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# Audit of the Land Command Support System Contract

May 2008

7050-37 (CRS)









### **CAVEAT**

This audit is not intended to assess the performance of contractors; rather, it is an internal assessment of processes and practices within ADM(Mat). The values stated regarding the valuation of inventory are dependent on the accuracy of inventory pricing. Previous CRS audits have indicated the inventory prices are not accurate within the CFSS.

This audit represents a high level of assurance.

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# **ACRONYMS AND ABBREVIATIONS**

ADM(Mat)	Assistant Deputy Minister (Materiel)	NDQAR	National Defence Quality Assurance Representative
Amdt	Amendment	OPI	Office of Primary Interest
ASC	Audit Services Canada	PPAS	Program Performance
BMT	Business Management Team		Assurance Sub-section
CDRL	Contract Data Requirements List	PWGSC	Public Works and Government Services Canada
CF	Canadian Forces	QAR	Quality Assurance
CFSS	Canadian Forces Supply System	D %-O	Representative
CIS	Contract Issue Spares	R&O	Repair and Overhaul
CRS	Chief Review Services	RFP	Request for Proposal
DGLEPM	Director General Land	RMP	Risk Management Plan
	Equipment Program	RPC	Repair Priority Code
DGMSSC	Management Director General Materiel	SACC	Standard Acquisition Clauses and Conditions
DOMBSC	Systems and Supply Chain	STAR	Standing Task Action Request
DIHRS	Defence Integrated Human	SUP	Standard Unit Price
	Resource System	TAT	Turnaround Time
DLCSPM	Director Land Command	TB	Treasury Board
	Systems Program Management	TCCCS	Tactical Command, Control and
DLP	Director Land Procurement		Communications System
DND	Department of National Defence	US DoD	United States Department of
E&I	Engineering and Integration		Defense
FAA	Financial Administration Act	WBS	Work Breakdown Structure
FAM	Financial Administration Manual		
FMAS	Financial Managerial Accounting System		
FY	Fiscal Year		
GFA	Government Furnished Assets		
GFE	Government Furnished Equipment		
GFOS	Government Furnished Overhaul Spares		
LCMM	Life Cycle Materiel		
LCCC	Management Land Command Support System		
LCSS LOE	Land Command Support System  Limitation of Expanditure		
	Limitation of Expenditure		
LTSC	Long-Term Support Contract		
MRC	Maximum Repair Costs		

#### **RESULTS IN BRIEF**



only 1.3 percent of all maintenance contracts, the findings and results from this audit do not represent the overall Department of National Defence/Canadian Forces (DND/CF) contracting practices.

The \$105-million<sup>2</sup> two-and-a-half-year LCSS contract was awarded in November 2002 with option years to extend it to 2007. The contract increased to \$291 million through to March 2009 because option years were exercised and amendments increased the scope.

#### **Overall Assessment**

Because the Crown did not exercise or enforce certain contractual terms and conditions, assurance cannot be provided that governance and contract management controls are in place to ensure value for money.

Improvements and compliance with materiel and warranty clauses could reduce costs by \$4.6 million.

# **Findings and Recommendations**

# **Terms of Payment**

Contract terms of payments were not fully exercised to provide an incentive for the vendor to

It is recommended that the follow-on contract include contract incentives

Also, fixed price and ceiling price tasks and holdbacks should be used for some deliverables.

#### **Value for Money**

Improvements in spares procurement, warranty and task management could reduce costs by and help forecast future costs.

It is recommended that the correct repair and overhaul (R&O) warranty contract clauses be invoked and that the software warranty be for at least 12 months for the follow-on contract. Controls should be strengthened for spares procurement with the inclusion of a credit clause for inactive parts.

<sup>&</sup>lt;sup>2</sup> All numbers in this report are excluding taxes.



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### **Materiel Management**

As well, contract costs could be cut by over two years and turnaround times (TAT) could be reduced by percent through compliance with R&O and reprovisioning policy.

It is recommended that the R&O efficiency be improved through compliance with *DND Special Instructions for Repair and Overhaul Contractors A-LM-184-001/JS-001* regarding inventory management and control.

# **Payment Certification**

A contract clause to assess the reasonableness of nearly charges was not exercised and

#### **Innovative Practices**

- Full-time DND resource dedicated to stocktaking once a year for government furnished equipment (GFE) worth \$27 million.
- Recovery from the vendor for lost GFE.
- Stock adjustments entered by the quality assurance representative (QAR) supply technician since fiscal year (FY) 2006/07.

It is recommended that, in consultation with Public Works and Government Services Canada (PWGSC), a time verification of hours be completed and

#### Governance

It is recommended that

#### **Risk Management**

An internal DND risk management plan (RMP) for the LCSS contract does not exist

It is recommended that a DND RMP be developed and DND categorize, prioritize and quantify risks.

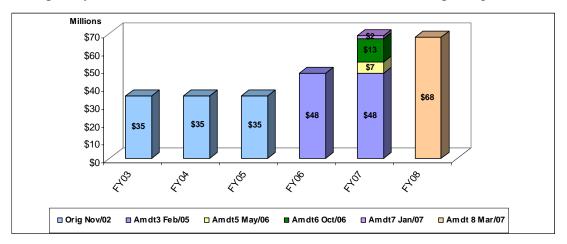
**Note:** For a more detailed list of CRS recommendations and management response, please refer to Annex A—Management Action Plan.

#### INTRODUCTION

# **Background**

the findings and results from this audit do not represent the overall DND/CF contracting practices.

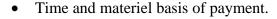
The \$105-million<sup>3</sup> two-and-a-half-year LCSS contract was awarded in November 2002 with option years to extend it to 2007. The contract increased to \$291 million through to March 2009 because option years were exercised and amendments increased the scope (Figure 1).



**Figure 1. Annual Contract Cash Flow \$291 Million.** The contract increased in value due to unforeseen work and was extended to allow more time to tender the follow-on contract.

The contract was to provide life cycle support to equipment and software acquired under the Tactical Command, Control and Communications System (TCCCS) project. The services included software and hardware engineering, integrated logistics support, configuration management and component R&O. The contract was flagged for audit due to the following risk indicators:

- Value of the contract was material at \$219.8 million prior to amendment 7;
- Cost escalation of 44 percent on six amendments from FY 2004/05 to FY 2006/07;
- Contract was sole-sourced:



<sup>&</sup>lt;sup>3</sup> All numbers in this report are excluding taxes.



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# **Objectives**

The objective of this audit was to assess whether adequate governance, risk and management control frameworks were in place to administer the LCSS contract.

# Scope

- Award phase and management of existing LCSS contract;
- The Request for Proposal (RFP) for the follow-on Engineering and Integration contract to be awarded
- Expenditures totaling \$182 million from November 2002 to December 2007; and
- The audit of prime/subcontractors was out of scope—an ASC role.

# Methodology

- Data Analysis—Financial Managerial Accounting System (FMAS)/Canadian Forces Supply System (CFSS)/Defence Integrated Human Resource System (DIHRS);
- Site visits—End user 1<sup>st</sup> Royal Canadian Regiment Petawawa, National Defence Quality Assurance Region Calgary;
- Contract documentation review, progress claims, vendor reports;
- Sample progress claims (nine progress claims and invoices representing \$33.9 million—19 percent of expenditures to date); and
- Interview with key staff in Director Land Command Systems Program Management (DLCSPM).

#### Criteria

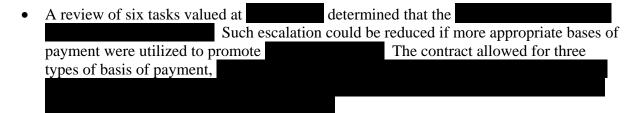
The audit criteria scorecard is at Annex B.

#### FINDINGS AND RECOMMENDATIONS

# **Terms of Payment**

Contract terms of payments were not fully exercised to provide an incentive for the vendor to

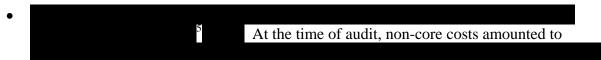
# **Task Basis of Payment**



- The two other bases of payment that could have been used are:
  - o Firm price tasks—best to use when the task is clearly understood by both parties.
  - o Ceiling price—should be utilized stating a maximum price that will be paid with the ability for downward adjustment.
- A CRS analysis of 67 tasks with an aggregate value of determined that:
   percent of the tasks were suitable for fixed price tasks (i.e.,
   percent of the tasks could be ceiling price tasks (i.e.,
- To minimize the Department's ongoing risk of cost escalation and provide performance incentives to the vendor, either firm price task or ceiling price should be used for clearly defined tasks.

#### **Holdbacks**

• The PWGSC purchasing policy is that holdbacks<sup>4</sup> are mandatory for contracts with progress payments. "For all contracts where progress payments are provided, holdbacks must be used to avoid overpayment and to act as an incentive for the contractor to complete the job."



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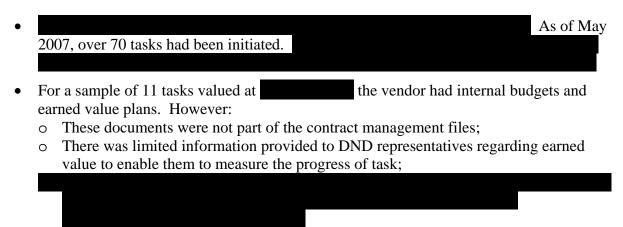
<sup>&</sup>lt;sup>4</sup> PWGSC Supply Manual, Chapter 6 - 6E.599 <a href="http://www.pwgsc.gc.ca/acquisitions/text/sm/chapter06-e.html">http://www.pwgsc.gc.ca/acquisitions/text/sm/chapter06-e.html</a>.

OPI	RECOMMENDATION
ADM(Mat)	Ensure that DLCSPM use the most appropriate basis of payment option and apply holdbacks to tasks that contain discrete deliverables.

# **Value for Money**

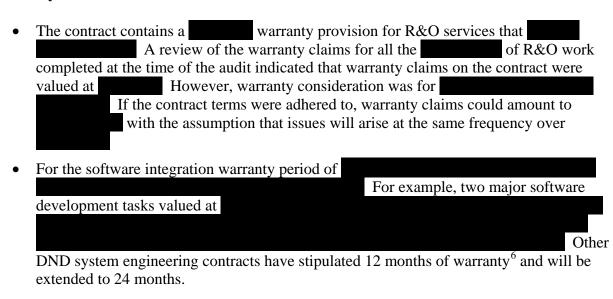
Improvements in contract management could have reduced costs by controlled cost escalation and helped in the forecasting of future costs.

# **Task Management**



o Industry practices in similar navy contract tasks contained parametric equations for source lines of code estimates that were not found in the LCSS contract.

# Warranty

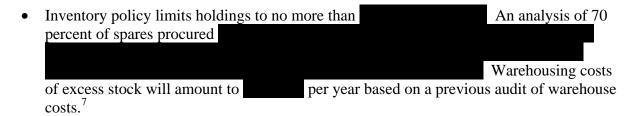


<sup>&</sup>lt;sup>6</sup> CRS *Internal Audit: Combat System Engineering Support Contract*, October 2006 <a href="http://www.forces.gc.ca/crs/pdfs/cses">http://www.forces.gc.ca/crs/pdfs/cses</a> e.pdf.



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# **Spares Procurement**



OPI	RECOMMENDATION
ADM(Mat)	Ensure that DLCSPM technical OPIs have task budget and earned value information to enable them to better manage the tasks.  Ensure that DLCSPM invoke the R&O warranty clause and extends the software warranty to at least in the follow-on contract.

<sup>&</sup>lt;sup>7</sup> CRS *Internal Audit of National Procurement – Materiel Reprovisioning*, November 2000 <a href="http://www.forces.gc.ca/crs/pdfs/NP">http://www.forces.gc.ca/crs/pdfs/NP</a> e.pdf.

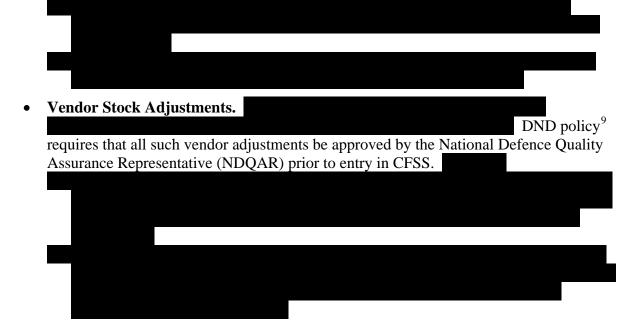


# **Materiel Management**



# **Safeguarding Assets**

• **Vendor Stocktaking.** Policy requires that 100-percent stocktaking be completed at least every two years. 8



Fiscal Year	Downward	Upward	Absolute Value	Net Value	Total Reported Inventory Value	Percent Adjusted
03/04						
04/05						
05/06						
06/07						
Total						
Average						

Table 1. Stock Adjustments to Four Vendor-Managed Supply Accounts.

<sup>&</sup>lt;sup>8</sup> *DND Special Instructions for Repair and Overhaul Contractors*, A-LM-184-001/JS-001, Chapter 6, October 2004. <sup>9</sup> Ibid.



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**Innovative LCSS** 

**Contract Practices** 

once a year for GFE

worth \$27 million.

Recovery from the

vendor for lost GFE.

Full-time DND resource

dedicated to stocktaking

### **Component R&O Efficiency**

- per year if DND second-line capacity is utilized for line items that can be repaired by base workshops. If the line items had been repaired by base workshops instead of being automatically sent for vendor R&O, savings would have been realized. Since the start of the contract, DND has paid a total of to the vendor for repairable items that could have been repaired within DND.
- Incorrect Repair Priority Code. It was observed that 33 of 93 line items repaired by the vendor have more than of stock. In this case the repair priority code (RPC) should be changed to "pending" so that unserviceable spares will be sent to the DND supply depot as repairable reserve rather than being repaired by the vendor. This would defer of R&O costs over the next two fiscal years.
- Repair Decision-Making Information. Of the 93 line items repaired by the vendor, The general DND Life Cycle Materiel Manager (LCMM) practice is to set the MRC to be approximately 80 percent of the SUP and to maintain the most updated SUP for each item. Outdated SUP and incorrect MRC values make it difficult to make sound repair or replace decisions.
- Max and Min Settings Component R&O TAT efficiency could be improved by percent DND R&O policy<sup>11</sup> requires that max and min settings be set by the NDQAR to reduce reprovisioning lead time as items with holdings below min levels are automatically replenished through a nightly cycle.

OPI	RECOMMENDATION
ADM(Mat)	Improve R&O efficiency by revising the RPC, MRC and SUP settings for line items repaired by the vendor.  establish a policy for the frequency of GFE stocktaking.

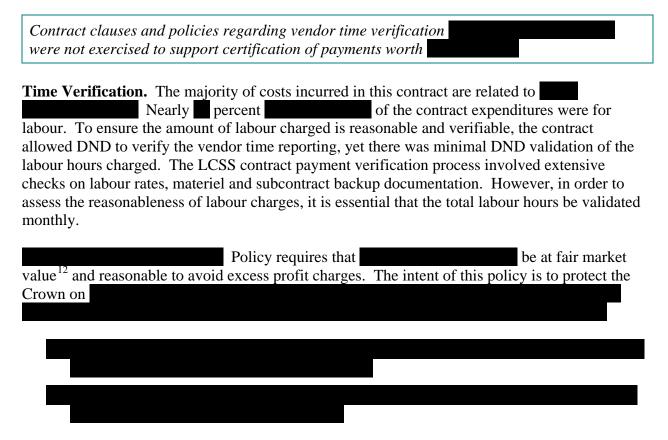
<sup>&</sup>lt;sup>10</sup> DND Special Instructions for Repair and Overhaul Contractors, A-LM-184-001/JS-001, Chapter 2, October 2004.

<sup>&</sup>lt;sup>11</sup> DND Special Instructions for Repair and Overhaul Contractors, A-LM-184-001/JS-001, Chapter 3, October 2004.



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# **Payment Certification**



**Capitalization of Betterments.** According to the *Financial Administration Manual* (FAM), <sup>13</sup> betterments are expenditures relating to the alteration or modernization of an asset that appreciably prolongs the item's period of usefulness or improves its functionality. Such expenditures must be capitalized and added to the capital cost of the related asset.

To date, only spares procurement worth were capitalized out of the \$182 million in total expenditures. Task expenditures valued at \$168 million have all been expensed with no classification to the betterments account. Of the \$168 million, nearly \$50.2 million that meet the definition of betterment should have been added to the capital cost of the command and control system. This has resulted in the capital cost of the command and control system being understated by \$50.2 million on the departmental financial statements.

OPI	RECOMMENDATION			
ADM(Mat)	In consultation with PWGSC, verify the accuracy of labour hours through time verification  Ensure that expenditures that meet the definition of a betterment are properly accounted for.			

<sup>&</sup>lt;sup>12</sup> PWGSC Supply Manual, Chapter 10, Cost and Profit.

<sup>&</sup>lt;sup>13</sup> FAM, Chapter 1020-4, Capital Assets.



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#### Governance



#### **Performance Metrics**



Table 2 demonstrates the positive impact meaningful metrics<sup>14</sup> can have on controlling cost and schedule delays for five different programs in the United States Department of Defence (US DoD).

Program (US DoD)	Meaningful Metrics	Percent change in costs	Percent change in cycle time
Tomahawk	Yes	7.6	22.4
F/A – 18 C/D	Yes	36.4	6.2
F/A – 22	No	127	102
SBIRS	No	88	not available
Comanche	No	231	120

**Table 2. Importance of Metrics.** The two projects with meaningful performance metrics did not experience significant cost growth and slippage when compared to the other three projects.

# **Reliability of Information—Data Integrity**



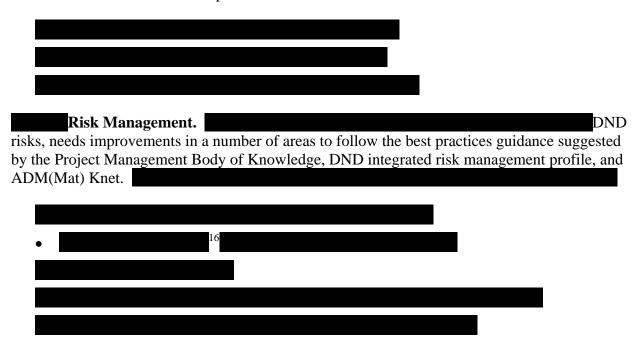
<sup>&</sup>lt;sup>14</sup> GAO-04-093 identified meaningful metrics to be those that gauged a project's progress in areas of cost, schedule, source lines of code, requirements traceability, defects and quality.



# **Risk Management**

An internal DND RMP does not exist and the vendor was not required by DND to exercise risk management best practices.

**Risk Management Planning.** Although continuous risk management was prescribed as a best practice for all business activities in DND, <sup>15</sup> a RMP was not developed by the LCSS contract management team to manage risks associated with expenditures worth \$182 million. The vendor was expected to maintain a risk register on behalf of DND LCSS contract managers. Risks internal to DND, which should not be shared with the vendor, may have been informally identified, but were not recorded in a DND risk management process. Examples of DND internal risks observed in this report are:



**Contract Risk Management.** Standard contract clauses give protection for some risks to the Crown. The following contract clauses did not mitigate risks and it is suggested that the follow-on contract address these issues:

- A dispute resolution clause did not include an escalation process to resolve disputes at the lowest level possible.
- There was no annual validation of the liability insurance certificates by PWGSC to ensure that the vendor has the appropriate insurance mandated in the contract.

<sup>&</sup>lt;sup>15</sup> Continuous risk management, ADM(Mat) KNet website. Date published: 2007-03-09.



# **Audit of the Land Command Support System Contract**

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OPI	RECOMMENDATION			
ADM(Mat)	For the follow-on contract, develop an internal RMP and ensure that DND risks are categorized, quantified and prioritized.			

# **ANNEX A—MANAGEMENT ACTION PLAN**

Ser	CRS Recommendation	OPI	Management Action	Target Completion Date
1.	Terms of Payment. Ensure that DLCSPM use the most appropriate basis of payment option and apply holdbacks to tasks that contain discrete deliverables.	ADM(Mat)/ DGLEPM	1.b.  DLCSPM's 18 PPAS will begin to track task performance metric results in order to establish a baseline against which incentives can be applied as appropriate in due course.	
2.	Value for Money. Ensure that DLCSPM technical OPIs have task budget and earned value information to enable them to better manage the tasks.  Ensure that DLCSPM invoke the R&O warranty clause and extends the software warranty to at least in the follow-on contract.	ADM(Mat)/ DGLEPM	2.a. DLCSPM's PPAS will track this information and will ensure access to it is provided to stakeholders for improved management of tasks.  2.b. DLCSPM, in conjunction with PWGSC, will invoke the warranty clause for hardware  2.c. DLCSPM and DLP 2, in conjunction with PWGSC, will extend the SACC clause warranty on software to  2.d DLCSPM PPAS will oversee the application of controls on spares economic order quantities  2.e. DLCSPM, in conjunction with DLP 2, will assess the need to include a credit clause for suitable tasks concerning inactive spares procured on vendor recommendation	

<sup>17</sup> 

<sup>&</sup>lt;sup>18</sup> Some of the corrective actions identified in this MAP will require increased personnel resources in DLCSPM to achieve. These personnel, when resourced, will be established into a Program Performance Assurance Sub-section (PPAS) of the Business Management Team (BMT).

### **ANNEX A**

Ser	CRS Recommendation	OPI	Management Action	Target Completion Date
3.	Materiel Management. Improve R&O efficiency by revising the RPC, MRC and SUP settings for line items repaired by the vendor.  and establish a policy for the frequency of GFE stocktaking.	ADM(Mat)/ DGLEPM ADM(Mat)/ DGMSSC	3.a. DLCSPM will work with DLP 2 to ensure that RPC, MRC and SUP settings are correctly established in E&I LTSC tasks for line items repaired by the vendor.  3.b.  3.c. DGMSSC will develop a policy to establish the frequency of GFE stocktaking.	(1 November 2009)
4.	Payment Certification. In consultation with PWGSC, verify the accuracy of labour hours through time verification  Ensure that expenditures that meet the definition of a betterment are properly accounted for.	ADM(Mat)/ DGLEPM	4.a. DLCSPM's PPAS and DLP 2, in conjunction with PWGSC, will begin conducting time verifications  4.b. DLCSPM and DLP 2  4.c. DLCSPM and DLP 2, through PWGSC,  4.d. DLCSPM and DLP 2, in consultation with the DGLEPM comptroller, will ensure that expenditures that meet the definition of betterment—as opposed to obsolescence mitigation or corrective, adaptive, perfective or preventive maintenance—are accounted for	(1 October 2008)
5.	Governance.	ADM(Mat)/ DGLEPM	5.a. 5.b.	

**Final – May 2008** 

### **ANNEX A**

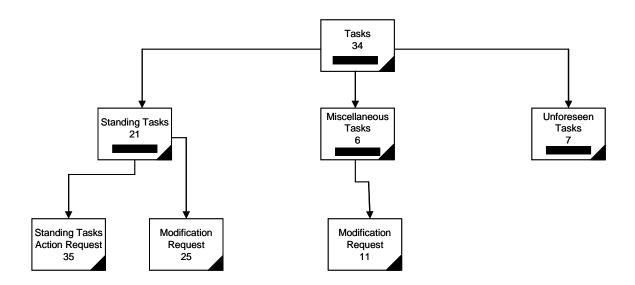
Ser	CRS Recommendation	OPI	Management Action	Target Completion Date
6.	Risk Management. For the follow- on contract, develop an internal RMP and ensure that DND risks are categorized, quantified and prioritized.	ADM(Mat)/ DGLEPM	<ul><li>6.a. DLCSPM's PPAS will implement an internal DLCSPM risk management program.</li><li>6.b. DLCSPM's PPAS</li></ul>	

# **ANNEX B—AUDIT CRITERIA**

Criteria	Rating	Justification	
Risk Management Framework			
Risks understood/appropriately managed		No DND RMP.	
Crown indemnification and contractor insurance provided			
Contract provisions for termination in place		General conditions 9601 and option years.	
Warranty provisions reduce risk to the Crown			
Contract dispute resolution provisions in place		No graduated dispute escalation.	
Governance			
Appropriate monitoring and reporting strategies in place			
Decision-making information is reliable			
Roles/responsibilities are clear and followed		Need roles documented, knowledge sharing and input/sign-off from technical OPIs on progress of work for major tasks.	
A vendor performance measurement system in place			
Management Control Framework			
Appropriate contract management staff trg, experience, workload			
Oversight exists to monitor value for money			
Procured/loaned assets safeguarded and accounted for			
Payments are IAW FAA, TB, PWGSC regulations		Betterments not captured, time verification not exercised.	
Flow down of contract terms to subcontractors			
SOO sufficiently describes operational requirements		Achievement of contract objectives and measurement not defined.	
Terms of payment optimize value for money			
Shared set of values and ethics		Compliant.	

Satisfactory Needs Minor Improvement Needs Moderate Improvement Needs Significant Improvement Unsatisfactory

# **ANNEX C—TASK PROCESS**



May 2007 Tasks in Progress. The management of tasks was broken down into three categories of tasks: Standing, Miscellaneous and Unforeseen. The tasks contained the funding for the work to proceed and the modification requests and the STARs contained the specific work scope and deliverables for discrete work within those larger funding tasks.

# ANNEX D— REVIEW OF VENDOR REPORTS

Ser	CDRLs	Status
1	R&O Contractor Progress Report (600.29)	
2	Monthly Progress Report (600.021)	
3	Quality Assurance Plan (200.097)	
4	Software Development Plan (200.098)	
5	Systems Engineering Plan (200.095)	
6	Program Management Plan (600.001)	
7	Contract Funds Status Report (600.019)	
8	Minutes/Records of Decisions(600.23/24)	
9	Crown-owned Resource Utilization (600.020)	
10		
11	Configuration Audit Report ( 200.081)	Never requested by DND
12	Special Tools and Test Equipment	

Delivered as required Needs Minor Improvement