

2019 Year-in-Review Report to City of Nevada

OUR MISSION

We partner with communities to deliver the finest water and wastewater services available at a competitive price. We are committed to keeping water safe and clean while serving people and taking care of communities with improved technical operations, careful management and financial oversight, and ensured regulatory compliance.

Alliance Water Resources, Inc.

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65201**

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Water Treatment Plant Highlights

1. Regular maintenance and filter change outs to the 5-micron filter pots have added efficiency to the treatment process
2. Alliance staff performs daily maintenance activities to ensure the proper operation of all mechanical equipment
3. Continued update to Safety Data Sheets concerning all chemicals located at the WTP
4. Continued internal Alliance safety and ReCap monthly and annual audits to ensure regulatory compliance
5. AWR staff continues to provide information to Black & Veatch in regards to recommended improvements to update the WTP. Assisted with the generation of design documents sent to MDNR for review and approval.
6. AWR staff provided inspection services and recommendations for WTP piping and valve replacement project. Project was completed on time and with not change orders.
7. WTP deemed in compliance per three-year compliance inspection performed by MDNR Drinking Water Officials. Inspector praised staff on its thorough documentation and record keeping.
8. Generated and documented lead and copper sampling and testing for the Nevada water system. MDNR requirement.
9. State inspection and certification of Nevada WTP Laboratory.
10. Added several safety improvements to the WTP Facilities.
11. Implemented new Powered Air Purifying Respirator (PAPR) Program for employee respiratory protection when changing out chlorine cylinders.
12. WTP staff attended various training sessions for CEU credit hours to keep MDNR operator licenses current.

Water Distribution Highlights

1. Staff repaired 14 water service lines and repaired 11 water main leaks/breaks
2. Staff completed 7,473 service work orders during the year.
3. 192 water main valves were exercised and located with GPS equipment to update system mapping.
4. AWR Staff performed routine checks and maintenance on all City owned deep wells.
5. AWR verified accuracy of remote style water meter reads and corrected as needed.
6. AWR staff attended various training sessions to receive CEU credit hours in order to keep MDNR operating licenses current and up to date.
7. AWR staff replaced 47 water meters in the distribution system.

8. AWR staff completed spring and fall water main flushing program. This program entails the flushing of 474 fire hydrants and 53 flush valves.
9. AWR staff continues to read all of the system water meters monthly.
10. AWR staff completed 1,922 locates on water service lines, water mains, sewer mains, and City fiber lines throughout the year.
11. AWR staff cleaned and painted 51 fire hydrants within the system.
12. AWR maintained MDNR required back-flow program in compliance and current.

Waste Water Treatment Plant Highlights

1. Staff land applied 39.3 dry tons of bio-solids to approximately 63 acres of farm and pasture ground.
2. NPDES permit limits were adhered to with no violations or exceptions.
3. Annual calibrations were performed on flow meter, scales, weights, and thermometers in the laboratory. MDNR requirement.
4. AWR maintained the Ultra Violet Disinfection system including bulb and component change outs as needed to stay within MDNR guidelines
5. AWR staff reviewed the new Draft WWTP operating permit and provided comments to MDNR permit review still in progress.
6. AWR staff developed and implemented a sampling plan for chlorides levels in the wastewater. Information is to be used in permit renewal process.
7. AWR staff submitted monthly, quarterly, and annual MDNR compliance reporting per schedule.
8. AWR staff completed an annual laboratory audit consisting of reviewing lab procedures, equipment and overall lab quality and functionality.
9. Lab standard operating procedures were reviewed and updated
10. AWR staff continues to monitor and manage the wastewater pre-treatment program. New Industrial User permit limits are in the process of being implemented, and new permits to be issued in 2020
11. AWR staff performed routine checks and maintenance on all City owned pump stations.

Waste Water Collection Highlights

1. AWR staff provided technical assistance on the Sycamore, Clay, and Alma sewer line improvements
2. AWR staff performed inspections on behalf of the City on the Sycamore, Clay, and Alma sewer line improvements.
3. AWR staff assisted consultant with the placement of flow meters for the I&I study that was performed on the sanitary sewer collection system.
4. AWR staff performed repairs to numerous sections of sanitary sewer line within the system eliminated sources of infiltration.
5. AWR staff performed routine wet weather inspections of manholes in the collection system to identify sources of I&I.
6. AWR staff performed chemical grouting on 5 different manholes within the system and eliminated an estimated 100 gpm wet weather infiltration.
7. AWR staff assisted public works staff on various projects with Hydro-Excavation.
8. AWR performed routine checks and maintenance on all City owned grinder pump stations.
9. AWR staff performed 24,634' of internal sanitary sewer inspections via CCTV.
10. AWR staff pressure cleaned 49,587' of sanitary sewer.



Water System Annual Summary Report

Water Drawn From Wells	2016	2017	2018	2019
Annual Total MG	386.471	386.471	340.818	281.638
Average MGD	1.05	0.98	0.93	0.772
Peak Month/Avg MGD	July/1.17	July/1.07	July/ 1.07	July/0.85

Annual Water Production

Finish Water Distribution (MG)	307.770	289.823	287.838	279.743
Billed Consumption (MG)	250.770	245.839	245.417	250.165
Total Water Loss Estimate (MG)	57.00	43.98	42.42	29.578
Accounted for Estimate (MG)	6.10	6.17	5.98	9.425
Unaccounted for Estimate (MG)	50.90	37.18	36.44	20.153

Power Consumption Cost

Pumping Cost	\$67,674	\$60,459	\$54,284	\$55,269
Power Consumption (pumping) kWh x 1,000	776	642	561	562
Treatment Cost	\$101,978	\$93,762	\$91,613	\$81,106
Power Consumption (treatment) kWh x 1,000	1,361	1,196	1,079	1,047
Total Cost	\$169,652	\$154,221	\$145,897	\$136,375
\$/MG/Pumped	\$175	\$168	\$165	\$196
\$/MG/Treatment	\$332	\$324	\$318	\$290

Chemical Consumption

Chlorine Total lbs. / lbs. per MG	29,250/95.0	27,150/93.9	27,550/92.2	28,050/100.2
Sulfuric Acid Total gallons / gallons per MG	8,822/28.66	8,065/27.90	7,835/27.2	7,447/26.6
Caustic Soda Total gallons / gallons per MG	12,572/40.85	12,413/42.95	13,797/47.9	16,156/57.7
Sodium Hypochlorite Total gallons / gallons per MG	11,880/38.60	11,780/37.30	5,506/19.13	6,309/22.5
Anti-Scalant Total gallons / gallons per MG	989/3.22	870/3.01	1,090/3.79	1,342/4.80

Customer Service – Maintenance

Customer Service Work Orders Completed	5,564	5,167	5,020	7,473
Water Service Line Repairs	43	32	28	14
Water Main Repairs	10	15	14	11
# of Valves Exercised			5	192
Water Main Locations			1,299	1,922

Average Finish Water Hardness

Calcium Hardness	64 mg/L	57 mg/L	55 mg/L	59 mg/L
Total Hardness	109 mg/L	98 mg/L	95 mg/L	102 mg/L

Customer Information (Residential, Commercial, Industrial)

Number of Industrial/Commercial Customers	566	559	555	547
Number of Residential Customers	3,072	3,092	3,101	3,077
Total Number of Customers	3,638	3,651	3,656	3,624
Residential Avg Consumption/Gallons	36,156	36,444	35,645	

Sewer System Annual Summary Report

Wastewater Treatment Plant Flows	2016	2017	2018	2019
Average Daily Flow in MG	1.25	1.54	1.14	2.36
Peak Month/Avg MGD	May/1.68	April/3.79	Sept./2.11	May/5.7
Average Flow % of Design (2.0 MGD)	62.5%	77.0%	57.0%	118%
Annual Flow Treated in MG	556.68	561.82	417.12	863.11

Power Consumption Cost

Pumping Cost	\$20,444	\$18,348	\$16,514	\$20,823
Pumping Power Consumption kWh x 1,000	188	215	166	233
Treatment Cost	\$124,625	\$115,087	\$119,187	\$112,776
Treatment Power Consumption kWh x 1,000	1,503	1,480	1,414	1487
Total Cost	\$145,069	\$133,435	\$135,701	\$133,599
\$/MG/Pumped	\$34	\$32	\$39	\$24.13
\$/MG/Treated	\$206	\$206	\$285	\$155

Plant Effluent Quality Annual Avg

BOD mg/L	4	4	3	6.8
TSS mg/L	2	4	2	3
E coli #/100mL	43	15	13	8.9
Ammonia	0.38	0.32	0.10	<.12
Oil/Grease (All results were <5)	1.25	1.00	<5	<5
pH minimum – maximum	7.1 – 7.3	6.7 - 7.4	6.7-7.0	6.9 – 7.2
Annual Rainfall / Peak Month (in inches)				63.68”/May 15.5”

Sewer Collection System

Sewer Main Cleaning	24,559’	20,094’	37,957’	49,587’
CCTV Inspection	2,793’	1,000’	10,720’	24,634’
Total Sewer Calls	110	73	70	92
Caused by Roots in main	4	17	2	20
Caused by Grease in main	2	1	0	1
Caused by Other	51	2	18	5
Miscellaneous	2	3	16	67
Issues on the Customer’s side	46	50	34	41
Sewer Calls Peak Month / # of calls	Jan/8	April/12	Sept/10	Jun/16
Sewer Line Locations			1,299	1,922
AWR City Fiber Locates (6-19 thru 12/19)				1,791

Customer Information

Number of Industrial/Commercial Customers	537	529	526	3,156
Number of Residential Customers	3,072	3,150	3,171	518
Total Number of Customers	3,609	3,709	3,697	3,674

Water Loss Calculation

Water Loss %: The water loss is calculated by subtracting the “Identified Water Loss” (IWL) and the “Billed Consumption” (BC) from the “Total Water Delivered” (TWD) to come up with the “Unidentified Water Loss” (UWL). To calculate the “Water Loss %”, divide “Unidentified Water Loss” by the “Total Water Delivered”.

$$\text{TWD} - (\text{IWL} + \text{BC}) = \text{UWL}$$

$$279.743 - (9.425 + 250.165) = 20.153$$

$$\text{UWL/TWD} = \% \text{ of water loss}$$

$$20.153 / 279.743 = .07$$

2019 Annual Total Water Loss Percentage = 7.00%

2018 Annual Total Water Loss Percentage = 12.60%

2017 Annual Total Water Loss Percentage = 13.05%

2016 Annual Total Water Loss Percentage = 16.54%