

PRAIRIE PROVINCES WATER BOARD

REPORT #1

SUMMARY REPORT OF
RECORDED AND NATURAL MONTHLY FLOWS
AT CERTAIN POINTS ON
THE SASKATCHEWAN RIVER SYSTEM

413 Post Office Building,
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SUMMARY REPORT OF
RECORDED AND NATURAL MONTHLY FLOWS AT CERTAIN POINTS
ON THE SASKATCHEWAN RIVER SYSTEM

The published hydrometric records for the stations in the Saskatchewan River Drainage Basin reflect only the amount of water that actually passed that point on the stream. For many purposes, it is desirable to have the knowledge of what the flow would have actually been if no storage works or diversions had been made on the stream in past years.

As many of the hydrometric records are incomplete, an attempt has been made to determine what the flow would have been if the records were complete. Studies were also made to determine what the flow in the stream at these points would have been under natural conditions (without upstream diversions, etc.).

The following tables summarize the results of these studies:

- Table 1 - Recorded flow of the South Saskatchewan River at the Alberta-Saskatchewan Boundary.
- Table 2 - Natural flow of the South Saskatchewan River at the Alberta-Saskatchewan Boundary.
- Table 3 - Recorded flow of the South Saskatchewan River at Saskatoon.
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Two things should be noted in connection with these tables: first, the monthly flows are given in average cubic feet per second per month (c.f.m.), and secondly, the flows are of Canadian water only, i.e. the United States share of the St. Mary's River has been subtracted.

This report is not intended to detail the many processes used in arriving at the figures shown herein. The following notes roughly indicate the method whereby the figures in Tables 1 - 12 were obtained. Information on the detailed methods and procedures followed may be obtained by applying to the Prairie Provinces Water Board's Offices. 3 1 3

SOUTH SASKATCHEWAN RIVER AT ALBERTA-SASKATCHEWAN BOUNDARY

Recorded Flow

The recorded flow of the South Saskatchewan River at the Alberta-Saskatchewan Boundary was calculated by taking (a) the recorded flow of the South Saskatchewan River at Medicine Hat (correlated where necessary) plus (b) the recorded flow of the Red Deer River at Empress (correlated where necessary), plus (c) the inflow between Medicine Hat and the Alberta-Saskatchewan Boundary (using the method recommended by the Alberta Water Resources Office), minus (d) the river losses between Medicine Hat and the Boundary (estimated).

These four factors are tabulated in columns 2, 3, 4 and 5 of Table 20. The result is shown in Table 1.

Natural Flow

The major step in determining this natural flow was to estimate the net diversions by the irrigation interests in past years. This was done and the estimates are set out in the following tables:

Table 13 - Western Irrigation District

Table 14 - Eastern Irrigation District

Table 15 - Canada Land and Irrigation Company

Table 16 - Lethbridge Northern Irrigation District

Table 17 - St. Marys-Milk River Development

Table 18 - United Irrigation District

Table 19 - Mountain View and Leavitt Irrigation Districts.

The natural flow was then obtained by taking first (a) the recorded flow of the South Saskatchewan River at Alberta-Saskatchewan Boundary (Table 1), adding (b) net irrigation diversions as obtained in Tables 13 - 19, allowing for (c) regulation of the Bow River (Calgary Power Ltd.) and the Elbow River (Clonmore Dam) -- (obtained from Alberta Water Resources Office) plus (d) the water actually used by the United States from the St. Marys River, minus (e) the United States share of the St. Mary River.

These figures have been tabulated and will be found in Table 20.

It is interesting to compare the results obtained by the Prairie Provinces Water Board of the average annual natural flow in acre-feet with that estimated by the Saskatchewan Water Rights Office and the Alberta Water Resources Branch. The comparison, in percent, follows:

If Prairie Provinces Water Board = 100.0%
 then Sask. Water Rights Office = 101.6%
 and Alta. Water Resources Branch = 98.5%

SOUTH SASKATCHEWAN RIVER AT SASKATOON

Recorded Flow

As the hydrometric information at this station is complete, it was only necessary to copy the recorded flows as has been done in Table 3.

Natural Flow

The natural flow at Saskatoon was obtained by taking (a) the natural flow at the Alberta-Saskatchewan Boundary plus (b) the natural flow of Swift Current Creek at Swift Current (estimated from available information) plus (c) the natural inflow and/or losses between the Boundary and Saskatoon (recorded Saskatoon flow minus recorded boundary flow, minus recorded flow of Swift Current Creek).

The results of these calculations are in Table 4.

SOUTH SASKATCHEWAN RIVER AT THE FORKS

Recorded Flow

Due to the paucity of information in this area, the recorded flow of the South Saskatchewan River at The Forks was obtained by adding to the recorded flow at Saskatoon the calculated inflow on the River between Saskatoon and The Forks (calculated by dividing, proportionately as to the drainage area, the recorded flow at Le Pas minus recorded Saskatoon flow minus recorded Prince Albert flow).

The results are shown in Table 5.

Natural Flow

The natural flow at this point was computed by adding to the natural flow at Saskatoon the same inflow between Saskatoon and The Forks as indicated above.

The results are shown in Table 6.

NORTH SASKATCHEWAN RIVER AT THE ALBERTA-SASKATCHEWAN BOUNDARY

For the years in which either the Fort Pitt or Frenchman Butte hydrometric stations were operating (1912-22 and the summers 1944 to date), these records were taken as the recorded flow at the Boundary. For all other years, the recorded flow was obtained by averaging the flows at Edmonton and Prince Albert.

As consumptive uses upstream from this point are negligible, the recorded flow was also assumed to be the natural flow. The results are shown in Table 7.

NORTH SASKATCHEWAN RIVER AT THE FORKS

The recorded flow of the North Saskatchewan at The Forks was obtained by adding to the recorded flows at Prince Albert the proportional inflow obtained by the same method outlined in the previous note. As the consumptive uses upstream from this point in the river are negligible, recorded flow was also assumed to be the natural flow.

These results are shown in Table 8.

SASKATCHEWAN RIVER AT THE FORKS

Recorded Flow

The recorded flow of the Saskatchewan River at The Forks was computed as the sum of the recorded flow of the South Saskatchewan River at The Forks plus the recorded flow of the North Saskatchewan River at The Forks.

The results will be found in Table 9.

Natural Flow

The natural flow of the Saskatchewan River at The Forks was computed as the sum of the natural flow of the South Saskatchewan River at The Forks plus the natural flow of the North Saskatchewan River at The Forks.

The results will be found in Table 10.

SASKATCHEWAN RIVER AT LE PAS

Recorded Flow

The recorded flow of the Saskatchewan River at Le Pas was taken from the published hydrometric records -- correlated

with the combined records at Saskatoon and Prince Albert where necessary.

The results are found in Table 11.

Natural Flow

The natural flow at Le Pas was obtained by taking the sum of the recorded flows at Le Pas plus the difference between the natural and recorded flows at Saskatoon for the previous month.

The results may be found in Table 12.

SOUTH SASKATCHEWAN RIVER AT ALBERTA-SASKATCHEWAN BOUNDARY
RECORDED FLOW

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Avg.	Set.	Total
1911-12	7,330	9,276	2,877	1,838	2,384	2,545	19,081	17,815	21,467	55,005	18,734	13,580	8,570,000
1912-13	9,426	8,699	2,981	2,077	2,443	4,559	16,116	17,404	21,153	23,500	18,031	10,072	8,737,000
1913-14	9,533	3,467	3,467	2,772	1,881	4,551	7,225	16,596	23,851	17,167	9,330	6,146	5,374,000
1914-15	9,525	9,986	2,621	2,530	2,427	7,332	7,548	23,998	49,024	55,814	25,973	13,413	12,643,000
1915-16	10,741	8,027	2,843	2,096	6,300	7,965	10,879	25,525	62,522	49,232	25,436	22,941	12,622,000
1916-17	11,698	7,799	2,822	3,021	2,670	3,600	16,765	25,525	54,514	24,590	10,278	7,674	10,838,000
1917-18	9,369	4,319	1,532	3,504	2,803	6,964	9,371	12,336	24,467	11,297	8,297	5,848	5,984,000
1918-19	6,994	3,237	1,307	2,236	1,913	1,564	8,422	15,565	16,439	7,924	10,446	5,204	4,875,000
1919-20	2,507	2,345	2,226	2,236	2,446	5,224	19,307	23,130	24,602	28,787	19,776	4,621	8,218,000
1920-21	4,775	3,225	2,341	1,978	2,442	3,172	10,668	17,232	25,704	12,747	6,811	3,154	5,735,000
1921-22	3,170	2,613	2,254	1,959	1,415	2,418	7,299	16,549	24,960	11,834	7,597	4,852	5,284,000
1922-23	3,499	2,474	1,577	1,707	1,326	2,183	5,337	11,257	65,535	25,300	14,075	7,080	8,623,000
1923-24	2,695	3,506	2,160	1,601	2,416	6,943	4,553	14,158	22,750	15,187	13,453	5,876	5,793,000
1924-25	5,587	1,474	3,817	2,126	2,521	3,323	8,422	7,299	11,193	10,579	9,441	8,071	7,010,000
1925-26	5,593	3,400	3,817	2,126	2,521	3,323	8,422	7,299	11,193	10,579	9,441	8,071	7,010,000
1926-27	15,462	7,240	6,453	3,297	2,807	5,150	16,361	25,034	51,480	29,534	18,884	19,975	12,053,000
1927-28	11,821	6,980	4,631	2,311	4,529	14,009	11,562	21,508	44,610	35,647	11,269	7,556	11,273,000
1928-29	7,388	4,649	2,302	2,139	1,097	4,859	6,757	16,418	18,930	9,091	4,306	2,841	5,260,000
1929-30	1,825	2,219	2,339	1,635	4,591	4,850	9,492	14,364	22,173	14,389	5,890	3,492	3,439,000
1930-31	3,721	2,764	2,546	2,053	1,939	2,282	3,360	6,272	13,950	9,800	3,860	3,730	3,439,000
1931-32	3,404	2,157	1,720	1,600	1,926	3,410	9,027	16,409	13,104	13,307	5,706	5,707	6,257,000
1932-33	2,749	3,400	2,157	2,210	1,986	3,070	7,907	25,649	27,454	14,077	4,036	3,637	6,035,000
1933-34	2,920	3,730	3,100	3,040	3,906	4,210	11,997	22,029	26,604	6,517	13,456	3,597	5,978,000
1934-35	2,599	3,080	2,600	2,600	3,575	3,160	7,435	10,825	21,302	16,052	17,900	3,220	5,213,000
1935-36	2,910	2,279	1,795	1,762	1,781	4,094	14,610	12,448	16,712	8,220	3,640	1,885	4,102,000
1936-37	1,313	1,790	1,043	1,320	1,240	4,751	5,454	6,315	21,466	8,405	5,340	3,030	3,178,000
1937-38	3,270	3,750	2,680	2,680	1,723	4,035	8,856	18,158	27,989	13,760	6,490	3,135	6,160,000
1938-39	4,210	2,800	2,090	1,610	1,620	4,193	6,001	8,651	23,588	13,760	4,490	3,135	6,160,000
1939-40	2,885	3,360	2,260	1,540	1,636	3,936	13,098	17,597	11,629	6,810	4,555	6,210	4,856,000
1940-41	2,170	3,240	2,420	2,035	1,800	4,928	5,412	4,563	9,000	5,365	4,290	4,870	4,856,000
1941-42	3,370	3,560	2,420	2,035	1,800	4,928	5,412	4,563	9,000	5,365	4,290	4,870	4,856,000
1942-43	2,640	2,600	2,480	2,300	2,136	5,916	25,340	21,884	35,582	27,230	13,730	10,360	8,007,000
1943-44	2,640	2,600	2,480	2,300	2,136	5,916	25,340	21,884	35,582	27,230	13,730	10,360	8,007,000
1944-45	2,770	2,900	2,480	2,300	2,136	5,916	25,340	21,884	35,582	27,230	13,730	10,360	8,007,000
1945-46	2,590	3,760	2,580	2,335	2,190	4,440	12,191	12,191	30,441	16,570	5,160	5,230	3,621,000
1946-47	5,590	4,150	4,320	3,580	4,638	6,061	8,806	12,191	28,061	13,920	4,950	7,120	5,485,000
1947-48	11,150	6,590	3,420	2,285	2,910	13,131	17,312	25,822	27,005	13,860	6,450	6,250	6,000,000
1948-49	215,593	154,065	100,834	50,795	94,522	179,724	384,612	643,969	1,108,647	668,919	245,658	263,450	257,095,000
1949-50	3,825	4,164	2,725	2,454	2,355	4,857	10,335	17,404	29,963	18,079	9,342	7,120	8,267,000
1950-51	3,825	4,164	2,725	2,454	2,355	4,857	10,335	17,404	29,963	18,079	9,342	7,120	8,267,000

SOUTH SACK. RIVER AT THE ALBERTA-SASKATCHEWAN BOUNDARY - RECONSTRUCTED NATURAL FLOW (Sec. Ft.)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Water
1911-12	7,579	1,752	2,313	2,630	16,954	21,080	34,609	10,882	14,024	6,672,000
1912-13	9,495	1,887	2,410	2,302	17,312	23,665	23,456	26,158	10,411	6,588,000
1913-14	7,021	1,796	2,597	4,577	16,513	21,722	17,029	8,374	6,389	6,315,000
1914-15	9,182	2,417	2,908	7,066	24,937	48,265	55,304	27,134	13,795	12,587,000
1915-16	13,000	2,917	3,022	7,266	15,022	61,310	48,000	25,439	22,992	12,222,000
1916-17	10,233	2,482	2,505	2,514	15,697	53,447	24,938	11,142	8,127	10,838,000
1917-18	9,334	2,318	2,580	6,299	9,325	24,782	12,701	9,383	6,730	6,370,000
1918-19	5,622	1,836	1,756	1,899	15,967	18,597	10,384	11,899	6,114	5,292,000
1919-20	3,051	1,702	2,252	3,093	32,774	25,366	29,993	12,115	7,952	5,423,000
1920-21	3,329	1,915	2,229	2,900	17,593	26,361	15,403	8,945	4,764	6,183,000
1921-22	3,838	1,947	1,250	2,082	16,844	26,153	14,296	9,448	6,125	5,673,000
1922-23	3,807	1,276	1,149	2,071	13,011	65,001	17,427	15,448	8,631	5,375,000
1923-24	6,574	1,593	2,165	2,347	25,562	25,002	17,446	17,587	7,321	6,371,000
1924-25	8,750	2,275	2,259	6,639	19,389	26,833	15,345	11,478	9,300	7,376,000
1925-26	9,811	2,278	2,308	8,082	8,700	14,155	13,163	7,281	24,691	6,545,000
1926-27	15,167	2,961	2,246	4,997	24,169	50,586	29,771	19,300	20,324	11,982,000
1927-28	11,973	4,185	4,262	13,638	21,430	45,637	39,365	12,130	8,726	11,287,000
1928-29	7,447	1,949	1,750	4,658	16,177	39,294	10,813	6,347	4,771	6,434,000
1929-30	3,503	2,252	1,412	4,195	15,252	24,532	17,700	8,219	5,374	5,938,000
1930-31	4,355	1,994	1,784	1,722	9,359	17,353	12,712	6,328	2,683	4,177,000
1931-32	4,352	1,720	1,765	3,015	16,906	43,824	16,314	8,108	7,142	6,265,000
1932-33	3,402	2,047	1,834	2,838	25,822	30,216	17,547	7,037	5,259	5,782,000
1933-34	3,703	3,360	3,444	3,852	23,769	28,862	11,749	6,443	4,521	6,582,000
1934-35	4,170	2,237	3,227	2,656	15,839	25,288	19,283	11,907	5,226	6,025,000
1935-36	3,526	1,272	939	4,372	14,562	19,524	7,925	4,190	4,290	6,096,000
1936-37	2,422	1,470	930	2,021	9,311	24,813	12,798	7,036	5,419	6,629,000
1937-38	4,120	2,405	1,360	3,809	19,345	31,214	21,297	9,209	7,252	6,948,000
1938-39	4,955	1,677	1,996	3,911	17,064	26,581	17,264	6,283	5,001	5,363,000
1939-40	3,954	1,191	1,351	3,629	15,895	15,895	10,636	6,121	6,130	5,283,000
1940-41	6,034	1,431	1,455	4,624	7,520	13,027	9,599	7,176	7,522	6,175,000
1941-42	5,272	1,351	2,168	3,691	24,674	36,275	31,210	17,077	12,928	6,377,000
1942-43	3,521	1,650	2,500	2,038	12,780	26,518	24,756	10,181	6,682	7,782,000
1943-44	3,627	1,909	1,637	1,637	17,632	19,758	12,109	12,109	6,291	4,523,000
1944-45	3,065	1,362	1,304	3,023	14,712	33,317	20,267	8,402	6,112	6,200,000
1945-46	3,269	2,479	2,289	2,970	16,708	22,540	17,793	8,285	10,021	7,023,000
1946-47	6,587	2,675	3,820	12,582	15,208	30,224	18,651	10,162	10,375	8,502,000
1947-48	12,534	2,657	1,936	4,002	26,005	60,679	21,435	16,374	6,666	13,118,000
TOTAL	297,768	77,734	81,397	165,826	684,924	1,177,039	761,011	421,491	321,406	274,505,000
1948-49	5,120	2,101	2,200	4,482	18,511	31,812	20,580	11,322	8,637	7,427,000

SOUTH SASKATCHEWAN RIVER AT SASKATOON
RECORDED FLOW (sec. ft.)

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total
1911-12	5,178.2	4,508.8	3,345	1,586	2,297	2,304	14,152	4,737	23,204	33,602	24,381	15,159	9,039.00
1912-13	5,293	7,414	3,300	2,247	1,981	2,432	15,852	11,927	32,435	24,232	14,254	9,143	8,106.00
1913-14	7,939	3,574	2,752	2,702	2,130	3,038	5,319	13,676	26,375	22,554	9,782	7,945	6,797.00
1914-15	10,215	8,151	3,204	3,379	2,345	3,315	12,472	19,813	30,144	60,542	33,794	16,357	12,797.00
1915-16	12,744	6,118	3,555	2,545	2,452	15,242	19,994	23,474	51,614	56,800	26,797	29,721	14,010.00
1916-17	14,071	6,067	4,952	3,557	3,112	2,745	16,074	25,303	57,652	30,232	11,958	8,914	11,315.00
1917-18	5,390	4,562	2,000	2,502	3,135	4,325	13,252	12,920	23,090	14,547	6,725	6,143	6,109.00
1918-19	5,360	4,239	2,007	1,882	2,454	1,925	7,619	9,424	17,365	10,312	4,636	6,146	4,241.00
1919-20	3,506	2,688	1,012	2,062	1,924	2,593	15,615	25,532	25,394	31,464	13,526	5,804	8,525.00
1920-21	4,009	2,554	2,051	1,439	1,625	2,924	11,835	12,902	26,022	15,361	8,126	4,273	5,895.00
1921-22	3,018	2,793	1,800	1,504	1,458	1,951	11,687	15,370	26,234	17,757	7,871	5,286	5,029.00
1922-23	3,550	2,450	1,470	1,620	1,220	1,450	6,620	8,490	26,300	32,000	13,990	9,310	2,556.00
1923-24	3,010	2,310	2,680	1,580	2,090	2,450	8,040	11,600	20,700	18,000	13,430	7,673	5,919.00
1924-25	5,020	2,960	2,470	2,160	2,290	3,450	24,600	16,000	26,400	17,600	9,150	8,620	7,259.00
1925-26	8,510	3,830	3,810	2,950	2,700	8,830	10,500	9,240	6,430	15,000	6,100	19,800	6,010.00
1926-27	17,290	3,090	4,110	3,130	2,650	5,010	25,100	22,500	51,300	35,800	19,700	20,800	12,100.00
1927-28	17,590	7,280	3,140	9,130	4,360	10,000	17,900	12,400	40,500	46,000	14,300	8,390	12,100.00
1928-29	6,730	5,060	2,590	2,210	1,770	4,960	7,430	19,200	42,800	12,000	5,340	3,820	5,450.00
1929-30	2,270	2,120	1,270	1,600	2,260	6,170	10,500	13,300	22,200	15,000	7,660	5,020	3,450.00
1930-31	3,570	3,560	2,890	1,870	2,460	2,720	4,680	4,450	10,300	11,400	5,300	4,300	3,450.00
1931-32	2,330	3,870	1,360	1,220	1,350	3,590	6,330	15,900	42,800	17,500	6,530	7,270	6,590.00
1932-33	4,530	3,250	2,590	2,060	1,660	2,240	12,300	17,400	27,000	18,500	6,440	6,030	6,290.00
1933-34	3,730	3,760	2,840	4,700	4,140	4,890	10,300	19,900	44,500	10,100	4,080	3,320	5,800.00
1934-35	3,820	3,580	2,530	1,140	2,520	3,440	10,400	9,370	20,000	17,100	10,200	3,950	3,234.00
1935-36	2,930	1,970	2,000	1,970	1,190	3,600	14,600	15,000	18,100	5,370	3,150	3,880	4,332.00
1936-37	1,840	1,800	997	1,010	1,100	1,840	6,090	4,760	17,800	11,450	3,910	3,300	3,477.00
1937-38	3,330	3,300	2,290	1,630	1,590	1,940	12,400	12,700	33,500	22,400	7,950	4,940	6,669.00
1938-39	3,950	2,590	1,650	1,460	1,570	2,190	11,000	7,470	16,800	22,500	2,170	3,540	4,563.00
1939-40	3,160	2,360	1,920	1,540	1,350	1,850	11,970	16,700	14,340	7,090	5,540	4,920	4,652.00
1940-41	5,160	2,710	2,740	2,160	1,960	2,350	11,000	4,760	8,410	5,860	7,780	5,030	3,420.00
1941-42	3,140	3,690	2,350	1,630	1,520	2,000	6,160	13,490	35,310	29,600	14,720	10,070	2,620.00
1942-43	5,360	3,190	2,510	2,360	2,490	2,910	20,100	12,800	41,600	21,500	8,200	4,350	2,311.00
1943-44	2,340	2,810	2,110	1,920	2,160	2,520	7,140	3,300	21,300	10,140	5,370	4,350	3,688.00
1944-45	3,440	2,200	2,200	1,790	2,390	3,110	5,970	7,550	27,590	20,390	3,690	4,110	5,268.00
1945-46	3,360	3,530	3,130	2,660	2,660	3,610	9,410	9,160	25,440	17,540	5,460	7,170	3,850.00
1946-47	2,680	2,560	2,320	2,020	2,720	11,520	24,420	24,710	27,370	15,860	6,330	7,540	5,154.00
1947-48	3,170	2,140	4,370	3,320	2,770	3,320	25,470	53,908	59,820	23,050	13,230	6,330	12,920.00
TOTAL	230,771	151,758	100,411	64,065	62,151	146,268	678,111	551,008	1,060,758	794,363	385,360	295,311	263,742.00
Average	6,237	6,102	2,716	2,272	2,320	3,956	12,922	14,892	28,669	21,469	10,415	7,981	7,127.00

SOUTH SASKATCHEWAN RIVER AT THE FORKS - RECORDED FLOW (Sec. Ft.)

DATE	SEC. FT.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JULY	AUG.	SEPT.	OCT.	NOV.	TOTAL
1902-01-01	1,825	2,380	2,311	14,205	23,976	32,550	37,590	45,661	15,729	25,661	15,729	25,661	25,661	2,224,000
1902-01-15	1,839	2,372	2,530	15,947	22,386	24,700	24,700	25,793	10,422	25,793	10,422	25,793	25,793	2,224,000
1902-02-01	2,800	2,259	3,045	6,993	25,530	22,928	22,928	10,317	5,272	10,317	5,272	10,317	10,317	2,224,000
1902-02-15	3,349	2,359	3,243	13,570	35,375	52,567	52,567	30,248	17,522	30,248	17,522	30,248	30,248	2,224,000
1902-03-01	2,889	2,683	12,753	20,154	50,934	56,982	56,982	28,847	30,504	28,847	30,504	28,847	28,847	2,224,000
1902-03-15	2,589	3,163	2,819	16,342	37,323	41,747	41,747	13,558	9,534	13,558	9,534	13,558	13,558	2,224,000
1902-04-01	2,132	2,554	2,347	12,930	22,800	15,700	15,700	9,699	6,851	9,699	6,851	9,699	9,699	2,224,000
1902-04-15	1,562	2,554	2,093	7,266	19,492	10,718	10,718	9,741	6,283	9,741	6,283	9,741	9,741	2,224,000
1902-05-01	2,034	1,907	2,432	14,920	25,264	31,665	31,665	14,434	6,292	14,434	6,292	14,434	14,434	2,224,000
1902-05-15	1,464	1,687	2,914	11,047	26,802	16,221	16,221	8,601	3,110	8,601	3,110	8,601	8,601	2,224,000
1902-06-01	1,781	1,583	1,630	11,630	26,664	14,755	14,755	6,351	6,621	6,351	6,621	6,351	6,351	2,224,000
1902-06-15	1,706	1,317	1,523	6,719	54,625	32,888	32,888	15,315	10,282	15,315	10,282	15,315	15,315	2,224,000
1902-07-01	1,614	2,073	2,440	7,759	20,723	13,627	13,627	13,602	8,100	13,602	8,100	13,602	13,602	2,224,000
1902-07-15	2,214	2,309	3,434	23,760	26,451	16,540	16,540	9,524	9,552	9,524	9,552	9,524	9,524	2,224,000
1902-08-01	2,644	2,771	3,653	10,450	6,818	15,122	15,122	6,818	21,360	6,818	21,360	6,818	6,818	2,224,000
1902-08-15	2,263	2,730	3,944	24,245	50,915	36,312	36,312	21,030	15,675	21,030	15,675	21,030	21,030	2,224,000
1902-09-01	9,076	4,527	9,648	17,839	39,503	45,854	45,854	25,675	9,030	25,675	9,030	25,675	25,675	2,224,000
1902-09-15	2,170	2,170	4,211	7,428	41,226	12,892	12,892	5,665	4,006	5,665	4,006	5,665	5,665	2,224,000
1902-10-01	1,959	2,484	3,924	10,792	22,073	19,372	19,372	7,956	3,249	7,956	3,249	7,956	7,956	2,224,000
1902-10-15	2,910	2,470	3,735	5,090	10,993	11,518	11,518	5,657	7,728	5,657	7,728	5,657	5,657	2,224,000
1902-11-01	1,379	1,265	3,207	8,511	41,925	18,810	18,810	7,504	6,395	7,504	6,395	7,504	7,504	2,224,000
1902-11-15	2,169	2,796	4,555	12,332	27,437	19,312	19,312	9,059	6,395	9,059	6,395	9,059	9,059	2,224,000
1903-01-01	3,042	2,796	4,555	10,282	24,937	11,930	11,930	5,059	3,597	5,059	3,597	5,059	5,059	2,224,000
1903-01-15	2,156	2,599	3,550	10,589	20,093	17,255	17,255	10,215	3,152	10,215	3,152	10,215	10,215	2,224,000
1903-02-01	1,206	1,176	3,239	14,008	18,480	5,874	5,874	3,298	3,456	3,298	3,456	3,298	3,298	2,224,000
1903-02-15	1,672	1,521	1,940	7,014	17,495	11,702	11,702	6,229	3,456	6,229	3,456	6,229	6,229	2,224,000
1903-03-01	1,508	1,571	2,435	13,522	32,825	22,339	22,339	9,011	3,713	9,011	3,713	9,011	9,011	2,224,000
1903-03-15	1,508	1,508	2,435	12,420	18,546	22,562	22,562	5,663	3,713	5,663	3,713	5,663	5,663	2,224,000
1903-04-01	1,580	1,580	1,845	16,029	14,745	7,292	7,292	3,768	4,951	3,768	4,951	3,768	3,768	2,224,000
1903-04-15	2,283	2,283	2,361	11,306	8,298	5,252	5,252	3,096	3,096	3,096	3,096	3,096	3,096	2,224,000
1903-05-01	1,813	1,813	1,977	6,368	34,002	29,702	29,702	15,614	10,550	15,614	10,550	15,614	15,614	2,224,000
1903-05-15	2,402	2,402	2,545	24,794	21,600	9,867	9,867	7,292	4,762	7,292	4,762	7,292	7,292	2,224,000
1903-06-01	2,000	2,163	2,516	7,517	11,435	10,933	10,933	6,734	6,052	6,734	6,052	6,734	6,734	2,224,000
1903-06-15	2,272	2,272	3,211	6,390	28,510	21,268	21,268	6,054	4,680	6,054	4,680	6,054	6,054	2,224,000
1903-07-01	3,171	2,934	5,577	10,300	25,170	16,130	16,130	6,054	7,582	6,054	7,582	6,054	6,054	2,224,000
1903-07-15	3,086	2,289	11,240	23,222	27,491	19,564	19,564	6,836	7,847	6,836	7,847	6,836	6,836	2,224,000
1903-08-01	7,424	2,598	3,407	24,697	60,470	24,710	24,710	14,660	7,045	14,660	7,045	14,660	14,660	2,224,000
TOTAL	24,787	162,613	103,462	86,195	59,749	145,475	480,786	1,055,722	812,499	410,590	312,513	270,400,000	270,400,000	2,224,000
ADJUSTED	6,626	6,365	2,796	2,230	2,262	3,932	32,994	28,520	21,926	11,097	5,446	7,292	7,292	2,224,000

SOUTH SASKATCHEWAN RIVER AT THE WORKS - RECONSTRUCTED NATURAL FLOW (Sec. 7c.)

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total
1904	1,730	2,309	2,365	4,240	13,243	23,589	31,413	21,610	19,200	7,154,000						
1905	1,777	1,939	2,273	15,695	13,460	30,238	24,586	15,813	13,472	4,283,000						
1906	2,088	2,166	2,978	6,586	14,005	25,701	22,850	10,572	8,515	9,948,000						
1907	3,416	3,176	3,037	13,528	19,671	35,220	56,137	35,415	18,334	12,781,000						
1908	2,687	4,297	16,217	20,927	14,432	49,722	55,850	28,427	10,535	14,651,000						
1909	3,285	2,908	2,733	16,294	23,597	59,138	31,805	11,240	5,573	11,502,000						
1910	1,876	2,928	4,652	13,854	13,287	23,114	17,194	11,989	7,793	6,755,000						
1911	1,562	2,377	1,526	7,601	10,199	21,680	15,136	11,336	7,338	5,461,000						
1912	1,758	1,713	2,332	14,796	34,922	27,192	32,672	16,975	7,723	6,861,000						
1913	1,430	1,464	2,535	11,240	14,276	23,079	18,967	10,565	6,660	9,374,000						
1914	1,616	1,406	1,930	11,525	16,510	27,907	17,259	10,652	7,894	8,273,000						
1915	1,454	1,140	1,416	6,616	10,426	34,025	34,025	16,708	11,139	5,641,000						
1916	1,421	1,802	2,115	7,519	13,594	24,540	21,236	13,732	9,565	6,531,000						
1917	1,999	2,038	3,180	43,117	17,136	27,625	43,723	11,159	10,567	7,829,000						
1918	2,548	2,548	6,482	10,727	13,789	9,776	3,080	8,080	6,717,000							
1919	2,467	2,467	4,701	24,982	22,505	50,021	36,329	22,034	22,062	13,225,000						
1920	4,800	4,800	9,450	17,537	20,392	41,535	45,372	15,956	10,213	12,461,000						
1921	5,222	5,222	4,510	7,449	14,340	42,290	35,634	7,512	5,935	5,935,000						
1922	1,980	1,512	5,269	11,457	14,463	24,432	19,692	10,625	7,223	6,235,000						
1923	1,412	2,305	3,172	4,747	7,834	13,486	14,430	6,120	6,910	6,238,000						
1924	1,862	1,191	2,812	6,424	16,857	42,655	21,817	9,795	9,163	7,428,000						
1925	2,000	1,609	2,100	12,045	15,278	30,199	22,782	10,049	8,337	7,200,000						
1926	2,516	3,748	4,007	9,907	22,775	27,195	15,162	7,810	3,811	6,731,000						
1927	1,211	2,211	3,056	10,395	11,109	23,539	21,456	12,922	6,337,000							
1928	1,716	1,34	1,416	14,390	17,602	21,292	9,077	5,912	5,457	5,163,000						
1929	351	802	803	5,976	8,326	20,844	16,093	6,845	5,255	4,624,000						
1930	1,402	1,724	1,924	13,821	13,733	36,051	25,996	10,722	7,227	4,624,000						
1931	1,427	1,521	1,521	11,668	10,515	21,026	14,566	7,986	5,689	5,689,000						
1932	1,131	1,538	1,538	15,077	18,339	19,010	11,178	8,124	6,921	5,689,000						
1933	1,853	1,576	1,985	11,333	18,042	12,358	10,104	5,763	4,799	4,799,000						
1934	1,420	1,070	1,717	5,453	16,173	37,614	33,813	18,971	14,133	8,597,000						
1935	1,302	1,420	2,322	25,755	15,581	25,027	26,507	12,311	1,424	6,477,000						
1936	1,302	1,405	2,625	6,698	7,581	15,812	15,152	12,124	8,873	6,477,000						
1937	2,609	2,671	3,725	3,725	12,176	36,850	24,565	9,536	7,520	6,477,000						
1938	2,679	2,127	4,895	3,725	12,176	29,952	21,591	9,449	10,352	6,477,000						
1939	1,172	1,072	10,461	22,119	27,642	20,711	21,255	10,570	9,973	9,973,000						
1940	3,175	1,535	2,381	25,541	51,510	62,927	28,742	17,374	5,303	12,337,000						
1941	73,100	70,671	132,041	475,358	614,459	1,122,813	934,653	486,448	370,504	287,262,000						
Total	267,631	250,029	91,155	1,200,000	1,200,000	2,400,000	2,400,000	1,200,000	1,200,000	7,771,000						
1942	7,227	4,158	3,165	1,977	1,977	3,955	16,450	12,167	10,614	7,771,000						

NORTH SASKATCHEWAN RIVER AT ALTA - GAGE. BOUNDARY
RECORDED FLOW (sec. ft.)

Date	Sec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total
1895-01-01	1,223	1,284	1,440	1,448	11,900	16,738	22,851	27,019	17,301	8,052,000	
1895-01-15	1,400	1,220	1,553	1,503	9,464	18,541	23,104	21,531	11,874	6,530,000	
1895-02-01	1,432	1,193	1,456	1,299	12,180	21,048	25,907	13,675	8,589	6,742,000	
1895-02-15	1,499	1,467	1,747	1,742	7,590	32,148	51,443	25,842	22,547	9,402,000	
1895-03-01	1,452	1,146	1,487	1,223	7,750	23,749	29,736	23,713	20,575	7,083,000	
1895-03-15	1,820	1,613	1,575	1,323	22,196	21,822	20,416	15,562	11,124	7,579,000	
1895-04-01	1,907	1,655	1,607	1,307	7,134	17,879	16,283	13,432	9,373	5,392,000	
1895-04-15	2,175	1,865	1,823	1,423	6,157	9,652	11,791	15,118	8,975	4,250,000	
1895-05-01	1,976	1,956	2,339	2,526	27,526	21,526	26,791	17,659	8,165	6,952,000	
1895-05-15	2,021	1,801	2,801	11,823	15,365	14,673	13,371	5,527	4,968,000		
1895-06-01	1,612	1,794	3,794	10,162	14,983	14,858	17,581	9,797	4,853,000		
1895-06-15	2,200	894	2,190	5,915	20,250	21,700	16,450	12,150	6,573,000		
1895-07-01	2,030	2,245	2,975	12,250	13,850	16,550	16,450	10,545	5,327,000		
1895-07-15	2,110	1,156	1,134	15,400	16,150	17,750	24,900	17,400	7,008,000		
1895-08-01	2,340	1,310	8,305	6,685	11,710	16,550	12,500	26,520	6,146,000		
1895-08-15	4,990	1,470	10,015	17,200	22,650	23,450	20,200	12,850	6,173,000		
1895-09-01	2,000	2,012	7,520	8,910	29,150	33,800	16,400	8,565	7,593,000		
1895-09-15	2,260	1,975	3,270	5,585	17,600	9,656	10,700	6,935	4,136,000		
1895-10-01	1,835	1,195	2,005	7,035	15,150	16,750	13,150	8,270	4,625,000		
1895-10-15	1,410	943	3,200	5,345	23,000	21,850	14,350	9,535	4,953,000		
1895-11-01	2,450	1,160	7,660	12,750	29,160	16,300	14,550	10,060	6,236,000		
1895-11-15	2,095	1,315	4,695	16,850	17,100	17,050	12,800	9,645	5,513,000		
1895-12-01	1,725	1,280	6,740	9,725	15,400	11,600	10,500	6,660	4,263,000		
1895-12-15	2,175	1,904	5,060	11,170	18,200	28,950	12,100	8,775	6,164,000		
1896-01-01	1,160	1,125	906	17,500	18,050	17,450	11,900	7,445	5,653,000		
1896-01-15	2,115	627	3,320	9,375	11,800	17,150	14,900	7,450	4,084,000		
1896-02-01	2,335	895	4,345	5,740	18,600	24,200	12,500	17,645	5,639,000		
1896-02-15	2,595	945	3,710	6,025	13,500	16,600	12,500	12,650	4,595,000		
1896-03-01	1,040	924	5,725	12,300	11,550	11,500	10,500	9,080	4,733,000		
1896-03-15	2,200	1,012	3,435	3,170	9,140	13,600	11,300	7,230	3,023,000		
1896-04-01	2,240	949	3,825	5,565	18,325	25,295	17,900	11,638	5,653,000		
1896-04-15	2,860	1,375	4,415	7,835	15,330	21,545	14,300	17,610	5,264,000		
1896-05-01	2,105	1,030	4,710	7,650	32,260	24,620	20,700	11,630	7,159,000		
1896-05-15	6,350	1,100	2,750	7,590	14,830	14,500	8,900	5,800	4,539,000		
1896-06-01	2,750	1,465	6,190	3,750	26,840	18,220	11,260	8,220	5,805,000		
1896-06-15	2,020	1,330	7,970	12,640	17,210	19,200	12,270	9,430	5,245,000		
1896-07-01	2,320	1,625	5,320	47,400	28,650	19,720	20,620	9,660	6,000,000		
1896-07-15	210,446	104,709	60,454	48,348	44,301	234,931	718,804	592,203	220,950,000		
1896-08-01	5,588	2,831	1,636	1,200	1,154	9,149	19,427	16,005	10,603	5,802,000	

NORTH SASKATCHEWAN RIVER AT THE FORKS - RECORDED FLOW (Sec. 36.)

Year	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total for Year
1901-12	7,813	1,258	1,416	1,520	8,222	11,712	15,160	35,281	30,034	22,277	8,512,000
1902-13	5,129	1,740	1,618	2,049	16,369	12,684	19,023	26,366	25,823	14,968	8,362,000
1903-14	3,115	1,263	1,221	1,298	4,607	13,547	30,138	29,589	14,840	10,429	7,225,000
1904-15	3,832	1,749	1,676	1,707	9,084	6,972	24,721	59,476	26,721	15,609	9,566,000
1905-16	4,094	1,447	1,132	1,037	7,540	9,746	23,988	32,988	25,753	23,317	8,225,000
1906-17	6,415	2,211	2,034	1,811	6,569	26,662	30,066	22,299	16,856	10,353	8,558,000
1907-18	7,032	1,873	1,677	1,733	8,951	7,802	15,655	17,235	12,782	8,239	5,277,000
1908-19	6,528	1,437	1,247	902	5,513	5,592	7,674	11,989	15,007	11,357	4,325,000
1909-20	4,856	1,439	1,245	1,277	3,322	31,435	24,815	29,327	18,118	9,116	7,226,000
1910-21	3,336	1,547	1,222	990	13,503	16,026	17,265	17,253	11,642	7,662	6,070,000
1911-22	3,783	935	1,439	1,043	5,118	11,564	14,765	14,589	16,021	11,350	5,023,000
1912-23	3,914	923	879	865	2,506	6,579	25,658	29,644	21,142	13,374	6,835,000
1913-24	7,144	1,032	1,514	1,746	3,766	12,080	13,211	15,164	15,677	11,683	5,715,000
1914-25	5,330	1,531	1,377	1,284	17,578	11,100	16,954	17,650	22,532	18,290	7,445,000
1915-26	10,512	1,746	1,257	1,746	9,670	7,557	10,069	17,147	11,742	25,297	6,259,000
1916-27	12,200	1,563	1,501	2,165	10,173	22,653	21,052	29,396	22,309	14,429	8,829,000
1917-28	9,956	2,709	1,794	2,372	10,277	9,501	26,020	34,144	18,505	9,590	7,923,000
1918-29	4,726	1,195	994	1,323	4,213	8,116	16,466	9,650	10,745	7,081	4,257,000
1919-30	4,237	1,184	1,231	1,456	5,792	5,955	14,452	17,542	14,029	8,888	4,217,000
1920-31	4,530	1,262	1,239	1,229	5,839	5,372	11,821	23,015	15,840	10,737	4,257,000
1921-32	3,214	1,600	1,211	1,057	9,589	14,577	28,169	17,700	14,456	11,475	5,582,000
1922-33	5,270	1,682	1,246	1,145	5,032	18,170	17,567	17,911	12,740	10,540	4,723,000
1923-34	4,621	1,547	1,535	2,025	7,990	9,338	16,467	12,424	11,073	7,811	4,723,000
1924-35	1,927	1,517	1,387	1,134	4,632	12,778	17,513	26,552	21,136	9,677	6,065,000
1925-36	2,872	1,281	1,093	916	13,174	20,975	18,746	12,931	12,512	7,130	4,045,000
1926-37	2,106	1,703	1,679	867	6,434	5,622	16,643	26,877	14,866	13,278	5,850,000
1927-38	3,324	800	800	4,405	4,405	5,235	11,503	12,781	12,997	8,518	4,673,000
1928-39	2,857	1,259	950	832	4,597	14,340	11,539	12,781	10,536	9,122	4,349,000
1929-40	2,857	1,065	1,065	878	4,192	3,036	7,030	13,005	10,935	8,182	3,549,000
1930-41	2,958	765	1,034	989	4,500	4,548	17,687	25,669	19,007	12,597	5,774,000
1931-42	2,678	1,944	1,533	1,564	16,683	10,320	14,500	25,337	13,255	12,080	6,160,000
1932-43	3,274	1,149	1,029	1,179	6,104	5,252	16,898	25,303	22,639	7,346,000	
1933-44	3,026	1,081	1,299	1,301	7,501	5,276	14,198	14,750	12,002	8,259	4,333,000
1934-45	2,671	1,733	1,578	1,847	7,501	5,829	21,504	20,022	11,516	9,514	3,568,000
1935-46	2,433	1,365	1,266	1,021	9,830	11,735	16,202	17,899	13,335	9,539	3,568,000
1936-47	3,459	1,860	1,523	1,429	6,558	52,922	33,544	20,625	20,306	11,031	9,597,000
1937-48	238,339	50,094	46,435	49,933	284,503	452,425	691,171	816,261	617,125	432,492	234,269,000
1938-49	3,162	1,353	1,255	1,349	7,689	12,228	18,680	22,116	16,679	11,589	6,212,000
1939-50	6,111	1,784	1,255	1,349	7,689	12,228	18,680	22,116	16,679	11,589	6,212,000

TABLE 8

SALMONCREEK RIVER AT THE ROCKS - RECORDED FLOW (Sec. Ft.)

Year	Feb.	Mar.	Apr.	May	June	July	Aug.	Total for Year
1912-13	5,908	4,531	22,528	27,574	39,176	68,831	52,725	38,636
1913-14	5,781	4,345	32,326	26,016	51,109	51,065	41,129	25,101
1914-15	5,729	4,344	31,500	28,235	55,948	52,557	25,357	19,701
1915-16	5,949	5,095	22,554	26,704	60,110	118,883	81,970	22,821,000
1916-17	6,132	5,617	27,734	24,218	74,797	89,870	54,202	23,415,000
1917-18	6,237	5,879	24,911	22,748	67,351	54,745	28,234	19,877
1918-19	3,893	4,326	22,881	21,326	38,455	32,935	22,491	15,290
1919-20	3,449	3,801	12,279	15,389	27,166	22,717	24,743	17,785
1920-21	3,885	3,195	16,442	16,643	51,179	60,993	32,654	13,508
1921-22	3,528	2,749	16,950	19,491	44,187	33,504	23,603	12,772
1922-23	2,484	2,429	10,225	12,831	19,449	29,744	21,572	13,171
1923-24	3,550	2,196	11,535	15,851	80,293	62,542	36,557	24,262
1924-25	6,477	3,597	4,186	24,150	33,939	35,191	29,279	19,848
1925-26	5,529	4,990	10,409	17,882	16,837	32,269	18,212	44,966
1926-27	5,809	4,812	36,618	46,003	71,967	65,706	43,338	22,184,000
1927-28	7,592	11,783	28,116	30,371	65,328	79,896	34,378	18,603
1928-29	4,101	3,394	11,651	20,698	60,392	32,542	16,213	11,097
1929-30	5,605	4,415	15,564	20,530	30,325	34,314	24,925	14,137
1930-31	6,276	3,494	9,139	10,269	21,914	34,563	21,507	15,354
1931-32	5,973	4,274	18,400	30,937	70,194	36,510	21,400	19,203
1932-33	5,724	3,621	17,364	30,275	45,034	37,223	19,808	16,935
1933-34	6,389	5,745	16,280	31,033	41,404	24,754	16,126	11,708
1934-35	6,594	4,189	15,251	22,873	37,546	45,634	31,951	14,037
1935-36	6,110	2,497	27,152	36,960	37,226	16,905	11,796	10,528,000
1936-37	4,260	1,791	11,448	10,972	28,178	17,898	10,585	7,622,000
1937-38	3,434	2,375	19,952	17,914	49,471	49,216	22,979	12,424,000
1938-39	3,089	2,371	15,825	13,763	29,945	43,000	18,680	9,825,000
1939-40	3,657	2,977	24,822	31,698	26,282	20,083	14,073	9,637,000
1940-41	3,244	2,398	15,801	6,080	15,328	18,457	13,281	7,040,000
1941-42	3,107	2,338	10,866	18,084	52,389	55,271	23,757	12,470,000
1942-43	4,893	4,057	42,477	24,350	35,600	45,151	13,697	13,697,000
1943-44	3,369	3,032	13,711	9,553	48,333	36,236	16,332	11,339,000
1944-45	3,601	3,713	9,751	14,533	42,208	36,518	13,905	10,027,000
1945-46	4,826	4,904	17,801	15,462	47,677	38,152	15,893	13,631,000
1946-47	4,961	4,055	33,052	27,185	43,383	34,383	17,785	19,610,000
1947-48	7,075	5,062	31,055	105,562	93,714	45,535	34,166	22,398,000
1948-49	19,580	136,289	195,408	1,025,755	1,745,453	1,630,759	1,027,715	745,004
1949-50	169,500	278,580	278,580	278,580	278,580	278,580	278,580	504,725,000
1950-51	19,062	7,429	20,663	27,724	47,201	44,074	29,776	20,135
1951-52	19,062	7,429	20,663	27,724	47,201	44,074	29,776	20,135

SAGINAW RIVER AT THE ROCKS - RECONSTRUCTED NATURAL FLOW (Sec. Ft.)

DATE	NO.	FEET	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	WATER
1902-01	10,000	7,488	3,297	3,925	3,266	22,169	25,937	38,749	58,694	53,674	38,777	17,771,000
1902-02	10,000	3,535	2,807	4,292	4,292	32,025	25,924	49,841	50,962	41,258	25,840	16,707,000
1902-03	10,000	3,535	3,951	4,279	4,279	11,593	28,152	55,839	52,419	25,412	18,944	14,179,000
1902-04	10,000	3,535	3,951	4,279	4,279	22,612	29,663	59,951	117,613	64,536	33,943	22,745,000
1902-05	10,000	3,535	3,951	4,279	4,279	27,577	24,135	73,505	86,838	54,182	53,072	22,244,000
1902-06	10,000	3,535	3,951	4,279	4,279	24,863	52,665	86,224	54,801	29,098	20,329	20,139,000
1902-07	10,000	3,535	3,951	4,279	4,279	22,835	21,669	26,759	36,429	23,577	16,232	11,511,000
1902-08	10,000	3,535	3,951	4,279	4,279	22,116	15,751	29,324	25,197	26,143	16,665	9,789,000
1902-09	10,000	3,535	3,951	4,279	4,279	15,320	66,267	51,923	62,199	24,193	16,839	10,745,000
1902-10	10,000	3,535	3,951	4,279	4,279	25,143	30,303	45,464	36,320	25,637	14,322	12,164,000
1902-11	10,000	3,535	3,951	4,279	4,279	16,982	28,054	42,672	31,508	26,423	19,444	11,244,000
1902-12	10,000	3,535	3,951	4,279	4,279	10,122	17,005	80,329	63,669	37,850	25,113	13,576,000
1903-01	10,000	3,535	3,951	4,279	4,279	11,385	35,674	36,151	37,450	31,413	21,353	12,030,000
1903-02	10,000	3,535	3,951	4,279	4,279	40,095	23,434	44,639	38,395	33,991	29,061	14,571,000
1903-03	10,000	3,535	3,951	4,279	4,279	20,597	19,377	19,647	34,662	20,362	45,324	13,524,000
1903-04	10,000	3,535	3,951	4,279	4,279	34,235	43,138	71,073	65,725	44,335	36,459	22,083,000
1903-05	10,000	3,535	3,951	4,279	4,279	27,914	30,393	67,555	79,513	35,429	19,806	20,341,000
1903-06	10,000	3,535	3,951	4,279	4,279	11,662	22,457	69,756	25,264	18,250	13,030	11,115,000
1903-07	10,000	3,535	3,951	4,279	4,279	17,249	21,418	38,584	37,634	26,654	16,169	9,223,000
1903-08	10,000	3,535	3,951	4,279	4,279	8,436	13,400	23,317	37,475	23,560	17,547	5,223,000
1903-09	10,000	3,535	3,951	4,279	4,279	16,322	33,434	70,824	39,517	24,292	20,633	14,144,000
1903-10	10,000	3,535	3,951	4,279	4,279	17,077	28,418	47,766	40,699	22,789	18,087	12,530,000
1903-11	10,000	3,535	3,951	4,279	4,279	17,905	32,713	47,766	27,535	19,683	15,622	11,530,000
1903-12	10,000	3,535	3,951	4,279	4,279	14,998	25,667	41,452	50,025	35,052	16,943	12,163,000
1904-01	10,000	3,535	3,951	4,279	4,279	27,534	26,577	40,026	22,608	14,369	14,101	11,471,000
1904-02	10,000	3,535	3,951	4,279	4,279	20,251	18,091	31,525	32,291	21,367	12,935	9,233,000
1904-03	10,000	3,535	3,951	4,279	4,279	16,773	16,178	33,032	46,504	20,983	14,127	10,253,000
1904-04	10,000	3,535	3,951	4,279	4,279	24,630	31,239	39,549	23,959	19,190	16,013	10,253,000
1904-05	10,000	3,535	3,951	4,279	4,279	13,830	17,060	19,300	23,109	17,603	15,013	8,013,000
1904-06	10,000	3,535	3,951	4,279	4,279	10,968	29,701	55,301	39,092	37,900	26,171	14,013,000
1904-07	10,000	3,535	3,951	4,279	4,279	42,438	25,443	39,027	50,304	28,797	16,178	14,102,000
1904-08	10,000	3,535	3,951	4,279	4,279	12,892	13,434	42,710	40,455	24,763	20,663	12,033,000
1904-09	10,000	3,535	3,951	4,279	4,279	6,064	17,552	55,024	39,715	34,516	16,783	10,743,000
1904-10	10,000	3,535	3,951	4,279	4,279	17,253	17,995	51,555	42,013	21,007	18,254	12,330,000
1904-11	10,000	3,535	3,951	4,279	4,279	31,949	39,197	46,913	39,154	23,705	19,911	14,347,000
1904-12	10,000	3,535	3,951	4,279	4,279	30,099	104,732	96,471	49,573	37,522	20,224	23,255,000
TOTALS	505,279	271,702	157,243	123,280	161,974	759,861	1,056,685	1,804,564	1,722,514	1,105,575	802,855	522,150,000
AVERAGES	13,659	7,343	4,250	3,331	3,165	20,537	28,633	49,050	46,565	29,820	21,902	14,123,000

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SASKATCHEWAN RIVER AT THE PAS - RECORDED FLOW (Sec. Ft.)

Date	Sea. Hgt.	Dis.	Chr.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total Inlet
1888-1889	20,200	8,250	5,120	5,650	6,100	25,600	50,000	54,500	67,800	53,300	38,000	21,715,000
1889-1890	21,400	7,700	5,500	5,500	6,500	24,200	53,800	50,400	60,400	58,100	44,300	23,297,000
1890-1891	18,000	6,000	5,000	5,000	4,500	25,000	44,400	45,100	58,400	40,400	25,200	16,222,000
1891-1892	20,700	6,900	4,900	5,150	5,300	24,600	25,100	44,900	79,200	55,900	69,400	23,593,000
1892-1893	20,100	7,000	5,300	4,270	5,150	33,700	13,900	61,300	93,600	68,800	59,400	26,567,000
1893-1894	19,100	20,600	6,200	5,210	6,150	17,900	68,200	80,700	84,700	56,500	31,500	27,220,000
1894-1895	21,900	7,100	4,300	5,170	6,310	39,400	29,800	32,700	49,900	61,800	29,400	17,125,000
1895-1896	20,800	5,300	4,700	4,550	4,850	16,200	22,800	29,700	20,800	26,800	23,500	12,271,000
1896-1897	21,300	2,120	2,920	2,610	2,920	4,580	60,200	70,500	65,000	52,900	27,200	12,322,000
1897-1898	18,200	8,260	6,210	4,900	3,470	9,260	51,600	59,700	57,200	40,200	29,600	19,613,000
1898-1899	21,200	6,260	6,210	4,900	4,670	15,200	44,600	50,600	49,200	38,100	34,500	17,480,000
1899-1900	21,200	4,300	4,300	4,120	3,950	12,200	31,400	46,900	80,400	64,700	43,700	20,213,000
1900-1901	22,500	5,220	3,440	3,250	3,980	6,150	33,500	34,500	43,700	33,300	29,500	13,610,000
1901-1902	20,500	6,300	4,810	4,080	4,380	24,600	43,500	46,300	54,900	59,800	42,500	17,559,000
1902-1903	18,300	2,100	6,260	5,450	7,600	19,400	35,300	24,600	34,700	25,600	34,500	15,053,000
1903-1904	25,300	7,950	7,600	5,850	9,790	17,400	52,200	64,300	75,900	69,800	53,200	27,073,000
1904-1905	27,500	14,200	10,700	7,650	9,200	26,900	51,700	45,800	77,100	65,700	51,100	25,309,000
1905-1906	24,700	3,530	2,970	2,500	3,170	11,800	28,300	45,000	40,200	48,700	14,200	11,237,000
1906-1907	24,500	2,260	1,930	1,900	2,480	16,400	26,000	34,000	41,700	28,700	18,700	11,624,000
1907-1908	12,200	3,670	3,670	2,600	4,520	32,000	15,600	17,800	30,900	28,800	22,700	10,623,000
1908-1909	17,500	6,410	6,020	5,950	5,200	18,000	50,300	53,700	53,400	37,200	28,300	17,443,000
1909-1910	18,400	5,080	5,080	7,120	8,280	21,900	56,500	50,100	56,800	35,500	23,200	16,231,000
1910-1911	18,600	6,790	6,790	7,510	7,510	19,000	37,300	38,200	48,900	44,200	22,300	16,453,000
1911-1912	26,600	10,400	3,600	3,200	3,220	15,400	56,400	44,800	30,900	18,700	17,200	19,660,000
1912-1913	21,700	4,630	2,920	2,920	2,250	17,900	22,500	22,100	32,900	25,100	13,700	13,627,000
1913-1914	20,500	3,500	3,500	2,400	3,300	42,500	23,000	35,100	48,000	31,600	22,500	14,240,000
1914-1915	19,500	3,700	2,900	2,400	2,600	45,100	24,300	34,500	50,200	26,500	16,300	13,604,000
1915-1916	20,700	3,900	3,400	2,500	2,700	25,800	44,200	24,300	24,300	21,300	14,700	11,931,000
1916-1917	20,500	4,050	3,650	2,500	2,670	21,900	13,700	12,700	19,100	16,600	11,600	8,056,000
1917-1918	26,600	8,200	3,900	2,600	2,600	19,000	57,600	40,500	57,600	52,200	33,300	14,587,000
1918-1919	23,200	6,330	4,750	4,750	3,210	36,400	48,200	35,600	50,200	38,400	22,300	17,233,000
1919-1920	23,200	3,390	3,390	4,150	3,520	21,200	17,500	31,100	52,000	35,600	27,500	13,551,000
1920-1921	23,200	4,500	3,400	3,500	4,710	18,100	29,100	42,600	45,500	30,900	20,100	14,091,000
1921-1922	23,200	4,600	3,400	5,770	4,900	34,400	25,300	34,400	45,100	29,400	20,100	14,564,000
1922-1923	23,200	5,750	5,750	6,120	5,120	29,900	51,500	48,900	46,800	30,500	23,900	16,570,000
1923-1924	22,700	9,690	9,210	7,470	6,360	11,700	79,600	100,700	78,600	51,400	32,700	25,665,000
1924-1925	22,700	178,680	178,680	161,950	177,920	818,490	1,469,600	1,633,100	1,991,200	1,529,400	1,065,600	697,667,000
1925-1926	20,300	6,200	4,820	4,377	4,508	22,121	39,724	44,272	53,816	41,325	29,367	17,919,000

SASKATCHEWAN RIVER AT THE PAS - RECONSTRUCTED NATURAL FLOW (sec. Fb.)

Year	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total for Year
1911-12	26,700	6,183	5,504	6,089	25,537	49,937	72,883	57,413	27,254	38,149	21,647,000
1912-13	32,261	5,277	5,308	6,387	33,963	53,509	50,308	58,532	57,996	44,927	23,154,000
1913-14	25,239	7,090	4,886	4,435	24,926	44,393	45,017	58,271	40,272	25,255	18,202,000
1914-15	20,963	8,331	5,347	5,337	24,314	25,038	44,839	79,041	94,250	65,456	23,509,000
1915-16	36,682	5,349	4,126	4,872	31,133	63,743	61,275	93,388	67,670	69,360	28,245,000
1916-17	50,133	9,683	5,102	5,927	17,814	63,517	80,517	83,533	50,358	32,664	27,103,000
1917-18	23,559	7,231	4,230	6,067	16,335	29,724	32,633	50,314	43,096	30,486	17,281,000
1918-19	23,742	5,350	4,464	4,200	18,152	22,684	22,684	22,684	25,840	24,793	12,596,000
1919-20	21,610	2,622	2,534	2,226	4,450	60,078	70,144	65,344	26,006	28,739	12,512,000
1920-21	19,531	5,672	2,702	3,257	8,985	61,793	59,511	58,477	42,916	31,434	16,429,000
1921-22	21,350	8,091	5,933	4,737	15,070	44,515	50,895	50,423	40,564	35,651	17,911,000
1922-23	23,673	6,028	4,031	3,608	12,988	41,297	48,054	80,426	85,727	45,093	20,479,000
1923-24	23,601	5,392	3,273	3,702	5,905	33,350	36,024	45,912	35,559	31,734	14,407,000
1924-25	18,555	6,141	4,360	4,145	4,129	43,257	46,849	56,844	41,353	44,033	15,250,000
1925-26	21,329	6,995	6,145	5,253	6,357	35,578	26,255	37,660	22,193	36,550	15,083,000
1926-27	25,893	7,716	5,454	5,327	17,157	63,117	63,432	75,006	69,817	54,156	20,985,000
1927-28	23,009	13,723	10,424	9,318	8,533	26,502	21,298	29,127	65,218	32,181	22,379,000
1928-29	15,900	1,661	2,359	2,923	11,499	28,311	44,739	40,594	21,422	15,347	12,043,000
1929-30	19,583	2,299	1,943	1,753	21,845	26,655	34,889	44,059	32,020	21,329	12,453,000
1930-31	13,372	4,439	3,405	2,521	16,337	15,297	20,917	40,203	31,712	25,153	11,390,000
1931-32	21,152	3,037	2,280	4,459	21,605	40,023	55,297	63,220	40,207	29,732	18,576,000
1932-33	19,335	6,287	5,477	5,128	17,768	50,013	53,573	56,152	25,770	27,181	17,945,000
1933-34	16,862	6,040	6,340	7,819	23,552	34,425	51,780	38,772	25,397	18,250,000	
1934-35	13,314	6,034	4,391	7,122	16,476	37,047	58,214	52,805	48,411	25,397	17,263,000
1935-36	16,005	4,918	3,238	2,710	23,278	30,752	46,422	33,712	22,403	19,614	13,793,000
1936-37	6,724	2,850	1,547	1,342	17,170	22,452	23,096	30,247	29,493	16,316	10,479,000
1937-38	9,350	3,362	3,425	2,191	23,937	24,084	23,299	21,225	35,437	28,219	15,054,000
1938-39	17,082	2,939	2,487	2,119	23,170	54,838	24,248	27,315	34,434	18,053	24,357,000
1939-40	12,566	4,003	2,964	2,091	23,493	44,248	39,041	28,567	25,176	17,086	12,753,000
1940-41	15,970	4,142	3,361	2,759	23,302	13,727	15,790	23,158	20,632	17,693	9,035,000
1941-42	20,526	2,973	4,732	4,077	14,740	35,777	48,161	60,112	57,311	26,621	15,836,000
1942-43	24,173	6,040	1,931	1,777	4,606	24,319	36,673	53,627	43,837	25,974	18,267,000
1943-44	17,681	3,605	3,109	2,842	20,319	10,661	34,981	56,377	42,619	30,940	14,307,000
1944-45	17,921	6,455	2,627	3,574	17,480	28,433	45,497	52,376	34,597	23,842	14,220,000
1945-46	21,482	6,361	5,445	5,963	24,752	16,917	16,917	51,979	33,261	23,515	15,826,000
1946-47	10,117	3,727	4,586	5,302	23,191	50,397	48,932	50,023	34,671	27,622	16,314,000
1947-48	24,826	9,582	8,610	6,542	10,636	78,644	99,270	81,337	52,143	33,444	29,353,000
TOTAL	817,764	485,716	222,232	166,513	142,920	1,484,648	1,479,231	2,060,801	2,621,098	1,162,558	655,503,000
Average	22,101	13,805	11,004	8,004	4,025	41,251	45,185	55,697	43,812	31,490	17,740,000

1947-48

WESTERN IRRIGATION DISTRICT

742

Year	Irr. Area	Diverted Cusecs	CONSUMPTIVELY USED				Returns 2 - 6	% Return 2 - 6
			1. 25 A	25% 2	Stock Water	Total 3-4-5		
	1	2	3	4	5	6	7	8
1908		43,960		10,000		10,000	33,900	77.0
1909		56,570		10,000		10,000	46,570	82.0
1910		99,346		15,000		15,000	84,346	84.8
1911	500	62,701	630	15,000		15,600	47,100	75.0
1912	500	58,625	630	15,000		15,600	43,000	73.0
1913	2,600	67,175	3,200	15,000		18,000	49,200	73.0
1914	8,438	99,518	10,600	20,000		30,000	69,500	70.0
1915	512	69,312	640	20,000		20,000	49,300	71.0
1916	659	49,726	1,070	12,450	10,000	23,520	26,200	52.7
1917	3,657	78,227	4,570	19,550	"	34,100	44,100	56.3
1918	25,191	159,756	31,450	40,000	"	81,450	78,300	49.0
1919	32,908	145,435	39,900	36,400	"	86,300	59,100	40.7
1920	4,083	93,582	9,100	23,400	"	38,500	55,080	58.8
1921	33,619	191,315	42,050	47,800	"	99,850	91,500	47.3
1922	49,752	226,609	62,200	56,600	"	128,800	97,800	43.2
1923	3,074	80,585	3,840	21,200	"	35,000	45,500	56.5
1924	24,297	146,278	30,600	35,600	"	77,000	69,300	47.7
1925	5,384	100,830	6,720	25,200	"	41,900	56,900	58.5
1926	19,561	125,175	26,400	31,400	"	65,800	59,400	47.4
1927	1,273	50,848	1,600	12,700	"	24,300	23,550	52.1
1928	3,892	80,700	4,860	20,200	"	35,060	45,650	56.6
1929	37,395	182,000	45,700	45,500	"	102,200	79,800	43.8
1930	41,570	208,000	52,000	52,000	"	114,000	94,000	40.1
1931	47,593	174,000	59,500	43,500	"	113,000	61,000	35.1
1932	8,688	104,000	10,850	26,000	"	45,850	57,150	55.0
1933	40,812	184,000	51,000	46,000	"	107,000	77,000	41.8
1934	31,131	199,000	38,900	49,700	"	98,600	100,400	50.5
1935	19,109	131,500	23,900	32,900	"	66,800	64,700	49.2
1936	44,514	196,500	55,800	48,600	"	114,400	80,100	41.2
1937	50,866	216,400	63,500	54,100	"	127,600	82,300	41.0
1938	35,755	171,800	44,650	42,900	"	97,600	74,200	43.2
1939	11,647	155,500	14,550	39,100	"	63,650	92,850	59.5
1940	20,134	137,800	25,200	34,400	"	69,600	68,200	49.5
1941	21,144	148,800	26,400	37,200	"	73,600	75,200	50.6
1942	9,194	116,600	11,500	29,200	"	50,700	65,900	56.5
1943	7,656	136,000	9,580	34,000	"	53,600	82,400	60.5
1944	20,000	150,200	25,000	37,500	"	72,500	77,700	51.2
1945	20,800	124,500	25,000	31,100	"	66,100	58,400	45.9
1946	19,000	139,400	23,750	34,800	"	63,550	70,650	50.8
1947	20,000	137,500	25,000	34,500	"	69,500	68,400	49.5
1948	12,000	95,080	15,000	23,900	"	48,900	46,180	43.0

EASTERN IRRIGATION DISTRICT

Year	Acre Feet	Diverted Water		Consumptive Use	Return Flow ± - 8	Return % / %	θ / 1
		Branch	Branch				
1924	7,806	15,040	53,510	10,500	39,700	50.0	12.1
1925	7,000	15,000	122,600	10,500	50,900	53.0	5.1
1926	7,502	10,000	58,910	2,100	27,600	60.0	7.5
1927	8,000	14,950	98,000	10,000	51,000	54.6	12.3
1928	21,640	30,000	152,800	34,000	102,200	50.0	5.7
1929	27,630	30,000	194,500	60,100	116,600	52.1	4.4
1930	60,700	60,000	171,600	50,000	48,000	32.6	2.7
1931	52,700	60,000	311,000	125,700	241,700	52.6	2.7
1932	45,400	45,000	254,620	60,000	146,100	42.3	2.5
1933	64,900	21,600	207,700	118,000	203,000	41.8	3.4
1934	57,000	47,642	408,175	107,000	150,900	33.0	3.2
1935	72,990	42,600	309,500	107,000	204,900	53.0	2.2
1936	78,400	50,600	301,000	106,000	220,000	42.7	3.0
1937	7,000	15,000	189,000	11,100	35,100	50.0	10.7
1938	15,977	24,000	280,000	94,000	156,500	43.1	3.4
1939	28,610	52,000	406,000	110,000	201,200	45.0	2.9
1940	30,215	50,700	489,000	126,000	241,700	44.6	3.2
1941	60,724	60,000	400,000	137,000	201,000	41.5	3.1
1942	60,550	60,000	479,000	143,700	280,500	41.5	5.1
1943	66,020	60,000	507,000	143,600	288,000	40.0	5.0
1944	134,666	60,000	560,000	142,000	304,000	40.0	5.0
1945	166,000	60,000	607,000	142,000	318,000	33.0	2.9
1946	114,851	60,000	407,000	159,400	174,500	33.0	2.0
1947	150,640	60,000	548,000	174,500	171,000	23.0	2.7
1948	173,000	60,000	617,000	198,000	149,000	21.0	2.6
1949	141,000	60,000	503,000	194,000	159,000	25.4	2.6
1950	136,468	60,000	507,000	194,000	159,000	23.0	2.8
1951	150,500	60,000	507,000	230,000	197,000	21.0	4.3
1952	169,450	60,000	513,000	230,000	403,000	21.0	2.4
1953	166,799	60,000	480,000	234,000	70,000	17.0	2.3
1954	150,000	60,000	419,000	233,000	85,740	13.4	2.1
1955	157,100	75,000	541,200	222,900	165,000	23.1	2.6
1956	156,500	200,000	500,000	222,900	165,000	23.1	2.6
1957	156,500	200,000	500,000	222,900	165,000	23.1	2.6

CANADA LAND AND IRRIGATION COMPANY

Year	IRRIGATION AREA		Indian Dist.	Above L. McGregor	Seepage Above L. McGregor	Total A + B + C	Return Flow	Used	Return %
	1	2							
1916									
1917	4,240			12,593	9,500	23,000	-	23,000	-
1918	9,407			62,170	12,000	94,000	-	94,000	-
1919	7,505			60,797	12,000	72,800	9,000	63,800	12.5%
1920	11,245			91,905	"	104,000	"	92,800	8.7
1921	9,720			56,116	"	65,800	"	57,100	13.6
1922	12,174	3,078		33,348	"	45,500	"	36,300	19.2
1923	10,709	3,078		43,642	"	57,400	"	48,600	15.6
1924	10,709	3,078		71					
1925	15,735	3,156		53,800	12,000	65,800	9,000	56,800	17.7
1926	24,910	2,125		12,100	6,000	18,100	4,500	13,600	24.6
1927	27,302	3,350		43,000	12,000	57,000	9,000	48,000	15.8
1928	26,847	3,156		72,300	"	86,300	"	75,300	10.7
1929	24,254	2,125		89,500	"	98,500	"	89,500	9.1
1930	20,749	1,168		97,400	"	111,400	"	102,400	8.1
1931	20,489	1,732		63,800	"	75,900	"	66,900	11.6
1932	22,094	2,207		58,250	"	70,200	"	61,200	12.8
1933	22,094	2,207		117,400	"	123,400	"	114,400	7.2
1934	22,094	2,207		67,410	"	79,400	"	70,400	12.3
1935	22,094	2,207		57,470	"	69,500	"	60,500	12.9
1936	22,094	2,207		91,070	"	103,100	"	94,100	9.7
1937	22,094	2,207		101,210	"	113,200	"	104,200	9.7
1938	22,094	2,207		69,930	"	81,900	"	72,900	14.5
1939	22,094	2,207		63,130	"	75,100	"	66,100	15.0
1940	22,094	2,207		103,866	"	117,900	"	108,900	12.5
1941	22,094	2,207		58,775	"	71,800	"	62,800	9.0
1942	22,094	2,207	2,400	85,890	"	100,300	"	91,300	8.1
1943	22,094	2,207	2,400	96,238	"	110,600	"	101,600	9.0
1944	22,094	2,207	2,400	83,090	"	100,300	"	91,300	9.0
1945	22,094	2,207	2,400	84,200	"	100,300	"	91,300	9.0
1946	22,094	2,207	2,400	60,640	"	75,000	"	66,000	13.0
1947	22,094	2,207	2,400	42,940	"	57,300	"	48,300	19.8
1948	22,094	2,207	2,400	109,520	"	123,500	"	114,500	7.3

LEWISBURGH-NORTHERN IRRIGATION PROJECT
Historical Diversions - 1923 to 1948

Year	Acres Irrigated	Diverted from River	Monarch Canal	Below Weho	Total	Lost	Seep. & Evap. 10%	Return flow			Total	% re-turn	Use
								(1)-(2)	(3)-(7)	(8)			
1923	5,953	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1924	4,941	21,224	16,200	11,000	17,200	4,300	2,200	21,100	600	3,200	3,200	15.4	18,224
1925	5,528	114,817	52,200	56,000	90,800	24,000	11,500	12,500	3,200	2,900	15,600	16.2	96,210
1926	5,388	121,770	27,000	47,200	75,170	26,600	10,200	10,400	2,700	2,600	21,500	21.1	80,370
1927	5,012	99,850	31,170	34,170	55,350	14,500	10,000	4,500	3,100	2,700	19,900	10.3	39,500
1928	5,012	40,920	27,880	17,200	27,020	19,630	6,750	13,100	1,000	800	16,500	35.9	30,600
1929	5,012	61,500	38,500	32,200	50,560	20,640	6,200	4,400	1,500	1,600	7,900	12.8	53,600
1930	5,012	92,200	35,480	61,700	97,380	4,980	9,300	14,200	3,500	3,100	6,600	7.2	55,600
1931	5,012	122,960	38,320	66,610	104,920	48,000	15,300	18,500	3,800	3,500	25,000	17.0	128,960
1932	5,012	(152,000)	(44,500)	75,070	122,970	30,000	15,300	14,700	4,500	3,900	23,100	15.1	129,900
1933	5,012	87,000	25,700	44,260	70,020	27,000	9,200	17,500	4,200	3,200	22,100	22.8	76,900
1934	5,012	122,600	42,290	64,170	106,480	16,000	12,200	3,800	4,200	3,200	11,200	9.2	111,400
1935	5,012	109,600	35,110	60,500	99,570	14,200	11,800	3,200	3,500	3,000	9,700	8.8	102,100
1936	5,012	119,970	45,170	62,210	107,500	12,600	12,000	5,200	4,500	3,100	8,200	6.8	111,700
1937	5,012	132,000	39,320	53,130	92,450	22,500	11,500	11,000	3,500	2,600	17,500	13.5	97,500
1938	5,012	168,930	35,260	68,360	107,030	39,500	16,700	43,200	3,600	3,500	50,200	30.1	119,800
1939	5,012	117,990	37,500	68,360	109,240	11,200	11,700	6,500	2,800	2,400	7,200	6.1	113,000
1940	5,012	139,790	35,060	58,250	96,000	38,700	13,200	24,900	3,500	2,900	31,300	23.5	101,400
1941	5,012	135,790	35,320	54,210	90,430	45,300	13,500	31,700	2,500	2,800	35,000	26.0	97,700
1942	5,012	132,600	35,370	60,020	93,350	19,200	11,400	7,500	3,500	3,000	14,200	12.3	98,400
1943	5,012	57,030	40,070	50,740	65,810	10,200	5,700	6,200	1,000	1,800	7,200	12.8	49,700
1944	5,012	135,500	26,960	78,580	125,920	9,400	13,500	4,100	4,700	4,300	9,700	6.7	125,800
1945	5,012	169,500	39,300	77,750	117,130	29,500	14,700	10,700	3,500	3,500	18,500	12.5	126,100
1946	5,012	111,300	28,390	54,490	83,750	27,500	11,100	16,400	2,900	2,700	22,000	19.0	89,300
1947	5,012	122,000	30,200	67,820	95,800	26,200	12,200	-16,000	3,000	3,400	20,300	16.6	101,500
1948	5,012	63,970	25,940	50,450	77,600	6,200	8,600	6,200	2,700	2,500	5,200	5.2	70,100
1949	5,012	58,120	23,710	21,630	42,300	32,700	9,600	60,750	2,400	1,150	75,200	45.0	94,500
TOTAL		2,826,100	810,000	1,410,300	2,226,600	601,200	283,000	313,500	51,000	46,000	3,100	16.6	

TABLE 5

ST. MARI-MILK RIVER DEVELOPMENT

Year	Land Area	Acreage in Variation	Imprmt. Version	Main Canal Reverb. Cap. (Million)	Loss to Mangroves 3-4-5	Assump. to Mangroves 1000 Acre	Cost to River 1000 Acre	Return Flow 1000 Acre	Total Return Flow 8+9	Consump. Used 7-10	Use Per Acre (Daily) 11+2	Return Flow 10+3
1911	67,200	117,950	-	74,000	22,950	11,795	12,150	9,400	21,500	96,290	2.07	18.3
1912	70,200	124,350	-	74,800	19,500	10,425	11,720	8,500	17,570	86,730	1.14	18.6
1913	70,200	131,470	-	75,000	24,470	11,747	12,520	9,500	20,020	97,452	1.23	18.4
1914	70,200	170,540	-	126,000	44,540	17,056	23,490	12,500	38,490	134,250	1.74	20.4
1915	70,200	33,350	-	70,800	14,350	7,175	4,000	7,100	11,160	176,020	0.93	13.4
1916	71,200	68,560	-	58,500	10,060	5,032	3,520	3,600	9,640	59,380	0.84	13.7
1917	73,200	157,200	-	118,000	39,200	19,600	6,520	8,200	16,720	83,670	0.51	15.0
1918	122,500	154,710	-	118,000	36,710	18,355	21,440	11,500	33,040	121,570	1.19	21.4
1919	114,500	165,970	-	120,270	45,700	22,850	11,152	12,000	23,150	144,820	1.06	19.8
1920	122,500	182,720	-	128,900	53,820	26,910	36,290	12,900	51,190	134,530	1.24	17.5
1921	130,600	222,640	-	186,310	36,330	22,260	16,070	18,500	32,570	189,970	2.21	17.7
1922	130,600	173,800	-	132,320	41,480	20,740	28,050	13,200	41,250	136,830	1.54	21.2
1923	70,950	191,000	-	127,010	73,990	36,995	34,890	11,700	66,590	124,410	1.64	19.9
1924	64,750	145,240	-	145,240	30,000	15,000	17,500	14,900	32,450	152,860	1.50	17.5
1925	53,510	101,420	-	144,350	37,000	18,500	18,920	16,400	33,320	145,090	1.56	18.4
1926	43,780	160,800	1,000	135,900	30,900	15,450	14,000	12,500	29,980	133,100	1.42	16.8
1927	43,780	123,000	1,510	58,400	32,690	16,300	20,390	8,800	29,190	93,520	4.23	23.7
1928	41,340	109,600	4,170	82,900	18,930	10,200	8,350	8,300	16,630	89,370	2.50	15.7
1929	40,600	102,000	5,390	77,500	16,510	8,250	8,610	7,750	16,350	85,840	1.84	16.0
1930	41,400	151,000	7,270	114,000	17,720	15,800	2,930	13,200	16,120	141,370	1.45	10.2
1931	102,400	191,000	10,500	170,000	20,610	19,100	10,060	13,000	27,060	174,000	1.73	16.1
1932	102,400	164,980	7,520	139,000	26,480	16,400	10,060	13,000	23,060	160,920	1.41	14.1
1933	106,550	132,920	11,100	144,000	26,900	16,300	7,500	14,400	22,000	161,050	1.34	12.0
1934	105,450	104,000	11,210	144,000	10,790	10,400	710	14,200	14,310	149,600	1.42	16.7
1935	113,470	105,420	14,230	125,000	17,350	15,500	15,130	13,900	16,030	151,090	1.62	17.4
1936	111,150	145,700	11,190	139,500	30,100	14,970	15,130	15,900	28,030	123,070	1.11	17.4
1937	113,470	191,300	10,800	155,900	21,600	18,130	2,170	15,900	18,170	173,130	1.52	16.5
1938	112,500	195,000	10,470	159,000	15,070	18,500	13,950	15,900	15,900	155,100	1.15	16.0
1939	112,500	324,180	10,110	114,100	29,190	15,230	13,550	14,200	26,180	126,920	1.15	16.0
1940	115,100	175,700	10,050	147,500	18,220	17,570	550	14,700	15,450	160,450	1.25	18.7
1941	115,100	175,000	8,220	147,500	18,500	17,000	22,500	16,200	19,700	142,800	1.40	19.2
1942	112,100	146,400	8,670	130,800	37,130	14,000	15,000	16,500	31,100	160,600	1.47	18.0
1943	112,100	173,220	10,320	124,500	37,720	17,350	15,000	12,500	27,500	162,500	1.48	18.0
1944	112,100	173,220	10,320	124,500	37,720	17,350	15,000	12,500	27,500	162,500	1.48	18.0

TABLE 17

UNITED IRRIGATION DISTRICT

Year	Acres Irrigated	Actual Diversion	Russell's Method				Return 2-5	% Return 0-2	* (20% cost from actual diversion)
			Gross Return \$/A	Gross Return \$/A	Consump. Use.	Return 2-5			
			3	4	5	6	7		
			0.5						
1924	5,264	10,720	9,660	2,460	7,400	11,380	60.6		
1925	10,000*	25,070	16,750	4,300	14,000	11,570	45.5		
1926	10,836	24,700	20,300	5,370	15,200	9,500	38.5		
1927	41	11,400			2,200	2,120	79.7		
1928	2,776	11,900	4,820	1,210	3,600	8,300	69.7		
1929	3,102	15,000	5,820	1,660	4,400	10,600	70.8		
1930	5,847	24,000	11,000	2,750	8,200	15,800	65.8		
1931	12,983	-	24,370	6,060	18,200	-	-		
1932	11,500	-	21,520	5,320	16,100	-	-		
1933	10,500	-	19,700	4,920	14,700	-	-		
1934	10,000	-	18,750	4,680	14,000	-	-		
1935	12,000	-	22,500	5,620	16,800	-	-		
1936	16,000	-	33,750	8,420	25,200	-	-		
1937	17,500	-	34,800	8,200	24,500	-	-		
1938	10,000	-	18,750	4,680	14,000	-	-		
1939	10,000	-	18,750	4,680	14,000	-	-		
1940	10,500	-	20,620	5,100	15,400	-	-		
1941	11,000	-	22,500	5,620	16,800	-	-		
1942	12,000	-	26,220	6,500	19,500	-	-		
1943	14,000	-	24,370	6,060	18,200	-	-		
1944	13,000	-	24,370	6,060	18,200	-	-		
1945	13,000	-	24,370	6,060	18,200	-	-		
1946	7,436	29,360	13,860	3,500	10,500	18,860	64.3		
1947	7,436	29,440	13,800	3,500	10,500	18,940	64.3		
1948	2,970	15,450	5,570	1,350	4,200	11,250	72.5		

MOUNTAIN VIEW IRRIGATION DISTRICT
(M.V.I.D., M.I.D., and A.I.D.)

Year	M.V.I.D.		M.I.D.		A.I.D.		Total		Return 4-8	Return 9-10
	1	2	3	4	5	6	7	8		
1931	300	-	300	-	375	520	155	365	400	9.9
1932	800	-	800	-	1,000	1,390	415	975	2,250	39.0
1933	1,168	-	1,168	-	1,460	2,030	610	1,420	4,670	52.4
1934	1,950	-	1,950	-	2,440	3,380	1,015	2,365	1,330	26.9
1935	3,000	-	3,000	4,050	3,750	5,230	1,560	3,650	3,210	45.2
1936	2,500	-	2,500	5,770	3,620	5,080	1,510	3,520	6,560	64.2
1937	3,500	-	3,500	8,920	4,370	6,080	1,830	4,250	3,310	45.3
1938	3,500	-	3,500	9,580	4,370	6,080	1,830	3,890	4,010	-
1939	3,200	-	3,200	7,100	4,000	5,550	1,530	3,650	4,130	-
1940	3,000	-	3,000	10,210	3,750	5,210	1,720	4,010	2,860	34.2
1941	3,300	-	3,300	7,520	4,150	5,730	1,770	3,760	3,870	65.0
1942	3,800	-	3,800	0	4,250	5,900	1,690	4,770	5,620	10.6
1943	3,254	-	3,254	6,020	4,000	5,650	2,040	5,220	5,000	33.4
1944	3,400	526	3,926	13,640	4,300	6,810	2,240	5,600	2,810	-
1945	3,300	1,000	4,300	5,840	3,390	7,460	2,390	5,600	3,320	-
1946	3,300	1,300	4,600	4,600	5,770	7,590	2,590	5,600	2,810	-
1947	3,300	1,300	4,600	8,410	5,770	7,590	2,590	5,600	3,320	-
1948	3,700	1,500	5,200	2,760	6,500	9,030	2,710	6,320	-	-

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1011-24	3,000	5,873			20	39	15				116			20	200	7,733	112	7,621	
1012-24	3,080	3,047				-127					3				-124	5,603	186	5,479	
1013-24	3,000	2,447				-351									-351	2,724	95	2,629	
1014-24	3,000	2,517				-48									-48	1,947	64	1,883	
1015-24	3,000	2,475				-14									-14	1,967	53	1,914	
1016-24	3,000	2,422				18									18	1,987	62	1,925	
1017-24	3,000	2,175		58	10	53	25				40			30	152	4,373	160	4,213	
1018-24	3,000	2,175		17	100	413	50	7			331			65	800	17,462	949	16,513	
1019-24	3,000	2,175			150	55	150	56			482			200	653	24,704	992	23,712	
1020-24	3,000	2,175			200	-55	100	153			515			130	410	17,577	543	17,034	
1021-24	3,000	2,175			100	-493	100	103			266			230	247	8,567	253	8,314	
1022-24	3,000	2,175			100	-454	50	133			285			65	289	6,535	253	6,282	
1023-24	3,000	2,175			100	-45	50												
1024-24	3,000	2,175			20	-70	25	164			157			30	306	9,811	289	9,522	
1025-24	3,000	2,175				-52		21							-17	6,569	111	6,458	
1026-24	3,000	2,175				-26									-24	2,597	111	2,486	
1027-24	3,000	2,175				-29									-29	2,501	84	2,417	
1028-24	3,000	2,175				-165									-165	2,052	50	1,887	
1029-24	3,000	2,175				-207									-207	7,145	76	6,869	
1030-24	3,000	2,175			10	-4	17	37			22			30	102	7,650	116	7,534	
1031-24	3,000	2,175			100	200	33	49			160			65	595	25,593	659	24,938	
1032-24	3,000	2,175			150	193	100	44			262			200	500	43,324	695	42,629	
1033-24	3,000	2,175			200	-285	67	52			281			130	345	33,053	695	32,358	
1034-24	3,000	2,175			100	30	67	57			200			130	484	37,457	210	37,247	
1035-24	3,000	2,175			110	150	33	233			155			65	637	14,050	255	13,795	
1036-24	3,000	2,175			20	65	17	252			96			30	450	11,194	142	10,952	
1037-24	3,000	2,175				-39		21			2			94	94	1,121	142	1,027	
1038-24	3,000	2,175				-26								50	50	3,043	203	2,840	
1039-24	3,000	2,175				-147								-52	-52	2,110	203	1,958	
1040-24	3,000	2,175				-210								-50	-50	1,930	199	1,731	
1041-24	3,000	2,175				-319								-319	-319	7,646	146	7,490	
1042-24	3,000	2,175			10	-66	29	25			16			65	602	10,719	146	10,573	
1043-24	3,000	2,175			100	283	65	26			149			200	933	15,130	146	14,984	
1044-24	3,000	2,175			100	492	55	37			217			130	483	22,257	146	21,774	
1045-24	3,000	2,175			100	492	55	37			217			130	483	22,257	146	21,774	
1046-24	3,000	2,175			100	492	55	37			217			130	483	22,257	146	21,774	
1047-24	3,000	2,175			100	492	55	37			217			130	483	22,257	146	21,774	
1048-24	3,000	2,175			100	492	55	37			217			130	483	22,257	146	21,774	
1049-24	3,000	2,175			100	492	55	37			217			130	483	22,257	146	21,774	
1050-24	3,000	2,175			100	492	55	37			217			130	483	22,257	146	21,774	

TABLE NO. 15

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1000	2,175	20	35	7,508	513	45	71	45	-513					30	-367		12,331	98	17,233
1001	2,200		8	5,581	-190	35	2	35	-229						-125		7,644	162	17,232
1002	2,250			2,250	-229				-229						-225		4,059	110	2,250
1003	2,250			2,250	-216				-216						-216		2,515	87	2,250
1004	2,250			2,250	-100				-100						-100		3,570	65	2,250
1005	2,250			2,250	-20				-20						-20		3,580	66	2,250
1006	2,250			2,250	-21				-21						-21		3,580	66	2,250
1007	2,250	10	949	3,209	512	30	25	30	512					30	860	1	14,813	116	2,250
1008	2,250	100	1,323	3,573	103	65	208	65	103					65	721	5	16,350	116	2,250
1009	2,250	150	1,451	3,701	178	59	303	59	178					200	721	-4	16,350	116	2,250
1010	2,250	220	1,579	3,829	178	114	322	114	178					130	869	213	17,887	116	2,250
1011	2,250	190	1,707	4,057	105	175	231	175	105					130	869	262	19,424	116	2,250
1012	2,250	110	1,835	4,185	21	120	179	120	21					65	473	97	20,961	116	2,250
1013	2,250			2,250	9				9					30	237		6,606	95	2,250
1014	2,250			2,250	-48				-48					30	165		4,364	124	2,250
1015	2,250			2,250	-135				-135						-76		1,456	84	2,250
1016	2,250			2,250	-326				-326						-221		3,283	92	2,250
1017	2,250			2,250	-150				-150						-131		8,990	91	2,250
1018	2,250			2,250	-19				-19						26		5,490	165	2,250
1019	2,250			2,250	28				28					30	119		13,048	777	2,250
1020	2,250	10	309	3,559	168	22	27	22	168					30	698	12	13,048	165	2,250
1021	2,250	100	395	4,444	265	73	304	73	265					65	698	272	13,048	165	2,250
1022	2,250	150	50	2,300	316	199	444	199	316					200	1,428	393	13,048	165	2,250
1023	2,250	220	17	2,417	137	366	474	366	137					130	1,525	393	13,048	165	2,250
1024	2,250	190	13	2,434	418	319	338	319	418					130	1,525	254	13,048	165	2,250
1025	2,250	110	2	2,552	-21	382	263	382	-21					65	1,935	30	6,613	123	2,250
1026	2,250			2,250	32				32					30	449	-5	5,438	97	2,250
1027	2,250			2,250	-2				-2					30	449		3,246	129	2,250
1028	2,250			2,250	-21				-21						-213		2,090	81	2,250
1029	2,250			2,250	-325				-325						-325		1,819	753	2,250
1030	2,250			2,250	-94				-94						-94		1,819	63	2,250
1031	2,250			2,250	-4				-4						-4		1,819	61	2,250
1032	2,250			2,250	-264				-264						-205		1,819	65	2,250
1033	2,250	10	89	3,139	274	89	250	89	274					30	736	74	16,691	824	2,250
1034	2,250	100	400	3,639	566	400	640	400	566					65	736	300	19,424	824	2,250
1035	2,250	150	540	4,139	229	319	835	319	229					200	2,125	726	19,424	824	2,250
1036	2,250	220	680	4,819	229	319	835	319	229					130	2,233	270	21,157	824	2,250
1037	2,250	190	224	5,043	-22	346	328	346	-22					130	1,010	182	21,157	824	2,250
1038	2,250	110	154	5,197	-20	213	207	213	-20					65	1,613	181	21,157	824	2,250

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1001-20	2,314	2,314						119						30	147	44	3,098	47	2,051
201	1,992	1,992													-214		3,131	83	2,165
301	1,992	1,992													-194		2,072	90	1,962
401	1,992	1,992													-165		1,793	91	1,702
501	1,992	1,992													-80		2,366	114	2,282
601	1,992	1,992													-2		5,222	129	5,053
701	1,992	1,992													-15		16,292	107	16,185
801	1,992	1,992													181	156	33,467	693	33,774
901	1,992	1,992													1,843	295	26,745	1,400	26,346
1002-20	1,992	1,992													1,659	556	21,004	1,011	20,992
201	1,992	1,992													1,645	127	12,548	233	2,315
301	1,992	1,992													1,517	-43	6,095	143	5,952
401	1,992	1,992																	
501	1,992	1,992																	
601	1,992	1,992																	
701	1,992	1,992																	
801	1,992	1,992																	
901	1,992	1,992																	
1003-20	2,914	2,914													763	-60	5,478	139	5,339
201	2,607	2,607													-54		3,173	143	3,030
301	2,607	2,607													-118		2,233	110	2,123
401	2,607	2,607													-160		1,589	74	1,515
501	2,607	2,607													-96		2,316	87	2,220
601	2,607	2,607													-91		2,084	104	2,000
701	2,607	2,607													254		11,200	161	11,039
801	2,607	2,607													858	118	18,758	1,185	17,573
901	2,607	2,607													2,511	454	28,662	1,737	28,408
1004-20	2,914	2,914													2,906	547	16,200	211	15,293
201	2,607	2,607													2,143	102	9,156	211	8,945
301	2,607	2,607													1,704	-50	4,808	104	4,704
401	2,607	2,607																	
501	2,607	2,607																	
601	2,607	2,607																	
701	2,607	2,607																	
801	2,607	2,607																	
901	2,607	2,607																	
1005-20	2,914	2,914													1,167	-383	3,944	126	3,828
201	2,607	2,607													-17		2,603	179	2,424
301	2,607	2,607													-117	-66	2,069	122	1,947
401	2,607	2,607													-73	-6	1,880	64	1,816
501	2,607	2,607													-109	0	1,325	70	1,255
601	2,607	2,607													-79	0	2,139	51	2,060
701	2,607	2,607													-9	0	7,350	70	7,341
801	2,607	2,607													1,052	223	17,524	900	16,524
901	2,607	2,607													2,708	265	27,933	1,750	27,183
1006-20	2,914	2,914													2,598	528	14,960	1,652	14,308
201	2,607	2,607													1,962	59	9,618	190	9,428
301	2,607	2,607																	
401	2,607	2,607																	
501	2,607	2,607																	
601	2,607	2,607																	
701	2,607	2,607																	
801	2,607	2,607																	
901	2,607	2,607																	

TABLE NO. 14

	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
100	20	30	13	18	7	16	26	100	1	30	201	-103	3,913	102	9,811	
101			10								10	20	20	20	102	
102			-55								-55	64	64	64	103	
103			-225								-125	18	18	18	104	
104			-179								-179	15	15	15	105	
105			-189								-189	30	30	30	106	
106			20	3			20	135	17	30	274	233	2,926	220	9,100	
107			90	202		49	144	697	34	65	1,640	493	9,713	405	9,324	
108			307	275		480	415	875	51	200	2,949	303	15,527	300	9,355	
109			29	330		1,031	385	419	78	130	2,586	295	12,414	251	10,161	
110			286	185		579	289	269	45	65	2,150	191	7,332	101	7,231	
111			-575	87		515	171	398	12		835	177	24,905	211	24,694	
112			-7		5		48	45	13	30	132	1253	15,357	510	15,147	
113			-44								-44	47	47	47	110	
114			97								97	5	5	5	111	
115			-261								-261	48	48	48	112	
116			-204								-204	34	34	34	113	
117			-176								-176	10	10	10	114	
118			-138								-138	123	123	123	115	
119			-10	14			10	154	3	30	-98	125	16,366	205	16,170	
120			539	79		67	35	333	10	65	325	-15	25,345	100	25,100	
121			401	87		233	39	157	10	200	1,186	230	53,136	100	53,036	
122			77	114		401	125	401	10	130	1,794	452	21,010	100	20,910	
123			26	105		286	52	293	19	65	1,232	234	20,270	100	19,170	
124			34	1			92	138	5	30	475	-17	12,282	405	12,077	
125			1		6						39	-103	6,826	225	6,601	
126			-70								-70	100	4,227	100	4,127	
127			-217								-217	51	7,615	100	7,400	
128			-131								-131	50	6,323	100	6,223	
129			-208								-208	13	13,162	100	12,954	
130			-105								-105	9	11,512	100	11,407	
131			241	138		424	140	288	9	30	1,476	125	23,111	100	22,906	
132			708	132		173	319	308	9	65	2,660	670	67,040	100	66,370	
133			-552	75		173	28	124	7	200	437	354	40,405	100	39,951	
134			67	102		11	122	267	15	130	1,183	126	12,627	100	12,401	
135			1	132		174	91	399	1	65	1,207	33	8,866	100	8,636	

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1000000	1,170	5,030	3	20	6	38	13	197	137	36	7		30	474	-105	7,737	282	7,475
1000000	759	2,530			-38			9						-29		4,624	224	4,400
1000000	100	1,300			-72									-72		2,234	113	2,121
1000000	250	1,720			-132									-132		2,010	61	1,878
1000000	127	1,350			-155									-155		1,193	55	1,138
1000000	625	4,250	135	10	-206									-206		4,044	98	3,846
1000000	1,200	2,300	137	10	-85	20	63	37	1		2		30	98	22	4,847	79	4,768
1000000	2,700	13,700	58	100	1,211	142	350	283	63	218	6		65	2,344	267	18,929	752	18,177
1000000	5,470	24,570	10	130	-490	263	858	24	140	55	20		200	1,957	419	40,203	1,112	39,291
1000000	2,300	6,300	1	220	11	595	1,106	159	313	404	27		130	2,744	143	10,283	470	10,813
1000000	1,550	2,600	1	190	-147	131	1,018	220	329	320	6		130	2,003	108	6,471	1,124	6,347
1000000	2,100	1,570	1	110	-175	280	673	254	278	215	10		65	1,597	49	4,847	75	4,772
1000000																		
1000000	367	530	2	20	518	38	414	252	257	179	1		30	1,689	61	3,575	72	3,503
1000000	309	1,710			30			50						101	19	2,339	81	2,258
1000000	403	1,750			50									50	11	2,300	43	2,257
1000000	100	1,050			-103									-103	13	1,540	52	1,437
1000000	350	3,070	145	10	-80									-80	29	4,534	122	4,412
1000000	370	3,000	37	10	-562									-562	29	4,337	143	4,195
1000000	370	2,410	62	100	504	128	209	173	133	11	3		30	1,050	177	10,429	572	10,447
1000000	1,000	12,300	4	150	-70	394	522	258	314	244	18		65	1,504	370	16,298	1,046	15,252
1000000	3,520	13,500	3	220	132	460	1,079	243	428	676	43		200	3,079	360	19,612	1,080	18,532
1000000	2,100	1,500		190	200	374	1,109	230	528	679	29		130	3,354	440	18,165	465	17,700
1000000	2,000	3,700	2	110	200	323	971	220	304	363	19		65	2,641	116	8,347	1,288	7,059
1000000	1,600	1,600			2	323	626	220	232	232				2,025	39	5,460	32	5,328
1000000																		
1000000	1,120	2,620	1	20	105	176	53	117	81	59	14		30	675	38	4,434	79	4,355
1000000	784	1,500			-170									-162	34	2,636	103	2,474
1000000	325	2,160			-484									-484	16	2,164	34	1,980
1000000	201	1,170			-30									-30	11	833	67	766
1000000	301	1,170			-98									-98	11	1,031	70	933
1000000	324	1,500	6	10	-517									-517	24	1,799	50	1,282
1000000	742	2,600	10	10	-676	45	45	111	23	98	15		30	-309	62	5,122	50	4,813
1000000	742	2,600	7	100	1,340	385	419	208	260	543	20		65	3,417	627	10,282	1,113	9,169
1000000	3,500	10,500	2	150	368	580	1,000	232	236	641	90		200	2,417	735	19,105	2,793	16,312
1000000	4,000	3,500		220	171	217	1,207	254	392	488	60		130	2,529	124	12,046	2,235	10,811
1000000	4,000	3,500		190	-17	450	1,943	244	300	397	60		130	2,467	124	10,631	1,635	9,496
1000000	3,300	2,300			-17	260	822	260	165	350	30		65	2,105	34	5,789	115	5,674

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1000	20	20	73	240	294	122	275	15	15	1	4,425	75	4,352						
1001			-248	123	77						2,250	164	4,066						
1002			30								1,830	110	4,176						
1003			-270								1,550	58	4,120						
1004			-79								1,900	129	4,249						
1005	30		-219								3,204	249	3,955						
1006	310		-299								7,003	152	6,851						
1007	307	10	1,490	45	41	235	41	12	12	17	19,988	1,282	18,706						
1008	60	150	64	64	64	65	335	27	27	1,281	1,281	1,281	43,624						
1009	54	150	210	210	210	210	429	80	80	725	67,105	4,352	71,457						
1010	37	220	133	1,205	248	339	510	24	24	654	60,851	3,337	64,188						
1011	16	190	104	964	251	350	411	24	24	152	8,253	151	8,102						
1012	7	110	21	820	200	141	314	27	27	-54	7,219	77	7,142						
1013			87	239	108	93	181	13	13	-38	4,462	50	4,402						
1014	9	20	36								3,561	184	3,745						
1015			-87								2,251	102	2,149						
1016			-96								2,304	117	2,207						
1017	30		-123								1,862	68	1,814						
1018	307	10	-204								2,512	74	2,438						
1019	307	10	-325	47	47	19	141	12	12	46	7,736	110	7,626						
1020	80	100	-173	629	136	121	711	25	25	244	20,527	713	20,840						
1021	54	150	203	1,025	203	467	730	75	75	1,040	12,219	2,003	14,222						
1022	37	220	300	1,237	349	472	730	49	49	749	18,405	913	19,318						
1023	16	150	220	907	204	452	532	49	49	195	17,257	220	17,477						
1024	7	110	8	862	254	169	307	25	25	40	5,723	123	5,600						
1025	9	20	70	240	108	109	194	12	12	174	3,526	223	3,749						
1026			-100								3,049	479	3,528						
1027			-31								3,299	240	3,059						
1028			-32								3,646	230	3,416						
1029	30		-420								3,620	164	3,456						
1030	310		-160								4,070	203	3,867						
1031	310		-179	49	98	25	36	12	12	400	15,322	240	15,082						
1032	307	10	-219	403	457	493	600	23	23	911	20,223	1,204	21,427						
1033	50	100	71	1,112	297	223	438	70	70	509	30,160	1,204	31,364						
1034	26	150	409	1,237	297	269	319	47	47	420	12,360	441	12,801						
1035	37	220	377	1,321	277	301	404	47	47	104	6,282	123	6,159						
1036	7	110	11	1,321	277	209	344	23	23	-8	4,602	77	4,525						
1037			-124								4,602	50	4,552						
1038			36								3,561	184	3,745						
1039			-87								2,251	102	2,149						
1040			-96								2,304	117	2,207						
1041	30		-123								1,862	68	1,814						
1042	307	10	-204								2,512	74	2,438						
1043	307	10	-325	47	47	19	141	12	12	46	7,736	110	7,626						
1044	80	100	-173	629	136	121	711	25	25	244	20,527	713	20,840						
1045	54	150	203	1,025	203	467	730	75	75	1,040	12,219	2,003	14,222						
1046	37	220	300	1,237	349	472	730	49	49	749	18,405	913	19,318						
1047	16	150	220	907	204	452	532	49	49	195	17,257	220	17,477						
1048	7	110	8	862	254	169	307	25	25	40	5,723	123	5,600						
1049	9	20	70	240	108	109	194	12	12	174	3,526	223	3,749						
1050			-100								3,049	479	3,528						
1051			-31								3,299	240	3,059						
1052			-32								3,646	230	3,416						
1053	30		-420								3,620	164	3,456						
1054	310		-160								4,070	203	3,867						
1055	310		-179	49	98	25	36	12	12	400	15,322	240	15,082						
1056	307	10	-219	403	457	493	600	23	23	911	20,223	1,204	21,427						
1057	50	100	71	1,112	297	223	438	70	70	509	30,160	1,204	31,364						
1058	26	150	409	1,237	297	269	319	47	47	420	12,360	441	12,801						
1059	37	220	377	1,321	277	301	404	47	47	104	6,282	123	6,159						
1060	7	110	11	1,321	277	209	344	23	23	-8	4,602	77	4,525						

	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1,070	1,320		20	-54	51	345	232	187	202	16	30	1,025	64	3,529	52	2,117	
512	2,000			-564			6			14		-646	55	2,009	100	1,409	
100	2,150			-747								-747	32	1,705	96	1,000	
100	2,170			-620								-620	20	1,500	20	1,000	
100	1,700			-743								-743	8	1,295	42	1,253	
100	2,100			-940								-940	20	1,692	55	1,000	
1,000	3,000		30	-1,213	22	52	11	158	59	15	30	-822	52	1,758	49	1,000	
1,000	3,000		100	1,337	213	573	239	587	554	30	65	2,500	510	5,157	49	1,000	
1,000	3,000		150	959	232	1,000	367	401	497	17	200	4,000	730	20,000	49	1,000	
1,000	4,000		200	905	281	1,600	274	401	497	13	100	4,000	250	12,000	62	1,000	
1,000	4,000		100	815	204	1,200	200	239	361	9	100	2,000	146	12,000	105	1,000	
1,000	2,000		110	355	223	1,100	302	143	255	10	65	2,511	116	6,097	105	1,000	
1,000	2,000		20	213	25	327	21	59	175	8	30	503	85	3,758	33	1,555	
1,000	2,010			-487			20		2	4		-461	56	1,495	120	2,000	
1,000	2,000			-830								-830	29	1,690	32	1,000	
1,000	1,500			-641								-641	33	1,423	61	1,000	
1,000	1,790			-705								-705	33	1,427	61	1,000	
1,000	3,100			-604								-604	26	1,655	62	1,000	
1,000	2,980		20	-937		16	24	119	86	15	30	-545	16	3,677	76	1,000	
1,000	3,750		100	954	133	614	215	223	323	20	65	2,870	870	12,553	62	1,000	
1,000	2,000		150	1,223	210	1,000	234	122	377	8	200	3,405	930	3,500	140	1,000	
1,000	2,000		200	1,245	240	1,054	250	213	587	3	130	3,775	821	3,500	140	1,000	
1,000	2,000		190	719	257	1,171	278	217	344	13	130	3,269	65	3,517	145	1,000	
1,000	2,750		110	505	226	1,100	291	253	284	26	65	2,531	176	6,255	122	1,000	
1,000	3,070		20	201	39	905	232	98	180	22	30	1,725	79	7,394	105	1,000	
1,000	2,700			-385		14			29	12		-323	162	2,554	273	1,000	
1,000	2,000			-633								-643	51	2,000	130	1,000	
1,000	2,670			-575								-575	25	2,559	80	1,000	
1,000	2,670			-765								-755	20	2,452	73	1,000	
1,000	3,110		16	-633								-633	52	6,080	101	1,000	
1,000	3,000		10	-309	17	47		23	74	6	30	-612	175	3,969	121	1,000	
1,000	3,000		100	398	183	1,093	24	255	678	21	65	2,725	805	15,722	101	1,000	
1,000	3,000		150	1,112	261	1,120	100	281	546	32	200	4,011	1,067	30,037	101	1,000	
1,000	3,000		220	1,006	212	1,328	100	285	610	3	130	3,901	545	18,370	101	1,000	
1,000	2,000		150	665	239	1,365	346	254	365	5	65	3,400	120	8,234	101	1,000	
1,000	2,000		110	505	195	1,213	369	182	310	19	65	3,003	92	10,215	101	1,000	

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Dec.	2,010	2,540			20	-17	7	763	201	120	230	15	19	30	1,475	119	7,122	135	6,987
Nov.	3,070	3,670				-299			100						-379	95	3,684	227	3,697
Oct.	400	3,670				-803									-803	53	3,600	124	3,676
Sept.	600	3,120				-836									-836	39	3,763	108	3,675
Aug.	300	3,270	28.0			-735									-735	42	3,742	122	3,690
July	2,590	3,360	921.0		10	-595			28				4		-595	-5	12,528	146	12,382
June	6,420	10,700	541.5			-792				239	207	37	12	30	-730	-59	16,213	305	16,203
May	1,200	21,840	42.3		100	1,232	160	708	45				12	65	2,715	492	28,232	1,198	27,034
April	4,890	22,230	14.5		150	1,292	232	1,117	264	401	401	51	29	209	3,579	566	21,230	1,125	20,224
March	2,670	10,210			220	1,134	319	1,667	335	615	615	88	23	130	4,784	977	19,281	1,650	18,631
Feb.	2,590	3,910			190	300	226	1,424	320	376	361	75	15	130	3,736	170	10,238	176	10,162
Jan.	3,070	5,110			110	490	169	573	54	83	284	21	9	65	2,158	103	10,511	236	10,275
1927-28					20	410	32	536	20	155	358	27	6	30	4,582	310	12,022	458	12,484
1926-27						-190									-184	18	6,424	243	6,181
1925-26						-670									-670	104	2,354	130	2,224
1924-25						-580									-580	22	2,737	60	2,657
1923-24						-980									-940	28	1,998	62	1,936
1922-23						-1015									-1015	23	4,074	72	3,992
1921-22						-850									-787	31	28,252	201	28,071
1920-21					10					103	90	4	43	20	210	270	57,516	1,310	56,206
1919-20					100					80	189	14	24	65	4,947	300	63,259	2,380	60,879
1918-19					120					135	486	17	1	200	4,123	536	22,107	2,621	21,486
1917-18					240					163	393	16	25	130	2,737	200	16,397	223	16,174
1916-17					190					204	236	15	1	65	2,336	4	6,950	53	6,897
1915-16					110					204	236								

TABLE NO. 13