

A. GENERAL INFORMATION

Exam Date: 06/25/13

- | 3. <u>SOURCE</u> | <u>TRIBUTARY</u> |
|------------------|------------------|
| GROUND WATER | |

1. Other water rights with the same place of use:
2. Other water rights with the same point of diversion:

Method of Determination: GPS

- [illegible]

PLACE OF USE: FIRE PROTECTION

Twp Rge Sec	NE				NW				SW				SE				Totals
37N 05W 3	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	
		X	X		X			X									
38N 05W 34														X	X		

PLACE OF USE: STOCKWATER

Twp Rge Sec	NE				NW				SW				SE				Totals
37N 05W 3	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	
		X	X		X			X									
		L 2			L 3												
38N 05W 34														X	X		

PLACE OF USE: INDUSTRIAL

Twp Rge Sec	NE				NW				SW				SE				Totals
37N 05W 3	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	
		X	X		X			X									
38N 05W 34														X	X		

Method of Determination:

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.

<u>Well or Diversion</u> <u>ID No.*</u>	<u>Motor Make</u>	<u>Hp</u>	<u>Motor Serial No.</u>	<u>Pump Serial No. or Discharge</u> <u>Size</u>
	Grundfos	1	#22SQE10C-190	3-inch

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

D. FLOW MEASUREMENTS

1.

<u>Measurement</u> <u>Equipment</u>	<u>Type</u>	<u>Make</u>	<u>Model No.</u>	<u>Serial No.</u>	<u>Size</u>	<u>Calib. Date</u>
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2. Measurements:

Mike Holthaus, Water System Manager, reported that Brad Bull, facility caretaker, measured 29 gpm (0.07 cfs) at 32 PSI on 6/21/13. The spec sheet for this model Grundfos (attached) lists a range of 20-60 PSI for 20-40 feet of lift.

E. FLOW CALCULATIONS

____ Additional Computation Sheets Attached

Measured Method:

Theoretical pump flow rate (using 1 HP, 70% efficiency, 20.7 feet of lift, and 32 psi):
 $Q = (8.8 \times 1 \times 0.7) / (20.7 + (32 \times 2.31)) = 0.07 \text{ cfs}$

The diversion rate to be licensed under this right will be limited to 0.07 cfs

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

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

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

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

2. Volume Calculations for Other Uses:

Stockwater: 12 gpd per head @ 30 head = $30 \times 0.0134 = 0.4$ AFA

Domestic: 0.6 AF (standard for internal use)

Industrial: 0.8 AF (from meter)

Fire Protection: No volume required

Total = 0.8 AF

G. NARRATIVE/REMARKS/COMMENTS

This permit was in-office field examined on 06/25/13 by myself, Craig Tesch. Mike Holthaus, Water Systems Manager for the University of Idaho provided additional information for the exam. This permit authorizes the diversion of ground water to be used for domestic, fire protection, stockwater, and industrial purposes. The University of Idaho planned on drilling a new ground water well for this permit along with abandoning the existing well; however, it was determined through an aquifer test performed by Ralston Hydrologic Services in 2005 that the existing well was adequate for their needs. While there is no well log or IDWR tag number for this existing well (permitted POD), well information was acquired through the Ralston aquifer test memo and personal communication with Mike Holthaus. The existing well is 76-feet deep, 6-inches in diameter, and has a static water level of 8.5-feet below ground surface.

Water is pumped from the well and piped to the adjacent pump house where a meter and pressure gauge are located. According to meter readings in the pump house provided by Mike Holthaus, the facility uses approximately 200 thousand gallons of water per year. Water is used for several purposes including restroom facilitation, stockwatering, fire protection, and conducting research that involves mixing chemicals with water to apply on various plant stands.

The well is located in the middle of the eastern boundary of the place of use, 100 feet northwest of the house as you enter the property off highway U.S. 95. The pump in the well is a 3-inch Grundfos Model #22SQE10C-190 with a 1 HP motor. The system uses a variable frequency drive that can run from 20-50 PSI during pumping. Mike reported that Brad Bull, facility caretaker, measured 29 gpm (0.07 cfs) at 32 PSI on 6/21/13. Theoretical pump flow rate was calculated using 1 HP, 70% efficiency, 20.7 feet of lift, and 32 PSI resulting in a discharge rate of 0.07 cfs. Pump discharge is less than the requested diversion rate of 0.12 cfs for fire protection and industrial (research and chemical mixing), but more than adequate for the requested rate of 0.04 cfs for domestic and stockwater. No overlapping water rights exist on the place of use.

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

H. RECOMMENDATIONS

1. Recommended Amounts

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
DOMESTIC	01/01 to 12/31	0.040 CFS	0.6 AF
FIRE PROTECTION	01/01 to 12/31	0.070 CFS	No volume required
STOCKWATER	01/01 to 12/31	0.040 CFS	0.4 AF
INDUSTRIAL	01/01 to 12/31	0.070 CFS	0.8 AF
<u>Totals:</u>		0.70 CFS	0.8 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 ☐ Other

I. AUTHENTICATION

Field Examiner's Name Craig Teak Date 7/1/13

Reviewer _____ Date _____





Address **U.S. 95**

Address is approximate

* On U.S. 95 looking west at the pump house for #87-10040



pump house
+ well

SELECTION CHARTS

(Ratings are in GALLONS PER MINUTE-GPM)

22 SQ/SQE

FLOW RANGE
(7 TO 33 GPM)PUMP OUTLET
1 1/2" NPT

DEPTH TO PUMPING WATER LEVEL (LIFT) IN FEET

PUMP MODEL	HP	PSI	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	340	400	460	520	600	700	800	900	1000	1100
22SQ/SQE 03A-40	1/3	0	31.5	23																							
		20																									
		30																									
		40																									
		50																									
		60																									
SHUT-OFF PSI:			17	7																							
22SQ/SQE 05A-80	1/2	0		31.5	27.5	22.5	19.5																				
		20	26.5	21	11																						
		30	19.5	6.5																							
		40	6.5																								
		50																									
		60																									
SHUT-OFF PSI:			41	32	24	15	7																				
22SQ/SQE 05B-120	1/2	0		33.0	31.0	26.5	25.5	22	17	7																	
		20	30.5	28	21	15	3																				
		30	27	24	20	13																					
		40	24	20	13																						
		50	18.5	10																							
		60	17																								
SHUT-OFF PSI:			65	56	48	39	30	22	13	4																	
22SQ/SQE 07B-160	3/4	0			32	30.5	26.5	24	21	17.5	12	3															
		20	32	31.5	28	26	23.5	20.5	16.5	10.5																	
		30	29.5	27.5	25.5	22.5	19.5	15	8.5																		
		40	27.5	25.5	22.5	19.5	15.0	8.5																			
		50	24.5	22	18.5	14	6																				
		60	21	17.5	12	3																					
SHUT-OFF PSI:			89	80	71	63	54	45	37	28	19	11	2														
22SQ/SQE 10C-190	1	0			33	31.5	30.5	29	27.5	25.5	23.5	21	18	14.5	8												
		20	32.5	31.5	30	28.5	27	25	23	20.5	17.5	13	4														
		30	31	29.5	28	26.5	24.5	22	20	16.5	12																
		40	29.5	28	26.5	24.5	22	20	16.5	12																	
		50	27.5	26	24	21.5	19	15.5	1																		
		60	25.5	23.5	21	18	14	8																			
SHUT-OFF PSI:			107	99	90	81	73	64	55	47	38	29	21	12	4												
22SQ/SQE 15C-220	1 1/2	0				32.5	31.5	30	29	27.5	26	24.5	23	21	18.5	15.5	11.5										
		20		32.5	31	30	28.5	27.5	25.5	24	22.5	20.5	17.5	14.5	10												
		30	32	31	29.5	28.5	27	25.5	23.5	22	19.5	17	14	9													
		40	31	29.5	28.5	27	25.5	23.5	22.0	19.5	17	14	9														
		50	29.5	28	26.5	25.0	23.5	21.5	19.0	16.5	12.5	6.5															
		60	27.5	26.0	24.5	23.0	21.0	18.5	15.5	11.5																	
SHUT-OFF PSI:			130	121	113	104	95	87	78	69	61	52	43	35	26	17	9										

From: Holthaus, MIKE [mailto:mikeh@uidaho.edu]
Sent: Friday, June 21, 2013 12:22 PM
To: Tesch, Craig
Subject: RE: Water Right Permit #87-10040

Good morning Craig,

Let me know if you have any questions. Mike

Here are the dates and meter readings;

1/1/2013	1,089,872 gallons
1/1/2012	845813 gallons
1/1/2011	678060 gallons
1/1/2010	462627 gallons
05/01/2009	263,568 gallons

I think September of 07 was the install date but have not been able to confirm

When this permit started we had planned on drilling a new well and abandoning the old, after looking at the old well it was decided that it was adequate. Bob Haynes said that this could be cleared up at the beneficial use inspection. Here is a description of what and where the well is.

Pitless adapter is a 1½"

On demand Pump is hung on three 21' 1½" galvanized pipes

6" casing is set down to 33 feet where drive shoe is at

Total well depth is 76 feet

Info from Brad Bull, Caretaker of the area;

Mike, here are the coordinates for the Kambitsch Farm well that you needed. The first coordinates are from my handheld GPS (Magellan Meridian Platinum) and are rough numbers, but are probably close enough for your needs. If you were looking for a coin you may not find it, but you should be able to find the wellhead. Both UTM and Lat/Lon coordinates are based on WGS84 datum.

UTM zone 11

504210E

5159101N

2737 ft elevation (handheld GPS elevations are not very accurate)

Lat/Lon

Lat 46 35 08N

Lon 116 56 42W

Secondly, here are better coordinates from a Trimble GPS unit. These numbers are more accurate but take a lot longer to get. It takes three separate setups of five plus hours each. All that data is sent off to NOAA and they send back the corrected coordinates. The numbers look the same if you drop off everything after the decimal. It just depends on if you are looking for a needle in a haystack or a Buick in a haystack. Where we live a second of latitude equals 101', and a second of longitude equals about 70', and that could put you in the wrong township. So it's good to have the numbers after the decimal. The

elevation is the top of the wellhead NOT the ground level. The top of the wellhead is .33 meters or 13 inches above ground level.

UTM grid coord. Zone 11

Northing	5159100.666		
Easting	504210.273		
Elevation	836.628	2744.809	Feet

NAD_83(CORS96)

	deg	min	sec	
Latitude	46	35	7.64759	
Longitude	116	56	42.15806	

ISPCS grid coord. Zone 1103 ID W

Northing	547207.538
Easting	708415.621
Elevation	836.628

The last coordinates are Idaho State Plane coordinates. You won't find them on your handheld GPS, but it is the system that is preferred for local surveys. Remember that both UTM and state plane coordinates are grid coordinates.

The wellhead is 1.5 meters (5') east of the new pump house.

The well is located in T37N R5W S3 and is approximately 23 meters (75') south of the township line between T37N and T38N.

I have all the data and correspondence that goes with these numbers if you need it for your records.

From: Holthaus, MIKE [mailto:mikeh@uidaho.edu]
Sent: Monday, June 24, 2013 12:13 PM
To: Tesch, Craig
Subject: FW: Kambitsch well GPM

Craig,

Here is the flow information, still working on the pump information.

Mike

From: Bull, Brad
Sent: Friday, June 21, 2013 1:54 PM
To: Holthaus, MIKE
Cc: Bull, Brad
Subject: Kambitsch well GPM

I got 29 GPM at 32 PSI, reading the water meter and pressure gauge in the pump house.
I had four hoses running,
2 hoses at the pesticide slab, each fed by a 3/4" poly pipe tee'd off the main 1 1/2" poly pipe.
2 hoses at the farm house, one fed by 1/2" galv pipe and the other unknown.

Ran the water for about 8 to 10 mins to get three readings.
Normally the pump is set at 50 PSI, and I can run two hoses with minimal pressure drop.

Brad

Brad Bull
PREEC
University of Idaho
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208-596-8781 Cell
208-885-3590 Fax
208-885-3276 Shop

From: Holthaus, MIKE [mailto:mikeh@uidaho.edu]
Sent: Monday, June 24, 2013 3:52 PM
To: Tesch, Craig
Subject: RE: Kambitsch well GPM

Craig,

Pump info;

Grundfos 22SQE190 1hp set down on 3-21 foot galv pipes, roughly 70 feet to bottom

Let me know if you need any more info.

Mike