

Document 00.2 – Overview of the Metropolitan Water Reclamation District of Greater Chicago

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Description of the MWRDGC

The Metropolitan Water Reclamation District of Greater Chicago (District) is an independent government and taxing body encompassing approximately 91% of the land area of Cook County, Illinois.

The District was originally organized as the Sanitary District of Chicago in 1889 under an act of the Illinois General Assembly. The enabling act in 1889 was in direct response to a typhoid and cholera epidemic which killed thousands of city residents. The District reversed the flow of the Chicago and Calumet River Systems to divert contaminated water from Lake Michigan, where it could be diluted as it flowed into the Des Plaines River and eventually the Mississippi River. Prior to the District's construction of a 70.5-mile system of canals and waterway improvements, the Chicago and Calumet River Systems were tributary to Lake Michigan. These river systems are now flow to the Illinois River system.

From 1955 through 1988, the District was called The Metropolitan Sanitary District of Greater Chicago (MSDGC or simply MSD). In order to provide a more accurate perception of the District's current functions and responsibilities, the name was changed effective, January 1, 1989, to Metropolitan Water Reclamation District of Greater Chicago (MWRDGC).

The District serves an area of 883 square miles which includes the City of Chicago and 125 suburban communities. The District serves an equivalent population of 10.35 million people; 5.25 million real people, a commercial and industrial equivalent of 4.5 million people, and a combined sewer overflow equivalent of 0.6 million people. The District's 554 miles of intercepting sewers and force mains range in size from 12 inches to 27 feet in diameter, and are fed by approximately 10,000 local sewer system connections. Local sewer systems are owned and operated by the individual communities and sewerage district.

The District's Tunnel and Reservoir Project (TARP) is one of the country's largest public works projects for pollution and flood control. One hundred and two miles (102) of tunnels, 9 to 33 feet in diameter and 150 to 300 feet underground, have already been constructed and are in operation. Eight (8) miles of tunnels are under construction at present.

The District owns and operates seven water reclamation plants (WRP) and 23 pumping stations. The District treats an average of 1.5 billion gallons of wastewater each day. The District's total wastewater treatment capacity is over 2.0 billion gallons per day.

The District controls approximately 76 miles of navigable waterways, which are part of a national system connecting the Atlantic Ocean and the Great Lakes with the Gulf of Mexico. In conjunction with its biosolids recycle and land reclamation program, the District owns over 13,500 acres of land in Fulton County, Illinois.

Description of District Facilities

Hanover Park WRP

Address: 1200 E. Sycamore
 Hanover Park, IL 60133
 Distance: 35 miles northwest from the MOB, 45 minute drive
 Employees: 25
 Design Average Flow: 12 MGD
 Plant Type: Activated sludge
 Biosolids Production: 1,600 DT/year

Solids Process	# of Units	Capacity/Dimensions
Gravity Belt Thickeners	2	250 gpm @ 3,125 lbs. dry solids/hr.
Anaerobic Digesters	6	40 ft Dia X 19.5 ft deep
Sludge Lagoons	2	450 ft long X 250 ft wide X 8.5 ft deep
Fischer Farm		183 acres (total) 127 acres (farm)

John E. Egan WRP

Address: 550 S. Meacham Road
 Schaumburg, IL 60193
 Distance: 30 miles northwest from the MOB, 40 minute drive
 Employees: 42
 Design Average Flow: 30 MGD
 Plant Type: Activated sludge
 Biosolids Production: 4,000 DT/year

Solids Process	# of Units	Capacity/Dimensions
Gravity Belt Thickeners	3	600 gpm
Anaerobic Digesters	4	110 ft Dia X 34 ft deep
Centrifuges	3	25 DT/d, 300 hp motor

James C. Kirie WRP

Address: 701 W. Oakton
 Des Plaines, IL 60018
 Distance: 20 miles northwest from the MOB, 25 minute drive
 Employees: 41
 Design Average Flow: 72 MGD
 Plant Type: Activated sludge
 Biosolids Production: All waste activated sludge (WAS) is pumped to the Egan WRP for further processing.

North Side WRP

Address: 3500 W Howard Street



Environmental Management System for Biosolids

Skokie, IL 60076
 Distance: 15 miles north from the MOB, 25 minute drive
 Employees: 175
 Design Average Flow: 333 MGD
 Plant Type: Activated sludge
 Biosolids Production: All primary and WAS is pumped to the Stickney WRP for further processing.

Stickney WRP

Address: 6001 W. Pershing Road
 Cicero, IL 60804
 Distance: 12 miles southwest from the MOB, 20 minute drive
 Employees: 550
 Design Average Flow: 1,200 MGD
 Plant Type: Activated sludge
 Biosolids Production: 160,000 DT/year

Solids Process	# of Units	Capacity/Dimensions
Sludge Concentration Tanks	16	70 ft long X 46 ft 9 in wide X 14 ft deep
Pre-Digestion Centrifuge	16	40 DT/d, 400 hp
Sludge Holding Tanks	12	70 ft long X 48 ft 1 inch wide X 11.5 ft water depth
Anaerobic Digesters	24	12 units @ 110 ft 12 units @ 120 ft water depth 33 ft water depth
Post Digestion Centrifuges:	18	40 DT/d, 300 hp motor

Calumet WRP

Address: 400 E. 130th Street
 Chicago, IL 60628
 Distance: 20 miles south from the MOB, 30 minute drive
 Employees: 260
 Design Average Flow: 354 MGD
 Biosolids Production: 50,000 DT/year

Solids Process	# of Units	Capacity/Dimensions
Primary Sludge Concentration Tanks	2	100 ft long X 32 ft wide X 9.5 ft water depth

Sludge Concentration Tanks	12	60 ft Dia X 13 ft 9 in water depth
Anaerobic Digesters	8	110 ft Dia X 29 ft 10 in side water depth
Centrifuges	6	30 DT/d, 300 hp

Lemont WRP

Address: 13 Stephen Street
Lemont, IL 60439

Distance: 30 miles southwest from the MOB, 40 minute drive

Design Average Flow: 3.4 MGD

Employees: 4

Biosolids Production: All primary and WAS is trucked to the Stickney WRP or Calumet WRP for further processing.

Lawndale Avenue Solids Management Area (LASMA)

Address: 7601 S. LaGrange Rd.
Willow Springs, IL 60480

Distance: 25 miles southwest from the MOB, 35 minute drive
5 miles southwest from the Stickney WRP, 10 minute drive

Biosolids: LASMA receives biosolids from Stickney WRP and Egan WRP for further processing.

Calumet Solids Management Area

Address: Adjacent to the Calumet WRP

Biosolids: Receives biosolids from Calumet WRP for further processing.

Description of Solids Processes

Hanover Park WRP Solids Process

All solids produced at the Hanover Park WRP are anaerobically digested then dewatered in on-site lagoons. The biosolids are then applied via sub-surface injection at Fischer Farm, a District-owned site adjacent to the Hanover Park WRP as Class B biosolids.

John E. Egan WRP Solids Process

All solids produced at the John E. Egan WRP are anaerobically digested, and are:

1. Dewatered by centrifuging to approximately 25 percent solids content, and then:
 - a. Applied to land by a private contractor as a Class B cake.
 - b. Trucked to LASMA for further processing or distribution.
2. Pumped to the North Side WRP.

Stickney WRP Solids Process

All solids produced at the Stickney WRP are anaerobically digested and are then:

1. Placed into lagoons at LASMA for dewatering, aging, stabilization, and then transported to paved cell and air-dried prior to:
 - a. Application to land as Exceptional Quality (EQ) biosolids by a private contractor.
 - b. Application as EQ biosolids under the District's Controlled Solid Distribution Permit.
 - c. Use at local municipal solid waste landfills as final landfill cover.
 - d. Disposal in local municipal solid waste landfills.

2. Dewatered by centrifuging to approximately 25 percent solids content, and then applied to land by a private contractor as a Class B cake.
3. Dewatered by centrifuging to approximately 25 percent solids content, transported to paved cells at LASMA, and air-dried prior to use as daily landfill cover as Class B biosolids.
4. Dewatered by centrifuging to approximately 25 percent solids content, placed into lagoons at LASMA for aging and stabilization, and transported to paved cells and air-dried prior to:
 - a. Application to land as EQ biosolids by a private contractor.
 - b. Application as EQ biosolids under the District's Controlled Solid Distribution Permit.
 - c. Use at local municipal solid waste landfills as final landfill cover.
 - d. Disposal in local municipal solid waste landfills.

Calumet WRP Solids Process

All solids produced at the Calumet WRP are anaerobically digested and are then:

1. Placed into lagoons for dewatering, aging, stabilization, and then transported to paved cell and air-dried prior to:
 - a. Application to land as EQ biosolids by a private contractor.
 - b. Application as EQ biosolids under the District's Controlled Solid Distribution Permit.
 - c. Use at local municipal solid waste landfills as final landfill cover.
 - d. Disposal in local municipal solid waste landfills.
2. Dewatered by centrifuging to approximately 25 percent solids content, and then applied to land by a private contractor as a Class B cake.
3. Dewatered by centrifuging to approximately 25 percent solids content, transported to paved cells, and air-dried prior to use as daily landfill cover as Class B biosolids.
4. Dewatered by centrifuging to approximately 25 percent solids content, placed into lagoons for aging and stabilization, and transported to paved cells and air-dried prior to:
 - a. Application to land as EQ biosolids by a private contractor.
 - b. Application as EQ biosolids under the District's Controlled Solid Distribution Permit.
 - c. Use at local municipal solid waste landfills as final landfill cover.
 - d. Disposal in local municipal solid waste landfills.

Revision History

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