

Anatek Labs, Inc.

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Client: Cardno - Hawaii
Address: 737 Bishop St., Ste. 3050
Honolulu, HI 96813
Attn: Benjamin Berridge

Work Order: WBK0734
Project: ADC Water Quality Monitoring
Reported: 12/30/2021 14:47

Analytical Results Report

Sample Location: DW-2
Lab/Sample Number: WBK0734-01 **Collect Date:** 11/15/21 09:15
Date Received: 11/18/21 10:00 **Collected By:**
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
TSS	11.0	mg/L	0.333	11/19/21 11:31	KAS	EPA 160.2	
Metals by ICP-MS							
Arsenic	0.00101	mg/L	0.00100	12/14/21 17:21	JLG	EPA 200.8	
Mercury							
Mercury	<0.0850	ug/L	0.100	11/24/21 14:27	JLG	EPA 245.1	
Semivolatiles							
Diesel	<0.052	mg/L	0.0800	11/22/21 19:20	ARC	NWTPH-HCID	
Gasoline	<0.16	mg/L	0.400	11/22/21 19:20	ARC	NWTPH-HCID	
Lube Oil	<0.046	mg/L	0.0800	11/22/21 19:20	ARC	NWTPH-HCID	
Mineral Oil	<0.16	mg/L	0.400	11/22/21 19:20	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	86.9%		50-150	11/22/21 19:20	ARC	NWTPH-HCID	

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Analytical Results Report

(Continued)

Sample Location: DW-3
Lab/Sample Number: WBK0734-02 Collect Date: 11/15/21 09:45
Date Received: 11/18/21 10:00 Collected By:
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
TSS	13.0	mg/L	0.333	11/19/21 11:31	KAS	EPA 160.2	
Metals by ICP-MS							
Arsenic	0.000856	mg/L	0.00100	12/14/21 17:24	JLG	EPA 200.8	J
Mercury							
Mercury	0.167	ug/L	0.100	11/24/21 14:34	JLG	EPA 245.1	
Semivolatiles							
Diesel	<0.052	mg/L	0.0800	11/22/21 20:15	ARC	NWTPH-HCID	
Gasoline	<0.16	mg/L	0.400	11/22/21 20:15	ARC	NWTPH-HCID	
Lube Oil	<0.046	mg/L	0.0800	11/22/21 20:15	ARC	NWTPH-HCID	
Mineral Oil	<0.16	mg/L	0.400	11/22/21 20:15	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	86.8%		50-150	11/22/21 20:15	ARC	NWTPH-HCID	

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Analytical Results Report

(Continued)

Sample Location: D-2
Lab/Sample Number: WBK0734-03 Collect Date: 11/15/21 10:20
Date Received: 11/18/21 10:00 Collected By:
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
TSS	11.5	mg/L	0.500	11/19/21 11:31	KAS	EPA 160.2	
Metals by ICP-MS							
Arsenic	0.0116	mg/L	0.00100	12/14/21 17:33	JLG	EPA 200.8	
Mercury							
Mercury	ND	ug/L	0.100	11/24/21 14:36	JLG	EPA 245.1	
Semivolatiles							
Diesel	<0.052	mg/L	0.0800	11/22/21 22:04	ARC	NWTPH-HCID	
Gasoline	<0.16	mg/L	0.400	11/22/21 22:04	ARC	NWTPH-HCID	
Lube Oil	<0.046	mg/L	0.0800	11/22/21 22:04	ARC	NWTPH-HCID	
Mineral Oil	<0.16	mg/L	0.400	11/22/21 22:04	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	85.4%		50-150	11/22/21 22:04	ARC	NWTPH-HCID	

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Analytical Results Report

(Continued)

Sample Location: D-3
Lab/Sample Number: WBK0734-04 Collect Date: 11/15/21 09:35
Date Received: 11/18/21 10:00 Collected By:
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
TSS	16.6	mg/L	0.333	11/19/21 11:31	KAS	EPA 160.2	
Metals by ICP-MS							
Arsenic	0.00105	mg/L	0.00100	12/14/21 17:37	JLG	EPA 200.8	
Mercury							
Mercury	<0.0850	ug/L	0.100	11/24/21 14:38	JLG	EPA 245.1	
Semivolatiles							
Diesel	<0.052	mg/L	0.0800	11/22/21 22:59	ARC	NWTPH-HCID	
Gasoline	<0.16	mg/L	0.400	11/22/21 22:59	ARC	NWTPH-HCID	
Lube Oil	<0.046	mg/L	0.0800	11/22/21 22:59	ARC	NWTPH-HCID	
Mineral Oil	<0.16	mg/L	0.400	11/22/21 22:59	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	88.7%		50-150	11/22/21 22:59	ARC	NWTPH-HCID	

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Analytical Results Report

(Continued)

Sample Location: D-4
Lab/Sample Number: WBK0734-05 Collect Date: 11/15/21 09:10
Date Received: 11/18/21 10:00 Collected By:
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
TSS	12.5	mg/L	0.500	11/19/21 11:31	KAS	EPA 160.2	
Metals by ICP-MS							
Arsenic	0.00188	mg/L	0.00100	12/14/21 17:40	JLG	EPA 200.8	
Mercury							
Mercury	<0.0850	ug/L	0.100	11/24/21 14:41	JLG	EPA 245.1	
Semivolatiles							
Diesel	<0.052	mg/L	0.0800	11/22/21 23:53	ARC	NWTPH-HCID	
Gasoline	<0.16	mg/L	0.400	11/22/21 23:53	ARC	NWTPH-HCID	
Lube Oil	<0.046	mg/L	0.0800	11/22/21 23:53	ARC	NWTPH-HCID	
Mineral Oil	<0.16	mg/L	0.400	11/22/21 23:53	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	93.9%		50-150	11/22/21 23:53	ARC	NWTPH-HCID	

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Analytical Results Report

(Continued)

Sample Location: D-5
Lab/Sample Number: WBK0734-06 Collect Date: 11/15/21 09:25
Date Received: 11/18/21 10:00 Collected By:
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
TSS	33.0	mg/L	0.500	11/19/21 11:31	KAS	EPA 160.2	
Metals by ICP-MS							
Arsenic	0.00164	mg/L	0.00100	12/14/21 17:43	JLG	EPA 200.8	
Mercury							
Mercury	ND	ug/L	0.100	11/24/21 14:43	JLG	EPA 245.1	
Semivolatiles							
Diesel	<0.052	mg/L	0.0800	11/23/21 0:48	ARC	NWTPH-HCID	
Gasoline	<0.16	mg/L	0.400	11/23/21 0:48	ARC	NWTPH-HCID	
Lube Oil	<0.046	mg/L	0.0800	11/23/21 0:48	ARC	NWTPH-HCID	
Mineral Oil	<0.16	mg/L	0.400	11/23/21 0:48	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	90.5%		50-150	11/23/21 0:48	ARC	NWTPH-HCID	

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Analytical Results Report

(Continued)

Sample Location: D-6
Lab/Sample Number: WBK0734-07 Collect Date: 11/15/21 10:30
Date Received: 11/18/21 10:00 Collected By:
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
TSS	67.0	mg/L	0.500	11/19/21 11:31	KAS	EPA 160.2	
Metals by ICP-MS							
Arsenic	0.00666	mg/L	0.00100	12/14/21 17:46	JLG	EPA 200.8	
Mercury							
Mercury	1.29	ug/L	0.100	11/24/21 14:45	JLG	EPA 245.1	
Semivolatiles							
Diesel	<0.052	mg/L	0.0800	11/23/21 1:43	ARC	NWTPH-HCID	
Gasoline	<0.16	mg/L	0.400	11/23/21 1:43	ARC	NWTPH-HCID	
Lube Oil	<0.046	mg/L	0.0800	11/23/21 1:43	ARC	NWTPH-HCID	
Mineral Oil	<0.16	mg/L	0.400	11/23/21 1:43	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	93.8%		50-150	11/23/21 1:43	ARC	NWTPH-HCID	

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Analytical Results Report

(Continued)

Sample Location: D-7
Lab/Sample Number: WBK0734-08 Collect Date: 11/15/21 10:45
Date Received: 11/18/21 10:00 Collected By:
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
TSS	256	mg/L	0.500	11/19/21 11:31	KAS	EPA 160.2	
Metals by ICP-MS							
Arsenic	0.00125	mg/L	0.00100	12/14/21 17:49	JLG	EPA 200.8	
Mercury							
Mercury	0.161	ug/L	0.100	11/24/21 14:47	JLG	EPA 245.1	
Semivolatiles							
Diesel	<0.052	mg/L	0.0800	11/23/21 2:37	ARC	NWTPH-HCID	
Gasoline	<0.16	mg/L	0.400	11/23/21 2:37	ARC	NWTPH-HCID	
Lube Oil	<0.046	mg/L	0.0800	11/23/21 2:37	ARC	NWTPH-HCID	
Mineral Oil	<0.16	mg/L	0.400	11/23/21 2:37	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	90.0%		50-150	11/23/21 2:37	ARC	NWTPH-HCID	

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Analytical Results Report

(Continued)

Sample Location: D-8
Lab/Sample Number: WBK0734-09 Collect Date: 11/15/21 11:05
Date Received: 11/18/21 10:00 Collected By:
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
TSS	5.60	mg/L	0.500	11/19/21 11:31	KAS	EPA 160.2	
Metals by ICP-MS							
Arsenic	0.00330	mg/L	0.00100	12/14/21 17:52	JLG	EPA 200.8	
Mercury							
Mercury	<0.0850	ug/L	0.100	11/24/21 14:50	JLG	EPA 245.1	
Semivolatiles							
Diesel	<0.052	mg/L	0.0800	11/23/21 3:32	ARC	NWTPH-HCID	
Gasoline	<0.16	mg/L	0.400	11/23/21 3:32	ARC	NWTPH-HCID	
Lube Oil	<0.046	mg/L	0.0800	11/23/21 3:32	ARC	NWTPH-HCID	
Mineral Oil	<0.16	mg/L	0.400	11/23/21 3:32	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	90.0%		50-150	11/23/21 3:32	ARC	NWTPH-HCID	

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Analytical Results Report

(Continued)

Sample Location: U-3/WW-4
Lab/Sample Number: WBK0734-10 Collect Date: 11/15/21 09:20
Date Received: 11/18/21 10:00 Collected By:
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
TSS	9.00	mg/L	0.500	11/19/21 11:31	KAS	EPA 160.2	
Metals by ICP-MS							
Arsenic	0.000242	mg/L	0.00100	12/14/21 18:08	JLG	EPA 200.8	J
Mercury							
Mercury	0.238	ug/L	0.100	11/24/21 14:52	JLG	EPA 245.1	
Semivolatiles							
Diesel	<0.052	mg/L	0.0800	11/23/21 4:26	ARC	NWTPH-HCID	
Gasoline	<0.16	mg/L	0.400	11/23/21 4:26	ARC	NWTPH-HCID	
Lube Oil	<0.046	mg/L	0.0800	11/23/21 4:26	ARC	NWTPH-HCID	
Mineral Oil	<0.16	mg/L	0.400	11/23/21 4:26	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	90.7%		50-150	11/23/21 4:26	ARC	NWTPH-HCID	

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Analytical Results Report

(Continued)

Sample Location: DW-1/WW-1
Lab/Sample Number: WBK0734-11 Collect Date: 11/15/21 11:30
Date Received: 11/18/21 10:00 Collected By:
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
TSS	4.00	mg/L	0.500	11/19/21 11:31	KAS	EPA 160.2	
Metals by ICP-MS							
Arsenic	0.00252	mg/L	0.00100	12/14/21 18:12	JLG	EPA 200.8	
Mercury							
Mercury	0.239	ug/L	0.100	11/24/21 15:03	JLG	EPA 245.1	
Semivolatiles							
Diesel	<0.052	mg/L	0.0800	11/23/21 10:49	ARC	NWTPH-HCID	
Gasoline	<0.16	mg/L	0.400	11/23/21 10:49	ARC	NWTPH-HCID	
Lube Oil	<0.046	mg/L	0.0800	11/23/21 10:49	ARC	NWTPH-HCID	
Mineral Oil	<0.16	mg/L	0.400	11/23/21 10:49	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	92.6%		50-150	11/23/21 10:49	ARC	NWTPH-HCID	

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Analytical Results Report

(Continued)

Sample Location: WW-6
Lab/Sample Number: WBK0734-12 Collect Date: 11/15/21 08:45
Date Received: 11/18/21 10:00 Collected By:
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
TSS	4.00	mg/L	0.500	11/19/21 11:31	KAS	EPA 160.2	
Metals by ICP-MS							
Arsenic	0.000111	mg/L	0.00100	12/14/21 18:15	JLG	EPA 200.8	J
Mercury							
Mercury	0.163	ug/L	0.100	11/24/21 15:06	JLG	EPA 245.1	
Semivolatiles							
Diesel	<0.052	mg/L	0.0800	11/23/21 11:44	ARC	NWTPH-HCID	
Gasoline	<0.16	mg/L	0.400	11/23/21 11:44	ARC	NWTPH-HCID	
Lube Oil	<0.046	mg/L	0.0800	11/23/21 11:44	ARC	NWTPH-HCID	
Mineral Oil	<0.16	mg/L	0.400	11/23/21 11:44	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	88.9%		50-150	11/23/21 11:44	ARC	NWTPH-HCID	

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Analytical Results Report

(Continued)

Sample Location: WW-2
Lab/Sample Number: WBK0734-13 Collect Date: 11/15/21 09:40
Date Received: 11/18/21 10:00 Collected By:
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
TSS	25.6	mg/L	0.400	11/19/21 11:31	KAS	EPA 160.2	
Metals by ICP-MS							
Arsenic	0.00703	mg/L	0.00100	12/21/21 21:08	JLG	EPA 200.8	
Mercury							
Mercury	<0.0850	ug/L	0.100	11/24/21 15:08	JLG	EPA 245.1	
Semivolatiles							
Diesel	<0.052	mg/L	0.0800	11/23/21 12:39	ARC	NWTPH-HCID	
Gasoline	<0.16	mg/L	0.400	11/23/21 12:39	ARC	NWTPH-HCID	
Lube Oil	<0.046	mg/L	0.0800	11/23/21 12:39	ARC	NWTPH-HCID	
Mineral Oil	<0.16	mg/L	0.400	11/23/21 12:39	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	87.3%		50-150	11/23/21 12:39	ARC	NWTPH-HCID	

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Analytical Results Report

(Continued)

Sample Location: WW-3
Lab/Sample Number: WBK0734-14 Collect Date: 11/15/21 09:55
Date Received: 11/18/21 10:00 Collected By:
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
TSS	8.99	mg/L	0.333	11/19/21 11:31	KAS	EPA 160.2	
Metals by ICP-MS							
Arsenic	0.00155	mg/L	0.00100	12/14/21 18:21	JLG	EPA 200.8	
Mercury							
Mercury	<0.0850	ug/L	0.100	11/24/21 15:10	JLG	EPA 245.1	
Semivolatiles							
AMPA	<2	ug/L	10.0	11/24/21 12:00	MER	EPA 547	* M1
Glyphosate	<5	ug/L	5.00	11/24/21 12:00	MER	EPA 547	*
Atrazine	<0.05	ug/L	0.100	12/15/21 15:41	MAH	EPA 625.1	*
Chlorpyrifos	<0.05	ug/L	0.100	12/15/21 15:41	MAH	EPA 625.1	*
Metolachlor	<0.05	ug/L	0.100	12/15/21 15:41	MAH	EPA 625.1	*
Surrogate: Terphenyl-d14	71.9%		25-135	12/15/21 15:41	MAH	EPA 625.1	
Diesel	<0.052	mg/L	0.0800	11/23/21 13:34	ARC	NWTPH-HCID	
Gasoline	<0.16	mg/L	0.400	11/23/21 13:34	ARC	NWTPH-HCID	
Lube Oil	<0.046	mg/L	0.0800	11/23/21 13:34	ARC	NWTPH-HCID	
Mineral Oil	<0.16	mg/L	0.400	11/23/21 13:34	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	89.9%		50-150	11/23/21 13:34	ARC	NWTPH-HCID	

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Analytical Results Report

(Continued)

Sample Location: E-2
Lab/Sample Number: WBK0734-15 Collect Date: 11/15/21 10:00
Date Received: 11/18/21 10:00 Collected By:
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
TSS	22.5	mg/L	0.500	11/19/21 11:31	KAS	EPA 160.2	
Metals by ICP-MS							
Arsenic	0.00597	mg/L	0.00100	12/14/21 18:24	JLG	EPA 200.8	
Mercury							
Mercury	<0.0850	ug/L	0.100	11/24/21 15:12	JLG	EPA 245.1	
Semivolatiles							
AMPA	<2	ug/L	10.0	11/24/21 12:14	MER	EPA 547	* M1
Glyphosate	<5	ug/L	5.00	11/24/21 12:14	MER	EPA 547	*
Atrazine	<0.05	ug/L	0.100	12/15/21 16:09	MAH	EPA 625.1	*
Chlorpyrifos	<0.05	ug/L	0.100	12/15/21 16:09	MAH	EPA 625.1	*
Metolachlor	<0.05	ug/L	0.100	12/15/21 16:09	MAH	EPA 625.1	*
Surrogate: Terphenyl-d14	61.7%		25-135	12/15/21 16:09	MAH	EPA 625.1	
Diesel	<0.052	mg/L	0.0800	11/23/21 14:29	ARC	NWTPH-HCID	
Gasoline	<0.16	mg/L	0.400	11/23/21 14:29	ARC	NWTPH-HCID	
Lube Oil	<0.046	mg/L	0.0800	11/23/21 14:29	ARC	NWTPH-HCID	
Mineral Oil	<0.16	mg/L	0.400	11/23/21 14:29	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	91.3%		50-150	11/23/21 14:29	ARC	NWTPH-HCID	

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Analytical Results Report

(Continued)

Sample Location: E-1
Lab/Sample Number: WBK0734-16 Collect Date: 11/15/21 10:00
Date Received: 11/18/21 10:00 Collected By:
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
TSS	20.6	mg/L	0.333	11/19/21 11:31	KAS	EPA 160.2	
Metals by ICP-MS							
Arsenic	0.00134	mg/L	0.00100	12/14/21 18:28	JLG	EPA 200.8	
Mercury							
Mercury	ND	ug/L	0.100	11/24/21 15:15	JLG	EPA 245.1	
Semivolatiles							
AMPA	<2	ug/L	10.0	11/24/21 11:53	MER	EPA 547	* M1
Glyphosate	<5	ug/L	5.00	11/24/21 11:53	MER	EPA 547	*
Atrazine	<0.05	ug/L	0.100	12/15/21 16:38	MAH	EPA 625.1	*
Chlorpyrifos	<0.05	ug/L	0.100	12/15/21 16:38	MAH	EPA 625.1	*
Metolachlor	<0.05	ug/L	0.100	12/15/21 16:38	MAH	EPA 625.1	*
Surrogate: Terphenyl-d14	72.7%		25-135	12/15/21 16:38	MAH	EPA 625.1	
Diesel	<0.052	mg/L	0.0800	11/23/21 15:24	ARC	NWTPH-HCID	
Gasoline	<0.16	mg/L	0.400	11/23/21 15:24	ARC	NWTPH-HCID	
Lube Oil	<0.046	mg/L	0.0800	11/23/21 15:24	ARC	NWTPH-HCID	
Mineral Oil	<0.16	mg/L	0.400	11/23/21 15:24	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	76.3%		50-150	11/23/21 15:24	ARC	NWTPH-HCID	

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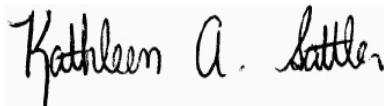
Analytical Results Report

(Continued)

Sample Location: E-1 DUP
Lab/Sample Number: WBK0734-17 Collect Date: 11/15/21 10:05
Date Received: 11/18/21 10:00 Collected By:
Matrix: Water

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
TSS	11.7	mg/L	0.333	11/19/21 11:31	KAS	EPA 160.2	
Metals by ICP-MS							
Arsenic	0.0490	mg/L	0.00100	12/14/21 18:31	JLG	EPA 200.8	
Mercury							
Mercury	<0.0850	ug/L	0.100	11/24/21 15:22	JLG	EPA 245.1	
Semivolatiles							
AMPA	<2	ug/L	10.0	11/24/21 12:21	MER	EPA 547	* M1
Glyphosate	<5	ug/L	5.00	11/24/21 12:21	MER	EPA 547	*
Atrazine	<0.05	ug/L	0.100	12/15/21 17:06	MAH	EPA 625.1	*
Chlorpyrifos	<0.05	ug/L	0.100	12/15/21 17:06	MAH	EPA 625.1	*
Metolachlor	<0.05	ug/L	0.100	12/15/21 17:06	MAH	EPA 625.1	*
Surrogate: Terphenyl-d14	74.4%		25-135	12/15/21 17:06	MAH	EPA 625.1	
Diesel	<0.052	mg/L	0.0800	11/23/21 18:08	ARC	NWTPH-HCID	
Gasoline	<0.16	mg/L	0.400	11/23/21 18:08	ARC	NWTPH-HCID	
Lube Oil	<0.046	mg/L	0.0800	11/23/21 18:08	ARC	NWTPH-HCID	
Mineral Oil	<0.16	mg/L	0.400	11/23/21 18:08	ARC	NWTPH-HCID	
Surrogate: n-Hexacosane	88.7%		50-150	11/23/21 18:08	ARC	NWTPH-HCID	

Authorized Signature,



Kathleen Sattler, Laboratory Manager

J	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
M1	Matrix spike recovery was high; the associated blank spike recovery was acceptable. Potential matrix effect
PQL	Practical Quantitation Limit
ND	Not Detected
MCL	EPA's Maximum Contaminant Level
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.

This report shall not be reproduced except in full, without the written approval of the laboratory
The results reported related only to the samples indicated.

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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

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Quality Control Data

Inorganics

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBK0662 - W Filtration										
Blank (BBK0662-BLK1)										
TSS	ND		1.00	mg/L						Prepared & Analyzed: 11/19/2021
Blank (BBK0662-BLK2)										
TSS	ND		1.00	mg/L						Prepared & Analyzed: 11/19/2021
Blank (BBK0662-BLK3)										
TSS	ND		1.00	mg/L						Prepared & Analyzed: 11/19/2021
LCS (BBK0662-BS1)										
TSS	104			mg/L	100		104	90-110		Prepared & Analyzed: 11/19/2021
LCS (BBK0662-BS2)										
TSS	99.0			mg/L	100		99.0	90-110		Prepared & Analyzed: 11/19/2021
LCS Dup (BBK0662-BSD1)										
TSS	97.0			mg/L	100		97.0	90-110	6.97	10
LCS Dup (BBK0662-BSD2)										
TSS	100			mg/L	100		100	90-110	1.01	10
Duplicate (BBK0662-DUP1)										
TSS	152		4.00	mg/L		152			0.00	20
Duplicate (BBK0662-DUP2)										
TSS	18.0		4.00	mg/L		18.0			0.00	20
Matrix Spike (BBK0662-MS1)										
TSS	19.0		0.333	mg/L	16.7	2.33	100	80-120		Prepared & Analyzed: 11/19/2021

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Quality Control Data (Continued)

Inorganics (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBK0662 - W Filtration (Continued)										
Matrix Spike Dup (BBK0662-MSD1)		Source: WBK0677-02		Prepared & Analyzed: 11/19/2021						
TSS	18.0		0.333	mg/L	16.7	2.33	94.0	80-120	5.41	20

Quality Control Data (Continued)

Metals by ICP-MS

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBK0889 - W 3010 Digest										
Blank (BBK0889-BLK1)		Prepared: 11/30/2021 Analyzed: 12/14/2021								
Arsenic	ND		0.00100	mg/L						
LCS (BBK0889-BS1)		Prepared: 11/30/2021 Analyzed: 12/14/2021								
Arsenic	0.0525		0.00100	mg/L	0.0500		105	85-115		
Matrix Spike (BBK0889-MS1)		Source: WBK0734-02		Prepared: 11/30/2021 Analyzed: 12/14/2021						
Arsenic	0.0558		0.00100	mg/L	0.0500	0.000856	110	70-130		
Matrix Spike (BBK0889-MS2)		Source: WBK0734-16		Prepared: 11/30/2021 Analyzed: 12/14/2021						
Arsenic	0.0531		0.00100	mg/L	0.0500	0.00134	104	70-130		
Matrix Spike Dup (BBK0889-MSD1)		Source: WBK0734-02		Prepared: 11/30/2021 Analyzed: 12/14/2021						
Arsenic	0.0573		0.00100	mg/L	0.0500	0.000856	113	70-130	2.64	20

Quality Control Data (Continued)

Mercury

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBK0744 - W 245.1 Digest										
Blank (BBK0744-BLK1)		Prepared: 11/23/2021 Analyzed: 11/24/2021								
Mercury	ND		0.100	ug/L						
LCS (BBK0744-BS1)		Prepared: 11/23/2021 Analyzed: 11/24/2021								
Mercury	2.07		0.100	ug/L	2.00		103	85-115		
Matrix Spike (BBK0744-MS1)		Source: WBK0734-01		Prepared: 11/23/2021 Analyzed: 11/24/2021						
Mercury	2.33		0.100	ug/L	2.00	<0.0850	117	70-130		
Matrix Spike (BBK0744-MS2)		Source: WBK0734-16		Prepared: 11/23/2021 Analyzed: 11/24/2021						
Mercury	2.59		0.100	ug/L	2.00	ND	129	70-130		
Matrix Spike Dup (BBK0744-MSD1)		Source: WBK0734-01		Prepared: 11/23/2021 Analyzed: 11/24/2021						
Mercury	2.28		0.100	ug/L	2.00	<0.0850	114	70-130	2.17	20
Matrix Spike Dup (BBK0744-MSD2)		Source: WBK0734-16		Prepared: 11/23/2021 Analyzed: 11/24/2021						
Mercury	2.59		0.100	ug/L	2.00	ND	130	70-130	0.193	20

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Quality Control Data (Continued)

Semivolatiles

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBK0643 - W TPH-Dx										
Blank (BBK0643-BLK1)					Prepared: 11/19/2021 Analyzed: 11/22/2021					
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						
<i>Surrogate: n-Hexacosane</i>			44.6	mg/L	50.1		89.1	50-150		
LCS (BBK0643-BS1)					Prepared: 11/19/2021 Analyzed: 11/22/2021					
Diesel	0.865		0.0800	mg/L	1.00		86.0	70-130		
<i>Surrogate: n-Hexacosane</i>			40.2	mg/L	50.1		80.3	50-150		
LCS Dup (BBK0643-BSD1)					Prepared: 11/19/2021 Analyzed: 11/22/2021					
Diesel	0.845		0.0800	mg/L	1.00		84.1	70-130	2.25	20
<i>Surrogate: n-Hexacosane</i>			42.9	mg/L	50.1		85.6	50-150		
Duplicate (BBK0643-DUP1)			Source: WBK0734-02		Prepared: 11/19/2021 Analyzed: 11/22/2021					
Lube Oil	ND		0.0800	mg/L		<0.046				200
Mineral Oil	ND		0.400	mg/L		<0.16				200
Gasoline	ND		0.400	mg/L		<0.16				200
Diesel	ND		0.0800	mg/L		<0.052				200
<i>Surrogate: n-Hexacosane</i>			43.8	mg/L	50.1		87.3	50-150		
Matrix Spike (BBK0643-MS1)			Source: WBK0734-16		Prepared: 11/19/2021 Analyzed: 11/23/2021					
Diesel	1.01		0.0800	mg/L	1.00	<0.052	100	70-130		
<i>Surrogate: n-Hexacosane</i>			45.4	mg/L	50.1		90.7	50-150		
Matrix Spike Dup (BBK0643-MSD1)			Source: WBK0734-16		Prepared: 11/19/2021 Analyzed: 11/23/2021					
Diesel	0.894		0.0800	mg/L	1.00	<0.052	89.0	70-130	11.8	20
<i>Surrogate: n-Hexacosane</i>			43.9	mg/L	50.1		87.7	50-150		

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Quality Control Data (Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBK0773 - Glyphosate										
Blank (BBK0773-BLK1)					Prepared: 11/23/2021 Analyzed: 11/24/2021					
Glyphosate	ND		5.00	ug/L						
AMPA	ND		10.0	ug/L						
LCS (BBK0773-BS1)										
Glyphosate	47.0		5.00	ug/L	50.0		94.0	70-130		
AMPA	113		10.0	ug/L	100		113	70-130		
Matrix Spike (BBK0773-MS1)										
			Source: WBK0734-16		Prepared: 11/23/2021 Analyzed: 11/24/2021					
Glyphosate	47.0		5.00	ug/L	50.0	<5	94.0	70-130		
AMPA	330	M1	10.0	ug/L	100	<2	330	70-130		
Matrix Spike Dup (BBK0773-MSD1)										
			Source: WBK0734-16		Prepared: 11/23/2021 Analyzed: 11/24/2021					
Glyphosate	52.8		5.00	ug/L	50.0	<5	106	70-130	11.6	25
AMPA	334	M1	10.0	ug/L	100	<2	334	70-130	1.20	25
Batch: BBL0471 - SVOC Water										
Blank (BBL0471-BLK1)					Prepared: 11/18/2021 Analyzed: 12/15/2021					
Chlorpyrifos	ND		0.100	ug/L						
Metolachlor	ND		0.100	ug/L						
Atrazine	ND		0.100	ug/L						
<i>Surrogate: Terphenyl-d14</i>			<i>21.4</i>	<i>ug/L</i>	<i>25.8</i>		<i>83.1</i>	<i>25-135</i>		
LCS (BBL0471-BS1)										
					Prepared: 11/18/2021 Analyzed: 12/15/2021					
Chlorpyrifos	2.37		0.100	ug/L	2.50		94.8	50-125		
Metolachlor	2.49		0.100	ug/L	2.50		99.6	60-125		
Atrazine	2.68		0.100	ug/L	2.50		107	60-125		
<i>Surrogate: Terphenyl-d14</i>			<i>20.5</i>	<i>ug/L</i>	<i>25.8</i>		<i>79.7</i>	<i>25-135</i>		

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Quality Control Data (Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBL0471 - SVOC Water (Continued)										
LCS Dup (BBL0471-BSD1)					Prepared: 11/18/2021 Analyzed: 12/15/2021					
Metolachlor	2.45		0.100	ug/L	2.50		98.0	60-125	1.62	20
Chlorpyrifos	2.37		0.100	ug/L	2.50		94.8	50-125	0.00	20
Atrazine	2.77		0.100	ug/L	2.50		111	60-125	3.30	20
Surrogate: Terphenyl-d14			18.6	ug/L	25.8		72.3	25-135		



Chain of Custody Record

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Anatek
Log-In

WBK0734



Due: 12/06/21

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:	

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

☒ Normal ☐ All rush order ☐ Phone
☐ Next Day* requests must be ☐ Mail
☐ 2nd Day* prior approved. ☐ Fax
☐ Other* ☐ Email

Provide Sample Description				List Analyses Requested										Note Special Instructions/Comments					
Lab ID	Sample Identification	Sampling Date/Time	Matrix	Preservative:	# of Containers	Sample Volume	TSS EPA 160.2	TPH HClID - SW 846 MOD 8015	**TPH GRO SW846M8015	Arsenic EPA 200.8	Mercury EPA 245.1								
	DW-2	11-15-2021/09:15 HST	Water		5		X	X	X	X	X								
	DW-3	11-15-2021/09:45 HST	Water		5		X	X	X	X	X								
	D-2	11-15-2021/10:20 HST	Water		5		X	X	X	X	X								
	D-3	11-15-2021/09:35 HST	Water		5		X	X	X	X	X								
	D-4	11-15-2021/09:10 HST	Water		5		X	X	X	X	X								
	D-5	11-15-2021/09:25 HST	Water		5		X	X	X	X	X								
	D-6	11-15-2021/10:30 HST	Water		5		X	X	X	X	X								
	D-7	11-15-2021/10:45 HST	Water		5		X	X	X	X	X								
	D-8	11-15-2021/11:05 HST	Water		5		X	X	X	X	X								
	U-3/WW-4	11-15-2021/09:20 HST	Water		5		X	X	X	X	X								
	DW-1/WW-1	11-15-2021/11:30 HST	Water		5		X	X	X	X	X								
	WW-6	11-15-2021/08:45 HST	Water		5		X	X	X	X	X								
	WW-2	11-15-2021/09:40 HST	Water		5		X	X	X	X	X								

Printed Name		Signature	Company	Date	Time
Relinquished by	Ben Berridge		Cardno	11/18/21	14:00
Received by	Kathleen A. Sattler		Anatek Labs	11-18-21	1000
Relinquished by					
Received by					
Relinquished by					
Received by					

Inspection Checklist		
Received Intact?	Y	N
Labels & Chains Agree?	Y	N
Containers Sealed?	Y	N
VOC Head Space?	Y	N
See Attached		
Temperature (°C):		
Preservative:		
Date & Time:		
Inspected By:		

Form COC01.00 - Eff 1 Mar 2015

Page 2 of 2

Samples submitted to Anatek Labs may be subcontracted to other accredited labs if necessary. This message serves as notice of this possibility. Sub-contracted analyses will be clearly noted on the analytical report.



Anatek Labs, Inc.

Sample Receipt and Preservation Form

WBK0734



Due: 12/06/21

Client Name: Cardno Project: _____TAT: Normal RUSH: _____ daysSamples Received From: FedEx UPS USPS Client Courier Other: _____Custody Seal on Cooler/Box: Yes No Custody Seals Intact: Yes No N/ANumber of Coolers/Boxes: 5 Type of Ice: Ice/Ice Packs Blue Ice Dry Ice NonePacking Material: Bubble Wrap Bags Foam/Peanuts None Other: _____Cooler Temp As Read (°C): 3.5 Cooler Temp Corrected (°C): 3.2 Thermometer Used: IR#1Samples Received Intact? 1.4 1.3 2.7 2.8 Yes No N/AChain of Custody Present? Yes No N/ASamples Received Within Hold Time? Yes No N/ASamples Properly Preserved? Yes No N/AVOC Vials Free of Headspace (<6mm)? Yes No N/AVOC Trip Blanks Present? Yes No N/ALabels and Chains Agree? Yes No N/ATotal Number of Sample Bottles Received: 96Chain of Custody Fully Completed? Yes No N/ACorrect Containers Received? Yes No N/AAnatek Bottles Used? Yes No Unknown

Comments:

Record preservatives (and lot numbers, if known) for containers below:

HCl 2002747 1L Amber
HNO₃ 2002260 250mL Poly
HCl 2101657 44mL Amber
NaThio 2001177 44mL Amber

Notes, comments, etc. (also use this space if contacting the client - record names and date/time)

Received/Inspected By: Kathleen Sotter Date/Time: 11-18-21 1000

Data File : W:\HPCHEM\1\2021DATA\112221\SIG10008.D Vial: 7
 Acq On : 22 Nov 2021 16:36 Operator: ARC
 Sample : BBK0643-BLK1 Inst : HP G1530A
 Misc : Multiplr: 1.00
 IntFile : EVENTS1.E
 Quant Time: Nov 23 08:11:00 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
 Title :
 Last Update : Mon Nov 22 08:17:51 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	24.89	82056006	50.000 ppm m
System Monitoring Compounds			
2) S Hexacosane	25.59	72276760	44.646 ppm m
Spiked Amount 50.000	Range 50 - 150	Recovery =	89.29%
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

Data File : W:\HPCHEM\1\2021DATA\112221\SIG10008.D

Vial: 7

Acq On : 22 Nov 2021 16:36

Operator: ARC

Sample : BBK0643-BLK1

Inst : HP G1530A

Misc :

Multiplr: 1.00

IntFile : EVENTS1.E

Quant Time: Nov 23 8:11 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)

Title :

Last Update : Mon Nov 22 08:17:51 2021

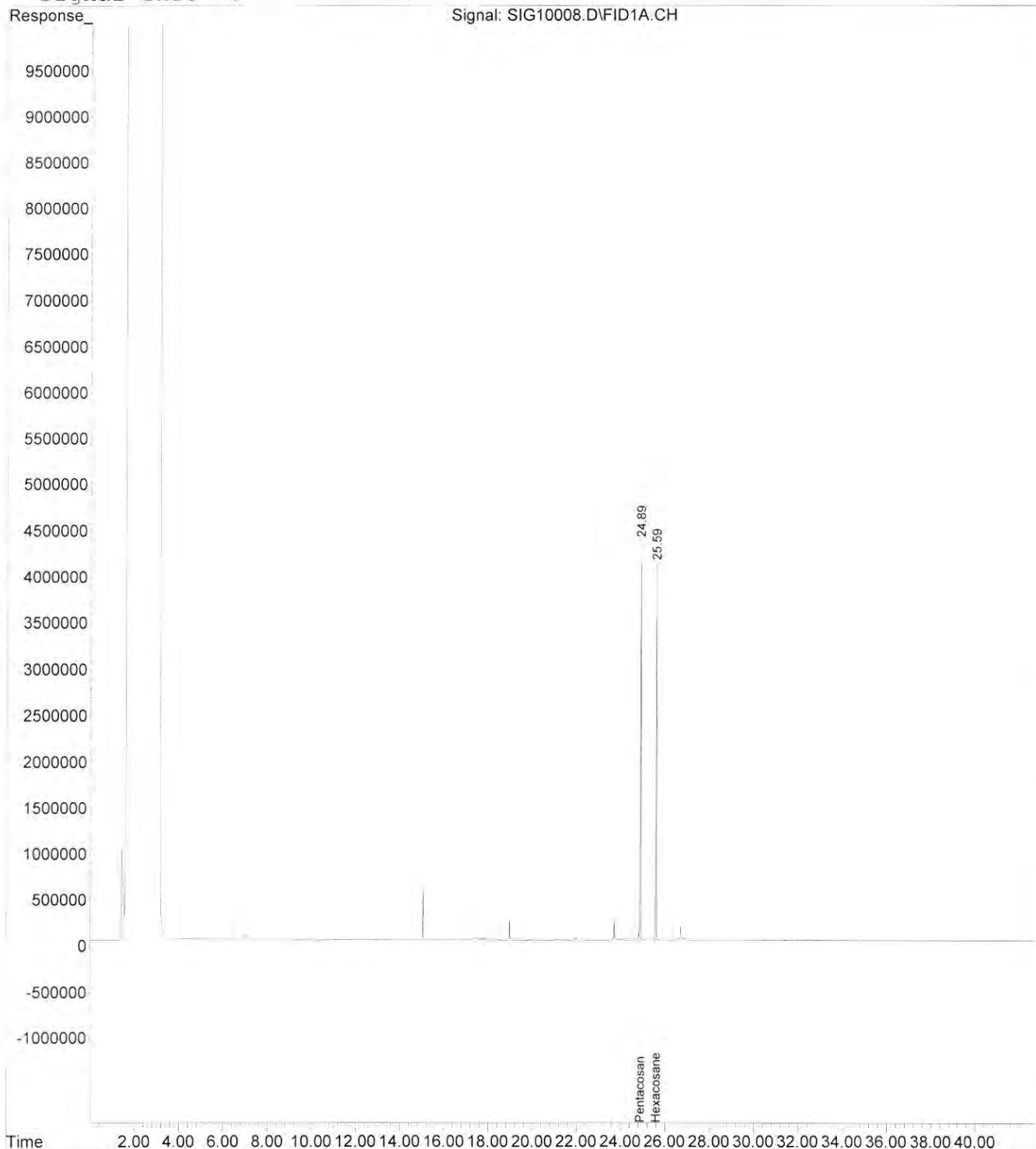
Response via : Multiple Level Calibration

DataAcq Meth : DXHCID5.M

Volume Inj. :

Signal Phase :

Signal Info :



Data File : W:\HPCHEM\1\2021DATA\112221\SIG10009.D Vial: 8
Acq On : 22 Nov 2021 17:31 Operator: ARC
Sample : BBK0643-BS1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 08:11:02 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

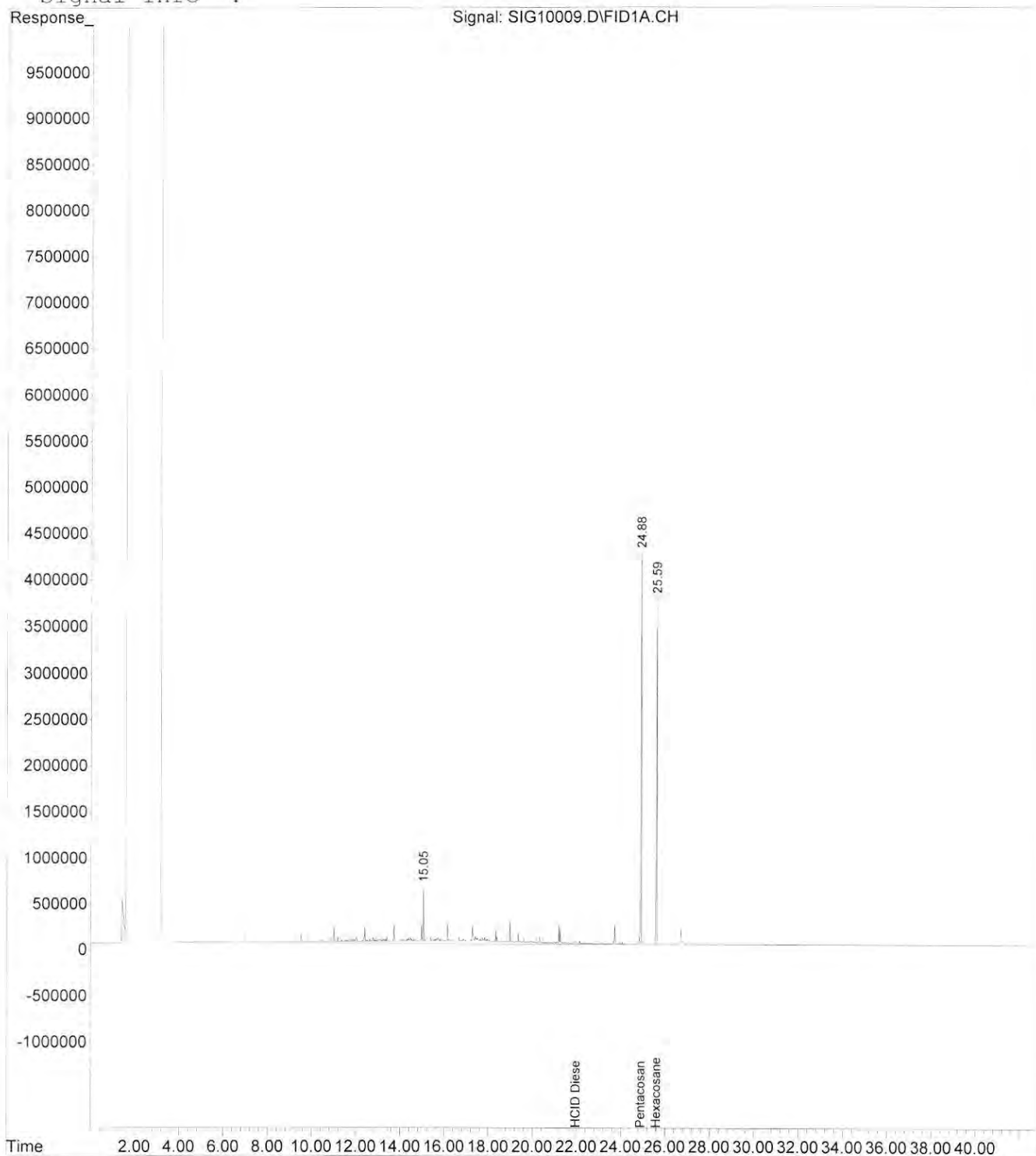
Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I Pentacosane	24.88	81745956	50.000 ppm m
System Monitoring Compounds			
2) S Hexacosane	25.59	64859581	40.217 ppm m
Spiked Amount	50.000	Recovery	= 80.43%
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	229887433	216.170 ppm
8) h HCID Oil (>C14)	0.00	0	N.D. ppm

Data File : W:\HPCHEM\1\2021DATA\112221\SIG10009.D Vial: 8
Acq On : 22 Nov 2021 17:31 Operator: ARC
Sample : BBK0643-BS1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 8:12 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : W:\HPCHEM\1\2021DATA\112221\SIG10010.D Vial: 9
 Acq On : 22 Nov 2021 18:26 Operator: ARC
 Sample : BBK0643-BSD1 Inst : HP G1530A
 Misc : Multiplr: 1.00
 IntFile : EVENTS1.E
 Quant Time: Nov 23 08:11:03 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
 Title :
 Last Update : Mon Nov 22 08:17:51 2021
 Response via : Initial Calibration
 DataAcq Meth : DXHCID5.M

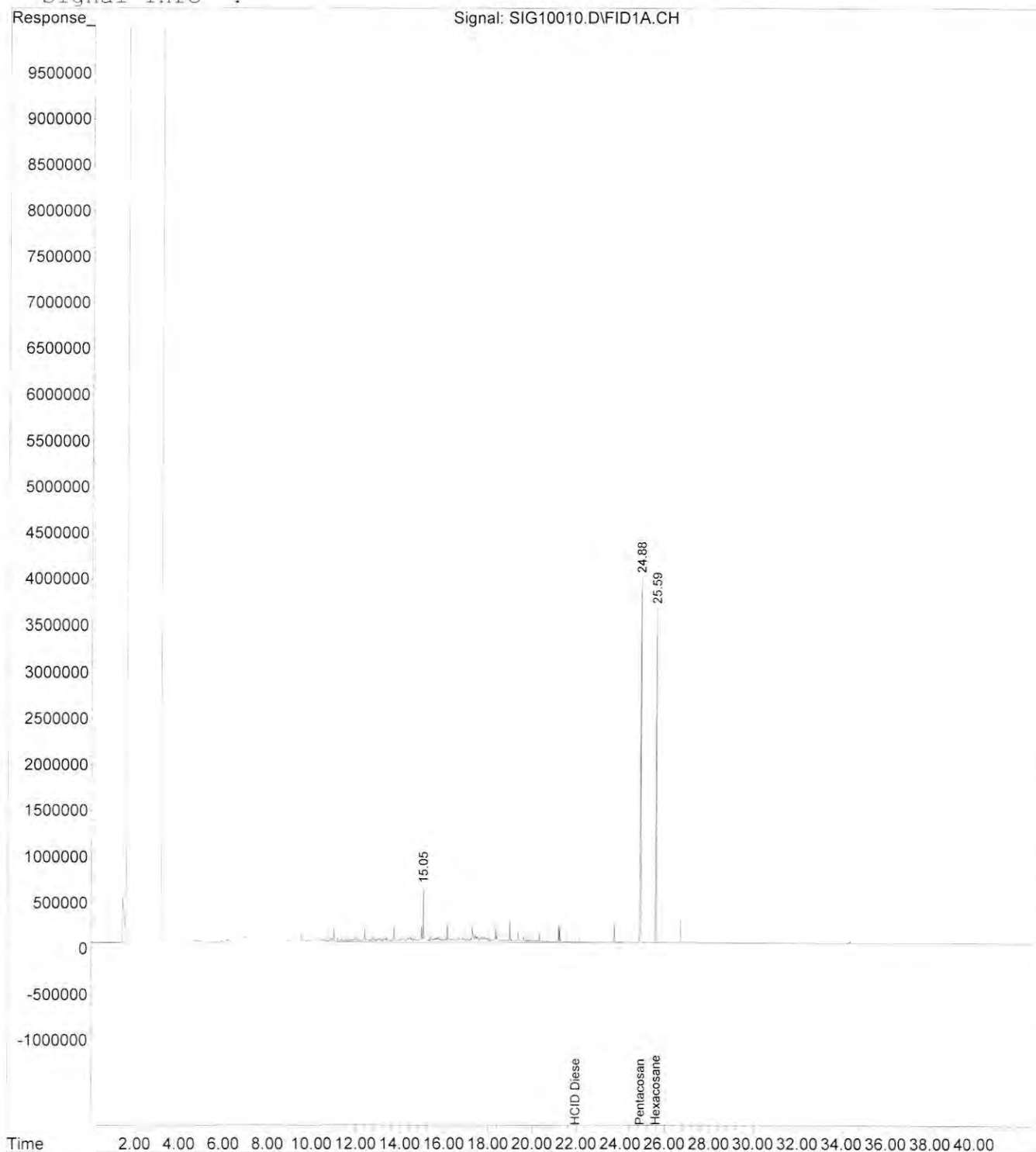
Volume Inj. :
 Signal Phase :
 Signal Info :

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I Pentacosane	24.88	74559296	50.000 ppm m
System Monitoring Compounds			
2) S Hexacosane	25.59	63088808	42.889 ppm m
Spiked Amount 50.000	Range 50 - 150	Recovery =	85.78%
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	205013536	211.362 ppm
8) h HCID Oil (>C14)	0.00	0	N.D. ppm

Data File : W:\HPCHEM\1\2021DATA\112221\SIG10010.D Vial: 9
Acq On : 22 Nov 2021 18:26 Operator: ARC
Sample : BBK0643-BSD1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 8:13 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : W:\HPCHEM\1\2021DATA\112221\SIG10011.D Vial: 10
 Acq On : 22 Nov 2021 19:20 Operator: ARC
 Sample : WBK0734-01 Inst : HP G1530A
 Misc : Multiplr: 1.00
 IntFile : EVENTS1.E
 Quant Time: Nov 23 08:11:04 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
 Title :
 Last Update : Mon Nov 22 08:17:51 2021
 Response via : Initial Calibration
 DataAcq Meth : DXHCID5.M

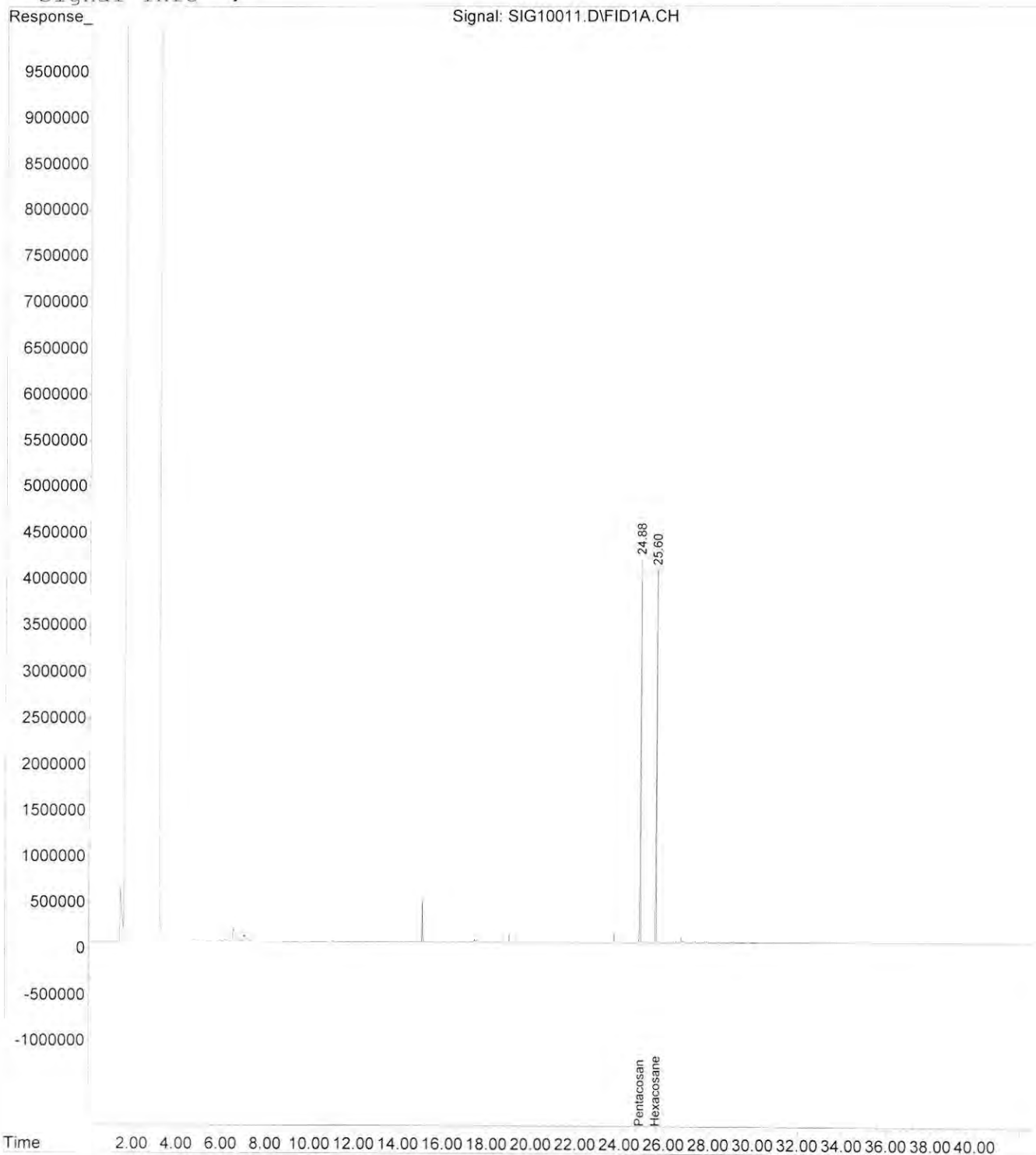
Volume Inj. :
 Signal Phase :
 Signal Info :

Compound	R.T.	Response	Conc	Units
Internal Standards				
1) I Pentacosane	24.88	80578303	50.000 ppm	m
System Monitoring Compounds				
2) S Hexacosane	25.60	69210058	43.536 ppm	m
Spiked Amount	50.000	Range	50 - 150	Recovery = 87.07%
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)	0.00	0	N.D.	ppm

Data File : W:\HPCHEM\1\2021DATA\112221\SIG10011.D Vial: 10
Acq On : 22 Nov 2021 19:20 Operator: ARC
Sample : WBK0734-01 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 8:13 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : W:\HPCHEM\1\2021DATA\112221\SIG10012.D Vial: 11
 Acq On : 22 Nov 2021 20:15 Operator: ARC
 Sample : WBK0734-02 Inst : HP G1530A
 Misc : Multiplr: 1.00
 IntFile : EVENTS1.E
 Quant Time: Nov 23 08:11:05 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
 Title :
 Last Update : Mon Nov 22 08:17:51 2021
 Response via : Initial Calibration
 DataAcq Meth : DXHCID5.M

Volume Inj. :
 Signal Phase :
 Signal Info :

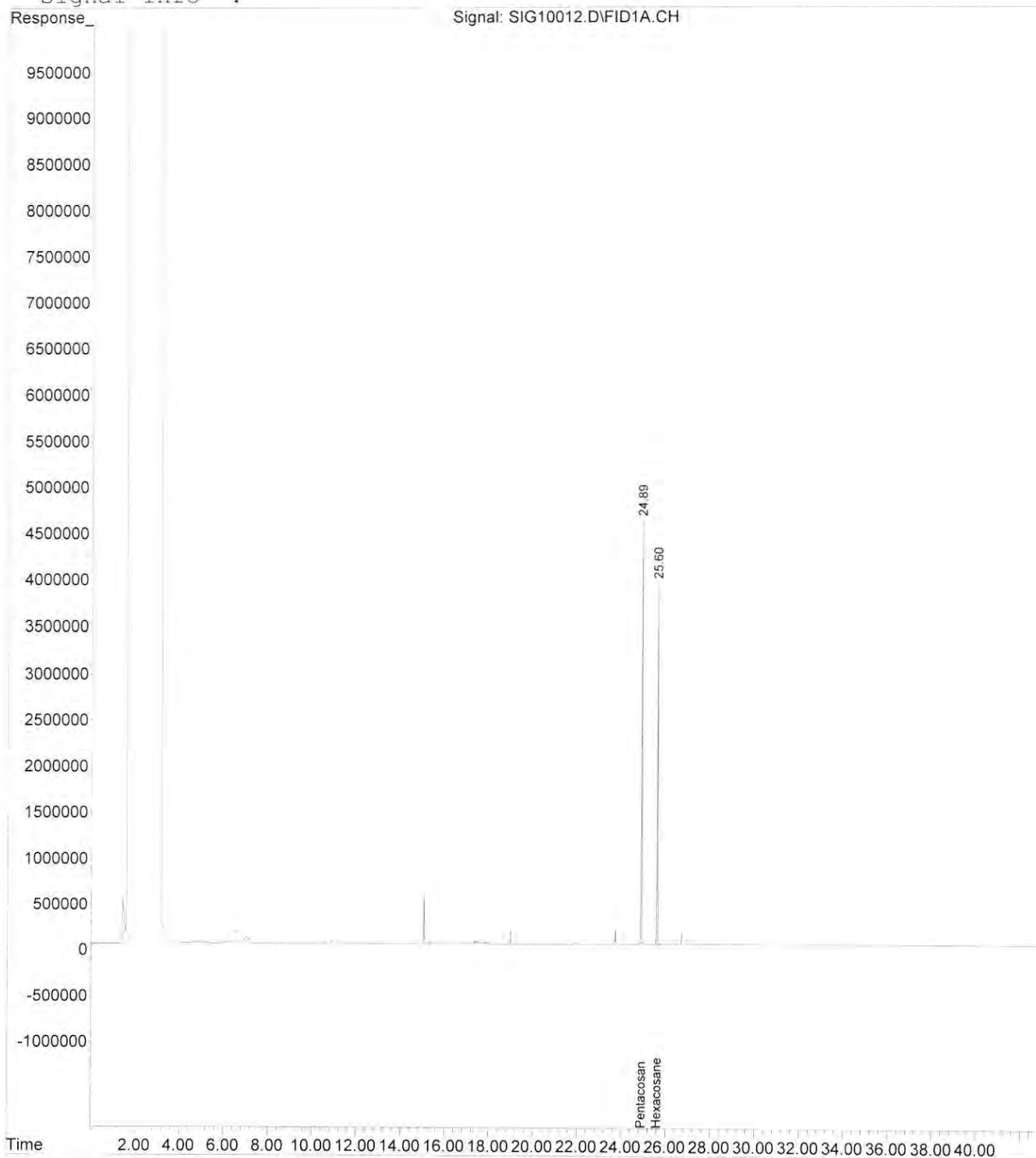
Compound	R.T.	Response	Conc	Units

Internal Standards				
1) I Pentacosane	24.89	85931811	50.000 ppm	m
System Monitoring Compounds				
2) S Hexacosane	25.60	73708734	43.477 ppm	m
Spiked Amount	50.000	Range	50 - 150	Recovery = 86.95%
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)	0.00	0	N.D.	ppm
8) h HCID Oil (>C14)	0.00	0	N.D.	ppm

Data File : W:\HPCHEM\1\2021DATA\112221\SIG10012.D Vial: 11
Acq On : 22 Nov 2021 20:15 Operator: ARC
Sample : WBK0734-02 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 8:14 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : W:\HPCHEM\1\2021DATA\112221\SIG10013.D Vial: 12
Acq On : 22 Nov 2021 21:09 Operator: ARC
Sample : BBK0643-DUP1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 08:11:07 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

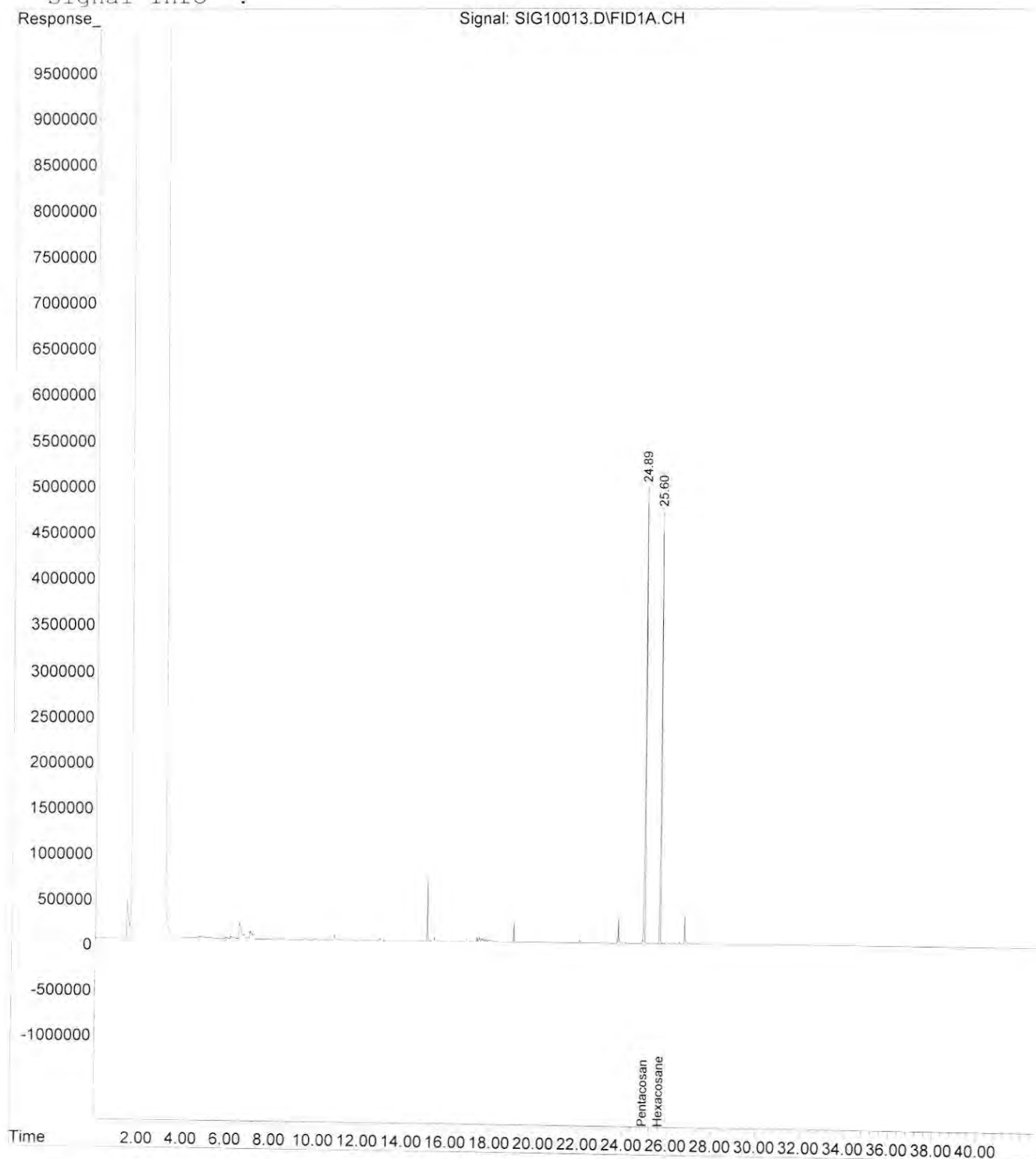
Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc	Units
Internal Standards				
1) I Pentacosane	24.89	101869731	50.000 ppm	m
System Monitoring Compounds				
2) S Hexacosane	25.60	87935572	43.754 ppm	m
Spiked Amount	50.000	Range	50 - 150	Recovery = 87.51%
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

Data File : W:\HPCHEM\1\2021DATA\112221\SIG10013.D Vial: 12
Acq On : 22 Nov 2021 21:09 Operator: ARC
Sample : BBK0643-DUP1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 8:14 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : W:\HPCHEM\1\2021DATA\112221\SIG10014.D Vial: 13
 Acq On : 22 Nov 2021 22:04 Operator: ARC
 Sample : WBK0734-03 Inst : HP G1530A
 Misc : Multiplr: 1.00
 IntFile : EVENTS1.E
 Quant Time: Nov 23 08:11:08 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
 Title :
 Last Update : Mon Nov 22 08:17:51 2021
 Response via : Initial Calibration
 DataAcq Meth : DXHCID5.M

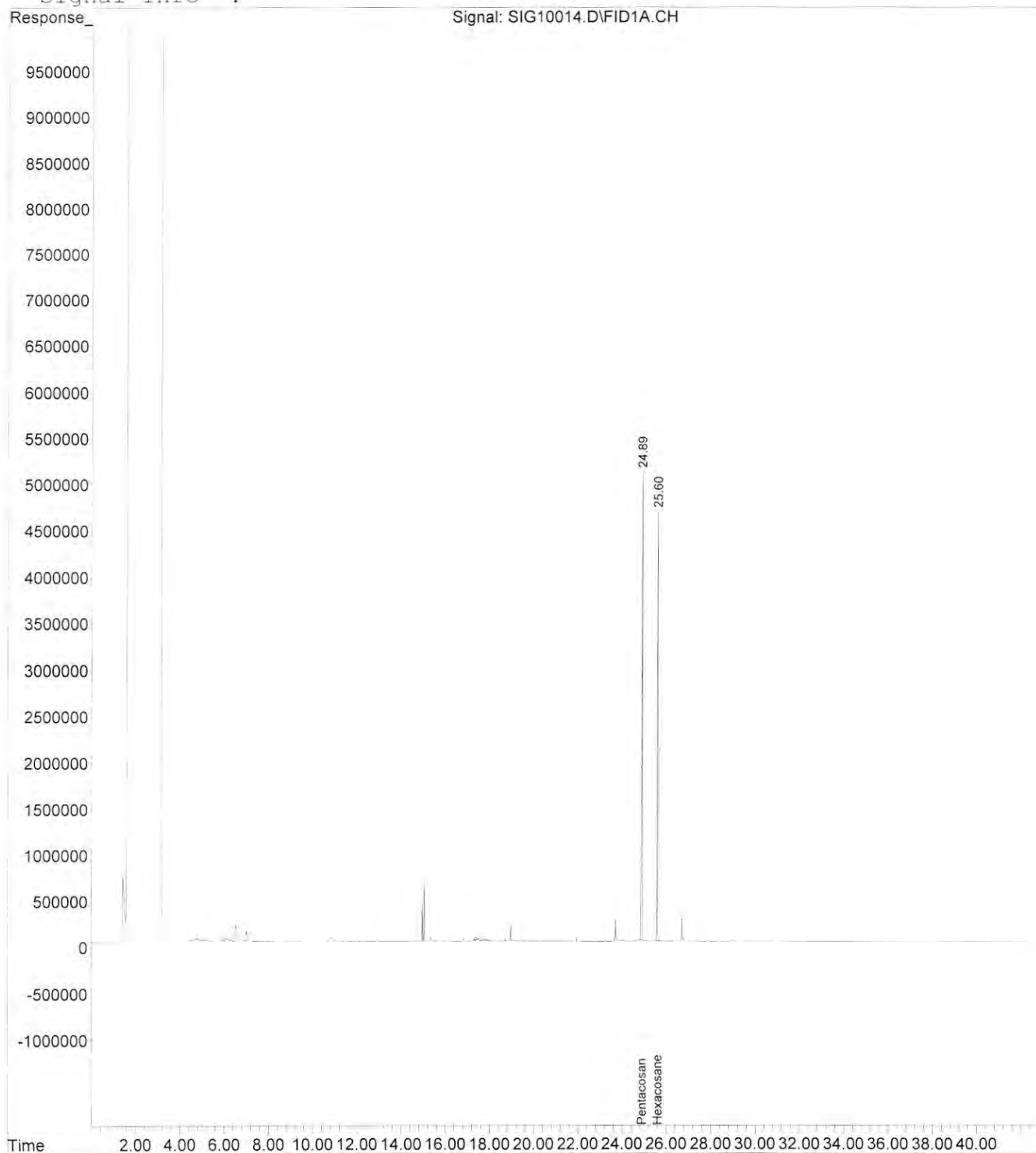
Volume Inj. :
 Signal Phase :
 Signal Info :

Compound	R.T.	Response	Conc	Units
Internal Standards				
1) I Pentacosane	24.89	101516091	50.000 ppm	m
System Monitoring Compounds				
2) S Hexacosane	25.60	85675405	42.778 ppm	m
Spiked Amount 50.000	Range 50 - 150	Recovery =	85.56%	
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

Data File : W:\HPCHEM\1\2021DATA\112221\SIG10014.D Vial: 13
Acq On : 22 Nov 2021 22:04 Operator: ARC
Sample : WBK0734-03 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 8:15 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : W:\HPCHEM\1\2021DATA\112221\SIG10015.D Vial: 14
Acq On : 22 Nov 2021 22:59 Operator: ARC
Sample : WBK0734-04 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 08:11:09 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

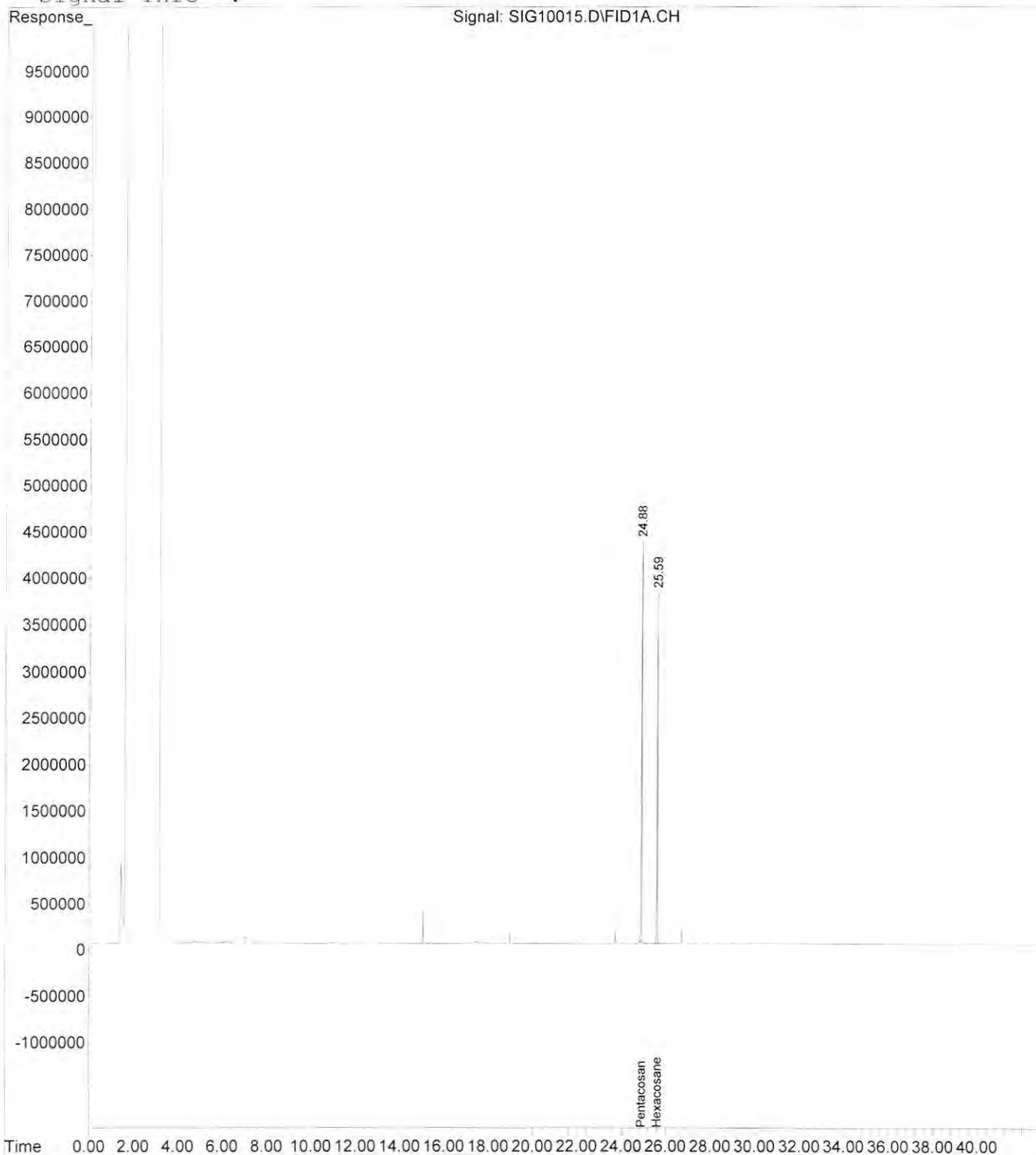
Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc	Units
Internal Standards				
1) I Pentacosane	24.88	78636811	50.000 ppm	m
System Monitoring Compounds				
2) S Hexacosane	25.59	68925782	44.428 ppm	m
Spiked Amount	50.000	Range	50 - 150	Recovery = 88.86%
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

Data File : W:\HPCHEM\1\2021DATA\112221\SIG10015.D Vial: 14
Acq On : 22 Nov 2021 22:59 Operator: ARC
Sample : WBK0734-04 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 8:16 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : W:\HPCHEM\1\2021DATA\112221\SIG10016.D Vial: 15
Acq On : 22 Nov 2021 23:53 Operator: ARC
Sample : WBK0734-05 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 08:11:11 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

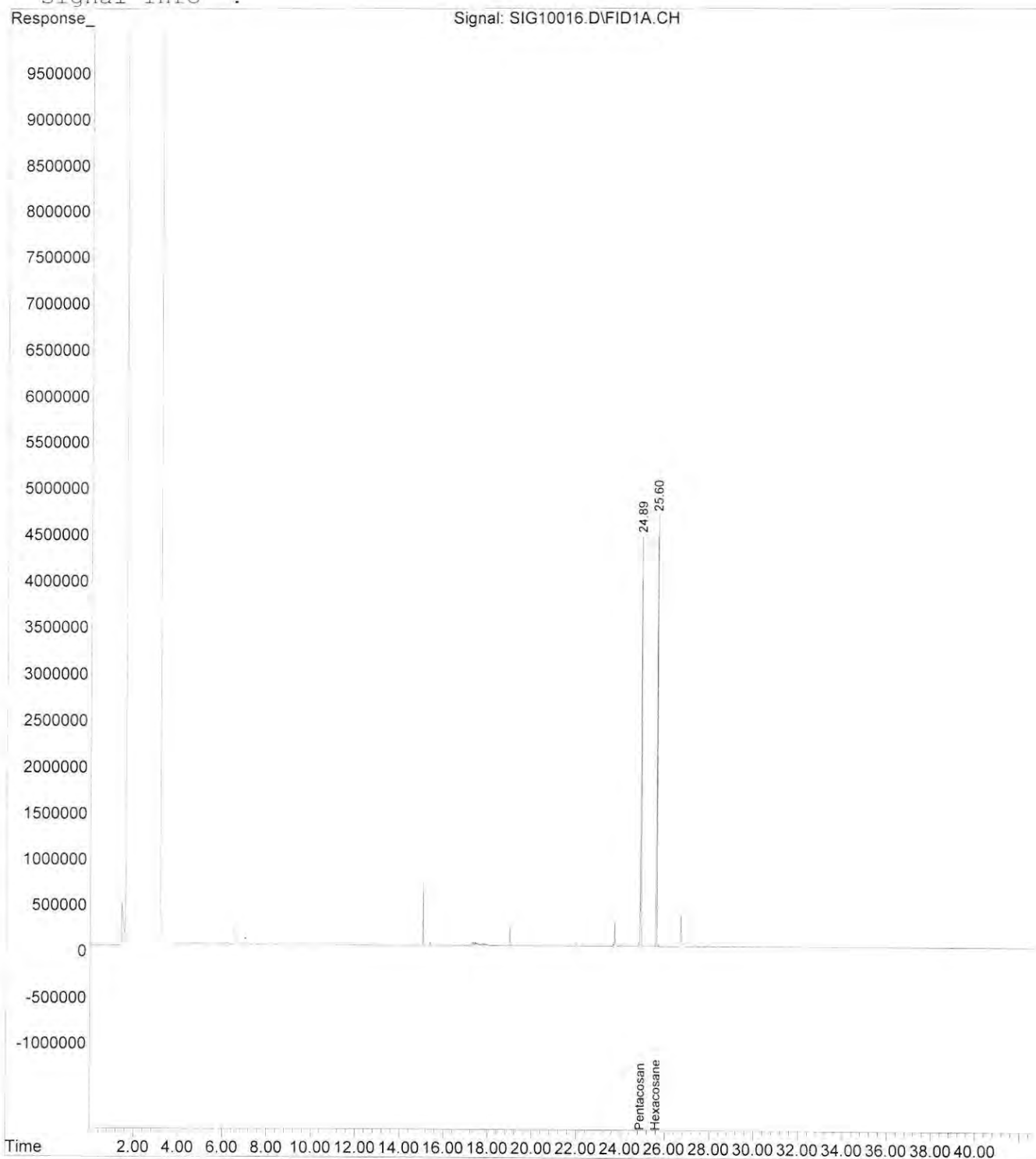
Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc	Units
Internal Standards				
1) I Pentacosane	24.89	85965090	50.000	ppm m
System Monitoring Compounds				
2) S Hexacosane	25.60	81620565	47.051	ppm
Spiked Amount	50.000	Range	50 - 150	Recovery = 94.10%
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

Data File : W:\HPCHEM\1\2021DATA\112221\SIG10016.D Vial: 15
Acq On : 22 Nov 2021 23:53 Operator: ARC
Sample : WBK0734-05 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 8:16 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : W:\HPCHEM\1\2021DATA\112221\SIG10017.D Vial: 16
Acq On : 23 Nov 2021 00:48 Operator: ARC
Sample : WBK0734-06 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 08:11:12 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

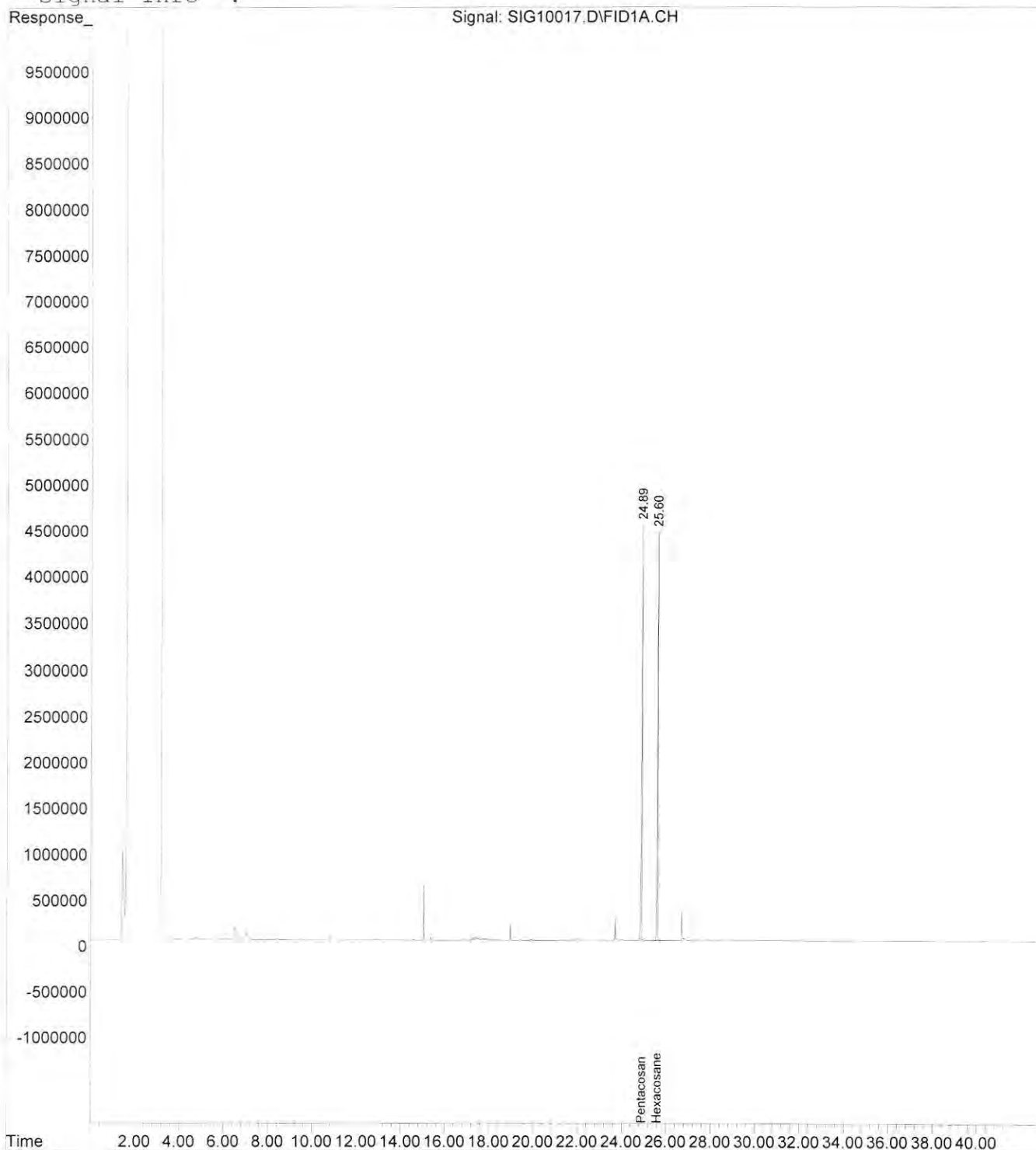
Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc	Units
Internal Standards				
1) I Pentacosane	24.89	88388616	50.000 ppm	m
System Monitoring Compounds				
2) S Hexacosane	25.60	79039483	45.326 ppm	m
Spiked Amount	50.000	Range	50 - 150	Recovery = 90.65%
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)	0.00	0	N.D.	ppm
8) h HCID Oil (>C14)	0.00	0	N.D.	ppm

Data File : W:\HPCHEM\1\2021DATA\112221\SIG10017.D Vial: 16
Acq On : 23 Nov 2021 00:48 Operator: ARC
Sample : WBK0734-06 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 8:17 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : W:\HPCHEM\1\2021DATA\112221\SIG10018.D Vial: 17
Acq On : 23 Nov 2021 1:43 Operator: ARC
Sample : WBK0734-07 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 08:11:13 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

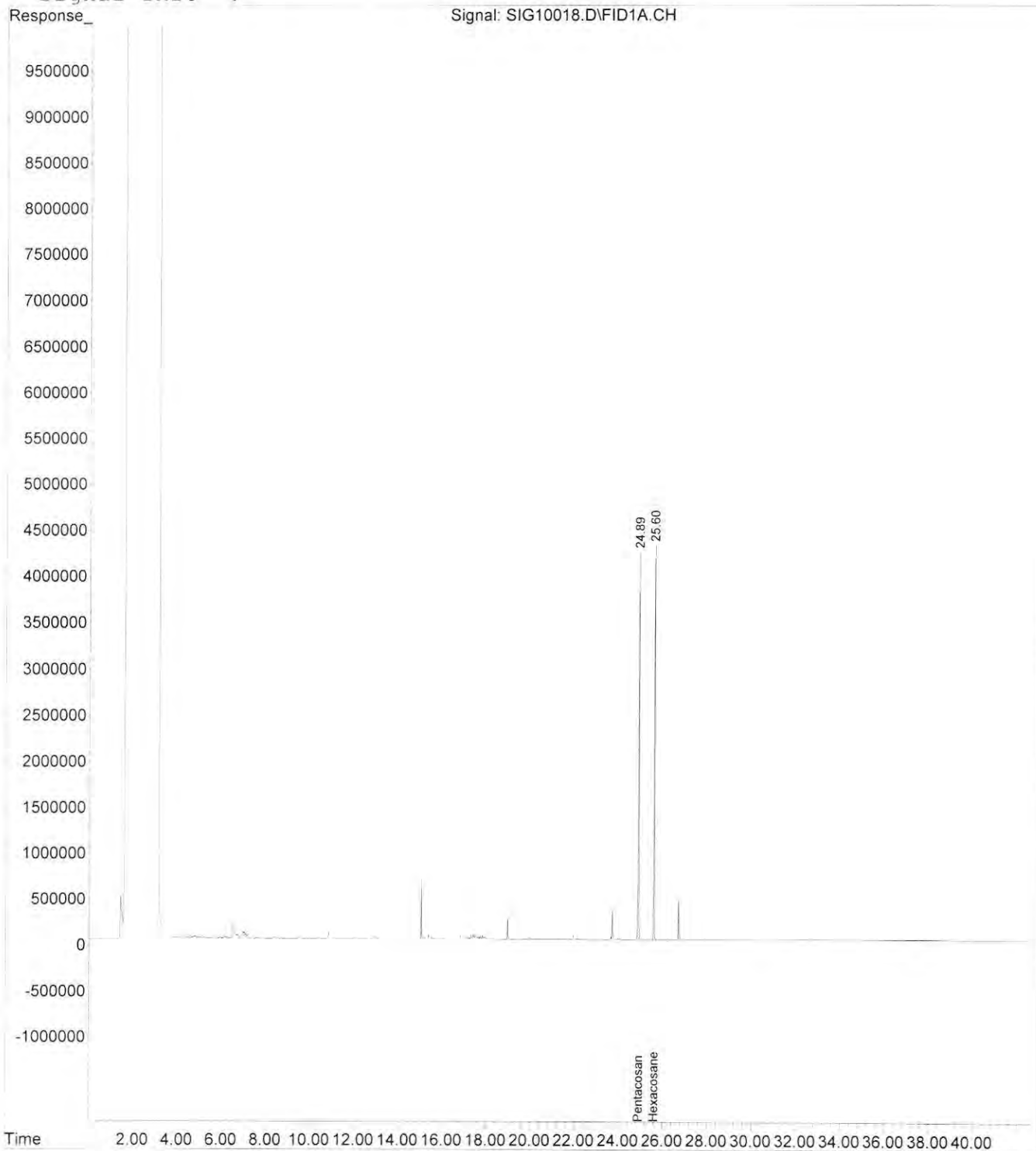
Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc	Units
Internal Standards				
1) I Pentacosane	24.89	80731271	50.000 ppm	m
System Monitoring Compounds				
2) S Hexacosane	25.60	74882453	47.015 ppm	m
Spiked Amount	50.000	Range	50 - 150	Recovery = 94.03%
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

Data File : W:\HPCHEM\1\2021DATA\112221\SIG10018.D Vial: 17
Acq On : 23 Nov 2021 1:43 Operator: ARC
Sample : WBK0734-07 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 8:17 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : W:\HPCHEM\1\2021DATA\112221\SIG10019.D Vial: 18
Acq On : 23 Nov 2021 2:37 Operator: ARC
Sample : WBK0734-08 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 08:11:15 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

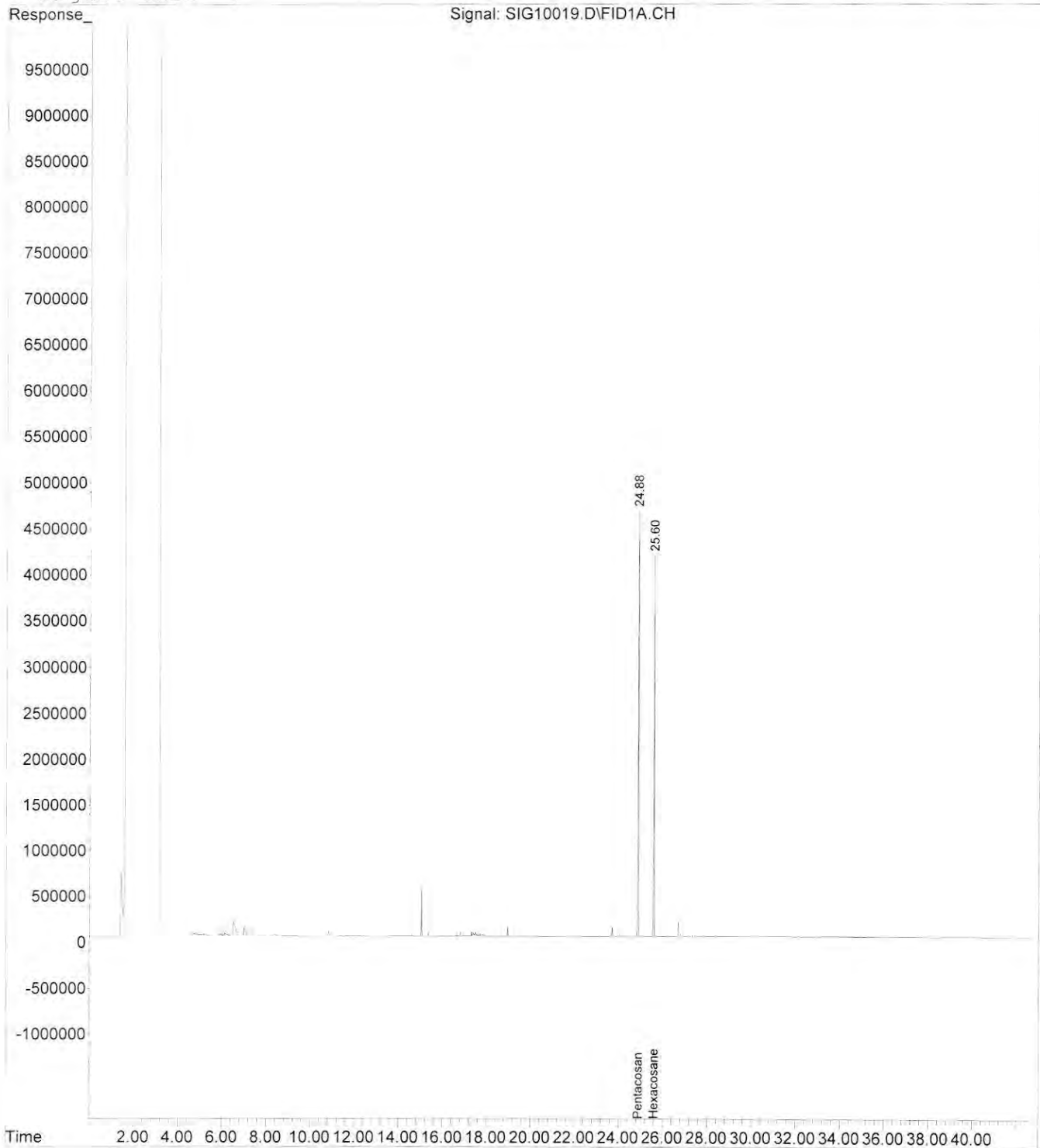
Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I Pentacosane	24.88	83218688	50.000 ppm m
System Monitoring Compounds			
2) S Hexacosane	25.60	74036437	45.094 ppm m
Spiked Amount	50.000	Range	50 - 150
		Recovery	= 90.19%
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

Data File : W:\HPCHEM\1\2021DATA\112221\SIG10019.D Vial: 18
Acq On : 23 Nov 2021 2:37 Operator: ARC
Sample : WBK0734-08 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 8:18 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : W:\HPCHEM\1\2021DATA\112221\SIG10020.D Vial: 19
Acq On : 23 Nov 2021 3:32 Operator: ARC
Sample : WBK0734-09 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 08:11:16 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

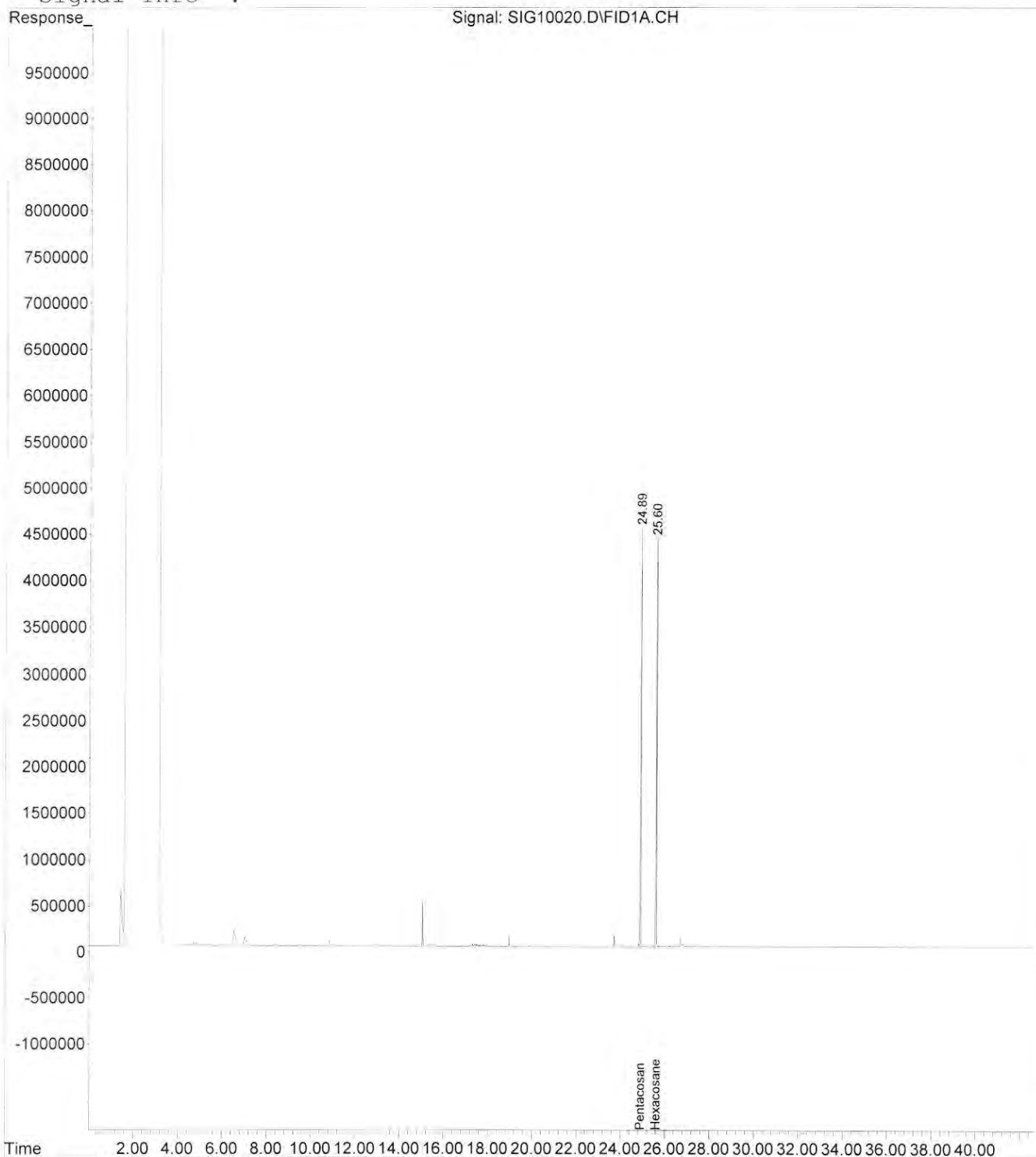
Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc	Units
Internal Standards				
1) I Pentacosane	24.89	86079790	50.000 ppm	m
System Monitoring Compounds				
2) S Hexacosane	25.60	76573082	45.089 ppm	m
Spiked Amount	50.000	Range	50 - 150	Recovery = 90.18%
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

Data File : W:\HPCHEM\1\2021DATA\112221\SIG10020.D Vial: 19
Acq On : 23 Nov 2021 3:32 Operator: ARC
Sample : WBK0734-09 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 8:18 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : W:\HPCHEM\1\2021DATA\112221\SIG10021.D Vial: 20
 Acq On : 23 Nov 2021 4:26 Operator: ARC
 Sample : WBK0734-10 Inst : HP G1530A
 Misc : Multiplr: 1.00
 IntFile : EVENTS1.E
 Quant Time: Nov 23 08:11:17 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
 Title :
 Last Update : Mon Nov 22 08:17:51 2021
 Response via : Initial Calibration
 DataAcq Meth : DXHCID5.M

Volume Inj. :
 Signal Phase :
 Signal Info :

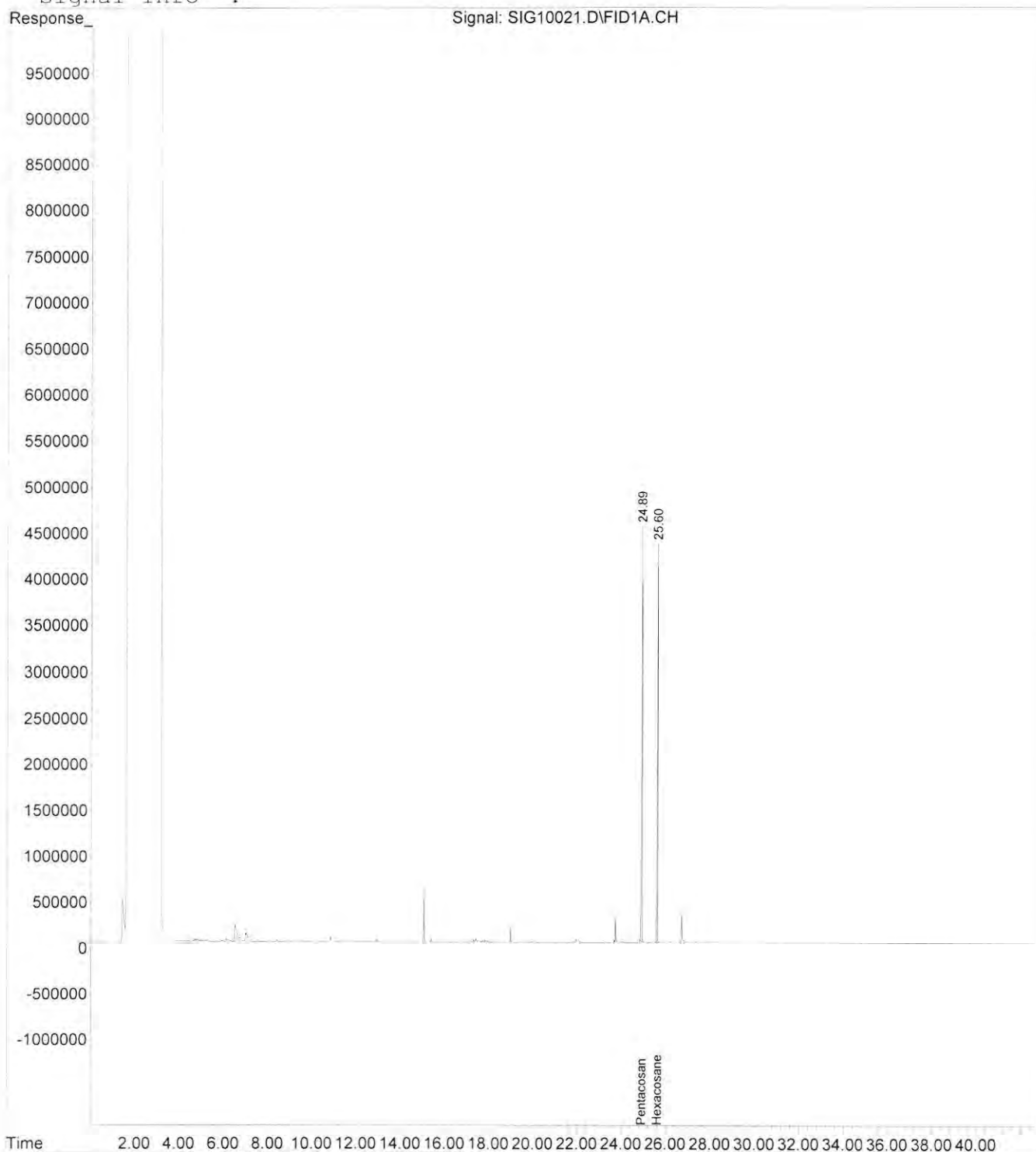
Compound	R.T.	Response	Conc	Units

Internal Standards				
1) I Pentacosane	24.89	87976587	50.000 ppm	m
System Monitoring Compounds				
2) S Hexacosane	25.60	78865171	45.438 ppm	m
Spiked Amount 50.000	Range 50 - 150	Recovery =	90.88%	
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

Data File : W:\HPCHEM\1\2021DATA\112221\SIG10021.D Vial: 20
Acq On : 23 Nov 2021 4:26 Operator: ARC
Sample : WBK0734-10 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 8:19 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : W:\HPCHEM\1\2021DATA\112221\SIG10028.D Vial: 21
 Acq On : 23 Nov 2021 10:49 Operator: ARC
 Sample : WBK0734-11 Inst : HP G1530A
 Misc : Multiplr: 1.00
 IntFile : EVENTS1.E
 Quant Time: Nov 23 11:39:24 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
 Title :
 Last Update : Mon Nov 22 08:17:51 2021
 Response via : Initial Calibration
 DataAcq Meth : DXHCID5.M

Volume Inj. :
 Signal Phase :
 Signal Info :

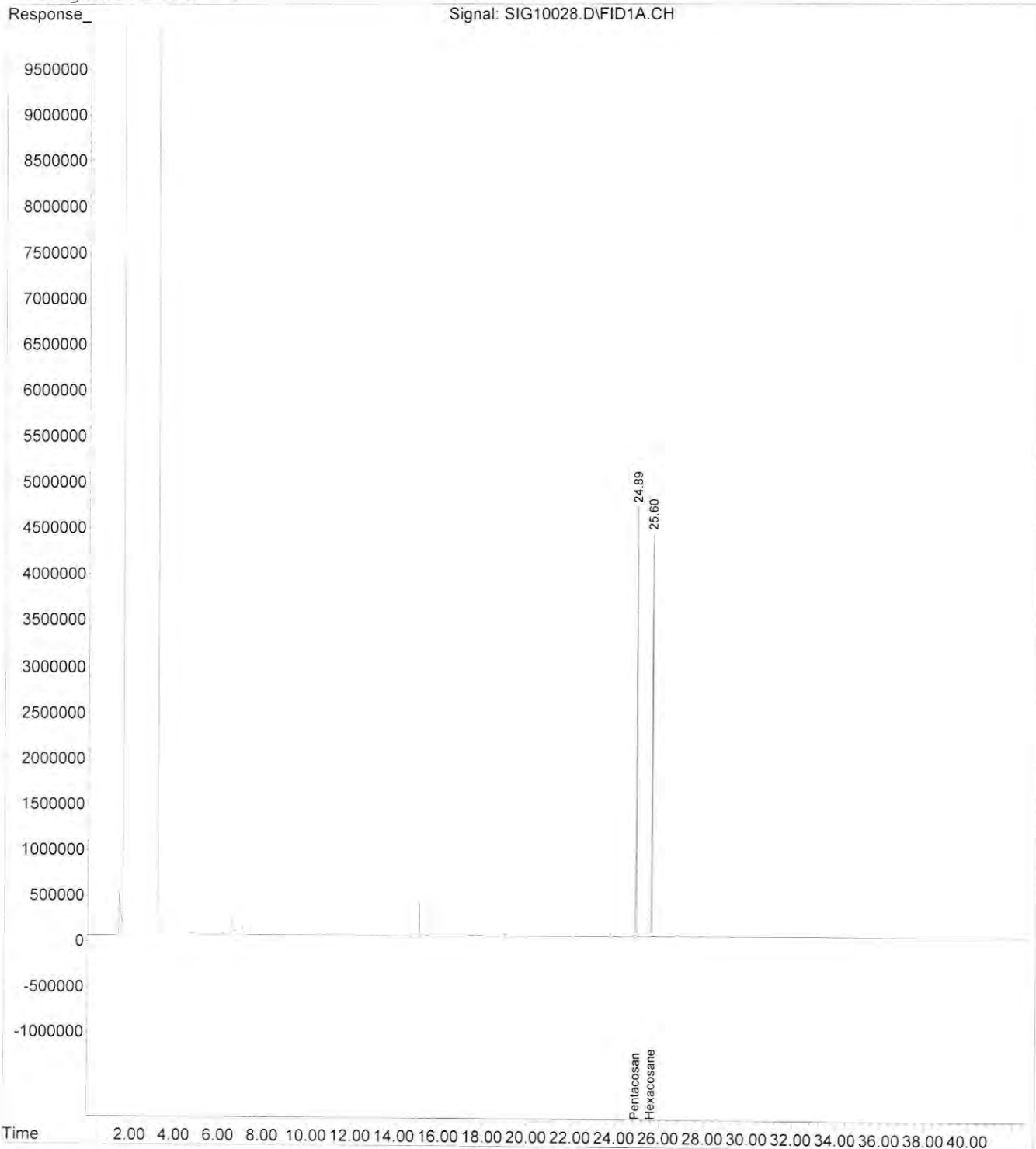
Compound	R.T.	Response	Conc Units

Internal Standards			
1) I Pentacosane	24.89	84996800	50.000 ppm m
System Monitoring Compounds			
2) S Hexacosane	25.60	77766778	46.375 ppm m
Spiked Amount 50.000	Range 50 - 150	Recovery =	92.75%
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

Data File : W:\HPCHEM\1\2021DATA\112221\SIG10028.D Vial: 21
Acq On : 23 Nov 2021 10:49 Operator: ARC
Sample : WBK0734-11 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 11:39 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : W:\HPCHEM\1\2021DATA\112221\SIG10029.D Vial: 22
Acq On : 23 Nov 2021 11:44 Operator: ARC
Sample : WBK0734-12 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 12:43:15 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

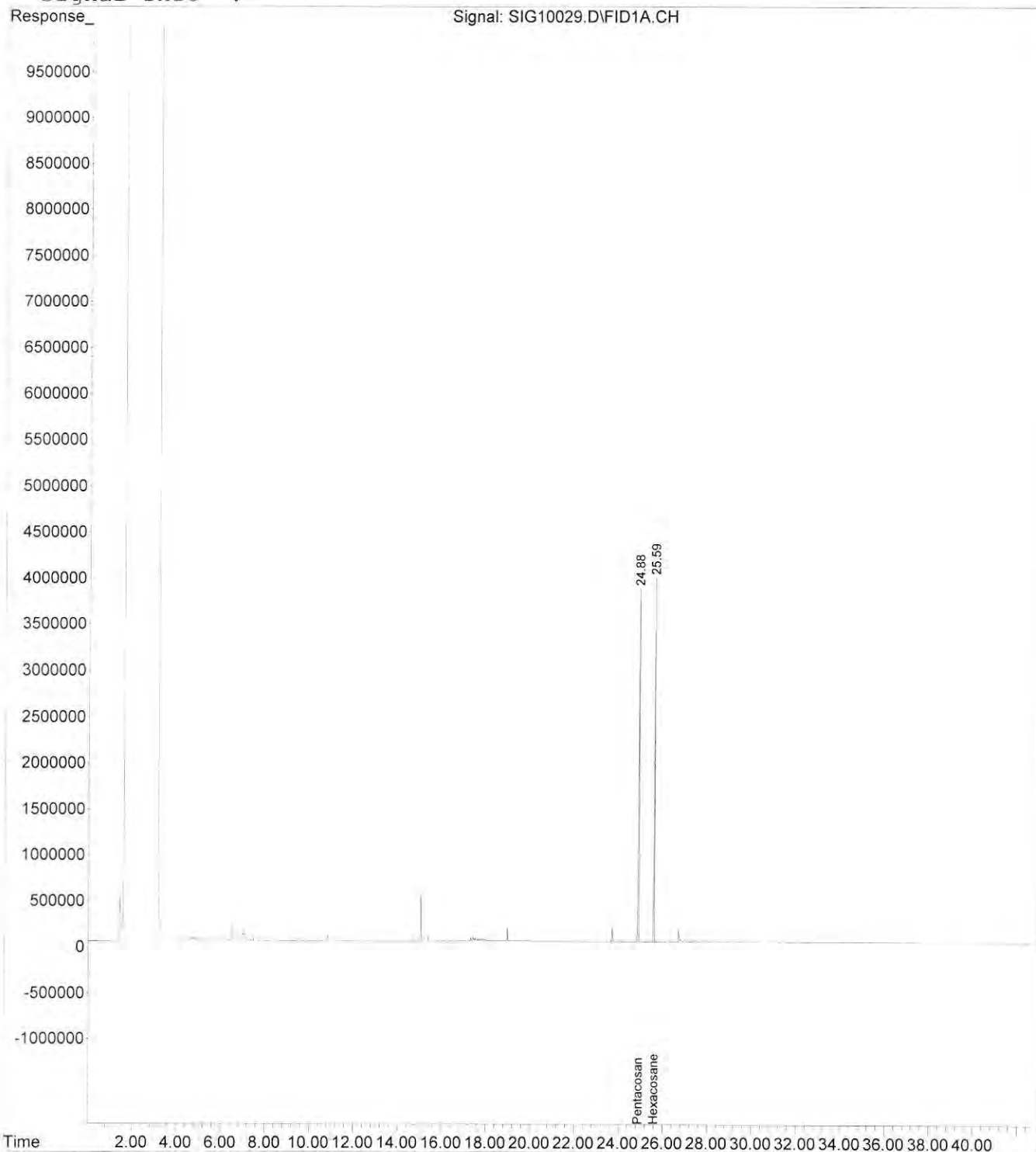
Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc	Units
Internal Standards				
1) I Pentacosane	24.88	75167790	50.000 ppm	m
System Monitoring Compounds				
2) S Hexacosane	25.59	66085229	44.563 ppm	m
Spiked Amount	50.000	Range	50 - 150	Recovery = 89.13%
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

Data File : W:\HPCHEM\1\2021DATA\112221\SIG10029.D Vial: 22
Acq On : 23 Nov 2021 11:44 Operator: ARC
Sample : WBK0734-12 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 24 8:50 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : W:\HPCHEM\1\2021DATA\112221\SIG10030.D Vial: 23
Acq On : 23 Nov 2021 12:39 Operator: ARC
Sample : WBK0734-13 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 13:46:27 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

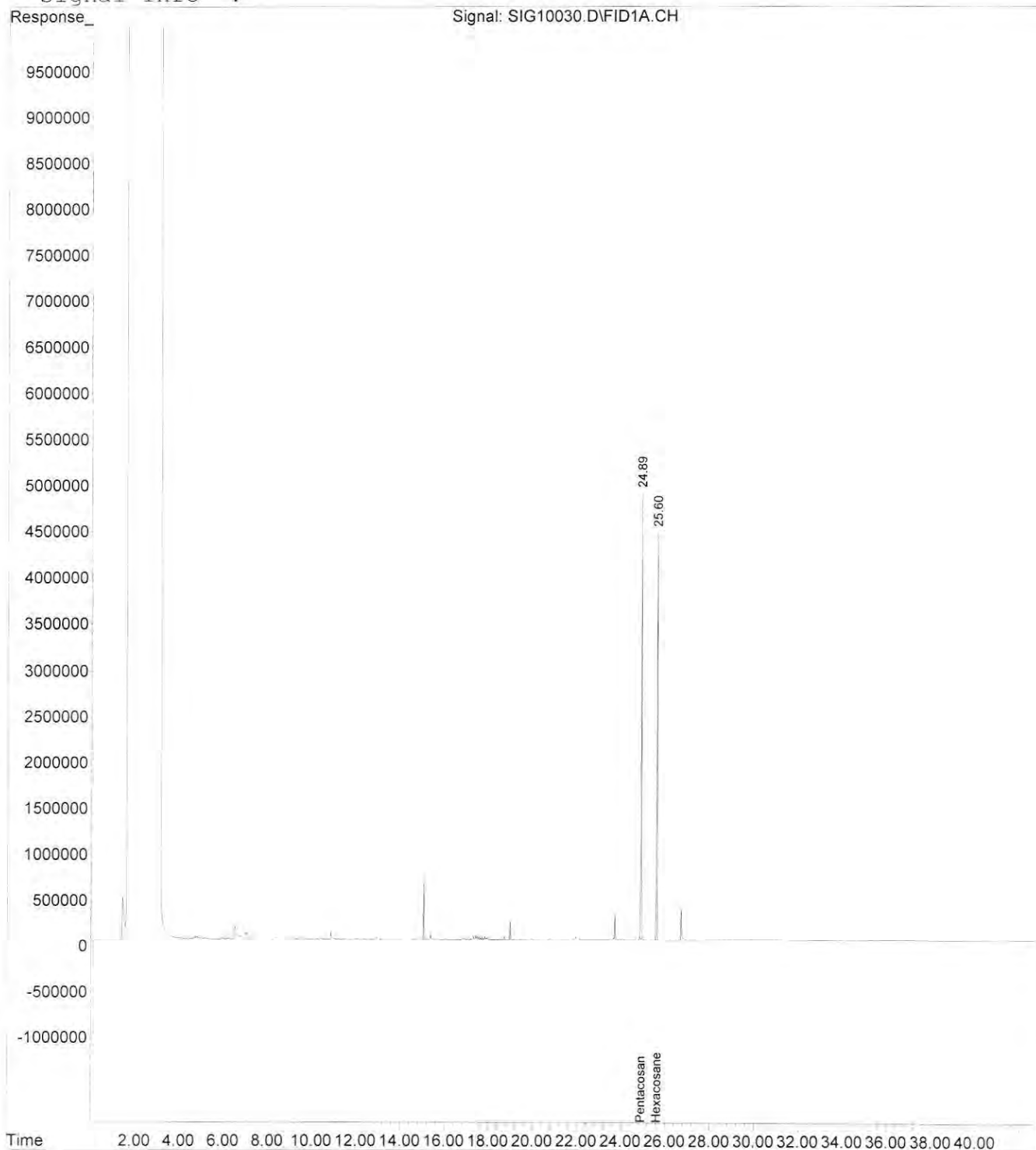
Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc	Units
Internal Standards				
1) I Pentacosane	24.89	99000142	50.000 ppm	m
System Monitoring Compounds				
2) S Hexacosane	25.60	85470783	43.760 ppm	m
Spiked Amount	50.000	Range	50 - 150	Recovery = 87.52%
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)	0.00	0	N.D.	ppm
8) h HCID Oil (>C14)	0.00	0	N.D.	ppm

Data File : W:\HPCHEM\1\2021DATA\112221\SIG10030.D Vial: 23
Acq On : 23 Nov 2021 12:39 Operator: ARC
Sample : WBK0734-13 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 13:47 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : W:\HPCHEM\1\2021DATA\112221\SIG10031.D Vial: 24
 Acq On : 23 Nov 2021 13:34 Operator: ARC
 Sample : WBK0734-14 Inst : HP G1530A
 Misc : Multiplr: 1.00
 IntFile : EVENTS1.E
 Quant Time: Nov 23 14:17:37 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
 Title :
 Last Update : Mon Nov 22 08:17:51 2021
 Response via : Initial Calibration
 DataAcq Meth : DXHCID5.M

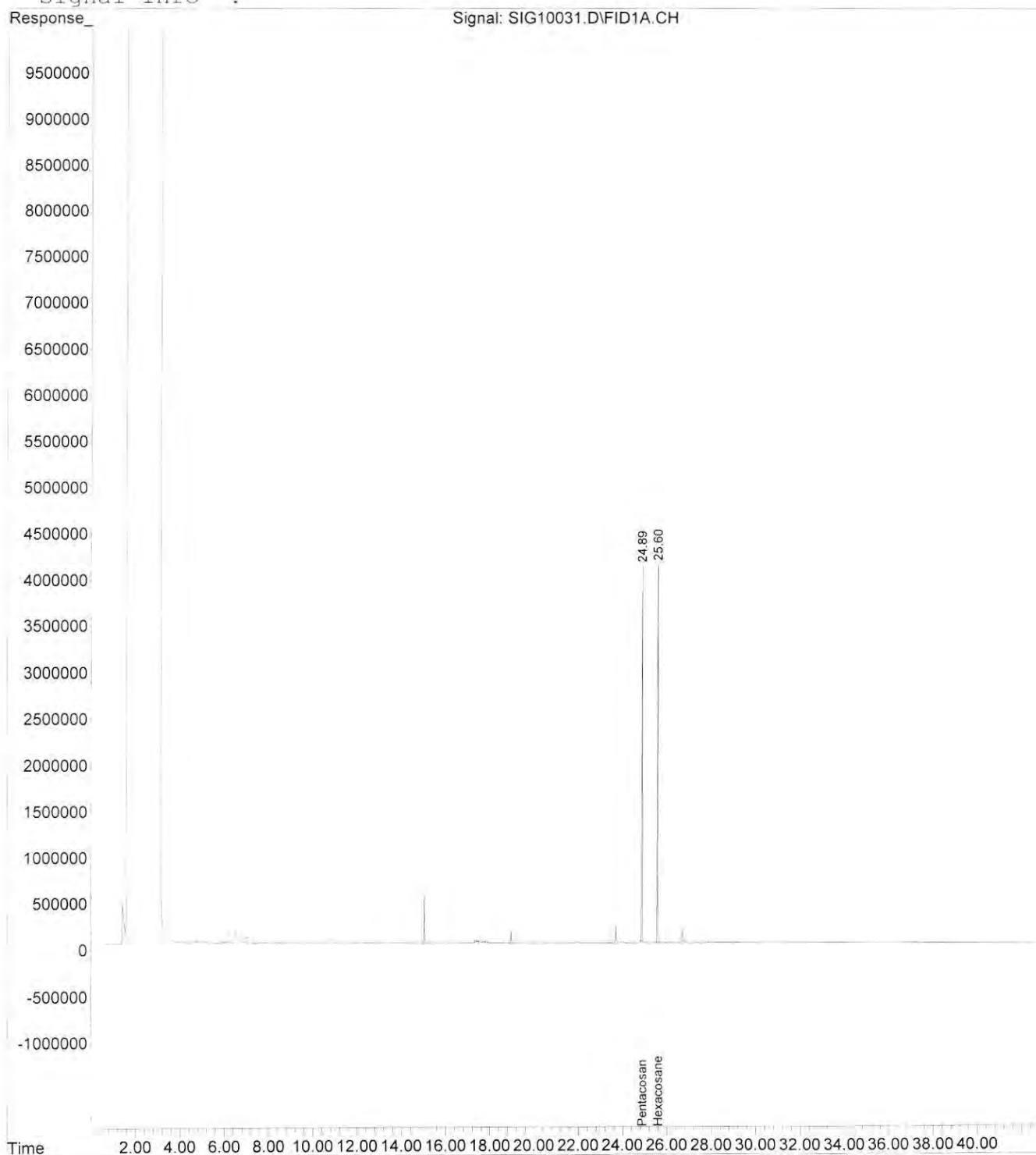
Volume Inj. :
 Signal Phase :
 Signal Info :

Compound	R.T.	Response	Conc	Units
Internal Standards				
1) I Pentacosane	24.89	76045311	50.000 ppm	m
System Monitoring Compounds				
2) S Hexacosane	25.60	67570712	45.038 ppm	m
Spiked Amount	50.000	Range	50 - 150	Recovery = 90.08%
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

Data File : W:\HPCHEM\1\2021DATA\112221\SIG10031.D Vial: 24
Acq On : 23 Nov 2021 13:34 Operator: ARC
Sample : WBK0734-14 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 14:18 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : W:\HPCHEM\1\2021DATA\112221\SIG10032.D Vial: 25
 Acq On : 23 Nov 2021 14:29 Operator: ARC
 Sample : WBK0734-15 Inst : HP G1530A
 Misc : Multiplr: 1.00
 IntFile : EVENTS1.E
 Quant Time: Nov 23 15:26:56 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
 Title :
 Last Update : Mon Nov 22 08:17:51 2021
 Response via : Initial Calibration
 DataAcq Meth : DXHCID5.M

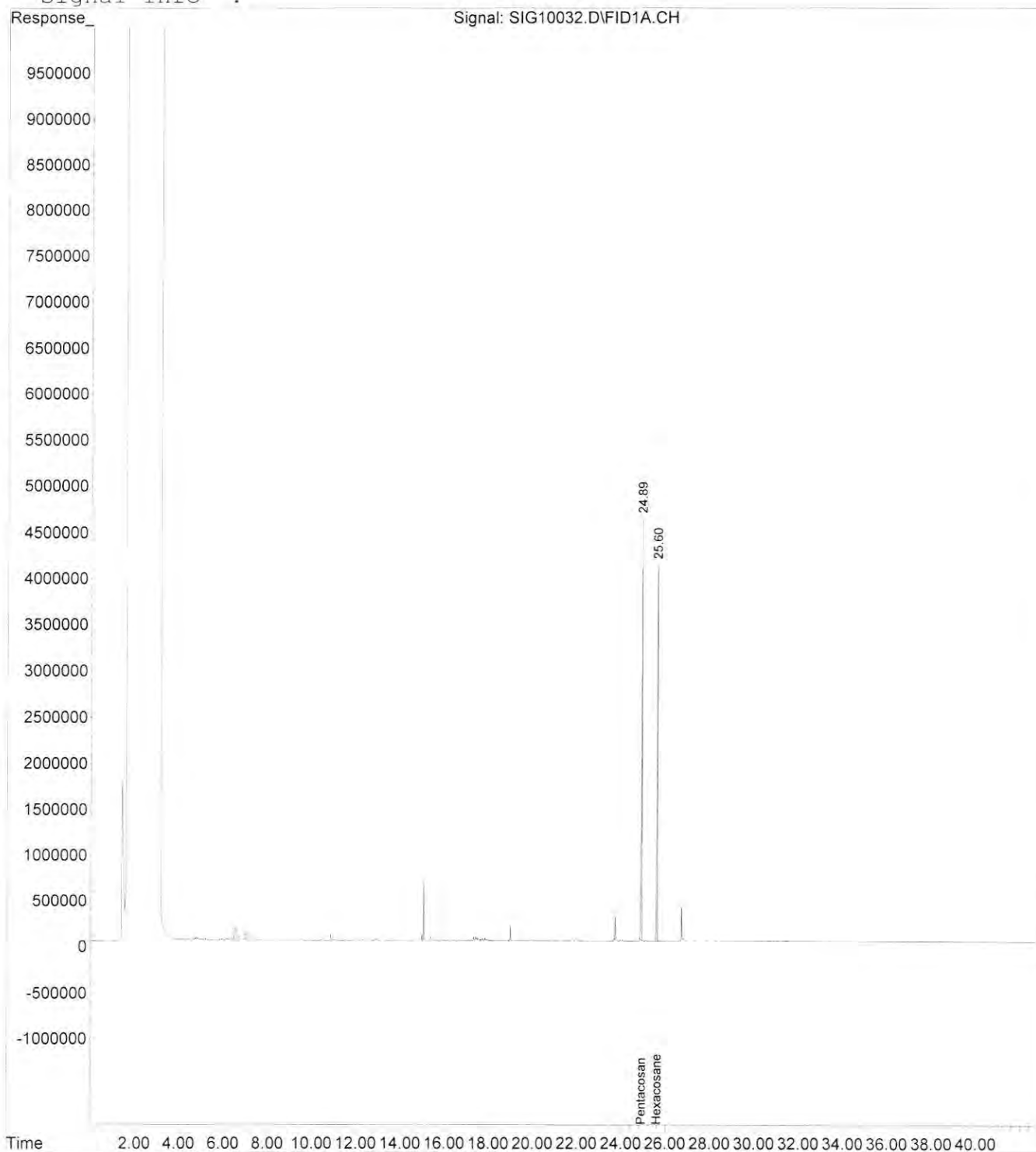
Volume Inj. :
 Signal Phase :
 Signal Info :

Compound	R.T.	Response	Conc	Units
Internal Standards				
1) I Pentacosane	24.89	85089301	50.000	ppm m
System Monitoring Compounds				
2) S Hexacosane	25.60	76777764	45.736	ppm m
Spiked Amount	50.000	Recovery	=	91.47%
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

Data File : W:\HPCHEM\1\2021DATA\112221\SIG10032.D Vial: 25
Acq On : 23 Nov 2021 14:29 Operator: ARC
Sample : WBK0734-15 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 15:27 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : W:\HPCHEM\1\2021DATA\112221\SIG10033.D Vial: 26
Acq On : 23 Nov 2021 15:24 Operator: ARC
Sample : WBK0734-16 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 16:07:09 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

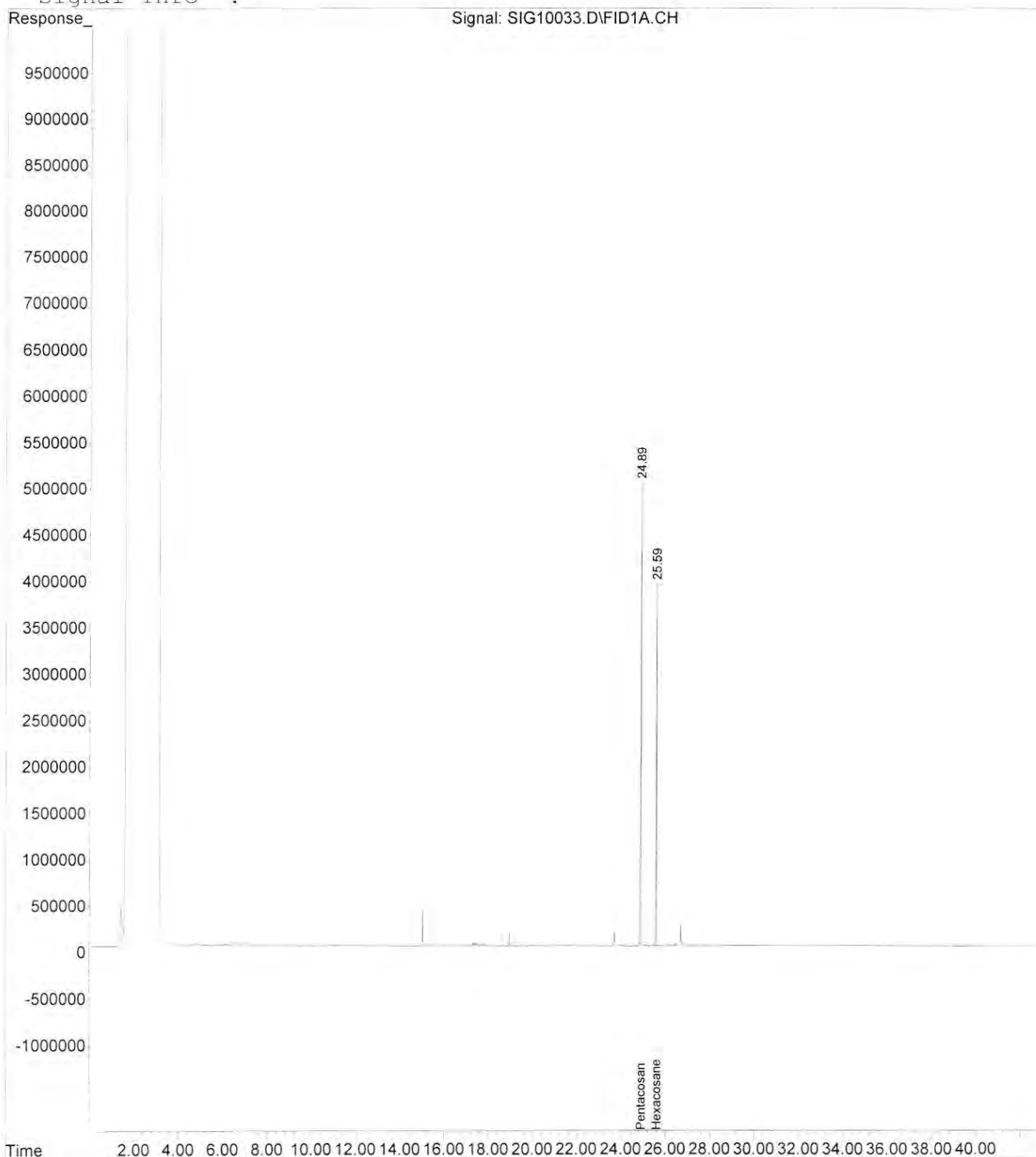
Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc	Units
Internal Standards				
1) I Pentacosane	24.89	94401728	50.000 ppm	m
System Monitoring Compounds				
2) S Hexacosane	25.59	71208527	38.234 ppm	m
Spiked Amount	50.000	Range	50 - 150	Recovery = 76.47%
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

Data File : W:\HPCHEM\1\2021DATA\112221\SIG10033.D Vial: 26
Acq On : 23 Nov 2021 15:24 Operator: ARC
Sample : WBK0734-16 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 23 16:10 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : W:\HPCHEM\1\2021DATA\112221\SIG10034.D Vial: 27
Acq On : 23 Nov 2021 16:19 Operator: ARC
Sample : BBK0643-MS1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 24 08:06:26 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

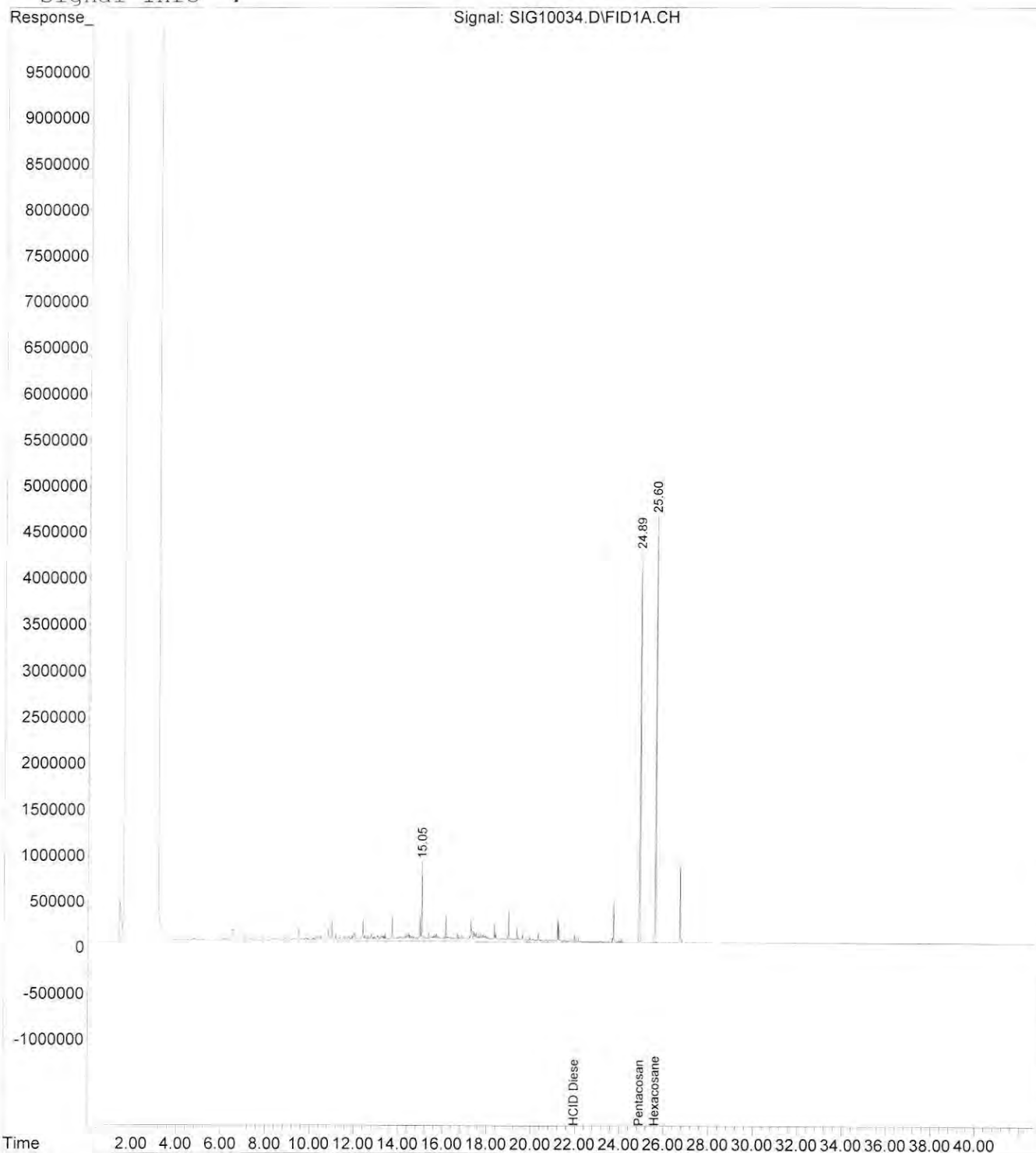
Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I Pentacosane	24.89	92139078	50.000 ppm m
System Monitoring Compounds			
2) S Hexacosane	25.60	82569722	45.423 ppm m
Spiked Amount	50.000	Recovery	= 90.85%
Range 50 - 150			
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	301542061	251.565 ppm
8) h HCID Oil (>C14)	0.00	0	N.D. ppm

Data File : W:\HPCHEM\1\2021DATA\112221\SIG10034.D Vial: 27
Acq On : 23 Nov 2021 16:19 Operator: ARC
Sample : BBK0643-MS1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 24 8:07 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : W:\HPCHEM\1\2021DATA\112221\SIG10035.D Vial: 28
Acq On : 23 Nov 2021 17:13 Operator: ARC
Sample : BBK0643-MSD1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 24 08:06:27 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

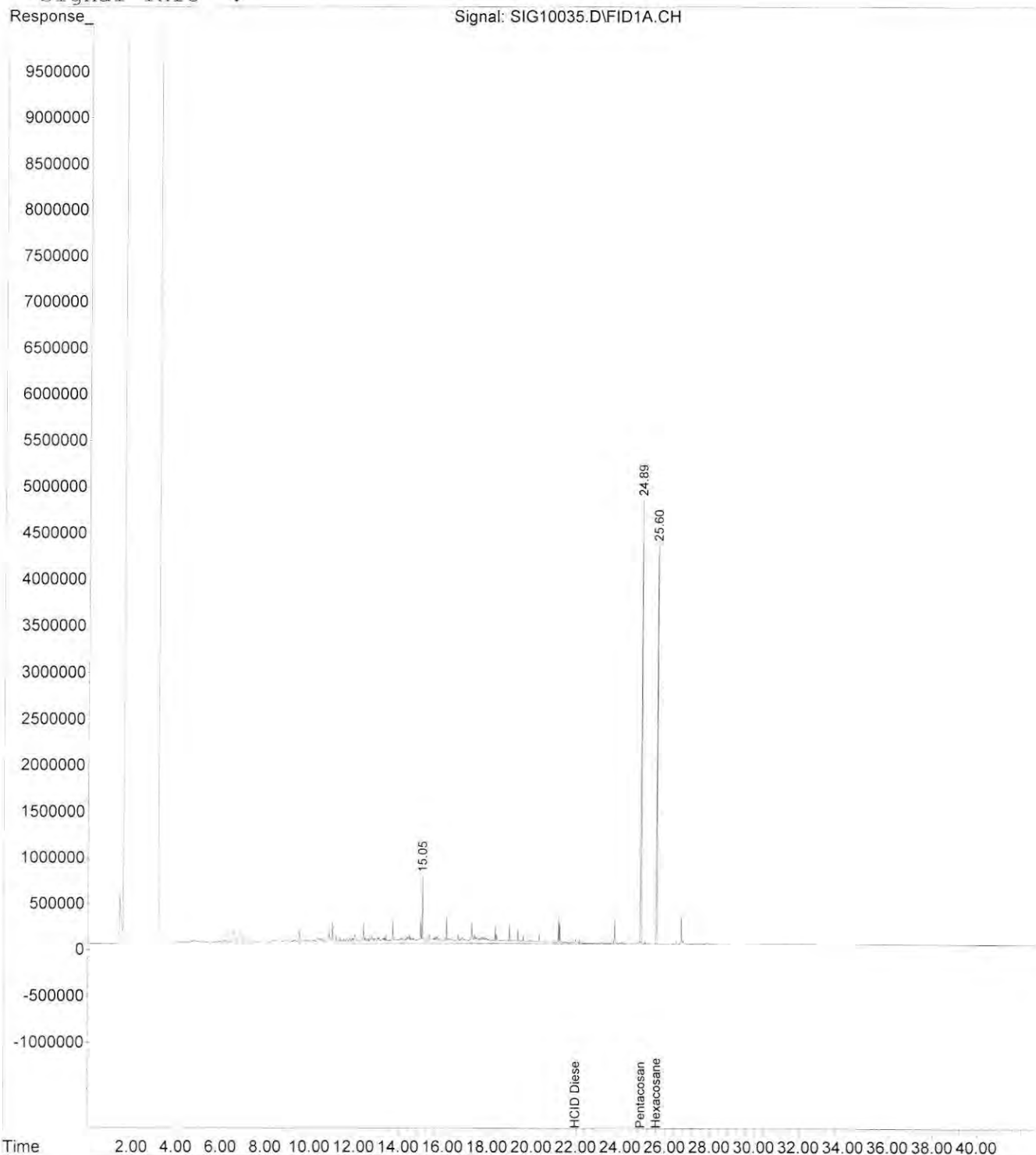
Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc	Units
Internal Standards				
1) I Pentacosane	24.89	98274366	50.000 ppm	m
System Monitoring Compounds				
2) S Hexacosane	25.60	85204654	43.946 ppm	m
Spiked Amount	50.000	Range	50 - 150	Recovery = 87.89%
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	285791836	223.540 ppm	
8) h HCID Oil (>C14)	0.00	0	N.D.	ppm

Data File : W:\HPCHEM\1\2021DATA\112221\SIG10035.D Vial: 28
Acq On : 23 Nov 2021 17:13 Operator: ARC
Sample : BBK0643-MSD1 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 24 9:11 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : W:\HPCHEM\1\2021DATA\112221\SIG10036.D Vial: 29
Acq On : 23 Nov 2021 18:08 Operator: ARC
Sample : WBK0734-17 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 24 08:06:29 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Initial Calibration
DataAcq Meth : DXHCID5.M

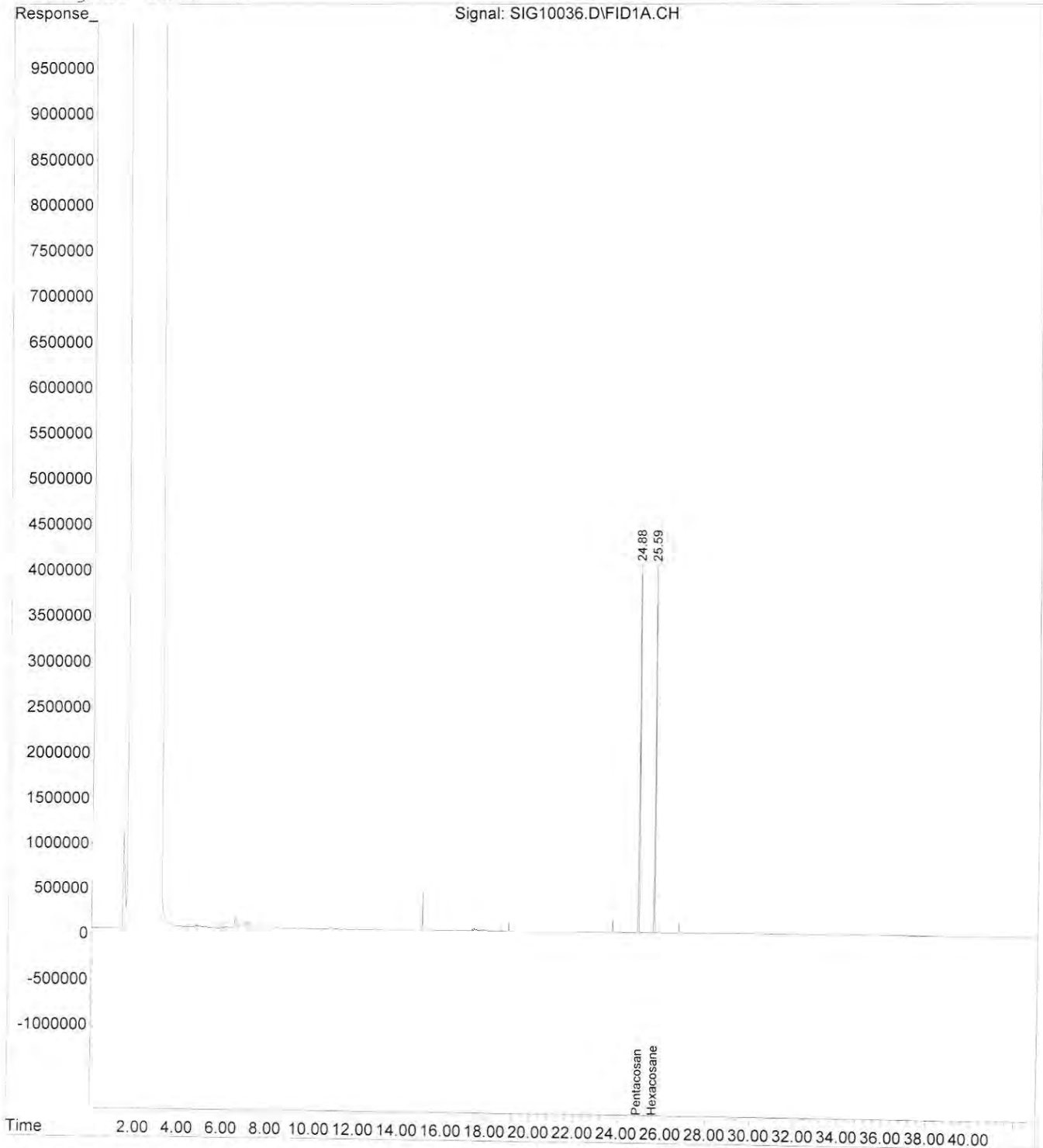
Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc	Units
Internal Standards				
1) I Pentacosane	24.88	78552799	50.000 ppm	m
System Monitoring Compounds				
2) S Hexacosane	25.59	68884041	44.448 ppm	m
Spiked Amount	50.000	Range	50 - 150	Recovery = 88.90%
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

Data File : W:\HPCHEM\1\2021DATA\112221\SIG10036.D Vial: 29
Acq On : 23 Nov 2021 18:08 Operator: ARC
Sample : WBK0734-17 Inst : HP G1530A
Misc : Multiplr: 1.00
IntFile : EVENTS1.E
Quant Time: Nov 24 8:08 2021 Quant Results File: 211119DHTLOW.RES

Quant Method : W:\HPCHEM\1...\211119DHTLOW.M (Chemstation Integrator)
Title :
Last Update : Mon Nov 22 08:17:51 2021
Response via : Multiple Level Calibration
DataAcq Meth : DXHCID5.M

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : C:\Users\markh\Desktop\data files\DEC15CD\
Data File : 01701014.D
Acq On : 15 Dec 2021 5:06 pm
Operator : MAH
Sample : MBK0734-17
Misc :
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Dec 16 10:10:03 2021
Quant Method : C:\Users\markh\Desktop\2021methods\Cardno1215.M
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Dec 15 14:13:07 2021
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Dichlorobenzene-d5	5.885	150	19552826	20.00	ug/mL	0.00
3) Acenaphthene-d10	9.496	164	26224338	20.00	ug/mL	# 0.00
5) Phenanthrene-d10	11.310	188	42187976	20.00	ug/mL	# 0.00
8) Chrysene-d12	14.545	240	24938240	20.00	ug/mL	# 0.00

System Monitoring Compounds						
2) 2-Fluorobiphenyl	8.699	172	38407289	22.07	ug/mL	-0.01
9) Terphenyl-d14	13.298	244	31831517	19.15	ug/mL	0.00
Spiked Amount	25.000			Recovery	=	76.60%

Target Compounds	Qvalue
------------------	--------

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

Data Path : C:\Users\markh\Desktop\data files\DEC15CD\
Data File : 01601013.D
Acq On : 15 Dec 2021 4:38 pm
Operator : MAH
Sample : MBK0734-16
Misc :
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Dec 16 10:09:01 2021
Quant Method : C:\Users\markh\Desktop\2021methods\Cardno1215.M
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Dec 15 14:13:07 2021
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Dichlorobenzene-d5	5.886	150	22099213	20.00	ug/mL	0.00
3) Acenaphthene-d10	9.496	164	28972556	20.00	ug/mL	# 0.00
5) Phenanthrene-d10	11.310	188	44701819	20.00	ug/mL	# 0.00
8) Chrysene-d12	14.547	240	24306738	20.00	ug/mL	# 0.00

System Monitoring Compounds

2) 2-Fluorobiphenyl	8.700	172	42502590	21.61	ug/mL	-0.01
9) Terphenyl-d14	13.297	244	30344605	18.73	ug/mL	0.00
Spiked Amount	25.000			Recovery	=	74.92%

Target Compounds

Qvalue

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

Data Path : C:\Users\markh\Desktop\data files\DEC15CD\
Data File : 01501012.D
Acq On : 15 Dec 2021 4:09 pm
Operator : MAH
Sample : MBK0734-15
Misc :
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Dec 15 16:49:35 2021
Quant Method : C:\Users\markh\Desktop\2021methods\Cardno1215.M
Quant Title : EPA 8270D - GC MSD4
QLast Update : Wed Dec 15 14:15:09 2021
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Dichlorobenzene-d5	5.884	150	19871483	20.00	ug/mL	0.00
3) Acenaphthene-d10	9.496	164	25995367	20.00	ug/mL	# 0.00
5) Phenanthrene-d10	11.311	188	39743041	20.00	ug/mL	# 0.00
8) Chrysene-d12	14.544	240	19198268	20.00	ug/mL	# 0.00
System Monitoring Compounds						
2) 2-Fluorobiphenyl	8.699	172	37847049	21.40	ug/mL	-0.01
9) Terphenyl-d14	13.297	244	20312682	15.88	ug/mL	0.00
Spiked Amount	25.000		Recovery	=	63.52%	

Target Compounds	Qvalue
------------------	--------

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

Data Path : C:\Users\markh\Desktop\data files\DEC15CD\
 Data File : 01401011.D
 Acq On : 15 Dec 2021 3:41 pm
 Operator : MAH
 Sample : MBK0734-14
 Misc :
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: Dec 15 16:30:15 2021
 Quant Method : C:\Users\markh\Desktop\2021methods\Cardno1215.M
 Quant Title : EPA 8270D - GC MSD4
 QLast Update : Wed Dec 15 14:15:09 2021
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) Dichlorobenzene-d5	5.886	150	20563420	20.00	ug/mL	0.00
3) Acenaphthene-d10	9.496	164	27487548	20.00	ug/mL	# 0.00
5) Phenanthrene-d10	11.310	188	44980081	20.00	ug/mL	# 0.00
8) Chrysene-d12	14.545	240	26889158	20.00	ug/mL	# 0.00

System Monitoring Compounds						
2) 2-Fluorobiphenyl	8.699	172	39729894	21.71	ug/mL	-0.01
9) Terphenyl-d14	13.297	244	33159297	18.51	ug/mL	0.00
Spiked Amount	25.000		Recovery	=	74.04%	

Target Compounds	Qvalue

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

Data Path : C:\Users\markh\Desktop\data files\DEC15CD\
 Data File : 01301010.D
 Acq On : 15 Dec 2021 3:12 pm
 Operator : MAH
 Sample : BLK
 Misc :
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Dec 15 16:29:23 2021
 Quant Method : C:\Users\markh\Desktop\2021methods\Cardno1215.M
 Quant Title : EPA 8270D - GC MSD4
 QLast Update : Wed Dec 15 14:15:09 2021
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Dichlorobenzene-d5	5.885	150	23836407	20.00	ug/mL	0.00
3) Acenaphthene-d10	9.496	164	30909727	20.00	ug/mL	# 0.00
5) Phenanthrene-d10	11.311	188	47340339	20.00	ug/mL	# 0.00
8) Chrysene-d12	14.545	240	23014312	20.00	ug/mL	# 0.00
System Monitoring Compounds						
2) 2-Fluorobiphenyl	8.700	172	42656623	20.11	ug/mL	-0.01
9) Terphenyl-d14	13.298	244	32831174	21.41	ug/mL	0.00
Spiked Amount	25.000		Recovery	=	85.64%	

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

Acute Toxicity Test Results for ADC Wet Weather Water Quality Monitoring

Monitoring Period: November 2021

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

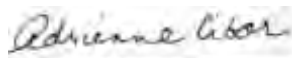
Testing Lab: Enthalpy Analytical
4340 Vandever Avenue
San Diego, CA 92120

Submitted: December 23, 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:



Introduction

Three samples were collected during a storm event for the ADC Kekaha Water Quality Monitoring. Samples were submitted for bioassay testing to the Enthalpy Analytical Laboratory in San Diego, California by Cardno-GS. The salinity of all three samples was above 1 part per thousand (ppt), therefore testing was conducted with the marine species, including Pacific topsmelt (*Atherinops affinis*), inland silverside (*Menidia beryllina*), and mysid shrimp (*Americamysis bahia*) 96-hour acute survival.

Materials and Methods

Sample Information

Client: Cardno-GS, Inc.

Project Name: ADC Kekaha Water Quality Monitoring

Sample IDs: 1. DW-1/WW-1
2. WW-2
3. WW-3

Sample Collection Dates, Times^a: 1. 11/15/2021, 13:30
2. 11/15/2021, 11:40
3. 11/15/2021, 11:55

Sample Receipt Dates, Times: 11/17/2021, 10:10

Sample Material: Stormwater

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. (°C)	Conductivity (µS/cm)	Salinity (ppt)	Alkalinity (mg/L as CaCO ₃)	Total Chlorine (mg/L)
DW-1/WW-1	7.53	9.0	1.0	6,350	3.5	138	<0.02
WW-2	7.43	9.6	1.0	NM	30.9	156	<0.02
WW-3	7.79	9.6	1.0	9,700	5.4	167	<0.02

nm = not measured; salinity greater than 10ppt

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.

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

Pacific topsmelt test: 11/17/21, 16:10 to 11/21/21, 15:35	Species: <i>Atherinops affinis</i> . Source & Age: Aquatic Biosystems (Ft. Collins, CO), 14 days
Inland silverside test: 11/17/21, 16:18 to 11/21/21, 15:15	Species: <i>Menidia beryllina</i> . Source & Age: Aquatic Biosystems (Ft. Collins, CO), 10 days
Mysid shrimp test: 11/17/21, 17:08 to 11/21/21, 15:20	Species: <i>Americamysis bahia</i> . Source & Age: Aquatic Biosystems (Ft. Collins, CO), 5 days
Protocol Used:	Acute Manual (EPA/821/R-02/012), EPA 2002
Test Acceptability Criteria:	Control mean survival $\geq 90\%$
Test Concentration:	100% sample (DW-1/WW-1, WW-2, WW-3)
Sample Manipulation:	Artificial salts (Instant Ocean®) were added to bring the salinity of the DW-1/WW-1 and WW-3 samples to 30 ± 1 parts per thousand (ppt)
Lab Control Water:	20- μ m 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®)

Statistical Analyses

Statistical analyses were conducted using 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 to the DW-1/WW-1, WW-2, or WW-3 samples compared to the respective artificial salt controls. A summary of results for the marine species tests is presented in Table 2.

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 2. Summary of Marine 96-hr Acute Survival Results

Sample ID	Test Organism	Salt Control Result	100% Sample Result	Statistically Significant Effect? (Yes/No)	Percent Effect
DW-1/WW-1	Pacific topsmelt	100	100	No	0.0
	Inland silverside	95.0	95.0	No	0.0
	Mysid shrimp	95.0	100	No	-5.3
WW-2	Pacific topsmelt	100	100	No	0.0
	Inland silverside	95.0	100	No	-5.3
	Mysid shrimp	95.0	95.0	No	0.0
WW-3	Pacific topsmelt	100	100	No	0.0
	Inland silverside	95.0	100	No	-5.3
	Mysid shrimp	95.0	90.0	No	5.3

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.

Quality Assurance

The samples were received via overnight delivery service two days after collection and within the appropriate temperature range. All tests were initiated within the maximum allowable holding time of 72 hours.

Mean control responses met minimum acceptability criteria for 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.

Reference Toxicant Testing

Results for reference toxicant testing used to monitor laboratory performance and test organism sensitivity are summarized in Table 3. The reference toxicant tests for all 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 3. 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	100	174	164 ± 106	32.1
Inland Silverside	100	211	187 ± 92.9	24.9
Mysid Shrimp	100	164	223 ± 79.6	17.8

NOEC = the highest concentration tested that results in no observed effect

LC₅₀ = concentration expected to cause a lethal effect to 50 percent of the test organisms

Historical LC₅₀ ± 2 SD = the mean LC₅₀ 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

Pacific Topsmelt

CETIS Summary Report

Report Date: 24 Nov-21 13:09 (p 1 of 1)
 Test Code: 2111-S283 | 09-8883-9512

Pacific Topsmelt 96-h Acute Survival Test						Nautilus Environmental (CA)					
Batch ID:	02-0454-3171	Test Type:	Survival (96h)			Analyst:	Not Applicable				
Start Date:	17 Nov-21 16:10	Protocol:	EPA/821/R-02-012 (2002)			Diluent:	Diluted Natural Seawater				
Ending Date:	21 Nov-21 15:35	Species:	Atherinops affinis			Brine:	Not Applicable				
Duration:	95h	Source:	Aquatic Biosystems, CO			Age:	14d				
Sample ID:	07-5962-2319	Code:	21-1247			Client:	Cardno Hawaii				
Sample Date:	15 Nov-21 13:30	Material:	Stormwater			Project:	ADC Kekaha WQ Monitoring				
Receive Date:	17 Nov-21 10:10	Source:	Cardno Hawaii								
Sample Age:	51h (1 °C)	Station:	DW-1/WW-1								
Comparison Summary											
Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method				
10-1401-3934	96h Survival Rate	100	>100	NA	NA	1	Wilcoxon Rank Sum 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	1	1	1	1	1	0	0	0.0%	0.0%
0	Salt 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						
0	Salt Control	1	1	1	1						
100		1	1	1	1						

QA: ACS 12/8/21

CETIS Analytical Report

Report Date: 24 Nov-21 13:09 (p 1 of 1)
 Test Code: 2111-S283 | 09-8883-9512

Pacific Topsmelt 96-h Acute Survival Test					Nautilus Environmental (CA)	
Analysis ID:	10-1401-3934	Endpoint:	96h Survival Rate	CETIS Version:	CETISv1.8.7	
Analyzed:	24 Nov-21 13:09	Analysis:	Nonparametric-Two Sample	Official Results:	Yes	

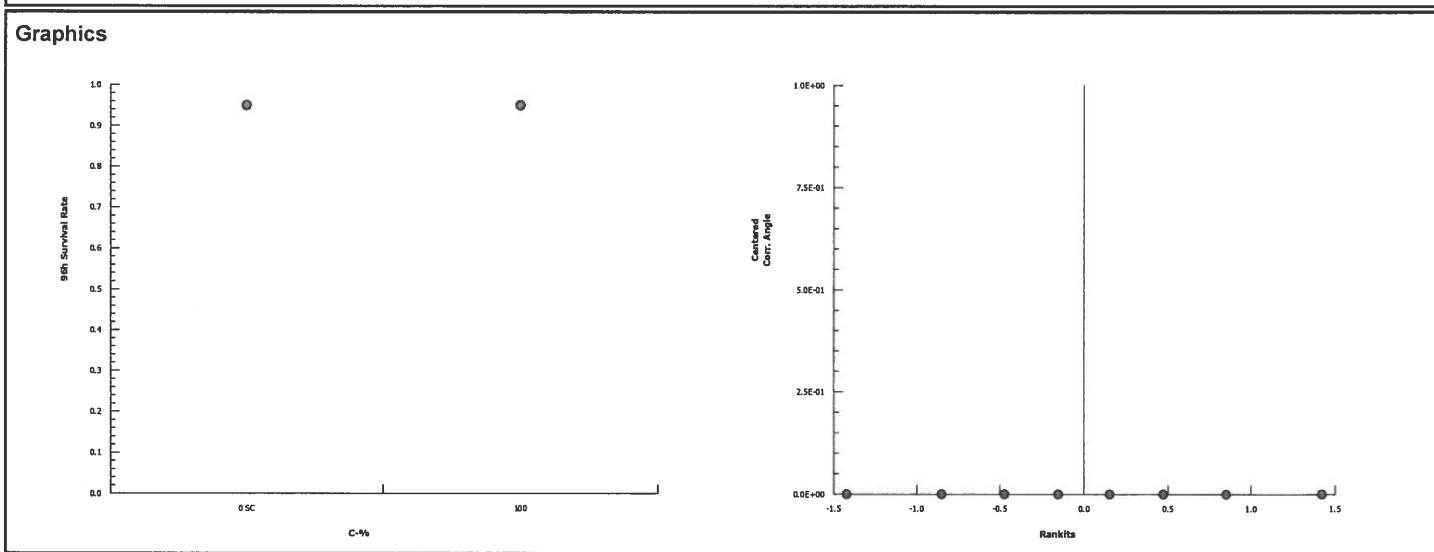
Data Transform	Zeta	Alt Hyp	Trials	Seed	Test Result
Angular (Corrected)	NA	C > T	NA	NA	Passes 96h survival rate

Wilcoxon Rank Sum Two-Sample Test									
Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Salt 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	Salt 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	Salt 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%



CETIS Summary Report

Report Date: 24 Nov-21 13:16 (p 1 of 1)
Test Code: 2111-S286 | 02-3532-9933

Pacific Topsmelt 96-h Acute Survival Test						Nautilus Environmental (CA)					
Batch ID:	21-4257-7416		Test Type:	Survival (96h)		Analyst:	Not Applicable				
Start Date:	17 Nov-21 16:10		Protocol:	EPA/821/R-02-012 (2002)		Diluent:	A Diluted Natural Seawater				
Ending Date:	21 Nov-21 15:35		Species:	Atherinops affinis		Brine:	Not Applicable				
Duration:	95h		Source:	Aquatic Biosystems, CO		Age:	14d				
Sample ID:	16-6204-6634		Code:	21-1248		Client:	Cardno Hawaii				
Sample Date:	15 Nov-21 11:40		Material:	Stormwater		Project:	ADC Kekaha WQ Monitoring				
Receive Date:	17 Nov-21 10:10		Source:	Cardno Hawaii							
Sample Age:	52h (1 °C)		Station:	WW-2							
Comparison Summary											
Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method				
09-9936-7999	96h Survival Rate	100	>100	NA	NA	1	Wilcoxon Rank Sum 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	1	1	1	1	1	0	0	0.0%	0.0%
0	Salt 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						
0	Salt Control	1	1	1	1						
100		1	1	1	1						

QA: ACS 12/8/21

CETIS Analytical Report

Report Date: 24 Nov-21 13:16 (p 1 of 1)

Test Code: 2111-S286 | 02-3532-9933

Pacific Topsmelt 96-h Acute Survival Test				Nautilus Environmental (CA)	
Analysis ID:	09-9936-7999	Endpoint:	96h Survival Rate	CETIS Version:	CETISv1.8.7
Analyzed:	24 Nov-21 13:13	Analysis:	Nonparametric-Two Sample	Official Results:	Yes

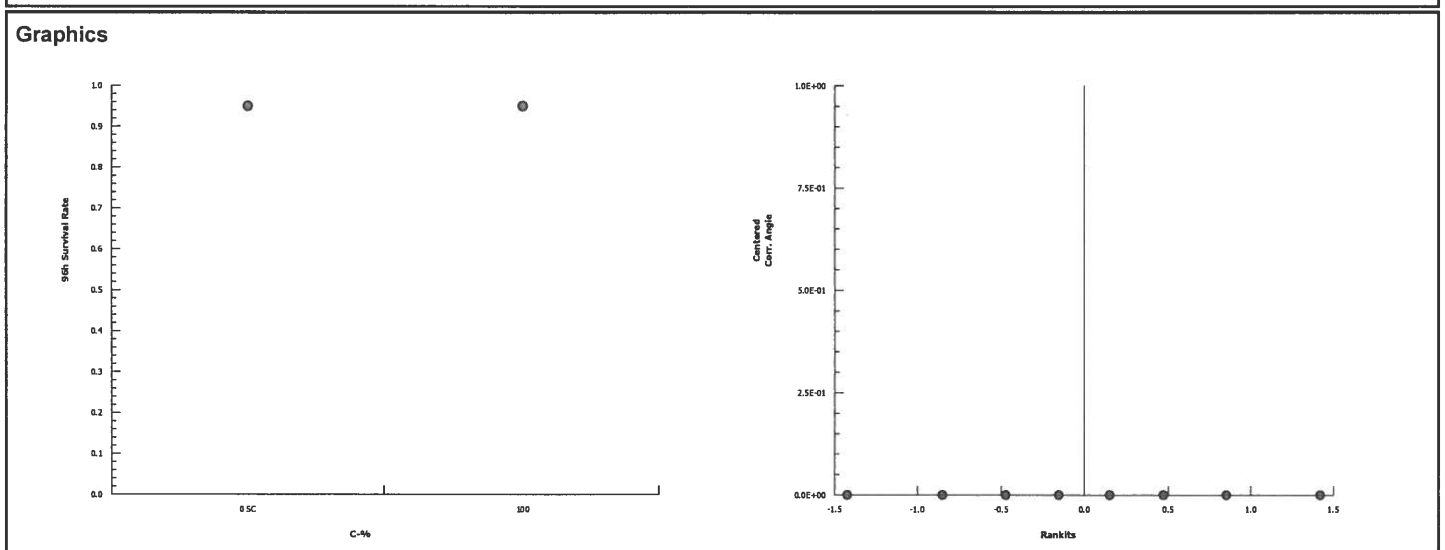
Data Transform	Zeta	Alt Hyp	Trials	Seed	Test Result
Angular (Corrected)	NA	C > T	NA	NA	Passes 96h survival rate

Wilcoxon Rank Sum Two-Sample Test									
Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Salt 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	Salt 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	Salt 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%



CETIS Summary Report

Report Date: 24 Nov-21 13:15 (p 1 of 1)
 Test Code: 2111-S289 | 18-0951-7923

Pacific Topsmelt 96-h Acute Survival Test						Nautilus Environmental (CA)					
Batch ID:	13-1676-1400	Test Type:	Survival (96h)	Analyst:	Not Applicable						
Start Date:	17 Nov-21 16:10	Protocol:	EPA/821/R-02-012 (2002)	Diluent:	Diluted Natural Seawater						
Ending Date:	21 Nov-21 15:35	Species:	Atherinops affinis	Brine:	Not Applicable						
Duration:	95h	Source:	Aquatic Biosystems, CO	Age:	14d						
Sample ID:	03-7053-1191	Code:	21-1249	Client:	Cardno Hawaii						
Sample Date:	15 Nov-21 11:55	Material:	Stormwater	Project:	ADC Kekaha WQ Monitoring						
Receive Date:	17 Nov-21 10:10	Source:	Cardno Hawaii								
Sample Age:	52h (1 °C)	Station:	WW-3								
Comparison Summary											
Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method				
09-8814-0846	96h Survival Rate	100	>100	NA	NA	1	Wilcoxon Rank Sum 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	1	1	1	1	1	0	0	0.0%	0.0%
0	Salt 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						
0	Salt Control	1	1	1	1						
100		1	1	1	1						

Ⓡ GUY PCS 12/8/21

CETIS Analytical Report

Report Date: 24 Nov-21 13:15 (p 1 of 1)
Test Code: 2111-S289 | 18-0951-7923

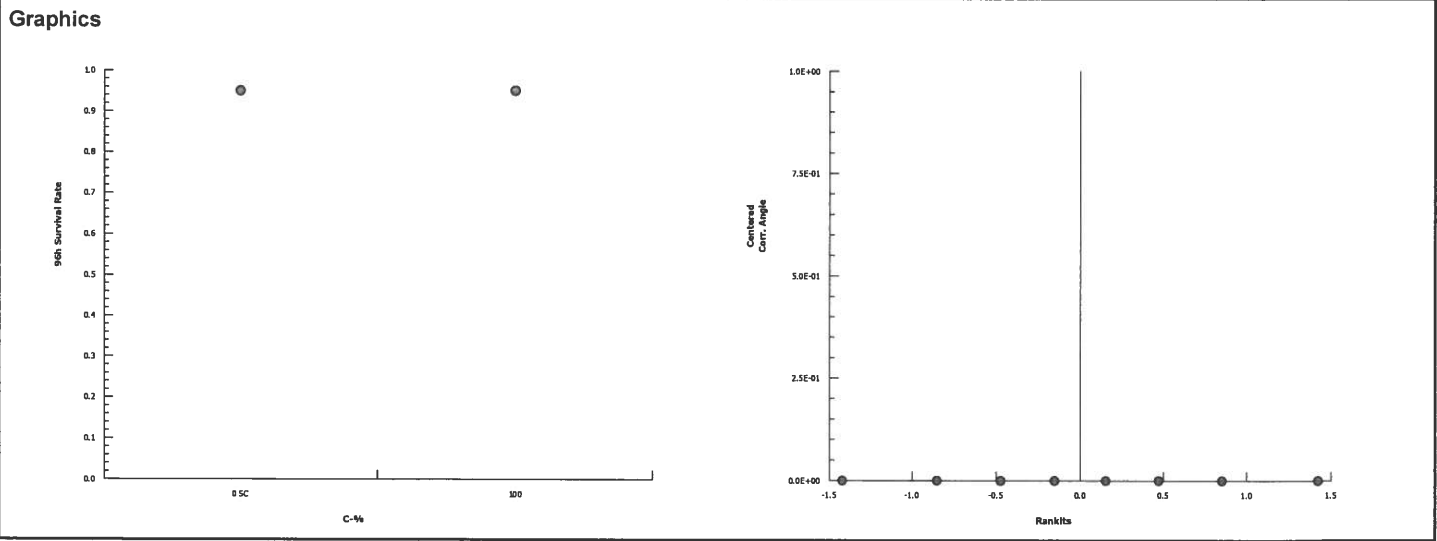
Pacific Topsmelt 96-h Acute Survival Test					Nautilus Environmental (CA)	
Analysis ID:	09-8814-0846	Endpoint:	96h Survival Rate	CETIS Version:	CETISv1.8.7	
Analyzed:	24 Nov-21 13:15	Analysis:	Nonparametric-Two Sample	Official Results:	Yes	
Data Transform	Zeta	Alt Hyp	Trials	Seed	Test Result	
Angular (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%)
Salt 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	Salt 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	Salt 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%



Client: Cardno HI

Test Species: *A. affinis*

Sample ID: ^{DW-1/} WW-1, WW-2, WW-3

Start Date/Time: 11/17/2021 1610

Sample Log-in No.: 21-1247, -1248, -1249

End Date/Time: 11/21/2021 1535

Test No.: 211-S283, S286, S289

Tech Initials

0 24 48 72 96

Counts: SP RT SP SP (GM)

Readings: SP SP SP SP (GM)

Dilutions made by: RT RT

Concentration (%)	Rep	Number of Live Organisms					Salinity (ppt)					Temperature (°C)					Dissolved Oxygen (mg/L)					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	29.4	29.3	30.0	29.8	29.9	20.1	19.4	20.1	20.7	20.9	7.6	7.0	7.0	6.9	6.7	7.96	7.78	8.05	7.81	7.81
	B	5	5	5	5	5		29.2					20.8					6.2					7.74			
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
Salt Control	A	5	5	5	5	5	29.9	30.1	30.5	30.6	30.7	20.2	19.2	20.0	20.7	20.9	7.6	6.9	6.9	6.2	6.7	8.17	8.03	8.15	8.12	8.02
	B	5	5	5	5	5		30.1					20.9					6.0					8.10			
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
100% Dw-1/WW-1	A	5	5	5	5	5	29.4	29.5	29.2	29.6	29.5	21.4	19.3	20.1	20.7	20.3	7.4	6.8	7.2	6.5	6.9	7.94	8.00	7.93	8.04	8.18
	B	5	5	5	5	5		29.5					20.9					5.7					8.02			
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
100% WW-2	A	5	5	5	5	5	31.2	31.3	31.2	31.3	31.4	21.5	19.1	20.3	20.6	20.3	7.3	7.1	7.6	6.9	6.8	7.94	7.85	7.54	7.75	8.01
	B	5	5	5	5	5		31.2					20.8					6.5					7.95			
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
100% WW-3	A	5	5	5	5	5	29.6	29.7	29.6	29.8	30.2	20.1	19.2	20.5	20.4	20.2	8.0	6.9	7.7	6.5	6.7	7.93	7.96	7.91	8.00	8.19
	B	5	5	5	5	5		29.4					20.8					5.6					8.01			
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
	A																									
	B																									
	C																									
	D																									
	A																									
	B																									
	C																									
	D																									

Initial Counts QC'd by: KUM
Initiated by: SP

Environmental Chamber: C

Animal Source/Date Received: ABS, 11/16/21

Age at Initiation: 14 day

Animal Acclimation Qualifiers (circle all that apply):

Q22 / Q23 / Q24 / none

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)

QC Check: JL 11/24/21

Final Review:

Feeding Times				
0	24	48	72	96
AM:	0850	0830	0830	0800
PM:	1740			

ALS 12/8/21

Inland Silverside

CETIS Summary Report

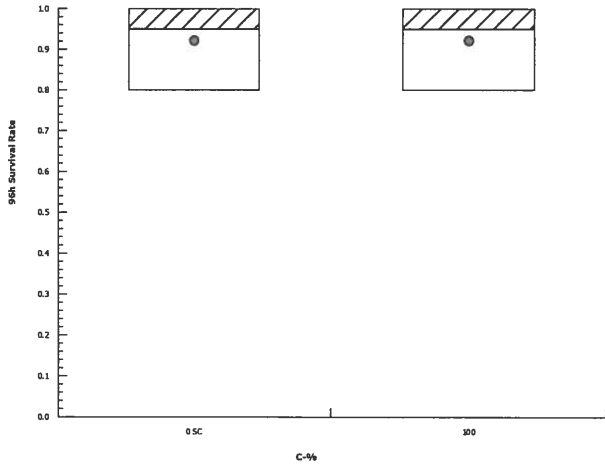
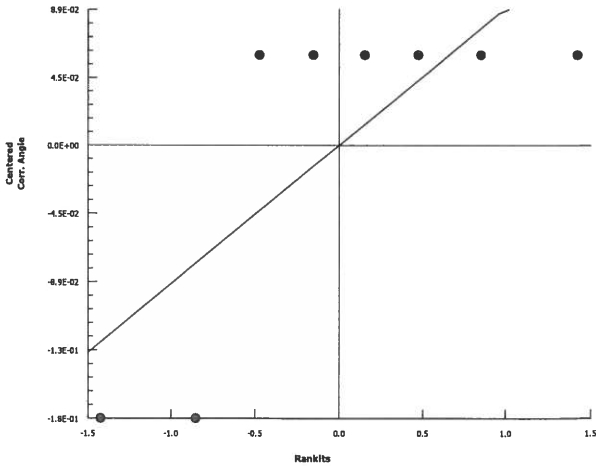
Report Date: 24 Nov-21 12:47 (p 1 of 1)
 Test Code: 2111-S284 | 10-8517-1994

Inland Silverside 96-h Acute Survival Test						Nautilus Environmental (CA)					
Batch ID:	02-4964-6863	Test Type:	Survival (96h)				Analyst:	Not Applicable			
Start Date:	17 Nov-21 16:18	Protocol:	EPA/821/R-02-012 (2002)				Diluent:	Diluted Natural Seawater			
Ending Date:	21 Nov-21 15:15	Species:	Menidia beryllina				Brine:	Not Applicable			
Duration:	95h	Source:	Aquatic Biosystems, CO				Age:	10d			
Sample ID:	19-5182-4514	Code:	21-1247				Client:	Cardno Hawaii			
Sample Date:	15 Nov-21 13:30	Material:	Stormwater				Project:	ADC Kekaha WQ Monitoring			
Receive Date:	17 Nov-21 10:10	Source:	Cardno Hawaii								
Sample Age:	51h (1 °C)	Station:	DW-1/WW-1								
Comparison Summary											
Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method				
04-3998-8424	96h Survival Rate	100	>100	NA	14.5%	1	Wilcoxon Rank Sum Two-Sample Test				
Test Acceptability											
Analysis ID	Endpoint	Attribute		Test Stat	TAC Limits		Overlap	Decision			
04-3998-8424	96h Survival Rate	Control Resp		0.95	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%
0	Salt Control	4	0.95	0.7909	1	0.8	1	0.05	0.1	10.53%	5.0%
100		4	0.95	0.7909	1	0.8	1	0.05	0.1	10.53%	5.0%
96h Survival Rate Detail											
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4						
0	Lab Control	1	1	1	1						
0	Salt Control	1	0.8	1	1						
100		0.8	1	1	1						

ⓐ ACS Q14 12/4/21

CETIS Analytical Report

Report Date: 24 Nov-21 12:47 (p 1 of 1)
Test Code: 2111-S284 | 10-8517-1994

Inland Silverside 96-h Acute Survival Test							Nautilus Environmental (CA)				
Analysis ID: 04-3998-8424		Endpoint: 96h Survival Rate		CETIS Version: CETISv1.8.7							
Analyzed: 24 Nov-21 12:46		Analysis: Nonparametric-Two Sample		Official Results: Yes							
Data Transform		Zeta	Alt Hyp	Trials	Seed		PMSD	Test Result			
Angular (Corrected)		NA	C > T	NA	NA		14.5%	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%)		
Salt Control		100	18	NA	2	6	0.7857	Exact	Non-Significant Effect		
ANOVA Table											
Source	Sum Squares		Mean Square		DF	F Stat	P-Value	Decision(α:5%)			
Between	0		0		1	0	1.0000	Non-Significant Effect			
Error	0.08506185		0.01417698		6						
Total	0.08506185				7						
Distributional Tests											
Attribute	Test		Test Stat	Critical	P-Value	Decision(α:1%)					
Variances	Variance Ratio F		1	47.47	1.0000	Equal Variances					
Distribution	Shapiro-Wilk W Normality		0.5659	0.6451	<0.0001	Non-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	0.95	0.7909	1	1	0.8	1	0.05	10.53%	0.0%
100		4	0.95	0.7909	1	1	0.8	1	0.05	10.53%	0.0%
Angular (Corrected) Transformed Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Salt Control	4	1.286	1.096	1.475	1.345	1.107	1.345	0.05953	9.26%	0.0%
100		4	1.286	1.096	1.475	1.345	1.107	1.345	0.05953	9.26%	0.0%
Graphics											
 											

CETIS Summary Report

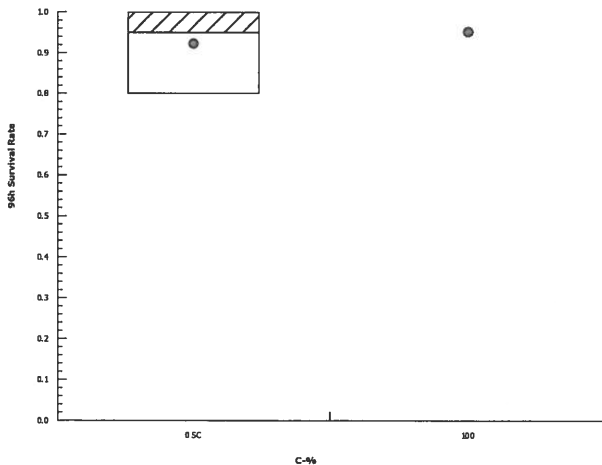
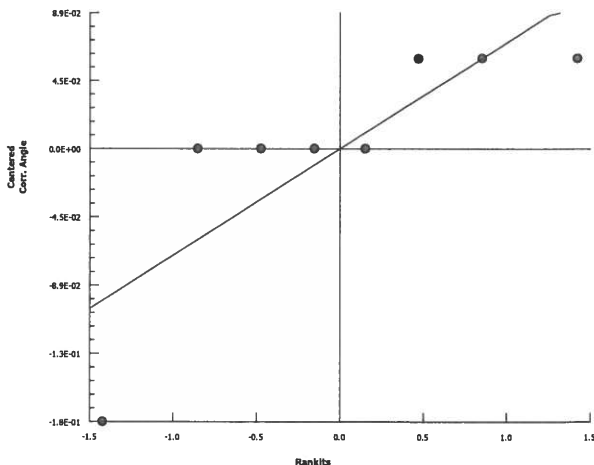
Report Date: 24 Nov-21 12:49 (p 1 of 1)
 Test Code: 2111-S287 | 11-7794-6193

Inland Silverside 96-h Acute Survival Test						Nautilus Environmental (CA)					
Batch ID:	20-2090-4179	Test Type:	Survival (96h)	Analyst:	Not Applicable						
Start Date:	17 Nov-21 16:18	Protocol:	EPA/821/R-02-012 (2002)	Diluent:	Diluted Natural Seawater						
Ending Date:	21 Nov-21 15:15	Species:	Menidia beryllina	Brine:	Not Applicable						
Duration:	95h	Source:	Aquatic Biosystems, CO	Age:	10d						
Sample ID:	02-3021-0748	Code:	21-1248	Client:	Cardno Hawaii						
Sample Date:	15 Nov-21 11:40	Material:	Stormwater	Project:	ADC Kekaha WQ Monitoring						
Receive Date:	17 Nov-21 10:10	Source:	Cardno Hawaii								
Sample Age:	53h (1 °C)	Station:	WW-2								
Comparison Summary											
Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method				
01-4001-1928	96h Survival Rate	100	>100	NA	10.8%	1	Wilcoxon Rank Sum Two-Sample Test				
Test Acceptability											
Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision					
01-4001-1928	96h Survival Rate	Control Resp	0.95	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%
0	Salt Control	4	0.95	0.7909	1	0.8	1	0.05	0.1	10.53%	5.0%
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						
0	Salt Control	1	0.8	1	1						
100		1	1	1	1						

Ⓢ Q18 A15 12/8/21

CETIS Analytical Report

Report Date: 24 Nov-21 12:49 (p 1 of 1)
Test Code: 2111-S287 | 11-7794-6193

Inland Silverside 96-h Acute Survival Test										Nautilus Environmental (CA)	
Analysis ID: 01-4001-1928		Endpoint: 96h Survival Rate					CETIS Version: CETISv1.8.7				
Analyzed: 24 Nov-21 12:49		Analysis: Nonparametric-Two Sample					Official Results: Yes				
Data Transform		Zeta	Alt Hyp	Trials	Seed		PMSD	Test Result			
Angular (Corrected)		NA	C > T	NA	NA		10.8%	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%)		
Salt Control		100	20	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	0.007088488		0.007088488		1	1	0.3559	Non-Significant Effect			
Error	0.04253092		0.007088488		6						
Total	0.04961941				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	Salt Control	4	0.95	0.7909	1	1	0.8	1	0.05	10.53%	0.0%
100		4	1	1	1	1	1	1	0	0.0%	-5.26%
Angular (Corrected) Transformed Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Salt Control	4	1.286	1.096	1.475	1.345	1.107	1.345	0.05953	9.26%	0.0%
100		4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	-4.63%
Graphics											
 											

CETIS Summary Report

Report Date: 24 Nov-21 12:51 (p 1 of 1)
 Test Code: 2111-S290 | 10-5543-4287

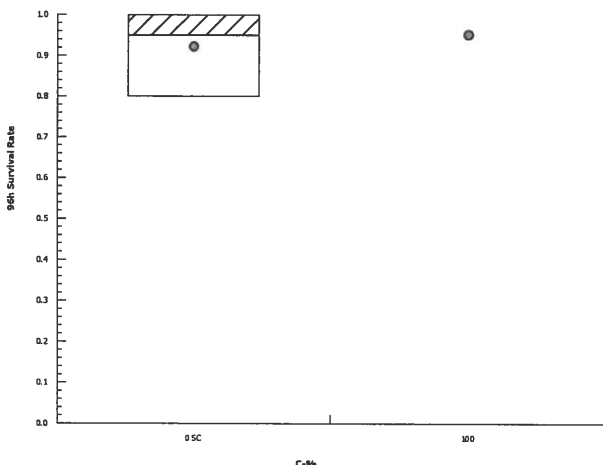
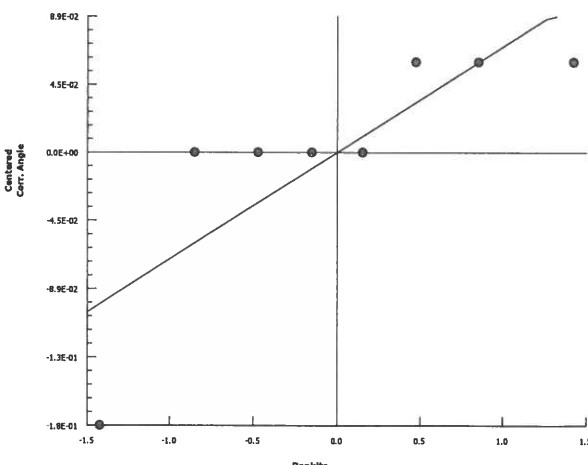
Inland Silverside 96-h Acute Survival Test						Nautilus Environmental (CA)					
Batch ID:	18-8988-8352	Test Type:	Survival (96h)	Analyst:	<i>Not Applicable</i>						
Start Date:	17 Nov-21 16:18	Protocol:	EPA/821/R-02-012 (2002)	Diluent:	A Diluted Natural Seawater						
Ending Date:	21 Nov-21 15:15	Species:	Menidia beryllina	Brine:	Not Applicable						
Duration:	95h	Source:	Aquatic Biosystems, CO	Age:	10d						
Sample ID:	10-5143-6858	Code:	21-1249	Client:	Cardno Hawaii						
Sample Date:	15 Nov-21 11:55	Material:	Stormwater	Project:	ADC Kekaha WQ Monitoring						
Receive Date:	17 Nov-21 10:10	Source:	Cardno Hawaii								
Sample Age:	52h (1 °C)	Station:	WW-3								
Comparison Summary											
Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method				
21-0041-7958	96h Survival Rate	100	>100	NA	10.8%	1	Wilcoxon Rank Sum Two-Sample Test				
Test Acceptability											
Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision					
21-0041-7958	96h Survival Rate	Control Resp	0.95	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%
0	Salt Control	4	0.95	0.7909	1	0.8	1	0.05	0.1	10.53%	5.0%
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						
0	Salt Control	1	0.8	1	1						
100		1	1	1	1						

QA: AS 12/8/21

CETIS Analytical Report

Report Date: 24 Nov-21 12:51 (p 1 of 1)

Test Code: 2111-S290 | 10-5543-4287

Inland Silverside 96-h Acute Survival Test							Nautilus Environmental (CA)				
Analysis ID: 21-0041-7958		Endpoint: 96h Survival Rate		CETIS Version: CETISv1.8.7							
Analyzed: 24 Nov-21 12:51		Analysis: Nonparametric-Two Sample		Official Results: Yes							
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result					
Angular (Corrected)	NA	C > T	NA	NA	10.8%	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%)		
Salt Control		100	20	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	0.007088488		0.007088488		1	1	0.3559	Non-Significant Effect			
Error	0.04253092		0.007088488		6						
Total	0.04961941				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	Salt Control	4	0.95	0.7909	1	1	0.8	1	0.05	10.53%	0.0%
100		4	1	1	1	1	1	1	0	0.0%	-5.26%
Angular (Corrected) Transformed Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Salt Control	4	1.286	1.096	1.475	1.345	1.107	1.345	0.05953	9.26%	0.0%
100		4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	-4.63%
Graphics											
 											

Client: Cardno HI

Test Species: *M. beryllina*

Sample ID: ^{DW-1/}WW-1, WW-2, WW-3

Start Date/Time: 11/17/2021 1618

Sample Log-in No.: 21-1247, -1248, -1249

End Date/Time: 11/21/2021 1515

Test No.: 211-5284, 5287, 5290

Tech Initials				
0	24	48	72	96
KL	RT	SP	SP	GM
KL	SP	SP	SP	GM
RT		RT		

Counts:

Readings:

Dilutions made by:

Concentration (%)	Rep	Number of Live Organisms					Salinity (ppt)					Temperature (°C)					Dissolved Oxygen (mg/L)					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	29.6	29.9	29.9	30.0	30.1	24.4	24.6	24.4	25.5	25.9	6.9	5.7	6.1	5.7	6.0	7.97	7.86	7.92	7.84	7.86
	B	5	5	5	5	5			30.0					25.2					5.5					7.83		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
Salt Control	A	5	5	5	5	5	30.2	30.5	30.4	30.6	30.8	24.1	24.9	24.5	25.9	25.6	6.8	5.7	5.8	5.7	6.0	8.19	8.10	8.14	8.11	8.07
	B	5	4	4	4	4			30.8					25.4					5.5					8.07		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
100% D ^W -1/WW-1	A	5	5	5	4	4	29.6	29.6	29.5	29.7	29.7	25.6	25.6	24.5	26.0	25.3	7.0	5.6	6.8	5.5	5.9	7.86	8.01	7.91	8.06	8.20
	B	5	5	5	5	5			29.9					25.5					5.3					8.09		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
100% WW-2	A	5	5	5	5	5	31.2	31.4	31.2	31.3	31.5	24.3	25.0	24.3	26.6	25.6	6.9	5.3	6.9	5.0	5.9	7.37	7.35	7.42	7.88	7.84
	B	5	5	5	5	5			31.3					25.5					5.1					7.90		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
100% WW-3	A	5	5	5	5	5	29.5	29.8	29.7	30.1	30.6	24.1	24.9	24.4	25.7	25.3	7.2	5.3	6.8	5.3	5.9	7.89	7.97	7.94	8.12	8.23
	B	5	5	5	5	5			30.1					25.3					5.4					8.17		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
	A																									
	B																									
	C																									
	D																									
	A																									
	B																									
	C																									
	D																									

Initial Counts QC'd by: HH/SP

Initiated by: KL

Environmental Chamber: A

Animal Source/Date Received: ABS 11/18/21

Age at Initiation: 10 days

Animal Acclimation Qualifiers (circle all that apply):

Q22 11 Q23 Q24 none

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) (X) Q24 11/17/21

QC Check:

JL 11/24/21

Final Review:

Feeding Times				
0	24	48	72	96
AM:	0835	0830	0830	0830
PM:	1740			

ACS 12/8/21

Mysid Shrimp

CETIS Summary Report

Report Date: 24 Nov-21 12:58 (p 1 of 1)
Test Code: 2111-S285 | 06-0860-5733

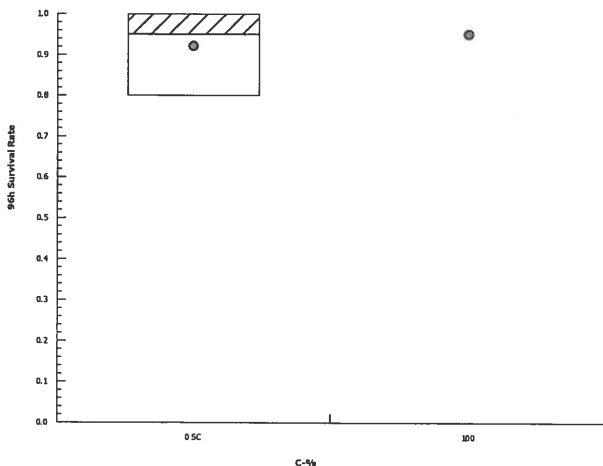
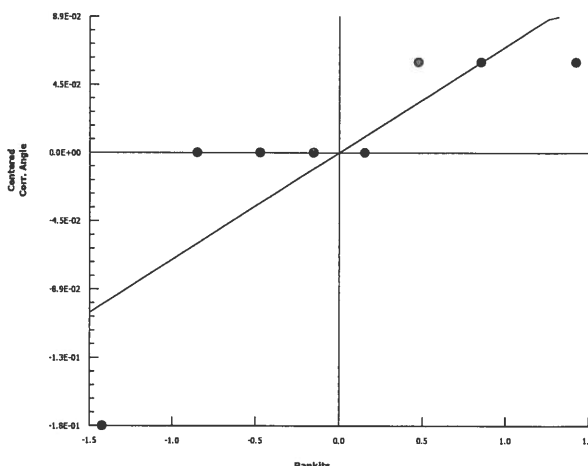
Mysid 96-h Acute Survival Test						Nautilus Environmental (CA)					
Batch ID:	10-4969-9229	Test Type:	Survival (96h)	Analyst:	<i>Not Applicable</i>						
Start Date:	17 Nov-21 17:08	Protocol:	EPA/821/R-02-012 (2002)	Diluent:	<i>(B) Diluted Natural Seawater</i>						
Ending Date:	21 Nov-21 15:20	Species:	Americamysis bahia	Brine:	Not Applicable						
Duration:	94h	Source:	Aquatic Biosystems, CO	Age:	<i>(B) 10d 5 days</i>						
Sample ID:	00-7992-8413	Code:	21-1247	Client:	Cardno Hawaii						
Sample Date:	15 Nov-21 13:30	Material:	<i>(B) Effluent Sample Stormwater</i>	Project:	ADC Kekaha WQ Monitoring						
Receive Date:	17 Nov-21 10:10	Source:	Cardno Hawaii								
Sample Age:	52h (1 °C)	Station:	DW-1/WW-1								
Comparison Summary											
Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method				
16-3493-0437	96h Survival Rate	100	>100	NA	10.8%	1	Wilcoxon Rank Sum Two-Sample Test				
Test Acceptability											
Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision					
16-3493-0437	96h Survival Rate	Control Resp	0.95	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%
0	Salt Control	4	0.95	0.7909	1	0.8	1	0.05	0.1	10.53%	5.0%
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						
0	Salt Control	1	1	1	0.8						
100		1	1	1	1						

(A) Q18 JCL 11/24/21

(B) Q18 ACS 12/8/21

CETIS Analytical Report

Report Date: 24 Nov-21 12:58 (p 1 of 1)
Test Code: 2111-S285 | 06-0860-5733

Mysid 96-h Acute Survival Test							Nautilus Environmental (CA)				
Analysis ID: 16-3493-0437		Endpoint: 96h Survival Rate			CETIS Version: CETISv1.8.7						
Analyzed: 24 Nov-21 12:58		Analysis: Nonparametric-Two Sample			Official Results: Yes						
Data Transform		Zeta	Alt Hyp	Trials	Seed		PMSD	Test Result			
Angular (Corrected)		NA	C > T	NA	NA		10.8%	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%)		
Salt Control		100	20	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	0.007088488		0.007088488		1	1	0.3559	Non-Significant Effect			
Error	0.04253092		0.007088488		6						
Total	0.04961941				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	Salt Control	4	0.95	0.7909	1	1	0.8	1	0.05	10.53%	0.0%
100		4	1	1	1	1	1	1	0	0.0%	-5.26%
Angular (Corrected) Transformed Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Salt Control	4	1.286	1.096	1.475	1.345	1.107	1.345	0.05953	9.26%	0.0%
100		4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	-4.63%
Graphics											
 											

CETIS Summary Report

Report Date: 24 Nov-21 13:02 (p 1 of 1)
Test Code: 2111-S288 | 02-5897-0798

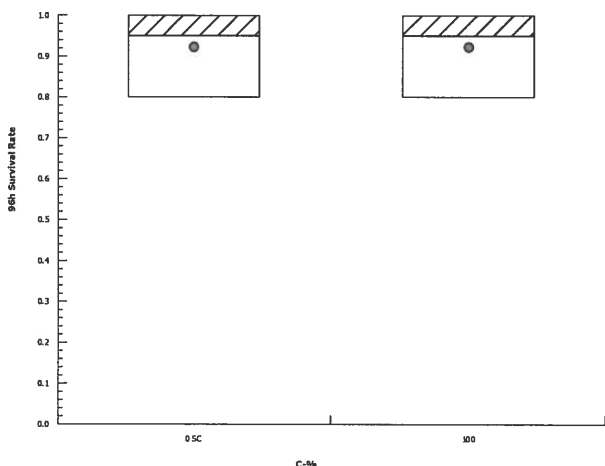
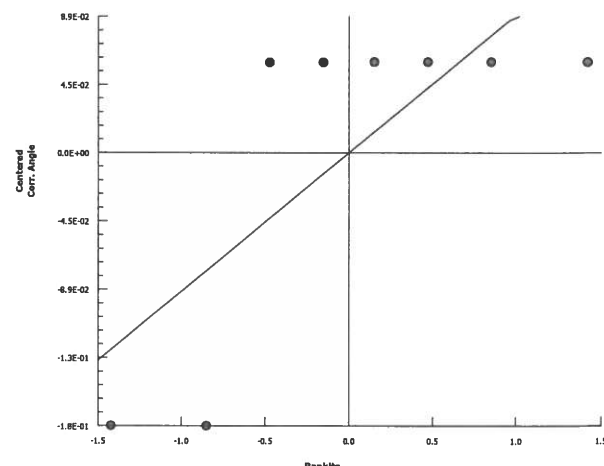
Mysid 96-h Acute Survival Test						Nautilus Environmental (CA)					
Batch ID:	20-6418-7665	Test Type:	Survival (96h)	Analyst:	<i>Not Applicable</i>						
Start Date:	17 Nov-21 17:08	Protocol:	EPA/821/R-02-012 (2002)	Diluent:	<i>Diluted Natural Seawater</i>						
Ending Date:	21 Nov-21 15:20	Species:	Americamysis bahia	Brine:	Not Applicable						
Duration:	94h	Source:	Aquatic Biosystems, CO	Age:	<i>6 to 5d</i>						
Sample ID:	11-7158-7422	Code:	21-1248	Client:	Cardno Hawaii						
Sample Date:	15 Nov-21 13:30	Material:	<i>Effluent Sample Stormwater</i>	Project:	ADC Kekaha WQ Monitoring						
Receive Date:	17 Nov-21 10:10	Source:	Cardno Hawaii								
Sample Age:	<i>53h</i> (1 °C)	Station:	WW-2								
Comparison Summary											
Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method				
05-7240-4121	96h Survival Rate	100	>100	NA	14.5%	1	Wilcoxon Rank Sum Two-Sample Test				
Test Acceptability											
Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision					
05-7240-4121	96h Survival Rate	Control Resp	0.95	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%
0	Salt Control	4	0.95	0.7909	1	0.8	1	0.05	0.1	10.53%	5.0%
100		4	0.95	0.7909	1	0.8	1	0.05	0.1	10.53%	5.0%
96h Survival Rate Detail											
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4						
0	Lab Control	1	1	1	1						
0	Salt Control	1	1	1	0.8						
100		1	1	0.8	1						

(A) Q18 JZ 11/24/21

(B) Q16 P15 12/8/21

CETIS Analytical Report

Report Date: 24 Nov-21 13:02 (p 1 of 1)
Test Code: 2111-S288 | 02-5897-0798

Mysid 96-h Acute Survival Test							Nautilus Environmental (CA)				
Analysis ID: 05-7240-4121		Endpoint: 96h Survival Rate		CETIS Version: CETISv1.8.7							
Analyzed: 24 Nov-21 13:02		Analysis: Nonparametric-Two Sample		Official Results: Yes							
Data Transform		Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result				
Angular (Corrected)		NA	C > T	NA	NA	14.5%	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%)		
Salt Control		100	18	NA	2	6	0.7857	Exact	Non-Significant Effect		
ANOVA Table											
Source	Sum Squares		Mean Square		DF	F Stat	P-Value	Decision(α:5%)			
Between	0		0		1	0	1.0000	Non-Significant Effect			
Error	0.08506185		0.01417698		6						
Total	0.08506185				7						
Distributional Tests											
Attribute	Test		Test Stat	Critical	P-Value	Decision(α:1%)					
Variances	Variance Ratio F		1	47.47	1.0000	Equal Variances					
Distribution	Shapiro-Wilk W Normality		0.5659	0.6451	<0.0001	Non-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	0.95	0.7909	1	1	0.8	1	0.05	10.53%	0.0%
100		4	0.95	0.7909	1	1	0.8	1	0.05	10.53%	0.0%
Angular (Corrected) Transformed Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Salt Control	4	1.286	1.096	1.475	1.345	1.107	1.345	0.05953	9.26%	0.0%
100		4	1.286	1.096	1.475	1.345	1.107	1.345	0.05953	9.26%	0.0%
Graphics											
 											

CETIS Summary Report

Report Date: 24 Nov-21 13:04 (p 1 of 1)
 Test Code: 2111-S291 | 10-4205-5524

Mysid 96-h Acute Survival Test						Nautilus Environmental (CA)					
Batch ID:	11-7096-1554	Test Type:	Survival (96h)	Analyst:	<i>Not Applicable</i>						
Start Date:	17 Nov-21 17:08	Protocol:	EPA/821/R-02-012 (2002)	Diluent:	<i>Ⓟ Diluted Natural Seawater</i>						
Ending Date:	21 Nov-21 15:20	Species:	Americamysis bahia	Brine:	Not Applicable						
Duration:	94h	Source:	Aquatic Biosystems, CO	Age:	<i>Ⓟ 100 SD</i>						
Sample ID:	10-4404-2597	Code:	21-1249	Client:	Cardno Hawaii						
Sample Date:	15 Nov-21 11:55	Material:	<i>Ⓟ Stormwater</i>	Project:	ADC Kekaha WQ Monitoring						
Receive Date:	17 Nov-21 10:10	Source:	Cardno Hawaii								
Sample Age:	53h (1 °C)	Station:	VW-3								
Comparison Summary											
Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method				
07-6921-1622	96h Survival Rate	100	>100	NA	15.6%	1	Equal Variance t Two-Sample Test				
Test Acceptability											
Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision					
07-6921-1622	96h Survival Rate	Control Resp	0.95	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%
0	Salt Control	4	0.95	0.7909	1	0.8	1	0.05	0.1	10.53%	5.0%
100		4	0.9	0.7163	1	0.8	1	0.05774	0.1155	12.83%	10.0%
96h Survival Rate Detail											
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4						
0	Lab Control	1	1	1	1						
0	Salt Control	1	1	1	0.8						
100		1	0.8	1	0.8						

Ⓟ Q18 SW 11/24/21

Ⓟ Q19 A/S 12/8/21

CETIS Analytical Report

Report Date: 24 Nov-21 13:04 (p 1 of 1)
Test Code: 2111-S291 | 10-4205-5524

Mysid 96-h Acute Survival Test							Nautilus Environmental (CA)				
Analysis ID: 07-6921-1622		Endpoint: 96h Survival Rate		CETIS Version: CETISv1.8.7							
Analyzed: 24 Nov-21 13:04		Analysis: Parametric-Two Sample		Official Results: Yes							
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result					
Angular (Corrected)	NA	C > T	NA	NA	15.6%	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	0.2685	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	0.95	0.7909	1	1	0.8	1	0.05	10.53%	0.0%
100		4	0.9	0.7163	1	0.9	0.8	1	0.05774	12.83%	5.26%
Angular (Corrected) Transformed Summary											
C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Salt Control	4	1.286	1.096	1.475	1.345	1.107	1.345	0.05953	9.26%	0.0%
100		4	1.226	1.007	1.445	1.226	1.107	1.345	0.06874	11.21%	4.63%
Graphics											

Client: Cardno HI

Test Species: *A. bahia*

Sample ID: ^{DW-1} WW-1, WW-2, WW-3

Start Date/Time: 11/17/2021 1708

Sample Log-in No.: 21-1247, -1248, -1249

End Date/Time: 11/21/2021 1520

Test No.: 211-S285, S288, S291

Tech Initials					
0	24	48	72	96	
PL	RT	SP	SP	GM	
KL	SP	SP	SP	GM	
RT		RT			

Counts:

Readings:

Dilutions made by:

Concentration (%)	Rep	Number of Live Organisms					Salinity (ppt)					Temperature (°C)					Dissolved Oxygen (mg/L)					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	29.6	29.9	29.6	30.1	30.8	24.4	24.5	24.9	25.2	25.2	6.9	6.1	6.2	5.7	6.0	7.95	7.87	7.96	7.80	7.86
	B	5	5	5	5	5			30.3					25.4					5.3					7.8		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
Salt Control	A	5	5	5	5	5	30.3	30.5	30.2	30.8	30.5	24.1	24.8	24.7	25.2	25.2	6.9	6.0	6.1	5.4	6.0	8.18	8.11	8.17	8.09	8.03
	B	5	5	5	5	5			30.7					25.7					5.2					8.04		
	C	5	5	5	5	5																				
	D	5	5	5	4	4																				
100% WW-1	A	5	5	5	5	5	29.5	29.7	29.6	29.9	30.6	25.9	24.8	24.6	25.3	25.2	7.0	5.9	6.4	5.6	6.0	7.97	8.01	7.92	7.87	7.80
	B	5	5	5	5	5			29.7					25.7					5.2					8.11		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
100% WW-2	A	5	5	5	5	5	31.2	31.3	31.2	31.6	31.9	24.0	24.8	24.5	25.2	25.2	7.0	5.4	6.6	5.0	5.3	7.39	7.74	7.41	7.86	7.85
	B	5	5	5	5	5			31.2					25.6					5.0					7.77		
	C	5	5	5	4	4																				
	D	5	5	5	5	5																				
100% WW-3	A	5	5	5	5	5	29.6	29.9	29.8	30.4	30.7	24.1	24.7	24.7	25.3	25.3	7.2	5.8	6.6	5.3	5.9	7.91	8.02	7.89	8.10	8.22
	B	5	5	5	5	4			30.0					25.5					5.0					8.18		
	C	5	5	5	5	5																				
	D	5	5	5	5	4																				
	A																									
	B																									
	C																									
	D																									
	A																									
	B																									
	C																									
	D																									

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

Environmental Chamber: A

Animal Source/Date Received: ABS 11/16/21

Age at Initiation: 5.4 days

Animal Acclimation Qualifiers (circle all that apply):

Q22 / Q23 / Q24 / none

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)

Q23 11/17/21

QC Check: 3u 11/24/21

Final Review:

Feeding Times					
0	24	48	72	96	
AM:	0850	0830	0830	0900	
PM:	1710	1700	1715	1600	

ACS 12/8/21

Appendix B

Sample Check-In Information

Client:

Cardno^{GS} HI

Tests Performed:

Acute top smelt, menidia, mysid

Project:

ADC water quality monitoring

Test ID No.(s):

2111-S283 to S291

Sample Descriptions:

- 1) no color, clear, no odor, no debris
- 2) light yellow, clear, no odor, no debris
- 3) no color, clear, no odor, no debris
- 4)

Sample ID:	1) WW-1	2) WW-2	3) WW-3	4)
Log-in No. (21-xxxx):	1247	1248	1249	
Sample Collection Date & Time:	11/15/21 1330 PST	11/15/21 1140 PST	11/15/21 1155 PST	
Sample Receipt Date & Time:	11/17/21 1010	11/17/21 1010	11/17/21 1010	
Number of Containers & Container Type:	2x4L cub.s	2x4L cub.s	2x4L cub.s	
Approx. Total Volume Received (L):	~8	~8	~8	
Check-in Temp (°C)	1.0	1.0	1.0	
Temperature OK? ¹	(Y) N	(Y) N	(Y) N	Y N
DO (mg/L)	9.0	9.8	9.6	
pH (units)	7.53	7.43	7.79	
Conductivity (µS/cm)	6350	—	9700	
Salinity (ppt)	3.5	30.9	5.4	
Alkalinity (mg/L) ²	138	156	167	
Hardness (mg/L) ^{2,3}	—	—	—	
Total Chlorine (mg/L)	20.02	20.02	20.02	
Technician Initials	GM	GM	GM	

Freshwater Tests:

Control/Dilution Water Source: 8:2 Coast Other: Alkalinity: Hardness: Additional Control? Y N = Alkalinity: Hardness:

Marine Tests:

Control/Dilution Water Source: LAB SW ART SW Other: Alkalinity: 98 Salinity: 30ppt Additional Control? (Y) N = ART SW Alkalinity: 150 Salinity: 30ppt Sample Salted w/ artificial salt? (Y) N If yes, target ppt and source? 30ppt - Eastman Ocean Sample salted w/ brine? Y (N) If yes, target ppt? WW-1 & WW-3 only

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:

Q18 GM 11/17/21 Q18 ACS 12/8/21

QC Check: JL 11/24/21

COC Complete?

(Y) N

Filtration?

Y (N)

Initials:

1) 2) 3) 4)

Pore Size:

Organisms or Debris

pH Adjustment?

Y (N)

Initial pH:

Amount of HCl added:

Final pH:

Cl₂ Adjustment?

Y (N)

Initial Free Cl₂:

STS added:

Final Free Cl₂:

Sample Aeration?

Y (N)

Initial D.O.

Duration & Rate

Final D.O.

Measure NH₃ via test strip (circle one)? Y (N)

NH₃ Strip Result: 1: 0.5 2: 0.5 3: 0.5

*(If 6 or more, notify PM)

Subsamples For Additional Chemistry Required? Y (N)

NH₃

Other

Tech Initials:

Final Review:

ACS 12/8/21

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 11/15/21 08:46 Page 1 of 1

Sample Collection By:							ANALYSES REQUIRED							Receipt Temperature (°C)
Report to:				Invoice To:			Enthalpy Matrix Codes:							
Company				Company			G = Grab C = Composite FW = Freshwater SW = Seawater Sed = Sediment STRM = Stormwater GW = Groundwater WW = Wastewater O = Other (specify)							
Address				Address										
City/State/Zip				City/State/Zip										
Contact				Contact										
Phone				Phone										
Email				Email										
SAMPLE ID	SAMPLE		MATRIX CODE (FW, SW, Sed, STRM, GW, WW, O)	Container		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. berylina 96-hr Acute Survival	A. bahia 96-hr Acute Survival		
	Date	Time		Type (G or C)	Type								Qty	
1 DW-1/WW-1	11/15/21	11:30 HST	G	STRM	2.5 Gal Plastic	2	Marine Species				X	X	X	1.0
2 WW-2	11/15/21	09:40 HST	G	STRM	2.5 Gal Plastic	2	Marine Species				X	X	X	1.0
3 WW-3	11/15/21	09:55 HST	G	STRM	2.5 Gal Plastic	2	Marine Species				X	X	X	1.0
4					1 gal plastic	1								
5														
6														
7														
8														
9														
10														

PROJECT INFORMATION		SAMPLE RECEIPT		1) RELINQUISHED BY (CLIENT)		2) RECEIVED BY (COURIER)	
Project Name:	ADC Water Quality Monitoring	Total No. of Containers	6	(Signature)	<i>[Signature]</i>	(Time)	14:00
PO No.:		Received Good Condition?	Y	(Printed Name)	Ben Berridge	(Date)	11/16/21
Shipped Via:	Fedex	Matches Test Schedule?	Y	(Company)	Cardno	(Company)	

SPECIAL INSTRUCTIONS/COMMENTS:		3) RELINQUISHED BY (COURIER)		4) RECEIVED BY (LABORATORY)	
		(Signature)		(Signature)	<i>[Signature]</i>
		(Time)		(Time)	1010
		(Printed Name)	FedEx	(Date)	11/17/21
		(Company)		(Company)	EA-SD

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

Glossary of Qualifier Codes

- Q1 - Temperature out of recommended range; corrective action taken and recorded in Test Temperature Correction Log
- Q2 - Temperature out of recommended range; no action taken, test terminated same day
- Q3 - Sample pH adjusted to within range of 6-9 with reagent grade NaOH or HCl, as needed
- Q4 - Test aerated; D.O. levels dropped below 4.0 mg/L
- Q5 - Test initiated with continuous 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, partial 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 $\leq 110\%$
- 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. Test results were reviewed and reported in accordance with guidance found in EPA-833-R-00-003, 2000 unless otherwise specified.
- 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. Test results were reviewed and reported in accordance with EPA-833-R-00-003, 2000 guidance unless otherwise specified.
- Q18 - Incorrect or illegible Entry
- Q19 - Miscalculation
- Q20 - PMSD criteria do not apply to the test of significant toxicity (TST) analysis
- Q21 - Other (provide reason in comments section)
- Q22 - Greater than 10% batch mortality observed upon receipt and/or in holding prior to test initiation. Organisms acclimated to test conditions at Enthalpy and ultimately deemed fit to use for testing.
- Q23 - Test organisms experienced a temperature shift greater than 3°C within 1 day or were received at a temperature greater than 3°C outside the recommended test temperature range and had minimal time to acclimate prior to test initiation. However, due to age-specific protocol requirements and/or sample holding time constraints, the organisms were used to initiate test(s). Organisms were ultimately deemed fit to use for testing.
- Q24 - Test organisms experienced a salinity shift greater than 3 ppt within 1 day or were received at a salinity greater than 3 ppt outside the recommended test salinity range and had minimal time to acclimate prior to test initiation. However, due to age-specific protocol requirements and/or sample holding time constraints, the organisms were used to initiate test(s). Organisms were ultimately deemed fit to use for testing.

Appendix E

Reference Toxicant Test Control Charts

Pacific Topsmelt 96-h Acute Survival Test

Nautilus Environmental (CA)

Test Type: Survival (96h)

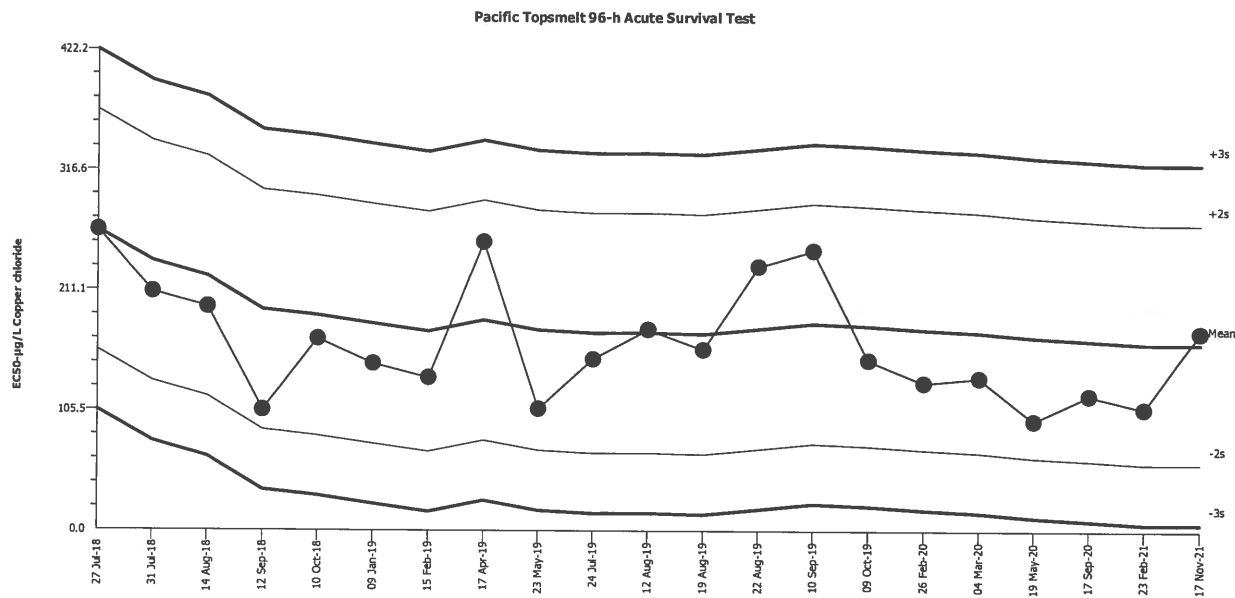
Organism: Atherinops affinis (Topsmelt)

Material: Copper chloride

Protocol: EPA/821/R-02-012 (2002)

Endpoint: 96h Survival Rate

Source: Reference Toxicant-REF



Mean: 164.2

Count: 20

-2s Warning Limit: 58.69

-3s Action Limit: 5.93

Sigma: 52.76

CV: 32.10%

+2s Warning Limit: 269.7

+3s Action Limit: 322.5

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2018	Jul	27	15:45	263.9	99.7	1.89			14-8822-7369	11-4350-5971
2			31	16:30	209.6	45.39	0.8603			19-5107-0005	20-6864-5330
3		Aug	14	16:00	196.4	32.18	0.61			15-6494-9229	17-8173-7294
4		Sep	12	14:00	105.6	-58.58	-1.11			16-1211-7168	05-2683-6884
5		Oct	10	16:55	168.2	3.979	0.07542			03-4460-7421	02-8297-4115
6	2019	Jan	9	16:00	146.4	-17.79	-0.3372			16-8541-8400	01-0716-9806
7		Feb	15	16:10	134	-30.2	-0.5724			08-0425-5661	18-0762-3864
8		Apr	17	17:50	253.5	89.35	1.693			05-1475-1452	18-1058-7085
9		May	23	15:30	106.6	-57.57	-1.091			03-2154-6851	19-3512-2662
10		Jul	24	16:25	150.4	-13.79	-0.2614			02-4547-9337	03-4444-2456
11		Aug	12	16:15	176.5	12.27	0.2326			05-6999-0080	19-2452-0933
12			19	19:30	158.7	-5.46	-0.1035			00-1616-6988	16-4823-3084
13			22	16:45	232	67.83	1.286			14-6253-4066	09-6589-6472
14		Sep	10	11:15	246.2	82.03	1.555			01-3190-7470	00-5901-5932
15		Oct	9	15:40	149.6	-14.6	-0.2768			12-2483-9958	16-7314-6828
16	2020	Feb	26	15:20	129.7	-34.52	-0.6542			04-4275-3329	19-1366-8841
17		Mar	4	17:15	134.1	-30.12	-0.5709			09-0186-0501	09-2347-5750
18		May	19	17:20	96.59	-67.61	-1.281			09-8977-8612	01-6220-7123
19		Sep	17	14:25	118.9	-45.28	-0.8582			07-7701-0607	03-4458-7869
20	2021	Feb	23	16:10	107.2	-57.02	-1.081			15-2183-5128	00-7227-8818
21		Nov	17	17:00	174.1	9.91	0.1878			10-0193-2387	14-5680-1838

CETIS QC Plot

Report Date: 10 Nov-21 09:44 (1 of 1)

Inland Silverside 96-h Acute Survival Test

Nautilus Environmental (CA)

Test Type: Survival (96h)

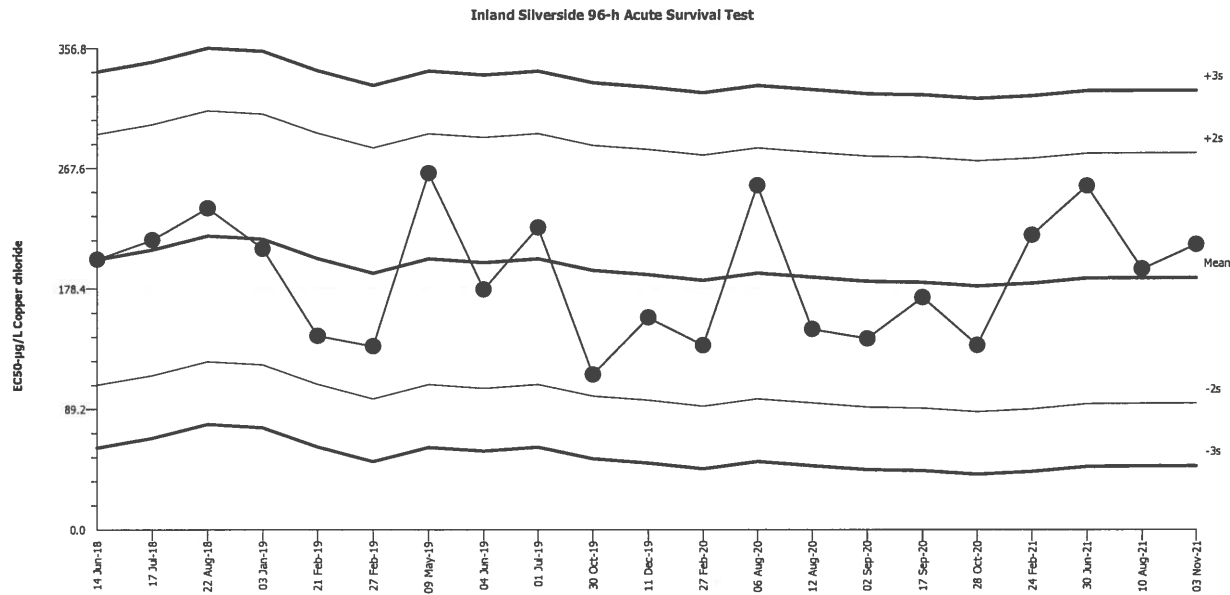
Organism: Menidia beryllina (Inland Silverside)

Material: Copper chloride

Protocol: EPA/821/R-02-012 (2002)

Endpoint: 96h Survival Rate

Source: Reference Toxicant-REF



Mean: 186.6

Count: 20

-2s Warning Limit: 93.67

-3s Action Limit: 47.2

Sigma: 46.47

CV: 24.90%

+2s Warning Limit: 279.6

+3s Action Limit: 326

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2018	Jun	14	14:35	200	13.4	0.2884			01-9952-0614	00-3575-1747
2		Jul	17	14:30	214.4	27.75	0.5973			11-1445-3115	12-3693-5336
3		Aug	22	16:25	237.8	51.24	1.103			08-6172-7555	12-4329-0617
4	2019	Jan	3	16:50	207.9	21.25	0.4573			16-0506-4055	11-1190-1934
5		Feb	21	16:05	143.5	-43.12	-0.9279			10-4228-2556	08-7111-9529
6			27	16:25	135.8	-50.83	-1.094			14-0947-0420	00-4247-8099
7		May	9	19:10	263.9	77.3	1.663			03-9779-6453	09-3747-7536
8		Jun	4	14:50	177.8	-8.845	-0.1903			00-2136-1210	01-4264-5145
9		Jul	1	15:55	223.6	37.02	0.7965			04-4319-5710	17-4098-1084
10		Oct	30	14:45	114.9	-71.73	-1.544			05-0159-0485	07-6888-5964
11		Dec	11	16:30	156.9	-29.68	-0.6388			11-0566-6524	14-4935-0865
12	2020	Feb	27	17:15	136.4	-50.24	-1.081			00-2639-4829	10-5059-8408
13		Aug	6	16:00	254.9	68.31	1.47			13-3377-6823	09-5433-0150
14			12	15:20	148.4	-38.24	-0.8229			02-5307-3356	11-5066-6205
15		Sep	2	15:25	141.4	-45.18	-0.9722			09-8373-9144	18-7650-2455
16			17	14:45	172	-14.64	-0.3151			07-8442-4358	02-9347-5784
17		Oct	28	16:35	136.6	-50	-1.076			10-9446-3954	10-4215-8111
18	2021	Feb	24	17:30	218.2	31.59	0.6798			11-4316-4077	02-1492-4727
19		Jun	30	16:05	254.9	68.31	1.47			01-4075-9626	19-2668-9340
20		Aug	10	14:30	193.2	6.587	0.1418			20-1130-3481	09-5748-8802
21		Nov	3	17:15	211.2	24.65	0.5304			01-2577-3416	13-6085-8539

Mysid 96-h Acute Survival Test

Nautilus Environmental (CA)

Test Type: Survival (96h)

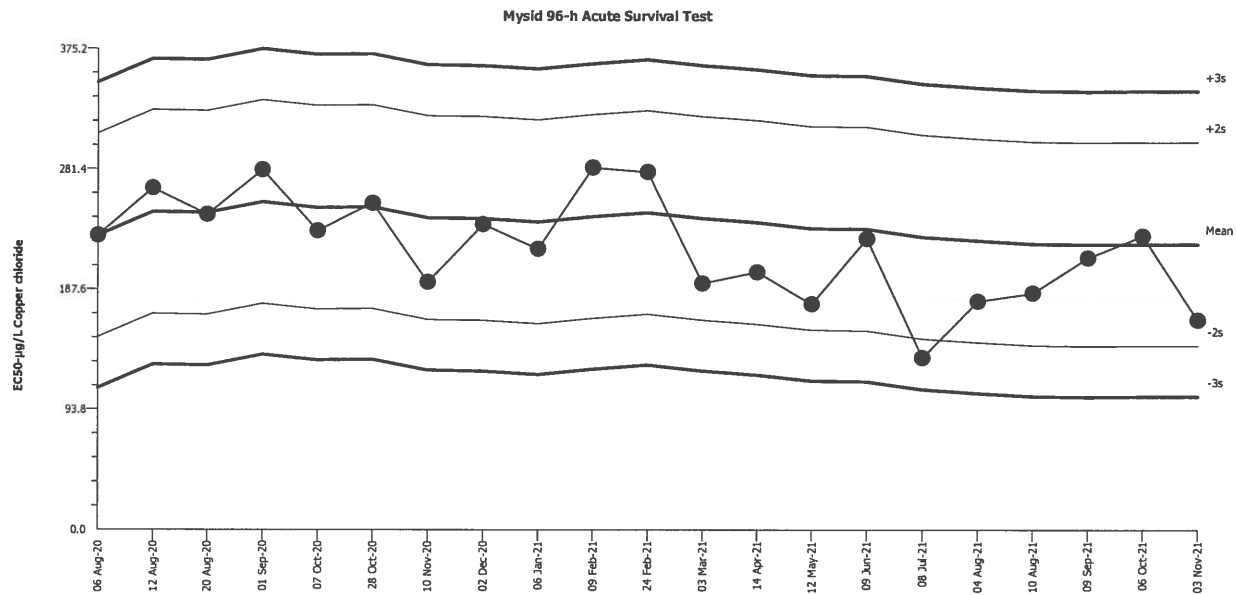
Organism: Americamysis bahia (Opossum Shrimp)

Material: Copper chloride

Protocol: EPA/821/R-02-012 (2002)

Endpoint: 96h Survival Rate

Source: Reference Toxicant-REF



Mean: 223
Sigma: 39.78

Count: 20
CV: 17.80%

-2s Warning Limit: 143.4
+2s Warning Limit: 302.5

-3s Action Limit: 103.6
+3s Action Limit: 342.3

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2020	Aug	6	16:45	229.7	6.74	0.1694			12-3621-4083	04-5216-6972
2			12	15:00	266.7	43.71	1.099			09-6865-4747	15-4661-4894
3			20	15:10	246.2	23.23	0.5839			11-8933-3936	07-7149-7380
4		Sep	1	17:40	280.9	57.91	1.456			15-1725-8445	02-3217-4494
5		Oct	7	16:50	233.3	10.31	0.2591			10-9302-4751	10-8015-5811
6			28	17:30	254.9	31.91	0.8022			05-5138-7579	10-2662-3199
7		Nov	10	16:15	193.2	-29.81	-0.7494			18-2802-6809	21-3845-2247
8		Dec	2	16:15	238.4	15.45	0.3883			05-6239-9486	13-2389-5949
9	2021	Jan	6	15:40	219.1	-3.902	-0.09808			03-0517-8333	01-7272-9774
10		Feb	9	16:35	282.8	59.84	1.504			18-0066-8687	07-5637-1896
11			24	17:00	279.3	56.33	1.416			12-7982-0378	10-2127-5639
12		Mar	3	16:20	192.2	-30.76	-0.7734			19-5823-8705	16-3495-3098
13		Apr	14	16:15	201	-21.97	-0.5523			12-9280-6414	13-7392-7597
14		May	12	17:30	176	-46.97	-1.181			12-7732-0164	05-0673-2773
15		Jun	9	16:00	227.2	4.239	0.1066			17-2171-6769	11-3085-8431
16		Jul	8	16:10	134.1	-88.92	-2.235	(-)		11-1635-1099	02-4153-3890
17		Aug	4	17:20	178.2	-44.82	-1.127			12-8033-5320	14-9454-0803
18			10	17:15	184.6	-38.37	-0.9646			01-4163-2041	16-5453-9162
19		Sep	9	16:50	212.2	-10.77	-0.2707			19-9503-3728	00-7298-1641
20		Oct	6	17:00	229.4	6.396	0.1608			21-3339-5883	18-5433-4447
21		Nov	3	17:40	163.6	-59.36	-1.492			03-0676-2868	02-4632-6423



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: 11/16/2021
PAGE: 1 of 1

AECOS REPORT OF RESULTS

SAMPLE TYPE: stormwater AECOS LOG No.: 44085
DATE SAMPLED: 11/15/2021 DATE/TIME RECEIVED: 11/15/2021 @1528
TEMP. CONTROL: 1.8 °C SAMPLER: B. Berridge
DATE/TIME ANALYZED: 11/15/2021 @1553-1618 MATRIX: water
ANALYST: R. Knapstein

ANALYTE (UNITS)		Enterococcus (MPN/100ml)	Dilution Factor (10 ml / 100 ml)	Number of large positive wells	Number of small positive wells
SAMPLE ID ↓	METHOD →	ASTM D650399	---	---	---
	TIME SAMPLED ↓				
DW-2	0915	840	10	38	8
D-3	0935	1300	10	44	12
DW-3	0945	1600	10	46	13
D-2	1020	11,000	10	49	40
E-2	1000	4600	10	49	25
D-7	1045	1100	10	43	8
D-4	0910	780	10	36	9
D-5	0925	690	10	37	3
WW-2	0940	320	10	24	0
WW-3	0955	200	10	15	2
D-6	1030	420	10	27	3
U-3/WW-4	0920	710	10	34	9
D-8	1105	2500	10	47	22
WW-6	0845	8200	10	49	35
E-1	1000	63	10	6	0
E-1 Dup	1005	63	10	6	0
DW-1	1150	74	10	6	1

J. Mello
for 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

[044085]

CLIENT: *Cardno*

ADDRESS: *737 Bishop St.*

Suite 2050
Hono Lulu 96817

CONTACT: *Ben Berridge*

PHONE No.: *808-476-0007*

Purchase Order No.:

☐ RUSH

☐ SEE REVERSE

SPECIAL INSTRUCTIONS

SAMPLED

	☒	SAMPLE ID	DATE	TIME	SAMPLE TYPE	CONTAINER(S)	REQUESTED ANALYSES	PRESERVATION
1	☒	DW-2	11/15/2021	09:15	water	1 Idex	entero	
2	☒	D-3		09:35				
3	☒	DW-3		09:45				
4	☒	D-2		10:20				
5	☒	E-2		10:00				
6	☒	D-7		10:45				
7	☒	D-4		09:10				
8	☒	D-5		09:25				
9	☒	NW-2		09:40				
10	☒	NW-3		09:55				

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
<i>Ben Berridge</i>	<i>11/15/2021</i>
RELINQUISHED:	DATE
<i>[Signature]</i>	<i>11/15 2021</i>
SIGNATURE	TIME
<i>[Signature]</i>	<i>18:28</i>
COMMENTS:	

RECEIVED BY:	DATE
<i>[Signature]</i>	<i>20</i>
RELINQUISHED:	DATE
<i>[Signature]</i>	<i>20</i>
SIGNATURE OR INITIALS	TIME

RECEIVED FOR LABORATORY:	DATE
<i>[Signature]</i>	<i>11/15 2021</i>
RELINQUISHED:	DATE
<i>[Signature]</i>	<i>1528</i>
SIGNATURE OR INITIALS	TIME
<i>[Signature]</i>	<i>20</i>

DISPOSAL:

PRECAUTIONS:

USE (BLACK) INK T-1.8

All bottles are over-filled
All samples w/ dilution

RETURN SAMPLE TO CLIENT ☐



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

44085

CLIENT: Cardno

ADDRESS: 737 Bishop St
Suite 3050
Honolulu HI 96817

CONTACT: Ben Berridge

PHONE No.: 808 476 0067

Purchase Order No.:

☐ RUSH

☐ SEE REVERSE

SPECIAL INSTRUCTIONS

SAMPLED

	✓	SAMPLE ID	DATE	TIME	SAMPLE TYPE	CONTAINER(S)	REQUESTED ANALYSES	PRESERVATION
1	✓	D-6	11/15/21	10:30	idexx	1 water	chero	
2	✓	U-3/NW-4		09:20				
3		U-3/NW-3		09:43				
4		U-3/NW-7						
5	✓	D-8		11:05				
6	✓	NW-6		8:45				
7	✓	E-1		10:00				
8	✓	E-1-DUP		10:05				
9	✓	DW-1		11:50				
10								

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 Berridge	DATE 11/15/2021
PRINT NAME	
RELINQUISHED:	DATE 11/15/2021
SIGNATURE	TIME 5:29

COMMENTS:

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

PRECAUTIONS:

RECEIVED FOR LABORATORY:	DATE 11/15/2021
SIGNATURE	TIME 1528
RELINQUISHED:	DATE 20
SIGNATURE OR INITIALS	TIME

DISPOSAL:

RETURN SAMPLE TO CLIENT ☐

USE (BLACK) INK