



Hillsborough County Florida

PUBLIC WORKS

PO Box 1110 Tampa, FL 33601-1110
(813) 272-5912 | Fax: (813) 272-5811

MEMORANDUM

DATE September 22, 2017

TO: Steve Morgan, Environmental Permitting Manager, FDEP
Lance Kautz, Environmental Specialist I, FDEP

FROM: Larry Ruiz, Section Manager, Public Works, SWMD

SUBJECT: Hillsborough County Biosolids Composting Monthly Report: August 2017

BOARD OF COUNTY COMMISSIONERS

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INTERNAL AUDITOR

Peggy Caskey

CHIEF DEV. & INFRA. SERVICES ADMINISTRATOR

Lucia E. Garsys

Biosolids Received (wet tons):	1471.03 tons received 8/1 through 8/31
Source of Biosolids:	Hillsborough County Falkenburg AWWTP
Source of Bulking Agent:	Hillsborough County South County Yard Waste Processing Site
General Description of Activities:	All incoming biosolids were mixed with bulking agent and formed into windrows on the same day as received. 8 windrows were formed and in active composting as of 8/31/17. Windrow temperatures were monitored daily. 7 windrows has met temperature and time requirements of the Process to Further Reduce Pathogens (PFRP). 15 windrows have been turned. The previous 7 windrows have been moved to the curing section and combined for a total of 8 curing windrows. Sampling was performed on August 29, 2017. 127.43 tons of compost was picked up by Life Soils.
Attachments:	A-O: Windrow construction and temperature records.

LER/rww

Attachments

CC: Beth Schinella, Division Director, Utility Operations, PUD
Kim Byer, Division Director, Solid Waste Management Division, PWD
Ron Wiesman, Manager, Southeast County Landfill, PWD/SWMD

Attachment A

MSAP Process Temperature Chart Windrow# 17-7-5																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	7/6/17	122	119	116	115	130	138	132	130	121	122	122	123	141	148	150	150	128.5	131.75	130	129.5	
2	7/7/17	130	128	122	122	143	148	143	142	133	132	129	122	153	148	160	160	139.75	139	138.5	136.5	
3	7/8/17	132	129	125	125	140	150	141	140	133	132	129	128	150	160	160	161	138.75	142.75	138.75	138.5	
4	7/9/17																					
5	7/10/17	142	150	150	151	141	143	143	148	141	143	148	148	148	152	158	158	143	147	149.75	151.25	
6	7/11/17	140	151	149	150	144	156	154	150	142	143	150	148	151	153	154	156	144.25	150.75	151.75	151	
7	7/12/17	138	150	142	148	154	160	161	158	146	143	151	150	158	156	147	152	149	152.25	150.25	152	
8	7/13/17	136	148	142	146	146	156	158	156	143	146	152	150	155	152	144	151	145	150.5	149	150.75	
9	7/14/17	132	144	141	141	136	152	150	150	140	150	153	150	132	140	141	150	135	146.5	146.25	147.75	
10	7/15/17	138	142	142	141	140	148	151	153	142	151	153	158	133	141	143	151	138.25	145.5	147.25	150.75	
11	7/16/17																					
12	7/17/17	154	152	146	136	151	156	156	152	139	137	134	158	154	155	154	149	149.5	150	147.5	148.75	
13	7/18/17	156	154	146	138	132	153	156	151	138	135	131	159	140	153	153	149	141.5	148.75	146.5	149.25	
14	7/19/17	142	143	148	148	148	151	152	152	152	158	158	160	151	158	158	153	148.25	152.5	154	153.25	
15	7/20/17	138	141	141	142	133	140	140	141	131	133	133	138	133	138	138	140	133.75	138	138	140.25	
16	7/21/17	136	141	142	143	132	133	138	140	132	140	141	142	132	132	132	133	133	136.5	138.25	139.5	
17	7/22/17	132	140	142	141	131	133	140	142	132	142	143	143	132	133	135	134	131.75	137	140	140	
18	7/23/17																					
19	7/24/17	132	138	140	141	138	148	151	152	150	153	158	160	132	141	148	152	138	145	149.25	151.25	
20	7/25/17	145	148	147	140	143	154	158	157	134	133	133	131	140	142	149	152	140.5	144.25	146.75	145	Turn
21	7/26/17	140	142	142	141	142	150	152	153	133	133	134	138	132	140	150	152	136.75	141.25	144.5	146	
22	7/27/17	143	148	148	151	143	151	152	158	138	146	150	148	142	150	151	153	141.5	148.75	150.25	152.5	
23	7/28/17	131	143	148	148	141	142	142	143	133	132	132	132	140	148	140	143	136.25	141.25	140.5	141.5	
24	7/29/17	151	153	158	167	138	141	146	144	138	141	141	142	140	132	136	138	141.75	141.75	145.25	147.75	
25	7/30/17																					
26	7/31/17	150	158	161	163	152	158	161	162	151	157	159	161	148	152	158	156	150.25	156.25	159.75	160.5	Turn
27	8/1/17	142	144	150	153	144	148	152	156	148	152	154	156	141	150	152	150	143.75	148.5	152	153.75	
28	8/2/17	138	146	148	150	143	148	150	153	140	144	148	150	140	142	148	150	140.25	145	148.5	150.75	
29	8/3/17	136	137	140	144	141	145	148	150	137	140	146	148	140	142	143	148	138.5	141	144.25	147.5	
30	8/4/17	133	140	143	150	138	142	146	151	135	138	143	150	142	148	150	150	137	142	145.5	150.25	
31	8/5/17	140	142	148	150	138	142	150	152	132	135	140	147	138	140	143	150	137	139.75	145.25	149.75	

Attachment B

MSAP Process Temperature Chart Windrow# 17-7-10																							
Temperature: Shading equals temperature 131 or greater for PFRP.																							
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn	
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"		
1	7/11/17	131	130	120	112	135	132	128	120	136	133	125	115	131	115	112	110	133.25	127.5	121.25	114.25		
2	7/12/17	136	132	120	119	141	139	131	124	140	137	128	119	133	119	130	128	137.5	131.75	127.25	122.5		
3	7/13/17	135	132	133	131	136	138	138	135	138	138	133	131	138	136	140	139	136.75	136	136	134		
4	7/14/17	132	133	138	138	132	138	141	141	136	140	140	132	140	145	150	150	135	139	142.25	140.25		
5	7/15/17	132	133	138	138	132	138	140	141	138	141	140	132	141	148	151	152	135.75	140	142.25	140.75		
6	7/16/17																						
7	7/17/17	133	135	133	135	134	136	138	138	142	144	141	134	134	142	146	148	135.75	139.25	139.5	138.75		
8	7/18/17	150	152	151	142	146	147	147	140	140	137	138	134	140	141	138	134	144	144.25	143.5	137.5		
9	7/19/17	140	142	142	143	138	148	148	146	143	150	150	148	158	158	153	148	144.75	149.5	148.25	146.25		
10	7/20/17	146	154	158	159	148	158	162	160	148	158	160	159	146	156	162	158	147	156.5	160.5	159		
11	7/21/17	140	152	159	159	146	156	162	162	146	158	161	160	140	152	161	161	143	154.5	160.75	160.5		
12	7/22/17	140	154	163	164	140	154	160	159	142	156	162	163	140	150	161	164	140.5	153.5	161.5	162.5		
13	7/23/17																						
14	7/24/17	136	152	165	166	136	152	160	160	140	152	162	162	138	150	161	163	137.5	151.5	162	162.75		
15	7/25/17	136	150	165	165	135	151	160	159	140	151	163	164	138	148	161	163	137.25	150	162.25	162.75		
16	7/26/17	152	155	158	162	144	151	156	162	156	160	156	154	136	140	144	146	147	151.5	153.5	156		
17	7/27/17	132	138	138	140	140	148	156	161	148	156	156	152	135	141	148	151	138.75	145.75	149.5	151	Turn	
18	7/28/17	150	154	160	162	156	154	152	152	160	162	154	154	154	156	154	152	155	156.5	155	155		
19	7/29/17	148	156	162	152	154	154	152	151	156	160	154	152	154	154	152	151	153	156	155	151.5		
20	7/30/17																						
21	7/31/17	158	155	152	150	150	151	150	150	148	152	154	150	152	151	150	150	152	152.25	151.5	150		
22	8/1/17	144	152	154	156	145	148	148	149	138	146	146	150	148	150	150	152	143.75	149	149.5	151.75		
23	8/2/17	139	143	154	154	144	146	146	148	136	142	145	148	140	146	147	148	139.75	144.25	148	149.5		
24	8/3/17	137	140	146	151	141	145	146	147	132	140	142	146	138	145	146	148	137	142.5	145	148		
25	8/4/17	140	150	151	151	138	141	143	146	142	151	158	158	140	143	153	158	140	146.25	151.25	153.25		
26	8/5/17	135	148	148	150	135	140	141	143	134	139	146	148	140	148	150	151	136	143.75	146.25	148		
27	8/6/17																						
28	8/7/17	148	154	158	161	150	154	163	162	146	154	162	163	150	158	162	163	148.5	155	161.25	162.25	Turn	
29	8/8/17	144	152	156	159	152	154	159	158	142	152	157	158	148	158	160	160	146.5	154	158	158.75		
30	8/9/17	145	143	142	150	144	145	152	152	155	155	152	156	140	148	158	155	146	147.75	151	153.25		
31	8/10/17	144	142	140	140	141	142	142	141	146	148	150	151	141	144	150	148	143	144	145.5	145		
32	8/11/17	141	141	140	140	141	142	141	140	144	148	151	151	141	142	150	150	141.75	143.25	145.5	145.25		
33	8/12/17	136	138	140	140	140	141	141	140	142	148	150	151	141	140	150	152	139.75	141.75	145.25	145.75		

Attachment C

MSAP Process Temperature Chart Windrow# 17-7-13																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	7/14/17	132	140	138	138	138	141	141	143	120	128	126	122	115	115	115	110	126.25	131	130	128.25	
2	7/15/17	138	140	140	138	141	143	143	143	135	131	128	122	134	130	115	113	137	136	131.5	129	
3	7/16/17																					
4	7/17/17	147	158	148	140	145	158	156	152	146	157	144	130	146	156	140	120	146	157.25	147	135.5	
5	7/18/17	144	154	150	146	140	156	159	158	144	156	146	138	140	150	146	132	142	154	150.25	143.5	
6	7/19/17	144	152	152	148	144	156	161	160	148	156	156	140	142	148	166	160	144.5	153	158.75	152	
7	7/20/17	142	151	151	148	146	158	160	161	146	154	161	149	144	148	164	161	144.5	152.75	159	154.75	
8	7/21/17	140	150	150	150	145	156	160	160	145	155	161	158	144	146	166	160	143.5	151.75	159.25	157	
9	7/22/17	139	150	151	148	144	156	158	161	144	155	161	159	144	146	162	163	142.75	151.75	158	157.75	
10	7/23/17																					
11	7/24/17	151	153	150	148	141	143	142	142	151	153	158	160	132	138	140	142	143.75	146.75	147.5	148	
12	7/25/17	156	153	151	149	152	151	150	149	148	151	150	150	156	155	152	150	153	152.5	150.75	149.5	
13	7/26/17	153	156	158	160	141	152	153	152	132	140	150	152	141	142	148	151	141.75	147.5	152.25	153.75	
14	7/27/17	151	152	152	151	151	153	158	158	150	148	141	132	143	151	152	150	148.75	151	150.75	147.75	
15	7/28/17	150	153	158	162	140	142	144	148	153	158	158	160	142	146	150	148	146.25	149.75	152.5	154.5	
16	7/29/17	148	153	151	150	142	148	151	150	143	150	151	151	142	145	133	138	143.75	149	146.5	147.25	
17	7/30/17																					
18	7/31/17	144	150	148	146	144	148	150	150	145	150	150	148	144	146	142	146	144.25	148.5	147.5	147.5	
19	8/1/17	138	140	140	139	148	150	150	146	150	152	149	144	148	150	150	148	146	148	147.25	144.25	
20	8/2/17	139	140	139	138	156	155	152	151	147	149	150	150	156	155	152	149	149.5	149.75	148.25	147	Turn
21	8/3/17	152	158	158	160	151	153	153	152	132	132	138	142	138	141	142	143	143.25	146	147.75	149.25	
22	8/4/17	152	158	132	133	138	141	142	143	141	148	148	150	138	142	148	153	142.25	147.25	142.5	144.75	
23	8/5/17	152	158	158	160	150	152	153	158	151	153	158	158	140	142	142	143	148.25	151.25	152.75	154.75	
24	8/6/17																					
25	8/7/17	156	158	156	158	148	151	154	158	146	150	154	156	150	154	154	155	150	153.25	154.5	156.75	
26	8/8/17	146	155	156	158	144	150	156	156	144	150	160	155	136	140	150	156	142.5	148.75	155.5	156.25	
27	8/9/17	138	142	146	146	140	140	139	138	150	155	152	150	140	145	140	138	142	145.5	144.25	143	Turn
28	8/10/17	138	142	143	143	142	151	158	160	150	153	152	151	148	152	150	152	144.5	149.5	150.75	151.5	
29	8/11/17	138	143	150	158	133	138	140	141	146	150	151	138	140	143	150	150	139.25	143.5	147.75	146.75	
30	8/12/17	142	151	152	152	141	148	151	152	140	142	150	153	132	140	141	142	138.75	145.25	148.5	149.75	
31	8/13/17																					
32	8/14/17	136	138	140	140	138	139	141	138	132	132	134	134	136	140	136	136	135.5	137.25	137.75	137	
33	8/15/17	138	140	141	142	140	141	141	140	133	134	135	137	138	141	138	136	137.25	139	138.75	138.75	

Attachment D

MSAP Process Temperature Chart Windrow# 17-7-17																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	7/18/17	138	136	132	130	134	130	119	115	136	136	124	118	139	133	128	122	136.75	133.75	125.75	121.25	
2	7/19/17	132	142	148	134	140	143	148	121	141	143	141	128	132	141	142	130	136.25	142.25	144.75	128.25	
3	7/20/17	136	138	138	135	136	141	140	128	132	140	141	140	132	134	138	135	134	138.25	139.25	134.5	
4	7/21/17	132	136	138	136	132	142	146	138	138	148	144	140	149	157	142	134	137.75	145.75	142.5	137	
5	7/22/17	133	138	138	135	132	146	150	144	140	154	158	151	146	156	158	142	137.75	148.5	151	143	
6	7/23/17																					
7	7/24/17	138	141	148	152	142	150	152	151	140	143	148	148	146	157	148	150	141.5	147.75	149	150.25	
8	7/25/17	138	143	142	139	150	147	142	136	152	148	143	138	154	152	147	142	148.5	147.5	143.5	138.75	
9	7/26/17	132	136	140	141	140	145	150	151	138	142	145	152	140	150	152	160	137.5	143.25	146.75	151	
10	7/27/17	133	140	142	143	138	148	151	152	132	144	152	155	138	143	152	160	135.25	143.75	149.25	152.5	
11	7/28/17	132	143	148	150	138	143	148	151	132	148	153	160	136	152	152	156	134.5	146.5	150.25	154.25	
12	7/29/17	140	143	150	150	142	143	148	150	140	143	152	150	142	148	150	150	141	144.25	150	150	
13	7/30/17																					
14	7/31/17	141	150	152	153	150	158	147	145	142	148	151	150	140	143	148	150	143.25	149.75	149.5	149.5	
15	8/1/17	137	142	144	146	140	146	148	150	138	142	144	144	141	144	147	148	139	143.5	145.75	147	
16	8/2/17	140	144	146	145	139	144	144	146	146	148	148	147	138	140	143	144	140.75	144	145.25	145.5	
17	8/3/17	133	141	148	148	132	142	148	150	138	143	148	148	140	143	150	151	135.75	142.25	148.5	149.25	
18	8/4/17	132	142	146	148	134	142	150	150	136	140	148	149	140	143	150	150	135.5	141.75	148.5	149.25	
19	8/5/17	133	142	143	150	140	143	150	151	133	135	148	150	138	143	148	150	136	140.75	147.25	150.25	
20	8/6/17																					
21	8/7/17	141	148	150	152	151	156	154	150	140	142	144	156	145	148	156	152	144.25	148.5	151	152.5	Turn
22	8/8/17	140	146	146	150	150	154	152	150	138	140	141	150	144	146	151	151	143	146.5	147.5	150.25	
23	8/9/17	140	140	141	140	150	150	148	146	132	134	134	146	140	142	146	150	140.5	141.5	142.25	145.5	
24	8/10/17	134	136	140	143	140	143	145	145	133	135	138	142	142	144	146	153	137.25	139.5	142.25	145.75	
25	8/11/17	131	134	140	142	140	144	144	146	132	136	140	140	133	138	140	141	134	138	141	142.25	Turn
26	8/12/17	141	143	143	148	148	150	150	151	130	138	142	143	140	143	148	148	139.75	143.5	145.75	147.5	
27	8/13/17																					
28	8/14/17	132	134	138	136	140	141	144	142	132	133	132	132	136	136	140	141	135	136	138.5	137.75	Turn
29	8/15/17	146	156	163	158	139	155	163	164	150	157	164	160	144	153	164	160	144.75	155.25	163.5	160.5	
30	8/16/17	144	156	163	160	136	156	166	160	152	158	164	161	144	152	164	161	144	155.5	164.25	160.5	
31	8/17/17	142	155	162	161	134	155	165	159	150	157	162	158	144	150	163	161	142.5	154.25	163	159.75	
32	8/18/17	140	154	161	160	130	152	163	158	148	157	160	158	146	152	163	160	141	153.75	161.75	159	

Attachment E

MSAP Process Temperature Chart Windrow# 17-7-20																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	7/21/17	156	142	136	134	148	138	125	118	156	150	140	130	144	129	112	108	151	139.75	128.25	122.5	
2	7/22/17	160	154	156	148	158	158	140	126	157	159	152	139	162	154	144	132	159.25	156.25	148	136.25	
3	7/23/17																					
4	7/24/17	160	162	154	150	160	161	146	140	162	162	152	141	162	160	146	138	161	161.25	149.5	142.25	
5	7/25/17	158	162	154	150	161	162	150	143	162	165	153	144	162	162	149	140	160.75	162.75	151.5	144.25	
6	7/26/17	158	162	156	152	160	162	152	150	161	164	152	149	160	162	150	142	159.75	162.5	152.5	148.25	
7	7/27/17	158	162	161	160	160	161	160	158	160	164	162	158	158	162	164	156	159	162.25	161.75	158	
8	7/28/17	159	162	162	160	159	162	160	159	157	164	162	158	156	164	164	156	157.75	163	162	158.25	
9	7/29/17	156	160	162	161	158	160	160	160	156	162	161	158	151	164	160	156	155.25	161.5	160.75	158.75	
10	7/30/17																					
11	7/31/17	151	160	163	162	152	159	161	160	154	162	160	158	149	166	160	156	151.5	161.75	161	159	
12	8/1/17	144	146	148	145	136	138	139	138	133	134	135	132	133	133	132	132	136.5	137.75	138.5	136.75	
13	8/2/17	140	142	144	142	132	136	138	138	133	135	135	133	140	142	146	136	136.25	138.75	140.75	137.25	
14	8/3/17	136	138	140	142	132	133	133	138	132	138	140	140	133	138	140	142	133.25	136.75	138.25	140.5	
15	8/4/17	132	133	140	141	138	141	141	142	132	138	140	141	133	140	140	132	133.75	138	140.25	139	
16	8/5/17	140	142	143	142	136	132	132	133	133	140	140	141	132	141	141	142	135.25	138.75	139	139.5	
17	8/6/17																					
18	8/7/17	152	150	148	144	158	156	152	146	154	152	150	144	155	158	148	144	154.75	154	149.5	144.5	Turn
19	8/8/17	154	154	150	146	151	154	156	150	152	153	150	146	154	159	158	151	152.75	155	153.5	148.25	
20	8/9/17	136	140	140	141	138	141	141	140	138	140	140	138	136	141	140	136	137	140.5	140.25	138.75	
21	8/10/17	132	134	138	141	138	141	143	143	141	143	148	150	140	142	144	151	137.75	140	143.25	146.25	
22	8/11/17	141	145	150	151	140	148	151	155	142	150	152	152	140	148	150	150	140.75	147.75	150.75	152	
23	8/12/17	130	132	132	148	128	136	148	146	133	138	140	140	138	140	142	142	132.25	136.5	140.5	144	
24	8/13/17																					
25	8/14/17	152	158	162	164	146	156	162	164	150	156	164	165	144	152	162	164	136	155.5	162.5	164.25	Turn
26	8/15/17	150	154	162	163	146	155	162	163	148	156	164	164	142	151	162	162	146.5	154	162.5	163	
27	8/16/17	146	151	163	163	139	155	163	164	146	157	164	164	141	153	164	160	143	154	163.5	162.75	
28	8/17/17	144	152	163	162	136	156	166	163	146	158	164	164	141	152	166	158	141.75	154.5	164.75	161.75	
29	8/18/17	142	151	162	162	134	152	165	163	142	156	164	162	138	150	164	158	139	152.25	163.75	161.25	
30	8/19/17	144	150	161	162	130	151	163	156	140	157	164	160	138	152	161	159	138	152.5	162.25	159.25	
31	8/20/17																					
32	8/21/17	143	143	141	158	140	144	145	152	144	145	148	146	144	148	148	146	142.75	145	145.5	150.5	Turn
33	8/22/17	148	150	151	158	148	150	148	156	142	144	155	160	145	158	160	162	145.75	150.5	153.5	159	
34	8/23/17	138	140	141	156	140	143	145	158	148	155	160	161	150	158	160	162	144	149	151.5	159.25	

Attachment F

MSAP Process Temperature Chart Windrow# 17-7-24																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	7/25/17	148	151	142	135	134	131	126	122	134	129	124	121	139	132	120	113	138.75	135.75	128	122.75	
2	7/26/17	138	141	143	148	138	141	148	138	141	145	150	140	138	142	132	130	138.75	142.25	143.25	139	
3	7/27/17	140	142	142	141	138	142	143	142	138	141	143	142	138	142	143	142	138.5	141.75	142.75	141.75	
4	7/28/17	137	134	146	142	148	146	136	132	145	144	134	145	142	138	144	142	143	140.5	140	140.25	
5	7/29/17	139	158	142	145	158	159	146	140	160	160	148	146	159	158	146	146	154	158.75	145.5	144.25	
6	7/30/17																					
7	7/31/17	140	156	154	146	157	160	153	150	158	160	150	148	156	161	150	149	152.75	159.25	151.75	148.25	
8	8/1/17	142	144	144	138	140	144	145	143	144	145	146	142	141	140	140	138	141.75	143.25	143.75	140.25	
9	8/2/17	146	147	144	142	145	145	142	140	146	144	140	140	144	145	140	138	145.25	145.25	141.5	140	
10	8/3/17	141	143	143	148	138	140	141	142	140	142	142	143	132	138	140	141	137.75	140.75	141.5	143.5	
11	8/4/17	138	141	140	140	143	148	148	150	142	148	150	151	143	148	148	150	141.5	146.25	146.5	147.75	
12	8/5/17	136	140	140	131	138	141	142	143	138	141	141	140	136	140	140	140	137	140.5	140.75	138.5	
13	8/6/17																					
14	8/7/17	135	141	141	133	136	139	140	141	136	142	141	140	138	142	144	140	136.25	141	141.5	138.5	
15	8/8/17	134	140	141	133	135	140	138	140	140	143	142	140	140	143	146	141	137.25	141.5	141.75	138.5	
16	8/9/17	132	140	141	132	136	140	132	140	144	146	140	138	150	150	148	140	140.5	144	140.25	137.5	
17	8/10/17	138	140	142	142	133	138	138	141	140	141	143	142	138	141	144	144	137.25	140	141.75	142.25	
18	8/11/17	138	141	141	142	136	138	140	141	140	141	141	142	138	140	141	141	138	140	140.75	141.5	
19	8/12/17	140	142	142	143	138	141	141	142	138	140	140	141	138	140	140	142	138.5	140.75	140.75	142	Turn
20	8/13/17																					
21	8/14/17	142	152	157	161	140	148	152	164	144	146	159	159	142	145	158	161	142	147.75	156.5	161.25	
22	8/15/17	143	154	160	162	140	154	161	161	136	150	158	160	138	150	159	161	139.25	152	159.5	161	
23	8/16/17	144	156	161	162	142	156	161	160	132	148	156	161	140	152	154	159	139.5	153	158	160.5	
24	8/17/17	160	166	158	154	150	152	156	154	150	152	152	150	148	150	151	152	152	155	154.25	152.5	Turn
25	8/18/17	158	165	164	158	155	156	158	156	155	155	156	156	155	158	158	156	155.75	158.5	159	156.5	
26	8/19/17	157	164	164	163	152	164	160	158	153	163	160	158	155	164	164	160	154.25	163.75	162	159.75	
27	8/20/17																					
28	8/21/17	148	160	162	160	148	158	156	156	152	161	160	159	154	162	163	160	150.5	160.25	160.25	158.75	
29	8/22/17	138	150	151	152	139	148	150	152	150	152	160	161	155	160	161	158	145.5	152.5	155.5	155.75	
30	8/23/17	138	148	150	152	140	145	150	151	150	158	160	162	150	158	162	165	144.5	152.25	155.5	157.5	Turn
31	8/24/17	154	156	165	165	150	160	163	162	153	158	166	165	146	151	164	161	150.75	156.25	164.5	163.25	
32	8/25/17	154	155	164	164	148	158	162	162	151	156	164	164	145	150	162	161	149.5	154.75	163	162.75	
33	8/26/17	151	156	160	162	149	161	162	160	153	157	163	164	147	152	163	163	150	156.5	162	162.25	

Attachment G

MSAP Process Temperature Chart Windrow# 17-7-28																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	7/29/17	123	128	123	120	119	120	118	116	123	132	138	140	121	123	130	132	121.5	125.75	127.25	127	
2	7/30/17																					
3	7/31/17	136	138	128	130	132	129	128	124	131	132	136	136	135	136	132	132	133.5	133.75	131	130.5	
4	8/1/17	136	136	135	132	134	133	132	132	132	134	135	132	140	139	136	132	135.5	135.5	134.5	132	
5	8/2/17	135	138	140	137	134	136	136	135	135	136	136	135	140	140	137	136	136	137.5	137.25	135.75	
6	8/3/17	138	141	141	140	133	138	140	140	141	138	138	140	140	142	142	141	138	139.75	140.25	140.25	
7	8/4/17	140	144	142	141	132	138	142	140	138	142	142	140	141	144	145	142	137.75	142	142.75	140.75	
8	8/5/17	141	145	148	148	134	141	147	148	140	145	148	149	141	148	148	143	139	144.75	147.75	147	
9	8/6/17																					
10	8/7/17	144	149	156	156	140	150	155	158	144	150	158	161	139	149	160	158	141.75	149.5	157.25	158.25	
11	8/8/17	145	148	158	158	138	148	158	158	140	148	158	160	138	148	155	159	140.25	148	157.25	158.75	
12	8/9/17	148	150	156	154	150	155	158	160	148	150	151	155	150	151	151	150	149	151.5	154	154.75	
13	8/10/17	138	142	142	150	132	141	143	143	138	143	148	150	140	141	143	148	137	141.75	144	147.75	
14	8/11/17	136	132	132	152	134	135	141	140	135	140	144	146	140	141	146	146	136.25	137	140.75	146	
15	8/12/17	136	142	142	156	133	137	140	139	133	138	141	145	140	142	142	141	135.5	139.75	141.25	145.25	
16	8/13/17																					
17	8/14/17	135	150	150	150	132	133	136	134	138	140	142	147	140	140	142	142	136.25	140.75	142.5	143.25	
18	8/15/17	134	153	150	150	132	133	136	134	141	142	146	150	140	140	145	148	136.75	142	144.25	145.5	
19	8/16/17	144	149	158	156	140	150	155	158	144	150	158	161	139	149	160	158	141.75	149.5	157.75	158.25	Turn
20	8/17/17	142	146	158	158	138	148	158	158	140	148	158	160	138	148	155	159	139.5	147.5	157.25	158.75	
21	8/18/17	140	144	159	159	137	147	159	158	140	148	159	160	136	146	157	159	138.25	146.25	158.5	159	
22	8/19/17	138	142	165	170	135	144	164	161	139	154	158	162	133	158	164	165	136.25	149.5	162.75	164.5	
23	8/20/17																					
24	8/21/17	160	163	152	150	156	157	153	153	156	159	154	153	160	162	155	149	158	160.25	153.5	151.25	Turn
25	8/22/17	156	150	151	152	151	151	154	152	152	160	156	155	153	155	156	158	153	154	154.25	154.25	
26	8/23/17	155	158	160	161	148	155	158	160	150	158	160	161	158	152	158	162	152.75	155.75	159	161	
27	8/24/17	156	166	162	150	155	158	158	152	158	165	165	163	163	161	160	160	158	162.5	161.25	156.25	
28	8/25/17	158	162	152	148	160	158	150	144	158	156	150	142	160	162	162	160	159	159.5	153.5	148.5	
29	8/26/17	162	158	153	152	160	158	154	152	164	164	162	160	160	158	156	152	161.5	159.5	156.25	154	
30	8/27/17																					
31	8/28/17	154	162	164	160	158	160	160	154	152	162	162	158	150	160	164	162	153.5	161	162.5	158.5	
32	8/29/17	154	162	164	158	156	162	162	154	155	163	166	154	150	161	164	160	153.75	162	164	156.5	Turn
33	8/30/17	164	166	163	159	162	160	158	154	161	160	156	154	160	158	154	150	161.75	161	157.75	154.25	

Attachment H

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 17-8-1	
Windrow Construction:			Date Commenced: 7-28-17		Date Completed: 8-1-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
7/28/17	Mike Bayne	22.41	29.13	56.00		20
7/28/17	Jerry Devoe	22.17	28.82	56.00		
7/29/17	Jerry Devoe	22.28	28.96	56.00		
7/29/17	Jerry Devoe	22.45	29.19	56.00		44
7/31/17	Jerry Devoe	21.98	28.57	56.00		
7/31/17	Jerry Devoe	22.36	29.07	56.00		24
7/31/17	Mike Bayne	22.43	29.16	56.00		
8/1/17	Mike Bayne	22.46	29.20	56.00		
8/1/17	Mike Bayne	23.09	30.02	56.00		44
Totals		201.63	262.12	504.00	0.00	132.00
Windrow Construction ratio:		2.43 /1				
Note: Yard waste yards = number of buckets * 4.00						

MSAP Process Temperature Chart Windrow# 17-8-1																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	8/2/17	101	95	94	93	132	126	100	94	107	102	98	96	122	121	118	116	115.5	111	102.5	99.75	
2	8/3/17	130	131	130	130	132	132	133	132	115	101	98	98	128	128	120	117	126.25	123	120.25	119.25	
3	8/4/17	136	132	135	132	133	134	135	132	133	135	118	115	142	150	148	143	136	137.75	134	130.5	
4	8/5/17	136	135	136	132	138	140	136	133	140	141	138	132	141	140	146	144	138.75	139	139	135.25	
5	8/6/17																					
6	8/7/17	136	138	140	134	139	142	140	135	142	145	140	136	142	144	148	146	139.75	142.25	142	137.75	
7	8/8/17	138	140	142	135	140	142	141	136	144	148	144	140	144	145	150	146	141.5	143.75	144.25	139.25	
8	8/9/17	140	142	144	136	140	144	145	138	146	150	148	144	145	148	150	152	142.75	146	146.75	142.5	
9	8/10/17	141	144	145	137	141	144	146	140	146	151	152	150	146	148	150	156	143.5	146.75	148.25	145.75	
10	8/11/17	142	144	146	138	141	142	145	140	148	153	158	160	151	148	150	160	145.5	146.75	149.75	149.5	
11	8/12/17	140	145	146	140	141	142	141	140	142	148	150	151	141	140	138	132	141	143.75	143.75	140.75	
12	8/13/17																					
13	8/14/17	138	140	145	140	136	138	140	142	145	150	160	161	144	142	140	136	140.75	142.5	146.25	144.75	
14	8/15/17	136	138	144	140	136	138	140	142	150	155	161	162	145	148	146	142	141.75	144.75	147.75	146.5	
15	8/16/17	143	150	142	140	148	152	150	142	143	148	151	150	148	151	153	148	145.5	150.25	149	145	
16	8/17/17	138	146	144	142	145	150	152	148	141	146	152	152	146	150	154	152	142.5	148	150.5	148.5	
17	8/18/17	135	145	146	145	144	148	154	153	140	145	154	153	145	151	155	154	141	147.25	152.25	151.25	
18	8/19/17	134	140	145	145	142	144	156	154	138	146	155	154	144	152	156	156	139.5	145.5	153	152.25	
19	8/20/17																					
20	8/21/17	160	161	154	150	156	157	155	152	158	161	172	174	165	165	153	152	159.75	161	158.5	157	Turn
21	8/22/17	148	150	155	160	153	152	156	158	148	150	157	160	158	160	160	160	151.75	153	157	159.5	
22	8/23/17	150	151	155	160	150	152	151	158	138	141	142	150	134	140	141	142	143	146	147.25	152.5	
23	8/24/17	164	166	166	158	166	165	163	158	152	160	163	166	156	164	166	164	159.5	163.75	164.5	161.5	
24	8/25/17	138	147	160	160	141	141	150	151	144	135	141	150	145	145	160	165	142	142	152.75	156.5	
25	8/26/17	137	148	157	160	142	143	150	152	144	136	141	151	147	147	163	165	142.5	143.5	152.75	157	
26	8/27/17																					
27	8/28/17	151	152	160	161	154	158	155	150	150	156	156	152	151	154	154	162	151.5	155	156.25	156.25	Turn
28	8/29/17	148	150	158	160	150	152	156	152	148	154	156	154	151	155	156	160	149.25	152.75	156.5	156.5	
29	8/30/17	140	145	147	150	146	145	150	152	148	153	153	154	152	156	157	157	146.5	149.75	151.75	153.25	
30	8/31/17	140	150	152	152	145	148	152	154	146	152	154	156	150	152	156	158	145.25	150.5	153.5	155	

Attachment I

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 17-8-5	
Windrow Construction:			Date Commenced: 8-1-17		Date Completed: 8-5-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
8/1/17	Mike Bayne	22.82	29.67	56.00		20
8/2/17	Jerry Devoe	22.51	29.26	56.00		
8/2/17	Jerry Devoe	22.65	29.45	56.00		
8/2/17	Jerry Devoe	22.49	29.24	56.00		44
8/3/17	Jerry Devoe	21.94	28.52	56.00		
8/3/17	Jerry Devoe	22.38	29.09	56.00		24
8/3/17	Mike Bayne	22.32	29.02	56.00		
8/4/17	Oscar Ochoa	22.18	28.83	56.00		16
8/5/17	Oscar Ochoa	22.24	28.91	56.00		44
Totals		201.53	261.99	504.00	0.00	148.00
Windrow Construction ratio:		2.49 /1				
Note: Yard waste yards = number of buckets * 4.00						

MSAP Process Temperature Chart Windrow# 17-8-5																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	8/6/17																					
2	8/7/17	125	123	121	119	138	135	131	123	128	122	120	112	133	131	125	115	131	127.75	124.25	117.25	
3	8/8/17	134	133	132	124	138	136	132	129	136	135	138	128	140	136	130	128	137	135	133	127.25	
4	8/9/17	138	135	132	126	138	141	135	131	142	139	145	135	140	138	136	135	139.5	138.25	137	131.75	
5	8/10/17	140	136	135	129	140	145	144	136	149	145	147	145	140	144	142	140	142.25	142.5	142	137.5	
6	8/11/17	140	138	136	136	141	156	158	151	152	154	148	146	150	153	152	149	145.75	150.25	148.5	145.5	
7	8/12/17	138	138	136	136	141	156	158	151	152	154	148	146	150	153	152	149	145.25	150.25	148.5	145.5	
8	8/13/17																					
9	8/14/17	138	140	142	145	137	131	132	132	132	133	136	140	132	134	134	136	134.75	134.5	136	138.25	
10	8/15/17	141	143	144	150	132	132	133	133	132	134	138	141	132	136	136	134	134.25	136.25	137.75	139.5	
11	8/16/17	140	141	140	138	133	140	140	142	133	138	141	141	140	142	140	140	136.5	140.25	140.25	140.25	
12	8/17/17	142	144	141	140	134	140	140	142	138	140	142	141	141	145	144	142	138.75	142.25	141.75	141.25	
13	8/18/17	144	146	142	140	136	141	140	144	142	144	142	142	146	148	150	146	142	144.75	143.5	143	
14	8/19/17	145	148	144	142	135	142	140	146	146	148	144	142	148	152	156	150	143.5	147.5	146	145	
15	8/20/17																					
16	8/21/17	146	149	145	143	135	142	140	146	150	150	143	141	148	159	159	154	144.75	150	146.75	146	
17	8/22/17	142	146	148	150	138	141	142	148	151	151	151	151	148	150	151	152	144.75	147	148	150.25	
18	8/23/17	138	141	141	142	140	143	143	142	148	148	150	151	150	151	150	153	144	145.75	146	147	
19	8/24/17	150	154	157	159	146	150	150	148	139	144	146	146	143	146	146	150	144.5	148.5	149.75	150.75	
20	8/25/17	141	143	143	141	150	148	147	146	155	155	154	154	131	135	147	150	144.25	145.25	147.75	147.75	
21	8/26/17	144	143	143	145	153	149	147	148	157	155	154	155	132	136	145	152	146.5	145.75	147.25	150	
22	8/27/17																					
23	8/28/17	150	161	164	160	141	160	160	159	140	160	164	160	140	158	162	156	142.75	159.75	162.5	158.75	Turn
24	8/29/17	150	158	160	162	143	160	161	159	132	159	161	161	147	159	160	152	143	159	160.5	158.5	
25	8/30/17	147	152	157	160	152	156	158	158	147	150	152	158	145	151	153	153	147.75	152.25	155	157.25	
26	8/31/17	145	150	158	160	151	154	158	160	145	150	154	158	146	152	154	155	146.75	151.5	156	158.25	

Attachment J

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 17-8-10	
Windrow Construction:			Date Commenced: 8-5-17		Date Completed: 8-9-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
8/5/17	Oscar Ochoa	19.84	25.79	56.00		20
8/7/17	Oscar Ochoa	22.20	28.86	56.00		
8/7/17	Oscar Ochoa	21.33	27.73	56.00		
8/7/17	Oscar Ochoa	22.35	29.06	56.00		44
8/8/17	Oscar Ochoa	21.90	28.47	56.00		
8/8/17	Oscar Ochoa	21.06	27.38	56.00		36
8/9/17	Jerry Devoe	22.02	28.63	56.00		
8/9/17	Jerry Devoe	22.62	29.41	56.00		36
8/10/17	Jerry Devoe		0.00	56.00		20
Totals		173.32	225.32	504.00	0.00	156.00
Windrow Construction ratio:		2.93 /1				
Note: Yard waste yards = number of buckets * 4.00						

MSAP Process Temperature Chart Windrow# 17-8-10																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	8/11/17	122	123	121	121	132	141	130	122	120	120	118	115	115	116	110	115	122.25	125	119.75	118.25	
2	8/12/17	133	133	132	123	138	141	140	140	138	140	138	132	132	132	130	128	135.25	136.5	135	130.75	
3	8/13/17																					
4	8/14/17	132	131	134	126	138	142	125	118	150	148	145	145	140	138	136	138	140	139.75	135	131.75	
5	8/15/17	132	131	135	129	140	146	125	136	149	147	147	145	140	141	141	140	140.25	141.25	137	137.5	
6	8/16/17	136	138	135	136	141	156	138	151	152	154	148	146	150	153	152	149	144.75	150.25	143.25	145.5	
7	8/17/17	138	141	138	138	141	158	146	153	154	156	152	148	152	154	152	150	146.25	152.25	147	147.25	
8	8/18/17	136	142	142	145	144	156	155	153	158	159	155	152	152	155	154	150	147.5	153	151.5	150	
9	8/19/17	134	140	148	152	148	158	155	154	158	160	156	155	154	155	154	151	148.5	153.25	153.25	153	
10	8/20/17																					
11	8/21/17	132	145	154	156	155	156	154	154	161	162	156	156	155	156	154	152	150.75	154.75	154.5	154.5	
12	8/22/17	148	150	151	152	140	148	151	151	152	155	157	158	148	150	155	162	147	150.75	153.5	155.75	
13	8/23/17	150	150	151	152	148	150	151	150	150	160	161	162	150	161	161	160	149.5	155.25	156	156	
14	8/24/17	161	163	163	156	160	164	166	160	147	156	157	159	154	156	157	158	155.5	159.75	160.75	158.25	
15	8/25/17	145	148	151	156	144	150	155	160	160	160	162	161	150	155	155	158	149.75	153.25	155.75	158.75	
16	8/26/17	147	148	151	156	148	150	158	160	161	161	162	165	155	156	156	154	152.75	153.75	156.75	158.75	
17	8/27/17																					
18	8/28/17	155	161	162	163	157	160	162	158	151	162	162	161	150	160	162	163	153.25	160.75	162	161.25	Turn
19	8/29/17	150	160	166	162	156	158	160	162	148	162	162	160	150	158	164	16+	151	159.5	163	161.33	
20	8/30/17	146	152	161	161	150	152	158	160	144	162	162	160	146	152	162	162	146.5	154.5	160.75	160.75	
21	8/31/17	138	150	160	160	148	150	156	160	140	160	161	159	142	148	161	162	142	152	159.5	160.25	

Attachment K

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 17-8-14	
Windrow Construction:			Date Commenced: 8-10-17		Date Completed: 8-14-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
8/10/17	Oscar Ochoa	22.11	28.74	56.00		
8/10/17	Oscar Ochoa	22.67	29.47	56.00		32
8/11/17	Oscar Ochoa	20.96	27.25	56.00		
8/11/17	Oscar Ochoa	22.39	29.11	56.00		
8/11/17	Jerry Devoe	22.67	29.47	56.00		44
8/12/17	Jerry Devoe	23.14	30.08	56.00		
8/12/17	Jerry Devoe	22.53	29.29	56.00		32
8/14/17	Jerry Devoe	22.53	29.29	56.00		
8/14/17	Jerry Devoe	22.80	29.64	56.00		30
Totals		201.80	262.34	504.00	0.00	138.00
Windrow Construction ratio:		2.45 /1				
Note: Yard waste yards = number of buckets * 4.00						

MSAP Process Temperature Chart Windrow# 17-8-14																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	8/15/17	130	128	120	119	134	130	118	116	128	126	121	112	138	132	130	128	132.5	129	122.25	118.75	
2	8/16/17	138	132	128	125	140	136	128	126	130	131	125	124	145	138	133	131	138.25	134.25	128.5	126.5	
3	8/17/17	145	138	133	130	146	141	132	131	137	132	130	129	150	144	138	136	144.5	138.75	133.25	131.5	
4	8/18/17	148	144	139	136	148	146	136	134	140	137	134	131	152	156	146	140	147	145.75	138.75	135.25	
5	8/19/17	156	156	148	140	154	148	148	142	144	146	144	138	150	155	148	146	151	151.25	147	141.5	
6	8/20/17																					
7	8/21/17	158	164	150	157	156	150	152	150	148	149	148	145	147	155	153	150	152.25	154.5	150.75	150.5	
8	8/22/17	148	150	151	152	138	141	151	151	132	146	136	140	132	144	134	138	137.5	145.25	143	145.25	
9	8/23/17	138	140	141	143	140	141	140	140	145	148	150	150	141	141	150	150	141	142.5	145.25	145.75	
10	8/24/17	136	158	160	159	140	160	161	158	144	150	147	146	144	158	155	150	141	156.5	155.75	153.25	
11	8/25/17	131	142	147	150	141	150	155	150	140	145	147	146	150	149	150	151	140.5	146.5	149.75	149.25	
12	8/26/17	132	145	147	150	142	152	154	153	146	148	147	146	153	149	149	151	143.25	148.5	149.25	150	
13	8/27/17																					
14	8/28/17	134	148	148	151	144	154	155	156	146	150	152	153	152	150	150	151	144	150.5	151.25	152.75	
15	8/29/17	136	150	151	152	148	154	156	158	148	152	153	155	150	150	151	150	145.5	151.5	152.75	153.75	
16	8/30/17	140	151	153	155	150	156	158	160	150	153	156	157	148	151	151	150	147	152.75	154.5	155.5	
17	8/31/17	139	150	154	155	148	154	157	159	147	152	156	156	145	150	151	151	144.75	151.5	154.5	155.25	

Attachment L

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 17-8-17	
Windrow Construction:			Date Commenced: 8-14-17		Date Completed: 8-17-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
8/14/17	Oscar Ochoa	24.20	31.46	56.00		20
8/15/17	Oscar Ochoa	22.49	29.24	56.00		
8/15/17	Oscar Ochoa	21.53	27.99	56.00		
8/15/17	Oscar Ochoa	22.84	29.69	56.00		44
8/16/17	Jerry Devoe	21.25	27.63	56.00		
8/16/17	Jerry Devoe	22.79	29.63	56.00		
8/16/17	Jerry Devoe	22.81	29.65	56.00		44
8/17/17	Jerry Devoe	21.71	28.22	56.00		
8/17/17	Jerry Devoe	21.33	27.73	56.00		32
Totals		200.95	261.24	504.00	0.00	140.00
Windrow Construction ratio:		2.47 /1				
Note: Yard waste yards = number of buckets * 4.00						

MSAP Process Temperature Chart Windrow# 17-8-17																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	8/18/17	140	134	114	108	138	122	110	106	133	104	100	102	140	123	110	112	137.75	120.75	108.5	107	
2	8/19/17	144	138	129	119	140	135	127	115	136	128	125	122	140	135	126	127	140	134	126.75	120.75	
3	8/20/17																					
4	8/21/17	162	158	141	137	160	160	158	157	148	146	138	135	160	156	145	142	157.5	155	145.5	142.75	
5	8/22/17	148	151	150	150	136	144	150	150	136	138	148	151	149	150	151	151	142.25	145.75	149.75	150.5	
6	8/23/17	136	141	145	150	148	150	148	148	136	141	150	150	138	140	141	143	139.5	143	146	147.75	
7	8/24/17	145	142	146	151	148	150	154	152	140	146	151	150	138	146	143	148	142.75	146	148.5	150.25	
8	8/25/17	143	145	148	150	147	150	157	160	145	150	152	152	138	150	150	155	143.25	148.75	151.75	154.25	
9	8/26/17	146	146	148	149	149	154	157	158	146	152	154	153	137	149	152	154	144.5	150.25	152.75	153.5	
10	8/27/17																					
11	8/28/17	142	145	146	146	148	152	156	156	145	151	154	154	135	148	151	152	142.5	149	151.75	152	
12	8/29/17	137	144	145	146	142	148	151	146	135	144	148	150	134	138	148	148	137	143.5	148	147.5	
13	8/30/17	134	140	145	145	132	132	146	139	132	137	139	142	132	134	135	141	132.5	135.75	141.25	141.75	
14	8/31/17	134	141	146	146	134	135	134	134	133	138	139	139	132	135	135	135	133.25	137.25	138.5	138.5	

Attachment M

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 17-8-21	
Windrow Construction:			Date Commenced: 8-17-17		Date Completed: 8-21-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
8/17/17	Oscar Ochoa	21.55	28.02	56.00		20
8/18/17	Oscar Ochoa	22.38	29.09	56.00		
8/18/17	Oscar Ochoa	17.00	22.10	56.00		
8/18/17	Oscar Ochoa	20.50	26.65	56.00		44
8/19/17	Jerry Devoe	23.51	30.56	56.00		
8/19/17	Jerry Devoe	22.58	29.35	56.00		24
8/21/17	Jerry Devoe	21.07	27.39	56.00		
8/21/17	Jerry Devoe	22.55	29.32	56.00		
8/21/17	Jerry Devoe	22.29	28.98	56.00		44
Totals		193.43	251.46	504.00	0.00	132.00
Windrow Construction ratio:		2.53	/1			
Note: Yard waste yards = number of buckets * 4.00						

MSAP Process Temperature Chart Windrow# 17-8-21																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	8/22/17	142	138	136	135	145	140	140	128	138	140	135	133	141	137	133	129	141.5	138.75	136	131.25	
2	8/23/17	138	140	148	150	148	151	150	150	138	136	136	132	135	138	134	132	139.75	141.25	142	141	
3	8/24/17	133	132	146	144	140	138	139	142	149	146	134	133	152	150	140	133	143.5	141.5	139.75	138	
4	8/25/17	148	152	155	155	138	148	150	152	140	148	154	156	131	141	141	140	139.25	147.25	150	150.75	
5	8/26/17	149	154	156	156	143	150	151	152	145	152	154	156	132	141	141	137	142.25	149.25	150.5	150.25	
6	8/27/17																					
7	8/28/17	144	150	152	154	142	148	150	150	144	151	154	155	134	140	140	138	141	147.25	149	149.25	
8	8/29/17	140	148	148	150	141	146	148	148	142	150	154	155	135	142	140	138	139.5	146.5	147.5	147.75	
9	8/30/17	132	133	133	134	136	141	142	146	135	146	150	152	133	140	141	136	134	140	141.5	142	
10	8/31/17	133	133	134	134	135	140	142	146	134	144	148	151	133	140	142	140	133.75	139.25	141.5	142.75	

Attachment N

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 17-8-24	
Windrow Construction:			Date Commenced: 8-21-17		Date Completed: 8-24-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
8/21/17	Jerry Devoe	19.94	25.92	56.00		20
8/22/17	Mike Bayne	22.76	29.59	56.00		
8/22/17	Mike Bayne	22.61	29.39	56.00		
8/22/17	Mike Bayne	22.70	29.51	56.00		44
8/23/17	Mike Bayne	21.10	27.43	56.00		
8/23/17	Mike Bayne	22.73	29.55	56.00		24
8/23/17	Mike Bayne	22.77	29.60	56.00		
8/24/17	Jerry Devoe	20.72	26.94	56.00		
8/24/17	Jerry Devoe	21.60	28.08	56.00		44
Totals		196.93	256.01	504.00	0.00	132.00
Windrow Construction ratio:		2.48 /1				
Note: Yard waste yards = number of buckets * 4.00						

MSAP Process Temperature Chart Windrow# 17-8-24																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	8/25/17	131	140	145	150	131	132	132	132	131	130	128	129	135	139	139	131	132	135.25	136	135.5	
2	8/26/17	132	141	145	150	131	132	131	128	131	130	128	130	137	139	139	131	132.75	135.5	135.75	134.75	
3	8/27/17																					
4	8/28/17	136	142	145	150	132	134	138	132	135	137	136	133	140	144	148	136	135.75	139.25	141.75	137.75	
5	8/29/17	138	145	146	151	134	136	138	138	136	138	140	139	142	147	150	141	137.5	141.5	143.5	142.25	
6	8/30/17	143	147	149	151	138	140	142	144	140	142	144	146	150	152	153	148	142.75	145.25	147	147.25	
7	8/31/17	144	148	150	152	137	141	144	145	140	144	146	146	149	153	154	150	142.5	146.5	148.5	148.25	

Attachment O

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 17-8-28	
Windrow Construction:			Date Commenced: 8-24-17		Date Completed: 8-28-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
8/24/17	Mike Bayne	22.52	29.28	56.00		20
8/25/17	Jerry Devoe	22.62	29.41	56.00		
8/25/17	Jerry Devoe	21.11	27.44	56.00		
8/25/17	Jerry Devoe	20.17	26.22	56.00		44
8/26/17	Jerry Devoe	19.78	25.71	56.00		
8/26/17	Jerry Devoe	21.54	28.00	56.00		
8/26/17	Mike Bayne	21.31	27.70	56.00		44
8/28/17	Mike Bayne	20.45	26.59	56.00		
8/28/17	Mike Bayne	22.05	28.67	56.00		24
Totals		191.55	249.02	504.00	0.00	132.00
Windrow Construction ratio:		2.55 /1				
Note: Yard waste yards = number of buckets * 4.00						

MSAP Process Temperature Chart Windrow# 17-8-28																						
Temperature: Shading equals temperature 131 or greater for PFRP.																						
Days	Date	Point 1				Point 2				Point 3				Point 4				Average				Turn
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10"	20"	30"	40"	
1	8/29/17	141	136	134	129	135	132	131	120	142	135	130	117	132	128	125	114	137.5	132.75	130	120	
2	8/30/17	150	142	138	131	143	136	134	128	148	142	151	132	143	133	130	121	146	138.25	138.25	128	
3	8/31/17	151	151	146	142	158	138	142	132	152	162	155	138	151	140	142	134	153	147.75	146.25	136.5	