

Lake Powell Pipeline Project
FERC Additional Information Request Schedule B – Item 17

Water Resources

17. Figure 5-1 of your Water Needs Assessment shows Washington County Water Conservancy District’s culinary water use for the years 2000 through 2010. So that we can understand how the total per capita water use (culinary and secondary) varies over these 11 years, please provide the total per capita water use broken down for each year into water use components shown in Figure 3-1.

UBWR Response:

Figure 3-1 of the Water Needs Assessment shows both culinary and secondary water use separated into use type in the Washington County Water Conservancy District (WCWCD) service area. Figure 5-1 of the Water Needs Assessment shows culinary water use estimates of the six largest cities in Washington County. The water use data shown in Figure 3-1 was not collected each year from 2000 to 2010 for the six cities shown in Figure 5-1; however, the requested information has been interpolated from available data and provided in Table 2-1.

Table 2-1 provides the total per capita water use (culinary and secondary) for each year from 2000 through 2010 separated into water use components, including residential indoor and outdoor uses, and commercial/institutional/industrial (CII) use. The values shown in Table 2-1 were calculated and estimated using interpolation from data collected by the six cities served by WCWCD and published in three reports by Utah Division of Water Resources (UDWRe). The six cities served with culinary water by WCWCD include Hurricane, Ivins, La Verkin, Santa Clara, St. George, and Washington. References for the three UDWRe reports (UDWRe 2006, UDWRe 2009 and UDWRe 2013) are provided below.

The culinary and secondary water use data compiled for calendar year 2005 by UDWRe (2009) were complete by component, as indicated on Table 2-1. The total culinary per capita water use value of 254.1 gallons per capita per day (gpcd) for calendar year 2005 (Table 2-1) is 5.3 gpcd higher than the culinary per capita use value of 248.8 gpcd shown for 2005 in Figure 5-1 of the Final Water Needs Assessment Study Report.

The culinary water use data compiled for calendar years 2002 (UDWRe 2006) and 2010 (UDWRe 2013) were complete by the components indicated on Table 2-1. The secondary water use by component (residential and CII) were estimated from the 2005 ratios of secondary water use components to total secondary water use and then multiplying those ratios by the total secondary water use compiled for the six cities in calendar years 2002 and 2010. The total culinary per capita water use value of 281.1 gallons per capita per day (gpcd) for calendar year 2002 (Table 2-1) is 1.6 gpcd higher than the culinary per capita use value of 279.5 gpcd shown for 2002 in Figure 5-1 of the Final Water Needs Assessment Study Report.

The culinary and secondary water use by component for calendar years 2000, 2001, 2003, 2004, 2006, 2007, 2008 and 2009 were estimated using a ratio of the closest year actual water use

component to the total culinary water use in the same year, then multiplying those ratios by the total culinary per capita water use for the desired year.

References

Utah Division of Water Resources (UDWRe). 2006. *Municipal and industrial water supply and uses in the Kanab Creek/Virgin River Basin (Data collected for calendar year 2002)*. July. Revised January 2009.

_____. 2009. *Municipal and industrial water supply and uses in the Kanab Creek/Virgin River Basin (Data collected for calendar year 2005)*. January.

_____. 2013. *Municipal and industrial water supply and uses in the Kanab Creek/Virgin River Basin (Data collected for calendar year 2010)*. November.

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**Table 2-1
Culinary and Secondary Per Capita Water Use by Component for WCWCD (6 Cities)**

Water Use Component	WCWCD (Six Cities) Gallons Per Capita Per Day Water Use by Year (2000 through 2010)										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Culinary Residential Indoor Use	84.4	80.2	72.7	75.6	71.0	71.8	75.7	79.3	68.3	64.9	72.8
Culinary Residential Outdoor Use	115.8	110.1	99.8	103.8	95.4	96.5	101.7	106.5	100.6	95.6	107.2
Secondary Residential Outdoor Use	19.5	18.5	16.8	17.5	12.8	12.9	13.6	14.2	12.6	12.2	13.7
Culinary CII Use	126.0	119.8	108.6	112.9	84.9	85.8	90.5	94.7	91.0	86.5	97.0
Secondary CII Use	62.7	59.6	54.0	56.2	41.0	41.5	43.8	45.8	41.5	39.4	44.2
Total Culinary Per Capita Water Use	326.2	310.2	281.1	292.3	251.3	254.1	267.9	280.5	259.9	247.1	277.0
Total Per Capita Water Use	408.4	388.2	351.9	366.0	305.1	308.6	325.3	340.5	314.0	298.6	334.9

Notes:

	Indicates value calculated using actual year water use component
	Indicates value estimated using ratio of actual year secondary water use component to total secondary water use in same year
	Indicates value estimated using ratio of closest actual year water use component to total culinary water use in same year