

## Drop Shaft 5 Inspection and Rehabilitation, NSA

**Project Number** 14-372-3S

**Service Area** North

**Location** Des Plaines, IL

**Engineering Consultant** In-house design

**Engineering Contractor** To be determined

**Estimated Construction Cost** \$3,500,000

**Contract Award Date** January-19

**Substantial Completion Date** August-19



**Project Description** The project consists of the following rehabilitation work at Drop Shaft No. 5: Repair drop shaft by means of slip lining, repair 100 feet of 108-inch pipe by the cured-in-place lining process, repair 100 feet of the drop shaft exit conduit by spray-on lining, and the replacement of deteriorated appurtenances. Additionally, Drop Shaft No. 8 will have louvers and grating installed and Control Structure 10 will have Gate 11 removed and Gate 13 replaced along with the installation of a new actuator. The work also includes the installation of radar level measurement devices at three shafts on the Calumet tunnel system and the replacement of gates and stop logs on Drop Shaft DS-PI, which is part of the 39th Street Conduit.

**Project Justification** Drop Shaft No. 5 was inspected visually by the Maintenance & Operations and Engineering Departments. The results of the visual inspection show concrete and metal deterioration due to hydrogen sulfide. In order to restore the structural integrity of the drop shaft and sewer, they need to be rehabilitated.

Drop Shaft No. 8 experiences large air displacement during Tunnel and Reservoir Plan fill events causing potential damage to the structure. Increasing the venting area will help in reducing this issue.

The gates within Control Structure 10 are non-operational. The Maintenance & Operations Department has requested the rehabilitation of one of the gates for diversion purposes and the removal of the other.

A bubbler instrumentation system was installed to measure and monitor water levels in the Tunnel and Reservoir Plan system. The District has found that the bubbler systems at these locations are unreliable and provide inaccurate data and need to be replaced.

During storm events in 2014, the stop logs at DS-PI dislodged and passed through the dual flap gate bulkhead. As a result, the bottom flap gates were severely damaged in a manner that prevents proper operation.

**Project Status** Design