

AMENDED**Narrative of Proposal for Bunts & Singles LLC Applications
Transfer No. 81352 & New Application for Permit****Introduction**

Applicant owns a parcel of land located in NENW and NWNW of Section 7, Township 13 North, Range 41 East. It is proposed to excavate a new pond, off-stream, which will be maintained by two water rights: 21-4071A and a new water right described by the Application for Permit. The transfer of 21-4071A to the new pond location will provide for evaporative losses. The Application for Permit will provide the storage component, as well as a non-consumptive flow-through component during the non-irrigation season.

Application for Transfer No. 81352 for water right 21-4071A was submitted on September 6, 2016. This narrative supersedes the narrative originally submitted with the application. Several items of concern of current protestors to Transfer No. 81352 are addressed herein.

New Pond

The design of the new pond will be approximately 1 acre in surface area, averaging 8 feet deep, with an approximate volume of 8 acre-feet. A liner will be installed in the pond to prevent seepage losses. The pond will be adjacent to the existing ditch and will receive water through an installed headgate. An outlet at the south end of the pond will allow the non-consumptive flow-through to be released and return to the ditch. Structures will be installed to allow inflow and outflow to be monitored. See Appendix A for a discussion on proposed measurement and control structures.

The new pond is proposed to be placed where an existing Forest Service road is located. A new road will be provided across applicant's property to ensure the US Forest Service will continue to have access according to their easement agreement. These details will be arranged in detail with the Forest Service.

Application for Transfer No. 81352

This application proposes to transfer domestic water right 21-4071A from two springs to a contiguous property owned by the applicant. This water right was developed in 1926 by a predecessor of the applicant on property leased from the US Forest Service. Applicant allowed the current lease to expire at the end of 2017. As a condition of the lease, they are required to remove all improvements from the federal lands, including structures, storage tanks, fences, and ponds. A copy of the lease is included with Transfer No. 81352 as Attachment #10.

The historic use of this water right included two elements under domestic use: the culinary use from the spring located in SESWSW of Section 6 and the pond use from the spring located in NWSESW of Section 6. It is proposed to transfer only the pond use to the new property. The spring located in the SESWSW for culinary use has been removed from the Application.

The water right is currently limited in the Conditions of Approval to 13,000 gpd.

The decreed legal description for the spring in the SESW of Section 6 was incorrectly described as the NESESW. It is proposed to correct the description to the actual location in the NWSESW.

Existing Ponds

Two ponds are currently maintained under this domestic right. According to the applicant's history, these ponds have existed since the cabin was built in 1926. An earthen dam was erected below the lower pond and a smaller dam was erected below the upper pond to capture the spring water and have been maintained until today. The two ponds combined total approximately 0.9 acre, with depths averaging 5 feet deep. These are fed by the upper spring, at the head of the two ponds. The north pond receives the spring water, which then flows into the south pond, where the water drains into a ditch that either conveys water to downstream users or is directed into Sheridan Creek.

In discussion with the US Forest Service, it is agreed to abandon the existing ponds by removing the dam between the two ponds and allowing the ponds to drain and gradually naturalize.

Evaporation

It is anticipated that the new pond may lose up to 1.3 ac-ft per year to evaporation, according the pond loss calculation shown in Table 1. Using data obtained from ET Idaho¹ for the Kilgore, Idaho 104908 climate station, mean daily pond loss is calculated to peak at 3,687 gallons per day in the month of July. At a rate of 0.02 cfs (which can deliver 13,000 gpd) given on the water right report, this water right maintains the pond levels from evaporative losses each day in addition to the culinary uses identified from the other spring without exceeding the water right quantities.

Table 1. Pond Loss Calculations

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Totals
Precip Deficit (mm/day)	-1.57	-0.54	0.18	1.1	1.71	1.54	3.45	2.78	1.62	0.96	-0.92	-1.52	
Precip Deficit (ft/day)	-0.005	-0.002	0.001	0.004	0.006	0.005	0.011	0.009	0.005	0.003	-0.003	-0.005	
Pond Size (acres)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total Daily Loss (af/day)	-0.005	-0.002	0.001	0.004	0.006	0.005	0.011	0.009	0.005	0.003	-0.003	-0.005	
Total Daily Loss (gpd)	-1678	-577	192	1176	1828	1646	3687	2971	1731	1026	-983	-1625	
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31	365
Total Annual Loss (afa)	0.0	0.0	0.0	0.1	0.2	0.2	0.4	0.3	0.2	0.1	0.0	0.0	1.3

Stacking and Expansion

The US Forest Service was also decreed two water rights for same culinary use at the cabin that has been on the Forest Service land since 1926. Water rights 21-4071, 21-11478, and 21-4071A appear to be duplicates of the same beneficial use. All rights describe the lower spring as a point of diversion,

¹ Allen, Richard G. and Clarence W. Robison, 2012. **Evapotranspiration and Consumptive Irrigation Water Requirements for Idaho: Supplement updating the Time Series through December 2008**, Research Technical Completion Report, Kimberly Research and Extension Center, University of Idaho, Moscow, ID

providing in-house use to the main cabin and/or caretaker's cabin. However, only 21-4071A includes the diversion from the upper spring, which provides water to the ponds. In discussion with the Forest Service, it was arranged that to prevent expansion of the water rights, both parties would agree to an allotment of one-half the daily allowed volume of 13,000 gpd and the applicant will surrender the portion of 21-4071A pertaining to in-house use. Thus, this transfer proposes to prevent expansion by reducing the daily allowable volume to 6,500 gpd for water right 21-4071A; an amount still sufficient to satisfy the calculated evaporative losses.

New Application for Permit

To provide for storage of water in the new pond and a flow-through component, applicant proposes to develop a new non-consumptive water right. The new permit will authorize the storage of 8 acre-feet within the proposed pond. It is proposed to provide first-time fill through a Water District 01 Rental Pool lease.

Diversion to Storage in the amount of 4.0 cfs will occur only during the non-irrigation season, when all other water rights from the spring are out of season. The diversion rate was derived from flow measurements taken by Rocky Mountain Environmental Associates during the 2016 and 2017 irrigation season. The spring flows are fairly constant and should be able to provide approximately 4.0 cfs during the off-season. This component will provide flow-through only to refresh the pond. No water diverted under this right will be stored in the pond. Measurement and control structures will be installed to ensure the outflow equals the inflow. Outflow will return to the ditch, which will discharge into Sheridan Creek at the historical location.

Summary

The applicant desires to develop a lined pond that can be maintained with the existing water right 21-4071A. To satisfy concerns of other ditch users, it is proposed to excavate the pond off-stream. It is also proposed to reduce the daily allowed volume under right 21-4071A to 6,500 gpd to prevent expansion of the water right. This volume is sufficient to provide the daily maintenance required to replace evaporative losses.

An Application for Permit seeks authorization for storage of water in the new pond and for an off-season flow-through. This right will not provide water for filling or maintaining the pond. First-time fill will be provided through a Water District 01 Rental Pool lease.

Appendix A

Measurement and Control

The attached conceptual sketch (Figure 1) provides a conceptual outline of measurement and control structures utilizing a standard contracted rectangular weir. This would accommodate the following:

- Diversion of 0.02 to 4.0 cubic feet per second (cfs) into the pond, depending on the water-right authorization at the time of diversion;
- Delivery downstream of any flows in the ditch above the quantity diverted into the pond;
- Measurement of flow into the pond using a standard device;
- Control of discharge to the pond by a gate that may be locked by the watermaster.

The required structures can be built by competent personnel using the conceptual sketch and the attached materials from the US Bureau of Reclamation Water Measurement Manual (Attachment 1). The following points are critical to success of the structures:

- The design elevation of the pond, and the geometry of the ditch (if any) from the weir blade to the pond need to be such that at full flow, the water-surface elevation in the ditch is at least 0.20 feet (approximately 2 3/8 inches) below the elevation of the weir blade. Though not sketched, it is acceptable for the weir blade to drop water directly into the pond;
- The bottom of the approach channel upstream of the weir blade needs to be level side to side and front to back, at least 0.9 feet below the elevation of the weir blade. This will allow accurate measurement of flow up to 4.0 cfs.
- Vent pipes need to allow air to enter just downstream of the weir blade and just below the elevation of the top of the blade;
- A staff gauge needs to be attached to the wall of the weir-blade structure at least 2.0 feet upstream of the weir blade, with the zero point on the staff gauge set at the elevation of the weir blade.
- The water-surface elevation at that point will be approximately 0.45 feet above the weir blade at a flow of 4.0 cfs.

- The lockable, adjustable slide gate and the top elevation of the ditch banks and the new check structure in the ditch need to accommodate the full-flow water surface elevation at the weir blade, plus adequate freeboard to protect the structures from overtopping. Because the source is spring-fed, with likely only small contributions from snowmelt and precipitation, this freeboard probably does not need to be very great. Figure 2 illustrates a similar structure.

Figure 2 Example photo of slide gate.



- The new check structure in the ditch should be large enough, and have a sill elevation low enough, to pass full flow in the ditch at times when the pond is not receiving any water.
- The weir blade should be level on top (side to side) and constructed as near as practical to the following US Bureau of Reclamation specifications:

“(1) The upstream face of the bulkhead should be smooth and have a vertical plane perpendicular to the axis of the channel.

(2) The upstream face of the weir plate should be smooth, straight, and flush with the upstream face of the bulkhead.

(3) The entire crest should be a level, plane surface which forms a sharp, right-angled edge where it intersects the upstream face. The thickness of the crest, measured in the direction of flow, should be between 0.03 and 0.08 inch (about 1 to 2 mm)² ...

(4).... Knife edges should be avoided because they are difficult to maintain.

The attached materials include a rating for a four-foot contracted rectangular weir. Use the column for a 4.0 length of weir. A target flow of 4.0 cfs would occur between a staff gauge reading of 0.44 and 0.45 feet (approximately 5 9/32" and 5 13/32" respectively), and is calculated to occur at a staff gauge reading of 0.4484 feet (5 3/8").

The target flow of 0.02 cfs would occur between a staff-gauge reading of 0.01 and 0.02 feet (approximately 1/8" and 1/4" respectively), and is calculated to occur at a staff gauge reading of 0.0131 feet (5/32").

At the outflow of the pond, a four-foot suppressed rectangular weir will be sufficient to confirm the off-season flow-through.

² This crest thickness is equivalent to approximately 1/32 to 3/32 of an inch. If the entire weir blade were this thin, it would not have the needed structural rigidity. Typical practice is to use 3/16" to 1/4" mild-steel plate, with a partial bevel on the downstream of the weir blade so that the top crest is 1/32 to 3/32 wide.

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

AMENDED **APPLICATION FOR TRANSFER OF WATER RIGHT**
PART 1 Continued

B. DESCRIPTION OF RIGHTS AFTER THE REQUESTED CHANGES. IF THE RIGHTS ARE BEING SPLIT, DESCRIBE PORTIONS TO BE CHANGED AS THEY WOULD APPEAR AFTER THE REQUESTED CHANGES.

1.	<u>Right Number</u>	<u>Amount</u> (cfs/ac-ft)	<u>Nature of Use</u>	<u>Period of Use</u>	<u>Source & Tributary</u>
All or Part ☒ ☐	21-4071A	0.02 cfs	Domestic	01/01 to 12/31	Spring Trib to Sink
☐ ☐				to	
☐ ☐				to	
☐ ☐				to	
☐ ☐				to	
☐ ☐				to	
☐ ☐				to	
☐ ☐				to	
☐ ☐				to	
☐ ☐				to	

Total authorized under rights 0.02 cfs and/or _____ acre-feet.

2. Total amount of water proposed to be transferred or changed 0.02 cubic feet per second and/or _____ acre-feet per year.

3. Point(s) of Diversion:

- ☐ No changes to point(s) of diversion are proposed - the following chart is therefore not completed. (Proceed to #4.)
- ☐ Attach Eastern Snake Plain Aquifer analysis if this transfer proposes to change a point of diversion affecting the ESPA. Label it **Attachment #5**.

New ?	Lot	¼	¼	¼	Sec	Twp	Rge	County	Source	Local name or tag #
N		NW	SE	SW	6	13N	41E	CLARK	SPRING	

4. Place of use: (If irrigation, identify with number of acres irrigated per ¼ ¼ tract.)

- ☐ No changes to place of use are proposed - the following chart is therefore not completed. (Proceed to #5.)

Twp	Rge	Sec	NE ¼				NW ¼				SW ¼				SE ¼				Acre Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
13N	41E	7					D	D											
Total Acres (for irrigation use)																			