

# Plains Runoff Outlook for Alberta

April 2001



**Alberta**  
ENVIRONMENT

**Notes**

Alberta Environment publishes the "**Plains Runoff Outlook for Alberta**" monthly, usually from February to May. 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](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 <sup>3</sup> )	1 dam <sup>3</sup> = 1000 m <sup>3</sup> = 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**

Fall precipitation (September to October) was near normal in southern areas of the province, above-normal in the north and below-normal in central regions, leaving most areas with dry soil moisture conditions heading into the winter.

The winter precipitation, November 1, 2000 to March 31, 2001, was much-below-normal across Alberta except in the Sundre area, where normal precipitation was recorded. A major winter snowstorm hit southern Alberta on April 2-4, providing accumulations of 20 to 60 cm of snow south of Calgary.

As of April 1, snowpack in the central and north-central areas of the province has been depleted. Areas north of a line extending from Cold Lake through Slave Lake to Grande Prairie have below-average to much-below-average snowpack. Snowpack continues to be above-average in the foothills to the west of the Sundre-Nordegg region. The snowstorm that occurred in the first few days of April provided significant precipitation to southern Alberta. Snowfall was quite heavy from the foothills east to a line extending from Calgary to Lethbridge.

The April 5, 2001 Plains spring runoff forecast is for below-normal to much-below-normal runoff in northern Alberta and for below-normal to normal runoff in the Sundre-Nordegg area. Spring runoff is complete in the Grande Prairie, Whitecourt, Edmonton, Lloydminster, Coronation and Red Deer areas. In areas south of Calgary, the early April snowfall will help soil moisture conditions however, below-normal spring runoff is forecast for these regions.

## **Winter Climatic Conditions**

During March, most areas in the Plains area of Alberta received below-normal to much-below-normal precipitation (Figures 1 and 2). Temperatures were above-normal during March, depleting Plains snowpack in most areas.

The winter precipitation, November 1, 2000 to March 31, 2001, was much-below-normal across Alberta (Figures 3 and 4). The only exception is the Sundre-Nordegg area, where normal precipitation was recorded.

A major winter snowstorm hit southern Alberta on April 2-4, depositing 20 to 60 cm of snow south of Calgary. This was the first major snowfall of the season for these areas.

## **Plains Spring Snowmelt Runoff Outlook**

### **Fall Precipitation**

Fall precipitation (September to October) was near normal in southern areas of the province (Figures 5 and 6). Northern Alberta recorded above-normal precipitation while central regions recorded below-normal fall precipitation. The foothills of western Alberta received below-normal to much-below-normal fall precipitation in 2000. Despite normal fall precipitation in southern Alberta, conditions were dry as a result of much-below-normal precipitation in the summer of 2000, soil moisture conditions were still very dry heading into the winter season.

### **Plains Area Snowpack**

As of April 1, snowpack in the Whitecourt, Edmonton, Lloydminster, Coronation and Red Deer areas has been depleted. Areas north of a line extending from Cold Lake through Slave Lake to Grande Prairie have below-average to much-below-average snowpack. Snowpack continues to be above-average in the foothills to the west of the Sundre-Rocky Mountain House region. This area of anomalous snowpack is in a relatively small area, which extends from a line just to the west of Sundre to just north of Nordegg to the foothills. Snowpack conditions change rapidly as you move away from this area.

The snowstorm that occurred in the first few days of April brought significant precipitation to southern Alberta. Snowfall was quite heavy between the foothills and a line extending from Calgary to Lethbridge. East of this line, snowfall amounts were considerably less with no snow existing east of Brooks.

A map of Plains area snowpack is available from the Environment Canada website located at:

[http://www.msc-smc.ec.gc.ca/ccrp/SNOW/snow\\_swe.html](http://www.msc-smc.ec.gc.ca/ccrp/SNOW/snow_swe.html).

## **Spring Snowmelt Runoff Outlook**

The April 5, 2001 Plains spring runoff forecast is for much-below-normal runoff in northern Alberta, including the Fort McMurray, Slave Lake, Edson and Peace River areas. Below-normal to much-below-normal spring runoff is forecast for the Wabasca and Cold Lake regions. Below-normal spring runoff is forecast for the Wabasca and Fort Chipewyan areas. Below-normal to normal spring runoff is forecast for the Sundre-Nordegg area. Spring runoff is complete in the Grande Prairie, Whitecourt, Edmonton, Lloydminster, Red Deer, Coronation and Brooks (east of Brooks) areas.

In areas south of Calgary, the early April snowfall will help soil moisture conditions but little runoff is forecast due to the previous dry conditions. As a result, spring runoff is forecast to be below-normal in the area west of a line from Calgary to Lethbridge to the foothills and much-below-normal for the remainder of southern Alberta.

These forecasts are based on the antecedent soil moisture conditions (fall precipitation), winter precipitation, temperature and snowpack on the ground. Weather conditions during the spring snowmelt could change this runoff forecast considerably. Check the Forecaster's Comments on the department web page throughout the month for updated information regarding spring runoff conditions.

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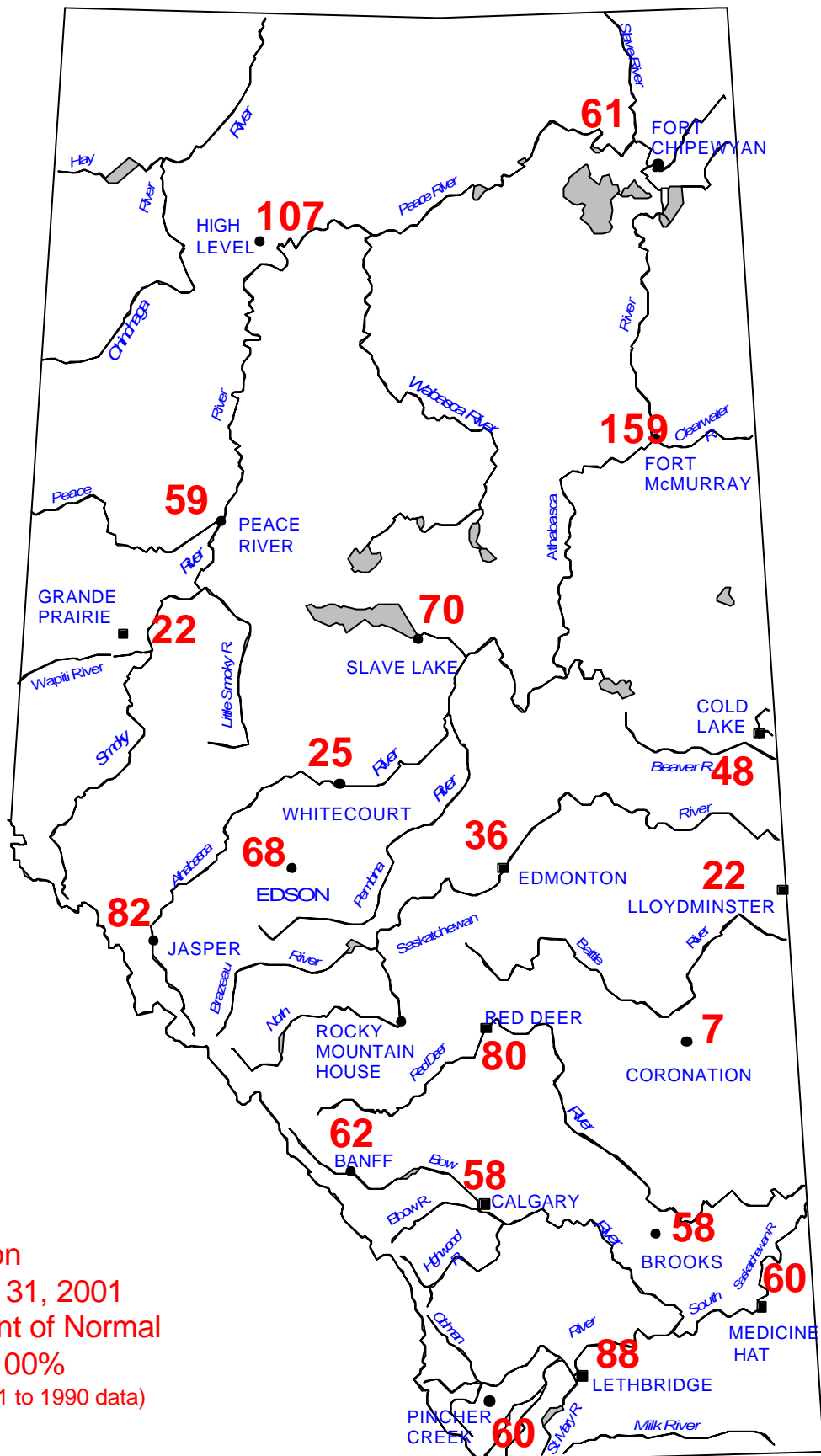


Figure 1  
 Precipitation  
 March 1 to 31, 2001  
 as a percent of Normal  
 Normal = 100%  
 (based on 1961 to 1990 data)

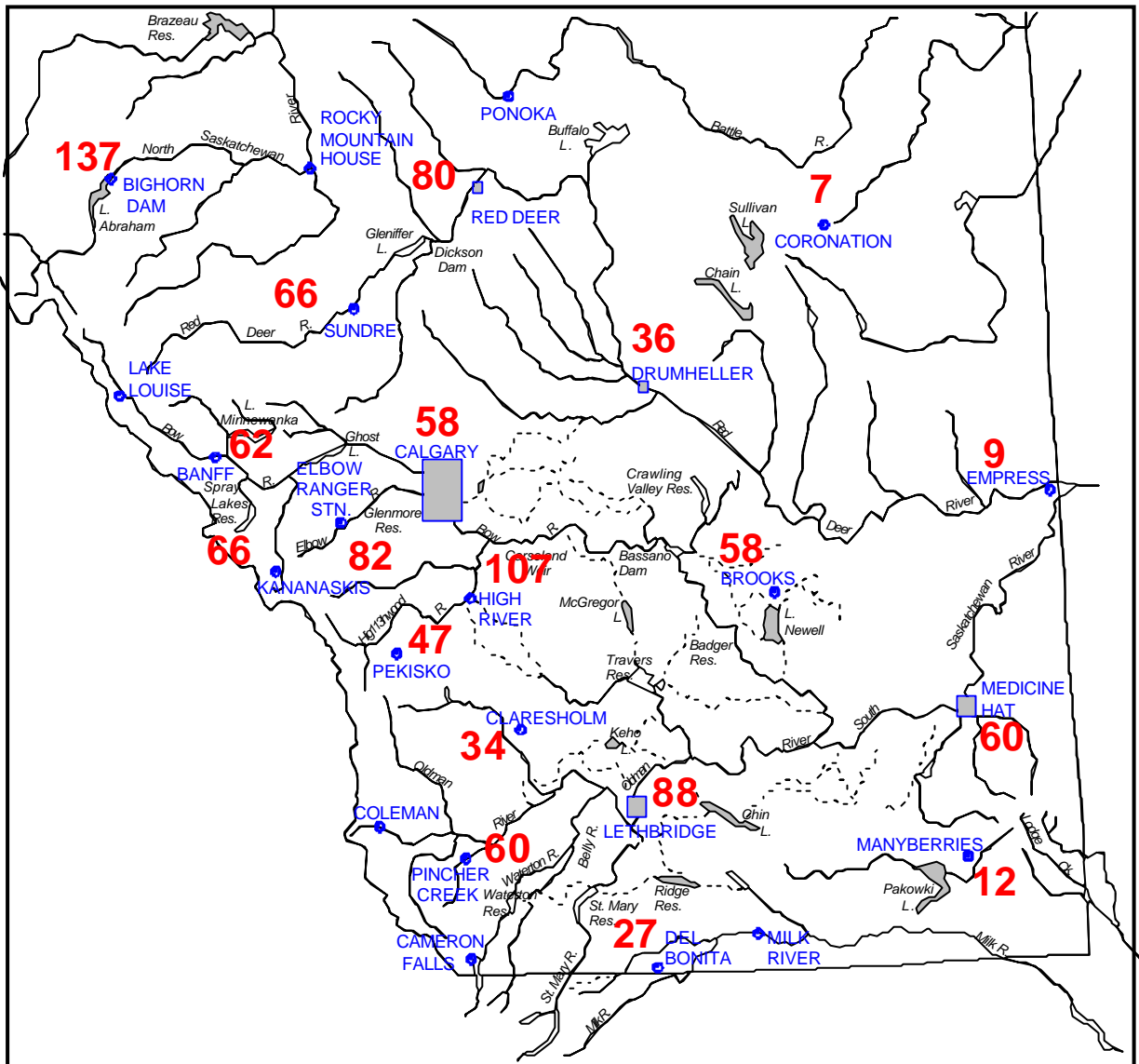


Figure 2  
 Winter Precipitation  
 Southern Alberta  
 March 1 to 31, 2001  
 as a percent of Normal  
 Normal = 100%  
 (based on 1961 to 1990 data)

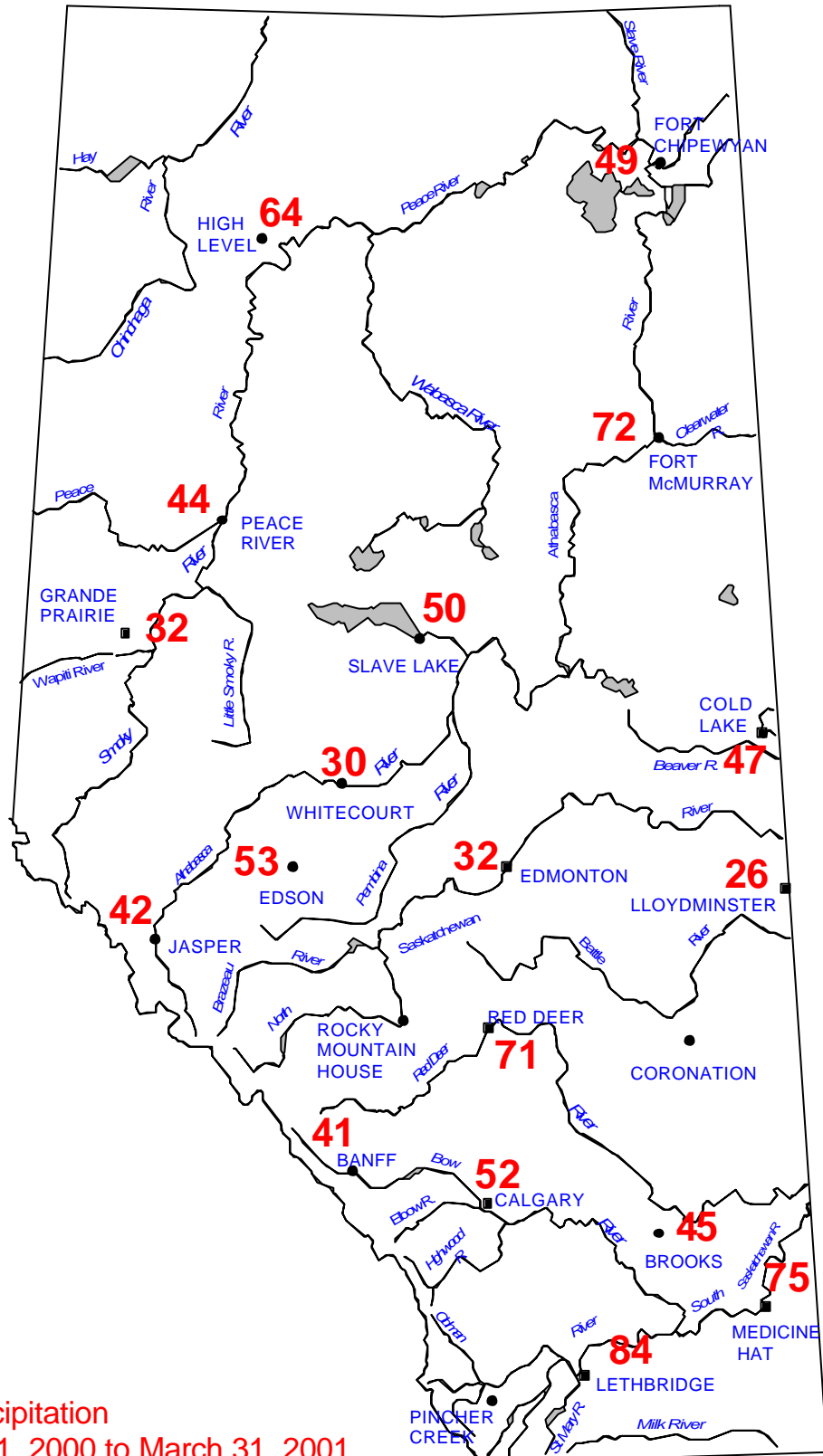


Figure 3  
 Winter Precipitation  
 November 1, 2000 to March 31, 2001  
 as a percent of Normal  
 Normal = 100%  
 (based on 1961 to 1990 data)



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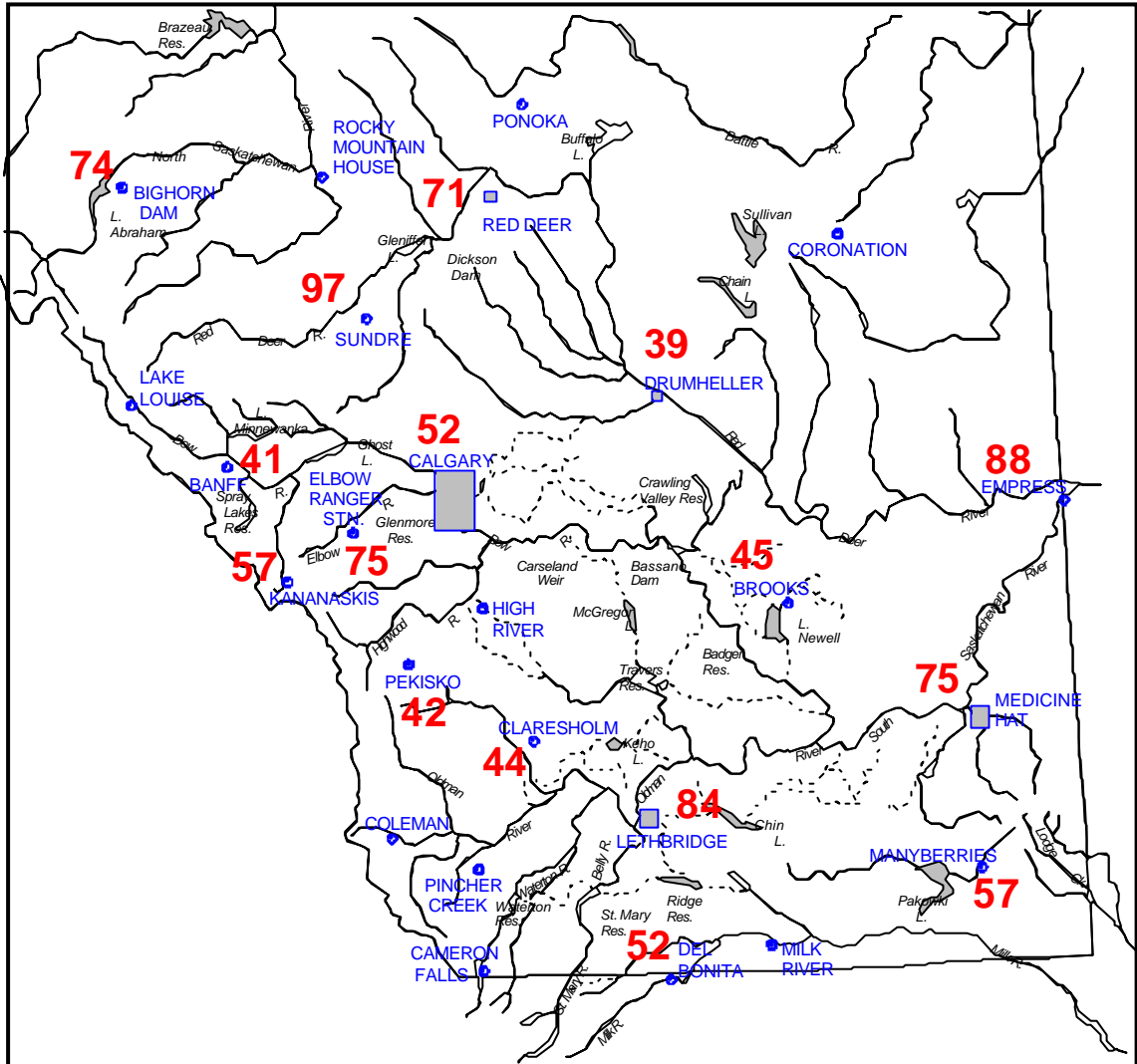


Figure 4  
Winter Precipitation  
Southern Alberta  
November 1, 2000 to March 31, 2001  
as a percent of Normal  
Normal = 100%  
(based on 1961 to 1990 data)

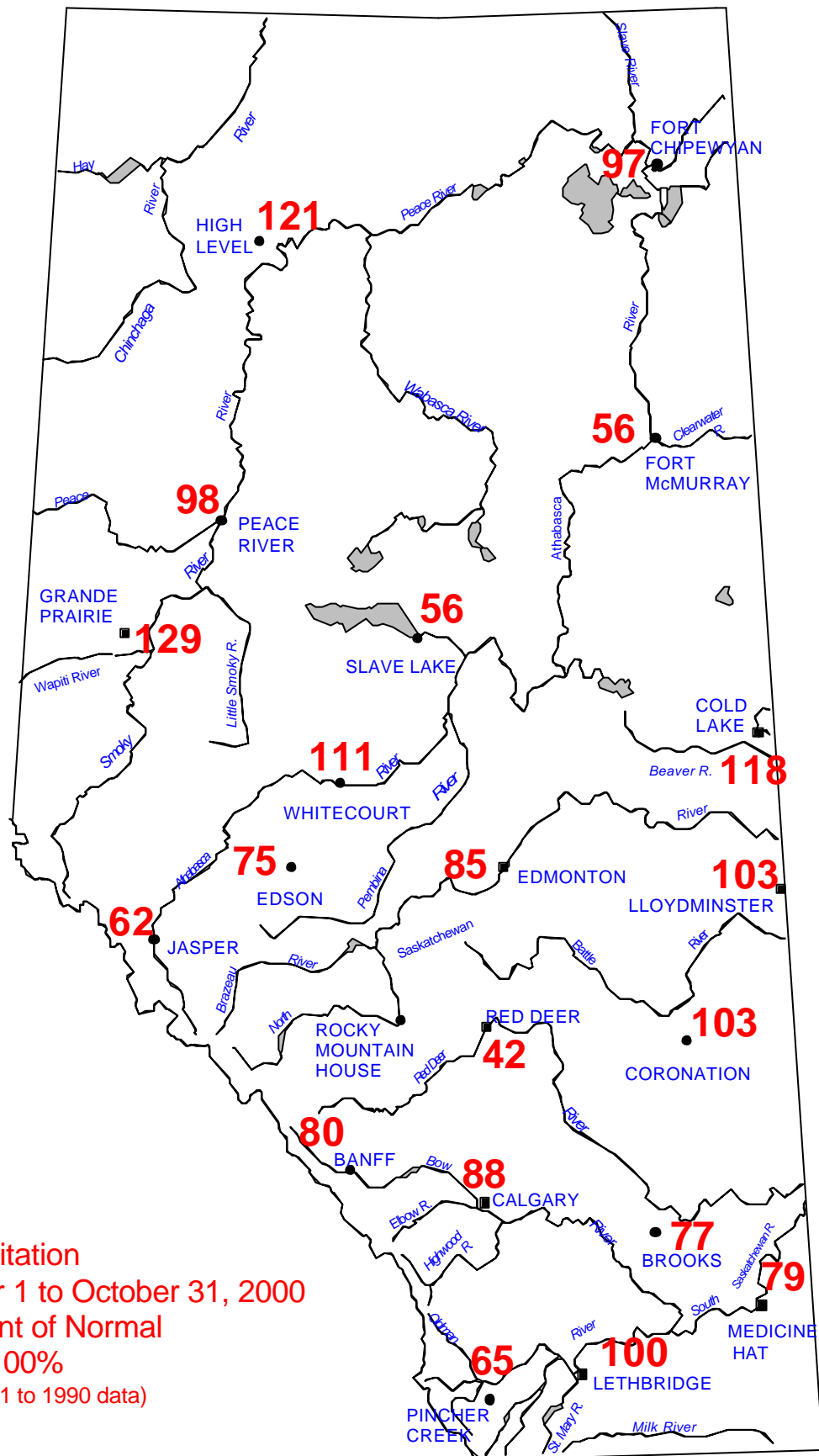


Figure 5  
 Fall Precipitation  
 September 1 to October 31, 2000  
 as a percent of Normal  
 Normal = 100%  
 (based on 1961 to 1990 data)

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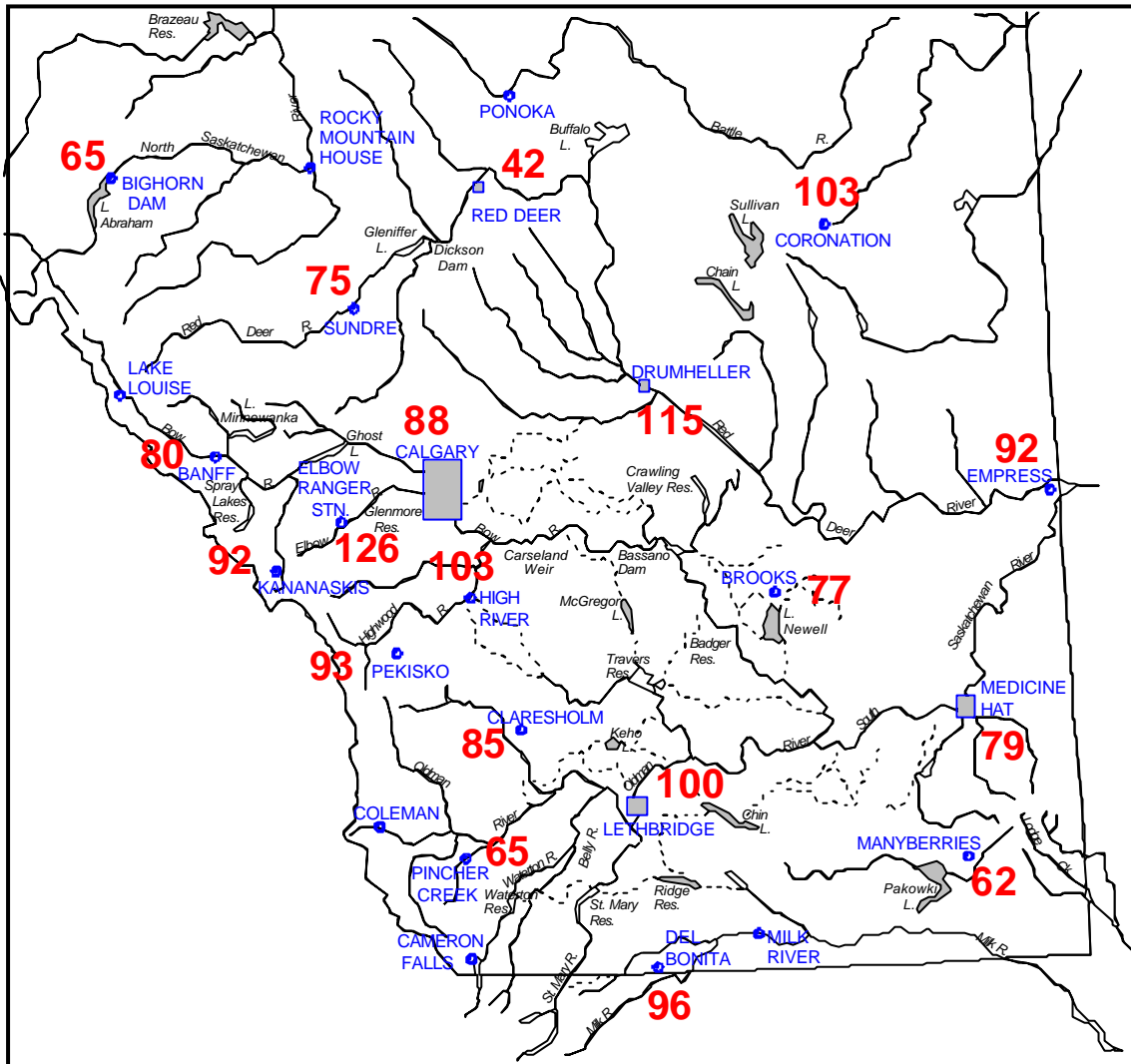


Figure 6  
 Fall Precipitation  
 Southern Alberta  
 September 1 to October 31, 2000  
 as a percent of Normal  
 Normal = 100%  
 (based on 1961 to 1990 data)

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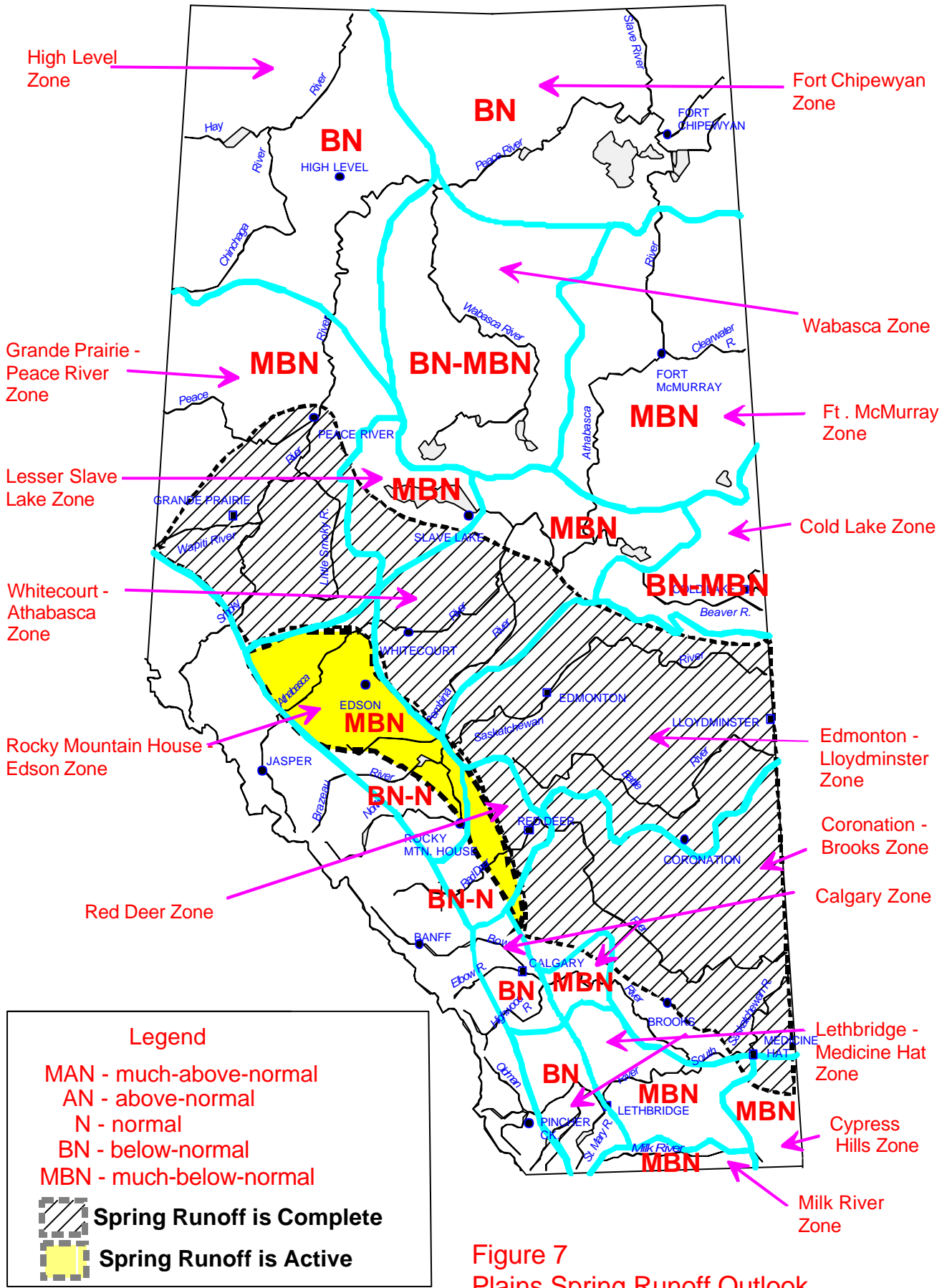


Figure 7  
Plains Spring Runoff Outlook  
as of April 5, 2001