

Smith, George

From: Wiesman, Ronald <WiesmanR@hillsboroughcounty.org>
Sent: Friday, August 11, 2017 1:49 PM
To: Morgan, Steve; Kautz, Lance
Cc: Byer, Kimberly; Schinella, Beth; Ruiz, Larry
Subject: Hillsborough County July Composting Report
Attachments: July2017 Rpt.pdf

Mr. Morgan,

The July composting report for Hillsborough County is attached.
Please advise should you have any questions concerning the information provided.

Thank you,

Ron Wiesman II
Manager
Solid Waste Management Division

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PUBLIC WORKS

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MEMORANDUM

DATE: August 11, 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

**BOARD OF COUNTY
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**CHIEF DEV. & INFRA.
SERVICES ADMINISTRATOR**
Lucia E. Garsys

Biosolids Received (wet tons):	1542.72 tons received 7/1 through 7/31
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. 7 windrows were formed and in active composting as of 7/31/17. Windrow temperatures were monitored daily. 9 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 8 curing windrows. Sampling was performed on July 25, 2017. 515.81 tons of compost was picked up by Life Soils.
Attachments:	A-P: 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# 17-6-1																						
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	6/2/17	142	140	135	132	132	138	138	140	140	141	130	129	120	122	125	132	133.5	135.25	132	133.25	
2	6/3/17	133	138	140	141	132	132	134	138	132	138	141	140	132	132	134	138	132.25	135	137.25	139.25	
3	6/4/17																					
4	6/5/17	150	143	138	136	153	149	133	132	155	159	156	141	147	135	140	139	151.25	146.5	141.75	137	
5	6/6/17	152	150	142	134	162	154	140	142	155	156	155	140	156	150	146	140	156.25	152.5	145.75	139	
6	6/7/17	148	148	136	132	134	156	158	147	154	154	144	140	152	153	150	144	147	152.75	147	140.75	
7	6/8/17	140	142	148	143	138	143	143	148	140	142	142	140	138	142	148	150	139	142.25	145.25	145.25	
8	6/9/17	132	136	138	140	137	140	144	150	132	138	140	140	137	138	140	140	134.5	138	140.5	142.5	
9	6/10/17	132	138	140	142	140	148	150	151	138	141	141	142	138	142	143	142	137	142.25	143.5	144.25	
10	6/11/17																					
11	6/12/17	138	146	144	142	142	148	148	148	140	146	152	150	140	147	145	143	140	146.75	147.25	145.75	
12	6/13/17	142	150	150	145	145	148	143	146	142	155	158	152	144	150	148	143	143.25	150.75	149.75	146.5	
13	6/14/17	141	148	148	145	146	148	145	145	144	156	156	152	144	150	148	142	143.75	150.5	149.25	146	
14	6/15/17	141	147	148	144	150	150	146	140	149	156	156	152	143	150	150	140	145.75	150.75	150	144	
15	6/16/17	138	142	148	150	140	141	141	141	132	140	143	150	133	140	141	142	135.75	140.75	143.25	145.75	
16	6/17/17	140	143	151	153	138	141	143	153	140	142	143	148	140	143	148	150	139.5	142.25	146.25	151	
17	6/18/17																					
18	6/19/17	139	146	148	144	133	141	141	140	147	152	152	150	150	150	145	139	142.25	147.25	146.5	143.25	
19	6/20/17	139	142	142	141	135	141	141	140	136	146	150	148	150	148	144	139	140	144.25	144.25	142	
20	6/21/17	132	148	140	143	142	142	148	150	140	140	142	143	138	142	141	140	138	143	142.75	144	
21	6/22/17	140	148	150	148	150	158	158	158	142	151	151	148	150	158	158	158	145.5	153.75	154.25	153	Turn
22	6/23/17	150	160	155	161	140	150	152	155	140	145	151	160	141	150	145	140	142.75	151.25	150.75	154	
23	6/24/17	151	158	158	158	143	151	152	152	140	148	153	158	143	151	148	142	144.25	152	152.75	152.5	
24	6/25/17																					
25	6/26/17	160	163	159	151	156	158	154	144	158	155	148	142	156	154	148	140	157.5	157.5	152.25	144.25	
26	6/27/17	157	165	163	156	163	159	153	144	157	152	146	139	158	160	153	142	158.75	159	153.75	145.25	Turn
27	6/28/17	148	153	158	158	152	158	160	160	142	148	158	162	142	150	153	160	146	152.25	157.25	160	
28	6/29/17	139	146	154	150	152	158	158	154	149	160	162	158	164	164	161	150	151	157	158.75	153	
29	6/30/17	138	150	142	150	141	151	158	160	133	150	158	152	132	138	142	150	136	147.25	150	153	
30	7/1/17	136	137	140	151	140	148	155	162	138	141	145	150	132	136	140	152	136.5	140.5	145	153.75	

Attachment B

MSAP Process Temperature Chart Windrow# 17-6-5																						
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	6/6/17	146	133	120	113	154	140	129	114	110	104	100	94	102	102	102	103	128	119.75	112.75	106	
2	6/7/17	132	132	133	132	132	130	130	130	140	144	132	132	144	140	132	132	137	136.5	131.75	131.5	
3	6/8/17	138	140	142	143	140	143	151	153	132	143	150	152	142	148	151	150	138	143.5	148.5	149.5	
4	6/9/17	138	142	150	150	140	151	160	160	140	151	160	160	140	148	150	150	139.5	148	155	155	
5	6/10/17	140	142	148	151	143	152	158	160	141	150	151	152	140	148	151	153	141	148	152	154	
6	6/11/17																					
7	6/12/17	149	156	150	150	148	156	158	157	147	152	153	150	154	158	152	152	149.5	155.5	153.25	152.25	
8	6/13/17	152	160	154	149	154	158	158	155	153	156	155	150	164	163	156	150	155.75	159.25	155.75	151	
9	6/14/17	146	156	155	149	154	158	156	156	154	156	156	150	154	162	155	149	152	158	155.5	151	
10	6/15/17	141	153	155	150	156	158	152	156	156	160	157	148	152	160	155	148	151.25	157.75	154.75	150.5	
11	6/16/17	148	151	152	152	142	150	153	158	143	148	151	153	133	142	151	153	141.5	147.75	151.75	154	
12	6/17/17	150	153	153	158	150	153	158	160	150	158	158	160	138	142	148	151	147	151.5	154.25	157.25	
13	6/18/17																					
14	6/19/17	154	158	156	150	150	160	162	157	153	158	157	153	140	153	153	149	149.25	157.25	157	152.25	
15	6/20/17	145	153	154	150	156	163	162	156	148	156	157	154	158	163	159	151	151.75	158.75	158	152.75	
16	6/21/17	138	141	145	143	140	148	150	152	138	141	143	150	133	138	132	138	137.25	142	142.5	145.75	
17	6/22/17	158	161	160	153	142	160	152	152	150	163	160	161	143	151	161	158	148.25	158.75	158.25	156	Turn
18	6/23/17	140	141	138	132	132	140	136	132	140	141	136	132	140	150	160	158	138	143	142.5	138.5	
19	6/24/17	140	141	138	132	132	138	138	138	142	141	138	132	142	151	158	158	139	142.75	143	140	
20	6/25/17																					
21	6/26/17	153	167	169	162	161	170	171	159	157	163	170	166	151	166	164	154	155.5	166.5	168.5	160.25	Turn
22	6/27/17	164	169	169	156	168	171	168	159	163	171	172	168	159	167	164	153	163.5	169.5	168.25	159	
23	6/28/17	152	160	163	163	141	158	162	168	153	161	163	170	140	151	158	160	146.5	157.5	161.5	165.25	
24	6/29/17	146	164	166	166	150	163	170	171	168	165	168	169	150	162	166	162	153.5	163.5	167.5	167	
25	6/30/17	153	158	160	158	142	140	138	132	142	153	160	162	153	158	158	158	147.5	152.25	154	152.5	
26	7/1/17	150	160	160	155	141	142	136	132	140	151	162	162	150	160	158	158	145.25	153.25	154	151.75	
27	7/2/17																					
28	7/3/17	156	160	161	158	158	159	161	160	155	158	160	156	154	158	158	154	155.75	158.75	160	157	Turn
29	7/4/17																					
30	7/5/17	150	152	158	160	152	151	158	161	148	153	158	160	140	148	157	157	147.5	151	157.75	159.5	
31	7/6/17	158	161	161	162	150	152	158	160	160	162	164	168	140	148	152	158	152	155.75	158.75	162	
32	7/7/17	150	155	160	158	144	155	162	160	142	152	158	162	148	152	158	152	146	153.5	159.5	158	
33	7/8/17	150	155	160	160	148	156	166	160	145	151	160	163	150	155	160	150	148.25	154.25	161.5	158.25	
34	7/9/17																					
35	7/10/17	151	153	150	148	152	160	158	153	143	158	162	163	140	150	158	161	146.5	155.25	157	156.25	

Attachment C

MSAP Process Temperature Chart Windrow# 17-6-8																						
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	6/9/17	132	136	138	140	132	131	136	131	132	136	136	138	132	132	136	136	132	133.75	136.5	136.25	
2	6/10/17	132	138	138	140	132	132	133	133	132	138	138	140	132	138	138	140	132	136.5	136.75	138.25	
3	6/11/17																					
4	6/12/17	148	160	164	161	154	160	158	158	152	157	160	154	154	158	159	151	152	158.75	160.25	156	
5	6/13/17	148	159	162	158	150	160	156	156	159	156	161	156	154	162	158	156	152.75	159.25	159.25	156.5	
6	6/14/17	150	143	134	158	146	133	152	152	150	152	160	158	152	139	156	156	149.5	141.75	150.5	156	
7	6/15/17	150	150	144	152	138	142	148	148	141	152	156	158	145	148	157	158	143.5	148	151.25	154	
8	6/16/17	142	151	151	150	138	158	141	142	148	152	150	160	148	152	158	159	144	153.25	150	152.75	
9	6/17/17	140	143	148	150	142	148	151	151	138	141	142	152	150	152	152	150	142.5	146	148.25	150.75	
10	6/18/17																					
11	6/19/17	153	157	154	146	142	145	143	146	137	142	142	150	143	146	144	147	143.75	147.5	145.75	147.25	
12	6/20/17	144	150	150	144	138	143	140	142	141	143	136	149	138	150	145	145	140.25	146.5	142.75	145	
13	6/21/17	148	151	150	143	148	148	143	140	152	158	153	150	140	141	140	148	147	149.5	146.5	145.25	
14	6/22/17	138	142	148	157	162	163	163	161	153	158	153	150	153	158	152	150	151.5	155.25	154	154.5	
15	6/23/17	150	160	160	161	155	160	161	161	150	151	155	160	150	148	141	160	151.25	154.75	154.25	160.5	
16	6/24/17	153	160	160	162	158	161	161	161	150	153	158	160	150	148	143	151	152.75	155.5	155.5	158.5	Turn
17	6/25/17																					
18	6/26/17	159	162	158	149	156	159	150	144	162	164	159	149	151	158	155	142	157	160.75	155.5	146	
19	6/27/17	160	162	156	145	153	158	147	140	159	166	161	150	164	162	156	140	159	162	155	143.75	
20	6/28/17	161	163	163	162	160	162	162	161	162	168	170	170	158	160	158	152	160.25	163.25	163.25	161.25	
21	6/29/17	151	165	163	152	166	168	164	159	154	158	158	144	145	161	161	150	154	163	161.5	151.25	
22	6/30/17	132	140	143	150	140	143	151	153	133	142	152	160	138	143	148	150	135.75	142	148.5	153.25	
23	7/1/17	132	141	144	151	140	143	151	153	132	140	150	160	134	140	148	150	134.5	141	148.25	153.5	
24	7/2/17																					
25	7/3/17	148	158	161	160	150	157	159	162	140	148	156	152	144	152	151	146	145.5	153.75	156.75	155	Turn
26	7/4/17																					
27	7/5/17	152	160	158	158	142	142	148	148	143	151	152	160	151	152	150	142	147	151.25	152	152	
28	7/6/17	152	160	158	153	142	150	151	153	145	155	156	160	152	154	150	148	147.75	154.75	153.75	153.5	
29	7/7/17	160	162	163	163	158	160	160	161	151	158	160	160	153	158	152	151	155.5	159.5	158.75	158.75	
30	7/8/17	161	160	163	165	160	160	160	161	150	160	160	160	155	160	155	150	156.5	160	159.5	159	
31	7/9/17																					
32	7/10/17	150	152	153	153	148	152	153	158	143	150	152	151	152	158	158	158	148.25	153	154	155	

Attachment D

MSAP Process Temperature Chart Windrow# 17-6-12																						
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	6/13/17	156	150	138	120	150	135	120	111	160	146	128	119	116	104	98	95	145.5	133.75	121	111.25	
2	6/14/17	150	151	141	128	150	139	131	122	160	153	134	130	131	132	110	100	147.75	143.75	129	120	
3	6/15/17	149	156	146	138	148	146	138	132	160	159	140	134	138	132	138	130	148.75	148.25	140.5	133.5	
4	6/16/17	143	150	150	151	142	150	148	148	138	141	143	140	143	148	148	142	141.5	147.25	147.25	145.25	
5	6/17/17	142	151	153	153	140	142	141	140	158	160	160	152	140	144	142	138	145	149.25	149	145.75	
6	6/18/17																					
7	6/19/17	155	158	152	144	158	156	144	133	154	158	152	135	144	140	148	140	152.75	153	149	138	
8	6/20/17	134	158	160	150	158	150	139	133	150	156	152	142	147	142	148	142	147.25	151.5	149.75	141.75	
9	6/21/17	133	138	140	138	149	140	142	143	143	150	150	152	144	132	150	146	142.25	140	145.5	144.75	
10	6/22/17	138	140	138	132	143	150	151	153	143	152	153	160	143	148	150	151	141.75	147.5	148	149	
11	6/23/17	140	148	140	141	140	142	150	151	143	150	152	160	148	150	151	148	142.75	147.5	148.25	150	
12	6/24/17	142	148	143	143	140	142	148	151	143	152	152	150	150	153	151	148	143.75	148.75	148.5	148	
13	6/25/17																					
14	6/26/17	160	167	170	162	169	166	153	145	164	170	166	157	154	154	140	134	161.75	164.25	157.25	149.5	Turn
15	6/27/17	165	171	171	163	168	166	155	143	168	168	161	153	156	152	143	134	164.25	164.25	157.5	148.25	
16	6/28/17	158	160	160	152	148	158	160	160	132	138	143	160	148	152	153	153	146.5	152	154	156.25	
17	6/29/17	156	155	146	137	152	164	169	160	159	164	164	156	151	168	171	168	154.5	162.75	162.5	155.25	
18	6/30/17	153	168	168	163	158	161	161	160	158	160	162	163	152	158	158	150	155.25	161.75	162.25	159	
19	7/1/17	151	168	166	163	155	160	161	160	155	160	161	163	150	155	158	150	152.75	160.75	161.5	159	
20	7/2/17																					
21	7/3/17	148	162	164	162	150	156	162	161	156	163	166	165	148	152	156	154	150.5	158.25	162	160.5	
22	7/4/17																					
23	7/5/17	150	162	162	161	154	158	160	162	162	168	171	171	146	146	151	152	153	158.5	161	161.5	Turn
24	7/6/17	153	160	161	160	160	162	168	171	161	163	170	172	142	148	148	151	154	158.25	161.75	163.5	
25	7/7/17	138	142	150	153	168	170	170	171	153	160	158	158	143	150	150	148	150.5	155.5	157	157.5	
26	7/8/17	139	142	152	155	168	170	170	171	155	160	160	161	148	152	152	155	152.5	156	158.5	160.5	
27	7/9/17																					
28	7/10/17	150	153	158	152	142	143	141	140	152	160	162	168	158	150	150	151	150.5	151.5	152.75	152.75	Turn
29	7/11/17	150	156	163	164	151	158	161	166	152	159	164	165	161	158	152	151	153.5	157.75	160	161.5	
30	7/12/17	148	160	170	170	153	160	164	170	154	158	165	168	164	164	152	150	154.75	160.5	162.75	164.5	
31	7/13/17	138	150	152	158	132	141	148	152	140	143	150	153	132	138	142	143	135.5	143	148	151.5	
32	7/14/17	140	148	150	160	140	155	158	160	141	150	160	161	140	141	150	157	140.25	148.5	154.5	159.5	
33	7/15/17	145	148	150	165	145	156	160	163	141	155	160	163	140	143	150	151	142.75	150.5	155	160.5	

Attachment E

MSAP Process Temperature Chart Windrow# 17-6-15																						
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	6/16/17	132	130	133	138	138	142	148	151	132	132	133	133	120	118	116	114	130.5	130.5	132.5	134	
2	6/17/17	132	131	130	123	138	141	142	142	134	120	119	119	132	120	120	120	134	128	127.75	126	
3	6/18/17																					
4	6/19/17	154	146	135	124	158	154	138	140	154	147	122	105	162	168	144	131	157	153.75	134.75	125	
5	6/20/17	160	158	140	131	156	158	151	144	150	152	141	131	158	161	158	143	156	157.25	147.5	137.25	
6	6/21/17	132	148	140	143	132	138	138	141	140	141	138	132	140	138	136	136	136	141.25	138	138	
7	6/22/17	133	138	150	148	132	138	140	140	141	141	141	138	142	138	138	132	137	138.75	142.25	139.5	
8	6/23/17	150	155	160	161	140	150	150	151	150	151	153	150	140	148	140	141	145	151	150.75	150.75	
9	6/24/17	153	158	158	161	143	150	150	152	150	151	153	151	142	148	143	141	147	151.75	151	151.25	
10	6/25/17																					
11	6/26/17	150	147	148	137	150	146	138	132	163	160	151	139	157	152	142	137	155	151.25	144.75	136.25	
12	6/27/17	154	150	146	137	153	149	140	132	159	152	145	138	150	147	143	136	154	149.5	143.5	135.75	
13	6/28/17	151	152	151	151	148	150	150	148	151	153	158	158	151	152	153	152	150.25	151.75	153	152.25	
14	6/29/17	168	155	153	146	157	159	148	140	162	163	151	144	156	156	152	144	160.75	158.25	151	143.5	
15	6/30/17	138	141	143	142	132	138	142	152	148	152	158	158	132	138	140	141	137.5	142.25	145.75	148.25	
16	7/1/17	136	140	144	141	132	138	140	150	148	150	158	160	132	138	140	141	137	141.5	145.5	148	
17	7/2/17																					
18	7/3/17	150	156	156	152	148	150	151	148	152	158	157	156	142	146	144	140	148	152.5	152	149	Turn
19	7/4/17																					
20	7/5/17	142	150	151	152	143	150	148	150	133	140	142	143	132	138	141	143	137.5	144.5	145.5	147	
21	7/6/17	146	150	150	151	140	148	150	138	136	141	142	144	136	140	142	142	139.5	144.75	146	143.75	
22	7/7/17	151	152	151	150	132	140	151	158	140	142	142	143	138	141	143	142	140.25	143.75	146.75	148.25	
23	7/8/17	150	155	150	150	132	140	152	160	140	144	144	150	139	144	150	141	140.25	145.75	149	150.25	
24	7/9/17																					
25	7/10/17	158	161	163	168	150	158	160	161	143	151	152	152	140	148	150	148	147.75	154.5	156.25	157.25	Turn
26	7/11/17	151	158	156	151	148	152	154	153	151	153	158	158	151	152	153	152	150.25	153.75	155.25	153.5	
27	7/12/17	144	155	154	148	142	148	146	140	166	163	159	152	148	152	149	146	150	154.5	152	146.5	
28	7/13/17	150	158	160	162	150	160	163	160	141	143	143	148	142	152	152	153	145.75	153.25	154.5	155.75	
29	7/14/17	141	150	150	150	148	155	160	160	140	141	145	150	138	140	141	140	141.75	146.5	149	150	
30	7/15/17	143	151	153	158	150	158	160	162	140	143	148	151	138	141	143	143	142.75	148.25	151	153.5	
31	7/16/17																					
32	7/17/17	159	162	160	156	140	152	152	143	138	140	140	139	136	138	140	138	143.25	148	148	144	
33	7/18/17	157	160	166	167	158	161	164	167	162	164	165	163	150	152	152	150	156.75	159.25	161.75	161.75	

Attachment F

MSAP Process Temperature Chart Windrow# 17-6-20																						
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	6/21/17	143	150	150	150	141	142	143	148	143	150	148	150	140	148	150	152	141.75	147.5	147.75	150	
2	6/22/17	140	148	152	153	138	143	148	151	132	142	143	152	138	140	140	133	137	143.25	145.75	147.25	
3	6/23/17	160	160	162	161	150	160	160	160	148	150	151	151	148	150	151	153	151.5	155	156	156.25	
4	6/24/17	160	162	162	161	153	158	160	160	148	151	153	151	150	152	153	153	152.75	155.75	157	156.25	
5	6/25/17																					
6	6/26/17	158	162	161	160	160	162	160	158	160	164	162	158	156	162	164	156	158.5	162.5	161.75	158	
7	6/27/17	159	162	162	160	159	162	160	159	161	164	162	158	152	164	164	156	157.75	163	162	158.25	
8	6/28/17	156	163	162	161	158	161	160	160	158	162	161	158	150	164	160	156	155.5	162.5	160.75	158.75	
9	6/29/17	154	164	163	162	152	161	161	160	156	162	160	158	148	166	160	156	152.5	163.25	161	159	
10	6/30/17	152	156	158	153	146	146	154	157	155	148	158	156	149	162	158	152	150.5	153	157	154.5	
11	7/1/17	150	160	160	161	150	160	158	160	145	150	150	150	151	160	150	150	149	157.5	154.5	155.25	
12	7/2/17																					
13	7/3/17	151	155	150	156	144	156	152	154	152	159	160	160	150	150	141	145	149.25	155	150.75	153.75	
14	7/4/17																					
15	7/5/17	143	150	151	153	148	151	152	152	142	151	153	158	140	142	143	148	143.25	148.5	149.75	152.75	
16	7/6/17	138	140	140	140	132	138	140	140	141	146	148	149	140	143	143	144	137.75	141.75	142.75	143.25	
17	7/7/17	143	143	142	142	143	148	143	141	140	142	140	138	142	143	143	141	142	144	142	140.5	
18	7/8/17	145	141	141	140	145	150	150	140	140	141	140	138	144	148	148	140	143.5	145	144.75	139.5	
19	7/9/17																					
20	7/10/17	150	165	164	160	141	160	160	159	140	160	164	160	140	158	162	161	142.75	160.75	162.5	160	Turn
21	7/11/17	150	162	164	162	143	160	161	159	132	159	161	161	147	159	160	152	143	160	161.5	158.5	
22	7/12/17	149	161	161	162	162	162	145	142	156	161	162	159	156	168	169	159	155.75	163	159.25	155.5	
23	7/13/17	152	160	160	161	150	152	152	150	151	153	158	160	150	153	158	160	150.75	154.5	157	157.75	
24	7/14/17	140	150	150	151	140	148	150	151	150	140	143	150	143	140	143	150	143.25	144.5	146.5	150.5	
25	7/15/17	142	150	150	151	148	150	151	151	142	148	148	150	133	141	143	151	141.25	147.25	148	150.75	
26	7/16/17																					
27	7/17/17	157	163	168	168	160	164	168	168	162	165	167	163	161	158	152	146	160	162.5	163.75	161.25	Turn
28	7/18/17	148	156	158	156	142	148	149	148	132	137	139	139	133	138	141	140	138.75	144.75	146.75	145.75	
29	7/19/17	142	148	148	151	150	158	162	163	158	162	162	163	141	143	148	150	147.75	152.75	155	156.75	
30	7/20/17	140	150	152	153	150	158	161	163	152	158	161	162	140	143	148	150	145.5	152.25	155.5	157	
31	7/21/17	138	144	141	140	136	140	142	140	136	140	142	140	132	142	142	140	135.5	141.5	141.75	140	
32	7/22/17	138	145	144	143	136	142	143	141	135	140	143	142	130	141	141	143	134.75	142	142.75	142.25	
33	7/23/17																					

Attachment G

MSAP Process Temperature Chart Windrow# 17-6-23																						
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	6/24/17	140	148	150	152	141	143	132	131	132	132	130	122	141	138	132	133	138.5	140.25	136	134.5	
2	6/25/17																					
3	6/26/17	148	156	152	148	147	152	141	138	152	148	140	130	146	153	142	138	148.25	152.25	143.75	138.5	
4	6/27/17	145	152	152	150	148	152	148	149	150	148	146	132	154	150	148	146	149.25	150.5	148.5	144.25	
5	6/28/17	141	148	151	151	144	151	152	152	150	148	148	143	151	152	152	150	146.5	149.75	150.75	149	
6	6/29/17	136	144	139	145	134	144	155	158	132	142	149	154	132	143	151	154	133.5	143.25	148.5	152.75	
7	6/30/17	132	132	138	146	132	140	149	150	133	140	142	152	132	141	146	149	132.25	138.25	143.75	149.25	
8	7/1/17	132	132	136	131	132	132	136	132	131	137	132	136	134	142	145	148	132.25	135.75	137.25	136.75	
9	7/2/17																					
10	7/3/17	136	141	142	142	134	148	143	141	140	142	145	146	142	143	148	146	138	143.5	144.5	143.75	
11	7/4/17																					
12	7/5/17	138	142	148	151	132	138	142	148	148	151	153	152	150	152	152	151	142	145.75	148.75	150.5	
13	7/6/17	141	142	141	140	132	133	138	138	132	138	138	140	138	140	140	140	135.75	138.25	139.25	139.5	
14	7/7/17	150	152	151	148	142	148	148	142	150	153	158	160	148	150	143	143	147.5	150.75	150	148.25	
15	7/8/17	151	155	150	145	140	148	148	145	152	159	160	160	150	150	141	145	148.25	153	149.75	148.75	
16	7/9/17																					
17	7/10/17	160	162	162	161	158	161	160	160	153	158	153	151	142	151	152	153	153.25	158	156.75	156.25	
18	7/11/17	156	162	162	162	162	158	158	159	150	158	156	151	144	151	150	150	153	157.25	156.5	155.5	
19	7/12/17	156	160	171	170	141	144	139	138	146	152	152	151	148	150	149	145	147.75	151.5	152.75	151	
20	7/13/17	158	161	161	160	142	146	142	151	158	160	160	161	148	153	153	158	151.5	155	154	157.5	Turn
21	7/14/17	140	140	145	152	138	141	140	140	140	148	150	151	138	142	141	144	139	142.75	144	146.75	
22	7/15/17	140	142	148	151	138	140	140	141	141	148	151	152	140	138	142	143	139.75	142	145.25	146.75	
23	7/16/17																					
24	7/17/17	142	150	154	152	142	146	149	148	146	150	152	149	143	148	146	144	143.25	148.5	150.25	148.25	
25	7/18/17	156	156	153	147	142	142	140	138	143	146	146	142	144	146	143	138	146.25	147.5	145.5	141.25	
26	7/19/17	144	152	152	148	138	140	141	142	141	143	150	151	150	153	153	158	143.25	147	149	149.75	
27	7/20/17	142	148	151	150	138	142	143	143	137	142	142	148	158	160	160	158	143.75	148	149	149.75	Turn
28	7/21/17	140	143	150	150	132	140	142	143	138	142	142	143	132	141	143	148	135.5	141.5	144.25	146	
29	7/22/17	141	144	151	150	133	142	143	143	140	143	143	145	133	142	144	150	136.75	142.75	145.25	147	
30	7/23/17																					
31	7/24/17	138	140	148	146	132	141	144	145	153	158	158	160	130	133	140	141	138.25	143	147.5	148	
32	7/25/17	149	152	153	152	137	140	145	148	142	145	146	146	146	146	146	144	143.5	145.75	147.5	147.5	Turn
33	7/26/17	143	150	155	162	148	152	156	150	150	153	155	160	130	132	136	141	142.75	146.75	150.5	153.25	

Attachment H

MSAP Process Temperature Chart Windrow# 17-6-27																						
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	6/28/17	143	150	152	153	140	143	143	142	148	152	151	151	140	142	140	132	142.75	146.75	146.5	144.5	
2	6/29/17	139	147	154	152	136	139	150	154	144	148	146	143	132	136	138	140	137.75	142.5	147	147.25	
3	6/30/17	138	142	151	151	141	150	152	152	140	143	151	153	138	141	141	142	139.25	144	148.75	149.5	
4	7/1/17	138	140	150	151	138	150	151	155	136	140	150	151	138	140	141	144	137.5	142.5	148	150.25	
5	7/2/17																					
6	7/3/17	146	155	156	158	144	150	156	156	144	150	160	155	136	140	150	156	142.5	148.75	155.5	156.25	
7	7/4/17	144	154	157	156	142	148	156	156	142	150	161	157	136	142	152	158	141	148.5	156.5	156.75	
8	7/5/17	144	152	159	155	145	156	163	158	146	159	162	156	142	160	163	162	144.25	156.75	161.75	157.75	
9	7/6/17	140	150	158	156	144	151	159	156	148	156	160	155	141	158	160	160	143.25	153.75	159.25	156.75	
10	7/7/17	138	142	143	143	142	143	143	154	143	151	152	152	143	148	150	148	141.5	146	147	149.25	
11	7/8/17	138	145	150	144	145	145	143	150	144	150	155	155	144	150	150	152	142.75	147.5	149.5	150.25	
12	7/9/17																					
13	7/10/17	148	151	151	152	143	148	150	151	148	152	158	161	158	161	160	160	149.25	153	154.75	156	
14	7/11/17	146	152	149	150	153	156	156	152	149	157	156	160	150	160	161	162	149.5	156.25	155.5	156	
15	7/12/17	148	150	148	146	158	158	152	150	160	157	153	158	153	156	154	161	154.75	155.25	151.75	153.75	Turn
16	7/13/17	141	150	150	148	150	152	153	153	161	160	158	152	158	161	163	168	152.5	155.75	156	155.25	
17	7/14/17	150	151	155	158	155	160	158	158	160	160	161	160	161	163	161	160	156.5	158.5	158.75	159	
18	7/15/17	148	152	159	158	158	160	158	158	160	163	162	161	161	163	162	160	156.75	159.5	160.25	159.25	
19	7/16/17																					
20	7/17/17	161	162	156	145	158	162	162	156	163	164	162	157	158	157	154	147	160	161.25	158.5	151.25	Turn
21	7/18/17	162	160	154	146	150	157	161	158	164	163	160	152	158	158	152	146	158.5	159.5	156.75	150.5	
22	7/19/17	140	143	148	150	150	152	152	151	142	150	150	150	150	152	153	158	145.5	149.25	150.75	152.25	
23	7/20/17	152	153	153	158	153	161	161	161	158	160	160	161	140	143	143	148	150.75	154.25	154.25	157	
24	7/21/17	148	153	158	160	142	158	161	162	150	158	160	161	142	152	158	160	145.5	155.25	159.25	160.75	
25	7/22/17	146	150	156	160	141	155	160	162	151	156	158	163	143	151	160	161	145.25	153	158.5	161.5	
26	7/23/17																					
27	7/24/17	150	152	152	153	150	152	153	160	132	138	140	142	150	153	158	160	145.5	148.75	150.75	153.75	
28	7/25/17	156	161	160	156	149	153	158	161	162	164	164	160	159	159	156	150	156.5	159.25	159.5	156.75	
29	7/26/17	143	146	152	155	142	145	151	158	148	150	160	161	153	155	161	162	146.5	149	156	159	
30	7/27/17	150	158	162	161	143	151	158	162	152	160	161	161	142	152	158	160	146.75	155.25	159.75	161	
31	7/28/17	138	143	152	160	151	158	160	160	143	158	160	162	142	151	158	161	143.5	152.5	157.5	160.75	
32	7/29/17	150	151	158	161	144	150	152	155	142	151	158	162	140	148	152	153	144	150	155	157.75	
33	7/30/17																					
34	7/31/17	152	153	153	158	153	161	161	161	158	160	160	160	140	143	143	148	150.75	154.25	154.25	156.75	

Attachment I

MSAP Process Temperature Chart Windrow# 17-6-30																						
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	7/1/17	160	158	138	124	150	141	122	118	150	156	138	112	150	152	118	114	152.5	151.75	129	117	
2	7/2/17																					
3	7/3/17	156	159	142	128	156	148	138	124	156	160	138	120	160	164	140	132	157	157.75	139.5	126	
4	7/4/17	152	163	154	140	156	158	146	140	158	159	150	141	158	163	151	141	156	160.75	150.25	140.5	
5	7/5/17	148	162	154	142	152	158	150	141	160	164	148	140	158	162	152	140	154.5	161.5	151	140.75	
6	7/6/17	144	160	158	153	150	160	158	150	159	161	153	151	152	154	150	148	151.25	158.75	154.75	150.5	
7	7/7/17	137	133	133	138	138	140	141	142	138	140	141	142	132	131	148	146	136.25	136	140.75	142	
8	7/8/17	132	133	133	140	132	140	142	142	138	140	141	143	132	133	149	145	133.5	136.5	141.25	142.5	
9	7/9/17																					
10	7/10/17	132	140	141	142	141	148	150	151	138	140	143	150	141	143	148	143	138	142.75	145.5	146.5	
11	7/11/17	133	138	137	141	140	146	148	150	136	140	140	150	142	146	148	140	137.75	142.5	143.25	145.25	
12	7/12/17	134	134	131	138	139	140	146	148	134	138	137	148	154	150	149	137	140.25	140.5	140.75	142.75	
13	7/13/17	134	135	131	138	136	138	141	142	133	135	135	146	132	133	150	138	133.75	135.25	139.25	141	
14	7/14/17	132	136	135	140	132	135	140	141	132	132	135	138	141	145	150	150	134.25	137	140	142.25	
15	7/15/17	132	138	138	140	138	140	142	141	132	132	133	138	142	148	150	150	136	139.5	140.75	142.25	
16	7/16/17																					
17	7/17/17	132	131	138	140	138	140	140	132	132	134	132	133	134	137	137	136	134	135.5	136.75	135.25	
18	7/18/17	132	133	138	138	141	138	134	137	133	133	134	133	135	135	134	131	135.25	134.75	135	134.75	
19	7/19/17	132	136	138	138	140	142	141	142	132	134	136	136	132	133	138	140	134	136.25	138.25	139	
20	7/20/17	132	140	140	141	141	148	151	153	132	133	138	138	138	142	150	152	135.75	140.75	144.75	146	
21	7/21/17	138	140	141	140	152	158	160	162	132	133	132	133	148	152	152	153	142.5	145.75	146.25	147	Turn
22	7/22/17	140	141	143	144	150	153	158	161	133	135	134	133	140	151	153	153	140.75	145	147	147.75	
23	7/23/17																					
24	7/24/17	135	132	132	133	146	148	152	156	133	136	134	134	140	142	141	141	138.5	139.5	139.75	141	
25	7/25/17	132	132	132	135	136	138	137	149	133	136	134	134	136	136	135	134	134.25	135.5	134.5	138	
26	7/26/17	132	138	140	141	141	143	143	143	138	140	141	141	137	138	138	140	137	139.75	140.5	141.25	
27	7/27/17	133	140	141	141	138	141	141	142	138	140	140	136	132	138	138	140	135.25	139.75	140	139.75	
28	7/28/17	133	138	141	141	138	142	132	136	133	138	138	140	141	143	143	148	136.25	140.25	138.5	141.25	
29	7/29/17	132	133	138	140	138	143	151	156	132	133	133	136	138	148	152	153	135	139.25	143.5	146.25	Turn
30	7/30/17																					
31	7/31/17	138	141	141	142	133	140	140	141	131	133	133	138	133	138	138	140	133.75	138	138	140.25	

Attachment J

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 17-7-5	
Windrow Construction:			Date Commenced: 7-1-17		Date Completed: 7-5-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
7/1/17	Oscar Ochoa	23.48	30.52	40.00	16.00	
7/1/17	Oscar Ochoa	20.53	26.69	40.00	16.00	
7/1/17	Oscar Ochoa	22.72	29.54	40.00	16.00	44
7/3/17	Jerry Devoe	22.63	29.42	40.00	16.00	
7/3/17	Jerry Devoe	22.46	29.20	40.00	16.00	
7/3/17	Mike Bayne	22.28	28.96	40.00	16.00	44
7/5/17	Mike Bayne	22.47	29.21	40.00	16.00	
7/5/17	Mike Bayne	22.11	28.74	40.00	16.00	
7/5/17	Mike Bayne	22.45	29.19	40.00	16.00	48
Totals		201.13	261.47	360.00	144.00	136.00
Windrow Construction ratio:		2.45 /1				
Note: Yard waste yards = number of buckets * 4.00						

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

Attachment K

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 17-7-10	
Windrow Construction:			Date Commenced: 7-6-17	Date Completed: 7-10-17		
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
7/6/17	Mike Bayne	22.45	29.19	40.00	16.00	
7/6/17	Mike Bayne	20.70	26.91	40.00	16.00	
7/6/17	Mike Bayne	22.37	29.08	40.00	16.00	44
7/7/17	Jerry Devoe	22.99	29.89	40.00	16.00	
7/7/17	Jerry Devoe	21.99	28.59	40.00	16.00	
7/7/17	Jerry Devoe	22.93	29.81	40.00	16.00	44
7/8/17	Oscar Ochoa	19.81	25.75	40.00	16.00	
7/8/17	Oscar Ochoa	23.05	29.97	40.00	16.00	32
7/10/17	Mike Bayne	22.90	29.77	40.00	16.00	
7/10/17	Mike Bayne	22.19	28.85	40.00	16.00	32
Totals		221.38	287.79	400.00	160.00	152.00
Windrow Construction ratio:		2.47 /1				

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	

Attachment L

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 17-7-13	
Windrow Construction:			Date Commenced: 7-10-17		Date Completed: 7-13-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
7/10/17	Mike Bayne	22.92	29.80	40.00	16.00	16
7/11/17	Mike Bayne	21.72	28.24	40.00	16.00	
7/11/17	Mike Bayne	19.24	25.01	40.00	16.00	
7/11/17	Mike Bayne	22.21	28.87	40.00	16.00	44
7/12/17	Mike Bayne	22.30	28.99	40.00	16.00	
7/12/17	Mike Bayne	18.67	24.27	40.00	16.00	
7/12/17	Mike Bayne	22.64	29.43	40.00	16.00	
7/12/17	Mike Bayne	22.19	28.85	40.00	16.00	56
7/13/17	Mike Bayne	22.37	29.08	40.00	16.00	
7/13/17	Mike Bayne	22.31	29.00	40.00	16.00	20
Totals		216.57	281.54	400.00	160.00	136.00
Windrow Construction ratio:		2.47 /1				

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	

Attachment M

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 17-7-17	
Windrow Construction:			Date Commenced: 7-13-17		Date Completed: 7-17-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
7/13/17	Mike Bayne	22.34	29.04	56.00	16.00	16
7/14/17	Jerry Devoe	22.49	29.24	40.00	16.00	
7/14/17	Jerry Devoe	21.03	27.34	40.00	16.00	
7/14/17	Jerry Devoe	22.56	29.33	40.00	16.00	44
7/15/17	Jerry Devoe	18.35	23.86	40.00	16.00	
7/15/17	Jerry Devoe	19.16	24.91	40.00	16.00	
7/15/17	Jerry Devoe	22.33	29.03	40.00	16.00	44
7/17/17	Jerry Devoe	22.49	29.24	40.00	16.00	24
Totals		170.75	221.98	336.00	128.00	128.00
Windrow Construction ratio:		2.67 /1				

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	142	138	148	144	140	149	157	142	134	137.75	145.75	142.5	138	
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	

Attachment N

Hillsborough County Composting - Monitoring Sheet (MSAP Method)				Windrow # 17-7-20		
Windrow Construction:			Date Commenced: 7-17-17		Date Completed: 7-20-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
7/17/17	Mike Bayne	21.08	27.40	56.00		20
7/18/17	Mike Bayne	22.41	29.13	56.00		
7/18/17	Mike Bayne	22.44	29.17	56.00		
7/18/17	Mike Bayne	21.74	28.26	56.00		44
7/19/17	Mike Bayne	22.53	29.29	56.00		
7/19/17	Mike Bayne	22.46	29.20	56.00		
7/19/17	Mike Bayne	22.06	28.68	56.00		44
7/20/17	Mike Bayne	22.30	28.99	56.00		20
Totals		177.02	230.13	448.00	0.00	128.00
Windrow Construction ratio:		2.50 /1				

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	

Attachment O

Hillsborough County Composting - Monitoring Sheet (MSAP Method)					Windrow # 17-7-24	
Windrow Construction:			Date Commenced: 7-21-17		Date Completed: 7-24-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
7/20/17	Mike Bayne	22.46	29.20	56.00		20
7/21/17	Jerry Devoe	22.41	29.13	56.00		
7/21/17	Jerry Devoe	22.88	29.74	56.00		
7/21/17	Jerry Devoe	23.43	30.46	56.00		44
7/22/17	Jerry Devoe	22.53	29.29	56.00		
7/22/17	Jerry Devoe	20.68	26.88	56.00		24
7/24/17	Mike Bayne	20.44	26.57	56.00		
7/24/17	Mike Bayne	23.65	30.75	56.00		
7/24/17	Mike Bayne	21.90	28.47	56.00		44
Totals		200.38	260.49	504.00	0.00	132.00
Windrow Construction ratio:		2.44 /1				

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	

Attachment P

Hillsborough County Composting - Monitoring Sheet (MSAP Method)				Windrow # 17-7-28		
Windrow Construction:			Date Commenced: 7-25-17		Date Completed: 7-28-17	
Date	Operator Name	Biosolids (tons)	Biosolids (yards)	Yard Waste (yards)	Overs (yards)	Cover (yards)
7/25/17	Mike Bayne	22.46	29.20	56.00		20
7/25/17	Jerry Devoe	22.41	29.13	56.00		
7/25/17	Jerry Devoe	22.88	29.74	56.00		
7/26/17	Jerry Devoe	23.43	30.46	56.00		44
7/26/17	Jerry Devoe	22.53	29.29	56.00		
7/26/17	Jerry Devoe	20.68	26.88	56.00		24
7/27/17	Mike Bayne	20.44	26.57	56.00		
7/27/17	Mike Bayne	23.65	30.75	56.00		
7/28/17	Mike Bayne	21.90	28.47	56.00		44
Totals		200.38	260.49	504.00	0.00	132.00
Windrow Construction ratio:		2.44 /1				

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	