Mishawaka Utilities

James Schrader, General Manager

Mishawaka Utilities was founded in 1903 as the Mishawaka Public Utilities Company and consisted of a Water Works and Electric Light Plant. Wastewater treatment was added to the Utilities in 1952. From humble beginnings, long ago, Mishawaka Utilities has grown into a world class municipal utility that provides reliable electric service, clean and safe water, and effective wastewater treatment. The Sewer Maintenance Department is funded by Wastewater Division revenue; however the department is under the guidance of the City's Engineering Department. The Utility's employees are dedicated to keeping the utility infrastructure reliable and up to date, with capacity to attract growth and development, helping to shape Mishawaka's future and keeping *Mishawaka Strong.*

The Utility Business Office provides customer service as well as support services to the three operating divisions. The Utilities are under the direction of General Manager Jim Schrader. Hometown services provided by Mishawaka Utilities mean that residents and businesses can count on reliable, efficient, and affordable water, electric, and wastewater treatment.

Mishawaka Utilities is committed to providing the community with the best products and services in electric, water and wastewater treatment.

The Utility's offices and crews are local. Personnel and can be dispatched quickly to respond to problems and emergencies. When customer contact with the Utilities is required, a friendly human being is ready to take your call. The Business Office is conveniently located in downtown. The employees of Mishawaka Utilities are its customers too.

Mission

Mishawaka Utilities is committed to providing the community with the best products and services in electric, water and wastewater treatment.

Mishawaka Utilities strives to:

- Provide reliable service at competitive rates,
- Maintain high professional and ethical standards in a courteous atmosphere,
- Promote continuing education for a safety-conscious and well-trained staff,
- Cooperate with and promote our community, and
- Provide products and services that far exceed the expectations of our owners, our customers.

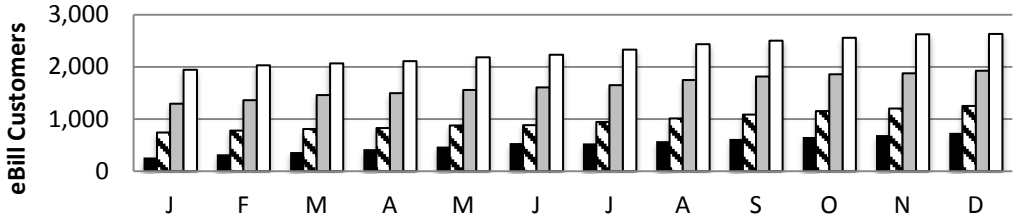
Mishawaka Utility Business Office

Virginia Fras, Manager

The Business Office has continued to work hard this past year in order to convert to a new Customer Information and Billing System Software in 2015. This software will help the utility increase productivity with workflow integration, turn system data into useful information to export into excel, and eliminate costly hardware and software upgrades thus lowering maintenance and integration costs. We look forward to these new opportunities to better serve our customers and improve both cost and efficiencies.

We began e-mail statements four years ago and are pleased with the increase we continue to see each year with customers viewing their bill electronically. E-mail statements enable Mishawaka Utilities to reduce billing costs, while maintaining customer service and efficiency.
Electronic invoice presentment and payment provides the following numerous benefits:

- Reduction in costs associated with the production, handling, and mailing of paper invoices
- Dramatically improved customer service due to 24/7 customer self-service for invoice and payment histories
- Enhanced cash flow from quicker payments made electronically and aided by the automated collections manager, which allows the biller to send automated reminders of payment due, payment overdue, etc.
- Labor costs associated with invoice packaging, mailing, handling of paper, dispute resolution and collections are reduced
- Customer satisfaction is improved as customers save time and money by paying electronically, with no need to write checks, fill out remittance forms, address envelopes or add postage
- Electronic payment provides security because sensitive personal information is transmitted stored and maintained using best practice PCI compliant systems



	J	F	M	A	M	J	J	A	S	O	N	D
2011	265	326	370	425	469	537	535	574	616	656	694	734
2012	739	775	811	825	876	885	945	1,013	1,082	1,151	1,201	1,247
2013	1,294	1,362	1,460	1,492	1,555	1,603	1,648	1,745	1,813	1,858	1,876	1,924
2014	1,945	2,029	2,068	2,109	2,179	2,232	2,326	2,432	2,500	2,556	2,621	2,628

The Mishawaka Utilities Business Office welcomes a new year and thanks our customers for giving us the opportunity to be of service. It's been our pleasure serving the citizens of Mishawaka and we hope to continue to provide "World Class Service", now and in the future.

Water Division

Dave Majewski, Manager

2014 was a year of change at the Mishawaka Utilities Water Division as long time Division Manager Bruno Trimboli retired after 21 years of service. We thank Bruno for his dedication to excellence as he moves on to a much deserved retirement. Assistant Manager Dave Majewski was promoted to Water Division Manager on March 1, 2014.

Division Manager Bruno Trimboli retired after 21 years of service

Three new personnel were added to the Division in 2014. Andrew Schrader joins us as a Water Quality Assistant technician. This was an area of great need as regulation and testing requirements kept the severely understaffed Water Quality team extremely busy. Andrew is helping to fill this void. Angelina Griesinger came on board in June as our new Office Coordinator. She has done a marvelous job in keeping the office running smoothly. Last but not least Christian Lentz joined our construction crew in November as a Pipefitter and has come up to speed very quickly as he continues to learn all facets of distribution system construction.

We also shifted some positions and filled other voids as Fabian Chavez moved into a new role as our Construction Supervisor. Mario Brioli moved up to our Construction Foreman job, and Patrick Deka took the position of Chief Mechanic in our maintenance area. These staffing changes have helped to smooth our work flow pattern and add a greater layer of efficiency.

Our mission is one thing that did not change in 2014. We strive to supply World Class Service each and every day to our roughly 46,500 customers by delivering potable water that meets and exceeds Federal and State requirements via 17,000 service connections. Our three water treatment facilities can output a maximum of 31.5 million gallons a day of water into our distribution system which encompasses 300 miles of water distribution main.

As 2014 drew to a close our pace was full steam ahead as we had many projects in the cue for 2015. Last year was a cooler summer and our pumping total reflected this. We treated 2.65 billion gallons of water in 2014 for an average of 7.3 million gallons per day. Our 29 employees worked 2,021 hours of overtime as we have people on call 24 hours a day 7 days a week to monitor and repair distribution system and treatment facility issues. We believe in or commitment to safety as our team celebrated 2000 consecutive days without a lost time accident in 2014.

As the Mishawaka Utilities Water system grows we need to assess the condition of current infrastructure along with needs for the future. In 2014 we began conducting a new Needs Assessment with our partnering engineer DLZ. This assessment which will be complete in early 2015 will be a comprehensive look at our needs over the next 20 years. This assessment will look at growth projections, an evaluation of the existing distribution system and treatment facilities and a plan for meeting these needs. As part of the plan our water model will be updated for the first time in ten years. The model helps locate areas of need both for improvement of our system and future development requirements. The updated plan gives a timeline of construction of recommended improvements for our planning to the year 2035. This plan will define the capital

resources needed to fund the recommendations and it will keep our Water system strong as we point our resources in the direction they are needed.

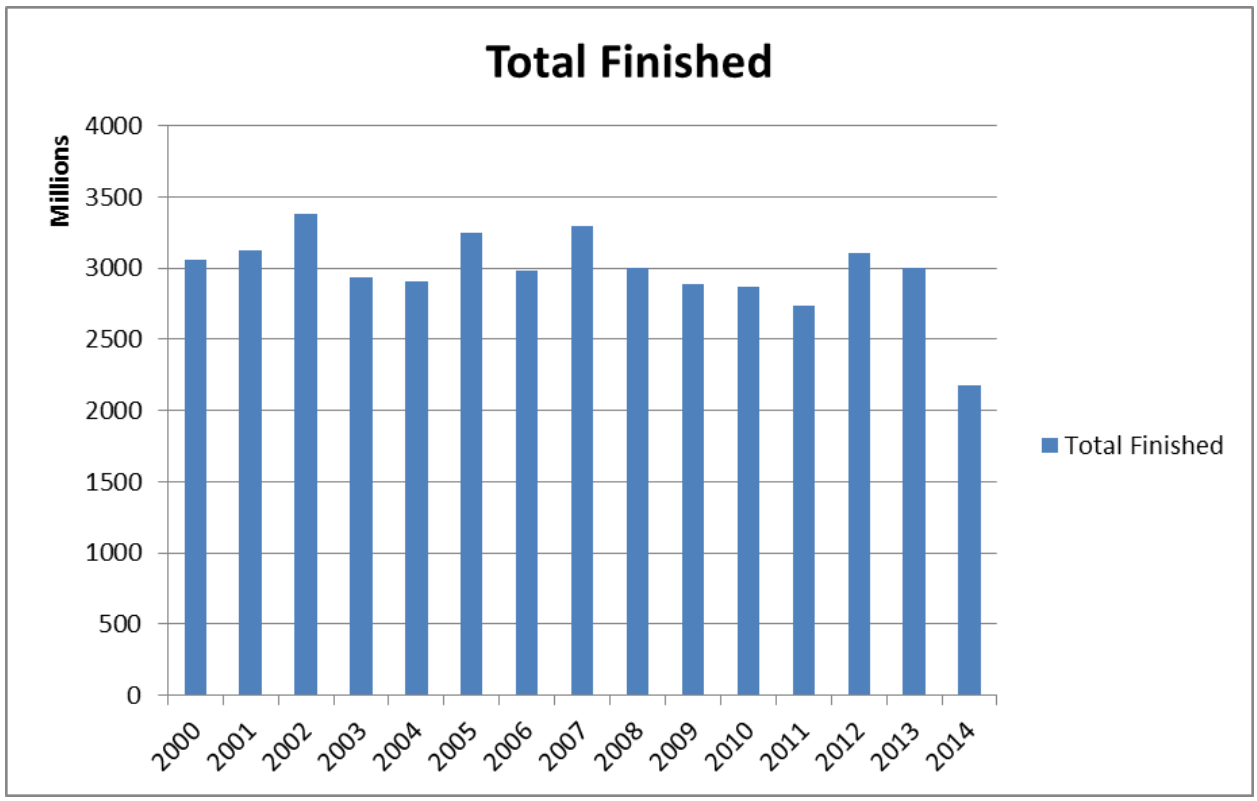
Water Quality

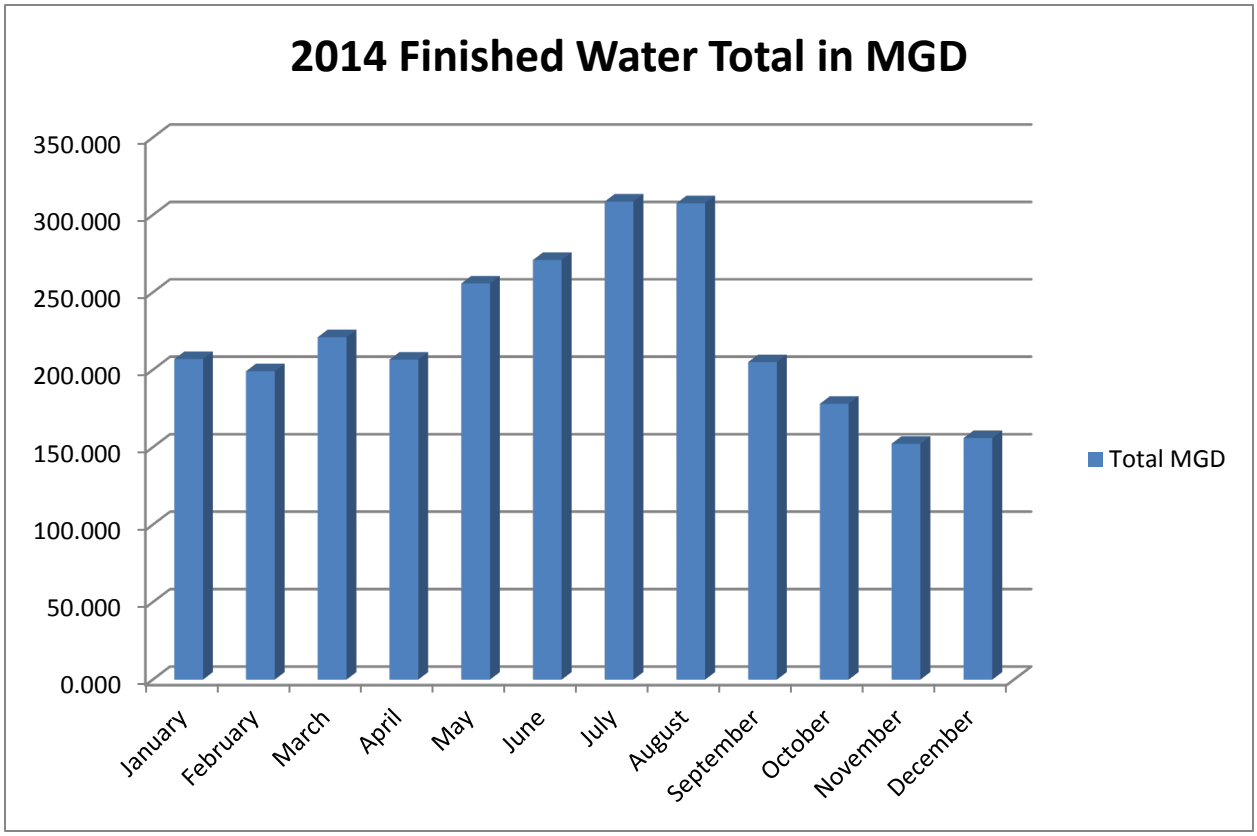
As the water is pumped from the ground our Water Quality staff is responsible for testing the water to make sure it meets the strict standards set by the Environmental Protection agency, and the Indiana Department of Environmental management. Our Water Quality staff is also responsible for operations of our treatment plants. These dedicated professionals are here 365 days a year to ensure quality of product and operation of facilities at their optimum level.

… treated 2.65 billion gallons of water in 2014 for an average of 7.3 million gallons per day.

Almost 20,000 tests are performed by our water quality staff or by an independent certified lab. Some highlights of 2014 include being awarded the State Fluoridation award for the 12th consecutive year for maintaining proper residuals of Fluoride to help promote proper dental health. Our lab is also subject to the EPA Discharge Monitoring report which is a quality assurance testing study our lab must pass every 3 years to assure the integrity of our testing procedures. Our Water Quality lab passed with 100% efficiency in 2014. Last year was also a new compliance period for Lead and Copper testing. I am proud to state that we are again in compliance with the Lead/Copper rule which aims to keep lead and copper exposure at a minimum.

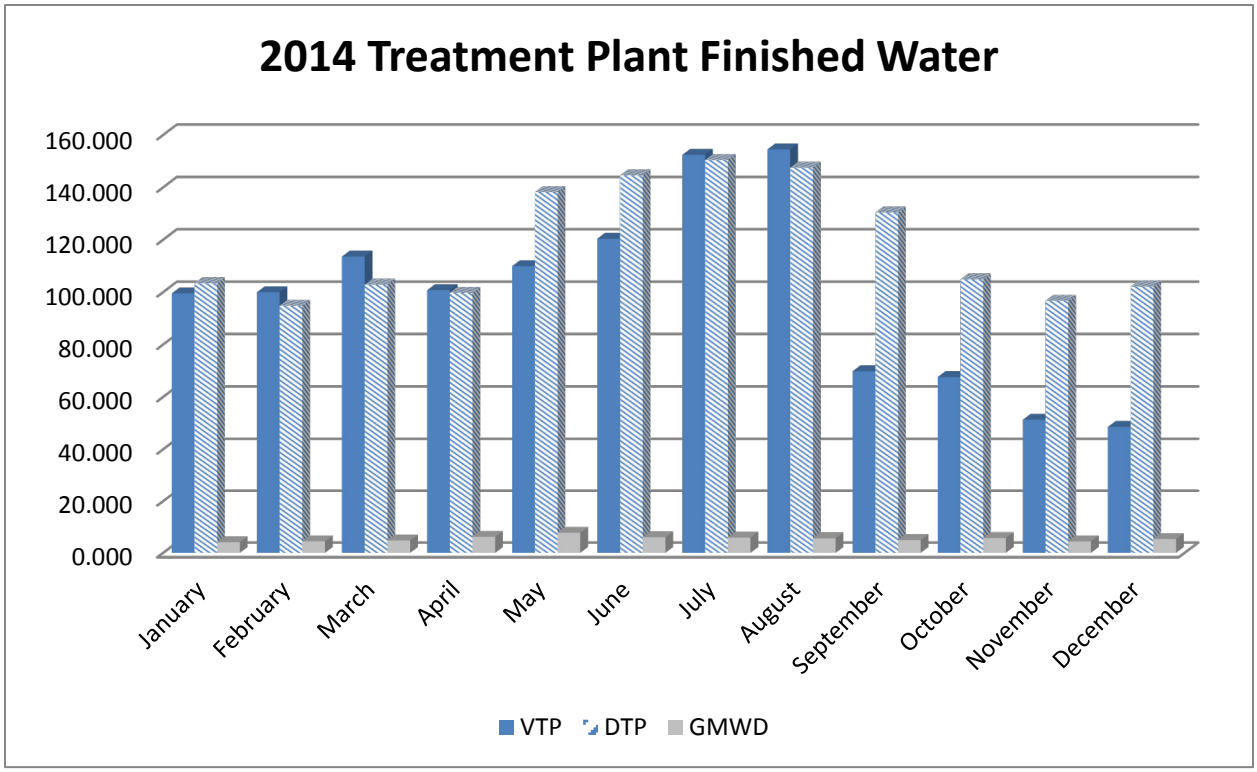
The Water Quality group is supervised by Tony Galassi and they did a great job to keep us in compliance. As we look ahead we will be putting together a new distribution sampling plan as the Total Coliform rule is set to change in 2016 and we must have our procedures and sites approved by the State.

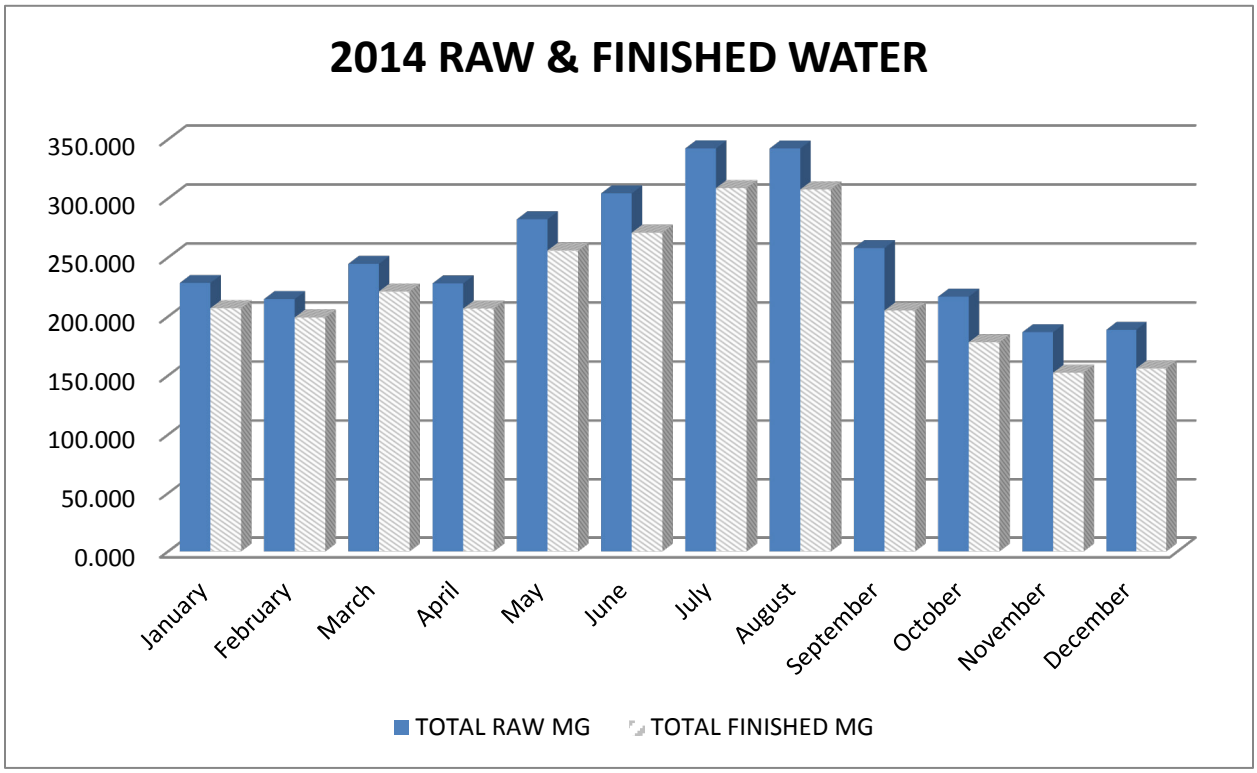

Total Finished
Millions
4000
3500
3000
2500
2000
1500
1000
500
0
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Total Finished


2014 Finished Water Total in MGD
350.000
300.000
250.000
200.000
150.000
100.000
50.000
0.000
January
February
March
April
May
June
July
August
September
October
November
December
Total MGD

Mishawaka Utilities Water Division													
Water Quality Laboratory Testing Totals 2014													
Test/Month	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**TOTAL**
Conductivity	138	120	148	132	154	126	138	126	154	160	120	138	*1,654*
Manganese	138	120	148	132	154	126	138	126	154	160	120	138	*1,654*
Iron	140	122	150	134	156	128	140	128	156	162	122	140	*1,678*
Hardness-Calcium	138	120	148	132	154	126	138	126	154	160	120	138	*1,654*
Alkalinity	138	120	148	132	154	126	138	126	154	160	120	138	*1,654*
Total Hardness	138	120	148	132	154	126	138	126	154	160	120	138	*1,654*
Fluoride	116	104	136	112	137	111	116	114	134	138	110	116	*1,444*
Phosphate	92	80	84	88	88	84	92	84	88	92	80	92	*1,044*
Free Chlorine	124	112	124	120	124	120	124	124	120	124	120	124	*1,460*
Total Chlorine	124	112	124	120	124	120	124	124	120	124	120	124	*1,460*
pH	138	120	148	132	154	126	138	126	154	160	120	138	*1,654*
Temperature	138	120	148	132	154	126	138	126	154	160	120	138	*1,654*
Routine Bacti	50	50	50	50	50	50	50	50	50	50	50	50	*600*
Other Bacti	0	1	0	2	6	6	7	5	5	5	5	4	*46*
Raw Bacti	0	0	22	0	22	0	0	0	22	22	0	0	*88*
TSS	2	2	2	2	2	2	2	2	2	2	2	2	*24*
Lead & Copper	0	0	0	0	0	30	0	0	0	0	0	0	*30*
VOC	0	0	0	9	0	0	0	0	0	0	0	0	*9*
SOC	0	0	0	0	0	0	0	0	0	0	0	0	*0*
IOC	0	0	0	3	0	0	0	0	0	0	0	0	*3*
Radionuclides	0	0	0	0	0	0	0	0	0	0	0	0	*0*
Nitrate	0	0	0	3	0	0	0	0	0	0	0	0	*3*
TTHM/HAA5	0	6	0	0	6	0	0	6	0	0	6	0	*24*
Monthly Totals	***1,614***	***1,429***	***1,728***	***1,567***	***1,793***	***1,533***	***1,621***	***1,519***	***1,775***	***1,839***	***1,455***	***1,618***	***19,491***

Total Tests completed for 2014: 19,491


2014 Treatment Plant Finished Water
160.000
140.000
120.000
100.000
80.000
60.000
40.000
20.000
0.000
January
February
March
April
May
June
July
August
September
October
November
December
VTP
DTP
GMWD


2014 RAW & FINISHED WATER
350.000
300.000
250.000
200.000
150.000
100.000
50.000
0.000
January
February
March
April
May
June
July
August
September
October
November
December
TOTAL RAW MG
TOTAL FINISHED MG

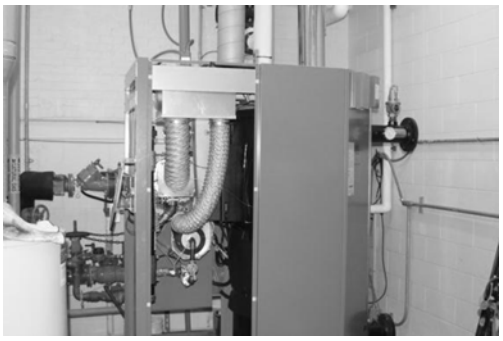
Well Head Protection

The protection of our aquifer is the responsibility of our Well Head Protection Coordinator. In 2014 Janice Winn identified and confirmed potential sources of contamination. These activities include locating and abandoning wells, septic tanks, and catch basins. The identification of commercial and industrial activities that have the potential to contaminate the ground water must also be identified. Jan sits on the Saint Joseph County Water Resource Area Board and she has been instrumental in putting together changes in the County ordinance to help protect our aquifer.

Well Rehabilitation Virgil Street

Maintenance

The Water Treatment and Pumping Facility Maintenance group keeps our facilities including 3 treatment plants, 22 wells, 6 booster stations, 4 elevated tanks, and associated equipment in proper working order. Our Chief mechanic Patrick Deka directed the installation of a new boiler system at our Virgil Treatment plant and duct heater at our Division facility. Virgil Well field well house # 28 was expanded for the rehabilitation of the well which received a new pump and motor. Blair Hills Booster saw extensive work with 2 new motors and two new pumps for this facility. Our cathodic protection was inspected at our elevated tanks to insure there was no corrosion and all was functioning normally.



New Boiler Virgil Street

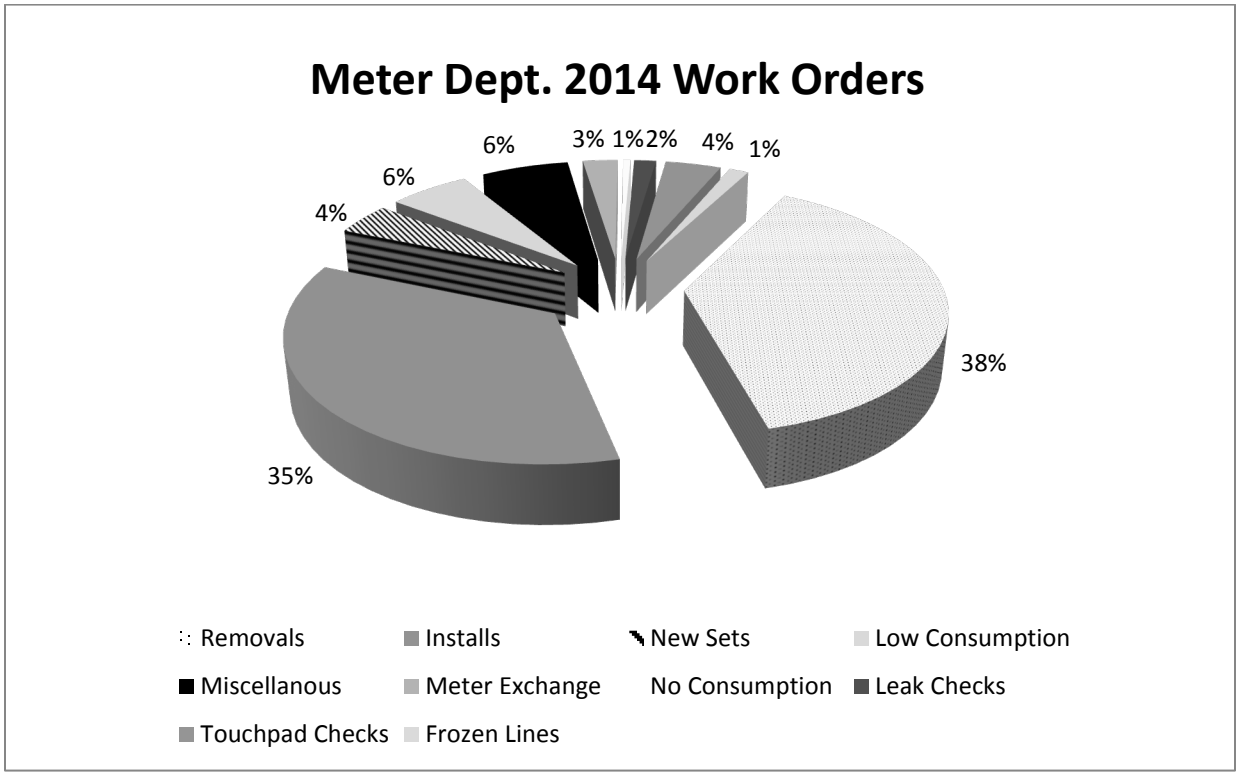
At our main office on Jefferson Street half of the exterior was painted with more paint and mortar work scheduled for 2015. Our SCADA system which monitors and controls our water system undergoes routine maintenance and is checked daily as part of water quality and maintenance operations.

Meter & Backflow

The Water Metering/Backflow/Cross Connection Group works to install, remove and test our water meters. This group works closely with the Mishawaka Utility Business Office to schedule these appointments, however our Meter Department is also called upon to dispatch throughout the city for emergency shut offs, low pressure calls and other customer service issues. This accounts for much of the Meter Department's effort. Water meters are needed so we can bill for our services, but they also must be maintained and replaced on a regular basis and this staff, supervised by Frank Unruh does an extremely proficient job.

The Backflow/Cross Connection team enforces the testing of many of the backflow devices located throughout our distribution system. The purpose of these devices is to prevent the back

siphoning of potentially harmful contaminants from commercial, industrial, or irrigation activities into Mishawaka's potable water supply. Backflow devices are required on all commercial and industrial buildings and on all irrigation systems that receive water from Mishawaka Utilities. Mishawaka is proud to state we have one of the most respected backflow programs in the state and ours is one that has been emulated by other utilities as a model to follow. The Metering Department handled an astonishing 6,330 work orders in 2014.



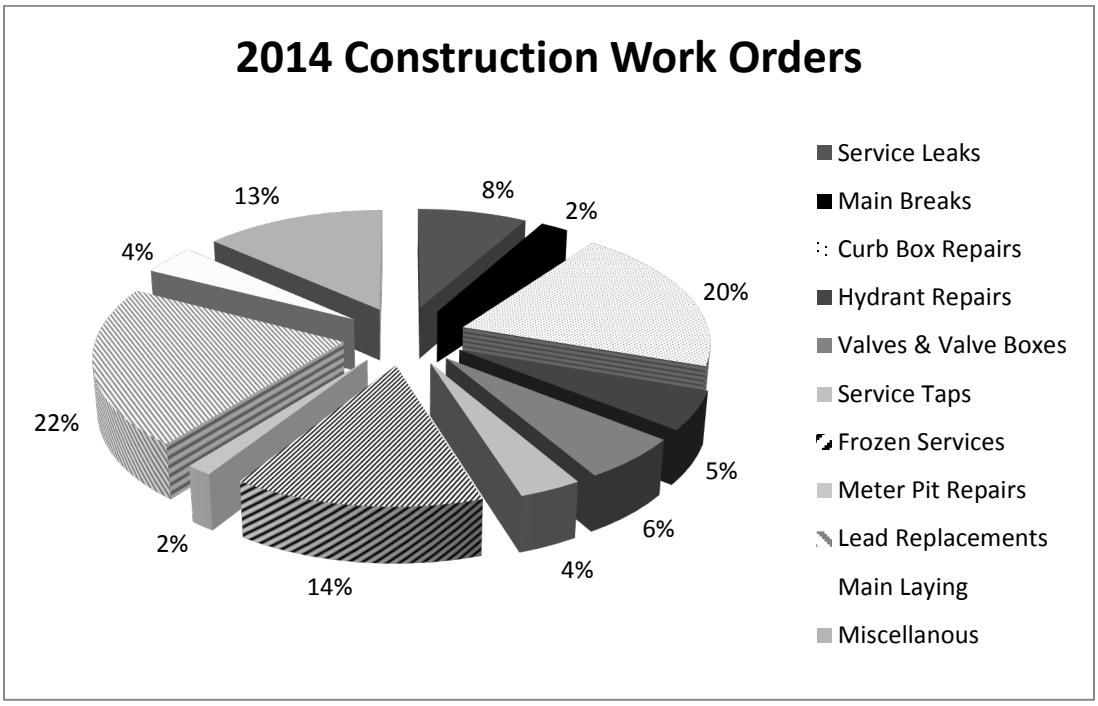
Distribution

Water main extension - 12th Street

The Water Distribution System Maintenance and construction group led by Fabian Chavez had a very busy year. 2014 started out cold and snowy and the frigid weather would not relent. We tallied a record 122 frozen service lines. We attacked the issue by being aggressive and proactive. We purchased two thaw machines in addition to the one we had on hand. We also converted a pressure washer into a thaw machine to thaw a frozen water main. Our crews worked 18 hour days and through the weekends to keep the water flowing. Water Utilities from around the region called us for guidance as our team led the charge with ingenuity and work ethic.

Once spring arrived we turned our attention to some major projects. Our Construction crews installed the water main for the New Costco warehouse on University Drive, The Primrose retirement community off of Fulmer road and an additional run of water main on 12th street. This

was in addition to the support our construction crews gave to contractors for City projects which required lead service replacements, live taps, pressure testing and re-direction of water-main. In addition to this our construction group was responsible for the repair of service leaks, water main breaks, valve replacements, and the flushing of our distribution system. Our construction crew handled 868 work orders in 2014.



CONSTRUCTION PROJECTS 2014 Installed by MU Water

Costco University Park Drive

Pipe Delivery for Costco Warehouse

- Costco Wholesale
- Primrose Assisted Living Facility
- Harrison Road Water Main Extension

CONSTRUCTION PROJECTS

- Cleveland Road Water Main Installation
- State Road 23 and Gumwood Water Main Installation
- Fir Road relocation of Water Main
- Gumwood north water Main Extension
- East Seventh Street Water Main Extension

Primrose Assisted Living Facility - Fulmer Road

LEAD REPLACEMENTS

- Hubbard Avenue - 20 Lead Replacements
- Middleboro Avenue - 28 Lead Replacements
- Berlin Avenue - 61 Lead Replacements
- Grand Blvd - 48 Lead Replacements
- E. Mishawaka Avenue - 22 Lead Replacements

Experience and dedication are keys to success. One of our employees received the John N. Hurty Award signed by the Governor and the Commissioner of The Indiana Department of Environmental Management. This honor in is awarded to those with at least 25 years of dedicated service in the water industry and the recipient must be nominated to receive this award. This year's Hurty Award winner was Joseph Zirille.

In addition, Frank Unruh received his 40-year pin and Keith Cooper and John Stewart both received their 35-year pins. Jim Wiesjahn also received a pin for 30 years of service. Congratulations on a total of 165 years of dedicated service in the water industry by these five employees.


(l-r): ***Frank Unruh****-40 Years;* ***Keith Cooper****-35 Years;* ***Jim Wiesjahn****-30 years*

Service to the community and the world is very important to our employee's .The Mishawaka Utilities Water for People Section raises money to help fund clean drinking water and adequate sanitation for people throughout the world. Our job will be done when all people have a safe, continuous water supply. For the 15th consecutive year, Mishawaka employees presented a check of at least $1,000.00 to the National Water for People organization. We look forward to 2015 as the Mishawaka Utilities Water Division continues to strive for excellence in providing World Class Service to our customers.

Wastewater Division

Karl R. Kopec, Manager

Overview

The mission of the Wastewater Division is to protect public health and the water environment of the community and to provide efficient service at a reasonable cost. Mishawaka's wastewater treatment plant is a Class IV facility with an average design capacity of 20 million gallons per day (MGD). Class IV facilities comprise the largest and most complex treatment facilities in the state.

The service area that contributes flow to the wastewater facility extends beyond the city limits. Areas served include new developments in Osceola, and parts of the county north, east, and south of the city limits. Expanding the service area protects groundwater, our drinking water source, and increases the customer base, lowering the overall wastewater cost per household.

Mishawaka's wastewater treatment facility serves over 17,000 residential, commercial, and industrial accounts. The population served exceeds 50 thousand. In 2014 over 3.5 billion gallons of wastewater were treated and over 5.6 million pounds of pollutants were removed prior to discharge into the St. Joseph River. In 2014, there were no exceedances of effluent limits.

The treatment facility operates 24 hours per day, 365 days a year. The twenty-six employees of the Wastewater Division have over 450 years of combined wastewater experience. Eight members of the staff hold Indiana's highest level of professional operator certification.

In addition to the treatment plant, the Division also operates the Biosolids Facility on South Logan Street. This site is the location for the solids dewatering operation and the storage of biosolids prior to land application. Another responsibility is monitoring of industrial dischargers through the Division's Industrial Pretreatment Program. The City of Mishawaka's Industrial Pretreatment program is responsible for enforcing all federal, state, and local environmental regulations. This includes the monitoring and inspecting of all Significant Industrial Users (SIUs) within the City. The City currently has eight permitted Significant Industrial Users and several non-permitted industries that are routinely monitored and inspected. SIU's are required to reduce, alter, or prevent pollutants from being discharged into the sewer collection system before ending up at the Wastewater Treatment Facility.

Final Clarifiers

The Pretreatment program is also responsible for FOG (Fats, Oils, and Grease) maintenance. Through education and monitoring, the FOG maintenance program works directly with food service establishments to prevent the discharge of fats, oil, and grease directly into the sewer collection system. FOG can accumulate in the sewage collection system resulting in blockages and sewage backups or overflows from the system, causing damage and creating a health hazard.

The Division is responsible for certain aspects of the City's sewer system. These responsibilities include the operation of 5 remote odor control facilities, monitoring and reporting on the activity of the 21 combined sewer overflow (CSO) structures, and the operation of the combined sewer overflow control program

The Division also maintains 29 remote sewage pump lift stations. Lift stations are required to pump sewage from areas where it cannot flow by gravity. Mishawaka's lift stations range in size from 150 gallons per minute (gpm) to 4,000 gpm.

Critical stations are equipped with stand-by generators in case of power outages and the remainders have transfer switches and receptacles to allow for portable generator operation. Since newer lift stations tend to be far from the treatment facility, in the outer reaches of the collection system, all new stations are required to have permanent stand-by generators. Additionally, generators for three older existing lift stations were purchased using ARRA stimulus funding. Designs for renovating two of these lift stations, Carriage Lane and Winding Brook, were completed in 2012 with construction completed in 2014.

The Wastewater Division operates a laboratory that provides process control testing and regulatory compliance analysis. The laboratory conducts analyses that are required in our NPDES permit. This includes analysis of samples from each process to ensure optimum efficiency, monitoring of the effluent to comply with discharge limitations, and analysis of industrial samples to ensure compliance with Federal and local pretreatment standards.

The laboratory analyzes approximately 18,000 routine samples every year. Along with these samples, duplicates, spikes and standards must be tested to ensure that quality data is obtained bringing the total number of analyses to nearly 39,000. Routine samples include carbonaceous biochemical oxygen demand (cBOD), suspended and volatile solids, ammonia, phosphorus, and solids analysis for sludge and biosolids. These analyses are conducted daily. The laboratory also conducts analysis for the heavy metals cadmium, chromium, copper, lead, nickel and zinc. These tests are performed quarterly on the influent and effluent of the wastewater treatment facility. The laboratory staff also continued participation in an E. coli study on river samples that began in 1997. The E.coli study involves weekly sampling of the St. Joseph River at Bittersweet Road Bridge, Main Street Bridge, the Ironwood Drive Bridge and Angela Boulevard Bridge.

During the summer, the laboratory performs bacteriological tests for Mishawaka's swimming pools. The laboratory conducts the bacterial analysis through its Indiana State Department of Health Certificate, which is required in order to perform bacteriological testing of drinking water and pools. As part of this certification, the laboratory is required to correctly analyze ten unknown bacterial cultures as a performance evaluation. In 2014, the laboratory correctly identified all ten.

As part of the NPDES permit requirements, the laboratory collected samples for biomonitoring and organic pollutant monitoring. Although these tests were not done in-house, significant time was spent in the organization and collection of the samples.

Every year the laboratory is required to participate in the EPA's Discharge Monitoring Report - Quality Control (DMR-QC) program. This Federal program consists of analyzing samples with unknown concentrations for all of the parameters of the NPDES permit, including biomonitoring. The results of the testing give the EPA and the Indiana Department of Environmental Management assurance that the data we submit on a monthly basis is accurate. In 2014, all the parameters were analyzed correctly.

The laboratory assists the pretreatment program for the City of Mishawaka. The laboratory conducted analyses on 8 permitted industries in 2014. Analyses ranged from metals and cyanide to cBOD and pH. The test results allowed the pretreatment coordinator to confirm that the industries were in compliance with their discharge permit limits. Pretreatment testing was performed weekly throughout the year. The hard work by the laboratory staff paid off once again by receiving the Indiana Water Environment Association 2014 Laboratory Excellence Award. This is the 13th consecutive year that the laboratory has received this award.

The Treatment Process

Mishawaka's wastewater treatment consists of the following processes: influent screening, grit removal, primary settling, activated sludge secondary treatment, final clarification, disinfection, post aeration, and anaerobic digestion. The treatment facility is designed to operate in the conventional activated sludge mode. The activated sludge process is a biological treatment process in which a mixture of wastewater and activated sludge bacteria are aerated and mixed. Organic pollutants and ammonia, phosphorus, and heavy metals are removed in the process. Ammonia removal is required because it is toxic to aquatic life and it creates an oxygen demand, lowering the level of dissolved oxygen in the river. Phosphorus is removed both biologically and by chemical precipitation using ferrous chloride. Phosphorus removal is required because excess amounts in the river can cause oxygen depleting algae blooms that harm aquatic life.

Operator Tim Wells

Solids generated in the treatment process are biologically converted in an anaerobic environment to simple organic compounds and become known as biosolids. These biosolids are dewatered at the Biosolids Facility and are land applied on area farm fields for soil conditioning and fertilizing. Land application of biosolids is recycling in its truest sense.

A byproduct of anaerobic digestion is methane gas. The gas is captured and compressed and is used as a fuel in the treatment plant boilers. Hot water generated by the boilers is used to heat the facility's buildings and to also heat the anaerobic digester tanks. Digester gas is a free and renewable source of energy. Utilizing digester gas offsets the amount of natural gas that must be purchased and significantly reduces carbon dioxide emissions from the facility.

The treated effluent from the facility is disinfected with sodium hypochlorite and then treated with sodium bisulfite to remove any remaining chlorine. At the very end of the process the effluent is aerated to add dissolved oxygen just before discharge to the river.

Statistics

In 2014, the wastewater facility treated over 3.53 billion gallons, averaging 295 million gallons monthly and 9.8 million gallons per day. Over 5.6 million pounds of pollutants were removed in the treatment process and the quality of treated discharge to the Saint Joseph River was exceptional.

Mishawaka's wastewater facility has an average design flow capacity of 20 million gallons per day (MGD) and a peak design flow capacity of 42 MGD. The highest peak flow rate treated in 2014 was 61 MGD on September 1st. The maximum total flow treated on a single day was 22.14 million gallons on February 20th. Treating flow in excess of the design capacity requires skillful operation and a well maintained facility. Pollutants removed during 2014 included 5.2 million pounds of organic compounds, 54 thousand pounds of phosphorus, and 343 thousand pounds of ammonia nitrogen.

Biosolids, the stabilized solid material resulting from the treatment of wastewater, are land applied on area farm fields. In 2014, almost 915 dry tons of biosolids were processed. Farmers desire biosolids because it contains nitrogen and phosphorus, reducing the amount of commercial fertilizer that must be used. It also improves the quality of the soil.

Digester gas is generated in the anaerobic digestion treatment process. This gas is 65% methane and is captured and burned in the treatment plant boilers supplying heat to the facility's buildings and providing heat required by the treatment process. Approximately 60 thousand cubic feet per day is generated, replacing purchased natural gas.

	2009	2010	2011	2012	2013	2014
Average Flow (MGD)	12.64	10.16	11.43	9.19	9.92	9.69
Peak Flow (MGD)	27.5	58.8	59.7	58.0	60.4	60.9
BOD Removed (%)	98	98	98	98	98	98
Phosphorus Removed (%)	78	79	79	80	80	82
Ammonia Removed (%)	96	93	90	95	92	95
Solids Removed (%)	97	98	97	98	97	98
Biosolids Produced (dry tons)	826	1115	1093	1121	1053	915
Electricity Use (MkWH)	5.283	4.874	4.922	4.992	5.075	4.934
Natural Gas Use (Mcf)	9.914	7.691	7.055	5.378	6.633	6.398
Total Precipitation (inches)	44.9	33.7	43.33	34.52	38.17	41.44

Significant Projects in 2014

Middleboro Lift Station

The City's oldest lift station was redesigned in 2012. Middleboro was originally placed in service in 1952. Extensive renovation began in 2013 with construction completed in 2014. In addition to replacing all piping, pumps and electrical components, the outside of the brick structure was renovated to preserve its architectural appearance. This rebuilt lift station will serve efficiently for decades to come.

CSO Elimination

A Long-Term Control Plan (LTCP) element was completed in 2013 in the Wilson Boulevard Area. The Wilson Boulevard upgrades include the combining of CSOs and diverting flows from River Crossing 3 to River Crossing 4. This project eliminated CSO – 005 Webster Street and CSO – 007 Benton Street and River Crossing 3 was abandoned. The disturbed area in the Wilson Boulevard area was updated with new streets and sidewalks when the sewer work was complete. Landscaping was completed in 2014.

Lift Station Upgrades

Holy Cross, Juday Creek, and Mariellen are the City's three largest lift stations. During 2013 several control deficiencies were identified. The control system designs were modified and physical changes were made to the controls in early 2014. These large stations are now more robust and less prone to failure.

Holy Cross Lift Station

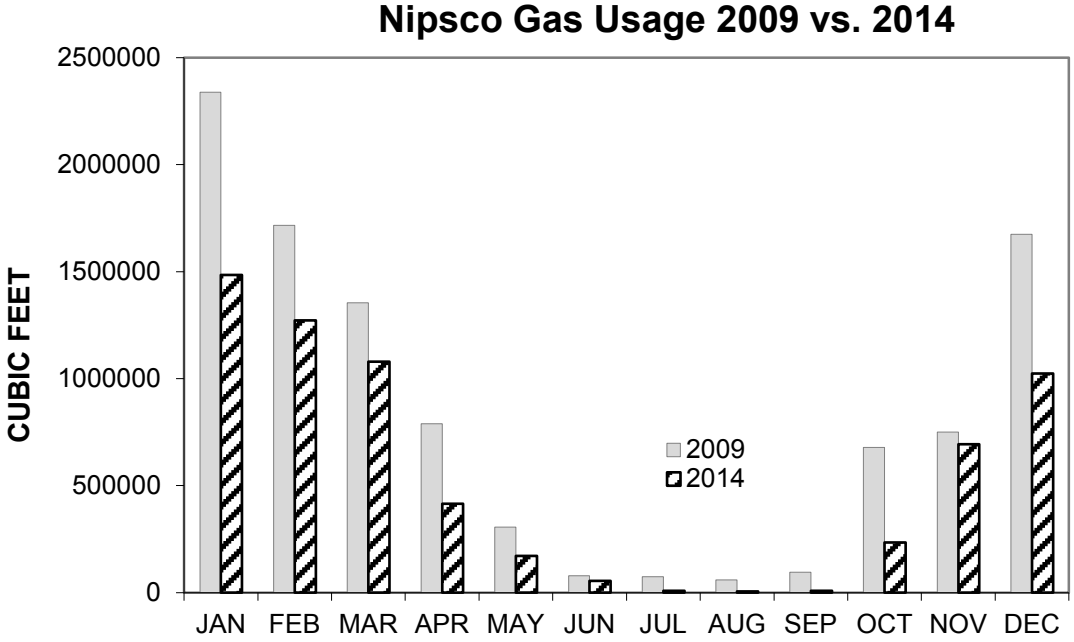
Award Winning

The Mishawaka Wastewater Division received a major award at the 78th Indiana Water Environment Association Annual Conference, held in Indianapolis November 19 – 21. Mishawaka's wastewater laboratory received its 13th consecutive Laboratory Excellence Award.

In 2014 Chemist Jill Norton was elected to serve as President of Indiana Water Environment Association (IWEA) in 2015. IWEA is one of 75 affiliated member organizations of the national Water Environment Federation (WEF). Jill brings distinction to Mishawaka as she is leads the State's water quality association.

Efficiencies

Wastewater treatment facilities are large consumers of energy. It is estimated that wastewater treatment facilities consume 3 percent of electricity generated nationally. In the treatment process, aeration and pumping require the highest energy usage. To reduce this demand, the wastewater facility operates a high-efficiency turbo blower. The turbo blower passed EPA green initiative requirements. The turbo blower serves as the primary source of process air and reduces aeration electrical consumption nearly 30 percent. The blower also requires less maintenance compared to the plant's other positive displacement blowers. The new turbo blower was placed in service in July of 2010 and is in its fourth full year of operation.



Digester gas which is produced in the treatment process is recovered and burned in the facility's hot water boilers to provide "free" energy that replaces natural gas. The boilers provide heat for the facility buildings and also heat the two-1 million gallon digester tanks. Much time was invested in 2014 fine-tuning the digitally controlled heating and ventilation system that serves all the facility's buildings and connecting tunnels. This effort has significantly reduced the plant's reliance on natural gas while maximizing the use of "free" digester gas.

Mishawaka has documented a 16 percent improvement in overall wastewater energy performance. The facility has decreased natural gas consumption 32 percent between 2009 and 2014. This is a significant achievement considering the 2008 treatment plant expansion required a 35 percent increase in heating capacity due to increased building area and safety code-mandated increases in building ventilation. Improvements to the digester system have increased digester gas production an average of 15 percent. Digester gas utilization has risen from 40 percent or less to nearly 70 percent. The new central heating system more efficiently burns digester gas and distributes "free" heat wherever it is needed.

The operation of the treatment facility is accomplished by a team of dedicated operators that provide coverage 24 hours a day, seven days a week. This includes 3 shifts with 2 operators on each shift, two swing shift operators, and two utility operators. Each pair of operators is responsible for making process control decisions on their shift. On off-shifts, weekends, and holidays the facility is staffed solely by these two-person crews.

Robert Hall and Tim Brill

Safety Milestone

By the end of 2014 the Wastewater Division reached 2,198 days without a lost time injury. This amounts to over 308,000 person hours worked during this impressive stretch of safe work days. The wastewater industry presents numerous hazards and records higher than average occupational injury rates. The staff deserves credit for working smartly and keeping safety a high priority.

Combined Sewer Overflows / Consent Decree

In May of 2014, after almost 10 years of negotiation, the City finalized a Consent Decree with US EPA requiring the City to construct improvements to our sewer system. As a result, the City is now implementing a Combined Sewer Overflow Long-Term Control Plan (CSO LTCP) to reduce the amount of combined sewage that is discharged to the Saint Joseph River during excessive rain events and snow melts.

Although the Decree was finalized last spring, Mishawaka has been aggressively eliminating CSO overflows since the early 1990s. In 2014 the City completed major components of the CSO LTCP program that were started before the decree was finalized.

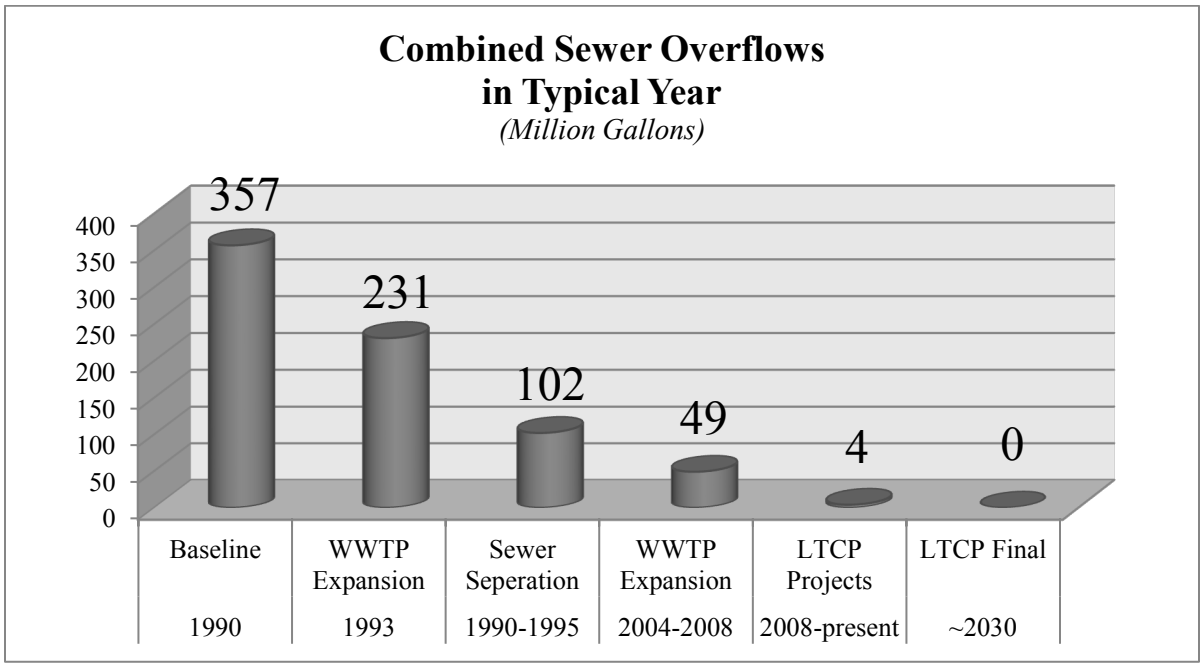
The projects included the sewer separation, rehabilitation, and pumping station improvements in the Milburn Boulevard/River Avenue area and the installation of a new interceptor sewer adjacent to Wilson Boulevard and the Saint Joseph River. These projects were key components of the City's aggressive CSO LTCP program targeted at reducing the discharge of combined sewage to the St. Joseph River during heavy rains.

At the onset of the CSO LTCP planning process the City developed a computer model of the sewer system. This model was originally developed in 1995 and simulates flows in the sewer system during rainfall events. Last year the City converted this model to the most recent version of the modeling software to preserve the use of this valuable tool.

During the period of April through September the City also installed 19 flow monitors in the sewer system and rain gauges in order to evaluate the performance of the system during wet

weather, quantify the effects of recently completed projects, and to refine the capacity and design requirements for the components of the CSO LTCP that are required to be constructed in the coming years.

This flow and rainfall data was then used to refine the City's sewer model. The updated (2014) model confirmed the success of the recently completed projects in the Milburn and Wilson Boulevard areas where the volume of combined sewer overflow has been effectively eliminated during the typical year as a result of these projects. Additionally, the model update included expanded detail of the sewer system characteristics that allowed the further refinement of how the sewer system responds in terms of flow during periods of extreme wet weather.



As a result of the LTCP improvements completed to date and the expanded sewer system, the updated model estimates that about 4 million gallons of combined sewage would be discharged to the St. Joseph River during a typical year. This is a reduction of greater than 90% from the 49 million gallons per year of overflow estimated to have occurred prior to the initiation of the CSO LTCP program. Also, the model predicts that under current conditions, only 9 of Mishawaka's 21 remaining combined sewer overflow points discharge in a typical year.

The key result of the update to the sewer system model is that future CSO control projects will be appropriately sized to control the updated estimated volume of wet weather flow to achieve the City's goal of zero overflows in years with typical rainfall. This supports the City's goal from the outset of the CSO LTCP planning process of being good stewards, to both the environment and ratepayers and taxpayers of Mishawaka.

Mercury Minimization

Mishawaka's National Pollutant Discharge Permit (NPDES) expired in November of 2011. This 5-year permit is the facility's operating license. The City received its new permit on May 1,

2012. It expires April 30, 2017. The new permit contains mercury limits for the first time. The new discharge limit is 1.3 parts per trillion as an annual average. This is an extremely low limit. One part per trillion is the equivalent of one inch in 16 million miles! Like most large communities, Mishawaka cannot meet the 1.3 part per trillion limit all of the time. Monitoring over the past five years shows that the limit is exceeded in about 30% of samples. The State allows communities to apply for a variance of the mercury limit which results in a higher limit that is attainable. A condition of receiving a variance is the development of a Mercury Minimization Plan that focuses on education, pollution prevention, and source control to achieve mercury effluent reductions due to a lack of economically viable end-of-pipe treatment options. In 2014 Mishawaka was granted a Streamlined Mercury variance.

Staff Changes

In 2014 two longtime managers retired from the Wastewater Division. Operations Manager Don Demeter retired after 31-1/2 years. Don was replaced by Mark Curtis who was the Assistant Manager in the Sewer Maintenance Department. Maintenance Manager Dennis Carter retired after 21 years. Dennis was replaced by Mike Mezykowski who was promoted from his Maintenance Technician position. As sad as we were to see Don and Dennis leave, we are excited by the energy and enthusiasm of their replacements.

Mishawaka is fortunate to have a modern wastewater treatment plant with capacity to keep Mishawaka moving forward. Aggressive combined sewer overflow control efforts have positioned the city well ahead of many Indiana communities. Protecting and enhancing the Saint Joseph River as well as promoting health in the community are benefits that help to make Mishawaka strong.

Electric Division

Tim Erickson, Manager

Overview

Mishawaka Utilities Electric Division (MUE) is the second largest municipally owned electric utility in Indiana, providing service to 27,331 meters, an increase of .03 percent over last year. The electrical distribution system includes 11 substations located at strategic points throughout the city. Our 44 person staff, located at 1646 E. 12th Street, engineer, construct and maintain the distribution system, consisting of nearly 127 miles of overhead and 176 miles of underground distribution lines, as well as nearly seven miles of transmission lines, primarily 34.5 kV, with a small 69 kV section feeding our University Park substation. This system serves a population of 48,252 as of the 2010 census.

Mishawaka Utilities Electric Department,
1646 East Twelfth Street

Mishawaka's electric consumers enjoy electric rates that are slightly below average for cities our size in Indiana, which is one of the nation's lowest-cost energy states.

While owned by the City of Mishawaka, our efforts are not supported by tax dollars. We are a Division of Mishawaka Utilities; our operation is totally financed by the rate payers we serve.

Operationally, we continue to aggressively rethink how we perform our work, how we allocate our limited resources, and how we maintain the reliability of our distribution system.

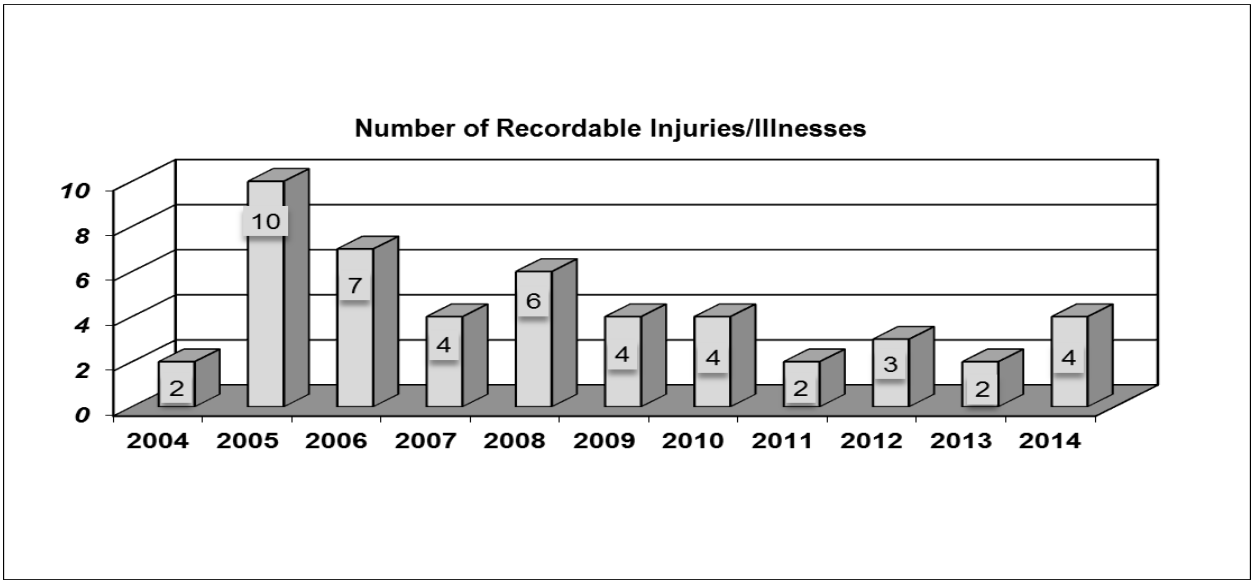
Mishawaka's electric consumers enjoy electric rates that are slightly below average for cities our size in Indiana, which is one of the nation's lowest-cost energy states

Electric Division Process Measures

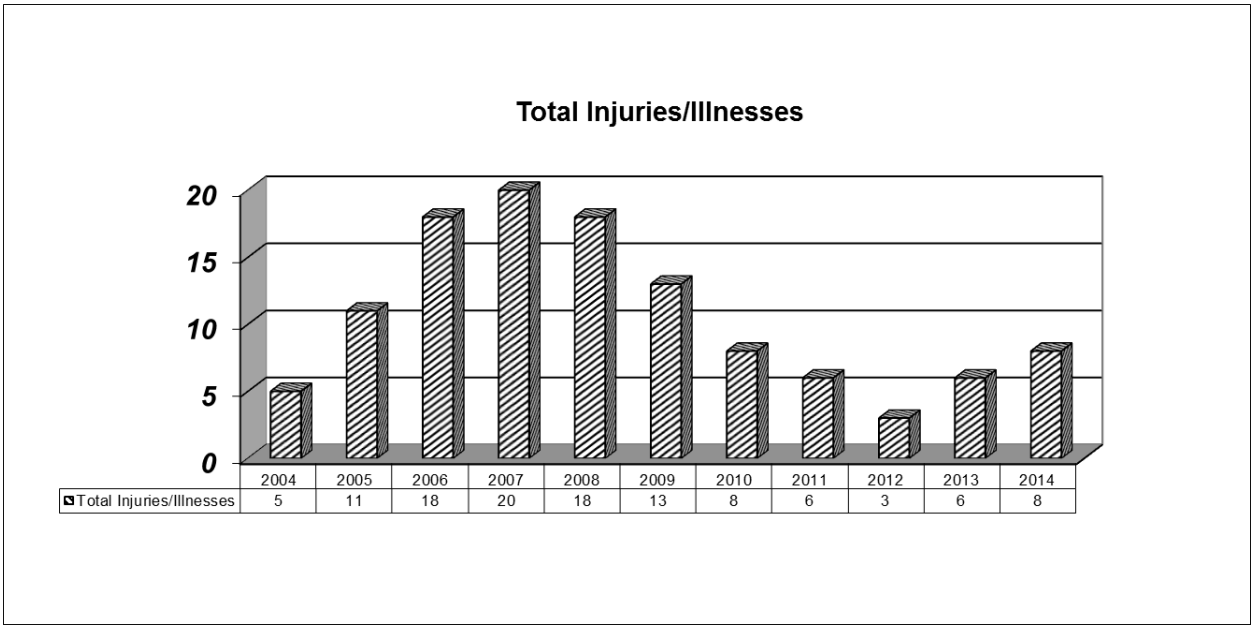
Process Measure	2013	*2014*	Percent Change
Peak Demand Month (month and kW peak demand)	July 137,681	*August* *129,444*	*-5.98*
Total Energy Purchased (kWh)	621,372,256	*614,024,446*	*-1.18*
Total Energy Sold (kWh)	595,721,686	*590,129,178*	-.94
Total Number of Customers Billed	27,322	*27,331*	.03
Engineering Projects Completed	170	*162*	-4.7
Number of Transformers Set	59	*68*	15.2
Number of Metering Department Work Orders Completed	*24,467*	*29,895*	22.2

Personal Safety

All Construction personnel participated in bucket rescue and pole-top rescue at our Logan Street Training Facility. Training was administered by the Indiana Municipal Electric Association (IMEA). This is an annual training event. In addition, all metering and construction personnel attend monthly safety meetings administered by the IMEA. The number of recordable injuries/illnesses increased by two (four in 2014 versus two in 2013).



The total number of injuries/illnesses also increased by two, eight in 2014 versus six 2013.



Safety has been, and will continue to be, our main focus at the Electric Division.

System Energy Consumption

In August we hit our annual peak demand of 129.4 [MW] (12.2 percent less than the previous high of 147.3 [MW], set in August 2006). All distribution equipment operated within design constraints. SCADA provided continuous up-to-date information of transformer loading and system supply voltages. Also, our energy consumption (total energy purchased) for the year was 614,024,446 kW, down 1.18 percent from the previous year.

Reliability/Performance Enhancements

The following is a list of system enhancements completed in 2014:

- Completed installation of a high voltage breaker upgrade at the Bercado substation. The substation upgrade construction effort took only five days to complete. Both H&G Services engineers/technicians and Mishawaka Utilities' construction department staff personnel worked together very effectively to make this upgrade happen in such a timely manner.
- All substation fence grounding has been brought up to NESC standards.

    - Continued implementation of the Trip Coil Monitoring Panel (TCMP) by completing the design change at Clover and Bercado substations. To date this design change has been implemented at eight of our 11 substations. The design change is being implemented in response to a protective system fuse failure at Union substation that went undetected for a significant period of time.

Employee Training and Lineman's Rodeo

Apprenticeship

Our apprenticeship program is in its 26th year. In February of 1988 we started our Joint Apprenticeship Training Program and have graduated 24 apprentices to Journeyman Lineman. Our program is a cooperative effort between Local Union IBEW 1392 and the Mishawaka Utilities Electric Division. Our program is recognized and registered with the Department of Labor Bureau of Apprenticeship and Training. To graduate, an apprentice must have a minimum of 8,000 hours on the job training (four years) and 576 hours of class room study.
Lineman Rodeo

Lineman Rodeo Competitions showcase the talents of the line worker in an individual and team setting and also are judged on national APPA safety regulations at international levels. After a very successful 2013 including our apprentices finishing 1 and 2 in the State and World competitions the bar was set high. Construction Department personnel participated in the following lineman rodeos:

- At the 2014 APPA national rodeo held in Oklahoma City, Oklahoma this year we sent a journeyman team and 4 apprentices to compete. The Journeyman team consisted of Captain Chuck Bailey, Scott Flynn and Shane Reynolds. The apprentices were Jack Kudlacz, Nathan Prenkert, Mat Stull and Mike Whitaker. The apprentices were outstanding with Mat Stull finishing 6th, Nate Prenkert 8th, Mike Whitaker 9th, and Jak Kudlacz 14th.

- The next Rodeo was the IMEA State Lineman's Rodeo hosted at Beutter Park in downtown Mishawaka September 26th and 27th. Mishawaka was represented by 2 Journeyman teams, 3 individual Apprentices, and dominated the competitions winning 1st place overall and bringing home 34 trophies as a team. Mishawaka again proved to be the "best of the best" from the building of the field, participation from the other municipals, vendor support, and public participation, and was successful from beginning to end. Mishawaka has been selected to host the 2017 competition – we'll try to outdo our 2014 success.

- The last Rodeo of the year was International held in Bonner Springs, Kansas in October. Mishawaka sent 2 Journeymen, Chuck Bailey and Scott Flynn, to compete on a combined IMEA team with members from Richmond, Bremen and Scottsburg. Mishawaka also sent 2 apprentices, Jak Kudlaz and Nate Prenkert, to compete in the apprentice division. Jak Kudlacz finished 1st IN THE WORLD for the 2nd consecutive year and Nate Prenkert took 2nd IN THE WORLD in the Municipal class. Mishawaka linemen are becoming household names in these competitions and work hard to be the best.

Tim Erickson and Kevin McGann continue to serve on the Indiana State Lineman's Rodeo committee as well as the National Joint Apprenticeship and training committee while Tim also serves on the State Safety and Training committee and chairs both the State IMEA rodeo committee and the NJATC.

Also, the following training was attended:

- Gordon Allen, Chief Engineer, presented training on *Fuse Coordination* at an IMEA workshop held at RP&L offices (7/25)
- Don Beck attended National Training Institute (NJATC) training 7/26-8/1)
- Joe Schrader and Justin Overholser attended GLEM School in Grand Rapids, Michigan (8/10-8/14)
- Steve Whitfield attended Overhead Distribution Systems training in Scottsdale, Arizona (9/30-10/3)
- Steve Whitfield and Todd Fizer attended Fundamentals of Electricity Workshop in Greenfield, Illinois (11/7)

Organizational Changes

Organizational changes this past year were as follows:

Engineering Department

- Adam Severns was transferred from Metering to fill the position of Substation Technician.
- Steve Whitfield was transferred from Construction to fill the position of Project Coordinator.
- Tim Kobb retired; the Substation Supervisor position has not been filled.
- Myron Stutzman quit.

Construction Department

- Steve Whitfield was transferred from Construction to Engineering to fill the position of Project Coordinator
- David Cochran quit.

Metering Department

- Jeff Erickson was transferred from Metering to Operations to assume the position of Dispatcher.
- Adam Severns was transferred from Metering to Engineering to fill the position of Substation Technician

Operations Department

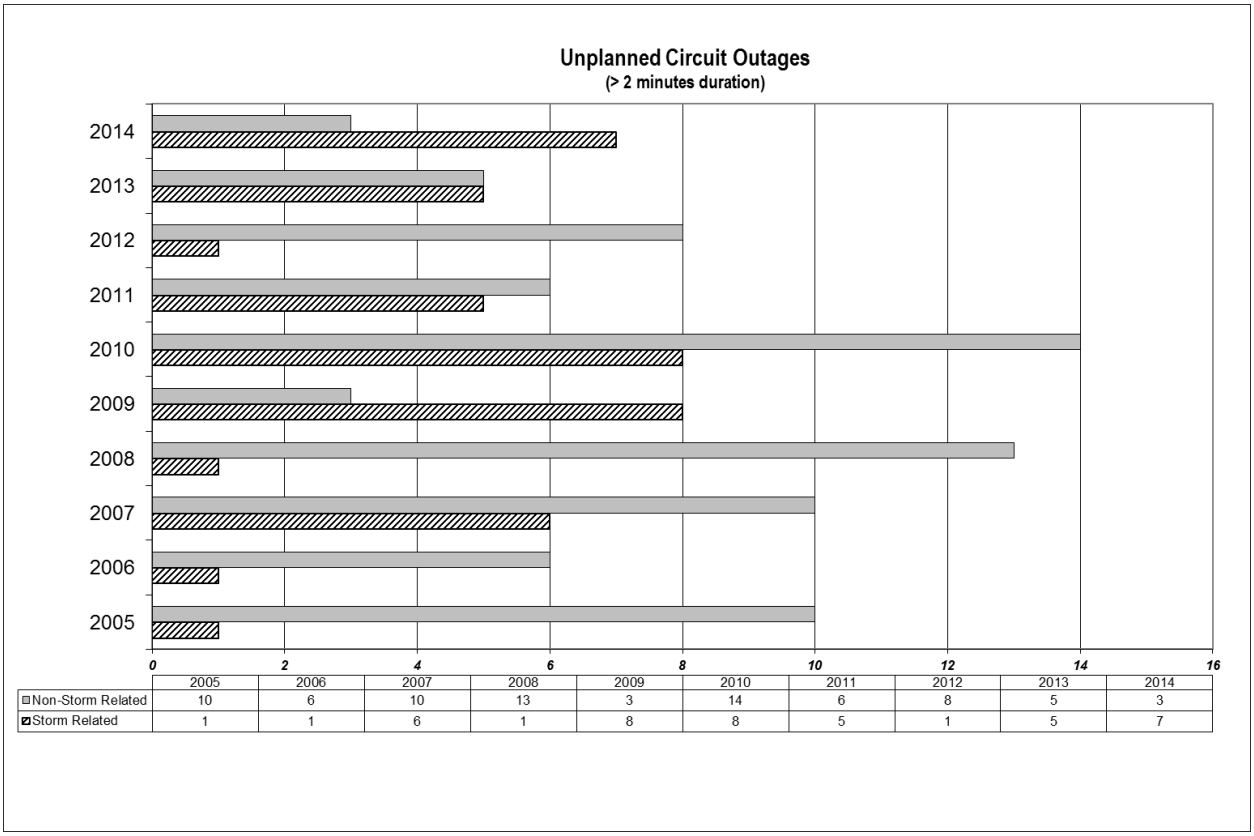
- Jeff Erickson was transferred from Metering to Operations to assume the position of Dispatcher vacated by Vickie Achtenburg.
- Vickie Achtenburg retired.

Engineering and Construction

Unplanned Outages

There were 10 unplanned circuit outages in 2014, with a cumulative unplanned outage time of 40 hours. The number of unplanned outages did not change from the previous year. Thirty one of the 40 outage hours, 78 percent, were the result of a significant wind storm on July 1, 2014. Forty percent of the July 1st circuit outage hours were the result of failure of AEP's Russ switching equipment at the AEP Liberty-Tap. The AEP equipment failure resulted in a loss of Russ circuits. This circuit failure is similar to the November 17, 2013 AEP failure. As a result of this failure AEP made a number of repairs to their Liberty-Tap MOABs.

The system as a whole continues to provide very reliable power. This is due to multiple reasons including ongoing reviews and analysis of system reliability and operational issues, with appropriate actions taken to address areas requiring improvement. Performance has also been positively affected by implementation of reliability driven design changes, an effective preventive maintenance (PM) program, effective implementation of the fuse coordination program, and effective preparation, review, and approval of technical procedures. The chart below depicts our unplanned circuit outage trend for the past 10 years.



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Non-Storm Related	10	6	10	13	3	14	6	8	5	3
Storm Related	1	1	6	1	8	8	5	1	5	7

Storm Response – We experienced a severe windstorm on July 1, 2014. Division personnel worked diligently to restore the affected areas to service. Our crews responded by restoring all power by the next morning while surrounding communities still had areas out for 6 days.

Support Services
Annual support services were provided for Summerfest, Summer Concert Series, Memorial Day Parade (Beutter Park and Battel Park), Kamm Island Festival, as well as decorations for the Holidays including wreaths and trees downtown and at Battell Park. Our support role includes providing both personnel and vehicle resources for setup and removal.

All Substations
A comprehensive survey and evaluation of substation fence grounding was performed by an H&G Services Mechanical Engineer. The evaluation identified the following four areas in need of improvement:

- A number of gates were not bonded to ground (i.e., they were physically isolated from the ground grid).
- A number of gates inappropriately rely on their hinges to act as their "bond" to ground.
- A number of barbed wire sections were found to be improperly grounded. Sections relying on tension, intended to establish a solid ground connection, were found to be loose.
- A number of barbed wire sections were so rusted that resistance readings to ground far exceeded the 5 [ohm] allowable maximum – in many cases the resistance readings showed an open.

All substation fence grounding has been brought up to NESC standards.

All Substations
In February 2013 ABB issued a product advisory letter requiring all DPU relays to have an upgrade installed to their operating firmware. The purpose is to prevent unexpected operations. The upgrade has been completed.

Borley, Clover, and Fourth Substations
The 20 year old wet battery systems at these three substations were replaced during 2014. These batteries are an extremely important part of our protection scheme. This completes the battery replacement project.

In conjunction with the above battery replacements a comprehensive technical evaluation was performed by a H&G Services Mechanical Engineer to determine if the batteries would produce hydrogen gas in sufficient quantities to warrant the need for a dedicated ventilation system. The H&G analysis determined that there are sufficient air changes in the existing control house buildings to preclude the need for a dedicated ventilation system.

Information Accessibility
We are making effective use of Dropbox cloud storage to manage information accessibility. For example, all circuit prints, substation drawings, the PM program, and key engineering design

projects are accessible via the Dropbox account. These documents, therefore, are available at any time, any place, via smart phones and tablets by authorized users.

SCADA (Supervisory Control and Data Acquisition System)

- Installed a webserver to allow monitoring the SCADA system using smart phones and tablets via a VPN connection. This capability provides the supervisors in the field with meaningful real-time information during routine and emergency situations.
- Installed Raid drive to seamlessly and continuously backup webserver and SCADA master files.
- SCADA is effectively being used to remotely monitor real-time status of equipment at all 11 substations. Key SCADA status and control components are tested on a regular basis.

Preventive Maintenance (PM)

We are continuing with our substation PM program to help prevent and mitigate failures, and prolong equipment life. Key PM (preventive maintenance) and CM (corrective maintenance) performed in 2014:

- 12th Street Insulator Failure

Periodic inspection of 12th Street high voltage buss identified a failed 34.5 kV insulator. The inspection also identified the 52T1 bypass GOAB to be out of alignment. Those repairs have been completed and the circuits returned to normal.

- 12th Street, Virgil, and Logan Substation High Voltage Bushing Failures

Periodic inspection of 12th Street 52-2 oil circuit breaker (OCB) identified a failed high voltage bushing. Repairs have been completed. Two additional spare bushings were ordered as these are very long lead-time items.

Periodic inspection of Logan T1 identified a failed high side bushing. Repairs have been completed.

Periodic inspection of Virgil 52-5 OCB identified a failed high voltage bushing. Further inspection revealed excessive tank water in-leakage resulting in irreparable internal corrosion damage. The OCB was replaced with an RMag style recloser (RMags are magnetically operated reclosers).

- Fourth Street Hospital
  Completed troubleshooting and repairs to VISTA switch. Switch had been intermittently transferring between its primary and alternate feed due to perceived low voltage issues that were the results of faulty signals.
- Insulator Cleaning

- Insulators were power cleaned by Preventive Power and Maintenance in January at University, Twelfth, and Logan Substations. These cleanings are part of our strategy where we do UP plus at least one other substation annually with the goal of cleaning every substation at least once every ten years.

The insulator cleaning at University identified leaking radiators on T1. Replacement radiators were designed/ordered/received. Awaiting the right conditions to install.

- Bercado, Logan and Russ Low Tap Changer (LTC) Oil Level Alarms
  LTC low level alarms received during last year's winter revealed that LTC oil levels were well below the 25 °C mark. To remedy this, oil was added to these three LTCs to bring the level up to the desired level.

- Cooper Advisory Letter
  Completed Cooper regulator advisory on Borley and Virgil regulators.

- Vacuum and Oil Circuit Reclosers
  The oil tanks were lowered on 15 reclosers (nine OCBs and six ESVs) allowing inspection, adjustment, and testing of recloser integrity.
  We tested the fault interrupting devices on six 34.5 kV circuit breakers this past year.

- Relay Testing
  Electromechanical relays were tested and calibrated at three substations. These relays protect our substation transformers from faults and overcurrent.

- Routine Inspections (failure finding tasks)
  Our infrared (IR) scan was completed in August. IR surveys provide the opportunity to preemptively address equipment temperature anomalies thereby preventing failure.
  We are also maintaining our aggressive transformer oil testing schedule.

- Clover and Logan Spare Transformers
  Periodic inspection was completed on these two transformers.

GIS (Geographic Information System)
The Electric Division has effectively used its GIS base map to assist outage response teams. GIS information provides both a concise location of the affected residence or business and the necessary information (through its relational database features) to hone in on the outage extent.
The MUE GIS implementation expanded further throughout 2014 with daily application of the data collected and maintained in the GIS system. For Example:

- GIS continues to play a vital role in the periodic inspection of high voltage equipment. The effort required the creation of equipment location maps throughout MUE territory.
- Maintained construction and street light work flow.
- Attended Software training at Futura Conference to help with Futura Database Maintenance, and to be more informed of future Futura software.

- Maintained Circuit Maps updates, Futura updates, transformer database, of over 200 work orders.
- Implemented new WebSCADA Server. SCADA monitoring now made available on portable devices such as iPads and Smartphones.
- Maintained all laptop computers for crews. Continued training crews on Futura software to help Construction Workflow become more efficient.
- Trained new Engineering staff on Futura Editing and Staking
- Supported Construction with detailed maps for underground facility inspections.

Project Engineering Activities

The new "connector road" between Capital Ave & Fir Road was one of our significant projects this past year installing over a mile and a half of new primary circuits. We completed the replacement of all rushed & condemned poles from the previous year's pole inspection results. Two other projects requiring significant effort were the new Costco services/primary relocation and relocating our Union to 4th Street underground 34.5kv line.
The most demanding projects, those requiring in excess of 160 hours per crew, included the following:

- *Electric distribution improvements (line maintenance projects)*
  Pole Inspection / Replacement Program
  Borley Sub 52-2 Primary Rebuild
  Borley Sub 52-3 Primary Rebuild
  Russ Sub 52-7 Circuit tie to Russ 52-8 Circuit
  Substation Support:
  Scheduled projects to support:
  Switching
  Circuit Load Balance
  Recloser upgrades and change outs

- *Major City Jobs*
  Church Street Project
  Union 34.5kv Underground Relocation
  Harrison Road Widening
  Gumwood Road Widening
  Riverwalk Improvements
  Mishawaka Ave Improvements Phase 1
  Capital Connector Road
  Bremen Highway Road Improvements

- *System PM*
  Vault Hazard Testing
  SF6 gas inspection and servicing of all puffers in service
  Transformer & Closure verification and inspection (also in support of new GIS program)

Metering

The number of electric customers increased from 27,322 to 27,331 (.03 percent). The north and south side service trucks completed 23,524 install/removal work orders this year which included electric and water. The Meter Technician van completed 1,664 work orders, along with several power quality test and recording procedures. The metering repair van was also tasked with the re-reads on the new A.M.R. meters. This change helped to prevent estimating the customers we have had trouble reading in the past.

The Meter Readers and Josh Hyde have kept the reading schedule at or near 31 days all year and have completed over 4000 re-read work orders. The following table depicts performance in the area of work orders:

Work Orders for Electric	2013	*2014*	Percent Change
Removals	9,546	*11,818*	23.8
Installs	9,498	*11,706*	23.2
Sets	227	*81*	-64.3
Re-reads	3,712	*4,707*	26.8
Change Meters	628	*831*	32.3
Miscellaneous	865	*752*	-13.1
Totals	**24,467**	***29,895***	**22.2**

The disconnect truck ran shut-off lists 178 days this year which included 3,226 customers. They completed 2,122 reconnects during working hours. They make it a priority to do follow-up visits to disconnected accounts to check for tampering and theft. The shut-off truck helps the meter-readers read if we don't have a shut-off list. The truck has also completed 496 removal and 92 install work orders as well as generating $79,300 in reconnect and tampering fees. As a department we also completed 137 after-hours reconnects.

We are continuing a program of changing meters from three phase mechanical thermal demand-type metering to electronic solid state-type metering along with single phase A-type base adaptor upgrades. We have also implemented a program to replace single-phase meters that have been in our system over 20 years, many of which result in a loss revenue due to excessive mechanical losses.

We continue to move toward an Automatic Meter Reading (A.M.R.) program. We have changed all meters in Reverewood this year as a test case as well as receiving training from Itron on the hardware and software for the A.M.R. system. Once all things are on-line we can move to implement change in getting the meter readings. The following table depicts performance in the area of shut-offs:

Shut-offs	2013	*2014*	Percent Change
Past-Due Amount	$284,465	*$373,496*	31.3
Total Amount Due	$531,838	*$743,093*	39.7
# Shut-Offs	2,751	*2,861*	4.00
# Bad Checks	84	*28*	-66.7
# Payment Plans & Extensions	123	*121*	-1.63
# Payment Plan Deposits	233	*226*	-3.00
Shut-Off Totals	**3,286**	***3,236***	**-1.52**

There were several personnel changes this year, Jeff Erickson and Adam Severns were promoted to new positions within the Electric Department. Bill Cook retired and Joe Schrader was promoted to his position as service rep. With all of these changes we were able to hire three new meter readers from other departments in the City.

This year we also sent two of our service reps to advanced meter training. Joe Schrader and Justin Overholser attended Great Lakes Electric Meter School in Grand Rapids. This was Justin's second year and he received 3-phase qualification. As a Department we also attended monthly IMEA safety training as well as several in-house training sessions. We will continue to move forward with these programs and research new programs to improve on our service delivery to our customers.

Operations

Within the Mishawaka Utilities Electric Division, the Engineering, Construction, and Metering Departments all rely on the Operations Department for support. The Operations Department purchases, coordinates and maintains all goods, services and rolling stock for the Electric Division. In conjunction with the Business Office, the Operations Department generates bills for contracted services set up by Engineering, and damage claims to our facilities due to traffic accidents and contractor dig-ins.

The Operations Department also assists the Accounting Department in keeping accurate material and accounts payable records, and by generating all purchase orders and job costing reports.

Other key functions of the Operations Department include:

- Dispatching crews and providing assistance to both customers and other divisions.
- Maintaining all records for use by Accounting, Engineering, and Construction pertaining to transformers, meters and inventory material.
- Maintaining the storeroom and issuing materials to construction crews.
- Issuing polyphase meter sockets to electrical contractors.
- Tracking the SCADA system that monitors the entire substation network.

The 2014 year was more financially active in terms of new acquisitions, changes and additions than the previous year. Office equipment at our 12th Street facility required replacement. Both

the main printer/copier and the fax machine had become obsolete. To resolve this problem, a new Lanier Model MP C3503 multi-tasking unit was purchased from Advanced Imagining Solutions of South Bend, Indiana. This new all-in-one office machine replaced both failing units as our main copier/printer/document scanner/fax.

Maintenance equipment required an upgrade due to obsolescence as well. The ride-on floor sweeper that we use at out 12th Street facility needed to be replaced. We purchased an Advance Model 3820C sweeper/scrubber from Hull Lift Truck of Elkhart, Indiana. The new unit performs flawlessly and allows us maintain our garage and stockroom floors in top condition.
During the year, we replaced 4 aged vehicles in the fleet with a new Ford F350 4-wheel drive service truck for the construction department, and 2 Ford F150 4-wheel drive pickup trucks for management personnel. A new Ford Escape was purchased for the Division Manager.

In addition, the Electric Division ordered a new construction vehicle to add to the working fleet. It is a 45-foot two-man insulated aerial platform, or bucket truck. The unit is being built on an International 4-wheel drive chassis by Altec Industries in their Creedmoor, North Carolina plant. The new truck, which is expected to be completed and delivered in March of 2015, will find primary function as our street light maintenance rig. But it can be pressed into service as a fully equipped line unit if necessary. We will be trading an aged bucket truck that is no longer safe to put into service on the new Altec unit.

This year we also resurfaced our asphalt parking areas at our 12th Street facility. We had been patching the lot when necessary, but it was definitely time for a full resurface, which was its first since our building was constructed in 1987. Reith-Riley Construction was contracted to perform the work, and the lot turned out even better than expected. The finishing touch of striping was added by the City's Central Services Department.

Through Operations and with the assistance of HD Supply, the Electric Division welcomed a new manufacturer as a partner. Holophane Lighting has begun to supply new decorative LED lighting fixtures on our streets. The new fixtures can be seen on Mishawaka Avenue east of Main Street as part of the redevelopment in that area. They will also be put in service on the connector on the north side of the City between Fir Road and Capital Avenue. These LED fixtures will provide good, energy-efficient lighting to not only beautify our city streets, but to add an enhanced level of safety and security as well.

Finally, Mishawaka Utilities and the City of Mishawaka hosted the 4th Annual IMEA Lineworkers' Rodeo in Beutter Park. The "Rodeo On The River", which was held on September 26th & 27th was a huge success and has set the bar for future events of its type in the state. Operations involvement in the rodeo ranged from designing and ordering banners that were displayed on the rodeo grounds to coordinating food services for some events to arranging special attractions that added to the festive atmosphere of the competition. I would like to give a personal thanks to all of the vendors and companies that helped to sponsor the rodeo. Special thanks goes out to Altec Industries and Mark Willman for providing and operating a 125 foot aerial tower for bucket rides, to HD Supply and Sam Briggs for providing the Orange County Choppers Eaton motorcycle for display and to WESCO Distribution Daleville and Dave Williams for providing Ty Dillon's WESCO-sponsored NASCAR #3 Camaro stock car owned

by Richard Childress Racing for another display. These attractions were great additions to the rodeo and helped to bring out huge crowds on both days. I also wish to thank FastSigns and Emily Nufer for making up all of the banners that were displayed at the event, and McFarland Cascade and Ed Ufkin for providing the poles used in the competition paddock. Our Department was proud to be a part of this successful event.

In Operations, we continue to partner with H & G Services to control unwanted vegetation growth in our substations. By contracting the vegetation control to an outside firm, we actually save money and MU man hours versus purchasing the herbicide and applying it ourselves. 2014 was the ninth year of the contract with H & G. The Electric Division will renew the contract for 2015 based on H & G's past performance during weed growth seasons. They are a valuable partner in our effort to keep our facilities well-maintained and well-groomed. The condition of our substations is a direct reflection of our overall commitment to be good neighbors to the citizens and businesses that make Mishawaka their home.

We also continue our partnership with HD Supply Utilities of Mattoon, Illinois by utilizing their Vendor Managed Inventory system, or VMI. Mishawaka Utilities entered into this partnership in January of 2009 to institute an inventory management system with HD Supply acting as our primary vendor for line construction and maintenance material. But the VMI is far more than a single vendor supply partnership. By relying on HD Supply to keep inventory in stock at their warehouse, we can reduce the material that we need to keep on our shelves. That reduces the amount of capital we have invested in store room inventory that isn't out on the city's electrical system helping to generate revenue.

Another facet of the VMI is the web-based material management software package. The inventory is monitored via desk top and laptop computers or wireless barcode scanners. Any activity on the VMI web system registers instantly and records all material transactions. These transactions include material receipts from HD Supply, material issued to job orders and material issued to truck inventory. Pricing of the material is also managed in real time utilizing an average-cost format. At any time, the system can be queried to give information regarding on-hand material quantities and current material values, either for individual items or for the entire on-hand stock. All materials have been assigned minimum and maximum stocking quantities. When any material item's on-hand level drops below its minimum, the system is prompted to generate a reorder ticket for that item. These orders are filled and deliveries are sent from HD Supply every Wednesday.

With scheduled weekly deliveries, we are confident that we should very seldom, if ever, run out of any material under normal circumstances. If faced with extraordinary events such as an ice storm or severe weather event, HD Supply will treat us as a preferred customer and fill orders for all of our needs ahead of their other non-VMI customers. They guarantee response to emergency order requests within 24 hours. With distribution centers nationwide, we are confident with placing our trust in HD Supply for our material needs. After the fifth full year of the VMI, we are still pleased with the results. We are reducing our on-hand inventory levels, which was the main objective. We are also pleased with the weekly deliveries and the computer-based material management software. We continue to "profit" from the ongoing alliance with HD Supply and are excited to see the results in cost savings, lower on-hand material carrying costs and rapid

response to material needs as they arise. We are looking forward to the seventh year of our partnership with HD Supply and the benefits that accompany the partnership.

Another ongoing alliance that we continue to benefit from is the transformer salvage program with our partners at HD Supply and transformer vendors Solomon Electric in Solomon, Kansas. In today's market, many transformer salvage companies charge to destroy used transformers. However, the agreement we reached with Solomon to have them process non-functioning or technologically out-of-date transformers allows us to receive credit based on the salvage values of the recovered materials. Normally, then, we would only be allowed to use this credit with Solomon towards the purchase of transformers from their company. But, by forming this 3-way alliance, the credit is issued to HD Supply and saved on account for to us for use on any equipment, material or services that HD Supply would sell to us outside of the VMI agreement. Here is how this breaks down in dollars and cents. Take as an example a standard aerial service 50 KVA transformer in a typical residential area. Salvage value for that transformer would be roughly $4.00 to $5.00 per KVA, or approximately $200.00 to $250.00. Last year, we declared 22 small line transformers as salvage and received over $3,791.00 in usable credit with HD Supply. We were able to use this credit towards invoices for tools, inspection services, and other miscellaneous items.

Working safely is one of the most important aspects of our job. One facet of maintaining a safe workplace is using equipment and tools that are in good working order and up to industry and government safety standards. Each year, we are required to test our bucket trucks and line trucks for both structural and dielectric safety compliance. Structural safety is basically defined by condition of the equipment that we own. Equipment must be in good mechanical and physical condition to be considered safe. Dielectric safety is defined by the insulation properties that certain equipment possesses. Proper insulation levels must be met for equipment to be operated safely around energized electric lines. Each year, we contract Altec Industries to perform on-site structural and dielectric tests on all of our bucket trucks and line trucks. Each piece of equipment was inspected to verify its structural and mechanical soundness. Then high voltage tests were conducted to verify that the insulation levels met or exceeded industry standards for safety. Every five years, units are actually x-ray tested to check for structural cracks and stresses that are not detectable with the human eye. Any structural or dielectric deficiencies that are discovered are reported immediately. Upon this type of notification, the non-compliant equipment is removed from service until the necessary repairs or adjustments are made. During the month of January, Altec Industries performed the necessary inspections and tests to maintain and document our compliance with all safety regulations and requirements related to our aerial devices.

Another ongoing safety program that is in place at the Electric Division involves our required personal protection equipment, or PPE. PPE consists of high-voltage rubber gloves and sleeves which all linemen are required to wear when working on or around energized electric equipment, flame-retardant clothing, hard hats, safety glasses and fall arrest harnesses and lanyards for all linemen who work in bucket trucks. Rubber gloves and sleeves are tested and certified twice a year per industry standards. Fall arrest equipment is inspected annually. All other equipment is inspected by the individual employee on a daily basis for wear and damage. Prevention is always the first step towards working safely. Any employee whose job would place him/her in a

situation where an electrical arc flash could occur is issued flame retardant (or FR) outerwear. We continue to partner with BrownDuck, located in Rockville, Indiana, to provide us with the necessary FR outerwear for our employees. Each employee is fitted individually for his garments. These sizes are kept on file with BrownDuck for future orders. FR clothing is BrownDuck's specialty, which is why we chose them as a partner in this endeavor. The average cost to outfit an employee in FR outerwear is $400.00. This is a small investment when compared to employee safety and peace of mind. By providing this FR outerwear, we are OSHA compliant for this type of PPE.

Item	Dollars Spent		Percent Change
	2013	2014	
Aerial Transformers	$195,545	$89,496	-54.2
Padmounted Transformers	$385,652	$167,205	-56.6
Transformer Accessories	$88,428	$30,268	-65.8
Pipe	$43,587	$45,370	4.09
Pipe Accessories	$2,858	$6,165	115.7
Meters	$47,244	$31,815	-4.66
Meter Accessories	$21,959	$17,126	-22.0
Wire	$406,072	$294,447	-27.5
Wire Accessories	$75,124	$57,303	-23.7
Poles	$97,756	$47,202	-51.7
Pole Accessories	$25,265	$32,471	28.5
Street Light Poles	$0.00	$0	0.0
Lighting Accessories	$79,103	$73,413	-7.19
Service Materials	$75,102	$83,484	11.2

A major concern in the Electric Division is saving money whenever possible, but demanding and receiving the highest quality products and services from our vendors is extremely important as well. The Operations Department wrote purchase orders for approximately $2,105,809.00 for goods and services in 2014. This figure includes, but is not limited to; lighting for Mishawaka Avenue, the Capital-Fir Connector, the Church Street Underpass and Riverwalk projects, facilities and substation upgrades and new maintenance, construction and transportation equipment. This is a marked increase from the $957,123.00 for goods and services purchased in 2013. As noted, purchases of vehicles, street lighting, substation equipment and facilities upgrades led to this increase. Purchases of $84,657.00 for inventory materials from non-VMI vendors and $256,701.00 for distribution transformers helped us to reach these figures (see breakdown chart that follows). Again, these figures do not include goods and services from blanket purchase orders or inventory material and distribution transformers purchased from HD Supply through the VMI system (HD Supply VMI material and transformers amounted to a cost of $975,765.00 for 2014).

Overall spending through the Operations Department did increase in 2014. But there were major endeavors which increased spending in some categories. These expenditures have been outlined. However, another area in which increases in spending can be attributed would be the continued

fluctuation in fuel costs during 2014, which is ultimately passed on to us as end users. Rising costs of raw materials and higher overall demand for the goods that our industry uses nationwide were responsible for higher costs for some types of materials and consumables as well. Increased purchase costs related to wire and street lighting are due to continued special projects and an aggressive street light maintenance and installation program.

The Operations Department continues to use blanket purchase orders, whenever practical, to assist the Accounting Department in streamlining their paperwork process. We also electronically process and forward as many reports as possible to further reduce the amount of actual "paperwork" being transferred between offices.

Operations assists in generating additional revenue for the Electric Division by processing billings for traffic accidents, damage to facilities by contractors and construction costs outside the normal scope of service. Billings generated in 2014 totaled over $104,389.00. This figure includes a billing to Cancer Care on Douglas Rd. for replacing their transformer and attached facilities after an internal problem in their building caused the failure of our equipment. It also includes a billing to the City of Bremen for mutual aid during an emergency outage they experienced in February.

On the personnel side of the Operations Department, we are staffed by Chuck Brunner, the senior member and crew leader, in the Dispatch Office. Chuck is in his seventeenth year as a Clerk Dispatcher "A". He continues to be a strong, capable employee that I rely on daily. Victoria Achterberg, our second Clerk Dispatcher "A", decided to retire from the Electric Division. Vicky left us on September 19th and we appreciate her ten years of service to the company. Jeffrey Erickson bid into Operations from the Metering Department to fill the open dispatcher position. This was a sort of homecoming to Operations for Jeff. On October 30, 2000, Jeff was hired as General Maintenance and worked for me in that position until January of 2010. At that time, he was reassigned to the City's Central Services Department. After serving 8 months in that capacity, Jeff returned to the Electric Department on August 26th to fill a Meter Reader vacancy. I am happy to welcome Jeff back to the Operations Department and look forward to working closely with him once more. Chuck and Jeff provide critical support to the rest of the Electric Division. As I enter my 30th year with the Mishawaka Utilities, I rely on these very capable people each and every day to keep the Operations Department running smoothly. I am confident that they will be up to the task again this year.

The Operations Department strives for efficiency in the administration of procurement and accounting, the management of materials and services, and the maintenance of the fleet and facilities. We serve as an integral support department for the Electric Division. We are also here to aid other divisions within Mishawaka Utilities and Departments in the City of Mishawaka with any tasks that we can. As the Operations Department looks ahead to meeting the new challenges of 2015, we welcome the opportunity to build upon our accomplishments and to develop our future successes.

Sewer Maintenance Department

Tom Dolly, Manager

The Sewer Department is responsible for the infrastructure maintenance and rehabilitation of the collection system which includes over 200 miles of sanitary sewers, and storm lines. The Department has twelve dedicated and conscientious employees who are both versatile and enthusiastic. Responsibilities of the Department include televising, cleaning, repairing minor defects in the sanitary and storm sewer systems, and cleaning leaves or snow off of storm inlets.

The Department also responds to residential calls for sewer concerns, inspects new construction sewer taps and locates sewer lines for contractors. Working with the City GIS and Engineering Departments, televising sewer laterals from homes to determine if problems are covered by sewer insurance, is also a function of the Department.

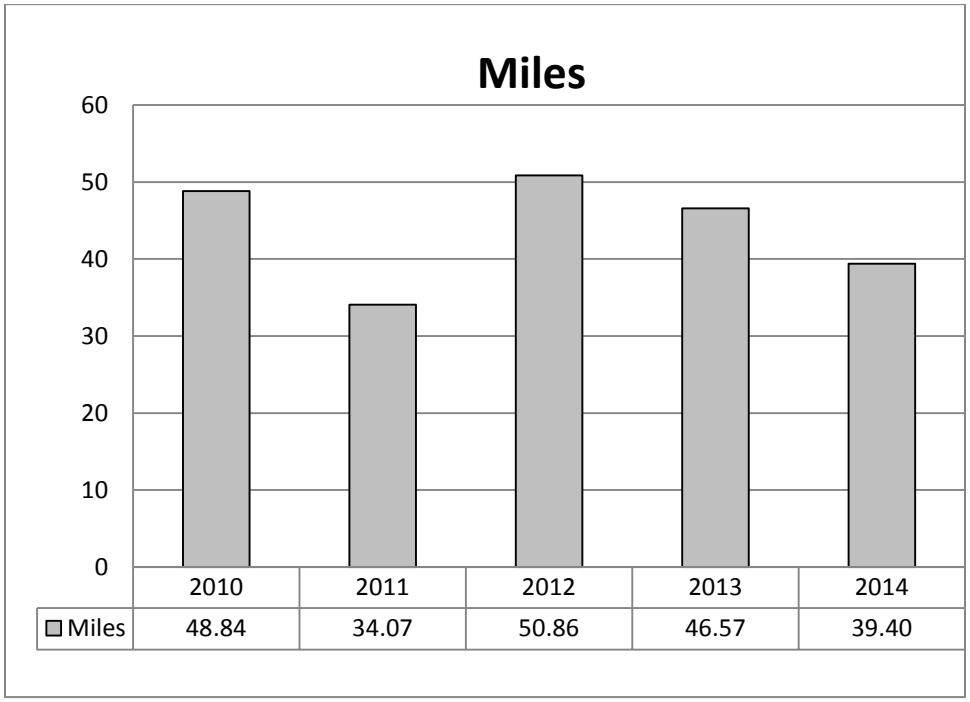
The significant responsibility of the Sewer Department is to maximize the volume of flow transported to the Wastewater Treatment Plant. This is accomplished by preventive maintenance and inspection of the sewers on a well-planned, rigorous schedule. This includes all sanitary manholes, storm sewers, inlets and catch basins.

At the end of 2014 the Department purchased a new Vactor 2100 Plus combination truck which will replace a 10 year old combination truck. The old Vactor unit will be used by the Water Division for hydro-excavating during water main repairs. The 2014 model has the newest in wireless technology which has a computer on board that collects and transmits comprehensive operational intelligence from the Vactor 2100 Plus to a secure, hosted website where the utility managers are able to access information 24/7 from any internet connected device, such as a smartphone, tablet or laptop. Reports can be made with accurate information such as water usage, footage cleaned, and location of lines that have been cleaned.

The Department has a planned video surveillance program with precise documentation on sewers that may need maintenance. The video inspection crew checks the integrity of the pipe, the condition of sanitary sewer laterals and validates repairs or lining.

The video inspection crew is well equipped and includes two state of the art camera systems which can travel up to 1,200 feet in length, take videos, still pictures, and record data to a computer in the camera truck, and print reports.

On the two video inspection trucks there are two robotic cameras that can drive down any sewer pipe from 8" to 60" in diameter, and up to 1,200 feet in length. The cameras have articulating heads with zoom, as well as pan and tilt capabilities. The computers that drive these cameras can record all visual data and all manually documented information entered by our camera technicians. This information is uploaded to the City GIS Department and Engineering for further study and updating of the City GIS Map. Inspections of new sewer system extensions through sewer televising are conducted to insure that the construction meets our City specifications.



The video inspection trucks are also equipped with a lateral launch system that gives us the ability to televise residential laterals from the main line in the street up to the house to determine blockages or damage. We are also able to take our mini push cam system into homes to televise from the house to the street to determine blockages or damage. In 2014, over 6,381 feet of residential laterals were televised with the push cam system.

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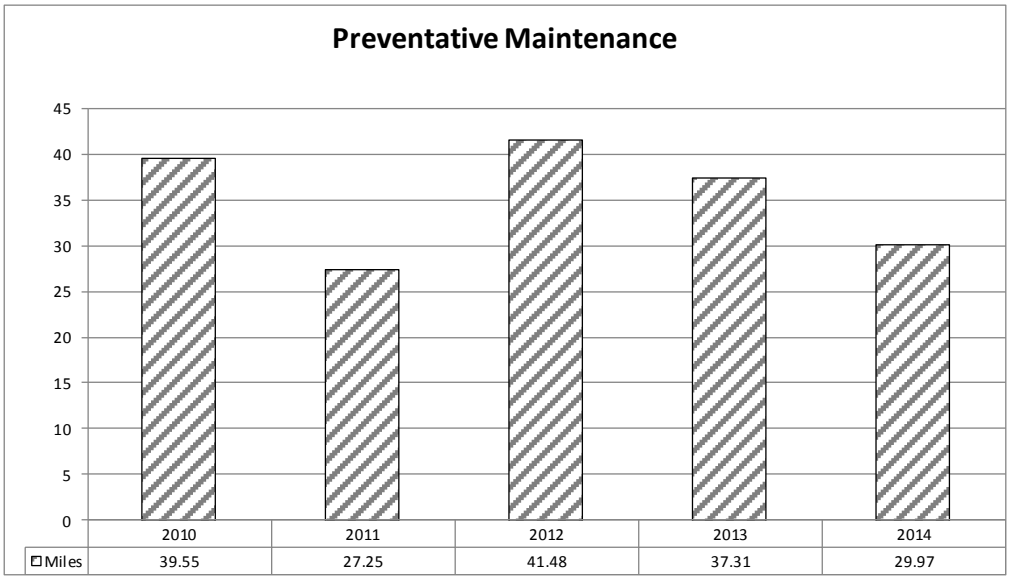
The employees assigned to push cam inspections may also be assigned to do sewer locates for contractors, and follow ups to residential issues. These employees performed 87 sewer excavation inspections in 2014.

The Department performs scheduled preventative maintenance cleaning on a daily basis. Between two combination trucks, 155,690 feet of sewer lines were cleaned during the year. One of these trucks will assist the video inspection crew cleaning lines before televising them, while the other cleans inlets, and catch basins.

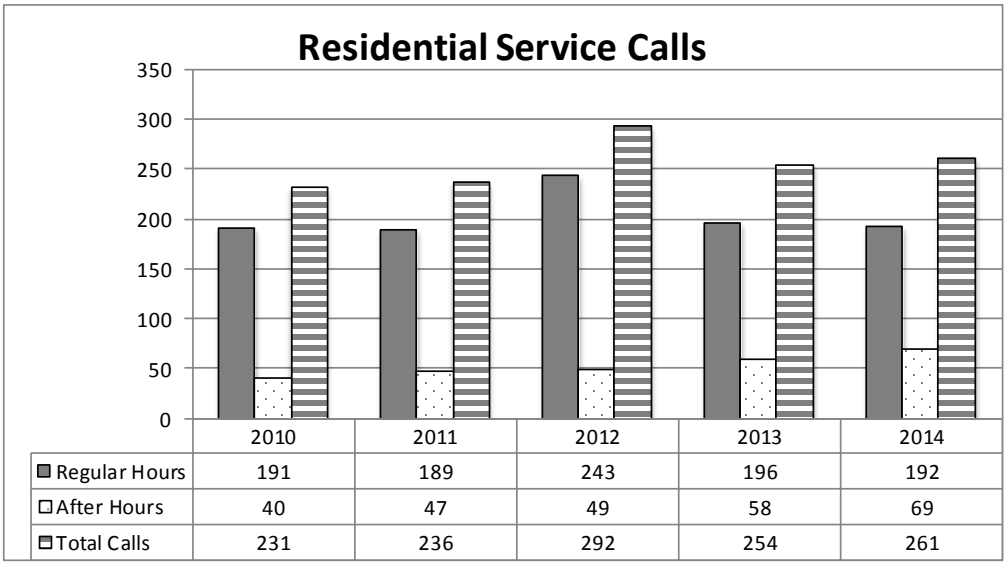
As a result of the preventive maintenance schedule we have been able to minimize sewer surcharges into basements, increase volume of flow to the wastewater treatment plant, and decrease combined sewer overflows.

Through this preventative maintenance program the Sewer Department was able to identify the Christyann Trunk Sewer System that was in need of rehabilitation. As the first phase in the rehabilitation of the Christyann Trunk Sewer north of Borley, all the structures were rehabilitated. During routine inspections, the Sewer Department identified the structures as well as the main line pipe to be in need of rehabilitation. The structures were rehabilitated utilizing a structural polyurethane coating. The total investment was $119,350.00 paid by Sewer Department Funding. The main line pipe will be rehabilitated at a future date.

Over the past year, 192 calls were received from residents during normal working hours and 69 after hours requests for our personnel to check the sewer main. These calls ranged from homes with sewer problems, odors coming from the sewer line, water standing in the street or follow up to contractor cleaned laterals. Of the 261 calls, 43 residents qualified for the sewer insurance program. These 43 sewer insurance work order calls were taken, set-up and completed by our office personnel.



These residents had repairs that ranged from a simple second opinion cleaning and 1 year guarantee against tree roots, to a more in-depth project such as an excavation and lateral repair. This program has proven to be very successful in assisting Mishawaka's residents with the high cost of sewer lateral repairs. More of the specifics regarding the sewer insurance program can be found on our City's website.



The Sewer Department continues to strive to improve its preventative maintenance programs and, through cost-effective measures, maintain the current level of services provided. Through its various programs, the division endeavors to preserve and maintain its major infrastructure system investment. Working together as a team with all Departments has proven to be one of the most important keys to success in 2014.