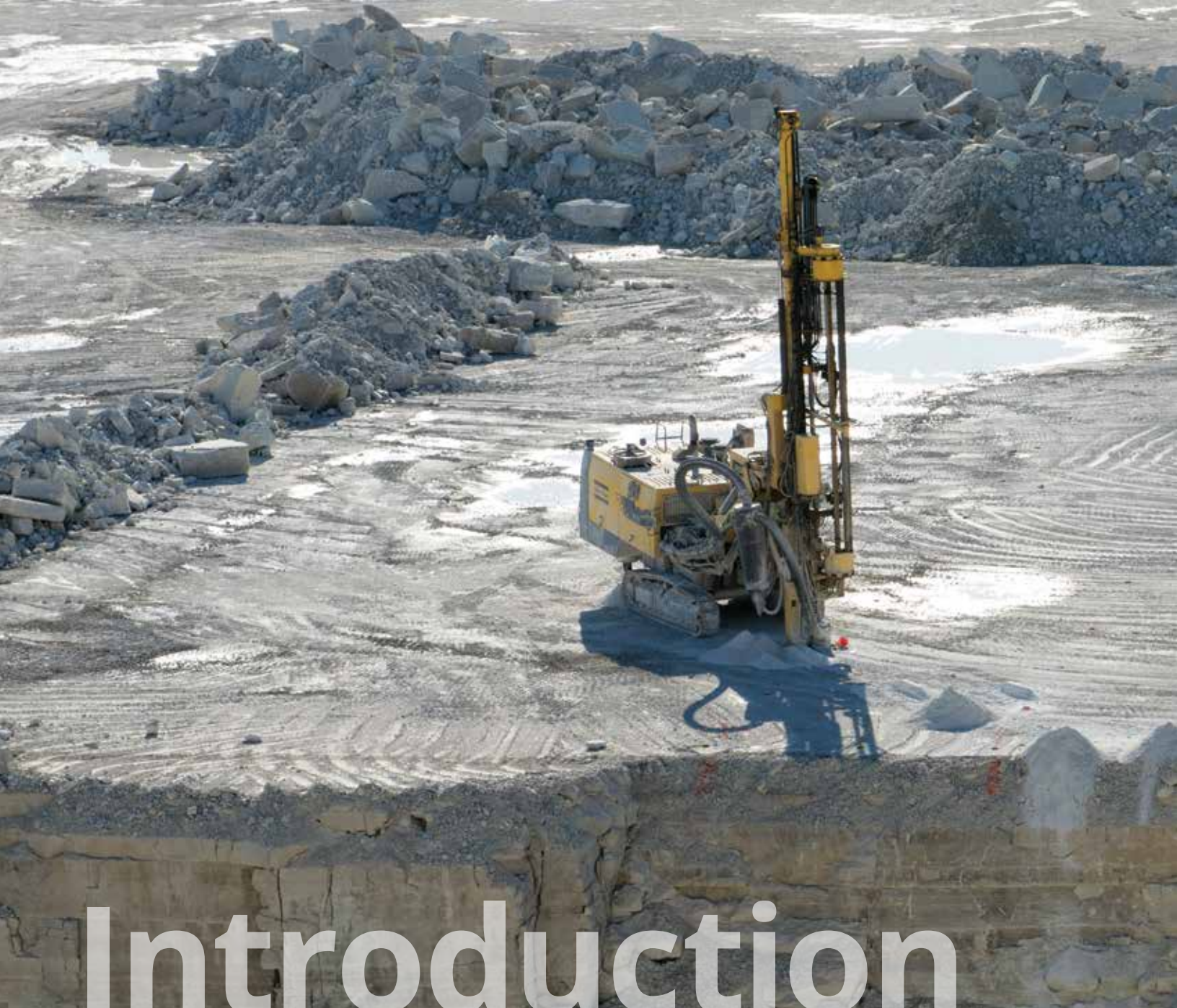




National Pollutant Discharge Elimination System Permits Consent Decree **2014 Annual Report**

Metropolitan Water Reclamation District of Greater Chicago



Metropolitan Water Reclamation District of Greater Chicago (District) National Pollutant Discharge Elimination System (NPDES) Permits Consent Decree (Civil Action No. 11 C 8859)—2014 Annual Report

This report is being submitted to comply with the District's Consent Decree entered on January 6, 2014. Per the Consent Decree, the first required Annual Report is for calendar year 2014 and is due March 31, 2015.

Excavation at McCook Reservoir, Stage 2. McCook Reservoir is being excavated in two stages with work proceeding simultaneously on both parts of the facility.



Per Section XII.44.a of the District's Consent Decree, this pre-TARP completion annual report transmits the following information:

1. Status of Design and Construction Activities (Consent Decree Section V) and Reservoir Mining Progress for Thornton Composite and McCook Reservoirs.
2. Combined Sewer Overflow (CSO) Quarterly Discharge Reports submitted to the Illinois Environmental Protection Agency (IEPA) for calendar year 2014.
3. 2014 Water Quality Data for Waterway Systems within the District's Jurisdiction.
4. Record of Floatable Control Activities (Consent Decree Paragraph 18 and Appendix B).
5. Green Infrastructure (GI) Activities (Consent Decree Section V of Appendix E).

This Annual Report for calendar year 2014 is intended to demonstrate satisfactory compliance with the Annual Reporting obligation of the District per the Consent Decree entered on January 6, 2014.

In addition to the above, the District would like to note that it is in compliance with Section II, Paragraph 5 of the Consent Decree, which requires the District to transmit copies of the Consent Decree to its officers, employees, and agents, as well as to CSO municipalities and its contractors. Letters were transmitted to all of the parties and a copy of the Consent Decree has been posted on the District's website.

Also, as required in Section V of the Consent Decree, the District remitted the civil penalty to both the IEPA and USEPA within 30 days from the date the Court entered the Consent Decree.





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McCook and Thornton Composite Reservoir March 2015 Progress Report

Above: The final 36,000 tons of limestone are blasted from the southwest corner of Thornton Composite Reservoir on September 23, 2013.

This report provides an update on the progress of the McCook and Thornton Composite Reservoirs as required in the Consent Decree paragraphs 21 and 44.

McCook Reservoir

The District owns the land for the McCook Reservoir, which will be built within the Lawndale Avenue Solids Management Area (LASMA). A Project Cooperation Agreement (PCA) with the US Army Corps of Engineers (Corps) to construct, operate, and maintain the reservoir was signed on May 10, 1999. Under the PCA, the Corps is responsible for designing and constructing the reservoir features, and the District is responsible for providing lands,

easements, right-of-way, and relocations, including providing the storage capacity for the reservoir through excavation of overburden and rock mining. The reservoir is planned to be completed in two stages. The first stage will provide 3.5 billion gallons of storage and the second stage will expand the total capacity to 10 billion gallons of storage.

District Work

In order to accomplish its responsibilities under the PCA, the District has initiated a number of projects which are described below, along with their status.

DECOMMISSIONING OF LOW SOLIDS LAGOONS: Seventeen of the District's biosolids stabilization and drying lagoons were decommissioned to provide the land necessary for constructing the reservoir.

WILLOW SPRINGS BERM (96-149-2P): Approximately 300,000 cubic yards of the reservoir overburden was hauled off-site in a test project, and placed as a berm along the canal.

SITE PREPARATION (73-161-BH): Sludge lines that cut through the reservoir footprint were relocated, and earthwork was performed to drain the reservoir footprint to facilitate future work. This work commenced in July 1999 and was the start of construction work for the McCook Reservoir.

CONVEYANCE TUNNEL (73-161-AH): This tunnel was constructed to connect LASMA to Vulcan's McCook Quarry, and is used to transport the crushed rock to the Vulcan processing plant.

STAGES 1 AND 2 OVERBURDEN REMOVAL (73-161-CH): Approximately 7.3 million cubic yards of overburden was removed from the footprint of the original Stage 1 and 2 McCook Reservoir sites, to expose the top of rock for mining.

MISCELLANEOUS OVERBURDEN REMOVAL (73-161-JH): An additional 450,000 cubic yards of overburden was removed from the site under this contract.

EXPANDED STAGE 2 OVERBURDEN REMOVAL (73-161-DH): The remaining 1.8 million cubic yards of overburden overlying the rock in the expanded Stage 2 portion of the reservoir is currently being removed. Completion of this work is expected in 2015 and, if the current schedule can be maintained, will fulfill the District's obligations from Paragraph 17.d. of the Consent Decree ahead of schedule.

VULCAN CONVEYANCE SYSTEM AND MAINTENANCE FACILITIES (73-161-FH): Mining facilities were constructed to crush and transport the rock from the reservoir site to the existing Vulcan Quarry. The contract included construction of the conveyance system, the office and maintenance buildings, installation of a rock crusher, relocation of the LASMA access road and sludge lines, and miscellaneous site work (access ramp, parking area, site lighting). The crusher was purchased separately in advance due to the long lead time.



McCook Reservoir, Stage 1. Located between the Des Plaines river (left) and the Chicago Sanitary and Ship Canal (right), the reservoir will have a capacity of 10 billion gallons when both stages are complete.

VULCAN MINING EQUIPMENT (73-161-GH AND 73-161-HH): A fleet of mining trucks and other mining equipment were procured to facilitate mining of the reservoir.

MINING (73-161-EH): The District entered into an agreement with Vulcan on October 1, 2003, to mine the rock to create the storage capacity required for the original two stage reservoir. Terms of the Agreement require Vulcan to mine at the same production rates they would have achieved at the existing quarry to meet the market demand.

- ✓ Mining for Stage 1 commenced in 2008 and was approximately 73 percent complete at the end of 2014. Paragraph 17.a. of the Consent Decree requires that the Stage 1 mining be completed by December 31, 2016.
- ✓ A mining ramp into Stage 2 was initiated in 2013 and production mining began in 2014, concurrent with Stage 1 mining. Approximately 6 percent of the stone from Stage 2 had been mined by the end of

2014. Paragraph 17.e. of the Consent Decree requires that the Stage 2 mining be completed by December 31, 2028.

The overall market for stone has been improving in the Chicagoland area. While still below the long term average stone production rates at McCook, 2014 removal rates were the highest since the reservoir project began in 2008. The poorer quality of stone in the lower level of Stage 1 has limited its marketability, which is the reason significant quantities of stone had to come out of Stage 2 in 2014. In order to maintain a schedule which will allow for an on-time completion of the reservoir, Vulcan has agreed to mine at a rate that exceeds market demand and dispose of the excess poor quality material on their property. Currently, mining of Stage 1 and Stage 2 are still expected to be completed by December 31, 2016 and December 31, 2028, respectively. Vulcan's annual mining progress report for 2014 will be transmitted to the IEPA and USEPA within 30 days of receipt (per paragraph 21 of the Consent Decree).

Corps Work

The following projects have been completed or are being pursued by the Corps for the Stage 1 McCook Reservoir:

TEST GROUT CURTAIN: A test grout curtain was constructed along 400 linear feet of the reservoir perimeter to test the effectiveness of a grout curtain to prevent polluted water in the reservoir from migrating into the groundwater aquifer.

STAGE 1 GROUT CURTAIN: Based on the performance of the Test Grout Curtain, a grout curtain was constructed around the north and west sides of the reservoir perimeter, to create a full hydraulic barrier between the reservoir rock walls and surrounding groundwater.

STAGE 1 GROUNDWATER CUT-OFF WALL: A bentonite slurry wall was constructed through the overburden, around the perimeter of Stage 1 of the reservoir, to prevent migration of groundwater into the reservoir.

ADDITION OF PUMPS AND MOTORS: Two additional 330 cubic feet per second pumps were installed at the Mainstream Pumping Station to provide adequate pumping capacity to dewater the reservoir to the Stickney Water Reclamation Plant.

DISTRIBUTION TUNNEL SYSTEM: Tunnels and an underground control chamber were installed to connect the future reservoir to the Mainstream Pumping Station.

DISTRIBUTION TUNNELS EMERGENCY WORK: Due to excessive infiltration in the new Distribution Chamber from the Distribution Tunnels, emergency leakage investigation and repair work was completed.

DISTRIBUTION TUNNELS FOLLOW-ON CONTRACT: Corroded equipment in the Distribution Chamber will need to be replaced and new communication for fire and gas alarms installed. This work will be under construction in 2015.

STAGE 1A AND 1B ROCKWALL STABILITY CONTRACTS: As the final vertical rock faces of the reservoir are exposed, scaling, rock bolting, and other ground support is installed as required to make the permanent walls stable. This work was completed under two separate contracts for Stage 1 of the reservoir.

STAGE 1 OVERBURDEN RETAINING WALLS: Retaining walls were constructed in several areas of Stage 1 where the top of rock is lower than expected, in order to allow the footprint of the reservoir to be mined (due to time constraints, the District did part of this work). This work is completed.

MAIN TUNNELS AND GATES: The Mainstream Tunnel will be connected to the reservoir by a new set of tunnels and control gates. This work was split among three contracts: one to fabricate and deliver the gates, another to excavate the main shaft, and the third to complete the tunnels and install the gates in the shaft. The fabrication of the gates and the main shaft excavation are completed and the third contract to complete the tunnels and install the gates is underway.

FINAL RESERVOIR PREP: Final connections to the reservoir will be made, including completion of the Distribution Tunnel and Outlet Structure. Floor drainage, reservoir aeration, ramps, roads, and other miscellaneous work will be included in this contract which is expected to be bid and awarded in 2015.

INSTRUMENTATION AND GROUNDWATER MONITORING WELLS: Groundwater monitoring wells, piezometers, inclinometers, and other instrumentation will be provided to monitor the reservoir under several different contracts.

The following projects have been completed or are being pursued by the Corps to complete the Stage 2 McCook Reservoir:

STAGE 2 GROUT CURTAIN: Based on the performance of the Test Grout Curtain Contract, a grout curtain was constructed around the south and east sides of the reservoir perimeter, to create a full hydraulic barrier between the reservoir rock walls and surrounding groundwater.

STAGE 2 GROUNDWATER CUT-OFF WALL: A bentonite slurry wall was constructed through the overburden, around the perimeter of Stage 2 of the reservoir, to prevent migration of groundwater into the reservoir.

STAGE 2 ROCKWALL STABILITY CONTRACTS: As the final vertical rock faces of the reservoir are exposed, scaling, rock bolting, or other

ground support will be installed as required to make the permanent walls stable.

STAGE 2 OVERBURDEN RETAINING WALL: A retaining wall is being constructed in several areas to hold back the overburden and allow the footprint of the reservoir to be mined.

STAGE 2 MISCELLANEOUS FLOOR FEATURES: Drainage improvements to the reservoir floor and reservoir aeration provisions will be provided.

Thornton Composite Reservoir

The Thornton Composite Reservoir will provide 4.8 billion gallons of storage for the Calumet TARP Service Area, in addition to flood waters from Thorn Creek. Design and construction of the Thornton Composite Reservoir was planned to be a joint venture between the Corps and the District. However, due to uncertainties in federal funding that threatened to deprive the Corps of appropriations sufficient to work on both the McCook and Thornton projects simultaneously, the District committed to proceed with the Corps work on the Thornton Composite Reservoir using the District's own resources in 2004. The following projects will be completed as part of construction of Thornton Composite Reservoir:

VINCENNES AVENUE RELOCATION (77-235-AF): Approximately 2,500' of roadway that cut through the footprint of the reservoir was relocated, in order to provide the required storage volume.

THORNTON TRANSITIONAL RESERVOIR (77-235-BF): This temporary reservoir was constructed to provide floodwater storage for Thorn Creek while the Thornton Composite Reservoir is being constructed. Many of the facilities constructed for the transitional reservoir will be reused at the composite reservoir.

MINING (77-235-2F): The District entered an agreement with Material Service Corporation (MSC) to purchase a portion of its existing rock quarry to be used for the reservoir. Under the agreement, MSC expanded their existing quarry to neighboring lands purchased by the District in order to achieve the required storage volume. Mining for the Thornton Composite Reservoir was completed in 2013, in fulfillment of the requirements outlined in Paragraph 16.a. of the Consent Decree.

TOLLWAY DAM, GROUT CURTAIN AND QUARRY PLUGS (04-201-4F): The south side of the reservoir is a rock dam that separates the reservoir from the rest of the quarry and carries the I-80/294 Tollway. A large opening and two haul tunnels in this wall will be plugged to hydraulically isolate the reservoir from the quarry. Also, as part of this contract, a grout curtain was constructed around the entire reservoir perimeter, creating a hydraulic barrier and providing stability to the rock dam. This contract is currently under construction and scheduled to be completed in 2015 as required in Paragraph 16.b. of the Consent Decree.

CONNECTING TUNNELS AND GATES (04-202-4F): The existing TARP tunnels will be extended to connect to the reservoir. A large gate chamber will be constructed to allow for isolation of the tunnels from the reservoir. This contract is currently under construction and scheduled to be completed in 2015 as required in Paragraph 16.c. of the Consent Decree.

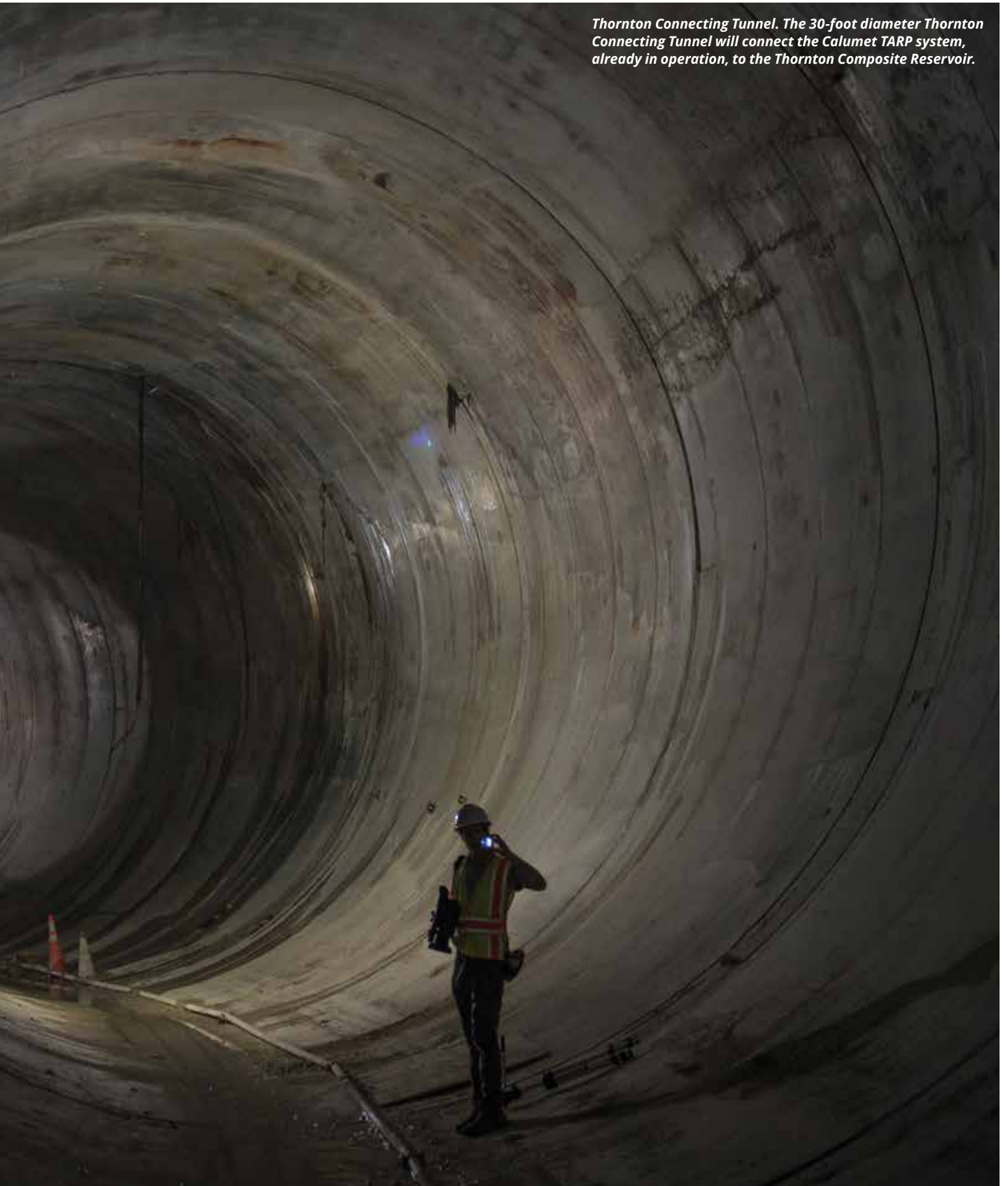
SURFACE AERATION (04-203-AF): Floating solar aerators will be installed in the reservoir to mitigate any odors that may come from the reservoir. This contract is expected to be completed in 2015.

FINAL RESERVOIR PREPARATION (04-203-4F): All remaining items required for operation of the Thornton Composite Reservoir such as the Thorn Creek tunnel connection, plugging the transitional reservoir and returning the site for further mining, live connections to the existing TARP tunnel, creating a drainage conduit in the abandoned Thorn Creek tunnel, and stabilization of the finished reservoir walls will be provided. This contract is currently under construction and upon completion in 2015, the reservoir will be placed in operation as required in Paragraph 16.d. of the Consent Decree.

The Thornton Composite Reservoir is on schedule to be operational in 2015. The exact operational date is not yet known and will depend on the remaining construction progress which is heavily dependent on weather since much of the remaining work has to be done under live conditions. In addition, the District is currently negotiating with MSC to continue to temporarily use the West Lobe of the Quarry for Thorn Creek water, which would allow the entire Thornton Composite Reservoir to be used for CSO capture for a period not to exceed five years. If these negotiations are successful, the District could gain significant additional storage volume over the next few years, without changing the date which the reservoir becomes operational.



Thornton Connecting Tunnel. The 30-foot diameter Thornton Connecting Tunnel will connect the Calumet TARP system, already in operation, to the Thornton Composite Reservoir.







Combined Sewer Overflow Quarterly Discharge Reports submitted to the IEPA for Calendar Year 2014

Above: The Main Stem of the Chicago River. The river has attracted major development projects to its shores in recent years, including the 2,600,000 square foot Trump Tower and other residential developments.



The Main Stem of the Chicago River. Flowing through the heart of downtown Chicago, the river is a popular destination for tourists and residents alike.



“CSO monitoring reports and other CSO-related reports submitted to Illinois EPA including, but not limited to, all documentation of water quality data for the waterway systems within MWRD’s jurisdiction, as required by the Calumet, North Side, and Stickney NPDES Permits.” (44(a)(iii))

CSO Monitoring

The District utilizes its approved CSO Representative Monitoring and Reporting Plans for the North, Central, and South Areas to track the frequency, duration, and volume of individual CSOs within the Des Plaines River and Chicago Area Waterway System (Plans on the enclosed CD).

In summary, the District monitors 219 (28 permitted to the District; 191 permitted to the City of Chicago and Suburbs) of the 393 (39 permitted to the District; 354 permitted to the City of Chicago and Suburbs) total outfalls within its service area. Most of the monitored outfalls have tide gates with telemetry; however there are six monitored outfall locations permitted to the District that are pump stations. Unmonitored outfalls are assumed to discharge when select monitored ones discharge because of similar invert elevations. Signals are transmitted to the Stickney and Calumet Water Reclamation Plants (WRPs) when the outfall tide gate is open and assumed to be discharging. Plant staff is also aware when the pumps are activated at the six pump stations. Volume estimates at six pump station locations are based on pump ratings and run times while volume estimates at the other outfall locations are performed via a conservative method which assumes that **all** rainfall that falls during the period that a tide gate is open, is being discharged to the waterway. These discharge volumes are then compared to two boundary conditions: (1) total area rainfall volume and (2) outfall pipe capacity. The minimum of these three values are used as the final discharge volumes.

CSO Quarterly Discharge Reports submitted to the IEPA for calendar year 2014 are on the enclosed CD.





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2014 Water Quality Data for Waterway Systems within the District's Jurisdiction

Above: The South Branch of the Chicago River and Ping Tom Memorial Park. One of many public parks on the Chicago area waterways, the Chicago Park District's Ping Tom Memorial Park was recently expanded with the addition of a boat house and other structures.



Top left: A water quality meter is retrieved from its stainless steel housing on the Main Stem of the Chicago River and is replaced with a clean, calibrated meter. **Top right:** A probe is used to take waterway dissolved oxygen readings to compare to the readings taken by the instrument deployed in the field. **Bottom left:** A water sample is prepared for dissolved oxygen analysis on the North Branch of the Chicago River. **Bottom right:** Water samples are analyzed for ammonia in an analytical lab at the District's Stickney Water Reclamation Plant.

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The District conducts Ambient Water Quality Monitoring (AWQM) and Continuous Dissolved Oxygen Monitoring (CDOM) on the Chicago Area Waterway System (CAWS).

In 2014, AWQM was conducted monthly at fifteen locations (weekly at Lockport) on the CAWS in accordance with the attached Quality Assurance Project Plan (See [Appendix A](#) on the enclosed CD). A spreadsheet containing the water quality data generated from this monitoring is submitted as [Attachment 1](#) on the enclosed CD.

The CAWS exhibited high compliance with water quality standards. Of the parameters analyzed that had applicable water quality standards, only dissolved oxygen (DO) and fecal coliform (applicable only on General Use waterways in the CAWS) were exceeded more than once.

In 2014, CDOM was conducted at fourteen locations on the CAWS in accordance with the attached Quality Assurance Project Plan (See [Appendix B](#) on the enclosed CD). A spreadsheet containing the hourly dissolved oxygen data generated from this monitoring is submitted as [Attachment 2](#) on the enclosed CD.

Most CAWS waterways were subject to the Secondary Contact and Indigenous Aquatic Life Use DO water quality standard of 4.0 mg/L, with the exception of the Cal-Sag Channel, which had a DO standard of 3.0 mg/L, anytime. The DO concentration was greater than the applicable water quality standard over 90 percent of the time on an annual basis at 10 out of 14 stations on the CAWS. Due to frozen waterway conditions, continuous DO data was only available through December 18, 2014 at the C&W Indiana Railroad location on the Little Calumet River, at the time of reporting.

Water quality meters are downloaded, cleaned, and calibrated in the Aquatic Ecology and Water Quality lab at the District’s Stickney Water Reclamation Plant.







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Record of Floatable Control Activities

Above: The North Branch of the Chicago River, looking south toward the Kinzie Avenue bridge.



*One of the District's two new skimmer boats
afloat on the Chicago Sanitary and Ship Canal.*



The following is a record of floatable control activities undertaken pursuant to the Consent Decree Paragraph 18 and Appendix B:

Dates of purchase and commencement of operations of each skimmer boat:

- ✓ The two skimmer boats were procured under Contract 13-611-21, "Furnish and Deliver Trash Collection Boats to the Stickney Water Reclamation Plant." The boats were delivered on January 2, 2015.

The dates on which each skimmer boat, pontoon boat, or other piece of equipment was operated:

- ✓ A spreadsheet (on the enclosed CD), entitled [Summary of 2014 Floatable Control Activities](#), is a summary of data collected for debris and pontoon boat operations.
- ✓ Additionally, scanned copies of the log for each day a boat was in operation is also transmitted on the enclosed CD.

Status of Combined Sewer Overflow Floatables Control in Addison Creek:

The floatable control boom is currently in preliminary design and the District is currently in the process of obtaining permits from the regulatory authorities and necessary easements from local agencies. The following is the summary:

- ✓ In late September 2014, the District spoke to the Village of Broadview and the two private property owners regarding the proposed installation of the debris boom. On January 8, 2015, the District Board approved a Right-of-Way ordinance. The District is currently working on obtaining the easements.
- ✓ On November 14, 2014, the District received a Letter of No Objection (LONO) from the United States Army Corp of Engineers (USACE).
- ✓ The District is waiting for a response from the Illinois Department of Natural Resources (IDNR), as to its request for a permit.





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Green Infrastructure Activities

Above: A rain barrel ready to be installed among flowers in a Chicago back yard.



A Chicago family with their rain barrel.



The following is a report on Green Infrastructure activities undertaken pursuant to Consent Decree Section V of Appendix E:

2014 Rain Barrel Program Annual Report (Appendix E.II.A)

Enhanced Rain Barrel Program

The District enacted a new rain barrel distribution program in April 2014 that will offer free rain barrels to Cook County residents and organizations that meet certain qualifications. (See [Rain Barrel Policy](#) on the enclosed CD.) The District will deliver free rain barrels through three distribution networks: municipalities; campus-type facilities; and non-government organizations, planning groups, or community groups.

Municipalities must sign an intergovernmental agreement with the District to participate. Once registered, the Village or City can make rain barrels available to residents who meet certain requirements:

- ✓ The resident must have property that has downspouts that are directly connected to the sewer system;
- ✓ The homeowner must agree to disconnect all downspouts from the sewer system;
- ✓ The homeowner must place rain barrels on each downspout, where feasible.

Qualified residents can call their local municipalities to request rain barrels through the new program.

The District will also provide free rain barrels to campus-type facilities that are committed to being a community partner and good steward of stormwater. These types of facilities include: schools, municipal properties (i.e. town halls, libraries, park district buildings, fire and police stations, garage/outbuildings), churches, community centers, senior centers, hospitals and clinics. The facility representative can request rain barrels by writing the District and including information about the location of where the rain barrels will be installed.

Non-government organizations, planning groups, or community groups throughout Cook County will also have access to the District's Rain Barrel Program for projects. These entities will need to submit a detailed plan and assure that there will be proper installation, education, care and maintenance of the barrels.

For those who do not qualify for the free rain barrels, the District will continue to sell and deliver them for \$58 plus tax via mwrdd.org.

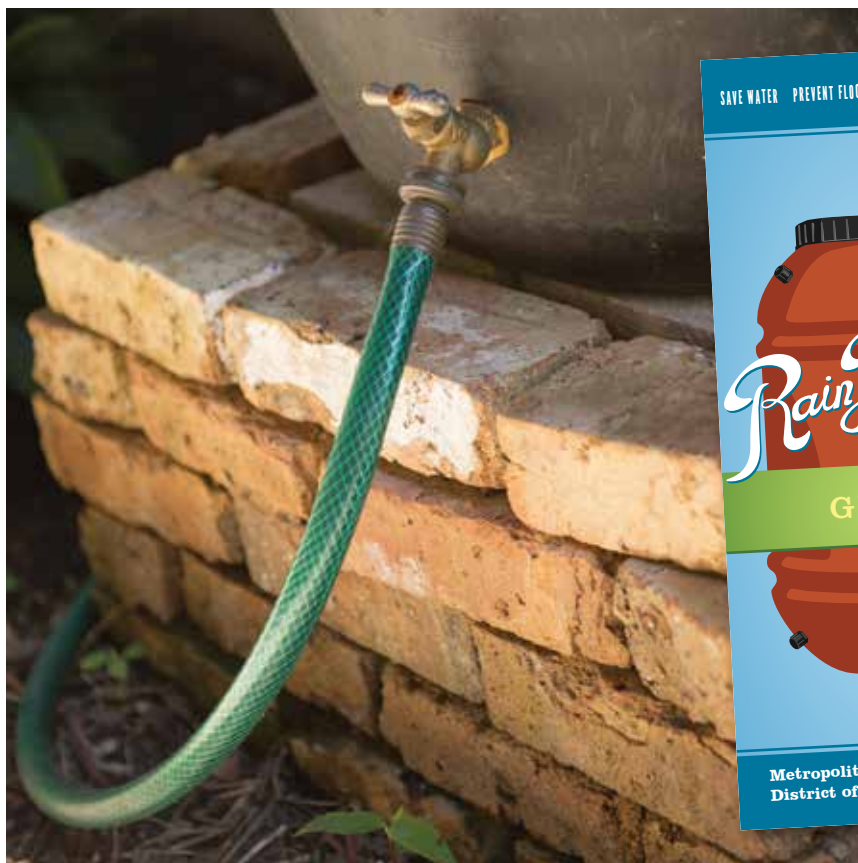
Marketing Activities

The District vigorously marketed rain barrels through multiple channels in 2014.

Our marketing materials introduce rain barrels to those unfamiliar with them and emphasize their utility in preventing flooding and improving water quality. The marketing efforts also attempt to counter common barriers to acceptance of rain barrels: concerns about the difficulty of installation (countered by including simple installation instructions showing how easy it is) and concerns that rain barrels will have a negative impact on the appearance of a property (countered by using photography of rain barrels installed in beautifully landscaped yards).

The District enlisted the help of municipalities participating in the enhanced rain barrel program to help market them to their residents.

PUBLICATIONS: The District produced a new rain barrel brochure to be distributed by municipalities participating in the enhanced rain barrel program. (See [Rain Barrel Brochure Calumet City](#) on the enclosed CD.) In addition to the marketing messages described above, the brochure provides specific details for ordering them. The District customizes these brochures for each participating municipality with the municipal logo and specific ordering instructions unique to each municipality. 5,000 brochures were produced for 10 participating municipalities in 2014.



The District produced and distributed a version of this brochure to promote the rain barrels that are available from the District for \$58 plus tax. (See [Rain Barrel Brochure MWRD](#) on the enclosed CD.)

The District also produced illustrated installation, use and maintenance instructions for rain barrels, which are provided with our rain barrels and available at [mwrdd.org](#). (See [MWRD Rain Barrel Instructions](#) on the enclosed CD.)

SOCIAL MEDIA: The District promoted rain barrels throughout the year on social media, including a “Rain Barrels Make A Great Gift!” campaign during the holiday season.

WEBSITE: Rain barrels are prominently advertised with a large graphic on the home page of the District’s website, [mwrdd.org](#). The rain barrel content on [mwrdd.org](#) was updated in 2014 to match the messaging and content of the other marketing materials.

PRESS RELEASES: Rain barrels were mentioned in three press releases in 2014. One introduced the new Rain Barrel program and two focused on the school painting competition.

DIRECT MAIL: In 2014, then Board of Commissioner President Kathleen Meany mailed a letter targeted to Cook County mayors inviting their municipalities to join the District’s new rain barrel-municipal distribution program. (See [Letter from Meany](#) on the enclosed CD.) Simultaneously, District Executive Director David St. Pierre mailed a similar letter to village managers throughout the county. (See [Letter from DSP](#) on the enclosed CD.)

RAIN BARREL PAINTING CONTEST: To educate children and educators about the benefits of rain barrels, the District sponsored a “Rain Barrel Painting Contest” for high school art students. The Public and Intergovernmental Affairs Officer mailed letters to 568 high schools in Cook County inviting their art classes to participate. The barrels are delivered to each participating school at no cost to the school. Classes are instructed to paint designs on

the barrels focusing on a water conservation theme. Students may work alone or in groups. Once completed, a representative from the District visits participating schools and chooses one winning rain barrel per institution. The painted barrels are displayed or installed at the schools. In addition to receiving a certificate, the winning student(s) from each school are invited to take a boat trip on the Chicago River in a District Pollution Control Boat, followed by a tour of the Stickney Water Reclamation Plant, the largest such facility in the world. Four schools participated in the rain barrel painting contest in 2014. The program is ongoing.

OUTREACH EVENTS AND RAIN BARREL DRAWING: The District heavily promoted rain barrels at public outreach events by bringing a rain barrel to these events and giving it away in a drawing to an attendee of the event. In order to be eligible for the drawing, attendees are required to fill out a “Water Environment Pledge” detailing water conservation actions. 41 rain barrels were distributed in this manner at 65 events.

WATER ENVIRONMENT PLEDGE MAILING LIST: The District maintains a mailing list of those who have signed the Water Environment Pledge. These individuals have a demonstrated interest in rain barrels and may be targeted in future marketing efforts. 1,330 names were added to this database in 2014.

Number of Barrels Distributed

The District distributed 925 rain barrels in 2014.

Technical Assistance

The District provides instructions on how to install a rain barrel with each order. Additionally, rain barrels were provided to people who attended a rain barrel installation class presented by a non-governmental organization.

Potential Volume

925 rain barrels × 55 gallons × 61.72 average annual days of rain = 3,140,000 gallons

2014 Green Infrastructure Annual Report:

Green Infrastructure (GI) Plan (Appendix E.II.C)

The Consent Decree required the District to implement one or more GI projects and dedicate a minimum of \$325,000 towards such projects prior to January 6, 2015, within one year of the effective date of the Consent Decree or prior to approval of the GI Plan, whichever is later. As a part of such projects, the District would evaluate design specifications and installation processes and procedures. A Draft of the District's GI Plan was submitted to the EPA and IEPA on December 23, 2014. The District embarked on multiple projects during 2014 to satisfy this requirement.

The first project involved collaboration between the District, Chicago Public School Systems (CPS), and the City of Chicago Department of Water Management (DWM). CPS rehabilitated the grounds of four elementary schools with GI as a major design element of each project. The District and DWM each dedicated \$2,000,000 towards GI measures at the schools to reduce local flooding and the amount of rainwater entering the local combined sewer system. The project areas largely consisted of impermeable asphalt surfaces with no opportunity for infiltration of stormwater runoff. Runoff from these asphalt surfaces would enter the combined sewer system and contribute toward CSOs and basement backups. Each project was comprised of various amounts of permeable pavement, rain gardens, native landscaping, stormwater trees, bioswales, and bioretention area greenways to store and infiltrate stormwater generated from the site.

The four elementary schools are all in low income areas throughout the City:

- ✓ Virgil I. Grissom Elementary School, 12810 S. Escanaba Avenue,
- ✓ Morrill Elementary School of Math & Science, 6011 S. Rockwell Street
- ✓ Schmid Elementary School, 9755 S. Greenwood Avenue
- ✓ George Leland Elementary School, 512 S. LaVergne Avenue

These schools were prioritized for implementation by CPS, DWM, and the District based on flood risk, site suitability, and socioeconomic factors. Numerous community meetings were held to describe project details and benefits. All four projects were completed in the fall of 2014. The District and CPS executed an intergovernmental agreement (IGA) to facilitate this

project whereby long term maintenance responsibilities are assigned to CPS. The District has perpetual rights to inspect the GI to ensure it is being properly maintained in accordance with the Operations and Maintenance (O&M) Manual developed for each school.

The District reviewed and provided comments on the construction drawings and specifications at various intervals during the course of design. During the course of construction, the District frequently visited the sites to gain knowledge on the installation of GI.

The four sites combine for a Design Retention Capacity (DRC) of 712,926 gallons per rain event. Educational signage has been placed at the sites to inform students and the surrounding community of the benefits of GI. Neighborhood residents were involved in the installation of GI plantings at several of the schools. Ground breaking ceremonies were held at each of the four schools and were attended by students, parents, school staff, local residents, and elected officials, including the District's Commissioners.

The collective enrollment at the four schools is over 1,400 students. The four projects have positively impacted thousands of local residents by providing a safe place for their children to play, educating all to the benefits of GI, and providing much needed relief to localized flooding. CPS has indicated that the new playgrounds are being utilized by students at a far greater rate than before, as well as reducing gang activity within close proximity to the schools.

Given the success of this project, the District's Board of Commissioners authorized expansion of the program to fund GI at six schools per year over the next five years, starting in 2015, with a total investment by the District of \$15,000,000. These projects will not only address localized flooding, but will also serve to educate students, parents, and school staff about the benefits of GI. Due to the positive results of the pilot program, these projects are expected to be used as models by other cities.

The District has several other GI Projects in the works in accordance with the criteria established in its Draft GI Plan. The District is working with the



Students and community members participate in a Space to Grow planting event at Leland Elementary School. One of four pilot schools participating in the District-funded Space To Grow program in 2014, Leland Elementary's grounds were transformed with green infrastructure improvements.

City of Blue Island (Blue Island) and City of Evanston (Evanston) to develop GI Projects that will be constructed in 2015. The District's contribution towards these projects will be approximately \$1,250,000 and the combined DRC will be 300,000 gallons. The projects will consist of permeable pavement, rain gardens, and swales. For Blue Island, the District retained a consultant to prepare plans and specifications, which were reviewed and approved by District engineers. The District will administer the Blue Island construction contract, and will have a resident engineer oversee construction. In addition to providing input on the type of permeable pavement to install, District engineers reviewed and commented on the design drawings and specifications of the Evanston project. District staff also participated in meetings with the public to explain the rationale behind the projects and how the projects will help to alleviate flooding while providing a myriad of other environmental and social benefits. The District entered into IGAs with Blue Island and Evanston whereby maintenance responsibilities lie with the municipality and the District retains perpetual rights to inspect the facilities to ensure they are being maintained as required by the O&M Manuals of the respective projects.

The District will also replace a deteriorating parking lot at its Egan Water Reclamation Plant in 2015 at a cost of approximately \$1,100,000. The new parking lot will be constructed of porous pavement and include greenways and a rain garden.

The District began requiring stormwater detention in 1972 under the Sewer Permit Ordinance (SPO) for development projects greater than 5 acres. In 2007, the District began work on a new stormwater management regulatory ordinance, known as the Watershed Management Ordinance (WMO). Numerous public hearings were held on the WMO in order to receive public input. The District's Board of Commissioners subsequently approved the WMO, which became effective on May 1, 2014. The WMO is comprehensive regulatory ordinance drafted with the assistance of an Advisory Committee consisting of regulatory agencies, municipalities, and non-governmental organizations. The WMO aims to protect public health, safety, and welfare, and Cook County homes and businesses from flood damage by managing and mitigating the effects of development and redevelopment on stormwater drainage. It provides uniform minimum stormwater management regulations for Cook County that are consistent with the region. The WMO replaces the District's repealed Sewer Permit Ordinance (SPO). WMO permit requirements are more comprehensive than those of the SPO. The WMO requires use of GI to capture of 1-inch of runoff from impervious surfaces for developments greater than ½ acre in size. The District has included a GI component in its WMO. In 2014, eight permits were issued that required GI retention volume. During 2014, 71,687 gallons of retention were completed under the WMO, 134,902 gallons were under construction, and 42,361 gallons were approved on projects that have yet to be started. This will lead to a combined total of 248,950 gallons. The District anticipates that more GI retention volume will be approved in 2015 and beyond.

The total DRC installed at CPS and due to the requirements of the WMO in 2014 was 784,613 gallons (see Green Infrastructure Project Log below).

The District continues to explore innovative ways to harvest and reuse captured stormwater. The District is working with the Chicago Housing Authority to utilize a 290,000-gallon storage tank located in their Dearborn Homes complex at 2930 S. Dearborn Street for harvesting stormwater. This stormwater will later be used to irrigate nearby landscaping and athletic fields, which will reduce flow to the combined sewer system, reduce usage of water removed from Lake Michigan, and help alleviate localized flooding. Assuming an agreement

can be reached, the design of this project is to be completed by the end of 2015, at a cost of \$327,695.00 to the District. Another project being evaluated by the District involves repurposing an abandoned water tunnel from the City of Chicago to capture water from the downspouts of large buildings that would normally go into the local combined sewer system. The stored water could then be reused to water parks and other areas, and possibly even by local industries. An inspection of the tunnel will be performed in 2015. Yet another possible project would be to install large cisterns at each residential property in a flood prone area. The captured stormwater could then be used for irrigation rather than be returned to the local system. An area in the South Side of Chicago is being evaluated to determine the practicality of the project.

The District has initiated a buyout program for properties in chronic flood prone areas, starting in 2015. Buildings that qualify will be purchased and demolished. The District may be contributing buyout funds on its own or in conjunction with local communities or the Illinois Emergency Management Authority. The purchased areas will be converted into pervious land, increasing stormwater retention and detention. The retention will be calculated and included in future Annual Reports.

The District is actively pursuing additional projects that meet or exceed the goals required by the Consent Decree.

Chicago-Calumet Rivers Fund

A team of private and public organizations, including the District, have established and funded the Chicago-Calumet (Chi-Cal) Rivers Fund (Fund), administered by the National Fish and Wildlife Foundation. The Fund's main goals include reducing damages caused by flooding, improving water quality, and restoring habitat and safe public access on the local waterways. One method to achieve these goals is through green infrastructure such as rain gardens, green roofs, pervious surfaces, bioswales, and cisterns.

The following two projects, which the District anticipates participating in funding, are within the District's service area and utilize GI solutions to reduce flooding, as well as Combined Sewer Overflows:

GREEN RIVER CORRIDOR GREEN INFRASTRUCTURE FLOOD MITIGATION

PROGRAM: The South Suburban Mayors and Managers Association will receive \$235,000 in funding to construct six acres of wetlands that will add approximately 1.5 million gallons of stormwater retention in the City of Blue Island. Project components involve removing contaminated soils and dominant invasive plant species, and planting native vegetation. By providing a regional wetland detention system, this project will enable greater stormwater infiltration, increase native habitat, reduce flooding, and illustrate how green infrastructure solutions can facilitate economic development.

PARK 571 RIVER FRONT PARK DEVELOPMENT: The Chicago Park District will use \$259,000 to develop a new four acre riverfront park along the South Branch of the Chicago River in the Bridgeport area. The project will improve river access, recreational opportunities, and stormwater management while creating an accessible park to local residents in a region that lacks open space. The new park will create 25,000 square feet of stormwater management features such as bio-retention areas, permeable surfaces, and native plantings. The combined stormwater retention to be provided is 5,000 gallons.

The Chi-Cal Rivers Fund partners will continue to identify additional projects of similar scope to be implemented in 2015 and beyond.

Green Infrastructure Comprehensive Land Use Policy (Appendix E.II.C)

As part of the GI Plan, the District has also developed a Comprehensive Land Use Policy.

The District's Comprehensive Land Use Policy requires public entities leasing property at a nominal fee from the District to provide GI based on the size of the leasehold and the desired use. For any new/renewed lease, the public lessee must now pay for and include GI on its leasehold. Private

entity or commercial lessees are required to comply with the terms of the District's Watershed Management Ordinance (WMO), which requires use of GI for development projects based on the size and type of use of the property. For new or renewed private leases, the District will incentive the

use of GI. Private entities installing GI will receive a credit equal to \$0.50 on the \$1.00 up to 10% of the leasehold cost, capped at 10 years, for GI improvements in excess of WMO requirements. The District will seek credit towards the DRC requirements outlined in Section III of this plan for any GI installed by leaseholders of District property due to GI installed as a result of the requirements of the Comprehensive Land Use Policy.

Chicago Public Schools Project (Appendix E.II.B)

The District partnered with the Chicago Department of Water Management (DWM) and the Chicago Public Schools to renovate the playgrounds of four pilot schools in disadvantaged neighborhoods during 2014. The District and DWM contributed a maximum of \$500,000 per school. One of the main criteria for choosing the following schools was to identify playgrounds that

Additionally, the District is in the process of implementing a Geographical Information System (GIS), allowing it, among other things to input & track the type of GI on its various leaseholds as well as such information as GI stormwater capture rate.

Grissom

Grissom's scope of work started with the removal of asphalt, an old playground, fencing, and utilities. Site improvements included two age-specific playgrounds on rubber play surfacing, enlarged basketball and volleyball courts on permeable asphalt, asphalt track, baseball backstop, artificial turf, an outdoor classroom, an enlarged running track, walkways and resurfaced asphalt. Stormwater improvements included a community garden, rain gardens, permeable walks, and infiltration

could facilitate a large amount of Design Retention Capacity in flood prone areas. The actual work was started once the schools were closed for the summer. Ribbon cuttings for each school were held during October, and all work has since been completed. A total of 712,926 gallons of Design Retention Capacity was gained through the projects.

planters. Site amenities included fencing, signage, and site furnishings, and utility upgrades included stormwater storage and a lawn hydrant. The estimated Design Retention Capacity is 327,385 gallons.

Morrill

Morrill's scope of work started with the removal of asphalt, fencing, and utilities. Site improvements included two age-specific playgrounds on rubber



Grissom Before



Grissom After





Schmid Elementary students and staff in front of their new playground with Space to Grow staff, and District President Mariyana T. Spyropoulos (holding the Space to Grow logo) next to District Commissioner Kari K. Steele.

play surfacing, basketball courts, an artificial turf soccer field, painted asphalt track, an outdoor classroom, permeable pavers walkways, and asphalt with painted games. Landscape improvements included a community garden, rain gardens, and infiltration planters that directly receive roof runoff through disconnected gutters. Site amenities included fencing, signage, and site furnishings, and utility upgrades included stormwater storage, downspout disconnections, lawn hydrants, and electrical renovations. The estimated Design Retention Capacity is 193,984 gallons.

Schmid

Schmid's scope of work started with the removal of asphalt, deteriorated parking lot, an old playground, fencing and utilities. Site improvements included a permeable parking lot, two age-specific playgrounds on rubber play surfacing, renovated tennis and basketball courts, an outdoor classroom, play field, and walkway upgrades. Landscape improvements included community gardens, rain gardens, plantable retaining wall, and

a large bioinfiltration area. Site amenities included fencing improvements, signage, and site furnishings. Utility upgrades included lighting, stormwater storage, roof drain stormwater capture and outfall through an educational runnel (a visible and educational meandering stormwater channel). The estimated Design Retention Capacity is 93,262 gallons.

Leland

Leland's scope of work started with the removal of asphalt, an old playground, fencing and utilities. Site improvements included two age-specific playgrounds on rubber play surfacing, basketball court, painted asphalt track, an outdoor classroom, walkways and new asphalt. Landscape improvements included a community garden, rain gardens, and infiltration planters. Site amenities included fencing, signage, and site furnishings, and utility upgrades included stormwater storage, downspout disconnection and a new hose bib. The estimated Design Retention Capacity is 98,886 gallons.

Green Infrastructure Project Log (Appendix E.III)

2014 Log of Green Infrastructure Capture Volume 2014 Chicago Public Schools

Elementary Schools	Green Infrastructure Technologies	Design Retention Capacity
Morrill Math & Science Academy 6011 S. Rockwell	Rain Gardens, Permeable Surfaces, Bioswales	327,385 gallons
Leland Elementary School 512 S. Lavergne	Rain Gardens, Permeable Surfaces, Bioswales	98,886 gallons
Schmid Elementary School 9755 S. Greenwood	Rain Gardens, Permeable Surfaces, Runnel	93,262 gallons
Grissom Elementary School 12810 S. Escanaba	Rain Gardens, Permeable Surfaces, Bioswales	193,394 gallons
Total Retention for CPS schools		712,926 gallons

Watershed Management Ordinance Permits

7 WMO Permits issued in 2014 Requiring Green Infrastructure

Total WMO GI Permitted in 2014		248,950 gallons
GI Permitted	Yet to Begin Construction	42,361 gallons
GI Permitted	Under Construction	134,902 gallons
GI Permitted	Construction Complete	71,687 gallons

GI Installed in 2014

CPS
SCHOOL
RETENTION

+ COMPLETED
WMO
PERMITS =

**784,613
GALLONS**

National Pollutant Discharge Elimination System Permits Consent Decree

2014 Annual Report Referenced Resources

CD Table of Contents

Attachments for Item 2 - CSOs

Calumet (South) CSO M&R Plan for web rev August 2014.docx
IEPA Quarterly Report Apr-June 2014 Part 2.pdf
IEPA Quarterly Report for Apr-June 2014 Part 1.pdf
IEPA Quarterly Report Jan - Mar 2014.pdf
IEPA Quarterly Report July-Sept 2014 part 1.pdf
IEPA Quarterly Report July-Sept 2014 part 2.pdf
IEPA Quarterly Report Oct-Dec 2014.pdf
O'Brien (North) CSO M&R Plan for web rev August 2014.docx
Revised IEPA Quarterly Report Jan-Mar 2014.pdf
Stickney (Central) CSO M&R Plan for web rev August 2014.docx

Attachments for Item 3 - Water Quality

Appendix_A_AWQM QAPP.pdf
Appendix_B_CDOM QAPP.PDF
Attachment 1_2014_CAWS_AWQM.xlsx
Attachment 2_2014_CAWS_CDOM.xlsx

Attachments for Item 4 - Floatables

Floatable Log Debris Boat 1 Jan to June 2014.pdf
Floatable Log Debris Boat 1 July to Dec 2014.pdf
Floatable Log Pontoon Boat 1 2014.pdf
Floatable Log Pontoon Boat 2 2014.pdf
Floatable Log Pontoon Boat 3 2014.pdf
Summary of 2014 Floatable Control Activities.pdf

Attachments for Item 5 - Green Infrastructure

Letter from DSP.pdf
Letter from Meany.pdf
MWRD Rain Barrel Instructions.pdf
PressRelease_14_0819_Rain_Barrels.pdf
PressRelease_14_1112_RB competition.pdf
Rain Barrel Brochure Calumet City.pdf
Rain Barrel Brochure MWRD.pdf
Rain Barrel Policy.docx

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100 East Erie Street • Chicago, Illinois 60611-3154



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Cover. A student participates in a Space to Grow planting event at Leland Elementary School. One of four pilot schools participating in the District-funded Space To Grow program in 2014, Leland Elementary's grounds were transformed with green infrastructure improvements.