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Report on Agriculture Risk Management System Risk and Controls Review

Ministry of Agriculture

Distribution

Full Report

Assistant Deputy Minister & EFO, FLNR Corporate Services Natural Resource Sector **Shauna Brouwer**

Chief Financial Officer, FLNR Financial Services Branch

Michael Lord

Executive Director & CIO, FLNR Information Management Branch

Doug Say

Manager, Business and Finance, AGRI Business Risk Management Branch

Carol DeLong

Sr. Business Portfolio Manager, FLNR Information Management Branch

Pauline Loos

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Internal Audit & Advisory Services

Date of fieldwork completion: November 2011

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Abbreviations

AAFC Agriculture and Agri-Food Canada

ACS Administrative Cost Sharing

ARMS Agriculture Risk Management System

BCP Business Continuity Plan

BC FARMS/ FARMS Farmer Access to Risk Management System

BRM Branch Business Risk Management Branch

CAS Corporate Accounting System

CSD Corporate Service Division

CSNR Corporate Services Natural Resources

DRP Disaster Recovery Plan

IAAS Internal Audit & Advisory Services

IDIR Corporate Employee Authentication System

IMB Information Management Branch

IT Information Technology

PIA Privacy Impact Assessment

PIN Personal Identification Number

STRA Security Threat and Risk Assessment

the ministry Ministry of Agriculture

TRIM Total Records and Information Management

UAT User Acceptance Testing

Report Summary

Background

AgriStability is a farm income risk management program designed to protect farming operations from significant (greater than 15%) drops in production margins from an average of the previous five year, excluding the highest and lowest years.

In October 2008, the BC Ministry of Agriculture and Lands and the federal government's Agriculture and Agri-Food Canada (AAFC) agreed that BC should exercise its option to take over the delivery of the AgriStability program in response to ongoing and increasing producer concerns with AAFC's delivery of the program.

The Ministry of Agriculture (the ministry) took over administration of the program starting in the 2010 program year. The ministry is processing benefits and appeals for the 2009 program year, processing 2010 benefits, and receiving 2011 enrolments. The AgriStability program collects enrolment fees and Administrative Cost Sharing (ACS) fees from participating growers each year. The enrolment fees are calculated for each participant, and are then stored in an account dedicated to that participant. The ACS fees are collected as revenue by the ministry. The ministry provides regular reports to the AAFC regarding the administration of the program.

To create a centralized repository of AgriStability participant information, the Business Risk Management (BRM) Branch of the ministry initiated the development of the Agriculture Risk Management System (ARMS). The system will track the progress of enrolments, verifications, fee collections, claims processing, and appeals. The system will use the Microsoft Dynamics suite of products, which includes customer relationship and accounting modules.

In accordance with the Chapter 13 of the Core Policy Manual, the ministry requested a risk and controls review for the implementation of the ARMS system.

Risk and Controls Review

Purpose

The purpose of this assignment was to:

- document the ARMS business processes and the associated risks and controls to assess whether there are any potential gaps in the control framework; and
- recommend procedures to address any significant gaps identified in the control framework.

Scope

The scope of the review included an assessment of the ARMS processes, system functions, and application security to determine whether the designed controls provide reasonable assurance of the integrity and reliability of the application. (See Appendix A for the detailed review scope and objectives).

The scope did not include a review of the web-based BC Farmer Access to Risk Management System (FARMS) application, the data integrity of source systems, or the network infrastructure (e.g., servers and network security devices) used to support the ARMS.

Approach

Internal Audit & Advisory Services performed the review over the period September 2011 to November 2011.

Our approach included applying a risk assessment methodology in developing control objectives for the ARMS application, identifying risks to the achievement of those objectives, assessing the risks in the absence of controls, reviewing the planned controls to mitigate the risks, and assessing the residual risk assuming that the documented controls are operating as designed and/or will be implemented as intended. We then made some recommendations based on the residual risk assessment.

The approach was consistent with the guidance from the Canadian Institute of Chartered Accountants – Information Technology Control Guidelines, and from the Information Systems Audit and Control Association – Control Objectives for Information and Related Technology.

During the course of the review, the ministry was provided periodic updates of the review progress and results.

Conclusions

We conclude, for the scope areas reviewed and subject to the implementation of the recommendations contained in this report along with the planned controls documented in the risk and controls matrix, that the ARMS processes and controls adequately mitigate the associated business risks.

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The full set of recommendations resulting from the review work is as follows (see Appendix A for a summary of residual risks):

 The Business Risk Management Branch (BRM Branch) should ensure that the Security Threat and Risk Assessment (STRA) and Privacy Impact Assessment (PIA) for the ARMS are completed, approved, and signed-off by senior management before the system is implemented.

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 The BRM Branch should ensure that its Business Continuity Plan (BCP) as well as the ministry's Disaster Recovery Plan (DRP) are updated to cover the ARMS system and related processes. In addition, the BRM Branch should ensure the BCP is reviewed annually to ensure it is current, valid, and readily accessible during a business interruption.

- The ministry should ensure that restoration tests of the ARMS backups are periodically performed to verify media reliability and information integrity.
- The current change management process should be reviewed to ensure that system changes are assessed by the appropriate business representative(s) to avoid compromising operational processes and security controls.

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- The Agristability payment automated procedures should be documented as part of the policies and procedures manual.
- Although cheques are not issued by the BRM Branch, the lost cheque procedures carried out by the branch should be documented as part of its policies and procedures manual.

Further details on the risk assessment are included in Appendix B.

We would like to thank the ARMS project team for their assistance and involvement throughout the review.

Chris D. Brown, CA Assistant Deputy Minister Internal Audit & Advisory Services Ministry of Finance

April 27, 2012

Appendix A – Scope and Objectives & Summary of Residual Risks

The table below provides the review's scope and objectives and a summary of the overall residual risk for each scope component. The residual risk column is a roll-up of the detailed assessment in Appendix B. The residual risk is the auditor's assessment of the risk remaining after the implementation of controls (planned or existing) to mitigate the inherent risk.

Based on this assessment and subject to implementation of the recommendations, we conclude that the ARMS processes and controls adequately mitigate the associated business risks.

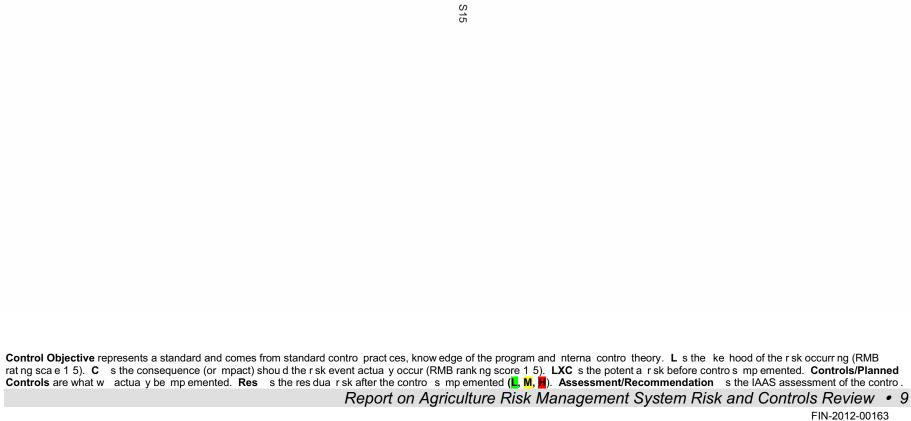
Scope Area	Objective	Residual Risk (Rollup of Appendix B)
Operating Environment - to meet government and minist	determine whether the controls over the ARMS arry standards.	nd related processes
1. Organization	To ensure that defined functions, related resources, and segregation of duties are established.	
2. Policies and Procedures	To ensure that senior management has established the policy framework for the ARMS and related operating processes.	
3. Logical Security	To ensure that logical security procedures are established that ensure only authorized users and information technology (IT) support staff can access the ARMS system functions in accordance with their roles.	
4. Continuous Services	To ensure that backup and recovery procedures, a disaster recovery procedures (DRP), and a BCP are in place for ARMS and are periodically tested and updated.	S15
Change Management Process	To ensure that formal change management procedures are in place for application maintenance and that changes do not jeopardize the security and integrity of the data.	
6. Data Integrity	To ensure that people specific information as well as organizational information is completely and accurately recorded.	
7. Participant Management	To ensure that all Agristability participants are properly and accurately registered, tracked, and managed.	
8. Payment Management	To ensure that all payments, fees, and reimbursements are properly tracked, issued, and processed.	

Scope Area	Objective	Residual Risk (Rollup of Appendix B)
9. Data Conversion	To ensure that the conversion of data from existing systems to the new system (ARMS) is complete and accurate.	
10. Queries and Reports	To ensure that all queries and reports are complete and accurate and provide useful information.	
11. Letters and Correspondence	To ensure that correspondence is generated accurately and completely in a timely manner.	
12. Reconciliation Processes to the Corporate Accounting System (CAS)	To ensure that the reconciliations of payments to CAS are completely and accurately performed and exceptions are cleared in a timely manner.	S15
13. Interface to CAS and Other Systems	To ensure that information captured from and transmitted to CAS and other source systems is recorded and processed completely and accurately in a timely manner.	
14. Management Trail	To ensure that there is an appropriate audit trail to allow those who support the system to effectively track transactions and identify suspicious activity.	



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Control Objective represents a standard and comes from standard contro practices, knowledge of the program and internal control theory. List he kell hood of the risk occurring (RMB rating scale 1.5). Controls are what will actually be implemented. Reside the risk event actually occur (RMB ranking score 1.5). LXC is the potential risk before controls implemented. Controls/Planned is the residual risk after the controls in memory. Assessment/Recommendation is the IAAS assessment of the controls.



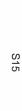




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Appendix C – Risk Ranking Tables

LIKELIHOOD (L) = Probability of the risk event actually occurring.

Level	Descriptor	Approximate probabilities:
5	Certain	90 – 100%
4	Likely	55 – 89%
3	Possible	25 – 54%
2	Unlikely	5 – 24%
1	Improbable; Rare	0 – 4%

CONSEQUENCE (C) = Degree of Severity of the Consequence.

Score	Descriptor	
1	Insignificant	Negligible effects.
2	Minor	Normal administrative difficulties.
3	Significant	Delay in accomplishing program or project objectives.
4	Major	Program or project re-design, re-approval, and re-do required: fundamental rework before objective can be met.
5	Catastrophic	Project or program irrevocably finished; objective will not be met.

LEVEL OF RISK (L x C)

	Consequence							
Likelihood	1	1 2 3 4 5						
5	LOW	MEDIUM	HIGH	EXTREME	EXTREME			
4	LOW	MEDIUM	HIGH	HIGH	EXTREME			
3	LOW	MEDIUM	MEDIUM	HIGH	HIGH			
2	LOW	LOW	MEDIUM	MEDIUM	MEDIUM			
1	LOW	LOW	LOW	LOW	LOW			

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Appendix D – Ministry Management's Detailed Action Plan

Ministry Response - Ministry Management's Detailed Action Plan ARMS Risk & Controls Review

	Recommendations	Management Comments to be Included in Report (Action Planned or Taken)	Assigned To	Target Date
1.	The BRM Branch should ensure that the STRA and PIA for the ARMS are completed, approved, and signed-off by the senior management before the system is implemented.	COMPLETED		Dec 31, 2011
2.	හි න			Jan 2012
3.	У1 5			Jan 2012
4.			S15	Feb 15, 2012
	Ω 25			
5.	The BRM Branch should ensure that its BCP as well as the ministry DRP are updated to cover the ARMS system and related processes. In addition, the BRM Branch should appare the BCP is reviewed appared to a page 11	COMPLETED BRM Branch will ensure that the information is forwarded to		Feb 15, 2012
	ensure the BCP is reviewed annually to ensure it is current, valid, and readily accessible during a business interruption.	8 5		

	Recommendations		Management Comments to be Included in Report (Action Planned or Taken)	Assigned To	Target Date
6.	The ministry should ensure that restoration tests of the ARMS backups are periodically performed to verify media reliability and information integrity.		COMPLETED Backups will be periodically verified by the Application Administrator. Like many other government systems, ARMS will be on an incremental and full backup cycle, based on the services provided by Shared Services BC.		Feb 15, 2012
7.	The current change management process should be reviewed to ensure that system changes are assessed by the appropriate business representative(s) to avoid compromising operational processes and security controls.		COMPLETED As noted in the review, there is a formal change management process followed by BRM Branch with appropriate signoffs and oversight.		Dec 2011
8.		·			
	S 15				
9.	The Agristability payment automated procedures should be documented as part of the policies and procedures manual.		COMPLETED The Agristability payment automated procedures were documented as part of system requirements.		Feb 15, 2012
	Although cheques are not issued by the BRM Branch, the lost cheque procedures carried out by the branch should be documented as part of its policies and procedures manual.		COMPLETED BRM Branch passes on information to Victoria from the Producer, which is the extent of their role. This is a current process.		