



AGAT Laboratories

PARTICLE SIZE ANALYSIS REPORT

**SUNCOR ET AL HANGSTN 9-4-85-9
1AA/09-04-085-09W4/00**

RC27991

Prepared for:

SUNCOR ENERGY INC

JUNE 2018

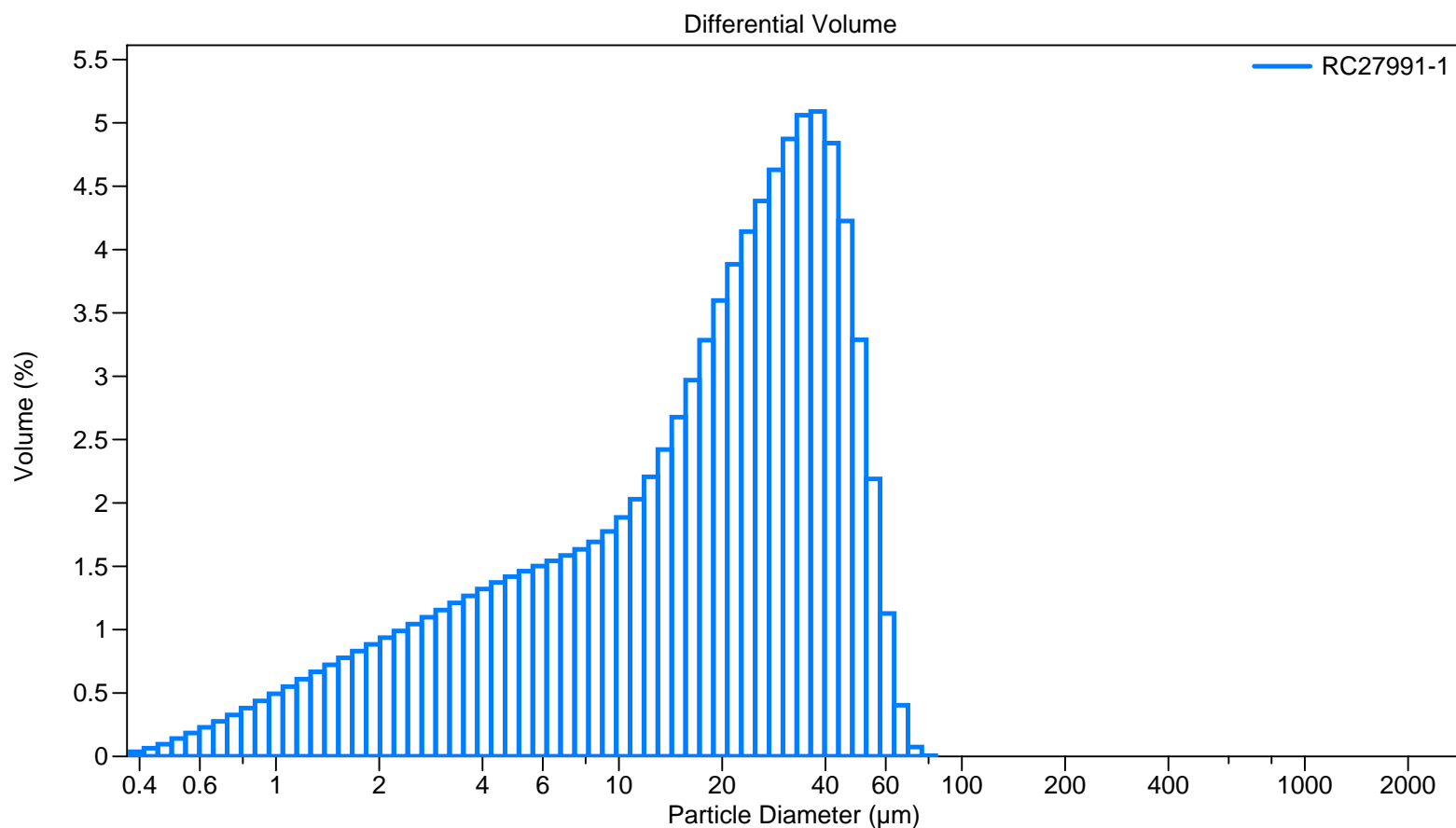
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Results relate only to the items tested and to all the items tested

File name:	RC27991-1	Group ID:	RC27991
Sample ID:	1		
Run number:	1	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 433.10 - 433.50		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	6:18 6 May 2018	Run length:	60 seconds
Obscuration:	11%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-1

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	21.87 µm	S.D.:	16.06 µm
Median:	19.79 µm	C.V.:	73.4%
Mode:	37.97 µm	Skewness:	0.512 Right skewed
d ₁₀ :	2.506 µm	Kurtosis:	-0.667 Platykurtic
d ₅₀ :	19.79 µm		
d ₉₀ :	44.99 µm		

RC27991-1

Particle Diameter μm	Volume %
0.375	4.04
1.3	3.13
1.9	4.11
2.8	4.27
3.9	8.08
6.6	2.85
7.8	6.56
11	9.58
16	11.7
22	16.1
31	18.6
44	11.0
75	0.021

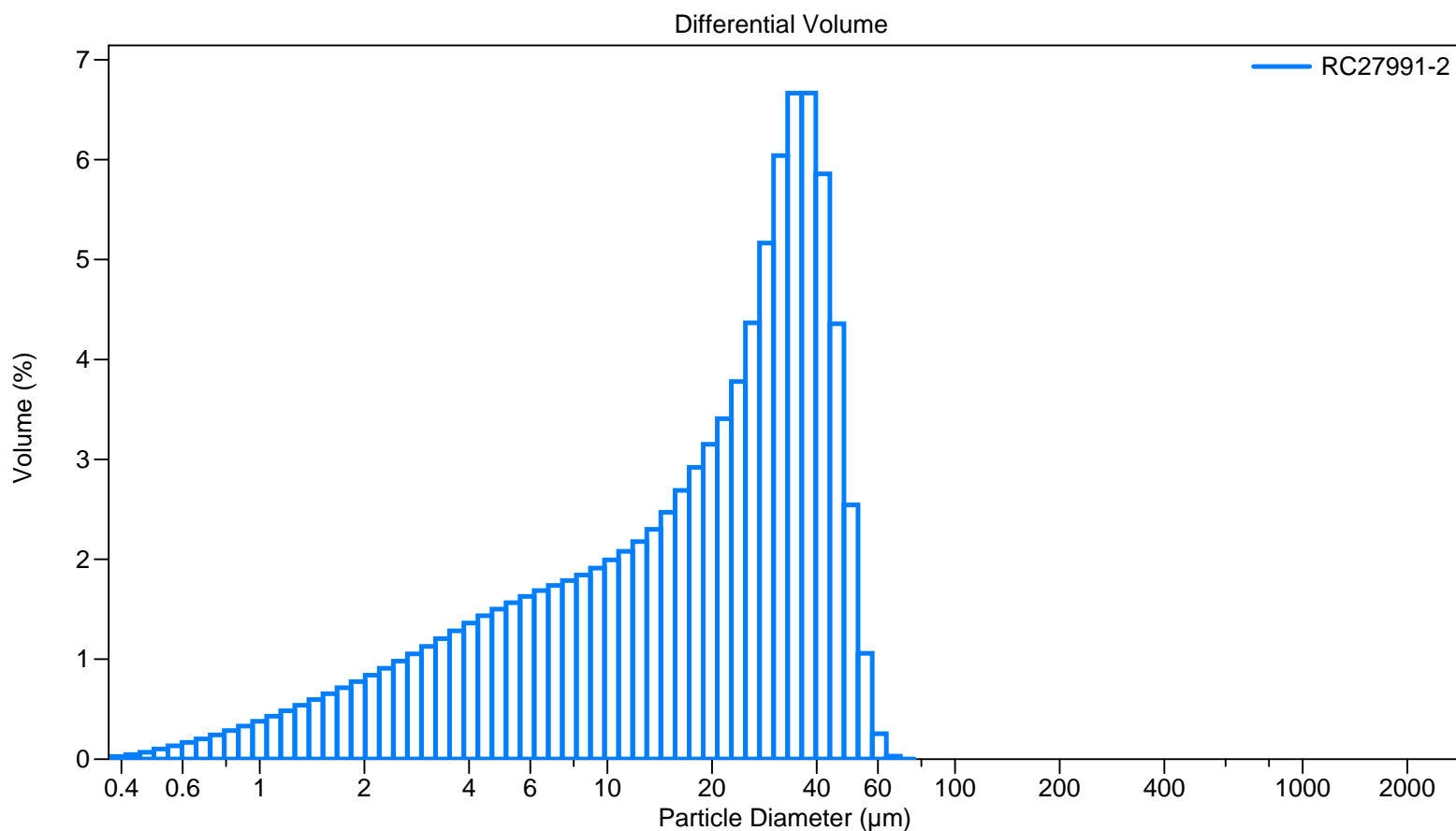
RC27991-1

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.036	0	100
2	0.431	0.064	0.036	99.96
3	0.474	0.096	0.10	99.9
4	0.520	0.14	0.20	99.8
5	0.571	0.18	0.34	99.7
6	0.627	0.23	0.52	99.5
7	0.688	0.28	0.75	99.2
8	0.755	0.33	1.03	99.0
9	0.829	0.38	1.35	98.6
10	0.910	0.44	1.74	98.3
11	0.999	0.49	2.17	97.8
12	1.097	0.55	2.67	97.3
13	1.204	0.61	3.22	96.8
14	1.321	0.67	3.83	96.2
15	1.451	0.72	4.49	95.5
16	1.592	0.78	5.22	94.8
17	1.748	0.83	5.99	94.0
18	1.919	0.88	6.82	93.2
19	2.107	0.94	7.71	92.3
20	2.313	0.99	8.64	91.4
21	2.539	1.04	9.63	90.4
22	2.787	1.10	10.7	89.3
23	3.059	1.15	11.8	88.2
24	3.358	1.21	12.9	87.1
25	3.687	1.27	14.1	85.9
26	4.047	1.32	15.4	84.6
27	4.443	1.37	16.7	83.3
28	4.877	1.42	18.1	81.9
29	5.354	1.46	19.5	80.5
30	5.878	1.50	21.0	79.0
31	6.452	1.54	22.5	77.5
32	7.083	1.59	24.0	76.0
33	7.775	1.63	25.6	74.4
34	8.536	1.69	27.2	72.8
35	9.370	1.77	28.9	71.1
36	10.29	1.89	30.7	69.3
37	11.29	2.03	32.6	67.4
38	12.40	2.21	34.6	65.4

RC27991-1

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.42	36.8	63.2
40	14.94	2.68	39.3	60.7
41	16.40	2.97	41.9	58.1
42	18.00	3.29	44.9	55.1
43	19.76	3.60	48.2	51.8
44	21.69	3.88	51.8	48.2
45	23.81	4.14	55.7	44.3
46	26.14	4.38	59.8	40.2
47	28.70	4.63	64.2	35.8
48	31.50	4.87	68.8	31.2
49	34.58	5.06	73.7	26.3
50	37.97	5.09	78.8	21.2
51	41.68	4.84	83.8	16.2
52	45.75	4.23	88.7	11.3
53	50.22	3.29	92.9	7.09
54	55.13	2.19	96.2	3.80
55	60.52	1.13	98.4	1.61
56	66.44	0.40	99.5	0.48
57	72.94	0.073	99.9	0.079
58	80.07	0.0055	99.99	0.0055
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-2	Group ID:	RC27991
Sample ID:	2		
Run number:	2	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 435.10 - 435.45		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	6:27 6 May 2018	Run length:	60 seconds
Obscuration:	11%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-2

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	21.83 µm	S.D.:	14.98 µm
Median:	20.82 µm	C.V.:	68.6%
Mode:	37.97 µm	Skewness:	0.283 Right skewed
d ₁₀ :	2.932 µm	Kurtosis:	-1.055 Platykurtic
d ₅₀ :	20.82 µm		
d ₉₀ :	42.50 µm		

RC27991-2

Particle Diameter μm	Volume %
0.375	3.06
1.3	2.63
1.9	3.78
2.8	4.24
3.9	8.59
6.6	3.12
7.8	7.04
11	9.20
16	10.3
22	16.5
31	23.7
44	7.90
75	0.00011

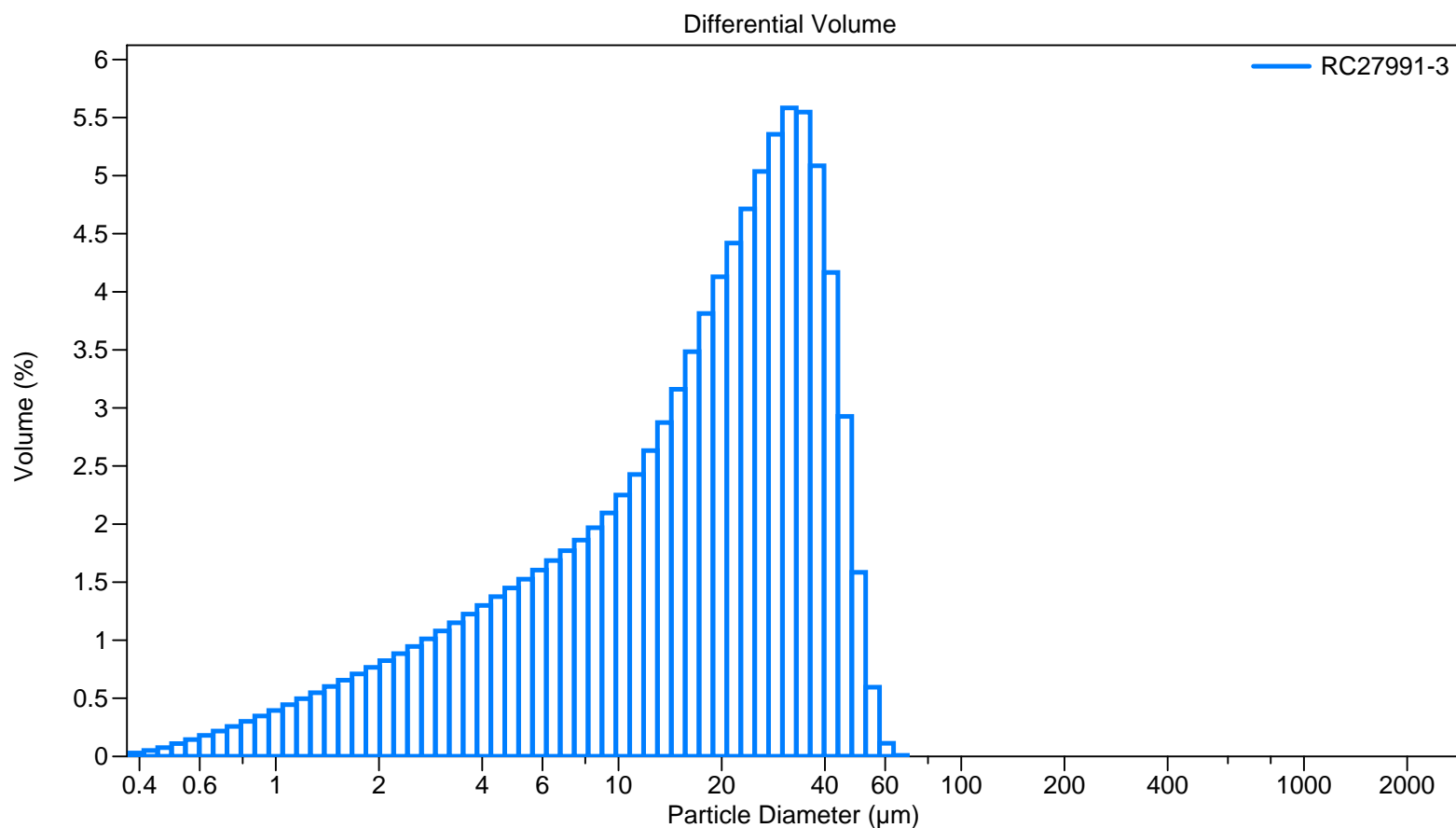
RC27991-2

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.026	0	100
2	0.431	0.046	0.026	99.97
3	0.474	0.068	0.071	99.9
4	0.520	0.10	0.14	99.9
5	0.571	0.13	0.24	99.8
6	0.627	0.17	0.37	99.6
7	0.688	0.20	0.54	99.5
8	0.755	0.24	0.74	99.3
9	0.829	0.28	0.98	99.0
10	0.910	0.33	1.27	98.7
11	0.999	0.38	1.60	98.4
12	1.097	0.43	1.98	98.0
13	1.204	0.48	2.41	97.6
14	1.321	0.54	2.89	97.1
15	1.451	0.60	3.43	96.6
16	1.592	0.65	4.02	96.0
17	1.748	0.71	4.68	95.3
18	1.919	0.78	5.39	94.6
19	2.107	0.84	6.17	93.8
20	2.313	0.91	7.01	93.0
21	2.539	0.98	7.92	92.1
22	2.787	1.05	8.90	91.1
23	3.059	1.13	9.95	90.0
24	3.358	1.21	11.1	88.9
25	3.687	1.28	12.3	87.7
26	4.047	1.36	13.6	86.4
27	4.443	1.43	14.9	85.1
28	4.877	1.50	16.4	83.6
29	5.354	1.57	17.9	82.1
30	5.878	1.63	19.4	80.6
31	6.452	1.69	21.1	78.9
32	7.083	1.74	22.7	77.3
33	7.775	1.79	24.5	75.5
34	8.536	1.84	26.3	73.7
35	9.370	1.91	28.1	71.9
36	10.29	1.99	30.0	70.0
37	11.29	2.08	32.0	68.0
38	12.40	2.18	34.1	65.9

RC27991-2

Channel Number	Channel Diameter (Center) µm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.30	36.3	63.7
40	14.94	2.47	38.6	61.4
41	16.40	2.69	41.0	59.0
42	18.00	2.92	43.7	56.3
43	19.76	3.15	46.7	53.3
44	21.69	3.41	49.8	50.2
45	23.81	3.78	53.2	46.8
46	26.14	4.37	57.0	43.0
47	28.70	5.17	61.4	38.6
48	31.50	6.04	66.5	33.5
49	34.58	6.67	72.6	27.4
50	37.97	6.67	79.2	20.8
51	41.68	5.86	85.9	14.1
52	45.75	4.36	91.8	8.24
53	50.22	2.54	96.1	3.89
54	55.13	1.06	98.7	1.34
55	60.52	0.25	99.7	0.28
56	66.44	0.029	99.97	0.030
57	72.94	0.00056	99.999	0.00056
58	80.07	0	100	0
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-3	Group ID:	RC27991
Sample ID:	3		
Run number:	3	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 438.85 - 439.05		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	6:35 6 May 2018	Run length:	60 seconds
Obscuration:	12%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-3

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	19.98 µm	S.D.:	13.66 µm
Median:	18.54 µm	C.V.:	68.4%
Mode:	31.50 µm	Skewness:	0.418 Right skewed
d ₁₀ :	2.921 µm	Kurtosis:	-0.778 Platykurtic
d ₅₀ :	18.54 µm		
d ₉₀ :	39.36 µm		

RC27991-3

Particle Diameter μm	Volume %
0.375	3.22
1.3	2.64
1.9	3.67
2.8	4.05
3.9	8.36
6.6	3.19
7.8	7.72
11	11.4
16	13.5
22	18.5
31	18.8
44	5.00
75	0

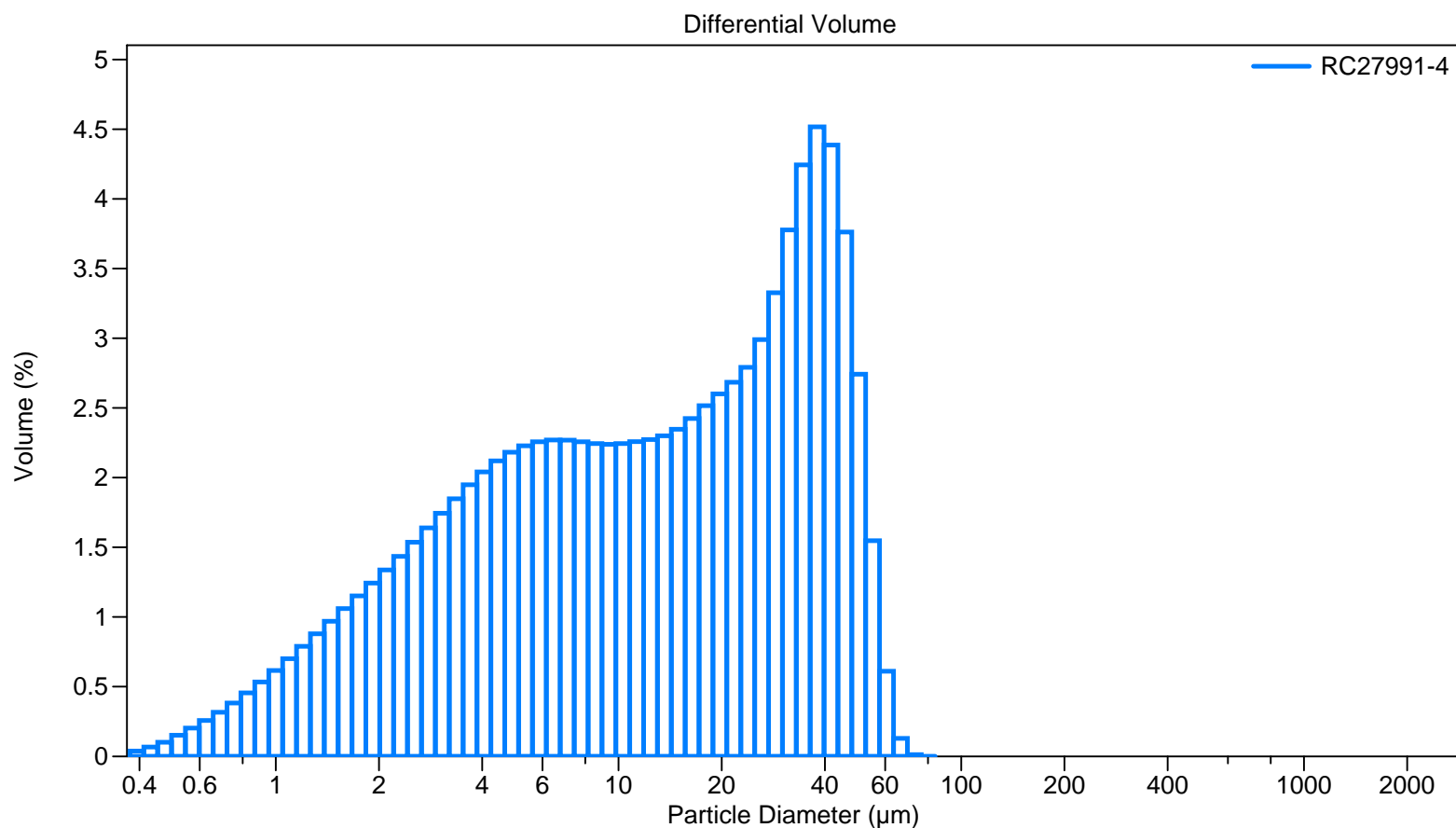
RC27991-3

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.028	0	100
2	0.431	0.050	0.028	99.97
3	0.474	0.075	0.079	99.9
4	0.520	0.11	0.15	99.8
5	0.571	0.14	0.26	99.7
6	0.627	0.18	0.41	99.6
7	0.688	0.22	0.59	99.4
8	0.755	0.26	0.81	99.2
9	0.829	0.30	1.06	98.9
10	0.910	0.35	1.37	98.6
11	0.999	0.40	1.71	98.3
12	1.097	0.44	2.11	97.9
13	1.204	0.50	2.55	97.4
14	1.321	0.55	3.05	97.0
15	1.451	0.60	3.60	96.4
16	1.592	0.66	4.20	95.8
17	1.748	0.71	4.85	95.1
18	1.919	0.77	5.56	94.4
19	2.107	0.82	6.33	93.7
20	2.313	0.88	7.15	92.8
21	2.539	0.95	8.04	92.0
22	2.787	1.01	8.98	91.0
23	3.059	1.08	10.00	90.0
24	3.358	1.15	11.1	88.9
25	3.687	1.22	12.2	87.8
26	4.047	1.30	13.5	86.5
27	4.443	1.37	14.8	85.2
28	4.877	1.45	16.1	83.9
29	5.354	1.53	17.6	82.4
30	5.878	1.60	19.1	80.9
31	6.452	1.69	20.7	79.3
32	7.083	1.77	22.4	77.6
33	7.775	1.86	24.2	75.8
34	8.536	1.97	26.0	74.0
35	9.370	2.10	28.0	72.0
36	10.29	2.25	30.1	69.9
37	11.29	2.43	32.3	67.7
38	12.40	2.63	34.8	65.2

RC27991-3

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.87	37.4	62.6
40	14.94	3.16	40.3	59.7
41	16.40	3.48	43.4	56.6
42	18.00	3.81	46.9	53.1
43	19.76	4.13	50.7	49.3
44	21.69	4.42	54.9	45.1
45	23.81	4.71	59.3	40.7
46	26.14	5.04	64.0	36.0
47	28.70	5.36	69.0	31.0
48	31.50	5.58	74.4	25.6
49	34.58	5.55	80.0	20.0
50	37.97	5.09	85.5	14.5
51	41.68	4.17	90.6	9.39
52	45.75	2.93	94.8	5.23
53	50.22	1.58	97.7	2.30
54	55.13	0.60	99.3	0.72
55	60.52	0.11	99.9	0.12
56	66.44	0.0088	99.99	0.0088
57	72.94	0	100	0
58	80.07	0	100	0
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-4	Group ID:	RC27991
Sample ID:	4		
Run number:	4	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 440.73 - 441.10		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	6:44 6 May 2018	Run length:	60 seconds
Obscuration:	12%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-4

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	18.28 µm	S.D.:	15.79 µm
Median:	12.84 µm	C.V.:	86.4%
Mode:	37.97 µm	Skewness:	0.758 Right skewed
d ₁₀ :	2.023 µm	Kurtosis:	-0.582 Platykurtic
d ₅₀ :	12.84 µm		
d ₉₀ :	42.61 µm		

RC27991-4

Particle Diameter μm	Volume %
0.375	4.89
1.3	4.26
1.9	5.96
2.8	6.50
3.9	12.3
6.6	4.05
7.8	8.28
11	9.25
16	8.71
22	11.3
31	16.0
44	8.51
75	0.0026

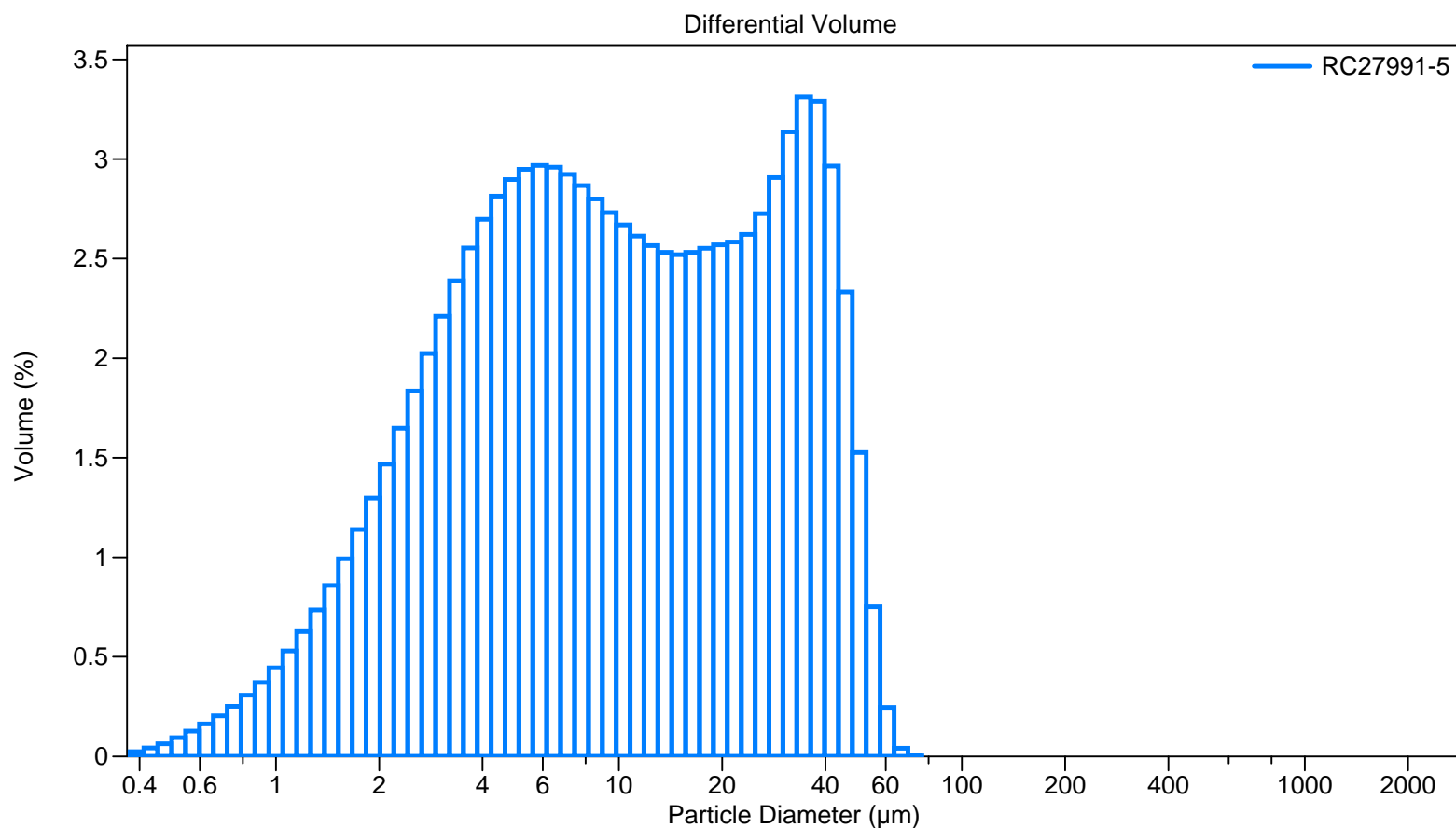
RC27991-4

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.038	0	100
2	0.431	0.067	0.038	99.96
3	0.474	0.10	0.11	99.9
4	0.520	0.15	0.21	99.8
5	0.571	0.20	0.36	99.6
6	0.627	0.26	0.56	99.4
7	0.688	0.32	0.82	99.2
8	0.755	0.38	1.13	98.9
9	0.829	0.46	1.52	98.5
10	0.910	0.53	1.97	98.0
11	0.999	0.62	2.51	97.5
12	1.097	0.70	3.12	96.9
13	1.204	0.79	3.82	96.2
14	1.321	0.88	4.61	95.4
15	1.451	0.97	5.49	94.5
16	1.592	1.06	6.46	93.5
17	1.748	1.15	7.52	92.5
18	1.919	1.24	8.67	91.3
19	2.107	1.34	9.92	90.1
20	2.313	1.44	11.3	88.7
21	2.539	1.54	12.7	87.3
22	2.787	1.64	14.2	85.8
23	3.059	1.74	15.9	84.1
24	3.358	1.85	17.6	82.4
25	3.687	1.95	19.5	80.5
26	4.047	2.04	21.4	78.6
27	4.443	2.12	23.4	76.6
28	4.877	2.18	25.6	74.4
29	5.354	2.23	27.7	72.3
30	5.878	2.26	30.0	70.0
31	6.452	2.27	32.2	67.8
32	7.083	2.27	34.5	65.5
33	7.775	2.26	36.8	63.2
34	8.536	2.24	39.0	61.0
35	9.370	2.24	41.3	58.7
36	10.29	2.24	43.5	56.5
37	11.29	2.26	45.8	54.2
38	12.40	2.27	48.0	52.0

RC27991-4

Channel Number	Channel Diameter (Center) µm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.30	50.3	49.7
40	14.94	2.35	52.6	47.4
41	16.40	2.42	54.9	45.1
42	18.00	2.52	57.4	42.6
43	19.76	2.60	59.9	40.1
44	21.69	2.68	62.5	37.5
45	23.81	2.79	65.2	34.8
46	26.14	2.99	68.0	32.0
47	28.70	3.33	70.9	29.1
48	31.50	3.78	74.3	25.7
49	34.58	4.24	78.0	22.0
50	37.97	4.52	82.3	17.7
51	41.68	4.39	86.8	13.2
52	45.75	3.76	91.2	8.80
53	50.22	2.74	95.0	5.04
54	55.13	1.55	97.7	2.30
55	60.52	0.61	99.2	0.75
56	66.44	0.13	99.9	0.14
57	72.94	0.012	99.99	0.012
58	80.07	0.000054	100	0.000054
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-5	Group ID:	RC27991
Sample ID:	5		
Run number:	5	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 442.91 - 443.20		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	6:51 6 May 2018	Run length:	60 seconds
Obscuration:	12%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-5

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	15.12 µm	S.D.:	13.83 µm
Median:	9.496 µm	C.V.:	91.5%
Mode:	34.58 µm	Skewness:	1.089 Right skewed
d ₁₀ :	2.241 µm	Kurtosis:	0.202 Leptokurtic
d ₅₀ :	9.496 µm		
d ₉₀ :	37.48 µm		

RC27991-5

Particle Diameter μm	Volume %
0.375	3.48
1.3	3.99
1.9	6.84
2.8	8.35
3.9	16.2
6.6	5.21
7.8	10.1
11	10.3
16	8.73
22	10.2
31	11.9
44	4.72
75	0.00053

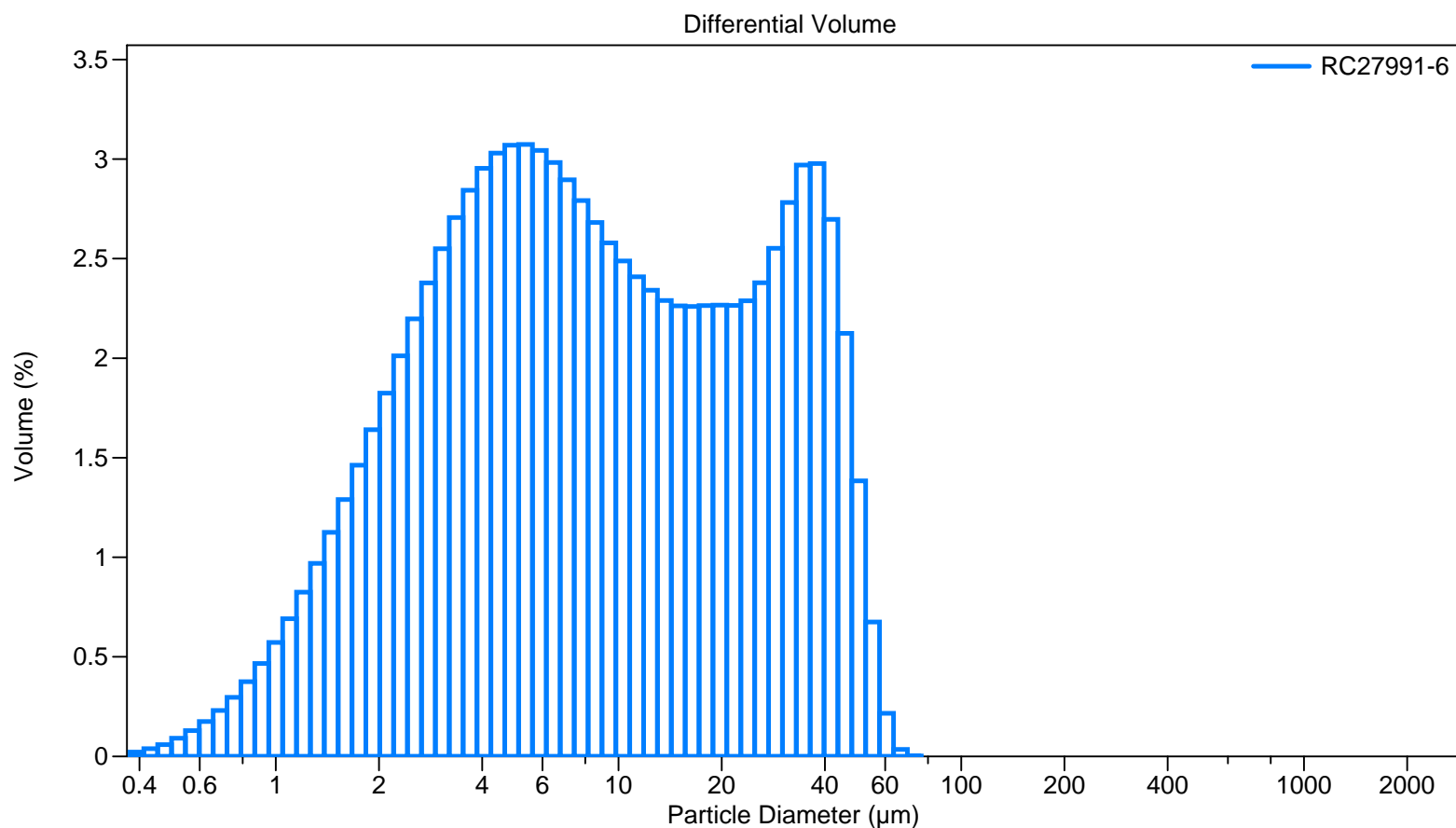
RC27991-5

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.024	0	100
2	0.431	0.042	0.024	99.98
3	0.474	0.063	0.066	99.9
4	0.520	0.094	0.13	99.9
5	0.571	0.13	0.22	99.8
6	0.627	0.16	0.35	99.7
7	0.688	0.20	0.51	99.5
8	0.755	0.25	0.72	99.3
9	0.829	0.31	0.97	99.0
10	0.910	0.37	1.27	98.7
11	0.999	0.44	1.65	98.4
12	1.097	0.53	2.09	97.9
13	1.204	0.63	2.62	97.4
14	1.321	0.74	3.25	96.8
15	1.451	0.86	3.98	96.0
16	1.592	0.99	4.84	95.2
17	1.748	1.14	5.83	94.2
18	1.919	1.30	6.97	93.0
19	2.107	1.47	8.27	91.7
20	2.313	1.65	9.74	90.3
21	2.539	1.83	11.4	88.6
22	2.787	2.02	13.2	86.8
23	3.059	2.21	15.2	84.8
24	3.358	2.39	17.5	82.5
25	3.687	2.55	19.8	80.2
26	4.047	2.70	22.4	77.6
27	4.443	2.81	25.1	74.9
28	4.877	2.90	27.9	72.1
29	5.354	2.95	30.8	69.2
30	5.878	2.97	33.8	66.2
31	6.452	2.96	36.7	63.3
32	7.083	2.92	39.7	60.3
33	7.775	2.87	42.6	57.4
34	8.536	2.80	45.5	54.5
35	9.370	2.73	48.3	51.7
36	10.29	2.67	51.0	49.0
37	11.29	2.61	53.7	46.3
38	12.40	2.57	56.3	43.7

RC27991-5

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.53	58.9	41.1
40	14.94	2.52	61.4	38.6
41	16.40	2.53	63.9	36.1
42	18.00	2.55	66.4	33.6
43	19.76	2.57	69.0	31.0
44	21.69	2.58	71.6	28.4
45	23.81	2.62	74.1	25.9
46	26.14	2.73	76.8	23.2
47	28.70	2.91	79.5	20.5
48	31.50	3.14	82.4	17.6
49	34.58	3.31	85.5	14.5
50	37.97	3.29	88.8	11.2
51	41.68	2.97	92.1	7.87
52	45.75	2.33	95.1	4.90
53	50.22	1.53	97.4	2.57
54	55.13	0.75	99.0	1.04
55	60.52	0.25	99.7	0.29
56	66.44	0.041	99.96	0.043
57	72.94	0.0025	99.997	0.0025
58	80.07	0	100	0
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-6	Group ID:	RC27991
Sample ID:	6		
Run number:	6	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 444.75 - 445.15		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	6:59 6 May 2018	Run length:	60 seconds
Obscuration:	12%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-6

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	13.89 µm	S.D.:	13.60 µm
Median:	7.936 µm	C.V.:	97.9%
Mode:	5.354 µm	Skewness:	1.231 Right skewed
d ₁₀ :	1.961 µm	Kurtosis:	0.538 Leptokurtic
d ₅₀ :	7.936 µm		
d ₉₀ :	36.37 µm		

RC27991-6

Particle Diameter μm	Volume %
0.375	4.28
1.3	5.17
1.9	8.33
2.8	9.49
3.9	17.1
6.6	5.15
7.8	9.59
11	9.31
16	7.72
22	8.92
31	10.7
44	4.27
75	0.00042

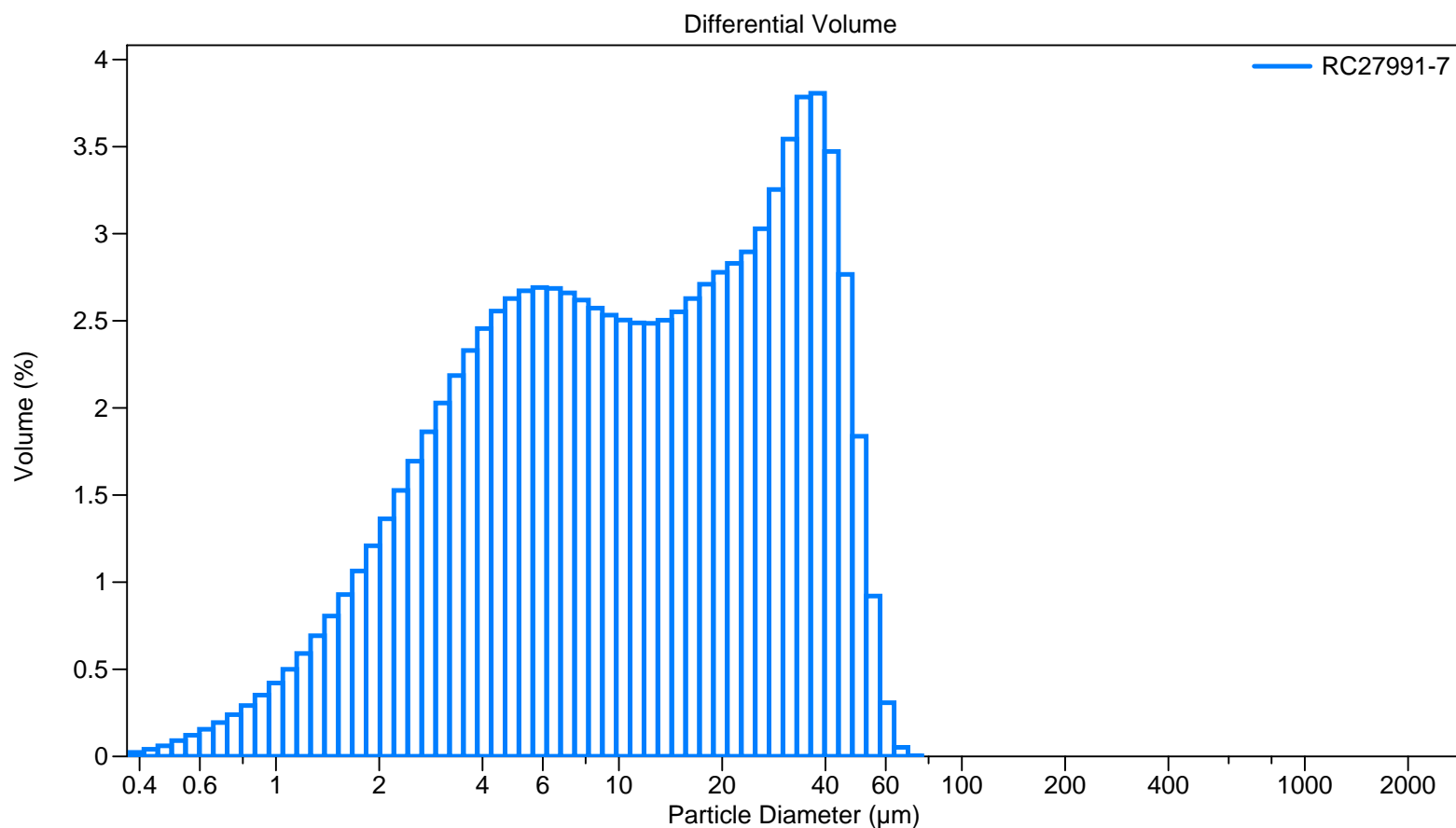
RC27991-6

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.022	0	100
2	0.431	0.038	0.022	99.98
3	0.474	0.059	0.060	99.9
4	0.520	0.091	0.12	99.9
5	0.571	0.13	0.21	99.8
6	0.627	0.18	0.34	99.7
7	0.688	0.23	0.52	99.5
8	0.755	0.30	0.75	99.3
9	0.829	0.37	1.04	99.0
10	0.910	0.47	1.42	98.6
11	0.999	0.57	1.88	98.1
12	1.097	0.69	2.46	97.5
13	1.204	0.82	3.15	96.9
14	1.321	0.97	3.97	96.0
15	1.451	1.13	4.94	95.1
16	1.592	1.29	6.07	93.9
17	1.748	1.46	7.36	92.6
18	1.919	1.64	8.82	91.2
19	2.107	1.82	10.5	89.5
20	2.313	2.01	12.3	87.7
21	2.539	2.20	14.3	85.7
22	2.787	2.38	16.5	83.5
23	3.059	2.55	18.9	81.1
24	3.358	2.71	21.4	78.6
25	3.687	2.84	24.1	75.9
26	4.047	2.95	27.0	73.0
27	4.443	3.03	29.9	70.1
28	4.877	3.07	33.0	67.0
29	5.354	3.07	36.0	64.0
30	5.878	3.04	39.1	60.9
31	6.452	2.98	42.1	57.9
32	7.083	2.90	45.1	54.9
33	7.775	2.79	48.0	52.0
34	8.536	2.68	50.8	49.2
35	9.370	2.58	53.5	46.5
36	10.29	2.49	56.1	43.9
37	11.29	2.41	58.6	41.4
38	12.40	2.34	61.0	39.0

RC27991-6

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.29	63.3	36.7
40	14.94	2.26	65.6	34.4
41	16.40	2.26	67.9	32.1
42	18.00	2.26	70.1	29.9
43	19.76	2.27	72.4	27.6
44	21.69	2.27	74.7	25.3
45	23.81	2.29	76.9	23.1
46	26.14	2.38	79.2	20.8
47	28.70	2.55	81.6	18.4
48	31.50	2.78	84.1	15.9
49	34.58	2.97	86.9	13.1
50	37.97	2.98	89.9	10.1
51	41.68	2.70	92.9	7.13
52	45.75	2.13	95.6	4.44
53	50.22	1.38	97.7	2.31
54	55.13	0.67	99.1	0.93
55	60.52	0.22	99.7	0.25
56	66.44	0.035	99.96	0.037
57	72.94	0.0020	99.998	0.0020
58	80.07	0	100	0
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-7	Group ID:	RC27991
Sample ID:	7		
Run number:	7	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 446.95 - 447.30		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	7:05 6 May 2018	Run length:	60 seconds
Obscuration:	11%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-7

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	16.45 µm	S.D.:	14.40 µm
Median:	11.05 µm	C.V.:	87.5%
Mode:	37.97 µm	Skewness:	0.926 Right skewed
d ₁₀ :	2.328 µm	Kurtosis:	-0.190 Platykurtic
d ₅₀ :	11.05 µm		
d ₉₀ :	39.18 µm		

RC27991-7

Particle Diameter μm	Volume %
0.375	3.30
1.3	3.73
1.9	6.34
2.8	7.65
3.9	14.7
6.6	4.74
7.8	9.39
11	10.1
16	9.33
22	11.3
31	13.7
44	5.67
75	0.00069

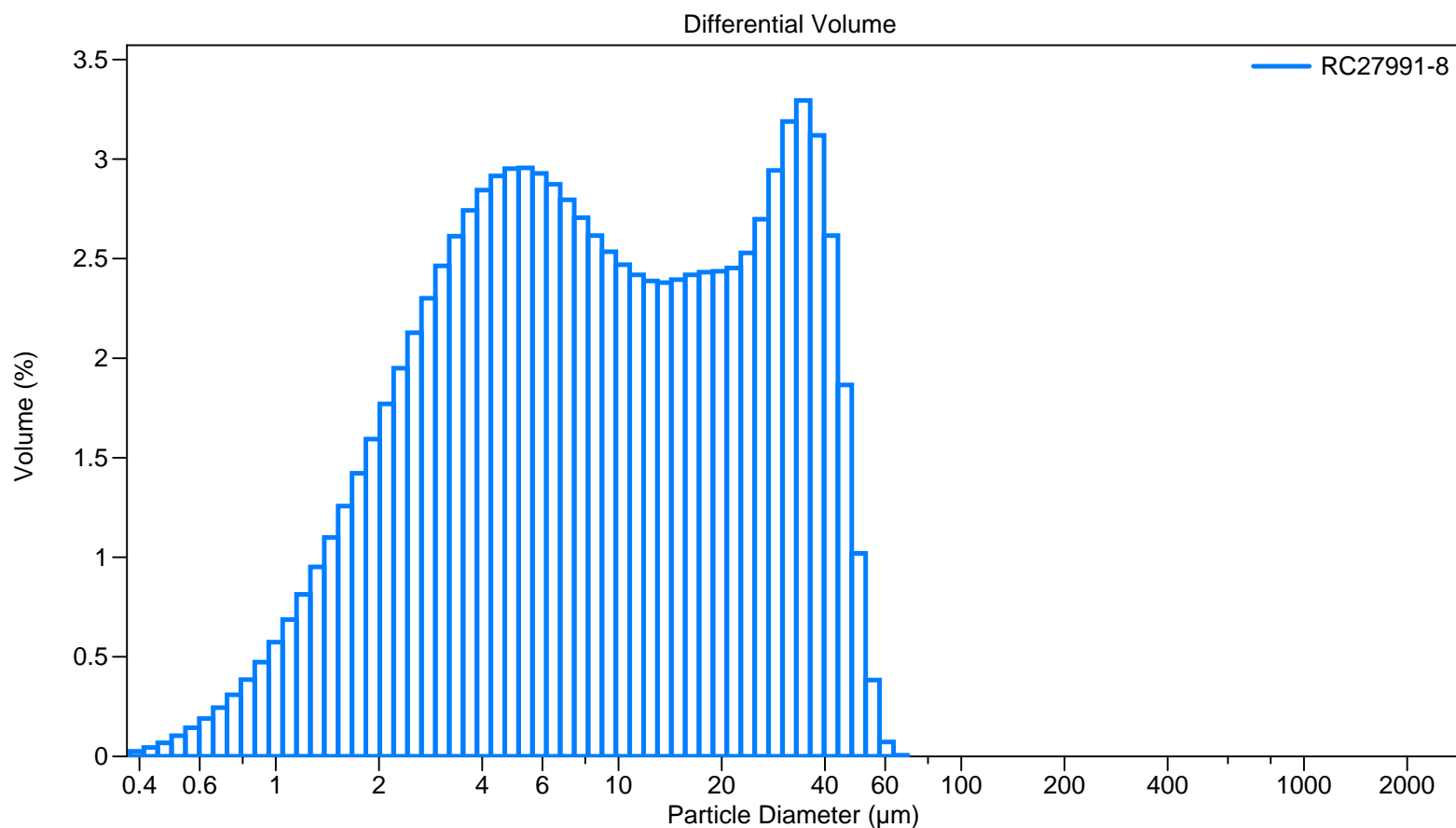
RC27991-7

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.023	0	100
2	0.431	0.041	0.023	99.98
3	0.474	0.061	0.063	99.9
4	0.520	0.090	0.12	99.9
5	0.571	0.12	0.21	99.8
6	0.627	0.16	0.34	99.7
7	0.688	0.19	0.49	99.5
8	0.755	0.24	0.69	99.3
9	0.829	0.29	0.93	99.1
10	0.910	0.35	1.22	98.8
11	0.999	0.42	1.57	98.4
12	1.097	0.50	1.99	98.0
13	1.204	0.59	2.49	97.5
14	1.321	0.69	3.08	96.9
15	1.451	0.81	3.77	96.2
16	1.592	0.93	4.58	95.4
17	1.748	1.06	5.51	94.5
18	1.919	1.21	6.57	93.4
19	2.107	1.36	7.78	92.2
20	2.313	1.53	9.14	90.9
21	2.539	1.69	10.7	89.3
22	2.787	1.86	12.4	87.6
23	3.059	2.03	14.2	85.8
24	3.358	2.19	16.3	83.7
25	3.687	2.33	18.4	81.6
26	4.047	2.46	20.8	79.2
27	4.443	2.56	23.2	76.8
28	4.877	2.63	25.8	74.2
29	5.354	2.67	28.4	71.6
30	5.878	2.69	31.1	68.9
31	6.452	2.69	33.8	66.2
32	7.083	2.66	36.5	63.5
33	7.775	2.62	39.1	60.9
34	8.536	2.57	41.7	58.3
35	9.370	2.53	44.3	55.7
36	10.29	2.50	46.8	53.2
37	11.29	2.49	49.3	50.7
38	12.40	2.49	51.8	48.2

RC27991-7

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.50	54.3	45.7
40	14.94	2.55	56.8	43.2
41	16.40	2.63	59.4	40.6
42	18.00	2.71	62.0	38.0
43	19.76	2.78	64.7	35.3
44	21.69	2.83	67.5	32.5
45	23.81	2.90	70.3	29.7
46	26.14	3.03	73.2	26.8
47	28.70	3.25	76.3	23.7
48	31.50	3.54	79.5	20.5
49	34.58	3.78	83.0	17.0
50	37.97	3.81	86.8	13.2
51	41.68	3.47	90.6	9.36
52	45.75	2.77	94.1	5.89
53	50.22	1.84	96.9	3.12
54	55.13	0.92	98.7	1.28
55	60.52	0.31	99.6	0.36
56	66.44	0.052	99.9	0.055
57	72.94	0.0033	99.997	0.0033
58	80.07	0	100	0
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-8	Group ID:	RC27991
Sample ID:	8		
Run number:	8	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 448.79 - 449.15		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	7:13 6 May 2018	Run length:	60 seconds
Obscuration:	12%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-8

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	13.93 µm	S.D.:	13.11 µm
Median:	8.352 µm	C.V.:	94.1%
Mode:	34.58 µm	Skewness:	1.116 Right skewed
d ₁₀ :	1.967 µm	Kurtosis:	0.222 Leptokurtic
d ₅₀ :	8.352 µm		
d ₉₀ :	35.34 µm		

RC27991-8

Particle Diameter μm	Volume %
0.375	4.36
1.3	5.04
1.9	8.07
2.8	9.16
3.9	16.4
6.6	4.97
7.8	9.42
11	9.62
16	8.31
22	10.1
31	11.4
44	3.20
75	0

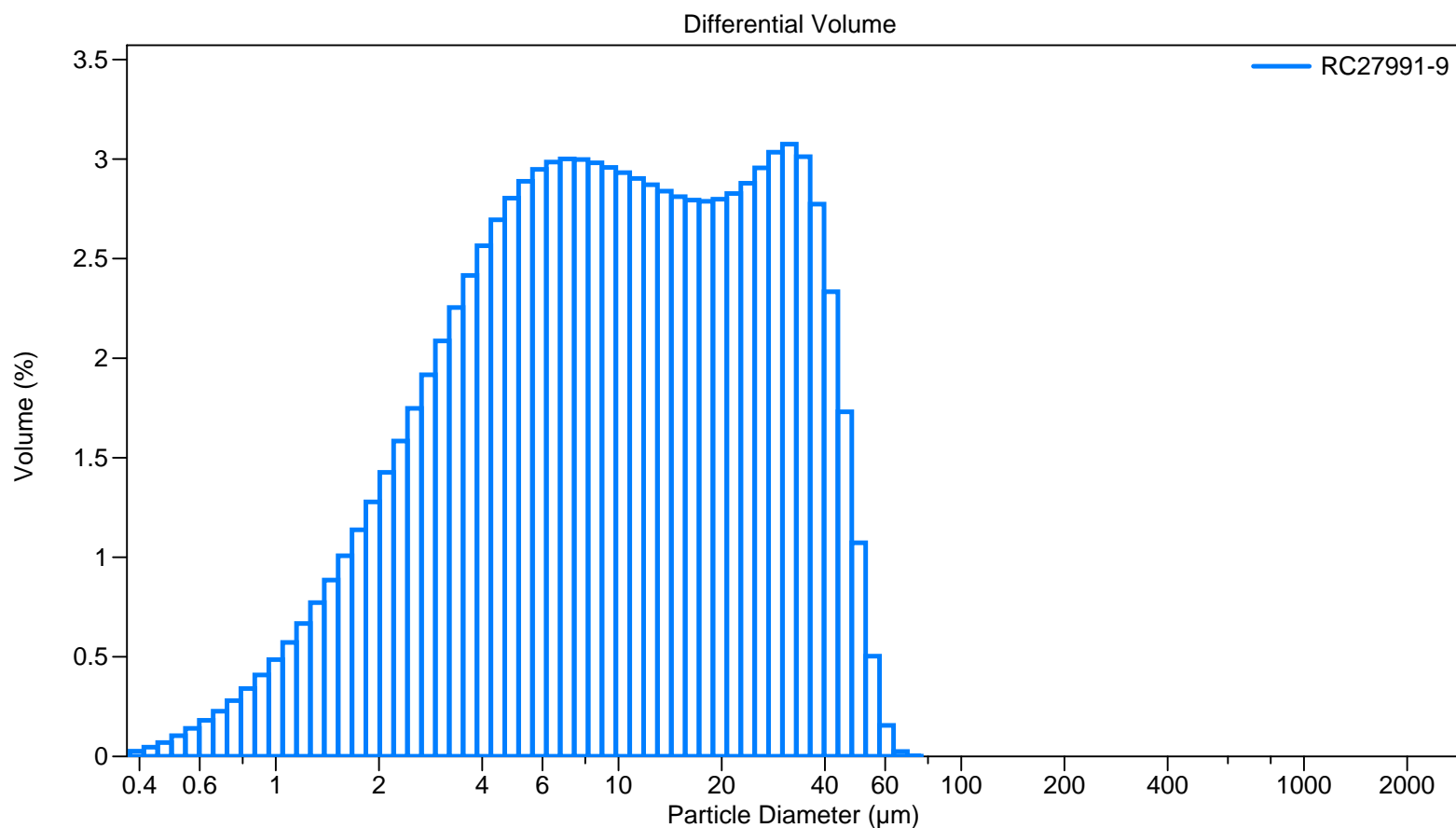
RC27991-8

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.025	0	100
2	0.431	0.045	0.025	99.97
3	0.474	0.068	0.070	99.9
4	0.520	0.10	0.14	99.9
5	0.571	0.14	0.24	99.8
6	0.627	0.19	0.39	99.6
7	0.688	0.24	0.58	99.4
8	0.755	0.31	0.82	99.2
9	0.829	0.39	1.13	98.9
10	0.910	0.47	1.51	98.5
11	0.999	0.57	1.99	98.0
12	1.097	0.69	2.56	97.4
13	1.204	0.81	3.25	96.8
14	1.321	0.95	4.06	95.9
15	1.451	1.10	5.01	95.0
16	1.592	1.26	6.11	93.9
17	1.748	1.42	7.37	92.6
18	1.919	1.59	8.79	91.2
19	2.107	1.77	10.4	89.6
20	2.313	1.95	12.2	87.8
21	2.539	2.13	14.1	85.9
22	2.787	2.30	16.2	83.8
23	3.059	2.46	18.5	81.5
24	3.358	2.61	21.0	79.0
25	3.687	2.74	23.6	76.4
26	4.047	2.84	26.4	73.6
27	4.443	2.92	29.2	70.8
28	4.877	2.95	32.1	67.9
29	5.354	2.96	35.1	64.9
30	5.878	2.93	38.0	62.0
31	6.452	2.87	41.0	59.0
32	7.083	2.80	43.8	56.2
33	7.775	2.71	46.6	53.4
34	8.536	2.62	49.3	50.7
35	9.370	2.53	51.9	48.1
36	10.29	2.47	54.5	45.5
37	11.29	2.42	56.9	43.1
38	12.40	2.39	59.4	40.6

RC27991-8

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.38	61.8	38.2
40	14.94	2.39	64.1	35.9
41	16.40	2.42	66.5	33.5
42	18.00	2.43	68.9	31.1
43	19.76	2.44	71.4	28.6
44	21.69	2.45	73.8	26.2
45	23.81	2.53	76.3	23.7
46	26.14	2.70	78.8	21.2
47	28.70	2.94	81.5	18.5
48	31.50	3.19	84.4	15.6
49	34.58	3.29	87.6	12.4
50	37.97	3.12	90.9	9.08
51	41.68	2.62	94.0	5.96
52	45.75	1.87	96.7	3.35
53	50.22	1.02	98.5	1.48
54	55.13	0.38	99.5	0.46
55	60.52	0.072	99.9	0.078
56	66.44	0.0056	99.99	0.0056
57	72.94	0	100	0
58	80.07	0	100	0
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-9	Group ID:	RC27991
Sample ID:	9		
Run number:	9	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 450.85 - 451.19		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	7:20 6 May 2018	Run length:	60 seconds
Obscuration:	11%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-9

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	14.37 µm	S.D.:	12.85 µm
Median:	9.556 µm	C.V.:	89.4%
Mode:	31.50 µm	Skewness:	1.141 Right skewed
d ₁₀ :	2.200 µm	Kurtosis:	0.486 Leptokurtic
d ₅₀ :	9.556 µm		
d ₉₀ :	34.73 µm		

RC27991-9

Particle Diameter μm	Volume %
0.375	3.79
1.3	4.05
1.9	6.58
2.8	7.89
3.9	15.8
6.6	5.36
7.8	10.9
11	11.4
16	9.55
22	10.9
31	10.4
44	3.35
75	0.00028

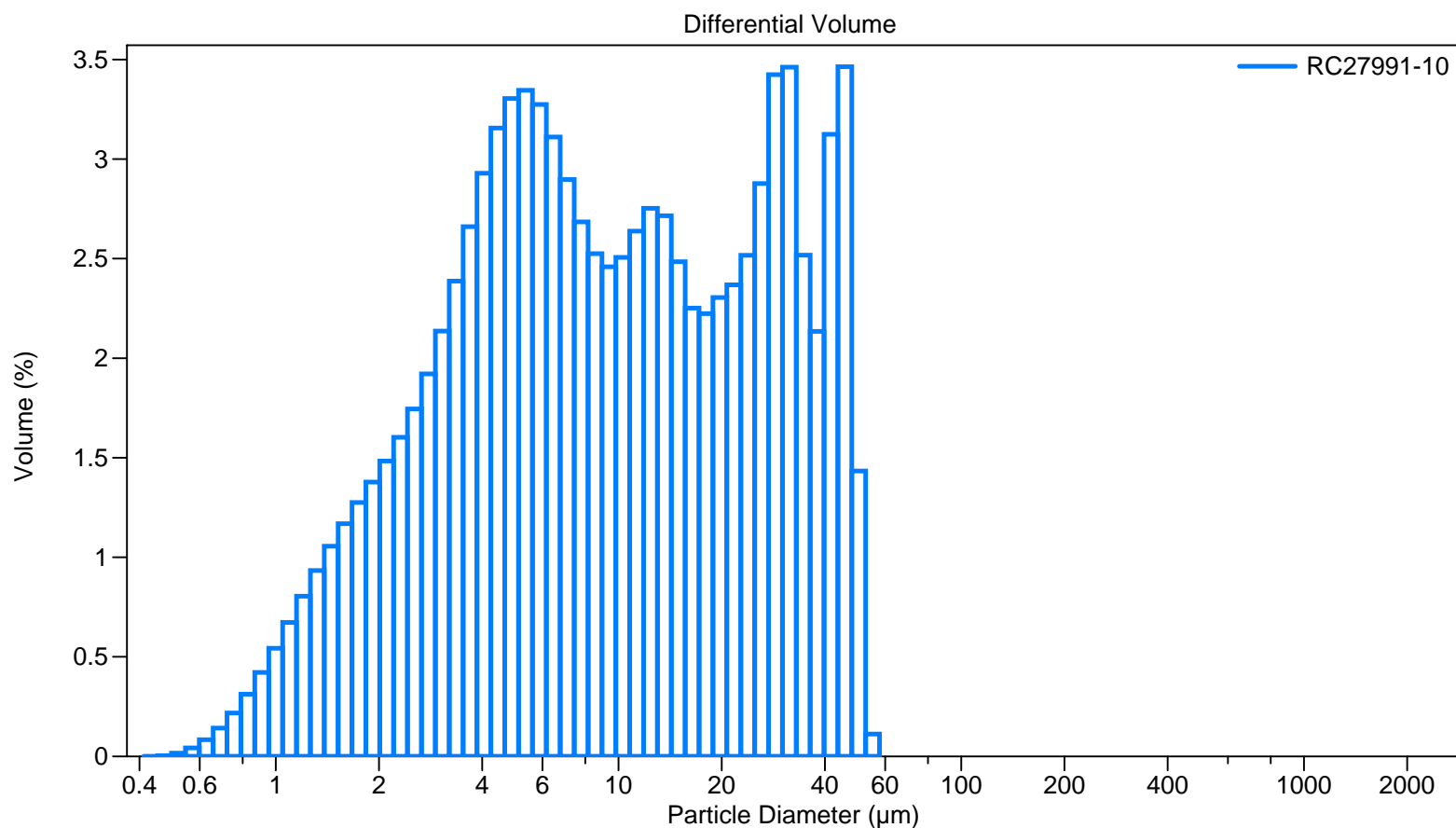
RC27991-9

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.026	0	100
2	0.431	0.046	0.026	99.97
3	0.474	0.069	0.072	99.9
4	0.520	0.10	0.14	99.9
5	0.571	0.14	0.25	99.8
6	0.627	0.18	0.39	99.6
7	0.688	0.23	0.57	99.4
8	0.755	0.28	0.79	99.2
9	0.829	0.34	1.07	98.9
10	0.910	0.41	1.41	98.6
11	0.999	0.49	1.82	98.2
12	1.097	0.57	2.31	97.7
13	1.204	0.67	2.88	97.1
14	1.321	0.77	3.55	96.5
15	1.451	0.89	4.32	95.7
16	1.592	1.01	5.21	94.8
17	1.748	1.14	6.21	93.8
18	1.919	1.28	7.35	92.6
19	2.107	1.43	8.63	91.4
20	2.313	1.58	10.1	89.9
21	2.539	1.75	11.6	88.4
22	2.787	1.92	13.4	86.6
23	3.059	2.09	15.3	84.7
24	3.358	2.25	17.4	82.6
25	3.687	2.42	19.6	80.4
26	4.047	2.56	22.1	77.9
27	4.443	2.70	24.6	75.4
28	4.877	2.80	27.3	72.7
29	5.354	2.89	30.1	69.9
30	5.878	2.95	33.0	67.0
31	6.452	2.99	36.0	64.0
32	7.083	3.00	38.9	61.1
33	7.775	3.00	41.9	58.1
34	8.536	2.98	44.9	55.1
35	9.370	2.96	47.9	52.1
36	10.29	2.93	50.9	49.1
37	11.29	2.90	53.8	46.2
38	12.40	2.87	56.7	43.3

RC27991-9

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.84	59.6	40.4
40	14.94	2.81	62.4	37.6
41	16.40	2.79	65.2	34.8
42	18.00	2.79	68.0	32.0
43	19.76	2.80	70.8	29.2
44	21.69	2.83	73.6	26.4
45	23.81	2.88	76.4	23.6
46	26.14	2.96	79.3	20.7
47	28.70	3.03	82.3	17.7
48	31.50	3.08	85.3	14.7
49	34.58	3.01	88.4	11.6
50	37.97	2.77	91.4	8.60
51	41.68	2.33	94.2	5.82
52	45.75	1.73	96.5	3.49
53	50.22	1.07	98.2	1.76
54	55.13	0.50	99.3	0.68
55	60.52	0.16	99.8	0.18
56	66.44	0.025	99.97	0.026
57	72.94	0.0014	99.999	0.0014
58	80.07	0	100	0
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-10	Group ID:	RC27991
Sample ID:	10		
Run number:	10	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 451.95 - 452.31		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	7:27 6 May 2018	Run length:	60 seconds
Obscuration:	9%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-10

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	14.54 µm	S.D.:	13.43 µm
Median:	8.870 µm	C.V.:	92.4%
Mode:	45.75 µm	Skewness:	1.077 Right skewed
d ₁₀ :	2.134 µm	Kurtosis:	0.034 Leptokurtic
d ₅₀ :	8.870 µm		
d ₉₀ :	36.68 µm		

RC27991-10

Particle Diameter μm	Volume %
0.375	3.55
1.3	4.66
1.9	6.72
2.8	8.36
3.9	18.0
6.6	5.13
7.8	9.33
11	10.5
16	7.78
22	10.8
31	10.4
44	4.74
75	0

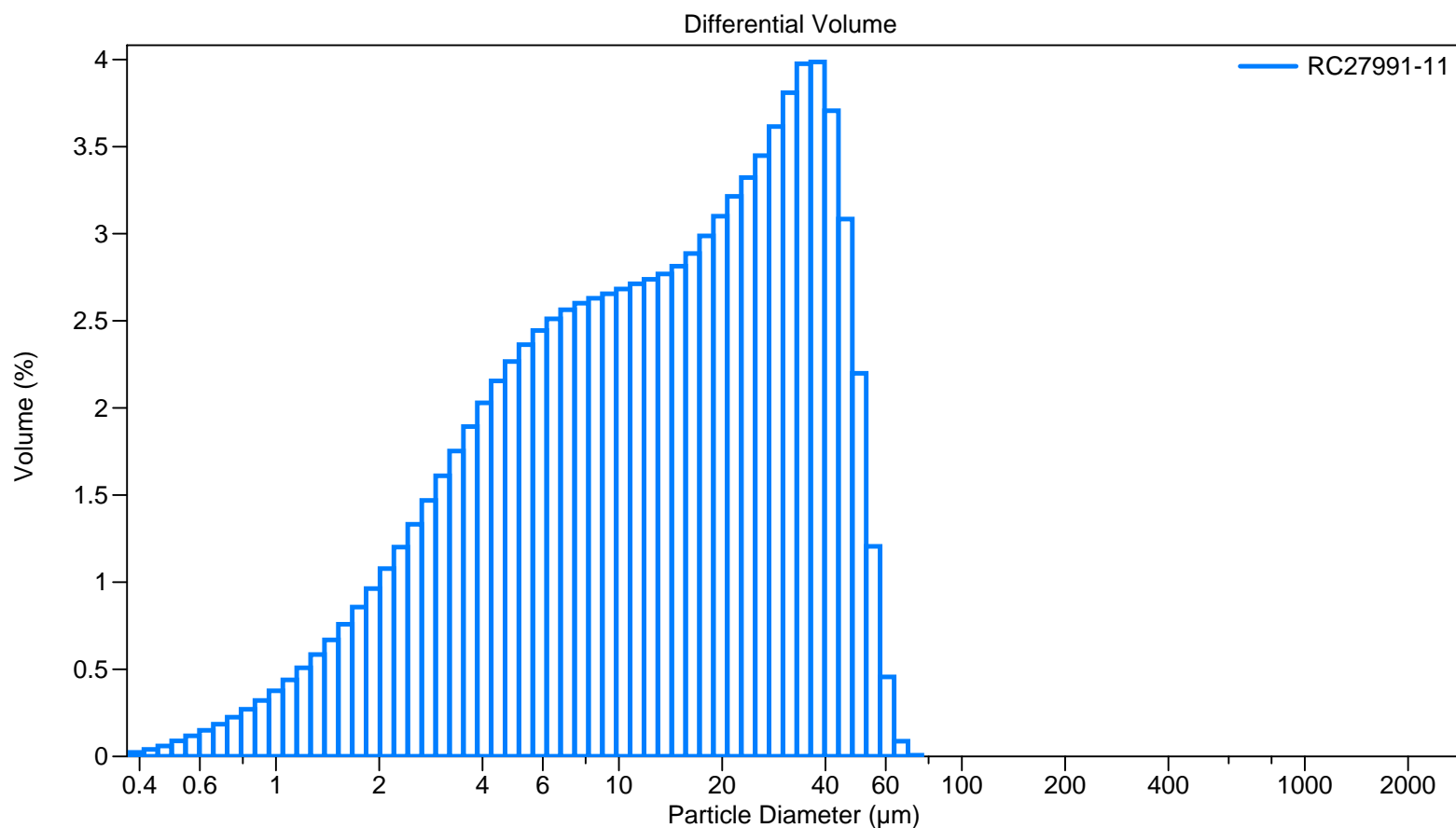
RC27991-10

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0	0	100
2	0.431	0.00014	0	100
3	0.474	0.0032	0.00014	100
4	0.520	0.016	0.0033	99.997
5	0.571	0.042	0.020	99.98
6	0.627	0.083	0.062	99.9
7	0.688	0.14	0.15	99.9
8	0.755	0.22	0.29	99.7
9	0.829	0.31	0.51	99.5
10	0.910	0.42	0.82	99.2
11	0.999	0.54	1.24	98.8
12	1.097	0.67	1.78	98.2
13	1.204	0.80	2.45	97.5
14	1.321	0.93	3.26	96.7
15	1.451	1.06	4.19	95.8
16	1.592	1.17	5.25	94.8
17	1.748	1.27	6.42	93.6
18	1.919	1.38	7.69	92.3
19	2.107	1.48	9.07	90.9
20	2.313	1.60	10.6	89.4
21	2.539	1.74	12.2	87.8
22	2.787	1.92	13.9	86.1
23	3.059	2.14	15.8	84.2
24	3.358	2.39	18.0	82.0
25	3.687	2.66	20.3	79.7
26	4.047	2.93	23.0	77.0
27	4.443	3.16	25.9	74.1
28	4.877	3.30	29.1	70.9
29	5.354	3.35	32.4	67.6
30	5.878	3.27	35.7	64.3
31	6.452	3.11	39.0	61.0
32	7.083	2.90	42.1	57.9
33	7.775	2.68	45.0	55.0
34	8.536	2.52	47.7	52.3
35	9.370	2.46	50.2	49.8
36	10.29	2.51	52.7	47.3
37	11.29	2.64	55.2	44.8
38	12.40	2.75	57.8	42.2

RC27991-10

Channel Number	Channel Diameter (Center) µm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.72	60.6	39.4
40	14.94	2.48	63.3	36.7
41	16.40	2.25	65.8	34.2
42	18.00	2.22	68.0	32.0
43	19.76	2.30	70.3	29.7
44	21.69	2.37	72.6	27.4
45	23.81	2.52	74.9	25.1
46	26.14	2.88	77.5	22.5
47	28.70	3.42	80.3	19.7
48	31.50	3.46	83.8	16.2
49	34.58	2.52	87.2	12.8
50	37.97	2.13	89.7	10.3
51	41.68	3.12	91.9	8.13
52	45.75	3.46	95.0	5.01
53	50.22	1.43	98.5	1.55
54	55.13	0.11	99.9	0.11
55	60.52	0	100	0
56	66.44	0	100	0
57	72.94	0	100	0
58	80.07	0	100	0
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-11	Group ID:	RC27991
Sample ID:	11		
Run number:	11	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 452.93 - 453.25		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	7:33 6 May 2018	Run length:	60 seconds
Obscuration:	12%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-11

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	17.89 µm	S.D.:	14.68 µm
Median:	13.30 µm	C.V.:	82.0%
Mode:	37.97 µm	Skewness:	0.827 Right skewed
d ₁₀ :	2.616 µm	Kurtosis:	-0.313 Platykurtic
d ₅₀ :	13.30 µm		
d ₉₀ :	40.56 µm		

RC27991-11

Particle Diameter μm	Volume %
0.375	2.99
1.3	3.05
1.9	5.00
2.8	6.13
3.9	12.9
6.6	4.59
7.8	9.78
11	11.1
16	10.4
22	12.8
31	14.5
44	6.80
75	0.0014

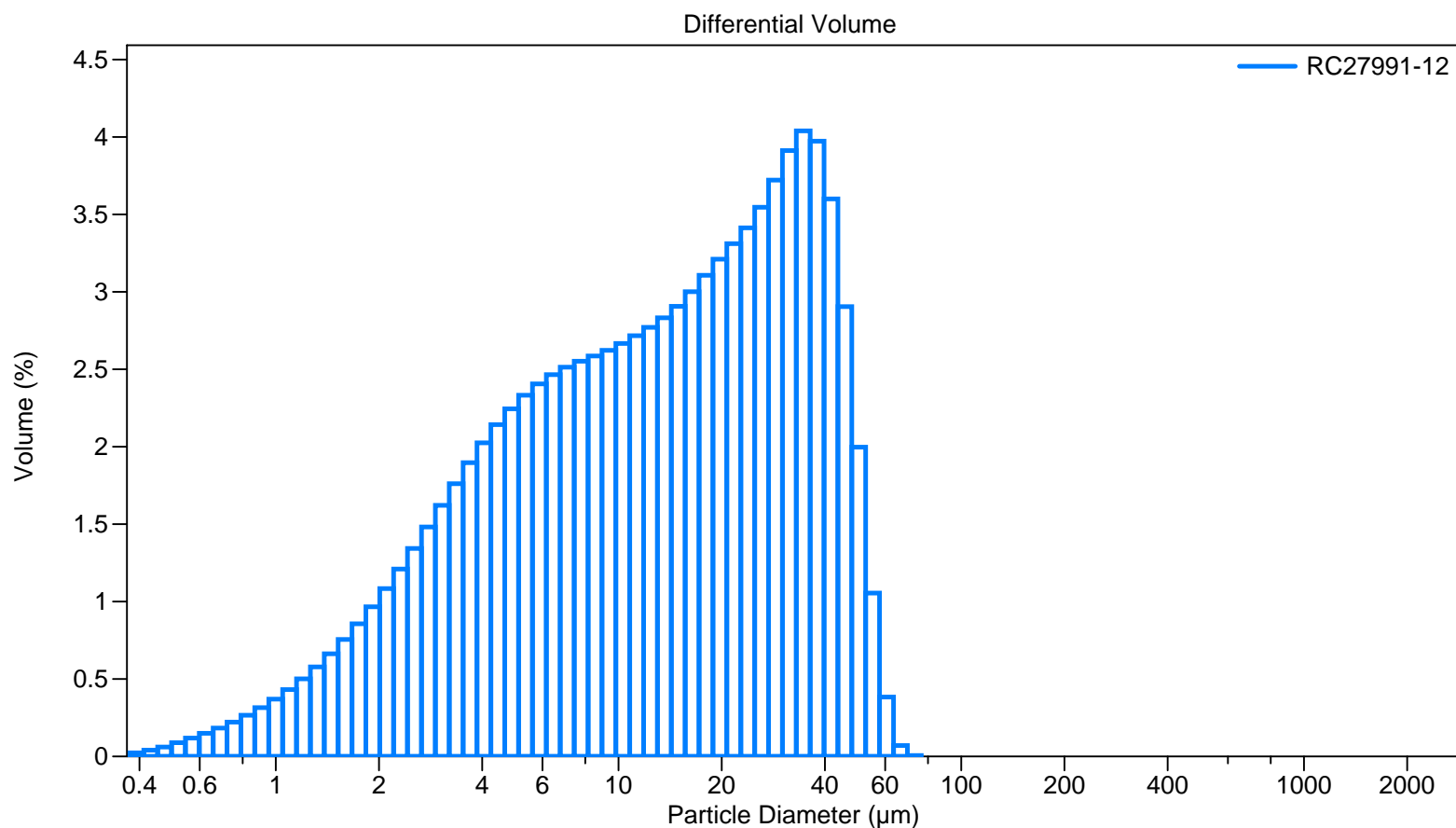
RC27991-11

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.022	0	100
2	0.431	0.040	0.022	99.98
3	0.474	0.060	0.062	99.9
4	0.520	0.088	0.12	99.9
5	0.571	0.12	0.21	99.8
6	0.627	0.15	0.33	99.7
7	0.688	0.18	0.48	99.5
8	0.755	0.23	0.66	99.3
9	0.829	0.27	0.89	99.1
10	0.910	0.32	1.16	98.8
11	0.999	0.38	1.48	98.5
12	1.097	0.44	1.85	98.1
13	1.204	0.51	2.29	97.7
14	1.321	0.58	2.80	97.2
15	1.451	0.67	3.39	96.6
16	1.592	0.76	4.05	95.9
17	1.748	0.86	4.81	95.2
18	1.919	0.96	5.67	94.3
19	2.107	1.08	6.63	93.4
20	2.313	1.20	7.71	92.3
21	2.539	1.33	8.91	91.1
22	2.787	1.47	10.2	89.8
23	3.059	1.61	11.7	88.3
24	3.358	1.75	13.3	86.7
25	3.687	1.89	15.1	84.9
26	4.047	2.03	17.0	83.0
27	4.443	2.16	19.0	81.0
28	4.877	2.27	21.2	78.8
29	5.354	2.36	23.4	76.6
30	5.878	2.44	25.8	74.2
31	6.452	2.51	28.2	71.8
32	7.083	2.56	30.7	69.3
33	7.775	2.60	33.3	66.7
34	8.536	2.63	35.9	64.1
35	9.370	2.66	38.5	61.5
36	10.29	2.68	41.2	58.8
37	11.29	2.71	43.9	56.1
38	12.40	2.74	46.6	53.4

RC27991-11

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.77	49.3	50.7
40	14.94	2.81	52.1	47.9
41	16.40	2.89	54.9	45.1
42	18.00	2.99	57.8	42.2
43	19.76	3.10	60.8	39.2
44	21.69	3.21	63.9	36.1
45	23.81	3.32	67.1	32.9
46	26.14	3.45	70.4	29.6
47	28.70	3.62	73.9	26.1
48	31.50	3.81	77.5	22.5
49	34.58	3.98	81.3	18.7
50	37.97	3.99	85.3	14.7
51	41.68	3.71	89.3	10.7
52	45.75	3.08	93.0	7.04
53	50.22	2.20	96.0	3.95
54	55.13	1.21	98.2	1.75
55	60.52	0.46	99.5	0.55
56	66.44	0.087	99.9	0.093
57	72.94	0.0068	99.99	0.0068
58	80.07	0	100	0
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-12	Group ID:	RC27991
Sample ID:	12		
Run number:	12	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 453.85 - 454.10		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	7:41 6 May 2018	Run length:	60 seconds
Obscuration:	12%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-12

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	17.74 µm	S.D.:	14.41 µm
Median:	13.43 µm	C.V.:	81.2%
Mode:	34.58 µm	Skewness:	0.818 Right skewed
d ₁₀ :	2.622 µm	Kurtosis:	-0.303 Platykurtic
d ₅₀ :	13.43 µm		
d ₉₀ :	39.79 µm		

RC27991-12

Particle Diameter μm	Volume %
0.375	2.94
1.3	3.04
1.9	5.03
2.8	6.16
3.9	12.8
6.6	4.50
7.8	9.67
11	11.3
16	10.8
22	13.1
31	14.5
44	6.19
75	0.0011

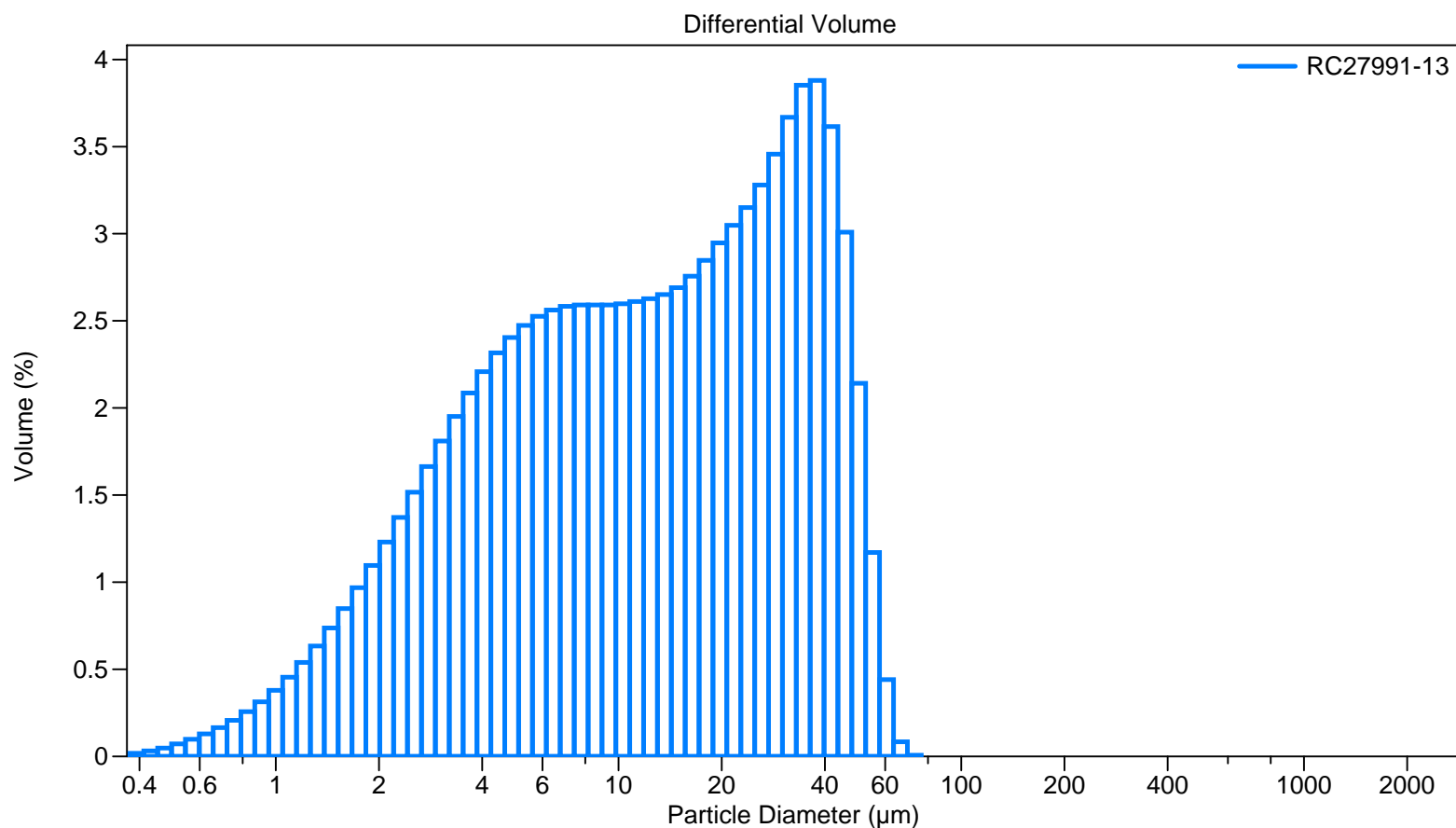
RC27991-12

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.023	0	100
2	0.431	0.040	0.023	99.98
3	0.474	0.060	0.063	99.9
4	0.520	0.089	0.12	99.9
5	0.571	0.12	0.21	99.8
6	0.627	0.15	0.33	99.7
7	0.688	0.18	0.48	99.5
8	0.755	0.22	0.66	99.3
9	0.829	0.27	0.88	99.1
10	0.910	0.31	1.15	98.9
11	0.999	0.37	1.46	98.5
12	1.097	0.43	1.83	98.2
13	1.204	0.50	2.26	97.7
14	1.321	0.58	2.76	97.2
15	1.451	0.66	3.34	96.7
16	1.592	0.76	4.00	96.0
17	1.748	0.86	4.76	95.2
18	1.919	0.97	5.61	94.4
19	2.107	1.08	6.58	93.4
20	2.313	1.21	7.66	92.3
21	2.539	1.34	8.87	91.1
22	2.787	1.48	10.2	89.8
23	3.059	1.62	11.7	88.3
24	3.358	1.76	13.3	86.7
25	3.687	1.90	15.1	84.9
26	4.047	2.02	17.0	83.0
27	4.443	2.14	19.0	81.0
28	4.877	2.24	21.1	78.9
29	5.354	2.33	23.4	76.6
30	5.878	2.41	25.7	74.3
31	6.452	2.47	28.1	71.9
32	7.083	2.51	30.6	69.4
33	7.775	2.55	33.1	66.9
34	8.536	2.59	35.7	64.3
35	9.370	2.62	38.2	61.8
36	10.29	2.67	40.9	59.1
37	11.29	2.72	43.5	56.5
38	12.40	2.77	46.2	53.8

RC27991-12

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.83	49.0	51.0
40	14.94	2.91	51.8	48.2
41	16.40	3.00	54.8	45.2
42	18.00	3.11	57.8	42.2
43	19.76	3.21	60.9	39.1
44	21.69	3.31	64.1	35.9
45	23.81	3.41	67.4	32.6
46	26.14	3.55	70.8	29.2
47	28.70	3.72	74.3	25.7
48	31.50	3.91	78.1	21.9
49	34.58	4.04	82.0	18.0
50	37.97	3.97	86.0	14.0
51	41.68	3.60	90.0	10.0
52	45.75	2.90	93.6	6.41
53	50.22	2.00	96.5	3.51
54	55.13	1.05	98.5	1.51
55	60.52	0.38	99.5	0.46
56	66.44	0.070	99.9	0.075
57	72.94	0.0052	99.99	0.0052
58	80.07	0	100	0
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-13	Group ID:	RC27991
Sample ID:	13		
Run number:	13	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 455.00 - 455.35		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	7:48 6 May 2018	Run length:	60 seconds
Obscuration:	9%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-13

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	17.39 µm	S.D.:	14.70 µm
Median:	12.41 µm	C.V.:	84.5%
Mode:	37.97 µm	Skewness:	0.871 Right skewed
d ₁₀ :	2.486 µm	Kurtosis:	-0.259 Platykurtic
d ₅₀ :	12.41 µm		
d ₉₀ :	40.28 µm		

RC27991-13

Particle Diameter μm	Volume %
0.375	2.91
1.3	3.41
1.9	5.69
2.8	6.83
3.9	13.6
6.6	4.62
7.8	9.57
11	10.7
16	9.87
22	12.1
31	14.1
44	6.62
75	0.0014

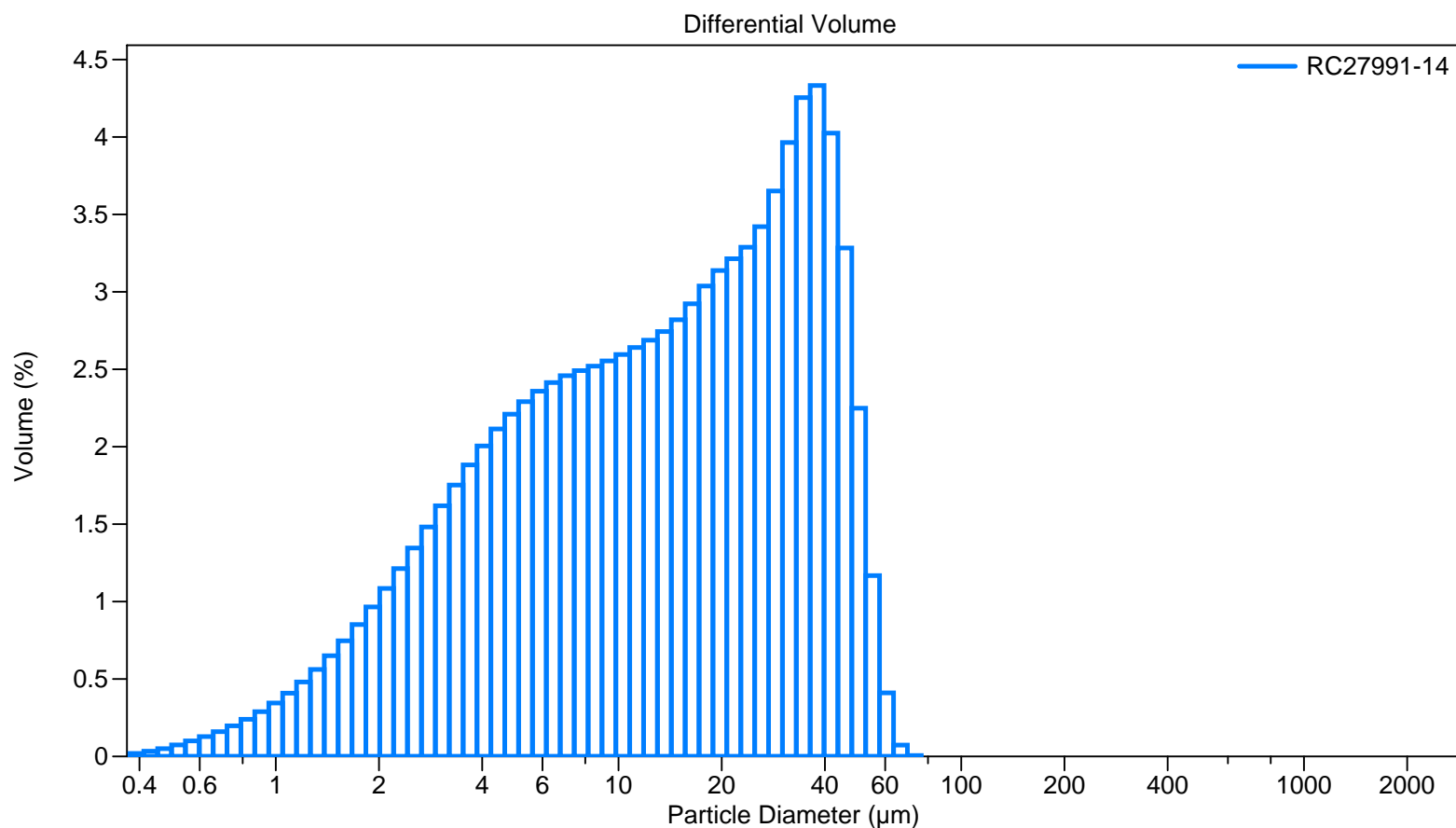
RC27991-13

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.018	0	100
2	0.431	0.031	0.018	99.98
3	0.474	0.047	0.049	99.95
4	0.520	0.072	0.097	99.9
5	0.571	0.098	0.17	99.8
6	0.627	0.13	0.27	99.7
7	0.688	0.16	0.40	99.6
8	0.755	0.21	0.56	99.4
9	0.829	0.26	0.77	99.2
10	0.910	0.31	1.02	99.0
11	0.999	0.38	1.34	98.7
12	1.097	0.45	1.72	98.3
13	1.204	0.54	2.17	97.8
14	1.321	0.63	2.71	97.3
15	1.451	0.74	3.34	96.7
16	1.592	0.85	4.08	95.9
17	1.748	0.97	4.93	95.1
18	1.919	1.10	5.90	94.1
19	2.107	1.23	6.99	93.0
20	2.313	1.37	8.22	91.8
21	2.539	1.52	9.59	90.4
22	2.787	1.66	11.1	88.9
23	3.059	1.81	12.8	87.2
24	3.358	1.95	14.6	85.4
25	3.687	2.09	16.5	83.5
26	4.047	2.21	18.6	81.4
27	4.443	2.32	20.8	79.2
28	4.877	2.40	23.1	76.9
29	5.354	2.47	25.6	74.4
30	5.878	2.53	28.0	72.0
31	6.452	2.56	30.6	69.4
32	7.083	2.58	33.1	66.9
33	7.775	2.59	35.7	64.3
34	8.536	2.59	38.3	61.7
35	9.370	2.59	40.9	59.1
36	10.29	2.60	43.5	56.5
37	11.29	2.61	46.1	53.9
38	12.40	2.63	48.7	51.3

RC27991-13

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.65	51.3	48.7
40	14.94	2.69	54.0	46.0
41	16.40	2.76	56.6	43.4
42	18.00	2.85	59.4	40.6
43	19.76	2.95	62.2	37.8
44	21.69	3.05	65.2	34.8
45	23.81	3.15	68.2	31.8
46	26.14	3.28	71.4	28.6
47	28.70	3.46	74.7	25.3
48	31.50	3.67	78.1	21.9
49	34.58	3.85	81.8	18.2
50	37.97	3.88	85.7	14.3
51	41.68	3.62	89.5	10.5
52	45.75	3.01	93.1	6.85
53	50.22	2.14	96.2	3.84
54	55.13	1.17	98.3	1.70
55	60.52	0.44	99.5	0.53
56	66.44	0.083	99.9	0.090
57	72.94	0.0065	99.99	0.0065
58	80.07	0	100	0
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-14	Group ID:	RC27991
Sample ID:	14		
Run number:	14	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 456.70 - 457.00		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	7:55 6 May 2018	Run length:	60 seconds
Obscuration:	10%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-14

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	18.29 µm	S.D.:	14.76 µm
Median:	13.91 µm	C.V.:	80.7%
Mode:	37.97 µm	Skewness:	0.764 Right skewed
d ₁₀ :	2.671 µm	Kurtosis:	-0.459 Platykurtic
d ₅₀ :	13.91 µm		
d ₉₀ :	40.95 µm		

RC27991-14

Particle Diameter μm	Volume %
0.375	2.70
1.3	3.00
1.9	5.04
2.8	6.13
3.9	12.6
6.6	4.40
7.8	9.42
11	11.0
16	10.5
22	12.8
31	15.6
44	6.93
75	0.0011

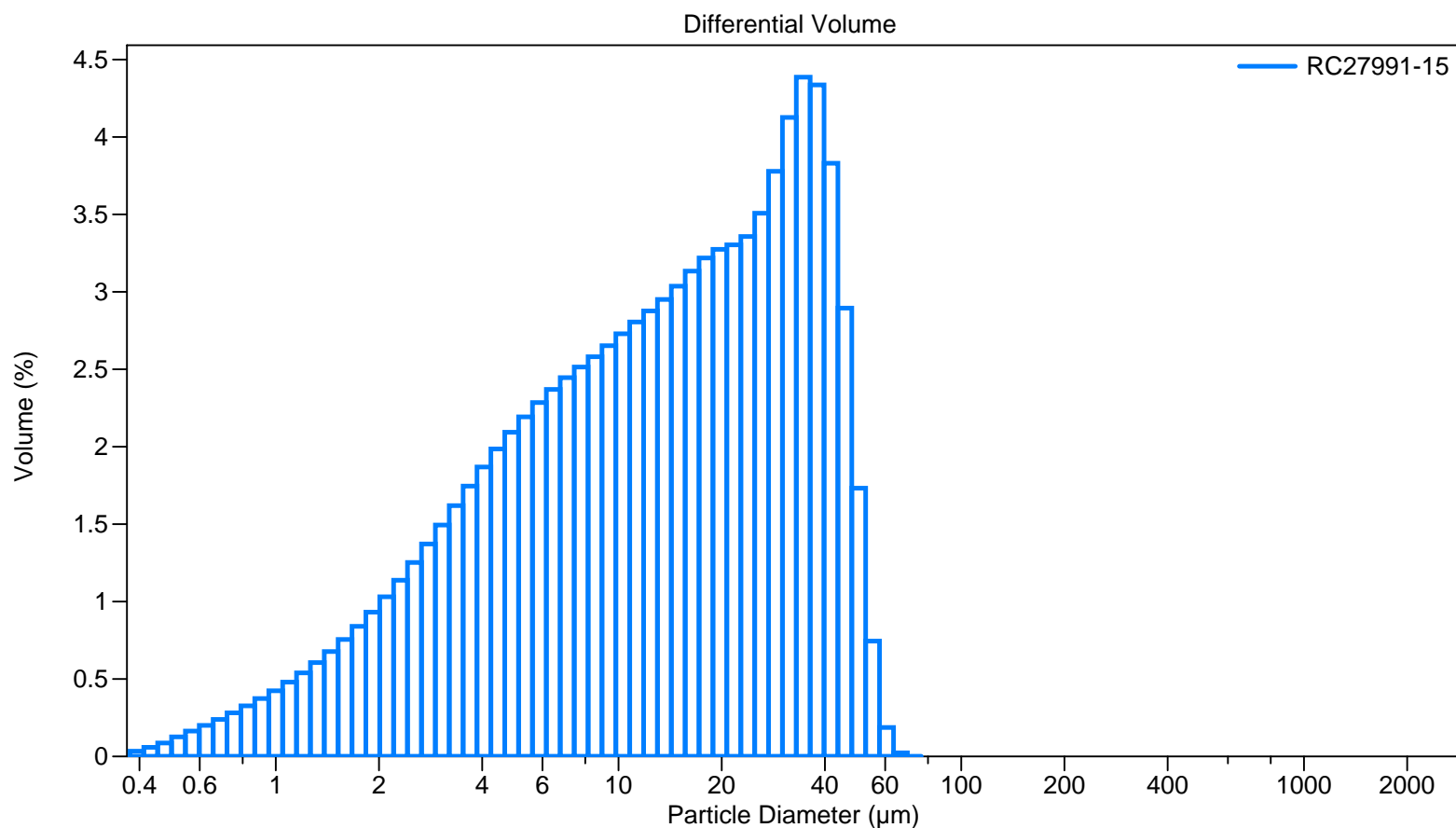
RC27991-14

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.019	0	100
2	0.431	0.033	0.019	99.98
3	0.474	0.050	0.052	99.9
4	0.520	0.074	0.10	99.9
5	0.571	0.099	0.18	99.8
6	0.627	0.13	0.27	99.7
7	0.688	0.16	0.40	99.6
8	0.755	0.20	0.56	99.4
9	0.829	0.24	0.76	99.2
10	0.910	0.29	1.00	99.0
11	0.999	0.34	1.29	98.7
12	1.097	0.41	1.63	98.4
13	1.204	0.48	2.04	98.0
14	1.321	0.56	2.52	97.5
15	1.451	0.65	3.08	96.9
16	1.592	0.75	3.73	96.3
17	1.748	0.85	4.48	95.5
18	1.919	0.96	5.33	94.7
19	2.107	1.08	6.29	93.7
20	2.313	1.21	7.38	92.6
21	2.539	1.35	8.59	91.4
22	2.787	1.48	9.93	90.1
23	3.059	1.62	11.4	88.6
24	3.358	1.75	13.0	87.0
25	3.687	1.88	14.8	85.2
26	4.047	2.00	16.7	83.3
27	4.443	2.11	18.7	81.3
28	4.877	2.21	20.8	79.2
29	5.354	2.29	23.0	77.0
30	5.878	2.36	25.3	74.7
31	6.452	2.41	27.6	72.4
32	7.083	2.46	30.1	69.9
33	7.775	2.49	32.5	67.5
34	8.536	2.52	35.0	65.0
35	9.370	2.55	37.5	62.5
36	10.29	2.60	40.1	59.9
37	11.29	2.64	42.7	57.3
38	12.40	2.69	45.3	54.7

RC27991-14

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.74	48.0	52.0
40	14.94	2.82	50.7	49.3
41	16.40	2.92	53.6	46.4
42	18.00	3.04	56.5	43.5
43	19.76	3.14	59.5	40.5
44	21.69	3.21	62.7	37.3
45	23.81	3.29	65.9	34.1
46	26.14	3.42	69.2	30.8
47	28.70	3.65	72.6	27.4
48	31.50	3.96	76.2	23.8
49	34.58	4.25	80.2	19.8
50	37.97	4.33	84.5	15.5
51	41.68	4.02	88.8	11.2
52	45.75	3.28	92.8	7.19
53	50.22	2.25	96.1	3.90
54	55.13	1.17	98.3	1.65
55	60.52	0.41	99.5	0.49
56	66.44	0.073	99.9	0.078
57	72.94	0.0051	99.99	0.0051
58	80.07	0	100	0
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-15	Group ID:	RC27991
Sample ID:	15		
Run number:	15	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 457.92 - 458.20		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	8:01 6 May 2018	Run length:	60 seconds
Obscuration:	7%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-15

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	17.74 µm	S.D.:	14.09 µm
Median:	13.77 µm	C.V.:	79.4%
Mode:	34.58 µm	Skewness:	0.741 Right skewed
d ₁₀ :	2.555 µm	Kurtosis:	-0.485 Platykurtic
d ₅₀ :	13.77 µm		
d ₉₀ :	39.30 µm		

RC27991-15

Particle Diameter μm	Volume %
0.375	3.52
1.3	3.04
1.9	4.73
2.8	5.68
3.9	12.0
6.6	4.39
7.8	9.76
11	11.8
16	11.0
22	13.1
31	15.6
44	5.36
75	0.00011

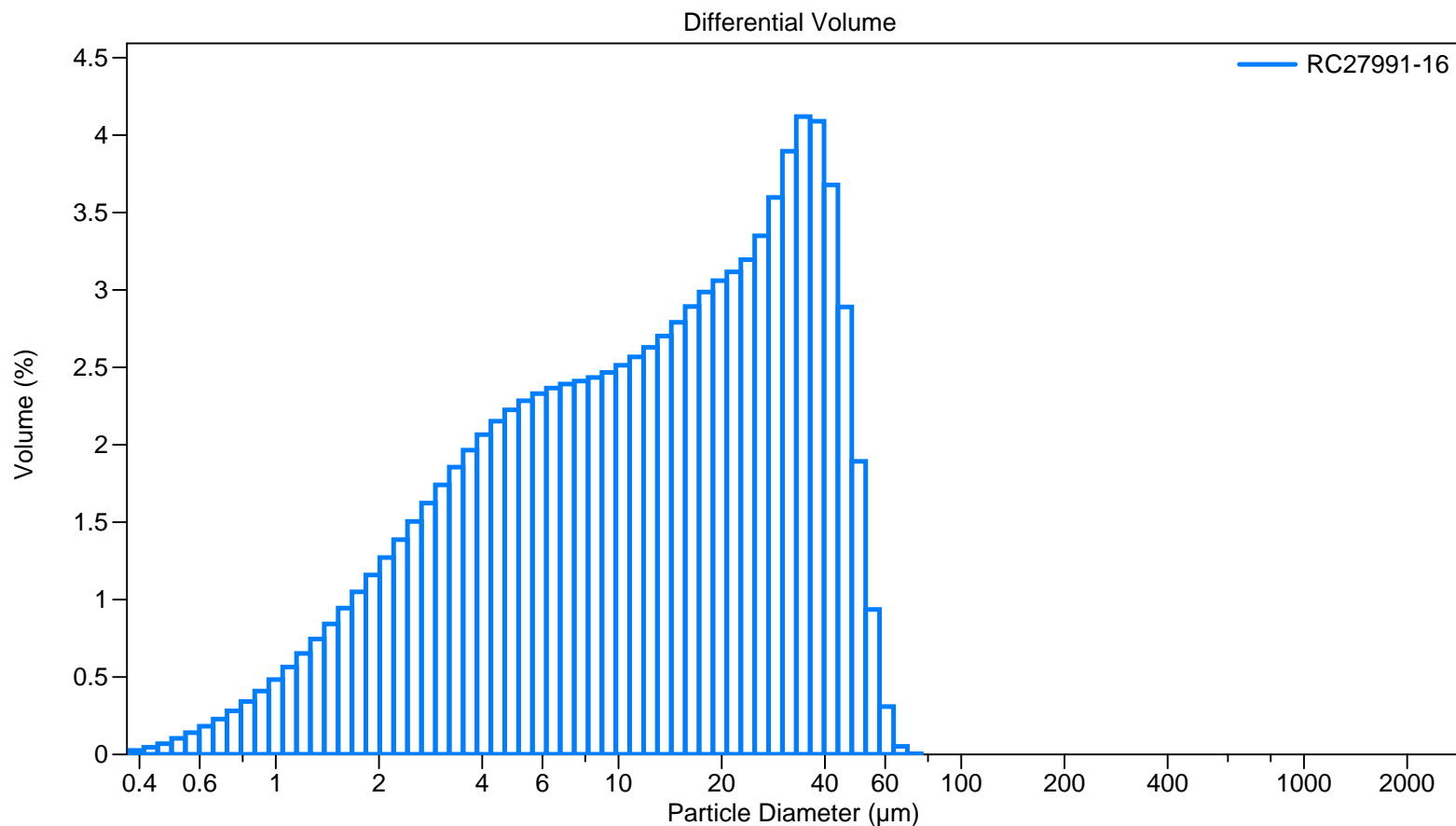
RC27991-15

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.033	0	100
2	0.431	0.058	0.033	99.97
3	0.474	0.086	0.091	99.9
4	0.520	0.13	0.18	99.8
5	0.571	0.16	0.30	99.7
6	0.627	0.20	0.47	99.5
7	0.688	0.24	0.67	99.3
8	0.755	0.28	0.91	99.1
9	0.829	0.33	1.19	98.8
10	0.910	0.37	1.51	98.5
11	0.999	0.42	1.88	98.1
12	1.097	0.48	2.31	97.7
13	1.204	0.54	2.79	97.2
14	1.321	0.61	3.33	96.7
15	1.451	0.68	3.93	96.1
16	1.592	0.75	4.61	95.4
17	1.748	0.84	5.36	94.6
18	1.919	0.93	6.20	93.8
19	2.107	1.03	7.13	92.9
20	2.313	1.14	8.16	91.8
21	2.539	1.25	9.30	90.7
22	2.787	1.37	10.6	89.4
23	3.059	1.49	11.9	88.1
24	3.358	1.62	13.4	86.6
25	3.687	1.75	15.0	85.0
26	4.047	1.87	16.8	83.2
27	4.443	1.99	18.7	81.3
28	4.877	2.09	20.6	79.4
29	5.354	2.19	22.7	77.3
30	5.878	2.28	24.9	75.1
31	6.452	2.37	27.2	72.8
32	7.083	2.45	29.6	70.4
33	7.775	2.51	32.0	68.0
34	8.536	2.58	34.5	65.5
35	9.370	2.65	37.1	62.9
36	10.29	2.73	39.8	60.2
37	11.29	2.80	42.5	57.5
38	12.40	2.88	45.3	54.7

RC27991-15

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.95	48.2	51.8
40	14.94	3.04	51.1	48.9
41	16.40	3.13	54.2	45.8
42	18.00	3.22	57.3	42.7
43	19.76	3.27	60.5	39.5
44	21.69	3.30	63.8	36.2
45	23.81	3.36	67.1	32.9
46	26.14	3.51	70.5	29.5
47	28.70	3.78	74.0	26.0
48	31.50	4.13	77.7	22.3
49	34.58	4.39	81.9	18.1
50	37.97	4.34	86.3	13.7
51	41.68	3.83	90.6	9.41
52	45.75	2.89	94.4	5.58
53	50.22	1.73	97.3	2.69
54	55.13	0.74	99.0	0.95
55	60.52	0.19	99.8	0.21
56	66.44	0.023	99.98	0.023
57	72.94	0.00055	99.999	0.00055
58	80.07	0	100	0
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-16	Group ID:	RC27991
Sample ID:	16		
Run number:	16	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 458.88 - 459.25		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	8:08 6 May 2018	Run length:	60 seconds
Obscuration:	11%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-16

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	17.31 µm	S.D.:	14.46 µm
Median:	12.79 µm	C.V.:	83.6%
Mode:	34.58 µm	Skewness:	0.812 Right skewed
d ₁₀ :	2.279 µm	Kurtosis:	-0.369 Platykurtic
d ₅₀ :	12.79 µm		
d ₉₀ :	39.57 µm		

RC27991-16

Particle Diameter μm	Volume %
0.375	3.76
1.3	3.79
1.9	5.75
2.8	6.51
3.9	12.6
6.6	4.28
7.8	9.11
11	10.8
16	10.3
22	12.5
31	14.8
44	5.86
75	0.00068

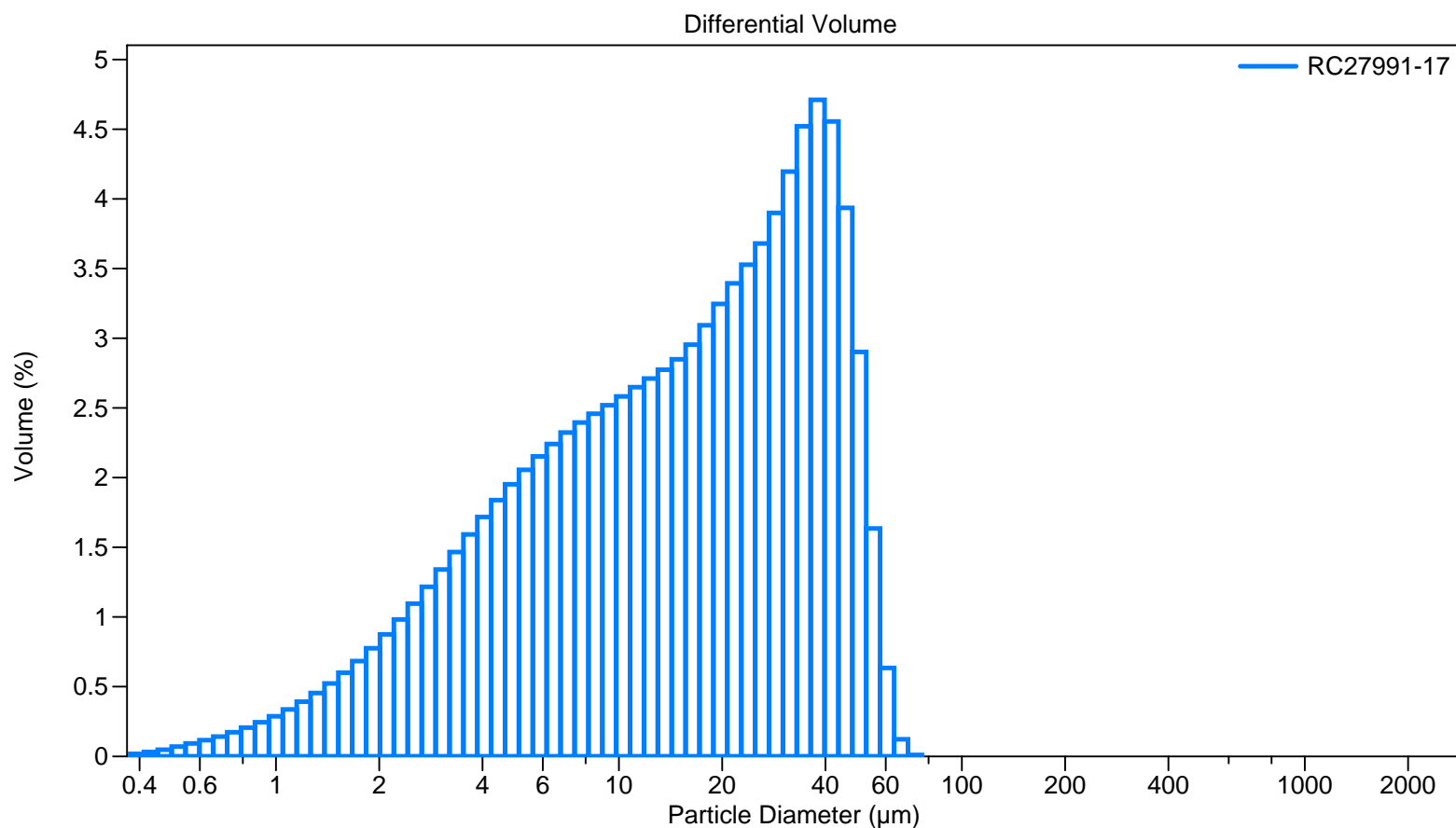
RC27991-16

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.026	0	100
2	0.431	0.046	0.026	99.97
3	0.474	0.069	0.071	99.9
4	0.520	0.10	0.14	99.9
5	0.571	0.14	0.24	99.8
6	0.627	0.18	0.38	99.6
7	0.688	0.23	0.57	99.4
8	0.755	0.28	0.79	99.2
9	0.829	0.34	1.07	98.9
10	0.910	0.41	1.42	98.6
11	0.999	0.48	1.83	98.2
12	1.097	0.56	2.31	97.7
13	1.204	0.65	2.87	97.1
14	1.321	0.75	3.53	96.5
15	1.451	0.84	4.27	95.7
16	1.592	0.94	5.11	94.9
17	1.748	1.05	6.06	93.9
18	1.919	1.16	7.11	92.9
19	2.107	1.27	8.27	91.7
20	2.313	1.39	9.54	90.5
21	2.539	1.50	10.9	89.1
22	2.787	1.62	12.4	87.6
23	3.059	1.74	14.1	85.9
24	3.358	1.86	15.8	84.2
25	3.687	1.96	17.6	82.4
26	4.047	2.06	19.6	80.4
27	4.443	2.15	21.7	78.3
28	4.877	2.22	23.8	76.2
29	5.354	2.28	26.1	73.9
30	5.878	2.33	28.3	71.7
31	6.452	2.37	30.7	69.3
32	7.083	2.39	33.0	67.0
33	7.775	2.41	35.4	64.6
34	8.536	2.43	37.8	62.2
35	9.370	2.47	40.3	59.7
36	10.29	2.51	42.7	57.3
37	11.29	2.57	45.3	54.7
38	12.40	2.63	47.8	52.2

RC27991-16

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.70	50.4	49.6
40	14.94	2.79	53.1	46.9
41	16.40	2.89	55.9	44.1
42	18.00	2.99	58.8	41.2
43	19.76	3.06	61.8	38.2
44	21.69	3.12	64.9	35.1
45	23.81	3.19	68.0	32.0
46	26.14	3.35	71.2	28.8
47	28.70	3.60	74.5	25.5
48	31.50	3.90	78.1	21.9
49	34.58	4.12	82.0	18.0
50	37.97	4.09	86.2	13.8
51	41.68	3.68	90.2	9.76
52	45.75	2.89	93.9	6.08
53	50.22	1.89	96.8	3.19
54	55.13	0.94	98.7	1.30
55	60.52	0.31	99.6	0.36
56	66.44	0.052	99.9	0.055
57	72.94	0.0032	99.997	0.0032
58	80.07	0	100	0
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-17	Group ID:	RC27991
Sample ID:	17		
Run number:	17	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 460.00 - 460.35		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	8:15 6 May 2018	Run length:	60 seconds
Obscuration:	6%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-17

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	19.99 µm	S.D.:	15.29 µm
Median:	16.18 µm	C.V.:	76.5%
Mode:	37.97 µm	Skewness:	0.655 Right skewed
d ₁₀ :	3.056 µm	Kurtosis:	-0.625 Platykurtic
d ₅₀ :	16.18 µm		
d ₉₀ :	43.02 µm		

RC27991-17

Particle Diameter μm	Volume %
0.375	2.30
1.3	2.41
1.9	4.09
2.8	5.13
3.9	11.2
6.6	4.17
7.8	9.27
11	11.1
16	10.8
22	13.7
31	17.0
44	8.93
75	0.0021

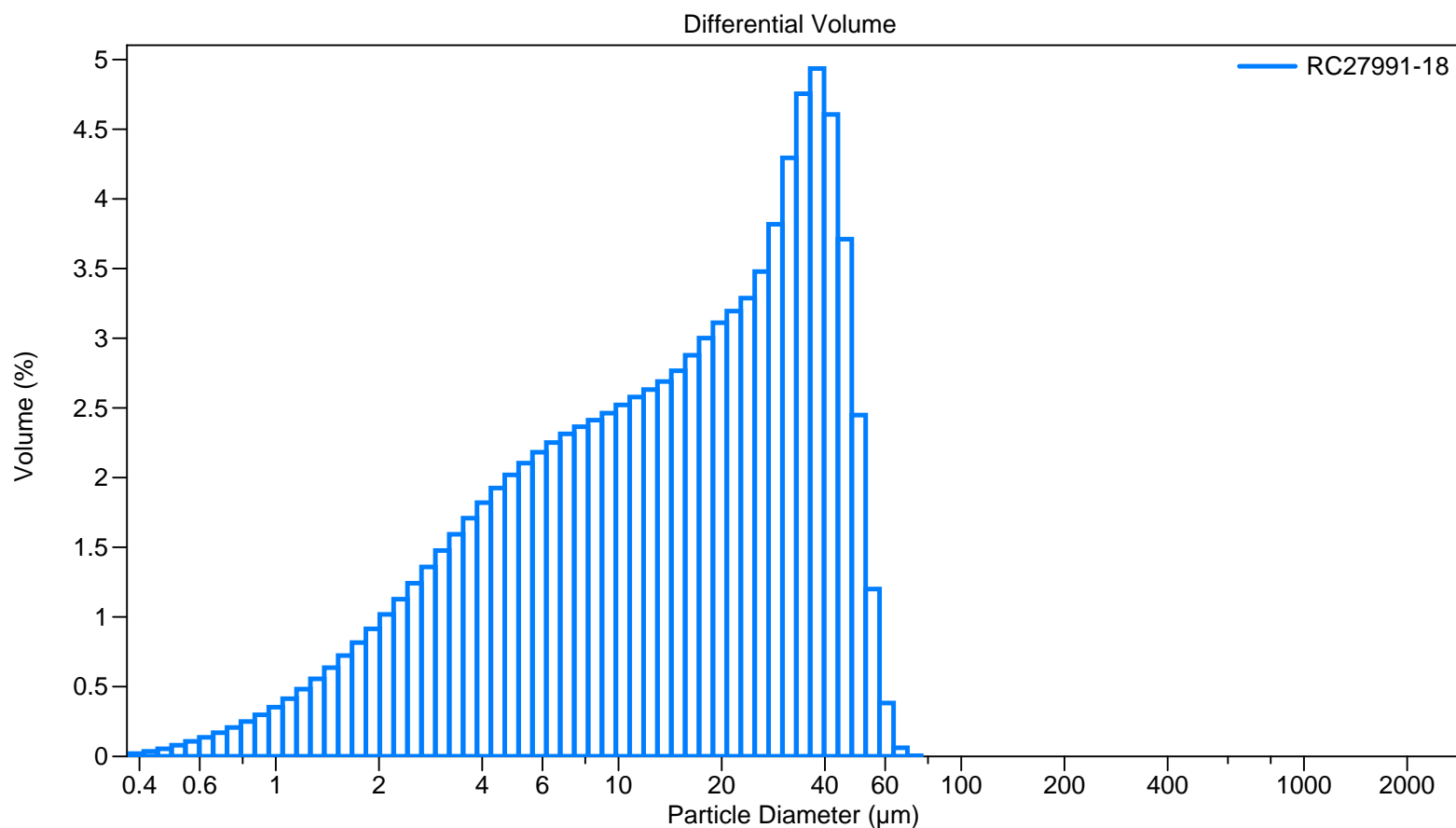
RC27991-17

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.018	0	100
2	0.431	0.032	0.018	99.98
3	0.474	0.047	0.049	99.95
4	0.520	0.070	0.097	99.9
5	0.571	0.092	0.17	99.8
6	0.627	0.12	0.26	99.7
7	0.688	0.14	0.37	99.6
8	0.755	0.17	0.52	99.5
9	0.829	0.21	0.69	99.3
10	0.910	0.24	0.90	99.1
11	0.999	0.29	1.14	98.9
12	1.097	0.34	1.43	98.6
13	1.204	0.39	1.76	98.2
14	1.321	0.45	2.16	97.8
15	1.451	0.52	2.61	97.4
16	1.592	0.60	3.13	96.9
17	1.748	0.68	3.73	96.3
18	1.919	0.78	4.42	95.6
19	2.107	0.87	5.19	94.8
20	2.313	0.98	6.07	93.9
21	2.539	1.10	7.05	93.0
22	2.787	1.22	8.14	91.9
23	3.059	1.34	9.36	90.6
24	3.358	1.47	10.7	89.3
25	3.687	1.59	12.2	87.8
26	4.047	1.72	13.8	86.2
27	4.443	1.84	15.5	84.5
28	4.877	1.95	17.3	82.7
29	5.354	2.06	19.3	80.7
30	5.878	2.15	21.3	78.7
31	6.452	2.24	23.5	76.5
32	7.083	2.32	25.7	74.3
33	7.775	2.40	28.0	72.0
34	8.536	2.46	30.4	69.6
35	9.370	2.52	32.9	67.1
36	10.29	2.58	35.4	64.6
37	11.29	2.65	38.0	62.0
38	12.40	2.71	40.6	59.4

RC27991-17

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.77	43.4	56.6
40	14.94	2.85	46.1	53.9
41	16.40	2.95	49.0	51.0
42	18.00	3.09	51.9	48.1
43	19.76	3.25	55.0	45.0
44	21.69	3.39	58.3	41.7
45	23.81	3.53	61.7	38.3
46	26.14	3.68	65.2	34.8
47	28.70	3.90	68.9	31.1
48	31.50	4.20	72.8	27.2
49	34.58	4.52	77.0	23.0
50	37.97	4.71	81.5	18.5
51	41.68	4.56	86.2	13.8
52	45.75	3.94	90.8	9.24
53	50.22	2.90	94.7	5.30
54	55.13	1.64	97.6	2.40
55	60.52	0.63	99.2	0.77
56	66.44	0.12	99.9	0.13
57	72.94	0.0099	99.99	0.0099
58	80.07	0	100	0
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-18	Group ID:	RC27991
Sample ID:	18		
Run number:	18	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 460.75- 461.10		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	8:22 6 May 2018	Run length:	60 seconds
Obscuration:	5%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-18

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	19.21 µm	S.D.:	15.00 µm
Median:	15.23 µm	C.V.:	78.1%
Mode:	37.97 µm	Skewness:	0.647 Right skewed
d ₁₀ :	2.728 µm	Kurtosis:	-0.686 Platykurtic
d ₅₀ :	15.23 µm		
d ₉₀ :	41.82 µm		

RC27991-18

Particle Diameter μm	Volume %
0.375	2.78
1.3	2.91
1.9	4.69
2.8	5.59
3.9	11.5
6.6	4.15
7.8	9.07
11	10.8
16	10.4
22	13.1
31	17.5
44	7.52
75	0.00072

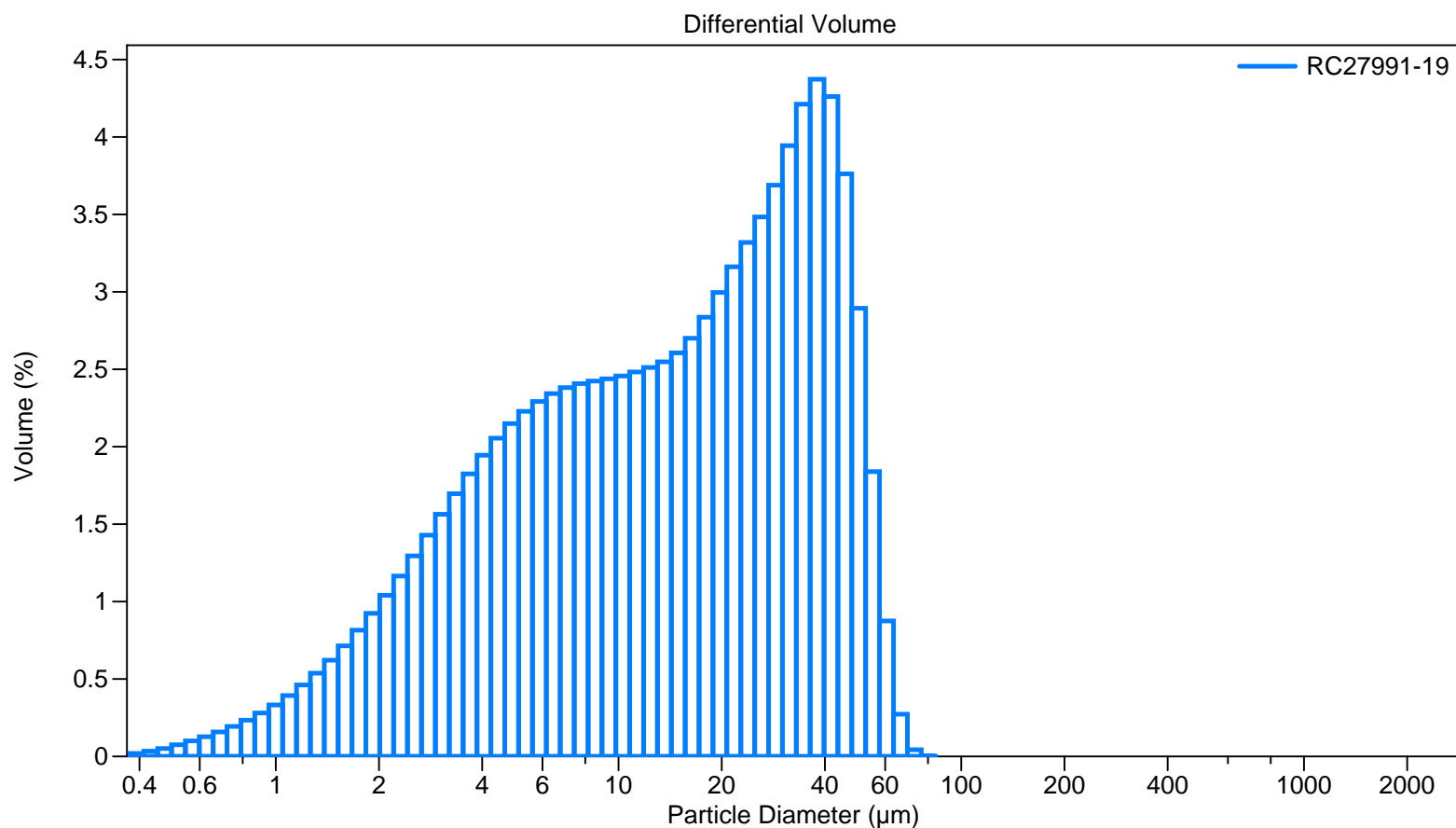
RC27991-18

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.020	0	100
2	0.431	0.036	0.020	99.98
3	0.474	0.054	0.056	99.9
4	0.520	0.080	0.11	99.9
5	0.571	0.11	0.19	99.8
6	0.627	0.14	0.30	99.7
7	0.688	0.17	0.43	99.6
8	0.755	0.21	0.60	99.4
9	0.829	0.25	0.81	99.2
10	0.910	0.30	1.06	98.9
11	0.999	0.35	1.36	98.6
12	1.097	0.41	1.71	98.3
13	1.204	0.48	2.13	97.9
14	1.321	0.56	2.61	97.4
15	1.451	0.64	3.16	96.8
16	1.592	0.72	3.80	96.2
17	1.748	0.82	4.52	95.5
18	1.919	0.92	5.34	94.7
19	2.107	1.02	6.26	93.7
20	2.313	1.13	7.28	92.7
21	2.539	1.24	8.40	91.6
22	2.787	1.36	9.65	90.4
23	3.059	1.48	11.0	89.0
24	3.358	1.59	12.5	87.5
25	3.687	1.71	14.1	85.9
26	4.047	1.82	15.8	84.2
27	4.443	1.93	17.6	82.4
28	4.877	2.02	19.5	80.5
29	5.354	2.10	21.5	78.5
30	5.878	2.18	23.7	76.3
31	6.452	2.25	25.8	74.2
32	7.083	2.31	28.1	71.9
33	7.775	2.37	30.4	69.6
34	8.536	2.41	32.8	67.2
35	9.370	2.46	35.2	64.8
36	10.29	2.52	37.6	62.4
37	11.29	2.58	40.2	59.8
38	12.40	2.63	42.7	57.3

RC27991-18

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.69	45.4	54.6
40	14.94	2.77	48.1	51.9
41	16.40	2.88	50.8	49.2
42	18.00	3.00	53.7	46.3
43	19.76	3.11	56.7	43.3
44	21.69	3.19	59.8	40.2
45	23.81	3.29	63.0	37.0
46	26.14	3.48	66.3	33.7
47	28.70	3.82	69.8	30.2
48	31.50	4.29	73.6	26.4
49	34.58	4.75	77.9	22.1
50	37.97	4.94	82.6	17.4
51	41.68	4.61	87.6	12.4
52	45.75	3.71	92.2	7.81
53	50.22	2.45	95.9	4.10
54	55.13	1.20	98.4	1.65
55	60.52	0.38	99.6	0.45
56	66.44	0.062	99.9	0.065
57	72.94	0.0035	99.997	0.0035
58	80.07	0	100	0
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-19	Group ID:	RC27991
Sample ID:	19		
Run number:	19	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 461.79 - 462.15		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	8:28 6 May 2018	Run length:	60 seconds
Obscuration:	8%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-19

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	19.48 µm	S.D.:	15.76 µm
Median:	14.93 µm	C.V.:	80.9%
Mode:	37.97 µm	Skewness:	0.746 Right skewed
d ₁₀ :	2.740 µm	Kurtosis:	-0.477 Platykurtic
d ₅₀ :	14.93 µm		
d ₉₀ :	43.38 µm		

RC27991-19

Particle Diameter μm	Volume %
0.375	2.62
1.3	2.87
1.9	4.84
2.8	5.93
3.9	12.2
6.6	4.26
7.8	8.99
11	10.2
16	9.94
22	12.9
31	15.8
44	9.38
75	0.011

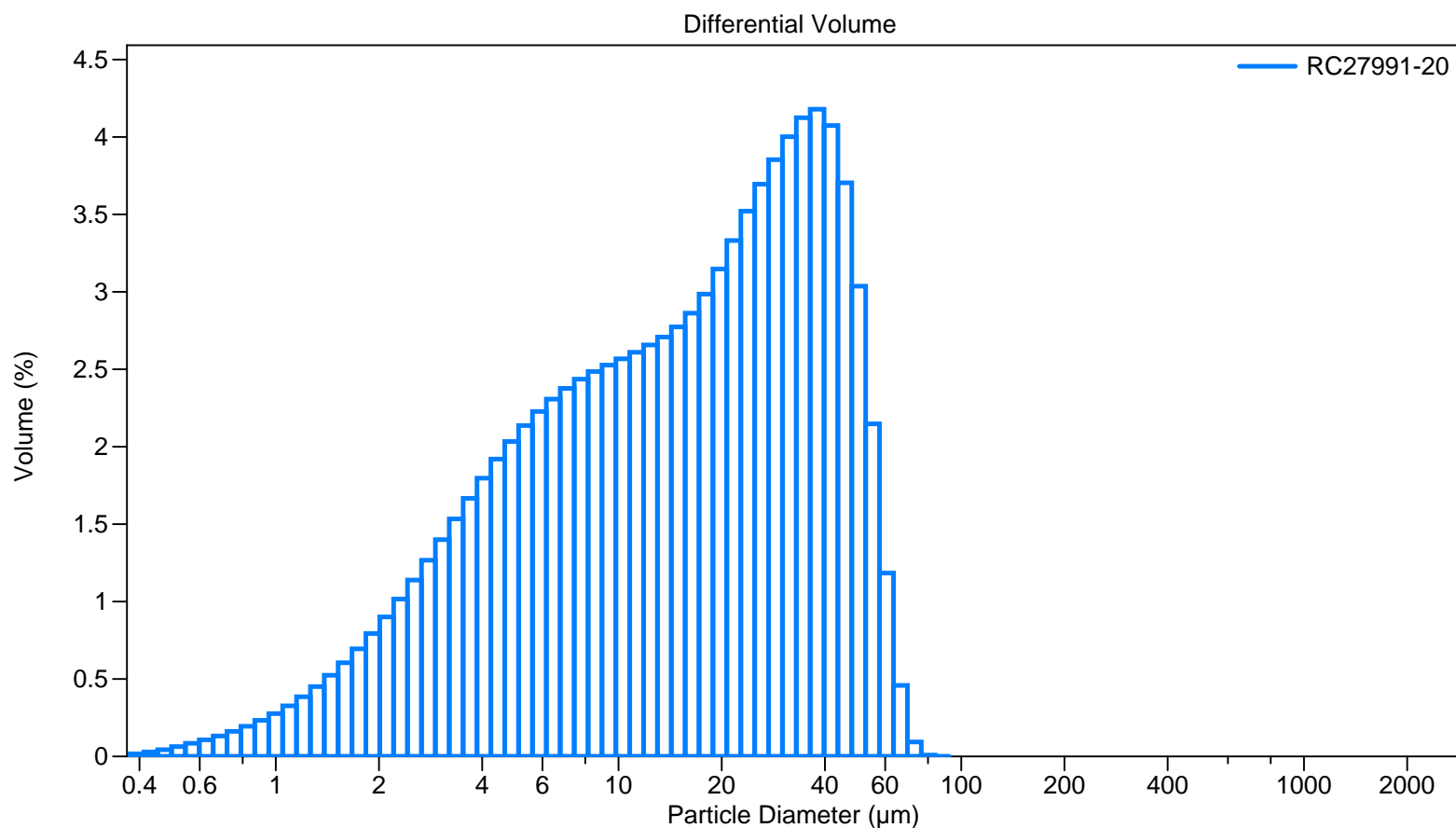
RC27991-19

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.019	0	100
2	0.431	0.034	0.019	99.98
3	0.474	0.050	0.052	99.9
4	0.520	0.075	0.10	99.9
5	0.571	0.100	0.18	99.8
6	0.627	0.13	0.28	99.7
7	0.688	0.16	0.40	99.6
8	0.755	0.19	0.56	99.4
9	0.829	0.23	0.75	99.2
10	0.910	0.28	0.99	99.0
11	0.999	0.33	1.27	98.7
12	1.097	0.39	1.60	98.4
13	1.204	0.46	1.99	98.0
14	1.321	0.54	2.45	97.5
15	1.451	0.62	2.99	97.0
16	1.592	0.71	3.61	96.4
17	1.748	0.81	4.33	95.7
18	1.919	0.92	5.14	94.9
19	2.107	1.04	6.06	93.9
20	2.313	1.16	7.10	92.9
21	2.539	1.29	8.27	91.7
22	2.787	1.43	9.56	90.4
23	3.059	1.56	11.0	89.0
24	3.358	1.70	12.6	87.4
25	3.687	1.82	14.2	85.8
26	4.047	1.95	16.1	83.9
27	4.443	2.05	18.0	82.0
28	4.877	2.15	20.1	79.9
29	5.354	2.23	22.2	77.8
30	5.878	2.29	24.4	75.6
31	6.452	2.34	26.7	73.3
32	7.083	2.38	29.1	70.9
33	7.775	2.41	31.5	68.5
34	8.536	2.42	33.9	66.1
35	9.370	2.44	36.3	63.7
36	10.29	2.46	38.7	61.3
37	11.29	2.48	41.2	58.8
38	12.40	2.51	43.7	56.3

RC27991-19

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.55	46.2	53.8
40	14.94	2.61	48.7	51.3
41	16.40	2.70	51.3	48.7
42	18.00	2.84	54.0	46.0
43	19.76	3.00	56.9	43.1
44	21.69	3.16	59.9	40.1
45	23.81	3.32	63.0	37.0
46	26.14	3.48	66.4	33.6
47	28.70	3.69	69.8	30.2
48	31.50	3.94	73.5	26.5
49	34.58	4.21	77.5	22.5
50	37.97	4.37	81.7	18.3
51	41.68	4.26	86.1	13.9
52	45.75	3.76	90.3	9.69
53	50.22	2.89	94.1	5.93
54	55.13	1.84	97.0	3.03
55	60.52	0.87	98.8	1.19
56	66.44	0.27	99.7	0.32
57	72.94	0.043	99.95	0.045
58	80.07	0.0024	99.998	0.0024
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-20	Group ID:	RC27991
Sample ID:	20		
Run number:	20	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 462.90 - 463.20		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	8:36 6 May 2018	Run length:	60 seconds
Obscuration:	6%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-20

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	20.19 µm	S.D.:	15.98 µm
Median:	15.87 µm	C.V.:	79.2%
Mode:	37.97 µm	Skewness:	0.767 Right skewed
d ₁₀ :	3.035 µm	Kurtosis:	-0.365 Platykurtic
d ₅₀ :	15.87 µm		
d ₉₀ :	44.39 µm		

RC27991-20

Particle Diameter μm	Volume %
0.375	2.19
1.3	2.43
1.9	4.23
2.8	5.36
3.9	11.6
6.6	4.26
7.8	9.30
11	10.8
16	10.5
22	13.5
31	15.4
44	10.3
75	0.028

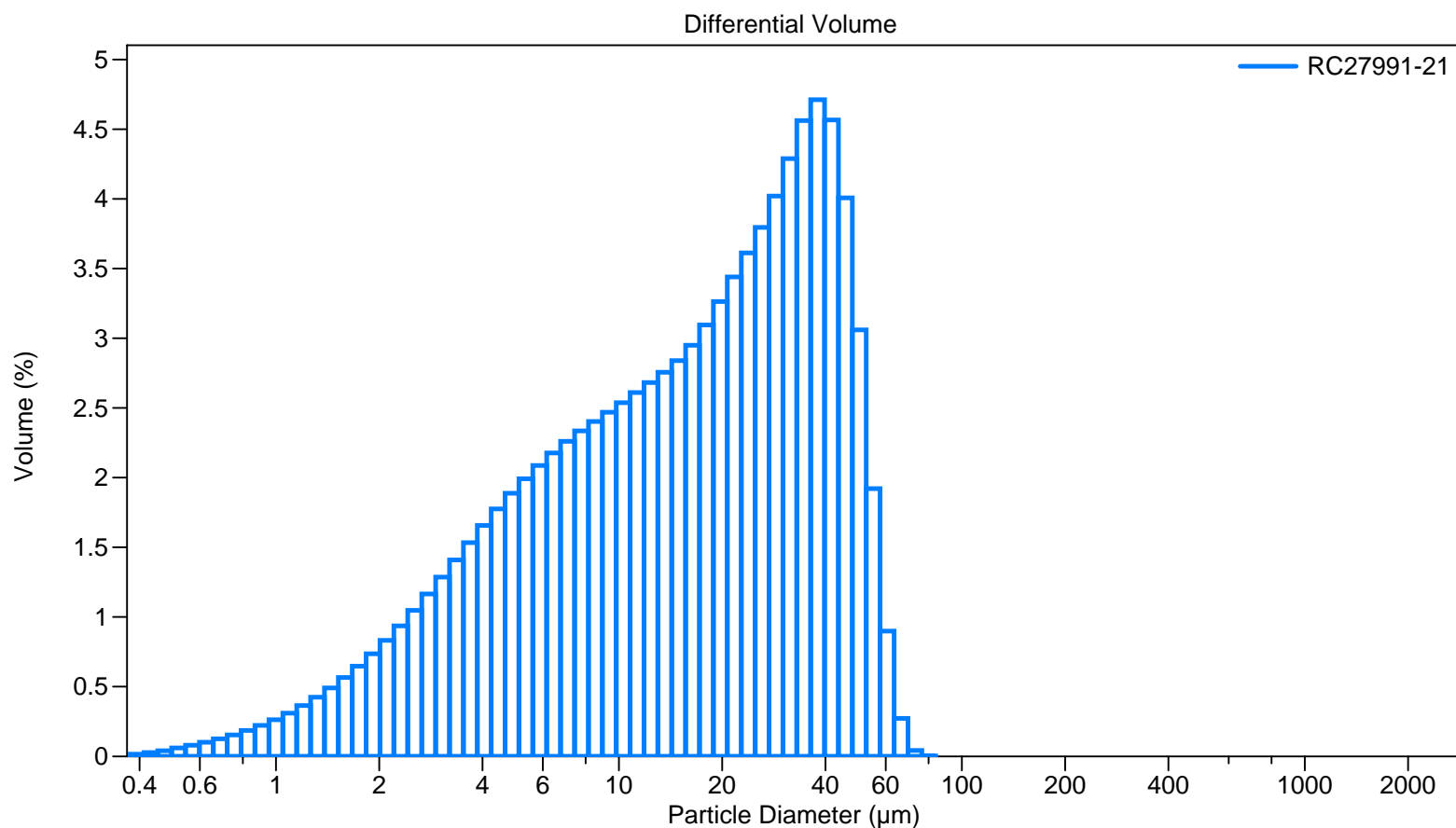
RC27991-20

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.016	0	100
2	0.431	0.029	0.016	99.98
3	0.474	0.043	0.045	99.96
4	0.520	0.063	0.087	99.9
5	0.571	0.084	0.15	99.8
6	0.627	0.11	0.23	99.8
7	0.688	0.13	0.34	99.7
8	0.755	0.16	0.47	99.5
9	0.829	0.19	0.63	99.4
10	0.910	0.23	0.83	99.2
11	0.999	0.28	1.06	98.9
12	1.097	0.33	1.34	98.7
13	1.204	0.38	1.66	98.3
14	1.321	0.45	2.05	98.0
15	1.451	0.52	2.50	97.5
16	1.592	0.60	3.02	97.0
17	1.748	0.69	3.63	96.4
18	1.919	0.79	4.32	95.7
19	2.107	0.90	5.11	94.9
20	2.313	1.02	6.02	94.0
21	2.539	1.14	7.03	93.0
22	2.787	1.27	8.17	91.8
23	3.059	1.40	9.44	90.6
24	3.358	1.53	10.8	89.2
25	3.687	1.67	12.4	87.6
26	4.047	1.80	14.0	86.0
27	4.443	1.92	15.8	84.2
28	4.877	2.03	17.8	82.2
29	5.354	2.14	19.8	80.2
30	5.878	2.23	21.9	78.1
31	6.452	2.31	24.1	75.9
32	7.083	2.38	26.5	73.5
33	7.775	2.44	28.8	71.2
34	8.536	2.49	31.3	68.7
35	9.370	2.53	33.8	66.2
36	10.29	2.57	36.3	63.7
37	11.29	2.61	38.8	61.2
38	12.40	2.66	41.5	58.5

RC27991-20

Channel Number	Channel Diameter (Center) µm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.71	44.1	55.9
40	14.94	2.77	46.8	53.2
41	16.40	2.86	49.6	50.4
42	18.00	2.99	52.5	47.5
43	19.76	3.15	55.4	44.6
44	21.69	3.33	58.6	41.4
45	23.81	3.52	61.9	38.1
46	26.14	3.70	65.4	34.6
47	28.70	3.85	69.1	30.9
48	31.50	4.00	73.0	27.0
49	34.58	4.12	77.0	23.0
50	37.97	4.18	81.1	18.9
51	41.68	4.07	85.3	14.7
52	45.75	3.70	89.4	10.6
53	50.22	3.04	93.1	6.93
54	55.13	2.15	96.1	3.89
55	60.52	1.18	98.3	1.74
56	66.44	0.46	99.4	0.56
57	72.94	0.093	99.9	0.10
58	80.07	0.0084	99.99	0.0085
59	87.90	0.000024	100	0.000024
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-21	Group ID:	RC27991
Sample ID:	21		
Run number:	21	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 463.93 - 464.25		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	8:44 6 May 2018	Run length:	60 seconds
Obscuration:	4%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-21

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	20.63 µm	S.D.:	15.63 µm
Median:	16.95 µm	C.V.:	75.8%
Mode:	37.97 µm	Skewness:	0.656 Right skewed
d ₁₀ :	3.188 µm	Kurtosis:	-0.571 Platykurtic
d ₅₀ :	16.95 µm		
d ₉₀ :	43.88 µm		

RC27991-21

Particle Diameter μm	Volume %
0.375	2.08
1.3	2.28
1.9	3.90
2.8	4.93
3.9	10.8
6.6	4.06
7.8	9.08
11	11.0
16	10.8
22	14.0
31	17.1
44	9.88
75	0.011

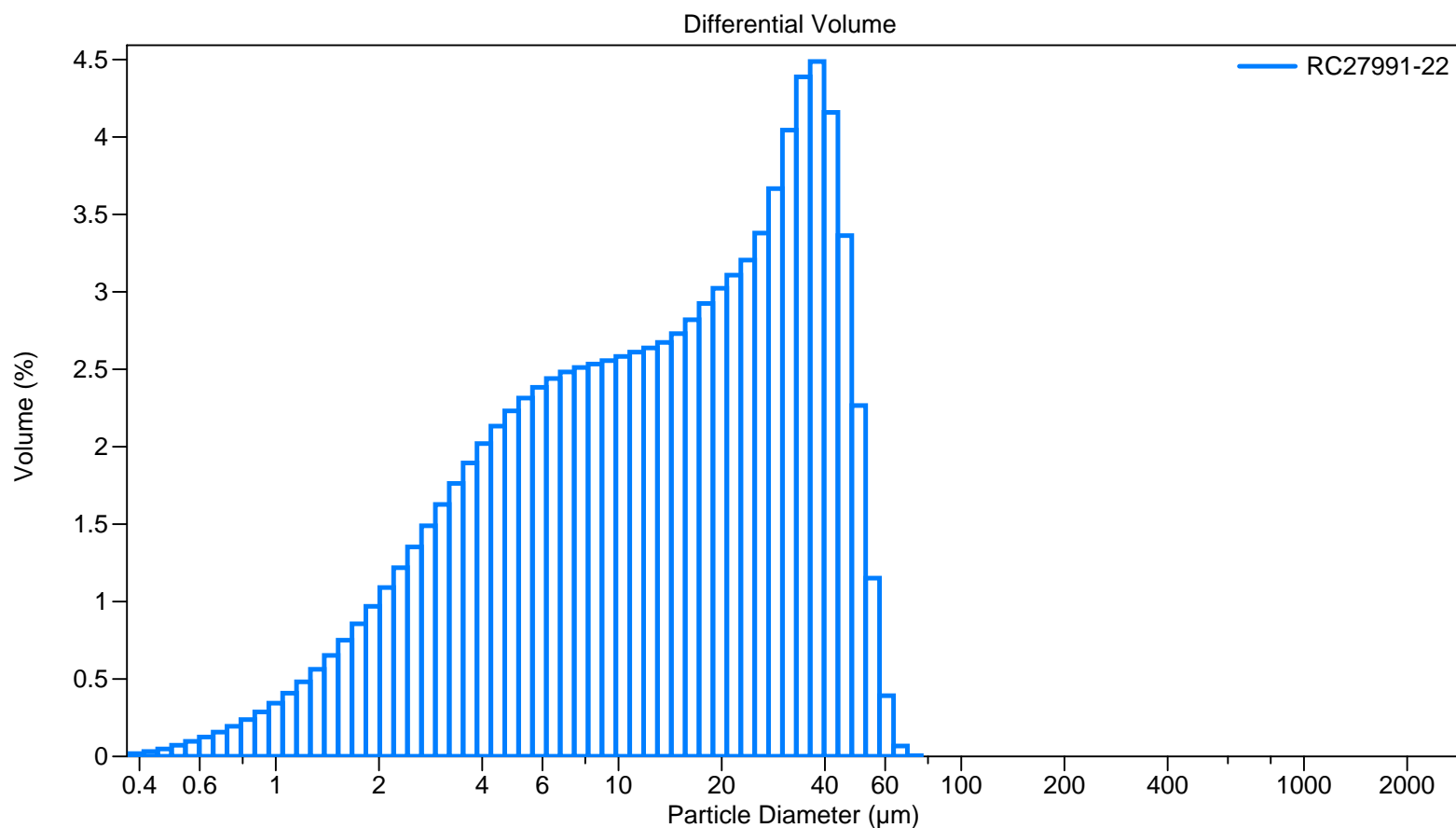
RC27991-21

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.015	0	100
2	0.431	0.027	0.015	99.98
3	0.474	0.040	0.042	99.96
4	0.520	0.060	0.083	99.9
5	0.571	0.080	0.14	99.9
6	0.627	0.10	0.22	99.8
7	0.688	0.13	0.32	99.7
8	0.755	0.15	0.45	99.6
9	0.829	0.19	0.60	99.4
10	0.910	0.22	0.79	99.2
11	0.999	0.26	1.01	99.0
12	1.097	0.31	1.27	98.7
13	1.204	0.36	1.58	98.4
14	1.321	0.42	1.95	98.1
15	1.451	0.49	2.37	97.6
16	1.592	0.57	2.86	97.1
17	1.748	0.65	3.43	96.6
18	1.919	0.74	4.08	95.9
19	2.107	0.83	4.81	95.2
20	2.313	0.94	5.64	94.4
21	2.539	1.05	6.58	93.4
22	2.787	1.16	7.63	92.4
23	3.059	1.29	8.79	91.2
24	3.358	1.41	10.1	89.9
25	3.687	1.53	11.5	88.5
26	4.047	1.66	13.0	87.0
27	4.443	1.78	14.7	85.3
28	4.877	1.89	16.5	83.5
29	5.354	1.99	18.3	81.7
30	5.878	2.09	20.3	79.7
31	6.452	2.18	22.4	77.6
32	7.083	2.26	24.6	75.4
33	7.775	2.34	26.9	73.1
34	8.536	2.40	29.2	70.8
35	9.370	2.47	31.6	68.4
36	10.29	2.54	34.1	65.9
37	11.29	2.61	36.6	63.4
38	12.40	2.68	39.2	60.8

RC27991-21

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.76	41.9	58.1
40	14.94	2.84	44.7	55.3
41	16.40	2.95	47.5	52.5
42	18.00	3.10	50.4	49.6
43	19.76	3.26	53.5	46.5
44	21.69	3.44	56.8	43.2
45	23.81	3.61	60.2	39.8
46	26.14	3.80	63.9	36.1
47	28.70	4.02	67.6	32.4
48	31.50	4.29	71.7	28.3
49	34.58	4.56	76.0	24.0
50	37.97	4.71	80.5	19.5
51	41.68	4.57	85.2	14.8
52	45.75	4.01	89.8	10.2
53	50.22	3.06	93.8	6.20
54	55.13	1.92	96.9	3.14
55	60.52	0.90	98.8	1.22
56	66.44	0.27	99.7	0.32
57	72.94	0.042	99.96	0.044
58	80.07	0.0022	99.998	0.0022
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-22	Group ID:	RC27991
Sample ID:	22		
Run number:	22	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 465.00 - 465.23		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	8:50 6 May 2018	Run length:	60 seconds
Obscuration:	7%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-22

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	18.37 µm	S.D.:	14.83 µm
Median:	13.86 µm	C.V.:	80.8%
Mode:	37.97 µm	Skewness:	0.745 Right skewed
d ₁₀ :	2.669 µm	Kurtosis:	-0.521 Platykurtic
d ₅₀ :	13.86 µm		
d ₉₀ :	41.09 µm		

RC27991-22

Particle Diameter μm	Volume %
0.375	2.67
1.3	3.01
1.9	5.06
2.8	6.17
3.9	12.7
6.6	4.44
7.8	9.42
11	10.7
16	10.1
22	12.7
31	16.1
44	6.98
75	0.00092

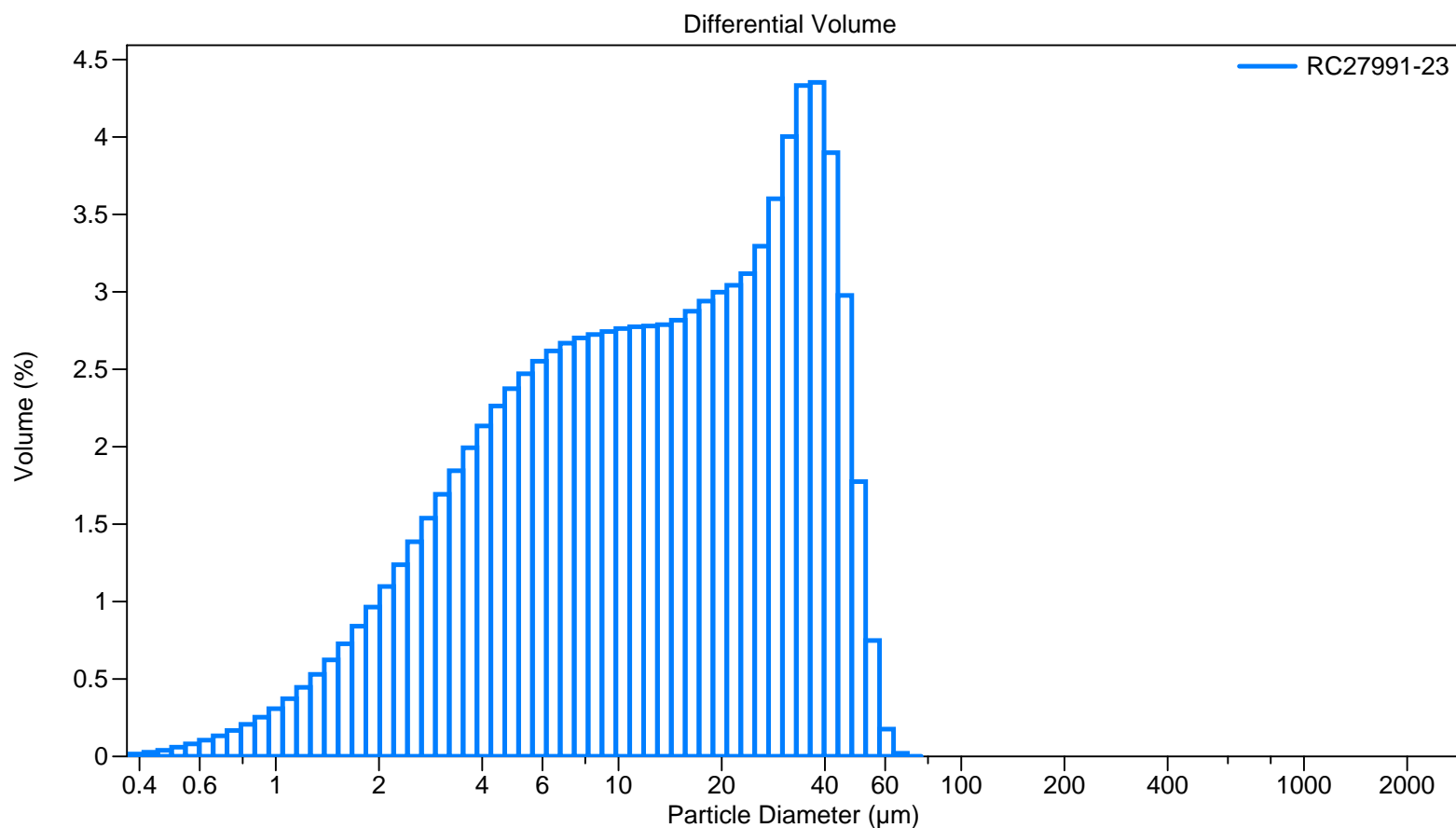
RC27991-22

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.018	0	100
2	0.431	0.032	0.018	99.98
3	0.474	0.048	0.050	99.95
4	0.520	0.072	0.098	99.9
5	0.571	0.097	0.17	99.8
6	0.627	0.12	0.27	99.7
7	0.688	0.16	0.39	99.6
8	0.755	0.19	0.55	99.5
9	0.829	0.24	0.74	99.3
10	0.910	0.29	0.98	99.0
11	0.999	0.34	1.26	98.7
12	1.097	0.41	1.61	98.4
13	1.204	0.48	2.02	98.0
14	1.321	0.56	2.50	97.5
15	1.451	0.65	3.06	96.9
16	1.592	0.75	3.71	96.3
17	1.748	0.86	4.46	95.5
18	1.919	0.97	5.32	94.7
19	2.107	1.09	6.29	93.7
20	2.313	1.22	7.38	92.6
21	2.539	1.35	8.59	91.4
22	2.787	1.49	9.95	90.1
23	3.059	1.63	11.4	88.6
24	3.358	1.76	13.1	86.9
25	3.687	1.90	14.8	85.2
26	4.047	2.02	16.7	83.3
27	4.443	2.13	18.7	81.3
28	4.877	2.23	20.9	79.1
29	5.354	2.31	23.1	76.9
30	5.878	2.38	25.4	74.6
31	6.452	2.44	27.8	72.2
32	7.083	2.48	30.2	69.8
33	7.775	2.51	32.7	67.3
34	8.536	2.53	35.2	64.8
35	9.370	2.56	37.8	62.2
36	10.29	2.58	40.3	59.7
37	11.29	2.61	42.9	57.1
38	12.40	2.64	45.5	54.5

RC27991-22

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.67	48.2	51.8
40	14.94	2.73	50.8	49.2
41	16.40	2.82	53.6	46.4
42	18.00	2.92	56.4	43.6
43	19.76	3.02	59.3	40.7
44	21.69	3.11	62.3	37.7
45	23.81	3.20	65.4	34.6
46	26.14	3.38	68.6	31.4
47	28.70	3.67	72.0	28.0
48	31.50	4.04	75.7	24.3
49	34.58	4.39	79.7	20.3
50	37.97	4.49	84.1	15.9
51	41.68	4.16	88.6	11.4
52	45.75	3.36	92.8	7.24
53	50.22	2.27	96.1	3.88
54	55.13	1.15	98.4	1.61
55	60.52	0.39	99.5	0.46
56	66.44	0.067	99.9	0.072
57	72.94	0.0044	99.996	0.0044
58	80.07	0	100	0
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-23	Group ID:	RC27991
Sample ID:	23		
Run number:	23	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 465.95 - 466.23		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	8:57 6 May 2018	Run length:	60 seconds
Obscuration:	6%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-23

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	17.49 µm	S.D.:	14.17 µm
Median:	12.89 µm	C.V.:	81.0%
Mode:	37.97 µm	Skewness:	0.782 Right skewed
d ₁₀ :	2.725 µm	Kurtosis:	-0.478 Platykurtic
d ₅₀ :	12.89 µm		
d ₉₀ :	39.45 µm		

RC27991-23

Particle Diameter μm	Volume %
0.375	2.38
1.3	2.92
1.9	5.14
2.8	6.45
3.9	13.5
6.6	4.78
7.8	10.1
11	11.2
16	10.1
22	12.4
31	15.6
44	5.46
75	0.000053

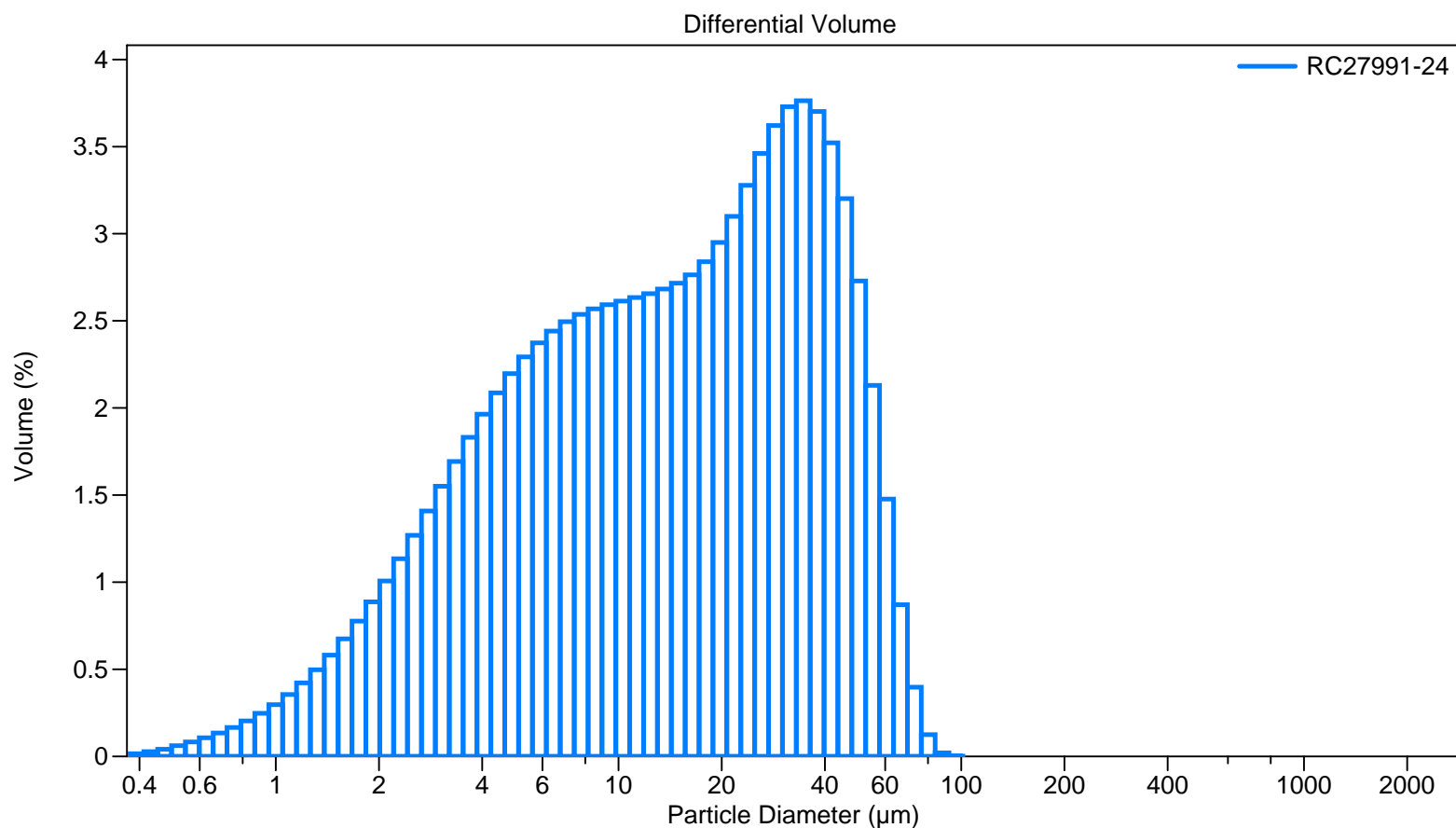
RC27991-23

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.015	0	100
2	0.431	0.026	0.015	99.99
3	0.474	0.039	0.041	99.96
4	0.520	0.059	0.080	99.9
5	0.571	0.080	0.14	99.9
6	0.627	0.10	0.22	99.8
7	0.688	0.13	0.32	99.7
8	0.755	0.17	0.46	99.5
9	0.829	0.21	0.62	99.4
10	0.910	0.25	0.83	99.2
11	0.999	0.31	1.08	98.9
12	1.097	0.37	1.39	98.6
13	1.204	0.45	1.76	98.2
14	1.321	0.53	2.21	97.8
15	1.451	0.62	2.74	97.3
16	1.592	0.73	3.36	96.6
17	1.748	0.84	4.09	95.9
18	1.919	0.96	4.93	95.1
19	2.107	1.10	5.89	94.1
20	2.313	1.24	6.99	93.0
21	2.539	1.39	8.23	91.8
22	2.787	1.54	9.61	90.4
23	3.059	1.69	11.2	88.8
24	3.358	1.84	12.8	87.2
25	3.687	1.99	14.7	85.3
26	4.047	2.13	16.7	83.3
27	4.443	2.26	18.8	81.2
28	4.877	2.37	21.1	78.9
29	5.354	2.47	23.5	76.5
30	5.878	2.55	25.9	74.1
31	6.452	2.62	28.5	71.5
32	7.083	2.67	31.1	68.9
33	7.775	2.70	33.8	66.2
34	8.536	2.72	36.5	63.5
35	9.370	2.74	39.2	60.8
36	10.29	2.76	41.9	58.1
37	11.29	2.77	44.7	55.3
38	12.40	2.78	47.5	52.5

RC27991-23

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.79	50.2	49.8
40	14.94	2.82	53.0	47.0
41	16.40	2.87	55.9	44.1
42	18.00	2.94	58.7	41.3
43	19.76	3.00	61.7	38.3
44	21.69	3.04	64.7	35.3
45	23.81	3.12	67.7	32.3
46	26.14	3.29	70.8	29.2
47	28.70	3.60	74.1	25.9
48	31.50	4.00	77.7	22.3
49	34.58	4.33	81.7	18.3
50	37.97	4.35	86.1	13.9
51	41.68	3.90	90.4	9.59
52	45.75	2.98	94.3	5.69
53	50.22	1.77	97.3	2.72
54	55.13	0.75	99.1	0.94
55	60.52	0.18	99.8	0.20
56	66.44	0.019	99.98	0.020
57	72.94	0.00026	100	0.00026
58	80.07	0	100	0
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-24	Group ID:	RC27991
Sample ID:	24		
Run number:	24	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 466.98 - 467.30		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	9:28 6 May 2018	Run length:	60 seconds
Obscuration:	7%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-24

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	19.75 µm	S.D.:	16.67 µm
Median:	14.46 µm	C.V.:	84.4%
Mode:	34.58 µm	Skewness:	0.964 Right skewed
d ₁₀ :	2.847 µm	Kurtosis:	0.164 Leptokurtic
d ₅₀ :	14.46 µm		
d ₉₀ :	44.93 µm		

RC27991-24

Particle Diameter μm	Volume %
0.375	2.32
1.3	2.71
1.9	4.72
2.8	5.92
3.9	12.5
6.6	4.47
7.8	9.55
11	10.8
16	9.91
22	12.7
31	13.8
44	10.5
75	0.23

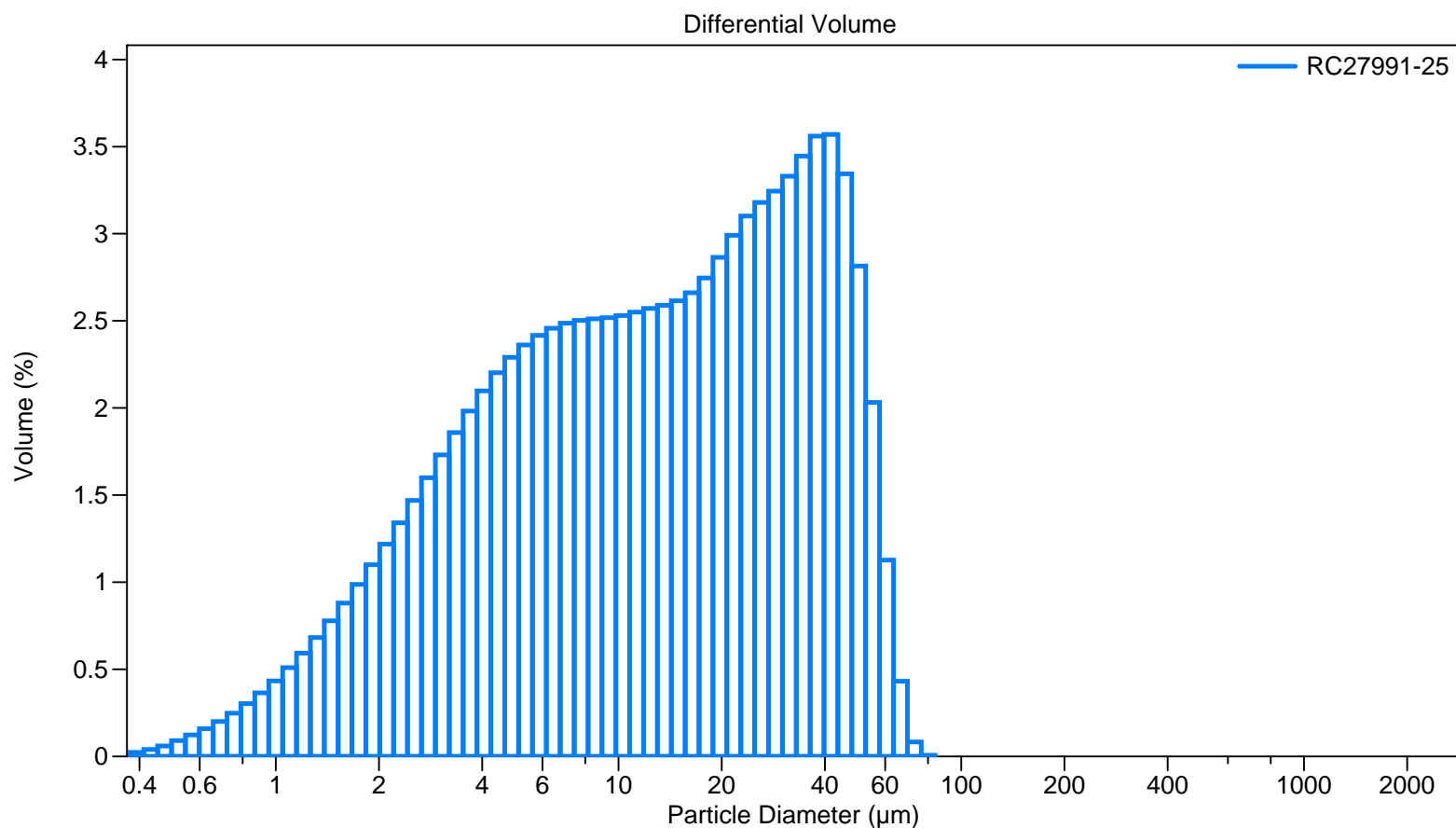
RC27991-24

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.015	0	100
2	0.431	0.027	0.015	99.98
3	0.474	0.041	0.043	99.96
4	0.520	0.061	0.084	99.9
5	0.571	0.083	0.15	99.9
6	0.627	0.11	0.23	99.8
7	0.688	0.13	0.33	99.7
8	0.755	0.17	0.47	99.5
9	0.829	0.20	0.63	99.4
10	0.910	0.25	0.84	99.2
11	0.999	0.30	1.08	98.9
12	1.097	0.36	1.38	98.6
13	1.204	0.42	1.74	98.3
14	1.321	0.50	2.16	97.8
15	1.451	0.58	2.66	97.3
16	1.592	0.67	3.24	96.8
17	1.748	0.78	3.91	96.1
18	1.919	0.89	4.69	95.3
19	2.107	1.01	5.57	94.4
20	2.313	1.13	6.58	93.4
21	2.539	1.27	7.72	92.3
22	2.787	1.41	8.98	91.0
23	3.059	1.55	10.4	89.6
24	3.358	1.69	11.9	88.1
25	3.687	1.83	13.6	86.4
26	4.047	1.96	15.5	84.5
27	4.443	2.09	17.4	82.6
28	4.877	2.20	19.5	80.5
29	5.354	2.29	21.7	78.3
30	5.878	2.37	24.0	76.0
31	6.452	2.44	26.4	73.6
32	7.083	2.50	28.8	71.2
33	7.775	2.54	31.3	68.7
34	8.536	2.57	33.9	66.1
35	9.370	2.59	36.4	63.6
36	10.29	2.61	39.0	61.0
37	11.29	2.63	41.6	58.4
38	12.40	2.66	44.3	55.7

RC27991-24

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.68	46.9	53.1
40	14.94	2.72	49.6	50.4
41	16.40	2.76	52.3	47.7
42	18.00	2.84	55.1	44.9
43	19.76	2.95	57.9	42.1
44	21.69	3.10	60.9	39.1
45	23.81	3.28	64.0	36.0
46	26.14	3.46	67.3	32.7
47	28.70	3.62	70.7	29.3
48	31.50	3.73	74.3	25.7
49	34.58	3.76	78.1	21.9
50	37.97	3.70	81.8	18.2
51	41.68	3.52	85.5	14.5
52	45.75	3.20	89.1	10.9
53	50.22	2.73	92.3	7.75
54	55.13	2.13	95.0	5.02
55	60.52	1.48	97.1	2.89
56	66.44	0.87	98.6	1.41
57	72.94	0.40	99.5	0.54
58	80.07	0.12	99.9	0.15
59	87.90	0.020	99.98	0.021
60	96.49	0.0013	99.999	0.0013
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-25	Group ID:	RC27991
Sample ID:	25		
Run number:	25	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 467.85 - 468.25		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	9:35 6 May 2018	Run length:	60 seconds
Obscuration:	10%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-25

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	18.41 µm	S.D.:	16.01 µm
Median:	12.87 µm	C.V.:	87.0%
Mode:	41.68 µm	Skewness:	0.927 Right skewed
d ₁₀ :	2.402 µm	Kurtosis:	-0.120 Platykurtic
d ₅₀ :	12.87 µm		
d ₉₀ :	43.49 µm		

RC27991-25

Particle Diameter μm	Volume %
0.375	3.36
1.3	3.53
1.9	5.57
2.8	6.52
3.9	13.0
6.6	4.45
7.8	9.30
11	10.4
16	9.58
22	11.7
31	13.1
44	9.55
75	0.024

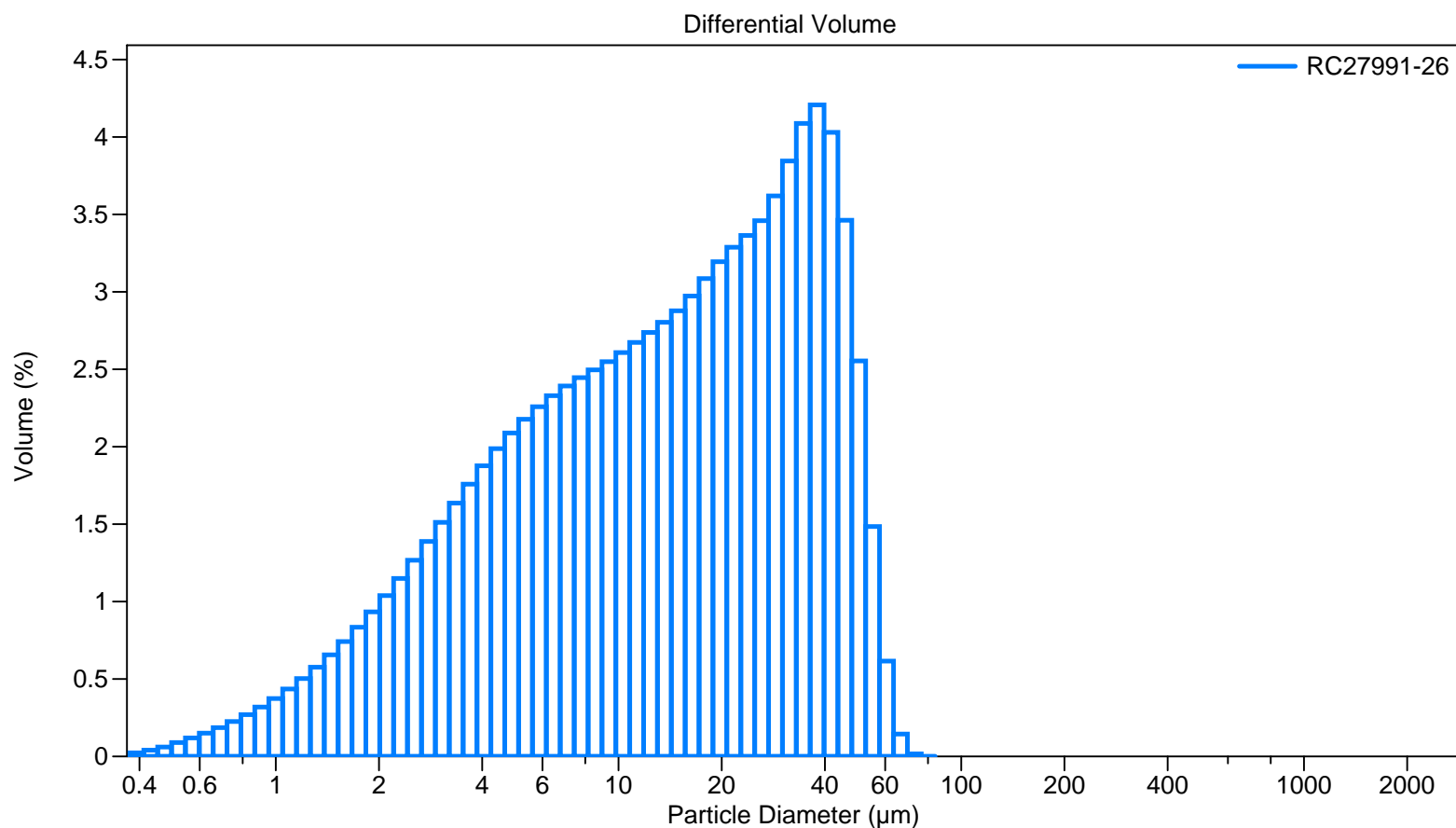
RC27991-25

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.022	0	100
2	0.431	0.040	0.022	99.98
3	0.474	0.060	0.062	99.9
4	0.520	0.090	0.12	99.9
5	0.571	0.12	0.21	99.8
6	0.627	0.16	0.33	99.7
7	0.688	0.20	0.49	99.5
8	0.755	0.25	0.69	99.3
9	0.829	0.30	0.94	99.1
10	0.910	0.36	1.24	98.8
11	0.999	0.43	1.61	98.4
12	1.097	0.51	2.04	98.0
13	1.204	0.59	2.55	97.5
14	1.321	0.68	3.14	96.9
15	1.451	0.78	3.83	96.2
16	1.592	0.88	4.60	95.4
17	1.748	0.99	5.48	94.5
18	1.919	1.10	6.47	93.5
19	2.107	1.22	7.57	92.4
20	2.313	1.34	8.79	91.2
21	2.539	1.47	10.1	89.9
22	2.787	1.60	11.6	88.4
23	3.059	1.73	13.2	86.8
24	3.358	1.86	14.9	85.1
25	3.687	1.98	16.8	83.2
26	4.047	2.10	18.8	81.2
27	4.443	2.20	20.9	79.1
28	4.877	2.29	23.1	76.9
29	5.354	2.36	25.4	74.6
30	5.878	2.42	27.7	72.3
31	6.452	2.46	30.1	69.9
32	7.083	2.49	32.6	67.4
33	7.775	2.50	35.1	64.9
34	8.536	2.51	37.6	62.4
35	9.370	2.52	40.1	59.9
36	10.29	2.53	42.6	57.4
37	11.29	2.55	45.1	54.9
38	12.40	2.57	47.7	52.3

RC27991-25

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.59	50.3	49.7
40	14.94	2.61	52.9	47.1
41	16.40	2.66	55.5	44.5
42	18.00	2.75	58.1	41.9
43	19.76	2.86	60.9	39.1
44	21.69	2.99	63.7	36.3
45	23.81	3.10	66.7	33.3
46	26.14	3.18	69.8	30.2
47	28.70	3.24	73.0	27.0
48	31.50	3.33	76.3	23.7
49	34.58	3.45	79.6	20.4
50	37.97	3.56	83.0	17.0
51	41.68	3.57	86.6	13.4
52	45.75	3.34	90.2	9.84
53	50.22	2.81	93.5	6.49
54	55.13	2.03	96.3	3.68
55	60.52	1.13	98.4	1.65
56	66.44	0.43	99.5	0.52
57	72.94	0.083	99.9	0.089
58	80.07	0.0066	99.99	0.0066
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-26	Group ID:	RC27991
Sample ID:	26		
Run number:	26	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 468.90 - 469.20		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	9:41 6 May 2018	Run length:	60 seconds
Obscuration:	8%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-26

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	18.77 µm	S.D.:	15.13 µm
Median:	14.40 µm	C.V.:	80.6%
Mode:	37.97 µm	Skewness:	0.775 Right skewed
d ₁₀ :	2.663 µm	Kurtosis:	-0.408 Platykurtic
d ₅₀ :	14.40 µm		
d ₉₀ :	42.00 µm		

RC27991-26

Particle Diameter μm	Volume %
0.375	2.97
1.3	2.98
1.9	4.78
2.8	5.73
3.9	11.9
6.6	4.29
7.8	9.39
11	11.2
16	10.7
22	12.8
31	15.2
44	8.00
75	0.0036

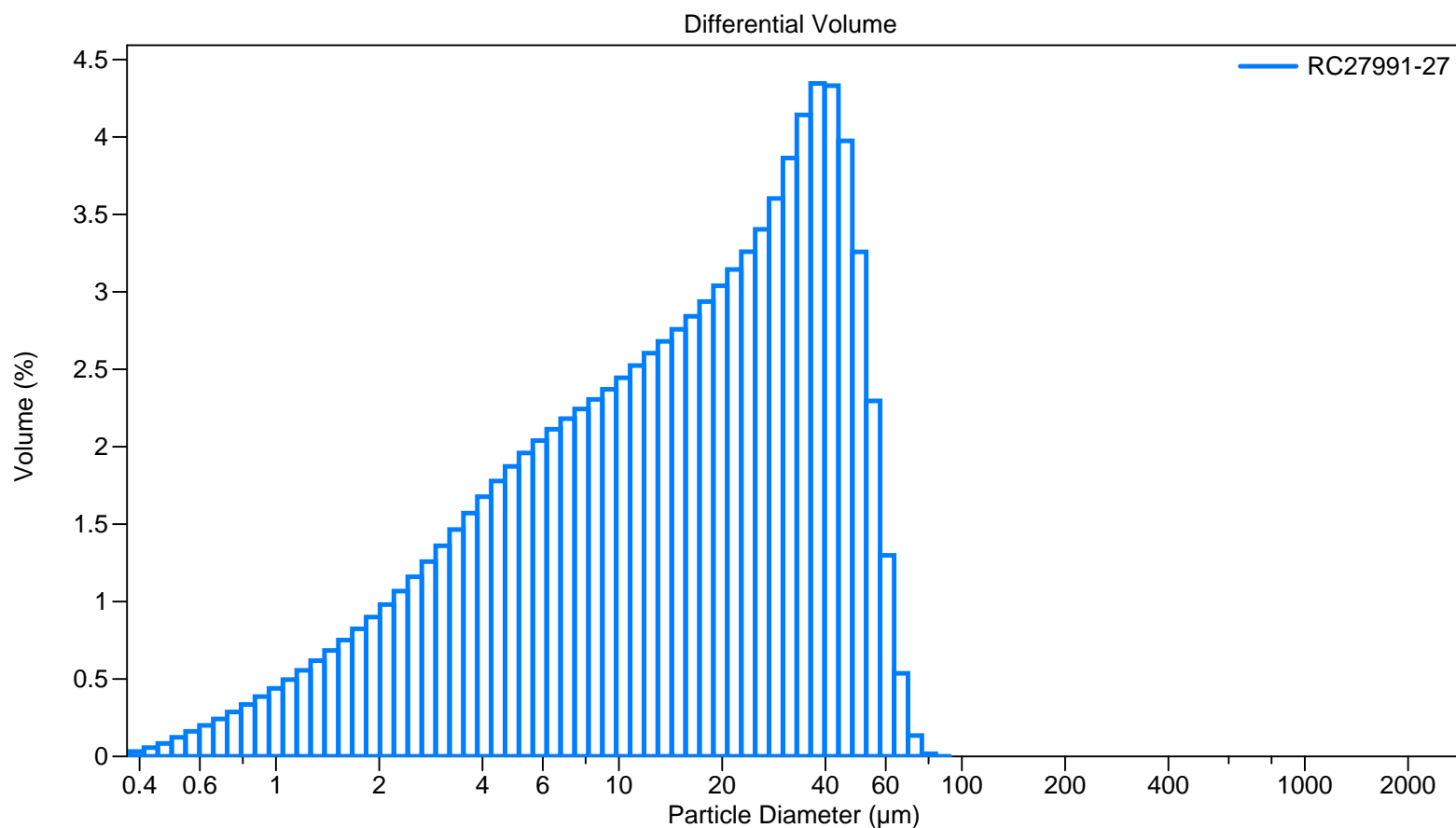
RC27991-26

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.023	0	100
2	0.431	0.040	0.023	99.98
3	0.474	0.060	0.063	99.9
4	0.520	0.089	0.12	99.9
5	0.571	0.12	0.21	99.8
6	0.627	0.15	0.33	99.7
7	0.688	0.19	0.48	99.5
8	0.755	0.22	0.67	99.3
9	0.829	0.27	0.89	99.1
10	0.910	0.32	1.16	98.8
11	0.999	0.37	1.48	98.5
12	1.097	0.43	1.85	98.1
13	1.204	0.50	2.29	97.7
14	1.321	0.58	2.79	97.2
15	1.451	0.66	3.37	96.6
16	1.592	0.74	4.02	96.0
17	1.748	0.83	4.76	95.2
18	1.919	0.93	5.60	94.4
19	2.107	1.04	6.53	93.5
20	2.313	1.15	7.57	92.4
21	2.539	1.27	8.72	91.3
22	2.787	1.39	9.98	90.0
23	3.059	1.51	11.4	88.6
24	3.358	1.64	12.9	87.1
25	3.687	1.76	14.5	85.5
26	4.047	1.88	16.3	83.7
27	4.443	1.99	18.2	81.8
28	4.877	2.09	20.1	79.9
29	5.354	2.18	22.2	77.8
30	5.878	2.26	24.4	75.6
31	6.452	2.33	26.7	73.3
32	7.083	2.39	29.0	71.0
33	7.775	2.45	31.4	68.6
34	8.536	2.50	33.8	66.2
35	9.370	2.55	36.3	63.7
36	10.29	2.61	38.9	61.1
37	11.29	2.67	41.5	58.5
38	12.40	2.74	44.2	55.8

RC27991-26

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.80	46.9	53.1
40	14.94	2.88	49.7	50.3
41	16.40	2.97	52.6	47.4
42	18.00	3.09	55.5	44.5
43	19.76	3.19	58.6	41.4
44	21.69	3.29	61.8	38.2
45	23.81	3.36	65.1	34.9
46	26.14	3.46	68.5	31.5
47	28.70	3.62	71.9	28.1
48	31.50	3.84	75.6	24.4
49	34.58	4.09	79.4	20.6
50	37.97	4.21	83.5	16.5
51	41.68	4.03	87.7	12.3
52	45.75	3.46	91.7	8.28
53	50.22	2.55	95.2	4.81
54	55.13	1.48	97.7	2.26
55	60.52	0.61	99.2	0.77
56	66.44	0.14	99.8	0.16
57	72.94	0.016	99.98	0.016
58	80.07	0.00025	100	0.00025
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-27	Group ID:	RC27991
Sample ID:	27		
Run number:	27	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 471.97 - 472.30		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	9:48 6 May 2018	Run length:	60 seconds
Obscuration:	11%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-27

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	20.39 µm	S.D.:	16.47 µm
Median:	15.88 µm	C.V.:	80.8%
Mode:	37.97 µm	Skewness:	0.741 Right skewed
d ₁₀ :	2.584 µm	Kurtosis:	-0.440 Platykurtic
d ₅₀ :	15.88 µm		
d ₉₀ :	45.29 µm		

RC27991-27

Particle Diameter μm	Volume %
0.375	3.59
1.3	3.02
1.9	4.44
2.8	5.14
3.9	10.7
6.6	3.91
7.8	8.73
11	10.7
16	10.2
22	12.6
31	15.8
44	11.2
75	0.045

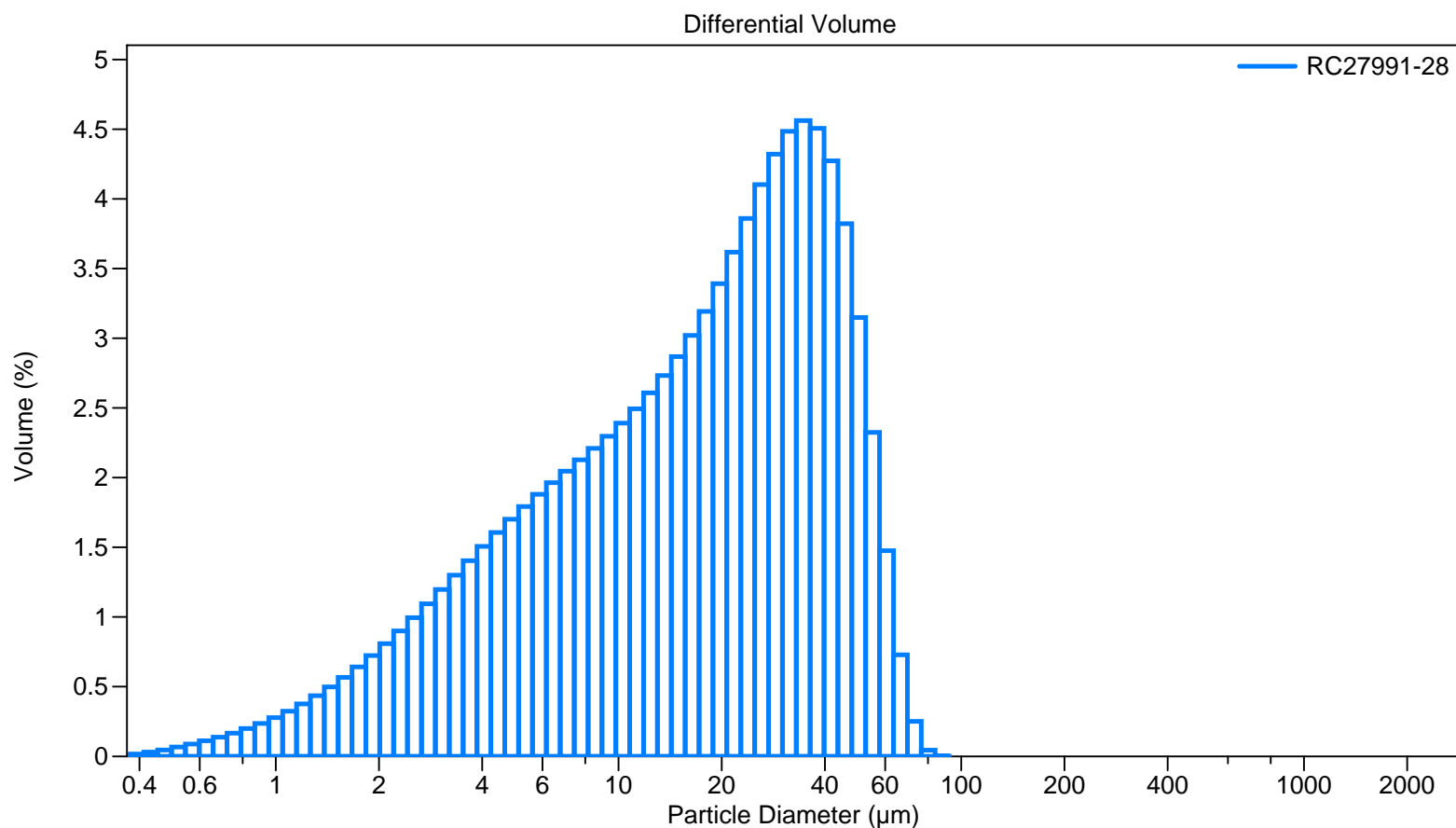
RC27991-27

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.032	0	100
2	0.431	0.056	0.032	99.97
3	0.474	0.084	0.088	99.9
4	0.520	0.12	0.17	99.8
5	0.571	0.16	0.29	99.7
6	0.627	0.20	0.45	99.5
7	0.688	0.24	0.65	99.3
8	0.755	0.29	0.90	99.1
9	0.829	0.33	1.18	98.8
10	0.910	0.39	1.52	98.5
11	0.999	0.44	1.90	98.1
12	1.097	0.50	2.34	97.7
13	1.204	0.56	2.84	97.2
14	1.321	0.62	3.39	96.6
15	1.451	0.68	4.01	96.0
16	1.592	0.75	4.69	95.3
17	1.748	0.82	5.44	94.6
18	1.919	0.90	6.27	93.7
19	2.107	0.98	7.17	92.8
20	2.313	1.07	8.15	91.9
21	2.539	1.16	9.21	90.8
22	2.787	1.26	10.4	89.6
23	3.059	1.36	11.6	88.4
24	3.358	1.46	13.0	87.0
25	3.687	1.57	14.5	85.5
26	4.047	1.68	16.0	84.0
27	4.443	1.78	17.7	82.3
28	4.877	1.87	19.5	80.5
29	5.354	1.96	21.4	78.6
30	5.878	2.04	23.3	76.7
31	6.452	2.11	25.4	74.6
32	7.083	2.18	27.5	72.5
33	7.775	2.24	29.6	70.4
34	8.536	2.31	31.9	68.1
35	9.370	2.37	34.2	65.8
36	10.29	2.44	36.6	63.4
37	11.29	2.52	39.0	61.0
38	12.40	2.60	41.5	58.5

RC27991-27

Channel Number	Channel Diameter (Center) µm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.68	44.1	55.9
40	14.94	2.76	46.8	53.2
41	16.40	2.84	49.6	50.4
42	18.00	2.94	52.4	47.6
43	19.76	3.04	55.4	44.6
44	21.69	3.14	58.4	41.6
45	23.81	3.26	61.5	38.5
46	26.14	3.40	64.8	35.2
47	28.70	3.60	68.2	31.8
48	31.50	3.86	71.8	28.2
49	34.58	4.14	75.7	24.3
50	37.97	4.35	79.8	20.2
51	41.68	4.33	84.2	15.8
52	45.75	3.97	88.5	11.5
53	50.22	3.26	92.5	7.54
54	55.13	2.30	95.7	4.28
55	60.52	1.30	98.0	1.99
56	66.44	0.54	99.3	0.69
57	72.94	0.13	99.8	0.15
58	80.07	0.017	99.98	0.017
59	87.90	0.00051	99.999	0.00051
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-28	Group ID:	RC27991
Sample ID:	28		
Run number:	28	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 479.80 - 480.05		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	9:55 6 May 2018	Run length:	60 seconds
Obscuration:	7%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-28

Calculations from 0.375 μm to 2,000 μm

Volume:	100%		
Mean:	21.66 μm	S.D.:	16.34 μm
Median:	18.29 μm	C.V.:	75.5%
Mode:	34.58 μm	Skewness:	0.707 Right skewed
d ₁₀ :	3.221 μm	Kurtosis:	-0.328 Platykurtic
d ₅₀ :	18.29 μm		
d ₉₀ :	45.68 μm		

RC27991-28

Particle Diameter μm	Volume %
0.375	2.21
1.3	2.28
1.9	3.74
2.8	4.56
3.9	9.78
6.6	3.68
7.8	8.44
11	10.9
16	11.2
22	15.0
31	16.7
44	11.4
75	0.100

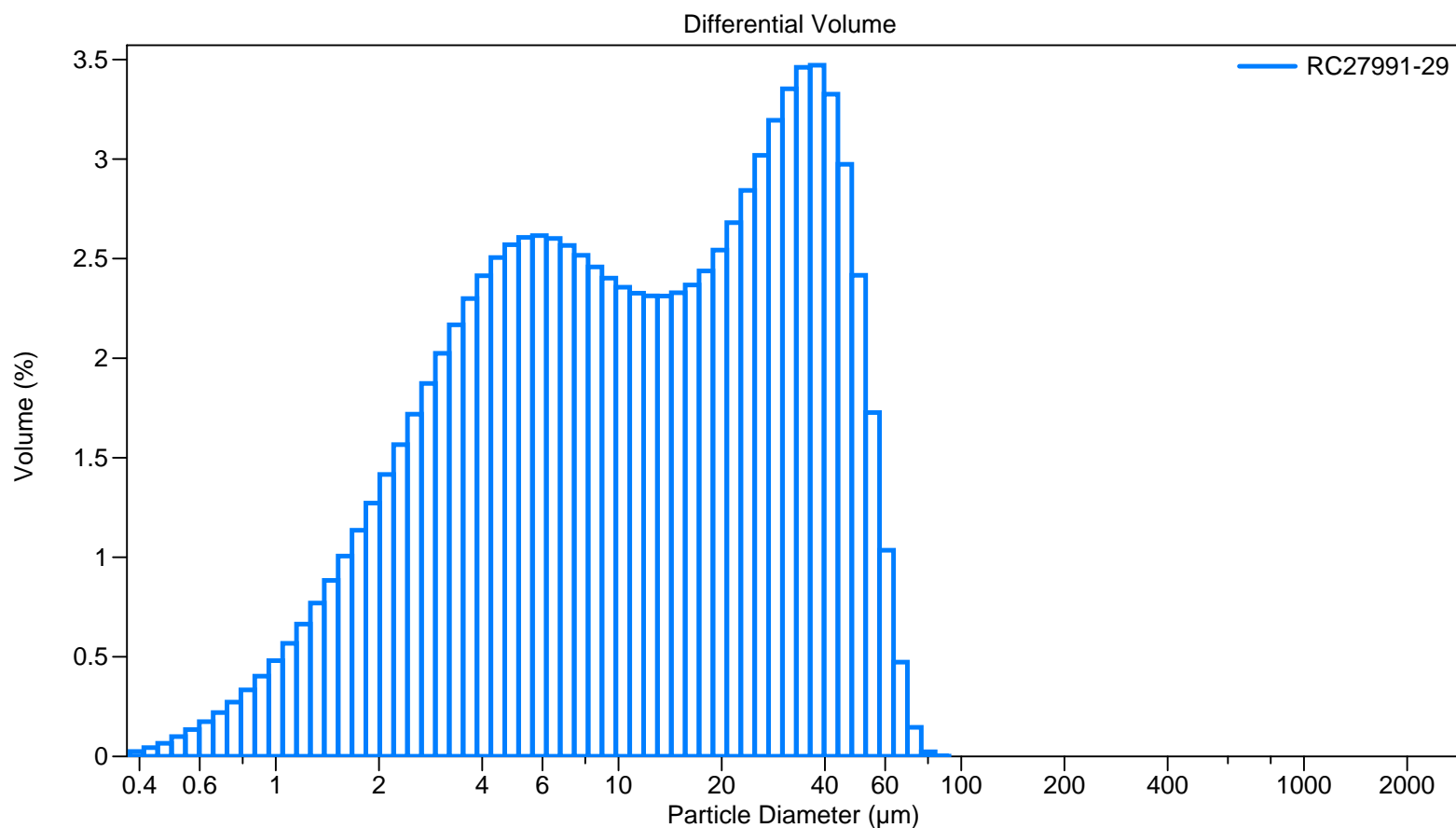
RC27991-28

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.017	0	100
2	0.431	0.030	0.017	99.98
3	0.474	0.045	0.047	99.95
4	0.520	0.067	0.092	99.9
5	0.571	0.088	0.16	99.8
6	0.627	0.11	0.25	99.8
7	0.688	0.14	0.36	99.6
8	0.755	0.17	0.50	99.5
9	0.829	0.20	0.66	99.3
10	0.910	0.24	0.86	99.1
11	0.999	0.28	1.10	98.9
12	1.097	0.32	1.38	98.6
13	1.204	0.38	1.70	98.3
14	1.321	0.43	2.08	97.9
15	1.451	0.50	2.51	97.5
16	1.592	0.57	3.01	97.0
17	1.748	0.64	3.58	96.4
18	1.919	0.72	4.22	95.8
19	2.107	0.81	4.94	95.1
20	2.313	0.90	5.75	94.2
21	2.539	1.00	6.65	93.4
22	2.787	1.09	7.64	92.4
23	3.059	1.20	8.74	91.3
24	3.358	1.30	9.94	90.1
25	3.687	1.40	11.2	88.8
26	4.047	1.51	12.6	87.4
27	4.443	1.61	14.1	85.9
28	4.877	1.70	15.8	84.2
29	5.354	1.79	17.5	82.5
30	5.878	1.88	19.2	80.8
31	6.452	1.96	21.1	78.9
32	7.083	2.05	23.1	76.9
33	7.775	2.13	25.1	74.9
34	8.536	2.21	27.3	72.7
35	9.370	2.30	29.5	70.5
36	10.29	2.39	31.8	68.2
37	11.29	2.49	34.2	65.8
38	12.40	2.61	36.7	63.3

RC27991-28

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.73	39.3	60.7
40	14.94	2.87	42.0	58.0
41	16.40	3.02	44.9	55.1
42	18.00	3.19	47.9	52.1
43	19.76	3.39	51.1	48.9
44	21.69	3.62	54.5	45.5
45	23.81	3.86	58.1	41.9
46	26.14	4.10	62.0	38.0
47	28.70	4.32	66.1	33.9
48	31.50	4.49	70.4	29.6
49	34.58	4.56	74.9	25.1
50	37.97	4.51	79.4	20.6
51	41.68	4.27	83.9	16.1
52	45.75	3.82	88.2	11.8
53	50.22	3.15	92.0	7.98
54	55.13	2.32	95.2	4.83
55	60.52	1.48	97.5	2.50
56	66.44	0.73	99.0	1.03
57	72.94	0.25	99.7	0.30
58	80.07	0.044	99.95	0.047
59	87.90	0.0032	99.997	0.0032
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-29	Group ID:	RC27991
Sample ID:	29		
Run number:	29	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 480.80 - 481.07		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	10:02 6 May 2018	Run length:	60 seconds
Obscuration:	12%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-29

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	17.40 µm	S.D.:	15.94 µm
Median:	11.13 µm	C.V.:	91.6%
Mode:	37.97 µm	Skewness:	1.024 Right skewed
d ₁₀ :	2.212 µm	Kurtosis:	0.127 Leptokurtic
d ₅₀ :	11.13 µm		
d ₉₀ :	42.26 µm		

RC27991-29

Particle Diameter μm	Volume %
0.375	3.73
1.3	4.04
1.9	6.50
2.8	7.59
3.9	14.4
6.6	4.57
7.8	8.91
11	9.33
16	8.52
22	11.1
31	12.8
44	8.51
75	0.055

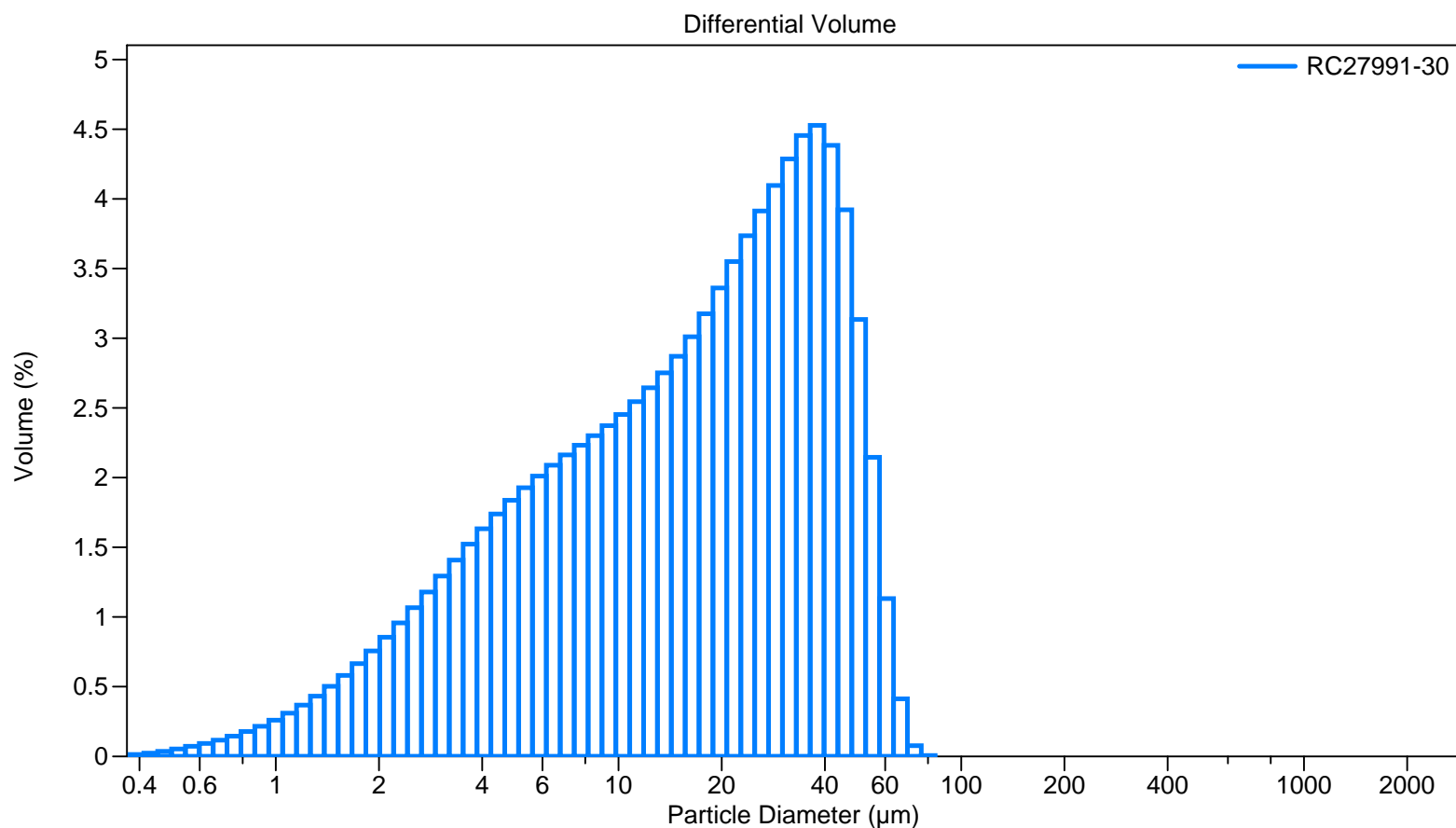
RC27991-29

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.025	0	100
2	0.431	0.044	0.025	99.98
3	0.474	0.066	0.068	99.9
4	0.520	0.099	0.13	99.9
5	0.571	0.13	0.23	99.8
6	0.627	0.17	0.37	99.6
7	0.688	0.22	0.54	99.5
8	0.755	0.27	0.76	99.2
9	0.829	0.33	1.03	99.0
10	0.910	0.40	1.37	98.6
11	0.999	0.48	1.77	98.2
12	1.097	0.57	2.25	97.7
13	1.204	0.66	2.82	97.2
14	1.321	0.77	3.48	96.5
15	1.451	0.88	4.25	95.7
16	1.592	1.01	5.14	94.9
17	1.748	1.14	6.14	93.9
18	1.919	1.27	7.28	92.7
19	2.107	1.42	8.55	91.4
20	2.313	1.57	9.97	90.0
21	2.539	1.72	11.5	88.5
22	2.787	1.87	13.3	86.7
23	3.059	2.02	15.1	84.9
24	3.358	2.17	17.1	82.9
25	3.687	2.30	19.3	80.7
26	4.047	2.41	21.6	78.4
27	4.443	2.51	24.0	76.0
28	4.877	2.57	26.5	73.5
29	5.354	2.61	29.1	70.9
30	5.878	2.62	31.7	68.3
31	6.452	2.60	34.3	65.7
32	7.083	2.57	36.9	63.1
33	7.775	2.52	39.5	60.5
34	8.536	2.46	42.0	58.0
35	9.370	2.40	44.5	55.5
36	10.29	2.36	46.9	53.1
37	11.29	2.33	49.2	50.8
38	12.40	2.31	51.6	48.4

RC27991-29

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.31	53.9	46.1
40	14.94	2.33	56.2	43.8
41	16.40	2.37	58.5	41.5
42	18.00	2.44	60.9	39.1
43	19.76	2.54	63.3	36.7
44	21.69	2.68	65.9	34.1
45	23.81	2.84	68.5	31.5
46	26.14	3.02	71.4	28.6
47	28.70	3.19	74.4	25.6
48	31.50	3.35	77.6	22.4
49	34.58	3.46	80.9	19.1
50	37.97	3.47	84.4	15.6
51	41.68	3.33	87.9	12.1
52	45.75	2.97	91.2	8.80
53	50.22	2.42	94.2	5.82
54	55.13	1.73	96.6	3.41
55	60.52	1.04	98.3	1.68
56	66.44	0.47	99.4	0.64
57	72.94	0.15	99.8	0.17
58	80.07	0.023	99.98	0.024
59	87.90	0.0014	99.999	0.0014
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-30	Group ID:	RC27991
Sample ID:	30		
Run number:	30	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 481.65 - 482.04		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	10:09 6 May 2018	Run length:	60 seconds
Obscuration:	12%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-30

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	20.91 µm	S.D.:	15.87 µm
Median:	17.35 µm	C.V.:	75.9%
Mode:	37.97 µm	Skewness:	0.679 Right skewed
d ₁₀ :	3.168 µm	Kurtosis:	-0.487 Platykurtic
d ₅₀ :	17.35 µm		
d ₉₀ :	44.57 µm		

RC27991-30

Particle Diameter μm	Volume %
0.375	2.02
1.3	2.33
1.9	3.98
2.8	4.93
3.9	10.5
6.6	3.89
7.8	8.73
11	11.0
16	11.1
22	14.4
31	16.6
44	10.5
75	0.022

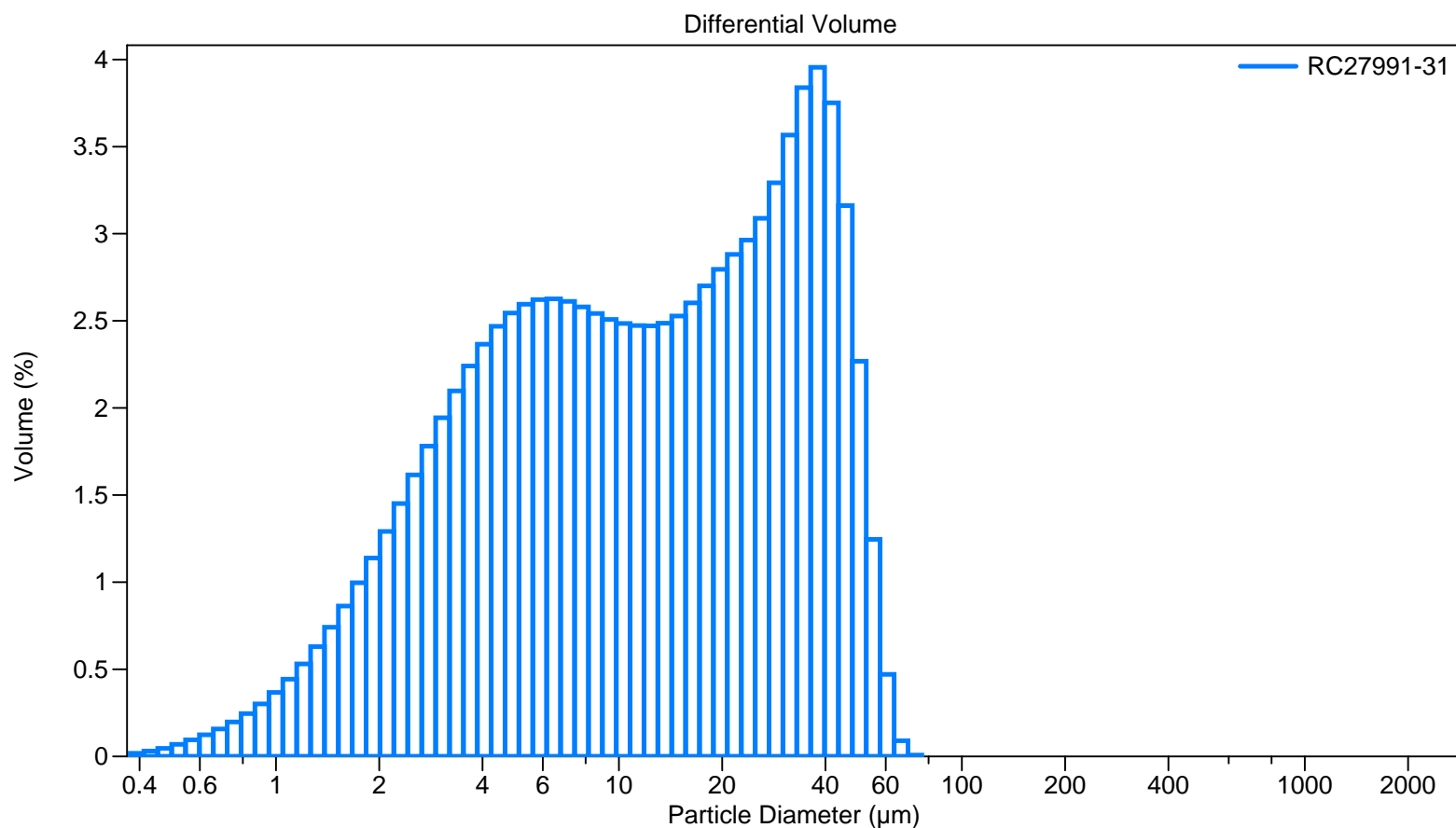
RC27991-30

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.013	0	100
2	0.431	0.024	0.013	99.99
3	0.474	0.035	0.037	99.96
4	0.520	0.053	0.072	99.9
5	0.571	0.072	0.13	99.9
6	0.627	0.093	0.20	99.8
7	0.688	0.12	0.29	99.7
8	0.755	0.14	0.41	99.6
9	0.829	0.18	0.55	99.4
10	0.910	0.22	0.73	99.3
11	0.999	0.26	0.94	99.1
12	1.097	0.31	1.20	98.8
13	1.204	0.37	1.51	98.5
14	1.321	0.43	1.88	98.1
15	1.451	0.50	2.31	97.7
16	1.592	0.58	2.82	97.2
17	1.748	0.67	3.40	96.6
18	1.919	0.76	4.06	95.9
19	2.107	0.85	4.82	95.2
20	2.313	0.96	5.67	94.3
21	2.539	1.07	6.63	93.4
22	2.787	1.18	7.70	92.3
23	3.059	1.29	8.88	91.1
24	3.358	1.41	10.2	89.8
25	3.687	1.52	11.6	88.4
26	4.047	1.63	13.1	86.9
27	4.443	1.74	14.7	85.3
28	4.877	1.84	16.5	83.5
29	5.354	1.93	18.3	81.7
30	5.878	2.01	20.2	79.8
31	6.452	2.09	22.2	77.8
32	7.083	2.16	24.3	75.7
33	7.775	2.23	26.5	73.5
34	8.536	2.30	28.7	71.3
35	9.370	2.37	31.0	69.0
36	10.29	2.45	33.4	66.6
37	11.29	2.55	35.9	64.1
38	12.40	2.65	38.4	61.6

RC27991-30

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.75	41.1	58.9
40	14.94	2.87	43.8	56.2
41	16.40	3.01	46.7	53.3
42	18.00	3.18	49.7	50.3
43	19.76	3.36	52.9	47.1
44	21.69	3.55	56.2	43.8
45	23.81	3.74	59.8	40.2
46	26.14	3.91	63.5	36.5
47	28.70	4.10	67.4	32.6
48	31.50	4.29	71.5	28.5
49	34.58	4.46	75.8	24.2
50	37.97	4.53	80.3	19.7
51	41.68	4.38	84.8	15.2
52	45.75	3.92	89.2	10.8
53	50.22	3.14	93.1	6.91
54	55.13	2.15	96.2	3.77
55	60.52	1.13	98.4	1.63
56	66.44	0.41	99.5	0.49
57	72.94	0.076	99.9	0.082
58	80.07	0.0058	99.99	0.0058
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-31	Group ID:	RC27991
Sample ID:	31		
Run number:	31	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 482.65 - 483.05		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	10:15 6 May 2018	Run length:	60 seconds
Obscuration:	12%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-31

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	17.33 µm	S.D.:	14.94 µm
Median:	11.91 µm	C.V.:	86.2%
Mode:	37.97 µm	Skewness:	0.880 Right skewed
d ₁₀ :	2.462 µm	Kurtosis:	-0.293 Platykurtic
d ₅₀ :	11.91 µm		
d ₉₀ :	40.81 µm		

RC27991-31

Particle Diameter μm	Volume %
0.375	2.82
1.3	3.47
1.9	6.02
2.8	7.34
3.9	14.3
6.6	4.66
7.8	9.29
11	10.0
16	9.35
22	11.5
31	14.2
44	6.99
75	0.0015

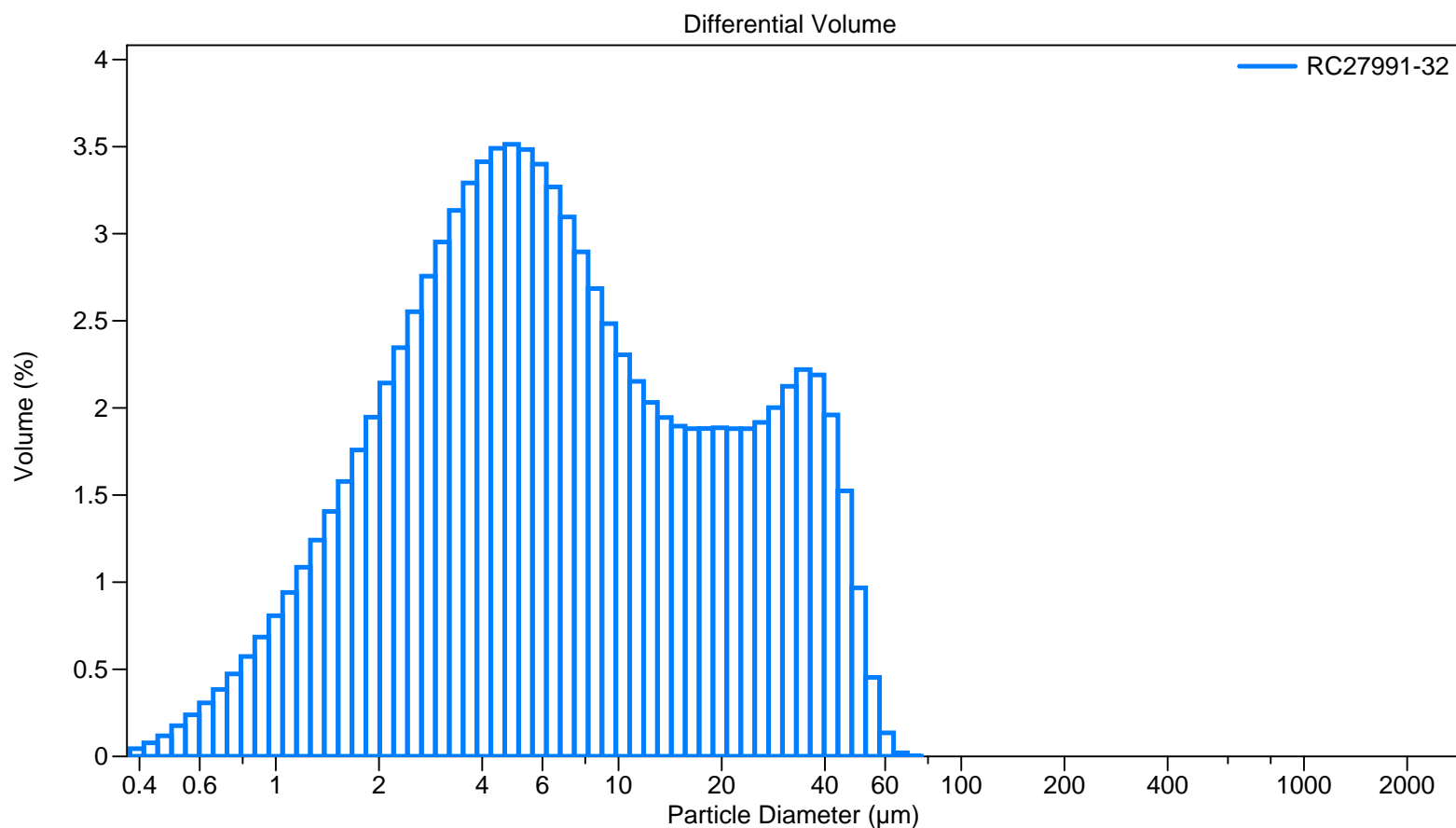
RC27991-31

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.017	0	100
2	0.431	0.031	0.017	99.98
3	0.474	0.046	0.048	99.95
4	0.520	0.069	0.094	99.9
5	0.571	0.095	0.16	99.8
6	0.627	0.12	0.26	99.7
7	0.688	0.16	0.38	99.6
8	0.755	0.20	0.54	99.5
9	0.829	0.25	0.74	99.3
10	0.910	0.30	0.98	99.0
11	0.999	0.37	1.28	98.7
12	1.097	0.44	1.65	98.4
13	1.204	0.53	2.09	97.9
14	1.321	0.63	2.62	97.4
15	1.451	0.74	3.25	96.7
16	1.592	0.86	3.99	96.0
17	1.748	1.00	4.86	95.1
18	1.919	1.14	5.85	94.1
19	2.107	1.29	6.99	93.0
20	2.313	1.45	8.28	91.7
21	2.539	1.62	9.73	90.3
22	2.787	1.78	11.3	88.7
23	3.059	1.94	13.1	86.9
24	3.358	2.10	15.1	84.9
25	3.687	2.24	17.2	82.8
26	4.047	2.37	19.4	80.6
27	4.443	2.47	21.8	78.2
28	4.877	2.55	24.2	75.8
29	5.354	2.60	26.8	73.2
30	5.878	2.62	29.4	70.6
31	6.452	2.63	32.0	68.0
32	7.083	2.61	34.6	65.4
33	7.775	2.58	37.2	62.8
34	8.536	2.54	39.8	60.2
35	9.370	2.51	42.4	57.6
36	10.29	2.48	44.9	55.1
37	11.29	2.47	47.4	52.6
38	12.40	2.47	49.8	50.2

RC27991-31

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.49	52.3	47.7
40	14.94	2.53	54.8	45.2
41	16.40	2.60	57.3	42.7
42	18.00	2.70	59.9	40.1
43	19.76	2.80	62.6	37.4
44	21.69	2.88	65.4	34.6
45	23.81	2.96	68.3	31.7
46	26.14	3.09	71.3	28.7
47	28.70	3.29	74.4	25.6
48	31.50	3.57	77.6	22.4
49	34.58	3.84	81.2	18.8
50	37.97	3.96	85.1	14.9
51	41.68	3.75	89.0	11.0
52	45.75	3.16	92.8	7.24
53	50.22	2.27	95.9	4.08
54	55.13	1.25	98.2	1.81
55	60.52	0.47	99.4	0.57
56	66.44	0.089	99.9	0.096
57	72.94	0.0070	99.99	0.0070
58	80.07	0	100	0
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-32	Group ID:	RC27991
Sample ID:	32		
Run number:	32	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 483.75 - 484.10		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	10:25 6 May 2018	Run length:	60 seconds
Obscuration:	11%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-32

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	11.55 µm	S.D.:	12.43 µm
Median:	6.107 µm	C.V.:	108%
Mode:	4.877 µm	Skewness:	1.570 Right skewed
d ₁₀ :	1.656 µm	Kurtosis:	1.666 Leptokurtic
d ₅₀ :	6.107 µm		
d ₉₀ :	32.27 µm		

RC27991-32

Particle Diameter μm	Volume %
0.375	6.30
1.3	6.34
1.9	9.73
2.8	11.0
3.9	19.4
6.6	5.48
7.8	9.31
11	8.00
16	6.42
22	7.15
31	7.94
44	2.98
75	0.00019

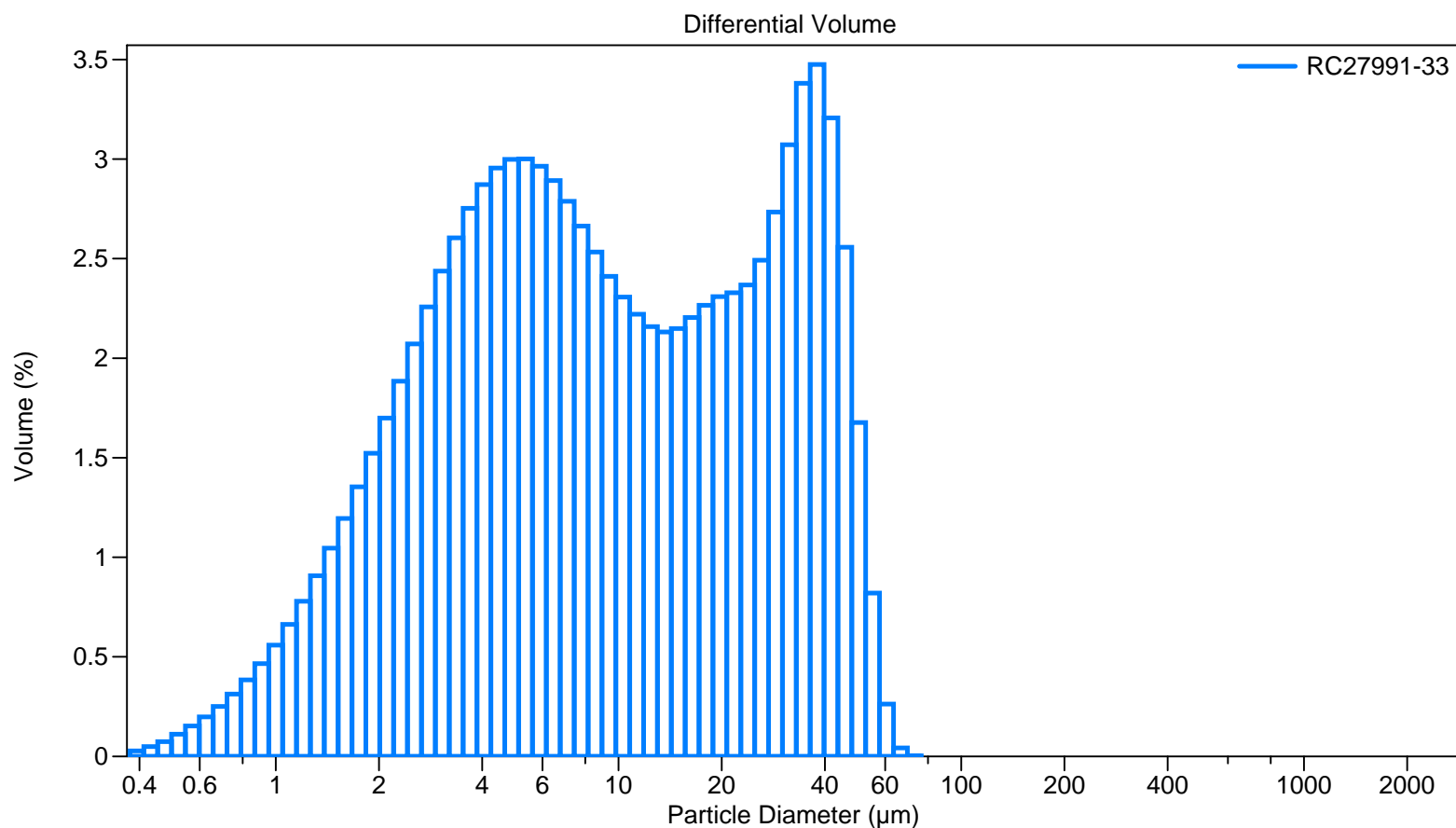
RC27991-32

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.044	0	100
2	0.431	0.078	0.044	99.96
3	0.474	0.12	0.12	99.9
4	0.520	0.18	0.24	99.8
5	0.571	0.24	0.42	99.6
6	0.627	0.31	0.65	99.3
7	0.688	0.38	0.96	99.0
8	0.755	0.47	1.35	98.7
9	0.829	0.57	1.82	98.2
10	0.910	0.68	2.39	97.6
11	0.999	0.81	3.08	96.9
12	1.097	0.94	3.88	96.1
13	1.204	1.09	4.82	95.2
14	1.321	1.24	5.91	94.1
15	1.451	1.41	7.15	92.8
16	1.592	1.58	8.56	91.4
17	1.748	1.76	10.1	89.9
18	1.919	1.95	11.9	88.1
19	2.107	2.14	13.8	86.2
20	2.313	2.35	16.0	84.0
21	2.539	2.55	18.3	81.7
22	2.787	2.76	20.9	79.1
23	3.059	2.95	23.6	76.4
24	3.358	3.13	26.6	73.4
25	3.687	3.29	29.7	70.3
26	4.047	3.41	33.0	67.0
27	4.443	3.49	36.4	63.6
28	4.877	3.51	39.9	60.1
29	5.354	3.48	43.4	56.6
30	5.878	3.40	46.9	53.1
31	6.452	3.27	50.3	49.7
32	7.083	3.10	53.6	46.4
33	7.775	2.90	56.7	43.3
34	8.536	2.69	59.6	40.4
35	9.370	2.48	62.3	37.7
36	10.29	2.30	64.7	35.3
37	11.29	2.15	67.1	32.9
38	12.40	2.03	69.2	30.8

RC27991-32

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	1.95	71.2	28.8
40	14.94	1.90	73.2	26.8
41	16.40	1.88	75.1	24.9
42	18.00	1.88	77.0	23.0
43	19.76	1.89	78.8	21.2
44	21.69	1.88	80.7	19.3
45	23.81	1.88	82.6	17.4
46	26.14	1.92	84.5	15.5
47	28.70	2.00	86.4	13.6
48	31.50	2.12	88.4	11.6
49	34.58	2.22	90.5	9.47
50	37.97	2.19	92.8	7.25
51	41.68	1.96	94.9	5.06
52	45.75	1.52	96.9	3.10
53	50.22	0.97	98.4	1.58
54	55.13	0.45	99.4	0.61
55	60.52	0.13	99.8	0.16
56	66.44	0.020	99.98	0.021
57	72.94	0.00093	99.999	0.00093
58	80.07	0	100	0
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-33	Group ID:	RC27991
Sample ID:	33		
Run number:	33	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 485.75 - 486.11		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	10:32 6 May 2018	Run length:	60 seconds
Obscuration:	12%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-33

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	14.90 µm	S.D.:	14.28 µm
Median:	8.495 µm	C.V.:	95.9%
Mode:	37.97 µm	Skewness:	1.093 Right skewed
d ₁₀ :	2.005 µm	Kurtosis:	0.106 Leptokurtic
d ₅₀ :	8.495 µm		
d ₉₀ :	38.32 µm		

RC27991-33

Particle Diameter μm	Volume %
0.375	4.31
1.3	4.80
1.9	7.81
2.8	9.12
3.9	16.6
6.6	4.95
7.8	8.99
11	8.69
16	7.77
22	9.41
31	12.4
44	5.16
75	0.00051

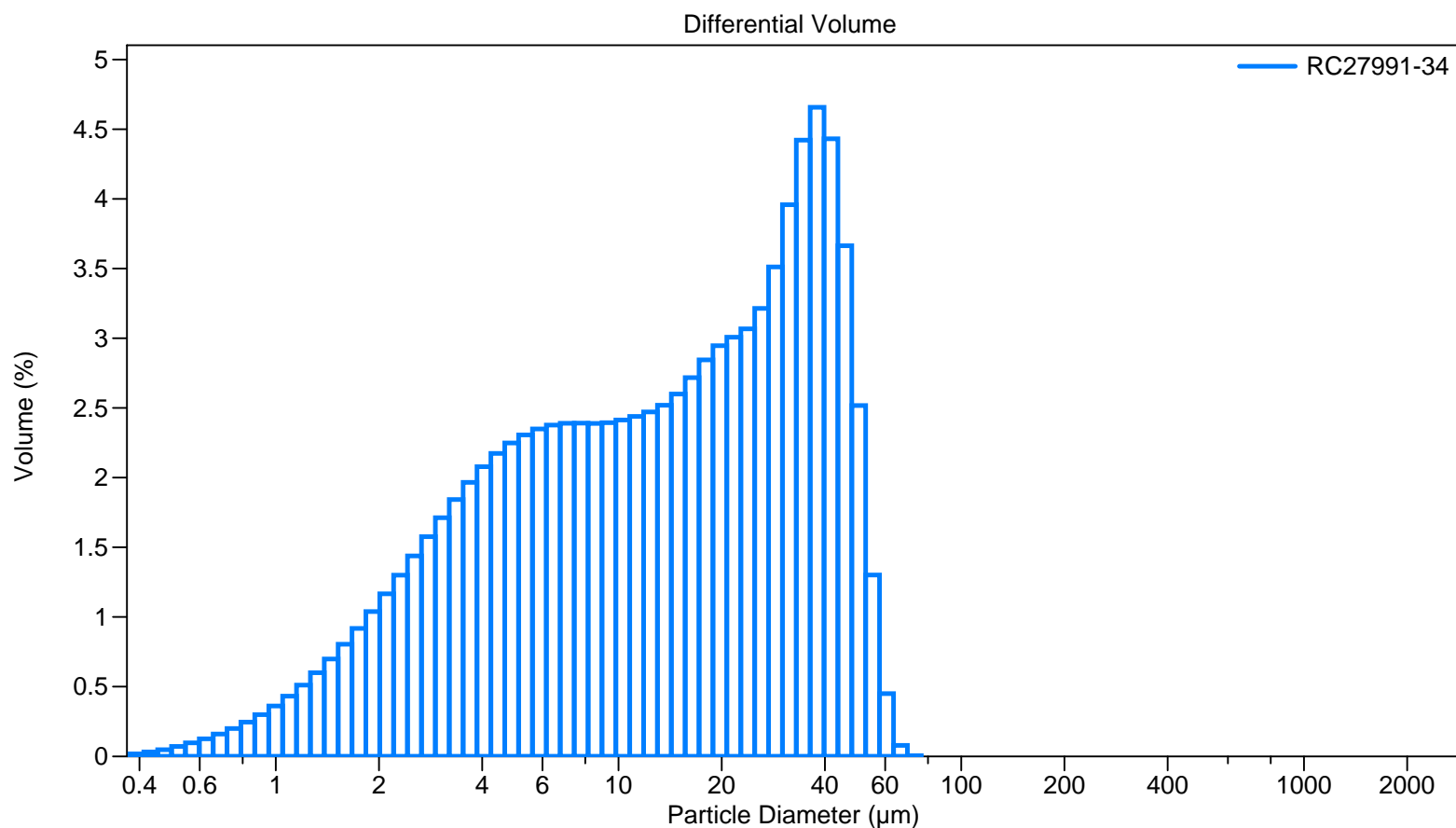
RC27991-33

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.028	0	100
2	0.431	0.049	0.028	99.97
3	0.474	0.074	0.077	99.9
4	0.520	0.11	0.15	99.8
5	0.571	0.15	0.26	99.7
6	0.627	0.20	0.41	99.6
7	0.688	0.25	0.61	99.4
8	0.755	0.31	0.86	99.1
9	0.829	0.38	1.18	98.8
10	0.910	0.47	1.56	98.4
11	0.999	0.56	2.03	98.0
12	1.097	0.66	2.59	97.4
13	1.204	0.78	3.25	96.8
14	1.321	0.91	4.03	96.0
15	1.451	1.05	4.93	95.1
16	1.592	1.19	5.98	94.0
17	1.748	1.35	7.18	92.8
18	1.919	1.52	8.53	91.5
19	2.107	1.70	10.1	89.9
20	2.313	1.88	11.8	88.2
21	2.539	2.07	13.6	86.4
22	2.787	2.26	15.7	84.3
23	3.059	2.44	18.0	82.0
24	3.358	2.60	20.4	79.6
25	3.687	2.75	23.0	77.0
26	4.047	2.87	25.8	74.2
27	4.443	2.96	28.6	71.4
28	4.877	3.00	31.6	68.4
29	5.354	3.00	34.6	65.4
30	5.878	2.96	37.6	62.4
31	6.452	2.89	40.5	59.5
32	7.083	2.79	43.4	56.6
33	7.775	2.66	46.2	53.8
34	8.536	2.53	48.9	51.1
35	9.370	2.41	51.4	48.6
36	10.29	2.31	53.8	46.2
37	11.29	2.22	56.1	43.9
38	12.40	2.16	58.4	41.6

RC27991-33

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.13	60.5	39.5
40	14.94	2.15	62.7	37.3
41	16.40	2.20	64.8	35.2
42	18.00	2.27	67.0	33.0
43	19.76	2.31	69.3	30.7
44	21.69	2.33	71.6	28.4
45	23.81	2.37	73.9	26.1
46	26.14	2.49	76.3	23.7
47	28.70	2.73	78.8	21.2
48	31.50	3.07	81.5	18.5
49	34.58	3.38	84.6	15.4
50	37.97	3.47	88.0	12.0
51	41.68	3.21	91.4	8.57
52	45.75	2.56	94.6	5.36
53	50.22	1.68	97.2	2.81
54	55.13	0.82	98.9	1.13
55	60.52	0.26	99.7	0.31
56	66.44	0.043	99.96	0.045
57	72.94	0.0024	99.998	0.0024
58	80.07	0	100	0
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0

File name:	RC27991-34	Group ID:	RC27991
Sample ID:	34		
Run number:	34	Operator:	SUNCOR ENERGY RESOURCES PARTN
Comments:	INTERVAL: 488.85 - 489.05		
	UWI:		
Optical model:	Agat.rf780z		
LS 300	VSM+		
Start time:	10:38 6 May 2018	Run length:	60 seconds
Obscuration:	9%		
Fluid:	Water		
Software:	3.01 5.01	Firmware:	2.02 0



Volume Statistics (Arithmetic)

RC27991-34

Calculations from 0.375 µm to 2,000 µm

Volume:	100%		
Mean:	18.61 µm	S.D.:	15.22 µm
Median:	13.95 µm	C.V.:	81.8%
Mode:	37.97 µm	Skewness:	0.722 Right skewed
d ₁₀ :	2.567 µm	Kurtosis:	-0.602 Platykurtic
d ₅₀ :	13.95 µm		
d ₉₀ :	41.93 µm		

RC27991-34

Particle Diameter μm	Volume %
0.375	2.79
1.3	3.23
1.9	5.40
2.8	6.45
3.9	12.7
6.6	4.27
7.8	8.86
11	10.1
16	9.81
22	12.1
31	16.5
44	7.73
75	0.0011

RC27991-34

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
1	0.393	0.018	0	100
2	0.431	0.031	0.018	99.98
3	0.474	0.047	0.049	99.95
4	0.520	0.071	0.096	99.9
5	0.571	0.097	0.17	99.8
6	0.627	0.13	0.26	99.7
7	0.688	0.16	0.39	99.6
8	0.755	0.20	0.55	99.5
9	0.829	0.25	0.75	99.3
10	0.910	0.30	0.99	99.0
11	0.999	0.36	1.29	98.7
12	1.097	0.43	1.66	98.3
13	1.204	0.51	2.09	97.9
14	1.321	0.60	2.60	97.4
15	1.451	0.70	3.20	96.8
16	1.592	0.80	3.90	96.1
17	1.748	0.92	4.70	95.3
18	1.919	1.04	5.62	94.4
19	2.107	1.17	6.66	93.3
20	2.313	1.30	7.82	92.2
21	2.539	1.44	9.13	90.9
22	2.787	1.58	10.6	89.4
23	3.059	1.71	12.1	87.9
24	3.358	1.84	13.9	86.1
25	3.687	1.97	15.7	84.3
26	4.047	2.08	17.7	82.3
27	4.443	2.17	19.7	80.3
28	4.877	2.25	21.9	78.1
29	5.354	2.31	24.2	75.8
30	5.878	2.35	26.5	73.5
31	6.452	2.38	28.8	71.2
32	7.083	2.39	31.2	68.8
33	7.775	2.39	33.6	66.4
34	8.536	2.39	36.0	64.0
35	9.370	2.39	38.4	61.6
36	10.29	2.41	40.8	59.2
37	11.29	2.44	43.2	56.8
38	12.40	2.47	45.6	54.4

RC27991-34

Channel Number	Channel Diameter (Center) μm	Diff. Volume %	Cum. < Volume %	Cum. > Volume %
39	13.61	2.52	48.1	51.9
40	14.94	2.60	50.6	49.4
41	16.40	2.72	53.2	46.8
42	18.00	2.85	55.9	44.1
43	19.76	2.95	58.8	41.2
44	21.69	3.01	61.7	38.3
45	23.81	3.07	64.7	35.3
46	26.14	3.21	67.8	32.2
47	28.70	3.51	71.0	29.0
48	31.50	3.96	74.5	25.5
49	34.58	4.42	78.5	21.5
50	37.97	4.66	82.9	17.1
51	41.68	4.43	87.6	12.4
52	45.75	3.66	92.0	8.02
53	50.22	2.52	95.6	4.35
54	55.13	1.30	98.2	1.84
55	60.52	0.45	99.5	0.53
56	66.44	0.079	99.9	0.084
57	72.94	0.0053	99.99	0.0053
58	80.07	0	100	0
59	87.90	0	100	0
60	96.49	0	100	0
61	105.9	0	100	0
62	116.3	0	100	0
63	127.6	0	100	0
64	140.1	0	100	0
65	153.8	0	100	0
66	168.9	0	100	0
67	185.4	0	100	0
68	203.5	0	100	0
69	223.4	0	100	0
70	245.2	0	100	0
71	269.2	0	100	0
72	295.5	0	100	0
73	324.4	0	100	0
74	356.1	0	100	0
75	390.9	0	100	0
76	429.2	0	100	0
77	471.1	0	100	0
78	517.2	0	100	0
79	567.7	0	100	0
80	623.3	0	100	0
81	684.2	0	100	0
82	751.1	0	100	0
83	824.5	0	100	0
84	905.1	0	100	0
85	993.6	0	100	0
86	1,091	0	100	0
87	1,197	0	100	0
88	1,314	0	100	0
89	1,443	0	100	0
90	1,584	0	100	0
91	1,739	0	100	0
92	1,909	0	100	0