2024 ANNUAL ICR AND WELL FIELD REPORT

Prepared for

ICR WATER USERS ASSOCIATION

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2024 ANNUAL ICR WELL FIELD REPORT

PURPOSE OF THE REPORT

This report serves as part of an annual series of reports for the Inscription Canyon Ranch (ICR) well field dating back to 2012. It is intended to provide a description of current conditions at the well field including pumpage, water levels, yields of individual wells, and the water demand and use of water by the subdivisions served.

ICR WATER USERS ASSOCIATION

The ICR Water Users Association (ICRWUA) is a private, non-profit water company providing water to the Inscription Canyon Ranch, Whispering Canyons, Preserve at the Ranch, and Talking Rock subdivisions as well as the Talking Rock golf course. The first three subdivisions obtain water from the ICR well field, which consists of two wells and constitutes the ICR groundwater system. The company is regulated by the Arizona Corporation Commission.

In 2024, ICRWUA provided water to an average of 451 residential customers in the Inscription Canyon Ranch, Whispering Canyons, and Preserve at the Ranch subdivisions, an increase of 27 customers since 2023 and 160 customers since 2013 (Table 1). In addition to providing water to residential customers, ICRWUA serves several commercial entities located within the subdivisions and provides water for irrigation of the common areas as well as for home construction purposes within the subdivisions.

Table 1, Residential Customers served December 2017 – December 2024

Subdivision	2017	2018	2019	2020	2021	2022	2023	2024
ICR	318	342	342	372	381	400	424	451

2024 RESIDENTIAL, COMMERCIAL, AND LANDSCAPE DEMAND

The monthly and annual water demands shown in Table 2 are for all major users served by the ICR well field, excluding construction purposes. The values are derived from monthly billing records that run on a mid-month billing cycle rather than a calendar basis. The billing records date from December 16, 2023 to December 16, 2024. Column 2 in Table 2 shows monthly residential water demand in gallons; Column 3 shows the number of residential units served; Columns 4 and 5 show monthly demand for commercial and landscape use in gallons; Column 6 shows total residential, commercial, and landscape demand in gallons; and Column 7 shows demand in gallons per day per residence (gpd/r) for each month and for the year.

These values demonstrate significant variation of monthly demand, increasing during the drier, pre-monsoon months in response to increased drip irrigation of residential and common area landscape. The annual average use in gallons per day per residence in the ICR system, including commercial and landscape demand, was approximately 238 gpd/r in 2024, with monthly values ranging from 118 gpd/r in February to 367 gpd/r in July.

Table 2, 2024 ICR Groundwater System Residential, Landscape, and Commercial Water Demand, in gallons

Month	Residential Demand	Residential Customers	Commercial Demand	Landscape Demand	Total Demand	Average Residential Use (gpd/r)
January	1,680,620	435	550	1,800	1,682,970	125
February	1,513,320	442	1,400	640	1,515,360	118
March	1,652,840	443	3,850	110	1,656,800	121
April	2,049,480	449	2,340	3,330	2,055,150	153
May	3,708,310	452	470	30,070	3,738,850	267
June	4,459,060	450	4,920	17,100	4,481,080	332
July	5,129,490	454	6,710	29,900	5,166,100	367
August	4,367,860	454	2,000	31,430	4,401,290	313
September	4,805,910	457	4,500	30,580	4,840,990	342
October	4,187,100	459	4,500	82,460	4,274,060	300
November	3,071,340	460	7,300	21,030	3,099,670	225
December	2,335,010	462	7,220	600	2,342,830	164
Total/Avg	38,960,340[1]	451[1]	45,760	249,050	39,255,150	238[1]

[1] Average annual value (customers and gpd/r); column totals for residential, commercial, landscape, and total demand are annual sums.

THE ICR WELL FIELD

There are two wells, ICR 1 and ICR 2, in the ICR well field, located about 47 feet apart. The wells are within Section 17, Township 16 North, Range 3 West and are situated in the Mint Wash floodplain, about one-half mile west of Williamson Valley Road where the road crosses the wash.

Well 1 is the original well, constructed in 1994 by the developer of the Inscription Canyon Ranch to provide water to the subdivision. Whispering Canyons L.L.C. later constructed Well 2, often referred to as Whispering Canyon 1 (WC 1), in 2002 to serve Inscription Canyon Ranch, Whispering Canyon, and Preserve at the Ranch subdivisions.

The wells are owned by Aqua Meadows and are on land owned by Aqua Meadows. ICRWUA has an agreement dated August 1, 1995 that gives the Association the right to operate and use ICR Well 1 as a water supply for Inscription Canyon Ranch and Preserve at the Ranch subdivisions for 100 years, subject to renewal every 25 years. This agreement serves to satisfy the Arizona Department of Water Resources 100 Year Water Adequacy Requirement. An amendment to the agreement (Amendment 1), dated July 24, 2001, adds Whispering Canyon subdivision. ICRWUA is responsible for operating and maintaining the two wells and paying all costs associated with the operation and maintenance. Per contract with Aqua Meadows, the Association is permitted to withdraw 164,518,498 gallons per year to service the ICR, WC, and Preserve at the Ranch subdivisions.

The aquifer tapped by the wells is a mixture of unconsolidated sediments consisting of clay, silt, sand, and gravel, locally cemented to form conglomerate. The base of the aquifer is confined by crystalline basement rock, occurring at a depth of about 223 ft at Well 1, and about 220 ft at Well 2. The pump intake

at ICR Well 1 is 172 ft below land surface. The depth to pump intake at ICR Well 2 is 160 ft below land surface.

The water table elevation naturally fluctuates in response to seasonal patterns of precipitation. At the time ICR Well 1 was completed, the regional water table was at a depth of 18 ft below land surface at ICR Well 1 and 19 ft below land surface at ICR Well 2.

JANUARY – DECEMBER 2024 MONTHLY WELL DEMAND

Total pumpage at ICR Wells 1 and 2 in 2024 was 47,644,791 gallons. Total pumpage at Well 1 for the year was 18,641,573 gallons while total pumpage at Well 2 for the year was 29,003,218 gallons (Table 4). Monthly demand on the well field in 2024 increased from a low of approximately 2,184,408 gallons in January to a high of 5,753,683 gallons in July when pumpage peaked. Demand remained elevated through the summer and early fall before declining toward the end of the year. The 2024 annual pumping summary reported a combined well field total of 46,478,832 gallons; the difference relative to the sum of the monthly per-well figures (47,644,791 gallons) is attributable to a reporting discrepancy in the Well 2 monthly versus annual totals and is discussed under Data Quality below.

Table 4, 2024 ICR Wells 1 and 2 Monthly and Annual Pumpage, in gallons.

Month	Well 1	Well 2	Total
January	1,118,865	1,065,543	2,184,408
February	1,079,372	1,291,990	2,371,362
March	1,056,462	1,156,722	2,213,184
April	1,285,096	1,364,877	2,649,973
May	683,537	3,552,595	4,236,132
June	1,000	5,162,276	5,163,276
July	3,275,345	2,478,338	5,753,683
August	2,200,691	2,790,097	4,990,788
September	2,716,794	2,743,418	5,460,212
October	2,044,395	2,787,394	4,831,789
November	1,718,528	1,975,868	3,694,396
December	1,461,488	2,634,100	4,095,588
Total	18,641,573	29,003,218	47,644,791

2017–2024 MONTHLY WELL FIELD DEMAND

Table 6 shows the variation in monthly demand at the ICR well field from January 2017 to December 2024. Minimum demand occurs in the winter months, with the lowest generally occurring during the first three months of the year. The highest demand occurs in June and July. The difference between maximum and minimum monthly demand within a given year has generally ranged from about 2.3 to 3.6 million gallons; in 2024 the spread between the lowest month (January) and the highest month (July) was approximately 3.57 million gallons.

The well field's annual demand over the full years in this period has ranged from about 29,391,000 gallons in 2017 to about 49,281,907 gallons in 2022. These rates correspond to an average daily pumping

rate of roughly 56 to 94 gallons per minute. The combined capacity of the well field remains adequate to meet demand, with one well typically able to serve the system on any given day.

Note: Full-year 2020 monthly data were not available in the source records provided; only January–June 2020 are reported (see footnote 2).

Table 6, Monthly and Annual ICR Well Field Water Demand, Jan 2017 – Dec 2024, in gallons.

Month	2017	2018	2019	2020	2021	2022	2023	2024
Jan	1,129,000	1,674,000	1,545,000	1,358,714	2,444,702	1,725,737	2,035,824	2,184,408
Feb	1,087,000	1,528,000	1,451,000	1,447,300	2,019,633	1,928,073	1,804,375	2,371,362
Mar	1,707,000	1,440,000	1,440,000	1,487,147	1,947,562	1,788,623	1,783,040	2,213,184
Apr	2,411,000	2,553,000	1,849,284	1,691,568	2,860,469	3,688,020	2,350,750	2,649,973
May	2,859,000	3,107,000	2,868,030	3,196,356	4,604,153	5,539,891	4,097,806	4,236,132
Jun	3,851,000	4,008,000	3,100,497	4,460,323	5,408,393	6,551,670	4,453,987	5,163,276
Jul	3,475,000	4,500,000	4,093,563	N/A	5,327,858	6,859,332	4,778,613	5,753,683
Aug	2,905,000	3,283,000	4,259,807	N/A	4,080,836	6,921,012	5,420,860	4,990,788
Sep	3,104,000	3,278,000	4,636,856	N/A	4,190,181	4,729,466	4,656,715	5,460,212
Oct	2,896,000	2,629,000	3,175,385	N/A	3,702,108	3,893,745	4,904,056	4,831,789
Nov	2,295,000	2,196,000	2,612,628	N/A	3,147,784	3,498,673	4,148,113	3,694,396
Dec	1,672,000	1,451,670	1,483,501	N/A	2,159,627	2,157,665	2,507,399	4,095,588
Total	29,391,000	31,647,670	32,515,551	13,641,408[2]	41,893,306	49,281,907	42,941,538	47,644,791

[2] 2020 total reflects January–June only; full-year 2020 monthly records were not available in the source data. "N/A" indicates data not available.

MAXIMUM DAILY DEMAND

The maximum average daily demand for 2024 occurred in July, equaling approximately 367 gpd/r. The July pumpage of 5,753,683 gallons exceeds that of all other months in 2024. This demand equates to an average daily demand of approximately 185,603 gallons per day across the month. There were approximately 454 residential units served during this period.

WELL FIELD HOURS OF USE AND YIELD

Direct runtime values were not recorded in the 2024 monthly well log reports. The runtime and daily-use figures below are therefore derived estimates calculated from the total gallons pumped and the assumed 2024 pumping rates for each well - 310 gpm for ICR Well 1 (its 2024 tested production rate) and 368 gpm for ICR Well 2 (its assumed average operating rate). These values should be interpreted as engineering estimates rather than directly measured field data.

Based on these assumptions, ICR Well 1 is estimated to have pumped for approximately 1,002 hours during 2024, for an average daily use of about 2.7 hours per day. Estimated maximum use occurred in July, when the well is estimated to have pumped approximately 176 hours, for an average daily use of about 5.7 hours. ICR Well 2 is estimated to have pumped for approximately 1,314 hours during 2024, for an average daily use of about 3.6 hours per day, with estimated maximum use in June of approximately 234 hours (about 7.8 hours per day).

The average annual yield for ICR Well 1 is taken as approximately 310 gpm for 2024, reflecting the reduced production rate measured during the 2024 pumping test (down from approximately 383 gpm in

2020). The average annual yield for ICR Well 2 is taken as approximately 368 gpm for 2024. Average annual yields over the last five years are shown below (Table 7).

Table 7, 2020–2024 Average Annual ICR Well Field Yields, in gpm.

ICR well	2020	2021	2022	2023	2024
Well 1	383	384	384	383	310[3]
Well 2	374	371	371	371	368[3]

[3] 2024 yields are based on the 2024 pumping test for ICR Well 1 (310 gpm) and the assumed average operating rate for ICR Well 2 (368 gpm), rather than continuous metered yield.

WELL FIELD WATER LEVELS

For practical reasons, it is best practice to maintain the pumping water level in the wells at approximately two-thirds of the original thickness of the aquifer at each well. This will maximize production relative to pumping cost and the decline in pumping water level. For both wells, the suggested maximum pumping depth to water should be about 152 feet below land surface.

Another consideration is the requirement to maintain the pumping water level in a well above the pump intakes, located 172 feet below land surface at ICR Well 1 and 160 feet below land surface at ICR Well 2. Long-term viability of the well requires a pumping level above these depths.

ICR WELL 1

Static (non-pumping) and pumping water level data for ICR Well 1 in 2024 are limited to the measurements collected during the 2024 pumping test documented in the ICR Well 1 Health Report. The static water level was recorded at 64.1 feet below land surface in 2024, compared with 39.9 feet in 2020 and 56.1 feet in 2016. The total drawdown during the 2024 test was approximately 120.8 feet (to a pumping level well above the 172-foot pump intake), compared with 119.0 feet in 2020 and 109.3 feet in 2016, indicating that drawdown has remained relatively stable even as the static level has declined and the tested production rate has decreased to 310 gpm.

The decline in static water level is consistent with regional climatic conditions during the period, including a below-average 2023–24 winter and a weak 2024 monsoon season, which would be expected to reduce groundwater recharge. After the 2024 test, the water level rebounded to approximately 65.2 feet below land surface within 100 minutes of stopping the pump, indicating that the aquifer retains its ability to recharge following pumping. The combination of stable drawdown, a reduced tested yield, and aging well equipment suggests that the reduction in production rate is more likely related to well and pump condition than to aquifer depletion. Continued monitoring of static and pumping levels is recommended.

ICR WELL 2

No static or pumping water level measurements were available for ICR Well 2 in 2024; the most recent recorded pumping water level was 77.8 feet below land surface following a 75-minute test in 2020, well above the pump intake. In the absence of 2024 level data, no quantitative assessment of Well 2 water levels can be made for the reporting year. Based on the most recent available data and continued stable production, Well 2 is presumed to remain viable; however, this data gap limits interpretation, and water level measurements at ICR Well 2 are recommended in future reporting periods.

WELL PERFORMANCE AND REHABILITATION CONSIDERATIONS

The 2024 pumping test of ICR Well 1 indicated a reduction in tested production rate to 310 gpm, approximately 19 percent below the 383 gpm recorded in 2020, while drawdown remained relatively stable. As discussed in the ICR Well 1 Health Report, the combination of declining yield with stable drawdown points toward well and pump condition - including aging equipment and possible sediment, scaling, or biofouling - rather than aquifer limitations as the primary cause. No well rehabilitation was performed during 2024. Pump and equipment inspection, and potential rehabilitation of ICR Well 1, are identified as items for future planning. ICR Well 2 continued to operate as a primary production well during much of 2024 and showed no comparable indication of reduced performance in the available data.

SUMMARY

The ICR Water Users Association (ICRWUA) is a private, non-profit water company providing water to the Inscription Canyon Ranch, Whispering Canyons, Preserve at the Ranch, and Talking Rock subdivisions as well as the Talking Rock golf course. The first three subdivisions are serviced by the ICR well field, which is comprised of two wells, ICR Well 1 and ICR Well 2, located about 47 feet apart.

The 2024 annual demand at the ICR well field was approximately 47,644,791 gallons (based on the monthly per-well logs), compared with approximately 42,941,538 gallons in 2023. Average 2024 residential demand per residence, including landscape and commercial use, was approximately 238 gpd/r for the subdivisions served by the ICR well field. The maximum 2024 monthly demand occurred in July, equaling 5,753,683 gallons.

The ICR well field continues to be operated with generally one well pumping on a given day. In 2024, ICR Well 1 is estimated (at an assumed 310 gpm) to have pumped approximately 1,002 hours for an average daily use of about 2.7 hours per day, with total production of 18,641,573 gallons. ICR Well 2 is estimated (at an assumed 368 gpm) to have pumped approximately 1,314 hours for an average daily use of about 3.6 hours per day, with total production of 29,003,218 gallons.

The principal performance change observed in 2024 is the reduced tested production rate at ICR Well 1 (310 gpm, down from 383 gpm in 2020), accompanied by a decline in static water level to 64.1 feet below land surface. Stable drawdown, effective post-pumping recovery, and the absence of comparable indications at ICR Well 2 suggest that the change at Well 1 is most consistent with well and pump condition rather than aquifer depletion, and that climatic conditions during 2023–24 likely amplified the apparent decline. Continued production and water level monitoring, periodic pumping tests, verification of meter calibration, and planning for potential ICR Well 1 rehabilitation are recommended. On balance, the available data are consistent with the continued viability of both wells.

CONCLUSIONS AND RECOMMENDATIONS

1. Continue monthly monitoring and documentation of production at each well, including runtime and pumping rates, to support more precise future runtime estimates and reduce reliance on assumed rates.

2. Track static and pumping water levels at both ICR Well 1 and ICR Well 2 during pumping and non-pumping periods; prioritize re-establishing routine level measurements at ICR Well 2, where 2024 data are absent.

3. Conduct periodic pumping tests (ideally annually) to monitor yield, drawdown, and static water levels and to detect changes in well performance early.

4. Inspect ICR Well 1 pump and well equipment and evaluate rehabilitation to address the reduced tested production rate.