

USPP Technical Committee Addendum to the

Unmetered Residential and Non-Residential Well Use in the Sierra Vista Subwatershed, Arizona (Plateau Resources, LLC, October, 2013)

Upon review and discussion of the finalized “Unmetered Residential and Non-Residential Well Use in the Sierra Vista Subwatershed, Arizona” (Unmetered Well Report) at the January and March , 2014 meetings of the Technical Committee of the Upper San Pedro Partnership, members agreed that the following points will clarify report methodology questions:

- 1) The first paragraph of the introduction on page 1 lists several communities included in the study area as examples. However, all communities located within the Sierra Vista Subwatershed boundaries are in fact included in the study area.
- 2) Regarding the use of the same percentage of outdoor water use for residential service areas and domestic well users described in footnote 4, page 9, the residential outdoor water demand in the water service area and domestic well user outdoor demand are comparable because the irrigated areas and types of plant material of the two sectors < 0.3 acres in size appear to be similar per visual inspection by the report’s author.
- 3) Some Technical Committee members still question the methodology used to determine percent outdoor water use, in part stemming from the report’s assumption that the lowest water use month reflects no outdoor watering. While this assumption has been used elsewhere, including in Tucson, additional analysis may need to be considered to know whether this is or is not the case for the water provider data in the report. However, it is acknowledged that the author presents his chosen methodology, using the mean value of 27% (from a range of 22% to 32%), in Table 4 in a well-reasoned way. If a better methodology comes along to estimate percent outdoor water use, it would be straight forward to update the resulting rural water use figures presented in this report.

- 4) Another potential exterior water use among those listed in footnote 4 for which no estimation is made in this report is the amount used by hobby ranches (ranchettes) for horses, goats, etc.
- 5) In determining the estimated rate of indoor residential water use through the relationship between home age and fixture efficiency, there is no distinction between homes that have been retrofitted to improve water efficiency. Page 9, paragraph 2.
- 6) In Table 9 estimation of non-residential water use, the square footage of those buildings cited was gleaned from the averages or ranges presented in the source material for each building. Square footage is one indicator of water use; however, water use can also vary based on the building's construction type, uses and occupancy.
- 7) Determinations of whether businesses were operational or not were made by the author performing observations of the properties- driving by and seeing "for sale" signs or shuttered windows indicated closures, placing phone calls to test whether phone lines were active, and performing web searches to reveal in/active websites. These observations were performed in July and August 2013 for the portion of the study area in Cochise County and September 2013 for the Elgin area.
- 8) The report does not offer a comprehensive assessment of groundwater use by cattle across the Subwatershed, in particular on public lands, and only surveys the Babocomari Ranch. On November 20, 2013, the Hereford NRCD calculated an estimate of annual Subwatershed groundwater use by cattle of about 57 acre-feet. This is based on an estimated count of 3,200 animal units in the Subwatershed using groundwater 80% of the time (the other 20% of water use is apparently from

impoundments of surface water runoff) at an NRCD-estimated rate of 20 gallons per day. NRCD believes that animal unit numbers in the Subwatershed have been stable since 2008.

- 9) Note that the report uses the surface water basin boundary of the Subwatershed while the Upper San Pedro Partnership has used the slightly smaller groundwater basin boundary for the 321 Report. While the Elgin area is the only area in the Subwatershed where the two boundaries diverge appreciably, the difference could account for a difference of over 400 acre-feet of mainly irrigation pumping.

- 10) "Estimated Water Demand and Conservation Potential of Domestic Wells in the Sierra Vista Subwatershed, Arizona" presents specific recommendations for realizing additional water savings or efficiency measures suitable for unmetered well users. This report was prepared for Western Resource Advocates by Plateau Resources, LLC in 2012.