

MEMORANDUM

TO: Water Right File No(s). 35-13340 and 35-13362

FROM: Aaron Marshall

DATE: July 8, 2009

SUBJECT: Brent Chappell Water Supply Bank Rental Application

On November 17, 2008, IDWR received a Water Supply Bank (Bank) rental application from Brent Chappell requesting the use of ground water for irrigation of 15.2 acres near Blackfoot for a period of 5 years, 2009 – 2013. A portion of water rights 35-13340 and 35-13362 are leased to the Bank for an indefinite period and are of sufficient quantity to fulfill this request. The portion of these rights available for rent from the Bank is 0.47 cfs and 100.0 acre-feet for irrigation of 25.0 acres.

The standard field headgate requirement for irrigation in the Blackfoot area is 4.0 acre-feet per acre. An annual volume of 60.8 acre-feet is necessary to irrigate 15.2 acres. However, the change in point of diversion under water rights 35-13340 and 35-13362 through a Water Supply Bank rental will increase depletions in the near Blackfoot to Neeley reach of the Snake River. To mitigate for the increased depletions, Mr. Chappell must rent an additional volume of water that will remain undiverted.

Mr. Chappell's proposed use was modeled with $\frac{1}{3}$ of the annual diversion volume (20 af) in the spring trimester and $\frac{2}{3}$ of the annual diversion volume (41 af) in the summer trimester as expected with common irrigation practices on the eastern Snake River plain. Since Mr. Chappell used water in 2008 under a single-year rental agreement for the same use as proposed, the diversion volume from 2008 was included in this model run.

Potential impact to the Snake River by the proposed rental was evaluated with regard to the criteria outlined in Administrator's Memorandum, Transfer Processing No. 24. The transfer memo states, in pertinent part, as follows:

"For applications that propose to move the point of diversion for a water right to divert and use ground water from the ESPA, including any modeled tributary aquifers, if **(a)** the depletion to a hydraulically connected reach is greater than 10% of the total depletion resulting from diversion at the proposed point of diversion; **(b)** increases to depletions in a reach is greater than 2 acre-feet per trimester; and **(c)** the transfer would result in increased depletions greater than 10%, to any reach of the Snake River; the transfer is not approvable without mitigation. When greater increases in such depletions would occur, acceptable mitigation includes reduction in the quantity of ground water diverted and depleted such that there is no increase in depletions (within [5%] for transient increases) for any hydraulically connected reach of the Snake River."

The model predicts that the proposed change will increase depletions in the near Blackfoot to Neeley reach of the Snake River by greater than 2 acre-feet per trimester and greater than 10%. To limit increased depletions to within 5% of the depletion prior to the proposed change, Mr. Chappell must rent 78.0 acre-feet of water but will be limited to diversion of 60.8 acre-feet per year (figure 1).

CELL LOCATIONS:			
		'TO' CELL	'FROM1' CELL
ROW		83	81
COLUMN		129	135

TRIMESTER OF ACTIVITY	TO WELL	FROM1 WELL	
	Projected Use	With Transfer	Without Transfer
	AF/TRIMESTER	AF/TRIMESTER	AF/TRIMESTER
SPR 2008	20	0	26
SUM 2008	41	0	52
WIN 2008	0	0	0
SPR 2009	20	0	26
SUM 2009	41	0	52
WIN 2009	0	0	0
SPR 2010	20	0	26
SUM 2010	41	0	52
WIN 2010	0	0	0
SPR 2011	20	0	26
SUM 2011	41	0	52
WIN 2011	0	0	0
SPR 2012	20	0	26
SUM 2012	41	0	52
WIN 2012	0	0	0
SPR 2013	20	0	26
SUM 2013	41	0	52
WIN 2013	0	0	0

Figure 1. Summary of ESPA model data entry during previous (2008) and proposed (2009 – 2013) rental periods.

The criteria described in item (a) above should only apply to steady-state conditions and does not to short-term changes such as Water Supply Bank rentals. The criteria described in (b) and (c) above are indicators that mitigation may be required for increased depletions to the Snake River. If the criteria indicate that mitigation is required, it must be provided in full, within a 5% tolerance during the transient phase. Most Water Supply Bank rentals represent short-term changes to water rights and the hydraulic effects usually remain in a transient state during the rental period. Therefore, increased depletions to a reach of the Snake River during a rental period should not exceed 5%, provided that the effects remain in a transient state. This 5% tolerance may be acceptable since net accretions during the first half of the rental period will likely offset the net depletions incurred during the second half of the rental period (figure 2).

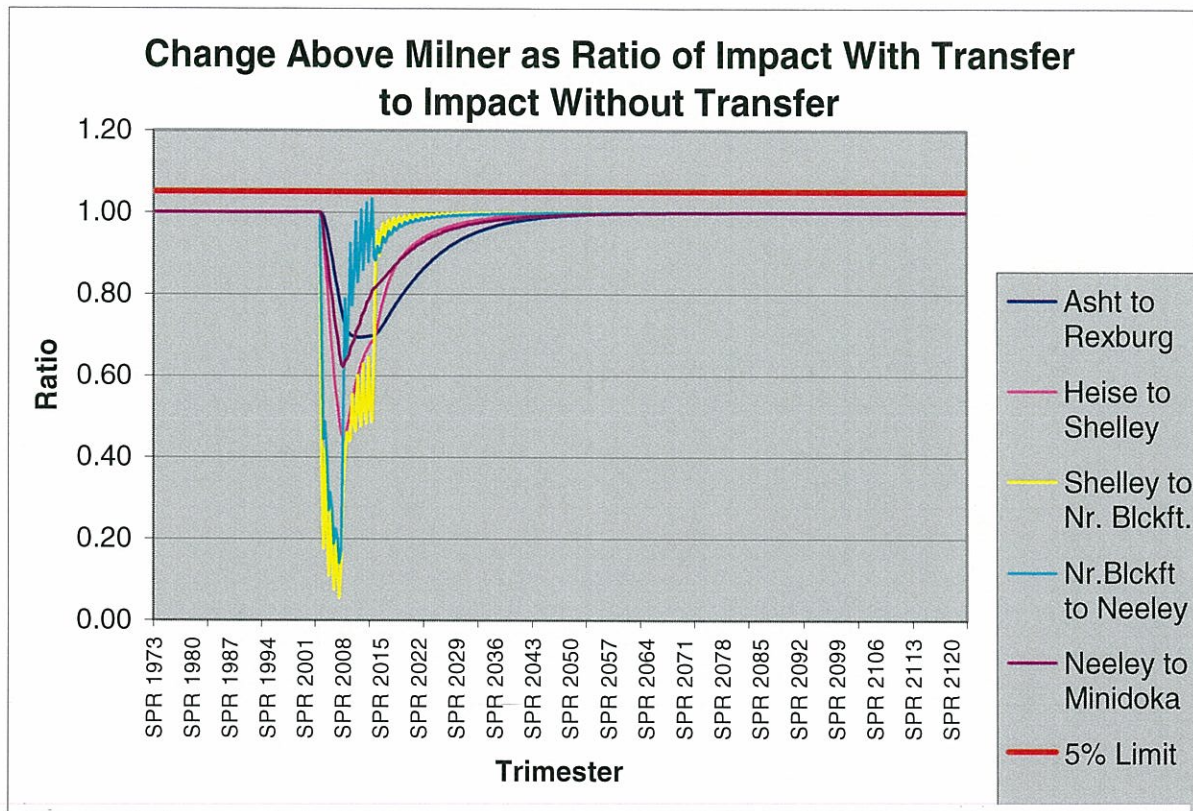


Figure 2. Graph illustrating predicted impacts to reaches of the Snake River with respect to the 5% limit during the transient phase of the change.

The model predicts that only the near Blackfoot to Neeley reach of the Snake River will incur an increase in depletion during the proposed rental period (figure 3). Every other reach of the river above and below Milner Dam is expected to have a net accretion caused by the rental. Since the increase in depletion remains within 5% of the depletion in the near Blackfoot to Neeley reach prior to the change, the rental is acceptable with the proposed mitigation; rental of 78.0 acre-feet of water under rights 35-13340 and 35-13362 but limited to an annual diversion volume of 60.8 acre-feet for irrigation of 15.2 acres.

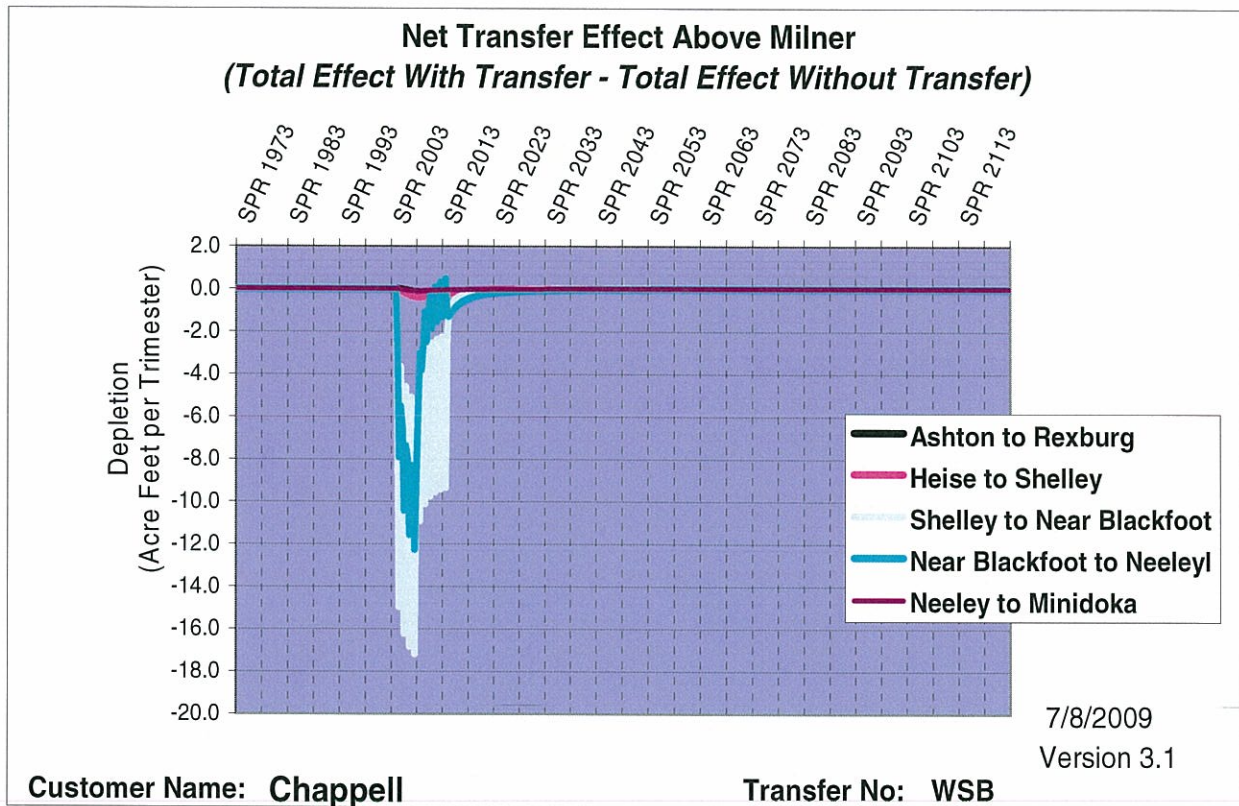


Figure 3. Graph showing predicted impacts to reaches of the Snake River caused by the proposed rental. Positive values indicate net depletion and negative values indicate net accretion for a specific reach.