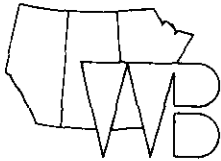


BOXELDER CREEK BASIN

APPORTIONMENT STUDY

MAY 1984

PPWB REPORT #71



PRAIRIE PROVINCES WATER BOARD

ROOM 306, MOTHERWELL BUILDING, 1901 VICTORIA AVENUE, REGINA, SASKATCHEWAN S4P 3R4 522-6671

RÉGIE DES EAUX DES PROVINCES DES PRAIRIES

Dr. W. B. Mountain
Chairman, Prairie Provinces Water Board
Environmental Conservation Service
Environment Canada
351 St. Joseph Boulevard
18th Floor
Place Vincent Massey
Ottawa, Ontario K1A 0E7

May 22, 1984

Dear Dr. Mountain:

Re: Interprovincial Apportionment of Water in Boxelder Creek Basin

The Board at Meeting No. 25 on May 7, 1981, directed the Committee on Interjurisdictional Agreements Administration to:

"study and make recommendations on procedures to be used by the Board to oversee the interprovincial apportionment of water in Boxelder and Mackay Creeks."

PPWB Board Minute 25-62, May 7, 1981

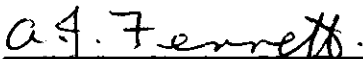
That task is discussed in the attached report entitled "Boxelder Creek Basin - Apportionment Study." The report is submitted to the Board for consideration.

The Committee has concluded that, at the present time, there is no practical method to apportion the waters of Boxelder Creek basin. Consequently, the recommendations include the implementation of interim management procedures.

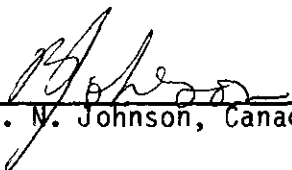
The Committee suggests that any guidelines required to apply the interim management procedures can best be developed jointly by the Alberta and Saskatchewan Water Rights offices.


Submitted by -

The COMMITTEE ON INTERJURISDICTIONAL AGREEMENTS ADMINISTRATION


A. J. Ferrett, Alberta


T. K. Olson, Saskatchewan


B. N. Johnson, Canada


R. B. Godwin, PPWB

CANADA • ALBERTA • SASKATCHEWAN • MANITOBA

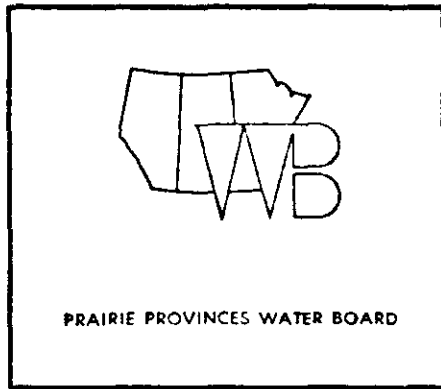
cc: PPWB Members
COIAA Members

BOXELDER CREEK BASIN

APPORTIONMENT STUDY

MAY 1984

PREPARED BY
PRAIRIE PROVINCES WATER BOARD
COMMITTEE ON INTERJURISDICTIONAL AGREEMENTS
ADMINISTRATION



SYNOPSIS

The complexity of interprovincial water allocations in Boxelder Creek basin has been recognized by Water Rights officers from Saskatchewan and Alberta for many years. The existing water allocations in this basin are reviewed and historic natural flows of Boxelder and Mackay creeks at the Alberta-Saskatchewan boundary are reconstructed. Five possible management strategies are evaluated.

It is recommended that, as an interim measure, Boxelder Creek basin be treated as a special basin with the water resources of the basin being managed jointly by Alberta and Saskatchewan. With the exceptions of domestic projects, further development of the basin should be restricted.

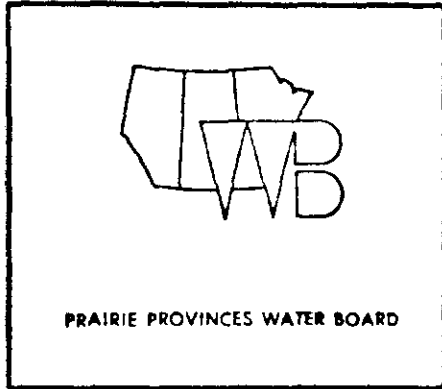


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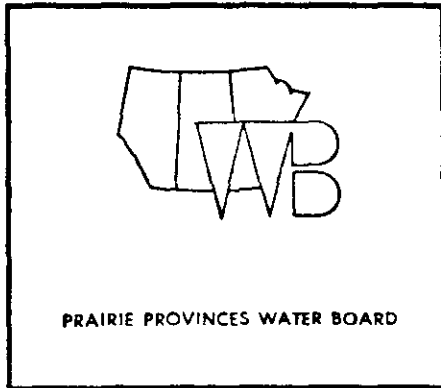
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Chapter 1

INTRODUCTION

The Many Island Lake basin (see Figure 1) is an internal drainage basin straddling the Alberta-Saskatchewan boundary midway between Maple Creek and Medicine Hat. Boxelder Creek, the major tributary to Many Island Lake, originates in Saskatchewan on the north slopes of the Cypress Hills. It flows in a northerly direction for approximately 84 kilometres, crosses the Alberta-Saskatchewan boundary and continues to flow in a northerly direction for an additional ten kilometres to end in Many Island Lake. The stream falls about 620 metres in its 94 kilometre journey from the headwaters at 1 340 metres to Many Island Lake at an elevation of 720 metres.

The main tributary to Boxelder Creek is Mackay Creek which rises on the north slopes of the Cypress Hills in Alberta. In the headwaters area Mackay Creek is at an elevation of approximately 1 280 metres and approximately three kilometres west of Boxelder Creek. Mackay Creek flows in a northerly direction, roughly parallel to Boxelder Creek, for some 68 kilometres, turns easterly, crosses the Alberta-Saskatchewan boundary and flows an additional 8 kilometres to its confluence with Boxelder Creek at an elevation of approximately 730 metres.

Water users in this basin have been aware of the limited water supply for many years. There was often not enough water to satisfy existing licensed uses.

The problem was formally recognized by the PPWB in 1974 when they recommended that a natural flow study of the basin should be made. Subsequently, in 1981, a report entitled "Boxelder Creek and Mackay Creek at Alberta-Saskatchewan Boundary - Natural Flow, September 1981" was published outlining the historical natural flow data for the Boxelder Creek and Mackay Creek at the Alberta-Saskatchewan boundary.

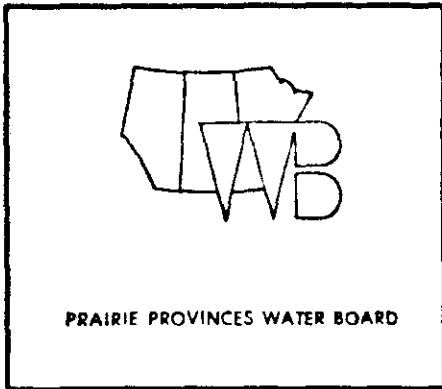
The Board, at its May 1981 meeting, accepted the above mentioned report and agreed that:

"...the Committee on Interjurisdictional Agreements Administration should study and make recommendations on procedures to be used by the Board to oversee the interprovincial apportionment of water in Boxelder and Mackay Creeks."

PPWB Board Minute 25-62 - May 7, 1981

The above assignment has since been the primary subject discussed at several meetings of the Committee on Interjurisdictional Agreements Administration. The committee, after reviewing the natural flow data presented in the natural flow study report, suggested that the Secretariat review historic uses, particularly those related to larger reservoirs in the basin. The monthly streamflow estimates confirming the validity of the annual natural flow estimates in the natural flow study are shown in Appendix I of this report.

This report describes and recommends an approach to managing the limited water supplies of the basin. Existing water allocations in the basin and future adjustments of water rights in Alberta and Saskatchewan and alternative methods for the equitable use of water in the Boxelder Creek basin are discussed and analyzed using the "revised" historical natural flow data. Finally, the recommendations of the committee are presented and recommendations are made concerning future streamflow and water use monitoring.



Chapter 2

DEFINITIONS

The following words and phrases have specific meanings that must be defined for the purposes of this report.

Agreement - means the Master Agreement on Apportionment (including Schedules A to D) executed October 30, 1969 by Canada, Alberta, Saskatchewan, and Manitoba.

Apportionment Agreement (also called the Agreement) - means the Master Agreement on Apportionment (including Schedules A to D inclusive) executed the Thirtieth day of October, 1969, A.D. by Canada, Alberta, Saskatchewan and Manitoba.

Apportionment Flow - is the quantity of flow subject to apportionment.

Apportionment Period - The Agreement states in Section 3 of Schedule A that the Apportionment Period for volumetric flow between Alberta and Saskatchewan shall be the calendar year.

Board - means the Prairie Provinces Water Board (PPWB).

COIAA - means the Committee on Interjurisdictional Agreements Administration.

Consumptive Use - means the quantity of water consumed by the project, but does not include distribution losses, evaporation losses and return flow.

Discharge - means a rate of streamflow or a quantity of flow per unit time.

Eastward Flowing Streams - means streams whose final crossing of an interprovincial boundary is in an easterly direction.

Effective Drainage Area - The effective or dry* drainage area is that portion of a drainage basin which might be expected to entirely contribute runoff to the main stream during a flood with a return period of two years. This area excludes marsh and slough areas and other natural storage areas which would prevent runoff from reaching the main stream in a year of "average" runoff.

Flow - means a quantity of streamflow.

Gross Diversion - means the quantity of water required to operate a project.

Gross Diversion = Consumptive use + Losses + Return Flow

Gross Drainage Area - The gross drainage area of a stream at a specified location is that plane area, enclosed by its drainage divide, which might be expected to entirely contribute runoff to that specified location under extremely wet conditions. The gross drainage boundary is the drainage divide (i.e., the height of land between adjoining watersheds).

Master Agreement - means the Master Agreement on Apportionment not including Schedules A to D.

Member - means member of the Prairie Provinces Water Board.

Median Annual Flow - is the annual flow that is neither greater than or smaller than the value of one-half the number of the annual flows.

Monitor - the term "monitor" when used in the Master Agreement has two distinct meanings. Section 7 of the Master Agreement states that "...the parties agree that the monitoring of the quantity and quality..." will be the responsibility of Canada. The term "monitoring" in this context means the actual determination of flow or the measurement of the concentration of various constituents in the

water bodies crossing the interprovincial boundaries. In Section 10 of the Master Agreement the term "monitoring" is used as follows: "...The Prairie Provinces Water Board shall monitor and report on the apportionment of waters...". In this context monitor means to review or administer and to maintain a watching brief.

Natural Flow - means the quantity of water that would naturally flow in any watercourse had the flow not been affected by human interference or human intervention, excluding any water that 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.

Net Depletion - means the quantity of water by which the project depletes the source of supply.

$$\begin{aligned}\text{Net Depletion} &= \text{Consumptive Use} + \text{Losses} \\ &= \text{Gross Diversion} - \text{Return Flow}\end{aligned}$$

PPWB - means Prairie Provinces Water Board.

Return Flow - is the quantity of water that returns to a stream (source of supply) after being diverted and becomes available for reallocation.

$$\text{Return Flow} = \text{Gross Diversion} - \text{Net Depletion}$$

Secretariat - means the operational unit established by the Board to carry out the day-to-day affairs of the Board.

Schedule A - means the Agreement between Alberta and Saskatchewan apportioning eastward flowing water between Alberta and Saskatchewan.

Shortage - a shortage has occurred if, at the end of an apportionment period, the terms of the 1969 Agreement have not been met at a specific apportionment point.

Subsisting Right - is a right that has not lapsed under provisions of the Alberta Act (Section 55) or the Saskatchewan Act (Section 53) or has not been cancelled under Alberta Act (Section 52, 53 or 54) or the Saskatchewan Act (Section 52).

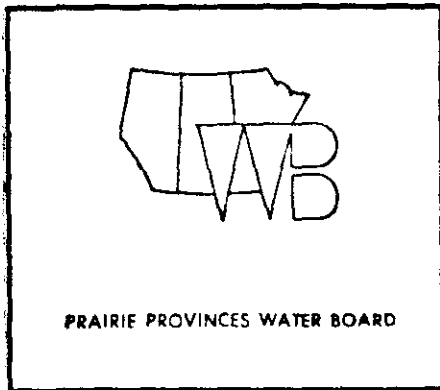
Water Rights Branch - Alberta - means the branch of the Water Resources Administration Division of the Alberta Department of Environment.

Water Rights Branch - Saskatchewan - means the branch of Water Management Service of the Saskatchewan Department of Environment.

Watercourse - in accordance with Schedules A and B of the 1969 Agreement, 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 or from the Province of Saskatchewan to the Province of Manitoba and includes all tributaries of each such river, stream, creek, or natural channel that do not themselves cross the common boundary between the Provinces of Alberta and Saskatchewan or between the Provinces of Saskatchewan and Manitoba. Any tributaries that cross the boundaries between the Provinces of Alberta and Saskatchewan or the Provinces of Saskatchewan and Manitoba are also deemed to be "watercourses" for the purpose of the agreement.

Westward Flowing Streams - means streams whose final crossing of an interprovincial boundary is in a westerly direction and are not tributary to eastward flowing streams.

Westward Flowing Tributaries of Eastward Flowing Streams - means streams that cross an interprovincial boundary in a westerly direction and are tributary to eastward flowing streams.



Chapter 3

EXISTING WATER RIGHTS

The first water right, and licence, to divert water for irrigation purposes in the Boxelder Creek basin was issued by the Federal Department of the Interior on December 5, 1904. The first licensee was soon joined by several others as settlers claimed their equitable share of the available water. When the administration of Water Rights became a provincial responsibility in 1931, the boundary between Alberta and Saskatchewan arbitrarily divided the Boxelder Creek basin as well as dividing projects in the boundary area.

Some irrigation projects previously licenced by the federal government and now licenced by either Saskatchewan or Alberta covered irrigated areas both in Alberta and Saskatchewan. For example, project WR315 (see Figure 2) licenced by Alberta, diverts water from Boxelder Creek in Alberta and uses that water in Saskatchewan. Similarly, project WR104, licenced by Saskatchewan, diverts water from Saskatchewan and uses it in Alberta. Because water rights and land are not under the same jurisdiction, it is difficult to administer the limited available water to allow for the quantity of flow that may be used in each province on these types of projects.

Present Water Right Allocations in the Basin

Water right allocations in the Boxelder Creek basin have increased steadily during the past years. At the present level (1982) of development 284 projects are authorized in Alberta and 148 projects in Saskatchewan. Most Alberta pro-

jects are in the area upstream of Mackay Creek at the Alberta-Saskatchewan boundary, and most Saskatchewan projects are in the area upstream from the junction of Boxelder Creek and Mackay Creek (see Figure 3). At the 1982 level of development, the total of water right allocations in the Boxelder basin is 12 712 acre-feet with 10 284 acre-feet (80.9%) being in the Alberta portion of the basin and 2 428 acre-feet (19.1%) in the Saskatchewan portion of the basin. Thus, about four-fifths of the total allocation is in Alberta and one-fifth in Saskatchewan. Only eight of the Alberta projects are located downstream from the Boxelder Creek at the Alberta-Saskatchewan boundary but 46% of the total allocation in Alberta, 4 741 acre-feet, is allocated to these eight projects as can be seen in Table 1.

TABLE 1

WATER RIGHTS ALLOCATION IN THE BOXELDER
CREEK BASIN AT THE 1982 LEVEL OF DEVELOPMENT

Sub Basin	Allocation in Acre-Feet	Number of projects
Alberta		
A-0	3 147	161
A-1	1 426	97
A-2	447	5
A-3	523	13
A-4	0	0
A-5	0	0
A-6	<u>4 741</u>	<u>8</u>
Total in Alberta.....	10 284.....	284.....
Saskatchewan		
S-0	807	126
S-1	238	2
S-2	1 311	3
S-3	<u>72</u>	<u>17</u>
Total in Saskatchewan.....	<u>2 428</u>	<u>148</u>
Total in Basin.....	12 712.....	432.....

Normally, the water rights offices consider the estimated median annual natural flow at the specific project site as being an upper level to determine if an additional project or allocation should be granted. If this level of use is reached in any part of the basin, there is a 50% chance in any year that the available annual flow will not satisfy all allocations. Any further allocation of water in that part of the basin will increase the probability of shortage.

At the present level (1982) of development, total allocation at the point where Mackay Creek crosses the Alberta-Saskatchewan boundary is 5 092 acre-feet. That is 65.0% of the median annual natural flow (7 831 acre-feet) of Mackay Creek at the boundary. Similarly, at the point of Boxelder Creek at the Alberta-Saskatchewan boundary, total allocation is 7 971 acre-feet which represents 70.9% of the median annual natural flow (11 234 acre-feet) at that specific point. At the point where Boxelder Creek enters Many Island Lake, however, 12 712 acre-feet have been allocated, 112.6% of the median annual flow of 11 290 acre-feet (see Table 2). Thus the available supply of water in Boxelder Creek basin is over-allocated for existing projects and there is no water left for future developments.

TABLE 2
EXISTING ALLOCATIONS AND MEDIAN ANNUAL FLOW AT
KEY LOCATIONS OF THE BOXELDER CREEK BASIN

Key Location	Existing Allocation (Acre-feet)	Median Annual Natural Flow (Acre-feet)	Allocation as a Percent of Flow
Mackay Creek at Walsh (05AH002)	3 219	6 310	51.0
Mackay Creek at Alberta-Saskatchewan Boundary	5 092	7 831	65.0
Boxelder Creek near Walsh (05AH001)	807	2 632	30.7
Boxelder Creek at Alberta-Saskatchewan Boundary	7 971	11 234	70.9
Boxelder Creek above Many Island Lake	12 712	11 290	112.6

Proposed Adjustments to Water Rights in the Basin

There are a number of instances in the Walsh Flats area (see Figure 2) where

the project that is licenced by one province uses the water in the other province. For instance, Project No. 454 was licenced by Alberta on April 1, 1914. The project has a diversion point in Alberta to service irrigated land in Saskatchewan. It also has a diversion point in Saskatchewan to irrigate land in Alberta. The project is administered by Alberta but is an interprovincial project that diverts water from both Alberta and Saskatchewan to irrigate land in both provinces.

Another example of the interprovincial connection is the water right belonging to B. Hargrave. He has 1 195 acres of irrigation in Saskatchewan (WR104) and has suggested that a portion of this acreage be transferred to the so-called "Hargrave Lake Bottom" in Alberta. The water allocated to this project would be diverted into Table Butte reservoir (see Figure 2) to service the irrigation area. Saskatchewan is generally in agreement with the proposal and is prepared to issue a licence, subject to certain conditions, to divert water to Table Butte reservoir. Alberta is also prepared to support the concept but can not make any managerial decisions until they have enough information on the proposal to ensure that downstream projects are adequately protected.

Ideally, a project should be licenced by the province that has complete jurisdiction of the project area. Adjustment of water rights acreage between the two provinces may provide a solution to some projects that concern both Alberta and Saskatchewan but it will provide only a partial solution to the overall problem. Major changes in the allocation or the diversion point will still affect downstream projects and it is possible that each province might prefer to retain their right to licence these projects even though their water use is in the adjacent province.

Proposed Changes in Irrigation Methods on Licenced Projects

In 1982, an irrigation plan was prepared by Alberta Agriculture for a high priority project in Alberta WR316 (see Figure 2). The project, situated at the bottom end of the Boxelder Creek basin, has an application date of January 16, 1906 and an existing allocation of 1 141 acre-feet granted by Alberta, to irrigate 760 acres of land. Flood irrigation has been the primary irrigation

method with spring runoff being diverted for irrigation. Historically, the adequacy of supply has been dependent upon the availability of water left after upstream use. The proposed irrigation plans suggest installation of center pivots for sprinkler irrigation of the existing project area. If the proposed irrigation method is implemented in the near future, the water user will want to use the quantity of water each year that is legally allocated to the project. This proposed change in irrigation method will probably be approved and because of the large capital costs involved, will generate a more immediate concern on the part of that project owner that a firm supply of water be available for the project in all years.

Similar changes in irrigation practices from backflood irrigation to sprinkler irrigation will probably be made for other projects in the Walsh Flats area. Each such change may place more stress on the limited water supply of the Boxelder Creek basin. However, it should result in a more effective use of the available water resource.

Reductions in Water Right Allocations in the Basin

Existing water right allocations in Alberta and Saskatchewan are now being reviewed and it is anticipated that this review will be on a continuous basis. In Alberta, for instance, a recent review by the Surface Water Rights Branch suggested that the licences for McAlpine and Spruce Coulee reservoirs may be adjusted downward. A consultant has been hired to study the reservoir storage capacity and streamflow alternatives. When that study is completed, Alberta will decide whether the project allocations should be reduced. Appendix II shows a list of water right projects in Alberta.

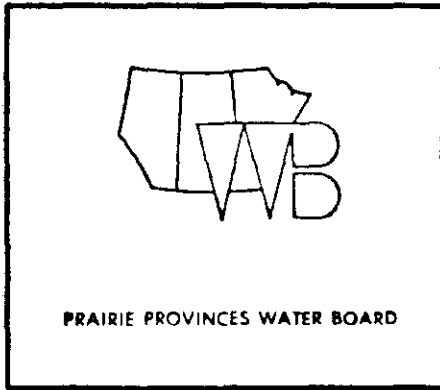
Saskatchewan Water Rights Branch has completed a similar review of the duty of water for projects in Saskatchewan and has prepared the list of current water right projects in Saskatchewan shown in Appendix III. Some further changes in allocations may take place in Saskatchewan when some inactive projects are cancelled.

An overall listing of projects is shown in Appendix IV. Some reductions in project allocation from the existing condition in both provinces may take place in future years, but the changes will probably not be significant when compared to the existing over-allocation of water in the basin.

Domestic Projects Applied for in the Basin

There are several applications for small domestic projects that have been submitted to either the Alberta or Saskatchewan water rights offices, but have not reached either the authorization or licence stages. Those domestic projects, when authorized by Alberta or Saskatchewan water rights office will be included in the total allocation of the basin. The size of domestic projects has been limited on both sides of the boundary to ensure that such projects do not store or use an excessive amount of water.

Total water rights allocations of Boxelder Creek basin may change depending on associated factors that cannot now be accurately predicted. The uncertainties in future water right allocations in this basin can be resolved through the cooperation of water right offices in the two provinces. Such cooperation is particularly important in managing the basin's water supplies so that water users on the Walsh Flats receive their fair share of the water resource.



Chapter 4

ALTERNATIVE WATER MANAGEMENT STRATEGIES

There are a number of factors that must be considered in the development of alternate apportionment methods. They include: the existing basin's allocations, the basin's water supply and demand pattern, possible changes in the basin's allocation, and the possible impacts that may be created due to the implementation of an apportionment method.

There are also several apportionment methods that may be developed: methods based on the 50:50 apportionment principle; on the existing basin's allocations; on effective drainage areas; or on a combination of these approaches. The following are four alternative apportionment methods and one management strategy that have been considered by the COIAA.

Method 1

Natural flow of Boxelder Creek and Mackay Creek at the Alberta-Saskatchewan boundary could be apportioned using the apportionment principle described in Article 3 of Schedule B of the 1969 Master Agreement on Apportionment. The applicable clause is:

- "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."

Alberta would be permitted to make a net depletion of one-half the natural flow arising in the Alberta portion of the Mackay Creek basin tributary to the boundary plus one-half of the water that flows into Alberta from Saskatchewan in the headwaters of the Mackay Creek basin. Similarly, for Boxelder Creek at the Alberta-Saskatchewan boundary, Saskatchewan would be entitled to use one-half of the apportionment flow. That flow is one-half of natural flow arising in the Saskatchewan portion of Boxelder Creek and tributary to the Alberta-Saskatchewan boundary plus one-half of the recorded (or estimated) flow of Mackay Creek at Alberta-Saskatchewan boundary.

This method most closely conforms to the Master Agreement for eastward flowing streams. Province A is permitted to make a net depletion of one-half the natural flow arising in Province A, and one-half of the water flowing into Province A, and permits the remaining one-half of the flow to flow into Province B. The waters involved in applying this method are described as follows.

Mackay Creek at Alberta-Saskatchewan Boundary

Alberta is permitted to make a net depletion of one-half the natural flow arising in Alberta and one-half of the water flowing into Alberta from S-3 (see Figure 1), which must be at least one-half the natural flow arising in S-3.

Boxelder Creek at Alberta-Saskatchewan Boundary

Saskatchewan is permitted to make a net depletion of one-half the natural flow arising in Saskatchewan between Points 1 and 2 and one-half of the water

flowing into Saskatchewan at Point 1, and from areas A-3, A-4, and A-5 (see Figure 1). The flow from A-3, A-4, and A-5 must be at least one-half the natural flow arising in the respective areas.

The method is based on the concept that available flow in the basin should be shared equally between upstream and downstream provinces but does not take into account existing water right allocations granted by the Alberta and Saskatchewan water rights offices. Existing water right allocations in the basin between Alberta and Saskatchewan are not on a 50:50 ratio and water not used by Alberta on Mackay Creek is lost to that province. Thus application of this method may give one province excess flow to develop while the other province doesn't have enough water to meet previously licenced demands.

Furthermore, Method 1 requires extensive monitoring and detailed streamflow computations to determine; annual usage throughout the basin, natural flows of the Boxelder and Mackay creeks at the Alberta-Saskatchewan boundary and the natural flow from areas S-3, A-3, A-4, and A-5 in Figure 1.

If this method was to be used, one-half of the apportionment flow at Boxelder Creek at Alberta-Saskatchewan boundary would be passed from Saskatchewan to Alberta. Application of this method to the basin may be reasonable in a wet year, but in a dry year, when water supply in the basin is critical, it would be difficult to satisfy the prior users on the Walsh Flats, the lower part of the basin.

Method 2

In Method 2, the province in which the water originates is entitled to 50 percent of the water. The other 50% of the water is divided equally between the downstream provinces. In the case of Boxelder Creek and Mackay Creek basins at the Alberta-Saskatchewan boundary (Points 1 and 2 on Figure 1), the apportionment is between Saskatchewan and Alberta. Each province would be entitled to use one-half of the natural flow arising in that province because apportionment is between provinces not between regions. Thus, a province might remove its apportionment entitlement where it is most convenient if, in so doing, the depletion

is equitable. Water not used in the upper portion of the basin may be used in the lower basin if it is needed in that particular area.

The natural flow of Mackay Creek at Alberta-Saskatchewan boundary is apportioned 50:50 between the provinces. Since Saskatchewan has made use of part of its share in S-3, Alberta would be required to deliver 50% of the natural flow less the usage in S-3 to Saskatchewan (see Figure 1). The usage in S-3 must not exceed 50% of the natural flow from S-3.

Example: Mackay Creek at Alberta-Saskatchewan Boundary

Median natural flow at Alta-Sask Boundary = 7 830 acre-feet

50% of natural flow = 3 915 acre-feet

Median use by Sask (S-3) = 72 acre-feet

Median use by Alta (A-0, A-1, A-2) = 5 020 acre-feet

In a median year the flow that should be passed into Saskatchewan would be $3\ 915 - 72 = 3\ 843$ acre-feet. Alberta would be unable to satisfy its present level of use by $5\ 020 - 3\ 915 = 1\ 105$ acre-feet in a median year.

The natural flow of Boxelder Creek at Alberta-Saskatchewan boundary is apportioned 50:50 between the provinces. Saskatchewan would be required to deliver 50% of the natural flow less the usage in A-0, A-1, A-2, A-3, A-4, and A-5 to Alberta (see Figure 1). The usage in areas A-3, A-4, and A-5 must not exceed 50% of the natural flow from the respective areas.

Example: Boxelder Creek at Alberta-Saskatchewan Boundary

Median natural flow at Alta-Sask boundary = 11 234 acre-feet

50% of natural flow = 5 617 acre-feet

Median use by Sask (S-0, S-1, S-2, S-3) = 2 428 acre-feet

Median use by Alta (A-0, A-1, A-2, A-3, A-4, A-5) = 5 543
acre-feet

Based on the apportionment of Boxelder Creek at the Alberta-Saskatchewan boundary, neither province would be in deficit in a median year. The recorded flow to Alberta would be $11\ 234 - 2\ 428 - 5\ 543 = 3\ 263$ acre-feet. This would not be enough to satisfy Boxelder Creek uses in Alberta downstream of the Alberta-Saskatchewan boundary and that portion of the basin would be in deficit by 1 478 acre-feet.

This method is more flexible than Method 1 in terms of the locations at which water may be withdrawn by each province. Also, flow passed from one province to another would not have to be reapportioned each time a boundary is crossed. It has the same disadvantages as does Method 1 in that an extensive monitoring system would be needed to evaluate streamflow and uses.

With Method 2, total available flow in the basin would be shared between the two provinces more effectively. However, the quantity of flow apportioned to each province does not necessarily reflect the existing water right allocations in that province. Existing water right allocations in Alberta are four times as much as allocations in Saskatchewan; sharing of the basin's natural flow on a 50:50 basis would not meet the needs of water users in Alberta, and some of their projects would suffer from more frequent shortages.

Method 3

The existing allocations of the Boxelder Creek basin in Alberta and Saskatchewan are not in a 50:50 ratio in the two provinces. If interprovincial apportionment of flow was based on a ratio of existing allocations, the concerns related to protecting existing allocations in each province would be lessened. Method 3 proposes this alternative. It is a modification of Method 2. The difference is that the ratio of water use in existing projects would now become the apportionment ratio.

Existing allocations in Boxelder Creek basin total 12 712 acre-feet; 10 284 acre-feet in Alberta and 2 428 acre-feet in Saskatchewan. Therefore, four-fifths of the total allocation is in Alberta and one-fifth in Saskatchewan. In Method 3, the apportionment ratio between Alberta and Saskatchewan would be

4:1 and Alberta would be entitled to four-fifths of the total natural flow arising in the basin, and Saskatchewan would receive one-fifth of the flow. Thus, total natural flow in the basin would be shared at a ratio that is similar to the ratio of existing water rights allocations in the two provinces.

The major problem in proposing this method is in selecting the ratio that would be used to apportion the water between the two provinces. Water rights allocations in each province may change from year to year as projects are cancelled and/or new projects are developed so the ratio of allocations in the two provinces will change as a result of these changes in use. This method would also require the same level of streamflow and water use monitoring as needed in Methods 1 and 2.

Therefore an apportionment ratio which is equitable at this point in time may not be equitable in future years and periodic negotiations would be needed to keep the ratio current. Method 3 is not equitable in terms of sharing natural flow between the two provinces.

Method 4

If one considers the drainage area above the confluences of Boxelder and Mackay creeks, approximately 96% of Boxelder Creek's effective drainage area is in Saskatchewan and 93% of Mackay Creek's effective drainage area is in Alberta. The minor drainage areas that contribute flow from Saskatchewan to Mackay Creek, and from Alberta to Boxelder Creek are relatively small. Method 4 proposes that, to simplify the problem, Boxelder and Mackay creeks above their confluence be treated as two separate basins. Alberta would have the right to all water arising in Mackay Creek (7 830 acre-feet in a median year) and Saskatchewan would have the right to all water rising in Boxelder Creek above its junction with Mackay Creek (2 661 acre-feet in a median year).

Any flow passed from Alberta to Saskatchewan via Mackay Creek would have to be passed from Saskatchewan back to Alberta via Boxelder Creek. Existing allocations in drainage areas S-3 in Mackay Creek basin and A-4 in Boxelder Creek basin (see Figure 1) would be managed by neighboring provinces respectively, and an

upper level of development would be placed on these sub-areas. As with Methods 1 to 3, an extensive streamflow monitoring network would be needed to measure the basin's water.

Method 4 does not relate to existing licences and does not allow for the diversion of waters in areas A3, A-5, and S-2, the areas downstream from the confluence of Mackay Creek and Boxelder Creek and upstream from Boxelder Creek at the Alberta-Saskatchewan boundary. If used in dry years, it would result in water shortages to the downstream users on the Walsh Flats.

Method 5

Method 5 is not an apportionment method but it is a feasible management strategy. It does not use any set ratio or percentage to allocate water between the two provinces. It is, however, a proposal that could be used to manage the available water based on existing licenced water uses.

Existing allocations in the Boxelder Creek basin have exceeded the median annual natural flow of the basin. The balance of available water supply and water demand in the basin, as measured by licenced uses, has reached the stage that sound management is urgently needed.

Method 5 proposes that the Boxelder Creek basin be treated as a special basin without any interprovincial apportionment. The water resources of the basin would be managed jointly by Alberta and Saskatchewan Water Rights offices.

If Method 5 is implemented it may be jointly controlled by the Water Rights offices of Alberta and Saskatchewan with the Board having a continued involvement as a neutral agency prepared to adjudicate management problems that are not mutually agreed upon by the two Water Rights offices.

At some time in the future, some of the existing water users may decide to cancel their water rights. As a guide it is suggested that if the combined total of such cancellations reduces total water usage to less than 8 470 acre-feet (75%

of the median annual natural flow), some consideration may be given to another form of apportionment.

Discussion of Methods

Schedule A of the 1969 Master Agreement on Apportionment established a method to apportion the eastward flowing streams which flow from Alberta to Saskatchewan. Boxelder Creek flows in a westward direction from Saskatchewan to Alberta and terminates in Many Island Lake, a large shallow lake that straddles the Alberta-Saskatchewan Boundary. Because it is not in the same category as eastward flowing streams, the methods described in the 1969 Agreement may not be used directly to apportion the flow of Boxelder and Mackay creeks between Alberta and Saskatchewan but the same principles as described in that agreement may be used to propose alternative water management strategies to equitably share the water of this basin.

Any form of artificial division of water between the two provinces would, in some years, affect the basin's existing water supply and demand patterns. For example, if the flow of Mackay Creek at the Alberta-Saskatchewan boundary is apportioned on a 50:50 basis, or on any appropriate ratio, the water rights allocated by Alberta upstream of that point would have to be rationed in dry years to ensure that high priority projects further downstream would receive their legal entitlement prior to any depletions being made by low priority projects. There is also a possibility that the waters passed from Alberta to Saskatchewan may not be used by projects in Saskatchewan, and the Alberta users could reasonably argue that their water uses were being rationed unnecessarily to meet "paper" downstream demands.

Most projects in Saskatchewan are located upstream of the confluence with Mackay Creek and can not make beneficial use of flow passed from Alberta (see Figure 3). Similarly, the apportionment of flow of Boxelder Creek at the Alberta-Saskatchewan boundary would place some stress on all projects located upstream of the confluence in Saskatchewan and Saskatchewan users, if rationed,

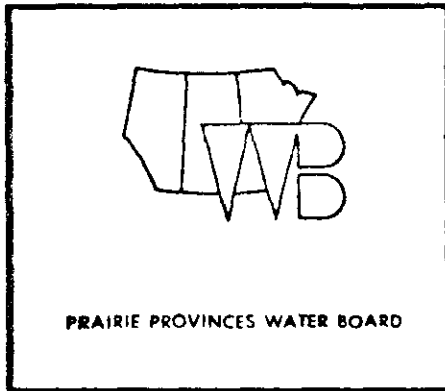
could use the same type of argument; that water passed from Saskatchewan to Alberta would be wasted if it drained to Many Island Lake.

There are several high priority projects located at the downstream end of Boxelder Creek basin. They must be satisfied first before considering the lower priority projects in the upstream basin. If water is apportioned between the two provinces, Alberta may have difficulties in protecting those high priority projects, especially in a extremely dry year.

The high monitoring costs associated with Methods 1 to 4 would make them impractical to implement. If a comprehensive monitoring network was developed to measure streamflow and water uses in the basin, it is questionable, because of the physical characteristics of the basin, whether a reasonable level of accuracy could be attained in determining natural flow in each province.

It is apparent that any form of interprovincial apportionment for Boxelder Creek basin will not benefit Alberta or Saskatchewan in their efforts to effectively manage the basin's water resources.

Method 5 is more flexible than any of the four apportionment methods previously described in this chapter. Alberta and Saskatchewan Water Rights offices would be in a better position to negotiate the adjustment of existing water rights; to protect the high priority projects in both provinces; and, through interprovincial cooperation, to efficiently manage the basin's water resources.



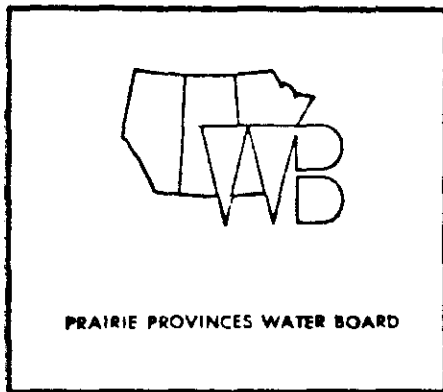
Chapter 5

CONCLUSIONS

It is concluded that:

1. The available flow, considering Boxelder Creek basin as a whole, is fully allocated to existing projects and there is no potential for additional development at this time.
2. Existing water rights licences in the Walsh Flats area need to be updated in both provinces and all other licences in the Boxelder Creek basin should be reviewed on a continuing basis.
3. At the present stage of development, existing control structures allow very limited opportunity for either province to make up deficits.
4. Management of water is not a problem in an extremely wet year when natural flow exceeds the basin's total allocation. In a dry year, however, when natural flow is less than the basin's total allocation, careful water management is needed to ensure that the higher priority projects located in the Walsh Flats area are adequately protected.
5. A shortage of water use data makes it difficult to accurately estimate existing water uses in the Boxelder Creek basin. Consequently, it is difficult to estimate natural flow to any reasonable degree of accuracy.

6. The previously published report on natural flow of Boxelder and Mackay Creeks (PPWB report No. 56, September 1981) concluded that the feasibility of relocating the hydrometric station at Mackay Creek near Walsh (05AH002) should be evaluated by WSC. With the exception of this evaluation the present hydrometric network for the Boxelder Creek basin appears adequate at this time.
7. It is not practical to apportion the flow of Boxelder Creek basin using the principles established in the 1969 Master Agreement on Apportionment because of its geographic configuration and because of existing water uses in the basin.
8. Method 5, implemented on an interim basis, is the most feasible approach to managing the water resources of the Boxelder Creek basin. If, at some future time, basin water uses decrease to less than 75% of median flow, consideration may be given to some other type of water management for the basin.



Chapter 6

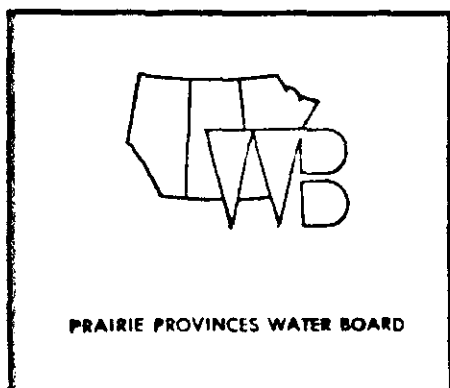
RECOMMENDATIONS

It is recommended that:

1. The Boxelder Creek basin should, at this time, be treated as a special interprovincial basin. Available flow in this basin should be jointly managed by Alberta and Saskatchewan instead of through a formal apportionment of the basin. This is the interim procedure described in Method 5 on page 19.
2. As an interim procedure, Alberta and Saskatchewan jointly manage the basin and provide the Prairie Provinces Water Board with a joint annual report describing the management of the basin for the previous calendar year.
3. Each province annually collect sufficient water use data to provide an accurate estimate of total water use in the basin. These data will be recorded in the agencies' joint annual report to the Prairie Provinces Water Board.
4. Development of the basin in Alberta and Saskatchewan be restricted to domestic projects. The size of these projects should be restricted so

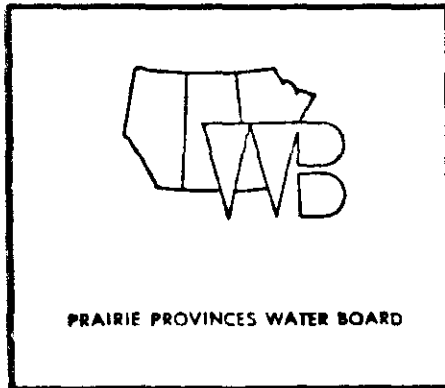
they do not store or use an excessive amount of water. No further development should be considered unless cancellation of existing water rights brings the total water allocated in the basin to less than 8 470 acre-feet (75% of median annual natural flow).

5. Projects that are of joint concern be approved by both provinces with a licence being issued by one province and approved by the other province.
6. Alberta and Saskatchewan Water Rights offices should update water right files of the Boxelder Creek basin in their respective province and should keep the other province informed of all revisions.
7. The necessity for establishing additional hydrometric stations or relocating existing hydrometric stations be reevaluated if the preceding recommendations of this report are accepted.



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5. Historical Streamflow Summary - Alberta to 1979, Environment Canada, Inland Waters Directorate, Water Resources Branch, Water Survey of Canada, Ottawa, Canada 1980.
6. Historical Streamflow Summary - Saskatchewan to 1979, Environment Canada, Inland Waters Directorate, Water Resources Branch, Water Survey of Canada, Ottawa, Canada 1980.



Appendix I

ESTIMATION OF HISTORICAL NATURAL FLOWS

Historical flows in the Boxelder Creek basin have been estimated by two other agencies in previous years. In 1954, the PFRA Hydrology Division, in a report entitled "Water Supply and Irrigation in the Many Island Lake Basin," estimated the combined annual runoff of Boxelder Creek near Walsh (05AH001) and Mackay Creek at Walsh (05AH002) for the period 1920-1950. Missing annual runoff volumes were estimated using Ross Creek near Irvine station (05AH003) as the independent variable in a graphical correlation.

In 1981, Water Survey of Canada prepared a report for the PPWB entitled "Boxelder Creek and Mackay Creek at the Alberta-Saskatchewan Boundary - Natural Flow." It provided estimates of annual natural flow for seven key locations in the Boxelder Creek basin. In that report, missing annual runoff for the Boxelder Creek near Walsh (05AH001) and Mackay Creek at Walsh (05AH002) was estimated using the estimates previously made in the "Water Supply and Irrigation in the Many Island Lake" report and adjusting them based on the annual flow relationship between the two stations. Annual natural flow volume for the same two stations was then estimated by adding historical allocations to these estimated annual volumes.

The Secretariat of the PPWB, at the suggestion of the COIAA, reviewed the natural flow estimates prepared by Water Survey of Canada and made estimates of the monthly distribution of flow for the period 1911 to 1979 inclusive. These estimates of annual flow based on the monthly distribution of flow compared

favourably with the annual flows previously estimated. They are presented here as a "best estimate" of what can be achieved with existing data. The results emphasize the point made in the 1981 natural streamflow report that more water use data is needed to produce better natural flow estimates.

The median annual natural flow estimates quoted in this report were determined from Tables A-2, and A-4 to A-10 inclusive but no further use was made of the monthly estimated flows.

Reconstruction of Natural Flow Data

The first step in estimating historical natural flow in the basin was to estimate the quantities of water withdrawn in past years. Water rights files in Alberta and Saskatchewan Water Rights offices provided an estimate of the volume of water used in normal and below-normal years. The amount of water actually diverted by each project varied from year to year. In a wet year, for example, irrigation users might reduce their withdrawal to much less than their legal allocation. In a dry year, however, they would withdraw as much water as possible, within the limits of their licensed allocation and the availability of water, to maintain a favourable growing climate.

Historical water uses upstream in Boxelder Creek basin were estimated by assuming that all projects located within the effective drainage areas of the basin would consume water from the year they were authorized to the year they were cancelled. It was also assumed that a constant quantity of water would be used each year because there was not enough information available to make any further modification to annual runoff.

Streamflow records in the Boxelder Creek basin indicated that most runoff occurred in the months of March, April, and May. It was assumed, based on experience in similar basins, that annual water uses in these basins would be withdrawn 30% in March, 40% in April, and 30% in May.

There are four community reservoirs located in the Alberta portion of the Mackay Creek basin, a tributary of Boxelder Creek; Spruce Coulee, Cypress View,

McAlpine Creek, and Mackay Creek reservoirs. Existing allocations of four reservoirs accounts for a major portion of the total allocation in the Mackay Creek basin. The Surface Water Rights Branch of Alberta Environment recently conducted a review of project allocations on the reservoirs and recommended that project allocations for McAlpine Creek and Spruce Coulee reservoirs be adjusted downward. A field investigation of these reservoirs was also conducted by the PPWB Committee on Interjurisdictional Agreements Administration. These investigations, with some operation records, were used to estimate historic water uses at each reservoir.

Based on the above three sources of information the annual uses for the projects were estimated to be:

<u>Reservoir Name</u>	<u>Location</u>	<u>Existing Allocation (ac-ft)</u>	<u>Estimated Annual Historical Use (ac-ft)</u>
1. Spruce Coulee	SW26-08-02-W4	500	250
2. Cypress View	SE07-10-01-W4	250	250
3. McAlpine Creek	NW01-09-02-W4	500	250
4. Mackay creek	SW07-09-01-W4	500	250

These estimated annual historical uses were added to the other basin uses (instead of existing allocation) to generate tables of historical water use data (see Tables B-2 and B-5).

Historic water uses were also estimated for Ross Creek basin so that its recorded flows could be naturalized before they were used to estimate missing flow data on Boxelder Creek. These estimates (Table B-8) would not have been complete without including uses in the Ross Creek Irrigation District. Historical water uses for this district (RCID) were listed by the Hydrology Branch of Alberta Environment in a study entitled "South Saskatchewan River Historical Natural Flow 1912-1978" (see Table B-9). These estimates, added to the historic water uses in the basin, produced an array of historical water uses for projects upstream of Ross Creek near Irvine (05AH003).

Natural flow estimates for each hydrometric station were produced by adding the monthly water use figures to recorded flow (Tables B-1, B-4, and B-7) to produce an estimated monthly natural flow at the three stations (see Tables B-3, B-6 and B-10). Recorded streamflow for Lodge Creek at the International boundary (B11AB006) was used to fill in some months prior to 1951 (see Table A-12). No adjustments were made to these Lodge Creek records to estimate natural streamflow but the original record was not affected by large upstream reservoirs or diversions.

Estimation of Missing Natural Flow Data

(A) Boxelder Creek Near Walsh

Missing natural flow data for Boxelder Creek near Walsh was estimated using a simple logarithmic linear regression with monthly natural flows of Ross Creek near Irvine (05AH003). When Ross Creek records were not available a correlation was made using natural flow estimates of Lodge Creek at the international boundary (11AB006) as the independent variable. Table A-1 shows the regression equations and priorities used to estimate missing data. Missing flow data for winter months such as January, February, November, and December were assumed to be zero. Those estimated missing data that have extremely low value were also assumed to be zero.

Table A-2 shows the extended monthly natural flow of the Boxelder Creek near Walsh (05AH001) for the period 1911 to 1979.

(B) Mackay Creek at Walsh

Missing natural flow data for the Mackay Creek at Walsh were estimated using a simple logarithmic linear regression techniques with monthly natural flow of Ross Creek near Irvine (05AH003), Boxelder Creek near Walsh (05AH001), and Lodge Creek at the International Boundary station (11AB006) as independent variables (see Table A-3). Missing flow data for winter months and those estimated flows that have extremely low values were assumed to be zero. The extended monthly natural flow for Mackay Creek at Walsh (05AH002) is shown in Table A-4.

Estimation of Natural Flow for Key Locations in the Boxelder Creek Basin

Monthly natural flow was estimated at eight key locations in the drainage basin. These eight sites were:

- A) Mackay Creek at Walsh
- B) Mackay Creek at Boundary
- C) Mackay Creek above Confluence
- D) Boxelder Creek near Walsh
- E) Boxelder Creek above Confluence
- F) Boxelder Creek below Confluence
- G) Boxelder Creek at Boundary
- H) Boxelder Creek above Many Island Lake

Streamflow estimates were made at two sites, Mackay Creek at Walsh (Table A-4) and Boxelder Creek near Walsh (Table A-2). Streamflow estimates at the remaining six sites were based on estimates at these two sites with adjustments being made for estimated local unit runoff downstream from the hydrometric stations. The following example shows how these streamflow estimates for Mackay Creek at the boundary were calculated.

Given that:

- Median Annual Natural Flow of Mackay Creek at Walsh = 6310 acre ft/mi²
- Median Annual Unit Runoff between Walsh to Boundary = 17 acre ft/mi²
- Effective Drainage Area between Walsh to Boundary = 89.6 mi²

Calculate that:

The Median Annual flow for the local tributary area was calculated to be $17 \times 89.6 = 1520$ acre feet. This amount was added to the median flow at the upstream gauging station to produce an estimated Median Annual Natural Flow for Mackay Creek Boundary of $6310 + 1520 = 7830$ acre feet. The ratio of:

$$\frac{\text{Mackay Creek @ Boundary } 7830}{\text{Mackay Creek @ Walsh } 6310} = 1.241. \text{ Each of the monthly flows for}$$

Mackay Creek at Walsh was then multiplied by the ratio 1.241 to give an estimated monthly flow for Mackay Creek at the boundary.

Similar ratios were established for each of the six sites as shown:

RATIOS USED TO ESTIMATE MONTHLY STREAMFLOW AT KEY SITES

Key Location	Natural Streamflow Array	Table
A) Mackay Creek at Walsh	C5AH002	A-4
B) Mackay Creek at Boundary	C5AH002 x 1.2409	A-5
C) Mackay Creek above Confluence	C5AH002 x 1.2835	A-6
D) Boxelder Creek near Walsh	C5AH001	A-2
E) Boxelder Creek above Confluence	C5AH001 x 1.011	A-7
F) Boxelder Creek below Confluence	Table A-6 + Table A-7	A-8
G) Boxelder Creek at Boundary	Table A-8 x 1.0073	A-9
H) Boxelder Creek above Many Island Lake	Table A-8 x 1.0118	A-10

The median annual local runoff estimates used to calculate the above ratios were calculated as follows:

CALCULATION OF MEDIAN ANNUAL LOCAL INFLOW

Creek	From	To	Effective Drainage Area (Square Miles) (1)	Unit Median Annual Runoff (Ac.ft./mi ²) ^[1] (2)	Median Annual Flow (1x2=3)
Mackay	Walsh	Boundary	89.6	17	1520
Mackay	Boundary	Confluence	16.8	16	270
Boxelder	Near Walsh	Confluence	1.8	16	29
Boxelder	Confluence	Boundary	5.4	15	81
Boxelder	Boundary	Many Island	3.4	15	51

[1] Unit runoffs are based on the PFRA report entitled "Report on Median Annual Unit Runoff for the Prairie Provinces".

WATER USE

NATURAL FLOW ARRAYS

TABLE A-1

REGRESSION ANALYSIS TABLE
BOXELDER CREEK NEAR WALSH

DEPENDENT VARIABLE: Boxelder Creek Near Walsh (C5AH001)

NOTE: All correlations are based on Natural Flows

PRIORITY NO.1

	Intercept	Independent Variable	R=Coeff. of corr.	Se=Std. error of estimate
		B5AH003		
Jan.				
Feb.				
Mar.	-0.2974	0.8989	0.917	0.195
Apr.	-0.4782	0.9570	0.924	0.177
May	-0.2933	0.8189	0.895	0.196
June	-0.0887	0.5630	0.794	0.306
July	-0.0115	0.3052	0.714	0.169
*Aug.	-0.0074	0.3676	0.712	0.110
*Sept.	-0.0074	0.3676	0.712	0.110
*Oct.	-0.0074	0.3676	0.712	0.110
Nov.				
Dec.				

PRIORITY NO.2

	Intercept	Independent Variables	R=Coeff. of corr.	Se=Std. error of estimate
		B11AB006		
Jan.				
Feb.				
Mar.	0.8818	0.1899	**0.341	0.619
Apr.	-0.9935	0.8535	0.631	0.482
May	-0.5974	0.8085	0.780	0.367
June	-0.1188	0.6412	0.780	0.383
July	0.0107	0.3104	0.905	0.200
*Aug.	-0.0103	0.3081	0.745	0.180
*Sept.	-0.0103	0.3081	0.745	0.180
*Oct.	-0.0103	0.3081	0.745	0.180
Nov.				
Dec.				

* Same equation was used for the months of August, September, and October.
** For the years of 1913 and 1912 to 1936 only.

TABLE A-2
BOXELDER CREEK NEAR WALSH (C05AH001)
EXTENDED NATURAL FLOWS

(ft³/sec)

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	MEAN	ACRE-FEET
1911	0.00	0.00	12.60	8.10	3.60	1.80	8.10	0.00	14.00	0.60	0.00	0.00	4.08	2953.
1912	0.00	0.00	13.50	17.30	3.30	1.00	0.00	0.00	0.00	0.00	0.00	0.00	2.92	2121.
1913	0.00	0.00	7.35	11.12	1.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.68	1218.
1914	0.00	0.00	5.66	6.52	1.34	0.00	0.00	0.00	0.00	3.40	0.00	0.00	1.42	1027.
1915	0.00	0.00	19.16	9.72	2.86	17.90	1.60	0.00	0.00	0.00	0.00	0.00	4.28	3095.
1916	0.00	44.00	20.46	2.42	23.86	38.20	4.90	3.20	0.00	3.10	0.00	0.00	11.52	8361.
1917	0.00	0.00	6.56	147.32	29.36	3.90	0.00	0.00	0.00	0.00	0.00	0.00	15.48	11206.
1918	0.00	0.00	60.06	5.22	1.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.64	4085.
1919	0.00	0.00	1.05	4.02	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	362.
1920	0.00	0.00	24.29	34.94	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.62	2631.
1921	0.00	0.00	10.21	27.07	5.46	6.84	0.00	0.00	0.00	0.00	0.00	0.00	3.62	2624.
1922	0.00	0.00	19.37	72.70	10.79	1.50	0.00	0.00	0.00	0.00	0.00	0.00	8.66	6269.
1923	0.00	0.00	6.45	10.75	0.00	7.03	0.00	0.00	0.00	0.00	0.00	0.00	2.01	1454.
1924	0.00	0.00	0.00	2.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	172.
1925	0.00	0.00	39.08	17.39	2.02	1.20	0.00	0.00	0.00	0.00	0.00	0.00	5.02	3633.
1926	0.00	0.00	9.41	3.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06	769.
1927	0.00	0.00	7.64	24.02	32.36	6.75	2.42	1.76	0.00	1.59	0.00	0.00	6.42	4645.
1928	0.00	0.00	35.62	5.63	1.28	5.53	2.39	0.00	0.00	0.00	0.00	0.00	4.24	3079.
1929	0.00	0.00	22.01	17.30	7.05	1.24	0.00	0.00	0.00	0.00	0.00	0.00	3.99	2890.
1930	0.00	0.00	2.47	5.93	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	540.
1931	0.00	0.00	0.00	0.00	0.00	0.00	1.30	0.00	0.00	0.00	0.00	0.00	0.22	157.
1932	0.00	0.00	17.96	3.94	1.10	1.92	0.00	0.00	0.00	0.00	0.00	0.00	2.06	1496.
1933	0.00	0.00	18.17	2.36	5.73	3.28	2.45	0.00	0.00	0.00	0.00	0.00	2.70	1957.
1934	0.00	0.00	19.81	2.57	0.00	2.46	0.00	0.00	0.00	0.00	0.00	0.00	2.10	1517.
1935	0.00	0.00	19.34	23.49	3.85	0.00	1.05	0.00	0.00	0.00	0.00	0.00	3.97	2876.
1936	0.00	0.00	21.40	37.74	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.99	3624.
1937	0.00	0.00	0.59	6.27	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	440.
1938	0.00	0.00	15.61	21.74	4.75	0.00	2.86	0.00	3.16	0.00	0.00	0.00	4.02	2909.
1939	0.00	0.00	36.57	3.29	0.78	4.48	1.63	0.00	0.00	0.00	0.00	0.00	3.95	2862.
1940	0.00	0.00	22.20	43.64	5.17	1.00	1.80	1.58	1.78	1.19	0.00	0.00	6.38	4631.
1941	0.00	0.00	16.82	1.13	0.83	1.83	2.61	0.00	0.00	0.00	0.00	0.00	1.96	1420.
1942	0.00	0.00	1.00	5.66	0.87	4.80	2.20	0.00	0.00	0.00	0.00	0.00	1.21	872.
1943	0.00	0.00	44.67	9.16	1.75	0.00	1.69	0.00	0.00	0.00	0.00	0.00	4.84	3503.
1944	0.00	0.00	1.17	1.41	1.07	0.00	2.82	0.00	0.00	0.00	0.00	0.00	0.54	395.
1945	0.00	0.00	12.82	1.19	1.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.28	929.
1946	0.00	0.00	24.60	3.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.38	1723.
1947	0.00	0.00	68.51	18.60	2.60	1.10	0.00	0.00	0.00	0.00	0.00	0.00	7.66	5544.
1948	0.00	0.00	33.50	48.63	6.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.37	5353.
1949	0.00	0.00	7.16	2.38	1.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92	667.
1950	0.00	0.00	9.00	9.29	1.68	0.00	0.00	0.13	0.00	0.00	0.00	0.00	1.68	1215.
1951	0.00	0.00	50.80	79.22	14.70	7.50	1.80	0.09	5.30	0.00	0.00	0.00	13.29	9619.
1952	0.00	29.70	100.84	90.62	7.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.94	13752.
1953	0.00	0.00	25.83	23.84	19.73	52.30	0.03	0.00	0.00	0.00	0.00	0.00	10.13	7333.
1954	0.00	0.13	3.00	32.33	8.90	6.20	0.03	0.00	0.00	0.00	0.00	0.00	4.19	3033.
1955	0.00	0.00	42.90	178.13	20.40	0.90	40.40	0.00	0.00	0.00	0.00	0.00	23.52	17029.
1956	0.00	0.00	55.93	13.27	4.53	0.00	0.00	10.70	0.00	0.00	0.00	0.00	7.11	5165.
1957	0.00	20.70	33.54	20.29	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.43	4652.
1958	0.00	0.00	12.06	17.12	3.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.69	1948.
1959	0.00	0.00	31.57	7.84	3.15	0.33	0.07	0.00	0.00	0.00	0.00	0.00	3.63	2625.
1960	0.00	0.00	13.25	5.74	9.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.37	1718.
1961	0.00	0.00	3.23	4.46	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92	662.
1962	0.00	0.00	7.55	4.98	3.55	0.82	0.00	0.00	0.00	0.00	0.00	0.00	1.42	1027.
1963	0.00	0.00	4.20	5.08	3.69	0.11	4.20	0.00	0.00	0.00	0.00	0.00	1.45	1052.
1964	0.00	0.00	3.78	5.20	12.58	2.20	0.00	0.00	0.00	0.00	0.00	0.00	1.99	1446.
1965	0.00	0.00	5.54	62.99	5.04	14.90	1.50	0.00	0.00	0.00	0.00	0.00	7.43	5377.
1966	0.00	0.00	29.20	13.47	7.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.25	3076.
1967	0.00	0.00	49.21	33.33	87.01	1.10	0.00	0.00	0.00	0.00	0.00	0.00	14.40	10424.
1968	0.00	0.00	5.78	7.02	4.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.44	1048.
1969	0.00	0.00	43.47	14.71	4.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.25	3798.
1970	0.00	0.00	15.45	22.32	8.25	2.90	0.00	0.00	0.00	0.00	0.00	0.00	4.09	2957.
1971	0.00	62.80	16.46	18.32	3.96	0.27	0.00	0.00	0.00	0.00	0.00	0.00	8.08	5849.
1972	0.00	0.00	26.24	5.43	3.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	2178.
1973	0.00	0.10	4.28	7.21	4.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33	964.
1974	0.00	0.00	11.22	9.74	11.62	0.12	0.00	0.00	0.00	0.00	0.00	0.00	2.75	1991.
1975	0.00	0.00	4.02	27.44	50.42	15.30	0.88	0.00	0.00	0.00	0.00	0.00	8.21	5944.
1976	0.00	0.00	20.79	8.49	3.99	1.40	0.01	0.00	0.00	0.00	0.00	0.00	2.91	2112.
1977	0.00	0.00	3.99	5.49	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13	817.
1978	0.00	0.00	30.22	14.00	4.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.10	2969.
1979	0.00	0.00	53.00	19.03	9.82	0.00	0.21	0.00	0.00	0.00	0.00	0.00	6.92	5007.
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	157.
MAX	0.00	62.80	100.84	178.13	87.01	52.30	40.40	10.70	14.00	3.40	0.00	0.00	23.52	17029.
MEAN	0.00	2.30	20.59	20.50	7.29	3.12	1.30	0.26	0.35	0.14	0.00	0.00	4.66	3374.



Priority 1



Priority 2

TABLE A-3

REGRESSION ANALYSIS TABLE
MACKAY CREEK AT WALSH

DEPENDENT VARIABLE: Mackay Creek at Walsh (C5AH002)

NOTE: All correlations are based on Natural Flows

PRIORITY NO.1

	Intercept	Independent Variables 85AH001	R=Coeff. of corr.	Se=Std. error of estimate
Jan.				
Feb.				
Mar.	0.4441	0.8775	0.911	0.175
Apr.	0.5274	0.9425	0.911	0.160
May	0.5262	1.0037	0.922	0.166
June	0.3109	1.2142	0.800	0.410
July	0.0776	1.1235	0.660	0.291
*Aug.	0.0272	0.9753	0.708	0.174
*Sept.	0.0272	0.9753	0.708	0.174
*Oct.	0.0272	0.9753	0.708	0.174
Nov.				
Dec.				

PRIORITY NO.2

	Intercept	Independent Variables 85AH003	R=Coeff. of corr.	Se=Std. error of estimate
Jan.				
Feb.				
Mar.	0.1039	0.8266	0.918	0.171
Apr.	0.0299	0.9154	0.937	0.134
May	0.0771	0.9374	0.940	0.169
June	0.0306	0.9472	0.926	0.257
July	-0.0276	0.6449	0.889	0.188
*Aug.	-0.0070	0.7596	0.876	0.126
*Sept.	-0.0070	0.7596	0.876	0.126
*Oct.	-0.0070	0.7596	0.876	0.126
Nov.				
Dec.				

PRIORITY NO.3

	Intercept	Independent Variables 85AH002	R=Coeff. of corr.	Se=Std. error of estimate
Jan.				
Feb.				
Mar.	0.1039	0.8266	0.918	0.171
Apr.	0.0299	0.9154	0.937	0.134
May	0.0771	0.9374	0.940	0.169
June	0.0306	0.9472	0.926	0.257
July	-0.0276	0.6449	0.889	0.188
*Aug.	-0.0070	0.7596	0.876	0.126
*Sept.	-0.0070	0.7596	0.876	0.126
*Oct.	-0.0070	0.7596	0.876	0.126
Nov.				
Dec.				

* Same equation was used for the months of August, September, and October.

** For the years of 1913, and 1932 to 1935 only.

TABLE A-4

**MACKAY CREEK AT WALSH (C05AH2)
EXTENDED NATURAL FLOWS**

(ft³/sec)

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	MEAN	ACRE-FOOT
1911	0.00	0.00	23.42	24.35	9.82	1.70	7.80	0.00	30.40	4.40	0.00	0.00	8.50	6153.
1912	0.00	0.00	70.62	90.65	24.42	5.40	0.03	0.00	0.00	0.00	0.00	0.00	15.93	11561.
1913	0.00	0.00	12.62	22.85	4.62	0.00	0.00	0.00	0.33	10.90	0.00	0.00	5.99	4335.
1914	0.00	0.00	43.82	28.75	15.82	87.20	14.50	5.10	0.10	1.50	0.00	0.00	16.40	3109.
1915	0.00	0.00	50.32	11.35	84.72	191.00	23.10	13.10	2.10	5.40	0.00	0.00	31.72	11870.
1916	0.00	0.00	9.02	362.25	131.62	7.10	1.50	0.00	0.00	0.00	0.00	0.00	42.43	23026.
1917	0.00	0.00	67.02	36.95	7.12	0.80	0.00	0.00	0.00	0.00	0.00	0.00	9.40	30717.
1918	0.00	0.00	2.45	16.95	2.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.83	6805.
1919	0.00	0.00	44.81	40.80	12.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.23	1326.
1920	0.00	0.00	20.18	72.04	18.05	1.13	0.00	0.00	0.00	0.00	0.00	0.00	9.26	5973.
1921	0.00	0.00	36.38	185.35	39.40	3.00	0.00	0.00	0.00	0.00	0.00	0.00	21.92	6704.
1922	0.00	0.00	13.25	29.77	0.00	40.23	0.00	0.00	0.00	0.00	0.00	0.00	6.88	15867.
1923	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	4980.
1924	0.00	0.00	69.16	47.19	5.77	2.04	0.00	0.00	0.00	0.00	0.00	0.00	6.70	505.
1925	0.00	0.00	18.74	9.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.43	7548.
1926	0.00	0.00	15.48	64.25	138.46	37.58	6.44	3.25	0.00	2.66	0.00	0.00	2.36	1708.
1927	0.00	0.00	63.71	16.05	3.42	26.84	6.23	0.00	0.00	0.00	0.00	0.00	22.49	16284.
1928	0.00	0.00	40.91	46.94	24.21	2.16	0.00	0.00	0.00	0.00	0.00	0.00	9.73	7062.
1929	0.00	0.00	5.48	16.86	1.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.57	6926.
1930	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.97	1425.
1931	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	221.
1932	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.06	2948.
1933	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.61	4783.
1934	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.70	2678.
1935	0.00	0.00	0.00	62.91	12.12	0.00	1.11	0.00	0.00	0.00	0.00	0.00	8.87	6424.
1936	0.00	0.00	45.15	99.00	2.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.18	8842.
1937	0.00	0.00	1.46	17.77	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69	1220.
1938	0.00	0.00	29.83	58.40	15.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.46	7571.
1939	0.00	0.00	65.27	9.58	1.95	18.82	0.00	0.00	0.00	0.00	0.00	0.00	8.27	5987.
1940	0.00	0.00	41.24	108.75	16.97	1.52	0.00	0.00	0.00	0.00	0.00	0.00	15.13	10981.
1941	0.00	0.00	31.95	3.40	2.09	4.18	0.00	0.00	0.00	0.00	0.00	0.00	4.06	2937.
1942	0.00	0.00	2.37	16.13	2.20	21.17	0.00	0.00	0.00	0.00	0.00	0.00	3.84	2781.
1943	0.00	0.00	78.45	25.55	4.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.41	6810.
1944	0.00	0.00	2.75	4.26	2.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.46	1057.
1945	0.00	0.00	24.89	3.62	3.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.67	1933.
1946	0.00	0.00	45.33	10.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.69	3398.
1947	0.00	0.00	116.23	50.31	7.72	1.77	0.00	0.00	0.00	0.00	0.00	0.00	14.81	10720.
1948	0.00	0.00	60.22	126.32	21.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.30	12560.
1949	0.00	0.00	14.57	7.04	3.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.14	1547.
1950	0.00	0.00	17.98	25.90	4.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.04	2926.
1951	0.00	0.00	87.26	207.65	49.87	23.63	2.31	0.00	5.41	0.00	0.00	0.00	31.30	22659.
1952	0.00	0.00	159.30	235.71	24.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.92	25348.
1953	0.00	0.00	48.21	66.95	67.01	249.77	0.00	0.00	0.00	0.00	0.00	0.00	35.82	25930.
1954	0.00	0.00	7.29	89.21	30.14	18.75	0.00	0.00	0.00	0.00	0.00	0.00	12.05	8725.
1955	0.00	0.00	75.25	445.70	69.30	0.00	76.27	0.00	0.00	0.00	0.00	0.00	55.39	40098.
1956	0.00	0.00	61.96	21.98	13.46	0.28	0.10	0.00	0.00	0.00	0.00	0.00	8.22	5968.
1957	0.00	28.50	46.89	77.47	20.19	2.40	0.00	0.00	0.00	0.00	0.00	0.00	14.45	10460.
1958	0.00	0.00	30.00	31.89	4.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.57	4033.
1959	0.00	0.00	51.26	31.21	8.46	3.80	0.29	0.00	0.00	0.00	0.00	0.00	7.97	5773.
1960	0.00	0.00	70.08	17.45	36.38	1.40	0.00	0.00	0.00	0.00	0.00	0.00	10.56	7667.
1961	0.00	0.00	4.90	6.76	4.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39	1004.
1962	0.00	0.00	22.52	7.47	5.42	5.70	0.03	0.00	0.00	0.00	0.00	0.00	3.46	2503.
1963	0.00	46.50	11.47	9.18	5.57	0.01	0.00	0.00	0.00	0.00	0.00	0.00	5.77	4177.
1964	0.00	0.00	5.66	11.70	68.26	0.29	0.00	0.00	0.00	0.00	0.00	0.00	7.24	5258.
1965	0.00	0.00	6.05	134.01	16.22	38.10	12.60	0.00	0.02	0.00	0.00	0.00	17.11	12386.
1966	0.00	0.00	71.55	36.50	21.35	11.10	0.85	0.39	0.00	0.00	0.00	0.00	11.91	8620.
1967	0.00	0.00	83.39	68.05	259.99	12.10	0.33	0.00	0.00	0.00	0.00	0.00	39.78	25903.
1968	0.00	0.00	13.39	14.04	11.79	1.30	0.15	0.00	0.00	0.00	0.00	0.00	3.40	2470.
1969	0.00	0.00	79.40	44.07	12.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.46	8297.
1970	0.00	0.00	20.22	83.55	32.12	16.20	1.60	0.00	0.00	0.00	0.00	0.00	12.78	9252.
1971	0.00	75.00	18.98	69.93	16.28	13.10	0.95	0.00	0.00	0.00	0.00	0.00	15.65	11332.
1972	0.00	0.00	56.67	17.38	12.26	0.06	0.00	0.00	0.00	0.00	0.00	0.00	7.27	5276.
1973	0.00	0.04	12.64	25.14	15.16	11.70	0.04	0.00	0.00	0.00	0.00	0.00	5.40	3906.
1974	0.00	0.00	37.76	29.04	36.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.72	6310.
1975	0.00	0.00	11.87	82.46	187.87	77.30	1.70	0.00	0.00	0.00	0.00	0.00	30.24	21892.
1976	0.00	0.00	40.33	32.40	13.33	9.40	1.90	0.00	0.00	0.00	0.00	0.00	8.13	5903.
1977	0.00	0.00	11.80	16.26	11.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.34	2418.
1978	0.00	0.00	48.33	40.00	22.83	2.70	0.00	0.00	0.63	0.00	0.00	0.00	9.61	6953.
1979	0.00	0.00	156.24	58.32	40.18	2.79	1.45	0.00	0.00	0.00	0.00	0.00	21.83	15802.
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	221.
MAX	0.00	75.00	159.30	445.70	259.99	249.77	76.27	13.10	30.40	10.90	0.00	0.00	55.39	40098.
MEAN	0.00	2.16	38.71	55.75	25.96	14.06	2.96	0.39	0.83	0.38	0.00	0.00	11.77	8529.

Priority 1
 Priority 2
 Priority 3

TABLE A-5

**MACKAY CREEK AT ALBERTA-SASKATCHEWAN BOUNDARY
NATURAL FLOWS**

(ft³/sec)

	JAN	FFB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	MEAN	ACRE-FEET
1911	0.00	0.00	29.06	30.22	12.19	2.11	9.68	0.00	37.73	5.46	0.00	0.00	10.55	7636.
1912	0.00	0.00	87.64	112.50	30.31	6.70	0.04	0.00	0.00	0.00	0.00	0.00	19.76	14347.
1913	0.00	0.00	19.32	56.28	13.68	0.04	0.00	0.00	0.00	0.00	0.00	0.00	7.43	5380.
1914	0.00	0.00	15.66	28.36	5.73	0.00	0.00	0.00	0.41	13.53	0.00	0.00	5.33	3859.
1915	0.00	0.00	54.38	35.68	19.63	108.22	17.99	6.33	0.12	1.86	0.00	0.00	20.35	14730.
1916	0.00	0.00	62.45	14.09	105.14	237.03	28.67	16.26	2.61	6.70	0.00	0.00	39.37	28577.
1917	0.00	0.00	11.19	449.55	163.34	8.81	1.86	0.00	0.00	0.00	0.00	0.00	52.65	38120.
1918	0.00	0.00	83.17	45.85	8.84	0.99	0.00	0.00	0.00	0.00	0.00	0.00	11.66	8444.
1919	0.00	0.00	3.04	21.03	3.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.27	1646.
1920	0.00	0.00	55.61	50.63	15.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.21	7412.
1921	0.00	0.00	25.04	89.40	22.40	1.40	0.00	0.00	0.00	0.00	0.00	0.00	11.49	8319.
1922	0.00	0.00	45.15	230.02	48.90	3.72	0.00	0.00	0.00	0.00	0.00	0.00	27.20	19691.
1923	0.00	0.00	16.44	36.94	0.00	49.93	0.00	0.00	0.00	0.00	0.00	0.00	8.54	6180.
1924	0.00	0.00	0.00	10.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86	627.
1925	0.00	0.00	86.08	58.56	7.16	2.53	0.00	0.00	0.00	0.00	0.00	0.00	12.94	9368.
1926	0.00	0.00	23.26	11.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.93	2120.
1927	0.00	0.00	19.21	79.73	171.83	46.64	7.99	4.05	0.00	3.30	0.00	0.00	27.91	20209.
1928	0.00	0.00	79.06	19.92	4.24	33.31	7.73	0.00	0.00	0.00	0.00	0.00	12.07	8764.
1929	0.00	0.00	50.77	58.25	30.04	2.71	0.00	0.00	0.00	0.00	0.00	0.00	11.87	8596.
1930	0.00	0.00	6.80	20.92	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.44	1768.
1931	0.00	0.00	0.00	0.00	0.00	1.12	3.39	0.00	0.00	0.00	0.00	0.00	0.38	275.
1932	0.00	0.00	35.37	16.18	4.99	3.61	0.00	0.00	0.00	0.00	0.00	0.00	5.04	3659.
1933	0.00	0.00	36.29	9.83	35.83	8.14	7.05	0.00	0.00	0.00	0.00	0.00	8.20	5937.
1934	0.00	0.00	38.67	10.62	0.00	5.27	0.00	0.00	0.00	0.00	0.00	0.00	4.59	3323.
1935	0.00	0.00	37.70	78.07	15.04	0.00	1.38	0.00	0.00	0.00	0.00	0.00	11.01	7973.
1936	0.00	0.00	56.03	122.86	3.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.12	10973.
1937	0.00	0.00	1.81	22.05	1.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.09	1515.
1938	0.00	0.00	37.02	72.47	19.09	0.00	9.56	0.00	17.58	0.00	0.00	0.00	12.98	9396.
1939	0.00	0.00	81.00	11.89	2.42	23.36	3.31	0.00	0.00	0.00	0.00	0.00	10.26	7430.
1940	0.00	0.00	51.18	134.96	21.06	1.89	3.77	6.32	4.99	2.05	0.00	0.00	18.77	13628.
1941	0.00	0.00	39.65	4.22	2.59	5.19	7.94	0.00	0.00	0.00	0.00	0.00	5.04	3645.
1942	0.00	0.00	2.94	20.02	2.73	26.27	5.67	0.00	0.00	0.00	0.00	0.00	4.77	3451.
1943	0.00	0.00	97.36	31.71	6.09	0.00	3.33	0.00	0.00	0.00	0.00	0.00	11.68	8452.
1944	0.00	0.00	3.41	5.29	3.47	0.00	9.34	0.00	0.00	0.00	0.00	0.00	1.81	1312.
1945	0.00	0.00	30.89	4.49	3.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.31	2399.
1946	0.00	0.00	56.25	12.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.83	4217.
1947	0.00	0.00	144.24	62.43	9.58	2.20	0.00	0.00	0.00	0.00	0.00	0.00	18.38	13303.
1948	0.00	0.00	74.73	156.76	27.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.47	15587.
1949	0.00	0.00	18.08	8.74	4.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.65	1920.
1950	0.00	0.00	22.31	32.14	5.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.02	3631.
1951	0.00	0.00	108.31	257.69	61.89	29.32	2.87	0.00	6.71	0.00	0.00	0.00	38.84	28119.
1952	0.00	0.00	197.69	292.52	30.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.33	31457.
1953	0.00	0.00	59.83	83.08	83.16	309.96	0.00	0.00	0.00	0.00	0.00	0.00	44.45	32179.
1954	0.00	0.00	9.05	110.71	37.40	23.27	0.00	0.00	0.00	0.00	0.00	0.00	14.96	10828.
1955	0.00	0.00	93.39	553.11	86.00	0.00	94.65	0.00	0.00	0.00	0.00	0.00	68.74	49762.
1956	0.00	0.00	76.89	27.28	16.70	0.35	0.12	0.00	0.00	0.00	0.00	0.00	10.20	7406.
1957	0.00	35.37	58.19	96.14	25.06	2.98	0.00	0.00	0.00	0.00	0.00	0.00	17.93	12981.
1958	0.00	0.00	37.23	39.58	5.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.91	5005.
1959	0.00	0.00	63.61	38.73	10.50	4.72	0.36	0.00	0.00	0.00	0.00	0.00	9.90	7164.
1960	0.00	0.00	86.97	21.66	45.15	1.74	0.00	0.00	0.00	0.00	0.00	0.00	13.11	9516.
1961	0.00	0.00	6.08	8.39	6.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1246.
1962	0.00	0.00	27.95	9.27	6.73	7.07	0.04	0.00	0.00	0.00	0.00	0.00	4.29	3107.
1963	0.00	57.71	14.23	11.39	6.91	0.01	0.00	0.00	0.00	0.00	0.00	0.00	7.16	5183.
1964	0.00	0.00	7.02	14.52	84.71	0.36	0.00	0.00	0.00	0.00	0.00	0.00	8.99	6525.
1965	0.00	0.00	7.51	166.31	20.13	47.28	15.64	0.00	0.02	0.00	0.00	0.00	21.23	15371.
1966	0.00	0.00	88.79	45.30	26.50	13.78	1.05	0.48	0.00	0.00	0.00	0.00	14.78	10698.
1967	0.00	0.00	103.49	84.45	322.65	15.02	0.41	0.00	0.00	0.00	0.00	0.00	44.40	32146.
1968	0.00	0.00	16.62	17.42	14.63	1.61	0.19	0.00	0.00	0.00	0.00	0.00	4.22	3065.
1969	0.00	0.00	98.54	54.69	16.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.22	10297.
1970	0.00	0.00	25.09	103.69	39.86	20.10	1.99	0.00	0.00	0.00	0.00	0.00	15.86	11482.
1971	0.00	93.07	23.55	86.78	20.20	16.26	1.18	0.00	0.00	0.00	0.00	0.00	19.42	14062.
1972	0.00	0.00	70.33	21.57	15.21	0.07	0.00	0.00	0.00	0.00	0.00	0.00	9.02	6547.
1973	0.00	0.05	15.69	31.20	18.81	14.52	0.05	0.00	0.00	0.00	0.00	0.00	6.70	4847.
1974	0.00	0.00	46.86	36.04	45.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.82	7830.
1975	0.00	0.00	14.73	102.33	233.15	95.93	2.11	0.00	0.00	0.00	0.00	0.00	37.53	27168.
1976	0.00	0.00	50.05	40.21	16.54	11.67	2.36	0.00	0.00	0.00	0.00	0.00	10.09	7326.
1977	0.00	0.00	14.64	20.18	14.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.15	3001.
1978	0.00	0.00	59.98	49.64	28.33	3.35	0.00	0.00	0.78	0.00	0.00	0.00	11.92	8629.
1979	0.00	0.00	193.89	72.38	49.86	3.46	1.80	0.00	0.00	0.00	0.00	0.00	27.09	19611.
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	275.
MAX	0.00	93.07	197.69	553.11	322.65	309.96	94.65	16.26	37.73	13.53	0.00	0.00	68.74	49762.
MEAN	0.00	2.68	48.04	69.19	32.21	17.45	3.67	0.48	1.03	0.48	0.00	0.00	14.61	10585.

TABLE A-6

**MACKAY CREEK ABOVE CONFLUENCE
NATURAL FLOWS**

(ft³/sec)

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	MEAN	ACRE-FEET
1911	0.00	0.00	30.05	31.25	12.60	2.18	10.01	0.00	39.01	5.65	0.00	0.00	10.91	7895.
1912	0.00	0.00	90.62	116.32	31.34	6.93	0.04	0.00	0.00	0.00	0.00	0.00	20.44	14835.
1913	0.00	0.00	19.98	58.19	14.14	0.04	0.00	0.00	0.00	0.00	0.00	0.00	7.68	5562.
1914	0.00	0.00	16.19	29.32	5.93	0.00	0.00	0.00	0.42	13.99	0.00	0.00	5.51	3990.
1915	0.00	0.00	56.23	36.89	20.30	111.89	18.61	6.54	0.13	1.92	0.00	0.00	21.04	15230.
1916	0.00	0.00	64.57	14.56	108.71	245.09	29.64	16.81	2.69	6.93	0.00	0.00	40.70	29547.
1917	0.00	0.00	11.57	464.84	168.89	9.11	1.92	0.00	0.00	0.00	0.00	0.00	54.44	39416.
1918	0.00	0.00	86.00	47.41	9.14	1.03	0.00	0.00	0.00	0.00	0.00	0.00	12.06	8732.
1919	0.00	0.00	3.14	21.75	3.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.35	1701.
1920	0.00	0.00	57.50	52.35	16.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.56	7664.
1921	0.00	0.00	25.89	92.44	23.16	1.45	0.00	0.00	0.00	0.00	0.00	0.00	11.88	8602.
1922	0.00	0.00	46.68	237.84	50.56	3.85	0.00	0.00	0.00	0.00	0.00	0.00	28.12	20360.
1923	0.00	0.00	17.00	38.20	0.00	51.62	0.00	0.00	0.00	0.00	0.00	0.00	8.83	6389.
1924	0.00	0.00	0.00	10.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.89	649.
1925	0.00	0.00	89.00	60.55	7.40	2.62	0.00	0.00	0.00	0.00	0.00	0.00	13.38	9686.
1926	0.00	0.00	24.05	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.03	2192.
1927	0.00	0.00	19.86	82.45	177.67	48.22	8.26	4.18	0.00	3.41	0.00	0.00	28.86	20895.
1928	0.00	0.00	81.75	20.60	4.39	34.44	7.99	0.00	0.00	0.00	0.00	0.00	12.48	9062.
1929	0.00	0.00	52.50	60.23	31.07	2.80	0.00	0.00	0.00	0.00	0.00	0.00	12.28	8889.
1930	0.00	0.00	7.03	21.63	1.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.53	1828.
1931	0.00	0.00	0.00	0.00	0.00	1.15	3.50	0.00	0.00	0.00	0.00	0.00	0.39	283.
1932	0.00	0.00	36.57	16.73	5.16	3.73	0.00	0.00	0.00	0.00	0.00	0.00	5.21	3783.
1933	0.00	0.00	37.52	10.16	37.05	8.42	7.29	0.00	0.00	0.00	0.00	0.00	8.48	6139.
1934	0.00	0.00	39.98	10.98	0.00	5.45	0.00	0.00	0.00	0.00	0.00	0.00	4.75	3435.
1935	0.00	0.00	38.98	80.73	15.55	0.00	1.42	0.00	0.00	0.00	0.00	0.00	11.39	8244.
1936	0.00	0.00	57.94	127.04	3.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.63	11347.
1937	0.00	0.00	1.87	22.80	1.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.16	1566.
1938	0.00	0.00	38.28	74.94	19.74	0.00	9.88	0.00	18.18	0.00	0.00	0.00	13.42	9716.
1939	0.00	0.00	83.75	12.29	2.50	24.15	3.43	0.00	0.00	0.00	0.00	0.00	10.61	7682.
1940	0.00	0.00	52.92	139.55	21.78	1.95	3.90	6.53	5.16	2.12	0.00	0.00	19.41	14091.
1941	0.00	0.00	41.00	4.36	2.68	5.36	8.21	0.00	0.00	0.00	0.00	0.00	5.21	3769.
1942	0.00	0.00	3.04	20.70	2.82	27.17	5.86	0.00	0.00	0.00	0.00	0.00	4.93	3569.
1943	0.00	0.00	100.67	32.79	6.30	0.00	3.44	0.00	0.00	0.00	0.00	0.00	12.07	8740.
1944	0.00	0.00	3.53	5.47	3.59	0.00	9.66	0.00	0.00	0.00	0.00	0.00	1.87	1357.
1945	0.00	0.00	31.94	4.65	3.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.43	2481.
1946	0.00	0.00	58.17	13.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.02	4361.
1947	0.00	0.00	149.15	64.56	9.91	2.27	0.00	0.00	0.00	0.00	0.00	0.00	19.00	13756.
1948	0.00	0.00	77.27	162.09	27.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.20	16117.
1949	0.00	0.00	18.70	9.03	4.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.74	1985.
1950	0.00	0.00	23.07	33.23	5.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.19	3754.
1951	0.00	0.00	112.00	266.45	63.99	30.32	2.96	0.00	6.94	0.00	0.00	0.00	40.16	29075.
1952	0.00	0.00	204.41	302.46	31.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.80	32525.
1953	0.00	0.00	61.86	85.91	85.99	320.50	0.00	0.00	0.00	0.00	0.00	0.00	45.96	33274.
1954	0.00	0.00	9.35	114.47	38.68	24.06	0.00	0.00	0.00	0.00	0.00	0.00	15.47	11196.
1955	0.00	0.00	96.56	571.92	88.93	0.00	97.87	0.00	0.00	0.00	0.00	0.00	71.07	51454.
1956	0.00	0.00	79.51	28.20	17.27	0.36	0.13	0.00	0.00	0.00	0.00	0.00	10.55	7658.
1957	0.00	36.57	60.17	99.41	25.91	3.08	0.00	0.00	0.00	0.00	0.00	0.00	18.54	13422.
1958	0.00	0.00	38.50	40.92	6.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.15	5176.
1959	0.00	0.00	65.78	40.05	10.86	4.88	0.37	0.00	0.00	0.00	0.00	0.00	10.23	7408.
1960	0.00	0.00	89.93	22.39	46.68	1.80	0.00	0.00	0.00	0.00	0.00	0.00	13.55	9839.
1961	0.00	0.00	6.29	8.67	6.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.78	1289.
1962	0.00	0.00	28.90	9.59	6.95	7.31	0.04	0.00	0.00	0.00	0.00	0.00	4.44	3212.
1963	0.00	59.67	14.72	11.78	7.15	0.01	0.00	0.00	0.00	0.00	0.00	0.00	7.40	5360.
1964	0.00	0.00	7.26	15.01	87.59	0.37	0.00	0.00	0.00	0.00	0.00	0.00	9.29	6747.
1965	0.00	0.00	7.76	171.96	20.81	48.89	16.17	0.00	0.03	0.00	0.00	0.00	21.95	15894.
1966	0.00	0.00	91.81	46.84	27.40	14.24	1.02	0.50	0.00	0.00	0.00	0.00	15.28	11062.
1967	0.00	0.00	107.01	87.32	333.62	15.53	0.42	0.00	0.00	0.00	0.00	0.00	45.91	33239.
1968	0.00	0.00	17.18	18.02	15.13	1.67	0.19	0.00	0.00	0.00	0.00	0.00	4.37	3170.
1969	0.00	0.00	101.89	56.55	16.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.71	10647.
1970	0.00	0.00	25.95	107.21	41.22	20.79	2.05	0.00	0.00	0.00	0.00	0.00	16.40	11872.
1971	0.00	96.24	34.35	89.73	20.89	16.81	1.22	0.00	0.00	0.00	0.00	0.00	20.09	14541.
1972	0.00	0.00	72.72	22.30	15.73	0.08	0.00	0.00	0.00	0.00	0.00	0.00	9.33	6770.
1973	0.00	0.05	16.22	32.26	19.45	15.01	0.05	0.00	0.00	0.00	0.00	0.00	6.92	5011.
1974	0.00	0.00	48.45	37.26	47.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.18	8096.
1975	0.00	0.00	15.23	105.81	241.07	99.19	2.18	0.00	0.00	0.00	0.00	0.00	38.80	28091.
1976	0.00	0.00	51.75	41.58	17.10	12.06	2.44	0.00	0.00	0.00	0.00	0.00	10.43	7575.
1977	0.00	0.00	15.14	20.86	15.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.29	3103.
1978	0.00	0.00	62.02	51.33	29.30	3.46	0.00	0.00	0.81	0.00	0.00	0.00	12.33	8923.
1979	0.00	0.00	200.49	74.84	51.56	3.58	1.86	0.00	0.00	0.00	0.00	0.00	28.01	20278.
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	283.
MAX	0.00	96.24	204.41	571.92	333.62	320.50	97.87	16.81	39.01	13.99	0.00	0.00	71.07	51454.
MEAN	0.00	2.77	49.67	71.54	33.31	18.04	3.80	0.50	1.06	0.49	0.00	0.00	15.11	10945.

TABLE A-7

BOXELDER CREEK ABOVE CONFLUENCE
NATURAL FLOWS

(ft³/sec)

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	MEAN	ACRE-FEET
1911	0.00	0.00	12.74	8.19	3.64	1.82	8.19	0.00	14.15	0.61	0.00	0.00	4.12	2985.
1912	0.00	0.00	13.65	17.49	3.34	1.01	0.00	0.00	0.00	0.00	0.00	0.00	2.96	2145.
1913	0.00	0.00	7.84	11.24	1.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.70	1232.
1914	0.00	0.00	5.72	6.59	1.35	0.00	0.00	0.00	0.00	3.44	0.00	0.00	1.43	1038.
1915	0.00	0.00	19.37	9.83	2.89	18.10	1.62	0.00	0.00	0.00	0.00	0.00	4.32	3130.
1916	0.00	44.48	20.69	2.45	24.12	38.62	4.95	3.24	0.00	3.13	0.00	0.00	11.64	8453.
1917	0.00	0.00	6.63	148.94	29.68	3.94	0.00	0.00	0.00	0.00	0.00	0.00	15.65	11329.
1918	0.00	0.00	60.72	5.28	1.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.70	4130.
1919	0.00	0.00	1.06	4.06	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	366.
1920	0.00	0.00	24.56	15.10	4.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.66	2660.
1921	0.00	0.00	10.32	27.37	5.52	0.85	0.00	0.00	0.00	0.00	0.00	0.00	3.66	2653.
1922	0.00	0.00	19.58	73.50	10.91	1.52	0.00	0.00	0.00	0.00	0.00	0.00	8.76	6338.
1923	0.00	0.00	6.52	10.87	0.00	7.11	0.00	0.00	0.00	0.00	0.00	0.00	2.03	1470.
1924	0.00	0.00	0.00	2.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	174.
1925	0.00	0.00	39.51	17.58	2.04	1.21	0.00	0.00	0.00	0.00	0.00	0.00	5.07	3672.
1926	0.00	0.00	9.51	3.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07	777.
1927	0.00	0.00	7.72	24.28	32.72	6.82	2.45	1.78	0.00	1.61	0.00	0.00	6.49	4696.
1928	0.00	0.00	36.01	5.69	1.29	5.59	2.42	0.00	0.00	0.00	0.00	0.00	4.29	3113.
1929	0.00	0.00	22.25	17.49	7.13	1.25	0.00	0.00	0.00	0.00	0.00	0.00	4.04	2921.
1930	0.00	0.00	2.50	6.00	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76	547.
1931	0.00	0.00	0.00	0.00	0.00	0.90	1.72	0.00	0.00	0.00	0.00	0.00	0.22	159.
1932	0.00	0.00	17.75	3.98	1.11	1.94	0.00	0.00	0.00	0.00	0.00	0.00	2.08	1511.
1933	0.00	0.00	18.37	2.41	5.79	3.32	2.48	0.00	0.00	0.00	0.00	0.00	2.73	1979.
1934	0.00	0.00	20.03	2.60	0.00	2.49	0.00	0.00	0.00	0.00	0.00	0.00	2.12	1534.
1935	0.00	0.00	19.35	23.75	3.89	0.00	1.07	0.00	0.00	0.00	0.00	0.00	4.02	2908.
1936	0.00	0.00	21.64	38.16	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.05	3664.
1937	0.00	0.00	0.60	6.34	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	446.
1938	0.00	0.00	15.78	21.98	4.80	0.00	2.89	0.00	3.19	0.00	0.00	0.00	4.06	2940.
1939	0.00	0.00	36.97	3.33	0.79	4.53	1.70	0.00	0.00	0.00	0.00	0.00	4.00	2894.
1940	0.00	0.00	22.44	42.10	5.23	1.01	1.82	2.00	1.80	1.20	0.00	0.00	6.45	4682.
1941	0.00	0.00	17.01	1.12	0.84	1.85	2.64	0.00	0.00	0.00	0.00	0.00	1.98	1436.
1942	0.00	0.00	1.01	5.72	0.88	4.85	2.22	0.00	0.00	0.00	0.00	0.00	1.22	881.
1943	0.00	0.00	45.16	9.26	1.77	0.00	1.71	0.00	0.00	0.00	0.00	0.00	4.89	3541.
1944	0.00	0.00	1.18	1.43	1.08	0.00	2.85	0.00	0.00	0.00	0.00	0.00	0.55	399.
1945	0.00	0.00	12.96	1.20	1.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	939.
1946	0.00	0.00	24.87	3.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.41	1742.
1947	0.00	0.00	69.26	18.80	2.63	1.11	0.00	0.00	0.00	0.00	0.00	0.00	7.74	5605.
1948	0.00	0.00	33.87	49.23	6.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.46	5412.
1949	0.00	0.00	7.24	2.41	1.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.93	675.
1950	0.00	0.00	9.10	9.39	1.66	0.00	0.00	0.13	0.00	0.00	0.00	0.00	1.70	1228.
1951	0.00	0.00	51.36	80.09	14.86	7.58	1.82	0.09	5.36	0.00	0.00	0.00	13.43	9724.
1952	0.00	30.03	101.95	91.62	7.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.15	13904.
1953	0.00	0.00	26.11	24.10	19.95	52.88	0.03	0.00	0.00	0.00	0.00	0.00	10.24	7414.
1954	0.00	0.13	3.03	32.69	9.00	6.27	0.03	0.00	0.00	0.00	0.00	0.00	4.24	3067.
1955	0.00	0.00	43.37	180.09	20.62	0.91	40.84	0.00	0.00	0.00	0.00	0.00	23.78	17216.
1956	0.00	0.00	56.55	13.42	4.58	0.00	0.00	10.82	0.00	0.00	0.00	0.00	7.19	5222.
1957	0.00	20.93	33.91	20.51	3.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.50	4704.
1958	0.00	0.00	12.19	17.31	3.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.72	1969.
1959	0.00	0.00	31.92	7.93	3.18	0.33	0.07	0.00	0.00	0.00	0.00	0.00	3.67	2654.
1960	0.00	0.00	13.40	5.80	9.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.39	1737.
1961	0.00	0.00	3.27	4.51	3.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.93	670.
1962	0.00	0.00	7.63	5.03	3.59	0.83	0.00	0.00	0.00	0.00	0.00	0.00	1.43	1038.
1963	0.00	0.00	4.25	5.14	3.73	0.11	4.25	0.00	0.00	0.00	0.00	0.00	1.47	1064.
1964	0.00	0.00	3.82	5.26	12.72	2.22	0.00	0.00	0.00	0.00	0.00	0.00	2.01	1462.
1965	0.00	0.00	5.60	63.68	5.10	15.06	1.52	0.00	0.00	0.00	0.00	0.00	7.51	5436.
1966	0.00	0.00	29.52	13.62	7.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.30	3110.
1967	0.00	0.00	49.75	33.70	87.97	1.11	0.00	0.00	0.00	0.00	0.00	0.00	14.56	10539.
1968	0.00	0.00	5.84	7.10	4.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.46	1059.
1969	0.00	0.00	43.95	14.87	4.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	3839.
1970	0.00	0.00	15.62	22.57	8.34	2.93	0.00	0.00	0.00	0.00	0.00	0.00	4.13	2990.
1971	0.00	63.49	16.64	18.52	4.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00	8.17	5913.
1972	0.00	0.00	26.53	5.49	3.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.03	2202.
1973	0.00	0.10	4.33	7.29	4.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.35	974.
1974	0.00	0.00	11.34	9.85	11.75	0.12	0.00	0.00	0.00	0.00	0.00	0.00	2.78	2013.
1975	0.00	0.00	4.06	27.74	50.97	15.47	0.89	0.00	0.00	0.00	0.00	0.00	8.30	6009.
1976	0.00	0.00	21.02	8.58	4.03	1.42	0.01	0.00	0.00	0.00	0.00	0.00	2.94	2135.
1977	0.00	0.00	4.03	5.55	4.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14	825.
1978	0.00	0.00	30.55	14.15	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.15	3001.
1979	0.00	0.00	53.58	19.24	9.93	0.00	0.21	0.00	0.00	0.00	0.00	0.00	6.99	5062.
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	159.
MAX	0.00	63.49	101.95	180.09	87.97	52.88	40.84	10.82	14.15	3.44	0.00	0.00	23.78	17216.
MEAN	0.00	2.32	20.82	20.73	7.37	3.15	1.31	0.26	0.36	0.14	0.00	0.00	4.71	3411.

TABLE A-8

BOXELDER CREEK BELOW CONFLUENCENATURAL FLOWS(ft³/sec)

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	MEAN	ACRE-FEET
1911	0.00	0.00	42.79	39.43	16.24	4.00	18.20	0.00	53.16	6.25	0.00	0.00	15.03	10880.
1912	0.00	0.00	104.27	133.81	34.67	7.94	0.04	0.00	0.00	0.00	0.00	0.00	23.39	16980.
1913	0.00	0.00	27.81	69.44	15.47	0.04	0.00	0.00	0.00	0.00	0.00	0.00	9.39	6795.
1914	0.00	0.00	21.92	35.91	7.28	0.00	0.00	0.00	0.42	17.42	0.00	0.00	6.95	5028.
1915	0.00	0.00	75.60	46.72	23.19	129.99	20.22	6.54	0.13	1.92	0.00	0.00	25.36	18360.
1916	0.00	44.48	85.26	17.01	132.83	283.71	34.60	20.04	2.69	10.06	0.00	0.00	52.35	38000.
1917	0.00	0.00	18.21	613.78	198.58	13.05	1.92	0.00	0.00	0.00	0.00	0.00	70.10	50746.
1918	0.00	0.00	146.72	52.69	10.48	1.03	0.00	0.00	0.00	0.00	0.00	0.00	17.77	12862.
1919	0.00	0.00	4.21	25.81	4.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.86	2068.
1920	0.00	0.00	82.06	67.46	20.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.22	10325.
1921	0.00	0.00	36.22	119.81	28.68	2.30	0.00	0.00	0.00	0.00	0.00	0.00	15.55	11256.
1922	0.00	0.00	66.27	311.34	61.47	5.37	0.00	0.00	0.00	0.00	0.00	0.00	36.88	26700.
1923	0.00	0.00	23.52	49.07	0.00	58.73	0.00	0.00	0.00	0.00	0.00	0.00	10.86	7860.
1924	0.00	0.00	0.00	13.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13	823.
1925	0.00	0.00	128.51	78.14	9.45	3.83	0.00	0.00	0.00	0.00	0.00	0.00	18.45	13360.
1926	0.00	0.00	33.56	15.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.10	2969.
1927	0.00	0.00	27.59	106.73	210.39	55.05	10.71	5.96	0.00	5.02	0.00	0.00	35.55	25593.
1928	0.00	0.00	117.76	26.29	5.68	40.03	10.41	0.00	0.00	0.00	0.00	0.00	16.77	12176.
1929	0.00	0.00	74.75	77.72	38.19	4.05	0.00	0.00	0.00	0.00	0.00	0.00	16.31	11810.
1930	0.00	0.00	9.53	27.63	2.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.28	2375.
1931	0.00	0.00	0.00	0.00	0.00	0.00	2.05	5.22	0.00	0.00	0.00	0.00	0.61	442.
1932	0.00	0.00	54.32	20.72	6.27	5.68	0.00	0.00	0.00	0.00	0.00	0.00	7.30	5296.
1933	0.00	0.00	55.89	12.57	42.84	11.73	9.77	0.00	0.00	0.00	0.00	0.00	11.21	8117.
1934	0.00	0.00	60.01	13.58	0.00	7.94	0.00	0.00	0.00	0.00	0.00	0.00	6.87	4970.
1935	0.00	0.00	58.33	104.47	19.44	0.00	2.50	0.00	0.00	0.00	0.00	0.00	15.40	11152.
1936	0.00	0.00	79.57	165.19	4.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.68	15010.
1937	0.00	0.00	2.47	29.14	2.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.78	2012.
1938	0.00	0.00	54.06	96.92	24.54	0.00	12.77	0.00	21.38	0.00	0.00	0.00	17.48	12657.
1939	0.00	0.00	120.73	15.62	3.29	28.68	5.12	0.00	0.00	0.00	0.00	0.00	14.61	10576.
1940	0.00	0.00	75.36	181.65	27.00	2.96	5.72	8.53	6.96	3.32	0.00	0.00	25.86	18773.
1941	0.00	0.00	58.00	5.49	3.52	7.21	10.85	0.00	0.00	0.00	0.00	0.00	7.19	5205.
1942	0.00	0.00	4.05	26.42	3.70	32.02	8.09	0.00	0.00	0.00	0.00	0.00	6.15	4451.
1943	0.00	0.00	145.83	42.05	8.07	0.00	5.15	0.00	0.00	0.00	0.00	0.00	16.96	12281.
1944	0.00	0.00	4.71	6.89	4.67	0.00	12.51	0.00	0.00	0.00	0.00	0.00	2.42	1755.
1945	0.00	0.00	44.90	5.85	5.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.73	3421.
1946	0.00	0.00	83.04	16.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.43	6103.
1947	0.00	0.00	218.41	83.36	12.53	3.38	0.00	0.00	0.00	0.00	0.00	0.00	26.74	19361.
1948	0.00	0.00	111.14	211.32	34.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.66	21529.
1949	0.00	0.00	25.93	11.44	6.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.67	2660.
1950	0.00	0.00	32.17	42.63	7.50	0.00	0.00	0.13	0.00	0.00	0.00	0.00	6.88	4983.
1951	0.00	0.00	163.36	346.55	78.85	37.90	4.78	0.09	12.30	0.00	0.00	0.00	53.59	38800.
1952	0.00	30.03	306.36	394.08	39.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.96	46430.
1953	0.00	0.00	87.98	110.01	105.93	373.38	0.03	0.00	0.00	0.00	0.00	0.00	56.20	40688.
1954	0.00	0.13	12.39	147.16	47.67	30.33	0.03	0.00	0.00	0.00	0.00	0.00	19.70	14263.
1955	0.00	0.00	139.93	752.01	109.55	0.91	138.71	0.00	0.00	0.00	0.00	0.00	94.85	68670.
1956	0.00	0.00	136.05	41.62	21.85	0.36	0.13	10.82	0.00	0.00	0.00	0.00	17.74	12880.
1957	0.00	57.50	94.08	119.92	29.75	3.08	0.00	0.00	0.00	0.00	0.00	0.00	25.04	18126.
1958	0.00	0.00	50.69	58.23	9.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.87	7146.
1959	0.00	0.00	97.69	47.97	14.04	5.21	0.44	0.00	0.00	0.00	0.00	0.00	13.90	10061.
1960	0.00	0.00	103.32	28.19	55.93	1.80	0.00	0.00	0.00	0.00	0.00	0.00	15.95	11576.
1961	0.00	0.00	9.55	13.18	9.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.71	1958.
1962	0.00	0.00	36.53	14.62	10.54	8.74	0.04	0.00	0.00	0.00	0.00	0.00	5.87	4251.
1963	0.00	59.67	18.96	16.92	10.88	0.12	4.25	0.00	0.00	0.00	0.00	0.00	8.87	6424.
1964	0.00	0.00	11.08	20.27	100.31	2.60	0.00	0.00	0.00	0.00	0.00	0.00	11.31	8210.
1965	0.00	0.00	13.36	235.64	75.91	63.95	17.68	0.00	0.03	0.00	0.00	0.00	29.46	21330.
1966	0.00	0.00	121.33	60.45	35.28	14.24	1.09	0.50	0.00	0.00	0.00	0.00	19.58	14171.
1967	0.00	0.00	156.76	121.02	421.58	16.64	0.42	0.00	0.00	0.00	0.00	0.00	60.47	43777.
1968	0.00	0.00	23.03	25.11	19.65	1.67	0.19	0.00	0.00	0.00	0.00	0.00	5.83	4229.
1969	0.00	0.00	145.83	71.42	20.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.01	14487.
1970	0.00	0.00	41.57	129.78	49.56	23.72	2.05	0.00	0.00	0.00	0.00	0.00	20.53	14863.
1971	0.00	159.73	41.00	108.26	24.89	17.08	1.22	0.00	0.00	0.00	0.00	0.00	28.25	20455.
1972	0.00	0.00	99.25	27.79	19.72	0.08	0.00	0.00	0.00	0.00	0.00	0.00	12.36	8973.
1973	0.00	0.15	20.55	39.55	23.83	15.01	0.05	0.00	0.00	0.00	0.00	0.00	8.27	5986.
1974	0.00	0.00	59.80	47.11	58.92	0.12	0.00	0.00	0.00	0.00	0.00	0.00	13.96	10110.
1975	0.00	0.00	19.30	133.55	292.05	114.66	3.07	0.00	0.00	0.00	0.00	0.00	47.10	34102.
1976	0.00	0.00	72.77	50.16	21.14	13.48	2.45	0.00	0.00	0.00	0.00	0.00	13.38	9711.
1977	0.00	0.00	19.18	26.42	19.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.43	3930.
1978	0.00	0.00	92.57	65.48	33.86	3.46	0.00	0.00	0.00	0.00	0.00	0.00	16.47	11924.
1979	0.00	0.00	254.07	94.08	61.49	3.58	2.07	0.00	0.00	0.00	0.00	0.00	35.00	25341.
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	442.
MAX	0.00	159.73	306.36	752.01	421.58	373.38	138.71	20.04	53.16	17.42	0.00	0.00	94.85	68670.
MEAN	0.00	5.09	70.49	92.27	40.68	21.19	5.11	0.76	1.42	0.64	0.00	0.00	19.82	14356.

TABLE A-9
BOXELDER CREEK AT ALBERTA-SASKATCHEWAN BOUNDARY
NATURAL FLOWS

(ft³/sec)

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	MEAN	ACRE-FEET
1911	0.00	0.00	43.10	39.72	16.36	4.03	18.33	0.00	53.55	6.30	0.00	0.00	15.14	10960.
1912	0.00	0.00	105.03	134.79	34.92	8.00	0.04	0.00	0.00	0.00	0.00	0.00	23.56	17104.
1913	0.00	0.00	28.02	69.94	15.58	0.04	0.00	0.00	0.00	0.00	0.00	0.00	9.45	6845.
1914	0.00	0.00	22.08	36.17	7.34	0.00	0.00	0.00	0.43	17.55	0.00	0.00	7.00	5065.
1915	0.00	0.00	76.15	47.06	23.36	130.94	20.37	6.59	0.13	1.94	0.00	0.00	25.55	18495.
1916	0.00	44.81	85.88	17.14	133.80	285.78	34.85	20.19	2.71	10.14	0.00	0.00	52.73	38279.
1917	0.00	0.00	18.34	618.26	200.03	13.15	1.94	0.00	0.00	0.00	0.00	0.00	70.61	51117.
1918	0.00	0.00	147.79	53.08	10.56	1.03	0.00	0.00	0.00	0.00	0.00	0.00	17.90	12956.
1919	0.00	0.00	4.24	26.00	4.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.88	2083.
1920	0.00	0.00	82.66	67.95	20.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.33	10400.
1921	0.00	0.00	36.48	120.68	28.89	2.32	0.00	0.00	0.00	0.00	0.00	0.00	15.66	11338.
1922	0.00	0.00	66.75	313.61	61.92	5.41	0.00	0.00	0.00	0.00	0.00	0.00	37.15	26894.
1923	0.00	0.00	23.69	49.43	0.00	59.16	0.00	0.00	0.00	0.00	0.00	0.00	10.94	7918.
1924	0.00	0.00	0.00	13.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14	829.
1925	0.00	0.00	129.45	78.71	9.52	3.86	0.00	0.00	0.00	0.00	0.00	0.00	18.59	13458.
1926	0.00	0.00	33.81	15.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.13	2991.
1927	0.00	0.00	27.79	107.51	211.92	55.45	10.79	6.01	0.00	5.06	0.00	0.00	35.61	25780.
1928	0.00	0.00	118.62	26.48	5.72	40.32	10.49	0.00	0.00	0.00	0.00	0.00	16.90	12265.
1929	0.00	0.00	75.29	78.29	38.47	4.08	0.00	0.00	0.00	0.00	0.00	0.00	16.43	11896.
1930	0.00	0.00	9.60	27.83	2.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.30	2392.
1931	0.00	0.00	0.00	0.00	0.00	2.07	5.26	0.00	0.00	0.00	0.00	0.00	0.62	446.
1932	0.00	0.00	54.72	20.87	6.32	5.72	0.00	0.00	0.00	0.00	0.00	0.00	7.35	5335.
1933	0.00	0.00	56.30	12.66	43.15	11.82	9.84	0.00	0.00	0.00	0.00	0.00	11.29	8176.
1934	0.00	0.00	60.45	13.68	0.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	6.92	5007.
1935	0.00	0.00	58.76	105.24	19.59	0.00	2.51	0.00	0.00	0.00	0.00	0.00	15.52	11234.
1936	0.00	0.00	80.15	166.40	4.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.83	15119.
1937	0.00	0.00	2.49	29.35	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.80	2026.
1938	0.00	0.00	54.45	97.62	24.72	0.00	12.87	0.00	21.53	0.00	0.00	0.00	17.61	12749.
1939	0.00	0.00	121.61	15.73	3.31	28.89	5.16	0.00	0.00	0.00	0.00	0.00	14.72	10653.
1940	0.00	0.00	75.91	182.97	27.20	2.98	5.76	8.60	7.01	3.34	0.00	0.00	26.05	18910.
1941	0.00	0.00	58.43	5.53	3.55	7.27	10.93	0.00	0.00	0.00	0.00	0.00	7.24	5244.
1942	0.00	0.00	4.08	26.61	3.73	32.25	8.15	0.00	0.00	0.00	0.00	0.00	6.19	4483.
1943	0.00	0.00	146.89	42.35	8.13	0.00	5.19	0.00	0.00	0.00	0.00	0.00	17.09	12370.
1944	0.00	0.00	4.75	6.94	4.71	0.00	12.60	0.00	0.00	0.00	0.00	0.00	2.44	1769.
1945	0.00	0.00	45.23	5.89	5.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.76	3445.
1946	0.00	0.00	83.64	16.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.49	6147.
1947	0.00	0.00	220.00	83.97	12.63	3.41	0.00	0.00	0.00	0.00	0.00	0.00	26.94	19503.
1948	0.00	0.00	111.95	212.86	34.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.87	21686.
1949	0.00	0.00	26.12	11.92	6.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.70	2678.
1950	0.00	0.00	32.41	42.94	7.55	0.00	0.00	0.13	0.00	0.00	0.00	0.00	6.93	5020.
1951	0.00	0.00	164.55	349.08	79.43	38.18	4.82	0.09	12.39	0.00	0.00	0.00	53.99	39084.
1952	0.00	30.25	308.60	396.95	39.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.42	46768.
1953	0.00	0.00	88.62	110.81	106.71	376.10	0.03	0.00	0.00	0.00	0.00	0.00	56.61	40985.
1954	0.00	0.13	12.48	148.23	48.02	30.55	0.03	0.00	0.00	0.00	0.00	0.00	19.85	14367.
1955	0.00	0.00	140.95	757.50	110.35	0.92	139.73	0.00	0.00	0.00	0.00	0.00	95.55	69172.
1956	0.00	0.00	137.04	41.92	22.01	0.36	0.13	10.90	0.00	0.00	0.00	0.00	17.87	12973.
1957	0.00	57.92	94.76	120.80	29.97	3.10	0.00	0.00	0.00	0.00	0.00	0.00	25.22	18258.
1958	0.00	0.00	51.06	58.65	9.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.94	7197.
1959	0.00	0.00	98.41	48.32	14.14	5.25	0.45	0.00	0.00	0.00	0.00	0.00	14.00	10135.
1960	0.00	0.00	104.08	28.40	56.34	1.81	0.00	0.00	0.00	0.00	0.00	0.00	16.06	11661.
1961	0.00	0.00	9.62	13.28	9.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.73	1973.
1962	0.00	0.00	36.80	14.73	10.62	8.20	0.04	0.00	0.00	0.00	0.00	0.00	5.92	4282.
1963	0.00	60.10	19.10	17.04	10.96	0.12	4.28	0.00	0.00	0.00	0.00	0.00	8.94	6470.
1964	0.00	0.00	11.17	20.42	101.04	2.62	0.00	0.00	0.00	0.00	0.00	0.00	11.39	8270.
1965	0.00	0.00	13.46	237.36	26.10	64.42	17.81	0.00	0.03	0.00	0.00	0.00	29.68	21486.
1966	0.00	0.00	122.22	60.90	35.54	14.35	1.10	0.50	0.00	0.00	0.00	0.00	19.72	14276.
1967	0.00	0.00	157.90	121.90	424.66	16.76	0.43	0.00	0.00	0.00	0.00	0.00	60.91	44097.
1968	0.00	0.00	23.19	25.30	19.79	1.68	0.19	0.00	0.00	0.00	0.00	0.00	5.87	4259.
1969	0.00	0.00	146.90	71.94	20.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.16	14593.
1970	0.00	0.00	41.87	130.72	49.92	23.89	2.07	0.00	0.00	0.00	0.00	0.00	20.68	14971.
1971	0.00	160.90	41.30	109.05	25.08	17.21	1.23	0.00	0.00	0.00	0.00	0.00	28.46	20606.
1972	0.00	0.00	99.97	27.99	19.86	0.08	0.00	0.00	0.00	0.00	0.00	0.00	12.45	9038.
1973	0.00	0.15	20.70	39.84	24.00	15.12	0.05	0.00	0.00	0.00	0.00	0.00	8.33	6030.
1974	0.00	0.00	60.23	47.45	59.35	0.12	0.00	0.00	0.00	0.00	0.00	0.00	14.07	10183.
1975	0.00	0.00	19.44	134.53	294.18	115.50	3.09	0.00	0.00	0.00	0.00	0.00	47.45	34351.
1976	0.00	0.00	73.30	50.52	21.29	13.58	2.47	0.00	0.00	0.00	0.00	0.00	13.48	9782.
1977	0.00	0.00	19.32	26.61	19.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.47	3959.
1978	0.00	0.00	93.24	65.96	34.11	3.49	0.00	0.00	0.81	0.00	0.00	0.00	16.59	12011.
1979	0.00	0.00	255.92	94.76	61.94	3.61	2.09	0.00	0.00	0.00	0.00	0.00	35.26	25526.
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	446.
MAX	0.00	160.90	308.60	757.50	424.66	376.10	139.73	20.19	53.55	17.55	0.00	0.00	95.55	69172.
MEAN	0.00	5.13	71.00	92.94	40.98	21.35	5.15	0.77	1.43	0.64	0.00	0.00	19.96	14461.

TABLE A-10

BOXELDER CREEK ABOVE MANY ISLAND LAKE
NATURAL FLOWS

(ft³/sec)

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	MEAN	ACRE- FEET
1911	0.00	0.00	43.32	39.92	16.44	4.05	18.42	0.00	53.82	6.33	0.00	0.00	15.22	11015.
1912	0.00	0.00	105.55	135.46	35.10	8.04	0.04	0.00	0.00	0.00	0.00	0.00	23.68	17189.
1913	0.00	0.00	28.16	70.29	15.66	0.04	0.00	0.00	0.00	0.00	0.00	0.00	9.50	6879.
1914	0.00	0.00	22.19	36.36	7.37	0.00	0.00	0.00	0.43	17.64	0.00	0.00	7.03	5091.
1915	0.00	0.00	76.53	47.29	23.48	131.59	20.47	6.63	0.13	1.95	0.00	0.00	25.67	18587.
1916	0.00	45.03	86.31	17.22	134.47	287.21	35.02	20.29	2.73	10.19	0.00	0.00	52.99	38470.
1917	0.00	0.00	18.43	621.35	201.03	13.21	1.95	0.00	0.00	0.00	0.00	0.00	70.96	51372.
1918	0.00	0.00	148.53	53.34	10.61	1.04	0.00	0.00	0.00	0.00	0.00	0.00	17.99	13021.
1919	0.00	0.00	4.26	26.13	4.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.89	2094.
1920	0.00	0.00	83.07	68.29	20.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.40	10452.
1921	0.00	0.00	36.66	121.29	29.04	2.33	0.00	0.00	0.00	0.00	0.00	0.00	15.74	11395.
1922	0.00	0.00	67.08	315.18	62.22	5.43	0.00	0.00	0.00	0.00	0.00	0.00	37.33	27027.
1923	0.00	0.00	23.81	49.67	0.00	59.45	0.00	0.00	0.00	0.00	0.00	0.00	10.99	7957.
1924	0.00	0.00	0.00	14.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15	833.
1925	0.00	0.00	130.10	79.10	9.56	3.88	0.00	0.00	0.00	0.00	0.00	0.00	18.68	13525.
1926	0.00	0.00	33.97	15.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.15	3006.
1927	0.00	0.00	27.93	108.05	212.98	55.73	10.84	6.04	0.00	5.08	0.00	0.00	35.79	25908.
1928	0.00	0.00	119.22	26.61	5.75	40.53	10.54	0.00	0.00	0.00	0.00	0.00	16.98	12327.
1929	0.00	0.00	75.67	78.68	38.66	4.10	0.00	0.00	0.00	0.00	0.00	0.00	16.51	11955.
1930	0.00	0.00	9.65	27.97	2.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.32	2404.
1931	0.00	0.00	0.00	0.00	0.00	2.08	5.29	0.00	0.00	0.00	0.00	0.00	0.62	449.
1932	0.00	0.00	54.99	20.97	6.35	5.75	0.00	0.00	0.00	0.00	0.00	0.00	7.39	5361.
1933	0.00	0.00	56.58	12.72	43.37	11.88	9.89	0.00	0.00	0.00	0.00	0.00	11.35	8217.
1934	0.00	0.00	60.75	13.75	0.00	8.04	0.00	0.00	0.00	0.00	0.00	0.00	6.95	5032.
1935	0.00	0.00	59.05	105.76	19.68	0.00	2.53	0.00	0.00	0.00	0.00	0.00	15.59	11289.
1936	0.00	0.00	80.55	167.23	4.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.93	15195.
1937	0.00	0.00	2.50	29.50	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.81	2037.
1938	0.00	0.00	54.73	98.11	24.84	0.00	12.93	0.00	21.64	0.00	0.00	0.00	17.70	12813.
1939	0.00	0.00	122.22	15.81	3.33	29.03	5.19	0.00	0.00	0.00	0.00	0.00	14.79	10707.
1940	0.00	0.00	76.29	183.89	27.34	3.00	5.79	8.64	7.04	3.36	0.00	0.00	26.18	19005.
1941	0.00	0.00	58.72	5.55	3.56	7.30	10.98	0.00	0.00	0.00	0.00	0.00	7.28	5269.
1942	0.00	0.00	4.10	26.75	3.75	32.41	8.19	0.00	0.00	0.00	0.00	0.00	6.22	4506.
1943	0.00	0.00	147.63	47.56	8.17	0.00	5.21	0.00	0.00	0.00	0.00	0.00	17.17	12432.
1944	0.00	0.00	4.77	6.98	4.73	0.00	12.67	0.00	0.00	0.00	0.00	0.00	2.45	1778.
1945	0.00	0.00	45.45	5.92	5.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.78	3462.
1946	0.00	0.00	84.06	16.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.53	6179.
1947	0.00	0.00	221.10	84.39	12.69	3.43	0.00	0.00	0.00	0.00	0.00	0.00	27.07	19600.
1948	0.00	0.00	112.51	213.93	34.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.02	21794.
1949	0.00	0.00	26.25	11.58	6.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.72	2692.
1950	0.00	0.00	32.57	43.15	7.59	0.00	0.00	0.13	0.00	0.00	0.00	0.00	6.97	5044.
1951	0.00	0.00	165.37	350.82	79.83	38.37	4.84	0.09	12.45	0.00	0.00	0.00	54.26	39279.
1952	0.00	30.40	310.14	398.94	39.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.75	47002.
1953	0.00	0.00	89.06	111.37	107.24	377.98	0.03	0.00	0.00	0.00	0.00	0.00	56.90	41190.
1954	0.00	0.13	12.54	148.97	48.26	30.70	0.03	0.00	0.00	0.00	0.00	0.00	19.94	14438.
1955	0.00	0.00	141.66	761.28	110.90	0.92	140.42	0.00	0.00	0.00	0.00	0.00	96.02	69517.
1956	0.00	0.00	137.73	42.13	22.12	0.36	0.13	10.95	0.00	0.00	0.00	0.00	17.96	13038.
1957	0.00	58.21	95.24	121.40	30.12	3.12	0.00	0.00	0.00	0.00	0.00	0.00	25.35	18350.
1958	0.00	0.00	51.31	58.95	9.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.99	7233.
1959	0.00	0.00	98.90	48.57	14.21	5.27	0.45	0.00	0.00	0.00	0.00	0.00	14.07	10186.
1960	0.00	0.00	104.60	28.54	56.62	1.82	0.00	0.00	0.00	0.00	0.00	0.00	16.14	11719.
1961	0.00	0.00	9.67	13.35	9.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.74	1983.
1962	0.00	0.00	36.98	14.80	10.67	8.24	0.04	0.00	0.00	0.00	0.00	0.00	5.94	4303.
1963	0.00	60.40	19.20	17.12	11.01	0.13	4.30	0.00	0.00	0.00	0.00	0.00	8.98	6502.
1964	0.00	0.00	11.22	20.52	101.55	2.63	0.00	0.00	0.00	0.00	0.00	0.00	11.45	8311.
1965	0.00	0.00	13.53	238.55	26.23	64.74	17.90	0.00	0.03	0.00	0.00	0.00	29.83	21594.
1966	0.00	0.00	122.83	61.20	35.72	14.42	1.10	0.51	0.00	0.00	0.00	0.00	19.82	14347.
1967	0.00	0.00	158.69	122.51	426.78	16.84	0.43	0.00	0.00	0.00	0.00	0.00	61.21	44317.
1968	0.00	0.00	23.31	25.42	19.89	1.69	0.19	0.00	0.00	0.00	0.00	0.00	5.90	4281.
1969	0.00	0.00	147.63	72.30	20.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.26	14665.
1970	0.00	0.00	42.08	131.38	50.17	24.01	2.08	0.00	0.00	0.00	0.00	0.00	20.78	15046.
1971	0.00	161.70	41.50	109.59	25.20	17.29	1.23	0.00	0.00	0.00	0.00	0.00	28.60	20707.
1972	0.00	0.00	100.47	28.13	19.96	0.08	0.00	0.00	0.00	0.00	0.00	0.00	12.51	9083.
1973	0.00	0.15	20.80	40.04	24.12	15.20	0.05	0.00	0.00	0.00	0.00	0.00	8.37	6060.
1974	0.00	0.00	60.53	47.69	59.64	0.12	0.00	0.00	0.00	0.00	0.00	0.00	14.14	10233.
1975	0.00	0.00	19.53	135.20	295.65	116.07	3.11	0.00	0.00	0.00	0.00	0.00	47.69	34522.
1976	0.00	0.00	73.67	50.78	21.40	13.64	2.48	0.00	0.00	0.00	0.00	0.00	13.54	9831.
1977	0.00	0.00	19.41	26.74	19.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.49	3978.
1978	0.00	0.00	93.71	66.29	34.28	3.51	0.00	0.00	0.82	0.00	0.00	0.00	16.67	12072.
1979	0.00	0.00	257.20	95.24	62.25	3.62	2.10	0.00	0.00	0.00	0.00	0.00	35.44	25653.
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	449.
MAX	0.00	161.70	310.14	761.28	426.78	377.98	140.42	20.29	53.82	17.64	0.00	0.00	96.02	69517.
MEAN	0.00	5.15	71.36	93.40	41.18	21.45	5.17	0.77	1.44	0.65	0.00	0.00	20.06	14533.

TABLE A-11

**ROSS CREEK NEAR IRVINE (J05AH3)
HISTORICAL WATER USE DATA UPSTREAM FROM THE IRVINE STATION**

(ft³/sec)

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	MLAN	ACRE-FEET
1911	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1912	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1913	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1914	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1915	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1916	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1917	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1918	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1919	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1920	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1921	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1922	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1923	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1924	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1925	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1926	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1927	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1928	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1929	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1930	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1931	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1932	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1933	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1934	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1935	0.00	0.00	0.09	0.12	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	18.
1936	0.00	0.00	0.43	0.60	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	88.
1937	0.00	0.00	0.97	1.34	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	199.
1938	0.00	0.00	1.40	1.92	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	286.
1939	0.00	0.00	1.62	2.23	1.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	331.
1940	0.00	0.00	1.71	2.35	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	350.
1941	0.00	0.00	1.82	2.51	1.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	373.
1942	0.00	0.00	1.92	2.65	1.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54	393.
1943	0.00	0.00	1.94	2.67	1.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	397.
1944	0.00	0.00	2.48	3.42	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	508.
1945	0.00	0.00	2.72	3.75	2.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77	557.
1946	0.00	0.00	2.82	3.88	2.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80	577.
1947	0.00	0.00	3.01	4.18	3.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	618.
1948	0.00	0.00	3.07	4.23	3.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87	629.
1949	0.00	0.00	3.42	4.71	3.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97	700.
1950	0.00	0.00	3.64	5.02	3.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03	746.
1951	0.00	0.00	3.88	5.35	3.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10	795.
1952	0.00	0.00	4.01	5.52	4.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13	821.
1953	0.00	0.00	14.07	17.25	7.87	1.20	0.70	0.00	0.00	0.00	0.00	0.00	3.44	2489.
1954	0.00	0.00	5.64	23.55	8.74	1.20	1.10	0.00	0.00	0.00	0.00	0.00	3.41	2466.
1955	0.00	0.00	23.69	28.29	11.19	2.40	1.40	0.00	0.00	0.00	0.00	0.00	5.60	4056.
1956	0.00	0.00	19.95	21.07	10.05	0.28	0.00	0.00	0.00	0.00	0.00	0.00	4.29	3115.
1957	0.00	0.00	26.29	31.43	12.09	0.16	0.00	0.00	0.00	0.00	0.00	0.00	5.86	4239.
1958	0.00	0.00	22.89	19.35	6.12	0.21	0.00	0.00	0.00	0.00	0.00	0.00	3.74	2709.
1959	0.00	0.00	9.85	12.56	6.82	0.11	0.00	0.00	0.00	0.00	0.00	0.00	2.46	1778.
1960	0.00	0.00	6.07	11.07	6.87	0.21	0.07	0.00	0.00	0.00	0.00	0.00	2.03	1471.
1961	0.00	0.00	6.29	8.67	6.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.78	1289.
1962	0.00	0.00	9.61	9.63	6.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.19	1583.
1963	0.00	0.00	9.51	10.10	7.31	0.00	0.20	0.00	0.00	0.00	0.00	0.00	2.28	1647.
1964	0.00	0.00	9.66	12.80	8.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.55	1851.
1965	0.00	0.00	10.93	22.36	10.43	1.40	0.80	0.00	0.00	0.00	0.00	0.00	3.83	2776.
1966	0.00	0.00	15.66	19.71	9.96	1.10	0.60	0.00	0.00	0.00	0.00	0.00	3.94	2850.
1967	0.00	0.00	19.36	23.91	11.16	1.60	0.90	0.00	0.00	0.00	0.00	0.00	4.17	3028.
1968	0.00	0.00	16.76	20.94	10.36	1.20	0.70	0.00	0.00	0.00	0.00	0.00	4.25	3075.
1969	0.00	0.00	18.03	22.38	10.13	0.20	0.00	0.00	0.00	0.00	0.00	0.00	4.25	3080.
1970	0.00	0.00	16.81	21.19	11.11	1.10	0.60	0.00	0.00	0.00	0.00	0.00	4.25	3080.
1971	0.00	0.00	24.55	30.25	14.15	2.00	0.00	0.00	0.00	0.00	0.00	0.00	5.94	4298.
1972	0.00	0.00	18.58	19.29	12.28	0.10	0.00	0.00	0.00	0.00	0.00	0.00	3.88	2813.
1973	0.00	0.00	19.34	24.37	12.54	1.30	0.70	0.00	0.00	0.00	0.00	0.00	4.88	3530.
1974	0.00	0.00	18.40	23.25	12.30	1.20	0.70	0.00	0.00	0.00	0.00	0.00	4.68	3385.
1975	0.00	0.00	9.79	19.59	11.49	0.70	0.40	0.00	0.00	0.00	0.00	0.00	3.51	2540.
1976	0.00	0.00	18.65	23.69	11.35	0.20	0.00	0.00	0.00	0.00	0.00	0.00	4.50	3266.
1977	0.00	0.00	10.28	14.17	10.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.91	2107.
1978	0.00	0.00	15.30	19.91	11.90	0.60	0.40	0.00	0.00	0.00	0.00	0.00	4.03	2917.
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
MAX	0.00	0.00	26.29	31.43	14.15	2.40	1.40	0.00	0.00	0.00	0.00	0.00	5.94	4298.
MLAN	0.00	0.00	6.43	8.22	4.39	0.28	0.14	0.00	0.00	0.00	0.00	0.00	1.63	1179.

TABLE A-12

**LODGE CREEK AT INTERNATIONAL BOUNDARY (B11AB6)
RECORDED FLOWS**

(ft³/sec)

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SLPT	OCT	NOV	DEC	MEAN	ACRE-FEET
1910	-	-	-	-	0.71	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1911	-	-	65.32	108.05	15.01	20.90	31.64	0.00	147.95	1.41	-	-	-	-
1912	-	-	0.11	709.73	26.48	16.45	0.25	0.00	0.00	0.00	-	-	-	-
1913	-	-	1.09	557.90	24.65	1.84	2.54	0.18	0.00	0.00	-	-	-	-
1914	-	-	60.03	123.23	5.72	0.07	0.00	0.00	0.00	18.11	-	-	-	-
1915	-	-	-	260.23	9.25	13.66	67.09	24.75	1.48	0.32	-	-	-	-
1916	-	-	-	55.44	35.66	127.47	133.82	12.46	8.76	7.03	-	-	-	-
1917	-	-	0.00	840.38	227.40	11.33	0.11	0.00	0.00	0.00	-	-	-	-
1918	-	-	236.93	677.95	31.46	4.03	0.00	0.00	0.00	0.00	-	-	-	-
1919	-	-	0.00	125.00	7.27	0.18	0.00	0.00	0.00	0.00	-	-	-	-
1920	-	-	9.18	212.92	93.57	48.37	5.26	0.00	0.00	0.00	-	-	-	-
1921	-	-	28.35	257.41	89.33	10.10	0.99	0.00	0.00	0.00	0.00	-	-	-
1922	-	-	0.00	670.89	100.99	3.00	2.75	0.04	0.00	0.00	0.00	-	-	-
1923	-	-	14.23	132.06	6.29	90.75	67.80	3.81	0.04	0.00	-	-	-	-
1924	-	-	0.00	41.31	1.52	32.10	0.11	0.00	0.00	0.00	-	-	-	-
1925	-	-	236.93	413.13	13.14	39.19	0.00	0.00	0.71	0.11	-	-	-	-
1926	-	-	139.83	19.31	0.35	0.00	6.04	0.00	0.00	0.00	-	-	-	-
1927	-	-	171.61	533.18	557.90	69.91	23.66	0.92	0.00	0.00	-	-	-	-
1928	-	-	363.69	238.34	22.39	6.21	9.64	1.98	0.00	0.00	-	-	-	-
1929	-	-	19.49	140.89	113.70	3.95	0.04	0.00	0.00	0.00	-	-	-	-
1930	-	79.80	137.00	129.59	2.65	0.04	0.11	0.00	0.00	0.00	-	-	-	-
1931	-	-	0.00	0.99	0.00	1.27	5.12	0.60	0.00	0.00	-	-	-	-
1932	-	19.42	81.21	72.74	5.51	4.24	0.00	0.00	0.00	0.00	-	-	-	-
1933	-	-	97.46	40.25	42.37	9.75	16.67	0.25	0.00	0.00	-	-	-	-
1934	-	57.91	153.60	44.14	0.46	6.25	0.00	0.00	0.00	0.00	-	-	-	-
1935	-	-	128.18	140.89	5.72	0.11	1.20	0.00	0.00	0.00	-	-	-	-
1936	-	-	0.00	204.80	4.31	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1937	0.00	0.00	6.25	253.88	1.98	0.39	0.00	0.00	0.00	0.00	-	-	-	-
1938	-	-	150.42	120.76	11.90	10.73	27.15	0.00	45.20	0.00	-	-	-	-
1939	-	-	402.53	37.43	2.82	25.74	4.94	0.00	0.00	0.00	-	-	-	-
1940	-	-	0.00	656.77	58.61	7.80	6.11	9.99	7.06	1.91	-	-	-	-
1941	-	-	234.11	12.64	0.56	18.01	20.20	0.00	0.00	0.00	-	-	-	-
1942	-	-	7.80	43.08	0.21	109.46	11.76	0.00	0.00	0.99	-	-	-	-
1943	-	-	444.91	139.83	1.77	0.53	4.98	0.00	0.56	0.04	-	-	-	-
1944	-	-	1.06	13.98	0.25	2.68	26.20	0.00	0.00	0.00	-	-	-	-
1945	-	-	125.00	3.92	0.11	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1946	-	-	126.41	25.11	0.14	1.31	0.00	0.00	0.00	0.00	-	-	-	-
1947	-	-	143.01	169.13	5.37	1.84	0.00	0.00	0.00	0.00	-	-	-	-
1948	-	-	0.56	254.94	60.03	3.28	0.00	0.00	0.00	0.00	-	-	-	-
1949	-	-	0.00	5.19	0.71	0.04	0.60	0.00	0.00	0.00	-	-	-	-
1950	-	-	0.00	181.49	1.73	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1951	-	-	0.00	332.27	167.02	27.75	2.47	75.92	46.96	3.57	-	-	-	-
MIN	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-
MAX	0.00	79.80	444.91	840.38	557.90	127.47	133.82	75.92	147.95	18.11	0.00	-	-	-
MEAN	0.00	39.11	91.96	219.54	41.83	17.40	11.40	3.12	6.16	0.80	0.00	-	-	-

TABLE B-1

BOXELDER CREEK NEAR WALSH (A05AH001)
RECORDED FLOWS

(ft³/sec)

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	MEAN	ACRE-FEET
1911	-	-	12.60	8.10	3.60	1.80	8.10	0.00	14.00	0.60	-	-	-	-
1912	-	-	13.50	17.30	3.30	1.00	0.00	0.00	0.00	0.00	-	-	-	-
1913	-	-	-	9.80	0.35	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1914	-	-	4.70	5.20	0.38	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1915	-	-	18.20	8.40	1.90	17.90	1.60	0.00	0.00	0.00	-	-	-	-
1916	-	44.00	19.50	1.10	22.90	38.20	4.90	3.20	0.00	0.00	-	-	-	-
1917	-	-	5.60	146.00	28.40	3.90	0.00	0.00	0.00	0.00	-	-	-	-
1918	-	-	59.10	3.90	0.37	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1919	-	-	0.09	2.70	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1920	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1921	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1922	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1923	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1924	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1925	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1926	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1927	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1928	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1929	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1930	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1931	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1932	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1933	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1934	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1935	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1936	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1937	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1938	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1939	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1940	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1941	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1942	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1943	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1944	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1945	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1946	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1947	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1948	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1949	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1950	-	-	-	-	-	0.00	0.00	0.13	0.00	0.00	-	-	-	-
1951	-	-	48.10	75.50	12.00	7.50	1.80	0.09	5.30	0.00	-	-	-	-
1952	-	29.70	98.00	86.70	4.50	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1953	-	-	22.90	19.80	16.80	52.30	0.03	0.00	0.00	0.00	-	-	-	-
1954	-	0.13	0.00	28.20	5.90	6.20	0.03	0.00	0.00	0.00	-	-	-	-
1955	-	-	39.90	174.00	17.40	0.90	40.40	0.00	0.00	0.00	-	-	-	-
1956	-	-	52.90	9.10	1.50	0.00	0.00	10.70	0.00	0.00	-	-	-	-
1957	-	20.70	30.50	16.10	0.76	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1958	-	-	9.00	12.90	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1959	-	-	28.50	3.60	0.08	0.33	0.07	0.00	0.00	0.00	-	-	-	-
1960	-	-	10.10	1.40	6.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1961	-	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1962	-	-	4.00	0.09	0.00	0.82	0.00	0.00	0.00	0.00	-	-	-	-
1963	-	-	0.51	0.00	0.00	0.11	4.20	0.00	0.00	0.00	-	-	-	-
1964	-	-	0.00	0.00	8.80	2.20	0.00	0.00	0.00	0.00	-	-	-	-
1965	-	-	1.70	57.70	1.20	14.90	1.50	0.00	0.00	0.00	-	-	-	-
1966	-	-	25.30	8.10	3.90	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1967	-	-	45.20	27.80	83.00	1.10	0.00	0.00	0.00	0.00	-	-	-	-
1968	-	-	1.70	1.40	0.39	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1969	-	-	39.40	9.10	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1970	-	-	11.30	16.60	4.10	2.90	0.00	0.00	0.00	0.00	-	-	-	-
1971	-	62.80	12.60	13.00	0.10	0.27	0.00	0.00	0.00	0.00	-	-	-	-
1972	-	-	22.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1973	-	0.10	0.28	1.70	0.33	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1974	-	-	7.20	4.20	7.60	0.12	0.00	0.00	0.00	0.00	-	-	-	-
1975	-	-	0.00	21.90	46.40	15.30	0.88	0.00	0.00	0.00	-	-	-	-
1976	-	-	16.80	3.00	0.00	1.40	0.01	0.00	0.00	0.00	-	-	-	-
1977	-	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1978	-	-	26.30	8.60	0.60	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1979	-	-	49.08	13.63	5.90	0.00	0.21	0.00	0.00	0.00	-	-	-	-
MIN	-	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-
MAX	-	62.80	98.00	174.00	83.00	52.30	40.40	10.70	14.00	3.40	-	-	-	-
MEAN	-	26.36	19.92	21.49	7.59	4.34	1.63	0.36	0.49	0.18	-	-	-	-

TABLE B-2

**BOXELDER CREEK NEAR WALSH (J05AH001)
HISTORICAL WATER USE**

(ft³/sec)

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	MEAN	ACRE-FTET
1911	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1912	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1913	0.00	0.00	0.96	1.32	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	196.
1914	0.00	0.00	0.96	1.32	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	196.
1915	0.00	0.00	0.96	1.32	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	196.
1916	0.00	0.00	0.96	1.32	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	196.
1917	0.00	0.00	0.96	1.32	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	196.
1918	0.00	0.00	0.96	1.32	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	196.
1919	0.00	0.00	0.96	1.32	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	196.
1920	0.00	0.00	0.96	1.32	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	196.
1921	0.00	0.00	0.96	1.32	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	196.
1922	0.00	0.00	0.96	1.32	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	196.
1923	0.00	0.00	0.96	1.32	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	196.
1924	0.00	0.00	0.96	1.32	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	196.
1925	0.00	0.00	0.96	1.32	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	196.
1926	0.00	0.00	0.96	1.32	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	196.
1927	0.00	0.00	0.96	1.32	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	196.
1928	0.00	0.00	0.96	1.32	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	196.
1929	0.00	0.00	0.96	1.32	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	196.
1930	0.00	0.00	1.20	1.67	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	246.
1931	0.00	0.00	1.20	1.67	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	246.
1932	0.00	0.00	1.20	1.67	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	246.
1933	0.00	0.00	1.20	1.67	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	246.
1934	0.00	0.00	1.20	1.67	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	246.
1935	0.00	0.00	1.20	1.67	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	246.
1936	0.00	0.00	1.21	1.67	1.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	246.
1937	0.00	0.00	1.21	1.68	1.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	248.
1938	0.00	0.00	1.29	1.77	1.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	264.
1939	0.00	0.00	1.64	2.76	1.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	336.
1940	0.00	0.00	1.74	2.39	1.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	356.
1941	0.00	0.00	1.74	2.39	1.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	356.
1942	0.00	0.00	1.85	2.55	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	379.
1943	0.00	0.00	1.86	2.56	1.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	381.
1944	0.00	0.00	1.95	2.69	1.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	399.
1945	0.00	0.00	2.01	2.77	2.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	412.
1946	0.00	0.00	2.04	2.82	2.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	418.
1947	0.00	0.00	2.14	2.97	2.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	439.
1948	0.00	0.00	2.17	2.98	2.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	444.
1949	0.00	0.00	2.19	3.02	2.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	449.
1950	0.00	0.00	2.56	3.55	2.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.73	526.
1951	0.00	0.00	2.70	3.72	2.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76	553.
1952	0.00	0.00	2.84	3.92	2.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80	582.
1953	0.00	0.00	2.93	4.04	2.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	600.
1954	0.00	0.00	3.00	4.13	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	614.
1955	0.00	0.00	3.00	4.13	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	614.
1956	0.00	0.00	3.03	4.17	3.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86	620.
1957	0.00	0.00	3.04	4.19	3.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86	623.
1958	0.00	0.00	3.06	4.23	3.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87	628.
1959	0.00	0.00	3.07	4.24	3.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87	629.
1960	0.00	0.00	3.15	4.34	3.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.89	645.
1961	0.00	0.00	3.23	4.46	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92	662.
1962	0.00	0.00	3.54	4.90	3.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	726.
1963	0.00	0.00	3.69	5.08	3.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04	756.
1964	0.00	0.00	3.78	5.20	3.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07	774.
1965	0.00	0.00	3.84	5.29	3.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09	787.
1966	0.00	0.00	3.90	5.37	3.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10	799.
1967	0.00	0.00	4.01	5.53	4.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14	822.
1968	0.00	0.00	4.08	5.62	4.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15	836.
1969	0.00	0.00	4.08	5.60	4.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15	835.
1970	0.00	0.00	4.15	5.72	4.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18	850.
1971	0.00	0.00	3.87	5.32	3.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09	792.
1972	0.00	0.00	3.94	5.43	3.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11	807.
1973	0.00	0.00	3.99	5.51	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13	818.
1974	0.00	0.00	4.02	5.54	4.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14	824.
1975	0.00	0.00	4.02	5.54	4.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14	824.
1976	0.00	0.00	3.99	5.49	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13	817.
1977	0.00	0.00	3.99	5.49	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13	817.
1978	0.00	0.00	3.92	5.40	3.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11	803.
1979	0.00	0.00	3.92	5.40	3.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11	803.
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
MAX	0.00	0.00	4.15	5.72	4.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18	850.
MEAN	0.00	0.00	2.24	3.09	2.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	460.

TABLE B-3

**BOXELDER CREEK NEAR WALSH (B05AH001)
RECORDED FLOWS ADJUSTED TO NATURAL FLOWS**

(ft³/sec)

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	MEAN	ACRE-FEET
1911	-	-	12.60	8.10	3.60	1.80	8.10	0.00	14.00	0.60	-	-	-	-
1912	-	-	13.50	17.30	3.30	1.00	0.00	0.00	0.00	0.00	-	-	-	-
1913	-	-	-	11.12	1.31	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1914	-	-	5.66	6.52	1.34	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1915	-	-	19.16	9.72	2.86	17.90	1.60	0.00	0.00	0.00	-	-	-	-
1916	-	44.00	20.46	2.42	23.86	38.20	4.90	3.20	0.00	0.00	-	-	-	-
1917	-	-	6.56	147.32	29.36	3.90	0.00	0.00	0.00	0.00	-	-	-	-
1918	-	-	60.06	5.22	1.33	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1919	-	-	1.05	4.02	0.96	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1920	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1921	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1922	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1923	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1924	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1925	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1926	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1927	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1928	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1929	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1930	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1931	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1932	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1933	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1934	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1935	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1936	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1937	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1938	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1939	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1940	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1941	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1942	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1943	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1944	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1945	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1946	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1947	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1948	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1949	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1950	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1951	-	-	50.80	79.22	14.70	7.50	1.80	0.09	5.30	0.00	-	-	-	-
1952	-	29.70	100.84	90.62	7.34	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1953	-	-	25.83	23.84	19.73	52.30	0.03	0.00	0.00	0.00	-	-	-	-
1954	-	0.13	3.00	32.33	8.90	6.20	0.03	0.00	0.00	0.00	-	-	-	-
1955	-	-	42.90	178.13	20.40	0.90	40.40	0.00	0.00	0.00	-	-	-	-
1956	-	-	55.93	13.27	4.53	0.00	0.00	10.70	0.00	0.00	-	-	-	-
1957	-	20.70	33.54	20.29	3.80	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1958	-	-	12.07	17.12	3.07	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1959	-	-	31.57	7.84	3.15	0.33	0.07	0.00	0.00	0.00	-	-	-	-
1960	-	-	13.25	5.74	9.15	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1961	-	-	3.23	4.46	3.23	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1962	-	-	7.54	4.99	3.54	0.82	0.00	0.00	0.00	0.00	-	-	-	-
1963	-	-	4.20	5.08	3.69	0.11	4.20	0.00	0.00	0.00	-	-	-	-
1964	-	-	3.78	5.20	12.58	2.20	0.00	0.00	0.00	0.00	-	-	-	-
1965	-	-	5.54	62.99	5.04	14.90	1.50	0.00	0.00	0.00	-	-	-	-
1966	-	-	29.20	13.47	7.80	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1967	-	-	49.21	33.33	87.01	1.10	0.00	0.00	0.00	0.00	-	-	-	-
1968	-	-	5.78	7.02	4.47	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1969	-	-	43.48	14.70	4.08	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1970	-	-	15.45	22.32	8.25	2.90	0.00	0.00	0.00	0.00	-	-	-	-
1971	-	62.80	16.47	18.32	3.97	0.27	0.00	0.00	0.00	0.00	-	-	-	-
1972	-	-	26.24	5.43	3.94	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1973	-	0.10	4.27	7.21	4.32	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1974	-	-	11.22	9.74	11.62	0.12	0.00	0.00	0.00	0.00	-	-	-	-
1975	-	-	4.02	27.44	50.62	15.30	0.88	0.00	0.00	0.00	-	-	-	-
1976	-	-	20.79	8.49	3.99	1.40	0.01	0.09	0.00	0.00	-	-	-	-
1977	-	-	3.99	5.49	3.99	0.00	0.00	0.09	0.00	0.00	-	-	-	-
1978	-	-	30.22	14.00	4.52	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1979	-	-	53.00	19.03	9.82	0.00	0.21	0.00	0.00	0.00	-	-	-	-
MEAN	-	0.10	1.05	2.42	0.96	0.00	0.00	0.00	0.00	0.00	-	-	-	-
MAX	-	62.80	100.84	178.13	87.01	52.30	40.40	14.70	14.00	3.40	-	-	-	-
MEAN	-	26.36	22.88	25.50	10.50	4.34	1.63	0.36	0.49	0.18	-	-	-	-

TABLE B-4

MACKAY CREEK AT WALSH (A05AH2)

RECORDED FLOWS

(ft³/sec)

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	MEAN	ACRE-FEET
1911	-	-	21.80	22.10	8.20	1.70	7.80	0.00	30.40	4.40	-	-	-	-
1912	-	-	69.00	88.40	22.80	5.40	0.03	0.00	0.00	0.00	-	-	-	-
1913	-	-	-	43.10	9.40	0.03	0.00	0.00	0.00	0.00	-	-	-	-
1914	-	-	11.00	20.60	3.00	0.00	0.00	0.00	0.33	10.90	-	-	-	-
1915	-	-	42.20	26.50	14.20	87.20	14.50	5.10	0.10	1.50	-	-	-	-
1916	-	-	48.70	9.10	83.10	191.00	23.10	13.10	2.10	5.40	-	-	-	-
1917	-	-	7.40	360.00	130.00	7.10	1.50	0.00	0.00	0.00	-	-	-	-
1918	-	-	65.40	34.70	5.50	0.80	0.00	0.00	0.00	0.00	-	-	-	-
1919	-	-	0.83	14.70	1.10	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1920	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1921	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1922	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1923	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1924	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1925	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1926	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1927	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1928	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1929	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1930	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1931	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1932	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1933	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1934	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1935	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1936	-	-	43.50	-	1.20	0.00	-	-	-	-	-	-	-	-
1937	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1938	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1939	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1940	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1941	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1942	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1943	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1944	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1945	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1946	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1947	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1948	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1949	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1950	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1951	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1952	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1953	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1954	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1955	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1956	-	-	57.70	16.10	9.20	0.28	0.10	0.00	0.00	0.00	-	-	-	-
1957	-	28.50	42.70	71.70	16.00	2.40	0.00	0.00	0.00	0.00	-	-	-	-
1958	-	-	25.80	26.10	0.54	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1959	-	-	46.90	25.20	4.10	3.80	0.29	0.00	0.00	0.00	-	-	-	-
1960	-	-	65.40	11.00	31.70	1.40	0.00	0.00	0.00	0.00	-	-	-	-
1961	-	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1962	-	-	17.10	0.01	0.00	5.70	0.03	0.00	0.00	0.00	-	-	-	-
1963	-	46.50	5.90	1.50	0.00	0.01	0.00	0.00	0.00	0.00	-	-	-	-
1964	-	-	0.00	3.90	62.60	0.29	0.00	0.00	0.00	0.00	-	-	-	-
1965	-	-	0.23	126.00	10.40	38.10	12.60	0.00	0.02	0.00	-	-	-	-
1966	-	-	65.60	28.30	15.40	11.10	0.85	0.39	0.00	0.00	-	-	-	-
1967	-	-	77.50	59.80	254.00	12.10	0.33	0.00	0.00	0.00	-	-	-	-
1968	-	-	6.10	4.00	4.50	1.30	0.15	0.00	0.00	0.00	-	-	-	-
1969	-	-	68.50	28.90	1.90	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1970	-	-	9.00	68.10	20.90	16.20	1.60	0.00	0.00	0.00	-	-	-	-
1971	-	75.00	7.50	54.10	4.80	13.10	0.95	0.00	0.00	0.00	-	-	-	-
1972	-	-	45.00	1.30	0.59	0.06	0.00	0.00	0.00	0.00	-	-	-	-
1973	-	0.04	0.78	8.80	3.30	11.70	0.04	0.00	0.00	0.00	-	-	-	-
1974	-	-	25.90	12.70	24.90	1.20	0.00	0.00	0.00	0.00	-	-	-	-
1975	-	-	0.00	66.10	176.00	77.30	1.70	0.00	0.00	0.00	-	-	-	-
1976	-	-	28.50	16.10	1.50	9.40	1.90	0.00	0.00	0.00	-	-	-	-
1977	-	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1978	-	-	36.50	23.70	11.00	2.70	0.00	0.00	0.63	0.00	-	-	-	-
1979	-	-	144.41	42.02	28.35	2.79	1.45	0.00	0.00	0.00	-	-	-	-
MIN	-	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-
MAX	-	75.00	144.41	360.00	254.00	191.00	23.10	13.10	30.40	10.90	-	-	-	-
MEAN	-	37.51	32.93	39.84	28.24	14.83	2.09	0.56	1.02	0.67	-	-	-	-

TABLE B-5

**MACKAY CREEK AT WALSH (J05AH2)
HISTORICAL WATER USE**

(ft³/sec)

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	MEAN	ACRL-FEET
1911	0.00	0.00	1.62	2.25	1.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	333.
1912	0.00	0.00	1.62	2.25	1.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	333.
1913	0.00	0.00	1.62	2.25	1.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	333.
1914	0.00	0.00	1.62	2.25	1.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	333.
1915	0.00	0.00	1.62	2.25	1.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	333.
1916	0.00	0.00	1.62	2.25	1.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	333.
1917	0.00	0.00	1.62	2.25	1.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	333.
1918	0.00	0.00	1.62	2.25	1.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	333.
1919	0.00	0.00	1.62	2.25	1.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	333.
1920	0.00	0.00	1.65	2.27	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	338.
1921	0.00	0.00	1.65	2.27	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	338.
1922	0.00	0.00	1.65	2.27	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	338.
1923	0.00	0.00	1.65	2.27	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	338.
1924	0.00	0.00	1.65	2.27	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	338.
1925	0.00	0.00	1.65	2.27	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	338.
1926	0.00	0.00	1.65	2.27	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	338.
1927	0.00	0.00	1.65	2.27	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	338.
1928	0.00	0.00	1.65	2.27	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	338.
1929	0.00	0.00	1.65	2.27	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	338.
1930	0.00	0.00	1.65	2.27	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	338.
1931	0.00	0.00	1.65	2.27	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	338.
1932	0.00	0.00	1.65	2.27	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	338.
1933	0.00	0.00	1.65	2.27	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	338.
1934	0.00	0.00	1.65	2.27	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	338.
1935	0.00	0.00	1.65	2.27	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	338.
1936	0.00	0.00	1.65	2.27	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	338.
1937	0.00	0.00	1.73	2.38	1.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	354.
1938	0.00	0.00	1.96	2.70	1.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	401.
1939	0.00	0.00	2.13	2.93	2.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	436.
1940	0.00	0.00	2.13	2.91	2.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	435.
1941	0.00	0.00	2.14	2.97	2.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	439.
1942	0.00	0.00	2.18	3.00	2.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	446.
1943	0.00	0.00	2.13	2.93	2.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	436.
1944	0.00	0.00	2.28	3.15	2.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	467.
1945	0.00	0.00	2.38	3.28	2.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	487.
1946	0.00	0.00	2.41	3.31	2.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	493.
1947	0.00	0.00	2.33	3.21	2.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	477.
1948	0.00	0.00	2.41	3.31	2.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	493.
1949	0.00	0.00	2.69	3.71	2.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76	551.
1950	0.00	0.00	2.99	4.12	2.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	612.
1951	0.00	0.00	3.20	4.40	3.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.91	655.
1952	0.00	0.00	3.47	4.79	3.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98	711.
1953	0.00	0.00	3.48	4.80	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99	713.
1954	0.00	0.00	3.61	4.97	3.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02	739.
1955	0.00	0.00	3.61	4.97	3.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02	739.
1956	0.00	0.00	4.26	5.88	4.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20	873.
1957	0.00	0.00	4.19	5.77	4.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19	858.
1958	0.00	0.00	4.20	5.79	4.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19	861.
1959	0.00	0.00	4.36	6.01	4.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23	893.
1960	0.00	0.00	4.69	6.44	4.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32	960.
1961	0.00	0.00	4.90	6.76	4.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39	1004.
1962	0.00	0.00	5.42	7.46	5.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53	1110.
1963	0.00	0.00	5.57	7.68	5.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.58	1142.
1964	0.00	0.00	5.66	7.80	5.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60	1160.
1965	0.00	0.00	5.82	8.01	5.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.65	1192.
1966	0.00	0.00	5.95	8.20	5.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.68	1219.
1967	0.00	0.00	5.98	8.26	5.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69	1226.
1968	0.00	0.00	7.29	10.04	7.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.06	1493.
1969	0.00	0.00	11.01	15.78	11.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.12	2257.
1970	0.00	0.00	11.22	15.45	11.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.18	2299.
1971	0.00	0.00	11.48	15.83	11.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	2353.
1972	0.00	0.00	11.67	16.08	11.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.29	2391.
1973	0.00	0.00	11.86	16.34	11.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.36	2430.
1974	0.00	0.00	11.86	16.34	11.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.36	2430.
1975	0.00	0.00	11.87	16.36	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.36	2433.
1976	0.00	0.00	11.83	16.30	11.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.34	2424.
1977	0.00	0.00	11.80	16.26	11.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.34	2418.
1978	0.00	0.00	11.83	16.30	11.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.35	2424.
1979	0.00	0.00	11.83	16.30	11.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.35	2424.
MIN	0.00	0.00	1.62	2.25	1.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	333.
MAX	0.00	0.00	11.87	16.36	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.36	2433.
MEAN	0.00	0.00	4.18	5.76	4.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18	856.

TABLE B-6

MACKAY CREEK AT WALSH (B05AH2)
RECORDED FLOWS ADJUSTED TO NATURAL FLOWS

(ft³/sec)

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	MEAN	ACRE-FEET
1911	-	-	23.42	24.35	9.82	1.70	7.80	0.00	30.40	4.40	-	-	-	-
1912	-	-	70.62	90.65	24.42	5.40	0.03	0.00	0.00	0.00	-	-	-	-
1913	-	-	-	45.35	11.02	0.03	0.00	0.00	0.00	0.00	-	-	-	-
1914	-	-	12.62	22.85	4.62	0.00	0.00	0.00	0.33	10.90	-	-	-	-
1915	-	-	43.82	28.75	15.82	87.20	14.50	5.10	0.10	1.50	-	-	-	-
1916	-	-	50.32	11.35	84.72	191.00	23.10	13.10	2.10	5.40	-	-	-	-
1917	-	-	9.02	362.25	131.62	7.10	1.50	0.00	0.00	0.00	-	-	-	-
1918	-	-	67.02	36.95	7.12	0.80	0.00	0.00	0.00	0.00	-	-	-	-
1919	-	-	2.45	16.95	2.72	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1920	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1921	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1922	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1923	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1924	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1925	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1926	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1927	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1928	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1929	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1930	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1931	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1932	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1933	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1934	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1935	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1936	-	-	45.15	-	2.85	0.00	-	-	-	-	-	-	-	-
1937	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1938	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1939	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1940	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1941	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1942	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1943	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1944	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1945	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1946	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1947	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1948	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1949	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1950	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1951	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1952	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1953	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1954	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1955	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1956	-	-	61.96	21.98	13.46	0.28	0.10	0.00	0.00	0.00	-	-	-	-
1957	-	28.50	46.89	77.47	20.19	2.40	0.00	0.00	0.00	0.00	-	-	-	-
1958	-	-	30.00	31.89	4.74	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1959	-	-	51.26	31.21	8.46	3.80	0.29	0.00	0.00	0.00	-	-	-	-
1960	-	-	70.09	17.44	36.39	1.40	0.00	0.00	0.00	0.00	-	-	-	-
1961	-	-	4.90	6.76	4.90	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1962	-	-	22.52	7.47	5.42	5.70	0.03	0.00	0.00	0.00	-	-	-	-
1963	-	46.50	11.47	9.18	5.57	0.01	0.00	0.00	0.00	0.00	-	-	-	-
1964	-	-	5.66	11.70	68.26	0.29	0.00	0.00	0.00	0.00	-	-	-	-
1965	-	-	6.05	134.01	16.22	38.10	12.60	0.00	0.02	0.00	-	-	-	-
1966	-	-	71.55	36.50	21.35	11.10	0.85	0.39	0.00	0.00	-	-	-	-
1967	-	-	83.38	68.06	259.98	12.10	0.33	0.00	0.00	0.00	-	-	-	-
1968	-	-	13.39	14.04	11.79	1.30	0.15	0.00	0.00	0.00	-	-	-	-
1969	-	-	79.41	44.08	12.91	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1970	-	-	20.22	83.55	32.12	16.20	1.60	0.00	0.00	0.00	-	-	-	-
1971	-	75.00	18.98	69.93	16.28	13.10	0.95	0.00	0.00	0.00	-	-	-	-
1972	-	-	56.67	17.38	12.26	0.06	0.00	0.00	0.00	0.00	-	-	-	-
1973	-	0.04	12.64	25.14	15.16	11.70	0.04	0.00	0.00	0.00	-	-	-	-
1974	-	-	37.76	29.04	36.76	1.20	0.00	0.00	0.00	0.00	-	-	-	-
1975	-	-	11.87	82.46	187.87	77.30	1.70	0.00	0.00	0.00	-	-	-	-
1976	-	-	40.33	32.40	13.33	9.40	1.90	0.00	0.00	0.00	-	-	-	-
1977	-	-	11.80	16.26	11.80	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1978	-	-	48.33	40.00	22.83	2.70	0.00	0.00	0.00	0.63	-	-	-	-
1979	-	-	156.24	58.32	40.18	2.79	1.45	0.00	0.00	0.00	-	-	-	-
MIN	-	0.04	2.45	6.76	2.72	0.00	0.00	0.00	0.00	0.00	-	-	-	-
MAX	-	75.00	156.24	362.25	259.98	191.00	23.10	13.10	30.40	10.90	-	-	-	-
MEAN	-	37.51	39.33	48.66	34.50	14.83	2.09	0.56	1.02	0.67	-	-	-	-

TABLE B-7

ROSS CREEK NEAR IRVINE (A05AH3)
RECORDED FLOWS(ft³/sec)

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	MEAN	ACRE-FILL
1911	-	-	-	32.45	8.47	2.54	13.14	0.95	18.01	4.10	-	-	-	-
1912	-	-	-	-	11.83	9.50	0.42	3.60	7.49	1.52	-	-	-	-
1913	-	-	-	83.33	12.54	1.27	1.91	0.53	0.04	0.04	-	-	-	-
1914	-	-	27.97	42.37	7.13	0.14	0.00	0.00	0.00	8.90	-	-	-	-
1915	-	-	-	45.90	16.45	51.55	18.71	11.90	0.39	0.85	-	-	-	-
1916	-	-	91.81	11.76	38.13	165.60	94.28	21.75	5.47	7.56	-	-	-	-
1917	-	-	-	363.69	125.00	5.90	0.04	0.00	0.00	0.00	-	-	-	-
1918	-	-	-	48.02	5.58	0.53	0.00	0.00	0.00	0.00	-	-	-	-
1919	-	-	0.00	10.49	0.53	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1920	-	0.21	74.50	53.32	12.61	0.92	0.78	-	-	-	-	-	-	-
1921	-	18.01	28.39	99.22	18.11	1.06	0.14	0.00	0.00	0.00	-	-	-	-
1922	-	-	57.91	278.60	41.67	2.97	0.04	-	-	-	-	-	-	-
1923	-	0.00	17.05	37.78	0.81	45.90	0.92	0.00	0.00	0.00	-	-	-	-
1924	-	0.00	0.00	9.60	0.35	0.39	0.04	0.04	0.00	0.00	-	-	-	-
1925	-	4.34	126.41	62.50	5.37	1.98	0.00	0.00	0.04	0.21	-	-	-	-
1926	-	4.38	25.95	10.66	0.46	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1927	-	0.00	20.59	87.57	159.25	42.73	19.81	4.84	0.14	3.71	-	-	-	-
1928	-	2.26	114.05	19.24	3.07	29.94	18.82	0.71	0.00	0.00	-	-	-	-
1929	-	0.00	66.74	62.15	24.79	2.12	0.00	0.00	0.00	0.00	-	-	-	-
1930	-	70.27	5.86	20.30	1.17	0.88	0.00	0.00	0.28	0.07	-	-	-	-
1931	-	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-	-
1932	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1933	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1934	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1935	-	-	-	85.45	11.76	0.74	1.31	-	-	-	-	-	-	-
1936	-	-	64.26	139.83	1.91	0.11	0.00	0.00	0.00	0.00	-	-	-	-
1937	-	-	0.21	20.16	0.04	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1938	-	-	44.14	76.98	13.88	0.67	-	-	-	-	-	-	-	-
1939	-	-	115.82	8.72	0.07	20.59	-	-	-	-	-	-	-	-
1940	-	-	65.68	153.25	15.25	1.45	-	-	-	-	-	-	-	-
1941	-	0.49	47.67	1.02	0.00	4.20	-	-	-	-	-	-	-	-
1942	-	-	0.21	16.70	0.00	23.30	-	-	-	-	-	-	-	-
1943	-	73.80	144.77	29.31	2.58	0.00	-	-	-	-	-	-	-	-
1944	-	-	0.07	1.09	0.00	0.00	-	-	-	-	-	-	-	-
1945	-	-	33.86	0.04	0.00	0.00	-	-	-	-	-	-	-	-
1946	-	10.56	72.74	7.94	-	0.00	-	-	-	-	-	-	-	-
1947	-	-	233.05	62.85	4.31	1.69	-	-	-	-	-	-	-	-
1948	-	-	103.46	179.02	19.10	0.11	-	-	-	-	-	-	-	-
1949	-	-	15.71	3.11	0.00	0.00	-	-	-	-	-	-	-	-
1950	-	-	21.04	27.44	0.53	0.00	-	-	-	-	-	-	-	-
1951	-	-	152.54	179.02	31.81	14.27	-	-	-	-	-	-	-	-
1952	-	-	135.59	303.31	12.82	0.71	-	-	-	-	-	-	-	-
1953	-	-	82.27	84.74	55.08	181.49	-	-	-	-	-	-	-	-
1954	-	0.18	0.42	65.32	15.64	19.95	-	-	-	-	-	-	-	-
1955	-	-	55.79	363.69	138.42	16.49	-	-	-	-	-	-	-	-
1956	-	-	77.33	29.73	13.10	2.58	-	-	-	-	-	-	-	-
1957	-	23.76	55.44	120.05	26.13	1.17	-	-	-	-	-	-	-	-
1958	-	-	22.74	18.96	3.78	0.00	-	-	-	-	-	-	-	-
1959	-	-	46.26	13.88	4.06	0.00	-	-	-	-	-	-	-	-
1960	-	-	62.15	18.01	38.84	0.92	0.00	0.00	0.00	0.00	-	-	-	-
1961	-	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1962	-	-	19.35	0.18	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1963	-	-	9.57	1.09	0.00	0.18	6.32	0.00	0.00	0.00	-	-	-	-
1964	-	-	2.93	10.06	58.97	2.05	0.00	0.00	0.00	0.00	-	-	-	-
1965	-	-	14.48	138.77	7.13	36.37	40.25	0.11	0.99	3.21	-	-	-	-
1966	-	-	85.45	24.29	2.47	19.10	5.01	0.85	0.00	0.11	-	-	-	-
1967	-	-	118.64	81.21	235.52	8.44	0.11	0.32	0.25	0.00	-	-	-	-
1968	-	-	8.37	4.84	4.13	0.04	2.30	0.00	0.00	0.00	-	-	-	-
1969	-	-	85.80	39.55	1.77	0.04	0.04	0.00	0.07	0.00	-	-	-	-
1970	-	-	13.21	37.43	11.62	9.22	4.03	0.00	0.00	0.00	-	-	-	-
1971	-	94.98	19.60	67.09	8.26	12.29	1.09	0.00	0.00	0.00	-	-	-	-
1972	-	-	72.03	2.68	2.47	0.11	0.00	0.04	0.00	0.00	-	-	-	-
1973	-	1.06	7.17	3.99	0.88	20.55	0.00	0.00	0.00	0.00	-	-	-	-
1974	-	-	50.14	18.08	19.31	4.20	0.00	0.00	0.00	0.00	-	-	-	-
1975	-	-	0.00	72.39	187.85	63.56	2.75	0.21	0.00	0.00	-	-	-	-
1976	-	-	21.89	21.47	5.47	7.45	1.20	0.00	0.00	0.00	-	-	-	-
1977	-	-	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1978	-	-	38.84	11.55	5.19	2.01	0.00	0.00	0.21	0.00	-	-	-	-
1979	-	-	96.75	55.44	24.47	2.54	0.14	0.00	0.00	0.00	-	-	-	-
MIN	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-
MAX	-	94.98	233.05	363.69	235.52	181.49	94.28	21.75	18.01	8.90	-	-	-	-
MEAN	-	16.81	50.42	61.21	23.09	12.99	5.43	1.15	0.83	0.76	-	-	-	-

TABLE B-8

ROSS CREEK NEAR IRVINE
HISTORICAL WATER USE UPSTREAM FROM THE IRVINE STATION
(EXCLUDING THE ROSS CREEK IRRIGATION DISTRICT)

(ft³/sec)

	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC	MEAN	ACRE-FEET
1911	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1912	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1913	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1914	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1915	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1916	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1917	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1918	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1919	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1920	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1921	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1922	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1923	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1924	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1925	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1926	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1927	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1928	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1929	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1930	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1931	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1932	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1933	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1934	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1935	0.00	0.00	0.09	0.12	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	18.
1936	0.00	0.00	0.43	0.60	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	88.
1937	0.00	0.00	0.97	1.34	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	199.
1938	0.00	0.00	1.40	1.92	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	286.
1939	0.00	0.00	1.62	2.23	1.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	331.
1940	0.00	0.00	1.71	2.35	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	350.
1941	0.00	0.00	1.82	2.51	1.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	373.
1942	0.00	0.00	1.92	2.65	1.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54	393.
1943	0.00	0.00	1.94	2.67	1.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	397.
1944	0.00	0.00	2.48	3.42	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	508.
1945	0.00	0.00	2.72	3.75	2.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77	557.
1946	0.00	0.00	2.82	3.88	2.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80	577.
1947	0.00	0.00	3.01	4.18	3.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	618.
1948	0.00	0.00	3.07	4.23	3.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87	629.
1949	0.00	0.00	3.42	4.71	3.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97	700.
1950	0.00	0.00	3.64	5.02	3.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03	746.
1951	0.00	0.00	3.88	5.35	3.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10	795.
1952	0.00	0.00	4.01	5.52	4.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13	821.
1953	0.00	0.00	4.97	6.85	4.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41	1018.
1954	0.00	0.00	5.04	6.95	5.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43	1033.
1955	0.00	0.00	5.29	7.29	5.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	1084.
1956	0.00	0.00	5.35	7.37	5.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.51	1096.
1957	0.00	0.00	5.39	7.43	5.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53	1105.
1958	0.00	0.00	5.69	7.85	5.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61	1166.
1959	0.00	0.00	5.85	8.06	5.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.66	1199.
1960	0.00	0.00	6.07	8.37	6.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.71	1244.
1961	0.00	0.00	6.29	8.67	6.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.78	1289.
1962	0.00	0.00	6.81	9.38	6.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.93	1395.
1963	0.00	0.00	7.21	9.94	7.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.04	1478.
1964	0.00	0.00	7.76	10.00	7.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.05	1487.
1965	0.00	0.00	7.73	9.96	7.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.05	1481.
1966	0.00	0.00	7.76	10.01	7.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.06	1488.
1967	0.00	0.00	7.76	10.01	7.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.06	1488.
1968	0.00	0.00	7.36	10.14	7.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.08	1508.
1969	0.00	0.00	7.53	10.38	7.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.13	1543.
1970	0.00	0.00	8.41	11.59	8.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.38	1723.
1971	0.00	0.00	9.25	12.75	9.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.62	1896.
1972	0.00	0.00	9.28	12.79	9.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.62	1902.
1973	0.00	0.00	9.34	12.87	9.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.64	1914.
1974	0.00	0.00	9.40	12.95	9.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.66	1926.
1975	0.00	0.00	9.79	13.49	9.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.77	2006.
1976	0.00	0.00	9.85	13.59	9.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.78	2020.
1977	0.00	0.00	10.28	14.17	10.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.91	2107.
1978	0.00	0.00	10.30	14.21	10.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.92	2112.
1979	0.00	0.00	10.35	14.27	10.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.93	2121.
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
MAX	0.00	0.00	10.35	14.27	10.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.93	2121.
MEAN	0.00	0.00	3.55	4.90	3.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	728.

TABLE B-9

ROSS CREEK IRRIGATION DISTRICT
HISTORICAL WATER USE

(ft³/sec)

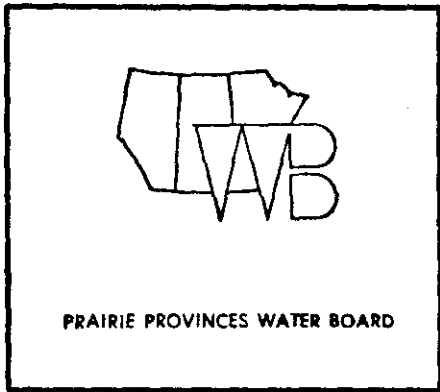
	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	MEAN	ACRE-FEET
1911	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1912	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1913	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1914	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1915	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1916	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1917	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1918	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1919	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1920	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1921	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1922	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1923	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1924	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1925	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1926	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1927	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1928	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1929	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1930	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1931	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1932	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1933	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1934	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1935	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1936	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1937	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1938	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1939	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1940	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1941	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1942	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1943	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1944	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1945	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1946	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1947	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1948	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1949	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1950	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1951	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1952	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1953	0.00	0.00	9.10	10.40	2.90	1.20	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.
1954	0.00	0.00	0.60	16.60	3.70	1.90	1.10	0.00	0.00	0.00	0.00	0.00	2.03	1471.
1955	0.00	0.00	18.40	21.60	5.90	2.40	1.40	0.00	0.00	0.00	0.00	0.00	1.98	1432.
1956	0.00	0.00	14.60	13.70	4.70	0.28	0.00	0.00	0.00	0.00	0.00	0.00	4.11	2972.
1957	0.00	0.00	20.90	24.00	6.70	0.16	0.00	0.00	0.00	0.00	0.00	0.00	2.78	2018.
1958	0.00	0.00	17.20	7.50	0.43	0.21	0.00	0.00	0.00	0.00	0.00	0.00	4.33	3134.
1959	0.00	0.00	4.00	4.50	0.97	0.11	0.00	0.00	0.00	0.00	0.00	0.00	2.13	1542.
1960	0.00	0.00	0.00	2.70	0.80	0.21	0.07	0.00	0.00	0.00	0.00	0.00	0.80	579.
1961	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	226.
1962	0.00	0.00	2.80	0.25	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
1963	0.00	0.00	2.30	0.16	0.10	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.26	188.
1964	0.00	0.00	2.40	2.80	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	169.
1965	0.00	0.00	3.70	12.40	3.20	1.40	0.80	0.00	0.00	0.00	0.00	0.00	0.50	363.
1966	0.00	0.00	8.40	9.70	2.70	1.10	0.60	0.00	0.00	0.00	0.00	0.00	1.79	1294.
1967	0.00	0.00	12.70	13.90	3.90	1.60	0.90	0.00	0.00	0.00	0.00	0.00	1.88	1362.
1968	0.00	0.00	9.40	10.80	3.00	1.20	0.70	0.00	0.00	0.00	0.00	0.00	2.71	1961.
1969	0.00	0.00	10.50	12.00	2.60	0.20	0.00	0.00	0.00	0.00	0.00	0.00	2.09	1519.
1970	0.00	0.00	3.40	9.60	2.70	1.10	0.60	0.00	0.00	0.00	0.00	0.00	2.12	1531.
1971	0.00	0.00	15.30	17.50	4.90	2.00	0.40	0.00	0.00	0.00	0.00	0.00	1.87	1356.
1972	0.00	0.00	9.30	2.50	3.40	0.10	0.00	0.00	0.00	0.00	0.00	0.00	3.32	2402.
1973	0.00	0.00	10.00	11.50	3.20	1.30	0.70	0.00	0.00	0.00	0.00	0.00	1.25	911.
1974	0.00	0.00	9.00	10.30	2.90	1.20	0.70	0.00	0.00	0.00	0.00	0.00	2.23	1616.
1975	0.00	0.00	0.00	6.10	1.70	0.70	0.40	0.00	0.00	0.00	0.00	0.00	2.07	1459.
1976	0.00	0.00	8.80	10.10	1.50	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.74	533.
1977	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	1246.
1978	0.00	0.00	5.00	5.70	1.60	0.60	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.
													1.11	805.
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
MAX	0.00	0.00	20.90	24.00	6.70	2.40	1.40	0.00	0.00	0.00	0.00	0.00	4.33	3134.
MEAN	0.00	0.00	2.97	3.47	0.95	0.28	0.14	0.00	0.00	0.00	0.00	0.00	0.65	472.

TABLE B-10

**ROSS CREEK NEAR IRVINE (B05AH3)
RECORDED FLOWS ADJUSTED TO NATURAL FLOWS**

(ft³/sec)

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	MEAN	ACRE- FEET
1911	-	-	-	32.45	8.47	2.54	13.14	0.95	18.01	4.10	-	-	-	-
1912	-	-	-	-	11.83	9.50	0.42	3.60	7.49	1.52	-	-	-	-
1913	-	-	-	83.33	12.54	1.77	1.91	0.53	0.04	0.04	-	-	-	-
1914	-	-	27.97	42.37	7.13	0.14	0.00	0.00	0.00	8.90	-	-	-	-
1915	-	-	-	45.90	16.45	51.55	18.71	11.90	0.39	0.85	-	-	-	-
1916	-	-	91.81	11.76	38.13	165.60	94.28	21.75	5.47	7.56	-	-	-	-
1917	-	-	-	363.69	125.00	5.90	0.04	0.00	0.00	0.00	-	-	-	-
1918	-	-	-	48.02	5.58	0.53	0.00	0.00	0.00	0.00	-	-	-	-
1919	-	-	0.00	10.49	0.53	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1920	-	0.21	74.50	53.32	12.61	0.92	0.78	-	-	-	-	-	-	-
1921	-	18.01	28.39	99.22	18.11	1.06	0.14	0.00	0.00	0.00	-	-	-	-
1922	-	-	57.91	278.60	41.67	2.97	0.04	-	-	-	-	-	-	-
1923	-	0.00	17.05	37.78	0.81	45.90	0.92	0.00	0.00	0.00	-	-	-	-
1924	-	0.00	0.00	9.60	0.35	0.39	0.04	0.04	0.00	0.00	-	-	-	-
1925	-	4.34	126.41	62.50	5.37	1.98	0.00	0.00	0.04	0.21	-	-	-	-
1926	-	4.38	25.95	10.66	0.46	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1927	-	0.00	20.59	87.57	159.25	42.73	19.81	4.84	0.14	3.71	-	-	-	-
1928	-	2.26	114.05	19.24	3.07	29.94	18.82	0.71	0.00	0.00	-	-	-	-
1929	-	0.00	66.74	62.15	24.79	2.12	0.00	0.00	0.00	0.00	-	-	-	-
1930	-	70.27	5.86	20.30	1.17	0.88	0.00	0.00	0.28	0.07	-	-	-	-
1931	-	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-	-
1932	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1933	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1934	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1935	-	-	-	85.57	11.85	0.74	1.31	-	-	-	-	-	-	-
1936	-	-	64.69	140.43	2.34	0.11	0.00	0.00	0.00	0.00	-	-	-	-
1937	-	-	1.18	21.50	1.01	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1938	-	-	45.54	78.90	15.28	0.67	-	-	-	-	-	-	-	-
1939	-	-	117.44	10.95	1.69	20.59	-	-	-	-	-	-	-	-
1940	-	-	67.39	155.60	16.96	1.45	-	-	-	-	-	-	-	-
1941	-	0.49	49.49	3.53	1.82	4.20	-	-	-	-	-	-	-	-
1942	-	-	2.13	19.35	1.92	23.30	-	-	-	-	-	-	-	-
1943	-	73.80	146.71	31.98	4.52	0.00	-	-	-	-	-	-	-	-
1944	-	-	2.55	4.51	2.48	0.00	-	-	-	-	-	-	-	-
1945	-	-	36.58	3.79	2.72	0.00	-	-	-	-	-	-	-	-
1946	-	10.56	75.56	11.82	-	0.00	-	-	-	-	-	-	-	-
1947	-	-	236.06	67.03	7.32	1.69	-	-	-	-	-	-	-	-
1948	-	-	106.53	183.25	22.17	0.11	-	-	-	-	-	-	-	-
1949	-	-	19.13	7.82	3.42	0.00	-	-	-	-	-	-	-	-
1950	-	-	24.68	32.46	4.17	0.00	-	-	-	-	-	-	-	-
1951	-	-	156.42	184.37	35.69	14.27	-	-	-	-	-	-	-	-
1952	-	-	139.60	308.83	16.83	0.71	-	-	-	-	-	-	-	-
1953	-	-	96.34	101.99	62.95	182.69	-	-	-	-	-	-	-	-
1954	-	0.18	6.06	88.87	24.38	21.85	-	-	-	-	-	-	-	-
1955	-	-	79.48	391.98	149.61	18.89	-	-	-	-	-	-	-	-
1956	-	-	97.28	50.80	23.15	2.86	-	-	-	-	-	-	-	-
1957	-	23.76	81.73	151.48	38.22	1.33	-	-	-	-	-	-	-	-
1958	-	-	45.63	34.31	9.90	0.21	-	-	-	-	-	-	-	-
1959	-	-	56.11	26.44	10.88	0.11	-	-	-	-	-	-	-	-
1960	-	-	68.22	29.08	45.71	1.13	0.07	0.00	0.00	0.00	-	-	-	-
1961	-	-	6.29	8.67	6.29	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1962	-	-	28.96	9.81	6.83	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1963	-	-	19.08	11.19	7.31	0.18	6.52	0.00	0.00	0.00	-	-	-	-
1964	-	-	12.59	22.86	67.03	2.05	0.00	0.00	0.00	0.00	-	-	-	-
1965	-	-	25.41	161.13	17.56	37.77	41.05	0.11	0.99	3.21	-	-	-	-
1966	-	-	101.11	44.00	12.43	20.20	5.61	0.85	0.00	0.11	-	-	-	-
1967	-	-	138.00	105.12	246.68	10.04	1.01	0.32	0.25	0.00	-	-	-	-
1968	-	-	25.13	25.78	14.89	1.24	3.00	0.00	0.00	0.00	-	-	-	-
1969	-	-	103.83	61.93	11.90	0.24	0.04	0.00	0.07	0.00	-	-	-	-
1970	-	-	30.02	58.62	22.73	10.32	4.63	0.00	0.00	0.00	-	-	-	-
1971	-	94.98	44.15	97.34	22.41	14.29	1.09	0.00	0.00	0.00	-	-	-	-
1972	-	-	90.61	17.97	14.75	0.21	0.00	0.04	0.00	0.00	-	-	-	-
1973	-	1.06	26.51	28.36	13.42	21.85	0.70	0.00	0.00	0.00	-	-	-	-
1974	-	-	68.54	41.33	31.61	5.40	0.70	0.00	0.00	0.00	-	-	-	-
1975	-	-	9.79	91.98	199.34	64.26	3.15	0.21	0.00	0.00	-	-	-	-
1976	-	-	40.54	45.16	16.82	7.65	1.20	0.00	0.00	0.00	-	-	-	-
1977	-	-	10.28	14.45	10.28	0.00	0.00	0.00	0.00	0.00	-	-	-	-
1978	-	-	54.14	31.46	17.09	2.61	0.40	0.00	0.21	0.00	-	-	-	-
MEAN	-	0.00	0.00	0.00	0.35	0.00	0.00	0.00	0.00	0.00	-	-	-	-
MAX	-	94.98	236.06	391.98	246.68	182.69	94.28	21.75	18.01	8.90	-	-	-	-
MEAN	-	16.81	57.15	70.04	27.77	13.46	5.70	1.18	0.86	0.78	-	-	-	-



Appendix II
EXISTING ALBERTA
WATER RIGHTS -
BOXELDER CREEK BASIN

APPLICATION DATE	FILE NO.	LAND LOCATION	PROJECT STATUS	YEAR AUTH.	PURPOSE	ESTIMATED	
						USE (AC-FT)	SUB-BASIN
1904-12-05-01	00296	NE11 13 01 4	LIC	1908	IRR	593	A6
1905-07-28-01	00315	NE01 13 01 4	LIC	1921	IRR	2209	A6
1906-01-16-01	00316	SE23 13 01 4	LIC	1906	IRR	1141	A6
1906-08-02-01	00351	SE29 09 01 4	LIC	1907	IRR	295	A0
1909-07-22-01	00454	NE01 13 01 4	LIC	1909	IRR	140	A6
1910-03-12-01	00475	SW36 11 02 4	LIC	1910	IRR	202	A1
1910-07-11-01	00503	NE11 13 01 4	LIC	1910	IRR	419	A6
1915-06-08-01	00718	NW16 12 01 4	LIC	1915	IRR	54	A3
1919-08-18-01	00962	NE12 12 01 4	LIC	1921	IRR	112	A2
1934-03-24-01	02406	SE17 12 02 4	AUTH	1934	IRR	48	A1
1934-03-24-02	20244	NW16 12 02 4	AUTH	1934	DOM	8	A1
1934-03-24-03	20246	NW16 12 02 4	LIC	1966	DOM	5	A1
1935-06-27-01	02501	SE03 09 01 4	LIC	1936	IRR	3	A0
1935-08-21-01	02581	SE06 11 01 4	LIC	1935	DOM	1	A1
1935-09-21-01	02678	NW26 10 01 4	LIC	1936	DOM	1	A0
1935-11-25-01	02804	NE14 12 01 4	LIC	1944	DOM	2	A3
1936-02-15-01	11074	NE32 10 01 4	LIC	1936	DOM	2	A0
1936-02-15-02	02831	SW34 10 01 4	LIC	1936	DOM	3	A0
1936-03-04-01	02743	NE17 09 01 4	LIC	1936	DOM	2	A0
1936-03-04-03	02824	NE05 11 02 4	LIC	1937	DOM	8	A1
1936-03-04-04	02827	NE15 10 02 4	LIC	1936	DOM	10	A0
1936-04-15-01	02930	NE35 09 01 4	LIC	1947	DOM	5	A0
1936-04-15-02	02930	NE36 09 01 4	LIC	1939	DOM	2	A0
1936-04-21-01	02931	SW28 11 01 4	LIC	1937	DOM	2	A1
1936-07-13-01	03008	NW31 10 01 4	LIC	1936	DOM	1	A0
1936-09-19-01	03069	SE26 09 01 4	LIC	1943	DOM	5	A0
1936-10-15-01	03155	SW18 11 01 4	LIC	1937	DOM	2	A1
1936-10-15-02	03155	NW24 11 02 4	LIC	1937	DOM	2	A1
1936-11-10-01	03233	NW15 10 01 4	LIC	1937	DOM	4	A0
1936-11-17-01	03286	SW14 10 02 4	LIC	1937	DOM	1	A0
1936-11-28-01	03173	SE13 10 01 4	LIC	1937	DOM	3	A0
1936-12-24-01	03156	SE23 09 02 4	LIC	1937	DOM	3	A0
1936-12-28-01	03359	SW05 10 01 4	LIC	1937	DOM	1	A0
1937-01-25-01	03324	SW09 09 02 4	LIC	1937	DOM	5	A0
1937-02-01-01	03390	SW19 12 01 4	LIC	1971	DOM	15	A3
1937-02-15-01	03426	NE07 12 02 4	LIC	1937	DOM	2	A1
1937-02-16-01	03357	SW03 10 01 4	LIC	1937	DOM	4	A0
1937-03-08-01	03358	NE33 09 01 4	LIC	1937	DOM	2	A0
1937-04-09-01	03510	NW17 12 02 4	LIC	1937	DOM	6	A1
1937-04-12-01	03513	SW35 10 02 4	LIC	1938	DOM	4	A1
1937-04-12-02	03514	NW01 11 02 4	LIC	1937	DOM	1	A1
1937-04-15-01	03529	SE15 10 01 4	LIC	1937	DOM	2	A0
1937-05-21-01	03593	SW03 12 02 4	LIC	1938	IRR	36	A1
1937-06-05-01	03671	NE02 11 01 4	LIC	1938	DOM	3	A0
1937-07-07-01	03686	NE03 10 02 4	LIC	1937	DOM	4	A0
1937-08-18-01	03992	NW11 10 01 4	LIC	1939	DOM	5	A0
1937-08-18-02	03993	SE09 10 01 4	LIC	1938	DOM	3	A0
1937-08-19-01	03991	NE11 10 01 4	LIC	1939	DOM	3	A0
1937-08-25-01	03989	SW36 09 01 4	LIC	1939	DOM	1	A0
1937-09-04-01	04035	SE25 10 02 4	LIC	1939	DOM	5	A0
1937-10-14-01	04270	NW22 11 02 4	LIC	1944	DOM	3	A1
1937-10-21-01	04271	NE18 11 01 4	LIC	1939	DOM	2	A1
1937-12-22-01	02658	SE25 10 01 4	LIC	1938	DOM	1	A0
1937-12-23-01	04118	SW15 09 02 4	LIC	1939	IRR	42	A0
1938-02-16-01	04505	NE17 11 02 4	LIC	1939	DOM	5	A1
1938-03-21-01	04565	SW22 12 01 4	LIC	1939	DOM	2	A3
1938-05-26-01	03790	NW25 09 02 4	LIC	1939	DOM	5	A0
1938-06-14-01	04668	NE28 10 02 4	LIC	1939	DOM	5	A1
1938-12-19-01	04034	SW26 09 01 4	LIC	1939	DOM	3	A0
1939-06-21-01	05372	SE16 12 02 4	AUTH	1939	IRR	5	A1
1939-11-25-01	05551	SE09 10 02 4	LIC	1941	DOM	1	A0

NOTE: ABBREVIATIONS USED UNDER THE 'PROJECT STATUS' AND 'PURPOSE' COLUMNS ARE,
LIC - LICENCED, AUTH - AUTHORIZED, CANS - CANCELLED,
DOM - DOMESTICS, IRR - IRRIGATION
REFER TO FIGURE FOR REFERENCE TO 'SUB-BASIN' CODES

1941-07-21-01	06146	NW18	10	01	4	LIC	1956	DOM	2	A0
1941-11-13-01	06307	SW09	09	01	4	LIC	1944	DOM	2	A0
1942-07-31-01	06542	NE08	11	02	4	LIC	1943	DOM	5	A1
1942-08-06-01	06225	NE01	11	01	4	LIC	1942	DOM	3	A0
1942-08-21-02	06565	NW19	11	01	4	LIC	1944	DOM	7	A1
1942-09-30-01	06592	NW29	10	02	4	LIC	1943	DOM	4	A1
1943-09-08-01	06755	NE27	11	02	4	LIC	1944	IRR	60	A1
1943-10-07-01	06785	NW15	11	02	4	LIC	1944	DOM	4	A1
1943-11-01-01	06813	SE16	09	02	4	LIC	1944	DOM	3	A0
1943-12-02-01	06860	SW26	09	02	4	LIC	1944	DOM	8	A0
1943-12-28-01	06870	NE18	11	02	4	LIC	1945	DOM	10	A1
1944-06-05-01	06983	NW09	10	02	4	LIC	1944	DOM	8	A0
1944-07-05-02	07028	SE14	13	01	4	AUTH	1945	IRR	188	A6
1944-07-06-01	07029	NE12	09	01	4	LIC	1960	DOM	5	A0
1944-07-24-01	07039	NW22	12	02	4	LIC	1945	DOM	8	A3
1944-08-08-01	07037	SW21	09	02	4	LIC	1945	DOM	10	A0
1944-08-08-02	07018	SW08	11	01	4	LIC	1944	DOM	2	A1
1944-09-20-01	14407	SW30	09	01	4	LIC	1946	IRR	31	A0
1944-10-16-01	06637	NE31	10	01	4	LIC	1945	DOM	2	A0
1944-10-19-01	07283	NE05	11	01	4	LIC	1945	DOM	1	A1
1945-02-22-01	00454	NE01	13	01	4	AUTH	1946	IRR	51	A6
1945-04-20-01	07352	NE19	11	02	4	LIC	1945	DOM	4	A1
1945-06-01-01	06844	NW02	11	02	4	LIC	1945	DOM	3	A1
1945-06-18-01	02600	NW35	10	02	4	LIC	1946	DOM	4	A1
1945-07-03-03	07424	SW18	11	02	4	LIC	1946	DOM	1	A1
1945-11-12-01	07531	NW02	10	01	4	LIC	1946	DOM	2	A0
1945-12-05-01	07503	SW24	09	01	4	LIC	1946	DOM	10	A0
1945-12-08-01	07522	SE16	10	01	4	LIC	1946	DOM	3	A0
1946-03-07-01	07591	NE23	11	01	4	LIC	1947	IRR	40	A0
1946-03-28-01	04748	SW26	10	02	4	LIC	1946	DOM	3	A1
1946-05-03-01	07613	SE34	11	01	4	LIC	1947	IRR	82	A1
1946-06-08-01	07664	NW21	11	02	4	LIC	1947	DOM	3	A1
1946-06-08-03	07666	SW10	09	01	4	LIC	1951	DOM	2	A0
1946-06-08-04	07667	SE14	12	02	4	LIC	1946	IRR	15	A1
1946-06-08-05	07669	SW34	09	02	4	LIC	1946	DOM	3	A0
1946-06-08-06	02600	SW23	10	02	4	LIC	1948	DOM	2	A0
1946-07-31-01	07750	NW15	12	01	4	LIC	1950	IRR	58	A3
1946-08-10-01	07752	NW05	10	01	4	LIC	1946	DOM	3	A0
1946-09-16-01	07852	NE34	11	01	4	LIC	1947	IRR	32	A1
1946-10-04-01	07873	SW05	10	02	4	LIC	1949	DOM	3	A0
1946-10-17-01	07882	NW01	10	01	4	LIC	1947	DOM	3	A0
1947-01-06-01	00353	SW36	08	01	4	LIC	1947	DOM	5	A0
1947-04-22-01	07954	SW01	09	01	4	LIC	1947	DOM	2	A0
1947-06-02-01	07978	SE19	09	01	4	LIC	1948	DOM	2	A0
1947-06-10-01	07532	NW23	11	02	4	LIC	1961	DOM	4	A1
1948-02-20-01	08118	NE01	10	02	4	LIC	1948	DOM	5	A0
1948-11-03-01	08266	SE26	09	02	4	LIC	1949	DOM	1	A0
1948-11-24-01	07166	NE25	09	02	4	LIC	1948	DOM	1	A0
1948-12-18-01	08277	NW06	10	01	4	LIC	1950	DOM	2	A0
1949-01-27-01	08304	SW31	10	01	4	LIC	1950	DOM	5	A0
1949-02-14-01	08295	NW26	09	02	4	LIC	1950	DOM	3	A0
1949-04-14-01	08323	SW28	10	01	4	LIC	1950	DOM	8	A0
1949-07-14-01	08383	SE03	12	02	4	LIC	1950	IRR	57	A1
1949-07-15-01	08382	NE01	10	01	4	LIC	1950	DOM	5	A0
1949-07-18-01	08364	SW08	10	02	4	AUTH	1950	IRR	50	A0
1949-07-28-01	08386	NW14	11	02	4	LIC	1950	DOM	2	A1
1949-07-29-01	08399	NE05	10	01	4	LIC	1950	DOM	3	A0
1949-09-07-01	08387	SW28	09	02	4	AUTH	1953	DOM	3	A0
1949-09-07-02	08427	SE13	09	02	4	LIC	1971	DIV	0	A0
1949-09-12-01	08442	NW04	10	01	4	LIC	1951	DOM	5	A0
1949-11-07-01	07503	SW24	09	01	4	LIC	1955	IRR	26	A0
1949-11-07-02	08479	NE13	09	01	4	LIC	1951	DOM	2	A0
1949-11-21-01	08491	SW13	11	02	4	LIC	1950	DOM	3	A1
1949-12-02-01	05709	SW12	12	02	4	LIC	1951	DOM	3	A1
1949-12-07-01	08519	NW08	10	01	4	LIC	1951	DOM	3	A0

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REFER TO FIGURE FOR REFERENCE TO 'SUB-BASIN' CODES

1949-12-23-02	06171	SW21	10	01	4	LIC	1950	DOM	3	A0
1950-02-01-01	08549	SE01	10	01	4	LIC	1951	DOM	8	A0
1950-02-06-01	08551	NE27	08	01	4	LIC	1951	DOM	14	A0
1950-03-28-01	08574	NE34	10	02	4	LIC	1952	DOM	3	A1
1950-05-12-01	08590	NW25	08	01	4	LIC	1950	DOM	8	A0
1950-05-15-01	08596	NE10	12	02	4	LIC	1951	DOM	4	A1
1950-05-30-01	06902	SW32	09	01	4	LIC	1951	DOM	14	A0
1950-06-01-01	08606	SE25	08	01	4	LIC	1955	DOM	10	A0
1950-07-25-01	08738	SE15	09	01	4	LIC	1952	DOM	2	A0
1950-09-23-01	08809	NE21	10	01	4	AUTH	1951	DOM	10	A0
1950-12-16-01	08870	NE06	12	01	4	LIC	1953	DOM	2	A1
1951-03-22-01	08893	NE14	09	01	4	LIC	1952	IRR	6	A0
1951-07-27-01	14503	SW22	12	01	4	AUTH	1955	IRR	16	A3
1951-09-14-01	08973	NE23	10	02	4	AUTH	1951	DOM	2	A0
1951-11-22-01	08999	SE36	08	02	4	LIC	1971	DOM	1	A0
1952-03-05-01	09034	NE03	11	01	4	LIC	1952	DOM	2	A0
1952-03-20-01	07245	SE29	09	02	4	LIC	1965	DOM	3	A0
1952-11-14-01	09095	N033	09	02	4	LIC	1953	DOM	5	A0
1953-03-23-01	09111	NW05	11	01	4	LIC	1953	DOM	3	A1
1953-05-14-01	09148	SE17	10	01	4	LIC	1953	DOM	10	A0
1953-05-22-01	09172	NE07	11	01	4	LIC	1953	DOM	4	A1
1953-05-29-01	04361	NW01	12	02	4	LIC	1953	DOM	5	A1
1953-06-09-01	09156	NE09	11	01	4	LIC	1953	DOM	2	A1
1953-07-03-01	09178	SW15	09	01	4	LIC	1953	IRR	16	A0
1953-07-03-02	14534	SW15	09	01	4	LIC	1953	IRR	9	A0
1953-07-13-01	09189	NE08	10	02	4	LIC	1954	DOM	7	A0
1954-01-08-01	09171	NE11	12	02	4	LIC	1954	DOM	9	A1
1954-02-22-01	09268	SE14	09	01	4	LIC	1954	DOM	2	A0
1954-05-03-01	09174	SW33	09	02	4	LIC	1961	DOM	9	A0
1954-06-11-01	09157	SW05	12	01	4	LIC	1959	IRR	60	A1
1954-09-27-01	09327	SW23	10	02	4	LIC	1955	DOM	3	A0
1955-04-29-01	08180	NE29	10	02	4	LIC	1955	DOM	18	A1
1955-07-13-01	09454	NW13	10	01	4	LIC	1955	DOM	10	A0
1955-09-27-01	09450	NE25	09	01	4	LIC	1955	IRR	15	A0
1956-05-01-01	09530	NE03	09	01	4	AUTH	1957	DOM	2	A0
1956-06-21-01	09549	SW35	09	02	4	LIC	1956	DOM	3	A0
1956-06-25-01	08255	NW35	10	01	4	LIC	1956	DOM	2	A0
1956-06-25-02	09429	NW18	11	01	4	LIC	1956	DOM	3	A1
1956-08-07-01	02845	NE07	11	02	4	LIC	1956	DOM	3	A1
1956-12-03-01	08449	SE10	11	01	4	LIC	1957	IRR	65	A0
1956-12-17-01	09617	NE27	10	01	4	LIC	1957	DOM	2	A0
1957-09-23-01	09733	SW09	12	02	4	AUTH	1958	DOM	3	A1
1957-11-01-01	09749	SE07	10	01	4	LIC	1968	DOM	250	A0
1957-12-19-01	09706	SE33	11	01	4	LIC	1958	DOM	1	A1
1958-02-07-01	09791	NE32	10	02	4	LIC	1958	DOM	3	A1
1958-02-13-01	04669	NW07	12	01	4	LIC	1958	DOM	14	A1
1958-02-17-01	03426	NE07	12	02	4	LIC	1958	IRR	11	A1
1958-05-01-01	09807	SW06	11	02	4	LIC	1958	DOM	8	A1
1958-05-16-01	03990	NE10	10	01	4	LIC	1958	DOM	2	A0
1958-07-14-01	09835	SW02	10	01	4	LIC	1959	DOM	6	A0
1958-08-29-01	03349	NW20	09	02	4	LIC	1975	DOM	1	A0
1958-09-04-01	09877	SE33	09	02	4	LIC	1959	DOM	5	A0
1958-12-31-01	09973	NE04	09	02	4	LIC	1962	DOM	5	A0
1959-08-31-01	03694	NW09	10	01	4	LIC	1959	DOM	2	A0
1959-09-10-01	10086	NE16	10	01	4	LIC	1959	DOM	5	A0
1959-09-21-01	00353	SW36	08	01	4	LIC	1960	IRR	30	A0
1959-10-05-01	10109	SE01	10	02	4	AUTH	1960	DOM	4	A0
1959-11-30-01	02659	SE21	12	02	4	LIC	1960	DOM	4	A3
1959-12-03-01	10117	SE08	11	01	4	LIC	1960	DOM	5	A1
1960-03-16-01	07214	SE27	09	02	4	LIC	1960	DOM	4	A0
1960-04-04-01	08738	SE15	09	01	4	LIC	1960	DOM	3	A0
1960-05-02-01	10168	NE12	11	01	4	LIC	1960	DOM	15	A0
1960-06-06-01	10255	NW35	08	01	4	LIC	1960	DOM	3	A0
1960-06-15-01	10241	NW12	11	02	4	LIC	1960	DOM	1	A1
1960-08-23-01	10279	SW16	09	02	4	LIC	1960	IRR	14	A0

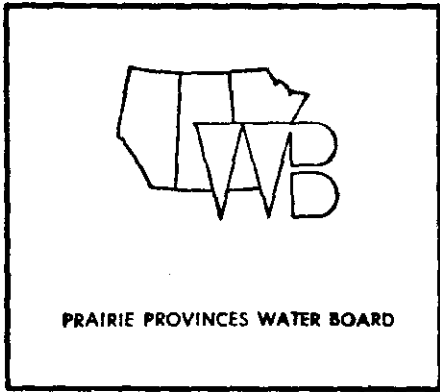
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1960-10-25-01	10358	NW22	10	02	4	LIC	1960	DOM	10	A1
1961-02-15-01	10426	NE04	11	02	4	LIC	1971	DOM	2	A1
1961-02-22-01	10433	NE20	09	02	4	LIC	1961	DOM	1	A0
1961-02-22-02	09862	NE14	12	01	4	LIC	1970	DOM	300	A3
1961-03-07-01	10446	SW19	12	01	4	AUTH	1961	DOM	5	A3
1961-06-14-01	09736	NW30	10	01	4	LIC	1961	DOM	1	A0
1961-07-17-04	08713	SE13	11	02	4	LIC	1961	DOM	3	A1
1961-07-26-01	08149	NW12	10	02	4	LIC	1961	DOM	3	A0
1961-08-02-01	10524	NW16	11	02	4	LIC	1961	DOM	4	A1
1961-10-10-01	10509	SE26	08	01	4	LIC	1961	DOM	2	A0
1961-11-17-01	10644	SE36	08	01	4	LIC	1961	DOM	5	A0
1962-02-22-01	10787	SW25	09	01	4	LIC	1962	IRR	7	A0
1962-02-28-02	10386	SW07	09	01	4	LIC	1962	DOM	500	A0
1962-03-15-01	10794	SW22	09	01	4	AUTH	1962	IRR	20	A0
1962-05-09-01	02971	SE02	09	01	4	LIC	1962	DOM	2	A0
1962-06-04-01	10304	NE24	09	02	4	LIC	1962	DOM	4	A0
1962-06-07-02	10850	NE10	09	02	4	LIC	1962	IRR	13	A0
1962-06-18-02	10893	SW03	11	02	4	LIC	1962	DOM	5	A1
1962-09-11-01	11023	NW23	10	02	4	LIC	1962	DOM	2	A0
1962-10-16-01	11069	NW03	12	01	4	LIC	1963	DOM	5	A1
1962-10-23-01	03642	SW36	08	02	4	LIC	1977	IRR	67	A0
1962-10-30-01	11087	SW05	09	01	4	LIC	1963	DOM	15	A0
1962-12-19-01	11125	SE05	11	01	4	LIC	1963	DOM	5	A1
1962-12-20-04	11126	NW12	12	02	4	LIC	1963	DOM	10	A1
1962-12-31-01	11147	SW20	09	02	4	LIC	1963	DOM	1	A0
1963-01-18-01	11148	SE04	11	02	4	LIC	1963	DOM	7	A1
1963-05-29-01	03584	SE23	12	02	4	LIC	1964	DOM	5	A3
1963-06-03-01	11340	SE22	10	02	4	LIC	1963	IRR	10	A0
1963-10-02-01	05146	SW24	10	02	4	LIC	1964	DOM	5	A0
1963-11-08-01	11539	SW11	10	01	4	LIC	1963	DOM	3	A0
1963-12-05-01	11561	SE03	12	01	4	LIC	1964	IRR	18	A1
1964-05-14-01	11667	SE27	10	02	4	LIC	1964	IRR	20	A1
1964-09-14-02	11756	NE02	10	02	4	LIC	1964	DOM	1	A0
1966-05-26-01	02406	SE17	12	02	4	AUTH	1966	DOM	50	A1
1966-06-10-01	12077	NE16	12	02	4	LIC	1966	DOM	7	A1
1966-07-29-01	12097	NW33	08	01	4	LIC	1966	DOM	3	A0
1967-01-09-02	12186	NW08	12	01	4	LIC	1967	DOM	5	A1
1968-03-11-01	11987	SE21	09	02	4	LIC	1968	DOM	8	A0
1968-03-18-01	12328	NW09	09	02	4	LIC	1968	DOM	3	A0
1968-04-19-01	12372	SE18	12	01	4	LIC	1968	DOM	2	A1
1968-07-11-01	12435	NW11	09	01	4	LIC	1968	DOM	4	A0
1968-08-16-01	09956	NW26	08	02	4	LIC	1969	DOM	500	A0
1968-08-16-02	12488	NW01	09	02	4	LIC	1969	DOM	500	A0
1968-10-02-01	12520	NE08	09	01	4	LIC	1969	DOM	2	A0
1968-11-01-01	07684	NE10	10	02	4	LIC	1969	DOM	4	A0
1968-11-01-02	12436	NW10	10	02	4	LIC	1969	DOM	2	A0
1968-11-01-03	12518	NW16	10	02	4	LIC	1969	DOM	3	A0
1968-11-01-04	12519	SE16	10	02	4	LIC	1970	DOM	2	A0
1969-02-12-02	11327	NE22	10	02	4	LIC	1969	DOM	3	A0
1969-03-03-01	12646	SE28	10	02	4	LIC	1969	DOM	3	A1
1969-12-31-01	12973	SW02	12	02	4	LIC	1970	IRR	35	A1
1970-02-26-01	13038	NW06	11	01	4	LIC	1970	DOM	7	A1
1970-05-21-01	13059	SE36	10	02	4	LIC	1971	DOM	2	A0
1970-05-26-01	04768	SE04	10	02	4	LIC	1970	DOM	3	A0
1971-02-08-01	13320	SW24	12	02	4	LIC	1972	IRR	46	A3
1971-02-18-01	13315	SW11	12	01	4	LIC	1971	IRR	99	A2
1971-02-25-01	13334	SE13	12	02	4	LIC	1971	IRR	8	A1
1971-02-25-02	13336	SW13	12	02	4	LIC	1971	IRR	21	A1
1971-02-26-01	03390	SW19	12	01	4	LIC	1971	DOM	8	A3
1971-08-16-01	13629	NW22	10	01	4	LIC	1971	DOM	3	A0
1971-08-26-01	13136	NE11	13	01	4	AUTH	1972	IRR	0	A6
1971-10-14-01	13725	NE29	09	01	4	LIC	1971	DOM	35	A0
1972-02-14-02	13734	SW16	11	01	4	LIC	1972	IRR	43	A1
1972-08-16-03	09791	NE32	10	02	4	LIC	1972	DOM	1	A1
1972-08-23-01	00962	SW12	12	01	4	LIC	1972	IRR	26	A2

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1972-09-06-01	13315	NW11	12	01	4	LIC	1972	IRR	180	A2
1972-09-18-01	13734	SE16	11	01	4	LIC	1973	IRR	37	A1
1972-09-25-02	07852	NW34	11	01	4	LIC	1972	IRR	23	A1
1972-11-24-01	14992	NW12	12	01	4	LIC	1973	IRR	30	A2
1973-05-01-03	15342	NE10	09	01	4	LIC	1973	IRR	26	A0
1973-06-04-01	02590	SW09	12	01	4	LIC	1973	IRR	88	A1
1973-11-22-02	15863	NE27	10	02	4	LIC	1974	DOM	6	A1
1973-12-10-02	11086	NE25	11	02	4	AUTH	1974	IRR	34	A1
1974-03-19-01	08344	NE14	11	02	4	LIC	1974	DOM	2	A1
1974-09-27-01	16732	NE07	12	01	4	LIC	1974	DOM	3	A1
1974-11-14-01	16834	SE03	12	01	4	LIC	1975	IRR	45	A1
1975-04-07-01	17068	NE12	12	02	4	LIC	1975	IRR	8	A1
1976-05-11-01	17649	NE13	10	02	4	LIC	1976	DOM	3	A0
1976-10-14-01	17761	SW21	09	02	4	LIC	1976	IRR	10	A0
1977-07-18-01	07831	SW02	10	02	4	LIC	1977	DOM	1	A0
1978-05-08-03	18563	SE28	10	02	4	LIC	1978	DOM	2	A0
1978-05-08-08	18562	NW33	10	02	4	LIC	1978	DOM	6	A0
1978-06-23-03	18655	SE08	12	01	4	LIC	1982	DOM	9	A1
1978-07-25-07	18707	SW28	09	02	4	LIC	1978	DOM	1	A0
1979-07-20-16	19391	NE35	09	02	4	LIC	1980	DOM	20	A0
1979-07-20-17	19396	NE26	09	02	4	LIC	1980	DOM	5	A0
1979-07-20-19	08580	SE03	12	01	4	LIC	1981	IRR	72	A1
1980-05-01-01	19619	SE08	12	02	4	LIC	1980	DOM	6	A1
1980-07-23-08	19923	NE01	11	02	4	LIC	1980	DOM	2	A1
1980-07-23-09	19924	NW01	11	02	4	LIC	1980	DOM	2	A1
1982-02-22-19	20240	NW28	09	02	4	LIC	1982	IRR	30	A0
1982-03-18-10	20274	NW28	08	01	4	AUTH	1982	DOM	3	A0
1982-03-18-11	20279	NE29	08	01	4	AUTH	1982	DOM	3	A0

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Appendix III
EXISTING SASKATCHEWAN
WATER RIGHTS -
BOXELDER CREEK BASIN

APPLICATION DATE	FILE NO.	LAND LOCATION	PROJECT STATUS	YEAR AUTH.	PURPOSE	ESTIMATED USE (AC-FT)	SUB-BASIN
1905-07-28	104	NE26 12 30 3	LIC	1906	IRR	1195	S2
1907-10-30	137	NE05 11 28 3	LIC	1908	IRR	197	S0
1912-02-12	225	SW36 12 30 3	LIC	1920	IRR	107	S2
1918-01-05	319	SW12 12 30 3	LIC	1921	IRR	190	S1
1925-07-22	457	NW10 11 29 3	LIC	1926	DOM	50	S0
1935-06-24	573	NW15 09 30 3	LIC	1938	DOM	5	S3
1935-09-09	714	SW06 11 28 3	LIC	1936	DOM	4	S0
1935-09-09	715	NE02 12 30 3	LIC	1936	IRR	48	S1
1935-09-17	730	SE30 11 29 3	LIC	1936	DOM	1	S0
1936-09-08	1203	NE12 11 30 3	LIC	1938	DOM	5	S0
1936-09-25	1302	SE18 10 29 3	LIC	1938	IRR	8	S0
1936-12-10	1516	SE20 10 29 3	LIC	1938	DOM	2	S0
1937-01-25	1563	NE13 10 30 3	LIC	1938	IRR	7	S0
1937-04-13	1676	SE06 10 29 3	LIC	1939	DOM	4	S0
1937-07-29	2041	SW06 15 29 3	LIC	1937	DOM	1	S0
1937-08-25	2118	SE01 11 30 3	LIC	1938	DOM	6	S0
1937-10-13	2278	SW30 09 29 3	LIC	1941	IRR	19	S0
1937-10-14	2279	NE01 10 30 3	LIC	1942	DOM	2	S0
1937-10-26	2327	NE21 10 29 3	LIC	1939	DOM	5	S0
1938-04-04	2746	NE25 09 30 3	LIC	1940	IRR	6	S0
1938-08-26	3007	NW34 10 30 3	LIC	1939	DOM	5	S3
1938-12-17	3241	SE36 10 30 3	LIC	1941	DOM	3	S0
1939-04-06	3366	NW02 11 30 3	LIC	1940	DOM	2	S0
1939-07-05	3577	SW35 11 30 3	LIC	1947	IRR	12	S0
1940-10-25	3969	NW24 10 30 3	LIC	1940	DOM	2	S0
1941-08-04	4104	NE27 09 30 3	LIC	1941	DOM	3	S0
1941-12-19	4239	SW03 10 30 3	LIC	1949	DOM	3	S3
1942-02-18	4263	NW13 10 30 3	LIC	1942	DOM	5	S0
1943-08-11	4513	SE12 10 30 3	LIC	1944	DOM	2	S0
1943-08-11	4514	SE12 10 30 3	LIC	1944	IRR	10	S0
1943-11-13	4552	NE33 09 29 3	LIC	1944	DOM	2	S0
1944-02-14	4572	NE16 11 29 3	LIC	1944	DOM	11	S0
1944-07-05	4627	NW07 10 29 3	LIC	1944	DOM	1	S0
1944-10-17	4664	SW10 11 29 3	LIC	1947	DOM	4	S0
1946-04-09	4829	SE08 10 29 3	LIC	1949	IRR	2	S0
1946-04-13	4831	SE25 09 30 3	LIC	1948	DOM	4	S0
1946-04-27	4834	NW06 11 29 3	LIC	1946	DOM	6	S0
1946-05-06	4836	SW35 09 30 3	LIC	1948	DOM	8	S3
1947-06-06	5063	NE23 09 30 3	LIC	1949	DOM	1	S0
1947-07-17	5106	SW31 10 28 3	LIC	1948	DOM	1	S0
1947-09-06	5162	NE35 10 30 3	LIC	1949	DOM	5	S0
1947-11-19	5222	NE10 10 30 3	LIC	1949	DOM	1	S3
1948-06-17	5279	NW17 10 29 3	LIC	1951	DOM	1	S0
1948-08-24	5329	SW25 10 30 3	LIC	1949	DOM	5	S0
1948-09-07	5350	NW24 10 29 3	LIC	1950	DOM	1	S0
1949-06-28	5624	NE15 11 29 3	LIC	1949	IRR	33	S0
1949-07-22	5655	SW17 10 29 3	LIC	1950	DOM	3	S0
1949-08-10	5682	NW09 10 29 3	LIC	1950	DOM	2	S0
1949-09-06	5718	NE20 09 29 3	LIC	1950	DOM	2	S0
1949-11-02	5839	SE08 10 29 3	LIC	1950	DOM	3	S0
1949-11-18	5879	NE08 11 29 3	LIC	1951	IRR	8	S0
1949-11-30	5905	NW15 10 30 3	LIC	1950	DOM	9	S0
1950-02-13	6005	NE10 11 29 3	LIC	1951	DOM	4	S0
1950-05-12	6074	NW30 08 29 3	LIC	1951	DOM	4	S0
1950-06-30	6142	NE24 09 30 3	LIC	1951	IRR	19	S0
1950-07-17	6171	SW06 11 29 3	LIC	1951	DOM	3	S0
1950-07-31	6203	SW06 10 29 3	LIC	1951	IRR	8	S0
1950-07-31	6204	NE01 10 30 3	LIC	1954	IRR	5	S0
1950-08-25	6225	NW05 10 29 3	LIC	1951	DOM	2	S0
1950-08-25	6226	NE05 10 29 3	LIC	1951	IRR	4	S0
1950-09-05	6241	NE22 09 30 3	LIC	1951	IRR	11	S0

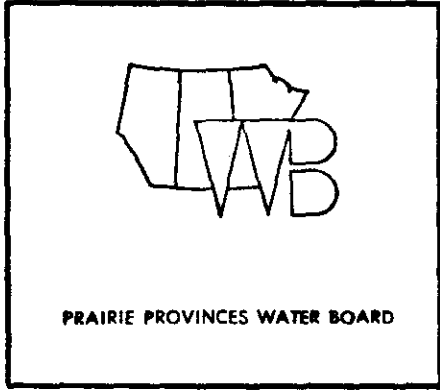
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1950-09-28	6278	SW29	10	29	3	LIC	1951	DOM	1	S0
1952-05-12	6611	SE33	10	29	3	LIC	1956	IRR	2	S0
1953-10-15	6852	SW31	09	29	3	LIC	1954	IRR	6	S0
1954-08-10	6990	SE10	10	30	3	LIC	1956	DOM	2	S3
1955-10-26	7191	SW13	11	30	3	LIC	1957	DOM	2	S0
1956-11-29	7369	NE03	10	30	3	LIC	1958	DOM	3	S3
1958-03-20	7649	NW24	11	30	3	LIC	1959	DOM	3	S0
1958-04-21	7667	NE02	11	29	3	LIC	1967	DOM	4	S0
1958-04-21	7668	NW02	11	29	3	LIC	1967	DOM	3	S0
1958-04-21	7669	SE27	10	29	3	LIC	1959	DOM	2	S0
1958-06-23	7731	NE08	11	29	3	LIC	1959	DOM	3	S0
1959-01-12	7965	SE34	09	30	3	LIC	1963	IRR	4	S3
1959-07-13	8139	SE25	10	30	3	LIC	1960	DOM	3	S0
1959-09-18	8240	NE08	10	29	3	LIC	1961	DOM	1	S0
1960-05-10	8446	NE12	10	30	3	LIC	1961	DOM	3	S0
1960-06-06	8473	NE13	10	30	3	LIC	1975	IRR	8	S0
1960-06-27	8507	NE26	10	29	3	LIC	1961	IRR	3	S0
1960-08-15	8561	SW28	09	29	3	LIC	1961	DOM	1	S0
1960-12-01	8731	NE28	08	30	3	LIC	1962	DOM	2	S0
1961-02-03	8807	NE19	09	29	3	LIC	1961	DOM	4	S0
1961-02-15	8819	SW24	11	30	3	LIC	1961	DOM	3	S0
1961-06-09	8922	SE03	10	29	3	LIC	1961	DOM	6	S0
1961-07-27	9001	NE26	10	29	3	LIC	1962	DOM	2	S0
1961-08-10	9042	NW12	10	30	3	LIC	1962	DOM	2	S0
1961-08-21	9064	SW19	10	29	3	LIC	1976	MUN	35	S0
1961-11-15	9249	SW10	09	30	3	LIC	1962	DOM	1	S3
1961-12-29	9309	SW04	10	29	3	LIC	1962	DOM	3	S0
1961-12-29	9310	NE01	11	29	3	LIC	1963	DOM	8	S0
1962-01-09	9317	NE03	11	29	3	LIC	1962	DOM	3	S0
1962-01-29	9334	SE20	11	29	3	LIC	1962	DOM	3	S0
1962-04-12	9403	NW24	10	29	3	LIC	1964	IRR	2	S0
1962-04-12	9404	NW24	10	29	3	LIC	1964	IRR	3	S0
1962-04-12	9405	SE26	10	29	3	LIC	1963	DOM	4	S0
1962-06-07	9484	NE19	11	29	3	LIC	1962	DOM	3	S0
1962-06-15	9500	NW11	11	29	3	LIC	1963	DOM	3	S0
1962-09-10	9627	NW29	09	29	3	LIC	1963	DOM	6	S0
1962-10-31	9707	NE24	11	30	3	LIC	1963	IRR	3	S0
1963-06-03	9903	SW34	09	29	3	LIC	1964	DOM	3	S0
1963-06-03	9904	NE28	09	29	3	LIC	1964	DOM	3	S0
1963-08-23	9990	NW02	11	30	3	LIC	1964	DOM	9	S0
1963-08-26	9992	SW30	10	29	3	LIC	1968	DOM	3	S0
1963-10-18	10044	NW02	10	30	3	LIC	1964	DOM	5	S3
1963-11-18	10076	NE14	11	29	3	LIC	1967	IRR	6	S0
1964-06-12	10229	NW24	11	30	3	LIC	1965	IRR	3	S0
1965-06-08	10544	NE11	11	29	3	LIC	1967	DOM	2	S0
1965-12-20	10684	SW15	10	30	3	LIC	1968	DOM	2	S3
1966-07-05	10783	NW10	09	30	3	LIC	1967	DOM	5	S0
1966-12-20	10840	SE04	10	29	3	LIC	1967	DOM	3	S0
1966-12-20	10841	SW03	10	29	3	LIC	1967	DOM	3	S0
1966-12-21	10845	SW27	10	29	3	LIC	1967	DOM	2	S0
1966-12-29	10848	SW25	11	30	3	LIC	1967	DOM	3	S0
1967-02-27	10893	SW26	09	30	3	LIC	1968	IRR	22	S3
1967-02-27	10894	NE04	11	29	3	LIC	1968	DOM	5	S0
1967-12-27	10975	SW33	10	29	3	LIC	1969	DOM	7	S0
1968-01-17	10994	NW35	08	30	3	LIC	1969	DOM	4	S0
1968-01-24	11016	SE13	12	30	3	LIC	1969	IRR	9	S2
1968-01-26	11018	SE07	10	29	3	LIC	1968	DOM	4	S0
1968-02-01	11021	SE32	10	29	3	LIC	1969	DOM	3	S0
1969-01-31	11302	SE30	10	29	3	LIC	1969	DOM	3	S0
1969-08-21	11463	SW25	10	29	3	LIC	1970	DOM	3	S0
1969-09-22	11483	NW11	10	30	3	LIC	1970	DOM	3	S3
1970-02-10	11573	NE02	10	30	3	LIC	1970	DOM	3	S0
1971-01-13	11771	NW05	11	29	3	LIC	1971	DOM	4	S0
1971-01-13	11772	SW05	11	29	3	AUTH	1972	IRR	5	S0
1972-10-10	12217	NE26	09	30	3	LIC	1973	DOM	2	S3

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1972-10-10	12218	NE18	09	29	3	LIC	1973	DOM	2	S0
1973-06-06	12379	SE24	10	30	3	LIC	1974	DOM	5	S0
1973-07-12	12393	SW04	10	29	3	LIC	1974	DOM	2	S0
1974-01-14	12460	NW33	10	29	3	LIC	1974	DOM	1	S0
1974-02-05	12486	SE08	11	29	3	LIC	1974	DOM	3	S0
1975-02-13	12695	NW25	10	29	3	LIC	1976	DOM	5	S0
1975-03-06	12734	NE24	10	30	3	LIC	1975	DOM	4	S0
1975-03-10	12740	NE22	09	30	3	LIC	1975	DOM	1	S3
1975-03-10	12741	NE07	10	29	3	LIC	1976	DOM	4	S0
1975-04-17	12764	NW26	10	30	3	LIC	1975	DOM	7	S0
1976-02-05	12888	NE21	10	30	3	LIC	1976	DOM	4	S0
1976-02-09	12890	NE13	10	30	3	LIC	1976	DOM	3	S0
1976-02-10	12891	SW23	10	30	3	LIC	1976	DOM	4	S0
1976-03-01	12924	NE12	11	30	3	LIC	1976	DOM	0	S0
1977-02-09	13099	SW02	10	30	3	LIC	1977	DOM	1	S3
1977-04-20	13209	NW27	10	29	3	LIC	1977	DOM	2	S0
1977-04-26	13214	SW33	10	29	3	LIC	1977	DOM	2	S0
1977-04-26	13215	SW33	10	29	3	LIC	1977	DOM	2	S0
1977-04-26	13216	NE29	10	29	3	LIC	1977	DOM	2	S0
1978-01-26	13405	NW34	09	30	3	LIC	1978	DOM	4	S3
1979-05-08	13793	NW05	10	29	3	LIC	1980	DOM	5	S0
1981-05-28	14355	SW13	11	30	3	LIC	1982	DOM	4	S0

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Appendix IV
EXISTING WATER RIGHTS
BOXELDER CREEK BASIN

APPLICATION DATE	FILE NO.	LAND LOCATION	PROJECT STATUS	YEAR AUTH.	PURPOSE	ESTIMATED	SUB-BASIN
						USE (AC-FT)	
1904-12-05-01	00296	NE11 13 01 4	LIC	1908	IRR	593	A6
1905-07-28	104	NE26 12 30 3	LIC	1906	IRR	1195	S2
1905-07-28-01	00315	NE01 13 01 4	LIC	1921	IRR	2209	A6
1906-01-16-01	00316	SE23 13 01 4	LIC	1906	IRR	1141	A6
1906-08-02-01	00351	SE29 09 01 4	LIC	1907	IRR	295	A0
1907-10-30	137	NE05 11 28 3	LIC	1908	IRR	197	S0
1909-07-22-01	00454	NE01 13 01 4	LIC	1909	IRR	140	A6
1910-03-12-01	00475	SW36 11 02 4	LIC	1910	IRR	202	A1
1910-07-11-01	00503	NE11 13 01 4	LIC	1910	IRR	419	A6
1912-02-12	225	SW36 12 30 3	LIC	1920	IRR	107	S2
1915-06-08-01	00718	NW16 12 01 4	LIC	1915	IRR	54	A3
1918-01-05	319	SW12 12 30 3	LIC	1921	IRR	190	S1
1919-08-18-01	00962	NE12 12 01 4	LIC	1921	IRR	112	A2
1925-07-22	457	NW10 11 29 3	LIC	1926	DOM	50	S0
1934-03-24-01	02406	SE17 12 02 4	AUTH	1934	IRR	48	A1
1934-03-24-02	20244	NW16 12 02 4	AUTH	1934	DOM	8	A1
1934-03-24-03	20246	NW16 12 02 4	LIC	1966	DOM	5	A1
1935-06-24	573	NW15 09 30 3	LIC	1938	DOM	5	S3
1935-06-27-01	02501	SE03 09 01 4	LIC	1936	IRR	3	A0
1935-08-21-01	02581	SE06 11 01 4	LIC	1935	DOM	1	A1
1935-09-09	714	SW06 11 28 3	LIC	1936	DOM	4	S0
1935-09-09	715	NE02 12 30 3	LIC	1936	IRR	48	S1
1935-09-17	730	SE30 11 29 3	LIC	1936	DOM	1	S0
1935-09-21-01	02678	NW26 10 01 4	LIC	1936	DOM	1	A0
1935-11-25-01	02804	NE14 12 01 4	LIC	1944	DOM	2	A3
1936-02-15-01	11074	NE32 10 01 4	LIC	1936	DOM	2	A0
1936-02-15-02	02831	SW34 10 01 4	LIC	1936	DOM	3	A0
1936-03-04-01	02743	NE17 09 01 4	LIC	1936	DOM	2	A0
1936-03-04-03	02824	NE05 11 02 4	LIC	1937	DOM	8	A1
1936-03-04-04	02827	NE15 10 02 4	LIC	1936	DOM	10	A0
1936-04-15-01	02930	NE35 09 01 4	LIC	1947	DOM	5	A0
1936-04-15-02	02930	NE36 09 01 4	LIC	1939	DOM	2	A0
1936-04-21-01	02931	SW28 11 01 4	LIC	1937	DOM	2	A1
1936-07-13-01	03008	NW31 10 01 4	LIC	1936	DOM	1	A0
1936-09-08	1203	NE12 11 30 3	LIC	1938	DOM	5	S0
1936-09-19-01	03069	SE26 09 01 4	LIC	1943	DOM	5	A0
1936-09-25	1302	SE18 10 29 3	LIC	1938	IRR	8	S0
1936-10-15-01	03155	SW18 11 01 4	LIC	1937	DOM	2	A1
1936-10-15-02	03155	NW24 11 02 4	LIC	1937	DOM	2	A1
1936-11-10-01	03233	NW15 10 01 4	LIC	1937	DOM	4	A0
1936-11-17-01	03286	SW14 10 02 4	LIC	1937	DOM	1	A0
1936-11-28-01	03173	SE13 10 01 4	LIC	1937	DOM	3	A0
1936-12-10	1516	SE20 10 29 3	LIC	1938	DOM	2	S0
1936-12-24-01	03156	SE23 09 02 4	LIC	1937	DOM	3	A0
1936-12-28-01	03359	SW05 10 01 4	LIC	1937	DOM	1	A0
1937-01-25	1563	NE13 10 30 3	LIC	1938	IRR	7	S0
1937-01-25-01	03324	SW09 09 02 4	LIC	1937	DOM	5	A0
1937-02-01-01	03390	SW19 12 01 4	LIC	1971	DOM	15	A3
1937-02-15-01	03426	NE07 12 02 4	LIC	1937	DOM	2	A1
1937-02-16-01	03357	SW03 10 01 4	LIC	1937	DOM	4	A0
1937-03-08-01	03358	NE33 09 01 4	LIC	1937	DOM	2	A0
1937-04-09-01	03510	NW17 12 02 4	LIC	1937	DOM	6	A1
1937-04-12-01	03513	SW35 10 02 4	LIC	1938	DOM	4	A1
1937-04-12-02	03514	NW01 11 02 4	LIC	1937	DOM	1	A1
1937-04-13	1676	SE06 10 29 3	LIC	1939	DOM	4	S0
1937-04-15-01	03529	SE15 10 01 4	LIC	1937	DOM	2	A0
1937-05-21-01	03593	SW03 12 02 4	LIC	1938	IRR	36	A1
1937-06-05-01	03671	NE02 11 01 4	LIC	1938	DOM	3	A0
1937-07-07-01	03686	NE03 10 02 4	LIC	1937	DOM	4	A0
1937-07-29	2041	SW06 15 29 3	LIC	1937	DOM	1	S0
1937-08-18-01	03992	NW11 10 01 4	LIC	1939	DOM	5	A0
1937-08-18-02	03993	SE09 10 01 4	LIC	1938	DOM	3	A0

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1937-08-19-01	03991	NE11	10	01	4	LIC	1939	DOM	3	A0
1937-08-25	2118	SE01	11	30	3	LIC	1938	DOM	6	S0
1937-08-25-01	03989	SW36	09	01	4	LIC	1939	DOM	1	A0
1937-09-04-01	04035	SE25	10	02	4	LIC	1939	DOM	5	A0
1937-10-13	2278	SW30	09	29	3	LIC	1941	IRR	19	S0
1937-10-14	2279	NE01	10	30	3	LIC	1942	DOM	2	S0
1937-10-14-01	04270	NW22	11	02	4	LIC	1944	DOM	3	A1
1937-10-21-01	04271	NE18	11	01	4	LIC	1939	DOM	2	A1
1937-10-26	2327	NE21	10	29	3	LIC	1939	DOM	5	S0
1937-12-22-01	02658	SE25	10	01	4	LIC	1938	DOM	1	A0
1937-12-23-01	04118	SW15	09	02	4	LIC	1939	IRR	42	A0
1938-02-16-01	04505	NE17	11	02	4	LIC	1939	DOM	5	A1
1938-03-21-01	04565	SW22	12	01	4	LIC	1939	DOM	2	A3
1938-04-04	2746	NE25	09	30	3	LIC	1940	IRR	6	S0
1938-05-26-01	03790	NW25	09	02	4	LIC	1939	DOM	5	A0
1938-06-14-01	04668	NE28	10	02	4	LIC	1939	DOM	5	A1
1938-08-26	3007	NW34	10	30	3	LIC	1939	DOM	5	S3
1938-12-17	3241	SE36	10	30	3	LIC	1941	DOM	3	S0
1938-12-19-01	04034	SW26	09	01	4	LIC	1939	DOM	3	A0
1939-04-06	3366	NW02	11	30	3	LIC	1940	DOM	2	S0
1939-06-21-01	05372	SE16	12	02	4	AUTH	1939	IRR	5	A1
1939-07-05	3577	SW35	11	30	3	LIC	1947	IRR	12	S0
1939-11-25-01	05551	SE09	10	02	4	LIC	1941	DOM	1	A0
1940-10-25	3969	NW24	10	30	3	LIC	1940	DOM	2	S0
1941-07-21-01	06146	NW18	10	01	4	LIC	1956	DOM	2	A0
1941-08-04	4104	NE27	09	30	3	LIC	1941	DOM	3	S0
1941-11-13-01	06307	SW09	09	01	4	LIC	1944	DOM	2	A0
1941-12-19	4239	SW03	10	30	3	LIC	1949	DOM	3	S3
1942-02-18	4263	NW13	10	30	3	LIC	1942	DOM	5	S0
1942-07-31-01	06542	NE08	11	02	4	LIC	1943	DOM	5	A1
1942-08-06-01	06225	NE01	11	01	4	LIC	1942	DOM	3	A0
1942-08-21-02	06565	NW19	11	01	4	LIC	1944	DOM	7	A1
1942-09-30-01	06592	NW29	10	02	4	LIC	1943	DOM	4	A1
1943-08-11	4513	SE12	10	30	3	LIC	1944	DOM	2	S0
1943-08-11	4514	SE12	10	30	3	LIC	1944	IRR	10	S0
1943-09-08-01	06755	NE27	11	02	4	LIC	1944	IRR	60	A1
1943-10-07-01	06785	NW15	11	02	4	LIC	1944	DOM	4	A1
1943-11-01-01	06813	SE16	09	02	4	LIC	1944	DOM	3	A0
1943-11-13	4552	NE33	09	29	3	LIC	1944	DOM	2	S0
1943-12-02-01	06860	SW26	09	02	4	LIC	1944	DOM	8	A0
1943-12-28-01	06870	NE18	11	02	4	LIC	1945	DOM	10	A1
1944-02-14	4572	NE16	11	29	3	LIC	1944	DOM	11	S0
1944-06-05-01	06983	NW09	10	02	4	LIC	1944	DOM	8	A0
1944-07-05	4627	NW07	10	29	3	LIC	1944	DOM	1	S0
1944-07-05-02	07028	SE14	13	01	4	AUTH	1945	IRR	188	A6
1944-07-06-01	07029	NE12	09	01	4	LIC	1960	DOM	5	A0
1944-07-24-01	07039	NW22	12	02	4	LIC	1945	DOM	8	A3
1944-08-08-01	07037	SW21	09	02	4	LIC	1945	DOM	10	A0
1944-08-08-02	07018	SW08	11	01	4	LIC	1944	DOM	2	A1
1944-09-20-01	14407	SW30	09	01	4	LIC	1946	IRR	31	A0
1944-10-16-01	06637	NE31	10	01	4	LIC	1945	DOM	2	A0
1944-10-17	4664	SW10	11	29	3	LIC	1947	DOM	4	S0
1944-10-19-01	07283	NE05	11	01	4	LIC	1945	DOM	1	A1
1945-02-22-01	00454	NE01	13	01	4	AUTH	1946	IRR	51	A6
1945-04-20-01	07352	NE19	11	02	4	LIC	1945	DOM	4	A1
1945-06-01-01	06844	NW02	11	02	4	LIC	1945	DOM	3	A1
1945-06-18-01	02600	NW35	10	02	4	LIC	1946	DOM	4	A1
1945-07-03-03	07424	SW18	11	02	4	LIC	1946	DOM	1	A1
1945-11-12-01	07531	NW02	10	01	4	LIC	1946	DOM	2	A0
1945-12-05-01	07503	SW24	09	01	4	LIC	1946	DOM	10	A0
1945-12-08-01	07522	SE16	10	01	4	LIC	1946	DOM	3	A0
1946-03-07-01	07591	NE23	11	01	4	LIC	1947	IRR	40	A0
1946-03-28-01	04748	SW26	10	02	4	LIC	1946	DOM	3	A1
1946-04-09	4829	SE08	10	29	3	LIC	1949	IRR	2	S0
1946-04-13	4831	SE25	09	30	3	LIC	1948	DOM	4	S0

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1946-04-27	4834	NW06	11	29	3	LIC	1946	DOM	6	S0
1946-05-03-01	07613	SE34	11	01	4	LIC	1947	IRR	82	A1
1946-05-06	4836	SW35	09	30	3	LIC	1948	DOM	8	S3
1946-06-08-01	07664	NW21	11	02	4	LIC	1947	DOM	3	A1
1946-06-08-03	07666	SW10	09	01	4	LIC	1951	DOM	2	A0
1946-06-08-04	07667	SE14	12	02	4	LIC	1946	IRR	15	A1
1946-06-08-05	07669	SW34	09	02	4	LIC	1946	DOM	3	A0
1946-06-08-06	02600	SW23	10	02	4	LIC	1948	DOM	2	A0
1946-07-31-01	07750	NW15	12	01	4	LIC	1950	IRR	58	A3
1946-08-10-01	07752	NW05	10	01	4	LIC	1946	DOM	3	A0
1946-09-16-01	07852	NE34	11	01	4	LIC	1947	IRR	32	A1
1946-10-04-01	07873	SW05	10	02	4	LIC	1949	DOM	3	A0
1946-10-17-01	07882	NW01	10	01	4	LIC	1947	DOM	3	A0
1947-01-06-01	00353	SW36	08	01	4	LIC	1947	DOM	5	A0
1947-04-22-01	07954	SW01	09	01	4	LIC	1947	DOM	2	A0
1947-06-02-01	07978	SE19	09	01	4	LIC	1948	DOM	2	A0
1947-06-06	5063	NE23	09	30	3	LIC	1949	DOM	1	S0
1947-06-10-01	07532	NW23	11	02	4	LIC	1961	DOM	4	A1
1947-07-17	5106	SW31	10	28	3	LIC	1948	DOM	1	S0
1947-09-06	5162	NE35	10	30	3	LIC	1949	DOM	5	S0
1947-11-19	5222	NE10	10	30	3	LIC	1949	DOM	1	S3
1948-02-20-01	08118	NE01	10	02	4	LIC	1948	DOM	5	A0
1948-06-17	5279	NW17	10	29	3	LIC	1951	DOM	1	S0
1948-08-24	5329	SW25	10	30	3	LIC	1949	DOM	5	S0
1948-09-07	5350	NW24	10	29	3	LIC	1950	DOM	1	S0
1948-11-03-01	08266	SE26	09	02	4	LIC	1949	DOM	1	A0
1948-11-24-01	07166	NE25	09	02	4	LIC	1948	DOM	1	A0
1948-12-18-01	08277	NW06	10	01	4	LIC	1950	DOM	2	A0
1949-01-27-01	08304	SW31	10	01	4	LIC	1950	DOM	5	A0
1949-02-14-01	08295	NW26	09	02	4	LIC	1950	DOM	3	A0
1949-04-14-01	08323	SW28	10	01	4	LIC	1950	DOM	8	A0
1949-06-28	5624	NE15	11	29	3	LIC	1949	IRR	33	S0
1949-07-14-01	08383	SE03	12	02	4	LIC	1950	IRR	57	A1
1949-07-15-01	08382	NE01	10	01	4	LIC	1950	DOM	5	A0
1949-07-18-01	08364	SW08	10	02	4	AUTH	1950	IRR	50	A0
1949-07-22	5655	SW17	10	29	3	LIC	1950	DOM	3	S0
1949-07-28-01	08386	NW14	11	02	4	LIC	1950	DOM	2	A1
1949-07-29-01	08399	NE05	10	01	4	LIC	1950	DOM	3	A0
1949-08-10	5682	NW09	10	29	3	LIC	1950	DOM	2	S0
1949-09-06	5718	NE20	09	29	3	LIC	1950	DOM	2	S0
1949-09-07-01	08387	SW28	09	02	4	AUTH	1953	DOM	3	A0
1949-09-07-02	08427	SE13	09	02	4	LIC	1971	DIV	0	A0
1949-09-12-01	08442	NW04	10	01	4	LIC	1951	DOM	5	A0
1949-11-02	5839	SE08	10	29	3	LIC	1950	DOM	3	S0
1949-11-07-01	07503	SW24	09	01	4	LIC	1955	IRR	26	A0
1949-11-07-02	08479	NE13	09	01	4	LIC	1951	DOM	2	A0
1949-11-18	5879	NE08	11	29	3	LIC	1951	IRR	8	S0
1949-11-21-01	08491	SW13	11	02	4	LIC	1950	DOM	3	A1
1949-11-30	5905	NW15	10	30	3	LIC	1950	DOM	9	S0
1949-12-02-01	05709	SW12	12	02	4	LIC	1951	DOM	3	A1
1949-12-07-01	08519	NW08	10	01	4	LIC	1951	DOM	3	A0
1949-12-23-02	06171	SW21	10	01	4	LIC	1950	DOM	3	A0
1950-02-01-01	08549	SE01	10	01	4	LIC	1951	DOM	8	A0
1950-02-06-01	08551	NE27	08	01	4	LIC	1951	DOM	14	A0
1950-02-13	6005	NE10	11	29	3	LIC	1951	DOM	4	S0
1950-03-28-01	08574	NE34	10	02	4	LIC	1952	DOM	3	A1
1950-05-12	6074	NW30	08	29	3	LIC	1951	DOM	4	S0
1950-05-12-01	08590	NW25	08	01	4	LIC	1950	DOM	8	A0
1950-05-15-01	08596	NE10	12	02	4	LIC	1951	DOM	4	A1
1950-05-30-01	06902	SW32	09	01	4	LIC	1951	DOM	14	A0
1950-06-01-01	08606	SE25	08	01	4	LIC	1955	DOM	10	A0
1950-06-30	6142	NE24	09	30	3	LIC	1951	IRR	19	S0
1950-07-17	6171	SW06	11	29	3	LIC	1951	DOM	3	S0
1950-07-25-01	08738	SE15	09	01	4	LIC	1952	DOM	2	A0
1950-07-31	6203	SW06	10	29	3	LIC	1951	IRR	8	S0

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1950-07-31	6204	NE01	10	30	3	LIC	1954	IRR	5	S0
1950-08-25	6225	NW05	10	29	3	LIC	1951	DOM	2	S0
1950-08-25	6226	NE05	10	29	3	LIC	1951	IRR	4	S0
1950-09-05	6241	NE22	09	30	3	LIC	1951	IRR	11	S0
1950-09-23-01	08809	NE21	10	01	4	AUTH	1951	DOM	10	A0
1950-09-28	6278	SW29	10	29	3	LIC	1951	DOM	1	S0
1950-12-16-01	08870	NE06	12	01	4	LIC	1953	DOM	2	A1
1951-03-22-01	08893	NE14	09	01	4	LIC	1952	IRR	6	A0
1951-07-27-01	14503	SW22	12	01	4	AUTH	1955	IRR	16	A3
1951-09-14-01	08973	NE23	10	02	4	AUTH	1951	DOM	2	A0
1951-11-22-01	08999	SE36	08	02	4	LIC	1971	DOM	1	A0
1952-03-05-01	09034	NE03	11	01	4	LIC	1952	DOM	2	A0
1952-03-20-01	07245	SE29	09	02	4	LIC	1965	DOM	3	A0
1952-05-12	6611	SE33	10	29	3	LIC	1956	IRR	2	S0
1952-11-14-01	09095	NO33	09	02	4	LIC	1953	DOM	5	A0
1953-03-23-01	09111	NW05	11	01	4	LIC	1953	DOM	3	A1
1953-05-14-01	09148	SE17	10	01	4	LIC	1953	DOM	10	A0
1953-05-22-01	09172	NE07	11	01	4	LIC	1953	DOM	4	A1
1953-05-29-01	04361	NW01	12	02	4	LIC	1953	DOM	5	A1
1953-06-09-01	09156	NE09	11	01	4	LIC	1953	DOM	2	A1
1953-07-03-01	09178	SW15	09	01	4	LIC	1953	IRR	16	A0
1953-07-03-02	14534	SW15	09	01	4	LIC	1953	IRR	9	A0
1953-07-13-01	09189	NE08	10	02	4	LIC	1954	DOM	7	A0
1953-10-15	6852	SW31	09	29	3	LIC	1954	IRR	6	S0
1954-01-08-01	09171	NE11	12	02	4	LIC	1954	DOM	9	A1
1954-02-22-01	09268	SE14	09	01	4	LIC	1954	DOM	2	A0
1954-05-03-01	09174	SW33	09	02	4	LIC	1961	DOM	9	A0
1954-06-11-01	09157	SW05	12	01	4	LIC	1959	IRR	60	A1
1954-08-10	6990	SE10	10	30	3	LIC	1956	DOM	2	S3
1954-09-27-01	09327	SW23	10	02	4	LIC	1955	DOM	3	A0
1955-04-29-01	08180	NE29	10	02	4	LIC	1955	DOM	18	A1
1955-07-13-01	09454	NW13	10	01	4	LIC	1955	DOM	10	A0
1955-09-27-01	09450	NE25	09	01	4	LIC	1955	IRR	15	A0
1955-10-26	7191	SW13	11	30	3	LIC	1957	DOM	2	S0
1956-05-01-01	09530	NE03	09	01	4	AUTH	1957	DOM	2	A0
1956-06-21-01	09549	SW35	09	02	4	LIC	1956	DOM	3	A0
1956-06-25-01	08255	NW35	10	01	4	LIC	1956	DOM	2	A0
1956-06-25-02	09429	NW18	11	01	4	LIC	1956	DOM	3	A1
1956-08-07-01	02845	NE07	11	02	4	LIC	1956	DOM	3	A1
1956-11-29	7369	NE03	10	30	3	LIC	1958	DOM	3	S3
1956-12-03-01	08449	SE10	11	01	4	LIC	1957	IRR	65	A0
1956-12-17-01	09617	NE27	10	01	4	LIC	1957	DOM	2	A0
1957-09-23-01	09733	SW09	12	02	4	AUTH	1958	DOM	3	A1
1957-11-01-01	09749	SE07	10	01	4	LIC	1968	DOM	250	A0
1957-12-19-01	09706	SE33	11	01	4	LIC	1958	DOM	1	A1
1958-02-07-01	09791	NE32	10	02	4	LIC	1958	DOM	3	A1
1958-02-13-01	04669	NW07	12	01	4	LIC	1958	DOM	14	A1
1958-02-17-01	03426	NE07	12	02	4	LIC	1958	IRR	11	A1
1958-03-20	7649	NW24	11	30	3	LIC	1959	DOM	3	S0
1958-04-21	7667	NE02	11	29	3	LIC	1967	DOM	4	S0
1958-04-21	7668	NW02	11	29	3	LIC	1967	DOM	3	S0
1958-04-21	7669	SE27	10	29	3	LIC	1959	DOM	2	S0
1958-05-01-01	09807	SW06	11	02	4	LIC	1958	DOM	8	A1
1958-05-16-01	03990	NE10	10	01	4	LIC	1958	DOM	2	A0
1958-06-23	7731	NE08	11	29	3	LIC	1959	DOM	3	S0
1958-07-14-01	09835	SW02	10	01	4	LIC	1959	DOM	6	A0
1958-08-29-01	03349	NW20	09	02	4	LIC	1975	DOM	1	A0
1958-09-04-01	09877	SE33	09	02	4	LIC	1959	DOM	5	A0
1958-12-31-01	09973	NE04	09	02	4	LIC	1962	DOM	5	A0
1959-01-12	7965	SE34	09	30	3	LIC	1963	IRR	4	S3
1959-07-13	8139	SE25	10	30	3	LIC	1960	DOM	3	S0
1959-08-31-01	03694	NW09	10	01	4	LIC	1959	DOM	2	A0
1959-09-10-01	10086	NE16	10	01	4	LIC	1959	DOM	5	A0
1959-09-18	8240	NE08	10	29	3	LIC	1961	DOM	1	S0
1959-09-21-01	00353	SW36	08	01	4	LIC	1960	IRR	30	A0

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1959-10-05-01	10109	SE01	10	02	4	AUTH	1960	DOM	4	A0
1959-11-30-01	02659	SE21	12	02	4	LIC	1960	DOM	4	A3
1959-12-03-01	10117	SE08	11	01	4	LIC	1960	DOM	5	A1
1960-03-16-01	07214	SE27	09	02	4	LIC	1960	DOM	4	A0
1960-04-04-01	08738	SE15	09	01	4	LIC	1960	DOM	3	A0
1960-05-02-01	10168	NE12	11	01	4	LIC	1960	DOM	15	A0
1960-05-10	8446	NE12	10	30	3	LIC	1961	DOM	3	S0
1960-06-06	8473	NE13	10	30	3	LIC	1975	IRR	8	S0
1960-06-06-01	10255	NW35	08	01	4	LIC	1960	DOM	3	A0
1960-06-15-01	10241	NW12	11	02	4	LIC	1960	DOM	1	A1
1960-06-27	8507	NE26	10	29	3	LIC	1961	IRR	3	S0
1960-08-15	8561	SW28	09	29	3	LIC	1961	DOM	1	S0
1960-08-23-01	10279	SW16	09	02	4	LIC	1960	IRR	14	A0
1960-10-25-01	10358	NW22	10	02	4	LIC	1960	DOM	10	A1
1960-12-01	8731	NE28	08	30	3	LIC	1962	DOM	2	S0
1961-02-03	8807	NE19	09	29	3	LIC	1961	DOM	4	S0
1961-02-15	8819	SW24	11	30	3	LIC	1961	DOM	3	S0
1961-02-15-01	10426	NE04	11	02	4	LIC	1971	DOM	2	A1
1961-02-22-01	10433	NE20	09	02	4	LIC	1961	DOM	1	A0
1961-02-22-02	09862	NE14	12	01	4	LIC	1970	DOM	300	A3
1961-03-07-01	10446	SW19	12	01	4	AUTH	1961	DOM	5	A3
1961-06-09	8922	SE03	10	29	3	LIC	1961	DOM	6	S0
1961-06-14-01	09736	NW30	10	01	4	LIC	1961	DOM	1	A0
1961-07-17-04	08713	SE13	11	02	4	LIC	1961	DOM	3	A1
1961-07-26-01	08149	NW12	10	02	4	LIC	1961	DOM	3	A0
1961-07-27	9001	NE26	10	29	3	LIC	1962	DOM	2	S0
1961-08-02-01	10524	NW16	11	02	4	LIC	1961	DOM	4	A1
1961-08-10	9042	NW12	10	30	3	LIC	1962	DOM	2	S0
1961-08-21	9064	SW19	10	29	3	LIC	1976	MUN	35	S0
1961-10-10-01	10509	SE26	08	01	4	LIC	1961	DOM	2	A0
1961-11-15	9249	SW10	09	30	3	LIC	1962	DOM	1	S3
1961-11-17-01	10644	SE36	08	01	4	LIC	1961	DOM	5	A0
1961-12-29	9309	SW04	10	29	3	LIC	1962	DOM	3	S0
1961-12-29	9310	NE01	11	29	3	LIC	1963	DOM	8	S0
1962-01-09	9317	NE03	11	29	3	LIC	1962	DOM	3	S0
1962-01-29	9334	SE20	11	29	3	LIC	1962	DOM	3	S0
1962-02-22-01	10787	SW25	09	01	4	LIC	1962	IRR	7	A0
1962-02-28-02	10386	SW07	09	01	4	LIC	1962	DOM	500	A0
1962-03-15-01	10794	SW22	09	01	4	AUTH	1962	IRR	20	A0
1962-04-12	9403	NW24	10	29	3	LIC	1964	IRR	2	S0
1962-04-12	9404	NW24	10	29	3	LIC	1964	IRR	3	S0
1962-04-12	9405	SE26	10	29	3	LIC	1963	DOM	4	S0
1962-05-09-01	02971	SE02	09	01	4	LIC	1962	DOM	2	A0
1962-06-04-01	10304	NE24	09	02	4	LIC	1962	DOM	4	A0
1962-06-07	9484	NE19	11	29	3	LIC	1962	DOM	3	S0
1962-06-07-02	10850	NE10	09	02	4	LIC	1962	IRR	13	A0
1962-06-15	9500	NW11	11	29	3	LIC	1963	DOM	3	S0
1962-06-18-02	10893	SW03	11	02	4	LIC	1962	DOM	5	A1
1962-09-10	9627	NW29	09	29	3	LIC	1963	DOM	6	S0
1962-09-11-01	11023	NW23	10	02	4	LIC	1962	DOM	2	A0
1962-10-16-01	11069	NW03	12	01	4	LIC	1963	DOM	5	A1
1962-10-23-01	03642	SW36	08	02	4	LIC	1977	IRR	67	A0
1962-10-30-01	11087	SW05	09	01	4	LIC	1963	DOM	15	A0
1962-10-31	9707	NE24	11	30	3	LIC	1963	IRR	3	S0
1962-12-19-01	11125	SE05	11	01	4	LIC	1963	DOM	5	A1
1962-12-20-04	11126	NW12	12	02	4	LIC	1963	DOM	10	A1
1962-12-31-01	11147	SW20	09	02	4	LIC	1963	DOM	1	A0
1963-01-18-01	11148	SE04	11	02	4	LIC	1963	DOM	7	A1
1963-05-29-01	03584	SE23	12	02	4	LIC	1964	DOM	5	A3
1963-06-03	9903	SW34	09	29	3	LIC	1964	DOM	3	S0
1963-06-03	9904	NE28	09	29	3	LIC	1964	DOM	3	S0
1963-06-03-01	11340	SE22	10	02	4	LIC	1963	IRR	10	A0
1963-08-23	9990	NW02	11	30	3	LIC	1964	DOM	9	S0
1963-08-26	9992	SW30	10	29	3	LIC	1968	DOM	3	S0
1963-10-02-01	05146	SW24	10	02	4	LIC	1964	DOM	5	A0

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1963-10-18	10044	NW02	10	30	3	LIC	1964	DOM	5	S3
1963-11-08-01	11539	SW11	10	01	4	LIC	1963	DOM	3	A0
1963-11-18	10076	NE14	11	29	3	LIC	1967	IRR	6	S0
1963-12-05-01	11561	SE03	12	01	4	LIC	1964	IRR	18	A1
1964-05-14-01	11667	SE27	10	02	4	LIC	1964	IRR	20	A1
1964-06-12	10229	NW24	11	30	3	LIC	1965	IRR	3	S0
1964-09-14-02	11756	NE02	10	02	4	LIC	1964	DOM	1	A0
1965-06-08	10544	NE11	11	29	3	LIC	1967	DOM	2	S0
1965-12-20	10684	SW15	10	30	3	LIC	1968	DOM	2	S3
1966-05-26-01	02406	SE17	12	02	4	AUTH	1966	DOM	50	A1
1966-06-10-01	12077	NE16	12	02	4	LIC	1966	DOM	7	A1
1966-07-05	10783	NW10	09	30	3	LIC	1967	DOM	5	S0
1966-07-29-01	12097	NW33	08	01	4	LIC	1966	DOM	3	A0
1966-12-20	10840	SE04	10	29	3	LIC	1967	DOM	3	S0
1966-12-20	10841	SW03	10	29	3	LIC	1967	DOM	3	S0
1966-12-21	10845	SW27	10	29	3	LIC	1967	DOM	2	S0
1966-12-29	10848	SW25	11	30	3	LIC	1967	DOM	3	S0
1967-01-09-02	12186	NW08	12	01	4	LIC	1967	DOM	5	A1
1967-02-27	10893	SW26	09	30	3	LIC	1968	IRR	22	S3
1967-02-27	10894	NE04	11	29	3	LIC	1968	DOM	5	S0
1967-12-27	10975	SW33	10	29	3	LIC	1969	DOM	7	S0
1968-01-17	10994	NW35	08	30	3	LIC	1969	DOM	4	S0
1968-01-24	11016	SE13	12	30	3	LIC	1969	IRR	9	S2
1968-01-26	11018	SE07	10	29	3	LIC	1968	DOM	4	S0
1968-02-01	11021	SE32	10	29	3	LIC	1969	DOM	3	S0
1968-03-11-01	11987	SE21	09	02	4	LIC	1968	DOM	8	A0
1968-03-18-01	12328	NW09	09	02	4	LIC	1968	DOM	3	A0
1968-04-19-01	12372	SE18	12	01	4	LIC	1968	DOM	2	A1
1968-07-11-01	12435	NW11	09	01	4	LIC	1968	DOM	4	A0
1968-08-16-01	09956	NW26	08	02	4	LIC	1969	DOM	500	A0
1968-08-16-02	12488	NW01	09	02	4	LIC	1969	DOM	500	A0
1968-10-02-01	12520	NE08	09	01	4	LIC	1969	DOM	2	A0
1968-11-01-01	07684	NE10	10	02	4	LIC	1969	DOM	4	A0
1968-11-01-02	12436	NW10	10	02	4	LIC	1969	DOM	2	A0
1968-11-01-03	12518	NW16	10	02	4	LIC	1969	DOM	3	A0
1968-11-01-04	12519	SE16	10	02	4	LIC	1970	DOM	2	A0
1969-01-31	11302	SE30	10	29	3	LIC	1969	DOM	3	S0
1969-02-12-02	11327	NE22	10	02	4	LIC	1969	DOM	3	A0
1969-03-03-01	12646	SE28	10	02	4	LIC	1969	DOM	3	A1
1969-08-21	11463	SW25	10	29	3	LIC	1970	DOM	3	S0
1969-09-22	11483	NW11	10	30	3	LIC	1970	DOM	3	S3
1969-12-31-01	12973	SW02	12	02	4	LIC	1970	IRR	35	A1
1970-02-10	11573	NE02	10	30	3	LIC	1970	DOM	3	S0
1970-02-26-01	13038	NW06	11	01	4	LIC	1970	DOM	7	A1
1970-05-21-01	13059	SE36	10	02	4	LIC	1971	DOM	2	A0
1970-05-26-01	04768	SE04	10	02	4	LIC	1970	DOM	3	A0
1971-01-13	11771	NW05	11	29	3	LIC	1971	DOM	4	S0
1971-01-13	11772	SW05	11	29	3	AUTH	1972	IRR	5	S0
1971-02-08-01	13320	SW24	12	02	4	LIC	1972	IRR	46	A3
1971-02-18-01	13315	SW11	12	01	4	LIC	1971	IRR	99	A2
1971-02-25-01	13334	SE13	12	02	4	LIC	1971	IRR	8	A1
1971-02-25-02	13336	SW13	12	02	4	LIC	1971	IRR	21	A1
1971-02-26-01	03390	SW19	12	01	4	LIC	1971	DOM	8	A3
1971-08-16-01	13629	NW22	10	01	4	LIC	1971	DOM	3	A0
1971-08-26-01	13136	NE11	13	01	4	AUTH	1972	IRR	0	A6
1971-10-14-01	13725	NE29	09	01	4	LIC	1971	DOM	35	A0
1972-02-14-02	13734	SW16	11	01	4	LIC	1972	IRR	43	A1
1972-08-16-03	09791	NE32	10	02	4	LIC	1972	DOM	1	A1
1972-08-23-01	00962	SW12	12	01	4	LIC	1972	IRR	26	A2
1972-09-06-01	13315	NW11	12	01	4	LIC	1972	IRR	180	A2
1972-09-18-01	13734	SE16	11	01	4	LIC	1973	IRR	37	A1
1972-09-25-02	07852	NW34	11	01	4	LIC	1972	IRR	23	A1
1972-10-10	12217	NE26	09	30	3	LIC	1973	DOM	2	S3
1972-10-10	12218	NE18	09	29	3	LIC	1973	DOM	2	S0
1972-11-24-01	14992	NW12	12	01	4	LIC	1973	IRR	30	A2

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1973-05-01-03	15342	NE10	09	01	4	LIC	1973	IRR	26	A0
1973-06-04-01	02590	SW09	12	01	4	LIC	1973	IRR	88	A1
1973-06-06	12379	SE24	10	30	3	LIC	1974	DOM	5	S0
1973-07-12	12393	SW04	10	29	3	LIC	1974	DOM	2	S0
1973-11-22-02	15863	NE27	10	02	4	LIC	1974	DOM	6	A1
1973-12-10-02	11086	NE25	11	02	4	AUTH	1974	IRR	34	A1
1974-01-14	12460	NW33	10	29	3	LIC	1974	DOM	1	S0
1974-02-05	12486	SE08	11	29	3	LIC	1974	DOM	3	S0
1974-03-19-01	08344	NE14	11	02	4	LIC	1974	DOM	2	A1
1974-09-27-01	16732	NE07	12	01	4	LIC	1974	DOM	3	A1
1974-11-14-01	16834	SE03	12	01	4	LIC	1975	IRR	45	A1
1975-02-13	12695	NW25	10	29	3	LIC	1976	DOM	5	S0
1975-03-06	12734	NE24	10	30	3	LIC	1975	DOM	4	S0
1975-03-10	12740	NE22	09	30	3	LIC	1975	DOM	1	S3
1975-03-10	12741	NE07	10	29	3	LIC	1976	DOM	4	S0
1975-04-07-01	17068	NE12	12	02	4	LIC	1975	IRR	8	A1
1975-04-17	12764	NW26	10	30	3	LIC	1975	DOM	7	S0
1976-02-05	12888	NE21	10	30	3	LIC	1976	DOM	4	S0
1976-02-09	12890	NE13	10	30	3	LIC	1976	DOM	3	S0
1976-02-10	12891	SW23	10	30	3	LIC	1976	DOM	4	S0
1976-03-01	12924	NE12	11	30	3	LIC	1976	DOM	0	S0
1976-05-11-01	17649	NE13	10	02	4	LIC	1976	DOM	3	A0
1976-10-14-01	17761	SW21	09	02	4	LIC	1976	IRR	10	A0
1977-02-09	13099	SW02	10	30	3	LIC	1977	DOM	1	S3
1977-04-20	13209	NW27	10	29	3	LIC	1977	DOM	2	S0
1977-04-26	13214	SW33	10	29	3	LIC	1977	DOM	2	S0
1977-04-26	13215	SW33	10	29	3	LIC	1977	DOM	2	S0
1977-04-26	13216	NE29	10	29	3	LIC	1977	DOM	2	S0
1977-07-18-01	07831	SW02	10	02	4	LIC	1977	DOM	1	A0
1978-01-26	13405	NW34	09	30	3	LIC	1978	DOM	4	S3
1978-05-08-03	18563	SE28	10	02	4	LIC	1978	DOM	2	A0
1978-05-08-08	18562	NW33	10	02	4	LIC	1978	DOM	6	A0
1978-06-23-03	18655	SE08	12	01	4	LIC	1982	DOM	9	A1
1978-07-25-07	18707	SW28	09	02	4	LIC	1978	DOM	1	A0
1979-05-08	13793	NW05	10	29	3	LIC	1980	DOM	5	S0
1979-07-20-16	19391	NE35	09	02	4	LIC	1980	DOM	20	A0
1979-07-20-17	19396	NE26	09	02	4	LIC	1980	DOM	5	A0
1979-07-20-19	08580	SE03	12	01	4	LIC	1981	IRR	72	A1
1980-05-01-01	19619	SE08	12	02	4	LIC	1980	DOM	6	A1
1980-07-23-08	19923	NE01	11	02	4	LIC	1980	DOM	2	A1
1980-07-23-09	19924	NW01	11	02	4	LIC	1980	DOM	2	A1
1981-05-28	14355	SW13	11	30	3	LIC	1982	DOM	4	S0
1982-02-22-19	20240	NW28	09	02	4	LIC	1982	IRR	30	A0
1982-03-18-10	20274	NW28	08	01	4	AUTH	1982	DOM	3	A0
1982-03-18-11	20279	NE29	08	01	4	AUTH	1982	DOM	3	A0

NOTE: ABBREVIATIONS USED UNDER THE 'PROJECT STATUS' AND 'PURPOSE' COLUMNS ARE,
LIC - LICENCED, AUTH - AUTHORIZED, CANS - CANCELLED,
DOM - DOMESTICS, IRR - IRRIGATION
REFER TO FIGURE FOR REFERENCE TO 'SUB-BASIN' CODES

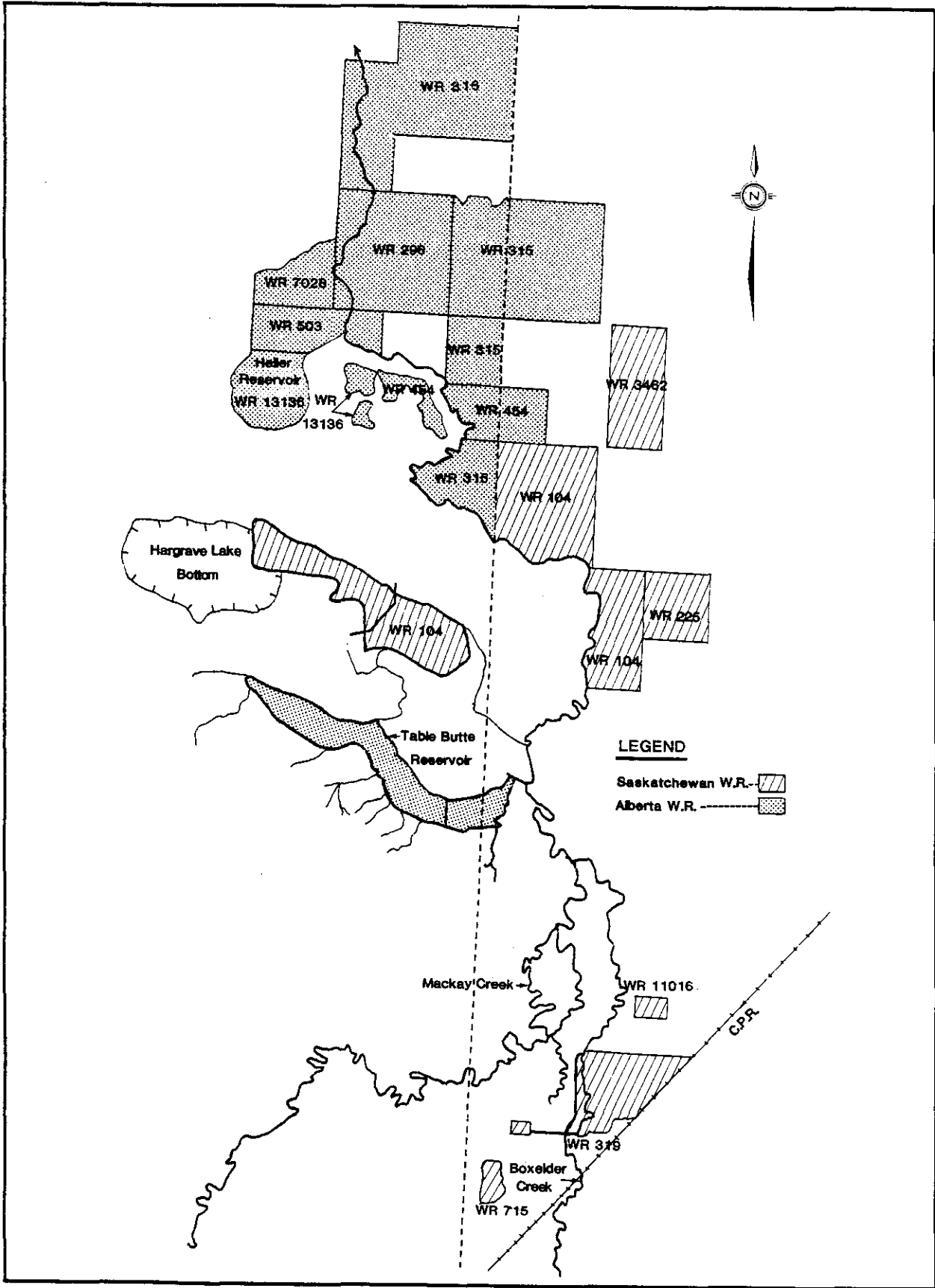


FIGURE 2 - WATER RIGHT ALLOCATIONS IN THE WALSH FLATS AREA

FIGURE 1 BOXELDER CREEK BASIN
SUB-BASIN CODES

- GROSS DRAINAGE AREA BOUNDARY
- HYDROMETRIC GAUGING STATION
- ◆ INTERPROVINCIAL APPORTIONMENT POINT
- 05AH001 Boxelder Creek near Walsh
- 05AH002 Mackay Creek at Walsh
- 05AH040 Mackay Creek near Walsh (discontinued 1955)

