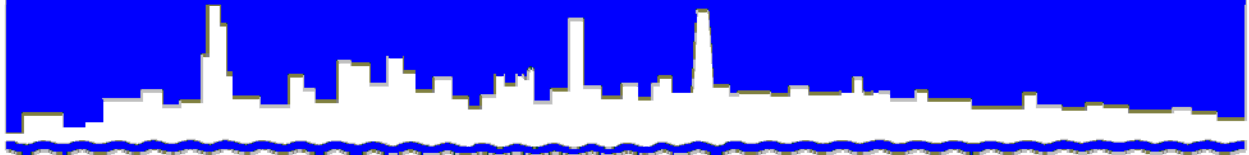


Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

*MONITORING AND RESEARCH
DEPARTMENT*

REPORT NO. 16-37

CONTROLLED SOLIDS DISTRIBUTION REPORT

FOR THIRD QUARTER 2016

December 2016

Metropolitan Water Reclamation District of Greater Chicago

100 East Erie Street Chicago, Illinois 60611-3154 f: 312.751.5194 312.751.5190

THOMAS C. GRANATO, Ph.D., BCES

Director of Monitoring and Research

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December 7, 2016

Mr. S. Alan Keller, P.E.
Manager, Permit Section
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

Dear Mr. Keller:

Subject: Metropolitan Water Reclamation District of Greater Chicago – Controlled Solids Distribution Program Illinois Environmental Protection Agency Permit No. 2015-SC-59620, Third Quarter (July – September 2016)

This letter transmits information and data for the Metropolitan Water Reclamation District of Greater Chicago – Controlled Solids Distribution Program for the third quarter (July – September 2016), as required by Illinois Environmental Protection Agency Permit No. 2015-SC-59620.

Sludge flow schematic diagrams for solids processed during April – June 2016 are shown in Figure 1 – John E. Egan Water Reclamation Plant (WRP), Figure 2 – Calumet WRP, and Figure 3 – Stickney WRP.

Biosolids were distributed to 53 sites during the third quarter of 2016. The user information reports for these sites are presented in Tables 1 and 2, and the analyses of biosolids delivered to these sites are presented in Tables 3 and 4.

Very truly yours,

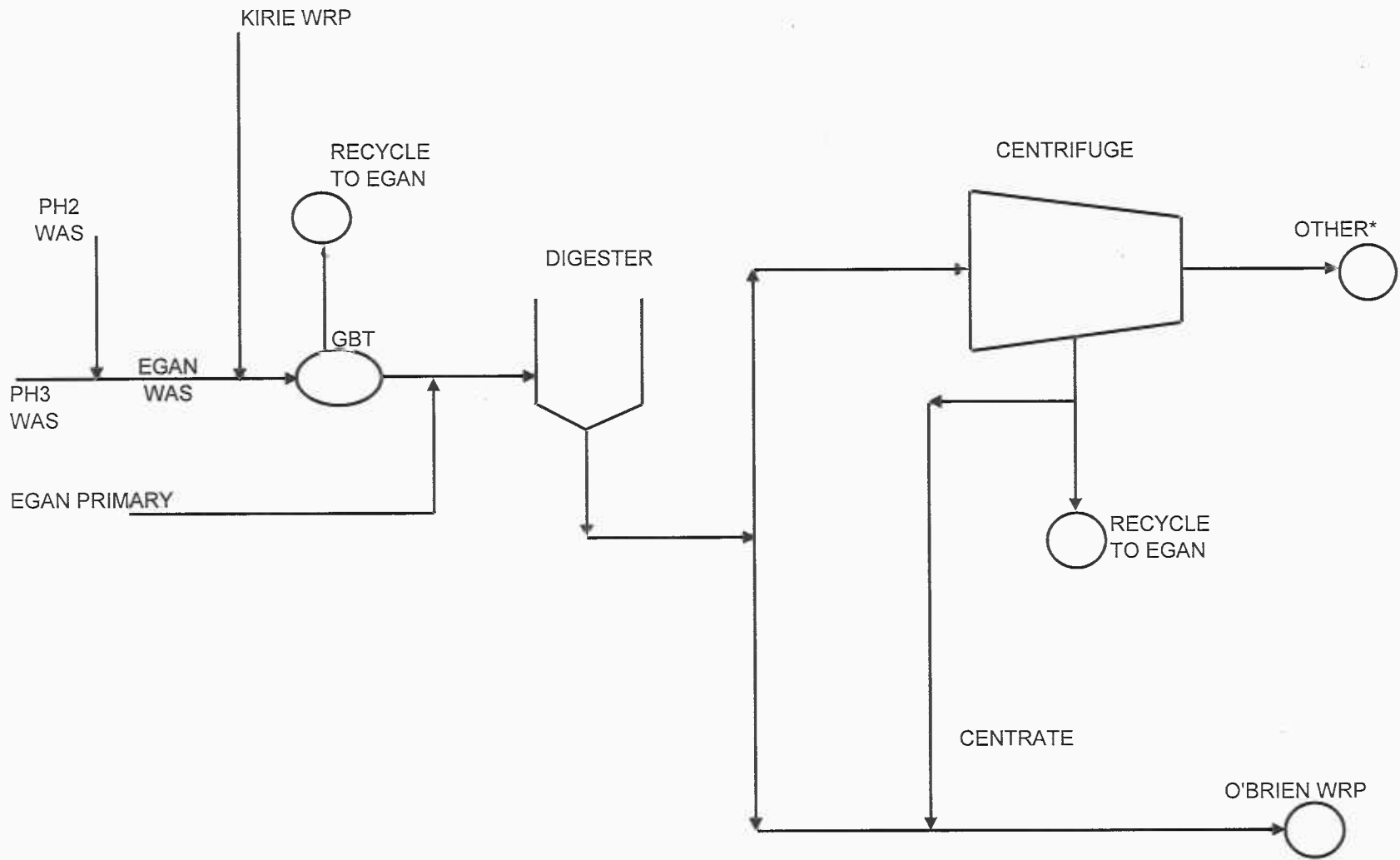
Thomas C. Granato, Ph.D., BCES
Director
Monitoring and Research

TCG:HZ:OO:cm

Attachments

cc/att: Mr. V. Aistars (USEPA)/Mr. J. Patel (IEPA)
Mr. J. Murray/Mr. B. Garelli/Mr. T. Conway
Mr. D. Collins/Dr. H. Zhang/Dr. A. Cox
Dr. G. Tian/Dr. O. Oladeji

FIGURE 1: JOHN E. EGAN WATER RECLAMATION PLANT OPERATIONAL FLOW CHART FOR THIRD QUARTER 2016



*Sent to either Stickney or Calumet drying sites for further processing or storage prior to farmland application.

FIGURE 2: CALUMET WATER RECLAMATION PLANT OPERATIONAL FLOWCHART FOR THIRD QUARTER 2016

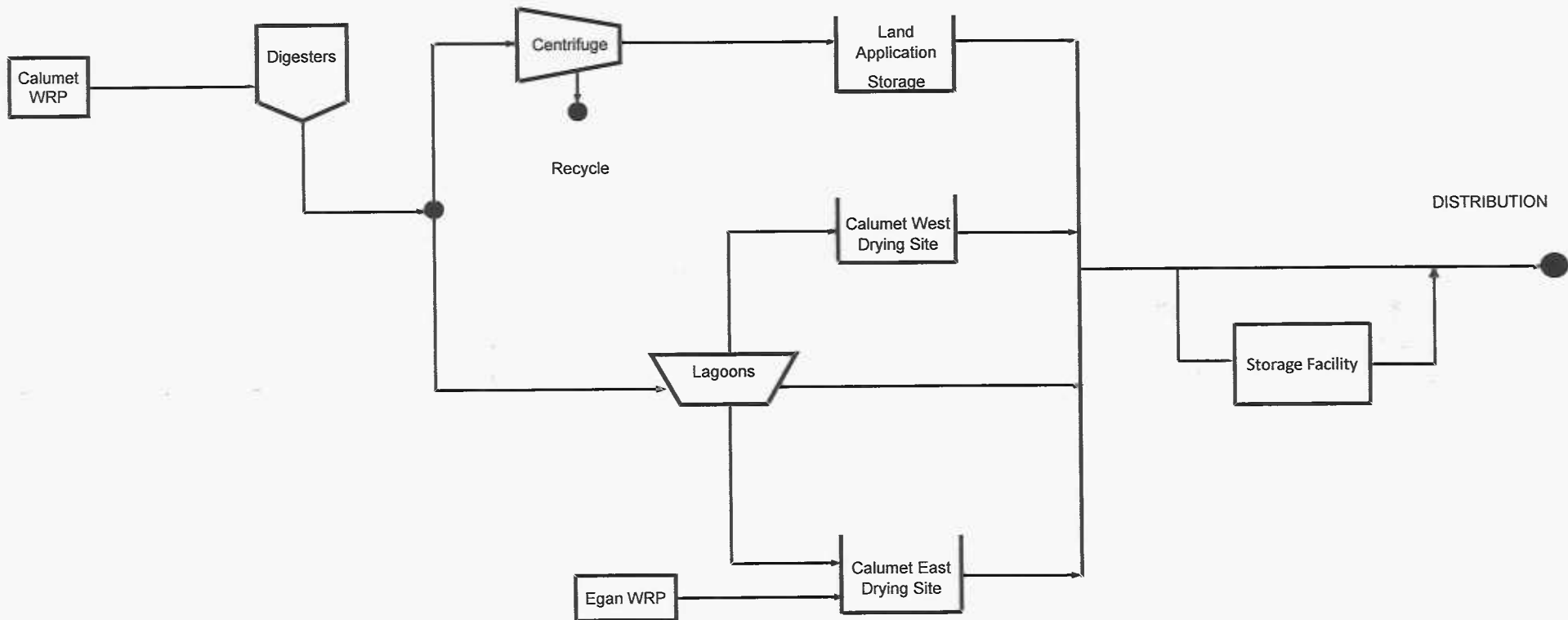


FIGURE 3: STICKNEY WATER RECLAMATION PLANT OPERATIONAL FLOW CHART FOR THIRD QUARTER 2016

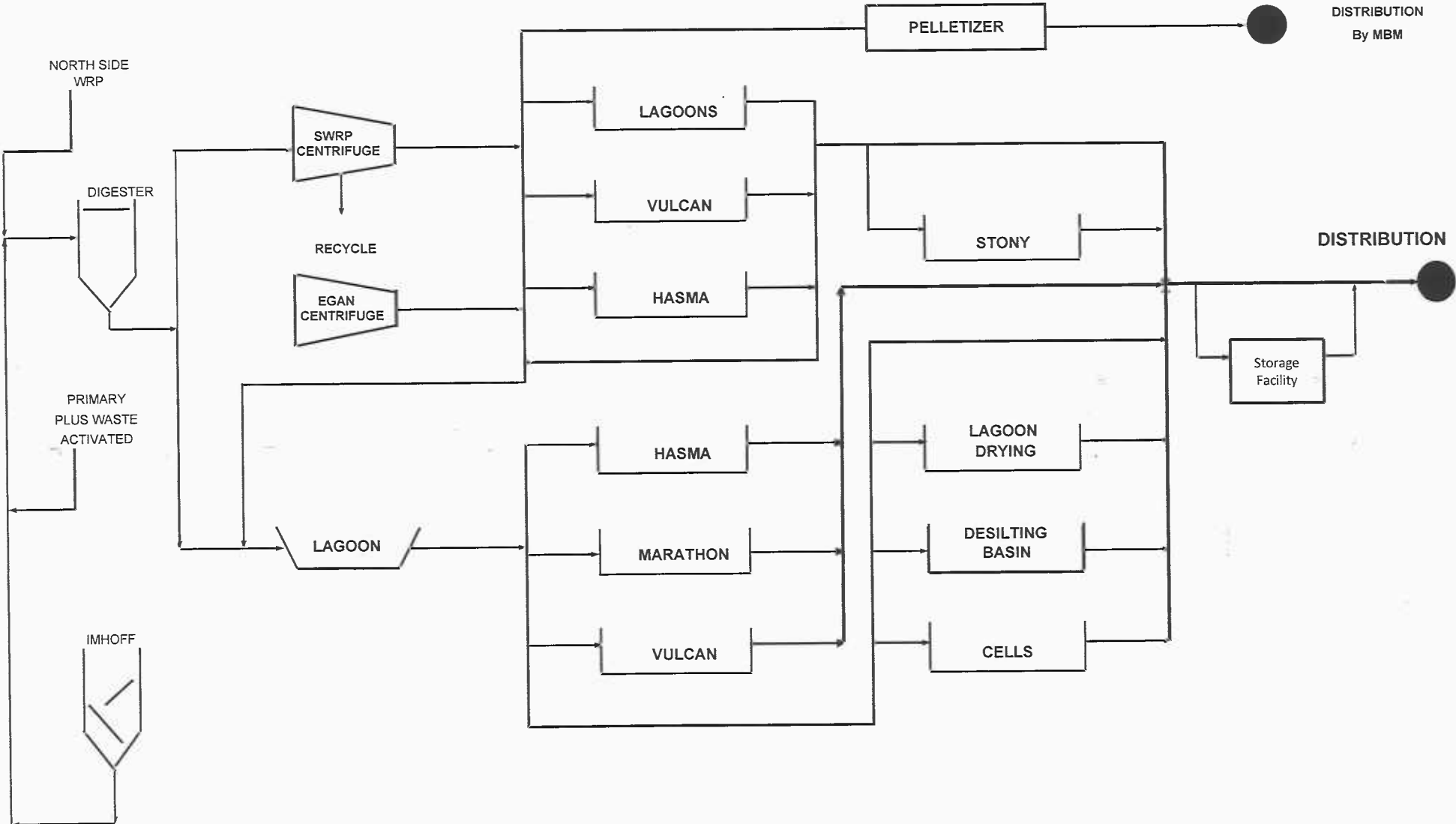


TABLE 1: USER INFORMATION FOR THE STICKNEY WATER RECLAMATION PLANT'S AIR-DRIED AND COMPOSTED BIOSOLIDS DISTRIBUTED UNDER THE CONTROLLED SOLIDS DISTRIBUTION PROGRAM DURING THE THIRD QUARTER OF 2016

Site No.	Name and Address of User	Dates	Quantity, Dry Ton		Application		
			Third Quarter	Cumulative ¹	Purpose	Area (acre)	Rate ² (ton/acre)
Composted Biosolids							
1	Coyote Run Golf Course 800 Kedzie Ave. Flossmoor, IL	07/15	6.7	6.7	Compost as soil amendment for trees	0.5	13.5
2	Metropolitan Water Reclamation District of Greater Chicago Hanover Park WRP 1200 Sycamore Ave. Hanover Park, IL 60133	07/15	10.2	10.2	Compost as soil amendment for trees	0.5	20.4
3	Chicago Urban Farm 2619 E. 76 th St. Chicago, IL	07/15, 07/19, 07/25, 09/07, 09/08	35.9	35.9	Compost as soil amendment for garden	1	35.9
4	Lake Street Supply 1810 W. Lake St. Chicago, IL 60612	07/20, 07/27, 08/03, 08/15, 08/22, 08/29, 09/02, 09/09, 09/01, 09/23, 09/27, 09/02, 09/30	98.4	98.4	Compost as soil amendment for trees	3	32.8
5	Nava R. Rijal (Home Owner) 815 W. 59 th St. La Grange Highlands, IL 60525	07/26	2.7	2.7	Compost as soil amendment for garden	0.1	27.0

TABLE 1 (Continued): USER INFORMATION FOR THE STICKNEY WATER RECLAMATION PLANT'S AIR-DRIED AND COMPOSTED BIOSOLIDS DISTRIBUTED UNDER THE CONTROLLED SOLIDS DISTRIBUTION PROGRAM DURING THE THIRD QUARTER OF 2016

Site No.	Name and Address of User	Dates	Quantity, Dry Ton		Application		
			Third Quarter	Cumulative ¹	Purpose	Area (acre)	Rate ² (ton/acre)
Composted Biosolids							
6	Shodhan Patel 206 Emerald Dr. Streamwood, IL 60107	07/26	3.0	3.0	Compost as soil amendment for garden	0.1	30.0
7	State Tree Nursery Topeka, IL 61567	07/26	6.7	6.7	Compost as soil amendment for trees	0.2	33.5
8	Village of Hanover Park 2121 W. Lake St. Hanover Park, IL 60133	07/26	2.7	2.7	Compost as soil amendment for trees	0.1	27.0
9	Harvey Park District Maintenance Garage 14800 Vine Ave. Harvey, IL 60426	07/26	6.4	6.4	Compost as soil amendment for garden and flower beds	0.2	32.0
10	Richton Park Park District 4455 Sauk Trail Richton Park, IL 60471	07/27	5.5	5.5	Compost as soil amendment for garden and flower beds	0.2	27.5
11	Luke Loboz 17525 S. Parker Rd. Homer Glen, IL 60491	07/26 - 07/28, 08/03 - 08/06, 09/09, 09/15, 09/16, 09/19 - 09/23	303.7	303.7	Compost as soil amendment for trees	5	60.7

TABLE 1 (Continued): USER INFORMATION FOR THE STICKNEY WATER RECLAMATION PLANT'S AIR-DRIED AND COMPOSTED BIOSOLIDS DISTRIBUTED UNDER THE CONTROLLED SOLIDS DISTRIBUTION PROGRAM DURING THE THIRD QUARTER OF 2016

Site No.	Name and Address of User	Dates	Quantity, Dry Ton		Application		
			Third Quarter	Cumulative ¹	Purpose	Area (acre)	Rate ² (ton/acre)
Composted Biosolids							
12	The Pullman State Historic Site 11111 S. Forrestville Ave. Chicago, IL 60628	08/03	2.3	2.3	Compost as soil amendment for trees	0.1	23.0
13	Stanley Janik 17120 W. 151 st St. Lockport, IL 60441	08/04, 08/11, 08/15, 09/09, 09/14 - 09/16, 09/19 - 09/23	292.9	292.9	Compost as soil amendment for trees	5	58.6
14	Village of Park Forest 350 Victory Dr. Park Forest, IL 60466	08/11	1.0	1.0	Compost as soil amendment for trees	0.1	10.0
15	Beary Landscaping 15001 W. 159 th St. Lockport, IL 60491	08/23, 09/16, 09/28	15.0	15.0	Compost as soil amendment for trees	0.5	30.0
16	Northeastern University 5500 N. St. Louis Ave. Chicago, IL 60625	09/01	2.8	2.8	Compost as soil amendment for trees	0.1	28.0
17	Metropolitan Water Reclamation District of Greater Chicago 6001 W. Pershing Rd. Cicero, IL 60804	09/01	3.2	3.2	Compost as soil amendment for trees	0.1	32.0

TABLE 1 (Continued): USER INFORMATION FOR THE STICKNEY WATER RECLAMATION PLANT'S AIR-DRIED AND COMPOSTED BIOSOLIDS DISTRIBUTED UNDER THE CONTROLLED SOLIDS DISTRIBUTION PROGRAM DURING THE THIRD QUARTER OF 2016

Site No.	Name and Address of User	Dates	Quantity, Dry Ton		Application		
			Third Quarter	Cumulative ¹	Purpose	Area (acre)	Rate ² (ton/acre)
Composted Biosolids							
18	Mark Kobilca 6 Golden Spur Lemont, IL 60439	09/01, 09/13	31.1	31.1	Compost as soil amendment for trees	1	31.1
19	JTP Lawn Service 2215 E Richton Rd. Crete, IL 60417	09/02	2.5	2.5	Compost as soil amendment for trees	0.1	25.0
20	Clemens Gizynski 3367 East 135 th St. Chicago, IL 60633,	09/19	4.0	4.0	Compost as soil amendment for garden	0.1	40.0
21	Joe Miller 8922 83 rd Pl. Justice, IL 60458	09/19	3.9	3.9	Compost as soil amendment for garden	0.1	39.0
22	Helen Lekavich 14817 Pulaski St. Midlothian, IL 60445	09/19, 09/23	16.6	16.6	Compost as soil amendment for garden	1	16.6
23	Metropolitan Water Reclamation District of Greater Chicago LASMA Visitor Center 7601 Lagrange Rd. Willow Springs, IL 60480	09/20, 09/28	8.3	8.3	Compost as soil amendment for trees	0.5	16.6

TABLE 1 (Continued): USER INFORMATION FOR THE STICKNEY WATER RECLAMATION PLANT'S AIR-DRIED AND COMPOSTED BIOSOLIDS DISTRIBUTED UNDER THE CONTROLLED SOLIDS DISTRIBUTION PROGRAM DURING THE THIRD QUARTER OF 2016

Site No.	Name and Address of User	Dates	Quantity, Dry Ton		Application Purpose	Area (acre)	Rate ² (ton/acre)
			Third Quarter	Cumulative ¹			
Air-Dried Biosolids							
24	Stanley Palarz 14020 Lemont Road Homer Glen, IL 60491	08/05	15.5	15.5	Soil amendment for turf and tree establishment	0.5	31.0
25	Otis P Graves Elementary School 6021 S. 74 th Ave. Summit, IL 60509	08/08	34.2	34.2	Topdressing fertilizer for turf growth	2	17.1
26	Brooks Elementary School 14741 S. Wallace Ave. Harvey, IL 60426	08/08, 08/10, 09/28	95.2	95.2	Topdressing fertilizer for turf growth	5	19.0
27	Luke Loboz 17525 S Parker Rd. Homer Glen, IL 60491	08/08 - 08/10, 09/07, 09/12 - 09/15	317.0	317.0	Soil amendment for turf and tree establishment	10	31.7
28	Chicago Park District Garfield Park 100 N. Central Park Ave. Chicago, IL 60624	08/09, 08/10	264.0	264.0	Topdressing fertilizer for turf growth	19	13.4

TABLE 1 (Continued): USER INFORMATION FOR THE STICKNEY WATER RECLAMATION PLANT'S AIR-DRIED AND COMPOSTED BIOSOLIDS DISTRIBUTED UNDER THE CONTROLLED SOLIDS DISTRIBUTION PROGRAM DURING THE THIRD QUARTER OF 2016

Site No	Name and Address of User	Dates	Quantity, Dry Ton		Application		
			Third Quarter	Cumulative ¹	Purpose	Area (acre)	Rate ² (ton/acre)
Air-Dried Biosolids							
29	Chicago Park District Union Park 1501 W. Randolph St. Chicago, IL 60607	08/09	50.0	50.0	Topdressing fertilizer for turf growth	3	16.7
30	St. Ignatius High School 1076 W. Roosevelt Rd. Chicago, IL 60608	08/09	31.6	31.6	Topdressing fertilizer for turf growth	2	15.8
31	Jim and Becky Mansell 28057 S. 88 th Ave. Peotone, IL 60468	08/10	313.1	313.1	Topdressing fertilizer for turf growth	20	15.7
32	Stanley Janik 17120 W. 151 st St. Lockport, IL 60441	08/10, 08/12, 09/07, 09/12, 09/13, 09/15	203.1	203.1	Soil amendment for turf and tree establishment	10	20.3
33	Troy Middle School 5800 Theodore St. Plainfield, IL 60586	09/07	28.2	28.2	Topdressing fertilizer for turf growth	2	14.1
34	Chicago Park District Humbolt Park 1400 N. Sacramento Ave. Chicago, IL 60622	09/13, 09/15	383.1	383.1	Topdressing fertilizer for turf growth	20	19.1

TABLE 1 (Continued): USER INFORMATION FOR THE STICKNEY WATER RECLAMATION PLANT'S AIR-DRIED AND COMPOSTED BIOSOLIDS DISTRIBUTED UNDER THE CONTROLLED SOLIDS DISTRIBUTION PROGRAM DURING THE THIRD QUARTER OF 2016

Site No.	Name and Address of User	Dates	Quantity, Dry Ton		Purpose	Application	
			Third Quarter	Cumulative ¹		Area (acre)	Rate ² (ton/acre)
Air-Dried Biosolids							
35	Metropolitan Water Reclamation District of Greater Chicago O'Brien WRP 3500 Howard St. Skokie, IL 60076	09/14, 09/20	13.5	13.5	Soil amendment for turf and tree establishment	0.5	27.0
36	Chicago Park District Smith Park 2526 W. Grand Ave. Chicago, IL 60612	09/19	48.6	48.6	Topdressing fertilizer for turf growth	3	16.2
37	Chicago Park District Harrison Park 1824 S. Wood St. Chicago, IL 60608	09/19	47.2	47.2	Topdressing fertilizer for turf growth	3	15.7
38	Chicago Park District Adams/Medill Park 1301 W. 14 th St. Chicago, IL 60608	09/19, 09/20	95.7	95.7	Topdressing fertilizer for turf growth	6	16.0

TABLE 1 (Continued): USER INFORMATION FOR THE STICKNEY WATER RECLAMATION PLANT'S AIR-DRIED AND COMPOSTED BIOSOLIDS DISTRIBUTED UNDER THE CONTROLLED SOLIDS DISTRIBUTION PROGRAM DURING THE THIRD QUARTER OF 2016

Site No.	Name and Address of User	Dates	Quantity, Dry Ton		Purpose	Application	
			Third Quarter	Cumulative ¹		Area (acre)	Rate ² (ton/acre)
Air-Dried Biosolids							
39	Chicago Park District McKinley Park 2210 W. Pershing Rd. Chicago, IL 60609	09/20	142.5	142.5	Topdressing fertilizer for turf growth	10	14.3
40	Chicago Park District Marquette Park 6743 S. Kedzie Ave. Chicago, IL 60629	09/21, 09/27, 09/28	401.0	401.0	Topdressing fertilizer for turf growth	25	16.0

¹Sum of air-dried biosolids from all the Water Reclamation Plants applied to the site.

²Application rate is based on amount of biosolids distributed during the third quarter.

TABLE 2: USER INFORMATION FOR THE CALUMET WATER RECLAMATION PLANT'S AIR-DRIED BIOSOLIDS DISTRIBUTED UNDER THE CONTROLLED SOLIDS DISTRIBUTION PROGRAM DURING THE THIRD QUARTER OF 2016

Site No.	Name and Address of User	Dates	Quantity, Dry Ton		Purpose	Application	
			3rd Quarter	Cumulative ¹		Area (acre)	Rate ² (ton/acre)
1	Proesel Park Pavilion 6915 Kostner Ave. Lincolnwood, IL 60712	07/01	130.1	130.1	Topdressing fertilizer for turf growth	10	13.0
2	Chicago Park District Northerly Island 1300 S. Linn White Dr. Chicago, IL 60605	07/07	77.4	77.4	Topdressing fertilizer for turf growth	5	15.5
3	Thornton Reservoir 306 Armory Dr. Thornton, IL 60476	07/11, 07/12	210.3	210.3	Topdressing fertilizer for turf growth	16	13.1
4	Bolingbrook Park District Central Park 201 Recreation Dr. Bolingbrook, IL 60440	07/11	144.7	144.7	Topdressing fertilizer for turf growth	10	14.5
5	Bolingbrook Park District Lily Cache Park 1387 Hassert Blvd. Bolingbrook, IL 60490	07/11	75.4	75.4	Topdressing fertilizer for turf growth	5	15.1
6	Indian Chase Meadows 525 Pheasant Chase Dr. Bolingbrook, IL	07/12	76.4	76.4	Topdressing fertilizer for turf growth	5	15.3

TABLE 2 (Continued): USER INFORMATION FOR THE CALUMET WATER RECLAMATION PLANT'S AIR-DRIED BIOSOLIDS DISTRIBUTED UNDER THE CONTROLLED SOLIDS DISTRIBUTION PROGRAM DURING THE THIRD QUARTER OF 2016

Site No.	Name and Address of User	Dates	Quantity, Dry Ton		Purpose	Application	
			3rd Quarter	Cumulative ¹		Area (acre)	Rate ² (ton/acre)
7	Metropolitan Water Reclamation District of Greater Chicago O'Brien WRP 3500 Howard St. Skokie, IL 60076	07/12, 07/13, 07/19	632.9	646.4 ¹	Soil amendment for turf and tree establishment	10	63.3
8	Chicago Park District Douglass Park 1401 S. Sacramento Dr. Chicago, IL 60623	07/19	155.7	155.7	Topdressing fertilizer for turf growth	12	13.0
9	A B Sanchez Landscaping 2814 E. Hintz Rd. Arlington Heights, IL 60004	07/20	2.2	2.2	Soil amendment for turf and tree establishment	0.1	22.0
10	Metropolitan Water Reclamation District of Greater Chicago Calumet WRP 400 E. 130 th St. Chicago, IL 60628	08/04	70.4	70.4	Topdressing fertilizer for turf growth	5	14.1

TABLE 2 (Continued): USER INFORMATION FOR THE CALUMET WATER RECLAMATION PLANT'S AIR-DRIED BIOSOLIDS DISTRIBUTED UNDER THE CONTROLLED SOLIDS DISTRIBUTION PROGRAM DURING THE THIRD QUARTER OF 2016

Site No.	Name and Address of User	Dates	Quantity, Dry Ton		Application		
			3rd Quarter	Cumulative ¹	Purpose	Area (acre)	Rate ² (ton/acre)
11	Metropolitan Water Reclamation District of Greater Chicago Sidestream Elevated Pool Aeration (SEPA) Station 2 Chicago IL	08/04	3.7	3.7	Topdressing fertilizer for turf growth	0.2	18.5
12	Olympia Fields Park District Sergeant Means Park 20712 Western Ave. Olympia Fields, IL 60461	08/05	131.1	131.1	Topdressing fertilizer for turf growth	10	13.1
13	St. Ignatius High School 1076 W. Roosevelt Rd. Chicago, IL 60608	08/11	33.3	64.9	Topdressing fertilizer for turf growth	2.5	13.3
14	Harvey Park District Martin L. King Jr. Park 150 th St. & Dell Way Harvey, IL 60426	08/11	62.6	62.6	Topdressing fertilizer for turf growth	4	15.7
15	Harvey Park District Lexington Park 151 st St. & Lexington Ave. Harvey, IL 60426	08/11	61.6	61.6	Topdressing fertilizer for turf growth	4	15.4

TABLE 2 (Continued): USER INFORMATION FOR THE CALUMET WATER RECLAMATION PLANT'S AIR-DRIED BIOSOLIDS DISTRIBUTED UNDER THE CONTROLLED SOLIDS DISTRIBUTION PROGRAM DURING THE THIRD QUARTER OF 2016

Site No.	Name and Address of User	Dates	Quantity, Dry Ton		Application		
			3rd Quarter	Cumulative ¹	Purpose	Area (acre)	Rate ² (ton/acre)
16	Harvey Park District Medgar Evers Park 149 th St. & Ashland Ave. Harvey, IL 60426	08/11	59.1	59.1	Topdressing fertilizer for turf growth	4	14.8
17	Harvey Park District Taft Park 162 nd & Emerland Ave. Harvey, IL 60426	08/18	29.6	29.6	Topdressing fertilizer for turf growth	2	14.8
18	Land and Lakes Inc. 1371 N. Joliet Road Romeoville, IL 60446	09/12 - 09/15 09/23	2,099.4	2,099.4	Soil amendment for turfs and trees establishment	40	52.5

¹Sum of air-dried biosolids from all the Water Reclamation Plants applied to the site.

²Application rate is based on amount of biosolids distributed during the third quarter.

TABLE 3: ANALYSIS OF AIR-DRIED AND COMPOSTED BIOSOLIDS APPLIED TO LAND FROM THE STICKNEY WATER RECLAMATION PLANT'S SOLIDS DRYING AREAS DURING THE THIRD QUARTER OF 2016

Sampling Date		12-Jul	7-Sep	9-Sep	20-Sep	17-Aug	9-Sep	20-Sep	28-Sep
Site No. ¹		1 – 19	11, 13, 15	3, 4, 11, 13, 15	18 – 23	24 – 32	33	27, 32	34 – 40
Constituent	Unit	Composted Biosolids				Air-Dried Biosolids			
		pH		6.7	6.5	6.5	6.6	6.3	5.5
Total Solids	%	51.6	49.9	53.2	49.5	63.1	75.6	71.8	67.9
Total Volatile Solids	"	55.5	58.8	58.8	54.9	39.2	36.1	37.0	36.3
Volatile Acids as Acetic Acid	mg/kg	199	36	24	22	<8	20	21	41
Total Kjeldahl Nitrogen	"	16,274	20,232	17,128	13,333	20,573	18,669	17,345	17,773
NH ₃ -N	"	618	467	72	28	1,293	820	130	63
Total P	"	11,257	13,921	12,687	9,267	21,397	22,824	20,727	22,015
As	"	<5	<5	<5	<5	8	8	8	9
Cd	"	2	2	2	2	5	5	5	6
Cr	"	56	104	52	56	188	187	191	183
Cu	"	208	193	198	211	443	450	441	461
Hg	"	0.3	0.3	0.4	0.4	0.9	1.1	0.9	0.8
K	"	4,023	4,077	4,291	3,997	2,460	3,663	3,885	2,857
Mn	mg/kg	355	712	304	321	534	543	560	570
Mo	"	4	5	5	5	11	11	12	12

TABLE 3 (Continued): ANALYSIS OF AIR-DRIED AND COMPOSTED BIOSOLIDS APPLIED TO LAND FROM THE STICKNEY WATER RECLAMATION PLANT'S SOLIDS DRYING AREAS DURING THE THIRD QUARTER OF 2016

Sampling Date		12-Jul	7-Sep	9-Sep	20-Sep	17-Aug	9-Sep	20-Sep	28-Sep
Site No. ¹		1 – 19	11, 13, 15	3, 4, 11, 13, 15	18 – 23	24 – 32	33	27, 32	34 – 40
<u>Constituent</u>	<u>Unit</u>	<u>Composted Biosolids</u>				<u>Air-Dried Biosolids</u>			
Ni	"	21	21	21	22	45	45	46	48
Pb	"	49	44	43	47	116	118	120	122
Se	"	<5	<5	<5	<5	<5	<5	<5	<5
Zn	"	364	341	333	368	950	932	972	992

¹Sites are listed in [Table 1](#).

TABLE 4: ANALYSIS OF AIR-DRIED BIOSOLIDS APPLIED TO LAND FROM THE CALUMET WATER RECLAMATION PLANT'S SOLIDS DRYING AREAS DURING THE THIRD QUARTER OF 2016

Sampling Date		6-Jul	13-Jul	13-Jul	20-Jul	20-Jul	29-Jul	6-Jul	29-Jul
Site No. ¹		1	2	2 - 6	7	7	7	8, 9	10 - 12
<u>Constituent</u>	<u>Unit</u>								
pH		6.5	6.5	6.6	6.8	6.0	6.6	6.5	7.2
Total Solids	%	71.1	71.0	72.4	83.2	74.1	69.0	70.8	63.1
Total Volatile Solids	"	38.7	33.2	41.8	31.1	41.8	25.8	40.5	43.5
Volatile Acids as Acetic Acid	mg/kg	86	59	64	51	46	96	68	152
Total Kjeldahl Nitrogen	"	23,025	22,948	23,708	18,299	22,979	14,800	24,531	23,099
NH ₃ -N	"	2,458	3,050	3,052	1,433	1,449	969	2,639	2,734
Total P	"	23,529	25,004	22,132	16,575	23,541	15,390	23,911	24,104
As	"	8	8	8	7	8	8	9	9
Cd	"	2	2	2	3	2	4	2	2
Cr	"	56	49	52	59	51	61	58	50
Cu	"	393	384	399	269	402	273	377	438
Hg	"	1.0	0.9	1.0	0.7	0.9	0.6	0.9	0.7
K	"	2,156	2,729	2,966	3,442	1,884	2,333	3,212	1,743
Mn	"	1,373	1,298	1,063	757	1,083	773	1,062	1,069
Mo	"	8	7	9	8	8	6	9	9
Ni	"	29	27	29	29	29	30	29	30
Pb	"	91	87	88	76	84	79	82	85
Se	"	<5	<5	<5	<5	<5	<5	<5	<5
Zn	"	1,188	1,121	1,174	817	1,216	847	1,155	1,308

TABLE 4 (Continued): ANALYSIS OF AIR-DRIED BIOSOLIDS APPLIED TO LAND FROM THE CALUMET WATER RECLAMATION PLANT'S SOLIDS DRYING AREAS DURING THE THIRD QUARTER OF 2016

Sampling Date		11-Aug	18-Aug	24-Aug	22-Sep	22-Sep	22-Sep	29-Sep
Site No. ¹		13, 14	15	16, 17	18	18	18	18
<u>Constituent</u>	<u>Unit</u>							
pH		7.6	5.4	5.5	5.9	5.4	5.7	5.6
Total Solids	%	70.0	88.4	66.8	73.9	66.2	62.3	64.6
Total Volatile Solids	"	44.5	40.4	41.0	41.9	44.3	38.4	39.6
Volatile Acids as Acetic Acid	mg/kg	24	87	54	22	20	22	46
Total Kjeldahl Nitrogen	"	24,120	20,588	14,522	10,923	14,393	16,141	14,390
NH ₃ -N	"	588	187	176	100	78	34	44
Total P	"	25,419	25,381	19,553	14,454	18,352	23,178	23,288
As	"	10	9	8	7	7	9	8
Cd	"	3	2	2	2	3	3	3
Cr	"	59	51	50	39	61	64	51
Cu	"	441	433	408	303	449	389	382
Hg	"	0.9	0.9	0.8	1.2	1.1	0.9	0.7
K	"	3,331	1,440	1,430	1,040	3,080	3,900	2,753
Mn	"	1,045	1,108	1,047	786	1,058	1,113	1,043
Mo	"	9	10	9	4	9	5	10
Ni	"	29	30	29	21	32	32	28
Pb	"	86	89	83	65	92	93	87
Se	"	<5	<5	<5	<5	<5	<5	<5
Zn	"	1,251	1,256	1,198	921	1,390	1,137	1,062

¹Sites are listed in [Table 2](#).