

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 37-23003
Exam Date: 07/16/2019

1. Current Owner:
ERIC GUSTAVSON 701 WESTERN AVE GLENDALE CA 91201-2349 AND/OR
TAMARA GUSTAVSON 701 WESTERN AVE GLENDALE CA 91201-2349
2. Accompanied by: Robert Burns
Phone No: (208) 720-0219
Address: 120 2nd Ave STE 208
Relationship to permit Holder: Representative and Property Manager

3. **SOURCE:**
GROUND WATER

Method of Determination: On-site inspection

B. OVERLAP REVIEW

1. Other water rights with the same place of use: NO Overlap

Water Right No.	Source	Purpose of Use	Basis
None			

Comments: No other water rights. Domestic use diverted from separate well

2. Other water rights with the same point-of-diversion: NO Overlap

Water Right No.	Source	Purpose of Use	Basis
None			

Comments: None

C. DIVERSION AND DELIVERY SYSTEM

1. **LOCATION OF POINT(S) OF DIVERSION:**
GROUND WATER NE¼ SE¼, Sec. 23, Twp 05N, Rge 17E, B.M. BLAINE County

Method of Determination: On-site inspection and GPS

PLACE OF USE: HEATING

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
05N	17E	23													X				

PLACE OF USE: COOLING

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
05N	17E	23													X				

Method of Determination: Satellite imagery and on-site inspection

3.

☒ Delivery System Diagram Attached (required). Indicate all major components and distances between components. Indicate weir size/pipe as applicable.

☒ Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.

☒ Aerial Photo Attached (required for irrigation of 10+ acres).

☒ Photo of Diversion and System Attached

4.

Well or Diversion ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
D0070750		2			

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
None						

2. Measurements: No measurement required per IDAPA 37.03.02 Beneficial Use Examination Rules as the permitted flow rate of 0.20 cfs falls below the 0.24 cfs or greater flow rate amount requiring measurement.

E. FLOW CALCULATIONS

Additional Computation Sheets Attached

Measured Method: N/A

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation: N/A

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) =$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 =$$

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} =$$

2. Volume Calculations for Other Uses: Heating and cooling

(0.2 cfs) 217avg days $\leq$ freezing in Ketchum* (0.50 avg system operation time ^) 1.9835 acre feet per day = 43.0 AF

(0.2 cfs) 148avg days > freezing in Ketchum* (0.30 avg system operation time^) 1.9835 acre feet per day = 17.6 AF

$$43.0 \text{ AF} + 17.6 \text{ AF} = \mathbf{60.6 \text{ AF}}$$

* Based on graph of weather averages for Ketchum (<https://usclimatedata.com/ketchum/idaho/united-stses/usid0280>)

^ Based on information provided by Representative/Property Manager

G. NARRATIVE/REMARKS/COMMENTS

On 7/16/2019 Kent Aasa and I met with Robert Burns at the Gustavson residence. Mr. Burns was involved with the construction and design of this property and acts as the Property Manager and Caretaker for the Gustavson residence. He indicated that in the past, the home was typically only occupied approximately a month per year, but now two of the family members are in the process of moving to Sun Valley from Tennessee and will be residing at the residence year round.

The system was designed to pump water from the well into a heat exchanger and the out to the injection well. At the heat exchanger, the water's heat and cooling potential is used to heat or cool water in a separate closed loop system that is circulated through a total of 8 heat pumps. The application for permit mentioned a backup boiler system, and there are 4 boilers that are used to maintain the driveway and the roof in the wintertime (snowmelt). The boiler system is also a closed loop system that contains ethylene glycol and no water is utilized in the boiler system.

The 12,481 square foot home has three levels and contains 5 bedrooms, 2 kitchens and 6.5 bathrooms. There is also a 1656 square foot attached garage. Mr. Burns indicated that when temperatures are below freezing the system is in operation and pumping water approximately 50% of the time. During the warmer months when temperatures are above freezing, he indicated the system operates and actively pumps water approximately 30% of the time.

Utilizing climate data for Ketchum ID, I estimated the average number of days above and below freezing based on the Ketchum Climate Graph (Attachment #1). Using that data, I calculated the volume based on the pump running 50% of the time using estimates of days at or below freezing and running 30% of the time for estimated number of days above freezing (See Section F(2.) Volume Calculations for Other Uses above).

Have conditions of permit approval been met? ☒ Yes ☐ No

H. RECOMMENDATIONS**1. Recommended Amounts**

<u>Beneficial Use</u>	<u>Period of Use</u>	<u>Rate of Diversion</u>	<u>Annual Volume</u>
HEATING	01/01 to 12/31	0.20 CFS	60.6 AF
COOLING	01/01 to 12/31	0.20 CFS	60.6 AF

Totals: 0.20 CFS 60.6 AF

2. Recommended Amendments

☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None

☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☒ None

I. AUTHENTICATION

William Mills - Water Resource Agent, Senior

Field Examiner's Name

William Mills

Date

7-18-2019

Reviewer

Date



Figure 1: Place of Use



Figure 2: Well Head (South Side of Home)



Figure 3: Tag on Well Head



Figure 4: Heat Exchanger



Figure 5: Heat Exchanger Tag



Figure 6: Five of the Eight Heat Pumps

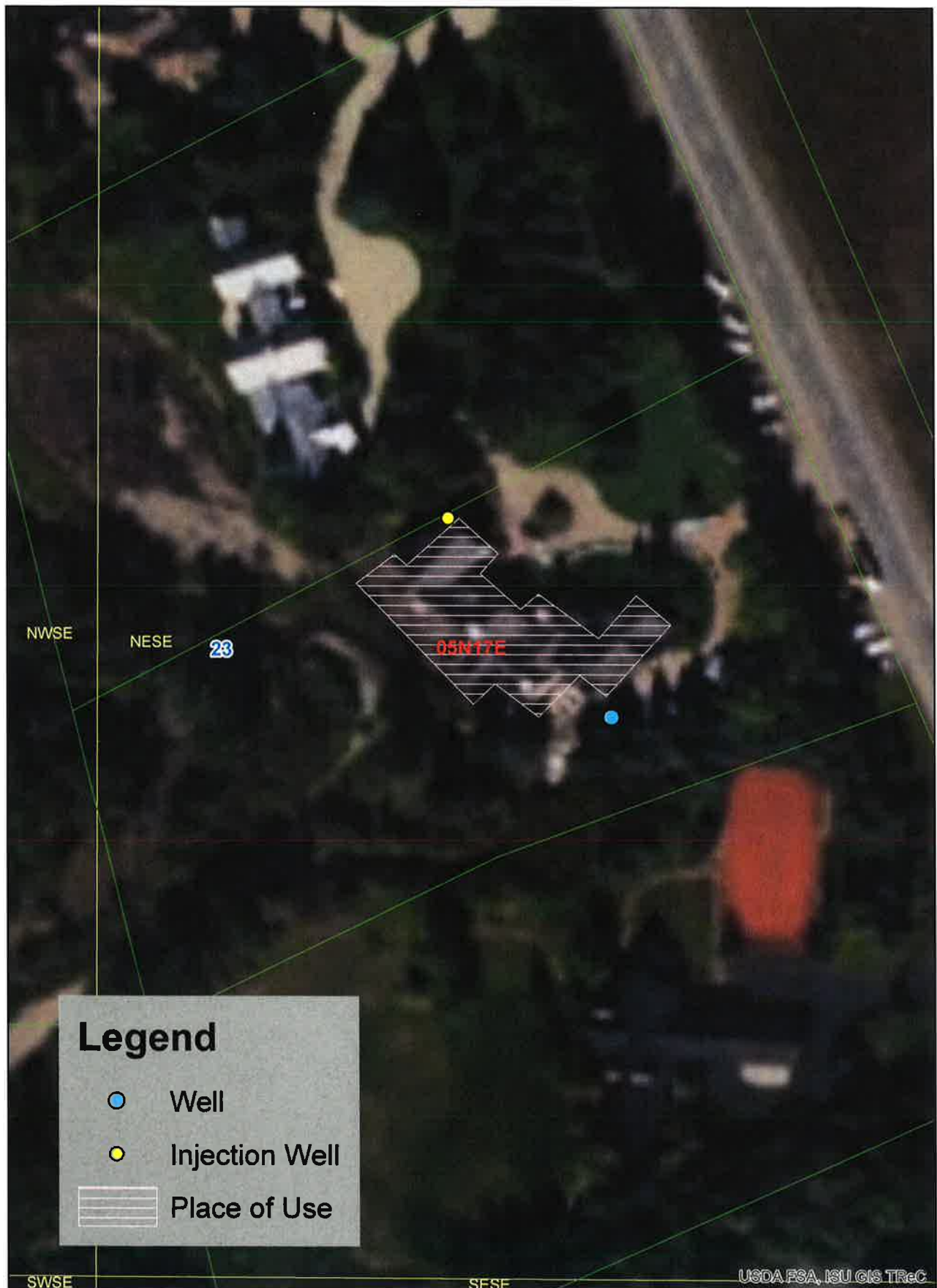


Figure 7: Injection Well (North Side of Home)



Figure 8: Tag on Injection Well

System Diagram



Monthly

Daily

History

Geo & Map

Weather Forecast

You are here: United States > Idaho > Ketchum

Climate Ketchum - Idaho

°C | °F

	Jan	Feb	Mar	Apr	May	Jun
Average high in °F:	31	36	44	53	62	71
Average low in °F:	8	10	19	27	34	40
Av. precipitation in inch:	2.09	1.73	1.69	1.26	1.77	1.5
Days with precipitation:	-	-	-	-	-	-
Hours of sunshine:	-	-	-	-	-	-
Average snowfall in inch:	26	20	12	4	0	0
	Jul	Aug	Sep	Oct	Nov	Dec
Average high in °F:	81	80	70	57	42	31
Average low in °F:	45	43	35	28	17	8
Av. precipitation in inch:	0.63	0.67	0.91	1.38	1.73	2.6
Days with precipitation:	-	-	-	-	-	-
Hours of sunshine:	-	-	-	-	-	-
Average snowfall in inch:	0	0	0	2	17	32

Ketchum weather averages

Annual high temperature:	54.8°F
Annual low temperature:	26.2°F
Average temperature:	40.5°F
Average annual precipitation - rainfall:	17.96 inch
Days per year with precipitation - rainfall:	-
Annual hours of sunshine:	-
Av. annual snowfall:	113 inch

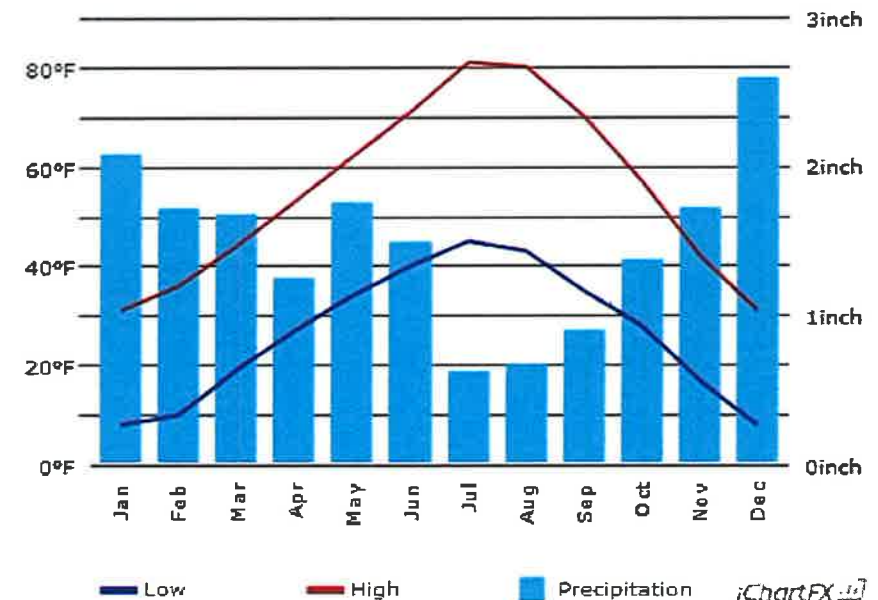


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Ketchum Climate Graph - Idaho Climate Chart



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Please call the Assessor's Office at 208-788-5535 for any information not available here.

Characteristic Information for Parcel Number:RP004650000010

Residential Characteristic Records:1

Manufactured Characteristic Records:0

Parcel Number	RP004650000010
Owner	GUSTAVSON ERIC P GUSTAVSON TAMARA H
Address	13316 STATE HIGHWAY 75
Legal Description	POTTERS SUB LOT 1
Mailing Address	BOX 25050 GLENDALE CA 91221-5050
Residential Record	1
Fireplace	4
Heat Method	Yes
Air Conditioning	Yes
Bathrooms	6.50
Kitchens	2
Bedrooms	5
Car Storage 1 sq. ft.	1656
Car Storage 1 type	Attached
Car Storage 2 sq. ft.	0
Car Storage 2 type	None
General Purpose sq. ft.	0
Year Built	2016
Last Year Remodeled	0
Ground Floor sq. ft.	7221
Upper Floor sq. ft.	4168
Lower Floor sq. ft. Unfinished	0
Lower Floor sq. ft. Finished	0
Basement Floor sq. ft. Unfinished	1092
Basement Floor sq. ft. Finished	0
Attic sq. ft. Unfinished	0
Attic sq. ft. Finished	0