

A PRELIMINARY REPORT ON THE WILLIAM PEARCE PROJECT

October 1958

WILLIAM PEARCE PROJECT

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Prepared by:  
A. G. Underhill, P. Eng.  
District Engineer  
Calgary, Alberta

## WILLIAM PEARCE PROJECT

### PURPOSE:

This report has been prepared to acquaint the members of the Prairie Provinces Water Board with the William Pearce Project as it is presently envisioned by the Province of Alberta.

We have in mind a scheme, similar, in most respects to the original proposal made by the late William Pearce, that will serve only lands within the province with water for stock, irrigation, domestic, municipal and industrial purposes. The emphasis will be on production of live stock and the supplying the area, in general, with an adequate supply of water for other purposes.

The water supply for the project will come from the Red Deer and Clearwater rivers. We do not envision, at the present time, any diversion of the North Saskatchewan River.

Various proposals will be discussed, none new, in order to present a project that will meet our requirements. Some of the proposals will require further investigation but we do not believe that they will have any effect on the final use of the water for the purpose that it is intended, i.e., to establish a sound economy for that dry area of Alberta based primarily on the production of stock, supplemented if possible by industrial and municipal developments. A certain amount of irrigation is included as a necessary part of the development.

## HISTORY:

William Pearce, noted early advocate of irrigation in the west, first proposed the project in 1919.

It was his idea that the dry area from Hanna east to Regina in Saskatchewan could be irrigated by the North Saskatchewan and Red Deer Rivers. His plan was to supply water for stockwatering, irrigation and municipal purposes. The plan envisioned the establishment of a large stock producing area with a minimum production of grain. It was with this idea in mind that in 1922 Mr. Pearce wrote a letter to Mr. N. C. Phillips of Regina:

"The most valuable utilization of water in this country is for growing forage. Of course in the rotation of crops a certain amount of grain must from necessity be grown, but throughout most of the west if grain growing is to be the sole object, I do not know that I would be an advocate for irrigation at all, nor would one care to make his permanent home in a district adapted only for grain growing. I am styled by some as the "Father of Irrigation" in Alberta, but I never advocated irrigation for grain growing, excepting so far as its growth is necessary in the rotation of crops. If this country is going to amount to anything, the sooner we get into stock on a very considerable scale the better, the money spent on same will probably many times returned and be the solution of our troubles. A large portion of this country can be used with advantage to grow forage for stock, which cannot be profitably utilized for growing grain. Adjacent to those irrigated portions lie very considerable areas whose value lies in pasturage".

Since that time various surveys have been made. In 1921-22 the Reclamation Service carried out surveys to determine the feasibility and canal locations.

In 1939 the Prairie Farm Rehabilitation Administration started investigations which have continued to date, first under E. K. Phillips, then later under S. H. Hawkins and A. B. Cook and now under W. Huddleston.

During these surveys many changes have been made. New reservoirs have been located. The canal lines have changed. In fact, the basic concept of the project has changed to irrigation rather than stock production.

It is our intention to continue the investigation but to again lay emphasis on the stockwatering phase of the project.

### GENERAL PLAN:

Our general plan envisions first, the construction of upstream storage reservoirs. These reservoirs will be used as flood control reservoirs to protect the downstream areas from damages. They will be used to store the water required by the project so that a smaller main canal can be built. Their third purpose will be the supplementing of the winter flows of the rivers on which they are located so as to ensure sufficient water to encourage the development of the cities and towns along the way.

The main canal will carry the water east to the project area. Along its way various streams and water courses will receive supplemental supplies of water.

We have two main canal plans for investigation:

(1) The Long Canal alternative which takes its water from the Red Deer River at the mouth of the Raven River and carries it by canal across the country to Sullivan Lake reservoir. From here it is carried in smaller canals to the various sections of the district. The Red Deer River is crossed by means of a syphon. This plan has several advantages in that (a) all our storage is located upstream of the settled areas giving better flood protection and control, (b) the canal passes along the headwater of the Threehill, Kneehill, Ghostpine and Lonepine creeks allowing this area to receive supplemental water when necessary, (c) no large expensive dam and diversion works are required and (d) a large reservoir at Sullivan Lake to store any extra water and provide insurance against a dry year.

There are also some disadvantages, (a) the long canal line with its accompanying seepage and evaporation losses, (b) a large and expensive syphon crossing the Red Deer River.

(2) The Ardley damsite and canal to Craig and Hamilton lakes.

This proposal has a large and possibly expensive dam on the Red Deer River, in the vicinity of Ardley. It has two large reservoirs in Hamilton and Craig lakes. Both have extremely large surface areas and its main canals are somewhat lower in elevation than those of the long canal system and cannot reach the same amount of lands. It has several advantages in a large storage reservoir at Ardley, a shorter main canal and a smaller number of large structures to serve the area.

A cost comparison of these two schemes will enable the best choice to be made.

From either system the canals are located to supply the area with water for stock, municipal and industrial use.

While no scheme should be restricted by an artificial boundary, at least for this report, we are considering the Alberta area only. Any service of the Saskatchewan area has been omitted and if in the future it is desirable to serve that area then all the canals would have to be redesigned and additional water would have to be diverted possibly from the North Saskatchewan River.

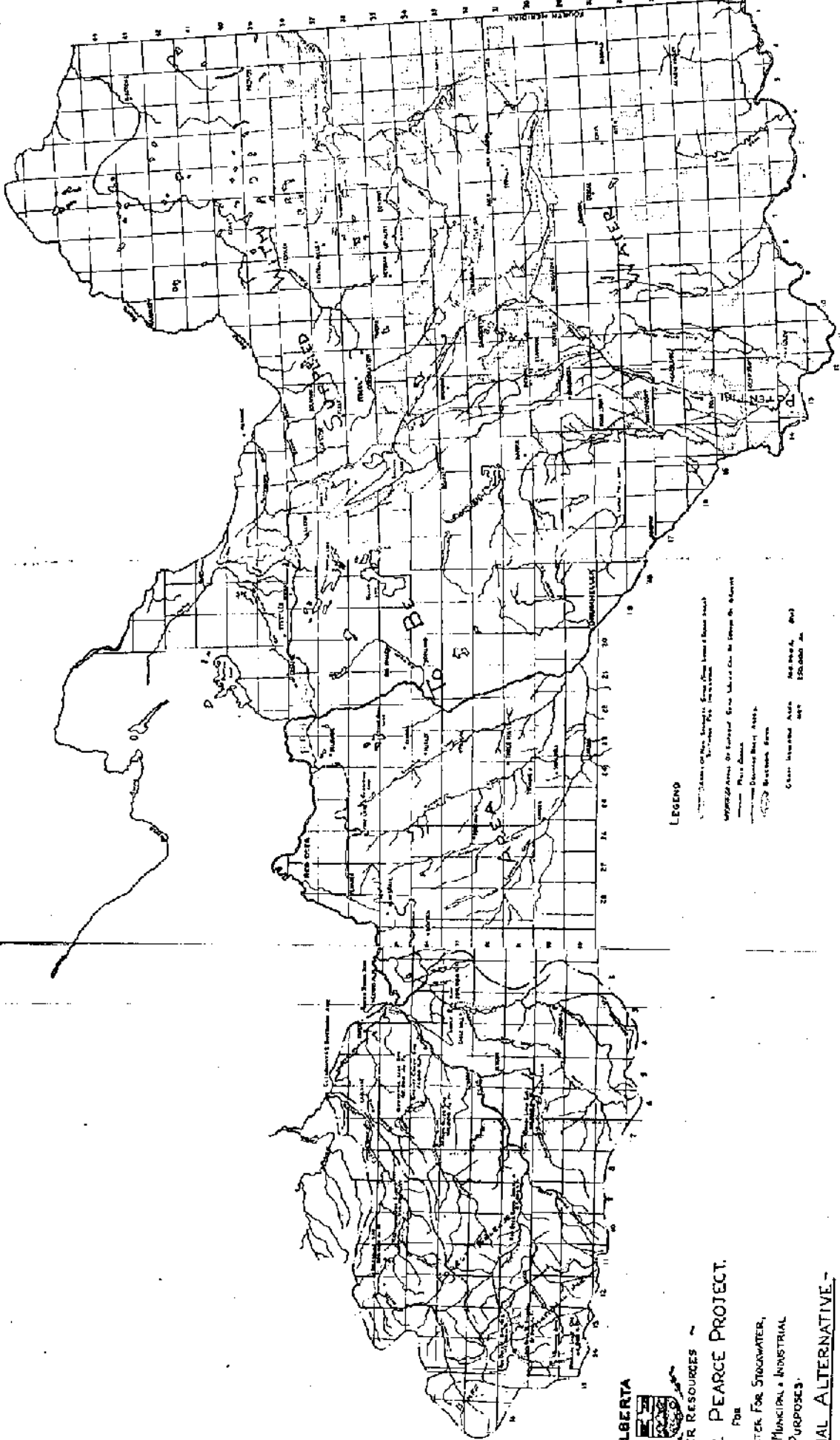
No consideration has been given to the power potential of the riparian flow which must be passed by either plan. The final engineering report will consider this aspect of the proposal.



ALBERTA



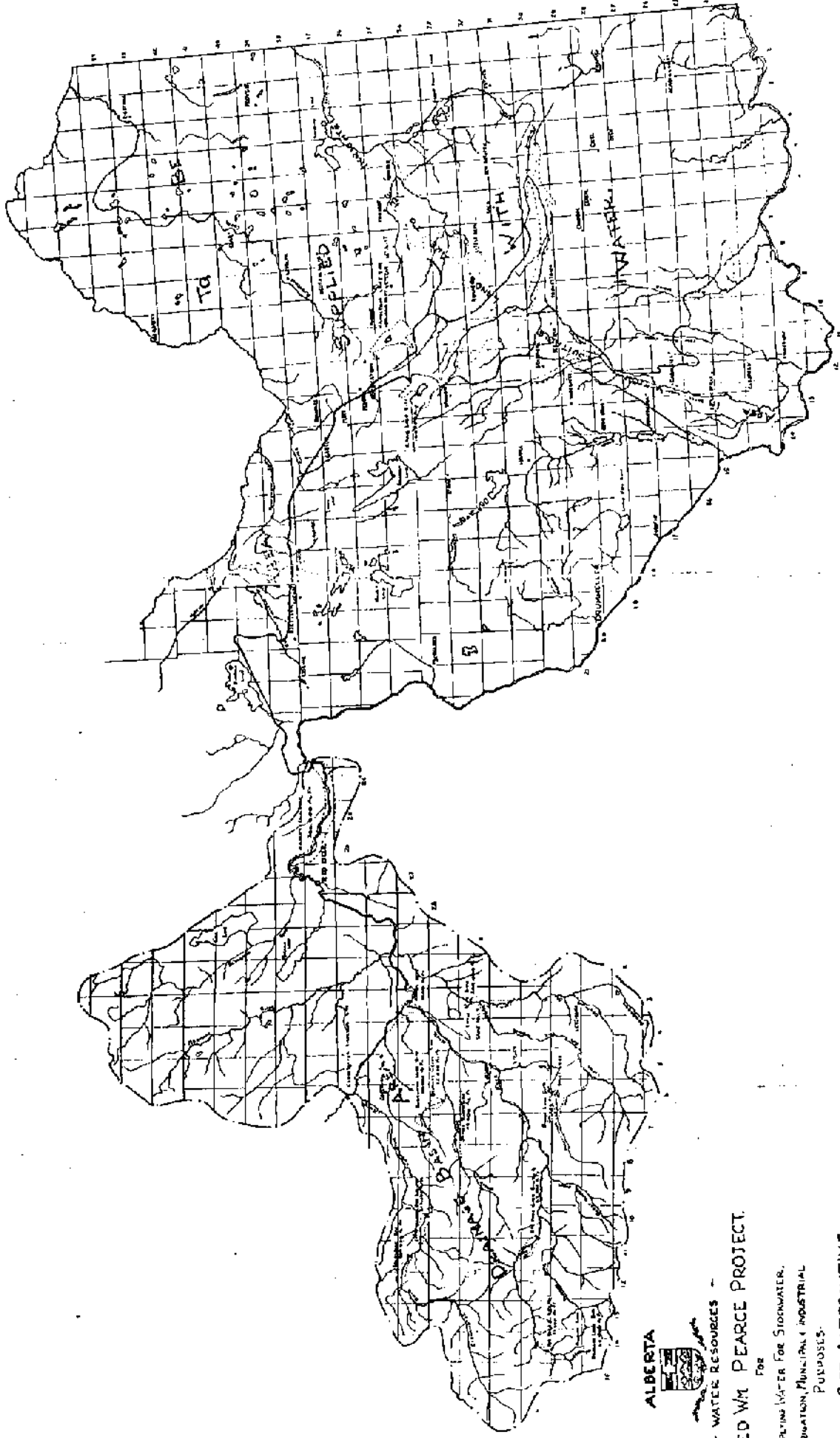
WATER RESOURCES  
FOR  
PEARCE PROJECT.  
SUPPLYING WATER FOR STOCKWATER,  
IRRIGATION, MUNICIPAL & INDUSTRIAL  
PURPOSES.  
LONG CANAL ALTERNATIVE.



LEGEND

- 1. 1:250,000 Scale of Map, Showing the River Basin & Water Supply
- 2. 1:50,000 Scale of Map, Showing the River Basin & Water Supply
- 3. 1:25,000 Scale of Map, Showing the River Basin & Water Supply
- 4. 1:12,500 Scale of Map, Showing the River Basin & Water Supply
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Scale 1:250,000



ALBERTA



- WATER RESOURCES -

PROPOSED WM PEARCE PROJECT

For

SUPPLYING WATER FOR STOCKWATER,  
IRRIGATION, MUNICIPAL & INDUSTRIAL  
PURPOSES.

-ARDLEY SITE ALTERNATIVE-

2024/1/16

## SOILS:

Even in the early days of the investigation for this project William Pearce, in his letters, pointed out the need for having adequate soils information before the project was finally designed.

The soils information did not progress as rapidly as the preliminary engineering surveys. Even now certain soil types, namely solonetz types, have not been classified as either irrigable or non-irrigable. Investigations are continuing into these soils.

Soil maps, were also, only prepared for the area considered by the engineers as being under the ditch and any change, to serve other areas, requires further soil surveys. A new map, covering the whole area, should be available in the near future.

In order to design a project, at this time, we have only included those soils which have a non-solonetz profile and that are of a sandy nature, the main two being of the Chin and Cavendish profile.

If the solonetz soils are, at a later date, considered as irrigable then a change in the plan may be made to irrigate the best of these soils, but we do not anticipate any increase in the total area to be irrigated.

We also anticipate that many small areas of strategically located land, adjacent to the creeks and channels through which stockwater is supplied, will require water. A soils check on these areas will be required once the plan has been definitely finalized.

The areas of soils, which are at the present considered irrigable, are found on the general map which accompanies this report.

ENGINEERING:

The present progress in the engineering of the project is as follows:

(1) The Ardley damsite and main canals are located and surveys completed.

Final design of the dam and spillway have not yet been started.

(2) Planetabling of the irrigable areas is continuing and to date a considerable portion of the acreage has been covered.

(3) Long Canal Alternative has only had a preliminary location survey run on the first 97 miles. This line requires further survey and in 1959 it is our intention to have 10 foot contours run on the area by means of an aerial survey.

(4) The remainder of the line has been contoured in the field and satisfactory information is available.

(5) The design of a syphon crossing over the Red Deer River is required and this will be done in the future.

(6) The upstream storage has not received too much attention to date but it is the intention of our engineers to proceed with a full scale investigation. This year two sites on the Clearwater River were investigated, the sites were surveyed, and the foundation drilled. Next year we intend to investigate the sites on the Red Deer and its tributaries.

(7) The diversion from the Clearwater to the Red Deer has been investigated by PFRA and sufficient information is available to determine the location and the cost of the diversion works.

(8) The diversion of water into many natural and artificial channels for stockwater, industrial and municipal use requires further investigation to insure that the best use is made of the water available.

Present plans have set the main canal size at 2300 cfs with a 1000 cfs canal diverting the Clearwater River into the Red Deer. The 2300 cfs canal will run continually during the irrigation season and the water will be stored either in Sullivan Lake or Craig and Hamilton Lake reservoirs until it is required. Then the water will be diverted to reservoirs in the local areas or far in other cases directly for use.

The anticipated construction procedure for the project will be:

- (1) The establishment of upstream storage reservoirs.
- (2) The establishment of small irrigation schemes or areas using local runoff but the areas are part of and can be incorporated into the general scheme. These areas would be adjacent to Bullpound, Berry and Sounding creeks.
- (3) The construction of the main canal to serve the general area and those reservoirs directly associated with it.
- (4) The construction of the works necessary to serve the area with stockwater, municipal, industrial and domestic use.
- (5) As required the development of the irrigable areas and any additional reservoirs necessary to serve them.

The development will not be of a rapid nature inasmuch as we will be progressing at a rate that will meet the demands of the area. We have in mind a development period of something like 25 years.

WATER SUPPLY:

In order to evaluate the water available to supply the proposed project it was necessary to make a water study of the Clearwater River at the point of diversion and the Red Deer River at the Raven site.

Since neither of these points have been gauged, it was necessary to adjust the recorded flows of the Clearwater River at Rocky Mountain House and the Red Deer River at Red Deer to the points of diversion.

A period of years from 1936 to date was selected. This gives us both cycles of wet years and dry years and gives an indication of what flows we might expect in the future. Where records are not available they have been estimated by correlating with other streams with recorded data.

The project we are planning will have a long development period, possibly 25 years or more. It is anticipated that, by that time, considerable storage will be available in the drainage basins and for this study it has been assumed that 200,000 acre-feet of storage is available on the Clearwater and 400,000 acre-feet available on the Red Deer above the diversion.

This could be made up from the following proposed sites:

Clearwater River

Idlewyde site	200,000 acre-feet
Clearwater Gap site	247,500 " "
TOTAL	<u>447,500</u> acre-feet



Red Deer River

Burnstick Lake site	40,000	acre-feet
Storey Creek site	52,000	" "
James River site	49,000	" "
Boggy Lake site	60,000	" "
Raven River site	35,000	" "
Little Red Deer site	200,000	" "
Red Deer River site No. 1	21,000	" "
Red Deer River site No. 2	142,500	" "
Red Deer River site No. 4	67,000	" "
Douglas Lake site	64,500	" "
TOTAL	<u>731,000</u>	acre-feet

One of our basic concepts of this plan is the regulating of our rivers so as to provide a greater flow during the winter months. This will allow the expansion of towns and industry along these rivers. In this study we have assumed a minimum flow of the Red Deer River at Red Deer of 450 cfs and a minimum flow in the Clearwater River below the diversion dam of 100 cfs. In the latter case we have also taken for granted that by the time we need the Clearwater River for use on the project other storage will be available in the North Saskatchewan drainage basin to increase the winter flows at Edmonton and also to make up any deficiencies that may be caused by using winter storage on the Clearwater when necessary.

We enclose herewith plans showing the hydrographs of the two rivers showing the effect of regulation and diversions.

We can divert some 700,000 acre-feet from the Red Deer and Clearwater rivers and still maintain a flow of 450 cfs at Red Deer and 100 cfs below the

diversion on the Clearwater. The attached table shows that in only two years during the period did we have a water shortage, the first being in 1937 when we had a shortage of 20,000 acre-feet. This was due to the fact that we started the study with empty reservoirs and in the normal case they would have been approximately 50% full and, therefore, cannot really be considered a true shortage.

The second shortage appears in 1950 and is 17,000 acre-feet and comes during a dry period of two years.

However, we have the large reservoir site at Sullivan Lake available in the one alternative and it could be used to store the excess water during the wetter years when the demand would not be at its maximum.

In any case, the shortage is insignificant.

We have not taken into consideration the inflow to the system from various water courses and streams. This will be an appreciable amount and will help to take care of our seepage and evaporation losses, which will be considerable.

We have based our study on a 1,000 cfs canal from the Clearwater to the Red Deer River down Stauffer creek. The latter will require improvement and probably certain structures.

The canal from the Red Deer River to the project area will have a capacity of 2,300 cfs. From this canal we intend to divert water into various creek and runoff channels so as to assure a water supply for the general area. Of the 700,000 acre-feet we plan to divert, we intend to use some 150,000 acre-feet for this purpose. Most of this will return to the rivers and pass on into Saskatchewan and Manitoba.

Another 500,000 acre-feet of this water will be used for irrigation purposes to provide feed for the stock and in special cases to provide water for specialized commercial crops.

It is anticipated that some 250,000 acres of land could be irrigated; 200,000 acres of this would be in the project areas, the other 50,000 acres would be in isolated small areas adjacent to our canals and creeks.

The remaining 50,000 acre-feet would be used to supplement the water lost due to the long canal system. The normal allowance for losses will prove insufficient to cover our evaporation and seepage losses in this extremely long canal system.

Our requirements, therefore, may be summed up as follows:

(1) To supply water for general use	150,000 acre-feet
(2) To irrigate 250,000 acres	500,000 acre-feet
(3) To take care of additional evaporation and seepage losses	<u>50,000</u> acre-feet
TOTAL	700,000 acre-feet

This is the amount which we had guaranteed the PFRA, when investigation was started on the project, and prior to the establishment of the Prairie Provinces Water Board.

ALBERTA



WATER RESOURCES

HYDROGRAPH OF THE RED DEER RIVER

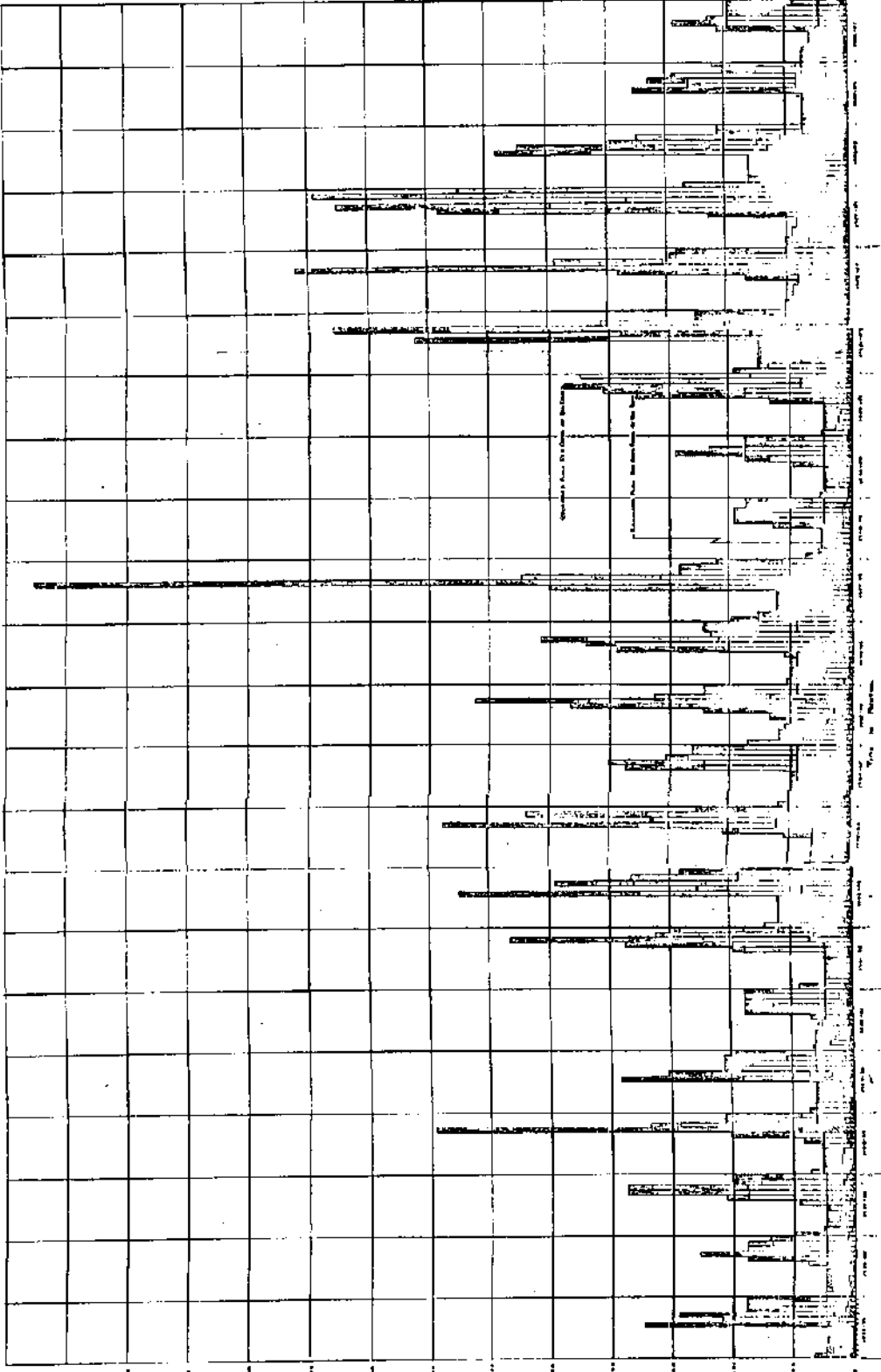
RED DEER

SHOWING THE EFFECT OF THE FLOODING DISTRICTS  
IN THE RED DEER BASIN

LEGEND

- Discharge from the River
- Discharge from the Flood Districts
- Total Discharge
- ▨ Flooded Area

NOV 1918



Flow in CFS

ALBERTA



WATER RESOURCES

HYDROGRAPH OF THE CLOQUET RIVER

AT

DRUMMOND SITE

See also the Letter of the Province Director

to the Agriculture Minister

1958

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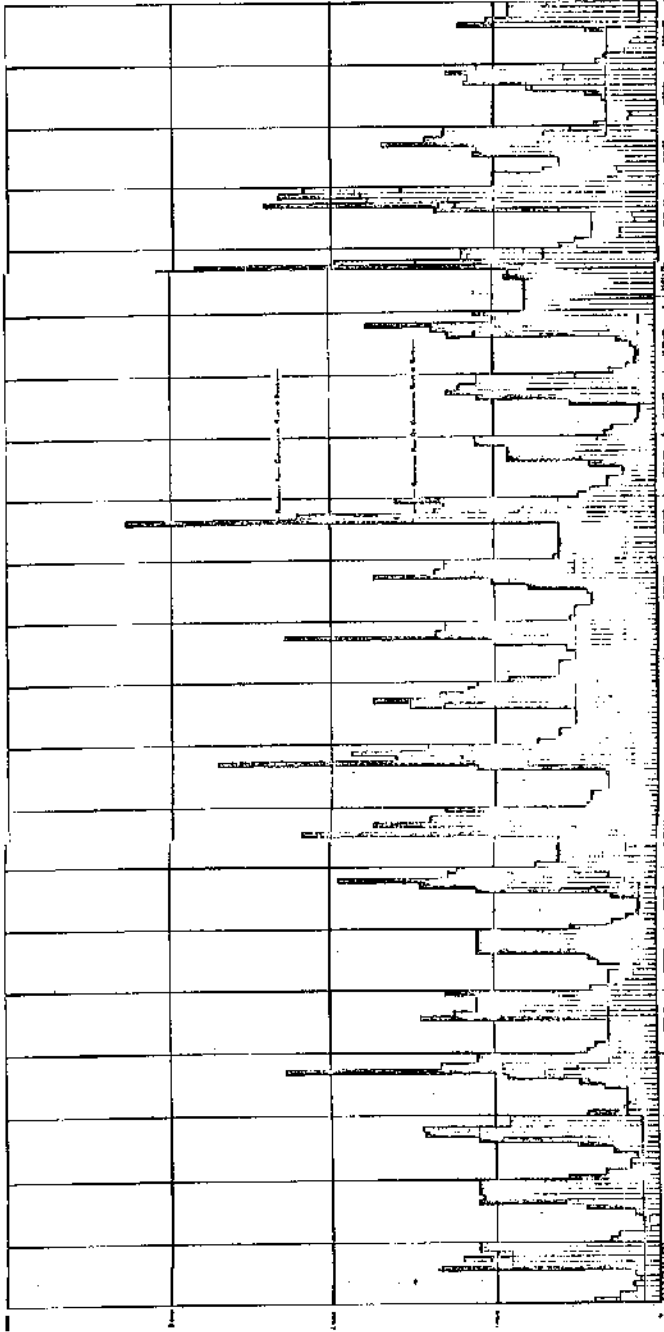
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WILLIAM PEARCE WATER SUPPLY STUDY

DATE	DIVERSION FROM RED DEER RIVER		DIVERSION FROM CLEARWATER RIVER		TOTAL
	In cfs	In acre-feet	In cfs	In acre-feet	Diversion
1936 May	1,500	93,000	800	49,600	142,600
June	1,500	90,000	800	48,000	138,000
July	1,300	80,600	1,000	62,000	142,600
Aug.	1,300	80,600	1,000	62,000	142,600
Sept.	1,300	78,000	1,000	60,000	138,000
		<u>422,200</u>		<u>281,600</u>	<u>703,800</u>
1937 May	1,300	80,600	1,000	62,000	142,600
June	1,500	90,000	800	48,000	138,000
July	1,300	80,600	1,000	62,000	142,600
Aug.	1,300	80,600	1,000	62,000	142,600
Sept.	909	54,540	1,000	60,000	114,540
		<u>386,340</u>		<u>294,000</u>	<u>680,340</u>
1938 May	1,300	80,600	1,000	62,000	142,600
June	1,300	78,000	1,000	60,000	138,000
July	1,300	80,600	1,000	62,000	142,600
Aug.	1,500	93,000	800	49,600	142,600
Sept.	1,500	90,000	800	48,000	138,000
		<u>422,200</u>		<u>281,600</u>	<u>703,800</u>
1939 May	1,500	93,000	800	49,600	142,600
June	2,000	120,000	300	18,000	138,000
July	1,850	114,700	450	27,900	142,600
Aug.	1,500	93,000	800	49,600	142,600
Sept.	1,500	90,000	800	48,000	138,000
		<u>510,700</u>		<u>193,100</u>	<u>703,800</u>
1940 May	1,600	99,200	700	43,400	142,600
June	1,500	90,000	800	48,000	138,000
July	1,500	93,000	800	49,600	142,600
Aug.	1,500	93,000	800	49,600	142,600
Sept.	1,300	78,000	1,000	60,000	138,000
		<u>453,200</u>		<u>250,600</u>	<u>703,800</u>

DATE	DIVERSION FROM RED DEER RIVER		DIVERSION FROM CLEARWATER RIVER		TOTAL	
	In cfs	In acre-feet	In cfs	In acre-feet	Diversion	
1941	May	1,300	80,600	1,000	62,000	142,600
	June	1,300	78,000	1,000	60,000	138,000
	July	1,300	80,600	1,000	62,000	142,600
	Aug.	1,300	80,600	1,000	62,000	142,600
	Sept.	1,300	78,000	1,000	60,000	138,000
			<u>397,800</u>		<u>306,000</u>	<u>703,800</u>
1942	May	1,300	80,600	1,000	62,000	142,600
	June	1,500	90,000	800	48,000	138,000
	July	1,500	93,000	800	49,000	142,600
	Aug.	1,900	117,800	400	24,800	142,600
	Sept.	1,635	98,100	665	39,900	138,000
			<u>479,500</u>		<u>224,300</u>	<u>703,800</u>
1943	May	1,800	111,600	500	31,000	142,600
	June	1,800	108,000	500	30,000	138,000
	July	1,800	111,600	500	31,000	142,600
	Aug.	1,800	111,600	500	31,000	142,600
	Sept.	1,500	90,000	800	48,000	138,000
			<u>532,800</u>		<u>171,000</u>	<u>703,800</u>
1944	May	1,500	93,000	800	49,600	142,600
	June	2,300	138,000	0	0	138,000
	July	1,900	117,800	400	24,800	142,600
	Aug.	2,000	124,000	300	18,600	142,600
	Sept.	1,500	90,000	800	48,000	138,000
			<u>562,800</u>		<u>141,000</u>	<u>703,800</u>
1945	May	1,500	93,000	800	49,600	142,600
	June	1,500	90,000	800	48,000	138,000
	July	1,787	110,794	513	31,806	142,600
	Aug.	1,700	105,400	600	37,200	142,600
	Sept.	1,700	102,000	600	36,000	138,000
			<u>501,194</u>		<u>202,606</u>	<u>703,800</u>



DATE	DIVERSION FROM RED DEER RIVER		DIVERSION FROM CLEARWATER RIVER		TOTAL	
	In cfs	In acre-feet	In cfs	In acre-feet	Diversion	
1946	May	1,800	111,600	500	31,000	142,600
	June	1,881	112,860	419	25,140	138,000
	July	1,917	118,854	383	23,746	142,600
	Aug.	1,500	93,000	800	49,600	142,600
	Sept.	1,500	90,000	800	48,000	138,000
			<u>526,314</u>		<u>177,486</u>	<u>703,800</u>
1947	May	1,900	117,800	400	24,800	142,600
	June	2,200	132,000	100	6,000	138,000
	July	1,690	104,780	610	37,820	142,600
	Aug.	1,500	93,000	800	49,600	142,600
	Sept.	1,500	90,000	800	48,000	138,000
			<u>537,580</u>		<u>166,220</u>	<u>703,800</u>
1948	May	2,300	142,600	-	-	142,600
	June	2,300	138,000	-	-	138,000
	July	1,800	111,600	500	31,000	142,600
	Aug.	1,800	111,600	500	31,000	142,600
	Sept.	1,300	78,000	1,000	60,000	138,000
			<u>581,800</u>		<u>122,000</u>	<u>703,800</u>
1949	May	1,500	93,000	800	49,600	142,600
	June	1,500	90,000	800	48,000	138,000
	July	1,500	93,000	800	49,600	142,600
	Aug.	1,300	80,600	1,000	62,000	142,600
	Sept.	1,300	78,000	1,000	60,000	138,000
			<u>434,600</u>		<u>269,200</u>	<u>703,800</u>
1950	May	1,300	80,600	1,000	62,000	142,600
	June	1,300	78,000	1,000	60,000	138,000
	July	1,300	80,600	1,000	62,000	142,600
	Aug.	1,300	80,600	1,000	62,000	142,600
	Sept.	1,300	78,000	658	39,480	117,480
			<u>397,800</u>		<u>285,480</u>	<u>683,280</u>

DATE	DIVERSION FROM RED DEER RIVER		DIVERSION FROM CLEARWATER RIVER		TOTAL	
	In cfs	In acre-feet	In cfs	In acre-feet	Diversion	
1951	May	1,300	80,600	1,000	62,000	142,600
	June	1,300	78,000	1,000	60,000	138,000
	July	2,300	142,600	-	-	142,600
	Aug.	1,830	113,460	470	29,140	142,600
	Sept.	2,300	138,000	-	-	138,000
			<u>552,660</u>		<u>151,140</u>	<u>703,800</u>
1952	May	2,200	136,400	100	6,200	142,600
	June	2,200	132,000	100	6,000	138,000
	July	2,200	136,400	100	6,200	142,600
	Aug.	1,500	93,000	800	49,600	142,600
	Sept.	1,500	90,000	800	48,000	138,000
			<u>587,800</u>		<u>116,000</u>	<u>703,800</u>
1953	May	1,800	111,600	500	31,000	142,600
	June	2,200	132,000	100	6,000	138,000
	July	1,800	111,600	500	31,000	142,600
	Aug.	1,800	111,600	500	31,000	142,600
	Sept.	1,800	108,000	500	30,000	138,000
			<u>574,800</u>		<u>129,000</u>	<u>703,800</u>
1954	May	2,200	136,400	100	6,200	142,600
	June	2,200	132,000	100	6,000	138,000
	July	1,800	111,600	500	31,000	142,600
	Aug.	1,800	111,600	500	31,000	142,600
	Sept.	1,800	108,000	500	30,000	138,000
			<u>599,600</u>		<u>104,200</u>	<u>703,800</u>
1955	May	2,200	136,400	100	6,200	142,600
	June	1,900	114,000	400	24,000	138,000
	July	1,300	80,600	1,000	62,000	142,600
	Aug.	1,300	80,600	1,000	62,000	142,600
	Sept.	1,300	78,000	1,000	60,000	138,000
			<u>489,600</u>		<u>214,200</u>	<u>703,800</u>

DATE	DIVERSION FROM RED DEER RIVER		DIVERSION FROM CLEARWATER RIVER		TOTAL	
	In cfs	In acre-feet	In cfs	In acre-feet	Diversion	
1956	May	1,800	111,600	500	31,000	142,600
	June	1,800	108,000	500	30,000	138,000
	July	1,973	122,326	327	20,274	142,600
	Aug.	1,300	80,600	1,000	62,000	142,000
	Sept.	1,500	90,000	800	48,000	138,000
			512,526		191,274	703,800
1957	May	1,500	93,000	800	49,600	142,600
	June	1,500	90,000	800	48,000	138,000
	July	1,500	93,000	800	49,600	142,600
	Aug.	1,500	93,000	800	49,600	142,600
	Sept.	1,500	90,000	800	48,000	138,000
			459,000		244,800	703,800

ESTIMATED COSTS:

It is extremely difficult at this time to prepare an estimate of costs that will be in any way reliable.

However, we will attempt to give a rough idea of the expected magnitude of the expenditure required to build the project.

In the case of the Ardley dam proposal we have the costs as estimated by William Huddleston, of the PFRA in Calgary, who is now in charge of investigations.

Ardley Dam Alternative

Clearwater Diversion	989,300.00
Red Deer Diversion	12,550,850.00
Main Canal	8,819,000.00
Secondary Canals and Reservoirs (not including Sounding Creek)	5,181,125.00
Primary Storage Reservoirs	<u>1,233,000.00</u>
	28,773,275.00
5% for incidental items	<u>1,437,725.00</u>
	30,211,000.00
Lateral System (350,000 acres @ \$25.00 per acre)	<u>8,750,000.00</u>
	38,961,000.00
Engineering & Contingencies 10%	<u>3,896,000.00</u>
	<u>\$42,857,000.00</u>

Our present plans call for 250,000 acres of irrigation. This would reduce the cost of the lateral system, but we would, no doubt, increase the cost considerably

by distributing water for other purposes and the cost per acre would be increased so no change was made in his figures.

The cost of the Ardley dam has been made from preliminary data only and other opinions estimate the costs of the dam at \$50,000,000.00.

No mention is made of the upstream storage and the cost of this would increase the estimated cost of the project by an estimated \$10,000,000.00.

If we take an average cost of the dam at \$33,000,000.00 and add an additional \$10,000,000.00 for upstream storage the project cost rises to something like \$75,000,000.00.

After considering the cost estimate and the many advantages to the province in the long canal alternative proposal, which was investigated by E.K. Phillips of the PFRA, we have decided it merits further consideration.

From a cost point of view a rough estimate would be:

Long Canal Alternative

Upstream Storage and diversions	20,000,000.00
Main canal excavation and structures	14,000,000.00
Syphon crossing Red Deer River	8,000,000.00
Storage reservoirs (Sullivan lake, etc.)	2,000,000.00
Distribution canals and reservoirs	8,000,000.00
	<u>52,000,000.00</u>
5% for incidentals	2,600,000.00
	<u>54,600,000.00</u>
Lateral system (250,000 acres)	9,000,000.00
	<u>63,600,000.00</u>
10%	6,400,000.00
	<u>\$70,000,000.00</u>

Further investigations will prove which plan is to be used and what the cost will be. This, however, will not change the basic ideas or plans to improve the economy of this large area of Alberta.

### ECONOMICS:

In the development report which has been under preparation for the last few years by a special committee of the Alberta government the economic aspect of the project will, no doubt, be adequately covered.

However, we must mention here the varied benefits which we expect to gain.

First benefit will be flood control on the Red Deer and Clearwater Rivers. The operation of the reservoirs will be such as to ensure their maximum for flood control.

The second major benefit, from upstream storage, will be the regulation of flow and the supplementing of the winter flow. A minimum flow of 450 cfs, in the Red Deer at Red Deer and 100 cfs in the Clearwater below the diversion works will be ensured.

The third benefit will be an assured supply of water for the various towns and villages which will allow their expansion.

The supply of water for stockwater to a large area which is now very short of water. This will allow the development of larger use and better use of the land available.

With water available the irrigation of crops, especially pasture and winter feed, will allow for expansion of the cattle industry. Sufficient land is also available for specialized crops as the market develops.

The adequate supply of water will allow industry to develop at or near the source of raw materials.

The recreational advantages to the area of the lakes and reservoirs created cannot be assessed in the dollar and cents view.

Since this area is now mainly in government hands its development can mean a source of land for settlement and development in an area which when supplied with water can produce with the best in the province.

We have read the varied estimates of the economic value of the South Saskatchewan River project by leading Canadian economists and when we consider the area to be served in Alberta we can only say these same arguments should prevail but only to a much greater degree. This area had to be removed from our farm economy due to the prevailing drought conditions whereas much of the area of the South Saskatchewan project has a successful dry land economy.

If we can anticipate an increase in yield on taxes from this area of \$3,000,000.00 from all sources due to the construction of this project we could justify it from an economic point of view; \$3,000,000 @ 4% would allow a capital expenditure of \$75,000,000.00.



## RECREATION:

The construction of any project must include some provision for recreational facilities.

In these days, where the pace of living requires that all our citizens must have periods of relaxation, the importance of recreational facilities cannot be over-estimated. The value of these facilities is inestimable.

This project envisions the use of the reservoirs, lakes and other bodies of water created for fishing, boating, swimming and other uses.

The smaller lakes, where possible, will be stocked with trout and other species of fish.

The trees that will be planted in the years to come, will provide shelter for birds and soon the area, noted already for its duck and goose hunting, will have pheasants, partridge and other game birds.

The trees will provide shelter around our lakes so that those that just want to sit and rest may do it in restful surroundings.

Sandy beaches on the lakes will provide the swimmers and picnickers a place to spend their leisure time.

The large expanses of water on our reservoirs will provide facilities for those who find relaxation in boating.

In general the project will provide, an area devoid of good recreational sites, with the water so necessary to construct good recreational facilities. It will, when developed, provide another area for the people of our urban areas to mix and enjoy themselves with their friends from rural Alberta.

The tourist industry, also, could benefit greatly from the recreational development of the area.