



Office of the Superintendent of  
Financial Institutions Canada

Bureau du surintendant des  
institutions financières Canada

**Report on**  
**Office of the Superintendent of Financial  
Institutions**

**Office of the Chief Actuary (OCA)  
Social Insurance Programs Section (SIP)**

**Canada Pension Plan Statutory Actuarial  
Report Review  
(CPP - Statutory Actuarial Report)**

**June 2009**



OSFI  
BSIF

Canada 

**OSFI OCA – Social Insurance Programs Section – CPP – Statutory Actuarial Report****Table of Contents**

---

1. Background .....	3
2. Review Objective, Scope and Approach.....	4
3. Review Conclusion .....	7
4. Observations and Recommendations .....	8
Management Response.....	11
Appendix A: OCA-CPP Framework Evaluation Criteria .....	13

---

---

**OSFI OCA – Social Insurance Programs Section – CPP – Statutory Actuarial Report****1. Background**

---

**Introduction**

The Office of the Chief Actuary (OCA) has unique responsibilities within OSFI. The OCA was created to provide actuarial and other services to the Government of Canada and provincial governments who are Canada Pension Plan (CPP) stakeholders. It was established within OSFI as a separate unit and while the Chief Actuary reports to the Superintendent, he is solely responsible for the content and actuarial opinions in reports prepared by the OCA. By housing the OCA in OSFI it is independent and outside of the departments that use its services, thereby ensuring that the Chief Actuary can exercise independent and impartial professional judgment in discharging its mandate.

---

**Office of the Chief Actuary**

The mandate of the OCA is to conduct statutory actuarial valuations of the CPP, Old Age Security (OAS) program and federal public sector employee pension and insurance plans. These valuations estimate the financial status of these plans and programs as required by legislation. Since 2001 the OCA has also been responsible for undertaking the actuarial review of the Canada Student Loans Program (CSLP).

Whenever a bill is introduced before Parliament that has a significant impact on the financial status of a public pension plan or social program falling under the statutory responsibilities of the Chief Actuary, the OCA must submit an actuarial report valuing this impact to the appropriate minister. The Chief Actuary submits these reports to the Ministers of Finance, Human Resources and Skills Development (HRSD), and to the President of the Treasury Board.

The OCA also provides the relevant government departments, including the executive arm of provincial and territorial governments, who are co-stewards of the CPP, with actuarial advice on the design, funding and administration of these plans. OCA clients include HRSD, Finance, Treasury Board Secretariat, Public Works and Government Services, National Defense, Veterans Affairs, the RCMP and Justice Canada.

---

**Canada Pension Plan – Statutory Actuarial Report**

The Canada Pension Plan was introduced in 1966. Under the *Canada Pension Plan* section 115, the Chief Actuary has the responsibility to conduct a triennial actuarial review of the CPP. The 23rd CPP Actuarial Report as at December 31, 2006 was the most recent CPP Actuarial Report to be produced under this statutory requirement.

An important purpose of the CPP - Statutory Actuarial Report is to inform contributors and beneficiaries of the current and projected financial status of the Plan. The Minister of Finance and ministers of the Crown of the provinces may make recommendations to change the benefits or contribution rates or both based on the results of this CPP actuarial review.

---

**OSFI OCA – Social Insurance Programs Section – CPP – Statutory Actuarial Report**

There is a Memorandum of Understanding (MoU) between OCA and Human Resources and Social Development Canada (HRSDC) that defines the responsibilities of each party including the activities to be performed.

The objective of the OCA as it relates to the CPP – Statutory Actuarial Report is to provide independent, credible, accurate and timely valuations in a complex and changing technical environment.

---

**External Peer Review of the CPP Statutory Actuarial Report**

The federal and provincial finance ministers endorsed plans to establish regular peer reviews of statutory actuarial reports on the CPP to ensure that the credibility of the information presented in such reports be indisputable. To further increase the credibility of the peer review the United Kingdom Government Actuary's Department (GAD) was asked to provide an opinion on the peer review process on the 21st and 23rd CPP Reports. The GAD is internationally well known for its work and research in the field of social security.

The GAD:

1. Selects the independent Canadian actuaries to perform the review and
2. Provides an opinion on the work done by the reviewers once the peer review is completed.

The 23rd CPP Actuarial Report was subject to a panel review under the terms above and an opinion was provided by GAD in April 2008. The peer review report and the GAD opinion were made available to the public in April 2008.

---

## **2. Review Objective, Scope and Approach**

---

**Providing Assurance to the Superintendent and Chief Actuary**

In order to manage its work in a complex and rapidly changing environment, OSFI develops and puts in place specialized policies, guidance and processes. In general, these are called frameworks. These frameworks provide assurance to the Superintendent and the Chief Actuary that the nature and scope of work required to carry out OCA activities is well defined and that consistency and quality of the work is maintained.

Such frameworks are essential to the Superintendent and the Audit Committee in being able to fulfill their responsibilities under the Treasury Board Policy for Internal Audit regarding OSFI's governance, risk and control processes. Under the policy, Audit & Consulting Services is to conduct assurance reviews and audits of OSFI's operations reporting on the adequacy of OSFI's frameworks and their application in carrying out OSFI's activities. This CPP - Statutory Actuarial Report Review is such an assurance report.

---

**OSFI OCA – Social Insurance Programs Section – CPP – Statutory Actuarial Report**

---

**Review  
Objective**

The Audit Committee and the Superintendent approved a review of the CPP – Statutory Actuarial Report Process in the A&CS 2008/09 Audit Plan. The review objectives were to provide an independent assessment and comment on:

1. The OCA-CPP Framework which includes a review of the:
    - Process framework – the core process relating to the production, peer review and communication of the Canada Pension Plan – Statutory Actuarial Report. Generally this can be considered a review of policies, procedures and practices.
    - Management Oversight framework – the oversight activities and controls built around the core process that help ensure the CPP Actuarial Report activity is appropriately conducted and meets its objectives. This would generally entail an assessment of activity objectives, operating environment, risk assessment, information and communication and monitoring and management reporting.
  2. The application of the OCA-CPP framework to the 23rd CPP Actuarial Report as at December 31, 2006 and the related independent peer review.
- 

**Review Scope**

The CPP - Statutory Actuarial Report review involves a review of the OCA framework as it relates to the production, communication and peer review of the CPP – Statutory Actuarial Report in general and the application of that framework to the 23rd CPP Actuarial Report in particular. **Our review did not encompass an assessment of the results, decisions or judgments pertaining to the actuarial valuations. The 23rd CPP Actuarial Report was subject to an independent panel review as required by the CPP Stakeholders.**

A&CS, in looking at the 23rd CPP Actuarial Report as at December 31, 2006, reviewed the OCA activities specifically associated with this report up to April 2008, when the peer review process was completed and the findings released. With respect to OCA follow up of the peer review panel's recommendations A&CS reviewed the status as at January, 2009.

Other Statutory Actuarial Reports produced by the OCA or other professional services provided by the OCA even if they relate to the CPP were outside the scope of this review.

A&CS did not review the integrity or quality of data used for the valuation nor did we evaluate specific tools used for data collection and valuation. Our review was limited to the assessment of controls around the data collection and valuation process.

With respect to the Peer Review process, A&CS did not assess the appropriateness of the Terms of Reference used for the review; the results, decisions and judgment of the panel or the process/tools used by the

---

**OSFI OCA – Social Insurance Programs Section – CPP – Statutory Actuarial Report**

independent panel members to assess the OCA produced 23rd CPP Actuarial Report. The process followed by the United Kingdom Government Actuary's Department (GAD) in the selection of review panel or in coming up with its opinion on the work of the reviewers was also outside the scope of this review. The A&CS focus was on the OCA role in the peer review process and its interaction with GAD and the review panel.

---

**Evaluation  
Approach**

The process and management oversight framework was assessed against evaluation criteria described in Appendix A – OCA - CPP Framework Evaluation Criteria. These criteria are based on internationally recognized *Enterprise Risk Management – Integrated Framework* recommended by the *Committee of Sponsoring Organizations of the Treadway Commission (COSO)* as adapted to OSFI/OCA environment. In applying these evaluation criteria, A&CS looked for the existence of the criteria element and whether it has been operationalized (i.e. communicated, understood, implemented and followed).

We formed our view based on a review of available documentation; questionnaires; discussions with the Chief Actuary, CPP staff and the two Directors that worked on the 23rd CPP Actuarial Report. We also assessed the application of the OCA-CPP framework to the 23rd CPP Actuarial Report as at December 31, 2006 and the related independent peer review.

Our overall conclusions and recommendations are included in Section 3 and Section 4 of this report.

Consistent with the Treasury Board Policy on Internal Audit the review was conducted in accordance with the Institute of Internal Auditors' International Standards for the Professional Practice of Internal Auditing.

---

OSFI OCA – Social Insurance Programs Section – CPP – Statutory Actuarial Report

### 3. Review Conclusion

---

**Review  
Conclusion**

Our review conclusion based on an assessment of the OCA-CPP framework and on how well the framework was applied to the 23rd CPP Actuarial Report as at December 31, 2006 and the related independent peer review is that:

- *The OCA-CPP framework is generally sound in terms of both the Process Framework (core process and associated policies, procedures and practices) and Management Oversight Framework (Objective Setting, Operating Environment, Risk Management, Information and Communication and Monitoring and Reporting). No significant concerns were noted. As outlined in this report, some enhancements to formalize current practices and available documentation will further strengthen this framework.*
- *The OCA-CPP framework was appropriately applied, in its current form, to the 23rd CPP Actuarial Report as at December 31, 2006 and the related independent peer review. This was determined through a detailed review and analysis of the various steps in the process leading to the production and peer review of the 23rd CPP Actuarial Report. The opportunities for enhancement referred to above will positively impact the continued effectiveness of the application of the Framework.*

A&CS would like to thank all participants for their cooperation and contribution to this engagement.

---

Senior Director, A&CS

---

Date

---

**OSFI OCA – Social Insurance Programs Section – CPP – Statutory Actuarial Report****4. Observations and Recommendations**

---

**Overview**

The 23rd CPP Actuarial Report was subject to an independent panel review as required. GAD selected the independent Canadian actuaries to perform the review and provided an opinion on the work done by the peer reviewers on completion of their review. The peer review report, *Review of the Twenty-Third Actuarial Report on the Canada Pension Plan*, which was published on the OSFI website in April 2008, concluded that the 23rd CPP Actuarial Report was in compliance with all terms of reference.

It is our view that the OCA-CPP framework is well developed in all areas of a process and management oversight framework. Although we do not have any significant concerns, we believe that this framework can be further formalized and strengthened in the following areas:

- Management Oversight
- Procedural Guidance
- Information Systems

Each of these is discussed below.

---

**Management Oversight**

The core process followed by the OCA for the production, communication and peer review of the CPP Actuarial Report comprises a number of key decision and control points that require careful scrutiny of results and the exercise of professional judgment to ensure a high quality of the actuarial valuation and the final report. A&CS assessed the application of the individual steps in this process, through the various stages, to the 23rd CPP Actuarial Report as at December 31, 2006. Our review of the application of the process included an assessment of the extent and nature of the management oversight as it relates to the final report itself and also at key decision and control points in the process – i.e. during the evolution of the decision leading up to the production of the final report.

With respect to the management oversight as it relates to the final report itself A&CS has noted no concerns. The final 23rd CPP Actuarial Report was signed by the Chief Actuary and the two SIP Directors. We view this to be evidence of their approval of the report and its contents and have no concerns with this aspect of our assessment.

Our comments below regarding management oversight pertain to the aspect of our review that focused on the evolution of the decision leading to the production of the final report as we believe it is important to provide evidence of management oversight not only of the end product (the final CPP Actuarial Report) but also at key points in the process to demonstrate active management of the process.



**OSFI OCA – Social Insurance Programs Section – CPP – Statutory Actuarial Report**

A&CS noted active and robust management oversight in practice at every step and stage in the process. Management reviews and approvals, through the evolution of the decision, tend to be mostly verbal. Although there is a lot of checking and cross-checking of work and results by management, through the process, much of this oversight remains undocumented. Consequently, although the process is actively managed in practice, we saw limited documented evidence of review and approval to demonstrate what transpires in practice. A&CS also noted that specific documentation describing the nature and extent of expected management oversight as it relates to each key control and decision point in the process was not available.

A&CS notes scope for improvement with respect to the documented demonstration of management oversight so as to replicate, through a formal evidence of review, the robust management oversight that exists in practice.

**The current management oversight practices of the OCA as they relate to the CPP Actuarial Report should be formalized in written guidance and documentation so as to further strengthen this framework. Documented evidence of management oversight should be preserved as part of the corporate repository.**

---

**Procedural  
Guidance**

A&CS reviewed the decision-making guidance that is available to support the CPP Actuarial Report process and help staff perform their roles effectively and efficiently. It is our view that for the most part there is sufficient documented guidance material for staff to use and given the small size of the team and the hands on involvement of the directors there is a lot of verbal interaction and guidance that is also provided to support the staff on a day to day basis. Although this has worked well in practice, based on our assessment of the 23 CPP Actuarial Report Process, we noted that there are opportunities for enhancement of available written guidance specifically in two areas:

- Verification and Validation Procedures
- Internal Peer Review.

Verification, validation and correction of data received from external sources are critical steps in the CPP Actuarial Report process as the quality of the data drives the rest of the valuation results. Management has an expectation of what is required and how the result is to be achieved to ensure an appropriate basis for the formulation of quality decisions. A&CS found that the individuals performing these tasks have an understanding of the verification and validation procedures but there does not appear to be any documentation of these procedures to act as guidance and to support staff in the performance of this task. Guidance is generally provided by the director and the more experienced team member as the task is being performed.

Internal peer review involves cross-checking the work of a peer. This is a key control used by the OCA to achieve a high quality of work as it relates to the

**OSFI OCA – Social Insurance Programs Section – CPP – Statutory Actuarial Report**

production of the CPP Actuarial Report. A&CS is aware that the general standards used for internal peer review are driven by the professional requirements for all actuaries and that the individuals conducting the peer reviews are actuaries and as such would be bound by the professional standards for peer reviews. We also note that there is no specific guidance that lays out management expectations as to what is to be reviewed and how, nor specific requirements for the documentation of the results of the peer review or sign off by reviewer as evidence that this review was in fact performed.

**Procedural guidance supporting the data verification, validation and data correction aspects of the process can be enhanced through formalization of the current practices in a written document so as to improve consistency in communication, transparency of expectations and effective knowledge transfer.**

**Formal written guidance laying out expectations and accountabilities including requirements related to evidence of review and documentation of results of review should be developed. Such guidance should address depth and breadth of review based on the nature of the task being reviewed and the associated risk including potential for errors.**

---

**Information Systems**

As part of this engagement A&CS looked at the various systems tools that are used in the CPP Actuarial Report process. Our scope did not include an assessment of the adequacy or appropriateness of the systems tools in use – our focus was on process. Although, for the most part, we are satisfied with the controls around the systems tools we did note some opportunities for enhancement of the process in the following areas:

- Periodic Assessment of Information Systems Tools
- System Documentation

Given the high dependence of staff on these systems tools for the production of the CPP Actuarial report A&CS would expect management to establish and maintain a formal process for the periodic review of the inventory of systems tools used in the production of the CPP Actuarial Report to ensure their continued relevance. We found that although specific information systems tools may be assessed for a specific purpose, at a particular time, based on a particular need or requirement, there is no evidence of a formal, defined process for the periodic assessment of the various tools used by the OCA for appropriateness.

The Actucan System is the tool used for the production of the CPP Actuarial Report. There is high level documentation of the structure of the actuarial model and how the program works and some training material for those unfamiliar with the actuarial model but the detailed instructions on how to make each program work is not complete. Not all sub routines used in the

**OSFI OCA – Social Insurance Programs Section – CPP – Statutory Actuarial Report**

system are fully documented and not all users of the system have a detailed understanding of all the various Fortran routines; the intricacies of the various programs and their interdependence.

The OCA recognizes that the Actucan System documentation is incomplete and would like to see full documentation but achieving this goal is challenging because of competing priorities. Although A&CS is satisfied that there is no immediate threat and the management team has undertaken some measures to manage the risk of gaps in documentation, in our view, it is still an issue that needs to be addressed over the longer term to improve efficiency and effectiveness of the process.

**Establish and maintain a formal process for the periodic review of the inventory of information systems tools used in the production of the CPP Actuarial Report to ensure their continued relevance. Develop a plan to address noted deficiencies where necessary.**

**Assess, plan and execute the documentation of the Actucan System through a systematic analysis of the issue including identification of specific gaps in documentation and prioritization according to relative risk and significance to the valuation process. Initiate and maintain a process to monitor and report on performance against the plan and adjust as appropriate.**

---

## Management Response

---

### Management Response

#### Overview

The report, its findings and Audit and Consulting Services (A&CS') observations and recommendations have been thoroughly reviewed by the Office of the Chief Actuary (OCA). Although the A&CS does not have any significant concerns their recommendations will aid the OCA in strengthening its CPP actuarial report process and management oversight frameworks. Overall we appreciate the thrust of the report, and generally agree with its recommendations. The OCA will act on these recommendations as follows:

#### Management Oversight

While the A&CS notes that there exists robust management oversight in practice at every step and stage of the process they recommend that these oversight practices be strengthened by formalizing them with written guidance and documentation. In response to this recommendation the OCA will enhance its formal evidence of review and approval for all key steps in the process for the production of the CPP Actuarial Report.

**OSFI OCA – Social Insurance Programs Section – CPP – Statutory Actuarial Report****Procedural Guidance: Validation and Verification**

Validation and verification of the data received from external sources are critical steps as the quality of the data drives the rest of the CPP actuarial report results. Although, as noted by A&CS, management provides practical guidance to staff on how to perform these tasks, they recommend that these practices be enhanced by formalizing them in written documents to improve consistency in communication, transparency of expectations and effective knowledge transfer. In response to this recommendation the OCA will develop written procedural guidance in respect of data validation, verification and correction.

**Procedural Guidance: Internal Peer Review**

The OCA is committed to maintain its rotation of CPP staff to ensure adequate knowledge and expertise transfer. OCA agrees with the view of A&CS that as more people supervise less experienced peers for specific aspects of the report it is likely that internal peer reviews will be used more extensively as a key control. In response to this recommendation the OCA will develop formal guidance laying out expectations and accountabilities including evidence of review to strengthen the process framework.

**Information Systems: Assessment of Information Systems Tools**

Since there are a number of system tools used to support the CPP Actuarial Report process the OCA agrees with A&CS recommendation that management should establish and maintain a formal process for the periodic review of the inventory of information systems tools used in the production of the CPP Actuarial Report. This will ensure their continued relevance.

**Information Systems: Documentation**

A key information systems tool used for the production of the CPP Actuarial Report is the Actucan System. Although there exists some high level documentation of the structure of the actuarial model and how the program works and some training material, OCA recognizes that detailed instructions on how each program works is not complete. OCA has been managing this risk in the short term by getting as many people as possible involved with the various aspects of the model through rotation.

In response to this recommendation the OCA will assess, plan and execute the documentation of the Actucan system through a systematic analysis of the issues including identification of specific gaps in documentation and prioritization according to relative risk and significance to the valuation process. The OCA will also initiate and maintain a process to monitor and report on performance against the plan and adjust as appropriate

We appreciate the effort taken by A&CS to develop recommendations that will help strengthen the CPP Actuarial Report process and management oversight framework.

## OSFI OCA – Social Insurance Programs Section – CPP – Statutory Actuarial Report

**Appendix A: OCA-CPP Framework Evaluation Criteria**

OCA-CPP Framework Evaluation Criteria	
Element	Components
1. Process and Control Activities	<ul style="list-style-type: none"> <li>▪ The process to be followed for the production, peer review and communication of the CPP Actuarial Report is clearly defined with decision and control points in place that are aligned to identified inherent risks, and include: <ul style="list-style-type: none"> <li>▪ Decision-making guidance and policies where necessary.</li> <li>▪ Appropriate level of analysis, application of judgment and documentation</li> <li>▪ Professional, service and transparency standards for dealing with the stakeholders.</li> <li>▪ Authorities, escalation and approval/sign-off requirements.</li> <li>▪ Reporting requirements within and outside of the OCA and CPP division.</li> </ul> </li> <li>▪ Quality assurance processes have been built into the OCA-CPP framework to facilitate: <ul style="list-style-type: none"> <li>○ Monitoring adherence to the CPP Actuarial Report and peer review process</li> <li>○ Dealing on a timely and effective basis with matters of non-compliance</li> <li>○ Escalating matters of non-compliance where necessary</li> </ul> </li> </ul>
2. Operating Environment	<ul style="list-style-type: none"> <li>▪ Responsibilities, authorities, and the reporting structure are defined.</li> <li>▪ Staff competencies, including required formal and informal training necessary to maintain knowledge levels, are defined.</li> </ul>
3. Objective Setting	<ul style="list-style-type: none"> <li>▪ Objectives for the CPP Actuarial Report activity are <ul style="list-style-type: none"> <li>- defined,</li> <li>- align with overall OCA objectives,</li> <li>- are in accordance with the HRSDC Memorandum of Understanding,</li> <li>- include established performance standards including compliance with applicable legislation and actuarial/professional standards and</li> <li>- are understood.</li> </ul> </li> </ul>
4. Risk Management	<ul style="list-style-type: none"> <li>▪ Potential inherent risks or events that may impact the achievement of objectives have been : <ul style="list-style-type: none"> <li>▪ Identified;</li> <li>▪ Assessed in accordance with OSFI's ERM policy.</li> <li>▪ Mitigated where control gaps exist.</li> </ul> </li> <li>▪ The Chief Actuary has communicated his views on the inherent risks of the OCA function through the ERM process.</li> </ul>
5. Information and Communication	<ul style="list-style-type: none"> <li>▪ Information systems provide appropriate support for the provision of timely and accurate information for the production of the CPP Actuarial Report.</li> <li>▪ A corporate memory is built and maintained through the capture of information pertaining to decisions made on prior CPP Actuarial Reports</li> </ul>

**OSFI OCA – Social Insurance Programs Section – CPP – Statutory Actuarial Report**

<b>OCA-CPP Framework Evaluation Criteria</b>	
<b>Element</b>	<b>Components</b>
	<p>(including follow up on prior peer review panel recommendations).</p> <ul style="list-style-type: none"> <li>▪ The policies, practices and procedures for dealing with the CPP Actuarial Report are appropriately communicated to CPP and OCA staff.</li> <li>▪ Staff involved in the CPP Actuarial Report process understands how their work relates to the work of other stakeholders.</li> <li>▪ Open and timely channels of communication exist among CPP division, OCA and Chief Actuary to: <ul style="list-style-type: none"> <li>○ Ensure appropriate input and consistency of decision making and to</li> <li>○ Ensure expectations are communicated.</li> </ul> </li> </ul>
6. Monitoring and Management Reporting	<ul style="list-style-type: none"> <li>▪ Ongoing quality assurance activities exist to monitor and report on: <ul style="list-style-type: none"> <li>○ Adherence to the OCA-CPP practices, processes and performance standards.</li> <li>○ Planning activities to ensure adequacy of resources to support the CPP Actuarial Report.</li> <li>○ Areas for process improvement.</li> <li>○ Overall effectiveness in achieving CPP Actuarial Report objectives.</li> </ul> </li> <li>▪ Appropriate management reporting practices to the Chief Actuary and OSFI Superintendent, have been established.</li> </ul>