Montana – Alberta

St. Mary and Milk Rivers

Water Management Initiative

Process Report

May 2016

Cover Photo: Milk River Valley

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List of Acronyms and Abbreviations

AARD	Alberta Agriculture and Rural Development
AENV	Alberta Environment
AEP	Alberta Environment and Parks
AB	Alberta
cfs	cubic feet per second
DNRC	Montana Department of Natural Resources and Conservation
GIS	Geographic Information Systems
JWG	Joint Working Group
JIT	Joint Initiative Team
IJC	International Joint Commission
MT	Montana
WRMDSS	Water Resources Management – Decision Support System
WRMM	Water Resources Management Model
U.S.	United States
U.S.B.R.	United States Bureau of Reclamation

Executive Summary

The United States (U.S.) and Canada have been sharing the waters of the St. Mary and Milk Rivers since the early 1900s, in accordance with Article VI of the 1909 *International Boundary Waters Treaty Act* and 1921 Order of the International Joint Commission (IJC). These documents define the apportionment of water between the U.S. and Canada for the St. Mary and Milk Rivers. Montana does not believe the Order provides them with an equitable share of St. Mary River water, so in 2003 they requested the IJC review the Order. The IJC formed a joint Canada-U.S. task force to review the existing administrative procedures used to share those waters. The Joint Task Force concluded that there might be opportunities for Alberta and Montana to work together outside the realm of administrative procedures.

In 2007, the IJC requested that Alberta and Montana work together to explore mutually beneficial opportunities regarding the use and management of the St. Mary and Milk Rivers. Specifically, they requested the jurisdictions to, *"…explore the fundamental and interrelated issues of collaboration on the use and management of transboundary waters, cooperation on the rehabilitation of the St. Mary Canal and future arrangements for increasing the ability of each country to better access the full amount of water available to it under the current apportionment."* Both jurisdictions agreed that the shared water is an important resource. Both had a strong desire to ensure its management should benefit all water users and believed there are opportunities to work together to improve each jurisdiction's access to the shared water.

In 2008, the Alberta Premier and Montana Governor appointed a Joint Work Group (JWG) of senior water managers and administrators, as well as water users from the St. Mary and Milk River basins in each jurisdiction. The JWG developed the terms of reference for an initiative to develop recommendations that would enable both jurisdictions to access more of their share (Montana of the St. Mary River, and Alberta of the Milk River), and to provide Montana with an overall net increase to its share of the combined flows of these two rivers. This created the Montana-Alberta St. Mary and Milk Rivers Water Management Initiative.

The terms of reference defined the process to be used, the structure and function of the group required to explore and evaluate options for improving both Montana's and Alberta's access to the shared water of the two rivers, and how the group would jointly recommend preferred options to both governments for their consideration and approval. The JWG also identified the organizations and agencies with which the jurisdictions should communicate, to receive support and maintain awareness among the potentially affected parties.

Under the terms of reference, the Premier and Governor then appointed a Joint Initiative Team (JIT) of 14 senior water managers and administrators, as well as water users from the St. Mary and Milk River basins in each jurisdiction. The JIT held 15 meetings over two and one-half years to undertake the bulk of the work. The meetings included an education component to develop a common knowledge base and to provide the context for subsequent discussions. The JIT toured irrigation infrastructure and operations in both jurisdictions and heard presentations on the physical setting, current water management practice, administrative context, operations, and regulatory/planning processes for this important interjurisdictional water management system.

The JIT proposed over 300 potential water-sharing scenarios, evaluating and reducing them to 100 options that summarized the relative benefits to Alberta and Montana, including the percent entitlement share that could be accessed, the volume of water this represented, the irrigation

delivery volumes, and the irrigation reliability. The Water Resources Management Model—Decision Support System (WRMDSS), used in Alberta, was proposed and adopted to undertake the modelling. Parameters that were varied within the proposed options were either administrative or structural. Administrative parameters included larger letter of intent, extended balance period, credit system amounts and timing, modified 1921 Order options, and in-stream flow requirements. Structural parameters included diversion canal capacity, changing the capacity of existing reservoirs, developing new storage reservoirs, and changing the irrigated acreage and system type. The JIT proposed parameters either singly or in various combinations, producing the large number of initial scenarios.

A Technical Support Team (two hydrologists and a water modeller) was created to prepare data for model runs, evaluate model results, compile and summarize data, and produce summary presentations of their findings for JIT meetings. The JIT also tasked a subcommittee to develop an option that would enable both jurisdictions to access more of their share, and provide Montana with an overall net increase to its share of the combined flows of the two rivers. The subcommittee developed an option that combined a deficit system with a credit system that would enable the upstream jurisdiction to build a credit for surplus water deliveries crossing the border on a seasonal or annual basis.

During this time, the Montana Department of Natural Resources and Conservation (DNRC) and the U.S. Bureau of Reclamation (USBR) developed a hydrological model of the St. Mary and Milk River basins in Montana to analyse how the basin's existing water operations infrastructure would perform under various future climate scenarios. The modelling undertaken for this effort was used to compare and confirm some of the final revised results from the WRMDSS. Model results were comparable.

The JIT developed criteria to evaluate and compare how well a potential option met jurisdictional interests so that those of lesser value could be removed. This reduced the large and increasing number of potential water management options that existed partway through the option evaluation process. Criteria included a component to calculate the share (percent and volume) of water that an option could provide to a jurisdiction, the irrigation reliability, and best professional judgement to assess other potential impacts of providing better access to the shared waters (such as security of municipal water supplies, water quality, and in-stream flow needs for the environment). Ultimately, however, the criteria were replaced by each jurisdiction defining its vision of success (the preferred options to be pursued) in the short-, medium-, and long-term future).

Montana developed a sliding scale of success for the Initiative (full, partial and less-than-partial success), based largely on:

- access of up to 50 percent of all water that crosses the Montana-Alberta border,
- the coordinated operation of irrigation works to facilitate the use by the other country of its full share,
- the development of an international watershed group (to effectuate basin planning, real-time water management and local dispute resolution), and
- the rehabilitation of the U.S. St. Mary Diversion Canal.

Alberta described success on a time-scale: in the short-, medium- and long-term, based on:

- the time required for rehabilitating the U.S. St. Mary Diversion Canal to 850 cubic feet per second (cfs) capacity,

- the strengthening of the letter of intent (removing the requirement for annual repayment of residual deficits at year-end),
- the possibility of instituting a credit system, and finally,
- recommending the construction of storage on the Milk River, Alberta.

Alberta and Montana agree that developing an international watershed group to bring about better basin planning for the common interest is a high priority.

Progress of the Initiative was communicated to each jurisdiction's executive leadership (for support and direction), priority stakeholders (for information and education), and other interested parties (including the IJC). This permitted the Initiative to continue, unimpeded, to develop an exhaustive range of potential water management scenarios. A request to the IJC to explain the basis used to determine the final allocations defined in the 1921 Order did not provide any new insight about the variance in each jurisdiction's entitlement to the combined flow of the two rivers.

The Initiative resulted in eight joint recommendations or recognitions, referenced in the *Recommendations Report*.

Preface

This report is one of a five-part series of reports that summarize the Montana-Alberta St. Mary and Milk Rivers Water Management Initiative (the Initiative). The other reports are:

- *Background Technical Information Report*,
- *Modelling Report*,
- *Recommendations Report*, and
- *Technical Archive*.

This report describes the purpose of the Initiative, who was involved and why, and the process used to complete the Initiative. It ends with the summary notes of all joint jurisdictional team meetings including meeting location, purpose, and summary. For completeness, four appendices are included:

- Appendix 1 – Terms of Reference,
- Appendix 2 – Complete Meeting Notes (Joint Work Group—three meetings; Joint Initiative Team—15 meetings),
- Appendix 3 – Example of Option Summary Sheet, and
- Appendix 4 – Letter to IJC regarding the 1921 Order.

During the development and completion of the Initiative, Alberta Environment (AENV) was renamed Environment and Sustainable Resource Development (ESRD) and then Alberta Environment and Parks (AEP).

Copies of this and other reports in this series may be obtained from the following:

Montana Department of Natural Resources and Conservation
Water Resources Division
dnrc_publicinfo@mt.gov

Alberta Environment and Protected Areas
Transboundary Waters
AEP.TWS@gov.ab.ca

Introduction

Background

Alberta and Montana have a long history of sharing the water of the St. Mary and Milk Rivers, in accordance with Article VI of the *International Boundary Waters Treaty Act* (1909) and the 1921 Order of the International Joint Commission (IJC). These documents define the apportionment of water between the United States (U.S.) and Canada for both the St. Mary and Milk Rivers. In April 2003, Montana Governor Judy Martz requested the IJC undertake a review of the 1921 Order pursuant to Article VI of the treaty, regarding the sharing of water between Canada and the U.S. The IJC responded by forming a St. Mary / Milk Rivers Administrative Measures Task Force to review the existing administrative procedures[1] used to share waters of the St. Mary and Milk Rivers.

The Task Force issued a report in April 2006[2], and concluded that there appeared to be potential opportunities for Montana and Alberta to work together on issues that are outside the realm of administrative procedures. In October 2007, the IJC met with the Governor of Montana and Premier of Alberta to discuss the potential for the jurisdictions to work together to explore mutually beneficial opportunities regarding the use and management of the St. Mary and Milk Rivers. Specifically, the IJC requested Montana and Alberta seek opportunities to, *"…explore the fundamental and interrelated issues of collaboration on the use and management of transboundary waters, cooperation on the rehabilitation of the St. Mary Canal and future arrangements for increasing the ability of each country to better access the full amount of water available to it under the current apportionment."*

Montana Governor Brian Schweitzer and Alberta Premier Ed Stelmach agreed that there was merit in working together, and the Montana-Alberta St. Mary and Milk Rivers Water Management Initiative was formed. Both jurisdictions agreed that the shared water is an important resource, had a strong desire to ensure its management benefits all water users, and believed there are opportunities to work together to improve access to shared water. John Tubbs, Administrator, Water Resources Division, Montana Department of Natural Resources and Conservation (DNRC), was appointed as Montana Co-Chair. Robert Harrison, Director, Transboundary Water Policy Branch, Alberta Environment, was appointed Alberta Co-Chair.

Purpose

The purpose of this Initiative is to explore and evaluate options for improving both Montana's and Alberta's access to the shared water of the St. Mary and Milk Rivers, and to make joint recommendations on preferred options for both governments to consider and approve.

Geography

The geographic scope of the Initiative is defined by the watersheds of the St. Mary River to its confluence with the Oldman River, the Milk River to its confluence with the Missouri River, and the St. Mary River Irrigation Project (Figure 1). The Initiative did not discuss management options that affect the water entitlement of the Province of Saskatchewan.

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[1] Administrative procedures – the processes used to share and measure the water of the St. Mary and Milk Rivers on a daily, monthly and seasonal basis; includes: computational procedures (how to determine natural flow), calculating surpluses and deficits (to determine if one country diverted more than its apportioned share), accounting periods, balance periods (reported semi-monthly summation of daily natural flows), *etc.*

[2] International St. Mary – Milk Rivers Administrative Measures Task Force. *Report to the International Joint Commission*, April 2006. 125pp.

Scope of the Initiative

The Initiative was to focus on the timing and access by both jurisdictions to their share of the water in the St. Mary and Milk Rivers under Article VI of the treaty. While the Initiative was to consider the many uses of water in the two basins when evaluating options (including municipal, power production, recreation, agriculture, and in-stream flow needs for the environment), its main focus was on the two largest uses: irrigation, and in-stream flow needs for the environment. Recommendations to modify existing treaty instruments (the Letter of Intent[3], Administrative Procedures, and the 1921 Order) could be evaluated if they presented a barrier to implementing preferred options. Projects that could be jointly developed to benefit both jurisdictions should be evaluated, specifically, the rehabilitation of the St. Mary Diversion Canal.

Evaluations that would lead to recommendations to change the treaty were considered out of scope. Issues about water quality and ecosystem health, while implicit in any water sharing options, were to be understood but not made a determining factor in evaluating potential options. Water rights compacts negotiated by the State of Montana, Blackfeet Tribal Government, Fort Belknap Indian Community Tribal Government, and/or the U.S. Government were also out of scope, as was Alberta's sharing of water with Saskatchewan under the Master Agreement on Apportionment[4].

Objectives

The Initiative aimed to meet three objectives:

1. Develop a better understanding of the similarities and differences in how Montana and Alberta manage water;
2. Identify constraints to improving access to the shared water including differences in supply and demand, accounting for surpluses and deficits, and emerging uses; and
3. Link water management decision-making more closely with the needs of water users in both jurisdictions, noting that management flexibility is required to moderate the effects of the distinct and variable natural flow regimes that characterize the St. Mary and Milk Rivers.

Outcomes

Lastly, the Initiative described five desired outcomes:

1. Montana and Alberta work together for the long-term benefit of water users and the environment in both jurisdictions.
2. Montana and Alberta develop an adaptive, dynamic, joint water management decision-making process driven by the needs of water users and the environment at the local level.
3. Opportunities for beneficial use of the water of the St. Mary and Milk River systems for people and the environment are maximized.
4. Water supplies for people and the environment are secured.
5. Montana and Alberta recommend that the IJC close its file on Montana's 2003 request to review the 1921 Order.

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[3] Letter of Intent – an administrative measure allowing the U.S. to divert more than its entitlement of St. Mary River water early in the season (before spring freshet) when it could be of greatest benefit, allowing Canada to divert more than its entitlement of Milk River water later in the irrigation season, and allowing any outstanding deficits of water to be repaid or offset by corresponding deficits on the other stream before the end of the irrigation season, as necessary.

[4] Master Agreement on Apportionment, Prairie Provinces Water Board, 1999, http://www.ppwb.ca/information/79/index.html

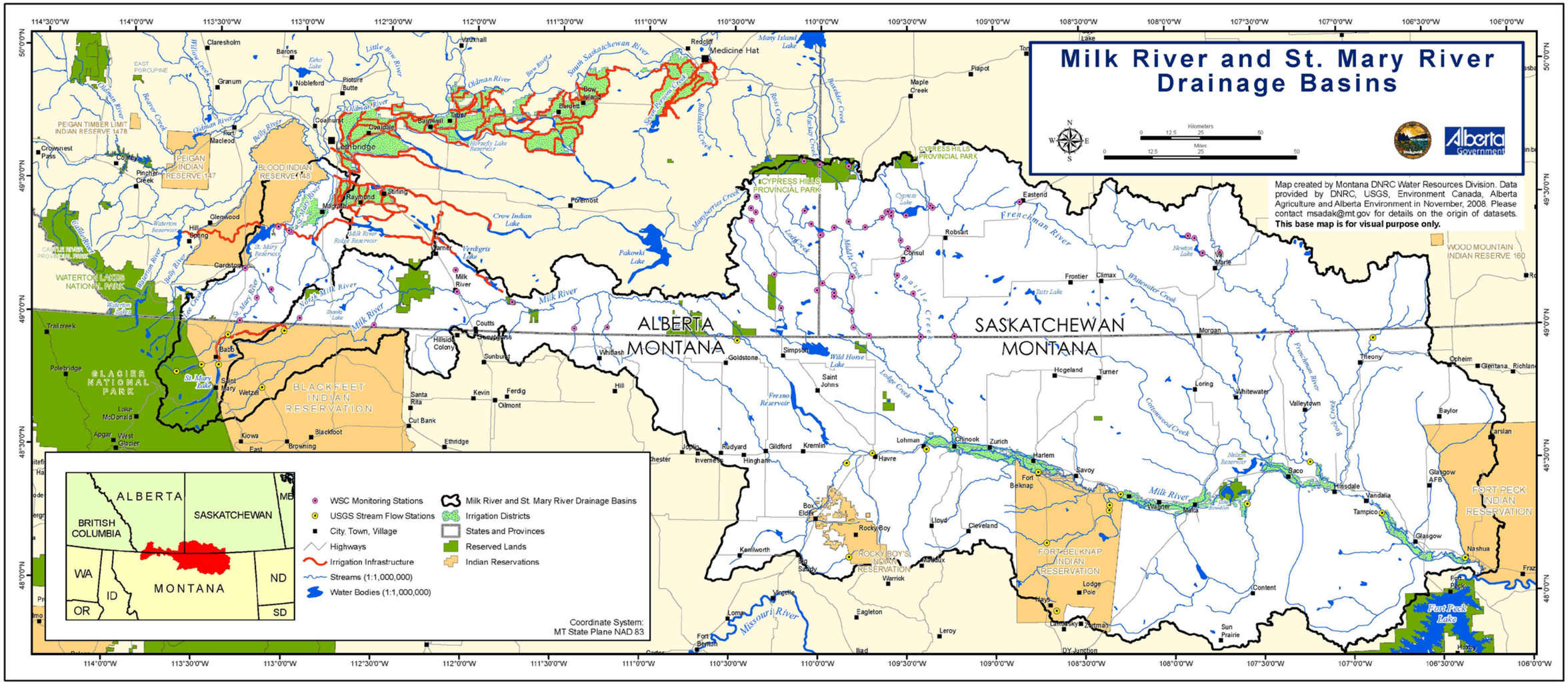

Figure 1. Milk River and St. Mary River Drainage Basins

The two governments instructed their respective water management teams to work together to explore opportunities and make recommendations for the consideration of both jurisdictions.

Initiative Teams – Who was involved and why

A number of teams were formed to develop and implement the Initiative: a Joint Work Group, a Joint Initiative Team, a Technical Working Group, and a Credit System Subcommittee. The purpose, membership, and general actions of each team are briefly described below.

Joint Work Group (JWG)

Purpose

The JWG developed the terms of reference that defined the structure and function of the Initiative.

The terms of reference included the purpose of the Initiative, scope, principles for participation and code of conduct, and the procedures that members should use to find agreement and develop potential water-sharing options. It also identified member's responsibilities, and listed other individuals and agencies necessary to either support the Initiative, or that should be made aware of the Initiative's actions.

Principles

The principles emphasized acknowledgement of the interdependent relationship Alberta and Montana have developed for sharing water in the two basins. Based on the main principle that the treaty forms the foundation for sharing the water of the St. Mary and Milk Rivers, major principles identified were that the Initiative should:

- Develop a forward-looking joint working relationship and develop sustainable options for sharing the waters of the St. Mary and Milk Rivers,
- Consider implications for users in both watersheds,
- Account for the special circumstances that occur in low water years,
- Understand the procedures for managing water and making decisions in each jurisdiction, and
- Seek to maximize and balance the long-term benefits to water users in both jurisdictions.

As well, the Initiative may consider other tools that give decision makers the flexibility to meet the irrigation and in-stream flow needs of water users in both jurisdictions.

Membership

Five representatives from each jurisdiction were appointed by Alberta Premier Ed Stelmach and Montana Governor Brian Schweitzer in mid-2008. Members comprised senior government officials from Alberta and Montana and water users from the St. Mary and Milk River Basins, including a representative from Montana's Blackfeet Tribe, since both the St. Mary and Milk Rivers headwaters flow through Montana's Blackfeet Indian Reservation.

Alberta Members		Montana Members	
Name	**Organization**	**Name**	**Organization**
Robert Harrison	AENV (Co-Chair)	John Tubbs	DNRC (Co-Chair)
Brent Paterson	AARD	Randy Reed	Milk River
Tom Gilchrist	Milk River Basin	Don Wilson	Blackfeet Tribe
Gerhardt Hartman	St. Mary/Oldman River Basin	Dustin de Yong	Office of the Lt. Governor
Tim Toth	AENV (Secretariat)	Paul Azevedo	DNRC (Secretariat)

Actions
The JWG met three times in three months in the fall of 2008. The terms of reference were developed and presented to the governments of Montana and Alberta for their approval in December 2008. The JWG dissolved after the terms of reference were approved.

Joint Initiative Team (JIT)

Purpose
The JIT proposed potential water-sharing options and assessed their impact on water availability and irrigation reliability for each jurisdiction. They eventually developed eight water management recommendations and recognitions that will be provided to the Governor and Premier in 2017.

Membership
JIT membership was recommended by the terms of reference. The JIT was composed of senior water administrators and directly affected water users in the St. Mary and Milk River basins from both jurisdictions and secretariat support from each jurisdiction. The team included representation from Montana's Blackfeet Indian Reservation and Fort Belknap Indian Reservation.

Alberta Premier Ed Stelmach and Montana Governor Brian Schweitzer appointed JIT representatives. Four of the seven members from each jurisdiction had also served on the Joint Work Group and provided valuable continuity during the Initiative.

Alberta Members			Montana Members		
Name	**Organization**	**Dates**	**Name**	**Organization**	**Dates**
Robert Harrison	AENV (Co-Chair)	2008-2013	John Tubbs	DNRC (Co-Chair)	2008-2009
Brian Yee	AENV (Co-Chair)	2013-current	Anne Yates	DNRC (Co-Chair)	2009-2015
Brent Paterson	AARD	2008-2014	Randy Reed	Milk River Watershed	2008-2015
Jamie Wuite	AARD	2014-current	Don Wilson	Blackfeet Tribe	2008-2010
Tom Gilchrist	Milk River Watershed Council Canada	2008-current	Harold "Jiggs" Main	Fort Belknap Indian Community	2008-2010

Alberta Members			Montana Members		
Ken Miller	Milk River Watershed Council Canada	2008-current	Dustin de Yong	Office of the Lt. Governor	2008-current
Gerald Perry	Oldman Watershed Council	2008-current	Dave Petersen	Dep't of Public Works, Havre, MT	2008-current
Duncan Lloyd	Oldman Watershed Council	2008-current	Paul Azevedo	DNRC (Secretariat)	2008-current
Tim Toth	AENV (Secretariat)	2008-current			

JIT members were supported by technical and administrative staff from each jurisdiction as needed during the process. The JIT also sought and received information from various stakeholder groups in their respective jurisdictions.

JIT membership changed as the Initiative progressed:

- members representing the two U.S. Indian communities declined to continue their involvement, to focus effort on negotiating their water rights compacts,
- the Montana co-chair withdrew due to a federal appointment and was replaced by Anne Yates, and
- due to retirements, the Alberta Agriculture and Rural Development member was replaced by Jamie Wuite and the Alberta co-chair was replaced by Brian Yee.

Actions

The JIT met 15 times over two and a half years. They proposed and considered over 300 model runs, reducing them to 100 potential water management options for further evaluation. They eventually developed 10 structural and four administrative options, and described eight final water management recommendations in the *Recommendations Report*.

Technical Support Team

Purpose

The Technical Support Team reported to the JIT. Technical support was fundamental to the work of the Initiative, from project initiation throughout the extensive modelling work. At the outset, a larger technical support team compiled a comprehensive description of the relevant technical and administrative elements pertaining to Alberta's and Montana's management and sharing of the waters of the St. Mary and Milk Rivers[5].

With that background completed, a smaller team continued on to support the Initiative. They identified the appropriate hydrological modelling software and modelled all potential water-sharing options requested by the JIT. They prepared the data for the model runs, evaluated model results, compiled and summarized data, and produced summary presentations of their findings for JIT meetings. This team's analyses allowed JIT members to evaluate how well an option provided better access to each jurisdiction's share of the waters of the St. Mary and Milk Rivers, and its impact on irrigation reliability.

[5] The *Montana-Alberta Background Information Report* (November 2009, 287pp. with five Appendices) included basin descriptions, the water-sharing agreements and compacts, water rights, water management infrastructure and irrigation, water supply and management models, and past and ongoing structural and water management investigations.

Membership

The Technical Support Team was headed by one hydrologist from each jurisdiction – Sal Figliuzzi (Alberta), Larry Dolan (Montana), and supported by a range of specialists—irrigation modelling, geographic information systems (GIS), regulatory, policy and operations staff. Laurent Conard (Alberta) undertook water modelling throughout the process. As the Initiative progressed, staff changes resulted in the Alberta hydrologist being replaced by Brian Yee (2011), and then Carmen de la Chevrotière (2014).

Werner Herrera (Alberta) and Mike Dailey (Montana) provided additional hydrology support as needed. A technical model specialist was also part of the Technical Support Team. Alan Wright (Unitech Solutions), worked solely with the water resources management model software to solve specific issues, including customizing the model to account for unique options requested by the JIT. Unitech Solutions was used as needed throughout the Initiative to confirm the water model was performing as required, ensuring it was accurate and up-to-date.

Alberta Members			**Montana Members**		
Name	**Organization**	**Dates**	**Name**	**Organization**	**Dates**
Sal Figliuzzi*	AENV	2008-2011	Larry Dolan*	DNRC	2008-current
Laurent Conard**	AENV	2008-2013	Mike Dailey†	DNRC	2008-2012
Werner Herrera†	AENV	2008-2014	Eric Chase	DNRC	2009-2010
Roger Hohm	AARD	2009-2014	Marcus Sadak	DNRC	2009-2010
Bob Riewe	AARD	2009-2010	Troy Blanford	DNRC	2009-2010
Dave McGee	AENV	2009-2010	John Sanders	DNRC	2009-2010
Kathleen Murphy	AENV	2009-2010			
Saba Gnanakumar	AENV	2009-2010			
Terrence Lazarus	AENV	2009-2010			
Brian Yee	AENV/AEP	2011-current			
Carmen de la Chevrotière	AENV/AEP	2014-current			

* Team lead and responsible hydrologist

** Water modeller

† Members who provided specific input during the entire Initiative

Actions

Team leads evaluated and recommended to the JIT the hydrological model that could calculate the volume of water accessible by each jurisdiction under various structural or administrative options, and therefore quantify the impact of that water management option. They recommended the Alberta-based Water Resources Management – Decision Support System (WRMDSS)[6], an enhancement to the Water Resources Management Model (WRMM). The Technical Support Team modified the WRMDSS model to include the Milk River watershed in Montana.

[6] The WRMDSS is a water supply and management (or "water accounting") model, designed to represent the existing physical layout of the channels, water management infrastructure (diversion canals, storage reservoirs, *etc.*), physical constraints (storage capacity, canal capacities, reservoir filling curves, *etc.*), and legal/regulatory constraints or policies/procedures (licensed allocations, priority of rights, apportionment, reservoir operating procedures, *etc.*). For more information, see *Background Information Report*, Ch. 9.2.2 Water Resources Management – Decision Support System (p. 182).

The Technical Support Team completed well over 300 model runs to understand what changes the JIT's proposed water-sharing options would have on each jurisdictions ability to access available water supplies. The Technical Support Team continued work as needed after the JIT's 15 meetings were completed, to re-run, review and confirm or revise model results.

Credit System Subcommittee

Purpose

As the Initiative proceeded, the JIT created an additional technical team, the Credit System Subcommittee. This subcommittee was tasked to develop an option that would enable both jurisdictions to access more of their share (Montana, of the St. Mary River and Alberta, of the Milk River), and provide Montana with an overall net increase to its share of the combined flows of the two rivers.

Membership

Four members from each jurisdiction volunteered to create the subcommittee.

Credit System Subcommittee Membership			
Alberta Members		**Montana Members**	
Name	**Organization**	**Name**	**Organization**
Sal Figliuzzi	AENV	Larry Dolan	DNRC
Robert Harrison	AENV	Anne Yates	DNRC
Tom Gilchrist	Milk River Basin	Randy Reed	Milk River
Duncan Lloyd	St. Mary/Oldman River Basin	Dustin De Yong	Office of the Lt. Governor

Actions

The subcommittee developed an administrative option that combined a deficit system (the 2001 Letter of Intent) with a credit system (for surplus water deliveries) that would enable the upstream jurisdiction to build a credit for surplus water deliveries crossing the border during irrigation season.

Other Support

Although not recognized as part of the Initiative's formal team structure, additional significant support for the Initiative was provided by jurisdictional staff in the areas of water management operations, licensing, engineering, and administration.

Process Used to Conduct the Montana-Alberta St. Mary and Milk Rivers Water Management Initiative

The jurisdictional co-Chairs developed the process used to the conduct the Initiative. The co-Chairs divided the Initiative into the following three phases:

Phase 1 – Prepare Terms of Reference,
Phase 2 – Explore Mutually Beneficial Opportunities, and
Phase 3 – Develop Potential Future Joint Opportunities.

The first two phases, described below, were completed in late 2014. The third phase will commence after joint recommendations are presented to the Montana Governor and Alberta Premier, and a letter is sent to the IJC with the joint findings. The IJC will identify the next steps.

Phase One – Prepare Terms of Reference

The work of the Joint Work Group to deliver the project terms of reference (see Appendix 1 – Terms of Reference) is described below.

Work of the Joint Work Group

After the Governor and Premier approved the process to develop the Initiative, the Joint Work Group met in the Fall 2008 to understand the direction they had been given by their elected representatives, and to develop the terms of reference that would address the IJC's request stated in the October 2007 letter to the jurisdictions (Appendix 1, last page). Accordingly, over a three-month period, the JWG met three times[7] to develop the terms of reference that outlined the purpose, scope, principles, desired outcomes, membership, code of conduct and procedures to find agreement, and the tasks and schedule to be used to guide the development of potential water-sharing options. The terms of reference also identified member's responsibilities, and listed other agencies needed to either support the Initiative or that should be made aware of it.

The terms of reference created the Montana-Alberta St. Mary and Milk Rivers Water Management Initiative, establishing a 14-member Joint Initiative Team of senior government officials and local water users in the St. Mary and Milk River watersheds from both jurisdictions. The JWG included secretariat support for each jurisdiction; jointly, they served as support to the Joint Work Group.

The JWG drafted a communications plan to identify organizations and agencies with which the jurisdictions should communicate. This was intended to ensure the Initiative had the necessary political support and awareness among potentially affected groups and interested parties, including stakeholders such as municipal and federal government departments, the IJC, and irrigation and watershed organizations. Discussions between water users on both sides of the border about water management in the Milk River basin have occurred for many years. The JWG recognized the value of these discussions, and that maintaining communication and connection within already existing networks would be important to assist the Initiative.

The JWG also identified the need to compile background technical information on the St. Mary and Milk River basins, which would describe basin hydrology, water allocation and use, infrastructure operations, and current administrative procedures used to manage the water resources[8]. This background information was essential, as it created the foundation and common knowledge required to initiate Phase 2.

The JWG secretariat drafted detailed meeting notes and brief status reports as a record of and an ongoing reference to the work undertaken. The host secretariat developed meeting notes for a given meeting, and distributed an agreed-upon draft to JWG members prior to the subsequent meeting (see Appendix 2 – Complete Meeting Notes). The JWG reviewed draft notes and subsequently approved and adopted them. Status reports – half-page summaries of meeting accomplishments – were prepared by the joint secretariat and used by team members to inform their organizations, stakeholders, or other interested parties about the Initiative. For meeting summaries, see page 23 'Summary of Meetings – Joint Work Group and Joint Initiative Team'. After adoption, status reports were made available on each jurisdiction's website.

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[7] The JWG met in Lethbridge (August 25-26), Great Falls (September 22-23) and via one teleconference call (October 28th, 2008).

[8] Information was compiled into the 'Montana-Alberta Joint Initiative on the Sharing of the Waters of the St. Mary and Milk Rivers – Background Information Report', November 2009. 287 pp.

The Governor and Premier reviewed and jointly approved the terms of reference for the Montana-Alberta St. Mary and Milk Rivers Water Management Initiative in December 2008.

Phase Two – Explore Mutually Beneficial Opportunities

Phase Two is the fundamental work of the Initiative carried out by the Joint Initiative Team, the Technical Support Team, and the Credit System Subcommittee. The bulk of Phase Two was completed by the combined work of the Joint Initiative Team and the Technical Support Team.

Work of the Joint Initiative Team

The intensive work of the JIT was undertaken through 15 meetings spanning two and one-half years. Twelve of those meetings were two-day, face-to-face gatherings. Ten meetings were held in the first 13 months (December 2008-December 2009), and four more meetings were completed in the next seven months (January through July 2010). There was about a one-year delay prior to holding meeting #15.

Jurisdictions alternated hosting meetings, the first few of which were education sessions and tours of water management infrastructure and operations in each jurisdiction. This gave team members a common base of information and provided the context for subsequent discussions, which enabled the JIT to undertake an exhaustive analysis of a wide range of potential water-sharing scenarios. See the *Recommendations Report* for details on the range of options modelled. The JIT met as identified below:

JIT # meeting	Date	Location
#1	December 10-11, 2008	Lethbridge, AB
#2	January 12-13, 2009	Great Falls, MT
#3	February 18-19, 2009	Lethbridge, AB
#4	April 6-7, 2009	Havre, MT
#5	May 4-5, 2009	Lethbridge, AB
#6	June 8-10, 2009	East Glacier National Park, MT
#7	July 23, 2009	Writing-on-Stone Provincial Park, AB
#8	September 24-25, 2009	Lethbridge, AB
#9	October 28-29, 2009	Great Falls, MT
#10	December 3-4, 2009	Lethbridge, AB
#11	January 14-15, 2010	Great Falls, MT
#12	February 23-24, 2010	Lethbridge, AB
#13	June 3, 2010	Conference call
#14	July 19-20, 2010	Havre, MT
#15	August 16, 2011	Lethbridge, AB

After 20 months (14 meetings), there was a significant break in the pace. The Technical Support Team spent considerable effort from late 2011 through 2013 undertaking in-depth technical review and quality control of the modelled results to confirm the findings of many of the early options.

This comprehensive review of the initial results of the model runs was necessary because:

1) Relatively rapid completion of over 300 model runs which lacked an independent, arms-length evaluation of results during that process. This resulted in errors being carried forward into subsequent model runs.
2) Complexity of options requested — the JIT identified several potential water-sharing scenarios that the WRMDSS had no ability to compute. The model had to be modified and tested to be able to analyze and assess those unique scenarios.
3) WRMDSS update — a new version of the model was released in 2012. It was tested to ensure results were valid, verifiable, and reproducible.

During this time, the DNRC and the USBR developed a hydrological model of the St. Mary and Milk River basins in Montana to analyse how the basin's existing water operations infrastructure would perform under various future climate scenarios[9] [10]. The modelling undertaken for this effort was used to compare and confirm some of the final revised results from the WRMDSS.

After the technical review was completed, in 2014 the co-Chairs, technical staff, and joint secretariat continued to meet by teleconference to start developing the reports to document the Initiative process. During this time, the Montana lead hydrologist re-compiled and checked the data used to summarize the results of the model runs for the final 100 water management options. These one-page 'option summary sheets' (see Appendix 3 – Example of Option Summary Sheet) were prepared to enable a simple comparison of the water supply and irrigation impact of various water-sharing scenarios against the base case scenario (the base case reflected current water delivery operations in 2009). During this time as well, the lead hydrologists continued to review and edit the draft Modelling Report.

The 15 meetings of Phase 2 of the water management initiative can be divided into three steps: understand the existing water management environment, education/develop project interests, and model/evaluate/revise scenarios. These steps are briefly described below.

Understand the Existing Water Management Environment

Background information on a number of topics was provided to establish a common understanding of the existing water management environment in the St. Mary and Milk River basins. The first three meetings provided information on topics including:

- The physical setting (geography, climate, hydrology),
- Current water management practice (water allocation and use, U.S. federal reserved water right compacts, Canadian inter-provincial water management apportionment agreement),
- Administrative context (*International Boundary Waters Treaty Act*, 1921 Order of the IJC, 2001 Letter of Intent),
- Operations (infrastructure, water mastering, reservoir operating procedures), and
- Regulatory/planning processes (state and provincial legislation, licensing, water management policies/practices, water supply/management models, storage studies, *etc.*).

[9] *Reclamation: Managing Water in the West – St. Mary River and Milk River Basins Study Summary Report*, U.S. Department of the Interior Bureau of Reclamation, State of Montana Department of Natural Resources and Conservation, March 2012. 37pp.

[10] *Reclamation: Managing Water in the West – St. Mary River and Milk River Basins Study Technical Report*, U.S. Department of the Interior Bureau of Reclamation, State of Montana Department of Natural Resources and Conservation, March 2012. 119pp.

Education / Develop Project Interests

The next four meetings included both education and project development components. Educational tours were led to:

- A portion of the Milk River basin in Montana to view agricultural and municipal water users.
- A portion of the upper St. Mary River basin in Alberta to view the St. Mary River Dam headworks and irrigation and water management infrastructure. Representatives from three Southern Alberta irrigation districts provided additional information.
- A portion of the St. Mary Diversion and Conveyance Works on the Blackfeet Reservation in Montana. USBR water managers and a fisheries biologist provided additional information.
- A portion of the Milk River basin in Alberta to view the potential Milk River Dam location, channel erosion on the Milk River, and two direct pumping irrigation operations and the continuous water metering at those locations.

The project development component involved developing jurisdictional interests (the benefits the jurisdiction would like to receive), the criteria to measure those benefits, an initial list of 17 potential water-sharing options to be modelled, and evaluation criteria that could be used to compare and rank an option to determine how well that option achieved jurisdictional interests. For a short time, the capital cost and ongoing operational and maintenance cost of an option were considered useful evaluation criteria. The JIT later dropped cost as an evaluation criterion because the wide range of cost estimates for any particular option provided limited practical information.

In summary, the first seven meetings were needed to develop a common education base and understanding among team members. The team was then able to define jurisdictional interests and develop detailed questions about water-sharing within the water management system. The questions were described as model scenarios, aimed at determining to what extent there may be opportunities for each country to, "*…better access the full amount of water available to it under the current apportionment*" as stated by the IJC.

During these first meetings, the Technical Support Team evaluated hydrological models to determine which would be most suitable for evaluating water-sharing options in this system. They recommended the WRMDSS to the JIT.

Model/ Evaluate/ Revise Scenarios

The JIT used the last eight meetings to further develop and refine ways for each jurisdiction to access potentially more of their share of the water. This work included evaluating model results, determining where joint recommendations could be developed and proposed to the jurisdictions, and outlining the reports needed to describe adequately the work of the Initiative. In these last meetings, the JIT continued to learn a great deal about the complexity of this international cross-border water management system.

Work of the Technical Support Team

The Technical Support Team undertook the modelling requested by the JIT, customizing and testing the WRMDSS as necessary. They prepared the data for the model runs, evaluated model results, compiled and summarized data, and produced summary presentations of their findings for JIT meetings. Calibration of the WRMDSS required ensuring natural inflows, consumptive uses and losses, and management (diversion canals and storage) were all accounted for, and accurately quantified. The Technical Support Team completed well over 300

separate model runs and evaluated over 100 distinct water management options. In the final analysis, they summarized the core results in terms of water supply and irrigation reliability[11] for 100 distinct options into one-page option summary sheets.

Each model simulation generated a large quantity of data, including flows in the St. Mary and Milk River channels, flows in Montana's St. Mary Diversion Canal, delivery of water to each irrigation district, water levels in each reservoir, and irrigation shortfalls. Model outputs were summarized in three categories to measure the relative benefits to Montana and Alberta including:

1) In each river basin, the percent of each jurisdiction's entitlement it would receive,
2) The volume of water this entitlement represents, and
3) The irrigation delivery volumes and irrigation reliability.

The results of modelled simulations were compared to a base case scenario that reflected current (2009) water delivery operations as closely as possible — a 650 cfs capacity St. Mary Diversion Canal with water shared according to the current administrative procedures and 2001 Letter of Intent. For those options that were focussed on toward the end of the process, the base case scenario included flows maintained at the international boundary to preserve Alberta's in-stream flow objectives. For a given simulation, the amount of water available and the impact on irrigation reliability was compared to the same parameters under the water management practice in place in 2009. Then for each simulation, the data was summarized by quartile[12] into one-page option summary sheets to compare rapidly, for both jurisdictions, the amount of water that was produced on each river and the irrigation reliability.

The Technical Support Team and water modeller had regular discussions to ensure modelled simulations were represented accurately and the correct data was used to address specific water management questions. The Technical Support Team answered many questions posed by the JIT during joint meetings to clarify the detailed results of the model runs and explore other possibilities.

Work of the Credit System Subcommittee

As work progressed, the JIT formed a subcommittee to analyze a potentially important water-sharing option. The Credit System Subcommittee was to develop an administrative tool to enable both jurisdictions to access more of their share (Montana of the St. Mary River, and Alberta of the Milk River), and provide Montana with an overall net increase to its share of the combined flows of the St. Mary and Milk Rivers.

The credit system proposal used the April water supply forecast and winter water levels in Alberta's St. Mary Reservoir and Ridge Reservoir to determine what type of runoff year it would be (very dry–dry–wet–very wet), and then reviewed the forecast and storage again in July. Then if conditions allowed, credit water could be withdrawn by the U.S. twice a year, after each of the two runoff determinations, and withdrawn by Canada in one longer period. The proposal was therefore a two-season credit system that allowed the upstream jurisdiction to manage the

[11] Irrigation reliability (Alberta) – the number of crop water deficits greater than 4 inches once in a 10-year period (also called a shortfall or a failure). (USBR) – cumulative annual shortage in any 10-year period shouldn't exceed 100 percent of demand, and maximum shortage in any one year of that 10-year period shouldn't be more than 50 percent of demand.

[12] Quartile – categorization of a year as one of four types: very dry (Q1)—dry (Q2)—wet (Q3)—very wet (Q4).

risk of not being able to pay back a large early-season deficit if the year became drier during the irrigation season and also protected Alberta St. Mary River irrigators from increased shortages during very dry years. There were risks and benefits to both jurisdictions, but the proposal was not pursued. For a full description and discussion of the credit system proposal, see Appendix 2, meeting #15, August 16, 2011 (meeting notes were finalized by the secretariat in draft form; they were not vetted by the JIT).

Develop Interests, Evaluation Criteria and Measures of Success

As the number of potential water management options increased, it became more challenging to compare their value for each jurisdiction. Consequently, the JIT developed criteria to evaluate and compare how well a potential option met jurisdictional interests, and to screen out those of lesser value.

Evaluation criteria had two components:

a) A numeric element to calculate: (i) the percent share and volume of water that an option could provide to each jurisdiction and (ii) the irrigation reliability, and

b) A non-numeric element where best professional judgement would be used to assess other potential impacts of providing better access to the shared water of the two rivers (*e.g.*, security of municipal water supplies, water quality, rate of sediment deposition in Fresno Reservoir, rate of bank erosion along Milk River, water available for instream flow, recreational opportunities, management flexibility).

The criteria[13] were used to reduce the large and increasing number of potential water management options existing partway through the option evaluation process[14]. Ultimately, however, the criteria were replaced by each jurisdiction defining its meaning of success (the preferred options to be pursued) in the short-, medium-, and long-term future. See the *Recommendations Report* for a description of those measures of success.

Communications and Use of Websites

Good communication, both internal to and external to the Initiative, was necessary to ensure its progress, and promote potential water-sharing opportunities in the shared watershed. Of importance too, has been the open and ongoing communications between JIT members on both sides of the border who are water users.

In developing the terms of reference, the Joint Work Group identified the following list of external agencies as fundamental to the progress of the Initiative:

[13] See attachment to meeting JIT #9 for a description of the Suggested Evaluation Criteria. (Note: meeting notes were finalized by the secretariat in draft form; they were not vetted by the JIT.)

[14] By December 2009 (meeting #10), about 23 potential options were eliminated from 70 existing model runs.

Participant Type	Organization
Technical Support	IJC Accredited Officer(s), U.S. Bureau of Reclamation, Montana Department of Natural Resources and Conservation, Blackfeet Tribal Agencies, U.S. Army Corps of Engineers, Alberta Environment, Alberta Agriculture and Rural Development, Alberta International and Intergovernmental Relations, Canadian federal departments, other agencies as needed.
Direct Stakeholders	U.S. Bureau of Reclamation, U.S. Army Corps of Engineers, U.S. Geological Survey, Blackfeet Tribal Business Council, Fort Belknap Tribal Business Council, membership of the U.S. St. Mary Rehabilitation Working Group. In Alberta, direct stakeholders are defined by the membership of the Oldman Watershed Council and Milk River Watershed Council Canada.
Communication Notice	International Joint Commission, Canadian federal departments, other Alberta Government Departments, U.S. Fish and Wildlife, Provincial Members of the Legislative Assembly.

Communication to these groups included:

- Informing executive branch leadership (AENV ministers, DNRC executive) to seek their support and direction as required,
- Informing and educating priority stakeholders (irrigation districts, Tribal Nations, watershed organizations, and fish and game organizations) to seek their support and/or feedback as needed, and
- Advising other stakeholders (*e.g.*, IJC, USBR, US Army Corps of Engineers, AARD, U.S. Geological Survey, interested publics, media) to keep them apprised of the Initiative.

Communications throughout the Initiative also took the form of uploading final meeting status reports to the DNRC website (http://dnrc.mt.gov/divisions/water/management/transboundary-water-information), and the AEP website (http://aep.alberta.ca/water/programs-and-services/river-management-frameworks/montana-alberta-st-mary-and-milk-rivers-water-management-initiative/default.aspx).

Microsoft SharePoint (a web application platform) was used to facilitate development of joint documents. During modelling operations, SharePoint also permitted the two hydrologists and water modeller to view easily the same data when discussing model results. It also allowed them to develop and edit presentations and written documents.

During the core work of the Initiative, Montana and Alberta made presentations and communicated with many groups, including:

Montana Communications	Alberta Communications
• Governor Schweitzer	• Ministers of Alberta Environment, and Alberta Agriculture and Rural Development
• Water Policy Interim Committee	• AENV Executive
• St. Mary Rehabilitation Working Group	• Oldman Watershed Council
• Havre City Council	• Southern Alberta Mayors and Reeves
• Constituents along the Hi-Line (north-central Montana)	• Broyce Jacobs (MLA for Cardston-Taber-Warner)

Montana Communications	Alberta Communications
• Milk River Joint Board of Control	• Richard Casson (MP for Lethbridge)
• Montana Congressional Delegation to Washington & Appropriations Subcommittee staff	• Executive of: Alberta Urban Municipalities Association; and Alberta Association of Municipal Districts and Counties
• U.S. Bureau of Reclamation staff	• Alberta Irrigation Projects Association
• U.S. Army Corps of Engineers	• Managers from the Taber, Magrath, St. Mary and Raymond Irrigation Districts
• Fort Belknap Indian Community Tribal Council	• St. Mary River Basin Irrigation District Board of Directors
• Blackfeet Tribal Council	• Milk River Watershed Council Canada – annual meetings
• U.S. Geological Survey	• Canadian IJC Commissioners

Joint Communications with the IJC

The IJC was made aware of the Initiative and its progress on a number of occasions, including before the Initiative was formally launched:

- Commissioners Jack Blaney (Canada) and Allen Olson (U.S.) (June 6, 2008)
- Centennial Celebration of the *International Boundary Waters Treaty Act*, in Niagara Falls, Ontario (June 2009)
- IJC International Records Meeting (February 2010)
- Co-Chair and IJC Conference call (May 2010)
- Co-Chairs and Canadian and U.S. Commissioners (February 8-9, 2011)
- IJC Commissioners tour of the St. Mary water management system (July 16, 2014)
- IJC Fall Semi-Annual Meeting (October 23, 2014)

In addition, in February 2010, the JIT co-Chairs wrote the IJC directly, requesting an explanation of the basis used to determine the final allocations defined in the 1921 Order. The jurisdictions interpret and understand the Order differently, and JIT members wanted, "…explanation and documentation regarding the allocation of water below and above 666 cfs and how this formula was established…". They also wanted an explanation of why there is a five percent long-term mean difference between each jurisdiction's entitlements to the combined flow of the rivers (see Appendix 4 – Letter to IJC regarding the 1921 Order). The IJC responded by letter in June 2010, but did not provide new insight about the variance between each jurisdiction's entitlements to the combined flow of the rivers.

In summary, regular communications with jurisdictional executive, stakeholders and amongst team members supported the JIT's progress in understanding and evaluating the way water is managed in this inter-jurisdictional basin.

Process Used to Plan and Conduct Joint Team Meetings

As noted, jurisdictions alternated hosting 15 meetings of the JIT in two and one-half years. Meetings were planned and conducted according to the terms of reference. The JIT dedicated much time and effort attempting to find common ground and reach consensus on many issues. As a result, communications that are more open now exist, and stronger inter-jurisdictional relationships have been developed during the work to complete this Initiative.

There were three parts to conducting a Joint Initiative Team meeting – i) pre-meeting preparation; ii) conduct meeting, and iii) meeting follow-up:

i) Pre-meeting preparation – With the host jurisdiction taking the lead, co-Chairs and secretariat determined objectives specific to the meeting and developed the agenda via teleconference call. Objectives were defined with an understanding of the pace and direction the Initiative should take to enable progress. As necessary, co-Chairs also discussed how to address any problem areas that needed particular focus.

   A final draft agenda plus meeting materials (*e.g.*, draft of previous meeting minutes, communication's materials, results of model runs [as presentations and summaries]) was then sent by each jurisdiction's secretariat to their team members. Jurisdictions also met with their own teams prior to the joint team meeting to ensure clarity and understanding of materials, develop questions to be answered, and discuss how they would like to proceed.

ii) Conduct meeting – At the joint team meeting the JIT reviewed, revised as necessary, and adopted the objectives and agenda. Team members accepted and adopted, or requested clarification/correction of draft meeting notes, described pertinent communications with their executive and stakeholders, and listened to Technical Support Team presentations of summary findings of the model runs requested.

   JIT members then evaluated and discussed the model results presented to determine how well the options met their objectives (achieving better access to water for each jurisdiction), and whether or not to pursue further detail under that option. A potential option was of highest value if it benefitted both jurisdictions or of somewhat lower (but still positive) value if it benefitted one and did not unreasonably harm the other. The JIT continued to discuss both types of options; often this led to a request for yet more detailed modelling of one or more parameters identified in the original request, to try to achieve additional benefits from the option. If modelled results appeared to be detrimental to a jurisdiction, the JIT agreed to drop further work on it.

   The JIT also discussed contentious issues and determined how best to proceed to make progress on the overall Initiative. At the end of a meeting, the JIT reviewed its progress and confirmed all actions, outlined overall objectives for the next meeting, and set the next meeting date(s).

iii) Meeting follow-up – The host jurisdiction's secretariat produced draft notes of meeting content and a one-page status report outlining meeting accomplishments. Meeting notes included a significant level of detail, both for team learning and for future reference. JIT members used status reports to inform their organizations, stakeholders and other interested parties.

The joint secretariat ensured actions tasked to the Technical Review Team, the JIT, or a special subcommittee were clear. The secretariat also compiled other information as requested by the JIT. Draft notes were reviewed by the non-host secretariat and an agreed-upon draft was subsequently sent to JIT members for their review prior to the following meeting. Finalized status reports were posted on Montana's DNRC website, and on Alberta Environment's website.

The JIT's understanding of the management of the St. Mary-Milk River system increased as model results were compiled and compared for their potential impacts upon a jurisdiction's access to water. The model results quantified how changes in administrative and structural parameters affected the amount, timing, and availability of water, and the potential impacts on water users, for very dry to very wet years.

Meeting Summaries, Initiative Results and Recommendations

Each Joint Work Group and Joint Initiative Team meeting resulted in a number of learning's, actions, agreements, and decisions. A large number of administrative and structural parameters were analyzed, both singly and in combination, and meeting discussions could range widely. Decisions made during latter meetings influenced the direction of subsequent work or crystallized common thinking.

Below is a half-page summary of each of the three JWG and 15 JIT meetings. Each meeting includes the meeting number, date, location, attendees and purpose, and a short summary of what was achieved. A complete record of each meeting (without PowerPoint presentation materials) is found in Appendix 2 – Complete Meeting Notes. Meeting notes are sometimes lengthy because of the large number of water management parameters that were discussed.

Initiative results and joint team recommendations are found in the Recommendations Report. That Report contains:

- A short, general description of the 10 structural and four administrative categories of options that were further analyzed.
- A summary of individual options (or series of options) that were dismissed early in the process and why they were not pursued.
- Options that were further studied in the process because they had the potential to provide mutual benefits, including increased access to currently apportioned shares.
- Four structural and one administrative option that were further developed for recommendation.
- Eight joint recommendations or recognitions that are to be taken to the Alberta Premier and Montana Governor.

Summary of Meetings – Joint Work Group and Joint Initiative Team

Below is a summary of the main deliverables of meetings of the Joint Work Group (three meetings) and the Joint Initiative Team (15 meetings). It includes the meeting number, date, location, attendees, purpose, and concludes with a summary taken from the joint status report for each. See Appendix 2 for the complete detailed meeting notes. Technical presentations made as part of the JIT meetings are not part of this report.

Joint Work Group

JWG Meeting #1 – August 25-26, 2008, Lethbridge, Alberta

Attendees – Montana: John Tubbs, Randy Reed, Don Wilson, Dustin de Yong, Paul Azevedo
– Alberta: Robert Harrison, Tom Gilchrist, Gerhardt Hartman, Brent Paterson, Tim Toth

Purpose –

- Introduction of members of Joint Work Group
- Understand context and background to this initiative
- Start preparation of Initiative terms of reference

Summary –

The team received information on the background leading up the creation of the Initiative, described the principles the Initiative should uphold, and expressed the working relationship they desired for the team that will drive the Initiative forward. They discussed and agreed on the process and hierarchy for making changes to the documents that describe how the shared water is managed. They also identified information that currently exists in the St. Mary and Milk River basins, and developed a list of information needs that would help the team better understand this cross-border water-sharing system. In addition, they discussed an appropriate membership for the Initiative and an approximate schedule.

JWG Meeting #2 – September 22-23, 2008, Great Falls, Montana

Attendees – Montana: John Tubbs, Randy Reed, Don Wilson, Dustin de Yong, Paul Azevedo
– Alberta: Robert Harrison, Tom Gilchrist, Gerhardt Hartman, Brent Paterson, Tim Toth

Purpose –

- Build on relationships developed at 25-26 August meeting
- Build draft Terms of Reference to 90% completion level

Summary –

A Joint Work Group from Montana and Alberta met for a second time to develop a Terms of Reference for upcoming discussions between the two jurisdictions on the management of transboundary waters. The Terms of Reference defines the scope, principles, objectives and related process matters that will guide future discussions. The Joint Work Group will meet one more time to finalize the Terms of Reference for approval by the Governments of Montana and Alberta.

Upon approval by the two Governments, representatives from state and provincial government, First Nations in Montana, and water users from the St. Mary and Milk River basins will explore and evaluate options for collaboration on the use and management of

water shared by Montana and Alberta. Members of the Joint Work Group agreed on the importance of developing dynamic, forward-looking proposals that connect decisions on the management of shared water to the needs of water users on both sides of the border. All proposals and recommendations will be forwarded to the Governments of Montana and Alberta for final decisions.

JWG Meeting #3 – October 28, 2008, teleconference

Attendees – Montana: John Tubbs, Randy Reed, Don Wilson, Dustin de Yong, Paul Azevedo
– Alberta: Robert Harrison, Tom Gilchrist, Gerhardt Hartman, Brent Paterson, Tim Toth

Purpose –

- Effectively complete the Terms of Reference

Summary –

On October 28, members of Montana's and Alberta's Joint Work Group reached agreement on a Draft Terms of Reference for the St. Mary & Milk River Water Management Initiative. The Draft Terms of Reference is currently being readied for approval by the governments of Montana and Alberta, anticipated by the end of November 2008.

Under the Draft Terms of Reference, Montana and Alberta agree that the shared water of the St. Mary and Milk Rivers is an important resource to both jurisdictions, and that there are opportunities for the two jurisdictions to work together to improve access to this shared water. The State and Province also agree that the Initiative will be carried out by a joint team of local water users and government officials from both sides of the border.

The purpose of the St. Mary & Milk River Water Management Initiative is to explore and evaluate options for improving both Montana's and Alberta's access to the shared water of the St. Mary and Milk Rivers, and to make joint recommendation(s) on preferred options to both governments for their consideration and approval. The Initiative will focus on the timing and access by both jurisdictions to their share of the water in the St. Mary and Milk Rivers, under Article VI of the Boundary Waters Treaty (1909).

Upon receiving approval of the Draft Terms of Reference (by the end of November), the Initiative will commence in December 2008 and be completed in the fall of 2010.

Joint Initiative Team

JIT Meeting #1 – December 11, 2008, Lethbridge, Alberta

Attendees – Montana: John Tubbs, Dustin de Yong, Randy Reed, Dave Peterson, Paul Azevedo, Larry Dolan; Regrets - Don Wilson: Blackfeet Tribe, representative from Fort Belknap
– Alberta: Robert Harrison, Brent Paterson, Tom Gilchrist, Ken Miller, Gerry Perry, Duncan Lloyd, Tim Toth, Sal Figliuzzi

Purpose –

- To come together as a joint team, clarify outstanding issues with the terms of reference, and start to learn about the St Mary and Milk rivers, water use and management in Montana and Alberta, and all the relevant data to be used in this initiative.

Summary –

Team members received a two-day immersion in the geography, climate, and hydrology of the St. Mary and Milk River Watersheds. Presentations were also given on the U.S. and Canadian systems of water allocation and use, Montana's federal reserved water right compacts, and the Master Agreement on Apportionment (1969) between the governments of Canada, Alberta, Saskatchewan, and Manitoba. Subsequent meetings will alternate between Great Falls, MT and Lethbridge, AB.

JIT Meeting #2 – January 12-13, 2009, Great Falls, Montana

Attendees – Montana: John Tubbs (Jan.12), Dustin de Yong, Randy Reed, Dave Peterson, Harold "Jiggs" Main, (Jan.12), Don Wilson (Jan.13), Paul Azevedo, Larry Dolan; Observers: Larry Mires (St. Mary Rehabilitation Group), Randy Perez (Fort Belknap Indian Community)

– Alberta: Robert Harrison, Brent Paterson, Tom Gilchrist, Ken Miller, Gerry Perry, Duncan Lloyd, Tim Toth, Sal Figliuzzi; Observers: Terrence Lazarus (AENV), Roger Hohm (AARD)

Purpose –

- Second of three educational meetings dedicated to developing a better understanding of the international apportionment procedures and the similarities and differences in how Montana and Alberta manage water.

Summary –

Members of the Montana and Alberta Joint Initiative Team have completed the second of three 'information' meetings. They received presentations on the existing international agreements (1909 *Boundary Waters Treaty*, 1921 Order of the International Joint Commission, 2001 Letter of Intent), on the irrigation infrastructure and water application systems used in each jurisdiction, on the water management operations, and the regulatory/planning process for developing in-stream and ecosystem flows in each jurisdiction.

JIT Meeting #3 – February 18-19, 2009, Lethbridge, Alberta

Attendees – Montana: John Tubbs, Dustin de Yong, Randy Reed, Dave Peterson, Harold "Jiggs" Main, Larry Dolan; John Sanders; Regrets: Paul Azevedo; Observers: John Sanders

– Alberta: Robert Harrison, Brent Paterson, Ken Miller, Gerry Perry, Duncan Lloyd, Tim Toth, Sal Figliuzzi; Regrets: Tom Gilchrist; Observers: Laurent Conard (AENV)

Purpose –

- The last of three educational meetings dedicated to developing a common understanding of how Montana and Alberta manage water, and the start of preparation to developing options.

Summary –

Members of the Montana and Alberta Joint Initiative Team received presentations on each jurisdiction's water supply and management models, past and ongoing structural and water management investigations (including Montana's ongoing St. Mary Canal rehabilitation work, and past work on storage options in both basins), and additional topics requested by the Team (including losses along the U.S. St. Mary canal, and quantities of annual entitlements that were not able to be diverted).

JIT Meeting #4 – April 6-7, 2009, Havre, Montana

Attendees – Montana: John Tubbs, Dustin de Yong, Randy Reed, Dave Peterson, Harold "Jiggs" Main, Paul Azevedo, Larry Dolan
– Alberta: Robert Harrison, Brent Paterson, Tom Gilchrist, Ken Miller, Gerry Perry, Duncan Lloyd, Tim Toth, Sal Figliuzzi

Purpose –

- Increase awareness of water use and management in the Milk River Basin, MT.
- Start process for developing and evaluating options to improve both Montana's and Alberta's access to the shared water of the St. Mary and Milk Rivers.

Summary –

Members of the Montana and Alberta Joint Initiative Team (JIT) toured a portion of the Milk River basin in Montana for a first-hand look at agricultural and municipal water uses in the basin. Water managers from Montana and Saskatchewan described how they cooperate to share water according to the needs of local water users. Team members learned that, in dry years, glacial melt water might contribute 1% - 5% of the total flow in the St. Mary River. JIT members also began the process of identifying the interests (or benefits) their jurisdictions would like to have, when they develop water management options. In addition, Members started to develop the criteria against which they will measure those prospective options. Team members ended their two-day meeting with a brainstorming exercise on what potential water management options could exist to improve both Montana's and Alberta's access to the shared waters of the St. Mary and Milk Rivers.

JIT Meeting #5 – May 4-5, 2009, Lethbridge, Alberta

Attendees – Montana: John Tubbs, Dustin de Yong, Randy Reed, Paul Azevedo, Don Wilson, Harold "Jiggs" Main, Larry Dolan; Regrets: Dave Peterson; Observers: Larry Mires, John Sanders
– Alberta: Robert Harrison, Brent Paterson, Tom Gilchrist, Ken Miller, Gerry Perry, Duncan Lloyd, Tim Toth, Sal Figliuzzi

Purpose –

- This meeting is dedicated to understanding the Alberta upper St. Mary River water management infrastructure, and to clarifying jurisdictional interests, evaluation criteria and starting to develop a common set of water management options.

Summary –

Members of the Montana and Alberta Joint Initiative Team (JIT) toured a portion of the upper St. Mary River basin in Alberta. Water managers from Alberta Agriculture and Rural Development gave JIT members a first-hand look at the St. Mary River Dam headworks, and irrigation and water management infrastructure in the basin. Representatives from three of Southern Alberta's irrigation districts were on hand to provide additional information.

At the meeting, details of the Boundary Waters Treaty (1909), the Order (1921) and the Letter of Intent were reviewed by the technical team leads. Further, the technical team leads gave an update on the status of the water management model and the data that will be used to characterize the system. Lastly, the JIT members started a review of the water management options that may be recommended, how those options would address jurisdictional interests, and the evaluation criteria that would be used to evaluate, compare and rank an option to determine how well that option allowed the jurisdiction to achieve its interest.

JIT Meeting #6 – June 8-10, 2009, East Glacier National Park, Montana

Attendees – Montana: John Tubbs, Dustin de Yong, Randy Reed, Dave Peterson, Don Wilson, Harold "Jiggs" Main, Paul Azevedo; Observers: Mike Dailey (DNRC), John Bohlinger (Lt. Governor, MT), Kelly Titensor (USBR), Larry Mires (SMWG), John Sanders (DNRC)
– Alberta: Robert Harrison, Brent Paterson, Tom Gilchrist, Ken Miller, Gerry Perry, Duncan Lloyd, Tim Toth, Sal Figliuzzi; Observers: Bev Yee (Asst. Deputy Minister, AENV), Laurent Conard (AENV), Allen Wright (Unitech Solutions, Alberta)

Purpose –

- Tour St. Mary Diversion and Conveyance Facilities on the Blackfeet Reservation, Glacier County, MT.
- Continue process for developing and evaluating options to improve both Montana's and Alberta's access to the shared water of the St. Mary and Milk Rivers.

Summary –

Members of the Montana and Alberta Joint Initiative Team (JIT) toured a portion of St. Mary Diversion and Conveyance Works on the Blackfeet Reservation in MT. Water managers from the USBR gave JIT members a first-hand look at the storage and conveyance system responsible for diverting water from the St. Mary River to the North Fork of the Milk River. Reclamation's fisheries biologist updated JIT members on the status research on bull trout (*Salvelinus confluentus*) in the Montana portion of the St. Mary basin.

At the meeting, the Technical Team leads updated the JIT on the status of the water management model. The Technical Team is testing and calibrating the model so that it mimics, as closely as possible, actual operations of the system during the 1959-2003 period. JIT members described 17 potential water management options for the Technical Team to evaluate with the water management model over the next three months. For each water management option evaluated, the Technical Team will determine the volume of water each jurisdiction is able to access under the option. Modeling results will be reviewed by the JIT at its fall meeting.

JIT Meeting #7 – July 23, 2009, Writing-On-Stone Provincial Park, Alberta

Attendees – Montana: Dustin de Yong (co-Chair), Randy Reed, Dave Peterson, Harold "Jiggs" Main, Larry Dolan; Regrets: Don Wilson, Paul Azevedo; Observers: John Sanders, Mike Dailey
– Alberta: Robert Harrison, Brent Paterson, Tom Gilchrist, Ken Miller, Gerry Perry, Duncan Lloyd, Sal Figliuzzi; Regrets: Tim Toth

Purpose –

- Tour the Milk River in Alberta, including potential dam and reservoir location, Milk River channel regime and erosion, example direct pumping crop irrigation operation and direct pumping crop and ranch operation.
- Review model calibration, approve the model for evaluating options, and confirm first priority options to be modelled.
- Review proposed evaluation output tables and approve these tables.

Summary –

Members of the Montana and Alberta Joint Initiative Team (JIT) toured the Alberta portion of the Milk River to view the potential Milk River Dam location, channel erosion on the Milk River and two direct pumping irrigation operations and the continuous water metering at these operations.

At the meeting, the Technical Team leads presented the final calibration results of the water management model to the JIT. The Technical Teams feels the model mimics, as closely as possible, actual operations of the system during the 1959-2003 periods. They recommended to the JIT that the model was ready to simulate the future water management options. The JIT agreed with the Technical Teams recommendation and instructed them to proceed with the simulation of the future water management options.

JIT Meeting #8 – September 24-25, 2009, Lethbridge, Alberta

Attendees – Montana: Dustin de Yong (co-Chair, day 1), Randy Reed, Dave Peterson, Harold "Jiggs" Main, Paul Azevedo, Larry Dolan, Anne Yates (co-Chair, day 2); Regrets: Don Wilson, Anne Yates (day 1); Observers: John Sanders – Alberta: Robert Harrison, Roger Hohm, Tom Gilchrist, Ken Miller, Gerry Perry, Duncan Lloyd, Tim Toth, Sal Figliuzzi; Observers: Laurent Conard

Purpose –

- Understand the Base Case situation and implications
- Understand results of the Tier 1 (better access to share) model runs completed to date, and clarify the Tier 2 (better use of share received) options for the modellers
- Identify actions to complete the initiative by April 2010

Summary –

Members of the Joint Initiative Team (JIT) reviewed the results of potential future water management options as simulated by the Technical Teams hydrologic simulation model. Model simulations were compared to a *base case* scenario that reflects current water delivery operations as much as possible.

Technical Team members ran about 250 model simulations in the previous 8-10 weeks. Potential future water management options modelled included three different St. Mary canal capacities, different storage capacities in Sherburne Reservoir, Lower St. Mary Lake and Fresno Reservoir; three different storage capacities on the Milk River, Alberta, and various combinations. Additional simulations were done to assess 1) the theoretical maximum amount of water generated by the St. Mary-Milk River system without concern for whether or not the water can be put to use; 2) the impact of in-stream flow releases on irrigation water deliveries; and 3) a shared Montana-Alberta Milk River storage project. Each simulation generated a large quantity of data, including flows in the St. Mary and Milk River channels, flows in the St. Mary Canal and each irrigation district canal, water levels in each reservoir, and irrigation shortfalls. Model outputs were summarized in three categories to measure the relative benefits to Montana and Alberta, as the percent of entitlement share accessed; the volume of water this represents; and the irrigation delivery volumes and their reliability.

After considering the results, the Joint Team requested additional model runs to complete their understanding of the system.

JIT Meeting #9 – October 28-29, 2009, Great Falls, Montana[15]

Attendees – Montana: Anne Yates, Dustin de Yong, Randy Reed, Don Wilson, Paul Azevedo, Larry Dolan; Regrets: Harold "Jiggs" Main, Dave Peterson; Observers: John Sanders

[15] The full Joint Initiative Team did not officially approve these meeting notes. They represent the consensus agreement of the Montana and Alberta secretariats.

– Alberta: Robert Harrison, Brent Paterson, Tom Gilchrist, Ken Miller, Duncan Lloyd, Tim Toth, Sal Figliuzzi, Roger Hohm; Regrets: Gerry Perry

Purpose –

- Understand implications of completed Tier 1 (access to share) model runs and review Tier 2 (better use of share) runs completed
- Direct Technical Team on the need for any additional model runs
- Discuss process for evaluating Options and Criteria to be used. Finalize Evaluation Criteria and Interests
- Begin discussion of international watershed group
- Finalize comments on Technical Background Report

Summary –

Members of the Montana and Alberta Joint Initiative Team (JIT) reviewed preliminary results from additional model runs team members requested during their September meeting. These additional model runs included a modified filling curve for Sherburne Reservoir, modifications to the current Letter of Intent allowing the U.S. to accumulate a larger early season deficit on the St. Mary River, seasonal and annual balancing periods, off canal storage on the St. Mary Canal, and a re-examination of storage on the Milk River in Alberta.

JIT members discussed and came to agreement on a process for evaluating all the potential water management options in order to screen the list to a set of preferred options for recommendation to the Governor and Premier. Initial screening of options is planned to take place in January 2010. JIT members also discussed the possible development of a joint international water management body that could continue some of the work of the current JIT. As proposed, this body would provide a link between water users and the water management agencies in each jurisdiction. Water users on each side of the border would benefit if Montana and Alberta continue to work together in a flexible, cooperative, and coordinated fashion.

JIT Meeting #10 – December 3-4, 2009, Lethbridge, Alberta

Attendees – Montana: Anne Yates, Dustin de Yong, Randy Reed, Dave Peterson, Harold "Jiggs" Main, Paul Azevedo, Don Wilson (day 1 only), Larry Dolan; Observers: John Sanders

– Alberta: Robert Harrison, Brent Paterson, Tom Gilchrist, Ken Miller, Gerry Perry, Duncan Lloyd, Tim Toth, Sal Figliuzzi; Observers: Roger Hohm, Laurent Conard (Dec.3)

Purpose –

- Understand implications of completed runs and get closure on all model run results
- Finalize process for evaluating model Options
- Start to identify runs that can be eliminated from further evaluation

Summary –

Members of the Montana and Alberta Joint Initiative Team (JIT) reviewed the results from the remainder of the hydrological model runs they requested during their October meeting. These runs included the impact on irrigation delivery under the following water management alternatives: seasonal and annual balancing periods; with Alberta participating in the U.S. St. Mary canal using different water-sharing scenarios; for the theoretical number of acres that could be irrigated reliably with a maximum water supply; and the amount of water each jurisdiction would be entitled to under a water-sharing arrangement different than the 1921 Order. The Team was also presented an update on the First

Nations water rights by the representatives of the Blackfeet Tribe, and Fort Belknap Indian Community.

The Technical Team leads presented a summary of all 70 model run options made to date. They answered questions to clarify details on the potential water management options. JIT members discussed the criteria to be used to evaluate and screen the number of potential options. The evaluation criteria include a numeric element to calculate 1) the percent share and volume of water that an option could provide to each jurisdiction, and 2) irrigation reliability, and a non-numeric element where best professional judgement will be used to assess other potential impacts of providing better access to the shared water of the St. Mary and Milk Rivers. JIT members then reviewed and agreed to eliminate about 23 potential options (both technical and administrative) from further evaluation. Final, detailed review of the remainder of potential options will be pursued at the January 2010 meeting.

JIT Meeting #11 – January 14-15, 2010, Great Falls, Montana[16]

Attendees – Montana: Anne Yates, Dustin de Yong, Randy Reed, Dave Peterson, Harold "Jiggs" Main, Paul Azevedo, Don Wilson (day 1 only), Larry Dolan; Observers: John Sanders, Dan Jewell (USBR), Kelly Titensor
– Alberta: Robert Harrison, Brent Paterson, Tom Gilchrist, Ken Miller, Gerry Perry, Duncan Lloyd, Tim Toth, Sal Figliuzzi

Purpose –

- Understand implications of completed runs
- Finalize process for evaluating model options
- Start to rank options

Summary –

Members of the Montana and Alberta Joint Initiative Team (JIT) reviewed the results from several hydrological model runs completed since their December meeting. These runs included various options for increased storage in Fresno Reservoir, opportunities for sharing the St. Mary Canal, and new off-stream storage on the Fort Belknap Indian Reservation in Montana.

Team members agreed that the remaining options should be discussed in the context of the potential to implement them in the short, medium, or long-term. Both Teams agreed in principle that some form of annual balancing is the most promising short-term option, rehabilitation of the St. Mary Canal should be pursued in the medium-term, and new or increased storage is a beneficial long-term solution. Both jurisdictions recognize the right of the other jurisdiction to capture its full share of water through the construction of storage or by administrative means.

Both Teams will now define, in their own terms, the principles and guidelines that should be followed in refining the parameters of the short, medium, and long-term options. Developing a joint set of principles and guidelines will be discussed at the February (2010) meeting.

JIT Meeting #12 – February 23-24, 2010, Lethbridge, Alberta

Attendees – Montana: Anne Yates, Dustin de Yong, Randy Reed, Dave Peterson, Harold "Jiggs" Main, Paul Azevedo, Larry Dolan; Regrets: Don Wilson
– Alberta: Robert Harrison, Tom Gilchrist, Ken Miller, Gerry Perry, Duncan Lloyd, Tim Toth; Regrets: Brent Paterson, Sal Figliuzzi

[16] The full Joint Initiative Team did not officially approve these meeting notes. They represent the consensus agreement of the Montana and Alberta secretariats.

Purpose –

- Understand completed new model runs
- Understand implications of potential options
- Discuss options that have potential to become recommendations

Summary –

The Joint Initiative Team (JIT) reviewed the results from hydrological model runs completed since their January meeting. The Team has reduced the number of potential water management options to be evaluated from twenty-some to primarily two, and Montana proposed an option to evaluate the impact to each jurisdiction if the proportion of shares was changed. All potential options are intended to help each jurisdiction acquire better access to its entitlement.

The potential options are: (1) administrative – a credit-based system where water must flow into and be credited to a jurisdiction before there can be withdrawals against that credit, and (2) structural – storage alternatives, and the rehabilitation and sharing the capacity of the U.S. St. Mary diversion canal. Each jurisdiction outlined its proposed credit-based system and potential alternative details to modify and refine it. The potential implications to the shares were modelled for both rivers and are being further refined. The goals for the structural options include helping Montana improve its water management, and moving both Alberta and Montana towards accessing 100% of their shares.

The Technical Team clarified a number of aspects of the proposals. The Technical Team will now undertake more detailed modelling to better define the potential impacts of the options and the refining details. That information will be presented at the next Joint Team meeting.

JIT Meeting #13 – June 3, 2010, Teleconference – Lethbridge, Alberta and Great Falls, Montana

Attendees – Montana: Anne Yates, Dustin de Yong, Randy Reed, Dave Peterson, Paul Azevedo, Larry Dolan; Regrets: Don Wilson, Harold "Jiggs" Main; Observers: John Sanders, Mary Vandenbosch (DNRC)
– Alberta: Robert Harrison, Brent Paterson, Tom Gilchrist, Ken Miller, Gerry Perry, Duncan Lloyd, Tim Toth, Sal Figliuzzi; Observers: Roger Hohm

Purpose –

- Understand completed new model runs
- Understand implications of potential options
- Discuss path forward

Summary –

Members of the Montana and Alberta Joint Initiative Team (JIT) met by conference call to review and discuss the results of hydrological model runs completed since their February meeting. The Montana Team was located in Great Falls, Montana, and the Alberta Team was located in Lethbridge, Alberta. Team members reviewed results for the following options: Shared Alberta Milk River Storage Reservoir where Fresno Reservoir storage is 50,000 AF (Option 8f); Montana's Annual Balancing-Credit System Proposal (Option Series MT); and the Revised Modified 1921 Order with 100% Volume Cap (Option MO). Alberta's annual credit proposal from the February JIT meeting was not run. Alberta confirmed that this Proposal was withdrawn.

Team members agreed to a path forward that involves using a common sense approach to understanding the technical information. The co-chairs reported on a

conference call with the International Joint Commission and the Alberta Team's meeting with Alberta's Ministers of Agriculture and Environment.

JIT Meeting #14 – July 19-20, 2010, Havre, Montana

Attendees – Montana: Anne Yates, Dustin de Yong, Randy Reed, Dave Peterson, Paul Azevedo, Larry Dolan; Absent members: Don Wilson, Harold "Jiggs" Main; Observers: John Sanders, Mary Vandenbosch
– Alberta: Robert Harrison, Brent Paterson, Tom Gilchrist, Ken Miller, Gerry Perry (day 1 only), Duncan Lloyd, Tim Toth, Sal Figliuzzi

Purpose –

- Understand each team's perspective on options
- Strategize plan for remaining process

Summary –

Members of the Montana and Alberta Joint Initiative Team (JIT) completed their review of approximately 100 water management options that have been developed over the past 12 months. These options can be broadly broken down into those that can be implemented through administrative procedures, and options requiring construction or modification of infrastructure. Alberta and Montana co-chairs took turns summarizing the core information each jurisdiction gleaned from the hydrological modeling results. The teams shared their vision of success for the current Initiative and presented their recommendations for preferred water management options. Team members agreed that there was sufficient commonality in the two proposals to warrant further investigation of an option that combines the proposals.

The Joint Initiative Team established a subcommittee to explore a proposal to blend Alberta's preferred option for the 11 driest years (1st quartile) with Montana's preferred option for the 2nd and 3rd quartiles. Team members agreed that access to water in the wettest years (4th quartile) is not an issue. The subcommittee is to report back to the full JIT membership by mid-October (2010). Members of the subcommittee include the Montana and Alberta co-chairs, water users from both jurisdictions, and the technical team leads.

JIT Meeting #15 – August 16, 2011, Lethbridge, Alberta[17]

Attendees – Montana: Anne Yates, Dustin de Yong, Randy Reed, Dave Peterson, Paul Azevedo, Larry Dolan; No Longer Participating – Representatives of the Blackfeet Tribe and the Fort Belknap Indian Community
– Alberta: Robert Harrison, Brent Paterson, Tom Gilchrist, Ken Miller, Duncan Lloyd, Tim Toth, Brian Yee; Regrets: Gerry Perry; Observers: Roger Hohm

Purpose –

- Review the Credit System option to ensure complete understanding
- Understand each team's views on the Credit System option
- Determine vision of completed initiative
- Develop the path to complete this initiative (include reporting needs)

[17] The full Joint Initiative Team did not officially approve these meeting notes. They represent the consensus agreement of the Montana and Alberta secretariats.

Summary –

The Technical Team presented a summary of the results of the Credit System option to the Joint Initiative Team. The Credit System enables the upstream jurisdiction to build a credit for surplus water crossing the border during the winter and spring high flows. The upstream jurisdiction may then draw on the credit during the irrigation season. The system incorporated caps on water volumes to limit the risk to downstream irrigators.

Each jurisdiction evaluated the potential (modelled) impacts on their jurisdiction, and discussed that information with their water users and management agencies prior to the Joint meeting. The Montana Team advised that the Credit System as proposed was not acceptable for a number of reasons.

The jurisdictions subsequently agreed to have the Technical Team undertake a detailed analysis of five previously reviewed options (most of which have been modelled), to determine the amount of benefit and amount of risk to each jurisdiction. The information will be presented at the next Joint Team meeting.

IJC Process Report Appendices

Appendix 1 – Terms of Reference

Montana – Alberta

St. Mary and Milk Rivers

Water Management Initiative

Terms of Reference

November 2008

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List of Appendices

1. Introduction, Background and Geography

Introduction

Montana and Alberta have shared the water of the St. Mary and Milk Rivers for one hundred years, under Article VI of the Boundary Waters Treaty (1909).

Montana and Alberta agree that the shared water of the St. Mary and Milk Rivers is an important resource to both jurisdictions.

Montana and Alberta believe there are opportunities for the two jurisdictions to work together to improve access to this shared water.

These terms of reference define the purpose, scope, principles, objectives, membership, code of conduct, and related process matters to guide the efficient functioning of the St. Mary and Milk Rivers water management joint initiative team (Joint Initiative Team).

The Joint Initiative Team will make recommendations to the governments of Montana and Alberta on options to increase the ability of each jurisdiction to better access the shared waters of the St. Mary and Milk River systems.

Background

In April 2003, Montana Governor Judy Martz requested the International Joint Commission (IJC) to undertake a review of the IJC 1921 Order pursuant to Article VI of the Boundary Waters Treaty, regarding the sharing of water between Canada and the United States. The IJC responded by forming a St. Mary / Milk Rivers Administrative Measures Task Force which issued a report in April 2006. The IJC also suggested that Montana and Alberta begin high level, cross-border discussions regarding the use and management of the shared waters.

This Initiative, in part, is in response to the IJC's request that Montana and Alberta seek opportunities to *"explore the fundamental and interrelated issues of collaboration on the use and management of transboundary waters, cooperation on the rehabilitation of the St. Mary Canal and future arrangements for increasing the ability of each country to better access the full amount of water available to it under the current apportionment."* (see Appendix 1)

The respective water management agencies have been instructed by their governments to work together to explore opportunities and to make recommendations for the consideration of both jurisdictions.

The United States has authorized the rehabilitation of the St. Mary Diversion Works and the reinvestment in this project represents a one time opportunity for both Montana and Alberta to improve the water infrastructure that connects the St. Mary and Milk Rivers.

The focus is on the water users in the St. Mary and Milk River watersheds and their access to the water at the time it is required.

Geography

This Initiative is defined by the watersheds of the St Mary River to its confluence with the Oldman River, and the Milk River to its confluence with the Missouri River, and includes the St. Mary River Irrigation Project, for the purpose of understanding use of St. Mary River water in Alberta.

The Initiative will not discuss management options that affect the water entitlement of the Province of Saskatchewan. However, if an option being evaluated has the potential to impact Saskatchewan's entitlement, then discussions will be held with Saskatchewan in a timely manner.

2. Purpose

The purpose of this Initiative is to explore and evaluate options for improving both Montana's and Alberta's access to the shared water of the St. Mary and Milk Rivers, and to make joint recommendation(s) on preferred options to both governments for their consideration and approval.

3. Scope

The Initiative will focus on the timing and access by both jurisdictions to their share of the water in the St. Mary and Milk Rivers, under Article VI of the Boundary Waters Treaty.

There are many uses for water within the St. Mary and Milk River basins, including municipal, power production, agriculture and in-stream flow needs for the environment. All uses will be considered when evaluating options, however, this initiative will focus on the two largest uses: irrigation and in-stream flow needs for the environment.

Recommendations to modify existing treaty instruments, including the Letter of Intent, the Administrative Procedures, and the 1921 Order, may be evaluated if those instruments present a barrier to implementing preferred options.

In addition, projects that could be jointly developed for benefit on both sides of the border should be evaluated, specifically, rehabilitation of the St. Mary Canal.

Out of scope

Changes to the Boundary Waters Treaty are not the focus of this Initiative.

Water quality and ecosystem health are implicated in any water sharing option and must be understood when recommending options, but are not the focus of this Initiative.

Water right compacts negotiated by the State of Montana, Blackfeet Tribal Government, Ft. Belknap Indian Community Tribal Government, and/or the US Government are not the focus of this Initiative.

Alberta's sharing of water with Saskatchewan under the Master Agreement on Apportionment is not part of this Initiative.

4. Principles

The Boundary Waters Treaty forms the foundation for sharing the water of the St. Mary and Milk Rivers.

The Joint Initiative Team will strive toward developing a dynamic, forward-looking, joint working relationship and aim to create enduring options for sharing the water of the St. Mary and Milk Rivers.

Water sharing options will consider implications for users in both watersheds.

Water sharing options will account for the special circumstances associated with low water years.

In evaluating options, the Joint Initiative Team must have an understanding of the procedures for managing water and making decisions in each jurisdiction.

All proposed options will be evaluated for compliance with the following treaty instruments, in the following order:

1. The Letter of Intent
2. The Administrative Procedures, and
3. The 1921 Order of the IJC

as follows:

- If the proposed options are beneficial and in accord with the treaty instruments, then the process can proceed.
- If the proposed options are beneficial but constrained by one or more of the treaty instruments, then recommendations will be made to enter into agreements that improve the instrument(s).

Options should seek to maximize and balance the long-term benefits to water users in both jurisdictions. Each jurisdiction is responsible for determining what constitutes its own long-term benefits.

Options may consider other tools that build on grass-roots cooperation and give decision makers the flexibility to meet the irrigation and in-stream flow needs of water users in both jurisdictions.

5. Objectives, Outcomes and Deliverables

Objectives

Participants in this Initiative will aim to develop a better understanding of the similarities and differences in how Montana and Alberta manage water.

This Initiative will work to identify constraints to improving access to the shared water, including differences in supply and demand; accounting for surpluses and deficits; and emerging uses.

This Initiative will link water management decision-making more closely with the needs of water users in both jurisdictions. Management flexibility is required to moderate the effects of the distinct and variable natural hydrographs in the St. Mary and Milk Rivers.

Outcomes
Montana and Alberta work together for the long-term benefit of water users and the environment in both jurisdictions.

Montana and Alberta develop an adaptive, dynamic, joint water management decision-making process driven by the needs of water users and the environment at the local level.

Opportunities for beneficial use of the water of the St. Mary and Milk River systems for people and the environment are maximized.

Water supplies for people and the environment are secured.

Montana and Alberta will recommend that the IJC closes its file on Montana's 2003 request to review the 1921 Order.

Deliverables
A report to be submitted to the governments of Montana and Alberta that:

- recommends projects, initiatives, tasks and administrative procedures necessary to improve access to the shared water,
- evaluates the options recommended and options not recommended, and
- includes a description of the positive and negative impacts, if any, associated with each option.

6. Membership and Responsibilities

Membership
Each jurisdiction will have an equal number of members that are appointed by the State and the Province from their respective jurisdictions. Membership will include those interests that will be directly affected by the Initiative. Co-chairs will be identified from the water management agencies in Montana and Alberta. Members will not be supported by alternates.

Montana	Alberta
Montana Department of Natural Resources & Conservation (co-chair) (1)	Alberta Environment (co-chair) (1)

Milk River – (2)	Oldman Watershed Council (2)
St. Mary – Blackfeet Tribe (1)	Milk River Watershed Council Canada (2)
Ft. Belknap Indian Community (1)	Alberta Agriculture and Rural Development (1)
State representative (Lt. Governor's office) (1)	Secretariat (1)
Secretariat (1)	

Additional Participants

There are other individuals and organizations that are necessary to either support the Initiative or that must be communicated with and made aware of it. They include technical support personnel, direct stakeholders, and those who will receive communication notices.

Participant Type	Organization
Technical Support	IJC Accredited Officer(s), U.S. Bureau of Reclamation, Montana Department of Natural Resources & Conservation, Blackfeet Tribal Agencies, U.S. Army Corps of Engineers, Alberta Environment, Alberta Agriculture and Rural Development, Alberta International and Intergovernmental Relations, Canadian federal departments, other agencies as needed.
Direct Stakeholders	U.S. Bureau of Reclamation, U.S. Army Corps of Engineers, U.S. Geological Survey, Blackfeet Tribal Business Council, Ft. Belknap Tribal Business Council, membership of the U.S. St. Mary Rehabilitation Working Group. In Alberta, direct stakeholders are defined by the membership of the Oldman Watershed Council and Milk River Watershed Council Canada.
Communication Notice	International Joint Commission, Canadian federal departments, other Alberta Government Departments, U.S. Fish and Wildlife, Provincial Members of the Legislative Assembly.

Responsibilities

Members are expected to:

- Attend and participate in all meetings.
  - Members will notify their respective co-chair immediately if they are unable to attend a meeting.
  - Members will notify their co-chair with any concerns about an upcoming decision, if a scheduled decision is to be made at a meeting that the member cannot attend.
- Review relevant information and be prepared to fully participate in meetings.
- Fully explore and understand all the issues before reaching conclusions.
- Seek areas of agreement and uphold agreements that are reached.
- Explore all options and make recommendations.
- Seek the advice of their constituency throughout the process.
- Make every effort to represent and speak for their constituency by:

    - Objectively explaining and interpreting the process and its proposed outcome to their constituency
    - Keeping their constituency informed of the activities and ideas emerging from the process
- Keep their respective hierarchy of decision-makers informed on progress and seek direction as required to support upcoming decisions and recommendations.
- Maintain their values and interests.

7. Code of Conduct and Procedures

Code of Conduct and Quorum
All participants are encouraged to contribute openly to this Initiative, as full and open contribution is important to building trustworthy relationships.

Quorum – All meetings must have a quorum of participants to proceed. A quorum is a minimum of four (4) representatives from each jurisdiction.

Participants will endeavour to:

- Support a fair, transparent and collaborative process
- Treat others with courtesy and respect
- Candidly identify and share their interests while maintaining an open mind to other's interests and the opportunity for compromise
- Listen carefully to each other, ask questions to understand and make statements to explain or educate
- Challenge ideas, not people
- Share relevant information regarding the issues under consideration, and further agree to respect the need for confidentiality of certain types of information
- Let opposing views co-exist but focus on collective goals
- Speak in terms of interests (underlying concerns) rather than positions (predetermined solutions)
- Be concise, and stay on topic
- Use a "parking lot" for issues that are external to the day's agenda

Procedures for finding agreement
The Joint Initiative Team will seek consensus on all decisions and recommendations.

Consensus will be measured by asking participants how they feel about a particular recommendation, proposal or action according to the following method.

Level of Support	Signified by	Meaning
1	Thumbs Up	I agree and will support this recommendation, proposal, or action.
2	Thumbs	I'm neutral or may not prefer this recommendation,

	Sideways	proposal, or action but I will support it, either because it's not important enough to block, or because it seems to be the best solution at this time, and we reached a conclusion fairly and deliberately.
3	Thumbs Down	I cannot support this recommendation, proposal or action, but here is my suggestion on how the group might move past or address this disagreement or impasse.

Consensus is reached if all participants respond with either 1 or 2, and the Team can proceed.

When participants disagree with a recommendation, proposal, or action or choose support level 3, they should articulate their concern to the larger group, and provide a constructive alternative(s) that seeks to accommodate the interests of all participants.

The Joint Initiative Team will continue with this procedure until consensus is achieved or the group decides to disagree.

Procedures in the event of not reaching consensus
If the Joint Initiative Team has tried in good faith but is still unable to reach consensus, and still wants to move forward on the recommendation, proposal, or action at hand, they may use the following fallback mechanisms:

- Define the issue (issue: a subject of discussion, negotiation or problem solving – the *what,* the problem to be solved)
- Identify interests (interest: one party's concerns, needs or desires underlying the issue – *why* the issue is being raised [interests may be mutual or separate]. This is the motivation to solve the problem.)
- Brainstorm options for moving ahead (option: potential – often partial – solutions to meet one or more interests – *how* the problem might be solved)
- Identify standards (standard: agreed upon qualities of an acceptable solution – that is – *how well* an option solves the problem)
- Evaluate options
- Choose an option

If the Team is unable to reach agreement on an issue, further follow-up may be assigned to a task group. The task group will attempt to develop additional proposals or actions to resolve the issue and report its recommendations to the Team.

When appropriate, external resources may be engaged to provide an independent opinion.

If none of the above helps the Joint Initiative Team make progress, the Team will seek further direction from the governments of both jurisdictions.

8. Tasks and Resources

Tasks will include:

	Task	Resources
	Collect background materials (maps, reports, models)	Joint Technical Support Team
	Develop information on aggregate water supply, actual use, and demand by sector	Joint Technical Support Team
	Develop information on and recommend an appropriate hydrological modeling software	Joint Technical Support Team
	Evaluate options to improve access to the shared water for both jurisdictions	Joint Initiative Team
	Recommend options improve access to the shared water for both jurisdictions	Joint Initiative Team

9. Schedule

Phase 2 is to start in December 2008 and be completed by April 1, 2010, to provide its first recommendations to the governments of Montana and Alberta. This leaves time for further review and analysis to be undertaken later in 2010.

The elapsed time for Initiative completion should be about 18 months, as follows:

- Learning Phase - Approximately 3 meetings over 3 months. This phase will have considerable technical support needs.
- Options Evaluation Phase – Approximately 3 or 4 meetings over 9-12 months.
- Recommendations Phase – Approximately 3 meetings over 3 months.

10. Budget

The budget for this Initiative falls within the operational budget of each jurisdiction.

International Joint Commission
Canada and United States

23 OCT 2007 RCVD

Commission mixte internationale
Canada et États-Unis

October 19, 2007

The Honorable Brian A. Schweitzer
Governor of Montana
Helena, MT 59620-0801

Premier Ed Stelmach
Office of the Premier
Room 307, Legislature Building
10800 – 97th Avenue
Edmonton, AB T5K 2B6

Dear Governor Schweitzer:

Dear Premier Stelmach:

On July 20, as a follow up to our meetings with each of you, we sent the draft of a letter, that ultimately would be directed to you, to contacts we had in your respective governments. The purpose of sending the draft (enclosed) was to seek comments on how we might improve the formal letter to the two of you. Feedback regarding our draft has been quite positive. It has included the Governor's direct response (enclosed) as well as verbal comments from Alberta. We thank you both for the prompt and serious consideration given to our draft.

Clearly there is a shared interest in beginning Governor/Premier level discussions concerning the use and management of the St. Mary/Milk Rivers. We are pleased that this is the case. We continue to believe that the approach outlined in our draft provides the best opportunity for real progress now and into the future. In particular, we think that an early initial meeting between the two of you can set the process in motion and lead to your establishment of a small group to explore the fundamental and interrelated issues of collaboration on the use and management of transboundary waters, cooperation on the rehabilitation of the St. Mary Canal, and future arrangements for increasing the ability of each country to better access the full amount of water available to it under the current apportionment. We also think that this group should initially be composed of senior officials from Montana and Alberta who have your confidence and the U.S.–Canada St. Mary and Milk Rivers field representatives who are responsible for implementing the current apportionment.

While it is important that this group be asked to report back to you in fairly short order, the experience of the group, which could be referred to as an "interim watershed council", could point the way to more comprehensive consultations or arrangements in the future.

.../2

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Thank you again for meeting with us earlier this year to discuss the extremely important issues regarding water use in the St. Mary and Milk Rivers basins. All Commissioners and staff are available to provide you with additional information or any other support you might find to be helpful.

Sincerely,

The Honorable Allen I. Olson
Commisioner, U.S. Section

The Honorable Jack Blaney
Commissioner, Canadian Section

Enclosures

Appendix 2 – Complete Meeting Notes

I. **Phase 1 – Joint Work Group (3 meetings)**

II. **Phase 2 – Joint Initiative Team (15 meetings)**

Appendix 2 – Complete Meeting Notes

I. Phase 1 – Joint Work Group (3 meetings)

Montana – Alberta: St Mary & Milk Rivers Water Management Initiative

Joint Work Group, Meeting #1, Lethbridge Lodge Hotel

August 25 & 26, 2008, Lethbridge, Alberta

Montana	Alberta
John Tubbs – Dep't of Natural Res. & Conserv.	Robert Harrison – AB Environment
Randy Reed - Milk River irrigator	Tom Gilchrist – Milk River
Don Wilson - Blackfeet Tribe	Gerhardt Hartman – Oldman River
Paul Azevedo – DNRC	Brent Paterson – AB Agriculture
Dustin de Yong - Office of the Lt Governor	Tim Toth – AB Environment

Purpose of Joint Work Group

To develop a terms of reference that outlines the desired outcome, scope, participants, consultation, schedule, budget and review process for the Montana – Alberta St Mary & Milk Rivers Water Management Initiative for approval by both jurisdictions.

Purpose of Meeting

- Introduction of members of Joint Work Group
- Understand context and background to this initiative
- Start preparation of initiative terms of reference

NOTES of meeting

8:30 – Member introductions, background and connection to this initiative.

Introductions and background of all…

9:00 – Why are we here? Background leading up to this initiative.

- MT is completing a Federal Reserved Water Rights Compact with the Blackfeet Tribe. Compact must be ratified by the State Legislature, the Federal government and the Tribe. The State is also working to complete the adjudication of water right claims in the Milk River Basin. There are 12 000 claims on the Milk R.
- MT wants to manage their transboundary waters more effectively, right from the headwaters to their local water users
    - this includes understanding the needs of all basin water users and better managing the available water
- MT has a near-term opportunity to rehabilitate infrastructure on the St. Mary Canal.
- This group is a starting point, is process-oriented, and has representation from heads of large water-using groups. A different team will have to be created to deal with the ultimate management of the shared water.
- AB – the overall impact of this work is a longer duration relationship between MT and AB.

9:30 – Discussion of expectations

- Increase **communication** between agencies, users, and use open and honest communication
    - the international boundary confounds communication; don't let that happen

- develop a dynamic, forward-looking, working relationship between state, Tribe and province
    - be inclusive; there are a lot of parties that are involved
    - build on grass-roots similarities; don't allow political process to confound relationship
    - the relationship between MT and AB should grow into the future
    - work together, since solutions created together are much stronger (same crops, *etc.*)
    - governance (agreements) should serve the water users, not the Treaty

- put all ideas on the table, identify best options for improving basin residents' water management, identify pros/cons of all options
- produce a report to transmit to government recommending the best option for improving basin residents' water management

- manage water from a **basin perspective**
    - identify how water is actually used by the users; Phase 2 team must understand the intricacies of water management in the basin now (*e.g.*, how MT-AB systems are similar and different), but must think about the future.
    - understand the infrastructure in place; identify canal capacity needed and move as quickly as possible to the operational level; timing is critical
    - MT and AB should operate together to meet the needs of both jurisdictions

- water demand should drive water management
    - develop joint management of water resources that meets needs at the local level, vs. using a formula for water management
    - ultimate water management operations should be dynamic
- modify administrative measures to maximize the volume of water for beneficial use, including the creation and operation of infrastructure
- develop assured water supplies
- develop investment opportunities and involve the federal government in decisions
- the St Mary – Milk R. system extends beyond Fresno to Nashua (confluence of Missouri and Milk rivers), implicating SK in the process of managing the shared waters

- MT described the Compact with the Blackfeet Tribe
- MT described the adjudication process being used to handle conflicts between the State and water users with regard to their 'first-right dates'

10:15 - Break

10:30 – Background Information – What information exists?

Robert briefly overviewed Alberta's *Water for Life* (2003) water management strategy and its 3 kinds of partnerships: Alberta Water Council (AWC), Watershed Planning and Advisory Councils (WPACs) and Watershed Stewardship Groups (WSGs):

- **AWC** – works at the provincial level (funded about $1M in 2008-09) and deals with large issues *e.g.*, provincial wetlands policy. AB Government has 5 representatives on 28 member council.
- **WPAC**s – work at the regional level. Currently 9 but growing to 11; represent all major basins in the province. The provincial government is a partner in each and provided about $3.5M this year. Two (Bow R. Basin Council and Oldman Watershed Council) existed prior to 2003.

    - They answer 3 main questions: How is the watershed doing? Where should the watershed develop in the future (water quality, supply, groundwater aspects)? What are the priority issues (unique) in each watershed?
- **WSG**s – the "grass roots" level who identify issues in local basins. About 250 exist; province provides about $250K/yr. in funding which is administered by the AB Stewardship Network.

Tom Gilchrist handed out copies of the Milk River WPAC's document, "State of the Watershed" (April 2008). The AB government funded most all of the project, providing a core administrative grant for the operation of the society (WPAC) and project-specific funds.

- All players must know and understand this initiative to proceed: What info is needed now? What information does the Phase 2 team need so they can act quickly? How does the federal government, First Nations, the IJC, existing geographic information, *etc*. fit into this?
- Communication from stakeholder-driven initiatives must be distributed to other government agencies.
    - it is important to clarify that government decision-making authority is not given up

- There was discussion about water modeling and the different models used
    - AB uses an irrigation demand model that combines a hydrologic + water management component (includes storage, timing of flows, *etc.*). It allows water users to relate their daily water management demand (needs) to the supply (availability).
    - The Milk R. is prairie stream which is flashy, vs. St Mary's mountain-based water supply which is more predictable.
    - Water users need a stable supply to be able to manage their operations.

ACTION: Tim to identify AB's regional hydrologist and have him contact MT's hydrologist.

An **information list** of needs was developed. Six categories were identified:
1. Hydrology / water use
    - Maps (include entire Saskatchewan R., St Mary and Milk R. systems)
        - land use (state/province, federal, First Nation, private)
        - land ownership
        - culture (community activities [what are people proud of?]); stakeholders [hunting, fishing, wildlife], *e.g.*, Crown of the Continent
        - water use (licenses, permits)
        - cropping information
        - wetlands
    - Collect modeling info: hydrologic (analytic) + water management (descriptive info throughout the system). Many models (federal, state, provincial) must be brought together.
        - MT is developing a hydrologic model of the St. Mary and Milk Rivers as a decision making tool for the St. Mary Canal Rehabilitation Project. Still early in the development stage. Current data set for this model may not be sufficient for Phase 2 level of information needs.
    - information on aggregate water supply, which controls the water available for users
    - need experts in groundwater, water quality

2. Demand
    - the basin should be managed as a whole including irrigation, in-stream flow needs, *etc.*
        - identify supply/demand; surplus/deficit; emerging uses; options for sharing
    - basin management must be dynamic and oriented toward the future

3. Conservation / environment

- include conservation programs and how the water is managed
- understand environmental needs (in-stream flow needs, biological needs, water quality) and features of importance

4. Governance
    - federal, state, provincial, First Nation, county, Irrigation Districts
5. Current initiatives
    - Federal Bureau of Reclamation has information on a Milk R. Project
    - St. Mary Rehabilitation Project
    - Blackfeet Federal Reserved Water Rights Compact
    - Ft. Belknap Federal Reserved Water Rights Compact

6. IJC (water movement, deficits, *etc.*)

- For Phase 2 – create an understanding of the laws that govern, the water supply available, *etc.*, to help the team understand the system
    - main need is to accurately understand the **use** of water in Milk R. system, as there is much re-use of the water. Highly efficient farm uses may corrupt supply to the stream.
- Funding of AB's irrigation districts water management is 75% provincial, 25% irrigation district. Costs for rehabilitation and infrastructure are split (as benefits accrue = 86% to province & country; 14% to the ID). The challenges of maintaining infrastructure are significant.
- MT's water users fund 100% of operations, and replacement of infrastructure on the Milk River Project, including the St Mary Canal Unit.

12:00 – Lunch – (casual discussion, no formal agenda item)

12:45 – What is a terms of reference? – Who is it for?

Robert reviewed the elements of the draft terms of reference sent out earlier

1:15 – Guiding Principles

Open and honest communication – how the team conducts itself in meetings

- all members must be encouraged to contribute; it is important to build trust
- need procedures to be able to work through differences and determine how to make decisions
- once team members agree on moving forward, then that team decision will be used to proceed

- Discuss the **consensus decision making process** – procedures for finding agreement
    - the team will seek consensus on all decisions and recommendations
    - MT has had success with a "thumbs up/sideways/down" response to indicate level of agreement or support for an initiative
    - Thumbs up = agree and support; thumbs sideways = neutral but support; thumbs down = do not support but suggest how to move past or address the disagreement
    - moving past or addressing the disagreement may involve reconnecting with the person's constituency before proceeding
    - a team would continue with the above procedure until consensus is achieved or the groups decides to disagree
- MT has an open process that allows the public to attend state government meetings; this is an opportunity to discuss ideas in front of those who may be affected

Notice of meetings – discussion of what is required by each jurisdiction

- each jurisdiction will work within its own culture

- MT's process depends on whether the state is making decisions
- AB must determine what may be needed re: notice of meetings and its responsibility to the larger stakeholder community
- Earlier notice (to the public) is appropriate and will be necessary for Phase 2

SCOPE – the terms of reference must be vetted with AB and MT governments, who must OK it prior to proceeding

Robert handed out the recent "BC-Alberta Bilateral Water Management Agreement Negotiating Team Terms of Reference" as an example of a project terms of reference.

ACTION: Joint Work Group will read the BC-Alberta Bilateral Water Management Agreement Negotiating Team Terms of Reference and reply to Robert on any process items.

STRATEGIC INTENT – discuss principles for the initiative (content)
- all decisions should maximize the **beneficial use** to parties in both jurisdictions
- the term beneficial use was discussed and the team agreed as follows:

AGREE: **beneficial use** means to maximize use for people and the environment
    - mutually beneficial use should be taken as an entire package for all users (in practice there may be trade-offs between options for specific users)

- improve access to existing water
- MT and AB will work together for mutual benefit

Discuss the **process and hierarchy for making changes in documents** –
- Desired outcome – maximize opportunities for beneficial use of water for people and the environment
- the team should identify its priorities, identify obstacles and work at overcoming the obstacles
- the team recommended a hierarchy for making changes to current documents, agreeing that:
    - the 1909 Treaty should stand as written
    - the team should work under 1921 Order, Administrative Procedures, and Letter of Intent until a constraint is reached
    - if necessary, any changes should be made first in the Letter of Intent, then in the Administrative Procedures, then in the Order
- if changes in the Letter of Intent benefits 1 or 2 parties but do not harm any parties, then this should be allowed to proceed
- if changes in the Administrative Procedures benefits 1 or 2 parties but do not harm any parties, then this should be allowed to proceed

2:15 (2:45)– Break

- Status of state water management infrastructure – US irrigators have to pay for the rehabilitation or replacement of all infrastructure related to the St. Mary Canal and Milk River Project.
- St Mary's rehabilitation project = about US $153M; estimated cost includes + 10% for unlisted items, + 25% for contingencies + 37% for non-contract costs, and + 5% for Blackfeet TERO fees
    - environmental impact statement is planned to be complete in 2 years (not 3-5)
    - construction could start in 2012
    - general direction of canal development will be known as this project moves to Phase 2
    - project will have fish screens (Bull trout issue)

2:30 – Objective and Outcome of the Initiative

This was not addressed.

ACTION: Paul, Robert, Tim to start developing the Objectives and "Outcome of the initiative" (terms of reference) write-up. Joint Work Group is to review the draft and comment prior to next meeting.

3:30 – Membership for the Initiative

- Discuss the level and kind of involvement: about 10-12 members should be workable

At the Table

- Want equal numbers, including those who will be affected by the initiative
- Do not lose the learning developed at this first meeting

Montana	No.	Alberta	No.
Milk R.– irrigator + Ft. Belknap Indian Com.	2	Oldman WPAC – irrigator + other	2
St Mary – Blackfeet Tribe	1	Milk R. WPAC	2
Dep't of Natural Resources & Conservation	1	Alberta Environment	1
2nd state rep. (Lt. Gov. Bohlinger's office)	1	Alberta Agriculture	1
Municipal representative	1		

- Specific interests or requirements of reps were discussed (*e.g.*, Blackfeet Tribe; MT's municipal sector – a recreation rep.)

Communication Notice

- IJC proper, Canadian federal (Department of Fisheries and Oceans, Environment Canada), US Fish and Wildlife

Ex officio (will have a standing offer to attend meetings)

- Bureau of Reclamation, US Army Corps of Engineers, US Geological Survey, Blackfeet Tribal Council, Ft. Belknap Tribal Council

Technical Support

- room for a lot of people at the start of the process
- IJC Accredited Officer, Bureau of Reclamation, DNRC, US Army Corps of Engineers, Canadian Department of Fisheries and Oceans, other agencies as needed

4:00 – Schedule for the Initiative

- Phase 2 should be initiated this fall, but the November 2nd US election could be an influence
- MT's legislature convenes for 90 days in odd number years. The next legislative session is Jan. through April 2009. They will not meet again until 2011
- The project must show significant progress by end of 2009 and complete its work by April 1, 2010, to get the recommendation request to the Governor (with budget, legislation impact)
    - this leaves time for the unexpected, fine-tuning and analysis in 2010
- This timing works with Alberta governmental timelines
- Elapsed time for project completion should be about 18 months
    - learning (perhaps 3 mtgs. over 3 mo.) – will have heavy technical and support needs
    - evaluation (perhaps 3 or 4 meetings over 9 – 12 mo.)
    - recommendations (about 3 mtgs. over 3 mo.)

Budget items

- Need a good idea of the budget in the final terms of reference
- If a consultant is needed, we must know by end of Phase 1 (terms of reference)
- Payment for Phase 2 committee participants will include compensation for expenses/travel + honoraria for time at AB's current government rates. MT can do the same within their process.

- Much work/data was collected in the IJC Joint Task Force project and should be able to be sorted and re-packaged for this work

ACTION: Technical people are to review current IJC Joint Task Force work/data. They need to be directed to sort and package it for this project.

4:30 – Communication about the Work Group Activities and Overall Initiative

This was not addressed.

4:45 – Meeting Review – Next Meeting – Action Items

Meeting review:

- all stated the meeting went well and was productive; it exceeded some member's expectations
- members want to keep a basin-wide perspective and agreed that challenges can be met
- MT said that the state and province should be able to find a way to communicate across the border, and MT expects to receive quick support from the state government

Next meeting

- Monday, Sept. 22 – 3:00-5:00 PM (+ informal evening session) and Tuesday, Sept. 23 – 8:30-3:00 PM.
- location: Shelby, MT; specifics to be determined

Action and Agreement Items Summary

ACTION: Tim to identify AB's regional hydrologist and have him contact MT's hydrologist.
ACTION: Joint Work Group will read the BC-Alberta Bilateral Water Management Agreement Negotiating Team Terms of Reference and reply to Robert on any process items.
ACTION: Paul, Robert, Tim to start developing the Objectives and "Outcome of the initiative" (terms of reference) write-up. Joint Work Group is to review the draft and comment prior to next meeting.
ACTION: Technical people are to review current IJC Joint Task Force work/data. They need to be directed to sort and package it for this project.

AGREE: **beneficial use** means to maximize use for people and the environment

5:00 – Adjournment

The meeting was adjourned at 5 p.m.

Montana – Alberta: St Mary & Milk Rivers Water Management Initiative

Joint Work Group, Meeting #2
MT Fish, Wildlife & Parks Region 4 Headquarters building
September 22 & 23, 2008, Great Falls, Montana

Montana	Alberta
John Tubbs – DNRC	Robert Harrison – AB Environment
Randy Reed - Milk River irrigator	Tom Gilchrist – Milk River
Don Wilson - Blackfeet Tribe (Sep. 23rd)	Gerhardt Hartman – Oldman River
Paul Azevedo – DNRC	Brent Paterson – AB Agriculture
Dustin de Yong - Office of the Lt Governor	Tim Toth – AB Environment

Purpose of Joint Work Group

To develop a terms of reference that outlines the desired outcome, scope, participants, schedule, budget and review process for the Montana – Alberta St Mary and Milk Rivers Water Management Initiative for approval by both jurisdictions.

Purpose of Meeting

- Build on relationships develop at 25-26 August meeting
- Build draft Terms of Reference to 90% completion level

NOTES of meeting

3:00 PM – Welcome & Introductions

John welcomed everyone to the meeting. The work group **AGREED** that the agenda should be flexible enough to achieve our meeting objectives. The agenda was approved as sent out.

Eight questions were distributed as part of the agenda package (Appendix 1: Montana – Alberta St. Mary & Milk Rivers Water Management Initiative – Questions for Joint Work Group, Sept. 2008), to help clarify specific areas of the preliminary draft terms of reference. The final terms of reference are to be as complete and clear as possible. The questions will be addressed during the discussion.

It was **AGREED** that the terms of reference must either define the bounds to which an item should be discussed, or that an item is open and to be addressed as determined by the Phase 2 Work Group.

3:30 PM – Review of 26 August meeting in Lethbridge, AB

The team reviewed the notes of the first meeting. One error was identified: the correct spelling is "Fresno". The team was fine with the presentation and level of information content of the notes as distributed.

The Joint Work Group **AGREED** that, with the spelling correction, the notes were adopted.

Interim work activities

- Background information

The Montana and Alberta people accountable for compiling the technical background information have been identified and have been in contact with each other. As the Joint Work Group identifies an information need, they will advise that technical information team.

The goal for developing a background information package for Phase 2 is that it be technically sound and complete. It should not suggest solutions, provide critical evaluations, or discuss the data. For the geographic area identified, the background information must include, among other items:

- the current operational flow
- the natural flow
- models to evaluate flows
- an agreed-upon data set

A common information base should be developed right away. For example, different annual flow values for the Milk R. have been reported in Alberta- vs. Montana-authored documents. The technical information team has been advised of the importance of collecting and compiling this information as soon as possible.

A more complete list of items and when they are required was developed near the end of day 2 – see "Review Section 7. Tasks and Resources". Additional information items may be developed by the Phase 2 work group.

3:45 PM – Review Preliminary Draft Terms of Reference

The Joint Work Group reviewed the eight questions that were sent with the agenda.

Question # 4: Does Saskatchewan have to be involved?

Discussion – it depends on whether or not the volume of water that is currently being delivered to SK is going to change. If only the timing of delivery is impacted, SK doesn't need to be involved.

Some aspects that impact the project's geographic boundaries were discussed:

- There may be conflicting demands for water, for improving the system, *etc.*, that could implicate SK. It may not be entirely about hydrology.
- How far down the Milk River system do you need to go before contributions from the St Mary's River become overwhelmed by contributions from other sources (*i.e.*, tributaries)?
- What could be the impact on wetlands of potential changes in water volume and timing of delivery?

Question #1: "What is the context for the use of the words, "benefit or "beneficial"?

Discussion about benefits included:

- Why water is being allocated
- How best to allocate the water available (noting this is dynamic) and how to make water allocation more flexible
- Irrigation dominates water use on both sides of the border. Benefits to irrigation are dependent on volume and timing.
- The importance of in-stream flow
- AB/SK apportionment
- AB only allocates the volume of St. Mary water they are entitled to under the Treaty. They do not count excess St. Mary's water that Montana can not use.

- Each jurisdiction is responsible for defining its own long-term benefit. Achieving long-term benefits may involve trade-offs that are internal to each jurisdiction

Additionally, project team members should understand but not judge other important aspects of water management in each jurisdiction including:

- economic
- ecosystem needs
- industrial / commercial needs
- power production needs
- municipal needs
- other

'Other' could include the Federal Reserved Water Rights in Montana.

The Work Group **AGREED** that the project's focus is on allocation (volume and timing) for irrigation. John summarized the discussion as, "This is an irrigation project that has multiple benefits."

There was additional discussion about the timing and use of water throughout the growing season and beyond, the cost of storage, the cost of conveyance, *etc.* The Phase 2 Work Group needs some understanding of how flows are used in each jurisdiction, but the Joint Work Group **AGREED** that the project should not judge what the water is being used for, nor what the value of the end-use could be. That is, defining a 'maximum benefit' of water use is relative to the user.

The decision making process controlling the allocation of flows is not well connected to the specific (seasonal) needs of the water users. There needs to be a better connection between the **decisions** for managing the shared water and the **needs** of water users, on both sides of the border.

Re: Question #7: <u>… will the results of Phase 2 conclude discussion about the Treaty, Order, Administrative Procedures and Letter of Intent</u>?

The Joint Work Group wants an agreement that brings closure to the IJC's file on Montana's 2003 request to review the 1921 Order.

The project must answer the question that the IJC asked of each jurisdiction: …that Montana and Alberta seek opportunities to *"explore the fundamental and interrelated issues of collaboration on the use and management of transboundary waters, cooperation on the rehabilitation of the St. Mary Canal and future arrangements for increasing the ability of each country to better access the full amount of water available to it under the current apportionment."*

Phase 2 may not end discussion and debate, but it should recommend a process that moves control of allocation closer to the users, so that they can continue to work out a better process to manage the shared water. This may impact the federal government's involvement in allocating flows, and help users to continue to work together to resolve issues affecting them.

Review Section 4. **Code of Conduct, Principles, and Procedures in the event of disagreement**
The title of the section was shortened to Code of Conduct, Principles and Procedures.

<u>Code of Conduct</u> – fine as currently drafted.

<u>Principles</u> – The Joint Work Group discussed ways that the project could deal with the Treaty and Order. They suggested the use of such tools that would foster and support the dynamic and vibrant nature of water management in the cross-border environment. Water users and operators should communicate sufficiently frequently so that the canal operators have a better understanding of the actual use of the system, and how best to support the needs of the water users.

The desire is to provide an increased benefit to the users of the system by managing water in a manner that more accurately reflects on the ground needs. Benefits should be evaluated over the long-term. There may trade-offs internal to each jurisdiction that must be worked out within the jurisdiction.

An option may be considered even though it might benefit one party. The benefit that occurs to that party may be a trade-off for a benefit that occurs later in the season for the other party. That is, benefits don't necessarily need to apply immediately, nor simultaneously, for both parties. Options may consider other tools that build on grass-roots cooperation and give decision makers the flexibility to meet the irrigation and in-stream flow needs of water users in both jurisdictions.

September 23

8:40 AM – Review Preliminary Draft Terms of Reference (cont'd)

A Section-by-Section review of the draft terms of reference was continued, picking up sections not addressed yesterday.

Review Section 1. **Introduction, Background and Geographical extent**
The introduction should have a sentence that identifies what the IJC asked the Governor and Premier to do to "….seek a better solution…"

Geography
The focus is on the St. Mary and Milk rivers between Alberta and Montana. The project will not discuss management options (allocations) that affect Saskatchewan. If there could be an impact to any other jurisdictions, discussions will be held with the affected jurisdictions.

ACTION: Secretariat to make changes to Introduction (IJC's request for the initiative), to Geography (not involve Saskatchewan unless recommendations regarding apportionment volumes are apparent) and correct the project name to St. Mary - Milk Rivers Irrigation Project.

The final correspondence from the IJC that formally endorses this meeting should be attached as an appendix.

Review Section 2. **Joint MT-AB Project Team Purpose**
The Secretariat will review use of the term "mutually beneficial" in the draft terms of reference and correct it to "beneficial" where appropriate.

The Phase 2 Joint Work Group will make recommendations to the governments of MT and AB on options for better access to the shared waters of the St. Mary and Milk Rivers. The Secretariat will emphasize that by clearly identifying it in the Introduction in the terms of reference.

Review Section 3. **Membership, Roles, and Responsibilities**
Membership
The Governor and the Premier are responsible for determining membership on the Phase 2 teams.

The members list should be changed to designate a co-chair from each government, indicate how many members represent each group, and add one secretariat support person from each jurisdiction. This totals 12 members plus two support staff. The final terms of reference will recommend specific names.

Discuss how best to identify the correct State Tribal governments involved. MT will follow their own process for contacting Tribal governments.

Roles

Technical support personnel will provide technical information when requested by team members and confirmed by the co-chairs. When information is requested, technical support personnel should be in contact with each other as early as possible so that the information presented is known to both jurisdictions and team members can be prepared. Technical information should be drawn from a common information base.

Co-chairs should be alerted when conflicts arise over technical information. The intent is to resolve potential conflicts at the administration/process level, not at the technical level.

Rename the *ex officio* list to "Direct Stakeholders" – these are important groups that may need some understanding of the project or have an interest in the project, and with whom the project will communicate. Formal *ex officio* people are non-voting who can participate in the meeting.

The IJC should and will be consulted for technical information, but they likely will not want to attend meetings.

It was **AGREED** that each jurisdiction will connect/communicate as appropriate to inform the groups that should be aware of the project. *Ad hoc* attendance at meetings will be accommodated as necessary. Groups that have an interest in the project will be contacted by each jurisdiction through its own process.

There are three groups involved in this initiative: (1) team members, (2) support team members, and (3) direct stakeholders.

Responsibilities

The project is responsible to: (1) those members at this table, (2) the constituencies of the members at this table, (3) the hierarchy to whom the members at this table report.

Use of Alternates and decision-making

Concern was expressed about keeping alternates up-to-date and involved in the progress of the project. If alternates were used, team members identified: (a) a lack of knowledge and (b) the spirit of cooperation being built, as potential impediments to smooth, progressive meetings. While information could be transmitted to potential alternates, there was concern about the decision-making responsibility.

A meeting could progress without a member in attendance through the use of the co-chair, if voting is 'thumbs up' or 'sideways'. If a team member cannot attend and an unplanned issue arises that results in some members voting 'thumbs down', then the issue could be deferred to another meeting.

The Phase 2 team should consider the following if a member will miss a meeting:

1. Communicate the issue/information beforehand – specifically identify if there is a path that the co-chairs should not take.
2. Meet via a special conference call to address the issue.
3. Defer the meeting to the next available time, or defer the issue to the next meeting.

If a team member misses a series of meetings, a special session may need to be called to address the issue.

It was **AGREED** – in the Terms of Reference that alternates will not be designated.

Review Section 4. **Code of conduct, Principles and Procedures in the event of disagreement**
The section was renamed to Code of Conduct, Principles and Procedures.

Code of conduct – The section was fine as drafted.

Principles
Edits were made to clarify the text: "Jurisdiction" was changed to "The Phase 2 Team", and the terms "solutions" and "agreements" were changed to "options". The "Principles" section was moved to precede the Objectives-Outcomes-Deliverables section, to make the flow better.

Other changes include clarifying the use of the term "water management", in terms of allocation for irrigation and in-stream needs, as below:

> "Water sharing options will focus on the timing and allocation of water for irrigation and in-stream flow needs. In developing these options, there will need to be an understanding of the jurisdictional constraints of economics, power production, ecosystem needs, and municipal and industrial/commercial aspects of use."

The decision and judgement about an amount of water used by each jurisdiction for an application within the jurisdiction is entirely its own.

Discussion about Question #7 was adopted into the "Principles" statement:
This project will try to close the IJC's file on Montana's 2003 request to review the 1921 Order. This initiative will capture the dynamic and vibrant process to manage water demand and create a long-term working relationship among water users on both sides of the border. Changes could include any potential new technologies and efficiencies that are developed in the future.

Procedures for finding agreement
Minor wording changes were made to clarify meaning.

Procedures in the event of not reaching consensus
To end the section, "…seek further direction from both governments…" was added.

Review Section 5. **Objectives, Outcomes and Deliverables**
The first 3 bullet points were moved under the appropriate sub-section: Objectives, Outcomes or Deliverables. Other minor wording changes were made in the text.

A desired outcome is that "…the IJC's file on Montana's 2003 request to review the 1921 Order is closed with the completion of this initiative…"

10:30 AM – Review Preliminary Draft Terms of Reference (cont'd)

Review Section 6. **Scope**
The project focus is on allocation, *i.e.*, this is basically an irrigation project that has multiple benefits.

Discussion to clarify what was "in scope" and "out of scope" resulted in:

- Moving "water rights compacts negotiated by the State of Montana…." to a sideboard issue, along with "Not negotiating apportionment agreement with SK…"
- Water quality and ecosystem issues are out of scope
- Including with the in-scope items, "projects that could be jointly developed for benefit on both sides of the border, specifically, this includes considering rehabilitation of St Mary Canal Rehabilitation Project".

Although the project is not going to deal with in-stream flow needs, *etc.*, ecosystem needs will be considered when recommendations are made.

To make the terms of reference flow better, the sequence of items were revised to move the Principles to follow Scope – *i.e.*, Scope section: Background, Purpose, Scope, Principles, Objectives, Outcomes.

ACTION: Paul will clarify what is Out of Scope, *i.e.,* "Federal Reserved Water Rights are not the focus of this initiative."

Review Section 8. **Schedule**
It was **AGREED** that the project should be able to start in November, with the first meeting of the Phase 2 Work Group to be held in early December.

Review Section 7. **Tasks and Resources**
Specific information needs were identified. The following are due in November, in time for the first meeting of the Phase 2 Work Group in early December:

- Current operational flows (historic record – key years, dry years, *etc.*)
- Natural flows
- Map – the figure sent in meeting package titled, "The Milk River Watershed", plus the St. Mary River Irrigation Project
- Water management overall (how do we make decisions in the 'system'?)
- The water allocation process
- Agreements (Master Agreement on Apportionment) and Montana's Reserved Water Right Compacts.
- Current in-stream / ecosystem needs (current, known in-stream flow needs (IFN) by river reach if we have them, and how IFNs are calculated)

Information due in January 2009 for a subsequent meeting in early February 2009:

- Model to evaluate option flows
- Data set (St. Mary R. and Milk R.)

Three "education" meetings are presumed necessary to develop a common background information base for the Phase 2 team. The information collected should be that upon which negotiations are based.

In addition to information about allocation, irrigation and in-stream flow, for the end of November, tasks include a need for information on:

- Water management infrastructure + its condition
- Water supply – options developed in the past, and the evaluation of those options (this is to exclude aspects of the system that have already been reviewed)
- Water allocation, water use (purpose)

The confidence level of the data should be included with the above.

Background information includes any information that the team currently has on: economics, power production, ecosystem needs, and municipal and industrial/commercial aspects of use. Each jurisdiction has different levels of information on these elements. Some information may exist only at a scoping level.

The demand for water was discussed. It was **AGREED** that the project assume there is more demand for water than supply.

Discuss governance issues – as the Tribal Compacts are being developed, what are the implications to Alberta's water supply, *etc.*? Jurisdictions must be kept up-to-date as the governance of water issues change (with ongoing adjudications by the State, any changes in governance, *etc.*).

Changing someone's water supply (*e.g.*, increasing someone's water right) can significantly impact water availability.

Question # 5 : How will environmental impacts and in-stream flow needs be evaluated by the Phase 2 work group?

- Time and resource constraints will limit the degree of environmental analysis for any option to the scoping level.
- Determine the trade-offs (each jurisdiction will do so within its jurisdictions)

Question # 6. What criteria will be used to evaluate each option and to compare the relative merits of each option?
Criteria to evaluate options will be specific to the option being addressed. It was **AGREED** that effects on flow volume and timing must be included in the evaluation of options.

The Phase 2 team should be allowed to define the criteria appropriate to the options being considered. The criteria should be flexible, as needed. Criteria to evaluate options could include aspects affecting: administration, management, infrastructure, *etc.*

2:00 PM – Meeting Review – Next Meeting – Action Items

The meeting ended with a discussion about future meetings. It was **AGREED** that:

- the project would continue with current Lethbridge and Great Falls locations
- there would be flexibility for team members to view specific sites as the agenda dictates

Consultant/Facilitator
After discussion, it was **AGREED** that the Phase 2 work group doesn't necessarily need a facilitator. The 2 co-chairs have the ability and expertise to facilitate meetings of the subsequent working group. However, this requires that if members have concerns, they must bring those concerns to the co-chair(s) as soon as an issue arises.

Level of announcement for starting Phase 2
A 5-7 statement summary is believed necessary to assist the Premier and the Governor in announcing the project. Although individual members prefer not to have specific attention, as this is an historic attempt to get a solution to an important water-sharing issue, the project will have some public profile.

Two southern Alberta MLAs are very interested in the project and believe this is a major step toward better managing cross-border water sharing. A new US president will result in the appointment of new US IJC Commissioners.

Next meeting: conference call – Tuesday, October 21: 1:30 – 3:30 PM

ACTION: Paul and Tim will set up details.

Phase 2 will be known as the St. Mary and Milk Rivers Water Management Initiative**.**

3:00 PM – Adjournment

The meeting was adjourned at about 3:00 PM.

Agreements

- AGREED that the September 22 & 23 meeting agenda should be flexible to achieve our meeting objectives. The agenda was approved as sent out
- AGREED that the terms of reference must either define the bounds to which an item should be discussed, or that an item is open and to be addressed as determined by the Phase 2 Work Group.
- AGREED adopt notes from the August 25-26 meeting.
- AGREED that the project's focus is on allocation (volume and timing) for irrigation.
- AGREED that the project should not judge what the water is being used for, nor what the value of the end-use could be. That is, defining a 'maximum benefit' of water use is relative to the user.
- AGREED that each jurisdiction will connect/communicate as appropriate to inform the groups that should be aware of the project
- AGREED that provisions to designate alternates will not be included in the Terms of Reference.
- AGREED that the project should be able to start in November, with the first meeting of the Phase 2 Work Group to be held in early December.
- AGREED that the project will assume there is more demand for water than supply.
- AGREED that effects on flow volume and timing must be included in the evaluation of options.
- AGREED that Phase 2 meetings will alternate between Lethbridge and Great Falls.
- AGREED that meetings may be held at other locations if there is a need to view specific sites.
- AGREED that the Phase 2 work group doesn't necessarily need a facilitator.
- AGREED that the third and final meeting of the Joint Work Group will be a conference call in October. Goal of the call will be to review and finalize the draft Terms of Reference.

Action Items

- Secretariat to make changes to Introduction (IJC's request for the initiative), to Geography (not involve Saskatchewan unless recommendations regarding apportionment volumes are apparent) and correct the project name to St. Mary - Milk rivers Irrigation Project.
- The Secretariat will review use of the term "mutually beneficial" in the draft terms of reference and correct it to "beneficial" where appropriate.
- Paul will clarify what is Out of Scope, i.e., "Federal Reserved Water Rights are not the focus of this initiative."
- Secretariat will set up details for a Joint Work Group conference call in October.

Appendix 1

MONTANA – ALBERTA ST. MARY & MILK RIVERS WATER MANAGEMENT INITIATIVE

QUESTIONS FOR JOINT WORK GROUP

September 2008

The terms of reference must clearly answer as many questions as possible that people (particularly the Phase 2 Joint Work Group) may have about scope, givens, and definitions. We want to avoid as much as possible people asking: "What does this mean?"

1. What is the context for the use of the words "benefit" or "beneficial"?

- Do we mean a volume of water benefit?
- Do we mean an economic benefit defined by a monetary value?
- Do we mean an area of irrigated land or a kilowatt-hour of power production?
- Do we mean an amount of flow for ecosystem health or an area of habitat?

2. Is the Phase 2 Work Group going to evaluate how water is used?

- Will the type of water use be evaluated? (irrigation, hydro power, municipal)
- Will the effectiveness and efficiency of water use be evaluated?

3. How should the Treaty, 1921 Order, Administrative Procedures and Letter of Intent be described in the term of reference?

- What should be said about them each being potentially open to amendment?

4. Does Saskatchewan have to be involved?

- If the total volume of water that is being discussed in any option does not change, then Alberta and Montana can discuss the change in timing.
- If the total volume of water that is being discussed in any option varies, then Saskatchewan must be involved because Alberta cannot discuss the reduction of water that is Saskatchewan's.
- Was the intent of having Montana and Alberta working on this to imply that Montana and Alberta could find opportunities that satisfy their needs, without impacting Saskatchewan?

5. How will environmental impacts and instream flow needs be evaluated by the Phase 2 Work Group?

- What methods of evaluation will be used?
- Will the evaluation be qualitative or quantitative?
- How will an environmental impact in one jurisdiction be evaluated against an economic benefit in another jurisdiction?
- Will there be a monetary cost attributed to environmental impact?

6. What criteria will be used to evaluate each option and to compare the relative merits of each option?

7. Is there an expectation that the results of Phase 2 will conclude the discussions and debates between Montana and Alberta over the Treaty, Order, Administrative Procedures and Letter of Intent?

8. We have not used the word "entitlement" in the terms of reference. How would we answer the questions: "What is Montana's entitlement?" "What is Alberta's entitlement?"

9. Are there any other questions that we think people will ask in the future, about the content of Phase 2?

Montana – Alberta: St Mary & Milk Rivers Water Management Initiative

Joint Work Group, Meeting #3, Teleconference
October 28, 2008

Montana	Alberta
John Tubbs – DNRC	Robert Harrison – AB Environment
Randy Reed - Milk River irrigator- *Regrets*	Tom Gilchrist – Milk River
Don Wilson - Blackfeet Tribe	Gerhardt Hartman – Oldman River
Dustin de Yong - Office of the Lt. Governor	Brent Paterson – AB Agriculture and Rural Development
Paul Azevedo – DNRC	Tim Toth – AB Environment

Purpose of Joint Work Group

To develop a terms of reference that outlines the desired outcome, scope, participants, schedule, budget and review process for the Montana – Alberta St. Mary and Milk Rivers Water Management Initiative for approval by both jurisdictions.

Purpose of Meeting

- Effectively complete the Terms of Reference

NOTES of tele-conference

1:30 PM – Welcome

John welcomed everyone to the teleconference.

Review and approve notes of meeting Sept. 22-23, 2008 in Great Falls
No changes were made. The Joint Work Group **AGREED** that the notes were accepted as an official record of the meeting and should be adopted as sent out.

Work activities since last meeting…
Paul and Tim drafted Notes from last meeting and created a terms of reference. The Technical Support Team, lead by Sal Figliuzzi (AB) and Larry Dolan (MT) outlined the technical information required to support the Initiative and are working on individual assignments. There was some concern about being able to produce all the maps needed for the first meeting.

In the terms of reference, changes were made to remove duplication in the text, replace "…improve water management…" with "…improve access to shared water…", and ensure that uses other than irrigation and in-stream flow needs (*e.g.*, municipal uses) were mentioned.

1:50 PM – Review of draft Terms of Reference

John reviewed terms of reference sections 1 through 5, speaking to both the Montana and Alberta team's recommended changes:

Section 1. Introduction, Background and Geography – changes for clarification –

- "…better management..." was changed to "improve access by both jurisdictions"
- Added: that the St. Mary/Milk River Administrative Measures Task Force issued a report in April 2006…

Discussion: in Alberta, water management implies water mastering, license cancellation, *etc.*, so clarification was needed.

Section 2. Purpose – clarify that recommendations to preferred options would be made.

Section 3. Scope – combined the first two paragraphs into a new one, removing the phrases with "allocation", and created a new second paragraph. Reasoning: (1) Alberta uses allocation to issue/monitor licenses, vs. accessing a share of water, and (2) be more inclusive by identifying that other water uses will be considered, but that irrigation and in-stream flow needs would be the main focus. "Considered" means acknowledging the other uses (*e.g.*, power, municipal applications, or water quality needs), but not spending much time evaluating the impact of any recommendations on them.

The focus is to analyze/evaluate options for improving access to the shared water that affects irrigation, and in-stream flow needs for the environment. That is, the material that is out-of-scope is the non-volume side of water.

Discussion: in MT, in-stream flow needs has environmental implications (includes water quality), while in AB, IFN means flow rate (quantity) of water that remains in the stream.

Additionally, the team clarified text that governments will make any wording changes to Treaty instruments, while the Joint Initiative Team will only recommend the best options possible.

Section 4. Principles
Changes were made to remove text duplicated elsewhere, and to clarify where administrative control of the Initiative exists:

- options would be evaluated by the Joint Imitative Team, not simply developed, and
- recommendations would be made to enter into agreements that improve Treaty instruments.

Section 5. Objectives, Outcomes, Deliverables
Duplicate text was removed. Clarified that "management flexibility" would be required to moderate the effects of the distinct and variable natural hydrographs in the St. Mary and Milk Rivers.

2:40 PM – Review of draft Terms of Reference, continued

Section 6. Membership and Responsibilities
Clarifications were made to identify that the State and the Province would appoint members and that co-chairs would be chosen from water management agencies in MT and AB. The names of some Direct Stakeholders were clarified.

New material: A point was made about accommodating any member who will not be able to attend an upcoming meeting – that member should notify the co-chair with any concerns about potential decisions that are planned to be made.

Section 7. Code of Conduct and Procedures
New material: A quorum was defined as a minimum of four representatives from each jurisdiction.

Section 10. Budget
It was decided that a Budget discussion was not needed. The Initiative can be completed within the operational budgets of the two jurisdictions.

All **AGREED** to the above changes.

3:10 PM – Next Steps and Meeting Review

Communications
MT will contact their Executive to determine how they will announce or communicate about this Initiative. MT believes that a letter from their State Governor to the Province will suffice.

AB will develop a Ministerial Order to appoint members and request the Minister of Environment to announce the Initiative through a letter sent to the Governor. AB plans to have an announcement in the latter part of November.

Next meeting
The next meeting will be during the second week of December, likely Dec. 10th (½ day), and Dec. 11th (full day).

The meeting ended at 2:40 PM.

Appendix 2 – Complete Meeting Notes

II. Phase 2 – Joint Initiative Team (15 meetings)

Montana – Alberta: St Mary & Milk Rivers Water Management Initiative

Phase 2 Work Group
Meeting #1, Lethbridge Lodge Hotel
December 10-11, 2008, Lethbridge, Alberta

Montana	Alberta
John Tubbs – Department of Natural Resources and Conservation (co-Chair)	Robert Harrison – Alberta Environment (co-Chair)
Dustin de Yong - Office of the Lt Governor	Brent Paterson – Alberta Agriculture
Randy Reed – Milk River irrigator	Tom Gilchrist – Milk River
Dave Peterson – City of Havre	Ken Miller – Milk River
Larry Dolan – DNRC	Gerry Perry – Oldman River
Paul Azevedo – DNRC (secretariat)	Duncan Lloyd – Oldman River
	Sal Figliuzzi – Alberta Environment
	Tim Toth – AB Environment (secretariat)

Regrets: Don Wilson - Blackfeet Tribe; Representative from Ft. Belknap

Purpose of Phase 2 Work Group

To explore and evaluate options for improving both Montana's and Alberta's access to the shared water of the St. Mary and Milk Rivers, and to make joint recommendation(s) on preferred options to both governments for their consideration and approval.

Purpose of Meeting

To come together as a joint team, clarify outstanding issues with the terms of reference, and start to learn about the St Mary and Milk rivers, water use and management in Montana and Alberta, and all the relevant data to be used in this initiative.

Notes of meeting

1. Welcome – Member Introductions

All members introduced themselves to the Joint Initiative Team (JIT). The two Tribal Council members were unable to attend.

2. Terms of Reference, Communications Plan

The Terms of Reference were reviewed by the Joint Initiative Team. Each item was discussed to ensure a common understanding by the Team. There were no areas of confusion or misunderstanding. The Team will refer frequently to the terms of reference to ensure the initiative stays on track.

Communications Plan

The communications plan was reviewed by the Joint Initiative Team and they agreed that the plan should be used. They also agreed that the plan would be updated as the communication needs of the initiative change.

The Team members all supported the development of Joint Status Reports at the end of each meeting to be used to communicate about the initiative. The team members also wanted to make sure there was a common understanding of terminology used, as some terms are used differently in the two jurisdictions.

ACTION – Alberta Team to finalize their communications protocols and include that information in the communications plan.

ACTION: JIT to review the draft Communications Plan and provide any comments, additions on content.

3. Teams Involved in Joint Initiative

The Joint Initiative Team discussed the structure of the initiative. The Joint Initiative Team has equal numbers of basin representatives from both sides of the border – 6 members from Montana (the Montana Team) and 6 members from Alberta (the Alberta Team).

The Technical Support Team is made up of technical specialists from teams in both Montana and Alberta. The Technical Support Team provides the data and evaluation required by the Joint Initiative Team.

4. Outline of Learning Sessions

The first three meetings are 'education sessions', and will be completed in February 2009. The two technical support team leads handed out and gave an 85-slide presentation on details of the basins.

5. Learning Session #1 – Presentation by Section

Basin description – The basins' catchment area was described.

6. Learning Session #1 – Presentation by Section - continued

Climate – the basins' climate was described (elevation, temperature, precipitation, water deficit, *etc.*). Irrigation starts from early- to mid-May, depending on the season. Questions were asked to clarify such parameters as net vs. gross evaporation.

Hydrology – The natural flow and various hydrological parameters were reviewed. The timing of natural flow (*e.g.*, differing spring run-off times) needs to be considered when evaluating how flows should be allocated from each river.

Information about Montana's water management system can be found at: www.dnrc.mt.gov. Information on Alberta's river basins can be found at: http://www.environment.alberta.ca/apps/basins/default.aspx?Basin=11. Specific information on the Milk River basin, Alberta, can be viewed at the Milk River Watershed Council Canada website: http://www.milkriverwatershedcouncil.ca/ and for the Oldman River basin, Alberta, at the Oldman Watershed Council website: http://www.oldmanbasin.org/ .

The Team recommended touring certain operations in the field, to help their understanding of current water management in the two basins. To be most efficient, tours would be arranged to occur with meetings.

From a basin-wide perspective, Milk River water gets used, often multiple times.

ACTION: Alberta secretariat will provide wall maps of the St. Mary and Milk River watersheds for the JIT.

AB-MT International / National Agreements and Compacts

The U.S.-based Compacts with Ft. Belknap, Blackfeet, U.S. Fish & Wildlife Service (Bowdoin NWR), and U.S. National Park Service were described. Since 1969, Alberta has had a Master Agreement on Apportionment with the provinces of Saskatchewan and Manitoba.

Water Rights and Use

The water allocation and management systems used in Montana and Alberta were described to the Team. Each jurisdiction uses some terms slightly differently. These differences were discussed to help the Team's understanding for future discussions.

No further information was identified as being required.

7. Criteria for evaluating options

The JIT should start considering what criteria could be used to evaluate the options it will recommend, once the education sessions are complete and options are being developed. Criteria could include elements of cost, volumes of water, *etc.*

Water modeling will be needed to evaluate the potential impacts of any suggested changes to flow or timing. The Technical Support Team will need direction about the kinds of analyses the Joint Initiative Team will need.

8. Meeting Review, Next Meeting, Actions

The JIT agreed that this was a very valuable learning session and thanked Sal and Larry. The JIT agreed to advance the meeting start time by one hour to start at 2:00 PM on the first day.

Between meeting communications – the JIT should contact any technical team member for information, and share any learning that they do on their own. Requests for additional research from the Technical Support Team should be made through the jurisdictional secretariats.

A joint status report will be completed after the meeting and circulated to members.

Next meeting dates were set as follows: Jan. 12-13, Great Falls – education II; Feb. 18-19, Lethbridge – education III; March 30-31, Great Falls – options development I

At the January meeting, the JIT will consider what field learning tour is most appropriate.

ACTION: For next meeting, the JIT requested an overview of Alberta's infrastructure system (the St. Mary's project).

The meeting adjourned at 3:00 PM.

Action Items

- Alberta Team to finalize their communications protocols and include that information in the communications plan.
- JIT to review the draft Communications Plan and provide any comments, additions on content.
- Alberta secretariat will provide wall maps of the St. Mary and Milk River watersheds for the JIT.
- For next meeting, the JIT requested an overview of Alberta's infrastructure system (the St. Mary's project).

Montana – Alberta St. Mary and Milk Rivers Water Management Initiative
Joint Initiative Team meeting #2
January 12-13, 2009, Great Falls, MT

Attending:
For Alberta – Ken Miller, Brent Paterson, Gerry Perry, Duncan Lloyd, Sal Figliuzzi, Robert HarrisonTom Gilchrist, Tim Toth, Terrence Lazarus, and Roger Hohm.

For Montana - John Tubbs (Jan 12), Dustin de Yong, Randy Reed, Dave Pederson, Harold "Jiggs" Main (Jan. 12, 3:30p.m.), Don Wilson (Jan. 13) Larry Dolan, and Paul Azevedo.

Guest – Larry Mires (executive director, St. Mary's Rehabilitation Group), Randy Perez, (Water Resources Director, Ft. Belknap Indian Community)

Purpose of Phase 2 Joint Initiative Team
To explore and evaluate options for improving both Montana's and Alberta's access to the shared water of the St. Mary and Milk Rivers, and to make joint recommendation(s) on preferred options to both governments for their consideration and approval.

Purpose of Meeting
Second of three educational meetings dedicated to developing a better understanding of the international apportionment procedures and the similarities and differences in how Montana and Alberta manage water.

Day 1 – 2:00 – 5:00 pm

1. Welcome and Member Introductions (John)

All members introduced themselves. John welcomed Harold "Jiggs" Main representing the Ft. Belknap Indian Community as a new member to the Joint Initiative Team.

Updates and Action Items from December 10 &11, 2008 meeting.

- Premier Stelmach will send a letter to Governor Schweitzer expressing Alberta's support for the rehabilitation of the St. Mary Diversion Facilities.
- Discussed and agreed that meeting notes should reflect the **intent** of an agenda item, rather than a detailed discussion of the **content**. Additional content will be added when the discussion brings new information forward, agreements are reached and decisions are made.
- Approve Draft notes of December 10 &11, 2008 meeting as sent out.
- MT Senator Jon Tester has invited Ken Salazar, the Obama Administration's nominee for U.S. Secretary of the Interior, to visit the St. Mary Diversion Facilities. MT will keep AB apprised of developments.

2. What did members think about since last meeting?

Members shared thoughts and insights on the Initiative process that have come to mind since the last meeting.

- "Change" was discussed – changing current operations of the St. Mary- Milk river system – and how the JIT could get agreement on any recommendations for change.

- State of MT is committed to rehabilitation of the St. Mary Facilities. The St. Mary Rehabilitation Working Group is key to enabling change in MT.
- JIT members have expressed a strong desire to visit infrastructure in MT and AB.
- Alberta is interested in seeing how to share the benefits of providing better access to the shared waters.
- Need to keep politicians/decision-makers in both jurisdictions engaged in process to ensure it goes as smoothly as possible. AB has a communications person assigned to the project. MT will confirm their communications person.
- Discussed and agreed that the broad range of background support information is of great value for this, and likely for future discussions between water users and government agencies in both jurisdictions. Members agreed to hire a professional writer to compile all the background support information into a single report. Information will be made available to the public.

3. International Agreements (Section 5 of background information)

Sal Figliuzzi (AB) and Larry Dolan (MT) presented information on the international agreements that govern water sharing in the St. Mary and Milk Rivers (the 1909 Boundary Waters Treaty, the 1921 Order, the 2001 Letter of Intent), apportionment procedures, annual records meetings, and the difference between each jurisdiction's entitlements versus actual diversion.

JIT members discussed water accounting procedures, the role of the Field Officers, the location of flow monitoring sites and weather stations in AB and MT, and other operational and administrative aspects of the agreements.

- **ACTION** Larry and Sal will reproduce figure 5.1.5 (U.S. and Canadian entitlements as a percent of total natural flow @ the international boundary) using median (not average [mean]) data.
- Larry and Sal will compute the percentage of U.S. entitlement MT could take if the St. Mary Canal had an 850 cfs capacity.

Day 2 – 8:30 am – 3:00 pm

1. Irrigation (Section 8 of background information)

Roger Holm (AB) and Larry Dolan (MT) presented information on the irrigation infrastructure and water application systems used in each jurisdiction. Members watched a video title "The Magic of Water" produced by Alberta Agriculture and Food. A copy of the video was provided to all JIT members. AB handed out an annual report, "Alberta Irrigation Information 2007" as reference – it identifies irrigation info for crops in the irrigation districts.

2. Water Operations (Section 8 of background information)

Larry Dolan (MT) and Terrence Lazarus (AB) gave presentations on the water management operations in each jurisdiction. Larry described the operations of Sherburne Reservoir, Fresno Reservoir, and Nelson Reservoir. Terrence described the operations of the Waterton - St. Mary Headworks System in southern Alberta which includes the Waterton-Belly Canal, Belly Chute, St Mary Reservoir, and the St. Mary –

Ridge Reservoir. Terrence provided JIT members with a brochure entitled, "Water Management Operations".

JIT members discussed the challenges each jurisdiction faces in operating and managing their water infrastructure.

3. In-stream Ecosystem Flows (Section 7 of background information)

Sal Figliuzzi (AB) and Larry Dolan (MT) presented information on the regulatory/ planning process used in each jurisdiction to address in-stream flows for the ecosystem.

4. Criteria for evaluating options

The JIT must start considering criteria that would be valuable in evaluating the options that will be developed after the education sessions are complete. This will be taken up in subsequent meetings.

5. Meeting Review, Next Meeting, Actions Items

Each jurisdiction reported on its communications about the Initiative.

MT's Governor's office indicated that Montana plans to uphold its open meeting approach. Alberta will work with its government Communications staff to clarify its approach.

Communications plan – there are 5 audiences: (1) governments of MT and AB; (2) JIT governments and organizations; (3) Municipal leaders (including southern Alberta MLAs); (4) Direct stakeholders (U.S. Bureau of Reclamation, U.S. Army Corp of Engineers, *etc.*), and (5) Other interested public (media, irrigation organizations, *etc.*).

A press release would announce and acknowledge that this initiative is underway, but no press releases have been issued by either government at this time. Open houses could be used to get information to large group of requestors if necessary.

The Milk River Watershed Council Canada has a meeting on Jan. 22 in which the MRWCC AB Team members will use Joint Status Report #1 to provide their members information about the Initiative.

ACTION – Tim will work with the rest of the AB Team to ensure that Gerry and Duncan have the information to apprise the OWC.

Potential for tours

The following areas were identified as important areas to be seen:

- **April 6-7, 2009** – Milk River Irrigation Project (MT). Fresno Reservoir to Glasgow Irrigation District.
- **May 5-6, 2009** – Waterton, AB – Alberta headworks (Waterton-St. Mary Ridge-Verdigree Coulee) – down to the Milk River (AB) irrigation works. Tour will include potential future storage sites.
- **June 2009**, date TBD – St. Mary's Diversion system in MT. Tour will go from Sherburne Reservoir to Drop Structures at the North Fork Milk River.

For the April and May meetings, it was agreed the best use of the JIT's time is to hold a one day meeting to start brainstorming ideas about options (without any analysis) plus a one day tour.

Next meeting is scheduled for February 18-19 in Lethbridge. Larry Dolan and Sal Figliuzzi will make presentations on;

- Water Supply & Management Models,
- Past and Ongoing Structural and Water Management Investigations
- Requested additional topics

Meeting adjourned at 3:15 p.m.

Summary of Agreements

- Agree that meeting notes should reflect the **intent** of an agenda item, rather than a detailed discussion of the **content**.
- Approve Draft notes of December 10 &11, 2008 meeting as sent out.
- Agree to hire a professional writer to compile all the background support information into a single report. Information will be made available to the public.

Action Items

- MT will identify a communications person for Initiative process.
- Larry and Sal will reproduce figure 5.1.5 (U.S. and Canadian entitlements as a percent of total natural flow @ the international boundary) using median (not average [mean]) data.
- Larry and Sal will compute the percentage of US entitlement MT could take if the St. Mary Canal had an 850 cfs capacity.
- Tim Toth will work with the rest of the AB Team to ensure that Gerry and Duncan have the information to apprise the OWC.

Montana – Alberta: St Mary & Milk Rivers Water Management Initiative

Joint Initiative Team Meeting #3, Lethbridge Lodge Hotel
February 18-19, 2009, Lethbridge, Alberta

Montana	Alberta
John Tubbs – Department of Natural Resources and Conservation (co-Chair)	Robert Harrison – Alberta Environment (co-Chair)
Dustin de Yong - Office of the Lt Governor	Brent Paterson – Alberta Agriculture RD
Randy Reed – Milk River irrigator	Ken Miller – Milk River
Don Wilson – Blackfeet Tribe	Gerry Perry – Oldman River
Dave Peterson – City of Havre	Duncan Lloyd – Oldman River
Harold "Jiggs" Main – Ft. Belknap Tribe	Sal Figliuzzi – Alberta Environment
Larry Dolan – DNRC	Tim Toth – AB Environment (secretariat)
John Sanders – invited (Feb. 19)	Laurent Conard – invited (Feb. 18)

Regrets – Tom Gilchrist, Paul Azevedo

Purpose of Phase 2 Joint Initiative Team

To explore and evaluate options for improving both Montana's and Alberta's access to the shared water of the St. Mary and Milk Rivers, and to make joint recommendation(s) on preferred options to both governments for their consideration and approval.

Meeting Objective

The last of three educational meetings dedicated to developing a common understanding of how Montana and Alberta manage water, and the start of preparation to developing options.

Day 1 – 2:30 – 5:30 pm

1. Welcome and member Introductions (Robert)

Robert welcomed the Joint Initiative Team. John Tubbs and John Sanders (St. Mary Canal engineer, invited) will attend tomorrow; Paul Azevedo will not be attending. Dustin de Yong will act for John Tubbs today.

Updates and Action Items from January 12-13, 2009 meeting.

- Tim reviewed the Action items. All were completed, except Larry added that he will talk about storage in Fresno Reservoir.
- The draft notes of JIT #2, January 12-13, 2009 were approved as sent out. The secretariat will re-send them to the Joint Initiative Team as final Notes.

2. What have members thought about since last meeting? (Dustin, Robert)

Members shared their thoughts on the Initiative and process that have come to mind.

- Randy presented information on the Initiative at the Alberta Irrigation Projects Association conference (Lethbridge, AB) by tele-conference. The presentation was well-received and Randy answered all questions.
- Ken and Tom spoke about the Initiative to the Milk River Watershed Council Canada at their recent board meeting.

- The Water Compact with Blackfeet Nation was passed unanimously by the Montana State Legislator. The Compact must now be ratified by the U.S. Congress and then by a vote of the Blackfeet Nation. Details such as funding, canal size, *etc*. must be worked out before rehabilitation of the St. Mary Canal can begin. The Blackfeet Compact and Ft. Belknap Compact will run in parallel with this Initiative but will not affect it.
- Dustin advised that this Initiative/process has provided good support and profile to their federal executive in Washington, DC.

3. Water supply and management models – (Larry & Sal) (Section 9 – background)
Broad topic areas are: information on the water supply and management models, past and ongoing structural and water management investigations, and follow up information requested by the Team (see Item 6).

Sal reviewed Alberta's water supply and management models in current use and models used for recent simulations. The models are generally "water accounting models" – rather than ones that simulate the rainfall run-off process. They are demand-driven models used for basic planning – primarily used to simulate scenarios over multiple years and assess relative impacts/benefits of proposed changes. He also described the model (spreadsheet) used during the 2003 St. Mary/Milk Rivers Administrative Measures Task Force work, which was used to evaluate the relative benefit if different balancing periods (7-day; 15-day; monthly; seasonal; annual) were used to balance surplus and deficits deliveries. The calculations were only cursory since they did not consider constraints such as weather, spills from Fresno Reservoir, or whether previous surplus deliveries were captured and stored. These much more detailed analyses are required to confirm the relative benefits.

Larry described some of the U.S. models that were developed for planning and operational use. The U.S. Bureau of Reclamation has an operational model that is used to make seasonal-to-daily water management decisions (day-to-day or month-to-month). The Bureau of Reclamation has a planning model for the St. Mary-Milk River system that was last updated in the 1990s and was used for evaluating infrastructure options, and for Reserved Water Rights negotiations. The Montana DNRC is developing a new planning model of the St. Mary-Milk River system that uses 1959-2003 input data and runs on a daily time step. The model also could be modified for operational use.

Question: If the U.S. entitlement is not all diverted, what is the quantity not diverted and flowing into Canada?
Answer: In wet years all that water is spilled. In very dry years (such as 2001), Alberta reservoirs are likely empty and could store surplus delivery if there was any that crossed the border. Surplus deliveries could also be used to generate power in Saskatchewan.

Currently in 6 of 10 years, there is a shortfall of water in the MT Milk River for crop water use.

Day 2 – 8:30 am – 3:00 pm Robert welcomed John Tubbs and John Sanders to the meeting.

4. Past and ongoing structural and water management investigations (John Sanders, Larry Dolan) (Section 10 – background information)
John Sanders described Montana's St. Mary Canal Rehabilitation work – the planning, studies (U.S. Bureau of Reclamation's 2004 Regional Feasibility Report), rehabilitation and

current planned work. The proposed new siphon over the St. Mary's River will replace the entire existing old siphons. The Hall's Coulee siphons and the drop structures to the North Fork of the Milk R. will also be replaced. It is anticipated that the earthen canal will be entirely rebuilt with a two-bank canal and there will be some minor canal realignments.

Section 10 A – Larry described past water management and infrastructure options evaluated by Montana and other agencies – why they were reviewed and the results of the studies:

- Described Montana's water management and conservation efforts undertaken by Milk R. irrigation districts.
- MT will complete the adjudication of water rights in most basins by about 2015. The State will then manage water rights more strictly, by their priority of right. Court decrees are to be complete by 2020.
- In 2007, Montana DNRC, U.S. Geological Survey, AB Environment and Environment Canada collected data to measure channel losses in the Milk R. in Alberta. Environment Canada is evaluating that data to see if estimates of channel losses in the Milk R. can be refined. The results are not yet available.
- Described infrastructure options that have been considered as ways to supply more water to Milk R. irrigators in MT.
- Also described MT's monitoring of the Milk R. upstream of the western crossing and downstream of the eastern crossing.

– Sal described past water management and infrastructure options evaluated by Alberta Environment and other agencies:

- He presented five Milk River basin storage options that were considered, including construction and ongoing annual operating costs of each.
- Sal also presented five potential diversion schemes to move water from the Milk Ridge Reservoir in the St. Mary Projects to the Milk River.
- He discussed the near real-time monitoring of irrigation water use being done on the Milk R. in Alberta.
- He presented results of the Klohn Crippen consultant study[1], which identified that increases in diversions from the St. Mary R. to the Milk R. will accelerate river migration, erosion and sedimentation processes in the Milk R.

There was discussion about that study regarding what stabilization works might be needed to ameliorate potential erosion and sedimentation issues on the Milk R., if there were increased diversions from the St. Mary R. to the Milk R.

ACTION – Sal was asked to investigate and confirm the operation and maintenance costs he provided for the storage projects described.

IJC – Milk River Natural Flow Technical Working Group

At times, the current computations procedures result in negative natural flows. This is likely due to inaccuracies in estimated losses from the Milk R. associated with conveyance of U.S. diversions across arid southern Alberta. Larry described the work to date towards improving the Milk R. natural flow computation equations and other channel losses in natural flow computations, including estimating enhanced losses, and evaporation/ evapotranspiration, resulting from the diversion of water from the St. Mary R. to the Milk R.

[1] Klohn Crippen 2003. Milk River Basin Preliminary Feasibility Study. Alberta Environment, Dec. 31, 2003

ACTION – What is the status of the channel conveyance losses by Environment Canada in the Milk R. Natural Flow Study?

5. Communications about the Initiative (Robert)

Alberta has notified its two urban and rural municipalities' associations and the Alberta Irrigation Projects Association. Alberta will soon notify the six southern Alberta MLAs, municipal officials representing cities and counties, and the media. Alberta Environment's website is expected to be available within two weeks.

6. Follow-up information from Member requests (Larry and Sal)

Item: Different balancing periods in terms of apportioning flows

Sal presented two tables that summarized modeled U.S. diversions under different balancing periods (table 9.3.1 – U.S. diversions of St. Mary R. water) and Canadian use of Canadian Milk R. entitlements under various balancing periods (table 9.3.3). He cautioned that limited modelling capabilities at the time precluded analyzing potential downstream constraints such as spills from Fresno Reservoir, St Mary Reservoir, weather, *etc*. Those constraints may limit the benefits of an extended balancing period.

Notwithstanding these limitations, the summary showed that:

- Extending balancing periods (from '7-day' through 'monthly', to 'seasonal') allows each jurisdiction access to a greater volume of its entitlements, but those increases are relatively modest on the Milk R. For Canada, any increases are still insufficient to meet even current irrigation requirements on the Milk R., if Canada only has access to Milk R. natural flows.
- By simply changing the accounting period for calculating deficit and surplus flows, there is some potential for each jurisdiction to get access to more of its entitlement but it needs to be evaluated in more detail.

Model runs included a minimum environmental flow.

There was discussion about the relative benefits of differing apportionment periods, the potential impacts to the timing of deficit delivery, and what, if any, additional land may be able to be irrigated with "surplus" water. Deficit deliveries are not permitted under the current apportionment procedures. If a deficit delivery occurs during any one balancing period, the upstream jurisdiction is required to make up the deficit in the next balancing period or at time selected by the downstream jurisdiction.

ACTION – What quantity of U.S. St. Mary River entitlement flowing into Canada was: (i) being put to beneficial use?, and (ii) being spilled?

Naturalized flow data

There was some discussion as to what period should be used for modelling purposes. The entire hydrologic data set from 1912 to present is not representative of all the infrastructure changes that have occurred since then – *e.g.*, historic hydrologic data includes periods when the current infrastructure was not available. "Naturalized" flows, which remove the effect of infrastructure present at the time, are necessary for water modeling. Alberta has created weekly naturalized flow data for the Milk and St. Mary rivers for the period 1912-2001, as part of the South Saskatchewan River planning studies and the assessment of the Milk River

water management alternatives. As part of their modelling of the Milk River basin, Montana has developed daily near-natural stream flow data for the 1959-2003 period.

The technical team proposed that any modelling be based on the 1959-2001 period which is common to both data sets, and using a weekly time step. There was discussion about making this data more current and reporting it in time periods that include significant management changes (*e.g.*, reduction of canal capacity due to deterioration, leakage, rehabilitation changes). Sal advised that extending data coverage to 2008 may require considerable effort which may delay modelling, and that extending the data to 2008 may not provide any significant modelling benefit since the 2002-2008 period was relatively wet. Still, the Team believe that the feasibility of extending the natural flow to 2003 and/or 2008 should be looked into.

ACTION – Is it possible to extend the natural flow data set to 2003 or 2008 in a timely fashion so that more recent data can be included in the modelling? (Sal –Alberta data, Larry Montana data)

Item: Water loss along reaches of U.S. St. Mary canal – (Section 11)
Canal losses were examined for two reaches:

1. the U.S. St. Mary canal from the headgate to the intake of the St. Mary R. siphons, and
2. the U.S. St. Mary canal from the outlet of the St. Mary siphons to the canal at the Missouri River—Hudson Bay Divide.

Median annual losses

	All data	1997-2002 data	1951-1966 data
Reach 1	19,400 ac.ft.	18,800 ac.ft.	— —
Reach 2	2200 ac.ft.	— —	4250 ac.ft.

DNRC hopes to collect additional information on canal losses in the upcoming season.

Item: Annual U.S. St. Mary entitlements not captured and diverted by the U.S.
The quantity of water diverted by the U.S. from the St. Mary River to the Milk River has increased significantly from the 1919-1960 period to the 1961-2002 period. In the wettest 25% of the years, the U.S. continues to have significant quantities of water that it does not capture and divert — more than 187,180 ac.-ft on average in the 1919-1960 period and more than 146,400 ac.-ft in the 1961-2002 period. In the driest 25% of years, the amount of water not captured and diverted is much less: an average of 56,690 ac.-ft. in the 1919-1960 period and an average of less than 27,750 ac.-ft. in the 1961-2002 period. It is believed this value has declined further since the introduction of the Letter of Intent, but there is insufficient data upon which to calculate the amount.

These quantities were taken from published values[2], and were summarized for the entire 1919-2002 period as follows:

Quantity not diverted (ac-ft)	Number of years	Percent of years
10,000 ac.-ft or less	6 of 82	7.3
20,000 ac.-ft or less	13 of 83	15.8

[2] IJC, 2002. Division of the Waters of the St. Mary and Milk Rivers – 2002, Appendix A and B (Table 7: Historical Summary of Computed Natural Flow St. Mary River)

30,000 ac.-ft or less	18 of 82	21.9

Item: Determine median (vs. "average") U.S. entitlements

A comparison of annual water entitlements from the St. Mary, Milk and Battle rivers for both Canada and the U.S. at the International Boundary was made from the combined flow of the St. Mary R., Milk R., Battle Cr., Lodge Cr. and Frenchman R., for the 1950-2002 period. Median and average entitlements were as follows:

Entitlement as percentage of total, 1950 – 2002 period		
	U.S.	**Canada**
Average	45.65	54.35
Median	45.84	54.16

The median entitlements are very similar to the average values.

7. What have we learned and how does it apply to the Initiative?

Prior to starting to develop options, the Team should start some public outreach and identify key concepts to its stakeholders. To reinforce those key concepts, Sal and Larry provided an overview of the significant information received to date:

Important areas

- The 1909 Treaty and 1921 Order provide a framework
- Context of this Initiative with IJC/federal government
- Hydrology: St. Mary v. Milk.:
  - Basin size difference – Milk R. (large) vs. St. Mary R. (smaller in MT, but more stable supply); irrigation timing; irrigation consumes about 85% of diversions; the difference between water rights (licenced allocation) and use (water actually consumed), with the latter generally being considerably smaller
  - Mean vs. median data representation
  - AB license has right to be 100% consumable; MT – doesn't have right to consume water that would normally be returned to stream.
  - Flows in indicator years; divisions within those years; recent vs. historical data; what happens in low, medium-low, and medium flow years
- Tiering of process regarding options – current situation (see Terms of Ref.)
- Description of irrigation system MT and AB
- Saskatchewan – Alberta master agreement on apportionment
- In-stream flow and inter-basin transfer in AB
- Goal of win-win
- Senior rights; Rights related to Agreements or Compacts
- Irrigation differences – MT irrigates along river v. AB removed from river bank
- Water spilled and unused
- Degree of water management in AB (*e.g.*, licensing consumptive water loss in AB reservoirs)
- Aquatic ecosystem – policy and social impacts; impacts on aquatic ecosystem with higher flows; how is aquatic ecosystem considered?
- Water losses and surplus deliveries (water need in general vs. need in dry years)
- Net beneficial water (spilled water, not used for irrigation)
- Hydrologic planning models being used and confidence in their evaluations
- Financial/government/irrigation processes – developed since 1969 in Canada

- Benefits of Alberta public investment in irrigation
- Rehabilitation of U.S. St. Mary Diversion headworks

Historical data for the St. Mary R. does not appear at first look to indicate any obvious trends over time — the mean and median flows for the 1917-1960 period are very similar to the mean and median for the 1961-2002 period. Although flow has not been reduced in the St Mary River, there still may be climate change impacts. The flow may have been reduced but may be being offset by flows from glacier ablation. When asked about glacier contribution to the flows of the St Mary R., Sal replied he has no information but believes studies conducted for the Bow R. above Calgary indicated glacier melt contribution is only about 2-4% of the annual flow. Also, since the glacier areas in the St Mary R. basin is believed to be at about the same ratio, its contribution would likely be of the same order – 2-4% of annual. There was a question about monitoring to determine if glacial melt contributes to stream flow.

ACTION: What do we currently know/understand about how glaciers affect the St Mary River system?
ACTION: The Joint Initiative Team requested a re-explanation of the Treaty, the Order, and the Letter of Intent by the Technical team.

8. Criteria for evaluating options (Robert)

Item postponed to next meeting.

9. Meeting planning (John)

Next meeting will include both a field trip and meeting. Stakeholders must start to become aware of this Initiative; jurisdictional government staff should start planning presentations.

Tour and meeting combination – **April 6-7**. Leave Lethbridge about 7:00 a.m., overnight in Havre, meet in Chinook for day two. The Joint Team wants a tour of the Chinook area to see an irrigation district, farm operations, and some of the dams including Fresno dam.

The team discussed potential criteria they might use to develop options, including:

- Dividing the planning area into three geographic sections:
  - prior to western crossing; the Alberta section; downstream from eastern crossing

  Then identify the issues in each section, model them, and bring them together.
- By management (administrative) procedure vs. structural solutions, or
- By type of investment – a catastrophic failure/risk analysis approach

  Then design an evaluation matrix: cost, administrative, structural (engineering), legal aspects, *etc.*, and evaluate it in a time context (3-5 yrs, 10+ yrs., greater).

Item for discussion in April: What would success look like? How do we move recommendations through our governments? Are there any issues with inter-basin transfer? One focus: the level of risk of a canal failure (short, medium, and long-term). Include the concept of Canadian participation in canal rehabilitation (ownership, funding) that provides benefit to Canada.

The meeting agenda should include: (i) information items, (ii) explore initial options, (iii) criteria to evaluate options, (iv) tour, (v) review draft summary (presentation), (vi) interests

10. Action items (Tim)

Summary of action items:

ACTION – Sal was asked to investigate and confirm the operating costs he provided for the storage projects described. (p.3)

ACTION – What is the status of the channel conveyance losses by Environment Canada in the Milk R. Natural Flow Study? (p.4)

ACTION – What quantity of U.S. St. Mary River entitlement flowing into Canada was: (i) being put to beneficial use?, and (ii) being spilled? (p.4)

ACTION – Is it possible to extend the natural flow data set to 2003 or 2008 in a timely fashion so that more recent data can be included in the modelling? (Sal –Alberta data, Larry Montana data) (p.5)

ACTION: What do we currently know/understand about how glaciers affect the St Mary River system? (p.7)

ACTION: The Joint Initiative Team requested a re-explanation of the Treaty, the Order, and the Letter of Intent by the Technical team. (p.7)

Items for joint status report –

- Presentations on each jurisdiction's water supply and management models
- Past/ongoing structural and water management investigations
- Losses along the U.S. St. Mary Canal
- Annual entitlements not able to be captured and diverted

Meeting adjourned at 3:10 p.m.

Montana – Alberta St. Mary and Milk Rivers Water Management Initiative

Joint Initiative Team Meeting #4, The Duck Inn Tavern & Garden Room
April 6-7, 2009, Havre, Montana

Montana	Alberta
John Tubbs – Department of Natural Resources and Conservation (co-Chair)	Robert Harrison – Alberta Environment (co-Chair)
Dustin de Yong - Office of the Lt Governor	Brent Paterson – Alberta Agriculture RD
Randy Reed – Milk River irrigator	Ken Miller – Milk River
Don Wilson – Blackfeet Tribe	Tom Gilchrist – Milk River
Dave Peterson – City of Havre	Gerry Perry – Oldman River
Harold "Jiggs" Main – Ft. Belknap Tribe	Duncan Lloyd – Oldman River
Paul Azevedo DNRC (secretariat)	Tim Toth – AB Environment (secretariat)
Larry Dolan – DNRC	Sal Figliuzzi – Alberta Environment

Guests – Larry Mires (SMWG), Randy Perez (Ft. Belknap), Dick Long (USBR), Mike LaFrentz (USBR), Gord Hagen (Saskatchewan Watershed Authority), Kevin Wingert (Saskatcbewan Watershed Authority)

Purpose of Phase 2 Joint Initiative Team

To explore and evaluate options for improving both Montana's and Alberta's access to the shared water of the St. Mary and Milk Rivers, and to make joint recommendation(s) on preferred options to both governments for their consideration and approval.

Meeting Objective(s)

1. Increase awareness of water use and management in the Milk River Basin, MT.
2. Start process for developing and evaluating options to improve both Montana's and Alberta's access to the shared water of the St. Mary and Milk Rivers.

April 6 – 11:30a.m. – 6:00 p.m.

JIT members toured a portion of the Milk River basin in Montana for a first-hand look at agricultural and municipal water uses in the basin. Areas visited included: Fresno Reservoir, Havre Water Treatment Plant, Lohma Diversion Dam, Paraidise Valley Irrigation District, Ft Belknap Irrigation Project, and Harlem Pump Station. JIT were given a presentation by water managers from Montana and Saskatchewan on how they cooperate to share water according to the needs of local water users.

April 7 – 8:30a.m. – 3:00 p.m.

1. Welcome, member introductions

- Review meeting objectives and agenda
- Adopt notes from February 18-19 meeting with changes to attendees list

2. Follow up Action Items from February 18-19, 2009 meeting

- Confirm operation and maintenance costs for AB storage projects.
  - Sal Figliuzzi provided corrected cost information.

- Status of the channel conveyance losses by Environment Canada in Milk River Natural Flow Study.
  - Study will be completed by Fall 2009. Results are currently being reviewed by Milk River Technical Working Group (MT, AB, Sask, USBR, USGS, EC)
- What quantity of U.S. St. Mary River entitlement flowing into Canada was: (i) being put to beneficial use and (ii) being spilled?
  - Sal Figliuzzi and Larry Dolan provided information to JIT members. Discussion revealed that MT and AB have different interpretations of the terms "beneficial use" and "spilled". Question is difficult to answer without common agreement on the meaning of these terms.
- Possibility of extending the natural flow data set to 2003 or 2008?
  - Sal advised that extending data coverage may require considerable effort that could delay modelling. It may not provide any significant benefit since the 2002-2008 period was relatively wet.
- What currently known/understood about how glaciers affect the St. Mary River system?
  - Larry Dolan provided available information to JIT members.
  - Summary: Contribution from glacier melt water is small. Ice continues to melt in July and August which contributes a small amount of water to system. Glaciers may be largely gone in 20-40 years. Overall impact on annual flows in the St. Mary River will be minor. Annual flows may decrease from 1% - 5%, but loss will be greater in extremely dry years.

3. Review of Milk River Tour – John Tubbs

- JIT members shared their thoughts on what they saw and learned during tour.
  - Irrigators are very adaptable to getting water to where it needs to be despite high costs, uncertainty, and constraints imposed by roads, railways, and small irregularly shaped fields. Several members who toured the area in the past noted improvements to the distribution system and on-farm water use.
  - New appreciation for the challenges local irrigators face. Antiquated system of rules and laws that govern how the districts operate make it difficult for irrigators to use water more efficiently.
  - In 1940's PFRA started building storage projects and upgrading the distribution system in the St. Mary Irrigation District (AB). St. Mary Irrigation District has been through two rounds of upgrades since the 1940's. MT's Milk River Project is where AB system was 25 years ago. Upgrade process is slow.

4. Communications – Robert Harrison

- Discussion of JIT member's communication to constituents
  - AB sent notices from Minister to southern Alberta MLAs (Members of the Legislative Assembly). Robert Harrison sent notice to all mayors/reeves in southern Alberta. April 4 addition of Lethbridge Herald ran an article on the Initiative. Lethbridge article was overall positive, good, accurate. Milk River Watershed Council Canada (MRWCC) will hold their annual general meeting on April 9th: John Sanders (St. Mary Canal rehabilitation engineer) will attend and present. Initiative was mentioned in the MRWCC Sedimentation Study.
  - Meeting notes and Joint Status Reports are posted on DNRC website. Blackfeet Tribal leadership has been informed. Ft. Belknap Tribal Council has been informed and Upper Missouri Water Association was informed during annual meeting in Washington D.C.

5. Brainstorming session for developing and evaluating options –

- JIT members began the process of identifying their jurisdiction's interests (or benefits), evaluation criteria, and potential water management options to improve access to the shared water. Members were asked not to debate, defend or justify any ideas being presented. Members were instructed to ask questions for clarification only.
- JIT members agreed on the need to define baseline condition to measure potential changes against.

<u>Part 1 – Jurisdictional Interests – initial listing</u>

Questions that need to be answered: What does success look like? How would you describe success to your neighbour? What are Montana's interests? What are Alberta's interests?

Water Supply

- Secure supply of water for MT municipalities.
- Secure supply of water for AB municipalities.
- Secure water supply for St. Mary Irrigation Project (AB).
- Secure water supply for the Milk River Project (MT).
- Montana's Tribal interests have access to secure water supply.
- Ability to move early Milk River runoff flows into Fresno Reservoir.
- Increase useable supply.

Water Utilization

- Better utilization by MT of U.S. portion of water from the St. Mary River.
- Better utilization by AB of Canadian portion of water from the Milk River.
- Blackfeet Tribe receives a benefit from share of U.S. St. Mary River.
- Ft. Belknap better utilizes their share of U.S. Milk River natural flow.

Water Quality

- Quality of raw water supply is sufficient for use and treatment by Montana municipalities.
- Quality of raw water supply is sufficient for use and treatment by Alberta municipalities.
- Good water quality that meets in-stream objectives in Alberta.
- Enhanced water quality upstream of Fresno Reservoir
- Understand source of sediment loading in the Milk River.
- Decrease future sediment loads entering Fresno Reservoir.

Treaty Instruments

— Agreement

- Improve Operational Letter of Intent between MT and AB.
- Resolve disagreements on 1921 Order and other agreements.
- Better inter-jurisdictional agreement that allows for "flexible" sharing/utilization of water.
- Incorporate 1901 Decree.

— 1921 Order

- Montana voluntarily rescinds their formal challenge to IJC on 1921 Order

In-Stream Flow

- Jurisdictions recognize and account for MT's portion of water in the St. Mary River watershed that is used to meet in-stream flow needs (winter releases from Sherburne Reservoir into Swiftcurrent Creek).
- Identify and achieve in-stream flow needs in the AB Milk River in the future.
- Recognize in-stream requirements in the Canadian portions of the St. Mary and Milk river watersheds (***e.g.***, fish issues, endangered species)
- Achieve formal Water Conservation Objectives in the Canadian Milk River

Communication

- Develop an enduring communications structure between water users and operators in both jurisdictions.
- Develop an enduring communications structure between jurisdictions.
- Establish a MT-AB Milk River Joint Board of Control.

Infrastructure

- Fully rehabilitated and functional U.S. St. Mary River Diversion system.
- Collaboration on joint AB & MT infrastructure.
- Explore MT-AB cost-share arrangement for rehabilitation of St. Mary Canal.
- Explore hydropower development.

Other

- Decrease impacts on channel morphology (width, depth, meander length, bank stability) from increased flows in the Milk River.
- Expand economic base (industrial, etc.) in AB Milk River basin.
- Recognise possible increase in recreational uses.
- Recognize other beneficial uses of water.
- Ft. Belknap interests in Lodge Creek and Battle Creek.

<u>Part 2 – Evaluation Criteria – initial listing</u>

To guide this, questions that should be answered include: How will we know which option is <u>best</u>? How will we <u>evaluate</u> each option? How will we <u>rank</u> each option? How will we <u>compare</u> options? How well does each option <u>achieve</u> our <u>interests</u>?

Water Supply Impact

1 Does the option increase or decrease the volume of water available to each jurisdiction?
2 Does the option increase or decrease the security of municipal water supplies?
   - Number of day/year (long-term probability frequency)
3 Does the option increase the number of acres provided "full service" irrigation (need to define)?
   - Percent of time
   - # of acres
4 Does the option increase or decrease the number of acres receiving full service irrigation per unit of water per day?
5 Does the option reduce water shortages to current acres?
   - Percentage of time.
6 Does the option increase the length of the irrigation season?
   - Number of days.
7 Effects on water supply after Tribal interests are met.

8 Is the option effective in addressing the special circumstances associated with low water years?
   - Effectiveness during average water years.
   - Effectiveness during high water years.

Water Quality Impact

1 Does the option improve or reduce water quality?
2 Does the option increase or decrease the volume of sediment entering the Milk River?
3 Does the option increase or decrease the rate of sediment deposition in Fresno Reservoir over time?
4 Does the option increase or reduce the rate of bank erosion and loss of adjacent lands along the Milk River in Alberta?

In-stream Flow Impact

1 Does the option increase or decrease the amount of water available for in-stream flow?
   - Number of days in-stream flow objective are achieved?
   - Number of days Water Conservation Objectives are achieved?
2 Does the option decrease the number of days winter flows are reduced to zero?

Implementation Impact

1 Is the option economically feasible?
   - Cost (capital and O&M) versus benefits (economic)
   - Costs incurred by which jurisdiction and which group of stakeholders within each jurisdiction.
   - Benefits received by which jurisdiction and which stakeholders within each jurisdiction.
2 Ease of implementation
   - Legislative
   - Political
   - Financial
   - Treaty/Order/LOI – Can the option be implemented within the current Treaty/Order or does the option require opening the Treat/Order?

Operational Impact

1 Does option increase or decrease management flexibility?
   - Increase or decrease communications between jurisdictions and between water users?
   - Increase or decrease operational flexibility and ability to adapt to changing circumstances?
2 Does the option provide the ability to deal with potential service disruptions associated with reconstruction of St. Mary Canal? Construction may last 10 years.
3 Does the option provide the ability to manage risk of failure before reconstruction is complete?

Other Impact

1 Does the option expand or decrease recreational use?
2 Effects on habitat
   - Improve or reduce available habitat?
   - Improve or reduce quality of habitat?
   - Improve or reduce area of habitat?

Part 3 – Water Management Options – initial listing

1. Verdigris Coulee – Diversion/Storage. --- Use the Milk River Ridge Reservoir and Verdigris Coulee in Alberta to convey water to the Milk River in Alberta.
2. Tiber Diversion. --- Diversion from Tiber Reservoir (Lake Elwell) to the Milk River for irrigation and municipal use in Montana.
3. U.S. St. Mary canal rehabilitation and cost share
4. Milk River Dam, Alberta

5. Increased storage in Fresno Reservoir. --- Increases for MT's surplus flow from St. Mary's diverted to Milk R. in AB
6. Increase St. Mary R. basin storage in AB. --- MT uses Canadian St. Mary storage in the Milk River
7. Develop off stream storage on the Blackfeet Reservation
8. Increase storage in Lower St. Mary Lake on the Blackfeet Reservation
9. Develop storage on Ft. Belknap Reservation
10. Duck Creek Diversion. --- Bring water from Ft Peck Reservoir to the lower Milk River via Duck Creek
11. Joint operational hydro/water management model
12. Increase operational flexibility to manage surplus / deficit flows. --- Better communication, Letter of Intent
13. Adjust balancing period to allow each jurisdiction access to a greater volume of its entitlement
14. Use of Tribal water for other uses (irrigation) for compensation.
15. Create a Joint Board of Control
16. Alternate sources of water storage. --- build glaciers, aquifer storage, pump back.
17. Amend the authorization of the Milk River project. --- Administrative improvement

6. Review of hydrological model development – Sal Figliuzzi and Larry Dolan

POSTPONED to next meeting.

7. Meeting Review and plan for next meeting – John Tubbs

- Action items
- Confirm next meeting field tour and date
- Objective(s) of next meeting
- Information required for next meeting

8. Action Item Summary

- Secretariat will categorize and clarify JIT member's initial list of interests, evaluation criteria, and options.
- JIT members will review list of interests, evaluation criteria, and options and be prepared to clarify any statements that are unclear and be prepared to recommend additional ones.
- Sal and Larry will deliver a trial run of a water management (supply/demand) model.
- Sal and Larry will propose a base case scenario against which the relative benefits of other water management alternatives can be evaluated.
- Sal/Larry to add information on the impact of glacier ablation to Section 11 "add-ons" in the Background report.
- Sal and Larry to review all Treaty instruments – 1909 Treaty, 1921 Order and especially the Letter of Intent – and compare the LOI to Montana's LOI with Saskatchewan.

- AB Secretariat to draft a contract in April to write up Sal and Larry's Background report. Contract should start in early May.
- John/Robert to develop a schedule and target audience to apprise the interested public of the Initiative.
- Secretariat to develop a calendar of upcoming meetings to keep all Team members apprised of opportunities for outreach.

9. Message in Joint Status Report:

- Summarize information on contribution from glaciers.
- Began discussion of criteria, interests, options
- Concluded technical, knowledge/background
- Next meeting tour

10. Next meeting:

May 4 & 5 in Lethbridge, AB.

- Day 1 - Field trip to see head works of Alberta St. Mary R. basin and irrigation infrastructure
- Day 2 – Resume JIT meeting.
- Meeting Objectives:
    - Finalize list of jurisdictional interests and evaluation criteria
    - Explore water management options
    - Review Treaty instruments
    - Trial run of a water management (supply/demand) model.

11. Adjourn

Meeting adjourned at 2:50 pm.

Montana – Alberta: St Mary & Milk Rivers Water Management Initiative

Joint Initiative Team Meeting #5, Lethbridge Lodge Hotel
May 4-5, 2009, Lethbridge, Alberta

Montana	Alberta
John Tubbs – Department of Natural Resources and Conservation (co-Chair)	Robert Harrison – Alberta Environment (co-Chair)
Dustin de Yong - Office of the Lt. Governor	Brent Paterson – Alberta Agriculture RD
Randy Reed – Milk River irrigator	Ken Miller – Milk River
Paul Azevedo – DNRC (secretariat)	Tom Gilchrist – Milk River
Don Wilson – Blackfeet Tribe	Gerry Perry – Oldman River
Harold "Jiggs" Main – Ft. Belknap Tribe	Duncan Lloyd – Oldman River
	Tim Toth – AB Environment (secretariat)
Larry Dolan – DNRC Technical Team	Sal Figliuzzi – AB Env't Tech. Team

Regrets – Dave Peterson
Observer – Larry Mires (executive director, St. Mary Rehabilitation Working Group), John Sanders (DNRC - St. Mary Canal rehabilitation engineer, Day 1 and morning, Day 2)

Purpose of Phase 2 Joint Initiative Team

To explore and evaluate options for improving both Montana's and Alberta's access to the shared water of the St. Mary and Milk Rivers, and to make joint recommendation(s) on preferred options to both governments for their consideration and approval.

Meeting Objective

This meeting is dedicated to understanding the Alberta upper St. Mary River water management infrastructure, and to clarifying jurisdictional interests, evaluation criteria and starting to develop a common set of water management options.

Notes

Day 1 – <u>May 4 – 10:45 a.m. – 6:00 p.m.</u>
Tour of St. Mary River basin head works and irrigation infrastructure.

Day 2 – <u>May 5 – 8:15 a.m. – 3:00 p.m., Anton's ballroom</u>

1. Welcome and member Introductions -- Robert

Robert welcomed the Joint Initiative Team. Dave Peterson is unable to attend. After some discussion, the Team agreed to change the order of the agenda: review the Treaty instruments and modelling first, then spend the remainder of the day on options, interests and criteria.

2. Review Action items – April 6-7 meeting #4 – Tim/Paul

Updates and Action Items from April 6-7, 2009 meeting: review of the Notes and the Communications Plan was deferred until after lunch.

- Draft Notes, JIT #4, April 6-7, 2009 – **Action items** – All action items were completed except for two:
  - Sal and Larry will deliver a trial run of a water management model

- Sal and Larry will propose a base case scenario against which the relative benefits of other water management alternatives can be evaluated

Information on these two actions appears in Sal and Larry's presentation today under Agenda item #6 – Water management model development.

- Draft Notes, JIT #4 – **Notes** – The Notes were **approved** with the following changes:
  - P. 3: bullet #3, revised to read …St. Mary Irrigation ~~District~~ Project…
  - P. 6: remove sub-bullets "a"-"d" under Part 3 – Water Management Options item #4

The secretariat will send final copy of JIT #4 meeting Notes with the changes.

Communications Plan – John briefly reviewed the purpose of the plan and the people/groups to which it is aimed. The Communications Plan is being implemented as written and there have been no issues with it to date.

The JIT **adopted** draft 4.4 as the Approved Communications Plan.

Joint Status Report – The Joint Status Report must be prepared promptly after each meeting to ensure the Team has common messages. The JIT should advise the Secretariat whether the Joint Status Report meets their communication needs so that it can be continuously improved.

3. Review of St. Mary River basin tour – Robert

Comments: it was good to meet some local operators and see how 'water science' is applied to irrigate Southern Alberta. Tour participants from S. Alberta learned more about the Initiative and seemed assured that the JIT was working toward making access to water better for AB irrigators.

Topics that were highlighted included:

- adding hydro power generation that is financed by irrigators,
- local fragmentation of the landscape with wind power generation,
- in water short years, irrigation districts without storage have to choose which crops to irrigate,
- differences between Provincial and District ownership of infrastructure

Basins closed to further allocations have generated water markets – if water rights can be found for sale – and water is sometimes leased to users during water short years. The tour of the St. Mary River Irrigation Project raised questions about irrigation in other districts in other watersheds. The JIT would like an overview of other irrigation in Alberta and Montana, to provide some context to what was seen today.

ACTION: Secretariat to create two 15-20 min. presentations that provide an overview/summary of irrigated agriculture in Montana and Alberta.
ACTION: AB Secretariat is to get copy of the book about the history of St. Mary Irrigation development to John Tubbs and Dave Peterson.

4. Communications – John

Montana – MT is keeping their website up to date.

Alberta – Milk River Watershed Council Canada (MRWCC), annual general meeting
JIT members Tom Gilchrist, Ken Miller, Duncan Lloyd and Brent Paterson attended the meeting on April 9th. Brent apprised the meeting of this initiative. Alberta's Environment Minister attended and gave a short speech. John Sanders gave a presentation on the St. Mary Canal rehabilitation project.

Joint Initiative Presentation Master
It was **agreed** that a master presentation was needed for any Team member to use. It was **agreed** that Brent's presentation would be a good starting point from which to build it.

ACTION: Secretariat will jointly create a presentation for use by the JIT.

Final Technical Background Information Report
The contract for compiling the technical background document has been started. The Contractor has been instructed to present the technical background information in a format understandable to the average informed user; each section will have highlighted main message(s). Larry and Sal are the 'clients' for technical accuracy and will jointly evaluate the first 2-3 sections drafted. The first draft of the document should be completed for the end of June. The JIT will ultimately sign off on document as a joint document.

ACTION: The JIT wants to review the first 2-3 sections of the Technical Background Report at the June meeting.

There are three products from this initiative: (1) the technical background report, (2) the water management model and the base hydrology owned by both MT and AB; and (3) an evaluation/ recommendations document.

The Burton K. Wheeler Center will be hosting a conference on May 13-14 in Great Falls, MT, titled, "Montana and Canada: Reaching Across the 49th Parallel". Larry Mires will be giving a presentation on the St. Mary Rehabilitation Project.

Glacier Contribution Section
Larry gave the handout: **Section 11.8 Glacial Contributions to St. Mary River Flows** and described the information provided.

5. **Review Treaty instruments** – Sal/Larry

Sal gave handout/presentation dated: May 4-5, 2009 Presentation: **Section 5 Boundary Waters Treaty -- 1921 Order of IJC, Administration of Agreement**. Sal and Larry presented the information contained.

The presentation covered the wording and interpretation of the Treaty, the wording and interpretation of the 1921 Order, the Administrative Procedures used to calculate the natural flows and determine apportionment shares, and the purpose and implementation of the 2001 Letter of Intent. The JIT had an extended discussion to address many question to ensure all Team members understood the current Treaty instruments.

The JIT agreed that future options will be assessed by how much closer each jurisdiction is able to move towards the "Theoretical Share" as defined by the current Treaty and the 1921 Order. The "Theoretical Share" is each jurisdiction's full entitlement under the Treaty instruments.

ACTION: The Technical Team will calculate the "Theoretical Share" for both MT and AB for both rivers, and the annual total, and total for every apportionment period (twice per month), for the period 1959 to 2003 inclusive.

6. Water management model development – Sal/Larry

Sal reviewed the schematic of AB's Water Resources Management Model (WRMM). It has been expanded from its original to include the watersheds in MT from the headwaters to the confluence of the Milk River with the Missouri R. Larry reviewed the expansion of WRMM in Montana, noting three differences:

- MT irrigation has substantial irrigation return flow component that the model must account for. This includes the groundwater return flows which return to the river over a period of months following irrigation.
- An accounting for evapotranspiration by riparian vegetation and habitat has been added as a consumptive use.

Sal and Larry presented the hydrological simulation period that will be used to assess water management scenarios. Larry and Sal believe the simulation period 1959 – 2003 has enough wet-dry cycles to reasonably represent the long-term system, and will produce reasonable results. Modeling the natural flow for this period will provide the hydrologic foundation for evaluating options when they are developed.

The JIT **approved** the use of the 1959 to 2003 (inclusive) hydrologic period as the foundation for use in this Initiative.

John and Robert, in consultation with Sal and Larry, suggested that the base case model scenario should be a simulation of "Existing (2009) Base Case", with current infrastructure (a 650 cfs St. Mary canal), current operations, and current demands on the system (noting that water demand, especially below Fresno Reservoir, is less well-known than supply). This base case scenario will calculate the water that each jurisdiction would have received over each year from 1959 to 2003 if the existing (2009) conditions had existed then.

The JIT **approved** using the "Existing (2009) Base Case" as the base case scenario for evaluation.

For each water management option evaluated, the Technical Team will determine the volume of water each jurisdiction is able to access under the option. This volume will be compared to the "Theoretical Share" to which each jurisdiction is entitled. This will allow the JIT to determine whether that option improved upon the current situation (the "Base Case") and whether the jurisdiction is getting closer to its full entitlement (the "Theoretical Share"). These volumes will be calculated for each river at the international boundary and for the combined total volumes of the two rivers.

By the June meeting, the JIT would like to see the "Theoretical Share" evaluated and the results of the "Existing (2009) Base Case" model run. During the June meeting, the JIT will develop the list of options that are to be modelled. Then, during the July-August period, those model runs can be

completed by the Technical Team. Those results would then be reviewed by the JIT at its fall meeting.

ACTION: The Technical Team is to run the "Existing (2009) Base Case" base case and provide results to the JIT at the June meeting.

7. Finalize jurisdictional interests – Robert

The goal for the end of June meeting: (1) develop the physical description of each **Option**, (2) identify the type of jurisdictional interests that will be addressed by that Option, and (3) select the options that are to be evaluated.

Due to the time remaining it was decided to start reviewing and describing the Options. In fully describing an option, then, specific jurisdictional interests that would be addressed by the option will be identified.

8. Finalize evaluation criteria – Robert

Addressed above, under item #7.

9. Understand options – Robert

See attached…. Appendix 1: Initial Options development

10. Meeting review and plan for next meeting – Robert/John

Summary of **Action** items – review and confirm

1. Secretariat to create two 15-20 min. presentations on other irrigated applications.
2. AB Secretariat is to get copy of the book about the history of St. Mary Irrigation development to John Tubbs and Dave Peterson.
3. Secretariat will jointly create a presentation for use by the JIT.
4. The JIT wants to review the first 2-3 sections of the Technical Background Report at the June meeting.
5. The Technical Team will calculate the "Theoretical Share" for both MT and AB for both rivers, and the annual total, and total for every apportionment period (twice per month), for the period 1959 to 2003 inclusive.
6. The Technical Team is to run the "Existing (2009) Base Case" base case and provide results to the JIT at the June meeting.
7. Secretariat will find information on dams and reservoirs in Canada and the U.S. that are jointly operated by the U.S. and Canadian federal governments.

Summary of agreements, approvals, adoptions

1. The JIT **approved** notes from April 6-7 meeting with changes.
2. The JIT **adopted** draft 4.4 as the Approved Communications Plan.
3. It was **agreed** that a master presentation was needed for any Team member to use.
4. It was **agreed** that Brent's presentation would be a good starting point from which to build it.
5. The JIT **agreed** that the foundation for analysis of future options is the "Theoretical Share" as defined by the current Treaty, 1921 Order and Administrative Measures.
6. The JIT **approved** the use of the 1959 to 2003 (inclusive) hydrologic period as the foundation for use in this Initiative.

7. The JIT **approved** using the "Existing (2009) Base Case" as the base case scenario for evaluation.

Confirm next meeting – date, field tour, logistics

Next meeting is proposed to be three days, June 8-10 (Monday – Wednesday) in Glacier National Park. The JIT should plan to arrive to be able to start work at about 9:30-10:00 a.m. June 8th. Paul Azevedo and Don Wilson offered to arrange local transportation for the field tour.

Objective(s) of next meeting

(1) Tour – learn about the St. Mary River system headwaters that arise in MT.
(2) Meeting – develop the list of options that are to be modelled.

This will allow the Technical Team to model those options over the July-August period.

Additional information – International Boundaries week

John and Dustin noted the 100th anniversary of the Boundary Waters Treaty will be held in Niagara Falls on June 12-13. They advised that this would be an opportunity to highlight this Initiative and the Team's cooperative work. John may attend and Robert will determine AENV's attendance. Some of the IJC Commissioners will attend. The new U.S. Commissioners will be appointed soon.

Joint Status Report messages

- Tour of St. Mary River Dam, irrigation and water management infrastructure
- Clarify details of Treaty, Order and LOI
- Update on model development and data to be used
- Started review of Options and the Interests and Evaluation Criteria that would be addressed

The meeting was adjourned at 3:15 p.m.

MT-AB St. Mary and Milk Rivers Water management Initiative
Description of Options – Initial Evaluation

Initial Option #1
Title: Ridge Reservoir-Milk River Diversion

Description:
This is a project that could divert water from Ridge Reservoir (Oldman River watershed), Alberta, to the Milk River watershed, Alberta, either upstream or downstream of the town of Milk River, depending on which sub-option is used. The capacity of the diversion is approximately 11 300 acre-feet / year or 123 cfs (3.5 m^3/sec).

The purpose of the diversion is water supply security for the Town of Milk River, secure water supply for the existing 8200 acres, and secure water supply for an additional 10 000 new acres of irrigated land in the Milk River watershed, AB.

There are three sub-options to move water from Ridge Reservoir to the Milk River; the difference is the mechanism used to transfer the water:

(a) open canal gravity-feed system (upland, not in the coulee system)
(b) pump system into canal
(c) a complete pump system and pipeline

This project could be designed as the primary water supply or a backup water supply when there is not enough Alberta entitlement water in the Milk River to meet Alberta's needs. This project could also be an accounting mechanism, used to balance deficits in the overall entitlement balance. This project may also have benefits to Montana as an alternative diversion from the St. Mary River to the Milk River, either in real Montana entitlement water or in deficit balancing.

Jurisdictional **interests** addressed:

- Secure supply of water for AB municipalities
- Secure supply of water for existing AB Milk River irrigators
- Quality of raw water supply is sufficient for use and treatment by AB municipalities
- Expand economic base (industrial, irrigation, *etc*.) in AB Milk River basin
- Recognize possible increase in recreational use
- Secure supply of water for additional AB irrigation acres

Evaluation criteria

Water Supply Impact

- Does the option increase or decrease the volume of water available to each jurisdiction?
- Does the option increase or decrease the security of municipal water supplies?
  - Number of day/year (long-term probability frequency)
- Does the option increase the number of acres provided "full service" irrigation (need to define)?
  - Percent of time
  - # of acres
- Does the option increase or decrease the number of acres receiving full service irrigation per unit of water per day?
- Does the option reduce water shortages to current acres?
  - Percentage of time.
- Does the option increase the length of the irrigation season?
  - Number of days
- Is the option effective in addressing the special circumstances associated with low water years?
  - Effectiveness during average water years
  - Effectiveness during high water years

Water Quality Impact

- Does the option improve or reduce water quality?
- Does the option increase or decrease the volume of sediment entering the Milk River?
- Does the option increase or decrease the rate of sediment deposition in Fresno Reservoir over time?
- Does the option increase or reduce the rate of bank erosion and loss of adjacent lands along the Milk River in Alberta?

In-stream Flow Impact and Other Impact

- Does the option increase or decrease the amount of water available for in-stream flow?
  - Number of days in-stream flow objective are achieved?
  - Number of days Water Conservation Objectives are achieved?
- Does the option decrease the number of days winter flows are reduced to zero?
- Does the option expand or decrease recreational use?
- Effects on habitat
  - Improve or reduce available habitat?
  - Improve or reduce quality of habitat?
  - Improve or reduce area of habitat?

Implementation Impact

- Is the option economically feasible?
  - Cost (capital and O&M) versus benefits (economic)
  - Costs incurred by which jurisdiction and which group of stakeholders within each jurisdiction.
  - Benefits received by which jurisdiction and which stakeholders within each jurisdiction.
- Ease of implementation
  - Legislative
  - Political
  - Financial
- Treaty/Order/LOI – Can the option be implemented within the current Treaty/Order or does the option require opening the Treat/Order?

Operational Impact

- Does option increase or decrease management flexibility?
  - Increase or decrease communications between jurisdictions and between water users?
  - Increase or decrease operational flexibility and ability to adapt to changing circumstances?
- Does the option provide the ability to deal with potential service disruptions associated with reconstruction of St. Mary Canal? Construction may last 10 years.
- Does the option provide the ability to manage risk of failure before reconstruction is complete?

Recommendations for further evaluation and Reasoning

Hydrologic analysis should be undertaken.

Items for discussion

a) Total cost of all the sub-options range from $90M to $130M in 2008 Canadian dollars
b) Either pump option (b) or (c) costs about CAN$50/ac.ft.
c) Water quality issues related to alkalinity
d) This is potentially an inter-basin transfer and may require special legislation in Alberta
e) There may be questions about water transfer outside of Canada, an issue in Alberta's legislation.
f) In a drought year, what priority would this diversion have in the St. Mary system? (impact on AB St. Mary water users)
g) Environmental concerns

Initial Option #2a

Title: Diversion from Tiber Reservoir for Municipal Water

Description

The Rocky Boy's/North Central Montana Regional Water System is located in north central Montana in Chouteau, Glacier, Hill, Liberty, Pondera, Teton and Toole Counties.

The project area generally consists of plains-land of North Central Montana in the Marias, Milk, Teton, and Missouri River drainages. The system will deliver water from Tiber Reservoir to serve approximately 10,000 households with an estimated population of 28,000.

The system will serve both the Rocky Boy's Reservation and numerous off-reservation systems including municipalities, county water districts, Hutterite colonies and other users.

Jurisdictional **interests** addressed

- Secure supply of water for MT municipalities (Rocky Boy Reservation and surrounding communities in the Milk River Basin).

Evaluation Criteria

Water Supply Impact

- Does the option increase or decrease the volume of water available to each jurisdiction?
- Does the option increase or decrease the security of municipal water supplies?
  - Number of day/year (long-term probability frequency)
- Effects on water supply after Tribal interests are met.
- Is the option effective in addressing the special circumstances associated with low water years?
  - Effectiveness during average water years.
  - Effectiveness during high water years.

Water Quality Impact

- Does the option improve or reduce water quality?

Implementation Impact

- Is the option economically feasible?
  - Cost (capital and O&M) versus benefits (economic)

- Costs incurred by which jurisdiction and which group of stakeholders within each jurisdiction.
- Benefits received by which jurisdiction and which stakeholders within each jurisdiction.

- Ease of implementation
  - Legislative
  - Political
  - Financial
  - Treaty/Order/LOI – Can the option be implemented within the current Treaty/Order or does the option require opening the Treaty/Order?

Recommendations for further evaluation, and Reasoning

a) No further evaluation is needed.
b) Legislation authorizing the construction of the Rocky Boy's/North Central Montana Regional Water System was signed into law on 13 December, 2002 (see Public Law Number 107-331).

Items for discussion

a) None

Initial Option #2b

Title: Diversion from Tiber Reservoir for Agricultural Water

Description

The Tiber-Fresno Reservoir Pipeline project would pipe water from Tiber Reservoir on the Marias River to Fresno Reservoir on the Milk River. Capacity of the pipeline would be 50 cfs.

A pumping plant near Tiber Dam housing four 500-hp pumps would lift water 60 feet from the reservoir's active conservation storage (elevation 2993-2966 feet). Total dynamic head would be 272 feet. From this point, water would be conveyed to just east of Chester, Montana. Here a booster pumping plant housing four 450-hp pumps, would pump the water up a 200-foot high ridge. Total dynamic head of the water at this plant would be 221 feet.

From the booster plant, the 54-inch diameter pipeline would parallel U.S. Highway 2 for most of its 59.1 mile length. At Fresno Reservoir, it would empty into Grand Coulee.

Jurisdictional **interests** addressed

- Secure supply of water for MT municipalities.
- Secure water supply for the Milk River Project (MT).
- Quality of raw water supply is sufficient for use and treatment by Montana municipalities.
- Recognize possible increase in recreational uses.
- Recognize other beneficial uses of water.

Evaluation Criteria

Water Supply Impact

- Does the option increase or decrease the volume of water available to each jurisdiction?
- Does the option increase the number of acres provided "full service" irrigation (need to define)?
  - Percent of time
  - # of acres
- Does the option increase or decrease the number of acres receiving full service irrigation per unit of water per day?
- Does the option reduce water shortages to current acres?
  - Percentage of time.
- Does the option increase the length of the irrigation season?

- Number of days.
- Effects on water supply after Tribal interests are met.
- Is the option effective in addressing the special circumstances associated with low water years?
  - Effectiveness during average water years.
  - Effectiveness during high water years.

Water Quality Impact

- Does the option improve or reduce water quality?
- Does the option increase or decrease the volume of sediment entering the Milk River?
- Does the option increase or decrease the rate of sediment deposition in Fresno Reservoir over time?
- Does the option increase or reduce the rate of bank erosion and loss of adjacent lands along the Milk River in Alberta?

In-stream Flow Impact and Other Impact

- Does the option expand or decrease recreational use?
- Effects on habitat
  - Improve or reduce available habitat?
  - Improve or reduce quality of habitat?
  - Improve or reduce area of habitat?

Implementation Impact

- Is the option economically feasible?
  - Cost (capital and O&M) versus benefits (economic)
  - Costs incurred by which jurisdiction and which group of stakeholders within each jurisdiction.
  - Benefits received by which jurisdiction and which stakeholders within each jurisdiction.
- Ease of implementation
  - Legislative
  - Political
  - Financial
  - Treaty/Order/LOI – Can the option be implemented within the current Treaty/Order or does the option require opening the Treat/Order?

Operational Impact

- Does option increase or decrease management flexibility?

➢ Increase or decrease communications between jurisdictions and between water users? ➢ Increase or decrease operational flexibility and ability to adapt to changing circumstances?
Recommendations for further evaluation, and Reasoning a) No further evaluation is needed. b) This option was evaluated and determined to be unfeasible in the U.S. Bureau of Reclamation's North Central Montana Regional Feasibility Report. (USBR, October, 2004). Reclamation estimates the projects cost/benefit to be 0.4.

Items for discussion

a) None

Initial Option #3

Title: St. Mary Rehabilitation and Cost Share

Description

This option will rehabilitate and construct the St. Mary Diversion and Conveyance Works on the Blackfeet Reservation in Glacier County, MT. The system annually diverts approximately 160,000 acre-feet of water from the St. Mary River granted to the United States by the Boundary Waters Treaty (1909) to the North Fork of the Milk River.

The system was constructed from 1905 – 1916 to provide supplemental water to the U.S. Bureau of Reclamation's (Reclamation) Milk River Project located approximately 260 miles downstream. Without this supplemental water, the Milk River would run dry in six out of ten years. The system is also known as the St. Mary Unit of the Milk River Project.

The St. Mary's system is owned by the U.S. Government with operations and maintenance (O&M) carried out by Reclamation. All O&M expenses are paid for by assessments on holders of water delivery contracts in the Milk River Basin.

The 2007 Water Resources Development Act authorizes the U.S. Army Corps of Engineers, in consultation with the U.S. Bureau of Reclamation to rehabilitate and construct the St. Mary Diversion and Conveyance Works. The total authorized project cost is $153,000,000 with a 75% federal, 25% non-federal cost share.

Jurisdictional **interests** addressed

- Secure supply of water for MT municipalities.
- Secure supply of water for AB municipalities.
- Secure water supply for the Milk River Project (MT).
- Better utilization by MT of U.S. portion of water from the St. Mary River.
- May allow the Blackfeet Tribe to receive a benefit from share of U.S. St. Mary River.
- Fully rehabilitated and functional U.S. St. Mary River Diversion system.
- Collaboration on joint AB & MT infrastructure.
- Explore MT-AB cost-share arrangement for rehabilitation of St. Mary Canal.
- Better utilization by AB of Canadian portion of water from the Milk River.
- Identify and achieve in-stream flow needs in the AB Milk River in the future.
- Achieve formal Water Conservation Objectives in the Canadian Milk River.

Evaluation Criteria

Water Supply Impact

- Does the option increase or decrease the volume of water available to each jurisdiction?
- Does the option increase or decrease the security of municipal water supplies?
  - Number of day/year (long-term probability frequency)
- Does the option increase the number of acres provided "full service" irrigation (need to define)?
  - Percent of time
  - # of acres
- Does the option increase or decrease the number of acres receiving full service irrigation per unit of water per day?
- Does the option reduce water shortages to current acres?
  - Percentage of time.
- Does the option increase the length of the irrigation season?
  - Number of days
- Effects on water supply after Tribal interests are met.
- Is the option effective in addressing the special circumstances associated with low water years?
  - Effectiveness during average water years
  - Effectiveness during high water years

Water Quality Impact

- Does the option improve or reduce water quality?
- Does the option increase or decrease the volume of sediment entering the Milk River?
- Does the option increase or decrease the rate of sediment deposition in Fresno Reservoir over time?
- Does the option increase or reduce the rate of bank erosion and loss of adjacent lands along the Milk River in Alberta?

In-stream Flow Impact and Other Impact

- Does the option increase or decrease the amount of water available for in-stream flow?
  - Number of days in-stream flow objective are achieved?
  - Number of days Water Conservation Objectives are achieved?
- Does the option decrease the number of days winter flows are reduced to zero?
- Does the option expand or decrease recreational use?
- Effects on habitat
  - Improve or reduce available habitat?
  - Improve or reduce quality of habitat?

- Improve or reduce area of habitat?

Implementation Impact

- Is the option economically feasible?
  - Cost (capital and O&M) versus benefits (economic)
  - Costs incurred by which jurisdiction and which group of stakeholders within each jurisdiction.
  - Benefits received by which jurisdiction and which stakeholders within each jurisdiction.
- Ease of implementation
  - Legislative
  - Political
  - Financial
  - Treaty/Order/LOI – Can the option be implemented within the current Treaty/Order or does the option require opening the Treat/Order?

Operational Impact

- Does option increase or decrease management flexibility?
  - Increase or decrease communications between jurisdictions and between water users?
  - Increase or decrease operational flexibility and ability to adapt to changing circumstances?
- Does the option provide the ability to deal with potential service disruptions associated with reconstruction of St. Mary Canal? Construction may last 10 years.
- Does the option provide the ability to manage risk of failure before reconstruction is complete?

Recommendations for further evaluation, and Reasoning

Hydrologic analysis should be carried out for canal capacities of 650 cfs, 850 cfs, and 1,200 cfs

Items for discussion

a) Canal capacity will be determined through the Environmental Impact Statement process conducted by the U.S. Government.
b) Potential for cost share with Alberta government.

Initial Option #4

Title: <u>Milk River Dam – Alberta</u>

<u>Description</u>:

This is a project that would create water storage capacity within the Milk River watershed, Alberta. The primary storage location is just downstream of the confluence of the South Fork Milk R. and the mainstem Milk River, about 20 km upstream of the Town of Milk River, Alberta.

This project would provide water supply security and future development opportunities to the Town of Milk River, and also provide secure water supply for the irrigation expansion. Preliminary investigations examined three sizes of reservoirs and three levels of irrigation expansion in the Milk R. watershed, Alberta[1]:

Option	Reservoir storage	Potential irrigation
1	122 174 acre ft. (150 700 dam^3) [2]	25 655 acres expansion
2	187 923 acre ft. (231 800 dam^3)	30 735 acres expansion
3	237 377 acre ft. (292 800 dam^3)	34 290 acres expansion

There were a number of sub-options investigated, including other dam locations and off-stream storage sites. These other sub-options were eliminated for a variety of water management, economic and other issues.

This project could be a joint project between Alberta and Montana, providing storage for both jurisdictions, greater water management flexibility, secure water supplies for municipal and irrigation use, and erosion control.

<u>Jurisdictional **interests** addressed</u>:

- Secure water supply of water for MT municipalities
- Secure water supply for the Milk River Project (MT)
- Montana's Tribal interests have access to secure water supply
- Secure water supply for AB municipalities
- Increase Alberta's useable supply

[1] Klohn Crippen Berger Ltd. 2009, done for the Milk R. Watershed Council Canada

[2] 1.0 acre ft. = 1.23348 dam^3; 1 dam^3 (cubic dekametre) = 1000 cubic metres = 0.81071 acre ft.;

- Secure supply of water for existing AB Milk R. irrigators
- Better utilization by MT of U.S. portion of water from the St. Mary River
- Ft. Belknap better utilizes their share of U.S. Milk River natural flow
- Better utilization by AB of Canadian portion of water from the Milk River
- Enhanced water quality upstream of Fresno Reservoir
- Decrease future sediment loads entering Fresno Reservoir
- Better inter-jurisdictional agreement that allows for "flexible" sharing/utilization of water
- Decrease impacts on channel morphology (width, depth, meander length, bank stability) from increased flows in the Milk R., AB
- Expand economic base in AB Milk R. basin
- Recognize possible increase in recreational uses

Evaluation Criteria

Water Supply Impact

- Does the option increase or decrease the volume of water available to each jurisdiction?
- Does the option increase or decrease the security of municipal water supplies?
  - Number of day/year (long-term probability frequency)
- Does the option increase the number of acres provided "full service" irrigation (need to define)?
  - Percent of time
  - # of acres
- Does the option increase or decrease the number of acres receiving full service irrigation per unit of water per day?
- Does the option reduce water shortages to current acres?
  - Percentage of time.
- Does the option increase the length of the irrigation season?
  - Number of days
- Is the option effective in addressing the special circumstances associated with low water years?
  - Effectiveness during average water years
  - Effectiveness during high water years

Water Quality Impact

- Does the option improve or reduce water quality?
- Does the option increase or decrease the volume of sediment entering the Milk River?
- Does the option increase or decrease the rate of sediment deposition in Fresno Reservoir over time?
- Does the option increase or reduce the rate of bank erosion and loss of adjacent lands along the Milk River in Alberta?

In-stream Flow Impact and Other Impact

- Does the option increase or decrease the amount of water available for in-stream flow?
  - Number of days in-stream flow objective are achieved?
  - Number of days Water Conservation Objectives are achieved?
- Does the option decrease the number of days winter flows are reduced to zero?
- Does the option expand or decrease recreational use?
- Effects on habitat
  - Improve or reduce available habitat?
  - Improve or reduce quality of habitat?
  - Improve or reduce area of habitat?

Implementation Impact

- Is the option economically feasible?
  - Cost (capital and O&M) versus benefits (economic)
  - Costs incurred by which jurisdiction and which group of stakeholders within each jurisdiction.
  - Benefits received by which jurisdiction and which stakeholders within each jurisdiction.
- Ease of implementation
  - Legislative
  - Political
  - Financial
- Treaty/Order/LOI – Can the option be implemented within the current Treaty/Order or does the option require opening the Treat/Order?

Operational Impact

- Does option increase or decrease management flexibility?
  - Increase or decrease communications between jurisdictions and between water users?
  - Increase or decrease operational flexibility and ability to adapt to changing circumstances?
- Does the option provide the ability to deal with potential service disruptions associated with reconstruction of St. Mary Canal? Construction may last 10 years.
- Does the option provide the ability to manage risk of failure before reconstruction is complete?

Recommendations for further evaluation, and Reasoning:
TBD

Items for discussion:

a) Cost to build
b) Would this reduce MT's share of its entitlement of the combined rivers?
c) What is optimum storage MT would like to lease?
d) What would MT do with 1200 cfs, how often and for how long?
e) What is the siltation rate into Fresno Res.?
f) What is the value to MT of this? (technical analysis)
g) What does this do to the availability of water at the Eastern boundary?
h) Modeling should advise if MT will be negatively impacted. Can any negative impact be recovered? There may be a net gain to AB re: storing flood flows.

i) How does this impact 1921 Order?

Montana – Alberta St. Mary and Milk Rivers Water Management Initiative

Joint Initiative Team Meeting #6, Many Glacier Lodge
June 8-10, 2009, East Glacier National Park, Montana

Montana	Alberta
John Tubbs – Department of Natural Resources and Conservation (co-Chair)	Robert Harrison – Alberta Environment (co-Chair)
Dustin de Yong - Office of the Lt Governor	Brent Paterson – Alberta Agriculture RD
Randy Reed – Milk River irrigator	Ken Miller – Milk River
Don Wilson – Blackfeet Tribe	Tom Gilchrist – Milk River
Dave Peterson – City of Havre	Gerry Perry – Oldman River
Harold "Jiggs" Main – Ft. Belknap Tribe	Duncan Lloyd – Oldman River
Paul Azevedo DNRC (secretariat)	Tim Toth – AB Environment (secretariat)
Mike Dailey – DNRC	Sal Figliuzzi – Alberta Environment

Guests – Bev Yee (Asst. Deputy Minister, Environmental Stewardship, AB Environment), John Bohlinger (Lt. Governor, MT), Hal Harper (Governor's Office), Kelly Titensor (US Bureau of Reclamation), Larry Mires (SMWG), John Sanders (MT DNRC), Laurent Conard (AB Environment), Allen Wright (Unitech Solutions, AB)

Purpose of Phase 2 Joint Initiative Team

To explore and evaluate options for improving both Montana's and Alberta's access to the shared water of the St. Mary and Milk Rivers, and to make joint recommendation(s) on preferred options to both governments for their consideration and approval.

Meeting Objective(s)

1. Tour St. Mary Diversion and Conveyance Facilities on the Blackfeet Reservation, Glacier County, MT.
2. Continue process for developing and evaluating options to improve both Montana's and Alberta's access to the shared water of the St. Mary and Milk rivers.

June 8 – 10:00 a.m. – 5:00 p.m.

1. Welcome and member introductions

- Park Superintendent Chas Cartwright welcomed JIT members to Glacier National Park. He spoke on the importance of the two counties continuing to work together to solve the complex natural resource issue we share. The public expect us to resolve these issues and to do a better job at managing our shared resources.
- Review meeting objectives and agenda.
- **Agree** to drop the Appendix (Description of Options – Initial Evaluation) from JIT #5 meeting notes and provide that information separately, and **Approve** JIT #5 meeting Notes with the changes requested.

2. Follow up Action Items from May 4-5, 2009 meeting

1) Secretariat to create two 15-20 min. presentations on other irrigated applications.
    - This item will be rescheduled for a future meeting.
2) AB Secretariat is to get copy of the book about the history of St. Mary Irrigation development to John Tubbs and Dave Peterson.

- Complete

3) Secretariat will jointly create a presentation for use by the JIT.
   - In progress. Draft presentation has been complete.
4) The JIT wants to review the first 2-3 sections of the Technical Background Report at the June meeting.
   - Review schedule for the morning of June 10th.
5) The Technical Team will calculate the "Theoretical Share" for both MT and AB for both rivers, and the annual total, and total for every apportionment period (twice per month), for the period 1959 to 2003 inclusive.
   - Complete. Technical Team will make presentation during today's meeting.
6) The Technical Team is to run the "Existing (2009) Base Case" base case and provide results to the JIT at the June meeting.
   - Complete. Technical Team will make presentation during today's meeting.
7) Secretariat will find information on dams and reservoirs in Canada and the U.S. that are jointly operated by the U.S. and Canadian federal governments.
   - In progress.

3. Communications

Discussion of JIT member's communication to constituents:

- Gerry Perry will be discussing the Initiative with the managers from the Taber, Magrath, St. Mary and Raymond irrigation districts.
- Duncan Lloyd has been getting inquiries from his constituents. Word is getting out.
- Dustin de Yong advised of several developments from the Governor's office:
  - Lt. Governor Bohlinger, Bev Yee, Brent Paterson, and John Tubbs will be attending the Centennial Celebration of the Boundary Waters Treaty in Niagara Falls, ON, on June 11 & 12.
  - The Governor's office is pleased with progress and tone of Initiative meetings.
  - John Tubbs has been appointed as the next Deputy Assistant Secretary for Water and Science in the U.S. Department of Interior. Governor's office is developing alternatives to replace John as the Co-chair and MT Team Leader.
  - Paul Azevedo has been promoted to Bureau Chief of the DNRC Water Management Bureau.
- The consultant compiling the background technical report has completed the first two chapters and part of the third. The material is available to be reviewed by the JIT.
- Robert Harrison indicated there are no news items from Government of Alberta.

4. Water management model development

Sal updated JIT members on status of the water management model. His handout titled, "Model Development and Calibration" provides a schematic diagram of all the model components and preliminary results of calibration runs.

- St. Mary River Headwaters and Headwork's system
  - Very good simulation. Technical Team comfortable with model results.
- Milk River in Canada
  - Very good simulation. Technical Team comfortable with model results.
  - Empty blocks in schematic will be filled in to simulate future increased acreage of irrigated agriculture on the Milk River in Alberta.
- Fresno Reservoir
  - Fair simulation
  - Model calibration is complicated by steady loss of storage capacity in Fresno Reservoir (average 500 ac-ft/year). Current storage capacity is based on 10-year old estimate.

    - Discussion about consequences of continued loss of storage capacity and inability of model to simulate the loss. Assuming loss of capacity continues, we need to consider what the reservoir capacity will be in 20-30 years.
- Milk River in Montana
    - Further calibration required. Many parameters (*e.g.*, irrigation diversions, transfer of water between reservoirs) have not been measured or have had variable operating philosophies over time.
    - Additional effort required to better define model input parameters and operating rules, to improve confidence in calibration results.
    - Discussion on estimates of irrigation efficiencies and crop water demand.
- Nelson Reservoir
    - Poor simulation
    - Simulation complicated by 1) timing of the transfer of water between Fresno Res. and Nelson Reservoir, and 2) irrigation diversions downstream of Fresno.
    - Technical Team feels simulation results for Nelson will improve once other parameters are better defined.

Discussion about model calibration and simulating parts of the St. Mary – Milk River system: As a planning model, the WRMM is used to answer the question, "How will the system perform under a given set of conditions if the water supply is comparable to the period of record?" The model assumes that storage infrastructure is fixed (*i.e.*, that reservoirs and canals don't change over time). However, the continual loss of storage capacity in Fresno represents a changing set of conditions, in this case, continually changing storage[1].

ACTION – Sal and Larry will ensure that Imperial units are used in all presentations.
ACTION – Modellers will provide a user-friendly "key" to help with model interpretation.
ACTION – Modelling team to clarify terminology used in presentations, *e.g.*, "crop water demand/requirement" vs. "irrigation water demand and irrigation deficit".

Sal provided JIT members with preliminary modelling results from two Action Items from May JIT meeting #05. Sal noted that since the model is not fully calibrated, the results are preliminary.

Action Item: The Technical Team will calculate the "Theoretical Share" for both MT and AB for both rivers, and the annual total, and total for every apportionment period (twice per month), for the period 1959 to 2003 inclusive. The results do not take into account the impact of storage in Sherburne Reservoir or the Letter of Intent.

Action Item: The Technical Team is to run the "Existing (2009) Base Case" base case and provide results to the JIT at the June meeting.

5. Understand options

Robert led the Joint team through the process to describe the remaining 13 of the 17 potential water management options initially listed during Joint Team meeting #4. "Recommendations for further evaluation" of the options and additional "Items for discussion" were also described.

[1] The model can, and is used to assess the impact of changes in infrastructure, however, the model cannot, and generally is not used to model infrastructure changes over time.

Robert also suggested adding a list of Environmental issues to the list of Evaluation Criteria. The evaluation criteria will be used to evaluate, rank and compare potential options, and help how determine well each option achieves the Joint team's interests.

See separate document "Options development – continued".

June 9 – 9:00 a.m. – 6:00 p.m. – Tour of Upper St. Mary's system

Opening remarks were made by MT Lt. Governor John Bohlinger and AENV's ADM Bev Yee – both are pleased with the continued communication and cooperation between Canada and the U.S. in determining how each country can get better access to its share of the St. Mary and Milk rivers.

The team toured the Upper St. Mary diversion and conveyance facilities, including stops at Sherburne dam and reservoir, Lower St. Mary Lake, the St. Mary River siphons and Spider Lake area.

The Blackfeet Tribe hosted a dinner for JIT members at the end of the tour.

Review of St. Mary Diversion Facilities Tour – John Tubbs

Comments from the Joint Team focussed on the value of being on the landscape to get a better sense of what the upper St. Mary system looks like, and the local issues. Comments included:

- Appreciation for the Blackfeet Tribe's hospitality.
- Got a better understanding of how the upper St. Mary system works and the impressive distance that water moves from the St. Mary to the Milk R. system.
- The repairs to the St. Mary's diversion siphon to extend its life, and to the vehicle bridge.
- The water exchange that has been going on for last 100 years (and not always accounted for on paper) that continues.
- The catchment area of Spider L., the area near Goose L., and the potential development area for increasing storage capacity.
- The value of hearing about the range of uses for water in the St. Mary system, and the possibility of wind and solar power development opportunities in the area.

John suggested getting a more complete picture of the entire system by touring part of the Milk R., Alberta, prior to producing modeling results.

June 10 – 8:30 a.m. – 12:00 p.m. – Swiftcurrent Restaurant

In attendance:
Paul Azevedo, Brent Paterson, Ken Miller, Dustin de Yong, Jiggs Main, Duncan Lloyd, Bev Yee, Gerald Perry, Mike Dailey, Sal Figliuzzi, Randy Reed, Dave Peterson, Tom Gilchrist, Don Wilson, John Bohlinger, Hal Harper, Robert Harrison, Tim Toth, John Tubbs

Guests: Hal Harper (Governor's office), James Hackathorne (graduate student)

Robert suggested a slightly revised agenda for the day, to accommodate the guests, incorporate work done to date, and finish by noon (JIT members request).

A) Guest introduction
John Bohlinger introduced Hal Harper, the Governor's chief of staff.

Robert introduced James Hackathorne, who recently completed an historical thesis (the 1902 – 1912 period) focussed on the 1908 U.S. Supreme Court ruling known as the Winter's Doctrine which established federal reserved water rights in the U.S. The U.S. Bureau of Reclamation's interpretation of the Winter's Doctrine has had an impact on water allocation for the Blackfeet Tribes and tribes of the Ft. Belknap Reservation. James gave some highlights of his recent thesis work.

B) Review of Draft Technical Background Report sections 1-2 – Robert
The JIT was to review the report for style, readability, *etc*. This is the first of what will likely be three reports: #1 Background / base information; #2 Modeling results (this may be internal to the JIT); #3 Options analysis, evaluation and recommendations to governments.

Comments included requests to deal with:
(1) Content
- Provide an executive summary of the Technical Background report
- Provide an introduction to identify why the initiative got underway, the creation of the team, *etc*., and then a description of the report content
    - A common narrative at the front of each report that describes how each report fits into a larger overall product
    - Narrative on the common understanding of the words and terms used in report.
- Provide a summary of the 1909 Treaty, 1921 Order and the Administrative Measures
- More complete description of the St. Mary basin and how it ties into Milk R. basin through an inter-basin transfer, and the complexity of the combined system. This may be a potential future chapter.
- Provide a glossary of acronyms, measures (conversions) and why Imperial units are used. The JIT will revisit the decision on units for the Recommendations report – it may need to include metric units.
- Add appropriate photos and maps where possible

(2) Style
- Enlarge the font slightly
- Connect the highlighted blue boxes in the text to the location where that information is presented in the text
- Ensure the report tone is sensitive to the political and media process

The Joint Team will review the draft report by the end of July.

ACTION: Alberta Environment will set up a SharePoint site for all Joint Team members to be able to access the report, and other large documents if needed.

C) Option Categories
Joint Team discussed need to organize water management options into categories:

Improved Access to Share
1) Structural

a) St. Mary Diversion and Conveyance Facilities
b) Storage in Lower St. Mary Lake
c) Storage in Sherburne Reservoir – including over winter storage
d) Storage on Milk River, AB
e) Storage in Fresno Reservoir for Canadian share

2) Accounting / Administrative
   a) Deficit trading
   b) Balance period adjustment

Better Utilization of Share Received

1) Storage in Spider Lake
2) Off stream storage in Goose Lake
3) Increase storage in Fresno Reservoir
4) Storage on Ft Belknap Reservation
5) Use Milk River Reservoir (AB) to store U.S. share.
6) Use Ridge Reservoir to store Canadian Share
7) Use storage in St. Mary Reservoir (AB) for U.S. share
8) Water marketing – Blackfeet Tribe

Reduce Demand/Inter-basin Diversion

1) Diversion from Tiber Reservoir
2) Duck Creek diversion

International Board/Network

1) St. Mary – Milk River International Communications Network
2) International Joint Board of Control

ACTION: Joint Team is to consider the model runs identified, and call the Secretariat to identify if something has been missed.

D) Evaluation criteria

JIT postponed discussion of the evaluation criteria that would be used to evaluate, compare and rank an option to determine how well that option allowed the jurisdiction to achieve its interest.

E) Environmental list (first pass)

Need a first order approach to identify that there are other constraints (including legislative requirements, and public process) that must be addressed before any recommendations could be implemented.

U.S.

- In stream Flow Needs (IFN) below Sherburne Reservoir. to Boulder Creek + water temperature issue
- IFN below the St. Mary diversion to the international border + water temperature issue
- IFN in the Milk River on the Blackfeet Reservation from confluence to international border.
- Bull trout in St. Mary drainage
- Endangered species in the Milk River basin including Pallid sturgeon (in lower Milk River) and Piping plover.

Canada
- IFN from international border to the St. Mary reservoir
- Milk River from western crossing to eastern crossing (Milk River Watershed Council Canada is having this done currently; it is in the planning stage)
- Three fish species (Western Silver Minnow, Stonecat, and East Slope Sculpin) are at risk

Also
- Sedimentation/erosion on Milk River.
- non-point source pollution (keeping livestock away from water)

F) Logistics (June-Sept) + Report review
The Joint Team discussed how to maintain contact over the summer. Two options were discussed. A conference call was suggested.

- Stage 1: Will produce a document (target end of July) that shows what quirks have been identified in developing the model (this does not deal with the model data).
- Stage 2: Professionally guided raft tour down the Milk R. to potentially view (1) Milk R. dam site, (2) operations on the land, then other issues. The Joint Team meeting could be held in Writing-on-Stone Provincial Park.

Action items from JIT #5 – to be sent by Secretariat to JIT, and want reply from everyone (correct, or send corrections)

G) Comments (team + guests)
None

H) Closing remarks – Bev, Lt. Gov.
Bev Yee thanked the Joint Team for the invitation, acknowledged being in Blackfeet Territory, and appreciated the hospitality extended by everyone. She stated she learned a lot at the meeting, and now had a much better appreciation for the depth and breadth of the issues. John Bohlinger lauded the work of the Joint Team in working for the common good, identifying their shared values and hope for the future. He acknowledged the great value of water and that the needs for water have not diminished over the 100 years of water sharing between the U.S. and Canada.

Action Item Summary
1. **ACTION** – Sal and Larry will ensure that Imperial units are used in all presentations.
2. **ACTION** – Modellers will provide a user-friendly "key" to help with model interpretation.
3. **ACTION:** - Modelling team to clarify terminology used in presentations, e.g. "crop water demand/requirement" vs. "irrigation water demand and irrigation deficit".
4. **ACTION** – Don Wilson will provide MT Secretariat with results of technical analysis of potential storage sites in the St. Mary Basin on the Blackfeet Reservation including, but not limited to, Goose Lake, and Lower St. Mary's Lake. MT Secretariat will provide this information to Technical Team and AB Secretariat.
5. **ACTION**: - Technical Team will try to find a way to compute the volume of flood flows that spill over Fresno Dam and go unused by MT.
6. **ACTION:** AENV will set up a Share Point site for all Joint Team members to be able to access the Draft Background Information Report and other large documents if needed.

7. **ACTION**: - MT Technical Team will describe the types and levels of efficiencies associated with various components of irrigation infrastructure used in the Milk River Project, MT.
8. **ACTION**: - JIT members will comment on Draft Background Information Report to the consultant either via the Share Point site, or through the Secretariat.
9. **ACTION:** - Technical Team will prepare a summary report of "observations" from model runs by the end of July. Co-chairs will gage "pulse" of response from JIT members and determine need for follow-up discussions.
10. **ACTION:** Team to consider the model runs identified, and call the Secretariat to identify if something has been missed.
11. **ACTION:** Don Wilson will provide the area/capacity data for Lower St. Mary Lake to Sal and the Technical Team
12. **ACTION:** MT Technical Team will provide information on additional storage potential on Lake Sherburne.
13. **ACTION**: Secretariat will distribute summary list of Action Items to JIT members.

Summary of Approvals, Agreements, etc.

1. JIT **agreed** to drop Appendix from JIT #5 meeting notes and provide that information separately, and approve the meeting Notes with the changes requested.
2. JIT **agreed** that the Secretariat should continue to incorporate at the end of the Notes a summary section that included agreements, approvals and adoptions.

Message in Joint Status Report:

- Members of the Montana and Alberta Joint Initiative Team (JIT) toured a portion of St. Mary Diversion and Conveyance Works on the Blackfeet Reservation in MT.
- Technical Team leads updated the JIT members on the status of the water management model.
- JIT members described seventeen potential water management options for the Technical Team to evaluate with the water management model over the next 3 months.

Next meeting:

The next four meetings were **agreed** to:
JIT #7 – July 23rd – partial day tour of Canadian Milk R. + a meeting
JIT #8 – Sept. 24th -25th, Lethbridge
JIT #9 – Oct. 28-29th, Great Falls
JIT #10 – Dec. 3rd -4th, Lethbridge

Adjourn

The meeting was adjourned at noon.

Attachment:
"Options development, continued"

MT-AB St. Mary & Milk rivers Water Management Initiative
Description of Options – Initial Evaluation

Note: within each initial option, if no discussion occurred under some of the headings, those headings have been left out. For reference, Initial Option #5 has all headings.

Initial Option #5

Title: Increase Storage in Fresno Reservoir

Fresno Reservoir's active conservation storage level could be enlarged by modifying or replacing the concrete-crest overflow spillway to accommodate gates. Modification of the spillway would allow more water to be stored in the reservoir. Design storage capacity of the reservoir was 130,000 ac-ft. A survey conducted in 1999 showed the capacity to be 93,000 ac-ft, a loss of 37,000 ac-ft between 1937-1999, or about 500 ac-ft/year.

Raising the crest 5 feet would increase storage to 95,400 ac-ft, raising it 10 feet would increase storage to 129,200 ac-ft, and raising the crest 20 feet would increase storage to 217,400 ac-ft. Little or no modification of the dam – besides the spillway and perhaps installation of seepage and piping protective measures on the downstream face – would be required.

Jurisdictional **interests** addressed

-

Items for discussion

a) Status of the U.S. Bureau of Reclamation's flood routing study to determine if raising the spillway crest would require other spillway modifications to handle floods safely.
b) Continued high sediment loads entering the reservoir will continue to decrease storage.

Recommendations for model evaluations

a)

Evaluation Criteria

Initial Option #6

Title: Storage of U.S. water in St. Mary R. basin, AB (formerly, "Increase St. Mary R. basin storage in Alberta")

This option would improve storage of the U.S. entitlement in southern Alberta and allow some sort of water trading (or cost sharing) with the U.S. for U.S. access to the water later, and store and then physically be able to move water through the Milk R. system, Alberta, for later use in the U.S.

This option would require creating *new storage* on the upper St. Mary River system in Alberta.

This option increases storage in the Chin Reservoir.

Items for discussion

c) This could potentially be viewed as Canadian water export.
d) There is the opportunity for other uses (municipal, industrial) to increase on **both sides** of the border.
e) This could create a question of jurisdiction / sovereignty – storing U.S. water in Canada for future use in the U.S.
f) This could create an issue about the potential development of infrastructure in Canada required to store and move U.S. water.
g) Salinity issue by use of Verdigris Coulee to move water into Canadian Milk R.

Initial Option #7

Title: Develop Off-stream Storage on the Blackfeet Reservation – Goose Lake

This option consists of pumping water from the St. Mary Canal to Goose Lake for storage. Goose Lake is a small natural lake on the south side of the Hudson Bay Divide on the Blackfeet Reservation. This option consists of a pumping station at Spider Lake, on the St. Mary Canal. Water would be pumped 800 ft to the top of the divide and gravity fed to Goose Lake for storage. Water would be released from Goose Lake to the North Fork of the Milk River. Water would be pumped to Goose Lake during the non-irrigation season.

Initial Option #8

Title: Increase Storage in Lower St. Mary Lake on the Blackfeet Reservation

This option involves construction of a St. Mary Canal diversion dam with an adjustable crest height. At full height, the diversion dam would raise the water level in Lower St. Mary Lake a maximum of 4-ft. providing 8,800 ac-ft of new storage. Water would be released from storage and diverted through the St. Mary Canal to satisfy irrigation demands in the Milk River basin of Montana. A 4-ft maximum rise in the water surface elevation corresponds to the seasonal high water mark in Lower St Mary Lake.

Initial Option #9

Title: Develop Off-stream Storage on the Ft Belknap Reservation

This option involves the construction of a new storage facility on the Ft Belknap Reservation. The Ft. Belknap Indian Community has proposed constructing a 60,000 ac-ft off-stream storage reservoir on the Ft. Belknap Reservation. Water would be pumped from the Milk River and stored for irrigation purposes. Funding for the project would come from federal settlement of the Ft. Belknap Reserved Water Rights Compact.

Items for discussion

a) This option if dependent on final settlement of the Ft. Belknap Compact.

Initial Option #10
Title: Duck Creek Diversion
The Duck Creek-Vandalia Canal would divert Missouri River water from the South Fork Duck Arm of Fort Peck Reservoir to the Milk River in the vicinity of Vandalia, MT. The canal would be approximately 31 miles long with a capacity of 100 cfs. A channel about 100-feet long in the South Fork Duck Creek Arm would be needed. The diversion system would include a pumping plant in case the water level in Fort Peck Reservoir fell below the canal elevation at 2,200 ft.

Items for discussion

a) Water from the Missouri River has a higher arsenic concentration than the Milk River. This option may violate the State of Montana's non-degradation policy

Initial Option #11
Title: St. Mary-Milk River International Communication Network (includes original #11 – Joint operational hydro/water management model AND #15 – Create a Joint board of control)

This is an administrative option that would create an Alberta-Montana cross-border communication network.

Better communications between jurisdictions and water-users should improve water management (maximize long-term benefits to the jurisdictions and meet in-stream flow needs for the environment, insofar as possible) on both sides of the border. Communications could include federal/provincial government agencies, weather forecasters, dam operators, irrigation managers, and water users from both countries.

Any new Letter of Intent that could be created from this process may use a similar "deficit trading" approach to the current (2001) LOI. Any deficits remaining at the end of the year could be ignored by a country, **if** the water was not needed by the other country.

Items for discussion

a) This option could be combined with #12 ("Increase operational flexibility to manage surplus/deficit flows.

Initial Option #12
Title: Increase operational flexibility to manage surplus/deficit flows
This project would allow MT to take more than its share of the St. Mary River in the spring when they most need it, and AB to take an equal quantity of water from the Milk River during late summer when they most need it. This creates deficits in the delivery of the flow of each river that is supposed to reach the other country.

The two deficits, while on different rivers, are then balanced against each other through an accounting (paper) procedure of exchanging deficit deliveries. No water is actually exchanged between countries.

This procedure improves the access to water supplies for Milk River irrigators within both Alberta and Montana, without the need for additional infrastructure.

Any new Letter of Intent that could be created from this process may use a similar "deficit trading" approach. Any deficits remaining at year-end, **if** not needed by the other country, could be ignored.

Items for discussion

a) Would this reduce MT's share of its entitlement of the combined rivers?
b) What is optimum/appropriate amount of water to allow a country to create a deficit?
c) What would be the effect on both countries in dry years when it may be difficult to capture a surplus to offset the allowed deficit?
d) This could be an option to put into the "International Joint Board of Control".

Initial Option #13

Title: Adjust balancing period to allow each jurisdiction access to a greater volume of its entitlement

Under the Treaty and 1921 Order, water is to be shared and delivered on a daily basis. Currently, apportionment is balanced twice monthly, which provides operational flexibility by allowing deficits to be carried over and made up during the next balancing period. Any surplus deliveries can be applied to balance any deficit deliveries in a previous balancing period, but cannot be carried forward to offset future deficits.

This is an administrative option that would test the extension of the time-frame balancing periods to see if each country can get access to more of its entitlement.

Extending the balancing period is a benefit to the upstream country because it will have more flexibility as to when it takes its share.

Allowing a too-long balancing period may impact the ability of a country to pay back water that it "owes" because the water may not be available to be captured and pay back.

Items for discussion

a) There MAY be cases where the downstream country has no beneficial interest in receiving the water owed – there may be inadvertent environmental impacts that must be addressed.
b) Water owed to the downstream country can be a few hundred cfs-days on a 2-week balancing period. Moving this to a 3-week period would still be a fairly small volume.
c) A too-long balancing period may impact the ability of a country to pay back water b/c the water may not be available to be captured.

Initial Option #14

Title: Use of Blackfeet Compact Water

A provision in the Blackfeet Tribe's federal reserved water rights compact settlement grants the Tribe 50,000 ac-ft of water from the St. Mary basin. One opportunity for the Tribe to exercise

this provision is to market 50,000 ac-ft of water stored in Sherburne Reservoir to the U.S. Bureau of Reclamation for the purpose of irrigation in Reclamation's Milk River Project. This would be a strict contractual arrangement between the Blackfeet Tribe and the Bureau of Reclamation.

Items for discussion

a) This option if dependent on final settlement of the Blackfeet Compact.

Recommendations for model evaluations

a) No further analysis required.

Initial Option #16

Title: Alternate Sources of Water Storage or, Maximum Storage Required for Each Jurisdiction to Fully Divert or Utilize its Entitlement

In its 2006 report to the IJC, the International St Mary – Milk Rivers Administrative Task Force indicated that "Under the existing Administrative Procedures and current level of infrastructure within the basin, the U.S. has not been able to fully divert (or utilize) its entitlement of the St. Mary River flows. At the same time, Canada has not been able to fully divert (or utilize) its entitlement of Milk River flows.

This option will look at the how much storage is needed in the Milk River basin for Alberta to divert/utilize its entitlement and how much storage is needed in the St. Mary River basin for Montana to divert/utilize its entitlement.

Recommendations for model evaluations

a) Model how much storage is needed in the Milk River basin for Alberta to divert/utilize its entitlement.
b) Model how much storage is needed in the St. Mary River basin for Montana to divert/utilize its entitlement.
c) Combine A and B.

Initial Option #17

Title: Amend Congressional Authorization of the Milk River Project.

The Reclamation Act of 1902 authorized the United States federal government to construct irrigation projects on arid and semiarid lands in the West. As originally conceived, all projects *authorized* and constructed under the Reclamation Act of 1902 *would serve the single purpose of irrigation and the cost would be assessed against the land irrigated.*

Since the Milk River Project still operates under the original 1902 authorization, all project costs, including construction and operation and maintenance (O&M), are borne almost exclusively by irrigators within the eight irrigation districts that make up the Milk River Project.

Over the years the original authorization has been amended to include the incidental purposes of flood control and municipal/industrial water use. These *incidental beneficiaries* pay a small portion of O&M costs. Although imported water from the St. Mary River supports recreation,

fish and wildlife, water quality and other uses, these latter uses are not "authorized" under the Reclamation Act of 1902 or any subsequent amendments to original authorization.
Reauthorizing the Milk River Project as a multipurpose project would recognize the many other benefits derived from system. In addition, Congressional authorization as a multipurpose project would extend the financial responsibility for construction and O&M cost to a larger pool of beneficiaries. Since the St. Mary Diversion and Conveyance Facilities are a component of the Milk River Project, benefits associated with reauthorizing the Project would extend to the St. Mary's facilities.

Items for discussion

a) This options does not directly affect the JIT.

Recommendations for model evaluations

a) No evaluation required

Montana – Alberta St. Mary and Milk Rivers Water Management Initiative

Joint Initiative Team Meeting #7, Interpretive Centre
July 23, 2009, Writing On Stone Provincial Park, Alberta

Montana	Alberta
Dustin de Yong - Office of the Lt Governor (co-chair)	Robert Harrison – Alberta Environment (co-chair)
Randy Reed – Milk River irrigator	Brent Paterson – Alberta Agriculture RD
Dave Peterson – City of Havre	Ken Miller – Milk River
Harold "Jiggs" Main – Ft. Belknap Tribe	Tom Gilchrist – Milk River
Larry Dolan – DNRC	Gerry Perry – Oldman River
	Duncan Lloyd – Oldman River
	Sal Figliuzzi – Alberta Environment

Regrets – Don Wilson – Blackfeet Tribe, Paul Azevedo – MT Secretariat, and Tim Toth – AB Secretariat.

Guests – John Sanders, and Mike Dailey with MT DNRC.

Purpose of Phase 2 Joint Initiative Team

To explore and evaluate options for improving both Montana's and Alberta's access to the shared water of the St. Mary and Milk Rivers, and to make joint recommendation(s) on preferred options to both governments for their consideration and approval.

Meeting Objective(s)

1. Tour the Milk River in Alberta, including potential dam and reservoir location, Milk River channel regime and erosion, example direct pumping crop irrigation operation and direct pumping crop and ranch operation.
2. Review model calibration, approve the model for evaluating options and confirm first priority options to be modeled.
3. Review proposed evaluation output tables and approve these tables.

June 23 – 8:00 a.m. – 2:30 p.m. Milk River Watershed Tour

- Joint Initiative Team members rendezvous at the Roydale International dealer in Milk River, AB. Ken Miller and Tom Gilchrist welcomed the Joint Initiative Team to Milk River, Alberta.
- Toured the potential Milk River Dam site in Alberta. John Sanders provided draft handout for discussion of a Forks Dam concept option using Roller Compacted Concrete (RCC).
- Toured the irrigation operations on the Miller Seeds farm. Viewed direct pumping from Milk River to irrigation pivots. Viewed the real-time metering and telemetry of the water used. Almost all irrigation licenses in the Milk River watershed that draw water directly from the river are metered. Viewed channel erosion that exposed a natural gas line. The gas line had to be abandoned and replaced. The power poles may need to be moved.
- Toured the Milk River from the Weir Bridge to Writing On Stone Provincial Park by rafts to view the river, and erosion and sediment concerns. The river was flowing at about 600 cfs. The natural flow contribution from the Milk River South Fork was about 25 cfs and

from the North Fork about 10 cfs. Flow contribution from the St Mary Diversion was about 565 cfs. Saw many examples of slumping banks.

June 23 – 2:30 p.m. – 5:30 p.m. JIT Meeting

1. Meeting Administration

- The JIT reviewed the meeting purpose and draft agenda for Meeting #JIT-07.
- JIT **agreed** that the review and adoption of Meeting #JIT-06 minutes be deferred to Meeting #JIT-08.
- It was decided that the draft agenda would be revised by moving the discussion of the "Better Use of Share Received" options to the end of the agenda.
- The agenda was approved as revised.

2. Communications and Action Items

- Dustin de Yong reported that there had been no media communications regarding the Joint Initiative in Montana since the June meeting.
- Dustin de Yong reported that Montana State Officials had been talking with Federal Officials regarding the continuation of John Tubbs as Montana's Co-chair on the Joint Initiative. No decision has been made.

Action – Dustin de Yong will check on the status of the decision regarding John Tubbs in the next two weeks and talk with Robert Harrison.

- Robert Harrison reported that there had been no media communications regarding the Joint Initiative in Alberta since the June meeting.
- Robert Harrison reported that Minister Renner had sent a letter to Premier Stelmach requesting the Premier send a letter of support for John Tubbs as Co-chair to Governor Schweitzer.

Action – Robert Harrison will check on the status of the letter from the Premier to the Governor and talk with Dustin de Yong.

- There were no communications reports from the other JIT members.

- The JIT received the document "Draft Summary of Action Items and Agreements" from Meeting #JIT-06 in their meeting package.
- Updates on the Technical Team Action items were provided as part of the modelling agenda items. The status of the remaining administrative action items was reported.

Follow up Action Items from June 8 - 10, 2009 meeting

Action 6. – AENV will set up a SharePoint site for all Joint Team members to be able to access the Draft Background Information Report and other large documents if needed. Complete.

Action 8. – JIT members will comment on Draft Background Information Report to the consultant either via the SharePoint site, or through the Secretariat. Members have had no comments to date.

Action 13. – Secretariat will distribute summary list of Action Items to JIT members. Complete.

3. Report on model accuracy learnings

Larry Dolan and Sal Figliuzzi provided a full report and presentation of the model calibration results and learnings.

Action – Larry and Sal to provide the Secretariats a copy of their Meeting #7 modelling presentations.

Larry explained the irrigation practices in Montana and the assumptions therefore used in the model. Due to shortages and other factors, historically irrigators in Montana have applied only 50% of the water required for maximum crop production on average. The diversion, distribution and application efficiency for Montana irrigation districts in general is approximately 33% from point of diversion to the crop. This means for example that 42 inches of water must be diverted from the river to enable 14 inches of water to reach and be used by the crop. Private and contract irrigation efficiencies are generally about 54%.

Sal explained the irrigation practices in Alberta and the assumptions therefore used in the model. Irrigators in Alberta generally apply only 85% of the water required for the crop for maximum production in any year. The diversion, distribution and application efficiency for Alberta irrigation districts in general is approximately 80% from river diversion to crop. This means for example that 17 inches of was must be diverted from the river to enable 14 inches of water to reach and be used by the crop.

Larry and Sal explained the four components of the model and the calibration quality. Information that was gathered was put into the model and compared against recorded past data. Model calibration runs should replicate, as close as possible, past conditions.

Model components

a. Upper St. Mary in Montana – calibration is excellent
b. St Mary system in Alberta – calibration is excellent
c. Milk River system in Alberta – calibration is excellent
d. Milk River system in Montana – calibration is good

Fresno Reservoir calibrated fairly well. Replicating Fresno Reservoir storage loss from siltation has been problematic. Past recorded data was based on outdated storage curves. Fresno Reservoir is continuously losing storage due to siltation. As a result, the model shows more storage than actually existed. For the model calibration, a Fresno storage capacity of 92KAF is being used (based on 1999 reservoir survey).

Nelson Reservoir didn't calibrate as well, but trended reasonably well. More variables and fewer hard & fast rules on the operation of Nelson Reservoir make it more difficult to replicate actual operations. River flows were also used to determine the adequacy of the calibration. Havre and Nashua river gauges were used to determine effectiveness of model. Modelled flows replicated actual river gauge flows very well. The Nashua gauge was in slightly less agreement, but there is much more going on at the end of the system.

The Technical Team has worked hard to understand the water management, irrigation and structure operation practices in the Milk River in Montana and then represent these practices in the model. In doing so the Technical Team has learned a number of important things about the system.

Larry described four things he had learned about the system.

- The overall volume of water consumed in the Milk River watershed in Montana was higher than initially thought, and this seemed to be due to a large irrecoverable loss component. This might be explained by how the irrigated area is long and drawn out and because the length of the Milk River channel in Montana is 400 plus miles.
- Surprised that the Technical Team was able to model the reservoirs so that operations matched historic operations as well as they did. The operations of the reservoirs appear to have been more predictable than originally thought.
- Surprised that irrigation canal capacity limitations contributed to shortages as much as they do. Larry knew that this was a factor but didn't understand the importance.
- Surprised that the Technical Team was able to build the model and get a good calibration so quickly. Larry wasn't so certain at the start that the Technical Team would be able to get this done in the required time.

Sal described two additional things he had learned about the system.

- Sherburne Lake is not operated in conjunction with Fresno Reservoir. Sherburne is operated with the single objective to move the maximum amount possible of Montana's entitlement of the St. Marry River to the Milk River.
- Nelson Reservoir has a number of unique operating challenges, including high levels of seepage loss and water level restrictions due to Piping Plover nesting.

Each of these learnings is a potential opportunity for improved water management.

Larry and Sal, as the leaders of the Technical Team, recommended to the JIT that the model is working well and is ready for use in simulating future potential water management options.

The JIT **accepted** the Technical Team's recommendation and **approved** the model for use in simulating future potential options.

The JIT instructed the Technical Team to proceed with model runs of the future potential water management options.

The JIT thanked the Technical Team for their hard work to successfully calibrate the model.

Larry and Sal reviewed the options that the JIT identified over the last two meetings. In total there are 35 separate "Improved Access Management" options.

The JIT discussed the options and the need for modelling all the options.

The JIT **agreed** that the Technical Team should run the first set of options without the Letter of Intent. Based on the results of those runs the JIT gave the Technical Team the discretion to decide if all the other options need to be run.

If the Technical Team is able to reduce the number of runs and has time for additional runs before the next meeting the JIT requested these additional runs.

The JIT **agreed** that it was important to test an alternative Letter of Intent that traded larger deficits and instructed the Technical Team to test the benefits and impacts of an alternative Letter of Intent.

The JIT discussed the minimum flow that should be used in the model for the St. Mary River between the diversion and the border in Montana and the border to the St. Mary Reservoir in Alberta.

Robert Harrison reported that Alberta has not yet established a formal Water Conservation Objective for the Alberta reach of St. Mary River because no new water allocations are allowed in this reach and Alberta has assumed that this reach of river would reach Alberta's full entitlement within each balance period.

Larry Dolan reported that Montana does not have in instream flow requirement established on Montana's reach of the river. It also has not been seen as a priority as this reach of the river also carries Alberta's entitlement.

The JIT discussed potential minimum flows for the purpose of modelling. The JIT instructed the Technical Team to review recent past low flows under the Letter of Intent and use this low flow as a minimum flow for the purpose of running the model.

Action – Technical Team to determine the minimum flow for the St. Mary River to be used as an input value in the model. Note: The JIT is NOT setting an actual instream flow number for any reach of the St. Mary River. This is a minimum flow number for the purpose of modelling.

Action – Robert Harrison to provide the JIT with a description of the aquatic ecosystem health process in Alberta as it relates to the St. Mary River from the border to the St. Mary Reservoir.

The JIT **agreed** that it is important to test the shared storage facility on the Milk River and instructed the Technical Team to test the benefits and impacts of sharing the storage of the large Milk River Dam.

Action – Technical Team to complete the model runs as directed by the JIT and provide summary information to the JIT by September14, 2009.

Action – Technical Team to provide the JIT with initial summaries of the first few runs as soon as they are available so that the JIT has the opportunity to understand the model results.

4. Model Run Outputs

Sal and Larry presented the proposed output tables that will summarize the model runs for the attributes of interest to the JIT.

The JIT discussed the proposed output tables and provided the following instructions.

The JIT wants graphical summaries that compare the key interests of entitlement accessed, total volume accessed and irrigation reliability for each option. In addition the JIT wants summary tables of averages for the entire modeled period for the same three interests for the individual rivers and the combined totals. The graphs and the summary tables will be the primary information used by the JIT to evaluate options. Access Percentage of Entitlement Share Accessed Table: Have Table show numbers greater than 100% (Surpluses).

The JIT wants the detailed tables that present the annual information for each option, prepared and stored on disks. The JIT wants this information available in case a member needs to look at the details of any given option.

The JIT **agreed** on the revised model output tables that focus on percent of entitlement accessed, volume accessed and irrigation reliability and on the format of graphs, summary tables and detailed appendices.

ACTION – Technical Team to finalize the model output tables and provide a full set of the base case to the JIT for information and preparation of receiving output for all runs.

Action Item Summary

1. **ACTION:** - Dustin de Yong will check on the status of the decision regarding John Tubbs in the next two weeks and talk with Robert Harrison.
2. **ACTION:** Robert Harrison will check on the status of the letter from the Premier to the Governor and talk with Dustin de Yong.
3. **ACTION:** - Larry and Sal to provide the Secretariat a copy of their Meeting #7 modelling presentations.
4. **ACTION:** - Technical Team to determine the minimum flow for the St. Mary River to be used as an input value in the model. Note: The JIT is NOT setting an actual instream flow number for any reach of the St. Mary River. This is a minimum flow number for the purpose of modelling.
5. **ACTION:** - Robert Harrison to provide the JIT with a description of the aquatic ecosystem health process in Alberta as it relates to the St. Mary River from the border to the St. Mary Reservoir.
6. **ACTION:** - Technical Team to complete the model runs as directed by the JIT and provide summary information to the JIT by September14, 2009.
7. **ACTION:** - Technical Team to provide the JIT with initial summaries of the first few runs as soon as they are available so that the JIT has the opportunity to understand the model results.
8. **ACTION:** Technical Team to finalize the model output tables and provide a full set of the base case to the JIT for information and preparation for receiving output for all runs.

Summary of Approvals, Agreements, etc.

1. JIT **agreed** that the review and adoption of Meeting #JIT-06 minutes be deferred to Meeting #JIT-08.
2. The JIT **accepted** the Technical Team's recommendation and **approved** the model for use in simulating future potential water management options.
3. The JIT **agreed** that the Technical Team should run the first set of options without the Letter of Intent. Based on the results of those runs the JIT gave the Technical Team the discretion to decide if all the other options need to be run.
4. The JIT **agreed** that it was important to test an alternative Letter of Intent that traded larger deficits and instructed the Technical Team to test the benefits and impacts of an alternative Letter of Intent.
5. The JIT **agreed** that it is important to test the shared storage facility on the Milk River and instructed the Technical Team to test the benefits and impacts of sharing the storage of the large Milk River Dam.

6. The JIT **agreed** on the revised model output tables that focus on percent of entitlement accessed, volume accessed and irrigation reliability and on the format of graphs, summary tables and detailed appendices.

Message in Joint Status Report:

- Members of the Montana and Alberta Joint Initiative Team (JIT) toured the Alberta portion of the Milk River to view the potential Milk River Dam location, erosion on the Milk River and two direct pumping irrigation operations and the continuous water metering at these operations.
- Technical Team leads presented the final calibration results of the model to the JIT and recommended that the model was ready to simulate the future options.
- The JIT instructed the Technical Team to proceed with the simulation of the future options.

Next meeting:

The next three meetings were **agreed** to:
JIT #8 – Sept. 24th -25th, Lethbridge
JIT #9 – Oct. 28-29th, Great Falls
JIT #10 – Dec. 3rd -4th, Lethbridge

Adjourn

The meeting was adjourned at 5:30 p.m. JIT members then toured the Deer Creek Ranch to see the direct pumping from the Milk River and water use from smaller tributaries. Irrigation from Deer Creek and Bear creek is difficult during lower flow years. The tour was followed by a dinner at the Gilchrist residence.

Montana – Alberta: St Mary & Milk Rivers Water Management Initiative

Joint Initiative Team Meeting #8, Coast Lethbridge Hotel
September 24-25, 2009, Lethbridge, Alberta

Montana	Alberta
Dustin de Yong - Office of the Lt. Governor (acting co-Chair, day 1)	Robert Harrison – Alberta Environment (co-Chair)
Randy Reed – Milk River irrigator	Roger Hohm – Alberta Agr. & Rural Dvlp't
Paul Azevedo – DNRC (secretariat)	Ken Miller – Milk River
Dave Peterson – City of Havre	Tom Gilchrist – Milk River
Harold "Jiggs" Main – Ft. Belknap Tribe	Gerry Perry – Oldman River
Larry Dolan – DNRC Technical Team	Duncan Lloyd – Oldman River
	Tim Toth – AB Environment (secretariat)
Anne Yates – DNRC (co-Chair, day 2)	Sal Figliuzzi – AB Env't Tech. Team

Regrets – Don Wilson; Anne Yates, the new Montana co-Chair, will attend on Friday
Observers – John Sanders (DNRC - St. Mary Canal rehabilitation engineer), Laurent Conard (AENV modeller)

Purpose of Phase 2 Joint Initiative Team

To explore and evaluate options for improving both Montana's and Alberta's access to the shared water of the St. Mary and Milk Rivers, and to make joint recommendation(s) on preferred options to both governments for their consideration and approval.

Meeting Objective(s)

1. Understand the Base Case situation and implications
2. Understand results of the Tier 1 (better access to share) model runs completed to date, and clarify the Tier 2 (better use of share received) options for the modellers
3. Identify actions to complete the initiative by April 2010

Notes

Day 1 – <u>Sep. 24 – 1:00 p.m. – 6:00 p.m. Continental room</u>

1. Welcome; Administration -- Robert Harrison; Tim Toth, Paul Azevedo

Robert welcomed the Team. Dustin de Yong will act as co-Chair until Montana's new co-Chair, Anne Yates, arrives tomorrow. The meeting objectives were accepted as presented above.

Paul reviewed Action items from JIT#6; 13 were identified for the Technical Team and are being addressed today. The final review of the Technical Background report is to be completed before next meeting – changes are to be sent to Sal/Larry, in time for the report to be approved at the October meeting. Sal advised that the comments received so far have been incorporated.

The Notes from meeting #6 (June 8-10) were <u>adopted</u> as sent out.

Tim reviewed the Actions from JIT #7 – there are 8 items; 4 were identified to the Technical Team. Results of all model runs to date were added to the SharePoint site and all other action items except

one have been completed. Robert will send information next week on the IFN flow (aquatic ecosystem health process in Alberta) as it relates to the St. Mary River from the international border to the St. Mary Reservoir.

The Notes from meeting #7 (July 23) were adopted as sent out.

Communications
Montana – Dustin de Yong advised that Governor Schweitzer has been updated on status of initiative; Dave Peterson has an update with the Havre City Council soon.

Alberta – Tom Gilchrist and Ken Miller have updated the Milk River WPAC. Duncan Lloyd has answered many informal questions but not made any formal presentations. No detailed government briefings have been made; Brent Paterson and Robert Harrison will meet with their executive soon after this meeting. How and when communications will be made to the public on the recommendations to the Governor and Premier has not yet been determined. Once the directions of the Initiative have gelled, AB and MT will coordinate to brief their elected officials.

Agenda items 2, 3, 4, 5 and 6 are supported by Sal and Larry's PowerPoint presentation.

2. Modelling activity since last meeting – Larry Dolan and Sal Figliuzzi

As part of the presentation, Larry and Sal reviewed the model runs and decisions made by the Technical committee to alter model runs. Also, decisions made by the co-Chairs on the model runs since meeting #7 were discussed. Additional description is contained in the presentation.

3. Discussion of modelling: theory and practice and review of Base Case scenario -- Larry and Sal

Larry and Sal reviewed the inputs to the model to show the JIT that all inputs are physical components of the water management system: channel size, irrigation hydrology, *etc*. This allows the Team to understand all the physical components of the model.

Complete detail is contained in Sal and Larry's presentation.

The total area of acreage irrigated within MT was discussed.
[1] ACTION: MT is to review their irrigation acreage used in the model to ensure that the correct acreages are being simulated.

The JIT had additional discussion about future opportunities to expand the irrigated acres modelled. It was **agreed** that discussion about future opportunities to expand irrigated acres in both jurisdictions would take place after discussion of Tier 2 model runs (October or November).

There was discussion regarding irrigation demands in the two jurisdictions.
[2] ACTION: The JIT requested further explanation of how irrigation demands are determined in both jurisdictions.

The JIT discussed reservoir operating decisions.
[3] ACTION: JIT requested a description of the operating decisions/rules needed to run Sherburne reservoir.

Larry advised the JIT that irrigation deficits can be caused by shortage of supply, timing of water movement, and limitations to physical infrastructure.

The JIT discussed potential benefits to municipal and recreational interests that may arise from some of the options modelled. Although it will be difficult to estimate the size and scope of relative benefits, the JIT **agreed** that a discussion of municipal and recreation benefits should be part of our evaluation criteria, to be reviewed at our October or December meetings.

4. Summary of modelling learnings – Larry & Sal

The Technical Team presented general observations for both MT and AB – see slides #18, 19 of presentation. In addition, the Technical Team presented key findings for each category of model runs: slides #26-27, #33-#34, #41-42, #48-49, #53-54, and #60-62.

Agenda items #5 (**Review of model results**) and #6 (**Discuss need for additional Tier 1 model runs**) became blended. As the JIT discussed results, they also discussed additional Tier 1 runs they require. For these Notes, we will report on the two agenda items simultaneously, organized by the category options used in the Technical Team presentation.

Category — Increasing St. Mary Canal capacity (slides #22-27)
The JIT requested information on the excess capacity of each of the canal size model runs. The team wanted to know how often the canal ran full and how often there was potential capacity.
[4] ACTION: Technical Team to prepare a graph showing how often there may be excess capacity available within the U.S. diversion canal for Options 1(base case), 2 (850 cfs U.S. St. Mary canal) and 3 (1200 cfs U.S. St. Mary canal).

Category — Upstream storage options (includes Lower St. Mary L. [slides #29-34], Sherburne Res. [#36-42], and combinations [#44-49])
The JIT discussed the relationship between various canal sizes with storage, and what are the comparative benefits of each.
[5] ACTION: Technical Team to undertake a run of a 650 cfs canal + the upstream Sherburne Res. and Lower St. Mary storage and compare it to just the 850 cfs canal with existing storage.

The Technical Team ran a simulation to determine the maximum hypothetical storage capacity the U.S. would need on the St. Mary River to get access to its full entitlement share. Including current storage in Sherburne Reservoir, the U.S. would need an additional 109,000 ac.ft of storage on the St. Mary River to fully access their share. Additional infrastructure improvements would be needed to take full advantage of the entire share (slide #53).

Category — Alberta Milk River storage (for AB use) [slides #56-60]
[6] ACTION: The JIT asked the Technical Team to advise if the 237,000 ac.ft. storage in Option 7c is live storage available for irrigation or if it included storage for flood-pool safety.

The JIT discussed the in-stream flow requirements downstream of the Milk R. reservoir and an appropriate IFN value that should be used in the modelling.
[7] ACTION: Technical Team is to review the assumptions made about the provision of IFN from Canadian and U.S. shares of water from both the Milk R. and the diverted St. Mary R. for Options 7a-7c (Canadian storage on Milk R.) and Option 8 (Shared Milk R. reservoir).

This may require three more AB Milk River runs.

Category — Alberta Milk River storage – Shared
The JIT discussed the results of the shared reservoir runs vs. the Base Case run and the shared reservoir run compared to the AB-only storage options, with regard to the percentage of share and irrigation deliveries.
[8] ACTION: The JIT requested the Technical Team to prepare additional information explaining the comparative results of Option 8 (Shared Milk R. reservoir) to the base case (Option 2a) and to Options 7a-7c (Canadian storage on Milk R.).
In addition to the average and dry year results, the JIT would like to understand the results based on median values.

The JIT discussed how in-stream flow needs were modelled in the shared reservoir run.
[9] ACTION: The JIT requested the Technical Team to review and re-run the shared Milk R. reservoir option (Option 8) to correctly handle in-stream flows downstream of a shared reservoir.

JIT discussed potential impacts the U.S. share of Milk River natural flows allocated to the Ft. Belknap Reservation could have on a shared reservoir. Impacts may vary depending on whether on not Ft. Belknap agrees to have their share of the Milk River natural flow (from U.S. share) stored in AB or delivered to the reservation boundary.

[10] ACTION: The Technical Team will develop the conceptual framework for a new model run for integrating Ft. Belknap's share of the Milk River natural flow into the joint storage option.

[11] ACTION: Alberta Technical Team to determine why there is a difference in the irrigable acreage identified in the 2003 Klohn-Crippen study, and in the current model run, for all 3 AB Milk River reservoir sizes.

Category — Administrative Options – Letter of Intent
The Technical Team had not completed the Administrative Options runs. The results for these runs will be presented at the October meeting. The JIT discussed the relationship between storage options and the Letter of Intent. It was generally understood that as additional storage infrastructure is added to the upper St. Mary R. and to the Milk R., the benefits of the LOI are diminished.

The JIT discussed the 20,000 ac.ft. LOI option and questioned whether this value was too large, particularly for the dry years.
[12] ACTION: The Technical Team is to consider the 20,000 ac.ft. LOI, whether it is too large, and if a smaller option should be investigated. The Technical Team is to decide and propose runs to the co-Chairs for approval. Runs should be made for the 650 cfs and 850 cfs canal, and should identify the maximum number of acres that can be irrigated in Milk R. Alberta, meeting Alberta's irrigation standards.

The JIT discussed the implementation of an LOI that was flexible enough to account for annual variations in water availability.

It was **agreed** that some form of flexibility to make real-time operational changes based on water availability could provide benefits to water users on both sides of the international boundary.

Overwinter storage, water available for irrigation, and total potential volumes accessed
The Team discussed jurisdictional differences in over-winter storage and the implications of storage in general. There was interest in how much water is "getting by the system" and the acres that could potentially be irrigated with this water.
[13] ACTION: The JIT asked the Technical Team to explore how much water could be captured and managed using all of the storage options discussed, unconstrained by existing irrigation acreages or efficiencies, and maximizing over-year storage for Sherburne, Lower St. Mary, a large AB Milk R. reservoir, an appropriately increased Fresno Reservoir, and Nelson Reservoir.

Irrigation Deliveries and Reliability [slide #73]
Relative to the total water supply, only modest benefits to irrigation are realized by increasing canal capacities or reservoir storages. The JIT discussed the apparently relatively small irrigation benefits indicated for increasing canal size, vs. potentially greater erosion of the Milk R. and delivery of that sediment to Fresno Reservoir. Episodic high flow events and ice impacts may be responsible for increased sedimentation rates.

**** End of Tier 1 model runs ****

7. Discuss need for additional Tier 2 model runs – all

The JIT reviewed the list of the Tier 2 options that was compiled from JIT#6 and handed out at this meeting.
Discussion resulted in revising/clarifying the following options:

- 3) Increase Storage on Fresno Reservoir – (i) to 137,000 ac. ft; (ii) to 160,000 ac. ft; (iii) exploring shared storage with Alberta
- 4) Develop Storage on Ft. Belknap Reservation – of 60,000 ac.ft., including input from the Milk R. and tributary flow, with a maximum diversion rate of 645 cfs. This water is for current irrigation on the reservation first, then allow for additional irrigation developed on the reservation. The timing of this storage is to be determined.
- 5) Use Milk R. reservoir for storage.
- 6) Use Ridge Reservoir for Canadian share – take Canadian water from St. Mary R. system and move it into the Milk R. system.
- 7) Use storage in Canadian St. Mary Reservoir for the U.S. share.

dropping the following options:

- 1) Developing off-stream storage on the Blackfeet reservation – Spider Lake
- 2) Developing off-stream storage on the Blackfeet reservation – Goose lake
- 8) Water marketing – Blackfeet Tribe
- 9) Diversion from Tiber Reservoir
- 10) Duck Creek diversion

and adding the following options:

- 11) Shared St. Mary Canal – modellers are to model a canal size between 850 and 1200 cfs to determine a more optimal canal size. There are 2 variations:
  - (A) moving additional Canadian St. Mary water through the canal, and
  - (B) moving additional U.S. St. Mary water through the canal.
- 12) Move the deficit payback period to May 15th for both jurisdictions

- 13) Credits – U.S. diverts less of their share than they are entitled to over a certain time period to build a credit, and later, takes more of their share to offset that credit

[14] ACTION: Modellers to determine what flow is needed to irrigate an additional (i) 5000 ac. (total 13,000 ac.) and (ii) 10,000 ac. (total 18,000 ac.) in the Canadian Milk R. basin. Runs to be modelled at 850 cfs, and depending on the results, consider modelling at 1200 cfs only if there will be value in making the larger canal capacity runs. Technical Team to determine if there is any disadvantage to MT for these runs.

The JIT **agreed** to give Robert and Anne the authority to judge whether or not recommendations for additional Tier 2 runs are appropriate to pursue.

A summary of the additional runs identified will be provided by Larry and Sal for these Notes after discussion and clarification with the Technical Team and the co-Chairs. See Attachment 1: **Future Model Runs – Tier 1 and Tier 2 Options and Questions**.

8. Plan for completion of Initiative – Robert and Anne

Anne reviewed a proposed timeline needed to complete the Initiative – Attachment 2: **Draft Timeline for Completion**. The Team discussed and **agreed** that the proposed timeline is what is necessary to complete the project on time, and is attainable.

[15] ACTION: Robert and Anne will draft the evaluation criteria needed to rank potential options and present it to the JIT. Economic analysis will only be addressed at an overview level.

[16] ACTION: Secretariat will draft a framework describing an international watershed team to coordinate cross-border water management.

Presentations to stakeholders must clearly identify all alternatives discussed and the direction the JIT is going.

The Team will use conference calls or extend the meetings as needed to ensure there is sufficient time to deal with issues. The co-Chairs will determine at the October meeting whether we need a 3-day meeting in December.

All pieces of information must be drafted for the January meeting.

9. Meeting review and plan for next meeting – Tim and Paul

The following items were **agreed** to or adopted:

The Notes from meeting #6 (June 8-10) were adopted as sent out.
The Notes from meeting #7 (July 23) were adopted as sent out.

(1) It was **agreed** that discussion about future opportunities to expand irrigated acres in both jurisdictions after would take place discussion of Tier 2 model runs (October or November). [p. 2]

(2) JIT **agreed** that a discussion of municipal and recreation benefits should be part of our evaluation criteria, to be reviewed at our October or December meetings. [p. 3]

(3) It was **agreed** that some form of flexibility to make real-time operational changes based on water availability could provide benefits to water users on both sides of the international boundary. [p.4]

(4) The JIT **agreed** to give Robert and Anne the authority to judge whether or not recommendations for additional Tier 2 runs are appropriate to pursue. [p. 6]

(5) The Team discussed and **agreed** that the proposed timeline is what is necessary to complete the project on time, and is attainable. [p. 6]

Summary of ACTIONS
Actions that are being dealt with as **new model runs** are identified below by cross-reference to that **item** in Attachment 1: **Future Model Runs – Tier 1 and Tier 2 Options and Questions**.

[1] ACTION: MT is to review their irrigation acreage used in the model to ensure that the correct acreages are being simulated.

[2] ACTION: The JIT requested further explanation of how irrigation demands are determined in both jurisdictions.

[3] ACTION: JIT requested a description of the operating decisions/rules needed to run Sherburne reservoir.

[4] ACTION: Technical Team to prepare a graph showing how often there may be excess capacity available within the U.S. diversion canal for Options 1(base case), 2 (850 cfs U.S. St. Mary canal) and 3 (1200 cfs U.S. St. Mary canal).

[5] ACTION: Technical Team to undertake a run of a 650 cfs canal + the upstream Sherburne Res. and Lower St. Mary storage and compare it to just the 850 cfs canal with existing storage. [See **item #1 on Attachment 1**.]

[6] ACTION: The JIT asked the Technical Team to advise if the 237,000 ac.ft. storage in Option 7c is live storage available for irrigation or if it included storage for flood-pool safety.

[7] ACTION: Technical Team is to review the assumptions made about the provision of IFN from Canadian and U.S. shares of water from both the Milk R. and the diverted St. Mary R. for Options 7a-7c (Canadian storage on Milk R.) and Option 8 (Shared Milk R. reservoir) [See **item #11 on Attachment 1**.]

[8] ACTION: The JIT requested the Technical Team to prepare additional information explaining the comparative results of Option 8 (Shared Milk R. reservoir) to the base case (Option 2a) and to Options 7a-7c (Canadian storage on Milk R.)

[9] ACTION: The JIT requested the Technical Team to review and re-run the shared Milk R. reservoir option (Option 8) to correctly handle in-stream flows downstream of a shared reservoir. [See **item #12 on Attachment 1**.]

[10] ACTION: The Technical Team will develop the conceptual framework for a new model run for integrating Ft. Belknap's share of the Milk River natural flow into the joint storage option. [See **item #13 on Attachment 1**.]

[11] ACTION: Alberta Technical Team to determine why there is a difference in the irrigable acreage identified in the 2003 Klohn-Crippen study, and in the current model run, for all 3 AB Milk River reservoir sizes. [See **Question #3 on Attachment 1**.]

[12] ACTION: The Technical Team is to consider the 20,000 ac.ft. LOI, whether it is too large, and if a smaller option should be investigated. The Technical Team is to decide and propose runs to the co-Chairs for approval. Runs should be made for the 650 cfs and 850 cfs canal, and should identify the maximum number of acres that can be irrigated in Milk R. Alberta, meeting Alberta's irrigation standards. [See "**Letter of Intent**" on **Attachment 1**.]

[13] ACTION: The JIT asked the Technical Team to explore how much water could be captured and managed using all of the storage options discussed, unconstrained by existing irrigation acreages or efficiencies, and maximizing over-year storage for Sherburne, Lower St. Mary, a large AB Milk R. reservoir, an appropriately increased Fresno Reservoir, and Nelson Reservoir. [See **item #25 on Attachment 1**.]

[14] ACTION: Modellers to determine what flow is needed to irrigate an additional (i) 5000 ac. (total 13,000 ac.) and (ii) 10,000 ac. (total 18,000 ac.) in the Canadian Milk R. basin. Runs to be modelled at 850 cfs, and depending on the results, consider modelling at 1200 cfs only if there will be value in making the larger canal capacity runs. Technical Team to determine if there is any disadvantage to MT for these runs. [See **item #23 on Attachment 1**.]

[15] ACTION: Robert and Anne will draft the evaluation criteria needed to rank potential options and present it to the JIT. Economic analysis will only be addressed at an overview level.

[16] ACTION: Secretariat will draft a framework describing an international watershed team to coordinate cross-border water management.

The Secretariat will draft the actions and activities and send them to the JIT. The Team will review and identify anything that was missed and advise the Secretariat.

Next meeting
October 28-29, starting about 8:00 a.m., at Best Western Hotel, Great Falls, MT.

The meeting was adjourned at 3:00 p.m.

Attachment 1: Future Model Runs – Tier 1 and Tier 2 Options and Questions

New Option runs are numbered below in quotation marks followed by their technical description. To track the new Option runs against the ACTIONS in the Notes above, we refer to them in the Notes as **item 1**, **item 2**, *etc*.

Tier 1 Options

St. Mary Canal options

No new runs.

Lower St. Mary Lake storage (2 new items)

1. New Run "Option 4c" – 650 cfs canal plus existing Sherburne storage, plus 8,800 ac-ft. Lower St. Mary L. storage (provide comparison to output 850 cfs canal and existing Sherburne storage and filling rule curves)
2. New Run Option "4a1" – 850 cfs canal run with revised Sherburne filling curve plus 8,800 ac-ft. Lower St. Mary (compare to output of Option "4a") (This takes advantage of additional d/s storage and modified filling curve for Sherburne.)

Increased Sherburne storage

No new runs.

Combine increased Lower St. Mary Lake and Increased Sherburne storage (1 item)

3. New Run "Option 6a1"– Run option "6a" with modified Sherburne filling curve. Does this increase its benefits? **LOW PRIORITY**

Model runs with modified Sherburne filling curve (5 items)

4. New Run "Option 2a1" – Option 2a (850 canal with 83,000 ac. ft. Fresno storage) and modified Sherburne filling curve.
5. New Run "Option "2c1" – Option 2c (850 canal with 137,000 ac. ft. Fresno storage) and modified Sherburne filling curve.
6. New Run "Option 2e" – 850 canal with 160,000 ac. ft. Fresno storage drawdown to 123,000 ac-ft. and modified Sherburne filling curve.
7. New Run "Option 4d" – 850 canal, 137,000 Fresno with drawdown to 100,000, plus 8,800 ac-ft. Lower St. Mary, and modified Sherburne filling curve.
8. New Run "Option 4e" – 850 canal, 160,000 Fresno with drawdown to 123,000, plus 8,800 ac-ft. Lower St. Mary and modified Sherburne filling curve.

[After discussion, two items on the original list proposed were deleted. Numbering continues with item # 11 below.]

Full U.S. Share with maximum storage

No new runs.

Alberta-Milk River storage (1 item)

11. Re-run of "Options 7a, 7b and 7c" with appropriate IFN (non irrigation season [Nov1- Mar 31] IFN=lesser of $Q_{nat.}$ or 15 cfs, irrigation season [Apr 1-Oct 31] for Q_{nat}<25 cfs: IFN =Q_{nat}, for Q_{nat} ≥25cfs; IFN=greater of 25 cfs or 30% of Q_{nat})
    a) 850 cfs canal, 122,000 ac-ft. Milk R. Reservoir AB (former run #7a)
    b) 850 cfs canal, 188,000 ac-ft. Milk R. reservoir AB (former run #7b)

c) 850 cfs canal, 237,000 ac-ft. Milk R. reservoir AB (former run #7c)

Shared Milk River storage (2 items)

12. Re-run of "Option 8" - Shared storage with following considerations;
    IFN A) For non irrigation months Oct 16 to March 15, IFN = lesser of Q_{nat} or 15cfs with U.S to provide 50% Canada provides additional below confluence of 2 channels,
    B) for irrigation months [March 16-Oct 15] for Q_{nat}<25 cfs: IFN =Q_{nat} for Q_{nat} ≥25cfs; IFN =greater of 25cfs or 30% of Q_{nat}. U.S. to provide 50%, Canada provides additional below confluence of 2 channels.

13. New Run – "Option 8b" - Shared storage ("Option 8" in item 12) needs to be re-run with the additional following consideration: the potential impacts the shared reservoir may have on the U.S. share of Milk River natural flow allocated to the Ft. Belknap Reservation.
    MT to provide instructions on whether this is required and if so how to account for Ft. Belknap interests.

Letter of Intent

In discussion, the Joint Team questioned a 20,000 ac.ft. LOI as they did not believe there was that volume of water in low-flow years. The Joint Team requested the Tech Team to consider this, and propose a series of runs to the co-Chairs for approval. Tech team should consider runs with 650 cfs canal, 850 cfs canal and an intermediate size LOI. The runs should identify the maximum number of acres that can be irrigated in Milk R. Alberta, meeting Alberta's irrigation standards.

Number of runs unknown at this time.

Balance Periods

No new runs requested.
Tech Team to report results of first 4 model runs (#16a – 16d) to co-Chairs for further instructions.

Tier 2 Options

Options eliminated since the creation of the initial Tier 2 list (Sep. 24, 2009):

- Spider Lake
- Goose Lake
- Ridge Reservoir
- Water marketing by Blackfeet Tribe
- Diversion from Tiber Reservoir
- Duck Creek diversion

Offstream storage along St. Mary Canal vs. downstream of canal

20. New Runs "Option 17a, 17b, and17c" - 850 cfs canal, existing Sherburne with modified filling curve, 83,000 ac-ft. Fresno storage, plus indicated off-stream storage.

Model off-stream storage along St. Mary canal of:

a) "Option 17a" – 5,000 ac-ft off-stream storage
b) "Option 17b" – 10,000 ac-ft off-stream storage
c) "Option 17c" – determine an optimal storage based on benefits

Increased storage in Fresno Reservoir shared with Alberta

21. New Run "Option 18a" – 850 cfs canal, 137,000 ac-ft. Fresno with storage above 83,000 ac-ft. shared between AB and MT , with Alberta storing Canadian Milk R. share as a credit with overyear carry over, and drawing on that credit from U.S. St. Mary water to supply from Milk R. irrigation in Alberta; Sherburne modified rule curve.

Increased storage in St. Mary Reservoir, Alberta, for U.S. water

No new run.

"Option 18b" – Review balance period or hydrology and speculate on size of credit available each year.

Insight into this credit system may come from results of annual balance period. The Tech Team will evaluate and discuss possible runs with co-Chairs. (U.S. St. Mary storage in Canada of 30,000ac-ft. with carryover storage which U.S. can draw on through U.S. canal when needed.)

Storage on Ft. Belknap Reservation (1 item)

22. New Run "Option 22" – new 60,000 ac.ft. off stream storage near Ft. Belknap Reservation, withdrawal from Milk River diversion to dam to a maximum of 520 cfs to irrigate current lands on the Ft. Belknap reservation plus 19,390 new acres on reservation (*** MT secretariat is to clearly describe this option. MT to undertake design specs.)
    MT needs to determine if this is for improving the reliability of existing irrigated acres, adding new acres and if so, how much, or both, and the priority access to flow between new reservoir and traditional irrigators.

Canadian participation in U.S. St. Mary Canal with Canadian water (1 item)

23. New Runs "Options 19a – 19d" Canada access to utilize U.S. canal to divert Canadian St. Mary water to meet Canadian irrigation demands in Milk R. basin. Canadian demand to be met 1st by Canadian Milk share, 2nd by LOIs, 3rd by diversions of Canadian St. Mary share. Use Sherburne modified rule curve. (If it has big impact on U.S., may need to consider a larger canal.)
    a) "Option 19a" – 850 canal, 13,000 acres irrigated, plus Letter of Intent – Alberta water
    b) "Option 19b" – 850 canal, 18,000 acres irrigated, plus LOI – Alberta water
    c) "Option 19c" – 850 canal, 13,000 acres irrigated, no LOI – Alberta water
    d) "Option 19d" – 850 canal, 18,000 acres irrigated, no LOI – Alberta water

Canadian participation in U.S. St. Mary Canal with U.S. water (1 item)

24. New Runs "Options 20a – 20d" Canada to utilize U.S. St Mary diversions to help meet Canadian irrigation demands in Milk basin. Use Sherburne modified rule curve. (if it has big impact on US may need consider larger canal)
    a) "Option 20a" – 850 canal, 13,000 acres irrigated, plus Letter of Intent – Montana water
    b) "Option 20b" – 850 canal, 18,000 acres irrigated, plus LOI – Montana water
    c) "Option 20c" – 850 canal, 13,000 acres irrigated, no LOI – Montana water
    d) "Option 20d" – 850 canal, 18,000 acres irrigated, no LOI – Montana water

Maximum water supply option (2 items)

The JIT requested the Tech Team to explore:

25. How much water could be captured and managed using all of the storage options discussed, U.S. share of St. Mary River water, no canal capacity constraints and assume, AB Milk River irrigation efficiencies and guidelines, for all irrigation, including Montana irrigation:

"Option 21a" – 850 cfs canal and existing storage
"Option 21b" – 850 cfs canal and indicated storage

- Current Sherburne storage
- Increased 8,800 ac-ft. Lower St. Mary
- Large Alberta Milk River reservoir
- Appropriate increased Fresno Res. (may not be necessary with Alberta Reservoir)
- Nelson Reservoir

26. "Option 21c" – Determine the amount of acres that can be irrigated with this supply to Alberta irrigation shortage criteria.

QUESTIONS

1. St. Mary Canal options

Needed is additional analysis = the number of days the 650, 850 and 1200 cfs canals are running full for the dry, average and wet years.

2. Increased Sherburne storage

Summarize the benefits of increased storage on Sherburne Res. as the Joint Team was sensing limited benefits. Is this true?

3. Alberta-Milk River storage

With 3 different storage sizes (122,000; 188,000; 237,000 ac.ft) and an 850 cfs canal, and considering IFN needs,

- How often does the AB Milk R. dam fill?
- Sort out the irrigated acres discrepancy between 2003 consultant report and model runs for all 3 Milk R. Reservoir sizes.

4. Alberta Milk River storage – shared

From ACTION [8]: The JIT requested the Technical Team to prepare additional information explaining the comparative results of Option 8 (Shared Milk R. reservoir) to the base case (Option 2a) and to Options 7a-7c (Canadian storage on Milk R.).

- In addition to the average and dry year results, the JIT would like to understand the results based on median values.

5. Technical Consideration of Hydrologic Sequences

What are the probabilities of the following sequences?

- Dry year followed by a dry year
- Wet year followed by a wet year
- Dry year followed by a wet year
- Wet year followed by a dry year

Is there a probability of predicting? Could you make operational decisions in the current year based on the probability of what the next year might be?

Attachment 2: Draft Timeline for Completion
Meeting

- September-'09
  - Base Case is reviewed and understood, and Tier 1 model results are complete ("better access to share")
  - Tier 2 options for modeling are discussed and finalized ("better use of share received")
  - Timeline to complete report by April, 2010 is reviewed and finalized
- October-'09
  - All outstanding issues with Tier 1 model runs are resolved
  - Tier 2 model run results are reported
  - Additional models runs (combinations of Tier 1 and 2) are identified and finalized
  - Evaluation Criteria and Interests needed to evaluate options are finalized
  - Draft framework for potential International Watershed Coordinating Team is outlined
  - Technical Background report is finalized
- December-'09
  - All Tier 1 model runs are completed
  - All outstanding issues with Tier 2 model runs and combination model runs are resolved
  - Prioritized list of models runs for final consideration/fine tuning is finalized
  - Operations / maintenance and capital cost estimates for options are complete
  - Final "Recommendations report" format is finalized
  - Approval process for Recommendations Report is presented
  - Presentations have been given to stakeholder groups
- January-'10 – Start building group consensus
  - Evaluation Criteria is applied to all remaining options
  - Preliminary recommendations for Recommendations Report are developed by Joint Team
  - Draft framework for potential International Watershed Coordinating Team is completed to 60% level
- February-'10
  - 1st Draft of Recommendations Report is reviewed by Joint Team
- March -'10
  - 2nd draft of Recommendations Report reviewed and comments are finalized by Joint Team
  - Draft framework for potential International Watershed Coordinating Team is completed to 90% level
- April -'10
  - Final Recommendations Report is approved by Joint Team
  - Framework for International Watershed Coordinating Team is approved by Joint Team
- Post April Process
  - Jurisdiction Governments are briefed by their team
  - Meeting with interested public are held by Governments and JIT members

Montana – Alberta: St Mary & Milk Rivers Water Management Initiative

Joint Initiative Team Meeting #9, Holiday Inn
October 28-29, 2009, Great Falls, Montana

Montana	Alberta
Anne Yates – DNRC (co-Chair)	Robert Harrison – Alberta Env't (co-Chair)
Randy Reed – Milk River irrigator	Roger Hohm – Alberta Agr. & Rural Dvlp't
Dustin de Yong - Office of the Lt. Governor	Ken Miller – Milk River
Don Wilson – Blackfeet Tribe	Tom Gilchrist – Milk River
Larry Dolan – DNRC Technical Team	Brent Paterson – AARD
Paul Azevedo – DNRC (secretariat)	Duncan Lloyd – Oldman River
	Tim Toth – AB Environment (secretariat)
	Sal Figliuzzi – AB Env't Tech. Team

Regrets – Harold "Jiggs" Main, Dave Peterson; Gerry Perry
Observers – John Sanders (DNRC - St. Mary Canal Rehabilitation engineer)

Purpose of Phase 2 Joint Initiative Team

To explore and evaluate options for improving both Montana's and Alberta's access to the shared water of the St. Mary and Milk Rivers, and to make joint recommendation(s) on preferred options to both governments for their consideration and approval.

Meeting Objective(s)

1. Understand implications of completed Tier 1(access to share) model runs and review Tier 2 (better use of share) runs completed.
2. Direct Technical Team on the need for any additional model runs
3. Discuss process for evaluating Options and Criteria to be used. Finalize Evaluation Criteria and Interests
4. Begin discussion of international watershed group
5. Finalize comments on Technical Background Report.

Day 1: October 28 – 8:30 a.m. – 5:30 p.m.

1. Welcome; Administration – Anne Yates; Robert Harrison; Tim Toth, Paul Azevedo
Anne welcomed the Team. Tim reviewed the Action Items from meeting #8 – all except the last 2 are dealt with in the technical presentation. The last 2 are addressed in this meeting.

Communications – Alberta:

- Plans to meet with Alberta Irrigation Projects Association on Nov. 17
- Tom/Ken – updated the MRWCC on progress; MRWCC is reviewing the IFN for the Milk R. to clarify hydrology. Their integrated basin management plan will result in producing conservation objectives, etc. and is of significance. Review of IFN needs is expected to be completed by March 2010.
- The government executive (assistant deputy ministers from Environment and Agriculture) has been apprised of the project; they gave go-ahead for exploring options.

- AB gives a general update to their IJC rep. every few months.

ACTION: Alberta will make a presentation to AB mayors/reeves in November.

Communications – Montana:

- Plans to meet with Milk River Joint Board of Control on November 17;
- Dustin gave a brief update to the St. Mary Working Group at their Oct. meeting. MT plans to give the group a fuller update in January 2010;
- Plans to meet with the U.S. Bureau of Reclamation (USBR) in December;
- Paul updated Team on the cooperative basin study that DNRC and USBR are working on. The 2-year effort will focus on developing a better hydrological model for the St. Mary – Milk River basins. DNRC and USBR are currently drafting the Plan of Study and MOA.

Projects in the Milk R. basin that are planned or underway will be followed and reported on during regular Joint Initiative Team meetings. Larry will advise if the USBR work starts providing different results than that this team is producing (e.g., on hydrology).

ACTION: Each team to provide the Joint Team an update of any projects that are going on in their jurisdiction at each meeting.

JIT members agreed on the need to provide a progress report to the IJC in the near future. Tentative date would be the International Records Meeting scheduled for February 2010. The Team agreed to consider a joint letter from the co-chairs.

Meeting Objectives: Anne reviewed the meeting objectives; it was agreed to add: "Determine what our final product will look like." Anne reviewed meeting #8 Notes and draft meeting #9 agenda; both were APPROVED by the JIT.

2. Discuss product delivered to MT & AB governments – Anne Yates, Robert Harrison

Montana and Alberta have different processes for reviewing and producing documents.

MT Process – MT team will deliver a draft document to the Governor, and then hold a series of public meetings to gather public comments on the draft report. Comments will be summarized and reported back to the Governor so that he can factor them into his decision. MT must address the other issues (water quality, recreation, erosion, municipalities, *etc*.) prior to releasing the draft report for public review/comment. The public will be concerned with these issues so the report must address them at some level.

MT may not be able to resolve these other issues by the end of April because access to the necessary staff could be difficult: federal personnel for structural options, Tribal personnel for water issues affecting Tribal lands, *etc*.

AB Process - Alberta will address these issues at an overview level within its jurisdiction, prior to sending the report to its executive for review.

ACTION: Montana will contact appropriate review personnel and determine if it is feasible to review a draft recommendations report by the April team deadline.

The Joint Team suggested that potential options could be divided into short-term and longer-term ones. However, recommending an option which requires a different operating scenario could not proceed without more detailed work. The Joint Team **agreed** that, at a minimum, the report will recommend water supply options for future study.

3. Modeling activity since September meeting – Larry Dolan and Sal Figliuzzi

Sal provided a review of model runs completed since the September meeting and a review of the model runs that are still being worked on.

Presentation –

Larry and Sal addressed questions for more information that arose out of the October meeting.

1) How are irrigation demands used in the model determined in both jurisdictions?
   - Tech. team looked at daily weather data for the period of record to determine the crop water demand. Daily demands were compiled into 2-week intervals. That portion of the crop water demand not met by rainfall must be met by irrigation deliveries. Complicating factors include winter carry over soil moisture, irrigation efficiencies (irrigation factor), mechanical breakdowns, and other inefficiencies. MT and AB technical staff ensured their assumptions correlated with the different irrigation methods used in each jurisdiction (*e.g.*, Alberta assumes no surface water return flow). Crop mix was specific to each jurisdiction to reflect their current practice.
2) How does a 650 cfs St. Mary Canal perform compared to an 850 cfs canal?
   - An 850 cfs canal would allow MT to divert an additional 12,500 AF in average years, 4,800 AF in 22 driest years, and 1,900 AF in 11 driest years.
3) Is the 237,000 ac.ft. storage in Option 7c live storage available for irrigation or does it include storage for flood-pool safety?
   - All modeling of Canadian Milk River storage options are based on live storage available for irrigation.
4) Do wet and dry years occur in a predictable pattern?
   - No. A wet year may be followed by another wet year, average year, or dry year. Same holds true for average and dry years. There is no regular predictability to the pattern.
5) How often can the U.S. take advantage of increased St. Mary Canal capacities (under Options 1a, 2a and 3)?

Option	Wet Years	Average Years	Dry Years
1a (650 cfs)	≈ 55%	≈ 55%	≈ 45%
2a (850 cfs)	≈ 30%	≈ 21%	≈ 15%
3 (1200 cfs)	≈ 20%	≈ 10%	≈ 2%

4. Review of remaining Tier 1 model results – Larry Dolan and Sal Figliuzzi

Larry and Sal provided a review of the modelling results to date.

1) Modified Sherburne Lake Operations – (Slides #27-32)

- Modifying the operation of Sherburne Reservoir[1] appears to provide very modest benefits to Montana. The modelling result showed a slight decrease in the amount of water delivered to Alberta but does not decrease Alberta's share to below 100% (109% for average years - 101% for 11 driest years).
- The Technical Team experimented with the impact of the modified Sherburne fill curve on: the amount of water moved, the irrigation benefits received, and a combination of the two, but there was no significant impact on irrigation success rates.

2) Letter of Intent Options – (Slides #33-65)

Larry and Sal described what the LOI means and discussed its evolving nature. The LOI is an administrative measure based on deficits, which limits the deficits a jurisdiction can accumulate. It allows each jurisdiction to divert water from the other's entitlement when it is most beneficial – in Montana, lower Milk R irrigators get a greater amount of water earlier in the irrigation season when they need it; for Alberta, the LOI supports Milk R. irrigators in June-September when there may be little natural flow in Milk River. Outstanding water deficits may be repaid before the end of the season, as necessary.

In 1991 U.S. and Canada water administrators did not allow any flexibility administering the LOI, but in 2001 changes were made to make the LOI more flexible and valuable to end-users. The U.S. and Canada continue working to make operations more effective for irrigators in both jurisdictions. Randy suggested that this flexibility should be documented.

As U.S. infrastructure gets better (850 cfs canal + storage), the LOI is needed less and less. However, irrigators do not know what rain the season will bring, so some form of an LOI may still provide management flexibility for both jurisdictions.

The Technical Team modelled two different Letter of Intent (LOI) options:

- Existing 8,000/4,000 acre-foot LOI
- Larger 20,000/10,000 acre-foot LOI

The two LOI options were paired with four possible St. Mary Canal scenarios: 650 cfs canal, 850 cfs canal, 1200 cfs canal, and 850 cfs St. Mary Canal with Lower St Mary Lake storage.

Model runs assumed there would be no active management to reduce deficits, and that accumulated deficits could be balanced up to the end of the calendar year (December 31).

2 (a) Montana Observation for LOI Options with 650 cfs canal

- With existing LOI there are 10 years out of 45 when the U.S. has no surplus flows to pay back the first 4,000 acre-feet of deficit (runoff flows are not high enough). If the pay-back period were extended to December, 31, the U.S. would be able to almost completely pay back deficits in all years.
- For the larger LOI, the U.S. would not always be able to accumulate the entire 20,000 acre-feet deficit. There is not enough water to bring across in dryer years. If the pay-back

[1] Modified Rule Curve – after reaching FSL about July 1, gradually release flow to reach winter level rather than trying to maintain FSL until October 1.

were extended to December 31, the U.S. would not be able to pay back the deficit in 8 out of 45 years.

2 (b) Montana Observation for LOI Options with 850 cfs canal

- With existing LOI there are 12 years out of 45 when U.S. has no surplus flows to pay back first 4,000 acre-feet of deficit, plus five additional years of only partial pay-back. If the pay-back period were extended to December 31, the U.S. would be able to pay back deficits in all but 4 years.
- For the larger LOI, U.S. is able to accumulate the entire deficit in only about half of the years. If pay-back period were extended to December 31, the U.S. would not be able to fully pay back the deficit in 10 out of 45 years.

2 (c) Montana Observation for LOI Options with 1,200 cfs canal.

- With existing LOI there are 19 years out of 45 when U.S. has no surplus flows to pay back first 4,000 acre-feet of deficit, plus six additional years of only partial pay-back. If the pay-back period were extended to December 31, the U.S. would be able to completely pay-back the deficit in all but 5 years.
- The U.S. is able to accumulate the entire deficit for larger LOI in a little more than half of the years. If pay-back period were extended to December 31, the U.S. would not be able to fully pay back the deficit in 15 out of 45 years.

2 (d) Montana Observation for LOI Options with 850 cfs St. Mary Canal and Lower St Mary Lake Storage

- Combined LOI and Lower St. Mary Lake storage gains are additive for total amounts of water diverted.
- For irrigation deliveries, gains are somewhat additive but primarily attributable to Lower St. Mary Lake storage.

2 (e) Alberta Observation for LOI with 850 cfs St. Mary Canal with Lower St. Mary Lake Storage

- Alberta access to St. Mary Flows are reduced on average by 22,000 ac-ft
- Deficit greater than 4" increase from about 1 in 45 years to 2-3 in 45 years for Raymond Irrigation District.
- Alberta access to flow of Milk River is increased on average by up 8,000 ac-ft.
- Milk River irrigation deficits greater than 4" decrease from 36 without the LOI to 21 with the existing LOI and to 5 with the expanded LOI.
- Without active management, water accessed by both MT and AB Milk River irrigators during dry years can involve the diversion of Canadian St. Mary entitlements.

2 (f) Alberta Observations for LOI Options with ALL canal sizes.

- LOI significantly reduces the number of deficits greater than 4 inches for Alberta Milk River irrigators.
    - No LOI – 36 occurrences of deficits greater than 4 inches.
    - 8,000/4,000 acre-foot LOI - 21 occurrences of deficits greater than 4 inches
    - 20,000/10,000 acre-foot LOI – 5 occurrences of deficits greater than 4 inches
- LOI increases the number of deficits greater than 4 inches for the Raymond Irrigation District from 1 to about 2 occurrences. There is generally less than 1000 acre-feet reduction in the Southern Tributary diversions.

- For existing LOI there are a number of years (about 5) where Montana has no surplus flows to pay back the first 4,000 acre-feet of deficit. While extending the pay-back period to December 31 allows the U.S. to pay back the first 4,000 acre-feet in most years, the 4,000 acre-feet deficit that is traded would involve diverted Canadian St. Mary Diversion varying from about 1,000 to 7,000 acre-feet.
- For the larger LOI, even if the pay-back period were extended to December 31, there would be 8 years out of 45 when the deficit was not entirely paid back and would involve the diversions of Canadian St. Mary Entitlements (up to 20,000 acre-feet) into the Milk River basin.

2(g) Alberta perspective on LOI Options.

- Canadian St Mary River entitlements are fully allocated.
- Under "historical" operations, the U.S. always had surplus deliveries to Canada in the St. Mary River.
- LOI allows the U.S. to divert more than its share during spring months and to accumulate a deficit (with half of this amount going to Canadian Milk River irrigators).
- Based on "historical" operations, almost certainly there would be sufficient U.S. surplus deliveries to counterbalance deficits under the LOI.
- Under options now being considered, it is unlikely the U.S. will have offsetting surplus deliveries during dry years.
- Therefore in dry years the LOI would either:
    - Involve the diversion of Canadian St. Mary River entitlements, or
    - Allow Alberta Milk River irrigators limited access to U.S. St Mary entitlements in exchange for the U.S. accessing some Canadian entitlements in the spring.

Summary – With the current LOI and modelled 850 cfs canal, the system is likely quite close to the optimum LOI volumes. Larger LOI volumes require active management to ensure deficit is able to be repaid.

3) Balancing Period Options – (Slides #66-72)

Larry explained balancing periods – a way for an upstream entity to control both the amount and timing of flow to manage its water. It is used so that the upstream country doesn't have an advantage over the downstream country. A country needs to have a credit before it can draw on that credit. With increasing infrastructure the balance period becomes less important. A country can accumulate a surplus or a deficit, so that at year-end the country can pay back that deficit as needed. Balance periods include amounts identified for in-stream flow constraints.

The Technical Team modelled two different balancing period options to understand how changing the current 15-16 day balancing period would affect access to flows. Both options assumed an 850 cfs canal capacity. The Technical Team noted that information presented in slides #69-72 was incorrect due to an error in the corresponding model runs.

Under the current 15-16 day balancing period, the upstream county does not receive credit for surplus flows delivered. However, deficit deliveries have to be paid back in the next 15-day period.

The Technical Team modelled a seasonal balancing period (March 1 – October 31) and an annual balancing period (November 1 – October 31). The model runs allowed the upstream county to build up a credit for surplus deliveries. For example, under the annual balancing option, the U.S. would build up surplus credits on the St. Mary River all winter.

3 (a) Alberta Observation for Changes in Balancing Periods

- Alberta access to St. Mary Flows is reduced on average by 15,000 ac-ft.
- Deficits greater than 4" increase from about 1 in 45 years to 2-3 in 45 years for Raymond Irrigation District.
- Alberta access to flow of Milk River water is increased on average by up 14,000 ac-ft
- Milk River irrigation deficit greater than 4" decrease from 36 with bi-monthly balancing to 4-5 in 45 years with seasonal and annual balancing period.
- Annual balancing is based on water year (Nov 1- Oct 31) and requires active management to ensure balance achieved.
- For annual balance period, in-stream flow is a constraint on how much water can be taken. This prevents one country from drying up a river.

After further discussion about the impact of changes in balance period, the following four model runs were requested.

ACTION: Modelling Team to run the following variations:

- 850 cfs St. Mary Diversion canal, IFN on St. Mary River in Canada, seasonal (April 1-Oct.31) independent balancing, Canadian Milk River irrigators access entire Milk R. flow (new #16a)
- As above, but annual water year (Nov.1 – Oct.31), independent balancing of entitlements on St. Mary River and Milk River (new #16b)
- As option #16a above, but Canadian Milk River irrigators access entire Milk River natural flow and U.S. St. Mary River diversion flow (#16c)
- As option #16a above, but Canadian Milk River. irrigators access entire Milk River. natural flow and U.S. St. Mary R. diversion flow, annual water year independent balancing of entitlements, and 137,000 ac-ft Fresno live storage (#16d)

4) Alberta Milk River Storage Reservoir– (Slides #73-80)

The Technical Team modelled four different scenarios of Alberta developing a storage reservoir on the Milk River in Alberta. Three of the scenarios assumed the reservoir would store Alberta's share of Milk River water for the sole use of Alberta. One scenario assumed the storage would be shared between Alberta (Milk River flows) and Montana (Milk River and St. Mary canal flows).

(a) 122,000 acre-foot reservoir for Alberta's use only.
(b) 188,000 acre-foot reservoir for Alberta's use only.
(c) 237,000 acre-foot reservoir for Alberta's use only.
(d) 237,000 acre-foot reservoir shared between Alberta and Montana.

4 (a) Key Findings for Alberta Milk River Storage Project Option

- The Alberta storage project could allow Canada to use most, but not all of it share of Milk River water.
- Would permit up to a total of 26,400 acres in Canadian Milk basin to be irrigated to Alberta irrigation standard.

- Without U.S. participation, the Alberta storage project could reduce average U.S. irrigation deliveries about 6,000 acre-feet
- With U.S. participation Alberta storage project could increase average U.S. irrigation deliveries by about 11,000 acre-feet

In any Alberta Milk R. storage project, the intent would be to release water slowly over a number of years. Filling any reservoir would take a long time or a large event.

5. Review of Tier 2 model results – Larry Dolan and Sal Figliuzzi

Larry and Sal provided an overview of Tier 2 model results:

1) Off-Canal Storage on the St. Mary Canal Options– (Slides #81-88)
The Technical Team modelled the potential benefits of constructing hypothetical off-canal storage along the St. Mary Canal. The team modelled hypothetical reservoir sizes of 5,000 acre-feet and 10,000 acre-feet. The Technical Team noted that slide #82 contained very small negative values (i.e., -800 ac-ft relative to a 225,000 ac-ft volume diverted). The Technical Team felt the negative values were an artifact of modelling.

1 (a) MT and AB Observation for St. Mary Canal Storage Options

- Off-Canal Storage on the St. Mary Canal Options would have little effect on the total annual amounts of water diverted by the U.S. through the St. Mary Canal.
- The maximum potential benefit is about 7% - 8%., but relative to a base of about 420,000 ac-ft, there is no significant benefit to downstream MT irrigators. Canal size appears to be a limiting factor on the viability of these options.
- By changing the timing of when some diverted St. Mary River water is released to the Milk River, these options would provide modest benefits to irrigation deliveries downstream.
- These options would likely have little effect on flows received by Canada on the St. Mary River.
- These Options would have not much impact to downstream Canadian access or irrigation in the Milk River, including Saskatchewan.

The Technical Team listed the Tier 2 modelling runs that were requested at the last meeting, to be completed for the current meeting:

- Option 16c and 16 d – Additional balancing periods
- Option 18a – Shared storage in Fresno Reservoir
- Option 18b – Shared storage in St. Mary Reservoir
- Option 19a-19d – Shared St. Mary Canal transporting Canada water
- Option 20a-20d – Shared St. Mary canal transporting U.S. water
- Option 21a-21c – Maximum water supply
- Option 22 – Storage on Ft. Belknap Reservation

Option #8 was also to have been rerun — shared Alberta Milk R. storage (store U.S. water when it is available), but without storing Ft. Belknap water. Ft. Belknap water must pass the Eastern Crossing.

Day 2: October 29 – 8:00 a.m. – 3:00 p.m.

6. Recap of Day 1 Learnings – Anne Yates and Robert Harrison

Technical Team thoughts and general JIT discussion –

- Lower St. Mary Lake storage option provides good benefits to MT, and does not affect AB much (about 5000 ac-ft)
- 850 cfs canal option will provide benefits… 850 cfs canal plus Lower St. Mary Lake will provide the U.S. almost 100% of its share on St. Mary River in dry years.
- LOI – are modest benefits by somewhat expanding the LOI beyond current levels in certain (wet) years, but there is a danger of increasing deficits without being able to pay them back. That is, the current LOI is probably the upper limit on how much St. Mary water can be brought over for use on Milk River Alberta. It's about 4,000 acre feet.
- Balancing periods – may be some potential (valuable for MT but allows AB to use more water from Milk R.) so needs a further look.

No single option reviewed so far resolves all multi-jurisdictional concerns. Some administrative options may not provide much additional water, but do provide additional stability and reliability of supply. Modifying the LOI increases access to water, but leaves an issue with payback of deficits at the end of the irrigation season. Moving Canadian water from St. Mary River to Milk River is an issue for Alberta, as it would contravene St. Mary R. irrigator's legal (licensed) rights to water. Only the storage options seem to provide most benefits on Milk River to expand irrigation (for Alberta, either a Milk R. storage project or storage in Fresno Reservoir). Only storage meets the acceptable number of failures (to the AB standard) for AB Milk R. irrigators because there is not enough (surplus) water to trade across the border. Alberta Milk River user's current access to water can barely provide a stable supply to maintain the existing irrigated acres.

Robert summarized the physical and administrative options:

(i) 850 cfs canal; increase Lower St. Mary storage + add in LOI → access to nearly full shares even (especially) in dry years. The combination provides the reliability/security desired by both jurisdictions.

(ii) Volume of water of interest to AB Milk R. can be provided by an administrative option if there is no storage. AB has an issue only if Canadian St. Mary water is taken to support Canadian Milk R. irrigators as St. Mary Irrigation District has a right to a certain volume.

An additional comment was that a short-term 'win' which doesn't have major costs is the rehabilitation of the U.S. St. Mary Diversion Canal, but since it involves multiple jurisdictions and the U.S. Federal Government, it will take time.

7. Discuss need of additional model runs – All

JIT members and the Technical Team discussed the need for additional model runs. Montana requested a model run that modified how the 1921 Order is implemented, with the intent to have both jurisdictions access an equal volume of water. Specifically, below 666 cfs maintain the current share (75%AB:25%MT), above 666 to 1332 cfs reverse the share (75%MT:25%AB), and above 1332 cfs share the volumes equally. There will be two issues: the amount of water and the access to that water. Model runs will be done for both rivers.

This became an ACTION to run:

a. **Option 23a -** 650 cfs canal (Base Case) with modified 1921 Order
b. **Option 23b –** 850 cfs canal with modified 1921 Order
c. **Option 23c** – 850 cfs canal, 8,800 ac-ft storage on Lower St Mary Lake (25 cfs IFN below LSML) and modified 1921 Order
d. **Option 23d** – 850 cfs canal, 8,800 ac-ft storage Lower St. Mary L., 237,000 ac-ft. storage on Can. Milk R. and modified 1921 Order

The JIT also discussed hypothetical (mathematical) runs and blended model runs. The combinations discussed included:

- Annual balancing, 850 cfs canal, Lower St. Mary reservoir; 83,000 ac-ft Fresno Reservoir (already done except for adding Lower St. Mary Lake)
- As above, but with 137,000 ac-ft Fresno storage
- As above, with 237,000 ac-ft Milk R. AB storage (for AB use only)
- Shared canal run, with 137,000 ac-ft Fresno – with discretion given to co-Chairs to decide after #19a-#19d is complete (i.e., either the 'a', 'b', 'c', or 'd' sub-option)
- Efficiency run: irrigation district efficiency increased (from 35%) to 50% and non-district efficiency (from 40%) to 60%, with 850 cfs canal, and with the LOI and without LOI.

8. Discuss process to evaluate options and finalize evaluation criteria to be used – Robert Harrison and Anne Yates

Robert led the group through a suggested process for evaluating the JIT's proposed water sharing options by reviewing the handout, "SUGGESTED PROCESS TO EVALUATE AND SCREEN OPTIONS – Draft for Discussion" (attached to Notes). The purpose is to evaluate and screen all options to obtain the preferred ones for recommendation to the Governor and Premier.

This is a two-step process – first, use detailed quantitative criteria to identify the entitlement (share) and irrigation reliability; and second, use qualitative criteria (experience, background and judgment) to illustrate any opportunities that may increase the option's rank. The quantitative criteria will likely miss some of the experience/judgment that is important. The criteria will identify options that should be removed from further consideration.

Anne led the JIT through a discussion on the suggested evaluation criteria (Criteria A – Numerical). Alberta and Montana use different measures to indicate irrigation reliability – Alberta uses a crop water deficit of greater than 4 inches once in a 10-year period to indicate failure. Montana uses finer criteria, the average delivery amount (i.e., supply) in inches, over the period of record.

ACTION: Montana to identify evaluation criteria other than the AB standard (a 4" or more shortfall once in 10 years) to be used to evaluate irrigation performance in Montana.

The JIT then discussed the Criteria B (Judgement [Narrative]) to get a better understanding of the proposal.

- Montana felt that criterion #2 ("Does the option increase or decrease water quality [chemistry]?") may not be useful because it will not affect the number of shortages greater than 4 inches.

- Team members proposed adding criteria that measures delivery of water in inches. This would be a measure of irrigation reliability– weighted average based on acres. Does the option increase or decrease reliability of supply?
- Alberta will evaluate options based on the number of irrigation shortages experienced by:
  - St. Mary Project (Alberta) – total
  - Raymond Irrigation District
  - Milk River Project (Alberta)

As a result of the discussion, an additional criterion was added:

- #12 Does the option increase or decrease water supply reliability?

There was discussion about bank loss on the Milk R. due to erosion when the river is used as a channel to convey St. Mary R. water. Large events such as high spring flows and increasing flows for a longer period of time will increase erosion. The costs to address these impacts include armouring or moving bridge abutments, protecting banks, moving fences, etc.

ACTION: Alberta to locate communications between Canada and the U.S. indicating Canada's request for compensation by a quantity of water, for allowing the U.S. to use the channel of the Milk River in Canada to convey U.S. St. Mary diversion water to eastern MT.

JIT members **agreed** to accept the proposed process for evaluating options against the evaluation criteria.

9. Explore framework for an international watershed group – All

The JIT discussed a proposal to recommend the formation of an international watershed group tentatively titled, *"Joint International Water Management Board of Control"*. The purpose of the group would be to improve water management in each jurisdiction through working together in a flexible, cooperative and coordinated fashion (attached to Notes).

Larry provided the group with a brief overview of how the U.S. Bureau of Reclamation currently operates the U.S. St. Mary canal.

- Review temperature and precipitation data to forecast flows.
- Make day to day management decisions based on interim flow calculations.
- Make adjustments to meet 15/16 day balancing requirement.

There was discussion and thoughts about what the new group could undertake –

- They would not attempt any detailed watershed management planning.
- They could provide information to help USBR operators make decisions to operate the canal gates on a real-time basis, decide if/when to deal with flow deficits and credits; in general be "flexible" in daily, seasonal and annual water management.
- Flexibility is meant to ensure operations would be made to best manage the shared water and meet apportionment requirements.
- This group would link to watershed planning and management agencies in each jurisdiction, and could have authority to deviate from the current Agreement.

The JIT was clear that they had no intention of supplanting the current technical personnel operating the system. Day to day operation would remain with the experts. The watershed group

would provide input on how to integrate irrigation demand into operations. They believed it was important to have the group look at the overall picture of both watersheds and be able to report to elected officials in each jurisdiction.

The JIT members felt the proposed name needed to be change to something conveying less authority. They also discussed the benefits and drawbacks of forming under the International Joint Commission (IJC). The potential membership and role of the group was also discussed.

ACTION: Joint Team to explore the benefits of having a new group reporting to the IJC. Secretariat to provide information about IJC. Robert will provide next draft.

10. Finalize Background Technical Report – All

The JIT reviewed the status of the Background Technical Report. Tim noted that the contract with the writer/editor expires on November 30, 2009.

ACTION: Ensure a preface is added to the draft Technical Background Report, containing what this document is and why it exists.

The JIT **agreed** to accept the report with the editorial changes identified, and with the above preface included.

11. Plan for completion of Initiative – Anne Yates and Robert Harrison

Anne reviewed the milestones needed for successful delivery of the Initiative's recommendations for an April 2010 completion date. See attachment, "MT-AB Water Management Initiative – Meeting results needed to complete the Initiative" (draft document, attached to Notes). Virtually all of the milestones to date have been met.

ACTION: Montana co-chair will develop a suggested format for the recommendations report.

12. Meeting review and plan for next meeting – Anne Yates and Robert Harrison

The JIT reviewed and confirmed the actions from the meeting. They discussed and agreed upon the objectives for meeting #10, and agreed on the following meeting schedule:

January 14-15, 2010 (Thurs.–Fri.). 2010 – Great Falls
February 17-18, 2010 (Wed.–Thu.) – Lethbridge
March 23-24, 2010 (Tues.–Wed.) – Great Falls
April 21-22, 2010 (Wed.–Thu.) – Lethbridge

The meeting was adjourned at 3:05 p m.

SUGGESTED PROCESS
TO EVALUATE AND SCREEN OPTIONS
Draft for Discussion

Purpose:

To evaluate all options and screen these options to obtain the preferred options for recommendation to the Governor and Premier.

Goals:

1. The Joint Initiative Team understands each option.
2. The Joint Initiative Team eliminates options from further consideration.
3. The Joint Initiative Team recommends preferred options to the Governor and Premier.

Process:

Two-step process that involves ranking options using Key Criteria followed by reflection on options using Secondary Criteria.

Step 1:

Involves detailed quantitative evaluation and ranking of all options using the Key Criterion of Water Supply and Irrigation Reliability. All option will be ranked in five separate lists.

The first and second lists will be a ranking of options based on increasing percent of share received by Montana and Alberta. The third and fourth lists will be a ranking of options based on decreasing number of irrigation deficits greater than 4 inches in Montana and Alberta.

Step 2:

Involves the qualitative consideration of the Secondary Criteria using experience, background and judgment.

Each option that was ranked low or eliminated in Step 1 will be reviewed considering the Secondary Criteria to determine if the option delivers very well on any of the Secondary Criteria and should therefore be retained for further evaluation.

Conversely, each of the options that received high ranking in Step 1 will be reviewed considering the Secondary Criteria to determine if the option delivers poorly on any of the Secondary Criteria and should therefore be eliminated from further evaluation or additional information needs to be gathered.

Will be 4 lists: 2 for AB
2 for MT

DRAFT

MT-AB Water Management Initiative
Suggested Evaluation Criteria

CATEGORY A CRITERIA - Numerical Ranking

Criterion 1: *Amount the option increases access to the percentage entitlement of water available?*

A. St. Mary River
B. Milk River

This criterion is an assessment of percentage increase in access to total shares to which each country is entitled as compared to the base case. The criterion would be measured based on increase in entitlement share percentage for each the Milk and St. Mary Rivers over the entire 45-year modeling period.

The options are constrained under the model such that a jurisdiction cannot receive less than 100% of its entitlement under new options where the base case percentage received is greater than 100%.

Criterion 2: *Number of years with crop-water requirement shortages of over 4 inches.*

A. Alberta
B. Montana

CATEGORY B CRITERIA – Judgment (Narrative)

1. *Does the option increase or decrease the security of municipal water supplies?*
2. *Does the option increase or decrease water quality (chemistry)?*
3. *Does the option increase or decrease the rate of sediment deposition in Fresno Reservoir over time?*
4. *Does the option increase or decrease the rate of bank erosion and loss of adjacent lands along the Milk River in Alberta?*
5. *Is the option effective in addressing the special circumstances associated with low water years?*
6. *Does the option increase or decrease the amount of water available for in-stream flow?*
7. *Does the option increase or decrease recreational opportunities?*
8. *Does the option have economic potential?(Capital cost and O&M)*
9. *Does the option have any implementation barriers?*
10. *Does option increase or decrease management flexibility?*
11. *Does the option provide the ability to manage in the event of St. Mary Canal failure before reconstruction is complete?*

add #12. Does the option increase or decrease water supply reliability?

DRAFT

MT-AB Water Management Initiative
May 09 Evaluation Criteria Mapped to Suggested Evaluation Criteria

WATER SUPPLY IMPACTS

1. *Does the option increase or decrease the volume of water available to each jurisdiction?*

   Suggested Evaluation Criterion (SEC) A.1

2. *Does the option increase or decrease the security of municipal water supplies?*

   SEC B.1

3. *Does the option increase the number of acres provided "full service" irrigation (need to define)?*
   - Percent of time
   - # of acres

   SEC A.2.

4. *Does the option increase or decrease the number of acres receiving full service irrigation per unit of water per day?*

   SEC A.2.

5. *Does the option reduce or increase water shortages to current irrigated acres?*

   SEC A.2.

6. *Does the option increase the length of the irrigation season?*

   This concept is captured in previous criteria.

   SUGGESTION TO TEAM: DELETE

7. *Effects on water supply after Tribal issues are met.*

   This criterion is internal to MT.

   SUGGESTION TO TEAM: DELETE

8. *Is the option effective in addressing the special circumstances associated with low water years?*

   SEC B.5

WATER QUALITY IMPACTS

1. *Does the option improve or reduce water quality?* SEC B.2
2. *Does the option increase or decrease the volume of sediment entering the Milk River?* Although not specifically referenced, it would be part of SEC B.4.

3. Does the option increase or decrease the rate of sediment deposition in Fresno Reservoir over time? SEC B.3.

4. *Does the option increase or reduce the rate of bank erosion and loss of adjacent lands along the Milk River in Alberta?* SEC B.4.

INSTREAM FLOW IMPACTS AND OTHER IMPACTS

1. *Does the option increase or decrease the amount of water available for in-stream flow?*
   - *Number of days in-stream flow objective is achieved?*
   - *Numbers of days Water Conservation Objectives are achieved?*

   SEC B.6.

2. *Does the option decrease the number of days winter flows are reduced to zero?* Can be evaluated under SEC B.6.

   SUGGESTION TO TEAM: DELETE

3. *Does the option expand or decrease recreational use?*

   SEC B.7.

4. *Effects on habitat*
   - *Improve or reduce available habitat?*
   - *Improve or reduce quality of habitat?*
   - *Improve or reduce area of habitat?*

   SUGGESTION TO TEAM: DELETE #4 "EFFECTS ON HABITAT" BECAUSE WE DO NOT HAVE THE EXPERTISE TO EVALUATE THIS CRITERION AS PART OF THIS PROCESS. THIS CRITERION COULD BE FURTHER EVALUATED AS PART OF A SUBSEQUENT PROCESS.

IMPLEMENTATION IMPACT

1. *Is the option economically feasible?*

- *Cost (capital and O&M) versus benefits (economic)*
- *Costs incurred by which jurisdiction and which group of stakeholders within each jurisdiction.*
- *Benefits received by which jurisdiction and which stakeholders within each jurisdiction.*

SUGGESTION TO TEAM: REWORD CRITERION AS FOLLOWS. DOES THE OPTION HAVE ECONOMIC POTENTIAL?

Revision needed because "economically feasible" can have a very specific meaning in the U.S. We are not performing such a detailed analysis.

SEC B.8.

2. *Ease of implementation.*
   - *Legislative*
   - *Political*

- *Financial*
- *Treaty/Order/LOI – Can the option be implemented within the current* ***Treaty/Order or does the option requiring opening the Treaty/Order***

MT proposes to evaluate political, legislative, financial, and legal issues internally after the Report is complete.

SEC B.9.

OPERATIONAL IMPACT

1. *Does option increase or decrease management flexibility?*
   - *Increase or decrease communications between jurisdictions and between water users?*
   - *Increase or decrease operational flexibility and ability to adapt to changing circumstances?*

   SEC B.10.

2. *Does the option provide the ability to deal with potential service disruptions associated with reconstruction of St. Mary Canal? Construction may last 10 years.* Encompassed by criterion below.

3. *Does the option provide the ability to manage risk of failure before reconstruction is complete?*

   SEC B.11.

draft

Montana-Alberta Water Management Initiative
Joint International Water Management Board of Control
Thoughts for Discussion

Purpose
To improve water management in each jurisdiction through working together in a flexible, cooperative and coordinated fashion.

What/When
1. Manage flows to meet an agreed-to "flexible apportionment" arrangement:
    a. Making decisions to operate water control gates on a real-time basis;
    b. Dealing with flow deficits and credits, meeting monthly to decide whether and how to address any outstanding variances in apportionment;
    c. Creating a vision and description of what 'flexible' means; 'flexible' will be evaluated annually and revised if necessary.
2. Determine if 'flexible apportionment' is working. Manage in an adaptive fashion and review every 3-5 years.
3. Link to watershed planning and management agencies within each jurisdiction.

Where Affected infrastructure:
1. Currently existing: Sherburne reservoir, and the St. Mary Diversion canal,
2. Potential future: Lower St. Mary Lake and Milk River dam in Alberta.

Givens
1. All infrastructure operations will comply with safety rules in each jurisdiction.
2. Water mastering responsibility will remain within each jurisdiction.

How
- Board members appointed by Premier of Alberta and Governor of Montana
- The Board will have two committees reporting to it: a Secretariat and Technical team whose members will be drawn from each jurisdiction
- Water management information such as flow, volumes needed, *etc.* is required
- An annual report is required to review operations and recommend changes based on how well 'flexible apportionment' objectives were met
- Budget for travel and honorarium is needed

Who
The Joint Board of Control applies to Canada (Alberta) and the U.S. (Montana). Members are from two groups: (1) Provincial / State officials, (2) Local water users
- Need for "Advisory specialists": Provincial/State technical specialists, and Provincial/State infrastructure operators
- Potential role for Observers: IJC members; Accredited Officers

NOTE: A document describing 'flexible apportionment' is needed, written so that infrastructure operators are not bound by inflexible rules.

MT-AB WATER MANAGEMENT INITIATIVE

Meeting results needed to complete the Initiative

Meeting

- September-'09
  - Base Case is reviewed and understood, and Tier 1 model results are complete ("better access to share")
  - Tier 2 options for modeling are discussed and finalized ("better use of share received")
  - Timeline to complete report by April, 2010 is reviewed and finalized
- October-'09
  - All outstanding issues with Tier 1 model runs are resolved
  - Tier 2 model run results are reported
  - Additional models runs (combinations of Tier 1 and 2) are identified and finalized
  - Evaluation Criteria and Interests needed to evaluate options are finalized
  - Draft framework for potential International Watershed Coordinating Team is outlined
  - Technical Background report is finalized
- December-'09
  - All Tier 1 model runs are completed
  - All outstanding issues with Tier 2 model runs and combination model runs are resolved
  - Prioritized list of models runs for final consideration/fine tuning is finalized
  - Operations / maintenance and capital cost estimates for options are complete
  - Final "Recommendations report" format is finalized
  - Approval process for Recommendations Report is presented
  - Presentations have been given to stakeholder groups
- January-'10 – Start building group consensus
  - Evaluation Criteria is applied to all remaining options
  - Preliminary recommendations for Recommendations Report are developed by Joint Team
  - Draft framework for potential International Watershed Coordinating Team is completed to 60% level
- February-'10
  - 1st Draft of Recommendations Report is reviewed by Joint Team
- March -'10
  - 2nd draft of Recommendations Report reviewed and comments are finalized by Joint Team
  - Draft framework for potential International Watershed Coordinating Team is completed to 90% level
- April -'10
  - Final Recommendations Report is approved by Joint Team
  - Framework for International Watershed Coordinating Team is approved by Joint Team
- Post April Process
  - Jurisdiction Governments are briefed by their team
  - Meeting with interested public are held by Governments and JIT members

Montana – Alberta: St Mary & Milk Rivers Water Management Initiative

Joint Initiative Team Meeting #10, Ramada Hotel
December 3-4, 2009, Lethbridge, Alberta

Montana	Alberta
Anne Yates – DNRC (co-Chair)	Robert Harrison – Alberta Env't (co-Chair)
Dustin de Yong – Office of the Lt. Governor	Brent Paterson – AB Agriculture & Rural Dev.
Randy Reed – Milk River irrigator	Ken Miller – Milk River
Dave Peterson – City of Havre	Tom Gilchrist – Milk River
Harold "Jiggs" Main – Ft. Belknap Tribe	Gerry Perry – Oldman River
Paul Azevedo – DNRC (secretariat)	Duncan Lloyd – Oldman River
Don Wilson – Blackfeet Tribe (day 1 only)	Tim Toth – AB Environment (secretariat)
Larry Dolan – DNRC Technical Team	Sal Figliuzzi – Alberta Env't Tech. Team

Observers – Roger Hohm – AB Agriculture & Rural Development, John Sanders (DNRC - St. Mary Canal rehabilitation engineer), Laurent Conard (AENV modeller, Dec. 3)

Purpose of Phase 2 Joint Initiative Team

To explore and evaluate options for improving both Montana's and Alberta's access to the shared water of the St. Mary and Milk Rivers, and to make joint recommendation(s) on preferred options to both governments for their consideration and approval.

Meeting Objective(s)

- Understand implications of completed runs and get closure on all model run results
- Finalize process for evaluating model Options
- Start to identify runs that can be eliminated from further evaluation

Notes

Day 1 – <u>Dec. 3 – 8:30 a.m. – 5:00 p.m. Scenic Room</u>

1. Welcome; Administration – Robert; Anne; Tim, Paul

Robert welcomed the Team.

Paul advised that he was unable to complete the Notes from meeting #9 (October 28-29), but will do so soon. Paul reviewed Action items from JIT meeting no.9 – Actions #1-5 and #14-16 are complete or being addressed today; Action #6 – Prepare an update on the Initiative for the IJC's international records meeting in Feb. 2010, is incomplete; Actions #7-10 are addressed through Sal and Larry's presentation today; Action #13 - Communications between U.S. and Canada on request for compensation for use of the Milk R. channel — Sal is compiling the history of communications and will have them ready for the next meeting.

[1] ACTION: Sal to complete compiling communications between the U.S. and Canada about the request for compensation for use of the Milk R. channel to convey U.S. St. Mary R. diversion water.

Tim reported that the Technical Background Report is complete and provided paper and digital copy to MT.
[2] ACTION: Secretariat to compile a list of parties interested in the Technical Background Report and provide them copies.

Communications
Montana – are meeting with their constituents on the Highline and representatives in the U.S. Bureau of Reclamation next week; are briefing the Governor's office in a series of three meetings (the first meeting is complete); has invited Tribal Council leadership to meet.

Alberta – briefed their executive (Assistant Deputy Ministers of Agriculture, and of Environment), who have supported continuing to explore all options; met with the leadership of the Agriculture Irrigation Projects Association (AIPA) (4 irrigation districts, 21 members); the Press attended and reported on the initiative. The presentation to AIPA is on Environment's SharePoint site. Robert and Brent briefed Broyce Jacobs, MLA for Cardston-Taber-Warner, and the Alberta government official responsible for this file.

[3] ACTION: Alberta to send Montana a copy of the Terms of Reference developed for the Milk River, AB integrated watershed management plan study.

Agenda items 2 and 3 are supported by Sal and Larry's PowerPoint presentations.

2. Modelling activity since October meeting – Larry Dolan and Sal Figliuzzi

Larry and Sal presented the modelling activity completed since last meeting and described the differences in the various runs. They answered questions from the Joint Team to clarify details. Decisions made by the co-Chairs on the model runs since meeting #9 were discussed.

The implications of securing a water supply to support the existing 8000 ac. in the AB Milk R. basin were discussed. Larry noted that there were still some runs to be completed. Additional description of the runs is contained in the presentation.

[4] ACTION: The Technical Team will model the impacts of securing a water supply for the existing 8000 ac. in the AB Milk R. basin. This will be comparable to existing runs #19 and #20.

3. Review remaining model runs – Larry and Sal

Larry and Sal reviewed the options modelled since last meeting. The Joint Team questioned the relationship between increased flows in the Milk R. and the potential for erosion. That component has not been analyzed. Summary information below is taken from the presentation slides.

Changing balancing periods
Extending the balancing period to repay deficits allows jurisdictions access to a larger portion of their entitlement share. This creates a credit for a jurisdiction for water that crosses the boundary into the other jurisdiction during the non-irrigation season and when flows are higher than can be diverted, and then allows that jurisdiction to draw on that credit later in the season.

Longer balancing period –

Montana findings – summary

- MT would have access to about 88% of its share on average under seasonal, and about 92% on average under an annual balancing period
- Longer balancing periods would provide additional water to MT irrigators, especially under the annual balancing period where, during the driest years, the U.S. would have access to 98% of its share, an additional 10,000 - 16,000 ac.ft might be provided
- Alberta's access to water for its Milk R. irrigators would increase with longer balancing periods too; this needs to be considered when assessing overall benefits to MT

Alberta findings – summary

- AB Milk R. irrigators would have access to a larger percentage of their Milk R. share under seasonal and annual balancing periods
- Access to all flow on the Milk R. (natural flow and U.S. diversions) under annual balancing would substantially increase AB's access to its share and allow irrigation expansion to 9500 acres, while still meeting AB irrigation failure criteria
- In the St. Mary basin, annual balancing would give the U.S. greater access to its share of St. Mary R. and reduce the St. Mary flow into AB by 28,000 ac.ft. on average, and by 10,000 ac.ft. during dry years
- An annual balancing period would increase the number of deficits greater than 4" from 1 to 2-3 events in the Raymond ID

Model runs for Lower St. Mary Lake storage and increased Fresno Reservoir storage under longer balancing periods have yet to be completed and analyzed. The trade-off between additional storage on Lower St. Mary Lake vs. increasing the balancing period has to be analyzed.

Alberta Participation in U.S. St. Mary Canal Rehabilitation with Canadian St. Mary River Water

Montana key findings –

- AB participation in the U.S. St. Mary Canal rehabilitation and corresponding development of 5000 - 10,000 additional acres of Alberta Milk R. irrigation would have a small effect on water deliveries to U.S. Milk R. irrigators – if AB used Canadian St. Mary R. water as supplemental supply, about 2000 ac.ft. less (on average) would be delivered to the U.S. during the driest years
- Reductions to the water supply for U.S. irrigators would be more substantial without the Letter of Intent

Alberta key findings – Milk R. basin

- To irrigate 13,000 – 18,000 acres in Albert Milk R. basin to AB standards would require an average diversion of about 9000 – 17,000 ac.ft. of Canadian St. Mary entitlements and over 25,000 ac.ft. during dry years

Alberta key findings – St. Mary R. basin

- While irrigating 13,000 – 18,000 acres in the Milk R. basin would require an average of 9000 – 17,000 ac.ft. of Canadian St. Mary entitlements, St. Mary Project diversions would be reduced by up to 6000 ac.ft.
- The diversion of Canadian St. Mary entitlements to irrigate 13,000 – 18,000 acres in the Milk basin would cause irrigation shortfalls >4" to increase from 2 to 4 occurrences in the Raymond ID and to increase from 1 to 2 or 3 occurrences in the Magrath ID

Alberta Participation in U.S. St. Mary Canal Rehabilitation with U.S. St. Mary R. Water

Montana key findings –

- AB participation in U.S. St. Mary canal rehabilitation with development of an additional 5000 – 10,000 acres of new Milk R. irrigation using U.S. share of St. Mary R. water would reduce water deliveries to U.S. irrigators by 7000 – 11,000 ac.ft. on average, and by 24,000 – 35,000 ac.ft. during the driest years
- Without the Letter of Intent, these reductions would be increased by another 4000 – 5000 ac.ft. per year

Alberta key findings – Milk R. basin

- To irrigate 13,000 – 18,000 acres in AB Milk R. basin to AB standards would require an average diversion of about 9000 – 17,000 ac.ft. of U.S. St. Mary entitlements and over 25,000 ac.ft. during dry years

Alberta key findings – St. Mary R. basin

- Because it is U.S. water that Canadian Milk R. irrigators access, St. Mary Project diversions would remain relatively constant
- The diversion of U.S. St. Mary entitlements to irrigate 13,000 – 18,000 acres in the Canadian Milk basin would have no impact on irrigation failures in the Canadian St. Mary Projects, however, applying the current LOI over this option would cause irrigation shortfalls >4" to increase from 2 to between 2-4 occurrences in the Raymond ID and remain unchanged in the Magrath ID

Maximum Water Supply and Increased Efficiency Options

Maximum Water Supply Option

Montana key findings –

- MT irrigation shortages would decrease from about 14 years with shortages > 4" in 45 years, to 2-3 years of 4" or greater shortages
- MT irrigated lands could increase by about 41,000 acres to a total of about 178,000 acres and still meet the AB irrigation standard
- MT total irrigation deliveries would decrease by about 110,000 ac.ft. (*i.e.*, less return flows)
- AB total Milk R. irrigation would increase by about 19,000 to 27,000 acres total

Alberta key findings –

- These options involve primarily improvements to Montana's internal water delivery systems and as such would have no effect on the Canadian Milk River Irrigation or on the quantity of St Mary River flows accessed by Canada.
- Options 21b and 21c, which include the implementation of a 227,000 ac-ft reservoir on the Canadian Milk River, would increase Alberta Milk River Irrigation by about 19,000 acres to 27,000 acres.

Montana Irrigation Efficiency Option

Montana key findings –

- MT years of 4-inch or greater shortages would decrease from about 14 out of 45 years to about 5 out of 45 years
- MT total irrigated acres might be increased by about 5000 acres to a total of about 146,000 acres
- MT total irrigation deliveries would decrease by about 115,000 ac.ft. (*i.e.*, less return flows)

Modified 1921 Order

There was discussion about what the impact could be of modifying the 1921 Order so that during the non-irrigation season (Nov.1–March 31), flows are still divided 50-50 on both rivers. During the irrigation season (April 1 – October 31):

- For flows <666 cfs, 75% goes to Canada on the St.Mary R. and 75% to the U.S. on the Milk R.
- For flows between 666 cfs and 1332 cfs, 75% goes to U.S. on St. Mary R. and 75% to Canada on the Milk R.
- Flows above 1332 cfs are divided evenly on each river

In high-flow years, unless water can be stored, U.S. St. Mary canal capacity becomes a bottleneck and limits what can be delivered.

Montana key findings –

- MT would have access to about 32,000 ac.ft. more St. Mary R. water on average
- MT's share of Milk R. water would be reduced by an average of 3200 ac.ft.
- On average, MT would receive about 49% of the combined natural flows of the St. Mary R. at the international boundary and the Milk R. at the eastern crossing
- MT Milk R. irrigators would benefit most during driest years when deliveries might increase by about 30,000 ac.ft.

Alberta key findings –

- Alberta Milk R. basin would be entitled to about an additional 3200 ac.ft.
- AB's access to its share of the Milk R. and its irrigation success would not change from that without the modification to the Order
- Canadian St. Mary entitlements would be reduced by about 32,000 ac.ft.
- Canadian access to St. Mary entitlements would be reduced on average by about 10,000 – 50,000 ac.ft. depending on the U.S. infrastructure and by 20,000 – 30,000 ac.ft for dry years
- Irrigation shortfalls >4" would increase from about 1-2 to between 3-4 occurrences in the Raymond ID; from 1 to between 2-3 in Magrath ID, and from 1 to 2 in the Taber ID

Additional detail is contained in Sal and Larry's presentation.

Comparison of runs against a consistent base

The Technical Team's understanding of the system and of the model increased during its work. Comparisons of news runs against the original base case (a 650 cfs canal, current conditions and infrastructure) were the first comparisons made. As option requests became more involved, comparisons against a different 'base case' were sometimes made to expose other differences (*e.g.*, discovered a different way to operate Sherburne reservoir to provide more water).

The Joint Team requested the Technical Team to clarify when comparisons among options were made against a different base than option #1a.

Diversion rates – discussion

During dry years, Canada would require about 125 cfs capacity in the U.S. St. Mary canal to get water into the Canadian Milk R. basin. In 2009, the following diversion rates were used by Canada to repay its LOI on the Milk R.:

- AENV licenses specify maximum flow of 105 cfs
- Maximum rate diverted in 2009 = 39.7 cfs (U.S. 17,000 gal./min.)
- Average diversion rate 2009 = 17 cfs

4. Recap model results – Larry, Sal, Robert, Anne — Moved to morning of day 2.

5. Option evaluation criteria – Robert and Larry

Robert gave an overview of the option evaluation criteria and how to apply the two categories, referring to meeting handout, "MT-AB Water Management Initiative – Suggested Evaluation Criteria." Category A has two numerical components to calculate – (1) the percent entitlement and volume of water accessed, and (2) irrigation reliability. Category B is a non-numeric professional judgment to assess other aspects of importance to the jurisdictions, such as impact on security of municipal water supplies, water quality, rate of sediment deposition/erosion, recreation, *etc*.

Category A: Criterion 1: Wording changes were made to clarify 'percent of share and volume to which each jurisdiction has access. Entitlement is based on the 1921 Order. Criteria for success are for a jurisdiction to get at 100% of its share, not, for example, "10% more".

Criterion 2: AB has a single criterion: the number of years with crop-water requirement shortages of over 4". AB's target is, on average, one deficit in 10 years.

: MT will use dual criteria which take into account the size of its districts and the fact that all the districts share the same priority date: (1) weighted average irrigation deficit for the option for the 1959-2003 period, and (2) weighted average number of years of ≥ 4" deficits.

Irrigation failure criteria – reporting and calculating

The Joint Team discussed how failure criteria should be reported. Each jurisdiction uses criteria appropriate to it – water not taken for irrigation has other uses (municipal, recreation, wildlife, *etc*.). The model calculates very small differences in the average aggregated deficit (10^{ths} of an inch), so results must carefully reviewed to determine if the magnitude of the difference is real or within model error.

Category B Criteria –

AB requested and the Joint Team **agreed** to add the following: "Criterion 12. Does the option increase or decrease the amount of habitat available?"

The Team needs confidence in the evaluation criteria to screen the number of runs from 70 to 5–10. At that point, the Team will look at the Category B criteria re: potential broader impact on water management in each jurisdiction, and make a more holistic judgement on the option's value to go forward as a potential recommendation.

Robert advised that, in preparing for creating the recommendations document, the Joint Team should discuss what decisions would are made by politicians, by the governments and by the Joint Team.

6. Update on First Nations water rights – Don Wilson, Jiggs Main

Don spoke to members about the Blackfeet Nation's perspective of water resources on the Blackfeet Reservation. He also provided an update on the status of their Compact settlement with the federal government. Jiggs updated members on the status of Ft Belknap Indian Communities Compact settlement.

7. Discuss final document – Anne, Robert — Moved to day 2.

8. Framework for international watershed group – Robert

Robert gave an overview on what an international watershed board could be like, referring to meeting handout "St. Mary – Milk Rivers International Watershed Board – Thoughts for Discussion". He suggested that the *authority* should be held by AB and MT, unlike other international IJC groups. He identified the *organizational structure* relationship to the IJC, suggested membership, and what kind of relationship members would have among themselves (reporting, information flow, *etc*.). The *Duties* section identifies what the suggested members could be responsible for.

[5] ACTION: The Joint Team is to review the draft Framework for an International Watershed Board and provide comments to the Secretariat. **DUE**: January 7, 2010

Day 2 – Dec. 4 – 8:10 a.m. – 2:10 p.m. Scenic Room

9. Recap of model learnings – Larry and Sal, and item #10:

10. Summary of model runs to date – Robert

Larry and Sal reviewed the main messages from all runs (by category) completed to date. Also handed out was an Options Summary Sheets package – the 70 model runs, one per page, with the results of each run compared against a 650 cfs canal and current (2009) infrastructure. Robert noted the link between data in the package of summary option runs and data in the presentation slides.

Questions/comments:

- Ft. Belknap has a right up to 645 cfs of U.S. entitlements on the Milk R. under the terms of their Compact settlement with the State of MT.
- What becomes of the erosion issue in the Milk R.?
- AB Milk R. irrigators live with a higher risk to irrigate their current 8000 acres (36 failures in 45 years without the LOI providing 4000 ac.ft. of water) at the AB standard. Without the LOI, about 2000-3000 acres can be reliably irrigated in the Milk R. basin at the AB standard. With the current LOI, Milk R. users risk about 21 failures in 45 years.
- With current U.S. operations and infrastructure, there is no impact on water users in the Southern Tributaries. An increase in the LOI would result in an increased number of failures in the Raymond I.D. (from 1 to 2) without any noticeable change in total diversion within the Southern Tributaries. Gerry asked why there was a change in failures without a change in diversions.

[6] ACTION: The AB Technical Team will determine why increasing the LOI increases the number of failures in the Raymond I.D., but does not noticeably change the total diversion in the Southern Tributaries.

- Both the Lower St. Mary L. storage and the LOI are valuable: Lower St. Mary L. captures some non-irrigation season flows that the LOI can't, and the LOI allows the U.S. to take some early spring Canadian water at a time when U.S entitlements are less than canal capacity and releases cannot be made from Sherburne L.
- Annual (water-year: Nov.1 – Oct.31) balancing would require active water management /monitoring and projections of water availability to year-end. This would be necessary to ensure the U.S. limits its deficit to a level that can be repaid later in the season, and similarly, that AB Milk R. irrigators limit their diversions to the balance owed. Annual balancing would still require the countries to balance out deficits at year-end. This forecasting and close

management by an on-the-ground MT and AB team would be a new way to manage the system.

- Moving to a calendar year (Jan.1- Dec.31) balance period does not lessen the risk. Moving to a calendar year does not allow Canada or the U.S. to take full advantage of prior knowledge of the surplus deliveries that will occur during the non-irrigation season (*i.e.*, surplus deliveries during Nov.1-Dec.31).
- The Team discussed giving a jurisdiction a credit for water that flows across the border in the non-irrigation season, and then being able to draw against that credit later (in the irrigation season). It was noted that, since reservoir operators manage their reservoirs with a flood-safety margin, water may not always be captured in the non-irrigation season.

[7] ACTION: Montana will develop criterion for success for Evaluation Criteria #2.
[8] ACTION: The Technical Team will redo the modelling of Option #22 (Storage on Ft. Belknap) for next meeting.
[9] ACTION: The Technical Team will convert data on slide #78 from dam^3 to acre-feet, and produce a Summary Option sheet #23 math that is the mathematical calculation of theoretical shares based on the Modified 1921 Order.
[10] ACTION: The Technical Team will write-up why the original options #16a, #16b were not produced.
[11] ACTION: MT will discuss with the USBR whether it is possible to raise the elevation of Fresno Reservoir to hold 137,000 ac-ft. (refer to option #18a).
[12] ACTION: The Technical Team will model a new option #23e – what is the impact of Canada receiving only its share when the U.S. takes it full share?
[13] ACTION: The Technical Team will ensure all future model runs are compared a consistent base case.
[14] ACTION: Alberta will report back to JIT on whether the Province's irrigation criteria applies at the canal diversion, field headgate, or the crop.

The Joint Team discussed two other options that could/should be evaluated: changing irrigation efficiencies (which would make a difference in results), and a potential second 120,000 ac.ft. reservoir upstream of the existing St. Mary Reservoir.

[15] ACTION: Duncan Lloyd will acquire the report about a potential 120,000 ac.ft. reservoir upstream of the existing St. Mary Reservoir and provide it to the Secretariat.

11. Initial culling of Options – Robert and Anne

The Joint Team discussed and **agreed** to remove some options from further consideration because the option: 1) provided minimal benefit to either jurisdiction, 2) was purely theoretical, and/or in the best professional judgement of JIT members had little chance of being implemented. JIT members **agreed** to cull the following options:

- #1b (unlimited ID canal capacity) – a theoretical option
- #2b (unlimited ID canal capacity) – a theoretical option
- #3 (1200 cfs canal) – appears to provide minimal additional benefits
- #5 series (10,000 ac.ft. Sherburne L.) – very unlikely to be implemented and appears to provide minimal additional benefits
- #6 series (10,000 ac.ft. Sherburne L.) – very unlikely to be implemented and appears to provide minimal additional benefits

- #9 (large Babb dam) - a theoretical option
- #12a, #12b (1200 cfs canal with LOI) – appears to provide minimal additional benefits
- #14 series (10,000 ac.ft. Sherburne L.) – very unlikely to be implemented and appears to provide minimal additional benefits
- #15 series (10,000 ac.ft. Sherburne L.) – very unlikely to be implemented and appears to provide minimal additional benefits
- #16a and #16 c (seasonal balancing) – subject to confirmation with USBR
- #21a, #21b, #21c (maximum water supply options) - theoretical options

Additional discussion included:

- the #17 series appears to have minimal benefit to MT in increasing its share, but may be of benefit to the Blackfeet Nation so will be retained
- Option #18b (storing MT water in Canadian St. Mary Reservoir) will be retained for AB's internal discussion
- AB Team preferred to keep the #20 series, because of their interest in discussing it further. MT indicated it was very unlikely to be implemented
- Options #21d, #21e will be kept for long-range planning and reference
- the 650 cfs (including option #4c) should be kept and ranked by the larger group, to compare its value against other options.
- AB Team requested that #23 series be removed. MT requested that the option be retained for further internal discussion.
- AB Team requested the larger LOI options (#10b, #11b, #13b) be removed. MT requested that the options be retained for further discussion under an adaptive management strategy.

There was a question about which Sherburne L. filling curve should be used, the original vs. the modified filling curve.

[16] ACTION: The MT Team will recommend which Sherburne filling curve should be used for future model runs.

A larger LOI option was discussed – although a 20,000/10,000 LOI on its own may not be a potential option, a future joint international watershed group could explore other potential changes to a future LOI. This work may included: two alternatives –

(1) Finding the LOI value that maximises the benefits to both jurisdictions and
(2) Developing a LOI with flexible terms that adjust according to the amount of water available in any given year.

12. Meeting review and plan for next meeting – Robert and Anne

Robert and Anne thanked the Joint Team for making good progress during the meeting.

The next meetings are confirmed as follows:
Jan. 14-15th, 2010 – Great Falls
Feb 23-24th – Lethbridge
Start and end times will remain as they are.

The meeting was adjourned at 1:45 p.m.

Montana – Alberta: St Mary & Milk Rivers Water Management Initiative

Joint Initiative Team Meeting #11, Holiday Inn
January 14-15, 2010, Great Falls, Montana

Montana	Alberta
Anne Yates – DNRC (co-Chair)	Robert Harrison – Alberta Env't (co-Chair)
Dustin de Yong – Office of the Lt. Governor	Brent Paterson - AB Agriculture & Rural Dev.
Randy Reed – Milk River irrigator	Ken Miller – Milk River
Dave Peterson – City of Havre	Tom Gilchrist – Milk River
Harold "Jiggs" Main – Ft. Belknap Tribe	Gerry Perry – Oldman River
Paul Azevedo – DNRC (secretariat)	Duncan Lloyd – Oldman River
Don Wilson – Blackfeet Tribe (day 1 only)	Tim Toth – AB Environment (secretariat)
Larry Dolan – DNRC Technical Team	Sal Figliuzzi – Alberta Env't Tech. Team

Observers – John Sanders (DNRC - St. Mary Canal rehabilitation engineer), Dan Jewell (U.S. Bureau of Reclamation, Manager, Montana Projects Office, Billings), Kelly Titensor (U.S. Bureau of Reclamation, Montana Projects Office, Billings).

Purpose of Phase 2 Joint Initiative Team

To explore and evaluate options for improving both Montana's and Alberta's access to the shared water of the St. Mary and Milk Rivers, and to make joint recommendation(s) on preferred options to both governments for their consideration and approval.

Meeting Objective(s)

- Understand implications of completed runs;
- Finalize process for evaluating model options; and
- Start to rank options

DRAFT Notes

Day 1 – <u>Jan. 14 – 8:30 a.m. – 5:00 p.m. Russell Room</u>

1. Welcome; Administration – Robert; Anne; Tim, Paul

Anne welcomed the Joint Team. Paul introduced Jesse Aber from MT DNRC Water Resources who will provide administrative support to the MT Team. Paul also mentioned that representatives of the U.S. Bureau of Reclamation may join the meeting to listen.

Tim reviewed Action items from JIT meeting no. 10. All items have been addressed or will be addressed during the meeting, but, of importance:

- Action item #3 – AB to send MT a copy of the Terms of Reference developed for the Milk River, AB integrated watershed management plan study – complete.
- Action item #10 – Tech team to explain why model runs #16a and #16b were not produced – Larry will explain this today.
- Action item #11, MT to discuss whether it is possible to raise the elevation of Fresno Reservoir to hold 137,000 ac.ft. – Answer – MT discussed this idea with

representatives from the Bureau of Reclamation who indicated that it is not out of the question;

- Action item #15, Duncan Lloyd to get report on potential reservoir of 120,000 a.f. above existing St Mary Reservoir, AB and provide to AB Secretariat – AB Secretariat provided a copy of the report, "St. Mary River Irrigation District Storage – St. Mary River Project Area" (March 2002, UMA Engineering Ltd., 21 pp. + Appendices) to the MT Secretariat. Sixteen sites were reviewed in AB, but most were cost prohibitive for the amount of storage provided.

Notes, JIT #10 – MT provided the AB Secretariat with a few corrections to Technical data. The changes would be made and a final copy sent to the Joint Team.

Communications

Alberta

The Premier recently appointed new ministers, including one for Agriculture, but this appointment will not impede the progress of the Initiative. The AB Team has had informal discussions with interested public. Duncan spoke to his Federal MP, and Robert has briefed his executive and will be presenting a status report to the AB Milk River Watershed Council.

Montana

Held a number of discussions. The Milk River Joint Board of Control was generally supportive of the process but wanted clarity on the implications of water sharing modelled in some of the runs. The Bureau of Reclamation has expressed no particular position at this time.

The estimated Federal-State project cost share for canal rehabilitation is $114.5M (USD) federal and $38.5M (USD) state in 2004. Today's cost are closer to $115.6M federal and $50M state. Robert asked whether the federal funding appropriation would be expedited (i.e., could it be done within 10 years) by a successful outcome of this initiative. Paul indicated that a positive outcome could provide some support, but Montana could not predict the federal agenda and its timing. The State will submit the FY 2011 federal appropriations request in February 2010.

Governor Brian Schweitzer remains very supportive of the initiative and wants a good outcome for the state, and to continue to respect the wishes of the tribes. Randy Reed met in Washington, D.C. with the U.S. Army Corps of Engineers, a representative of the U.S. Bureau of Reclamation, the MT Congressional delegation, and staff of the Appropriations subcommittee where he received positive responses.

Ft. Belknap Indian Community elected several new members to their Tribal Council – Jiggs had met with the water users but still had to brief the leadership. Don Wilson has kept the Blackfeet Tribal Council informed. They are generally supportive of the effort.

Dave Peterson noted that Havre had a new mayor and that he would be briefing him to get up to speed.

2. Modeling since December meeting – Larry Dolan, Sal Figliuzzi

Larry and Sal presented their joint PowerPoint presentation on the modified modeling runs developed since the December meeting in Lethbridge.

Options 16a & 16b – Seasonal /Annual Balance Periods

Larry explained that the Technical Team did not run Options 16a & 16b because previous IJC processes showed they provided only a marginal benefit. The Technical Team put their efforts into the other options (Action Item #10).

Option 18a – Shared Increase in Fresno Reservoir Storage to 137,000 Ac-ft

MT Key Findings (Slide 8)

- St. Mary Canal diversion to the United States would not be affected.
- The Option would have an almost neutral effect on irrigation deliveries to the US Milk River Project irrigators.
- From Montana's perspective, it appears that the increase in storage available to Montana would be just enough to offset the effects of Alberta's increased use of its Milk River share under this option.
- A larger increase in Fresno storage, if feasible, might result in net benefits to Montana too.

AB Key Findings (Slide 12)

- St. Mary Canal diversion to the US would not be affected – therefore no effect on Canadian St Mary entitlements and irrigation.
- The Option would allow Canadian Milk River entitlements to be stored in Fresno but drawn from US St Mary Canal Diversions.
- Allows Alberta to utilize nearly 20,000 ac-ft of Canadian Milk entitlements versus current average of 3,000-5,000 ac-ft.
- Allows expansion of Canadian Milk River irrigation to expand to about 13,250 acres while fully meeting AB irrigation standards.

Options 19e and 19f – Canadian Participation in the US St. Mary Canal Rehabilitation Using Canada Share Water to Supply Only Existing Alberta Milk River Irrigation.

MT Key Findings (Slide 20)

- The impact to US irrigation deliveries would be small
- Some increases during dry years.

AB Key Findings (Slide 21)

- Milk River Basin
    - To irrigate 8,069-18,000 acres in Alberta Milk River Basin to AB Standards would require an average diversion of about 6,000 to 19,000 ac-ft of Canadian St Mary entitlements and over 26,000 ac-ft during dry years.
- St Mary Basin
    - While irrigation of 8,069-18,000 acres in the Milk River Basin would require an average diversion of about 6,000 to 19,000 ac-ft of Canadian St Mary entitlements, average SMP diversions would be reduced by up to 6,000 ac-ft.
    - The diversion of Canadian St. Mary entitlements to irrigate 8,069 – 18,000 acres in the Milk Basin would cause irrigation shortfalls >4" to increase from 2 to 3 or 4 occurrences in the Raymond ID and to increase from 1 to 1-3 occurrences in the Magrath Irrigation district.

Options 20e and 20f – Canadian Participation in the US St. Mary Canal Rehabilitation Using US Share Water to Supply Only Existing Alberta Milk River Irrigation.

MT Key Findings (Slide 27)

- With the Letter of Intent, the effects on irrigation deliveries would be relatively small except during the driest years when reductions could be up to 10,000 ac-ft.
- Without the Letter of Intent, the effects on irrigation deliveries would be greater with reduction as high as 24,000 ac-ft during the driest years.

AB Key Findings (Slide 28)

- Milk River Basin
    - To irrigate 8,069-18,000 acres in Alberta Milk River Basin to AB Standards would require an average diversion of about 11,700-26,000 ac-ft with a maximum annual requirement of up to 30,500 ac-ft. Due to timing issues of Milk natural flows, on between 6,000 and 18,000 ac-ft (with up to 26,000 in dry years) of the requirement would have to come from US St. Mary entitlements.
- St Mary Basin
    - Because it is US water, Canadian St. Mary access and SMP diversions would remain relatively constant.
    - The diversion of US St Mary entitlements to irrigate 8,069 – 18,000 acres in the Canadian Milk Basin would have no effect on Canadian St Mary Irrigation, however the inclusion of an LOI would cause irrigation shortfalls >4" to increase from 2 to between 2-4 occurrences in the Raymond ID.

Option 22 – Fort Belknap Reservation Storage Project

MT Key Findings – Preliminary (Slide 33)

- By increasing reservoir storage and adding 19,390 new acres of irrigation, this option would increase Fort Belknap Reservation Tribal irrigation diversion by about 54,000 ac-ft.
- Other Milk River irrigators in Montana would see reductions to irrigation diversion from about 15,000 ac-ft during average years to up to 60,000 ac-ft during drier years.

Option 23e – US Diverts All Entitlements Under Modified 1921 Order.

MT Key Findings (Slide 36)

- Maximum potential diversion would increase by about 31,000 ac-ft on average.
- During drier years, maximum potential diversions would increase by about 28,000 ac-ft.
- During the driest years, maximum potential diversion would increase by about 26,000 ac-ft.

AB Key Findings (Slide 37)

- Milk River Basin
    - No impact on Milk River as it involves full utilization of US modified St. Mary entitlements.
- St. Mary Basin
    - Number of irrigation shortfalls greater than 4" increase as follows:
        - Raymond ID – From 1 event under base case to 4 under 23e.
        - Magrath ID – from 1 to 4

- Taber ID – from 1 to 2
- Overall weighted average irrigation shortfall for all districts goes from 0.76 inches under base case (Option 1a) to 0.93 inches.

3. Alberta's "What We Learned" Statements – Robert

Robert presented the AB team's perspective, the 'What we have learned' in the process so far, and Alberta's view of five potential water management options.

Milk River Basin

1. Alberta's share of the natural flow of the Milk River (without storage or a Letter of Intent) is not able to provide a reliable water supply for irrigation. In 25% of the years even a few acres of irrigation would experience deficits.

   "Reliable" is based on the Alberta irrigation guideline – having an irrigation deficit >=4 inches in no more than 10% of years.

2. Alberta has licensed water allocations from the Milk River for 8,069 acres of irrigation.

3. Current irrigation practices in the Alberta Milk River Basin are not intensive specialty crop operations.
   Current irrigation is integrated into a larger dryland cropping or livestock operation.

4. It is believed that current irrigation practices in the Alberta Milk River Basin will continue until a reliable water supply is obtained.
   It is believed that any irrigation expansion achieved by obtaining a reliable water supply would match irrigation practices of other irrigation districts in Alberta.

5. Because of seasonal and annual variability of flows the current 8,069 irrigated acres experience deficits in 80% of years (based on Alberta's irrigation guideline).
   Natural runoff in the Milk River Basin generally occurs before the irrigation season, with minimal natural flow in the River during the irrigation period.

6. Alberta has made an administrative arrangement "Letter of Intent" with Montana for access to diverted St. Mary water that reduces Alberta Milk River Basin irrigation deficits to 50% of years.

7. The "Letter of Intent" involves the use of Montana's St. Mary River water that is diverted to the Milk River via Montana's St. Mary diversion canal.

   The Letter of Intent allows Montana to divert 8,000 ac-ft more than its share of the St. Mary River early in the year, and pay back 4,000 ac-ft. The Letter of Intent allows Alberta to access 4,000 ac-ft more than its share of the Milk River with the water used coming from both Montana's natural flow of the Milk River and Montana's diverted St. Mary River water.

8. Alberta's share of Milk River could reliably irrigate 25,000 – 30,000 acres if Alberta was able to store early spring runoff and runoff from wet years.

9. Alberta's irrigation and municipal water supplies rely on the 4000 ac-ft LOI from late season use transported by Montana's St. Mary diversion. Recreation now relies upon Montana's St. Mary diversions.

   More than 90% of the flow in the Milk River during July, August and September for the past 100 years is Montana's diverted St. Mary River water.

10. Montana's irrigation, municipal water supply, recreation and instream flows in Montana's Lower Milk River Basin now rely upon Montana's St. Mary diversions for a large part of their water supply.

    In addition, Montana's irrigation, municipal water supply, recreation and instream flows in Montana's Lower Milk River Basin also reply upon Alberta entitlements which Alberta has been unable to capture and utilize (surplus deliveries).

11. Montana's St. Mary diversion canal is nearly 100 years old and in imminent danger of failure. Mid-season failures have occurred in the past. A failure could last for part of a year, an entire year or more.

12. Montana has initiated a project to rehabilitate its St. Mary diversion canal. Full funding has not been secured.

    Montana would welcome Alberta providing funding for a portion of the diversion canal rehabilitation.

13. Reducing irrigation failures and/or increasing irrigated acres in the Alberta Milk River Basin requires either storage of Alberta's share of Milk River or diversion of St. Mary River water, via either Montana's diversion canal or via a diversion in Alberta (such as from Ridge Reservoir to the Milk River Basin).

14. ***Key Statement*****:** Alberta's Milk River entitlement is sufficient to meet current Milk River Basin irrigation requirements, and expansion requirements. However without storage this water runs off before it is needed in the irrigation season.

St. Mary River Basin

Four slides (not included) describe what AB learned about allocations and apportionment on the southern tributaries (Waterton, Belly and St. Mary rivers).

1. Alberta's share of the St. Mary River is fully required to meet Alberta's irrigation reliability guideline for the St. Mary River Irrigation Project.
   Licenses junior to the Raymond I.D. would have even a lower reliability.

2. Currently, diversions of Alberta's share of St. Mary River water to Alberta's Milk River Basin during below average years would decrease irrigation reliability in the St. Mary River Irrigation Project and for junior water licenses.

   In the future, as Montana acquires its full share of the St. Mary River, diversions of Alberta's share of St. Mary River water to Alberta's Milk River Basin during average and below average years would decrease irrigation reliability in the St. Mary River Irrigation Project and for junior water licenses.

3. Historically, there has been surplus deliveries of Montana's share of St. Mary River water that has benefited Alberta's St. Mary River Irrigation Project and helped meet apportionment requirements to Saskatchewan.

4. ***Key Statement:*** As Montana approaches accessing its full share, there will be only surplus deliveries to Alberta in wet years.
    - This will decrease irrigation reliability in the St. Mary River Irrigation Project and for junior licenses.
    - This will reduce the St. Mary River contribution to apportionment and will increase the quantity of water having to be made up from other parts of the South Saskatchewan River Basin.

5. ***Key Statement:*** Under current conditions, Alberta's entire St. Mary River entitlement is needed to meet licenses or required to meet apportionment with Saskatchewan during average and below average years.

   In the future, when Montana accesses its full entitlement of the St. Mary River, Alberta's ability to meet licensed allocations and apportionment will worsen.

Potential Options:

A. Reduce Alberta's Milk River Basin irrigation to that which can be reliably supported by the natural flow of the Milk River.

   Due to very low natural flows in the Milk River during July, August and September, the river will not provide a reliable irrigation supply, for even a few acres.

B. Provide a lower reliability water supply for the current 8,069 acres of irrigation (deficits in 50% of years).

   The water supply for this option would come from Alberta's share of the Milk River, the Letter of Intent and potentially a small additional amount from either Montana's or Alberta's share of St. Mary River water diverted through Montana's St. Mary diversion canal.

C. Provide a reliable water supply based on Alberta's irrigation guideline for the current 8,069 acres of irrigation. (deficits in 10%of years)

   The water supply for this option would come from Alberta's share of the Milk River, the Letter of Intent and a moderate additional amount from either Montana's or Alberta's share of the St. Mary River water diverted through Montana's St. Mary diversion canal.

D. Provide a reliable water supply based on Alberta's irrigation guideline for the current 8,069 acres of irrigation and irrigation expansion of up to 10,000 additional acres. (deficits in 10% of years)

   The water supply for this option would come from Alberta's share of the Milk River, the Letter of Intent and a significant additional amount from either Montana's or Alberta's share of St. Mary River water diverted through Montana's St. Mary diversion canal.

E. Build sufficient storage within the Milk River Basin to support from 25,000 to 30,000 acres.
This may include joint storage with Montana.

The total acres able to be irrigated is dependent on the potential future crop mixes and irrigation intensity. It is also dependent on whether the irrigated acres are individual private licenses or operated as an irrigation district with one license.

Alberta's "learning" statements were discussed.

- Don identified issues with the current process regarding the water rights compact the Blackfeet are working on with the federal government`
- It was suggested that the Montana team should produce a 'what has been learned' set of statements.

ACTION: Montana will produce its set of 'what has been learned' statements in this process.

Options Summary Sheets

Montana reviewed the 70+ Option Summary sheets previously prepared and sent by the AB Secretariat, corrected some errors, and added more data. Model run #10a (650 cfs canal with current Letter of Intent) is recommended to be the basis against which further detailed modelling it to be compared.

ACTION: The AB Secretariat will produce an updated version of the Option Summary sheets, add any more data available, and send the updated copy to Montana.

4. Review Evaluation Criteria – Anne, Robert

Anne passed around a handout titled, MT-AB Water Management Initiative, Suggested Evaluation Criteria (12/09). It is a guide to evaluating potential water management options and has 2 criteria categories: a numerical ranking and a judgement (narrative).

- Category A, Criteria-Numerical ranking, has 2 individual criteria:
    a. Criterion 1 – *Percentage of entitlement water accessed.* This is the percentage of its entitlement each jurisdiction is *able* to access from each river. These figures can be used to compare with the base case reflecting the change for each option for the two rivers over the 45-year modeling period, and the 22 and 11 driest years. Full success of an option under this criterion is 100% access by both jurisdictions to their entitlement on both the St. Mary and Milk Rivers.

    b. Criterion 2: *Irrigation Water Reliability.* For Alberta this is the number of years with crop water requirement shortages of over 4 inches. Full success is 0 shortages. AB uses a target design of 1 deficit in 10 years. For Montana Criterion 2 means the weighted average irrigation deficit for the option for the period 1959-2003, and the weighted average number of years of 4 inch or greater deficits. Full success of an options under these criteria is 0 shortages.

- Category B Criteria are judgement criteria, used to add context to the numerical analysis
    - Does the option increase or decrease
        a. Security of municipal water supplies?
        b. Water quality?

c. Rate of sediment deposition in Fresno Reservoir?
d. Rate of bank erosion along Milk River AB?
e. Water available for instream flow?
f. Recreational opportunities?
g. Management flexibility?

- Is it effective is addressing issues associated with low water years?
- Does it have economic potential (Capital cost and O&M)?
- Are there any implementation barriers?
- Does it provide the ability to manage in the event of St. Mary Canal failure before construction is complete?

5. Outline the process for ranking and evaluation – Anne, Robert

The two teams identified their preferred options. MT included items that complicate its ability to rank Options, including federally-owned infrastructure, First Nations rights, *etc.*

Montana Team Preferred Options

1. Optimal 1921 Order (has not been run) – Revise the allocation formula of the 1921 Order to allow the US to access a greater volume of water from the St. Mary River while ensuring AB would receive full mathematical share they are entitled to under current 1921 Order.
2. Annual balancing w/ access to Milk River flows only (#16b) – benefit to Milk River AB is greater than current LOI, plus St. Mary AB still receives over 100% of share
3. Annual balancing w/ AB given access to US St. Mary and Milk R. flows and cost share (capital, O&M) (#16d)
4. Enlarging Fresno Reservoir back to original capacity (but not shared storage) (#2c)
5. Annual balancing with access to all flows & no cost share (#16b no cost share)
6. 850 cfs Canal (#2a)

Considerations

- Preferred Option #1 is a principle for now
- Shared canal may be larger than 850 cfs
- Options that involve building new storage on Tribal lands will not be pursued by MT as part of this Initiative. Although these options have the potential to provided both tribal and non-tribal benefits, they will be pursued in other venues involving the Tribes and U.S. federal government.
- Annual balancing would include limitations to prevent one jurisdiction from taking all the water, leaving nothing for the other.

Alberta Team Options evaluation

<u>Positive</u>

- Series #7 – Canadian storage on Milk River,
- Series #8– Shared storage on Canadian Milk River,
- Series #18a, #18b – Shared increased storage in Fresno Reservoir;
- Series #20 - Canadian participation in U.S. St. Mary Canal with U.S. water and cost-share (capital, O&M) .

<u>Neutral</u>

- Series #1 - #6

Negative:

- Series #10b, 11b, 12b, 13b, 14b& 15b - Larger Letter of Intent options
- Series #16 – Seasonal or annual balancing with no rules;
- Series #23 – Modification to 1921 Order (as presented)

Summary of AB Preferred Options

1. LOI; Annual balance period with rules (increase irrigated acres in AB Milk River basin to about 9500)
2. Shared storage, Milk R. AB (increase irrigated acres in AB Milk River basin up to 25,000)
3. Shared storage on Fresno Res. (increase irrigated acres in AB Milk River basin to 13,000)
4. Milk River, AB storage only (increase irrigated acres in AB Milk River basin to 30,000)
5. Shared conveyance facilities with U.S.; St. Mary water to Milk AB irrigators plus cost share (increase irrigated acres in AB Milk River basin to 13,000 – 18,000, but open to discussion)
6. Blending of above.

Options: #1, 2, 3, 4, 5, 6, 17, 22, 21 may reduce the amount of water that comes into AB, but as AB recognizes MT's right to get at its share, although neutral to AB, AB will support these options.

The JIT discussed eliminating various options. They **agreed** that they should continue to pursue long-term goals while searching for short-term solutions. Consequently, both teams regard "Administrative Options" as a "win-win" option for management in the near-term.

6. Montana Ranking of Model Runs – This item was passed over as an in-depth analysis exercise, in lieu of going directly to listing preferred options as identified above.

7. Discussion of Challenge to 1921 Order – Anne, Robert – This item was postponed to day #2. (See Action Items)

Day 2: January 15 – 8:00 a.m. – 3:00 p.m.

8. Recap of Day 1 and Plan Day 2 – Anne, Robert

Summary of discussion

Shared storage

- Has some potential as a long-term solution. There are still fairly significant issues for both MT and AB.
- AB could pass the MT share or AB or MT could store it in trust for each other

Shared canal capacity

- Using U.S. water for Milk River AB irrigators has some potential as a medium-term goal. There would need to be at least a 5-year lead time for funding, design, and construction.

Fresno Reservoir

- The group concluded that there was no future in enlarging Fresno Reservoir;

Erosion in Milk R., AB channel

- Erosion could be an issue and would be evaluated at the appropriate time. An 850 cfs diversion canal capturing the June runoff could be expected to flow for 6 weeks above 250 cfs, but the surge could be extended over 2 months to control erosion.

- The Blackfoot Reservation potential reservoir site was seen as problematic due to its location across a divide from the North Fork.

The "blending of options" is acceptable to the Joint Team.

9. Discussion of Challenge to 1921 Order – Anne, Robert

MT is not ready to remove its challenge to the 1921 Order and wants to proceed with the current process. MT's challenge is based on the fact that there is a 5% long-term mean difference (45%/55%) between each jurisdiction's entitlements to the combined flow of the rivers.

Don believed that reopening the 1921 Order represented the only opportunity for the Blackfeet Tribe to have its issues addressed to their satisfaction.

Although the initiative is to determine how each jurisdiction can improve its access to its share of the waters, issues about the Order and how it is interpreted keep surfacing and side-tracking the Team. The Team discussed the value of learning more about the history, principles and development of the Order. They **agreed** that a better understanding of the Order would be a benefit.

ACTION: The co-Chairs will draft a letter to the IJC asking for an interpretation of the provisions of the 1921 Order.

Erosion continues to be an issue, as is apportionment. MT would also like to see the information from the 1915-1921 hearings that AB has been reviewing and compiling. AB initially agreed to bring that information to the next meeting, but in subsequent discussion AB suggested that, rather than relying on AB's summary of those hearings, MT review them to develop their own understanding.

ACTION: Alberta provides erosion information to the next JIT meeting.

Discussion resumed regarding options.
MT explained its options.

1) **1921 Optimal Order** – MT explained the principal behind trying to find an optimal allocation formula to replace the current one in the 1921 Order**.** The modified formula that MT presented during JIT #10 still gave AB greater than 100% of their current volumetric entitlement in all but the 11 driest years. In these years AB received from 97% - 99% of their current allocation depending on canal size. MT wanted to revise the modified formula to ensure the AB would receive 100% of their current volumetric entitlement in all years, including the 11 driest.

MT stated that it is not able to access its full entitlement and is interested in exploring an "optimal Order".

ACTION: MT is to describe their vision of an optimal Order.

2) Annual balancing with AB given access to U.S. Milk River flows only (#16b)

Principles:

- (i) credit must be accumulated before it could be redeemed
- (ii) this policy would apply to both rivers
- (iii) minimum in-stream flows must be respected to prevent either jurisdiction from dewatering the rivers.
- (iv) Active joint management would be necessary with shared forecasting and planning.
- (v) There would be a need for "fall back rules" or guidelines for joint management
- (vi) MT would make up Ft. Belknap's entitlement from Fresno Reservoir with consideration to weather and climate factors.

There was discussion on whether or not one jurisdiction can earn credit for flows that the other jurisdiction can not capture, *i.e.* floods. The Teams discussed two possible ways to deal with this:

1. Have an annual cap on credit allowance, or
2. Water would have to be captured by one jurisdiction in order for the other jurisdiction to receive a credit.

This option will present a challenge for those instances when there is no natural flow in the Milk River for AB to build a credit on.

3) Annual balancing with AB given access to U.S. St. Mary and Milk River flows and cost share (capital, O&M) (#16d)

- Same as #16b, but under this option Milk River AB would have access to U.S. shares of the St. Mary and Milk Rivers. Since AB would be allowed to use some U.S. St. Mary water, MT would like to see AB provide some cost share towards rehabilitating the canal and long-term O&M.
- AB understood the principal behind MT's interest in cost share. The financial details would have to be worked out at a future date.
- MT is also concerned about the potential level of irrigation development that would be possible in the AB Milk River Basin if AB irrigators were given access to both St. Mary and Milk River flows.

Principles:

- (i) credit must be accumulated before it could be redeemed
- (ii) this policy would apply to both rivers
- (iii) minimum in-stream flows must be respected to prevent either jurisdiction from dewatering the rivers.
- (iv) Active joint management would be necessary with shared forecasting and planning.
- (vi) There would be a need for "fall back rules" or guidelines for joint management
- MT would make up Ft. Belknap's entitlement from Fresno Reservoir with consideration to weather and climate factors.

There was discussion on whether or not one jurisdiction can earn credit for flows that the other jurisdiction can not capture, i.e. floods. The Teams discussed two possible ways to deal with this;

1. Have an annual cap on credit allowance, or

2. Water would have to be captured by one jurisdiction in order for the other jurisdiction to receive a credit.

4) Enlarging Fresno Reservoir back to original capacity (137,000 ac.ft) (but not shared storage (#2c)

- AB is not interested in further exploring the possibility of shared storage in Fresno Reservoir.
- Both Teams agreed that the option of using Fresno Reservoir in a share arrangement was now "off of the table."

5) Annual balancing with access to all floes and with no cost-share (#16b, no cost share)

MT prefers a cost-share arrangement, so this option is removed.

6) 850 cfs Canal (#2a)

The US Bureau of Reclamation, as part of the National Environmental Policy Act (NEPA) process, will establish the actual canal capacity. The actual capacity may differ from 850 cfs, but all information available suggests that 850 cfs is reasonable. AB indicated that a larger canal could trigger additional environmental impact assessment work in Canada.

Alberta explained its thoughts on the various options.

(1) LOI, annual balance period with rules (increase irrigated acres in AB Milk River basin to about 9500 with potential increase)

- This option addresses AB's short and medium term desires and fits with MT's option #3. It could be blended with AB Options #5 (the diversions) to access water flowing in the St Mary R. in exchange for credits and traded water.
- Any contracting on the canal would have MT dealing with its federal government and AB with its federal government.

(2) Shared storage, Milk R. (increase irrigated acres in AB Milk River basin up to 25,000) **and (4) Milk R. storage only for AB** (increase irrigated acres in AB Milk River basin to 30,000) – are both "long-term" options. AB envisioned a short-medium-long term recommendation that was linked for it to better access its full share of the rivers. AB believes there are benefits to joint storage, especially with a reservoir upstream on the sandy portion of the AB Milk R., but joint storage would be a bonus to AB. MT may be interested in exploring joint storage but must first complete Compacts with their First Nations. Ft. Belknap Compact funds would be there from U.S. government but MT would have to pay its own share.

- MT recognizes AB's right to its full share of the Milk River but wondered why AB had not already built a Milk River Dam.
- AB has studied the feasibility of building a dam on the Milk R. and has ranked 16 sites. AB believes that a dam will eventually be built, but currently there is little political desire. A dam on the Milk R. in Canada would allow better control of river flow during flood events and could help manage erosion. A joint effort with the U.S. would hasten the chances of approval. A list of recent dams built by AB was cited.
- Three dam sizes at the Forks Site on the Milk R. have been studied, with a goal to have at least a couple years of carryover storage to be prepared for dry years. Although the dam would fill infrequently, water from flood events could be captured. It was noted that AB would be able to access up to about 85% of its entitlement on the Milk R. with the largest dam (model run #7c).

- AB pointed out that such a Milk River AB dam would serve Alberta's needs first and there should be opportunities to cost-share storage above AB's needs, especially as the capacity of Fresno Res. decreases.
- AB expects and believes that discussion about the various interests in water in Montana would be represented by one U.S. entity, not a number of groups.

(3) Shared Storage in Fresno Reservoir_(increase irrigated acres in AB Milk River basin to 13,000)___This option has been taken off the table.

(5) Shared conveyance facilities with U.S.; St. Mary water to Milk AB irrigators plus cost share (increase irrigated acres in AB Milk River basin to 13,000-18,000 but open to discussion

(6) Blending of Above Options

- The Joint Team felt that an administrative approach may provide near-term benefits for both jurisdictions. During this time when an administrative approach was being evaluated, both teams could explore structural options that could provide mid-term and long-term benefits.
- There may be merit in exploring an option that blends rehabilitation of the St. Mary Canal with development of shared storage reservoir on the Milk River in AB.
- The MT co-chair noted that it would be interesting to see the model run where a potential Milk River Reservoir would be used as a re-regulating reservoir for St. Mary River water upstream of Ft. Belknap. The AB Co-chair suggested that the JIT describe specifically what they would like to see in the future, so that objectives would be targeted as opposed to broad. Modelling should be directed to reflect the conceptual blending. The MT co-chair agreed saying that this should be done before the next JIT Meeting (#12).

The JIT **agreed** that modelling should show blended alternatives as options, as this may provide a way forward.

Action items were summarized:

ACTION: Montana will produce its set of 'what has been learned' statements in this process.

ACTION: The AB Secretariat will produce an updated version of the Option Summary sheets, add any more data available, and send the updated copy to Montana.

ACTION: Alberta provides erosion information to the next JIT meeting.

ACTION: The co-Chairs will draft a letter to the IJC asking for an interpretation of the provisions of the 1921 Order.

ACTION: MT is to describe their vision of an optimal Order.

Additional Action items:

ACTION: Annual balance period – both MT and AB are to define what they would like an annual balance period to achieve. Each jurisdiction should describe a win:win situation for

both jurisdictions, communicate it through co-Chairs, have separate jurisdiction team meetings, then meet as a Joint Team.

Next Meeting and Last Minute Items

- The meeting dates were reviewed and announced – February 23-24 Lethbridge; March 23-24 Great Falls or Helena; April 21-22 Lethbridge.
- At this point there were no plans for any public outreach program, as that may cause misunderstanding. AB agreed to outline with MT what will be released at this time.
- The Status Report will be ready for the tech meeting Feb 9 call.
- Larry Dolan will be in Medicine Hat February 18 for the annual report on border flow measurements for 2009. An IJC staffer or two usually attend.

The meeting was adjourned.

Montana – Alberta: St Mary & Milk Rivers Water Management Initiative

Joint Initiative Team Meeting #12
February 23-24, 2010, Lethbridge, AB

Montana	Alberta
Anne Yates – Department of Natural Resources and Conservation (co-Chair)	Robert Harrison – Alberta Environment (co-Chair)
Dustin de Yong - Office of the Lt. Governor	Ken Miller – Milk River
Randy Reed – Milk River irrigator	Tom Gilchrist – Milk River
Dave Peterson – City of Havre	Gerry Perry – Oldman River (day 1 only)
Harold "Jiggs" Main – Ft. Belknap Tribe (1/2 day)	Duncan Lloyd – Oldman River
Paul Azevedo – DNRC (Secretariat)	Tim Toth – AB Environment (Secretariat)
Larry Dolan – DNRC Technical Team	

Regrets – Brent Paterson – AB Agriculture & Rural Development; Don Wilson – Blackfeet Tribe; Sal Figliuzzi – AB Tech. Team Lead
Observers – none

Purpose of Phase 2 Joint Initiative Team

To explore and evaluate options for improving both Montana's and Alberta's access to the shared water of the St. Mary and Milk Rivers, and to make joint recommendation(s) on preferred options to both governments for their consideration and approval.

Meeting Objective(s)

- Understand completed new model runs
- Understand implications of potential Options
- Discuss Options that have potential to become recommendations

DRAFT Notes

Day 1 – <u>Feb. 23 – 1:00 p.m. – 5:00 p.m. Scenic Room</u>

1. Welcome; Administration – Robert; Anne; Tim, Paul

Robert welcomed the Joint Team. It was noted that the large amount of communications (e-mail, phone calls and in-person meetings) among members, the Secretariat and the co-Chairs since last meeting greatly helps move the initiative forward.

Robert and Anne agreed to change the agenda to accommodate Team needs. Discussion on the International Watershed Group (item 6) will be delayed until the Joint Team develops more detail about the shape and form of specific recommendations. The co-Chairs and Secretariat will meet at the end of Day 2 to outline components of the final recommendations report. However, ultimately, the entire JIT Team participated in this task.

Meeting dates – Joint Team agreed to reschedule March meeting from March 23-24 to April 15-16 in Helena, MT, and will provide current information to both AB and MT governmental dignitaries. The last meeting planned for this stage of the Initiative will be held June 2-3 in Lethbridge.

Paul reported that Notes of JIT#11 were not able to be completed for this meeting, but he will send them out for review at the next meeting. Paul reviewed the Action items from JIT#11:

- co-Chairs drafted and sent a letter requesting the IJC clarify the terms and meaning of the 1921 Order
- AB updated the Options summary sheets and sent them to MT for review
- Actions #5-8 will be addressed in this meeting through the technical presentation and discussion. The action (#10) requesting blending potential alternative options (for the Credit System and the 1921 Modified Order) to create various combinations has not been attempted. The Technical Team said it may be beyond the capabilities of the current model to analyze these combination alternatives.

Communications

Alberta – Robert gave an update on the Initiative to the Milk River Watershed Council Canada; by their questions, the irrigators present were very interested. Letter from co-Chairs to the IJC – the Secretariat copied the letter to other AB technical support personnel. AB Milk River reps received a preliminary draft report of the Milk R. in-stream flow needs study. AB St. Mary reps have been asked about status of the Initiative and they briefed the St. Mary River Irrigation District Board Chair. The draft terms of reference for Milk River's integrated watershed management plan appears on the MRWCC website: http://www.milkriverwatershedcouncil.ca/sites/default/files/assets/Terms_of_Reference2_Feb_1_2010.pdf.

Upcoming: the AB Team has an April meeting with ministers of AENV, and AARD to get their direction on the Initiative.

Montana – MT did not have formal briefings with its Executive since the last JIT meeting, but has advised the Executive that there may be challenges in developing joint recommendations. MT's (legislative) Water Policy Interim Committee meets on March 10-11 and has requested an update on the Initiative.

2. Option: Annual Credit-based system – Larry and Robert

The technical presentations are for everyone to understand what has been modelled. As Sal is away, Larry will present the information while Robert will provide any context, if that is required.

AB suggested changing the name of the Annual Balance option to Credit-Based Option. Robert explained that under a true annual balancing system the upstream jurisdiction could build up a deficit as long as the water was paid back by the end of the balance period. The current LOI functions as a deficit system. The Option being discussed requires each jurisdiction to first build a credit and then draw on that credit later in the water year. Each country can accumulate credits (subject to some constraints) for water they are entitled to, but can not access before water flows across the border. The benefit of a credit-based system is that it eliminates the risk of a jurisdiction being unable to repay any deficit it had incurred. By starting credit accumulation on November 1st, by spring, irrigators will have an indication of how much water they have in credit (the "surpluses") that they can draw upon prior to the runoff peak. Additional surplus could be accumulated during the runoff peak that could then be drawn on later in the irrigation season when natural flows drop. Credits would be reset to zero on October 31st.

MT accepted Robert's explanation and requested this option be named Annual Credit-Based System (to maximize credit accumulations, the water year Nov.1– Oct. 31 was assumed).

Larry presented (slide #10) Montana's Annual Balancing/Credit-Based System proposal. Under this proposal, the U.S. is allowed to accumulate and draw on a single-fill credit that is capped at 32,000 ac.ft. on the U.S. St. Mary R., while respecting IFN requirements. Alberta is allowed to accumulate and draw on a single-fill credit that is capped at 16,000 ac.ft. on the Canadian Milk R., where credits are drawn from U.S. Milk R. natural flow, with a maximum of 4,000 ac. ft. of credit being drawn from U.S. diversions. The AB Milk R. would continue to irrigate its existing acreage and shortages would be shared in dry years.

MT's summary proposal for the Annual Credit-Based System is to be modelled under the following variations:

a) 650 cfs canal + modified Sherburne
b) 850 cfs canal + modified Sherburne
c) 850 cfs canal + modified Sherburne and Lower St Mary Lake
d) 850 cfs canal + modified Sherburne and large AB-only Milk R storage
e) 850 cfs canal + modified Sherburne with Lower St Mary Lake and large AB-only Milk R. storage

Larry advised that the Technical team is investigating if the proposed credit system can be modelled with the current model.

There was discussion on how MT arrived at a 32,000 ac.ft. single fill cap. Larry said the original concept by Montana was to use a 25,000 ac.ft. floating cap. The floating cap concept is that of a refillable bucket with a maximum capacity of 25,000 ac.ft. However, because the current model could not handle these computations, it was decided to use a fixed cap. MT calculated that a 32,000 ac.ft. single-fill cap would deliver similar benefits to a 25,000 ac.ft. floating cap.

(Slide 13) Robert explained AB's interpretation of MT's Annual Credit-Based System proposal. Under current international convention, ownership of water is lost after water crosses an international border. Under the proposed credit system, some of the water continues to retain its country-of-ownership identification after it crosses the border. This credited (paper) water is subsequently exchanged for access to some of the downstream country's flow entitlement at a later period. This supports the Joint Team's goal that MT moves toward accessing 100% of its share of the St. Mary R. and continues to receive its share of the Milk R., and that AB moves toward accessing 100% of its share of the Milk R. while continuing to receive its share of the St. Mary R.

There was considerable discussion on whether or not the downstream jurisdiction had to put the surplus flows to "use" in order for the upstream jurisdiction to get a credit. Could water used by one jurisdiction to generate hydropower, meet IFN requirements, or meet other allocation requirements generate a credit for the other jurisdiction? It was agreed to keep the analysis simple – for the purpose of modelling, water that crosses the border will be available to be used as a credit for the upstream jurisdiction, but the annual credit should be capped.

<u>Summary proposal for Montana</u>:
<u>St. Mary R.</u>

- All surplus flows are credited to MT when they cross the border, to a 32,000 ac.ft. cap (total),
- U.S. can draw on that credit from Canadian St. Mary entitlements provided Canadian IFN requirements (currently at an assumed level) are met,
- U.S. can deliver less than Canada's entitlement when drawing on credit,

- Credits are reset to zero on October 31st.

Milk R.

- All surplus flows are credited to AB when they cross the border, to a 16,000 ac.ft. cap (total),
- Canada can draw on credit from U.S Milk River flows as follows:
  - All U.S. Milk R. entitlement, depending on availability,
  - U.S. St. Mary R. diversions up to a 4,000 ac.ft. maximum, with volume reduced during dry years,
- Shortages are shared between jurisdictions,
- Canada can deliver less than U.S. entitlement when drawing on credit
- AB to continue irrigating existing acreages in Milk R. basin.

In the future it is likely that a minimum winter IFN flow will need to be released in Swiftcurrent Cr. (below Sherburne Reservoir). It may be about 15 cfs (30 ac.ft./day), and could amount to about 4,000-5,000 ac.ft. of U.S. share annually that is now being captured in Sherburne Reservoir during the winter. Under this proposal, this water could be accumulated as part of the U.S. annual credit.

This proposal trades access to Canadian St. Mary entitlement during the irrigation season for U.S. surplus winter and flood flows. The volume traded and benefiting the U.S. ranges from 15,572 ac.ft. (in the driest 11 years) to an average of about 25,557 ac.ft. over the simulated 45-year period. In return, Canada receives access to U.S. Milk R. entitlements and limited access to U.S. diversions, in exchange for Canadian surplus winter and flood flows on the Milk R. AB's analysis of MT's proposal indicates that AB's increase in access to Milk R. flows would range from about 1,520 to 9,519 ac. ft. annually and average about 3,340 ac.ft. per year, plus access to about 4,000 ac.ft of U.S. diversions. AB agreed that once its Milk R. surplus crossed the border, it was forfeited and became MT's water to use as they see fit. After access to the credit water, the average irrigation shortage on the Canadian Milk R. would be from 3 inches (average over 45 yrs) to 7.35 inches (in the 11 driest years), in comparison to the 8.2 inch deficit under current conditions. MT's proposal would allow Canada to continue to access 100% of its share on the St. Mary R.

Robert described AB's analysis of the Annual Credit-Based System, showing the timing and magnitude of the surpluses (credits) generated by the U.S. on the St. Mary R. with current infrastructure (Option #1a). It was noted that when an 850 cfs diversion canal and storage on Lower St. Mary Lake are built, MT will generate fewer credits because MT will be able to take more of its share. There was some discussion about the impact on AB of the U.S. building a 1000 cfs diversion canal. AB does not question MT's right to build an 850 cfs canal, but AB would have concerns with a 1,000 cfs canal because it may trigger an environmental impact assessment. MT noted that a 1000 cfs canal was proposed as part of the exploration of potential benefits of joint storage Option 8e.

Based on this, Alberta proposed an alternate Annual Credit system Option for MT to consider:
Credit-based – St Mary R.

- U.S. credit for surplus St. Mary R. flows is capped at 30,000 ac.ft.
- A minimum of 10,000 ac.ft. must be withdrawn from any accumulated credit prior to June 1, otherwise the remaining credit is reduced to what it would have been had 10,000 ac.ft. been withdrawn.
- The minimum U.S. access (credit) would be 8,000 ac.ft., even without surplus deliveries with which to accumulate credits (similar to current Letter of Intent).

Credit-based – Milk R.

- AB credit for Milk R. flows is capped at 15,000 ac.ft. AB believes size of cap is relatively unimportant because in most years there is very little natural flow after July to be able to draw against it.
- AB's credit is a percentage of the size of credit MT accumulates on the St. Mary R. AB.
- AB is guaranteed a minimum of 4,000 ac.ft. of U.S. St. Mary R. water in any year, regardless of credit accumulated, and then may take the lesser of accumulated Canadian Milk River surplus deliveries or 50% of the U.S. St. Mary R. credit to a max. of 10,000 ac.ft. (see table below). The sequence of withdrawal would be from: (1) the Canadian Milk R., (2) the U.S. Milk R., (3) diverted U.S. St. Mary R.

U.S. Credit on St. Mary R.	Canada Draws on Milk R.
>20,000 ac. ft.	10,000 ac. ft.
8,001 - 20,000 ac. ft.	50% of U.S. St. Mary credits accessed
0 - 8,000 ac. ft.	4,000 ac. ft.

AB's summary proposal for the Annual Credit-Based System is to be modelled with the following variations:

a) 650 cfs canal + modified Sherburne
b) 850 cfs canal + modified Sherburne
c) 850 cfs canal + modified Sherburne and Lower St Mary Lake
d) 850 cfs canal + modified Sherburne and large AB-only Milk R storage
e) 850 cfs canal + modified Sherburne with Lower St Mary Lake and large shared Milk R. storage

The minimum credit would be 8,000 ac.ft. for MT. Alberta would be allowed to divert a minimum of 4,000 ac.ft. from St. Mary R. water, which is similar to the current situation under the Letter of Intent. The details of future IFN flow in MT during fall and winter are unknown at this time and may affect this option.

The difference between the AB proposal and the MT 32K/16K proposal is 6000 ac. ft. of U.S. St. Mary diversions going to the Canadian Milk R. during the highest credit years. This option will be modelled in detail to determine the benefits and impacts.

ACTION: Larry will work with Laurent to model MT's proposal and AB's proposal for the Annual Credit-Based System.

3. Option: Modifications to 1921 Order – Larry, Anne, Robert

MT presented a modified version of their earlier proposal to revise the allocation formula of the 1921 Order. MT stated that the intent of revising the allocation formula is to:

1. Ensure that Canada receives at least the same volume of water from the St. Mary River that it is entitled to under the current 1921 allocation formula, and
2. Allow the U.S. to access a greater volume of the water from the St. Mary River to which it is entitled under the current 1921 Order allocation formula. MT would be willing to share a percentage of any potential gains with Milk River, AB.

AB's concern with the modified Order presented below was that, over the 45-year period on average Canada would be entitled to 19,120 ac.ft less from the St Mary R. than it gets currently

(15,552 ac.ft. less in the driest 11 years), while on the Milk R., Canada would receive 2282 ac.ft. more (45-yr. average) and zero ac.ft. more in the driest 11 years. MT acknowledged that their first proposal (Options 23a and 23b) reduced AB access to volume below 100% of their entitlement on the St. Mary R. The current revised proposal attempted to correct this by specifying that Canada, on an annual basis, will receive from the St Mary River at least the same annual volume that it would have received under the 1921 Order. The Technical Team has not had time to model the revised proposal, so potential gains and impacts are not known at this time.

MT's modified proposal affects flows between 666 and 1332 cfs, as follows:

	St. Mary R.			Milk R.	
	1st 666 cfs	666-1332	>1333 cfs	1st 666 cfs	>666 cfs
Canada	75% (current 75%)	35% (current 50%)	50% (current 50%)	25% (current 25%)	80% (current 50%)
U.S.	25% (current 25%)	65% (current 50%)	50% (current 50%)	75% (current 75%)	20% (current 50%)

Montana also requested the five variations that were requested to be run on the Annual Credit-Based System (top, page 3) also be run on the revised Modified 1921 Order (on the St. Mary R., AB receives 75% of 1st 666 cfs, AB receives 35% of 2nd 666 cfs; all flows above 1332 cfs are shared equally; on the Milk R., MT receives 75% of the 1st 666 cfs and 20% of all flows above 666 cfs), with the requirement that on the St. Mary R., AB continues to receive at least 100% of the total volume entitlement as under the current 1921 Order for all years.

The Joint Team discussed the revised proposal. The AB Team is open to looking at changes to the timing of when shares are taken, but not at a proposal to modify the proportion of shares, because AB does not believe the Team has the authority to do so. AB believes MT could make infrastructure changes prior to looking at changing the proportion of shares. AB is also concerned that this modification is of marginal benefit to AB Milk R. irrigators, because in most years there is very little natural flow above 666 cfs to draw on in the summer months.

MT disagreed with AB's interpretation of the terms of reference with respect to changing the share calculation. MT believes that what they are proposing is allowed within the terms of reference, but if AB did not want to discuss changes to the Order, MT was prepared to move on. MT reiterated that the intent with any potential modification to the 1921 Order is for MT to receive more water and be able to share any potential gains with Milk River, AB. MT also believes that if infrastructure is built, the Team could agree to re-open and review the operations and the intent of the Order. MT is willing to explore changes to the allocation formula in the 1921 Order with caps, with exploration of the impacts of potential infrastructure improvements and with triggers to reopen and review. MT also disagreed that the modified proposal is of marginal benefit to AB.

Based on this, the following runs to be made include:
Revised Modified Order (Can.:U.S.— 35:65% on St. Mary R. and 80:20% on Milk R.), with the modified Sherburne filling curve:

i. 650 cfs canal + modified Sherburne
ii. 850 cfs canal + modified Sherburne
iii. 850 cfs canal + modified Sherburne and Lower St. Mary Lake
iv. 850 cfs canal + modified Sherburne and Lower St. Mary Lake and large AB-only Milk R. storage
v. 1000 cfs canal + modified Sherburne

vi. 650 cfs canal with credit for surplus deliveries (caps to be determined after running option (i) above plus input from Team leads)

These runs are to determine how much additional St. Mary R. water MT can access and still ensure that AB receives at least 100% of the total volume entitlement provided under the current 1921 Order for all years.

ACTION: MT is to determine how much U.S. St. Mary R. water Milk River, AB would be allowed to access under the Revised Order option after information received from technical team.

ACTION: Technical Team will complete model runs for Revised Modified Order options.

The Joint Team discussed the budget and resource implications to each jurisdiction if the project extends into mid-summer.

Day 2 – <u>Feb. 23 – 8:00 a.m. – 1:30 p.m. Scenic Room</u>

4. Option: Shared storage – Larry, Robert

Larry reviewed the shared storage option. As Fresno Reservoir storage volume decreases, the benefits of MT sharing upstream storage in AB could increase.

ACTION: The Tech. Team will model a distant future baseline condition that assumes 50,000 ac.ft. capacity Fresno Reservoir.

The shared storage options can then be compared to this baseline to examine the potential benefits of shared storage when Fresno Reservoir storage declines further. The details of the required runs will be determined by the Technical Team.

Sharing storage would allow MT to carry over a portion of flows from wetter years. The model indicates a small benefit of about 11,000 ac. ft. on the Milk R.; the benefit is greatest in the second of two back-to-back dry years. AB would operate its storage on a year-to-year basis, plus carry over some volume from year-to-year.

Questions that arose: How long would it take to fill this storage? What operations and management flexibility could be applied? (*e.g.*, from whose water would IFN flow be drawn?). Comment: operations would have to respond to the time when the water was needed.

5. How do we move forward? – Larry, Robert

There was discussion that, with the previous model runs request, additional model runs and analysis will be needed before the Team can understand the implications and potential impacts on each jurisdiction.

The Joint Team discussed whether to model the 1000 cfs canal, especially for the Revised Modified 1921 Order. Since the U.S. Bureau of Reclamation will decide on the size of canal, modelling a 1000 cfs canal would provide information. AB will discuss this within the AB Team and determine if a 1000 cfs model run may be valuable to AB.

6. International Watershed Group – Anne, Robert

Postponed until the Joint Team develops more detail about the shape and form of specific recommendations.

7. What would potential recommendations look like? – Anne, Robert

The Joint Team discussed what is required to fully document the Initiative and produced the following:

1. Background Technical Information report (audience – anyone who is interested)
    a. …

2. Recommendations Report (audience: everyone)
    a. Brief summary of Technical Summary Report (where people can find: model information, Technical Summary report, Technical Archive, Process report, etc.)
    b. Team Involved
    c. Why this Initiative was launched
    d. List of Options* – short description statement
    e. Maps
    f. Brief process
    g. Core recommendations* (short-term, long-term)
    h. Fate of the Options
    i. Summary of Criteria and Interests (numerical and narrative)
    j. Costs
    k. International Watershed Group – Framework (core response., etc.)
    l. Communications, coordination

3. Technical Summary Report – (model description, hard analysis, model set-up, *etc*. done by Technical staff, plus the interpretation of that work – the Joint Team owns the interpretation component) (audience: technical people)
    a. Description of model
        i. How it works – schematic (so it can be reproduced)
    b. How calibrated
    c. Summary of data input
    d. History of model
    e. Technical Team – contact data
    f. Location of technical archive information

4. Technical Archive – a clean archive of all the full set of model options (80-90)and all model output (about 30 pages for each run = electronic format, as it will be very large) (audience is Tech. team leads)
    a. Calibration file
    b. Model inputs (files)
    c. Actual input data
    d. Model code
    e. Communication with other Technical Specialists (overview: who, when, topics)

5. Process report (meeting dates, agendas, Notes) (audience is for future project review)
    a. Team members
    b. Why initiative was undertaken
    c. Meeting Notes from each meeting

d. Joint Status Reports
e. Terms of Reference
f. Agenda
g. Action items / Agreements
h. List of communication with other Technical Specialists
i. Result of process = report submitted to each jurisdiction

Each report will have a common introduction section that identifies what report it is and where to find the other reports.

ACTION: For each Report, the Secretariat will produce a proposed table of contents plus a couple of bullets describing the content of each section.

8. Meeting review and plan for next meeting – Robert and Anne

Next meeting: April 15th-16th in Helena, MT
Subsequent meeting: June 2nd-3rd – Lethbridge (Objective: did we get the report right?)
Start and end times will remain.

Instead of having internal government meetings to learn about model results, then subsequent Joint Team meetings for the same reason, the Joint Team requested a video/tele-conference call to hear technical results all at once. It was agreed to set up a video/tele-conference April 6th, between the jurisdiction teams.

ACTION item list, Agreements and Model run review:

1. **ACTION**: Larry will work with Laurent to model MT's proposal and AB's proposal for the Annual Credit-Based System.
2. **ACTION**: MT is to determine how much U.S. St. Mary R. water Milk River, AB would be allowed to access under the Revised Modified Order option after information received from technical team..
3. **ACTION:** Technical Team will complete model runs for Revised Modified Order options.
4. **ACTION**: The Tech. Team will model a distant future baseline condition that assumes 50,000 ac.ft. capacity Fresno Reservoir.
5. **ACTION**: For each Report, the Secretariat will produce a proposed table of contents plus a couple of bullets describing the content of each section.

AGREEMENTS:

1. It was agreed to approve meeting agenda.
2. It was agreed to reschedule March meeting from March 23-24 to April 15-16 in Helena, MT.
3. It was agreed to keep the analysis simple – for the purpose of modelling, water that crosses the border will be available to be used as a credit for the upstream jurisdiction, but the annual credit should be capped.
4. It was agreed to set up a video/tele-conference: April 6th, between the jurisdiction teams.

MODEL RUNS:

Revised Modified Order (Can.:U.S.— 35:65% on St. Mary R. and 80:20% on Milk R.), with the modified Sherburne filling curve:

a) 650 cfs canal + modified Sherburne
b) 850 cfs canal + modified Sherburne
c) 850 cfs canal + modified Sherburne and Lower St. Mary Lake

d) 850 cfs canal + modified Sherburne and Lower St. Mary Lake and large AB-only Milk R. storage
e) 1000 cfs canal + modified Sherburne
f) 650 cfs canal with credit for surplus deliveries (caps to be determined after running option (a) above plus input from Team leads)

MT''s summary proposal for the Annual Credit-based System is to be modelled under the following variations:

a) 650 cfs canal + modified Sherburne
b) 850 cfs canal + modified Sherburne
c) 850 cfs canal + modified Sherburne and Lower St Mary Lake
d) 850 cfs canal + modified Sherburne and large AB-only Milk R storage
e) 850 cfs canal + modified Sherburne with Lower St Mary Lake and large AB-only Milk R. storage

AB's summary proposal for the Annual Credit-Based System is to be modelled with the following variations:

a) 650 cfs canal + modified Sherburne
b) 850 cfs canal + modified Sherburne
c) 850 cfs canal + modified Sherburne and Lower St Mary Lake
d) 850 cfs canal + modified Sherburne and large AB-only Milk R storage
e) 850 cfs canal + modified Sherburne with Lower St Mary Lake and large shared Milk R. storage

The meeting was adjourned at 2:15 p.m.

Montana – Alberta: St Mary & Milk Rivers
Water Management Initiative

Joint Initiative Team Meeting #13
June 3, 2010
Lethbridge, AB and Great Falls, MT by Teleconference

Montana	Alberta
Anne Yates – Department of Natural Resources and Conservation (DNRC) (co-Chair)	Robert Harrison – Alberta Environment (co-Chair)
Dustin de Yong - Office of the Lt. Governor	Brent Paterson – AB Agriculture & Rural Dev.
Randy Reed – Milk River irrigator	Ken Miller – Milk River
Dave Peterson – City of Havre	Tom Gilchrist – Milk River
Paul Azevedo – DNRC (Secretariat)	Gerry Perry – Oldman River
Larry Dolan – DNRC Technical Team	Duncan Lloyd – Oldman River
	Tim Toth – AB Environment (Secretariat)
	Sal Figliuzzi – AB Tech. Team Lead

Regrets –Don Wilson – Blackfeet Tribe; Harold "Jiggs" Main – Ft. Belknap Tribe

Observers – John Sanders, St. Mary Canal Engineer, DNRC; Mary Vandenbosch, Water Resource Planner, DNRC; Roger Hohm (AB Agriculture & Rural Development)

Meeting Objective(s)
- Understand completed new model runs
- Understand implications of potential options
- Discuss path forward

Notes

1. Welcome; Administration – Robert, Anne, Tim, Paul

The agenda was agreed to with the following additions: report on the teleconference that Robert and Anne participated in with International Joint Commission (IJC) staff; an update on the Alberta team's meeting with ministers; and an explanation from Alberta regarding the withdrawal of the credit system proposed by Alberta.

Tim reviewed proposed changes to the draft notes for JIT Meeting #12. Action on the notes was tabled to allow team members an opportunity to review the notes. Paul stated that the last proposed change (on page 6) does not add anything and should be deleted.

Tim and Paul reviewed the Action Items identified at JIT Meeting #12:

1. **ACTION**: Larry will work with Laurent to model MT's proposal and AB's proposal for the Annual Credit-Based System. Montana's proposal was modeled; Alberta's proposal was discussed and not modeled.
2. **ACTION**: MT is to determine how much U.S. St. Mary R. water Milk River, AB would be allowed to access under the Revised Modified Order option after information received from technical team. This was not done because Alberta stated that it does not wish to pursue this Option.

3. **ACTION:** Technical Team will complete model runs for Revised Modified Order options. Completed.
4. **ACTION**: The Tech. Team will model a distant future baseline condition that assumes 50,000 ac.ft. capacity Fresno Reservoir. Completed.
5. **ACTION**: For each Report, the Secretariat will produce a proposed table of contents plus a couple of bullets describing the content of each section. Draft outlines for the Technical Summary report, Technical Archive report and Process report have not been started. Work done by Robert and Anne on the draft outline for the "Recommendations" report was not discussed at this meeting.

2. Options Modeled since last meeting – Larry and Sal

Shared Alberta Milk River Storage Reservoir

Larry reviewed slides 3-6 which showed the effects of a shared Alberta Milk River reservoir option with an assumed future storage capacity in Fresno Reservoir of 50,000 acre-feet. (Option 8F). Montana's key findings are as follows:

- Storage losses in Fresno Reservoir due to sedimentation can be expected to continue into the future.
- In about 80 years, Fresno Reservoir storage might be as low as 50,000 acre-feet, which could result in more significant water shortages for U.S. Milk River irrigators.
- New Milk River storage has the potential to offset future water shortages that would result from lost storage due to sedimentation.

Parties discussed whether the 1921 Order would need to be modified in order to use a shared Alberta Milk River storage reservoir. The answer was generally "no." However, operation of the storage facility would require IJC approval and the computational procedures manual for implementing the Order would need to be modified. The jurisdictions would need to establish an operational procedures agreement similar to the agreement between North Dakota and Saskatchewan for Rafferty-Alameda. A question was raised regarding when Sherburne dam was constructed and whether the IJC contemplated Sherburne Reservoir in the 1921 Order. Team members were uncertain of the answer.

Sal presented Alberta's key findings for Future Fresno Storage Scenario (slide 7):

- Storage losses in Fresno Reservoir do not have an effect on Canadian Milk River irrigation.
- Volume of Canadian Milk River entitlements accessed by Alberta depends on the amount of Canadian Milk River storage. (*i.e.*, The amount of water Alberta can take and use from the Milk River increases as the amount of Canadian Milk River storage increases.):

Canadian storage	Accessed Milk R Flow
100% AB (237,000 ac-ft)	38,000 ac-ft
75% AB (178,000 ac-ft)	36,500 ac-ft
50% AB (118,500 ac-ft)	32,400 ac-ft

A question was asked to clarify that doubling the amount of Canadian storage would only increase the amount of accessed Milk River flow by about 6,000 acre-feet. The reservoir would not fill every year, but only during occasional (6-10 yr.) floods. The option would allow storage of water in wet years to provide several years of carry over water supply.

Annual Balancing Credit-Based System Montana Option

Larry reviewed the Montana Credit System Proposal (Option Series MT):

- All surpluses within the Nov 1- Oct 31 period are credited to a maximum cap.
- Can draw on credit at any time.
- Can deliver less than entitlement when drawing on credit.
- Residual credits are zeroed on Oct 31. Caps or credits cannot be carried forward from one water year to the next.
- Maximum cap of 32,000 acre-feet on U.S. St Mary surplus single fill.
- Instream flows (IFNs) are incorporated in this option.
- Maximum cap of 16,000 acre-ft on Canadian Milk surplus single fill.
- Credit to be drawn first from U.S. Milk River natural flow.
- Max 4,000 acre-ft to be drawn from U.S. St. Mary diversions.
- Milk River in AB continues to irrigate existing acreage.
- Shortages would be shared in dry years.

In response to a question, Larry explained that instream flows for Alberta would be at least 35% of the natural flow of the St. Mary River when it is greater than or equal to 570 cfs (35% of 570 cfs is 200 cfs). When St. Mary River natural flows are below 570 cfs, instream flows would be the lesser of 200 cfs or the Canadian share. These would be the minimum flows at the international boundaries. It was noted that instream flow numbers are estimates and not official standards.

Montana's key findings for the Credit System Options include (slide 17):

- The options would allow the U.S.to access from 2% to 9% more of its 1921 Order share from the St. Mary River in comparison with current conditions -- a St. Mary Canal capacity of 650 cfs and the Letter of Intent (LOI). (Montana potentially may never access 100% of its share under the 1921 Order because under this Option up to 4,000 acre-feet/year may be used by Alberta Milk River irrigators.)
- Depending on canal capacities and the total volumes of natural flow, the credit system might allow the U.S. to access from about 4,000 to 30,000 acre-feet of additional St. Mary River water with the higher increases generally in wetter years (compared to just operating under the LOI). The full 32,000 acre-foot increase would only occur during a few wetter years.)
- Modeled increases in irrigation deliveries were not as substantial, and ranged from about 1,000 to 6,000 acre-feet. (Larry indicated irrigation deliveries were lower than anticipated. The model seems to be moving water across at the first opportunity rather than when it is most needed. He would like to review the underlying model assumptions)
- The potential benefits from including Lower St. Mary Lake storage with this option might be additive with respect to the effective use of the water. (The additional benefits of Lower St. Mary Lake storage are relatively small in most years with respect to the volume of St. Mary River water accessed; however, Lower St. Mary storage seems to offer irrigation benefits in terms of reregulating flows.)
- The Options might offset potential increased U.S. Milk River water shortages due to an Alberta-only Milk River storage project.

Slide 11 – Larry stated that Option 10a is now the baseline. Option 10a includes a 650 cfs canal with a Letter of Intent. He explained that the total amount of water accessed during a year may not be the same as the amount brought across through the canal; water could have been held in

storage in Sherburne Reservoir, or there could have been a net release of water from storage during a year. On slide 13, there was a discussion of the amount of water brought across the canal under option MT1b vs. the amount used, and Robert raised a question about whether the water is used efficiently. Larry explained this could be due to the way St. Mary Canal operations are modeled, which may be sending water across at the first opportunity which would maximize natural flow diversions, but may not coincide with when it is most needed for irrigation. When asked whether Montana wished to optimize diversions or irrigation, they explained that the system generally is operated to maximize irrigation deliveries but that the U.S. has potential future uses that are not reflected in the model, such as obligations under the Blackfeet and Fort Belknap compacts.

Sal presented Alberta's findings for Alberta's St. Mary Basin for the Montana Credit-Based System Option (slide 30). Key findings are presented below.

- **Annual basis**: On average Alberta would be able to access its full entitlement. During the driest 11 years Alberta would access about 3,000 ac-ft more than its entitlement under current procedures due to Canadian Milk River access of U.S. diversions.
- **Irrigation Season**: On average Alberta would be able to access it full entitlement. However in 22 driest years Alberta would receive about 9,000 ac-ft less than the share it receives under the current semi-monthly balancing procedures.
- Average irrigation deficits would increase from about 0.77 inches to between 0.80 and 0.83 inches. However, as shortages are not necessarily shared, most of the deficit increase may have to be borne by junior licence holders.
- Raymond Irrigation District (RID) irrigation deficits greater than 4" would increase from 1 to between 2-4 occurrences during the 45 years simulated.

There was much discussion of slides 19-30. Key points covered in that discussion include the following:

- Slide 21 prompted discussion that there is not a predictable pattern of dry years following wet years or dry years.
- The Montana Team expressed concern that the Water Year 1999-2000 used to illustrate the effects of the Montana Credit-Based option (slides 25 and 26) is not typical. Specifically, Larry stated that this flow pattern with an unusually high fall flow followed by a dry year is extremely rare. Sal replied that an extreme year was used to illustrate the effect. When asked what the impact is during a median year Sal replied he didn't know, but said irrigators are interested in impacts in driest years. The Montana Team expressed an interest in understanding more typical impacts; Alberta believes there is more to be learned from looking at the driest years.
- Slides 25, 26 – Sal emphasized that figures 25 and 26 represent the flow conditions at the international boundary – specifically, the impact depends on whether the downstream country is able to capture and utilize the flow it receives (slide 25). Montana expressed concern that this terminology was being misused, reminding the group that we agreed to stay away from these terms and that, at the February 23-24 meeting, the Teams agreed to keep the analysis simple. For the purpose of modeling, water that crosses the border will be available to be used as a credit for the upstream jurisdiction as long as the annual cap is not exceeded.
- There were several questions about the junior license holders referenced on slides 28-30. Robert indicated that Alberta received the data last week and they needed to look at it more thoroughly, but it looked like about 600 individual license holders with 500 being junior to RID. That would amount to approximately 500,000 acre-feet of water. Robert

stated that Alberta needs to determine how frequently the junior licenses are cut off if AB receives only its entitlement. Anne asked why we are starting to do this evaluation so late in the process.
- With respect to Option MT1b, Robert noted that a better title for this option is the 32k/16k option. On slide 21 he explained that the 101% share on the chart is divided into two parts – 98% goes to Alberta St. Mary.

Alberta's Key Findings for the Alberta Milk River Basin for the Montana Credit System Option (slide 36) are as follows:

- On average Alberta Milk River water users would be able to access an additional 4,000 ac-ft under the proposed credit system (3,000 ac-ft during driest 11 years).
- On average, irrigation deficits would decrease from the current 4.4 inches to about 2.6 inches.
- The proposed credit system would reduce the number of irrigation deficits greater than 4" from the current 21 out of 45 years to about 10 in 45 years simulated.

Revised Modified 1921 Order

Larry reviewed the Revised Modified 1921 Order Option With 100% Share of 1921 Order Cap (Option Series MO). The new revised allocation formula was reviewed (Slide 38). Larry explained that the 100% of 1921 Order Share volumetric cap would be computed on a calendar year basis (Jan. 1-Dec. 31). In response to a question from the Alberta Team about why the option would give Alberta 80% of Milk River flow above 666 cfs, Anne explained that the allocation formula for the Milk River was revised to give Alberta's Milk River Basin more water because – in comparison with the St. Mary River – natural flows on the Milk River do not exceed 666 cfs as often.

When asked what additional volume Alberta would receive, Anne noted that Montana did not determine how much U.S. St. Mary River water Milk River, Alberta would be allowed to access under the Revised Modified Order option because Alberta representatives stated that the option was not something they would consider, even before the model runs were done. Therefore, Montana's presentation does not account for water that would be accessed by Milk River, Alberta.

In response to questions about slides 41 and 42, Larry explained that the increase in water deliveries to irrigators' headgates during dry years may be greater than the increase in water accessed because the U.S. is banking stored water in Sherburne or downstream in Fresno and Nelson reservoirs during wetter years. Other factors that may affect irrigation deliveries include instream flow criteria and timing.

Montana's key findings for the Latest Revised Modified 1921 Order Option (slide 45) include:

- The options would allow the U.S. to access 95% of the 1921 Order annual share volume on average, and 100 percent during drier than median years with an 850 cfs canal.
- Depending on canal capacities and the total volumes of natural flow, the option might allow the U.S. to access from about 9,000 to 30,000 acre-feet of additional St. Mary River water with the higher increases generally in wetter years.
- Increases in deliveries to U.S. irrigators of about 9,000 to 20,000 acre-feet per year where modeled.

- Because the U.S. would be limited to 100% of its current 1921 Order annual share volume, additional benefits from adding Lower St. Mary Lake storage to this option would not be realized during drier-than-average years.

Slide 43 shows St. Mary River water accessed by the U.S. with an 850 cfs canal (MO3) in comparison with other options (MO4, MO5, and MO6). Larry explained that the changes in infrastructure do not increase the benefit during drier years because the 100% cap limitation means that the U.S. can't access more water during those years. By the modified formula, there might seem to be more water available for the U.S. to access but the 1921 order volume cap would be the limiting factor during drier years.

The Alberta team noted that there could be a deficit at a certain time of year that could not be made up by the end of the year. The Montana team noted that tracking flows would be a good job for an International Water Management Board.

Sal presented Alberta's findings for the Alberta St. Mary basin for the Montana Latest Revised Modified 1921 Order Option (slides 46-57). The option did not permit Alberta Milk River irrigators access to U.S. diversions. The Montana Team's perspective is that that these findings did not give the full picture because they did not give Alberta Milk irrigators access to U.S. St. Mary water that Montana is willing to share with Milk River, Alberta. Alberta asked if Montana identified a volume of diverted water that could be accessed. Montana did not identify the amount of water because Montana understood this option was not under consideration.

Alberta's key findings for Alberta's St. Mary Basin under Montana's Latest Revised Modified 1921 Order Option (slide 57) include:

- Annual basis: On average Alberta would be able to access it full entitlement including in the driest 11 years.
- Irrigation Season: On average Alberta would be able to access its full entitlement. However in 22 driest years Alberta would access on average about 11,000-12,000 ac-ft less than its entitlement under the current procedures (as much as 33,000 ac-ft less in any one year). (Robert stated that the important years for Alberta are the driest 22 years.)
- Average irrigation deficits would increase from about 0.77 inches to between 0.81 and 0.83 inches. However, as shortages are not necessarily shared, most of the deficit increase may have to be borne by junior licence holders.
- RID Irrigation deficits greater than 4" would increase from 1 to about 4 occurrences during the 45 years simulated. Magrath Irrigation District (MID) deficits would also increase from 1 to 3 under MO5.

The Montana team suggested that the slides (47-50) should be labelled as Revised Modified Order instead of "revised sharing options." Larry clarified that the Modified Order option is not a credit system.

On slide 54, Larry questioned why the amount of water accessed on July 29 is less than 500 cfs. With Montana's proposed option, the allocation of flows below 666 cfs does not change. Sal wasn't sure but agreed that the line should be flat at 500 cfs.

Discussion about slide series 46-57 included:

- The Alberta team emphasized that modelled results must be fully evaluated for impacts in the driest years because that is when water is the most valuable

- To MT's question about the impact if AB's junior licensees are cut off, Robert replied that there might be an irrigation deficit of about 0.5 inches and a redistribution of the remaining available water among the rest of the licensees

Montana disagreed with the graphs shown on slides 59-63 because they did not provide Alberta Milk River irrigators any access to St. Mary water through the St. Mary Canal that Montana is willing to accommodate. Anne noted that Montana did not determine how much of the additional St. Mary River water the U.S. would be able to access under the Revised Modified Order option it might allow Milk River, Alberta to access, because on April 16 Alberta stated that the option was a non-starter before the data were available. She wanted to clarify that this is the reason there is no amount – and apparent benefit -- for Milk River, Alberta in these slides; it's not that Montana didn't want to give water to Milk River, Alberta. Robert indicated that Alberta still expected to see the runs on this. Randy indicated Montana can still do this.

With respect to the impacts on St. Mary irrigation deficits, Anne noted that the impacts of the Revised Modified Order seem to be about the same as those of the Babb dam (Option 9).

Alberta's key findings (slide 63) for Alberta's Milk River Basin for the Latest Montana Proposed Modified Order Option without water from the St. Mary delivered to Milk River, AB include:

- On average Alberta Milk River water users would be able to access 3,000 - 4,000 ac-ft less than current since the increase in Canadian Milk River entitlements do not offset access to U.S. St. Mary Diversions provided by the Letter of Intent.
- On average, irrigation deficits would increase from the current 4.4 inches to about 8.3 inches.
- The proposed modification would increase the number of Milk River irrigation deficits greater than 4" from the current 21 out of 45 years to about 36 in 45 years.

Alberta Credit Proposal

Anne asked about the Alberta Credit Proposal. Robert explained that Alberta believed that doing the run on this proposal would not give the Joint Team any information that it did not already have from runs on the following: the large Letter of Intent option (10,000-20,000 acre-feet that was split over 2 parts of the year); Montana's revised proposed options; and the modified Order. The Montana team asked if the Alberta Credit proposal was being taken off the table. Robert responded affirmatively and asked if a run should be done on another variation. No runs were identified.

3. Discuss Path Forward and Plan for Next Meeting

Joint Team members discussed the path forward and how to build on the good relationships developed over the last year. Team members agreed that as a group, they know the St. Mary and Milk irrigation/water management system better than anyone. Individuals should rise above their self-interests for the good of both jurisdictions. Team members generally agreed on the following:

- Using a common sense approach to understanding the technical information (e.g., is there enough water at the headgate).
- Face-to-face meetings are important.
- It's important to keep a focus on the big picture instead of getting bogged down in details. We need to make good use of this opportunity.

- No new runs are needed, just the summary implications of current model runs.

The JIT agreed to the following agenda items for the next meeting:

- International Water Management Group
- Plan for closure
- Each team's vision of success
- Presentation of learnings on options from each team. This would be a review of what each team has learned from the current runs and not a presentation on how to move forward.
- Discussion of challenging issues.

The Joint Team's discussion about the path forward acknowledged that:

- There are some things that the Alberta and Montana teams will not agree on.
- There is sensitivity to terms used during the 2003-2006 Task Force study.
    - Some Alberta Team members were unaware that terms such as "capture" and "use" were contentious.
- There is value in the Joint Team spending a limited time in discussing the challenging issues.
- They desire greater understanding rather than convincing or criticizing.

The date and location for the next meeting were set for July 19th and 20th in Havre, Montana, starting at mid-day on the 19th (when the bus can get there) and ending at 3 p.m. on the 20th.

Action Items

1. Paul will confirm when construction of Sherburne Reservoir was completed.
2. Alberta will evaluate the potential impact of receiving only Alberta's allocated share of water under the 1921 Order.

Agreements

The Joint Team agreed:

1. To approve the agenda for the June 3, 2010 teleconference.
2. To meet in Havre July 19 and 20, 2010.
3. On agenda items for the July 19-20 meeting.
4. To use a common sense approach to understanding the technical information.
5. Face-to-face meetings are important.
6. To keep a focus on the big picture.
7. No new model runs are needed.

4. Communications

Robert and Anne reported on their conference call with the IJC. The IJC contacts agreed to search the files and then contact Robert and Anne and send a letter with their findings. Anne stated that the IJC did not appear to want to do anything that might discourage constructive dialogue.

Anne asked about the Alberta Team's meetings with Alberta's Ministers of Agriculture and Environment. Robert explained that they briefed them. The ministers put the burden on Alberta's

team to rebuild the energy and cooperative spirit developed in this process. They wanted to know when the initiative is expected to be completed. They are interested and desirous that the results of this initiative survive another 100 years. This was the first opportunity to brief Minister Hayden, the recently appointed Minister of Agriculture.

The meeting was adjourned at 3:15 p.m.

Montana-Alberta St. Mary and Milk Rivers Water Management Initiative

Joint Initiative Team Meeting #14
July 19-20, 2010
Havre, Montana

Montana	Alberta
Anne Yates – Department of Natural Resources and Conservation (DNRC) (co-Chair)	Robert Harrison – Alberta Environment (co-Chair)
Dustin de Yong - Office of the Lt. Governor	Brent Paterson – AB Agriculture & Rural Development
Randy Reed – Milk River irrigator	Ken Miller – Milk River
Dave Peterson – City of Havre	Tom Gilchrist – Milk River
Paul Azevedo – DNRC (Secretariat)	Gerry Perry – Oldman River (day 1 only)
Larry Dolan – DNRC Technical Team	Duncan Lloyd – Oldman River
	Tim Toth – AB Environment (Secretariat)
	Sal Figliuzzi – AB Tech. Team Lead

Absent Members – Don Wilson, Blackfeet Tribe; Harold "Jiggs" Main, Ft. Belknap Indian Community

Observers – John Sanders, St. Mary Canal Engineer, DNRC; Mary Vandenbosch, Water Resource Planner, DNRC

Purpose of Phase 2 Joint Initiative Team

To explore and evaluate options for improving both Montana's and Alberta's access to the shared water of the St. Mary and Milk Rivers, and to make joint recommendation(s) on preferred options to both governments for their consideration and approval.

Meeting Objectives

- Understand each team's perspective on options
- Strategize plan for remaining process

1. Welcome and Administration

The agenda for this meeting was approved.

The notes for Joint Initiative Team (JIT) meeting #12 were approved.

Yates presented a recap of the June 3, 2010, JIT #13 teleconference: The JIT reviewed the same power point presentation by the Technical Team and discussed information and issues by conference call. The Technical Team reviewed the results of model runs on the following options: Shared Alberta Milk River Storage Reservoir where Fresno Reservoir storage is 50,000 acre-feet (Option 8f); Montana's Annual Balancing-Credit System Proposal (Option Series MT); and the Revised Modified 1921 Order with 100% Volume Cap (Option MO). Montana explained that it did not determine the amount of U.S. St. Mary River water that Milk River, Alberta would be allowed to access under the MO series because it understood that Alberta did not consider the option acceptable before the model runs were done. Alberta's annual credit proposal from

the February JIT meeting was not run. Alberta confirmed that this proposal was withdrawn. Team members agreed on a path forward that involves using a common sense approach to understanding the technical information. The co-chairs reported on a conference call with the International Joint Commission (IJC) and the Alberta Team's meeting with Alberta's Ministers of Agriculture & Rural Development, and Environment.

Azevedo reviewed the action items and agreements from the June 3, 2010 meeting. He stated that Sherburne Reservoir was constructed in 1919. Alberta's presentation on its learnings will address the potential impact of receiving only Alberta's allocated share of water under the 1921 Order.

Communications with constituents

The co-chairs received a letter dated June 17, 2010 from the IJC. The IJC's response did not provide new insight regarding why there is a 5 percent long term mean variance between each jurisdiction's entitlement to the combined flow of the rivers.

Harrison reported on the status of the Initiative to Jim Csabay, the recently departed Chair of the St. Mary River Irrigation District.

Update on St. Mary Diversion Dam Replacement Planning

Sanders provided an update on the status of planning for the replacement of the St. Mary Diversion Dam. A value planning process has been completed. The alternative identified by the team is to include a fish screen and bypass for the canal and a concrete ladder at the diversion dam to let selected species pass. An add-on option is to design the crest of the concrete portion to make it possible to add a bladder or Obermeyer type dam to store water and regulate flows. The plan is to complete environmental review by the end of 2011. Construction is planned for 2012-2014.

Azevedo explained that the modifications to the outlet works at Sherburne Dam are moving forward independently on a faster schedule.

2. Discussion of Challenging Issues and Terminology

Team members discussed issues, procedures and terminology that have presented or might present a challenge to the process. The purpose of the discussion was to facilitate a better dialogue and understanding among Joint Team members.

3. Montana Learnings Re: Options

Montana presented an abbreviated version of its learnings and distributed a more detailed handout entitled "MT-AB St. Mary & Milk Rivers Water Management Initiative – MT Team Learnings Draft July 16, 2010". (Slide numbers in the meeting notes refer to slide numbers in the handout.)

On slide 5 Dolan explained that winter releases from Sherburne Reservoir are projected to be 15 cfs, which equates to 5,000-7,000 acre-feet. Therefore, Lower St. Mary Lake Storage (Options Series 4) could be used to mitigate the impact of winter releases from Sherburne under the U.S. Endangered Species Act.

On slide 11, Yates clarified that the 0.82 inch average deficit is spread over all Alberta irrigation districts.

On slide 12, Montana clarified that neither option (2a or 9) includes a Letter of Intent (LOI).

On slide 16, Montana clarified that all other irrigation districts stayed the same with respect to shortages greater than 4 inches.

On slide 19, Montana noted that seasonal balancing did not show a lot of benefit.

Slide 42 – The U.S. never gets 100 percent of the St. Mary R.; Canada's share is always at least 101 percent of the St. Mary R.

Slide 44 – because Option 9 does not include exchange water for Alberta Milk River irrigators, deficits go up substantially.

Slide 47 – MT1a and MT1b allow Alberta to take credit for natural flow so deficits are reduced.

Slides 53-54 – there would be slightly (1-2%) less water going to Milk River Alberta with the latest modified 1921 Order options.

Slide 66 –Slide 66 contains an error. It should say that Montana does not access any of either River.

4. Alberta Learnings Re: Options

Harrison reviewed the documents prepared by Alberta, most of which were repackaged from earlier discussions, to make reference easier. These include:

- Description of Information Documents Handed out by Alberta
- Southern Tributaries: Total Historic Flows – Flow volumes were sorted in two columns – (1) by years (1939-2003) and (2) by volume, to indicate the range of historic flows on the southern tributaries – lowest year was 1977 (61,249 ac.ft.); highest year was 1995 (2,097,162 ac.ft.).
- List of licenses: Southern Tributaries (Lee Cr., Waterton-Belly, and St. Mary basins combined) Alberta – 11 page spreadsheet shows all the approximate 748 licenses within the southern tributaries in order of priority. The total allocation volume was calculated and licenses divided into 6 categories. The first category represents 700,000 ac.ft. of allocation equal to the two lowest flow years on record. Subsequent sections represent additional 100,000 ac.ft. blocks of allocated water, to a total of 1.2 M ac.ft. In the median year, the water (with surpluses) satisfies all Alberta licenses.
- Alberta's Thoughts on the Apportionment Agreement
- Alberta's Thoughts on the Letter of Intent
- Alberta's Thoughts on Infrastructure Options
- Alberta's Thoughts on Administrative Options
- Potential Water Management Options – two-page abbreviated list of options divided into 2 categories: Structural Options (650 cfs canal; 850 cfs canal; Lower St. Mary Lake Storage [+ 8000 ac-ft] Options; Shared Storage on Canadian Milk River Options; Maximum Storage on U.S St. Mary River Option) and Administrative Options (Deficit Trading – LOI Options; 2nd Modification to 1921 Order Options; 3rd Revised Modification to 1921 Order Options)

- A slide presentation entitled "Montana-Alberta Initiative St. Mary-Milk River July 19 & 20 2010 – Alberta's perspective" (19 slides)
- Alberta's Learnings Infrastructure Options (650 cfs Diversion Canal; 850 cfs Diversion Canal; Storage on the Milk River in Alberta) + Alberta's Learnings Administrative Options (Larger LOI; Balance Period; Credit System & Modified Order) (10 slides)
- Results of 650 cfs Infrastructure Model Runs with and without LOI – St. Mary (3 pp.)

Harrison noted that there are 748 licenses which have been allocated 1.2 million acre-feet on the southern tributaries in Alberta, including licensees on Lee Creek, Waterton R., Belly R., and St. Mary River basins combined. Harrison noted that the Belly and Waterton rivers are not identified in Article VI of the Boundary Waters Treaty. Yates noted that the Montana Team considers them to be boundary waters, which are addressed in the Treaty.

There was discussion regarding how the storage of water in Alberta's St. Mary Reservoir affects the ability to call for water. The provincial government has the ultimate authority over the allocation of water. Water in storage is no longer natural flow so the government can divide it up for a variety of (licensed) purposes. Harrison confirmed that storage in St. Mary Reservoir is used for purposes in addition to irrigation (e.g., municipal, in-stream flows). In response to a question, Harrison confirmed that the water stored in the reservoir is the flow that is not being called at the time. Water is allocated in order of priority. Water users can call for a rate of water as it relates to the natural flow. There is no license to divert water for hydropower.

Alberta's Thoughts on the Apportionment Agreement

Harrison said that this describes Alberta's view on how the IJC, Canadian and U.S. Federal water managers currently manage the transboundary water. The model uses volumes to balance entitlements (balanced twice a month), but divides up the water by rate of flow. Yates emphasized that this is not a joint document and that Montana did not agree with the terminology used. Alberta noted the importance of documenting the existing situation for how the shared water is managed, and asked for feedback after Montana has a chance to review.

Alberta's Thoughts on Letter of Intent

The JIT discussed the LOI and how it came about. Harrison described the uncertainty and risks associated with the LOI. If Montana chooses not to take up to 8000 ac. ft. of water greater than its entitlement on the St. Mary River early in the year, then Alberta's Milk River irrigators can't take up to 4,000 acre-feet more than their entitlement from the Milk River later in the irrigation season. Montana has had to force surpluses when Milk River in Alberta does not use its 4,000 acre-foot allowed deficit, in order to balance any remaining deficits by the end of the irrigation season. Alberta stated that they would like to recommend some flexibility in the LOI in the future that would reduce the need for Montana to force surpluses.

Harrison stated that junior license holders may challenge the legality of the LOI if they are not able to access their allocation during times when up to 8,000 acre-feet of water is diverted by Montana to the Milk River.

"*Alberta's perspective" – slide presentation*

The JIT reviewed Alberta's slide presentation describing how water is allocated in Alberta – how quantities are allocated within the St. Mary and Belly/Waterton basins, how water priority is managed via water mastering; and how the Water Resources Management Model (WRMM) handles allocations and priority of rights. Model results on the impact to junior licensees in the

St. Mary R. basin from shortfalls in the system, under both a 650 cfs St. Mary diversion canal (4 options) and 850 cfs diversion canal (7 options) were described.. On slide 7, Alberta explained that allocations for the St. Mary Irrigation projects include water from the St. Mary, Waterton and Belly Rivers. A water shortage can result in junior priorities, in any of the three basins, being cut off and/or less water being diverted from the Waterton and Belly to the St. Mary.

Montana noted that water users in the Belly, Waterton, and Lee basins are getting 100% of the water in those basins. MT water users feel there is a fundamental unfairness in AB using water from the St. Mary River, which could go to MT, in order to prevent shortages in basins that already receive 100% of the flows.

Alberta explained how the WRMM model handles priority of rights, regulatory requirements, and physical constraints (slides 8-12). Penalty points are assigned for failure to meet licensed allocations, regulatory requirements, and specific conditions. The model tries to minimize penalty points. By assigning a larger penalty for failure to meet a senior priority license, the model allocates water to that higher priority. Dolan asked if there was any change to the modeling structure or penalty points since the initiative began. Figliuzzi and Harrison stated they were not aware of any.

Figliuzzi explained that Raymond Irrigation District has the lowest priority and had been used as an early indicator of an issue in the system. However, if rate of flow is used as a measure, the effect of less water availability might move anywhere up this system and the senior blocks may experience shortfalls. The two most sensitive blocks appeared to be Waterton Blocks 302 (United Irrigation District) and 306 (Blood Project).

On slide 14 Table, "Model Results for Junior Licenses – Total shortfall volume for longest period when demand was not met," Anne questioned why shortfalls could occur in Alberta's Waterton and Belly rivers, because Alberta has access to all of that flow. Sal replied that the table represents the worst case – the total shortfall volume for the longest period when demand was not met. Figliuzzi explained that most options except 4c (8,800 acre-feet of storage in Lower St. Mary Lake) had some impact. He emphasized that the shortfall is larger under some options than it is under option 9 when Alberta just receives its share.

Yates stated that the Montana Team did not have time to analyze this information and there are issues with the allocation of the Waterton and Belly.

In response to questions from Montana Team members, Alberta's Team explained that flows of the Belly and Waterton are captured in the St. Mary Reservoir. Alberta water managers manage the Belly and Waterton as one river. When water is called by the SMRID, Waterton and Belly river licensees can be shut off to allow more senior priority users downstream to receive water.

Slides 17 and 18: "Results of Key Options to Montana" – the Alberta Team presented its perspective on these results. On slide 17 there is an error – the incremental benefit of options 4c, MT1 and MO2 is actually compared to option 10a, not 4c; likewise on slide 18, the comparison of options 13a, 13a1, 4a1, MT1b, MT1c, MO3 and MO4 is to option 11a, not 4c. AB concluded that most of the additional water that goes to the U.S. with these administrative options would end up in the Milk River at its mouth rather than going to irrigation deliveries. MT does not feel that AB fully understands how water is used in the Milk River basin south of the 49th parallel.

Alberta's Learnings Infrastructure Options

Alberta reviewed its slide presentation

- Infrastructure Options – 4 slides briefly describing what Alberta sees as success within the four quartiles – of importance, that "In the 22 driest years, success is accessing nearly 100% of jurisdictions' entitlements."; what was learned about the 650 cfs and 850 cfs diversion canal providing access to entitlement; and the impact to each jurisdiction of storage on Alberta's Milk R.

Alberta's Learnings Administrative Options

- Administrative Options – 4 slides briefly describing the impact of trading water in terms of transferring the risk of shortfalls vs. the value of excess storage capacity; of the impact of a larger LOI; of the impact of different balance period options on access to irrigation season water; and of the impact of Credit System and Modified Order options re: access to irrigation season water and the risk of increasing shortfalls to Alberta's SMRID junior licensees.

Alberta's Summary of Infrastructure Model Runs with and without LOI

- Alberta presented a summary table of results for the following model runs
    - Results of 650 cfs Infrastructure Model Runs with and without LOI – St. Mary,
    - Results of 850 cfs Infrastructure Model Runs with and without LOI – St. Mary and
    - Results of LOI and Storage on Milk River in Alberta Model Runs – Milk River

5. Vision for Success

Montana

The Montana Team distributed a document entitled "Montana-Alberta Joint Water Management Initiative: Montana Vision for Management of Water Resources along the Montana-Alberta Border". Yates explained that MT's vision for full success is pretty simple – a 50%/50% volumetric sharing of all the water resources crossing the Alberta/Montana border, recognizing that more water may be taken from one source to reach the equal sharing. Montana recognizes that full success entails addressing issues that are outside the current Montana-Alberta Joint Water Management Initiative. Partial success would be access to the United States' entire volumetric share under the 1921 Order in all but the wettest years. Less than partial success would be for the U.S. to access substantially more of its share under the 1921 Order in virtually all years.

In addition, MT vision includes:

- Both countries operate their irrigation works in such a manner as to facilitate the use by the other country of its full share and to maximize the greatest beneficial use for all.
- Formation of an international watershed group to share communication and planning in the joint basins and to effectuate sharing of the joint resources for the benefit of all.
- AB's support for rehabilitation of the St. Mary Canal.

The Alberta Team asked whether shared storage is part of the vision. The Montana Team indicated this would be an option to evaluate later. Rehabilitation of the St. Mary Canal is a higher priority.

There was some discussion about the importance of participation in the joint initiative by affected Tribal Nations from the U.S.

Alberta

The Alberta Team distributed a document entitled "Alberta's Vision". Harrison stated the key point appears at the bottom of page 1: "The physical nature of the Milk and St. Mary Rivers compels Montana and Alberta to manage the water together." He noted that the two jurisdictions can have a good relationship or a poor relationship but they will have a relationship. Alberta's Team sees an international water management board as a first step in developing an improved long-term relationship.

From the present until the rehabilitation of the St. Mary Canal, the Alberta Team's short-term vision is to combine a strengthened LOI with current entitlements. A strengthened LOI would not affect the volume of water entitlement but would confirm that 4000 ac.ft. of water would be able to be traded annually. The U.S. would get 4000 ac.ft. more of its entitlement by removing the requirement for the annual deficits accumulated by each country to be balanced at year-end. In some years, the remaining balance would be zeroed without moving any water.

Dolan stated that the LOI is now being implemented this way, with balances waived at the end of the year. This may be outside of the letter of the LOI, but not outside the intent of the LOI.

Alberta also sees potential for more flexibility in the 2nd and 3rd quartile years (excluding the driest and wettest quartiles). In those years Alberta could potentially institute a credit system, offering more water to Montana because Alberta would have been able to store more water. Alberta intends that flexibility is a mid-way step to assist Montana while infrastructure options are being built. The details and risk management for such an arrangement would need to be developed.

Alberta is investigating how the LOI (current or strengthened) can be legally entrenched in Alberta's license priority system. The LOI reduces Alberta's entitlement on the St. Mary River by 4,000 acre-feet. If junior licensees call for that water, they can ask Alberta to deliver the water. When asked if junior licensees need to be satisfied, Harrison clarified that Alberta needed to guarantee that Alberta has received its entitlement. If license holders have a right to that water, they may call to have it made available to them. If water is short, license holders may not get water.

The medium term covers the time frame from rehabilitation of the U.S. St. Mary Canal to 850 cfs capacity until storage is constructed on the Milk River in Alberta. Alberta envisions that operating procedures for existing infrastructure will be modified and the International Water Management Board will need to evaluate the flexibility agreement. Erosion may increase in the Alberta Milk River following rehabilitation of the U.S. St. Mary Canal. Fresno Reservoir will continue to lose storage capacity due to siltation.

In the long term Alberta envisions the following:

- Operation of the 850 cfs U.S. St. Mary Canal and its interaction with other infrastructure and water management practices will be well understood.
- Montana and Alberta will have refined operations through the Joint International Watershed Council to maximize mutual benefits.

- A reservoir on the Milk River in Alberta will reduce erosion in the Milk River and provide storage for secure water supplies in Montana and Alberta. Joint storage will enable significant irrigation expansion on both sides of the border.
- Once the storage is in full operation, the Joint International Watershed Council would evaluate options and make recommendations regarding the revised volume and timing of traded water within the terms of the administrative flexibility agreement.

Harrison noted that Alberta sees some significant barriers; however, looking forward, Alberta believes those barriers will be able to be resolved. Barriers include:

- Lack of agreement on the foundational entitlement
- Lack of a common vision of the future
- Lack of financial resources
- Uncertainty of the adjudication of water rights in Montana (e.g., water rights Compacts).

The Montana Team reiterated the purpose of the joint water management initiative and the JIT's prior agreements to keep it simple and evaluate flows at the border. They expressed a concern that an option that puts a jurisdiction in the position of looking at the other's business (e.g., evaluating the other jurisdiction's storage) is not a path to success. The capture, use, and spill concept does not work for Montana. Furthermore, simpler formulas lead to more clear decisions.

Harrison clarified that Alberta is not suggesting that the flexibility agreement (strengthened LOI) would enable Montana to get its full share under the 1921 Order. Alberta believes that Montana will be able to access its full share of the water with infrastructure improvements.

6. Preliminary Recommendations – Discussion

There was some discussion of the role of infrastructure versus administrative options and the following points were made:

- Alberta: Alberta has made a significant investment in its infrastructure.
- Alberta: The current LOI would not exist without storage in Alberta.
- Montana: Storage in Fresno Reservoir allows the U.S. to buffer the impact of irrigation in Alberta's Milk River Basin.
- Alberta: Administrative options have little potential to move forward, as most require Alberta to incur additional risks to its licensees to provide Montana with some additional security. Alberta must demonstrate that it looks after its junior rights.
- Montana: IJC's Administrative rules prevent the U.S. from getting its share.
- Montana: Administrative options provide the opportunity for good water management.
- Montana: None of the infrastructure options would enable Montana to access 45% of the total flow in most years.
- Montana: Building significant new storage in Montana would require flooding in the Blackfeet Reservation or in Glacier National Park. Lower St. Mary Lake Storage is a possibility, but it provides limited benefits.

The Montana Team expressed interest in the following options:

- Storage in Milk River Alberta over the long term.
- Something like option series 19, moving water to the Milk River basin in Alberta when there is excess capacity in the 850 cfs canal.

- Annual credit system with 32,000 acre-feet credit for the St. Mary River and 16,000 acre-feet credit for the Milk River, with access to 4,000 acre-feet of St. Mary River water for the Milk River in Alberta.

After more discussion, the Joint Team decided to pursue further work based on the success of the vast learning done so far.

Montana noted that the U.S. never gets 100% of its volumetric share of the combined rivers.

Paterson noted that both jurisdictions have grown accustomed to using the water they currently receive – Montana on the Milk River and Alberta on the St. Mary River. The JIT initially believed there was more flexibility in the system to access water than all of the modeling runs to date have shown.

7. International Water Management Board

The Joint Team agreed to defer discussion on the water management board.

Brainstorming Session on Credit System Option

The JIT agreed to appoint a subcommittee and discussed the subcommittee's charge with the outcome below. The subcommittee will consist of: Alberta – Sal, Robert, Tom and Duncan and Montana – Larry, Randy, Anne and one other person to be named. The subcommittee should evaluate different scenarios that involve combinations of a credit system and an LOI system. They may need to sequence the LOI/credit system to maximize benefits to each jurisdiction.

1. Goal: Develop a proposal for the JIT to consider.
    a. Explore alternatives based on the concepts discussed by the JIT.
    b. Identify how the concept could be implemented.
2. Members
    a. Alberta: Sal Figliuzzi, Robert Harrison, Tom Gilchrist, Duncan Lloyd
    b. Montana: Larry Dolan, Randy Reed, Anne Yates, and one other person to be named.
3. Time frame
    a. Report back to JIT mid October
    b. Begin with conference call August 3, 2010 at 9:30 am
4. Explore an option based on the following concepts
    a. LOI is the starting point during 11 driest years (1st quartile)
    b. Use of AB flexible rules for use in 11 driest years (1st quartile)
    c. Use of MT Annual Credit Proposal for 2nd and 3rd quartiles
    d. Recognizes that 4th quartile years such as this year, generally are not an issue.
    e. 2 periods
        i. accumulate Nov. 1 through March 31; taken April through June
        ii. accumulate April through June; taken July through September
        iii. be flexible on time frames so they correspond with high flows
    f. Milk River, Alberta is only drawing natural flow of Milk River except for the 4,000 acre-feet in the LOI
    g. Consider the following:
        i. combination of LOI and credit system. Look at different scenarios and potential combinations of LOI and credit system and the ideal sequencing. Evaluate how these systems interact as water supply forecast changes.

ii. whether or not the credits should be linked between both rivers.

5. Evaluate potential impacts to access to shares including consideration of:
    a. US water rights including
        i. Milk River Project
        ii. Tribes
            1. Fort Belknap Indian Tribal Right
            2. Blackfeet Tribal Rights
        iii. Others
    b. Alberta licenses
6. Administrative Structure
    a. Roles
    b. Decision Making Process
    c. Decision Points
        i. what constitutes a "dry year" i.e. 1st quartile
        ii. based on water supply forecasts
        iii. others
        iv. timing of decisions
    d. Look at prior years and evaluate lessons learned

The subcommittee planned to have a formative meeting August 3 at 9:30 AM.

8. Plan for Next Meeting

The JIT agreed to meet after the subcommittee completes its work. The next meeting of the JIT was tentatively scheduled for October 26 and 27 in Lethbridge, Alberta.

The meeting was adjourned at 2:40 pm on July 19, 2010.

Montana – Alberta: St Mary & Milk Rivers Water Management Initiative

Joint Initiative Team Meeting #15
August 16, 2011, Lethbridge, AB

Montana	Alberta
Anne Yates – Department of Natural Resources and Conservation (co-Chair)	Robert Harrison – Alberta Environment (co-Chair)
Dustin de Yong - Office of the Lt. Governor	Brent Paterson – AB Agric. & Rural Develop.
Randy Reed – Milk River irrigator	Ken Miller – Milk River
Dave Peterson – City of Havre	Tom Gilchrist – Milk River
Paul Azevedo – DNRC (Secretariat)	Duncan Lloyd – Oldman River
Larry Dolan – DNRC Technical Team Lead	Tim Toth – AB Environment (Secretariat)
	Brian Yee – AB Tech. Team Lead

Regrets – Gerald Perry – Oldman River
Observers – Roger Hohm (AB Agriculture & Rural Development)
No Longer Participating – Representatives of the Blackfeet Tribe and the Fort Belknap Indian Community.

Purpose of Phase 2 Joint Initiative Team

To explore and evaluate options for improving both Montana's and Alberta's access to the shared water of the St. Mary and Milk Rivers, and to make joint recommendation(s) on preferred options to both governments for their consideration and approval.

Meeting Objective(s)

- Review the Credit System option to ensure complete understanding
- Understand each team's views on the Credit System option
- Determine vision of completed initiative
- Develop the path to complete this initiative (include reporting needs)

DRAFT Notes

1. Welcome; Administration – co-Chairs and Secretariat

Robert welcomed the Joint Team, who has not met face-to-face since July 2010, and reviewed the Agenda. Anne asked that a 'Communications' item be added. With the addition, the Agenda was approved as sent out.

JIT #13 Notes – The Joint Secretariat-approved Final Draft Notes were originally sent out to the Joint Team in November 2010. The MT Team advised they were fine with those Notes; the AB Team wanted to review them again. The AB Team subsequently approved the draft Notes as sent.

AGREE: JIT #13 Final Draft Notes are approved as originally distributed.

JIT #14 Notes (July 19-20, 2010, Havre) – The Alberta Secretariat completed its review of the Notes and had sent them to Montana. The Montana Secretariat will review that version and reply to Alberta.

Communications

Montana – The co-Chair and Secretariat had full and frank discussions about the proposed credit system with the USGS, USBR, Blackfeet Tribe, St. Mary Working Group, State executive and other stakeholders. Several groups expressed concerns with the proposed credit system. The Blackfeet Tribal Council feels this option provides very limited benefit to the Tribe and they do not appear to see benefit in participating further in the Initiative. Tribal governments of the Blackfeet and Ft. Belknap Reservations informed Montana they will be putting their limited resources into moving their Water Right Compacts through Congress.

Alberta – The co-Chair met with two groups: Milk R. Watershed Council Canada (by invitation) and the St. Mary River Basin Irrigation District board of directors. The MRWCC has initiated a groundwater study to assess water quantity on both sides of the border. Meanwhile, Montana's Milk River Water Alliance group has been revived and are contemplating undertaking a state-of-the-watershed report. MRWCC would like to work with the Milk River Water Alliance group to integrate an update to the Alberta state-of-the-watershed report. Ken Miller reported that saline water produced from ongoing oil extraction in the Red Cr. basin (southern Alberta) may be creating a problem in the Milk R., to which it is a tributary. The intent of the Alberta study is to determine how to deal with the water quality issue.

Robert provided Anne with a copy of a paper from three U of Lethbridge researchers "International Water Sharing: Examining the Montana-Alberta Dispute in the Context of the Century-old Boundary Waters Treaty" by Klein, Le Roy and Cook, July 2011 -- following on from a process that started in 2007 with "current" information which may have been gleaned from websites). The Alberta Team also alerted the Montana team that a change in Premier is likely forthcoming.

2. **Understanding the Credit System** – Technical Team

Larry gave the Technical Team's presentation: "Presentation on Credit System with LOI Cap", dated August 16, 2011. The presentation describes the proposed credit system and the potential impacts (benefits/risks) to water users in both the St. Mary and Milk R. basins. The MT Team had not previously reviewed the presentation, but Larry was familiar with its content and was satisfied with the presentation result. Alberta had chosen the format and statistical analysis used in the presentation. Below is a summary of the presentation.

Credit accumulation – U.S. (St. Mary R.)

The U.S. accumulates credits for annual surplus deliveries to Canada on the St. Mary R. during two periods, winter (November 1–March 31) and spring (May 16–July 31).

U.S. winter credit that can be accumulated for the credit system ranges from 8000 to 16,000 ac. ft. The maximum is capped at 16,000 acre-feet and the minimum spring credit available to the U.S. would be 8,000 acre-feet even if the surplus sent to Canada in the winter period is less than 8000 ac. ft. Furthermore, the 8,000 acre-feet cap (LOI cap of 8000 ac. ft.) is applied as a maximum (as well as

a minimum) cap to years projected in April to be "low water supply", based on an April forecast of the April to October runoff, plus the April 1st storage in St. Mary and Ridge reservoirs.

The U.S. spring credit accumulation could range from zero to a maximum of 16,000 ac. ft. The minimum credit is applied to years projected in July to be "low water supply", based on the April 1 - June 30 runoff, plus the July 1st storage in St. Mary and Ridge reservoirs. The minimum could also be applied during other low-flow years when there simply is no spring credit to accumulate.

Alberta proposed the split credit system as a way to manage the risk to Alberta water users — mitigating the concern that Montana might draw on a 32,000 acre-foot credit late in the irrigation season when Alberta irrigation demands are highest. The end result is that the annual credit the U.S. could receive on the St. Mary R. ranges from 8000 ac. ft. to 32,000 ac. ft.

Credit withdrawal – U.S.

Accumulated credits are withdrawn in two periods:

(a) Winter credit – drawn from April 1 to June 15 by taking Canadian St. Mary R. flow above the Canadian IFN requirements (45% of natural flow). Residual winter credits are zeroed at the earliest of: the U.S. starting to accumulate its spring credit, or June 15.
(b) Spring credit – drawn from July 1 to October 31 by taking Canadian St. Mary R. flow above the Canadian IFN requirements (45% of natural flow). Residual spring credits are zeroed on October 31.

Only one credit (winter or spring) is allowed to be withdrawn at any time.

Credit accumulation – Canada (Milk R.)

Canada accumulates credits for annual surplus deliveries to the U.S. on the Milk R. during one period (November 1–May 31). Canada is allowed to accumulate from 4000 – 16,000 ac. ft. of credit, even if the surplus sent to the U.S. is less than 4000 ac. ft. during the year.

The minimum credit (LOI cap of 4000 ac. ft.) is applied to years projected in April to be "low water supply" based on the St. Mary system flow and reservoir storage described in the previous section. The April LOI cap is removed if the July water supply projection is "NOT low water supply". If the April forecast is "NOT low water supply" and subsequently the July forecast changes to "low water supply", the credit is capped at the larger of: credits already withdrawn, or 4000 ac. ft.

Credit withdrawal – Canada

Canada withdraws accumulated credits from May 15 to October 31 by taking U.S. share of the Milk R. natural flow first. If sufficient Milk River natural flow is not available, a maximum of 4000 ac. ft. of credits may be withdrawn from U.S. St. Mary diversions. Residual credits are zeroed on October 31st. The area irrigated in the Canadian Milk R. basin is maintained at 8069 acres.

To a question about how the St. Mary River credit water would be managed in the U.S. during a change from wet to dry years, Larry clarified that the intent is to fill the St. Mary diversion canal for as long as possible, using the various water accounts in the following priority sequence, from:

(a) the U.S. share
(b) Credit water
(c) Stored water from L. Sherburne

This sequence that was initially modelled assumed credit water would be taken last, only because it was difficult to model the system the other way. Operationally, however, Larry advised that the U.S. would maximize their use of credit system water by withdrawing L. Sherburne water after credit system water was taken.

Model accuracy

There was a question about model accuracy and how normal modeling error might affect the final model results. Larry advised that what was modelled is as accurate as the model allows, but that the credit water volumes are relatively small in comparison to the total flow of the system, and the credit volumes may be of a magnitude similar to the accuracy of the model. Error probably has not affected the conclusions reached; that is, that the credit system might provide some modest benefits to Milk River irrigators in Montana and Alberta.

In the last half of the presentation Larry described credit system model results for the modelled 45-year period of record, illustrating how often and how much water was credited and delivered. Summary statements from the presentation are below:

Credit System Model results – U.S. Winter Credits (slide #12)

1. In 11 out of 45 years, the credit was limited to 8,000 ac-ft LOI due to Low Water Supply forecast.
2. Surpluses exceeded the 8000 ac-ft LOI in all 45 years.
3. Average winter credit for Low Water Supply years = 8,000 ac-ft
4. Average winter access for Low Water Supply years = 7,691 ac-ft.
5. Average winter credit for other 34 years = 15,599 ac-ft.
6. Average winter access for other 34 years = 13,541 ac-ft. (86.8%)
7. Maximum accessed in any 1 year = 16,000 ac-ft.
8. Minimum accessed in any 1 year = 4,813 ac-ft.

Credit System Model Results – U.S. Spring Credits (slide #13)

1. In 12 out of 45 years, the spring credit was set to 0 ac-ft due to Low Water Supply forecast. Note: in 10 of these dry years there was no surplus deliveries.
2. Average spring credit for other 33 years = 10,196 ac-ft
3. Average accessed for other 33 years = 5,466 ac-ft (53.6%)
4. In 1 years 0 credit was taken even though assigned credit was 16,000 ac-ft
5. starting spring accumulation on June 1 vs, May 16 would affect 3 years and have no significant effect on amount of water accessed.

Credit System Model Results – Total U.S. Winter & Spring Credits Accessed (slide 14)

1. Average Annual Credit accessed in 15 low water supply years = 10,800 ac-ft
2. Average annual credit accessed in other 30 years = 20,900 ac-ft.
3. Average Annual Credit accessed = 17,548 ac-ft
4. Maximum Annual credit Accessed = 32,000 ac-ft ft
5. Minimum Annual Credit Accessed = 7,324 ac-ft

Credit System Model Results – Canadian Milk River Credits/irrigation (slide 15)

1. In 8 out of 45 years, the credit was limited to 4000 ac-ft LOI due to Low Water Supply forecast.
2. Surpluses exceeded the 4000 ac-ft LOI in all 45 years.
3. Average credit in 8 low water supply years = 4000 ac-ft.

4. Average access in low water supply years = 3,890 ac-ft.
5. Average credit in other 37 years = 15,119 ac-ft.
6. Average accessed in other 37 years = 6,047 ac-ft.
7. In 12 out of 45 years, access to credit limited by available Milk River natural flow and therefore full 4,000 ac-ft was accessed from U.S. St. Mary Diversions.
8. In 25 out of 45 years, access was limited by the demand of the 8069 acres of irrigated land.

Credit System Model Results – Canadian St Mary Irrigation (slide #16)
1. Credit System results in greater shortfalls than current 31/45 years, but in many years shortfall increases are small. Largest increase 15,094 ac-ft in 1984
2. Credit System results in greater shortfalls than if Canada received its share in 17 of 45 years, and lower shortfalls in the remainder.
3. Two years have increases in shortfalls greater than 4,000 ac-ft; (10,473 ac-ft in 1994 & 16,273 ac-ft in 1973)

Net U.S. Access (slide #17)
1. Average net USA access in low water supply years = 4,912 ac-ft.
2. Average net USA access in other 30 years = 14,637 ac-ft.
3. Average net USA access in all years = 11,578 ac-ft.

The Joint Team appreciated the analysis and clarity of presentation undertaken to produce the above summary. They requested that the same level of analysis and summary be completed on any other options that require more detailed review.

There was a short discussion about actual in-the-field water management operations decisions. Operators would move the amount of water under agreements (*e.g.*, the full 4000 ac. ft. LOI), and attend to any restrictions (*e.g.*, timing) to meet specific needs such as in-stream flows. There was also a short discussion to clarify that the net increase of U.S. access to the shared water is about 7500 ac. ft., in comparison to that provided under the 1921 Order with LOI.

3. Montana's Views of the Credit System – Montana Team

Anne gave MT's 6-slide presentation, "MT Team Learnings on the Credit Option – August 2011", which summarized the MT Team's discussions in the past year about the proposed credit system with their various groups – water users, the USGS, USBR, and others. The presentation text follows.

Credit Option Montana's View

- Option would difficult to administer
  - Provides MT water users with very little benefit when compared to the administrative challenges born by State government.
    - In 11 of 45 years of record, the Option provides no benefit; the *status quo* LOI (8000 U.S./4000 AB).
    - U.S. net gain in access would be approximately 11,000 AF of additional water in slightly more than half the years of record.
    - Involves each jurisdiction in review of the other jurisdiction's reservoir operations decisions.

- In-stream Flow Requirement

- AB's instream flow requirement impedes MT's ability to redeem credits and makes administration more difficult.
- In about half the years of record, there is insufficient flows for MT to redeem full winter credits due to IFN.
    - BuRec believes it could be less if bi-monthly balancing period is used.

- Other Concerns
    - Option does not favor cooperation because each River is administered separately.
        - Could lead to disputes over whether low water supply year.
    - Assumes perfect operation of the St. Mary Canal for MT to redeem U.S. credit when it is available.
    - Could result in providing credit to AB when little or no credits are redeemed by the U.S.

- Other Concerns - continued
    - Large fluctuations in amount of water generated by the option make the supply uncertain for U.S. water users.
    - Other Options provide comparable or better benefits to MT water users, are less difficult to administer, and appear to have similar impact on AB irrigation.

- Exploration of Option premised on keeping all Alberta water right licenses as whole as possible.
    - The Montana Team does not agree that it has any responsibility to keep whole water rights based on flows from the Belly and Waterton Rivers and (St. Mary tributary Lee Creek) where Alberta already receives 100% of those flows.

Additional comments: the USGS noted that credit system calculation would require measurement at the eastern crossing. The Blackfeet Tribal Council feels the credit option provides very limited benefits to the Tribe and therefore will focus their limited resources on moving their Water Rights Compact through Congress. The option was reviewed with the Governor's office.

In summary, Anne stated that while the current MT-AB Water Management Initiative process has been very constructive, no obvious solution has been developed. The Credit System option provides only a modest benefit to Montana, it seems difficult to administer, and keeping the Alberta Waterton/Belly water licenses whole are significant issues to MT moving forward with this option.

If the proposed Credit System is the last option anticipated, then Montana believes that given the voluntary construct of the Initiative, this process has likely reached an end. Montana's remedies may lie elsewhere and the State will have to consider its other options. Montana supports further discussions between the province and state on issues such as modifying the current LOI, or developing a cooperative relationship under some "watershed improvement group", but was unsure if the MT-AB Initiative process is the correct venue for those discussions.

A question was raised regarding the potential for the Blackfeet Water Rights Compact to provide the Tribe access to up to 50,000 ac. ft. of water from the St. Mary Basin – it is unlikely that this would adversely impact the Alberta Milk River projects. Any water provided to the Tribe would be taken under the implementation of the Boundary Waters Treaty. This water may be able to be taken from storage (*e.g.*, Sherburne Reservoir or Lower St. Mary Lake) or it could be addressed as a lease

transaction for current uses. Montana advised that once the Blackfeet Compact was settled, implementation will be more certain and funds may become available to undertake other work.

There is some concern about delaying rehabilitation of the diversion canal before it fails, as the delay could be a number of years. An emergency failure contingency plan exists, but it is believed that most failures could be repaired within the same season. Ongoing maintenance work is currently underway while additional discussion is ongoing between the USBR and US Fish and Wildlife Service regarding fish passage in the system – the State is currently undertaking the geotechnical work necessary for canal rehabilitation.

4. Alberta's Views of the Credit System – Alberta Team

Robert gave AB's 10-slide presentation, "Alberta's Views on the Credit System" (August 16, 2011), describing Alberta's view of its long-term cooperative relationship with Montana, a brief description of the credit system, the credit system results, and Alberta's summary views on the credit system. The presentation was provided to the Joint Team; the text follows below.

Alberta's Views on the Credit System

Long-Term Cooperative Relationship (slide #2)

- The Credit System would be integral towards the development of a long-term cooperative water management relationship between Montana and Alberta.

- The goal of this long-term relationship is to maximize both jurisdictions access to their entitlement of water from the Milk and St. Mary Rivers based on the foundation of the 1921 Order of the International Joint Commission.

- This cooperative relationship will evolve over the short, medium and long terms.
    - Short-term is from 2012 until the U.S. St. Mary Diversion Canal rehabilitation is complete (850cfs)
    - Medium-term is from the completion of the U.S. St. Mary Diversion canal rehabilitation until storage on the Milk River in Alberta is complete. (joint Alberta-Montana ownership or Alberta ownership)
    - Long-term is after the completion of storage on the Milk River in Alberta.
- There may also be other water management events during this time, such as delivery system and on-farm enhancements.

- The transitions between the short, medium and long terms are characterized by significant infrastructure enhancements.
- Infrastructure provides the water management foundation necessary to manage the extreme flow variability.
- The short-term has no new infrastructure.
- Improved access to water during the short-term will come from administrative options and flexible operations.

- Administrative options provide flexibility to fine-tune and maximize the benefits of large infrastructure investments.
- The Credit System provides this flexibility and as a result benefits both Montana and Alberta.

- The short-term also provides the opportunity to test, in the real world, the operations of the Credit System and to improve it as more is learned. A watershed group may do this.

Credit System Description (slide #6)
Credit System has two components:

- "Updated 2011 Letter of Intent"
  - Locks in both minimum and maximum benefits by removing the administrative deficit balancing.
  - Continues to protect current water users during low water supply years.
- "Credit for Surplus Deliveries"
  - Enables both jurisdictions to build a credit for surplus deliveries during winter and spring high flows and draw on these credits for irrigation.
  - Founded on the principle that downstream storage will enable that jurisdiction to use surplus deliveries for irrigation.

Credit System Results (slide #7)

- The Credit System provides a good balance between improved access to entitlements and increased risk of water use shortfalls.
- Water users in Montana and water users along the Milk River in Alberta both receive increased access to water.
- Water users along the St. Mary River in Alberta will experience greater risk of water use shortfalls.
- The Credit System has been refined to achieve an acceptable level of risk.

Montana Benefits (slide #8)

- 10, 800 ac-ft during low water supply years
- 20,900 ac-ft during other years

Alberta Benefits

- 5,900 ac-ft during low water supply years
- 6,300 ac-ft during other years

Net Benefit to Montana

- 4,900 ac-ft during low water supply years
- 14,600 ac-ft during other years

Alberta's Views on the Credit System (slide #9)

- The Credit System provides both jurisdictions with improved access to entitlements, with significant net benefits to Montana.
- The Credit System can be operated and adapted as real-world experience is gained.
- The Credit System can be implemented immediately (winter credits November 2011).
- Without the Credit System there will be no improved access until the U.S. St. Mary Diversion Canal is rehabilitated.

- The concepts in the Credit System can be further evaluated along with future infrastructure as more is learned about the possible water shortage risks.
- The "Updated 2011 Letter of Intent" is a strong component of the Credit System, however, it on its own still provides mutual benefits.
- Implementing the Credit System puts both jurisdictions on the path of a long-term cooperative water management relationship.

Montana asked about Alberta building storage on the Milk R. Alberta replied that this would be a political decision, noting that the province may have an election in 2012, but that potential climate

change impacts could add some urgency. For construction to proceed, a joint provincial-federal EIA process would be triggered because of the type of impacts (boundary waters and *Fisheries Act* issues). Alberta Agriculture and Rural Development will have consultations in the entire southern region this fall.

5. Completion of the Initiative – Joint Initiative Team

The Joint Team talked about where it had arrived. Dustin stated that the credit system proposal doesn't help MT as much as AB believes it does, but he advocated that the Joint Team continue its work and move forward. He believes this Initiative can still deliver a successful outcome.

The AB Team suggested there is value in pursuing the "Updated 2011 Letter of Intent", where the US would acquire access to a guaranteed annual 8000 ac. ft. of water and Canada a guaranteed annual 4000 ac. ft. of water, without requiring either jurisdiction to balance water deficits at year-end.

Path forward discussion

The Joint Team discussed how to proceed. AB asked what volume of water MT's water users would find acceptable. The MT Team's view of success would provide close to a 50:50 volume share of the total water of the St. Mary and Milk rivers. The MT Team feels that this could be achieved under the Revised Modified 1921 Order option that has a volumetric cap, because it provides MT with more water while maintaining AB's volumetric share under the 1921 Order in the driest years. The MT Team feels that success may also be achievable under several previously proposed options that were rejected by AB.

The Joint Team agreed that the Technical Team should more thoroughly analyze options under the proposed credit system that would produce the volumes of water calculated in MT's Revised Modified 1921 Order option. AB emphasized that the results of any detailed technical review must be acceptable to its water users, especially its junior licensees, before pursuing the discussion of such options.

The Joint Team then **agreed** there is value in developing more detail for the Modified Order options.

ACTION (1) The Technical Team will review the Options identified to determine in more detail the impacts (gain/losses) on Alberta and Montana water users.

(1) 23a – Modified Order – first modification of 1921 Order [650 cfs canal; base case]
(2) 23b – Modified Order, 850 cfs canal
(3) 23f – Revised Modified Order, 850 canal – second modification of 1921 Order
(4) MO2 – (has modified Sherburne fill curve – Larry will check with Laurent to see if the modified Sherburne fill curve was used in the run)
(5) MO3 – Option 2a1
(6) MT1a – MT annual credit system, 650 canal
(7) MT1b – MT annual credit system, 850 canal
(8) 16b – annual balance, natural flow
(9) 16d – annual balance, total flow

ACTION (2) MT is to determine the volume of water that they would potentially provide to Milk R. AB, under Option MO3.

It was noted that the analyses already exist for most of above Options. The Technical Team is to ensure they are confident in those calculations in preparation for the next meeting.

6. Discussion of JIT Recommendations – Joint Initiative Team

After discussion, the Joint Team developed a list of potential draft recommendations for the recommendations report. The list represents those items that the Joint Team feels they would be able to support, in principal, based on the information available to date.

(1) develop an International Water Council,
(2) rehabilitate St. Mary Diversion Canal to 850 cfs capacity,
(3) review the "Updated 2011 Letter of Intent",
(4) recognize AB's right to build the AB Milk R. reservoir with a caveat to ask MT to participate,
(5) recognize the potential benefit of the storage potential of Lower St. Mary Lake,
(6) recognize the potential benefit of improved irrigation infrastructure,
(7) promote public education about the operation of the St. Mary and Milk R. systems (*i.e.*, the process for educating direct stakeholders about water management), and
(8) develop a joint AB-MT contingency plan for catastrophic failure of the St. Mary Diversion Canal

7. Discuss Steps to Complete Initiative – Co-Chairs, Secretariat

As agreed, the next step is for the Technical Team to analyze and the Joint Team to evaluate the potential impact on water users in the Alberta St. Mary River basin and the Montana Milk River basin of the nine options identified under Section 5 – Completion of the Initiative.

ACTION (3) Larry/Brian/Laurent to determine how much work is needed to review and analyze the potential impacts to water users.

Next Meeting –

- Date – target Nov.2,3 (Wed.-Thu.) in Great Falls, MT
- Objective – understand information presented resulting from additional analyses of options. Analysis is to be ready for October 18-19th for review by both Teams.
- Agenda – review and consideration of more detailed analysis of options
- Information required – detail of analyses

ACTION (4): Government representatives will develop the process for how to complete the reports and wrap up the Initiative.

Action item review:

ACTION (1) The Technical Team will review the Options identified to determine in more detail the impacts (gain/losses) on Alberta and Montana water users.

ACTION (2) MT is to determine the volume of water that they would potentially provide to Milk R. AB, under Option MO3.
ACTION (3) Larry/Brian/Laurent to determine how much work is needed to review and analyze the potential impacts to water users.
ACTION (4) Government representatives will develop the process for how to complete the reports and wrap up the Initiative.

The meeting was adjourned at 3:30 p.m.

Appendix 3 – Example of Option Summary Sheet

OPTION #10a – Base Case ; Current Canal Capacity; Current LOI

650 cfs canal + LOI (Option 1a + current 8,000/4,000 LOI)

WATER SUPPLY

	Percent Entitlement Received			Volume Received 1000s ac-ft	
	(% for 10a Base Case)			(Volume for 10a Base Case)	
	Montana	**Alberta**		**Montana**	**Alberta**
St Mary River					
45 year	76 (76)	116 (116)		199 (199)	441 / -3.4****** (441)
22 low years	90 (90)	107 (107)		186 (186)	343 / -3.8 (343)
11 lowest years	95 (95)	103 (103)		172 (172)	301 / -3.9 (301)
Milk River					
45 year	147 (147)	12 (12)		119 (119)	5.4 / +3.4*******(5.4)
22 low years	143 (143)	17 (17)		72 (72)	4.3 / +3.8 (4.3)
11 lowest years	138 (138)	26 (26)		41 (41)	3.9 / +3.9 (3.9)
Combined rivers					
45 year				318 (318)	446 (446)
22 low years				258 (258)	347 (347)
11 lowest years				213 (213)	305 (305)

IRRIGATION RELIABILITY

	Irrigation Deficit			Increased Acreages	
	(Deficits for Base Case)				
	Montana	**Alberta**		**Montana**	**Alberta**
		Raymond ID		0	0
St Mary River #>4”	N/A	1***** (1)			
Average deficit	N/A	1.25” (1.25”)			
Milk River # > 4”	13 (13)	21 (21)			
Av. aggregated def.	3.34” (3.34”)	4.37” (4.37”)			

* For St. Mary River irrigation in Alberta deficit is that for the Raymond Irrigation District: the irrigation district on the Alberta St. Mary River irrigation system with the lowest order of priority.

** Indicates total volume of St. Mary water accessed by Canada / and that used for Canadian Milk R. irrigation

*** Indicates the volume of Milk River water accessed by Canada and / the volume from the total St. Mary River water accessed by Canadian that was used for Canadian Milk River irrigation.

Appendix 4 – Letter to IJC regarding the 1921 Order

Montana – Alberta

St. Mary and Milk Rivers

Water Management Initiative

February 5, 2010

Charles Lawson
Secretary, United States Section
International Joint Commission
2401 Pennsylvania Avenue, NW
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Washington, DC 20440

Murray Clamen
Secretary, Canadian Section
International Joint Commission
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Ottawa, ON K1P 6K6

Gentlmen,

As Co-Chairs of the St. Mary and Milk Rivers Water Management Initiative we are pleased to report the progress being made through the bilateral discussions between the State of Montana and the Province of Alberta. Through this intensive process we have begun to understand the needs of each jurisdiction and the limited supply of water upon which we both depend. It is the belief of the Joint Initiative Team that never before have the State and the Province enjoyed such shared understanding of the trans-boundary watersheds, demands on these watersheds, and differing constraints on the management of water entitled within each jurisdiction.

In formulating our recommendations to respective executive leaderships, the Joint Initiative Team recognizes the need for a greater understanding of the 1921 Order. Therefore, we request the International Joint Commission to provide an explanation of the procedures that took place in finalizing the 1921 Order and the basis upon which the final allocations under the Order were made. Specifically, the Joint Initiative Team requests explanation and documentation regarding the allocation of water below and above 666 cfs and how this formula was established, as well as explanation regarding why there is a 5% long term mean difference between each jurisdiction's entitlement to the combined flow of the Rivers (Alberta - 55% and Montana - 45%). While we continue to move forward to develop cooperative measures, the basis for the 1921 Order arises repeatedly and is subject to differing interpretations. A thorough explanation of the basis for the 1921 Order from the International Joint Commission would markedly advance the Joint Initiative Team's resolution of water management issues.

The Joint Initiative Team appreciates your support in providing this information. We will be bringing joint recommendations to the Premier and Governor in April of 2010 and a prompt response from the International Joint Commission would be very beneficial.

Thank you for your consideration. Please contact the Co-Chairs with any questions.

Very truly yours,

ORIGINAL SIGNED BY

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