

### LaGuardia Airport Upgrades Storm Water Control

Superstorm Sandy paralyzed LaGuardia Airport in New York City as the storm rolled into the Northeast in October 2012. After the airport's five storm water pump stations lost power, an estimated 100 million gal of water built up to 4 ft deep at some points, including the shuttle ramps of this busy hub for Delta Airlines.

High water on an airfield always presents a problem, but in the aftermath of the superstorm, the Port Authority of New York & New Jersey stepped up the planned replacement of the hydraulic and electrical muscle of Pump Station Nos. 4 and 6, which drain LaGuardia's two runways. The first two pumps in the total procurement of nine Flygt 300-hp, 33,000-gal-per-minute, propeller-style electric submersible pumps, rated as explosion proof for use in hazardous locations, were installed at Runway Pump Station No. 6; another seven, including one spare, now await installation in Runway Pump Station No. 4 following completion of a new 5-kV substation situated in a less vulnerable location. The axial flow pumps are ideally suited for the airside upgrade, where they will move large volumes of water at low heads (25 ft).

The submersible pumps replace vertical turbine units that have been in place for 40 years. G.A. Fleet Associates Inc. of Harrison, N.Y., a full-service Flygt factory representative, sized and matched the replacement pumps to function as an engineered system that improves the airport's storm water control, flexibility and operational efficiency. The major elements are identical Flygt propeller-type pumps with a submersible design that makes the motors inherently invulnerable to submersion during high-water incidents. The replacement's profile also adds clearance because the new pumps will install completely within the collection pit, unlike the taller vertical pumps that protruded approximately 10 ft above grade level. Adopting a standard primary pump for the two runway storm water stations also enables an exchange with the spare pump, in the event a unit is removed for service. The first two pumps are equipped with modular alarm system panels that detect and identify the



specific nature of any malfunction. The alarm is transmitted via fiberoptic communication line to a central station.

In addition to the engineering developed in collaboration with a Flygt applications engineer, G.A. Fleet Associates supplied the interface for the pump intakes, controls and other components to facilitate the replacement by the installation contractor.

Flygt also is supplying a number of smaller pumps for the airport's upgrade program. **SWS**

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