



## Chapter 41

# Saskatchewan Watershed Authority – Dam Safety Follow Up

### 1.0 MAIN POINTS

This chapter presents our follow up work on our 2005 Report – Volume 1 on dam safety. The Saskatchewan Watershed Authority (Authority) is responsible for the safety of dams that help to preserve a sustainable water supply for the province. Our 2005 Report – Volume 1 explained our audit of the processes used to ensure the safety of four major dams and provided four recommendations. We previously completed follow-ups in 2007 and 2010. As of July 31, 2012, management has not taken action on two recommendations that remain outstanding after six years. These recommendations pertain to dam emergency preparedness plans and safety manuals.

It is important that the Authority have an up-to-date and tested emergency preparedness plan for the Qu'Appelle River dam. The Authority intends to complete this emergency preparedness plan by March 31, 2013. The Authority needs to test the emergency preparedness plan for each of its four major dams (Gardiner, Qu'Appelle River, Rafferty and Alameda) to ensure that the plans are sufficient to protect people and property. The Authority also needs to complete 11 dam safety manuals documenting procedures for operations, maintenance, and surveillance of dam safety.

### 2.0 INTRODUCTION

The Authority is responsible for leading the management of Saskatchewan's water resources. It protects water quality and ensures sustainable water supplies. A sustainable water supply is essential throughout the province for economic growth and the well-being of people, animals, crops, and the environment.

The Authority operates, maintains, and inspects many of Saskatchewan's dams and related water channels. The Authority is responsible for the operation, maintenance, and surveillance of 45 dams within Saskatchewan including the four major dams—the Gardiner, Qu'Appelle River, Rafferty, and Alameda. If any of these dams fail, it would have extreme consequences downstream. For example, towns, businesses, crops, roads, bridges, and wildlife habitat could be flooded and/or have serious long-term damage. It is critical for the Authority to have strong processes to keep these dams safe.

In 2005, we assessed whether the Authority had adequate processes to ensure its four largest dams were safe. We reported the results of the audit in our 2005 Report – Volume 1, Chapter 3. We made four recommendations to assist the Authority to improve its processes.

### 3.0 STATUS OF RECOMMENDATIONS

This section sets out the recommendations and outlines actions taken by the Authority up to July 31, 2012.

### 3.1 Emergency Preparedness Plans Not Yet Complete

We recommended that the Saskatchewan Watershed Authority have up-to-date, tested emergency preparedness plans for each of its major dams (e.g., Rafferty, Alameda, Qu'Appelle River, and Gardiner). (2005 Report – Volume 1; Public Accounts Committee agreement June 21, 2005)

**Status** – We continue to make this recommendation.

An emergency preparedness plan can safeguard lives. It can reduce property damage in the event of natural flooding or dam failure.

In cases where dam failure or passage of a major flood could be expected to result in loss of life, the dam owner should prepare and maintain an EPP (Emergency Preparedness Plan) for use by external agencies. In the EPP, the dam owner describes the hazards, the associated notifications to be issued, and in general terms the actions expected of other responders. The EPP is not a response document, but should contain essential information, such as inundation maps and flood arrival details, so that local authorities can develop their own response plans. In the event of an emergency at the dam, the local authorities and other downstream stakeholders would be contacted, as shown on the fan-out notification chart, and asked to initiate their community emergency plans accordingly.<sup>1</sup>

In the event of flooding or dam failure, an emergency plan would provide:

- › Communication for timely, coordinated evacuation to protect people in the path of expected flooding
- › Dam management practices to protect property or reduce damage
- › Timely requests for effective support from local municipalities and other authorities

As of 2012, the Authority has emergency preparedness plans for three of its four major dams. Since June 2010, it has revised its emergency preparedness plans for the Rafferty, Alameda and Gardiner dams. It expects to complete a draft emergency preparedness plan for the Qu'Appelle River Dam by March 31, 2013.

The Authority has not formally tested the three revised emergency plans that are complete. The Authority needs to test these emergency plans to ensure the plans are sufficient to protect people and property. The 2011 spring flooding in Saskatchewan highlights the importance of testing emergency plans. At that time, the force of water released from dams destroyed property and damaged highways.

<sup>1</sup> Canadian Dam Association Dam Safety Guidelines. (2007), p. 80.



## 3.2 Dam Safety Manuals Remain Unfinished

We recommended that Saskatchewan Watershed Authority set processes that ensure its manuals always include complete procedures to operate, maintain, and monitor dam safety. (2005 Report – Volume 1; Public Accounts Committee agreement June 21, 2005)

**Status** – We continue to make this recommendation.

Documenting procedures in electronic or paper manuals makes them more readily accessible to employees. Written directions would help employees maintain the structural integrity and safety of the dams. For example, complete, up-to-date procedures for operations, maintenance, and surveillance of dam safety could help transfer knowledge when key employees leave the Authority.

Management uses 32 manuals to collectively explain how to operate, maintain, and monitor the four major dams. While 21 manuals are reasonably current, 11 need to be updated or completed. The Authority is updating its manuals, but progress has been slow. Management told us this is a result of the redirection of employees to higher priority activities during and following the 2011 flooding.