

OPERATIONS REPORT – NEVADA DIVISION

2013 Year-in-Review Report to City of Nevada

OPERATING DIVISIONS

MISSOURI

Atchison County

Bonne Terre

Bowling Green

Buchanan County #1

Cameron

Cape Girardeau

Craig

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

- The #1 chemical recirculation pump was replaced on the primary odor scrubber due to seal and bearing failure.
- Regarding the secondary odor scrubber: the chemical recirculation pump was replaced with an ansi-mag pump (magnetic coupling), bearings were replaced on the blower shaft, and the soft start motor control was replaced due to failure.
- A new product flow meter was installed and calibrated early in the year.
- Staff re-organized, made drywall repairs, painted, and installed computer system with projector to transform the downstairs meeting room into a state of the art training facility.
- The motor failed at well #3 causing an emergency replacement.
- Two safety shower/eyewash stations were installed in chemical handling areas improving operator safety. Also, two in-operable safety shower/eyewash stations were removed from chemical rooms.
- Staff did a good job of maintaining water quality goals by performing weekly analyses of distribution system samples and making plant adjustments accordingly.

Water Distribution Highlights

- Staff repaired 61 water service issues, 18 water mains, and 3 fire hydrants.
- Staff completed 4,690 service work orders during the year.
- Fire hydrants and flush valves were located with GPS equipment to update system mapping.
- Staff began re-stocking inventory early in the year preparing for compliance with the “No-Lead Rule” that went into effect January 4, 2014.
- City and AWR staff cooperated to connect the center water tower to the City’s fiber network.
- Distribution system flushing was performed in the spring and fall.
- City and AWR staff participated in a meeting to communicate water service shut off procedures.

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Waste Water Treatment Plant Highlights

- Staff land applied 121.07 dry tons of biosolids totaling approximately 1,080,000 gallons hauled to various sites.
- Staff successfully completed the DMR-QA study 33 with all test results within the acceptable range. This study is an annual QA/QC that is required by the NPDES permit.
- NPDES permit limits were adhered to with no violations during the calendar year. Overall treatment was approximately 79% below permit limits.
- Annual calibrations were performed on scales, weights, and thermometers in the laboratory.
- Staff successfully completed annual DMR-QA study 33. This is a measure of QA/QC.
- Trouble-shooting was performed to confirm a faulty pump control output card at lift station #2. The faulty card was replaced to address the issue.

Waste Water Collection Highlights

- Lightning damage caused a complete power failure at lift station #3. Staff replaced wiring and conduit from the control panel to the weather head to address the issue. This was completed in a very timely manner.
- The Meadow Lane sewer main extension was completed early in the year.
- City and AWR staff cooperated to document the installation of new sewer mains on Wight Street and in Spring Street Park.
- Multiple maintenance items were addressed to keep the old jetter truck in service. A newer model jet/vac combination truck was purchased for more efficient sewer maintenance.
- Staff cleaned 23,821' of sewer mains with hydro-flushing or root saw, inspected 7,632' with CCTV equipment, and responded to 76 sewer calls.
- Staff reported 22 SSO events, most of which were near lift station #2. The interceptor feeding this lift station is scheduled for replacement in 2014.

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Water System Annual Summary Report

Water Drawn From Wells

	2012	2013
Annual Total MG	382.60	390.09
Average MGD	1.05	1.07
Peak Month/Avg MGD	July/1.28	Sept/1.30

Annual Water Production & Loss Percentage (See attached chart)

Finish Water Distribution (MG)	315.33	301.01
Finish Water Distribution (MG) March-December	273.32	
Billed Consumption (MG)	193.38	213.07
Total Water Loss Estimate (MG)	79.95	87.93
Accounted For Estimate (MG)	5.65	6.17
Unaccounted For Estimate (MG)	74.30	81.76
Water Loss Percent for Year	27.2%	27.2%

Power Consumption Cost

Pumping Cost	\$60,774	\$60,168
Power Consumption (pumping) kWh x 1,000	676	680
Treatment Cost	\$95,763	\$95,192
Power Consumption (treatment) kWh x 1,000	1,291	1,272
Total Cost	\$156,537	\$155,360
\$/MG/Pumped	\$159	\$154
\$/MG/Treatment	\$304	\$316

Chemical Consumption

Chlorine Total lbs. / lbs. per MG	26,000 / 82.5	28,200/93.7
Sulfuric Acid Total gallons / gallons per MG	10,000 / 31.7	10,996/36.5
Caustic Soda Total gallons / gallons per MG	13,700 / 43.4	12,756/42.4
Sodium Hypochlorite Total gallons / gallons per MG	7,360 / 23.3	17,019/56.5
Anti-Scalant Total gallons / gallons per MG	1,000 / 3.2	1,064/3.5

Customer Service – Maintenance

Customer Service Work Orders Completed	5,086	4,690
Water Service Line Repairs	52	61
Water Main Repairs	7	18

Average Finish Water Hardness (See attached chart)

Calcium Hardness	55 mg/L	58 mg/L
Total Hardness	94 mg/L	96 mg/L

Customer Information (Residential, Commercial, Industrial)

Number of Industrial/Commercial Customers	540	555
Number of Residential Customers	3,144	3,181
Total Number of Customers	3,684	3,736
Residential Avg Consumption/Gallons	43,795	39,564

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Sewer System Annual Summary Report

Wastewater Treatment Plant Flows	2012	2013
Average Daily Flow in MG	1.35	1.71
Peak Month/Avg MGD	March/2.61	March/3.04
Average Flow % of Design (2.0 MGD)	68%	86%
Annual Flow Treated in MG	498.08	622.98

Power Consumption Cost

Pumping Cost	\$16,433	\$21,840
Pumping Power Consumption kWh x 1,000	181	244
Treatment Cost	\$110,537	\$124,892
Treatment Power Consumption kWh x 1,000	1,469	1,637
Total Cost	\$126,970	\$146,732
\$/MG/Pumped	\$33	\$35
\$/MG/Treated	\$222	\$200

Plant Effluent Quality Annual Avg

BOD mg/L	6	4
TSS mg/L	6	5
E coli #/100mL	71	34
Ammonia	0.33	0.45
Oil/Grease (All results were <5)	2.5	2.5
pH minimum – maximum	6.6 – 7.2	6.5 – 7.4

Sewer Collection System

Sewer Main Cleaning	42,790'	23,821'
CCTV Inspection	15,000'	7,632'
Total Sewer Calls	46	76
Caused by Roots in main	18	18
Caused by Grease in main	1	2
Caused by Other	4	24
Miscellaneous	10	8
Issues on the Customer's side	13	24
Sewer Calls Peak Month / # of calls	Oct / 11	Mar & Apr / 11

Customer Information

Number of Industrial/Commercial Customers	618	532
Number of Residential Customers	2,854	3,017
Total Number of Customers	3,472	3,549

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Water Loss

	Total Water Delivered	Identified Water Loss	Billed Consumption	Unidentified Water Loss	Water Loss %
January '13	21,080,000	375,000	16,483,785	4,221,215	20.0%
February '13	23,510,000	76,000	14,269,000	9,164,920	39.0%
March '13	23,508,000	79,000	14,986,330	8,442,670	35.9%
April '13	23,450,000	80,000	16,274,250	7,095,750	30.3%
May '13	27,848,000	2,384,800	19,156,698	6,306,502	22.6%
June '13	26,024,000	171,000	18,033,300	7,819,700	30.0%
July '13	28,628,000	84,000	21,368,610	7,175,390	25.1%
Aug '13	27,880,000	40,500	21,750,375	6,089,125	21.8%
Sept '13	28,656,000	2,559,900	17,227,140	8,868,960	30.9%
Oct '13	24,121,000	137,000	18,136,472	5,847,528	24.2%
Nov '13	22,285,000	40,000	16,482,450	5,762,550	25.9%
Dec '13	24,019,000	147,000	18,903,025	4,968,975	20.7%

YTD Total	301,009,000	6,174,200	213,071,435	81,763,365	27.2%
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Identified Water Loss Detail

	Leaks	Flushing	Fire Dept	Other	Total
January '13	35,000	0	40,000	300,000	375,000
February '13	0	1,000	75,000	0	76,000
March '13	4,000	0	75,000	0	79,000
April '13	4,000	1,000	75,000	0	80,000
May '13	11,000	2,023,800	25,000	325,000	2,384,800
June '13	71,000	80,000	20,000	0	171,000
July '13	24,000	0	60,000	0	84,000
Aug '13	2,500	3,000	35,000	0	40,500
Sept '13	474,000	2,040,900	45,000	0	2,559,900
Oct '13	12,000	0	125,000	0	137,000
Nov '13	10,000	0	30,000	0	40,000
Dec '13	122,000	5,000	20,000	0	147,000

YTD Total	769,500	4,154,700	625,000	625,000	6,174,200
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2013

Nevada System Langlier Saturation Index Analyses (LSI)

Analyses Required	<u>#1</u>	<u>#2</u>	<u>#3</u>	<u>#4</u>	<u>#5</u>	<u>#6</u>	<u>#7</u>	<u>#8</u>	<u>#9</u>	<u>#10</u>	<u>#11</u>
pH	8.59	8.67	9.14	8.80	8.79	8.76	8.74	8.74	8.70	8.70	8.77
Temp	21.3	20.9	20.3	20.4	20.4	22.1	21.0	21.2	20.9	21.1	20.5
TDS	321	320	321	320	320	321	321	320	321	321	319
Calcium Hardness	58	58	59	57	79	57	59	70	57	58	58
Alkalinity	23	22	24	22	22	23	23	22	22	22	23
LSI result	0.03	0.09	0.59	0.21	0.21	0.22	0.18	0.17	0.11	0.13	0.21

Nevada System Water Quality 2013

