

# Agriculture

# 3

<b>Main points</b> .....	<b>45</b>
<b>Introduction</b> .....	<b>47</b>
<b>Special purpose funds and Crown agencies</b> .....	<b>47</b>
<b>Financial overview</b> .....	<b>48</b>
<b>Audit conclusion and findings</b> .....	<b>49</b>
Need to monitor cash receipts from land sales .....	50
Need to strengthen information technology processes.....	51
Adequate payroll service level agreement needed.....	53
Accounting estimates need strengthening .....	54
Saskatchewan Crop Insurance Corporation—Better processes over AgriStability enrolment fees needed.....	56
<b>Irrigation infrastructure maintenance</b> .....	<b>57</b>
Introduction.....	57
Background—Irrigation in Saskatchewan .....	58
Audit objective, scope, criteria, and conclusion.....	60
Key findings and recommendations .....	61
Reliable, current, complete information needed .....	61
Maintenance plans needed for irrigation infrastructure.....	64
Maintenance inconsistently documented .....	66
Performance monitored informally.....	68
Selected references.....	69
<b>Saskatchewan Crop Insurance Corporation—Premium rate setting process—a     follow up</b> .....	<b>69</b>
Procedures for calculating premium rates.....	70

# 3

## Agriculture

Procedures for data and formula accuracy .....	70
Approval of internal audit plan .....	70
<b>Status of previous recommendations of the Standing Committee on Public Accounts.....</b>	<b>71</b>

## **Main points**

This chapter contains the results of our audits of the Ministry of Agriculture (Agriculture) and its agencies with years ended March 31, 2011, the results of our audit of Agriculture's processes to maintain irrigation infrastructure and our follow up of the premium rate setting process at the Saskatchewan Crop Insurance Corporation (SCIC).

Overall, Agriculture and its agencies complied with the authorities governing their activities relating to financial reporting, safeguarding public resources, revenue raising, spending, borrowing and investing. The financial statements of the agencies are reliable.

Agriculture and its agencies had adequate rules and procedures to safeguard public resources except that Agriculture needs to:

- ◆ monitor cash receipts from land sales
- ◆ improve its information technology (IT) processes for password protection, preparation of an IT plan, preparation and testing of a disaster recovery plan for critical IT systems, and monitoring the adequacy of IT services handled by the Information Technology Office
- ◆ improve its processes when making its significant accounting estimates

SCIC needs to establish processes for calculating accurate enrolment fees for its AgriStability programs.

### **Agriculture—Irrigation Infrastructure Maintenance**

We conducted an audit of Agriculture's irrigation infrastructure maintenance. Our objective was to assess the adequacy of Agriculture's processes to maintain its irrigation infrastructure at Lake Diefenbaker between April 1, 2010 and March 31, 2011.

We concluded that Agriculture's processes to maintain irrigation infrastructure at Lake Diefenbaker were not adequate in the following respects. The Ministry needs more information about the condition of its irrigation infrastructure. Complete and current information would help the Ministry maintain its irrigation infrastructure appropriately. Documenting

its long-term objectives and maintenance plans would help the Ministry keep its infrastructure in good repair. Regular written reports would support the Ministry to make timely decisions to effectively maintain its irrigation infrastructure.

### **SCIC—Premium Rate Setting Process—a follow up**

In our 2007 Report – Volume 3, we reported on SCIC’s processes to set premium rates that comply with the *Canada-Saskatchewan Implementation Agreement* and *The Crop Insurance Act* and made three recommendations. At September 30, 2011, SCIC has implemented all three recommendations.

This chapter also contains the status of previous recommendations agreed to by the Standing Committee on Public Accounts. There are seven recommendations outstanding that are either partially, or not implemented.

## Introduction

The purpose of the Ministry of Agriculture (Agriculture) is to enable a prosperous market-driven agricultural industry through a supportive legislative framework, policies, and programs and services.<sup>1</sup>

## Special purpose funds and Crown agencies

At March 31, 2011, Agriculture was responsible for the following special purpose funds and Crown agencies. Each one has a March 31 year-end unless otherwise noted.

Agricultural Credit Corporation of Saskatchewan  
Agricultural Implements Board  
Agri-Food Council  
Beef Development Board<sup>2</sup>  
Cattle Marketing Deductions Fund<sup>3</sup>  
Crop Reinsurance Fund of Saskatchewan  
Horned Cattle Fund  
Individual Cattle Feeder Loan Guarantee Provincial Assurance Fund  
Livestock Services Revolving Fund  
Milk Control Board<sup>4</sup>  
Pastures Revolving Fund  
Prairie Agricultural Machinery Institute  
Saskatchewan Agricultural Stabilization Fund  
Saskatchewan Crop Insurance Corporation  
Thomson Meats Ltd.<sup>5</sup>  
Pension Plan for the Employees of Thomson Meats Ltd.<sup>6</sup>

The Saskatchewan Crop Insurance Corporation (SCIC) is a Crown corporation established under *The Crop Insurance Act*. SCIC administers a crop insurance program (known as AgrilInsurance) for crop losses due

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<sup>1</sup> Ministry of Agriculture, *Ministry Plan for 2010-11*, p. 2.

<sup>2</sup> Wound up effective March 31, 2011.

<sup>3</sup> Wound up effective August 4, 2010.

<sup>4</sup> Wound up effective October 1, 2010.

<sup>5</sup> Entity had a fiscal year end of December 31. Agricultural Credit Corporation of Saskatchewan sold this entity including its related pension plan on December 2, 2010.

<sup>6</sup> Entity had a fiscal year end of December 31. It was included in the December 2010 sale of Thomson Meats Ltd.

to weather-related and other natural perils and, since January 1, 2010, the AgriStability Program.<sup>7</sup> SCIC also manages the Crop Reinsurance Fund of Saskatchewan (Fund). The Fund receives premiums from SCIC and pays SCIC claims based on formulas established under the Agreement.

## Financial overview

For the year ended March 31, 2011, the Government's total agricultural expenses were \$1,135 million and its agricultural-related revenues were \$697 million. Exhibit 1 sets out expenses by program and revenues by source as reflected in the Government's 2010-11 Summary Financial Statements.

### Exhibit 1—Government's agricultural expense and revenue

	<u>2011</u>	<u>2010</u>
	(in millions of dollars)	
Agriculture expense by program:		
Crop Insurance	\$ 677	\$ 382
Farm Stability	416	181
Other	<u>42</u>	<u>65</u>
	<u>\$ 1,135</u>	<u>\$ 628</u>
Agriculture revenue by source:		
Federal Government	\$ 446	\$ 344
Producers' Crop Insurance Premiums	145	179
Sales, Services, Fees and Other	<u>106</u>	<u>202</u>
	<u>\$ 697</u>	<u>\$ 725</u>

In its 2011 financial statements, Saskatchewan Crop Insurance Corporation (SCIC) reports revenues of \$560 million and expenses of \$697 million for the year and total assets of \$655 million at March 31, 2011.<sup>8</sup>

<sup>7</sup> The AgriStability Program was previously administered by Canada.

<sup>8</sup> SCIC's financial statements are included in its Annual Report that is available at [www.saskcropinsurance.com](http://www.saskcropinsurance.com).

## Audit conclusion and findings

This chapter contains the results of our audits of Agriculture and its agencies with years ended on or before March 31, 2011. We also report the results of our audit of Agriculture's processes to maintain irrigation infrastructure.

Our Office worked with KPMG LLP, appointed auditor for Saskatchewan Agricultural Stabilization Fund, Saskatchewan Crop Insurance Corporation, and Crop Reinsurance Fund of Saskatchewan and with Meyers Norris Penny LLP, appointed auditor for Agricultural Credit Corporation of Saskatchewan and Thomson Meats Ltd. For these agencies, we used the framework recommended by the *Report of the Task Force on Roles, Responsibilities and Duties of Auditors*.<sup>9</sup>

### In our opinion, for the years ended on or before March 31, 2011:

- ◆ **Agriculture and its agencies had adequate rules and procedures to safeguard public resources except for the matters reported in this chapter**
- ◆ **Agriculture and its agencies complied with the following authorities governing their activities relating to financial reporting, safeguarding public resources, revenue raising, spending, borrowing, and investing:**

*The Agri-Food Act, 2004*

*The Crop Insurance Act*

*The Department of Agriculture, Food and Rural Revitalization Act*

*The Farm Financial Stability Act*

*The Financial Administration Act, 1993*

*The Government Organization Act*

*The Irrigation Act, 1996*

*The Ministry of Agriculture Regulations, 2007*

*The Provincial Lands Act*

*The Public Service Act, 1998*

*The Purchasing Act, 2004*

<sup>9</sup> This report is available on our website at [www.auditor.sk.ca/rrd.html](http://www.auditor.sk.ca/rrd.html).

***The Growing Forward: A Federal-Provincial-Territorial  
Framework Agreement on Agriculture, Agri-  
Food and Agri-Based Products Policy  
Orders in Council and regulations issued pursuant to  
the above legislation***

- ◆ **the financial statements of the agencies are reliable**

### **Need to monitor cash receipts from land sales**

Agriculture did not have a process to know whether it received all the cash it was entitled to from sales of land.

For the year ended March 31, 2011, Agriculture recorded approximately \$23 million in revenue from land sales to over 380 buyers. At March 31, 2011, Agriculture owned and planned to sell approximately 1.34 million acres of land through its crown land sale program.<sup>10</sup>

Under the crown land sale program, buyers have two options to pay for land purchased:

1. Pay in full at time of purchase.
2. Pay fifty per cent at the time of purchase and pay the balance in four equal, annual payments based on a payment schedule guarantee issued by a recognized financial institution. Agriculture would receive these payments from the financial institution.

We expected Agriculture would track which buyers selected the payment schedule guarantee option and track receipt of amounts due from financial institutions so that it received all of the money to which it was entitled.

At March 31, 2011, Agriculture had written guidance about sending invoices to the financial institutions that have issued a payment schedule guarantee for a land sale. It relied on these invoices to remind the financial institutions to make the appropriate payment. However, it did not have a process to track that payments were received when and as expected.

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<sup>10</sup> Ministry of Agriculture, *2010-11 Annual Report*, p. 15.



Without a process to track cash receipts from land sales using the payment schedule guarantee option, there is a risk that Agriculture will not collect all public money due.

**1. We recommend that the Ministry of Agriculture develop processes to track cash receipts from land sales.**

Agriculture told us that, subsequent to March 31, 2011, it adjusted its processes to monitor cash receipts from land sales using the payment schedule guarantee option. We will assess these processes during the 2011-12 audit.

## **Need to strengthen information technology processes**

Agriculture did not adequately design password controls to secure access to all of its computer systems that store confidential information.

During 2010-11, Agriculture used about 50 different information technology (IT) systems to deliver its services. These include, but were not limited to, systems to: process and prepare financial information, track land and its use, and record applications from producers for training programs. In some of its IT systems, Agriculture keeps personal and confidential information such as social insurance numbers and producer income tax information.

We expected Agriculture to assess the level of risk associated with each of its IT systems it uses to deliver services. Agriculture would then design processes to control access to these IT systems commensurate to the level of risk assessed. These processes would include designing the systems to require unique user names and passwords for each user. These passwords would meet standards for complexity and be changed periodically.

Agriculture has written guidance for processes to control access to information systems and business processes. This guidance includes standards for user names and passwords. One of Agriculture's critical IT systems that stores confidential information is a system that creates and manages databases. Each user has a unique user name. Management assigns each user access to only the databases they need. However, many users have the same password and the password is never

changed. Some users are not required to enter a password to gain access to the system.

Without adequate security controls, including passwords, over systems that keep personal and confidential information, there is a risk that unauthorized users may gain access to Agriculture's sensitive information.

- 2. We recommend that the Ministry of Agriculture configure its critical information technology systems to require a unique password for each user and passwords to be changed periodically.**

***We recommended that the Ministry of Agriculture prepare a written information technology plan. (2010 report – Volume 2)***

The Standing Committee on Public Accounts (PAC) considered this matter on June 7, 2011 and agreed with this recommendation.

In 2010-11, Agriculture continued to use an information technology (IT) committee (with senior management representation) to monitor Agriculture's IT plans and discuss IT issues. At August 2011, Agriculture had started, but not completed, its work on an IT plan.

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

***We recommended that the Ministry of Agriculture have tested disaster recovery plans for its critical computer systems. (2010 report – Volume 2)***

PAC considered this matter on June 7, 2011 and agreed with this recommendation.

At August 2011, Agriculture had not tested its disaster recovery plan (DRP) for one of its critical IT systems, the Crown Land Management System. It had not developed a DRP for its other critical IT systems (e.g., the Livestock Information Management System). Also, Agriculture did not revise its service agreement with the Information Technology Office (ITO) to adequately address disaster recovery.

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

***We recommended that the Ministry of Agriculture obtain assurance from the Information Technology Office on the operating effectiveness of the Information Technology Office’s controls over its client systems and data and assess the impact of deficient controls on the Ministry of Agriculture’s operations. (2010 Report – Volume 2)***

PAC considered this matter on June 7, 2011 and agreed with this recommendation.

During 2010-11, Agriculture’s IT committee continued to monitor the services received from ITO, provide ITO with direction about Agriculture’s IT plans, and discuss IT issues. As expected under the service agreement, Agriculture received, reviewed, and followed up issues (if any) noted on reports from ITO (e.g., Ministry IDS/Firewall report). Agriculture received additional information on risks.

After March 31, 2011, Agriculture has started working with ITO to obtain assurance over ITO’s processes to maintain client information technology systems and data. At August 2011, Agriculture has not received such assurance.

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

## **Adequate payroll service level agreement needed**

Agriculture did not have an adequate service level agreement with Public Service Commission (PSC) for its payroll services.

Agriculture spends about \$23.8 million per year on salaries and benefits.

PSC provided Agriculture with payroll services. Agriculture’s service level agreement with PSC did not clearly assign responsibilities for key payroll activities. An inadequate agreement increases the risk that Agriculture will not receive the services it needs.

- 3. We recommend that the Ministry of Agriculture modify its agreement with the Public Service Commission clarifying responsibilities for key payroll activities.**

## **Accounting estimates need strengthening**

***We recommended that the Ministry of Agriculture consistently document assumptions and analysis when making significant accounting estimates. (2009 Report – Volume 3)***

PAC considered this matter on June 25, 2010 and agreed with our recommendation.

Agriculture’s significant accounting estimates at March 31, 2011 included the following:

- ◆ uncollectible receivables of \$7.5 million (\$12 million – March 31, 2010)
- ◆ amounts due from the Federal Government for its share of business risk management programs of \$6.4 million (\$2.7 million – March 31, 2010)
- ◆ all amounts owed to the Federal Government/Saskatchewan Crop Insurance Corporation for business risk management programs for current and past program years (e.g., AgriStability and AgrilInvest<sup>11</sup>) of \$159.3 million (\$157.8 million – March 31, 2010) and related expense of \$141.2 million (\$131.4 million – March 31, 2010)

In our 2010 Report – Volume 2, we reported that Agriculture had limited documentation supporting its review and agreement of the key assumptions used (e.g., expected producer production, crop prices, expenses, producer participation) to support its estimates of expenses to the Federal Government and Saskatchewan Crop Insurance Corporation

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<sup>11</sup> AgriStability and AgrilInvest are business risk management programs, designed to provide financial support when producers incur large financial losses. These programs allow producers to protect their farm operations from a large margin decline, while stabilizing their farm income. Retrieved from <http://saskcropinsurance.com/agristability/program>

(SCIC)<sup>12</sup> for AgriStability. These assumptions are used in a complex economic model maintained by the Federal Government.

In 2010-11, Agriculture significantly improved its documentation of methods used to calculate, review and agree upon these estimates with the Federal Government.

Because few current crop year claims (i.e., the 2010 crop year in 2010-11) are processed by March 31, Agriculture must estimate its AgriStability and AgriInvest expenses. Agriculture received from the Federal Government an estimate of AgriStability and AgriInvest costs for the current crop year. These estimates were received twice during its fiscal year in August and January, and were based on the best information available at that time. Agriculture recognized the uncertainty surrounding this estimate and determined its own range of estimated expenses at March starting with the Federal Government's January estimate. For 2010-11, Agriculture estimated its AgriStability and AgriInvest expenses to the Federal Government/SCIC to be between \$131.3 million and \$141.2 million. Agriculture's 2010-11 analysis did not consider past actual experience when setting the estimate.

Actual experience shows that Agriculture's AgriStability expense estimate has been significantly higher than the actual expense over the past three years. Exhibit 2 shows the expense amount and percentage of total expense reversed each year. This has resulted in Agriculture recording significant amounts as revenue<sup>13</sup> in the subsequent year, once actual claim information becomes available. In 2010-11, Agriculture recorded as revenue \$57.3 million, of which \$46.4 million related to 2009-10 (the difference between the actual amounts due to the Federal Government/SCIC for all previous fiscal periods and the amounts it had recorded for AgriStability and AgriInvest in those fiscal years).

As mentioned above, Agriculture's March 31 estimate used the Federal Government's January estimate. The Federal Government's estimate was based on information available up to December (i.e., March 31, 2011 estimate based on information available up to December 2010.) Because

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<sup>12</sup> Saskatchewan Crop Insurance Corporation assumed responsibility for administering the AgriStability program from the Federal Government starting April 1, 2010.

<sup>13</sup> Reversals or refunds of prior year expenses are recorded as Other-other own-source revenue.

Agriculture used December information for its March estimate, its estimate may not reflect the best information available at March 31.

**Exhibit 2—History of AgriStability and AgrilInvest expenses**

<b>Year</b>	<b>Total AgriStability and AgrilInvest expense recorded in fiscal year (\$000)</b>	<b>Reversal of prior year expense recorded as revenue (\$000)</b>	<b>Reversal as a percentage of initial expense recorded</b>
2007-08	\$115,799	\$37,341 <sup>14</sup>	32%
2008-09	\$118,099	\$43,122	37%
2009-10	\$131,432	\$46,421	35%
2010-11	\$141,188	Not yet available	N/A

Source: Ministry of Agriculture accounting records

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

**Saskatchewan Crop Insurance Corporation—Better processes over AgriStability enrolment fees needed**

SCIC needs to ensure that AgriStability enrolment fees (fees) are calculated accurately and in accordance with the agreement.

As of January 1, 2010, SCIC began administering a separate program called the AgriStability Program. The program was established under an agreement called: *Growing Forward: a Federal-Provincial-Territorial Framework Agreement on Agriculture, Agri-food and Agri-Based Products Policy* (Agreement). This program provides agricultural producers with protection against declines in production margin.<sup>15</sup>

The AgriStability program requires producers to pay an enrolment fee in order to be eligible for payments under the program. For the year ended March 31, 2011, SCIC recorded in its financial statements \$11.7 million in enrolment fee revenue.

<sup>14</sup> The reduction to AgriStability expense adjustment recorded in 2007-08 was part of a cumulative adjustment relating to 2003-04 to 2007-08. The total adjustment recorded in 2007-08 was \$92.964 million.

<sup>15</sup> The *AgriStability Program Guidelines* define the production margin as the difference between allowable income and allowable expense for the year. The guidelines specify details of how the production margin is calculated and the required adjustments for items such as receivables, payables and inventory.

During the year, SCIC did not calculate the enrolment fees in accordance with the Agreement. The Agreement requires that SCIC base the calculation of the individual producer's enrolment fees on the producer's production margin of previous years. Management of SCIC told us it did not do this because it was not practical due to time constraints to send producers their enrolment notices that included the enrolment fee. At the time SCIC calculated the fees, it did not have all of the information to calculate the fee in accordance with the Agreement. The Agreement requires that where previous years' production margin is not available, it is to be estimated based on similar farms. SCIC used other methods of calculating the fee. For example, in some instances, SCIC estimated the production margin of a previous year based on the production margin of other previous years for that producer. In other instances, the amount of the enrolment fee calculated for a particular producer in the prior year was used as the current year enrolment fee. Because of the nature of the information available, management was unable to quantify the amount of the error. However, it is estimated that for the year ended March 31, 2011, the amount of the error was not material.

Also, SCIC did not have controls in place to ensure the accuracy of the calculation of fees for the AgriStability program. For example, we found no evidence that the calculation was reviewed for accuracy and compliance with the Agreement. SCIC should set out processes that will ensure the accuracy of the calculation of the fees.

- 4. We recommend that the Saskatchewan Crop Insurance Corporation establish processes for calculating accurate AgriStability enrolment fees in accordance with the Growing Forward Agreement.**

## **Irrigation infrastructure maintenance**

### **Introduction**

Part of Agriculture's mandate is to foster a commercially viable, self-sufficient and sustainable agriculture and food sector.<sup>16</sup> In some parts of Saskatchewan, this involves irrigation.

<sup>16</sup> *Ministry of Agriculture 10-11 Annual Report*, p. 6.

Irrigation infrastructure means the permanent installations that direct the water and control its flow, making irrigation possible. Irrigation infrastructure includes drains, ditches, culverts, canals, pipelines, pumps, and pump stations that keep the water moving.<sup>17</sup>

*The Irrigation Act, 1996* gives Agriculture authority to own irrigation infrastructure and/or grant financial assistance related to irrigation. Agriculture owns the majority of the infrastructure related to irrigation in Saskatchewan. This infrastructure has a recorded cost of about \$63 million and a net book value of about \$18 million.<sup>18</sup> In 2010-11, Agriculture spent about \$5.2 million to operate, maintain, and administer irrigation infrastructure.<sup>19</sup>

Agriculture is responsible to maintain its irrigation infrastructure either directly or by working with irrigation districts (explained in the next section). This chapter describes the results of our audit of Agriculture's processes to maintain its irrigation infrastructure at Lake Diefenbaker.

### **Background—Irrigation in Saskatchewan**

Irrigation helps to diversify rural economies, stabilize crop production, and retain rural populations. It helps to manage drought cycles. In Saskatchewan's semi-arid areas, irrigation makes it possible to grow a wider range of crops (e.g., potatoes, beans, herbs, berries) and support more livestock. Irrigation also contributes water for use by businesses and municipalities during the irrigation season (May through September). If irrigation water is not available when needed, there is increased risk of reduced crop production and business interruption.

*The Irrigation Act, 1996*, enables people who wish to use irrigation water to form irrigation districts for specific geographic areas. The primary objective of irrigation districts is to provide irrigation water within the district. Irrigation districts also co-operate to promote sustainable irrigation and economic viability.

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<sup>17</sup> *The Irrigation Act, 1996*, Section 2(l) defines irrigation works. We used the term irrigation infrastructure. We excluded dykes, dams, and weirs used for irrigation.

<sup>18</sup> Ministry of Agriculture tangible capital asset continuity schedule as at March 31, 2011.

<sup>19</sup> *Ministry of Agriculture 10-11 Annual Report*, p. 32.



Saskatchewan had 26 irrigation districts in May 2011. The largest of these irrigation districts are in central Saskatchewan at Lake Diefenbaker.

### Exhibit 3—Irrigation districts by irrigated acres and irrigators, 2011

District	Number of Irrigated Acres	Number of Irrigators
South Saskatchewan River Irrigation District (SSRID) and Saskatoon South East Water Supply System (SSEWS) <sup>20</sup> using the <b>East Side pump station and M1 canal</b>	55,000	159
<b>Riverhurst</b> Irrigation District	11,500	28
<b>Luck Lake</b> Irrigation District	10,000	25
All other Saskatchewan irrigation districts combined	43,500	409
Total for 26 districts	120,000	621

The Lake Diefenbaker irrigation infrastructure is significant and complex. The bolded items in Exhibit 3 form part of the Lake Diefenbaker irrigation infrastructure. This infrastructure consists mainly of pump stations, pipelines, and canals intended to transport large volumes of water for business and agricultural purposes throughout the irrigation season. Irrigation in other districts operates with small pumps or by gravity-flow through earth canals that transport small volumes of water. There are no large pump stations or pipelines in these smaller districts.

Agriculture's Lake Diefenbaker irrigation infrastructure consists of:

- ◆ the East Side pump station and M1 canal
  - pump capacity of 380 thousand gallons per minute
  - 450 km of canals and drains (to remove excess water)
- ◆ the Riverhurst pump station and pipelines
  - pump capacity of 96 thousand gallons per minute
  - 45 km of pipeline
- ◆ the Luck Lake pump station and pipelines
  - pump capacity of 74 thousand gallons per minute
  - 34 km of pipeline

Water from Agriculture's irrigation infrastructure at Lake Diefenbaker:

- ◆ irrigates about 76,500 acres of farmland

<sup>20</sup> The Saskatchewan Water Corporation owns and operates the Saskatoon South East Water Supply System.

- ◆ has various business uses, mainly for three potash mines
- ◆ is a non-potable water source for four villages, three towns, and two resort villages that treat this water along with water from other sources such as wells to produce drinking water
- ◆ supports waterfowl habitat conservation including heritage marsh

Effectively maintaining irrigation infrastructure reduces the long-term costs for irrigation. Preventative maintenance keeps irrigation infrastructure in good repair to provide a reliable water source and avoid water loss (e.g., from leaks or improperly controlled water flow). Doing the right maintenance at the right time helps ensure that water will be available to users when they need it.

### **Audit objective, scope, criteria, and conclusion**

The objective of this audit was to assess the adequacy of Agriculture's processes to maintain its irrigation infrastructure at Lake Diefenbaker between April 1, 2010 to March 31, 2011.

To conduct this audit, we followed the *Standards for Assurance Engagements* published in the *CICA Handbook - Assurance*. We examined relevant policies, procedure manuals, and related documents, and interviewed key staff on-site at the irrigation infrastructure.

To evaluate Agriculture's processes, we used criteria based on the work of other auditors and literature listed in the selected references. Agriculture's management agreed with the criteria.

Our criteria specify that to maintain irrigation infrastructure adequately at Lake Diefenbaker, Agriculture should:

1. obtain reliable information about the irrigation infrastructure
2. develop a maintenance plan for irrigation infrastructure
3. carry out maintenance effectively on irrigation infrastructure
4. monitor the performance of maintenance

**We concluded that from April 1, 2010 to March 31, 2011, the Ministry of Agriculture's processes to maintain irrigation infrastructure at Lake Diefenbaker were not adequate in the following respects. Agriculture needs to:**

- ◆ **regularly assess the condition of its irrigation infrastructure to allow informed decisions about required maintenance and its timing**
- ◆ **document a maintenance plan and key planning processes for its irrigation infrastructure**
- ◆ **prioritize maintenance activities based on long-term objectives for irrigation infrastructure**
- ◆ **document maintenance activities completed on irrigation infrastructure to ensure it meets maintenance standards**
- ◆ **report the results of maintenance activities on its irrigation infrastructure to enable monitoring**

Agriculture became responsible for the irrigation infrastructure at Lake Diefenbaker in 2006.<sup>21</sup> Agriculture told us that the irrigation infrastructure was not in good condition at that time and a thorough assessment of it had not been done. As set out in Exhibit 3 (above) and Exhibit 4 (below), Agriculture undertook various activities to obtain information about the condition of the irrigation infrastructure and to address some significant risks.

## **Key findings and recommendations**

In this section, we set out our key findings and recommendations. Our expectations (criteria) are in italics under each subheading.

### **Reliable, current, complete information needed**

*We expected the Ministry of Agriculture would have a complete list of its irrigation infrastructure including all key components. We expected it would have processes to keep key information current and reliable (e.g., condition, previous maintenance). We expected the Ministry to assess risks that could prevent the irrigation infrastructure from operating at expected service levels (service objectives).*

Agriculture did not set out what information it needed about its irrigation infrastructure or its condition. It did not have policies requiring this information be collected or how often to update it. Agriculture contracted

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<sup>21</sup> The Saskatchewan Water Corporation had responsibility for irrigation infrastructure at Lake Diefenbaker from 1984 to 2006.

engineering consultants to provide basic information about the condition of some of its irrigation infrastructure. Engineers provided this information in the form of asset management plans to guide operations, maintenance activities, and rehabilitation of the irrigation infrastructure. Agriculture obtained complete asset management plans for the Eastside pump station, the M1 canal, and its pipelines. It did not seek asset management plans for its Riverhurst pump station or Luck Lake pump station (see Exhibit 4).

Asset management plans were important as they included a detailed inventory of all components, their condition, and risks related to their condition at the time of the assessment. These plans also suggested rehabilitation activities, preventative maintenance, and estimated costs over the short and medium term. The asset management plans indicated that available operating and maintenance data should be used to update the asset management plans every year. The plans could then be adjusted to reflect the results from recent inspections, actual maintenance activities, and available resources.<sup>22</sup> Agriculture did not have a plan to update its information about the condition of its irrigation infrastructure.

Agriculture obtained some current information on the condition of all three of its pump stations. For example, Agriculture installed vibration detection equipment at all its pump stations to protect pumps by shutting them off if unacceptable vibration levels were detected. In addition, Agriculture hired electrical contractors to assess the electrical components at each pump station once every three years.

Agriculture did not have current information for Riverhurst and Luck Lake pump stations (e.g., condition of the components of these pump stations). Current information about the condition of its irrigation infrastructure would help Agriculture to identify what maintenance the irrigation infrastructure requires urgently or for prevention. Without current information, Agriculture is less able to assess the risks it faces.

The following summarizes information Agriculture had about the condition of its irrigation infrastructure including information from the asset management plans and assessments of electrical or other component parts.

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<sup>22</sup> PCCP Pipeline Management Plan Update, January 2011, pg i.

**Exhibit 4—2007 to 2011 information about condition of irrigation infrastructure at Lake Diefenbaker**

Infrastructure	Year construction completed	Year Asset Management Plan completed	Year assessed electrical or other parts	Infrastructure needing repair <sup>23</sup>
East Side pump station	1970	2009	2010 roof; 2011 cooling system; (2012 electrical)	8%
M1 Canal	1970	2009	n/a	7%
Riverhurst pump station	1990	No Asset Management Plan completed	2011 electrical	Unknown
Luck Lake pump station	1988	No Asset Management Plan completed	2006 roof; 2010 electrical	Unknown
Pipelines (Riverhurst and Luck Lake)	1990	2007, 2011	n/a electrical; 2009 corrosion	12%

Irrigation infrastructure deteriorates over time and is subject to damage from severe weather, erosion, animals (e.g., beaver), and events causing damage to the infrastructure's condition. Agriculture needs current, reliable information about the condition of its irrigation infrastructure at least every five years. In addition to its periodic information about electrical components and vibration, Agriculture needs to know if other key components are functioning effectively in its pump stations, pipelines, and canals. Agriculture could then more effectively plan for maintenance, rehabilitation, or the replacement of key components of its irrigation infrastructure over the longer term. More current information would help Agriculture complete maintenance economically, at the right time, to ensure it can supply irrigation water when and where it is needed.

- 5. We recommend that the Ministry of Agriculture regularly assess the condition of its irrigation infrastructure to facilitate maintenance planning and ensure it can supply irrigation water as needed.**

<sup>23</sup> Percentage of infrastructure that was in need of urgent replacement or rehabilitation at the time the condition assessment was completed for the asset management plan.

## Maintenance plans needed for irrigation infrastructure

*We expected the Ministry of Agriculture to develop plans for maintaining irrigation infrastructure to an acceptable condition to achieve its irrigation objectives. We expected the Ministry's maintenance plan to identify maintenance objectives, strategies, and estimated costs over the short, medium, and long term. We expected the plan to set priorities for targeted and timely maintenance. We expected the plan to include performance measures to help the Ministry monitor the achievement of its maintenance objectives.*

Agriculture did not have formal maintenance plans for all of its irrigation infrastructure. Agriculture used informal processes to guide its maintenance decisions. These processes included informal inspections by Ministry staff, following manufacturers' pump-equipment maintenance standards, and adopting certain recommendations from the asset management plans. It also relied on the experience and expertise of its maintenance staff. In addition, Agriculture kept extra pumps ready for service at all pump stations in the event of pump failure or unplanned downtime. It also stockpiled extra pipe and materials to repair pipelines.

Agriculture documented only some of its planning processes for maintaining irrigation infrastructure. For example, although Agriculture told us it discussed the recommendations and maintenance priorities set out in the asset management plans, it did not document its decisions or rationale supporting whether it accepted or rejected them. Agriculture did not have other processes to prioritize maintenance for its irrigation infrastructure. We found that Ministry staff understood the current planning process and practices, in part because of low turnover of the staff operating and maintaining irrigation infrastructure.

Lack of documented maintenance plans and procedures could hamper Agriculture's ability to effectively carry out maintenance activities, particularly when experienced staff leave. Without documentation of the rationale for key maintenance decisions, Agriculture risks missing critical maintenance when the demand for water is greater and the pressure on its irrigation infrastructure increases.

**6. We recommend that the Ministry of Agriculture document its planning processes and its maintenance plan for its irrigation infrastructure.**

Demand for irrigation water fluctuates with the number of acres to be irrigated and the amount and timing of rainfall. If the district receives sufficient rainfall at the right times, it needs less irrigation water. Agriculture did not set irrigation objectives (i.e., service objectives).<sup>24</sup> Agriculture told us it aimed to maintain its irrigation infrastructure to meet the needs of irrigators during the irrigation season.

Agriculture did not document objectives setting out in what condition it expected to maintain its irrigation infrastructure. The condition of the infrastructure influences the length of the infrastructure's working life and the amount of water it can handle at any point in time. Agriculture had one maintenance objective to guide maintenance decisions for irrigation infrastructure ("operate without service disruption longer than three consecutive days during the irrigation season"). It documented this maintenance objective in its business continuity plan.

Long-term service objectives and maintenance objectives would help Agriculture select the right maintenance activities at the right time over the life of the irrigation infrastructure. This would reduce the risk of the irrigation infrastructure becoming unreliable or of future repair costs becoming unpredictable or higher than necessary. Unreliable irrigation infrastructure could adversely impact crop production or cause unexpected business interruptions. Use of service objectives would help ensure maintenance activities are consistent with Agriculture's priorities.

**7. We recommend that the Ministry of Agriculture set long-term irrigation objectives and use them to guide maintenance plans and priorities for its irrigation infrastructure.**

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<sup>24</sup> The Ministry had formal agreements with irrigation districts. These agreements clarified roles and set out the quality and maximum quantity of water that could be drawn from Lake Diefenbaker. For example, the Ministry agreed to provide non-potable water (not drinking quality) and specified it would provide enough water to cover each acre served with up to 1.5 feet of water during the irrigation season.

## Maintenance inconsistently documented

*To carry out maintenance effectively, we expected that the Ministry of Agriculture would use recognized standards for its various maintenance activities, establish maintenance procedures consistent with those standards, and track the completion of maintenance activities and changes to its planned activities.*

For pump stations, Agriculture based its maintenance activities on manufacturers' standards and staff experience. It maintained a manual for each pump station that provided staff with sufficient detailed guidance on carrying out daily operations and maintenance activities. These manuals set out the maintenance standards, a checklist of regular activities, and maintenance procedures to complete at the beginning and end of the irrigation season.

For canals and pipelines, Agriculture did not have formal maintenance standards or guidance. Canal maintenance may be required due to erosion or damage caused by debris or animals. Pressurized water pipelines require regular observation and prompt repair of areas at risk of leaks. Agriculture relied on experienced staff to identify and carry out maintenance for canals and pipelines. Our audit did not identify any significant, unexpected service interruptions during the 2010 irrigation season.

Ministry management assigned one supervisor to monitor daily operations and maintenance activities for all irrigation infrastructure at Lake Diefenbaker. The supervisor assigned and monitored maintenance activities during onsite visits and bi-monthly staff meetings during irrigation season. Seasonal employees performed routine maintenance during the irrigation season. Agriculture scheduled larger rehabilitation work outside of the irrigation season (e.g., replacing the liner of the M1 canal).

As previously noted, Agriculture did not document whether it accepted or carried out the priorities as recommended in the asset management plans. Exhibit 5 summarizes some significant recommended activities that Agriculture told us it planned to complete.



## Exhibit 5—Maintenance recommended by engineers

Infrastructure (year Asset Management Plan completed)	Asset Management Plan recommendations	Ministry action taken
<b>East Side pump station</b> asset management plan (2009)	Address non-compliance with existing electrical and building codes, and occupational health and safety regulations	Work started in November 2009 and completed in July 2011
	Several components operating beyond their service life (e.g., pump condition monitoring systems, electrical components, etc.)	Work to replace these components started in April 2010 and is ongoing
	Install pump condition monitoring system	Work started in March 2009 and is ongoing
<b>M1 Canal</b> asset management plan (2009)	Complete major rehabilitation on canal (install buried surface liner for canal)	In 2010-11, entered into contracts to complete work over 5 years at a total estimated cost of \$50 million
<b>Pipelines</b> asset management plan (2007)	Complete detailed condition assessments	Started in January 2009, work continues
	Install cathodic protection system	Trial project started in 2010

Staff consistently documented their key pipeline maintenance activities. After maintenance on a section of pipeline, staff reported the date, location, and reason for the repair, what was done, and who did it.

However, staff did not consistently document maintenance activities for pump stations and canals. This resulted in incomplete records of maintenance activities. For example, Agriculture had activity logs for its East Side and Riverhurst pump stations. Staff used the East Side logs primarily to record the flow volumes at the beginning and end of the irrigation season. The Riverhurst log sometimes recorded what maintenance activities occurred and when, but it had long gaps (one occasion with a three-year gap after 2005) without maintenance records. The logs did not consistently show whether Agriculture maintained its infrastructure to recommended manufacturer standards (e.g., checking pump oil levels every 500 hours or 3 months).

Without complete documentation, Agriculture cannot demonstrate that it properly maintained its irrigation infrastructure.

**8. We recommend that the Ministry of Agriculture document maintenance activities completed on irrigation infrastructure.**

## Performance monitored informally

*To monitor performance, we expected that the Ministry of Agriculture would regularly review and report on its progress in carrying out its maintenance plan. We expected reports would provide enough information for management to review the results of maintenance activities and adjust plans.*

Agriculture had adequate processes to monitor its financial performance. It did not have a policy or adequate processes to monitor the results of operations and maintenance for its irrigation infrastructure.

For financial reporting, Agriculture used well-defined processes to track and prepare reports on planned, actual, and forecasted costs. It actively managed whether maintenance activities were within the approved budget. Agriculture produced summarized financial reports at various times. For example, middle and senior management received monthly financial reports. Management used this financial information to bill each irrigation district for maintenance costs as set out in Agriculture's agreements with irrigation districts.

Agriculture did not have performance measures to monitor maintenance or the condition of its irrigation infrastructure. Senior management did not receive written reports about irrigation service disruptions. Senior management did not receive written reports about changes in the condition of irrigation infrastructure over time, the progress of maintenance, or the expected impact of not completing maintenance on irrigation infrastructure.

Management told us it informally received verbal information about its irrigation infrastructure in bimonthly staff meetings. Management told us it used this information to adjust its informal maintenance plans and make verbal reports to senior management.

Written information is essential for decisions that have a long-term impact on the condition of the irrigation infrastructure. In addition, written information would provide a permanent record of the history of the results of maintenance activities for irrigation infrastructure. Such records are particularly important when experienced staff leave or senior management changes.

9. We recommend that the Ministry of Agriculture require regular written reports on the results of its maintenance activities for irrigation infrastructure for review by senior management.

## Selected references

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## Saskatchewan Crop Insurance Corporation—Premium rate setting process—a follow up

In our 2007 Report – Volume 3, we reported on SCIC’s processes to set premium rates that comply with the *Canada-Saskatchewan Implementation Agreement* and *The Crop Insurance Act*. We made three recommendations.

**We recommended:**

- ◆ **Saskatchewan Crop Insurance Corporation document and approve all its procedures for calculating premium rates**
- ◆ **Saskatchewan Crop Insurance Corporation establish and document procedures to check the accuracy of data and formulas used to calculate premium rates**
- ◆ **the Board of Directors of Saskatchewan Crop Insurance Corporation approve an internal auditor plan that includes follow up of the internal auditor's recommendations.** (2007 Report – Volume 3)

On June 16, 2008, PAC agreed with our recommendations.

In 2009, we assessed management's progress towards addressing our recommendations. At that time, we reported that while SCIC had made some progress, more work remained on all three recommendations.

In 2011, we re-assessed management's progress towards addressing our past recommendations. We describe below the work SCIC has done to address our recommendations to September 30, 2011.

## **Procedures for calculating premium rates**

SCIC has established written procedures for calculating premium rates. Management has formally approved those procedures.

## **Procedures for data and formula accuracy**

SCIC has established written procedures for checking the accuracy of data and formulas used to calculate premium rates. Those procedures require an independent check of the calculation of the premiums rates. Our follow up found evidence of the independent check.

## **Approval of internal audit plan**

The Board of Directors approve the internal auditor's plan on an annual basis. The plan includes follow up work by the internal auditor to verify that management has properly addressed the internal auditor's past recommendations. The internal auditor now has a process in place to

track, follow up and report to the Board on the internal auditor's past recommendations.

**Status** – SCIC has implemented all of our past recommendations related to our examination of SCIC's processes to set premium rates.

## Status of previous recommendations of the Standing Committee on Public Accounts

The following exhibit provides an update on recommendations agreed to by PAC that are not yet implemented and are not discussed earlier in this chapter.<sup>25</sup> Our intent is to follow up outstanding recommendations in upcoming reports.

**Exhibit 6**

PAC REPORT YEAR <sup>26</sup>	OUTSTANDING RECOMMENDATION	STATUS
<b>Ministry of Agriculture - Regulating Pesticides (2007 Report – Volume 1)</b>		
2009	2-1 that the Ministry of Agriculture formally analyze the risks that licensees and exempt persons are not following pesticide control laws.	<b>Partially implemented</b> (as at March 31, 2010). We plan to do a follow up in 2012.
2009	2-2 that the Ministry of Agriculture document its strategy to address identified risks associated with monitoring and enforcing compliance with pesticide control laws.	<b>Partially implemented</b> (as at March 31, 2010). We plan to do a follow up in 2012.
<b>Saskatchewan Crop Insurance Corporation - Security Awareness (2010 Report – Volume 1)</b>		
2011	3-2 that the Saskatchewan Crop Insurance Corporation include in its privacy and security policies a requirement for a formal security awareness program.	<b>Not Implemented</b> (as at February 28, 2010). We plan to do a follow up in 2012.

<sup>25</sup> For definitions of the Key Terms used in Exhibit 6, see Chapter 27 – Standing Committee on Public Accounts.

<sup>26</sup> "PAC Report Year" refers to the year that PAC first made the recommendation in its report to the Legislative Assembly.

### Chapter 3 – Agriculture

PAC REPORT YEAR <sup>26</sup>	OUTSTANDING RECOMMENDATION	STATUS
2011	3-3 that the Saskatchewan Crop Insurance Corporation document who is responsible to ensure that security awareness activities are regularly carried out.	<b>Not Implemented</b> (as at February 28, 2010). We plan to do a follow up in 2012.
2011	3-4 that the Saskatchewan Crop Insurance Corporation document its plan for delivery of its security awareness program and carry out the plan.	<b>Not Implemented</b> (as at February 28, 2010). We plan to do a follow up in 2012.
2011	3-5 that the Saskatchewan Crop Insurance Corporation monitor the effectiveness of its security awareness program.	<b>Not Implemented</b> (as at February 28, 2010). We plan to do a follow up in 2012.