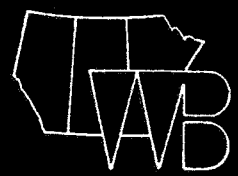


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# ANNUAL REPORT

FOR THE YEAR ENDING MARCH 31, 1977

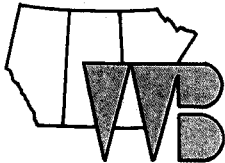


PRAIRIE PROVINCES WATER BOARD

CANADA ALBERTA SASKATCHEWAN MANITOBA

# ANNUAL REPORT

FOR THE YEAR ENDING MARCH 31, 1977



PRAIRIE PROVINCES WATER BOARD

403 - 1955 SMITH STREET REGINA, SASKATCHEWAN S4P 2N9

CANADA

ALBERTA

SASKATCHEWAN

MANITOBA

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## INTRODUCTION

The Master Agreement on Apportionment records the agreement of Canada and the Provinces of Alberta, Saskatchewan and Manitoba to share the flow and consider the quality of eastward flowing interprovincial streams, to work together for the mutual benefit of all parties, and to set-up an administrative body to administer the Agreement - the Prairie Provinces Water Board. The Agreement is dated October 30, 1969.

Two meetings were held by the Prairie Provinces Water Board during this fiscal year. The first meeting, No. 14, was held on May 13th, 1976 in Regina, Saskatchewan. The second meeting, No. 15, was held on October 13th, 1976 in Edmonton, Alberta.

Mr. W. B. Thomson, Director of the Prairie Farm Rehabilitation Administration retired as of December 31, 1976. Mr. Thomson served as a PPWB Board Member from January 1973 to December 1976. The Board was unanimous in its expression of appreciation for the contribution of Mr. Thomson as a Board Member.

This report summarizes the activities and progress of the Prairie Provinces Water Board for the period from April 1, 1976 to March 31, 1977.



## RECONSTITUTION OF BOARD ADMINISTRATION

During the 22 year history of the original Prairie Provinces Water Board, the Engineering Secretary of the Board was a Federal Government PFRA employee who served in this capacity as part of his regular duties. In addition, support staff for studies and office accommodation were provided by the PFRA in Regina at no charge.

Schedule C of the Master Agreement on Apportionment reconstituted the Prairie Provinces Water Board and provides for the necessary Board staff, accommodation and supplies, to be financed by the four governments party to the Agreement. Following the reconstitution of the Board, the members agreed to the establishment of a semi-autonomous Board Secretariat.

The Secretariat is composed of Federal Public Servants that receive direction entirely from the Board and have no working connection with any part of the Federal Government. The Board has direct control over the operation of the Secretariat through approval of an Annual Budget. The Board has Federal spending authority up to an amount equal to the total Board budget with the Provincial Governments' shares recovered after the fiscal year audit is completed.

The effective change of the Board's administration came with the appointment of an Executive Director on June 1, 1972. The Board now operates through the Executive Director and his staff, supported by various committees. The organization chart is shown on page 37.

With the appointment of a permanent staff, the By-laws, and Rules and Procedures came into effect July 1, 1972. The Master Agreement on Apportionment with the By-Laws and Rules and Procedures are appended to this Annual Report.



## ADMINISTRATIVE DECISIONS

### Natural Flow Determination

Quarterly reports on natural flows, consumptive use, and storage changes in the South Saskatchewan River Basin in Alberta were prepared and distributed. A summary table of these quarterly report results is shown on page 20 in this report. The method used to determine natural flows in this basin is the Project Depletion Method.

During 1976, the recorded flow of the South Saskatchewan and Red Deer Rivers passing the Alberta-Saskatchewan Boundary was 5,491,200 acre-feet. This volume is 81.8 per cent of the calculated natural flow for the same period.

### PPWB Monitoring Stations

The Board has designated 11 locations for the establishment of common water quantity - water quality monitoring stations to carry out the responsibilities of the PPWB. The Inland Waters Directorate of the Department of Fisheries and Environment were requested, and agreed, to ensure monthly monitoring of the flow and quality of the waters at these locations. The map at the end of this Annual Report shows the location of these 11 monitoring stations.

### Storage of Old PPWB Files

At the November 5, 1974 meeting, the Board members agreed that the pre-1969 PPWB files and all SNBB correspondence files should be microfilmed in two copies, and discussions began with the Archivists of Manitoba, Saskatchewan and Alberta as to the best method of storing the original documents.

As a result of these discussions, the original documents are now stored in the Saskatchewan Archives, and duplicate microfilms were supplied to the Manitoba Archives, the Alberta Archives, and the Glenbow Institute. In addition, one microfilm copy was deposited in the Public Archives of Canada Regional Records Centre in Winnipeg, and one copy is stored with the Secretariat.



### Public Relations

At the June 10, 1975 meeting, the members noted that the Board is now more involved and concerned with the integrated development and use of interprovincial water resources and is making significant progress in this direction. It was felt that the type of work the Board was doing, and the nature of the studies being undertaken by the Board should be conveyed to those involved in the field of water resources.

To accomplish this goal, the members agreed to the preparation of a brochure outlining the objectives and responsibilities of the Board, and the type of work that the Board is doing. The brochure is a four page, multi-colored document, printed in 5,000 copies. Copies have been distributed to the member agencies.

### Implementation of Natural Flow Determination

In mid-1971, the Board authorized a study to develop procedures for the determination of natural flow for apportionment purposes on the five major interprovincial streams. The study was carried out under contract to the Board by Water Survey of Canada and was under the direction of the Committee on Hydrology. As a first step, a thorough review of existing methods of natural flow determination was undertaken and different computation methods were tested. These included the Project Depletion, Stream Depletion, Rimflow and Consumptive Use methods, along with the Saskatchewan-Nelson Basin Board approach. Based on these investigations it was concluded that the Project Depletion Method produced the most accurate results, and was easiest to apply in all basins except the Qu'Appelle River Basin. In this basin the method was supplemented by a computer model to perform the complex routing procedures necessitated by the hydrologic characteristics of the basin.

At the October 13, 1976 meeting, the members agreed to the recommendations resulting from the study and agreed to proceed with the implementation of these recommendations. Canada was informed of this action, and the Department of Fisheries and Environment began the task of providing data from the hydrometric and meteorologic monitoring stations of the recommended networks. In addition, the Secretariat has started on the computerization of the natural flow calculations with the assistance of Water Survey of Canada.

During the next fiscal year, natural flow reporting on a regular basis will begin at the following locations:

North Saskatchewan River at Deer Creek  
South Saskatchewan River below the Red Deer River  
Churchill River at Sandy Bay  
Saskatchewan River at the Sask-Man Boundary  
Qu'Appelle River at Welby

#### Ducks Unlimited Cumberland Marsh Project

At the October 13, 1976 meeting, the members discussed the Ducks Unlimited Project being constructed in Saskatchewan and its effect on the water quantity and quality downstream of the project. The members agreed that in the interests of good water management, water quality and quantity monitoring should be undertaken near the Saskatchewan-Manitoba Boundary at the outlet of the Ducks Unlimited Cumberland Marsh Project.



## BOARD STUDIES

### Water Quality Objectives Study

This study is being conducted by the Committee on Water Quality and the Secretariat. The goal of the study is to revise the current PPWB Water Quality Objectives where necessary in light of new and more comprehensive data and changed philosophies regarding the setting of interprovincial water quality criteria.

The Committee is reviewing all Federal water quality data available at the 11 PPWB monitoring stations from January 1970 to date and has identified parameters which exceed current PPWB Water Quality Objectives. Investigations aimed at determining the background levels of parameters which exceed the objectives; and the frequency and significance of exceedence are in progress. To aid in this background study, all Federal historical water quality results obtained near the boundaries have been plotted, published, and distributed to the Committee on Water Quality members.

The Committee is now in the process of estimating background levels for all parameters being considered for each major stream of interest to the Board. Because of the complexities of the task, this work will continue throughout next fiscal year.

### Water Demand Study

The Board established a Task Force in 1970 to examine the need for, and the Terms of Reference of, a Water Demand (Use) Study for the Prairie Region. The Task Force completed the assignment and submitted a report to the Board in January 1972. The report concluded that there was a need for knowledge of the entire supply and demand picture. At a meeting of the SNBB Committee of Ministers held shortly after the completion of the report, the proposed Demand Study was discussed, the Ministers agreed that a study should be undertaken, but suggested it be done in two parts, one of historical and present use, and one of forecasting water demands.

Following this, the Board recalled the Task Force and requested a new proposal and cost estimate in accordance with the Minister's instructions. During January 1973, the study outline was reworked by the Task Force and submitted to the Board for their consideration. The Board forwarded the modified study proposal to the Ministers in March 1973 for their review, concurrence, and approval.

Due to financial restraints of several Governments, the implementation was postponed until this fiscal year. Because of the lapse of time since the original study outline and costs were prepared, the Board established a Committee on Water Demand to review the original proposal. This work was completed and submitted to the Board at its May 13, 1976 meeting. As this latest report contained a revised cost estimate, several members requested a postponement of implementation so that they could re-submit the revised costs to their Governments for approval. This approval is expected early in next fiscal year.

#### Westward Flowing Streams

The Board recognized that there are streams which cross interprovincial boundaries in an east to west direction and are therefore not covered by the Apportionment Agreement. At the November 1973 meeting of the Board, the members observed that although no problems have arisen, the situation should be considered in view of the probable time involved to develop a satisfactory solution.

It was realized that the problem was two-fold and involved westward flowing streams which are tributary to streams covered by the Apportionment Agreement as well as westward flowing streams not tributary to eastward flowing streams. The Board asked the Committee on Hydrology, with the aid of the Secretariat, to prepare a report on the number and size of both types of streams, to consider possible apportionment problems, and to speculate on solutions taking into account any relevant precedents.

The subject was discussed at several meetings of the Committee on Hydrology with particular attention given to streams which cross Provincial Boundaries several times along their course. Various methods for apportioning westward flowing watercourses have been reviewed and discussed by the Committee. The Secretariat is presently working on a draft report based on the comments and suggestions of the Committee members.

#### Administration of Apportionment

At the November 5, 1974 meeting of the PPWB, the members discussed some of the problems that may be encountered in the administration of the Apportionment Agreement when water use increases to the point where apportionment is critical. The Committee on Hydrology was asked to draft Terms of Reference for a study which would address itself to these problems.

The Board, at their meeting of June 10, 1975, approved the draft Terms of Reference for a study and agreed that the Committee on Hydrology should be responsible for the study. The Secretariat, in conjunction with the Committee, has prepared a draft outline of the study and started on computations using present uses superimposed on low-flow years, assuming various balancing and deficit periods. This study will continue well into next fiscal year.

#### Natural Flow of Small Interprovincial Basins

At the June 10, 1975 meeting of the Board, the members agreed that a continuing study be done by the Secretariat of natural flow computations of small inter-provincial river basins not dealt with in the Natural Flow Study. A list of these streams, and an order of priority, was prepared by the members.

The Secretariat submitted to each member agency, the top six basins on the priority list with the request they submit a cost estimate and schedule for studies they could undertake on any or all of the basins. In addition the Secretariat prepared an estimate of the work it could undertake and the time involved.

The Board considered these proposals at its October 13, 1976 meeting and agreed that the speed with which the studies are completed will depend upon the availability of Secretariat personnel, the availability of personnel from the participating agencies, and the amount budgeted each year for this work. This work will start next fiscal year.

#### Streamflow Forecasting Study

This study was carried out under contract to the Board by Water Survey of Canada and was under the direction of the Committee on Hydrology. It was to develop procedures to meet streamflow forecasting requirements on interprovincial streams. The Study Group started work in mid 1971.

The study began with the consultation of the member agencies as to the types of forecasts being used, and the types of forecasts required. On the basis of these consultations and discussions, it was established that procedures to perform long range volume or water supply forecasts, as well as real-time flow forecasts were desired. For water supply forecasts, a regression approach was adopted using existing regression relationships or new relationships where it was found that better results could be obtained. Real-time flow forecasts can be separated into two general categories, basin simulation

and flow routing. Basin simulation uses meteorological data to make preliminary estimates of the streamflow at gauging stations in the headwaters. Flow routing requires recorded or simulated upstream discharges which are routed and attenuated to predict discharges at specific downstream points. Computer models were made operational and the model, or combination of models giving the best result for a particular basin, was identified for that basin.

The study group has completed their work and the reports are now in the publishing phase. The Committee on Hydrology has spent a considerable amount of time digesting the reports and preparing its recommendations to the Board for submission early next fiscal year.

The following reports, describing the Streamflow Forecasting Study have been prepared and will be available early in the next fiscal year.

#### PPWB Report No. 44 - Streamflow Forecasting Report Package

- A.1 South Saskatchewan River Basin - Main Report
- A.2 South Saskatchewan River Basin - Combined User Manual
- A.3 South Saskatchewan River Basin - User Manual Water Supply
- A.4 South Saskatchewan River Basin - User Manual Routing
- A.5 South Saskatchewan River Basin - User Manual Basin Simulation
  
- B.1 North Saskatchewan River Basin - Main Report
- B.2 North Saskatchewan River Basin - Combined User Manual
- B.3 North Saskatchewan River Basin - User Manual Water Supply
- B.4 North Saskatchewan River Basin - User Manual Routing
- B.5 North Saskatchewan River Basin - User Manual Basin Simulation
  
- C.1 Saskatchewan River Basin - Main Report
- C.2 Saskatchewan River Basin - Combined User Manual
- C.3 Saskatchewan River Basin - User Manual Water Supply
- C.4 Saskatchewan River Basin - User Manual Routing
  
- D.1 Qu'Appelle River Basin - Main Report
- D.2 Qu'Appelle River Basin - Combined User Manual
- D.3 Qu'Appelle River Basin - User Manual Water Supply
- D.4 Qu'Appelle River Basin - User Manual Routing
- D.5 Qu'Appelle River Basin - User Manual Simulation
  
- E.1 Churchill River Basin - Main Report
- E.2 Churchill River Basin - Combined User Manual
- E.3 Churchill River Basin - User Manual Water Supply
- E.4 Churchill River Basin - User Manual Routing
  
- F.1 Forecast Network Evaluation
  
- G.1 Forecast Centre Investigation
  
- H.1 Computer Program Documentation

## BOARD COMMITTEES

### Committee on Hydrology

The Committee on Hydrology met four times during fiscal 1976-77. The meetings were held on June 3-4, 1976 in Regina, September 20-22, 1976 in Calgary, December 13-14, 1976 in Regina, and February 21-22, 1977 also in Regina.

During the year the Committee continued its review and direction of the Natural Flow and Streamflow Forecasting studies being done for the Board by the Calgary District Office of Water Survey of Canada. Only two reports remain to be completed and finalization of these reports is expected early next fiscal year.

Late last fiscal year the Committee completed its report on the Natural Flow Study entitled "Determination of Natural Flow for Apportionment Purposes." The Board accepted this report on October 13, 1976 and the Committee has been involved since that time implementing the recommendations of the report. This fiscal year the Committee has spent a great deal of time preparing its report to the Board on the Streamflow Forecasting Study. Four drafts of the report have been thoroughly reviewed and the report will be presented to the Board next fiscal year.

During the year the Committee also reviewed material related to the Administration of Apportionment Study. The material described the effects in several dry years of annual, quarterly and monthly apportionment and deficit reconciliation periods. Draft appendices for the reports on Westward Flowing Tributaries and Westward Flowing Streams were also reviewed. These appendices contain information on the derivation of average annual yields for the westward flowing areas. The Committee also discussed the Board's request for information on project operating plans and formulated a response.

Throughout the year the Committee also had the opportunity for informative sessions in conjunction with its meetings. On June 4, 1976 the Committee toured the Qu'Appelle Basin. This tour gave the members an opportunity to view many of the problem areas of the basin which had been discussed many times in connection with natural flow computations. On September 21, 1976 the Committee toured Lake Abraham and Brazeau Reservoir, two projects which have a large influence on North



Saskatchewan River flows. Just prior to this tour, on September 20, the Committee heard a presentation by R. H. Swanson on Forest Management for increased water yields. On May 25-26, 1976 a Seminar for the technical personnel of the participating agencies was held in Calgary to discuss the STANFORD Watershed Simulation Model.

#### Committee on Water Quality

The Committee on Water Quality met three times during the 1976-77 fiscal year. The meetings were held in Winnipeg on May 19/20, 1976, on September 16, 1976 in Regina and on February 8/9, 1977 in Calgary.

During the past year the Committee has devoted most of its time to the Water Quality Objectives Study. As the members are concerned about the philosophy upon which the objectives are based, they have spent considerable time attempting to formulate an alternative water quality management strategy which would more fully meet the needs of the Board than the present objectives. In support of this study the Committee has conducted investigations into the current status of water quality networks, analytical methodology, and methods of storing and retrieving water quality data.

In September 1976 and December 1976 the Secretariat completed water quality reports which summarized all federal water quality data collected at or near the 11 PPWB monitoring stations from January 1960 to December 1975. Publication of the data in these reports has been useful in that it has allowed the Committee to confirm seasonal and flow related trends and establish the range of seasonal variations for many parameters. In addition, these reports have confirmed the Committee's consensus that the new PPWB water quality criteria should be tailor made for each interprovincial stream to reflect the geochemical characteristics of the basin.

In November 1976 the Committee sponsored a meeting of Provincial limnologists in Winnipeg to review the "state of the art" of biological water quality monitoring and discuss the feasibility of developing a standardized approach of storing biological water quality data. The Provincial limnologists recommended that the Committee should conduct biological monitoring at the 11 PPWB monitoring stations as biological water quality data would compliment water quality data being collected. The Committee responded to this recommendation at its February 1977 meeting, by asking the limnologists to formulate a detailed biological monitoring proposal which would meet the needs of the Board. The limnologists also recommended and the Committee concurred that biological water quality data obtained in routine water quality monitoring programs should be stored on NAQUADAT until a more comprehensive system is developed.

Routine monthly monitoring at the PPWB station on the North Saskatchewan River detected trace concentrations of 2,4-D and 2,4,5-T in July, September and October. In November 1976 Inland Waters Directorate and Alberta DOE conducted a special survey which confirmed that trace concentrations of these herbicides were present in the river below Edmonton. In December 1976 Alberta DOE conducted a survey, established the source of these constituents, and initiated remedial action to eliminate the problem. As trace concentrations of 2,4-D have been detected during January and February, the Committee increased the frequency of monitoring for 2,4-D and 2,4,5-T and Alberta DOE initiated a second survey on this reach of the river. Results of this survey will be available in May 1977.

In February 1977 the Committee reviewed an investigation of Federal and Provincial water quality networks operated on the North Saskatchewan and Assiniboine Rivers from 1970 to 1976. The Committee concluded that there is a need to stabilize the locations, frequency of sampling and types of analysis performed if long term water quality data is to be collected in the most efficient manner. They therefore decided that the Committee should conduct a complete review of existing water quality networks and recommend a minimum interprovincial water quality network which would be necessary to document long term water quality trends in interprovincial basins.

#### Committee on Water Demand

At the November 13, 1975 meeting of the Board, the members established a Committee on Water Demand to aid in the development of the study design and to advise the study director throughout the course of the study.

The Committee submitted a study outline, a study schedule, a study budget, and Terms of Reference to the Board at the May 13, 1976 meeting. As the study was not implemented during the year, no further work or meetings were required of this Committee.



# SECRETARIAT

## Accommodation and Staff

The Secretariat is still temporarily located in the Income Tax Building pending a move to permanent space in the renovated Motherwell Building in Regina, Saskatchewan.

There were no changes in the personnel of the Secretariat during this fiscal year.

## Reports

The Secretariat published two reports summarizing water quality data of interest to the Board and Provincial Agencies. In September 1976 a 387 page report was completed which summarized all federal water quality data collected at or near the 11 PPWB monitoring stations before April 1, 1974. In December 1976 the first annual report of water quality data collected at the 11 PPWB monitoring stations from April 1, 1974 to December 31, 1975 was compiled. Because of their size, only a few copies of each were prepared, and two copies of each of these reports were distributed to the member agencies.

## Information

During the year, progress continued on the update of the SNBB hydrometric data files from 1968 to 1973. To date, about 95 per cent of the A, B and C files are complete.

A four page, multi-color brochure describing the duties and functions of the Board was prepared and printed during the year. The brochure was printed in 5,000 copies and distributed to the Board Members and other interested persons.

## Financial

The Secretariat expenditures for this fiscal year were audited by the Audit Services Bureau of the Department of Supply and Services, Canada. The audited expenditures are shown on page 36.

Natural Flow Reports

Water Survey of Canada, Inland Waters Directorate, provided the Board with quarterly reports on the natural flow of the South Saskatchewan River below the junction with the Red Deer River. The natural flows are calculated using the Project Depletion Method, as approved by the Board.

**1976 FLOW DATA**

NATURAL FLOWS, CONSUMPTIVE USE AND STORAGE  
(ACRE-FEET)

FOR THE YEAR 1976

SOUTH SASKATCHEWAN RIVER-ALBERTA-SASKATCHEWAN BOUNDARY

	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTALS
RECORDED DISCHARGE	258,000	228,000	281,000	336,000	780,000	564,000	503,000	742,000	345,000	200,000	150,000	113,000	4,500,000
CONSUMPTIVE USE	0	0	0	13,790	204,333	287,511	289,290	182,615	193,376	110,117	-4,267	320	1,277,085
CHANGE IN RESERVOIRS	-82,600	-82,900	-69,250	-10,650	62,150	100,750	162,500	900	-14,300	-55,800	-44,900	-31,400	-65,500
DIVERSION FROM BASIN	0	0	0	0	11,248	35,897	34,776	30,427	15,477	11,656	2,788	0	142,269
NATURAL FLOW ALTA. BDRY.	194,266	143,799	202,511	338,555	1,009,292	976,336	979,755	994,650	532,542	294,653	157,269	108,459	5,932,087

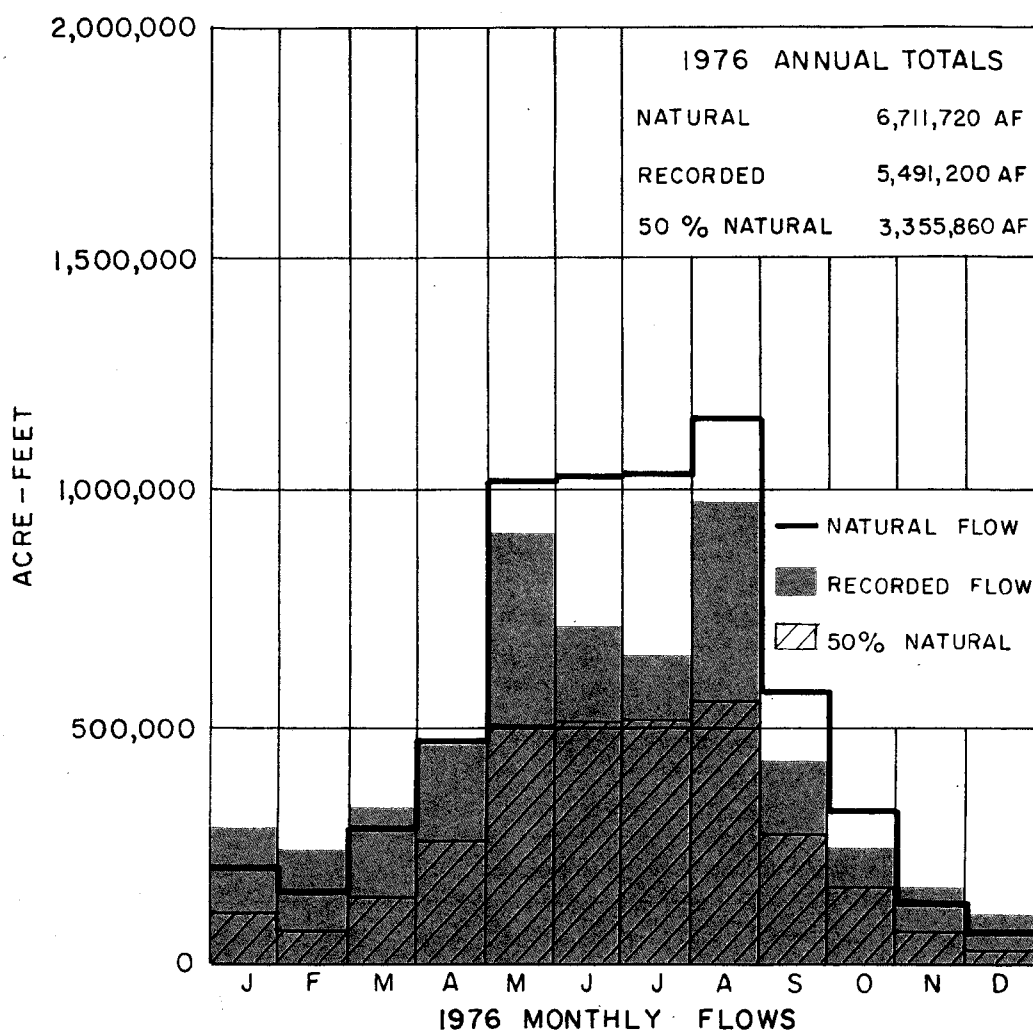
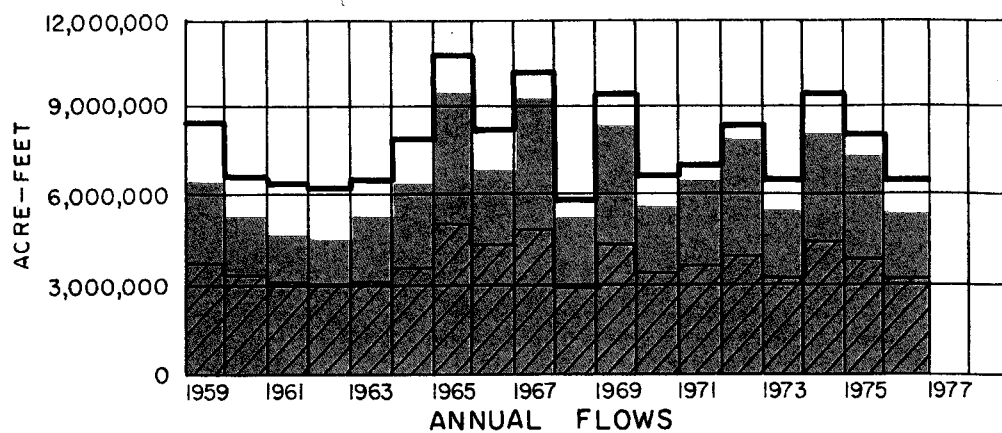
RED DEER RIVER - ALBERTA-SASKATCHEWAN BOUNDARY

	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTALS
RECORDED DISCHARGE	13,500	15,600	68,100	132,000	72,900	136,000	144,000	197,000	102,000	67,400	30,100	12,600	991,200
CONSUMPTIVE USE	0	0	0	0	0	0	0	0	0	0	0	0	0
DIVERSION FROM BASIN	0	0	0	0	-11,248	-35,897	-34,776	-30,427	-15,477	-11,656	-2,788	0	-142,269
NATURAL FLOW ALTA. BDRY	13,500	15,600	68,100	132,000	62,950	101,869	109,365	165,874	85,592	54,232	27,604	12,247	848,933

SOUTH SASKATCHEWAN RIVER - BELOW JUNCTION WITH RED DEER

	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTALS
RECORDED DISCHARGE	271,500	243,600	349,100	468,000	852,900	700,000	647,000	939,000	447,000	267,400	180,100	125,600	5,491,200
NATURAL FLOW	207,766	159,399	270,611	470,555	1,072,242	1,078,205	1,089,120	1,160,524	618,134	348,885	145,473	90,806	6,711,720

QUANTITIES SHOWN IN TABLE HAVE BEEN ROUTED TO ALBERTA BOUNDARY



SOUTH SASKATCHEWAN RIVER NEAR ALBERTA-SASKATCHEWAN BOUNDARY  
 (INCLUDES RED DEER RIVER)



RECORDED DISCHARGE - SUMMARY  
SELECTED INTERPROVINCIAL STREAMS  
(ACRE-FEET)

FOR THE YEAR 1976

JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
BEAVER RIVER - ALBERTA-SASKATCHEWAN BOUNDARY (AT COLD LAKE RESERVE)												
17,200	14,000	13,100	75,800	38,000	37,700	141,000	61,800	56,100	29,000	13,900	8,170	506,000
NORTH SASKATCHEWAN RIVER - ALBERTA-SASKATCHEWAN BOUNDARY (NEAR DEER CREEK)												
237,000	264,000	288,000	467,000	422,000	436,000	418,000	558,000	439,000	358,000	298,000	281,000	4,470,000
BATTLE RIVER - ALBERTA-SASKATCHEWAN BOUNDARY (NEAR UNWIN)												
2,390	1,920	2,190	61,400	20,800	14,100	9,520	3,210	1,940	1,910	1,130	1,940	122,000
CHURCHILL RIVER - SASKATCHEWAN-MANITOBA BOUNDARY (AT SANDY BAY)												
1,850,000	1,640,000	1,720,000	1,590,000	1,330,000	1,450,000	1,980,000	2,360,000	2,520,000	2,620,000	2,030,000	1,930,000	23,000,000
SASKATCHEWAN RIVER - SASKATCHEWAN-MANITOBA BOUNDARY (NEAR MANITOBA BOUNDARY)												
960,000	1,100,000	1,180,000	1,610,000	937,000	699,000	832,000	971,000	979,000	1,000,000	625,000	686,000	11,600,000
CARROT RIVER - SASKATCHEWAN-MANITOBA BOUNDARY (NEAR TURNBERRY)												
2,760	2,540	2,490	85,400	84,400	59,900	69,200	12,400	6,310	6,810	3,770	2,570	339,000
RED DEER RIVER - SASKATCHEWAN-MANITOBA BOUNDARY (NEAR ERWOOD)												
2,790	3,440	2,900	136,000	56,200	132,000	63,100	11,700	2,540	3,440	878	208	415,000
ASSINIBOINE RIVER - SASKATCHEWAN-MANITOBA BOUNDARY (AT KAMSACK)												
941	819	1,900	209,000	57,000	43,200	43,200	6,840	1,020	873	1,460	1,430	368,000
QU'APPELLE RIVER - SASKATCHEWAN-MANITOBA BOUNDARY (NEAR WELBY)												
14,000	12,000	12,900	223,000	153,000	87,900	59,100	36,600	19,000	25,300	20,100	17,900	681,000

**WATER QUALITY MONITORING**

### PPWB Water Quality Monitoring Program

At the request of the Prairie Provinces Water Board, the Water Quality Branch of Environment Canada continued reporting monthly or quarterly data collected at the 11 PPWB monitoring stations for the 78 water quality parameters listed on page 25.

This data has been collected to establish the range of existing parameter concentrations and estimate compliance with the 1973 PPWB Water Quality Objectives for the parameters marked with an asterisk. (\*)

This program started in April 1974 and has been carried out continuously since that time. All data obtained at these 11 stations from April 1, 1974 to December 31, 1976 have been validated, published in the PPWB Annual Water Quality Reports, and distributed to member agencies.

- \* Aldrin
- Alkalinity, phenol.
- Alkalinity, total
- Aluminum, extract.
- N-Alkanes
- Aromatic Hydrocarbons
- \* Arsenic, diss.
- Barban
- \* Barium, extract, (Q)
- BHC - (alpha)
- \* Boron, diss. (Q)
- \* Cadmium, extract. (Q)
- Calcium, diss.
- Carbon, total, inorganic
- Carbon, total, organic
- Chloride, diss.
- Chlorophyll A
- \* Chromium, extract. (Q)
- Coliforms, fecal
- Coliforms, total
- \* Color, apparent
- \* Copper, extract. (Q)
- \* Cyanide, total
- \* P,P-DDT
- \* P,P-DDD
- \* P,P-DDE
- \* Dieldrin
- Endosulfan-alpha
- Endosulfan-beta
- \* Endrin (Q)
- \* Fluoride, diss.
- Hardness, total, CaCO<sub>3</sub>
- \* Heptachlor
- \* Heptachlor, epoxide
- \* Iron, extract.
- \* Lead, extract. (Q)
- Gamma-BHC
- Magnesium, diss.
- \* Manganese, extract.
- \* MBAS Surfactants
- MCPA
- \* Mercury, extract.
- P,P-methoxychlor (Q)
- NTA
- Nitrogen, TKN
- Nitrogen, diss, NO<sub>3</sub>+NO<sub>2</sub>
- \* Nitrogen, total
- \* Odour, TON
- \* Oil and Grease
- \* Oxygen, demand, BOD
- \* Oxygen, diss, DO
- PCB, Arochlor 1248
- PCB, Arochlor 1254
- PCB, Arochlor 1260
- \* Ph
- \* Phenolics
- \* Phosphorous, total
- Potassium, diss.
- \* Radioactivity Gross Beta
- \* Radium 226
- \* Residue, nonfilterable
- Residue, fixed, nonfilterable
- \* Selenium, diss. (Q)
- Silica, reactive
- \* Silver, extract. (Q)
- \* Sodium, diss.
- Specific Conductance
- \* Strontium
- Sulphate, diss.
- \* Temperature
- Tordon, (Picloram) (Q)
- \* Turbidity
- Trifluralin
- Vanadium, extract.
- \* Zinc, extract. (Q)
- 2,4-D
- 2,4-DB
- 2,4-DP
- 2,4,5-T

(Q) - quarterly sampling

\* Objectives exist



**APPENDIX**



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## PPWB MEMBERS

Chairman	Dr. J. S. Tener	Assistant Deputy Minister Environmental Management Service Environment Canada
	Mr. W. B. Thomson <small>(retired December 31, 1976)</small>	Director Prairie Farm Rehabilitation Administration Department of Regional Economic Expansion
	Mr. R. E. Bailey	Special Projects Director Department of the Environment Province of Alberta
	Mr. S. R. Blackwell	Chief, Water Management Service Department of the Environment Province of Saskatchewan
	Mr. T. E. Weber	Senior Assistant Deputy Minister Manitoba Department of Mines, Resources and Environmental Management
Secretary	Mr. R. J. Wettlaufer	Operations Engineer PPWB Secretariat

## ALTERNATE MEMBERS

Mr. E. F. Durrant	Regional Director, Western & Northern Region Inland Waters Directorate Environmental Management Service Environment Canada
Mr. W. M. Berry	Chief Engineer Prairie Farm Rehabilitation Administration Department of Regional Economic Expansion
Mr. P. G. Melnychuk	Assistant Deputy Minister Environmental Engineering Support Services Alberta Department of the Environment
Mr. D. L. MacLeod	Director, Hydrology Branch Water Management Service Saskatchewan Department of the Environment
Mr. N. Mudry	Director of Planning Water Resources Branch Manitoba Department of Mines, Resources and Environmental Management

# COMMITTEE ON HYDROLOGY

## Terms of Reference

At the request of, and under the direction of the PPWB, the Committee on Hydrology shall investigate, oversee, review, report and recommend on matters pertaining to hydrology of interprovincial or interjurisdictional basins.

The Committee may consider such things as natural flow; forecasting; network design; collection, processing and transmission of data; basin studies and other items of interprovincial interest involving hydrology.

## Members

D. J. Berry Chairman	Executive Director Prairie Provinces Water Board Secretariat
D. A. Davis	Water Survey of Canada Environment Canada
R. B. Godwin	Prairie Farm Rehabilitation Administration Department of Regional Economic Expansion
G. H. MacKay	Water Resources Branch Manitoba Department of Mines, Resources and Environmental Management
D. L. MacLeod	Hydrology Branch Saskatchewan Department of the Environment
R. K. Deeprose	Technical Services Division Alberta Department of the Environment
H. F. Cork	Atmospheric Environment Service Environment Canada
<hr/>	
R. J. Wettlaufer Secretary	Operations Engineer PPWB Secretariat

# COMMITTEE ON WATER QUALITY

## Terms of Reference

At the request of, and under the direction of the Prairie Provinces Water Board, the Committee on Water Quality shall investigate, oversee, review, report and recommend on matters pertaining to water quality of interprovincial and interjurisdictional basins.

Carrying out the above responsibilities may include such things as natural quality assessment; quality forecasting; network design; processing and dissemination of data; determination of implications of proposed projects that may significantly alter the water quality of interprovincial streams; consideration of special problems; establishment of procedures for emergency situations; and other items of interprovincial interest involving water quality.

## Members

~~R B G~~  
~~D. J. Berry~~  
Chairman

Executive Director  
Prairie Provinces Water Board Secretariat

K. W. Reid

Water Quality Branch  
Environment Canada

~~P. Lawson~~  
~~R. B. Godwin~~

Prairie Farm Rehabilitation Administration  
Department of Regional Economic Expansion

J. N. Warrener

Environmental Protection Branch  
Manitoba Department of Mines, Resources  
and Environmental Management

R. A. McDonald

Water Pollution Control Branch  
Saskatchewan Department of the Environment

P. G. Shewchuk

Standards and Approvals Division  
Alberta Department of the Environment

E. W. Allison  
Secretary

Water Quality Analyst  
PPWB Secretariat

## COMMITTEE ON INTERJURISDICTIONAL AGREEMENTS ADMINISTRATION

It was agreed that a committee consisting of the Executive Director, one member from Saskatchewan, one member from Alberta, and Mr. E. F. Durrant be struck to handle the problem of developing a methodology for the efficient administration of interjurisdictional agreements, particularly as regards Battle and Lodge Creek Basins.

(8-35: March 20, 1973)

### Members

D. J. Berry Chairman	Executive Director Prairie Provinces Water Board Secretariat
E. F. Durrant	Environmental Management Service Environment Canada
E. L. Jones	Water Rights Branch Saskatchewan Department of the Environment
B. Boyson	Water Resources Division Alberta Department of the Environment
<hr/>	
R. J. Wettlaufer Secretary	Operations Engineer PPWB Secretariat

# COMMITTEE ON WATER DEMAND

## Terms of Reference

The Committee on Water Demand shall be composed of one member representing each of the Provinces of Alberta, Saskatchewan and Manitoba, two members representing Canada, and the Executive Director of the Prairie Provinces Water Board who shall be Chairman. The Committee shall function during the life of the Water Demand Study in the Saskatchewan-Nelson Basin and shall have the responsibility of providing technical guidance and financial management for the Water Demand Study on behalf of the Board.

The Water Demand Study shall be divided into two parts. Part One shall be done under the auspices of the Prairie Provinces Water Board and consist of a study of water demand based on current needs and historical uses in accordance with the Terms of Reference for Part One. Part Two may be done at a later date and would provide estimates of future water demands.

The Committee shall: prepare draft Terms of Reference for Part One of the Water Demand Study for consideration of the Board; develop detailed study outlines for each study sector and make recommendations to the Board thereon; be responsible upon receiving Board approval to proceed with Part One, for hiring a study director, preparing his Terms of Reference and directing his work; ensure a final report for Part One is prepared in accordance with a format and time schedule to be established by the Board; upon completion of Part One, recommend Terms of Reference for Part Two to the Board.

Throughout Part One of the study the Committee shall: monitor and oversee the technical and financial aspects of the study as directed by the Board; ensure that there is no duplication of studies; report regularly to the Board on the progress of the study.

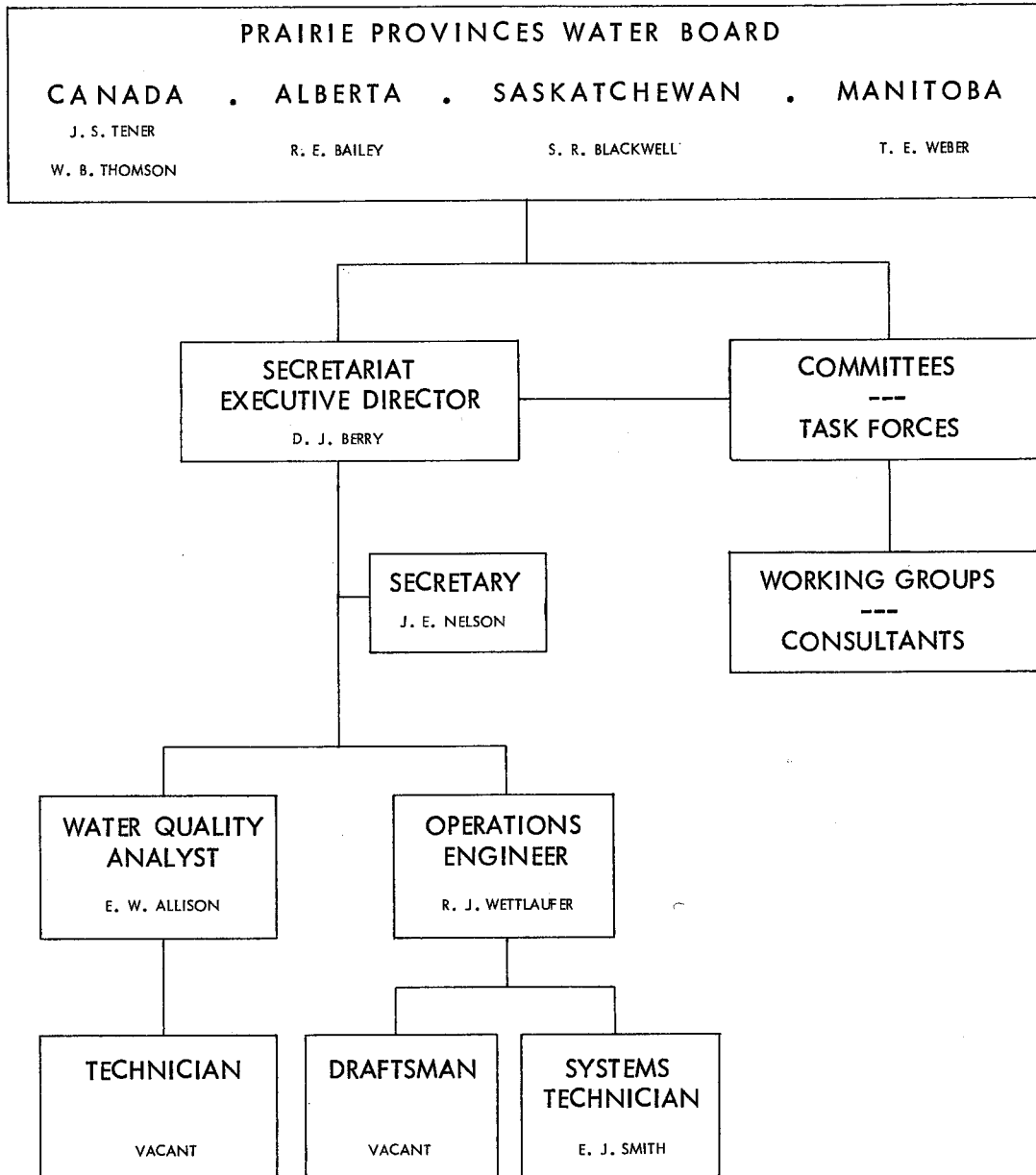
## Members

D. J. Berry Chairman	Executive Director Prairie Provinces Water Board Secretariat
E. Caligiuri	Prairie Farm Rehabilitation Administration Department of Regional Economic Expansion
V. M. Austford	Water Resources Branch Manitoba Department of Mines, Resources and Environmental Management
R. L. Kellow	Policy, Planning and Research Branch Saskatchewan Department of the Environment
T. V. Mussivand	Planning Division Alberta Department of the Environment
<hr/>	
E. W. Allison Secretary	Water Quality Analyst PPWB Secretariat

# STATEMENT OF EXPENDITURES

	<u>1974-75</u>	<u>1975-76</u>	<u>1976-77</u>
Natural Flow and Forecasting Study	\$111,180.22	\$ 20,000.00	\$ 0
Natural Flow Reporting	2,900.00	5,300.00	5,300.00
Personnel	73,584.77	87,992.74	98,638.80
Transportation and Communication	4,179.74	5,889.42	6,935.77
Removal Expenses	2,181.31	0	0
Information, Printing	1,720.70	3,069.81	3,920.90
Admin, and Audit Services	1,512.14	1,465.22	1,795.36
Office Rental	6,155.08	10,974.48	10,848.14
Computer Rental	4,695.04	6,861.24	9,584.85
Materials and Supplies	687.50	1,193.95	1,104.58
Acquisition, Machinery and Equipment	736.05	859.29	1,234.90
Maintenance, Office Machines	0	180.47	0
Miscellaneous	14.23	18.58	18.00
	<u>\$209,546.78</u>	<u>\$143,805.20</u>	<u>\$139,381.30</u>
	(audited)	(audited)	(audited)
 <u>Shares -</u>			
Canada	\$104,773.40	\$ 71,902.60	\$ 69,690.65
Province of Alberta	34,924.46	23,967.53	23,230.22
Province of Manitoba	34,924.46	23,967.53	23,230.22
Province of Saskatchewan	34,924.46	23,967.53	23,230.22
 <u>Previous Board Expenditures</u>			
Fiscal 1970-1971	\$ 0		
Fiscal 1971-1972	105,174.12		
Fiscal 1972-1973	136,816.45		
Fiscal 1973-1974	158,273.82		





ORGANIZATION CHART  
MARCH 1977



**MASTER AGREEMENT  
ON APPORTIONMENT**

MASTER AGREEMENT ON APPORTIONMENT

THIS AGREEMENT is made in quadruplicate this THIRTIETH day of OCTOBER, 1969, A.D.

BETWEEN:

HER Majesty, the Queen, in right of Canada, represented herein by the Minister of Energy, Mines and Resources

(Hereinafter called "Canada")

- and -

HER Majesty, the Queen, in right of Alberta, represented herein by the Minister in charge of Water Resources for Alberta

(Hereinafter called "Alberta")

- and -

HER Majesty, the Queen, in right of Saskatchewan, represented herein by the Minister in charge of The Water Resources Commission Act of the said Province

(Hereinafter called "Saskatchewan")

- and -

HER Majesty, the Queen, in right of Manitoba, represented herein by the Minister in charge of The Water Control and Conservation Branch Act of the said Province

(Hereinafter called "Manitoba")

WHEREAS under natural conditions the waters of the watercourses hereinafter referred to arising in or flowing through the Province of Alberta would flow into the Province of Saskatchewan and under the said conditions the waters of some of the said watercourses arising in or flowing through the Province of Saskatchewan would flow into the Province of Manitoba;

AND WHEREAS the Governor-in-Council has authorized Canada to enter into this agreement by Order-in-Council P.C. 1969-8/2051 dated October 29, 1969, and the Lieutenant Governors-in-Council for Alberta, Manitoba and Saskatchewan, respectively, have authorized them to enter into this agreement by the following Orders-in-Council:

Alberta - O.C. 2053/69  
Manitoba - O.C. 1359/69  
Saskatchewan - O.C. 1612/69

AND WHEREAS the parties hereto deem it to be in their mutual interest that an agreement be reached among the four parties as to the apportionment as described in the schedules attached hereto of such interprovincial waters among the three Provinces;

AND WHEREAS Alberta and Saskatchewan have entered into an agreement, which agreement is attached to this agreement as Schedule A, that permits the Province of Alberta to make a net depletion of one-half the natural flow of water arising in or flowing through the Province of Alberta and that permits the remaining one-half of the natural flow of each such watercourse to flow into the Province of Saskatchewan, subject to certain prior rights as are set forth in the said agreement;

AND WHEREAS Saskatchewan and Manitoba have entered into an agreement, which agreement is attached to this agreement as Schedule B, that permits the Province of Saskatchewan to make a net depletion of one-half the natural flow of water arising in, and one-half of the water flowing into the Province of Saskatchewan, and that permits the remaining one-half of the flow of each such watercourse to flow into the Province of Manitoba, subject to such conditions and agreements as therein contained;

AND WHEREAS the parties are desirous that the Prairie Provinces Water Board (referred to herein as the Board), reconstituted by this agreement will be responsible for the administration of this agreement;

AND WHEREAS the parties hereto recognize the continuing need for consultation and co-operation as between themselves with respect to the matters herein referred to so that the interests of all the parties are best served;

NOW THEREFORE, THIS AGREEMENT (hereinafter known as the Master Agreement) witnesseth that each party agrees as follows:

#### Interprovincial Agreements

1. Alberta and Saskatchewan agree that the agreement between them (hereinafter called the First Agreement), a copy of which is set out in Schedule A to the Master Agreement, will become binding upon them upon the date that the Master Agreement is executed.
2. Saskatchewan and Manitoba agree that the agreement between them (hereinafter called the Second Agreement), a copy of which is set out in Schedule B to the Master Agreement, will become binding upon them upon the date that the Master Agreement is executed.
3. The parties agree to the apportionment of water between Alberta and Saskatchewan and Manitoba as provided in the First and Second Agreements and each party agrees to be bound by the said agreements as they relate to apportionment as if it were a party thereto.
4. The parties agree that the First or Second Agreement, or both, may be altered by an agreement in writing among the four parties to the Master Agreement, but not otherwise.
5. The parties agree that the First and Second Agreements will continue in force and effect until cancelled by an agreement in writing among the four parties to the Master Agreement.

#### Water Quality

6. The parties mutually agree to consider water quality problems; to refer such problems to the Board; and to consider recommendations of the Board thereon.

#### Monitoring

7. The parties agree that the monitoring of the quantity and quality of waters as specified in the First and Second Agreements, the collection, compilation and publication of water quantity and quality data required for the implementation and maintenance of the provisions of this agreement shall be conducted by Canada, subject to provision of funds being voted by the Parliament of Canada.

#### Administration

8. The parties agree, subject to Clause 9 of this agreement that if at any time, any dispute, difference or question arises between the parties with respect to this agreement or the construction, meaning and effect thereof, or anything therein, or the rights and liabilities of the parties thereunder or otherwise in respect thereto, then every such dispute, difference or question will be referred for determination to the Exchequer Court under the provisions of the Exchequer Court Act of Canada and each of the parties hereto agrees to maintain or enact the necessary legislation to provide the Exchequer Court with jurisdiction to determine any such dispute, difference, or question in the manner provided under the Exchequer Court Act.
9. The parties also agree that the Board, with the consent of the parties in dispute, may cause to be prepared, a factual report of the dispute for consideration by the parties hereto prior to the referral of the dispute to the Exchequer Court.
10. The parties agree that the Prairie Provinces Water Board shall monitor and report on the apportionment of waters as set out in the provisions of the First and Second Agreements and ratified by this Master Agreement.
11. The parties agree to revoke the agreement dated July 28, 1948, establishing the Prairie Provinces Water Board and to reconstitute the

Prairie Provinces Water Board in the form of Schedule C hereto and the said Schedule shall form and become part of this Master Agreement.

12. Because the Orders-in-Council referred to in Schedule D hereto will become redundant upon the execution of this Master Agreement, the parties agree to take steps to have them revoked.

13. The parties agree for the future application of the provisions of the Master Agreement (and the First and Second Agreements thereunder), to work together and to cooperate to the fullest extent each with the other for the integrated development and use of water and related resources to support economic growth according to selected social goals and priorities and to participate in the formulation and implementation of comprehensive planning and development programs according to their national, regional and provincial interest and importance.

14. No Member of the Parliament of Canada or Member of the Legislative Assemblies of the Provinces party to this agreement shall hold, enjoy, or be admitted to any share or part of any contract, agreement, commission or benefit arising out of this agreement.

IN WITNESS WHEREOF Canada has caused its presents to be executed by its Minister of Energy, Mines and Resources, and Alberta has caused its presents to be executed by its Minister in charge of Water Resources, and Saskatchewan has caused its presents to be executed by its Minister in charge of The Water Resources Commission Act, and Manitoba has caused its presents to be executed by its Minister in charge of The Water Control and Conservation Branch Act on the day and year first mentioned above.

"A. Davidson"

Witness to the signature of the Minister  
(Energy, Mines and Resources) for Canada

"J. J. Greene"

Minister (Energy, Mines and Resources) for  
Canada

October 30, 1969

Date

"R. E. Bailey"

Witness to the signature of the Minister in  
charge of Water Resources for Alberta

"Henry A. Ruste"

Minister in charge of Water Resources for  
Alberta

October 30, 1969

Date

"Harold W. Pope"

Witness to the signature of the Minister in  
charge of The Water Resources Commission  
Act for Saskatchewan

"Allan R. Guy"

Minister in charge of The Water Resources  
Commission Act for Saskatchewan

October 30, 1969

Date

"Thomas E. Weber"

Witness to the signature of the Minister in  
charge of The Water Control and Conserva-  
tion Branch Act for Manitoba

"Lenard S. Evans"

Minister in charge of The Water Control  
and Conservation Branch Act for Manitoba

October 30, 1969

Date

SCHEDULE A

THIS AGREEMENT is made in quadruplicate this THIRTIETH day of OCTOBER, 1969, A.D.

BETWEEN:

HER Majesty, the Queen, in right of Alberta, represented herein by the Minister in charge of Water Resources for Alberta

(Hereinafter called "Alberta")

- and -

HER Majesty, the Queen, in right of Saskatchewan, represented herein by the Minister in charge of The Water Resources Commission Act of the said Province

(Hereinafter called "Saskatchewan")

WHEREAS under natural conditions the waters of the watercourses hereinafter referred to arising in or flowing through the Province of Alberta would flow into the Province of Saskatchewan and under the said conditions the waters of some of the said watercourses arising in or flowing through the Province of Saskatchewan would flow into the Province of Manitoba;

AND WHEREAS the parties hereto deem it to be in their mutual interest and in the interest of Manitoba that an agreement in principle be reached among the said three Provinces as to the apportionment of such interprovincial waters among them;

AND WHEREAS the parties hereto are of the opinion that an equitable apportionment of such waters as between the adjoining Provinces of Alberta and Saskatchewan would be to permit the Province of Alberta to make a net depletion of one-half the natural flow of water arising in or flowing through the Province of Alberta and to permit the remaining one-half of the natural flow of water of each such watercourse to flow into the Province of Saskatchewan, subject to certain

prior rights as are hereinafter set forth or may hereafter be mutually agreed upon in writing;

AND WHEREAS on the basis of the foregoing apportionment as between the Provinces of Alberta and Saskatchewan the parties hereto are of the opinion ~~that in a similar manner,~~ an equitable apportionment of the remainder of the natural flow of the said watercourses that flow into the Province of Manitoba after permitting the Province of Alberta to make its depletion of one-half thereof would be to permit the Province of Saskatchewan to make a net depletion of one-half of the said remainder and to permit the other one-half thereof to flow into the Province of Manitoba; ~~and that the natural flow of any tributaries to the said watercourses which tributaries join, the said watercourses in the Province of Saskatchewan without arising in or first flowing through the Province of Alberta could be apportioned one-half to the Province of Saskatchewan and one-half to the Province of Manitoba in a manner similar to the apportionment of waters as between the Provinces of Alberta and Saskatchewan, in all cases subject to such prior rights as may be mutually acknowledged by the said Provinces of Manitoba and Saskatchewan;~~

AND WHEREAS the parties hereto recognize the continuing need for consultation and cooperation as between themselves and with Manitoba with respect to the matters herein referred to so that the best and most beneficial use of the said waters may be made and the interests of all said provinces best served:

NOW THIS AGREEMENT witnesseth as follows:

1. IN THIS AGREEMENT:

- (a) "Natural flow" means the quantity of water which would naturally flow in any watercourse had the flow not been affected by human interference or human intervention, excluding any water which is part of the natural flow in Alberta but is not available for the use of Alberta because of the provisions of any international treaty which is binding on Alberta.

- (b) "Watercourse" means any river, stream, creek, or other natural channel which from time to time carries a flowing body of water from the Province of Alberta to the Province of Saskatchewan and includes all tributaries of each such river, stream, creek or natural channel which do not themselves cross the common boundary between the Provinces of Alberta and Saskatchewan. Such tributaries as do themselves cross the said common boundary between the Provinces of Alberta and Saskatchewan shall be deemed to be "watercourses" for the purpose of this agreement.
2. (a) The parties hereto shall mutually establish a method by which to determine the natural flow of each watercourse flowing across their said common boundary.
- (b) For the purpose of this agreement, the said natural flow shall be determined at a point as near as reasonably may be to their said common boundary.
- (c) Notwithstanding sub-paragraph (b) the point at which the natural flow of the watercourses known as the South Saskatchewan and Red Deer Rivers is to be determined may be, at the option of Alberta, a point at or as near as reasonably may be below the confluence of the said two rivers.
3. Alberta shall permit a quantity of water equal to one-half the natural flow of each watercourse to flow into the Province of Saskatchewan, and the actual flow shall be adjusted from time to time on an equitable basis during each calendar year, but this shall not restrict or prohibit Alberta from diverting or consuming any quantity of water from any watercourse provided that Alberta diverts water to which it is entitled of comparable quality from other streams or rivers into such watercourse to meet its commitments to Saskatchewan with respect to each watercourse.
4. Notwithstanding paragraph 3 hereof, the following special provisions shall apply as between the parties hereto with respect to the watercourse known as the South Saskatchewan River.
- (a) Alberta shall be entitled in each year to consume, or to divert or store for its consumptive use a minimum of 2,100,000 acre-feet net depletion out of the flow of the watercourse known as the South Saskatchewan River even though its share for the said year, as calculated under paragraph 3 hereof, would be less than 2,100,000 acre-feet net depletion, provided however Alberta shall not be entitled to so consume or divert, or store for its consumptive use, more than one-half the natural flow of the said South Saskatchewan watercourse if the effect thereof at any time would be to reduce the actual flow of the said watercourse at the common boundary of the said Provinces of Saskatchewan and Alberta to less than 1,500 cubic feet per second.
- (b) The consumption or diversion by Alberta provided for under the preceding sub-paragraph shall be made equitably during each year, depending on the actual flow of water in the said watercourse and the requirements of each Province, from time to time.
5. The parties hereto shall work together and co-operate to the fullest extent, each with the other, for the most effective, economical and beneficial use of waters flowing from the Province of Alberta into the Province of Saskatchewan, including the construction and operation of approved projects of mutual advantage to our Provinces on a cost-share basis proportionate to the benefits derived therefrom by each Province, (the approval of which projects shall not be unreasonably withheld by either of the parties hereto) and shall enter into such other arrangements, agreements or accords with each other, and with the Governments of Canada and other Provinces to best achieve the principles herein agreed upon.



6. This agreement shall not adversely affect any right to water in Battle or Lodge Creeks which has been given by the Government of Canada prior to the transfer of the natural resources to the Provinces and is still subsisting, or any right to such water given by either Province heretofore which has been recognized and approved by both Provinces.
7. If at any time any dispute, difference or question shall arise between the parties or their representatives touching this agreement or the construction, meaning and effect thereof, or anything therein, or the rights or liabilities, of the parties or their representatives thereunder or otherwise in respect thereto then every such dispute, difference or question shall be referred for determination to the Exchequer Court under the provisions of The Exchequer Court Act of Canada, and each of the parties hereto agrees to enact the necessary legislation to provide the Exchequer Court with jurisdiction to determine any such dispute, difference or question in the manner provided under Section 30 of The Exchequer Court Act.
8. This agreement shall become effective upon the execution of an agreement by Canada, Alberta, Manitoba and Saskatchewan relative to the apportionment of waters referred to in this agreement.

IN WITNESS WHEREOF Alberta has caused these presents to be executed on its behalf by its Minister in charge of Water Resources, and Saskatchewan has caused these presents to be executed by its Minister in charge of The Water Resources Commission Act, both on the day and year first above mentioned.

"R. E. Bailey"

---

Witness to the signature of the Minister  
in charge of Water Resources for Alberta

"Henry A. Ruste"

---

Minister in charge of Water Resources  
for Alberta

"Harold W. Pope"

---

Witness to the signature of the Minister  
in charge of The Water Resources Com-  
mission Act

"Allan R. Guy"

---

Minister in charge of The Water Re-  
sources Commission Act

SCHEDULE B

THIS AGREEMENT is made in quadruplicate this THIRTIETH day of OCTOBER, 1969, A.D.

BETWEEN:

HER Majesty, the Queen, in right of Saskatchewan, represented herein by the Minister in charge of The Water Resources Commission Act of the said Province

(Hereinafter called "Saskatchewan")

- and -

HER Majesty, the Queen, in right of Manitoba, represented herein by the Minister in charge of The Water Control and Conservation Branch Act of the said Province

(Hereinafter called "Manitoba")

WHEREAS under natural conditions the waters of the watercourses hereinafter referred to arising in or flowing through the Province of Saskatchewan would flow into the Province of Manitoba;

AND WHEREAS the parties hereto deem it to be in their mutual interest and in the interest of Alberta that an agreement in principle be reached among the said three Provinces as to the apportionment of interprovincial waters among them;

AND WHEREAS the parties hereto are of the opinion that an equitable apportionment of such waters as between the adjoining Provinces of Saskatchewan and Manitoba would be to permit the Province of Saskatchewan to make a net depletion of one-half the natural flow of water arising in, and one-half the flow of water flowing into, the Province of Saskatchewan, and to permit the remaining one-half of the flow of water of each such watercourse to flow into the Province of Manitoba, subject to certain rights as may hereafter be mutually agreed upon in writing;

AND WHEREAS on the basis of the foregoing apportionment as between the Provinces of Saskatchewan and Manitoba, the parties hereto are of the opinion that in a similar manner, an equitable apportionment of the natural flow of the said watercourses arising in or flowing through the Province of Alberta would be to permit the Province of Alberta to make a net depletion of one-half thereof, subject to such prior rights as may be mutually acknowledged by the said Provinces of Alberta, Saskatchewan and Manitoba;

AND WHEREAS the parties hereto recognize the continuing need for consultation and co-operation as between themselves and with Alberta with respect to the matters herein referred to so that the interests of all said Provinces are best served;

NOW THIS AGREEMENT witnesseth as follows:

1. IN THIS AGREEMENT:

- (a) "Natural flow" means the quantity of water which would naturally flow in any watercourse had the flow not been affected by human interference or human intervention.
- (b) "Watercourse" means any river, stream, creek, or other natural channel which from time to time carries a flowing body of water from the Province of Saskatchewan to the Province of Manitoba and includes all tributaries of each such river, stream, creek or natural channel which do not themselves cross the common boundary between the Provinces of Saskatchewan and Manitoba. Such tributaries as do themselves cross the said common boundary between the Provinces of Saskatchewan and Manitoba shall be deemed to be "watercourses" for the purpose of this agreement.

2. (a) The parties hereto shall mutually establish a method by which to determine the natural flow of each watercourse flowing across their said common boundary.
- (b) For the purpose of this agreement, the said natural flow shall be determined at a point as near as reasonably may be to their said common boundary.
3. Saskatchewan shall permit in each watercourse the following quantity of water to flow into Manitoba during the period from April 1 of each year to March 31 of the year following: A quantity of water equal to the natural flow for that period determined at the point referred to in paragraph 2(b) hereof, less
  - (a) one-half the water flowing into Saskatchewan in that watercourse from Alberta, and
  - (b) any water which would form part of the natural flow in that watercourse but does not flow into Saskatchewan because of the implementation of any provision of any subsisting water apportionment agreement made between Alberta and Saskatchewan and approved by Manitoba, and
  - (c) one-half the natural flow arising in Saskatchewan.

The actual flow shall be adjusted from time to time by mutual agreement on an equitable basis during such period but this shall not restrict or prohibit Saskatchewan from diverting, storing or consuming any quantity of water from any watercourse provided that Saskatchewan diverts water to which it is entitled of comparable quality from other streams or rivers into such watercourse to meet its commitments to Manitoba with respect to each watercourse.
4. Saskatchewan shall be entitled during such period to consume or to divert or store for its consumptive use the water it is not required to permit to flow into Manitoba in each watercourse under paragraph 3 hereof, but such consumption or diversion shall be made equitably depending on the actual flow of water in each watercourse and the requirements of each Province from time to time, but Saskatchewan shall permit sufficient water to flow into Manitoba to meet its commitments during such period under paragraph 3 hereof.
5. The parties hereto shall work together and co-operate to the fullest extent, each with the other, for the use of waters flowing from the Province of Saskatchewan into the Province of Manitoba, including the construction and operation of approved projects of mutual advantage to the said Provinces on a cost-share basis proportionate to the benefits derived therefrom by each Province (the approval of which projects shall not be unreasonably withheld by either of the parties hereto) and shall enter into such other arrangements, agreements or accords with each other, and with the Governments of Canada and other Provinces to best achieve the principles herein agreed upon.
6. If at any time any dispute, difference or question shall arise between the parties or their representatives touching this agreement or the construction, meaning and effect thereof, or anything therein, or the rights or liabilities of the parties or their representatives thereunder or otherwise in respect thereto then every such dispute, difference or question shall be referred for determination to the Exchequer Court under the provisions of The Exchequer Court Act of Canada, and each of the parties hereto agrees to maintain or enact the necessary legislation to provide the Exchequer Court with jurisdiction to determine any such dispute, difference or question in the manner provided under The Exchequer Court Act.

7. This agreement shall become effective upon the execution of an agreement by Canada, Alberta, Manitoba and Saskatchewan relative to the apportionment of waters referred to in this agreement.

IN WITNESS WHEREOF Saskatchewan has caused these presents to be executed by its Minister in charge of The Water Resources Commission Act, and Manitoba has caused these presents to be executed by its Minister in charge of The Water Control and Conservation Branch Act on the day and year first above mentioned.

"Harold W. Pope"

Witness to the signature of the Minister in charge of The Water Resources Commission Act

"Allan R. Guy"

Minister in charge of The Water Resources Commission Act

"Thomas E. Weber"

Witness to the signature of the Minister in charge of The Water Control and Conservation Branch Act

"Leonard S. Evans"

Minister in charge of The Water Control and Conservation Branch Act.

SCHEDULE C

## PRAIRIE PROVINCES WATER BOARD AGREEMENT

THIS AGREEMENT made this THIRTIETH day of OCTOBER, 1969, A.D.

BETWEEN:

THE GOVERNMENT OF CANADA,  
hereinafter called "Canada"

- and -

THE GOVERNMENT OF MANITOBA,  
hereinafter called "Manitoba"

- and -

THE GOVERNMENT OF SASKATCHEWAN,  
hereinafter called "Saskatchewan"

- and -

THE GOVERNMENT OF ALBERTA,  
hereinafter called "Alberta"

1. Manitoba, Saskatchewan, Alberta and Canada agree to establish and there is hereby established a Board to be known as the Prairie Provinces Water Board to consist of five members to be appointed as follows:

- (a) two members to be appointed by the Governor General in Council, one of whom shall be Chairman of the Board, on the recommendation of the Minister of Energy, Mines and Resources,
- (b) one member to be appointed by the Lieutenant Governor in Council of each of the Provinces of Manitoba, Saskatchewan and Alberta.

2. Functions

The Board shall oversee and report on the Master Agreement (including the First and

Second Agreements thereunder) executed by Canada, Alberta, Manitoba and Saskatchewan for the apportionment of waters flowing from one Province into another Province; shall take under consideration, comprehensive planning, water quality management and other questions pertaining to water resource management referred to it by the parties hereto; shall recommend appropriate action to investigate such matters and shall submit recommendations for their resolution to the parties hereto.

3. Composition of Board

The members of the Board shall be chosen from those engaged in the administration of water resources or related duties for Manitoba, Saskatchewan, Alberta or Canada, as the case may be, and shall serve as members of the Board in addition to their other duties.

4. Duties of the Board

In accordance with its functions, the duties of the Board shall be as follows:

- (a) to review, collate, and analyze stream-flow data and prepare reports and recommendations on the apportionment of water,
- (b) to review water quality problems, particularly such problems located at the interprovincial boundaries, and to recommend to the parties hereto, appropriate management approaches for their resolution including the establishment of new institutional arrangements,
- (c) to develop recommendations on other water matters, in addition to problems on water quality, referred to the Board by any party hereto including the review and analysis of existing information and the requesting of additional studies and assistance by appropriate governmental agencies to provide information for formulating its recommendations,

- (d) to promote through consultation and the exchange of information the integrated development of water resources of inter-provincial streams,
- (e) to cause to be prepared with the consent of the parties involved factual reports on disputes arising out of the water apportionment for consideration by the parties hereto,
- (f) to ensure the co-ordination of such technical programs as water quantity and quality monitoring and streamflow forecasting required for the effective apportionment of water.

5. Confirmation of the Board's Recommendations

A recommendation of the Board with respect to any matters referred to it under Section 2 shall, subject to the Master Agreement for the apportionment of water, become effective when adopted by Orders-in-Council passed by Canada and each of the Provinces.

6. Authority of Board

The Board shall have authority to correspond with all Governmental organizations and other sources of information in Canada or abroad concerned with the administration of water resources, and such other authority as may be conferred on the Board from time to time by agreement between the parties hereto; all agencies of the four governments having to do with the water and associated resources in the area covered by the Agreement shall be required to supply the Board with all data in their possession requested by the Board.

7. Records

The records relating to the water resources of the three provinces collected and compiled by the P.F.R.A. organization at Regina shall be made available to the Board.

8. Meetings of the Board

The Board shall meet at the call of the Chairman and meetings shall be called at least twice annually; the expenses of the members shall be borne by their respective governments.

9. Reports

The Board shall submit an annual progress report outlining work done and work contemplated in the agreed program to each of the responsible Ministers of the parties hereto and such other reports as may be requested by any one of such Ministers.

10. Operation of the Board

The Secretary for the Board and such other technical and clerical staff as may be required, with a headquarters at Regina, shall be Federal or Provincial public servants. The cost of administration, excluding the cost of monitoring as described in Section 7 of the Master Agreement, but including staff, accommodation, supplies and incidental expenses of the Board, shall be borne by the parties hereto on the basis of one-half by Canada and one-sixth by each of the Provinces. The Board shall prepare for approval of the parties hereto, work program, staff requirements, annual budgets and five-year forecasts and such other reports as may be required in the operation of the Board.

11. Any water development project already constructed or to be constructed by any one of the parties shall be so operated as to maintain the apportionment of water as set out in the Master Agreement (and the First and Second Agreements thereunder) for the apportionment of waters of interprovincial streams.

SCHEDULE D

PREVIOUS ALLOCATIONS OF INTERPROVINCIAL WATERS  
 APPROVED BY ORDERS-IN-COUNCIL BY THE GOVERNMENTS OF  
 CANADA, ALBERTA, MANITOBA, AND SASKATCHEWAN

<u>Item</u>	<u>Order-in-Council</u>			
	<u>Canada</u>	<u>Alberta</u>	<u>Saskatchewan</u>	<u>Manitoba</u>
Allocation of water for specific projects in Alberta	4030/49	857/49	1307/51	1121/49
Allocation of water for specific projects in Saskatchewan	1874/51	1091/51	1310/51	1264/51
Allocation of water for South Saskatchewan River Project in Sask- atchewan	973/53	991/53	1271/53	924/53





# BY-LAWS

## PART I

### 1. In these By-Laws:

- (a) "Agreement" means the Prairie Provinces Water Board Master Agreement (including the First and Second Agreements thereunder) executed the Thirtieth day of October, 1969, A. D. by Canada, Alberta, Saskatchewan and Manitoba.
- (b) "Alternate" means Alternate Member of the Prairie Provinces Water Board.
- (c) "Board" means the Prairie Provinces Water Board.
- (d) "By-Laws" means the ordinances adopted by the Board for the regulation of the Board's internal affairs.
- (e) "Chairman" means Chairman of the Prairie Provinces Water Board.
- (f) "Executive Director" means the senior officer of the Secretariat.
- (g) "Member" means Member of the Prairie Provinces Water Board.
- (h) "Ministers" means the responsible ministers of the governments which are party to the Agreement.
- (i) "Secretariat" means the operational unit established by the Board to carry out the day-to-day affairs of the Board.
- (j) "Schedule C" means the Prairie Provinces Water Board Agreement under the Master Agreement (1969) executed by Canada, Alberta, Saskatchewan and Manitoba establishing the Prairie Provinces Water Board.

## PART II

The following shall be the By-Laws of the Prairie Provinces Water Board.

### 1. Objectives

The objectives of the Board shall be to promote the integrated development and use of water and related resources to support economic growth according to selected social goals and priorities, and to participate in the formulation and implementation of comprehensive planning and development programs according to their national, regional and provincial interest and importance.

In general, the Board will provide coordination and liaison between water resource agencies and will advise governments on the planning, development and management of interprovincial waters.

In particular, the Board will ensure the equitable apportionment of water flowing from one province into another province in accordance with the Agreement and will promote effective water quality management of interprovincial streams relative to standards and procedures adopted by the Board from time to time.

### 2. Membership

In accordance with Section 1 of Schedule "C", the Prairie Provinces Water Board shall consist of five Members to be appointed as follows:

- (a) two Members to be appointed by the Governor General in Council, one of whom shall be Chairman of the Board;
- (b) one Member to be appointed by the Lieutenant Governor in Council of each of the Provinces of Manitoba, Saskatchewan and Alberta.

### 3. Alternate Members

Each Member, including the Chairman, shall arrange for the appointment of an Alternate Member to act on his behalf during his absence, in which case the Alternate shall enjoy all the rights and privileges conferred on the Member.

### 4. Meetings and Notice

The Board shall meet at least twice a year by the call of the Chairman. Any Member may request a meeting of the Board at any time, in which case the Chairman must call the meeting within one month (30 days).

Meetings of the Board shall be called with at least 14 days notice unless every Member agrees otherwise.

### 5. Quorum

Meetings of the Board shall be official when all Members or their appointed Alternates are present.

### 6. Voting

All recommendations to government, all By-Laws and budgets-in-total shall require unanimous approval. The majority of votes determines a question on any other matter. In the event of a tie, the Chairman shall cast the deciding vote.

### 7. Powers

In accordance with the duties, functions and operations of the Board, as contained in Schedule "C", the Board shall have the power to authorize expenditures within the limits of approved budgets for the operations of the Secretariat, for the employment of staff, or for any other purposes necessary for administering the Agreement and furthering the objectives of the Board.

### 8. Authority

Within the general responsibilities given to it, the Board shall determine its technical and administrative functions from time to time and

shall decide all matters regarding the authority of the Board and the delegation thereof.

### 9. Financial Year

The financial year shall end on the 31st day of March in each year.

### 10. Budgets

The Chairman shall submit fiscal year program and budget estimates to the Board and to the parties to the Agreement for their approval. Such estimates shall be submitted not later than the first day of August preceding the financial year to which they pertain.

### 11. Secretariat

(a) There shall be a permanent Secretariat with offices at Regina, Saskatchewan.

(b) The Secretariat shall be the "operational arm" of the Board, charged with the responsibility of conducting programs approved by the Board for collating and analyzing data and reporting the apportionment and water quality of interprovincial streams; for conducting approved studies, and for furthering the policies and objectives of the Board.

(c) Except as otherwise provided for under subsection (f) herein, employees of the Secretariat shall be federal civil servants, subject to federal public service regulations and classification and collective agreements.

(d) The chief officer of the Secretariat shall be the Executive Director whose actions shall at all times be subject to the approval of the Board.

(e) The Board shall approve the establishment of salaried positions within the Secretariat and shall approve job descriptions prior to submission to the appropriate federal authority. The Board shall be consulted on the appointment of employees to the Secretariat which role may be delegated to the Executive Director.

- (f) The Board may arrange by agreement for secondment to the Secretariat, the employees of the agencies of those party to the Agreement, at cost, whenever in the opinion of the party concerned the services of such employees are available. Such employees shall remain under the administrative control and public service regulations of the appropriate party.

#### 12. Assignments to Associated Agencies and Consultants

- (a) The Board shall have the authority to engage agencies of those party to the Agreement, at cost, to undertake assignments from the Board, whenever in the opinion of the party concerned, the services of such agencies are available.
- (b) Agencies may enter into sub-contracts with consultants for purposes of professional interpretation subject to the approval of the Executive Director. Sub-contracts for the collection of basic data shall not require the approval of the Executive Director.
- (c) The Board may engage consultants to undertake assignments from the Board where such services are deemed necessary.
- (d) The services of consultants and of agencies of those party to the Agreement shall be engaged under a contractual arrangement. Contracts shall be entered into by the Chairman and/or the Executive Director subject to delegated authorities under the federal government contract regulations. Contracts for services shall also be subject to budgetary appropriations and any other controls imposed by the Board for the conduct of the work.

#### 13. Terms of Payment for Services Provided by Associated Agencies

- (a) Canada, through the Board, shall reimburse the Provinces of Alberta, Saskatchewan and Manitoba on a monthly basis, for expenditures made pursuant to the Agreement and approved by the Board. Payment for such expenditures will be made by Canada upon the submission of a claim in a mutually agreed manner and form.

- (b) Canada, and the Provinces of Alberta, Saskatchewan and Manitoba shall keep complete records of all expenditures made severally pursuant to the Agreement and shall support such expenditures with proper documentation. Canada and the Provinces of Alberta, Saskatchewan and Manitoba shall make these records and documents available to auditors appointed by the other.

#### 14. Cost of Administration of the Board

- (a) In accordance with Section 10 of Schedule "C", all budgeted expenditures, which shall not include the cost of monitoring, as described in Section 7 of the Master Agreement, but including staff, accommodation, supplies and incidental expenses of the Board, shall be borne by the parties to the Agreement on the basis of one-half by Canada and one-sixth by each of the Provinces.

#### 15. Financing the Operations of the Board

- (a) Canada shall assume responsibility for financing the operations of the Board.
- (b) Subject to the cost sharing provisions of the Agreement, the Provinces of Alberta, Saskatchewan and Manitoba shall pay to Canada their shares of approved expenditures made by Canada for the operations of the Board.
- (c) On or before July 1st of each year, Canada shall prepare and submit to each of the provinces party to the Agreement, statements of claim respecting provincial shares of monies due Canada for financing the operations of the Board during the previous financial year. Statements of claim shall be certified by a senior official of Canada and bear a Canada audit certificate.
- (d) Within sixty (60) days after receipt of a claim by Canada, submitted as prescribed in Article 15(c), the Provinces of Alberta,

Saskatchewan and Manitoba shall reimburse Canada for their shares of expenditures incurred during the previous financial year for the operations of the Board.

#### 16. Annual Report

Within three (3) months after the end of the financial year, the Chairman shall submit to the Ministers the Annual Report of the Board.

711 July 21/71

#### 17. Amendment of By-Laws

By-Laws may be enacted, amended or repealed by unanimous approval of the Board. "Notice of Motion" to enact, amend or repeal By-Laws must be served on Members at least sixty (60) days prior to a vote on such issue.

#### 18. Rules and Procedures

The Board shall formulate and adopt "Rules and Procedures" governing the day-to-day affairs of the Board and the operations of the Secretariat. These "Rules and Procedures" may be amended, adopted or repealed in accordance with Article 6 of these By-Laws.

### PART III

#### EXECUTIVE DIRECTOR

##### 1. Functions

- (a) The Executive Director shall be the senior employee of the Secretariat; subject to the Board's direction, he shall be responsible for the technical and administrative activities of the Secretariat and the day-to-day management of the Board.
- (b) He shall record or cause to be recorded all votes and minutes of all proceedings in books to be kept for that purpose.
- (c) He shall give or cause to be given notice of all meetings of the Board.
- (d) He shall keep the Board informed at all times of matters pertinent or relevant to the programs and operations of the Board.
- (e) He shall have charge of all records of the Board, together with copies of all reports made by the Board and such other books or papers as the Board may direct.
- (f) He shall implement all orders and resolutions of the Board and perform any other duties that the Board may prescribe.

Approved at PPWB Meeting No. 5  
- November 2nd, 1971

# RULES AND PROCEDURES

## SECRETARIAT

The Prairie Provinces Water Board hereby adopts the following Rules and Procedures governing the operations of the Prairie Provinces Water Board Secretariat.

### Financial Administration

1. The Executive Director is authorized to make disbursements of funds in conformity with the main items of expenditure allotted in the budget estimates approved by the Board, subject to those restrictions specified elsewhere in these Rules and Procedures.
2. The Executive Director shall prepare the annual program and budget estimates for the operations of the Prairie Provinces Water Board. Such estimates shall be submitted to the Chairman not later than the first day of July preceding the financial year to which they pertain.
3. Contracts with private consultant firms and individuals shall conform to accepted practices and procedures of the Federal Treasury Board.
4. A contract for services with a person or persons may be undertaken by the Executive Director providing that no such contract is made with a single person, a single firm of persons, or government agency exceeding \$5,000 without the approval of the Board.
5. Contracts not exceeding \$5,000 shall be executed on behalf of the Board under the signature of the Executive Director. Contracts exceeding \$5,000 shall be executed under the signature of the Chairman of the Board.
6. Payment of accounts will be made only after they have been approved by the Executive Director.

### Establishment of Salaried Positions, Appointments and Administration of Salaries

7. The establishment of salaried positions in the Secretariat shall be approved by the Board.
8. The Board shall approve the duties of all positions in the Secretariat including those of Executor Director.
9. The classification and remuneration of salaried positions within the Secretariat shall be governed by the appropriate federal authority.
10. The financial and personnel administration of the Secretariat shall be carried out in accordance with federal government practices.
11. To facilitate the operations of the Secretariat, personnel and financial administrative support services shall be provided, at cost, by the Federal Department of the Environment.

### Board Offices

12. The Executive Director is authorized to lease and maintain property within which to conduct Board affairs providing that terms of such leasing shall be sanctioned by the Board.
13. Costs for the operation of the Board offices shall include, but shall not necessarily be limited to, expenditures for the following items:
  - (a) Salaries and wages and related benefits of Board employees or personnel seconded to the Board offices, including removal expenses, both at the commencement and termination of the appointment, where applicable, and living expenses for seconded personnel where approved by the Board.

- (b) Field surveys and investigations including travel and living expenses when applicable, by personnel engaged in conducting studies or field investigations.
  - (c) Rentals for office space and equipment and charges for utilities and related services for the operation of Board offices.
  - (d) Purchases of furniture, and equipment not available on a rental basis.
  - (e) Operating, maintenance and transportation expenses for equipment.
  - (f) Contracts awarded by the Board including, where applicable, arbitration, settlements, legal fees and other matters, made in accordance with the provisions of the contract.
  - (g) Settlement and legal fees arising out of property damaged or public liability made or incurred by an employee of the Secretariat or a party to the Agreement working for the Secretariat and engaged in the activities of the Board offices.
  - (h) Other items required for conducting the work and for operations of the Board offices which have been approved by the Board.
- (c) Normal operating maintenance and transportation expenses for equipment where such expenses are not included in the rental rate.
  - (d) All contracts as provided under the provisions of Article 12(b) of the By-Laws.
  - (e) Other items required for conducting the work of the Board and approved by the Executive Director.

Board Members, Alternates and Advisory Committees

15. The costs incurred by Board Members and their Alternates in representing their respective governments at Board functions shall be paid for by the appropriate government. The salaries and travelling expenses of government officials appointed to represent those party to the Agreement on Committees established to advise the Board and/or the Executive Director shall be paid by the appropriate party.

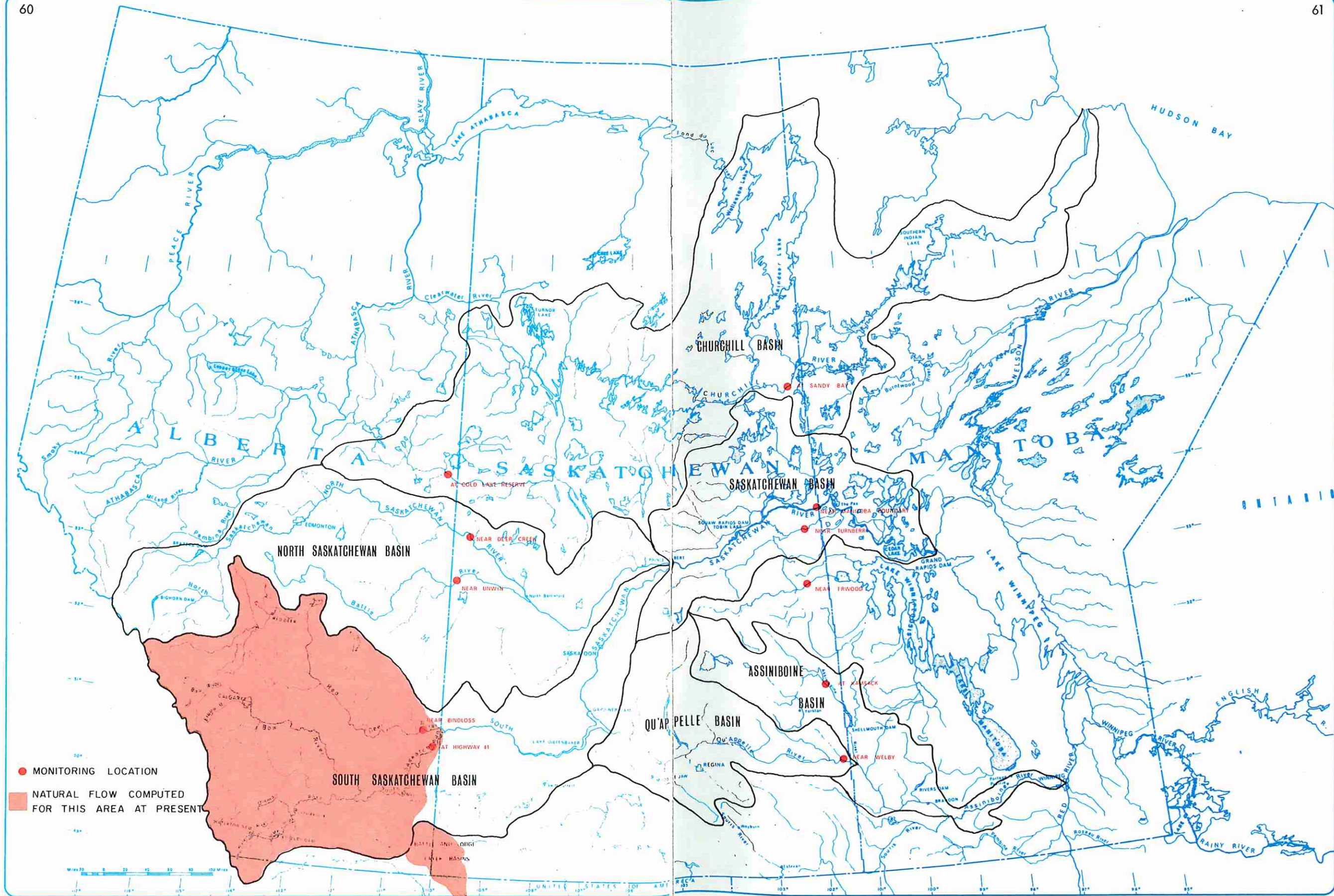
Approved at PPWB Meeting No. 5  
- November 2nd, 1971

Payment for Services Provided by Participating Government Agencies

14. Costs of participating government agencies for services, field investigations, planning studies, etc., specifically requested by the Board shall include the following items:
- (a) Salaries, wages, travel and living expenses for employees engaged in providing the service.
  - (b) Rental charges for equipment and operators.

MAP





● MONITORING LOCATION  
 ■ NATURAL FLOW COMPUTED FOR THIS AREA AT PRESENT

