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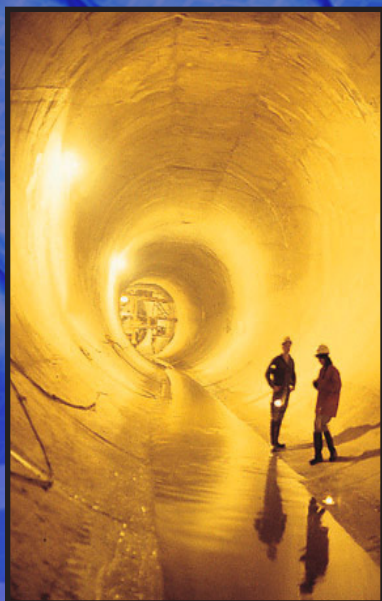
Inc.



MWRDGC CSO Project

Solar Powered Tide Gate Monitoring

CASE STUDY



- MWRDGC TARP
- Solar Powered
- Allen Bradley DF1 Full Duplex
- Report-By-Exception
- EDACS Trunked Radio

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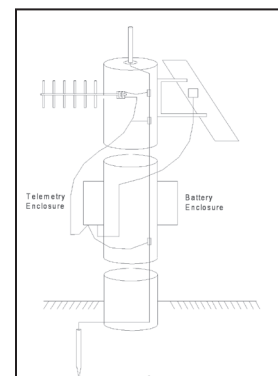
Project Background

The Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) serves a population of 5.1 million people and wet weather peak flow in the combined system can exceed the 1.4 billion-gallon/day capacity. To accommodate peak flow the MWRDGC has implemented the Tunnel and Reservoir Plan, TARP, a plan of deep tunnels connected to reservoirs to hold flow until it can be processed. Inlet structures to TARP are Combined Sewer Overflow (CSO) points; tide gates bypass flow to local rivers and streams when the TARP system is full. The MWRDGC needed a foolproof means to transmit bypass data to their SCADA system.

MWRDGC Tide Gate monitoring requirements:

- Solar power with 2 week operation with solar panel loss
- A-B DF1 Full Duplex, "Report-By-Exception" when gates opened
- Transmit data via the District's EDACS radio system
- Expandable for Future Sensor Parameters

The MWRDGC had a significant evaluation process including datalogger, RTU and related manufacturers and suppliers throughout the US. As reference, even Allen Bradley did not offer a low power device with their DF1 protocol implemented. A system schematic is shown on the right.



Elan Technologies Custom Solution

The MWRDGC selected a custom solution from Elan Technologies located in New Lenox, IL. Elan dates to 1972 and the Clean Water Act, with years of innovative solutions, equipment, repair and calibration services to the MWRDGC.

The key item in the solution is the Elan Series I RTU, a low power intelligent RTU with both input and output capabilities and Allen Bradley's DF1 Full Duplex protocol already embedded. Elan then incorporated the EDACS communication protocols and required software drivers into the device, meeting the MWRDGC requirement. Other parts of the solution included a unique solar power charger/regulator system, a custom signal interface and custom enclosures to separate the electronics from the deep cycle solar batteries. The system operates seamlessly, communicating via the existing trunked radio system to the SCADA master located at the MWRDGC Stickney facility. Sixteen (16) sites have been online since October 2002 and an additional sixteen (16) sites went on-line in March 2004. The MWRDGC has standardized on Elan's solution for future installations.



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