Kimberly R. Parks (Bar No. 032828)
Arizona Department of Water Resources
Legal Division
P.O. Box 36020
Phoenix, Arizona 85067
Telephone: 602-771-8472
Fax: 602-771-8687
krparks@azwater.gov

IN THE SUPERIOR COURT OF THE STATE OF ARIZONA
IN AND FOR THE COUNTY OF MARICOPA

IN RE THE GENERAL ADJUDICATION OF ALL RIGHTS TO USE WATER IN THE GILA RIVER SYSTEM AND SOURCE	W-1 (Salt) W-2 (Verde) W-3 (Upper Gila) W-4 (San Pedro) (Consolidated) Contested Case No. W1-106 **ARIZONA DEPARTMENT OF WATER RESOURCES' RESPONSE TO SALT RIVER PROJECT'S PROPOSAL FOR ANALYZING A POTENTIAL DOMESTIC *DE MINIMIS* DESIGNATION IN THE VERDE RIVER WATERSHED** Special Master Susan Ward Harris

CONTESTED CASE NAME: *In re Subflow Technical Report, Verde River Watershed*

HSR INVOLVED: None

DESCRIPTIVE SUMMARY: The Arizona Department of Water Resources provides its Response to Salt River Project's proposal for analyzing a potential domestic *de minimis* designation in the Verde River watershed.

NUMBER OF PAGES: 17 and one-page attachment

DATE OF FILING: April 4, 2022

Pursuant to the Minute Entry Order filed March 10, 2022, and the Order Granting Extension filed March 28, 2022, the Arizona Department of Water Resources (ADWR) hereby responds to the Salt River Project's (SRP's) proposal for analyzing a potential designation for certain domestic water uses in the Verde River watershed.[1]

I. *DE MINIMIS* QUANTITY

In its Technical Report on *De Minimis* Domestic Water Use in the Verde River Watershed ("Technical Report"), ADWR found that "there is enough data to support a *de minimis* classification for domestic water uses of ≤ 1.00 acre-feet per annum (AFA) per dwelling in the Verde River watershed."[2] During the status conference held on March 3, 2022, all parties, including SRP, agreed that if the Court determines that certain domestic uses in the watershed are *de minimis*, then 1.00 AFA is an appropriate *de minimis* quantity for those uses.[3] 1.00 AFA is also the approved *de minimis* quantity for domestic uses in the San Pedro River watershed. ADWR continues to believe that ≤ 1.00 AFA is the appropriate *de minimis* quantity for certain domestic uses in the watershed.

II. WATER AVAILABILITY

In its proposal, SRP states that ADWR's Technical Report does not provide a reliable estimate of the water available in the Verde River watershed and that ADWR used a flawed methodology that does not accurately estimate the amount of water consumed by domestic uses.[4] Instead, SRP suggested that ADWR should evaluate streamflow at the

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[1] Salt River Project's Proposal for Analyzing a Potential Domestic *De Minimis* Designation in the Verde River Watershed filed March 14, 2022.
[2] ADWR's Technical Report: *De Minimis* Domestic Water Use in the Verde River Watershed issued December 2021 at 20.
[3] *See also*, SRP's Proposal, *supra* note 1 at 8.
[4] *Id*. at 3.

Tangle Creek, Camp Verde, and Paulden United States Geological Survey (USGS) gages using a 7-day low flow calculation.[5]

In the Technical Report, ADWR provided the most reasonable estimate of the available water in the Verde River watershed by calculating the median annual discharge from the most upstream gage (Paulden) and the gage located near the termination of the Verde River watershed and upstream from major reservoirs (Tangle Creek). By calculating the median annual discharge, ADWR can determine a reasonable estimate of available water because the median will provide the most probable determination of flow available in a stream throughout the year. When conducting the *de minimis* evaluation, using the median annual flow is most desirable because the median is only minimally affected by the magnitude of any single observation. The median takes into consideration both flood flows and periods of no flow. It is essential to include those floods and other high-flow events in this analysis because they are not lost to the Verde River watershed. In fact, they are captured and stored in large reservoirs in order to make up for shortfalls. Thus, the median serves as a proxy for the water currently present in the Verde River watershed.

The USGS has also recognized the median as a resistant measure of central tendency when applying statistical methods in water resources.[6] The total water availability in the Verde River watershed was determined to be 260,925.12 AFA, but to provide more a conservative estimate ADWR used 260,000 AFA for its *de minimis* analysis. 260,000 AFA is the quantity of water estimated to be available after all consumptive uses have been removed. In other words, the quantity of water ADWR used to calculate estimated domestic water use impacts already reflects the various water uses and diversions that are occurring within the Verde River watershed. Therefore, 260,000 AFA is an **underestimate** of the amount of water available under natural conditions.

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[5] *Id.* at 3-4.

III. USE OF 7-DAY LOW FLOW

In its proposal, SRP asks the Court to direct ADWR to use a 7-day low flow analysis to evaluate the amount of water that is reliably available at each of the three USGS gages, reasoning that ADWR should exclude floods and other high-flow events from its analysis as those flows are not reliably available throughout the year.[7]

a. 7-Day Low Flow is Representative of Critical Conditions

Using a 7-day low flow assessment would not provide a reliable dependable flow amount because it would significantly skew the distribution of daily flows. In general, a 7-day low flow analysis is biased towards outliers, or days with the lowest flow, and filters out days of monsoons and high flow events. To curtail this bias, the 7-day low flow analysis extends the number of consecutive low flow days to calculate a statistic and does not use the lowest individual day but an average across seven consecutive days. Any bias present in the low flow analysis after extending the consecutive day average to a 7-day statistic is sensitive towards extreme low numbers, even if they are outliers, because it is a mean and therefore not a statistically robust measure of central tendency. Values determined from the method proposed by SRP would be absolute worst-case scenario and based on critical conditions, with the maximum impact numbers skewed excessively low.

Streamflow in a perennial stream has two components. The baseflow component is weather-independent and results from the interaction between the stream bed and the surrounding aquifer. The flood flow component is weather-dependent and includes runoff from precipitation events as well as snowmelt. While individual runoff events are difficult to predict on short time scales due to weather variations, one can assume that runoff events of some magnitude will occur every spring in response to winter precipitation. In

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[6] *See* USGS, *Statistical Methods in Water Resources* at 1.2.2 (May 2020), *available a*t https://pubs.usgs.gov/tm/04/a03/tm4a3.pdf (last accessed March 31, 2022).

[7] *See* SRP's Proposal, *supra* note 1, at 6.

that sense, flood flows are reliably available flows in that they are expected to occur every year.

While flood flows are difficult to directly put to beneficial use, they fill a vital role in replenishing aquifers and filling reservoirs. Aquifers serve as a "buffer" that provides water that can be beneficially used during dry periods either by discharge to the stream bed as baseflow that can be diverted or by pumping from wells. Nearly all the domestic uses being evaluated for this study are sourced by wells. Because some *de minimis* domestic users are dependent upon the aquifer and aquifer replenishment depends upon flood flows, a proper evaluation of reliably available water must include flood flows. Using a 7-day low flow measurement is unreasonable because it only measures the baseflow component and excludes the flood flows that recharge the aquifer that domestic users are dependent upon.

Although the Environmental Protection Agency (EPA) has endorsed the use of a 7-day low flow metric, as SRP states in its proposal, the focus of the EPA's study was on water quality, which requires an analysis based on critical conditions to ensure there is no deviation of quality standards. This is different from a *de minimis* evaluation, which requires an analysis of the amount of water reliably available. In their *Low Flow Statistics Tools: A How-To Handbook for NPDES Permit Writers*, the EPA suggests that if there are man-made modifications within the watershed being analyzed, the modifications will affect low flow values. Man-made modifications often result in the active management of flow regimes that no longer reflect weather-event-driven flow patterns. It goes on to say that supplementary data would be needed from the impoundments or diversions in order to produce flow values that are representative of these flow patterns.[8] The Verde River watershed has plenty of impoundments and diversions, however the amount of water being impounded and diverted is unknown and cannot be used to supplement the low flow

[8] *See* EPA, *Low Flow Statistics Tools: A How-To Handbook for NPDES Permit Writers*, at 4-2 (Oct. 2018), available at https://bit.ly/3KsEA9A (last accessed March 31, 2022).

statistic so that it accurately reflects appropriate low flow conditions.[9] Therefore, it is inappropriate to use a 7-day low flow analysis.

b. ADWR cannot use the 7Q2 or 7Q10 statistics

In its proposal, SRP suggests that ADWR can use either the 7Q2 or 7Q10 statistics to determine reliably available flow.[10] The 7Q2 and 7Q10 measure the lowest 7-day flow that has a fifty percent and ten percent probability of occurring in a typical year, respectively. SRP proposed that a low flow analysis using a 7-day low flow statistic is required for the determination of "reliable and dependable flow" available in the Verde River watershed.[11]

ADWR feels strongly that neither 7Q2, 7Q10, nor any other 7-day low flow measurement would be appropriate methods of determining reliable flow within the Verde River watershed. The 7Q2 statistic estimates a higher flow than the 7Q10, and reports flows closer to the median flow. The 7Q10 statistic is much more restrictive. 7Q10 uses a low-flow value with a 0.10 probability, while the 7Q2 has a 0.50 probability. When comparing these results to flood statistics, the number would reflect a 10-year flood compared to a 2-year flood. 7Q10 is always less cubic feet per second (cfs) than 7Q2 because it is representing a low flow event that is much less likely to happen each year.

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[9] USGS, *Estimating Flow-Duration and Low-Flow Frequency Statistics for Unregulated Streams in Oregon*, at 5 (June 2009), available at https://on.doi.gov/35Ivg2i (last accessed March 31, 2022) "Flow statistics based on daily flow data can be used as benchmarks... to determine if streamflow will be sufficient for water-quality and aquatic habitat needs, or if streamflow will exceed the design capacity of a reservoir or a bridge." The USGS offers multiple ways to calculate 7-day low flow for these purposes. For example "the 7Q2 statistic is the annual 7-day minimum flow with a 2-year recurrence interval (nonexceedance probability of 50 percent). The 7Q10 statistic is the annual 7-day minimum flow with a 10-year recurrence interval (nonexceedance probability of 10 percent). Low-flow frequency also can be computed on a seasonal or monthly basis by limiting the daily data used for the annual series to just the season or month of interest."

[10] *See* SRP's Proposal, *supra* note 1, at 7-8.

[12] *Id.*

Both 7Q2 and 7Q10 are easily manipulated, easily skewed, and are intended for use on streams with no human developments.

Table 1 - Flow Statistics

	Paulden	Camp Verde	Tangle Creek
Median Annual Flow	28.19	275.26	388.60
June Monthly Median Flow	22.39	69.77	94.54
7Q2	20.85	47.00	85.99

Units are reported in cubic feet per second.

SRP provided an alternative to the 7-day low flow method, suggesting that median stream flows during the month with the lowest flow could provide a suitable stand-in for 7-day low flow conditions.[12] ADWR calculated the median monthly discharge for June, since SRP previously suggested June as a low flow month. The estimated median discharge for the month of June is 4,293.2 acre-feet (AF). The monthly domestic demand ranges from 274.6 to 1073.3 AF (3294.7 AFA from Table 4 of the Technical Report divided by 12 months and 12,879 AFA from Table 5 of the Technical Report divided by 12 months). This range accounts for about 6.40% to 25%, respectively, of the available water for the month of June, resulting in a wide variation of potential impact. Since water use may change month to month, higher seasonal flows even out the low flow time periods. Using only seasonal data would exclude essential streamflow information from the rest of the year. ADWR believes that using the median annual discharge is the most reliable method to estimate available water in the Verde River watershed.

IV. CUMULATIVE DOMESTIC USE

In SRP's proposal, SRP stated "after calculating the amount of appropriable water that is available, ADWR must determine the cumulative domestic use by determining the amount of appropriable water that will be consumed by the domestic uses that it is

evaluating for potential *de minimis* treatment".[13] SRP further suggested that in order to determine the cumulative domestic use, ADWR would need to know 1) the amount of streamflow each domestic use is projected to consume, and 2) the number of domestic uses in the study area.[14]

ADWR calculated the cumulative domestic use quantity using 2020 Census data for the entire Verde River watershed. ADWR assumed that each individual person in the self-supplied population of the watershed was using water for domestic use, rather than relying on the number of domestic wells in ADWR's Wells55 database. Multiple studies were presented in ADWR's Technical Report to support ADWR's recommendation that the 2020 Census data provides the most realistic, conservative estimate of the cumulative domestic use amount within the Verde River watershed. Furthermore, ADWR's estimated domestic use and demand values correspond to those estimated by the United States Bureau of Reclamation (USBR), USGS, and the EPA, as cited in the Technical Report.

a. Return Flows

On March 28, 2022, Arizona State Land Department (ASLD) filed a response to SRP's proposal in which ASLD suggested that return flow to the Verde River would need to be accounted for when determining domestic consumption.[15] ASLD uses the example that if landscaping or gardens are irrigated, realistically 50% of the water will be returned to the river, and thus would not be consumed.[16] ADWR did not consider return flow in the Technical Report's *de minimis* evaluation. However, ADWR feels strongly that the Technical Report's estimate of the cumulative domestic use within the Verde River watershed is more conservative *because* it does not account for return flow. For that

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[12] *Id*. at 8, note 16.
[13] *Id*. at 8.
[14] *Id*.
[15] Arizona State Land Department's Response to Salt River Project's Proposal for Analyzing a Potential Domestic *De Minimis* Designation in the Verde River Watershed filed March 28, 2022 at 2-3.
[16] *Id*.

reason, ADWR does not believe it is necessary to account for the return flow for purposes of this evaluation.

b. Number of Domestic Uses

In the Technical Report, ADWR identified 1,940 registered wells that were classified as domestic when searching by well type in ADWR's Wells55 database. When instead searching for registered wells that claim domestic uses, ADWR could not replicate SRP's findings of 21,023 registered wells using the Wells55 database. After further examining the list of wells SRP provided, it appears that wells listing "domestic" alongside other uses were omitted from SRP's list. Additionally, the list of wells SRP provided did not include well registry numbers starting with an "08" sequence (formatted 55-08XXXX). Also, the list SRP provided did not remove domestic wells that had been verified as abandoned. Although the list SRP provided removed most domestic wells that were classified as "cancelled" in the Wells55 database, many cancelled wells were still included in SRP's list while other wells were excluded even though they had not been cancelled. SRP also appeared to use data only up to June 10, 2020, which would not include any recent updates to the Wells55 database. Therefore, ADWR does not agree with SRP's interpretation of the Wells55 data.

In ADWR's efforts to recreate the list SRP provided, ADWR generated a list using the Wells55 database that included all wells starting with an "08" sequence (formatted 55-08XXXX), all wells that claimed any domestic use (even secondary), removed abandoned wells and kept wells that had been listed as "cancelled". As a result, ADWR estimates that there are a total of 26,707 wells claimed as supplying domestic uses within the Verde River watershed that fit the previously mentioned criteria. If all cancelled wells are removed from the list, the total decreases to 24,329 wells. However, the "cancelled" classification does not necessarily mean that those wells have not been drilled. Drillers or claimants that fail to submit proper paperwork after a well has been drilled are listed in the

database as "cancelled". For this reason, ADWR has more confidence in the estimate that there are 26,707 wells claimed as supplying domestic uses in the Verde River watershed.

Of the estimated 26,707 wells claiming to supply domestic uses in the Verde River watershed, only 8,905 have completion reports on file with ADWR. Assuming these 8,905 domestic wells are using 1.00 AF of water for domestic purposes, this amount would fall within 3% of the ADWR's original estimated water use for self-served domestic households based on the population data (9,152 households using 9,152 AFA of water for domestic purposes). The number of wells that have completion reports on file is also closer to the total number of domestic Statement of Claimants (SOCs) ADWR has on file for the Verde River watershed, which was determined to be 7,626. ADWR believes that this further confirms the determination that domestic use is better estimated using Census data as opposed to the number of registered wells in the Wells55 database. Furthermore, ADWR's Wells55 database is intended to be a tool that records well permits; the database is not intended to be a catalog of wells. Duplicate well registrations are possible and, as SRP stated in their proposal, there are almost certainly domestic users in the Verde River watershed that have not yet registered their wells with ADWR.[17] Typically, the Wells55 database only reflects information that has been provided by the landowner. For instance, many landowners claim wells for domestic uses, while many may not actually be using wells for domestic purposes. A quick search of well owners and their records on file with ADWR illustrates that many municipalities and commercial entities have mistakenly listed "domestic" as a use for some wells. Furthermore, assuming the provided geographical locations are accurate, not all registered wells in the Verde River watershed are likely pumping appropriable water.

ADWR does not believe that domestic well counts are suitable for estimating domestic use quantities or impacts for the purpose of a *de minimis* classification. In fact, it is likely that using domestic well counts would result in a much larger overestimate of

[17] *See* SRP's Proposal, *supra* note 1, at 15.

actual domestic use within the Verde River watershed. Simply assuming each well is representative of a 1.00 AFA domestic use would not consider the fact that not every well will be pumping appropriable water, nor does that assumption account for potential return flows. ADWR estimated the total self-supplied population to be 27,456 people in its Technical Report. Using SRP's estimate of 21,023 wells in the Verde River watershed and assuming each well is using 1.00 AFA would imply each person (not household) is using approximately 0.77 AFA. However, the data provided by the USBR in the *Central Yavapai Highlands Water Resources Management Study Appraisal Report* (USBR, 2016) estimated the annual domestic use is only 0.18 AFA per person. Since using population data is a more realistic method of estimating domestic water use quantities than using domestic well counts, and one which still results in a comfortable overestimate of domestic impact that is in line with other sources' estimations (USBR, USGS, EPA), ADWR believes that population data should be used instead of domestic well counts.

Figure 1 illustrates the self-supplied per capita use of each state in the U.S. reported by USGS in 2015. Highlighted in blue is the per capita usage implied by SRP's estimate based on 21,023 wells from the Wells55 database, the per capita usage from ADWR's proposed methodology that applies 0.18 AFA per person, and USGS estimated per capita usage for the State of Arizona. The 0.77 AFA per person implied by SRP's proposed method is 6.2 times larger than Arizona's estimated per capita use, and 8.9 times larger than the national average. The 0.18 AFA of water per person proposed by ADWR is 1.5 times larger than Arizona's estimated per capita use and 2 times larger than the national average.

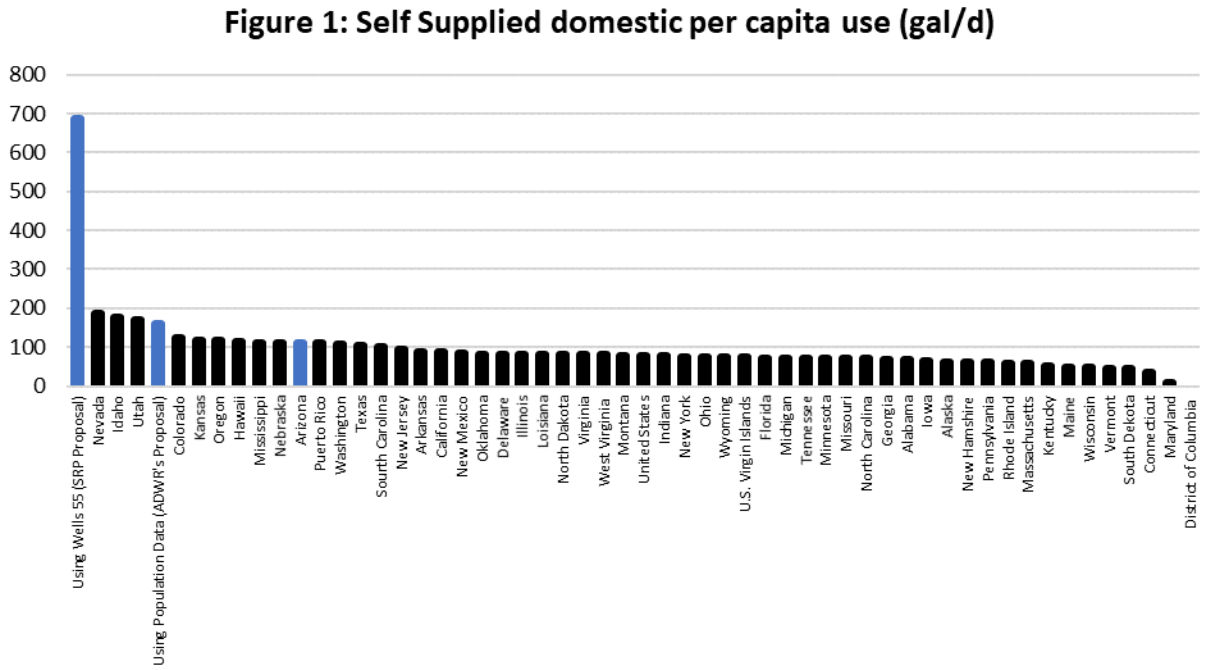

Figure 1: Self Supplied domestic per capita use.

See also **Attachment A**. Reference: Dieter, Cheryl A., Molly A. Maupin, Rodney R. Caldwell, Melissa A. Harris, Tamara I. Ivahnenko, John K. Lovelace, Nancy L. Barber, and Kristin S. Linsey. 2018. "Estimated Use of Water in the United States in 2015." Report 1441. Circular. Reston, VA. USGS Publications Warehouse. https://doi.org/10.3133/cir1441.

V. THE THREE-STEP "TELESCOPING" ANALYSIS

In its proposal, SRP suggested that ADWR compare populations upstream of three gage locations: Paulden, Camp Verde and Tangle Creek. SRP maintained that it was necessary to evaluate all three gages to determine whether domestic uses have a *de minimis* impact anywhere in the Verde River watershed, and within certain subwatersheds.[18] SRP reasoned that if the impact of domestic uses is substantial anywhere in the Verde River watershed, domestic uses cannot be *de minimis* and cannot be the subject of summary adjudication.[19] SRP purports that because the Verde River mainstem

[18] *Id*. at 11.
[19] *Id*.

is a "gaining reach" between the Paulden, Camp Verde, and Tangle Creek gages, domestic uses may have a substantial impact at the Paulden or Camp Verde gages but might have a *de minimis* impact at the Tangle Creek gage.[20] SRP stated that, by using the upstream Camp Verde and Paulden gages rather than relying only on the Tangle Creek gage, interference from domestic uses at various locations throughout the Verde River watershed could be examined.[21] This proposal is not appropriate for several practical and hydrological reasons.

SRP agrees that ADWR should use both the Paulden gage and the Tangle Creek gage in its analysis.[22] However, SRP proposed that ADWR should also evaluate streamflow at the Camp Verde gage to determine the amount of water available for the Lower Verde Valley, Sycamore, Little Chino, and Big Chino subwatersheds.[23] In the Minute Entry Order filed March 4, 2020, the Court requested that ADWR investigate and analyze certain claimed uses and their impact on the available water sources in the Verde River watershed.[24] Evaluating potential *de minimis* uses on a subwatershed-by-subwatershed basis could result in varying *de minimis* standards throughout the same watershed and would be confusing for domestic water users. Furthermore, ADWR has already examined data from all available gages and time periods and selected the optimal USGS streamflow gages and gage data for evaluating the surface water availability in the entire Verde River watershed.

SRP's "Telescoping" analysis has several flaws. The analysis relies on the idea that the gages reflect the impact of upstream water uses based on geographic location. However, this is not necessarily the case for wells. ADWR cannot say with certainty which populations, or which water uses sourced by wells, are affecting each USGS

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[20] *Id*.
[21] *Id* at 11-12.
[22] *Id.* at 4-5.
[23] *Id.* at 5.
[24] Minute Entry Order filed March 4, 2020, at 6.

streamflow gage, and thus are unable to attribute water uses in a specific subwatershed to measurements at a particular gage. ADWR used the Paulden Creek gage because it was the most reliable upstream gage located near the headwaters of the Verde River. ADWR then used the Tangle Creek gage because it was near the termination of the Verde River watershed, yet upstream of major reservoirs. Flow measurements recorded at Tangle Creek are already depleted from the cumulative impact of all water uses occurring in the Verde River watershed, beginning at the headwaters of the Verde River and ending before reservoirs affect available water supply. Since only the Tangle Creek gage is located near the termination of the watershed, and upstream from major reservoirs and impoundments, ADWR is confident that the available streamflow measured at Tangle Creek is most likely to account for the culminated water uses in the Verde River watershed, including domestic uses.

It is unreasonable to assume that wells drilled upstream of a gage will affect the flow at that specific gage. Gages can only account for surface flows and not available underground water. Groundwater divides often do not coincide with surface water divides, so wells within the upstream watershed might not be pumping water from the upstream aquifer that supplies the baseflow at the upstream gage and therefore cannot affect the flow at that gage. Also, the direction of aquifer flow at each well is not known. Underground water may be flowing at a direction perpendicular to the surface water drainage network and bypassing the gage. Domestic wells drilled within the Verde River watershed upstream of the Paulden and Camp Verde gages cannot be assumed to be pumping water that would be measured at those respective downstream gages since the gages would be looking at surface flow rather than underground water that may not be determined to be appropriable. Therefore, because the "Telescoping" method would introduce even more assumptions, ADWR feels strongly that the "Telescoping" analysis would not be scientifically defendable.

ADWR does not believe that evaluating an additional stream gage will improve the reliability of the results, and therefore does not see the value in evaluating the Camp Verde gage because it is unlikely that it will add information that is not already captured by the Tangle Creek gage.[25] The method used in the Technical Report makes a conservative assumption using two gages instead of one. By adding another gage and assuming gages represent subwatersheds merely based on their proximity would be adding additional assumptions that go against hydrologic principles and would not result in scientifically defendable findings, especially if wells are used.

VI. TIMING

In ASLD's response to SRP's proposal, it was recommended that the Court direct ADWR to wait until the issuance of the Hydrographic Survey Report (HSR) in order to determine how much return flow exists and how many domestic wells should be included in the *de minimis* analysis.[26]

ADWR believes that the *de minimis* evaluation must be completed before HSR investigations begin. Including proposals for potential *de minimis* standards in the completed HSR would be complicated for the public. Further, introducing varying *de minimis* standards for the same types of water uses across different subwatersheds (based on the "telescoping" approach proposed by SRP) would only increase confusion. ADWR would need additional time between completion of the preliminary HSR and completion of the final HSR to consider and respond to comments, as there would be a much broader range of issues addressed in the HSR. It is also unclear to ADWR whether a proposed *de*

[25] The median annual flow, or available water, at the Camp Verde gage is 199,276 AFA. If we divide the median annual flow by the total domestic demand derived from the self-supplied population, 9,152 AFA, the domestic use impact is still only 4.59%. This percentage is comparable to the domestic impact percentages reported by other agencies (EPA, USGS, USBR) that ADWR has presented in our Technical Report.

[26] *See* ASLD's Response, *supra* note 17, at 5.

minimis classification included in the preliminary HSR would then be litigated, resolved, and implemented in a final HSR, which would necessitate additional time between reports. Fully investigating water uses for the preliminary HSR that are later found to be *de minimis* uses would be a waste of ADWR's resources.

VII. CONCLUSION

ADWR provided a rational analysis in its Technical Report to support a *de minimis* classification for domestic uses of ≤ 1.00 AFA in the Verde River watershed. The Technical Report provided a reliable estimate of the water available in the Verde River watershed by calculating the median annual discharge. The use of a 7-day Low Flow Analysis, as SRP proposed, would result in an estimate based on critical conditions. This method should not be used to estimate the amount of available water in the Verde River watershed because it would not account for flood flows and is intended for use on streams with no human developments. Similarly, the Wells55 database is not intended to estimate consumptive use amounts and relying on the number of well permits on file with ADWR would result in a frivolous overestimate of domestic use. ADWR believes that the best conservative estimate of domestic use in the Verde River watershed should be based on Census data as demonstrated in the Technical Report. While the "Telescoping" analysis may be appropriate when evaluating uses sourced only by surface water, the majority of self-supplied domestic uses come from wells; therefore, it would not make hydrologic sense to use the "Telescoping" analysis for the purpose of determining whether domestic uses have a *de minimis* impact throughout the Verde River watershed. Furthermore, ADWR believes that including an additional gage (Camp Verde) in the *de minimis* analysis would not provide any additional or useful information as the Paulden and Tangle Creek gages have already conservatively accounted for available water in the entire Verde River watershed. Although ADWR opposes SRP's recommended methodology for all the reasons stated above, either methodology could be incorporated into ADWR's technical report in June.

DATED this 4th day of April, 2022.

ARIZONA DEPARTMENT OF WATER RESOURCES

Kimberly R. Parks, Deputy Counsel

ORIGINAL of the foregoing and attachment hand-delivered on April 4, 2022, to:

Clerk of the Maricopa Superior Court
Attn: Water Case
601 W. Jackson Street
Phoenix,

COPY of the foregoing and attachment hand-delivered on April 4, 2022, to:

Special Master Susan Ward Harris
Maricopa County Central Court Building
Central Court Building
201 West Jefferson Street, Suite 3A
Phoenix, AZ 85003-2205

COPIES of the foregoing and attachment sent by first-class mail on April 4, 2022 to all parties on the court-approved mailing list for Contested Case No. W1-106.

ATTACHMENT A

Figure 1 – Self Supplied Domestic Per Capita Use (gal/day)