

**APPENDIX C**  
**OF THE REPORT TO**  
**THE INTERNATIONAL JOINT COMMISSION**  
**ON**  
**THE DIVISION OF THE WATERS OF**  
**THE ST. MARY AND MILK RIVERS**  
**FOR THE YEAR 2021**

**Submitted By**

**Dr. Alain Pietroniro**

**Representing Canada**

**And**

**John M. Kilpatrick**

**Representing the United States**

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## **St. Mary-Milk River Letter of Intent**

### **April 14, 2021 Conference Call**

### **Final Meeting Minutes**

#### **Authority:**

Under the Terms of the “Letter of Intent to Better Utilize the Waters of the St. Mary and Milk Rivers” signed by the Accredited Officers for both the USA and Canada February 8<sup>th</sup>, 2001:

Canada (Environment Canada), the United States (U.S. Bureau of Reclamation and U.S. Geological Survey), Alberta (Alberta Environment and Parks), and Montana (Montana Department of Natural Resources and Conservation) shall participate in a conference call or meeting on or about July 1, and again by September 15 of each year to decide on the approach to be used to reconcile outstanding deficit deliveries.

#### **Time of the Call:**

A teleconference call was held at 11:00 AM MDT, Wednesday April 14, 2021.

#### **Meeting Participants:**

John Kilpatrick, Accredited Officer for the United States  
Joanne Thamke, IJC Field Officer for the United States  
Alain Pietroniro, Accredited Officer for Canada  
Malcolm Conly, IJC Field Officer for Canada  
Erika Klyszajko, IJC Advisor Canada Section  
Aaron Fiaschetti, United States Geological Survey (USGS)  
Aroscott Whiteman, USGS  
Brian Loving, USGS  
Clayton Jordan, United States Bureau of Reclamation (USBR)  
James Heffner, Montana Department of Natural Resources and Conservation  
Matt Miles, (DNRC)  
Andrew Wilson, Alberta Environment and Parks (AEP)  
Carmen de la Chevrotière, AEP  
Dennis Matis, AEP  
Brian Hills, AEP  
Stephen Mathyk; AEP  
Paul Elser, AEP  
David Watson, AEP  
Stephen Mathyk, AEP  
Alanna Howell, Saskatchewan Water Security Agency (WSA)  
Kevin Wingert, WSA  
Ethan Johnson, Environment and Climate Change Canada (ECCC)

Emmanuelle Johnston, ECCC  
Curtis Waiting, ECCC  
Corey Hein, ECCC  
Jon Jeffery, ECCC  
Evan Friesenhan, ECCC  
Tim Ma, ECCC

## **Background Information**

*The following background information emphasised in italic type was not discussed during this conference call as most participants are aware of the issues. This information is provided in consideration of a potentially wider distribution of the document.*

*Interim numbers are provisional and subject to change pending final approval of the natural flow computations.*

*Interim natural flow determinations on the Milk River are computed using a modified Penman equation for estimating evapotranspiration losses, and Paterson (2017) estimates of consumptive use for both USA and Canada. Final computations will be based on evapotranspiration estimates which are determined using a modified Penman equation with data obtained from North Fork and Eastern Crossing Climate Stations. Minor changes in the natural flow determinations are to be expected but the accumulated deficit as calculated by the interim Division Report is not expected to change significantly. Provisional reports for Milk River show that there was zero deficit for the period ending March 31, 2021. For Milk River, the lowest surplus delivery during March 1 through March 31, 2021 was 1669 cfs-days (4 082 dam<sup>3</sup>). Also, provisional reports for St. Mary River show that there was zero deficit for the period ending March 31, 2021. For St. Mary River, the lowest surplus delivery was 569 cfs-days (1 392 dam<sup>3</sup>) for March 1 through March 31, 2021. Small errors in calculations or differences due to methodology are not expected to change the magnitude of deficit deliveries.*

*The “Letter of Intent” was crafted to achieve more beneficial use by allowing the USA to take more water than its share of the flow of the St. Mary River in the spring time when they could benefit more than Canada, and to allow Canada to offset this deficit by taking more than its share of the flow in the Milk River later in the season when its demand was higher. Further, this would allow a balance of deficits (USA on the St. Mary and Canada on the Milk) at the end of the season.*

*The “Letter of Intent” explains:*

### ***St. Mary River***

***During March 1 through May 31 of each year, deficit deliveries from the U.S.***

to Canada at the end of each division period will carry over from one division period to another for the year, are cumulative for the year, and are allowed up to a cumulative total of 4,000 cfs-days (9 800 dam<sup>3</sup>). Deficit deliveries greater than the allowed cumulative total of 4,000 cfs-days (9 800 dam<sup>3</sup>) are to be refunded in the subsequent division period. Surplus deliveries at the end of a division period are not cumulative, cannot be used to reduce the accumulated deficit from previous division periods to below the allowed total deficit of 4,000 cfs-days (9 800 dam<sup>3</sup>), and cannot be used as a credit to make up future deficits. Exceptions to these procedures for this period are allowed only if agreed upon in writing by the Field Representative for Canada.

During June 1 through July 15 of each year, the United States, at its discretion, may reduce the deficit accumulated in the March 1 through May 31 period to 2,000 cfs-days (4 900 dam<sup>3</sup>) by making surplus deliveries of St. Mary River water. The remaining deficit is not refundable until after September 15 of that year unless agreed upon in writing by the Field Representative for Canada.

#### **Milk River**

During March 1 through May 31 of each year, deficit deliveries from Canada to the United States at the end of each division period are not to be incurred. However, if deficits are incurred, they are to be refunded by surplus deliveries in the subsequent division period or at a time agreed upon by both parties. Surplus deliveries do not carry over from one division period to another, are not cumulative, and cannot be used as a credit to make up future deficits.

During June 1 through September 15 of each year, deficit deliveries from Canada to the United States at the end of each division period will carry over from one division period to another for the year, are cumulative for the year, and are allowed up to a cumulative total of 2,000 cfs-days (4 900 dam<sup>3</sup>). Deficit deliveries greater than the allowed total of 2,000 cfs-days (4 900 dam<sup>3</sup>) are to be refunded in the subsequent division period. Surplus deliveries at the end of a division period cannot be used to reduce the deficit accumulated during the June 1 through September 15 period to below the lesser of the allowed total deficit of 2,000 cfs-days (4 900 dam<sup>3</sup>) or the outstanding United States' deficit accumulated on the St. Mary River in the March 1 through May 31 period, and cannot be used as credits to make up future deficits. The remaining deficit is not refundable until after September 15 of that year unless agreed upon in writing by the Field Representative of the United States.

## **MEETING NOTES**

The meeting was called to order at 11:00 AM MDT by Malcolm Conly (IJC Field Representative for Canada and Co-Chair). Malcolm chaired the meeting. The list of

meeting participants was reviewed. Tim was designated as the meeting note-taker, with assistance from Aaron. Emmanuelle Johnston compiled these minutes.

Malcolm presented the LOI Call Agenda and asked if there were additions to the agenda required. No additional items were added.

## 1. SUMMARY OF ACTION ITEMS FROM NOV 2020 MEETING

ITEM	NOTES
1. Attach AOs Chronology of Events letter to IJC when distributing April LOI meeting minutes (Malcolm)	Complete.
2. Footnote in Frenchman Natural Flow Table of 2020 IJC Annual Report describing agreement to let -73 deficit stand. (Tim/Aaron)	To be completed

## 2. COVID-19 CHALLENGES FOR 2021

Won't be able to cross border to help each other out in foreseeable future

- Canada
  - Not back in the office
  - Cautious for overnight trip and only at approved location
  - Separate vehicles + social distancing
  - Not crossing the border
  - Vaccine only available for certain age categories
- U.S.A.
  - Mostly working from home (only 25% capacity at the office)
  - Travel is allowed in almost all cases (including overnight)
  - Travel request authorization needs to be submitted several days in advance for planned travel
  - Separate vehicles
  - Vaccination for all age groups

## 3. 2020-2021 RECORDS MEETINGS

- All held virtually and went well. Good participation and lots of action.
- East Poplar, Poplar and Frenchman River have agreement for sharing of records by end of May 2021.

ACTION: All minutes have been sent out. Send out comments on the draft by May 15, 2021.

Freshet/runoff outlook

- St Mary (Clayton)

Reservoir	% Full	% of average	% snowpack above reservoir	Comments
Sherburne	68	160% - above average	98 %	Canal diversion began March 22, 2021. Some hiccups. 600 cfs to the canal. Does not expect it to reduce in near term. Still a chance of creating deficit.
Fresno	50	78% - below average		Not expecting to fill. 700cfs into Fresno (SMR and runoff) as of April 14
Nelson	77	101% - at average		Not expecting to fill.

- Next week the Milk River Joint Board of Control will set irrigation allotment, expected to be a reduced allotment. Pinch point for irrigation season will be low storage in Fresno or Nelson.
- AB noted deficit, before May 31 deadline in LOI, is important to irrigators using the Milk River.
- Email updates on the St. Mary's system will be sent out as needed
- Eastern Tributaries
  - Montana DNRC (Matt Miles)
    - Dry to start with. Bulk of snowpack is gone. Some irrigation has started on Lodge and Battle River. Hoping for more moisture.
- Alberta (David Watson, AEP; Dennis Matis, AEP)
  - Alberta has been seeing and forecasting similar conditions.
  - Did not have to issue Spring Runoff Advisory due to low prairie snowpack.
  - Snowmelt is mostly done in prairies
  - Streamflows are at the lower end of quartiles
  - Oldman River reservoir is 60% of full
  - St Mary River reservoir is at the lower quartile for this time of year (61% full)
  - Waterton reservoir is upper quartile for this time of year 58% of full
  - Internal storage for the districts (biggest demand) is about average to little above average.

- Saskatchewan (Alanna Howell)
  - Saskatchewan has been seeing and forecasting similar conditions.
  - Less runoff than expected from snow storage (dry ground prior to freeze)
  - Appears that the peak runoff has already occurred in all three basins above the reservoirs
  - Frenchman reservoirs are all full and passing flow through Huff and Newton.
  - Problems with the gauges at Eastend Reservoir, getting levels from operator.
  - Eastend Reservoir is full at 918.4 m as of today 2,620 dam<sup>3</sup> (125% full)
  - Deficit at period of 2 at Frenchman expect that would be payed off as they are passing flow through the system + the irrigation returns flows
  - Battle Creek – not seeing the flows they would have liked. Only filling Cypress Lake a bit. Irrigation occurring to canal.
  - Lodge Creek - had fairly good runoff. Spilling since March 16. Excess flows has been going across USA border
  - Lows flows continuing on – snow free in Cypress hills
  - Reservoir capacity as of April 12th: Altawan Reservoir 106%, Cypress Lake 93%, East End (sensor issues), Half Lake 92%, Newton Lake 93%

ACTION: WSA will pass Eastend gauge levels from operator to WSC

#### 4. INTERIM DIVISION RESULTS

##### **St. Mary River** (Aaron)

- March 1-15 : 569 cfs-day surplus
- March 16-31 : 1,748- cfs-day surplus (could have a revision)
- 

##### **Milk River** (Scott)

- March 1-15 : 1,259 cfs-day surplus
- March 16-31 : 1,668- cfs-day surplus (could have a revision)

##### **Eastern Tributaries** (Corey)

##### **Lodge**

- March 1-15 : 0 deficit
- March 16-31 : 0 deficit

## **Battle**

- March 1-15 : 0 deficit
- March 16- April 9 : 1,097 dam3 deficit

## **Frenchman**

- March 1-15 there 0 deficit
- March 16-31 there was 796 dam3 deficit

Nothing unusual. Similar to last year, we expect chronic issues with measurements of dry conditions (corrections).

Eastern tributaries will be paid off quickly because running things through right now.

Alanna noted that for Battle Creek, generally with the flood irrigation, a large release from Cypress Lake is made and this release also pays for any deficit.

## **5. OTHER BUSINESS**

### **Milk River Technical Memo**

Technical memo was provided in the meeting invite. Provided for comments. Technical memo documents discharge, conductivity and isotope data collection efforts undertaken in summer and fall of 2020 towards estimating natural channel losses and gains.

### **IWI Isotope Proposal**

Al noted that further work on channel losses and gains with respect to isotopes can be conducted in the future. E.g. could look into mixing models (St. Mary's and Milk), strategy to track evaporative losses through isotopes. Work could support apportionment calculations.

IWI proposal being developed analyze isotope samples collected last year.

**ACTION:** Circulate IWI proposal to TWG for review (feedback by April 23<sup>rd</sup>, deadline is April 30<sup>th</sup> for proposal).

### **IWI Remote Sensing**

Field work validation scheduled for week of May 24<sup>th</sup> 2021.

Eddy Covariance evapotranspiration ground truthing not included in this year's program. IJC would not pay for equipment but would pay for modelling.

## **IJC Spring Appearances**

Starting to occur on week of April 19th. St. Mary Milk presenting on April 22<sup>nd</sup> at 1pm. John and Al will be presenting about 2020 and how things are looking into 2021.

## **Commissioner's Tour**

Tour of St. Mary and Milk. Chance in fall is slim, probably 2022. Last one was 2014. Dust off what was put together in 2019. The USA commissioners might not be in place in 2022 so 2021 would be preferable.

## **6. NEXT MEETING**

Next LOI call will be Tuesday May 18, 2021.

**ACTION:** Joanne to send out save the date for LOI Call.

## **7. ROUNDTABLE**

- Carmen – Confirmed Dennis Matis to organise portion in AB infrastructure for commissaries tour.
- Jon Jeffery – Confirmed a reset at St. Mary's a IB so likely so changed to preliminary data
- Joanne – anything to prep for commissionaires' tour? Malcolm to send info offline.

## **8. ACTION ITEMS ARISING FROM THIS MEETING**

1. Include footnote in Frenchman Natural Flow Table of 2020 IJC Annual Report describing agreement to let -73 deficit stand (Aaron\Tim).
2. All minutes have been sent out. Send out comments on the draft by May 15, 2021.
3. WSA will pass Eastend gauge levels from operator to WSC
4. Circulate IWI proposal to IJC for review (feedback by April 23<sup>rd</sup>, deadline is April 30<sup>th</sup> for proposal).
5. Send out save the date for LOI Call (Joanne).

## **Attachments:**

Table 1: 2021 Interim Division Report for St. Mary River

Table 2: 2021 Interim Division Report for Milk River

Table 3: 2021 Interim Division Report for Lodge Creek

Table 4: 2021 Interim Division Report for Battle Creek

Table 5: 2021 Interim Division Report for Frenchman River

Appendix A: Conversion Factors

**Table 1:**

SUMMARY OF ST. MARY DIVISION  
2021  
QUANTITIES IN CFS-DAYS

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	CANADA'S SHARE	RECEIVED BY CANADA	RECEIVED BY CANADA		*DEFICIT TO DATE	DEFICIT OUTSIDE LOI TO DATE
				ABOVE SHARE	BELOW SHARE		
MAR 1 - MAR 15	1,863	930	1,498	568		0	0
MAR 16 - MAR 31	2,542	1,271	3,021	1,750		0	0
APR 1 - APR 15	4,264	3,197	3,373	176		0	0
APR 16 - APR 30	0	0	0	0		0	0
MAY 1 - MAY 15	0	0	0	0		0	0
MAY 16 - MAY 31	0	0	0	0		0	0
JUNE 1 - JUNE 15	0	0	0	0		0	0
JUNE 16 - JUNE 30	0	0	0	0		0	0
JULY 1 - JULY 15	0	0	0	0		0	0
JULY 16 - JULY 31	0	0	0	0		0	0
AUG 1 - AUG 15	0	0	0	0		0	0
AUG 16 - AUG 31	0	0	0	0		0	0
SEP 1 - SEP 15	0	0	0	0		0	0
SEP 16 - SEP 30	0	0	0	0		0	0
OCT 1 - OCT 15	0	0	0	0		0	0
OCT 16 - OCT 31	0	0	0	0		0	0
TOTAL	8,669	5,398	7,892				

\* Letter of Intent allows for a deficit up to 4,000 cfs-days between March 1 and May 31 which may be reduced to no less than 2,000 cfs-days between June 1 and July 15. The remaining deficit is not refundable until after September 15 of that year unless agreed upon in writing by the Field Representative

**Table 2:**

SUMMARY OF MILK RIVER DIVISION  
2021  
QUANTITIES IN CFS-DAYS

<b>Table 1: Summary of Milk River Division for 2021</b>					
<b>Division Period at International Boundary</b>	<b>Natural Flow</b>	<b>U.S.A Share</b>	<b>Received by U.S.A</b>	<b>Received by U.S.A.</b>	
				<b>Above Share</b>	<b>Below Share</b>
	[CFS-DAY]	[CFS-DAY]	[CFS-DAY]	[CFS-DAY]	[CFS-DAY]
MAR 1 - MAR 15	2524.5	1262.2	2522.1	1259.9	
MAR 16- MAR 31	3342.2	1671.1	3339.6	1668.6	
APR 1 - APR 15	7944.1	5793.9	7941.0	2147.1	
APR 16 - APR 30					
MAY 1 - MAY 15					
MAY 16 - MAY 31					
JUNE 1 - JUNE 15					
JUNE 16 - JUNE 30					
JULY 1 - JULY 15					
JULY 16 - JULY 31					
AUG 1 - AUG 15					
AUG 16 - AUG 31					
SEP 1 - SEP 15					
SEP 16 - SEP 30					
OCT 1 - OCT 15					
OCT 16 - OCT 31					
<b>TOTAL</b>	<b>13810.8</b>	<b>8727.2</b>	<b>13802.7</b>		

**Table 3:****SUMMARY OF LODGE CREEK DIVISION FOR 2021  
QUANTITIES IN CUBIC DECAMETRES**

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	UNITED STATES SHARE	RECEIVED BY U.S.A.	RECEIVED BY UNITED STATES		DEFICIT TO DATE	
				ABOVE SHARE	BELOW SHARE		
MAR 1 - MAR 15	681	340	1175	835	0	0	
MAR 16 - MAR 31	4740	2370	2540	170	0	0	
APR 1 - APR 15							
APR 16 - APR 30							
MAY 1 - MAY 15							
MAY 16 - MAY 31							
JUNE 1 - JUNE 15							
JUNE 16 - JUNE 30							
JULY 1 - JULY 15							
JULY 16 - JULY 31							
AUG 1 - AUG 15							
AUG 16 - AUG 31							
SEP 1 - SEP 15							
SEP 16 - SEP 30							
OCT 1 - OCT 15							
OCT 16 - OCT 31							
TOTAL	5421	2710	3715	1005	0	0	

**Table 4:****SUMMARY OF BATTLE CREEK DIVISION FOR 2021  
QUANTITIES IN CUBIC DECAMETRES**

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	UNITED STATES SHARE	RECEIVED BY U.S.A.	RECEIVED BY UNITED STATES		DEFICIT TO DATE	
				ABOVE SHARE	BELOW SHARE		
MAR 1 - 25	5022	2511	4052	1541	0	0	
MAR 26 - APR 9	2273	1137	40	0	1097	1097	
APR 10 - 24							
APR 25 - MAY 9							
MAY 10 - 25							
MAY 26 - JUN 9							
JUNE 10 - 24							
JUNE 25 - JUL 9							
JULY 10 - 25							
JULY 26 - AUG 9							
AUG 10 - 25							
AUG 26 - SEP 9							
SEP 10 - 24							
SEP 25 - OCT 9							
OCT 10 - 25							
OCT 26 -31							
TOTAL	7295	3648	4092	1541	1097	1097	

**Table 5:****SUMMARY OF FRENCHMAN RIVER DIVISION FOR 2021  
QUANTITIES IN CUBIC DECAMETRES**

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	UNITED STATES SHARE	RECEIVED BY U.S.A.	RECEIVED BY UNITED STATES		DEFICIT TO DATE	
				ABOVE SHARE	BELOW SHARE		
MAR 1 - MAR 15	2169	1992	2169	177	0	0	
MAR 16 - MAR 31	2013	2809	2013	0	796	796	
APR 1 - APR 15							
APR 16 - APR 30							
MAY 1 - MAY 15							
MAY 16 - MAY 31							
JUNE 1 - JUNE 15							
JUNE 16 - JUNE 30							
JULY 1 - JULY 15							
JULY 16 - JULY 31							
AUG 1 - AUG 15							
AUG 16 - AUG 31							
SEP 1 - SEP 15							
SEP 16 - SEP 30							
OCT 1 - OCT 15							
OCT 16 - OCT 31							
TOTAL	4182	4801	4182	177	796	796	

## Appendix A:

### FACTORS FOR CONVERSION BETWEEN INCH-POUND UNITS AND INTERNATIONAL SYSTEM (SI) UNITS

The following list of often-used conversions of measure gives the relationship between imperial (yard/pound) units and the International System of Units (SI) (metric), and includes other convenient equivalents of measure.\*

1 inch	=	2.54 cm (centimetres)
1 centimetre	=	0.393 700 8 in. (inches)
1 foot	=	0.304 8 m (metres)
1 metre	=	3.280 840 ft. (feet)
1 yard	=	0.914 4 m (metres)
1 metre	=	1.093 613 yd. (yards)
1 statute mile	=	1.609 344 km (kilometres)
1 kilometre	=	0.621 371 2 mi (miles)
1 square mile	=	2.589 988 km <sup>2</sup> (square kilometres)
1 square kilometre	=	0.386 102 2 mi. <sup>2</sup> (square miles)
1 hectare	=	10 000 m <sup>2</sup> (square metres)
1 square kilometre	=	100 ha (hectares)
1 acre	=	0.404 685 6 ha (hectares)
1 hectare	=	2.471 054 ac. (acres)
1 acre-foot	=	1.233 5 dam <sup>3</sup> (cubic decametres)
1 cubic decametre	=	0.810 701 2 ac.-ft. (acre-feet)
1 cubic foot per second	=	0.028 317 m <sup>3</sup> /s (cubic metre per second)
1 cubic metre per second	=	35.315 cfs (cubic feet per second)
1 cfs-day = 86,400 cubic feet		
1 acre-foot = 43,560 cubic feet		
1 cfs-day = 1.9835 acre-feet		

The SI unit replacing the inch-pound units for volume is the cubic decametre (dam<sup>3</sup>).

1 dam <sup>3</sup>	=	1 000 cubic metres
1 dam <sup>3</sup>	=	35,315 cubic feet
1 acre-foot	=	1.2335 dam <sup>3</sup>
1 cfs-day	=	2.4466 dam <sup>3</sup>
1 dam <sup>3</sup>	=	0.8107 acre-feet
1 cubic metre	=	35.315 cubic feet

\* Applicable listings conform to the Canadian Metric Practice Guide CAN3-Z234.1-79

## **St. Mary-Milk River Letter of Intent**

### **May 18, 2021 Conference Call**

#### **Final Meeting Minutes**

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Mark Colosimo, IJC Advisor United States Section  
Adam Greeley, IJC  
Aroscott Whiteman, United States Geological Survey (USGS)  
Brian Loving, USGS  
Roy Sando, USGS  
Clayton Jordan, United States Bureau of Reclamation (USBR)  
Stephanie R Micek, USBR  
Michael Dailey, Montana Department of Natural Resources and Conservation (USBR)  
Matt Miles, DNRC  
Andrew Wilson, Alberta Environment and Parks (AEP)  
Carmen de la Chevrotière, AEP  
Jason Cayford, AEP  
Brian Hills, AEP  
Stephen Mathyk, AEP  
Paul Elser, AEP  
David Watson, AEP  
Stephen Mathyk, AEP

Dorothy Lok, AEP  
Alanna Howell, Saskatchewan Water Security Agency (WSA)  
Kevin Wingert, WSA  
Emmanuelle Johnston, Environment and Climate Change Canada (ECCC)  
Curtis Waiting, ECCC  
Sean O'Connor, ECCC  
Corey Hein, ECCC  
Evan Friesenhan, ECCC  
Tim Ma, ECCC  
Tim Romanow, Milk River Watershed Council (MRWCC)  
Mary Lupwayi, MRWCC

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*The “Letter of Intent” was crafted to achieve more beneficial use by allowing the USA to take more water than its share of the flow of the St. Mary River in the spring time when they could benefit more than Canada, and to allow Canada to offset this deficit by taking more than its share of the flow in the Milk River later in the season when its demand was higher. Further, this would allow a balance of deficits (USA on the St. Mary and Canada on the Milk) at the end of the season.*

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***Milk River***

During March 1 through May 31 of each year, deficit deliveries from Canada to the United States at the end of each division period are not to be incurred. However, if deficits are incurred, they are to be refunded by surplus deliveries in the subsequent division period or at a time agreed upon by both parties. Surplus deliveries do not carry over from one division period to another, are not cumulative, and cannot be used as a credit to make up future deficits.

During June 1 through September 15 of each year, deficit deliveries from Canada to the United States at the end of each division period will carry over from one division period to another for the year, are cumulative for the year, and are allowed up to a cumulative total of 2,000 cfs-days (4 900 dam<sup>3</sup>). Deficit deliveries greater than the allowed total of 2,000 cfs-days (4 900 dam<sup>3</sup>) are to be refunded in the subsequent division period. Surplus deliveries at the end of a division period cannot be used to reduce the deficit accumulated during the June 1 through September 15 period to below the lesser of the allowed total deficit of 2,000 cfs-days (4 900 dam<sup>3</sup>) or the outstanding United States' deficit accumulated on the St. Mary River in the March 1 through May 31 period, and cannot be used as credits to make up future deficits. The remaining deficit is not refundable until after September 15 of that year unless agreed upon in writing by the Field Representative of the United States.

## MEETING NOTES

The meeting was called to order at 11:00 AM MDT by Joanna Thamke (IJC Field Representative for United States). Joanna chaired the meeting. The list of meeting participants was reviewed. Emmanuelle Johnston was designated as the meeting note-taker, with assistance from Tim.

Joanna presented the LOI Call Agenda and asked if there were additions to the agenda required. No additional items were added.

### 1. SUMMARY OF ACTION ITEMS FROM APRIL 2021 MEETING

ITEM	NOTES
1. Include footnote in Frenchman Natural Flow Table of 2020 IJC Annual Report describing agreement to let -73 deficit stand (Aaron\Tim).	Draft has been circulated. To be completed.
2. All minutes have been sent out. Send out comments on the draft by May 15, 2021.	Completed.
3. WSA will pass Eastend gauge levels from operator to WSC.	Completed.
4. Circulate IWI proposal to IJC for review (feedback by April 23 <sup>rd</sup> , deadline is April 30 <sup>th</sup> for proposal).	Completed.
5. Send out save the date for LOI Call (Joanne).	Completed.

### 2. 2020-2021 RECORDS MEETINGS

- Final November 2020 meeting notes were sent on May 17, 2021. No comments were received on the draft.

### 3. INTERIM DIVISION RESULTS

#### St Mary - (Aroscott)

- No revision to April period as Aaron distributed
- April 16 - April 30: 45 cfs-days surplus, 0 deficit to date.
- May 1 – May 15: 1,008 cfs-days surplus, 0 deficit to date.

### **Milk River - (Aroscott)**

- There were revision to the entire April period (large difference)
- April 1 - April 16: 719 cfs-days surplus, 0 deficit to date (Revised)
- April 16 - April 30: 353 cfs-days surplus, 0 deficit to date (Revised)
- May 1 – May 15: 355 cfs-days, 0 deficit to date

Eastern Tributaries (Corey)

### **Lodge**

- March 1 - March 15: 0 deficit
- March 16 - March 31: 0 deficit
- April 1 - April 15: 0 deficit
- April 16 - April 30: 0 deficit
- May 1 - May 15: 0 deficit (provided on May 26, 2021)

### **Battle**

- March 1 - March 25: 0 deficit
- March 26 - April 9: 1,323 dam<sup>3</sup> deficit
- April 10 - April 24 : 2,525 dam<sup>3</sup> deficit
- April 25 – May 9 : 3,265 dam<sup>3</sup> deficit

Corey: Seeing an increase in the deficit

Alanna: Continued to divert into Cypress, irrigation underway, 1.85 cms crossing the international border, expect deficit paid through return flows. Canada is flexible to pay off deficit when it will be most beneficial for Montana. Open communication with Matt Miles.

Kevin: Takes a few days for return flow to go back into Battle Creek.

### **Frenchman**

- March 1 - March 15: 131 deficit
- March 16 - March 31: 1173 dam<sup>3</sup> deficit
- April 1 - April 15 : 0 deficit
- April 16 - April 30 : 0 deficit
- May 1 – May 15: 0 deficit

## **4. Precipitation and runoff outlook (USBR, DNRC, and WSA)**

Reservoir capacity: Altawan Reservoir 101%, Cypress Lake 92%, Eastend Reservoir 117%, Huff Lake 73%, Newton Lake 96%

Alanna: All reservoirs were full prior to irrigation. Irrigation now underway so about what we would expect.

Clayton:

- St. Mary's Basin:
  - Precipitation has been below average, snowpack at about average, lower equivalent runoff from snowpack
  - Sherburne: inflows are close to forecasted. Releasing more to St. Mary River than expected.
  - Temperature drop and precipitation picks up : unpredictable
  - Not anticipated to create deficit in second half of May (during LOI period).
  - Based on today's outlook it's possible to create deficit to fill Sherburne Reservoir past the LOI period (May 31).
- Milk River
  - Fresno didn't fill (low carry over coming into the year due to canal failure 2020, low plains snow pack, limited by canal capacity)
  - Milk River Board of Control allotment is less than full (1.7 acre-feet/acre). Full allotment is approximately 2.3 acre-feet/acre.
  - Releases from Fresno are higher than anticipated. Irrigation demands are high.

Montana DNRC (Mike Daily and Matt Miles)

- Moderate to extreme drought. Hoping for more moisture.

Alberta (David Watson, AEP)

- Published natural forecast volume from March to September 2021. They have gone down since publication in March (precipitation not as high as expected).
- Started at normal range, but coming below averages
- Large temperature drop forecasted but delayed response is expected from forecasted precipitation (snow).

Saskatchewan (Alanna Howell)

- Generally been dry. We have had some rain on Battle Creek and Lodge (more normal conditions in the past 30 days)

## **5. UPDATE ON COMMUNICATIONS TO STAKEHOLDERS AND USERS**

Deferred.

## 6. OTHER BUSINESS

### Status of AO Recommendations and Study (Mark and Erika)

- Funding of US\$350,000 to start the study this US fiscal year. Work with John K. and others to develop what will be done with this funding.
- Don't need to have a deliverable before September 30, 2021
- Have not received a letter of support for the study from federal governments. No formal funding from Canada discussed in the budget. Letter to Global Affairs Canada for support to explore options. Alberta government wrote a letter of support to Global Affairs Canada. Provincial and state strong support.

ACTION: Clarify scope and costing of IWI Isotope proposal – Al, Erika, Brian

### IWI Remote Sensing - Consumptive use project fieldwork overview (Roy Sando)

Field work validation scheduled for week of May 24<sup>th</sup> 2021.

- Milk River Headwaters (US), Sweetgrass Hills (US), Alberta (Canada).
- 2 field trips in 2021, 3 field trips in 2022
- Field Data to be collected: Active irrigation, irrigation, crop type, water source, data time, team verifying, remarks on irrigation
- Submit outreach to landowners

ACTION ITEM: Roy to send information sheet created for project

### IWI Isotope Proposal (Mark Colisimo and Erika)

Committee reviewed and approved proposal last week. AO's and FR's work with IJC staff to develop detailed scope of work to get work contracted.

Brian Maloney is going to be sending out questions to AOs (Erika not sure when to expect). Answers to questions can come in revised scope of work. Can start working on scope of work – will be coming from the Canadian section (UofC).

## 7. NEXT MEETING

Next LOI call will be Wednesday June 23, 2021. 11 am

**ACTION:** Malcolm to send out save the date for LOI Call.

## 8. ROUNDTABLE

- Curtis Waiting - Update on border crossing restriction.
- Erika – followed up with Chris Spence regarding Eddy Covariance data collection. He indicated it would be simpler to go through ECCC's MOU since no

rush. Probably won't be able to get to field until September due to restrictions.  
Malcom to have a chat with Roy and Chris.

**ACTION:**

- Curtis to send border crossing update.
- Malcolm to set up a chat with Roy and Chris regarding Eddy Covariance.

**9. ACTION ITEMS ARISING FROM THIS MEETING**

1. Roy to send information sheet created for project (IWI Remote Sensing - Consumptive use)
2. Al, Erica, Brian Maloney to Clarify scope and costing of IWI Isotope proposal
3. Malcolm to set up a chat with Roy and Chris regarding Eddy Covariance.
4. Curtis to send border crossing update.
5. Malcolm to send out save the date for LOI Call.
6. All - Review and comment on April 14 meeting minutes.

**Attachments:**

Table 1: 2021 Interim Division Report for St. Mary River

Table 2: 2021 Interim Division Report for Milk River

Table 3: 2021 Interim Division Report for Lodge Creek

Table 4: 2021 Interim Division Report for Battle Creek

Table 5: 2021 Interim Division Report for Frenchman River

Appendix A: Conversion Factors

**Table 1:**

SUMMARY OF ST. MARY DIVISION  
2021  
QUANTITIES IN CFS-DAYS

SUMMARY OF ST. MARY RIVER DIVISION  
2021  
QUANTITIES IN CFS-DAYS

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	CANADA'S SHARE	RECEIVED BY CANADA	RECEIVED BY CANADA		*DEFICIT TO DATE	DEFICIT OUTSIDE LOI TO DATE
				ABOVE SHARE	BELOW SHARE		
MAR 1 - MAR 15	1,892	945	1,498	553		0	0
MAR 16 - MAR 31	2,575	1,287	3,041	1,754		0	0
APR 1 - APR 15	4,167	3,126	3,283	157		0	0
APR 16 - APR 30	6,336	4,752	4,797	45		0	0
MAY 1 - MAY 15	20,942	12,972	13,980	1,008		0	0
MAY 16 - MAY 31							
JUNE 1 - JUNE 15							
JUNE 16 - JUNE 30							
JULY 1 - JULY 15							
JULY 16 - JULY 31							
AUG 1 - AUG 15							
AUG 16 - AUG 31							
SEP 1 - SEP 15							
SEP 16 - SEP 30							
OCT 1 - OCT 15							
OCT 16 - OCT 31							
TOTAL	35,912	23,082	26,599				

\* Letter of Intent allows for a deficit up to 4,000 cfs-days between March 1 and May 31 which may be reduced to no less than 2,000 cfs-days between June 1 and July 15. The remaining deficit is not refundable until after September 15 of that year unless agreed upon in writing by the Field Representative

**Table 2:**

SUMMARY OF MILK RIVER DIVISION  
2021  
QUANTITIES IN CFS-DAYS

SUMMARY OF MILK RIVER DIVISION FOR 2021\*

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	UNITED STATE'S SHARE	RECEIVED BY U.S.A.	RECEIVED BY UNITED STATES		*LOI DEFICIT TO DATE	DEFICIT OUTSIDE LOI TO DATE
				ABOVE SHARE	BELOW SHARE		
MAR 1 - MAR 15	2,525	1,262	2,522	1,260		0	0
MAR 16 - MAR 31	3,342	1,671	3,340	1,669		0	0
APR 1 - APR 15	2,887	2,166	2,884	719		0	0
APR 16 - APR 30	1,430	1,072	1,426	353		0	0
MAY 1 - MAY 15	1,636	1,227	1,582	355		0	0
MAY 16 - MAY 31							
JUNE 1 - JUNE 15							
JUNE 16 - JUNE 30							
JULY 1 - JULY 15							
JULY 16 - JULY 31							
AUG 1 - AUG 15							
AUG 16 - AUG 31							
SEP 1 - SEP 15							
SEP 16 - SEP 30							
OCT 1 - OCT 15							
OCT 16 - OCT 31							
TOTAL	11,820	7,398	11,754				

\* Letter of Intent (LOI) allows for a deficit up to 2,000 cfs-days between June 1 and September 15. The remaining deficit is not refundable until after September 15 of that year unless agreed upon in writing by the Field Representative for the United States. Canadian LOI deficits on the Milk River were reduced to zero through a balancing with U.S. St Mary deficits as per the LOI.

**Table 3:**

**SUMMARY OF LODGE CREEK DIVISION FOR 2021  
QUANTITIES IN CUBIC DECAMETRES**

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	UNITED STATES SHARE	RECEIVED BY U.S.A.	RECEIVED BY UNITED STATES		DEFICIT TO DATE	
				ABOVE SHARE	BELOW SHARE		
MAR 1 - MAR 15	948	474	1443	969	0	0	
MAR 16 - MAR 31	5965	2982	3646	664	0	0	
APR 1 - APR 15	2858	1429	1711	282	0	0	
APR 16 - APR 30	597	298	532	234	0	0	
MAY 1 - MAY 15	695	347	370	23	0	0	
MAY 16 - MAY 31							
JUNE 1 - JUNE 15							
JUNE 16 - JUNE 30							
JULY 1 - JULY 15							
JULY 16 - JULY 31							
AUG 1 - AUG 15							
AUG 16 - AUG 31							
SEP 1 - SEP 15							
SEP 16 - SEP 30							
OCT 1 - OCT 15							
OCT 16 - OCT 31							
<b>TOTAL</b>	<b>11062</b>	<b>5530</b>	<b>7702</b>	<b>2172</b>	<b>0</b>	<b>0</b>	

**Table 4:****SUMMARY OF BATTLE CREEK DIVISION FOR 2021  
QUANTITIES IN CUBIC DECAMETRES**

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	UNITED STATES SHARE	RECEIVED BY U.S.A.	RECEIVED BY UNITED STATES		DEFICIT TO DATE	
				ABOVE SHARE	BELOW SHARE		
MAR 1 - 25	5933	2966	4251	1285	0	0	
MAR 26 - APR 9	2892	1446	123	0	1323	1323	
APR 10 - 24	2934	1467	265	0	1202	2525	
APR 25 - MAY 9	1831	916	176	0	740	3265	
MAY 10 - 25							
MAY 26 - JUN 9							
JUNE 10 - 24							
JUNE 25 - JUL 9							
JULY 10 - 25							
JULY 26 - AUG 9							
AUG 10 - 25							
AUG 26 - SEP 9							
SEP 10 - 24							
SEP 25 - OCT 9							
OCT 10 - 25							
OCT 26 -31							
TOTAL	13590	6795	4815	1285	-3265	-3265	

**Table 5:****SUMMARY OF FRENCHMAN RIVER DIVISION FOR 2021  
QUANTITIES IN CUBIC DECAMETRES**

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	UNITED STATES SHARE	RECEIVED BY U.S.A.	RECEIVED BY UNITED STATES		DEFICIT TO DATE	
				ABOVE SHARE	BELOW SHARE		
MAR 1 - MAR 15	3372	16869	1555	0	131	131	
MAR 16 - MAR 31	5126	2563	1521	0	1042	1173	
APR 1 - APR 15	3954	3954	7180	3226	0	0	
APR 16 - APR 30	1907	1907	2618	711	0	0	
MAY 1 - MAY 15	231	1298	1529	231	0	0	
MAY 16 - MAY 31							
JUNE 1 - JUNE 15							
JUNE 16 - JUNE 30							
JULY 1 - JULY 15							
JULY 16 - JULY 31							
AUG 1 - AUG 15							
AUG 16 - AUG 31							
SEP 1 - SEP 15							
SEP 16 - SEP 30							
OCT 1 - OCT 15							
OCT 16 - OCT 31							
TOTAL	22815	11408	14403	4168	1173	0	

## Appendix A:

### FACTORS FOR CONVERSION BETWEEN INCH-POUND UNITS AND INTERNATIONAL SYSTEM (SI) UNITS

The following list of often-used conversions of measure gives the relationship between imperial (yard/pound) units and the International System of Units (SI) (metric), and includes other convenient equivalents of measure.\*

1 inch	=	2.54 cm (centimetres)
1 centimetre	=	0.393 700 8 in. (inches)
1 foot	=	0.304 8 m (metres)
1 metre	=	3.280 840 ft. (feet)
1 yard	=	0.914 4 m (metres)
1 metre	=	1.093 613 yd. (yards)
1 statute mile	=	1.609 344 km (kilometres)
1 kilometre	=	0.621 371 2 mi (miles)
1 square mile	=	2.589 988 km <sup>2</sup> (square kilometres)
1 square kilometre	=	0.386 102 2 mi. <sup>2</sup> (square miles)
1 hectare	=	10 000 m <sup>2</sup> (square metres)
1 square kilometre	=	100 ha (hectares)
1 acre	=	0.404 685 6 ha (hectares)
1 hectare	=	2.471 054 ac. (acres)
1 acre-foot	=	1.233 5 dam <sup>3</sup> (cubic decametres)
1 cubic decametre	=	0.810 701 2 ac.-ft. (acre-feet)
1 cubic foot per second	=	0.028 317 m <sup>3</sup> /s (cubic metre per second)
1 cubic metre per second	=	35.315 cfs (cubic feet per second)
1 cfs-day = 86,400 cubic feet		
1 acre-foot = 43,560 cubic feet		
1 cfs-day = 1.9835 acre-feet		

The SI unit replacing the inch-pound units for volume is the cubic decametre (dam<sup>3</sup>).

1 dam <sup>3</sup>	=	1 000 cubic metres
1 dam <sup>3</sup>	=	35,315 cubic feet
1 acre-foot	=	1.2335 dam <sup>3</sup>
1 cfs-day	=	2.4466 dam <sup>3</sup>
1 dam <sup>3</sup>	=	0.8107 acre-feet
1 cubic metre	=	35.315 cubic feet

\* Applicable listings conform to the Canadian Metric Practice Guide CAN3-Z234.1-79

## **St. Mary-Milk River Letter of Intent**

### **June 23, 2021 Conference Call**

#### **Final Meeting Minutes**

##### **Authority:**

Under the Terms of the “Letter of Intent to Better Utilize the Waters of the St. Mary and Milk Rivers” signed by the Accredited Officers for both the USA and Canada February 8<sup>th</sup>, 2001:

Canada (Environment Canada), the United States (U.S. Bureau of Reclamation and U.S. Geological Survey), Alberta (Alberta Environment and Parks), and Montana (Montana Department of Natural Resources and Conservation) shall participate in a conference call or meeting on or about July 1, and again by September 15 of each year to decide on the approach to be used to reconcile outstanding deficit deliveries.

##### **Time of the Call:**

A videoconference call was held at 11:00 AM MDT, Wednesday June 23, 2021.

##### **Meeting Participants:**

John Kilpatrick, Accredited Officer for the United States  
Alain Pietroniro, Accredited Officer for Canada  
Malcolm Conly, IJC Field Officer for Canada  
Erika Klyszajko, IJC Advisor Canada Section  
Mark Colosimo, IJC Advisor United States Section  
Adam Greeley, IJC  
Aroscott Whiteman, United States Geological Survey (USGS)  
Aaron Fiaschetti, USGS  
Clayton Jordan, United States Bureau of Reclamation (USBR)  
Michael Dailey, Montana Department of Natural Resources and Conservation (USBR)  
Matt Miles, DNRC  
Andrew Wilson, Alberta Environment and Parks (AEP)  
Carmen de la Chevrotière, AEP  
Brian Hills, AEP  
Stephen Mathyk, AEP  
Paul Elser, AEP  
David Watson, AEP  
Stephen Mathyk, AEP  
Dorothy Lok, AEP  
Alanna Howell, Saskatchewan Water Security Agency (WSA)  
Kevin Wingert, WSA  
Emmanuelle Johnston, Environment and Climate Change Canada (ECCC)

Evan Friesenhan, ECCC  
Ethan Johnson, ECCC  
Jonathan Jeffery, ECCC  
Tim Ma, ECCC  
Lori Rolfe, Village of Coutts

## **Background Information**

*The following background information emphasised in italic type was not discussed during this conference call as most participants are aware of the issues. This information is provided in consideration of a potentially wider distribution of the document.*

*Interim numbers are provisional and subject to change pending final approval of the natural flow computations.*

*Interim natural flow determinations on the Milk River are computed using a modified Penman equation for estimating evapotranspiration losses, and Paterson (2017) estimates of consumptive use for both USA and Canada. Final computations will be based on evapotranspiration estimates which are determined using a modified Penman equation with data obtained from North Fork and Eastern Crossing Climate Stations. Minor changes in the natural flow determinations are to be expected but the accumulated deficit as calculated by the interim Division Report is not expected to change significantly. Provisional reports for Milk River show that there was zero deficit for the period ending June 15, 2021. For Milk River, the lowest surplus delivery during March 1 through May 31, 2021 was 354 cfs-days (866 dam<sup>3</sup>). Also, provisional reports for St. Mary River show that there was zero deficit for the period ending June 15, 2021. For St. Mary River, the lowest surplus delivery was 45 cfs-days (110 dam<sup>3</sup>) for March 1 through May 15, 2021. Small errors in calculations or differences due to methodology are not expected to change the magnitude of deficit deliveries.*

*The “Letter of Intent” was crafted to achieve more beneficial use by allowing the USA to take more water than its share of the flow of the St. Mary River in the spring time when they could benefit more than Canada, and to allow Canada to offset this deficit by taking more than its share of the flow in the Milk River later in the season when its demand was higher. Further, this would allow a balance of deficits (USA on the St. Mary and Canada on the Milk) at the end of the season.*

*The “Letter of Intent” explains:*

### ***St. Mary River***

***During March 1 through May 31 of each year, deficit deliveries from the U.S. to Canada at the end of each division period will carry over from one division***

period to another for the year, are cumulative for the year, and are allowed up to a cumulative total of 4,000 cfs-days (9 800 dam<sup>3</sup>). Deficit deliveries greater than the allowed cumulative total of 4,000 cfs-days (9 800 dam<sup>3</sup>) are to be refunded in the subsequent division period. Surplus deliveries at the end of a division period are not cumulative, cannot be used to reduce the accumulated deficit from previous division periods to below the allowed total deficit of 4,000 cfs-days (9 800 dam<sup>3</sup>), and cannot be used as a credit to make up future deficits. Exceptions to these procedures for this period are allowed only if agreed upon in writing by the Field Representative for Canada.

During June 1 through July 15 of each year, the United States, at its discretion, may reduce the deficit accumulated in the March 1 through May 31 period to 2,000 cfs-days (4 900 dam<sup>3</sup>) by making surplus deliveries of St. Mary River water. The remaining deficit is not refundable until after September 15 of that year unless agreed upon in writing by the Field Representative for Canada.

### **Milk River**

During March 1 through May 31 of each year, deficit deliveries from Canada to the United States at the end of each division period are not to be incurred. However, if deficits are incurred, they are to be refunded by surplus deliveries in the subsequent division period or at a time agreed upon by both parties. Surplus deliveries do not carry over from one division period to another, are not cumulative, and cannot be used as a credit to make up future deficits.

During June 1 through September 15 of each year, deficit deliveries from Canada to the United States at the end of each division period will carry over from one division period to another for the year, are cumulative for the year, and are allowed up to a cumulative total of 2,000 cfs-days (4 900 dam<sup>3</sup>). Deficit deliveries greater than the allowed total of 2,000 cfs-days (4 900 dam<sup>3</sup>) are to be refunded in the subsequent division period. Surplus deliveries at the end of a division period cannot be used to reduce the deficit accumulated during the June 1 through September 15 period to below the lesser of the allowed total deficit of 2,000 cfs-days (4 900 dam<sup>3</sup>) or the outstanding United States' deficit accumulated on the St. Mary River in the March 1 through May 31 period, and cannot be used as credits to make up future deficits. The remaining deficit is not refundable until after September 15 of that year unless agreed upon in writing by the Field Representative of the United States.

## **MEETING NOTES**

The meeting was called to order at 11:00 AM MDT by Malcolm Conly (IJC Field Representative for Canada). Malcolm chaired the meeting. The list of meeting

participants was reviewed. Aaron Fiaschetti was designated as the meeting note-taker, with assistance from Tim.

Malcolm presented the LOI Call Agenda and asked if there were additions to the agenda required. No additional items were added.

## 1. SUMMARY OF ACTION ITEMS FROM MAY 2021 MEETING

ITEM	NOTES
1. Roy to send information sheet created for project (IWI Remote Sensing - Consumptive use)	Completed
2. Al, as well as Erika from IJC, to clarify scope and costing of IWI Isotope proposal	Completed
3. Malcolm to set up a chat with Roy and Chris regarding Eddy Covariance.	Completed
4. Curtis to send border crossing update.	Ongoing
5. Malcolm to send out save the date for LOI Call.	Completed
6. All - Review and comment on April 14 meeting minutes.	Completed

## 2. MAY 18, 2021 LOI CALL

- Draft May 18, 2021 meeting notes were sent on May 26, 2021. Emmanuelle received a few comments on the draft. Carmen is going to send comments soon and the minutes can be considered final once they are received.

## 3. INTERIM DIVISION RESULTS

### St Mary - (Aaron)

- May 16 - May 31: 486 cfs-days surplus, 0 deficit to date.
- June 1 – June 15: 1,993 cfs-days surplus, 0 deficit to date.

### Milk River - (Aaron)

- May 16 - May 31: 876 cfs-days surplus, 0 deficit to date.
- June 1 – June 15: 354 cfs-days surplus, 0 deficit to date.
- Currently at zero natural flow on the Milk

## **Eastern Tributaries (Corey)**

### **Lodge**

- May 1 - May 15: 0 deficit
- May 16-31: 0 deficit
- June 1-15: 0 deficit

### **Battle**

- **Apr25 – May 9: 2,694 dam3 deficit**
- **May 10-25: 2,664 dam3 deficit**
- **May 26-June 9: 2,035 dam3 deficit**

### **Frenchman**

- **May 1 – May 15: 0 deficit**
- **May 16-31: 0 deficit**
- **June 1-15: 504 dam3 deficit**

Alanna: Plans to reduce the deficit in the Battle, no longer diverting water to Cypress lake. Frenchman- refilling reservoirs now after irrigation, lots of storage and can repay the deficit.

Matt Miles: Montana is ok with the situation right now.

## **Milk River Potential Deficit Discussion**

John- Open to the discussion of some CA deficit based on the amount of natural flow that is available in the Milk River historically. Malcolm- The Paterson numbers (assumed CA use) change for each period and makes it complicated for management.

Al- Were we open to changing from our procedures last year? John- yes we're open to changes. The use last year was requested and approved when there was natural flow available, but it was not used by Alberta (AB) due to weather conditions.

Brian Hills- AB irrigators need as much notice as possible, talking about weeks of impact on irrigators. If there is an opportunity for AB to continue to the point where MT irrigators are shut down it would be helpful.

Malcolm- Maybe there is a need to look at multiple scenarios?

John- if all irrigators are shutoff at the same time, that could be a significant deficit that may be offset on St. Mary but would not be repaid on the Milk River this year. Should a discussion occur with the Milk River Joint Board of Control (JBOC) occur?

Clayton- yes that would be worthwhile. It was noted that presenting options to the JBOC would be helpful.

### Potential Options\*

Option 1: Follow the LOI and irrigation stops in CA when natural flow goes to zero. (i.e. no offsetting St. Mary River deficit outside the LOI)

Option 2: Follow the LOI and if natural flow is available later in the season, figure out a way to manage CA use of the available water.

Option 3: Implement the LOI late and allow US to build a deficit in Lake Sherburne that could be offset by summer irrigation use in CA.

Option 4: CA would stop irrigation when US irrigators shut down in August. CA would incur a deficit that would be repaid later—either by Milk natural flow or US deficit on St. Mary.

\*Options presented here are general concepts discussed; actual scenarios will be prepared and sent by the Accredited Officers.

Carmen- AB would need at least a week to implement a shut down of Alberta *Water Act* licensees. Steve Mathyk- What is the worst-case scenario? Malcolm- Shutting down irrigation when the next division period starts (July 1). Steve—AEP needs the AO correspondence on their decision as soon as possible.

**Action:** John and Clayton: Reach out to the JBOC to discuss their perspective on the potential creation of a Canadian deficit on the Milk River.

**Action:** Tim and Aaron create/refine scenarios for John and AI to support decision making. (end of this week)

**Action:** Malcom schedule a USGS/WSC call this week to discuss the scenarios and AO correspondence.

## **4. PRECIPITATION AND RUNOFF OUTLOOK (USBR, DNRC, and WSA)**

Clayton:

- **St. Mary's Basin:**
  - Sherburne is 83% full and 100% of average (for this time), still storing water in Sherburne right now.
  - Sherburne did not fill this year, even with the high carryover storage.
  - Will continue to move water over from the St. Mary for the foreseeable future.
- **Milk River**
  - Fresno is 66% full and 84% of average, currently drafting on the reservoir. Fresno did not fill this year.

- Nelson is 54% full and 70% of average. Nelson did not fill this year.
- Concerned about baseflows going into the summer, precipitation has helped some but has been short lived.
- Milk River storage is the limiting factor for summer irrigation.
- Reduced irrigation allotments have been implemented for the summer, looking to end the irrigation season anywhere from August 1-15 (which is early) depending on conditions.
- Precipitation outlook is looking hot and dry.

**Carmen- Can a deficit be created by storing more water in Sherburne this year?**

**Clayton- current releases are to balance the system and stay within the apportionment. The creation of a deficit would not benefit the Milk River irrigation project this year, it would likely not extend the U.S. season this year.**

**Malcom- If a deficit was created to benefit CA irrigators, it would likely impact U.S Irrigators.**

**Carmen- Is the LOI still beneficial to the U.S? John- it is, but not in this circumstance (a year when Sherburne is low, it would be). Canal limitations make the use of the LOI less beneficial during certain years also. In the U.S. the circumstances are not there every year to make the LOI beneficial.**

**Montana DNRC (Mike Daily and Matt Miles)**

- Expecting to run through the water supply quickly by August. Moderate to extreme drought.

**Alberta (David Watson, AEP)**

- Precipitation in the St. Mary River basin has been sparse until recently when some good rain came in.
- Not expecting any large storms in the near future. Long range forecasts predict dry conditions and warm temperatures.

**Saskatchewan (Alanna Howell)**

- Similar conditions to Alberta.
- Flows on Battle have decreased, Frenchman and Lodge have been steady but expect them to be dropping off soon.

## **5. UPDATE ON COMMUNICATIONS TO STAKEHOLDERS AND USERS**

Deferred.

## **6. OTHER BUSINESS**

### **Status of AO Recommendations and Study (Mark and Erika)**

Erika

- CA section sent a letter to Global Affairs Canada (GAC) that they will use surplus money towards the study.
- Have not received any letters of support from GAC or Department of State (DOS).
- Commissioners are looking to move quickly on the project.

Mark

- US section has funding and nothing else to report.

AI- GAC reached out to Malcolm and AI about the letter. AI will reach out to John about an agreement on language and scope for the letter of support.

### **IWI Remote Sensing - Consumptive use project fieldwork overview (Roy Sando)**

- The USGS has been out to collect information on the U.S. side with Mike and Matt (DNRC)
- Ethan was out collecting information in CA with AEP help.
- Looking at going out July 12 for next trip. If irrigation stops in AB it would be helpful to know and the trip may not occur if that is the case.
- Chris and Roy will be in discussion about the possibility to get an eddy covariance tower up and running in the fall.
- Eddy-covariance work may have implications for IJC-MOU

**Action:** Tim to keep Erika updated on eddy covariance work

### **IWI Isotope Proposal (AI)**

No Updates

### **TWG Meeting**

Tim Ma- Next meeting Monday June 28 from 1-5 pm.

## **7. NEXT MEETING**

Next LOI call will be Wednesday July 21, 2021. 11 am

**Action:** Malcolm to send out save the date for LOI Call.

## **8. ROUNDTABLE**

No comments.

## **9. ACTION ITEMS ARISING FROM THIS MEETING**

1. **Action:** John and Clayton: Reach out to the JBOC to discuss their perspective on the potential creation of a Canadian deficit on the Milk River.
2. **Action:** Tim and Aaron create/refine scenarios for John and Al to support decision making. (end of this week—June 25)
3. **Action:** Tim to keep Erika updated on eddy covariance work
4. **Action:** Malcom schedule a USGS/WSC call this week to discuss the scenarios and correspondence to AEP.
5. **Action:** Malcolm to send out save the date for LOI Call.

### **Attachments:**

Table 1: 2021 Interim Division Report for St. Mary River

Table 2: 2021 Interim Division Report for Milk River

Table 3: 2021 Interim Division Report for Lodge Creek

Table 4: 2021 Interim Division Report for Battle Creek

Table 5: 2021 Interim Division Report for Frenchman River

Appendix A: Conversion Factors

**Table 1:**

SUMMARY OF ST. MARY DIVISION  
2021  
QUANTITIES IN CFS-DAYS

SUMMARY OF ST. MARY RIVER DIVISION  
2021  
QUANTITIES IN CFS-DAYS

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	CANADA'S SHARE	RECEIVED BY CANADA	RECEIVED BY CANADA		*DEFICIT TO DATE	DEFICIT OUTSIDE LOI TO DATE
				ABOVE SHARE	BELOW SHARE		
MAR 1 - MAR 15	1,892	945	1,498	553		0	0
MAR 16 - MAR 31	2,605	1,302	3,071	1,769		0	0
APR 1 - APR 15	4,167	3,126	3,283	157		0	0
APR 16 - APR 30	6,335	4,751	4,796	45		0	0
MAY 1 - MAY 15	20,890	12,947	13,928	981		0	0
MAY 16 - MAY 31	31,689	18,514	19,000	486		0	0
JUNE 1 - JUNE 15	42,874	23,937	25,930	1,993		0	0
JUNE 16 - JUNE 30							
JULY 1 - JULY 15							
JULY 16 - JULY 31							
AUG 1 - AUG 15							
AUG 16 - AUG 31							
SEP 1 - SEP 15							
SEP 16 - SEP 30							
OCT 1 - OCT 15							
OCT 16 - OCT 31							
TOTAL	110,452	65,522	71,506				

\* Letter of Intent allows for a deficit up to 4,000 cfs-days between March 1 and May 31 which may be reduced to no less than 2,000 cfs-days between June 1 and July 15. The remaining deficit is not refundable until after September 15 of that year unless agreed upon in writing by the Field Representative

**Table 2:**

SUMMARY OF MILK RIVER DIVISION  
2021  
QUANTITIES IN CFS-DAYS

17-Jun-21

SUMMARY OF MILK RIVER DIVISION FOR 2021\*

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	UNITED STATES SHARE	RECEIVED BY U.S.A.	RECEIVED BY UNITED STATES		*LOI DEFICIT TO DATE	DEFICIT OUTSIDE LOI TO DATE
				ABOVE SHARE	BELOW SHARE		
MAR 1 - MAR 15	2525	1262	2522	1260		0	0
MAR 16 - MAR 31	3342	1671	3340	1669		0	0
APR 1 - APR 15	3054	2290	3051	760		0	0
APR 16 - APR 30	1912	1434	1908	474		0	0
MAY 1 - MAY 15	2592	1944	2538	594		0	0
MAY 16 - MAY 31	3929	2947	3822	876		0	0
JUNE 1 - JUNE 15	1913	1435	1789	354		0	0
JUNE 16 - JUNE 30							
JULY 1 - JULY 15							
JULY 16 - JULY 31							
AUG 1 - AUG 15							
AUG 16 - AUG 31							
SEP 1 - SEP 15							
SEP 16 - SEP 30							
OCT 1 - OCT 15							
OCT 16 - OCT 31							
<b>TOTAL</b>	<b>19,267</b>	<b>12,983</b>	<b>18,970</b>				

\* Letter of Intent (LOI) allows for a deficit up to 2,000 cfs-days between June 1 and September 15. The remaining deficit is not refundable until after September 15 of that year unless agreed upon in writing by the Field Representative for the United States. Canadian LOI deficits on the Milk River were reduced to zero through a balancing with U.S. St Mary deficits as per the LOI.

**Table 3:**

**SUMMARY OF LODGE CREEK DIVISION FOR 2021  
QUANTITIES IN CUBIC DECAMETRES**

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	UNITED STATES SHARE	RECEIVED BY U.S.A.	RECEIVED BY UNITED STATES		DEFICIT TO DATE	
				ABOVE SHARE	BELOW SHARE		
MAR 1 - MAR 15	1088	544	1443	899	0	0	
MAR 16 - MAR 31	6018	3009	3646	637	0	0	
APR 1 - APR 15	2747	1373	1711	338	0	0	
APR 16 - APR 30	522	261	532	271	0	0	
MAY 1 - MAY 15	605	302	370	68	0	0	
MAY 16 - MAY 31	2614	1307	1547	240	0	0	
JUNE 1 - JUNE 15	771	386	672	286	0	0	
JUNE 16 - JUNE 30							
JULY 1 - JULY 15							
JULY 16 - JULY 31							
AUG 1 - AUG 15							
AUG 16 - AUG 31							
SEP 1 - SEP 15							
SEP 16 - SEP 30							
OCT 1 - OCT 15							
OCT 16 - OCT 31							
TOTAL	14364	7182	9920	2783		0	

**Table 4:**

**SUMMARY OF BATTLE CREEK DIVISION FOR 2021  
QUANTITIES IN CUBIC DECAMETRES**

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	UNITED STATES SHARE	RECEIVED BY U.S.A.	RECEIVED BY UNITED STATES		DEFICIT TO DATE	
				ABOVE SHARE	BELOW SHARE		
MAR 1 - 25	6420	3210	4251	1041	0	0	
MAR 26 - APR 9	2756	1378	123	0	1255	1255	
APR 10 - 24	2401	1201	265	0	936	2191	
APR 25 - MAY 9	1358	679	176	0	503	2694	
MAY 10 - 25	4726	2363	2393	30		2664	
MAY 26 - JUN 9	3546	1773	2402	629		2035	
JUNE 10 - 24							
JUNE 25 - JUL 9							
JULY 10 - 25							
JULY 26 - AUG 9							
AUG 10 - 25							
AUG 26 - SEP 9							
SEP 10 - 24							
SEP 25 - OCT 9							
OCT 10 - 25							
OCT 26 -31							
TOTAL	21207	10604	9610			2035	

**Table 5:****SUMMARY OF FRENCHMAN RIVER DIVISION FOR 2021  
QUANTITIES IN CUBIC DECAMETRES**

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	UNITED STATES SHARE	RECEIVED BY U.S.A.	RECEIVED BY UNITED STATES		DEFICIT TO DATE	
				ABOVE SHARE	BELOW SHARE		
MAR 1 - MAR 15	3302	1651	1555	0	96	96	
MAR 16 - MAR 31	4965	2483	1521	0	962	1058	
APR 1 - APR 15	7955	3978	7180	3202	0	0	
APR 16 - APR 30	3551	1775	2618	843	0	0	
MAY 1 - MAY 15	2265	1133	1529	396	0	0	
MAY 16 - MAY 31	2432	1216	1521	305	0	0	
JUNE 1 - JUNE 15	3376	1688	1184	0	504	504	
JUNE 16 - JUNE 30							
JULY 1 - JULY 15							
JULY 16 - JULY 31							
AUG 1 - AUG 15							
AUG 16 - AUG 31							
SEP 1 - SEP 15							
SEP 16 - SEP 30							
OCT 1 - OCT 15							
OCT 16 - OCT 31							
TOTAL	27846	13924	17107	3183		504	

## Appendix A:

### FACTORS FOR CONVERSION BETWEEN INCH-POUND UNITS AND INTERNATIONAL SYSTEM (SI) UNITS

The following list of often-used conversions of measure gives the relationship between imperial (yard/pound) units and the International System of Units (SI) (metric), and includes other convenient equivalents of measure.\*

1 inch	=	2.54 cm (centimetres)
1 centimetre	=	0.393 700 8 in. (inches)
1 foot	=	0.304 8 m (metres)
1 metre	=	3.280 840 ft. (feet)
1 yard	=	0.914 4 m (metres)
1 metre	=	1.093 613 yd. (yards)
1 statute mile	=	1.609 344 km (kilometres)
1 kilometre	=	0.621 371 2 mi (miles)
1 square mile	=	2.589 988 km <sup>2</sup> (square kilometres)
1 square kilometre	=	0.386 102 2 mi. <sup>2</sup> (square miles)
1 hectare	=	10 000 m <sup>2</sup> (square metres)
1 square kilometre	=	100 ha (hectares)
1 acre	=	0.404 685 6 ha (hectares)
1 hectare	=	2.471 054 ac. (acres)
1 acre-foot	=	1.233 5 dam <sup>3</sup> (cubic decametres)
1 cubic decametre	=	0.810 701 2 ac.-ft. (acre-feet)
1 cubic foot per second	=	0.028 317 m <sup>3</sup> /s (cubic metre per second)
1 cubic metre per second	=	35.315 cfs (cubic feet per second)
1 cfs-day = 86,400 cubic feet		
1 acre-foot = 43,560 cubic feet		
1 cfs-day = 1.9835 acre-feet		

The SI unit replacing the inch-pound units for volume is the cubic decametre (dam<sup>3</sup>).

1 dam <sup>3</sup>	=	1 000 cubic metres
1 dam <sup>3</sup>	=	35,315 cubic feet
1 acre-foot	=	1.2335 dam <sup>3</sup>
1 cfs-day	=	2.4466 dam <sup>3</sup>
1 dam <sup>3</sup>	=	0.8107 acre-feet
1 cubic metre	=	35.315 cubic feet

\* Applicable listings conform to the Canadian Metric Practice Guide CAN3-Z234.1-79

## **St. Mary-Milk River Letter of Intent**

### **July 21, 2021 Conference Call**

#### **Final Meeting Minutes**

##### **Authority:**

Under the Terms of the “Letter of Intent to Better Utilize the Waters of the St. Mary and Milk Rivers” signed by the Accredited Officers for both the USA and Canada February 8<sup>th</sup>, 2001:

Canada (Environment Canada), the United States (U.S. Bureau of Reclamation and U.S. Geological Survey), Alberta (Alberta Environment and Parks), and Montana (Montana Department of Natural Resources and Conservation) shall participate in a conference call or meeting on or about July 1, and again by September 15 of each year to decide on the approach to be used to reconcile outstanding deficit deliveries.

##### **Time of the Call:**

A teleconference call was held at 11:00 AM MDT, Wednesday July 21, 2021.

##### **Meeting Participants:**

John Kilpatrick, Accredited Officer for the United States

Joanne Thamke, IJC Field Officer for the United States

Alain Pietroniro, Accredited Officer for Canada

Malcolm Conly, IJC Field Officer for Canada

Erika Klyszejko, IJC Advisor Canada Section

Mark Colosimo, IJC Advisor United States Section

Kevin Bunch, IJC United States Section

Norman Barth, IJC United States Section

Aaron Fiaschetti, USGS

Roy Sando, USGS

Clayton Jordan, United States Bureau of Reclamation (USBR)

Stephanie R Micek, USBR

Matt Miles, Montana Department of Natural Resources and Conservation (DNRC)

James Heffner, DNRC

Paul Azevedo, DNRC

Jon Hood, Town of Milk

Stephen Mathyk, AEP

Andrew Wilson, Alberta Environment and Parks (AEP)

Carmen de la Chevrotière, AEP

David Watson, AEP

Dorothy Lok, AEP

Alanna Howell, Saskatchewan Water Security Agency (WSA)  
Kevin Wingert, WSA  
Emmanuelle Johnston, Environment and Climate Change Canada (ECCC)  
Curtis Waiting, ECCC  
Sean O'Connor, ECCC  
Corey Hein, ECCC  
Tim Ma, ECCC  
Jonathan Jeffrey, ECCC  
Ethan Johnson, ECCC  
Brianna Vaagen, ECCC  
Tim Romanow, Milk River Watershed Council (MRWCC)

Note: Jason Cayford can be removed from the distribution list (was filling in for David Hunt). Add Norman Barth to calls.

### **Background Information**

*The following background information emphasised in italic type was not discussed during this conference call as most participants are aware of the issues. This information is provided in consideration of a potentially wider distribution of the document.*

*Interim numbers are provisional and subject to change pending final approval of the natural flow computations.*

*Interim natural flow determinations on the Milk River are computed using a modified Penman equation for estimating evapotranspiration losses, and Paterson (2017) estimates of consumptive use for both USA and Canada. Final computations will be based on evapotranspiration estimates which are determined using a modified Penman equation with data obtained from North Fork and Eastern Crossing Climate Stations. Minor changes in the natural flow determinations are to be expected but the accumulated deficit as calculated by the interim Division Report is not expected to change significantly. Provisional reports for Milk River show that there was 208 cfs-day deficit for the period July 1 to 15, 2021 period with a deficit-to-date balance as of July 15, 2021 of 346 cfs-days. For Milk River, the lowest surplus delivery during March 1 through July 15, 2021 was 353 cfs-days (864 dam<sup>3</sup>). Also, provisional reports for St. Mary River show that there was 40 cfs-day deficit for the period July 1 to 15, 2021 period with a deficit-to-date balance as of July 15, 2021 of 40 cfs-days. For St. Mary River, the lowest surplus delivery was 46 cfs-days (110 dam<sup>3</sup>) for March 1 through July 15, 2021. Small errors in calculations or differences due to methodology are not expected to change the magnitude of deficit deliveries.*

*The "Letter of Intent" was crafted to achieve more beneficial use by allowing the USA to take more water than its share of the flow of the St. Mary River in the spring time when they could benefit more than Canada, and to allow*

Canada to offset this deficit by taking more than its share of the flow in the Milk River later in the season when its demand was higher. Further, this would allow a balance of deficits (USA on the St. Mary and Canada on the Milk) at the end of the season.

The "Letter of Intent" explains:

**St. Mary River**

During March 1 through May 31 of each year, deficit deliveries from the U.S. to Canada at the end of each division period will carry over from one division period to another for the year, are cumulative for the year, and are allowed up to a cumulative total of 4,000 cfs-days (9 800 dam<sup>3</sup>). Deficit deliveries greater than the allowed cumulative total of 4,000 cfs-days (9 800 dam<sup>3</sup>) are to be refunded in the subsequent division period. Surplus deliveries at the end of a division period are not cumulative, cannot be used to reduce the accumulated deficit from previous division periods to below the allowed total deficit of 4,000 cfs-days (9 800 dam<sup>3</sup>), and cannot be used as a credit to make up future deficits. Exceptions to these procedures for this period are allowed only if agreed upon in writing by the Field Representative for Canada.

During June 1 through July 15 of each year, the United States, at its discretion, may reduce the deficit accumulated in the March 1 through May 31 period to 2,000 cfs-days (4 900 dam<sup>3</sup>) by making surplus deliveries of St. Mary River water. The remaining deficit is not refundable until after September 15 of that year unless agreed upon in writing by the Field Representative for Canada.

**Milk River**

During March 1 through May 31 of each year, deficit deliveries from Canada to the United States at the end of each division period are not to be incurred. However, if deficits are incurred, they are to be refunded by surplus deliveries in the subsequent division period or at a time agreed upon by both parties. Surplus deliveries do not carry over from one division period to another, are not cumulative, and cannot be used as a credit to make up future deficits.

During June 1 through September 15 of each year, deficit deliveries from Canada to the United States at the end of each division period will carry over from one division period to another for the year, are cumulative for the year, and are allowed up to a cumulative total of 2,000 cfs-days (4 900 dam<sup>3</sup>). Deficit deliveries greater than the allowed total of 2,000 cfs-days (4 900 dam<sup>3</sup>) are to be refunded in the subsequent division period. Surplus deliveries at the end of a division period cannot be used to reduce the deficit accumulated during the June 1 through September 15 period to below the lesser of the allowed total deficit of 2,000 cfs-days (4 900 dam<sup>3</sup>) or the outstanding United States' deficit accumulated on the St. Mary River in the

March 1 through May 31 period, and cannot be used as credits to make up future deficits. The remaining deficit is not refundable until after September 15 of that year unless agreed upon in writing by the Field Representative of the United States.

## MEETING NOTES

The meeting was called to order at 11:00 AM MDT by Joanna Thamke (IJC Field Representative for United States). Joanna chaired the meeting. The list of meeting participants was reviewed. Emmanuelle Johnston was designated as the meeting note-taker, with assistance from Tim.

Joanna presented the LOI Call Agenda and asked if there were additions to the agenda required. No additional items were added.

### 1. SUMMARY OF ACTION ITEMS FROM JUNE 2021 MEETING

ITEM	NOTES
1. John and Clayton: Reach out to the JBOC to discuss their perspective on the potential creation of a Canadian deficit on the Milk River.	Completed.
2. Tim and Aaron create/refine scenarios for John and Al to have to support decision making. (end of this week)	Completed. (Emailed to AEP June 25th, AEP response received June 27th)
3. Tim to keep Erika updated on eddy covariance work	Completed.
4. Malcom schedule an internal WSC/USGS call next week to discuss the scenarios and outreach.	Completed.
5. Malcolm to send out save the date for LOI Call.	Completed.
6. Curtis to send border crossing update.	Ongoing.

### 2. MAY 18, 2021 AND JUNE 23 LOI CALLS

- Draft May 18, 2021 meeting notes were sent on May 26, 2021. Emmanuelle received a few comments on the draft. Carmen is going to send comments soon and the minutes can be considered final once they are received.

- Draft June 23, 2021 meeting notes were sent on June 28, 2021. Send comments to Aaron.

### 3. INTERIM DIVISION RESULTS

#### St Mary - (Joanna)

- June 1 – June 15: 2,133 cfs-days surplus, 0 deficit to date.
- June 15- June 30: 610 cfs-days surplus, 0 deficit to date.
- July 1 - July 15 : 40 cfs-days deficit delivery, 40 cfs day deficit to date

Clayton: not an intentional deficit. Payback is discussed in Milk River section.

#### Milk River - (Aaron)

- June 1 – June 15: 354 cfs-days surplus, 0 deficit to date.
- June 15- June 30: 138 cfs-days deficit delivery, 138 cfs-days deficit to date
- July 1 - July 15: 208 cfs-days deficit delivery, 346 cfs-days deficit to date

Malcolm: Canada is not expected to have the ability to pay back the current deficit on the Milk River during the next division period in Milk River due to 0 natural flow. Payback could be made between September 15 and October 31 with Milk River when Milk River natural flow should be available.

John: Using Milk natural flows for payback was not formally agreed upon but still up for discussion.

Carmen: Alberta preference would be to repay in September 15 - October 31 with natural flow on the Milk River.

Malcolm: Analysis suggests that we could repay in the fall with Milk River natural flow (even at 10<sup>th</sup> percentile of flow)

Al: 10<sup>th</sup> percentile might not materialize; small amounts of forecast precipitation might not generate any runoff because of dry conditions this year.

**Malcolm: Proposed option to repay current deficit of 346 cfs-days on the Milk River is to distribute payback over the next two or three periods with offsetting deficits in St. Mary River flow, to be balanced by August 31 (fine tuning possible during last division period in September). Natural flow from Milk River would contribute to repaying deficit if there is any during that period. Will also use current 40 cfs-days deficit on the St. Mary River to balance Milk River deficit.**

Andrew and Carmen: Let's try to be as flexible as possible and use Milk River natural flow as much as possible.

Al and John: Everyone agrees to this deficit payback decision. This decision is within AO authority even though working outside of LOI. All important players are on this call.

#### Eastern Tributaries (Alanna / Corey)

##### Lodge

- June 16 - 30: 0 deficit
- July 1 – 15: 0 deficit

## **Battle**

- June 10 to June 24 : 1487 dam<sup>3</sup> deficit
- June 25 – July 9: 790 dam<sup>3</sup> deficit

## **Frenchman**

- June 16 - 30: 589 dam<sup>3</sup> deficit
- July 1 – 15: 190 dam<sup>3</sup> deficit

Alanna:

Battle Creek: Matt Miles and Alanna have been in communication about the deficit. Increased release from Cypress Lake as Battle Creek natural flows were dropping off. Release was stopped on July 15. Alanna thinks the deficit is likely 0 now because of the release.

Frenchman: Received a request for a release for irrigation water in Montana (release from Val-Marie and Newton of 40 cfs July 7- 12). Might have 2<sup>nd</sup> irrigation completed by the Val-Marie irrigation project and could see return flows from there Still have a remaining deficit to be repaid.

Lodge Creek: no deficit so no action is required.

## **4. Precipitation and runoff outlook (USBR, DNRC, and WSA)**

Reservoir capacity: Altawan Reservoir 83%, Cypress Lake 84%, Eastend Reservoir 102%, Huff Lake 77%, Newton Lake 64%

Alanna: Eastend is quite full but refilled after 1<sup>st</sup> irrigation. Kevin: We usually keep Eastend reservoir 1m above FSL.

Alanna: All reservoirs were full prior to irrigation. Irrigation now underway so about what we would expect.

St. Mary's Basin and Milk River (Clayton)

- Lake Sherburne: 98% average, Fresno: 47% average, Nelson: 57% average
- Fresno: start reducing release out on August 2 (based storage target of 10,000 acre-ft).
- Nelson: predicted to be done irrigation by the end of the month (due to reservoir head).
- Will keep the St.Mary canal running as late as possible – looking around middle of September based on when storage in Sherburne gets low.

Montana DNRC (Matt Miles)

- Appreciate repayment of deficit on Frenchmen from Saskatchewan late season. Still very dry. Might be shutdown in the next few days.

Alberta (David Watson, AEP)

- Canada and US long range forecast agree: not a lot of precipitation (generally less than 1mm until the end of July).
- Canadian and US models generally show average daily temperatures at above average.

Saskatchewan (Alanna Howell)

- Dry part of the season, no significant rain. Natural flows drops off on Battle Creek, Lodge has been close to 0 for a while and Frenchman is declining. Might get domestic water release requests from Cypress Lake in August.

## **5. UPDATE ON COMMUNICATIONS TO STAKEHOLDERS AND USERS**

### **AEP communications to Canadian Irrigators**

Andrew: Will set-up virtual meeting with irrigators, AO and Field Reps

### **USBR/AO communications to US irrigators**

Clayton: June 30 attended a meeting with John Kilpatrick and US irrigators. Outcome: preference to not allow AB irrigators to create deficit.

### **Future USBR early communications about SMMR deficits**

Clayton: starting LOI meetings early worked well. Some analysis could help to determine how the deficit was created on the St. Mary historically.

Malcolm: Some analysis has already been completed by Aaron, Tim and Emmanuelle. Use the TWG as a forum for doing this analysis.

Al: Concern that we could be dealing with a drought next year and completing the study.

Mark Colosimo: Commissioners are meeting this week. Received funding for U.S. portion of for at least 1 year of IJC study. Study is imminent – best guess is next month or two.

## **6. OTHER BUSINESS**

### **Status of AO Recommendations and Study (John)**

- Multi-year study to look at infrastructure and procedural changes that would allow each country to better use the water they are entitled to. Proposal for further study was submit to IJC and is proceed at this point. IJC Study announcement is imminent.

- The AO's conclusions and recommendations report provided to the IJC can be shared with anyone that doesn't have it. It was shared with all the organizations (i.e. AEP, USBR, Montana DNRC).

### **IWI Remote Sensing - Consumptive use project fieldwork overview (Roy Sando)**

- Canceled 2<sup>nd</sup> trip in Alberta. US completed 2<sup>nd</sup> trip.
- Alberta data: polishing data to be reviewed by all interested parties.
- Chris Spence: ready to go with eddy covariance pending travel restrictions.
- Roy: doesn't make sense to have the eddy covariance towers collect data during winter. The goal is to have 2 years of data collected that would coincide with the consumptive use fieldwork.

### **7. NEXT MEETING**

Next LOI call will be Wednesday September 8, 2021. 11 am (meeting to be 1.5hrs)

**ACTION:** Malcolm to send out save the date for LOI Call.

### **8. ROUNDTABLE**

- No additional comments.

### **9. ACTION ITEMS ARISING FROM THIS MEETING**

1. Malcolm to send out save the date for September LOI Call.
2. All - Review and comment on May and June meeting minutes.
3. AEP to set-up virtual meeting with Canadian Irrigators, AOs and Field Reps
4. Aaron, Clayton, Tim and Emmanuelle to do Forensic Analysis of SMM River

### **Attachments:**

Table 1: 2021 Interim Division Report for St. Mary River

Table 2: 2021 Interim Division Report for Milk River

Table 3: 2021 Interim Division Report for Lodge Creek

Table 4: 2021 Interim Division Report for Battle Creek

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Appendix A: Conversion Factors

**Table 1:**

SUMMARY OF ST. MARY DIVISION  
2021  
QUANTITIES IN CFS-DAYS

10/21/21

SUMMARY OF ST. MARY RIVER DIVISION  
2021  
QUANTITIES IN CFS-DAYS

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	CANADA'S SHARE	RECEIVED BY CANADA	RECEIVED BY CANADA		*DEFICIT TO DATE	DEFICIT OUTSIDE LOI TO DATE
				ABOVE SHARE	BELOW SHARE		
MAR 1 - MAR 15	1,892	945	1,498	553		0	0
MAR 16 - MAR 31	2,639	1,317	3,071	1,754		0	0
APR 1 - APR 15	4,167	3,123	3,283	160		0	0
APR 16 - APR 30	6,335	4,750	4,796	46		0	0
MAY 1 - MAY 15	20,890	12,947	13,928	981		0	0
MAY 16 - MAY 31	32,289	18,814	19,000	186		0	0
JUNE 1 - JUNE 15	43,232	24,117	26,250	2,133		0	0
JUNE 16 - JUNE 30	36,437	20,720	21,330	610		0	0
JULY 1 - JULY 15	23,219	14,111	14,071		40	0	40
JULY 16 - JULY 31							
AUG 1 - AUG 15							
AUG 16 - AUG 31							
SEP 1 - SEP 15							
SEP 16 - SEP 30							
OCT 1 - OCT 15							
OCT 16 - OCT 31							
<b>TOTAL</b>	<b>171,100</b>	<b>100,844</b>	<b>107,227</b>				

\* Letter of Intent allows for a deficit up to 4,000 cfs-days between March 1 and May 31 which may be reduced to no less than 2,000 cfs-days between June 1 and July 15. The remaining deficit is not refundable until after September 15 of that year unless agreed upon in writing by the Field Representative

**Table 2:**

SUMMARY OF MILK RIVER DIVISION  
2021  
QUANTITIES IN CFS-DAYS

SUMMARY OF MILK RIVER DIVISION FOR 2021\*

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	UNITED STATE'S SHARE	RECEIVED BY U.S.A	RECEIVED BY UNITED STATES		LOI DEFICIT TO DATE	DEFICIT OUTSIDE LOI TO DATE
				ABOVE SHARE	BELOW SHARE		
MAR 1 - MAR 15	2525	1262	2522	1260		0	0
MAR 16 - MAR 31	3342	1671	3340	1669		0	0
APR 1 - APR 15	3054	2290	3051	760		0	0
APR 16 - APR 30	1912	1434	1908	474		0	0
MAY 1 - MAY 15	2592	1944	2538	594		0	0
MAY 16 - MAY 31	3929	2947	3822	876		0	0
JUNE 1 - JUNE 15	1909	1432	1785	354		0	0
JUNE 16 - JUNE 30	34	26	0		138	138	0
JULY 1 - JULY 15	30	22	0		208	208	0
JULY 16 - JULY 31							
AUG 1 - AUG 15							
AUG 16 - AUG 31							
SEP 1 - SEP 15							
SEP 16 - SEP 30							
OCT 1 - OCT 15							
OCT 16 - OCT 31							
TOTAL	19,327	13,028	18,966				

**Table 3:**

**SUMMARY OF LODGE CREEK DIVISION FOR 2021  
QUANTITIES IN CUBIC DECAMETRES**

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	UNITED STATES SHARE	RECEIVED BY U.S.A.	RECEIVED BY UNITED STATES		DEFICIT TO DATE
				ABOVE SHARE	BELOW SHARE	
MAR 1 - MAR 15	1088	544	1443	899	0	0
MAR 16 - MAR 31	6018	3009	3646	637	0	0
APR 1 - APR 15	2747	1373	1711	338	0	0
APR 16 - APR 30	522	261	532	271	0	0
MAY 1 - MAY 15	605	302	370	68	0	0
MAY 16 - MAY 31	2614	1307	1547	240	0	0
JUNE 1 - JUNE 15	605	303	511	208	0	0
JUNE 16 - JUNE 30	86	43	64	21	0	0
JULY 1 - JULY 15	6	3	6	3	0	0
JULY 16 - JULY 31						
AUG 1 - AUG 15						
AUG 16 - AUG 31						
SEP 1 - SEP 15						
SEP 16 - SEP 30						
OCT 1 - OCT 15						
OCT 16 - OCT 31						
<b>TOTAL</b>	14291	7145	9829	2684	0	0

**Table 4:**

**SUMMARY OF BATTLE CREEK DIVISION FOR 2021  
QUANTITIES IN CUBIC DECAMETRES**

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	UNITED STATES SHARE	RECEIVED BY U.S.A.	RECEIVED BY UNITED STATES		DEFICIT TO DATE
				ABOVE SHARE	BELOW SHARE	
MAR 1 - 25	5659	2829	3465	636	0	0
MAR 26 - APR 9	2761	1380	123	0	-1257	1257
APR 10 - 24	2409	1205	257	0	-948	2205
APR 25 - MAY 9	1427	713	232	0	-481	2686
MAY 10 - 25	4589	2295	2367	72	0	2614
MAY 26 - JUN 9	3919	1959	2333	374	0	2240
JUNE 10 - 24	1206	603	1356	753	0	1487
JUNE 25 - JUL 9	103	52	749	697	0	790
JULY 10 - 25						
JULY 26 - AUG 9						
AUG 10 - 25						
AUG 26 - SEP 9						
SEP 10 - 24						
SEP 25 - OCT 9						
OCT 10 - 25						
OCT 26 -31						
<b>TOTAL</b>	<b>22073</b>	<b>11036</b>	<b>10882</b>	<b>2532</b>	<b>-2686</b>	<b>-790</b>

**Table 5:**

**SUMMARY OF FRENCHMAN RIVER DIVISION FOR 2021  
QUANTITIES IN CUBIC DECAMETRES**

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	UNITED STATES SHARE	RECEIVED BY U.S.A.	RECEIVED BY UNITED STATES		DEFICIT TO DATE	
				ABOVE SHARE	BELOW SHARE		
MAR 1 - MAR 15	3291	1645	1555	0	90	-90	
MAR 16 - MAR 31	4134	2067	1521	0	546	-636	
APR 1 - APR 15	7749	3875	7180	3305	0	0	
APR 16 - APR 30	3545	1773	2618	845	0	0	
MAY 1 - MAY 15	2267	1134	1529	395	0	0	
MAY 16 - MAY 31	2324	1162	1521	359	0	0	
JUNE 1 - JUNE 15	2935	1468	1184	0	284	284	
JUNE 16 - JUNE 30	1156	578	273	0	305	589	
JULY 1 - JULY 15	602	301	699	398	0	191	
JULY 16 - JULY 31							
AUG 1 - AUG 15							
AUG 16 - AUG 31							
SEP 1 - SEP 15							
SEP 16 - SEP 30							
OCT 1 - OCT 15							
OCT 16 - OCT 31							
TOTAL	28004	14003	18079	5302	1225	191	

## Appendix A:

### FACTORS FOR CONVERSION BETWEEN INCH-POUND UNITS AND INTERNATIONAL SYSTEM (SI) UNITS

The following list of often-used conversions of measure gives the relationship between imperial (yard/pound) units and the International System of Units (SI) (metric), and includes other convenient equivalents of measure.\*

1 inch	=	2.54 cm (centimetres)
1 centimetre	=	0.393 700 8 in. (inches)
1 foot	=	0.304 8 m (metres)
1 metre	=	3.280 840 ft. (feet)
1 yard	=	0.914 4 m (metres)
1 metre	=	1.093 613 yd. (yards)
1 statute mile	=	1.609 344 km (kilometres)
1 kilometre	=	0.621 371 2 mi (miles)
1 square mile	=	2.589 988 km <sup>2</sup> (square kilometres)
1 square kilometre	=	0.386 102 2 mi. <sup>2</sup> (square miles)
1 hectare	=	10 000 m <sup>2</sup> (square metres)
1 square kilometre	=	100 ha (hectares)
1 acre	=	0.404 685 6 ha (hectares)
1 hectare	=	2.471 054 ac. (acres)
1 acre-foot	=	1.233 5 dam <sup>3</sup> (cubic decametres)
1 cubic decametre	=	0.810 701 2 ac.-ft. (acre-feet)
1 cubic foot per second	=	0.028 317 m <sup>3</sup> /s (cubic metre per second)
1 cubic metre per second	=	35.315 cfs (cubic feet per second)
1 cfs-day = 86,400 cubic feet		
1 acre-foot = 43,560 cubic feet		
1 cfs-day = 1.9835 acre-feet		

The SI unit replacing the inch-pound units for volume is the cubic decametre (dam<sup>3</sup>).

1 dam <sup>3</sup>	=	1 000 cubic metres
1 dam <sup>3</sup>	=	35,315 cubic feet
1 acre-foot	=	1.2335 dam <sup>3</sup>
1 cfs-day	=	2.4466 dam <sup>3</sup>
1 dam <sup>3</sup>	=	0.8107 acre-feet
1 cubic metre	=	35.315 cubic feet

\* Applicable listings conform to the Canadian Metric Practice Guide CAN3-Z234.1-79

## **St. Mary-Milk River Letter of Intent**

### **September 08, 2021 Conference Call**

#### **Final Meeting Minutes**

##### **Authority:**

Under the Terms of the “Letter of Intent to Better Utilize the Waters of the St. Mary and Milk Rivers” signed by the Accredited Officers for both the USA and Canada February 8<sup>th</sup>, 2001:

Canada (Environment Canada), the United States (U.S. Bureau of Reclamation and U.S. Geological Survey), Alberta (Alberta Environment and Parks), and Montana (Montana Department of Natural Resources and Conservation) shall participate in a conference call or meeting on or about July 1, and again by September 15 of each year to decide on the approach to be used to reconcile outstanding deficit deliveries.

##### **Time of the Call:**

A teleconference call was held at 10:30 AM MDT, Wednesday September 08, 2021.

##### **Meeting Participants:**

John Kilpatrick, Accredited Officer for the United States  
Joanna Thamke, IJC Field Officer for the United States  
Alain Pietroniro, Accredited Officer for Canada  
Malcolm Conly, IJC Field Officer for Canada  
Mark Colosimo, IJC Advisor United States Section  
Kevin Bunch, IJC United States Section  
Norman Barth, IJC United States Section  
Aaron Fiaschetti, United States Geological Survey (USGS)  
Clayton Jordan, United States Bureau of Reclamation (USBR)  
Michael Dailey, Montana Department of Natural Resources and Conservation (DNRC)  
Andrew Wilson, Alberta Environment and Parks (AEP)  
Stephen Mathyk, AEP  
Carmen de la Chevrotière, AEP  
David Watson, AEP  
Dorothy Lok, AEP  
Brian Hills, AEP  
Stephen Mathyk, AEP  
Jason Shaughnessy, AEP  
Paul Elser, AEP  
Kevin Wingert, Saskatchewan Water Security Agency (WSA)  
Sean Taylor, WSA  
Emmanuelle Johnston, Environment and Climate Change Canada (ECCC)

Curtis Waiting, ECCC  
Sean O'Connor, ECCC  
Tim Ma, ECCC  
Jonathan Jeffrey, ECCC  
Ethan Johnson, ECCC  
Brianna Vaagen, ECCC  
Thomas Giordano, ECCC

## **Background Information**

*The following background information emphasised in italic type was not discussed during this conference call as most participants are aware of the issues. This information is provided in consideration of a potentially wider distribution of the document.*

*Interim numbers are provisional and subject to change pending final approval of the natural flow computations.*

*Interim natural flow determinations on the Milk River are computed using a modified Penman equation for estimating evapotranspiration losses, and Paterson (2017) estimates of consumptive use for both USA and Canada. Final computations will be based on evapotranspiration estimates which are determined using a modified Penman equation with data obtained from North Fork and Eastern Crossing Climate Stations. Minor changes in the natural flow determinations are to be expected but the accumulated deficit as calculated by the interim Division Report is not expected to change significantly. Provisional reports for Milk River show that there was 15 cfs-day surplus for the period August 16 to 31, 2021 period with a deficit-to-date balance as of August 31, 2021 of 341 cfs-days. For Milk River, the lowest surplus delivery during March 1 through August 31, 2021 was 15 cfs-days (37 dam<sup>3</sup>). Also, provisional reports for St. Mary River show that there was 174 cfs-day surplus for the period August 15 to 31, 2021 period with a deficit-to-date balance as of August 31, 2021 of 192 cfs-days. For St. Mary River, the lowest surplus delivery was 46 cfs-days (110 dam<sup>3</sup>) during March 1 through August 31, 2021. Small errors in calculations or differences due to methodology are not expected to change the magnitude of deficit deliveries.*

*The “Letter of Intent” was crafted to achieve more beneficial use by allowing the USA to take more water than its share of the flow of the St. Mary River in the spring time when they could benefit more than Canada, and to allow Canada to offset this deficit by taking more than its share of the flow in the Milk River later in the season when its demand was higher. Further, this would allow a balance of deficits (USA on the St. Mary and Canada on the Milk) at the end of the season.*

*The “Letter of Intent” explains:*

***St. Mary River***

During March 1 through May 31 of each year, deficit deliveries from the U.S. to Canada at the end of each division period will carry over from one division period to another for the year, are cumulative for the year, and are allowed up to a cumulative total of 4,000 cfs-days (9 800 dam<sup>3</sup>). Deficit deliveries greater than the allowed cumulative total of 4,000 cfs-days (9 800 dam<sup>3</sup>) are to be refunded in the subsequent division period. Surplus deliveries at the end of a division period are not cumulative, cannot be used to reduce the accumulated deficit from previous division periods to below the allowed total deficit of 4,000 cfs-days (9 800 dam<sup>3</sup>), and cannot be used as a credit to make up future deficits. Exceptions to these procedures for this period are allowed only if agreed upon in writing by the Field Representative for Canada.

During June 1 through July 15 of each year, the United States, at its discretion, may reduce the deficit accumulated in the March 1 through May 31 period to 2,000 cfs-days (4 900 dam<sup>3</sup>) by making surplus deliveries of St. Mary River water. The remaining deficit is not refundable until after September 15 of that year unless agreed upon in writing by the Field Representative for Canada.

***Milk River***

During March 1 through May 31 of each year, deficit deliveries from Canada to the United States at the end of each division period are not to be incurred. However, if deficits are incurred, they are to be refunded by surplus deliveries in the subsequent division period or at a time agreed upon by both parties. Surplus deliveries do not carry over from one division period to another, are not cumulative, and cannot be used as a credit to make up future deficits.

During June 1 through September 15 of each year, deficit deliveries from Canada to the United States at the end of each division period will carry over from one division period to another for the year, are cumulative for the year, and are allowed up to a cumulative total of 2,000 cfs-days (4 900 dam<sup>3</sup>). Deficit deliveries greater than the allowed total of 2,000 cfs-days (4 900 dam<sup>3</sup>) are to be refunded in the subsequent division period. Surplus deliveries at the end of a division period cannot be used to reduce the deficit accumulated during the June 1 through September 15 period to below the lesser of the allowed total deficit of 2,000 cfs-days (4 900 dam<sup>3</sup>) or the outstanding United States' deficit accumulated on the St. Mary River in the March 1 through May 31 period, and cannot be used as credits to make up future deficits. The remaining deficit is not refundable until after September 15 of that year unless agreed upon in writing by the Field Representative of the United States.

## MEETING NOTES

The meeting was called to order at 10:30 AM MDT by Malcolm Conly (IJC Field Representative for Canada). Malcolm chaired the meeting. The list of meeting participants was reviewed. Emmanuelle Johnston was designated as the meeting note-taker.

Malcolm presented the LOI Call Agenda and asked if there were additions to the agenda required. No additional items were added.

### 1. SUMMARY OF ACTION ITEMS FROM JULY 2021 MEETING

ITEM	NOTES
1. Malcolm to send out save the date for September LOI Call.	Completed.
2. All - Review and comment on May and June meeting minutes.	Some reviews still outstanding.
3. AEP to set-up virtual meeting Canadian Irrigators, AO and Field Reps	Completed.
4. Forensic Analysis of St. Mary Milk Rivers Aaron, Clayton, Tim and Emmanuelle to conduct review of conditions that contribute to non-establishment of LOI deficit	Ongoing.

### 2. MAY 18, 2021, JUNE 23 AND JULY 21 LOI CALLS

- Meeting Notes from May 18, 2021 and June 23, 2021 - more comments are expected.
- Draft meeting notes from July 21 were sent on August 10, 2021. Send comments to Emmanuelle.

### 3. INTERIM DIVISION RESULTS

#### St Mary - (Aaron)

- June 15- June 30: 590 cfs-days surplus, 0 deficit to date.
- July 1 - July 15: 244 cfs-days deficit delivery, 244 cfs day deficit to date\*
- July 16 - July 31: 258 cfs-days deficit delivery, 501 cfs day deficit to date\*

- Aug 1 - Aug 15: 309 cfs-days surplus, 341 deficit to date\*
- Aug 16 - Aug 31: 174 cfs-days surplus, 341 deficit to date\*

\* Deficit outside LOI to date.

### **Milk River - (Aaron)**

- June 1 - June 15: 360 cfs-days surplus, 0 deficit to date.
- June 15 - June 30: 135 cfs-days deficit delivery, 135 cfs-days deficit to date
- July 1 - July 15: 206 cfs-days deficit delivery, 341 cfs-days deficit to date\*
- July 16 - July 31: 0 cfs-days surplus, 341 deficit to date\*
- Aug 1 - Aug 15: 34 cfs-days surplus, 341 deficit to date\*
- Aug 16 - Aug 15: 15 cfs-days surplus, 341 deficit to date\*

\* Deficit outside LOI to date (provisional value of 341 cfs-days was subsequently updated to 346 cfs-days).

Clayton: with the shift change that occurred near the end of July, a deficit greater than 341 cfs-days was created in July 16-31 period. U.S. repaid the deficit in the following period in accordance with the procedures.

Malcolm: the St. Mary summary sheet is not clear. All agree that the St. Mary and Milk River deficits are balanced, but need to make sure the summary sheet shows the accounting with clear explanation.

**ACTION:** Aaron to update the table of St. Mary and Milk River LOI tables to make sure the reflection of the agreement on the balancing of the deficit is clear. Send update to Malcolm and Joanna first and then distribute to other agencies once agreed upon.

### **Eastern Tributaries (Tim)**

#### **Lodge Creek**

- June 16 - 30: 0 deficit
- July 1 - 15: 0 deficit
- July 16 - July 31: 0 deficit
- Aug 1 - Aug 15: 0 deficit
- Aug 16 - Aug 31: 5 dam<sup>3</sup> surplus \*

\*Lodge apportionment spreadsheet was sent on September 9, 2021

#### **Battle Creek**

- June 10 - June 24 : 1345 dam<sup>3</sup> deficit
- June 25 - July 9: 726 dam<sup>3</sup> deficit
- Jul 26 - Aug 9 : 59 dam<sup>3</sup> deficit
- Aug 10 - 25 : 66 dam<sup>3</sup> deficit

The recorded flow has been 0 for most of August. A little flow showing at the beginning of September.

### **Frenchman River**

- June 16 - 30: 653 dam<sup>3</sup> deficit
- July 1 - 15: 255 dam<sup>3</sup> deficit
- July 16 - July 31: 283 dam<sup>3</sup> deficit
- Aug 1 - Aug 15: 283 dam<sup>3</sup> deficit
- Aug 16 - Aug 31: 0\*

Tim: Technologists were out last week so the previous division is likely to change. Flow was essentially 0 during the Aug 1-15 division period but has increased in the last week of August. \*Frenchman apportionment spreadsheet was sent on September 9, 2021

Kevin: Alanna is now on maternity leave. Moving forward it will be Kevin and Sean Taylor on the calls.

Frenchman: had a fairly substantial second irrigation out of Newton Lake. Expect deficit to be repaid. West Val Marie (Huff Lake) decided to not have a second irrigation.

Battle Creek: Some flows crossing the border. Will be cutting in the 66 dam<sup>3</sup> deficit. Don't anticipate any issues getting deficit cleared.

Mike Daily: that sounds good.

## **4. Precipitation and runoff outlook (USBR, DNRC, and WSA)**

Reservoir capacity: Altawan Reservoir 65%, Cypress Lake 79%, Eastend Reservoir 87%, Huff Lake 81%, Newton Lake 34%

Tim: reservoir contents are for period ending August 31 but numbers have not changed much since then. Newton Lake is considerably lower than average.

St. Mary's Basin and Milk River (Clayton)

- Lake Sherburne: 54% average, Fresno: 94% average, Nelson: 47% average
- Started shutting down irrigation around beginning of August, but last irrigation district on the far east ended on August 28
- Plan to stop operating the canal on September 16 (0 cfs). Travel time 10 days to reach Fresno. The storage at Sherburne is driving how long the canal can be operated.
- Lake Sherburne to continue releases through the month of September for bull trout.

Al and Clayton: LOI call in April is good time to begin talks about the potential for the U.S. to create a deficit since the U.S. will have a pretty good picture of snowpack and forecast.

Montana DNRC (Mike Daily)

- No update

Alberta (Paul Elser, AEP)

- Low winter carry over in reservoirs. High demand, low water supply.

Saskatchewan (Kevin Wingert)

- Construction projects in Frenchman basin:
  - Concrete work on spillway this fall (open spillway gates and drawdown reservoir to the sill) – flow will be captured in West Val and Val Marie dams.
  - Couple projects on west Val Marie Dam. Attempt to do work on spillway without drawdown. Excess water will be captured in Newton Lake.

## **5. OTHER BUSINESS**

**Feedback on AOs discussion with Canadian Milk River Irrigators** (Andrew Wilson)

Carmen and Andrew: Very valuable meeting. Action items for next year. Will talk possibilities for the Milk River in the near future.

Al: Irrigators want us to be proactive. Communication needs to be increased (AEP, AOs and FRs).

Andrew: Thinking about how to improve communication on understanding on the agreement and role of the canal.

Malcolm: Could consider having additional LOI calls

Carmen: Suggest smaller focus team weekly meeting, if necessary.

Stephen Mathyk: Irrigators request advance notice of shutdowns, if possible.

Al: as part of the Study, could add a forecast watch – could help get ready.

**Fall Irrigation options in Milk River, Canada – utilizing natural flows** (Carmen)

Carmen - Should natural flow occur, there is a request for water use in Canada. Irrigators want to return moisture to the soil. Given that balances are for the previous week and

how we might carry it into the next week (in terms of an amount). Is there potential for lagging weeks or that sort of system? The irrigators are interested in water use until the end of October (weather dependent).

AI - Would need a higher frequency of measurements. Need to consider shift in rating curve.

Stephen – Users would need to report daily the volume water usage and we would need to know Canada's share of the natural flow that would be available to irrigators, from the AO's reporting. Irrigators will need to stop irrigation once the share is used.

Curtis/Sean – Can look into taking measurements on Canadian side upstream of the Milk River at Eastern Crossing (MREC) gauge. Need to look at road system. Would need to take some measurements concurrently with the station, located on the U.S side.

John – Can irrigators access water at really low flows? (Carmen says most would). Within the rules - could implement the balances within each period – will be a lot of work though. Not sure USGS can get someone to MREC weekly (needs to go through US to access). Provide number based on current rating curve. Willing to try. Can run the natural flow model more frequently and provide natural flow volumes based on current rating curve. Maybe have meetings with separate smaller group.

**ACTION:** Curtis, Aaron, Sean and Rick to connect by the end of the week to develop recommendations to ensure provisional Natural Flow calculation are as accurate as possible for Fall Irrigation operation options (measurements and apportionment).

#### **Status of AO Recommendations and IJC Study (John, AI and Mark C.)**

- Bi-weekly calls with IJC. Mandate to have work plan and study board by end of December. Commissioners will deliberate in September to discuss directive, governance structure and study board.
- Looking at a variety of approaches.

#### **6. IWI**

- Deferred to next meeting

#### **7. ROUNDTABLE**

- Jon Jeffrey - leaving public service. Thomas Giordano will be taking over the role

#### **8. ACTION ITEMS ARISING FROM THIS MEETING**

1. Aaron to update the St. Mary and Milk River LOI table to make sure it clearly reflects the accounting. Send update to Malcolm and Joanna first.
2. Curtis, Aaron, Rick to connect by the end of the week to develop recommendations to ensure provisional Natural Flow calculation are as accurate as possible for Fall Irrigation operation options (measurements and apportionment)
3. Joanna to send out save the date for October LOI Call.
4. All - Review and comment on July meeting minutes.

**Attachments:**

Table 1: 2021 Interim Division Report for St. Mary River

Table 2: 2021 Interim Division Report for Milk River

Table 3: 2021 Interim Division Report for Lodge Creek

Table 4: 2021 Interim Division Report for Battle Creek

Table 5: 2021 Interim Division Report for Frenchman River

Appendix A: Conversion Factors

**Table 1:**

SUMMARY OF ST. MARY DIVISION  
2021  
QUANTITIES IN CFS-DAYS

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	CANADA'S SHARE	RECEIVED BY CANADA	RECEIVED BY CANADA		LOI DEFICIT TO DATE	DEFICIT OUTSIDE LOI TO DATE
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MAR 16 - MAR 31	2,639	1,317	3,071	1,754		0	0
APR 1 - APR 15	4,167	3,123	3,283	160		0	0
APR 16 - APR 30	6,335	4,750	4,796	46		0	0
MAY 1 - MAY 15	20,890	12,947	13,928	981		0	0
MAY 16 - MAY 31	32,289	18,814	19,000	186		0	0
JUNE 1 - JUNE 15	43,232	24,117	26,250	2,133		0	0
JUNE 16 - JUNE 30	36,397	20,700	21,290	590		0	0
JULY 1 - JULY 15	22,810	13,906	13,662		244	0	244
JULY 16 - JULY 31	10,989	7,949	7,691		258	0	501
AUG 1 - AUG 15	8,107	6,048	6,357	309		0	*341
AUG 16 - AUG 31	7,003	5,250	5,424	174		0	*341
SEP 1 - SEP 15							
SEP 16 - SEP 30							
OCT 1 - OCT 15							
OCT 16 - OCT 31							
TOTAL	197,087	120,119	126,485				

\*The Accredited Officers (A.O.) of the United States (U.S.) and Canada agreed during the July 21, 2021 Letter of Intent (LOI) call that the 341 cfs-days Canadian deficit on the Milk River would be repaid by the U.S. creating an equal deficit on the St. Mary River during August of 2021. However, creating a deficit on the St. Mary River equal to that of the Milk River was not easily achieved. The U.S. created a St. Mary deficit of 501 cfs-days during the July 16-31 period and delivered a surplus of 309 cfs-days during the August 1-15 period. The St. Mary deficit will be balanced at 341 cfs-days using the above LOI CumSum table during the August 1-15 division period, where there was a surplus delivery to Canada of 309 cfs-days, by applying 160 cfs-days to the deficit ( $501 - 160 = 341$  cfs-days) and the remaining Aug 1-15 balance ( $309 - 160 = 149$  cfs-days) resulted in a net surplus delivery to Canada. The 341 cfs-day deficit will be carried forward until October 15, when the Milk and St. Mary deficits will be considered to offset each other by the A.O.s.

**Table 2:**

SUMMARY OF MILK RIVER DIVISION  
2021  
QUANTITIES IN CFS-DAYS

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	UNITED STATE'S SHARE	RECEIVED BY U.S.A.	RECEIVED BY UNITED STATES		LOI DEFICIT TO DATE	*DEFICIT OUTSIDE LOI TO DATE
				ABOVE SHARE	BELOW SHARE		
MAR 1 - MAR 15	2525	1262	2522	1260		0	0
MAR 16 - MAR 31	3342	1671	3340	1669		0	0
APR 1 - APR 15	3054	2290	3051	760		0	0
APR 16 - APR 30	1912	1434	1908	474		0	0
MAY 1 - MAY 15	2592	1944	2538	594		0	0
MAY 16 - MAY 31	3929	2947	3822	876		0	0
JUNE 1 - JUNE 15	1936	1452	1831	360		0	0
JUNE 16 - JUNE 30	48	36	0		135	0	135
JULY 1 - JULY 15	40	30	0		206	0	341
JULY 16 - JULY 31	0	0	0			0	341
AUG 1 - AUG 15	135	101	135	34		0	341
AUG 16 - AUG 31	58	43	58	15		0	341
SEP 1 - SEP 15							
SEP 16 - SEP 30							
OCT 1 - OCT 15							
OCT 16 - OCT 31							
TOTAL	19,571	13,210	19,205				

\*The Accredited Officers (A.O) of the United States (U.S) and Canada agreed during the July 21,2021 Letter of Intent call that the 341 cfs-days Canadian deficit on the Milk River would be repaid by the U.S creating an equal deficit on the St. Mary River during August of 2021. At the direction of the A.O's the U.S. began to create a deficit on the St. Mary River after July 21, 2021. The U.S. unintentionally created 501 cfs-days deficit by the end of the July 16-31 division period due to changes in provisional data. The Milk River deficit was balanced in this period, however a net U.S. St.Mary deficit of 160 cfs-days was created. To repay the St. Mary River deficit, the U.S delivered a surplus to Canada on the St. Mary River of 309 cfs-days during August 1-15.

**Table 3:**

**SUMMARY OF LODGE CREEK DIVISION FOR 2021  
QUANTITIES IN CUBIC DECAMETRES**

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	UNITED STATES SHARE	RECEIVED BY U.S.A.	RECEIVED BY UNITED STATES		DEFICIT TO DATE
				ABOVE SHARE	BELOW SHARE	
MAR 1 - MAR 15	1080	540	1452	912	0	0
MAR 16 - MAR 31	6094	3047	3715	668	0	0
APR 1 - APR 15	2843	1422	1788	366	0	0
APR 16 - APR 30	565	283	561	278	0	0
MAY 1 - MAY 15	610	305	370	65	0	0
MAY 16 - MAY 31	2532	1266	1495	229	0	0
JUNE 1 - JUNE 15	605	303	511	208	0	0
JUNE 16 - JUNE 30	86	43	64	21	0	0
JULY 1 - JULY 15	6	3	6	3	0	0
JULY 16 - JULY 31	0	0	0	0	0	0
AUG 1 - AUG 15	0	0	0	0	0	0
AUG 16 - AUG 31	0	0	5	5	0	0
SEP 1 - SEP 15						
SEP 16 - SEP 30						
OCT 1 - OCT 15						
OCT 16 - OCT 31						
<b>TOTAL</b>	14423	7212	9962	2689	0	0

**Table 4:**

**SUMMARY OF BATTLE CREEK DIVISION FOR 2021  
QUANTITIES IN CUBIC DECAMETRES**

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	UNITED STATES SHARE	RECEIVED BY U.S.A.	RECEIVED BY UNITED STATES		DEFICIT TO DATE
				ABOVE SHARE	BELOW SHARE	
MAR 1 - 25	5753	2876	3465	589	0	0
MAR 26 - APR 9	2769	1384	123	0	-1261	1261
APR 10 - 24	2403	1202	257	0	-945	2206
APR 25 - MAY 9	1377	688	232	0	-456	2662
MAY 10 - 25	4733	2367	2367	0	0	2662
MAY 26 - JUN 9	3477	1738	2333	595	0	2067
JUNE 10 - 24	1267	634	1356	722	0	1345
JUNE 25 - JUL 9	259	130	749	619	0	726
JULY 10 - 25	309	154	821	667	0	59
JULY 26 - AUG 9	41	20	13	0	-7	66
AUG 10 - 25	0	0	0	0	0	66
AUG 26 - SEP 9						
SEP 10 - 24						
SEP 25 - OCT 9						
OCT 10 - 25						
OCT 26 -31						
<b>TOTAL</b>	<b>22388</b>	<b>11193</b>	<b>10882</b>	<b>3192</b>	<b>-2662</b>	<b>-66</b>

**Table 5:**

**SUMMARY OF FRENCHMAN RIVER DIVISION FOR 2021  
QUANTITIES IN CUBIC DECAMETRES**

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	UNITED STATES SHARE	RECEIVED BY U.S.A.	RECEIVED BY UNITED STATES		DEFICIT TO DATE	
				ABOVE SHARE	BELOW SHARE		
MAR 1 - MAR 15	3291	1645	1555	0	-90	-90	
MAR 16 - MAR 31	4134	2067	1521	0	-546	-636	
APR 1 - APR 15	8017	4008	7180	3172	0	0	
APR 16 - APR 30	3310	1655	2618	963	0	0	
MAY 1 - MAY 15	2317	1159	1529	370	0	0	
MAY 16 - MAY 31	2372	1186	1521	335	0	0	
JUNE 1 - JUNE 15	3064	1532	1184	0	-348	-348	
JUNE 16 - JUNE 30	1156	578	273	0	-305	-653	
JULY 1 - JULY 15	602	301	699	398	0	-255	
JULY 16 - JULY 31	310	155	127	0	-28	-283	
AUG 1 - AUG 15	0	0	0	0	0	-283	
AUG 16 - AUG 31	0	0	453	0	-453	0	
SEP 1 - SEP 15							
SEP 16 - SEP 30							
OCT 1 - OCT 15							
OCT 16 - OCT 31							
<b>TOTAL</b>	<b>28573</b>	<b>14286</b>	<b>18660</b>	<b>5238</b>	<b>-1770</b>	<b>-2548</b>	

## Appendix A:

### FACTORS FOR CONVERSION BETWEEN INCH-POUND UNITS AND INTERNATIONAL SYSTEM (SI) UNITS

The following list of often-used conversions of measure gives the relationship between imperial (yard/pound) units and the International System of Units (SI) (metric), and includes other convenient equivalents of measure.\*

1 inch	=	2.54 cm (centimetres)
1 centimetre	=	0.393 700 8 in. (inches)
1 foot	=	0.304 8 m (metres)
1 metre	=	3.280 840 ft. (feet)
1 yard	=	0.914 4 m (metres)
1 metre	=	1.093 613 yd. (yards)
1 statute mile	=	1.609 344 km (kilometres)
1 kilometre	=	0.621 371 2 mi (miles)
1 square mile	=	2.589 988 km <sup>2</sup> (square kilometres)
1 square kilometre	=	0.386 102 2 mi. <sup>2</sup> (square miles)
1 hectare	=	10 000 m <sup>2</sup> (square metres)
1 square kilometre	=	100 ha (hectares)
1 acre	=	0.404 685 6 ha (hectares)
1 hectare	=	2.471 054 ac. (acres)
1 acre-foot	=	1.233 5 dam <sup>3</sup> (cubic decametres)
1 cubic decametre	=	0.810 701 2 ac.-ft. (acre-feet)
1 cubic foot per second	=	0.028 317 m <sup>3</sup> /s (cubic metre per second)
1 cubic metre per second	=	35.315 cfs (cubic feet per second)
1 cfs-day = 86,400 cubic feet		
1 acre-foot = 43,560 cubic feet		
1 cfs-day = 1.9835 acre-feet		

The SI unit replacing the inch-pound units for volume is the cubic decametre (dam<sup>3</sup>).

1 dam <sup>3</sup>	=	1 000 cubic metres
1 dam <sup>3</sup>	=	35,315 cubic feet
1 acre-foot	=	1.2335 dam <sup>3</sup>
1 cfs-day	=	2.4466 dam <sup>3</sup>
1 dam <sup>3</sup>	=	0.8107 acre-feet
1 cubic metre	=	35.315 cubic feet

\* Applicable listings conform to the Canadian Metric Practice Guide CAN3-Z234.1-79

## **St. Mary-Milk River Letter of Intent**

### **October 20, 2021 Conference Call**

#### **Final Meeting Minutes**

##### **Authority:**

Under the Terms of the “Letter of Intent to Better Utilize the Waters of the St. Mary and Milk Rivers” signed by the Accredited Officers for both the USA and Canada February 8<sup>th</sup>, 2001:

Canada (Environment Canada), the United States (U.S. Bureau of Reclamation and U.S. Geological Survey), Alberta (Alberta Environment and Parks), and Montana (Montana Department of Natural Resources and Conservation) shall participate in a conference call or meeting on or about July 1, and again by September 15 of each year to decide on the approach to be used to reconcile outstanding deficit deliveries.

##### **Time of the Call:**

A teleconference call was held at 10:30 AM MDT, Wednesday October 20, 2021.

##### **Meeting Participants:**

John Kilpatrick, Accredited Officer for the United States  
Malcolm Conly, IJC Field Officer for Canada  
Kevin Bunch, IJC United States Section  
Norman Barth, IJC United States Section  
Aaron Fiaschetti, United States Geological Survey (USGS)  
Roy Sando, USGS  
James Betsill, USGS  
Christopher Wright, USGS  
Clayton Jordan, United States Bureau of Reclamation (USBR)  
Christopher Gomer, USBR  
Michael Dailey, Montana Department of Natural Resources and Conservation (DNRC)  
Matt Miles, DNRC  
Andrew Wilson, Alberta Environment and Parks (AEP)  
Stephen Mathyk, AEP  
Carmen de la Chevrotière, AEP  
David Watson, AEP  
Dorothy Lok, AEP  
Brian Hills, AEP  
Paul Elser, AEP  
Emmanuelle Johnston, Environment and Climate Change Canada (ECCC)  
Corey Hein, ECCC  
Curtis Waiting, ECCC

Sean O'Connor, ECCC  
Tim Ma, ECCC  
Ethan Johnson, ECCC  
Brianna Vaagen, ECCC  
Tim Romanow, Milk River Watershed Council Canada

## **Background Information**

*The following background information emphasised in italic type was not discussed during this conference call as most participants are aware of the issues. This information is provided in consideration of a potentially wider distribution of the document.*

*Interim numbers are provisional and subject to change pending final approval of the natural flow computations.*

*Interim natural flow determinations on the Milk River are computed using a modified Penman equation for estimating evapotranspiration losses, and Paterson (2017) estimates of consumptive use for both USA and Canada. Final computations will be based on evapotranspiration estimates which are determined using a modified Penman equation with data obtained from North Fork and Eastern Crossing Climate Stations. Minor changes in the natural flow determinations are to be expected but the accumulated deficit as calculated by the interim Division Report is not expected to change significantly. Provisional reports for Milk River show that there was 90 cfs-day surplus for the period October 1 to 15, 2021 period with a deficit-to-date balance as of October 31, 2021 of 0 cfs-days. For Milk River, the lowest surplus delivery during March 1 through October 15, 2021 was 0 cfs-days (0 dam<sup>3</sup>). Also, provisional reports for St. Mary River show that there was 131 cfs-day surplus for the period October 1 to 15, 2021 period with a deficit-to-date balance as of October 15, 2021 of 0 cfs-days. For St. Mary River, the lowest surplus delivery was 46 cfs-days (110 dam<sup>3</sup>) during March 1 through October 15, 2021. Small errors in calculations or differences due to methodology are not expected to change the magnitude of deficit deliveries.*

*The “Letter of Intent” was crafted to achieve more beneficial use by allowing the USA to take more water than its share of the flow of the St. Mary River in the spring time when they could benefit more than Canada, and to allow Canada to offset this deficit by taking more than its share of the flow in the Milk River later in the season when its demand was higher. Further, this would allow a balance of deficits (USA on the St. Mary and Canada on the Milk) at the end of the season.*

*The “Letter of Intent” explains:*

### **St. Mary River**

During March 1 through May 31 of each year, deficit deliveries from the U.S. to Canada at the end of each division period will carry over from one division period to another for the year, are cumulative for the year, and are allowed up to a cumulative total of 4,000 cfs-days (9 800 dam<sup>3</sup>). Deficit deliveries greater than the allowed cumulative total of 4,000 cfs-days (9 800 dam<sup>3</sup>) are to be refunded in the subsequent division period. Surplus deliveries at the end of a division period are not cumulative, cannot be used to reduce the accumulated deficit from previous division periods to below the allowed total deficit of 4,000 cfs-days (9 800 dam<sup>3</sup>), and cannot be used as a credit to make up future deficits. Exceptions to these procedures for this period are allowed only if agreed upon in writing by the Field Representative for Canada.

During June 1 through July 15 of each year, the United States, at its discretion, may reduce the deficit accumulated in the March 1 through May 31 period to 2,000 cfs-days (4 900 dam<sup>3</sup>) by making surplus deliveries of St. Mary River water. The remaining deficit is not refundable until after September 15 of that year unless agreed upon in writing by the Field Representative for Canada.

#### **Milk River**

During March 1 through May 31 of each year, deficit deliveries from Canada to the United States at the end of each division period are not to be incurred. However, if deficits are incurred, they are to be refunded by surplus deliveries in the subsequent division period or at a time agreed upon by both parties. Surplus deliveries do not carry over from one division period to another, are not cumulative, and cannot be used as a credit to make up future deficits.

During June 1 through September 15 of each year, deficit deliveries from Canada to the United States at the end of each division period will carry over from one division period to another for the year, are cumulative for the year, and are allowed up to a cumulative total of 2,000 cfs-days (4 900 dam<sup>3</sup>). Deficit deliveries greater than the allowed total of 2,000 cfs-days (4 900 dam<sup>3</sup>) are to be refunded in the subsequent division period. Surplus deliveries at the end of a division period cannot be used to reduce the deficit accumulated during the June 1 through September 15 period to below the lesser of the allowed total deficit of 2,000 cfs-days (4 900 dam<sup>3</sup>) or the outstanding United States' deficit accumulated on the St. Mary River in the March 1 through May 31 period, and cannot be used as credits to make up future deficits. The remaining deficit is not refundable until after September 15 of that year unless agreed upon in writing by the Field Representative of the United States.

## MEETING NOTES

The meeting was called to order at 10:30 AM MDT by John Kilpatrick (IJC Accredited Officer for the USA). John chaired the meeting. The list of meeting participants was reviewed. Emmanuelle Johnston was designated as the meeting note-taker.

John presented the LOI Call Agenda and asked if there were additions to the agenda required. No additional items were added.

### 1. SUMMARY OF ACTION ITEMS FROM JULY 2021 MEETING

ITEM	NOTES
1. Aaron to update the St. Mary and Milk River LOI table to make sure it clearly reflects the accounting. Send update to Malcolm and Joanna first.	Completed.
2. Curtis, Aaron, Rick to connect by the end of the week to develop recommendations to ensure provisional Natural Flow calculation are as accurate as possible for Fall Irrigation operation options (measurements and apportionment)	Completed.
3. Joanna to send out save the date for October LOI Call.	Completed.
4. All - Review and comment on July meeting minutes.	Ongoing.
5. Forensic Analysis of St. Mary Milk Rivers Aaron, Clayton, Tim and Emmanuelle to conduct review of conditions that contribute to non-establishment of LOI deficit	Ongoing.

### 2. JULY 21 AND SEPTEMBER 9 LOI CALLS

- Draft meeting notes from July 21 were sent on August 10, 2021. Send comments to Emmanuelle.
- Draft meeting notes from September 9 were sent on September 27, 2021. Send comments to Emmanuelle.
- Emmanuelle will wait for comments from attendees before finalizing.

### 3. INTERIM DIVISION RESULTS

### **St Mary - (Aaron)**

- Sept 1 - Sept 15: 522 cfs-days surplus, 341 deficit to date\*
- Sept 16 - Sept 31: 344 cfs-days surplus, 341 deficit to date\*
- Oct 1 – Oct 15: 131 cfs-days surplus, 0 deficit to date.

\* Deficit outside LOI to date.

### **Milk River - (Aaron)**

- Sept 1 - Sept 15: 0 cfs-days surplus, 341 deficit to date\*
- Sept 16 - Sept 30: 173 cfs-days surplus, 341 deficit to date\*
- Oct 1 – Oct 15: 90 cfs-days surplus, 0 deficit to date.

\* Deficit outside LOI to date.

Clayton: Why did we pick October 15 as payback date instead of September 15 in the St. Mary River and Milk River sheet? The manual indicates that deficits should be offset on Sept 15.

Malcolm: I will need to review the notes, might have been decided in previous meetings to provide wiggle room if any deficit was remaining.

Action item: AOs to review previous meeting minutes and conclude if the natural flow computations and water division sheets should be updated to have the payback period as September 15 instead of October 15.

### **Eastern Tributaries (Corey)**

#### **Lodge Creek**

- Sept 1 - Sept 15: 0 deficit
- Sept 16 - Sept 30: 0 deficit
- Oct 1 – Oct 15: 0 deficit

#### **Battle Creek**

- June 25 - July 9: 721 dam<sup>3</sup> deficit
- Jul 10 - July 25: 13 dam<sup>3</sup> deficit
- Jul 26 - Aug 9 : 18 dam<sup>3</sup> deficit
- Aug 10 - 25 : 18 dam<sup>3</sup> deficit
- Aug 26 - Sep 9 : 0 dam<sup>3</sup> deficit
- Sep 10 - Sep 24: 0 dam<sup>3</sup> deficit
- Sep 25 - Oct 9: 0 dam<sup>3</sup> deficit

### **Frenchman River**

- July 1 - 15: 251 dam<sup>3</sup> deficit
- July 16 - July 31: 266 dam<sup>3</sup> deficit
- Aug 1 - Aug 15: 266 dam<sup>3</sup> deficit
- Aug 16 - Aug 31: 0 dam<sup>3</sup> deficit
- Sept 1 - Sept 15: 0 dam<sup>3</sup> deficit
- Sept 15 - Sept 30: 102 dam<sup>3</sup> deficit
- Oct 1 - Oct 15: 111 dam<sup>3</sup> deficit

Malcolm: Deficit was created by holding water back to allow for construction occurring adjacent to channel. Kevin and Matt have corresponded on this issue: Would AOs and FRs be comfortable forgiving the deficit at the end of season? SK would make at a late season release that could be beneficial to Montana. Within realms of LOI.

Matt: Montana realise that repaying the deficit within LOI period would be difficult due to logistics. Release after the construction is completed would be beneficial for winter time operations. Montana is agreeable to this approach.

John: Would allow for it to be forgiven as described.

#### **4. Precipitation And Runoff Outlook (ECCC, USBR, and DNRC, WSA)**

Reservoir capacity (Corey): Altawan Reservoir 61%, Cypress Lake 76%, Eastend Reservoir 79%, Huff Lake 58%, Newton Lake 37%

St. Mary's Basin and Milk River (Clayton)

- Reservoir storage general below average across the board. Lake Sherburne: 72% average, Fresno: 94% average, Nelson: 80% average.
- Fresno is higher than last year and Sherburne is lower than last year.
- Shutoff the St. Mary Canal on September 16 and syphons on the St. Mary were opened on September 17.
- The Lake Sherburne releases continued until October 1<sup>st</sup> (continue due to bull trout).

Carmen: Can you comment on prospect to create an early season deficit on St. Mary?

Clayton: Too early to say but with Sherburne being at low storage this could suggest the possibly of creating an early season deficit next year.

Montana DNRC

- No update

Alberta (David Watson, AEP)

- Water supply outlooks or regression models won't be available until January.
- Possible data gaps over this weekend during outage.

Saskatchewan

- No update

## **5. OTHER BUSINESS**

None.

## **6. UPDATES ON CANADIAN MILK RIVER IRRIGATION**

John: AOs and FRS have agreed to allow Canada to irrigate with the natural flows they are entitled to until end of October.

Carmen: AEP is getting reports quite frequently from irrigators on their usage (pump capacity). Irrigators will continue doing irrigate as long as weather cooperates.

Stephen Mathyk: As far as AEP is aware there is only 1 irrigator right now who is continuing to irrigate. Could wrap-up any day.

Aaron: Is AEP monitoring/verifying irrigation or just getting numbers from irrigators?

Stephen: AEP very closely monitoring with daily updates from irrigators and some field checking. The irrigators are closely policing themselves. The flow at the gauge is in line with the reported usage.

Roy: is irrigation data available to use for the consumptive use IWI project.

Stephen: yes.

Action Item: Stephen or Aaron can provide AB fall consumptive use information to Roy to use for consumptive use IWI project.

## **7. STATUS OF SMMR STUDY**

John: AOs and FRs working very close with IJC to confirm what the study board will look like and governance structure. AOs provided IJC with 6 nominations for board members. Governance structure is in draft and close to being finalized. Formal kickoff for directive to the study board is aimed for end of the month. Currently have 2 years of funding from Canada and 1.5 years from the USA. Next step will be a letter from the IJC asking agencies to nominate representatives to participate in the study.

Malcolm: Things should ramp up very quickly after the board is announced. Intent to have the study being fully launched within 3 months of the board being announced.

Action item: AOs to check that Andrew Wilson is cc'd on the email from the IJC to AEP or kept in the loop when the email comes out.

## 8. IWI PROJECTS

### Consumptive Use:

Roy: There has been some progress on the project. Confirmed that the field data for irrigated lands that was collected this year is consistent between Canada and USA. Consumptive Use information sheet was created and can be circulated to the group.

### Eddy covariance:

Roy: Chris Spence is moving ahead the Eddy covariance project. Reconnaissance trip anticipated in early November. Landowner has accepted to have the towers installed on their land. Plans for the towers to be installed before growing season.

### Isotope:

Malcolm: Analysis is underway. Expectation is that Tricia Stadnyk will be able to provide something by March 31.

Action Item: Consumptive Use information sheet to be circulated with the next meeting notes.

## 9. ROUNDTABLE

- Milk River Camera
  - Sean O'Conner: went out at the beginning of October and installed NuPoint satellite real-time transmitting camera at Milk River at Milk shelter. The camera will help see ice conditions and know when its possible to get open water measurements. Can take instantaneous photos upon request, should they be needed.
  - David Watson: will contact Amber Brown to figure out if AEP can show the camera data on the AB Rivers app so it can be accessed by the public.
- Carmen: looking forward to conversation at the TWG meeting about getting more real-time data.
- Tim Romanow:
  - Watershed council is working on reports about communication and reporting for 2021 – should be able to share by the new year.
  - Working with SK, AB, and MT on scope for updated Transboundary State of the Watershed report. Get in touch with MRWC if you have comments.
  - Finalizing 10 year summary of water quality data on the Red Creek (tributary to Milk River). Should be on the website next week.

## **10. ACTION ITEMS ARISING FROM THIS MEETING**

1. AOs to review previous meeting minutes and conclude if the natural flow computations and water division sheets should be updated to have the payback period as September 15 instead of October 15.
2. Stephen or Aaron can provide AB fall consumptive use information to Roy to use for consumptive use IWI project.
3. AOs to check that Andrew Wilson is cc'd on the email or in the kept in the loop regarding the email from IJC.
4. Consumptive Use information sheet to be circulated with the next meeting notes.
5. AOs to check that Andrew Wilson is cc'd on the email from the IJC to AEP or kept in the loop when the email comes out (re: Study board).

### **Attachments:**

Table 1: 2021 Interim Division Report for St. Mary River

Table 2: 2021 Interim Division Report for Milk River

Table 3: 2021 Interim Division Report for Lodge Creek

Table 4: 2021 Interim Division Report for Battle Creek

Table 5: 2021 Interim Division Report for Frenchman River

Appendix A: Conversion Factors

**Table 1:**

SUMMARY OF ST. MARY DIVISION  
2021  
QUANTITIES IN CFS-DAYS

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	UNITED STATE'S SHARE	RECEIVED BY U.S.A.	RECEIVED BY UNITED STATES		LOI DEFICIT TO DATE	*DEFICIT OUTSIDE LOI TO DATE
				ABOVE SHARE	BELOW SHARE		
MAR 1 - MAR 15	2525	1262	2522	1260		0	0
MAR 16 - MAR 31	3342	1671	3340	1669		0	0
APR 1 - APR 15	3054	2290	3051	760		0	0
APR 16 - APR 30	1912	1434	1908	474		0	0
MAY 1 - MAY 15	2592	1944	2538	594		0	0
MAY 16 - MAY 31	3929	2947	3822	876		0	0
JUNE 1 - JUNE 15	1936	1452	1831	360		0	0
JUNE 16 - JUNE 30	48	36	0		135	0	135
JULY 1 - JULY 15	40	30	0		206	0	341
JULY 16 - JULY 31	0	0	0			0	341
AUG 1 - AUG 15	135	101	135	34		0	341
AUG 16 - AUG 31	58	43	58	15		0	341
SEP 1 - SEP 15	0	0	0			0	341
SEP 16 - SEP 30	693	519	693	173		0	341
OCT 1 - OCT 15	458	343	434	90		0	0
OCT 16 - OCT 31							
TOTAL	20,722	14,073	20,332				

\*The Accredited Officers (A.O.) of the United States (U.S.) and Canada agreed during the July 21, 2021 Letter of Intent (LOI) call that the 341 cfs-days Canadian deficit on the Milk River would be repaid by the U.S. creating an equal deficit on the St. Mary River during August of 2021. However, creating a deficit on the St. Mary River equal to that of the Milk River was not easily achieved. The U.S. created a St. Mary deficit of 501 cfs-days during the July 16-31 period and delivered a surplus of 309 cfs-days during the August 1-15 period. The St. Mary deficit will be balanced at 341 cfs-days using the above LOI CumSum table during the August 1-15 division period, where there was a surplus delivery to Canada of 309 cfs-days, by applying 160 cfs-days to the deficit ( $501 - 160 = 341$  cfs-days) and the remaining Aug 1-15 balance ( $309 - 160 = 149$  cfs-days) resulted in a net surplus delivery to Canada. The 341 cfs-day deficit was carried forward until October 15, when the Milk and St. Mary deficits were considered to offset each other by the A.O.s.

**Table 2:**

SUMMARY OF MILK RIVER DIVISION  
2021  
QUANTITIES IN CFS-DAYS

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	CANADA'S SHARE	RECEIVED BY CANADA	RECEIVED BY CANADA		LOI DEFICIT TO DATE	DEFICIT OUTSIDE LOI TO DATE
				ABOVE SHARE	BELOW SHARE		
MAR 1 - MAR 15	1,892	945	1,498	553		0	0
MAR 16 - MAR 31	2,639	1,317	3,071	1,754		0	0
APR 1 - APR 15	4,167	3,123	3,283	160		0	0
APR 16 - APR 30	6,335	4,750	4,796	46		0	0
MAY 1 - MAY 15	20,890	12,947	13,928	981		0	0
MAY 16 - MAY 31	32,289	18,814	19,000	186		0	0
JUNE 1 - JUNE 15	43,232	24,117	26,250	2,133		0	0
JUNE 16 - JUNE 30	36,397	20,700	21,290	590		0	0
JULY 1 - JULY 15	22,810	13,906	13,662		244	244	244
JULY 16 - JULY 31	10,989	7,949	7,691		258	502	501
AUG 1 - AUG 15	8,107	6,048	6,357	309		193	*341
AUG 16 - AUG 31	7,003	5,250	5,424	174		19	*341
SEP 1 - SEP 15	4,434	3,325	3,847	522		0	*341
SEP 16 - SEP 30	4,967	3,725	4,069	344		0	*341
OCT 1 - OCT 15	2,958	2,217	2,348	131		0	0
OCT 16 - OCT 31							
TOTAL	209,329	129,298	136,633				

\*The Accredited Officers (A.O.) of the United States (U.S.) and Canada agreed during the July 21, 2021 Letter of Intent (LOI) call that the 341 cfs-days Canadian deficit on the Milk River would be repaid by the U.S. creating an equal deficit on the St. Mary River during August of 2021. However, creating a deficit on the St. Mary River equal to that of the Milk River was not easily achieved. The U.S. created a St. Mary deficit of 501 cfs-days during the July 16-31 period and delivered a surplus of 309 cfs-days during the August 1-15 period. The St. Mary deficit will be balanced at 341 cfs-days using the above LOI CumSum table during the August 1-15 division period, where there was a surplus delivery to Canada of 309 cfs-days, by applying 160 cfs-days to the deficit ( $501 - 160 = 341$  cfs-days) and the remaining Aug 1-15 balance ( $309 - 160 = 149$  cfs-days) resulted in a net surplus delivery to Canada. The 341 cfs-day deficit was carried forward until October 15, when the Milk and St. Mary deficits were considered to offset each other by the A.O.s.

**Table 3:**

**SUMMARY OF LODGE CREEK DIVISION FOR 2021  
QUANTITIES IN CUBIC DECAMETRES**

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	UNITED STATES SHARE	RECEIVED BY U.S.A.	RECEIVED BY UNITED STATES		DEFICIT TO DATE
				ABOVE SHARE	BELOW SHARE	
MAR 1 - MAR 15	1080	540	1452	912	0	0
MAR 16 - MAR 31	5996	2998	3715	717	0	0
APR 1 - APR 15	2736	1368	1788	420	0	0
APR 16 - APR 30	559	280	561	281	0	0
MAY 1 - MAY 15	589	295	370	75	0	0
MAY 16 - MAY 31	2490	1254	1495	250	0	0
JUNE 1 - JUNE 15	605	303	511	208	0	0
JUNE 16 - JUNE 30	86	43	64	21	0	0
JULY 1 - JULY 15	6	3	6	3	0	0
JULY 16 - JULY 31	0	0	0	0	0	0
AUG 1 - AUG 15	0	0	0	0	0	0
AUG 16 - AUG 31	0	0	4	4	0	0
SEP 1 - SEP 15	0	0	0	0	0	0
SEP 16 - SEP 30	0	0	0	0	0	0
OCT 1 - OCT 15	0	0	0	0	0	0
OCT 16 - OCT 31						
<b>TOTAL</b>	14148	7075	9967	2892	0	0

**Table 4:**

**SUMMARY OF BATTLE CREEK DIVISION FOR 2021  
QUANTITIES IN CUBIC DECAMETRES**

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	UNITED STATES SHARE	RECEIVED BY U.S.A.	RECEIVED BY UNITED STATES		DEFICIT TO DATE
				ABOVE SHARE	BELOW SHARE	
MAR 1 - 25	5753	2876	3465	589	0	0
MAR 26 - APR 9	2769	1384	123		-1261	1261
APR 10 - 24	2403	1202	257		-945	2206
APR 25 - MAY 9	1377	688	232		-456	2662
MAY 10 - 25	4733	2367	2367	0	0	2662
MAY 26 - JUN 9	3477	1738	2333	595		2067
JUNE 10 - 24	1268	634	1356	722		1345
JUNE 25 - JUL 9	269	134	758	624		721
JULY 10 - 25	398	199	907	708		13
JULY 26 - AUG 9	45	22	17		-5	18
AUG 10 - 25	0	0	0	0	0	18
AUG 26 - SEP 9	104	52	104	52		0
SEP 10 - 24	141	70	141	71		0
SEP 25 - OCT 9	178	89	178	89		0
OCT 10 - 25						
OCT 26 -31						
TOTAL	22914	11455	12237	3450	-2667	0

**Table 5:**

**SUMMARY OF FRENCHMAN RIVER DIVISION FOR 2021  
QUANTITIES IN CUBIC DECAMETRES**

DIVISION PERIOD AT INTERNATIONAL BOUNDARY	NATURAL FLOW	UNITED STATES SHARE	RECEIVED BY U.S.A.	RECEIVED BY UNITED STATES		DEFICIT TO DATE
				ABOVE SHARE	BELOW SHARE	
MAR 1 - MAR 15	3291	1645	1555		-90	-90
MAR 16 - MAR 31	4134	2067	1521		-546	-636
APR 1 - APR 15	8017	4008	7180	3172		0
APR 16 - APR 30	3309	1654	2618	964		0
MAY 1 - MAY 15	2317	1159	1529	370		0
MAY 16 - MAY 31	2369	1184	1521	337		0
JUNE 1 - JUNE 15	3064	1532	1184		-348	-348
JUNE 16 - JUNE 30	1156	578	273		-305	-653
JULY 1 - JULY 15	595	297	699	402		-251
JULY 16 - JULY 31	285	142	127		-15	-266
AUG 1 - AUG 15	0	0	0	0	0	-266
AUG 16 - AUG 31	0	0	453	453		0
SEP 1 - SEP 15	335	167	530	363		0
SEP 16 - SEP 30	210	105	3		-102	-102
OCT 1 - OCT 15	18	9	0		-9	-111
OCT 16 - OCT 31						
TOTAL	28573	14286	18660	6061	-1415	-111

## Appendix A:

### FACTORS FOR CONVERSION BETWEEN INCH-POUND UNITS AND INTERNATIONAL SYSTEM (SI) UNITS

The following list of often-used conversions of measure gives the relationship between imperial (yard/pound) units and the International System of Units (SI) (metric), and includes other convenient equivalents of measure.\*

1 inch	=	2.54 cm (centimetres)
1 centimetre	=	0.393 700 8 in. (inches)
1 foot	=	0.304 8 m (metres)
1 metre	=	3.280 840 ft. (feet)
1 yard	=	0.914 4 m (metres)
1 metre	=	1.093 613 yd. (yards)
1 statute mile	=	1.609 344 km (kilometres)
1 kilometre	=	0.621 371 2 mi (miles)
1 square mile	=	2.589 988 km <sup>2</sup> (square kilometres)
1 square kilometre	=	0.386 102 2 mi. <sup>2</sup> (square miles)
1 hectare	=	10 000 m <sup>2</sup> (square metres)
1 square kilometre	=	100 ha (hectares)
1 acre	=	0.404 685 6 ha (hectares)
1 hectare	=	2.471 054 ac. (acres)
1 acre-foot	=	1.233 5 dam <sup>3</sup> (cubic decametres)
1 cubic decametre	=	0.810 701 2 ac.-ft. (acre-feet)
1 cubic foot per second	=	0.028 317 m <sup>3</sup> /s (cubic metre per second)
1 cubic metre per second	=	35.315 cfs (cubic feet per second)
1 cfs-day = 86,400 cubic feet		
1 acre-foot = 43,560 cubic feet		
1 cfs-day = 1.9835 acre-feet		

The SI unit replacing the inch-pound units for volume is the cubic decametre (dam<sup>3</sup>).

1 dam <sup>3</sup>	=	1 000 cubic metres
1 dam <sup>3</sup>	=	35,315 cubic feet
1 acre-foot	=	1.2335 dam <sup>3</sup>
1 cfs-day	=	2.4466 dam <sup>3</sup>
1 dam <sup>3</sup>	=	0.8107 acre-feet
1 cubic metre	=	35.315 cubic feet

\* Applicable listings conform to the Canadian Metric Practice Guide CAN3-Z234.1-79