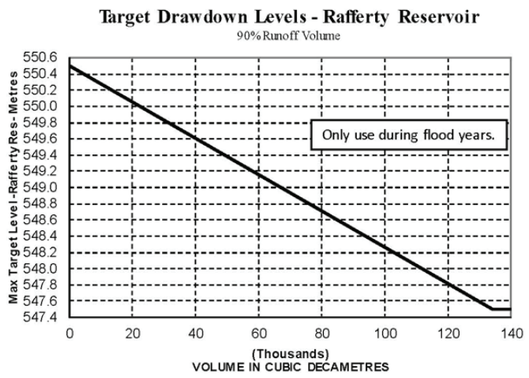

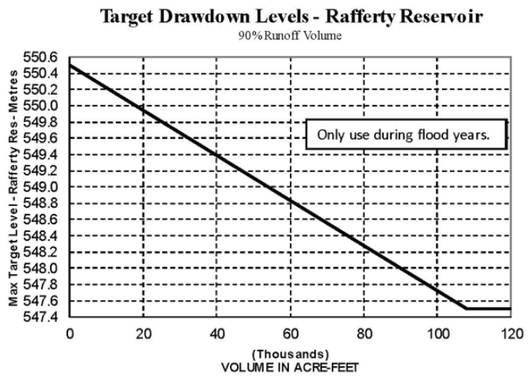

Figure 4

Flood Operations

When flood operations are declared, additional drawdown may be required prior to snowmelt runoff. The Agreement stipulates the target level for the reservoir based on forecasted inflow. The target drawdown level is adjusted based on updated runoff forecasts. Figure 4 shows the target drawdown levels for Rafferty Reservoir.

How flood operations are declared:

Flood conditions are declared by the International Souris River Board if one of two conditions is met within Annex A prior to the spring melt. Those conditions are met when the Canadian Water Security Agency and the US National Weather Service issue a:

- 30-day, unregulated forecast volume at Sherwood, ND that equals or exceeds 175,200 acre-ft (216,100 dam^3), or a
- 30-day, local runoff volume forecast between the Canadian reservoirs and Sherwood, ND that equals or exceeds 30,000 acre-ft (37,000 dam^3).

Rafferty Reservoir

FACT SHEET

Souris River Basin

The Souris River rises near Weyburn, Saskatchewan, and flows in a southeasterly direction for approximately 349 km (217 miles) where it enters the United States near Sherwood in northwestern North Dakota. The river continues on a southeasterly course flowing through Minot, North Dakota. At Velva, the river forms a loop and turns northeast to Towner and then gradually assumes a northwesterly direction to flow back into Canada at Westhope, Manitoba. The Souris River continues its journey in Canada and empties into the Assiniboine River, which flows to the Red River of the North at Winnipeg. The Souris River has a total length of about 1173 km (729 miles), including about 576 km (358 miles) in North Dakota. The total basin area is about 61,770 square kilometres (23,850 square miles). (Figure 1)

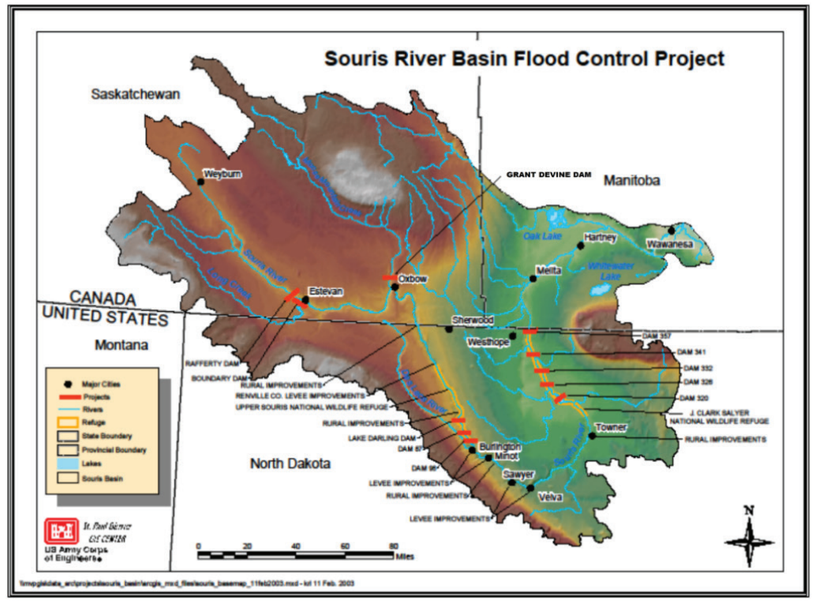

Figure 1

Click ***here*** to see a map with links to all the gages in the basin on the United States Geological Survey (USGS) website.

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International **Souris River** Study Board

February 2019

Figure 2

Souris River Basin Project

Four dams constitute the majority of the Souris River Basin Project: Rafferty, Grant Devine, Boundary and Lake Darling. The Rafferty – Grant Devine Project (including Boundary Reservoir) in the province of Saskatchewan works in coordination with Lake Darling Dam in North Dakota to provide flood control to rural areas in Saskatchewan, rural areas in North Dakota, and the City of Minot, ND (Figure 1). The flood project includes several smaller dams and bank improvements along the Souris River downstream of Minot, North Dakota.

The reservoirs are operated under the Operating Plan in Annex A of the 1989 Agreement between the governments of Canada and the United States of America.

The objectives of the Operating Plan are to:

- provide 1% (100 year) flood protection at Minot, North Dakota, based on data available when the operating plan was developed;
- provide flood protection to urban and rural areas downstream from Rafferty Dam, Grant Devine Dam, and Lake Darling Dam; and
- ensure, to the extent possible, that the existing benefits from the supply of water in the Souris River Basin are not compromised.

Rafferty Reservoir

Rafferty Reservoir is created by Rafferty Dam and is part of a series of reservoirs in the Souris River Basin. Rafferty Dam and reservoir are on the main stem of the Souris River approximately 3 miles upstream of Estevan, Saskatchewan. The dam has a surface area of 4,881 hectares (12,048 acres) at full supply level. The reservoir provides 327,489 dam^3 (265,500 acre-feet) of flood control storage as shown by Figure 3.

A 10 km long channel connects Rafferty and Boundary Reservoirs. The channel allows excess water from Long Creek to be diverted into Rafferty Reservoir.

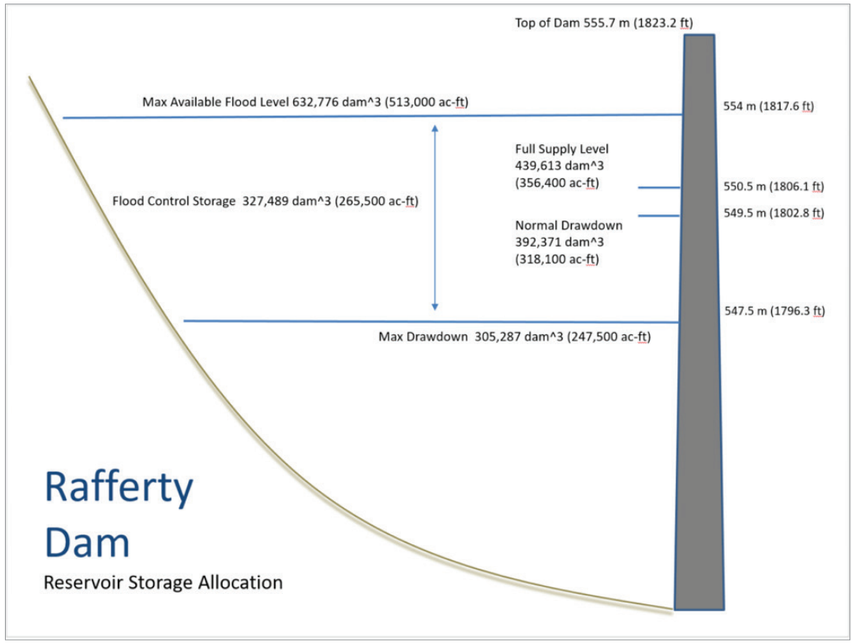

Figure 3

The Saskatchewan Water Security Agency (WSA) owns, operates, and maintains the Rafferty-Grant Devine Project, which consist of Rafferty and Grant Devine dams. The Rafferty-Grant Devine Project provides downstream flood prevention and supports water supply for local communities and the Shand power station near Estevan, Saskatchewan.

Non-Flood Operations

Rafferty Reservoir is operated by the WSA under Annex B of the 1989 Agreement. The reservoir is typically held as near full supply level after spring runoff and during the summer. In the fall and winter, usually by February 1, the reservoir is lowered to its target drawdown level.

What is a drawdown?

Drawdown means lowering the elevation of the reservoir pool. This is done, for example, to increase capacity for flood storage, provide water supply downstream during a drought, for environmental reasons, support of law enforcement, and other purposes.