

PRAIRIE PROVINCES WATER BOARD

ELEVENTH
ANNUAL REPORT
1958

c/o P.F.R.A.
Motherwell Building,
Regina, Saskatchewan.

TABLE OF CONTENTS

	<u>Page</u>
Personnel	1
Warrant and Function of the Board	2
Review of Activities	3
Appendices:	
A Meetings	6
B Priorities and Classifications	7
C Allocations	9
D Publications	13

PERSONNEL

There have been two changes in the personnel of the Board during 1958. Mr. E. J. Scammell has retired from service with the Government of Saskatchewan and Mr. B. W. Boyson was appointed to take his place (Saskatchewan Order in Council 110/58). Mr. W. M. Berry, Engineering Secretary, was appointed Design Engineer for the South Saskatchewan Project and resigned from his Water Board duties. At the meeting on December 18, 1958 Mr. E. F. Durrant was appointed Engineering Secretary.

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|-----------------|---|
| G. L. MacKenzie | - Chairman of the Board: representing Federal Department of Agriculture (Appointed 21 March 1957)
- Director, P.F.R.A. |
| R. H. Clark | - representing Federal Department of Northern Affairs and National Resources.
- Chief Hydraulic Engineer, Water Resources Branch, Ottawa |
| B. B. Hogarth | - representing Province of Manitoba
- Director, Manitoba Water Resources Branch, Winnipeg. |
| B. W. Boyson | - representing Province of Saskatchewan
- Chief Engineer, Sask. Water Rights Office, Regina. |
| F. L. Grindley | - representing Province of Alberta
- Director, Alberta Water Resources Branch, Edmonton. |
| E. F. Durrant | - Engineering Secretary to the Board,
- c/o P.F.R.A., Motherwell Building, Regina. |

WARRANT AND FUNCTION OF THE BOARD

Under date of July 28, 1948, the Prairie Provinces Water Board was established by the Governments of Canada, Manitoba, Saskatchewan and Alberta; consisting of two members appointed by Canada and one from each of the three provinces.

The Board's function 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 province of streams flowing from one province into another province.

The Board's duties are: to collate and analyze the data now available relating to the water and associated resources of interprovincial streams; to determine what other data are required from time to time and to make recommendations to the appropriate governmental organizations concerned for the carrying out of such surveys and studies which the Board considers necessary to supply information required for the performance of its duties; upon the request of any one of the three provinces or Canada, to recommend the allocation of the waters of any interprovincial stream among the respective provinces; and to report on any questions relating to specific projects for the utilization or control of common river or lake systems at the request of one or more of the Ministers or authorities charged with the administration of such river or lake systems.

REVIEW OF ACTIVITIES

Since the Board was formed in 1948, many studies and recommendations have been made. In 1949 general principles were adopted as a guide in considering applications for water: these are set out in Appendix B. Definite allocations for water were recommended in 1949, 1950 and 1953 and concurred in by the governments concerned; details may be found in Appendix C. The various maps and reports prepared for the use of the Board are listed in Appendix D.

In 1953 a request was received from Alberta for water for the William Pearce Scheme (Red Deer Project). At the August meeting the Board made a recording of the project for a total of 600,000 acre feet annually. In December the Board granted a two-year reservation as follows: a maximum diversion of 600,000 acre feet from the Red Deer River in any one year, a maximum diversion of 300,000 acre feet from the Clearwater River in any one year, but the combined diversions not to exceed 700,000 acre feet in any one year.

No requests were received for reports on questions relating to specific interprovincial projects, nor were there any such requests outstanding. However, the Board directed the Secretary to maintain an up-to-date record of all allocations and uses on interprovincial streams to guide them in making future allocations.

Studies of general interest related to anticipated interprovincial water problems were carried on.

Probable Future Depletions of the Saskatchewan River: Water Board reports #1, 2 and 3 set out the Board's understanding as of 1952 of the probable limits of upstream depletions (as computed at The Pas, Manitoba). In 1958 these reports were reviewed and the Board felt that the assumptions made therein were still valid.

Economic Factors Related to Water Resource Development: this study is being undertaken for the Board by the Economics Service of Canada Department of Agriculture. The results of their work will appear in a series of reports, the first of which is now ready for publication and should be available in 1959. It is entitled "A Survey of the Law of Water in Alberta, Saskatchewan and Manitoba".

Expansion of Hydrometric Services: this expansion was recommended to the Federal Government by the Board in 1956, and was favourably received. Co-operative agreements between the Federal Government and each of the Prairie Provinces for financing this expansion are being negotiated.

Initiation of Sedimentation Surveys: during 1956 the Water Board submitted a recommendation to the Federal Government's Advisory Committee on Water Use Policy which suggested that the sediment carried by the main rivers of the prairies be measured. This matter now awaits Cabinet approval.

Study of Aridity of the Prairies: this work consists of analyzing basic climatological information which will be useful for later studies of an applied nature. The work is being done by Professor Laycock of the University of Alberta in co-operation with P.F.R.A., the Federal Meteorological Division and the Experimental Farms Service.

Storage Reservoirs in Rocky Mountains: this question has been discussed by the Board at various times, but until a formal request has been received from a government minister, no detailed consideration can be given this subject. It is understood that P.F.R.A. is now investigating a potential site in the headwaters of the Oldman River. Alberta is investigating several sites on the headwaters of the Red Deer and Clearwater Rivers.

Return Flows from Irrigation Projects: the program of measuring and recording these return flows is continuing, and annual reports are being received from the Federal Water Resources Branch.

G. L. MacKenzie

G. L. MacKenzie

E. F. Durrant

E. F. Durrant

APPENDIX A - MEETINGS

The members of the Water Board have held meetings at the following places and dates:

- In Regina - November 1, 1948
- In Regina - February 2, 1949
- In Regina - May 6, 1949
- In Winnipeg - January 26, 1950
- In Ottawa - April 25, 1950
- In Winnipeg - December 18, 1950
- In Regina - September 5, 1951
- In Regina - December 17, 1952
- In Regina - May 15, 1953
- In Regina - October 9, 1953
- In Edmonton - March 18, 1954
- In Winnipeg - October 27, 1955
- In Vauxhall - August 6 & 7, 1956
(including an inspection by air of the irrigation districts in the region, as well as ground inspection of some of the structures and the Vauxhall experimental station).
- In Winnipeg - October 21, 1957
- In Calgary - August 7 & 8, 1958
- In Winnipeg - December 18, 1958

APPENDIX B - PRIORITIES & CLASSIFICATIONS

In May, 1949, the Board set out the following general principles to guide them in considering applications for allocation of water to serve developed or partially developed irrigation projects, which will, in effect, constitute priorities:

1. Projects which are fully developed and for which water had been appropriated by the Federal Government prior to the Natural Resources-Transfer Agreement.
2. Projects which are fully developed and for which water had been appropriated by the Province concerned prior to July 28, 1948.
3. The completion of projects which are partially developed and which can be fully and beneficially developed within the appropriation as in #1 or #2 above.
4. The completion of projects with respect to which substantial works are now in existence and which works could, by the use of additional water and as shown by complete investigation, be made to serve larger areas in a beneficial manner-involving allocations over and above those provided for by prior Dominion and Provincial allocations.
5. Projects which are now under development by the Dominion and Provincial Governments and with respect to which an immediate beneficial use must be established in order to secure or protect an international allocation.

The Board also agreed to establish four separate classifications under which applications for water for individual projects will be treated, and the procedure to be followed is to be in accordance with the following:

Recording - shall be in a procedure under which the Board may be informed of potential and possible water uses or developments within the jurisdictions represented in the Agreement. It is understood that each such recording shall not in any way constitute or be an undertaking by the Board to recommend the allocation of water or the granting of any rights for such purpose.

Reservation - shall be a procedure under which the Board may make a "reservation" of probable water requirements of specific projects. This will not comprise an allocation but shall represent an undertaking by the Board to the effect that, while the reservation is in good standing, no subsequent action will be taken by the Board which will have a detrimental effect upon the stipulated water without first thoroughly reviewing the status and requirements of the project for which the reservation was made and without affording to the representatives of the interested jurisdictions ample opportunity to make representations and to be heard. The Board shall, in making such a reservation, fix a period of time during which sufficiently complete plans and reports are to be prepared to enable the Board to consider further the allocation of water for this purpose: provided first, that if further information is not forthcoming in the stipulated period of time the reservation will lapse, and a second, that the Board may, in its discretion, from time to time extend any period fixed for the production of such further information.

Tentative Allocation - shall be a procedure under which the Board may be requested to recommend to the Governments represented in the Agreement a tentative allocation of water for a specific project; such an allocation to be subject to review and possible subsequent modification or cancellation, either in whole or in part, prior to final allocation.

Final Allocation - shall be a procedure under which the Board may be requested to recommend to the Governments represented in the Agreement a final allocation of water for a specific project.

APPENDIX C - ALLOCATIONS

By a letter dated March 24, 1949, the Honorable D. A. Ure of Alberta requested the Board to recommend suitable allocations for certain fully developed and partially developed irrigation projects in that province. On May 6 1949, the Board recommended the allocations of waters for these projects: this allocation was subsequently ratified when the four governments passed appropriate orders-in-council as follows:

Canada Order-in-Council	4030/49
Alberta Order-in-Council	857/49
Manitoba Order-in-Council	1121/49
Saskatchewan Order-in-Council	1307/51

By a letter dated November 8, 1950, the Honorable I. C. Nollet of Saskatchewan requested the Board to recommend suitable allocations for certain existing and proposed projects in that province. On December 18, 1950, the Board recommended the allocations of waters for most of these projects: this recommendation was subsequently ratified when the four governments passed appropriate Orders-in-Council as follows:

Canada Order-in-Council	1874/51
Alberta Order-in-Council	1091/51
Manitoba Order-in-Council	1264/51
Saskatchewan Order-in-Council	1310/51

By a letter dated May 4, 1949, amended November 8, 1950 and again on December 18, 1950, the honorable I. C. Nollet of Saskatchewan requested the Board to recommend a suitable allocation for the proposed South Saskatchewan River Project. The Board first considered this request on May 6, 1949, and due to insufficient supporting data the requested water was placed in the "reservation" class. The application was considered again on December 18, 1950, but action was postponed pending detailed water supply studies that would show all interprovincial effects of this proposal. With the receipt of Water Board Report #3 containing the requested water supply study, the Board again considered the application on September 5, 1951, when it was decided to postpone further action until the report

of the Royal Commission, appointed by the Canadian Government to investigate this project, became available and could be treated as additional evidence. This project was again considered by the Board on May 15, 1953, and it was then decided to recommend a "tentative allocation" of 960,000 acre-feet of water annually from the South Saskatchewan River for the purpose of the South Saskatchewan River Project: this recommendation was subsequently ratified when the four governments passed appropriate Orders-in-Council as follows:

Canada Order-in-Council	1953/973
Alberta Order-in-Council	991/53
Manitoba Order-in-Council	924/53
Saskatchewan Order-in-Council	1271/53

At the next meeting on October 9, 1953, the Board, in view of the fact that (a) their recommended allocation of water for the South Saskatchewan River Project had been for consumptive uses only, and (b) some questions had arisen as to the adequacy of the river flows to supply the necessary water for the non-consumptive uses of the project, decided to submit to the governments their views on this matter in the form of a resolution. This was done and the Board recommended to the governments that their understanding of the water supply situation and their actions (as contained in the resolution) be confirmed by Orders-in-Council. This recommendation was subsequently ratified when the four governments passed appropriate Orders-in-Council as follows:

Alberta Order-in-Council	1693/53
Saskatchewan Order-in-Council	2172/53
Canada Order-in-Council P.C.	1954/1169
Manitoba Order-in-Council	672/54

The following two pages set out the details of the allocations that were recommended and ratified.

ALLOCATION TO ALBERTA - recommended May, 1949

<u>Project</u>	<u>Irrigable acres</u>	<u>Allocations in acre-feet</u>
St. Mary & Milk River Development	465,000	796,000
Western Irrigation District	50,000	85,000
Eastern Irrigation District	281,000	562,000
Bow River Irrigation Development	240,000	478,534
United Irrigation District	34,000	51,000
Lethbridge Northern District	96,135	150,000
Mountain View Irrigation District	3,600	6,000
Leavitt Irrigation District	4,400	7,000
Aetna Irrigation District	7,300	13,000
Macleod Irrigation District	5,000	8,000
Private Projects	70,000	80,000
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TOTAL	1,256,435	2,237,234

ALLOCATION TO SASKATCHEWAN - recommended May, 1953Tentative Allocation

South Saskatchewan River Project from

the South Saskatchewan River

960,000 ac.ft.

ALLOCATION TO SASKATCHEWAN - recommended December, 1950Final Allocation

<u>Project</u>	<u>Classifi- cation</u>	<u>Acre-feet (annually)</u>
<u>South Sask. Drainage Basin</u>		
Small projects		
- main stem	1 & 2	1,500
- tributaries	1 & 2	4,500
City of Saskatoon		
- municipal	1	11,426
- steam plant	1	31,260
Coron-Moose Jaw Diversion	2	12,600
Swift Current Irr. Project	3	55,000
Swift Current small projects	1 & 2	5,600
<u>Qu'Appelle Drainage Basin</u>		
Small projects	1 & 2	20,000
<u>Battle Creek Drainage Basin</u>		
Small projects		
- main stem	1 & 2	7,536
- tributaries	1 & 2	3,410
Richardson-McKinnon project	1	3,054
<u>Middle Creek Drainage Basin</u>		
Small projects	1 & 2	1,027
Middle Creek Reservoir losses	2	2,335
<u>Lodge Creek Drainage Basin</u>		
Small projects	1 & 2	600
Spangler project	1 & 2	2,970

Tentative Allocation

<u>South Sask. Drainage Basin</u>		
Regina-Moose Jaw Diversion		29,000
French Flats-Valley Park Projects		11,140
<u>Battle Creek Drainage Basin</u>		
Small irrigation development		
- main stem		1,000
- tributaries		1,000
Vidora Irrigation Project		3,360
Consul Irrigation Project extension		2,400

APPENDIX D - PUBLICATIONS

- Report #1 a/ - "Summary Report of Recorded and Natural Monthly Flows at Certain Points on the Saskatchewan River System", November, 1950.
- Report #2 a/ - "Stream Flow at Three Selected Points on South and Main Saskatchewan Rivers over Alberta's 1949 Request", December, 1950.
- Report #3 a/ - "Preliminary Report on Effects of Certain Major Projects in the Saskatchewan River Drainage Basin", March, 1951
- Report #3 (Appendix A) a/ - Period of study 1911-23, December, 1951
- Report #3 (Appendix B) a/ - Period of study 1949-52, July, 1954
- Report #4 a/ - "Comparison of Two Alternate Developments in Saskatchewan River Basin, October, 1951
- Report #5 b/ - "Evaporation from Lakes and Reservoirs on the Canadian Prairies", December, 1952
- Report #6 b/ - "Precipitation and Streamflow in the Mountain and Foothill Region of the Saskatchewan River Basin", January, 1957.
- First Annual Report - 1948 b/
 Second Annual Report - 1949 b/
 Third Annual Report - 1950 b/
 Fourth Annual Report - 1951 b/
 Fifth Annual Report - 1952 b/
 Sixth Annual Report - 1953 b/
 Seventh Annual Report - 1954 b/
 Eighth Annual Report - 1955 b/
 Ninth Annual Report - 1956 b/
 Tenth Annual Report - 1957 b/
 Eleventh Annual Report - 1958 b/
- Drainage Map - "P.P.W.B. Map of Alberta, Saskatchewan and Manitoba",
 Scale: 1 inch = 25 miles
 Types: one-color map on linen a/
 two-color map on paper a/
 four-color map on paper c/
 five-color map on paper c/

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