

# MEMO

## State of Idaho

### Department of Water Resources

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**Date:** October 14, 2016

**To:** Gary Spackman, Director

Mat Weaver, P. E., Deputy Director

**From:** Tim Luke, Water Compliance Bureau

**Subject:** Administration of surface water rights tributary to the Snake River above Milner Dam

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### Purpose of Memo

This memo is prepared in response to the Director's request to staff to review surface water rights in tributary basins that are not currently administered in priority with senior Snake River water rights to satisfy water right priority dates on the upper Snake River above Milner Dam ("Milner") in Water District 01 ("WD01"). The Director requested staff review of Snake River tributary basin surface water rights as per the Director's memorandum dated September 10, 2014 (attached herein as Attachment A). The Director's memo stated that if the review "reveals that surface water rights in tributary basins bearing junior priority dates are being exercised ahead of surface water rights bearing senior priority dates delivered within WD01, IDWR should initiate actions to ensure administration of the surface water rights by priority."

This memo summarizes staff review of WD01 tributary basin surface water rights and regulation. Recommendations are given regarding potential administration of junior priority tributary basin water rights with respect to senior priority water rights delivered in WD01. Staff initiated review of tributary basin water rights and water district records between late 2014 and spring of 2015. Preparation of this summary memo has been delayed due to other Department project priorities over the past year.

### Area of Review

Figure 1 of this memo is a map showing the location and boundaries of WD01 and the WD01 tributary basins reviewed for this memorandum. Additional Department administrative basins, major streams/rivers/lakes, and the Eastern Snake Plain Aquifer<sup>1</sup> ("ESPA") are included in the map for reference. WD01 stretches from the upper tributary basins along the Wyoming-Idaho border to Milner, which is located about ten miles east of Burley, Idaho.

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<sup>1</sup> The Eastern Snake Plain Aquifer, for purposes of this memo, is:

[T]he aquifer underlying the Eastern Snake River Plain as the aquifer is defined in the report, Hydrology and Digital Simulation of the Regional Aquifer System, Eastern Snake River Plain, Idaho, USGS Professional Paper 1408-F, 1992 excluding areas south of the Snake River and west of the line separating Sections 34 and 35, Township 10 South, Range 20 East, Boise Meridian.

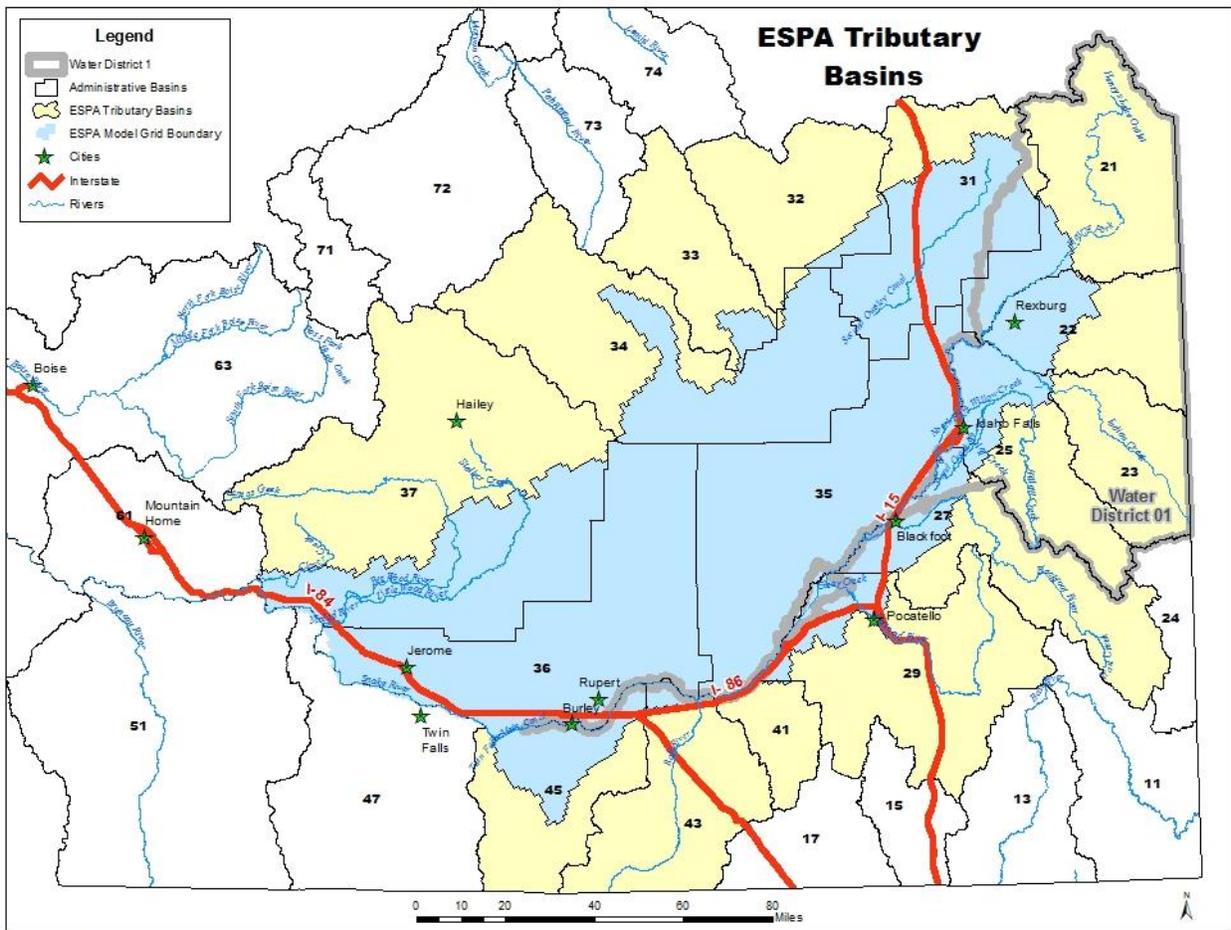


Figure 1: ESPA tributary basins reference map.

Milner is the location for several large canal or pump diversions from the Snake River to which water rights are delivered and administered by WD01, including water rights held by members of the Surface Water Coalition<sup>2</sup> (“SWC”). Twin Falls Canal Company (“TFCC”), a SWC member with a point of diversion and canal heading at Milner, holds a Snake River water right bearing a priority date of October 11, 1900 with an authorized rate of diversion of 3,000 cfs. This water right is the most junior water right in WD01 that is, in whole or in part, in priority during the entire irrigation season.<sup>3</sup> Staff notes that the North Side Canal Company (“NSCC”) holds two water rights with a priority date of October 11, 1900 totaling 400 cfs that are also diverted at Milner.

Several tributary river systems or basins are currently administered by WD01, including the Henry’s Fork River (Basin 21), the Teton River (Basin 22), the South Fork Snake River (Basin 23), and Willow Creek (Basin 25). Administration of water rights in these basins by WD01 is limited to surface water rights.

<sup>2</sup> The Surface Water Coalition consists of the following seven surface water delivery organizations: A&B Irrigation District, American Falls Reservoir District No. 2, Burley Irrigation District, Milner Irrigation District, Minidoka Irrigation District, North Side Canal Company, and the Twin Falls Canal Company.

<sup>3</sup> IDWR Memorandum: “Administration of Surface Water Rights Tributary to the Snake River,” from Gary Spackman, Director, to Water Compliance Bureau, September 10, 2014, p. 2.

Major streams or basins tributary to the Upper Snake River and WD01, which are not administered by WD01, include the Blackfoot River (Basin 27), the Portneuf River and Bannock Creek (Basin 29), Rock Creek (Basin 41), the Raft River (Basin 43) and Goose and Marsh Creeks (Basin 45). Surface water rights in these tributary drainages are included in separate water districts. Some tributary basins, such as the Portneuf River and Raft River, are divided into multiple water districts. All but two of the tributary water districts within these basins are active water districts which have an elected watermaster and annual budget for administration of surface water rights.<sup>4</sup>

The Director’s memo of September 10, 2014 included a table of the number of water rights and amount of water right diversion rates found in most of the upper Snake River or WD01 tributary basins. Compliance Bureau staff understands that the number of water rights and total diversion rates given in the table from the Director’s 2014 memo may have excluded tributary basin water rights that overlap the ESPA boundary and/or excluded certain streams. Compliance Bureau staff has revised the table from the Director’s 2014 memo. The updated table is shown below as Table 1.

<b>Tributary Basin</b>	<b>Blackfoot River (Basin 27)</b>	<b>Portneuf River (Basin 29)</b>	<b>Bannock Creek (Basin 29)</b>	<b>Rock Creek (Basin 41)</b>	<b>Raft River (Basin 43)</b>	<b>Goose/Marsh Creeks (Basin 45)</b>	<b>Basin 35 Trib. Sources</b>
<b>No. of Surface Water Rights Junior to 1900</b>	<b>79</b>	<b>828</b>	<b>27</b>	<b>50</b>	<b>201</b>	<b>145</b>	<b>73</b>
<b>Div. Rates CFS) associated with Surface Water Rights Junior to 1900</b>	<b>93</b>	<b>885</b>	<b>9.7</b>	<b>73</b>	<b>495</b>	<b>388</b>	<b>90</b>

Table 1: Water rights and total cumulative water right diversion rates in Upper Snake River tributary basins.

Table 1 includes water rights on some smaller streams in the listed basins that are directly tributary to the Snake River. For example, Fall Creek and Little Warm Creek in Basin 41 are directly tributary to the Snake River, not Rock Creek. Table 1 also includes sources tributary to the Snake River Administrative Basin No. 35, including springs and spring-fed streams around American Falls Reservoir.

### **WD01 Water Right Priority Deliveries**

Water right priority deliveries in WD01 may vary depending on river reach locations. In general, more junior priority rights are delivered in the river reaches between Blackfoot and Milner while more senior priority rights are delivered in the reaches above Blackfoot.

The graph in Figure 2 shows the average water right priority delivery year and the 50 percent exceedance for water right priority delivery at Milner from 2003 through 2014. The graph confirms that the 1900 priority water rights are the most junior rights delivered at Milner or the Milner reach. Rights in the Milner reach with priorities senior to October 11, 1900 are satisfied each year. Deliveries at Milner are, on average, cut to the 1900 priority starting about the middle of August. At the 50 percent exceedance rate, deliveries in the Milner reach are limited to the

<sup>4</sup> Water District 29-H, Marsh Creek, tributary to Portneuf River, and Water District 43-A, Lower Raft River, are currently inactive water districts. The districts have been inactive for many years.

1900 priority rights starting in early to mid July. Inspection of annual daily delivery and regulation records reported by WD01 shows that deliveries at Milner are cut to the 1900 priority by early July in some years. WD01 staff reports that at times over the past 15 years, as much as two-thirds of the TFCC and NSCC 1900 priority rights at Milner have been cut. Prior to about 2000, cuts to the 1900 priority rights at Milner were typically limited to no more than one-quarter to one-third.<sup>5</sup>

### Milner - Average Priority Year Delivered & 50% Exceedance

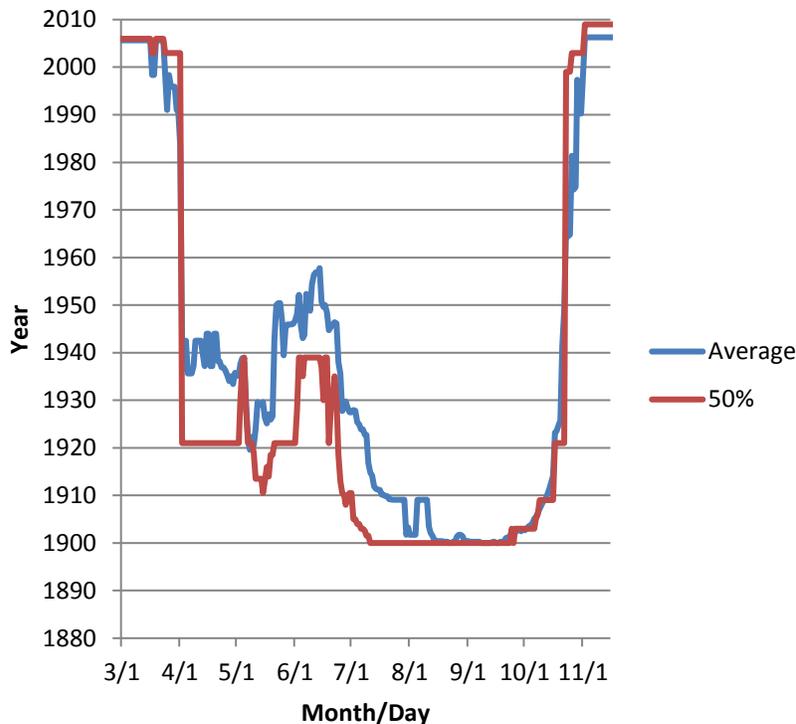


Figure 2: Average year of water right priority delivery and 50 percent exceedance at Milner, 2003-2014.

Figure 3 is a graph showing the average water right priority delivery year and the 50 percent exceedance for water right priority delivery at Blackfoot from 2003 through 2014. The most junior priority year delivery at Blackfoot (or Blackfoot reach), on average for the period 2003 through 2014, is 1892. Delivery cuts to the 1892 rights occur on average around mid to late August. At the 50 percent exceedance rate, deliveries in the Blackfoot reach are limited to 1892 priority rights beginning in early August. According to WD01 staff and WD01 delivery records, the June 1888 priority rights located in the Irwin to Lorenzo and Henrys Fork reaches<sup>6</sup> are the most senior priority rights ever curtailed in WD01. Curtailment of the June 1888 priority rights occurred during the 2001 through 2003 irrigations seasons.<sup>7</sup>

WD01 staff has advised that there are years when various post-1900 priority rights in the Milner reach are not filled during portions of the irrigation season or even the entire season. For example, there have been years when priorities junior to 1921 were never filled for the entire

<sup>5</sup> Olenichak, Tony, Water District 01 Program Manager. Personal communication. July 21, 2016.

<sup>6</sup> The Irwin to Lorenzo and Henrys Fork reaches are located above the Blackfoot reach.

<sup>7</sup> Olenichak, Tony, Water District 01 Program Manager. Personal communication. July 21, 2016.

irrigation season. In 2016, WD01 didn't fill any water rights junior to 3/31/1921 until after April 27. From April 28 to June 24, 2016, the priorities delivered on the Snake River fluctuated between 3/26/1903 and 7/28/1939<sup>8</sup>.

### Blackfoot - Average Priority Year Delivered & 50% Exceedance

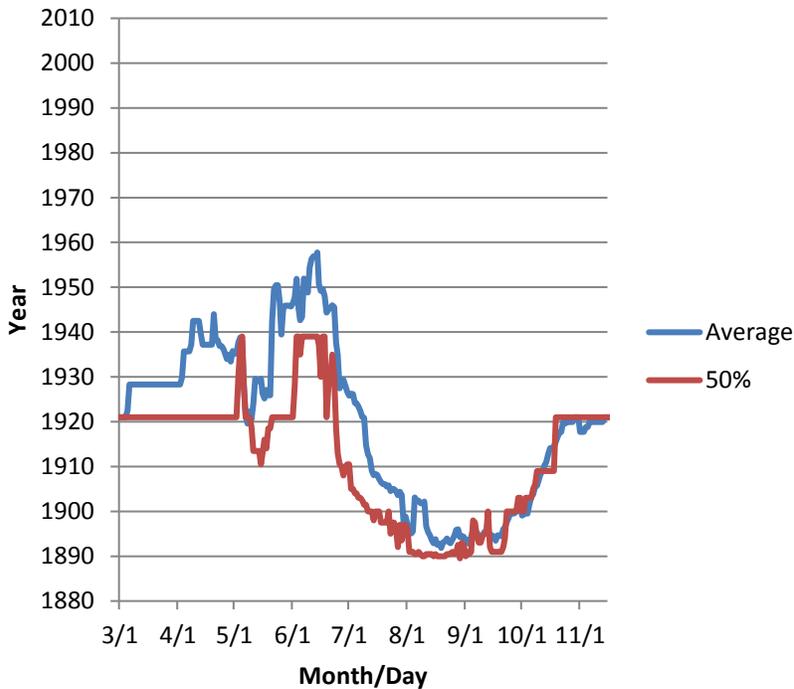


Figure 3: Average year of water right priority delivery and 50 percent exceedance, Blackfoot, 2003 – 2014.

### WD01 Tributary Basins – Review of Water Rights and Regulation

This section summarizes regulation or administration of surface water rights in each of the WD01 tributary basins. All of the tributary basins reviewed in this memo, except the Blackfoot Basin, are tributary to the Snake River between the Blackfoot and Milner gages (below Blackfoot reach). Focus is given to potential regulation of water rights in tributary basins with priority dates junior to the TFCC and NSCC October 11, 1900 priority water rights at Milner.

#### Blackfoot River Basin (Administrative Basin No. 27)

Surface water rights in the Blackfoot basin are administered by Water District 27 (“WD27”). WD27 annually elects to contract with WD01 for watermaster services. As shown in Table 1, there are 79 water rights with cumulative authorized diversion rates totaling about 93 cfs. All but six of the post 1900 priority water rights are on Blackfoot River tributary sources. Many of the tributary sources are located in the upper areas of the drainage basin above Blackfoot Reservoir and may not reach the Blackfoot River during the middle and latter periods of the irrigation season (July through October).

<sup>8</sup> Olenichak, Tony, Water District 01 Program Manager. E-mail communication. July 28, 2016.

Historically, the Blackfoot River has been administered separately from the Snake River primarily because it has a large number of very early priority water rights and all of the storage water in the Blackfoot Reservoir is used on the Fort Hall Reservation as part of the Fort Hall Irrigation Project. There has been no interest over the years to combine Blackfoot River water rights administration with WD01 given the Bureau of Indian Affairs' ("BIA") operation of storage at Blackfoot Reservoir and the fact that the Shoshone-Bannock Tribes' ("Tribes") natural flow rights on the Blackfoot River are older than water right priorities on the Snake River.

The 1990 Fort Hall Agreement and subsequent Blackfoot River Equitable Adjustment Settlement ("Tribal Agreements") between the Tribes and the State of Idaho is an additional reason for separate administration between WD27 and WD01. Pursuant to the Tribal Agreements, the Tribes' 1867 priority Blackfoot River rights are subordinate to non-tribal rights in the basin with priority dates senior to January 1, 1990 as long as the "Primary Volume" and credits keep non-tribal diversions from the Blackfoot River below 45,000 acre-feet. The effect of this subordination results in separate administration of the Blackfoot River from the Snake River. According to WD27 and WD01 staff, the Tribes' 1867 rights are never fully satisfied but can be compensated from other water sources (not including the Blackfoot River and tributaries) pursuant to provisions of the Tribal Agreements.<sup>9</sup> Regulation of non-tribal rights in WD27 junior to 1900 would effectively result in more water from the Blackfoot drainage delivered to the Tribes' 1867 priority rights.<sup>10</sup> Since the Equitable Adjustment Settlement between the Tribes, WD27 and WD01 keeps existing water users in place, while protecting tribal interests from over diversion by non-tribal diversions, regulation in WD27 yields no direct benefit to water rights on the Snake River. Moreover, regulation of junior priority rights on some of the Blackfoot River tributary sources during the irrigation season do not result in water reaching the Blackfoot River, thereby resulting in futile call determinations.<sup>11</sup>

#### Portneuf River Basin (Administrative Basin No. 29)

There are six separate water districts in the Portneuf River drainage basin established for the administration of surface water rights. Five of the six districts annually elect and compensate watermasters to regulate water rights and diversions although the level and extent of regulation varies across the districts. WD29H (Marsh Creek and tributaries), is the only inactive water district in Basin 29. WD29H has been inactive for over 30 years or longer.

Table 2 shows the number of pre and post-1900 priority water rights and total cumulative rates of diversion in Basin 29 water districts. The largest number of post-1900 priority water rights in WD01 tributary basins by far are in Basin 29; specifically in WD29D (Lower Portneuf and tributaries), WD29 (Upper Portneuf River and tributaries), and WD29H.

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<sup>9</sup> Keller, Rob, Water District 01 Staff Engineer. Personal e-mail communication. March 2, 2015.

<sup>10</sup> Swank, Lyle, Watermaster, WD01 and WD27. Personal communication. July 19, 2016.

<sup>11</sup> Keller, Rob, Water District 01 Staff Engineer. Personal e-mail communication. March 2, 2015.

Portneuf River & Trib. Water Districts	No. of Rights Senior to 1900	Total Water Right Diversion Rate (cfs)	No. of Rights Junior to 1900	Total Water Right Diversion Rate (cfs)
WD29 Upper Portneuf	184	319	247	616
WD29A Pocatello Ck	30	1.03	26	1.6
WD29B Garden Ck	34	20.9	34	24.8
WD29D Lower Portneuf	62	15.9	313	71
WD29G Birch Ck	24	48	16	32.3
WD29H Marsh Ck	65	107	192	139
<b>Totals</b>	<b>399</b>	<b>511.83</b>	<b>828</b>	<b>884.7</b>

Table 2: Surface water rights in Basin 29

Water rights and diversions in WD29 are regulated on a weekly or daily basis. Water delivery priority cuts are made to pre-1900 priority water rights in WD29 each year. Cuts are made to an 1898 priority right on the Portneuf River above Lava Hot Springs (Dempsey Topaz Canal) before any partial cuts are made to the Snake River 1900 priority rights at Milner. The 1889 priority right of the McCammon Ditch Co on the Portneuf River above McCammon is typically cut before the 1900 Snake River rights. All post-1900 priority rights in WD29 are considered high flow rights that are typically cut in May or June depending on the water year. There may be brief periods early in the irrigation season where some post-1900 priority deliveries in WD29 are junior to post-1900 priority cuts on the Snake River.

WD 29A (Pocatello Creek) is a small district with a small drainage area and relatively few rights and diversions. There are 56 pre and post-1900 rights in the district; all of the rights authorize irrigation use and some of them also include stockwater use. The authorized irrigated acres under all rights range from 0.6 to 10.6 acres. Forty-eight of the 56 rights in the district are for irrigation of 5 acres or less, and 32 rights authorize less than two acres. All but one of the pre-1900 priority rights in WD29A have 1887 priority dates. One right has a priority of 1890. Diversions in the district are monitored or regulated to resolve disputes between users and prevent unauthorized pumping from Pocatello Creek and tributaries. Miscellaneous discharge measurements on North Fork Pocatello Creek reported by the USGS between 1973 and 1994 are all below 2.5 cfs (all measurements made in late August to late October). Discharge records maintained by the USGS for the South Fork Pocatello Creek from 1961 through 1969 shows mean monthly discharge from April through October ranged from 0.15 cfs to 0.52 cfs during the period of record. The number of senior priority rights, amount of limited use or diversions, and limited supply of the creek suggests that regulation is not required in this district with respect to priority rights on the Snake River. Department staff may conduct some periodic review of water district diversions and regulation to assure diversions are limited to water rights and regulation is appropriate.

WD29G (Birch Creek) is another small district with a limited drainage area and relatively few water rights and diversions. There are two larger ditch diversions on the creek which divert the 1878 senior priority rights having cumulative authorized diversion rates of about 30 cfs. There are additional rights with 1884 and 1888 priorities that total another 18 cfs. The total 48 cfs of pre-1900 priority rights generally cannot be satisfied during the irrigation season, and the 30 cfs 1878 rights frequently are not satisfied during the irrigation season. Both senior and junior priority diversions are monitored and regulated to assure delivery of water to the most senior priority rights. Deliveries are often proportioned among the senior priority rights due to limited water supply. The district also prevents unauthorized water use diversions by owners of small homes and parcels along the creek. Discharge records maintained by the USGS on Birch Creek from 1912 through 1949 at a gage station located above the main senior priority ditch diversions

shows mean monthly discharge from April through October ranged from 16 cfs to 7.5 cfs. The number of pre-1900 priority water rights and limited water supply in WD29G essentially results in delivery of only pre-1900 priority rights.

WD29B (Garden Creek) is another small drainage with a very limited number of diversions. According to the WD29B secretary, Derald Armstrong, there are three ditch diversions on the creek that are used to divert most of the water rights in the district, including the largest and most senior priority right on the creek (1877 priority and 4.0 cfs) held by the Garden Creek Irrigation Co. Armstrong stated that in most years, the 1877 Garden Creek Irrigation Co. right is the only deliverable right on the creek by early July.<sup>12</sup> Most or all of the remaining 17 cfs of pre-1900 priority rights in the district are not deliverable by early July.

WD29D (Lower Portneuf River and tributaries) has many small water right diversions consisting mostly of small irrigation pumps for irrigation of one to twenty acres, with diversion rates between 0.02 to 0.40 cfs. A majority of the diversions are located on tributary streams that have limited water supplies by mid-irrigation season. Most of the water rights in WD29D have priority dates junior to 1900, including nearly 90 rights on the main Portneuf River.

WD29D was created in 2010 to resolve disputes between the holders of small irrigation rights on tributary creeks. Diversions are not currently measured but some diversions on individual tributary streams are regulated by the watermaster in response to delivery calls by senior priority right holders. The watermaster also monitors for illegal pumps or diversions throughout the district.

Water supplies in many of the tributary streams in WD29D are diminished by July of each year and some streams do not reach the main Portneuf River even when regulated by the watermaster, and/or the available supply is limited to satisfy water rights with priorities senior to 1900. IDWR staff believes that strict regulation of post-1900 priority water rights on tributary streams may add very limited amounts of water to the Portneuf River by the time the Snake River at Milner is regulated to the 1900 priority rights. The large number of small pump diversions on both tributaries and the Portneuf River tend to limit excess diversion rates.

The total cumulative water right diversion rate for all post-1900 priority rights in WD29D diverting directly from the Portneuf River is about 22.5 cfs. Portneuf River flow rates in WD29D are generally adequate to meet all or most of these junior priority irrigation rights throughout the irrigation season. Regulation of diversions on the main Portneuf River may add some additional water to the Snake River when deliveries on the Snake are limited to 1900 or more junior priority rights. Again, most river diversions are limited to small irrigation uses and small pump diversions. WD29D would likely require additional watermaster time and budget to regulate post-1900 rights in the district.

WD29H has a significant amount of post-1900 priority water rights and total cumulative diversion rate. The total cumulative diversion rate for the pre-1900 priority rights, or 107 cfs, is nearly equivalent to the post 1900 rights. Mean monthly discharge rates for the USGS Marsh Creek gage near McCammon in July, August and September are 50 cfs, 51 cfs and 65 cfs respectively, for the period of record 1954 through 2015. IDWR staff suspects that few post-1900 priority rights are used during the latter half of the irrigation season but further inventory and investigation of diversions in WD29H is necessary to determine the extent of water rights

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<sup>12</sup> Armstrong, Derald, Secretary, WD29B. Personal communication. March 3, 2015.

and water use in the area. Staff recommends that WD29H be activated for the 2017 irrigation season and thereafter. Staff plans to send notices to WD29H right holders this year regarding water district activation.

In general, some of the post-1900 priority rights in WD29D, WD29H and perhaps WD29 may be delivered when more senior post-1900 priority rights are cut on the Snake River in WD01. As noted on page 3 of this memo, priorities delivered on the Snake River fluctuated between 3/26/1903 and 7/28/1939. The most junior priority right filled on the Snake River in 2016 was the 7/28/1939 priority, meaning no one in the Portneuf Basin with a priority junior to 7/28/1939 should have diverted water in 2016, even during the peak flow period on the Portneuf River<sup>13</sup>. Some post 1939 priority rights in WD29D at least were likely diverted for extended periods of time in 2016. IDWR staff should begin monitoring early irrigation season WD01 priority cuts with priority deliveries in Basin 29 water districts and consider if priority curtailments may be necessary in the tributary districts.

### Bannock Creek

Bannock Creek is a separate drainage basin in Administrative Basin No. 29 that is directly tributary to the Snake River near American Falls. Bannock Creek is a relatively small drainage area with a very limited number of small surface water rights. As shown in Table 1, there are only 28 post-1900 priority rights totaling just 10 cfs. There are 8 surface water rights in the drainage totaling 14.6 cfs with priorities senior to 1900, not counting the Shoshone-Bannock Tribes' 1867 priority rights from Bannock Creek. Most of the non-tribal rights are located on tributary sources up-stream of the Tribes' Bannock Creek water rights diversions. Water supplies in the basin are not adequate to fill many of the pre and post-1900 non-tribal priority rights. Regulation of both pre and post-1900 priority rights would satisfy the Tribes' 1867 Bannock Creek priority rights ahead of the 1900 and post-1900 priority Snake River rights at Milner.

WD29O is an active water district created in 2012 to regulate and monitor non-Tribal rights from both surface water and ground water sources in the Bannock Creek drainage, excluding ground water rights within the ESPA. There is generally an inadequate supply of water from Bannock Creek and its tributaries to satisfy all of the authorized rates of diversion under the privately owned pre-1900 priority water rights.

### Rock Creek Drainage (Administrative Basin No. 41)

Rock Creek is tributary to the Snake River about 13 miles downstream of the American Falls Reservoir dam. Rock Creek is within the Department's Administrative Basin No. 41 and includes a majority of the water rights in the administrative basin. There are 11 water rights on other streams directly tributary to the Snake River in Basin 41. These rights and sources are not included in Water District 41 ("WD41"). Fall Creek includes six consumptive use water rights and two non-consumptive use rights; four of the rights have pre-1900 priority dates and four have post-1900 priority dates but two of the post-1900 priority rights are for fish propagation. The two post-1900 priority Fall Creek rights have a total cumulative authorized rate of diversion of 2.3 cfs. Little Warm Creek has three consumptive use rights that are all post-1900 priority and a total cumulative rate of diversion of about 6.5 cfs.

According to Table 1, there are 50 water rights in the Rock Creek drainage having a priority date junior to October 11, 1900, with cumulative authorized diversion rates totaling 73 cfs. There are

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<sup>13</sup> Olenichak, Tony, Water District 01 Program Manager. E-mail communication. July 28, 2016.

about 96 water rights in the drainage having priority dates senior to October 11, 1900 with cumulative diversion rates totaling about 72.5 cfs. The senior rights range in priority from 1879 to 1897. Water right regulation in the drainage is accomplished by WD41, Rock Creek and tributaries. The district regulates diversions from Rock Creek, East Fork Rock Creek, South Fork Rock Creek and several smaller tributaries in the Rockland Valley near the community of Rockland.

Based on personal communication with the Rock Creek watermaster, pre-1900 priority rights are typically cut in May and June. In some wet years, post-1900 rights may be delivered past June or the entire season. In most years, the watermaster normally cuts deliveries to 1884 priority rights in July. Specifically, deliveries are typically cut or regulated to a portion of the May 10, 1884 priority right held by the Bench Ditch Irrigation Company<sup>14</sup>. In 2013 and 2014, both dry years, the watermaster cut deliveries to the 1884 priority rights during the month of May<sup>15</sup>. The watermaster stated that excess water does not leave the valley<sup>16</sup>.

The historic WD41 delivery records filed with the Department are difficult to read and decipher. Additionally, the water district uses non-standard measuring devices or boxes that are described in the old Rock Creek decree. These boxes do not measure water in quantities consistent with standard measuring devices. The SRBA partial decrees for Rock Creek and tributary sources allow continued use of the old measuring boxes. Current or on-going recording of water deliveries by the water district watermaster using the old measuring boxes adds confusion to water delivery records. It is difficult to discern or understand the amount and timing of water delivered to different priority rights in the district. Although Department staff generally understands that pre-1900 priority water rights in WD41 are normally cut before the 1900 priority rights on the Snake River in Water District 01, staff should monitor water deliveries in WD41 in the future to determine if further regulation is necessary with respect to 1900 or post-1900 priority rights on the Snake River. Additionally, rights on Fall Creek and Little Warm Creek may need to be monitored and regulated according to Snake River priorities, if necessary, by adding the rights to WD41, WD01 or through creation of a separate water district. Rights and diversions in these areas outside of WD41 should be inventoried to determine extent of use, whether the sources reach the Snake River, and whether any regulation of junior priority rights has benefit to senior water rights on the Snake River and/or if regulation of the sources and water rights may be futile with respect to the Snake River.

There are very limited stream gage records available in the Rock Creek drainage. A USGS gage on the South Fork Rock Creek near Rockland (Site No. 13077500), from 1956 through 1960, shows mean monthly discharge ranging from 7.7 cfs in April to 0.01 cfs in July. The former gage site is located on the South Fork of Rock Creek above the confluence with the East Fork Rock Creek and upstream of a number of diversions from Rock Creek.

A second USGS gage station on Rock Creek near American Falls (at the mouth of Rock Creek, Site No. 13077650) from 1978 through 1990 shows mean monthly discharge varying from 30 cfs in April to 8.9 cfs in July and 11 cfs in August. Flows at the mouth of Rock Creek may potentially result from return flows, springs and/or other tributary sources below the primary diversions located upstream near Rockland.

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<sup>14</sup> Robinson, James, Watermaster, WD41. Personal communication. March 2, 2015

<sup>15</sup> Ibid., and WD41 Annual Meeting Minutes, March 2, 2015.

<sup>16</sup> WD41 Annual Meeting Minutes, March 2, 2015.

## Raft River Basin (Administrative Basin No. 43)

There are four separate water districts in the Raft River drainage basin created for administration of surface water rights. Three of the four districts annually elect and compensate watermasters to regulate water rights and diversions although the level and extent of regulation may vary between districts.

Water District 43-A (“WD43A”), Lower Raft River, has been inactive for the past 25 to 30 years since there is generally little to no water in the Lower Raft River. WD43A is limited to the Raft River and any tributary sources north, or downstream of Malta. About 13 rights within the boundary of WD43A are from sources that are tributary to “Sinks” and do not connect or reach the Raft River. A USGS gage station on the lower end of the Raft River, 13079901 – Raft River near Mouth at Yale, from May, 1985 to July, 1989, shows mean monthly discharge between July and October ranging from 1.9 cfs to 0.74 cfs. May and June mean discharge was 27 and 15 cfs respectively. A few rights in WD43A may receive some water from April to June but local water users have advised IDWR staff that very little water is diverted during the period since flows are not usually reliable or consistent.

Table 3 shows the number of pre and post-1900 priority surface water rights and total cumulative rates of diversion in Basin 43 water districts.

<b>Raft River &amp; Trib. Water Districts</b>	<b>No. of Rights Senior to 1900</b>	<b>Total Water Right Diversion Rate (cfs)</b>	<b>No. of Rights Junior to 1900</b>	<b>Total Water Right Diversion Rate (cfs)</b>
WD43A – Lower Raft R.*	18	26.3	20	86.5
WD43B – Upper Raft R.^	155	202	104	270
WD43C – Cassia Ck.^	250	201	63	71.5
WD43D – Almo Ck.^	23	78	14	67
<b>Totals</b>	<b>446</b>	<b>507.3</b>	<b>201</b>	<b>495</b>

**Table 3. Surface water rights in Basin 43**

\* Includes 13 water rights within the district boundary on sources other than the Raft River tributary to Sinks.

^ A number of water rights in these districts are listed in the SRBA General Provisions for Basin 43 as rights whose sources are administered separately from all other water rights in Basin 43 in accordance with the prior appropriation doctrine as established by Idaho law. Priorities for such rights are both pre and post-1900. The number of rights by sources and Water District are as follows:

- WD43C – Cassia Creek and tributaries: 232 rights
- WD43D – Almo Creek and tributaries: 35 rights
- WD43B – Clear Creek and tributaries: 32 rights; Grape Creek and tributaries: 9 rights. Nearly all Clear Creek rights are tributary to “Sinks”.

Note from the footnotes in Table 3 that according to SRBA General Provisions, about half of the water rights in WD43C are administered separately from all other water rights in Basin 43. Also, most of the rights from Clear Creek and tributaries in WD43B, and most of the rights from Almo Creek and tributaries in WD43D are administered separately from other rights in Basin 43. The SRBA General Provisions do not identify any water rights in Basin 43 that are to be administered separately from other water rights in the Snake River Basin, including rights from the Snake River. Conceptually, holders of senior rights on the Snake River can make a delivery call against all junior priority rights in the Raft River Basin, including those rights with Basin 43 separate administration provisions.

According to the WD43B watermaster, deliveries are rarely made to water rights with priority dates of 1900 or junior except perhaps for short periods in extreme wet years. The watermaster indicated that deliveries from the Raft River in WD43B are limited to rights with 1870's and early 1880's priority dates<sup>17</sup>. The available supply of the Raft River during most of the irrigation season is generally not adequate to fill rights with priorities beyond 1879. WD43B delivery records appear to support the watermaster's statement based on identification of water rights delivered and water right owner names. The water district delivery records though are spotty and lack detail.

USGS gage records for the Raft River at Onemile Creek located near the Raft River Narrows about 17 miles southwest of Malta show that the Raft River water supply is limited. Table 4 identifies mean monthly discharge of Raft River at Onemile Creek for the period of record 1946 to 2014, and from 2000 to 2014. Mean monthly flows from July through October range between 8 cfs and 5 cfs for the periods of record shown in Table 4. Mean monthly flows between 2000 and 2014 are less than the full period of record.

**USGS Gage 13078000: Raft River Above Onemile Creek near Malta, ID**

Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
10/1/1946 - 9/30/2014	16	21	26	37	44	33	8	5.7	5.7	7.6	9.5	11
1/1/2000 - 9/30/2014	11	12	18	32	36	26	5.6	2.7	3.3	4.8	5.7	6.8

Table 4: Mean Monthly Discharge in cubic feet per second for period of record 1946 – 2014, and 2000 - 2014

The most senior priority water right diversions on the Raft River (1879 priority or senior) are located both upstream and downstream of the Onemile Creek gage. There are just four 1879 or senior priority rights upstream of the gage totaling about 8.6 cfs. There are about 75 rights in WD43B with diversions between the gage and Malta. The total authorized cumulative rate of diversion under these 75 rights is about 50 cfs. The mean monthly flows at the gage from July through October are not adequate to fill most of the pre-1880 senior priority rights on the river between the gage and Malta.

Cassia Creek (WD43C) is a regulated stream with a reliable supply of water to fill pre-1900 priority water rights during the irrigation season. According to the watermaster, all 1900 and junior priority rights in the district are high flow rights that may be temporarily filled in the early irrigation season during snowpack run-off. Typically, 1905 to 1913 priority rights can be temporarily filled during May and early June. Rights are generally cut to 1894 priorities by early June and to 1886 priorities by July. The watermaster further cuts rights during July to priorities between 1882 and 1880, and normally limits delivery to 1879 priority rights in August.<sup>18</sup>

Almo Creek (WD43D) has over 20 pre-1900 priority rights with cumulative authorized diversion rates totaling more than 70 cfs. The pre-1900 priority rights range from 1878 to 1885. The watermaster rarely delivers water to any post-1885 priority rights. There are only 14 post-1885 rights in the district; some of those rights may get water during limited high flow periods during the early irrigation season.

A review of the water rights and water district records in the Raft River Basin, including communications with local watermasters, indicates that the drainages are over appropriated,

<sup>17</sup> Neff, Rick, Watermaster, WD43B. Personal communication. March 2, 2015.

<sup>18</sup> Musser, Roger. Personal communication. October 12, 2016.

water supplies are very limited, and water is regulated to mid-1880's or senior priority rights before any regulation of the 1900 or post 19000 priority rights on the Snake River in WD01 between Blackfoot and Milner.

#### Administrative Basin No. 45

Marsh Creek is the only surface water drainage of significance in Administrative Basin No. 45 that is directly tributary to the Snake River in WD01 above Milner Dam. Water rights from Marsh Creek and tributary sources are regulated by Water District 45-F (“WD45F”). The Goose Creek drainage is the other significant drainage in Basin 45 but it does not connect to the Snake River. The Goose Creek channel does not exist downstream of Goose Creek Reservoir. Non-irrigation season flows and irrigation season high flows in the drainage are stored in the Goose Creek Reservoir located south of Oakley and owned by the Oakley Canal Company. A number of pre-1900, senior priority irrigation rights from Goose Creek and Trapper Creek above the reservoir are administered by the Goose Creek Water District; flows in these creeks above the reservoir are very limited during the irrigation season. Several additional streams in Basin 45, some of which are regulated by water districts, (Basin Creek, Birch Creek, Little and Big Cottonwood Creeks) sink to the Oakley Valley and do not connect to the Snake River. Dry Creek, located on the east side of Basin 45 is tributary to the Snake River below Milner Dam.

There are approximately 210 consumptive irrigation rights in WD45F. About 187 rights have priority dates senior to 1900, ranging from 1873 to 1892. The total cumulative authorized diversion rate of the pre-1900 priority rights is about 248 cfs. There are just 23 consumptive irrigation rights in the district with post-1900 priority dates. The cumulative rates of diversion for these 23 rights total 163 cfs; one of these rights is held by the Burley Irrigation District (“BID”) for 150 cfs with a point of diversion location on the lower end of Marsh Creek. According to BID’s Marsh Creek water right, BID “uses the channel of Marsh Creek within its boundaries as a part of its water delivery system to deliver water diverted under its water rights to lands included in the irrigation district.” The source of water for the BID right is likely diverted from the Snake River and injected or spilled to Marsh Creek, or includes waste water or return flow from the BID system that enters Marsh Creek. All of the remaining post-1900 priority rights in WD45F are located on streams or springs tributary to Marsh Creek near or upstream of Albion.

The WD45F watermaster regulates water rights on Marsh Creek and tributaries at and above the Six S Ranch reservoir located on Marsh Creek about 5.7 miles southeast of Declo and 6.7 miles northeast of Albion. Six S Ranch owns a number of senior priority rights at or just below the reservoir. There are no senior priority rights on Marsh Creek below Six S Ranch so the watermaster does not regulate diversions below Six S.

According to the WD45F watermaster, early season, high flow deliveries in the water district are normally limited to the 1892 priority rights. High flow deliveries are rarely made to rights with priorities junior to 1892. High flow deliveries are usually off by mid-June. Deliveries typically get cut back to 1877 priority rights between mid-June and early July<sup>19</sup>. A discontinued USGS gage on Marsh Creek between Albion and the Six S Ranch Reservoir, 13082300 Marsh Creek near Albion, has a period of record from 1966 through 1974. Senior priority rights are located both upstream and downstream of the gage. Mean monthly flows at the gage for the period of record range from 40 cfs to 46 cfs from April to June, and 13 cfs to 7.0 cfs from July to October.

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<sup>19</sup> Gunderson, Don, Watermaster, WD45F. Personal communication. October 13, 2016.

The limited gage data exemplifies the high spring flows through June and a much more limited supply from July through October.

### Snake River Tributary Springs and Creeks (Administrative Basin No. 35)

There are approximately 73 consumptive irrigation rights from surface water sources in Administrative Basin No. 35 that are tributary to the Snake River in WD01 but not regulated by WD01 or any other water districts. The tributary sources include streams, springs, drains, sloughs and ponds around American Falls Reservoir; and sloughs, ponds and springs in the Roberts-Menan Buttes area north of Idaho Falls. The water right points of diversion from these sources are in very close proximity to the Snake River or American Falls Reservoir.

The total cumulative authorized rate of diversion for the 73 rights is about 90 cfs. Priority dates for the 73 rights range from 1885 to 1991. Fifty-nine (59) of the 73 rights have priority dates junior to 1900 with rates of diversion totaling about 67 cfs; 14 rights are senior to 1900 with rates of diversion totaling about 23 cfs. The pre-1900 priority rights are all located in the Springfield area near American Falls Reservoir and downstream of the Blackfoot River and Blackfoot gage. Eight of the 14 pre-1900 priority rights are diverted from Danielson Creek, and the other six rights are diverted from an unnamed stream near Danielson Creek. Most of the post-1900 priority irrigation rights in the American Falls area from sources directly tributary to the Snake River. Many of the post-1900 priority rights in the Roberts-Menan Buttes area are diverted from sloughs, gravel pits or oxbow ponds along the Snake River. These sloughs and ponds do not directly flow to the Snake River but are hydraulically connected to the river. Staff understands or believes that water is typically available in these tributary sources through the entire irrigation season to satisfy all or portions of all priority rights, including post-1900 priority rights.

The Department should further evaluate and perhaps inventory the rights and diversions on these Basin 35 tributary sources. Consideration should be given to including the rights in a water district for administration and regulation consistent with priority rights on the Snake River.

### **Conclusions and Recommendations**

This memo evaluates surface water rights and current level of water right regulation in WD01 Snake River tributary drainages. Review was limited to those surface water rights that are not currently administered by WD01 or are administered by separate water districts. Tributary drainages administered by separate water districts or not administered by water districts include the Blackfoot, Portneuf, Bannock Creek, Rock Creek, Raft River, and Marsh-Goose Creeks, plus tributary sources in Administrative Basin 35 near American Falls and Roberts. The following conclusions are drawn from review of water rights and current levels of regulation in these tributary areas:

- Surface water sources in the tributary areas are over appropriated;
- Surface water rights in most tributary drainages below Blackfoot are currently regulated by water districts such that rights senior to a 1900 priority are already cut before curtailment occurs to the 10/11/1900 priority right or more junior priority rights on the Snake River in WD01 between Blackfoot and Milner;
- There are several tributary areas where post-1900 priority rights may require regulation and curtailment when the 10/11/1900 priority right or more junior priority rights on the Snake River are cut. Specifically, the lower Portneuf River area (WD29-D), Marsh

Creek in the Portneuf River basin (WD29H), and some surface water sources directly tributary to the Snake River in Basin 35 and Basin 41; and

- Post-1900 priority rights in some tributary areas may be delivered when more senior post-1900 priority rights are cut on the Snake River in WD01.

Staff proposes the following action items be initiated:

- Send notice to holders of water rights in WD29H requiring the water district to be activated and begin operations beginning in 2017. Notices will be sent late Fall, 2016. Starting in 2017 as necessary, begin regulating water rights in the district relative to water right priority cuts on the Snake River;
- Starting in 2017, begin regulating water rights in WD29D, on both the main stem of the Portneuf River and tributary streams, relative to water right priority cuts on the Snake River. Evaluate potential futile delivery calls on tributary streams. Send notice and instruction to the WD29D watermaster and users prior to the WD29D 2017 annual meeting (include with meeting notice);
- Starting in 2017, direct key IDWR Water Distribution Section (“WDS”) staff to coordinate with appropriate WD01 and IDWR hydrology staff to monitor water right priority cuts on the Snake River. In addition to WD29D and 29H, WDS staff shall coordinate with WD29 and WD41 watermasters on a frequent basis to monitor and report water right priority deliveries in their respective districts. WDS staff can evaluate if any potential regulation is required in these water districts relative to Snake River priority cuts in WD01. Staff shall track and report on the priority deliveries in these tributary districts. Monitoring should not be required for WD27, WD29O, Raft River Basin water districts, and Basin 45 water districts; and
- Starting in 2017, IDWR staff shall inventory diversions on unregulated sources tributary to the Snake River in Basins 35 and 41. By October 1, 2017, complete recommendations regarding inclusion of these sources and water rights in existing or new water districts.