

MEMO



To: Idaho Water Resource Board
From: Brian Patton
Subject: ESPA Managed Recharge
Date: August 18, 2014

Managed recharge is a key part of stabilizing the Eastern Snake Plain Aquifer (ESPA). Stabilizing the ESPA is necessary for maintaining spring flows from the ESPA through the Thousand Springs at a level sufficient to maintain the minimum flows established under the Swan Falls Agreement.

The Idaho Water Resource Board's (IWRB) investigations into ESPA managed recharge have revealed the following:

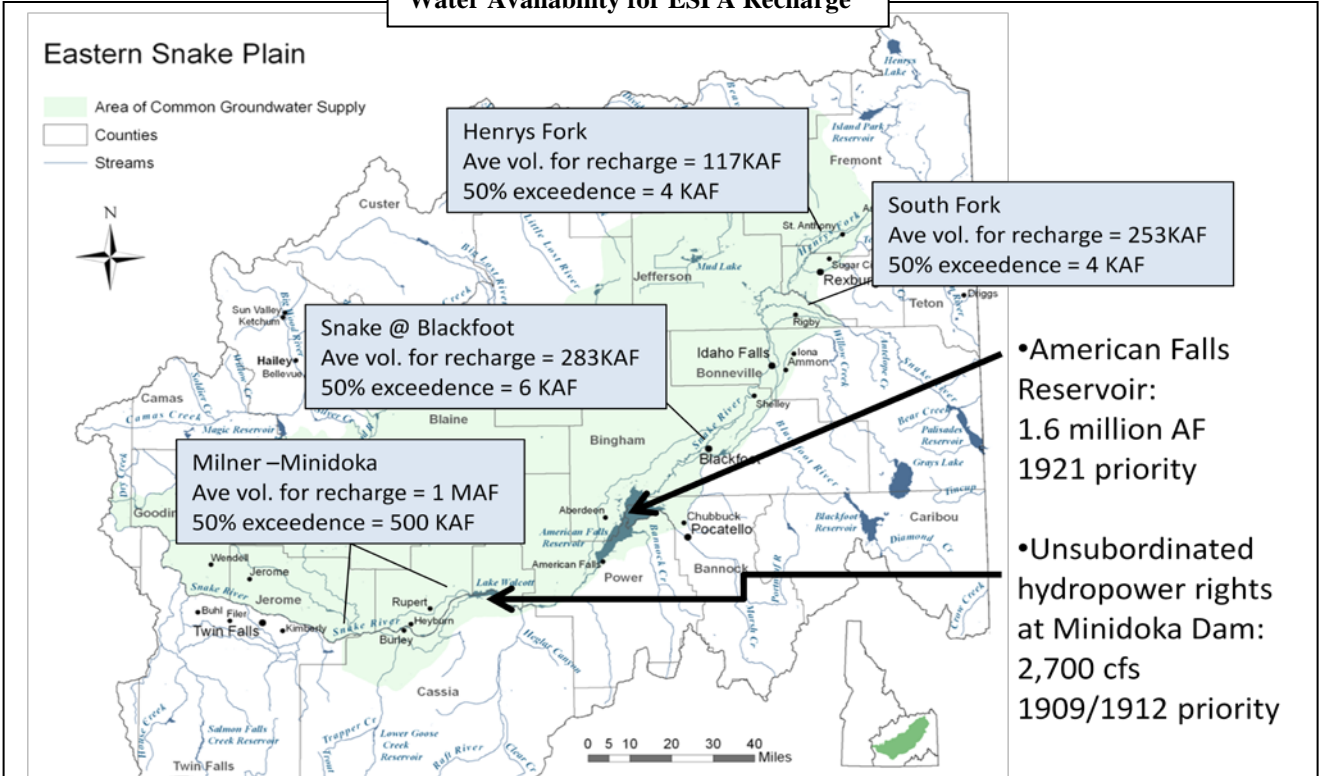
1. There is water available every year for managed recharge, under the IWRB's recharge water right, at Milner Dam as winter-time flows past Milner (see charts on Page 2). There is almost always at least 500 cfs spilling past Milner all winter long. Upstream of American Falls Reservoir water for recharge is more limited, available in about 50% of years, and currently complicated by the "re-fill" issue. At Milner, the IWRB's recharge water right turns on in the fall when Twin Falls and Northside Canal Companies turn off, and it stays on until some time in the following spring.
2. The winter-time flow available for recharge at Milner is below the lowest storage reservoir in the Upper Snake Basin, and therefore is not storable in any reservoirs, and if not used for recharge is lost to the basin and ESPA.
3. The canals that divert at Milner are in areas of generally good aquifer retention time, which is critical to stabilizing the aquifer.
4. The IWRB to date has only utilized a portion of the water to which it has access for recharge, relying on canals to deliver water for a few weeks prior to the irrigation season and a few weeks after the irrigation season.
5. Utilizing the winter-time flow available at Milner is critical to developing a sustainable managed recharge program that will accomplish aquifer stabilization objectives.

In order to utilize the winter-time flow at Milner for recharge, the IWRB is pursuing a dual-track strategy:

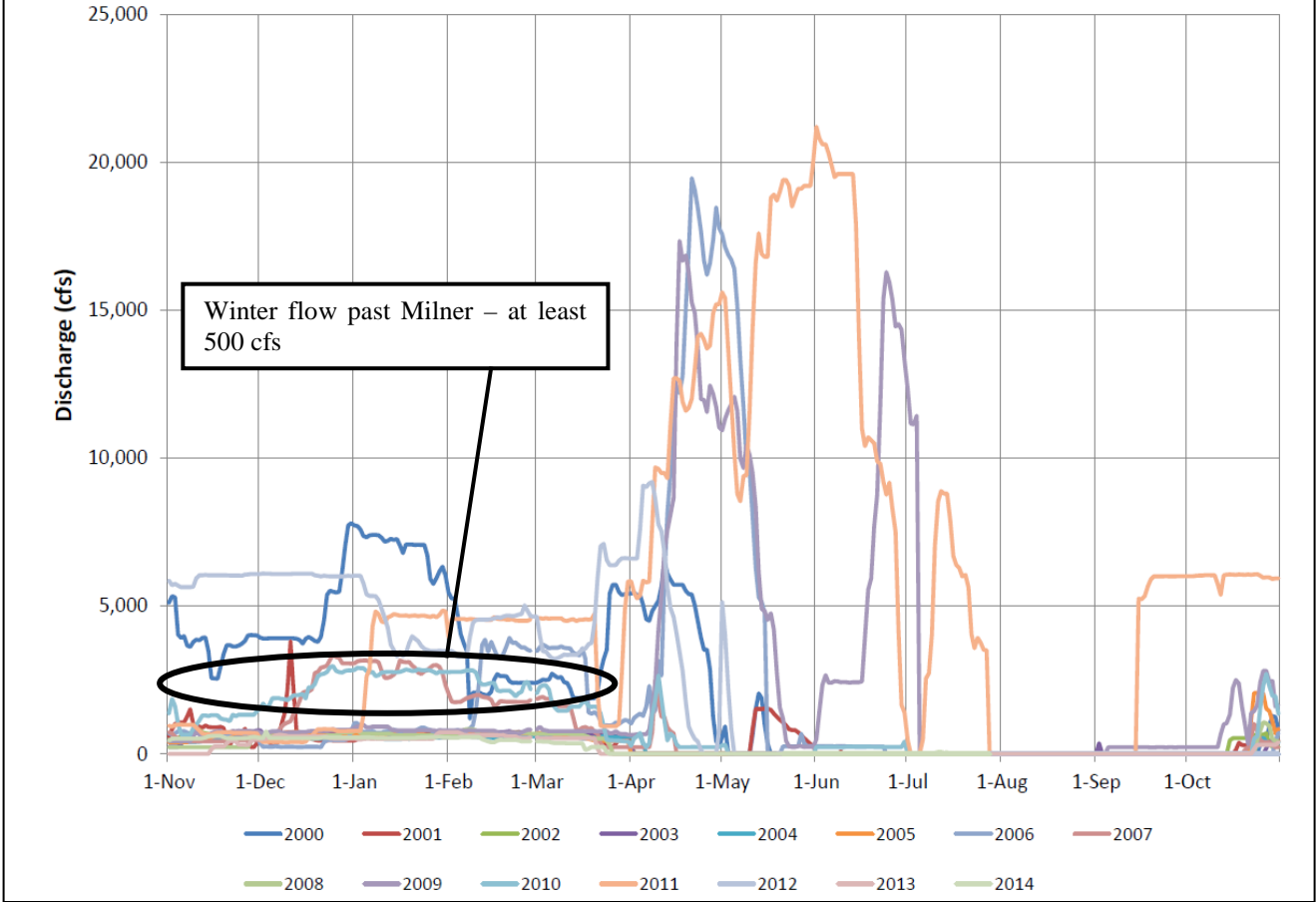
1. Incentivize the canals that divert at Milner to deliver the winter-time water.
2. Pursue new diversion-to- recharge infrastructure from the Milner pool, Walcott and similar projects.

This memo will focus on the idea of incentivizing canals that divert at Milner to deliver the available water for recharge.

Water Availability for ESPA Recharge



Excess flow passing Milner (2000 - 2014)



Since 2009, the IWRB has offered delivery payment of \$3/AF of water delivered for recharge. This has not been sufficient to incentivize the canals that divert at Milner (where the consistent recharge water supply is located) to work hard at delivering the available water. They have delivered some, if it didn't interfere with other scheduled activities, for a few weeks in the fall and a few weeks in the spring. However, they have not delivered nearly enough to accomplish Idaho's aquifer stabilization objectives.

	Below American Falls (at Milner)	Above American Falls	Total
2009	46,708	77,828	124,536
2010	5,595	55,913	61,508
2011	77,614	40,430	118,044
2012	54,671	70,147	124,818
2013	3,867	0	3,867
2014	10,435	0	10,435
Average	33,148	48,864	73,868

In considering how to get the available winter-time recharge water out of the river at Milner and into the ground for recharge, several IWRB members came up with the concept of an incentive-based payment plan designed to encourage the canals to deliver the water as long as possible into the winter:

Number of Days Recharge Water Delivered (between when recharge permit turns on in fall at Milner and turns off following spring)	Payment rate per AF delivered
1-to-25 days	\$3/AF
26-to-50 days	\$5/AF
51-to-80 days	\$7/AF
81-to-120 days	\$10/AF
More than 120 days	\$14/AF

Even in dry years there will be 500 cfs passing Milner between November 1 and April 1, for approximately 150,000 acre-feet of winter-time recharge potential. In higher flow years, there will be more winter-time flow available and the recharge water right will stay on longer into the irrigation season.

The following are examples of potential payments to the canals based on this payment schedule:

Twin Falls Canal Company example					
Canal leakage to Murtaugh Lake is about 40 cfs =		80	AF/d		
Payment to TFCC based on above	# days	recharge		Payment	
First 25 days:	25	2000	AF	\$6,000	
days 26-50:	25	2000	AF	\$10,000	
days 51-80:	30	2400	AF	\$16,800	
days 81-120:	40	3200	AF	\$32,000	
TOTALS	120	9600	AF	\$	64,800

AFRD2/Milner-Gooding example:					
MP31 capacity is 150 cfs =		300	AF/d		
canal leakage is 100 cfs =		200	AF/d		
Total capacity is 250 cfs =		500	AF/d		
Payment to AFRD2 based on above	# days	recharge		Payment	
First 25 days:	25	12500	AF	\$37,500	
days 26-50:	25	12500	AF	\$62,500	
days 51-80:	30	15000	AF	\$105,000	
days 81-120:	40	20000	AF	\$200,000	
TOTALS	120	60000	AF	\$	405,000

Northside Canal Company example					
canal leakage to Wilson Lake is 100cfs =		200	AF/d		
Payment to NSCC based on above	# days	recharge		Payment	
First 25 days:	25	5000	AF	\$15,000	
days 26-50:	25	5000	AF	\$25,000	
days 51-80:	30	6000	AF	\$42,000	
days 81-120:	40	8000	AF	\$80,000	
TOTALS	120	24000	AF	\$	162,000

SWID - West Cassia Pipeline example					
capacity is 30cfs =		60	AF/d		
Payment to SWID based on above	# days	recharge		Payment	
First 25 days:	25	625	AF	\$1,875	
days 26-50:	25	625	AF	\$3,125	
days 51-80:	30	750	AF	\$5,250	
days 81-120:	40	1000	AF	\$10,000	
TOTALS	120	3000	AF	\$	20,250

These four canals could potentially divert 420 cfs, and recharge 96,600 AF during the winter at a cost of \$652,000. It should be noted this is an example only. We are floating 5-year conveyance contracts to these canals. Staff believes that AFRD2, Twin Falls, and Southwest are on board, with Northside still undecided. There are two additional canal systems that divert at Milner, the Milner Irrigation District and the A&B Irrigation District, with whom we have not yet discussed this payment plan.

In addition, some of these canal systems have infrastructure needs for winter recharge deliveries. We have offered to pay for engineering assessments to determine infrastructure needs and costs (the IWRB allocated \$300,000 for engineering and other preparatory costs at the Bonners Ferry meeting). If the costs look reasonable relative to recharge gains, the IWRB may assist with the infrastructure expenses. One concept that is being considered ties the IWRB's infrastructure investment to a minimum amount of recharge over a 5-year term. If they fail to deliver a minimum recharge volume over the 5-year term the IWRB's infrastructure investment becomes repayable to the IWRB on loan terms.

Attached to this memo are copies of letters sent from Chairman Chase to Twin Falls Canal Company and to the American Falls Reservoir District No. 2 following up on meetings held with their boards discussing this concept. A letter to the Northside Canal Company following up on last week's discussion with their board is forthcoming.

Also attached is a resolution that would approve this incentivized recharge payment plan for those canals that divert at Milner. Should the IWRB choose to adopt it, that will allow us to get conveyance contracts in place, and if all goes as planned, accomplish some meaningful recharge done this winter. The IWRB currently has about \$1.2 million in the Secondary Aquifer Fund committed for recharge delivery payments. This amount should easily cover recharge delivery costs incurred this coming winter, and the first disbursement from the Cigarette Tax will be received in July of 2015.

The resolution is written for those canals that divert at Milner – Staff would like feedback on whether this might be extended to the Upper Valley as well.



IDAHO WATER RESOURCE BOARD

August 8, 2014

C.L. "Butch" Otter
Governor

Ellis Gooch, President
Board of Directors
American Falls Reservoir District No. 2
409 N. Apple Street
Shoshone, ID 83352

Roger W. Chase
Chairman
Pocatello
District 4

Lynn Harmon, General Manager
American Falls Reservoir District No. 2
409 N. Apple Street
Shoshone, ID 83352

Peter Van Der Meulen
Vice-Chairman
Hailey
At Large

RE: ESPA Managed Recharge

Dear Ellis and Lynn,

Bob Graham
Secretary
Bonners Ferry
District 1

Thank you for making time at your recent Board meeting for Vince Alberdi and Brian Patton to address the American Falls Reservoir District No. 2 (AFRD2) Board regarding the Idaho Water Resource Board's (IWRB) efforts to stabilize and recover the Eastern Snake Plain Aquifer (ESPA). I would also like to thank you for your past efforts to accommodate managed recharge and conversion projects, and your willingness to partner with the IWRB in managed recharge efforts in the future.

Charles "Chuck" Cuddy
Orofino
At Large

Vince and Brian shared with your Board our draft winter-time recharge payment plan:

Vince Alberdi
Kimberly
At Large

Jeff Raybould
St. Anthony
At Large

Number of Days Recharge Water Delivered (between when recharge permit turns on at Milner in fall and turns off following spring)	Payment rate per AF delivered
1-to-25 days	\$3/AF
26-to-50 days	\$5/AF
51-to-80 days	\$7/AF
81-to-120 days	\$10/AF
More than 120 days	\$14/AF

Albert Barker
Boise
District 2

John "Bert" Stevenson
Rupert
District 3

As you are aware, this draft payment plan is intended to incentivize winter deliveries of recharge water that is available at Milner Dam by AFRD2 and other canals. The Board intends this payment plan to become a

permanent feature going forward. We would like to work with you this coming winter to maximize deliveries to the Milepost 31 recharge site, and determine what operational challenges exist with winter deliveries and how to work through them. Furthermore, as was discussed, the Board would encourage delaying construction of the 2nd headgate at Milepost 31 until we have a better understanding of operational challenges with winter-time deliveries.

During the discussion Vince and Brian had with your Board, the idea of delivering winter-time recharge through your canal to the Milepost 31 recharge site was discussed. You asked for assistance with improving the access road to the Milepost 31 recharge site, as it is not currently an all-weather access road, which currently limits access to the site during the winter. The Board would like to review the proposed road improvements to the Milepost 31 recharge site, but assuming the work appears cost-effective and that it would accomplish the intended purpose, the IWRB may be in a position to pay for those improvements.

You had also asked about the Board assisting with the re-construction of the concrete flume section near Shoshone to enable winter-time deliveries to the Shoshone recharge site. This might potentially double the winter recharge capacity beyond what delivery to the MP31 site can accomplish. The Board is willing to work out a cost-share agreement with AFRD2 so that an engineering firm of your choosing can undertake the engineering studies and provide cost estimates for the flume re-construction, while we work with you this coming winter on winter-time deliveries to MP31.

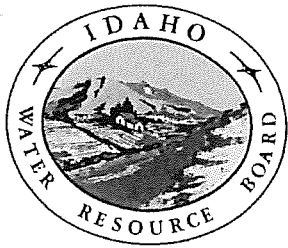
Again, thank you for your and the AFRD2 Board's support of the Board's ESPA stabilization efforts for AFRD2's willingness to be a partner in the managed recharge efforts. If this is reasonable and acceptable, the Board would like to complete agreements with AFRD2 that includes payment for the engineering evaluation of the concrete flume, improvements to the MP31 recharge site access road assuming cost-effectiveness, and delivery fee payments for a multi-year period. Should you have any questions, please contact Brian Patton of our staff.

Sincerely,

A handwritten signature in black ink that reads "Roger Chase". The signature is written in a cursive, flowing style.

Roger Chase, Chairman

cc: IWRB members



IDAHO WATER RESOURCE BOARD

August 6, 2014

C.L. "Butch" Otter
Governor

Brian Olmstead, General Manager
Twin Falls Canal Company
P.O. Box 326
Twin Falls, ID 93303-0326

Roger W. Chase
Chairman
Pocatello
District 4

Peter Van Der Meulen
Vice-Chairman
Hailey
At Large

Bob Graham
Secretary
Bonners Ferry
District 1

**Charles "Chuck"
Cuddy**
Orofino
At Large

Vince Alberdi
Kimberly
At Large

Jeff Raybould
St. Anthony
At Large

Albert Barker
Boise
District 2

John "Bert" Stevenson
Rupert
District 3

RE: ESPA Managed Recharge

Dear Brian,

Thank you for your letter of July 21st expressing the Twin Falls Canal Company's (TFCC) support for the Idaho Water Resource Board's (IWRB) efforts to stabilize and recover the Eastern Snake Plain Aquifer (ESPA), and for TFCC's willingness to partner with the Board in managed recharge efforts.

You have requested assistance with investigation and evaluation related to the IWRB's desire to deliver water for recharge during the winter-time including questions with our answers also shown:

1) How much recharge could be anticipated?

I understand that the upper reach of the Twin Falls canal between Milner Dam and Murtaugh Lake has a loss rate of perhaps 40-to-50 cfs. We would like to work with you to refine this measurement. However, if the loss rate is in this range we would make as much of the winter recharge flow available as TFCC is willing to take and deliver to recharge.

2) Would this recharge benefit the ESPA?

I understand that staff has already provided you with modeling results of recharge in the Milner-to-Murtaugh section of the Twin Falls Canal showing retention time of recharged water in the ESPA. Further, I understand that this modeling indicates recharge at this location provides very good retention time at almost 50% remaining in the ESPA after 5 years.

3) Would any modifications be necessary to TFCC facilities?

At the IWRB's last meeting in Bonners Ferry, the IWRB allocated \$300,000 to be used for engineering and other preparatory expenses needed for ESPA managed recharge. We will make some of these funds available so an engineering firm of your choosing can evaluate what modifications would be needed for winter recharge deliveries and estimate the cost of the modifications.

In addition to the above, the IWRB would pay for the construction of any modifications needed for winter recharge deliveries, assuming they appear cost-effective.

I would also like to share with you our draft winter-time recharge payment plan:

Number of Days Recharge Water Delivered (between when recharge permit turns on in fall and turns off following spring)	Payment rate per AF delivered
1-to-25 days	\$3/AF
26-to-50 days	\$5/AF
51-to-80 days	\$7/AF
81-to-120 days	\$10/AF
More than 120 days	\$14/AF

Following is an example of the potential payment to TFCC using a recharge rate of 40 cfs:

Example Payment to Twin Falls Canal Company				
Canal leakage to Murtaugh Lake is about 40 cfs =	80	AF/d		
Payment to TFCC based on above	# days	recharge		Payment
First 25 days:	25	2000	AF	\$6,000
days 26-50:	25	2000	AF	\$10,000
days 51-80:	30	2400	AF	\$16,800
days 81-120:	40	3200	AF	\$32,000
TOTALS	120	9600	AF	\$64,800

Again, thank you for your and the TFCC Board's support of the IWRB's ESPA stabilization efforts and for TFCC's willingness to be a partner in the managed recharge efforts. If this is reasonable and acceptable, we would like to complete an agreement with TFCC that includes payment for the engineering evaluation, construction of modifications assuming cost-effectiveness, and delivery fee payments for a multi-year period. Should you have any questions, please contact Brian Patton of our staff.

Sincerely,



Roger Chase, Chairman

cc: IWRB members

BEFORE THE IDAHO WATER RESOURCE BOARD

IN THE MATTER OF EASTERN SNAKE) PLAIN AQUIFER STABILIZATION AND) MANAGED AQUIFER RECHARGE) _____))	A RESOLUTION TO APPROVE A WINTER-TIME PAYMENT SCHEDULE FOR DELIVERY OF WATER FOR MANAGED RECHARGE
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WHEREAS, the State of Idaho relies on spring discharge from the ESPA through the Thousand Springs to assist in meeting the minimum streamflow water rights at the Murphy Gage that were established under the Swan Falls Agreement; and

WHEREAS, the Eastern Snake Plain Aquifer (ESPA) has been losing approximately 200,000 acre-feet annually from aquifer storage since the 1950's resulting in declining ground water levels in the aquifer and declining spring flows from the aquifer; and

WHEREAS, during parts of 2013 and 2014 flows at the Murphy Gage approached the minimum flows; and

WHEREAS, the ESPA must be stabilized to sustain spring flows sufficient to maintain the minimum flows at the Murphy Gage; and

WHEREAS, the Eastern Snake Plain Aquifer Comprehensive Aquifer Management Plan (ESPA CAMP) was approved in 2009 by the Legislature and Governor Otter through House Bill 264 with stabilization and recovery of the ESPA as a goal; and

WHEREAS, House Bill 547 passed and approved by the 2014 legislature allocates \$5 million annually from the Cigarette Tax to the Idaho Water Resource Board (IWRB) for statewide aquifer stabilization; and

WHEREAS, there is water available for managed recharge at Milner Dam every year that occurs as winter-time spills past Milner that may be diverted under the IWRB's recharge water right permit, and

WHEREAS, in prior years the IWRB has not made full use of this available recharge water supply; and

WHEREAS, the IWRB desires to enact a program to incentivize more full use of the winter-time recharge water supply.

NOW THEREFORE BE IT RESOLVED that the IWRB adopts the following recharge delivery payment structure for canals that divert at Milner:

Number of Days Recharge Water Delivered (between when recharge permit turns on in fall at Milner and turns off following spring)	Payment rate per AF delivered
1-to-25 days	\$3/AF
26-to-50 days	\$5/AF
51-to-80 days	\$7/AF
81-to-120 days	\$10/AF
More than 120 days	\$14/AF

BE IT FURTHER RESOLVED that the IWRB's ESPA managed recharge program will be limited to recharging natural flow to avoid placing additional pressure on storage supplies above Milner Dam.

BE IT FURTHER RESOLVED that the IWRB will offer conveyance contracts of up to 5-year terms.

BE IT FURTHER RESOLVED that any infrastructure investments the IWRB may make to facilitate winter recharge deliveries will be considered under separate resolutions.

BE IT FURTHER RESOLVED that the IWRB's ESPA managed recharge program will be coupled with a continuous monitoring program to verify the effects of managed recharge, and if necessary, modify the recharge program based on evaluation of the effects.

DATED this 20th day of August, 2014.

ROGER CHASE, Chairman
Idaho Water Resource Board

ATTEST _____
BOB GRAHAM, Secretary