



February 5, 2020

Angelica Greene
Industrial Stormwater Permit Manager
City of Portland Bureau of Environmental Services
6543 N. Burlington Avenue
Portland, OR 97203

Re: 1200-Z Permit Second Quarter 2019–2020 Discharge Monitoring Report
NW Natural Gasco Property
DEQ File Number 62231

Dear Ms. Greene,

Attached please find the Discharge Monitoring Report, as well as the laboratory report, chain of custody, and field sheet, for the NW Natural Gasco Property for the 1200-Z second quarter reporting period.

All benchmarks and impairment pollutant concentrations were met for the quarter. As you may recall, a Tier I Report for past exceedances was submitted to BES on July 25, 2019. This Tier I Report included a recommended corrective measure that involved vactoring of the manhole sumps and connective stormwater lines within the Liquefied Natural Gas (LNG) Plant. The vactoring work was conducted on July 26, July 31, August 18, and August 26, 2019. There was approximately 4 to 6 cubic yards of sand, silt, and gravel removed from the stormwater mains and sumps. Based on this quarter's improved stormwater quality, it appears that vactoring was effective in reducing the total suspended solids (TSS) concentrations and other pollutant concentrations as well. Therefore, initiation of upline source tracing is not necessary at this time.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is—to the best of my knowledge and belief—true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations (40 CFR 122.22(d)).

If you have any questions about this package, please contact Kendra Skellenger with Anchor QEA, LLC, at 503-924-6179.

Very truly yours,


Kathryn Williams
Vice President of Public Affairs
NW Natural



State of Oregon
Department of
Environmental
Quality

Oregon Department of Environmental Quality
Stormwater Program

Discharge Monitoring Report
1200-Z Permit

National Pollutant Discharge Elimination System Permit
Industrial Stormwater Discharge General Permit

Instructions: This report must be completed for each quarter and submitted by the 15th of February, May, August and November to the appropriate DEQ regional or agent office. The report must contain the results of all stormwater monitoring conducted during each quarter, and variance requests are due semi-annually, in February and August. Sample for the pollutants at monitoring location(s) specified in your SWPCP and use the monitoring location(s) number from your SWPCP. You must include the laboratory results, including minimum detection level, Quality Assurance/Quality Control and analytical methods for the parameter analyzed. You must also submit pH field notes and chain of custody.

Facility Information

Legal name: Northwest Natural Gas Company DEQ File No: 62231
Common name: NW Natural EPA #: ORR706061
Facility address: 7900 NW St Helens Rd Reporting Quarter: ☐ 1st ☒ 2nd ☐ 3rd ☐ 4th
Facility City, Zip: Portland, OR 97210 Reporting Year: 2019 to 2020
Geo-Region: ☐ Columbia Slough ☐ Columbia River ☒ Portland Harbor ☐ Regional Administrated by:
2nd Geo-Region ☐ Columbia Slough ☐ Columbia River ☐ Portland Harbor ☐ Regional ☐ DEQ ☐ Clean Water Services
Primary SIC Code: 4925 Secondary SIC Code: ☐ ☐ ☐ ☐ ☒ City of Portland ☐ City of Eugene

Monitoring Information

Number of discharge point(s): 1 Number of monitoring location(s): 1
If different, you certify that the facility has established either: 1) the area has no exposure of stormwater to industrial activities, or 2) the effluent is substantially similar to effluent(s) monitored and the same BMPs are implemented and maintained. (See permit pg 23)

Monitoring Waiver(s) If yes list date on DEQ or Agent approval letter.

n/a

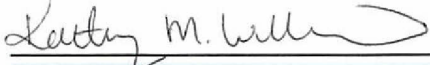
DMR Submittal Checklist

Please check all applicable documents are included with you DMR submittal:

☒ Original Signature ☒ Laboratory Reports ☒ Chain of Custody ☒ QA/QC form Lab ☒ pH field sheets

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations (40 CFR 122.22(d)).

Signature: 
Printed Name: Kathryn Williams
Legally Authorized Representative

Date: 2/5/2020
Title: Vice President of Public Affairs
Email: kathryn.williams@nwnatural.com
Telephone : 503.220.2370



For official use only:

Legal Name: Northwest Natural Gas Company

DEQ File No: 62231

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Portland Harbor Benchmarks

Monitoring Location(s)	Sample Date	pH	Total Suspended Solids	Total Oil & Grease	Total Copper	Total Lead	Total Zinc	E. coli *	
		s.u.	mg/L	mg/L	mg/L	mg/L	mg/L	counts/ 100 ml	
001	11/19/19	6.51	ND (5.00)	ND (4.76)	0.00118	0.000609	0.00752		* E. coli only required for landfills and sewage treatment plants.
001	12/10/19	6.42	10	ND (4.76)	0.00341	0.00269	0.0332		
Geometric Mean			5	2	0.002	0.001	0.02		
Geometric Mean									
Geometric Mean									
Geometric Mean									
Portland Harbor Benchmarks		5.5-9.0	30	10	0.020	0.040	0.12	406	



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Impairment Pollutants and Reference Concentrations
(see permit assignment letter for identification of required parameters)

Monitoring Location(s)	Sample Date	Aldrin	Ammonia	Arsenic, Total Recoverable	BOD ₅	Cadmium, Dissolved	Chlordane	Chlorpyrifos	Chromium III, Dissolved
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
001	11/19/19	ND (0.0000283)				ND (0.000349)			
001	12/10/19	ND (0.0000280)				ND (0.000346)			
Geometric Mean		0.000					0.0002		
Geometric Mean									
Geometric Mean									
Geometric Mean									

Impairment Ref. Concentration	0.003	1.0	0.34	30	See Letter	0.0024	0.000083	See Letter
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State of Oregon
Department of
Environmental
Quality

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DEQ File No: 62231

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Impairment Pollutants and Reference Concentrations
(see permit assignment letter for identification of required parameters)

Monitoring Location(s)	Sample Date	Guthion	Heptachlor	Hexachlo-robenzene	Iron, Total	Lead, Dissolved	Malathion	Mercury, Total	Nickel, Dissolved
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
001	11/19/19				0.438	ND (0.0001)		0.00018	
001	12/10/19				0.462	ND (0.0001)		ND(0.00005)	
Geometric Mean					0.4	0.0001		0.0001	
Geometric Mean									
Geometric Mean									
Geometric Mean									

Impairment Ref. Concentration	0.001	0.00052	0.001	1.0	See Letter	0.0002	0.0024	See Letter
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Impairment Pollutants and Reference Concentrations
(see permit assignment letter for identification of required parameters)

Monitoring Location(s)	Sample Date	Nitrate + Nitrite Nitrogen	Parathion	PCBs	pH	Phosphorous	Silver, Dissolved	Tetrachloroethylene	Thallium	Trichloroethylene
		mg/L	mg/L	mg/L	s.u.	mg/L	mg/L	mg/L	mg/L	mg/L
001	11/19/19			ND(0.0000472)	6.51					
001	12/10/19			ND(0.00005)	6.42					
Geometric Mean				0.000						
Geometric Mean										
Geometric Mean										
Geometric Mean										

Impairment Ref. Concentration	10.0	0.010	0.002	See Letter	2.0	See Letter	0.0005	0.0001	0.0014
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Impairment Pollutants and Reference Concentrations
(see permit assignment letter for identification of required parameters)

Monitoring Location(s)	Sample Date	Turbidity	Zinc, Dissolved	Acenaphthene	Anthracene	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene 3,4	Benzo(k) fluoranthene
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
001	11/19/19	13.33		ND(0.000485)	ND(0.000485)	ND(0.000485)	ND(0.000485)	ND(0.000485)	ND(0.000485)
001	12/10/19	12.01		ND(0.000481)	ND(0.000481)	ND(0.000481)	ND(0.000481)	ND(0.000481)	ND(0.000481)
Geometric Mean		13		0.000	0.0	0.000	0.000	0.000	0.000
Geometric Mean									
Geometric Mean									
Geometric Mean									

Impairment Ref. Concentration	100	See Letter	0.095	2.9	0.001	0.001	0.001	0.001
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State of Oregon
Department of
Environmental
Quality

Oregon Department of Environmental Quality
Stormwater Program

Discharge Monitoring Report
1200-Z Permit

For official use only:
Legal Name: Northwest Natural Gas Company
DEQ File No: 62231

Instructions: This report must be completed for each quarter and submitted by the 15th of February, May, August and November to the appropriate DEQ regional or agent office. The report must contain the results of all stormwater monitoring conducted during each quarter, and variance requests are due semi-annually, in February and August. Sample for the pollutants at monitoring location(s) specified in your SWPCP and use the monitoring location(s) number from your SWPCP. You must include the laboratory results, including minimum detection level, Quality Assurance/Quality Control and analytical methods for the parameters analyzed. You must also submit pH field notes and chain of custody.

Impairment Pollutants and Reference Concentrations
(see permit assignment letter for identification of required parameters)

Monitoring Location(s)	Sample Date	Chrysene	Dibenz(a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Pyrene	
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
001	11/19/19	ND(0.000485)	ND(0.000485)	ND(0.000485)	ND(0.000485)	ND(0.000485)	ND(0.000485)	
001	12/10/19	ND(0.000481)	ND(0.000481)	ND(0.000481)	ND(0.000481)	ND(0.000481)	ND(0.000481)	
Geometric Mean		0.000	0.000	0.000	0.00	0.000	0.00	
Geometric Mean								
Geometric Mean								
Geometric Mean								
Impairment Ref. Concentration		0.001	0.001	0.014	0.39	0.001	0.29	

FIELD SAMPLING DATA SHEET



6720 SW Macadam Ave, Suite 125, Portland, OR 97219
Office: (503) 670-1108

PROJECT NAME: 1200Z Stormwater Monitoring 000029-02.58 Location ID: Outfall 107
SITE ADDRESS: 7900 NW St Helens Rd, Portland, OR BLIND ID: O107-01-11/19

Easting: 7624051.869

Northing: 705434.910

WIND FROM: N NE E SE S SW W NW LIGHT MEDIUM HEAVY
WEATHER: SUNNY PRTLY CLDY CLOUDY LIGHT RAIN No Wind TEMPERATURE: 50 °F

YSI Calibration

Date:	11/19/19		
Probe S/N:	13E100075		
Calibration Solution	Initial	Final	Temperature
pH 4.01	4.11	4.00	18.5
pH 7.0	7.05	7.03	18.1

Water Quality Data

Sampling Method: Grab
Time (24 hour): 0805
pH (SU): 6.51

§ METHODS: (A) Grab (B) Composite (C) Disposable Bailer (D) Peristaltic Pump (E) Waterra inertial pump (F) Other

STORMWATER SAMPLING

Date: 11/19/19	Time: 0810	Method: A	[√ if used]						
Bottle Type		#	Volume	Preservative [circle]	Ice	Filter	pH	√	
VOA Glass		3	40 ml	HCl	YES	NO	---	✓	
Amber Glass		5	1L	None	YES	NO	---	✓	
Green Poly		1	125ml	NaOH	YES	NO	---	✓	
Red Poly-total		1	250ml	HNO ₃	YES	NO	---	✓	
Red Poly-dissolved**		1	250ml	HNO ₃	YES	YES	---	✓	
White Poly**		1	250ml	None	YES	NO	---	✓	
Amber Glass*		2	1L	HCl	YES	NO	---	✓	
Total Bottles (include duplicate count): 14			VOA Trip Blank (circle if collected)						

BOTTLE TYPE	ANALYSIS PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
VOA vial - Glass	VOCs by EPA 624 (3 VOAs)
AMBER - Glass (Unpreserved)	PAHs/HCB by EPA 625 (1L) Pesticides by EPA 608 (1L) PCBs by EPA 608 (1L)
AMBER - Glass (Preserved)	Oil and Grease by EPA 1664A (2L)
GREEN - Poly	Free Cyanide (ASTM D4282) and WAD Cyanide (SM 4500-CN I) (1 x 125 mL for both)
RED DISSOLVED - Poly**	Dissolved Metals (Cu, Pb) by EPA 200.8
RED TOTAL - Poly	Total Metals (Cu, Fe, Pb, Zn) by EPA 200.8 (250 mL) Total Mercury by EPA 245.1 (250 mL)
WHITE - Poly	TSS by SM2540 D

Comments:

Turbidity = 13.33

SAMPLER:

Don Luffoon
(PRINTED NAME)
Casey Montgomery

Casey Montgomery
(SIGNATURE)

FIELD SAMPLING DATA SHEET



6720 SW Macadam Ave, Suite 125, Portland, OR 97219
Office: (503) 670-1108

PROJECT NAME: 1200Z Stormwater Monitoring 000029-02.58 Location ID: Outfall 107
SITE ADDRESS: 7900 NW St Helens Rd, Portland, OR BLIND ID: O107-02-12/10/19

Easting: 7624051.869

Northing: 705434.910

WIND FROM: N NE E SE S SW W NW LIGHT MEDIUM HEAVY
WEATHER: SUNNY PRTLY CLDY CLOUDY RAIN No Wind TEMPERATURE: 46 °F

YSI Calibration

Date:	12/10/19		
Probe S/N:	13E1000-75		
Calibration Solution	Initial	Final	Temperature
pH 4.01	3.86	4.0	16.7
pH 7.0	7.02	7.01	16.7

Water Quality Data

Sampling Method:	Grab
Time (24 hour):	1505
pH (SU):	6.42

§ METHODS: (A) Grab (B) Composite (C) Disposable Bailor (D) Peristaltic Pump (E) Waterra inertial pump (F) Other

STORMWATER SAMPLING

Date:	12/10/19	Time:	1510	Method:	A				(if used)
Bottle Type			#	Volume	Preservative [circle]	Ice	Filter	pH	✓
VOA Glass			3	40 ml	HCl	YES	NO	---	✓
Amber Glass			5	1L	None	YES	NO	---	✓
Green Poly			1	125ml	NaOH	YES	NO	---	✓
Red Poly-total			1	250ml	HNO ₃	YES	NO	---	✓
Red Poly-dissolved**			1	250ml	HNO ₃	YES	YES	---	✓
White Poly**			1	250ml	None	YES	NO	---	✓
Amber Glass*			2	1L	HCl	YES	NO	---	✓

Total Bottles (include duplicate count): 14

VOA Trip Blank (circle if collected)

BOTTLE TYPE	ANALYSIS PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
VOA vial - Glass	VOCs by EPA 624 (3 VOAs)
AMBER - Glass (Unpreserved)	PAHs/HCB by EPA 625 (1L) Pesticides by EPA 608 (1L) PCBs by EPA 608 (1L)
AMBER - Glass (Preserved)	Oil and Grease by EPA 1664A (2L)
GREEN - Poly	Free Cyanide (ASTM D4282) and WAD Cyanide (SM 4500-CN D) (1 x 125 mL for both)
RED DISSOLVED - Poly**	Dissolved Metals (Cu, Pb) by EPA 200.8
RED TOTAL - Poly	Total Metals (Cu, Fe, Pb, Zn) by EPA 200.8 (250 mL) Total Mercury by EPA 245.1 (250 mL)
WHITE - Poly	TSS by SM2540 D

Comments:

Turbidity = 12.01

SAMPLER:

Casey Montgomery
(PRINTED NAME)

Casey Montgomery
(SIGNATURE)

Doug Laffoon



Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Tuesday, December 17, 2019

Kendra Skellenger
Anchor QEA, LLC
6720 SW Macadam Ave. Suite 125
Portland, OR 97219

RE: A9K0566 - Gasco - 1200Z - 2019 - 000029-02.58 task 14

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A9K0566, which was received by the laboratory on 11/19/2019 at 11:22:00AM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: dthomas@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of sample receipt, unless prior arrangements have been made.

Cooler Receipt Information

(See Cooler Receipt Form for details)

Cooler #1

0.3 degC

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.

All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darwin Thomas, Business Development Director



Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Anchor OEA, LLC

6720 SW Macadam Ave. Suite 125
Portland, OR 97219

Project: **Gasco - 1200Z - 2019**

Project Number: **000029-02.58 task 14**

Project Manager: **Kendra Skellenger**

Report ID:

A9K0566 - 12 17 19 0451

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
O107-01-111919	A9K0566-01	Water	11/19/19 08:10	11/19/19 11:22
TB-111919	A9K0566-02	Water	11/19/19 09:20	11/19/19 11:22

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Darwin Thomas, Business Development Director

Page 2 of 36

NWN-PCI0777744

**Apex Laboratories, LLC**

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Anchor OEA, LLC

6720 SW Macadam Ave. Suite 125
Portland, OR 97219

Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9K0566 - 12 17 19 0451****ANALYTICAL SAMPLE RESULTS****Purgeable Organic Compounds by EPA 624.1**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
O107-01-111919 (A9K0566-01)				Matrix: Water		Batch: 9110994		
Benzene	ND	0.000125	0.000250	mg/L	1	11/20/19 15:22	EPA 624	
Toluene	ND	0.000500	0.00100	mg/L	1	11/20/19 15:22	EPA 624	
Xylenes, total	ND	0.000750	0.00150	mg/L	1	11/20/19 15:22	EPA 624	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery:</i>	107 %	<i>Limits:</i>	80-120 %	1	11/20/19 15:22	EPA 624
<i>Toluene-d8 (Surr)</i>			99 %		80-120 %	1	11/20/19 15:22	EPA 624
<i>4-Bromofluorobenzene (Surr)</i>			100 %		80-120 %	1	11/20/19 15:22	EPA 624
TB-111919 (A9K0566-02)				Matrix: Water		Batch: 9110994		
Benzene	ND	0.000125	0.000250	mg/L	1	11/20/19 11:45	EPA 624	
Toluene	ND	0.000500	0.00100	mg/L	1	11/20/19 11:45	EPA 624	
Xylenes, total	ND	0.000750	0.00150	mg/L	1	11/20/19 11:45	EPA 624	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery:</i>	107 %	<i>Limits:</i>	80-120 %	1	11/20/19 11:45	EPA 624
<i>Toluene-d8 (Surr)</i>			99 %		80-120 %	1	11/20/19 11:45	EPA 624
<i>4-Bromofluorobenzene (Surr)</i>			101 %		80-120 %	1	11/20/19 11:45	EPA 624

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Darwin Thomas, Business Development Director

**Apex Laboratories, LLC**

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Anchor OEA, LLC

6720 SW Macadam Ave. Suite 125
Portland, OR 97219

Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9K0566 - 12 17 19 0451****ANALYTICAL SAMPLE RESULTS****Polychlorinated Biphenyls by EPA 608**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
O107-01-111919 (A9K0566-01)				Matrix: Water		Batch: 9110990		C-07
Aroclor 1016	ND	0.0000472	0.0000943	mg/L	1	11/21/19 08:57	608 PCB	
Aroclor 1221	ND	0.0000472	0.0000943	mg/L	1	11/21/19 08:57	608 PCB	
Aroclor 1232	ND	0.0000472	0.0000943	mg/L	1	11/21/19 08:57	608 PCB	
Aroclor 1242	ND	0.0000472	0.0000943	mg/L	1	11/21/19 08:57	608 PCB	
Aroclor 1248	ND	0.0000472	0.0000943	mg/L	1	11/21/19 08:57	608 PCB	
Aroclor 1254	ND	0.0000472	0.0000943	mg/L	1	11/21/19 08:57	608 PCB	
Aroclor 1260	ND	0.0000472	0.0000943	mg/L	1	11/21/19 08:57	608 PCB	
Aroclor 1262	ND	0.0000472	0.0000943	mg/L	1	11/21/19 08:57	608 PCB	
Aroclor 1268	ND	0.0000472	0.0000943	mg/L	1	11/21/19 08:57	608 PCB	
Surrogate: Decachlorobiphenyl (Surr)		Recovery: 73 %		Limits: 40-135 %	1	11/21/19 08:57	608 PCB	

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EPA ID: OR01039

Anchor OEA, LLC

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Portland, OR 97219

Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9K0566 - 12 17 19 0451****ANALYTICAL SAMPLE RESULTS****Organochlorine Pesticides by EPA 608**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
O107-01-111919 (A9K0566-01RE2)				Matrix: Water		Batch: 9120397		C-05
Aldrin	ND	0.0000283	0.0000566	mg/L	1	12/05/19 14:40	608 Pest	Q-30
4,4'-DDD	ND	0.0000283	0.0000566	mg/L	1	12/05/19 14:40	608 Pest	
4,4'-DDE	ND	0.00000472	0.00000943	mg/L	1	12/05/19 14:40	608 Pest	
4,4'-DDT	ND	0.0000283	0.0000566	mg/L	1	12/05/19 14:40	608 Pest	
Dieldrin	ND	0.0000283	0.0000566	mg/L	1	12/05/19 14:40	608 Pest	
Chlordane (Technical)	ND	0.000349	0.000708	mg/L	1	12/05/19 14:40	608 Pest	
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>		<i>Recovery: 49 %</i>		<i>Limits: 25-140 %</i>	<i>1</i>	<i>12/05/19 14:40</i>	<i>608 Pest</i>	
<i>Decachlorobiphenyl (Surr)</i>		<i>78 %</i>		<i>30-135 %</i>	<i>1</i>	<i>12/05/19 14:40</i>	<i>608 Pest</i>	

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**Apex Laboratories, LLC**

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Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9K0566 - 12 17 19 0451****ANALYTICAL SAMPLE RESULTS****Semivolatile Organic Compounds by EPA 625**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
O107-01-111919 (A9K0566-01)				Matrix: Water		Batch: 9111057		
Acenaphthene	ND	0.000485	0.000971	mg/L	4	11/22/19 17:17	EPA 625	
Anthracene	ND	0.000485	0.000971	mg/L	4	11/22/19 17:17	EPA 625	
Benz(a)anthracene	ND	0.000485	0.000971	mg/L	4	11/22/19 17:17	EPA 625	
Benzo(a)pyrene	ND	0.000485	0.000971	mg/L	4	11/22/19 17:17	EPA 625	
Benzo(b)fluoranthene	ND	0.000485	0.000971	mg/L	4	11/22/19 17:17	EPA 625	
Benzo(k)fluoranthene	ND	0.000485	0.000971	mg/L	4	11/22/19 17:17	EPA 625	
Chrysene	ND	0.000485	0.000971	mg/L	4	11/22/19 17:17	EPA 625	
Dibenz(a,h)anthracene	ND	0.000485	0.000971	mg/L	4	11/22/19 17:17	EPA 625	
Fluoranthene	ND	0.000485	0.000971	mg/L	4	11/22/19 17:17	EPA 625	
Fluorene	ND	0.000485	0.000971	mg/L	4	11/22/19 17:17	EPA 625	
Hexachlorobenzene	ND	0.000485	0.000971	mg/L	4	11/22/19 17:17	EPA 625	
Indeno(1,2,3-cd)pyrene	ND	0.000485	0.000971	mg/L	4	11/22/19 17:17	EPA 625	
Pyrene	ND	0.000485	0.000971	mg/L	4	11/22/19 17:17	EPA 625	
Surrogate: 2-Fluorobiphenyl (Surr)		Recovery: 71 %		Limits: 45-120 %	4	11/22/19 17:17	EPA 625	
p-Terphenyl-d14 (Surr)		68 %		30-125 %	4	11/22/19 17:17	EPA 625	
2,4,6-Tribromophenol (Surr)		70 %		35-125 %	4	11/22/19 17:17	EPA 625	

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Project: **Gasco - 1200Z - 2019**

Project Number: **000029-02.58 task 14**

Project Manager: **Kendra Skellenger**

Report ID:

A9K0566 - 12 17 19 0451

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 200.8 (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
O107-01-111919 (A9K0566-01)				Matrix: Water				
Batch: 9111225								
Copper	0.00118	0.000500	0.00100	mg/L	1	11/27/19 03:38	EPA 200.8	
Iron	0.438	0.0250	0.0500	mg/L	1	11/27/19 03:38	EPA 200.8	
Lead	0.000609	0.000100	0.000200	mg/L	1	11/27/19 03:38	EPA 200.8	
Zinc	0.00752	0.00200	0.00400	mg/L	1	11/27/19 03:38	EPA 200.8	

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Project Number: **000029-02.58 task 14**

Project Manager: **Kendra Skellenger**

Report ID:

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ANALYTICAL SAMPLE RESULTS

Dissolved Metals by EPA 200.8 (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
O107-01-111919 (A9K0566-01)				Matrix: Water				
Batch: 9111067								
Copper	0.000793	0.000500	0.00100	mg/L	1	11/22/19 16:41	EPA 200.8 (Diss)	J
Lead	ND	0.000100	0.000200	mg/L	1	11/22/19 16:41	EPA 200.8 (Diss)	

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Project: **Gasco - 1200Z - 2019**

Project Number: **000029-02.58 task 14**

Project Manager: **Kendra Skellenger**

Report ID:

A9K0566 - 12 17 19 0451

ANALYTICAL SAMPLE RESULTS

Free Cyanide by Microdiffusion/Colorimetric Spectrophotometry

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
O107-01-111919 (A9K0566-01)				Matrix: Water		Batch: 9111009		
Free Cyanide	ND	0.00250	0.00500	mg/L	1	11/20/19 19:45	D4282-02	

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Project Number: **000029-02.58 task 14**

Project Manager: **Kendra Skellenger**

Report ID:

A9K0566 - 12 17 19 0451

ANALYTICAL SAMPLE RESULTS

Weak Acid Dissociable (WAD) Cyanide by Flow Analysis (Aqueous)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
O107-01-111919 (A9K0566-01)				Matrix: Water		Batch: 9111003		
WAD Cyanide	ND	0.00500	0.00500	mg/L	1	11/20/19 19:03	SM 4500-CN I	

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Project Manager: **Kendra Skellenger**

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ANALYTICAL SAMPLE RESULTS

Solid and Moisture Determinations

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
O107-01-111919 (A9K0566-01)				Matrix: Water				
Batch: 9111162								
Total Suspended Solids	ND	5.00	5.00	mg/L	1	11/25/19 15:53	SM 2540 D	

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ANALYTICAL SAMPLE RESULTS (Subcontracted)

Metals by EPA 200 Series Methods

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
O107-01-111919 (A9K0566-01)				Matrix: Water		Batch: W9K1406		
Batch: W9K1406								
Mercury, Total	0.00018	---	0.000050	mg/l	1	11/27/19 16:29	EPA 245.1	

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Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9K0566 - 12 17 19 0451****QUALITY CONTROL (QC) SAMPLE RESULTS****Purgeable Organic Compounds by EPA 624.1**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9110994 - EPA 5030B												
Water												
Duplicate (9110994-DUP1)												
Prepared: 11/20/19 11:15 Analyzed: 11/20/19 17:10												
QC Source Sample: Non-SDG (A9K0615-02)												
Trichloroethene (TCE)	ND	0.00125	0.00250	mg/L	5	---	ND	---	---	---	30%	
Vinyl chloride	ND	0.00125	0.00250	mg/L	5	---	ND	---	---	---	30%	
Xylenes, total	0.264	0.00375	0.00750	mg/L	5	---	0.268	---	---	1	30%	
Acetone	ND	0.0500	0.100	mg/L	5	---	ND	---	---	---	30%	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>												
<i>Recovery: 103 % Limits: 80-120 % Dilution: 1x</i>												
<i>Toluene-d8 (Surr)</i>												
<i>98 % 80-120 % "</i>												
<i>4-Bromofluorobenzene (Surr)</i>												
<i>102 % 80-120 % "</i>												
Matrix Spike (9110994-MS1)												
Prepared: 11/20/19 11:15 Analyzed: 11/20/19 13:06												
QC Source Sample: Non-SDG (A9K0597-02)												
EPA 624												
Benzene	0.0217	0.000125	0.000250	mg/L	1	0.0200	ND	108	37-151%	---	---	
cis-1,2-Dichloroethene	0.0228	0.000250	0.000500	mg/L	1	0.0200	0.000960	109	70-130%	---	---	
Tetrachloroethene (PCE)	0.0260	0.000250	0.000500	mg/L	1	0.0200	0.00378	111	64-148%	---	---	
Toluene	0.0201	0.000500	0.00100	mg/L	1	0.0200	ND	101	47-150%	---	---	
Trichloroethene (TCE)	0.0228	0.000250	0.000500	mg/L	1	0.0200	0.00131	108	71-157%	---	---	
Vinyl chloride	0.0205	0.000250	0.000500	mg/L	1	0.0200	ND	103	5-251%	---	---	
Xylenes, total	0.0686	0.000750	0.00150	mg/L	1	0.0600	ND	114	70-130%	---	---	
Acetone	0.327	0.0100	0.0200	mg/L	1	0.0400	0.327	0.8	70-130%	---	---	Q-01
<i>Surr: 1,4-Difluorobenzene (Surr)</i>												
<i>Recovery: 99 % Limits: 80-120 % Dilution: 1x</i>												
<i>Toluene-d8 (Surr)</i>												
<i>97 % 80-120 % "</i>												
<i>4-Bromofluorobenzene (Surr)</i>												
<i>102 % 80-120 % "</i>												

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Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9K0566 - 12 17 19 0451****QUALITY CONTROL (QC) SAMPLE RESULTS****Polychlorinated Biphenyls by EPA 608**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9110990 - EPA 3510C (Neutral pH)						Water						
Blank (9110990-BLK1)				Prepared: 11/20/19 08:16 Analyzed: 11/21/19 08:39								C-07
608 PCB												
Aroclor 1016	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Aroclor 1221	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Aroclor 1232	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Aroclor 1242	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Aroclor 1248	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Aroclor 1254	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Aroclor 1260	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Surr: Decachlorobiphenyl (Surr)		Recovery: 78 %		Limits: 40-135 %		Dilution: 1x						
LCS (9110990-BS1)				Prepared: 11/20/19 08:16 Analyzed: 11/21/19 08:57								C-07
608 PCB												
Aroclor 1016	0.00179	0.0000500	0.000100	mg/L	1	0.00250	---	71	50-140%	---	---	
Aroclor 1260	0.00204	0.0000500	0.000100	mg/L	1	0.00250	---	82	8-140%	---	---	
Surr: Decachlorobiphenyl (Surr)		Recovery: 71 %		Limits: 40-135 %		Dilution: 1x						
LCS Dup (9110990-BSD1)				Prepared: 11/20/19 08:16 Analyzed: 11/21/19 09:15								C-07, Q-19
608 PCB												
Aroclor 1016	0.00174	0.0000500	0.000100	mg/L	1	0.00250	---	70	50-140%	3	36%	
Aroclor 1260	0.00188	0.0000500	0.000100	mg/L	1	0.00250	---	75	8-140%	8	38%	
Surr: Decachlorobiphenyl (Surr)		Recovery: 75 %		Limits: 40-135 %		Dilution: 1x						

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Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9K0566 - 12 17 19 0451****QUALITY CONTROL (QC) SAMPLE RESULTS****Organochlorine Pesticides by EPA 608**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120397 - EPA 3510C (Neutral pH)/3640A (GPC)						Water						
Blank (9120397-BLK2)			Prepared: 11/21/19 09:39		Analyzed: 12/05/19 13:14		C-05					
608 Pest												
Aldrin	ND	0.0000273	0.0000545	mg/L	1	---	---	---	---	---	---	Q-30
4,4'-DDD	ND	0.0000273	0.0000545	mg/L	1	---	---	---	---	---	---	
4,4'-DDE	ND	0.00000455	0.00000909	mg/L	1	---	---	---	---	---	---	
4,4'-DDT	ND	0.0000273	0.0000545	mg/L	1	---	---	---	---	---	---	
Dieldrin	ND	0.0000273	0.0000545	mg/L	1	---	---	---	---	---	---	
Chlordane (Technical)	ND	0.000336	0.000682	mg/L	1	---	---	---	---	---	---	
Surr: 2,4,5,6-TCMX (Surr)		Recovery: 27 %		Limits: 25-140 %		Dilution: 1x						
Decachlorobiphenyl (Surr)		49 %		30-135 %		"						
LCS (9120397-BS2)			Prepared: 11/21/19 09:39		Analyzed: 12/05/19 13:31		C-05					
608 Pest												
Aldrin	0.000198	0.0000300	0.0000600	mg/L	1	0.000500	---	40	42-140%	---	---	Q-30
4,4'-DDD	0.000334	0.0000300	0.0000600	mg/L	1	0.000500	---	67	31-141%	---	---	
4,4'-DDE	0.000289	0.00000500	0.0000100	mg/L	1	0.000500	---	58	30-145%	---	---	
4,4'-DDT	0.000392	0.0000300	0.0000600	mg/L	1	0.000500	---	78	25-160%	---	---	
Dieldrin	0.000369	0.0000300	0.0000600	mg/L	1	0.000500	---	74	36-146%	---	---	
Surr: 2,4,5,6-TCMX (Surr)		Recovery: 27 %		Limits: 25-140 %		Dilution: 1x						
Decachlorobiphenyl (Surr)		63 %		30-135 %		"						
LCS Dup (9120397-BSD2)			Prepared: 11/21/19 09:39		Analyzed: 12/05/19 13:49		C-05, Q-19					
608 Pest												
Aldrin	0.000259	0.0000300	0.0000600	mg/L	1	0.000500	---	52	42-140%	27	35%	
4,4'-DDD	0.000390	0.0000300	0.0000600	mg/L	1	0.000500	---	78	31-141%	15	39%	
4,4'-DDE	0.000355	0.00000500	0.0000100	mg/L	1	0.000500	---	71	30-145%	20	35%	
4,4'-DDT	0.000454	0.0000300	0.0000600	mg/L	1	0.000500	---	91	25-160%	15	42%	
Dieldrin	0.000433	0.0000300	0.0000600	mg/L	1	0.000500	---	87	36-146%	16	49%	
Surr: 2,4,5,6-TCMX (Surr)		Recovery: 42 %		Limits: 25-140 %		Dilution: 1x						
Decachlorobiphenyl (Surr)		63 %		30-135 %		"						

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Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9K0566 - 12 17 19 0451****QUALITY CONTROL (QC) SAMPLE RESULTS****Semivolatile Organic Compounds by EPA 625**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9111057 - EPA 3510C (Acid Extraction)							Water					
Blank (9111057-BLK2)			Prepared: 11/21/19 10:09		Analyzed: 11/21/19 15:15							
EPA 625												
Acenaphthene	ND	0.0000227	0.0000455	mg/L	1	---	---	---	---	---	---	
Anthracene	ND	0.0000227	0.0000455	mg/L	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	0.0000227	0.0000455	mg/L	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	0.0000227	0.0000455	mg/L	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	0.0000227	0.0000455	mg/L	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	0.0000227	0.0000455	mg/L	1	---	---	---	---	---	---	
Chrysene	ND	0.0000227	0.0000455	mg/L	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	0.0000227	0.0000455	mg/L	1	---	---	---	---	---	---	
Fluoranthene	ND	0.0000227	0.0000455	mg/L	1	---	---	---	---	---	---	
Fluorene	ND	0.0000227	0.0000455	mg/L	1	---	---	---	---	---	---	
Hexachlorobenzene	ND	0.0000227	0.0000455	mg/L	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	0.0000227	0.0000455	mg/L	1	---	---	---	---	---	---	
Pyrene	ND	0.0000227	0.0000455	mg/L	1	---	---	---	---	---	---	
Pentachlorophenol (PCP)	ND	0.0000909	0.000182	mg/L	1	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)		Recovery: 67 %		Limits: 45-120 %		Dilution: 1x						
p-Terphenyl-d14 (Surr)		80 %		30-125 %		"						
2,4,6-Tribromophenol (Surr)		76 %		35-125 %		"						

LCS (9111057-BS2)

Prepared: 11/21/19 10:09 Analyzed: 11/21/19 15:51

EPA 625												
Acenaphthene	0.00276	0.0000250	0.0000500	mg/L	1	0.00400	---	69	47-145%	---	---	
Anthracene	0.00302	0.0000250	0.0000500	mg/L	1	0.00400	---	75	27-133%	---	---	
Benz(a)anthracene	0.00331	0.0000250	0.0000500	mg/L	1	0.00400	---	83	33-143%	---	---	
Benzo(a)pyrene	0.00314	0.0000250	0.0000500	mg/L	1	0.00400	---	79	17-163%	---	---	
Benzo(b)fluoranthene	0.00309	0.0000250	0.0000500	mg/L	1	0.00400	---	77	24-159%	---	---	
Benzo(k)fluoranthene	0.00320	0.0000250	0.0000500	mg/L	1	0.00400	---	80	11-162%	---	---	
Chrysene	0.00319	0.0000250	0.0000500	mg/L	1	0.00400	---	80	17-168%	---	---	
Dibenz(a,h)anthracene	0.00326	0.0000250	0.0000500	mg/L	1	0.00400	---	82	1-227%	---	---	
Fluoranthene	0.00319	0.0000250	0.0000500	mg/L	1	0.00400	---	80	26-137%	---	---	
Fluorene	0.00285	0.0000250	0.0000500	mg/L	1	0.00400	---	71	59-121%	---	---	
Hexachlorobenzene	0.00301	0.0000250	0.0000500	mg/L	1	0.00400	---	75	5-152%	---	---	
Indeno(1,2,3-cd)pyrene	0.00312	0.0000250	0.0000500	mg/L	1	0.00400	---	78	1-171%	---	---	
Pyrene	0.00316	0.0000250	0.0000500	mg/L	1	0.00400	---	79	52-115%	---	---	

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**Apex Laboratories, LLC**

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Anchor OEA, LLC

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Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9K0566 - 12 17 19 0451****QUALITY CONTROL (QC) SAMPLE RESULTS****Total Metals by EPA 200.8 (ICPMS)**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9111225 - EPA 3015A												
Water												
Blank (9111225-BLK1)												
Prepared: 11/26/19 12:15 Analyzed: 11/27/19 03:05												
EPA 200.8												
Copper	ND	0.000500	0.00100	mg/L	1	---	---	---	---	---	---	
Iron	ND	0.0250	0.0500	mg/L	1	---	---	---	---	---	---	
Lead	ND	0.000100	0.000200	mg/L	1	---	---	---	---	---	---	
Zinc	ND	0.00200	0.00400	mg/L	1	---	---	---	---	---	---	
LCS (9111225-BS1)												
Prepared: 11/26/19 12:15 Analyzed: 11/27/19 03:10												
EPA 200.8												
Copper	0.0537	0.000500	0.00100	mg/L	1	0.0556	---	97	85-115%	---	---	
Iron	2.78	0.0250	0.0500	mg/L	1	2.78	---	100	85-115%	---	---	
Lead	0.0555	0.000100	0.000200	mg/L	1	0.0556	---	100	85-115%	---	---	
Zinc	0.0530	0.00200	0.00400	mg/L	1	0.0556	---	95	85-115%	---	---	
Duplicate (9111225-DUP1)												
Prepared: 11/26/19 12:15 Analyzed: 11/27/19 03:28												
QC Source Sample: Non-SDG (A9K0563-01)												
Copper	0.0118	0.000500	0.00100	mg/L	1	---	0.0123	---	---	5	20%	
Iron	3.62	0.0250	0.0500	mg/L	1	---	4.45	---	---	20	20%	
Lead	0.00272	0.000100	0.000200	mg/L	1	---	0.00283	---	---	4	20%	
Zinc	0.0928	0.00200	0.00400	mg/L	1	---	0.0946	---	---	2	20%	
Matrix Spike (9111225-MS1)												
Prepared: 11/26/19 12:15 Analyzed: 11/27/19 03:33												
QC Source Sample: Non-SDG (A9K0563-01)												
EPA 200.8												
Copper	0.0662	0.000500	0.00100	mg/L	1	0.0556	0.0123	97	70-130%	---	---	
Iron	7.64	0.0250	0.0500	mg/L	1	2.78	4.45	115	70-130%	---	---	
Lead	0.0590	0.000100	0.000200	mg/L	1	0.0556	0.00283	101	70-130%	---	---	
Zinc	0.150	0.00200	0.00400	mg/L	1	0.0556	0.0946	100	70-130%	---	---	
Matrix Spike (9111225-MS2)												
Prepared: 11/26/19 12:15 Analyzed: 11/27/19 05:10												
QC Source Sample: Non-SDG (A9K0766-03)												
EPA 200.8												
Copper	0.0588	0.000500	0.00100	mg/L	1	0.0556	0.00506	97	70-130%	---	---	
Iron	8.08	0.0250	0.0500	mg/L	1	2.78	5.06	109	70-130%	---	---	

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Project: **Gasco - 1200Z - 2019**

Project Number: **000029-02.58 task 14**

Project Manager: **Kendra Skellenger**

Report ID:

A9K0566 - 12 17 19 0451

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 200.8 (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9111225 - EPA 3015A						Water						
Matrix Spike (9111225-MS2)			Prepared: 11/26/19 12:15 Analyzed: 11/27/19 05:10									
QC Source Sample: Non-SDG (A9K0766-03)												
Lead	0.0563	0.000100	0.000200	mg/L	1	0.0556	0.000768	100	70-130%	---	---	
Zinc	0.0783	0.00200	0.00400	mg/L	1	0.0556	0.0256	95	70-130%	---	---	

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Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9K0566 - 12 17 19 0451****QUALITY CONTROL (QC) SAMPLE RESULTS****Dissolved Metals by EPA 200.8 (ICPMS)**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9111067 - Matrix Matched Direct Inject						Water						
Blank (9111067-BLK1)			Prepared: 11/21/19 12:25 Analyzed: 11/22/19 15:41									
EPA 200.8 (Diss)												
Copper	ND	0.000500	0.00100	mg/L	1	---	---	---	---	---	---	
Lead	ND	0.000100	0.000200	mg/L	1	---	---	---	---	---	---	
LCS (9111067-BS1)			Prepared: 11/21/19 12:25 Analyzed: 11/22/19 15:59									
EPA 200.8 (Diss)												
Copper	0.0550	0.000500	0.00100	mg/L	1	0.0556	---	99	85-115%	---	---	
Lead	0.0527	0.000100	0.000200	mg/L	1	0.0556	---	95	85-115%	---	---	
Duplicate (9111067-DUP1)			Prepared: 11/21/19 12:25 Analyzed: 11/22/19 16:22									
QC Source Sample: Non-SDG (A9K0537-02)												
Copper	0.0108	0.000500	0.00100	mg/L	1	---	0.0110	---	---	2	20%	
Lead	0.000212	0.000100	0.000200	mg/L	1	---	0.000234	---	---	10	20%	
Matrix Spike (9111067-MS1)			Prepared: 11/21/19 12:25 Analyzed: 11/22/19 16:27									
QC Source Sample: Non-SDG (A9K0537-02)												
EPA 200.8 (Diss)												
Copper	0.0659	0.000500	0.00100	mg/L	1	0.0556	0.0110	99	70-130%	---	---	
Lead	0.0556	0.000100	0.000200	mg/L	1	0.0556	0.000234	100	70-130%	---	---	
Matrix Spike (9111067-MS2)			Prepared: 11/21/19 12:25 Analyzed: 11/22/19 20:19									
QC Source Sample: Non-SDG (A9K0645-03)												
EPA 200.8 (Diss)												
Copper	0.0574	0.000500	0.00100	mg/L	1	0.0556	0.00412	96	70-130%	---	---	
Lead	0.0547	0.000100	0.000200	mg/L	1	0.0556	0.000146	98	70-130%	---	---	

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Project: **Gasco - 1200Z - 2019**

Project Number: **000029-02.58 task 14**

Project Manager: **Kendra Skellenger**

Report ID:

A9K0566 - 12 17 19 0451

QUALITY CONTROL (QC) SAMPLE RESULTS

HEM (Oil and Grease) and SGT-HEM by EPA 1664A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9110988 - EPA 1664						Water						
Blank (9110988-BLK1)			Prepared: 11/20/19 07:30 Analyzed: 11/21/19 09:14									
EPA 1664A												
HEM (Oil and Grease)	ND	4.55	4.55	mg/L	1	---	---	---	---	---	---	
LCS (9110988-BS1)			Prepared: 11/20/19 07:30 Analyzed: 11/21/19 09:14									
EPA 1664A												
HEM (Oil and Grease)	37.2			mg/L	1	40.0	---	93	78-114%	---	---	
Matrix Spike (9110988-MS1)			Prepared: 11/20/19 07:30 Analyzed: 11/21/19 09:14									
QC Source Sample: Non-SDG (A9K0562-01)												
EPA 1664A												
HEM (Oil and Grease)	33.4			mg/L	1	40.8	ND	82	78-114%	---	---	

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Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9K0566 - 12 17 19 0451****QUALITY CONTROL (QC) SAMPLE RESULTS****Free Cyanide by Microdiffusion/Colorimetric Spectrophotometry**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9111009 - Method Prep: Aq						Water						
Blank (9111009-BLK1)			Prepared: 11/20/19 12:45 Analyzed: 11/20/19 19:38									
<u>D4282-02</u>												
Free Cyanide	ND	0.00250	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (9111009-BS1)			Prepared: 11/20/19 12:45 Analyzed: 11/20/19 19:39									
<u>D4282-02</u>												
Free Cyanide	0.0717	0.00250	0.00500	mg/L	1	0.0667	---	108	85-115%	---	---	
LCS Dup (9111009-BSD1)			Prepared: 11/20/19 12:45 Analyzed: 11/20/19 19:45									
<u>D4282-02</u>												
Free Cyanide	0.0722	0.00250	0.00500	mg/L	1	0.0667	---	108	85-115%	0.7	10%	
Duplicate (9111009-DUP1)			Prepared: 11/20/19 12:45 Analyzed: 11/20/19 19:46									
<u>QC Source Sample: O107-01-111919 (A9K0566-01)</u>												
<u>D4282-02</u>												
Free Cyanide	ND	0.00250	0.00500	mg/L	1	---	ND	---	---	---	20%	
Matrix Spike (9111009-MS1)			Prepared: 11/20/19 12:45 Analyzed: 11/20/19 19:46									
<u>QC Source Sample: O107-01-111919 (A9K0566-01)</u>												
<u>D4282-02</u>												
Free Cyanide	0.0669	0.00250	0.00500	mg/L	1	0.0667	ND	100	80-120%	---	---	

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Project: **Gasco - 1200Z - 2019**

Project Number: **000029-02.58 task 14**

Project Manager: **Kendra Skellenger**

Report ID:

A9K0566 - 12 17 19 0451

QUALITY CONTROL (QC) SAMPLE RESULTS**Weak Acid Dissociable (WAD) Cyanide by Flow Analysis (Aqueous)**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9111003 - Lachat Micro Dist - aqueous						Water						
Blank (9111003-BLK1)			Prepared: 11/20/19 11:01 Analyzed: 11/20/19 18:47									
<u>SM 4500-CN I</u>												
WAD Cyanide	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (9111003-BS1)			Prepared: 11/20/19 11:01 Analyzed: 11/20/19 18:49									
<u>SM 4500-CN I</u>												
WAD Cyanide	0.229	0.00500	0.00500	mg/L	1	0.250	---	92	85-115%	---	---	
Duplicate (9111003-DUP1)			Prepared: 11/20/19 11:01 Analyzed: 11/20/19 18:59									
<u>QC Source Sample: Non-SDG (A9K0230-02RE1)</u>												
WAD Cyanide	ND	0.00500	0.00500	mg/L	1	---	ND	---	---	---	20%	
Matrix Spike (9111003-MS1)			Prepared: 11/20/19 11:01 Analyzed: 11/20/19 19:01									
<u>QC Source Sample: Non-SDG (A9K0230-02RE1)</u>												
<u>SM 4500-CN I</u>												
WAD Cyanide	0.212	0.00500	0.00500	mg/L	1	0.250	ND	85	80-120%	---	---	

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NWN-PCI0777767

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Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9K0566 - 12 17 19 0451****QUALITY CONTROL (QC) SAMPLE RESULTS****Solid and Moisture Determinations**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9111162 - Total Suspended Solids						Water						
Blank (9111162-BLK1)			Prepared: 11/25/19 10:36 Analyzed: 11/25/19 15:53									
<u>SM 2540 D</u>												
Total Suspended Solids	ND	5.00	5.00	mg/L	1	---	---	---	---	---	---	
Duplicate (9111162-DUP1)			Prepared: 11/25/19 10:36 Analyzed: 11/25/19 15:53									
<u>QC Source Sample: Non-SDG (A9K0561-01)</u>												
Total Suspended Solids	ND	5.00	5.00	mg/L	1	---	ND	---	---	---	10%	
Duplicate (9111162-DUP2)			Prepared: 11/25/19 10:36 Analyzed: 11/25/19 15:53									
<u>QC Source Sample: Non-SDG (A9K0576-01)</u>												
Total Suspended Solids	56.0	5.00	5.00	mg/L	1	---	54.0	---	---	4	10%	
Reference (9111162-SRM1)			Prepared: 11/25/19 10:36 Analyzed: 11/25/19 15:53									
<u>SM 2540 D</u>												
Total Suspended Solids	94.0			mg/L	1	100		94	77.1-110%	---	---	

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Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9K0566 - 12 17 19 0451****Weck Laboratories, Inc.****QUALITY CONTROL (QC) SAMPLE RESULTS****Metals by EPA 200 Series Methods**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch W9K1406 - EPA 245.1						Water						
Blank (W9K1406-BLK1)			Prepared: 11/25/19 15:20 Analyzed: 11/27/19 15:46									
EPA 245.1												
Mercury, Total	ND	---	0.000050	mg/l	1	---	---	---	---	---	---	
LCS (W9K1406-BS1)			Prepared: 11/25/19 15:20 Analyzed: 11/27/19 15:48									
EPA 245.1												
Mercury, Total	0.00106	---	0.000050	mg/l	1	0.00100	---	106	85-115%	---	---	
Matrix Spike (W9K1406-MS1)			Prepared: 11/25/19 15:20 Analyzed: 11/27/19 16:08									
QC Source Sample: Non-SDG (9K20015-01)												
EPA 245.1												
Mercury, Total	0.000948	---	0.000050	mg/l	1	0.00100	ND	95	70-130%	---	---	
Matrix Spike (W9K1406-MS2)			Prepared: 11/25/19 15:20 Analyzed: 11/27/19 16:37									
QC Source Sample: Non-SDG (9K20118-04)												
EPA 245.1												
Mercury, Total	0.00103	---	0.000050	mg/l	1	0.00100	ND	103	70-130%	---	---	
Matrix Spike Dup (W9K1406-MSD1)			Prepared: 11/25/19 15:20 Analyzed: 11/27/19 16:10									
QC Source Sample: Non-SDG (9K20015-01)												
Mercury, Total	0.000954	---	0.000050	mg/l	1	0.00100	ND	95	70-130%	0.6	20%	
Matrix Spike Dup (W9K1406-MSD2)			Prepared: 11/25/19 15:20 Analyzed: 11/27/19 16:39									
QC Source Sample: Non-SDG (9K20118-04)												
Mercury, Total	0.00102	---	0.000050	mg/l	1	0.00100	ND	102	70-130%	1	20%	

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Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9K0566 - 12 17 19 0451****SAMPLE PREPARATION INFORMATION****Purgeable Organic Compounds by EPA 624.1****Prep: EPA 5030B**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9110994							
A9K0566-01	Water	EPA 624	11/19/19 08:10	11/20/19 11:15	5mL/5mL	5mL/5mL	1.00
A9K0566-02	Water	EPA 624	11/19/19 09:20	11/20/19 11:15	5mL/5mL	5mL/5mL	1.00

Polychlorinated Biphenyls by EPA 608**Prep: EPA 3510C (Neutral pH)**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9110990							
A9K0566-01	Water	608 PCB	11/19/19 08:10	11/20/19 08:16	1060mL/5mL	1000mL/5mL	0.94

Organochlorine Pesticides by EPA 608**Prep: EPA 3510C (Neutral pH)/3640A (GPC)**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120397							
A9K0566-01RE2	Water	608 Pest	11/19/19 08:10	11/21/19 09:39	1060mL/10mL	1000mL/5mL	1.89

Semivolatile Organic Compounds by EPA 625**Prep: EPA 3510C (Acid Extraction)**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9111057							
A9K0566-01	Water	EPA 625	11/19/19 08:10	11/21/19 11:13	1030mL/5mL	1000mL/5mL	0.97

Total Metals by EPA 200.8 (ICPMS)**Prep: EPA 3015A**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9111225							
A9K0566-01	Water	EPA 200.8	11/19/19 08:10	11/26/19 12:15	45mL/50mL	45mL/50mL	1.00

Dissolved Metals by EPA 200.8 (ICPMS)**Prep: Matrix Matched Direct Inject**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9111067							

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Project: **Gasco - 1200Z - 2019**

Project Number: **000029-02.58 task 14**

Project Manager: **Kendra Skellenger**

Report ID:

A9K0566 - 12 17 19 0451

SAMPLE PREPARATION INFORMATION**Dissolved Metals by EPA 200.8 (ICPMS)****Prep: Matrix Matched Direct Inject**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A9K0566-01	Water	EPA 200.8 (Diss)	11/19/19 08:10	11/21/19 12:25	45mL/50mL	45mL/50mL	1.00

HEM (Oil and Grease) and SGT-HEM by EPA 1664A**Prep: EPA 1664**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 9110988</u>							
A9K0566-01	Water	EPA 1664A	11/19/19 08:10	11/20/19 07:30			NA

Free Cyanide by Microdiffusion/Colorimetric Spectrophotometry**Prep: Method Prep: Aq**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 9111009</u>							
A9K0566-01	Water	D4282-02	11/19/19 08:10	11/20/19 12:45	3mL/3mL	3mL/3mL	1.00

Weak Acid Dissociable (WAD) Cyanide by Flow Analysis (Aqueous)**Prep: Lachat Micro Dist - aqueous**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 9111003</u>							
A9K0566-01	Water	SM 4500-CN I	11/19/19 08:10	11/20/19 11:01	6mL/6mL	6mL/6mL	1.00

Solid and Moisture Determinations**Prep: Total Suspended Solids**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 9111162</u>							
A9K0566-01	Water	SM 2540 D	11/19/19 08:10	11/25/19 10:36			NA

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Darwin Thomas, Business Development Director



Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Anchor OEA, LLC

6720 SW Macadam Ave. Suite 125
Portland, OR 97219

Project: **Gasco - 1200Z - 2019**

Project Number: **000029-02.58 task 14**

Project Manager: **Kendra Skellenger**

Report ID:

A9K0566 - 12 17 19 0451

Weck Laboratories, Inc.

SAMPLE PREPARATION INFORMATION

Metals by EPA 200 Series Methods

Prep: EPA 245.1

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: W9K1406</u>							
A9K0566-01	Water	EPA 245.1	11/19/19 08:10	11/25/19 15:20	50ml/50ml	50ml/50ml	1.00

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A9K0566 - 12 17 19 0451

QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

- C-05** Extract has undergone a GPC (Gel-Permeation Chromatography) cleanup per EPA 3640A. Reporting levels may be raised due to dilution necessary for cleanup. Sample Final Volume includes the GPC dilution factor, see the Prep page for details.
- C-07** Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
- J** Estimated Result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
- O-01** Result for total Hexane Extractable Material (HEM) is below reporting level for this sample. Silica Gel Treatment (HEM-SGT) analysis was therefore not performed.
- Q-01** Spike recovery and/or RPD is outside acceptance limits.
- Q-19** Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
- Q-30** Recovery for Lab Control Spike (LCS) is below the lower control limit. Data may be biased low.

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REPORTING NOTES AND CONVENTIONS:

Abbreviations:

DET Analyte DETECTED at or above the detection or reporting limit.
ND Analyte NOT DETECTED at or above the detection or reporting limit.
NR Result Not Reported
RPD Relative Percent Difference. RPDs for Matrix Spikes and Matrix Spike Duplicates are based on concentration, not recovery.

Detection Limits: Limit of Detection (LOD)

Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.
The Result Basis is listed following the units as "dry", "wet", or " " (blank) designation.
"dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.
"wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.
" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to ½ the Reporting Limit (RL).
-For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.
-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.
For further details, please request a copy of this document.

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Project Number: **000029-02.58 task 14**

Project Manager: **Kendra Skellenger**

Report ID:

A9K0566 - 12 17 19 0451

REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks (Cont.):

Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the sample results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold time compliance and field filtration. Data is qualified as necessary, and the lack of qualification indicates compliance with required parameters.

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Project Number: **000029-02.58 task 14**

Project Manager: **Kendra Skellenger**

Report ID:

A9K0566 - 12 17 19 0451

LABORATORY ACCREDITATION INFORMATION

TNI Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation
--------	----------	--------	---------	--------	---------------

All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.

Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

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Project Number: **000029-02.58 task 14**

Project Manager: **Kendra Skellenger**

Report ID:

A9K0566 - 12 17 19 0451

Chain of Custody Record & Laboratory Analysis Request

Laboratory Number: **A9K0566**

Date: **11-19-19**

Project Name: **Gasco 1200Z**

Project Number: **000029-02.58 task 14**

Project Manager: **Kendra Skellenger**

Phone Number: **503-924-2177**

Shipment Method: **Courier**

Line	Field Sample ID	Collection Date	Time	Matrix	No. of Containers	Test Parameters															Comments/Preservation
						PAHs/HCB (EPA 625)	PCBs (EPA 608)	Oil and Grease (EPA 1664A)	Free Cyanide (ASTM D4282)	WAD Cyanide (SM 4500-CN 1)	Dissolved Metals (Cu, Pb, Fe, Zn)	Total Metals (Cu, Fe, Pb, Zn)	Total Mercury (EPA 245.1)	TSS (SM2540 D)	Other 1	Other 2	Other 3	Other 4	Other 5	Other 6	
1	0187-01-11414	11/19/19	08:00	WST	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
2	TB-11414	11/19/19	08:00	W	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					

Notes: Dissolved metal sample 0.45um field filtered

Email sample receipt forms with a copy of the COC, reports and invoices to labdata@anchoroea.com

Collected by: **D. LaHoon / C. Montgomery**

Relinquished By: **Carly Montgomery / Carly Montgomery** Signature/Printed Name: **Carly Montgomery** Date/Time: **11/19/19 / 11:22**

Company: **Anchor OEA, LLC**

Received By: **Charles Hoffman** Signature/Printed Name: **Charles Hoffman** Date/Time: **11/19/19 / 11:28**

Company: **Anchor OEA, LLC**

Relinquished By: _____ Signature/Printed Name: _____ Date/Time: _____

Company: _____

Received By: _____ Signature/Printed Name: _____ Date/Time: _____

Company: _____

Page 1 of 1

Distribution: A copy will be made for the laboratory and client. The Project file will retain the original.

Apex Laboratories

Darwin Thomas

Darwin Thomas, Business Development Director

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Portland, OR 97219

Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:**

A9K0566 - 12 17 19 0451

APEX LABS COOLER RECEIPT FORMClient: Anchor Element WO#: A9 1C0566Project/Project #: Gasco 1200Z 000029-02.58 task 14**Delivery Info:**Date/time received: 11/19/19 @ 1122 By: CFHDelivered by: Apex ☒ Client ☐ ESS ☐ FedEx ☐ UPS ☐ Swift ☐ Senvoy ☐ SDS ☐ Other ☐**Cooler Inspection** Date/time inspected: 11/19/19 @ 1309 By: CFHChain of Custody included? Yes ☒ No ☐ Custody seals? Yes ☐ No ☒Signed/dated by client? Yes ☒ No ☐Signed/dated by Apex? Yes ☒ No ☐

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	<u>0.3</u>						
Received on ice? (Y/N)	<u>Y</u>						
Temp. blanks? (Y/N)	<u>Y</u>						
Ice type: (Gel/Real/Other)	<u>Real</u>						
Condition:	<u>Good</u>						

Cooler out of temp? (Y/N) (N) Possible reason why: _____If some coolers are in temp and some out, were green dots applied to out of temperature samples? Yes/No/NA (NA)Out of temperature samples form initiated? Yes/No/NA (NA)**Samples Inspection:** Date/time inspected: 11/19/19 @ 1316 By: (Signature)All samples intact? Yes ☒ No ☐ Comments: _____Bottle labels/COCs agree? Yes ☒ No ☐ Comments: _____COC/container discrepancies form initiated? Yes ☐ No ☐ NA ☒Containers/volumes received appropriate for analysis? Yes ☒ No ☐ Comments: _____Do VOA vials have visible headspace? Yes ☒ No ☐ NA ☐Comments TB has 45Water samples: pH checked: Yes ☒ No ☐ NA ☐ pH appropriate? Yes ☒ No ☐ NA ☐

Comments: _____

Additional information: TB# 2146Labeled by: (Signature) Witness: (Signature) Cooler Inspected by: MRP Subsampled by: (Signature) Witnessed by: (Signature) See Project Contact Form: Y

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503-718-2323
EPA ID: OR01039

Friday, January 3, 2020

Kendra Skellenger
Anchor QEA, LLC
6720 SW Macadam Ave. Suite 125
Portland, OR 97219

RE: A9L0371 - Gasco - 1200Z - 2019 - 000029-02.58 task 14

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A9L0371, which was received by the laboratory on 12/11/2019 at 11:47:00AM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: dthomas@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of sample receipt, unless prior arrangements have been made.

Cooler Receipt Information

(See Cooler Receipt Form for details)

Cooler #1	3.8 degC
-----------	----------

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.

All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



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Anchor OEA, LLC

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Project: **Gasco - 1200Z - 2019**

Project Number: **000029-02.58 task 14**

Project Manager: **Kendra Skellenger**

Report ID:

A9L0371 - 01 03 20 1121

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
0107-02-121019	A9L0371-01	Water	12/10/19 15:10	12/11/19 11:47
TB-121019	A9L0371-02	Water	12/10/19 00:00	12/11/19 11:47

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Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9L0371 - 01 03 20 1121****ANALYTICAL SAMPLE RESULTS****Purgeable Organic Compounds by EPA 624.1**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
0107-02-121019 (A9L0371-01)				Matrix: Water		Batch: 9120776		
Benzene	0.000217	0.000125	0.000250	mg/L	1	12/11/19 19:48	EPA 624	J
Toluene	ND	0.000500	0.00100	mg/L	1	12/11/19 19:48	EPA 624	
Xylenes, total	ND	0.000750	0.00150	mg/L	1	12/11/19 19:48	EPA 624	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery:</i>	96 %	<i>Limits:</i>	80-120 %	1	12/11/19 19:48	EPA 624
<i>Toluene-d8 (Surr)</i>			99 %		80-120 %	1	12/11/19 19:48	EPA 624
<i>4-Bromofluorobenzene (Surr)</i>			97 %		80-120 %	1	12/11/19 19:48	EPA 624
TB-121019 (A9L0371-02)				Matrix: Water		Batch: 9120776		
Benzene	ND	0.000125	0.000250	mg/L	1	12/11/19 19:21	EPA 624	
Toluene	ND	0.000500	0.00100	mg/L	1	12/11/19 19:21	EPA 624	
Xylenes, total	ND	0.000750	0.00150	mg/L	1	12/11/19 19:21	EPA 624	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery:</i>	96 %	<i>Limits:</i>	80-120 %	1	12/11/19 19:21	EPA 624
<i>Toluene-d8 (Surr)</i>			100 %		80-120 %	1	12/11/19 19:21	EPA 624
<i>4-Bromofluorobenzene (Surr)</i>			101 %		80-120 %	1	12/11/19 19:21	EPA 624

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Project: **Gasco - 1200Z - 2019**

Project Number: **000029-02.58 task 14**

Project Manager: **Kendra Skellenger**

Report ID:

A9L0371 - 01 03 20 1121

ANALYTICAL SAMPLE RESULTS**Polychlorinated Biphenyls by EPA 608**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
0107-02-121019 (A9L0371-01)				Matrix: Water		Batch: 9120946		C-07
Aroclor 1016	ND	0.0000500	0.000100	mg/L	1	12/17/19 20:03	608 PCB	
Aroclor 1221	ND	0.0000500	0.000100	mg/L	1	12/17/19 20:03	608 PCB	
Aroclor 1232	ND	0.0000500	0.000100	mg/L	1	12/17/19 20:03	608 PCB	
Aroclor 1242	ND	0.0000500	0.000100	mg/L	1	12/17/19 20:03	608 PCB	
Aroclor 1248	ND	0.0000500	0.000100	mg/L	1	12/17/19 20:03	608 PCB	
Aroclor 1254	ND	0.0000500	0.000100	mg/L	1	12/17/19 20:03	608 PCB	
Aroclor 1260	ND	0.0000500	0.000100	mg/L	1	12/17/19 20:03	608 PCB	
Aroclor 1262	ND	0.0000500	0.000100	mg/L	1	12/17/19 20:03	608 PCB	
Aroclor 1268	ND	0.0000500	0.000100	mg/L	1	12/17/19 20:03	608 PCB	
<i>Surrogate: Decachlorobiphenyl (Surr)</i>		<i>Recovery: 86 %</i>		<i>Limits: 40-135 %</i>	<i>1</i>	<i>12/17/19 20:03</i>	<i>608 PCB</i>	

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Project: **Gasco - 1200Z - 2019**

Project Number: **000029-02.58 task 14**

Project Manager: **Kendra Skellenger**

Report ID:

A9L0371 - 01 03 20 1121

ANALYTICAL SAMPLE RESULTS**Organochlorine Pesticides by EPA 608**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
0107-02-121019 (A9L0371-01RE1)				Matrix: Water		Batch: 9121209		C-05
Aldrin	ND	0.0000280	0.0000561	mg/L	1	12/23/19 18:03	608 Pest	
4,4'-DDD	ND	0.0000280	0.0000561	mg/L	1	12/23/19 18:03	608 Pest	
4,4'-DDE	ND	0.00000467	0.00000935	mg/L	1	12/23/19 18:03	608 Pest	
4,4'-DDT	ND	0.0000280	0.0000561	mg/L	1	12/23/19 18:03	608 Pest	
Dieldrin	ND	0.0000280	0.0000561	mg/L	1	12/23/19 18:03	608 Pest	
Chlordane (Technical)	ND	0.000346	0.000701	mg/L	1	12/23/19 18:03	608 Pest	
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>		<i>Recovery: 58 %</i>		<i>Limits: 25-140 %</i>	<i>1</i>	<i>12/23/19 18:03</i>	<i>608 Pest</i>	
<i>Decachlorobiphenyl (Surr)</i>		<i>84 %</i>		<i>30-135 %</i>	<i>1</i>	<i>12/23/19 18:03</i>	<i>608 Pest</i>	

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NWN-PCI0777783

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EPA ID: OR01039

Anchor OEA, LLC

6720 SW Macadam Ave. Suite 125
Portland, OR 97219

Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9L0371 - 01 03 20 1121****ANALYTICAL SAMPLE RESULTS****Semivolatile Organic Compounds by EPA 625**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
0107-02-121019 (A9L0371-01)				Matrix: Water		Batch: 9120768		
Acenaphthene	ND	0.000481	0.000962	mg/L	4	12/12/19 23:37	EPA 625	
Anthracene	ND	0.000481	0.000962	mg/L	4	12/12/19 23:37	EPA 625	
Benz(a)anthracene	ND	0.000481	0.000962	mg/L	4	12/12/19 23:37	EPA 625	
Benzo(a)pyrene	ND	0.000481	0.000962	mg/L	4	12/12/19 23:37	EPA 625	
Benzo(b)fluoranthene	ND	0.000481	0.000962	mg/L	4	12/12/19 23:37	EPA 625	
Benzo(k)fluoranthene	ND	0.000481	0.000962	mg/L	4	12/12/19 23:37	EPA 625	
Chrysene	ND	0.000481	0.000962	mg/L	4	12/12/19 23:37	EPA 625	
Dibenz(a,h)anthracene	ND	0.000481	0.000962	mg/L	4	12/12/19 23:37	EPA 625	
Fluoranthene	ND	0.000481	0.000962	mg/L	4	12/12/19 23:37	EPA 625	
Fluorene	ND	0.000481	0.000962	mg/L	4	12/12/19 23:37	EPA 625	
Hexachlorobenzene	ND	0.000481	0.000962	mg/L	4	12/12/19 23:37	EPA 625	
Indeno(1,2,3-cd)pyrene	ND	0.000481	0.000962	mg/L	4	12/12/19 23:37	EPA 625	
Pyrene	ND	0.000481	0.000962	mg/L	4	12/12/19 23:37	EPA 625	
<i>Surrogate: 2-Fluorobiphenyl (Surr)</i>		<i>Recovery:</i>	89 %	<i>Limits:</i>	45-120 %	4	12/12/19 23:37	EPA 625
<i>p-Terphenyl-d14 (Surr)</i>			73 %		30-125 %	4	12/12/19 23:37	EPA 625
<i>2,4,6-Tribromophenol (Surr)</i>			93 %		35-125 %	4	12/12/19 23:37	EPA 625

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Anchor OEA, LLC

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Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9L0371 - 01 03 20 1121****ANALYTICAL SAMPLE RESULTS****Total Metals by EPA 200.8 (ICPMS)**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
0107-02-121019 (A9L0371-01)				Matrix: Water				
Batch: 9121147								
Copper	0.00341	0.000500	0.00100	mg/L	1	12/23/19 18:24	EPA 200.8	
Lead	0.00269	0.000100	0.000200	mg/L	1	12/23/19 18:24	EPA 200.8	
Zinc	0.0332	0.00200	0.00400	mg/L	1	12/23/19 18:24	EPA 200.8	
0107-02-121019 (A9L0371-01RE1)				Matrix: Water				
Batch: 9121147								
Iron	0.462	0.0250	0.0500	mg/L	1	12/26/19 13:21	EPA 200.8	

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Project Number: **000029-02.58 task 14**

Project Manager: **Kendra Skellenger**

Report ID:

A9L0371 - 01 03 20 1121

ANALYTICAL SAMPLE RESULTS

Dissolved Metals by EPA 200.8 (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
0107-02-121019 (A9L0371-01)				Matrix: Water				
Batch: 9120968								
Copper	0.00210	0.000500	0.00100	mg/L	1	12/17/19 06:19	EPA 200.8 (Diss)	
Lead	ND	0.000100	0.000200	mg/L	1	12/17/19 06:19	EPA 200.8 (Diss)	

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Report ID:

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ANALYTICAL SAMPLE RESULTS

HEM (Oil and Grease) and SGT-HEM by EPA 1664A

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
0107-02-121019 (A9L0371-01)				Matrix: Water		Batch: 9121142		
HEM (Oil and Grease)	ND	4.76	4.76	mg/L	1	12/23/19 07:38	EPA 1664A	O-01

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ANALYTICAL SAMPLE RESULTS

Free Cyanide by Microdiffusion/Colorimetric Spectrophotometry

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
0107-02-121019 (A9L0371-01)				Matrix: Water		Batch: 9121060		
Free Cyanide	ND	0.00250	0.00500	mg/L	1	12/18/19 17:04	D4282-02	

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ANALYTICAL SAMPLE RESULTS

Weak Acid Dissociable (WAD) Cyanide by Flow Analysis (Aqueous)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
0107-02-121019 (A9L0371-01)				Matrix: Water		Batch: 9121129		
WAD Cyanide	ND	0.00500	0.00500	mg/L	1	12/19/19 16:38	SM 4500-CN I	

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ANALYTICAL SAMPLE RESULTS

Solid and Moisture Determinations

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
0107-02-121019 (A9L0371-01)				Matrix: Water				
Batch: 9120907								
Total Suspended Solids	10.0	5.00	5.00	mg/L	1	12/16/19 13:23	SM 2540 D	

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Weck Laboratories, Inc.

ANALYTICAL SAMPLE RESULTS (Subcontracted)

Metals by EPA 200 Series Methods

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
0107-02-121019 (A9L0371-01)				Matrix: Water		Batch: W9L1244		
Batch: W9L1244								
Mercury, Total	ND	---	0.000050	mg/l	1	12/30/19 15:09	EPA 245.1	

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Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:**

A9L0371 - 01 03 20 1121

QUALITY CONTROL (QC) SAMPLE RESULTS**Purgeable Organic Compounds by EPA 624.1**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120776 - EPA 5030B												
Water												
Blank (9120776-BLK1)												
Prepared: 12/11/19 12:00 Analyzed: 12/11/19 15:16												
EPA 624												
Benzene	ND	0.000125	0.000250	mg/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	0.000250	0.000500	mg/L	1	---	---	---	---	---	---	
Toluene	ND	0.000500	0.00100	mg/L	1	---	---	---	---	---	---	
Xylenes, total	ND	0.000750	0.00150	mg/L	1	---	---	---	---	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>												
<i>Recovery: 97 % Limits: 80-120 % Dilution: 1x</i>												
<i>Toluene-d8 (Surr)</i>												
<i>100 % 80-120 % "</i>												
<i>4-Bromofluorobenzene (Surr)</i>												
<i>102 % 80-120 % "</i>												

LCS (9120776-BS1)												
Prepared: 12/11/19 12:00 Analyzed: 12/11/19 14:21												
EPA 624												
Benzene	0.0161	0.000125	0.000250	mg/L	1	0.0200	---	80	37-151%	---	---	
Ethylbenzene	0.0160	0.000250	0.000500	mg/L	1	0.0200	---	80	37-162%	---	---	
Toluene	0.0162	0.000500	0.00100	mg/L	1	0.0200	---	81	47-150%	---	---	
Xylenes, total	0.0478	0.000750	0.00150	mg/L	1	0.0600	---	80	70-130%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>												
<i>Recovery: 100 % Limits: 80-120 % Dilution: 1x</i>												
<i>Toluene-d8 (Surr)</i>												
<i>98 % 80-120 % "</i>												
<i>4-Bromofluorobenzene (Surr)</i>												
<i>100 % 80-120 % "</i>												

Duplicate (9120776-DUP1)												
Prepared: 12/11/19 15:26 Analyzed: 12/11/19 21:10												
QC Source Sample: Non-SDG (A9L0382-03)												
Benzene	ND	0.0250	0.0500	mg/L	200	---	ND	---	---	---	30%	
Ethylbenzene	ND	0.0500	0.100	mg/L	200	---	ND	---	---	---	30%	
Toluene	ND	0.100	0.200	mg/L	200	---	ND	---	---	---	30%	
Xylenes, total	ND	0.150	0.300	mg/L	200	---	ND	---	---	---	30%	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>												
<i>Recovery: 95 % Limits: 80-120 % Dilution: 1x</i>												
<i>Toluene-d8 (Surr)</i>												
<i>100 % 80-120 % "</i>												
<i>4-Bromofluorobenzene (Surr)</i>												
<i>98 % 80-120 % "</i>												

Matrix Spike (9120776-MS1)												
Prepared: 12/11/19 15:26 Analyzed: 12/11/19 18:26												
QC Source Sample: Non-SDG (A9L0358-01)												
EPA 624												
Benzene	0.0202	0.000125	0.000250	mg/L	1	0.0200	0.000452	99	37-151%	---	---	

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Project: **Gasco - 1200Z - 2019**

Project Number: **000029-02.58 task 14**

Project Manager: **Kendra Skellenger**

Report ID:

A9L0371 - 01 03 20 1121

QUALITY CONTROL (QC) SAMPLE RESULTS

Purgeable Organic Compounds by EPA 624.1

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120776 - EPA 5030B						Water						
Matrix Spike (9120776-MS1)			Prepared: 12/11/19 15:26 Analyzed: 12/11/19 18:26									
QC Source Sample: Non-SDG (A9L0358-01)												
Ethylbenzene	0.0202	0.000250	0.000500	mg/L	1	0.0200	0.000500	98	37-162%	---	---	
Toluene	0.0236	0.000500	0.00100	mg/L	1	0.0200	0.00336	101	47-150%	---	---	
Xylenes, total	0.0628	0.000750	0.00150	mg/L	1	0.0600	0.00332	99	70-130%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 96 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		98 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		101 %		80-120 %		"						

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Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9L0371 - 01 03 20 1121****QUALITY CONTROL (QC) SAMPLE RESULTS****Polychlorinated Biphenyls by EPA 608**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	Limits	RPD	RPD Limit	Notes
Batch 9120946 - EPA 3510C (Neutral pH)						Water						
Blank (9120946-BLK1)			Prepared: 12/16/19 10:43 Analyzed: 12/17/19 16:41						C-07			
608 PCB												
Aroclor 1016	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Aroclor 1221	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Aroclor 1232	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Aroclor 1242	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Aroclor 1248	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Aroclor 1254	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Aroclor 1260	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Aroclor 1262	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Aroclor 1268	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Surr: Decachlorobiphenyl (Surr)		Recovery: 83 %		Limits: 40-135 %		Dilution: 1x						
LCS (9120946-BS1)			Prepared: 12/16/19 10:43 Analyzed: 12/17/19 17:00						C-07			
608 PCB												
Aroclor 1016	0.00177	0.0000500	0.000100	mg/L	1	0.00250	---	71	50-140%	---	---	
Aroclor 1260	0.00204	0.0000500	0.000100	mg/L	1	0.00250	---	82	8-140%	---	---	
Surr: Decachlorobiphenyl (Surr)		Recovery: 75 %		Limits: 40-135 %		Dilution: 1x						
LCS Dup (9120946-BSD1)			Prepared: 12/16/19 10:43 Analyzed: 12/17/19 17:18						C-07, Q-19			
608 PCB												
Aroclor 1016	0.00176	0.0000500	0.000100	mg/L	1	0.00250	---	70	50-140%	0.8	36%	
Aroclor 1260	0.00213	0.0000500	0.000100	mg/L	1	0.00250	---	85	8-140%	4	38%	
Surr: Decachlorobiphenyl (Surr)		Recovery: 76 %		Limits: 40-135 %		Dilution: 1x						

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Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9L0371 - 01 03 20 1121****QUALITY CONTROL (QC) SAMPLE RESULTS****Organochlorine Pesticides by EPA 608**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9121209 - EPA 3510C (Neutral pH)/3640A (GPC)						Water						
Blank (9121209-BLK1)			Prepared: 12/13/19 11:17 Analyzed: 12/23/19 16:49						C-05			
608 Pest												
Aldrin	ND	0.0000273	0.0000545	mg/L	1	---	---	---	---	---	---	
4,4'-DDD	ND	0.0000273	0.0000545	mg/L	1	---	---	---	---	---	---	
4,4'-DDE	ND	0.00000455	0.00000909	mg/L	1	---	---	---	---	---	---	
4,4'-DDT	ND	0.0000273	0.0000545	mg/L	1	---	---	---	---	---	---	
Dieldrin	ND	0.0000273	0.0000545	mg/L	1	---	---	---	---	---	---	
Chlordane (Technical)	ND	0.000336	0.000682	mg/L	1	---	---	---	---	---	---	
Surr: 2,4,5,6-TCMX (Surr)		Recovery: 28 %		Limits: 25-140 %		Dilution: 1x						
Decachlorobiphenyl (Surr)		83 %		30-135 %		"						
LCS (9121209-BS1)			Prepared: 12/13/19 11:17 Analyzed: 12/23/19 17:06						C-05			
608 Pest												
Aldrin	0.000264	0.0000300	0.0000600	mg/L	1	0.000500	---	53	42-140%	---	---	
4,4'-DDD	0.000494	0.0000300	0.0000600	mg/L	1	0.000500	---	99	31-141%	---	---	
4,4'-DDE	0.000394	0.00000500	0.0000100	mg/L	1	0.000500	---	79	30-145%	---	---	
4,4'-DDT	0.000588	0.0000300	0.0000600	mg/L	1	0.000500	---	118	25-160%	---	---	Q-41
Dieldrin	0.000459	0.0000300	0.0000600	mg/L	1	0.000500	---	92	36-146%	---	---	
Surr: 2,4,5,6-TCMX (Surr)		Recovery: 39 %		Limits: 25-140 %		Dilution: 1x						
Decachlorobiphenyl (Surr)		90 %		30-135 %		"						
LCS Dup (9121209-BSD1)			Prepared: 12/13/19 11:17 Analyzed: 12/23/19 17:28						C-05, Q-19			
608 Pest												
Aldrin	0.000325	0.0000300	0.0000600	mg/L	1	0.000500	---	65	42-140%	21	35%	
4,4'-DDD	0.000547	0.0000300	0.0000600	mg/L	1	0.000500	---	109	31-141%	10	39%	
4,4'-DDE	0.000453	0.00000500	0.0000100	mg/L	1	0.000500	---	91	30-145%	14	35%	
4,4'-DDT	0.000634	0.0000300	0.0000600	mg/L	1	0.000500	---	127	25-160%	8	42%	Q-41
Dieldrin	0.000519	0.0000300	0.0000600	mg/L	1	0.000500	---	104	36-146%	12	49%	
Surr: 2,4,5,6-TCMX (Surr)		Recovery: 45 %		Limits: 25-140 %		Dilution: 1x						
Decachlorobiphenyl (Surr)		88 %		30-135 %		"						

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Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9L0371 - 01 03 20 1121****QUALITY CONTROL (QC) SAMPLE RESULTS****Semivolatile Organic Compounds by EPA 625**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120768 - EPA 3510C (Acid Extraction)						Water						
Blank (9120768-BLK2)			Prepared: 12/11/19 11:36 Analyzed: 12/11/19 20:17									
EPA 625												
Acenaphthene	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Anthracene	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Chrysene	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Fluoranthene	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Fluorene	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Hexachlorobenzene	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Pyrene	ND	0.0000455	0.0000909	mg/L	1	---	---	---	---	---	---	
Pentachlorophenol (PCP)	ND	0.000182	0.000364	mg/L	1	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)		Recovery: 78 %		Limits: 45-120 %		Dilution: 1x						
p-Terphenyl-d14 (Surr)		91 %		30-125 %		"						
2,4,6-Tribromophenol (Surr)		100 %		35-125 %		"						

LCS (9120768-BS2)

Prepared: 12/11/19 11:36 Analyzed: 12/11/19 20:52

EPA 625												
Acenaphthene	0.00621	0.0000500	0.000100	mg/L	1	0.00800	---	78	47-145%	---	---	
Anthracene	0.00682	0.0000500	0.000100	mg/L	1	0.00800	---	85	27-133%	---	---	
Benz(a)anthracene	0.00783	0.0000500	0.000100	mg/L	1	0.00800	---	98	33-143%	---	---	
Benzo(a)pyrene	0.00751	0.0000500	0.000100	mg/L	1	0.00800	---	94	17-163%	---	---	
Benzo(b)fluoranthene	0.00743	0.0000500	0.000100	mg/L	1	0.00800	---	93	24-159%	---	---	
Benzo(k)fluoranthene	0.00727	0.0000500	0.000100	mg/L	1	0.00800	---	91	11-162%	---	---	
Chrysene	0.00725	0.0000500	0.000100	mg/L	1	0.00800	---	91	17-168%	---	---	
Dibenz(a,h)anthracene	0.00735	0.0000500	0.000100	mg/L	1	0.00800	---	92	1-227%	---	---	
Fluoranthene	0.00754	0.0000500	0.000100	mg/L	1	0.00800	---	94	26-137%	---	---	
Fluorene	0.00661	0.0000500	0.000100	mg/L	1	0.00800	---	83	59-121%	---	---	
Hexachlorobenzene	0.00687	0.0000500	0.000100	mg/L	1	0.00800	---	86	5-152%	---	---	
Indeno(1,2,3-cd)pyrene	0.00727	0.0000500	0.000100	mg/L	1	0.00800	---	91	1-171%	---	---	
Pyrene	0.00740	0.0000500	0.000100	mg/L	1	0.00800	---	93	52-115%	---	---	

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**Apex Laboratories, LLC**

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Anchor OEA, LLC

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Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9L0371 - 01 03 20 1121****QUALITY CONTROL (QC) SAMPLE RESULTS****Semivolatile Organic Compounds by EPA 625**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120768 - EPA 3510C (Acid Extraction)							Water					
LCS (9120768-BS2)			Prepared: 12/11/19 11:36 Analyzed: 12/11/19 20:52									
Pentachlorophenol (PCP)	0.00841	0.000200	0.000400	mg/L	1	0.00800	---	105	14-176%	---	---	
Surr: 2-Fluorobiphenyl (Surr)		Recovery: 79 %		Limits: 45-120 %		Dilution: 1x						
p-Terphenyl-d14 (Surr)		95 %		30-125 %		"						
2,4,6-Tribromophenol (Surr)		99 %		35-125 %		"						
LCS Dup (9120768-BSD2)			Prepared: 12/11/19 11:36 Analyzed: 12/11/19 21:26									
EPA 625												
Acenaphthene	0.00640	0.0000500	0.000100	mg/L	1	0.00800	---	80	47-145%	3	30%	
Anthracene	0.00704	0.0000500	0.000100	mg/L	1	0.00800	---	88	27-133%	3	30%	
Benz(a)anthracene	0.00803	0.0000500	0.000100	mg/L	1	0.00800	---	100	33-143%	3	30%	
Benzo(a)pyrene	0.00786	0.0000500	0.000100	mg/L	1	0.00800	---	98	17-163%	4	30%	
Benzo(b)fluoranthene	0.00772	0.0000500	0.000100	mg/L	1	0.00800	---	97	24-159%	4	30%	
Benzo(k)fluoranthene	0.00757	0.0000500	0.000100	mg/L	1	0.00800	---	95	11-162%	4	30%	
Chrysene	0.00752	0.0000500	0.000100	mg/L	1	0.00800	---	94	17-168%	4	30%	
Dibenz(a,h)anthracene	0.00746	0.0000500	0.000100	mg/L	1	0.00800	---	93	1-227%	1	30%	
Fluoranthene	0.00796	0.0000500	0.000100	mg/L	1	0.00800	---	100	26-137%	5	30%	
Fluorene	0.00662	0.0000500	0.000100	mg/L	1	0.00800	---	83	59-121%	0.08	30%	
Hexachlorobenzene	0.00694	0.0000500	0.000100	mg/L	1	0.00800	---	87	5-152%	1	30%	
Indeno(1,2,3-cd)pyrene	0.00741	0.0000500	0.000100	mg/L	1	0.00800	---	93	1-171%	2	30%	
Pyrene	0.00789	0.0000500	0.000100	mg/L	1	0.00800	---	99	52-115%	6	30%	
Pentachlorophenol (PCP)	0.00868	0.000200	0.000400	mg/L	1	0.00800	---	109	14-176%	3	30%	
Surr: 2-Fluorobiphenyl (Surr)		Recovery: 77 %		Limits: 45-120 %		Dilution: 1x						
p-Terphenyl-d14 (Surr)		97 %		30-125 %		"						
2,4,6-Tribromophenol (Surr)		101 %		35-125 %		"						

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Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9L0371 - 01 03 20 1121****QUALITY CONTROL (QC) SAMPLE RESULTS****Total Metals by EPA 200.8 (ICPMS)**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9121147 - EPA 3015A												
Water												
Blank (9121147-BLK1)												
Prepared: 12/19/19 15:56 Analyzed: 12/23/19 17:37												
<u>EPA 200.8</u>												
Copper	ND	0.000500	0.00100	mg/L	1	---	---	---	---	---	---	
Iron	ND	0.0250	0.0500	mg/L	1	---	---	---	---	---	---	
Lead	ND	0.000100	0.000200	mg/L	1	---	---	---	---	---	---	
Zinc	ND	0.00200	0.00400	mg/L	1	---	---	---	---	---	---	
LCS (9121147-BS1)												
Prepared: 12/19/19 15:56 Analyzed: 12/23/19 17:41												
<u>EPA 200.8</u>												
Copper	0.0571	0.000500	0.00100	mg/L	1	0.0556	---	103	85-115%	---	---	
Iron	2.94	0.0250	0.0500	mg/L	1	2.78	---	106	85-115%	---	---	
Lead	0.0538	0.000100	0.000200	mg/L	1	0.0556	---	97	85-115%	---	---	
Zinc	0.0535	0.00200	0.00400	mg/L	1	0.0556	---	96	85-115%	---	---	
Duplicate (9121147-DUP1)												
Prepared: 12/19/19 15:56 Analyzed: 12/23/19 17:51												
<u>QC Source Sample: Non-SDG (A9L0355-01)</u>												
Copper	0.00292	0.000500	0.00100	mg/L	1	---	0.00327	---	---	11	20%	
Iron	2.63	0.0250	0.0500	mg/L	1	---	2.61	---	---	0.8	20%	
Lead	0.000176	0.000100	0.000200	mg/L	1	---	0.000194	---	---	10	20%	J
Zinc	0.0129	0.00200	0.00400	mg/L	1	---	0.0134	---	---	3	20%	
Matrix Spike (9121147-MS1)												
Prepared: 12/19/19 15:56 Analyzed: 12/23/19 17:55												
<u>QC Source Sample: Non-SDG (A9L0355-01)</u>												
<u>EPA 200.8</u>												
Copper	0.0570	0.000500	0.00100	mg/L	1	0.0556	0.00327	97	70-130%	---	---	
Iron	5.44	0.0250	0.0500	mg/L	1	2.78	2.61	102	70-130%	---	---	
Lead	0.0528	0.000100	0.000200	mg/L	1	0.0556	0.000194	95	70-130%	---	---	
Zinc	0.0668	0.00200	0.00400	mg/L	1	0.0556	0.0134	96	70-130%	---	---	
Matrix Spike (9121147-MS2)												
Prepared: 12/19/19 15:56 Analyzed: 12/23/19 19:43												
<u>QC Source Sample: Non-SDG (A9L0749-09)</u>												
<u>EPA 200.8</u>												
Copper	0.0535	0.000500	0.00100	mg/L	1	0.0556	0.000604	95	70-130%	---	---	
Lead	0.0484	0.000100	0.000200	mg/L	1	0.0556	ND	87	70-130%	---	---	

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Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9L0371 - 01 03 20 1121****QUALITY CONTROL (QC) SAMPLE RESULTS****Dissolved Metals by EPA 200.8 (ICPMS)**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120968 - Matrix Matched Direct Inject						Water						
Blank (9120968-BLK1)			Prepared: 12/16/19 16:06 Analyzed: 12/17/19 04:27									
EPA 200.8 (Diss)												
Copper	ND	0.000500	0.00100	mg/L	1	---	---	---	---	---	---	
Lead	ND	0.000100	0.000200	mg/L	1	---	---	---	---	---	---	
LCS (9120968-BS1)			Prepared: 12/16/19 16:06 Analyzed: 12/17/19 04:31									
EPA 200.8 (Diss)												
Copper	0.0551	0.000500	0.00100	mg/L	1	0.0556	---	99	85-115%	---	---	
Lead	0.0525	0.000100	0.000200	mg/L	1	0.0556	---	95	85-115%	---	---	
Duplicate (9120968-DUP1)			Prepared: 12/16/19 16:06 Analyzed: 12/17/19 04:55									
QC Source Sample: Non-SDG (A9L0256-01)												
Copper	0.00328	0.000500	0.00100	mg/L	1	---	0.00334	---	---	2	20%	
Lead	0.000232	0.000100	0.000200	mg/L	1	---	0.000239	---	---	3	20%	
Matrix Spike (9120968-MS1)			Prepared: 12/16/19 16:06 Analyzed: 12/17/19 04:59									
QC Source Sample: Non-SDG (A9L0256-01)												
EPA 200.8 (Diss)												
Copper	0.0570	0.000500	0.00100	mg/L	1	0.0556	0.00334	97	70-130%	---	---	
Lead	0.0543	0.000100	0.000200	mg/L	1	0.0556	0.000239	97	70-130%	---	---	
Matrix Spike (9120968-MS2)			Prepared: 12/16/19 16:06 Analyzed: 12/17/19 06:37									
QC Source Sample: Non-SDG (A9L0592-01)												
EPA 200.8 (Diss)												
Copper	0.0854	0.000500	0.00100	mg/L	1	0.0556	0.0335	94	70-130%	---	---	
Lead	0.0542	0.000100	0.000200	mg/L	1	0.0556	0.00108	96	70-130%	---	---	

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Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9L0371 - 01 03 20 1121****QUALITY CONTROL (QC) SAMPLE RESULTS****HEM (Oil and Grease) and SGT-HEM by EPA 1664A**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9121142 - EPA 1664						Water						
Blank (9121142-BLK1)			Prepared: 12/20/19 07:30 Analyzed: 12/23/19 07:38									
<u>EPA 1664A</u>												
HEM (Oil and Grease)	ND	4.55	4.55	mg/L	1	---	---	---	---	---	---	
Blank (9121142-BLK2)			Prepared: 12/23/19 08:08 Analyzed: 12/23/19 12:12									
<u>EPA 1664A</u>												
SGT-HEM (Non-polar Material)	ND	4.55	4.55	mg/L	1	---	---	---	---	---	---	
LCS (9121142-BS1)			Prepared: 12/20/19 07:30 Analyzed: 12/23/19 07:38									
<u>EPA 1664A</u>												
HEM (Oil and Grease)	37.4			mg/L	1	40.0	---	94	78-114%	---	---	
LCS (9121142-BS2)			Prepared: 12/23/19 08:08 Analyzed: 12/23/19 12:12									
<u>EPA 1664A</u>												
SGT-HEM (Non-polar Material)	18.3			mg/L	1	20.0	---	92	64-132%	---	---	
Matrix Spike (9121142-MS1)			Prepared: 12/20/19 07:30 Analyzed: 12/23/19 07:38									
<u>QC Source Sample: Non-SDG (A9L0334-01)</u>												
<u>EPA 1664A</u>												
HEM (Oil and Grease)	30.6			mg/L	1	37.7	ND	81	78-114%	---	---	

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NWN-PCI0777801

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Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9L0371 - 01 03 20 1121****QUALITY CONTROL (QC) SAMPLE RESULTS****Weak Acid Dissociable (WAD) Cyanide by Flow Analysis (Aqueous)**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9121129 - Lachat Micro Dist - aqueous						Water						
Blank (9121129-BLK1)			Prepared: 12/19/19 12:28 Analyzed: 12/19/19 16:34									
<u>SM 4500-CN I</u>												
WAD Cyanide	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (9121129-BS1)			Prepared: 12/19/19 12:28 Analyzed: 12/19/19 16:36									
<u>SM 4500-CN I</u>												
WAD Cyanide	0.227	0.00500	0.00500	mg/L	1	0.250	---	91	85-115%	---	---	
Duplicate (9121129-DUP1)			Prepared: 12/19/19 12:28 Analyzed: 12/19/19 16:40									
<u>QC Source Sample: 0107-02-121019 (A9L0371-01)</u>												
<u>SM 4500-CN I</u>												
WAD Cyanide	ND	0.00500	0.00500	mg/L	1	---	ND	---	---	---	20%	
Matrix Spike (9121129-MS1)			Prepared: 12/19/19 12:28 Analyzed: 12/19/19 16:42									
<u>QC Source Sample: 0107-02-121019 (A9L0371-01)</u>												
<u>SM 4500-CN I</u>												
WAD Cyanide	0.234	0.00500	0.00500	mg/L	1	0.250	ND	94	80-120%	---	---	

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Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9L0371 - 01 03 20 1121****QUALITY CONTROL (QC) SAMPLE RESULTS****Solid and Moisture Determinations**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 9120907 - Total Suspended Solids						Water						
Blank (9120907-BLK1)			Prepared: 12/13/19 14:49 Analyzed: 12/16/19 13:23									
SM 2540 D												
Total Suspended Solids	ND	5.00	5.00	mg/L	1	---	---	---	---	---	---	
Duplicate (9120907-DUP1)			Prepared: 12/13/19 14:49 Analyzed: 12/16/19 13:23									
QC Source Sample: Non-SDG (A9L0375-01)												
Total Suspended Solids	30.0	5.00	5.00	mg/L	1	---	30.0	---	---	0	10%	
Duplicate (9120907-DUP2)			Prepared: 12/13/19 14:49 Analyzed: 12/16/19 13:23									
QC Source Sample: Non-SDG (A9L0439-01)												
Total Suspended Solids	42.0	5.00	5.00	mg/L	1	---	46.0	---	---	9	10%	
Reference (9120907-SRM1)			Prepared: 12/13/19 14:49 Analyzed: 12/16/19 13:23									
SM 2540 D												
Total Suspended Solids	93.0			mg/L	1	100		93	77.1-110%	---	---	

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Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9L0371 - 01 03 20 1121****Weck Laboratories, Inc.****QUALITY CONTROL (QC) SAMPLE RESULTS****Metals by EPA 200 Series Methods**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch W9L1244 - EPA 245.1						Water						
Blank (W9L1244-BLK1)			Prepared: 12/23/19 10:40 Analyzed: 12/30/19 14:33									
EPA 245.1												
Mercury, Total	ND	---	0.000050	mg/l	1	---	---	---	---	---	---	
LCS (W9L1244-BS1)			Prepared: 12/23/19 10:40 Analyzed: 12/30/19 14:35									
EPA 245.1												
Mercury, Total	0.00109	---	0.000050	mg/l	1	0.00100	---	109	85-115%	---	---	
Matrix Spike (W9L1244-MS1)			Prepared: 12/23/19 10:40 Analyzed: 12/30/19 14:39									
QC Source Sample: Non-SDG (9L13045-01)												
EPA 245.1												
Mercury, Total	0.00113	---	0.000050	mg/l	1	0.00100	0.0000339	110	70-130%	---	---	
Matrix Spike (W9L1244-MS2)			Prepared: 12/23/19 10:40 Analyzed: 12/30/19 15:05									
QC Source Sample: Non-SDG (9L18027-05)												
EPA 245.1												
Mercury, Total	0.00116	---	0.000050	mg/l	1	0.00100	ND	116	70-130%	---	---	
Matrix Spike Dup (W9L1244-MSD1)			Prepared: 12/23/19 10:40 Analyzed: 12/30/19 14:41									
QC Source Sample: Non-SDG (9L13045-01)												
Mercury, Total	0.00113	---	0.000050	mg/l	1	0.00100	0.0000339	109	70-130%	0.3	20%	
Matrix Spike Dup (W9L1244-MSD2)			Prepared: 12/23/19 10:40 Analyzed: 12/30/19 15:07									
QC Source Sample: Non-SDG (9L18027-05)												
Mercury, Total	0.00110	---	0.000050	mg/l	1	0.00100	ND	110	70-130%	5	20%	

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Project: **Gasco - 1200Z - 2019**

Project Number: **000029-02.58 task 14**

Project Manager: **Kendra Skellenger**

Report ID:

A9L0371 - 01 03 20 1121

SAMPLE PREPARATION INFORMATION**Purgeable Organic Compounds by EPA 624.1****Prep: EPA 5030B**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 9120776</u>							
A9L0371-01	Water	EPA 624	12/10/19 15:10	12/11/19 15:26	5mL/5mL	5mL/5mL	1.00
A9L0371-02	Water	EPA 624	12/10/19 00:00	12/11/19 15:26	5mL/5mL	5mL/5mL	1.00

Polychlorinated Biphenyls by EPA 608**Prep: EPA 3510C (Neutral pH)**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 9120946</u>							
A9L0371-01	Water	608 PCB	12/10/19 15:10	12/16/19 10:43	1000mL/5mL	1000mL/5mL	1.00

Organochlorine Pesticides by EPA 608**Prep: EPA 3510C (Neutral pH)/3640A (GPC)**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 9121209</u>							
A9L0371-01RE1	Water	608 Pest	12/10/19 15:10	12/13/19 11:17	1070mL/10mL	1000mL/5mL	1.87

Semivolatile Organic Compounds by EPA 625**Prep: EPA 3510C (Acid Extraction)**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 9120768</u>							
A9L0371-01	Water	EPA 625	12/10/19 15:10	12/11/19 15:35	1040mL/5mL	1000mL/5mL	0.96

Total Metals by EPA 200.8 (ICPMS)**Prep: EPA 3015A**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 9121147</u>							
A9L0371-01	Water	EPA 200.8	12/10/19 15:10	12/19/19 15:56	45mL/50mL	45mL/50mL	1.00
A9L0371-01RE1	Water	EPA 200.8	12/10/19 15:10	12/19/19 15:56	45mL/50mL	45mL/50mL	1.00

Dissolved Metals by EPA 200.8 (ICPMS)**Prep: Matrix Matched Direct Inject**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
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Darwin Thomas, Business Development Director

**Apex Laboratories, LLC**

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503-718-2323
EPA ID: OR01039

Anchor OEA, LLC

6720 SW Macadam Ave. Suite 125
Portland, OR 97219

Project: **Gasco - 1200Z - 2019**Project Number: **000029-02.58 task 14**Project Manager: **Kendra Skellenger****Report ID:****A9L0371 - 01 03 20 1121****SAMPLE PREPARATION INFORMATION****Dissolved Metals by EPA 200.8 (ICPMS)****Prep: Matrix Matched Direct Inject**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120968							
A9L0371-01	Water	EPA 200.8 (Diss)	12/10/19 15:10	12/16/19 16:06	45mL/50mL	45mL/50mL	1.00

HEM (Oil and Grease) and SGT-HEM by EPA 1664A**Prep: EPA 1664**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9121142							
A9L0371-01	Water	EPA 1664A	12/10/19 15:10	12/20/19 07:30			NA

Free Cyanide by Microdiffusion/Colorimetric Spectrophotometry**Prep: Method Prep: Aq**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9121060							
A9L0371-01	Water	D4282-02	12/10/19 15:10	12/18/19 12:35	3mL/3mL	3mL/3mL	1.00

Weak Acid Dissociable (WAD) Cyanide by Flow Analysis (Aqueous)**Prep: Lachat Micro Dist - aqueous**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9121129							
A9L0371-01	Water	SM 4500-CN I	12/10/19 15:10	12/19/19 12:28	6mL/6mL	6mL/6mL	1.00

Solid and Moisture Determinations**Prep: Total Suspended Solids**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 9120907							
A9L0371-01	Water	SM 2540 D	12/10/19 15:10	12/13/19 14:49			NA

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NWN-PCI0777807



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Weck Laboratories, Inc.

SAMPLE PREPARATION INFORMATION

Metals by EPA 200 Series Methods

Prep: EPA 245.1

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: W9L1244</u>							
A9L0371-01	Water	EPA 245.1	12/10/19 15:10	12/23/19 10:40	50ml/50ml	50ml/50ml	1.00

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QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

- C-05** Extract has undergone a GPC (Gel-Permeation Chromatography) cleanup per EPA 3640A. Reporting levels may be raised due to dilution necessary for cleanup. Sample Final Volume includes the GPC dilution factor, see the Prep page for details.
- C-07** Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
- J** Estimated Result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
- O-01** Result for total Hexane Extractable Material (HEM) is below reporting level for this sample. Silica Gel Treatment (HEM-SGT) analysis was therefore not performed.
- Q-16** Reanalysis of an original Batch QC sample.
- Q-19** Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
- Q-41** Estimated Results. Recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Results are likely biased high.

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REPORTING NOTES AND CONVENTIONS:

Abbreviations:

DET Analyte DETECTED at or above the detection or reporting limit.
ND Analyte NOT DETECTED at or above the detection or reporting limit.
NR Result Not Reported
RPD Relative Percent Difference. RPDs for Matrix Spikes and Matrix Spike Duplicates are based on concentration, not recovery.

Detection Limits: Limit of Detection (LOD)

Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.
The Result Basis is listed following the units as "dry", "wet", or " " (blank) designation.

"dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.

"wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.

" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to ½ the Reporting Limit (RL).
-For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.
-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.
For further details, please request a copy of this document.

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REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks (Cont.):

Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the sample results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold time compliance and field filtration. Data is qualified as necessary, and the lack of qualification indicates compliance with required parameters.

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LABORATORY ACCREDITATION INFORMATION

TNI Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation
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All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.
Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

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APEX LABS COOLER RECEIPT FORMClient: Anchor Element WO#: A9 L0371Project/Project #: Gasco 1200Z**Delivery Info:**Date/time received: 12/11/19 @ 1147 By: CPHDelivered by: Apex ☒ Client ☐ ESS ☐ FedEx ☐ UPS ☐ Swift ☐ Senvoy ☐ SDS ☐ Other ☐**Cooler Inspection** Date/time inspected: 12/11/19 @ 1348 By: CPHChain of Custody included? Yes ☒ No ☐ Custody seals? Yes ☐ No ☒Signed/dated by client? Yes ☒ No ☐Signed/dated by Apex? Yes ☒ No ☐

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	<u>3.8</u>						
Received on ice? (Y/N)	<u>Y</u>						
Temp. blanks? (Y/N)	<u>Y</u>						
Ice type: (Gel/Real/Other)	<u>Real</u>						
Condition:	<u>Good</u>						

Cooler out of temp? (Y/N) Possible reason why: _____

If some coolers are in temp and some out, were green dots applied to out of temperature samples? Yes/No NAOut of temperature samples form initiated? Yes/No NA**Samples Inspection:** Date/time inspected: 12/11/19 @ 1400 By: MSAll samples intact? Yes ☒ No ☐ Comments: _____Bottle labels/COCs agree? Yes ☒ No ☐ Comments: _____COC/container discrepancies form initiated? Yes ☐ No ☐ NA ☒Containers/volumes received appropriate for analysis? Yes ☒ No ☐ Comments: _____Do VOA vials have visible headspace? Yes ☐ No ☒ NA ☐Comments: 3/3 vials have sed.Water samples: pH checked: Yes ☒ No ☐ NA ☐ pH appropriate? Yes ☒ No ☐ NA ☐Comments: checked preservation on GOS pestAdditional information: TB# 1982Sub Sampled: MS
Witness: CPHLabeled by: MS Witness: CPH Cooler Inspected by: MS See Project Contact Form: Y

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