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Client:	Stantec-GS	Work Order:	WDJ1823
Address:	737 Bishop St., Ste. 3050	Project:	ADC Water Quality Monitoring
	Honolulu, HI 96813	Reported:	12/18/2023 07:51
Attn:	Benjamin Berridge		

Analytical Results Report

Sample Location: WW-3
Lab/Sample Number: WDJ1823-01 Collect Date: 10/24/23 09:30
Date Received: 10/27/23 10:15 Collected By:
Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics								
TSS	73.0	mg/L			10/27/23 19:45	EAF	EPA 160.2	
Metals by ICP-MS								
Arsenic	0.000806	mg/L	0.000140	0.00100	12/5/23 17:37	JLG	EPA 200.8	J
Mercury								
Mercury	<0.0710	ug/L	0.0710	0.100	11/16/23 14:24	JLG	EPA 245.1	
Semivolatiles								
Atrazine	<0.05	ug/L	0.0500	0.100	11/20/23 22:42	MAH	EPA 625.1	
Chlorpyrifos	<0.05	ug/L	0.0500	0.100	11/20/23 22:42	MAH	EPA 625.1	
Metolachlor	<0.0500	ug/L	0.0500	0.100	11/20/23 22:42	MAH	EPA 625.1	
Permethrin	<0.250	ug/L	0.250	0.500	11/20/23 22:42	MAH	EPA 625.1	
Surrogate: Terphenyl-d14	*102%*		*25-135*		*11/20/23 22:42*	*MAH*	*EPA 625.1*	
Diesel	<0.052	mg/L	0.0520	0.0800	11/6/23 15:12	ARY	NWTPH-HCID	
Gasoline	<0.160	mg/L	0.160	0.400	11/6/23 15:12	ARY	NWTPH-HCID	
Lube Oil	0.0726	mg/L	0.0460	0.0800	11/6/23 15:12	ARY	NWTPH-HCID	J
Mineral Oil	<0.160	mg/L	0.160	0.400	11/6/23 15:12	ARY	NWTPH-HCID	
Surrogate: n-Hexacosane	*68.9%*		*50-150*		*11/6/23 15:12*	*ARY*	*NWTPH-HCID*	

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Sample Location: WW-6
Lab/Sample Number: WDJ1823-02 Collect Date: 10/24/23 09:45
Date Received: 10/27/23 10:15 Collected By:
Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics								
TSS	400	mg/L			10/27/23 19:45	EAF	EPA 160.2	
Metals by ICP-MS								
Arsenic	0.00116	mg/L	0.000140	0.00100	12/5/23 17:39	JLG	EPA 200.8	
Mercury								
Mercury	<0.0710	ug/L	0.0710	0.100	11/16/23 14:26	JLG	EPA 245.1	
Semivolatiles								
Diesel	<0.052	mg/L	0.0520	0.0800	11/6/23 16:07	ARY	NWTPH-HCID	
Gasoline	<0.160	mg/L	0.160	0.400	11/6/23 16:07	ARY	NWTPH-HCID	
Lube Oil	0.0749	mg/L	0.0460	0.0800	11/6/23 16:07	ARY	NWTPH-HCID	J
Mineral Oil	<0.160	mg/L	0.160	0.400	11/6/23 16:07	ARY	NWTPH-HCID	
Surrogate: n-Hexacosane	*68.9%*		*50-150*		*11/6/23 16:07*	*ARY*	*NWTPH-HCID*	

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Sample Location: E-1
Lab/Sample Number: WDJ1823-03 Collect Date: 10/24/23 10:30
Date Received: 10/27/23 10:15 Collected By:
Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics								
TSS	33.0	mg/L			10/27/23 19:45	EAF	EPA 160.2	
Metals by ICP-MS								
Arsenic	0.00127	mg/L	0.000140	0.00100	12/5/23 16:55	JLG	EPA 200.8	
Mercury								
Mercury	<0.0710	ug/L	0.0710	0.100	11/16/23 14:03	JLG	EPA 245.1	
Semivolatiles								
Atrazine	<0.05	ug/L	0.0500	0.100	11/20/23 23:09	MAH	EPA 625.1	
Chlorpyrifos	<0.05	ug/L	0.0500	0.100	11/20/23 23:09	MAH	EPA 625.1	
Metolachlor	<0.0500	ug/L	0.0500	0.100	11/20/23 23:09	MAH	EPA 625.1	
Permethrin	<0.250	ug/L	0.250	0.500	11/20/23 23:09	MAH	EPA 625.1	
Surrogate: Terphenyl-d14	*106%*		*25-135*		*11/20/23 23:09*	*MAH*	*EPA 625.1*	
Diesel	<0.052	mg/L	0.0520	0.0800	11/6/23 17:03	ARY	NWTPH-HCID	
Gasoline	<0.160	mg/L	0.160	0.400	11/6/23 17:03	ARY	NWTPH-HCID	
Lube Oil	0.159	mg/L	0.0460	0.0800	11/6/23 17:03	ARY	NWTPH-HCID	
Mineral Oil	<0.160	mg/L	0.160	0.400	11/6/23 17:03	ARY	NWTPH-HCID	
Surrogate: n-Hexacosane	*89.9%*		*50-150*		*11/6/23 17:03*	*ARY*	*NWTPH-HCID*	

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Sample Location: E-1 DUP
Lab/Sample Number: WDJ1823-04 Collect Date: 10/24/23 10:35
Date Received: 10/27/23 10:15 Collected By:
Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics								
TSS	15.3	mg/L			10/27/23 19:45	EAF	EPA 160.2	
Metals by ICP-MS								
Arsenic	0.00125	mg/L	0.000140	0.00100	12/5/23 17:02	JLG	EPA 200.8	
Mercury								
Mercury	<0.0710	ug/L	0.0710	0.100	11/16/23 14:11	JLG	EPA 245.1	
Semivolatiles								
Atrazine	<0.05	ug/L	0.0500	0.100	11/20/23 23:36	MAH	EPA 625.1	
Chlorpyrifos	<0.05	ug/L	0.0500	0.100	11/20/23 23:36	MAH	EPA 625.1	
Metolachlor	<0.0500	ug/L	0.0500	0.100	11/20/23 23:36	MAH	EPA 625.1	
Permethrin	<0.250	ug/L	0.250	0.500	11/20/23 23:36	MAH	EPA 625.1	
Surrogate: Terphenyl-d14	*100%*		*25-135*		*11/20/23 23:36*	*MAH*	*EPA 625.1*	
Diesel	<0.052	mg/L	0.0520	0.0800	11/6/23 19:48	ARY	NWTPH-HCID	
Gasoline	<0.160	mg/L	0.160	0.400	11/6/23 19:48	ARY	NWTPH-HCID	
Lube Oil	0.119	mg/L	0.0460	0.0800	11/6/23 19:48	ARY	NWTPH-HCID	
Mineral Oil	<0.160	mg/L	0.160	0.400	11/6/23 19:48	ARY	NWTPH-HCID	
Surrogate: n-Hexacosane	*75.6%*		*50-150*		*11/6/23 19:48*	*ARY*	*NWTPH-HCID*	

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Sample Location: D-2
Lab/Sample Number: WDJ1823-05 Collect Date: 10/24/23 09:40
Date Received: 10/27/23 10:15 Collected By:
Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics								
TSS	37.5	mg/L			10/27/23 19:45	EAF	EPA 160.2	
Metals by ICP-MS								
Arsenic	0.0241	mg/L	0.000140	0.00100	12/5/23 17:05	JLG	EPA 200.8	
Mercury								
Mercury	<0.0710	ug/L	0.0710	0.100	11/16/23 14:13	JLG	EPA 245.1	
Semivolatiles								
Diesel	<0.052	mg/L	0.0520	0.0800	11/6/23 20:43	ARY	NWTPH-HCID	
Gasoline	<0.160	mg/L	0.160	0.400	11/6/23 20:43	ARY	NWTPH-HCID	
Lube Oil	<0.0460	mg/L	0.0460	0.0800	11/6/23 20:43	ARY	NWTPH-HCID	
Mineral Oil	<0.160	mg/L	0.160	0.400	11/6/23 20:43	ARY	NWTPH-HCID	
Surrogate: n-Hexacosane	*74.6%*		*50-150*		*11/6/23 20:43*	*ARY*	*NWTPH-HCID*	

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Sample Location: D-3
Lab/Sample Number: WDJ1823-06 Collect Date: 10/24/23 09:22
Date Received: 10/27/23 10:15 Collected By:
Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics								
TSS	51.0	mg/L			10/27/23 19:45	EAF	EPA 160.2	
Metals by ICP-MS								
Arsenic	0.00164	mg/L	0.000140	0.00100	12/5/23 17:07	JLG	EPA 200.8	
Mercury								
Mercury	<0.0710	ug/L	0.0710	0.100	11/16/23 14:34	JLG	EPA 245.1	
Semivolatiles								
Diesel	0.276	mg/L	0.0520	0.0800	11/6/23 21:38	ARY	NWTPH-HCID	
Gasoline	<0.160	mg/L	0.160	0.400	11/6/23 21:38	ARY	NWTPH-HCID	
Lube Oil	0.0578	mg/L	0.0460	0.0800	11/6/23 21:38	ARY	NWTPH-HCID	J
Mineral Oil	<0.160	mg/L	0.160	0.400	11/6/23 21:38	ARY	NWTPH-HCID	
Surrogate: n-Hexacosane	*88.6%*		*50-150*		*11/6/23 21:38*	*ARY*	*NWTPH-HCID*	

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Sample Location: D-4
Lab/Sample Number: WDJ1823-07 Collect Date: 10/24/23 09:03
Date Received: 10/27/23 10:15 Collected By:
Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics								
TSS	17.0	mg/L			10/27/23 19:45	EAF	EPA 160.2	
Metals by ICP-MS								
Arsenic	0.00246	mg/L	0.000140	0.00100	12/5/23 17:09	JLG	EPA 200.8	
Mercury								
Mercury	<0.0710	ug/L	0.0710	0.100	11/16/23 14:36	JLG	EPA 245.1	
Semivolatiles								
Diesel	<0.520	mg/L	0.0520	0.0800	11/7/23 3:07	ARY	NWTPH-HCID	
Gasoline	<0.160	mg/L	0.160	0.400	11/7/23 3:07	ARY	NWTPH-HCID	
Lube Oil	0.101	mg/L	0.0460	0.0800	11/7/23 3:07	ARY	NWTPH-HCID	
Mineral Oil	0.185	mg/L	0.160	0.400	11/7/23 3:07	ARY	NWTPH-HCID	J
Surrogate: n-Hexacosane	*87.0%*		*50-150*		*11/7/23 3:07*	*ARY*	*NWTPH-HCID*	

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Sample Location: D-6
Lab/Sample Number: WDJ1823-08 Collect Date: 10/24/23 09:45
Date Received: 10/27/23 10:15 Collected By:
Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics								
TSS	27.3	mg/L			10/27/23 19:45	EAF	EPA 160.2	
Metals by ICP-MS								
Arsenic	0.00206	mg/L	0.000140	0.00100	12/5/23 17:12	JLG	EPA 200.8	
Mercury								
Mercury	<0.0710	ug/L	0.0710	0.100	11/16/23 14:39	JLG	EPA 245.1	
Semivolatiles								
Diesel	<0.520	mg/L	0.0520	0.0800	11/7/23 4:02	ARY	NWTPH-HCID	
Gasoline	<0.160	mg/L	0.160	0.400	11/7/23 4:02	ARY	NWTPH-HCID	
Lube Oil	ND	mg/L	0.0460	0.0800	11/7/23 4:02	ARY	NWTPH-HCID	
Mineral Oil	<0.160	mg/L	0.160	0.400	11/7/23 4:02	ARY	NWTPH-HCID	
Surrogate: n-Hexacosane	*71.1%*		*50-150*		*11/7/23 4:02*	*ARY*	*NWTPH-HCID*	

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Sample Location: D-7
Lab/Sample Number: WDJ1823-09 Collect Date: 10/24/23 09:30
Date Received: 10/27/23 10:15 Collected By:
Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics								
TSS	131	mg/L			10/27/23 19:45	EAF	EPA 160.2	
Metals by ICP-MS								
Arsenic	0.00132	mg/L	0.000140	0.00100	12/5/23 17:14	JLG	EPA 200.8	
Mercury								
Mercury	<0.0710	ug/L	0.0710	0.100	11/16/23 14:41	JLG	EPA 245.1	
Semivolatiles								
Diesel	<0.520	mg/L	0.0520	0.0800	11/7/23 4:56	ARY	NWTPH-HCID	
Gasoline	<0.160	mg/L	0.160	0.400	11/7/23 4:56	ARY	NWTPH-HCID	
Lube Oil	0.271	mg/L	0.0460	0.0800	11/7/23 4:56	ARY	NWTPH-HCID	
Mineral Oil	<0.160	mg/L	0.160	0.400	11/7/23 4:56	ARY	NWTPH-HCID	
Surrogate: n-Hexacosane	*79.2%*		*50-150*		*11/7/23 4:56*	*ARY*	*NWTPH-HCID*	

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Sample Location: D-8
Lab/Sample Number: WDJ1823-10 Collect Date: 10/24/23 09:15
Date Received: 10/27/23 10:15 Collected By:
Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics								
TSS	36.0	mg/L			10/27/23 19:45	EAF	EPA 160.2	
Metals by ICP-MS								
Arsenic	0.00439	mg/L	0.000140	0.00100	12/5/23 17:16	JLG	EPA 200.8	
Mercury								
Mercury	<0.0710	ug/L	0.0710	0.100	11/16/23 14:44	JLG	EPA 245.1	
Semivolatiles								
Diesel	<0.520	mg/L	0.0520	0.0800	11/7/23 5:51	ARY	NWTPH-HCID	
Gasoline	<0.160	mg/L	0.160	0.400	11/7/23 5:51	ARY	NWTPH-HCID	
Lube Oil	<0.0460	mg/L	0.0460	0.0800	11/7/23 5:51	ARY	NWTPH-HCID	
Mineral Oil	0.212	mg/L	0.160	0.400	11/7/23 5:51	ARY	NWTPH-HCID	J
Surrogate: n-Hexacosane	*66.1%*		*50-150*		*11/7/23 5:51*	*ARY*	*NWTPH-HCID*	

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Sample Location: U-2/WW-5
Lab/Sample Number: WDJ1823-11 Collect Date: 10/24/23 10:30
Date Received: 10/27/23 10:15 Collected By:
Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics								
TSS	422	mg/L			10/27/23 19:45	EAF	EPA 160.2	
Metals by ICP-MS								
Arsenic	0.000632	mg/L	0.000140	0.00100	12/5/23 17:19	JLG	EPA 200.8	J
Mercury								
Mercury	<0.0710	ug/L	0.0710	0.100	11/16/23 14:46	JLG	EPA 245.1	
Semivolatiles								
Diesel	<0.520	mg/L	0.0520	0.0800	11/7/23 6:46	ARY	NWTPH-HCID	
Gasoline	<0.160	mg/L	0.160	0.400	11/7/23 6:46	ARY	NWTPH-HCID	
Lube Oil	<0.0460	mg/L	0.0460	0.0800	11/7/23 6:46	ARY	NWTPH-HCID	
Mineral Oil	<0.160	mg/L	0.160	0.400	11/7/23 6:46	ARY	NWTPH-HCID	
Surrogate: n-Hexacosane	*58.0%*		*50-150*		*11/7/23 6:46*	*ARY*	*NWTPH-HCID*	

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Sample Location: U-3/WW-4

Lab/Sample Number: WDJ1823-12 Collect Date: 10/24/23 10:15

Date Received: 10/27/23 10:15 Collected By:

Matrix: Water

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics								
TSS	36.0	mg/L			10/27/23 19:45	EAF	EPA 160.2	
Metals by ICP-MS								
Arsenic	0.000507	mg/L	0.000140	0.00100	12/5/23 17:21	JLG	EPA 200.8	J
Mercury								
Mercury	<0.0710	ug/L	0.0710	0.100	11/16/23 14:49	JLG	EPA 245.1	
Semivolatiles								
Diesel	<0.520	mg/L	0.0520	0.0800	11/7/23 7:41	ARY	NWTPH-HCID	
Gasoline	<0.160	mg/L	0.160	0.400	11/7/23 7:41	ARY	NWTPH-HCID	
Lube Oil	<0.0460	mg/L	0.0460	0.0800	11/7/23 7:41	ARY	NWTPH-HCID	
Mineral Oil	<0.160	mg/L	0.160	0.400	11/7/23 7:41	ARY	NWTPH-HCID	
Surrogate: n-Hexacosane	*88.9%*		*50-150*		*11/7/23 7:41*	*ARY*	*NWTPH-HCID*	

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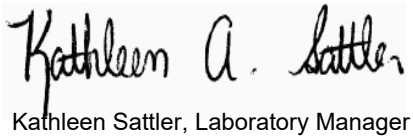
Authorized Signature,



Kathleen Sattler, Laboratory Manager

J	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
M2	Matrix spike recovery was low; the associated blank spike recovery was acceptable. Potential matrix effect.
PQL	Practical Quantitation Limit
ND	Not Detected
MDL	Method Detection Limit
Dry	Sample results reported on a dry weight basis
*	Not a state-certified analyte
RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was spiked or duplicated.

Quality Control Data

Inorganics

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BDJ1039 - W Filtration										
Blank (BDJ1039-BLK1)					Prepared & Analyzed: 10/27/2023					
TSS	<0.1			mg/L						
Blank (BDJ1039-BLK2)					Prepared & Analyzed: 10/27/2023					
TSS	1.00			mg/L						
LCS (BDJ1039-BS1)					Prepared & Analyzed: 10/27/2023					
TSS	93.0			mg/L	100		93.0	90-110		
Duplicate (BDJ1039-DUP1)		**Source: WDJ1823-03**			Prepared & Analyzed: 10/27/2023					
TSS	29.0			mg/L		33.0			12.9	20
Matrix Spike (BDJ1039-MS1)		**Source: WDJ1823-03**			Prepared & Analyzed: 10/27/2023					
TSS	120			mg/L	100	33.0	87.0	80-120		
Matrix Spike Dup (BDJ1039-MSD1)		**Source: WDJ1823-03**			Prepared & Analyzed: 10/27/2023					
TSS	116			mg/L	100	33.0	83.0	80-120	3.39	20

Quality Control Data

Metals by ICP-MS

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BDL0048 - W 3010 Digest										
Blank (BDL0048-BLK1)					Prepared: 12/1/2023 Analyzed: 12/5/2023					
Arsenic	ND		0.00100	mg/L						
LCS (BDL0048-BS1)					Prepared: 12/1/2023 Analyzed: 12/5/2023					
Arsenic	0.0505		0.00100	mg/L	0.0500		101	85-115		
Matrix Spike (BDL0048-MS1)		**Source: WDJ1823-03**			Prepared: 12/1/2023 Analyzed: 12/5/2023					
Arsenic	0.0570		0.00100	mg/L	0.0500	0.00127	111	70-130		
Matrix Spike (BDL0048-MS2)		**Source: WDJ1823-12**			Prepared: 12/1/2023 Analyzed: 12/5/2023					
Arsenic	0.0502		0.00100	mg/L	0.0500	0.000507	99.4	70-130		
Matrix Spike Dup (BDL0048-MSD1)		**Source: WDJ1823-03**			Prepared: 12/1/2023 Analyzed: 12/5/2023					
Arsenic	0.0554		0.00100	mg/L	0.0500	0.00127	108	70-130	2.94	20
Matrix Spike Dup (BDL0048-MSD2)		**Source: WDJ1823-12**			Prepared: 12/1/2023 Analyzed: 12/5/2023					
Arsenic	0.0536		0.00100	mg/L	0.0500	0.000507	106	70-130	6.57	20

Quality Control Data

Mercury

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BDK0583 - W 245.1 Digest										
Blank (BDK0583-BLK1)					Prepared & Analyzed: 11/16/2023					
Mercury	ND		0.100	ug/L						
LCS (BDK0583-BS1)					Prepared & Analyzed: 11/16/2023					
Mercury	5.21		0.100	ug/L	5.60		93.0	85-115		
Matrix Spike (BDK0583-MS1)		**Source: WDJ1779-08**			Prepared & Analyzed: 11/16/2023					
Mercury	3.55	M2	0.100	ug/L	5.60	ND	63.4	70-130		
Matrix Spike (BDK0583-MS2)		**Source: WDJ1823-03**			Prepared & Analyzed: 11/16/2023					
Mercury	4.84		0.100	ug/L	5.60	<0.0710	86.4	70-130		
Matrix Spike Dup (BDK0583-MSD1)		**Source: WDJ1779-08**			Prepared & Analyzed: 11/16/2023					
Mercury	4.11		0.100	ug/L	5.60	ND	73.4	70-130	14.6	20
Matrix Spike Dup (BDK0583-MSD2)		**Source: WDJ1823-03**			Prepared & Analyzed: 11/16/2023					
Mercury	5.08		0.100	ug/L	5.60	<0.0710	90.7	70-130	4.84	20

Quality Control Data
(Continued)

Semivolatiles

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BDK0014 - SVOC Water										
Blank (BDK0014-BLK1)					Prepared: 10/31/2023 Analyzed: 11/20/2023					
Metolachlor	ND		0.100	ug/L						
Atrazine	ND		0.100	ug/L						
Chlorpyrifos	ND		0.100	ug/L						
Surrogate: Terphenyl-d14			*33.4*	*ug/L*	*30.0*		*111*	*25-135*		
LCS (BDK0014-BS1)					Prepared: 10/31/2023 Analyzed: 11/20/2023					
Metolachlor	4.69		0.100	ug/L	5.00		93.8	60-125		
Chlorpyrifos	4.63		0.100	ug/L	5.00		92.6	50-125		
Atrazine	4.61		0.100	ug/L	5.00		92.2	60-125		
Surrogate: Terphenyl-d14			*29.5*	*ug/L*	*30.0*		*98.2*	*25-135*		
LCS Dup (BDK0014-BSD1)					Prepared: 10/31/2023 Analyzed: 11/20/2023					
Metolachlor	<0.0500		0.100	ug/L	5.00		100	60-125	6.60	25
Chlorpyrifos	4.92		0.100	ug/L	5.00		98.4	50-125	6.07	25
Atrazine	4.95		0.100	ug/L	5.00		99.0	60-125	7.11	25
Surrogate: Terphenyl-d14			*31.9*	*ug/L*	*30.0*		*106*	*25-135*		
Batch: BDK0109 - W TPH-Dx										
Blank (BDK0109-BLK1)					Prepared: 11/3/2023 Analyzed: 11/6/2023					
Lube Oil	ND		0.0800	mg/L						
Mineral Oil	ND		0.400	mg/L						
Gasoline	ND		0.400	mg/L						
Diesel	ND		0.0800	mg/L						
Surrogate: n-Hexacosane			*35.8*	*mg/L*	*50.0*		*71.5*	*50-150*		

Anatek Labs, Inc.

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

Quality Control Data
(Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BDK0109 - W TPH-Dx (Continued)										
LCS (BDK0109-BS1)					Prepared: 11/3/2023 Analyzed: 11/6/2023					
Diesel	0.710		0.0800	mg/L	0.800		88.8	70-130		
Surrogate: n-Hexacosane			*45.5*	*mg/L*	*50.0*		*91.0*	*50-150*		
Matrix Spike (BDK0109-MS1)		**Source: WDJ1823-03**			Prepared: 11/3/2023 Analyzed: 11/6/2023					
Diesel	0.716		0.0800	mg/L	0.800	<0.052	89.5	70-130		
Surrogate: n-Hexacosane			*37.4*	*mg/L*	*50.0*		*74.7*	*50-150*		
Matrix Spike Dup (BDK0109-MSD1)		**Source: WDJ1823-03**			Prepared: 11/3/2023 Analyzed: 11/6/2023					
Diesel	0.805		0.0800	mg/L	0.800	<0.052	101	70-130	11.7	20
Surrogate: n-Hexacosane			*42.5*	*mg/L*	*50.0*		*84.9*	*50-150*		

WDJ1823

Due 11/10/23

Anatek Labs, Inc.

Chain of Custody Record

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

Anatek Log-In #

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

Turn A

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

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

*All rush order requests must be prior approved.

__ Phone
__ Mail
__ Fax
x Email

Provide Sample Description

Storm water samples

List Analyses Requested

Lab ID	Sample Identification	Sampling Date/Time	Matrix	# of Containers	Sample Volume	Preservative:	TSS EPA 160.2	TPH HCID - SW 846 MOD 8015	**TPH GRO SW846M8015	Arsenic EPA 200.8	Mercury EPA 245.1	Pesticides EPA 625 SIM	Glyphosate EPA 547	Permethrin EPA		Paraquat Dichloride EPA
	WW-3	10-24-2023 / 08:30 HST	Water	7			X	X	X	X	X			X		X
	WW-6	10-24-2023 / 09:45 HST	Water	5			X	X	X	X	X					
	E-1	10-24-2023 / 10:30 HST	Water	7			X	X	X	X	X			X		X
	E-1 DUP	10-24-2023 / 10:35 HST	Water	7			X	X	X	X	X			X		X
	E-1 MS/MSD	10-24-2023 / 10:40 HST	Water	7			X	X	X	X	X			X		X
	D-2	10-24-2023 / 09:40 HST	Water	5			X	X	X	X	X					
	D-3	10-24-2023 / 09:22 HST	Water	5			X	X	X	X	X					
	D-4	10-24-2023 / 09:03 HST	Water	5			X	X	X	X	X					
	D-6	10-24-2023 / 09:45 HST	Water	5			X	X	X	X	X					
	D-7	10-24-2023 / 09:30 HST	Water	5			X	X	X	X	X					
	D-8	10-24-2023 / 09:15 HST	Water	5			X	X	X	X	X					
	U-2/WW-5	10-24-2023 / 10:30 HST	Water	5			X	X	X	X	X					
	U-3/WW-4	10-24-2023 / 10:15 HST	Water	5			X	X	X	X	X					

Note Special Instructions/Comments

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

Inspection Checklist

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

Temperature (°C): #1 4.5 #2 2.5 #3 3.5

Preservative: See Attached

Date & Time:

Inspected By:

	Printed Name	Signature	Company	Date	Time
Relinquished by	Ben Berridge		Stantec	10-25-23	14:00
Received by	Joseph Biffin		Anatek	10/27/23	1015
Relinquished by					
Received by					
Relinquished by					
Received by					

Dig-14

Form COC01.00 - Eff 1 Mar 2015

WDJ1823

Due: 11/10/23

Anatek Labs, Inc.

Sample Receipt and Preservation Form

Client Name: Stantec GS (Cardno-GS) Project: *(apply Anatek sample label here)*

TAT: (Normal) RUSH: ______ days

Samples Received From: (FedEx) UPS USPS Client Courier Other: ____________

Custody Seal on Cooler/Box: Yes (No) Custody Seals Intact: Yes No (N/A)

Number of Coolers/Boxes: 3 Type of Ice: (Ice/Ice Packs) Blue Ice Dry Ice None

Packing Material: (Bubble Wrap) Bags Foam/Peanuts None Other: ____________

Cooler Temp As Read (°C): #1 4.5 #2 2.5 #3 1.5 Dig-14 Cooler Temp Corrected (°C): _______ Thermometer Used: Dig-14

	Yes	No	N/A	Comments:
Samples Received Intact?	(Yes)	No	N/A	
Chain of Custody Present?	(Yes)	No	N/A	
Samples Received Within Hold Time?	(Yes)	No	N/A	
Samples Properly Preserved?	(Yes)	No	N/A	
VOC Vials Free of Headspace (<6mm)?	Yes	No	(N/A)	
VOC Trip Blanks Present?	Yes	No	(N/A)	
Labels and Chains Agree?	(Yes)	No	N/A	
Total Number of Sample Bottles Received: 72				

	Yes	No	N/A	Comments
Chain of Custody Fully Completed?	(Yes)	No	N/A	
Correct Containers Received?	(Yes)	No	N/A	
Anatek Bottles Used?	(Yes)	No	Unknown	

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

13 - P1000 17 - g1000 HCl 13 P250 ~~30 g44 HCl~~ ~~36~~ 26 - HCl g44

HCL 2300439-2 4 - g44 NaThio

pH2102074 2203036

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

Received/Inspected By: [signature] Date/Time: 10:54 10/27/23

Form F06.00 - Eff. 10 Nov. 2021

PACAGLAB.COM
503.626.7943
21830 S.W. Alexander Ln
Sherwood, OR 97140

Anatek Labs Inc
504 E Sprague Ave, Suite D
Spokane, WA 99202

Report Number: P232696
Report Date: November 13, 2023
Client Project ID: [none]

Analytical Report

Client Sample ID: WDJ1823-01
Matrix: water

PAL Sample ID: P232696-01
Sample Date: 10/24/23
Received Date: 11/1/23

Extraction Date	Analysis Date	Analyte	Amount Detected	Limit of Quantitation	Notes
Method: Modified EPA 549.2 (LC-MS/MS)					
11/07/23	11/7/23	Paraquat	ND	10 ug/L	

Client Sample ID: WDJ1823-03
Matrix: water

PAL Sample ID: P232696-02
Sample Date: 10/24/23
Received Date: 11/1/23

Extraction Date	Analysis Date	Analyte	Amount Detected	Limit of Quantitation	Notes
Method: Modified EPA 549.2 (LC-MS/MS)					
11/07/23	11/7/23	Paraquat	ND	10 ug/L	

Client Sample ID: WDJ1823-04
Matrix: water

PAL Sample ID: P232696-03
Sample Date: 10/24/23
Received Date: 11/1/23

Extraction Date	Analysis Date	Analyte	Amount Detected	Limit of Quantitation	Notes
Method: Modified EPA 549.2 (LC-MS/MS)					
11/07/23	11/7/23	Paraquat	ND	10 ug/L	

This analytical report complies with the ISO/IEC 17025:2017 Quality Standard.

Rick Jordan, Laboratory Director

Matrix SCIENCES | PAL PACIFIC AGRICULTURAL LABORATORY

PACAGLAB.COM
503.626.7943
21830 S.W. Alexander Ln
Sherwood, OR 97140

Anatek Labs Inc
504 E Sprague Ave, Suite D
Spokane, WA 99202

Report Number: P232696
Report Date: November 13, 2023
Client Project ID: [none]

Quality Assurance

Method Blank Data **Matrix:** water

Extraction Date	Analysis Date	Batch QC Sample #	Analyte	% Recovery	Expected % Recovery	Notes
11/7/23	11/7/23	23K0705-BLK1	Paraquat	Not Detected	< 10 ug/L	

Blank Spike Data **Matrix:** water

Extraction Date	Analysis Date	Batch QC Sample #	Analyte	% Recovery	Expected % Recovery	Notes
11/7/23	11/7/23	23K0705-BS1	Paraquat	131	60-140	
11/7/23	11/7/23	23K0705-BSD1	Paraquat	134	60-140	

Matrix Spike Data **Matrix:** water

Extraction Date	Analysis Date	Batch QC Sample #	Analyte	% Recovery	Expected % Recovery	Notes
11/7/23	11/7/23	23K0705-MS1	Paraquat	106	60-140	
11/7/23	11/7/23	23K0705-MSD1	Paraquat	104	60-140	

This analytical report complies with the ISO/IEC 17025:2017 Quality Standard.

Rick Jordan, Laboratory Director

TSS (SM2540D/EPA 160.2)-TS(SM 2540B)

Batch ID: BDJ1039 Date: 10/27/2023 Time: 1300 Initals: EAF

QC REQUIREMENTS:	Blank <1ppm, LFB %Rec= 90-110%, MS/MSD %Rec= 80-120% Run a blank and lcs before and after every 20 samples, plus dup and ms/msd after 20 samples.

TSS Reagents	Std. #	Amount Spiked	Balance ID	Oven	Temp	Filters	Thermometer
100ppm Cellulose TSS Soln.	2303019	100 ppm	BAL-06	3	115C	2301123	T-Oven 3

Comments:

Date/Time of Weigh: 10/27/23 1735 10/27/23 1945

Sample Number	Sample ID	Dish ID	Filter Wt (g)	mLs used	Dry Weight #1	Dry Weight #2**	Dilution Factor	IResult (mg/L)	FResult (mg/L)	QC Date & Initials
BDJ1039-BLK1	Blank	56	0.1206	1000	0.1207	0.1206	0.1			
BDJ1039-BLK2	Blank	73	0.1201	1000	0.1203	0.1202	0.1	1.00	0.10	
BDJ1039-BS1	LCS	57	0.1198	100	0.1291	0.1292	1	93.00	93.00	
WDJ1823-01	WW-3	58	0.1206	100	0.1284	0.1279	1	73.00	73.00	
WDJ1823-02	WW-6	59	0.1201	50	0.1404	0.1401	2	200.00	400.00	
BDJ1039-DUP1	Duplicate WDJ1823-03	60	0.1201	100	0.123	0.123	1	29.00	29.00	
WDJ1823-03	E-1	61	0.1199	100	0.1232	0.1234	1	33.00	33.00	
WDJ1823-04	E-1 DUP	62	0.1202	150	0.1225	0.1225	0.66666667	23.00	15.33	
WDJ1823-05	D-2	63	0.1203	200	0.1279	0.1278	0.5	75.00	37.50	
WDJ1823-06	D-3	64	0.1199	100	0.125	0.125	1	51.00	51.00	
WDJ1823-07	D-4	65	0.1192	150	0.1209	0.1212	0.66666667	17.00	11.33	
WDJ1823-08	D-6	66	0.1194	75	0.1235	0.1237	1.33333333	41.00	54.67	
WDJ1823-09	D-7	67	0.1205	100	0.1304	0.1303	1	98.00	98.00	
WDJ1823-10	D-8	68	0.1203	100	0.1244	0.1239	1	36.00	36.00	
BDJ1039-MS1	Matrix Spike WDJ1823-03	69	0.1198	50	0.1258	0.1258	2	60.00	120.00	
BDJ1039-MSD1	Matrix Spike Dup WDJ182	70	0.1198	50	0.1257	0.1257	2	59.00	118.00	
WDJ1823-11	U-2/WW-5	71	0.1195	100	0.1407	0.1406	1	211.00	211.00	
WDJ1823-12	U-3/WW-4	72	0.1201	100	0.1238	0.1237	1	36.00	36.00	

Starting sequence Mon Nov 20 17:38:50 2023

Instrument Name: MSD4
Sequence File: T:\Data1\MSD4\SEQUENCES\2023\111623SD.s
Comment: 625 8270 DCOI
Operator: MAH
Data Path: T:\DATA1\MSD4\2023\NOV\20CD\
Method Path: C:\MSDCHEM\1\METHODS\

Line	Type	Vial	DataFile	Method	Sample Name
1)	Sample	1	00101001	SVOCT1	SYS
2)	Sample	2	00201002	CARDSIM	CARDNO 10 PPM
3)	Sample	3	00301003	CARDSIM	CARDNO 5 PPM
4)	Sample	4	00401004	CARDSIM	CARDNO 2.5 PPM
5)	Sample	5	00501005	CARDSIM	CARDNO 1 PPM
6)	Sample	6	00601006	CARDSIM	CARDNO 0.5 PPM
7)	Sample	7	00701007	CARDSIM	CARDNO 0.1 PPM
8)	Sample	8	00801008	CARDSIM	CARDNO 0.05 PPM
9)	Sample	11	01101009	CARDSIM	BDK0014-BS1
10)	Sample	12	01201010	CARDSIM	BDK0014-BSD1
11)	Sample	13	01301011	CARDSIM	BDK0014-BLK1
12)	Sample	14	01401012	CARDSIM	WDJ1823-01
13)	Sample	15	01501013	CARDSIM	WDJ1823-03
14)	Sample	16	01601014	CARDSIM	WDJ1823-04

Sequence completed Mon Nov 20 23:56:49 2023

T:\DATA1\MSD4\2023\NOV\20CD\2023 Nov 20 1738 Quality Log.LOG
T:\DATA1\MSD4\2023\NOV\20CD\2023 Nov 20 1738 Sequence Log .LOG

Anatek Labs, Inc.

QC Checklist for EPA 8270/625.1 - SOCs

Analysis Date: 11.20-23

☒	QC Parameter	Acceptance Criteria	Frequency	Notes
✓	DFTPP Tune	See SOP/Method	Every 12 hours	
✓	Sys Check	DDT breakdown <20%	Every 12 hours	
NA	System Performance	Anthracene & phenanthrene baseline separated	Each analysis batch	
NA	System Performance	Benzo[a]anthracene & chrysene valley >75%	Each analysis batch	
NA	System Performance	Benzo(b/k)fluoranthenes - valley >50% of average of both peaks	Each analysis batch	
✓	System Performance	Peak tailing factors for benzidine & PCP <2	Each analysis batch	
✓	Initial Calibration	90% of compounds RRF RSD<20% 8270: True value within 30%		
✓	RF	See table on back of this checklist		Include CCRF report in packet
✓	Internal Standard	±30% of CCV and ±50% of ICAL average	All samples	
✓	Surrogate Recovery	Per control chart	All samples	
✓	ICV/QCS	±30%, 50% at MRL	Each ICAL	
✓	Blanks	No interferences	Each extraction batch	
✓	CCV - 8270	80-120% - 80% of analytes pass	Each analysis batch w/o an ICAL	ICAL
✓	CCV - 625	80-120% - all reported analytes must pass	Each analysis batch w/o an ICAL	↓
✓	MS/MSD or LFB/LFB Dup	Per control chart	Every 20 samples	

✓	Bench Sheet Present	Standards/reagents noted	
✓	Cal Prep Form Present	Standards/reagents noted	
✓	Dilutions Noted?		

Comments:

Analyst: [signature] Checklist Completed Date: 12-7-23

Reviewed By: _____ *Date:* _____

Anatek Labs, Inc.

Guidance Response Factors – EPA Method 8270E – Table 4			
2,3,4,6-Tetrachlorophenol	0.01	bis(2-Ethylhexyl)phthalate	0.01
2,4,5-Trichlorophenol	0.2	Butyl benzyl phthalate	0.01
2,4,6-Trichlorophenol	0.2	Carbazole	0.01
2,4-Dichlorophenol	0.2	Chrysene	0.7
2,4-Dimethylphenol	0.2	Dibenz[a,h]anthracene	0.4
2,4-Dinitrophenol	0.01	Dibenzofuran	0.8
2,4-Dinitrotoluene	0.2	Diethyl phthalate	0.01
2,6-Dinitrotoluene	0.2	Dimethyl phthalate	0.01
2-Chloronaphthalene	0.8	Di-n-butyl phthalate	0.01
2-Chlorophenol	0.8	Di-n-octyl phthalate	0.01
3,3'-Dichlorobenzidine	0.01	Fluoranthene	0.6
4,6-Dinitro-2-methylphenol	0.01	Fluorene	0.9
4-Bromophenyl-phenylether	0.1	Hexachlorobenzene	0.1
4-Chloro-3-methylphenol	0.2	Hexachlorobutadiene	0.01
4-Chloroaniline	0.01	Hexachlorocyclopentadiene	0.05
4-Chlorophenyl phenyl ether	0.4	Hexachloroethane	0.3
Acenaphthene	0.9	Indeno[1,2,3-cd]pyrene	0.5
Acenaphthylene	0.9	Isophorone	0.4
Aniline	0.7	Naphthalene	0.7
Benzo[a]anthracene	0.8	Nitrobenzene	0.2
Benzo[a]pyrene	0.7	n-Nitroso-di-n-propylamine	0.5
Benzo[b]fluoranthene	0.7	n-Nitrosodiphenylamine	0.01
Benzo[ghi]perylene	0.5	Pentachlorophenol	0.05
Benzo[k]fluoranthene	0.7	Phenanthrene	0.7
bis(2-Chloroethoxy)methane	0.3	Phenol	0.8
bis(2-Chloroethyl)ether	0.7	Pyrene	0.6
bis(2-chloroisopropyl)ether	0.01		

From Method 8270E, 11.3.4.2. *Table 4 contains minimum RFs that may be used as guidance in determining if the system is behaving properly and as a check to see if calibration standards are prepared correctly. Because the minimum RFs in Table 4 were determined using specific ions and instrument conditions that may vary, it is neither expected nor required that all analytes meet these minimum RFs. The information is provided as guidance only.*

Anatek Labs, Inc
1282 Alturas Drive
Moscow, ID 83843

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

IS/Surrogate Standards

Standard	Reagent ID	Expiration	Concentration (ppm)
CLP B/N Surrogate	2303399	11/24	1000
CLP Internal Standard	2302846	9/24	2000

Target Compound Standards

Standard	Reagent ID	Expiration	Concentration (ppm)
Chlorpyrifos	2302538	5/26	1000
Metolachlor	2302539	12/27	1000
Atrazine	2302537	10/27	1000

Calibration Dilution Template

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

Calibration made from target compound standards in the table. 25 uL of surrogate and 10 uL of IS stock added to each standard point. Dilutions were made in $MeCl_2$ (2301678).

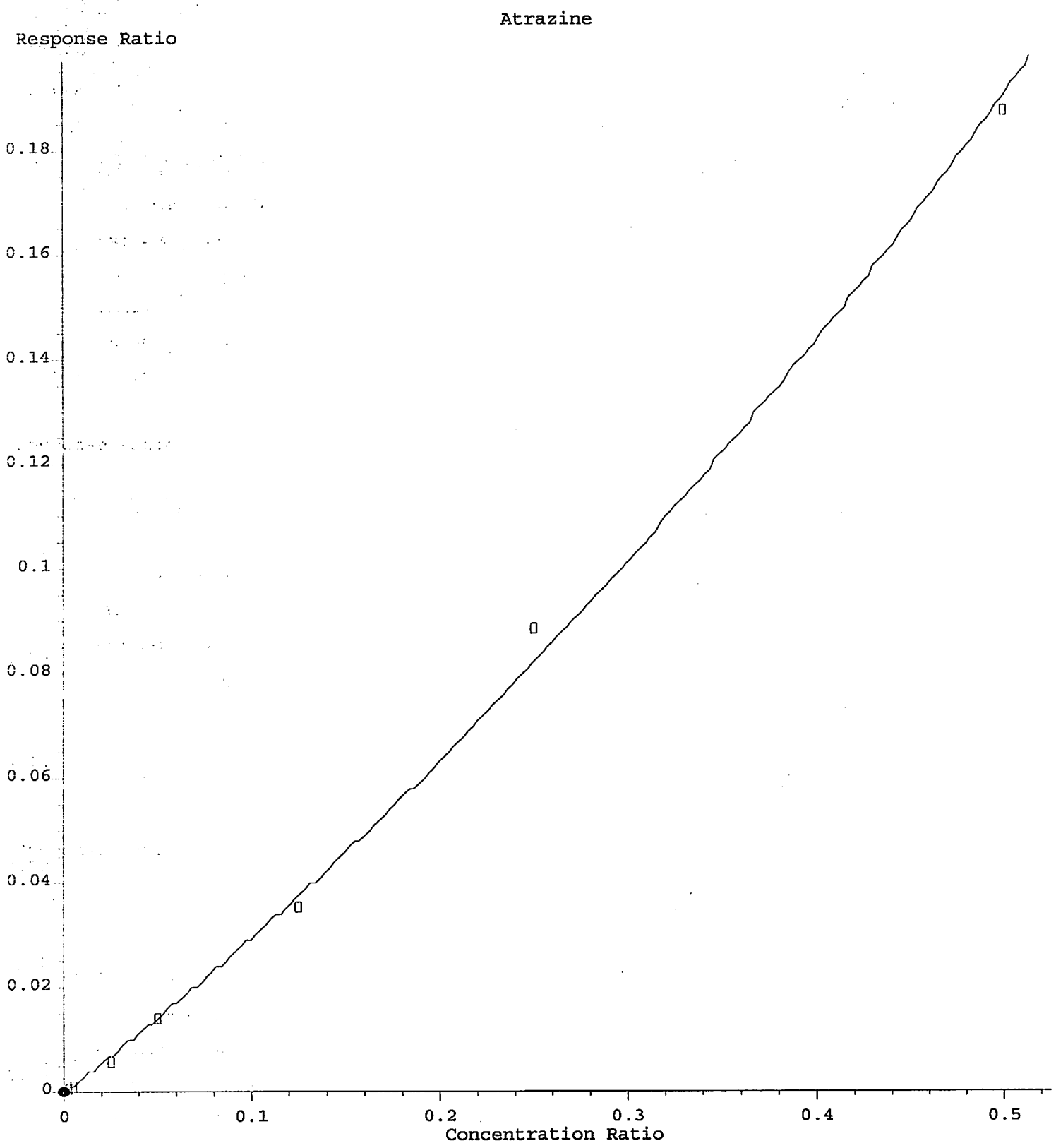
Analyst Initials: MAH Date of Preparation: 8/1/23

Method Path : T:\Data1\MSD4\METHODS\2023\
Method File : Cardo-1120.M
Title : EPA 8270D - GC MSD4
Last Update : Tue Nov 21 10:02:28 2023
Response Via : Initial Calibration

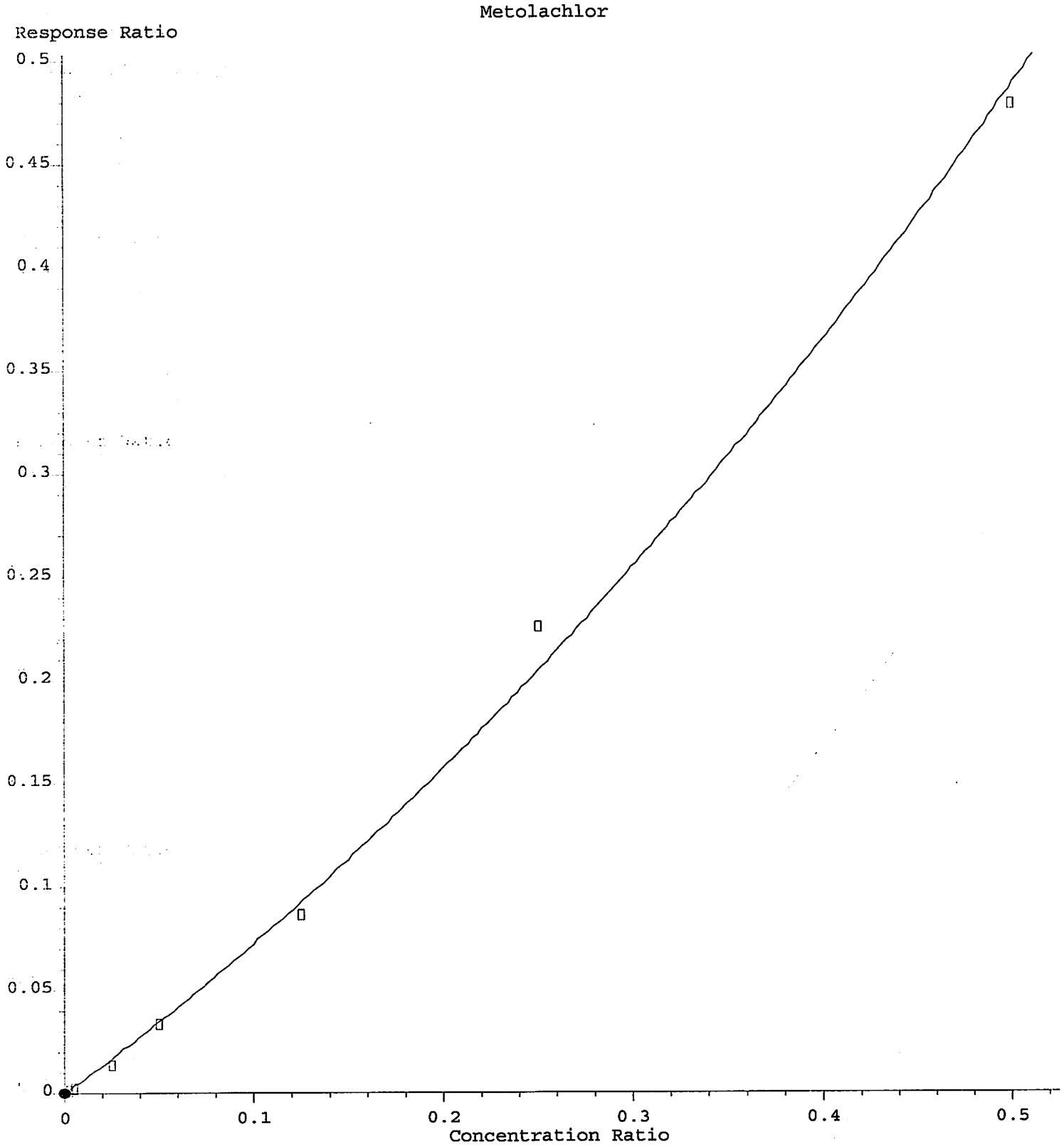
Calibration Files
0.05=00801008.D 10 =00201002.D 5 =00301003.D 2.5 =00401004.D 1 =00501005.D 0.5 =00601006.D 0.1 =00701007.D

		Compound	0.05	10	5	2.5	1	0.5	0.1	Avg	%RSD
1)	I	Dichlorobenzene-d5	ISTD								
2)	S	2-Fluorobiphenyl	1.708	1.785	1.712	1.710	1.758	1.834	1.560	1.724	4.99
3)	I	Acenaphthene-d10	ISTD								
4)		Atrazine	0.198	0.375	0.355	0.283	0.282	0.234	0.178	0.272	27.46
5)		Metolachlor	0.439	0.958	0.905	0.692	0.671	0.549	0.421	0.662	31.93
6)		Chlorpyrifos	0.125	0.196	0.200	0.171	0.172	0.153	0.119	0.162	19.71
7)	I	Chrysene-d12	ISTD								
8)	S	Terphenyl-d14	0.865	0.854	0.869	0.896	0.868	0.882	0.866	0.872	1.58

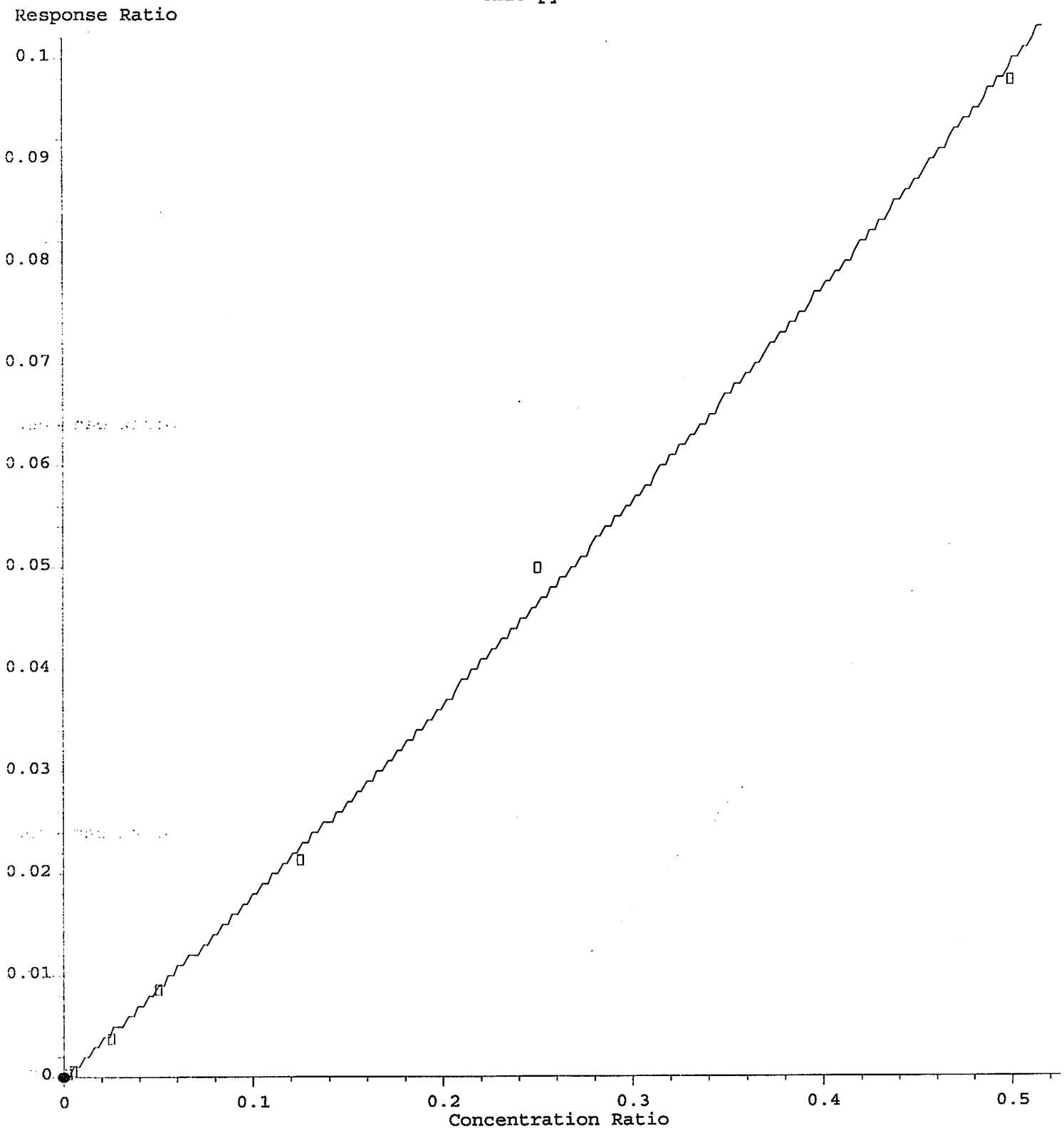
(#) = Out of Range



R = 2.15e-001 A*A + 2.73e-001 A + 0.00e+000
Coef of Det (r^2) = 0.997 Curve Fit: Quad w(1/a)/(0,0)
Method Name: T:\Data1\MSD4\METHODS\2023\Cardo-1120.M
Calibration Table Last Updated: Tue Nov 21 10:02:28 2023



R = 6.24e-001 A*A + 6.64e-001 A + 0.00e+000
Coef of Det (r^2) = 0.996 Curve Fit: Quad w(1/a)/(0,0)
Method Name: T:\Data1\MSD4\METHODS\2023\Cardo-1120.M
Calibration Table Last Updated: Tue Nov 21 10:02:28 2023



R = 5.21e-002 A*A + 1.72e-001 A + 0.00e+000
Coef of Det (r^2) = 0.998 Curve Fit: Quad w(1/a)/(0,0)
Method Name: T:\Data1\MSD4\METHODS\2023\Cardo-1120.M
Calibration Table Last Updated: Tue Nov 21 10:02:28 2023

PREPARATION BENCH SHEET
Organics
BDK0014

Matrix: Water **Prepared using: SVOC - SVOC Water**

Analyses	Spiking Solution(s)	Surrogate Solution(s)
SVOC 625 MISC	2201385 Cardno Spk 100	2300782 CLP B/N 1000 2301428 CLP Acid Surr 2000

Analysis	Lab Number	Sample and Source ID	Date Due	Extract by	Prepared - By	Initial (mL)	Final (mL)	ul Spike	ul Surrogate	Extraction Comments
QC	BDK0014-BLK1	Blank			10/31/23 0:48 MAH	1000	1		30	
QC	BDK0014-BS1	LCS			10/31/23 0:48 MAH	1000	1	50	30	
QC	BDK0014-BSD1	LCS Dup			10/31/23 0:48 MAH	1000	1	50	30	
SVOC 625 MISC	WDJ1823-01	WW-3	11/08/2023	10/31/2023	10/31/23 0:48 MAH	1000	1		30	
SVOC 625 MISC	WDJ1823-03	E-1	11/08/2023	10/31/2023	10/31/23 0:48 MAH	1000	1		30	
SVOC 625 MISC	WDJ1823-04	E-1 DUP	11/08/2023	10/31/2023	10/31/23 0:48 MAH	1000	1		30	

Reagents

Standard	Description	LotNum
2000154	Acetone - GC grade	59074
2000155	H2SO4	58115
2301118	CLP I.S. Spike 2000	061422
2301808	Diazomethane	N/A

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

Analyst: _____ Date: _____ Run Date: 11-20-23 Date: _____

Data Path : T:\Data1\MSD4\2023\NOV\20CD\
Data File : 00101001.D
Acq On : 20 Nov 2023 5:45 pm
Operator : MAH
Sample : SYS
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e

Method : T:\Data1\MSD4\METHODS\2023\BNA-1120.M
Title : EPA 8270D / EPA 625.1 - MSD4
Last Update : Wed Nov 22 10:03:47 2023

AutoFind: Scans 1894, 1895, 1896; Background Corrected with Scan 1885

AUTOFIND via AUTOINTEGRATE

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	35.8	38560	PASS
68	69	0.00	2	1.8	717	PASS
70	69	0.00	2	0.5	182	PASS
127	198	10	80	49.3	53069	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	107712	PASS
199	198	5	9	6.7	7184	PASS
275	198	10	60	30.6	33000	PASS
365	198	1	100	5.2	5553	PASS
441	443	0.01	150	78.3	22213	PASS
442	198	30	200	135.1	145491	PASS
443	442	15	24	19.5	28381	PASS

BNA-1120.M Thu Dec 07 09:37:23 2023

Area Percent Report

Data Path : T:\Data1\MSD4\2023\NOV\20CD\
Data File : 00101001.D
Acq On : 20 Nov 2023 5:45 pm
Operator : MAH
Sample : SYS
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration Parameters: autoint1.e
Integrator: ChemStation

Method : T:\Data1\MSD4\METHODS\2023\BNA-1120.M
Title : EPA 8270D / EPA 625.1 - MSD4

Signal : TIC: 00101001.D\data.ms

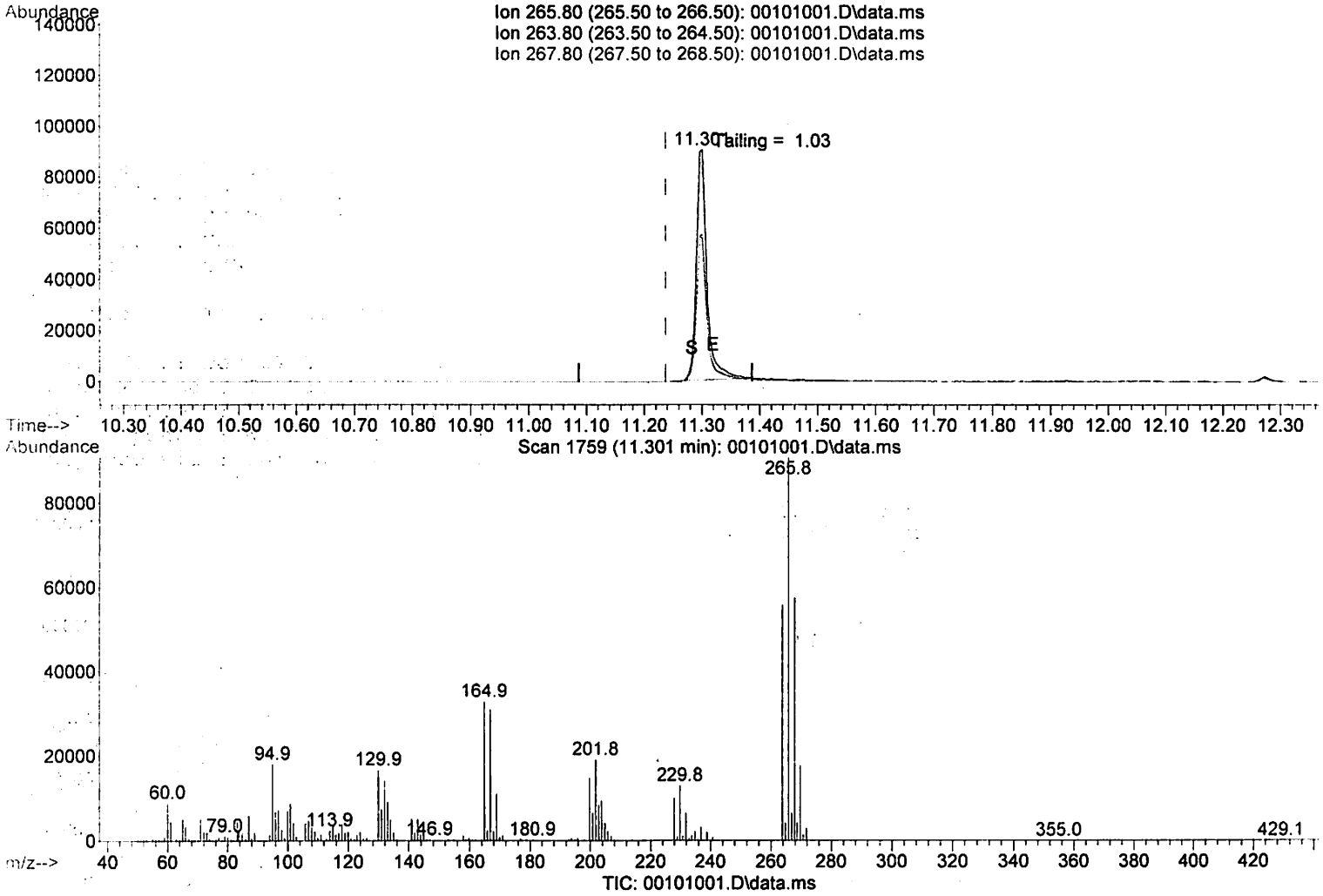
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total	
1	13.417	2214	2218	2220	M3	11274	90815	0.40%	0.394%	DDE
2	13.841	2306	2310	2318	M2	38621	539796	2.41%	2.341%	DDD
3	14.204	2379	2389	2401	M2	1763340	22430803	100.00%	97.266%	DDT% Breakdown

Sum of corrected areas: 23061413

BNA-1120.M Thu Dec 07 09:38:43 2023

Data Path : T:\Data1\MSD4\2023\NOV\20CD\
Data File : 00101001.D
Acq On : 20 Nov 2023 5:45 pm
Operator : MAH
Sample : SYS
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Dec 07 09:40:19 2023
Quant Method : T:\Data1\MSD4\METHODS\2023\BNA-1120.M
Quant Title : EPA 8270D / EPA 625.1 - MSD4
QLast Update : Wed Nov 22 10:03:47 2023
Response via : Initial Calibration



(68) Pentachlorophenol

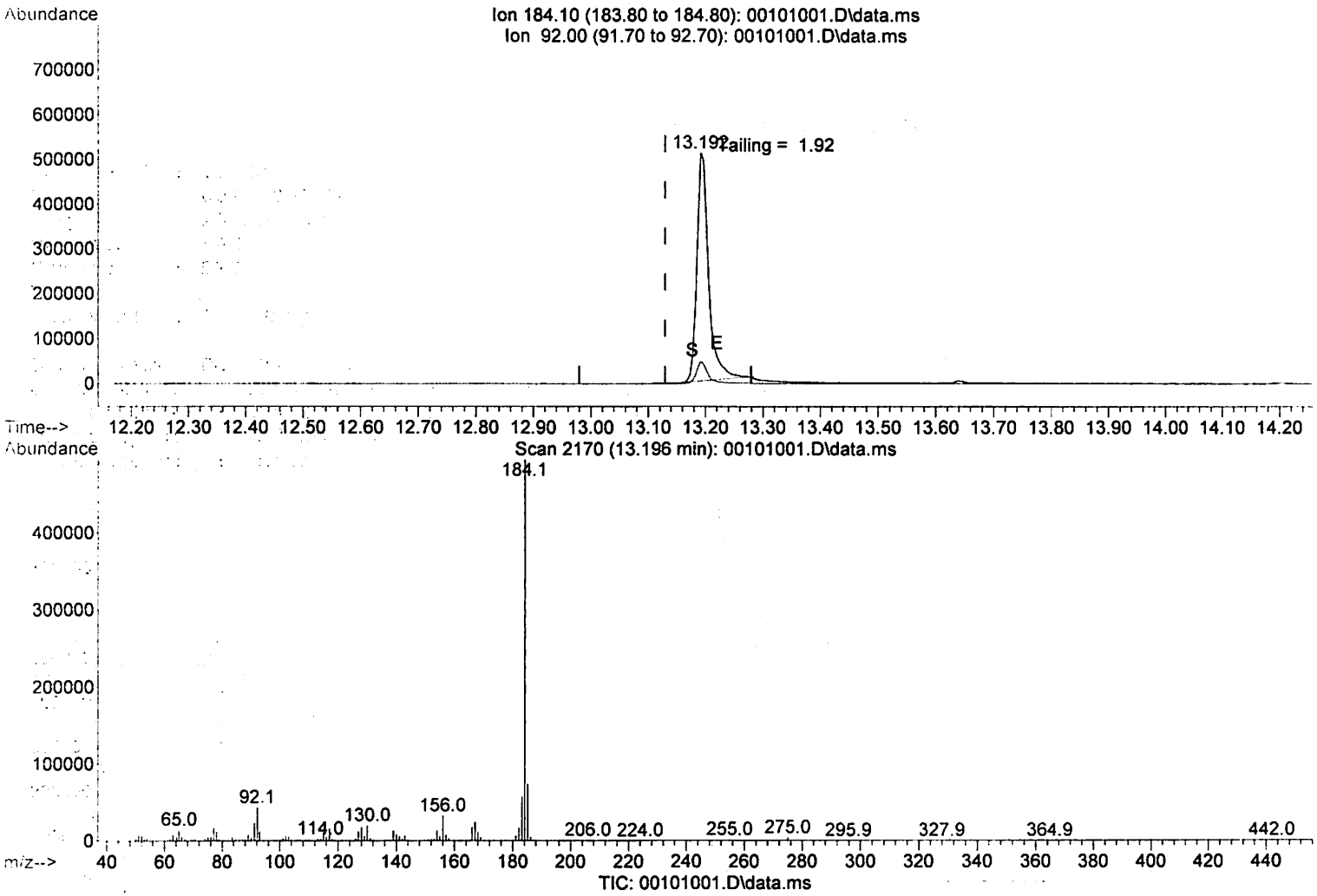
11.300min (+ 0.064) 0.00 ug/mL

response 1114414

Ion	Exp%	Act%
265.80	100.00	100.00
263.80	63.00	62.70
267.80	64.20	63.63
0.00	0.00	0.00

Data Path : T:\Data1\MSD4\2023\NOV\20CD\
Data File : 00101001.D
Acq On : 20 Nov 2023 5:45 pm
Operator : MAH
Sample : SYS
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Dec 07 09:40:19 2023
Quant Method : T:\Data1\MSD4\METHODS\2023\BNA-1120.M
Quant Title : EPA 8270D / EPA 625.1 - MSD4
QLast Update : Wed Nov 22 10:03:47 2023
Response via : Initial Calibration



(74) Benzidine

13.196min (+ 0.066) 0.00 ug/mL

response 6960970

Ion	Exp%	Act%
184.10	100.00	100.00
92.00	9.70	9.16
0.00	0.00	0.00
0.00	0.00	0.00

Internal Standard ICal Average Responses	112023 CARDNO
	(method)

	1,4 Dichlorobenzene-d4	Naphthalene-d8	Acenaphthene-d10	Phenanthrene-d10	Chrysene-d12	Perylene-d12
0.05			24975154.75		23009461.41	
10			34912720.29		31894353.33	
5			25469540.96		22382429.11	
2.5			14826869.28		13699617.61	
1			25309563.88		24310584.47	
0.5			17524724.13		16468283.28	
0.1			20994037.38		20356709.75	
Average	#DIV/0!	#DIV/0!	23430373	#DIV/0!	21731634	#DIV/0!
50%	#DIV/0!	#DIV/0!	11715186	#DIV/0!	10865817	#DIV/0!
150%	#DIV/0!	#DIV/0!	35145559	#DIV/0!	32597451	#DIV/0!

Analyst: MAH

Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2023\NOV\20CD\
Data File : 00201002.D
Acq On : 20 Nov 2023 6:12 pm
Operator : MAH
Sample : CARDNO 10 PPM
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 21 09:55:05 2023
Quant Method : T:\Data1\MSD4\METHODS\2023\Cardo-1120.M
Quant Title : EPA 8270D - GC MSD4
QLast Update : Mon Nov 20 18:38:54 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Dichlorobenzene-d5	6.118	150	28810819m	20.00	ug/mL	0.17
3) Acenaphthene-d10	9.722	164	34912720m	20.00	ug/mL	0.16
7) Chrysene-d12	14.755	240	31894353m	20.00	ug/mL	0.16
System Monitoring Compounds						
2) 2-Fluorobiphenyl	8.920	172	64296571m	25.20	ug/mL	0.16
8) Terphenyl-d14	13.495	244	34034293m	21.58	ug/mL	0.15
Spiked Amount 25.000			Recovery =	86.32%		
Target Compounds						Qvalue
4) Atrazine	11.219	200	6553545m	10.82	ug/mL	
5) Metolachlor	12.392	162	16726713m	10.08	ug/mL	
6) Chlorpyrifos	12.404	197	3413777m	9.97	ug/mL	

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

Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2023\NOV\20CD\
Data File : 00301003.D
Acq On : 20 Nov 2023 6:39 pm
Operator : MAH
Sample : CARDNO 5 PPM
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 07 09:52:45 2023
Quant Method : T:\Data1\MSD4\METHODS\2023\Cardo-1120.M
Quant Title : EPA 8270D - GC MSD4
QLast Update : Tue Nov 21 10:02:28 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Dichlorobenzene-d5	6.119	150	22025893	20.00	ug/mL	0.00
3) Acenaphthene-d10	9.722	164	25469541	20.00	ug/mL	# 0.00
7) Chrysene-d12	14.751	240	22382429	20.00	ug/mL	# 0.00
System Monitoring Compounds						
2) 2-Fluorobiphenyl	8.922	172	47145989	24.83	ug/mL	0.00
8) Terphenyl-d14	13.500	244	24304551	24.92	ug/mL	0.00
Spiked Amount 25.000			Recovery = 99.68%			
Target Compounds						Qvalue
4) Atrazine	11.220	200	2259070	5.36	ug/mL	97
5) Metolachlor	12.400	162	5759798	5.43	ug/mL	97
6) Chlorpyrifos	12.412	197	1272290	5.36	ug/mL	91

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

Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2023\NOV\20CD\
Data File : 00401004.D
Acq On : 20 Nov 2023 7:06 pm
Operator : MAH
Sample : CARDNO 2.5 PPM
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 07 09:53:29 2023
Quant Method : T:\Data1\MSD4\METHODS\2023\Cardo-1120.M
Quant Title : EPA 8270D - GC MSD4
QLast Update : Tue Nov 21 10:02:28 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Dichlorobenzene-d5	6.120	150	13049448	20.00	ug/mL	0.00
3) Acenaphthene-d10	9.720	164	14826869	20.00	ug/mL	# 0.00
7) Chrysene-d12	14.748	240	13699618	20.00	ug/mL	# 0.00
System Monitoring Compounds						
2) 2-Fluorobiphenyl	8.921	172	27898544	24.80	ug/mL	0.00
8) Terphenyl-d14	13.498	244	15347692	25.71	ug/mL	0.00
Spiked Amount 25.000			Recovery =	102.84%		
Target Compounds						Qvalue
4) Atrazine	11.216	200	524590	2.37	ug/mL	97
5) Metolachlor	12.399	162	1283332	2.35	ug/mL	100
6) Chlorpyrifos	12.410	197	316279	2.39	ug/mL	95

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

Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2023\NOV\20CD\
Data File : 00501005.D
Acq On : 20 Nov 2023 7:33 pm
Operator : MAH
Sample : CARDNO 1 PPM
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Dec 07 09:54:10 2023
Quant Method : T:\Data1\MSD4\METHODS\2023\Cardo-1120.M
Quant Title : EPA 8270D - GC MSD4
QLast Update : Tue Nov 21 10:02:28 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Dichlorobenzene-d5	6.120	150	21452727	20.00	ug/mL	0.00
3) Acenaphthene-d10	9.721	164	25309564	20.00	ug/mL	# 0.00
7) Chrysene-d12	14.751	240	24310584	20.00	ug/mL	# 0.00
System Monitoring Compounds						
2) 2-Fluorobiphenyl	8.922	172	47141072	25.49	ug/mL	0.00
8) Terphenyl-d14	13.501	244	26386304	24.91	ug/mL	0.00
Spiked Amount 25.000			Recovery =	99.64%		
Target Compounds						Qvalue
4) Atrazine	11.216	200	357331	0.99	ug/mL	98
5) Metolachlor	12.400	162	817392	0.93	ug/mL	98
6) Chlorpyrifos	12.411	197	218280	0.99	ug/mL	92

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

Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2023\NOV\20CD\
Data File : 00601006.D
Acq On : 20 Nov 2023 8:00 pm
Operator : MAH
Sample : CARDNO 0.5 PPM
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 07 09:55:16 2023
Quant Method : T:\Data1\MSD4\METHODS\2023\Cardo-1120.M
Quant Title : EPA 8270D - GC MSD4
QLast Update : Tue Nov 21 10:02:28 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Dichlorobenzene-d5	6.119	150	14319804	20.00	ug/mL	0.00
3) Acenaphthene-d10	9.718	164	17524724	20.00	ug/mL	# 0.00
7) Chrysene-d12	14.748	240	16468283	20.00	ug/mL	# 0.00
System Monitoring Compounds						
2) 2-Fluorobiphenyl	8.919	172	32831575	26.60	ug/mL	0.00
8) Terphenyl-d14	13.498	244	18166492	25.31	ug/mL	0.00
Spiked Amount 25.000			Recovery =	101.24%		
Target Compounds						Qvalue
4) Atrazine	11.211	200	107804m	0.44	ug/mL	
5) Metolachlor	12.392	162	246356m	0.42	ug/mL	
6) Chlorpyrifos	12.410	197	66856	0.44	ug/mL	92

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

Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2023\NOV\20CD\
Data File : 00701007.D
Acq On : 20 Nov 2023 8:27 pm
Operator : MAH
Sample : CARDNO 0.1 PPM
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Dec 07 09:57:36 2023
Quant Method : T:\Data1\MSD4\METHODS\2023\Cardo-1120.M
Quant Title : EPA 8270D - GC MSD4
QLast Update : Tue Nov 21 10:02:28 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Dichlorobenzene-d5	6.121	150	20415397	20.00	ug/mL	0.00
3) Acenaphthene-d10	9.718	164	20994037	20.00	ug/mL	# 0.00
7) Chrysene-d12	14.751	240	20356710	20.00	ug/mL	# 0.00
System Monitoring Compounds						
2) 2-Fluorobiphenyl	8.920	172	39821267	22.63	ug/mL	0.00
8) Terphenyl-d14	13.499	244	22042119	24.85	ug/mL	0.00
Spiked Amount 25.000			Recovery =	99.40%		
Target Compounds						Qvalue
4) Atrazine	11.215	200	18723	0.07	ug/mL	# 80
5) Metolachlor	12.395	162	46040m	0.07	ug/mL	
6) Chlorpyrifos	12.407	197	12277m	0.07	ug/mL	

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

Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2023\NOV\20CD\
Data File : 00801008.D
Acq On : 20 Nov 2023 8:54 pm
Operator : MAH
Sample : CARDNO 0.05 PPM
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 07 09:58:29 2023
Quant Method : T:\Data1\MSD4\METHODS\2023\Cardo-1120.M
Quant Title : EPA 8270D - GC MSD4
QLast Update : Tue Nov 21 10:02:28 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Dichlorobenzene-d5	6.119	150	21557699	20.00	ug/mL		0.00
3) Acenaphthene-d10	9.720	164	24975155	20.00	ug/mL	#	0.00
7) Chrysene-d12	14.751	240	23009461	20.00	ug/mL	#	0.00
System Monitoring Compounds							
2) 2-Fluorobiphenyl	8.920	172	46019329	24.76	ug/mL		0.00
8) Terphenyl-d14	13.500	244	24878101	24.81	ug/mL		0.00
Spiked Amount 25.000			Recovery =	99.24%			
Target Compounds							Qvalue
4) Atrazine	11.215	200	12346	0.04	ug/mL	#	81
5) Metolachlor	12.395	162	28307m	0.03	ug/mL		
6) Chlorpyrifos	12.408	197	7714m	0.04	ug/mL		

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

Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2023\NOV\20CD\
Data File : 01101009.D
Acq On : 20 Nov 2023 9:21 pm
Operator : MAH
Sample : BDK0014-BS1
Misc :
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Nov 21 10:15:18 2023
Quant Method : T:\Data1\MSD4\METHODS\2023\Cardo-1120.M
Quant Title : EPA 8270D - GC MSD4
QLast Update : Tue Nov 21 10:02:28 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Dichlorobenzene-d5	6.120	150	23236462	20.00	ug/mL		0.00
3) Acenaphthene-d10	9.720	164	30600782	20.00	ug/mL	#	0.00
7) Chrysene-d12	14.753	240	28731969	20.00	ug/mL	#	0.00
System Monitoring Compounds							
2) 2-Fluorobiphenyl	8.920	172	47042564	23.49	ug/mL		0.00
8) Terphenyl-d14	13.501	244	36878815	29.46	ug/mL		0.00
Spiked Amount 30.000			Recovery =	98.20%			
Target Compounds							Qvalue
4) Atrazine	11.217	200	2277426	4.61	ug/mL		98
5) Metolachlor	12.399	162	5819156	4.69	ug/mL		98
6) Chlorpyrifos	12.410	197	1308776	4.63	ug/mL		92

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

Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2023\NOV\20CD\
Data File : 01201010.D
Acq On : 20 Nov 2023 9:48 pm
Operator : MAH
Sample : BDK0014-BSD1
Misc :
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 21 10:16:12 2023
Quant Method : T:\Data1\MSD4\METHODS\2023\Cardo-1120.M
Quant Title : EPA 8270D - GC MSD4
QLast Update : Tue Nov 21 10:02:28 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Dichlorobenzene-d5	6.120	150	20608559	20.00	ug/mL		0.00
3) Acenaphthene-d10	9.720	164	28623695	20.00	ug/mL	#	0.00
7) Chrysene-d12	14.753	240	26143323	20.00	ug/mL	#	0.00
System Monitoring Compounds							
2) 2-Fluorobiphenyl	8.920	172	44172133	24.86	ug/mL		0.00
8) Terphenyl-d14	13.501	244	36296892	31.86	ug/mL		0.00
Spiked Amount 30.000			Recovery =	106.20%			
Target Compounds							Qvalue
4) Atrazine	11.218	200	2312306	4.95	ug/mL		97
5) Metolachlor	12.399	162	5884597	5.01	ug/mL		96
6) Chlorpyrifos	12.410	197	1304037	4.92	ug/mL		94

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

Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2023\NOV\20CD\
Data File : 01301011.D
Acq On : 20 Nov 2023 10:15 pm
Operator : MAH
Sample : BDK0014-BLK1
Misc :
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Nov 21 10:17:02 2023
Quant Method : T:\Data1\MSD4\METHODS\2023\Cardo-1120.M
Quant Title : EPA 8270D - GC MSD4
QLast Update : Tue Nov 21 10:02:28 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Dichlorobenzene-d5	6.120	150	21843082	20.00	ug/mL		0.00
3) Acenaphthene-d10	9.720	164	31817852	20.00	ug/mL	#	0.00
7) Chrysene-d12	14.752	240	25385147	20.00	ug/mL	#	0.00
System Monitoring Compounds							
2) 2-Fluorobiphenyl	8.920	172	47430906	25.19	ug/mL		0.00
8) Terphenyl-d14	13.501	244	36932469	33.39	ug/mL		0.00
Spiked Amount 30.000			Recovery =	111.30%			
Target Compounds							Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2023\NOV\20CD\
Data File : 01401012.D
Acq On : 20 Nov 2023 10:42 pm
Operator : MAH
Sample : WDJ1823-01
Misc :
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Nov 21 10:17:36 2023
Quant Method : T:\Data1\MSD4\METHODS\2023\Cardo-1120.M
Quant Title : EPA 8270D - GC MSD4
QLast Update : Tue Nov 21 10:02:28 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Dichlorobenzene-d5	6.120	150	23643045	20.00	ug/mL		0.00
3) Acenaphthene-d10	9.719	164	30099456	20.00	ug/mL	#	0.00
7) Chrysene-d12	14.754	240	25657372	20.00	ug/mL	#	0.00
System Monitoring Compounds							
2) 2-Fluorobiphenyl	8.919	172	43272603	21.23	ug/mL		0.00
8) Terphenyl-d14	13.500	244	34063525	30.47	ug/mL		0.00
Spiked Amount 30.000			Recovery =	101.57%			
Target Compounds							Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2023\NOV\20CD\
Data File : 01501013.D
Acq On : 20 Nov 2023 11:09 pm
Operator : MAH
Sample : WDJ1823-03
Misc :
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Nov 21 10:18:45 2023
Quant Method : T:\Data1\MSD4\METHODS\2023\Cardo-1120.M
Quant Title : EPA 8270D - GC MSD4
QLast Update : Tue Nov 21 10:02:28 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Dichlorobenzene-d5	6.118	150	21415783	20.00	ug/mL		0.00
3) Acenaphthene-d10	9.719	164	28171950	20.00	ug/mL	#	0.00
7) Chrysene-d12	14.750	240	23184563	20.00	ug/mL	#	0.00
System Monitoring Compounds							
2) 2-Fluorobiphenyl	8.917	172	40494705	21.94	ug/mL		0.00
8) Terphenyl-d14	13.500	244	32251404	31.92	ug/mL		0.00
Spiked Amount 30.000			Recovery =	106.40%			
Target Compounds							Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : T:\Data1\MSD4\2023\NOV\20CD\
Data File : 01601014.D
Acq On : 20 Nov 2023 11:36 pm
Operator : MAH
Sample : WDJ1823-04
Misc :
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 21 10:19:58 2023
Quant Method : T:\Data1\MSD4\METHODS\2023\Cardo-1120.M
Quant Title : EPA 8270D - GC MSD4
QLast Update : Tue Nov 21 10:02:28 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Dichlorobenzene-d5	6.120	150	18464132	20.00	ug/mL		0.00
3) Acenaphthene-d10	9.718	164	23450629	20.00	ug/mL	#	0.00
7) Chrysene-d12	14.751	240	20853447	20.00	ug/mL	#	0.00
System Monitoring Compounds							
2) 2-Fluorobiphenyl	8.918	172	35199048	22.11	ug/mL		0.00
8) Terphenyl-d14	13.500	244	27283341	30.02	ug/mL		0.00
Spiked Amount 30.000			Recovery =	100.07%			
Target Compounds							Qvalue

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

PREPARATION BENCH SHEET
Metals

BDL0048

Matrix: Water **Prepared using: Metals - W 3010 Digest**

Lab Number	Prepared - By	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	Comments
BDL0048-BLK1	12/01/23 15:42 - JLG	50	50				
BDL0048-BS1	12/01/23 15:42 - JLG	50	50				
BDL0048-MS1	12/01/23 15:42 - JLG	50	50		WDJ1823-03		
BDL0048-MS2	12/01/23 15:42 - JLG	50	50		WDJ1823-12		
BDL0048-MSD1	12/01/23 15:42 - JLG	50	50		WDJ1823-03		
BDL0048-MSD2	12/01/23 15:42 - JLG	50	50		WDJ1823-12		
WDJ1823-01 Analytes: Arsenic	12/01/23 15:42 - JLG	50	50	Client: Stantec-GS			
WDJ1823-02 Analytes: Arsenic	12/01/23 15:42 - JLG	50	50	Client: Stantec-GS			
WDJ1823-03 Analytes: Arsenic	12/01/23 15:42 - JLG	50	50	Client: Stantec-GS			
WDJ1823-04 Analytes: Arsenic	12/01/23 15:42 - JLG	50	50	Client: Stantec-GS			
WDJ1823-05 Analytes: Arsenic	12/01/23 15:42 - JLG	50	50	Client: Stantec-GS			
WDJ1823-06 Analytes: Arsenic	12/01/23 15:42 - JLG	50	50	Client: Stantec-GS			
WDJ1823-07 Analytes: Arsenic	12/01/23 15:42 - JLG	50	50	Client: Stantec-GS			
WDJ1823-08 Analytes: Arsenic	12/01/23 15:42 - JLG	50	50	Client: Stantec-GS			
WDJ1823-09 Analytes: Arsenic	12/01/23 15:42 - JLG	50	50	Client: Stantec-GS			
WDJ1823-10 Analytes: Arsenic	12/01/23 15:42 - JLG	50	50	Client: Stantec-GS			

Batch Prepared By _____ Date _____ Analytical Run Date _____

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PREPARATION BENCH SHEET
Metals

BDL0048

(Continued)

Matrix: Water

Prepared using: Metals - W 3010 Digest

Lab Number	Prepared - By	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	Comments
WDJ1823-11 Analytes: Arsenic	12/01/23 15:42 - JLG	50	50	Client: Stantec-GS			
WDJ1823-12 Analytes: Arsenic	12/01/23 15:42 - JLG	50	50	Client: Stantec-GS			

Support Equipment: W PT-04 W PT-33 W PT-21, W PT-27, BLK1B

Reagent ID	Description	LotNum
2003793	Metals UHP Helium	314SPO0620A
2303108	P. 1:1 HCl-metals	59072
2303190	C. Internal Standard Mix	-
2303320	Nitric Acid	63076
2303351	P. Metals Digestion Vials	102623
2303483	C. 10 ppb Tune Solution	-

Batch Prepared By _____ Date _____ Analytical Run Date _____

C:\Promium\Element\Print\bch_Metals_ls.rpt

US EPA Tune Check Report

Operator Name	Metals
Acq/Data Batch	D:\Agilent\ICPMH\1\DATA\Method Batches\RXN\Sequences\12052023.b
Acq. Date-Time	2023-12-05 11:54:51
Report Comment	---
Instrument Name	7800 JP17450949

[No Gas]

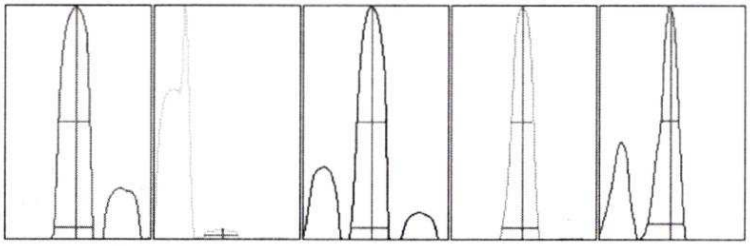
Sensitivity

Mass	Count	CPS	RSD%	RSD% (Required)	RSD% (Flag)
9	2146	21459.89	0.565	5.000	
24	8500	84995.00	2.105	5.000	
59	9034	90340.26	0.503	5.000	
115	8378	83778.52	0.725	5.000	
208	3210	32104.48	0.939	5.000	

Mass	Rep#1 Count	Rep#2 Count	Rep#3 Count	Rep#4 Count	Rep#5 Count
9	2153	2138	2164	2138	2137
24	8386	8303	8758	8589	8461
59	8979	9024	9052	9014	9100
115	8332	8408	8337	8341	8471
208	3169	3243	3200	3203	3237

Integration Time [sec] 0.1

Resolution/Axis



Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)	W-5%	W-5% (Required)	W-5% (Flag)
9	3443.21	9.00	8.90 - 9.10		0.787	0.900	
24	13369.20	23.95	23.90 - 24.10		0.743	0.900	
59	15628.35	58.95	58.90 - 59.10		0.770	0.900	
115	17803.82	115.00	114.90 - 115.10		0.750	0.900	
208	7707.70	208.00	207.90 - 208.10		0.747	0.900	

Integration Time [sec] = 0.1 Acquisition Time [sec] = 168.5 Y Axis = Linear

Tune Parameters

Plasma Parameters

Plasma Mode	HMI	Nebulizer Gas	0.36 L/min	Dilution Gas	0.63 L/min
RF Power	1600 W	Option Gas	---	Auxiliary Gas	0.90 L/min
RF Matching	1.20 V	Nebulizer Pump	0.10 rps	Plasma Gas	15.0 L/min
Sample Depth	10.0 mm	S/C Temp	2 °C		

US EPA Tune Check Report

Lens Parameters

Extract 1	0.0 V	Omega Lens	8.1 V	Deflect	12.8 V
Extract 2	-170.0 V	Cell Entrance	-30 V	Plate Bias	-35 V
Omega Bias	-95 V	Cell Exit	-50 V		

Cell Parameters

Use Gas	No	3rd Gas Flow	---	Energy Discrimination	5.0 V
He Flow	0.0 mL/min	OctP Bias	-8.0 V		
H2 Flow	---	OctP RF	200 V		

QP Parameters

Mass Gain	168	Axis Gain	1.0041	QP Bias	-3.0 V
Mass Offset	124	Axis Offset	0.03		

Hardware Settings

Torch

Torch H	0.4 mm	Torch V	-0.2 mm

EM

Discriminator	3.7 mV	Analog HV	2286 V	Pulse HV	1775 V

	Sample									
		Rjct	Data File	Acq. Date-Time	Type	Level	Sample Name	Comment	Total Dil.	Vial Number
1		☐	001CALB.	2023-12-05 16:05:00	CalBlk	1	Blank		1.0000	1101
2		☑	002CALB.	2023-12-05 16:07:20	CalBlk	1	Blank		1.0000	1101
3		☑	003CALB.	2023-12-05 16:09:38	CalBlk	1	Blank		1.0000	1101
4		☐	004CALS.	2023-12-05 16:11:56	CalStd	2	1 ppb cal		1.0000	1103
5		☐	005CALS.	2023-12-05 16:14:14	CalStd	3	5 ppb cal		1.0000	1104
6		☐	006CALS.	2023-12-05 16:16:32	CalStd	4	25 ppb cal		1.0000	1105
7		☐	007CALS.	2023-12-05 16:18:51	CalStd	5	50 ppb cal		1.0000	1106
8		☐	008CALS.	2023-12-05 16:21:11	CalStd	6	100 ppb cal		1.0000	1107
9		☐	009_RIN.d	2023-12-05 16:32:39	RINSE		Rinse		1.0000	4
10		☐	010_ICV.d	2023-12-05 16:34:57	ICV		ICV- 40ppb		1.0000	2101
11		☐	011_LDR.d	2023-12-05 16:37:15	LDR		Daily LDR- 500pp		1.0000	2102
12		☐	012_RIN.d	2023-12-05 16:39:35	RINSE		Rinse		1.0000	4
13		☐	013_RIN.d	2023-12-05 16:41:53	RINSE		Rinse		1.0000	4
14		☐	014_RIN.d	2023-12-05 16:44:11	RINSE		Rinse		1.0000	4
15		☐	015_RIN.d	2023-12-05 16:46:31	RINSE		Rinse		1.0000	5
16		☐	016_Blk.d	2023-12-05 16:48:50	Blank		BDL0048-BLK1		1.0000	3101
17		☐	017LICV.d	2023-12-05 16:51:08	LLICV		BDL0048-MRL1		1.0000	3102
18		☐	018_LCS.d	2023-12-05 16:53:29	LCS		BDL0048-BS1		1.0000	3103
19	✓	☐	019_ARF.d	2023-12-05 16:55:49	AllRef		WDJ1823-03		1.0000	3106
20	✓	☐	020_LFM.d	2023-12-05 16:58:07	LFM		BDL0048-MS1		1.0000	3107
21	✓	☐	021LFMD.	2023-12-05 17:00:28	LFMDup		BDL0048-MSD1		1.0000	3108
22	✓	☐	022SMPL.	2023-12-05 17:02:46	Sample		WDJ1823-04		1.0000	3109
23	✓	☐	023SMPL.	2023-12-05 17:05:05	Sample		WDJ1823-05		1.0000	3110
24		☐	024SMPL.	2023-12-05 17:07:26	Sample		WDJ1823-06		1.0000	3111
25		☐	025SMPL.	2023-12-05 17:09:47	Sample		WDJ1823-07		1.0000	3112

	Sample									
		Rjct	Data File	Acq. Date-Time	Type	Level	Sample Name	Comment	Total Dil.	Vial Number
26			026SMPL.	2023-12-05 17:12:06	Sample		WDJ1823-08		1.0000	3201
27			027SMPL.	2023-12-05 17:14:27	Sample		WDJ1823-09		1.0000	3202
28			028SMPL.	2023-12-05 17:16:45	Sample		WDJ1823-10		1.0000	3203
29			029SMPL.	2023-12-05 17:19:04	Sample		WDJ1823-11		1.0000	3204
30			030_ARF.d	2023-12-05 17:21:25	AllRef		WDJ1823-12		1.0000	3205
31			031_LFM.d	2023-12-05 17:23:43	LFM		BDL0048-MS2		1.0000	3206
32			032LFMD.	2023-12-05 17:26:02	LFMDup		BDL0048-MSD2		1.0000	3207
33			033_RIN.d	2023-12-05 17:28:23	RINSE		Rinse		1.0000	4
34			034_CCV.	2023-12-05 17:30:41	CCV		CCV		1.0000	1106
35			035_CCB.	2023-12-05 17:32:59	CCB		CCB		1.0000	1101
36			036_RIN.d	2023-12-05 17:35:20	RINSE		Rinse		1.0000	5
37			037SMPL.	2023-12-05 17:37:38	Sample		WDJ1823-01		1.0000	3104
38			038SMPL.	2023-12-05 17:39:57	Sample		WDJ1823-02		1.0000	3105
39			039_Blk.d	2023-12-05 17:42:18	Blank		BDL0048-BLK1		1.0000	3208
40			040_LCS.d	2023-12-05 17:44:47	LCS		BDL0048-BS1		1.0000	3209
41			041_RIN.d	2023-12-05 17:47:05	RINSE		Rinse		1.0000	4
42			042_CCV.	2023-12-05 17:49:25	CCV		CCV		1.0000	1106
43			043_CCB.	2023-12-05 17:51:43	CCB		CCB		1.0000	1101
44			044_RIN.d	2023-12-05 17:54:02	RINSE		Rinse		1.0000	5
45			045_ARF.d	2023-12-05 17:56:22	AllRef		WDJ1823-03		1.0000	3106
46			046_LFM.d	2023-12-05 17:58:40	LFM		BDL0048-MS1		1.0000	3107
47			047LFMD.	2023-12-05 18:00:59	LFMDup		BDL0048-MSD1		1.0000	3108
48			048SMPL.	2023-12-05 18:03:20	Sample		WDJ1823-04		1.0000	3109
49			049SMPL.	2023-12-05 18:05:38	Sample		WDJ1823-05		1.0000	3110
50			050_RIN.d	2023-12-05 18:07:56	RINSE		Rinse		1.0000	4

	Sample									
		Rjct	Data File	Acq. Date-Time	Type	Level	Sample Name	Comment	Total Dil.	Vial Number
51			051_CCV.	2023-12-05 18:10:16	CCV		CCV		1.0000	1106
52			052_CCB.	2023-12-05 18:12:34	CCB		CCB		1.0000	1101
53			053_RIN.d	2023-12-05 18:14:53	RINSE		Rinse		1.0000	5
54			054_RIN.d	2023-12-05 18:17:13	RINSE		Rinse		1.0000	4
55			055_CCV.	2023-12-05 18:19:31	CCV		CCV		1.0000	1106
56			056_CCB.	2023-12-05 18:21:49	CCB		CCB		1.0000	1101
57			057_RIN.d	2023-12-05 18:24:10	RINSE		Rinse		1.0000	5
58			058_RIN.d	2023-12-05 18:26:28	RINSE		Rinse		1.0000	5
59			059_RIN.d	2023-12-05 18:28:46	RINSE		Rinse		1.0000	5

Sample Report

Sample Name	BDL0048-BLK1
File Name	016_Blk.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\Method Batches\RXN\Sequences\12052023 HIGH As.b
Acq Time	2023-12-05 16:48:50
Sample Type	Blank
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**JLG**

QC Analyte Table

Mass	Name	Conc.	Tune	Raw Conc.	ISTD	CPS RSD	LDR	QC Flag
75	As	0.047	He	0.047	72	9.9	0.06	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	ISTD Recovery %	ISTD Ref CPS
Li	6	No Gas				0
Sc	45	No Gas				0
Sc	45	He				0
Ge	72	No Gas	2482337.50	1.0	92.4	2685743
Ge	72	He	644643.50	0.8	89.1	723375.993333333
Ge	72	HEHe	303712.54	0.9	90.3	336257.34
Rh	103	No Gas				0
Rh	103	He				0
Ho	165	No Gas				0
Ho	165	He				0

Sample Report

Sample Name	BDL0048-MRL1
File Name	017LICV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\Method Batches\RXN\Sequences\12052023 HIGH As.b
Acq Time	2023-12-05 16:51:08
Sample Type	LLICV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**JLG**

QC Analyte Table

Mass	Name	Conc.	Tune	Raw Conc.	ISTD	CPS RSD	LDR	QC Flag
75	As	0.933	He	0.933	72	1.5	1	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	ISTD Recovery %	ISTD Ref CPS
Li	6	No Gas				0
Sc	45	No Gas				0
Sc	45	He				0
Ge	72	No Gas	2551653.25	1.9	95.0	2685743
Ge	72	He	667621.00	1.4	92.3	723375.993333333
Ge	72	HEHe	311885.72	1.6	92.8	336257.34
Rh	103	No Gas				0
Rh	103	He				0
Ho	165	No Gas				0
Ho	165	He				0

Sample Report

Sample Name	BDL0048-BS1
File Name	018_LCS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\Method Batches\RXN\Sequences\12052023 HIGH As.b
Acq Time	2023-12-05 16:53:29
Sample Type	LCS
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	JLG

QC Analyte Table

Mass	Name	Conc.	Tune	Raw Conc.	ISTD	CPS RSD	LDR	QC Flag
75	As	50.471	He	50.471	72	0.7	50	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	ISTD Recovery %	ISTD Ref CPS
Li	6	No Gas				0
Sc	45	No Gas				0
Sc	45	He				0
Ge	72	No Gas	2484818.25	1.1	92.5	2685743
Ge	72	He	639805.88	0.3	88.4	723375.993333333
Ge	72	HEHe	301541.11	2.0	89.7	336257.34
Rh	103	No Gas				0
Rh	103	He				0
Ho	165	No Gas				0
Ho	165	He				0

Sample Report

Sample Name	WDJ1823-03
File Name	019_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\Method Batches\RXN\Sequences\12052023 HIGH As.b
Acq Time	2023-12-05 16:55:49
Sample Type	AllRef
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Fail
Operator	**JLG**

QC Analyte Table

Mass	Name	Conc.	Tune	Raw Conc.	ISTD	CPS RSD	LDR	QC Flag
75	As	1.271	He	1.271	72	2.4	1000	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	ISTD Recovery %	ISTD Ref CPS
Li	6	No Gas				0
Sc	45	No Gas				0
Sc	45	He				0
Ge	72	No Gas	1471112.29	1.1	54.8	2685743
Ge	72	He	452720.38	2.1	62.6	723375.993333333
Ge	72	HEHe	210851.85	1.1	62.7	336257.34
Rh	103	No Gas				0
Rh	103	He				0
Ho	165	No Gas				0
Ho	165	He				0

Sample Report

Sample Name	BDL0048-MS1
File Name	020_LFM.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\Method Batches\RXN\Sequences\12052023 HIGH As.b
Acq Time	2023-12-05 16:58:07
Sample Type	LFM
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Fail
Operator	JLG

QC Analyte Table

Mass	Name	Conc.	Tune	Raw Conc.	ISTD	CPS RSD	LDR	QC Flag
75	As	57.011	He	57.011	72	2.2	100	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	ISTD Recovery %	ISTD Ref CPS
Li	6	No Gas				0
Sc	45	No Gas				0
Sc	45	He				0
Ge	72	No Gas	1523381.71	0.4	56.7	2685743
Ge	72	He	471087.74	1.8	65.1	723375.993333333
Ge	72	HEHe	206886.07	1.1	61.5	336257.34
Rh	103	No Gas				0
Rh	103	He				0
Ho	165	No Gas				0
Ho	165	He				0

Sample Report

Sample Name	BDL0048-MSD1
File Name	021LFMD.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\Method Batches\RXN\Sequences\12052023 HIGH As.b
Acq Time	2023-12-05 17:00:28
Sample Type	LFMDup
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Fail
Operator	**JLG**

QC Analyte Table

Mass	Name	Conc.	Tune	Raw Conc.	ISTD	CPS RSD	LDR	QC Flag
75	As	55.361	He	55.361	72	0.9	20	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	ISTD Recovery %	ISTD Ref CPS
Li	6	No Gas				0
Sc	45	No Gas				0
Sc	45	He				0
Ge	72	No Gas	1500356.91	0.3	55.9	2685743
Ge	72	He	453919.10	1.2	62.8	723375.993333333
Ge	72	HEHe	202553.01	1.8	60.2	336257.34
Rh	103	No Gas				0
Rh	103	He				0
Ho	165	No Gas				0
Ho	165	He				0

Sample Report

Sample Name	WDJ1823-04
File Name	022SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\Method Batches\RXN\Sequences\12052023 HIGH As.b
Acq Time	2023-12-05 17:02:46
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Fail
Operator	**JLG**

QC Analyte Table

Mass	Name	Conc.	Tune	Raw Conc.	ISTD	CPS RSD	LDR	QC Flag
75	As	1.252	He	1.252	72	2.7	1000	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	ISTD Recovery %	ISTD Ref CPS
Li	6	No Gas				0
Sc	45	No Gas				0
Sc	45	He				0
Ge	72	No Gas	1557136.63	1.0	58.0	2685743
Ge	72	He	448300.36	0.2	62.0	723375.993333333
Ge	72	HEHe	213824.84	0.8	63.6	336257.34
Rh	103	No Gas				0
Rh	103	He				0
Ho	165	No Gas				0
Ho	165	He				0

Sample Report

Sample Name	WDJ1823-05
File Name	023SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\Method Batches\RXN\Sequences\12052023 HIGH As.b
Acq Time	2023-12-05 17:05:05
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Fail
Operator	JLG

QC Analyte Table

Mass	Name	Conc.	Tune	Raw Conc.	ISTD	CPS RSD	LDR	QC Flag
75	As	24.117	He	24.117	72	1.7	1000	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	ISTD Recovery %	ISTD Ref CPS
Li	6	No Gas				0
Sc	45	No Gas				0
Sc	45	He				0
Ge	72	No Gas	1580784.46	1.1	58.9	2685743
Ge	72	He	472006.04	1.1	65.3	723375.993333333
Ge	72	HEHe	213804.88	1.3	63.6	336257.34
Rh	103	No Gas				0
Rh	103	He				0
Ho	165	No Gas				0
Ho	165	He				0

Sample Report

Sample Name	WDJ1823-06
File Name	024SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\Method Batches\RXN\Sequences\12052023 HIGH As.b
Acq Time	2023-12-05 17:07:26
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	JLG

QC Analyte Table

Mass	Name	Conc.	Tune	Raw Conc.	ISTD	CPS RSD	LDR	QC Flag
75	As	1.638	He	1.638	72	3.2	1000	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	ISTD Recovery %	ISTD Ref CPS
Li	6	No Gas				0
Sc	45	No Gas				0
Sc	45	He				0
Ge	72	No Gas	2440419.58	1.2	90.9	2685743
Ge	72	He	667848.62	0.8	92.3	723375.993333333
Ge	72	HEHe	301636.42	1.7	89.7	336257.34
Rh	103	No Gas				0
Rh	103	He				0
Ho	165	No Gas				0
Ho	165	He				0

Sample Report

Sample Name	WDJ1823-07
File Name	025SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\Method Batches\RXN\Sequences\12052023 HIGH As.b
Acq Time	2023-12-05 17:09:47
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**JLG**

QC Analyte Table

Mass	Name	Conc.	Tune	Raw Conc.	ISTD	CPS RSD	LDR	QC Flag
75	As	2.456	He	2.456	72	1.5	1000	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	ISTD Recovery %	ISTD Ref CPS
Li	6	No Gas				0
Sc	45	No Gas				0
Sc	45	He				0
Ge	72	No Gas	2331584.58	4.5	86.8	2685743
Ge	72	He	657510.70	0.2	90.9	723375.993333333
Ge	72	HEHe	299212.39	0.5	89.0	336257.34
Rh	103	No Gas				0
Rh	103	He				0
Ho	165	No Gas				0
Ho	165	He				0

Sample Report

Sample Name	WDJ1823-08
File Name	026SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\Method Batches\RXN\Sequences\12052023 HIGH As.b
Acq Time	2023-12-05 17:12:06
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**JLG**

QC Analyte Table

Mass	Name	Conc.	Tune	Raw Conc.	ISTD	CPS RSD	LDR	QC Flag
75	As	2.060	He	2.06	72	2.3	1000	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	ISTD Recovery %	ISTD Ref CPS
Li	6	No Gas				0
Sc	45	No Gas				0
Sc	45	He				0
Ge	72	No Gas	2205283.83	1.4	82.1	2685743
Ge	72	He	605355.95	1.0	83.7	723375.993333333
Ge	72	HEHe	272950.62	0.8	81.2	336257.34
Rh	103	No Gas				0
Rh	103	He				0
Ho	165	No Gas				0
Ho	165	He				0

Sample Report

Sample Name	WDJ1823-09
File Name	027SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\Method Batches\RXN\Sequences\12052023 HIGH As.b
Acq Time	2023-12-05 17:14:27
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	JLG

QC Analyte Table

Mass	Name	Conc.	Tune	Raw Conc.	ISTD	CPS RSD	LDR	QC Flag
75	As	1.321	He	1.321	72	2.1	1000	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	ISTD Recovery %	ISTD Ref CPS
Li	6	No Gas				0
Sc	45	No Gas				0
Sc	45	He				0
Ge	72	No Gas	2302699.83	0.5	85.7	2685743
Ge	72	He	641200.77	0.5	88.6	723375.993333333
Ge	72	HEHe	300974.17	5.4	89.5	336257.34
Rh	103	No Gas				0
Rh	103	He				0
Ho	165	No Gas				0
Ho	165	He				0

Sample Report

Sample Name	WDJ1823-10
File Name	028SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\Method Batches\RXN\Sequences\12052023 HIGH As.b
Acq Time	2023-12-05 17:16:45
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**JLG**

QC Analyte Table

Mass	Name	Conc.	Tune	Raw Conc.	ISTD	CPS RSD	LDR	QC Flag
75	As	4.386	He	4.386	72	0.8	1000	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	ISTD Recovery %	ISTD Ref CPS
Li	6	No Gas				0
Sc	45	No Gas				0
Sc	45	He				0
Ge	72	No Gas	2278895.42	1.0	84.9	2685743
Ge	72	He	636139.89	0.5	87.9	723375.993333333
Ge	72	HEHe	294499.85	1.2	87.6	336257.34
Rh	103	No Gas				0
Rh	103	He				0
Ho	165	No Gas				0
Ho	165	He				0

Sample Report

Sample Name	WDJ1823-11
File Name	029SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\Method Batches\RXN\Sequences\12052023 HIGH As.b
Acq Time	2023-12-05 17:19:04
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**JLG**

QC Analyte Table

Mass	Name	Conc.	Tune	Raw Conc.	ISTD	CPS RSD	LDR	QC Flag
75	As	0.632	He	0.632	72	4.6	1000	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	ISTD Recovery %	ISTD Ref CPS
Li	6	No Gas				0
Sc	45	No Gas				0
Sc	45	He				0
Ge	72	No Gas	2321570.33	1.2	86.4	2685743
Ge	72	He	636188.60	0.5	87.9	723375.993333333
Ge	72	HEHe	303416.30	1.8	90.2	336257.34
Rh	103	No Gas				0
Rh	103	He				0
Ho	165	No Gas				0
Ho	165	He				0

Sample Report

Sample Name	WDJ1823-12
File Name	030_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\Method Batches\RXN\Sequences\12052023 HIGH As.b
Acq Time	2023-12-05 17:21:25
Sample Type	AllRef
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**JLG**

QC Analyte Table

Mass	Name	Conc.	Tune	Raw Conc.	ISTD	CPS RSD	LDR	QC Flag
75	As	0.507	He	0.507	72	3.3	1000	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	ISTD Recovery %	ISTD Ref CPS
Li	6	No Gas				0
Sc	45	No Gas				0
Sc	45	He				0
Ge	72	No Gas	2364445.75	2.4	88.0	2685743
Ge	72	He	649834.42	1.2	89.8	723375.993333333
Ge	72	HEHe	297203.07	2.3	88.4	336257.34
Rh	103	No Gas				0
Rh	103	He				0
Ho	165	No Gas				0
Ho	165	He				0

Sample Report

Sample Name	BDL0048-MS2
File Name	031_LFM.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\Method Batches\RXN\Sequences\12052023 HIGH As.b
Acq Time	2023-12-05 17:23:43
Sample Type	LFM
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**JLG**

QC Analyte Table

Mass	Name	Conc.	Tune	Raw Conc.	ISTD	CPS RSD	LDR	QC Flag
75	As	50.210	He	50.21	72	1.6	100	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	ISTD Recovery %	ISTD Ref CPS
Li	6	No Gas				0
Sc	45	No Gas				0
Sc	45	He				0
Ge	72	No Gas	2322619.17	0.5	86.5	2685743
Ge	72	He	654313.17	1.0	90.5	723375.993333333
Ge	72	HEHe	304607.31	1.2	90.6	336257.34
Rh	103	No Gas				0
Rh	103	He				0
Ho	165	No Gas				0
Ho	165	He				0

Sample Report

Sample Name	BDL0048-MSD2
File Name	032LFMD.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\Method Batches\RXN\Sequences\12052023 HIGH As.b
Acq Time	2023-12-05 17:26:02
Sample Type	LFMDup
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**JLG**

QC Analyte Table

Mass	Name	Conc.	Tune	Raw Conc.	ISTD	CPS RSD	LDR	QC Flag
75	As	53.622	He	53.622	72	0.9	20	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	ISTD Recovery %	ISTD Ref CPS
Li	6	No Gas				0
Sc	45	No Gas				0
Sc	45	He				0
Ge	72	No Gas	2284969.58	0.2	85.1	2685743
Ge	72	He	639182.79	0.6	88.4	723375.993333333
Ge	72	HEHe	291895.58	2.0	86.8	336257.34
Rh	103	No Gas				0
Rh	103	He				0
Ho	165	No Gas				0
Ho	165	He				0

Sample Report

Sample Name	CCV
File Name	034_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\Method Batches\RXN\Sequences\12052023 HIGH As.b
Acq Time	2023-12-05 17:30:41
Sample Type	CCV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	JLG

QC Analyte Table

Mass	Name	Conc.	Tune	Raw Conc.	ISTD	CPS RSD	LDR	QC Flag
75	As	51.684	He	51.684	72	0.1	50	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	ISTD Recovery %	ISTD Ref CPS
Li	6	No Gas				0
Sc	45	No Gas				0
Sc	45	He				0
Ge	72	No Gas	2314693.33	0.4	86.2	2685743
Ge	72	He	648329.35	0.2	89.6	723375.993333333
Ge	72	HEHe	295199.82	1.4	87.8	336257.34
Rh	103	No Gas				0
Rh	103	He				0
Ho	165	No Gas				0
Ho	165	He				0

Sample Report

Sample Name	CCB
File Name	035_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\Method Batches\RXN\Sequences\12052023 HIGH As.b
Acq Time	2023-12-05 17:32:59
Sample Type	CCB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	JLG

QC Analyte Table

Mass	Name	Conc.	Tune	Raw Conc.	ISTD	CPS RSD	LDR	QC Flag
75	As	0.032	He	0.032	72	5.2	0.06	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	ISTD Recovery %	ISTD Ref CPS
Li	6	No Gas				0
Sc	45	No Gas				0
Sc	45	He				0
Ge	72	No Gas	2314219.08	1.6	86.2	2685743
Ge	72	He	641867.46	0.2	88.7	723375.993333333
Ge	72	HEHe	294908.03	1.2	87.7	336257.34
Rh	103	No Gas				0
Rh	103	He				0
Ho	165	No Gas				0
Ho	165	He				0

Sample Report

Sample Name	WDJ1823-01
File Name	037SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\Method Batches\RXN\Sequences\12052023 HIGH As.b
Acq Time	2023-12-05 17:37:38
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**JLG**

QC Analyte Table

Mass	Name	Conc.	Tune	Raw Conc.	ISTD	CPS RSD	LDR	QC Flag
75	As	0.806	He	0.806	72	4.4	1000	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	ISTD Recovery %	ISTD Ref CPS
Li	6	No Gas				0
Sc	45	No Gas				0
Sc	45	He				0
Ge	72	No Gas	2206569.83	1.0	82.2	2685743
Ge	72	He	582058.14	0.4	80.5	723375.993333333
Ge	72	HEHe	266910.71	2.0	79.4	336257.34
Rh	103	No Gas				0
Rh	103	He				0
Ho	165	No Gas				0
Ho	165	He				0

Sample Report

Sample Name	WDJ1823-02
File Name	038SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\Method Batches\RXN\Sequences\12052023 HIGH As.b
Acq Time	2023-12-05 17:39:57
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**JLG**

QC Analyte Table

Mass	Name	Conc.	Tune	Raw Conc.	ISTD	CPS RSD	LDR	QC Flag
75	As	1.164	He	1.164	72	4.7	1000	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	ISTD Recovery %	ISTD Ref CPS
Li	6	No Gas				0
Sc	45	No Gas				0
Sc	45	He				0
Ge	72	No Gas	2157583.50	2.1	80.3	2685743
Ge	72	He	581448.10	1.1	80.4	723375.993333333
Ge	72	HEHe	269102.53	1.2	80.0	336257.34
Rh	103	No Gas				0
Rh	103	He				0
Ho	165	No Gas				0
Ho	165	He				0

Sample Report

Sample Name	BDL0048-BLK1
File Name	039_Blk.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\Method Batches\RXN\Sequences\12052023 HIGH As.b
Acq Time	2023-12-05 17:42:18
Sample Type	Blank
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**JLG**

QC Analyte Table

Mass	Name	Conc.	Tune	Raw Conc.	ISTD	CPS RSD	LDR	QC Flag
75	As	<0.000	He	-0.062	72	14.8	0.06	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	ISTD Recovery %	ISTD Ref CPS
Li	6	No Gas				0
Sc	45	No Gas				0
Sc	45	He				0
Ge	72	No Gas	2236777.00	1.0	83.3	2685743
Ge	72	He	597747.30	1.4	82.6	723375.993333333
Ge	72	HEHe	273166.99	1.1	81.2	336257.34
Rh	103	No Gas				0
Rh	103	He				0
Ho	165	No Gas				0
Ho	165	He				0

Sample Report

Sample Name	BDL0048-BS1
File Name	040_LCS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\Method Batches\RXN\Sequences\12052023 HIGH As.b
Acq Time	2023-12-05 17:44:47
Sample Type	LCS
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	JLG

QC Analyte Table

Mass	Name	Conc.	Tune	Raw Conc.	ISTD	CPS RSD	LDR	QC Flag
75	As	55.583	He	55.583	72	0.6	50	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	ISTD Recovery %	ISTD Ref CPS
Li	6	No Gas				0
Sc	45	No Gas				0
Sc	45	He				0
Ge	72	No Gas	2215279.83	2.3	82.5	2685743
Ge	72	He	604059.89	0.8	83.5	723375.993333333
Ge	72	HEHe	274293.65	1.6	81.6	336257.34
Rh	103	No Gas				0
Rh	103	He				0
Ho	165	No Gas				0
Ho	165	He				0

Sample Report

Sample Name	CCV
File Name	042_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\Method Batches\RXN\Sequences\12052023 HIGH As.b
Acq Time	2023-12-05 17:49:25
Sample Type	CCV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	JLG

QC Analyte Table

Mass	Name	Conc.	Tune	Raw Conc.	ISTD	CPS RSD	LDR	QC Flag
75	As	53.129	He	53.129	72	0.1	50	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	ISTD Recovery %	ISTD Ref CPS
Li	6	No Gas				0
Sc	45	No Gas				0
Sc	45	He				0
Ge	72	No Gas	2233967.75	0.5	83.2	2685743
Ge	72	He	621932.79	1.2	86.0	723375.993333333
Ge	72	HEHe	282351.18	1.1	84.0	336257.34
Rh	103	No Gas				0
Rh	103	He				0
Ho	165	No Gas				0
Ho	165	He				0

Report Generated By Teledyne CETAC QuickTrace

Analyst: Mercury

Worksheet file: C:\Users\Public\Documents\Teledyne CETAC\QuickTrace\Worksheets\11162023 Hg A.wszf

Creation Date: 11/16/2023 11:27:37 AM

Comment:

Results

Sample Name		Type	Date/Time	Conc (ug/L)	µAbs	%RSD	Residual	Flags	% Recovery
Calibration Blank		STD	11/16/23 01:10:58 pm	0.000	-58	174.66	-83.54		N/A
Replicates	66.6	-24.9	-108.0	-164.0					
Standard #1 (0.5 ug/L)		STD	11/16/23 01:13:29 pm	0.500	9246	1.54	-74.08		N/A
Replicates	9420.4	9299.6	9163.3	9101.6					
Standard #2 (1 ug/L)		STD	11/16/23 01:16:00 pm	1.000	18448	1.20	-70.23		N/A
Replicates	18725.9	18512.3	18334.0	18218.6					
Standard #3 (2.0 ug/L)		STD	11/16/23 01:18:32 pm	2.000	39872	1.24	102.90		N/A
Replicates	40515.9	39976.8	39617.5	39376.3					
Standard #4 (5.0 ug/L)		STD	11/16/23 01:21:05 pm	5.000	97703	0.97	269.60		N/A
Replicates	98934.7	97910.5	97194.3	96771.6					
Standard #5 (10.0 ug/L)		STD	11/16/23 01:23:37 pm	10.000	181449	1.07	-144.65		N/A
Replicates	183969.0	181871.9	180401.5	179553.4					

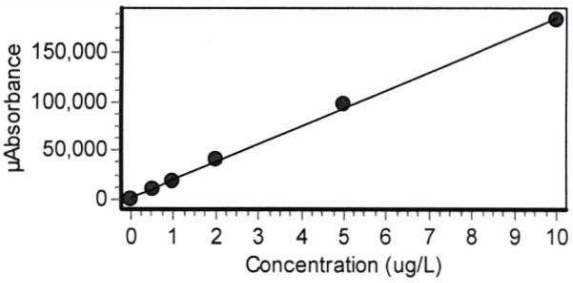
Calibration

Equation: A = 1467.956 + 18262.265C

R2: 0.99834

SEE: 3184.0480

Flags:



ICV		ICV	11/16/23 01:28:25 pm	4.730	87885	0.51			118.30
Replicates	87298.8	87787.8	88223.0	88230.0					
CCV (95-105%)		OPR	11/16/23 01:30:58 pm	5.270	97649	1.06		Q	105.33
Replicates	98995.3	97847.7	97090.5	96661.7					
CCB		CCB	11/16/23 01:33:29 pm	-0.072	150	10.20			N/A
Replicates	313.5	192.6	91.5	0.6					
BLANK		MB	11/16/23 01:36:00 pm	-0.077	59	2.93			N/A
Replicates	106.0	79.2	16.4	33.2					
LCS		LCS	11/16/23 01:38:31 pm	4.740	87945	4.52		L	118.38
Replicates	93275.5	88385.1	85559.0	84561.6					
WDJ1701-01		UNK	11/16/23 01:41:02 pm	-0.078	46	4.32			N/A
Replicates	122.0	65.7	11.9	-17.5					
WDJ1701-02		UNK	11/16/23 01:43:34 pm	-0.007	1339	78.38			N/A
Replicates	1463.4	1371.6	1289.1	1230.5					

Sample Name		Type	Date/Time	Conc (ug/L)	µAbs	%RSD	Residual Flags	% Recovery
WDJ1701-03		UNK	11/16/23 01:46:05 pm	-0.089	-165	2.85		N/A
Replicates	-99.1	-165.3	-194.2	-201.3				
WDJ1701-04		UNK	11/16/23 01:48:37 pm	-0.060	378	2.60		N/A
Replicates	413.6	369.5	345.7	383.0				
WDJ1779-08		UNK	11/16/23 01:51:09 pm	-0.087	-125	0.53		N/A
Replicates	-126.4	-113.4	-125.9	-133.7				
MS1		UNK	11/16/23 01:53:41 pm	-0.089	-166	2.77		N/A
Replicates	-166.6	-196.7	-198.5	-101.7				
MSD1		UNK	11/16/23 01:56:13 pm	-0.079	19	2.16		N/A
Replicates	-21.9	37.3	48.8	11.9				
WDJ1823-01		UNK	11/16/23 01:58:45 pm	-0.077	58	6.03		N/A
Replicates	161.8	94.2	-8.3	-14.0				
WDJ1823-02		UNK	11/16/23 02:01:18 pm	-0.076	82	4.05		N/A
Replicates	30.6	39.6	109.4	147.4				
WDJ1823-03		UNK	11/16/23 02:03:49 pm	-0.089	-160	1.14		N/A
Replicates	-141.8	-149.4	-163.7	-183.9				
MS2		UNK	11/16/23 02:06:20 pm	4.840	89870	0.43		N/A
Replicates	89336.2	89871.0	90171.6	90102.0				
MSD2		UNK	11/16/23 02:08:51 pm	5.080	94263	0.93		N/A
Replicates	93851.1	93654.7	94003.8	95544.0				
WDJ1823-04		UNK	11/16/23 02:11:22 pm	-0.075	90	4.14		N/A
Replicates	158.9	110.6	65.1	26.9				
WDJ1823-05		UNK	11/16/23 02:13:54 pm	-0.070	197	1.24		N/A
Replicates	217.5	188.4	200.6	181.6				
WDJ1701-04		UNK	11/16/23 02:16:26 pm	-0.083	-38	2.88		N/A
Replicates	15.0	-22.7	-58.4	-84.9				
MS1		UNK	11/16/23 02:18:57 pm	3.550	66375	0.34		N/A
Replicates	66508.1	66171.4	66198.8	66620.1				
MSD1		UNK	11/16/23 02:21:30 pm	4.110	76449	1.21		N/A
Replicates	76009.0	75644.2	76418.1	77726.1				
WDJ1823-01		UNK	11/16/23 02:24:02 pm	-0.060	363	12.89		N/A
Replicates	541.3	406.7	288.2	216.3				
WDJ1823-02		UNK	11/16/23 02:26:34 pm	-0.024	1024	5.85		N/A
Replicates	1059.4	1003.4	1028.5	1006.2				
BLK		UNK	11/16/23 02:29:06 pm	-0.089	-165	0.90		N/A
Replicates	-143.7	-171.7	-166.7	-177.3				
CK		UNK	11/16/23 02:31:38 pm	2.210	41806	1.44		N/A
Replicates	42544.2	41965.4	41494.6	41221.6				
WDJ1823-06		UNK	11/16/23 02:34:09 pm	-0.061	355	1.82		N/A
Replicates	380.8	332.8	347.0	358.8				

Sample Name		Type	Date/Time	Conc (ug/L)	µAbs	%RSD	Residual Flags	% Recovery
WDJ1823-07		UNK	11/16/23 02:36:41 pm	-0.061	352	0.89		N/A
Replicates	342.9	363.4	357.0	344.5				
WDJ1823-08		UNK	11/16/23 02:39:13 pm	-0.044	669	3.04		N/A
Replicates	695.0	685.3	652.3	645.4				
WDJ1823-09		UNK	11/16/23 02:41:45 pm	-0.024	1038	2.26		N/A
Replicates	1051.7	1034.0	1036.5	1029.3				
WDJ1823-10		UNK	11/16/23 02:44:17 pm	-0.051	533	1.60		N/A
Replicates	548.5	539.3	513.3	530.8				
WDJ1823-11		UNK	11/16/23 02:46:49 pm	-0.039	762	4.25		N/A
Replicates	797.5	773.1	749.5	728.0				
WDJ1823-12		UNK	11/16/23 02:49:22 pm	-0.048	597	2.18		N/A
Replicates	622.0	590.5	597.7	576.7				
WDK0105-01		UNK	11/16/23 02:51:53 pm	-0.077	64	2.61		N/A
Replicates	114.3	67.8	34.1	39.8				
WDK0105-08		UNK	11/16/23 02:54:24 pm	-0.050	552	1.77		N/A
Replicates	536.2	574.1	544.8	551.1				
WDK130-06		UNK	11/16/23 02:56:55 pm	-0.070	183	1.38		N/A
Replicates	200.5	195.5	164.5	171.0				
BLANK		UNK	11/16/23 02:59:27 pm	-0.063	310	1.55		N/A
Replicates	319.5	330.5	297.6	292.6				
LCS		UNK	11/16/23 03:01:58 pm	5.210	96642	0.87		N/A
Replicates	97697.6	96877.1	96148.6	95843.3				
CKBLK		UNK	11/16/23 03:04:29 pm	-0.070	180	5.40		N/A
Replicates	112.3	206.7	264.7	134.7				
CK2		UNK	11/16/23 03:07:01 pm	1.010	19951	1.24		N/A
Replicates	20237.4	20023.2	19829.2	19716.2				
BLANK		UNK	11/16/23 03:09:32 pm	-0.062	335	0.99		N/A
Replicates	346.6	343.4	327.4	324.2				
LCS		UNK	11/16/23 03:12:04 pm	5.100	94636	0.93		N/A
Replicates	95658.1	94974.4	94257.7	93654.7				
WDK0143-01		UNK	11/16/23 03:14:36 pm	-0.063	315	1.70		N/A
Replicates	331.8	330.4	292.4	304.1				
WDK0143-02		UNK	11/16/23 03:17:08 pm	-0.072	156	1.47		N/A
Replicates	132.6	151.0	178.3	163.1				
WDK0143-03		UNK	11/16/23 03:19:40 pm	-0.066	255	0.53		N/A
Replicates	258.3	262.5	250.5	249.0				
WDK0143-04		UNK	11/16/23 03:22:13 pm	-0.066	270	0.73		N/A
Replicates	271.1	278.8	273.0	258.2				
WDK0416-01		UNK	11/16/23 03:24:45 pm	-0.052	509	1.47		N/A
Replicates	496.4	496.7	519.4	522.5				

Sample Name				Type	Date/Time	Conc (ug/L)	µAbs	%RSD	Residual Flags	% Recovery
MS3				UNK	11/16/23 03:27:17 pm	5.360	99297	0.28		N/A
	Replicates	99642.6	99398.2	99103.5	99043.9					
MSD3				UNK	11/16/23 03:29:48 pm	4.950	91786	0.45		N/A
	Replicates	92261.9	91958.0	91572.5	91352.8					
BLANK				UNK	11/16/23 03:32:19 pm	-0.183	-1871	0.87		N/A
	Replicates	-1847.5	-1844.6	-1891.1	-1900.6					
LCS				UNK	11/16/23 03:34:50 pm	4.710	87544	0.50		N/A
	Replicates	88058.2	87711.3	87325.0	87081.5					
BLANK				UNK	11/16/23 03:37:21 pm	-0.213	-2419	0.23		N/A
	Replicates	-2407.8	-2428.1	-2424.1	-2417.6					
CK				UNK	11/16/23 03:39:53 pm	1.670	31883	1.07		N/A
	Replicates	32252.0	32030.5	31745.3	31505.1					
CK2				UNK	11/16/23 03:42:26 pm	3.960	73701	1.17		N/A
	Replicates	74682.4	74045.5	73336.8	72740.5					
CK1				UNK	11/16/23 04:04:26 pm	0.345	7771	0.96		N/A
	Replicates	7843.7	7790.6	7748.6	7702.3					
CK3				UNK	11/16/23 04:06:58 pm	0.683	13942	0.97		N/A
	Replicates	14072.6	14004.6	13889.8	13799.8					

AECOS, Inc.

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

CLIENT: Cardno-GS / Stantec
737 Bishop Street, Suite 3050
Honolulu HI 96813
ATTENTION: Benjamin Berridge / Hannah Hubanks
Benjamin.Berridge@cardno-gs.com

FILE No.:	1494
REPORT DATE:	10/26/2023
PAGE:	1 of 1

AECOS REPORT OF RESULTS

SAMPLE TYPE: Seawater
DATE SAMPLED: 10/24/23
TEMP. CONTROL: 7.4 °C
DATE/TIME ANALYZED: 10/24/23 @1754*

***AECOS* LOG No.:** 49083
DATE/TIME RECEIVED: 10/24/23 @1726**
SAMPLER: S. Gabitzer
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*
	METHOD →	ASTM D650399	---	---	---
SAMPLE ID ⇩	TIME SAMPLED ⇩				
WW-3 **	0830	>24,000	*10*	*49*	*48*
D-4 **	0903	380	*10*	*25*	*3*
D-8 **	0915	1900	*10*	*47*	*15*
D-7 *	0930	5200	*10*	*49*	*27*
D_3 **	0922	1500	*10*	*45*	*13*
D-2 *	0940	960	*10*	*42*	*5*
D-6 *	0945	9200	*10*	*49*	*37*
WW-6 *	0945	4600	*10*	*49*	*25*
U-3 / WW-4	1015	1900	*10*	*47*	*15*
E-1	1030	41	*10*	*4*	*0*
E-1 dup	1035	20	*10*	*1*	*1*
U-2 / WW-5	1030	24,000	*10*	*49*	*47*

* Samples were received and processed past the hold time.
** Samples were processed past the hold time.

for *AECOS*, Inc.

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 [049053]

CLIENT: Cardno GS Inc.
ADDRESS: 737 Bishop Street
Honolulu, HI 96813

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

☐ RUSH
☐ SEE REVERSE
SPECIAL INSTRUCTIONS

	☑	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	SAMPLE TYPE	CONTAINER(S)		REQUESTED ANALYSES	PRESERVATION
1	✓	WW-3	10/24/2023	8:30	SW	1	idexx	enterio	
2	✓	D-4		9:03					
3	✓	D-8		9:15					
4	✓	D-7		9:30					
5	✓	D-3		9:22					
6	✓	D-2		9:40					
7	✓	D-6		9:45					
8	✓	WW-6		9:45					
9	✓	U-3/WW-4		10:15					
10	✓	E-1		10:30					

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

SAMPLED BY: DATE
PRINT NAME SYDNEY GABITER — OCT 24 2023
RELINQUISHED: DATE
SIGNATURE — 1725 TIME — 2023
COMMENTS:

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

T=7.4°C

RECEIVED FOR LABORATORY: DATE 10/24 2023
SIGNATURE
RELINQUISHED: TIME 1726 DATE 20___
SIGNATURE OR INITIALS TIME
DISPOSAL:

RETURN SAMPLE TO CLIENT ☐

USE (BLACK) INK

*received expired

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 [49083]

CLIENT: Cardno
ADDRESS:

CONTACT:
PHONE No.: ☎
Purchase Order No.:

☐ RUSH
☐ SEE REVERSE
SPECIAL INSTRUCTIONS

	☑	SAMPLE ID	SAMPLED DATE	TIME	SAMPLE TYPE	CONTAINER(S)		REQUESTED ANALYSES	PRESERVATION
1	✓	E-1 DUP	10/24/2023	10:35	SW	1	idexx	enterro	
2	✓	U-2/MW-5	10/24/2023	10:30	SW	1	idexx	enterro	
3			"						
4			"						
5									
6									
7					"				
8									
9									
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: DATE
PRINT NAME SYDNEY GABITZER 10/24 2023
RELINQUISHED: DATE
SIGNATURE 1725 2023 TIME

COMMENTS:

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

PRECAUTIONS:

RECEIVED FOR LABORATORY: DATE 10/24 20 23
SIGNATURE TIME 1726
RELINQUISHED: DATE 20___
SIGNATURE OR INITIALS TIME

DISPOSAL:

RETURN SAMPLE TO CLIENT ☐

USE (BLACK) INK

ENTHALPY ANALYTICAL
TOXICITY LABORATORY & CONSULTING

Acute Toxicity Test Results for ADC Kekaha Wet Weather Water Quality Monitoring

Monitoring Period: October 2023

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

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

Submitted: December 20, 2023

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: Borelo

Barbara Orelo, Project Manager

California
4340 Vandever Ave
San Diego, CA 92120
858.587.7333

Introduction

A sample was collected during a wet weather event for the ADC Kekaha Water Quality Monitoring. The sample was submitted by Stantec. Testing was conducted at the Enthalpy Analytical Laboratory in San Diego, California using the fathead minnow (*Pimephales promelas*), water flea (*Ceriodaphnia dubia*), and freshwater amphipod (*Hyalella azteca*) 96-hour acute survival tests.

Materials and Methods

Sample Information

Client:	Stantec
Project Name:	ADC Kekaha Water Quality Monitoring
Sample IDs:	WW-3
Sample Collection Dates, Times[a]:	10/24/23, 11:30
Sample Receipt Dates, Times:	10/26/23, 09:55
Sample Material:	Wet weather sample
Sampling Method:	Grab

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

Table 1. Water Quality Parameters Measured upon Sample Receipt

Sample ID	pH	DO (mg/L)	Temp. (ºC)	Cond. (µS/cm)	Salinity (ppt)	Alkalinity (mg/L as $CaCO_3$)	Hardness (mg/L as CaCO3)	Total Chlorine (mg/L)
WW-3	6.77	8.7	1.5	717	0.4	20	80	<0.02

Acute Toxicity Test Methods

Testing was conducted in accordance with methods published in US Environmental Protection Agency (USEPA) guidance (2002). Test specifications are summarized in Table 2.

Table 2. 96-hr Acute Survival Test Specifications

Fathead minnow test: 10/26/23, 14:40 to 10/30/23, 13:55	Species: *Pimephales promelas.* Source & Age: Aquatic Biosystems (Ft. Collins, CO), 3 and 7 days[a]
Water flea test: 10/26/23, 14:40 to 10/30/23, 12:55	Species: *Ceriodaphnia dubia.* Source & Age: Internal culture, < 24 hours
Freshwater amphipod test: 10/26/23, 15:35 to 10/30/23, 14:05	Species: *Hyalella azteca.* Source & Age: Aquatic Research Organisms (Hampton, NH), 13 days
Protocol Used:	Acute Manual (EPA/821/R-02/012), EPA 2002
Test Acceptability Criteria:	Control mean survival ≥ 90%
Test Concentration:	100% sample (WW-3)
Lab Control Water:	Diluted mineral water (per EPA protocol) for *P. promelas* and *C. dubia*; Carbon-filtered municipal water (Coast) for *H. azteca*

[a] Organisms from two batches used; see QA section of report

Statistical Analyses

Statistical analyses were conducted using EPA flowchart specifications as outlined in the test guidance manual (USEPA 2002). Organism performance in the sample was compared to that observed in the concurrent lab or 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 2.1.4.11.

Results

No statistically significant effects were detected to survival for any of the species tested.

Due to heavy debris, the water flea test was also performed after filtering the samples through a 0.45um filter. The test resulted in 100 percent survival for the unfiltered sample, indicating that the debris did not cause mortality.

A summary of results is presented in Table 3. Raw datasheets and complete statistical summaries for all tests are provided in Appendix A. Sample receipt information is provided in Appendix B, and a copy of the chain of custody form is presented in Appendix C.

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

Sample ID	Species	Lab Control Result	100% Sample Result	Statistically Significant Effect? (Yes/No)	Percent Effect
WW-3	Fathead Minnow	95.0	100	No	-5.3
	Water Flea	100	100	No	0.0
	Freshwater Amphipod	97.5	90.0	No	7.7

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

Quality Assurance

The sample was received via overnight delivery service two days after collection and within the range of 0-6 degrees Celsius (°C). The tests were initiated within the maximum allowable holding time of 72 hours.

Due to insufficient number of organisms caused by poor quality upon receipt, two different batches of fathead minnow of different ages (3 days old and 7 days old) were used. Test organisms of both ages were evenly distributed in the test chambers. As there were no statistically significant effects in the fathead minnow test, it is unlikely the two ages of the organisms affected the results.

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 4. The reference toxicant tests for all species tested met all acceptability criteria. The median effect concentration values (EC_{50}) were within two standard deviations of the historical means for the fathead minnow and water flea tests, indicating organisms exhibited typical sensitivity as historically observed in the laboratory. The EC_{50} value was slightly above two standard deviations of the historical means for the amphipod test, indicating organisms exhibited less sensitivity as historically observed in the laboratory. The control charts for the previous 20 reference toxicant tests are presented in Appendix E.

Table 4. Summary of 96-hr Acute Survival Reference Toxicant Test Results

Species	NOEC (µg/L copper)	LC_{50} (µg/L copper)	Historical $LC_{50} \pm 2$ SD (µg/L copper)	CV (%)
Fathead Minnow	15	89.2	67.1 ± 74.1	55.2
Water Flea	10	16.5	17.7 ± 14.9	41.9
Freshwater Amphipod	400	706	434 ± 250	28.8

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

LC_{50} = the concentration expected to cause a lethal effect to 50 percent of the test organisms

Historical LC_{50} ± 2 SD = the mean LC_{50} from the previous 20 tests performed by Enthalpy, plus or minus two standard deviations

CV = Coefficient of Variation

References

Tidepool Scientific Software. 2000-2022. CETIS Comprehensive Environmental Toxicity Information System Software, Version 2.1.4.11.

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

Appendix A

Raw Data and Statistical Summaries

CETIS Summary Report

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

Batch ID:	12-6102-8422	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	26 Oct-23 14:40	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Not Applicable
Ending Date:	30 Oct-23 13:55	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Test Length:	95h	**Taxon:**		**Source:**	Aquatic Biosystems, CO **Age:** 3d+ 7d

Sample ID:	16-0832-0741	**Code:**	23-1192	**Project:**	ADC Kekaha WQ Monitoring
Sample Date:	24 Oct-23 11:30 PDT	**Material:**	Wet Weather Sample	**Source:**	Stantec
Receipt Date:	26 Oct-23 09:55	**CAS (PC):**		**Station:**	WW-3
Sample Age:	51h (1.5 °C)	**Client:**	Stantec		

SIngle Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
01-6052-1399	96h Survival Rate	Unequal Variance t Two-Sample Test	0.9092	100% passed 96h survival rate	1

Test Acceptability

				TAC Limits			
Analysis ID	**Endpoint**	**Attribute**	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
01-6052-1399	96h Survival Rate	Control Resp	0.95	0.9	<<	Yes	Passes Criteria

96h Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	LC	4	0.950	0.858	1.040	0.900	1.000	0.029	0.058	6.08%	0.00%
100		4	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	-5.26%

96h Survival Rate Detail — MD5: E9C353059ADB3E89271B042A2FFF261C

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	LC	0.900	0.900	1.000	1.000
100		1.000	1.000	1.000	1.000

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

Analysis ID:	01-6052-1399	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv2.1.4
Analyzed:	14 Dec-23 12:46	**Analysis:**	Parametric-Two Sample	**Status Level:**	1
Edit Date:	14 Dec-23 12:46	**MD5 Hash:**	E9C353059ADB3E89271B042A2FFF261C	**Editor ID:**	007-926-968-0

Data Transform	Alt Hyp	Comparison Result	PMSD
Angular (Corrected)	C > T	100% passed 96h survival rate endpoint	7.18%

Unequal Variance t Two-Sample Test

Control	vs	Conc-%	df	Test Stat	Critical	MSD	P-Type	P-Value	Decision(α:5%)
Lab Control		100	3	-1.73	2.35	0.111	CDF	0.9092	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0132797	0.0132797	1	3	0.1340	Non-Significant Effect
Error	0.0265593	0.0044266	6			
Total	0.039839		7			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Variance Ratio F Test				Indeterminate
Distribution	Shapiro-Wilk W Normality Test	0.849	0.645	0.0929	Normal Distribution

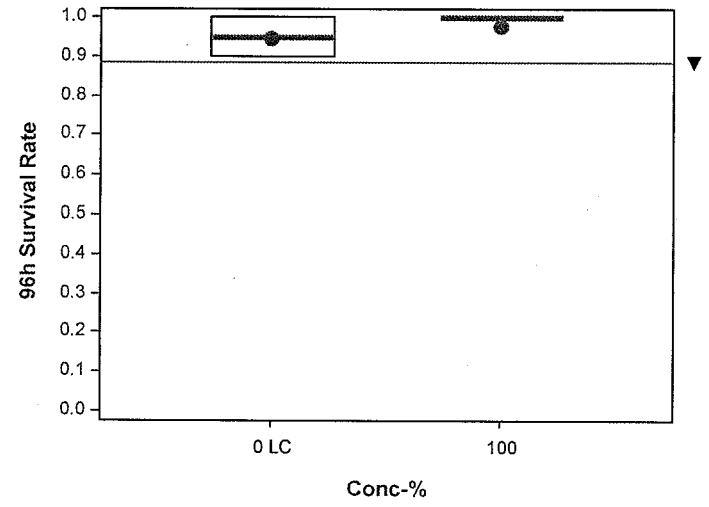
96h Survival Rate Summary

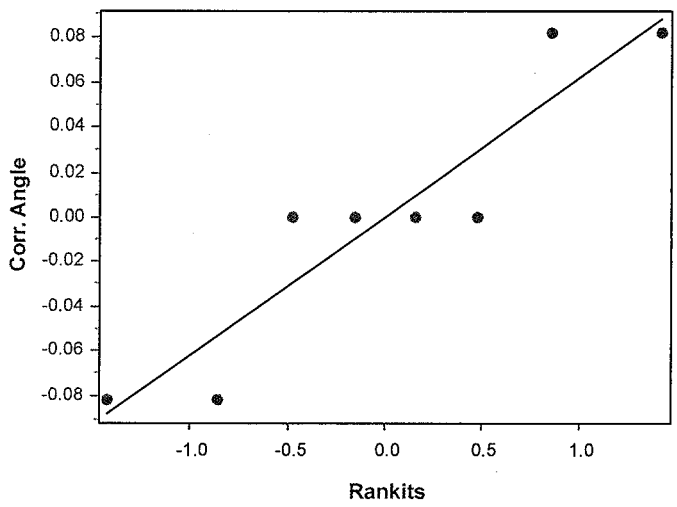
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LC	4	0.950	0.858	1.000	0.950	0.900	1.000	0.029	6.08%	0.00%
100		4	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	-5.26%

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LC	4	1.330	1.180	1.480	1.330	1.250	1.410	0.047	7.07%	0.00%
100		4	1.410	1.410	1.410	1.410	1.410	1.410	0.000	0.00%	-6.12%

Graphics





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

Water Quality Measurements & Test Organism Survival

Client: Stantec / ADC Kekaha
Sample ID: WW-3
Sample Log-in No's.: 23-1192
Test No's.: 2310-5187

Test Species: *P. promelas*
Start Date/Time: 10/26/23 1440 Q11
End Date/Time: 10/30/23 1355

Tech Initials	0	24	48	72	96
Counts:	WF	KL	LM	KR	KR
Readings:	WF	KL	RT	KR	KL
Dilutions made by:	KR		SS		

Concentration (%)	Rep	Number of Live Organisms					Conductivity (µmhos/cm)					Temperature (°C)					Dissolved Oxygen (mg/L) Q5 Q14					pH (units)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Lab Control	A	10	10	9	9	9	193	201	i 190	203	206	19.6	19.6	i 20.8	19.5	19.1	8.5	9.0	i 8.6	9.0	8.6	8.12	8.23	i 8.08	8.28	8.26
	B	10	10	9	9	9			f 200					f 19.1					f 8.8					f 8.21		
	C	10	10	10	10	10																				
	D	10	10	10	10	10																				
100%	A	10	Q13	Q13	Q13	10	709	712	i 705	753	773	19.2	19.5	i 20.8	19.6	19.0	7.5	8.8	i 8.6	9.1	8.9	6.86	7.64	i 6.87	7.66	7.62
	B	10	Q13	Q13	Q13	10			f 709					f 19.2					f 8.6					f 7.59		
	C	10	Q13	Q13	Q13	10																				
	D	10	Q13	Q13	Q13	10																				
									i					i					i					i		
									f					f					f					f		
									i					i					i					i		
									f					f					f					f		
									i					i					i					i		
									f					f					f					f		
									i					i					i					i		
									f					f					f					f		
									i					i					i					i		
									f					f					f					f		

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

Environmental Chamber: E

Animal Source/Date Received: ABS/10/24/23 + 10/25/23
Age at Initiation: 3d + 7d

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

Feeding Times	0	24	48	72	96
AM:	--	--	0820	--	--
PM:	--	--	--	--	--

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

QC Check: ATS 12/13/23

Final Review: BO 12/20/23

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

CETIS Summary Report

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

Batch ID:	08-8106-7528	**Test Type:**	Survival (96h)	**Analyst:**			
Start Date:	26 Oct-23 14:40	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Not Applicable		
Ending Date:	30 Oct-23 12:55	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable		
Test Length:	94h	**Taxon:**		**Source:**	In-House Culture	**Age:**	<24h

Sample ID:	07-7906-8049	**Code:**	23-1192	**Project:**	ADC Kekaha WQ Monitoring
Sample Date:	24 Oct-23 11:30 PDT	**Material:**	Wet Weather Sample	**Source:**	Cardno Hawaii
Receipt Date:	26 Oct-23 09:55	**CAS (PC):**		**Station:**	WW-3
Sample Age:	51h (1.5 °C)	**Client:**	Stantec		

Single Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
11-9911-3040	96h Survival Rate	Wilcoxon Rank Sum Two-Sample Test	1.0000	100% passed 96h survival rate	1

Test Acceptability

				TAC Limits			
Analysis ID	**Endpoint**	**Attribute**	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
11-9911-3040	96h Survival Rate	Control Resp	1	0.9	<<	Yes	Passes Criteria

96h Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	LC	4	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%
100		4	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.00%	0.00%

96h Survival Rate Detail — MD5: 02835A6FE1710696B7C8F79EC2C22377

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	LC	1.000	1.000	1.000	1.000
100		1.000	1.000	1.000	1.000

CETIS Analytical Report

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

Analysis ID:	11-9911-3040	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv2.1.4
Analyzed:	14 Dec-23 12:44	**Analysis:**	Nonparametric-Two Sample	**Status Level:**	1
Edit Date:	14 Dec-23 12:43	**MD5 Hash:**	02835A6FE1710696B7C8F79EC2C22377	**Editor ID:**	007-926-968-0

Data Transform	Alt Hyp	Comparison Result
Angular (Corrected)	C > T	100% passed 96h survival rate endpoint

Wilcoxon Rank Sum Two-Sample Test

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

ANOVA Table

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

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Variance Ratio F Test				Indeterminate
Distribution	Shapiro-Wilk W Normality Test				Indeterminate

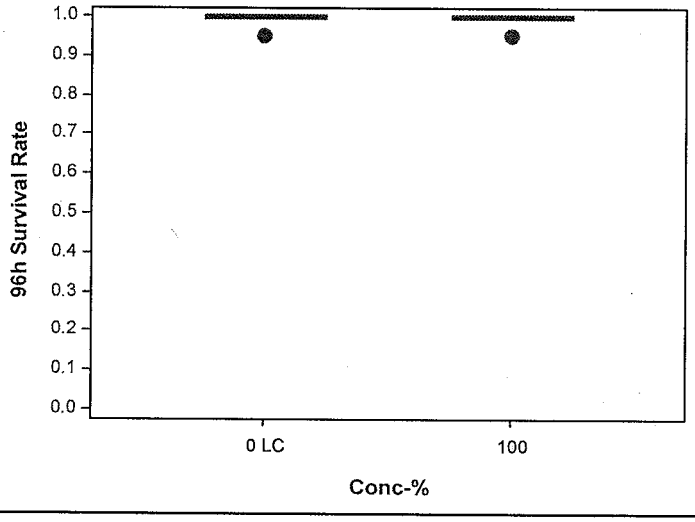
96h Survival Rate Summary

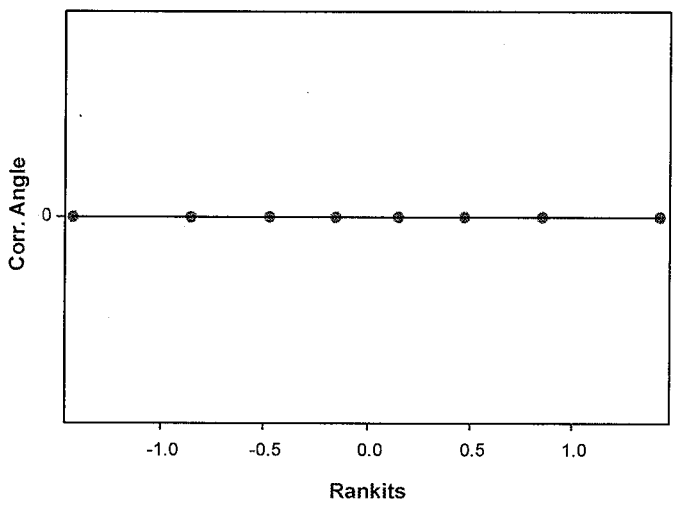
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LC	4	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	0.00%
100		4	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.00%	0.00%

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LC	4	1.350	1.340	1.350	1.350	1.350	1.350	0.000	0.00%	0.00%
100		4	1.350	1.340	1.350	1.350	1.350	1.350	0.000	0.00%	0.00%

Graphics





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

Water Quality Measurements & Test Organism Survival

Client: Stantec / ADC Kekaha
Sample ID: WW-3
Sample Log-in No.: 23-1192
Test No.: 2310-S188

Test Species: *C.dubia*
Start Date/Time: 10/26/23 1440 Q11
End Date/Time: 10/30/23 1255

Tech Initials	0	24	48	72	96
Counts:	LM	KL	RT	KR	HH
Readings:	WF	KL	RT	KR	HH
Dilutions made by:	KR		LM		

Concentration (%)	Rep	Number of Live Organisms 0	24	48	72	96	Conductivity (µmhos/cm) 0	24	48	72	96	Temperature (°C) 0	24	48	72	96	Dissolved Oxygen (mg/L) Q14 Q14 0	24	48	72	96	pH (units) 0	24	48	72	96
Lab Control	A	5	5	5	5	5	195	197	i 186	190	[illegible]	19.0	19.9	i 19.5	20.2	20.0	8.4	9.0	i 8.8	9.2	8.9	8.19	8.20	i 8.22	8.22	8.22
	B	5	5	5	5	5			f 240					f 19.1					f 8.6					f 8.25		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
100%	A	5	5	5	5	5	711	713	i 691	720	810	19.2	20.0	i 19.3	20.1	20.0	7.6	8.1	i 9.4	9.3	8.8	7.21	6.95	i 7.42	7.23	7.48
	B	5	5	5	5	5			f 767					f 19.1					f 8.7					f 7.69		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
100%	A	5	5	5	5	5	711	708	i 690	730	702	20.9	20.1	i 19.5	19.9	20.0	6.0	~~8.6~~ (A) 8.5	i 9.4	9.1	8.7	7.30	7.48	i 6.99	7.65	7.22
Filtered (0.45um)	B	5	5	5	5	5			f 687					f 19.1					f 8.7					f 7.68		
	C	5	5	5	5	5																				
	D	5	5	5	5	5																				
									i					i					i					i		
									f					f					f					f		
									i					i					i					i		
									f					f					f					f		
									i					i					i					i		
									f					f					f					f		
									i					i					i					i		
									f					f					f					f		

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

Environmental Chamber: E

Animal Source/Date Received: Internal / NA

Age at Initiation: <24 hrs.

Feeding Times				
0	24	48	72	96
--	--	1145	--	--
--	--	--	--	--

Comments: i = initial reading in fresh test solution, f = final reading in test chamber prior to renewal (A) Q18 KL 10/27/23

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

QC Check: ACS 12/13/23

Final Review: BO 12/20/23

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

CETIS Summary Report

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

Batch ID:	03-6508-4753	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	26 Oct-23 15:35	**Protocol:**	EPA/600/R-99/064 (2000)	**Diluent:**	Not Applicable
Ending Date:	30 Oct-23 14:05	**Species:**	Hyalella azteca	**Brine:**	Not Applicable
Test Length:	94h	**Taxon:**		**Source:**	Aquatic Research Organis **Age:** 13d

Sample ID:	08-1028-9990	**Code:**	23-1192	**Project:**	ADC Kekaha WQ Monitoring
Sample Date:	24 Oct-23 11:30 PDT	**Material:**	Wet Weather Sample	**Source:**	Stantec
Receipt Date:	26 Oct-23 09:55	**CAS (PC):**		**Station:**	WW-3
Sample Age:	52h (1.5 °C)	**Client:**			

SIngle Comparison Summary

Analysis ID	Endpoint	Comparison Method	P-Value	Comparison Result	S
03-5076-3094	96h Survival Rate	Equal Variance t Two-Sample Test	0.0836	100% passed 96h survival rate	1

Test Acceptability

				TAC Limits			
Analysis ID	**Endpoint**	**Attribute**	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
03-5076-3094	96h Survival Rate	Control Resp	0.975	0.9	<<	Yes	Passes Criteria

96h Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	LC	4	0.975	0.895	1.050	0.900	1.000	0.025	0.050	5.13%	0.00%
100		4	0.900	0.770	1.030	0.800	1.000	0.041	0.082	9.07%	7.69%

96h Survival Rate Detail — MD5: F3A9B39ADCB64BBEC94D6F9C54CBD926

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	LC	0.900	1.000	1.000	1.000
100		0.900	0.900	0.800	1.000

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

Analysis ID:	03-5076-3094	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv2.1.4
Analyzed:	14 Dec-23 12:49	**Analysis:**	Parametric-Two Sample	**Status Level:**	1
Edit Date:	14 Dec-23 12:49	**MD5 Hash:**	F3A9B39ADCB64BBEC94D6F9C54CBD92	**Editor ID:**	007-926-968-0

Data Transform	Alt Hyp	Comparison Result	PMSD
Angular (Corrected)	C > T	100% passed 96h survival rate endpoint	9.11%

Equal Variance t Two-Sample Test

Control	vs	Conc-%	df	Test Stat	Critical	MSD	P-Type	P-Value	Decision(α:5%)
Lab Control		100	6	1.57	1.94	0.145	CDF	0.0836	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.027359	0.027359	1	2.47	0.1672	Non-Significant Effect
Error	0.0665026	0.0110838	6			
Total	0.0938616		7			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Variance Ratio F Test	2.34	47.5	0.5035	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.915	0.645	0.3900	Normal Distribution

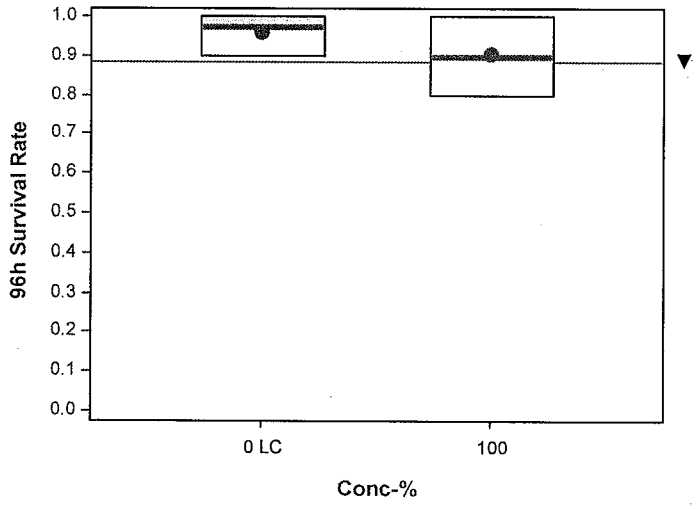
96h Survival Rate Summary

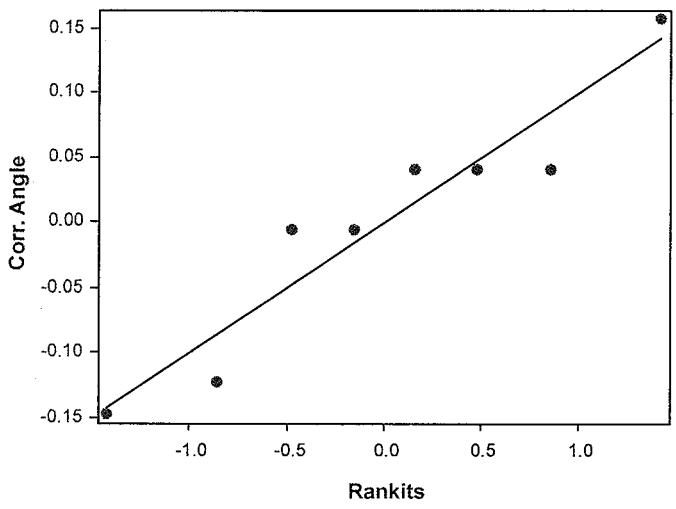
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LC	4	0.975	0.895	1.000	1.000	0.900	1.000	0.025	5.13%	0.00%
100		4	0.900	0.770	1.000	0.900	0.800	1.000	0.041	9.07%	7.69%

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	LC	4	1.370	1.240	1.500	1.410	1.250	1.410	0.041	5.94%	0.00%
100		4	1.250	1.060	1.450	1.250	1.110	1.410	0.062	9.93%	8.53%

Graphics





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

Water Quality Measurements
& Test Organism Survival

Client: Stantec / ADC Kekaha
Sample ID: WW-3
Sample Log-in No's.: 23-1192
Test No's.: 2310-S189

Test Species: *H. azteca*
Start Date/Time: 1535 10/26/23 Q11
End Date/Time: 1405 10/30/23

Tech Initials	0	24	48	72	96
Counts:	WF	YL	WF	KR	YL
Readings:	WF	YL	RT	KR	YL
Dilutions made by:	KR		[illegible]		

Concentration (%)	Rep	Number of Live Organisms					Conductivity (µmhos/cm)					Temperature (°C)					Dissolved Oxygen (mg/L) Q5 Q14					pH (units)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Lab Control	A	10	10	9	9	9	866	881	i 853	903	904	19.5	19.8	i 19.6	19.8	19.5	8.7	9.0	i 9.0	9.0	8.7	8.41	8.38	i 8.28	8.45	8.38
(Coast)	B	10	10	10	10	10			f 866					f 19.2					f 9.0					f 8.32		
	C	10	10	10	10	10																				
	D	10	10	10	10	10																				
100%	A	10	Q13	Q13	Q13	9	711	731	i 696	753	761	19.0	19.5	i 20.6	19.6	19.2	8.0	9.0	i 9.2	9.0	8.8	7.00	7.63	i 7.17	7.47	7.63
	B	10	Q13	Q13	Q13	9			f 728					f 19.2					f 8.9					f 7.51		
	C	10	Q13	Q13	Q13	8																				
	D	10	Q13	Q13	Q13	10																				
									i					i					i					i		
									f					f					f					f		
									i					i					i					i		
									f					f					f					f		
									i					i					i					i		
									f					f					f					f		
									i					i					i					i		
									f					f					f					f		
									i					i					i					i		
									f					f					f					f		

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

Environmental Chamber: E

Animal Source/Date Received: 10/26/23 ACO

Age at Initiation: 13 day

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

Feeding Times	0	24	48	72	96
AM:	--	--	0860	--	--
PM:	--	--	--	--	--

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

QC Check: ACS 12/13/23

Final Review: BO 12/20/23

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

Appendix B

Sample Check-In Information

Enthalpy Analytical
4340 Vandever Avenue
San Diego, CA 92120

Client: Stantec

Tests Performed: Acute fathead, water flea, hyalella

Project: ADC Kekaha

Test ID No.(s): 2310-5187 to 5189

	1)	2)	3	4)
Sample ID:	1) WW-3			
Log-in No. (23-xxxx):	1192			
Sample Collection Date & Time:	10/24/23 1130PDT			
Sample Receipt Date & Time:	10/26/23 0955			
Number of Containers & Container Type:	2 x 4L cubis			
Approx. Total Volume Received (L):	~8L			
Check-in Temp (°C)	1.5			
Temperature OK? [1]	(Y) N	Y N	Y N	Y N
DO (mg/L)	8.7			
pH (units)	6.77			
Conductivity (µS/cm)	717			
Salinity (ppt)	0.4			
Alkalinity (mg/L) [2]	(B) 20			
Hardness (mg/L) [2, 3]	80			
Total Chlorine (mg/L)	<0.02			
Technician Initials	AA			

Freshwater Tests: Fathead water flea / Hyalella

Control/Dilution Water Source: (8:2) (Coast) Other: _____ Alkalinity: 87/119 Hardness: 96/231

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

Marine Tests:

Control/Dilution Water Source: LAB SW ART SW Other: _____ Alkalinity: _____ Salinity: _____

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

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

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

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

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

Additional Comments: (A) Q18 AA 10/26/23 (B) Measured using 1:1 dilution with DI measured 10 x 2 = 20
(C) Q18 ACS 12/13/23

QC Check: ACS 12/13/23

Sample Check-In Information

DC-006

Sample Descriptions: Dark orange color, very opaque, no odor, no Debris
1) ~~light yellow color, clear, mild odor, no debris~~ (A)
2)
3)
4)

COC Complete? (Y) N

Filtration? (Y) N water flea only

Initials: 1) ACB 2) 3) 4)

Pore Size: 0.45µm

Organisms or (Debris)

pH Adjustment? Y (N)

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

Cl_2 Adjustment? Y (N)

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

Sample Aeration? (Y) (N) (C) Fatheads & Hyalella - continuous

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

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

NH3 Strip Result* A:_____ B:_____ C:_____
*(if 6 or more, notify PM)

Subsamples for Additional Chemistry Required? Y (N)

NH3 Other _____

Tech Initials: _____

Final Review: BO 12/20/23

Appendix C

Chain-of-Custody Form

Enthalpy Analytical - Environmental Toxicology

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

Chain of Custody

Date 2/6/2023 Page 1 of 1

Sample Collection By:

Report to:

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

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

Company	
Address	
City/State/Zip	
Contact	
Phone	
Email	

	SAMPLE ID	SAMPLE Date	Time	Type (G or C)	MATRIX CODE (FW, SW, Sed, STRM, GW, WW, O)	Container Type	Qty	COMMENTS	ANALYSES REQUIRED: *P. promelas* 96-hr Acute Survival	*C. dubia* 96-hr Acute Survival	*H. azteca* 96-hr Acute Survival	*A. affinis* 6-hr Acute Survival	*M. beryllina* 6-hr Acute Survival	A. bahia 6-hr Acute Survival	Receipt Temperature (°C)
1	WW-3	10-24-2023	08:30 HST	G	STRM - FW 0.33 PPT	2.5 Gal Plastic (A)	2		X	X	X				1.5
2															
3															
4															
5															
6															
7															
8															
9															
10															

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

PROJECT INFORMATION		SAMPLE RECEIPT	
Project Name:	ADC Water Quality Monitoring	Total No. of Containers	2
PO No.:		Received Good Condition?	Y
Shipped Via:	FedEx	Matches Test Schedule?	Y

SPECIAL INSTRUCTIONS/COMMENTS:

(A) 2 x 4L cubes received HS 12/13/23

1) RELINQUISHED BY (CLIENT)		2) RECEIVED BY (COURIER)	
(Signature)	(Time) 14:00	(Signature)	(Time)
(Printed Name) Ben Berridge	(Date) 2/6/2023	(Printed Name)	(Date)
(Company) Cardno/Stantec		(Company) FedEx - See Shipping Information	
3) RELINQUISHED BY (COURIER)		**4) RECEIVED BY (LABORATORY)**	
(Signature)	(Time) 14:00	(Signature)	(Time) 0955
(Printed Name) Hannah Hubanks	(Date) 10-25-23	(Printed Name) WYATT Farmer	(Date) 10/26/23
(Company) Stantec GS (form. Cardno GS)		(Company) EASD	(Log-in #s) 23-1192

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 ≤ 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.

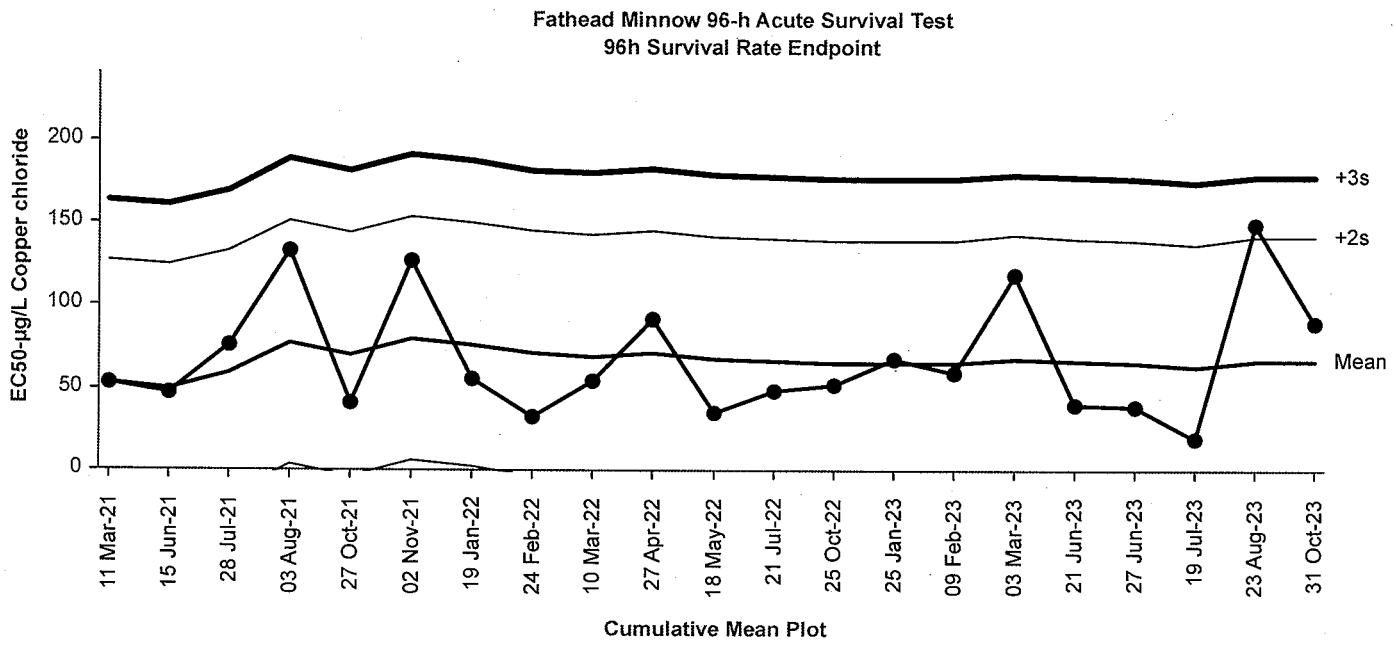
Q24 - Test organisms experienced a salinity shift greater than 3 ppt within 1 day or were received at a salinity greater than 3 ppt outside the recommended test salinity range and had minimal time to acclimate prior to test initiation. However, due to age-specific protocol requirements and/or sample 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

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

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



Mean:	67.06	**Count:**	20	**-2s Warning Limit:**	-7.02	**-3s Action Limit:**	-44.1
Sigma:	37.04	**CV:**	55.20%	**+2s Warning Limit:**	141	**+3s Action Limit:**	178

Quality Control Data

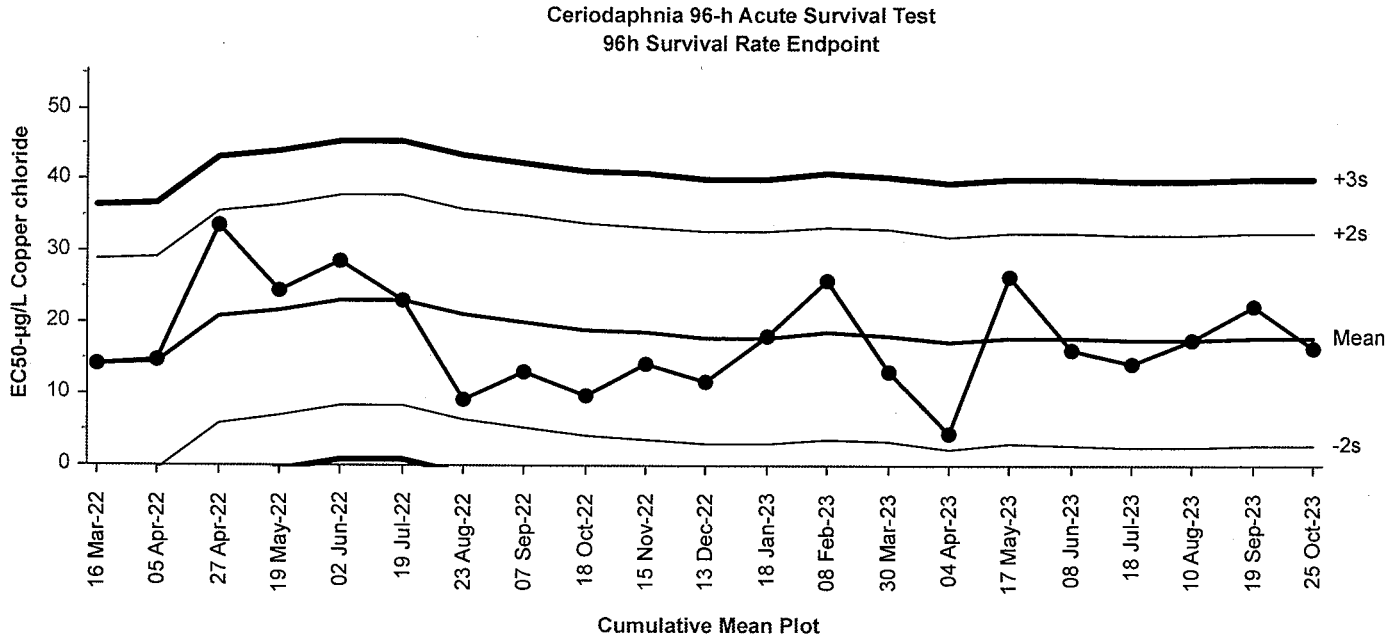
Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2021	Mar	11	16:25	52.64	-14.42	-0.3894			20-0307-6488	03-1985-7497
2		Jun	15	17:10	47.63	-19.43	-0.5247			13-1662-1659	03-5455-1927
3		Jul	28	17:30	75.92	8.857	0.2391			04-8837-0734	00-2418-4039
4		Aug	3	15:30	133.2	66.12	1.785			01-5905-1678	06-9846-1307
5		Oct	27	17:55	41.65	-25.41	-0.686			04-8454-9323	21-2291-3266
6		Nov	2	14:55	126.6	59.51	1.607			02-5381-8973	13-3748-9296
7	2022	Jan	19	14:00	56.14	-10.92	-0.2947			20-2049-9334	07-9545-0483
8		Feb	24	16:10	32.6	-34.46	-0.9303			17-0760-7068	11-1555-4113
9		Mar	10	15:55	54.03	-13.03	-0.3518			12-1339-4334	02-2933-1085
10		Apr	27	15:10	91.63	24.57	0.6632			04-5378-2545	07-8420-2882
11		May	18	16:55	35.22	-31.84	-0.8595			18-5661-4183	07-3447-2353
12		Jul	21	17:45	48.45	-18.61	-0.5025			07-1587-3363	06-2880-7627
13		Oct	25	15:50	52.4	-14.66	-0.3959			06-6314-9915	03-2187-1829
14	2023	Jan	25	18:01	67.41	0.3512	0.00948			19-0784-2205	08-9150-6242
15		Feb	9	16:50	59.42	-7.639	-0.2062			06-2469-6093	00-8217-4012
16		Mar	3	16:35	118.4	51.37	1.387			05-5862-3435	03-5254-4793
17		Jun	21	14:55	40.38	-26.68	-0.7204			03-3580-9094	00-4894-4439
18			27	14:30	39.27	-27.79	-0.7501			11-9788-2598	16-4880-2585
19		Jul	19	16:55	19.16	-47.9	-1.293			12-1198-2690	17-1336-5643
20		Aug	23	14:10	149	81.96	2.213	(+)		16-5077-3459	12-7429-9907
21		Oct	31	16:30	89.22	22.16	0.5982			14-5248-4726	19-3257-9871

CETIS QC Plot

Report Date: 30 Oct-23 10:26 (1 of 1)

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

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



Mean:	17.74	**Count:**	20	**-2s Warning Limit:**	2.87	**-3s Action Limit:**	-4.56
Sigma:	7.435	**CV:**	41.90%	**+2s Warning Limit:**	32.6	**+3s Action Limit:**	40

Quality Control Data

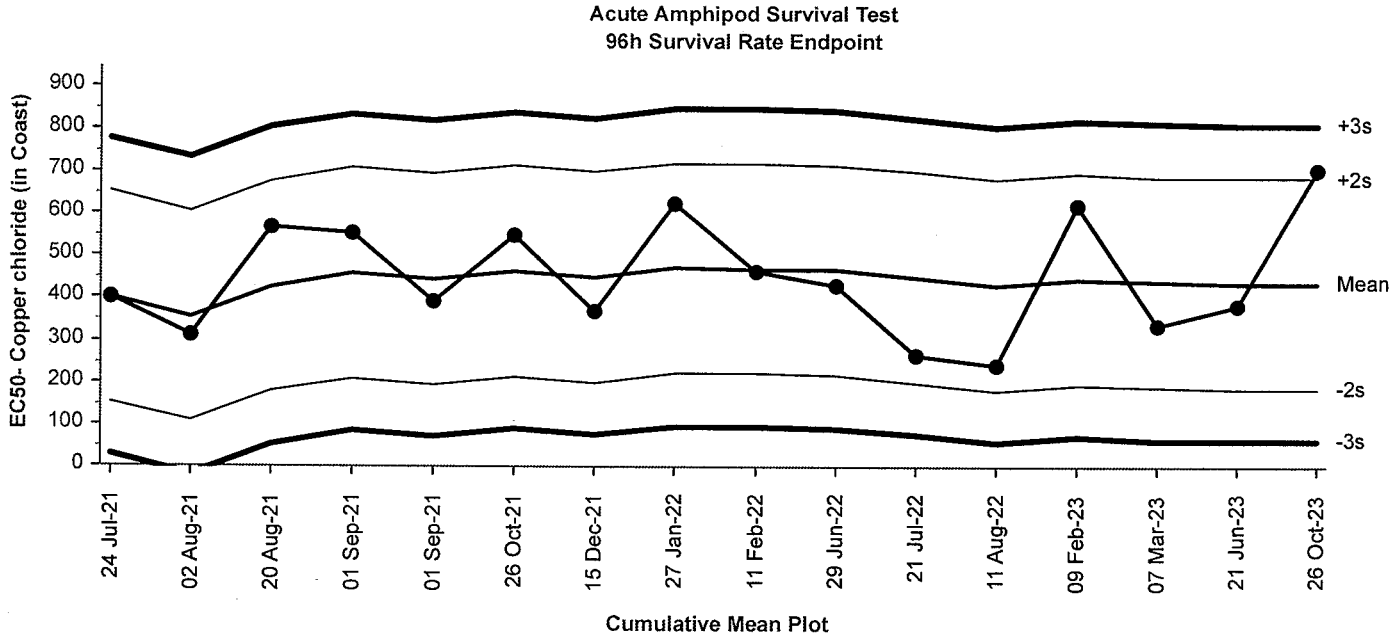
Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2022	Mar	16	15:00	14.14	-3.598	-0.4839			08-4939-9657	04-1675-6253
2		Apr	5	16:55	14.64	-3.099	-0.4168			15-6426-3206	15-2718-9221
3			27	15:15	33.64	15.9	2.138	(+)		08-4806-4027	01-7719-2285
4		May	19	15:15	24.62	6.875	0.9247			15-0414-1498	09-1011-4307
5		Jun	2	15:40	28.57	10.83	1.456			13-6497-5171	08-6278-4122
6		Jul	19	15:45	23.16	5.424	0.7295			03-1124-9631	00-8098-2495
7		Aug	23	15:50	9.33	-8.41	-1.131			20-3988-3287	11-6761-6164
8		Sep	7	15:00	13.2	-4.545	-0.6113			01-7106-9553	05-0730-6008
9		Oct	18	15:25	9.862	-7.878	-1.06			00-3320-6805	04-6100-3813
10		Nov	15	15:05	14.14	-3.598	-0.4839			00-5461-1467	19-6868-6561
11		Dec	13	15:05	11.7	-6.038	-0.8121			12-0086-6428	08-7195-5995
12	2023	Jan	18	13:55	18.03	0.285	0.03833			09-7538-0685	07-8161-1407
13		Feb	8	15:20	25.96	8.218	1.105			17-7377-6097	02-7722-6792
14		Mar	30	14:50	13.2	-4.545	-0.6113			00-8046-0950	18-8859-9281
15		Apr	4	15:20	4.318	-13.42	-1.805			07-0540-7813	08-4239-9426
16		May	17	15:30	26.39	8.65	1.163			04-0322-0654	15-8704-5627
17		Jun	8	15:35	16.25	-1.495	-0.2011			04-4576-9053	18-8894-4384
18		Jul	18	15:55	14.14	-3.598	-0.4839			09-9837-6211	11-0291-4351
19		Aug	10	16:00	17.41	-0.329	-0.04425			10-9457-1593	13-6631-9515
20		Sep	19	15:20	22.19	4.451	0.5987			05-7527-0059	21-3108-9916
21		Oct	25	15:30	16.53	-1.211	-0.1629			12-6281-0744	01-0251-4169

CETIS QC Plot

Report Date: 30 Oct-23 16:41 (1 of 1)

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

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



Mean:	433.8	**Count:**	15	**-2s Warning Limit:**	184	**-3s Action Limit:**	59.4
Sigma:	124.8	**CV:**	28.80%	**+2s Warning Limit:**	683	**+3s Action Limit:**	808

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2021	Jul	24	10:35	402.1	-31.74	-0.2543			01-9158-2894	04-9657-5582
2		Aug	2	18:10	311.1	-122.7	-0.9829			12-1293-8948	18-5258-0274
3			20	16:45	568.8	135	1.081			13-6419-6120	05-7250-0573
4		Sep	1	14:40	551	117.2	0.9393			16-9611-9317	12-1127-8026
5			1	16:00	393.8	-40.01	-0.3206			05-5529-3044	09-1102-6160
6		Oct	26	19:00	549.6	115.8	0.9277			18-1063-1366	05-2379-1035
7		Dec	15	18:25	366.8	-67	-0.5368			20-2781-7958	18-9516-9975
8	2022	Jan	27	17:30	625.4	191.6	1.535			18-9392-5843	01-5172-6206
9		Feb	11	17:35	463.8	30.04	0.2407			14-7873-5968	19-5575-1394
10		Jun	29	17:00	431	-2.754	-0.02206			03-3409-7356	15-5020-6688
11		Jul	21	16:27	264.5	-169.3	-1.357			05-1323-0021	05-5852-2990
12		Aug	11	18:55	240.4	-193.4	-1.55			20-9606-1183	03-0306-6180
13	2023	Feb	9	17:15	619.4	185.6	1.487			20-3293-9827	10-5332-3305
14		Mar	7	16:30	334.9	-98.88	-0.7923			20-0160-8722	08-8166-1553
15		Jun	21	15:20	384	-49.78	-0.3989			18-4411-2589	06-3764-0545
16		Oct	26	16:00	706.2	272.4	2.182	(+)		10-2636-7152	05-7689-5230