

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 63-34600
Exam Date: 10/01/2020

1. Current Owner:
MICHAEL D HATFIELD 24016 NOTUS RD CALDWELL ID 83607-8710
2. Accompanied by: Michael Hatfield
Phone No: 916-969-7155
Address: 24016 Notus Rd, Caldwell, ID 83607
Relationship to permit Holder: Same

3. SOURCE:
BOISE RIVER

Tributary
SNAKE RIVER

Method of Determination: Field observation, aerial imagery, and ArcMap GIS Tools.

B. OVERLAP REVIEW

1. Other water rights with the same place of use: NO Overlap

Water Right No.	Source	Purpose of Use	Basis
N/A	N/A	N/A	N/A

Comments: Property is within the Lower Centerpoint Ditch Company service area, but is not assessed for water delivery.

2. Other water rights with the same point-of-diversion: NO Overlap

Water Right No.	Source	Purpose of Use	Basis
N/A	N/A	N/A	N/A

Comments: No other water rights overlap POD.

C. DIVERSION AND DELIVERY SYSTEM

1. LOCATION OF POINT(S) OF DIVERSION:

BOISE RIVER NE¼ NE¼, Sec. 3, Twp 04N, Rge 04W, B.M. CANYON County

Method of Determination: Handheld GPS (N43° 43.128; W116° 47.569) Field Observation, PLSS Maps

PLACE OF USE: IRRIGATION

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
04N	04W	3	9.0																9.0
04N	04W	3	8.0 L1																8.0
05N	04W	34																9.0	9.0
05N	04W	34																4.0 L7	4.0

Right Acre Limit: 20.0

Total Acres: 30.0

Method of Determination: Field Observation, Aerial Imagery, and ArcMap GIS Tools.

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
N/A	Baldor	30	21908021167	Berkley	4"

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
Electromagnetic Flow Meter	Mag-Meter	Growsmart by Lindsay	IM3000	GT19040773	4"	3/2019

2. Measurements: Took a total of 10 meter readings over a time span of 5 minutes and averaged readings.

E. FLOW CALCULATIONS

_____ Additional Computation Sheets Attached

Measured Method: Growsmart by Lindsay Magnetic Flow Meter

Measured Rate: 183.35 gpm/ 448.83gpm/cfs = 0.41 cfs

Recommended Rate: 0.40 cfs

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation: N/A because surface water source, per IDAPA 37.03.02.

2. Volume Calculations for Other Uses: N/A

G. NARRATIVE/REMARKS/COMMENTS

Field exam was conducted on October 1, 2020 by agent Justin Shearer. He was accompanied by permit holder Michael Hatfield. Ownership of the permit is in the name of Michael D Hatfield. Current Canyon County taxlot data represents Hatfield owns the land pertinent to the place of use (POU) and point of diversion (POD). No ownership change is required.

Water is diverted from the Boise River using a pump system installed in 2019. At the time of the exam, a 30 hp Baldor Motor and Berkley pump were providing water to 11 2" risers off of 6" line that connect to Nelson F150 Big Gun sprinklers. At the time of exam Hatfield indicated he only runs one Big Gun at a time. At the POD Hatfield has a fish screen installed in the Boise River at the suction intake and a Growsmart by Lindsay magnetic flow meter installed on a straight section of pipe

subsequent to the pump and motor apparatus. The meter make and model meets IDWR standards for use in closed conduit measurement applications. Additionally, the meter was installed consistent with manufacturer specifications and IDWR installation requirements with the meter grounded properly, required upstream and downstream pipe diameter distances met, and the sensor positioned correctly. Subsequently, accurate flow measurements were able to be obtained from the installed flow meter.

For flow measurement, ten readings were observed and recorded over a 5 minute period and averaged. At the time of exam, a flow rate of 0.41 cfs was measured. The measured rate indicates that the permit holder is diverting more than their permitted rate of 0.20 cfs, however the applicant demonstrated that he can adjust the opening on a butterfly valve to accommodate whatever the licensed diversion rate ends up being.

Overlap review found the property is within the Lower Centerpoint Ditch Company service area, but is not assessed for water delivery. POD analysis found no overlap. Aerial imagery, ArcMap GIS tools, and field observation confirmed 19.6 acres out of the permitted 20.0 acres for irrigation were developed within the 30 acre permissible place of use. Hatfield confirmed during the exam that all other permitted beneficial uses: Wildlife, Wildlife storage, Recreation, Recreation Storage, and Diversion to Storage were not developed. Thus, I am recommending a license for only irrigation purposes with a total licensed diversion rate of 0.40 cfs based on upon the department standard of 0.02 cfs/ac.

Condition 26A was removed as per licensing standards. Conditions 123, 219, and 220 were removed since the storage components were not developed. Condition 01J was updated to R43. General condition describing recreation and wildlife use was removed. Condition 068 was removed as per licensing standards. Condition 121 was replaced by 103 as per licensing standards. Condition 206 was added to account for the permissible place of use component of the right.

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

H. RECOMMENDATIONS

1. Recommended Amounts

<u>Beneficial Use</u>	<u>Period of Use</u>	<u>Rate of Diversion</u>	
IRRIGATION	03/01 to 11/15	0.40 CFS	

Totals: 0.40 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 ☒ None

I. AUTHENTICATION

Justin Shearer - Water Resource Agent, Senior

Field Examiner's Name Justin Shearer Date 10/7/20

Reviewer Patrick Kelly Date 10-8-2020

State of Idaho
Department of Water Resources
Attachment to Beneficial Use Field Report
63-34600
System Diagram



0 0.035 0.07 0.14 Miles

▲ 2" Risers

— 6" Line

□ Township/Range

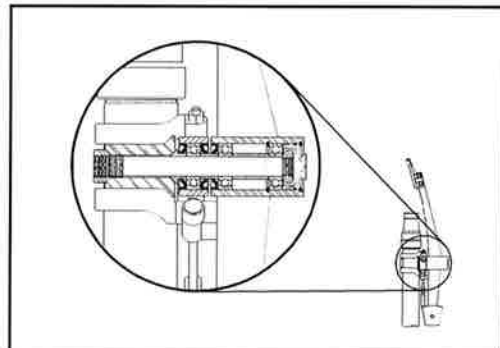
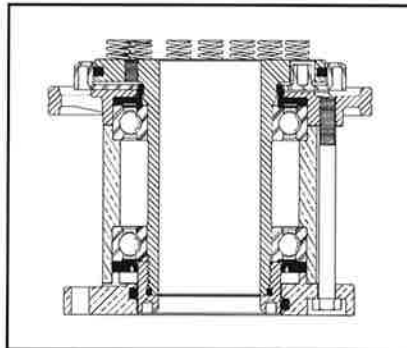
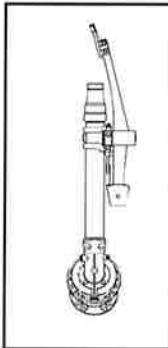
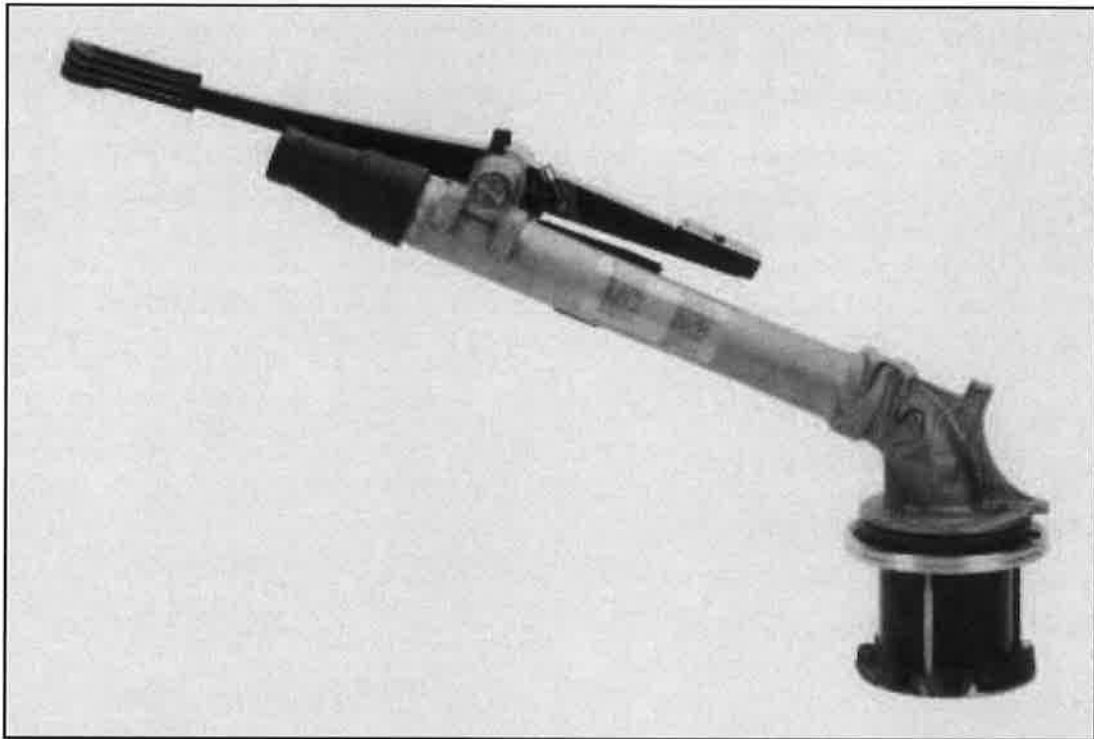
□ Sections

□ QQ



NELSON STAINLESS STEEL F150 BIG GUN®

Technical Manual



innovation in irrigation™

NELSON

IRRIGATION CORPORATION

Appendix F Performance Data for Gun

150 Series Big Guns — 24° Trajectory

Table 6. 150 T Taper Bore Nozzles

	Nozzle 0.7"			Nozzle 0.8"			Nozzle 0.9"			Nozzle 1.0"			Nozzle 1.1"			Nozzle 1.2"			Nozzle 1.3"		
P.S.I.	GPM	DIA.		GPM	DIA.		GPM	DIA.		GPM	DIA.		GPM	DIA.		GPM	DIA.		GPM	DIA.	
50	100	250'		130	270'		165	290'		205	310'		255	330'		300	345'		350	360'	
60	110	265'		143	285'		182	305'		225	325'		275	345'		330	365'		385	380'	
70	120	280'		155	300'		197	320'		245	340'		295	360'		355	380'		415	395'	
80	128	290'		165	310'		210	335'		260	355'		315	375'		380	395'		445	410'	
90	135	300'		175	320'		223	345'		275	365'		335	390'		405	410'		475	425'	
100	143	310'		185	330'		235	355'		290	375'		355	400'		425	420'		500	440'	
110	150	320'		195	340'		247	365'		305	385'		370	410'		445	430'		525	450'	
120	157	330'		204	350'		258	375'		320	395'		385	420'		465	440'		545	460'	

Table 7. 150 T Taper Bore Nozzles - Metric Units

Nozzle Diameter	0.7" 17,8mm			0.8" 20,3mm			0.9" 22,9mm			1.0" 25,4mm			1.1" 27,9mm			1.2" 30,5mm			1.3" 33,0mm		
Pressure kg/cm ²	L/S	M ³ /H	M	L/S	M ³ /H	M	L/S	M ³ /H	M	L/S	M ³ /H	M	L/S	M ³ /H	M	L/S	M ³ /H	M	L/S	M ³ /H	M
3,5	6,39	23,0	76,0	8,29	29,8	82,0	10,5	37,8	88,0	13,0	46,9	95,0	15,9	57,1	101	19,0	68,3	105	22,3	80,1	110
4,0	6,83	24,6	79,6	8,86	31,9	85,6	11,2	40,4	91,6	13,9	50,1	97,8	16,9	61,0	104	20,3	73,0	109	23,8	85,7	114
5,0	7,63	27,5	85,4	9,91	35,7	91,6	12,6	45,2	98,6	15,6	56,0	105	18,9	68,2	111	22,7	81,7	117	26,6	95,8	121
6,0	8,36	30,1	89,7	10,9	39,1	96,7	13,8	49,5	104	17,0	61,3	110	20,8	74,7	117	24,9	89,5	123	29,1	105	128
7,0	9,03	32,5	95,0	11,7	42,2	101	14,9	53,5	108	18,4	66,3	114	22,4	80,7	122	26,8	96,6	128	31,5	113	134
8,0	9,66	34,8	99,3	12,5	45,1	105	15,9	57,2	112	19,7	70,8	118	24,0	86,3	126	28,7	103	132	33,7	121	138
9,0	10,2	36,9	104	13,3	47,9	110	16,8	60,6	117	20,9	75,1	123	25,4	91,5	131	30,4	110	137	35,7	129	143

Note: Above data is compiled in ideal conditions, with no wind, good hydraulic entrance conditions, and range tubes with straightening vanes. Other conditions may affect flow rate and distance of throw.

Appendix G Materials Used in Construction

The Nelson stainless steel F150 Big Gun is designed for use in high pH (alkaline) fluid conditions and has a 316 stainless steel flowpath. The drive arm and center housing in the lower unit are anodized and powder-coated aluminum. The drive vane is nylon, and remaining plastic components are acetal. All fasteners are 18-8 stainless steel. The seals are Buna-n rubber.

If your application requires other materials, contact a Nelson sales representative or engineer.



Baldor Motor and Berkeley Pump with intake being PVC coming from river and discharge going to 6" line.



Intake in Boise River at POD.



Intake in Boise
River to submerged
fish screen.



Close up of Baldor motor specs.



Growsmart by
Lindsay Magnetic
Flowmeter installed
in line.



Display of
flowmeter
functioning
properly.



Nelson F150 Big
Gun Sprinkler.



Close up of 2" riser.



Close up of Big
Gun model tag.



Close up of Big
Gun Nozzle.