

ELAN

Technologies

Inc.



Midway Airport

Packaged Metering Manholes

CASE STUDY



- Multiple Meters
- Flow to 95,000gpm (213cfs)
- Airplane Taxiway Location
- Submerged Flow Conditions
- Packaged Metering Manhole Solutions

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Project Background

Midway Airport, located in Chicago, IL handles over 15 million passengers per year and discharges sewer and storm flow to the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC). When an expansion started in 1998, the MWRDGC requested effluent meters be installed, which had not existed with Midway's dedication in 1927. There are (3) key points at Midway and accuracy is critical during dry and wet weather when the MWRDGC TARP (Tunnel and Reservoir Plan) begins to take excess flow.

Point 1: Storm flow only. Anticipated peak flows of 35,000 gpm (77cfs). In airplane taxiway!

Point 2: Sewer and Storm flow. Anticipated range from < 300gpm to 95,000 gpm (213cfs).

Point 3: Storm flow only. Anticipated peak 26,000 gpm (59cfs) in likely submerged flow condition.

Solution

ELAN Technologies was asked to design a meter solution to meet the MWRDGC accuracy and equipment requirements while accommodating the unique site constraints of an airport. ELAN dates to 1972 and the Clean Water Act, with years of innovative solutions generated in house and in conjunction with manufacturers represented by ELAN including Plasti Fab. ELAN has supplied the Chicago Airport Authority with other monitoring equipment and is a key supplier of equipment, repair and calibration services to the MWRDGC. ELAN used a combination of available technology to solve this application.

- For Point 1, the flow suited a 48" Palmer Bowlus flume and an Ultrasonic flow meter. The flume was supplied as part of a Packaged Metering Manhole (PMM) from Plasti Fab, with an engineered barrel for 100,000lb capacity suitable for its taxiway location.

- For Point 2, an XL Trapezoidal flume with inlet wing walls (to set into the pipe easily) and a bubbler type meter was selected to handle flow to 700gpm, with a 72" Palmer Bowlus Flume, as part of a PMM with an ultrasonic meter, for flows from 700gpm to 95,000 gpm. Installed in the same line, the solution can accurately measure the wide flow range.

- For Point 3, the submerged condition required an Area Velocity meter. ELAN selected one utilizing bubbler for depth measurement, ideal for permanent sites requiring annual calibration.



Contact ELAN Technologies

ELAN Technologies offers innovative, custom open channel flow monitoring solutions to meet any flow application and regulatory requirement. When you have a tough application, call ELAN. For information on fixed sewer flow monitoring systems, contact ELAN Technologies on the web at www.ELANTechnologies.net