



Metropolitan Water Reclamation District of Greater Chicago

Press Release

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Thornton Composite Reservoir to receive Project of the Year award from American Public Works Association

Award to be presented at Medinah Banquets in Addison on March 18

The Metropolitan Water Reclamation District of Greater Chicago (MWRD) is adding another award to its trophy case as the agency's Thornton Composite Reservoir will receive the "Project of the Year" award from the American Public Works Association (APWA) on March 18 at the Medinah Banquets in Addison.

The reservoir is part of the MWRD's Tunnel and Reservoir Plan (TARP) connected to the MWRD's extensive network of deep tunnels. It benefits 556,000 people in 14 communities throughout the South Side of Chicago and south suburbs. It protects 182,000 structures, such as homes, businesses and other facilities, and improves water quality in the Calumet Rivers and Calumet-Sag Channel by collecting combined sewer overflows (CSO) before entering waterways. The new reservoir's capacity (7.9 billion gallons) holds these overflows before pumping the water back via the 30-foot tunnel to the Calumet Water Reclamation Plant to be treated.

Major construction features of the project included: a double-row vertical grout curtain around the two-mile perimeter of the reservoir; a 112-ft tall roller-compacted concrete dam; a 1,300-ft long, 30-ft diameter connecting tunnel from the reservoir to the existing Calumet Deep Tunnel; a 1,100-ft long, 20-ft diameter connecting tunnel from the reservoir to Thorn Creek.

In its first months of service, the Thornton Reservoir has already made an impact. The reservoir took in its first water on the evening of November 26, 2015. By the time the rain stopped the following day, the reservoir was filled to a depth of 17 feet and held approximately 400 million gallons of water. There were no CSOs in the reservoir's service area during the rain event, pointing directly to the effectiveness of the reservoir.

"This honor is a credit to our engineers who saw a barren land of limestone and through hard work and ingenuity turned it into the largest of its kind reservoir in the world,"



The Thornton Composite Reservoir is part of Phase II of the MWRD's TARP. The reservoir, with a volume of 7.9 billion gallons, is the largest combined sewer overflow (CSO) facility in the world. Serving a 90 square mile area in Cook County, the Reservoir provides flood relief benefits to 556,000 people in 14 communities. The project converted a limestone quarry into a CSO facility.

said MWRD President Mariyana Spyropoulos. "We now have the ability to save local communities in the South Side of Chicago and south suburbs from flooding and protect our vital waterways from pollution."

Through an agreement reached in 1998, the MWRD asked Hanson Material Service (HMS) to create the rough hole needed for the reservoir. The deal allowed HMS 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.

To properly seal the reservoir to contain water, 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.



Beginning on Thanksgiving, Nov. 26, the Thornton Composite Reservoir began to fill for the first time. It reached 17' and contained 400 million gallons of combined sewer overflow prior to being transported by tunnel for treatment at the Calumet Water Reclamation Plant. The new reservoir holds these overflows before pumping the water 5.5 miles back to the Calumet Water Reclamation Plant for treatment. Communities that will benefit include Blue Island, Burnham, Calumet City, Calumet Park, Chicago (south side), Dixmoor, Dolton, Harvey, Lansing, Markham, Phoenix, Posen, Riverdale and South Holland.

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 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 reservoir, converted from a limestone quarry, is the largest CSO facility in the world.

The APWA serves professionals in all aspects of public works—a fact that sets it apart from other organizations and makes it an effective voice of public works throughout North America. With a worldwide membership over 28,500 strong, APWA includes not only personnel from local, county, state/province, and federal agencies, but also private sector personnel who supply products and services to those professionals.

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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.