

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 63-33088

Exam Date: 10/22/2012

1. Current Owner: THE FRANCOIS FAMILY LIVING TRUST
9857 DUNDEE CT
NAMPA ID 83686
(208)891-3095

2. Accompanied by: Peter Francois
Phone No: (208)461-3064 (Cell)
Address: Same
Relationship to Permit Holder: Trustee

3. SOURCE TRIBUTARY
GROUND WATER

B. OVERLAP REVIEW

1. Other water rights with the same place of use: Boise Kuna Irrigation District
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 NW1/4NE1/4 Sec. 17, Twp 02N, Rge 01W, B.M.
CANYON County

Method of Determination: GPS Location N43° 30.913' W116° 28.923' Garmin model GPSmap 76 Datum NAD 83 – PD shape generated from previous GPS data collected by WC field inspection of well D0031466.

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	
02N	01W	17		2.0															2.0
Total Acres:			2.0																

Method of Determination: Bing (2011) Aerial Photography w/ field verification.

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 or Diversion

ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
D0031466	unknown submersible	1.5	unknown	Grundfos	unknown – 1.5 in discharge

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

D. FLOW MEASUREMENTS1. **Measurement**

<u>Equipment</u>	<u>Type</u>	<u>Make/Model No.</u>	<u>Serial No.</u>	<u>Size</u>	<u>Calib. Date</u>
No physical measurement @ exam	N/A	N/A	N/A	N/A	N/A

See Flow Calculations Section below for Pump Company Pump Test & Sprinkler System Estimations.

Measurements: None taken. Well discharge piping not suitable (buried) for polysonic measurement.

E. FLOW CALCULATIONS

_____Additional Computation Sheets Attached

Measured Method: Pump Co. Pump Test (info provided by owner – test of pump currently in well):

Pump Test : Discharge = 30 gpm = **0.07 cfs** w/ 0 ft drawdown pumped for 1.5 hours

Measured Method: Sprinkler System Estimation:

of lines @ one time = 1

of sprinkler heads @ one time = maximum of 8 heads

Type of sprinklers = Hunters PGP 40' radius w/ red nozzle #6 (info provided by owner)

Nozzle size = #6 nozzle = 2.9 gpm @ 60 psi (see attached sprinkler spec sheet)

$Q = \# \text{ heads} \times \text{gpm} = 8 \times 2.9 \text{ gpm} = 23.2 \text{ gpm} = \mathbf{0.05 \text{ cfs}}$ est. discharge from sprinklers

Pump Co. Pump Test = **0.07 cfs**

Sprinkler System est. = **0.05 cfs**

Permitted Rate = **0.04 cfs**

Beneficial Use Limit = 2.0 ac x 0.03 cfs/ac = **0.06 cfs**

Proof of Beneficial Use fee paid = \$50.00 = up to **0.20 cfs**

Recommend Permitted Rate = 0.04 cfs

Highest rate allowable limited by permitted rate. Flow estimations indicate system capable of 0.04 cfs for supplemental irrigation and additional flow/volume for in-house domestic use.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 2.0 \text{ ac} \times 4.5 \text{ afa/ac} = 9.0 \text{ afa}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.04 \text{ cfs} \times 260 \text{ days} \times 1.9835 = 20.6 \text{ afa}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 9.0 \text{ afa} < 20.6 \text{ afa} = \mathbf{\text{Recommend } 9.0 \text{ afa}}$$

2. Volume Calculations for Other Uses: No other uses recommended for licensing. In-house domestic use from same well, ~0.6 afa volume used for domestic purposes -> system capable of diverting enough volume for both uses.

G. NARRATIVE/REMARKS/COMMENTS**SYSTEM DESCRIPTION:**

System consists of a well with a 1.5 in discharge line piped to 1.25 in buried sprinkler lines with a maximum of 8 Hunter pop up sprinkler heads on each line. Well also piped to home for in-house domestic use.

IRRIGATION PRACTICES AND WELL USE:

Owner uses surface water from Boise Kuna Irrigation District (via subdivision) for primary irrigation of lawn. Well

G. NARRATIVE/REMARKS/COMMENTS CONTINUED

under this right used for supplemental irrigation, usually in spring. Well also provides in-house domestic water (unrecorded right). Estimations of system capacity indicate system capable of providing water for both supplemental irrigation and in-house domestic use.

COMPLIANCE WITH PERMIT CONDITIONS:

Owner is in compliance with all conditions related to primary use of surface water and supplemental use of ground water. To the best of my knowledge, owner has complied with all permit conditions.

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>
IRRIGATION	03/01 to 11/15	0.04 CFS	9.0 AF
	<u>Totals:</u>	0.04 CFS	9.0 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 ☐ Other

I. AUTHENTICATION

Field Examiner's Name Angela M. Quinn Date 10/24/2012
Reviewer _____ Date _____

Beneficial Use Field Report System Diagram & Map 63-33088

R01W

T02N



0 0.01 0.02 0.04 Miles

Bing (2011) Aerial Photo

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



Models

PGS – Shrub

PGP – 4" Pop-up (10 cm)

PGH – 12" Pop-up (30 cm)

PGP-ATR – 2 1/4" Pop-up – Retrofits existing Rain Bird® Maxi-PAW™ and others

Dimensions

- Overall height:
 - PGS – 7 3/8" (19 cm)
 - PGP – 7 3/8" (19 cm)
 - PGH – 17" (43 cm)
- 3/4" female inlet NPT
- Exposed diameter: 1 3/4" (4 cm)

Operating Specifications

- Discharge rate: .5 to 14.1 GPM (0.11 to 3.20 m³/hr; 1.9 to 53.4 l/min)
- Radius: 22' to 52' (6.7 to 15.8 m)
- Recommended pressure range: 40 to 60 PSI (2.8 to 4.1 bars; 275 to 413 kPa)
- Operating pressure range: 20 to 100 PSI (1.4 to 6.9 bars; 137 to 689 kPa)
- Precipitation rates: approximately .4" (10 mm) per hour at 50 PSI (3.4 bars; 344 kPa) for spacings from 25' to 45' (7.6 to 13.7 m)
- Nozzle trajectory: standard – 25°, low angle – 13°

Options Available

- Drain check valve for up to 10' (3.0 m) elevation change (not available for PGP-ATR)
- Reclaimed water identification cover
- Low angle nozzles
- Factory-installed nozzle



12 standard trajectory nozzles (red) are included with each sprinkler. A rack of our 8 new standard nozzles (blue) are available separately. Low angle nozzles (gray) are also available.

SPECIFICATION GUIDE

EXAMPLE: **PGP - ADJ - LA**

MODEL

PGS = Shrub

PGP = 4" Pop-up

PGH = 12" Pop-up

PGP-ATR = Advanced Technology Impact Replacement, Retrofits Rain Bird® Maxi-PAW and others

FEATURES

ADJ, 360, ADV, 36V, ARV, 3RV

ADJ, 360, ADV, 36V, ARV, 3RV

ADV, 36V, ARV, 3RV

OPTIONS

XX = 12 Standard Red Nozzles

LA = 7 Low-Angle Nozzles

01 – 12 = Factory-Installed Standard Red Nozzle

1.5 – 8.0 = User-Installed Standard Blue Nozzle

4 – 10 LA = Factory-Installed Low-Angle Nozzle

KEY TO FEATURES:

ADJ = Adjustable with no Check Valve

360 = Full Circle with no Check Valve

ADV = Adjustable with Check Valve

ATR = 2 1/4" Pop-up, Adjustable with no Check Valve and #7 Standard Red Nozzle Factory-installed

36V = Full-Circle with Check Valve

ARV = Adjustable, Reclaimed Water, with Check Valve

3RV = Full-Circle, Reclaimed Water, with Check Valve

PGP Red Standard Nozzle Performance Data

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip In/hr	Precip In/hr
1	30	28	0.5	0.12	0.14
	40	29	0.6	0.14	0.16
	50	29'	0.7	0.16	0.19
	60	30	0.8	0.17	0.20
2	30	29	0.7	0.16	0.19
	40	30	0.8	0.17	0.20
	50	30'	0.9	0.19	0.22
	60	31	1.0	0.20	0.23
3	30	30	0.9	0.19	0.22
	40	31	1.0	0.20	0.23
	50	31'	1.2	0.24	0.28
	60	32	1.3	0.24	0.28
4	30	32	1.2	0.23	0.26
	40	33	1.4	0.25	0.29
	50	34'	1.6	0.27	0.31
	60	34	1.8	0.30	0.35
5	30	34	1.6	0.27	0.31
	40	36	1.8	0.27	0.31
	50	38'	2.0	0.27	0.31
	60	38	2.2	0.29	0.34
6	30	34	2.0	0.33	0.38
	40	36	2.4	0.36	0.41
	50	38'	2.7	0.36	0.42
	60	38	2.9	0.39	0.45
7	30	34	2.6	0.43	0.50
	40	38	3.0	0.40	0.46
	50	40'	3.4	0.41	0.47
	60	40	3.7	0.45	0.51
8	30	37	3.2	0.45	0.52
	40	39	3.7	0.47	0.54
	50	41'	3.9	0.45	0.52
	60	42	4.6	0.50	0.58
9	30	38	3.6	0.48	0.55
	40	41	4.3	0.49	0.57
	50	44'	5.2	0.52	0.60
	60	45	5.5	0.52	0.60
10	40	44	6.0	0.60	0.69
	50	46	6.8	0.62	0.71
	60	47'	7.6	0.66	0.76
	70	49	8.2	0.66	0.76
11	40	46	8.0	0.73	0.84
	50	48	8.9	0.74	0.86
	60	50'	9.8	0.75	0.87
	70	51	10.5	0.78	0.90
12	40	46	10.5	0.96	1.10
	50	48	11.9	0.99	1.15
	60	50'	12.7	0.98	1.13
	70	52	14.1	1.00	1.16

PGP Blue Standard Nozzle Performance Data

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip In/hr	Precip In/hr
1.5	25	29	1.2	0.27	0.32
	35	31'	1.4	0.28	0.32
	45	31'	1.5	0.30	0.35
	55	32	1.8	0.34	0.39
2.0	65	32'	1.9	0.36	0.41
	25	33	1.4	0.25	0.29
	35	33	1.7	0.30	0.35
	45	34'	2.0	0.33	0.38
2.5	55	34	2.1	0.35	0.40
	65	32	2.3	0.43	0.50
	25	33	1.7	0.30	0.35
	35	35	2.1	0.33	0.38
3.0	45	35'	2.5	0.39	0.45
	55	35	2.6	0.41	0.47
	65	35'	2.9	0.46	0.53
	25	35	2.2	0.35	0.40
4.0	35	36	2.7	0.40	0.46
	45	38'	3.0	0.40	0.46
	55	39	3.4	0.43	0.50
	65	39	3.7	0.47	0.54
5.0	25	37	3.0	0.42	0.49
	35	39	3.5	0.44	0.51
	45	40'	4.0	0.48	0.56
	55	41	4.5	0.52	0.60
6.0	65	41	4.8	0.55	0.63
	25	37	3.7	0.52	0.60
	35	39	4.5	0.57	0.66
	45	42'	5.0	0.55	0.63
8.0	55	42	5.7	0.62	0.72
	65	42	6.2	0.68	0.78
	25	38	4.3	0.57	0.66
	35	40	5.6	0.67	0.78
10.0	45	43'	6.0	0.62	0.72
	55	44	6.7	0.67	0.77
	65	44	7.3	0.73	0.84
	25	37	6.0	0.84	0.97
12.0	35	41	7.0	0.80	0.93
	45	44'	8.0	0.80	0.92
	55	46	9.0	0.82	0.95
	65	46	9.8	0.89	1.03

PGP Gray Low Angle Nozzle Performance Data

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip In/hr	Precip In/hr
4	30	22	1.4	0.56	0.64
	40	24	1.7	0.57	0.66
	50	26'	1.8	0.51	0.59
	60	28	2.0	0.49	0.57
5	30	25	1.6	0.49	0.57
	40	27	1.9	0.50	0.58
	50	28'	2.1	0.52	0.60
	60	30	2.3	0.49	0.57
6	30	27	2.1	0.55	0.64
	40	30	2.5	0.53	0.62
	50	33'	2.8	0.49	0.57
	60	35	3.0	0.47	0.54
7	30	29	2.8	0.64	0.74
	40	32	3.1	0.58	0.67
	50	35'	3.5	0.55	0.64
	60	37	3.8	0.53	0.62
8	30	31	3.4	0.68	0.79
	40	34	3.9	0.65	0.75
	50	37'	4.4	0.62	0.71
	60	38	4.7	0.63	0.72
9	30	33	4.3	0.76	0.88
	40	37	5.0	0.70	0.81
	50	40'	5.6	0.67	0.78
	60	42	6.1	0.67	0.77
10	40	38	6.5	0.87	1.00
	50	40	7.3	0.88	1.01
	60	42'	8.0	0.87	1.01
	70	44	8.6	0.86	0.99

P Blank nozzle plug for turning off selected sprinklers during repairs, maintenance, etc.

Note: All precipitation rates calculated for 180 degree operation. For the precipitation rate for a 360 degree sprinkler divide by 2.

Hunter Industries Incorporated • The Irrigation Innovators

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63-33088 Beneficial Use Field Report Photos



63-33088 Exam 10/22/2012: P/D well and portion of lawn P/U, neighbor's home in background.



63-33088 Exam 10/22/2012: Portion of P/U facing west. Owner's home in background.