



07/22/14

Technical Report for

A.G. Wassenaar, Inc.

Hickok 1-26 E14308.EC

E14308.EC

Accutest Job Number: D59922

Sampling Date: 07/18/14

Report to:

**A.G. Wassenaar, Inc.
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ATTN: Joseph Pieterick

Total number of pages in report: 26



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

A handwritten signature in black ink, appearing to read 'Scott Heideman'.

**Scott Heideman
Laboratory Director**

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO (CO00049), ID, NE (CO00049), ND (R-027), NJ (CO 0007), OK (D9942), UT (NELAP CO00049), TX (T104704511)

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Test results relate only to samples analyzed.

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Sample Summary

A.G. Wassenaar, Inc.

Job No: D59922

Hickok 1-26 E14308.EC
Project No: E14308.EC

Sample Number	Collected		Time By	Received	Matrix		Client Sample ID
	Date				Code	Type	
D59922-1	07/18/14	11:43	JDP	07/18/14	AQ	Water	308-1-W
D59922-2	07/18/14	12:07	JDP	07/18/14	AQ	Water	308-2-W
D59922-3	07/18/14	12:21	JDP	07/18/14	AQ	Water	308-3-W



CASE NARRATIVE / CONFORMANCE SUMMARY

Client: A.G. Wassenaar, Inc.

Job No D59922

Site: Hickok 1-26 E14308.EC

Report Date 7/22/2014 3:58:23 PM

On 07/18/2014, 3 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 3.2 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D59922 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix AQ

Batch ID: V6V1475

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D59760-1MS, D59884-1DUP were used as the QC samples indicated.
- D59922-2: The pH of the sample aliquot for VOA analysis was >2 at time of analysis.

Wet Chemistry By Method EPA 300.0/SW846 9056

Matrix AQ

Batch ID: GP13085

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D59920-1MS, D59920-1MSD were used as the QC samples for the Chloride, Sulfate, Chloride analysis.

Wet Chemistry By Method SM 2540C-2011

Matrix AQ

Batch ID: GN25652

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D59922-2DUP, D59922-3DUP were used as the QC samples for the Solids, Total Dissolved analysis.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Summary of Hits

Page 1 of 1

Job Number: D59922
Account: A. G. Wassenaar, Inc.
Project: Hickok 1-26 E14308.EC
Collected: 07/18/14

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D59922-1	308-1-W					
Benzene		0.35 J	1.0	0.25	ug/l	SW846 8260B
Ethylbenzene		0.78 J	2.0	0.31	ug/l	SW846 8260B
Xylene (total)		4.5	3.0	1.5	ug/l	SW846 8260B
Chloride		506	100		mg/l	EPA 300.0/SW846 9056
Solids, Total Dissolved		9340	10		mg/l	SM 2540C-2011
Sulfate		2050	100		mg/l	EPA 300.0/SW846 9056
D59922-2	308-2-W					
Benzene ^a		7.5	1.0	0.25	ug/l	SW846 8260B
Toluene ^a		69.2	2.0	1.0	ug/l	SW846 8260B
Ethylbenzene ^a		53.1	2.0	0.31	ug/l	SW846 8260B
Xylene (total) ^a		317	3.0	1.5	ug/l	SW846 8260B
Chloride		2350	100		mg/l	EPA 300.0/SW846 9056
Solids, Total Dissolved		15600	10		mg/l	SM 2540C-2011
Sulfate		4600	100		mg/l	EPA 300.0/SW846 9056
D59922-3	308-3-W					
Ethylbenzene		0.66 J	2.0	0.31	ug/l	SW846 8260B
Xylene (total)		6.2	3.0	1.5	ug/l	SW846 8260B
Chloride		2480	100		mg/l	EPA 300.0/SW846 9056
Solids, Total Dissolved		13200	10		mg/l	SM 2540C-2011
Sulfate		2420	100		mg/l	EPA 300.0/SW846 9056

(a) The pH of the sample aliquot for VOA analysis was > 2 at time of analysis.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	308-1-W	Date Sampled:	07/18/14
Lab Sample ID:	D59922-1	Date Received:	07/18/14
Matrix:	AQ - Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Hickok 1-26 E14308.EC		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6V26118.D	1	07/21/14	BR	n/a	n/a	V6V1475
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.35	1.0	0.25	ug/l	J
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	0.78	2.0	0.31	ug/l	J
1330-20-7	Xylene (total)	4.5	3.0	1.5	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	113%		62-130%
2037-26-5	Toluene-D8	101%		70-130%
460-00-4	4-Bromofluorobenzene	100%		69-130%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	308-1-W	Date Sampled:	07/18/14
Lab Sample ID:	D59922-1	Date Received:	07/18/14
Matrix:	AQ - Water	Percent Solids:	n/a
Project:	Hickok 1-26 E14308.EC		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	506	100	mg/l	200	07/19/14 14:40	JB	EPA 300.0/SW846 9056
Solids, Total Dissolved	9340	10	mg/l	1	07/21/14	AK	SM 2540C-2011
Sulfate	2050	100	mg/l	200	07/19/14 14:40	JB	EPA 300.0/SW846 9056

RL = Reporting Limit

Report of Analysis

Client Sample ID:	308-2-W	Date Sampled:	07/18/14
Lab Sample ID:	D59922-2	Date Received:	07/18/14
Matrix:	AQ - Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Hickok 1-26 E14308.EC		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	6V26119.D	1	07/21/14	BR	n/a	n/a	V6V1475
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	7.5	1.0	0.25	ug/l	
108-88-3	Toluene	69.2	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	53.1	2.0	0.31	ug/l	
1330-20-7	Xylene (total)	317	3.0	1.5	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	105%		62-130%
2037-26-5	Toluene-D8	109%		70-130%
460-00-4	4-Bromofluorobenzene	109%		69-130%

(a) The pH of the sample aliquot for VOA analysis was > 2 at time of analysis.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	308-2-W	Date Sampled:	07/18/14
Lab Sample ID:	D59922-2	Date Received:	07/18/14
Matrix:	AQ - Water	Percent Solids:	n/a
Project:	Hickok 1-26 E14308.EC		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	2350	100	mg/l	200	07/19/14 14:53	JB	EPA 300.0/SW846 9056
Solids, Total Dissolved	15600	10	mg/l	1	07/21/14	AK	SM 2540C-2011
Sulfate	4600	100	mg/l	200	07/19/14 14:53	JB	EPA 300.0/SW846 9056

RL = Reporting Limit

Report of Analysis

Client Sample ID:	308-3-W	Date Sampled:	07/18/14
Lab Sample ID:	D59922-3	Date Received:	07/18/14
Matrix:	AQ - Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Hickok 1-26 E14308.EC		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6V26120.D	1	07/21/14	BR	n/a	n/a	V6V1475
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.25	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	0.66	2.0	0.31	ug/l	J
1330-20-7	Xylene (total)	6.2	3.0	1.5	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	109%		62-130%
2037-26-5	Toluene-D8	101%		70-130%
460-00-4	4-Bromofluorobenzene	106%		69-130%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	308-3-W	Date Sampled:	07/18/14
Lab Sample ID:	D59922-3	Date Received:	07/18/14
Matrix:	AQ - Water	Percent Solids:	n/a
Project:	Hickok 1-26 E14308.EC		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	2480	100	mg/l	200	07/19/14 15:06	JB	EPA 300.0/SW846 9056
Solids, Total Dissolved	13200	10	mg/l	1	07/21/14	AK	SM 2540C-2011
Sulfate	2420	100	mg/l	200	07/19/14 15:06	JB	EPA 300.0/SW846 9056

RL = Reporting Limit

Misc. Forms

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Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

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Job Number: D59922
Account: AGWCODN A.G. Wassenaar, Inc.
Project: Hickok 1-26 E14308.EC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V6V1475-MB	6V26115.D	1	07/21/14	BR	n/a	n/a	V6V1475

The QC reported here applies to the following samples:

Method: SW846 8260B

D59922-1, D59922-2, D59922-3

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.25	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.31	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
1330-20-7	Xylene (total)	ND	3.0	1.5	ug/l	

CAS No.	Surrogate Recoveries	Limits
17060-07-0	1,2-Dichloroethane-D4	109% 62-130%
2037-26-5	Toluene-D8	101% 70-130%
460-00-4	4-Bromofluorobenzene	94% 69-130%

Blank Spike Summary

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Job Number: D59922

Account: AGWCODN A.G. Wassenaar, Inc.

Project: Hickok 1-26 E14308.EC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V6V1475-BS	6V26116.D	1	07/21/14	BR	n/a	n/a	V6V1475

The QC reported here applies to the following samples:

Method: SW846 8260B

D59922-1, D59922-2, D59922-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	54.6	109	70-130
100-41-4	Ethylbenzene	50	54.6	109	70-130
108-88-3	Toluene	50	54.4	109	70-130
1330-20-7	Xylene (total)	150	161	107	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
17060-07-0	1,2-Dichloroethane-D4	106%	62-130%
2037-26-5	Toluene-D8	100%	70-130%
460-00-4	4-Bromofluorobenzene	106%	69-130%

* = Outside of Control Limits.

Blank Spike Summary

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Job Number: D59922

Account: AGWCODN A.G. Wassenaar, Inc.

Project: Hickok 1-26 E14308.EC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V6V1475-BS	6V26117.D	1	07/21/14	BR	n/a	n/a	V6V1475

The QC reported here applies to the following samples:

Method: SW846 8260B

D59922-1, D59922-2, D59922-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
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CAS No.	Surrogate Recoveries	BSP	Limits
17060-07-0	1,2-Dichloroethane-D4	106%	62-130%
2037-26-5	Toluene-D8	100%	70-130%
460-00-4	4-Bromofluorobenzene	100%	69-130%

* = Outside of Control Limits.

Matrix Spike Summary

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Job Number: D59922
Account: AGWCODN A.G. Wassenaar, Inc.
Project: Hickok 1-26 E14308.EC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D59760-1MS	6V26128.D	5	07/21/14	BR	n/a	n/a	V6V1475
D59760-1	6V26127.D	5	07/21/14	BR	n/a	n/a	V6V1475

The QC reported here applies to the following samples:

Method: SW846 8260B

D59922-1, D59922-2, D59922-3

CAS No.	Compound	D59760-1 ug/l	Spike Q	MS ug/l	MS %	Limits
71-43-2	Benzene	ND	250	267	107	62-130
100-41-4	Ethylbenzene	ND	250	264	106	63-130
108-88-3	Toluene	ND	250	261	104	60-130
1330-20-7	Xylene (total)	ND	750	773	103	67-130

CAS No.	Surrogate Recoveries	MS	D59760-1	Limits
17060-07-0	1,2-Dichloroethane-D4	101%	110%	62-130%
2037-26-5	Toluene-D8	98%	99%	70-130%
460-00-4	4-Bromofluorobenzene	105%	97%	69-130%

* = Outside of Control Limits.

Matrix Spike Summary

Page 1 of 1

Job Number: D59922

Account: AGWCODN A.G. Wassenaar, Inc.

Project: Hickok 1-26 E14308.EC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D59760-1MS	6V26129.D	5	07/21/14	BR	n/a	n/a	V6V1475
D59760-1	6V26127.D	5	07/21/14	BR	n/a	n/a	V6V1475

The QC reported here applies to the following samples:

Method: SW846 8260B

D59922-1, D59922-2, D59922-3

CAS No.	Compound	D59760-1 ug/l	Spike Q	MS ug/l	MS %	Limits
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CAS No.	Surrogate Recoveries	MS	D59760-1	Limits
17060-07-0	1,2-Dichloroethane-D4	103%	110%	62-130%
2037-26-5	Toluene-D8	99%	99%	70-130%
460-00-4	4-Bromofluorobenzene	103%	97%	69-130%

* = Outside of Control Limits.

Duplicate Summary

Page 1 of 1

Job Number: D59922
Account: AGWCODN A.G. Wassenaar, Inc.
Project: Hickok 1-26 E14308.EC

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D59884-1DUP	6V26125.D	5	07/21/14	BR	n/a	n/a	V6V1475
D59884-1	6V26124.D	5	07/21/14	BR	n/a	n/a	V6V1475

The QC reported here applies to the following samples:

Method: SW846 8260B

D59922-1, D59922-2, D59922-3

CAS No.	Compound	D59884-1 ug/l	DUP Q ug/l	Q	RPD	Limits
71-43-2	Benzene	7.6	7.1		7	30
100-41-4	Ethylbenzene	483	480		1	30
108-88-3	Toluene	165	166		1	30
1330-20-7	Xylene (total)	2340	2300		2	30

CAS No.	Surrogate Recoveries	DUP	D59884-1	Limits
17060-07-0	1,2-Dichloroethane-D4	110%	110%	62-130%
2037-26-5	Toluene-D8	100%	97%	70-130%
460-00-4	4-Bromofluorobenzene	102%	105%	69-130%

* = Outside of Control Limits.

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D59922
Account: AGWCODN - A.G. Wassenaar, Inc.
Project: Hickok 1-26 E14308.EC

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chloride	GP13085/GN25648	0.50	0.0	mg/l	5	4.87	97.4	90-110%
Solids, Total Dissolved	GN25652	10	0.0	mg/l	400	402	100.5	90-110%
Sulfate	GP13085/GN25648	0.50	0.0	mg/l	5	4.95	99.0	90-110%

Associated Samples:

Batch GN25652: D59922-1, D59922-2, D59922-3

Batch GP13085: D59922-1, D59922-2, D59922-3

(*) Outside of QC limits

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DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D59922
Account: AGWCODN - A.G. Wassenaar, Inc.
Project: Hickok 1-26 E14308.EC

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN25652	D59922-3	mg/l	13200	13100	0.8	0-20%
Solids, Total Dissolved	GN25652	D59922-2	mg/l	15600	15700	0.6	0-20%

Associated Samples:

Batch GN25652: D59922-1, D59922-2, D59922-3

(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D59922
Account: AGWCODN - A.G. Wassenaar, Inc.
Project: Hickok 1-26 E14308.EC

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chloride	GP13085/GN25648	D59920-1	mg/l	125	50	179	108.0	80-120%
Sulfate	GP13085/GN25648	D59920-1	mg/l	185	50	238	106.0	80-120%

Associated Samples:

Batch GP13085: D59922-1, D59922-2, D59922-3

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D59922
Account: AGWCODN - A.G. Wassenaar, Inc.
Project: Hickok 1-26 E14308.EC

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chloride	GP13085/GN25648	D59920-1	mg/l	125	50	180	0.6	20%
Sulfate	GP13085/GN25648	D59920-1	mg/l	185	50	238	0.0	20%

Associated Samples:
Batch GP13085: D59922-1, D59922-2, D59922-3
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits