

## OPERATIONS REPORT – NEVADA DIVISION

### 2012 Year-in-Review Report to City of Nevada

#### **OPERATING DIVISIONS**

##### *MISSOURI*

Bonne Terre

Bowling Green

Buchanan County #1

Cameron

Cape Girardeau

East Central Missouri  
Water & Sewer  
Authority

Elsberry

Franklin County #1

Franklin County #3

Henry County  
Water Company

Henry County #3

Jackson

Lake Ozark/  
Osage Beach

Lincoln County #1

Nevada

Parkville

Phelps County #2

Platte County #C-1

Ralls County #1

St Charles County #2

St Genevieve

Sedalia

##### *IOWA*

Maquoketa

Tipton

#### **Water Treatment Plant Highlights**

- Several safety improvements were added to the plant including installation of a wall mounted first aid kit, updating emergency exit signs, installing a safety shower/eyewash, and improving signage on confined spaces.
- Operators noticed well #4 was not producing enough pressure at the plant to allow startup. After extensive trouble-shooting the motor was replaced due to failure.
- Staff installed and calibrated ultra-sonic level indicators on the sulfuric acid and caustic soda bulk tanks. This improved safety for operators and accuracy of measurement.
- Based on communication with a water quality study group, changes were made at the plant to create more stable water. Staff continues to monitor water quality on a weekly basis at the plant and throughout the distribution system.
- Staff installed VFDs on high service pumps for better operator control. This allows operators to accommodate the needs of the distribution system versus operating a pump “wide open” with potential for damage from water hammer near the plant.
- Lightning damage to well #3 was addressed in a timely manner with City, Flynn Drilling, and AWR cooperating to make necessary repairs.
- Staff performed the annual “mock electrical blackout” exercise as emergency preparedness training. Deficiencies noted during the 2011 exercise were addressed so that wells and the plant are capable of producing water using only standby power from generators.

#### **Water Distribution Highlights**

- Internal inspections were performed on all three water towers.
- Staff repaired 52 water service issues, 7 water mains, and 5 fire hydrants.
- Encasement “swaps” with Empire Gas to address water leaks under Ash Street was a cooperative effort to comply with MoDOT regulations.
- Staff worked with Allgeier, Martin and Associates, Inc. to complete a hydraulic study of the distribution system, resulting in better mapping and forecasting future improvements.
- Distribution system flushing was done once in the spring and once in the fall with no complaints during the process.
- Once per month water/sewer billing went into effect in the spring. Staff adjusted to a 10 day read cycle.
- Three meter sets were moved into the sidewalk on the square to address water service leaks.
- Staff completed 5,086 water service work orders during the year.

## **OPERATIONS REPORT – NEVADA DIVISION**

### **Waste Water Treatment Plant Highlights**

- SCADA communication at lift stations and at the plant was completed in cooperation with RE Pedrotti.
- An original submersible pump was replaced at lift station #1.
- A new hydraulic system center was installed on the UV disinfection system for independent operation of each channel reducing electrical costs.
- Staff replaced the non-potable pump at the plant due to failure of the original. It was not cost effective to make repairs.
- Staff added photo eyes to yard light poles at the plant as an energy saving effort.
- Several safety improvements were added to the plant including installation of a wall mounted first aid kit, improving signage on confined spaces, and updated emergency exit signs at the plant.

### **Waste Water Collection Highlights**

- Installed and calibrated a new flow meter at lift station #2. This will aid in the identification of I&I.
- Staff cleaned 42,800' of sewer main by means of hydro-flushing or root saw.
- Multiple maintenance items were addressed to keep the jetter truck in service.
- 14,900' of sewer main was inspected with CCTV equipment.
- A systematic approach to identify I&I throughout the system has been developed and is in progress.
- The Meadow Lane sewer extension is nearly complete.
- City staff installed new sewer mains in the South Elm Street vicinity to address multiple connections to a single service line.

## OPERATIONS REPORT – NEVADA DIVISION

### Water System Annual Summary Report

<b>Water Drawn From Wells</b>	<b>2012</b>
Annual Total MG	382.60
Average MGD	1.05
Peak Month/Avg MGD	July/1.28

#### **Annual Water Production & Loss Percentage**

Finish Water Distribution (MG)	315.33
Finish Water Distribution (MG) *	273.32
Billed Consumption (MG) *	193.38
Total Water Loss Estimate (MG) *	79.95
Accounted For Estimate (MG) *	5.65
Unaccounted For Estimate (MG) *	74.30
Water Loss Percent for Year *	27.2%

\*March – December only

#### **Power Consumption Cost**

Pumping Cost	\$60,774
Power Consumption (pumping) kWh x 1,000	676
Treatment Cost	\$95,763
Power Consumption (treatment) kWh x 1,000	1,291
Total Cost	\$156,537
\$/MG/Pumped	\$159
\$/MG/Treatment	\$304

#### **Chemical Consumption**

Chlorine Total lbs. / lbs. per MG	26,000 / 82.5
Sulfuric Acid Total gallons / gallons per MG	10,000 / 31.7
Caustic Soda Total gallons / gallons per MG	13,700 / 43.4
Sodium Hypochlorite Total gallons / gallons per MG	7,360 / 23.3
Anti-Scalant Total gallons / gallons per MG	1,000 / 3.2

#### **Customer Service – Maintenance**

Customer Service Work Orders	5,086
Water Service Line Repairs	52
Water Main Repairs	7

#### **Average Finish Water Hardness**

Calcium Hardness	55 mg/L
Total Hardness	94 mg/L

#### **Customer Information (Residential, Commercial, Industrial)**

Number of Industrial/Commercial Customers	540
Number of Residential Customers	3144
Total Number of Customers	3,684
Residential Avg Consumption/Gallons	43,795

**OPERATIONS REPORT – NEVADA DIVISION**

**Sewer System Annual Summary Report**

<b>Wastewater Treatment Plant Flows</b>	<b>2012</b>
Average Daily Flow in MG	1.35
Peak Month/Avg MGD	March/2.61
Average Flow % of Design (2.0 MGD)	68%
Annual Flow Treated in MG	498.08

<b>Power Consumption Cost</b>	
Pumping Cost	\$16,433
Pumping Power Consumption kWh x 1,000	181
Treatment Cost	\$110,537
Treatment Power Consumption kWh x 1,000	1,469
Total Cost	\$126,970
\$/MG/Pumped	\$33
\$/MG/Treated	\$222

<b>Plant Effluent Quality Annual Avg</b>	
BOD mg/L	6
TSS mg/L	6
E coli #/100mL	71
Ammonia	0.33
Oil/Grease (All results were <5)	2.5
pH minimum – maximum	6.6 – 7.2

<b>Sewer Collection System</b>	
Sewer Main Cleaning (8.1 miles)	42,790'
CCTV Inspection (2.8 miles)	15,000'
Total Sewer Calls	46
Caused by Roots in main	18
Caused by Grease in main	1
Caused by Other	4
Miscellaneous	10
Issues on the Customer's side	13
Sewer Calls Peak Month / # of calls	Oct / 11

<b>Customer Information</b>	
Number of Industrial/Commercial Customers	618
Number of Residential Customers	2854
Total Number of Customers	3,472