Report to

THE INTERNATIONAL JOINT COMMISSION

on

THE DIVISION OF THE WATERS OF

ST. MARY AND MILK RIVERS

by

D. A. DAVIS

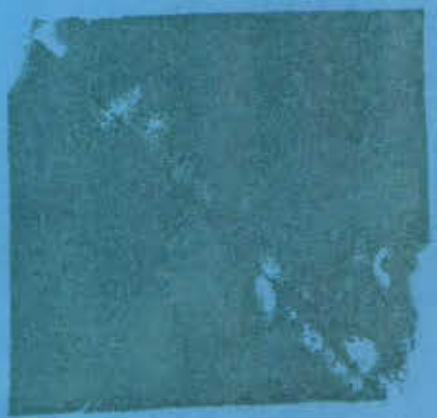
representing Canada

and

J. S. CRAGWALL, Jr.

representing United States

1978



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March, 1979

INTERNATIONAL JOINT COMMISSION

WASHINGTON, D.C. and OTTAWA, ONTARIO

GENTLEMEN:

In compliance with the provisions of Clause VIII (c) of your order of October 4, 1921, directing the division of the waters of St. Mary and Milk Rivers between the United States and Canada, we are transmitting herewith a report on the operations during the irrigation season ended October 31, 1978.

Respectfully submitted,

D.A. Davis
Accredited Officer of Her Majesty

J.S. Cragwall, Jr.,
Accredited Officer of the United States

SYNOPSIS

During the 1978 irrigation season the natural runoff of the St. Mary River was slightly above normal and the Milk River was well above normal being 105% and 190% respectively of the average long term runoff.

The natural runoff of the St. Mary River was 767 000 cubic decametres (dam^3) (622,000 acre-feet) of which Canada received 671 000 dam^3 (544,000 acre-feet) which is 145% of the Canadian allotment under the 1909 Boundary Waters Treaty.

The natural runoff of the Milk River was 274 000 dam^3 (222,000 acre-feet) of which the United States allotment was 173 000 dam^3 (140,000 acre-feet) under the Treaty. Apportionment of the Milk River has not been made as Canadian usage in most years is considered to be less than its share and this assumption was felt to be valid in 1978.

The natural runoff of the three eastern tributaries of the Milk River that are apportioned, Lodge Creek, Battle Creek and Frenchman River, was below normal being 98%, 85% and 76% respectively of the long term runoff. The combined natural runoff of these tributaries was 134 000 dam^3 (108,000 acre-feet) of which the United States received 80 400 dam^3 (65,100 acre-feet) which is 120% of its allotment under the Treaty. Although the flows delivered across the International Boundary were deficient for a number of apportionment periods, most of the deficits were refunded by subsequent deliveries and the United States received its alloted share for the irrigation season.

TABLE OF CONTENTS

APPENDIX

MAP

LIST OF TABLES

INTRODUCTION

Article VI of the Boundary Waters Treaty of 1909 between Great Britain and the United States governs the apportionment of the waters of the St. Mary and Milk Rivers. The terms of the Treaty were further clarified by the 1921 Order of the International Joint Commission. A copy of Article VI and the 1921 Order are contained near the end of this report. To comply with this Treaty, representatives of the United States and Canada collected and compiled on a co-operative basis, hydrometric data at forty-four international gauging stations. An additional thirty-seven gauging stations were operated independently by Canada or the United States to obtain data on diversions, reservoir contents, return flows, and index runoff. The majority of this additional information is used to improve the accuracy of natural flow computations.

This report summarizes the natural flow computations during 1978, comments on the apportionment of the natural flow and explains any unusual occurrences throughout the year as well as any modifications, which have been or are being contemplated, for increasing the accuracy of the natural flow computations. Summarized natural flow tables are included in the report proper, whereas the detailed natural flow computations are included in Appendix A. The daily discharge data for 1978 are included in Appendix B. Appendices A and B are submitted with this report under separate cover.

In accordance with the SI conversion schedule established by the International Joint Commission, the 1978 report uses SI units first, followed by English units in parenthesis. Tables are shown, for example Table 1, by the results in SI units first, followed by the respective English unit table, Table 1-A. The format for Appendices A and B of the report remain unchanged for 1978, using English units only. In 1979 all Canadian data will be published in SI units.

Mr. D.A. Davis, Director, Western & Northern Region, Inland Waters Directorate, as Accredited Officer of Her Majesty, was represented in the field by Mr. G.H. Morton, Regional Chief, Calgary, Alberta and Mr. R.A. Halliday, Regional Chief, Regina, Saskatchewan. Mr. J.S. Cragwell Jr., Chief Hydrologist, United States Geological Survey, as Accredited Officer of the United States was represented in the field by Mr. G.M. Pike, District Chief, Helena, Montana. This report has been prepared jointly by personnel of the Water Survey of Canada and the United States Geological Survey under the supervision of Messrs. Morton, Halliday and Pike.

During the 1978 irrigation season the natural runoff of the St. Mary River was slightly above normal and the Milk River was well above normal being 105% and 190% of the average long term natural runoff respectively. The natural runoff of the Eastern Tributaries was below normal being 98%, 85% and 76% respectively of the long term natural runoff for Lodge Creek, Battle Creek and Frenchman River. Although the flow across the boundary for the Eastern Tributaries was deficient within a number of apportionment periods, no serious problems in apportionment were encountered during the 1978 irrigation season.

The annual conference between the staffs of the field representatives was held in Calgary, Alberta on January 30 and 31, 1979. Streamflow records collected jointly by Canada and the United States were reviewed and approved. Mutual problems and changes in computational procedures were discussed and a schedule of field operations for 1979 adopted.

ST. MARY RIVER

During the irrigation season (April 1 to October 31), Canada's share of the natural flow of the St. Mary River at the International Boundary is, as stipulated by the 1921 Order, to be three-fourths of the natural flow up to a total discharge of 666 cubic feet per second, with volumes above that quantity to be divided equally between Canada and the United States. During the non-irrigation season, the flow is to be divided equally between the two countries.

To comply with the above order, engineers of both countries made semi-monthly computations of the daily natural flow of the St. Mary River during the 1978 irrigation season. Regular interim reports of these computations were sent to all agencies involved in the water use and management of the flow of the St. Mary River, in order to keep them informed as to the amount of water available, as well as to ensure that any appropriation by the United States in excess of her share could be adjusted by a subsequent delivery of an equivalent amount at the earliest opportunity.

Tentative computations and interim reports are not made during the non-irrigation season, as normally, the only usage by the United States during this period is storage in Lake Sherburne, and this storage is considerably less than fifty percent of the natural flow.

Lake Sherburne, the only storage reservoir within the St. Mary River basin in the United States, is used to store a portion of the United States share of flows for diversion to the Milk River. This water is later utilized by the United States, after passing through Canada, for irrigation in the lower Milk River valley.

Storage in Lake Sherburne was 21 500 dam^3 (17,400 acre-feet) on October 31, 1977, and had increased to 40 700 dam^3 (33,000 acre-feet) just prior to the irrigation season on March 31, 1978. The storage reached a maximum of 83 400 dam^3 (67,600 acre-feet) on July 1 and had decreased to 10 100 dam^3 (8,170 acre-feet) by the end of the irrigation season on October 31, 1978.

Water was diverted from the St. Mary River into the St. Mary Canal from May 22 to September 11, 1978. The total recorded flow for the gauging station on the St. Mary Canal at St. Mary Crossing was 125 000 dam^3 (101,000 acre-feet). Any seepage from the canal between the point of diversion and the crossing of the St. Mary River is assumed to return to the river and eventually become available to Canada.

The total natural flow of the St. Mary River at the International Boundary for the period November 1, 1977, to October 31, 1978, was 839 000 dam^3 (680,000 acre-feet), of which 767 000 dam^3 (622,000 acre-feet) occurred during the irrigation season, April 1 to October 31, 1978. For the irrigation season, the Canadian and the United States shares were 463 000 dam^3 (375,000 acre-feet) and 303 000 dam^3 (246,000 acre-feet), respectively. A total runoff of 671 000 dam^3(544,000 acre-feet) was recorded at the International boundary which is 145% of the Canadian share. The computed natural flow during the irrigation season was 105% of the average of the previous seventy-five years of record.

In order to provide advance information of the probable runoff in the St. Mary River basin, the fifty-seventh annual International Snow Survey was conducted on May 2 and 3, 1978.

Tables 1 and 1-A, which follow, summarize the apportionment of the waters of the St. Mary River.

TABLE 1

SUMMARY OF DIVISION OF ST. MARY RIVER AND DIVERSION TO MILK RIVER

1978

Quantities in Cubic Decametres

Month	St. Mary River at International Boundary				Excess Rec'd by Canada	Storage Lake Sherburne	Total Available for Diversion	St. Mary Canal at St.Mary Crossing	Milk* River at Eastern Crossing
	Recorded Flow	Natural Flow	U.S. Share	Canada's Share					
April	30 277	40 786	10 844	29 942	336	10 508	336	0	41 576
May	146 911	160 255	67 481	92 774	54 137	9 248	58 234	4 095	32 925
June	171 510	226 007	100 762	125 243	46 266	23 829	76 933	30 669	39 019
July	129 477	163 292	69 003	94 289	35 188	- 4 637	73 640	38 452	53 757
August	61 677	76 977	25 844	51 132	10 545	-26 671	52 515	41 970	54 675
Sept.	87 407	67 282	21 409	45 875	41 532	-29 920	51 328	9 796	39 973
October	43 800	32 032	8 130	23 902	19 899	-11 769	19 899	0	7 565
Total Irrig. Season	671 060	766 630	303 473	463 157	207 903	-29 412	332 885	124 982	269 490
Period Nov. to Oct.	725 020	839 394	339 855	499 539					

*Milk River at Eastern Crossing is the Natural flow of the Milk River plus the diversion from the St. Mary River basin, less unaccounted canal losses.

Quantities for 15-day Periods in Cubic Decametres

Division Period at International Boundary	Natural Flow	Canada's Share	Received by Canada	Received by Canada	
				Above Share	Below Share
April 1 to April 15	19 252	14 423	13 275		1 147
April 16 to April 30	21 533	15 519	17 001	1 483	
May 1 to May 15	57 725	34 981	50 879	15 898	
May 16 to May 31	102 527	57 791	96 029	38 238	
June 1 to June 15	120 375	66 305	99 748	33 443	
June 16 to June 30	105 627	58 936	71 759	12 823	
July 1 to July 15	93 414	52 822	73 520	20 698	
July 16 to July 31	69 875	41 465	55 954	14 489	
August 1 to August 15	35 730	23 982	29 518	5 537	
August 16 to August 31	41 245	27 150	32 158	5 008	
Sept. 1 to Sept. 15	34 057	23 142	41 164	18 022	
Sept. 16 to Sept. 30	33 225	22 731	46 241	23 509	
Oct. 1 to Oct. 15	19 866	14 777	31 375	16 598	
Oct. 16 to Oct. 31	12 164	9 123	12 424	3 300	

TABLE 1-A

SUMMARY OF DIVISION OF ST. MARY RIVER AND DIVERSION TO MILK RIVER

1978

Quantities in Acre-Feet

Month	St. Mary River at International Boundary				Excess Rec'd by Canada	Storage Lake Sherburne	Total Available for Diversion	St. Mary Canal at St.Mary Crossing	Milk* River at Eastern Crossing
	Recorded Flow	Natural Flow	U.S. Share	Canada's Share					
April	24,546	33,065	8,791	24,274	272	8,519	272	0	33,706
May	119,101	129,919	54,707	75,212	43,889	7,497	47,210	3,320	26,692
June	139,043	183,224	81,688	101,535	37,508	19,318	62,370	24,863	31,633
July	104,967	132,381	55,941	76,440	28,527	- 3,759	59,700	31,173	43,581
August	50,002	62,405	20,952	41,453	8,549	-21,622	42,574	34,025	44,325
Sept.	70,861	54,546	17,356	37,191	33,670	-24,256	41,612	7,942	32,406
October	35,509	25,968	6,591	19,377	16,132	- 9,541	16,132	0	6,133
Total Irrig. Season	544,029	621,508	246,026	375,482	168,547	-23,844	269,870	101,323	218,476
Period Nov. to Oct.	587,775	680,498	275,521	404,977					

*Milk River at Eastern Crossing is the Natural flow of the Milk River plus the diversion from the St. Mary River basin, less unaccounted canal losses.

Quantities for 15-day Periods in Acre-Feet

Division Period at International Boundary	Natural Flow	Canada's Share	Received by Canada	Received by Canada	
				Above Share	Below Share
April 1 to April 15	15,608	11,693	10,762		930
April 16 to April 30	17,457	12,581	13,783	1,202	
May 1 to May 15	46,799	28,360	41,249	12,889	
May 16 to May 31	83,121	46,852	77,852	31,000	
June 1 to June 15	97,590	53,755	80,867	27,112	
June 16 to June 30	85,634	47,781	58,176	10,396	
July 1 to July 15	75,732	42,824	59,604	16,780	
July 16 to July 31	56,649	33,616	45,363	11,746	
August 1 to August 15	28,967	19,442	23,931	4,489	
August 16 to August 31	33,438	22,011	26,071	4,060	
Sept. 1 to Sept. 15	27,610	18,762	33,372	14,610	
Sept. 16 to Sept. 30	26,936	18,429	37,488	19,059	
Oct. 1 to Oct. 15	16,106	11,980	25,436	13,456	
Oct. 16 to Oct. 31	9,862	7,396	10,072	2,676	

THE MILK RIVER

The 1921 Order on the division of flow of the Milk River is the converse to that of the St. Mary River. That is, the United States is entitled to three-fourths of the natural flow up to a total discharge of 666 cubic feet per second, with volumes above that quantity to be divided equally between the two countries. During the non-irrigation season (November 1 to March 31), the entire flow is to be divided equally.

Apportionment of the Milk River has not been made, as Canadian and American usage has been considered to be less than their share. However, with the advent of sprinkler irrigation systems and continuous development for irrigation purposes, usages by both Canadian and American irrigators can be significant during dry years such as 1977. Changes in the natural flow computation procedures and a more formal approach to apportionment are planned upon completion of a natural flow study. Two gauging stations were constructed in 1978, Milk River near Pendant D'Oreille and Milk River near Writing-On-Stone Park, to aid the natural flow study. Scheduled completion of the study is 1979 or 1980, depending on the availability of water usage and stream-flow data necessary for determination of channel losses.

The natural flow of the Milk River at its eastern crossing of the International Boundary during the period March 1 to October 31, 1978, was 274 000 dam^3 (222,000) acre-feet. This is 190% of the average estimated natural flow of the previous sixty-six years of record. The United States and Canadian shares were 173 000 dam^3 (140,000 acre-feet) and 101 000 dam^3 (81,700 acre-feet), respectively. The computations for determining the natural flow of the Milk River at its eastern crossing are given in Table 8 in Appendix A.

An International gauging station was again operated in 1978 on the South Fork Milk River near Babb, Montana, for the purpose of studying the utilization of water in the Milk River basin within the Blackfoot Indian Reservation. A substantial flow was recorded all summer at the downstream gauging station Milk River at the Western Crossing of the International Boundary and there were no complaints by Canadian ranchers about water shortages.

EASTERN TRIBUTARIES OF MILK RIVER

The waters of the eastern tributaries of the Milk River were divided in accordance with the Order of the International Joint Commission dated October 4, 1921, which stipulates under Rule III that "The natural flow of the eastern (otherwise known as the Saskatchewan or northern) tributaries of the Milk River at the points where they cross the International Boundary shall be divided equally between the two countries". This order might well be interpreted as requiring that the division of water be made on a continuing basis. It was recognized that there is a physical limitation because of the transit time in the flow system so compilation of the natural flows at the International Boundary are done by ten-day periods, the smallest practical time increment.

Prior to 1937, Canadian usage on the eastern tributaries consisted of private irrigators and the Canadian share of the natural flow was not fully utilized. The construction of three major reservoirs by the government of Canada on the Frenchman River during the late 1930's made an operational division of flow necessary on this tributary in 1937.

The re-development by the government of several private irrigation projects and the construction of the Vidora project during the early 1950's resulted in increased utilization in Canada of Battle Creek water and made an operational division of flow on this tributary necessary in 1957.

Construction of a major government reservoir and irrigation project on Lodge Creek in 1960 made an operational division of flow on this tributary necessary in 1961.

During the runoff season March 1 to October 31, representatives of both countries make ten-day computations of the natural flows of Lodge Creek, Battle Creek and Frenchman River to determine each country's share, so that any usage by Canada in excess of her share can be adjusted at the earliest opportunity by a subsequent delivery to the United States of an equivalent amount. Regular interim reports on the progress of the division of the natural flows of Lodge Creek, Battle Creek and Frenchman River at the International Boundary were made to interested agencies throughout the runoff season. No division of flow is made during the winter period as there is usually very little flow or use and it is impracticable to obtain streamflow records during this period.

Despite the below average runoff and numerous periods with deficits in deliveries, there were no serious problems in apportionment and the total quantity of water delivered to the United States during the season was in excess of its allotted share.

The three tributaries, Lyons, Whitewater and Rock Creeks, are monitored but do not have sufficient usage in Canada at this time to warrant an operational division of flow. The quantity of water delivered by these three tributaries to the United States during the period March 1 to October 31, 1978 was 4 500, 7 380 and 44 300 dam^3 (3650, 5980 and 35,900 acre-feet) respectively.

Operation of the gauging stations on Woodpile Coulee, East Fork Battle Creek and McEachern Creek was suspended last year after fifty years of monitoring. Water use development in each of these basins will be reviewed annually and the gauging stations re-activated should develop progress to a point where a considerable portion of the natural flow is being utilized by Canada.

Estimates of unmeasured diversions to private irrigation projects in the Lodge, Battle and Frenchman basins in Saskatchewan were provided by the Saskatchewan Department of the Environment, and for the Lodge basin in Alberta by the Department of Regional Economic Expansion, PFRA. These estimates are based on reports received from the operators of individual projects and by field inspections. An additional charge is made for domestic projects in the Battle and Frenchman basins based on the results of studies carried out by Canada on domestic project usage.

For the interim reports prepared at the end of apportionment periods an estimate of minor diversion projects usage is made based on a correlation between annual natural flows and reported usages for previous years. The natural flow for the current year is estimated from computed natural flow to date and an estimate of runoff volume for the remainder of the year dependent on runoff conditions. At the end of the year, the actual flow is known and a final estimate of minor diversions is made based on reported usage, consequently there is some discrepancy between interim and final division computations. Lists of reported and estimated diversions for 1978 are contained in Appendix B.

A return flow of 35%, based on a 1972-76 study, was used for the Gaff Ditch diversion from Battle Creek. The return flows from Vidora, Richardson, McKinnon and Nashlyn canals varied throughout the season and have been computed from the flow records at the supplementary gauging stations on Battle Creek. The Squaw Coulee gauging station recorded a return flow of 102 dam^3 (83 acre-feet) from the 2400 dam^3 (1940 acre-feet) diversion by Spangler Ditch from Lodge Creek.

A supplementary gauging station was operated during 1978 on Shepherd Ditch, a private diversion on Battle Creek located downstream from Gaff Ditch. A total diversion of 662 dam^3 (537 acre-feet) was recorded at this station during 1978, and is included in the list of miscellaneous diversions for Battle Creek in Appendix B.

The combined contents of the six major Canadian reservoirs increased from 47 800 dam^3 (38,700 acre-feet) or 28%, to 66 500 dam^3 (53,900 acre-feet) or 39% of the total capacity of 170 000 dam^3 (138,000 acre-feet) during the period March 1 to October 31, 1978.

LODGE CREEK

The computed natural runoff of Lodge Creek at the International Boundary for the period March 1 to October 31, 1978 was 37 240 dam^3 (30,190 acre-feet) or 98% of the average natural runoff of the previous twenty-eight years of record. Each country was entitled to fifty percent of the natural runoff. A total runoff of 22 350 dam^3 (18,120 acre-feet) was recorded at the international boundary which is 120% of the United States share.

Deficit deliveries were recorded in thirteen of the twenty-four division periods during the season. The deficits that occurred during March and early April were refunded with a two month period of excess flows lasting from mid-April to mid-June. The series of small deficits that accumulated over the summer months from late June to mid-September were partially refunded with a release from Altawan Reservoir in late September.

The division of the Lodge Creek natural flow is summarized in Table 2. The detailed computation of the natural flow is given in Table 9 and the historical summary in Table 10 of Appendix A.

BATTLE CREEK

The computed natural runoff of Battle Creek at the International Boundary for the period March 1 to October 31, 1978 was 28 520 dam^3 (23,120 acre-feet) or 85% of the average natural runoff of the previous thirty-eight years of record. Each country was entitled to fifty percent of the natural runoff. A total runoff of 16 690 dam^3 (13,530 acre-feet) was recorded at the international boundary which is 117% of the United States share.

TABLE 2

SUMMARY OF LODGE CREEK DIVISION

1978

(quantities in cubic decametres)

Division Period at International Boundary	Natural Flow	U.S.A. Share	Received by U.S.A.	Received by U.S.A.	
				Above Share	Below Share
Mar 1 - Mar 10	0	0	0	0	
Mar 11 - Mar 20	42	21	0		21
Mar 21 - Mar 31	152	76	0		76
Apr 1 - Apr 10	18785	9392	9160		232
Apr 11 - Apr 20	7543	3772	5387	1615	
Apr 21 - Apr 30	5522	2761	3946	1185	
May 1 - May 10	2853	1426	2085	659	
May 11 - May 20	680	340	614	274	
May 21 - May 31	462	231	399	168	
Jun 1 - Jun 10	252	126	294	168	
Jun 11 - Jun 20	20	10	73	63	
Jun 21 - Jun 30	90	45	27		18
Jul 1 - Jul 10	316	158	0		158
Jul 11 - Jul 20	113	57	7		50
Jul 21 - Jul 31	24	12	10		2
Aug 1 - Aug 10	34	17	0		17
Aug 11 - Aug 20	29	14	0		14
Aug 21 - Aug 31	61	31	0		31
Sep 1 - Sep 10	49	24	0		24
Sep 11 - Sep 20	105	53	10		43
Sep 21 - Sep 30	78	39	333	294	
Oct 1 - Oct 10	27	13	7		6
Oct 11 - Oct 20	0	0	0	0	
Oct 21 - Oct 31	0	0	0	0	
TOTAL - cubic decametres	37237	18618	22352		

TABLE 2-A

SUMMARY OF LODGE CREEK DIVISION

1978

(quantities in cfs days)

Division Period at International Boundary	Natural Flow	U.S.A. Share	Received by U.S.A.	Received by U.S.A.	
				Above Share	Below Share
Mar 1 - Mar 10	0	0	0	0	
Mar 11 - Mar 20	17	8	0		8
Mar 21 - Mar 31	62	31	0		31
Apr 1 - Apr 10	7678	3839	3744		95
Apr 11 - Apr 20	3083	1542	2202	660	
Apr 21 - Apr 30	2257	1128	1613	485	
May 1 - May 10	1166	583	852	269	
May 11 - May 20	278	139	251	112	
May 21 - May 31	189	94	163	69	
Jun 1 - Jun 10	103	52	120	68	
Jun 11 - Jun 20	8	4	30	26	
Jun 21 - Jun 30	37	18	11		7
Jul 1 - Jul 10	129	64	0		64
Jul 11 - Jul 20	46	23	3		20
Jul 21 - Jul 31	10	5	4		1
Aug 1 - Aug 10	14	7	0		7
Aug 11 - Aug 20	12	6	0		6
Aug 21 - Aug 31	25	12	0		12
Sep 1 - Sep 10	20	10	0		10
Sep 11 - Sep 20	43	22	4		18
Sep 21 - Sep 30	32	16	136	120	
Oct 1 - Oct 10	11	6	3		3
Oct 11 - Oct 20	0	0	0	0	
Oct 21 - Oct 31	0	0	0	0	
TOTAL - cfs days	15220	7609	9136		
- acre-feet	30189	15092	18121		

Deficit deliveries were recorded in seven of the twenty-four division periods during the season. An anomaly occurred during the two division periods, September 5 to 14 and September 15 to 24, when a 75 mm rainfall occurring during the period September 10 to 12 overlapped the division periods for Cypress Lake diversion thus creating an artificial deficit for the latter period. The field representatives of both countries studied the problem and agreed to average the flows for the two periods thereby allowing the Canadian irrigators to retain the water stored in Cypress Lake during the period September 15 to 24. It was further agreed that future anomalies of this nature would be considered on an ad hoc basis.

The division of the Battle Creek natural flow is summarized in Table 3. The detailed computation of the natural flow is given in Table 11 and the historical summary in Table 12 of Appendix A.

FRENCHMAN RIVER

The computed natural runoff of the Frenchman River at the International Boundary for the period March 1 to October 31, 1978 was 67 920 dam^3 (55,060 acre-feet) or 76% of the average runoff of the previous thirty-eight years of record. Each country was entitled to fifty percent of the natural runoff. A total runoff of 41 310 dam^3 (33,490 acre-feet) was recorded at the international boundary which is 122% of the United States share.

Deficit deliveries were recorded in seven of the twenty-four division periods during the season.

The division of the Frenchman River natural flow is summarized in Table 4. The detailed computation of the natural flow is given in Table 13 and the historical summary in Table 14 of Appendix A.

TABLE 3

SUMMARY OF BATTLE CREEK DIVISION

1978

(quantities in cubic decametres)

Division Period at International Boundary	Natural Flow	U.S.A. Share	Received by U.S.A.	Received by U.S.A.	
				Above Share	Below Share
Mar 1 - Mar 14	12	6	10	4	
Mar 15 - Mar 25	17	8	15	7	
Mar 26 - Apr 4	1387	694	568		126
Apr 5 - Apr 14	11230	5615	7787	2172	
Apr 15 - Apr 24	3406	1703	1008		695
Apr 25 - May 4	3981	1990	829		1161
May 5 - May 14	2009	1005	594		411
May 15 - May 25	905	452	548	96	
May 26 - Jun 4	597	299	382	83	
Jun 5 - Jun 14	528	264	1184	920	
Jun 15 - Jun 24	213	106	1277	1171	
Jun 25 - Jul 4	431	216	426	210	
Jul 5 - Jul 14	499	249	411	162	
Jul 15 - Jul 25	367	184	210	26	
Jul 26 - Aug 4	96	48	61	13	
Aug 5 - Aug 14	5	3	5	2	
Aug 15 - Aug 25	0	0	0	0	
Aug 26 - Sep 4	0	0	0	0	
Sep 5 - Sep 14	545	272	450	2	
Sep 15 - Sep 24	1101	550	374		
Sep 25 - Oct 4	242	121	113		8
Oct 5 - Oct 14	440	220	191		29
Oct 15 - Oct 25	333	167	135		32
Oct 26 - Oct 31	174	87	115	28	
TOTAL - cubic decametres	28518	14259	16693		

TABLE 3A

SUMMARY OF BATTLE CREEK DIVISION

1978

(quantities in cfs days)

Division Period at International Boundary	Natural Flow	U.S.A. Share	Received by U.S.A.	Received by U.S.A.	
				Above Share	Below Share
Mar 1 - Mar 14	5	2	4	2	
Mar 15 - Mar 25	7	4	6	2	
Mar 26 - Apr 4	567	284	232		52
Apr 5 - Apr 14	4590	2295	3183	888	
Apr 15 - Apr 24	1392	696	412		284
Apr 25 - May 4	1627	813	339		474
May 5 - May 14	821	411	243		168
May 15 - May 25	370	185	224	39	
May 26 - Jun 4	244	122	156	34	
Jun 5 - Jun 14	216	108	484	376	
Jun 15 - Jun 24	87	43	522	479	
Jun 25 - Jul 4	176	88	174	86	
Jul 5 - Jul 14	204	102	168	66	
Jul 15 - Jul 25	150	75	86	11	
Jul 26 - Aug 4	39	20	25	5	
Aug 5 - Aug 14	2	1	2	1	
Aug 15 - Aug 25	0	0	0	0	
Aug 26 - Sep 4	0	0	0	0	
Sep 5 - Sep 14	223	111	184	1	
Sep 15 - Sep 24	450	225	153		
Sep 25 - Oct 4	99	50	46		4
Oct 5 - Oct 14	180	90	78		12
Oct 15 - Oct 25	136	68	55		13
Oct 26 - Oct 31	71	36	47	11	
TOTAL - cfs days	11656	5829	6823		
- acre-feet	23120	11562	13534		

TABLE 4

SUMMARY OF FRENCHMAN RIVER DIVISION

1978

(quantities in cubic decametres)

Division Period at International Boundary	Natural Flow	U.S.A. Share	Received by U.S.A.	Received by U.S.A.	
				Above Share	Below Share
Mar 1 - Mar 10	0	0	64	64	
Mar 11 - Mar 20	0	0	78	78	
Mar 21 - Mar 31	10332	5166	7670	2504	
Apr 1 - Apr 10	24593	12296	13860	1564	
Apr 11 - Apr 20	10087	5044	3389		1655
Apr 21 - Apr 30	5091	2545	4372	1827	
May 1 - May 10	5855	2928	3920	992	
May 11 - May 20	2535	1267	2297	1030	
May 21 - May 31	1926	963	401		562
Jun 1 - Jun 10	1493	747	1033	286	
Jun 11 - Jun 20	932	466	514	48	
Jun 21 - Jun 30	832	416	149		267
Jul 1 - Jul 10	631	315	458	143	
Jul 11 - Jul 20	1003	502	829	327	
Jul 21 - Jul 31	237	118	188	70	
Aug 1 - Aug 10	697	349	717	368	
Aug 11 - Aug 20	595	297	641	344	
Aug 21 - Aug 31	137	69	49		20
Sep 1 - Sep 10	2	1	2	1	
Sep 11 - Sep 20	198	99	56		43
Sep 21 - Sep 30	365	182	7		175
Oct 1 - Oct 10	118	59	2		57
Oct 11 - Oct 20	51	26	289	263	
Oct 21 - Oct 31	208	104	323	219	
TOTAL - cubic decametres	67918	33959	41308		

TABLE 4A

SUMMARY OF FRENCHMAN RIVER DIVISION

1978

(quantities in cfs days)

Division Period at International Boundary	Natural Flow	U.S.A. Share	Received by U.S.A.	Received by U.S.A.	
				Above Share	Below Share
Mar 1 - Mar 10	0	0	26	26	
Mar 11 - Mar 20	0	0	32	32	
Mar 21 - Mar 31	4223	2112	3135	1023	
Apr 1 - Apr 10	10052	5026	5665	639	
Apr 11 - Apr 20	4123	2062	1385		677
Apr 21 - Apr 30	2081	1041	1787	746	
May 1 - May 10	2393	1196	1602	406	
May 11 - May 20	1036	518	939	421	
May 21 - May 31	787	394	164		230
Jun 1 - Jun 10	610	305	422	117	
Jun 11 - Jun 20	381	190	210	20	
Jun 21 - Jun 30	340	170	61		109
Jul 1 - Jul 10	258	129	187	58	
Jul 11 - Jul 20	410	205	339	134	
Jul 21 - Jul 31	97	48	77	29	
Aug 1 - Aug 10	285	142	293	151	
Aug 11 - Aug 20	243	122	262	140	
Aug 21 - Aug 31	56	28	20		8
Sep 1 - Sep 10	1	0	1	1	
Sep 11 - Sep 20	81	41	23		18
Sep 21 - Sep 30	149	74	3		71
Oct 1 - Oct 10	48	24	1		23
Oct 11 - Oct 20	21	10	118	108	
Oct 21 - Oct 31	85	43	132	89	
TOTAL - cfs days	27760	13880	16884		
- acre-feet	55062	27531	33489		

APPENDIX A

International Joint Commission

1921 Order

INTERNATIONAL JOINT COMMISSION

ORDER

IN THE MATTER OF THE MEASUREMENT AND APPORTIONMENT OF THE WATERS OF THE ST. MARY AND MILK RIVERS AND THEIR TRIBUTARIES IN THE STATE OF MONTANA AND THE PROVINCES OF ALBERTA AND SASKATCHEWAN.

Whereas by Article VI of the Treaty entered into between the United States of America and His Majesty, the King of the United Kingdom of Great Britain and Ireland and of the British Dominions beyond the Seas, Emperor or India, signed at Washington on the 11th of January, 1909, it is provided as follows:

The High Contracting Parties agree that the St. Mary and Milk Rivers and their tributaries (in the State of Montana and the Provinces of Alberta and Saskatchewan) are to be treated as one stream for the purposes of irrigation and power, and the waters thereof shall be apportioned equally between the two countries, but in making such equal apportionment more than half may be taken from one river and less than half from the other by either country so as to afford a more beneficial use to each. It is furthur agreed that in the division of such waters during the irrigation season, between the 1st of April and 31st of October, inclusive, annually, the United States is entitled to a prior appropriation of 500 cubic feet per second of the waters of the Milk River, or so much of such amount as constitutes three-fourths of its natural flow, and that Canada is entitled to a prior appropriation of 500 cubic feet per second of the flow of St. Mary River, or so much of such amount as constitutes three-fourths of its natural flow.

The Channel of the Milk River in Canada may be used at the convenience of the United States for the conveyance, while passing through Canadian territory, of waters diverted from the St. Mary River. The provisions of Article II of this treaty shall apply to any injury resulting to property in Canada from the conveyance of such waters through the Milk River.

The measurement and apportionment of the water to be used by each country shall from time to time be made jointly by the properly constituted reclamation officers of the United States and the properly constituted irrigation officers of His Majesty under the direction of the International Joint Commission.

And whereas the said Reclamation and Irrigation Officers have been unable to agree as to the manner in which the waters mentioned in the said Article VI should be measured and apportioned;

And whereas, before giving directions as to the measurement and apportionment of the said waters, the International Joint Commission deemed it proper to hear such representations and suggestions thereon as the Governments of the United States and Canada, the Provinces of Alberta and Saskatchewan, and the State of Montana, and as corporations and persons interested might see fit to make, and for such purposes sittings of the Commission were held at the following times and places: At the

city of St. Paul, in the State of Minnesota, on the 24th, 25th, 26th, 27th, and 28th days of May, 1915; at the city of Detroit, in the State of Michigan, on the 15th, 16th, and 17th days of May, 1917; at the city of Ottawa, in the Province of Ontario, on the 3rd, 4th, and 5th days of May, 1920; at the village of Chinook, in the State of Montana, on the 15th day of September, 1921; and at the city of Lethbridge, in the Province of Alberta, on the 17th day of September, 1921, when counsel and representatives of the said Governments, corporations, and persons appeared and presented their views;

And whereas, pending final decision as to the proper method of measuring and apportioning said waters, interim orders with reference thereto have been made by the International Joint Commission from time to time, the last of such orders bearing the date of 5th day of April, 1921;

And whereas the members of the International Joint Commission have unanimously determined that the said Reclamation and Irrigation Officers should be guided in the measurement and apportionment of said waters by the directions and instructions hereinafter set forth:

IT IS THEREFORE ORDERED AND DIRECTED by the Commission in pursuance of the powers conferred by the said Article VI of the said Treaty that the Reclamation and Irrigation Officers of the United States and Canada shall, until this order is varied, modified, or withdrawn by the Commission, make jointly the measurement and apportionment of the water to be used by the United States and Canada in accordance with the following rules:

St. Mary River.

I. (a) During the irrigation season when the natural flow of the St. Mary River at the point where it crosses the international boundary is six hundred and sixty-six (666) cubic feet per second or less Canada shall be entitled to three-fourths and the United States to one-fourth of such flow.

(b) During the irrigation season when the natural flow of the St. Mary River at the point where it crosses the international boundary is more than six hundred and sixty-six (666) cubic feet per second Canada shall be entitled to a prior appropriation of five hundred (500) cubic feet per second, and the excess over six hundred and sixty-six (666) cubic feet per second shall be divided equally between the two countries.

(c) During the non-irrigation season the natural flow of the St. Mary River at the point where it crosses the international boundary shall be divided equally between the two countries.

Milk River.

II. (a) During the irrigation season when the natural flow of the Milk River at the point where it crosses the international boundary for the last time (commonly and hereafter called the Eastern Crossing) is six hundred and sixty-six (666) cubic feet per second or less, the United States shall be entitled to three-fourths and Canada to one-fourth of such natural flow.

(b) During the irrigation season when the natural flow of the Milk River at the Eastern Crossing is more than six hundred and sixty-six (666) cubic feet per second the United States shall be entitled to a prior appropriation of five hundred

(500) cubic feet per second and the excess over six hundred and sixty-six (666) cubic feet per second shall be divided equally between the two countries.

(c) During the non-irrigation season the natural flow of the Milk River at the Eastern Crossing shall be divided equally between the two countries.

Eastern Tributaries of Milk River.

III. The natural flow of the eastern (otherwise known as the Saskatchewan or northern) tributaries of the Milk River at the points where they cross the international boundary shall be divided equally between the two countries.

Waters not naturally crossing the boundary.

IV. Each country shall be apportioned such waters of the said rivers and of any tributaries thereof as rise in that country but do not naturally flow across the international boundary.

V. For the purpose of carrying out the apportionment directed in Paragraphs I, II, and III hereof the said Reclamation and Irrigation Officers shall jointly take steps:

(a) To ascertain and keep a daily record of the natural flow of the St. Mary River at the international boundary, of the Milk River at the Eastern Crossing, and of the eastern tributaries of the Milk River at the international boundary by measurement in each case:

(1) At the gauging station at the international boundary;

(2) At all places where any of the waters which would naturally flow across the international boundary at that particular point are diverted in either country prior to such crossing:

(3) At all places where any of the waters which would naturally flow across the international boundary at that particular point are stored, or the natural flow thereof increased or decreased prior to such crossing;

(b) To fix the amount of water to which each country is entitled in each case by applying the directions contained in paragraphs 1, 2, and 3 hereof to the total amount of the natural flow so ascertained in each case.

(c) To communicate the amount so fixed to all parties interested, so that the apportionment of the said waters may be fully carried out by both countries in accordance with the said directions.

VI. Each country may receive its share of the said waters as so fixed at such point or points as it may desire. A gauging station shall be established and maintained by the Reclamation or Irrigation Officers of the country in which any diversion, storage, increase, or decreases of the natural flow shall be made at every point where such diversion, storage, increase, or decrease takes place.

VII. International gauging stations shall be maintained at the following points:

St. Mary River near international boundary; the north branch of Milk River near international boundary; the south branch of Milk River near international boundary; Milk River at Eastern Crossing; Lodge Creek, Battle Creek, and Frenchman River, near international boundary; and gauging stations shall be establish-

ed and maintained at such other points as the Commission may from time to time approve.

VIII. The said Reclamation and Irrigation Officers are hereby further authorized and directed:

(a) To make such additional measurements and to take such further and other steps as may be necessary or advisable in order to insure the apportionment of the said waters in accordance with the directions herein set forth.

(b) To operate the irrigation works of either country in such a manner as to facilitate the use by the other country of its share of the said waters and subject hereto to secure to the two countries the greatest beneficial use therof.

(c) To report to the Commission the measurements made at all international and other gauging stations established pursuant to this order.

IX. In the event of any disagreement in respect to any matter or thing to be done under this order the said Reclamation and Irrigation Officers shall report to the Commission, setting forth fully the points of difference and the facts relating thereto.

X. The said order of the Commission, dated the 6th day of April 1921, is hereby withdrawn, except with respect to the report to be furnished to the Commission thereunder.

Dated at Ottawa, Canada, this 4th day of October, 1921.

O. GARDNER,
C. A. MACGRATH,
C. D. CLARK,
HENRY A. POWELL,
W. H. HEARST,
MARK A. SMITH.

APPENDIX B

International Systems of Units

(SI) Conversions

ENGLISH TO INTERNATIONAL SYSTEMS OF UNITS

(SI) CONVERSION

The 1978 Report to the International Joint Commission on the Division of the Waters of the St. Mary and Milk Rivers uses dual units (SI and English) as a transition to future reports which will be written entirely in SI units.

The two English units that have been used in previous reports are cfs-days and acre-feet.

A cfs-day is the equivalent volume of one cubic foot per second flowing for 24 hours (60 x 60 x 24) or 86,400 cubic feet.

An acre-foot is the volume of water covering one acre to the depth of one foot and is equal to 43,560 cubic feet.

One cfs-day is equal to 1.9835 acre-feet.

The SI unit replacing the English units is the cubic decametre (dam^3) and is the volume contained in a cube 10 m x 10 m x 10 m or 1,000 cubic metres.

One cubic metre is equal to 35.315 cubic feet

One cubic decametre is equal to 35,315 cubic feet.

An acre-foot is equal to 1.2335 cubic decametres.

A cfs-day is equal to 2.4466 cubic decametres.

The basic data for the 1978 report was computed in English units (cfs days or acre-feet). In the text of the report these acre-foot numbers have been rounded to 3 significant figures.

The cubic decametre numbers in the text were derived by using either the exact cfs days x 2.4466 or the exact acre-feet x 1.2335 and then rounding to 3 significant figures.

Therefore, if the rounded acre-foot numbers shown in the text are multiplied by 1.2335 they may not be equal to the equivalent rounded cubic decametres.

Likewise, if the rounded cubic decametre numbers shown in the text are divided by 1.2335 they may or may not be equal to the equivalent rounded acre-feet.

APPENDIX C

List of Gauging Stations

INTERNATIONAL GAUGING STATIONS OPERATED JOINTLY

BY

CANADA AND UNITED STATES

ST. MARY AND MILK RIVER DRAINAGE BASINS

1978

Map Index	Stream and Location
	ST. MARY RIVER BASIN
05AE027	St. Mary River at International Boundary
05AE036	Lake Sherburne at Sherburne, Montana
05AE033	Swiftcurrent Creek at Sherburne, Montana
05AE029	St. Mary Canal at St. Mary Crossing near Babb, Montana
	MILK RIVER BASIN
11AA025	Milk River at Western Crossing of International Boundary
11AA005	Milk River at Milk River
11AA034	Milk River near Writing-on-Stone Park
11AA035	Milk River near Pendant d'Orielle
11AA031	Milk River at Eastern Crossing of International Boundary
11AA033	South Fork Milk River near Babb, Montana
11AA032	North Fork Milk River above St. Mary Canal near Browning, Montana
11AA001	North Milk River near International Boundary
	LODGE CREEK TRIBUTARY BASIN
11AB089	Altawan Reservoir near Govenlock
11AB083	Lodge Creek below McRae Creek at International Boundary
11AB086	Walburger Coulee below Diversions
11AB060	Spangler Ditch near Govenlock

BATTLE CREEK TRIBUTARY BASIN (continued)

11AB009	Middle Creek near Alberta Boundary
11AB080	Middle Creek Reservoir
11AB001	Middle Creek below Middle Creek Reservoir

BATTLE CREEK TRIBUTARY BASIN

11AB027	Battle Creek at International Boundary
11AB102	Gaff Ditch near Merryflat
11AB078	Cypress Lake West Inflow Canal
11AB085	Cypress Lake West Inflow Canal Drain
11AB077	Cypress Lake West Outflow Canal
11AB084	Vidora Ditch near Consul
11AB058	Richardson Ditch near Consul
11AB044	McKinnon Ditch near Consul
11AB018	Nashlyn Canal near Consul
11AB075	Lyons Creek at International Boundary

FRENCHMAN RIVER TRIBUTARY BASIN

11AC055	Eastend Reservoir
11AC001	Frenchman River below Eastend Reservoir
11AC063	Val Marie West Reservoir
11AC056	Val Marie Reservoir
11AC062	Frenchman River below Val Marie Reservoir
11AC041	Frenchman River at International Boundary
11AC060	Cypress Lake East Outflow Canal
11AC037	Cypress Lake
11AC064	Belanger Creek Diversion to Cypress Lake
11AC052	Eastend Canal
11AC066	Val Marie West Pumping Canal
11AC065	Val Marie West Gravity Canal
11AC054	Val Marie Main Canal

WHITEWATER CREEK TRIBUTARY BASIN

11AD001 Whitewater Creek near International Boundary

ROCK CREEK TRIBUTARY BASIN

11AE009 Rock Creek below Horse Creek near International Boundary

GAUGING STATIONS OPERATED INDEPENDENTLY BY EITHER CANADA OR UNITED STATES IN THE ST. MARY AND MILK RIVER DRAINAGE BASINS 1978

Map Index	Stream and Location	Operated by
	ST. MARY RIVER BASIN	
5-0175*	St. Mary River near Babb, Montana	U.S.A.
05AE025*	St. Mary Reservoir near Spring Coulee	Canada
05AE006*	St. Mary River near Lethbridge	Canada
5-0140*	Grinnell Creek near Many Glacier, Montana	U.S.A.
5-0145*	Swiftcurrent Creek at Many Glacier, Montana	U.S.A.
05AE005*	Rolph Creek near Kimball	Canada
05AE002*	Lee Creek at Cardston	Canada
05AE026*	Canadian St. Mary Canal near Spring Coulee	Canada
05AE021*	Magrath Irrigation District Canal near Spring Coulee	Canada
05AE016*	Pothole Creek at Russell's Ranch	Canada
05AE038*	Pothole Turnout near Magrath	Canada
	MILK RIVER BASIN - SOUTHERN TRIBUTARIES	
11AA029*	Miners Coulee near International Boundary	Canada
11AA028*	Bear Creek near International Boundary	Canada

LODGE CREEK TRIBUTARY BASIN

11AB082*	Lodge Creek at Alberta Boundary	Canada
11AB091	Michele Reservoir near Elkwater	Canada
11AB092	Greasewood Reservoir near Elkwater	Canada
11AB104	Massy Reservoir near Elkwater	Canada
11AB094	Bare Creek Reservoir near Elkwater	Canada
11AB097	Cressday Reservoir near Cressday	Canada
11AB098	Jaydot Reservoir near Jaydot	Canada
11AB099	Mitchell Reservoir near Elkwater	Canada
11AB113	Middle Creek Reservoir Main Outlet	Canada
11AB008*	Middle Creek above Lodge Creek	Canada
11AB114	Middle Creek Reservoir Bedford Outlet	Canada
11AB115	Middle Creek Reservoir Flood Spillway	Canada
11AB108*	Middle Creek near Govenlock	Canada
11AB103	Squaw Coulee near Willow Creek	Canada

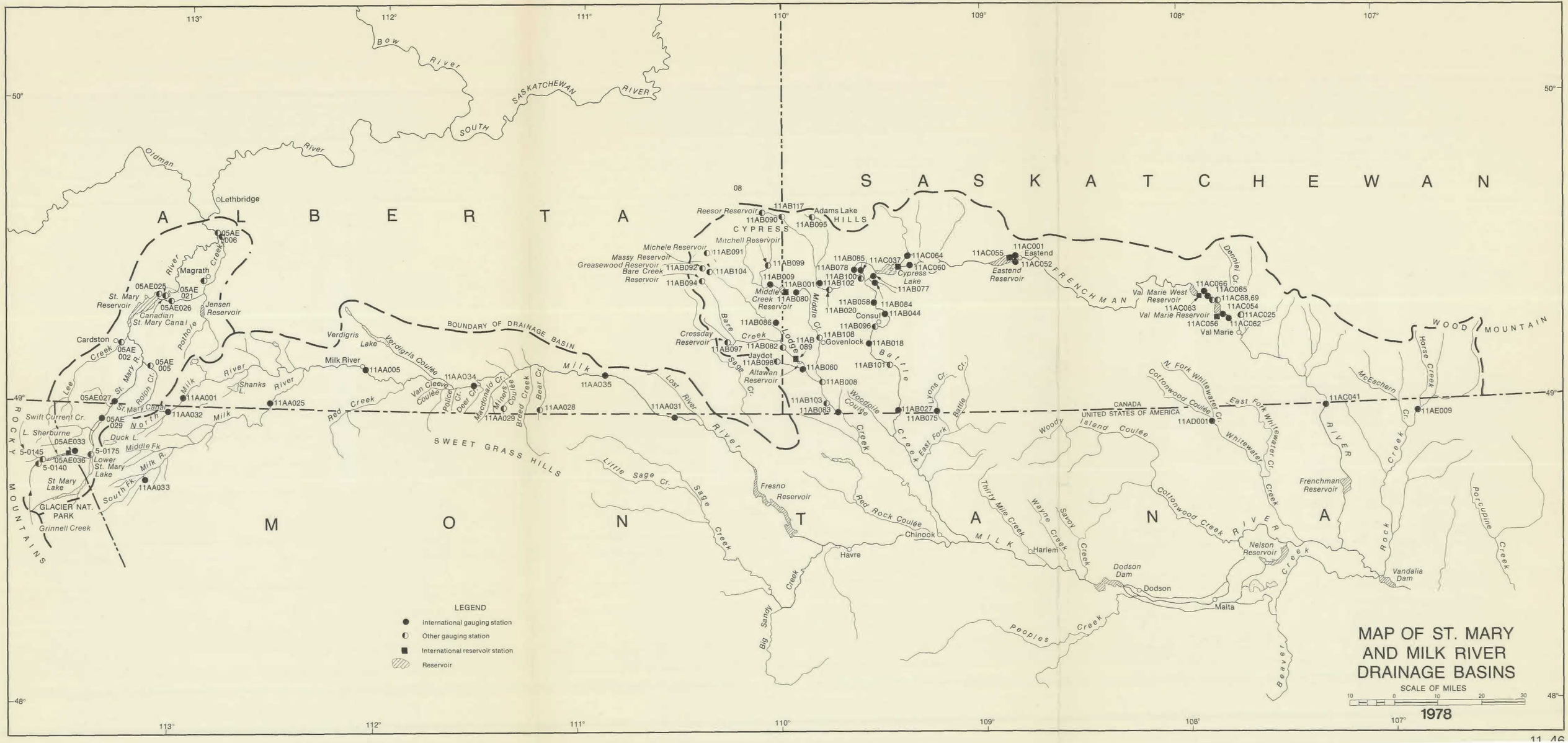
BATTLE CREEK TRIBUTARY BASIN

11AB117*	Battle Creek at Alberta Boundary	Canada
11AB100*	Battle Creek above Cypress Lake West Outflow Canal	Canada
11AB096*	Battle Creek near Consul	Canada
11AB101*	Battle Creek below Nashlyn Project	Canada
11AB095	Adams Lake	Canada
11AB090	Reesor Reservoir	Canada
11AB020*	Shepherd Ditch near Consul	Canada

FRENCHMAN RIVER TRIBUTARY BASIN

11AC068	Val Marie Pump No. 1	Canada
11AC069	Val Marie Pump No. 2	Canada
11AC025*	Denniel Creek near Val Marie	Canada

* Data not included in this report or appendices


MAP OF ST. MARY AND MILK RIVER DRAINAGE BASINS
SCALE OF MILES
10 0 10 20 30
1978
LEGEND
International gauging station
Other gauging station
International reservoir station
Reservoir
BOUNDARY OF DRAINAGE BASIN
CANADA
UNITED STATES OF AMERICA
ALBERTA
SASKATCHEWAN
MONTANA
Lethbridge
Magrath
Cardston
Milk River
Havre
Chinook
Harlem
Malta
Dodson
GLACIER NAT. PARK
Grinnell Creek
St. Mary Lake
Lower St. Mary Lake
St. Mary Reservoir
Jensen Reservoir
Canadian St. Mary Canal
Verdigris Lake
Verdigris Coulee
Van Cleeve Coulee
Police Cr.
Deer Cr.
Macdonald Cr.
Miners Coulee
Breed Creek
Bear Cr.
Lost River
Sweet Grass Hills
Little Sage Cr.
Sage Creek
Big Sandy Creek
Fresno Reservoir
Red Rock Coulee
Milk River
Oldman River
Bow River
South Saskatchewan River
Reesor Reservoir
Adams Lake
Cypress Hills
Michele Reservoir
Mitchell Reservoir
Massy Reservoir
Greasewood Reservoir
Bare Creek Reservoir
Middle Creek Reservoir
Cressday Reservoir
Bare Creek
Lodge Cr.
Middle Cr.
Sage Cr.
Altawan Reservoir
Govenlock
Jaydot
Consul
Cypress Lake
Eastend Reservoir
Eastend
Frenchman
Val Marie West Reservoir
Val Marie Reservoir
Val Marie
Denniel Cr.
Wood Mountain
Horse Creek
McEachern
N. Fork Whitewater Coulee
Cottonwood Coulee
Whitewater Cr.
East Fork Whitewater Cr.
East Fork
Battle Cr.
Lyons Cr.
Woodpile Coulee
Woody Island Coulee
Thirty Mile Creek
Wayne Creek
Savoy Creek
Cottonwood Creek
Frenchman River
Frenchman Reservoir
Nelson Reservoir
Rock Creek
Porcupine Creek
Vandalia Dam
Dodson Dam
Peoples Creek
Beaver Creek
Swift Current Cr.
L. Sherburne
Duck L.
Middle Fk
Milk R.
South Fk
North
St. Mary Canal
Pothole
Lee Creek
Shanks River
Red Creek
Rolph Cr.
St. Mary R.
Milk River
Oldman River
Creek
Bow River
Saskatchewan River
South
River
Rocky Mountains
05AE006
05AE025
05AE021
05AE026
05AE002
05AE005
05AE027
05AE029
05AE033
05AE036
5-0145
5-0140
5-0175
11AA001
11AA005
11AA025
11AA032
11AA033
11AA034
11AA029
11AA028
11AA035
11AA031
08
11AB117
11AB090
11AB095
11AE091
11AB104
11AB092
11AB094
11AB099
11AB009
11AB001
11AB080
11AB086
11AB097
11AB082
11AB089
11AB098
11AB060
11AB008
11AB103
11AB083
11AB085
11AB078
11AB100
11AB102
11AB058
11AB020
11AB096
11AB108
11AB018
11AB101
11AB027
11AB075
11AC037
11AC064
11AC060
11AB077
11AB084
11AB044
11AC055
11AC001
11AC052
11AC066
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11AC025
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11AC041
11AD001
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1978

Report to the International Joint Commission on the division and use of the waters of the St. Mary and Milk Rivers...