

# Water-Wastewater



*Pictured above (left to right): WWTP Operator Neil Traye, Supt. Curt Goodman, WWTP Operator Chuck Paul, Supervisor Tom Asmus, WWTP Operator Lyle Michaels, and WWTP Lab Technician/Operator Mark O'Neill. Not pictured from the plant: WWTP Operator Dan Johnston, WWTP Operator Bernie Stanaway, Maintenance Mechanic & Special Equipment Operator Neil Hayward*



*Marquette Water Filtration Plant*



*Marquette Area Wastewater Treatment Plant*

## **Mission Statement**

*The Marquette Water and Wastewater Treatment Department will be a leader in effective water pollution control, continuously evolving to reflect the ever-changing demands of our many customers at the local, regional, state, national and international levels. "Protecting Public Health and preserving our Resources through Technology" is our focus in achieving our goals.*



## **Water/Wastewater Treatment 2010-11 Annual Report**

*The year was marked by several notable permit compliance challenges as well as deficiencies in the area of biosolids storage and disposal. Major equipment failures resulted in permit violation as did a root control application in the sanitary sewer system. There has been success in the area of solids treatment process control and digester foam suppression.*

*As a testament to the complexity of the issues at hand, the facility has recently been selected by the Water Environment Research Federation to serve as a case study to determine the underlying causes of anaerobic digester foaming.*

*As a result of the challenges, facility improvements have been constructed and process control strategies implemented. The staff has gained valuable insight into a very complex yet effective and efficient treatment operation. Looking ahead and planning for the future, the elements necessary for permit compliance lie in a disciplined and diligent approach by staff to process monitoring and preventive maintenance. These programs are essential in detecting symptoms of what may develop into problems. This approach provides the best opportunity of responding to problems promptly and preventing failure.*

*In concluding, never before has the value of a well-trained, conscientious and ambitious staff been as evident as it is today. The staff at the wastewater treatment plant has demonstrated a willingness to accept additional responsibilities to accommodate a new operation and facilitate continuing incremental improvements. Some of these responsibilities including grease trap inspections, SCADA process control software programming, industrial wastewater acceptance, and gaining new vehicle operating licenses. The treatment operation has demonstrated its potential as measured in effectiveness and efficiency. The key to maintaining the successful operation lies in maintaining a well educated and skilled staff.*

*During the past year, operation of the Water Filtration has been stable. A five year capital outlay plan has been developed through the Drinking Water State Revolving Loan Fund. Projects included in the 5 year plan include*

- *new turbidimeters,*
- *chlorine residual analyzers,*
- *sodium hypochlorite generators,*
- *variable frequency drives,*
- *temperature controls,*
- *boiler replacement,*
- *door replacements,*
- *process control computer upgrades and*
- *corrosion control measures.*

*These projects will be scheduled as recommended through the budget process.*

*During the past year, two capital projects were completed. These included replacement of two variable frequency drives and upgrades to the process control computer system. The computer upgrade project was engineered to operate as a stand alone network for security purposes.*

## **Department Notable Events**

- A Permit modification for dissolved oxygen concentration is approved by MDEQ at the request of the Marquette Area Wastewater Treatment Plant.
- Root Killer application in the sanitary sewer system has an apparent impact treatment facility resulting in a permit violation..
- The Maximum Allowable Headworks Loading Study (MAHL) is completed by a consultant and integrated into the facilities existing Trucked Wastewater Policy. The policy incorporates a permitting process for prospective collection system dischargers.
- Major Secondary Clarifier Failures occur. The equipment vendor, Siemens Technologies, covers the costs associated with the repair. The repair is a joint effort by plant staff and Siemens Technologies.
- A Foam Suppression system is installed by staff with assistance from the PWD. The system is proven highly effective in its designed purpose.
- A secondary sludge storage tank coarse aeration diffuser header fails leading to permit violation. The repair is a joint effort by the original installing contractor (KBK) and plant staff.
- Grease Trap Inspections integration begins with two staff from the treatment plant working under the supervision of the current PWD utility inspector.
- Two operators gain Commercial Drivers Licenses to facilitate transporting biosolids cake to points of application or disposal.
- Digester Temperature Control equipment installation and improvements are incorporated.

- MDEQ performed a compliance Inspection for Land Application Program.
- MDEQ performed a Reconnaissance Inspection at WWTP. The only finding was that the facility does not have sufficient on site biosolids storage capacity.
- The Eagle Mills site is permitted for Land Application. The site is a blighted former industrial location deemed “Recoverable” and with potential for future silvaculture application.
- A new polymer product for is selected for biosolids dewatering.
- Construction of a temporary biosolids storage facility on site eases a bottle neck in the solids handling and disposal process.
- 798 bacteriological samples were analyzed at the water filtration plant.

**Operation**

Staffing at the wastewater treatment plant and lift station has remained stable for the previous year. As mentioned earlier, staff has taken on additional responsibilities to facilitate the new operation and new regulations. In the near future, two additional City owned lift station shall fall beneath the umbrella of this operation.

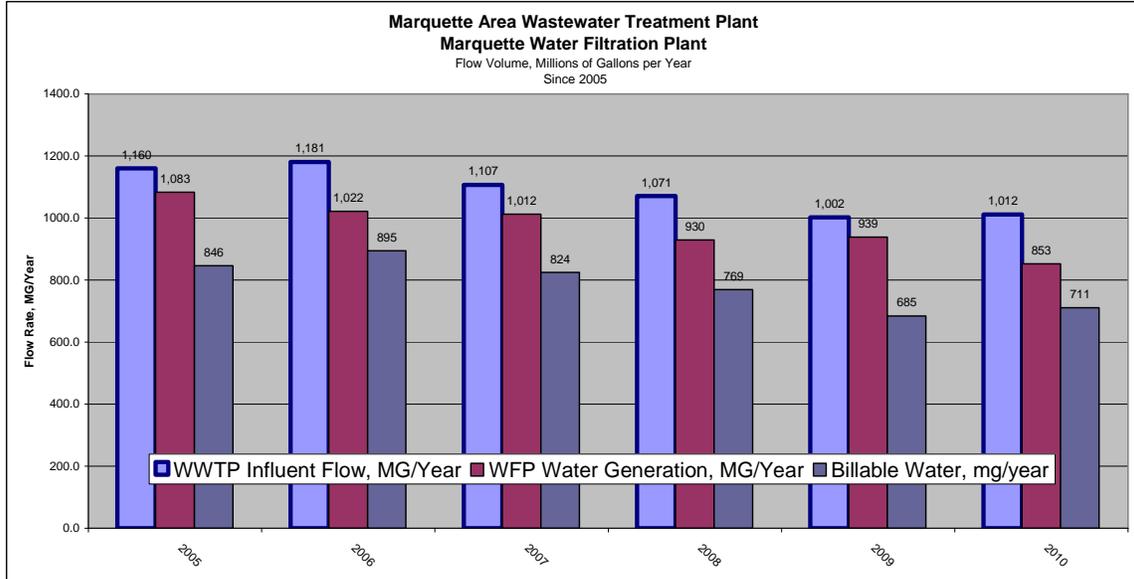
The wastewater treatment plant and lift stations employ 8 full time employees. The water plant employs five full time employees and is staffed at all times. All departmental employees hold the required regulatory certifications to operate water and wastewater operations. Four wastewater employees routinely support water plant operation and maintenance through dual certifications. All departmental employees are cross trained in all aspects of plant operation.

<b>Current Operational Staffing Positions</b>	
<b>Wastewater Treatment Plant</b>	<b>Water Treatment Plant</b>
5 Operators	4 Operators
1 Lab Technician/Coordinator	1 Working Supervisor
1 Maintenance Mechanic	
1 Supervisor	

In 2011 Tom Asmus presented at the State Conference a paper highlighting the biological phosphorus removal process at Marquette Area Wastewater Treatment Plant. Tom continues to serve as the President of the Michigan Water Environmental Association for the Upper Peninsula.

**Department Statistics**

The following bar chart illustrates Water and Wastewater Treatment volumes compared to billable water volumes. An investigation is currently underway to account for the discrepancies.



### ***Biosolids Disposal***

During the 2010/11 the MAWTF applied biosolids as a fertilizer/soil amendment at the following properties:

- Cliffs Natural Resources,
- Eagle Mills, and
- Van Damme Farm properties.

Due to limited storage capacity, biosolids were also landfilled at the Marquette County Landfill.



## ***Beach Monitoring Program Expands***

In 2010 the City of Marquette and the Superior Watershed Partnership, through an EPA Great Lakes Restoration Initiative, have been awarded a 2 year \$77,000 grant to expand the current Beach Monitoring Program. The program will increase the frequency and duration of beach monitoring and beach sanitary surveys to reduce bacterial contamination at beaches. This project will reduce human health risks at high priority beaches by improving monitoring, investigating any sources of bacterial contamination, and working to eliminate any sources of contaminants.

There were no beach closures during 2010 due to water quality issues.

