

Water Supply Outlook for Alberta

November 2000



Alberta
ENVIRONMENT

Notes

Alberta Environment publishes the "**Water Supply Outlook for Alberta**" monthly, usually from February to August. These reports are prepared by the Water Sciences Branch, Hydrology/Forecasting Section of the Department's Water Management Division.

Alberta Environment is grateful for the assistance of Environment Canada's Climatological Services Unit and Water Resources Branch in providing weather, precipitation and streamflow data. Snow survey data are also provided by the United States, Soil Conservation Service of Montana and the British Columbia Ministry of Environment, Lands and Parks.

The assistance of a number of private citizens who diligently report observations of precipitation and other data is also appreciated.

Alberta Environment and the National Resources Conservation Service (NRCS) from Portland, Oregon are collaborating on the Water Supply Forecasts for the Milk and St. Mary Rivers. Water Supply forecasts for the Western United States are available through the NRCS web page: http://www.wcc.nrcs.usda.gov/water/w_qnty.html

All data summarized in this publication are preliminary and subject to revision.

Data used in this report are available on request from: Alberta Environment, Water Sciences Branch, Hydrology/Forecasting Section, 10th Fl, Oxbridge Place, 9820 -106 Street, Edmonton, Alberta, T5K 2J6, **Fax: (780) 422-8606**

This report is also available through Alberta Environment's automated streamflow information/fax-on-demand service. To access this service toll-free, please call the Alberta Government RITE Operator at 310-0000, available 24 hours a day from anywhere in the province. At the prompt, enter the phone number **207-2718** for our streamflow information/fax on demand service.

Historical Streamflow Information: Environment Canada, Calgary, (403) 292-5317

Equivalents of Measure

Parameter	Metric Unit	Conversion to Imperial Units
Snow depth	centimetres	2.54 cm = 1 inch
Water Equivalent	millimetres	25.4 mm = 1 inch
Elevation	metres	1 m = 3.2808 feet
Streamflow	cubic metres per second	1 cms = 35.3 cfs
Volume	cubic decametre (dam ³)	1 dam ³ = 1000 m ³ = 0.8107 acre-feet

Explanation of Descriptions

Much-above-average	In the upper 15% of recorded values
Above-average	Between the upper 15% and 35% of recorded values
Below-average	Between the lower 15% and 35% of recorded values
Much-below-average	In the lower 15% of recorded values

Overview

In October, precipitation was much-below-normal to below-normal throughout the province with an exception of the Grande Prairie area. Since the beginning of April, southern Alberta continues to be extremely dry as a result of a lack of precipitation. Current predictions from National Oceanographic and Atmospheric Administration (NOAA) and Environment Canada indicate a continuation of below-normal precipitation in southern Alberta this month and near-normal precipitation for this winter (December to February).

Water storage as of November 1, in the major irrigation and hydroelectric reservoirs in the Red Deer and North Saskatchewan River basins is normal for this time of the season. In the Bow and Oldman River basins, reservoirs are below-normal except for Keho Lake, Lake McGregor, Lake Newell and Crawling Valley Reservoir, which are normal.

The Water Supply Outlook report will continue to be published monthly but will focus on the upcoming water year 2000-2001. Until February, the report will provide mid to long-term water supply forecasts and report on reservoir storage conditions, snow accumulation, and precipitation. The report is being published to continue monitoring the extremely dry conditions in southern Alberta.

October Climatic Conditions

Below-normal precipitation amounts were recorded across the province in October (Figures 1 and 2) except in the Grande Prairie area, where normal precipitation occurred. Precipitation values ranged from 6 to 118 % of normal in the province during October. Temperatures in October were normal to slightly below-normal throughout the province.

Since the beginning of April, southern Alberta has received much-below-normal precipitation (Figures 3 and 4). The lack of precipitation combined with a low winter snowpack last year has created very dry conditions in southern Alberta.

Long-Lead Precipitation Outlook

Currently, there is no strong discernible signal in the El Niño/La Niña pattern. NOAA and Environment Canada are predicting below-normal precipitation for southern Alberta this month. Environment Canada is forecasting normal precipitation for southwest regions and above-normal precipitation for southeastern areas of the province this winter (December to February), while NOAA is predicting normal precipitation across the province. Environment Canada predicts above-normal precipitation for next spring (March to May) in southern Alberta while NOAA predicts normal conditions for the same period. Preliminary forecasts by Environment Canada for the 2001 summer (June to August) are for normal precipitation in northern Alberta and above-normal precipitation in southern Alberta, while NOAA is predicting normal precipitation across the province.

Milk River Basin

Conditions remained dry in the headwaters of the Milk River basin as much-below-normal precipitation was recorded in October (Figures 1 and 2). Precipitation has been much-below-normal since April 1 (Figures 3 and 4).

Oldman River Basin

Precipitation was much-below-normal in the Oldman River basin during October (Figures 1 and 2). The lack of precipitation since April 1 and low spring runoff has resulted in extremely dry conditions in the basin. Water storage in the major irrigation reservoirs of the Oldman River basin is below-normal for this time of the season, except for Keho Lake which is normal (Table 1).

Table 1 Status of Major Water Storage Reservoirs as of November 1, 2000 - Oldman River Basin

Reservoirs	Current Live Storage			Remarks	November 1, 1999 Live Storage	
	Volume in dam ³	Volume in acre-feet	Volume as % of Capacity		dam ³	Acre-feet
Keho Lake	81,300	65,900	72	normal	78,400	63,600
Waterton Reservoir	71,900	58,300	42	below-normal	91,800	74,400
St. Mary Reservoir	40,600	32,900	10	below-normal	127,000	103,000
Ridge Reservoir	28,300	22,900	22	below-normal	107,000	86,700
Total	141,000	114,000	20	below-normal	326,000	264,000
Chin Reservoir	89,100	72,200	47	below-normal	180,000	146,000
Forty Mile Reservoir	42,800	34,700	50	below-normal	84,800	68,700
Total	132,000	107,000	48	below-normal	265,000	215,000
Oldman Reservoir	283,000	229,000	57	below-normal	401,000	325,000

Bow River Basin

Precipitation during October was much-below-normal in the Bow River basin (Figures 1 and 2). Precipitation since April 1 has been below-normal in the basin, with an exception of Calgary, which has recorded normal values (Figures 3 and 4).

Water storage in most of the major hydroelectric and irrigation reservoirs is generally below-normal for the season with the exception of Lake McGregor, Lake Newell and Crawling Valley Reservoir, which are normal (Table 2).

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Table 2 Status of Major Water Storage Reservoirs as of November 1, 2000 - Bow River Basin

Reservoirs	Current Live Storage			Remarks	November 1, 1999 Live Storage	
	Volume in dam ³	Volume in acre-feet	Volume as a % of Capacity		dam ³	Acre-feet
Lake Minnewanka	162,000	132,000	73	below-normal	187,000	152,000
Spray Lake	159,000	129,000	89	below-normal	153,000	124,000
Upper Kananaskis Lake	74,200	60,200	72	below-normal	76,500	62,000
Lower Kananaskis Lake	55,100	44,700	87	below-normal	53,900	43,700
Total	450,000	365,000	79	below-normal	470,000	381,000
Lake McGregor	309,000	250,000	85	normal	302,000	245,000
Travers Reservoir	58,900	47,800	56	below-normal	76,000	61,600
Total	368,000	298,000	78	normal	378,000	306,000
Lake Newell	159,000	129,000	89	normal	156,000	126,000
Crawling Valley Reservoir	102,000	82,400	90	normal	106,000	85,900
Total	260,000	211,000	90	normal	262,000	212,000

Red Deer River Basin

The Red Deer River basin recorded much-below-normal to below-normal precipitation in October (Figures 1 and 2). Precipitation has been near-normal in the basin since April 1 (Figures 3 and 4).

Water storage in Glennifer Lake is normal for this time of the season (Table 3).

Table 3 Status of Major Water Storage Reservoirs as of November 1, 2000 – Red Deer River Basin

Reservoirs	Current Live Storage			Remarks	November 1, 1999 Live Storage	
	Volume in dam ³	Volume in acre-feet	Volume as a % of Capacity		dam ³	acre-feet
Glennifer Lake	198,000	161,000	98	normal	201,000	163,000

North Saskatchewan River Basin

Precipitation during October was much below-normal in the North Saskatchewan River basin (Figures 1 and 2). Precipitation since April 1 has ranged from below-normal to normal in the basin.

Water storage in the North Saskatchewan major hydroelectric reservoirs is normal for the season (Table 4).

Table 4 Status of Major Water Storage Reservoirs as of November 1, 2000 – North Saskatchewan River Basin

Reservoirs	Current Live Storage			Remarks	November 1, 1999 Live Storage	
	Volume in dam ³	Volume in acre-feet	Volume as a % of Capacity		dam ³	Acre-feet
Lake Abraham	1,161,000	941,000	82	normal	1,170,000	949,000
Brazeau Reservoir	453,000	368,000	93	normal	320,000	259,000
Total	1,614,000	1,309,000	85	normal	1,490,000	1,208,000

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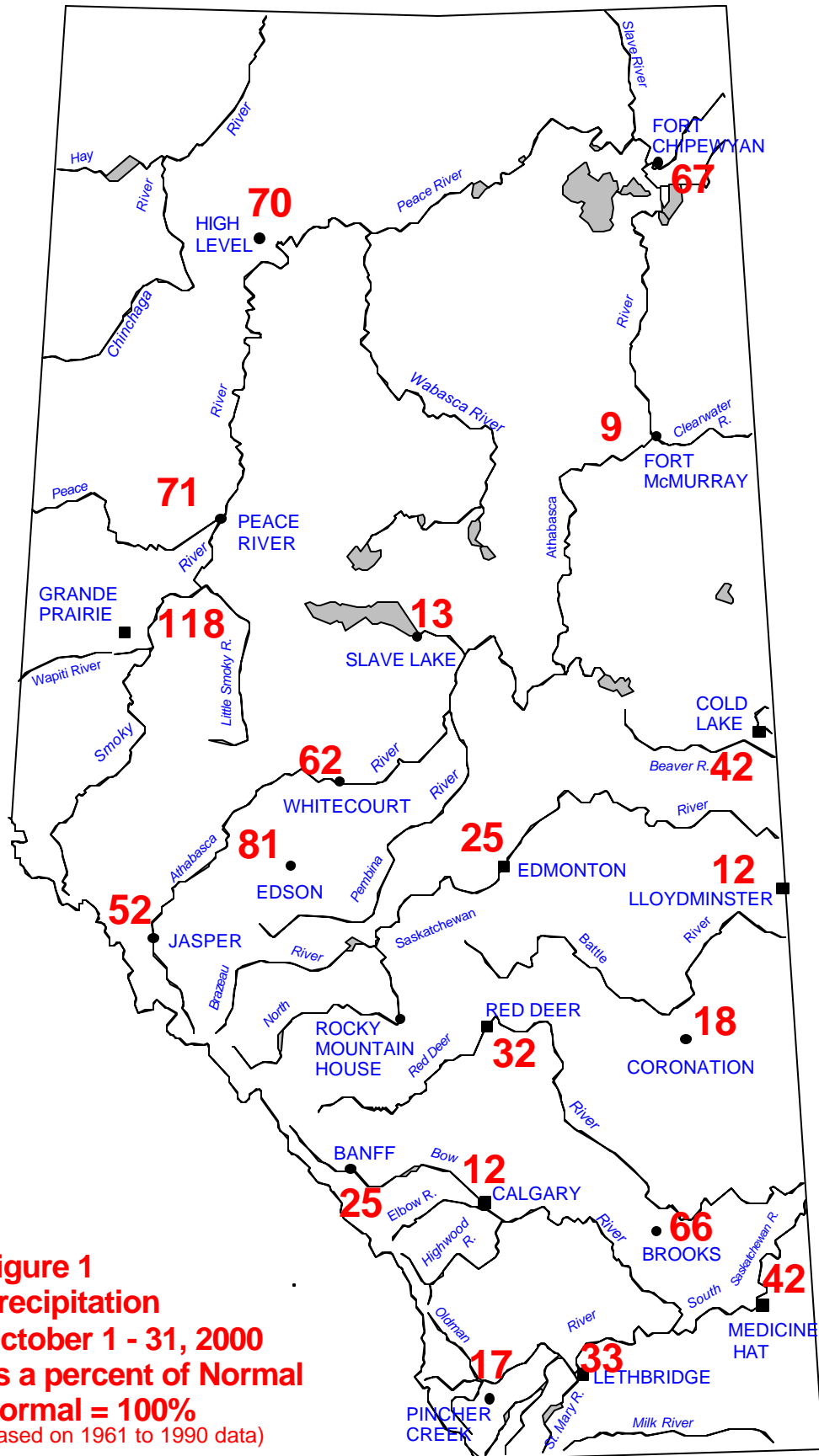


Figure 1
Precipitation
October 1 - 31, 2000
as a percent of Normal
Normal = 100%
 (based on 1961 to 1990 data)

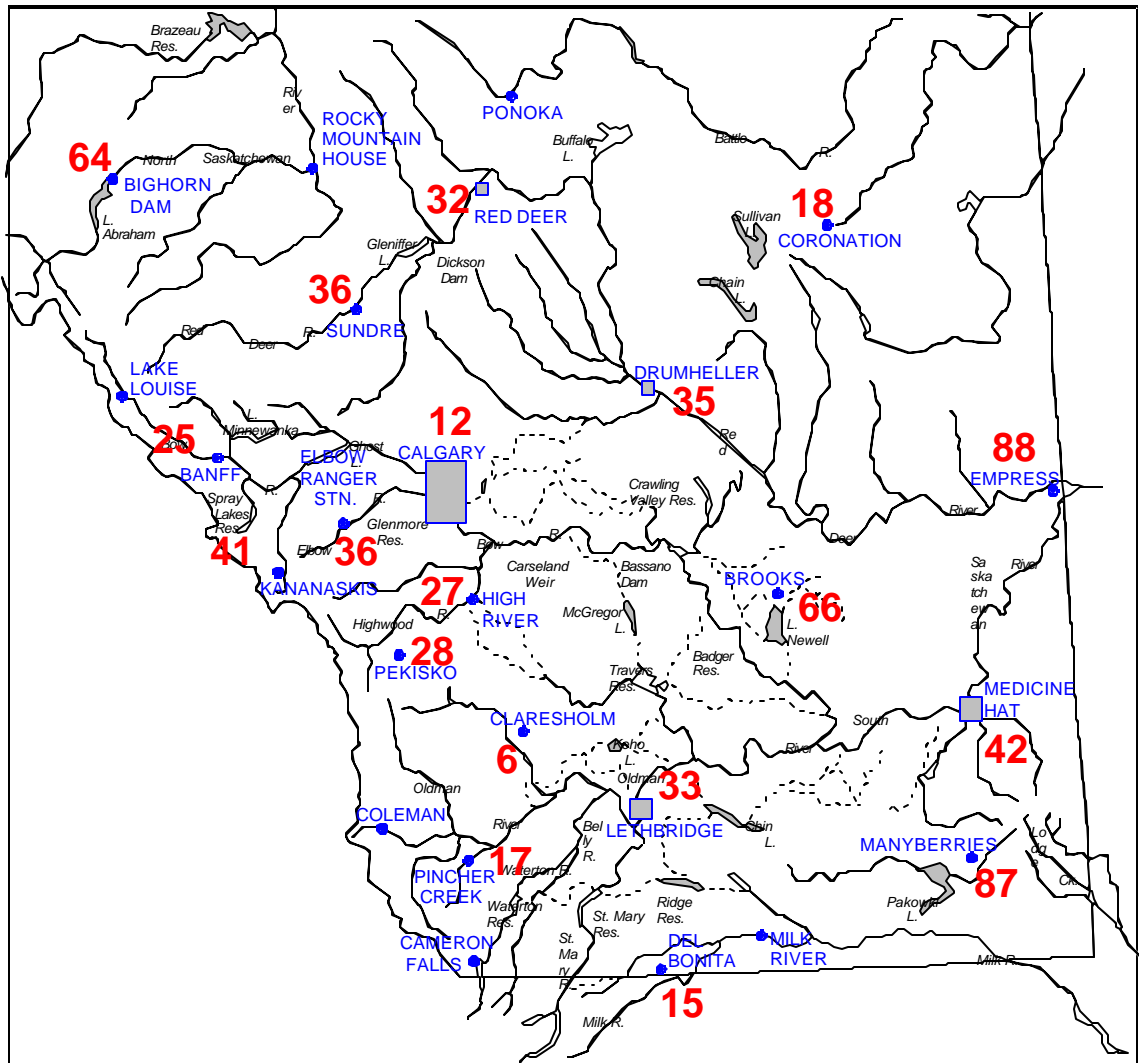


Figure 2
Southern Alberta
Precipitation
October 1 - 31, 2000
as a percent of Normal
Normal = 100%
(based on 1961 to 1990 data)

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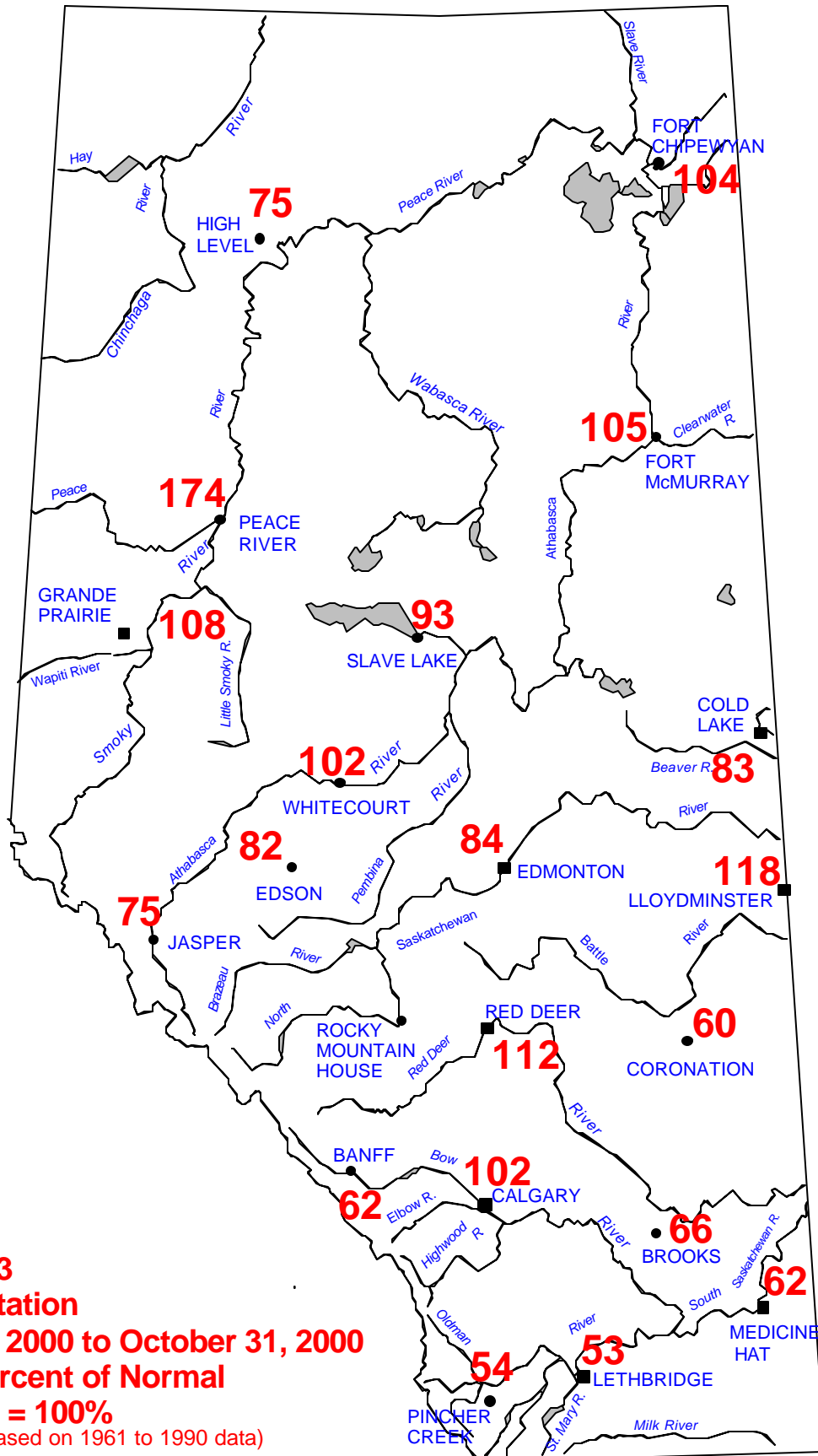


Figure 3
Precipitation
April 1, 2000 to October 31, 2000
as a percent of Normal
Normal = 100%
 (based on 1961 to 1990 data)

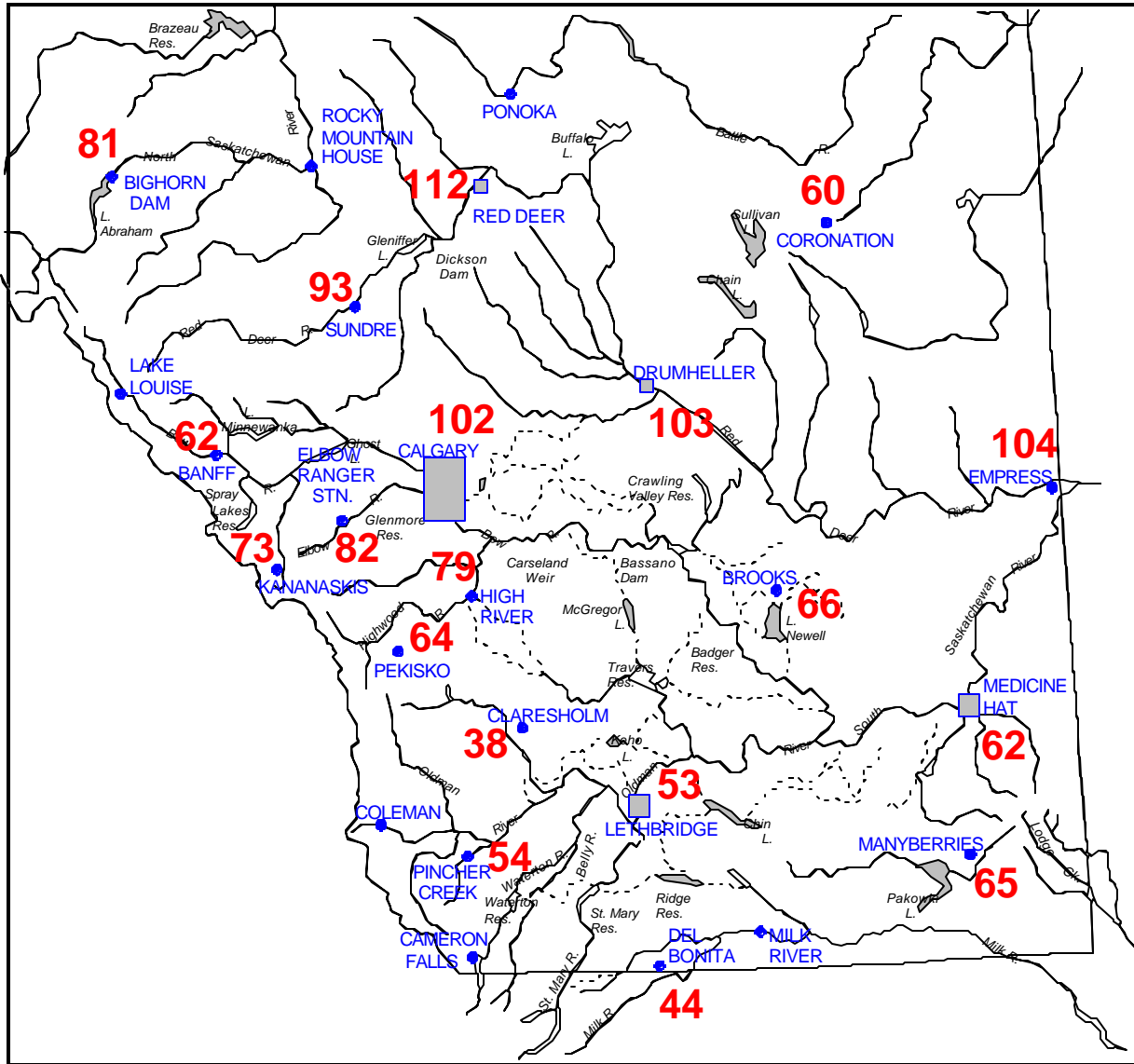


Figure 4
Southern Alberta
Precipitation
April 1, 2000 to October 31, 2000
as a percent of Normal
Normal = 100%
 (based on 1961 to 1990 data)