

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 63-33064

Exam Date: 9/20/2012

1. Current Owner: LAWRENCE HANSEN
1440 E MARY LN
MERIDIAN ID 83642
(208)870-8482

And

KAY HANSEN
1440 E MARY LN
MERIDIAN ID 83642

2. Accompanied by: Kay and Larry Hansen

Phone No:

Address:

Relationship to Permit Holder: same

3. SOURCE

TRIBUTARY

GROUND WATER

B. OVERLAP REVIEW

1. Other water rights with the same place of use: none
2. Other water rights with the same point of diversion: none

C. DIVERSION AND DELIVERY SYSTEM

1. LOCATION OF POINT(S) OF DIVERSION:

GROUND WATER

SE1/4NE1/4

Sec. 31, Twp 03N, Rge 01E, B.M.

ADA County

Method of Determination: Garmin GPS 43.555, -116.37653

2. PLACE OF USE: IRRIGATION

TwpRge Sec	NE				NW				SW				SE				Totals
03N 01E 31	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	5.5

Total Acres: 5.5

PLACE OF USE: COMMERCIAL

TwpRge Sec	NE				NW				SW				SE				Totals
03N 01E 31	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	X

Method of Determination: aerial photographs

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

x Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.

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

x Photo of Diversion and System Attached

4.

<u>Well or Diversion ID No.*</u>	<u>Motor Make</u>	<u>Hp</u>	<u>Motor Serial No.</u>	<u>Pump Make</u>	<u>Pump Serial No. or Discharge Size</u>
well	Gould	3	unknown	Gould	unknown

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

D. FLOW MEASUREMENTS

<u>1. 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: none taken

E. FLOW CALCULATIONS

Additional Computation Sheets Attached

IRRIGATION:

[a] the flow through a 2" pipe in an closed system is 0.11 cfs

[b] 5.5 acres x 0.02 cfs = 0.11 cfs

[c] theoretical calculation: z = 165 ' bgs, 15 ' above pump, 3 hp pump, 70% efficiency, 40 pis [standard for irrigation]

$$\frac{[8.8] [3] [0.7]}{165 + [40] [2.31]} = \frac{18.48}{257.4} = 0.072 = 0.07 \text{ cfs}$$

Measured Method:

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation: 5.5 afa determined by the IDWR hearing officer.

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

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

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

2. Volume Calculations for Other Uses:

commercial =

[18 gpm] [60 minutes in hour] [4 hours per day once a week] [8 weeks of September – October + 2 extra weeks for flexibility = 10 weeks] = 43200 gallons per year/ 325850 = 0.13 afa

Plus an estimated 2 hours a week for the remaining 42 weeks = [18 gpm] [60] [2] [42] = 90720/325850 = 0.278 = 0.28 afa .

0.28 + 0.13 = 0.41 afa for commercial. Will round up to 0.5 afa

G. NARRATIVE/REMARKS/COMMENTS

Proof of beneficial use was timely filed and the correct fee paid. I was accompanied on the field exam by permittees Larry and Kay Hansen. The initial application was contested and the permit quantity, acres irrigated and volume were established in a hearing. The permittees stated that no changes have been made to the system since the hearing. The permit was issued irrigation and commercial uses, for 5.5 acres irrigation of a vineyard, limited to 5.5 afa, and 0.04 commercial use. The vineyard supplies grapes to 4 wineries.

The well was drilled before 1963 and IDWR does not have the well log on file. The applicants stated that the well was 306 feet deep, 6 inches in diameter and the static water level is approximately 130 feet below the ground surface. The applicants replaced the pump with a Gould 3 hp variable speed pump and motor assembly. The pump is set at 180 feet.

From the well, a 2" steel pipe pumps water to a 2" plastic mainline. From the mainline, 1.5 inch plastic lateral pipes carry water to the 0.5 inch diameter driplines and to the 0.5 gph emitters spaced every 2 feet. The lateral rows are about 200 feet long and require a maximum 0.8 gpm of water for six hours at a time. The vineyard is divided into 7 irrigation zones and each zone is irrigated once a week. The system is extremely efficient.

One of the methods used for calculating quantity is the pipe flow guideline. In this instances, for a 2 inch pipe, which is 0.11 cfs. A theoretical flow was calculated using $z = 165$ feet, which is 15 feet above the where the pump is set [the drawdown is unknown], and a pressure of 40 psi which is standard for irrigation. The flow result was 0.07 cfs. Due to the variables used in the theoretical, the pipe flow is likely more accurate. The permitted quantity is 0.15 cfs and 75% of 0.15 cfs = 0.1125. Because 0.11 cfs is less than 75% of the permit, 0.11 cfs is recommended as the total licensed quantity for all uses.

The standard volume for irrigation is 4.5 afa. However, during the hearing, the hearing officer decided that the vineyard would be limited to 5.5 afa for irrigation. This is the irrigation volume recommended for licensing.

There was no volume permitted for the commercial use. The permitted commercial use is for miscellaneous uses associated with operating a vineyard, such as rinsing equipment and the fermenting bins that are filled with grapes and sent to the wineries that buy the grapes. Most of this commercial use occurs during the fall harvest in the months of September and October. The applicant estimates water is used for these uses approximately 4 hours a week. There are other small uses around the vineyard so I will estimate about 2 hours a week for miscellaneous commercial uses throughout the year for a volume of 0.5 afa. The annual volume recommended for licensing is the 5.5 for irrigation and 0.5 afa for year round miscellaneous commercial uses for a total volume of 6.0 afa.

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

H. RECOMMENDATIONS

- 1) Permit amount __0.15__ cfs
- 2) Beneficial use limit __0.15__ cfs
- 3) System measurement __0.11__ cfs
- 4) Proof fee amount __0.20__ cfs

1. Recommended Amounts

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
IRRIGATION	03/01 to 11/15	0.110 CFS	5.50 AF
COMMERCIAL	01/01 to 12/31	0.040 CFS	0.50 AF
<u>Totals:</u>		0.110 CFS	6.00 AF

2. Recommended Amendments

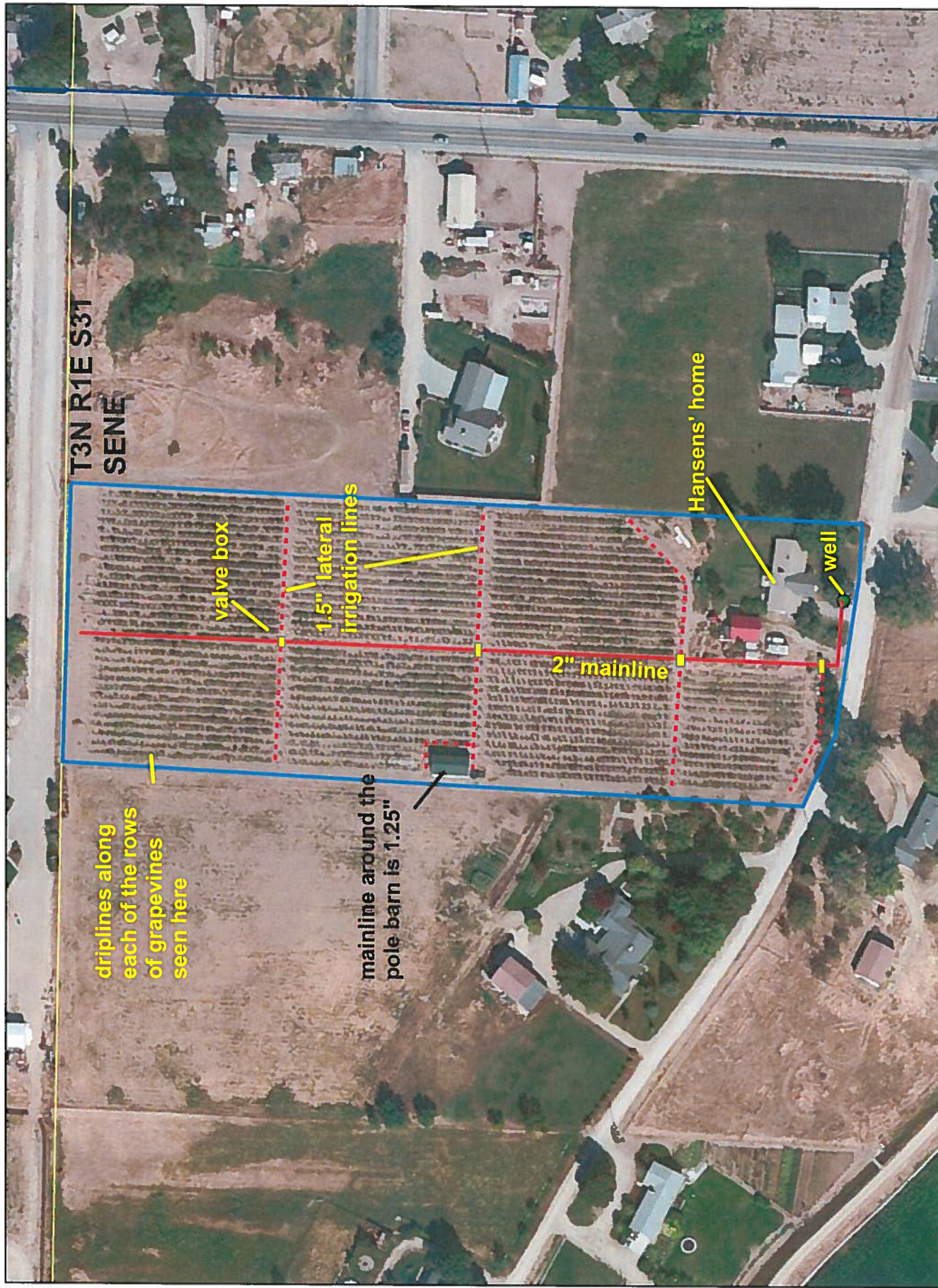
___ Change P.D. as reflected above ___ Add P.D. as reflected above _x___ None

___ Change P.U. as reflected above ___ Add P.U. as reflected above ___ Other

I. AUTHENTICATION

Field Examiner's Name Wicky Wille Date 9-25-12

Reviewer _____ Date _____



63-33064 Point of diversion, place of use and diagram of irrigation system --
2011 BING PHOTOGRAPHY. Place of use outlined in blue.



Point of diversion = well, which is fitted with a 3 hp submersible Gould pump and motor.



Looking north at place of use: the vineyard.



The buried 1.5 " laterals are connected to the 0.25" driplines seen here.



There are 0.5 gph emitters, seen here as the bit of light- colored area on the dripline, at each vine.



Some of the commercial use is the washing of these fermenting bins. The bins are filled with grapes and sent to the wineries that buy the grapes.