

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 96-09586

Exam Date: 7/28/2017

1. Current Owner:
P M HERNDON CORP 222 OTTS BASIN RD SAGLE ID 83860 (208) 597-2086
2. Accompanied by: Paul Herndon (Owner)

3. **SOURCE:**
GROUND WATER

TRIBUTARY:**B. OVERLAP REVIEW**

1. Other water rights with the same place of use: 96-7031, 96-9265, and 96-9513
2. Other water rights with the same point-of-diversion: 96-9624

C. DIVERSION AND DELIVERY SYSTEM1. **LOCATION OF POINT(S) OF DIVERSION:**

GROUND WATER NE¼NE¼ Sec. 27, Twp 56N, Rge 03W, B.M. BONNER County

Method of Determination: Maps and GPS. POD D0072032 located at -116° 40.804, 48° 10.706 given IDWR tag A0020089

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	
56N	03W	22																15.5	15.5
56N	03W	27	4.0																4.0

Total Acres: 19.5

Method of Determination: Google Earth and Arcmap.

3.

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

X 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.

Well or Diversion ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
D0072032	FRANKLIN	15			

*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
Pressure Gauge						

2. Measurements:

First sprinkler – 70 psi

Middle sprinkler – 67 psi

Last sprinkler – 64 psi

$$70+67+64 / 3 = 67 \text{ psi}$$

Sprinklers were a Wade Rain 5/32" head and there were 25 sections of sprinklers

$$5.77 \text{ gpm} \times 25 \text{ sections} = 144.25 \text{ gpm}$$

$$\text{One } 11/64" \times 3/32" \text{ sprinkler at } 70 \text{ psi} = 9.25 \text{ gpm}$$

$$144.25 \text{ gpm} + 9.25 = 153.5 \text{ gpm or } 0.34 \text{ cfs.}$$

License can only be issued for 0.33 cfs because that is what was applied for. If all water rights are running at same time the psi and gpm will be reduced to meet the 0.33 cfs.

E. FLOW CALCULATIONS

Measured Method: See attached Wade Rain performance data sheets.

X Additional Computation Sheets Attached

F. VOLUME CALCULATIONS**1. Volume Calculations for Irrigation:**

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 19.5 \text{ AC} \times 3.0 \text{ AF} = 58.5 \text{ AF}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.33 \text{ CFS} \times 214 \times 1.9835 = 140.1 \text{ AF}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 58.5 \text{ AF}$$

2. Volume Calculations for Other Uses:**G. NARRATIVE/REMARKS/COMMENTS**

Field exam with applicant, Paul Herndon, showed a well serving water for irrigation. The well, D0072032, was equipped with a 6 inch 15 hp pump. There were no good places to perform a flow measurement with the irrigation system running. I did perform a flow measurement on the system to see what the capacity was. There was a spot where Mr. Herndon could open a valve for flood irrigation and a proper spot to measure that flow. He shut down all irrigation and opened valve and I measured the system capacity of 460 gpm using the GE Panemetric Flowmeter. This right was examined along with an exam for irrigation on adjacent field covered under 96-9624.

After the measurement I had the applicant turn on a set of wheel line so I could perform psi test on the heads. The heads were a Wade Rain 5/32" head and I measured 64 psi, 67 psi, and 70 psi with an average of 67 psi. The rating for those sprinkler heads at 67 psi is equal to 5.77 gpm per head. Mr. Herndon had two wheel lines and each line had 25 sections and sprinklers. We performed the same test with the other wheel line and measured the same psi as the first line. Mr. Herndon said he would occasionally run both lines at the same time with a reduced psi and diversion rate. He said he would usually just operate a wheel line at a time and then run a Wade Rain Double Nozzle head around the house and on 4 acres just west of the home. That nozzle ran at about 70psi and would divert around 9.25 gpm.

Performing overlap review on this right was a little challenging. License 96-9265 was from a well for domestic uses and an irrigation component for 1/2 acre. The shape was for this right is very large and covers areas that are irrigated and not irrigated. License 96-9513 was for irrigation of 1 acre around the home from Moore Creek and the irrigation in the SESE for 15.5 acres. License 96-7031 was given a general shape of the 40 acre tracts where it was licensed. I redrew the shape and made a note in that license file that I redid the shape based upon the shape the field examiner sketched. I was unable to match the acreage exactly how it was licensed and this will hopefully be fixed during the basin 96 adjudication. Because these overlaps were challenging to know exactly what portion and how many acres and what diversion rates, a general overlap will be used. Condition X35 will be used to list all rights; 96-7031, 96-9265, 96-9513, and this right 96-9586, when combined shall not exceed 3.0 af per acre.

This license will be issued for a diversion rate of 0.33 cfs (144.25 gpm for wheel line + 9.25 gpm for double head). The 0.33 cfs is the maximum the applicant applied for and thus the maximum we can issue the license for. If the applicant runs the wheel line and sprinkler at the same time, it would be over by 0.01 cfs. The applicants other water right, 96-9624 covers the entire diversion rate of a wheel line and the sprinkler. The applicant said he would usually run the western most wheel line (96-9624) while irrigating the 4 acres in the NENE (96-9586). He would then run the eastern most wheel line (96-9586) while doing irrigation around the house (96-9624). If the applicant runs both wheel lines at the same time and the double nozzle, the psi rates would fall enough that the 0.33 cfs diversion rate would be met under this right. If that is the case, the applicant doesn't exceed the authorized diversion rate under this right. Besides condition X35, conditions R62 and 004 will be remain on license. Condition F06 will be added to show that this right and 96-9624 are diverted from the same point of diversion.

Have conditions of permit approval been met? X Yes No

H. RECOMMENDATIONS**1. Recommended Amounts**

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
IRRIGATION	04/01 to 10/31	0.33 CFS	58.5 AF
	<u>Totals:</u>	0.330 CFS	58.50 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 X None

I. AUTHENTICATION

Field Examiner's Name Gary Fink Date 4/9/2018

Reviewer Douglas Jones P.E. Date 6/15/18

WR-33 DOUBLE NOZZLE - 27 DEG. TRAJECTORY

	9/64"x 3/32"		5/32"x 3/32"		11/64"x 3/32"		3/16"x 3/32"		3/16"x 1/8"	
NOZ	DIA.		DIA.		DIA.		DIA.		DIA.	
PSI	GPM	FT.	GPM	FT.	GPM	FT.	GPM	FT.	GPM	FT.
25	4.18	80	4.83	82	5.55	83	6.31	85	7.40	88
30	4.58	81	5.28	85	6.07	88	6.93	91	8.15	94
35	4.95	82	5.71	87	6.57	90	7.51	94	8.83	98
40	5.29	83	6.11	88	7.03	92	8.03	96	9.46	100
45	5.61	84	6.48	89	7.46	94	8.53	98	10.05	102
50	5.91	85	6.82	90	7.87	95	9.00	100	10.60	104
55	6.20	86	7.15	91	8.25	96	9.45	101	11.10	106
60	6.48	87	7.47	92	8.60	97	9.86	102	11.60	108
65	6.75	88	7.78	93	8.93	98	10.27	103	12.10	110
70	7.00	89	8.08	94	9.25	99	10.66	104	12.50	112
75	7.25	90	8.37	95	9.56	100	11.02	105	12.90	114
80	7.49	91	8.65	96	9.87	101	11.36	106	13.25	116

NOTE:

- * Optional straightening vane will increase diameters by 4-8% at pressures
- * Highest point of stream is 8 ft. above nozzle with 1/8" nozzle at normal o
- * Performance stated at base pressure.

Paul Herndon

Pleasant Meadow Creamery

<http://pleasantmeadowcreamery.com>

<https://facebook.com/guernseycows>

paul@pleasantmeadowcreamery.com



PERFORMANCE DATA

WR-33 BRASS IMPACT SPRINKLER

WR-33 SINGLE NOZZLE - 27 DEG. TRAJECTORY

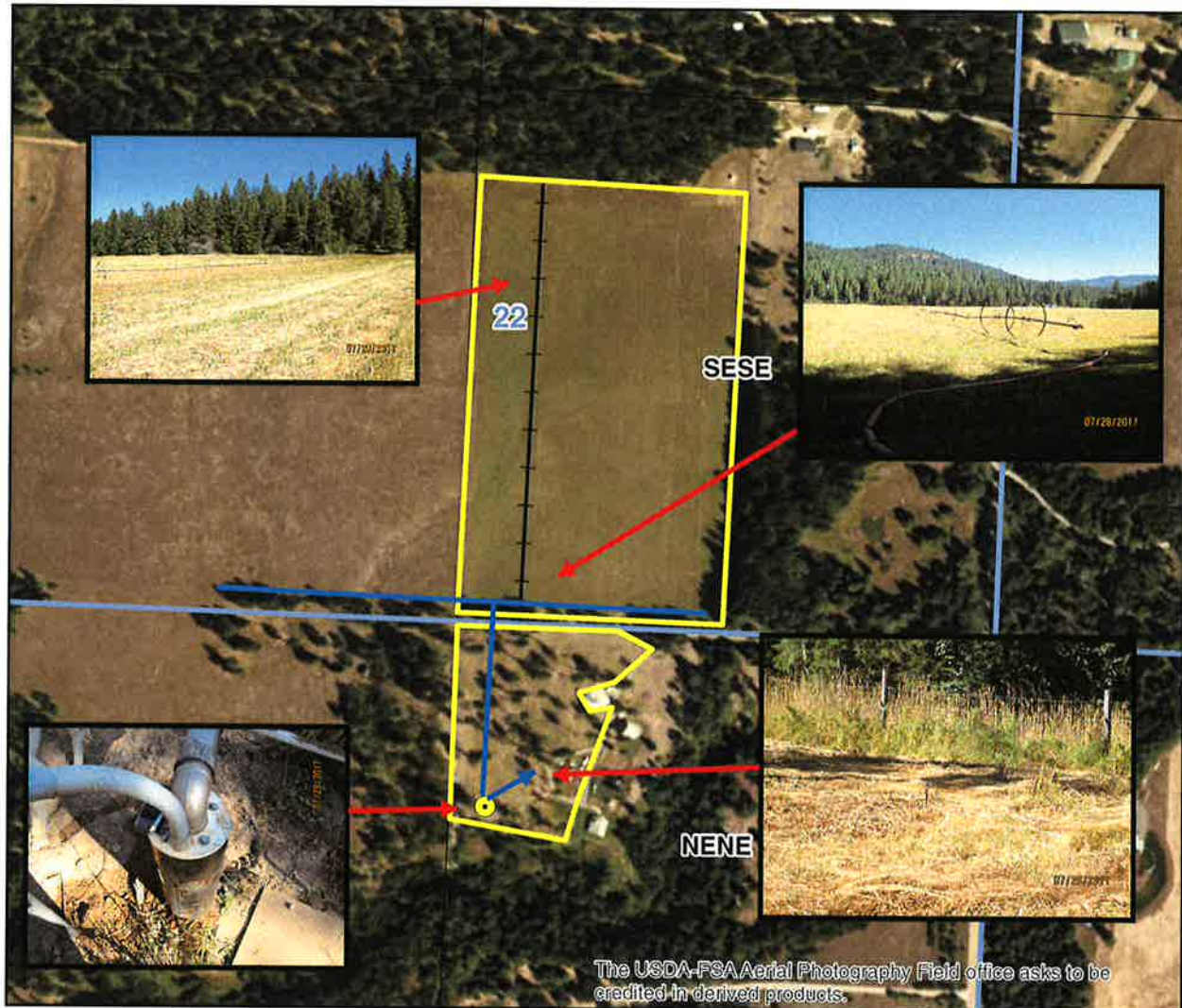
	1/8"		9/64"		5/32"		11/64"		3/16"	
NOZ	DIA.		DIA.		DIA.		DIA.		DI	
PSI	GPM	FT.	GPM	FT.	GPM	FT.	GPM	FT.	GPM	F
25	2.25	78	2.88	80	3.52	82	4.24	83	5.0	8
30	2.47	79	3.15	81	3.85	85	4.64	88	5.5	9
35	2.68	80	3.40	82	4.16	87	5.02	90	6.0	9
40	2.87	81	3.64	83	4.45	88	5.37	92	6.4	9
45	3.05	82	3.86	84	4.72	89	5.70	94	6.8	9
50	3.22	83	4.07	85	4.98	90	6.01	95	7.2	10
55	3.38	84	4.27	86	5.22	91	6.30	96	7.5	10
60	3.53	85	4.46	87	5.45	92	6.57	97	7.9	10
65	3.68	86	4.65	88	5.68	93	6.83	98	8.2	10
70	3.82	86	4.83	89	5.90	94	7.09	99	8.5	10
75	3.96	87	5.00	90	6.11	95	7.34	100	8.8	10
80	4.09	87	5.17	91	6.30	96	7.58	101	9.1	10

State of Idaho
Department of Water Resources
Attachment to Field Exam
96-9586

IRRIGATION / SYSTEM DIAGRAM

03W

56N



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

0 0.05 0.1 0.2 Miles





POD.



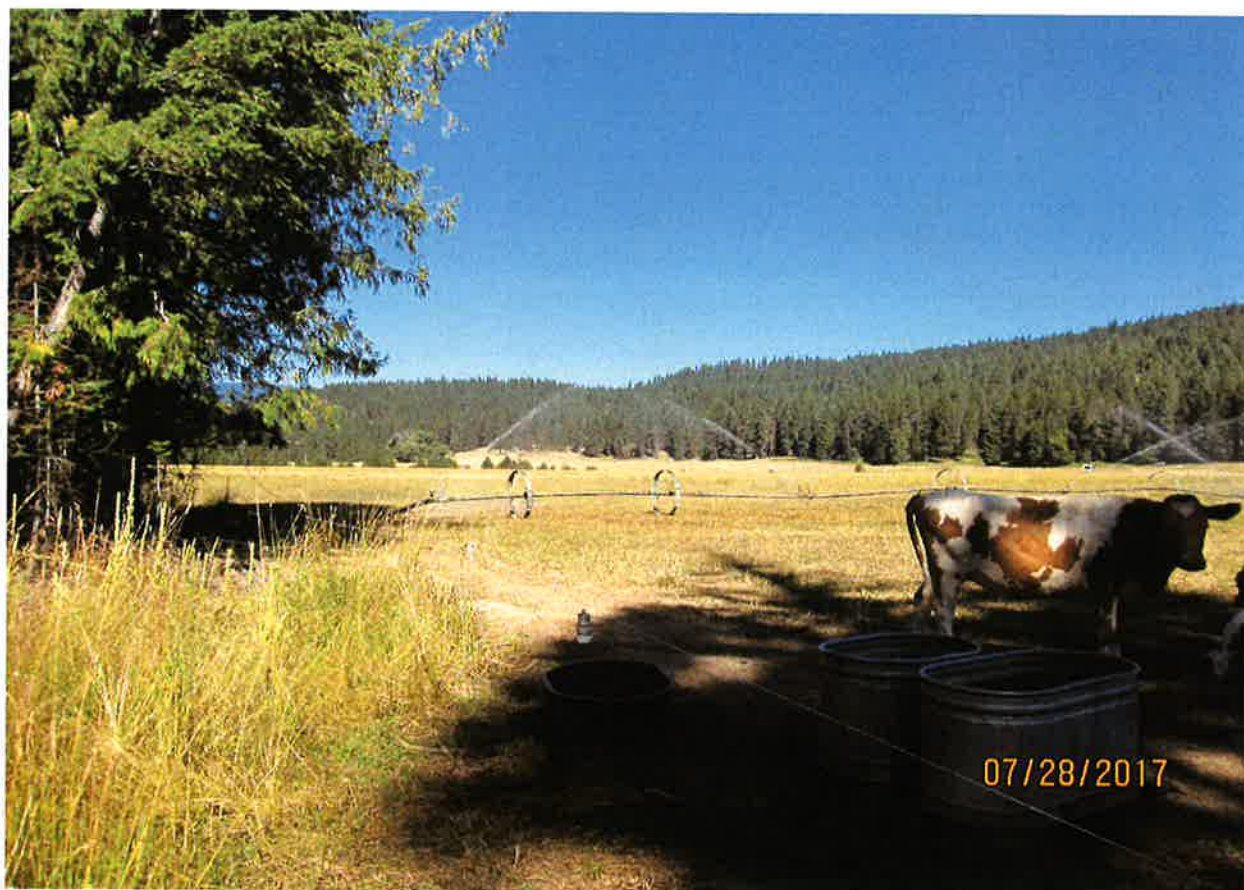
Well D0072032 given IDWR tag A0020089.



Flow measurement performed using GE Panametric Meter.



Performed flow measurement to see what well could produce and was equal to 445 gpm.



Applicant was running 5/32 heads and psi measurements were taken with average of 67 psi.



Both wheel lines were running with average psi of 67 with 50 heads running at once.



Irrigation POU.



Irrigation POU.



Applicant had a 5/32 X 3/32 sprinkler running at 70 psi in the NENE.



Irrigation POU.



