State of Idaho
DEPARTMENT OF WATER RESOURCES
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C. L. "BUTCH" OTTER
Governor

DAVID R. TUTHILL, JR.
Interim Director

April 20, 2007

Loy Pehrson
3624W 3700N
Darlington, ID 83255

Re: Your Correspondence Dated April 12, 2007

Dear Mr. Pehrson,

This office received the above referenced correspondence to Director Tuthill on April 17, 2007. This correspondence was forwarded to me for response on behalf of the Director. Your letter provides an example of your total storage allocation and a typical storage delivery request from the Big Lost River Irrigation District (BLRID), and asks how much water will be assessed to deliver the storage request. You made this request because you stated, "there is some confusion on how the recent decision of Judge Shindurling on Case No. 05-91 is going to be implemented by the IDWR and the watermaster regarding conveyance loss in the Big Lost River."

The Department intends to continue use of the Big Lost River water right accounting program this year. The program is run one or two times per week and provides a daily accounting of water delivery and conveyance losses by river reach. The program proportions the storage and conveyance losses by river reach below the Mackay Reservoir. The program also determines the amount of natural flow and storage diverted at each diversion.

The Department will instruct the watermaster to use the accounting program as a tool to report the conveyance losses in the Big Lost River by river reach, and to report the amounts of stored water and natural flow water diverted or rediverted at each diversion. The reach conveyance losses in the water right accounting program are calculated in the same manner as described in correspondence dated April 30, 2004 from Jennifer Berkey, IDWR, to Bob Duke (former watermaster), Keith Waddoups and Seth Beal (copy of letter attached).

Using the example and figures provided on pages 4 and 5 of the April 30, 2004 IDWR letter, the calculated conveyance losses for the delivery of stored water are 2.07% in the 2B gage to Leslie gage reach and 40% in the Leslie gage to Moore diversion reach, where the Leslie gage is at the location defined by the Water District 34 Water Distribution Rules. These would be the calculated reach conveyance losses associated with all requests for the delivery of stored water to these respective reaches, including your examples of the delivery of 500 inches each at the Beck and Pehrson (Lower Burnett) headings.

The accounting program, and hence the watermaster, tracks the amount of storage water used at each heading or diversion, along with the reach conveyance losses. The watermaster calculates the conveyance losses in each river reach to determine the available natural flow. Importantly, the watermaster does not track BLRID individual storage allotments or accounts and does not "assess" the total amount of stored water that may be required by BLRID to deliver your individual storage requests. How much water is "assessed" or charged against individual BLRID patrons in the delivery of their stored water is a matter for the BLRID to determine. Judge Shindurling's decision was clear regarding this latter point. Judge Shindurling specifically ruled, "the BLRID is not mandated to distribute storage water within the BLRID according to watermaster's calculations in Rule 40.03.b."

I hope this letter addresses your questions. IDWR will work with the new watermaster to assure that reach conveyance losses are clearly reported to water users and the BLRID. IDWR plans to make some changes in the water right accounting output that will show reach conveyance loss calculations more clearly. IDWR encourages the watermaster and BLRID to work closely on water measurement and water use calculations but recognizes that the BLRID determines how a user's storage allocation is debited. Please contact Nick Miller or me if you have additional questions or need further assistance. Please feel free also to communicate any concerns or questions directly to the Director, Dave Tuthill.

Regards,

Tim Luke
Water Distribution

Encl: Letter dated April 30, 2004, from Jennifer Berkey, IDWR,
To Bob Duke, Keith Waddoups and Seth Beal

Cc: David R. Tuthill Jr.
Bob Scha effer, Water District No. 34 Watermaster
Big Lost River Irrigation District
IDWR Eastern Region
Nick Miller, IDWR

State of Idaho
DEPARTMENT OF WATER RESOURCES
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DIRK KEMPTHORNE
GOVERNOR

KARL J. DREHER
DIRECTOR

April 30, 2004

Bob Duke
Watermaster, Water District 34
P.O. Box 53
Mackay, ID 83251

Keith Waddoups
Board of Directors, Big Lost River Irrigation District
2078 North 3520 West
Moore, ID 83255

Seth Beal
Advisory Board Chairman, Water District 34

DRAFT VIA FACSIMILE

Re: Accounting Procedures for Water District 34

Gentlemen:

The Idaho Department of Water Resources (IDWR) has received requests from members of the Water District 34 and Big Lost River Irrigation District advisory boards, and water users served by your organizations to provide written clarification of accounting procedures that should be used related to the following issues.

1. Requests of mitigation pursuan to IDAPA 37.03.12.050.
2. Requests to rotate non-deliverable natural flow rights at the beginning of the irrigation season under IDAPA 37.03.12.040.02.d.iii.
3. Assessing conveyance losses to storage deliveries under IDAPA 37.03.12.040.03.b.

Fulfilling and Accounting for Mitigation Requests

This issue is currently being reviewed by the Director and will be addressed in a separate letter.

Accounting Procedure for Requests to Rotate under IDAPA 37.03.12.040.02.d.iii

On April 30, 2004, Water District 34 received a request from several water right holders with points of diversion downstream of the Darlington Sinks. These water users requested that their water rights be rotated for credit as described in Rule 40.02.d.iii. Under this rule, water will be accrued in Mackay Reservoir, up to a maximum total of 3,500 AF, in a separate account that is controlled by the watermaster. Water in this account is to be used by the watermaster to make natural flow rights deliverable to points of diversion downstream of the Darlington Sinks at the beginning of the season.

The accounting procedure used by IDWR will track two storage accounts in Mackay Reservoir during the period that this rule is in effect. One account is impounded water owned by BLRID, the other is

impounded water controlled by the watermaster for the purpose of "charging the system". Reservoir losses, including evaporation and seepage losses, will be assessed proportionally to each of these two accounts. Assessment of losses or gains to individual allocations within the BLRID account is the responsibility of the BLRID.

The following is an example of daily calculations for use when this rule is in effect and water is not intentionally being released from Mackay Reservoir.

Assumptions:
1. Irrigation season has begun.
2. General Provision 6a is in effect.
3. Mackay Reservoir has not filled.
4. The Big Lost River is dry downstream of the Darlington Sinks
5. Water users downstream of the Darlington Sinks have requested that their water rights be filled by rotation for credit under IDAPA 37.03.12.040.03.b.
6. Water is not intentionally being released from Mackay Reservoir.
7. Water in the Big Lost River channel between Mackay Dam and the 2B gage is due to seepage losses from Mackay Reservoir.
8. This example assumes all water rights have been called for and that all water right holders downstream of the Darlington Sinks have requested their rights be rotated for credit under Rule 40.02.d.iii.
9. Actual numbers will vary depending on daily gage data, actual calls for water rights and the actual number of water rights requested to be rotated for credit.

Daily data:

2B gage reading	83.0 cfs
Reservoir contents	32000 AF
Prior day's reservoir contents	31940.1 AF
Change in reservoir contents	59.9 AF (30.2 cfs-day)
Sharp diversion reading	10.0 cfs
Daily reservoir evaporation	9.92 AF (5.0 cfs-day)

Calculation of reservoir inflow:

2B + CHANGE IN CONTENTS + SHARP + EVAPORATION = INFLOW
83.0 cfs + 30.2 cfs + 10.0 cfs + 5.0 cfs = 128.2 cfs

Determination of priority date at Mackay Reservoir:

Assuming all water rights are called for, 128.2 cfs corresponds to a last right filled date of 40.4% of the 10/12/1884 water rights downstream of Mackay Reservoir.

Water delivered to storage accounts in Mackay Reservoir:

4.9 cfs (9.7 AF) diverted to BLRID storage account under WR 34-818 and 34-811

69.7 cfs (138.2 AF) diverted to storage under IDAPA 37-03.12+040.02.iii
53.6 cfs to be passed through reservoir as natural flow for downstream users

Daily reservoir losses:

Evaporation loss 5.0 cfs-day

Seepage loss (2B + SHARP – REQUIRED DOWNSTREAM FLOW)
83.0 + 10.0 – 53.6 = 39.4 cfs-day

Total reservoir loss (EVAPORATION + SEEPAGE LOSS)
5.0 + 39.4 = 44.4 cfs-day = 88.1 AF

Accounting of impounded water:

BLRID account

Prior day's account balance	31,940.1 AF
Diverted to storage	+ 9.7 AF
Account balance w/o evaporation or seepage loss	31,949.8 AF
Reservoir losses (0.2746%)	- 87.7 AF
	31,862.1 AF

Watermaster's account

Prior day's account balance	0.0 AF
Diverted to storage	+ 138.2 AF
Account balance w/o evaporation or seepage loss	138.2 AF
Reservoir losses (0.2746%)	- 0.4 AF
	137.8 AF

Reservoir losses are 88.1/(31,949.8 + 138.2) x 100 = 0.2746% of total

Determination of natural flow downstream of Mackay Dam:

Seepage losses from Mackay Reservoir are considered to be a gain to the natural flow in the reach downstream of the dam. This is a source of natural flow that is not available to water rights diverted into storage at the reservoir, thus the last right filled date for the reaches between Mackay Dam and the Darlington Sinks may be later than the last right filled date deliverable for diversion to storage in the reservoir.

Natural Flow at 2B Gage = 2B Gage + Sharp Diversion

Natural Flow at Leslie Gage = Leslie Gage + all diversions between dam and Leslie gage

Assessing Conveyance Losses to Storage Deliveries

According to IDAPA 37.03.12.040.03.b, the conveyance loss assessed to storage deliveries in each reach of the river should be determined by the watermaster on a daily basis, using daily streamflow gage readings and diversion data.

> "...Conveyance losses in the natural channel shall be proportioned by the watermaster between natural flow and impounded water. The proportioning shall be done on a river reach basis. Impounded water flowing through a reach that does not have a conveyance loss will not be assessed a loss for that reach. Impounded water flowing through any river reach that does have a conveyance loss will be assessed the proportionate share of the loss for each losing reach through which the impounded water flows. To avoid an iterative accounting procedure, impounded water conveyance loss from the previous day shall be assessed on the current day. ..."

IDAPA 37.03.12.040.03.b.i adds that

> "... An exception is made for impounded water delivered through the Beck and Evan diversion... Conveyance losses for this impounded water will be assessed the conveyance loss of the Leslie reach, if any, and the additional conveyance loss to the Beck and Evan diversion but not the conveyance loss of the entire Moore reach. ..."

The following is an example of daily accounting procedures for the assessment of conveyance losses in accordance with this rule. The river reaches are defined in IDAPA 37.03.12.025.01.

Daily data:	Change in Mackay Reservoir contents	353 cfs	
	Reservoir evaporation rate		10 cfs
	Sharp diversion rate		8 cfs
	2B gage reading		580 cfs
	Diversions from 2B to Leslie		96 cfs
	Leslie gage reading		472 cfs
	Beck diversion	16 cfs	
	Other diversions from Leslie to Moore	223 cfs	
	Big Lost River below Moore diversion	0 cfs	
	Exchange well injections in Eastside Canal		28 cfs
	Eastside return flow		73 cfs
	Diversions from below Moore to Munsey		61 cfs
	Big Lost River below Munsey diversion	0 cfs	
	Diversions below Munsey		0 cfs
	Arco gage reading		0 cfs

Reach gain/loss calculations:

Reach gain for Mackay Reservoir to 2B gage

2B + SHARP + CHANGE IN CONTENTS + EVAPORATION

580 cfs + 8 cfs + 353 cfs + 10 cfs = 951 cfs (gain)

Reach gain between 2B gage and Leslie gage

OUTFLOW – INFLOW + DIVERSIONS

472 cfs – 580 cfs + 96 cfs = -12 cfs (loss)

Reach gain between Leslie gage and BLR below Moore diversion

OUTFLOW – INFLOW + DIVERSIONS – EXCHANGE + ES RETURN

0 cfs – 472 cfs + 238 cfs – 28 cfs + 73 cfs = -189 cfs (loss)

Reach gain between Moore and Munsey diversions

BLW MUNSEY – BLW MOORE – ES RETURN + DIVERSIONS

0 cfs – 0 cfs – 73 cfs + 61 cfs = -12 cfs (loss)

Calculation of percent loss by reach

Mackay Reservoir to 2B gage

No conveyance loss in this reach on this day

2B gage to Leslie gage

LOSS/TOTAL INFLOW = 12/580 x 100 = 2.07%

Leslie gage to below Moore diversion

LOSS/TOTAL INFLOW = 189/472 x 100 = 40.0%

Below Moore diversion to below Munsey

LOSS/TOTAL INFLOW = 12/73 x 100 = 16.4%

Assessment of conveyance loss to storage water deliveries

Storage water delivered above 2B gage

No conveyance loss on this day

Storage water delivered between 2B gage and Leslie gage

Conveyance loss = 2.07%

Storage water delivered to Beck diversion

Conveyance loss = 2.07% (without an additional stream gaging station potential losses between the Leslie gage and the Beck diversion cannot be determined)

Storage water delivered to other diversions in the Moore reach

Conveyance loss = (1-(1-0.0207)x(1-0.400)) x 100 = 41.2%

Storage water delivered below Moore diversion
Conveyance loss = (1-(1-0.412)x(1-0.164)) x 100 = 50.8%

If you have any questions regarding this letter please contact me at 208-327-7871 or Tim Luke at 208-327-7864.

Respectfully,

Jennifer Berkey
Water Distribution Section

cc: Bob Shaffer, Big Lost River Irrigation District

N:/Lost River WD34/Corrspndc/2004/04-30AcctProc.doc

Tim:
Would either
You or Nick
plz call on
my behalf?
Dave

April 12, 2007

Director Dave Tuthill
Idaho Department of Water Resources
322E Front St.
PO Box 83720
Boise, ID 83720-0098

Dear Director Tuthill,

There is some confusion on how the recent decision of Judge Shindurling on Case No.05-91, is going to be implemented by the IDWR and the water master, regarding conveyance loss in the Big Lost River. Judge Shindurling makes it very clear in his decision who has jurisdiction for water distribution, starting at paragraph 2 page 11 of the decision, "Under the Idaho Code, the jurisdiction of the IDWR ends and the jurisdiction of the BLRID begins when the water master delivers storage water to the BLRID. In other words, jurisdiction for water distribution, and consequently compliance with Rule 40.03b, begins and ends at the appropriators's headgate. In the case of the BLRID, the district, itself, is the appropriators."

Would you illustrate as plain and simple as possible, how my individual storage water that has been allocated, is going to be assessed for conveyance loss in the Big Lost River.

Please use the example with my total allocation being 25000 inches of water, and I would like 500 inches delivered at my heading on the Big Lost River (Pehrson Ditch) and 500 inches delivered at the Beck heading on the Big Lost River. Please illustrate how much total water will be assessed to deliver 500 inches at each of these headings.

Would you please respond before April 20, 2007. If you have any questions or don't understand any of this would, you please call me at 390-6166.

Thank-you very much
Sincerely,

Loy Pehrson

Loy Pehrson
3624W 3700N
Darlington, ID 83255