

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 63-33063
Exam Date: 6/21/2017

1. Current Owner:
JEAN BROBECK VANCE 5370 S LOCUST GROVE RD MERIDIAN ID 83642 2088884228
2. Accompanied by: Jean Brobeck Vance and Harvey Vance
Phone No: 2088884228
Address: 5370 S LOCUST GROVE RD MERIDIAN ID 83642
Relationship to Permit Holder: Owner

3. SOURCE:
GROUND WATER

B. OVERLAP REVIEW

1. Other water rights with the same place of use (see attached table):
 - Several domestic and/or stockwater rights that only had QQ as a Place of Use (POU). I compared those to taxlot data and confirmed that each POU was outside of the POU of this right.
 - 63-19136 is a domestic and stockwater right and belongs to the owner of this permit. The domestic portion includes irrigation of 0.5 acres around the house. This portion was not included under this right (63-33063). The POU for stockwater is comprised of the owner's entire taxlot, including the irrigated land under this water right permit.
 - The city of Kuna and the City of Meridian hold multiple municipal water rights that directly overlap with this property.
 - Bureau of Reclamation right 63-2388, is an irrigation right associated with nearby canals with direct overlap with subject property. The owners have no access to canal water.
2. Other water rights with the same point-of-diversion (POD):
The well for the water right under this permit is also the POD for the owner's domestic/stockwater right (63-19136).

C. DIVERSION AND DELIVERY SYSTEM

The POD/well is located directly adjacent to the owner's home. The well, drilled in 1972, did not have a tag, so I added a tag (A0018586) to the well. I was unable to locate a definitive well log for this property so I did not update the tag in the database. The owner indicated that the pump, which was replaced in February 2017 was set at 161.2 feet, which was the depth of the previous pump. The new pump is a 5HP, 230 V Motor, 45 GPM Goulds pump. We did not measure the static water level. The owner indicated that the static was similar (137.2 ft) as measured when the previous pump was installed in 2008. For this water right a 2.5 inch PVC conveys the pumped water to the POU. The owner uses a total of 15 big guns and 9 pop-up sprinklers to irrigate the pasture.

1. LOCATION OF POINT(S) OF DIVERSION:

GROUND WATER SW¼NW¼ Sec. 32, Twp 03N, Rge 01E, B.M. ADA County
South side of the owner's house; x=2,308,242; y=1,375,492

Method of Determination:
GPS

2.

PLACE OF USE: IRRIGATION

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
03N	01E	32							3.3										3.3

Total Acres: 3.3

POU is directly adjacent to the POU of domestic right 63-19136 and covers the pasture within the taxlot, but not the unirrigated portion in the NW corner of the property, which is used as a horse arena.

Method of Determination:

Field verification and imagery, including 2008 and 2009 imagery (proof was due/submitted in 2009). Aerial imagery shows that this parcel has been irrigated throughout the development period of this water right permit and every year since then.

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 ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
A0018586**	Goulds	5	40GS	Goulds	2.5"

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

** Well had no tag. Tag added during field exam.

D. FLOW MEASUREMENTS

1. Used handheld IDWR pressure gage on one of the big guns. Each big gun had a 0.5 inch ring nozzle and a 1/8 inch nozzle and we measured the pressure at 30 PSI and 28 PSI respectively.

E. FLOW

☐ Additional Computation Sheets Attached

CALCULATIONS**Measured Method: handheld IDWR pressure gage**

Theoretical flow rate based on Nelson Big Gun Performance table:

0.5" taper ring nozzle at 30 psi = 37 GPM (based on table in FX binder)

1/8" nozzle at 30 PSI = 2.6 gallons/minute (based on table in FX binder)

Total capacity per big gun sprinkler at 30 PSI approximately 40 GPM (0.089 cfs)

Theoretical flow calculation:

Theoretical flow of 0.10 cfs approximately reflects the flow rate of 0.09 cfs, which was determined based on nozzle size and measured pressure at the Big Gun. A system capacity of 0.10 cfs is reasonable given that this point of diversion also serves the home under domestic water right 63-19136.

Please see attached spreadsheet for theoretical calculation.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{IR} = (3.3 \text{ acre}) \times (4.5 \text{ feet}) = 14.9 \text{ acre feet}$$

$$V_{DR} = [0.08 \text{ (cfs)}] \times (259) \times 1.9835 = 41 \text{ acre feet}$$

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} = 14.9 \text{ acre feet}$$

G. NARRATIVE/REMARKS/COMMENTS

I conducted this field exam with Dan Nelson. Upon arriving at the property the owners provided us an overview of their irrigation system. They marked up an aerial map of the property to explain their irrigation system and provided us with information about their pump and delivery system. The point of diversion is a well that was drilled in 1972 and is located in their yard south of the house. There is a well log from 1972 in our database, but it is not certain that it is related to this well. This well is also the point of diversion for water right 63-19136, which is for irrigation around the house and stockwater

throughout their property. From the well the water is pumped in 2.5 inch PVC pipe towards the pasture to the east. The 5 HP pump was replaced in February 2017. Based on records the owners shared, the new pump had the same capacity as the old pump. Fifteen big gun sprinklers are installed around the perimeter and within their pasture along with 9 smaller pop-up sprinklers along the eastern portion of the property (see sketch). The owners operate one big gun at a time. The northwest corner, which is a horse arena is not irrigated. Based on 2009 aerial imagery the system was fully operational when proof of beneficial was submitted (it was due August 01, 2010 but was submitted in July 2009). Annual aerial imagery shows that the POU was irrigated continuously to now.

We conducted field measurements with a handheld pressure gage and also performed a theoretical calculation to verify system capacity. The measured flow rate was approximately 0.09 cfs and the calculated (theoretical) flow rate was 0.10 cfs. These amounts are reasonably close to each other.

The permit for this water right was for 4.0 acres. Based on field observations and aerial imagery the irrigated land is 3.3 acres, which will be the amount shown on the license. The adjacent yard is covered by a 1972 water right (63-19136). There is a canal adjacent to the POU in northeast corner of their property. The owner confirmed that they do not have access to canal water. No other overlapping irrigation rights exist on this property.

I removed permit conditions 1, 2, 5 and added:

- Point of diversion is located within Lot 3, Uppiano Subdivision
- Place of use is located within Lot 3, Uppiano Subdivision.

For permit condition 4 I changed 0.02 cfs per acre to 0.03 cfs per acre because the POU is smaller than 5 acres. This did not change the maximum allowable rate of 0.08 cfs under this water right.

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

H. RECOMMENDATIONS

1. Recommended Amounts

<u>BENEFICIAL USE</u> IRRIGATION	<u>PERIOD OF USE</u> 03/01 to 11/15	<u>DIVERSION RATE</u> 0.08 CFS	<u>ANNUAL VOLUME</u> 14.9 AF
	<u>Totals:</u>	0.080 CFS	14.90 AF

2. Recommended Amendments

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

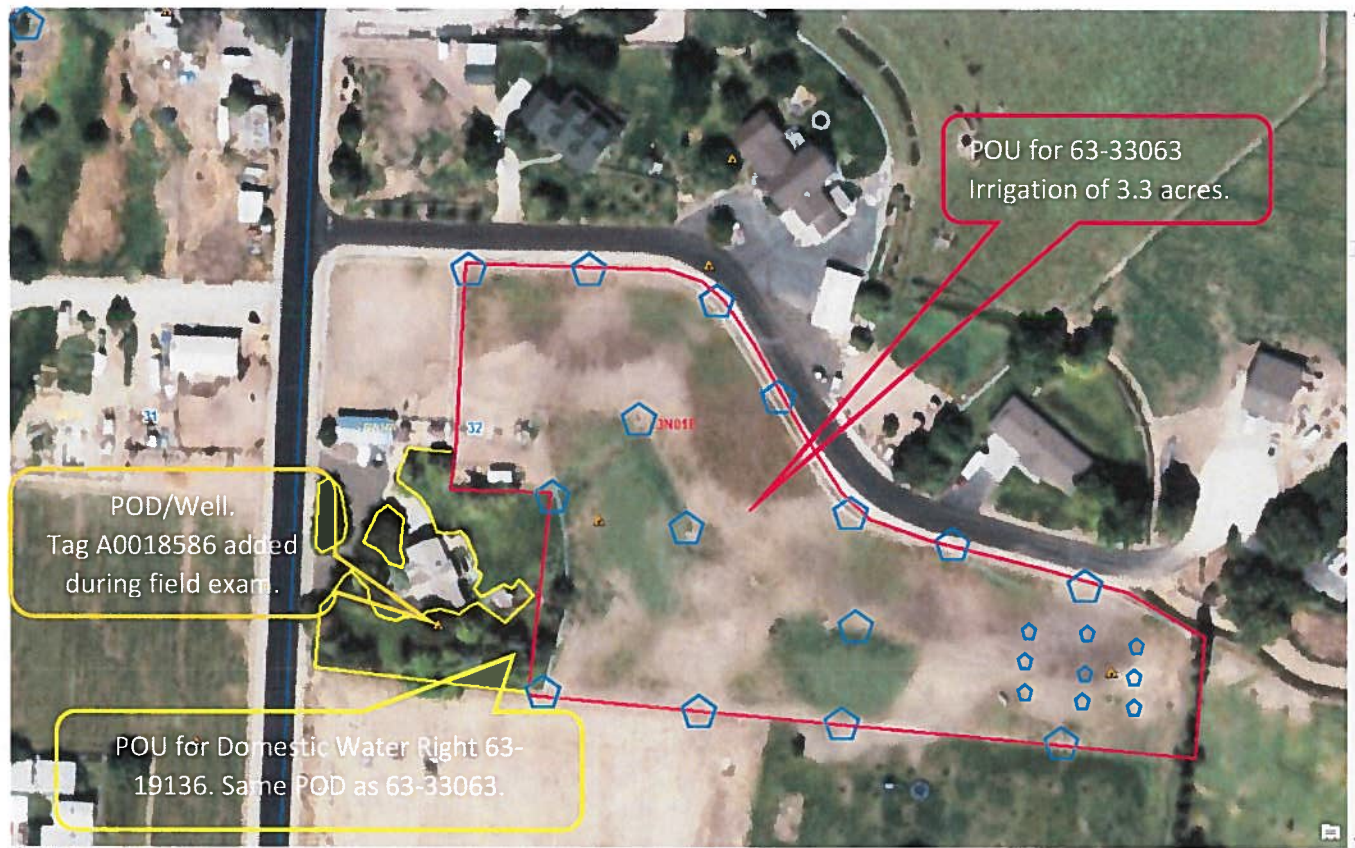
☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☐ None

I. AUTHENTICATION

Field Examiner's Name [Signature] Date 7/1/17

Reviewer [Signature] Date 7-5-17

Map for Beneficial Use Exam for Water Right 63-33063.



Screenshot from ArcMap. 2013 imagery. (note 2009 imagery shows this as irrigated land, but the resolution of the imagery was not as good)

◆ = Pop Up Sprinklers

◇ = Big Gun Sprinklers

THEORETICAL HORSEPOWER EQUATION WORKSHEET (cjh 1/92)

Water Right No.: 63-33063
 Reviewer: Manuel Rauhut
 Date of Review: 6/28/2017

P/D No.:

PUMP HORSEPOWER
 BOOSTER HORSEPOWER

PUMPING LEVEL

DISCHARGE PRESSURE

RATE OF FLOW (cfs)

RATE OF FLOW (GPM)

Well #1
5
0
160
62
0.10
46

Verified from a receipt for pump installed Feb 2017

Pumping depth based on information provided by owner

read on pressure gage in garage

The above calculates the formula =

$$Q = \frac{8.8 * (\text{Efficiency}) * \text{hp}}{\text{depth to water} + 2.31 * (\text{psi}) + \text{friction}}$$

Assumptions: %70 efficiency.
 No Friction

Examiners Notes:

One 5 HP pump.
 Pressure reading in garage was 62 PSI.
 Theoretical flow of 0.10 cfs approximately reflects the flow rate of 0.09 cfs, which was determined based on nozzle size and measured pressure at the Big Gun.

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Beneficial Use Exam Photos:

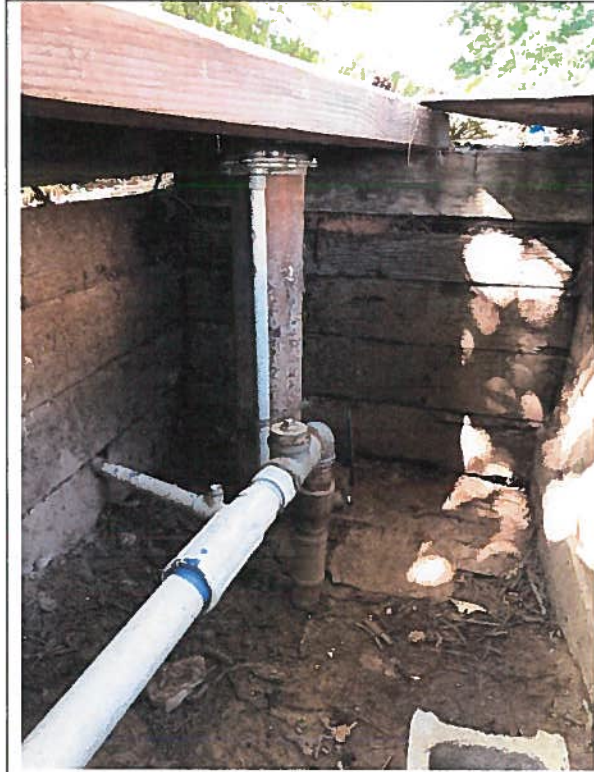


Photo 1. This well is the point of diversion (POD) for water right 63-19136 (domestic and stockwater) and for 63-33063 (this permit). The 2.5 inch PVC pipe (larger pipe) diverts flow towards the pasture under this permit.



Photo 2. The pressure gage in the photo is located in the garage of the house. With one big gun running the pressure was at 62 psi.



Photo 3: Place of use (POU) looking east. Two of the 15 big gun sprinklers visible and circled.



Photo 4. Pasture looking west with one of the big gun sprinklers in the foreground.



Photo 5. Pasture looking south. Note, area to the right of fence is not part of the POU and is not being irrigated.



Photo 6. Eastern edge of irrigated pasture. This area is mostly irrigated with pop up sprinklers. Note, owner does not have access to canal water visible in foreground.

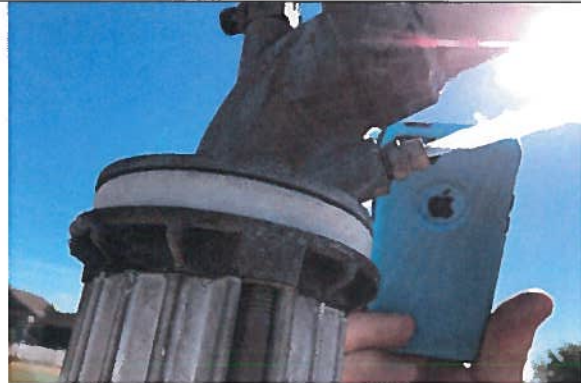


Photo 7. Each of the big guns has a 0.5 inch taper ring nozzle and a 1/8 inch nozzle shown in this photo.



DENNIS PHIPPS WELL DRILLING INC.
12440 KARCHER ROAD • NAMPA, ID 83651
(208) 465-4444 | FAX (208) 465-4465

Invoice

Date	Invoice #
2/7/2017	1149

Bill To
Harvey Vance 5370 S. Locust Grove Rd Meridian, Id. 83642

Ship To
Harvey Vance 5370 S. Locust Grove Rd. Meridian, ID 83642

P.O. Number	Terms	Rep	Ship	Via	F.O.B	Project
Pump			2/7/2017		208-888-4228	
Quantity	Item Code	Description			Price Each	Amount
1	SH Pump	Goulds 45GPM Pump; 5HP 230V Motor			3,709.60	3,709.60
40	2" Drop Pipe	2" PVC SHD120 Drop Pipe			3.50	140.00
4	Labor	Labor			90.00	360.00
		Sales Tax			6.00%	230.98
					Total	\$4,440.58

Photo 8. Receipt of pump installed 2/7/2017. This pump replaced a 5 HP pump that was installed May 2008.