

Tray ID	Tray weight	Tray + soil	Tray + soil dry
C31	1.1328	6.0069	5.2735
C33	1.1462	7.1141	6.2277
C36	1.1106	6.7563	5.8581
C39	1.1395	6.8340	5.9232
C310	1.1182	6.0982	5.4554
C41	1.1351	7.2289	6.2319
C43	1.1040	5.8358	5.0960
C46	1.0818	5.5172	4.7249
C49	1.0840	6.9554	5.9222
C410	1.1502	7.5591	6.3819
T32	1.1705	9.4749	8.5631
T34	1.1467	9.1160	8.1984
T35	1.1332	8.6523	7.9928
T37	1.1551	9.6273	8.5868
T38	1.1245	11.4444	9.6569
T42	1.1247	7.6988	6.5224
T44	1.1154	9.0608	7.5877
T45	1.1716	8.5513	7.0822
T47	1.1389	9.2238	7.6480
T48	1.1655	10.2532	7.9777

entered over  
@ 2:08 PM  
on 2/3/2021

Job No.:	Date:									
Client:	Project:									
Location:	Weather:									
Observer:	Observation Period									
	Start: Stop:									

[illegible]

Copy Sent to Client: Y N

Page \_\_\_\_\_ of \_\_\_\_\_

# Gas Flux Data Form

Field Notes:

Site ID: #14

Date: 12/19/19

Name: Moxi

axi

Field	Standard	Syringe ID	Sample Time	N20 Area	N20 Retention	CO2 Peak Height (µm/m)	CO2 Peak Height (mv)	Notes
	0.050	STANDARD	100.6				518.12	

Bucket	Syringe ID	Sample Time	N20 Area	N20 Retention	CO2 Peak Height (µm/m)	CO2 Peak Height (mv)	Notes
8	0.12	10:33	194.128	3.623		136	
	0.11	11:38	1007.533	3.626		216.75	
	0.11	12:39	1000.728	3.620		149.87	

Bucket	Syringe ID	Sample Time	N20 Area	N20 Retention	CO2 Peak Height (µm/m)	CO2 Peak Height (mv)	Notes
10	0.1	10:37	993.416	3.620		140.50	
	0.13	11:40	102.138			189	
	0.15	12:40	200.273	3.623		142.63	

Bucket	Syringe ID	Sample Time	N20 Area	N20 Retention	CO2 Peak Height (µm/m)	CO2 Peak Height (mv)	Notes
1	0.11	10:41	1011.224	3.616		150.25	
	0.12	11:41	112.352	3.615		185.50	
	0.12	12:43	953.723	3.623		141.75	

Bucket	Syringe ID	Sample Time	N20 Area	N20 Retention	CO2 Peak Height (µm/m)	CO2 Peak Height (mv)	Notes
6	0.12	10:42	1182.265	3.613		141.31	
	0.11	11:43	1811.704	3.613		296	
	0.12	12:45	1176.728	3.613		216.87	

Bucket	Syringe ID	Sample Time	N20 Area	N20 Retention	CO2 Peak Height (µm/m)	CO2 Peak Height (mv)	Notes
2	0.12	10:52	1171.050	3.623		129.87	
	0.11	11:45	1181.228	3.616		168.75	
	0.13	12:48	1163.508	3.620		123.37	

CO2 Flux 11/17/19

N<sub>2</sub>O Stem Performed at #1

0	0
0	0
0	0
0	0
0	0
324.3704	0
342.4920	0
320.1636	0
3569.6172	1
2575.5404	1
2558.0198	1

Co<sub>2</sub>

1000.5	133.75
500	136.75
500	136.75
500	136.75
1000.5	253.75
1000.5	254.50
1000.5	254.75
2500	595.75
2500	596.25
2800	599.25

CO<sub>2</sub> F

1/17 Jw

47

3

51

b1/b1/e1

MS

[illegible]

Bucket	Syringe ID	Sample Time	N2O Area	N2O Retention	CO2 Peak Height (µm/m)	CO2 Peak Height (mV)	Notes
4	Y2	1:36 PM	1004.1582			143.7	
4	I2	2:37	1037.4800			364.0	
4	X1	3:36	1054.5184			460.0	

Bucket	Syringe ID	Sample Time	N2O Area	N2O Retention	CO2 Peak Height ( $\mu\text{m}/\text{m}$ )	CO2 Peak Height (mv)	Notes
a	r3	1:40	1004.6388			127.50	
a	p1	2:40	1037.788				
a	c3	3:40	1072.6940			337	
						467.37	

Bucket	Syringe ID	Sample Time	N20 Area	N20 Retention	CO2 Peak Height (µm/m)	CO2 Peak Height (mV)	Notes
7	E2	1:43	1015.0876			127.25	
7	W1	2:13	1050.6784			219.25	
7	U2	3:43	1064.3516			309.62	

Bucket	Syringe ID	Sample Time	N2O Area	N2O Retention	CO2 Peak Height ( $\mu\text{m/m}$ )	CO2 Peak Height (mv)	Notes
3	3	1:48	1019.636			127.25	
3	3	2:48	1027.8564			139.50	
3	3	3:48	1728.3420			337.12	

Bucket	Syringe ID	Sample Time	N2O Area	N2O Retention	CO2 Peak Height (µm/m)	CO2 Peak Height (mv)
5	L1	11:52	1028.4034			126.12
5	U1	21:52	101.4342			255.87
5	E3	3:52	1138.5180			370.37



10

11	Tag Wt.
CA-4	1.1182
CA-8	1.0782
CA-7	1.0560
CA-2	1.0160
CA-5	1.0059
TA-1	1.0618
TA-6	1.0845
TA-3	1.0477
TA-10	1.0986
TA-9	1.0445
TI-7	1.0467
TI-8	1.0744
TI-4	1.0743
TI-5	1.0425
TI-2	1.1041
CI-6	1.0878
CI-3	1.0620
CI-10	1.0410
CI-9	1.0691
CI-1	1.1212

Long Wt.

TA-4	8.1234	7.1244	7.2481	4.2470	8.1099	10.5963	9.4347	8.4175	8.3851	8.4305	14.4114	10.4238	9.5985	8.2979	8.3641	9.60595	10.7157	9.3400	11.6025	11.1036
CA-8																				
CA-7																				
CA-2																				
TA-1																				
TA-6																				
TA-3																				
TA-10																				
TA-9																				
TI-7																				
TI-8																				
TI-4																				
TI-5																				
TI-2																				
CI-6																				
CI-3																				
CI-10																				
CI-9																				
CI-1																				

Long Wt.

TA-4	6.5769	5.9090	5.8931	3.4790	6.7189	8.5731	7.8837	7.0008	6.8325	6.7570	12.4307	8.8199	8.30701	7.0904	7.2149	8.3979	9.1768	8.1583	10.2653	9.6485
CA-8																				
CA-7																				
CA-2																				
TA-1																				
TA-6																				
TA-3																				
TA-10																				
TA-9																				
TI-7																				
TI-8																				
TI-4																				
TI-5																				
TI-2																				
CI-6																				
CI-3																				
CI-10																				
CI-9																				
CI-1																				

Long Wt.

began tracking an unseasonably warm storm coming out of Hawaii and moving east and northeast toward the mainland. Some speculated that the storm's moderate temperature was in part due to global warming and could cause serious flooding in the Northern Rockies, which did in fact take place two days later. Three days after the rains subsided (the day before yesterday), the pond containing cyanide experienced a breach of the dam holding back the highly toxic chemicals. Efforts to contain the 1,000,000+ gallons of chemicals failed yesterday morning and the material began leaking into the slow moving but wide Kootenai River at Troy. Word of the spill hit the wire services last night, after you went to sleep, after a difficult day of mediating a dispute between social service providers seeking a grant from the County in which you live. By the time you wake up and sip your first cup of morning coffee and turn on the TV, the morning news is all over the story.

Reporters spin tales of an international incident speculating a catastrophe greater in magnitude than the Exxon Valdez oil spill. This spill constitutes a potentially significant problem that threatens water supplies, tourism, jobs, fish and wildlife, and public health in the Northwest, and Canada – a disaster that holds the promise of full employment for environmental, tort, and government lawyers for years to come.



### Plenty of Blame to Go Around

The media in its typical role is looking for people to blame and obvious negligent actions on the part of all involved. Rumors are flying about the DMG and its unwillingness to enforce its own laws, Blue Mountain's lack of financial capacity, the Forest Service for its leasing practices, the EPA for not being aware of the potential hazards, infighting among the various National Forest Supervisors, implications on US-Canadian relations, and its impact on spawning salmon down river. No one in government is talking, except President Trump and Canada's Prime Minister Justin Trudeau who both cite the situation as a bi-national emergency requiring immediate attention, problem solving and mitigation.



ID  
C51  
C56  
C58  
C510  
C62  
C63  
C64  
C65  
C67  
T52  
T53  
T54  
T55  
T57  
T61  
T66  
T68  
T69  
T610  
C59

1.128  
1.1267  
1.1316  
1.0963  
1.1218  
1.0834  
1.0659  
1.1266  
1.1191  
1.1333  
1.0991  
1.0587  
1.0852  
1.1094  
1.1422  
1.1306  
1.0689  
1.1048  
1.1148  
1.1348

10.6463  
8.0208  
7.7175  
6.8593  
9.1748  
9.1772  
5.7332  
7.1092  
9.2955  
8.4395  
8.5329  
7.5625  
7.0355  
7.3684  
8.9504  
8.6435  
6.5198  
9.3489  
10.48  
7.3889

Tag + D soil  
8.9985  
6.7548  
6.3766  
5.3627  
7.7246  
7.7604  
4.9523  
6.0384  
8.0295  
6.9663  
6.9023  
5.8652  
5.7067  
6.0236  
7.5975  
7.4123  
5.6456  
8.0318  
8.9320  
6.1642

1/27/00  
into arch  
@ 2:06 PM

Initials \_\_\_\_\_ Date \_\_\_\_\_

[illegible][illegible]

Carbon 0-10cm (%)	Carbon 10-40cm (%)	Clay 10-40cm (%)	Sand 10-40cm (%)	Silt 10-40cm (%)

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Ring  
infiltrrometer  
Diameter  
(cm)

Bulk  
Density  
Height  
(cm)

Bulk  
Density  
Diameter  
(cm)

Water  
Vol (mL)

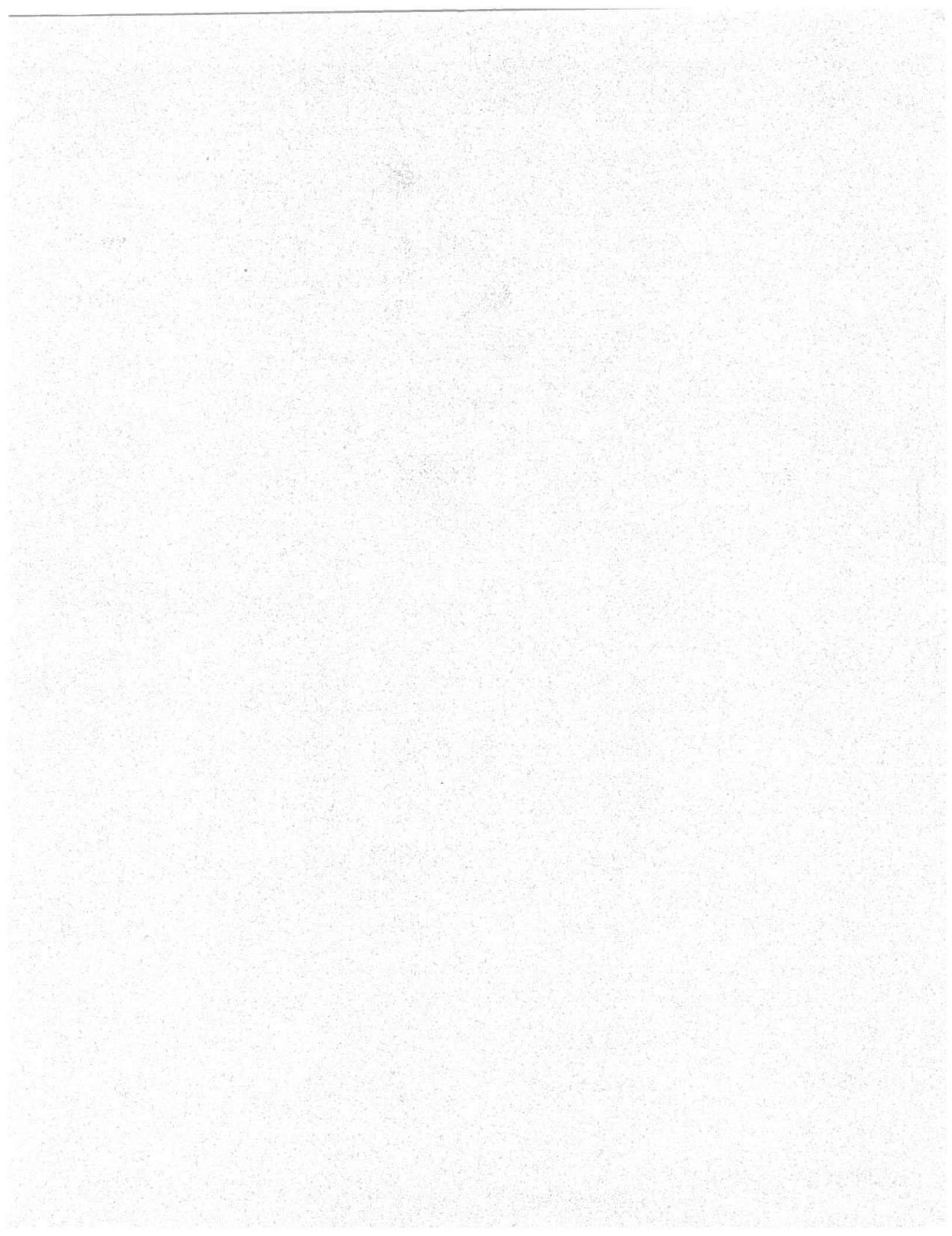
[illegible]
$$\text{Extrapolated time} = \frac{45 \text{ min} * 450 \text{ ml}}{\text{Volume infiltrated}}$$

Where volume infiltrated =  $\pi (7.6\text{cm})^2 * (2.5\text{cm} - \text{ht of water remaining})$

John Berger  
ways of  
seeing

ID	Tray	Tray + Soil	Tray + D Soil
C31	1.0362	9.1704	7.5505
C38	1.0528	8.8579	7.3289
C36	1.0431	8.7088	7.2680
C39	1.0426	6.3000	5.3092
C310	1.0617	7.600	6.2529
T32	1.0627	8.9941	7.7183
T33	1.0419	12.420	10.8433
T34	1.0642	9.2672	8.0295
T35	1.0595	10.3336	9.1458
T37	1.0953	9.6513	8.3823
C47	1.0478	7.5929	6.5288
C45	1.0410	6.6109	5.6639
C44	1.0590	7.1226	6.0621
C43	1.0809	6.8866	5.8178
C42	1.0615	6.0916	5.2619
T41	1.1274	7.1691	5.8603
T46	1.0873	10.4523	8.7762
T48	1.0690	8.6959	7.1568
T49	1.0778	7.2090	6.1719
T410	1.1099	10.6940	8.9493

ways of  
seeing





105  
CH<sub>4</sub> ↓  
H<sub>2</sub>O

111a1 Soil moisture

Water content

ID  $\bar{V}_w$   $\bar{w}_{wt}^{tot}$  dry(g) SML note

T1	8.0375g	13.168g	13.0920	
T16	7.7479g	11.0821g	11.0486	
T18	8.0401g	12.7417g	12.6756	
T19	7.5720g	10.8979g	10.8399	
T10	7.6249g	11.0820g	11.0440	
C12	8.2582g	11.8784g	11.8269	
C13	8.0469g	11.9298g	11.8837	
C14	7.8288g	12.5400g	12.4749	
C15	7.5609g	11.7431g	11.6927	
C17	7.9496g	13.0371g	12.9661	
T218	7.9885g	9.1461g	9.1111	
T3	7.9153g	9.4285g	9.3769	
T8	8.1117g	9.9989g	9.9506	
T9	7.7953g	9.4786g	9.4361	
T10	7.6555g	9.4564g	9.4010	
C2	<del>7.6369g</del> 29.2536	<del>9.2288g</del>	33.2528	
C4	7.8260g	9.6340g	9.5752	
C5	12.9179g	27.819g	27.0436	
C6	21.7031g	32.4481g	32.2763	
C7	30.9153g	38.0923g	37.8247	

BUS

Bag not sealed (BUS)



**Field Notes:**

Site ID: T3

Name: Avery Johnson

Date: 01/30/2020

Bucket	Syringe ID	Sample Time	N2O Area	N2O Retention	CO2 Peak Height (µm/m)	CO2 Peak Height (mv)
2	D2	1:58	1517.3032	11:38	16.339	19.16
2	A2	2:58	1516.1356	11:44	20.077	19.17
2	O3	3:58	1497.5875	11:50	27.462	19.18

$\mu\text{m}/\text{m}$	$(\theta)$
27.579	810
27.993	810
28.356	810
11.023	311
11.247	311
11.196	311
86.759	2520
86.924	2520
88.249	2520



Field Notes: windy 64°F. 30.04 in.

Date: 1/30/19

MS.

Field	Standard	Syringe ID	Sample Time	N2O Area	N2O Retention	CO2 Peak Height ( $\mu\text{m/m}$ )	CO2 Peak Height (mV)	Notes
	R1	R1	01:33			14.520	19.19	

Bucket	Syringe ID	Sample Time	N2O Area	N2O Retention	CO2 Peak Height ( $\mu\text{m}/\text{m}$ )	CO2 Peak Height (mV)	Notes
q	C4	11:41	1550.3406	8.27	15.093	19.20	
q	B3	12:41	1591.4476	8.33	29.279	19.1	
q	M2	3:41	1568.0216	8.38	31.394	19.22	
					28.907	19.23	8:00pm
					28.204	19.24	8:00pm

Bucket	Syringe ID	Sample Time	N2O Area	N2O Retention	CO2 Peak Height (µm/m)	CO2 Peak Height (mV)	Notes
1	03	1:45	1547.7100	8:44	15.387	19.15	
1	43	2:45	1547.8768	8:50	33.731	19.16	
1	42	3:45	1547.4043	8:55	33.442	19.17	

Bucket	Syringe ID	Sample Time	N20 Area	N20 Retention	CO2 Peak Height ( $\mu\text{m}/\text{m}$ )	CO2 Peak Height (mv)	Notes
10	A1	1.148	1550.0045	9.01	17.959	18.128	
10	a1	2.148	1458.6182	9.06	40.946	19.128	
10	b5	3.148	1452.11788	9.12	81.506	19.129	
10		0.1115	402.0008	9.18			

Bucket	Syringe ID	Sample Time	N2O Area	N2O Retention	CO2 Peak Height (µm/m)	CO2 Peak Height (mv)	Notes
6	F1	1:52	1499.7013	9:29	16.016	19:31	
6	Q2	2:52	1526.7512	9:35	55.000	19:32	
6	Q2	3:52	1482.3954	9:44	29.870	19:34	
					27.822	19:35	
					28.245	19:36	

Bucket	Syringe ID	Sample Time	N2O Area	N2O Retention	CO2 Peak Height ( $\mu\text{m}/\text{m}$ )	CO2 Peak Height (mv)
3	Q1	3.57	1449.7629	9.58	19.162	19.143
3	I2	2.57	1506.7237	9.52	17.335	19.138
3	L1	1.57	1513.3234	9.46	15.045	19.137

N <sub>2</sub> O Standard Area		
07.27	0	0
7.33	0	0
7.39	0	0
⇒ Not including in S.C.		0.1
725.6408 ± 44	0.1	0.1
451.0888 ± 1.56	0.1	0.1
453.8620 ± 1.56	0.1	0.1
474.2654 ± 1.02	0.1	0.1
4132.5924 ± 8.09	1	1
4054.8114 ± 8.15	1	1
4166.9868 ± 8.21	1	1

$$r^2 = 0.9997$$

# Gas Flux Data Form

Field Notes:

Site ID: T4

Date: 01/30/2020

Name: Avery Johnson

Field	Standard	Syringe ID	Sample Time	N20 Area	N20 Retention	CO2 Peak Height (µm/m)	CO2 Peak Height (mV)	Notes

Bucket	2	X1	10:40	1487.3152	11:55	15.652	20:04	
	2	U2	11:40	1517.4442	12:01	15.64	20:05	
	2	C2	12:41	1520.8816	12:07	14.127	20:06	

Bucket	5	B1	10:45	1493.9728	12:14	15.200	20:07	
	5	E3	11:45	1507.2860	12:20	14.542	20:08	
	5	Z2	12:45	1523.3680	12:26	13.667	20:10	
				444.2068	12:32	28.577	20:10	810
				411.4284	12:37	28.560	20:11	810

Bucket	7	V2	10:53	1490.4140	12:43	<del>28.577</del>	20:12	CO2: 15.252
	7	F2	11:53	1486.6372	12:44	14.993	20:13	
	7	H2	12:53	1497.4528	12:55	16.114	20:15	

Bucket	8	Y2	10:59	1485.7627	12:01	16.444	20:16	
	8	Y2	11:59	1491.9232	13:06	13.607	20:17	
	8	FY	12:59	1459.7064	13:12	15.183	20:18	

Bucket	4	<del>Y2</del> J2	12:04	1477.5485	12:18	14.958	20:19	Bucket 45
	4	B4	1:04	1498.4802	13:13	14.352	20:20	measurements



# Gas Flux Data Form

Field Notes: Windy, sunny

Site ID: T6

Date: 1/14/20

Name: Jacob

Waters

Field	Standard	Syringe ID	Sample Time	N2O Area	Retention	CO2 Peak Height (µm/m)	CO2 Peak Height (mV)	Notes
	10005	E2	11:26	414.2754		236.32	32.728	

ppm CO2

Bucket	Syringe ID	Sample Time	N2O Area	Retention	CO2 Peak Height (µm/m)	CO2 Peak Height (mV)	Notes
6	E2	11:37	874.7506		99.123	13.581	1536.8950
8	V2	12:37	418.3416		125.50	17.227	1539.7902
6	E2	1:37	841.1298		170.12	23.431	1491.4496

Bucket	Syringe ID	Sample Time	N2O Area	Retention	CO2 Peak Height (µm/m)	CO2 Peak Height (mV)	Notes
9	V1	11:41	<del>938.4458</del>		81.50	11.152	1581.7044
9	C3	12:41	965.1762		159.87	22.000	1555.5160
9	C2	1:41	929.7208		149.62	20.573	1555.8080
9	PM N2O	12:45	373.82208				


Stand. ppm N2O

Bucket	Syringe ID	Sample Time	N2O Area	Retention	CO2 Peak Height (µm/m)	CO2 Peak Height (mV)	Notes
10	C5	11:44	<del>945.144</del>		118.00	16.187	1553.8316
10	G2	12:44	908.8640		134.50	18.472	1523.2280
10	E2	1:44	1547.2462		149.50	20.554	1547.2462

Bucket	Syringe ID	Sample Time	N2O Area	Retention	CO2 Peak Height (µm/m)	CO2 Peak Height (mV)	Notes
1	A5	11:48	1573.6676		70.250	9.605	
1	Z1	12:48	1504.6092		213.75	29.536	
1	D1	1:48	1510.6578		180.00	24.805	

Bucket	Syringe ID	Sample Time	N2O Area	Retention	CO2 Peak Height (µm/m)	CO2 Peak Height (mV)	Notes
8	NA	11:52	1548.2602		127.12	17.449	
8	E2	12:52	1555.1604		134.25	19.151	
8	S1	1:52	1543.6200		149.87	20.607	

CO2 units are switched!

IT  
 After  standards

3741.326	1 ppm
3738.2208	1
478.9164	0.1
503.0955	0.1

# Gas Flux Data Form

Date: 11/14/20

Name: Sam

Sambado

Field Notes: Sunny + breezy day; no clouds in sight.

Site ID: C6

Field	Standard	Syringe ID	Sample Time	N2O Area	Retention	CO2 Peak Height	CO2 Peak Height	Notes
1000.5	Standard	159	11:59	454.4022		235.12	32.542	

Bucket	Syringe ID	Sample Time	N2O Area	Retention	CO2 Peak Height	CO2 Peak Height	Notes
5	U1	11:31	1525.4532		83.750	11.463	
5	<del>U2</del>	12:31	1634.7002		115.75	15.877	
5	A2	1:32	1667.6234		194.37	26.819	

Bucket	Syringe ID	Sample Time	N2O Area	Retention	CO2 Peak Height	CO2 Peak Height	Notes
3	U2	11:38	1672.4456		84.625	12.271	
3	P2	12:38	1718.5942		110.75	15.187	
3	C4	1:38	1637.7380		74.000	10.123	

Bucket	Syringe ID	Sample Time	N2O Area	Retention	CO2 Peak Height	CO2 Peak Height	Notes
7	R2	11:43	165.3074		101.25	13.875	
7	M2	12:43	1697.9036	91.000	89.75	12.462	
7	A2	1:43	1601.5512		123.00	16.883	

Bucket	Syringe ID	Sample Time	N2O Area	Retention	CO2 Peak Height	CO2 Peak Height	Notes
2	J1	11:48	1684.7916		106.75	14.635	
2	E2	12:48	1707.7384	1712.4403	137.75	18.927	
2	B4	1:48	1647.4142		148.62	20.439	

Bucket	Syringe ID	Sample Time	N2O Area	Retention	CO2 Peak Height	CO2 Peak Height	Notes
4	X1	11:52	1607.4834		99.125	13.582	
4	S2	12:52	1577.8996		133.25	18.302	
4	50000	1:52	1566.8311		66.250	9.058	

Standard curve N<sub>2</sub>O 1/15/20 SW

N <sub>2</sub> O concentration	Area
0	0
0	0
0	0
0.1	233.2180
0.1	378.8433
0.1	185.4152
0.1	322.5038
0.1	418.7448
0.1	267.1772
0.1	256.0352
0.1	279.1094
0.1	454.6564
1	2571.1654
1	1413.4804
1	1435.1788
1	2584.1378
1	1699.6364
1	1938.6848
1	3408.9800
1	1963.1984
1	3488.8312
1	2030.1774
1	3519.0646
1	2056.5244
1	3557.0370
1	2175.2604
1	3721.9984