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W. T. McFarlan

Report to

THE INTERNATIONAL JOINT COMMISSION

on

THE DIVISION AND USE MADE OF THE WATERS OF
ST. MARY AND MILK RIVERS

by

C. G. PAULSEN
representing the United States

and

NORMAN MARR
representing Canada

1949

WATER SURVEY OF CANADA
CALGARY DISTRICT OFFICE

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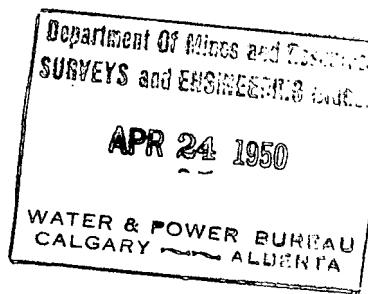
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The Honourable, The International Joint Commission,
Washington, D.C., and Ottawa, Canada.

Gentlemen:-

In compliance with the Provisions of
Clause VIII (c) of your Order of the 4th October, 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, 1949.

Respectfully submitted,

C.G. Paulsen,
Accredited Officer of the United States.

Norman Marr,
Accredited Officer of His Majesty.

April 4, 1950.

Introduction

The field work incidental to the division and administration of the waters of the St. Mary and Milk Rivers in Alberta, Saskatchewan, and Montana was conducted during the irrigation season of 1949 by the same group of engineers as in previous years.

The Chief Hydraulic Engineer, United States Geological Survey, Mr. C.G. Paulsen, as accredited officer of the United States was represented in the field by Mr. A.H. Tuttle, District Engineer, Helena, Montana. Mr. Norman Marr, Controller, Dominion Water and Power Bureau, as accredited officer of His Majesty, was represented by Mr. O.H. Hoover, District Engineer, Calgary, Alberta.

The water of the two rivers was divided between the two countries in accordance with the Order of the Commission dated in Ottawa, Canada, on the 4th day of October, 1921.

The hydrometric data on which this report is based were collected in Montana by engineers of the United States Geological Survey under the supervision of Mr. Tuttle, while those in Canada were obtained by engineers of the Dominion Water and Power Bureau under the direction of Mr. Hoover.

2.

The joint international gauging stations were visited frequently by representatives of both countries and the data obtained were jointly approved by the field engineers.

The annual report was compiled and assembled by Mr. S.G. Dawson, Dominion Water and Power Bureau, Ottawa, Canada.

The run-off from the St. Mary River basin during the irrigation season of 1949 was 80 per cent of the average for the 46 years of record. The field engineers constantly kept themselves closely informed as to the natural flow of the river, the water stored or released from storage and the quantity diverted by each country. Any discrepancy in the division was adjusted to allow each country its proper share as set forth in the Order of the Commission dated October 4, 1921. Statements were prepared and forwarded to the engineer in charge of the St. Mary River storage unit, United States Bureau of Reclamation, Babb, Montana; to the Manager, Milk River Development, U.S.B.R., Malta, Montana; to the Assistant Manager St. Mary River Development, Lethbridge, Alberta; and to the Controller, Dominion Water and Power Bureau, Ottawa, Ontario.

Division of Water

The United States St. Mary Canal was in operation at the headgates from the 26th of April to the 21st of September and water was delivered to the North Branch Milk River from the 28th of April to the 26th of September.

As seepage from the canal between the intake and the crossing of the St. Mary River is assumed to return to the river and eventually become available to Canada, the discharge of 152,800 acre-feet passing in the canal at St. Mary Crossing during the period between April 26th and September 23rd is considered as the quantity diverted from the St. Mary River by the United States. During the period of operation of the canal 150,600 acre-feet of the diversion from St. Mary River was delivered to the North Branch Milk River and was made available for irrigation in Montana. The slight decrease in flow between the St. Mary Crossing and the Hudson Bay Divide, the end of the canal, was probably due to the excess of evaporation and seepage over the local run-off.

On October 31st, 1948, 5,531 acre-feet of water remained in storage in Sherburne Reservoir. By March 31st, 1949, 13,173 acre-feet were in storage. This was increased to 60,556 acre-feet by June 23rd. After June 24th and until September 15th water was released in varying amounts to supplement the flow in St. Mary Canal. Water was again stored from September 15th to the end of the season and by October 31, 15,575 acre-feet were in storage.

As only a small quantity of water was diverted from Milk River in Canada, the natural flow of the river at Eastern Crossing is considered as being delivered to the United States. The natural flow of the river at the Eastern Crossing during the open water period of 1949, March 1st to October 31st, is estimated as 55,360 acre-feet or about one-half the average flow.

The total measured diversion for irrigation from Milk River in Montana was 275,820 acre-feet.

The quantity of water delivered to the United States at the International Boundary from the Northern Tributaries of Milk River, during the open water period of 1949 was 13,632 acre-feet, the lowest quantity during the period of record and about 11 per cent of the average for the previous 22 years.

During the open water period of 1949, Canada diverted to Cypress Lake Reservoir, 1,260 acre-feet of the flow of Battle Creek, but later returned 7,820 acre-feet. The flow delivered to Montana at the International Boundary was 1,750 acre-feet. In the Frenchman River basin, Canada diverted 1,710 acre-feet from Belanger Creek to Cypress Lake Reservoir and 9,392 acre-feet from the main stream to reservoirs at East End and Val Marie. From this and reserve storage, Canada released 13,690 acre-feet to irrigate land in the Frenchman River valley and deliver 6,480 acre-feet of the natural flow to the United States.

The apportionment during the open water period is shown in Table 3.

The Canadian St. Mary Canal at Kimball, Alberta, diverted 174,970 acre-feet of water from St. Mary River during the period of operation from the 10th of April to the 31st of October and applied 169,880 acre-feet of this diversion to land in Southern Alberta during the Irrigation season.

The Dominion Water and Power Bureau is dependent to a large extent upon the irrigators themselves for record of the diversion in Canada from the Northern Tributaries of Milk River as, in the majority of cases, the diversions are too small to justify the expense of appointing and paying gauge readers. Consequently the records are believed to be incomplete and of doubtful value. Information on the diversions in Canada during the 1948 season was received too late to be included with that year's report. The diversions during 1948 are shown in Table 4 (1948) and during 1949 in Table 4 (1949). It is estimated that 300 acre-feet were diverted from Lodge Creek during 1948, 8,980 acre-feet from Battle Creek and 15,228 from Frenchman River. There was no record of diversion during 1949 from Lodge Creek. In the Battle Creek basin during 1949 Canada released from Cypress Lake Reservoir, 410 acre-feet more than was diverted in the basin. The total diverted from Frenchman River in Canada was 6,376 acre-feet.

4.

Any question as to the proper share of St. Mary River being delivered to either Country was decided in the following manner. Records were kept of the daily flow in Swiftcurrent Creek at Many Glacier, but the flow from the other creeks entering Swiftcurrent Creek above the Sherburne dam was estimated. The Total of these creeks gave the inflow into Sherburne Lake Reservoir. The unrecorded inflow was determined by comparison with the recorded flow in Swiftcurrent Creek and with the use of the water levels of Sherburne Lake Reservoir, after direct application of the losses by evaporation and seepage was made. A record of the outflow from the reservoir was kept at the gauging station just below the dam. The difference between the inflow and the outflow showed the quantity of water being stored or released from storage. A record of the daily flow in the United States St. Mary Canal at St. Mary Crossing was kept to determine the water diverted by the United States and a record of the daily flow in the St. Mary River at Kimball, near the International Boundary, was kept to determine the water being delivered to Canada.

If water was being stored in Sherburne Lake Reservoir, the natural flow of St. Mary River at the Boundary was obtained by adding the quantity of water stored to that diverted by the St. Mary Canal and that delivered to Canada, a two-day lag was allowed for stored water to reach the Boundary. If water was being released, the quantity released was deducted from the combined flow of the St. Mary Canal and that in the river at Kimball to determine the natural flow.

The natural flow having been determined, the share to which each country was entitled by the Order of the Commission was calculated on the following basis:-

(1) When the natural flow of the St. Mary River was 666 cubic-feet per second or less, Canada was entitled to three-fourths of that flow and the United States to one-fourth.

(2) When the natural flow of the St. Mary River was greater than 666 cubic-feet per second, Canada was entitled to 500 cubic-feet per second plus one-half of the increase over 666 cubic-feet per second and the United States was entitled to the remainder.

No actual division was made of the waters of Milk River or its Northern Tributaries except those of the Frenchman River and Battle Creek.

Water Supply

In the mountainous areas tributary to the St. Mary River basin, as shown by the twenty-seventh annual international survey of the snow conditions on the headwaters of the Swiftcurrent Creek, an area considered typical of the headwaters of the St. Mary River, the snow

cover of 58.8 inches was about 98.8 per cent of the mean for the previous twenty-seven years, while the water content, 27.5 inches, of this snow cover was about 103 per cent of the mean. The run-off of 57,000 acre-feet from the area surveyed, during May, June and July was 86.0 per cent of the average for the previous twenty-seven years.

The natural flow of 456,650 acre-feet of the St. Mary River at the Boundary during the irrigation season of 1949, from the first of April to the end of October, was 80 per cent of the average for the 46 years of record.

The run-off from the prairies, as indicated by the Northern Tributaries of Milk River was the lowest on record and a little over eleven per cent of the average for the last twenty-two years.

Forty-one gauging stations used in the determination of the natural flow of the streams in the St. Mary and Milk River basins were operated jointly as international gauging stations.

An appendix to this report gives the results of current meter measurements, the daily gauge heights and the discharge at all gauging stations operated in the two drainage basins during 1949.

Description of Tables

The tables following have been prepared to summarize the data on the division and use made of the waters in the St. Mary and Milk River basins.

Table No. 1 shows the method used to determine the natural flow of St. Mary River during the irrigation season of 1949, the water available for use and used by the United States and Canada. In this table there are four pages for each month from April to October, inclusive.

Page 1 (water stored or released from Sherburne Lake Reservoir) shows the daily inflow to and the daily outflow from Sherburne Lake Reservoir. The difference gives the quantity of water stored or released from storage. On this sheet the unrecorded inflow is determined by comparison with the recorded flow in Swiftcurrent Creek and the use of the water levels of Sherburne Lake Reservoir to give the gain or loss in storage, after direct application of the evaporation and seepage losses has been made. This estimate is put in the Column headed "unrecorded inflow".

Page 2 (determination of natural flow of the St. Mary River) shows the actual flow of St. Mary River at Kimball near the International Boundary, the quantity of water diverted, stored or released from storage by the United States and the computed natural flow of St. Mary River,

or that flow which would have crossed the Boundary had there been no interference. It has been determined that two days are required for stored water released from Sherburne Lake Reservoir to influence the flow at International Boundary, consequently a two-day lag has been applied to the stored or released water.

Page 3 (water available for use and used by the United States) shows the water available for use and used by the United States, the water diverted and stored and the excess or deficit in the quantity used as compared with the share available as set by the ruling of the Order of October 4, 1921.

Page 4 (water available for use and used by Canada) shows the natural flow of St. Mary River at the International Boundary, Canada's share by the ruling of the Commission, the actual discharge of St. Mary River at Kimball, which is the quantity available for use by Canada, the quantity used by Canada and the excess or deficit of the quantity received by Canada as compared with the share.

Table 2 is a statement showing the quantity in acre-feet taken each month by each country and the quantity thereof which is applied to the land, the quantity diverted from the St. Mary River, the loss or waste from canals and the diversions from Milk River in the United States.

11.

Table 3 shows the determination of the natural flow of Frenchman River at the International Boundary. This table consists of three pages; Page 1 shows the quantity used by Canada in Cypress Lake Reservoir and at East End; Page 2 shows the quantity used by Canada at Val Marie; and Page 3 shows the total quantity used by Canada, the natural flow of Frenchman River at the Boundary and the quantity delivered to the United States.

Table 4 shows the available information on the diversions from the Northern Tributaries of Milk River in Canada. Information for 1948 is included in this report.

Table 5 gives the measured diversions from the Northern Tributaries of Milk River in the United States. Smaller diversions have not been measured.

Table 1
April
Page 1

DETERMINATION OF NATURAL FLOW OF ST. MARY RIVER
WATER STORED OR RELEASED FROM SHERBURNE RESERVOIR

APRIL - 1949

Day	Inflow to Sherburne Reservoir	Outflow	Stored	Released
	Recorded inflow:	Un- recorded: Swiftcurrent: Creek	: Swiftcurrent: Total inflow: inflow: est'd	in Creek at Sherburne Reservoir: Reservoir:Reservoir Sec-ft. : Sec-ft. Gross : Net.
1	16	14	30	30
2	16	16	32	32
3	17	15	32	32
4	17	23	40	40
5	18	22	40	40
6	29	32	61	61
7	40	29	69	69
8	60	41	101	101
9	60	43	103	103
10	57	34	91	91
11	68	45	113	113
12	101	35	136	136
13	97	39	136	136
14	79	34	113	113
15	64	27	91	91
16	71	42	113	113
17	79	45	124	124
18	106	70	176	176
19	151	76	227	227
20	197	121	318	318
21	162	125	287	287
22	146	106	252	252
23	125	67	192	192
24	179	116	295	295
25	240	156	396	396
26	203	175	378	378
27	191	162	353	353
28	265	189	454	454
29	324	175	499	499
30	290	83	373	277
Total				
sec-ft.	3468	2157	5625	5529
Mean	116	72	188	184
Avg.	6879	4278	11157	10967

DETERMINATION OF NATURAL FLOW OF ST. MARY RIVER

APRIL - 1949.

Day	St. Mary River at Kimball	Diverted by U.S.B.R.	Stored by U.S.B.R.	Total in sec-ft.	Stored water released at St. Mary River	Natural flow at Boundary
			Gross		Net	
1	154	---	32	186	---	186
2	154	---	32	186	---	186
3	154	---	30	184	---	184
4	318	---	32	350	---	350
5	354	---	32	386	---	386
6	345	---	40	385	---	385
7	336	---	40	376	---	376
8	272	---	61	333	---	333
9	228	---	69	297	---	297
10	247	---	101	348	---	348
11	284	---	103	387	---	387
12	297	---	91	388	---	388
13	259	---	113	372	---	372
14	263	---	136	399	---	399
15	280	---	136	416	---	416
16	289	---	113	402	---	402
17	297	---	91	388	---	388
18	320	---	113	433	---	433
19	333	---	124	457	---	457
20	361	---	176	537	---	537
21	366	---	227	593	---	593
22	376	---	318	694	---	694
23	400	---	287	687	---	687
24	482	---	252	734	---	734
25	556	---	192	748	---	748
26	521	26	295	842	---	842
27	415	162	396	973	---	973
28	471	169	378	1018	---	1018
29	534	171	353	1058	---	1058
30	594	172	454	1220	---	1220
Total						
sec-ft.	10260	700	4817	15777	---	15777
Mean	342	(26-30)	140	161	526	526
Ac-ft.	20351		1388	9554	31294	31294

DIVISION OF WATER OF ST. MARY RIVER
WATER AVAILABLE FOR USE AND USED BY U.S.B.

APRIL - 1949

Day	Available			Used by U.S.A.			Excess:Deficit	
	:Natural: flow :St.Mary: River :	for use by U.S.: Released: share:	Total :U.S.: Net : :able :	Divert- ed : avail- able :	Stored: Total: :Gross: Used :		:of share used	:
1	186	46	---	46	---	32	32	-- 14
2	186	46	---	46	---	32	32	-- 14
3	184	46	---	46	---	30	30	-- 16
4	350	88	---	88	---	32	32	-- 56
5	386	96	---	96	---	32	32	-- 64
6	385	96	---	96	---	40	40	-- 56
7	376	94	---	94	---	40	40	-- 54
8	333	83	---	83	---	61	61	-- 22
9	297	74	---	74	---	69	69	-- 5
10	348	87	---	87	---	101	101	14 --
11	387	97	---	97	---	103	103	6 --
12	388	97	---	97	---	91	91	-- 6
13	372	93	---	93	---	113	113	20 --
14	399	100	---	100	---	136	136	36 --
15	416	104	---	104	---	136	136	32 --
16	402	100	---	100	---	113	113	13 --
17	388	97	---	97	---	91	91	-- 6
18	433	108	---	108	---	113	113	5 --
19	457	114	---	114	---	124	124	10 --
20	537	134	---	134	---	176	176	42 --
21	593	148	---	148	---	227	227	79 --
22	690	180	---	180	---	318	318	138 --
23	687	177	---	177	---	287	287	110 --
24	734	200	---	200	---	252	252	52 --
25	748	207	---	207	---	192	192	-- 15
26	842	254	---	254	26	295	321	67 --
27	973	320	---	320	162	396	558	238 --
28	1018	342	---	342	169	378	547	205 --
29	1058	362	---	362	171	353	524	162 --
30	1220	443	---	443	172	454	626	183 --
Total								
sec-ft.	15777	4433	---	4433	700	4817	5517	1412 328
Mean	526	148	---	148	140	161	184	47 11
Ac-ft.	31294	8792	---	8792	1388	9554	10943	2801 650

DIVISION OF WATER OF ST. MARY RIVER
WATER AVAILABLE FOR USE AND USED BY CANADA

APRIL - 1949.

Day	: Natural flow of St. Mary R.: at Boundary	: Canada's share Available	: St. Mary R. at Kimball	: Diverted by Canada	: Excess or Deficit of share delivered	: Used	:
1	186	140	154	--	14	--	
2	186	140	154	--	14	--	
3	184	138	154	--	16	--	
4	350	262	318	--	56	--	
5	386	290	354	--	64	--	
6	385	289	345	--	56	--	
7	376	282	336	--	54	--	
8	333	250	272	--	22	--	
9	297	223	228	--	5	--	
10	348	261	247	51	--	14	
11	387	290	284	161	--	6	
12	388	291	297	219	6	--	
13	372	279	259	189	--	20	
14	399	299	263	197	--	36	
15	416	312	280	226	--	32	
16	402	302	289	231	--	13	
17	388	291	297	243	6	--	
18	433	325	320	257	--	5	
19	457	343	333	276	--	10	
20	537	403	361	305	--	42	
21	593	445	366	308	--	79	
22	694	514	376	324	--	138	
23	687	510	400	349	--	110	
24	734	534	482	421	--	52	
25	748	541	556	498	15	--	
26	842	588	521	475	--	67	
27	973	653	415	363	--	238	
28	1018	676	471	414	--	205	
29	1058	696	534	465	--	162	
30	1220	777	594	526	--	183	
Total							
sec-ft.	15777	11344	10260	6498	328	1412	
Mean	526	378	342 (10-30)	325	11	47	
Ac-ft.	31294	22502	20351	12890	650	2801	

as on form R19 (1% lag applied)

Table 1
May
Page 1

DETERMINATION OF NATURAL FLOW OF ST. MARY RIVER
WATER STORED OR RELEASED FROM SHERBURNE RESERVOIR

MAY - 1949

Day	Inflow to Sherburne Reservoir	Outflow	Stored	Released	
	Recorded inflow	Un- recorded	Swiftcurrent	in Creek at Sherburne	from Reservoir
	Creek	Total inflow	inflow	Sec-ft.	Reservoir Sec-ft.
1	221	74	295	328	---
2	231	116	347	369	---
3	231	28	259	458	---
4	188	80	268	461	---
5	157	25	182	458	---
6	141	70	211	451	---
7	154	103	257	448	---
8	218	120	338	448	---
9	324	102	426	445	---
10	429	111	540	448	92
11	561	214	775	451	324
12	641	252	893	458	435
13	658	301	959	409	550
14	662	232	894	241	653
15	675	248	923	169	754
16	624	220	844	71	773
17	596	255	851	22	829
18	443	166	609	22	587
19	324	168	492	23	469
20	283	85	368	23	345
21	302	209	511	23	488
22	415	159	574	23	551
23	454	232	686	23	663
24	405	187	592	20	572
25	475	202	677	17	660
26	576	264	840	16	824
27	654	259	913	17	896
28	718	255	973	18	955
29	612	255	867	18	849
30	569	248	817	19	798
31	535	231	766	19	747
Total					
sec-ft.	13476	5471	18947	6416	13814
Mean	435	176	611	207	446
Ave.	26729	10852	37582	12726	27300
					1283
					41
					2545

DETERMINATION OF NATURAL FLOW OF ST MARY RIVER

Day	MAY - 1949.						R174
	R174 ↓	R174 ↓	R174 ↓	Computed 1+2+3 ↓	R174 ↓	R174 ↓	
:	:St. Mary:	Diverted:	Stored:	Total in:	Stored:	Natural flow	
Day	:River at:	by:	by:	:sec-ft.	:water	:St. Mary River	
	:Kimball	:U.S.B.R.:	:U.S.B.R.:			:released:	at Boundary
	:	:	Gross:			Net:	
1	691	175	499	1365			1365
2	768	249	277	1294	---		1294
3	686	437	---	1123	33		1090
4	710	492	---	1202	22		1180✓
5	735	497	---	1232	199		1033
6	741	501	---	1242	193		1049
7	728	505	---	1233	276		957
8	716	521	---	1237	240		997
9	747	523	---	1270	191		1079
10	846	530	---	1376	110		1266
11	1010	555	---	1565	19		1546
12	1240	564	92	1896	---		1896
13	1530	570	324	2424	---		2424
14	1990	357	435	2782	---		2782
15	1930	406	550	2886	---		2886
16	1920	568	653	3141	---		3141
17	2040	574	754	3368	---		3368
18	2010	577	773	3360	---		3360
19	1940	574	829	3343	---		3343
20	1890	570	587	3047	---		3047
21	1790	562	469	2821	---		2821
22	1700	560	345	2605	---		2605
23	1700	560	488	2748	---		2748
24	1660	558	551	2769	---		2769
25	1560	555	663	2778	---		2778
26	1590	555	572	2717	---		2717
27	1670	570	660	2900	---		2900
28	1850	574	824	3248	---		3248
29	1980	581	896	3457	---		3457
30	2140	585	955	3680	---		3680
31	2200	577	849	3626	---		3626
Total							
sec-ft.	44708	15982	13045	73735	1283		72452
Mean	1442	516	421	2379	41		2337
Ac-ft.	88677	31700	25874	146253	2545		143706

DIVISION OF WATER OF ST. MARY RIVER
WATER AVAILABLE FOR USE AND USED BY U.S.A.

MAY - 1949.

DIVISION OF WATER OF ST. MARY RIVER
WATER AVAILABLE FOR USE AND USED BY CANADA

MAY - 1949.

Day	: Natural flow of St. Mary R. at Boundary:	: Canada's share at Kimball:	: St. Mary R. Available:	: Delivered by Canada:	: Excess or Deficit of share delivered	:
1	1365	849	691	627	---	158
2	1294	814	768	676	---	46
3	1090	712	686	618	---	26
4	1180	757	710	627	---	47
5	1033	683	735	666	52	--
6	1049	691	741	670	50	--
7	957	645	728	652	83	--
8	997	665	716	636	51	--
9	1079	706	747	668	41	--
10	1266	800	846	768	46	--
11	1546	940	1010	890	70	--
12	1896	1115	1240	912	125	--
13	2424	1379	1530	921	151	--
14	2782	1558	1990	929	432	--
15	2886	1610	1930	912	320	--
16	3141	1737	1920	912	183	--
17	3368	1851	2040	621	189	--
18	3360	1847	2010	526	163	--
19	3343	1838	1940	540	102	--
20	3047	1690	1890	540	200	--
21	2821	1577	1790	550	213	--
22	2605	1469	1700	423	231	--
23	2748	1541	1700	346	159	--
24	2769	1551	1660	338	109	--
25	2778	1556	1560	360	4	--
26	2717	1525	1590	374	65	--
27	2900	1617	1670	374	53	--
28	3248	1791	1850	365	59	--
29	3457	1895	1980	368	85	--
30	3680	2007	2140	359	133	--
31	3626	1980	2200	297	220	--
Total						
sec-ft.	72452	41396	44708	18465	3589	277
Mean	2337	1335	1442	596	116	9
Ac-ft.	143706	82108	88677	36625	7119	549

Table 1
June
Page 1

DETERMINATION OF NATURAL FLOW OF ST. MARY RIVER
WATER STORED OR RELEASED FROM SHERBURNE RESERVOIR

JUNE - 1949

Day	Inflow to Sherburne Reservoir Recorded inflow: Un- Swiftcurrent :recorded: Creek : inflow :inflow: : est'd :	Outflow Swiftcurrent: in Total : Creek at :Reservoir:Reservoir : inflow : Sherburne : Sec-ft. : Sec-ft. :	Stored :Released in : from Reservoir:Reservoir : Gross : Net
1	472	219 691 19	672 ---
2	436	171 607 19	588 ---
3	472	186 658 123	535 ---
4	553	166 719 247	472 ---
5	588	141 729 247	482 ---
6	565	173 738 249	489 ---
7	550	175 725 251	474 ---
8	527	143 670 253	417 ---
9	443	139 582 253	329 ---
10	415	142 557 255	302 ---
11	464	150 614 257	357 ---
12	422	127 549 312	237 ---
13	344	91 435 403	32 ---
14	302	110 412 406	6 ---
15	286	92 378 406	--- 28
16	259	102 361 406	--- 45
17	218	94 312 332	--- 20
18	173	14 187 207	--- 20
19	154	83 237 94	143 ---
20	154	55 209 30	179 ---
21	165	97 262 29	233 ---
22	200	72 272 123	149 ---
23	231	93 324 268	56 ---
24	249	138 387 385	2 ---
25	347	92 439 490	--- 51
26	315	124 439 490	--- 51
27	259	91 350 445	--- 95
28	203	59 262 305	--- 43
29	197	88 285 276	9 ---
30	179	10 189 276	--- 87
Total sec-ft.	10142	3437 13579 7856	6163 440
Mean	338	115 453 262	205 15
Ac-ft.	20116	6817 26934 15582	12226 873

DETERMINATION OF NATURAL FLOW OF ST. MARY RIVER

JUNE - 1949.

Day		:St. Mary:	Diverted:	Stored	Total in:	Stored	Natural flow
		:River at:	by	by	: sec-ft.:	water	:St. Mary River
		:Kimball	:U.S.B.R.:	:U.S.B.R.:		:released:	at Boundary
				Gross :		Net :	
1	2120	577	798	3495	---	3495	
2	2010	574	747	3331	---	3331	
3	1880	568	672	3120	---	3120	
4	1840	566	588	2994	---	2994	
5	1860	574	535	2969	---	2969	
6	1890	576	472	2938	---	2938	
7	1940	577	482	2999	---	2999	
8	1970	577	489	3036	---	3036	
9	1970	581	474	3025	---	3025	
10	1920	579	417	2916	---	2916	
11	1890	577	329	2796	---	2796	
12	1880	577	302	2759	---	2759	
13	1850	577	357	2784	---	2784	
14	1760	576	237	2573	---	2573	
15	1670	572	32	2274	---	2274	
16	1610	572	6	2188	---	2188	
17	1510	568	---	2078	28	2050	
18	1330	558	---	1888	45	1843	
19	1110	547	---	1657	20	1637	
20	918	538	---	1456	20	1436	
21	772	528	143	1443	---	1443	
22	692	526	179	1397	---	1397	
23	681	538	233	1452	---	1452	
24	741	553	149	1443	---	1443	
25	911	562	56	1529	---	1529	
26	1050	572	2	1624	---	1624	
27	1120	576	---	1696	51	1645	
28	1080	576	---	1656	51	1605	
29	973	574	---	1547	95	1452	
30	896	566	---	1462	43	1419	
Total							
sec-ft.	43844	16982	7699	68525	353	68172	
Mean	1461	566	257	2284	12	2272	
Ac-ft.	86963	33683	15271	135917	700	135217	

DIVISION OF WATER OF ST. MARY RIVER
WATER AVAILABLE FOR USE AND USED BY U.S.A.

JUNE - 1949

Day	Available			Used by U.S.A.			Excess:Deficit	
	Natural flow : St. Mary River	for use by U.S.A. : U.S. Released	Total : Storage	Diverted	Stored	Total	of share used	:
	share	available	Net	able	Gross	Used	:	
1	3495	1581	---	1581	577	798	1375	-- 206
2	3331	1499	---	1499	574	747	1321	-- 178
3	3120	1393	---	1393	568	672	1240	-- 153
4	2994	1330	---	1330	566	588	1154	-- 176
5	2969	1318	---	1318	574	535	1109	-- 209
6	2938	1302	---	1302	576	472	1048	-- 254
7	2999	1333	---	1333	577	482	1059	-- 274
8	3036	1351	---	1351	577	489	1066	-- 285
9	3025	1346	---	1346	581	474	1055	-- 291
10	2916	1291	---	1291	579	417	996	-- 295
11	2796	1231	---	1231	577	329	906	-- 325
12	2759	1213	---	1213	577	302	879	-- 334
13	2784	1225	---	1225	577	357	934	-- 291
14	2573	1120	---	1120	576	237	813	-- 307
15	2274	970	---	970	572	32	604	-- 366
16	2188	927	---	927	572	6	578	-- 349
17	2050	858	28	886	568	--	568	-- 318
18	1843	755	45	800	558	--	558	-- 242
19	1637	652	20	672	547	--	547	-- 125
20	1436	551	20	571	538	--	538	-- 33
21	1443	555	---	555	528	143	671	116 --
22	1397	532	---	532	526	179	705	173 --
23	1452	559	---	559	538	233	771	212 --
24	1443	555	---	555	553	149	702	147 --
25	1529	598	---	598	562	56	618	20 --
26	1624	645	---	645	572	2	574	-- 71
27	1645	656	51	707	576	--	576	-- 131
28	1605	636	51	687	576	--	576	-- 111
29	1452	559	95	654	574	--	574	-- 80
30	1419	543	43	586	566	--	566	-- 20
Total sec-ft.	68172	29084	353	29437	16982	7699	24681	668 5424
Mean	2272	969	12	981	566	257	823	22 181
Ac-ft.	135217	57687	700	58387	33683	15271	48954	1325 10758

DIVISION OF WATER OF ST. MARY RIVER
WATER AVAILABLE FOR USE AND USED BY CANADA

JUNE - 1949.

Day	: Natural flow of St. Mary R.:	: Canada's share at Kimball:	: St. Mary R. Available:	: St. Mary R. Delivered:	: Diverted by Canada:	: Excess or Deficit of share delivered
1	3495	1914	2120	297	206	---
2	3331	1832	2010	285	178	---
3	3120	1727	1880	250	153	---
4	2994	1664	1840	260	176	---
5	2969	1651	1860	254	209	---
6	2938	1636	1890	261	254	---
7	2999	1666	1940	285	274	---
8	3036	1685	1970	354	285	---
9	3025	1679	1970	358	291	---
10	2916	1625	1920	399	295	---
11	2796	1565	1890	444	325	---
12	2759	1546	1880	512	334	---
13	2784	1559	1850	633	291	---
14	2573	1453	1760	723	307	---
15	2274	1304	1670	778	366	---
16	2188	1261	1610	574	349	---
17	2050	1192	1510	358	318	---
18	1843	1088	1330	358	242	---
19	1637	985	1110	419	125	---
20	1436	885	918	470	33	---
21	1443	888	772	514	---	116
22	1397	865	692	609	---	173
23	1452	893	681	636	---	212
24	1443	888	741	709	---	147
25	1529	931	911	797	---	20
26	1624	979	1050	764	71	---
27	1645	989	1120	778	131	---
28	1605	969	1080	786	111	---
29	1452	893	973	836	80	---
30	1419	876	896	856	20	---
Total sec-ft.	68172	39088	43844	15557	5424	668
Mean	2272	1303	1461	519	181	22
Ac-ft.	135217	77530	86963	30860	10758	1325

Table 1
July
Page 1

DETERMINATION OF NATURAL FLOW OF ST. MARY RIVER
WATER STORED OR RELEASED FROM SHERBURN RESERVOIR

JULY - 1949.

Day	: Inflow to Sherburne Reservoir : Recorded inflow: Swiftcurrent Creek	: Outflow : Swiftcurrent Creek at Sherburne	: Stored : Reservoir Sec-ft. Gross	: Released from Reservoir Sec-ft. Net.
	: Swiftcurrent : recorded inflow : est'd	: Total : inflow		
1	148	87	235	276 --- 41
2	141	3	144	276 --- 132
3	157	64	221	276 --- 55
4	197	74	271	274 --- 3
5	224	83	307	299 8 ---
6	218	47	265	388 --- 123
7	209	36	245	402 --- 157
8	188	48	236	496 --- 260
9	176	48	224	496 --- 272
10	173	49	222	465 --- 243
11	179	63	242	382 --- 140
12	212	91	303	382 --- 79
13	215	64	279	379 --- 100
14	203	58	261	379 --- 118
15	203	58	261	393 --- 132
16	209	60	269	486 --- 217
17	171	10	181	486 --- 305
18	143	13	156	486 --- 330
19	130	87	217	483 --- 266
20	125	32	157	480 --- 323
21	125	7	132	508 --- 376
22	118	63	181	545 --- 364
23	111	7	118	586 --- 468
24	125	131	256	618 --- 362
25	143	10	153	614 --- 461
26	130	66	196	614 --- 418
27	151	58	209	610 --- 401
28	159	53	212	607 --- 395
29	151	34	185	603 --- 418
30	143	10	153	599 --- 446
31	141	58	199	599 --- 400
Total				
sec-ft.	5118	1572	6690	14487 8 7805
Mean	165	51	216	467 -- 252
Ac-ft.	10151	3118	13269	28735 16 15481

DETERMINATION OF NATURAL FLOW OF ST. MARY RIVER

JULY - 1949.

Day	St. Mary River at Kimball	Diverted U.S.B.R.	Stored by U.S.B.R.	Total in sec-ft.	Stored water released	Natural flow :St.Mary River at Boundary
			Gross			Net
1	792	564	9	1365	---	1365
2	710	555	--	1265	87	1178
3	646	549	--	1195	41	1154
4	640	553	--	1193	132	1061
5	657	549	--	1206	55	1151
6	663	549	--	1212	3	1209
7	692	549	8	1249	---	1249
8	704	549	--	1253	123	1130
9	735	551	--	1286	157	1129
10	735	553	--	1288	260	1028
11	728	553	--	1281	272	1009
12	759	553	--	1312	243	1069
13	759	553	--	1312	140	1172
14	753	553	--	1306	79	1227
15	722	549	--	1271	100	1171
16	735	553	--	1288	118	1170
17	716	551	--	1267	132	1135
18	692	551	--	1243	217	1026
19	669	549	--	1218	305	913
20	640	547	--	1187	330	857
21	611	547	--	1158	266	892
22	600	543	--	1143	323	820
23	589	545	--	1134	376	758
24	600	553	--	1153	364	789
25	611	553	--	1164	468	696
26	594	553	--	1147	362	785
27	611	555	--	1166	461	705
28	611	553	--	1164	418	746
29	584	551	--	1135	401	734
30	567	549	--	1116	395	721
31	550	547	--	1097	418	679
Total						
sec-ft.	20675	17082	17	37774	7046	30728
Mean	667	551	1	1219	227	991
Ac-ft.	41008	33882	34	74924	13976	60948

Table 1
July
Page 3

DIVISION OF WATER OF ST. MARY RIVER
WATER AVAILABLE FOR USE AND USED BY U.S.A.

JULY - 1949

Day	Available		Used by U.S.A.		Excess		Deficit		
	Natural	for use by U.S.A.	Released	Total	Diverted	Stored	Total		
	flow	U.S.	St. Mary	share	storage	avail-	ed	: of share used	
	River		Net	able		Gross	Used	:	
1	1365	516	---	516	564	9	573	57	--
2	1178	422	87	509	555	--	555	46	--
3	1154	410	41	451	549	--	549	98	--
4	1061	364	132	496	553	--	553	57	--
5	1151	409	55	464	549	--	549	85	--
6	1209	438	3	441	549	--	549	108	--
7	1249	458	---	458	549	8	557	99	--
8	1130	398	123	521	549	--	549	28	--
9	1129	398	157	555	551	--	551	--	4
10	1028	347	260	607	553	--	553	--	54
11	1009	338	272	610	553	--	553	--	57
12	1069	368	243	611	553	--	553	--	58
13	1172	419	140	559	553	--	553	--	6
14	1227	447	79	526	553	--	553	27	--
15	1171	419	100	519	549	--	549	30	--
16	1170	418	118	536	553	--	553	17	--
17	1135	401	132	533	551	--	551	18	--
18	1026	346	217	563	551	--	551	--	12
19	913	290	305	595	549	--	549	--	46
20	857	262	330	592	547	--	547	--	45
21	892	279	266	545	547	--	547	2	--
22	820	243	323	566	543	--	543	--	23
23	758	212	376	588	545	--	545	--	43
24	789	228	364	592	553	--	553	--	39
25	696	181	468	649	553	--	553	--	96
26	785	226	362	588	553	--	553	--	35
27	705	186	461	647	555	--	555	--	92
28	746	206	418	624	553	--	553	--	71
29	734	200	401	601	551	--	551	--	50
30	721	194	395	589	549	--	549	--	40
31	679	173	418	591	547	--	547	--	44
Total									
sec-ft.	30728	10196	7046	17242	17082	17	17099	672	815
Mean	991	329	227	556	551	1	552	22	26
Ac-ft.	60948	20223	13976	34199	33882	34	33915	1333	1617

Table 1
July
Page 4

DIVISION OF WATER OF ST. MARY RIVER
WATER AVAILABLE FOR USE AND USED BY CANADA

JULY - 1949.

Day	: Natural flow of St. Mary R.: at Boundary:	: Canada's share Available:	: St. Mary R.: at Kimball Delivered:	: Diverted by Canada:	: Excess or Deficit of share delivered Used:	:
1	1365	849	792	780	--	57
2	1178	756	710	683	--	46
3	1154	744	646	615	--	98
4	1061	697	640	608	--	57
5	1151	742	657	629	--	85
6	1209	771	663	636	--	108
7	1249	791	692	668	--	99
8	1130	732	704	690	--	28
9	1129	731	735	724	4	--
10	1028	681	735	729	54	--
11	1009	671	728	716	57	--
12	1069	701	759	751	58	--
13	1172	753	759	751	6	--
14	1227	780	753	751	--	27
15	1171	752	722	713	--	30
16	1170	752	735	719	--	17
17	1135	734	716	708	--	18
18	1026	680	692	683	12	--
19	913	623	669	653	46	--
20	857	595	640	610	45	--
21	892	613	611	579	--	2
22	820	577	600	562	23	--
23	758	546	589	552	43	--
24	789	561	600	567	39	--
25	696	515	611	579	96	--
26	785	559	594	559	35	--
27	705	519	611	576	92	--
28	746	540	611	579	71	--
29	734	534	584	557	50	--
30	721	527	567	538	40	--
31	679	506	550	514	44	--
Total						
sec-ft.	30728	20532	20675	19979	815	672
Mean	991	662	667	644	26	22
Ac-ft.	60948	40725	41008	39628	1617	1333

Table 1
August
Page 1

DETERMINATION OF NATURAL FLOW OF ST. MARY RIVER
WATER STORED OR RELEASED FROM SHERBURNE RESERVOIR

AUGUST - 1949.

Day	: Inflow to Sherburne Reservoir	: Outflow	: Stored	: Released
	: Recorded inflow:	: Swiftcurrent	: in	: from
	: Creek	: recorded	: Creek at	: Reservoir
	: Creek	: inflow	: Sherburne	: Reservoir
	: : est'd	: inflow	: : Sec-ft.	: Sec-ft.
			: Gross	: Net.
1	138	67	205	596
2	135	46	181	584
3	135	57	192	577
4	135	43	178	596
5	133	61	194	614
6	123	30	143	607
7	120	10	130	603
8	108	37	145	566
9	94	26	120	541
10	90	10	100	534
11	83	10	93	530
12	83	20	103	524
13	81	16	97	520
14	73	9	82	513
15	68	39	107	506
16	66	43	109	503
17	66	7	73	496
18	68	42	110	530
19	75	19	94	545
20	73	1	74	541
21	73	48	121	530
22	73	33	106	534
23	75	14	89	541
24	71	10	81	534
25	70	26	96	527
26	68	34	102	516
27	62	22	84	510
28	57	27	84	499
29	56	10	66	538
30	56	24	80	552
31	56	27	83	538
Total				
sec-ft.	2664	858	3522	16845
Mean	86	28	114	543
Ac-ft.	5284	1702	6986	33412
				13323
				430
				26426

Table 1
August
Page 2

DETERMINATION OF NATURAL FLOW OF ST. MARY RIVER

AUGUST - 1949.

Day	:St. Mary:	Diverted:	Stored:	Total in:	Stored:	Natural flow
	:River at:	by:	by:	:sec-ft.:	water:	:St.Mary River
	:Kimbball:	:U.S.B.R.:	:U.S.B.R.:		:released:	:at Boundary
			: Gross :		: Net :	
1	540	547	---	1087	446	641
2	534	545	---	1079	400	679
3	529	545	---	1074	391	683
4	518	543	---	1061	403	658
5	513	547	---	1060	385	675
6	518	547	---	1065	418	647
7	513	545	---	1058	420	638
8	497	543	---	1040	464	576
9	461	543	---	1004	473	531
10	435	539	---	974	421	553
11	405	538	---	943	421	522
12	385	538	---	923	434	489
13	371	534	---	905	437	468
14	342	534	---	876	421	455
15	328	532	---	860	423	437
16	306	536	---	842	431	411
17	289	532	---	821	399	422
18	268	530	---	798	394	404
19	280	534	---	814	423	391
20	289	532	---	821	420	401
21	289	532	---	821	451	370
22	284	532	---	816	467	349
23	284	534	---	818	409	409
24	289	536	---	825	428	397
25	284	534	---	818	452	366
26	272	534	---	806	453	353
27	255	532	---	787	431	356
28	243	530	---	773	414	359
29	232	528	---	760	426	334
30	232	530	---	762	415	347
31	228	532	---	760	472	288
Total						
sec-ft.	11213	16638	---	27851	13242	14609
Mean	362	537	---	898	427	471
Ac-ft.	22241	33001	---	55242	26265	28977

DIVISION OF WATER OF ST. MARY RIVER
WATER AVAILABLE FOR USE AND USED BY U.S.A.

AUGUST - 1949.

Day	Available			Used by U.S.A			Excess:Deficit		
	:Natural:	for use by U.S.A.		Released:	Total	Divert-	Stored:	Total:	:
	: flow	: U.S.:		:St.Mary:	storage	avail-	ed :	:	: of share used
	: River	: Net	: able				: Gross:	Used	:
1	641	160	446	606	547	--	547	--	59
2	679	173	400	573	545	--	545	--	28
3	683	175	391	566	545	--	545	--	21
4	658	164	403	567	543	--	543	--	24
5	675	171	385	556	547	--	547	--	9
6	657	162	418	580	547	--	547	--	33
7	638	160	420	580	545	--	545	--	35
8	576	144	464	608	543	--	543	--	65
9	531	133	473	606	543	--	543	--	63
10	553	138	421	559	539	--	539	--	20
11	522	130	421	551	538	--	538	--	13
12	489	122	434	556	538	--	538	--	18
13	468	117	437	554	534	--	534	--	20
14	455	114	421	535	534	--	534	--	1
15	437	109	423	532	532	--	532	--	0
16	411	103	431	534	536	--	536	2	--
17	422	106	399	505	532	--	532	27	--
18	404	101	394	495	530	--	530	35	--
19	391	98	423	521	534	--	534	13	--
20	401	100	420	520	532	--	532	12	--
21	370	92	451	543	532	--	532	--	11
22	349	87	467	554	532	--	532	--	22
23	409	102	409	511	534	--	534	23	--
24	397	99	428	527	536	--	536	9	--
25	366	92	452	544	534	--	534	--	10
26	353	88	453	541	534	--	534	--	7
27	356	89	431	520	532	--	532	12	--
28	359	90	414	504	530	--	530	26	--
29	334	84	426	510	528	--	528	18	--
30	347	87	415	502	530	--	530	28	--
31	288	72	472	544	532	--	532	--	12
Total									
sec-ft.	14609	3662	13242	16904	16638	--	16638	205	471
Mean	471	118	427	545	537	--	537	7	15
Ac-ft.	28977	7263	26265	33529	33001	--	33001	407	934

DIVISION OF WATER OF ST. MARY RIVER
WATER AVAILABLE FOR USE AND USED BY CANADA

AUGUST - 1949.

Day	: Natural flow of St. Mary R.: at Boundary	: Canada's share : Available	: St. Mary R. : Delivered	: at Kimball	: Diverted by Canada	: Excess or Deficit of share delivered
1	641	481	540	507	59	--
2	679	506	534	498	28	--
3	683	508	529	488	21	--
4	658	494	518	479	24	--
5	675	504	513	477	9	--
6	647	485	518	479	33	--
7	638	478	513	477	35	--
8	576	432	497	459	65	--
9	531	398	461	422	63	--
10	553	415	435	392	20	--
11	522	392	405	368	13	--
12	489	367	385	346	18	--
13	468	351	371	332	20	--
14	455	341	342	307	1	--
15	437	328	328	290	0	--
16	411	308	306	268	--	2
17	422	316	289	254	--	27
18	404	303	268	239	--	35
19	391	293	280	250	--	13
20	401	301	289	260	--	12
21	370	278	289	259	11	--
22	349	262	284	256	22	--
23	409	307	284	253	--	23
24	397	298	289	260	--	9
25	366	274	284	249	10	--
26	353	265	272	240	7	--
27	356	267	255	229	--	12
28	359	269	243	219	--	26
29	334	250	232	204	--	18
30	347	260	232	208	--	28
31	288	216	228	211	12	--
Total sec-ft.	14609	10947	11213	10180	471	205
Mean	471	353	362	328	15	7
Ac-ft.	28977	21713	22241	20192	934	407

Table 1
September
Page 1

DETERMINATION OF NATURAL FLOW OF ST. MARY RIVER
WATER STORED OR RELEASED FROM SHERBURNE RESERVOIR

SEPTEMBER - 1949.

Day		<u>Inflow to Sherburne Reservoir</u>	Outflow	Stored	Released
	<u>Recorded inflow:</u>	<u>Un-</u>	<u>Swiftcurrent:</u>	<u>in</u>	<u>from</u>
	<u>Swiftcurrent</u>	<u>recorded:</u>	<u>Total</u>	<u>Creek at</u>	<u>Reservoir:</u>
	<u>Creek</u>	<u>inflow</u>	<u>inflow:</u>	<u>Sherburne</u>	<u>Sec-ft.</u>
		<u>est'd</u>			<u>Sec-ft.</u>
					<u>Gross</u>
					<u>Net.</u>
1	56	10	66	524	458
2	57	14	71	513	442
3	57	11	68	530	462
4	60	50	110	548	438
5	71	63	134	548	414
6	71	58	129	530	401
7	66	21	87	530	443
8	60	31	91	527	436
9	58	10	68	524	456
10	64	10	74	527	453
11	68	10	78	506	428
12	58	83	141	470	329
13	51	83	134	377	243
14	48	10	58	292	234
15	54	83	137	279	142
16	248	42	290	265	25
17	308	2	310	270	40
18	240	66	306	276	30
19	188	151	339	211	128
20	188	84	272	2	270
21	168	19	187	1	186
22	141	100	241	1	240
23	130	106	236	1	235
24	120	68	188	1	187
25	115	46	161	1	160
26	108	43	151	1	150
27	97	20	117	1	116
28	86	28	114	1	113
29	79	12	91	0	91
30	77	13	90	0	90
Total					
sec-ft.	3192	1347	4539	8257	2061
Mean	106	45	151	275	69
Ac-ft.	6331	2672	9003	16378	4088
					5779
					193
					11462

Table 1
September
Page 2

DETERMINATION OF NATURAL FLOW OF ST. MARY RIVER

SEPTEMBER - 1949.

Day	:	:	:	:	:	:	:
	:St.Mary:	Diverted:	Stored:	Total in:	Stored:	Natural flow	
	:River at:	by:	by:	:sec-ft.:	water:	:St.Mary River	
	:Kimball:	U.S.B.R.:	U.S.B.R.:		:released:	at Boundary	
			Gross:		Net:		
1	220	532	---	752	472	280	
2	220	528	---	748	455	293	
3	216	528	---	744	458	286	
4	232	532	---	764	442	322	
5	302	538	---	840	462	378	
6	289	538	---	827	438	389	
7	272	536	---	808	414	394	
8	272	534	---	806	401	405	
9	259	534	---	793	443	350	
10	251	532	---	783	436	347	
11	272	534	---	806	456	350	
12	263	536	---	799	453	346	
13	243	534	---	777	428	349	
14	220	490	---	710	329	381	
15	284	376	---	660	243	417	
16	342	318	---	660	234	426	
17	371	318	---	689	142	547	
18	405	320	25	750	---	750	
19	445	321	40	806	---	806	
20	425	316	30	771	---	771	
21	455	223	128	806	---	806	
22	617	13	270	900	---	900	
23	594	1	186	781	---	781	
24	578	---	240	818	---	818	
25	556	---	235	791	---	791	
26	545	---	187	732	---	732	
27	529	---	160	689	---	689	
28	513	---	150	663	---	663	
29	492	---	116	608	---	608	
30	482	---	113	595	---	595	
Total							
sec-ft.	11164	9632	1880	22676	6706	15970	
Mean	372(1-23)	419	63	756	224	532	
Ac-ft.	22143	19105	3729	44977	13301	31676	

Table 1
September
Page 3

DIVISION OF WATER OF ST. MARY RIVER
WATER AVAILABLE FOR USE AND USED BY U.S.A.

SEPTEMBER - 1949.

Day	Available			Used by U.S.A.			Excess		Deficit	
	:Natural:	for use by U.S.A.		Used	Divert-	Stored	Total			
	: flow	: U.S.:	Released	Total						
	: St.Mary	: share	: storage	: avail-	ed	:		: of share used		
	: River	:	Net	able	:		Gross	: Used	:	
1	280	70	472	542	532	---	532	--	10	
2	293	73	455	528	528	---	528	--	--	
3	286	72	458	530	528	---	528	--	2	
4	322	80	442	522	532	---	532	10	--	
5	378	94	462	556	538	---	538	--	18	
6	389	97	438	535	538	---	538	3	--	
7	394	98	414	512	536	---	536	24	--	
8	405	101	401	502	534	---	534	32	--	
9	350	88	443	531	534	---	534	3	--	
10	347	87	436	523	532	---	532	9	--	
11	350	88	456	544	534	---	534	--	10	
12	346	86	453	539	536	---	536	--	3	
13	349	87	428	515	534	---	534	19	--	
14	381	95	329	424	490	---	490	66	--	
15	417	104	243	347	376	---	376	29	--	
16	426	106	234	340	318	---	318	--	22	
17	547	137	142	279	318	---	318	39	--	
18	750	208	---	208	320	25	345	137	--	
19	806	236	---	236	321	40	361	125	--	
20	771	219	---	219	316	30	346	127	--	
21	806	236	---	236	223	128	351	115	--	
22	900	283	---	283	13	270	283	--	--	
23	781	224	---	224	1	186	187	--	37	
24	818	242	---	242	---	240	240	--	2	
25	791	229	---	229	---	235	235	6	--	
26	732	199	---	199	---	187	187	--	12	
27	689	178	---	178	---	160	160	--	18	
28	663	166	---	166	---	150	150	--	16	
29	608	152	---	152	---	116	116	--	36	
30	595	149	---	149	---	113	113	--	36	
Total	15970	4284	6706	10990	9632	1880	11512	744	222	
Mean	532	143	224	366	419	63	384	25	7	
Ac-ft.	31676	8497	13301	21798	19105	3729	22834	1476	440	

DIVISION OF WATER OF ST. MARY RIVER
WATER AVAILABLE FOR USE AND USED BY CANADA

SEPTEMBER - 1949.

Day	:	:	:	:	:	:
	: Natural flow of St. Mary R.: at Boundary	: Canada's share at Kimball	: St. Mary R.: Available	: at Kimball	: Diverted by Canada	: Excess or Deficit of share delivered
1	280	210	220	210	10	---
2	293	220	220	198	--	--
3	286	214	216	197	2	--
4	322	242	232	204	--	10
5	378	284	302	261	18	--
6	389	292	289	250	--	3
7	394	296	272	240	--	24
8	405	304	272	239	--	32
9	350	262	259	228	--	3
10	347	260	251	221	--	9
11	350	262	272	240	10	--
12	346	260	263	232	3	--
13	349	262	243	214	--	19
14	381	286	220	189	--	66
15	417	313	284	251	--	29
16	426	320	342	299	22	--
17	547	410	371	326	--	39
18	750	542	405	363	--	137
19	806	570	445	398	--	125
20	771	552	425	385	--	127
21	806	570	455	410	--	115
22	900	617	617	583	--	--
23	781	557	594	557	37	--
24	818	576	578	528	2	--
25	791	562	556	509	--	6
26	732	533	545	498	12	--
27	689	511	529	484	18	--
28	663	497	513	470	16	--
29	608	456	492	454	36	--
30	595	446	482	437	36	--
Total						
sec-ft.	15970	11686	11164	10075	222	744
Mean	532	390	372	336	7	25
Ac-ft.	31676	23179	22144	19983	440	1476

Table 1
October
Page 1

DETERMINATION OF NATURAL FLOW OF ST. MARY RIVER
WATER STORED OR RELEASED FROM SHERBURNE RESERVOIR

OCTOBER - 1949.

Day		<u>Inflow to Sherburne Reservoir</u>	Outflow	Stored	Released
	: Recorded inflow:	Un- : Swiftcurrent	in :		
	: Swiftcurrent	: recorded	Total	Creek at	Reservoir:Reservoir
	Creek	: inflow	: inflow:	Sherburne	: Sec-ft. : Sec-ft.
		: est'd :	:		: Gross : Net.
1	86	24	110	---	110
2	88	66	154	---	154
3	77	68	145	---	145
4	83	10	93	---	93
5	70	8	78	---	78
6	75	35	110	---	110
7	75	18	93	---	93
8	71	80	151	---	151
9	60	29	89	---	89
10	57	24	81	---	81
11	64	9	73	---	73
12	57	10	67	---	67
13	56	21	77	---	77
14	60	53	113	---	113
15	46	10	56	---	56
16	45	14	59	---	59
17	45	19	64	---	64
18	43	16	59	---	59
19	41	18	59	---	59
20	41	23	64	---	64
21	38	25	63	---	63
22	38	10	48	---	48
23	35	22	57	---	57
24	34	10	44	---	44
25	35	46	81	---	81
26	38	39	77	---	77
27	37	48	85	---	85
28	76	82	158	---	158
29	200	13	213	---	213
30	179	71	250	---	250
31	148	34	182	---	182
Total					
sec-ft.	2098	955	3053	---	3053
Mean	68	31	98	---	98
Ac-ft.	4161	1894	6056	---	6056

DETERMINATION OF NATURAL FLOW OF ST. MARY RIVER

OCTOBER - 1949.

Day	: St. Mary River at Kimball	: Diverted by U.S.B.R.	: Stored by U.S.B.R.	: Total in sec-ft.	: Stored water released	: Natural flow at St. Mary River Boundary
			Gross		Net	
1	471	--	91	562	--	562
2	450	--	90	540	--	540
3	440	--	110	550	--	550
4	420	--	154	574	--	574
5	400	--	145	545	--	545
6	385	--	93	478	--	478
7	385	--	78	463	--	463
8	376	--	110	486	--	486
9	380	--	93	473	--	473
10	356	--	151	507	--	507
11	347	--	89	436	--	436
12	338	--	81	419	--	419
13	324	--	73	397	--	397
14	324	--	67	391	--	391
15	306	--	77	383	--	383
16	289	--	113	402	--	402
17	284	--	56	340	--	340
18	280	--	59	339	--	339
19	263	--	64	327	--	327
20	251	--	59	310	--	310
21	247	--	59	306	--	306
22	255	--	64	319	--	319
23	243	--	63	306	--	306
24	236	--	48	284	--	284
25	228	--	57	285	--	285
26	232	--	44	276	--	276
27	228	--	81	309	--	309
28	228	--	77	305	--	305
29	243	--	85	328	--	328
30	243	--	158	401	--	401
31	259	--	213	472	--	472
Total						
sec-ft.	9711	--	2802	12513	--	12513
Mean	313	--	90	404	--	404
Ac-ft.	19261	--	5558	24819	--	24819

DIVISION OF WATER OF ST. MARY RIVER
WATER AVAILABLE FOR USE AND USED BY U.S.A.

OCTOBER - 1949.

Day	Available			Used by U.S.A.			Excess:Deficit		
	:Natural:	for use by U.S.A.	U.S.:	Released:	Total:	Divert-:	Stored:	Total:	:
	St.Mary:	share:	storage	avail-:	ed	:	:	of share used	:
	River :		Net	able :			Gross	Used :	
1	562	140	---	140	--	91	91	--	49
2	540	135	---	135	--	90	90	--	45
3	550	138	---	138	--	110	110	--	28
4	574	144	---	144	--	154	154	10	--
5	545	136	---	136	--	145	145	9	--
6	478	120	---	120	--	93	93	--	27
7	463	116	---	116	--	78	78	--	38
8	486	122	---	122	--	110	110	--	12
9	473	118	--	118	--	93	93	--	25
10	507	127	---	127	--	151	151	24	--
11	436	109	---	109	--	89	89	--	20
12	419	105	---	105	--	81	81	--	24
13	397	99	---	99	--	73	73	--	26
14	391	98	---	98	--	67	67	--	31
15	383	96	---	96	--	77	77	--	19
16	402	100	---	100	--	113	113	13	--
17	340	85	---	85	--	56	56	--	29
18	339	85	---	85	--	59	59	--	26
19	327	82	---	82	--	64	64	--	18
20	310	78	---	78	--	59	59	--	19
21	306	76	---	76	--	59	59	--	17
22	319	80	---	80	--	64	64	--	16
23	306	76	---	76	--	63	63	--	13
24	284	71	---	71	--	48	48	--	23
25	285	71	---	71	--	57	57	--	14
26	276	69	---	69	--	44	44	--	25
27	309	77	---	77	--	81	81	4	--
28	305	76	---	76	--	77	77	1	--
29	328	82	---	82	--	85	85	3	--
30	401	100	---	100	--	158	158	58	--
31	472	118	---	118	--	213	213	95	--
Total									
sec-ft.	12513	3129	---	3129	--	2802	2802	217	544
Mean	404	101	---	101	--	90	90	7	18
Ac-ft.	24819	6206	---	6206	--	5558	5558	430	1079

DIVISION OF WATER OF ST. MARY RIVER
WATER AVAILABLE FOR USE AND USED BY CANADA

OCTOBER - 1949.

Day	:	:	:	:	:	:
	: Natural flow of St. Mary R.:	: Canada's share at Boundary:	: St. Mary R. at Kimball:	: Diverted by Canada	: Excess or Deficit of share delivered	
	: Available:	: Delivered	: Used			
1	562	422	471	428	49	--
2	540	405	450	408	45	--
3	550	412	440	400	28	--
4	574	430	420	376	--	10
5	545	409	400	361	--	9
6	478	358	385	348	27	--
7	463	347	385	348	38	--
8	486	364	376	339	12	--
9	473	355	380	348	25	--
10	507	380	356	324	--	24
11	436	327	347	318	20	--
12	419	314	338	305	24	--
13	397	298	324	292	26	--
14	391	293	324	290	31	--
15	383	287	306	273	19	--
16	402	302	289	263	--	13
17	340	255	284	256	29	--
18	339	254	280	100	26	--
19	327	245	263	0	18	--
20	310	232	251	100	19	--
21	306	230	247	150	17	--
22	319	239	255	198	16	--
23	306	230	243	67	13	--
24	284	213	236	0	23	--
25	285	214	228	39	14	--
26	276	207	232	173	25	--
27	309	232	228	181	--	4
28	305	229	228	178	--	1
29	328	246	243	195	--	3
30	401	301	243	192	--	58
31	472	354	259	210	--	95
Total						
sec-ft.	12513	9384	9711	7460	544	217
Mean	404	303	313	241	18	7
Ac-ft.	24819	18613	19261	14797	1079	430

DIVISION OF ST. MARY RIVER
CANADA
1949

Water available in acre-feet

Month	St. Mary R.	Rolph Creek	Lee Creek	Pothole Creek at Kimball	Cardston Creek at Kimball	Magrath Creek	Combined flow
April	20350	899		4810	142		26201
May	88680	1190		8750	619		99239
June	86960	569		5050	887		93466
July	41010	242		1290	5090		47632
August	22240	198		236	8680		31354
September	22140	272		553	2660		25625
October	19260	380		740	46		20429
Total	300640	3750		21432	18124		343946 ^a

DISPOSITION

Month	Canada's share	Unused by Canada	Diverted by Canada	Inflow to Canada	Gain or loss in Canal	Wasted from Canal	Applied to Canal	Land
April	22502	9612	12890	142	-	3575	1065	8392
May	82108	45488	36620	619	-	9047	1873	26319
June	77530	46670	30860	887	-	3910	2447	25390
July	40725	1095	39630	5090	-	1636	664	42420
August	21713	1523	20190	8680	-	1057	143	27670
September	23179	3199	19980	2660	-	387	122	22905
October	18613	3813	14800	46	-	3073	1135	16784
Total	286370 ^a	111400 ^b	174970 ^c	18124 ^d	- 15765 ^e	7449 ^f	169880 ^g	

a - Computed. c - Diverted by Canada at Kimball.

b - Difference between share and quantity diverted.

d - Natural flow in Pothole Creek near Magrath.

e - Gain or loss in canal between Kimball and Magrath.

f - Wasted in Pothole and Pinepound Creeks.

g - Flow in canal at Magrath plus diversions by laterals.

DIVISION OF ST. MARY RIVER
UNITED STATES
1949

Water available in acre-feet.

Month	St. Mary River						Milk River
	Sherburne Res.		Total	Available	Diverted	Unused	Total flow
	U. S.	share	Stored	Released	for	Eastern	
					Diversion:		Crossing
April	8792	9554	---	- 762	1388	- 2150	23850
May	61600	25874	2545	38271	31700	6571	38870
June	57687	15271	700	43176	33683	9433	37270
July	20223	34	13976	34165	33882	283	34180
August	7263	---	26265	33528	33001	527	30820
September	8497	3729	13301	18069	19105	- 1036	24610
October	6206	5558	---	648	---	648	4330
Total	170268	60020	56787	167035	152759	14276	193930

Storage in Sherburne Lake Reservoir on March 31, 13,173 acre-feet.
October 31, 15,575 acre-feet.
Storage in Fresno Reservoir on March 31, 74,470 acre-feet.
October 31, 12,138 acre-feet

The water stored in Sherburne Lake Reservoir includes the amount lost by evaporation.

DIVERSIONS FROM MILK RIVER
UNITED STATES
1949

Month	Quantities in acre-feet									
	Fort	Belknap	Paradise	Harlem	Harlem	Agency	Dodson	Dodson	dalia	Total
	Canal	Canal	Canal	No.2	Canal	North	South	Canal		
	---	---	---	---	---	---	---	---	---	---
March	---	---	---	---	---	---	---	---	---	---
April	5310	839	2140	113	2760	1410	5850	1670	20090	
May	13700	7280	3490	1430	7590	5870	11360	6780	57500	
June	10860	5040	2380	603	4840	4560	11580	6430	46290	
July	16250	8620	4520	1170	5520	7040	11290	7200	61610	
August	13580	7720	2780	1170	4050	5500	9800	4300	48900	
September	7900	4000	1510	791	2140	3610	9930	4170	34050	
October	---	---	---	---	---	---	1430	4070	5500	
November	---	---	---	---	---	---	---	1880	1880	
Total	67600	33500	16820	5280	26900	27990	61240	36500	275820	

Storage in Nelson Reservoir on March 31, 33,521 acre-feet.
on October 31, 7,200 acre-feet.

DETERMINATION OF NATURAL FLOW OF FRENCHMAN RIVER
AT INTERNATIONAL BOUNDARY
1949

Water used by Canada at Cypress Lake and East End
Quantities in second-feet.

Date at Intern'l Boundary:	Used at Cypress Stored:	Used at East End Released:	Used at Cypress Stored:	Used at East End Released:	Diverted:	Return:	Total used flow:
<hr/>							
March							
1 - 10	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11 - 20	0.0	0.0	20.0	0.0	0.0	0.0	20.0
21 - 31	0.0	0.0	74.0	0.0	0.0	0.0	74.0
April							
1 - 10	15.0	0.0	47.0	0.0	0.0	0.0	62.0
11 - 20	319.0	0.0	92.0	0.0	0.0	0.0	411.0
21 - 30	299.9	0.0	742.0	0.0	0.0	0.0	1041.9
May							
1 - 10	165.5	25.0	0.0	75.0	181.2	54.4	192.3
11 - 20	58.2	153.0	0.0	61.0	485.0	145.5	183.7
21 - 31	3.9	136.0	0.0	202.0	405.5	121.6	- 50.2
June							
1 - 10	0.0	532.3	0.0	80.0	334.7	100.4	- 378.0
11 - 20	0.0	513.0	0.0	158.0	397.8	119.3	- 392.5
21 - 30	0.0	452.9	0.0	31.0	353.4	106.0	- 236.5
July							
1 - 10	0.0	442.3	0.0	27.0	212.5	63.8	- 320.6
11 - 20	0.0	144.3	0.0	30.0	67.5	20.2	- 127.0
21 - 31	0.0	399.1	20.0	0.0	180.6	54.2	- 252.7
August							
1 - 10	0.0	351.6	106.0	0.0	199.0	59.7	- 106.3
11 - 20	0.0	17.6	0.0	108.0	213.4	64.0	23.8
21 - 31	0.0	57.3	22.0	0.0	10.3	3.1	- 28.1
September							
1 - 10	0.0	8.7	21.0	0.0	0.0	0.0	12.3
11 - 20	0.0	22.4	24.0	0.0	0.0	0.0	1.6
21 - 30	0.0	29.8	45.0	0.0	0.0	0.0	15.2
October							
1 - 10	0.0	36.7	32.0	0.0	0.0	0.0	- 4.7
11 - 20	0.0	43.9	48.0	0.0	0.0	0.0	4.1
21 - 31	0.0	30.1	34.0	0.0	0.0	0.0	3.9
Total							
sec-ft.	861.5	3396.0	1327.0	772.0	3040.9	912.2	149.2
Mean	3.5	13.9	5.4	3.2	12.4	3.7	0.6
Ac-ft.	1709	6736	2632	1531	6032	1810	296

DETERMINATION OF NATURAL FLOW OF FRENCHMAN RIVER
AT INTERNATIONAL BOUNDARY
1949

Water used by Canada at Val Marie
Quantities in Second-feet.

Upper Val Marie				Lower Val Marie				
	Stored	Released	Diverted	Stored	Released	Diverted	Return	Total used
	:	:	:	:	:	:	:	flow :
March								
0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	- 2.0
0.0	38.0	0.0	0.0	52.0	0.0	0.0	0.0	- 90.0
193.0	0.0	0.0	111.0	0.0	0.0	0.0	0.0	304.0
April								
69.0	0.0	0.0	916.0	0.0	0.0	0.0	0.0	985.0
604.0	0.0	0.0	1067.0	0.0	0.0	0.0	0.0	1671.0
6.0	0.0	0.0	84.0	0.0	72.8	21.8	21.8	141.0
May								
59.0	0.0	45.7	0.0	297.0	425.1	141.2	141.2	91.6
0.0	149.0	115.2	0.0	430.0	515.7	189.3	189.3	- 137.4
0.0	198.0	70.6	0.0	382.0	418.0	146.6	146.6	- 238.0
June								
27.0	0.0	37.1	0.0	37.0	208.3	79.6	79.6	175.8
15.0	0.0	78.9	0.0	52.0	321.5	120.1	120.1	243.3
0.0	267.0	90.0	0.0	72.0	330.1	126.0	126.0	- 44.9
July								
0.0	388.0	0.3	0.0	33.0	239.0	71.8	71.8	- 253.5
0.0	19.0	0.0	0.0	209.0	41.2	12.4	12.4	- 199.2
17.0	0.0	0.0	145.0	0.0	31.9	9.6	9.6	184.3
August								
0.0	12.0	0.0	44.0	0.0	82.7	24.8	24.8	89.9
0.0	1.0	0.0	0.0	7.0	13.9	4.2	4.2	1.7
0.0	1.0	0.0	0.0	21.0	14.4	4.3	4.3	- 11.9
September								
1.0	0.0	0.0	0.0	22.0	13.0	3.9	3.9	- 11.9
1.0	0.0	0.0	0.0	32.0	13.0	3.9	3.9	- 21.9
2.0	0.0	0.0	0.0	6.0	3.9	1.2	1.2	- 1.3
October								
1.0	0.0	0.0	10.0	0.0	6.2	1.9	1.9	15.3
1.0	0.0	0.0	0.0	7.0	12.8	3.8	3.8	3.0
22.0	0.0	0.0	13.0	0.0	0.5	0.2	0.2	35.3
1018.0	1075.0	457.8	2390.0	1659.0	2764.0	966.6	966.6	2929.2
4.2	4.4	1.8	9.8	6.8	11.3	3.9	3.9	12.0
2019	2132	908	4741	3291	5482	1917	1917	5810

DETERMINATION OF NATURAL FLOW OF FRENCHMAN RIVER
AT INTERNATIONAL BOUNDARY
1949

Quantities in second-feet.

Date at :	Used by Canada		Frenchman River		United States	
Intern'l: Boundary:	Cypress: Lake and: Val Marie: Used :East End:	Total	Flow :Boundary:	Natural: flow	Share	:Received
March						
1 - 10	0.0	- 2.0	- 2.0	0.0 -	2.0	- 1.0 1.0
11 - 20	20.0	- 90.0	- 70.0	48.0 -	22.0	- 11.0 59.0
21 - 31	74.0	304.0	378.0	687.0	1065.0	532.5 154.5
April						
1 - 10	62.0	985.0	1047.0	1014.4	2061.4	1030.7 - 16.3
11 - 20	411.0	1671.0	2082.0	77.9	2159.9	1080.0 - 1002.1
21 - 30	1041.9	141.0	1182.9	3.1	1186.0	593.0 - 589.9
May						
1 - 10	192.3	91.6	283.9	0.0	283.9	142.0 - 142.0
11 - 20	183.7	- 137.4	46.3	189.4	235.7	117.8 71.6
21 - 31	- 50.2	- 238.0	- 288.2	308.2	20.0	10.0 298.2
June						
1 - 10	- 378.0	175.8	- 202.2	24.7 -	177.5	- 88.8 113.5
11 - 20	- 392.5	243.3	- 149.2	38.7 -	110.5	- 55.3 94.0
21 - 30	- 236.5	- 44.9	- 281.4	156.0 -	125.4	- 62.7 218.7
July						
1 - 10	- 320.6	- 253.5	- 574.1	408.0 -	166.1	- 83.0 491.0
11 - 20	- 127.0	- 199.2	- 326.2	312.7 -	13.5	- 6.8 319.5
21 - 31	- 252.7	184.3	- 68.4	2.6 -	65.8	- 32.9 35.5
August						
1 - 10	- 106.3	89.9	- 16.4	0.0 -	16.4	- 8.2 8.2
11 - 20	23.8	1.7	25.5	0.0	25.5	12.8 - 12.8
21 - 31	- 28.1	- 11.9	- 40.0	0.0 -	40.0	- 20.0 20.0
September						
1 - 10	12.3	- 11.9	0.4	0.0	0.4	0.2 - 0.2
11 - 20	1.6	- 21.9	- 20.3	0.0 -	20.3	- 10.2 10.2
21 - 30	15.2	- 1.3	13.9	0.0	13.9	7.0 - 7.0
October						
1 - 10	- 4.7	15.3	10.6	0.0	10.6	5.3 - 5.3
11 - 20	4.1	3.0	7.1	0.0	7.1	3.6 - 3.6
21 - 31	3.9	35.3	39.2	0.0	39.2	19.6 - 19.6
Total						
sec-ft.	149.2	2929.2	3078.4	3270.7	6349.1	3174.6 96.1
Mean	0.6	12.0	12.6	13.3	25.9	13.0 0.4
Ac-ft.	296	5810	6106	6487	12593	6297 191

Table 4
1948

DIVERSION FROM THE NORTHERN TRIBUTARIES
OF MILK RIVER IN CANADA
1948

Quantities in acre-feet.

Irrigator	Source of supply	Diversion
<u>Lodge Creek Basin</u>		
Mitchell Ranching Co.	Middle Creek	300 ^e
Flow of Lodge Creek at International Boundary		
		19,100
<u>Battle Creek Basin</u>		
Shepherd Bros.	Battle Creek	50 ^e
Shepherd Bros.	Halfway Coulee	40 ^e
C.B. Spangler	Six Mile Coulee	100 ^e
Mitchell Ranching Co.	Battle Creek	50 ^e
Stirling & Nash	Battle Creek	1,940
Battle Creek diversion to Cypress Lake	11,480	
less return of	<u>4,680</u>	
Total diverted from Battle Creek in Canada		6,800
Flow of Battle Creek at Boundary		8,980
		7,840
<u>Frenchman River Basin</u>		
B. Armstrong	Clarence Coulee	60 ^e
W.F. White	Calf Creek	40 ^e
J. & E.H. Howard	Concrete Coulee	50 ^e
R.A. Wilkinson	Bolingbroke Creek	6 ^e
Bate Bros.	Garden Creek	35 ^e
P.F.R.A.	Frenchman River	43 ^e
P.F.R.A.	Frenchman River	144
Diversion to Cypress Lake Reservoir	2,617	
Release from Cypress Lake Reservoir	<u>603</u>	2,014
East End Irrigation District		4,783
Diversion to East End Reservoir	2,551	
Release from East End Reservoir	<u>2,025</u>	526
Diversion to Val Marie Reservoirs	9,816	
Release from Val Marie Reservoirs	<u>6,162</u>	3,654
Val Marie Irrigation District		7,583
Return flow from Irrigation Districts		-3,710
Total diverted from Frenchman River		15,228
Flow of Frenchman River at Boundary		25,130

e - estimated

Table 4
1949

DIVERSION FROM THE NORTHERN TRIBUTARIES
OF MILK RIVER IN CANADA
1949

Quantities in acre-feet.

Irrigator	Source of Supply	Diversion
<u>Lodge Creek Basin</u>		
No diversion reported		
Flow of Lodge Creek at International Boundary		354
<u>Battle Creek Basin</u>		
C.B. Spangler	Six Mile Coulee	30 ^e
Mitchell Ranching Co.	Battle Creek	50 ^e
Eva Gaff	Battle Creek	30 ^e
Richardson ditch	Battle Creek	2,530
McKinnon ditch	Battle Creek	1,970
Stirling & Nash	Battle Creek	1,540
Diversion to Cypress Lake Reservoir	1,260	
less return of	7,820	←
Total diverted from Battle Creek in Canada		-6,560
Flow of Battle Creek at Boundary		410
		1,750
<u>Frenchman River Basin</u>		
G.H. Noland	Little Frenchman River	100 ^e
Cypress Cattle Co.	Davis Creek	30 ^e
J. & E.H. Howard	Concrete Coulee	60 ^e
Bate Bros.	Garden Creek	30 ^e
B. Armstrong	Clarence Coulee	50 ^e
Diversion to Cypress Lake Reservoir	1,709	
Release from Cypress Lake Reservoir	6,736	-5,027
Diversion to East End Reservoir	2,632	
Release from East End Reservoir	1,531	1,101
East End Irrigation District		6,032
Diversion to Val Marie Reservoirs	6,760	
Release from Val Marie Reservoirs	5,423	1,337
Val Marie Irrigation District		6,390
Return flow from Irrigation Districts		-3,727
Total diverted from Frenchman River in Canada		6,376
Flow of Frenchman River at Boundary		6,487

e - estimated

Table 5

MEASURED DIVERSIONS FROM THE NORTHERN TRIBUTARIES
OF MILK RIVER IN THE UNITED STATES

1949

(Quantities in acre-feet)

Irrigator	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Total
<u>Lodge Creek</u>									
North Chinook Canal	a8	0	0	0	0	0	0	0	8
<u>Battle Creek</u>									
Matheson Canal	0	0	100	57	0	0	2	1	b160
<u>Frenchman River</u>									
Frenchman Canal	105	940	626	94	1,260	0	0	0	3,025
Total	113	940	726	151	1,260	0	2	1	b3,193

a There was only a small flow from melting snow March 20-22.

b About 115 additional acre-feet were pumped from Battle Creek below the diversion to irrigate land ordinarily served by the Matheson Canal.

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