

PRAIRIE PROVINCES WATER BOARD

EIGHTEENTH

ANNUAL REPORT

FOR THE CALENDAR YEAR 1965

**30 November 1966
Regina, Saskatchewan**

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MEMBERSHIP OF THE BOARD

The Prairie Provinces Water Board is composed of five members. The three provincial members represent the Provinces of Alberta, Saskatchewan and Manitoba, and the two federal members represent the Department of Agriculture, and the Department of Northern Affairs and National Resources. The Engineering Secretary to the Board is employed by the Prairie Farm Rehabilitation Administration (Canada Department of Agriculture). During 1965, the following persons served on the Board:

M. J. Fitzgerald (Chairman)	Director, PFRA Canada Department of Agriculture Regina, Saskatchewan
R. H. Clark	Chief Hydraulic Engineer Water Resources Branch Department of Northern Affairs & National Resources Ottawa, Ontario
F. L. Grindley	Director, Department of Water Resources Province of Alberta Edmonton, Alberta
B. W. Boyson	Director, Water Rights Branch Saskatchewan Water Resources Commission Province of Saskatchewan Regina, Saskatchewan
J. A. Griffiths	Director, Water Control & Conservation Branch Department of Agriculture & Conservation Province of Manitoba Winnipeg, Manitoba
E. F. Durrant (Resigned April, 1965)	Engineering Secretary to the Board Chief, Hydrology Division, PFRA Canada Department of Agriculture Regina, Saskatchewan
J. G. S. McMorine (April-September, 1965)	Acting Engineering Secretary to the Board Acting Chief, Hydrology Division, PFRA Canada Department of Agriculture Regina, Saskatchewan
C. Booy (Appointed 21 September 1965)	Engineering Secretary to the Board Chief, Hydrology Division, PFRA Canada Department of Agriculture Regina, Saskatchewan

WARRANT AND FUNCTION OF THE BOARD

The Prairie Provinces Water Board was established on 28 July 1948 by agreement between the governments of Canada, Manitoba, Saskatchewan and Alberta. A copy of that agreement is attached to the Sixteenth Annual Report as Appendix I.

The Board's function, as expressed in that agreement, is "to recommend the best use to be made of interprovincial waters in relation to associated resources in Manitoba, Saskatchewan and Alberta and to recommend the allocation of water as between each such province of streams flowing from one province into another province."

The duties of the Board are set out in detail in the agreement. Briefly they are:-

- (a) to collate and analyze existing data;
- (b) to determine what other data are required from time to time;
- (c) to recommend the allocation of water of any interprovincial stream; and
- (d) to report on any questions relating to projects for the utilization or control of common river or lake systems.

REVIEW OF ACTIVITIES IN 1965

MEETINGS IN 1965

The Board held two meetings in 1965; one in Regina on 15 April and one in Winnipeg on 21 September.

ENGINEERING SECRETARY

Mr. E. F. Durrant resigned from his position with PFRA in April in order to take up an appointment in Ottawa. Mr. J. G. S. McMorine of the Hydrology Division, PFRA, acted as Engineering Secretary until the appointment by the Board in September of Mr. C. Booy as Engineering Secretary. Mr. Booy succeeded Mr. Durrant as Chief of the Hydrology Division, PFRA.

ALBERTA REQUEST FOR ALLOCATION REVISIONS

In January, 1964, the Board received a request from the Honourable H. E. Strom, Minister of Agriculture for Alberta, for a revision of the allocations to Alberta which were recommended by the Board in 1949. During 1965, much correspondence and discussion were given to this matter and attempts were made to prepare a draft resolution which would be satisfactory to all Members of the Board. It was impossible, however, to reconcile the view that revision of allocation must be preceded by a detailed investigation into its effect, with the view that allocations should be made sufficient to meet the increased needs of projects in which there was considerable investment. The matter thus remained unresolved for the time being.

APPORTIONMENT COMMITTEE

The committee was very active during 1965 and held a number of meetings. In particular, the committee met on 23 and 24 of March in Salt Lake City where members had the opportunity of discussing apportionment problems with representatives of the Upper Colorado River Commission, the U.S. Geological Survey, the U.S. Bureau of Reclamation and the Utah State Water and Power Board. A number of questions were discussed and among the more important findings of the committee were that apportionment by percentage division rather than "lump sum" was strongly favoured and that it should be final and total in order to avoid the complication of subsequent renegotiation. The committee was interested to note the following recommendations of the Upper Colorado River Commission concerning interprovincial compacts:-

- (a) allow for possible importation of water;
- (b) make provision for adjudicating ground water supplies;
- (c) specify navigation and riparian rights; and
- (d) provide for joint major storage to improve the yield and fully develop the basin.

In addition to the submission of progress reports to the Board, the Committee, in November, completed its report entitled "Apportionment of the Water of Interprovincial Streams between the Provinces of Alberta, Manitoba and Saskatchewan."

THE QU'APPELLE-ASSINIBOINE STUDY

Work on this study was continued but its completion was delayed by a difference in the dilution requirement standards set by the Provinces of Saskatchewan and Manitoba. With the overcoming of this difficulty, the report should be completed early in 1966.

POLLUTION COMMITTEE

For some time, the Board has been aware that demands for water for waste disposal and dilution could represent a major water use. Accordingly, at its meeting of March, 1964, the Board resolved to establish a Pollution Committee with the purpose of preparing a situation report including:

- (a) recommendations as to the development of common criteria to be used in interprovincial pollution studies;
- (b) the general magnitude of the present pollution problem in the Assiniboine and other interprovincial basins and the approximate quantities of dilution water needed;
- (c) observations as to future problems; and
- (d) recommendations as to action the Board might take.

During 1964, progress was made in gathering information on legislation and data relating to the aforementioned items (a) and (b) of the Terms of Reference. Thereafter, the work of the Committee was hampered by a lack of understanding on the part of various agencies regarding the purpose of the study. The Chairman of the Board was therefore asked to write to the agencies concerned explaining the responsibilities and interests of the Board in the field of pollution and seeking their co-operation in furthering the work of the Committee.

At the September, 1965, meeting of the Board, the question was raised as to whether or not the Committee should be continued. The question was also raised as to whether any good purpose could be served by further meetings of the Committee because of the apparent inability of Alberta to participate. It was then decided that the Committee should prepare an interim report outlining the situation at that time. The report should contain: the terms of reference; the Committee's interpretation thereof; the reasons why the Committee found it necessary

to deviate from this; what would be required to finish the task given to the Committee; and a summary of the Committee's opinion on these matters. The Committee Chairman was asked to have the report ready for the next Board meeting.

HYDROMETRIC AND METEOROLOGICAL DATA NETWORKS

The extension of the hydrometric and meteorological networks to meet the immediate and long-term needs of the Provinces is a matter which has been given much consideration by the Board. Early in 1965, the Water Resources Branch of the Department of Northern Affairs and National Resources set up an "Advisory Committee on Surface Water Data Requirements" composed of one representative from the water resources agency of each of the three provinces and the two District Engineers of the Water Resources Branch.

At the meeting of the Board in September, 1965, while welcoming the formation of the Advisory Committee, it was recognized that the activity of the Committee would of necessity be rather limited in scope. The question of the need for a Water Board Committee on Hydrometric Data was therefore discussed and the following motion was adopted:-

"That the Prairie Provinces Water Board recognizes the need for long-range planning and interprovincial co-ordination of hydrometrical and meteorological requirements of joint interest to the Prairie Provinces. Therefore, the Board agrees to establish an Ad Hoc Committee to prepare recommendations on procedures and terms of reference, to accomplish these objectives for consideration at the next Board meeting."

SMALL PROJECTS, RESERVATIONS


The reservation of 1,000,000 ac. ft. for small projects in the South Saskatchewan River Basin expired in December, 1964. At its meeting of September, 1965, the Board reinstated the reservation and extended it for a two-year period.

OTHER REPORTS AND STUDIES

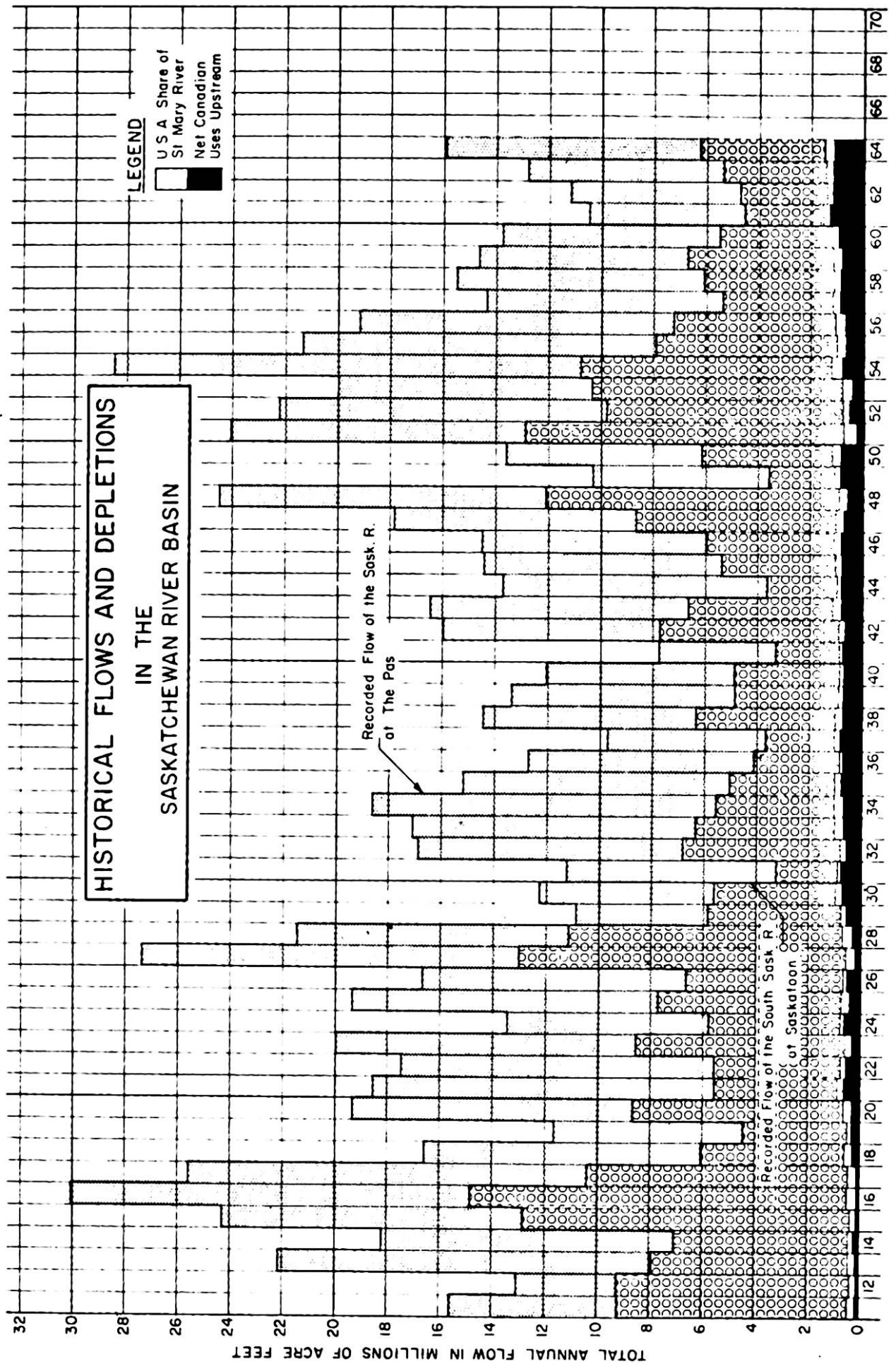
1. In November, 1964, the Engineering Secretary was instructed to prepare a brief report on the subject of flow forecasting. This was completed in March, 1965, as Prairie Provinces Water Board Memorandum No. 8 with the title "Streamflow Forecasts in the Prairie Provinces as of January, 1965."
2. Completion of a report by Dr. Laycock on "Water Surplus and Deficiency Patterns in the Prairie Provinces" is anticipated in 1966.
3. An estimate of streamflow depletions for the Saskatchewan River System is kept current by the Engineering Secretariat. A chart on the following page provides a graphical comparison between these depletions and the recorded flows at Saskatoon and The Pas.
4. A tabulation of "Acreage Actually Irrigated" in the Alberta portion of the South Saskatchewan Basin has been prepared and may be found immediately following the flows and depletions graph. The tabulation is based primarily on material supplied by the Alberta Water Resources Branch.



M. J. Fitzgerald
Chairman



J. G. S. McMorine
Acting Engineering Secretary



ACREAGE ACTUALLY IRRIGATED IN ALBERTA 1911 - 1963

YEAR	ST. MARY	WESTERN I.D.	EASTERN I.D.	BOW RIV. DEVELOP.	L. N. I.D.	U.I.D.	M. V. I.D.	L.I.D.	A. I.D.	MACLEOD I.D.	ROSS CR. I.D.	TOTAL
1911	47,000	500										47,500
12	76,200	500										76,700
13	76,200	2,600										78,800
14	76,200	8,448	7,806									92,454
15	76,200	512	7,800									84,512
16	71,281	859	1,497									73,637
17	91,780	3,657	9,005									104,442
18	102,900	25,191	24,440									152,531
19	112,569	31,908	43,460									187,937
1920	62,893	4,083	60,762	4,240								131,978
21	85,902	33,619	88,299	9,400								217,220
22	88,680	49,752	93,375	9,509								241,316
23	75,968	3,074	42,928	11,249	6,963							140,182
24	84,751	24,297	84,200	9,720	29,991	5,264						238,223
25	94,582	5,384	72,994	13,252	43,628	10,000						239,840
26	92,782	19,561	74,401	13,467	56,395	10,026						266,632
27	22,176	1,273	7,921	810	10,012	41						42,233
28	31,924	3,892	45,677	19,361	33,436	2,576						136,866
29	46,441	37,395	78,610	29,260	61,231	3,102						256,039
1930	98,483	41,570	89,913	27,102	70,007	5,847						332,922
31	100,403	47,593	90,724	29,803	70,408	12,983	300					352,214
32	99,788	8,680	90,651	26,379	41,842	11,500	800					279,640
33	104,854	40,812	96,019	21,917	62,416	10,500	1,168					337,686
34	105,490	31,131	101,566	22,208	54,200	10,000	1,950					326,545
35	93,471	19,109	143,997	22,694	73,022	12,000	3,000					367,293
36	111,397	44,614	111,781	26,660	62,790	18,000	2,900					378,142
37	113,546	50,866	124,645	30,107	70,020	17,500	3,500					410,184
38	112,629	35,755	133,928	33,326	73,297	10,000	3,500					402,435
39	110,677	11,647	141,688	34,984	56,712	10,000	3,200					368,908
1940	115,030	20,134	138,462	37,906	76,492	10,500	3,000					401,524
41	109,148	21,144	156,501	35,312	63,575	11,000	3,300					399,980
42	103,183	9,194	166,453	32,946	31,102	12,000	3,400					358,278
43	112,142	7,666	168,496	35,143	67,777	14,000	3,254					408,478
44	112,550	20,000	167,094	37,266	75,927	13,000	3,400	526				429,763
45	112,484	20,000	167,109	38,838	57,126	13,000	3,300	1,000				412,848
46	112,734	19,000	166,326	42,457	64,894	7,453	3,300	1,300				417,464
47	110,848	20,000	168,580	43,594	57,434	7,453	3,300	1,300				412,509
48	109,571	12,000	172,200	44,160	55,374	2,970	3,700	1,500				401,475
49	107,150	26,197	180,000	44,050	72,807	21,000	3,300	1,500				456,004
1950	111,513	23,079	180,000	36,508	78,721	9,758	3,500	2,500				445,579
51	104,571	1,000	153,804	24,283	21,979	1,869	(100)	200		0	0	307,806
52	117,261	700	149,289	40,416	35,314	6,072	3,350	940		1,600	850	355,792
53	112,779	500	114,776	(40,000)	37,409	8,894	3,380	980		1,800	1,100	321,618
54	152,489	1,900	156,884	(40,000)	58,745	10,033	3,392	254		2,600	2,100	428,397
55	123,679	2,500	148,892	(40,000)	31,753	10,115	3,132	423			1,500	361,994
56	142,156	6,000	190,976	109,400	31,588	11,082	2,773	852			1,800	496,627
57	161,292	4,500	189,928	65,000	51,808	15,888	2,773	2,779	0	0	1,685	495,652
58	168,794	9,870	189,845	60,185	51,916	11,032	2,759	1,542	0	0	(1,500)	497,443
59	241,090	9,330	163,993	54,514	46,459	17,761	2,789	1,542	360		(1,400)	539,238
1960	179,477	12,000	167,597	71,392	71,006	16,536	2,789	1,542	440	0	405	523,184
61	208,547	23,200	170,413	78,260	73,637	23,095	2,760	1,542	1,800	0	200	583,454
62	217,025	30,000	176,695	83,910	73,317	28,465	2,760	4,187	2,178	0	200	618,741
63	229,652	25,000	170,776	78,695	64,510	27,012	2,789	4,511	2,315	0	200	605,460
64	235,015	24,000	166,726	86,192	70,575	19,376	2,789	4,511	2,523	0	200	611,907
65												
66												
67												
68												
69												
1970												
71												
72												

NOTE Acreage figures from early Irrigation Company annual reports, except as noted below

(1) From "Report on Return Flows from Irrigation Districts in Alberta, 1951 to 1964." by Water Resources Branch, Department of Northern Affairs and National Resources, Calgary.

(2) Information by letter from Alberta Water Resources Office, Edmonton.

E No records - estimated -

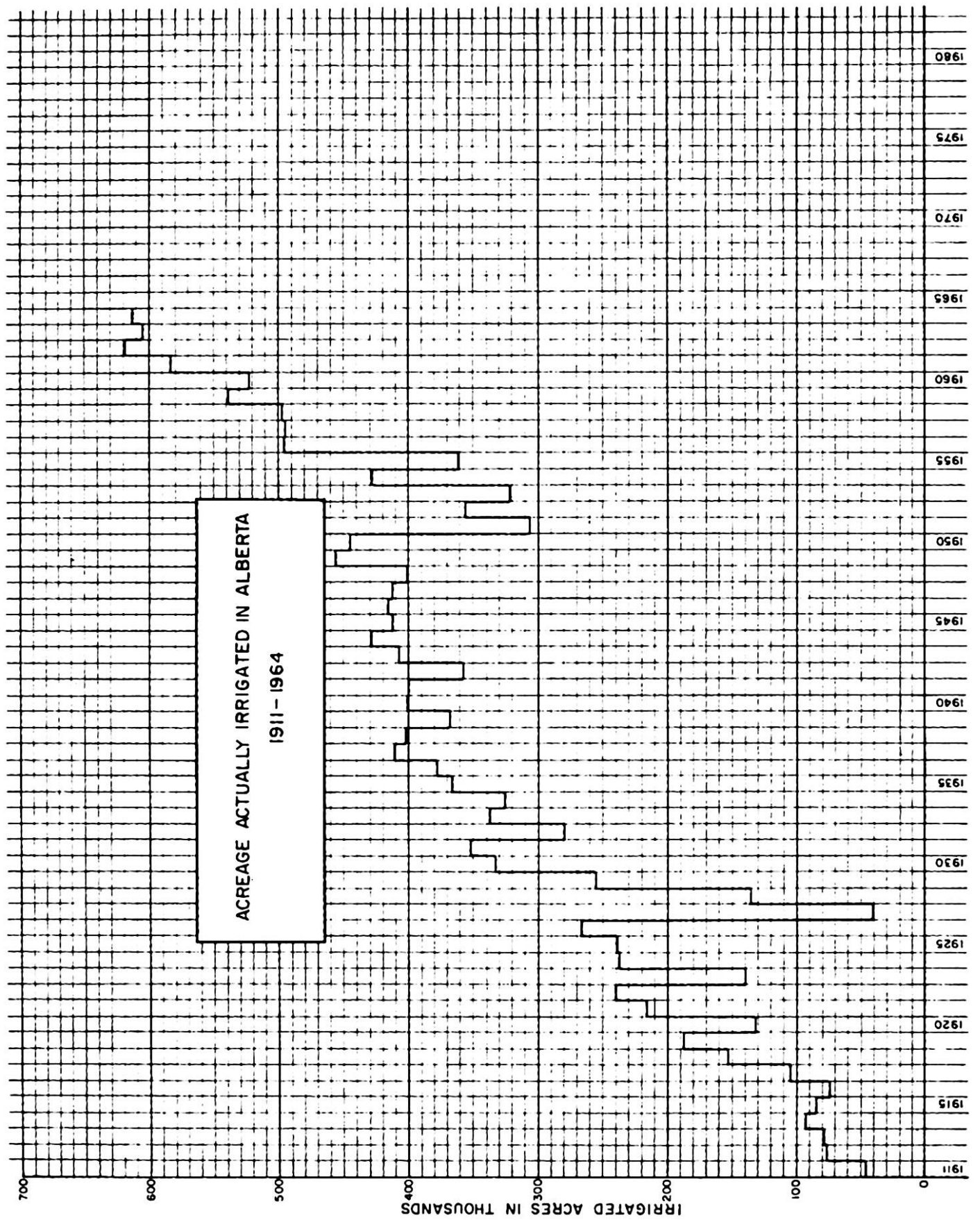


TABLE 1

SUMMARY OF FINAL ALLOCATIONS IN THE SASKATCHEWAN RIVER BASIN					
PROJECT	PROV- INCE	Irrig- able Acreage Acres	Alloca- tion Ac-ft.	Recom- mended by Water Board	Recommend- ation approved by O.I.C. from all Govern- ments
St. Mary-Milk River Project..	Alberta	465,000	796,000	6-5-49	4-7-51
Western Irrig. District.....	"	50,000	85,700	"	"
Eastern Irrig. District.....	"	281,000	562,000	"	"
Bow River Irrig. District...	"	240,000	478,534	"	"
United Irrig. District.....	"	34,000	51,000	"	"
Leth. Northern Irr. District	"	96,135	150,000	"	"
Mountain View Irr. District.	"	3,600	6,000	"	"
Leavitt Irrig. District.....	"	4,400	7,000	"	"
Aetna Irrig. District.....	"	7,300	13,000	"	"
MacLeod Irrig. District.....	"	5,000	8,000	"	"
Private Projects.....	"	70,000	80,000	"	"
Saskatoon - Municipal.....	Sask.		11,426	18-12-50	8-8-51
- Steam Plant.....	"		31,260	"	"
Caron - Moose Jaw Div.....	"		12,600	"	"
Swift Current Irr. Project..	"	21,000	55,000	"	"
<u>Small Projects</u>					
- Main Stem.....			1,500	"	"
- Swift Current Basin..			5,600	"	"
- Other Tributaries....			4,500	"	"

SUMMARY OF TENTATIVE ALLOCATIONS

IN THE SASKATCHEWAN RIVER BASIN

Regina-Moose Jaw Div.....	Sask.		29,000	18-12-50	8-8-51
French Flats-Valley Park....	"	6,502	11,140	"	"
South Sask. River Project...	"	470,000	960,000	15-5-53	-53

TABLE 1 (Cont'd)

SUMMARY OF RESERVATIONS IN GOOD STANDING
IN THE SASKATCHEWAN RIVER BASIN

PROJECT	PROV- INCE	Irrig- able Acreage Acres	Alloca- tion Ac.Ft.	Recom- mended by Water Board	Recommend- ation approved by O.I.C. from all Govern- ments	
Red Deer (Wm. Pearce).....	Alberta	250,000	700,000	18-12-58	(Original Reservation)	EXPIRED Dec.1960
				1-12-60	(Renewed)	EXPIRED Dec.1962
				16-1-63	(Renewed)	EXPIRED Dec. 1964
				10-11-64	(Renewed)	EXPIRES Dec. 1966
Small Projects.....	Alberta & Sask.	1,000,000		2-12-59	(Original reservation)	EXPIRED Dec. 1960
				1-12-60	(Renewed)	EXPIRED Dec. 1961
				6-12-61	(Renewed)	EXPIRED Dec.1962
				16-1-63	(Renewed)	EXPIRED Dec. 1963
				6-11-63	(Renewed)	EXPIRED Dec. 1964
				21-9-65	(Renewed)	EXPIRES Dec. 1966

TABLE 1 (Cont'd)

BATTLE CREEK BASIN

PROJECT	Province	Irrigable acres	Allocation Ac.Ft.	Recommended by Water Board	Recommendation approved
<u>FINAL ALLOCATIONS</u>					
Small Projects	Sask.	-	10,946	18-12-50	8-8-51
Richardson-MacKinnon Project	Sask.	-	3,054	18-12-50	8-8-51
<u>TENTATIVE ALLOCATIONS</u>					
Small Projects	Sask.	-	2,000	18-12-50	8-8-51
Vidora Project	Sask.	2,136	3,360	18-12-50	8-8-51
Consul Project	Sask.	1,500	2,400	18-12-50	8-8-51

MIDDLE CREEK BASIN

PROJECT	Province	Irrigable acres	Allocation Ac.Ft.	Recommended by Water Board	Recommendation approved
<u>FINAL ALLOCATIONS</u>					
Small Projects	Sask.	-	1,027	18-12-50	8-8-51
Middle Cr. Reservoir Losses	Sask.	-	2,335	18-12-50	8-8-51

LODGE CREEK BASIN

PROJECT	Province	Irrigable acres	Allocation Ac.Ft.	Recommended by Water Board	Recommendation approved
<u>FINAL ALLOCATIONS</u>					
Small Projects	Sask.	-	600	18-12-50	8-8-51
Spangler Project	Sask.	1,322	2,970	18-12-50	8-8-51

QU'APPELLE RIVER BASIN

PROJECT	Province	Irrigable acres	Allocation Ac.Ft.	Recommended by Water Board	Recommendation approved
<u>FINAL ALLOCATIONS</u>					
Small Projects	Sask.	-	20,000	18-12-50	8-8-51