

6/2013

IN-OFFICE BENEFICIAL USE EXAM REPORT

Permit No. 57-11753

Prepared by VICKY MUSIC

Date 3/20/14

Same as permit Different than permit

Owner Name	☒	☐ _____
Owner Address	☒	☐ _____
Source	☒	☐ _____
Tributary	☐	☐ _____
POD	☒	☐ _____
POU	☒	☐ _____
Beneficial Use(s)	☒	☐ _____

Exam Fee Required for Permitted Rate \$ _____

Exam Fee Paid \$ _____

Overlaps ☒ No ☐ Yes, summarize _____

Amendment ☒ No ☐ Yes, summarize _____

Technical Confirmation Tools

ArcMap (Bing) 2013 NAIP ☒

Taxlot ☒

Well Log ☒

GPS ☒

Photos ☒

Diagrams ☐

Other ☒ explain: FIELD EXAM

Conditions/Comments see memo

Exam Date Entered ☒

Draft License Created ☒

Shapes Updated ☒

INTEROFFICE MEMORANDUM

TO: 57-11753 LICENSING FILE
FROM: VICKY MUSIC
SUBJECT: FIELD EXAM
DATE: MARCH 27, 2014
CC:

This permit qualifies for an in-house field exam. However, I conducted an on-site exam because the Department did not have a good well location, and to verify the uses and the conveyance system. The permitted source is a low temperature geothermal well. Permitted uses are domestic for 0.02 cfs and heating for 0.06 cfs for a total quantity of 0.06 cfs. Proof was timely filed. The permittee, Charles Parker, accompanied me on the exam.

The Department has 3 well logs for the well because of construction issues and because it was deepened in 2010. There are 2 tags on the well : D0057625 and D0053358. The temperature of the well has been measured and the water temperature is about 120 degrees F, according to Mr. Parker. GPS coordinates are : N 43.45934, W -116.77218. The well is artesian and flows at a constant 20 psi.

There is about 400 feet of 2" pipe from the well to a control box at the west side of the bridge by the house. From the control box it is diverted through 0.75 inch pipe to zones in the flooring of the home. From the home, the hot water is diverted through three 2" drain pipes, 1 to the garage floor, 1 to the shop for heating and 1 to barn/tackroom for heating and from there to stock troughs. Finally, the water drains through 2" pipe to the fish pond to cool further, before it drains into Squaw Creek.

There is no domestic use so the domestic use should be deleted. I used the Department heating and cooling spreadsheet to calculate a diversion rate and a volume for the heating use. I calculated square footage of the home/ garage only, even though the water heats the garage, as well as the outbuildings, as a secondary use, because I did not want to underestimate the quantity. The house and garage are about 5300 square feet. The diversion rate was calculated to be 0.05 cfs and the annual volume, 12.2 af. I recommend for licensing the permitted 0.06 cfs, and the calculated volume of 12.2 af.

Regarding conditions, the domestic condition should be deleted.

RESIDENTIAL SPACE HEATING/COOLING REQUIREMENTS FOR COLD OR GEOTHERMAL SOURCES

Worksheet created by Cindy Hodges, 11/93.

Data entered by: Vicky Music
Exam Date: 08/08/13
File No: 57-11753
Computations for: Heating of 1 home

REQUIRED DATA:

Area of livable floor space, ft² (A) 5300
2 story? (N=1, Y=2) 2
House efficiency factor (e) * 0.67
Inside design temperature (Ti) 72
Average outside temperature (To) ** 4
Source temperature, degrees F (S) 128
Heating/cooling days per season (D) 240
Hours/day system operates (H) 12

CALCULATED DATA:

DESIGN HEAT LOAD (BTU/hr required)
Formula: $E = [e \times (T_i - T_o)] \times A$
Applies factor of 0.8 for two-story dwelling

E = 193,174 BTU/hour

TEMPERATURE DROP ACROSS SYSTEM

Formula: $T_s = 0.3 \times [S - T_i]$

T_s = 16.8 degrees F

* e values are as follows:

- 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)

** Suggested average outside temperatures:

WINTER
4 deg F Boise
6 deg F Grand View
-8 deg F Cascade

SUMMER
80 deg F Boise
90 deg F Grand View
70 deg F Cascade

FLOW RATE REQUIRED (at given source temperature)
Formula: $Q = E / (500 \times T_s) \times 448.8$

Q = 0.05 cfs

DIVERTED VOLUME OVER SEASON
Formula: $V_{div} = Q \times D \times H / 24 \times 1.9835$

V_{div} = 12.2 AFA

AVERAGE TEMPERATURE CALCULATION:

4 DEG MIN + 80 DEG HIGH / 2 =
42 DEG AVERAGE YEAR ROUND TEMP.

57-11753 Field Exam Photos



POD, an artesian, low temperature geothermal well.



Inside the control box located by the bridge. Hot water is piped to different zones.



Geothermal system piping in the garage.



Hot water is used to heat the house, shown here.



The tackroom/barn is heated by the hot water.



The shop is heated by the hot water. After heating the home, the water is piped to the shop , seen here. There is also an underground drain that runs from the shop to the fish pond.



There are 3 buried drain pipes that carry the hot water here to a fish pond after it is used in the house, outbuilding and the stock troughs. The water cools here, before it drains into Squaw Creek.

IDAHO DEPARTMENT OF WATER RESOURCES WELL DRILLER'S REPORT

858184

1. WELL TAG NO. D 0057625

Drilling Permit No. 909615-858184
Water right or injection well # 57-11753

2. OWNER: Charles and Wanda Parker

Name _____
Address 4300 Opline Road
City Melba State ID Zip 83641

3. WELL LOCATION:

Twp. 2 North ☒ or South ☐ Rge. 4 East ☐ or West ☒
Sec. 35 SE 1/4 SE 1/4 SE 1/4

Gov't Lot _____ County _____
Lat. 43 ° 27.565 (Deg. and Decimal minutes)
Long. 116 ° 46.333 (Deg. and Decimal minutes)
Address of Well Site 4300 Opline Road

(Give at least name of road - Distance to Road or Landmark) City Marsing
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 Refer to D0052860 and D0053358

6. DRILL METHOD:

☐ Air Rotary ☒ Mud Rotary ☐ Cable ☐ Other _____

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft ³)	Placement method/procedure
Neat cement	965	1045	450 Gal	Pressure Grouted

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/Schedule	Material	Casing Liner	Threaded	Welded
5"	516	1045	.258	Steel	☒	☐	☒

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

9. PERFORATIONS/SCREENS:

Perforations ☐ Y ☒ N Method Open below casing

Manufactured screen ☐ Y ☒ N Type _____

Method of installation _____

From (ft)	To (ft)	Slot size	Number/ft	Diameter (nominal)	Material	Gauge or Schedule
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Length of Headpipe _____ Length of Tailpipe _____

Packer ☒ Y ☐ N Type 8 wing K-packer between 5" & 6" @ 518'

10. FILTER PACK:

Filter Material	From (ft)	To (ft)	Quantity (lbs or ft ³)	Placement method
None				

11. FLOWING ARTESIAN:

Flowing Artesian? ☒ Y ☐ N Artesian Pressure (PSIG) 20
Describe control device Weld on flange w/bolt on lid

12. STATIC WATER LEVEL and WELL TESTS:

Depth first water encountered (ft) N/A Static water level (ft) Flowing
Water temp. (°F) 130 Bottom hole temp. (°F) Same
Describe access port 2" weld on cpl and 1/4" gauge access

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

Water quality test or comments: Sulfur smell

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	
				Y	N
6"	764	771	Basalt		
6"	771	885	Blue Clay		
6"	885	891	Grey Rock		
6"	891	907	Blue Clay		
6"	907	920	Grey Rock		
6"	920	944	Blue Clay		
6"	944	952	Grey Rock		
6"	952	965	Blue Clay		
11"	965	1045	Blue Clay		
6"	1045	1065	Blue Clay		
6"	1065	1105	Rhyolite	X	

RECEIVED

JAN 12 2010

WATER RESOURCES
WESTERN REGION

Completed Depth (Measurable): 1105

Date Started: Nov 25, 2009 Date Completed: Jan 4, 2010

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 Adamson Pump & Drilling Co. No. 457

*Principal Driller Dave Adamson Date Jan 8, 2010

*Driller _____ Date Jan 8, 2010

*Operator II Matt Stoff Date Jan 8, 2010

Operator I _____ Date _____

* Signature of Principal Driller and rig operator are required.

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

855060

1. WELL TAG NO. D D0053358Drilling Permit No. 907490-855060

Water right or injection well # _____

2. OWNER: Charles & Wanda ParkerName Same as aboveAddress 7300 Opline RoadCity Marsing State ID Zip 83639

3. WELL LOCATION:

Twp. 2 North ☒ or South ☐ Rge. 4 East ☐ or West ☒Sec. 35 SE 1/4 SE 1/4 SE 1/4Gov't Lot _____ County OwyheeLat. 43 ° 27:56.5 (Deg. and Decimal minutes)Long. 116 ° 46:33.3 (Deg. and Decimal minutes)Address of Well Site Same as above

(Give at least name of road + Distance to Road or Landmark) City _____

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 ft³)	Placement method/procedure
Cement	9'	57'	12.5 yds	10" over-bore
Bentonite	0	9	10 bags	same

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/Schedule	Material	Casing	Liner	Threaded	Welded
12"	6"	45'	250	Steel	☐	☐	☐	☒
6"	+3"	578'	250	Steel	☐	☐	☐	☒
					☐	☐	☐	☐
					☐	☐	☐	☐

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 578'

9. PERFORATIONS/SCREENS:

Perforations ☐ Y ☒ N Method _____Manufactured screen ☐ Y ☒ N Type _____

Method of installation _____

From (ft)	To (ft)	Slot size	Number/ft	Diameter (nominal)	Material	Gauge or Schedule

Length of Headpipe N/A Length of Tailpipe _____Packer ☐ Y ☐ N Type _____

10. FILTER PACK:

Filter Material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method

11. FLOWING ARTESIAN:

Flowing Artesian? ☐ Y ☒ N Artesian Pressure (PSIG) _____Describe control device well cap

12. STATIC WATER LEVEL and WELL TESTS:

Depth first water encountered (ft) _____ Static water level (ft) 9'Water temp. (°F) 88.9 Bottom hole temp. (°F) 92.

Describe access port _____

Well test:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)
	<u>20</u>	

Test method:

Pump	Bailer	Air	Flowing artesian
☐	☐	☒	☐

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	
				Y	N
6"	662'	680'	Shale (medium)	☒	☒
6"	680'	690'	Shale soft	☐	☒
6"	690'	730'	Shale hard	☐	☒
6"	730'	735'	Shale soft	☐	☒
6"	735'	750'	Shale hard	☐	☒
6"	750'	755'	Shale soft	☐	☒
6"	755'	765'	Shale hard	☐	☒
6"	765'	767'	Shale soft	☐	☒
6"	767'	768'	Shale hard	☐	☒
6"	768'	785'	Shale soft	☐	☒
6"	785'	830'	Shale hard	☐	☒
6"	830'	840'	Shale hard	☐	☒
6"	840'	868'	Shale soft	☐	☒
6"	868'	872'	Shale hard	☐	☒
6"	872'	885'	Shale soft	☐	☒
6"	885'	920'	Shale hard	☐	☒
6"	920'	1010'	Shale soft	☐	☒

For more information
refer to tag # D0052860

RECEIVED

JUL 20 2009

WATER RESOURCES
WESTERN REGIONCompleted Depth (Measurable) 880'Date Started: 11/15/08 Date Completed: 05/02/09

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 Knief Pump & Drilling Co. No. 417*Principal Driller Mike Knief Date 7-10-09*Driller Mike Knief Date 7-10-09

*Operator II _____ Date _____

Operator I _____ Date _____

* Signature of Principal Driller and rig operator are required.

IDAHO DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

851419

1. WELL TAG NO. D 0052860

Drilling Permit No. _____

Water right or injection well # _____

2. OWNER: Chuck + Miranda Parker

Name Same as owner

Address 4601 River Road

City Dubh State Id Zip 89316

3. WELL LOCATION:

Twp. 2 North ☒ or South ☐ Rge. 4 East ☐ or West ☒

Sec. 35 1/4 SE 1/4 SE 1/4

Gov't Lot _____ County Outee

Lat. _____ (Deg. and Decimal minutes)

Long. _____ (Deg. and Decimal minutes)

Address of Well Site SE 7248 opaline

City Marsing

(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 ft³)	Placement method/procedure
<u>Dentsnight</u>	<u>0</u>	<u>18</u>	<u>600 lbs</u>	<u>10' overbore</u>

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/Schedule	Material	Casing Liner	Threaded	Welded
<u>6</u>	<u>+2</u>	<u>38</u>	<u>250</u>	<u>Steel</u>	☒	☐	☒

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 38'

9. PERFORATIONS/SCREENS:

Perforations ☐ Y ☒ N Method _____

Manufactured screen ☐ Y ☒ N Type _____

Method of installation _____

From (ft)	To (ft)	Slot size	Number/ft	Diameter (nominal)	Material	Gauge or Schedule
		☒				

Length of Headpipe X Length of Tailpipe A

Packer ☐ Y ☒ N Type _____

10. FILTER PACK:

Filter Material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method
<u>X</u>				<u>X</u>

11. FLOWING ARTESIAN:

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

Describe control device well cap

12. STATIC WATER LEVEL and WELL TESTS:

Depth first water encountered (ft) 350 Static water level (ft) 35

Water temp. (°F) _____ Bottom hole temp. (°F) 92°

Describe access port -d-

Well test:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)	Pump	Bailer	Air	Flowing artesian
	<u>40</u>		☐	☐	☒	☐

Test method:

Water quality test or comments: Suffer Sorell

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 Y	N
<u>10</u>	<u>0</u>	<u>5</u>	<u>Over burden</u>		
<u>10</u>	<u>5</u>	<u>8</u>	<u>Boulders</u>		
<u>10</u>	<u>8</u>	<u>18</u>	<u>Black Granite Dry</u>		
<u>6</u>	<u>18</u>	<u>23</u>	<u>=</u>		
<u>6</u>	<u>23</u>	<u>45</u>	<u>Blue Clay</u>		
<u>6</u>	<u>45</u>	<u>120</u>	<u>Light Blue Clay</u>		
<u>6</u>	<u>120</u>	<u>345</u>	<u>Shal Blue</u>		
<u>6</u>	<u>345</u>	<u>405</u>	<u>Blue Clay with sand</u>		
<u>6</u>	<u>405</u>	<u>508</u>	<u>Shal Blue</u>		
<u>6</u>	<u>508</u>	<u>523</u>	<u>Shal with water Shays</u>		
<u>6</u>	<u>523</u>	<u>540</u>	<u>Shal Blue</u>		
<u>6</u>	<u>540</u>	<u>565</u>	<u>Light Shal Blue</u>		
<u>6</u>	<u>565</u>	<u>602</u>	<u>hard Shal</u>		

Water started getting new

JUN 27 2008

WATER RESOURCES
WESTERN REGION

Completed Depth (Measurable): 602

Date Started: 5-10-08 Date Completed: 5-15-08

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 Kate Pump & Drilling Co. No. 417

*Principal Driller Mike Kate Date 6-26-08

*Driller Mike Kate Date _____

*Operator II _____ Date _____

Operator I _____ Date _____

* Signature of Principal Driller and rig operator are required.

Music, Vicky

From: Chuck Parker [cwparker@frontiernet.net]
Sent: Wednesday, March 26, 2014 2:13 PM
To: Music, Vicky
Subject: RE: license for hot water well
Attachments: Vicky Music.doc

Vicky, Attached is a document that. I hope, will help you complete he Permit. Chuck Parker

From: Music, Vicky [mailto:Vicky.Music@idwr.idaho.gov]
Sent: Thursday, March 20, 2014 11:33 AM
To: Chuck Parker
Subject: RE: license for hot water well

Mr Parker –

Regarding the domestic use you applied for, what is the domestic use, not including heating of the home? I have no notes about any domestic use except for water diverted to the stock troughs, and faucets in the outbuildings.

Thanks you.

Vicky M

From: Chuck Parker [mailto:cwparker@frontiernet.net]
Sent: Wednesday, March 19, 2014 1:08 PM
To: Music, Vicky
Subject: RE: license for hot water well

Vicky, They are all heated by pipes leaving the house drain manifold in the garage. There are Three drain pipes controlled by valves located in the small room we looked at in the garage that you have a picture of. One pipe leads to the garage floor , the second leads to the barn and from there to the stock waterers, and the third leads to the shop. All three drain to the pond for any cooling needed before draining to the Creek. Chuck

From: Music, Vicky [mailto:Vicky.Music@idwr.idaho.gov]
Sent: Tuesday, March 18, 2014 3:47 PM
To: cwparker@frontiernet.net
Subject: license for hot water well

Hello Mr Parker –

The Dept is completing the licensing of your hot water well for heating your homes, and the domestic users in the shop and barn. There are a couple of details I need to clear up.

Are the shop and/or barn/tackroom heated by the water that leaves your home?
If yes, how?

My notes indicate that the water is used primary for heating your home, and then secondarily for use in the shop [via a faucet located outside] , tackroom [via a faucet] , and stock troughs. However, the Department database notes states the 2 outbuildings are also heated.

Thank you!

Vicky Music
Idaho Department of Water Resources
Boise Idaho

Dear Ms. Music,

I very much appreciate your good help in completing our domestic use hot water permit and I'm sorry that I have created some confusion. We were informed when we first applied for the permit to develop a well, that we should develop a plan for making sure that no warm water was allowed to enter the stream next to our home. It was suggested that this plan either include a cooling pond, underground piping that would earth's cool the water or some other plan that would be effective. There are no faucets for warm water outside of the home.

We decided that rather than waste the warmth left in the water after it had warmed the home, we would run part of the wastewater through pipes in the floor of our workshop to keep the temperature above freezing and to run part of the water into drinking water troughs for our horses. The water is released into the water troughs through a 1/16 inch hole in the cap at the end of the pipe in each trough. The water from the workshop and the horse troughs is then drained into the cooling pond where it is cooled further if needed and then into the stream. The water leaving the pond always feels as cool as water in the Snake River.

The use of the waste water in this way is certainly a beneficial use, since the heating would otherwise need to be provided by electric power. Much of our electric power is produced by the burning of fossil fuels that very likely contribute to the atmospheric carbon dioxide blanket that may partially cause climate change. It is, therefore, national policy that we minimize unnecessary uses of electric power. We are sure that our wastewater cooling plan contributes to that policy.

I'm sorry that at the time of the first permit application we apparently didn't include our plan to effectively cool the wastewater by warming the workshop outbuilding and our horses wintertime drinking water along with the further assurance that the water was cool by the use of a pond.

Sincerely,

Charles and Wanda Parker



State of Idaho

DEPARTMENT OF WATER RESOURCES

Western Region • 2735 Airport Way • Boise, Idaho 83705-5082

Phone: (208) 334-2190 • Fax: (208) 334-2348 • Website: www.idwr.idaho.gov

C.L. "BUTCH" OTTER
Governor

GARY SPACKMAN
Director

July 8, 2013

WANDA J PARKER
7300 OPALINE RD
MELBA, ID 83641

Re Permit To Appropriate Water No. 57-11753

Dear Ms. Parker:

The permit referenced above was issued for heating and domestic uses from ground water. This letter is to request that you call me to schedule the field exam for this permit. A field exam is required by Idaho law before a license can be issued, at which time it becomes a water right. The license is the end product needed for continued water use.

Additionally, please have available at the exam someone familiar with the ground water and the water use, as well as the pump and motor specs, and the pump curves.

I will be conducting exams in the area of the concrete plant on Wednesday and Thursday, July 17 and 18, 2013. Please call me at 208.334.2190, **by July 12, 2013**, to set an appointment for the exam. Failure to respond to this letter request may result in the permit being voided or a license issued for less than the permitted amount. Thank you.

Sincerely,



Vicky Music
Sr. Water Resource Agent