MCEM analysis

Location: L1R2POM | Scrubber: | Date: 3/24/2020 | Filter #: AP

	Aluminum Dish						
Container No.	ID	Final Weight (g)	Tare Weight (g)	Weight gain (g)	Weight gain (mg)	Acetone wash volume (ml)	Methylene chloride wash volume (ml)
1 - Petri	1	2.5284	2.5277	0.0007	0.7		150
2 (Part. Beaker)+2M	2	2.5266	2.5218	0.0048	4.8	140	200
3W	3W	2.5071	2.5048	0.0023	2.3		125
3S	3S	2.5449	2.5398	0.0051	5.1	71.6	171.7
3S converted to ml						91.2	130.3
Totals					12.9	231.2	605.3
					$\sum m_{total}$	$\sum v_{aw}$	$\sum v_{tw}$

Acetone Lot # 231086 — Density of Acetone (mg/ml)		785.0	
Acetone blank Weight (g) and Volume (ml)	0		200
Acetone blank Concentration $c_a = m_a \div (v_a \rho_a)$	0.00E+00		
Less acetone wash blank (mg) (not to exceed 1 mg/l of acetone used) $w_a = c_a \rho_a \sum v_{aw}$		0.00	
Concentration of acetone (mg/l) allowed compared to actual concentration	0.23	0.00	0.00
$MeCl_2$ Lot # 174189 — Density of Methylene Chloride (mg/ml)		1318	
Methylene blank Weight (g) and Volume (ml)	0		200
Methylene Chloride blank Concentration $c_a = m_a \div (v_a \rho_a)$		0.00E+00	
Less methylene chloride wash blank (mg) (not to exceed 1.5 mg/l of methylene chloride used) $w_t = c_t \rho_t \sum v_{tw}$		0.00	
Concentration of methylene chloride (mg/l) allowed compared to actual concentration	0.91	0.00	0.00
Less filter blank (mg) (not to exceed … (mg/filter) F_b		1.2 mg	
MCEM weight (mg) No blank corr. $\sum m_{total}$		12.9 mg	
MCEM weight (g)		0.0129 g	
MCEM wt (mg) minus acetone & MeCl2 blk $\sum m_{total} - w_a - w_t$		12.9 mg	
MCEM weight (mg) blk corr. $m_{MCEM} = \sum m_{total} - w_a - w_t - f_b$		11.7 mg	
MCEM weight (g)		0.0117 g	

Notes:

Filename: M315-2020 Data

Printed
3/25/2020 08:56 AM

Stack Sample Results
Raw Data Averages
METHOD 14 LINE 1

Start Date: 3/24/2020 **Stop Date:** 3/25/2020 **Run #:** 2

Traverse Point	Delta P (in. Water)	Delta H (in. Water)	Meter Temperature (in)	Meter Temperature (out)	Static Pressure (in. Water)	Stack Temperature (Deg. F)
1-1a	0.11	1.10	67	67	-0.32	64
1-1b	0.10	1.05	75	73		69
1-2a	0.11	1.10	71	70	-0.33	69
1-2b	0.11	1.10	70	70		75
1-3a	0.06	0.60	71	71	-0.31	75
1-3b	0.06	0.60	71	71		80
2-1a	0.12	1.20	76	75	-0.33	81
2-1b	0.12	1.20	71	70		76
2-2a	0.15	1.50	71	71	-0.35	74
2-2b	0.15	1.50	73	72		77
2-3a	0.15	1.50	73	72	-0.35	76
2-3b	0.15	1.50	73	73		76
3-1a	0.13	1.30	71	70	-0.33	75
3-1b	0.13	1.30	70	71		75
3-2a	0.15	1.50	73	73	-0.35	75
3-2b	0.15	1.50	73	73		77
3-3a	0.13	1.30	74	74	-0.36	74
3-3b	0.13	1.30	74	74		73
Averages	**0.348** (AVG. SQ.RT.)	**1.231**	**71.9**		**-0.34**	**74.5**

MAGNITUDE 7 METALS, LLC
METHOD 14 DATA

Run Start Date 3/24/20
Run End Date 3/25/20
Run # 2
Run Start Time 9:00
Run End Time 8:15
Probe Tip SN 3164
Avg. Tip Diameter 0.3173
Delta H 1.74 2% Moisture
Duct Area = 1.25 sq.ft. (assumed)

Line: 1 2 3 East 3 West
ROOF MONITOR

Operators
Joe Schneider
Alicia Powell

Chemist

Digital meter used 2161

Initial L.C. @ 15.0 = 0.004
Final L.C. @ 5.0 = 0.008

Initial Pitot L.C. = NIL
Final Pitot L.C. = NIL

POINT #	SAMP. TIME Min.	METER VOLUME Cu. Ft.	DELTA P in. H_2O	DELTA H in. H_2O	METER TEMP F IN	METER TEMP F OUT	STATIC PRESS. in. H_2O	STACK TEMP. °F	IMP. TEMP. °F	HOT BOX TEMP. °F	PUMP VAC. in. Hg	SET PT.
1-1	155	483.500	.11	1.10	67	67	-.32	64	68	255	.5	10.27
			.10	1.05	75	73		69	65	255	.5	10.31
1-2	155	576.320	.11	1.10	71	70	-.33	69	62	255	.5	10.24
			.11	1.10	70	70		75	60	255	.6	10.11
1-3	155	672.800	.06	.60	71	71	-.31	75	58	255	.1	10.13
			.06	.60	71	71		80	60	255	.1	10.04
2-1	155	742.480	.12	1.20	76	75	-.33	81	64	255	.6	10.11
			.12	1.20	71	70		76	56	255	.6	10.11
2-2	155	846.000	.15	1.50	71	71	-.35	74	57	255	1.0	10.15
			.15	1.50	73	72		77	57	255	1.0	10.12
2-3	155	960.600	.15	1.50	73	72	-.35	76	56	255	1.0	10.14
			.15	1.50	73	73		76	57	255	.8	10.15
3-1	155	073.560	.13	1.30	71	70	-.33	75	55	255	.8	10.12
			.13	1.30	70	71		75	56	255	.8	10.12
3-2	155	176.810	.15	1.50	73	73	-.35	75	56	255	.8	10.17
			.15	1.50	73	73		77	56	255	.8	10.13
3-3	155	289.080	.13	1.30	74	74	-.36	74	57	255	.8	10.21
			.13	1.30	74	74		73	57	255	.8	10.23
FINAL		397.285										
S/N		13124829					61	3-1	1-A	1-H		

Nomograph factor: 10.21

Form: SS M14 Raw Data.xls 9/17/18

Magnitude 7 Metals LLC

GAS ANALYSIS REPORT

Location Line 1 Date 3-24-20

Run 2 POM

Room B Analyzed by AP

Run	Time	Percent Carbon Dioxide (CO_2)	Percent Oxygen (O_2)
1	11:15	0.0	20.9
2	11:20	0.0	20.8
3	11:25	0.0	20.9

MAGNITUDE 7 METALS LLC
METHOD 14 RAW DATA

Line: 1 Start Date: 3/24/20 Run: 2PON Filter: AP

PITOT TUBE — Circle to document visual inspection.

SN D754

Visually inspected? Yes

PROBE TIP

SN 3164

DIAMETER MEASUREMENT (in.)

1. ~~AV8.~~
2. ~~.3173~~
3.
4.
5.
6.
7.
8.

If previous calibration referenced, circle Yes to document visual inspection.

Out of round max. 0.004 in.

CAL. BY: _____

CALIPER: MITUTOYO S/N 7002015

NORANDA 0.5" THICKNESS STD # 1 _____

SAMPLER OPERATION

PROBE HEAT SETTING	HEATER BOX SETTING
248 deg. F. +/- 25 deg. F.	For Method 13
Range: 223 - 273 deg. F.	165 deg. F. +/- 15 deg. F.
	Range: 150 - 180 deg. F.
	For Method 315
	248 deg. F. +/- 25 deg. F.
	Range: 223 - 273 deg. F.

BAROMETER READING 29.80 (in. Hg)

CORRECTION FACTOR -.14 (in. Hg)

For Method 13 only:

ORIGINAL GASEOUS FLUORIDE SAMPLE VOLUME M315 (liter)

		INITIAL WEIGHT	FINAL WEIGHT
IMPINGER #	+ 200 ml water	831.6	768.3
IMPINGER #	+ 100 ml water	740.9	801.5
IMPINGER #	+ EMPTY	646.5	683.9
IMPINGER #	+ SILICA GEL	1102.7	1166.9
IMPINGER #	+ SILICA GEL		
IMPINGER #	+ SILICA GEL		

BALANCE: METTLER PJ6000 SNR K59603 WEIGHED BY: SS

2 Kg Class S-1 Calibration Wt. 2000.0 Balance check must be +/- 0.5 grams.

COMMENTS: _____

13124829

Form: Impinger Report M14.xlsx 2/19/20

Potline 1 Roof Exit Velocities and Temperatures

	Manifold (B-66) Averages		Roof Averages	
3/24/2020 9:00	WS (ft/min)	Temp (Deg. F)	WS (ft/min)	Temp (Deg. F)
3/25/2020 08:15	116.0	84.7	131.4	82.1

3/24/2020 9:00	B-51			B-66			B-82		
3/25/2020 8:15	WS	WD	Temp	WS	WD	Temp	WS	WD	Temp
Date/Time	(ft/min)	(Deg.)	(Deg. F	(ft/min)	(Deg.)	(Deg. F	(ft/min)	(Deg.)	(Deg. F)
	_WS_AV	_WD_AV	_TEMP_	_WS_AV	_WD_AV	_TEMP_	_WS_AV	_WD_AV	_TEMP_
Averages:	110.0	222.2	82.5	116.0	210.7	84.7	168.1	207.3	79.3
3/24/20 9:00	119.3	217.2	76.0	107.4	185.6	77.6	191.3	194.9	78.3
3/24/20 9:15	119.5	213.8	76.5	97.7	183.8	79.4	164.7	199.6	77.4
3/24/20 9:30	119.0	215.4	76.5	103.0	182.4	79.9	158.5	196.3	77.4
3/24/20 9:45	115.2	220.1	76.9	89.5	184.9	79.8	165.0	203.0	78.4
3/24/20 10:00	112.8	221.0	77.8	90.3	174.6	80.6	171.9	196.9	80.1
3/24/20 10:15	128.2	217.1	79.2	93.8	182.2	81.7	154.4	204.7	80.0
3/24/20 10:30	123.0	216.9	79.2	96.6	184.4	82.8	161.1	194.8	80.7
3/24/20 10:45	123.2	213.2	79.3	108.5	195.2	82.1	156.3	198.7	81.2
3/24/20 11:00	110.0	218.8	79.3	99.4	187.5	83.7	164.2	188.0	83.1
3/24/20 11:15	107.0	217.6	79.8	110.4	188.3	84.4	194.5	196.4	83.1
3/24/20 11:30	142.4	216.4	81.2	103.9	192.0	82.1	154.8	194.6	80.6
3/24/20 11:45	116.4	215.6	79.8	103.7	193.6	82.9	171.5	192.6	81.8
3/24/20 12:00	130.3	215.3	80.8	115.5	188.9	83.1	200.5	192.3	80.5
3/24/20 12:15	132.4	209.7	81.2	109.6	198.3	81.6	176.1	192.0	80.6
3/24/20 12:30	104.2	221.8	82.4	131.6	214.0	85.3	159.0	207.6	79.3
3/24/20 12:45	140.7	212.0	84.0	112.2	206.1	82.0	192.8	196.8	79.3
3/24/20 13:00	113.1	214.3	81.1	101.1	187.8	83.0	194.8	197.1	83.1
3/24/20 13:15	113.1	212.6	81.8	105.5	193.0	84.2	193.2	198.3	83.1
3/24/20 13:30	115.8	210.9	82.0	98.6	192.7	84.2	193.9	199.7	83.1
3/24/20 13:45	131.7	212.8	83.5	98.6	201.3	85.2	197.9	198.6	83.1
3/24/20 14:00	136.3	210.3	84.0	109.2	202.2	85.3	194.5	202.1	83.1
3/24/20 14:15	123.5	210.3	82.9	98.1	185.0	84.1	193.1	199.0	84.7
3/24/20 14:30	101.5	210.3	83.6	107.1	191.7	86.6	200.8	194.3	84.7
3/24/20 14:45	126.1	208.1	85.7	109.2	191.7	88.4	183.1	194.2	84.7
3/24/20 15:00	111.4	206.0	86.9	110.2	185.4	88.5	165.6	197.9	86.0
3/24/20 15:15	100.7	210.9	86.2	119.7	185.7	90.3	169.9	198.9	87.8
3/24/20 15:30	120.6	210.9	86.1	110.8	188.5	89.8	188.4	196.8	87.4
3/24/20 15:45	102.1	221.5	85.6	131.4	199.8	90.3	193.6	200.7	85.9
3/24/20 16:00	95.4	228.4	89.1	131.3	217.1	91.5	156.7	208.0	84.4
3/24/20 16:15	108.5	220.4	89.5	120.5	216.1	90.5	154.0	215.1	82.7
3/24/20 16:30	105.5	228.4	87.9	131.8	218.3	89.7	171.1	209.3	82.9
3/24/20 16:45	103.8	226.9	86.8	125.4	226.1	88.7	121.4	223.9	80.0
3/24/20 17:00	87.2	237.0	85.2	118.6	221.2	87.5	145.9	217.3	79.8
3/24/20 17:15	84.9	233.6	85.2	111.7	218.5	87.3	188.1	208.2	83.0
3/24/20 17:30	85.8	232.2	85.7	136.7	222.9	89.0	111.4	221.9	79.3
3/24/20 17:45	90.8	234.8	85.2	105.8	225.5	86.2	179.8	213.4	81.5
3/24/20 18:00	95.5	230.8	85.2	118.5	222.5	86.1	145.3	220.6	80.2
3/24/20 18:15	102.6	227.0	84.3	128.4	227.3	86.5	111.5	224.5	76.8
3/24/20 18:30	105.0	230.4	82.5	118.7	226.0	85.0	123.8	225.3	76.3
3/24/20 18:45	106.3	233.8	82.5	119.7	222.5	83.6	135.7	222.4	78.0
3/24/20 19:00	103.0	233.8	81.6	114.7	221.3	82.5	164.4	217.3	78.8
3/24/20 19:15	112.9	231.6	81.2	108.7	222.5	81.7	162.7	215.6	78.7
3/24/20 19:30	97.2	234.9	81.1	108.7	217.5	83.1	173.3	214.0	80.3
3/24/20 19:45	100.0	231.9	81.1	109.4	221.7	83.1	150.7	219.2	79.0
3/24/20 20:00	104.7	231.9	81.1	107.9	216.4	82.6	179.9	209.8	79.9
3/24/20 20:15	106.2	232.9	81.1	111.5	217.5	82.5	177.7	212.8	79.3

3/24/2020 9:00	B-51			B-66			B-82		
3/25/2020 8:15	WS	WD	Temp	WS	WD	Temp	WS	WD	Temp
Date/Time	(ft/min)	(Deg.)	(Deg. F	(ft/min)	(Deg.)	(Deg. F	(ft/min)	(Deg.)	(Deg. F)
3/24/20 20:30	104.0	229.9	80.3	117.8	217.3	84.0	184.9	210.5	80.1
3/24/20 20:45	103.8	228.6	81.1	107.5	215.5	83.9	159.1	213.4	79.1
3/24/20 21:00	112.3	227.0	81.3	112.6	221.3	84.3	159.9	210.6	79.1
3/24/20 21:15	101.2	229.9	82.3	109.6	219.3	85.1	145.6	214.2	78.0
3/24/20 21:30	106.1	225.9	83.6	117.3	221.3	85.1	142.0	217.9	76.6
3/24/20 21:45	101.4	227.6	82.7	112.9	218.5	85.1	158.7	213.4	77.9
3/24/20 22:00	108.1	221.5	82.7	110.9	221.7	85.8	132.1	219.6	77.2
3/24/20 22:15	108.0	218.1	85.1	115.6	217.5	85.7	139.2	219.3	76.3
3/24/20 22:30	102.2	220.4	85.1	115.4	220.8	85.7	143.6	217.2	75.9
3/24/20 22:45	103.0	221.4	85.1	110.8	224.8	84.8	137.3	220.2	76.0
3/24/20 23:00	105.4	218.3	84.4	116.0	220.2	85.3	138.8	215.1	76.0
3/24/20 23:15	108.3	216.4	84.2	126.6	224.5	86.0	156.4	215.0	77.6
3/24/20 23:30	103.0	219.3	84.1	120.8	219.1	85.2	145.5	216.3	75.9
3/24/20 23:45	106.6	221.9	84.0	128.7	220.8	85.0	121.7	218.5	74.8
3/25/20 0:00	109.7	220.8	82.6	117.8	219.9	85.3	152.8	214.2	76.3
3/25/20 0:15	95.0	222.3	82.8	122.8	222.0	85.2	157.9	210.8	78.0
3/25/20 0:30	98.0	225.8	80.9	126.3	226.8	86.0	140.0	217.5	77.3
3/25/20 0:45	92.0	223.9	80.4	132.6	226.7	86.1	178.9	208.8	78.3
3/25/20 1:00	94.8	222.0	80.3	136.5	224.3	85.6	174.7	210.3	78.2
3/25/20 1:15	106.0	221.7	81.6	131.2	225.2	85.6	172.0	210.1	77.8
3/25/20 1:30	97.5	221.4	80.9	132.0	226.4	86.1	165.4	209.9	77.6
3/25/20 1:45	103.6	219.9	81.6	122.0	225.4	85.2	171.0	207.5	78.0
3/25/20 2:00	98.7	224.7	81.4	134.0	226.1	86.1	187.4	206.7	78.1
3/25/20 2:15	107.9	219.7	82.9	123.4	223.1	85.6	177.3	209.5	78.2
3/25/20 2:30	115.3	219.6	84.9	129.0	220.0	85.6	172.7	209.9	76.4
3/25/20 2:45	108.6	222.3	85.4	122.1	218.7	85.6	163.0	213.1	76.8
3/25/20 3:00	108.9	223.4	85.8	119.6	221.3	85.7	167.7	213.1	76.0
3/25/20 3:15	99.7	230.2	83.7	105.7	215.7	84.8	191.1	206.3	78.5
3/25/20 3:30	89.1	230.4	82.7	109.0	215.3	84.9	181.0	206.1	78.6
3/25/20 3:45	98.6	227.4	82.7	113.8	217.6	84.9	165.1	212.4	77.3
3/25/20 4:00	105.3	218.9	83.6	110.5	221.7	86.2	171.3	212.0	77.1
3/25/20 4:15	108.8	218.1	84.6	119.9	217.5	86.3	160.1	214.3	75.9
3/25/20 4:30	107.1	224.6	82.7	116.1	219.2	85.6	166.7	211.8	76.4
3/25/20 4:45	101.4	227.9	82.6	117.7	217.3	85.1	166.7	207.1	77.1
3/25/20 5:00	101.2	228.2	81.4	119.1	214.2	83.7	166.7	202.6	78.3
3/25/20 5:15	118.8	223.0	80.5	123.9	208.0	83.1	193.0	200.4	78.3
3/25/20 5:30	121.4	224.8	81.1	119.1	208.3	84.6	184.1	200.7	78.3
3/25/20 5:45	111.4	228.8	81.1	124.8	208.7	83.3	182.7	200.9	78.3
3/25/20 6:00	108.9	227.5	81.8	132.8	206.3	83.9	200.5	199.0	77.4
3/25/20 6:15	117.7	224.3	81.7	126.6	209.1	83.9	195.7	202.7	77.4
3/25/20 6:30	134.2	220.1	81.7	123.1	206.5	82.3	191.0	201.3	76.4
3/25/20 6:45	124.8	221.3	82.5	127.9	216.4	82.8	177.4	205.5	76.4
3/25/20 7:00	133.0	218.8	82.4	132.0	218.5	82.3	196.5	205.3	76.4
3/25/20 7:15	112.5	225.4	81.5	118.7	216.6	83.5	180.0	205.2	77.4
3/25/20 7:30	111.0	223.7	82.4	124.8	220.1	83.6	167.8	208.2	77.3
3/25/20 7:45	147.1	214.4	81.5	123.3	209.3	80.8	177.9	197.3	77.2
3/25/20 8:00	116.8	227.2	80.1	124.7	211.3	80.7	188.1	201.1	77.1
3/25/20 8:15	125.9	223.5	80.2	122.1	212.3	81.9	189.4	199.4	77.1