Michigan's Water Quality Event

Thank You for supporting your 5-S Inductee’s

88th Annual Conference
Boyne Mountain- 2013
Presentation Represents 22 Projects and > $200 MILLION dollar investment to improve Clean Water for the citizen of Michigan
This is your chance to be LOUD and PROUD
News From the Field

Black & Veatch
Grand Rapids Eastside CSO Program

- 31 Individual CSO Contracts
- $85 Million Construction Cost
- Elimination of 10 CSO outfalls by 2019
- 2,000 cfs storm water outfall in Grand River
- Storm sewer box conduits up to 18’w x 11’ h
- Sanitary sewers up to 84” dia
- Water mains up to 48” dia
- Approximately 18 miles of separation completed to date
- After this year will have 2 full contracts left to complete.
Grand Rapids CSO Over The Past Year

- 6 individual contracts worth over $12 Million
- Sewer lining, sanitary sewer replacement from 8”- 24”, storm sewer installation from 12” – 42”, water mains from 6”-16”
- Rebuilding road surfaces with bituminous asphalt as well as concrete pavement, porous asphalt, and salvaged brick pavement.
- New concrete sidewalks, driveway approaches and curb and gutter.
- Green infrastructure items including a hydrodynamic separator, rain gardens, bioswales, infiltration basins, porous pavement full width streets and parking lanes
Engineer: Black & Veatch, Fishbeck, Thompson, Carr & Huber, Materials Testing Consultants
Client: City of Grand Rapids
Contractors: Georgetown Construction, Wyoming Excavators, Kamminga & Roodvoets, Nagel Construction
News From the Field

Benton Harbor-St Joseph Wastewater Treatment Authority
News From the Field
Fleis & Vanderbrink
City of Plainwell

**Funding Source:**
- S2 Grant
- SRF Loan including Green Project Reserve Principal Forgiveness

**Project Amount:**
$4,085,000

**Project Highlights:**
Upgrading to a Moving Bed Biofilm Reactor secondary treatment process instead of continuing to use the existing, outdated RBCs.

The design also incorporated modifications to the existing anaerobic digester system to allow for receipt of high strength food waste to increase biogas production. Both the MBBR and digester modification project components qualified for 50% principal forgiveness under the SRF Green Project Reserve program.
Kalamazoo Lake Sewer & Water Authority
- Funding Source: S2 Grant SRF Loan including Green Project Reserve Principal Forgiveness

- Project Amount: $5,125,000

- Project Highlights: 10 collection system lift stations were improved, including new electrical panel, telemetry system, new pumps and valves, and corrosion resistant concrete coatings.

Kalamazoo Lake Sewer & Water Authority
Berlin Charter Township
Berlin Charter Township

- **Funding Source:** S2 Grant, SRF Loan
- **Project Amount:** $3,014,000
- **Project Highlights:** Rehabilitation of existing concrete structures that were critical for reliable operation of the plant.

Specifically, the project included reconstruction of the concrete aeration tanks and flow distribution chamber, replacement of old and non-functional aeration diffusers, and replacement of plant influent and return sludge pumps, addition of flow metering within the WWTP and at the two main lift stations, and other corrective improvements.
Allendale Charter Township
Funding Source:
S2 Grant
SRF Loan including Green Project Reserve principal forgiveness.

Project Amount: $2,800,000

Project Highlights:
- The entire project was funded as a Green Project Reserve project
- (2) 150,000 gallon anaerobic digesters with one fixed and on floating steel digester cover
- (2) 1,200 gpm sludge mixing pumps and (2) 200 gpm sludge heating pumps
- (2) 467 MBTU/hr heat exchangers
- 968,000 MBTU/hr boiler
- Expanded existing Pump Building to house mixing/heating pumps, heat exchangers, foam control tank
- New Boiler Building designed and sized for future expansion
- SCADA controls and instrumentation
- Hydronic system tie-in with existing system to provide supplemental heat with excess biogas

Allendale Charter Township
Village of Bloomingdale
Wastewater Treatment Facility Improvements
Effluent Forcemain
Sanitary Sewer Improvements
Funding Source:
USDA Rural Development Grant and Loan

Project Amount: $5,225,000

Project Highlights:
F&V worked with the Village to develop a solution to address the following issues:

- High-strength, seasonal food processor discharge
- Inflow and infiltration
- Biosolids
- Discontinue the historic groundwater discharge to undersized irrigation field
- Nutrient sensitive receiving waters
- Highly variable organic and hydraulic capacity needs

Village of Bloomingdale
Village of Edmore
Village of Edmore

- **Funding Source:** USDA Rural Development Grant and Loan

- **Project Amount:** $4,353,000

- **Project Highlights:**
  This project was needed to address several issues, including:
  - Lagoon exfiltration (leakage).
  - Expired groundwater discharge permit.
  - Need to match discharge permit conditions with site needs and system capabilities.
  - Need for expansion based on projected future system flows.
  - Need to bring the facility up to current design standards.
  - Need to upgrade antiquated lift station controls.
  - Need for the replacement of an existing lift station.
  - Need for rehabilitation of sanitary sewers throughout the collection system.
  - Need to minimize the financial impact of the project on Village residents.
Village of Onekama
Village of Onekama

- **Funding Source:** USDA Rural Development Grant and Loan

- **Project Amount:** $2,237,000

- **Project Highlights:**
  - The project involved conducting a Section 106 application with the State Historic Preservation Office (SHPO) and an Environmental Report.
  - The project included design and construction of two new sanitary pump stations including new standby generators and a SCADA control system, design of a new spray irrigation system at the wastewater treatment facility, and cured in place pipe (CIPP) lining of existing clay tile sanitary sewer.
News From the Field

Wade Trim
News From the Field

City of Grand Rapids
WWTP
The Flood of 2013

4/18/2013 USGS predicted the Grand River would crest at 24.5’ - 26.5’
The berm protecting the plant is at 25.5’
The Grand River crested Sunday night 4/22/2013 at 21.85’
The previous high was 19.64’ on 3/1/1995
The Grand River flow was around 34,000 cfs, normally there would be a 6,300 cfs flow.
Protecting the City

7,000 yards of sand were used by city employees, contractors and volunteers to fill sand bags, burrito bags and “Trap Bags.”

6000 feet of “Trap Bags” were installed as a barrier around the plant. Trap Bags were also installed around a lift station and along one section of the flood wall.

About 150,000 sand bags were filled.

A train full of coal was parked on a bridge to weigh it down.

436 MG were treated at the Market Ave. Retention Basin. No CSO’s occurred during this flood event.
The city protected the plant with “Trap Bags” at a cost of approximately $400,000.

Removed and reinstalled redundant equipment at a cost of about $100,000.

It was estimated that a minimum of $40,000,000 and 30 days would have been needed to bring the plant back on line if it had been shut down due to flooding.
News From the Field

United Water – City of Lowell WWTP
Pre-Construction Photos
3-D Design of New Pumps
New Pumps and Piping
News From the Field

Tetra Tech
Grand Rapids Wastewater Treatment Plant
Aerated Grit System Blower Improvements

Engineer: Tetra Tech • 517.394.0770 • www.tetratech.com
Contractor: Franklin Holwerda Company
Grand Rapids Wastewater Treatment Plant
North Secondary Treatment System Aeration Blower Improvements

Engineer: Tetra Tech • 517.394.0770 • www.tetratech.com
Contractor: Franklin Holwerda Company

Existing North Aeration Blowers

North Aeration Blower Building
Saginaw Wastewater Treatment Plant
Influent Pump Station Improvements

Engineer: Tetra Tech • 517.394.0770 • www.tetratech.com
Contractor: Davis Construction

Saginaw WWTP  New Bar Screen
Grand Haven Spring Lake Sewer Authority

WWTP
Influent Pump Station Improvements

Engineer: Tetra Tech • 517.394.0770 • www.tetratech.com
Contractor: Davis Construction

Primary and Secondary Clarifiers
Existing Chlorine Contact Tank
Existing Gravity Thickener Tanks
News From the Field

Prein & Newhof
Northland Lift Station Improvements

- Owner: North Kent Sewer Authority
- Capacity: 2,500 gpm
- Original construction: 1979
- Contractor: Triangle Associates
Improvements:

All new pumps, valves, piping and misc. equipment
Conversion from jackshaft to vertical close-coupled immersible motors
MCC with VFDs
SCADA and Mission controls
Flow meter
Belmont Lift Station Improvements

- Owner: North Kent Sewer Authority
- Capacity: 2,500 gpm
- Original construction: 1969
- Contractor: Triangle Associates
• Improvements:
  ◦ All new pumps, valves, piping and misc. equipment
  ◦ Conversion from jackshaft to vertical close-coupled immersible motors
  ◦ MCC with VFDs
  ◦ SCADA and Mission controls
  ◦ Flow meter
  ◦ Natural gas standby generator
  ◦ Reconditioning and epoxy coating of wet well
• Owner: Village of Pentwater
• Capacity: 200,000 GPD, ADF
• Contractor Grand River Construction
• Interesting details:
  ◦ Conversion from lagoons to MBR
  ◦ Utilizes an existing lagoon for EQ and sludge storage
  ◦ Membrane equipment supplied by Ovivo
    • Gravity flow through membranes
  ◦ UV disinfection
  ◦ Plant water re-use
Owner: Spring Lake Township

26 Spring Lift Stations Upgraded

- 1 built in place station
- 17 can stations
- 8 submersible stations
- EDA Project
- Two Contracts – Jackson-Merkey, Grand River Construction

Spring Lake Township Lift Station Improvements
EDA
U.S. Department of Commerce Economic Development Administration

In partnership with
Spring Lake Township

PUTTING AMERICA TO WORK
Barack Obama, President of the United States

"A cooperative project of two great communities"
• Improvements:
  ◦ All new pumps, valves, piping, controls, and Mission Communication
• Owner: Village of Mattawan
• Project to provide utilities to Bronson Healthcare Assisted Care facility
• Improvements:
  ◦ 4,725 feet of 6 inch HDPE Force Main
  ◦ Wastewater Lift Station
  ◦ Project also included 9,167 feet of 12 inch water main