

<u>Clearwater Geosciences, LLP</u> Ground Water Development and Exploration

IDWR 900 N Skyline Dr STE A Idaho Falls ID 83402-1718

June 29, 2020

RE: Narrative Describing Peak Instantaneous Flow Rate for Hukilau LLC in Lava Hot Springs, Bannock County Idaho

Dear IDWR,

In April 2020, Hukilau LLC applied for a water right permit of 0.25 cubic feet per second (cfs). In the narrative that accompanied the water right permit application, we mentioned that "due to the hydrogeology of the area, it is unlikely that a well can produce more than 0.25 cfs. A small reservoir tank may be installed to meet peak demand, however, as this is a recreational facility, it is not expected to have a typical "rush hour demand." Additionally, the calculations used in this memo were made assuming that the campground was at full capacity." After reviewing the application package, IDWR asked for the calculations showing the instantaneous flow rate for the expected peak demand and clarify why a small reservoir tank may be needed.

Due to the nature and use of campgrounds, water demands are typically calculated using gallons per day rather than gallons per minute (gpm) or cfs. Table 1 shows how we estimated the peak instantaneous flow rate when the campground is at full capacity.

	Basis for Calculations	Units	GPM	cfs
RV Sites	Number of RV sites with water and sewer connection	62	1	-
	Average flow rate for RV showers		2	
	Peak Instantaneous Water Demand		124	0.28
Freeze Proof Spigot	Average flow rate for outdoor spigot	12	3	-
	Number of spigots	₩0	1	-
	Peak Instantaneous Water Demand	-	12	0.03
Restrooms	Number of toilets	4	5	-
	Average water demand for toilets		1	( <b>-</b> 2)
	Number of faucets	4	-	-
	Average water demand for faucets		4	
	Peak Instantaneous Water Demand	-	20	0.04
Outdoor showers	Number of showers	4		-
	Average water demand for showers	-	2	-
	Peak Instantaneous Water Demand	_	8	0.02-
Grand Total of Maximum Instantaneous		-	164	0.37

<b>Fable 1: Calculations fo</b>	peak instantaneous flow when campground is at full cap	pacity:
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As Table 1 shows, the estimated peak flow rate is approximately 164 gpm or 0.37 cfs. Due to the hydrogeology of the area, it is unlikely that a well will able to supply 0.37 cfs. It is much more likely that a new well in the area will comfortably produce 0.25 cfs. In order to help support the campground, we



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recommend including a small reservoir tank in the campground's infrastructure to help supplement the few instances where 0.25 cfs does not meet the campground's water needs.

Please call for any questions.

Sincerely,

thankilo

Tom Wood



References

https://idwr.idaho.gov/water-rights/water-use-information.html

https://adminrules.idaho.gov/rules/2006/58/0103.pdf

Snodgrass, K., 2007, Water Use in Forest Service Recreation Areas: Guidelines for Water System Designers, United States Forest Service, Technology and Development Program, September 2007, 7300 0773-2326-MTDIC