



PUBLIC WORKS

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MEMORANDUM

DATE May 12, 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: April 2017

Biosolids Received (wet tons):	1512.27 tons received 3/1 through 4/30
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. 9 total windrows are in active composting as of 4/30/17. Windrow temperatures were monitored daily. 10 windrows has met temperature and time requirements of the Process to Further Reduce Pathogens (PFRP). 12 windrows have been turned. The previous 9 windrows have been moved to the curing section and combined for a total of 10 curing windrows. Sampling was performed on April 26, 2017. 43.83 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# 17-3-7																						
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	3/8/17	151	163	161	151	147	158	152	137	155	163	162	139	160	146	126	116	153.25	157.5	150.25	135.75	
2	3/9/17	150	161	166	151	160	164	159	146	158	166	164	142	153	143	116	114	155.25	158.5	151.25	138.25	
3	3/10/17	151	150	160	151	160	152	160	151	160	162	162	144	150	142	140	130	155.25	151.5	155.5	144	
4	3/11/17	140	140	150	153	140	140	160	160	160	158	151	146	160	158	150	132	150	149	152.75	147.75	
5	3/12/17																					
6	3/13/17	132	142	151	153	140	150	158	160	131	131	140	152	140	143	150	143	135.75	141.5	149.75	152	
7	3/14/17	131	150	158	160	143	153	159	160	131	154	160	160	138	158	160	161	135.75	153.75	159.25	160.25	
8	3/15/17	132	132	149	159	141	150	142	152	134	143	168	165	131	152	149	145	134.5	144.25	152	155.25	
9	3/16/17	133	150	158	152	136	140	142	153	140	140	152	158	135	138	142	150	136	142	148.5	153.25	
10	3/17/17	140	153	161	162	131	135	150	161	150	160	162	160	140	151	157	160	140.25	149.75	157.5	160.75	
11	3/18/17	140	153	161	162	132	138	151	162	153	161	162	162	142	150	158	161	141.75	150.5	158	161.75	
12	3/19/17																					
13	3/20/17	136	140	156	162	132	148	156	160	148	138	162	166	140	150	159	160	139	144	158.25	162	
14	3/21/17	135	145	159	163	136	155	161	164	140	147	167	165	140	152	157	153	137.75	149.75	161	161.25	
15	3/22/17	140	153	160	162	140	158	161	161	132	140	150	160	140	153	161	162	138	151	158	161.25	
16	3/23/17	136	142	160	162	136	155	162	162	133	142	164	164	141	158	162	162	136.5	149.25	162	162.5	
17	3/24/17	136	142	158	160	138	156	162	166	135	147	160	162	140	156	158	161	137.25	150.25	159.5	162.25	
18	3/25/17	138	142	150	160	140	158	162	168	140	151	158	161	136	152	158	160	138.5	150.75	157	162.25	
19	3/26/17																					
20	3/27/17	166	171	172	166	154	166	172	165	138	158	167	169	150	167	171	168	152	165.5	170.5	167	Turn
21	3/28/17	158	168	171	172	156	165	171	172	156	165	169	170	155	168	170	170	156.25	166.5	170.25	171	
22	3/29/17	140	161	170	170	153	163	170	171	160	162	168	172	160	168	170	172	153.25	163.5	169.5	171.25	
23	3/30/17	158	163	170	170	150	158	162	163	151	162	170	170	141	158	162	168	150	160.25	166	167.75	
24	3/31/17	130	151	153	160	140	152	158	162	138	141	144	146	130	141	150	153	134.5	146.25	151.25	155.25	Turn
25	4/1/17	150	150	138	142	142	152	153	150	158	161	160	150	158	161	160	163	152	156	152.75	151.25	
26	4/2/17																					
27	4/3/17	138	146	151	158	144	152	156	158	156	156	158	162	151	158	156	163	147.25	153	155.25	160.25	
28	4/4/17	130	142	156	160	145	152	159	161	151	153	156	168	149	152	148	164	143.75	149.75	154.75	163.25	
29	4/5/17	140	152	161	170	160	163	170	171	162	170	172	173	163	163	170	171	156.25	162	168.25	171.25	
30	4/6/17	132	151	160	162	140	141	160	166	144	159	161	160	140	152	160	162	139	150.75	160.25	162.5	

Attachment B

MSAP Process Temperature Chart Windrow# 17-3-10																						
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	3/11/17	141	142	131	129	131	138	140	142	150	141	140	130	158	151	140	131	145	143	137.75	133	
2	3/12/17																					
3	3/13/17	140	142	142	143	141	143	141	138	131	138	141	140	140	143	143	140	138	141.5	141.75	140.25	
4	3/14/17	150	155	155	148	159	159	151	143	155	151	142	142	150	155	152	144	153.5	155	150	144.25	
5	3/15/17	150	161	157	153	156	143	157	158	150	146	157	148	150	160	162	154	151.5	152.5	158.25	153.25	
6	3/16/17	150	163	159	158	140	148	153	161	141	150	160	150	148	158	160	155	144.75	154.75	158	156	
7	3/17/17	150	160	160	160	148	155	160	163	140	160	160	156	146	152	158	160	146	156.75	159.5	159.75	
8	3/18/17	148	158	160	161	150	160	161	163	150	160	158	158	143	150	158	160	147.75	157	159.25	160.5	
9	3/19/17																					
10	3/20/17	146	153	158	161	149	148	161	162	147	153	149	160	144	150	146	162	146.5	151	153.5	161.25	
11	3/21/17	143	156	157	162	148	158	153	161	158	158	146	161	143	149	147	160	148	155.25	150.75	161	
12	3/22/17	142	154	160	161	150	160	161	162	150	158	160	160	140	148	158	161	145.5	155	159.75	161	
13	3/23/17	139	154	163	163	146	156	158	162	146	152	151	160	138	148	160	160	142.25	152.5	158	161.25	
14	3/24/17	136	152	161	162	144	154	160	162	140	149	159	161	138	149	160	161	140	151	160	161.5	
15	3/25/17	140	152	160	163	141	150	158	162	139	143	160	163	140	148	158	162	140	148.25	159	162.5	
16	3/26/17																					
17	3/27/17	164	174	178	175	142	163	173	176	170	176	177	172	164	168	170	174	160	170.25	174.5	174.25	Turn
18	3/28/17	160	171	174	171	156	166	171	172	164	168	173	169	159	166	168	171	159.75	167.75	171.5	170.75	
19	3/29/17	150	153	160	168	150	158	161	163	160	162	170	170	140	151	160	163	150	156	162.75	166	
20	3/30/17	148	151	170	170	150	160	162	170	160	161	163	163	140	152	161	170	149.5	156	164	168.25	
21	3/31/17	140	151	160	168	158	162	170	171	150	160	163	163	158	163	162	161	151.5	159	163.75	165.75	
22	4/1/17	141	150	160	162	142	148	162	168	140	150	153	161	142	151	158	162	141.25	149.75	158.25	163.25	
23	4/2/17																					
24	4/3/17	160	156	160	158	162	160	158	162	156	161	158	158	152	161	160	161	157.5	159.5	159	159.75	Turn
25	4/4/17	148	154	151	148	147	149	149	146	144	150	145	145	143	149	153	155	145.5	150.5	149.5	148.5	
26	4/5/17	140	150	161	162	160	163	170	171	150	153	160	162	158	161	163	170	152	156.75	163.5	166.25	
27	4/6/17	138	142	143	161	140	151	158	160	141	152	160	161	140	150	153	160	139.75	148.75	153.5	160.5	
28	4/7/17	130	138	143	161	128	133	141	160	138	142	158	161	131	140	150	158	131.75	138.25	148	160	

Attachment C

MSAP Process Temperature Chart Windrow# 17-3-14																						
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	3/15/17	160	168	157	150	161	152	137	133	168	162	140	126	163	159	143	130	163	160.25	144.25	134.75	
2	3/16/17	150	150	148	140	150	153	150	142	158	160	158	150	161	158	150	140	154.75	155.25	151.5	143	
3	3/17/17	155	160	165	160	140	158	151	144	156	158	156	150	160	161	158	152	152.75	159.25	157.5	151.5	
4	3/18/17	154	159	164	156	158	160	158	150	152	158	158	150	158	162	160	155	155.5	159.75	160	152.75	
5	3/19/17																					
6	3/20/17	165	165	156	150	159	164	161	154	156	152	138	156	154	168	167	158	158.5	162.25	155.5	154.5	
7	3/21/17	162	162	155	156	159	166	162	152	154	154	143	160	149	168	164	160	156	162.5	156	157	
8	3/22/17	150	160	161	162	141	158	160	161	142	158	160	160	143	161	162	163	144	159.25	160.75	161.5	
9	3/23/17	148	163	155	150	142	157	162	156	157	160	150	161	158	168	167	158	151.25	162	158.5	156.25	
10	3/24/17	140	158	156	160	148	150	158	163	150	154	163	163	151	158	160	162	147.25	155	159.25	162	
11	3/25/17	140	153	160	163	153	160	161	162	152	158	160	161	143	160	162	163	147	157.75	160.75	162.25	
12	3/26/17																					
13	3/27/17	149	152	156	162	152	162	161	156	147	160	156	160	149	164	165	156	149.25	159.5	159.5	158.5	
14	3/28/17	146	150	156	161	148	160	162	160	142	156	159	160	144	160	164	160	145	156.5	160.25	160.25	
15	3/29/17	142	141	152	160	143	158	162	163	141	148	158	160	141	153	161	160	141.75	150	158.25	160.75	
16	3/30/17	140	152	160	160	142	160	160	162	140	152	160	160	131	140	142	161	138.25	151	155.5	160.75	
17	3/31/17	140	150	158	160	143	160	161	162	141	150	142	140	133	161	161	162	139.25	155.25	155.5	156	
18	4/1/17	140	160	162	162	150	158	160	163	148	160	161	162	131	140	143	148	142.25	154.5	156.5	158.75	
19	4/2/17																					
20	4/3/17	157	162	161	158	156	158	161	157	149	160	159	156	148	160	157	152	152.5	160	159.5	155.75	Turn
21	4/4/17	151	157	160	159	149	149	158	159	146	157	160	159	152	160	161	158	149.5	155.75	159.75	158.75	
22	4/5/17	141	153	160	160	132	142	151	160	142	158	160	161	143	158	161	163	139.5	152.75	158	161	
23	4/6/17	131	148	160	163	138	158	161	161	131	141	151	158	133	140	150	152	133.25	146.75	155.5	158.5	
24	4/7/17	141	158	161	163	142	148	150	153	140	143	150	158	148	153	160	162	142.75	150.5	155.25	159	
25	4/8/17	150	162	168	170	160	162	163	163	160	161	163	168	161	170	171	170	157.75	163.75	166.25	167.75	Turn
26	4/9/17																					
27	4/10/17	154	167	170	173	153	170	173	175	162	171	172	171	143	161	168	172	153	167.25	170.75	172.75	
28	4/11/17	139	161	168	174	152	162	169	173	154	164	172	175	148	139	160	171	148.25	156.5	167.25	173.25	
29	4/12/17	158	162	170	172	152	160	158	158	150	161	163	158	152	160	162	168	153	160.75	163.25	164	
30	4/13/17	150	158	161	163	150	161	170	172	158	163	170	171	160	162	170	172	154.5	161	167.75	169.5	

Attachment D

MSAP Process Temperature Chart Windrow# 17-3-17																						
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	3/18/17	130	152	135	140	143	153	160	161	160	162	162	140	140	140	132	120	143.25	151.75	147.25	140.25	
2	3/19/17																					
3	3/20/17	154	156	137	119	134	149	145	133	162	153	132	122	161	158	142	125	152.75	154	139	124.75	
4	3/21/17	156	161	150	132	138	158	151	134	146	152	136	129	158	158	142	128	149.5	157.25	144.75	130.75	
5	3/22/17	142	142	152	151	132	143	150	150	140	143	142	140	138	140	141	138	138	142	146.25	144.75	
6	3/23/17	136	161	157	146	133	156	153	138	157	163	146	136	158	163	156	140	146	160.75	153	140	
7	3/24/17	143	152	158	162	150	153	161	163	140	148	152	161	142	150	153	158	143.75	150.75	156	161	
8	3/25/17	142	160	162	168	140	148	151	153	150	160	160	162	141	150	151	153	143.25	154.5	156	159	
9	3/26/17																					
10	3/27/17	146	164	166	165	144	162	159	158	151	166	159	161	159	166	155	158	150	164.5	159.75	160.5	
11	3/28/17	142	160	163	164	146	161	160	160	151	162	162	162	155	164	159	160	148.5	161.75	161	161.5	
12	3/29/17	140	158	160	163	150	160	162	162	151	161	161	168	152	162	161	161	148.25	160.25	161	163.5	
13	3/30/17	131	150	158	160	150	158	161	160	138	140	160	161	148	150	152	156	141.75	149.5	157.75	159.25	
14	3/31/17	143	153	160	162	140	152	160	161	136	138	150	153	150	158	162	163	142.25	150.25	158	159.75	
15	4/1/17	131	138	141	148	138	140	142	142	135	140	150	158	146	160	161	163	137.5	144.5	148.5	152.75	
16	4/2/17																					
17	4/3/17	132	138	142	150	138	141	142	142	136	140	156	158	142	152	158	160	137	142.75	149.5	152.5	
18	4/4/17	136	140	144	151	137	141	142	144	136	139	140	158	137	139	140	160	136.5	139.75	141.5	153.25	
19	4/5/17	158	160	161	161	140	151	158	160	150	160	160	158	158	161	161	160	151.5	158	160	159.75	
20	4/6/17	141	158	160	163	140	148	152	153	148	158	161	163	143	160	161	161	143	156	158.5	160	
21	4/7/17	140	158	162	162	138	143	151	158	141	148	152	160	150	158	160	161	142.25	151.75	156.25	160.25	Turn
22	4/8/17	142	162	170	172	160	163	168	170	153	162	163	168	151	170	173	173	151.5	164.25	168.5	170.75	
23	4/9/17																					
24	4/10/17	163	172	170	166	148	165	166	161	146	164	168	166	157	165	164	158	153.5	166.5	167	162.75	
25	4/11/17	151	167	169	164	144	163	165	163	145	148	164	163	132	160	165	162	143	159.5	165.75	163	
26	4/12/17	150	161	168	171	158	170	170	171	153	158	163	170	150	160	168	171	152.75	162.25	167.25	170.75	
27	4/13/17	140	152	160	161	153	160	161	162	150	162	162	163	152	161	168	171	148.75	158.75	162.75	164.25	
28	4/14/17	136	150	160	160	149	159	160	162	150	160	162	164	150	160	162	168	146.25	157.25	161	163.5	
29	4/15/17	150	158	162	168	156	161	160	158	145	150	160	163	146	148	161	160	149.25	154.25	160.75	162.25	Turn
30	4/16/17																					
31	4/17/17	145	164	165	171	142	162	172	173	144	161	170	174	145	162	170	174	144	162.25	169.25	173	
32	4/18/17	140	164	170	174	141	162	172	173	138	159	171	175	145	161	173	173	141	161.5	171.5	173.75	

Attachment E

MSAP Process Temperature Chart Windrow# 17-3-21																						
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	3/22/17	150	152	151	150	134	140	141	142	140	148	151	153	142	140	138	126	141.5	145	145.25	142.75	
2	3/23/17	160	150	138	125	161	158	137	123	162	168	140	120	150	138	118	130	158.25	153.5	133.25	124.5	
3	3/24/17	138	140	141	138	140	152	160	163	141	148	151	150	138	143	150	152	139.25	145.75	150.5	150.75	
4	3/25/17	140	142	140	141	141	153	158	160	152	160	160	162	158	161	160	161	147.75	154	154.5	156	
5	3/26/17																					
6	3/27/17	154	161	159	145	149	159	156	161	146	165	158	161	159	156	160	162	152	160.25	158.25	157.25	
7	3/28/17	156	160	160	152	150	161	156	160	143	163	160	162	158	160	161	161	151.75	161	159.25	158.75	
8	3/29/17	158	160	161	155	149	160	152	160	142	158	161	163	154	161	161	161	150.75	159.75	158.75	159.75	
9	3/30/17	148	152	160	161	150	158	160	160	136	138	143	158	153	158	153	160	146.75	151.5	154	159.75	
10	3/31/17	158	161	160	158	140	153	160	161	140	152	153	158	150	158	160	161	147	156	158.25	159.5	
11	4/1/17	156	160	158	158	141	152	158	160	140	142	148	158	148	156	158	163	146.25	152.5	155.5	159.75	
12	4/2/17																					
13	4/3/17	149	156	158	158	142	156	160	160	140	148	159	159	146	158	156	161	144.25	154.5	158.25	159.5	
14	4/4/17	141	147	155	155	143	159	162	157	140	156	162	158	144	158	152	160	142	155	157.75	157.5	
15	4/5/17	140	153	160	161	141	158	160	160	143	151	150	143	141	158	160	160	141.25	155	157.5	156	
16	4/6/17	141	141	148	153	143	151	152	158	141	150	158	161	140	148	151	153	141.25	147.5	152.25	156.25	
17	4/7/17	141	151	153	153	143	158	160	161	140	143	152	160	148	151	153	161	143	150.75	154.5	158.75	
18	4/8/17	140	151	158	158	150	160	162	162	158	161	161	160	154	160	161	161	150.5	158	160.5	160.25	
19	4/9/17																					
20	4/10/17	150	164	162	155	154	170	169	159	144	163	165	158	138	160	163	157	146.5	164.25	164.75	157.25	
21	4/11/17	146	162	164	160	147	163	166	159	138	157	165	161	142	159	163	157	143.25	160.25	164.5	159.25	
22	4/12/17	150	158	152	150	148	150	148	148	142	150	148	144	140	150	151	151	145	152	149.75	148.25	
23	4/13/17	150	160	161	161	148	160	162	162	150	161	163	163	150	158	160	168	149.5	159.75	161.5	163.5	
24	4/14/17	148	162	161	159	152	158	162	161	153	163	162	161	154	162	163	164	151.75	161.25	162	161.25	Turn
25	4/15/17	158	161	162	162	143	158	161	162	153	160	161	161	150	160	162	162	151	159.75	161.5	161.75	
26	4/16/17																					
27	4/17/17	159	171	174	170	154	168	169	163	166	175	174	168	157	168	175	170	159	170.5	173	167.75	
28	4/18/17	146	164	170	168	158	164	167	162	153	168	172	168	150	166	172	171	151.75	165.5	170.25	167.25	
29	4/19/17	150	160	163	170	148	161	162	162	158	162	170	170	153	160	168	171	152.25	160.75	165.75	168.25	
30	4/20/17	150	161	163	168	152	160	168	168	160	163	170	171	143	158	160	166	151.25	160.5	165.25	168.25	Turn
31	4/21/17	150	160	162	163	160	162	163	168	158	161	170	172	158	163	170	170	156.5	161.5	166.25	168.25	

Attachment F

MSAP Process Temperature Chart Windrow# 17-3-24																						
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	3/25/17	130	143	158	130	152	160	161	128	150	158	158	131	142	153	160	130	143.5	153.5	159.25	129.75	
2	3/26/17																					
3	3/27/17	158	160	147	126	150	152	157	131	157	160	147	133	162	164	151	132	156.75	159	150.5	130.5	
4	3/28/17	150	154	157	136	148	156	158	148	152	155	152	137	160	162	156	146	152.5	156.75	155.75	141.75	
5	3/29/17	133	150	160	162	142	160	160	160	143	150	157	140	160	161	160	161	144.5	155.25	159.25	155.75	
6	3/30/17	140	150	158	160	148	152	152	163	150	158	160	161	150	160	161	163	147	155	157.75	161.75	
7	3/31/17	152	160	161	161	140	158	160	162	150	153	151	151	142	158	161	163	146	157.25	158.25	159.25	
8	4/1/17	143	158	160	160	140	158	160	163	146	152	155	154	142	156	160	162	142.75	156	158.75	159.75	
9	4/2/17																					
10	4/3/17	140	160	161	160	148	152	158	162	142	152	154	158	141	155	161	161	142.75	154.75	158.5	160.25	
11	4/4/17	141	163	155	161	156	149	157	161	138	152	152	160	136	155	161	158	142.75	154.75	156.25	160	
12	4/5/17	142	152	158	161	132	150	153	160	140	153	160	161	150	160	162	162	141	153.75	158.25	161	
13	4/6/17	139	140	142	150	131	138	141	148	132	142	152	160	138	141	151	162	135	140.25	146.5	155	
14	4/7/17	138	150	151	151	150	158	158	160	148	152	160	160	150	153	153	158	146.5	153.25	155.5	157.25	
15	4/8/17	132	150	158	160	141	152	158	158	140	150	151	150	141	154	158	161	138.5	151.5	156.25	157.25	
16	4/9/17																					
17	4/10/17	152	166	163	156	142	156	148	138	131	149	159	157	131	155	164	155	139	156.5	158.5	151.5	
18	4/11/17	147	162	163	158	142	158	154	146	136	153	160	159	136	142	157	154	140.25	153.75	158.5	154.25	
19	4/12/17	140	143	150	143	150	160	161	160	142	152	150	158	140	150	153	158	143	151.25	153.5	154.75	
20	4/13/17	133	150	158	163	150	161	163	163	143	158	162	168	151	160	163	163	144.25	157.25	161.5	164.25	
21	4/14/17	156	161	164	162	159	163	162	160	155	162	166	163	154	162	165	161	156	162	164.25	161.5	Turn
22	4/15/17	150	158	161	160	140	152	160	162	158	161	162	160	133	148	158	161	145.25	154.75	160.25	160.75	
23	4/16/17																					
24	4/17/17	155	170	170	159	159	171	174	170	161	172	172	166	157	170	172	168	158	170.75	172	165.75	
25	4/18/17	154	166	172	164	154	167	172	170	157	170	171	166	146	162	170	167	152.75	166.25	171.25	166.75	
26	4/19/17	150	161	170	170	152	160	168	171	158	163	171	171	150	158	168	172	152.5	160.5	169.25	171	
27	4/20/17	151	160	163	163	150	153	162	163	161	163	170	170	158	161	171	170	155	159.25	166.5	166.5	Turn
28	4/21/17	140	150	152	153	142	150	150	151	150	152	151	150	140	150	152	151	143	150.5	151.25	151.25	
29	4/22/17	140	151	158	160	142	158	158	160	143	151	153	158	142	150	155	161	141.75	152.5	156	159.75	
30	4/23/17																					
31	4/24/17	145	166	173	166	146	167	173	168	157	170	171	164	155	166	170	166	150.75	167.25	171.75	166	
32	4/25/17	133	146	164	167	138	153	167	168	150	161	167	167	142	154	166	169	140.75	153.5	166	167.75	

Attachment G

MSAP Process Temperature Chart Windrow# 17-3-28																						
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	3/29/17	138	136	132	128	136	138	141	132	136	135	138	141	134	140	146	150	136	137.25	139.25	137.75	
2	3/30/17	140	141	138	131	141	143	150	150	140	141	148	150	140	148	152	158	140.25	143.25	147	147.25	
3	3/31/17	140	143	141	138	133	141	150	150	140	150	158	160	141	150	160	160	138.5	146	152.25	152	
4	4/1/17	142	150	152	150	134	140	142	150	140	150	152	158	141	150	153	160	139.25	147.5	149.75	154.5	
5	4/2/17																					
6	4/3/17	143	158	150	160	136	144	144	150	144	156	152	162	152	160	161	161	143.75	154.5	151.75	158.25	
7	4/4/17	155	159	148	160	136	141	148	151	145	155	151	162	155	160	160	157	147.75	153.75	151.75	157.5	
8	4/5/17	150	148	158	160	140	150	160	162	141	158	161	160	140	150	160	162	142.75	151.5	159.75	161	
9	4/6/17	140	150	158	161	142	142	153	160	142	140	150	152	150	158	160	163	143.5	147.5	155.25	159	
10	4/7/17	132	150	160	160	152	160	161	160	150	163	163	168	143	151	158	161	144.25	156	160.5	162.25	
11	4/8/17	142	153	160	160	150	161	162	161	153	160	161	160	148	158	160	161	148.25	158	160.75	160.5	
12	4/9/17																					
13	4/10/17	147	161	151	141	152	155	159	154	136	159	157	149	156	165	159	153	147.75	160	156.5	149.25	
14	4/11/17	141	162	155	145	151	142	157	156	141	155	158	153	150	163	163	159	145.75	155.5	158.25	153.25	
15	4/12/17	150	160	158	158	150	160	162	162	150	159	163	163	151	160	160	162	150.25	159.75	160.75	161.25	
16	4/13/17	150	161	162	162	150	160	161	161	143	148	160	162	151	158	153	153	148.5	156.75	159	159.5	
17	4/14/17	154	160	162	162	154	161	165	164	152	156	162	163	148	158	159	160	152	158.75	162	162.25	
18	4/15/17	143	150	158	160	153	160	161	161	150	153	153	158	141	152	160	161	146.75	153.75	158	160	
19	4/16/17																					
20	4/17/17	156	168	164	157	154	167	169	162	159	170	166	158	161	169	174	166	157.5	168.5	168.25	160.75	Turn
21	4/18/17	160	169	166	160	149	166	169	168	152	169	166	159	153	164	170	170	153.5	167	167.75	164.25	
22	4/19/17	158	162	163	163	160	162	168	171	162	163	168	170	160	163	170	172	160	162.5	167.25	169	
23	4/20/17	153	170	170	171	150	162	170	170	148	158	168	168	150	161	163	170	150.25	162.75	167.75	169.75	
24	4/21/17	142	151	158	160	150	152	158	160	143	150	153	158	141	148	152	153	144	150.25	155.25	157.75	
25	4/22/17	158	161	162	168	160	162	162	161	140	153	160	162	142	152	160	161	150	157	161	163	
26	4/23/17																					
27	4/24/17	152	145	164	170	146	164	170	169	132	157	169	172	150	164	171	168	145	157.5	168.5	169.75	Turn
28	4/25/17	146	145	160	166	132	151	157	167	139	141	153	157	150	160	165	170	141.75	149.25	158.75	165	
29	4/26/17	140	143	158	162	160	161	162	163	142	152	158	160	138	148	153	160	145	151	157.75	161.25	
30	4/27/17	143	161	163	168	140	156	160	162	142	150	158	160	138	142	152	160	140.75	152.25	158.25	162.5	
31	4/28/17	138	140	148	160	140	143	151	158	141	141	143	152	160	167	163	160	144.75	147.75	151.25	157.5	
32	4/29/17	148	153	160	162	140	148	152	158	150	158	160	163	148	151	158	162	146.5	152.5	157.5	161.25	

Attachment H

MSAP Process Temperature Chart Windrow# 17-3-31																							
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	4/1/17	155	158	144	128	163	164	140	127	161	153	144	125	164	152	141	120	160.75	156.75	142.25	125		
2	4/2/17																						
3	4/3/17	156	160	148	136	166	162	140	136	168	166	152	128	166	152	135	128	164	160	143.75	132		
4	4/4/17	148	161	152	145	154	153	143	136	161	150	135	130	153	139	140	130	154	150.75	142.5	135.25		
5	4/5/17	140	158	160	152	150	153	152	150	142	150	141	138	141	142	140	132	143.25	150.75	148.25	143		
6	4/6/17	141	160	160	160	150	156	158	162	144	150	153	160	142	150	158	150	144.25	154	157.25	158		
7	4/7/17	140	153	153	160	150	160	161	161	148	151	158	160	150	158	160	160	147	155.5	158	160.25		
8	4/8/17	150	160	160	158	151	158	160	160	158	162	162	160	150	158	153	153	152.25	159.5	158.75	157.75		
9	4/9/17																						
10	4/10/17	150	166	166	161	156	165	160	151	149	160	157	140	164	166	157	141	154.75	164.25	160	148.25		
11	4/11/17	132	158	162	164	146	163	162	156	140	162	164	157	149	156	160	151	141.75	159.75	162	157		
12	4/12/17	142	158	161	163	143	158	162	160	150	160	161	162	148	161	163	163	145.75	159.25	161.75	162		
13	4/13/17	140	160	162	163	151	161	163	163	150	160	166	164	150	160	161	162	147.75	160.25	163	163		
14	4/14/17	146	156	163	163	139	155	163	164	150	157	164	164	144	153	164	165	144.75	155.25	163.5	164		
15	4/15/17	140	151	160	161	133	142	152	160	140	152	158	160	138	150	158	160	137.75	148.75	157	160.25		
16	4/16/17																						
17	4/17/17	139	156	161	161	145	160	158	152	135	157	163	157	141	153	162	158	140	156.5	161	157		
18	4/18/17	135	154	160	159	144	160	160	155	132	154	165	159	154	162	164	159	141.25	157.5	162.25	158		
19	4/19/17	138	153	161	162	140	152	160	163	142	150	158	161	150	158	160	162	142.5	153.25	159.75	162		
20	4/20/17	142	150	152	158	150	153	160	160	140	148	152	158	150	153	160	161	145.5	151	156	159.25		
21	4/21/17	138	140	142	148	138	140	141	143	140	142	148	151	140	141	143	152	139	140.75	143.5	148.5	Turn	
22	4/22/17	153	160	158	152	160	163	163	162	150	152	153	152	140	150	151	152	150.75	156.25	156.25	154.5		
23	4/23/17																						
24	4/24/17	159	171	173	166	145	162	172	172	160	167	169	158	147	161	170	164	152.75	165.25	171	165		
25	4/25/17	138	157	170	170	119	134	155	168	146	154	166	160	117	141	163	163	130	146.5	163.5	165.25		
26	4/26/17	141	148	160	163	150	143	140	142	150	160	163	170	161	163	170	170	150.5	153.5	158.25	161.25	Turn	
27	4/27/17	148	160	162	163	160	161	161	162	153	162	170	170	152	161	168	166	153.25	161	165.25	165.25		
28	4/28/17	153	158	158	160	161	163	168	170	160	162	162	163	150	158	160	162	156	160.25	162	163.75		
29	4/29/17	133	140	143	150	140	148	153	160	150	158	160	162	143	150	153	160	141.5	149	152.25	158		
30	4/30/17																						

Attachment I

Hillsborough County Composting - Monitoring Sheet (MSAP Method)				Windrow # 17-4-4		
Windrow Construction:			Date Commenced: 4-1-17	Date Completed: 4-4-17		
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
4/1/17	Jerry Devoe	18.31	23.80	40.00	16.00	
4/1/17	Jerry Devoe	17.43	22.66	40.00	16.00	
4/1/17	Jerry Devoe	22.61	29.39	40.00	16.00	44
4/3/17	Oscar Ochoa	22.42	29.15	40.00	16.00	
4/3/17	Oscar Ochoa	23.19	30.15	40.00	16.00	
4/3/17	Oscar Ochoa	17.00	22.10	40.00	16.00	44
4/4/17	Oscar Ochoa	22.20	28.86	40.00	16.00	
4/4/17	Oscar Ochoa	20.81	27.05	40.00	16.00	
4/4/17	Oscar Ochoa	22.11	28.74	40.00	16.00	44
Totals		186.08	241.90	360.00	144.00	132.00
Windrow Construction ratio:		2.63 /1				
Note: Yard waste yards = number of buckets * 4.00						

MSAP Process Temperature Chart Windrow# 17-4-4

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	4/5/17	155	158	144	128	163	164	140	127	161	153	144	125	164	152	141	120	160.75	156.75	142.25	125	
2	4/6/17	150	160	151	142	165	164	161	141	168	164	160	148	166	160	150	143	162.25	162	155.5	143.5	
3	4/7/17	162	161	158	142	160	161	160	143	163	162	160	151	158	156	151	142	160.75	160	157.25	144.5	
4	4/8/17	163	162	160	142	160	162	161	150	161	162	159	152	150	156	150	141	158.5	160.5	157.5	146.25	
5	4/9/17																					
6	4/10/17	158	162	151	137	165	166	163	154	160	164	156	145	162	166	159	152	161.25	164.5	157.25	147	
7	4/11/17	145	162	156	143	151	166	163	154	156	164	158	147	153	166	160	150	151.25	164.5	159.25	148.5	
8	4/12/17	142	158	160	153	150	161	163	160	158	160	160	159	160	161	160	160	152.5	160	160.75	158	
9	4/13/17	140	143	151	160	150	153	160	162	142	148	151	153	148	152	158	162	145	149	155	159.25	
10	4/14/17	140	148	152	160	155	156	160	161	142	150	153	156	149	156	160	162	146.5	152.5	156.25	159.75	
11	4/15/17	140	150	158	160	158	160	161	160	143	153	158	158	153	160	161	162	148.5	155.75	159.5	160	
12	4/16/17																					
13	4/17/17	138	162	158	148	142	164	164	159	139	162	161	154	146	167	164	156	141.25	163.75	161.75	154.25	
14	4/18/17	150	166	162	152	141	165	162	154	133	164	163	156	146	164	160	151	142.5	164.75	161.75	153.25	
15	4/19/17	151	161	163	162	150	160	161	163	150	160	161	161	142	148	152	163	148.25	157.25	159.25	162.25	
16	4/20/17	140	158	163	163	152	160	162	162	158	161	161	163	158	161	161	163	152	160	161.75	162.75	
17	4/21/17	141	143	150	148	131	141	143	150	141	143	143	148	132	140	143	151	136.25	141.75	144.75	149.25	Turn
18	4/22/17	148	158	160	160	152	161	162	162	158	160	160	160	150	160	163	170	152	159.75	161.25	163	
19	4/23/17																					
20	4/24/17	149	165	172	166	158	167	175	173	150	165	172	171	137	159	169	175	148.5	164	172	171.25	
21	4/25/17	129	152	164	171	145	147	155	168	151	161	168	170	111	148	154	168	134	152	160.25	169.25	
22	4/26/17	138	141	155	160	150	150	153	158	151	153	153	160	140	143	148	161	144.75	146.75	152.25	159.75	Turn
23	4/27/17	150	158	162	163	148	158	161	162	140	143	163	168	150	152	161	161	147	152.75	161.75	163.5	
24	4/28/17	150	160	163	170	150	158	160	162	140	141	140	162	158	140	142	150	149.5	149.75	151.25	161	
25	4/29/17	150	158	161	163	140	143	150	153	150	152	158	158	143	151	153	160	145.75	151	155.5	158.5	
26	4/30/17																					

Attachment J

Hillsborough County Composting - Monitoring Sheet (MSAP Method)				Windrow # 17-4-7		
Windrow Construction:			Date Commenced: 4-5-17		Date Completed: 4-7-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
4/5/17	Mike Bayne	21.94	28.52	40.00	16.00	
4/5/17	Mike Bayne	22.57	29.34	40.00	16.00	
4/5/17	Mike Bayne	20.82	27.07	40.00	16.00	44
4/6/17	Mike Bayne	22.28	28.96	40.00	16.00	
4/6/17	Mike Bayne	22.07	28.69	40.00	16.00	
4/6/17	Mike Bayne	22.13	28.77	40.00	16.00	44
4/7/17	Oscar Ochoa	23.12	30.06	40.00	16.00	
4/7/17	Oscar Ochoa	22.10	28.73	40.00	16.00	
4/7/17	Oscar Ochoa	21.55	28.02	56.00	16.00	44
Totals		198.58	258.15	376.00	144.00	132.00
Windrow Construction ratio:		2.53 /1				

MSAP Process Temperature Chart Windrow# 17-4-7																						
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	4/8/17	132	131	128	123	132	130	123	120	151	158	120	108	161	162	156	148	144	145.25	131.75	124.75	
2	4/9/17																					
3	4/10/17	162	166	162	155	160	163	148	125	145	138	127	111	158	141	154	145	156.25	152	147.75	134	
4	4/11/17	158	166	159	152	158	162	152	136	156	152	144	132	160	162	158	150	158	160.5	153.25	142.5	
5	4/12/17	138	161	166	162	143	141	155	152	152	160	158	153	153	162	166	161	146.5	156	161.25	157	
6	4/13/17	148	152	158	161	150	153	160	162	150	158	162	162	143	148	161	163	147.75	152.75	160.25	162	
7	4/14/17	150	155	160	162	153	159	162	162	149	158	161	160	142	154	161	163	148.5	156.5	161	161.75	
8	4/15/17	152	162	166	164	161	163	163	161	148	158	161	158	140	160	162	166	150.25	160.75	163	162.25	
9	4/16/17																					
10	4/17/17	132	154	166	169	135	162	164	154	150	152	168	168	142	147	170	166	139.75	153.75	167	164.25	
11	4/18/17	136	155	166	166	139	164	164	153	149	151	166	167	141	148	170	169	141.25	154.5	166.5	163.75	
12	4/19/17	142	160	163	170	140	143	160	163	148	150	162	164	140	151	158	160	142.5	151	160.75	164.25	
13	4/20/17	152	161	170	171	141	158	162	163	148	150	160	161	133	143	158	160	143.5	153	162.5	163.75	
14	4/21/17	150	160	163	170	140	158	161	163	148	150	159	160	138	151	153	160	144	154.75	159	163.25	
15	4/22/17	142	158	163	170	150	160	163	163	150	154	156	158	133	152	161	163	143.75	156	160.75	163.5	
16	4/23/17																					
17	4/24/17	138	150	165	167	132	157	165	156	140	152	148	152	131	145	166	165	135.25	151	161	160	
18	4/25/17	131	154	166	167	130	150	160	154	139	152	145	153	130	138	162	165	132.5	148.5	158.25	159.75	
19	4/26/17	140	143	152	152	142	151	153	160	151	158	161	163	151	153	160	164	146	151.25	156.5	159.75	Turn
20	4/27/17	150	161	170	172	148	160	161	163	150	153	162	162	140	152	160	161	147	156.5	163.25	164.5	
21	4/28/17	151	160	162	168	150	158	161	163	143	151	152	161	140	148	152	160	146	154.25	156.75	163	
22	4/29/17	150	160	162	162	148	152	158	161	138	143	152	160	143	152	160	163	144.75	151.75	158	161.5	
23	4/30/17																					

Attachment K

Hillsborough County Composting - Monitoring Sheet (MSAP Method)				Windrow # 17-4-12		
Windrow Construction:			Date Commenced: 4-8-17		Date Completed: 4-12-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
4/8/17	Jerry Devoe	21.69	28.20	40.00	16.00	
4/8/17	Jerry Devoe	16.41	21.33	40.00	16.00	
4/10/17	Mike Bayne	19.85	25.81	40.00	16.00	44
4/10/17	Mike Bayne	22.75	29.58	40.00	16.00	
4/10/17	Oscar Ochoa	23.56	30.63	40.00	16.00	
4/11/17	Oscar Ochoa	21.35	27.76	40.00	16.00	44
4/11/17	Oscar Ochoa	23.33	30.33	40.00	16.00	
4/11/17	Oscar Ochoa	21.81	28.35	40.00	16.00	
4/12/17	Oscar Ochoa	21.97	28.56	40.00	16.00	44
Totals		192.72	250.54	360.00	144.00	132.00
Windrow Construction ratio:		2.54 /1				

MSAP Process Temperature Chart Windrow# 17-4-12																						
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	4/13/17	154	150	140	132	140	140	120	112	146	138	124	118	150	142	131	126	147.5	142.5	128.75	122	
2	4/14/17	160	160	148	138	144	144	132	124	152	148	138	126	154	152	142	138	152.5	151	140	131.5	
3	4/15/17	158	158	150	148	151	156	143	141	156	146	144	141	156	143	152	146	155.25	150.75	147.25	144	
4	4/16/17																					
5	4/17/17	160	162	156	152	160	162	152	150	161	164	152	149	160	162	150	152	160.25	162.5	152.5	150.75	
6	4/18/17	158	160	163	162	162	163	156	150	158	160	158	150	154	157	158	158	158	158	158.75	155	
7	4/19/17	160	162	165	163	158	160	156	150	158	160	154	150	152	157	158	158	157	159.75	158.25	155.25	
8	4/20/17	158	161	164	161	160	162	156	151	159	161	154	151	150	156	159	160	156.75	160	158.25	155.75	
9	4/21/17	150	153	160	161	151	152	150	158	143	153	158	161	150	152	160	160	148.5	152.5	157	160	
10	4/22/17	150	158	160	161	140	156	160	160	140	142	150	160	132	143	152	160	140.5	149.75	155.5	160.25	
11	4/23/17																					
12	4/24/17	140	163	163	156	136	157	161	146	148	161	157	146	146	156	162	163	142.5	159.25	160.75	152.75	
13	4/25/17	132	148	160	158	142	148	160	152	137	157	157	148	146	134	151	162	139.25	146.75	157	155	
14	4/26/17	132	140	150	153	150	151	158	160	152	153	160	162	148	152	158	161	145.5	149	156.5	159	
15	4/27/17	138	150	152	158	145	131	140	150	150	158	160	161	150	152	151	150	145.75	147.75	150.75	154.75	
16	4/28/17	148	152	153	158	138	141	143	150	150	152	160	161	153	160	161	160	147.25	151.25	154.25	157.25	
17	4/29/17	140	143	152	160	148	152	153	161	142	150	158	162	140	148	152	161	142.5	148.25	153.75	161	
18	4/30/17																					

Attachment L

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 17-4-15	
Windrow Construction:			Date Commenced: 4-12-17		Date Completed: 4-15-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
4/12/17	Mike Bayne	22.56	29.33	40.00	16.00	
4/12/17	Mike Bayne	23.78	30.91	40.00	16.00	22
4/13/17	Mike Bayne	22.35	29.06	40.00	16.00	
4/13/17	Mike Bayne	22.14	28.78	40.00	16.00	
4/13/17	Mike Bayne	21.44	27.87	40.00	16.00	44
4/14/17	Oscar Ochoa	22.81	29.65	40.00	16.00	
4/14/17	Oscar Ochoa	22.05	28.67	40.00	16.00	
4/14/17	Oscar Ochoa	21.78	28.31	40.00	16.00	44
4/15/17	Jerry Devoe	22.19	28.85	40.00	16.00	22
Totals		201.10	261.43	360.00	144.00	132.00
Windrow Construction ratio:		2.43 /1				

MSAP Process Temperature Chart Windrow# 17-4-15																						
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	4/16/17																					
2	4/17/17	161	166	158	149	164	160	152	141	159	155	131	114	167	162	151	130	162.75	160.75	148	133.5	
3	4/18/17	163	166	160	148	163	166	160	150	158	159	138	123	158	166	164	154	160.5	164.25	155.5	143.75	
4	4/19/17	132	150	158	160	152	160	160	162	153	162	163	163	145	160	161	162	145.5	158	160.5	161.75	
5	4/20/17	133	151	161	161	153	160	160	152	142	158	161	163	158	161	163	162	146.5	157.5	161.25	159.5	
6	4/21/17	133	158	161	161	150	160	161	160	147	158	161	163	140	148	153	162	142.5	156	159	161.5	
7	4/22/17	140	161	162	162	142	158	161	162	150	158	153	151	140	151	158	160	143	157	158.5	158.75	
8	4/23/17																					
9	4/24/17	142	155	163	163	144	158	165	163	150	161	159	151	143	156	161	157	144.75	157.5	162	158.5	
10	4/25/17	140	141	160	164	146	131	152	158	134	154	157	150	142	136	154	154	140.5	140.5	155.75	156.5	
11	4/26/17	140	150	152	160	150	150	160	163	148	152	153	160	140	143	150	153	144.5	148.75	153.75	159	
12	4/27/17	140	151	158	158	160	161	158	153	150	158	160	160	152	158	158	160	150.5	157	158.5	157.75	
13	4/28/17	150	152	158	160	140	151	160	162	143	152	158	160	158	161	160	160	147.75	154	159	160.5	
14	4/29/17	138	141	143	151	150	158	162	162	160	163	161	160	140	142	150	153	147	151	154	156.5	
15	4/30/17																					

Attachment M

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 17-4-20	
Windrow Construction:			Date Commenced: 4-17-17		Date Completed: 4-20-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
4/17/17	Oscar Ochoa	21.94	28.52	40.00	16.00	
4/17/17	Oscar Ochoa	22.48	29.22	40.00	16.00	22
4/18/17	Oscar Ochoa	22.13	28.77	40.00	16.00	
4/18/17	Oscar Ochoa	22.95	29.84	40.00	16.00	
4/18/17	Oscar Ochoa	22.03	28.64	40.00	16.00	44
4/19/17	Mike Bayne	17.35	22.56	40.00	16.00	
4/19/17	Mike Bayne	16.55	21.52	40.00	16.00	
4/19/17	Mike Bayne	22.61	29.39	40.00	16.00	44
4/20/17	Mike Bayne	22.22	28.89	40.00	16.00	22
Totals		190.26	247.34	360.00	144.00	132.00
Windrow Construction ratio:		2.57 /1				

MSAP Process Temperature Chart Windrow# 17-4-20																						
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	4/21/17	136	134	130	130	148	146	136	132	145	144	134	132	142	138	122	120	142.75	140.5	130.5	128.5	
2	4/22/17	158	158	142	138	158	159	146	140	160	160	148	142	159	158	146	140	158.75	158.75	145.5	140	
3	4/23/17																					
4	4/24/17	160	162	162	158	160	162	162	160	160	163	164	156	160	160	161	158	160	161.75	162.25	158	
5	4/25/17	160	162	163	159	161	164	163	162	159	162	162	158	161	162	163	158	160.25	162.5	162.75	159.25	
6	4/26/17	141	148	152	160	151	153	162	162	143	152	160	163	150	151	163	163	146.25	151	159.25	162	
7	4/27/17	140	150	158	163	152	161	168	161	151	160	162	161	150	160	163	162	148.25	157.75	162.75	161.75	
8	4/28/17	150	158	161	161	151	160	160	160	150	153	157	151	140	141	141	162	147.75	153	154.75	158.5	
9	4/29/17	140	142	142	148	141	153	152	161	150	158	161	163	148	153	158	162	144.75	151.5	153.25	158.5	
10	4/30/17																					

Attachment N

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 17-4-24	
Windrow Construction:			Date Commenced: 4-20-17		Date Completed: 4-24-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
4/20/17	Mike Bayne	23.18	30.13	40.00	16.00	
4/20/17	Mike Bayne	22.56	29.33	40.00	16.00	22
4/21/17	Oscar Ochoa	21.56	28.03	40.00	16.00	
4/21/17	Oscar Ochoa	19.68	25.58	40.00	16.00	
4/21/17	Oscar Ochoa	20.56	26.73	40.00	16.00	44
4/22/17	Jerry Devoe	21.82	28.37	40.00	16.00	
4/22/17	Jerry Devoe	22.46	29.20	40.00	16.00	
4/22/17	Oscar Ochoa	24.71	32.12	40.00	16.00	44
4/24/17	Oscar Ochoa	21.12	27.46	40.00	16.00	22
Totals		197.65	256.95	360.00	144.00	132.00
Windrow Construction ratio:		2.48 /1				

MSAP Process Temperature Chart Windrow# 17-4-24																						
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	4/25/17	156	148	130	117	156	151	130	113	124	145	156	122	155	157	150	118	147.75	150.25	141.5	117.5	
2	4/26/17	155	158	144	128	163	164	140	127	161	153	144	125	164	152	141	120	160.75	156.75	142.25	125	
3	4/27/17	162	160	148	136	166	162	140	136	168	166	152	130	166	152	135	128	165.5	160	143.75	132.5	
4	4/28/17	161	150	152	158	158	160	160	160	158	161	162	141	160	161	161	138	159.25	158	158.75	149.25	
5	4/29/17	160	161	162	163	158	162	168	170	148	153	162	148	150	152	160	145	154	157	163	156.5	
6	4/30/17																					

Attachment O

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 17-4-27	
Windrow Construction:			Date Commenced: 4-24-17	Date Completed: 4-27-17		
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
4/24/17	Oscar Ochoa	21.22	27.59	40.00	16.00	
4/24/17	Oscar Ochoa	23.29	30.28	40.00	16.00	22
4/25/17	Oscar Ochoa	21.94	28.52	40.00	16.00	
4/25/17	Oscar Ochoa	21.28	27.66	40.00	16.00	
4/25/17	Oscar Ochoa	17.80	23.14	40.00	16.00	44
4/26/17	Mike Bayne	22.21	28.87	40.00	16.00	
4/26/17	Mike Bayne	22.63	29.42	40.00	16.00	
4/26/17	Mike Bayne	24.93	32.41	40.00	16.00	44
4/27/17	Mike Bayne	21.93	28.51	40.00	16.00	22
Totals		197.23	256.40	360.00	144.00	132.00
Windrow Construction ratio:		2.48 /1				

MSAP Process Temperature Chart Windrow# 17-4-27																						
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	4/28/17	150	152	153	158	141	148	150	150	143	152	158	160	138	141	141	150	143	148.25	150.5	154.5	
2	4/29/17	143	140	142	150	140	151	153	158	142	148	151	153	150	152	153	158	143.75	147.75	149.75	154.75	
3	4/30/17																					