

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
IN-OFFICE REVIEW/BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 61-11973

Exam Date: 1/8/2014

1. Does this qualify for an in-office field exam (IDAPA 035.02.r)? ☒ Yes ☐ No
- Irrigation of 5 acres or less
 - Storage of up to 14.6 AF for stockwater purposes only
 - Any use other than irrigation or storage, if the combined diversion rate is 0.24 cfs or less
 - Other : none.

2. Current Owner: Name: Hells Canyon Partners
- Owner of Record Correct? ☒ Yes ☐ No
- Address of Record Correct? ☒ Yes ☐ No
- If No: Address

3. Beneficial Use Fees have been paid: ☒ Yes ☐ No Receipt No: W030648

4. SOURCE TRIBUTARY

Groundwater

Method of Determination:

The proof of beneficial use filed a well as source of water. The well driller's report is on file assigning the owner and permit number for the well on the property. A phone conversation with the owner confirmed groundwater out of this well as the use.

Change in Source: ☐ Yes ☒ No

B. OVERLAP REVIEW

1. Other water rights with the same place of use: Overlap? ☒ Yes ☐ No

Water Right No.	Source	Purpose of Use	Basis

Comments: King Hill Irrigation does share POU in WR #'s 37-21595 & 37-4112. But per teleconference with Sharla Curtis on 4-16-12 no surface water shares appurtenant to land in application.

2. Other water rights with the same point of diversion: Overlap? ☐ Yes ☒ No

Water Right No.	Source	Purpose of Use	Basis

Comments: Diversion for this water right is located on property and not diverting to any other water use.

C. DIVERSION AND DELIVERY SYSTEM**1. LOCATION OF POINT(S) OF DIVERSION:**

Source	Govt. Lot	¼	¼	¼	Sec.	Twp.	Rge.		County
Well (Permit #D0019486)			SE	NE	11	05S	10E	B.M.	Elmore

Method of Determination: Proof Report, Well construction search, matched with PLSS data.

Change in POD? ☐ Yes ☒ No

Amendment Required? ☐ Yes ☒ No

2. **PLACE OF USE:** 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	
05S	10E	11				1.6													1.6
05S	10E	11				X													
Total Acres =																			1.6

Method of Determination: Proof Report gave accurate property description. The calculate acres tool was used in ArcMap to identify area of irrigation.

Change in POU? ☐ Yes ☒ No

Amendment Required? ☐ Yes ☒ No

☐ Delivery System Diagram Attached (required). Indicate all major components and distances between components.

Indicate weir size/pipe as applicable.

☒ 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
D0019486		2			

*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

2. Measurements: No measurements taken in house review. Theoretical calculation was performed and attached.

E. FLOW CALCULATIONS

☒ Additional Computation Sheets Attached

Measured Method: Irrigation

Per App. Processing Memo #17, up to 0.03 cfs/acre for irrigation up to 5 acres acceptable.

0.03 cfs = 1.5 inch per acre (IDWR standard) 1.6 acres * 0.03 cfs = 0.05 cfs at 1.5 inch per acre

The theoretical flow sheet states a max of 0.06 cfs. See attached.

For domestic use:

0.04 cfs was permitted. Per Administrator's Memo #22, this is standard.

Measurement = Irrigation: 0.05 cfs, Domestic: 0.04 cfs, Total: 0.06 cfs

Permit allowed = Irrigation: 0.06 cfs, Domestic: 0.04 cfs, Total: 0.10 cfs

License recommend for Irrigation: 0.05 cfs, Domestic: 0.04 cfs, Total: 0.06 cfs

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 1.6 \times 4.0 = 6.4 \text{ AFA}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.05 \times 246 \times 1.9835 = 24.4 \text{ AF}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 6.4 \text{ AF}$$

2. Volume Calculations for Other Uses:

For the Domestic use, Administrator's Memorandum #22 states that when irrigation is separated from the domestic use, use a volume of 0.6 afa.

G. PURPOSE OF USE

Irrigation ☒ Yes ☐ No # Stock _____ Domestic # of Homes 1

Other: none

Change in Purpose of Use? ☐ Yes ☒ No

Method of Determination: The application for permit requested water use for 1 home and irrigation for a small orchard/garden on the property. From aerial photography and the amount of water being diverted, this is a reasonable request for that purpose.

If Yes: From Use _____ To Use _____ Amount _____ CFS _____ AFA _____

H. NARRATIVE/REMARKS/COMMENTS

Permit 61-11973 authorized the use of 0.10 cfs ground water for the irrigation and domestic use on the property. The source of water comes from a 96' well located on the property.

The proof of beneficial use was received on June 30th, 2003.

The in-office field exam was reviewed with aerial photography, a proof report, POU comparison, PLSS mapping, taxlot information and Department water right data layers representing diversions and uses local to the property. The taxlot information indicates that Mr. & Mrs. Cantrell do own the property and the legal description, address and other information matches what was filed on the Proof of Beneficial Use.

There is an overlap of use shown on the POU comparison report. Other water rights 37-21595 & 37-4112 are owned by the King Hill Irrigation District. Per teleconference, no surface water shares appurtenant to this water right application.

Well information was pulled from the well construction search. I was able to locate the well drillers report which gave a permit number D0019486. The static water level was given and was used in the theoretical flow equation. The theoretical dynamic pumping level diagram for wells part B) states that if pump level is known, use 10' above on a small system up to 10 horse power. This standard was used to determine pumping level in the equation worksheet that is attached. The pressure was calculated using the standard 40-60 psi turn on shut off for domestic pressure tanks.

Telephone contact was made with Donna on January 6, 2014 to establish the correct horsepower of the pump in the well.

Rate of flow from the theoretical worksheet represents an average of 0.06 cfs. This seems reasonable when comparing this rate for the use requested by the applicant. The permit allowed a cumulative flow of 0.10 cfs, so we will be lessening that rate to better reflect the actual use by the owner.

Aerial photography allowed the measurement of the actual area of the property and its use of irrigation. The 1.6 acres is less than the 3.0 that was applied for in permit. The condition for permit states no more than 4.0 afa per acre. The maximum of 6.4 afa for 1.6 acres was recommended for license being the lesser of what is capable of being pumped.

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

I. RECOMMENDATIONS

1. Recommended Amounts

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
Irrigation	03/15 to 11/15	0.05 cfs	6.4 af
Domestic	01/01 to 12/31	0.04 cfs	0.6 af
	<u>Totals</u>	0.06 cfs	7.0 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

Other: none.

J. AUTHENTICATION

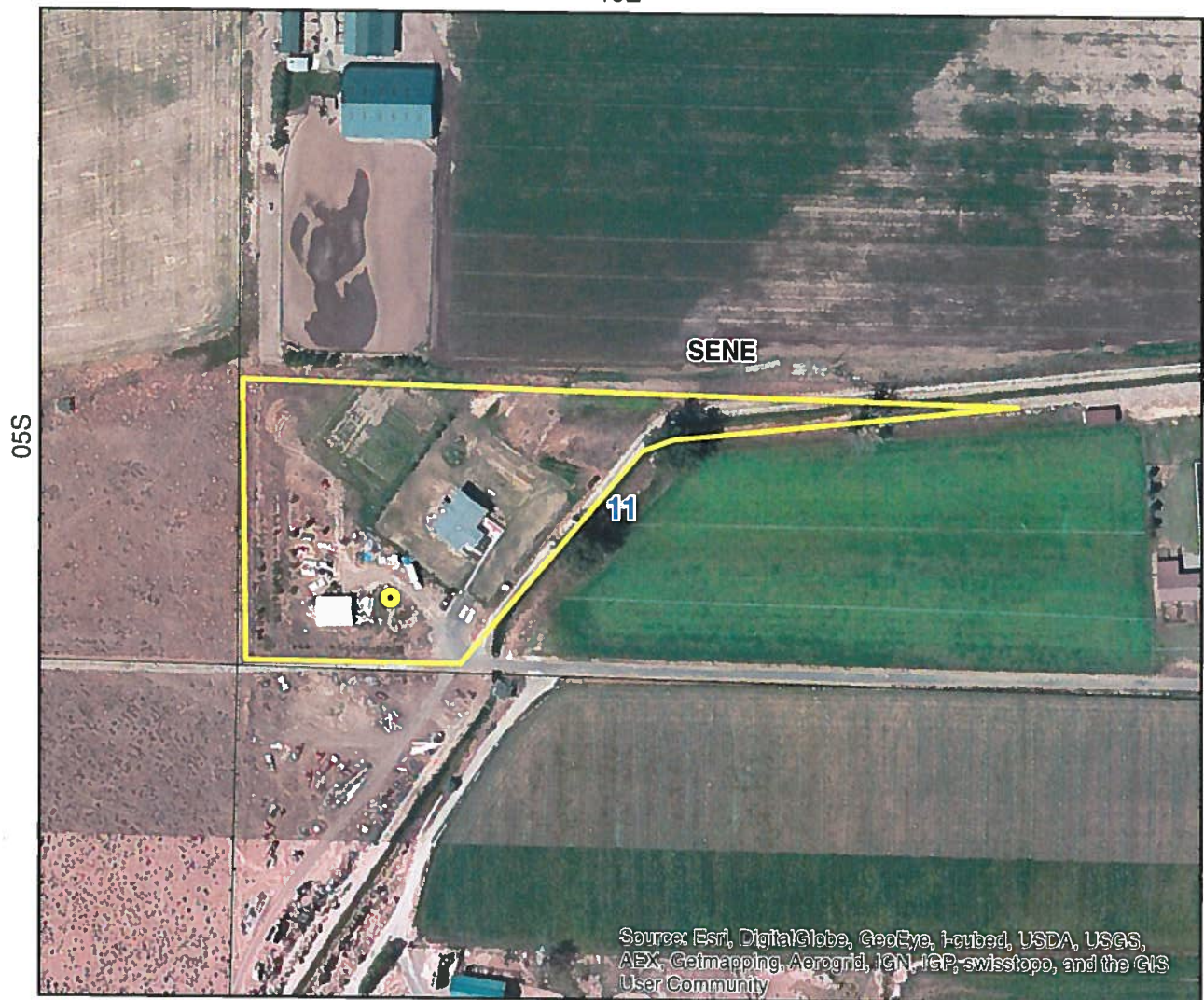
Field Examiner's Name Patricia Wiley Date 01-13-14

Reviewer Daniel A. Able Date 1-14-14

State of Idaho
Department of Water Resources
Field Exam Map
61-11973

This map depicts the DOMESTIC place of use boundary for this water right at the time of this approval and is attached to the approval document solely for illustrative purposes.

10E



-  Point of Diversion
-  Place Of Use Boundary
-  Townships
-  PLS Sections
-  Quarter Quarters

0 0.025 0.05 0.1 Miles



State of Idaho
Department of Water Resources
Field Exam Map
61-11973

This map depicts the IRRIGATION place of use boundary for this water right at the time of this approval and is attached to the approval document solely for illustrative purposes.

10E

05S



-  Point of Diversion
-  Place Of Use Boundary
-  Townships
-  PLS Sections
-  Quarter Quarters

0 0.01 0.02 0.04 Miles



THEORETICAL HORSEPOWER EQUATION WORKSHEET (cjh 1/92)

Water Right No.: 61-11973
 Reviewer: Patrick Kelly
 Date of Review: 1/13/2014

P/D No.:	Senerio 1	Senerio 2	Senerio 3
PUMP HORSEPOWER	2	2	2
BOOSTER HORSEPOWER	0	0	0
PUMPING LEVEL	84	84	84
DISCHARGE PRESSURE	40	50	60
RATE OF FLOW (cfs)	0.07	0.06	0.06 0.06

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: In-office field exam done on 1-13-14
 Used 40-60 pressure using standard turn on shut off limits for domestic pressure tanks.
 Average rate of flow is 0.06 cfs. This will be the recommended rate for the water right.

	Process	Basin Sequence	Draft	Owner	Source	POD/POU	NENE	NWNE	SWNE	SENE	NENW	NWNW	SWNW	SENW	NESW	NWSW	SWSW	SESW	NESE	NWSE	SWSE	SESE	Total Acres
	Water Right	37-21595	N	KING HILL IRRIGATION DISTRICT	MALAD RIVER	POU	X			X								X	X	X	X		0
	Water Right	37-4112	N	KING HILL IRRIGATION DISTRICT	MALAD RIVER	POU	X			X								X	X	X	X		0
	Adjudication Claim	37-4112		KING HILL IRRIGATION DISTRICT	MALAD RIVER	POU	X			X								X	X	X	X		0
	Water Right	61-10241	N	POWERS, ELIZABETH M; POWERS, FRANKLIN J	KING HILL CREEK	POD			X												X		0
	Water Right	61-10241	N	POWERS, ELIZABETH M; POWERS, FRANKLIN J	KING HILL CREEK	POU		X	X												X		0
	Water Right	61-10538	N	ALLEN, BETTY JEAN; ALLEN, HENRY L	GROUND WATER	POD												X					0
	Water Right	61-10538	N	ALLEN, BETTY JEAN; ALLEN, HENRY L	GROUND WATER	POU												X					0
	Water Right	61-11903	N	POWERS, ELIZABETH M; POWERS, FRANKLIN J	KING HILL CREEK	POD															X		0
	Water Right	61-11903	N	POWERS, ELIZABETH M; POWERS, FRANKLIN J	KING HILL CREEK	POU		38.0	30.0		10.0			8.0	11.3			19.0					116.3
	Water Permit	61-11973	N	CANTRELL, DONNA; CANTRELL, JONATHAN	GROUND WATER	POD				X													0
	Water Permit	61-11973	N	CANTRELL, DONNA; CANTRELL, JONATHAN	GROUND WATER	POU				3.0													3
	Water Permit	61-11973	N	CANTRELL, DONNA; CANTRELL, JONATHAN	GROUND WATER	POU				X													0
	Water Right	61-2065	N	POWERS, ELIZABETH M; POWERS, FRANKLIN J	KING HILL CREEK	POD															X		0
	Water Right	61-2065	N	POWERS, ELIZABETH M; POWERS, FRANKLIN J	KING HILL CREEK	POU		38.0	30.0		10.0			8.0	11.3			19.0					116.3
	Water Right	61-2222	N	POWERS, ELIZABETH M; POWERS, FRANKLIN J	KING HILL CREEK	POD															X		0
	Water Right	61-2222	N	POWERS, ELIZABETH M; POWERS, FRANKLIN J	KING HILL CREEK	POU		38.0	30.0		10.0			8.0	11.3			19.0					116.3

memo

From: Patrick Kelly
Date: 1/6/2014
Re: Contact with owner

Comments: Called Donna to request horsepower on pump. She informed me that they are using a 2 HP pump and believes it is pumping around twenty gallons per minute.