



Metropolitan Water Reclamation District of Greater Chicago

Press Release

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For immediate release

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Hanson Material Service, MWRD to be recognized by IDNR at Aggregate Miner Safety Conference



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

Mining may not exactly fall under the job description or daily operations for the Metropolitan Water Reclamation District of Greater Chicago (MWRD), but finding a place to protect clean water and eliminate flooding has made the agency an expert in the field of mined land reclamation.

For their efforts in constructing the Thornton Composite Reservoir in South Holland, the MWRD and miner Hanson Material Service (HMS) will be recognized for outstanding and innovative reclamation techniques at the annual Aggregate Miner Safety Conference/Illinois Association of Aggregate Producers (IAAP) Annual Convention to be held March 1-3 at the Crowne Plaza Hotel in Springfield.

"The Illinois Department of Natural Resources, Office of Mines and Minerals congratulates Hanson Material Services and the Metropolitan Water Reclamation District of Greater Chicago as winner of the 2016 Illinois Mined Land Reclamation Award," wrote James Hafiger, director of the IDNR Office of Mines and Minerals.

The MWRD and HMS received the honor as part of the non-coal award category. The IDNR will now nominate HMS and the MWRD for the Interstate Mining Com-



The Thornton Quarry has been mined all the way back to the 1860s, but it was an intriguing agreement made in 1998 that allowed Hanson Material Service the ability to mine it in preparation for the MWRD's Tunnel and Reservoir Plan.

pact Commission (IMCC) and the National Association of State Land Reclamationists (NASLR) reclamation awards programs.

The reservoir is part of the MWRD's Tunnel and Reservoir Plan (TARP) connected to the MWRD's extensive network of deep tunnels. It is designed to benefit 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 before entering waterways. The new reservoir's capacity holds these overflows before pumping the water back via the 30-foot tunnel to the Calumet Water Reclamation Plant to be treated.

In only a few months of service, the Thornton Reservoir is already making an instant impact. The reservoir first took 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 combined sewer overflows in the reservoir's service area during the rain event, pointing directly to the effectiveness of the reservoir. *(continued)*



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IDNR award *(continued)*

“This honor is a credit to the engineers who saw a barren land of limestone and through hard work and ingenuity turned it into the largest reservoir of its kind in the world,” said MWRD President Mariyana Spyropoulos. “We now have the ability to prevent flooding in local communities in the South Side of Chicago and south suburbs and protect our vital waterways from pollution.”

Through an agreement reached in 1998, the MWRD asked 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.

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.

No stranger to accolades, work on the reservoir was also recently lauded by the American Public Works Association as Project of the Year under the Environmental category for projects of more than \$75 million.



In addition to the “Deep Tunnel,” which is 30 feet in diameter, the reservoir houses a smaller, 20-foot tunnel in the southeast corner of the reservoir that brings Thorn Creek overbank floodwater into the reservoir.

As large and unprecedented as Thornton is, it will no longer be recognized as the largest in the world come 2027. By then, the MWRD is expected to complete the McCook Reservoir in the southwest suburbs along the Stevenson Expressway between the Chicago Sanitary Ship Canal and Des Plaines River. Completed in two phases, beginning in 2017, the reservoir once totally complete will hold 10 billion gallons.

To learn more about the conference, visit <http://www.iaap-aggregates.org/convention.htm>.

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Recovering Resources, Transforming Water

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