

Phoenix Active Management Area
Water Management Assistance Grant No. 2020-3120
Leak Detection Project Deliverable No. 9
Sixth Semi-Annual Report
November 2024 Through April 2025



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Background:

In November 2022, Arizona Water Company (AWC) reported its first findings after receiving the new leak detection equipment associated with the Water Management Assistance Grant No. 2020-3120. Per the conditions of the grant, semi-annual reports of findings are required to be submitted to the Arizona Department of Water Resources (ADWR). This report is the sixth semi-annual report of findings in the series.

This report of findings provides information on the administration of the approved leak detection program, provides data related to leak detection efforts in the Phoenix Active Management Area (AMA) service areas, and shows the impact of the use of the equipment related to groundwater pumping in the service areas, overall.

Leak Detection Program:

Arizona Water Company (AWC) has had a leak detection program in place since 2011. The program was developed to comply with the Modified Non-Per Capita Best Management Practice program laid out in the Third Management Plan. Through time, the leak detection program has identified equipment and practices that improve the overall well being of the distribution systems and provides a structured way to monitor and respond to pipe failures.

While the discussion of the program in this report is limited to the grant recipients in the Phoenix AMA, AWC administers the leak detection program for all its systems regardless of location. AWC purchased equipment based on the grant award for the Phoenix AMA and is listed below:

Equipment Purchased	Quantity
Ecohologic Leakfinder ST Correlator	2
FCS S30 Geophone	9
Z-Corr Correlating Logger w/8 loggers	1
Dell Latitude Rugged Laptops	5

Table 1 - Equipment Purchased

The equipment is being used in the Apache Junction System, Superior System, and the White Tank System. Table 2 shows the leak detection activity for the three systems from November 2024 to April 2025. The last reporting period showed the activity of AWC staff from May 2024 to October 2024. Since the reporting period is a six-month look back, we have added the latest six-month

period and the previous six-month period for the purpose of comparison. Comparing the last two reporting periods, the number of man hours, length of pipe surveyed, and leaks detected are in line with each other. The heat persisted into the winter months in 2024, keeping demand high, and we did not see such a large decrease in leaks as we have in past reporting periods. The average leak volume in the most recent six-month period is approximately 28,900 gallons versus the previous six-month period in which leaks averaged approximately 29,800 gallons. The ability to find and fix leaks before they discharge significant volumes is one of AWC's goals with its water loss reduction program and has been accomplished in the reporting period.

Data	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-25	Dec-25	Jan-25	Feb-25	Mar-25	Apr-25	May to Oct	Nov to Apr	Total
Length of Pipe Surveyed	75,658	60,004	42,792	80,699	19,683	51,057	49,974	42,941	48,781	42,223	63,680	63,250	329,893	310,849	640,742
Leak Detection Man Hours	93	86	80	92	68	109	75	85	89	86	91	91	528	517	1,045
Number of Leaks Found	7	10	13	17	20	19	17	12	15	8	13	13	86	78	164
Estimated Loss of Gallons	13,860	117,870	1,050,480	595,290	154,140	633,200	304,580	837,420	734,790	97,080	233,000	51,740	2,564,840	2,258,610	4,823,450

Table 2 - Leak Detection Summary Results

Leak Detection Impact:

The overall goal of the Water Management Assistance Grant is to prove a reduction in groundwater pumping due to the use of the equipment and the leak detection program overall. In the following series of charts, AWC highlights the production of each system by month, the groundwater production by month, and the number of customers. Additionally, we have added a linear trend line related directly to groundwater production in each system.

Apache Junction:

The Apache Junction water system is in an area with a growing and seasonal population. The seasonality of the population is visible by the blue line on the graph. There are many seasonal residents that come into the service area to spend the winter months and then depart in the summer.

The gray columns show the overall production/delivery from all sources of water to the Apache Junction system. The green columns show the groundwater only production for each of the months in the reporting periods. AWC has a Central Arizona Project (CAP) Municipal and Industrial (M&I) Subcontract and participates in annual storage and recovery for a portion of the 6,285 Acre-Feet (AF) allocation. The 2024 volume that will be stored and recovered is 3,315 AF.

The linear trend for groundwater pumping has gradually increased during the reporting period. As noted above, the weather in Summer 2024 was extreme with 113 consecutive days with temperatures above one hundred degrees. The

trendline for groundwater production continues to remain relatively flat during the entire study period so far.

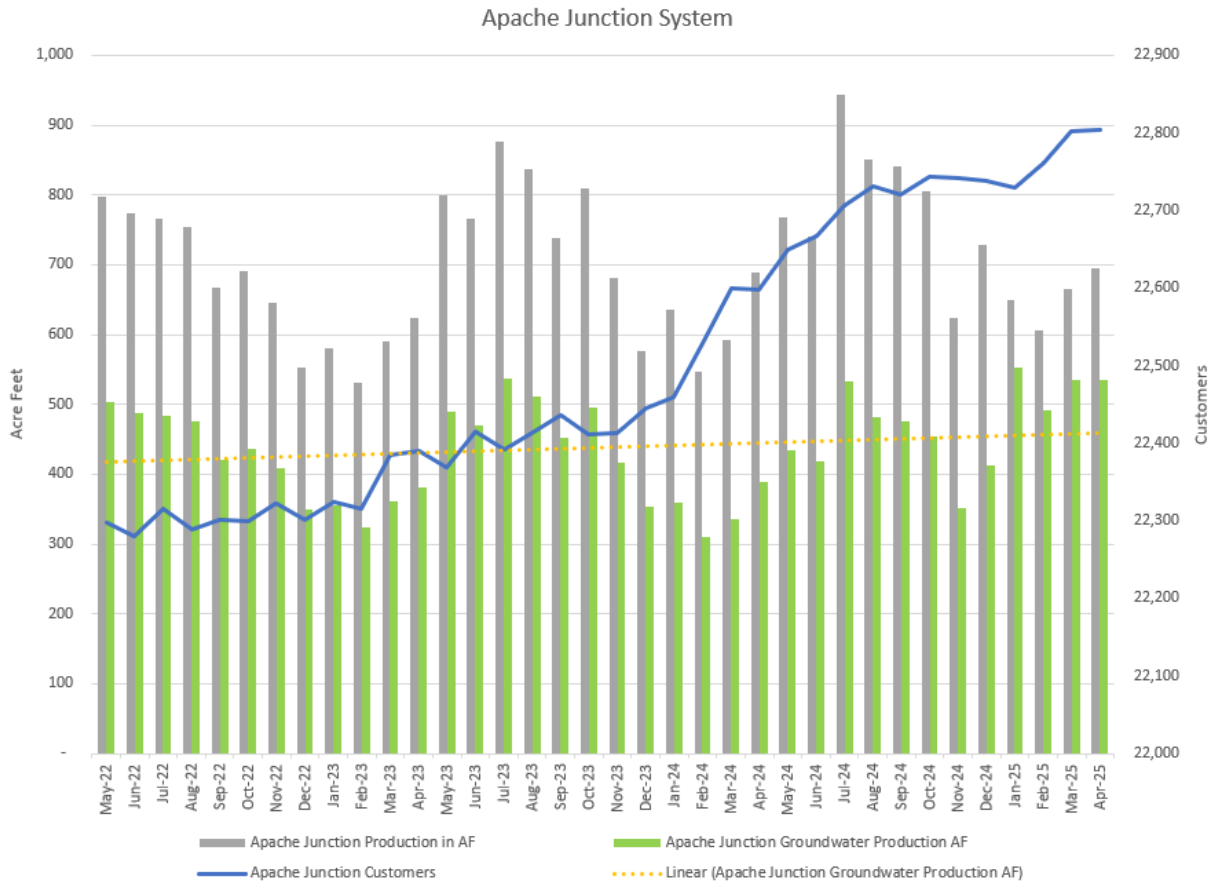


Figure 1 - Apache Junction Production Data

Superior:

The Town of Superior is a mature community with aging infrastructure. AWC is currently working through a variety of System Improvement Benefit (SIB) projects that are designed to replace the aged pipe system in this mountainous mining community. The population in the community is stable. In 2011, the Town of Superior transferred its 285 AF of CAP M&I water to AWC. The volume was added to AWC’s Superstition System allocation. Each year, the Superior system participates in annual storage and recovery of the 285 AF associated with the Superstition allocation. Through the efforts of the leak detection program and additional system improvement projects have substantially impacted groundwater pumping in a positive way.

It is important to keep in mind that the overall production of this system is relatively small compared with the Apache Junction and White Tank Systems.

The Superior system hovers around 500 AF of production, annually. The leak detection program is helpful with this system because even a small leak on the system shows up as an oversized percentage of water lost when compared to other systems in the AMA. Annual demand from Jan-Apr 2025 is 113 AF compared to 110 AF from Jan-Apr 2024. Although the customer count has decreased since January of 2024, the area has been experiencing persistent heat in the winter months causing an increase in the overall demand. The community remains very conservation oriented and that is visible in the gray columns of the graph.

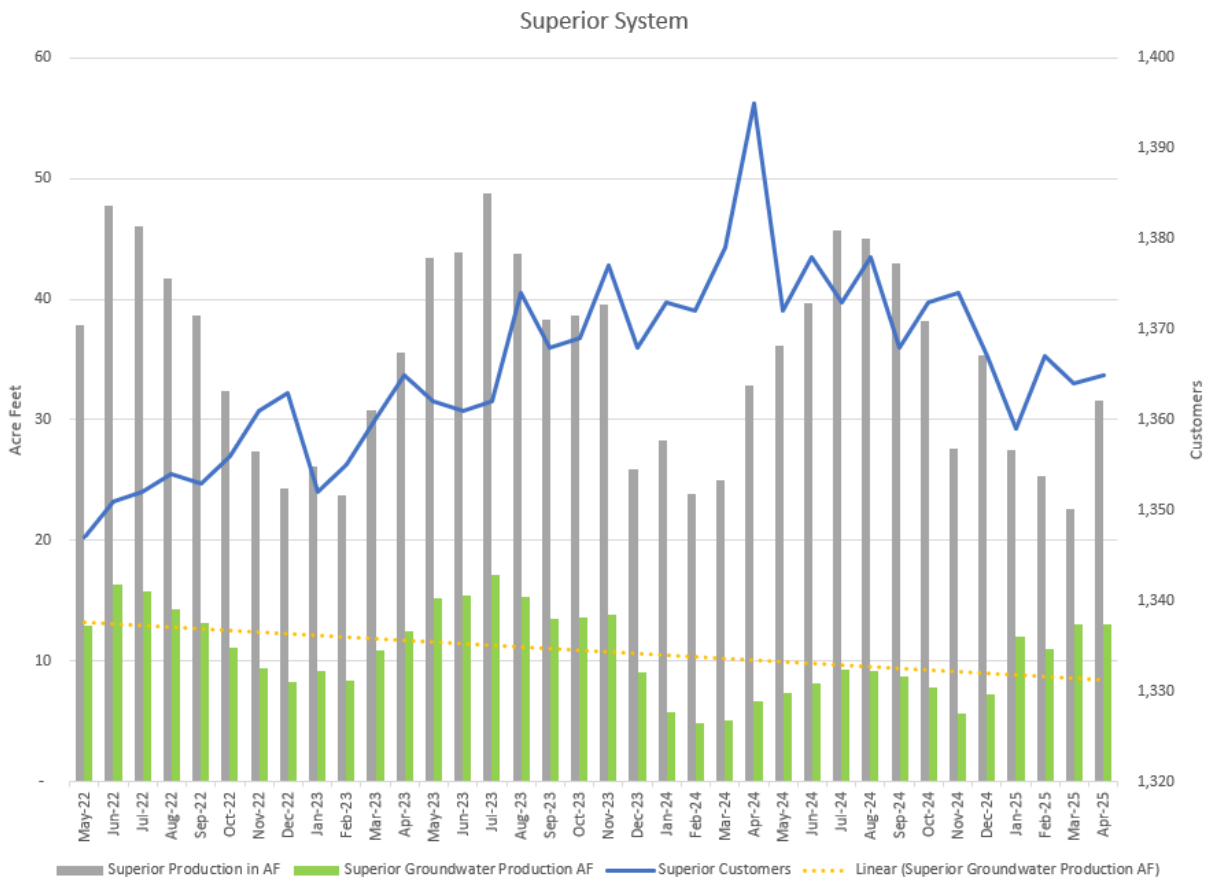


Figure 2- Superior Production Data

White Tank:

The White Tank system is located in the West Valley and the communities served are Buckeye, Goodyear, and Litchfield Park. The area has grown quickly over the past few years. To offset groundwater pumping in the basin, AWC has begun to directly deliver a majority of its treated CAP M&I water to customers over the past two years. The delivery of the surface water through the EPCOR treatment plant begins in March. Additionally, the system acquired another surface water source through its Maricopa Water District (MWD) member lands.

As of March 2025, the system has started to deliver Agua Fria River water to the portion of its customers that reside within the MWD member lands. The new water source is treated along with the CAP water at the EPCOR treatment plant. The heat that persisted through the winter months has impacted the volume of groundwater required to keep up with the system's increased demands. The leak detection program has not impacted the groundwater pumping in part due to the system being relatively new, community growth, and excessive heat in the summer.

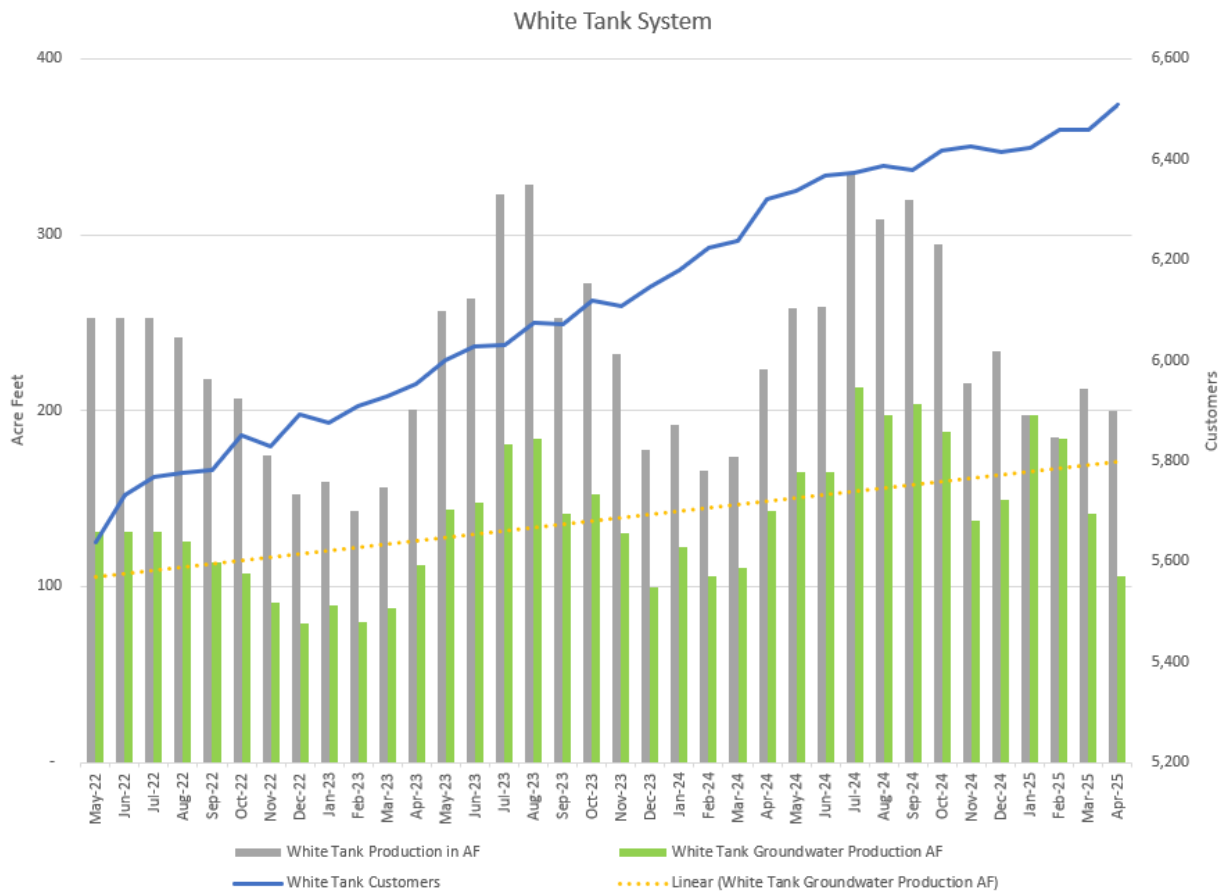


Figure 3 - White Tank Production Data

Conclusion:

In this sixth semi-annual report of findings, AWC has determined that the leak detection program is active and AWC staff have been using the equipment that was purchased per the grant conditions. In this semi-annual report, there is enough information since the purchase of the equipment to visualize the growth in communities, the overall water production by month and the total groundwater production by month. As data is collected from the leak detection

program, we have been able to see the interplay between weather, growth, aging infrastructure, water supplies and the leak detection equipment use program. Every community is unique, and the volume of groundwater pumped varies during the seasons. The leak detection program is used in all AWC's systems and AWC will continue to monitor the program and provide the semi-annual reports showing the progress through 2025.