



National
Defence

Défense
nationale

Chief Review Services Chef - Service d'examen

CRS  CS Ex

Reviewed by CRS in accordance with the *Access to Information Act (AIA)*. Information UNCLASSIFIED.

Analysis of Contracts

October 2009

7050-9-4-11 (CRS)



Canada 

Caveat

This analysis was conducted in order to determine which audits to include in the annual Chief Review Services Work Plan. The analysis conclusions do not have the weight of an audit or formal evaluation. It should also be noted that the analysis is not intended to assess the performance of contractors. Contractors have not been interviewed or otherwise asked to provide comment or feedback.



Table of Contents

List of Acronyms and Abbreviations	i
Results in Brief.....	ii
Introduction.....	1
Background.....	1
Objective	1
Scope	1
Methodology.....	1
Findings and Conclusions	3
Subcontract Visibility	3
Terms of Payment.....	5
Annex A—Automated Risk Criteria	A-1
Annex A Appendix 1—Criteria Scoring/Results.....	A1-1
Annex B Appendix 1—Contracts with Subcontract Visibility Attributes .	B1-1
Annex B Appendix 2—Contracts with Higher Risk Terms of Payment....	B2-1



List of Acronyms and Abbreviations

ABE	Automated Buyer Environment
ADM(Fin CS)	Assistant Deputy Minister (Finance and Corporate Services)
ADM(Mat)	Assistant Deputy Minister (Materiel)
ADM(S&T)	Assistant Deputy Minister (Science and Technology)
ASC	Audit Services Canada
CANSOFCOM	Canadian Special Operations Forces Command
CAS	Chief of the Air Staff
CDN	Canadian
CLS	Chief of the Land Staff
CMP	Chief Military Personnel
CMS	Chief of the Maritime Staff
CRS	Chief Review Services
DAPPP	Director Accounts Processing, Pay and Pensions
DND	Department of National Defence
NDHQ	National Defence Headquarters
PWGSC	Public Works and Government Services Canada
US	United States
VCDS	Vice Chief of the Defence Staff



Results in Brief

Chief Review Services (CRS) developed a risk analysis methodology in 2003 to help identify potential contract audits to include in the CRS annual work plan. To date, eight contracts have been audited. The most significant concerns raised in these audits were the lack of subcontract visibility and contract terms of payment that did not optimize value for money.

The purpose of this analysis was to help identify contracts with significant subcontract work and terms of payment attributes that may warrant audit attention.

The analysis of goods and services contracts included a series of computer-assisted audit tests that were developed to analyze 8,932 active Department of National Defence (DND) contracts tendered by Public Works and Government Services Canada (PWGSC) worth \$25.4 billion in total. A risk scoring system was developed with 10 automated criteria that ultimately identified 77 contracts that may require audit attention.

Overall Assessment

The analysis of 8,932 active DND contracts identified 77 contracts with subcontract visibility and terms of payment attributes that may warrant an audit. These contracts will represent 80 percent of the Department's contract obligations.

Conclusions

Subcontract Visibility. Based on seven criteria, 36 contracts with significant subcontract work have exhibited visibility attributes and warrant audit. Due to the absence of information, subcontract charges related to 27 other high-value contracts will also be examined by CRS, for a total of 63 contracts.

Terms of Payment. Based on five specific criteria, 31 contracts have exhibited significant terms of payment attributes. To increase audit coverage, the terms of payments for 20 other high-value contracts will also be examined by CRS, for a total of 51 contracts.

Although there will be two separate audits included in the CRS 2009/2010 Audit Work Plan, 37 of the contracts will be examined in the scope of both audits—a net number of 77 contracts in total. A detailed list of contracts to be audited is included at [Appendix 1 to Annex B](#).



Introduction

Background

In compliance with government internal audit policy, CRS audit work plans are risk-based in order to focus audit resources where the Department would realize the most benefit. With respect to procurement, since 2003 CRS has used an automated risk analysis process to help identify contracts that require audit attention.¹ This type of analysis has led to nine contract management audits. The two most significant areas of concern identified during these audits were:

- **Subcontract Visibility.** Several time and material contracts did not have sufficient supporting documentation for subcontract work. On average subcontract work represented 28 percent of the contract value.
- **Terms of Payment.** Not all contract terms of payment maximized value for money.

Objective

To identify contracts with significant subcontract costs and terms of payment that may not maximize value for money.

Scope

- 8,932 active DND contracts tendered by PWGSC expiring on or after June 30, 2008.
- 1,085 DND-tendered contracts were excluded from the analysis. The value of these contracts, \$201 million in total, represents only one percent of the PWGSC-tendered contracts.

Methodology

Sources of Data

- June 2008 PWGSC Automated Buyer Environment (ABE) database extract of DND contracts.
- Audit Services Canada (ASC) audits of DND contracts completed since April 2003.

¹ CRS report examples are Risk Analysis of Goods Contracts, April 2007 (<http://www.crs-csex.forces.gc.ca/reports-rapports/2007/111P0658-eng.asp>) and Risk Analysis of Operations and Maintenance Contracts, April 2007 (<http://www.crs-csex.forces.gc.ca/reports-rapports/2007/113P0714-eng.asp>).



Global Filters

Two global filters were applied to arrive at a manageable number of contracts:

- **Filter 1.** Although the PWGSC ABE database included 135,293 contracts worth \$57.3 billion, dating back to 1997, only 8,932 contracts worth \$25.4 billion² were found to still be active with an expiry date on or after June 30, 2008.
- **Filter 2.** Contracts were distinguished as being either goods or services. To reduce the sample further, only goods or services contracts greater than or equal to \$1.0 million were considered. Although the population was thereby reduced from 8,932 to 803 contracts, a 9.0 percent sample, the value of these contracts totaled \$24.4 billion—96 percent of the value of all goods and services contracts.³

Criteria

Ten automated criteria were applied to each of the 803 contracts. Criteria 2, 5, 6, 9 and 10 were only used for subcontract visibility; they are marked with an asterisk (*). Criteria 3, 7 and 8 were used only for terms of payment analysis; they are marked with two asterisks (**). The remaining criteria, 1 and 4, were used to identify contracts where both subcontract visibility and terms of payment could be an issue. See [Appendix 1 to Annex A](#) for a detailed description for each criterion and their scoring ranges.

1. Materiality
2. Contract Amendment Value*
3. Type of Payment**
4. Basis of Payment
5. Contract Award Process*
6. Other Audit Results*
7. Procurement Expertise**
8. Contract Duration**
9. Offshore Suppliers*
10. Affiliated Vendors*

² Contracts with missing amendments, inconsistent duration dates and invalid value were excluded.

³ 13 of 803 are standing offers worth \$369 million for procurement of fuel.



Findings and Conclusions

Subcontract Visibility

Thirty-six contracts that have exhibited subcontract visibility attributes will be subject to a future audit.

Payments for Subcontract Work. The Assistant Deputy Minister (Finance and Corporate Services) (ADM(Fin CS)) was concerned with subcontract cost verification and, in February 2005, direction was given to Assistant Deputy Minister (Materiel) (ADM(Mat)) staff to review all subcontract invoices prior to payment for all claims greater than \$250,000.⁴ Recent CRS audits have found:

For the eight completed audits, subcontract work amounts to 28 percent of the payments.

- Some contracts do not specify the supporting documentation required for progress claims.
- More DND procurement staff is needed to provide sufficient review, unless a risk-based sampling methodology is used.
- There is less risk at the subcontract level for competitively tendered contracts with firm price payments.
- Competitively tendered time and material contracts still pose significant risk at the subcontract level.

Criteria Selection. To determine those contracts that could have substantial subcontract payments, the following 7 of the 10 automated criteria listed in [Appendix 1 to Annex A](#) were applied to the sample of 803 active contracts:

- Materiality of high-value obligations could result in significant subcontract work.
- Contract amendment value, excluding option years, could result in additional scope of work performed by subcontractors.
- Bases of payment that are cost plus, time and material would require visibility of subcontract work to reduce the risk of overcharges.
- Sole-source contract awards could result in transfer fees between affiliated vendors that are not mitigated by the competitive tendering process.
- Results from other audits found vendors where overcharges and excess profit could be related to subcontract payments.
- Vendors could subcontract work to affiliated companies in Canada or abroad.
- Affiliated Canadian firms that may have been subcontracted by offshore suppliers to satisfy Industrial Regional Benefit requirements.

⁴ 7000-1 (DAPPP) 15 February 2005.



Coverage. Thirty-six contracts received a total risk score of 11 or greater out of a maximum score of 22. Seven of these contracts were greater than \$100 million in value. As there is no DND information systems that provide subcontract payment information, 27 other contracts greater than \$100 million in value will also be included in an audit. These 63 contracts will provide 78 percent coverage of the dollar value of the 803 contract population.

Conclusion. The audit of subcontract visibility will include 63 contracts, 17 of which will also be subject to the terms of payment audit.



Terms of Payment

Thirty-one contracts that exhibited terms of payment attributes will be subject to a future audit.

Criteria Selection. The terms of payment analysis of contracts included the application of 5 of the 10 automated criteria listed in [Appendix 1 to Annex A](#) to the sample of 803 active contracts.

- Materiality of the contract would have greater impact if the terms of payment do not optimize value for money.
- The combination of different types of payments could result in a more complex payment certification process.
- The bases of payments may not be directly linked to deliverables (e.g., time and material).
- As ADM(Mat) is the functional authority for procurement, contracts that are managed by other Level 1s may not benefit from the ADM(Mat) centre of expertise.
- Longer-term complex contracts are subject to more turnovers of DND contract managers who may require knowledge transfer.

Coverage. Thirty-one contracts received a total score of 12 or greater out of a maximum score of 17 once the five criteria were applied. Fourteen of these contracts were greater than \$100 million in value. To increase the coverage of the terms of payment audit, there are 20 other contracts that are greater than \$100 million in value. These 20 additional contracts would increase the coverage from 48 percent to 76 percent of value of the 803 contract population.

Conclusion. The terms of payment audit should include 51 contracts. Twenty of these contracts will also be subject to the subcontract visibility audit.



Annex A—Automated Risk Criteria

Ten automated risk criteria were applied in the analysis of the PWGSC ABE database. This database contains contract information on all DND contracts tendered by PWGSC. With the assistance of audit software (Audit Command Language), the automated risk criteria were applied to 803 contracts that amounted to obligations of over \$24.4 billion.

- Each contract had a value that was greater than \$1 million;
- All contracts were active with an expiry date on or after June 30, 2008; and
- Only contracts with complete information were included.

The results of the 10 risk criteria are provided at Appendix 1. For each criterion, all the contracts were assigned a risk score. Contracts that were scored higher were deemed to be higher risk.

Materiality. Higher-value contracts that are poorly managed result in higher-risk impact. The sample of contracts ranged from \$1.0 million in value to those that were greater than \$3.4 billion. Although the average contract value was \$30.4 million, the median contract value was only \$3.2 million, due to several high-value contracts affecting the overall average. Contract value was stratified into four ranges, with larger values receiving a higher-risk score.

Contract Amendment Value. The escalation of a contract's value was determined by comparing the original annual contract cash flow to the annual cash flow of the contract extensions. Exercised option years were not included in this analysis. Contracts with higher-than-average escalation could indicate poor value for money, out-of-scope work or new work that had to be subcontracted. Therefore, those contracts with significant escalation in annual cash flow were considered to be of higher risk.

Basis of Payment. It is more difficult to ensure value for money for a contract with a cost-plus-profit basis of payment. Similarly, those contracts with payments based on the vendor's time and material do not provide full assurance of vendor efficiency. For this criterion these bases of payment were scored as higher risk.

Type of Payment. Some payment types have more potential to impair the proper verification of services received. Payment for services on delivery is the most straightforward verification once the service has been delivered. For monthly progress claims for services provided over several years, it is more difficult to verify the exact progress of the work unless specific milestones are set with acceptance criteria. The greatest risk to the Department is advance payments with no deliverables or multiple payments that include progress claims, invoices, and advance payments. Contracts with this type of payment were scored accordingly.



ANNEX A

Contract Award Process. There are a number of circumstances that result in a contract not being competitively tendered. The unique design of combat systems often results in sole-source in-service support contracts due to exclusive rights.

Other Audit Results. By analyzing data from ASC audit reports dating back to 2003, CRS identified vendors with a history of over-claims or excess profits on past contracts. Those current contracts with vendors who had a history of at least 4.0 percent excess profit or over-claims greater than \$350,000 were scored higher.

Procurement Expertise. Contracting expertise for complex contracts resides with the procurement staff in ADM(Mat). Therefore, contracts administered by other National Defence Headquarters (NDHQ) organizations and bases/wings were considered to have higher-risk attributes.

Contract Duration. When DND is committed to a complex time and material contract that has a lengthy duration, there is an increased risk. Although there may be some efficiency gains by the vendor, longer-term contract obligations could reduce the flexibility for the Department to seek out other vendors when the delivery of goods or services is unsatisfactory. Longer-term contracts do lead to more turnover of DND contract management staff who may require knowledge transfer.

Offshore Suppliers. Contracts with vendors outside Canada were given a higher score due to currency fluctuations. In addition, given the distances involved, the life cycle support for combat systems can be more challenging and increases risk. This analysis does not include subcontracts with offshore suppliers.

Affiliated Vendors. As the number of international affiliates of a vendor increases, revenue sharing and foreign exchange risk will similarly increase. In a sole-source situation, when the vendor has affiliates, subcontractor invoices must include cost details to determine what inter-company transfers may have taken place that could result in excess profit. If the vendor has affiliates in several countries, foreign exchange rates for various currencies may need to be verified.



Annex A Appendix 1—Criteria Scoring/Results

Criteria	Risk Score	Score Range	No. of Contracts	Percent of Count
Materiality	1	>= \$1M and < \$5M	503	62.64%
	2	>= \$5M and < \$30M	227	28.27%
	3	>= \$30M and < \$100M	39	4.86%
	4	>= \$100M	34	4.23%
Contract Amendment Value	0		519	64.63%
	1	<0.10	41	5.11%
	2	0.10 - 0.49	176	21.92%
	3	0.50 - 0.99	21	2.62%
	4	1.0 - 2.0	26	3.24%
Basis of Payment	1	Actual costs, unit/lot price	546	68%
	2	Target price/ceiling price	11	1.37%
	3	Fixed time rate/cost plus	246	30.64%
Type of Payment	1	Payment on delivery	384	47.82%
	2	Milestone/progress	236	29.39%
	3	Multiple/advance	183	22.79%
Contract Award Process	1	Competitive	522	64.84%
	2	Non-competitive	281	35.16%
Other Audit Results	0	Not on list	684	85.18%
	1	On list and < 350K or < 4%	6	0.75%
	2	On list and >= 350K or >= 4%	113	14.07%
Procurement Expertise	1	ADM(Mat)	549	68.37%
	2	NDHQ not including ADM(Mat)	148	18.43%
	3	Bases or units	106	13.20%
Contract Duration	1	< 4 years	443	55.17%
	2	> 4 < 8 years	297	36.99%
	3	> 8 < 12 years	36	4.48%
	4	> 12 years	27	3.36%
Offshore Suppliers	0	Canadian firms	689	85.80%
	1	US firms	65	8.09%
	2	European firms	36	4.48%
	3	Other countries	13	1.62%
Affiliated Vendors	0	Others	598	74.47%
	1	CDN and <8	53	6.60%
	2	CDN and > 8 or Non-CDN & < 8	33	4.11%
	3	Non-CDN & > 8	119	14.82%
Sub-Total	MAX 32	Each criterion adds up to:	803	100%

Table 1. Criteria Scoring/Results.

Annex B Appendix 1—Contracts with Subcontract Visibility Attributes

Contract No.	Vendor	Type of Contract	OPI	Expiry Date	Score
.....	ADM(Mat)	3-31-2009	
.....	ADM(Mat)	3-31-2009	
.....	ADM(Mat)	3-31-2009	
.....	ADM(Mat)	3-31-2014	
.....	ADM(Mat)	3-31-2016	
.....	CAS	8-27-2027	
.....	VCDS	3-31-2009	12
.....	CMP	3-26-2026	
.....	CLS	3-31-2010	
.....	CANSOFCOM	8-31-2008	15
.....	CANSOFCOM	3-31-2009	12
.....	ADM(S&T)	3-31-2009	12
.....	ADM(S&T)	10-31-2011	14
.....	CMS	3-31-2009	13
.....	ADM(Mat)	11-30-2012	
.....	ADM(Mat)	3-31-2024	
.....	ADM(Mat)	3-31-2013	17
.....	ADM(Mat)	12-31-2012	14

ANNEX B APPENDIX 1

Contract No.	Vendor	Type of Contract	OPI	Expiry Date	Score
.....	ADM(Mat)	12-27-2010	13
.....	ADM(Mat)	3-31-2010	
.....	ADM(Mat)	3-31-2012	
.....	ADM(Mat)	3-31-2010	
.....	ADM(Mat)	12-20-2013	12
.....	ADM(Mat)	12-31-2016	
.....	ADM(Mat)	3-31-2013	14
.....	ADM(Mat)	12-31-2008	14
.....	ADM(Mat)	12-31-2009	12
.....	ADM(Mat)	11-30-2011	12
.....	ADM(Mat)	12-31-2008	13
.....	ADM(Mat)	12-31-2008	12
.....	ADM(Mat)	10-21-2018	
.....	ADM(Mat)	12-31-2008	15
.....	ADM(Mat)	10-31-2009	15
.....	ADM(Mat)	3-31-2012	12
.....	ADM(Mat)	3-31-2012	13
.....	ADM(Mat)	3-31-2017	14
.....	ADM(Mat)	12-12-2016	12

ANNEX B APPENDIX 1

Contract No.	Vendor	Type of Contract	OPI	Expiry Date	Score
.....	ADM(Mat)	4-30-2009	14
.....	ADM(Mat)	3-31-2009	14
.....	ADM(Mat)	8-27-2008	14
.....	ADM(Mat)	9-19-2009	12
.....	ADM(Mat)	7-22-2012	
.....	ADM(Mat)	12-31-2008	12
.....	ADM(Mat)	6-15-2010	
.....	ADM(Mat)	3-31-2009	15
.....	ADM(Mat)	12-31-2008	
.....	ADM(Mat)	1-6-2010	14
.....	ADM(Mat)	3-31-2010	15
.....	ADM(Mat)	3-31-2009	
.....	ADM(Mat)	3-31-2015	
.....	ADM(Mat)	3-31-2015	
.....	ADM(Mat)	3-31-2011	
.....	ADM(Mat)	12-31-2010	12
.....	ADM(Mat)	3-31-2009	
.....	ADM(Mat)	3-3-2031	
.....	ADM(Mat)	12-31-2021	12
.....	ADM(Mat)	9-30-2008	
.....	ADM(Mat)	12-31-2009	14

ANNEX B APPENDIX 1

Contract No.	Vendor	Type of Contract	OPI	Expiry Date	Score
.....	ADM(Mat)	3-31-2015	12
.....	ADM(Mat)	3-31-2011	16
.....	ADM(Mat)	3-31-2010	
.....	ADM(Mat)	3-31-2010	
.....	ADM(Mat)	3-31-2010	

Table 2. Contracts with Subcontract Visibility Attributes. Maximum score is 22. Contracts with no score were greater than \$100 million in value.

Annex B Appendix 2—Contracts with Higher Risk Terms of Payment

Contract No.	Vendor	Type of Contract	OPI	Expiry Date	Score
.....	ADM(Mat)	3-31-2009	
.....	ADM(Mat)	3-31-2009	
.....	ADM(Mat)	3-31-2009	
.....	CMP	3-31-2009	13
.....	CLS	7-31-2008	12
.....	CLS	6-30-2009	12
.....	CMP	5-31-2011	12
.....	CLS	4-30-2009	13
.....	CLS	3-31-2009	13
.....	CLS	9-30-2008	12
.....	CAS	9-30-2011	13
.....	ADM(Mat)	3-31-2014	14
.....	ADM(Mat)	3-31-2043	13
.....	ADM(Mat)	9-30-2008	12
.....	ADM(Mat)	3-31-2016	13
.....	CMS	8-27-2027	13
.....	CMP	3-26-2026	15
.....	CLS	3-31-2010	
.....	ADM(Mat)	11-30-2012	
.....	ADM(Mat)	3-31-2024	13
.....	ADM(Mat)	3-31-2013	12
.....	ADM(Mat)	3-31-2010	

ANNEX B APPENDIX 2

Contract No.	Vendor	Type of Contract	OPI	Expiry Date	Score
.....	ADM(Mat)	3-31-2012	14
.....	ADM(Mat)	3-31-2010	
.....	ADM(Mat)	12-20-2013	
.....	ADM(Mat)	12-31-2016	12
.....	ADM(Mat)	3-31-2013	13
.....	ADM(Mat)	12-31-2009	
.....	ADM(Mat)	10-21-2018	
.....	ADM(Mat)	12-12-2020	12
.....	ADM(Mat)	12-12-2016	12
.....	ADM(Mat)	12-31-2011	13
.....	ADM(Mat)	8-27-2008	12
.....	ADM(Mat)	9-19-2009	12
.....	ADM(Mat)	7-22-2012	
.....	ADM(Mat)	6-15-2010	13
.....	ADM(Mat)	3-31-2009	12
.....	ADM(Mat)	12-31-2008	
.....	ADM(Mat)	1-6-2010	
.....	ADM(Mat)	3-31-2009	
.....	ADM(Mat)	3-31-2015	12
.....	ADM(Mat)	3-31-2015	13
.....	ADM(Mat)	3-31-2011	
.....	ADM(Mat)	3-31-2009	
.....	ADM(Mat)	3-3-2031	14
.....	ADM(Mat)	12-31-2021	15

ANNEX B APPENDIX 2

Contract No.	Vendor	Type of Contract	OPI	Expiry Date	Score
.....	ADM(Mat)	9-30-2008	
.....	ADM(Mat)	2-3-2031	13
.....	ADM(Mat)	3-31-2010	
.....	ADM(Mat)	3-31-2010	
.....	ADM(Mat)	3-31-2010	

Table 3. Contracts with Higher-Risk Terms of Payment. Maximum score is 17. Contracts with no score were greater than \$100 million in value. 20 contracts are also listed in [Annex B Appendix 1](#).