

STATE OF IDAHO  
DEPARTMENT OF WATER RESOURCES  
IN-OFFICE REVIEW/BENEFICIAL USE FIELD REPORT

**A. GENERAL INFORMATION**Permit No: 65-24011

Exam Date: 02/25/2022

1. Does this qualify for an in-office field exam (IDAPA 035.02.r)? X Y \_\_\_ N
- Irrigation of 5 acres or less
  - Storage of up to 14.6 AF for stockwater purposes only
  - C Any use other than irrigation or storage, if the combined diversion rate is 0.24 cfs or less
  - Other

2. Current Owner: Name: Ryan & Kristi Thomasson
- Owner of Record Correct? X Y \_\_\_ N
- Address of Record Correct? X Y \_\_\_ N
- If No: Address

3. Fees have been paid: X Y \_\_\_ N Receipt No: W050409

**4. SOURCE****TRIBUTARY**

Ground Water

N/A

Method of Determination: Images submitted of well head and IDWR Well and Ground Water Management map

Change in Source:

\_\_\_ Y X N**B. OVERLAP REVIEW**

1. Other water rights with the same place of use: X NONE

| Water Right No. | Source | Purpose of Use | Basis |
|-----------------|--------|----------------|-------|
|                 |        |                |       |
|                 |        |                |       |

Comments:

2. Other water rights with the same point of diversion: X NONE

| Water Right No. | Source | Purpose of Use | Basis |
|-----------------|--------|----------------|-------|
|                 |        |                |       |
|                 |        |                |       |

Comments:

**C. DIVERSION AND DELIVERY SYSTEM****1. LOCATION OF POINT(S) OF DIVERSION:**

| Source       | Govt. Lot | 1/4 | 1/4 | 1/4 | Sec. | Twp. | Rge. |      | County |
|--------------|-----------|-----|-----|-----|------|------|------|------|--------|
| Ground Water |           |     | NE  | SW  | 31   | 17N  | 04E  | B.M. | Valley |
|              |           |     |     |     |      |      |      | B.M. |        |
|              |           |     |     |     |      |      |      | B.M. |        |

Method of Determination: IDWR Well and Ground Water Management map

Change in POD? \_\_\_ Y X N Amendment Required? \_\_\_ Y X N

2. **PLACE OF USE:** Use: Heating

| TWP           | RGE | Sec   | NE |    |    |    | NW |    |    |    | SW |    |    |    | SE |    |    |    | Totals |
|---------------|-----|-------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------|
|               |     |       | NE | NW | SW | SE | NE | NW | SW | SE | NE | NW | SW | SE | NE | NW | SW | SE |        |
| 17N           | 04E | 31    |    |    |    |    |    |    |    |    |    |    | X  |    |    |    |    |    |        |
|               |     | Lot # |    |    |    |    |    |    |    |    |    |    | 4  |    |    |    |    |    |        |
| Total Acres = |     |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |        |

Method of Determination: ArcMap and photos submitted by permit holder

Change in POU? \_\_\_\_Y ☒N Amendment Required? \_\_\_\_Y ☒N

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

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

☒ Photo of Diversion and System Attached

| 4. Well or Diversion Identification No.* | Motor Make | Hp | Motor Serial No. | Pump Make | Pump Serial No. or Discharge Size |
|------------------------------------------|------------|----|------------------|-----------|-----------------------------------|
| 466221                                   |            |    |                  |           |                                   |

\*Code to correspond with No. on map and aerial photo

**D. FLOW MEASUREMENTS**

| 1.Measurement Equipment | Type | Make | Model No. | Serial No. | Size | Calib. Date |
|-------------------------|------|------|-----------|------------|------|-------------|
|                         |      |      |           |            |      |             |
|                         |      |      |           |            |      |             |

2. Measurements: None taken**E. FLOW CALCULATIONS**

\_\_\_\_Additional Computation Sheets Attached

Measured Method:

Following IDAPA Beneficial use exam rules 35.02.(r). no measurement was taken.

Measurement = N/A cfs

Permit allowed = 0.02 cfs

License recommend for 0.02 cfs.

**F. VOLUME CALCULATIONS**

## 1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = \underline{\hspace{2cm}}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = \underline{\hspace{2cm}}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = \underline{\hspace{2cm}}$$

## 2. Volume Calculations for Other Uses: Please see heating estimator page, total volume = 11.1 AF

**G. PURPOSE OF USE**Irrigation ☐ Y ☒ N # Stock ☐ Domestic # of Homes ☐

Other: Heating

Change in Purpose of Use? ☐ Y ☒ N

Method of Determination: Statement of completion and GIS examination

If Yes: From Use ☐ To Use ☐ Amount ☐ CFS ☐ AFA ☐**H. NARRATIVE/REMARKS/COMMENTS**

Statement of completion was submitted by Ryan and Kristi Thomasson on February 03, 2022. The permit was for heating use for one home. The permit application and statement of completion reference well tag D0087143 as the point of diversion (POD). Examination of the wells spatial data confirmed this well is in the same location as the POD on the permit. Aerial imagery indicates this home was newly built, there is no structure in 2019 imagery, and it is present in the 2021 imagery. The place of use (POU) was determined by outlining the home. This POU is in the same legal description as the permit but was built north of the POU shape on the permit. Beneficial use was verified by photos of the heating system submitted by the water permit holders. This heating system is closed-loop due to the injection well associated with this right. The injection well is verified under permit number 65W037001. Condition 046 was removed from the license. Condition R07 was added to this right as a standard condition used for injection wells.

Have conditions of permit approval been met? ☒ Yes ☐ No**I. RECOMMENDATIONS****1. Recommended Amounts**

| <u>BENEFICIAL USE</u> | <u>PERIOD OF USE</u> | <u>DIVERSION RATE</u> | <u>ANNUAL VOLUME</u> |
|-----------------------|----------------------|-----------------------|----------------------|
| Heating               | 01/01-12/31          | 0.02 CFS              | 11.1 AF              |
| <u>Totals:</u>        |                      | 0.02CFS               | 11.1 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

Other:

**J. AUTHENTICATION - Marcelina M. Williams**

Field Examiner's Name: Marcelina Williams Date 07/27/2022

Reviewer [Signature] Date 7/28/2022



# Heating and Cooling Energy Estimator\*

## Heating Estimator

FloorArea 5377 ft<sup>2</sup>  
 HeatLoss kBTu/h  
 HeatSqFt 30 kBTu/h-ft<sup>2</sup>→  
 HeatReqd 161.3 kBTu/h  
 HeatHours 1500 Hours/year

Read Me

Read Me  
 GPMpTonH 3 Gal/min  
 GPMpTonC 3 Gal/min  
 Heating 3629475 Gal/year  
 Cooling 0 Gal/year  
 Total 3629475 Gal/year  
 485224 Cu.Ft./year  
 11.139 AcreFt/year

9.5 gpm / 2 tons =  
 4.75 gpm/ton

| HeatHours Estimates |        |      |      |
|---------------------|--------|------|------|
| Region              |        | Low  | High |
| South               | House  | 600  | 800  |
|                     | School | 200  | 400  |
|                     | Office | 200  | 700  |
| Mid-USA             | House  | 800  | 1000 |
|                     | School | 300  | 500  |
|                     | Office | 700  | 900  |
| North               | House  | 1000 | 1500 |
|                     | School | 500  | 600  |
|                     | Office | 900  | 1100 |

| HeatSqFt Estimates (kBTu/h per 1000 ft <sup>2</sup> of Floor Area) |        |              |              |             |            |
|--------------------------------------------------------------------|--------|--------------|--------------|-------------|------------|
| Region                                                             |        | Poor Quality | Std. Quality | Hi. Quality | Super Eff. |
| South                                                              | House  | 30           | 20           | 15          | 10         |
|                                                                    | School | 30           | 22           | 15          | 10         |
|                                                                    | Office | 22           | 18           | 14          | 11         |
| Mid-USA                                                            | House  | 40           | 32           | 25          | 16         |
|                                                                    | School | 35           | 27           | 20          | 13         |
|                                                                    | Office | 25           | 22           | 15          | 12         |
| North                                                              | House  | 50           | 40           | 30          | 20         |
|                                                                    | School | 40           | 30           | 25          | 15         |
|                                                                    | Office | 30           | 24           | 18          | 13         |

## Cooling Estimator

HeatGain kBTu/h  
 CoolSqFt 0 kBTu/h-ft<sup>2</sup>→  
 CoolReqd 0.0 kBTu/h  
 CoolHours 0 Hours/year

| CoolHours Estimates |        |      |      |
|---------------------|--------|------|------|
| Region              |        | Low  | High |
| South               | House  | 1100 | 1600 |
|                     | School | 600  | 1000 |
|                     | Office | 1200 | 1800 |
| Mid-USA             | House  | 800  | 1000 |
|                     | School | 400  | 550  |
|                     | Office | 700  | 1100 |
| North               | House  | 200  | 300  |
|                     | School | 200  | 300  |
|                     | Office | 300  | 600  |

| CoolSqFt Estimates (kBTu/h per 1000 ft <sup>2</sup> of Floor Area) |        |              |              |             |            |
|--------------------------------------------------------------------|--------|--------------|--------------|-------------|------------|
| Region                                                             |        | Poor Quality | Std. Quality | Hi. Quality | Super Eff. |
| South                                                              | House  | 32           | 25           | 17          | 10         |
|                                                                    | School | 65           | 53           | 36          | 31         |
|                                                                    | Office | 35           | 28           | 20          | 15         |
| Mid-USA                                                            | House  | 30           | 22           | 15          | 9          |
|                                                                    | School | 60           | 48           | 38          | 28         |
|                                                                    | Office | 30           | 25           | 17          | 14         |
| North                                                              | House  | 28           | 20           | 14          | 8          |
|                                                                    | School | 50           | 42           | 30          | 26         |
|                                                                    | Office | 28           | 22           | 16          | 12         |

\* adapted from HeatCoolWater.xlsx with permission from the spreadsheet author, Dr. Steve Kavanaugh









BOILER  
HEAT

GEO THERMAL  
HEAT

**Z-one Relay**

ZVR106

G. GALETTI

ZONE 5 HEAT EXCHANGER LOOP VALVE  
ZONE 6 GEO THERMAL CONTROL VALVE

WARNING: This device is not to be used in conjunction with any other control system. The use of this device in conjunction with any other control system may result in damage to the device and/or the system. The user is responsible for the proper installation and use of this device. The user should consult the manufacturer's instructions for proper installation and use.







FLOOR COOL  
RETURN

GEOTHERMAL  
RETURN

HEAT  
EXCHANGER



GEO THERMAL WELL SUPPLY

INJECTION WELL RETURN