

**The City of Lafayette
Water Works Plant
Annual Report
2014**

Ron Hurst, Assistant Superintendent

Lafayette Water Works Mission Statement

The Lafayette Water Works is municipally owned and operated Water Utility. It is our purpose under the direction of the Mayor, Common Council, Board of Public Works and Safety and Superintendent, to provide its customers with potable water, with adequate pressure, quality and quantity and to work with the Fire Department to maintain the fire hydrants and distribution system that provides fire protection to its customers.

To accomplish this purpose we will pursue professional ethics that promotes public health and safety, consumer confidence, customer service, responsible operations, preventative maintenance, accurate laboratory testing, reliable reporting and compliance with EPA and the Indiana Department of Environmental Management Regulations, AWWA Standards and other safety programs, showing fiscal responsibility to maintain the best user rate possible for our customers.

Steve Moore, Chief of Distribution

The Construction Department was able to assist other City Departments on many occasions in 2014. We help other departments with snow removal by plowing two routes on the North end. We also work closely with the Street Department during street paving to assure that we replace any broken valves or hydrants "before" the street is repaved. The Water, Street, Fire, Parks and Waste Water Departments have a long history of working together. In return, we have received help from them on any occasion that we have asked.

Distribution System Accomplishments for 2014

- ④ Fire hydrants replaced-13
- ④ Fire hydrants repaired-19
- ④ Leaks repaired-13
- ④ Broken mains repaired-92
- ④ Retire old lead services-4
- ④ New services-196
- ④ Updated services-54
- ④ Salt pumps-0
- ④ Valves replaced-6
- ④ Valves Repaired-2

Utility Locator

Utility Locators perform an invaluable duty for the Water Works and the City of Lafayette. They electronically locate the City's water mains and mark them on the ground with blue paint/flags. The Utility Locators are also responsible for marking the City owned fiber conduits along Greenbush Street and Brady Lane with orange paint/flags. Without these locations there could easily be a large service outage to business and citizens of Greater Lafayette.

In house projects include; maintaining the map log conversion to the grid system, logging in new maps into the map logs and grid system, completing the ARC GIS corrections, updating the fire system, and placing fire hydrant marker sticks on fire hydrants that are not easily seen.

From January 2001 to December 2014 we have completed 104,555 locate requests.

Utility Locators 2014 Accomplishments

- ④ Reviewed and logged into the system new maps
- ④ Drew new maps for the Distribution System
- ④ Number of utility locates completed 15,697. **This is almost double from last year.**
- ④ Completed 569 emergency locate requests, and assisted 72 contractors with locate information
- ④ Assisting Intra Water Works/Other City Departments
- ④ Continuation of the ARC GIS corrections

Hydrant Flushing Program:

Each year, 6 workers flush nearly 3300 fire hydrants in the spring and fall flushing programs. Flushing mains help to determine what is happening in the system and shows any buildup of iron or manganese in specific areas. This is also an opportunity to operate the hydrants to assess the need for maintenance or repair. A census of the hydrants is also made at this time, which allows updating of information used by other City Departments.

Valve Turning Program:

We have contracted with M.E. Simpson to start exercising valves in 2012. We will have them turn approximately 1300 valves a year until all have been exercised.

- ④ 819 valves were mapped
- ④ 741 Valves exercised
- ④ 79 valves that couldn't be turned or weren't turned for various reasons.

Water Facility Inspector:

The Inspector for the Lafayette Water Works Plant is responsible for hydrostatic, bacteria testing and facility inspections. These duties are performed according to a set

of guidelines to assure that all new water connections are done according to City Standards.

Facilities Inspectors 2014-Accomplishments

- ④ 16-Hydrostatic tests
- ④ 25 Bacteria tests
- ④ 1 Well Separation Inspection
- ④ 9 Preconstruction Meetings
- ④ Reviewed new maps
- ④ 8 Hard flush on fire lines
- ④ Assisted with utility line locations
- ④ Assisted Construction and Meter Department crews
- ④ Inspected right of way cut permits
- ④ Painted fire hydrants

Joe Davenport, Backflow/Cross Connection Inspector

The Backflow/Cross Connection Inspector is responsible for tracking the annual backflow test results for all backflow devices in the City of Lafayette's potable water system, performing annual site surveys to identify any new hazards at a facility, assist in identifying the appropriate backflow device(s) required in new construction, tracking the annual gauge calibration certificates for all backflow testers who submit results and helping with continuing education of local backflow device testers.

- ④ Tracked and entered 1,329 Backflow Test Results
- ④ Performed 115 Site Surveys
- ④ Performed 2 Well Separation Inspections
- ④ Received and passed an IDEM Audit on our Backflow Device tracking program

- ② Helped to train the new Utility Locators
- ② Helped to train the New Water Facility Inspector
- ② Inspected right of way permits, in the absence of the Water Facility Inspector
- ② Helped to log and file incoming maps
- ② Developed a system to start tracking all Backflow device tests electronically
- ② Performed Hydrostatic Tests, in the absence of the Water Facility Inspector
- ② Performed Bacteria Tests, in the absence of the Water Facility Inspector
- ② Located water mains while one of our Utility Locators was on nights flushing hydrants in the spring and fall
- ② Made corrections to ARC/GIS and MyGIS manager online mapping
- ② Continuing to verify fire line sizes for our Utility Billing Dept.

Steve Moore, Chairperson for Safety Steering Committee.

Mission Statement

It is the mission of the Safety Steering Committee of the City of Lafayette to increase and maintain the commitment of employees in health and safety issues; to increase awareness that supervisors and employees are primarily responsible for the prevention of workplace accidents; to make safety activities an integral part of the City of Lafayette`s procedures and culture; to provide an opportunity for the free discussion of safety problems and solutions; to help reduce the risks of workplace injuries; and to help ensure compliance with federal and state health and safety standards.

As Chairperson for the Safety Steering Committee I preside over the committee that has representatives from each city department, with assistance from Kate Murray in HR. We meet regularly at The Water Works Plant. There we discuss activity from their Departmental Safety Committees, and collectively we implement safety policies to ensure the safety of all city employees. I also oversee the Water Works Safety Committee that meets once per month, and offers training for all Water Works

Employees as needed. Some of the issues resolved by the Steering Committee in 2014 were making sure that the proper Personal Protective Equipment (PPE) required by OSHA is made available to all employees, and that they be trained in the proper use and care of that equipment. We also, through sub-committees, wrote a plan for hazardous communications and blood borne pathogens.

Chuck Reynolds, Chief of Customer Service

The Water Works Customer Service Department continued to expand our meter change out program in 2014, and added 2,931 radio read meters to our routes. This was accomplished largely due to the summer help that we employed during May, June, and July. We have also been more efficient in the time used to collect readings from the respective routes.

As the R-900I Neptune meters are installed we have been able to help the Water Billing Office by downloading water consumption history data from the meters memory of a rolling 35 day period. This advanced function can highlight rates of flow both periodically and varying flows throughout the day. The value added features available with the R-900I offer the department the opportunity to maximize our return on our AMR investment by improving operating efficiency, customer service, and water loss management.

The Customer Service Team also provided ground maintenance work at the Fairgrounds Tower, Union Street Tower, Plaza South Tower, Canal Road Water Works Plant, Glick Pumping Station, various wells and monitor wells on the old City Golf Course, Digby Park, and acreage north of the Duke Energy substation off of Canal Road. Tree and shrub planting and maintenance were also provided to present a pleasant environment for our employees and the public at large.

Our Customer Service Team has strived to give our customers the very best service we can provide, while supporting all other divisions of our Utility's needs in a safe and efficient manner.

Customer Service Field Work

	2014	2013	2012	2011
Frozen Meter Calls	213	1	0	15
Discolored Water Calls	14	23	34	11
Raised Meter Pits To Grade	2	11	11	11
Meters Tested	34	77	32	77
Meters Repaired	47	22	26	35
MXU Radio Reads Installed	100	394	619	108
Turnoff For Non-Payment	3889	4115	3841	3675
Bluetags	588	512	642	441
Work Orders	2773	2445	2642	4114
Readings For Finals	1931	2048	2051	1865
Check Readings	986	1085	1044	570
Radio Callouts	5832	5252	5232	5021
New Service Applications	3921	3886	3980	3780
Zero Consumption	463	480	363	843
Averaged Service Truck (3) Miles Per Day	164	166	166	166
Meters Changed	2880	2842	1916	311
MIUs Installed	2931	2798	1370	770

Randy Mudrich, Operations and Lab

STAFF

The Operations Department is made up of one Operations and Lab Foreman, four System Operators, and one Lab Tech. The Operations and Lab Foreman, three System Operators, and Lab Tech are all certified with a WT-2 Water Treatment license. The Operations Foreman, three of the System Operators, and Lab Tech retain a DSL Large Distribution System license. One newly hired System Operator needs to be employed for a year before attempting to acquire their license.

Service

We provide service twenty four hours a day, seven days a week, with assistance of an "on-call" person. We received at least 1785 service calls in the year 2014, which averages out to 149 calls a month. These calls occurred during nights, weekends, and holidays, and consisted of turning on water service, changing out water meter chambers and screens, thawing frozen meters, and much more. There are emergency service requests that we respond to consisting of everything from broken mains, water pipe breaks in homes and businesses, and fire hydrants that have been broken off by vehicles, etc. We also assist the Customer Service Department, Distribution Department, Maintenance Department here at the Water Works, plus assist the Police, Utility Billing, Facilities Maintenance, Parks, Water Pollution Control and the Street Departments', when they are in need of assistance.

Quality

We perform, at a minimum, two rounds of inspections and tests per eight hour shift to insure water quality and to insure proper water treatment process operation at Canal Road Well Field, Glick Well Field, and Columbian Park High Service Pumping Station. Cl₂ readings are taken at two remote locations within the city and all 14 wells and 6 high service pumps are inspected for proper pumping operation. Building Maintenance/Upkeep is a large undertaking and we make sure janitorial responsibilities are met, painting is kept up, and everything is in good repair.

We monitor, with the assistance of our Supervisory Control And Data Acquisition (SCADA) system, the water levels in our (1) five million gallon enclosed reservoir located at Columbian Park, our (1) two million gallon elevated water tower located at Hagerty Lane, and our (3) one million gallon elevated water towers located at Union Street, Fairgrounds, and Plaza South. The system will alarm when a problem occurs with high/low water levels, well and pump failures, electrical power failures, and security. If the operator is away from the office the SCADA system will call a cell phone carried by the operator to let him know about problems as they occur.

Security

On a daily basis we provide a level of security at all locations making sure the areas are well lit, locked, and that security cameras are working properly. We ensure security systems at each of our locations are working properly by calling into each one and making sure they are armed and ready at the end of each day.

Aim

We in Operations are dedicated to moving the City of Lafayette Water Works Operations Department forward in giving our customers the best quality water possible, by keeping up with Federal and State regulations, streamlining our processes for more efficiency, providing the customers the quantities of water needed by maintaining suitable water levels, and assisting with keeping our production of water up, and improving and updating our water system's security from attack.

Summary

In summary of the larger accomplishments achieved, we have continued to move forward with the planning and development of a new Supervisory Control And Data Acquisition (SCADA) system. This system has now been installed and up and running. We are currently continuing to debug and tweak the system to our liking. This new system will allow us more stable control over our pumping and chemical feed operations, as well as streamline those processes with a refined user interface. We will also be able to continue to add to this system as we grow unlike the system of the past. We are currently working on the security and data base phase of this system.

We have also taken the next step in the Glick Station on-site sodium hypochlorite generation project. This included the installation of a 25 ton capacity fiberglass brine tank. We will complete installation in 2015 and will be ordering our new Sodium Hypochlorite production skid afterwards.

We in Operations have also strived to provide the best quality water possible with ongoing fine-tuning and experimentation in the areas of iron and manganese sequestration or cleaning, without the capability of a filtration system. These efforts have seen several adjustments in the sequestering products we use and how we dose them.

Along with maintaining our day to day operations, we have assisted the Customer Service Department two to three days a week with disconnects, service calls and meter change out. Also, despite the difficulties of winter, we in Operations have been able to assist with snow removal as needed 24 hours a day, 7 days a week.

As stated at the beginning, we have hired a new System Operator. We are training this individual in operations and lab responsibilities and this will take years. We have also continued to cross training a System Operator in the Operations and Lab Foreman position for a seamless transition in the future.

Water Works Laboratory

Wellhead Protection Program

As part of the Well Head Protection program, wells at the Canal and Glick well fields and the adjacent old City Golf Course are sampled and tested for volatile organic compounds. Nine Canal & Five Glick production wells are tested once a year. Forty-one monitoring wells are tested monthly and bi-annually for volatile organic compounds at the old City Golf Course. Samples are sent to independent certified labs for analysis.

As the Water Works Lab Technician, we keep updated files of all WHP test results, updating and comparing results monthly. We also complete monthly IDEM Reports.

Lead and Copper Project

In 2014, there was no testing for Lead and Copper because we were in compliance and received a wavier till 2016. As in the past we organize and supervise this program, communicating with a certified chemistry lab. We also supply residents with preserved sample bottles and collect paperwork. Results are reported to IDEM and test results are mailed to all residents.

Results: Ninety percent of samples were at or below:

2013	Lafayette	EPA'S Maximum Allowed
COPPER	0.34 mg/L	1.3 ppm
LEAD	BDL	0.015 ppm

Lafayette adds a specially blended polyphosphate designed to minimize corrosion scale, and red water conditions (Iron). Since we continue to be in compliance with State and EPA lead and copper regulations, we have been granted "reduced monitoring" status for the upcoming years, testing once every three years.

Consumer Confidence Report (CCR)

2014 was the seventeenth year for the annual water quality report for customers or "Consumer Confidence Report. The finished report contains water quality information and testing results, including charts explaining the presence of any man-made or natural chemicals, minerals, etc. Information is also supplied to the Town of Dayton. Even though they purchase water from us, they still need to create their own CCR Report. The report was approved by IDEM, mailed out with water bills, and posted on the Internet.

Bacteria Testing In The Distribution System

Public water systems must collect total Coliform samples at sites that are representative of water throughout the distribution system. This is done according to a written sitting plan approved by the commissioner. The monitoring frequency for total Coliforms for community water systems is based on the population served by the system. This requires Lafayette Water Works to collect 60 bacteria samples a month, derived from population base (50,001-59,000). We monitor within the outer boundary of the system monthly. These samples are sent to a State Certified Lab, and tested for Total Coliforms. The test results are faxed to IDEM within forty-eight hours, and are kept on file.

Other Duties

- ② Oversee daily operation of lab and equipment
- ② Keep inventory and order supplies
- ② Prepare reagents
- ② Keep accurate, up-to-date records
- ② Keep up on current and proposed regulations
- ② Create new report forms, charts, graphs, etc.
- ② Quality control tests
- ② Responsible for various reports:
 - Monthly Report Operations(MRO)
 - Annual Water Withdrawal Report(DNR)
 - Daily Lab Report
 - Lead and Copper Report(Pb-Cu)
 - Consumer Confidence Report(CCR)
 - THM's & HAA5 (Trihalomethanes-Haloacetic Acids)

Pat Schultz, Maintenance Foreman

Staff

The Maintenance Department consists of one Maintenance Foreman and three Maintenance Personnel. The staff has State Certified Licenses in water treatment ranging from WT2 to larger systems WT5; personnel also have distribution license (DSL). To maintain the WT and DSL certifications, classes and courses are attended to collect required Continuing Education Units (CEUs). The Maintenance Personnel under Pat are also required to maintain a class B Commercial Drivers Licenses.

The main duties of this Department are to effectively monitor and perform maintenance on all the pumping equipment, recognizing small problems before they escalate to larger ones. We perform bi-weekly, monthly, bi-monthly, quarterly, bi-annual, and annual testing on our pumping equipment, generators and the chemical feed systems. We tabulate the combined data to determine which wells and pumps are the best candidates for the Annual Well Rehabilitation Program. The data collecting, record keeping, presentation, and well maintenance forms have been acclaimed as the best in the State.

A preventive maintenance program is performed on all pumping equipment and chemical feed equipment, such as oil changes, greasing, calibration, and signal checking. The Maintenance staff also has the duties of Water Tower calibration, rinsing, cleaning and proper illumination and security testing.

Our staff also assists with security maintenance, installation of security lighting, repairing of motion detectors, testing of devices such as battery efficiency, and lighting devices. We are on call twenty-four hours a day, seven days a week. We have responded to calls such as SCADA malfunctions, pump motor problems, automatic valves not reacting properly, etc.

We have worked with the Distribution Department on repairing broken mains, unplugging water lines and repairing service line leaks. We have also assisted in helping the Customer Service Department in reading meters during severe weather conditions along with installing new water meters and snow plowing.

The staff also assists in the general up-keep of the Water Departments facilities, electric, plumbing, HVAC, and the buildings appearance.

The Maintenance Department goals are to provide a safe and continuous flow of quality water to our customers. Our thorough Well and Pump Testing, as well as our excellent preventive maintenance programs allow the Water Works Department to deliver the highest in quality and most cost efficient product to our customers.

Inspections and Reports: Bi-Weekly, Monthly, Quarterly, Annually

- Ⓢ Wells and Pumps, Flows, Meters, Electrical, Packing, Construction Preventative, Alignments, Towers,
- Ⓢ Water Treatment Systems, Chlorine equipment,
- Ⓢ Electrical ~ Emergency Generators, Lighting & Batteries
- Ⓢ SCADA ~ Upgraded
- Ⓢ Tools ~ Inventory for Vehicles and Storage
- Ⓢ Calibration and testing Chlorine and Hydrogen sensors

Wells, Pumps & Gen-Sets

- Ⓢ Cleaned all valve pits
- Ⓢ Changed oil, oil filters and fuel filters in all three Gen-Sets
- Ⓢ Cleaned all drain-back valves, tested
- Ⓢ Assisted with Annual Hoist inspections
- Ⓢ Well rehabilitation of wells Glick # 3 and 5
- Ⓢ Changed motor oil at all wells
- Ⓢ Cathodic protection added to Glick wells #2,3,4 and 5
- Ⓢ Packing adjusted at all wells

Water Treatment Process

- Ⓢ Cleaned flow meters at all Pumping Stations
- Ⓢ Repaired and maintained Phosphate, Chlorine, Re-Ox, Fluoride & Ammonium Sulfate Systems

Water Towers/Reservoir

- Ⓢ Repaired ground lighting at Hagerty and Plaza So. Water Tower
- Ⓢ Monthly Tower Inspections
- Ⓢ Security camera added on top of Union Tower
- Ⓢ Light bulbs changed on top of some water towers

Electrical

- Ⓢ Cleaned and tested soft start contactor at Glick Wells
- Ⓢ Installed new heater blower motors at CPBPS
- Ⓢ Installed new heater motor in well house # 7 and 8
- Ⓢ Installed new Boiler recirculation heater pump on Canal's Boiler system

Building Maintenance

- Ⓢ Repaired various security lighting
- Ⓢ Price quotes on new roofing at Canal maintenance, shipping receiving building
- Ⓢ New security camera signal wire ran at Canal location
- Ⓢ Assisted with Annual Hoist inspections at all Facilities
- Ⓢ Repaired roof leaks at Canal and Glick building
- Ⓢ Installed new ballasts in various lighting fixtures
- Ⓢ Replaced filters and cleaned AC units at all facilities
- Ⓢ Changed oil in all air compressors
- Ⓢ Replaced bad compressor belt on AC unit at Canal

- ④ Keeping sidewalks and entrances safe at water works locations during the winter

SCADA

- ④ Replaced batteries for security systems
- ④ Scada system upgraded to direct fiber optic's line