

12/14/15

Mr. Craig Snyder
Mr. Mitch Little
Hellman & Associates
11913 W Interstate 70 Frontage Rd N
Wheat Ridge, CO 80033

H2S Analysis by GC-FPD

Dear Mr. Little & Mr. Snyder,

APT Laboratory Services was delivered two gas phase samples in foil lined Tedlar bags on December 10, 2015. An H2S analysis was performed by APT on December 11, 2015, utilizing a modified ASTM Method D5504. A three-point calibration was performed on a HP 5890 gas chromatograph equipped with a flame photometric detector. Samples were analyzed in triplicate for hydrogen sulfide and a post calibration check was performed to show the stability of the instrument. All calibrations and sample results are enclosed. A summary of the results is shown below.

Hellman & Associates – H2S by GC-FPD, December 11, 2015	
Sample	H2S Conc. (ppm)
Razor 29-F-20D7120915 Wellhead	26.5
Razor 29-F-120915 Separator	32.3

Modified ASTM D5504 Results

We look forward to being of service to Hellman & Associates in the future. Please call me with any questions or comments at (303) 420-5949 or (800) 268-6213.

Regards,



Daniel Williams
Asst Director of Laboratory Services

APT Project: LWTO5148

DENVER OFFICE
5530 Marshall Street
Arvada, CO 80002
(303) 420-5949
FAX (303) 420-5920
(800) 268-6213

Client Information

Client Hellman & Associates
Name of Plant Whiting - Razor
City and State Weld Co.
Testing Location (Unit ID) Wellhead/Separator
Date 12/9/2015

Target Analytes

Compound	MW	Detection Limit (ppm)
Hydrogen Sulfide	34.08	0.26

Additional Information

Contact Information:

Notes: 1

Notes: 2

Notes: 3

Hellman & Associates
 Weld Co.
 12/9/2015

EPA Method 18: Determination of Gaseous Organic Compounds using Gas Chromatography

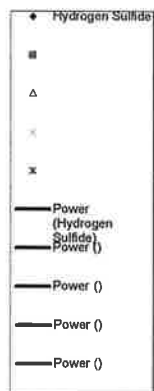
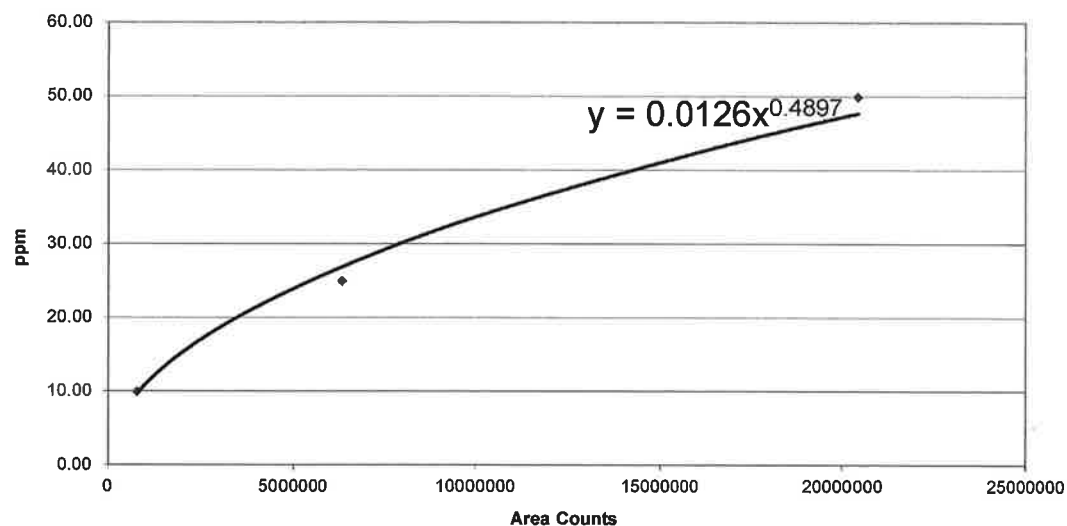
Initial Three-Point Calibration										
Low Level Calibration Standard										
Cpd ID	Conc. (ppm)	Inj. 1		Inj. 2		Inj. 3		Average		
		RT	AC	RT	AC	RT	AC	RT	AC	OK?
Hydrogen Sulfide	10.00	1.84	784867.1	1.84	798563.4	1.84	804197.6	1.840	795876	Y

Mid-Low Level Calibration Standard										
Cpd ID	Conc. (ppm)	Inj. 1		Inj. 2		Inj. 3		Average		
		RT	AC	RT	AC	RT	AC	RT	AC	OK?
Hydrogen Sulfide	25.00	1.841	6484454	1.841	6256085	1.842	6279777.5	1.841	6340106	Y

Mid-High Calibration Standard										
Cpd ID	Conc. (ppm)	Inj. 1		Inj. 2		Inj. 3		Average		
		RT	AC	RT	AC	RT	AC	RT	AC	OK?
Hydrogen Sulfide	50.00	1.841	19574562	1.842	21321522	1.842	20379108	1.842	20425064	Y

Second Order Regression Calculations
conc= A*area² + B*Area + C

Hydrogen Sulfide						conc= A are
Certified ppm	Average AC	Power Regression Statistics				ppm from curve
10.00	795876	R ²	A	B	C	9.77
25.00	6340106	0.9923	0.0126	0.4897		27.00
50.00	20425064					47.88



Hellman & Associates

Wellhead/Separator

12/9/2015

EPA Method 18: Determination of Gaseous Organic Compounds using Gas Chromatography

Sample Analysis

Separator Razor 29-F-120915

Cpd ID	Inj. 5		Inj. 6		Inj. 3		Average			
	RT	AC	RT	AC	RT	AC	RT	AC	OK?	ppm
Hydrogen Sulfide	1.836	8821266	1.835	9200496	1.836	9395305	1.836	9139022	Y	32.29

Wellhead Razor 29-F20D7120915

Cpd ID	Inj. 1		Inj. 2		Inj. 3		Average			
	RT	AC	RT	AC	RT	AC	RT	AC	OK?	ppm
Hydrogen Sulfide	1.835	6091406	1.835	6108032	1.836	6109451	1.835	6102963	Y	26.50

Hellman & Associates

12/9/2015

EPA Method 18: Determination of Gaseous Organic Compounds using Gas Chromatography

Quality Assurance													
Recovery / Spike (mid-level calibration gas to the sample probe)													
Cpd ID	Conc. (ppm)	Inj. 4		Inj. 2		Inj. 3		Average			Triplicate OK?	Recovery OK?	Audit OK?
		RT	AC	RT	AC	RT	AC	RT	AC	ppm			
Hydrogen Sulfide	25.00	1.839	5820390	1.839	5802433	1.838	6146866	1.839	5923229	26.12	Y	Y	Y

CHAIN OF CUSTODY RECORD - Shipping Receipt

Temperature on Receipt _____

Record all of the unit temperatures, unit pressures, collection dates and ambient conditions.

AIR POLLUTION TESTING
6520 MARSHALL ST.
ARVADA, CO 80002
T 303.425.5949
F 303.425.5950

PROJECT CODE
LW105148

CLIENT NAME
Wellhead Associates

Project Manager
MITCHELL

ADDRESS
11913 W. I-70 Frontage Rd. North

CITY
Wheat Ridge

STATE
CO

ZIP CODE
80033

DATE
12/10/15

SITE CONTACT
MITCHELL

LAB CONTACT
Mike Pearson

LAB NUMBER
303-420-5949 X 22

CARRIER / WAYBILL #

CONTRACT/PURCHASE/QUOTE #

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