

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 61-7712
Exam Date: 05/26/2021

1. Current Owner:
- ROSS S ARELLANO, AND/OR
- RICHARD MATTHEW ARELLANO, AND/OR
- REBECCA VICTORIA MAY ARELLANO, AND/OR
- COREY K ARELLANO, AND/OR
- JENNIFER DIANE ARELLANO, AND/OR
- MATTHEW MC KENZIE ARELLANO, AND/OR
- RYAN E ARELLANO, AND/OR
- KIMBERLY DANIELLE ARELLANO, AND/OR
- JUANITA R ARELLANO, AND/OR
- JEREMY RUSSELL SHERMAN
PO BOX 93
HAMMETT ID 83627-0093
2. Accompanied by: Corey Arellano
Phone No: 208-366-2722 --- Cell Phone 208-598-5834
Address: Same as Above
Relationship to permit Holder: Permit Holder

3. **SOURCE:**
BENNETT CREEK
GROUND WATER

Tributary
SNAKE RIVER

Method of Determination: Visual Inspection, Well Driller's Report, GPS, and GIS

B. OVERLAP REVIEW

1. Other water rights with the same place of use: YES Overlap

Water Right No.	Source	Purpose of Use	Basis
61-11831	Bennett Creek	Stockwater	Decreed
61-11830	Spring	Stockwater	Decree

Comments: 61-11831 is a stockwater right directly from Bennett Creek. This right is the reason there is no stockwater component on this permit. It shouldn't affect this water right in any significant way. Water right 61-11830 is for a spring located near Bennett Creek, and it is also for stockwater use. There shouldn't be an issue with any of these rights.

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

Water Right No.	Source	Purpose of Use	Basis
61-11831	Bennett Creek	Stockwater	Decreed
61-11830	Spring	Stockwater	Decree

Comments: 61-11831 is a stockwater right directly from Bennett Creek. This right is the reason there is no stockwater component on this permit. It shouldn't affect this water right in any significant way. Water right 61-11830 is for a spring located near Bennett Creek, and it is also for stockwater use. There shouldn't be an issue with any of these rights, since neither of these rights use the exact same point of diversion

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

BENNETT CREEK SW¼ NW¼, Sec. 15, Twp 05S, Rge 08E, B.M. ELMORE County
 BENNETT CREEK SW¼ NW¼, Sec. 15, Twp 05S, Rge 08E, B.M. ELMORE County
 BENNETT CREEK SW¼ SW¼, Sec. 15, Twp 05S, Rge 08E, B.M. ELMORE County
 GROUND WATER SW¼ NW¼, Sec. 15, Twp 05S, Rge 08E, B.M. ELMORE County

Method of Determination:

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	
05S	08E	15						17.0	30.0										47.0

Total Acres: 47.0

PLACE OF USE: IRRIGATION STORAGE, STOCKWATER STORAGE, WILDLIFE STORAGE, AND RECREATION STORAGE.

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
05S	08E	15						X	X										

PLACE OF USE: IRRIGATION FROM STORAGE

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
05S	08E	15						17.0	30.0										47.0

Total Acres: 47.0

PLACE OF USE: RECREATION

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
05S	08E	15						X											

Method of Determination: Visual Inspection and GIS

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
Well*	Unknown	¾	Unknown	Unknown	3 inch discharge
PDA	Duetz	42	Unknown	Berkeley BZ3_M	3" discharge X 4" intake 9 M impeller
PDB	Tecumseh	20?	Unknown	MP Flomax 30	3" intake X 3' discharge. 6.75 impeller

*PLEASE NOTE: The well pump is not used because it dewater the well too quickly and causes damage to the well.

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date

2. Measurements: There wasn't adequate water in the pond to run a flow test without harming the fish in the pond. Please see pumps curves and analysis in measurement memo.

E. FLOW CALCULATIONS

YES Additional Computation Sheets Attached

Measured Method:

Please see Measurement Memo for calculations of flow rates. I am recommending the following:

Irrigation = 0.94 cfs

Recreation = 0.01cfs

Diversion to Storage = 1.20 cfs.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 47 \text{ acres} \times 4 \text{ af/ac} = 188 \text{ af}$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.94 \text{ cfs} \times 246 \text{ Days} \times 1.9835 = 458.67 \text{ af}$$

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} = 188 \text{ af}$$

2. Volume Calculations for Other Uses:

Commercial = 6.2 acre-feet

Total Non-Storage Volume = 194 acre-feet (Includes 188 af for the irrigation)

Irrigation Storage = 136 acre-feet

Irrigation From Storage = 136 acre-feet

Stockwater Storage = 1.6 acre-feet

Wildlife Storage = 136 acre-feet

Recreation Storage = 136 acre-feet

Total Storage Volume = 136 acre-feet

G. NARRATIVE/REMARKS/COMMENTS

David Betts and I met Corey Arellano at the property on 5/26/2021. Mr. Betts and I found 2 ponds and approximately 47 acres of irrigation. There is an On-stream Pond and a Reserve Pond. There is also a hot tub that is used to extract the heat value from the well water prior to diverting it into the On-Stream Pond. It should be noted that the water coming from the well did not appear to be low temperature geothermal water any longer.

Water for irrigation is diverted from the On-Stream Pond at 2 locations. The first location diverts water at Point of Diversion B (PDB) on the northeast side of Bennett Creek. This diversion runs water up through a buried mainline to a set of hand lines used to irrigate the 12 acre field. The last riser on the mainline is used to supply water when available to the Reserve Storage Pond. The water filled into the Reserve Storage pond can then be pumped back into the same mainline to irrigate the northeast field or provide stockwater if needed. The Reserve Pond can also provide additional water back to the On-Stream Pond if necessary. The On-Stream Pond also has a point of diversion at the dam location, so there are 4 points of diversion associated with this permit. The points of diversion are the Dam, Well, PDA, and PDB.

The second location the water in the On-Stream Pond is diverted is at the Point of Diversion A (PDA). The PDA diversion is used to irrigate the 35 acre field southwest of Bennett Creek. This field is irrigated using portable mainlines and hand line sprinklers.

The permit holder will never be able to irrigate the entire season unless there is an extremely good water year. The majority of the water in Bennett Creek is diverted by senior water rights above the permit holder's property. There are some years he can get one or two irrigations from the pond. I provided a historical view of the irrigation use through LandSat Satellite imagery. You can trace the irrigation found throughout the years. It appears as though irrigation is possible every 3 to 6 years. It appears as though the installation of pivots between 2006 and 2009 on the lands owned by the up-stream water users have reduced the amount of wastewater available in Bennett Creek later on in the irrigation season. I also provided information from older United States Geological Society (USGS) stream gage that shows that there was adequate water in the 1980's for this permit. Unfortunately, that stream gage site hasn't been in place since 1987, so there isn't any data during the development of this permit.

LandSat imagery confirms that the entire 47 acres were irrigated in 2000 and 2003 during the development period. There was no imagery in 1999 or 2006 for this property, and there was no conclusive evidence of irrigation in 2001, 2002, 2004, 2005, and 2007. There may have been some late irrigation late in the year of 2002, but it also could have been the result of a late rain storm. Current Sentinel imagery suggests some early irrigation in 2020, but no conclusive evidence of irrigation in 2017 through 2019. Please see the attached historical review of the lands being irrigated included in this field report.

The well is located on the southwest side of Bennett Creek. The well was originally supposed to be cold water only, and they intercepted the low temperature geothermal water in that area. Therefore, the permit was amended and they had to use the geothermal water first. The permit holder originally had a bottom hole temperature in the well of 95 degrees, and a flow rate in excess of 100 gpm. However, some of that water was coming from a cold water layer, so he was required to cement the well down to 500 feet. The total depth of the well is 675 feet. Once they cemented the well down to 500 feet, the flow in the well fell off dramatically, and only about 3.83 gpm is currently being diverted from the well.

The well water was not that hot coming out, but there is a great deal of 6 inch casing extracting the heat from the water in the well before it reaches the hot tub. I am estimating the temperature coming out of the well at the hot tub is now no more than 70 degrees. Department staff verified the temperature at the bottom of the well at the time of drilling.

The original permit didn't allow hot water to be used, and the commercial storage use was going to be used for a pay for fishing pond. According to the owner, the Idaho Fish and Game wouldn't allow him to create this type of fishing pond on an on-stream pond.

An order that was issued on December 3, 2001, states that the low temperature geothermal water is exempt for the requirements of Section 42-233(1). The order did state that the permit holder did need to use the heat value first. The permit holder's intention at that point was to use the hot water for a swimming pool and hot tub under the commercial storage use, and then place the remainder of the water in the pond used for irrigation. The hole was dug for the swimming pool, but it was never fully constructed. The water from the well barely covers the needs of the hot tub. The well flows into a hot tub and the overflow flows back into on-stream Pond near PDB. This 6.2 af is included in the other storage components, since the water is diverted to the On-Stream Pond after the heat value is used in the hot tub. There was no measurement device on the well, and the owner is in the process of attaining a device as required by the permit conditions.

The commercial use was really never established for this permit. The permit holder does ask for a donation for the use of the hot tub, but shouldn't be considered an active business. After speaking with staff, we have determined to call the hot tub use a recreational use, because it does extract the heat value out of the well water, but it really isn't heating any structure or spaces.

Due to the complexity of this system and various uses, I determined that a measurement memo and a volume memo was needed to explain the different diversion rates and volumes. Please see the attached memos and attachments for flow rate and volume calculations.

This permit is an older permit, all of the older conditions were removed and current conditions were added. Conditions 219 and 220 were added to give the dimensions of the ponds. The irrigation from storage is equal to the initial fill of the ponds. Where these ponds rarely if ever fill let alone spill, additional fills are no warranted for this permit.

The R05 condition included water districts 161 for ground water and 61C for Bennett Creek water. The database shows water district 161, since there is not an ability to have multiple water districts. Per a recommendation from the Compliance Bureau a condition was added that requires the water user to ensure both water districts are supplied the information needed for proper compliance.

The ground water and surface water for this permit are used in conjunction for irrigation use. This ground water right is not a supplemental water right, but it is impossible to determine the volume of water used for irrigation. Therefore, I used the WB7 condition to ensure that that standard duty of water was not exceeded for the surface water irrigation. Condition R70 will be needed to ensure that the duty of water is not exceeded for the irrigation storage and irrigation from storage.

There was no measurement devices on the system at the time of the exam, but the permit holder has since added diversion devices on all of the diversion points except for the dam. Since aerial imagery shows that very little if any water has ever made it past the dams, the measurement devices on the points of diversion are reasonable. There is no reasoning to place a measurement device at the dam and prior to the water entering the property.

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>Rate of Diversion</u>	<u>Annual Volume</u>
IRRIGATION	4/01 to 10/31	0.94 CFS	
IRRIGATION STORAGE	1/01 to 12/31		136.0 AF
IRRIGATION FROM STORAGE	4/01 to 10/31		55.6 AF
STOCKWATER STORAGE	1/01 to 12/31		1.6 AF
WILDLIFE STORAGE	1/01 to 12/31		136.0 AF
RECREATION STORAGE	1/01 to 12/31		136.0 AF
DIVERSION TO STORAGE	1/01 to 12/31	1.20 CFS	
COMMERCIAL	01/01 to 12/31	0.01 CFS	6.2 AF

Totals: 1.20 CFS

PLEASE NOTE: The ground water for this permit is used in conjunction with the surface water, so there is no volume for this irrigation portion of this permit. However, a WB7 condition was added to ensure the ground water portion complies with the standard volume limits.

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

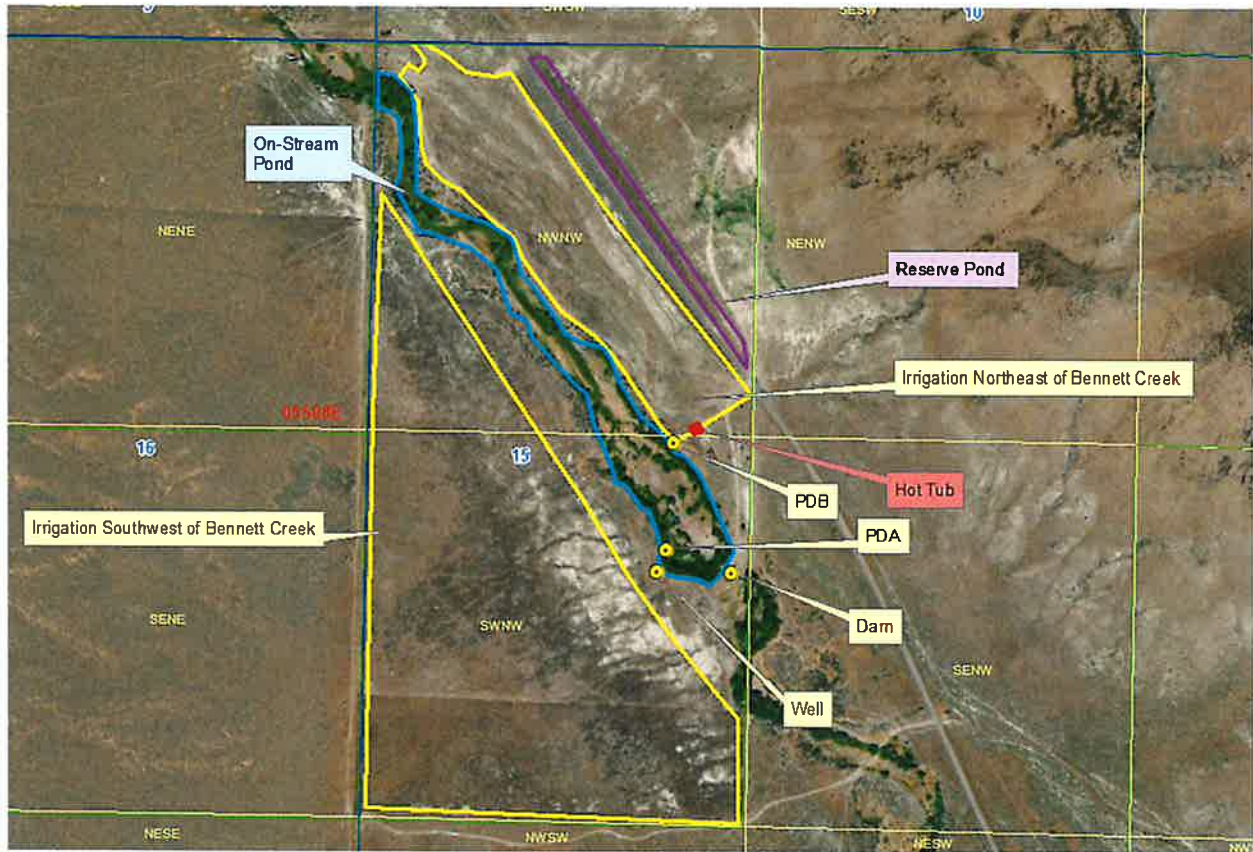
I. AUTHENTICATION Dan Nelson - Analyst 3

Field Examiner's Name Daniel P. Nelson Date 8-16-2021

Reviewer PLM Date 3/31/22

Permit 61-7712 – Field Exam Map

The map below shows the place of use for the different uses and points of diversion. The On-Stream Pond is outlined in blue. The Reserve Pond is outlined in purple. The irrigation use is outlined in yellow. The red box shows the location of the hot tub. The yellow dots are the points of diversion. All of the diversion points are labeled.



Permit 61-7712 – History of Irrigation:

The permit holder has claimed he has records for multiple years of irrigation use, so I wanted to include as many satellite images that are available over the years to provide evidence of possible irrigation uses over the years. Below is a history of irrigation as seen through satellite imagery, because none of the NAIP aerial imagery available to the Department shows any active irrigation. The development period for this permit was from January of 1999 to January of 2007. Therefore, the main maps to review are the 1999 to 2007 maps. There are no 1999 and 2006 LandSat imagery for this area, but there does appear to be convincing evidence of irrigation in 2000 and 2003 of the entire 47 acres. In the years 2001, 2002, 2005, and 2007, the irrigation seems to have been hit and miss. I have included the images from each year that shows the most consistent showing of irrigation. The only other years I could find any possible irrigation was 2009, 2015, 2020, and 2021. The permit holder stated that he can only irrigate early in the year until the water in the pond dries up. He gets probably 1 to 2 irrigations. He runs cattle on the property, so he plants oats and/or alfalfa to give the cattle a bit of high protein feed early in the year.

