

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 47-17566

Exam Date: 5/7/2012

1. Current Owner: TERRY SLATTER
4082 MEADOW RIDGE LN
TWIN FALLS ID 83301
(208)4208212

And

BARBARA SLATTER
4082 MEADOW RIDGE LN
TWIN FALLS ID 83301
(208)4204477

2. Accompanied by: Terry Slatter (Permit Holder) and Nathan Erickson (IDWR)

3. **SOURCE**

WASTE WATER

TRIBUTARY

SNAKE RIVER

B. OVERLAP REVIEW

1. Other water rights with the same place of use: None (other than unrecorded domestic well)
2. Other water rights with the same point of diversion: None

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

WASTE WATER L2 SE1/4NW1/4NE1/4 Sec. 1, Twp 10S, Rge 17E, B.M.
TWIN FALLS County

Method of Determination: Aerial photography and field observation

2.

PLACE OF USE: DOMESTIC

Tw	Rge	Sec	NE				NW				SW				SE				
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	Totals
10S	17E	1	X	X															
			L 1	L 2															

Method of Determination: Aerial photography and field observation

D. FLOW MEASUREMENTS N/A

E. FLOW CALCULATIONS

Theoretical yield:

$$Q = \frac{8.8 \times (H_p) \times (Eff)}{H}$$

Where: $H_p = 1.5 H_p$ (from site visit)

Eff = 70% (assumed)

H = elevation distance + $2.31 \times$ operating pressure (assume elevation difference of 2.0 feet based on observation during site visit and operating pressure of 30 psi based on lawn sprinkler literature obtained off of the internet).

$$H = 2.0 \text{ feet} + (2.31 \times 30 \text{ psi}) = 71.3$$

$$Q = \frac{8.8 \times (1.5) \times (0.70)}{71.3}$$

$Q = 0.13 \text{ cfs}$ Rate exceeds permitted amount of 0.02 cfs (based on $\frac{1}{2}$ acre $\times$ 0.03 cfs per acre), therefore use permitted rate of 0.02 cfs

F. VOLUME CALCULATIONS

Not required for 42-111 type domestic uses per new Beneficial Use Examination Rules implemented 3/29/2012.

G. NARRATIVE/REMARKS/COMMENTS

Application for Permit 47-17566 was filed on January 14, 2011, and approved on March 1, 2011. Proof of Beneficial Use was filed on May 27, 2011. On May 7, 2012, Nathan Erickson and I conducted the licensing field exam accompanied by Terry Slatter the permit holder.

The system consists of a 1.5 horsepower pump that pumps water from a waste water stream to a sprinkler irrigation system for irrigation of various landscaping on Mr. Slatter's property (Lot 18 of Meadow Ridge # 2 Subdivision). Using a 1.5 hp pump, a 2.0 foot elevation difference in the water surface and the operating system (based on field observation) and a reasonable assumed operating pressure for lawn sprinklers of 30 psi (obtained from literature on the internet) provides enough information to indicate that a theoretical estimate of diversion rate exceeds the permitted amount of 0.02 cfs. Note that permit 47-17566 was permitted with a year round period of use, but the system is used for irrigation, in connection with the house, so it is recommended that license 47-17566 be issued for a period of use corresponding to the irrigation season for the area (3/15 to 11/15).

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

H. RECOMMENDATIONS**1. Recommended Amounts**

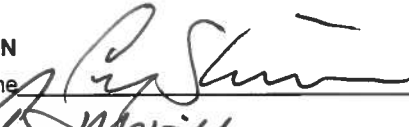
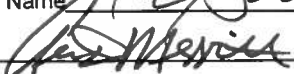
<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>
DOMESTIC	03/15 to 11/15	0.020 CFS
<u>Totals:</u>		0.020 CFS

2. Recommended Amendments

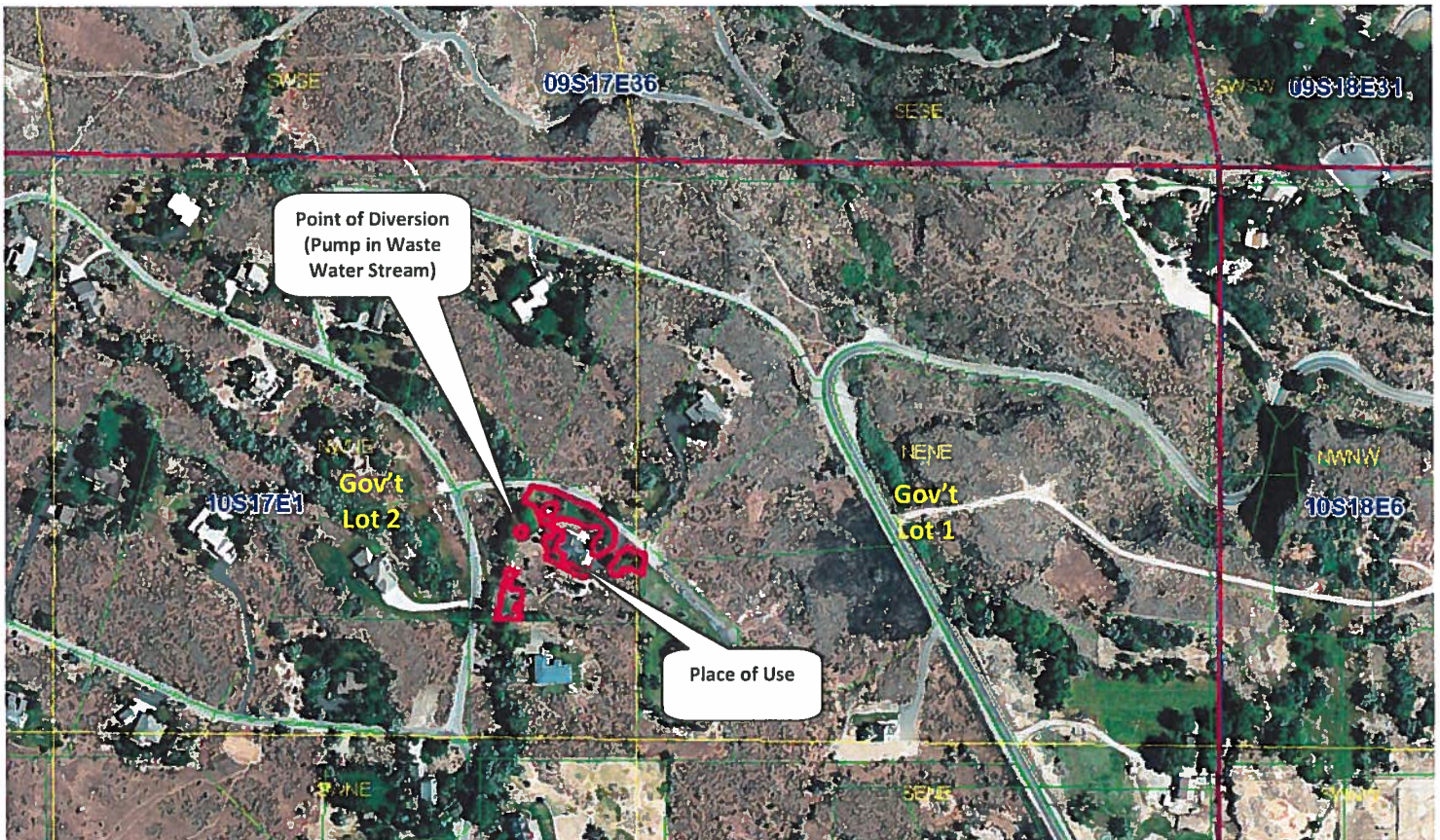
☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None

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

I. AUTHENTICATION

Field Examiner's Name  Date 6/5/2012
 Reviewer  Date 6/26/2012

47-17566 Point of Diversion and Place of Use Map Bing Maps Aerial Photography



Note that Point of Diversion and Place of Use are located within Lot 18, Exc W 2.45 Acres; Meadow Ridge No. 2 Subdivision. PIN RP10S17E010741

47-17566 Point of Diversion and Place of Use Photos



ABOVE: View of the point of diversion (1.5 hp pump) and the source of the water (waste water stream).

BELOW: View of a portion of the place of use showing sprinkler irrigation system in operation. This view is a portion of the place of use located east of the driveway to the home.



loss" as previously. While pressure loss is a perfectly accurate term for the pressure used by sprinkler heads and emitters, operating pressure is more commonly used. Operating pressure is simply the pressure that needs to be present at the sprinkler or emitter inlet for it to perform as intended.

Manufacturers of sprinklers and emitters provide specifications for each of their products that list the various acceptable operating pressures for the units and how they will perform at that pressure. You will need to obtain the specifications for the products you intend to use. You may find this information printed on the sprinkler box or you may need to request it from your supplier. Most manufacturers also make specifications available on their web sites. Typically for a sprinkler this specification will list an inlet pressure as pounds per square inch (PSI) and then give a watering radius (feet) and flow rate in gallons per minute (GPM) that will occur at that pressure.

For an emitter the information would include only operating pressures (PSI) and a flow rate in gallons per hour (GPH) for each of those pressures. (Radius of throw isn't applicable to drip emitters.)

Pressure Requirements for Sprinklers

Spray Type Sprinklers:

For spray type sprinklers most designers use an operating pressure of 30 PSI, unless a lack of available pressure forces a lower level. Remember that if you use a lower pressure the sprinklers will need to be spaced closer together, because the water won't spray as far. Sprinkler manufacturers provide charts that tell you how much pressure is required for the sprinkler and how far it will spray with that pressure. Look on the package for the chart. Additionally, almost all spray type heads have a radius adjustment screw that allows you to adjust the watering radius down for smaller areas. (When you adjust the radius using the adjustment screw on a spray head, you are actually reducing the pressure at the nozzle by means of a small valve under the nozzle. The reduced pressure results in a decreased radius of throw.) At pressures above 45 PSI most spray heads start to create lots of mist, which results in poor irrigation. This can be controlled by using the radius adjustment feature to reduce the pressure, partially closing the valve to reduce the pressure, installing a pressure regulator on the mainline to reduce the pressure, or by using special pressure regulating nozzles made by some sprinkler manufacturers (which, you guessed it, reduce the pressure!)

Rotor Type Sprinklers:

For rotor type sprinklers the higher the operating pressure the better. (O.K., within reason. We don't want to blow the sprinkler apart with high pressure-- and rotors can cause mist too under extreme pressures.) But as a general rule, most rotor type sprinklers do not work well with less than 30 PSI operating pressure. Keep reading!

TIP:

"Shrader's Rotor Spacing Rule" states that the spacing in feet between rotor-type sprinklers can't exceed the pressure in PSI at the rotor. There is a lot of competition in the sprinkler business to see who can get the most radius from a rotor-type sprinkler. Manufacturer's literature and packaging tends to wildly exaggerate the maximum spacing of rotors. They get those distances by testing the rotors inside a big building with no wind. Even the most gentle breeze will shorten the real-world watering radius (water droplets are very light). If the package says the rotor has a radius of 35 feet at 30 PSI-- DO NOT BELIEVE IT! In the real world you will not get that distance. If you have 30 PSI do not space the rotors more than 30 feet apart. If you ignore this rule, 9 chances out of 10, you will have dry spots in your lawn! (Yep, over-size ego alert, it's my rule, thus the name.)

Rotor Spacing Example: If you want to space the rotors 30 feet apart then you will need to use a pressure of at least 30 PSI for the rotor. If you want to space rotors 40' apart you will need 40 PSI for the sprinkler head pressure. I don't recommend spacing sprinklers further than 55 feet apart unless you have an experienced professional design the sprinkler system. Many tricky problems occur with

Nozzle Performance

Spray Heads



12 Series MPR

30° Trajectory		■		▲	
Nozzle	Pressure psi	Radius ft.	Flow GPM	Princp in/h	Princp in/h
12F	15	9	1.80	2.14	2.47
	20	10	2.10	2.02	2.34
	25	11	2.40	1.91	2.21
12H	15	9	0.90	2.14	2.47
	20	10	1.05	2.02	2.34
	25	11	1.20	1.91	2.21
120	15	9	0.45	2.14	2.47
	20	10	0.53	2.02	2.34
	25	11	0.60	1.91	2.21
30	12	1.30	1.74	2.01	

15 Series MPR

30° Trajectory		■		▲	
Nozzle	Pressure psi	Radius ft.	Flow GPM	Princp in/h	Princp in/h
15F	15	11	2.80	2.07	2.39
	20	12	3.00	2.01	2.32
	25	14	3.30	1.82	1.87
15H	15	11	1.30	2.07	2.39
	20	12	1.50	2.01	2.32
	25	14	1.65	1.82	1.87
150	15	11	0.65	2.07	2.39
	20	12	0.75	2.01	2.32
	25	14	0.82	1.82	1.87
30	15	1.85	1.58	1.83	

12 Dual Spray™ Series

23° Trajectory		■		▲	
Nozzle	Pressure psi	Radius ft.	Flow GPM	Princp in/h	Princp in/h
12DSF	15	9	1.80	2.14	2.47
	20	10	2.10	2.02	2.34
	25	11	2.40	1.91	2.21
12DSH	15	9	0.90	2.14	2.47
	20	10	1.05	2.02	2.34
	25	11	1.20	1.91	2.21
12DSQ	15	9	0.45	2.14	2.47
	20	10	0.53	2.02	2.34
	25	11	0.60	1.91	2.21
30	12	1.30	1.74	2.01	

8 Series MPR

10° Trajectory		■		▲	
Nozzle	Pressure psi	Radius ft.	Flow GPM	Princp in/h	Princp in/h
8F	15	5	0.54	2.07	2.39
	20	6	0.75	2.01	2.32
	25	7	0.82	1.82	1.87
8H	15	5	0.27	2.07	2.39
	20	6	0.38	2.01	2.32
	25	7	0.41	1.82	1.87
8Q	15	5	0.13	2.07	2.39
	20	6	0.19	2.01	2.32
	25	7	0.21	1.82	1.87
30	8	0.52	1.58	1.83	

1300

Nozzle	Pressure psi	Flow GPM
F	10	1.0
	20	1.4
	30	1.7
	40	1.9
	50	2.1
	60	2.3

SPECIALTY NOZZLES

Nozzle	Pressure psi	Wtd. ft.	Flow GPM
15SQ	15	18 x 18	2.68
	20	19 x 19	3.08
	25	21 x 21	3.42
	30	23 x 23	3.73
15EST	15	4 x 13	0.45
	20	4 x 14	0.50
	25	4 x 14	0.56
	30	4 x 15	0.61
15OST	15	4 x 26	0.89
	20	4 x 28	1.00
	25	4 x 28	1.11
	30	4 x 30	1.21
15SST	15	4 x 26	0.89
	20	4 x 28	1.00
	25	4 x 28	1.11
	30	4 x 30	1.21
9SST	15	9 x 16	1.34
	20	9 x 16	1.47
	25	9 x 18	1.60
	30	9 x 18	1.73

12 Series AP

15° Trajectory		■		▲	
Nozzle	Pressure psi	Radius ft.	Flow GPM	Princp in/h	Princp in/h
360° Arc	15	9	1.8	2.14	2.47
	20	10	2.1	2.02	2.34
	25	11	2.4	1.91	2.21
270° Arc	15	9	1.35	2.14	2.47
	20	10	1.58	2.02	2.34
	25	11	1.8	1.91	2.21
180° Arc	15	9	0.9	2.14	2.47
	20	10	1.05	2.02	2.34
	25	11	1.2	1.91	2.21
90° Arc	15	9	0.45	2.14	2.47
	20	10	0.53	2.02	2.34
	25	11	0.6	1.91	2.21
30	12	1.3	1.74	2.01	

15 Series AP

23° Trajectory		■		▲	
Nozzle	Pressure psi	Radius ft.	Flow GPM	Princp in/h	Princp in/h
360° Arc	15	11	2.80	2.07	2.39
	20	12	3.00	2.01	2.32
	25	14	3.30	1.82	1.87
270° Arc	15	11	1.30	2.07	2.39
	20	12	1.50	2.01	2.32
	25	14	1.65	1.82	1.87
180° Arc	15	11	0.65	2.07	2.39
	20	12	0.75	2.01	2.32
	25	14	0.82	1.82	1.87
90° Arc	15	11	0.32	2.07	2.39
	20	12	0.37	2.01	2.32
	25	14	0.41	1.82	1.87
30	15	1.85	1.58	1.83	

18 Series AP

25° Trajectory		■		▲	
Nozzle	Pressure psi	Radius ft.	Flow GPM	Princp in/h	Princp in/h
360° Arc	15	14	4.21	2.07	2.39
	20	15	4.70	2.01	2.32
	25	17	4.86	1.82	1.87
270° Arc	15	14	3.16	2.07	2.39
	20	15	3.52	2.01	2.32
	25	17	3.65	1.82	1.87
180° Arc	15	14	1.58	2.07	2.39
	20	15	1.76	2.01	2.32
	25	17	1.82	1.82	1.87
90° Arc	15	14	0.79	2.07	2.39
	20	15	0.88	2.01	2.32
	25	17	0.91	1.82	1.87
30	18	2.88	1.58	1.83	

■ Square spacing based on 50% diameter of throw.
▲ Triangular spacing based on 50% diameter of throw.
Performance data collected in zero wind conditions.
* Turn nozzle screw clockwise to reduce spray distance up to 25%.