

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

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SEP 19 2017

DEPARTMENT OF
WATER RESOURCES

A Beneficial Use Field Report is prepared by a water right examiner as the result of an examination to clearly confirm and establish the extent of the beneficial use of water established in connection with a permit during the development period authorized by the permit and any extensions of time previously approved.

A. GENERAL INFORMATIONPermit No. 71-109531. Owner White Cloud Ranch, LLCPhone No. (949) 274-0199Current address 1501 Galaxy Drive, Newport Beach, CA 926602. Examiner's name Erick PowellEXAM DATE 7/20/20173. Accompanied by Ken Verheyen

Email _____

Address 1501 Galaxy Drive, Newport Beach, CA 92660Relationship to permit holder Permit HolderPhone No. (949) 274-01994. Source Groundwater

tributary to _____

B. OVERLAP REVIEW1. Other water rights with the same place of use None

2. Other water rights with the same source and point of diversion _____

C. DIVERSION AND DELIVERY SYSTEM

1. Point(s) of Diversion:

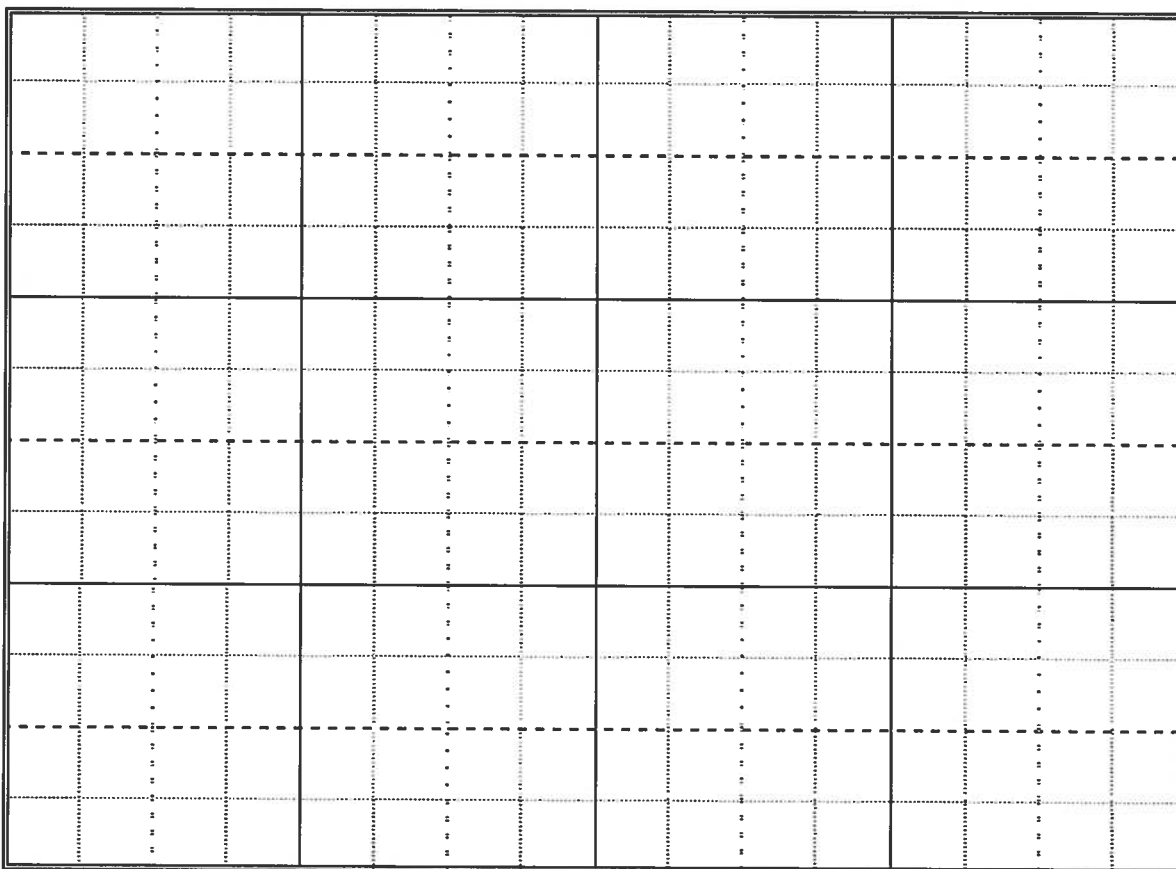
Ident. No.	Gov't Lot	¼	¼	¼	Sec	Twp	Rge	County	Method of Determination/Remarks
		SW	SE	SE	4	8N	14E	Custer	GPS, Aerial Photography, GIS

2. Place(s) of Use:

Method of determination GPS, Aerial Photography, GIS

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
8N	14E	4																D/H	

3. **Delivery System Diagram:** Indicate all major components and distances between components. Indicate weir size/ditch size/pipe diameter (inside), as applicable. Use the space provided or ☐ see attached.



Scale: 1" = _____

- ☒ Copy of USGS Quadrangle attached showing location(s) of point(s) of diversion and place(s) of use (required)
☒ 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
Domestic Well	Pentek	3	P43B0030A2	Pentek	4-inch discharge

*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
5-gallon bucket						
Bard Geothermal Heat Pump	Heat Pum	Bard	GTC60S2	S85d1532214		

2. **Measurements:** _____

Flow through the heat pump was measured by the heat pump at 9.5 gpm.

Domestic flow measured at 21.3 gpm with 5-gallon bucket.

E. NARRATIVE/REMARKS/COMMENTS

Water right permit is for domestic water use (0.04 cfs or 18 gpm) and heating water use (0.03 cfs or 13.5 gpm) for a total of 0.07 cfs or 31.5 gpm. I performed the field exam on July 20, 2017. The well was originally constructed by Bishop Well Drilling on 10/19/2015. It was drilled to a maximum depth of 180 ft BGS and the driller reported a flow rate of 60 gpm with no drawdown. However, that flow was estimated with the driller's equipment, not with the installed pump and motor.

Wood River Drilling installed a 3-phase, 3-hp Pentek sta-rite liquid end motor/pump to supply domestic and heating water to the residence. The motor and pump are controlled by a Goulds 3AS50 controller. This combination is rated to provide 50 gpm, per the manufacture's specifications.

Actual water flow was measured on July 20, 2017 with a combination of flow rate through the heat pump and a calibrated 5-gallon bucket. The geothermal heat pump is a Bard Model no. GTC60S2-ADNX (S/N 385D153221436-1) and measured 9.5 gpm (0.0212 cfs). This this is higher than 0.02, I recommend that the license rate be 0.03 cfs. If the license is only for 0.02 cfs, then every time the system is used at capacity, the applicant would be exceeding their water right. The domestic flow was measured by diverting four outside spigots into a calibrated 5-gallon bucket. The average flow rate from three tests was 21.3 gpm (0.047 cfs). Domestic flow rate will be limited to the permit flow rate of 0.04 cfs. The total recommended water diversion rate is 0.07, which is the permitted amount.

IDWR requires a volume associated with this use. The recommended volume for domestic use is 13,000 gal/day or 14.6 acft/year and for heating use is 12.0 acft/year.

The water right permit contains a condition that the spent geothermal water discharge to a subsurface system must be authorized by a separate injection well permit. This applicant has filed a shallow injection well inventory form to IDWR along with the necessary fee.

Has the permit holder met all conditions of permit approval, including any mitigation requirements and/or measuring device installation requirements? ☒ Yes ☐ No If no, what must be done to meet the permit requirements?

F. FLOW CALCULATIONS☒ Additional computation sheets attached

Measured Method:

Heating: Flow rate measured through the Bard Model no. GTC60S2-ADNX was 9.5 gpm

Domestic: Flow rate measured at 21.3 gpm with 5 gallon bucket.

G. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

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

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation Season}) \times 1.9835 = \underline{\text{NA}}$$

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

2. Volume Calculations for Other Uses:

Domestic use limited to 13,000 gal/day, which equals 14.6 afa.

Heating use estimates for average conditions is for 12.0 afa. Use of heat pump could occur year round, and annual diversion of 9.5 gpm for the entire year is 15.3 afa. It is my recommendation that the license be issued for the maximum diversion volume, not the average conditions, but IDWR differs. See attached sheets.

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use		Rate of Diversion Q (cfs)	Annual Volume V (afa)
	From	To		
Domestic	1/1	12/31	0.04 cfs	14.6 afa
Heating	1/1	12/31	0.03 cfs	12.0 afa
Totals:			0.07 cfs	26.6 afa

2. Recommended Amendments

☐ Change P.D. as reflected on page 1☐ Add P.D. as reflected on page 1☐ None☐ Change P.U. as reflected on page 1☐ Add P.U. as reflected on page 1☐ Other**I. AUTHENTICATION**

Field Examiner's Signature

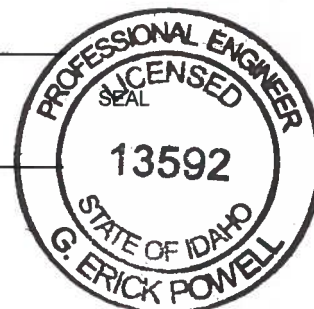


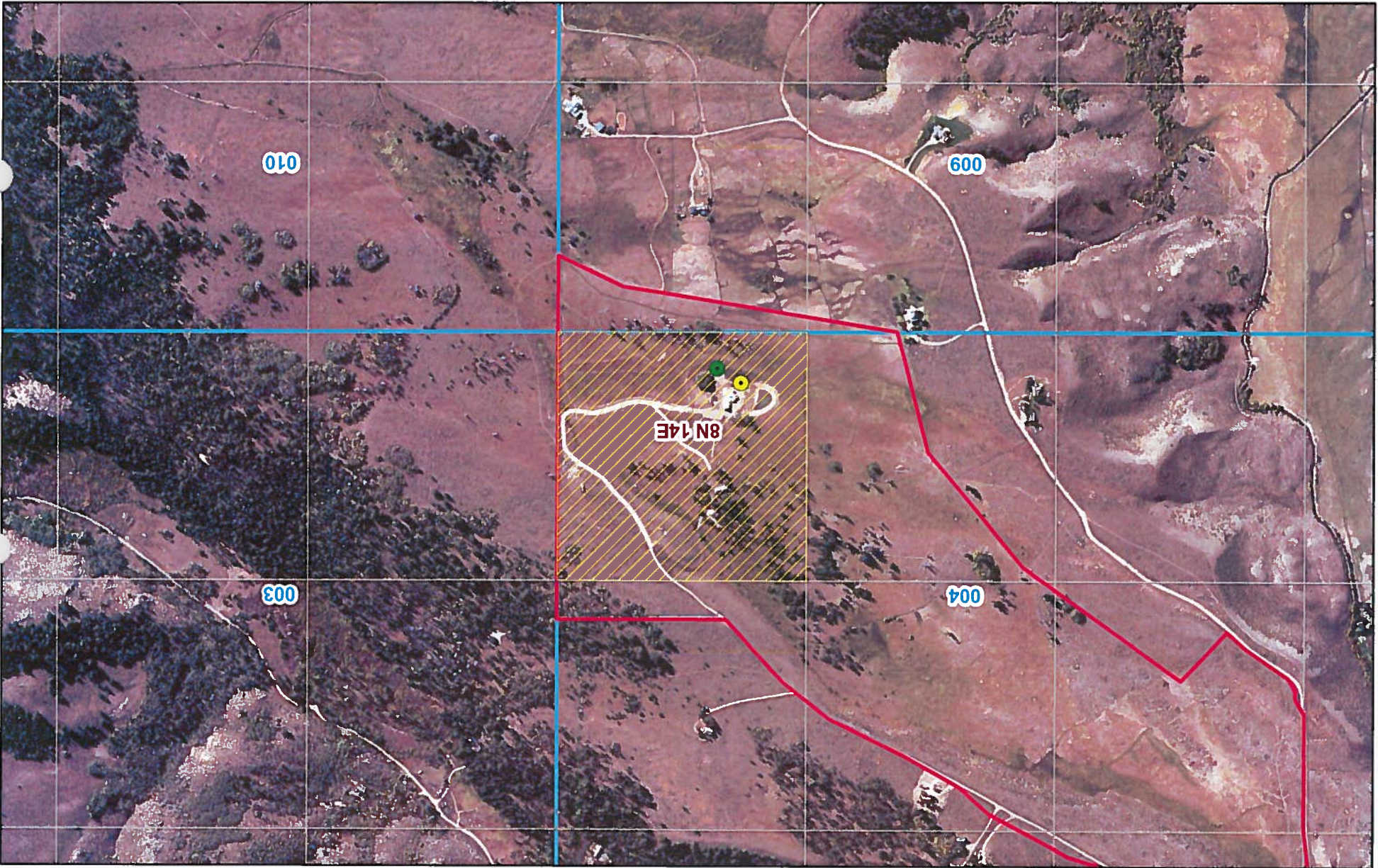
Date

9/18/17

Reviewer

Date





DOMESTIC AND HEATING WATER RIGHT EXAM

WHITE CLOUD RANCH, LLC
PLACE OF USE AND POINT OF DIVERSION
CUSTER COUNTY, IDAHO
NAIP 2015 AERIAL PHOTOGRAPH

BROCKWAY ENGINEERING, PLLC
GEP - JULY 26, 2017

1 in = 1,000 ft



Legend

- Domestic Well
- Shallow Injection Well
- Domestic/Heating POU
- White Cloud Ranch, LLC

IDAHO DEPARTMENT OF WATER RESOURCES WELL DRILLER'S REPORT

DA

1. WELL TAG NO. D 0070478

Drilling Permit No. 877020

Water right or injection well # _____

2. OWNER: Pioneer Cabin

Name _____

Address P.O. Box 3430

City Hailey State ID Zip 83333

3. WELL LOCATION:

Twp. 8 North ☒ or South ☐ Rge. 14 East ☒ or West ☐

Sec. 4 1/4 SE 1/4 SE 1/4

Gov't Lot _____ County Custer

Lat. 114 49.016 (Deg. and Decimal minutes)

Long. 44 2.647 (Deg. and Decimal minutes)

Address of Well Site 823 Brady Lane

City Obsidian

(Give at least name of road - Distance to road or landmark)

Lot. _____ Blk. _____ Sub. Name _____

4. USE:

☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation ☐ Thermal ☐ Injection
☐ Other _____

5. TYPE OF WORK:

☒ New well ☐ Replacement well ☐ Modify existing well
☐ Abandonment ☐ Other _____

6. DRILL METHOD:

☒ Air Rotary ☐ Mud Rotary ☐ Cable ☐ Other _____

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft)	Placement method/procedure
Bentonite	0	98	1400#	Overbore/Pour

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/Schedule	Material	Casing Liner	Threaded	Welded
6	+2	98	250	steel	☒	☐	☒
5	86	180	250	stel	☐	☒	☒

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 98

9. PERFORATIONS/SCREENS:

Perforations ☒ Y ☐ N Method torch

Manufactured screen ☐ Y ☐ N Type _____

Method of installation _____

From (ft)	To (ft)	Slot size	Number/ft	Diameter (nominal)	Material	Gauge or Schedule
118	179	1/4x4	3	5	steel	250

Length of Headpipe _____ Length of Tailpipe _____

Packer ☐ Y ☐ N Type _____

10. FILTER PACK:

Filter Material	From (ft)	To (ft)	Quantity (lbs or ft)	Placement method
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11. FLOWING ARTESIAN:

Flowing Artesian? ☐ Y ☒ N Artesian Pressure (PSIG) _____

Describe control device _____

12. STATIC WATER LEVEL and WELL TESTS:

Depth first water encountered (ft) 130 Static water level (ft) 86

Water temp. (°F) -85 Bottom hole temp. (°F) _____

Describe access port well cap

Well test:	Test method:
Drawdown (feet)	Pump ☐ Boiler ☐ Air ☒ Flowing artesian ☐
Discharge or yield (gpm)	
Test duration (minutes)	
N/A	60
30	

Water quality test or comments: _____

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water
10	0	6	Topsoil w/small cobbles	Y N
	6	11	Decomposed Granite	
	11	13	Loose granite rocks	
	13	38	Granite	
8	38	98	Granite	
6	98	111	Granite	
	111	115	Clay	
	115	148	Granite	X
	148	167	Decomposed Granite	X
	167	180	Granite	X
Flow test done before 5" liner set				

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DEPT OF WATER RESOURCES
SOUTHERN REGION

277020

Completed Depth (Measurable): 180

Date Started: Oct 15, 2015 Date Completed: Oct 19, 2015

14. DRILLER'S CERTIFICATION:

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Bishop Well Drilling Inc. Co. No. 647

*Principal Driller [Signature] Date 11/18/15

*Driller _____ Date _____

*Operator II _____ Date _____

Operator I _____ Date _____

* Signature of Principal Driller and rig operator are required.

RESIDENTIAL HEATING AND COOLING PEAK FLOW AND MONTHLY AVERAGE FLOW REQUIREMENT

Brockway Engineering PLLC
9/6/2017

Total square footage of livable space (A)	2900 s.f.
Inside design temperature (Ti)	70 F
Resource temperature (Ts)	55 F
2-story (No = 1, Yes = 2)	2
Efficiency factor (e)**	0.67
Design outside temperature for peak load (Tp)	-1.7 deg F

PEAK FLOW CALC:	Heat load	57300 BTU/hr	
	Cold load	38500 BTU/hr	
	T drop	3 deg F	
	Peak Q	9.5 gpm =	0.02

MONTHLY FLOW CALC:

Month	No. Days	Heating [deg F]*	Heat Load [BTU/hr]	Average Req'd Q (gpm)	Volume [ac-ft]
January	31	12	90,155	9.5	1.30
February	28.25	16	83,938	9.5	1.19
March	31	27	67,616	9.5	1.30
April	30	35	54,404	9.0	1.20
May	31	44	41,192	6.8	0.94
June	30	51	29,534	4.9	0.65
July	31	58	19,430	3.2	0.44
August	31	56	21,762	3.6	0.49
September	30	48	34,974	5.8	0.77
October	31	38	49,741	8.2	1.13
November	30	25	70,725	9.5	1.26
December	31	11	91,710	9.5	1.30

Annual volume 12.0

*Average monthly temperature at Stanley, ID [degrees F]

*Efficiency factors:

- 0.28 Best energy efficiency - extra insulation, caulked and weatherstripped, with storm windows and doors
- 0.44 Better energy efficiency - standard insulation, caulked and weatherstripped, with storm windows and/or doors
- 0.67 Average residence - standard insulation, no weatherproofing but with storm windows or double panes
- 1.11 Poor energy efficiency - minimal insulation, no weatherproofing or storm windows (older homes, shops or greenhouses)

Building Component		Sensible Gain (BTUH)	Latent Gain (BTUH)	Total Heat Gain (BTUH)	Total Heat Loss (BTUH)
- Double pane; Wood frame; Low emittance - Draperies or blinds; Coating: None (clear glass); No outside shading.					
Door	18 sq.ft.	195	0	195	704
- Wood; Solid; No storm					
W Wall	320 sq.ft.	340	0	340	1,224
- Wood frame, with sheathing, siding or brick; R-19 5 1/2 in.; R-5.0 1 in. Extruded poly board					
Window	120 sq.ft.	4,680	0	4,680	3,682
- Double pane; Wood frame; Low emittance - Draperies or blinds; Coating: None (clear glass); No outside shading.					
Ceiling	2,900 sq.ft.	2,401	0	2,401	5,670
- Under ventilated attic; R-44 (14 inch); Light					
Whole House	2,900 sq.ft.	21,905	0	21,905 (2 tons)	58,235

In accordance with ACCA Manual J

Report Prepared By:

Rays Heating Plumbing Electric Inc.

For:

White Cloud Verhyen

Stanley, Idaho

Design Conditions: Idaho Falls

Indoor:
 Summer temperature: 75
 Winter temperature: 70
 Relative humidity: 50

Outdoor:
 Summer temperature: 95
 Winter temperature: -15
 Summer grains of moisture: 40
 Daily temperature range: Medium

Building Component		Sensible Gain (BTUH)	Latent Gain (BTUH)	Total Heat Gain (BTUH)	Total Heat Loss (BTUH)
Whole House	2,900 sq.ft.	21,905	0	21,905 (2 tons)	58,235
First Floor		21,905	0	21,905	58,235
All Rooms	2,900 sq.ft.	21,905	0	21,905	58,235
Infiltration		2,127	0	2,127	13,558
- Tightness: Best; Winter ACH: .3 ; Summer ACH: .2					
Duct		1,043	0	1,043	5,294
- Supply below 120; Enclosed in unheated space; R-4					
Floor	2,900 sq.ft.	0	0	0	6,409
- Over enclosed crawl space; Hardwood or tile; R-19 (4 - 6.5 inch)					
N Wall	780 sq.ft.	828	0	828	2,984
- Wood frame, with sheathing, siding or brick; R-19 5 1/2 in.; R-5.0 1 in. Extruded poly board					
Window	90 sq.ft.	1,080	0	1,080	2,762
- Double pane; Wood frame; Low emittance					
- Draperies or blinds; Coating: None (clear glass); No outside shading.					
E Wall	608 sq.ft.	646	0	646	2,326
- Wood frame, with sheathing, siding or brick; R-19 5 1/2 in.; R-5.0 1 in. Extruded poly board					
Window	56 sq.ft.	2,184	0	2,184	1,718
- Double pane; Wood frame; Low emittance					
- Draperies or blinds; Coating: None (clear glass); No outside shading.					
Door	18 sq.ft.	195	0	195	704
- Wood; Solid; No storm					
Door (2)	18 sq.ft.	195	0	195	704
- Wood; Solid; No storm					
S Wall	594 sq.ft.	631	0	631	2,272
- Wood frame, with sheathing, siding or brick; R-19 5 1/2 in.; R-5.0 1 in. Extruded poly board					
Window	268 sq.ft.	5,360	0	5,360	8,224



Figure 2: Domestic/Heating well located in SESE Section 4, T8N R14E.

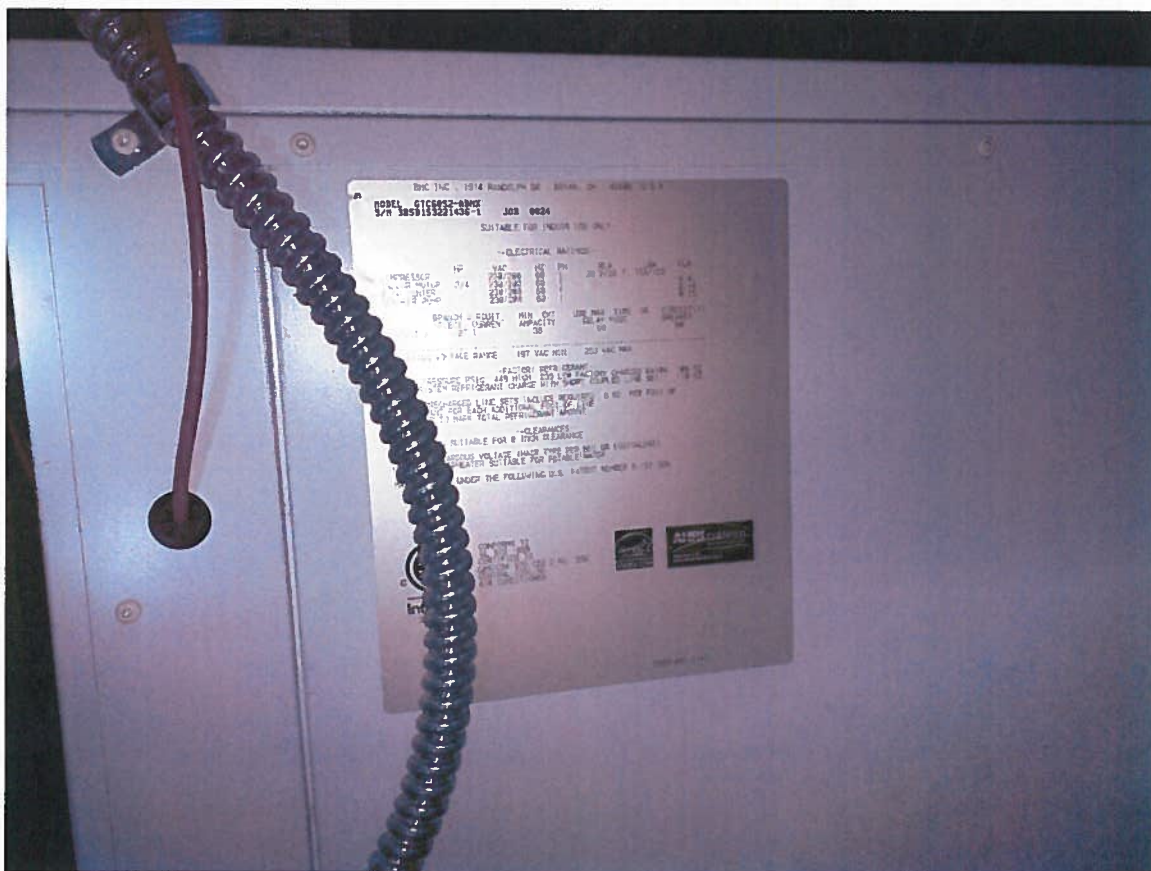


Figure 3: Geothermal heat pump information plate.

Nelson, Dan

From: Nelson, Dan
Sent: Thursday, August 24, 2017 1:50 PM
To: 'erick.powell@brockwayeng.com'
Subject: Emailing: z_9d01_
Attachments: z_9d01_.pdf

Dear Mr. Powell,

I wanted to send you this courtesy email to inform you that I was required by Idaho IDAPA Rules 37.03.02.035.02.d and 37.03.02.035.02.b to return your certified field exam report for water right 71-10953 for White Cloud Ranch LLC. You neglected to recommend a reasonable volume for the heating use along with the calculations you used to determine the volume. The attached letter goes into further detail concerning the reasoning for returning the field exam report. If the field exam report is not re-submitted by September 25th, the permit will be considered lapsed, and your client will receive a lapse notice in the mail.

I placed the attached letter along with your field report in the mail today, so you should receive the official copy of the letter and your report within the next few days.

If you have any further questions, please don't hesitate to contact me.

Respectfully,

Daniel Nelson
Water Right Analyst 3
Idaho Department of Water Resources
Telephone (208) 287-4856
Fax (208) 287-6700 (attn: Dan Nelson)