



Technical Memo

To: Chris Bromley
From: Greg Sullivan M.S. and
Charles G. Brockway, Ph.D., P.E.
Date: June 14, 2024
Re: Expert Report for Transfer #87938



This report concerns the contested approvals of Transfer #87938 pertaining to water rights 36-4233, 36-7970, 36-8332, 36-8744 and 36-17185. The characteristics of these rights before the transfer are provided in Table 1, which shows the diversion rate and annual volume allowed for the beneficial uses authorized by the rights. Since their development, the water rights have provided water to a cafe, a gas station, 75 domestic houses and the irrigation of 5.2 acres, all in the vicinity of the I-84 interchange near the City of Heyburn. Groundwater wells at these sites have historically provided the water supply, but wastewater has been discharged to the City wastewater system as described below. The City acquired all of these rights and sought to transfer them to the existing municipal system and change their beneficial uses to “municipal.”

Table 1: Water right descriptions before the Transfer #87938 application.

RIGHT #	36-4233		36-8744		36-17185	36-8332	36-7970
PRIORITY DATE	3/1/1963		12/22/1995		12/22/1995	10/12/1987	3/10/1981
BASIS	Decreed		License		License	License	Decreed
SOURCE	Ground Water		Ground Water		Ground Water	Ground Water	Ground Water
USE	Irrigation	Domestic	Irrigation	Domestic	Domestic	Commercial	Domestic
Period of Use	4/01-10/31	1/01-12/31	3/15-11/15	1/01-12/31	1/01-12/31	1/01-12/31	1/01-12/31
Diversion	0.12 CFS	0.20 CFS	0.02 CFS	0.05 CFS	0.05 CFS	0.04 CFS	0.20 CFS
Combined Diversion	0.20 CFS		0.07 CFS				
VOLUME	20.0 AFA	7.0 AFA	0.8 AFA	2.4 AFA	2.4 AFA	0.9 AFA	27.6 AFA
COMBINED VOLUMES	27.0 AFA		3.2 AFA				
TOTAL VOLUME	61.1 AFA						

IDWR policy in general is to allow only the “consumptive” portion of a water right to be changed to municipal usage. However, this policy cannot be properly implemented unless the actual hydrology of individual situations is analyzed. In the present case, the water rights in question historically have had some fraction that was truly consumptive in the sense of being lost from the water resource via evapotranspiration, some fraction that returned directly to the aquifer from whence it was diverted, and some fraction that discharged to the City of Heyburn wastewater collection system, where it was treated and returned to the Snake River, with the latter case being wholly consumptive to the aquifer since there was no return to groundwater.

All of these rights will now be diverted from the City’s municipal wells, and the actual hydrology and historical usage of these rights in relation to the City’s municipal water supply and wastewater system must be evaluated in order to answer the question of enlargement. The City has an independent irrigation system supplied by surface water that is used by residents for irrigation needs, and the City’s existing municipal groundwater rights are sufficient to cover current demands.



The aquifer depletion caused by the irrigation portion of the rights in Table 1 was evaluated based on precipitation deficit from ET Idaho for irrigated turfgrass at the Burley station. This value is 3.21 acre-feet per acre of irrigation. Volume diverted for irrigation exceeding this amount has historically returned to the aquifer.

The domestic portion of the rights in Table 2 has historically been used for in-house purposes with negligible consumptive loss and thence directed into the City of Heyburn municipal wastewater system. After the transfer, this water will continue to be used in the same manner. Similarly, the commercial portion of the rights in Table 2 has not been used consumptively but has returned to the Snake River via the City's wastewater system.

B. Description of Proposed Changes

In the transfer application, the following analyses were made and changes proposed for each right:

36-4233

The application proposed to convert the 5.0 acres (20.0 AFA) of irrigation and the 7.0 AFA of domestic water under water right 36-4233 to municipal use. The allowed consumptive use volume that can be converted to municipal water from irrigation water is calculated by multiplying the 5.0 acres of irrigation by 3.21 acre-feet/acre, or 16.0 AFA. The 7.0 AFA of domestic water that was pumped and delivered to the residential houses has historically been diverted from the aquifer and discharged to the City's wastewater treatment facility, without returning to the aquifer. This amount should therefore continue to be available for municipal purposes. In total, 23.0 AFA of 36-4233 was proposed to be converted to municipal use.

36-8744

Under this right, the volume to be converted to municipal water from irrigation was calculated by multiplying the 0.2 acres of irrigation by 3.21 acre-feet/acre, or 0.6 AFA. The 2.4 AFA of domestic water that was pumped and delivered to the residential houses has historically been diverted from the aquifer and discharged to the City's wastewater treatment facility, without returning to the aquifer. This amount should therefore continue to be available for municipal purposes. In total, 3.0 AFA of 36-8744 was proposed to be converted to municipal water.

36-17185 and 36-7970

For these rights it was proposed to convert the entire volume to municipal use. The domestic water that was pumped and delivered to the residences has historically been discharged into the City of Heyburn wastewater treatment facility, and therefore this amount should continue to be available for municipal purposes. This amounts to 2.4 AFA under 36-17185 and 27.6 AFA under 36-7970.

36-8332

This right has historically provided 0.9 AFA of commercial water for a gas station and convenience store. Similar to in-house use, this water is discharged essentially undiminished to the City's wastewater system – the same as it will after the transfer – and therefore conversion to

municipal use should be allowed. In addition, a long-standing internal policy of IDWR identifies stockwater, commercial, and industrial water as 100% consumptive, even if it isn't. Therefore, even without the historical fact of diverting to the City's wastewater system and the fact that this mechanism will continue to occur, there should be no question that the entire volume should be allowed to transfer.

Table 2: Water right descriptions proposed by Transfer #87938 application.

RIGHT #	<u>36-4233</u>		<u>36-8744</u>		<u>36-17185</u>	<u>36-8332</u>	<u>36-7970</u>
PRIORITY DATE	3/1/1963		12/22/1995		12/22/1995	10/12/1987	3/10/1981
BASIS	Decreed		License		License	License	Decreed
SOURCE	Ground Water		Ground Water		Ground Water	Ground Water	Ground Water
USE	Municipal	Municipal	Municipal	Municipal	Municipal	Municipal	Municipal
Period of Use	4/01-10/31	1/01-12/31	3/15-11/15	1/01-12/31	1/01-12/31	1/01-12/31	1/01-12/31
Diversion	0.12 CFS	0.20 CFS	0.02 CFS	0.05 CFS	0.05 CFS	0.04 CFS	0.20 CFS
Combined Diversion	0.20 CFS		0.07 CFS				
VOLUME	16.0 AFA	7.0 AFA	0.6 AFA	2.4 AFA	2.4 AFA	0.9 AFA	27.6 AFA
COMBINED VOLUMES	23.0 AFA		3.0 AFA				
TOTAL VOLUME	57.0 AFA						

C. Reduction of Volumes by IDWR

Transfer #87938 was approved on January 19, 2024. A memo by Corey Skinner, IDWR Southern Region Manager, describing his evaluation of the proposed transfer stated that “A meeting was held between Corey, IDWR administration and IDWR Eastern & Western Regional Managers. During this meeting, it was decided that IDWR cannot allow volume credit in a conversion from in house domestic use to municipal use (see transfer # 82259 approved in 2018). However, credit for diversion rates for in-house use could be allowed.”

The Department approved the transfer with the annual volumes for all domestic water use reduced to zero. The Department did recognize the consumptive use volumes of irrigation portions of the water rights, and with regard to the commercial water right 36-8332, Mr. Skinner's memo stated, “Since commercial use can be 100% consumptive, 0.4 cfs and 0.9 AF will be allowed after the transfer of this right.” See Table 3.

Table 3: Water right descriptions under Transfer #87938 as originally approved by IDWR.

RIGHT #	36-4233		36-8744		36-17185	36-8332	36-7970
PRIORITY DATE	3/1/1963		12/22/1995		12/22/1995	10/12/1987	3/10/1981
BASIS	Decreed		License		License	License	Decreed
SOURCE	Ground Water		Ground Water		Ground Water	Ground Water	Ground Water
USE	Municipal	Municipal	Municipal	Municipal	Municipal	Municipal	Municipal
Period of Use	4/01-10/31	1/01-12/31	3/15-11/15	1/01-12/31	1/01-12/31	1/01-12/31	1/01-12/31
Diversion	0.12 CFS	0.20 CFS	0.02 CFS	0.05 CFS	0.05 CFS	0.04 CFS	0.20 CFS
Combined Diversion	0.20 CFS		0.07 CFS				
VOLUME	16.1 AFA	0.0 AFA	0.6 AFA	0.0 AFA	0.0 AFA	0.9 AFA	11.1 AFA
COMBINED VOLUMES	16.1 AFA		0.6 AFA				
COMBINED VOLUMES	16.7 AFA						
TOTAL VOLUME	28.7 AFA						

The Applicant filed a Petition for Reconsideration with IDWR. The Petition for Reconsideration asked the Department to amend the transfer approval to include the historical volume used under the domestic beneficial use for water rights 36-4233, 36-8744, 36-17185 and 36-7970. The Department determined that the Applicant did not provide sufficient historical consumptive use analysis for the domestic and commercial water uses under 36-4233, 36-7970, 36-8332, 36-8744 and 36-17185. Further, the Department determined that both the domestic and commercial volumes under these water rights must be reduced to zero to prevent an enlargement in use of the water rights.

IDWR granted the Petition for Reconsideration and Amended transfer #87938 to eliminate all volume under the historic beneficial uses of domestic and commercial, further reducing the total allowable volume by 0.9 AFA. See Table 4.

Table 4: Water right descriptions under Transfer #87938 as amended by IDWR.

RIGHT #	36-4233		36-8744		36-17185	36-8332	36-7970
PRIORITY DATE	3/1/1963		12/22/1995		12/22/1995	10/12/1987	3/10/1981
BASIS	Decreed		License		License	License	Decreed
SOURCE	Ground Water		Ground Water		Ground Water	Ground Water	Ground Water
USE	Municipal	Municipal	Municipal	Municipal	Municipal	Municipal	Municipal
Period of Use	4/01-10/31	1/01-12/31	3/15-11/15	1/01-12/31	1/01-12/31	1/01-12/31	1/01-12/31
Diversion	0.12 CFS	0.20 CFS	0.02 CFS	0.05 CFS	0.05 CFS	0.04 CFS	0.20 CFS
Combined Diversion	0.20 CFS		0.07 CFS				
VOLUME	16.1 AFA	0.0 AFA	0.6 AFA	0.0 AFA	0.0 AFA	0.0 AFA	11.1 AFA
COMBINED VOLUMES	16.1 AFA		0.6 AFA				
COMBINED VOLUMES	16.7 AFA						
TOTAL VOLUME	27.8 AFA						

D. The water balance reality

An annual water balance for the transfer as proposed is shown in Table 5. This table represents the actual historical hydrology of the water usage under the five rights, as best as it can be determined. The balance accounts for groundwater diverted, consumptive loss from the system, return to the aquifer, and return to the Snake River. This analysis demonstrates that the depletion *to the aquifer* is 57.0 acre-feet, the same volume as proposed to be converted to municipal use in the original application.

In Table 5, the depletion of the aquifer is equal to the irrigation consumptive use (precipitation deficit) plus all of the diversion for domestic and commercial uses because this amount is discharged to the City's wastewater system with no return to the aquifer. It is important to note that because of this fact, the aquifer depletion would remain the same before and after the change, and the return to the Snake River would remain the same before and after the change, regardless of the actual overall "consumptiveness" of the domestic and commercial use.

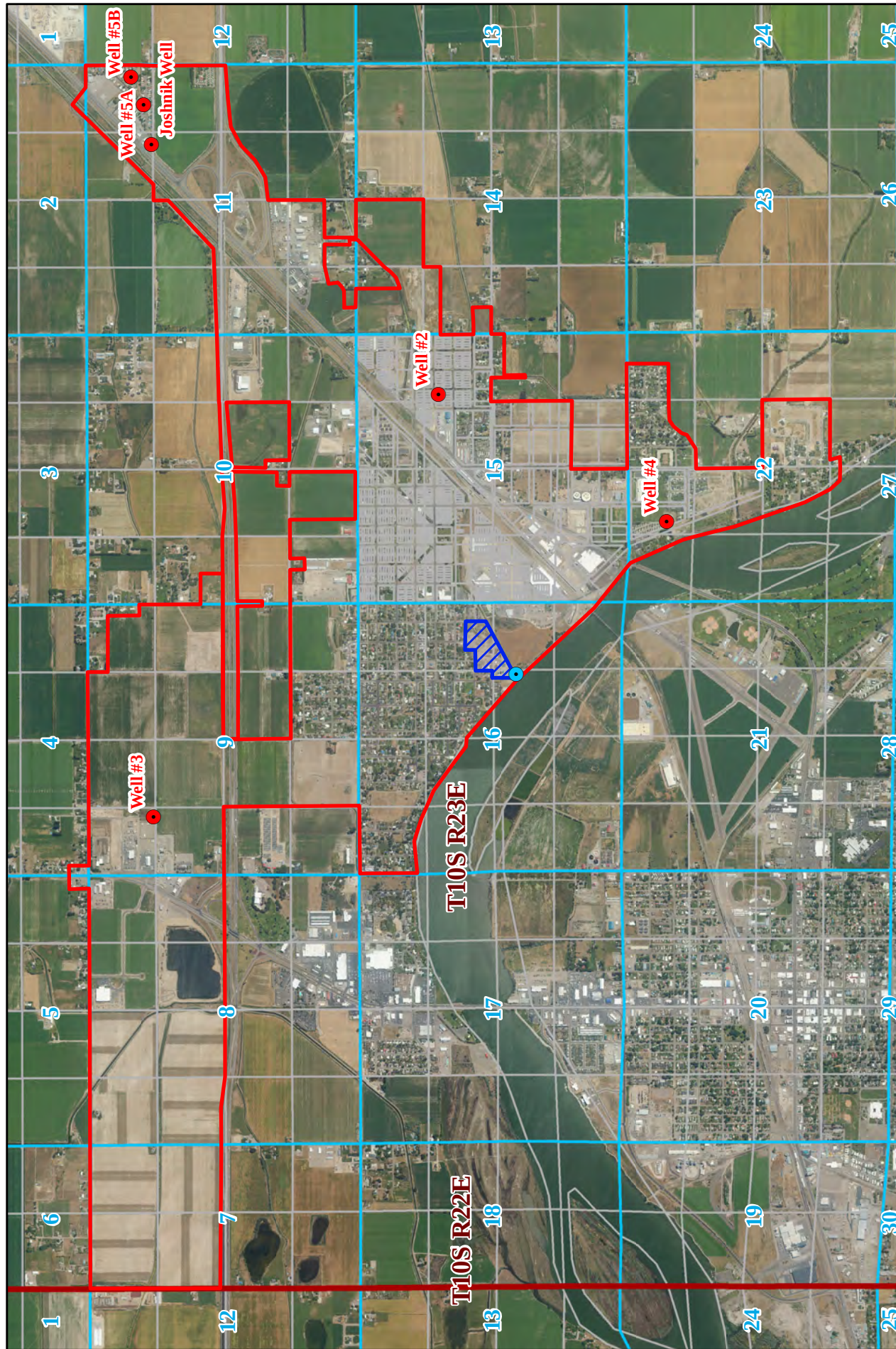
In short, there will be no change in the depletion of the aquifer before or after the transfer as originally proposed, and there will be no change in the return to the Snake River before or after the transfer as originally proposed. Water currently being discharged to the wastewater system and returned to the river will continue to return.

This water balance is straightforward, but it appears that in Transfer #87938, the Department prioritized policy over the hydrologic reality when reducing the volumes under the transfer. By policy, if the beneficial use on a water right is “domestic,” no volume can be transferred. Yet if that word on paper had been “municipal,” then volume could be transferred. This kind of policy-based distinction does not have a proper scientific basis. Every case should be subjected to a hydrologic analysis that takes into account its particular facts and characteristics on a case-by-case basis. If the Department is concerned that the type of wastewater treatment employed by the City of Heyburn may change, and therefore the degree of overall consumptive depletion may change, it can simply condition the transferred rights accordingly to provide that a certain volume under the transferred rights always be allowed to return to the Snake River, with the City agreeable to such a condition.

Table 5. Annual water balance for transfer as proposed. Values are in acre-feet per year unless otherwise indicated.

	Water Right No.				
	36-4233	36-8744	36-17185	36-8332	36-7970
Irrigated acres	5.0	0.2	0.0	0.0	0.0
Diversion volume - irrigation	20.0	0.8	0.0	0.0	0.0
Diversion volume - domestic	7.0	2.4	2.4	0.0	27.6
Diversion volume - commercial	0.0	0.0	0.0	0.9	0.0
Consumptive loss from overall water resource*	16.1	0.6	0.0	0.0	0.0
Return to source aquifer	4.0	0.2	0.0	0.0	0.0
Discharge to Heyburn WW system	7.0	2.4	2.4	0.9	27.6
Return to Snake River	7.0	2.4	2.4	0.9	27.6
TOTALS:					
Total aquifer withdrawal	61.1				
Return to aquifer	4.1				
Depletion of aquifer	57.0				
Return to Snake River	40.3				
Consumptive loss from overall water resource	16.7				

*Consumptive loss consists of Irrigation Pdef only; minor loss from in-house use is neglected



Legend

- Treated WW Discharge
- WWTP
- City Wells
- Municipal_POU

CITY OF HEYBURN

NAIP 2023 AERIAL

0 0.5 1 Miles

Exhibit 8