

## Cefalo, James

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**From:** Rob Harris <rharris@holdenlegal.com>  
**Sent:** Monday, July 27, 2020 8:39 AM  
**To:** Cefalo, James  
**Subject:** Fwd: Moose Creek Ranch - Water Demand Calculations (Y2 #19101)  
**Attachments:** 19101\_200723\_Moose-Creek-Water-Demand.pdf

James:

See below email and attached document for the Moose Creek Ranch commercial water right application.

Rob Harris

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**From:** Katie Creasey <katie@y2consultants.com>  
**Sent:** Friday, July 24, 2020 5:02 PM  
**To:** Rob Harris  
**Cc:** tom@cabinandcompany.com; Zia Yasrobi  
**Subject:** Moose Creek Ranch - Water Demand Calculations (Y2 #19101)

Hi Rob,

The method I used to estimate the ranch's current and proposed usage is called the "Water Supply Fixture Unit" (WSFU) method defined by the Uniform Plumbing Code. This method assigns a water use capacity to each fixture. Based on the number of fixtures and the total value of all the fixtures combined, the method estimates a peak hourly demand. From this peak hourly demand, a factor is used convert from peak hourly demand to average day demand and maximum day demand. The calculations are based on fixture capacity, not on occupancy. It is not an exact science, but it is a common estimating method. I've attached a 4-page PDF that shows the fixtures (pages 1 and 3) and WSFU results (pages 2 and 4) for the existing conditions and proposed conditions, respectively.

Here are the estimates for the existing ranch's water demand:

Peak Hour Demand: 72 gallons per minute.

Maximum Daily Demand: 18,000 gallons per day.

Average Daily Demand: 12,000 gallons per day.

Here are the estimates for the proposed water demand (inclusive of existing and proposed):

Peak Hour Demand: 125 gallons per minute.

Maximum Daily Demand: 30,000 gallons per day.

Average Daily Demand: 20,000 gallons per day.

Please let me know if you need any other information.

Best,



**Katie Creasey**  
**Civil Department Co-Manager**  
*PE*

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MOOSE CREEK RANCH, TETON COUNTY IDAHO

EXISTING (April 8, 2020)														
GUEST LODGING UNIT	Bathtub or Bath/Shower	Shower (per head), Private	Shower (per head), public	Lavatory (Private)	Lavatory (Public)	Water Closet (flush tank), private	Water Closet (flush tank), public	Water Closet (flushometer tank)	Clothes Washer (res.)	Dishwasher (Comm.)	Sink-Kitchen (private)	Sink-Kitchen (Public)	Ice Machine	Hose Bib
<b>Winterized Cabins</b>														
Aspen 1 (2 br)		1		1		1					1			
Aspen 2 (2 br)		1		1		1					1			
Pine 1 (2 br)		1		1		1					1			
Pine 2 (2 br)		1		1		1					1			
Willow 1 (2 br)		1		1		1					1			
Willow 2 (2 br)		1		1		1					1			
Rendezvous Ski Cabin 1 (1 br)		1		1		1					1			
Rendezvous Ski Cabin 2 (1 br) ADA		1		1		1					0			
Sage Meadow 1 (2 br)		1		1		1					0			
Sage Meadow 2 (2 br)		1		1		1					1			
Moose Creek Ranch House (5 br, 2-person capacity)	1	2		3		3					1			
<b>Lodge</b>														
Restroom (sink + toilet ) M, W					2		2							
Commercial Kitchen (5 gal water/meal served)**										1		1		
Community Kitchen										1		1		
Lodge Room 1 (1 br)		1		1		1								
Lodge Room 2 (1 br)		1		1		1								
<b>RV Sites</b>														
RV Site 1 - 4 (capacity = 3.5) (full hookups)*		4		4		4					4			
RV Site 5 - 7 (water, power only)*		3		3		3					3			
<b>Machine Shop</b>														
Bathhouse 1 (2 sink + 2 toilet + 2 shower)			2	2		2								
Bathhouse 2 (2 sink + 2 toilet + 2 shower)			2	2		2								
Laundry (4 coin-up washing machines, dryers)***									4					
<b>Glamping Platform Tents</b>														
Glamping Tent 1 - 5 (1 br ea) (to be replaced w/ Platform Tents)														
Hose Bib/Spigot														6
<b>TOTALS</b>	<b>1</b>	<b>21</b>	<b>4</b>	<b>26</b>	<b>2</b>	<b>26</b>	<b>2</b>	<b>0</b>	<b>4</b>	<b>2</b>	<b>16</b>	<b>2</b>	<b>0</b>	<b>6</b>

  

EXISTING (April 8, 2020)														
ESTABLISHMENT	Bathtub or Bath/Shower	Shower (per head)	Shower (per head)	Lavatory	Lavatory	Water Closet (flush tank)	Water Closet (flush tank)	Water Closet (flushometer tank)	Clothes Washer (Res.)	Dishwasher (Comm.)	Sink-Kitchen	Sink-Kitchen	Ice Machine	Hose Bibb
	Private	Private	Public	Private	Public	Private	Public	Public	Public	Public	Private	Public	Public	Public
Existing Guest Lodging Units	1	21	4	26	2	26	2	0	4	2	16	2	0	6
Proposed Guest Lodging Units (Add't to Existing)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>PROJECT TOTALS</b>	<b>1</b>	<b>21</b>	<b>4</b>	<b>26</b>	<b>2</b>	<b>26</b>	<b>2</b>	<b>0</b>	<b>4</b>	<b>2</b>	<b>16</b>	<b>2</b>	<b>0</b>	<b>6</b>

**EXISTING** (April 8, 2020)

Appurtenance	Private or Public	Quantity	WSFU	Total WSFU	
Bathtub or Bath/Shower	Private	1	1.4	233.0	
Shower (per head)	Private	21	29.4	71.6	
Shower (per head)	Public	4	16.0		
Lavatory	Private	26	26.0		
Lavatory	Public	2	4.0		
Water Closet (flush tank)	Private	26	57.2		
Water Closet (flush tank)	Public	2	10.0		
Water Closet (flushometer tank)	Public	0	0.0		
Clothes Washer (Res.)	Public	4	12.0		
Dishwasher (Comm.)	Public	2	30.0		
Sink-Kitchen	Private	16	24.0		
Sink-Kitchen	Public	2	8.0		
Ice Machine	Public	0	0.0		
Hose Bibb	Public	6	15.0		

	Peaking Factor
Average Daily Demand (ADD) to Peak Hour Demand (PHD)	9
Average Daily Demand (ADD) to Maximum Daily Demand (MDD)	1.5

	Method	GPM	GPD
PHD	WSFU/GEPD	72	
MDD	WSFU/GEPD	12	17184
ADD	WSFU/GEPD	8	11456

MOOSE CREEK RANCH, TETON COUNTY IDAHO

EXISTING REMODELED (April 8, 2020)														
GUEST LODGING UNIT	Bathtub or Bath/Shower	Shower (per head), Private	Shower (per head), public	Lavatory (Private)	Lavatory (Public)	Water Closet (flush tank), private	Water Closet (flush tank), public	Water Closet (Flushometer tank)	Clothes Washer (res.)	Dishwasher (Comm.)	Sink-Kitchen (private)	Sink-Kitchen (Public)	Ice Machine	Hose Bib
Winterized Cabins														
Aspen 1 (2 br)		1		1		1								
Aspen 2 (2 br)		1		1		1								
Pine 1 (2 br)		1		1		1								
Pine 2 (2 br)		1		1		1								
Willow 1 (2 br)		1		1		1								
Willow 2 (2 br)		1		1		1								
Rendezvous Ski Cabin 1 (1 br)		1		1		1								
Rendezvous Ski Cabin 2 (1 br) ADA		1		1		1								
Sage Meadow 1 (2 br)		1		1		1								
Sage Meadow 2 (2 br)		1		1		1								
Moose Creek Ranch House (5 br, 2-person capacity)	1	2		3		3					1			
Lodge														
Restroom (sink + toilet) M, W						2		2						
Commercial Kitchen (5 gal water/meal served)**										1		1	1	
Community Kitchen										1		1		
Lodge Room 1 (2 br)		1		1		1								
Lodge Room 2 (1 br)		1		1		1								
RV Sites														
RV Site 1 - 4 (capacity = 3.5) (full hookups)*		4		4		4					4			
RV Site 5 - 7 (water, power only)*		3		3		3					3			
Machine Shop														
Bathroom 1 (2 sink + 2 toilet + 2 shower)			2	2		2								
Bathroom 2 (2 sink + 2 toilet + 2 shower)			2	2		2								
Laundry (4 coin up washing machines, dryers)***									4					
Glamping Platform Tents														
Glamping Tent 1 - 5 (1 br ea) (to be replaced w/ Platform Tents)														
Hose Bib/Spigot														
TOTALS	1	21	4	26	2	26	2	0	4	2	16	2	0	6

PROPOSED (April 8, 2020)														
GUEST LODGING UNIT	Bathtub or Bath/Shower	Shower (per head), Private	Shower (per head), public	Lavatory (Private)	Lavatory (Public)	Water Closet (flush tank), private	Water Closet (flush tank), public	Water Closet (flushometer tank)	Clothes Washer (res.)	Dishwasher (Comm.)	Sink-Kitchen (private)	Sink-Kitchen (Public)	Ice Machine	Hose Bib
Proposed Winterized Cabins														
DUO Cabin 1 - 27 (1 br each, 2-person capacity)		27		27				27						
Glamping Platform Tents														
Glamping Tent 1 -15 (1 br ea, 3-person capacity)		15		15				15						
RV Sites														
RV Site 5 - 7 (capacity = 3.5 ea) (full hookups)		3		3		3								
Conestoga Wagons														
Wagons 1 - 10 (capacity = 3.5 each)														
Bathroom (2 sink + 2 toilet + 2 shower)														
Bathroom 3 (2 sink + 2 toilet + 2 shower)			2		2			2						
Bathroom 4 (2 sink + 2 toilet + 2 shower)			2		2			2						
Bathroom 5 (2 sink + 2 toilet + 2 shower)			2		2			2						
Bathroom 6 (2 sink + 2 toilet + 2 shower)			2		2			2						
Bar														
TOTALS	0	45	8	45	8	3	0	50	0	0	0	1	1	0

EXISTING REMODELED + PROPOSED (April 8, 2020)														
ESTABLISHMENT	Bathtub or Bath/Shower	Shower (per head)	Shower (per head)	Lavatory	Lavatory	Water Closet (flush tank)	Water Closet (flush tank)	Water Closet (flushometer tank)	Clothes Washer (Res.)	Dishwasher (Comm.)	Sink-Kitchen	Sink Kitchen	Ice Machine	Hose Bibb
	Private	Private	Public	Private	Public	Private	Public	Public	Public	Public	Private	Public	Public	Public
Existing Guest Lodging Units	1	21	4	26	2	26	2	0	4	2	16	2	0	6
Proposed Guest Lodging Units (Add't to Existing)	0	45	8	45	8	3	0	50	0	0	0	1	1	0
PROJECT TOTALS	1	66	12	71	10	29	2	50	4	2	16	3	1	6

**EXISTING REMODELED + PROPOSED** (April 8, 2020)

Appurtenance	Private or Public	Quantity	WSFU	Total WSFU	
Bathtub or Bath/Shower	Private	1	1.4		507.6
Shower (per head)	Private	66	92.4		
Shower (per head)	Public	12	48.0		
Lavatory	Private	71	71.0		
Lavatory	Public	10	20.0		
Water Closet (flush tank)	Private	29	63.8		
Water Closet (flush tank)	Public	2	10.0		
Water Closet (flushometer tank)	Public	50	100.0		
Clothes Washer (Res.)	Public	4	12.0		
Dishwasher (Comm.)	Public	2	30.0		
Sink-Kitchen	Private	16	24.0		
Sink-Kitchen	Public	3	12.0		
Ice Machine	Public	1	8.0		
Hose Bibb	Public	6	15.0		
				GPM	125.4

	Peaking Factor
Average Daily Demand (ADD) to Peak Hour Demand (PHD)	9
Average Daily Demand (ADD) to Maximum Daily Demand (MDD)	1.5

	Method	GPM	GPD
PHD	WSFU/GEPD	125	
MDD	WSFU/GEPD	21	30096
ADD	WSFU/GEPD	14	20064