PROJECT NARRATIVE

EAST BAY MUNICIPAL UTILITY DISTRICT

Main Treatment Plant, Oakport Wet Weather Facility, Point Isabel, San Antonio Creek, Dechlorination Site
Located in Oakland, California

Wet Weather Program

The East Bay Municipal Utility District, headquartered in Oakland, California, serves 1.1 million water customers in a 317-square mile area. East Bay services six other sewer districts, providing wastewater treatment for a population of 600,000 in an 83-square-mile area along the eastern shore of San Francisco Bay. Through the years, the District has often had to cope with sewer overflows during periods of heavy rain. During these "Wet Weather" events, rain-water infiltration into the more than 1800 miles of sewer lines in the district could increase peak wastewater flows to nearly 1.1 billion gallons per day. Overflows occurred at more than 175 locations throughout the interceptor network as well as in the main treatment plant. To address this issue, the District launched a multi-year, $250-million Wet Weather Program, to expand and modernize both the collection system and treatment facilities. The program resulted in a number of plant improvements:

- Increased number of wet weather treatment plants from two to six
- Addition of two interceptors lines
- Increased interceptors from 21.6 miles to 29.1 miles
- Addition of an 11-million gallon storage basin for flow equalization
- Expanded main wastewater treatment plant to a peak capacity of 415 million gallons per day

Initial Emerson Controls

Emerson Process Management installed a WDPF® system that incorporates both distributed control system and SCADA (supervisory control and data acquisition) features to provide District-wide process control, communications, and information management capabilities. The WDPF system encompassed over 4,000 I/O points and 12,000 data points at six of the District's treatment facilities and over 20 unmanned pumping and monitoring locations. In a wet weather event, the WDPF system

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Process Management

System Description

Owner: East Bay Municipal Utility District

Plant: Main Treatment Plant, Oakport Wet Weather Treatment Plant, Point Isabel Wet Weather Treatment Plant, San Antonio Creek plant, and the Dechlorination site

Location: Oakland, California

System: Ovation

Application: WWT, MIG, SCADA

WDPF to Ovation Migration Completion: Phased June 2005 - August 2005

Major Ovation Equipment:

- 5 Ovation Networks with multi-network capabilities
- 22 new Ovation Controllers
- 1 existing Ovation Controller for the Dechlorination. Process
- 29 new Ovation workstations

Main Plant Ovation Workstations:

- 1 Database/ Software/ Engineer Workstation
- 3 Engineer/Operator Workstations
- 11 Operator Workstations
- 1 Historian/Data Server
- 2 Web Viewer Workstations

Oakport Ovation Workstations:

- 1 Database/ Software/ Engineer/ Operator Workstation
- 1 Operator Workstations
- 1 Historian/Data Server

Point Isabel Ovation Workstations:

- 1 Database/ Software/ Engineer/ Operator Workstation
- 1 Operator Workstations
- 1 Historian/Data Server

San Antonio Creek Ovation Workstations:

- 1 Database/ Software/ Engineer/ Operator Workstation
- 1 Historian/Data Server

Dechlorination Ovation Workstations:

- 1 Database/ Software/ Engineer/ Operator Workstation
- 1 Operator Workstations
- 1 Historian/Data Server

tracked levels and flow in the interceptors, diverting excess flows to upstream stations for treatment or temporary holding. Point Isabel is an expansion of East Bay Municipal District (EBMUD) Wet Weather program to treat 85 million gallons per day of combined storm and sewer overflow during heavy rainstorms. Although it has its own control system, a high speed-data link to EBMUD's main Water Treatment Plant allows remote data acquisition and optional remote control.

WDPF to Ovation Migration

After more than twenty years of exceptional performance, EBMUD decided to upgrade their entire WDPF system to Ovation® expert controls. The migration would keep all the benefits provided by the WDPF system, while providing EBMUD with additional features, functions and performance improvements. Items retained by EBMUD during the migration included:

- Controller cabinetry with no impact on the system footprint
- Q-Line I/O subsystem and associated wiring, eliminating field service and checkout time
- Proven control logic reduces project risk and engineering
- Process graphics eliminates need to retrain operators

EBMUD migration process consists of a complete hardware and software inventory of the existing WDPF system which forms the basis for a comprehensive hardware layout, software map and migration plan. Existing control logic, process graphics and databases from the Main plant, Oakport and Point Isabel wet weather facilities, San Antonio Creek, and the Dechlorination site are converted off-line to their Ovation equivalent. A thorough factory acceptance test of the new components and software is performed to prove adherence to project guidelines, completing the migration with minimum process downtime.

Benefits of Emerson Ovation Controls

- Reactive control capabilities help maintain plant flows within an optimal range to permit operation at levels close to facility design parameters.
- Online monitoring of rainfall intensity at critical locations, automatic activation of remote equipment, and development of total flow projections allow operators to prevent overflows and process upsets.
- Interactive process management techniques provide online data from all off-site locations for analysis and decision-making.
- Integration of existing Laboratory Information Maintenance System provides accurate process performance calculations and treatment quality indicators directly on the Operator's workstations.