



Metropolitan Water Reclamation District of Greater Chicago

Press Release

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For immediate release

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Preparing for tomorrow's water: MWRD, Sen. Durbin, Reps. Kelly and Quigley, US EPA, IEPA officials cut ribbon on Thornton Composite Reservoir



MWRD President Mariyana Spyropoulos and US Army Corps of Engineers Lt. Col. Kevin Lovell hold the large scissors to cut the ribbon on the Thornton Composite Reservoir on Sept. 1, 2015. They are joined by MWRD Vice Pres. Barbara McGowan, Chairman of Finance Frank Avila, and Commissioners Timothy Bradford, Cynthia Santos, Debra Shore and Kari Steele; MWRD Exec. Dir. David St. Pierre; Senator Dick Durbin; Congresswoman Robin Kelly; USEPA Region 5 Administrator Susan Hedman, IEPA Director Lisa Bonnett; Secretary/Treasurer of Chicago Fed. of Labor Robert Reiter; So Suburban Mayors Exec. Dir. Ed Paesel; and Friends of Chicago River exec. director Margaret Frisbie.

Dubbed the “Grand Canyon of the South Suburbs,” the Thornton Composite Reservoir presents a larger than life view from above with a larger than life purpose for the region. Now connected to a tunnel system and prepared to hold up to 7.9 billion gallons of water, the reservoir will reduce flooding in the area while preventing pollution in Chicago area waterways.

In front of this dramatic backdrop, officials with the Metropolitan Water Reclamation District of Greater Chicago (MWRD) unveiled this latest engineering feat alongside U.S. Sen. Dick Durbin, U.S. Rep. Robin Kelly, U.S. Rep. Mike Quigley, U.S. Environmental Protection Agency (USEPA) Region 5 Administrator Susan Hedman, U.S. Army Corps of Engineers Lt. Col. Kevin Lovell, state Senator Napoleon Harris, *(continued)*



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Illinois Environmental Protection Agency Director Lisa Bonnett, and other elected and community leaders. "To the naked eye, it's a gigantic hole in the ground surrounded by 400 million-year-old limestone rock, but to the people who live in the surrounding communities it symbolizes hard work, diligence and hope for a better tomorrow in our pursuit to mitigate flooding and clean our waterways," said Senator Durbin. "This project didn't happen overnight, but tomorrow and for decades to come the residents of the south suburbs and Chicago's south side will benefit from the flood protection it offers. Thank you to the Metropolitan Water Reclamation District and the Army Corps for working together to complete this enormous undertaking."

The reservoir, tantamount to 12 Soldier Fields in size, is part of the MWRD's Tunnel and Reservoir Plan (TARP), also known as the "Deep Tunnel," consisting of more than 100 miles of tunnels deep below the surface of the Chicago region and three reservoirs designed to capture and hold stormwater and sewage for treatment at water reclamation plants. Together with the Thornton Reservoir, the Gloria Alitto Majewski Reservoir (350 million gallons) in the northwest suburbs, the yet to be completed McCook Reservoir (10 billion gallons) in the west suburbs, and 109 miles of tunnels (2.3 billion gallons), TARP will accommodate for 20.55 billion gallons of water.

"Thornton Composite Reservoir is the world's largest. It has drawn intrigue from across the world, and given the success of TARP, more cities are emulating our strategy," MWRD President Mariyana Spyropoulos said. "We thank our predecessors with the MWRD Board of Commissioners who had the foresight in 1972 to adopt a plan that made flooding and water quality genuine issues to



The world's largest reservoir, the Thornton Composite Reservoir, shown looking east, will hold 7.9 billion gallons of water emanating from the tunnels on the east wall.

prioritize. In past years, that polluted, untreated water would enter our waterways or worse, our basements. Because of TARP, combined sewer overflows have been drastically reduced, and the addition of Thornton will again lead to more water quality improvements upstream."

The Thornton Composite Reservoir will benefit 556,000 people in 14 communities throughout the south side of Chicago and south suburbs. It will protect 182,000 homes, businesses and other facilities and improve water quality in the Calumet Rivers and Calumet-Sag Channel by collecting combined sewer overflows before entering waterways. The new reservoir's capacity holds these overflows before pumping the water back to the Calumet Water Reclamation Plant to be treated.

"Because of this reservoir we stand before today, the quality of life in our communities in the South Side and south suburbs will benefit immensely. In addition to putting thousands of people to work, we are finding resourceful ways to manage water and build roads and our economy," said U.S. Rep. Robin Kelly (2nd District). "With the reservoir and tunnel system, we have a new *(continued)*



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MWRD President Mariyana Spyropoulos addresses guests and the media prior to the ribbon cutting ceremony at the bottom of the Thornton Composite Reservoir on Sept. 1, 2015. Other speakers included Senator Dick Durbin; Congresswoman Robin Kelly; Congressman Mike Quigley; USEPA Region 5 Administrator Susan Hedman; US Army Corps of Engineers Lt. Col. Kevin Lovell; IEPA Director Lisa Bonnett; Secretary/Treasurer of Chicago Fed. of Labor Robert Reiter; South Suburban Mayors and Managers Assoc. Exec. Dir. Ed Paesel; and Friends of Chicago River exec. director Margaret Frisbie. They are joined by MWRD Vice Pres. Barbara McGowan, Chairman of Finance Frank Avila, and Commissioners Timothy Bradford, Cynthia Santos, Debra Shore and Kari Steele; and MWRD Exec. Dir. David St. Pierre.

and gigantic tool that will help us face an increasing amount of intense rainstorm events flooding Thorn Creek and our streets, homes and businesses. The reservoir will provide an outlet for these waters and give us a chance to treat water before it enters the Little Calumet River.”

Through an agreement reached in 1998, the MWRD asked Hanson Material Services to create the rough hole needed for the reservoir. The deal would also allow Hanson to sell the rock through their existing Thornton Quarry, which dates back to the 1860s. That aggregate is used in several area road and building construction projects.

“Our 2013 Consent Decree requires MWRD to triple existing combined sewer overflow storage by expanding capacity at the Thornton and McCook reservoirs by 2017,” said U.S. EPA Region 5 Administrator Susan Hedman.

“The new Thornton Reservoir is even larger than required by the settlement – and will prevent billions of gallons of sewage from overflowing into Lake Michigan and Chicago area rivers during heavy rainstorms.”

Beyond mining the large reservoir, the other challenge was properly sealing the reservoir to contain the water much like a bathtub. A dam, made of 32,000 cubic yards of roller compacted concrete, was constructed below the Tri-State Tollway (I-80/I-294) to separate the reservoir and its contained water from reaching the main lobe of the quarry. Two mining haul tunnels at lower elevations were also plugged with concrete.

At the bottom of the reservoir is an impermeable natural layer of shale existing approximately 500 feet below ground, preventing water from leaving through the bottom of the

reservoir. To keep water from escaping through the sides of the reservoir, a double-row grout curtain was installed around the outside perimeter of the hole and tied into the layer of shale. From the surface, holes were drilled as far down as 500 feet deep at a 15-degree angle and then filled in stages from the bottom up with grout under pressure. The grout then migrated into all of the cracks and fissures in the rock mass to reduce the permeability. The holes were drilled about every five feet around the nearly two-mile perimeter of the reservoir. A second row was then constructed about 20 feet away, angled in the opposite direction in an attempt to intercept and seal as many cracks as possible.

The total cost of TARP is \$3.8 billion, about half of which came from federal money. The total cost of Thornton is projected at \$429 million. “We commend *(continued)*



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the MWRD on this project and the investment of time and resources from federal and local officials. These investments will pay significant dividends locally in terms of flood reduction, but also help clean the regional waterways," said Congressman Quigley. "This is another positive step in the right direction for our waterways. As water quality has improved, our waterways have become home to increasingly healthy and diverse fish populations and increasingly excited boaters, kayakers and other visitors seeking recreation."

"This historic project will have lasting benefits for residents and businesses while improving water quality and addressing concerns of flooding in the region," said Illinois EPA Director Lisa Bonnett. "Thornton Reservoir will capture combined sewage and stormwater during storm events, which is key to minimizing combined sewer overflows and reducing water pollution in the area. Illinois EPA looks forward to our continued work with the Metropolitan Water Reclamation District and the completion of the Deep Tunnel project."

Solar-powered aerators were installed at the bottom of the reservoir. These will float up and down with the water elevation, keeping the surface layer of water from going septic and causing any odors.

Lastly, the reservoir was connected with the tunnel system by removing a 10-foot, thick concrete mass that



MWRD commissioners are joined by Senator Dick Durbin, Congresswoman Robin Kelly, USEPA Region 5 Administrator Susan Hedman, IEPA Director Lisa Bonnett and local mayors and community leaders to celebrate the ribbon cutting on the Thornton Composite Reservoir on Sept. 1, 2015.

operates as a plug. The tunnel runs about 1300 feet before meeting up with the existing, operational deep tunnels. A concrete apron was constructed in front of the tunnel to withstand the force of the water coming out of the tunnel, which can be at velocities of up to 30 feet per second. The apron will prevent erosion of the stone reservoir floor.

"We are one huge step closer to donning our swimsuits and heading into the river to take a dip," said Friends of the Chicago River's Executive Director Margaret Frisbie. "We thank our elected officials, the MWRD and many partners who have made a commitment to cleaner waterways."

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Recovering Resources, Transforming Water

Established in 1889, the MWRD (www.mwr.org) is an award-winning, special purpose government agency responsible for wastewater treatment and stormwater management in Cook County, Illinois.