

Utilities Department



Quarterly Report

Capital Projects

Drinking Water

Treatment Plant

Phase IB :

\$74 Million Dollar Project

Raw Water Line /Carbon – Transformer Facility:

\$6 Million Dollar Project

Clean Water Plant

GVRBA –Pump Station

(Segment 2 of overall \$33.4 Million Dollar Project)

Tank Covers (in design)

Est. \$2.5 Million Dollars

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Water Treatment Plant Expansion Phase IB



South treatment plant nearly complete; southerly view of the pedestrian walkway that connects the old and new facilities.

Started in 2007, construction of the South Treatment Facility (STF) is 94% complete. Performance and optimization testing continues on equipment with the expectation that the City will assume complete ownership of the South Treatment Plant by the end of this year.

General Contractor Granger, progresses on the remodeling and improvements of the main offices and laboratory (of the old,

North Treatment Facility).

Plant expansion and improvements include the elimination of the hazardous chemical, chlorine gas for disinfection. The new South Treatment Facility came on-line in September to process water using chlorine bleach (sodium hypochlorite) for disinfection purposes. This chemical is much safer and easier to contain in the event of a spill, posing minimal risk to nearby residential neighborhoods.



Demolition above, of the laboratory, conference room, locker rooms and administrative offices. Administrative and lab staff moved into temporary trailers in late spring.



High ground water levels required drilling numerous earth anchors on the entire Phase IB project. If laid end-to-end, the total length of these anchors would stretch 2.5 miles. Above, crews work on the North Facility, new office site.

Safety improvement—
Chlorine gas no longer used.
(below one ton chlorine tanks in old storage area)



Photo Gallery South Treatment Facility (STF)

Materials for project: 2,900 TONS of reinforcing steel; 26,600 cubic yards of concrete; 1.236 million feet of wire



New filter media (sand and anthracite) staged outside STF. Contractor trailers and parking in rear.



One of several pipe galleries.



Settling basins in operation.



Empty filter sludge basin.



Excavation challenges around existing pipes and valve structures in the front yard at the North Treatment Facility



Maintenance staff in newly painted hallway.

Raw Water Main & Carbon Facility WTP



Construction Schedule:

Spring, 2009	Contract awarded to Pioneer Construction
Summer, 2009	Clearing and soil prep, demolition work,
Fall, 2009	Concrete work at carbon facility, pipe laying
October, 2010	Est. completion

This project provides for replacement of aged and under-capacity carbon storage and feed facilities, and increased reliability and redundancy of the power supply to the Low Service Pumping Station. The scope of the project includes construction of approximately 3,300 feet of 66” diameter concrete pipe between the water treatment plant and the lakeshore pumping station. Construction also includes parallel duct banks for a potable water line to the new facilities at Low Service (replacing an existing well supply) and electrical supply and fiber optic communication equipment. Demolition of an existing, unoccupied house located at the Low Service Pump Station property was required for eventual Phase II facilities anticipated in the future.



Architectural rendering, above, of the new carbon/transformer facility, which must blend with the residential neighborhood along the lakeshore.



1950’s era ranch house (at right in the top photo) occupied the property adjacent to the Low Service Pump Station on Lakeshore Drive. When it became available for purchase in the early 1990’s the Utilities Department acquired this 3 bedroom home in anticipation of one day expanding the plant’s intake capacity. Above, Wyoming’s Fire Department was able to take advantage of the demolition project for search and rescue training. After, at right, final clean up of the former residence. These photos were taken from the edge of the bluff looking east, toward Lakeshore



66” concrete pipe staged along the new raw water line (looking west) between the Treatment Plant and the Low Service Pump Station.

*Regional Cooperation
Celebrated with Dedication
Ceremonies at Wyoming
and Grand Rapids Facilities*



Invited guests included Corky Overmeyer, 2nd from left, and members of the Dan Wolz family.



L to R) Dave Bartz, Matt Zobro and Jerry Roche of the CWP maintenance department were the design/build team responsible for the “GVRBA Biosolids Pipeline Valve” used during Tuesday’s Dedication Gala. The display recirculated liquid through a partially clear tubing so that the gala attendees could enjoy a visual demonstration during the official valve turning ceremony.

**GRAND VALLEY
REGIONAL BIOSOLIDS AUTHORITY**



On September 22nd, the Cities of Grand Rapids and Wyoming celebrated over 6 years of cooperative work which led to the formation of the Grand Valley Regional Biosolids Authority.

Plant staff, city officials and community members attended commemorative ceremonies at both facilities, culminating with tours and luncheon at the Grand Rapids Wastewater Treatment Plant.

The \$33.4 million dollar construction project included: a pipeline connecting the Clean Water Plant with the Grand Rapids Wastewater Treatment Plant, construction of a pumping station for the transfer of biosolids from Wyoming to the Grand Rapids site; storage tanks and dewatering facilities at Grand Rapids.

The two cities now share responsibility for managing and operating these newly constructed facilities at the Clean Water Plant and the Grand Rapids Wastewater Treatment Plant.



Segment 2, Pumping station at CWP



Segment 3, Pipeline - Indian Mounds Drive



Segments 4 and 1, Dewatering facility and storage tank at Grand Rapids Wastewater Treat-

Clean Water Plant staff initiate various plant improvements

Beginning earlier this year with a new plant sign, designed and installed by city staff, Clean Water Plant employees continued to improve plant processes, safety and maintenance procedures and plant equipment.

At right, Clean Water Plant staff and retirees, gathered at the sign designed by Utility Inspector, Robert Wisniewski, pictured to the right and center of the sign. Robert retired in May, after 40 years with the City.

The maintenance department team of Dave Bartz and Jerry Roche lead the way for improvements on flood control at the sampling barn, concrete curbing to contain spills, among other initiatives. With the help of an excellent summer crew of part-timers, maintenance staff also worked hard to keep the plant grounds in excellent shape this summer. With over 240 touring guests throughout the school year and numerous day-to-day visitors for meetings, waste drop-off, and contract work, well kept grounds and clean, safe plant facilities are an important priority.



Primary Tank Cover Project

Odor issues at the Clean Water Plant improved significantly with the demolition and removal of the trickling filters last year. One more area of concern has been the four primary settling tanks just inside the main entrance gate to the plant.

Black & Veatch, LTD began design and bid specification work on tank covers for each of the primary settling tanks this quarter. The covers will include air handling capability to draw off offensive odors. Improvements to the existing carbon air scrubbing equipment will also be part of this estimated \$2.5

million dollar project .

The Michigan Department of Environmental Quality reviewed drawings for the project this month, in anticipation of a construction permit.

ERA
A Waters Company

DMRQA-29 Final Complete Report

NPDES Permit #: M3024892
Permit Holder: Myron Erickson P.E.
Laboratory Services Manager
City of Wyoming WWTP
2250 Vermont Avenue SW
Wyoming, MI 48119-1187
516-261-3562

ERA Customer Number: C421102
Report Issued: 08/20/09
Study Dates: 05/04/09 - 08/31/09

Parameter	Evaluation	Reported Value	Assigned Value	Acceptance Limits	Units	Method Description	USEPA Lab Code	Study
Acetate								
As Acetate	Acceptable	71.0	71.2	50.0 - 81.2	mg/L	8260P00	M30100	DMRQA29
As Nitrate	Acceptable	11	11.7	8.0 - 16.1	mg/L	8260P16	M30100	DMRQA29
As Ammonia	Acceptable	14.8	14.8	7.0 - 17.7	mg/L	8260P16	M30100	DMRQA29
Ammonia								
As Ammonia	Acceptable	0.87	0.88	0.35 - 0.72	mg/L	8260P00	M30100	DMRQA29
Nitrate								
As Nitrate	Acceptable	10.5	10.5	7.70 - 13.1	mg/L	8260P16	M30100	DMRQA29
As Nitrate	Acceptable	3.05	3.06	2.80 - 3.73	mg/L	8260P16	M30100	DMRQA29
As Nitrate	Acceptable	4.86	4.92	3.80 - 5.56	mg/L	8260P16	M30100	DMRQA29
Ammonia								
As Ammonia	Acceptable	15.6	17.0	11.2 - 21.9	mg/L	8260P16	M30100	DMRQA29
As Ammonia	Acceptable	7.80	7.87	5.17 - 8.94	mg/L	8260P16	M30100	DMRQA29
Demand								
BOD	Acceptable	45.0	44.9	31.1 - 63.4	mg/L	8260P02	M30100	DMRQA29
COD	Acceptable	34.0	34.6	16.3 - 56.8	mg/L	8260P02	M30100	DMRQA29
Trace Metals								
Aluminum	Acceptable	362	325	214 - 399	ug/L	8260P07	M30100	DMRQA29
Arsenic	Acceptable	0.6	0.61	0.01 - 0.04	ug/L	8260P07	M30100	DMRQA29
Cadmium	Acceptable	0.4	0.61	0.01 - 0.04	ug/L	8260P07	M30100	DMRQA29
Copper	Acceptable	599	599	500 - 670	ug/L	8260P07	M30100	DMRQA29
Iron	Acceptable	223	227	200 - 275	ug/L	8260P07	M30100	DMRQA29
Manganese	Acceptable	295	291	178 - 473	ug/L	8260P07	M30100	DMRQA29
Nickel	Acceptable	793	792	700 - 1000	ug/L	8260P07	M30100	DMRQA29
Vanadium	Acceptable	112	243	200 - 377	ug/L	8260P07	M30100	DMRQA29
Zinc	Acceptable	241	260	210 - 310	ug/L	8260P07	M30100	DMRQA29
Barium	Acceptable	1745	1802	1500 - 1925	ug/L	8260P07	M30100	DMRQA29
Silica	Acceptable	879	509	480 - 850	ug/L	8260P07	M30100	DMRQA29
Strontium	Acceptable	392	378	220 - 420	ug/L	8260P07	M30100	DMRQA29
Total Chloride								
As Chloride	Not Acceptable	684	0.505	0.018 - 3.274	mg/L	8260P07	M30100	DMRQA29
Total Residual Chlorine								
As Residual Chlorine	Acceptable	0.25	1.92	0.15 - 3.16	mg/L	8260P07	M30100	DMRQA29

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All analyses are included in ERA's QCLAs accreditation. Lab Code: 1549-01

Laboratory Services

Clean Water Plant—

As a major permittee under the National Pollutant Discharge Elimination System (NPDES) program, the Clean Water Plant is required to participate in an annual Discharge Monitoring Report-Quality Assurance study.

This is an evaluation of the plant laboratory's analytical and reporting ability for inorganic chemistry, microbiology

and whole effluent toxicity analysis. Blind samples were sent to the Clean Water Plant and all of the lab staff participated in the testing.

In September, independent, approved vendor, ERA, sent out the Clean Water Plant's "report card" which showed that with the exception of cyanide testing, our laboratory demonstrated extreme accuracy in testing and equipment.

This speaks to a well trained staff, proficient in laboratory procedures and the use of efficient testing equipment. Cyanide testing will be investigated and samples re-run.

Congratulations to the laboratory staff.



Lisa Medukas

New Lab Aide:

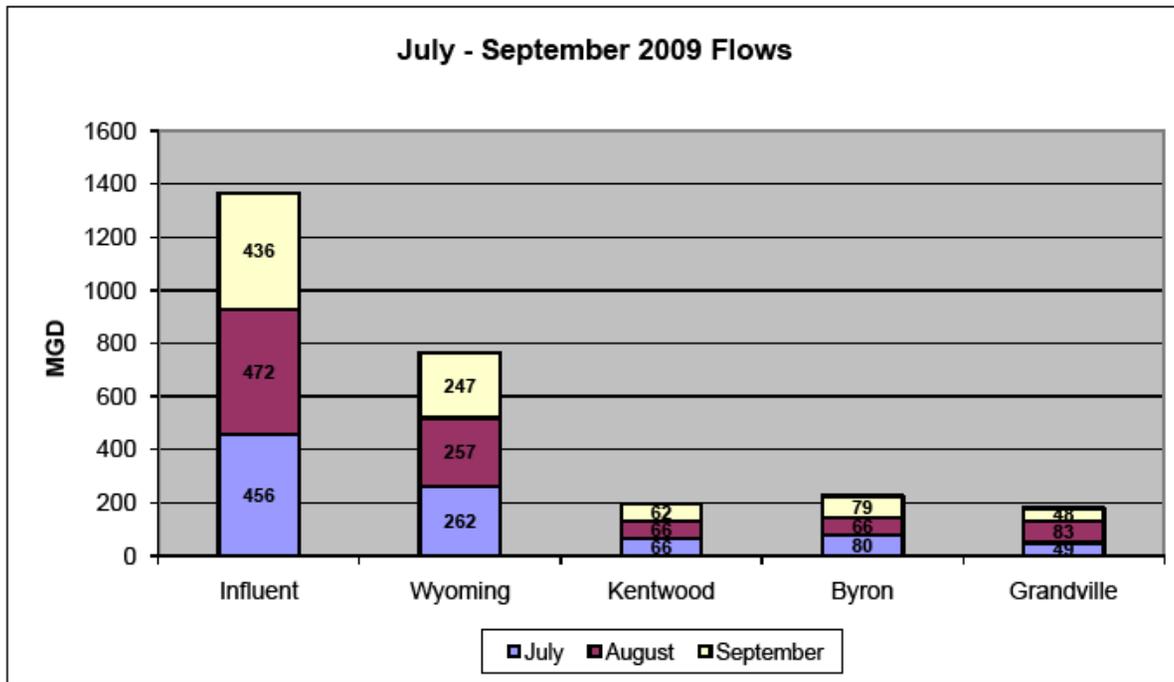
Lisa Medukas was hired in July as the plant's newest laboratory aide. She replaced Jessica Schoonhoven who advanced to Plant Operator at the beginning of the year. Lisa graduated from Michigan State University with a BS in Biology. She brought previous lab experience to the job. Her duties will include data entry training on the new laboratory software next quar-

ter. Understaffing in the lab this summer created special challenges and so Lisa was a very welcome addition to the staff.

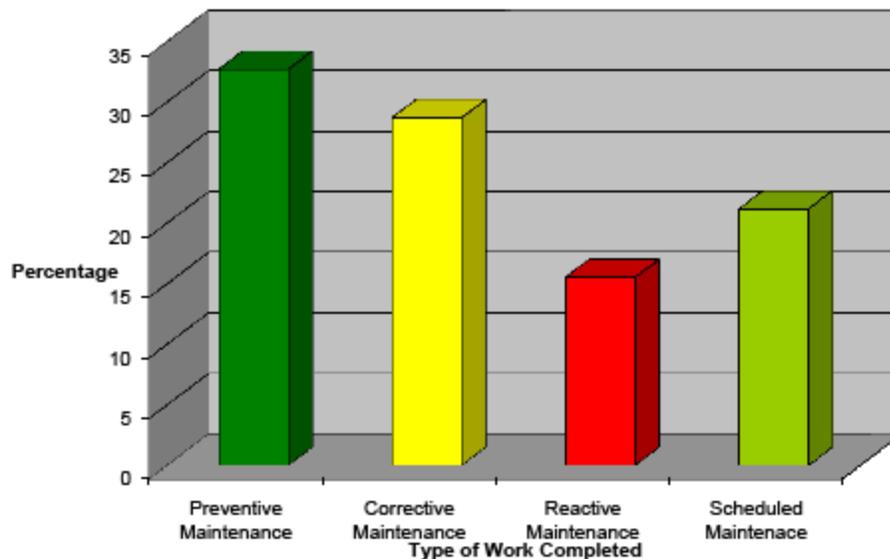
Summer Intern:

Shannon Henderson, a bio-system engineering student from Michigan State University, spent the summer characterizing the formation of volatile fatty acids (VFAs) in the aeration tanks at the

Clean Water Plant. She also researched various analytical methods for rapid determination of VFAs. This information will be valuable to optimize the biological phosphorus removal process, which is still new to plant operators.



Analysis of Completed Work Orders for the 3rd Quarter of 2009



Clean Water Plant Operations and Maintenance

Maintenance projects this quarter included installation of motion sensors on all floors of the main building. Based on an energy audit, by Kendall Electric, it was estimated that the plant could save \$16,000 in electrical costs over the course of the new year.

The laboratory required extensive remodeling by maintenance staff through the summer months to rebuild bench ductwork for an Argon gas line, other chemical lines and power supply.

Grit conveyors and an auger failure also demanded maintenance staff attention this quarter. Repairs continued through the fall.

Service area includes the cities of Wyoming and Grandville, Byron and Gaines Townships and parts of the City of Kentwood.

Capacity—24 million gallons per day

Advanced secondary treatment using extended aeration, and chlorine disinfection .

Collection system:

14 pump stations

1 mile of force main

271 miles of gravity main

5671 sanitary sewer manholes

Environmental Services

Beautiful weather helped make the Household Hazardous Waste Collection Day a success on September 12th. Environmental Services staff along with Kent County Employees collected 5.7 thousand pounds of recycle-able material in this one day event. Normally, residents make an appointment to come to the Clean Water Plant and drop off items such as oil based paints, solvents, used gasoline, and batteries .

Household hazardous waste collection totals for the quarter came to a grand total of 9,000 pounds of waste from 152 households.

Continued public education efforts (lower right, City Hall display) help control oil, grease and mercury discharges to the sanitary sewers.

Household hazardous waste collection site, below, is owned and Administered by Kent County. Clean Water Plant staff handle day-to-day collections.



For the 2nd consecutive quarter, all of the city's Industrial Sewer Users (70 total) were in compliance with the sewer use ordinance.

Extensive field work by IPP/ES staff and the cooperation of all industrial/commercial users continue to deliver environmental protection measures to the plant and ensure our own NPDES compliance.



Above, Shane Sosnowski uses the newly fabricated sample collection and truck off-loading site at the Clean Water Plant's partial flume. Previously, RV and truck waste disposal involved a cumbersome and messy area for maintenance and sampling.

Plant Maintenance staff designed the new equipment for ease of use and improved flow into the flume.

Coming soon: WyMeDS

Working with area pharmacies, local law enforcement and Kent County hazardous waste disposal, the Environmental Services staff have initiated a new program with a goal of reducing the presence of pharmaceutical compounds in the waste stream. The City council approved plans to provide collection pails to participating pharmacies along with promotional and public education material aimed at responsible handling of unwanted or expired drugs. It is expected that in addition to reducing the presence of these drugs in the waste stream, the drugs will have less chance of falling into the hands of un-intended users. The program will be fully implemented in the next quarter.



Land application to fields

(in driving range of)

25 mi. or less

25-35 miles

5,098,200 gal .

6,020,400 gal.

Total cost: \$322,663.00



8,000 dry tons

applied per year @ \$271.00 =

\$2,168,000 annually

Biosolids Program - Land Application

The biosolids recycling program continued to move towards National Biosolids Partnership certification with the scheduling of an independent, third-party audit of its environmental management system (EMS). This voluntary management system, similar to the ISO 14000 standards adopted by many industries, was formalized and “went live” in January of this year. The EMS requires annual performance reports, with the first report issued at the beginning of this quarter.

Plant staff also received on-going awareness training and EMS refreshers this quarter in preparation for the audit, scheduled for October. An internal audit of the program took place earlier this year.

The Grand Valley Regional Biosolids Authority (GVRBA) will bring additional changes to the operational controls of plant’s biosolids program. GVRBA partner, Grand Rapids WWTP has its own EMS, already certified through the National Biosolids Partnership.

Clean Water Plant Staff “Take-a-Stand”

In August, the Clean Water Plant participated in a MIOSHA created program called “Take a Stand Day”. A representative from MIOSHA’s enforcement/consultation division toured the plant along with CWP safety team members. They provided a safety review which carried no penalties or citations for any areas of concern. The state provides this annual service in an effort to increase workplace safety.

Plant staff will use the information to address areas in the plant where employee health and safety could best be protected.

Extensive staff training

With near completion of the South Treatment Plant, Water Plant staff spent numerous hours training this quarter, on the new chemical feed system, mixers, valve actuators, centrifuge operation and maintenance, booster pumps, and a completely new phone and paging system.

The new paging system will cover the South Treatment Facility, which until as late as September, the plant had not been able to do. Poor cell phone coverage and limited radio communication within the new plant, made it very difficult for staff to communicate from the trailers, to the outbuildings and various locations throughout the plant.

Plant security and safety features also continued to be revised and improved throughout the different construction phases this summer. Particularly, guardrail kits continued to be acquired and installed throughout the South Treatment Facility.

Donald K. Shine Water Treatment Plant

Service area includes parts of Park Township, Olive, Blendon, Holland, Georgetown, Gaines and Byron Townships, the City of Grandville and parts of Kentwood, in addition to the City of Wyoming.

Total population served: 220,000 est.

Source of Water: Lake Michigan

Capacity—90million gallons per day (MGD) with new construction, expanded capacity to 124 MGD

30 miles of transmission pipe

26 square miles of distribution system pipe



October, 2009 Looking west towards Lake Michigan. Construction path is visible from the plant, all the way to Low Service Pump Station.

Drinking Water Treatment Staff Honored at Conference

Plant Operator **Greg Gorman** Drinking Water Plant received the Michigan Section—American Water Works Association’s **Operator’s Meritorious Service Award** on September 16th at the Annual Conference in Traverse City.

This award recognizes Greg’s 34 years of service in the water industry and especially his efforts to consistently comply with public health standards, outstanding contributions to plant maintenance, efforts to develop new and modified processes for more efficient and effective treatment, and his work in training other plant operators. Greg has consistently demonstrated dedication to the public beyond the normal operational responsibilities.



Congratulations, to Greg Gorman.

Operations Supervisor, **Mike Averill** was also honored (far right in the group photo) with the Michigan Department of Environmental Quality’s **Edward Dunbar Rich Service Award**. This award recognizes water utility personnel for completing 25 or more years of meritorious and faithful service in providing and maintaining a safe, dependable and adequate public water supply.

Mike also gave a presentation at the conference entitled, “The Value of Interconnects and Teamwork for the City of Wyoming”. Conference attendees heard a detailed description of one 48 hour period during the Phase IB project. This was a significant event since numerous interconnections to the water system were used to provide un-interrupted water service during a critical pipe cut-in at the water plant. The cut-in necessitated a planned shut-down of water production for nearly 48 hours last year. Mike’s presentation nicely highlighted another successful operation for Wyoming’s Utility Department as another example of inter-municipal cooperation at work.



Water Plant Operations Supervisor, Mike Averill, far right



Top, Laboratory trailer and restroom facility, just west of generator building

Below, Administrative offices (7 total), IT and computer servers, conference room, lunchroom, restrooms and storage rooms. Six separate trailers were combined to create this complex.



WTP Temporary offices

Administrative, IT and inspection staff share office space in the temporary trailers on the east side of the north plant. Additionally, the lunchroom, conference room, and several spacious storage areas accommodate the day-to-day activities.

Overflow storage fills the generator building and the east storage barn. The lab and staff are housed in a separate trailer to the north. Maintenance staff have temporary offices and locker facilities in the south treatment plant, while the plant operators continue to work in the dust and noise of the north facility, currently under construction.

With limited parking and periodic disruptions to plant entry and exit points, the staff has continued to work with the contractor to prepare for winter plowing and parking needs.

Since plant tours were suspended earlier this year, visitors to the plant have been quite limited. Several councilmembers did tour the South Treatment Facility in October.



Above, visitor entrance and reception area of the main trailer complex.

Below, view into breakroom/kitchen along the south side of main trailer complex.



Pumpage and Water Use

Wet, cold weather in the early summer months contributed to overall lower than normal water demand this quarter. While revenues will be down as a result, low water usage placed fewer demands on the system during the summer construction months. Normally daily water demand during July and August are the most aggressive of the year, necessitating optimal pump operation.

Maintenance and installation on high service pumps number 1, 3 and 7 at the Gezon Pump Station was accomplished without out the worry of peak water production demands, as in years past.

The only critical event this quarter occurred at the

Gezon Pump Station in July, when a major communication outage prevented pumps from running. The failure lasted roughly 6 hours and water storage at the station dropped significantly before communication could be restored and pumps re-started.

Although a boil water notice to system users was not required, the procedures were in place to mobilize public notification and bottled water distribution if there had been a need.

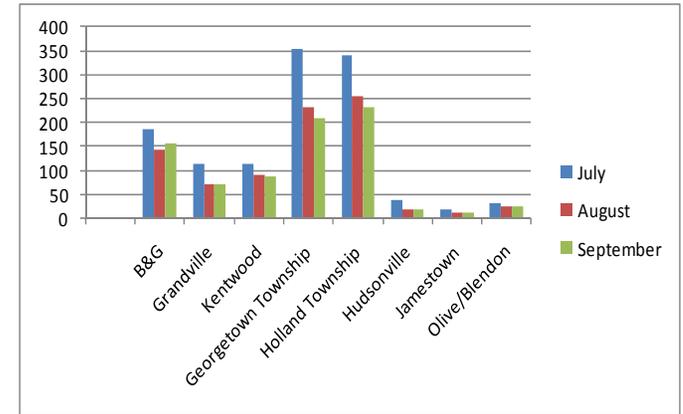


Reliability Study

Prein and Newhof was hired this quarter to conduct a drinking water system reliability study, which is required by the Michigan Department of Environmental Quality every 5 years. The purpose of the study is to identify any deficiencies within the water system and recommend improvements to increase system reliability. It is expected that the study will be finalized by fall of 2010.



Wholesale Customer Usage



(Million gallons per month)



Meter Shop / Cross-Connection

With the help of two summer interns, the Meter Shop worked to locate and obtain GPS coordinates for stop box locations throughout the city. Residential locations were completed and servicemen gather commercial information later this year.

New GPS equipment was purchased which enabled staff to make REGIS updates and corrections from the field. Equipment accuracy was demonstrated to be within 8 inches of field verified locations. will surveying the City for residen-

tial underground sprinkling systems.

Newly enacted laws require that backflow prevention devices be installed to protect drinking water from any contaminated water in all irrigation systems. Residents in the southern sections of the city received notification through their water bills regarding testing requirements to be completed every three years by a state certified tester. Information was made available on the city's website, providing lists of testers and necessary forms.



Cross-Connection Inspection Activity:

- 190 Initial inspections
- 38 Follow up inspections
- 26 Final inspections
- 160 Residential notification letters sent (100% return of required test forms)
- Overall—400 + notices sent
- 480 device test forms recorded



Hydrant use /pool filling permits had been regulated through the Billing/Meter shop in the past. The Utility Billing office stored and tracked usage of sometimes, heavy, bulky reduced pressure zone backflow preventors (RPZ's). This equipment is necessary for use of city water hydrants for pool filling or other construction related water uses. Since neither the billing office or the Meter Shop had space or staff readily available to accommodate this city service, the RPZs were moved to the Clean Water Plant this summer. Front office and IPP staff served customers as they made equipment pickup and returns. This new method made for safer handling, tracking, testing and more convenient storage of the equipment.