/mL		0.00
9) Terphenyl-d14	13.112	244	44464230	22.67	ug/mL		0.00
Spiked Amount 25.000			Recovery =	90.68%			
Target Compounds							Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 02701023.D
Acq On : 3 Mar 2021 8:54 pm
Operator : MAH
Sample : WBB0717-05
Misc :
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Mar 12 15:32:56 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Fri Mar 12 15:32:34 2021
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 02801024.D
Acq On : 3 Mar 2021 9:21 pm
Operator : MAH
Sample : WBB0717-08
Misc :
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Mar 04 09:33:09 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration

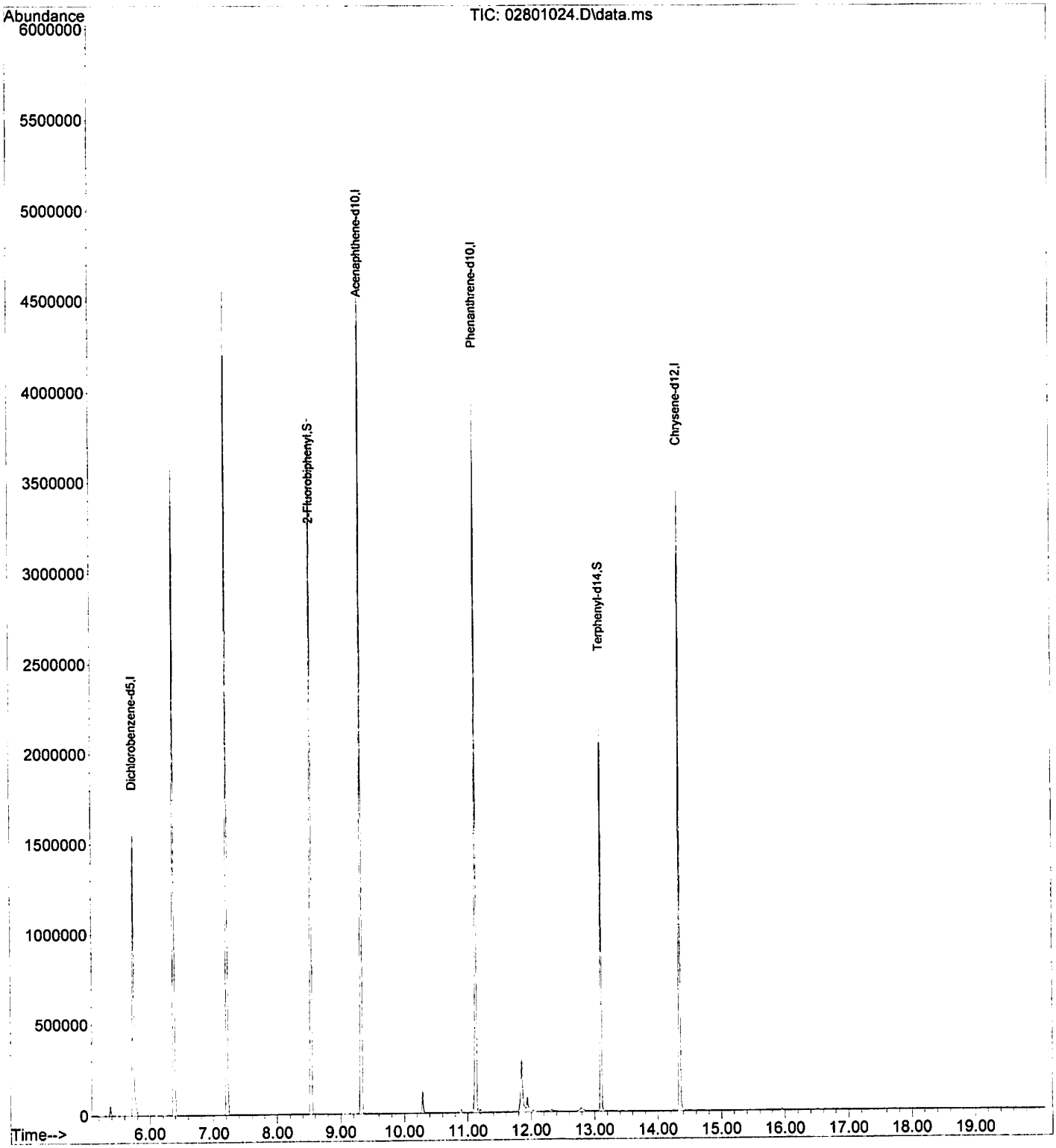
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Dichlorobenzene-d5	5.744	150	21031354	20.00	ug/mL		0.00
3) Acenaphthene-d10	9.331	164	28899485	20.00	ug/mL	#	0.00
5) Phenanthrene-d10	11.135	188	44169646	20.00	ug/mL	#	0.00
8) Chrysene-d12	14.352	240	35121457	20.00	ug/mL	#	0.00
System Monitoring Compounds							
2) 2-Fluorobiphenyl	8.542	172	44856095	23.53	ug/mL		0.00
9) Terphenyl-d14	13.111	244	19962680	11.81	ug/mL		0.00
Spiked Amount 25.000			Recovery =	47.24%			
Target Compounds							Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2021\MAR\03\
Data File : 02801024.D
Acq On : 3 Mar 2021 9:21 pm
Operator : MAH
Sample : WBB0717-08
Misc :
ALS Vial : 28 Sample Multiplier: 1

Quant Time: Mar 04 09:33:09 2021
Quant Method : T:\Data1\MSD4\METHODS\2021\Cardno0303.m
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Mar 03 15:03:00 2021
Response via : Initial Calibration



ENTHALPY ANALYTICAL
TOXICITY LABORATORY & CONSULTING

Acute Toxicity Test Results for ADC Wet Weather Water Quality Monitoring

Monitoring Period: February 2021

Prepared for: Cardno
737 Bishop St., Suite 3050
Honolulu, HI 96734

Testing Lab: Enthalpy Analytical
4340 Vandever Avenue
San Diego, CA 92120

Submitted: March 17, 2021

Data Quality Assurance:

- Enthalpy Analytical (formerly Nautilus Environmental) is accredited in accordance with NELAP by the State of Oregon Environmental Laboratory Accreditation Program (Certificate No. 4053). It is also certified by the State of California Department of Health Services Environmental Laboratory Accreditation Program (Certificate No. 1802) and the State of Washington Department of Ecology (Lab ID C552).
- All data have been reviewed and verified.
- All test results have met minimum test acceptability criteria under their respective EPA protocols, unless otherwise noted in this report.
- All results have met internal Quality Assurance Program requirements, unless otherwise noted in this report.

Data Verified by: Peter Austin Laboratory Director

California
4340 Vandever Ave
San Diego, CA 92120
858.587.7333

Introduction

Three samples were collected during a storm event for the ADC Kekaha Water Quality Monitoring. Samples were submitted by Cardno-GS. Testing was conducted at the Enthalpy Analytical Laboratory in San Diego, California. Pacific topsmelt (*Atherinops affinis*), inland silverside (*Menidia beryllina*), and mysid shrimp (*Americamysis bahia*) 96-hour acute survival tests were used for the DW-1/WW-1 sample received at a salinity level greater than 1 part per thousand (ppt). Fathead minnow (*Pimephales promelas*), water flea (*Ceriodaphnia dubia*), and freshwater amphipod (*Hyalella azteca*) 96-hour acute survival tests were used for the WW-2 and WW-3 samples, which were received below 1 ppt salinity.

Materials and Methods

Sample Information

Client:	Cardno-GS
Project Name:	ADC Kekaha Water Quality Monitoring
Sample IDs:	DW-1/WW-1, WW-2, WW-3
Sample Collection Dates, Times[a]:	2/20/2021, 14:00 to 19:45
Sample Receipt Dates, Times:	2/23/2021, 08:50
Sample Material:	Stormwater sample
Sampling Method:	Grab

[a] Collection times adjusted to Pacific Standard Time from Hawaii Standard Time.

Water Quality Parameters Measured upon Sample Receipt

Sample ID	pH	DO (mg/L)	Temp. (ºC)	Cond. (µS/cm)	Salinity (ppt)	Alkalinity (mg/L as $CaCO_3$)	Hardness (mg/L as CaCO3)	Total Chlorine (mg/L)
DW-1/WW-1	7.46	9.7	2.4	2,500	1.4	105	366	0.05
WW-2	5.83[a]	9.5	2.9	513	0.2	7	50	<0.02
WW-3	5.79	9.4	3.3	90	0.1	13	34	nm

nm = not measured; sample too dark and opaque to measure on colorimeter.

[a] The pH of WW-2 was adjusted daily with sodium hydroxide to bring pH to USEPA required range of 6-9 to toxicity testing for freshwater tests The pH of sample WW-3 was above 6.0 when raised to test temperature and did not require manipulation for any tests.

Acute Toxicity Test Methods

Testing was conducted in accordance with methods published in US Environmental Protection Agency (USEPA) guidance (2002). Test specifications for all marine tests are summarized in Table 1, and test specifications for freshwater tests are summarized in Table 2.

Table 1. 96-hr Acute Survival Test Specifications - Marine Organisms

Pacific topsmelt test: 2/23, 15:25 to 2/27, 14:55	Species: *Atherinops affinis.* Source & Age: Aquatic Biosystems (Ft. Collins, CO), 13 days
Inland silverside test: 2/23, 16:40 to 2/27, 14:45	Species: *Menidia beryllina.* Source & Age: Aquatic Biosystems (Ft. Collins, CO), 8 days
Mysid shrimp test: 2/23, 15:35 to 2/27, 14:30	Species: *Americamysis bahia.* Source & Age: Aquatic Biosystems (Ft. Collins, CO), 3 days
Protocol Used:	Acute Manual (EPA/821/R-02/012), EPA 2002
Test Acceptability Criteria:	Control mean survival ≥ 90%
Test Concentration:	100% sample (DW-1/WW-1)
Sample Manipulation:	Artificial salts (Instant Ocean®) were added to bring the salinity of the sample to 30±1 parts per thousand (ppt)
Lab Control Water:	20-μm filtered seawater (Source: Scripps Institution of Oceanography [SIO] Intake); diluted to 30 ppt with deionized water
Salt Control:	Salt Control – 30 ppt artificial saltwater (Instant Ocean®)

Table 2. 96-hr Acute Survival Test Specifications – Freshwater Organisms

Fathead minnow test: 2/23, 13:50 to 2/27, 15:45	Species: *Pimephales promelas.* Source & Age: Aquatic Biosystems (Ft. Collins, CO), 6 days
Water flea test: 2/23, 13:40 to 2/27, 12:20	Species: *Ceriodaphnia dubia.* Source & Age: Internal culture, < 24 hours
FW amphipod test[a]: 2/24, 17:20 to 2/28, 15:20	Species: *Hyalella azteca.* Source & Age Aquatic Research Organisms (Hampton, NH), 13 days
Protocol Used:	Acute Manual (EPA/821/R-02/012), EPA 2002
Test Acceptability Criteria:	Control mean survival ≥ 90%
Test Concentration:	100% sample (WW-2 and WW-3)
Sample Manipulation:	WW-2 sample pH was adjusted with NaOH to above 6 (EPA required range for toxicity testing is 6-9). No adjustments were made to sample WW-3.
Lab Control Water:	Diluted mineral water (per EPA protocol)

[a] The freshwater amphipod test was initiated out of holding time due to an organism shipping delay; see QA section.

Statistical analyses were conducted using EPA flowchart specifications as outlined in the test guidance manual (USEPA 2002). Organism performance in the sample was compared to that observed in the concurrent artificial salt control. Results were used to calculate whether a statistically significant effect was observed between the control and sample result. Comprehensive Environmental Toxicity Information System™ (CETIS) software by Tidepool Scientific Software, version 1.8.7.20.

Results

No statistically significant effects were observed to any of the marine species exposed the DW-1/WW-1 sample compared to the respective artificial salt control. The artificial salt control for the inland silverside resulted in 75 percent mean survival, below the test acceptability criterion (TAC) of 90 percent (see QA section for further details). The lab control for this species resulted in 87.5 percent mean survival, which is still below TAC. The DW-1/WW-1 sample (82.5 percent survival) also resulted in no statistically significant effect compared to the lab control. A summary of results for the marine species tests is presented in Table 3.

The freshwater lab controls for the fathead minnow and water flea test met TAC. However, the lab control for the freshwater amphipod test was below TAC (see QA section). The control for the amphipod test resulted in a mean survival of 67.5 percent while samples WW-2 and WW-3 resulted in 92.5 and 87.5 percent survival, respectively. None of the freshwater species tested resulted in statistically significant mortality, with the exception of the water fleas in the WW-3 sample test. Water flea mean survival in the WW-3 sample was 10 percent, compared to 100 percent in the lab control. The WW-3 sample was very opaque and turbid with a significant amount of fine silt present in the sample. The water flea species is known to have difficulty in these types of samples due to easy clogging of their filtering apparatus which is used for feeding. Further testing with this sample would need to be conducted to confirm whether the reduced survival of this species was due to a toxicant or a physical barrier due to turbidity. A summary of results for the freshwater tests is presented in Table 4.

Raw datasheets and complete statistical summaries for all tests are provided in Appendix A. Sample receipt information is provided in Appendix B, and a copy of the chain of custody form is presented in Appendix C.

Table 3. Summary of Marine 96-hr Acute Survival Results

Sample ID	Species	Salt Control Result	100% Sample Result	Statistically Significant Effect? (Yes/No)	Percent Effect
DW-1/WW-1	Pacific topsmelt	90.0	100	No	-11
	Inland silverside	75.0[a]	82.5	No	-10
	Mysid shrimp	90.0	95.0	No	-5.6

[a] The control did not meet minimum test acceptability criterion; see QA section.

Percent effect from control is calculated as: ((mean response in salt control - mean response in undiluted sample)/mean response in salt control) *100. A negative value results when organism performance in the sample is greater than that in the salt control.

Table 4. Summary of Freshwater 96-hr Acute Survival Results

Sample ID	Species	Lab Control Result	100% Sample Result	Statistically Significant Effect? (Yes/No)	Percent Effect
WW-2	Fathead minnow	97.5	93.3	No	4.3
	Water flea	100	100	No	0.0
	Freshwater amphipod	67.5[a]	92.5	No	-37
WW-3	Fathead minnow	97.5	90.0	No	7.7
	Water flea	100	10.0*	Yes	90
	Freshwater amphipod	67.5[a]	87.5	No	-30

[a] The control did not meet minimum test acceptability criterion; see QA section.

*Values with an asterisk indicate a statistically significant reduction from the lab control.

Percent effect from control is calculated as: ((mean response in lab control - mean response in undiluted sample)/mean response in lab control) *100. A negative value results when organism performance in the sample is greater than that in the lab control.

Quality Assurance

The samples were received via overnight delivery service three days after collection. The samples were received slightly below the range of 0-6 degrees Celsius (°C) and had some ice crystals in the sample containers. The client was immediately notified and requested to proceed with testing. The samples were left at room temperature to completely thaw and were then homogenized before being poured out to measure water quality (including temperature) and for test preparation. The freshwater amphipod test was initiated outside of the 72-hour maximum allowable holding time (the samples were approximately 99 hours past collection) due to the initial order of test organisms being lost in transit. All other tests were initiated within the maximum allowable holding time of 72 hours.

Mean control responses met minimum acceptability criteria for all tests, except for the inland silverside and freshwater amphipod discussed below. Fish, mysid, and amphipod tests were initiated with continuous, light aeration in all sample replicates and the lab control to maintain adequate dissolved oxygen (DO) levels. DO was maintained at appropriate levels for the duration of all tests. Minor QA issues that were unlikely to have any bearing on the final test data, such as slight temperature deviations, are noted on the datasheets and a list of laboratory qualifier codes can be found in Appendix D.

The inland silverside test had a mean survival of 87.5 percent in the lab control and 75 percent in the artificial salt control, which is below the TAC of 90 percent. The lab control for the reference toxicant test initiated the following day resulted in 95 percent mean survival, indicating that the control failure for the DW-1/WW-1 test was likely due to the limited acclimation time allowed in order to initiate the sample test within 72 hours.

The freshwater amphipod lab control had a mean survival of 67.5 percent, which is both below the

minimum acceptability criterion of 90 percent for mean control response. The lab control in the reference toxicant test for this species was 55 percent, indicating that the batch of organisms was not optimal for testing. The organisms were received during a severe ice storm in much of the country and though they are shipped in insulated boxes, excess shipping stress is suspected for this batch of organisms, which were received from an east coast supplier, whereas all other test species were either from an internal culture, or received from Colorado.

Reference Toxicant Testing

Results for reference toxicant testing used to monitor laboratory performance and test organism sensitivity are summarized in Table 5. The mean control response for the freshwater amphipod reference toxicant test was below the minimum test acceptability criteria of 90 percent. The amphipod mean control survival was 55 percent; the test showed a dose response and had sensitivity results that were within historical means. The reference toxicant tests for all other species tested met all acceptability criteria. Additionally, the median effect concentration value for these tests was within two standard deviations of the historical mean for all species tested, indicating typical organism sensitivity to copper. The control chart for the previous 20 reference toxicant tests is presented in Appendix E.

Table 5. Summary of 96-hr Acute Survival Reference Toxicant Test Results

Species	**NOEC** (µg/L copper)	**LC_{50}** (µg/L copper)	**Historical LC_{50} ± 2 SD** (µg/L copper)	**CV** (%)
Pacific Topsmelt	50	107	174 ± 119	34.2
Inland Silverside	100	218	183 ± 95.8	26.1
Mysid Shrimp	200	283	244 ± 70.9	14.5
Fathead Minnow	15	37.5	82.0 ± 62.4	38.0
Water Flea	10	12.8	21.1 ± 9.96	23.6
Freshwater Amphipod	100	106	132 ± 124	46.9

NOEC = the highest concentration tested that results in no observed effect
LC_{50} = concentration expected to cause a lethal effect to 50 percent of the test organisms
Historical LC_{50} ± 2 SD = the mean LC_{50} from the previous 20 tests performed by Enthalpy, plus or minus two standard deviations
CV = Coefficient of Variation

References

Tidepool Scientific Software. 2000-2013. CETIS Comprehensive Environmental Toxicity Information System Software, Version 1.8.7.20.

USEPA. 2002. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition (EPA/821/R-02/012). US EPA Office of Water, Washington, DC.

Appendix A

Raw Data and Statistical Summaries

CETIS Summary Report

Pacific Topsmelt 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Batch ID:	08-9898-2385	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	23 Feb-21 15:25	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Diluted Natural Seawater
Ending Date:	27 Feb-21 14:55	**Species:**	Atherinops affinis	**Brine:**	Not Applicable
Duration:	96h	**Source:**	Aquatic Biosystems, CO	**Age:**	13d

Sample ID:	17-1154-7235	**Code:**	@ 21-0225	**Client:**	Cardno Hawaii
Sample Date:	20 Feb-21 19:45	**Material:**	~~Effluent Sample~~ Stormwater	**Project:**	ADC Kekaha WQ Monitoring
Receive Date:	23 Feb-21 08:50	**Source:**	Cardno Hawaii		
Sample Age:	68h (2.4 °C)	**Station:**	DW-1/WW-1		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
03-4651-5893	96h Survival Rate	100	>100	NA	12.4%	1	Equal Variance t Two-Sample Test

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	4	0.9	0.7163	1	0.8	1	0.05774	0.1155	12.83%	0.0%
0	Salt Control	4	0.9	0.7163	1	0.8	1	0.05774	0.1155	12.83%	0.0%
100		4	1	1	1	1	1	0	0	0.0%	-11.11%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Lab Control	0.8	1	1	0.8
0	Salt Control	0.8	1	0.8	1
100		1	1	1	1

@QA AC 3/14/21

CETIS Analytical Report

Test Code: 2102-S172 | 05-1763-8751

Pacific Topsmelt 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Analysis ID:	03-4651-5893	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Mar-21 9:48	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	12.4%	Passes 96h survival rate

Equal Variance t Two-Sample Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Salt Control		100	-1.732	1.943	0.134	6	0.9330	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.02835395	0.02835395	1	3	0.1340	Non-Significant Effect
Error	0.0567079	0.009451317	6			
Total	0.08506185		7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Distribution	Shapiro-Wilk W Normality	0.8489	0.6451	0.0929	Normal Distribution

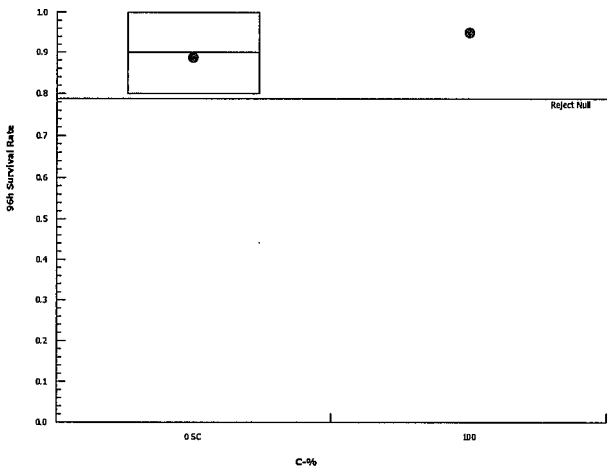
96h Survival Rate Summary

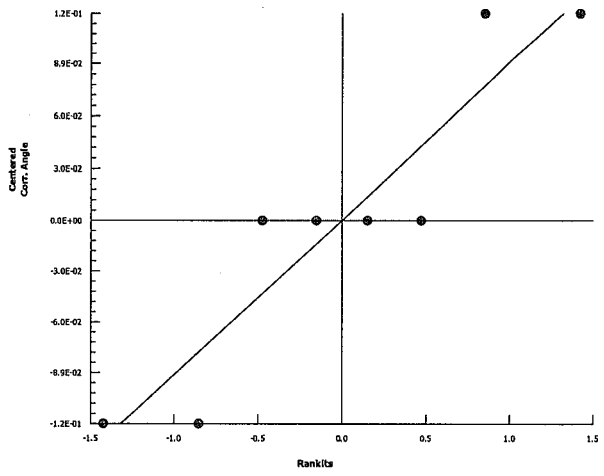
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Salt Control	4	0.9	0.7163	1	0.9	0.8	1	0.05774	12.83%	0.0%
100		4	1	1	1	1	1	1	0	0.0%	-11.11%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Salt Control	4	1.226	1.007	1.445	1.226	1.107	1.345	0.06874	11.21%	0.0%
100		4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	-9.71%

Graphics





Analyst: JL QA: AC 3/14/24

Marine Acute Bioassay
Static-Renewal Conditions
DM-001

Water Quality Measurements
& Test Organism Survival

Client: Cardno
Sample ID: ADC Kekaha Stormwater Monitoring
Sample Log-in No.: 21-0225
Test No.: 2102-S172

Test Species: *A. affinis*
Start Date/Time: 2/23/2021 1525
End Date/Time: 2/27/2021 1458

Tech Initials	0	24	48	72	96
Counts:	DM	DM	TN	DM	DM
Readings:	DM	DM	GH	GH	DM
Dilutions made by:	GH		TN		

Concentration (%)	Rep	Number of Live Organisms					Salinity (ppt)					Temperature (°C) Q1 Q1 Q1 Q2					Dissolved Oxygen (mg/L) Q5					pH (units)				
		0	24	(A) 48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Lab Control	A	5	5	~~9~~ 4	4	4	30.0	30.4	i 29.9	30.7	30.6	20.0	19.2	i 19.7	19.7	19.0	7.5	7.2	i 7.3	7.3	7.6	8.01	7.90	i 7.96	7.96	7.78
	B	5	5	5	5	5			f 30.4					f 20.0					f 7.2					f 7.86		
	C	5	5	5	5	5																				
	D	5	5	5	5	4																				
Salt Control	A	5	5	5	5	4	30.1	30.5	i 30.3	30.8	31.0	20.1	19.4	i 19.5	19.7	19.9	7.3	7.1	i 7.4	~~8.4~~ 7.1	7.4	8.12	8.05	i 8.14	8.13	8.08
	B	5	5	5	5	5			f 30.5					f 20.1					f 7.6	(B)				f 8.04		
	C	5	4	4	4	4																				
	D	5	5	5	5	5																				
DW-1/WW-~~3~~ 1 (C) 100%	A	5	5	5	5	5	30.5	30.5	i 30.4	30.9	31.0	20.8	19.5	i 19.8	19.8	19.9	7.1	7.1	i 7.9	7.2	7.3	7.90	8.20	i 7.88	8.31	8.27
	B	5	5	5	5	5			f 30.8					f 20.2					f 7.2					f 8.20		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
	A								i					i					i					i		
	B								f					f					f					f		
	C																									
	D																									
	A								i					i					i					i		
	B								f					f					f					f		
	C																									
	D																									
	A								i					i					i					i		
	B								f					f					f					f		
	C																									
	D																									
	A								i					i					i					i		
	B								f					f					f					f		
	C																									
	D																									

Initial Counts QC'd by: GH
Initiated by: DM

Environmental Chamber: C

Animal Source/Date Received: ABS/2/23/21

Age at Initiation: 13 days

Animal Acclimation Qualifiers (circle all that apply): (Q22) / Q23 / Q24 / ~~none~~ Q15 RT 2/23/21

Feeding Times	0	24	48	72	96
AM:		0845	0850	0920	0905
PM:	1740				

Comments: i = initial reading in fresh test solution, f = final reading in test chamber prior to renewal (A) Q18 TN 2/25/21
Organisms fed prior to initiation, circle one (y) / n) (B) Q15 RT 2/26/21 (C) Q18 ACS 3/2/21

QC Check: ACS 3/2/21

Final Review: AC 3/14/21

Enthalpy Analytical. 4340 Vandever Avenue. San Diego, CA 92120.

CETIS Summary Report

Inland Silverside 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Batch ID:	17-4298-1308	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	23 Feb-21 16:40	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Diluted Natural Seawater
Ending Date:	27 Feb-21 14:45	**Species:**	Menidia beryllina	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	8d

Sample ID:	18-9735-9997	**Code:**	21-0225	**Client:**	Cardno Hawaii
Sample Date:	20 Feb-21 19:45	**Material:**	Stormwater	**Project:**	ADC Kekaha WQ Monitoring
Receive Date:	23 Feb-21 08:50	**Source:**	Cardno Hawaii		
Sample Age:	69h (2.4 °C)	**Station:**	DW-1/WW-1		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
09-0700-8656	96h Survival Rate	100	>100	NA	17.3%	1	Equal Variance t Two-Sample Test
14-0842-3595	96h Survival Rate	100	>100	NA	33.2%	1	Equal Variance t Two-Sample Test

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
09-0700-8656	96h Survival Rate	Control Resp	0.875	0.9 - NL	Yes	Below Acceptability Criteria
14-0842-3595	96h Survival Rate	Control Resp	0.75	0.9 - NL	Yes	Below Acceptability Criteria

9/15

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	4	0.875	0.6748	1	0.7	1	0.06292	0.1258	14.38%	0.0%
0	Salt Control	4	0.75	0.3712	1	0.4	0.9	0.119	0.238	31.74%	14.29%
100		4	0.825	0.6727	0.9773	0.7	0.9	0.04787	0.09574	11.61%	5.71%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Lab Control	0.7	1	0.9	0.9
0	Salt Control	0.4	0.9	0.8	0.9
100		0.9	0.9	0.7	0.8

Inland Silverside 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Analysis ID:	09-0700-8656	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	14 Mar-21 14:26	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	17.3%	Passes 96h survival rate

Equal Variance t Two-Sample Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		100	0.712	1.943	0.208	6	0.2516	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.01161802	0.01161802	1	0.507	0.5032	Non-Significant Effect
Error	0.1374981	0.02291635	6			
Total	0.1491161		7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.945	47.47	0.5985	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9481	0.6451	0.6925	Normal Distribution

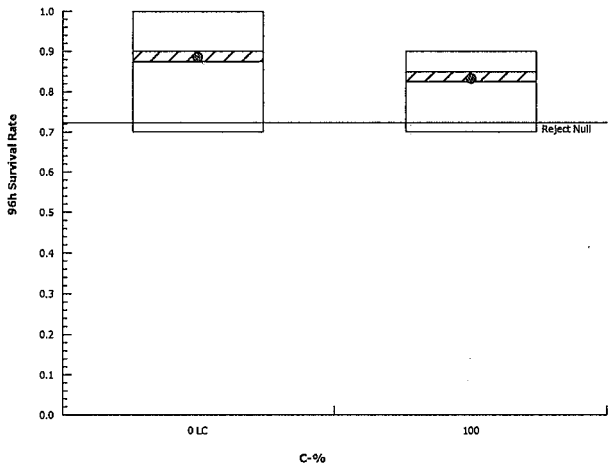
96h Survival Rate Summary

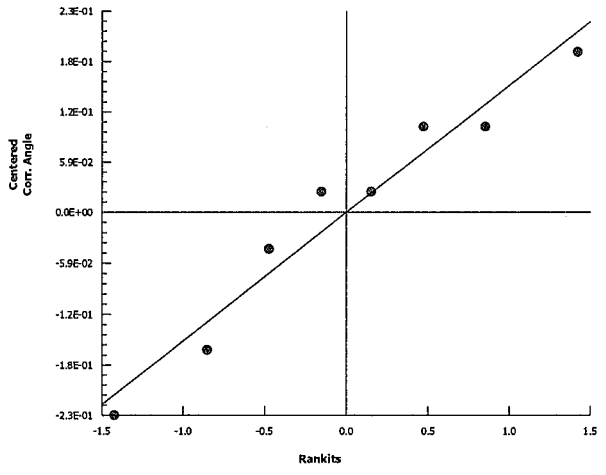
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	0.875	0.6748	1	0.9	0.7	1	0.06292	14.38%	0.0%
100		4	0.825	0.6727	0.9773	0.85	0.7	0.9	0.04787	11.61%	5.71%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	1.225	0.9485	1.502	1.249	0.9912	1.412	0.08699	14.2%	0.0%
100		4	1.149	0.9506	1.348	1.178	0.9912	1.249	0.06237	10.86%	6.22%

Graphics





Inland Silverside 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Analysis ID:	14-0842-3595	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Mar-21 9:39	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	33.2%	Passes 96h survival rate

Equal Variance t Two-Sample Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Salt Control		100	-0.5199	1.943	0.286	6	0.6891	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.01173798	0.01173798	1	0.2703	0.6218	Non-Significant Effect
Error	0.2605956	0.04343261	6			
Total	0.2723336		7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	4.582	47.47	0.2431	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8687	0.6451	0.1463	Normal Distribution

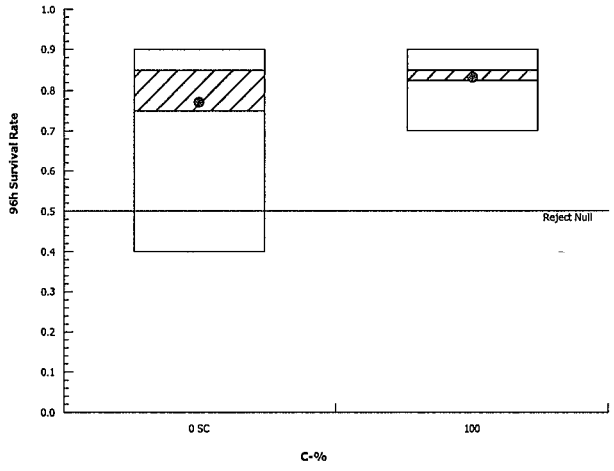
96h Survival Rate Summary

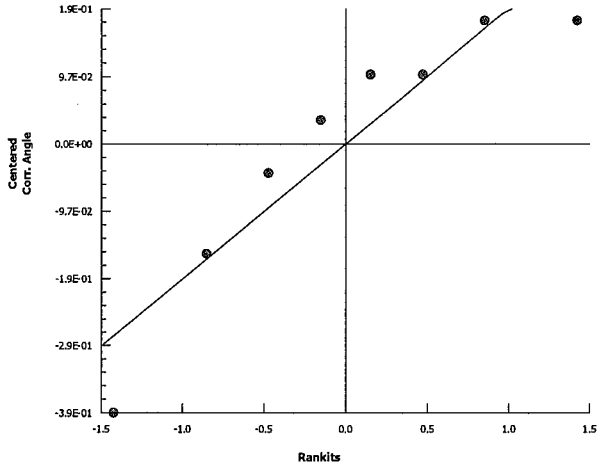
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Salt Control	4	0.75	0.3712	1	0.85	0.4	0.9	0.119	31.74%	0.0%
100		4	0.825	0.6727	0.9773	0.85	0.7	0.9	0.04787	11.61%	-10.0%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Salt Control	4	1.072	0.6476	1.497	1.178	0.6847	1.249	0.1335	24.9%	0.0%
100		4	1.149	0.9506	1.348	1.178	0.9912	1.249	0.06237	10.86%	-7.14%

Graphics





Marine Acute Bioassay
Static-Renewal Conditions
DM-001

Water Quality Measurements
& Test Organism Survival

Client: Cardno
Sample ID: ADC Kekaha Stormwater Monitoring
Sample Log-in No.: 21-0225
Test No.: 2102-S173

Test Species: *M. beryllina*
Start Date/Time: 2/23/2021 1640
End Date/Time: 2/27/2021 1445

Tech Initials	0	24	48	72	96
Counts:	GH	DM	DM	DM	DM
Readings:	DM	DM	GH	GH	DM
Dilutions made by:	GH		TN		

Concentration (%)	Rep	Number of Live Organisms					Salinity (ppt)					Temperature (°C)					Dissolved Oxygen (mg/L) Q5					pH (units)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Lab Control	A	10	7	7	7	7	30.2	30.8	i 29.4	30.8	31.4	24.3	24.2	i 25.3	24.7	24.2	6.6	6.4	i 6.9	6.9	6.6	8.04	8.00	i 7.94	7.98	7.98
	B	10	10	10	10	10			f 31.3					f 24.9					f 6.7					f 7.97		
	C	10	9	9	9	9																				
	D	10	9	9	9	9			(C) 31.3																	
Salt Control	A	10	4	4	4	4	30.1	30.8	i 30.3	~~31.3~~	31.6	24.4	24.5	i 25.2	24.9	24.1	6.4	6.3	i 6.6	6.3	6.3	8.13	8.14	i 8.17	8.19	8.05
	B	10	9	9	9	9			f 31.4					f 25.2					f 6.5					f 8.15		
	C	10	8	8	8	8																				
	D	10	9	9	9	9												(B)								
DW-1/WW-~~3~~ 1 (D)	A	10	9	9	9	9	30.4	30.9	i 30.2	31.3	31.6	25.1	25.0	i 24.8	25.0	24.2	6.5	6.3	i ~~6.7~~ 7.7	6.3	6.6	7.84	8.27	i 7.84	8.32	8.31
100%	B	10	9	9	9	9			f 31.6					f 25.3					f 6.5					f 8.29		
	C	10	8	7	7	7																				
	D	10	10	9	9	8																				
	A								i					i					i					i		
	B								f					f					f					f		
	C																									
	D																									
	A								i					i					i					i		
	B								f					f					f					f		
	C																									
	D																									
	A								i					i					i					i		
	B								f					f					f					f		
	C																									
	D																									
	A								i					i					i					i		
	B								f					f					f					f		
	C																									
	D																									

Initial Counts QC'd by: (A) GH AS/DM
Initiated by: GH

Environmental Chamber: A

Animal Source/Date Received: ABS / 2/23/21

Age at Initiation: (A) ~~3d~~ ~~7d~~ (E) 8d

Animal Acclimation Qualifiers (circle all that apply): (Q22) / (Q23) / Q24 / none

Feeding Times	0	24	48	72	96
AM:		0845	0850	0820	0906
PM:	1740				

Comments: i = initial reading in fresh test solution, f = final reading in test chamber prior to renewal

Organisms fed prior to initiation, circle one (y) / n) (A) Q18 GH 2/23/21 (B) Q18 GH 2/25/21 (C) Q18 GH 2/26/21 (D) Q18 AS 3/2/21 (E) Q18 AC 3/14/21

QC Check: AS 3/2/21

Final Review: AC 3/14/21

CETIS Summary Report

Mysid 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Batch ID:	12-9241-1903	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	23 Feb-21 15:35	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Diluted Natural Seawater
Ending Date:	27 Feb-21 14:30	**Species:**	Americamysis bahia	**Brine:**	Not Applicable
Duration:	95h	**Source:**	Aquatic Biosystems, CO	**Age:**	3d

Sample ID:	17-8906-8084	**Code:**	21-0225	**Client:**	Cardno Hawaii
Sample Date:	20 Feb-21 19:45	**Material:**	~~Effluent Sample~~ Stormwater	**Project:**	ADC Kekaha WQ Monitoring
Receive Date:	23 Feb-21 08:50	**Source:**	Cardno Hawaii		
Sample Age:	68h (2.4 °C)	**Station:**	DW-1/WW-1		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
16-3798-3384	96h Survival Rate	100	>100	NA	16.4%	1	Equal Variance t Two-Sample Test

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
16-3798-3384	96h Survival Rate	Control Resp	0.9	0.9 - NL	Yes	Passes Acceptability Criteria

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	4	0.95	0.7909	1	0.8	1	0.05	0.1	10.53%	0.0%
0	Salt Control	4	0.9	0.7163	1	0.8	1	0.05774	0.1155	12.83%	5.26%
100		4	0.95	0.7909	1	0.8	1	0.05	0.1	10.53%	0.0%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Lab Control	1	1	0.8	1
0	Salt Control	1	1	0.8	0.8
100		1	1	1	0.8

@ QA AC 3/14/21

CETIS Analytical Report

Mysid 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Analysis ID:	16-3798-3384	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Mar-21 9:27	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	16.4%	Passes 96h survival rate

Equal Variance t Two-Sample Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Salt Control		100	-0.6547	1.943	0.177	6	0.7315	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.007088488	0.007088488	1	0.4286	0.5370	Non-Significant Effect
Error	0.09923882	0.0165398	6			
Total	0.1063273		7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.333	47.47	0.8187	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8283	0.6451	0.0570	Normal Distribution

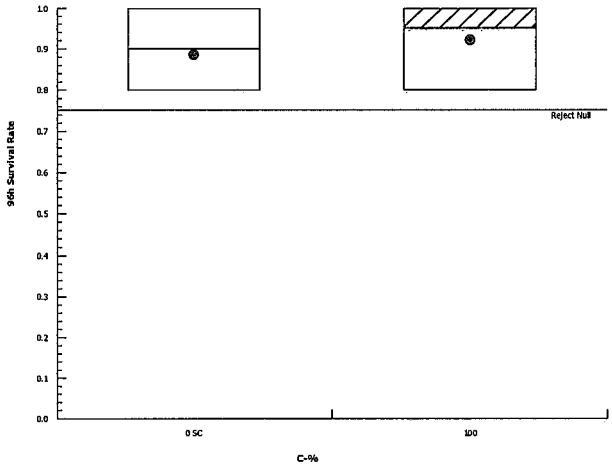
96h Survival Rate Summary

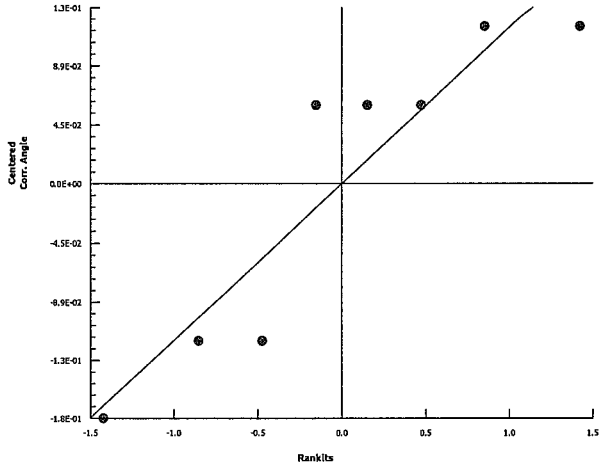
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Salt Control	4	0.9	0.7163	1	0.9	0.8	1	0.05774	12.83%	0.0%
100		4	0.95	0.7909	1	1	0.8	1	0.05	10.53%	-5.56%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Salt Control	4	1.226	1.007	1.445	1.226	1.107	1.345	0.06874	11.21%	0.0%
100		4	1.286	1.096	1.475	1.345	1.107	1.345	0.05953	9.26%	-4.86%

Graphics





Marine Acute Bioassay
Static-Renewal Conditions
DM-001

Water Quality Measurements & Test Organism Survival

Client: Cardno
Sample ID: ADC Kekaha Stormwater Monitoring
Sample Log-in No.: 21-0225
Test No.: 2102-5174

Test Species: *A. bahia*
Start Date/Time: 2/23/2021 1535
End Date/Time: 2/27/2021 1430

Tech Initials	0	24	48	72	96
Counts:	GH	DM	DM	DM	DM
Readings:	DM	DM	GH	GH	DM
Dilutions made by:	GH		TN		

Concentration (%)	Rep	Number of Live Organisms					Salinity (ppt)					Temperature (°C)					Dissolved Oxygen (mg/L) QS					pH (units)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Lab Control	A	5	5	5	5	5	30.4	30.8	i 29.3	30.4	30.5	24.3	24.6	i 25.3	25.0	24.0	6.7	6.5	i 6.8	6.2	6.2	7.98	8.03	i 7.96	8.00	8.00
	B	5	5	5	5	5			f 30.9					f 25.3					f 6.5					f 8.00		
	C	5	5	5	4	4																				
	D	5	5	5	5	5																				
Salt Control	A	5	5	5	5	5	30.8	31.2	i 30.3	31.4	31.7	24.7	24.7	i 25.3	25.1	24.1	6.3	6.4	i 6.7	6.3	6.4	8.17	8.13	i 8.18	8.18	8.12
	B	5	5	5	5	5			f 31.8					f 25.3					f 6.4					f 8.17		
	C	5	5	4	4	4																				
	D	5	4	4	4	4																				
DW-1/WW-3 (1)	A	5	5	5	5	5	30.4	30.8	i 30.4	31.0	31.6	24.8	24.9	i 25.0	25.0	24.2	6.6	6.4	i 7.3	6.3	6.4	7.85	8.30	i 7.80	8.33	8.28
100%	B	5	5	5	5	5			f 31.6					f 25.4					f 6.4					f 8.33		
	C	5	5	5	5	5																				
	D	5	5	4	4	4																				
	A								i					i					i					i		
	B								f					f					f					f		
	C																									
	D																									
	A								i					i					i					i		
	B								f					f					f					f		
	C																									
	D																									
	A								i					i					i					i		
	B								f					f					f					f		
	C																									
	D																									
	A								i					i					i					i		
	B								f					f					f					f		
	C																									
	D																									

Initial Counts QC'd by: DM
Initiated by: GH

Environmental Chamber: A

Animal Source/Date Received: ABS / 2/23/21

Age at Initiation: 3d

Animal Acclimation Qualifiers (circle all that apply): Q22 / (Q23) / Q24 / none

Feeding Times	0	24	48	72	96
AM:		0845	0850	0820	0905
PM:	1740	1330	1640	1630	—

Comments: i = initial reading in fresh test solution, f = final reading in test chamber prior to renewal (1) Q18 ATS 3/2/21

Organisms fed prior to initiation, circle one ((y) n)

QC Check: ATS 3/2/21

Final Review: AC 3/14/21

Enthalpy Analytical. 4340 Vandever Avenue. San Diego, CA 92120.

CETIS Summary Report

Fathead Minnow 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Batch ID:	15-4852-6876	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	23 Feb-21 13:50	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Diluted Mineral Water (8:2)
Ending Date:	27 Feb-21 15:45	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	4d 2h	**Source:**	Aquatic Biosystems, CO	**Age:**	6d

Sample ID:	11-9545-3973	**Code:**	21-0226	**Client:**	Cardno Hawaii
Sample Date:	20 Feb-21 14:00	**Material:**	Stormwater	**Project:**	ADC Kekaha WQ Monitoring
Receive Date:	23 Feb-21 08:50	**Source:**	Cardno Hawaii		
Sample Age:	72h (2.9 °C)	**Station:**	WW-2		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
09-6027-0742	96h Survival Rate	100	>100	NA	8.4%	1	Equal Variance t Two-Sample Test

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
09-6027-0742	96h Survival Rate	Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	4	0.975	0.8954	1	0.9	1	0.025	0.05	5.13%	0.0%
100		3	0.9333	0.7899	1	0.9	1	0.03333	0.05774	6.19%	4.27%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Lab Control	1	1	0.9	1
100		0.9	0.9	Q8	1

Q8 replicate spilled; excluded from analysis.

CETIS Analytical Report

Fathead Minnow 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Analysis ID: 09-6027-0742 **Endpoint:** 96h Survival Rate **CETIS Version:** CETISv1.8.7
Analyzed: 03 Mar-21 10:04 **Analysis:** Parametric-Two Sample **Official Results:** Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	8.4%	Passes 96h survival rate

Equal Variance t Two-Sample Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		100	1.025	2.015	0.134	5	0.1762	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.007904563	0.007904563	1	1.05	0.3524	Non-Significant Effect
Error	0.03762572	0.007525144	5			
Total	0.04553028		6			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.333	49.8	0.7704	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9203	0.5629	0.4717	Normal Distribution

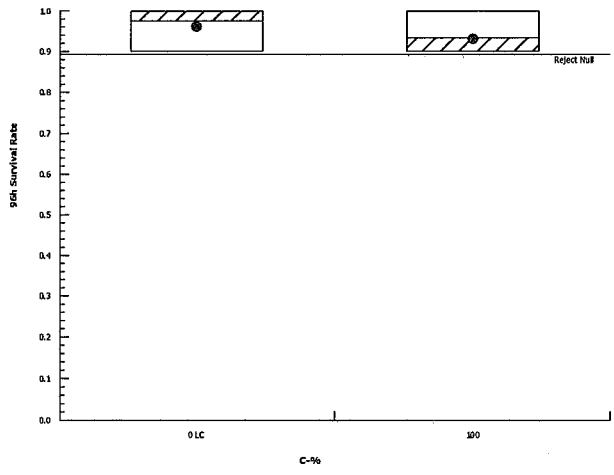
96h Survival Rate Summary

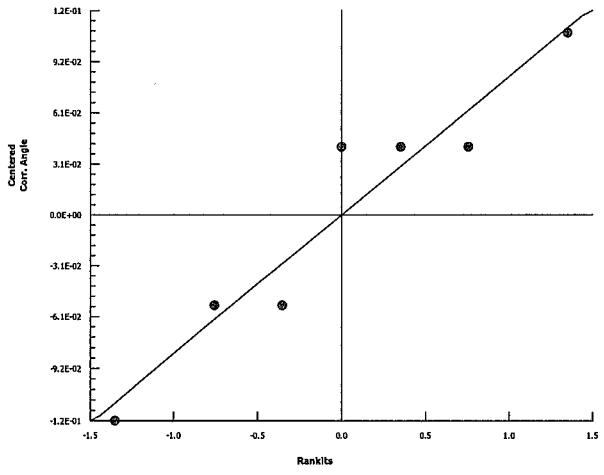
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	0.975	0.8954	1	1	0.9	1	0.025	5.13%	0.0%
100		3	0.9333	0.7899	1	0.9	0.9	1	0.03333	6.19%	4.27%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	1.371	1.242	1.501	1.412	1.249	1.412	0.04074	5.94%	0.0%
100		3	1.303	1.07	1.537	1.249	1.249	1.412	0.05432	7.22%	4.95%

Graphics





CETIS Summary Report

Fathead Minnow 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Batch ID:	09-2651-1067	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	23 Feb-21 13:50	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Diluted Mineral Water (8:2)
Ending Date:	27 Feb-21 15:45	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	4d 2h	**Source:**	Aquatic Biosystems, CO	**Age:**	6d

Sample ID:	15-9661-4055	**Code:**	21-0227	**Client:**	Cardno Hawaii
Sample Date:	20 Feb-21 14:30	**Material:**	Stormwater	**Project:**	ADC Kekaha WQ Monitoring
Receive Date:	23 Feb-21 08:50	**Source:**	Cardno Hawaii		
Sample Age:	71h (3.3 °C)	**Station:**	WW-3		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
05-1803-6637	96h Survival Rate	100	>100	NA	9.11%	1	Equal Variance t Two-Sample Test

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
05-1803-6637	96h Survival Rate	Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	4	0.975	0.8954	1	0.9	1	0.025	0.05	5.13%	0.0%
100		4	0.9	0.7701	1	0.8	1	0.04082	0.08165	9.07%	7.69%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Lab Control	1	1	0.9	1
100		0.9	1	0.9	0.8

CETIS Analytical Report

Test Code: 2102-S178 | 04-4674-5014

Fathead Minnow 96-h Acute Survival Test — Nautilus Environmental (CA)

Analysis ID:	05-1803-6637	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Mar-21 10:07	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	9.11%	Passes 96h survival rate

Equal Variance t Two-Sample Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		100	1.571	1.943	0.145	6	0.0836	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.02735902	0.02735902	1	2.468	0.1672	Non-Significant Effect
Error	0.06650259	0.01108376	6			
Total	0.0938616		7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	2.339	47.47	0.5035	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9149	0.6451	0.3900	Normal Distribution

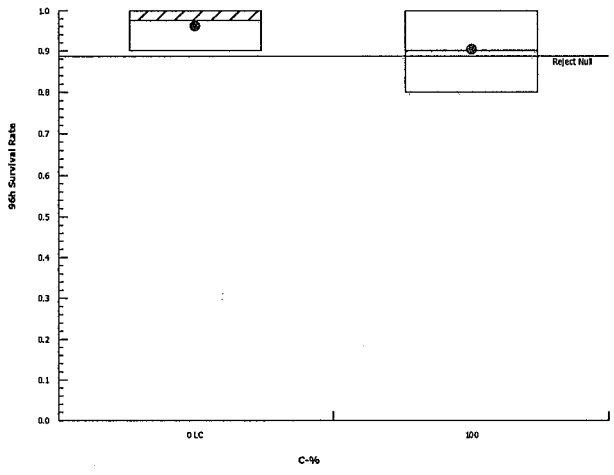
96h Survival Rate Summary

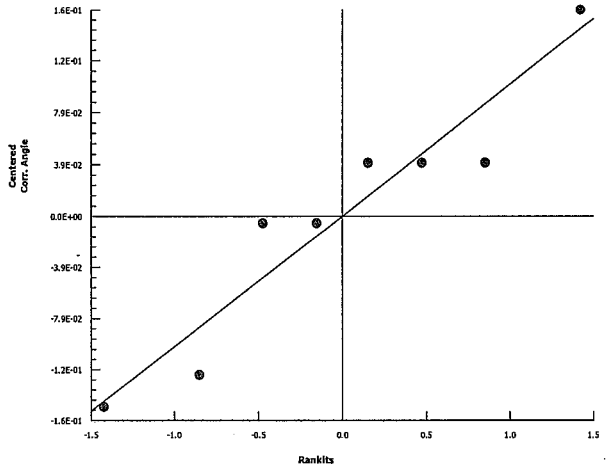
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	0.975	0.8954	1	1	0.9	1	0.025	5.13%	0.0%
100		4	0.9	0.7701	1	0.9	0.8	1	0.04082	9.07%	7.69%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	1.371	1.242	1.501	1.412	1.249	1.412	0.04074	5.94%	0.0%
100		4	1.254	1.056	1.453	1.249	1.107	1.412	0.06231	9.94%	8.53%

Graphics





 Analyst: JLL QA: AC3/11/21

96-hour Freshwater Acute Bioassay
Static-Renewal Conditions
DF-006

Water Quality Measurements
& Test Organism Survival

Client: Cardno
Sample ID: ADC Kehaha Stormwater Monitoring
Sample Log-in No's.: 21-0226, 21-0227
Test No's.: 2102-5175 & -5178

Test Species: *P. promelas*
Start Date/Time: 2/23/2021 1350
End Date/Time: 2/27/2021 1545

Tech Initials	0	24	48	72	96
Counts:	TN	RT	TN	DM	DM
Readings:	RT	HH	TN	GH	GH
Dilutions made by:	GH		TN		

Sample ID (100%)	Rep	Number of Live Organisms					Conductivity (µmhos/cm)					Temperature (°C)					Dissolved Oxygen (mg/L) Q5 Q14					pH (units)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Lab Control	A	10	10	10	10	10	187	200	i 187	197	201	20.5	20.3	i 19.4	19.9	20.0	8.6	8.6	i 8.5	9.0	8.9	8.13	8.11	i 8.05	8.08	8.25
	B	10	10	10	10	10			f 211					f 20.1					f 8.5					f 8.09		
	C	10	10	10	9	9																				
	D	10	10	10	10	10											Q14									
WW-2	A	10	Q13	9	Q13	9	516	515	i 516	535	550	20.4	20.2	i 19.5	20.0	20.0	9.3	8.6	i 9.3	9.0	8.8	6.00	6.96	i 6.65	6.88	7.27
100%	B	10	↓	9	↓	9			f 528					f 20.2					f 8.8					f 6.93		
	C	10	Q8	2		2																				
	D	10	↓	10	↓	10											Q14		(B) 9.7							(C)
WW-3	A	10	Q13	Q13	Q13	9	90	108	i 91	95	99	19.9	20.3	i 19.4	20.1	20.0	9.8	8.5	i ~~9.9~~	8.9	8.1	6.07	6.07	i 6.02	6.45	~~6.47~~ 6.47
100%	B	10	↓	↓	↓	10			f 114					f 19.9					f 8.9					f 6.49		
	C	10				9																				
	D	10				8																				
	A								i					i					i					i		
	B								f					f					f					f		
	C																									
	D																									
	A								i					i					i					i		
	B								f					f					f					f		
	C																									
	D																									
	A								i					i					i					i		
	B								f					f					f					f		
	C																									
	D																									
	A								i					i					i					i		
	B								f					f					f					f		
	C																									
	D																									

Initial Counts QC'd by: RT
Initiated by: TN

Environmental Chamber: C

Animal Source/Date Received: ABS 2/23/21

Age at Initiation: 6 DAY

Animal Acclimation Qualifiers (circle all that apply): Q22 / Q23 / Q24 / (none)

Feeding Times	0	24	48	72	96
AM:	--	--	0850	--	--
PM:	--	--	--	--	--

Comments: i = initial reading in fresh test solution, f = final reading in test chamber prior to renewal
Organisms fed prior to initiation, circle one (y) / n) Q8: 2 fish recovered 2/24/21 RT
(B) TN Q18 TN 2/25/21 (C) Q18 GH 2/27/21

QC Check: ACS 3/2/21

Final Review: AC 3/14/21

Enthalpy Analytical. 4340 Vandever Avenue. San Diego, CA 92120.

CETIS Summary Report

Ceriodaphnia 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Batch ID:	14-2803-4336	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	23 Feb-21 13:40	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Diluted Mineral Water (8:2)
Ending Date:	27 Feb-21 12:20	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	95h	**Source:**	In-House Culture	**Age:**	<24h

Sample ID:	07-8038-3263	**Code:**	21-0226	**Client:**	Cardno Hawaii
Sample Date:	20 Feb-21 14:00	**Material:**	Stormwater	**Project:**	ADC Kekaha WQ Monitoring
Receive Date:	23 Feb-21 08:50	**Source:**	Cardno Hawaii		
Sample Age:	72h (2.9 °C)	**Station:**	WW-2		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
10-5777-9973	96h Survival Rate	100	>100	NA	NA	1	Wilcoxon Rank Sum Two-Sample Test

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
10-5777-9973	96h Survival Rate	Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	4	1	1	1	1	1	0	0	0.0%	0.0%
100		4	1	1	1	1	1	0	0	0.0%	0.0%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Lab Control	1	1	1	1
100		1	1	1	1

CETIS Analytical Report

Test Code: 2102-S176 | 14-4584-8267

Ceriodaphnia 96-h Acute Survival Test — Nautilus Environmental (CA)

Analysis ID:	10-5777-9973	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Mar-21 10:19	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	Test Result
Angular (Corrected)	NA	C > T	NA	NA	Passes 96h survival rate

Wilcoxon Rank Sum Two-Sample Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		100	18	NA	1	6	1.0000	Exact	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0	0	1	65540	<0.0001	Significant Effect
Error	0	0	6			
Total	0		7			

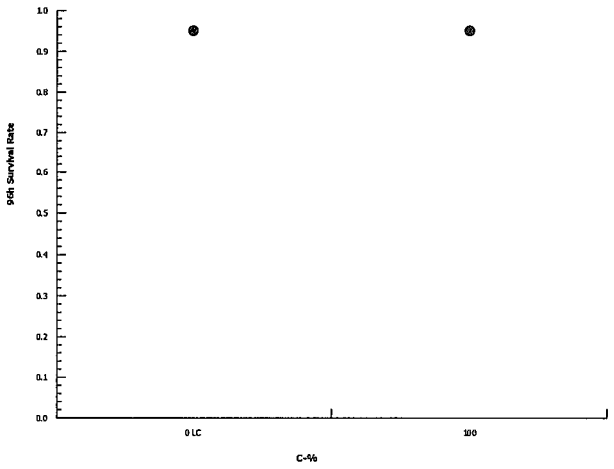
96h Survival Rate Summary

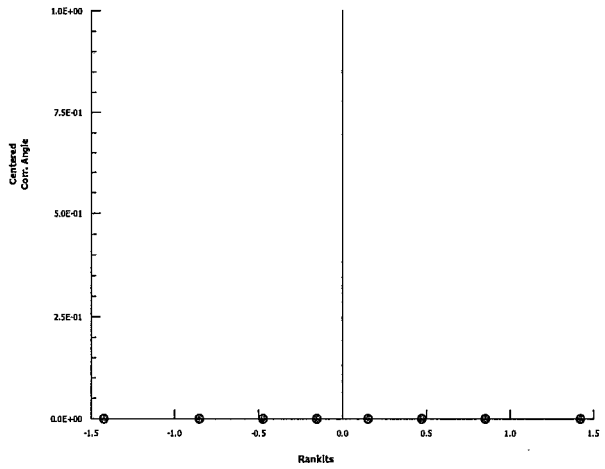
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	1	1	1	1	1	1	0	0.0%	0.0%
100		4	1	1	1	1	1	1	0	0.0%	0.0%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	0.0%
100		4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	0.0%

Graphics





Analyst: JLL QA: AC 3/14/21

CETIS Summary Report

Ceriodaphnia 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Batch ID:	16-9753-0785	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	23 Feb-21 13:40	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Diluted Mineral Water (8:2)
Ending Date:	27 Feb-21 12:20	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	95h	**Source:**	In-House Culture	**Age:**	<24h

Sample ID:	07-5199-5424	**Code:**	21-0227	**Client:**	Cardno Hawaii
Sample Date:	20 Feb-21 14:30	**Material:**	Stormwater	**Project:**	ADC Kekaha WQ Monitoring
Receive Date:	23 Feb-21 08:50	**Source:**	Cardno Hawaii		
Sample Age:	71h (3.3 °C)	**Station:**	WW-3		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
02-9979-0049	96h Survival Rate	<100	100	NA	18.8%	>1	Wilcoxon Rank Sum Two-Sample Test

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
02-9979-0049	96h Survival Rate	Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	4	1	1	1	1	1	0	0	0.0%	0.0%
100		4	0.1	0	0.4182	0	0.4	0.1	0.2	200.0%	90.0%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Lab Control	1	1	1	1
100		0	0	0.4	0

CETIS Analytical Report

Ceriodaphnia 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Analysis ID:	02-9979-0049	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Mar-21 10:22	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	18.8%	Fails 96h survival rate

Wilcoxon Rank Sum Two-Sample Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		100*	10	NA	0	6	0.0143	Exact	Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	2.019922	2.019922	1	76.63	0.0001	Significant Effect
Error	0.1581525	0.02635875	6			
Total	2.178074		7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	1	13.75	0.3559	Equal Variances
Variances	Levene Equality of Variance	9	13.75	0.0240	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.7065	0.6451	0.0027	Non-normal Distribution

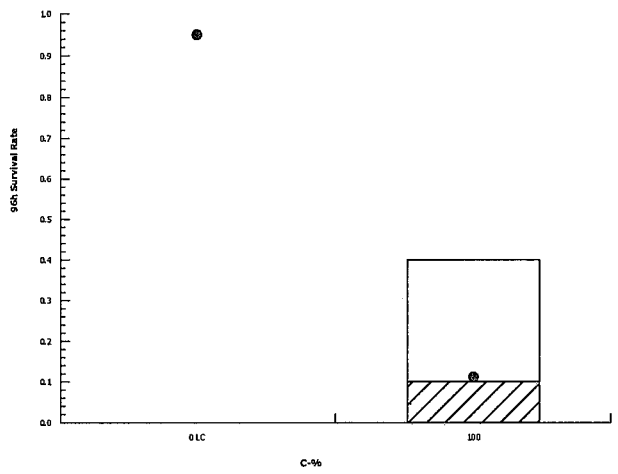
96h Survival Rate Summary

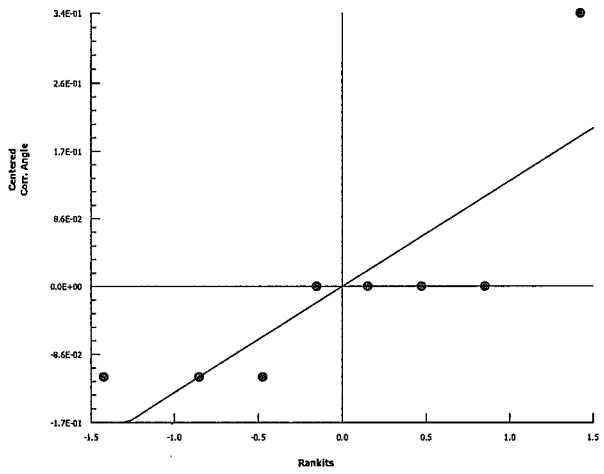
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	1	1	1	1	1	1	0	0.0%	0.0%
100		4	0.1	0	0.4182	0	0	0.4	0.1	200.0%	90.0%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	0.0%
100		4	0.3403	-0.02503	0.7057	0.2255	0.2255	0.6847	0.1148	67.47%	74.7%

Graphics





96-hour Freshwater Acute Bioassay
Static-Renewal Conditions
DF-002

Water Quality Measurements
& Test Organism Survival

Client: Cardno
Sample ID: ADC Kehaha Stormwater Monitoring
Sample Log-in No.: 21-0226, 21-0227
Test No.: 2102-5176 a -5179

Test Species: *C.dubia*
Start Date/Time: 2/23/2021 1340
End Date/Time: 2/27/2021 1220

Tech Initials	0	24	48	72	96
Counts:	VL	RT	HH	RT	RT
Readings:	VL	HH	TN	GH	GH
Dilutions made by:	GH		TN		

Concentration (%)	Rep	Number of Live Organisms					Conductivity (µmhos/cm)					Temperature (°C)					Dissolved Oxygen (mg/L) Q14 Q14					pH (units)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Lab Control	A	5	5	5	5	5	188	189	i 186	188	204	21.0	20.5	i 20.3	20.4	19.9	8.2	8.6	i 8.5	8.8	8.3	8.5	8.10	i 8.08	8.13	8.25
	B	5	5	5	5	5			f 196					f 19.9					f 9.0					f 8.14		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
WW-2	A	5	5	5	5	5	516	514	i 513	517	532	20.0	20.3	i 20.0	20.3	19.9	9.2	8.6	i 9.5	9.0	8.6	6.29	6.60	i 6.54	7.10	7.65
100%	B	5	5	5	5	5			f 506					f 19.9					f 9.5					f 7.38		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																			2/26/21 Q18 KK	
WW-3	A	5	Q13	0	Q13	0	88	90	i 90	90	98	19.6	20.2	i 20.0	20.2	19.4	9.2	8.5	i 9.1	9.0	8.7	6.01	6.10	i 6.02	~~6.8~~	7.27
100%	B	5	↓	3	↓	0			f 96					f 19.9					f 8.5					f 6.69	6.14	
	C	5	↓	3	↓	2																				
	D	5	↓	5	↓	0																				
									i					i					i					i		
									f					f					f					f		
									i					i					i					i		
									f					f					f					f		
									i					i					i					i		
									f					f					f					f		
									i					i					i					i		
									f					f					f					f		

Initial Counts QC'd by: HH
Initiated by: VL

Environmental Chamber: C

Animal Source/Date Received: Internal / ~~2/23/21~~ N/A Q18 RT 2/23/21
Age at Initiation: <24hrs

Feeding Times				
0	24	48	72	96
--	--	1415	--	--
--	--	--	--	--

Comments: i = initial reading in fresh test solution, f = final reading in test chamber prior to renewal
Organisms fed prior to initiation, circle one (y / n) — y circled

QC Check: AS 3/2/21

Final Review: AC 3/14/21

CETIS Summary Report

Acute Amphipod Survival Test					Nautilus Environmental (CA)
Batch ID:	11-5232-2979	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	24 Feb-21 17:20	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	@ ~~Coast Filtered Water~~ Dilute mineral water
Ending Date:	28 Feb-21 15:20	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Research Organisms, NH	**Age:**	13d

Sample ID:	11-8640-4152	**Code:**	21-0226	**Client:**	Cardno Hawaii
Sample Date:	20 Feb-21 14:00	**Material:**	Stormwater	**Project:**	ADC Kekaha WQ Monitoring
Receive Date:	23 Feb-21 08:50	**Source:**	Cardno Hawaii		
Sample Age:	4d 3h (2.9 °C)	**Station:**	WW-2		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
05-4075-0493	96h Survival Rate	100	>100	NA	38.3%	1	Equal Variance t Two-Sample Test

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
05-4075-0493	96h Survival Rate	Control Resp	0.675	0.9 - NL	Yes	Below Acceptability Criteria QJS

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	4	0.675	0.3222	1	0.4	0.9	0.1109	0.2217	32.85%	0.0%
100		4	0.925	0.7727	1	0.8	1	0.04787	0.09574	10.35%	-37.04%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Lab Control	0.4	0.6	0.9	0.8
100		1	0.9	0.8	1

@ QJS AC 3/14/21

CETIS Analytical Report

Acute Amphipod Survival Test — **Nautilus Environmental (CA)**

Analysis ID:	05-4075-0493	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Mar-21 10:27	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	38.3%	Passes 96h survival rate

Equal Variance t Two-Sample Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		100	-2.174	1.943	0.280	6	0.9636	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.196325	0.196325	1	4.724	0.0727	Non-Significant Effect
Error	0.2493379	0.04155631	6			
Total	0.4456629		7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	2.849	47.47	0.4128	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9512	0.6451	0.7229	Normal Distribution

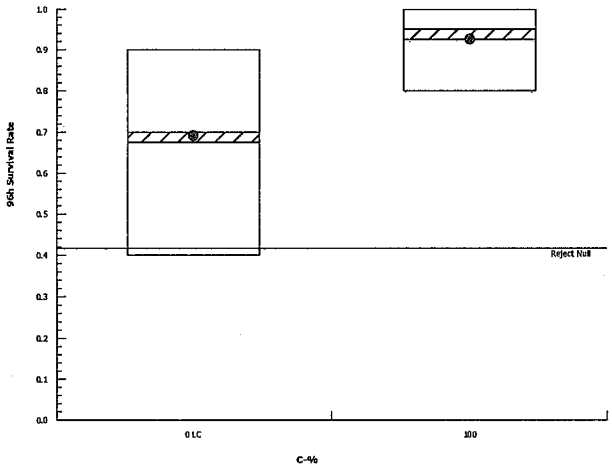
96h Survival Rate Summary

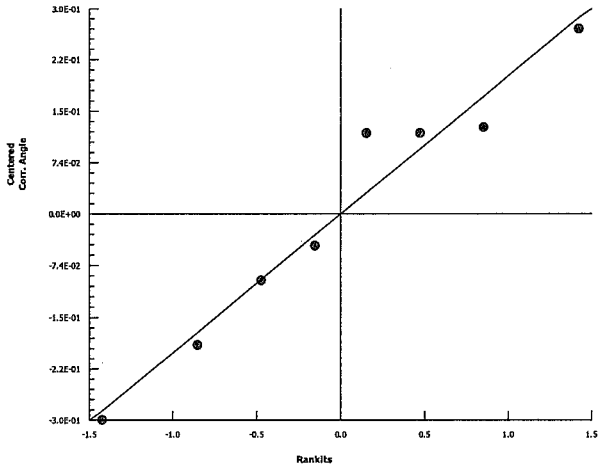
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	0.675	0.3222	1	0.7	0.4	0.9	0.1109	32.85%	0.0%
100		4	0.925	0.7727	1	0.95	0.8	1	0.04787	10.35%	-37.04%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	0.9817	0.5871	1.376	0.9966	0.6847	1.249	0.124	25.26%	0.0%
100		4	1.295	1.061	1.529	1.331	1.107	1.412	0.07348	11.35%	-31.91%

Graphics





CETIS Summary Report

Report Date: 03 Mar-21 10:29 (p 1 of 1)
Test Code: 2102-S180 | 19-6241-0513

Acute Amphipod Survival Test — **Nautilus Environmental (CA)**

Batch ID:	04-6423-4557	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	24 Feb-21 17:20	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	@ ~~Coast Filtered Water~~ Dilute Mineral water
Ending Date:	28 Feb-21 15:20	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Research Organisms, NH	**Age:**	13d

Sample ID:	05-5743-4708	**Code:**	21-0227	**Client:**	Cardno Hawaii
Sample Date:	20 Feb-21 14:30	**Material:**	Stormwater	**Project:**	ADC Kekaha WQ Monitoring
Receive Date:	23 Feb-21 08:50	**Source:**	Cardno Hawaii		
Sample Age:	4d 3h (3.3 °C)	**Station:**	WW-3		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
17-2662-8913	96h Survival Rate	100	>100	NA	40.4%	1	Equal Variance t Two-Sample Test

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
17-2662-8913	96h Survival Rate	Control Resp	0.675	0.9 - NL	Yes	Below Acceptability Criteria

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Control	4	0.675	0.3222	1	0.4	0.9	0.1109	0.2217	32.85%	0.0%
100		4	0.875	0.6748	1	0.7	1	0.06292	0.1258	14.38%	-29.63%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Lab Control	0.4	0.6	0.9	0.8
100		0.7	0.9	1	0.9

@ QA 3/14/21

CETIS Analytical Report

Test Code: 2102-S180 | 19-6241-0513

Acute Amphipod Survival Test — **Nautilus Environmental (CA)**

Analysis ID:	17-2662-8913	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.7
Analyzed:	03 Mar-21 10:29	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	40.4%	Passes 96h survival rate

Equal Variance t Two-Sample Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Lab Control		100	-1.608	1.943	0.294	6	0.9205	CDF	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.1186511	0.1186511	1	2.585	0.1590	Non-Significant Effect
Error	0.2753662	0.04589437	6			
Total	0.3940173		7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	2.032	47.47	0.5751	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9568	0.6451	0.7787	Normal Distribution

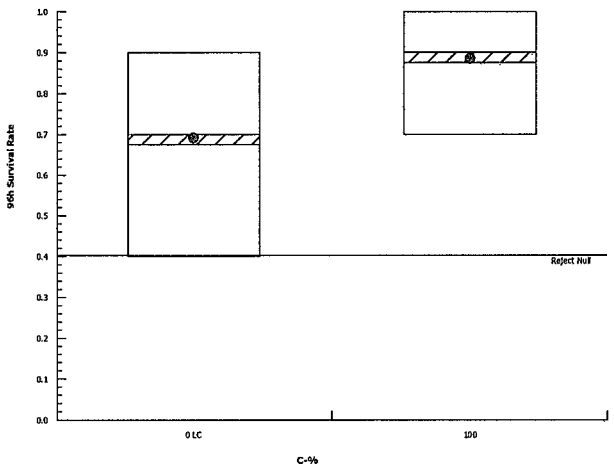
96h Survival Rate Summary

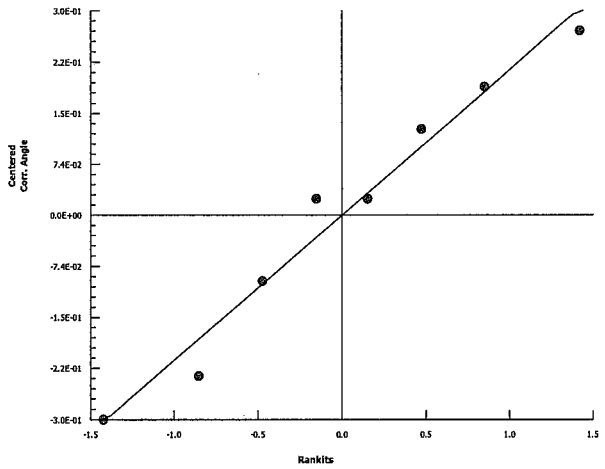
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	0.675	0.3222	1	0.7	0.4	0.9	0.1109	32.85%	0.0%
100		4	0.875	0.6748	1	0.9	0.7	1	0.06292	14.38%	-29.63%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Lab Control	4	0.9817	0.5871	1.376	0.9966	0.6847	1.249	0.124	25.26%	0.0%
100		4	1.225	0.9485	1.502	1.249	0.9912	1.412	0.08699	14.2%	-24.81%

Graphics





Analyst: JCL QA: AL 3/14/21

96-hour Freshwater Acute Bioassay
Static-Renewal Conditions
DF-006

Water Quality Measurements
& Test Organism Survival

Client: Cardno
Sample ID: ADC Kehaha Stormwater Monitoring
Sample Log-in No's.: 21-0226, 21-0227
Test No's.: 2102-S177 & -S180

Test Species: *H. azteca*
Start Date/Time: (A) 2/~~23~~ 24/2021 1720
End Date/Time: 2/~~27~~ 28/2021 1520

Tech Initials	0	24	48	72	96
Counts:	KL	TN	TN	DM	#J
Readings:	HH	TN	GH	GH	KL
Dilutions made by:	KL		TN		

Sample ID (100%)	Rep	Number of Live Organisms					Conductivity (µmhos/cm)					Temperature (°C)					Dissolved Oxygen (mg/L) Q5					pH (units)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Lab Control	A	10	10	4	4	4	180	193	i 188	203	199	20.9	20.4	i 19.3	20.1	20.3	8.0	8.5	i 8.7	9.0	8.1	8.01	8.06	i 8.21	8.25	8.15
	B	10	10	7	6	6			f 198					f 20.3					f 8.8					f 8.16		
	C	10	10	10	~~8~~ 9	9																				
	D	10	9	8	8	8											Q14		Q14							
WW-2	A	10	Q13	Q13	Q11	10	509	516	i 518	510	523	20.8	20.4	i 19.0	20.0	20.1	9.5	8.6	i 9.8	9.0	(B) ~~8.0~~ 7.9	0.03	6.90	i 6.29	7.49	(B) ~~7.75~~ 7.75
100%	B	10	↓	Q13	↓	9			f 531					f 20.1					f 8.5					f 7.54		
	C	10	↓	Q13	↓	8																				
	D	10	↓	9	↓	10											Q14		Q14							
WW-3	A	10	Q13	Q13	Q11	7	90	93	i 89	97	96	20.9	20.5	i 19.2	20.1	20.2	9.4	8.4	i 9.5	9.0	7.9	0.01	6.64	i 6.30	6.81	6.72
100%	B	10	↓	↓	↓	9			f 95					f 20.3					f 8.6					f 7.29		
	C	10	↓	↓	↓	10																				
	D	10	↓	↓	↓	9																				
	A								i					i					i					i		
	B								f					f					f					f		
	C																									
	D																									
	A								i					i					i					i		
	B								f					f					f					f		
	C																									
	D																									
	A								i					i					i					i		
	B								f					f					f					f		
	C																									
	D																									
	A								i					i					i					i		
	B								f					f					f					f		
	C																									
	D																									

Initial Counts QC'd by: TN
Initiated by: KL

Environmental Chamber: C

Animal Source/Date Received: ARO 2/24/21
Age at Initiation: 13 days
Animal Acclimation Qualifiers (circle all that apply): Q22 / Q23 / Q24 / (none)

Feeding Times	0	24	48	72	96
AM:	--	--	0830	--	--
PM:	--	--	--	--	--

Comments: i = initial reading in fresh test solution, f = final reading in test chamber prior to renewal
Organisms fed prior to initiation, circle one ((y) / n)
(A) Q18 HH 2/24/21
(B) Q18 KL 2/28/21
(C) Q18 DM 3/2/21

QC Check: ACS 3/2/21

Final Review: AC 3/14/21

Appendix B

Sample Check-In Information

Enthalpy Analytical
4340 Vandever Avenue
San Diego, CA 92120

Sample Check-In Information
DC-006

Client: Cardno Tests Performed: Acute Survival

Project: ADC Kekaha Stormwater Monitoring Test ID No.(s): 2102-5172 to 5180

Sample ID:	1) DW-1 / ~~WW-1~~ WW-1 (A)	2) WW-2	3 WW-3	4)
Log-in No. (21-xxxx):	0225	0226	0227	
Sample Collection Date & Time:	2/20/21 1945 PST	2/20/21 1400 PST	2/20/21 1430 PST	
Sample Receipt Date & Time:	2/23/21 0850	2/23/21 0850	2/23/21 0850	
Number of Containers & Container Type:	2 4L cubi	2 4L cubi	2 4L cubi	
Approx. Total Volume Received (L):	~8L	~8L	~8L	
Check-in Temp (°C)	2.4	2.9	3.3	
Temperature OK? [1]	(Y) N	(Y) N	(Y) N	Y N
DO (mg/L)	9.7	9.5	9.4	
pH (units)	7.46	5.83	5.79	
Conductivity (µS/cm)	7500	513	90	
Salinity (ppt)	1.4	0.2	0.1	
Alkalinity (mg/L) [2]	105	7	13	
Hardness (mg/L) [2,3]	306	50	34	
Total Chlorine (mg/L)	0.05	<0.02	(A)	
Technician Initials	HH	HH	HH	

Freshwater Tests:

Control/Dilution Water Source: (8:2) Culligan Other: _____ Alkalinity: 90 Hardness: 88

Additional Control? Y N = _____ Alkalinity: _____ Hardness: _____

Marine Tests:

Control/Dilution Water Source: LAB SW (ART SW) Other: _____ Alkalinity: 175 Salinity: 30ppt

Additional Control? (Y) N = Lab SW Alkalinity: 112 Salinity: 30 ppt

Sample Salted w/ artificial salt? Y N If yes, target ppt and source? _____

Sample salted w/brine? Y N If yes, target ppt? _____

Notes [1] Temperature for sample must be 0-6°C if received >24 hours past collection time.

[2] mg/L as CaCO3, [3] Measured for freshwater samples only, NA = Not Applicable

Additional Comments (A) not measured due to interference

(B) QA8 ATS 2/28/21; verified DW-1/WW-1 by client

QC Check: ATS 3/2/21

Sample Descriptions:

1) light brown, clear, no odor, heavy debris
2) light orange, slightly opaque, no odor, light debris
3) dark orange, opaque, no odor, light debris
4)

COC Complete? (Y) N

Filtration? Y (N)

Initials: 1) 2) 3) 4)

Pore Size: _____

Organisms or Debris

pH Adjustment? Y (N)

	1	2	3	4	5	6
Initial pH:						
Amount of HCl added:						
Final pH:						

Cl_2 Adjustment? Y (N)

	1	2	3	4	5	6
Initial Free Cl_2:						
STS added:						
Final Free Cl_2:						

Sample Aeration? Y (N)

	1	2	3	4	5	6
Initial D.O.						
Duration & Rate						
Final D.O.						

Subsamples For Additional Chemistry Required? Y (N)

NH3 Other _____

Tech Initials ____

Final Review: AC 3/14/21

Appendix C

Chain-of-Custody Form

Enthalpy Analytical - Environmental Toxicology

4340 Vandever Avenue
San Diego, CA 92120
Phone 858.587.7333
infoSD@enthalpy.com

Chain of Custody

Date__2/22/2021__ Page_1_ of _1_

Sample Collection By:

Report to:

Company	Cardno-GS
Address	737 Bishop St Suite 3050
City/State/Zip	Honolulu, HI 96734
Contact	Benjamin Berridge
Phone	808-476-0067
Email	benjamin.berridge@cardno-gs.com

Invoice To: **Same as Report to** [X]

Company	
Address	
City/State/Zip	
Contact	
Phone	
Email	

ANALYSES REQUIRED

Enthalpy Matrix Codes:
G = Grab
C = Composite
FW = Freshwater
SW = Seawater
Sed = Sediment
STRM = Stormwater
GW = Groundwater
WW = Wastewater
O = Other (specify)

	SAMPLE ID	SAMPLE Date	Time	Type (G or C)	MATRIX CODE (FW, SW, Sed, STRM, GW, WW, O)	Container Type	Qty	COMMENTS	*P. promelas* 96-hr Acute Survival	*C. dubia* 96-hr Acute Survival	*H. azteca* 96-hr Acute Survival	*A. affinis* 96-hr Acute Survival	*M. beryllina* 96-hr Acute Survival	*A. bahia* 96-hr Acute Survival	Receipt Temperature (°C)
1	DW-1/WW-1	2/20/21	17:45 HST	G	STRM	2.5 Gal Plastic	2	Marine Species				X	X	X	2.4 (2)
2	WW-2	2/20/21	12:00 HST	G	STRM	2.5 Gal Plastic	2	Freshwater Species	X	X	X				2.9
3	WW-3	2/20/21	12:30 HST	G	STRM	2.5 Gal Plastic	2	Freshwater Species	X	X	X				3.3
4															
5															
6															
7															
8															
9															
10															

PROJECT INFORMATION

Project Name:	ADC Water Quality Monitoring
PO No.:	
Shipped Via:	FedEx

SAMPLE RECEIPT

Total No. of Containers	6
Received Good Condition?	Y
Matches Test Schedule?	Y

SPECIAL INSTRUCTIONS/COMMENTS:
-samples received partially frozen
@ temps measured in surrogate cup after thawed.

1) RELINQUISHED BY (CLIENT)
(Signature) (Time) 14:00
(Printed Name) Ben Berridge (Date) 2-22-2021
(Company)

2) RECEIVED BY (COURIER)
(Signature) (Time)
(Printed Name) (Date)
(Company)

3) RELINQUISHED BY (COURIER)
(Signature) (Time)
(Printed Name) (Date)
(Company)

4) RECEIVED BY (LABORATORY)
(Signature) (Time) 0850
(Printed Name) Maylie Hennemann (Date) 2/23/21
(Company) EA SD (Log-in #s) 21-0225 to -0227

Additional costs may be required for sample disposal or storage. Payment net 30 unless otherwise contracted.
Shaded areas are for lab use only
Report turn-around-time varies depending on length of test; please inquire with your project manager.

http://enthalpy.com/environmental-toxicology-2/

Appendix D

Qualifier Code Glossary

Nautilus Environmental

Glossary of Qualifier Codes:

Q1 - Temperatures out of recommended range; corrective action taken and recorded in Test Temperature Correction Log

Q2 - Temperatures out of recommended range; no action taken, test terminated same day

Q3 - Sample aerated prior to initiation or renewal due to dissolved oxygen (D.O.) levels below 6.0 mg/L

Q4 - Test aerated; D.O. levels dropped below 4.0 mg/L

Q5 - Test initiated with aeration due to an anticipated drop in D.O.

Q6 - Airline obstructed or fell out of replicate and replaced; drop in D.O. occurred

Q7 - Salinity out of recommended range

Q8 - Spilled test chamber/ Unable to recover test organism(s)

Q9 - Inadequate sample volume remaining, 50% renewal performed

Q10 - Inadequate sample volume remaining, no renewal performed

Q11 - Sample out of holding time; refer to QA section of report

Q12 - Replicate(s) not initiated; excluded from data analysis

Q13 - Survival counts not recorded due to poor visibility or heavy debris

Q14 - D.O. percent saturation was checked and was ≤ 110%

Q15 - Did not meet minimum test acceptability criteria. Refer to QA section of report.

Q16 - Percent minimum significant difference (PMSD) was below the lower bound limit for acceptability. This indicates that statistics may be over-sensitive in detecting a difference from the control due to low variability in the data set.

Q17 - Percent minimum significant difference (PMSD) was above the upper bound limit for acceptability. This indicates that statistics may be under-sensitive in detecting a difference from the control due to high variability in the data set.

Q18 - Incorrect Entry

Q19 - Illegible Entry

Q20 - Miscalculation

Q21 - Other (provide reason in comments section)

Q22 - Greater than 10% mortality observed upon receipt and/or in holding prior to test initiation. Organisms acclimated to test conditions at Nautilus and ultimately deemed fit to use for testing.

Q23 - Test organisms received at a temperature greater than 3°C outside the recommended test temperature range. However, due to age-specific protocol requirements and/or sample holding time constraints, the organisms were used to initiate tests upon the day of arrival. Organisms were acclimated to the appropriate test conditions upon receipt and prior to test initiation.

Q24 - Test organisms received at salinity greater than 3 ppt outside of the recommended test salinity range. However, due to age-specific protocol requirements and/or sample holding time constraints, the organisms were used to initiate tests upon the day of arrival. Organisms were acclimated to the appropriate test conditions upon receipt and prior to test initiation.

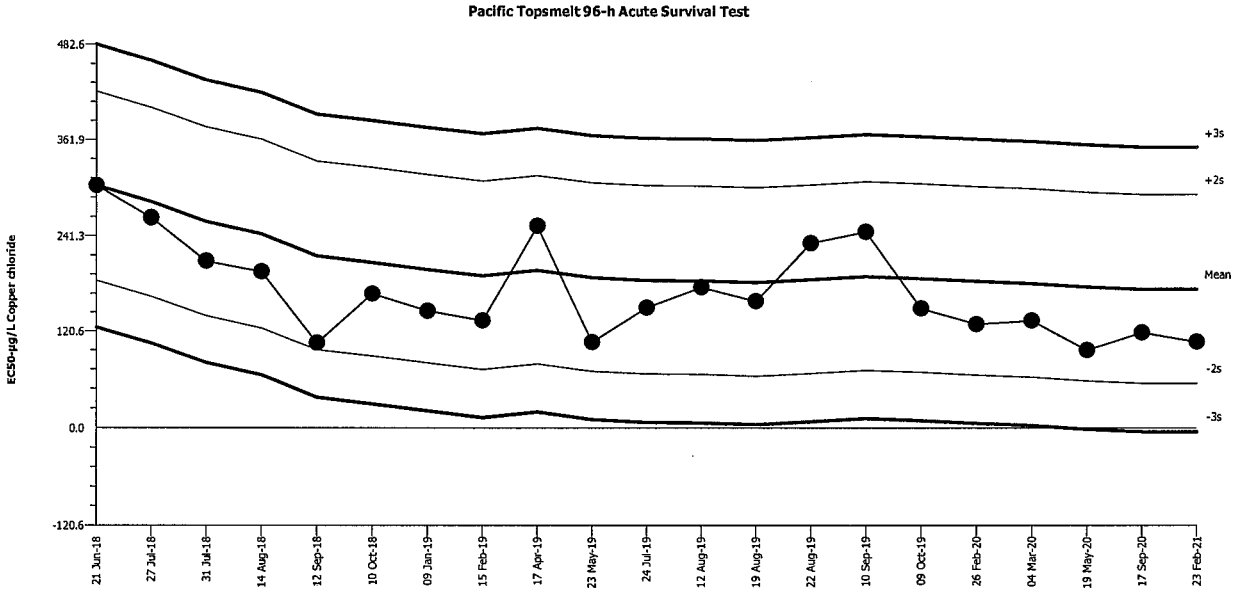
Appendix E

Reference Toxicant Test Control Charts

CETIS QC Plot

Pacific Topsmelt 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Test Type:	Survival (96h)	**Organism:**	Atherinops affinis (Topsmelt)	**Material:**	Copper chloride
Protocol:	EPA/821/R-02-012 (2002)	**Endpoint:**	96h Survival Rate	**Source:**	Reference Toxicant-REF



Mean:	174.1	**Count:**	20	**-2s Warning Limit:**	55.05	**-3s Action Limit:**	-4.446
Sigma:	59.5	**CV:**	34.20%	**+2s Warning Limit:**	293.1	**+3s Action Limit:**	352.6

Quality Control Data

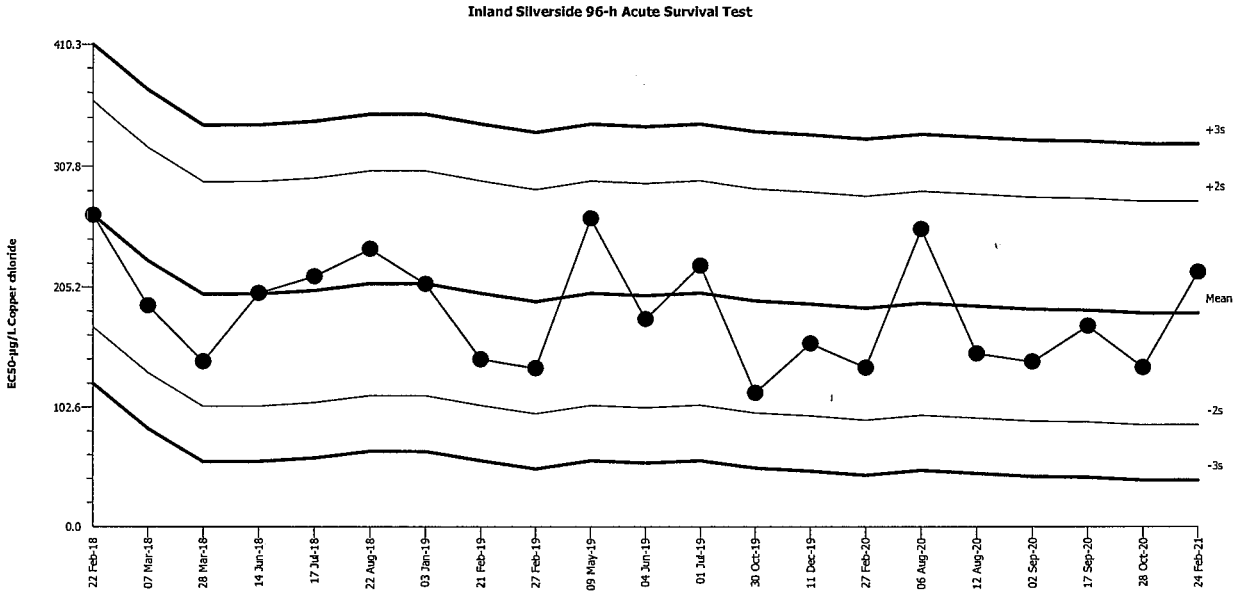
Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2018	Jun	21	17:15	304.1	130	2.184	(+)		01-0576-9762	09-0246-7639
2		Jul	27	15:45	263.9	89.8	1.509			14-8822-7369	11-4350-5971
3			31	16:30	209.6	35.49	0.5965			19-5107-0005	20-6864-5330
4		Aug	14	16:00	196.4	22.28	0.3745			15-6494-9229	17-8173-7294
5		Sep	12	14:00	105.6	-68.48	-1.151			16-1211-7168	05-2683-6884
6		Oct	10	16:55	168.2	-5.921	-0.09951			03-4460-7421	02-8297-4115
7	2019	Jan	9	16:00	146.4	-27.69	-0.4654			16-8541-8400	01-0716-9806
8		Feb	15	16:10	134	-40.1	-0.674			08-0425-5661	18-0762-3864
9		Apr	17	17:50	253.5	79.45	1.335			05-1475-1452	18-1058-7085
10		May	23	15:30	106.6	-67.47	-1.134			03-2154-6851	19-3512-2662
11		Jul	24	16:25	150.4	-23.69	-0.3982			02-4547-9337	03-4444-2456
12		Aug	12	16:15	176.5	2.373	0.03988			05-6999-0080	19-2452-0933
13			19	19:30	158.7	-15.36	-0.2581			00-1616-6988	16-4823-3084
14			22	16:45	232	57.93	0.9735			14-6253-4066	09-6589-6472
15		Sep	10	11:15	246.2	72.13	1.212			01-3190-7470	00-5901-5932
16		Oct	9	15:40	149.6	-24.5	-0.4118			12-2483-9958	16-7314-6828
17	2020	Feb	26	15:20	129.7	-44.42	-0.7465			04-4275-3329	19-1366-8841
18		Mar	4	17:15	134.1	-40.02	-0.6726			09-0186-0501	09-2347-5750
19		May	19	17:20	96.59	-77.51	-1.303			09-8977-8612	01-6220-7123
20		Sep	17	14:25	118.9	-55.18	-0.9274			07-7701-0607	03-4458-7869
21	2021	Feb	23	16:10	107.2	-66.92	-1.125			15-2183-5128	00-7227-8818

CETIS QC Plot

Report Date: 01 Mar-21 12:07 (1 of 1)

Inland Silverside 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Test Type:	Survival (96h)	**Organism:**	Menidia beryllina (Inland Silverside)	**Material:**	Copper chloride
Protocol:	EPA/821/R-02-012 (2002)	**Endpoint:**	96h Survival Rate	**Source:**	Reference Toxicant-REF



Mean:	183.2	**Count:**	20	**-2s Warning Limit:**	87.41	**-3s Action Limit:**	39.53
Sigma:	47.88	**CV:**	26.10%	**+2s Warning Limit:**	278.9	**+3s Action Limit:**	326.8

Quality Control Data

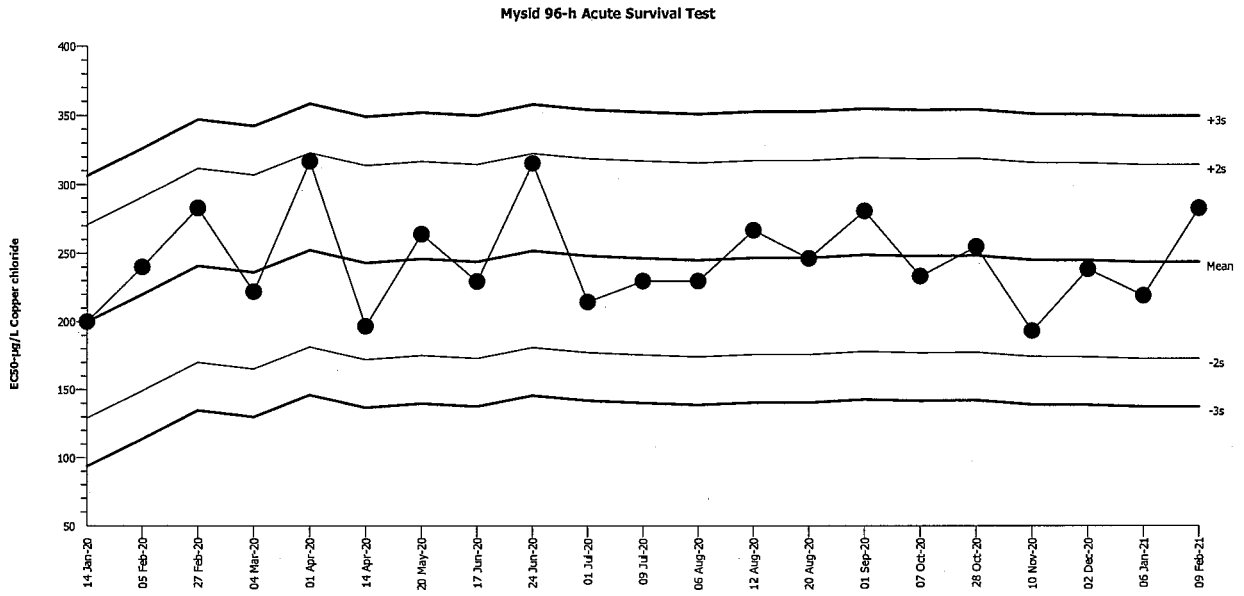
Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2018	Feb	22	17:20	266.7	83.51	1.744			21-2244-9573	15-2512-9013
2		Mar	7	16:25	189.3	6.15	0.1284			06-3891-7579	03-5981-6406
3			28	17:15	141.4	-41.78	-0.8726			18-3798-9831	05-5342-2351
4		Jun	14	14:35	200	16.8	0.3509			01-9952-0614	00-3575-1747
5		Jul	17	14:30	214.4	31.15	0.6507			11-1445-3115	12-3693-5336
6		Aug	22	16:25	237.8	54.64	1.141			08-6172-7555	12-4329-0617
7	2019	Jan	3	16:50	207.9	24.65	0.5149			16-0506-4055	11-1190-1934
8		Feb	21	16:05	143.5	-39.72	-0.8296			10-4228-2556	08-7111-9529
9			27	16:25	135.8	-47.43	-0.9906			14-0947-0420	00-4247-8099
10		May	9	19:10	263.9	80.7	1.685			03-9779-6453	09-3747-7536
11		Jun	4	14:50	177.8	-5.445	-0.1137			00-2136-1210	01-4264-5145
12		Jul	1	15:55	223.6	40.42	0.8441			04-4319-5710	17-4098-1084
13		Oct	30	14:45	114.9	-68.33	-1.427			05-0159-0485	07-6888-5964
14		Dec	11	16:30	156.9	-26.28	-0.5489			11-0566-6524	14-4935-0865
15	2020	Feb	27	17:15	136.4	-46.84	-0.9784			00-2639-4829	10-5059-8408
16		Aug	6	16:00	254.9	71.71	1.498			13-3377-6823	09-5433-0150
17			12	15:20	148.4	-34.84	-0.7277			02-5307-3356	11-5066-6205
18		Sep	2	15:25	141.4	-41.78	-0.8726			09-8373-9144	18-7650-2455
19			17	14:45	172	-11.24	-0.2348			07-8442-4358	02-9347-5784
20		Oct	28	16:35	136.6	-46.6	-0.9732			10-9446-3954	10-4215-8111
21	2021	Feb	24	17:30	218.2	34.99	0.7308			11-4316-4077	02-1492-4727

CETIS QC Plot

Report Date: 15 Feb-21 09:26 (1 of 1)

Mysid 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Test Type:	Survival (96h)	**Organism:**	Americamysis bahia (Opossum Shri	**Material:**	Copper chloride
Protocol:	EPA/821/R-02-012 (2002)	**Endpoint:**	96h Survival Rate	**Source:**	Reference Toxicant-REF



Mean:	243.7	**Count:**	20	**-2s Warning Limit:**	172.8	**-3s Action Limit:**	137.4
Sigma:	35.44	**CV:**	14.50%	**+2s Warning Limit:**	314.6	**+3s Action Limit:**	350

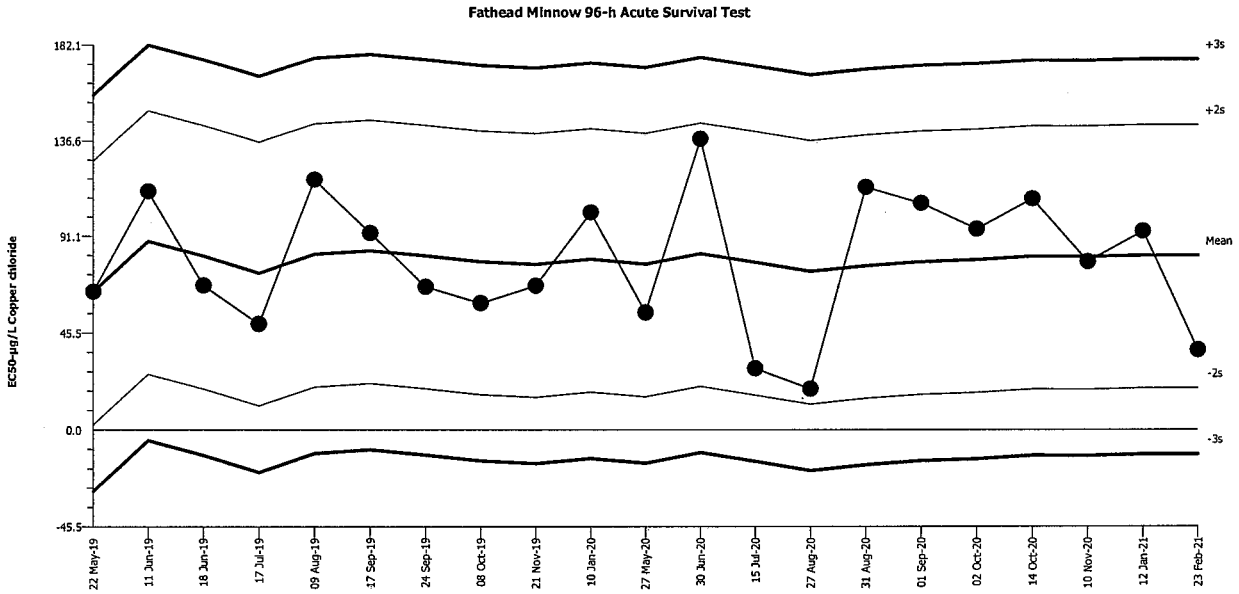
Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2020	Jan	14	17:10	200	-43.7	-1.233			09-3242-6322	15-8924-0479
2		Feb	5	15:10	239.9	-3.754	-0.1059			06-4700-0567	16-3509-2167
3			27	17:10	282.8	39.14	1.104			16-4090-2608	06-8726-8298
4		Mar	4	16:40	221.9	-21.79	-0.6147			08-2404-4838	16-3243-0975
5		Apr	1	14:40	316.8	73.13	2.063	(+)		01-5241-6442	08-6803-0408
6			14	15:50	196.6	-47.14	-1.33			05-8944-6740	12-4161-6662
7		May	20	15:18	263.9	20.2	0.57			17-7816-4145	16-8137-5941
8		Jun	17	17:00	229.4	-14.3	-0.4036			17-4088-0296	03-9150-0813
9			24	16:50	315.6	71.86	2.028	(+)		18-0749-6976	17-0667-6625
10		Jul	1	15:25	214.4	-29.35	-0.828			18-2892-4402	15-7918-7101
11			9	17:20	229.7	-13.96	-0.3939			03-4895-5452	20-8273-1437
12		Aug	6	16:45	229.7	-13.96	-0.3939			12-3621-4083	04-5216-6972
13			12	15:00	266.7	23.01	0.6492			09-6865-4747	15-4661-4894
14			20	15:10	246.2	2.529	0.07136			11-8933-3936	07-7149-7380
15		Sep	1	17:40	280.9	37.21	1.05			15-1725-8445	02-3217-4494
16		Oct	7	16:50	233.3	-10.39	-0.2933			10-9302-4751	10-8015-5811
17			28	17:30	254.9	11.21	0.3164			05-5138-7579	10-2662-3199
18		Nov	10	16:15	193.2	-50.51	-1.425			18-2802-6809	21-3845-2247
19		Dec	2	16:15	238.4	-5.252	-0.1482			05-6239-9486	13-2389-5949
20	2021	Jan	6	15:40	219.1	-24.6	-0.6942			03-0517-8333	01-7272-9774
21		Feb	9	16:35	282.8	39.14	1.104			18-0066-8687	07-5637-1896

CETIS QC Plot

Fathead Minnow 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Test Type:	Survival (96h)	**Organism:**	Pimephales promelas (Fathead Minn	**Material:**	Copper chloride
Protocol:	EPA/821/R-02-012 (2002)	**Endpoint:**	96h Survival Rate	**Source:**	Reference Toxicant-REF



Mean:	81.98	**Count:**	20	**-2s Warning Limit:**	19.6	**-3s Action Limit:**	-11.59
Sigma:	31.19	**CV:**	38.00%	**+2s Warning Limit:**	144.4	**+3s Action Limit:**	175.6

Quality Control Data

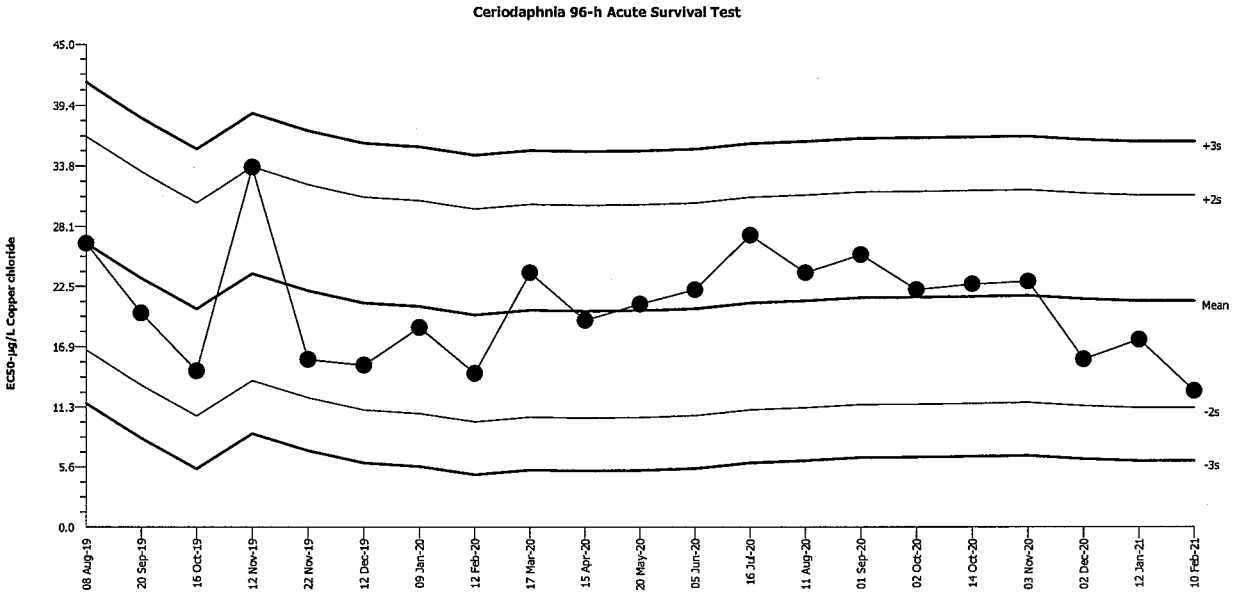
Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2019	May	22	15:55	64.79	-17.19	-0.551			02-1759-3419	15-3388-9003
2		Jun	11	17:20	112.3	30.35	0.9732			16-3477-7401	15-3155-7444
3			18	16:00	67.74	-14.24	-0.4566			19-9791-9157	01-4134-1153
4		Jul	17	16:00	49.72	-32.26	-1.034			03-2107-5289	02-7115-7044
5		Aug	9	16:05	118	36	1.154			14-8182-5304	09-2863-4324
6		Sep	17	16:35	92.53	10.55	0.3383			08-1980-7492	14-4713-0442
7			24	16:50	67.15	-14.83	-0.4754			08-2287-5941	02-7891-5321
8		Oct	8	16:00	59.44	-22.54	-0.7226			04-9867-1678	19-8711-6972
9		Nov	21	16:35	67.63	-14.35	-0.46			04-2957-0529	12-8998-8134
10	2020	Jan	10	17:05	102.3	20.28	0.6503			16-9789-6682	06-6624-2910
11		May	27	16:35	55.05	-26.93	-0.8634			16-5231-1352	08-0130-7710
12		Jun	30	16:25	137.6	55.57	1.782			20-8582-5673	01-3539-9114
13		Jul	15	16:00	28.87	-53.11	-1.703			02-8717-8563	15-0846-2862
14		Aug	27	11:55	19.21	-62.77	-2.012	(-)		21-1958-4827	04-0829-1325
15			31	12:20	114.5	32.52	1.043			04-4264-5870	08-1199-0475
16		Sep	1	18:00	106.8	24.84	0.7964			05-5925-4870	11-8222-6308
17		Oct	2	14:35	94.56	12.58	0.4033			10-6788-7581	10-0094-1709
18			14	15:55	108.9	26.93	0.8634			16-9476-4319	04-8332-8963
19		Nov	10	15:50	79.05	-2.93	-0.09394			10-0925-3953	05-0925-4459
20	2021	Jan	12	16:10	93.54	11.56	0.3706			10-2818-5435	19-4959-1498
21		Feb	23	16:00	37.5	-44.48	-1.426			00-7897-7348	07-5099-8101

CETIS QC Plot

Report Date: 15 Feb-21 09:38 (1 of 1)

Ceriodaphnia 96-h Acute Survival Test — **Nautilus Environmental (CA)**

Test Type:	Survival (96h)	**Organism:**	Ceriodaphnia dubia (Water Flea)	**Material:**	Copper chloride
Protocol:	EPA/821/R-02-012 (2002)	**Endpoint:**	96h Survival Rate	**Source:**	Reference Toxicant-REF



Mean:	21.13	**Count:**	20	**-2s Warning Limit:**	11.17	**-3s Action Limit:**	6.184
Sigma:	4.981	**CV:**	23.60%	**+2s Warning Limit:**	31.09	**+3s Action Limit:**	36.07

Quality Control Data

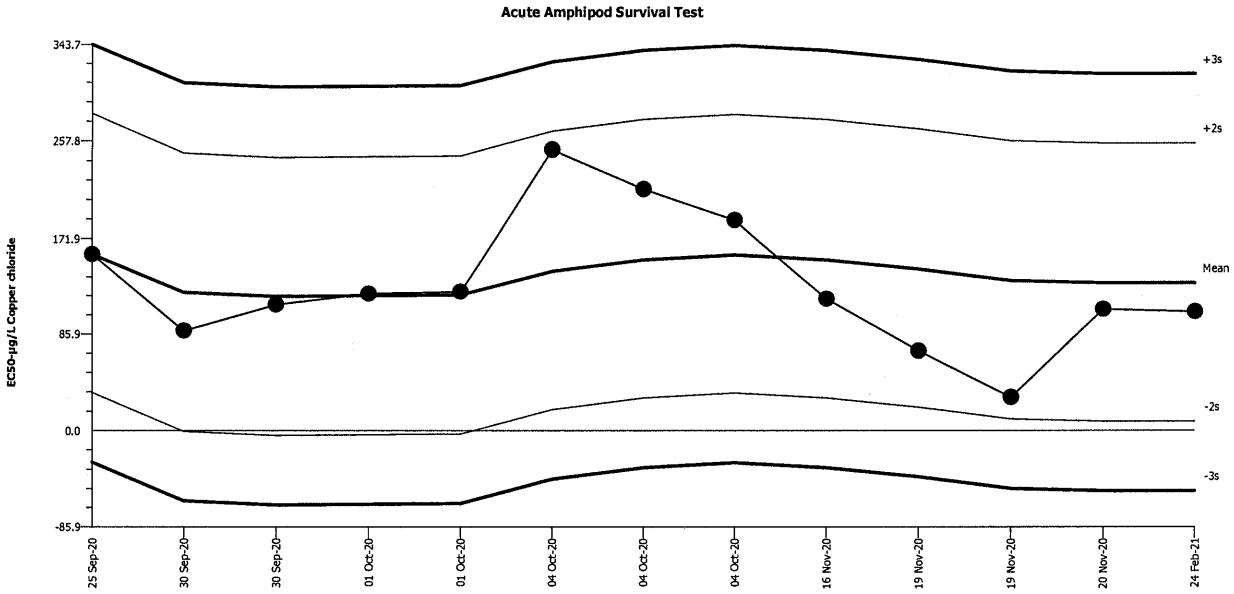
Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2019	Aug	8	14:50	26.54	5.412	1.086			16-9025-1148	02-0239-3729
2		Sep	20	18:20	20	-1.13	-0.2269			02-2453-0660	18-4748-7978
3		Oct	16	16:25	14.64	-6.489	-1.303			20-8293-2680	01-2609-4806
4		Nov	12	15:30	33.64	12.51	2.511	(+)		08-1275-5287	19-9898-2932
5			22	15:30	15.69	-5.438	-1.092			09-3327-8139	04-3248-6422
6		Dec	12	15:55	15.16	-5.973	-1.199			07-4521-5396	10-7315-8492
7	2020	Jan	9	15:20	18.66	-2.469	-0.4958			09-5261-4370	19-5681-9900
8		Feb	12	16:30	14.4	-6.734	-1.352			18-8330-6387	13-9776-1421
9		Mar	17	14:55	23.78	2.654	0.5329			18-8008-6095	05-6082-0450
10		Apr	15	16:10	19.32	-1.811	-0.3636			12-1338-7947	04-4538-1629
11		May	20	13:45	20.84	-0.2905	-0.05832			11-5303-0354	09-0756-9549
12		Jun	5	16:00	22.19	1.061	0.2131			14-1156-1724	03-6374-7457
13		Jul	16	12:45	27.32	6.191	1.243			07-7357-5721	02-9542-5069
14		Aug	11	14:10	23.78	2.654	0.5329			10-2942-2946	03-2270-9930
15		Sep	1	16:40	25.49	4.361	0.8756			08-0309-6057	08-6836-5081
16		Oct	2	13:20	22.19	1.061	0.2131			17-6681-3422	06-7614-6503
17			14	14:35	22.72	1.594	0.32			16-2893-4303	19-0938-0140
18		Nov	3	15:55	22.97	1.844	0.3702			21-1104-6548	14-3781-8992
19		Dec	2	15:10	15.69	-5.438	-1.092			05-6044-5446	17-1353-5910
20	2021	Jan	12	15:20	17.51	-3.618	-0.7264			04-7387-5530	19-1299-4588
21		Feb	10	13:55	12.75	-8.384	-1.683			08-3148-4658	06-6989-2045

CETIS QC Plot

Report Date: 03 Mar-21 13:56 (1 of 1)

Acute Amphipod Survival Test — **Nautilus Environmental (CA)**

Test Type:	Survival (96h)	**Organism:**	Hyalella azteca (Freshwater Amphip	**Material:**	Copper chloride
Protocol:	EPA/821/R-02-012 (2002)	**Endpoint:**	96h Survival Rate	**Source:**	Reference Toxicant-REF



Mean:	132.1	**Count:**	12	**-2s Warning Limit:**	8.162	**-3s Action Limit:**	-53.8
Sigma:	61.96	**CV:**	46.90%	**+2s Warning Limit:**	256	**+3s Action Limit:**	318

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2020	Sep	25	13:40	157.9	25.76	0.4158			16-9081-6764	18-6814-9087
2			30	15:15	88.77	-43.33	-0.6993			07-1981-4343	10-9026-6931
3			30	15:50	112.2	-19.85	-0.3204			11-9201-5159	11-6178-4756
4		Oct	1	14:50	122.2	-9.881	-0.1595			12-4287-6345	20-3445-2394
5			1	15:30	123.9	-8.17	-0.1319			17-5501-7242	20-6772-8270
6			4	14:00	250.3	118.2	1.907			13-1530-9745	13-5170-9478
7			4	14:35	215.4	83.32	1.345			16-7937-3453	09-9493-0420
8			4	15:15	188.3	56.16	0.9063			02-7905-1968	09-8618-9853
9		Nov	16	14:55	117.6	-14.55	-0.2348			05-7327-2673	01-8079-7741
10			19	16:00	70.71	-61.39	-0.9908			00-8858-0066	12-7185-4398
11			19	16:40	29.55	-102.6	-1.655			01-8113-8271	17-2113-7551
12			20	15:10	108.2	-23.9	-0.3858			08-5954-7214	01-8663-5204
13	2021	Feb	24	18:28	105.9	-26.15	-0.4221			17-5815-0110	10-9701-1209

AECOS, Inc.

45-939 Kamehameha Hwy, Suite 104 · Kaneohe, HI 96744
Telephone: (808) 234-7770 · Fax: (808) 234-7775 · aecos@aecos.com

CLIENT: Cardno-GS
737 Bishop Street, Suite 3050
Honolulu HI 96813

ATTENTION: Benjamin Berridge
Benjamin.Berridge@cardno-gs.com

FILE No.:	1494
REPORT DATE:	02/24/2021
PAGE:	1 of 1

AECOS REPORT OF RESULTS

SAMPLE TYPE: Stormwater
DATE SAMPLED: 02/20/2021

***AECOS* LOG No.:** 41960
DATE/TIME RECEIVED: 02/22/2021
SAMPLER: B. Berridge

ANALYTE (UNITS)	Total Suspended Solids (mg/L)			
Analysis Date/ Analyst ID ⇨	02/22-23/2021 ml			
SAMPLE ID ⇩				
DW-3	9.2			
U-3 / WW-4	44.3			
D-3	28.2			
DW-2	20.0			
D-6	32			
U-1 / WW-7	1210			
D-8	22			
D-7	940			
DW-1 / WW-3	89.4			
I-1	42.8			
D-2	8.4			
E-2	9.8			
D-4	24.8			
D-5	11			
WW-2	184			
WW-3	2000			
W-1	0.8			
W-2	1.0			
WW-3 Dup	2100			
U-2 / WW-5 WET	77			

J. Mello, Laboratory Director

AECOS, Inc.

45-939 Kamehameha Highway Suite 104
Kaneohe, Oahu, HI 96744
Tel: (808) 234-7770 Fax: 234-7775

CHAIN OF CUSTODY FORM

PROJECT FILE No.:

LOG NUMBER [041960]

Pg 1 of 2

CLIENT: Cardno
ADDRESS: 737 Bishop St. Honolulu HI 96817

CONTACT: Ben Beveridge
PHONE No.: ☎ 808-476-0067
Purchase Order No.:

☐ RUSH
☐ SEE REVERSE
SPECIAL INSTRUCTIONS

	☑	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	SAMPLE TYPE	CONTAINER(S)		REQUESTED ANALYSES	PRESERVATION
1	✓	DW-3	2/20/21	14:15	W	1	pdy	TSS	
2	✓	V-3/ww-4		14:45					
3	✓	D-3		15:10					
4	✓	DW-2		15:30					
5	✓	D-6		16:00					
6	✓	V-1/ww-7		16:30					
7	✓	D-8		16:50					
8	✓	D-7		17:30					
9	✓	DW-1/ww-3		17:45					
10	✓	I-1		18:30					

CLIENTS PROVIDING SAMPLES TO THE LABORATORY SHOULD COMPLETE AS MUCH OF THE ABOVE FORM AS POSSIBLE, NOTE: NAME AND DATED SIGNATURE OF PERSON COLLECTING THE SAMPLE MUST BE ENTERED BELOW ↓. INFORMATION REQUESTED IN SHADED BOXES ABOVE TO BE FILLED IN BY THE LABORATORY.

SAMPLED BY: Ben Beveridge — DATE 2/22 20 21
PRINT NAME
RELINQUISHED: — DATE 2/22 20 21
SIGNATURE — TIME 8:50

COMMENTS:

RECEIVED BY: — DATE 20___
SIGNATURE — TIME
RELINQUISHED: — DATE 20___
SIGNATURE OR INITIALS — TIME

PRECAUTIONS:

RECEIVED FOR LABORATORY: — DATE 2/22 20 21
SIGNATURE — TIME 0850
RELINQUISHED: — DATE 20___
SIGNATURE OR INITIALS — TIME

DISPOSAL:

RETURN SAMPLE TO CLIENT ☐

USE (BLACK) INK

T = 4.6 °C

AECOS, Inc.

45-939 Kamehameha Highway Suite 104
Kaneohe, Oahu, HI 96744
Tel: (808) 234-7770 Fax: 234-7775

CHAIN OF CUSTODY FORM

PROJECT FILE No.:

LOG NUMBER [@ 41960]

pg 2 of 2

CLIENT:

ADDRESS: See pg 1

CONTACT:

PHONE No.: ☎

Purchase Order No.:

☐ RUSH

☐ SEE REVERSE

SPECIAL INSTRUCTIONS

	☑	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	SAMPLE TYPE	CONTAINER(S)		REQUESTED ANALYSES	PRESERVATION
1	✓	D-2	2/20/21	10:40	W	1	1pint	TSS	
2	✓	E-2		11:00					
3	✓	D-4		11:30					
4	✓	D-5		11:40					
5	✓	WW-2		12:00					
6	✓	WW-3		12:30					
7	✓	W-1		13:15					
8	✓	W-2		13:30					
9	✓	WW-3 DUP		12:30					
10	✓	U-2/WW-5 WET		14:00					

CLIENTS PROVIDING SAMPLES TO THE LABORATORY SHOULD COMPLETE AS MUCH OF THE ABOVE FORM AS POSSIBLE. NOTE: NAME AND DATED SIGNATURE OF PERSON COLLECTING THE SAMPLE MUST BE ENTERED BELOW ↓. INFORMATION REQUESTED IN SHADED BOXES ABOVE TO BE FILLED IN BY THE LABORATORY.

SAMPLED BY: DATE 2/22 20 21

PRINT NAME Ben Berridge

RELINQUISHED: DATE 2/22 20 21

SIGNATURE TIME 8:50

COMMENTS:

RECEIVED BY: DATE 20

SIGNATURE TIME

RELINQUISHED: DATE 20

SIGNATURE OR INITIALS TIME

PRECAUTIONS:

RECEIVED FOR LABORATORY: DATE 2/22 20 21

SIGNATURE TIME 0850

RELINQUISHED: DATE 20

SIGNATURE OR INITIALS TIME

DISPOSAL:

RETURN SAMPLE TO CLIENT ☐

USE (BLACK) INK