

Fund:  
**WATERWORKS and SEWERAGE**

Department:  
**PUBLIC WORKS**

Division:  
**CENTRAL LABORATORY**

Division No.: **47009**

**MISSION:**

The mission of the Central Laboratory is to perform water and wastewater tests for the City's water and sewer systems in support of the City's efforts to produce high quality drinking water, to monitor wastewater effluent and to monitor industrial waste streams to ensure compliance with the Environmental Protection Agency (EPA) pretreatment regulations and City Code.

**SERVICES:**

The Central Laboratory performs the water and wastewater tests required by the federal and state EPA. The Central Laboratory also conducts testing to maintain optimal treatment at all department facilities with consideration given to plant efficiency and operational costs. In addition to reporting data to the Manager of Water Operations and the Superintendents of the two Wastewater Treatment Plants, the Central Laboratory staff assists with monthly EPA and system evaluation reports.

**SIGNIFICANT GOALS AND OBJECTIVES:**

**GOAL:**

A. Provide the necessary monitoring to meet current water quality standards and prepare for upcoming regulatory changes with consideration for optimum quality at the least cost possible

**Objective:**

1. Perform tests to monitor and ensure the effectiveness of treatment processes at the Water Treatment Plant

**Strategies:**

- a. Provide monitoring for the coagulation processes to comply with regulations for turbidity limits and total organic carbon removal
- b. Maintain disinfection by-product compliance by conducting Trihalomethane (THM) tests on the Water Treatment Plant air-stripper and in the water distribution system to guide treatment adjustments

- c. Provide monitoring to manage the use of chemicals for treatment to manage drinking water taste and odor

**Objective:**

2. Update standard operating laboratory procedures (SOP) to maintain certification for drinking water microbiology analyses

**Strategies:**

- a. Update quality control procedures and the Quality Manual to conform to the latest state requirements and regulations

**GOAL:**

B. Provide monitoring support to operate high-quality wastewater treatment systems that meet community needs in compliance with the applicable laws and regulations

**Objective:**

1. Perform tests to monitor and ensure the effectiveness of the treatment processes at the Wastewater Treatment Plants

**Strategies:**

- a. Provide routine and ongoing monitoring of influent wastewater, various stages of the treatment process and effluent water at the Wastewater Treatment Plants
- b. Provide monitoring to evaluate baseline nutrient and metal levels in the wastewater treatment processes in effluent and discharge streams

**Objective:**

2. Support better industrial waste management

**Strategies:**

- a. Closely monitor industrial and Southern Illinois University waste streams for changes in waste characteristics
- b. Consult with local industries to help control process waste discharges

**GOAL:**

C. Economically operate a high-quality central laboratory for the Carbondale Water and Sewerage System

**Objective:**

1. Secure funds from non-City resources to assist in financing Central Laboratory operations

**Strategies:**

- a. Provide lab testing services for a competitive fee to local utilities, government agencies and individuals
- b. Automate test methods and processes wherever possible to maximize productivity and accuracy

Also in FY 2017, the Central Laboratory Division will continue the outside client services testing program providing local utilities, contractors, individuals and government agencies with laboratory services at competitive fees.

The City's reservoir and Cedar Lake will also continue to be monitored during FY 2017 for water quality.

**PROGRAM HIGHLIGHTS:**

During FY 2016, the Central Laboratory program of testing the nutrient levels (Total Nitrogen and Total Phosphorus), ORP (Oxidation Reduction Potential), and Zinc for the Wastewater Treatment Plants was continued. Evaluating ORP, nutrient and zinc removal upstream and downstream and through the wastewater treatment processes will be an important task in the program to prepare for future regulatory changes and will be continued during FY 2017.

In FY 2016, several new utility clients in surrounding communities selected the Central Laboratory as their coliform testing lab. Providing consistent service excellence to our clients has become known throughout the region. Outside client revenue for drinking water and wastewater tests steadily increases each year.

Continuing in FY 2017, the Central Laboratory will maintain Illinois Department of Public Health (IDPH) certification to perform total and fecal coliform, E-coli enumeration and Heterotrophic plate counts as required to perform tests for the City of Carbondale and other utilities for the EPA Safe Drinking Water Act, the EPA Ground Water rules and the EPA LT2 rule.

In FY 2017, the Central Laboratory Division will maintain National Environmental Laboratory Accreditation Conference (NELAC) Certification for EPA certification of drinking water analytes including: Total Organic Carbon, Lead, Copper, Metals, Fluoride, Nitrate, Nitrite, Sulfate, Chloride, and Phosphorus. The accreditation for several other analytes is planned to be accomplished.

In FY 2017, the Central Laboratory Division will continue to closely monitor water quality, solids and waste stream characteristics for all treatment stages, effluents and discharge streams for both Wastewater Treatment Plants.

In FY 2017, the Central Laboratory Division will continue to closely monitor drinking water quality throughout the treatment and distribution system, storage tanks, and following main break repairs as well as complaint testing.

**PERFORMANCE MEASUREMENT:**

<b>Performance Measurements</b>	<b>Division Goal/ Objective</b>	<b>Actual FY 2015</b>	<b>Authorized Budget FY 2016</b>	<b>Estimated Actual FY 2016</b>	<b>Budget FY 2017</b>
Routine Distribution Water Samples Collected	A-1	686	750	662	700
Water Quality Complaints Analyzed	A-1	12	5	5	5
Drinking Water Tests Performed	A-1, A-2	18,700	16,000	15,872	16,000
Water Quality Tests Performed (following main break repairs)	A-1, A-2	1,314	1,200	1,584	1,200
Water Quality Tests Performed (routine distribution monitoring)	A-1, A-2	6,174	6,000	5,850	6,000
Wastewater Tests Performed	B-1	32,602	32,000	32,800	32,000
Industrial Waste Tests Performed	B-2	1,250	1,200	880	1,000
Tests Performed for Local Utilities, Government Agencies and Individuals	C-1	12,250	13,000	12,500	13,000
Revenue from Tests Performed for Local Utilities, Government Agencies and Individuals	C-1	\$172,102	\$175,000	\$175,252	\$175,000

**NUMBER OF FULL-TIME EQUIVALENT EMPLOYEES:**

<b>POSITION TITLE</b>	<b>ACTUAL FY 2015</b>	<b>AUTHORIZED BUDGET FY 2016</b>	<b>ESTIMATED ACTUAL FY 2016</b>	<b>BUDGET FY 2017</b>	<b>\$ AMOUNT BUDGET FY 2017</b>
Central Laboratory Superintendent	1.00	1.00	1.00	1.00	\$61,901
Operator	3.00	3.00	3.00	4.00	\$190,647
Part-time Operator	0.68	0.60	0.60	0.00	\$0
<b>TOTAL</b>	4.68	4.60	4.60	5.00	\$252,548

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EXPENDITURE CLASSIFICATION	AUTHORIZED		ESTIMATED	
	ACTUAL FY2015	BUDGET FY2016	ACTUAL FY2016	BUDGET FY2017
<b>PERSONAL SERVICES</b>				
100 Employee Salary and Wages	226,673	231,857	229,786	252,548
110 Employee Overtime	11,082	12,646	7,347	8,464
112 Employee Premium Payments	878	765	3,989	2,244
130 Employee Health Ins. Benefits	41,502	37,656	47,138	58,258
131 Employee Retirement Benefits	49,578	49,514	46,650	51,187
140 Employee Work. Comp. Benefits	15,202	14,648	13,032	15,454
141 Employee Unemp. Comp. Benefits	0	0	0	0
150 Special Contractual Benefits	2,975	2,975	2,975	3,400
<b>TOTAL PERSONAL SERVICES</b>	<b>347,890</b>	<b>350,061</b>	<b>350,917</b>	<b>391,555</b>
<b>DIRECT OPERATING CHARGES &amp; SERVICES</b>				
220 Communications-Telephone	505	396	480	480
222 Communications-Postage	906	850	636	850
240 Travel, Conferences, Training	2,440	2,500	100	2,500
250 Repairs & Maint.-Equip.	17,880	17,110	17,080	14,055
252 Repairs & Maint.-Other Improv.	77	0	0	0
260 Rental Charges	566	480	1,200	930
271 Other Outside Services	4,611	3,630	4,550	4,250
272 Office Supplies	733	600	620	600
273 Operating Supplies & Materials	33,653	36,000	37,200	37,350
275 Motor Fuels and Lubricants	1,113	1,277	861	1,140
280 Subscriptions and Memberships	307	310	337	340
299 Operating Equipment	0	5,000	4,800	4,910
<b>TOTAL DIR. OPER. CHRGS. &amp; SRVCS.</b>	<b>62,791</b>	<b>68,153</b>	<b>67,864</b>	<b>67,405</b>
<b>SERVICES AND CHARGES TRANSFERRED IN</b>				
310 Veh. & Equip.-Labor & Overhead	492	592	355	486
311 Vehicle & Equipment-Parts	268	600	600	600
315 Building & Structure Maint.	0	1,065	400	1,090
332 Information Systems	825	725	725	2,400
<b>TOTAL SRVCS. &amp; CHRGS. TRANS IN</b>	<b>1,585</b>	<b>2,982</b>	<b>2,080</b>	<b>4,576</b>
<b>CAPITAL OUTLAY</b>				
503 Machinery and Equipment	137,846	0	0	98,000
504 Licensed Vehicles	0	0	0	0
<b>TOTAL CAPITAL OUTLAY</b>	<b>137,846</b>	<b>0</b>	<b>0</b>	<b>98,000</b>
<b>TOTAL EXPENDITURES</b>	<b>550,112</b>	<b>421,196</b>	<b>420,861</b>	<b>561,536</b>