Wyoming Michigan

Utilities Department

Quarterly Report

2010

October
through
December

Utility staff, past and present, gathered in the Water Treatment Plant lobby, December 2010.

Capital Improvements - Drinking Water Treatment Plant

Holland Emergency Interconnect

The City of Wyoming and the City of Holland moved closer to finalizing revisions of an emergency interconnect agreement this quarter.

In October, Wyoming City Council authorized Wyoming's share of engineering design costs for a project to connect the respective community water systems by way of a pipeline and valve/ metering station.

The emergency interconnect project will be eligible for funding through the state's Drinking Water Revolving Loan Fund.

Water Treatment Plant

Bosch's Landscape of Holland worked in wet, cold weather to beat the first seasonal frost, installing dune grass and low maintenance, drought tolerant plants.

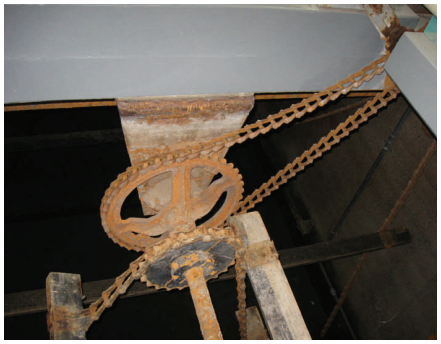
Other work in the main offices and north treatment facility included application of fire-wall -barrier paint finish in the first floor office area and electrical conduit/wiring installations for the offices which Maintenance staff will occupy.

Landscaping and underground sprinkling system installation

Solids Handling

Contractors conducted centrifuge tests to meet required performance specifications. The specifications require a minimum level of solids dryness at a maximum specified polymer dosage. Efforts to optimize the centrifuge performance will result in a manageable solid product. Sludge "cake" is collected in a dumpster and hauled to an area landfill. Ultrasonic sensors in the sludge holding tanks were also tested, as maintenance and operations staff worked to move large volumes of sludge from the tanks through the dewatering process and out to landfill.

Centrifuge and Screw Conveyor System



Slow mix/sedimentation basin equipment

Future Equipment Replacement /Renovations

Consulting Engineer, Black & Veatch, was asked to prepare a proposal to redesign and bid the rehabilitation of the slow mix and settling basins equipment in the North Treatment Plant.

As the Phase IB project nears completion, some contingency funds remain, making it possible to include the 1960's-era equipment items in a future renovation project.

Pending staff review of various equipment options and design specifications, this next project will likely be bid in early spring of 2011.

Capital Improvements - Clean Water Plant

Primary Clarifier Odor Control Project

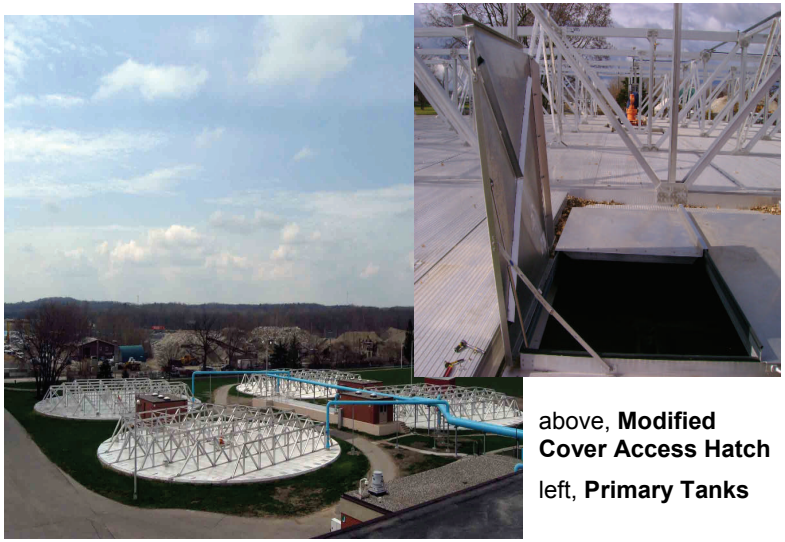
Contract Award: March, 2010

to Davis Construction

Total Project Cost: $2.9 Million

Substantial project completion date: November, 2010

Activated Carbon Scrubber and Mist Eliminator System



above, **Modified Cover Access Hatch**

left, **Primary Tanks**

Odor Control Carbon Scrubber

Several modifications and additions to the tanks and scrubber system were completed prior to final close-out of the Primary Tank Cover/Odor Control Project.

In order to ensure the proper efficiency of the new odor control system, only carbon meeting the American Standard Testing Method (ASTM) D6646 method for humidification was to be installed. Several carbon samples did not pass this test and were rejected before a third sample passed and was installed.

The carbon scrubbing system includes a mist eliminator installed prior to the carbon vessel. The purpose of the mist eliminator is to prevent moisture and grease from being drawn through the piping system. After startup of the scrubbing system, slight modifications needed to be performed to allow for better drainage away from the mist eliminator. This odor control system was fully operational at the end of the quarter.

Primary Clarifier Tank Covers

To assist Operations staff in monitoring sludge depth in the primary tanks, ultrasonic meters were installed in all four primary tanks. These devices send a signal to the Supervisory Control and Data Acquisition (SCADA) control system to indicate sludge depth.

Maintenance staff Jerry Roche and Dave Bartz also made modifications to the hatch panels on each tank cover. The panels, which provide access to the surface solids collector of each tank, were too large for one person to handle safely. The panels were split in half and reinforced with additional welded supports and handles for easier access.

Grand Valley Regional Biosolids Authority

GRAND VALLEY
REGIONAL BIOSOLIDS AUTHORITY

Segment 1
Storage at Grand Rapids WWTP

Segment 2
Wyoming Pumping Facilities

Segment 3
Biosolids Transfer Pipeline

Segment 4
Dewatering Facility at Grand Rapids WWTP

Synagro Technologies contracted biosolids hauler, land applied 8,495,700 gallons of biosolids to farmland.

Total land application costs this quarter: $245,523.73

Quad Train, tractor and tanks

Land Application Program

Contracted biosolids hauler, Synagro Technologies, recently acquired one tractor and twin Nuhn tanks, called the Quad Train. This new unit has increased land application of biosolids by approximately 100,000 gallons per day.

The new tank design improves transfer of biosolids and saves time and manpower compared to the older Terra-Gator units. The Quad Train tanks hold 13,000 gallons of liquid biosolids compared to the Terra-Gators, which carried 3,800 gallons. Synagro dispatches tanker trucks filled with biosolids to the field site and the Quad Train can be met at the field entrance, attach to the truck's unloading outlet, and start pumping without personnel having to leave the tractor cab.

Personnel Changes

Dave Harris, Operations Supervisor at the Grand Rapids Environmental Protection Services Department, prepared to rotate into the Authority's Project Manager position beginning in January 2011.

Kim Hackbardt, Biosolids Coordinator for Wyoming, will cross-train with the Environmental Services work group at the Clean Water Plant, performing oil and grease inspections at Wyoming restaurants throughout the quarter, in addition to land application program duties.

GVRBA Operations

Black & Veatch, Ltd., engineering consultant, and staff met to resolve air quality issues in the truck loading bay at the dewatering facility. Smoke tests were conducted and staff continued to use safety equipment and minimize time in areas most prone to ventilation issues.

Wyoming staff began flushing the sludge pipeline in preparation for winter storage and the end of land application for the season.

Approximately 25% of all biosolids produced annually at the Clean Water Plant are pumped to Grand Rapids during the winter season and occasionally during the summer months, when field conditions prohibit land application of biosolids. Frozen ground and/or crops on the fields, as well as very wet soil conditions can prevent land application for periods of time throughout the year.

Utility Plant Tours were provided to the following groups during this quarter:

Hope College

Rogers High School

Lamont Christian School

Jenison Public Schools

Hudsonville High School

Lakeview Elementary

Holland Schools

Visitors from Grand Valley State University's Annis Water Research Institute were first time tour participants at the Clean Water Plant.

Community Outreach Activities

Utilities Staff Spread Message of Environmental Stewardship

Mayor's 7th Annual Grand River Clean-up

With sponsorship from the City of Wyoming, the West Michigan Environmental Action Council, and the Grand Rapids Young Professionals, over 200 volunteers removed 15,700 pounds of refuse from ten miles of riverbank throughout Grand Rapids, Wyoming, Grandville and Walker.

Wyoming distributed educational material encouraging environmentally responsible waste handling. Financial resources to assist in event costs for transportation and waste hauling were also provided by the City of Wyoming.

The Utility message reached over 175 tour participants this quarter.

Wyoming Mayor Jack Poll and Grand Rapids Mayor George Heartwell with students at the Grand River Clean-up

Wyoming's annual "Pumpkin Path" event provided an opportunity to bring an awareness of Utilities Department services and program information to several thousand visitors at Lamar Park.

City Council Retreat Long Term Vision

Tom Kent served as a facilitator for the retreat this year and helped to keep discussions focused on the development of a long term vision for the City. Staff members from various City departments participated in sharing employee perspectives and insights to help build consensus on Council direction and future goals for the City.

"Talking Turkey"

Retiring US Congressman Vern Ehlers presented his year-end review of legislative initiatives at the final "Talking Turkey" forum in November.

Over the course of a 16-year relationship with the City, Congressman Ehlers returned to the district each year on the day before Thanksgiving to address local officials, municipal partners, and other environmental groups at this event.

Digester and Distiller

In December, the Clean Water Plant Laboratory received bids to purchase a Total Kjelhahl Nitrogen Distillation System. The complete system consists of a heating block (or digestion unit) and a distillation unit. These are used in the analysis of water or solid residuals when determining organic nitrogen levels. Results of these analyses are used to calculate the agronomic rates for land application of biosolids, which are based on the crop's nitrogen needs.

Laboratory Services

Water Treatment Plant laboratory staff completed the unregulated contaminant monitoring round for this quarter, collecting water samples to be analyzed for potential contaminants such as fire retardants. Since the analytical methods are not ones that could be run in Wyoming's laboratories, samples were sent out to an EPA-approved laboratory in Wisconsin for analysis.

Avoiding the necessity of a costly laboratory instrument purchase for the Water Plant, a gas chromatograph-mass spectrometer (GC-MS) from the Clean Water Plant was moved to the Drinking Water Plant laboratory. Use of the GC-MS for analysis of wastewater samples has declined over the last year, while the Water Treatment Plant's sampling volume is expected to increase. With the purchase and installation of a purge and trap concentration device, laboratory staff will introduce water samples to the GC-MS for analysis of volatile compounds. The Clean Water Plant will use a third party laboratory for occasional organic analysis in the future.

Personal Care Products/ Pharmaceuticals Analysis (PCPP)

Water, wastewater and biosolids samples were sent to a third party laboratory for analysis of potential PCPP constituents. Some of the more familiar compounds found to be almost completely destroyed in the wastewater treatment process included: caffeine, Acetaminophen (Tylenol), and Ibuprofen (Advil).

Lab Services Manager Myron Erickson provided an overview of the analysis at the Wholesale Customer meeting in December.

Lynn Kukin was recently promoted to Lab Tech II

Stormwater Management

Myron Erickson, Jaime Halm, and Aaron Vis completed state licensure examinations for Industrial Stormwater Operators. Myron sits on the Board of the Lower Grand River Organization of Watersheds, and works with Jaime and Aaron keeping the City in compliance with State and Federal stormwater regulations.

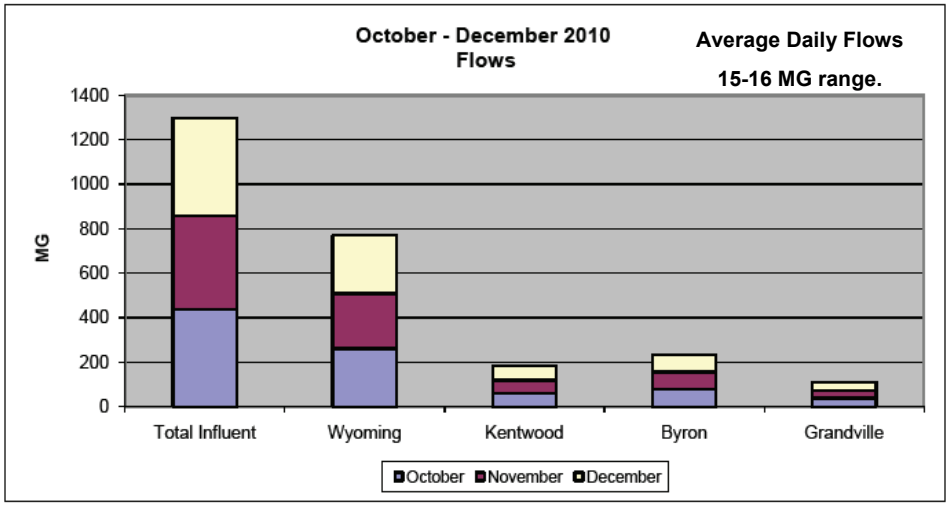
Although recent judicial challenges to the Department of Environmental Quality's stormwater permit have stalled the implementation of new stormwater regulations, this Utility team is prepared to carry on with facility identification and public education initiatives related to stormwater management.

Clean Water Plant

New Plant Operator
Brian Jenerou, CWP
Operator I

Originally from Manistique, MI, Brian earned an Assoc. of Applied Science in Water Resources Management from Bay de Noc Community College.

Brian worked most recently for the City of Manistique and the City of Muskegon Heights.



State Permit Renewal

The Department of Natural Resources and Environment invited public comment on the draft version of the National Pollutant Discharge Elimination System (NPDES) permit for the Clean Water Plant. The new permit includes slight changes to the Clean Water Plant effluent limitations for discharge into the Grand River.

In December, the Clean Water Plant was assessed and paid a fee of $13,000.00 to the Michigan Department of Environmental Quality to administer and regulate this NPDES permit. The new permit, based on a daily flow of 24 million gallons, will be effective from June of this year, through 2015.

Staff Training and Professional Development

Plant staff attended training in the following areas:

System Control and Data Acquisition (SCADA) software

Annual safety training: confined space, lock-out-tag-out, respiratory fit testing.

Environmental Services

Wyoming is the first municipal plant to achieve this certification in the state.

Clean Water Plant Achievement

The Michigan Department of Environmental Quality sent notice late this quarter that the Clean Water Plant passed the Clean Corporate Citizen audit process and will be certified early in 2011.

This quality certification is a direct result of recycling and conservation efforts and overall dedication to excellence in all aspects of the operations and environmental programs. Official certification will be presented at a ceremony with the state department's new Director after the first of the year.

Pretreatment Software System

Environmental services staff and the City's IT Department continued to troubleshoot the latest software installation on LINKO. This software is designed to streamline industry compliance tracking, permit management, inspection scheduling, violation notifications and reporting. Staff trained to use the system include laboratory, front office and ESS staff. Overall the software, along with the new sample bar coding system, has performed well and provided greater efficiencies in recording chain of custody for each water sample from the time it is first collected until final analysis is completed.

Certification Renewal

The Clean Water Plant's Environmental Management System (EMS) ISO-14000 certification status, first achieved in 2009, is annually renewed with the National Biosolids Partnership. This comprehensive plan demonstrates the department's dedication to operating on the basis of internationally recognized environmental stadards. In preparation for this year's renewal process, staff completed an internal audit to evaluate the plant processes and overall preparedness. KEMA, a third party auditing firm performed the annual audit of the Clean Water Plant's EMS this quarter.

As defined by the Environmental Protection Agency, "an Environmental Management System (EMS) is a set of processes and practices that enable an organization to reduce its environmental impacts and increase its operating efficiency."

Medicinal Take-Back Program Education

Environmental Services Supervisor Dave Oostindie and Inspector Aaron Vis attended the AWWA/MWEA Borchardt Conference, where they presented a paper entitled, "Developing an Effective Medicinal Take-Back Program".

Wyoming's success in expanding this local program regionally through cooperative partnerships has been extensively promoted at professional association seminars, in local television and radio interviews, and with articles in various professional publications.

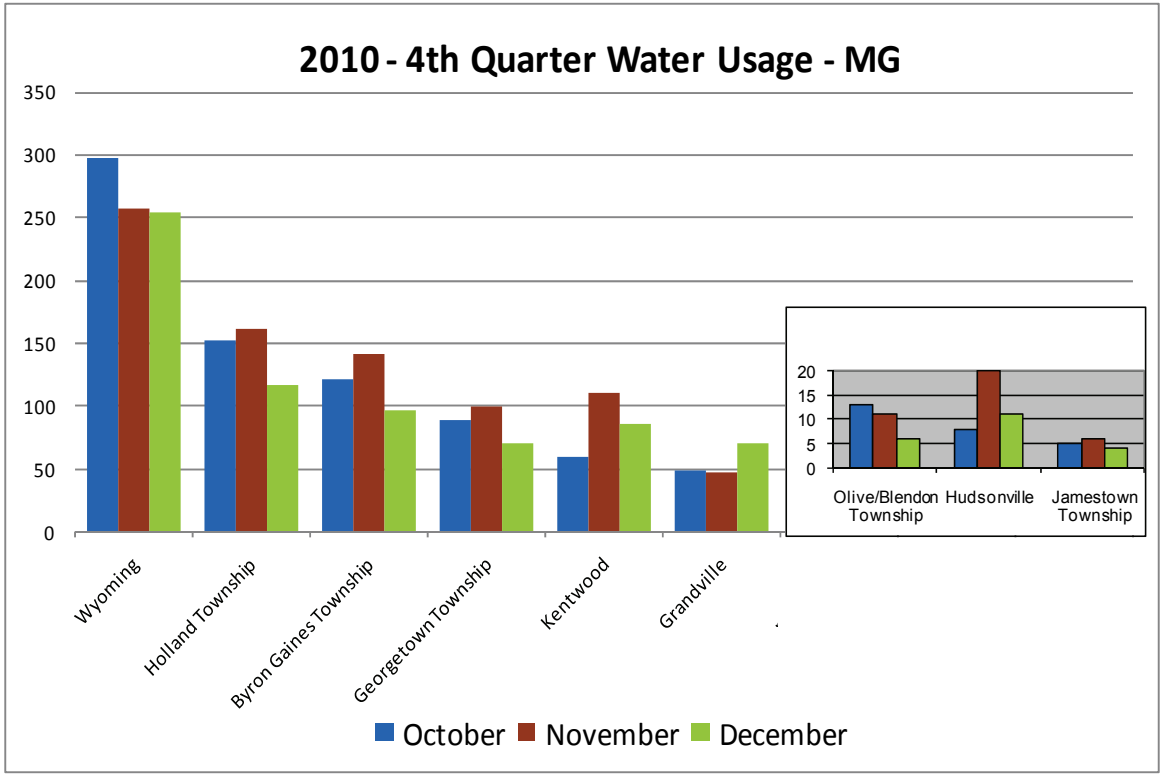
Drinking Water Treatment Plant

Training

Thirty public safety officers and rescue personnel from Park Township and Ottawa County participated in a training exercise at the Water Treatment Plant. Simulating a "man down" in the bottom of the empty, north clarifiers, teams practiced hazardous rescue and decontamination procedures.

Water Plant staff also received training on:

Mag meters, air handling equipment, SCADA, carbon receiving and dust collection system at the new Carbon Facility.



Stand-by Electrical Power

The trailer mounted generator located at the Low Service Pump Station will no longer be required to provide stand-by power for the facility. Instead, the station can now be served either by overhead power lines or through the underground lines serving the newly constructed electrical substation located within the Carbon Transfer facility. The underground lines are also served by our existing plant stand-by generators.

Late this quarter, electrical sub-contractors completed the installation of a safety disconnect to complete the necessary renovations on the overhead lines. The option to use these overhead lines on a seasonal basis will be evaluated in relation to on-peak and off-peak electrical load considerations, which can impact monthly utility fees to the Water Plant.

Water Treatment Plant Repair and Maintenance

Pump Room Gauges

High Service Pump Repair

Valve repair on high service pumps at the North Treatment Facility were in progress throughout the quarter. Water demand during the cool weather months was seasonably low, which facilitated these equipment repairs.

Operations and Maintenance

Several treatment trains in the South Treatment Facility were taken out of service to flush and clean basins.

Water Plant staff also worked with wholesale customers this quarter to resolve interruptions to remote computer data acquisition equipment.

Dis-assembled High Service Pump

Maintenance area —October

Maintenance Shop Area

In late October, staff identified the area pictured at left, located between the NTF slow mix flocculation tanks and the main offices as space for the Maintenance work group. Housed in temporary quarters in the STF since early summer, they were without a fixed shop location after major line items were eliminated from the original plant expansion project. Maintenance personnel worked to bring electrical power, phone communication, SCADA and computer lines into the area. Move-in was nearly complete by the end of December.

Maintenance area —December

December Events at the Drinking Water Treatment Plant

(clockwise from upper left)

Wholesale Customer Meeting attendees in new training room;

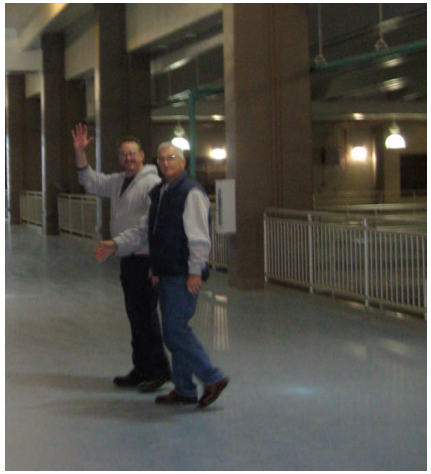
Byron-Gaines Authority staff tour the laboratory;

City Manager's Staff Meeting;

WTP retiree, Wayne Larson with Wil Fleming, WTP-UMIII;

WTP Superintendent, Jerry Caron, conducts tour for "All Utility Meeting" attendees;

City staff on tour of STF.



Meter Shop & Cross-Connection Team

Cross-Connection Inspection Activity:

	Last 1/4	This 1/4
Onsite Surveys	202	230
Non-compliance sites	19	42
Corrected sites	13	34
Notices Sent	50	1031
Test forms rcvd	42	1450

Residential water meter

This fall, the Meter Shop team hosted area inspectors for a meter testing webcast by the American Water Works Association. Information learned in this educational seminar helped Meter Shop staff identify product defects in the new Sensus meters. As a result of Wyoming's notification, the manufacturer issued product recalls.

Commercial meter change-out throughout the city was completed this quarter and staff continues to replace residential meters on an as-needed basis. Approximately 30% of the residential meters have been changed in this fashion. The utility typically budgets nearly $200,000 annually for this program to ensure water meter reliability and accuracy of water bills.

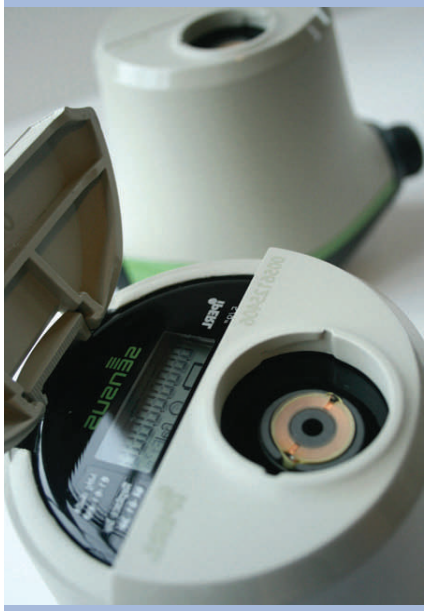
Several new Sensus, i-PERL water meters, purchased from Etna Supply, were installed at various test locations in the city. The new i-PERL meters are designed to detect reverse water flow, record, and store data for detailed flow data retrieval.

The i-PERL, pictured at right, features innovative magnetic technology which allows for the capture of previously unmeasured low flows. This feature has the potential to locate additional revenue for the utility. Another benefit to the new meters is that they are 100% lead-free with no moving parts, and it is expected that the iPERL system will maintain its accuracy over a 20-year lifetime.

Cross-Connection Inspector Tom Engelsma moved his office location to the Clean Water Plant in October. Tom and Industrial Pretreatment Inspector Aaron Vis are better able to advance and coordinate their cross-training activities by this action. Dave Oostindie will serve as their direct supervisor.

Meter Replacement (MRP) and Installs (INST)

	MRP	INST
Oct	176	25
Nov	98	18
Dec	81	13



i-PERL residential water meter