



State of Idaho

## DEPARTMENT OF WATER RESOURCES

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DIRK KEMPTHORNE  
Governor

KARL J. DREHER  
Director

July 20, 2005

BOB DUKE  
WATERMASTER, WATER DISTRICT NO. 34  
PO BOX 53  
MACKAY, ID 83251-0053

### Re: Mitigation Credit For Ground Water Recharge Operations

Bob,

IDWR has reviewed the data submitted in your letter of June 9, 2005, and determined that only a portion of the total reported recharge to the ground water system qualifies as credit towards mitigation. Specifically, your letter reports the total recharge volume as 9,212 acre-feet for the period from May 9 through June 5, 2005. IDWR calculated that from May 22 through June 5, 1,243 acre-feet is the total volume that should be credited as the portion of the total recharge that will result in an offset to the depletions from ground water pumping in the Big Lost River.

IDWR derived the lower volume by multiplying the total recharge volume by the thirteen percent ground water diversion depletion rate in Rule 50.04.c. This approach is consistent with IDWR's explanation at last winter's public meetings of how recharge mitigation credit would be allowed.

IDWR understands that your volume of 9,212 acre-feet is calculated by assuming that 30 percent of all heading deliveries, and tributary flows becomes ground water recharge. IDWR attempted to verify the 30 percent value using a different approach. IDWR calculated the recharge from the canal systems below the reservoir by subtracting farm headgate deliveries from the total canal headings, and assuming the difference is all recharge to the aquifer. Using this method, IDWR calculated an average loss rate of about 40 percent for the canals below the reservoir. This rate is probably high considering that some of the water delivered to the canals likely returned to the Big Lost River. Because no farm delivery information is available for diversions above the reservoir, a seepage loss of 30 percent is used. This 30 percent value may be revised based on additional information, specifically earlier seepage studies done on the Upper Fish Hatchery Canal. A 30 percent seepage loss is also used for calculating recharge from tributary sources. A total recharge volume of about 9,561 acre-feet is calculated from all sources, and the resulting component allowed as mitigation credit is 1,243 acre-feet ( $9,561 \times 0.13$ ).

IDWR used procedures in the Basin 34 Recharge Plan of Operation for Permits 34-7571 and 34-7573 to determine dates when recharge was permissible. The beginning date for allowing recharge above the reservoir and for sources from tributaries is May 25, 2005. The May 25 date is acceptable because that is the date that the Mackay Reservoir filled. The recharge Plan of Operation does not allow diversion of water to recharge upstream of the Mackay Reservoir if such diversion of water would interfere with filling of storage water rights. For below the reservoir, the date for allowing recharge to start is May 22, 2005. This is the date that flows at

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the 2B gage exceeded irrigation deliveries by over 300 cfs, as is required in ¶3, page 3 of the Plan of Operation. In IDWR's calculations, no credit is given for flow occurring in natural channels where direct control and measurement of water is not possible. This includes the North Antelope, Antelope Back Channel, and Pass Creek.


IDWR is allowing mitigation credit from recharge for several of the diversion sites that were estimated rather than measured. Specifically, the UCC Blaine Diversion and the Antelope Diversion to the UCC Canal are reported as estimates. The recharge permits specifically require measurement of all recharge diversions. For 2005, IDWR will allow mitigation credit for these two sites by assuming a 30 percent seepage loss, and multiplying these recharge values by the thirteen percent ground water diversion depletion rate in Rule 50.04.c. IDWR will not recognize mitigation credit from recharge activities in subsequent years unless the recharge diversions are measured.

IDWR also calculated the recharge credit for mitigation through June 26 using the data submitted by the water district. The calculated cumulative volume for mitigation from recharge from May 22 through June 26 is 2,560 acre-feet. The attached spreadsheet printout shows the preliminary IDWR recharge calculations. It is anticipated that additions and revisions to these calculations will be necessary after consultation with the water district. The additional recharge data you faxed on July 13 is also being reviewed by IDWR staff and will be incorporated into the calculations.

Since there is generally a lag time for the recharge water to reach the river and become available for use, IDWR is assuming that all mitigation from recharge is to be credited to the second semester period (July 23 through October 15).

If you have any questions or want to discuss this issue further, please call me directly at 208-287-4957.

Sincerely,



Steve Burrell  
Water Distribution Section

Attachments /1/

pc: WD 34 2005 file

IDWR Eastern Region – Idaho Falls  
Mitchell Sorenson – Arco (w/o attch)  
Loy Pehrson – Mackay (w/o attch)  
Big Lost River Irrigation District – PO Box 205, Mackay 83251 (w/o attch)  
Richard Reynolds – 2800 N 3233 West, Arco 83213 (w/o attch)  
Darrell McDonald – PO Box 102, Arco 83213-0102 (w/o attch)

Character Name		5/2/2008	5/10/2008	5/11/2008	5/12/2008	5/13/2008	5/14/2008	5/15/2008	5/16/2008	5/17/2008	5/18/2008	5/19/2008	5/20/2008	5/21/2008	5/22/2008	5/23/2008	5/24/2008	5/25/2008	5/26/2008	5/27/2008	5/28/2008	5/29/2008	5/30/2008	5/31/2008	6/1/2008	6/2/2008	6/3/2008	6/4/2008	6/5/2008	6/6/2008	6/7/2008	6/8/2008	6/9/2008	6/10/2008	6/11/2008	6/12/2008	6/13/2008	6/14/2008	6/15/2008	6/16/2008	6/17/2008	6/18/2008	6/19/2008	6/20/2008	6/21/2008	6/22/2008	6/23/2008	6/24/2008	6/25/2008	6/26/2008	6/27/2008	6/28/2008	6/29/2008	6/30/2008	7/1/2008	7/2/2008	7/3/2008	7/4/2008	7/5/2008	7/6/2008	7/7/2008	7/8/2008	7/9/2008	7/10/2008	7/11/2008	7/12/2008	7/13/2008	7/14/2008	7/15/2008	7/16/2008	7/17/2008	7/18/2008	7/19/2008	7/20/2008	7/21/2008	7/22/2008	7/23/2008	7/24/2008	7/25/2008	7/26/2008	7/27/2008	7/28/2008	7/29/2008	7/30/2008	7/31/2008	8/1/2008	8/2/2008	8/3/2008	8/4/2008	8/5/2008	8/6/2008	8/7/2008	8/8/2008	8/9/2008	8/10/2008	8/11/2008	8/12/2008	8/13/2008	8/14/2008	8/15/2008	8/16/2008	8/17/2008	8/18/2008	8/19/2008	8/20/2008	8/21/2008	8/22/2008	8/23/2008	8/24/2008	8/25/2008	8/26/2008	8/27/2008	8/28/2008	8/29/2008	8/30/2008	8/31/2008	9/1/2008	9/2/2008	9/3/2008	9/4/2008	9/5/2008	9/6/2008	9/7/2008	9/8/2008	9/9/2008	9/10/2008	9/11/2008	9/12/2008	9/13/2008	9/14/2008	9/15/2008	9/16/2008	9/17/2008	9/18/2008	9/19/2008	9/20/2008	9/21/2008	9/22/2008	9/23/2008	9/24/2008	9/25/2008	9/26/2008	9/27/2008	9/28/2008	9/29/2008	9/30/2008	10/1/2008	10/2/2008	10/3/2008	10/4/2008	10/5/2008	10/6/2008	10/7/2008	10/8/2008	10/9/2008	10/10/2008	10/11/2008	10/12/2008	10/13/2008	10/14/2008	10/15/2008	10/16/2008	10/17/2008	10/18/2008	10/19/2008	10/20/2008	10/21/2008	10/22/2008	10/23/2008	10/24/2008	10/25/2008	10/26/2008	10/27/2008	10/28/2008	10/29/2008	10/30/2008	10/31/2008	11/1/2008	11/2/2008	11/3/2008	11/4/2008	11/5/2008	11/6/2008	11/7/2008	11/8/2008	11/9/2008	11/10/2008	11/11/2008	11/12/2008	11/13/2008	11/14/2008	11/15/2008	11/16/2008	11/17/2008	11/18/2008	11/19/2008	11/20/2008	11/21/2008	11/22/2008	11/23/2008	11/24/2008	11/25/2008	11/26/2008	11/27/2008	11/28/2008	11/29/2008	11/30/2008	12/1/2008	12/2/2008	12/3/2008	12/4/2008	12/5/2008	12/6/2008	12/7/2008	12/8/2008	12/9/2008	12/10/2008	12/11/2008	12/12/2008	12/13/2008	12/14/2008	12/15/2008	12/16/2008	12/17/2008	12/18/2008	12/19/2008	12/20/2008	12/21/2008	12/22/2008	12/23/2008	12/24/2008	12/25/2008	12/26/2008	12/27/2008	12/28/2008	12/29/2008	12/30/2008	12/31/2008	1/1/2009	1/2/2009	1/3/2009	1/4/2009	1/5/2009	1/6/2009	1/7/2009	1/8/2009	1/9/2009	1/10/2009	1/11/2009	1/12/2009	1/13/2009	1/14/2009	1/15/2009	1/16/2009	1/17/2009	1/18/2009	1/19/2009	1/20/2009	1/21/2009	1/22/2009	1/23/2009	1/24/2009	1/25/2009	1/26/2009	1/27/2009	1/28/2009	1/29/2009	1/30/2009	1/31/2009	2/1/2009	2/2/2009	2/3/2009	2/4/2009	2/5/2009	2/6/2009	2/7/2009	2/8/2009	2/9/2009	2/10/2009	2/11/2009	2/12/2009	2/13/2009	2/14/2009	2/15/2009	2/16/2009	2/17/2009	2/18/2009	2/19/2009	2/20/2009	2/21/2009	2/22/2009	2/23/20
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