

**The City of Lafayette
Water Works Plant
Annual Report
2016**

Ron Hurst, Assistant Superintendent

Lafayette Water Works Mission Statement

The Lafayette Water Works is a 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 promote 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 2016. 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 2016

Fire hydrants replaced-18

Fire hydrants repaired-32

Leaks repaired-18

Broken mains repaired-34

Retire old lead services-19

New services-243

Updated services-94

Salt pumps-0

Valves replaced-8

Valves Repaired-11

Installed 200 ft. of 6” diameter ductile iron water main for Katie’s Cabin at Murdock Park.

Utility Locator

Utility Locators perform an invaluable service 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 and surrounding areas. Locators also respond to emergency locates that are called in after hours and on weekends and holidays.

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

Utility Locators 2016 Accomplishments

Reviewed and logged into the system new maps

Implemented a ticket management program that greatly reduces the need for Locators to file and keep track of locate requests; it also moves us closer to our goal of becoming paperless in our operations.

Drew new maps for the Distribution System.

Number of utility locates completed 18,776 responded to 474 emergency locate requests, and assisted contractors working in and around the city with locate information.

Assisting Intra Water Works/Other City Departments.

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.

1287 valves were mapped

1189 valves exercised

98 valves that 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 2016 Accomplishments

Performed 22 hydrostatic tests

Performed 218 bacteria tests

Performed 4 well separation inspection

Attended 22 preconstruction meetings

Reviewed new maps

Inspected and checked right of ways on 43 fire hydrants

Performed 227 site and facility inspections

Performed 124 meter and meter pit inspections

Performed 9 hard flush on fire lines

Assisted with utility line locations

Assisted Construction and Customer Service Department crews

Inspected right of way cut permits

Painted fire hydrants

Striped 19 fire hydrants

Winter plowing

Organizing and updating file system

Witnessed chlorination's and dechlorinating

Assisted Backflow Inspector for cross training

Attended DSL Class

Received Tyler and Arc training

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.

Tracked and entered 1,852 backflow test results

Performed 30 site surveys

Striped 4 private hydrants

Performed 180 Inspections

Delivered 24 notices to test backflow assemblies

Delivered 7 notices to install backflow assemblies

Helped to train the new Utility Locator

Helped Water Facility Inspector as needed

Helped to log and file incoming maps

Performed 1 hydrostatic test, in the absence of the Water Facility Inspector

Performed 16 bacteria tests, in the absence of the Water Facility Inspector

Filled in for our Utility Locators as needed

Made corrections to ARC/GIS and MyGIS manager online mapping

Continuing to verify fire line sizes for our Utility Billing Dept.

Steve Moore, Safety Officer for the City of Lafayette and Chairperson of the Safety Steering Committee.

As Safety Officer I am responsible for the enforcement of all City safety policies. As Chairperson for the Safety Steering Committee I preside over a Committee that is comprised of representatives from each City Department. We meet monthly at The Water Works Plant to discuss activity from Departmental Safety Committees; there we explore ways to prevent accidents to ensure the safety of all City Employees. In 2015 we saw a spike in accident/injuries and some of those resulted in serious injury. Some of the changes that we have made in 2016 were to appoint a sub-committee to write a city wide policy for Personal Protective Equipment (PPE), using OSHA regulations as a guide. In that report there are requirements for employee training once per year, an assessment to be completed by each department and updated annually for PPE required and needed in each department. We are placing hazard reporting forms in each department that the employees will have access to for reporting hazards present in their area to their safety committee and to their supervisors. We have also implemented accident/injury investigations in all departments. All supervisors will be trained on how to properly investigate any accident/injury or near miss that happens in their area.

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.

Andrew Moore, Operations and Lab

STAFF

The Operations Department is made up of one Operations & Lab Foreman, four System Operators, and one Lab Technician. The Operations & Lab Foreman, two System Operators, and Lab Technician are all certified with a WT-2 Water Treatment license. One System Operator is certified with a WT-3 and WT-5 Water Treatment license. The Operations & Lab Foreman, two System Operators, and Lab Technician retain a DSL Large Distribution System 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 1608 service calls in the year 2016, which averages out to 134 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, and 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 Booster Pump Station. Cl2 readings are taken at two remote locations within the city and all 14 wells and 6 booster 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 Haggerty 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 send notifications to a smart-phone carried by the operator to let them 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 logging into a smart-phone application 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

During the first half of 2016, Operations went through a difficult time with the loss of the standing Operations & Lab Foreman, Randy Mudrich. An existing System Operator transitioned into the Foreman position and the department hired a new System Operator to fill the vacant position. Another System Operator moved to a different department during this time, which required yet another System Operator position to be filled. This transition resulted in much time being dedicated to training, covering shifts, and making sure day-to-day operations continued smoothly.

In summary of the larger accomplishments achieved during 2016, we have put a focus on improving the way our department operates by itself and with other departments; specifically the maintenance department. This effort has included cross-training, design and implementation of pumping station communication tools, and better labeling and understanding of the crucial computer components that keep our operation running.

We in Operations have also strived to provide the best quality water, and most efficient treatment operation possible, by researching, planning, and testing new feed equipment and product metering devices to replace and update equipment that has been in service every day for over ten years. This effort will continue throughout 2017.

Along with maintaining our day-to-day operations, we have assisted the Customer Service Department with disconnects, service calls, meter-reading, and the meter change-out program. During winter months, all System Operators and the Operations & Lab Foreman are available to assist with snow removal as well as water main repairs if necessary.

City of Lafayette Water Works

2016 Usage Report

MONTH	GALLONS PUMPED		TOTAL	GALLONS
	CANAL	GLICK	CANAL & GLICK	REPUMPED
				PARK
January	227,200,000	0	227,200,000	306,904,352
February	177,690,000	31,600,000	209,290,000	294,567,773
March	50,960,000	183,000,000	233,960,000	306,067,382
April	57,820,000	180,100,000	237,920,000	328,505,192
May	73,370,000	175,000,000	248,370,000	344,973,140
June	150,610,000	170,900,000	321,510,000	410,088,930
July	113,180,000	196,320,000	309,500,000	381,360,423
August	134,890,000	200,000,000	334,890,000	285,122,476
September	99,850,000	193,080,000	292,930,000	215,548,941
October	125,240,000	194,640,000	319,880,000	224,544,114
November	89,920,000	164,410,000	254,330,000	179,125,596
December	112,160,000	152,150,000	264,310,000	183,342,951
Yearly Total	1,412,890,000	1,841,200,000	3,254,090,000	3,460,151,270
Monthly Average	117,740,833	153,433,333	271,174,167	288,345,939
Monthly Minimum	50,960,000	0	209,290,000	179,125,596
Monthly Maximum	227,200,000	200,000,000	334,890,000	410,088,930

City of Lafayette Water Works

Production Report

Year	Annual Pumpage Canal	Annual Pumpage Glick	Total Annual Pumpage	Daily Average	Maximum Day Pumpage
2011	1,171,821,204	2,139,288,432	3,311,109,636	9,071,533	16,060,601
2012	1,323,113,015	2,123,043,745	3,446,156,760	8,457,818	16,758,747
2013	774,364,506	2,270,884,739	3,045,249,245	8,343,198	13,821,852
2014	983,135,872	1,763,795,924	2,746,931,796	7,849,298	10,965,016
2015	1,740,452,106	1,423,177,936	3,163,630,042	8,667,479	14,348,981

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 2016, thirty homes were tested for Lead and Copper. 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	.484 mgL	1.3 ppm
LEAD	1.1 ug/L	15 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)

2016 was the nineteenth 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 70 bacteria samples a month, derived from population base (59,001-99,000). 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

- Ⓢ Oversee daily operation of lab and equipment
- Ⓢ Keep inventory and order supplies
- Ⓢ Prepare reagents
- Ⓢ Keep accurate, up-to-date records
- Ⓢ Keep up on current and proposed regulations
- Ⓢ Create new report forms, charts, graphs, etc.
- Ⓢ Quality control tests
- Ⓢ Responsible for various reports:
 - Monthly Report Operations(MRO)

- Daily Lab Report
- Lead and Copper Report(Pb-Cu)
- Consumer Confidence Report(CCR)
- THM's & HAA5 (Trihalomethanes-Haloacetic Acids)

2016 Water Sampling and Analysis

TEST	SITES	FREQUENCY
Lead and Copper	Residents' homes	30/ Every three yrs.
42 Volatile Organics	Individual Canal and Glick Wells	Monthly—Total of about 120 in 2017
42 Volatile Organics	Canal and Glick Entry Points	2nd Qtr. Only. (Waiver)
Bacteria Samples	Distribution System	70/month—840 in 2015
Alkalinity, pH, Phosphate, Temperature	Distribution System	10 sites 4Xyear
13 Inorganics	Canal and Glick Entry Points	Waiver/ Every three yrs.
Synthetic Organic	Canal and Glick Entry Points	Reduced monitoring
THM's /HAA5	Distribution System	4 / Sites per Qtr.
Combined Chlorine, Phosphate, Fluoride, pH	Canal and Glick Entry Points	Daily (by System Operators)

Pat Schultz, Maintenance Foreman

Staff

The Maintenance Department consists of one maintenance foreman and three maintenance personnel. The maintenance personnel are 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
- 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
- Changed motor oil at all wells
- Canal well #7 is being refurbished
- Packing adjusted at all wells
- Installed new motor on Canal well #10
- Replaced air relief valve on Glick well #5
- Replaced fence around Gen-Set @ Columbian Park

Water Treatment Process

- Cleaned flow meters at all pumping stations
- Repaired and maintained phosphate, chlorine, Re-Ox, fluoride & ammonium sulfate systems
- New 2" chemical corp installed in Canal chemical main line.

Water Towers/Reservoir

- New gateway communications set up for reading city water service meters.
- Installed LED ground lighting at Hagerty and Plaza South Water Tower
- Monthly tower inspections
- New UPS upgrades at all water towers.
- Installed 60 foot gateway tower @ corner of SR 26 and Meijer Dr

Electrical

- Installed new Gateway system @ Columbian Park reservoir
- Cleaned and tested soft start contactor at Glick Wells
- Ran 500 feet of fiber cable for internet service
- Mulhaupts installed new north and south gate motor assembly

Building Maintenance

- Repaired various security lighting
- Installed new AC-Heating unit in the inventory building
- Cleared overgrown trees on roadway going to Glick well #5
- Mulhaupts installed new door in locators building
- 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
- Keeping sidewalks and entrances safe at water works locations during the winter
- Rebuilt backflow in well house #7 for bulk water supply filling.
- Caulked all windows and door frames in maintenance building

SCADA

- Replaced batteries for security systems

Chuck Reynolds, Chief of Customer Service

The Customer Service Field Techs were successful in working together to accomplish many things during the 2016 year. With safety as a top priority we were able to complete the year without any safety related issues. We also started the conversion from New World to Tyler Munis service order system. It has brought forth a paperless service order system that allows our Customer Service team to operate using a Surface Pro. While still being a relatively new process for us, it allows us to know and share information that we didn't have in the field before to diagnose problems and share information with our customers. We currently have our system comprised of Sensus and Neptune brand water meters. Some of the Sensus brand water meters are touched with a reading device, and some are connected to various Sensus and Neptune radio reader devices. The Sensus brand of radio reader is called a MXU, while the Neptune radio reader is called a MIU. The Neptune meters that we are currently installing are of the R-900I variety. They all have a integrated MIU radio reader used with each respective size of water meter ranging from 5/8" to 10" diameters. We also changed out 1,929 water meters for the year. Service orders consisting of frozen meters, radio callouts, zero consumption, application for new service, finals, turn off for non-payment, raise meter pit, check reading, and tagging address because they had water running with no one home, down loading consumption history, and in house leak detection will now have the totals combined respectively. For 2016 the number of service orders performed totaled 19,885. 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.

Service Orders Completed:

January- 1,418

February- 1,736

March- 1,827

April- 1,829

May- 1,789

June- 1,929

July- 1,983

August- 2,241

September- 1,638

October- 1,802

November- 790

December- 903