



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.

Audit of the Fixed Wing Search and Rescue (FWSAR) Project

May 2009

7050-40 (CRS)



Canada 

Caveat

This audit represents a high level of assurance.



Table of Contents

Acronyms and Abbreviations	i
Synopsis.....	iii
Results in Brief.....	iv
Introduction	1
Background	1
Objective	1
Scope	1
Methodology.....	2
Criteria.....	2
Findings and Recommendations.....	3
Project Governance.....	3
Current FWSAR	4
Statement of Operational Requirements	6
In-Service Support Concept	8
Financial Management.....	10
Risk Management	12
Annex A—Management Action Plan	A-1
Annex B—Audit Criteria Scorecard.....	B-1
Annex C—CC115 Buffalo and CC130 Hercules Proficiency Rates.....	C-1



Acronyms and Abbreviations

ADM(Fin CS)	Assistant Deputy Minister (Finance and Corporate Services)
ADM(Mat)	Assistant Deputy Minister (Materiel)
CAS	Chief of the Air Staff
CF	Canadian Forces
CFD	Chief Force Development
CID	Capability Investment Database
C Prog	Chief of Programme
CRS	Chief Review Services
DAOD	Defence Administrative Orders and Directives
DAR	Director Aerospace Requirements
DFPPC	Director Force Planning and Program Coordination
DFS	Director Flight Safety
DMG Compt	Director Materiel Group Comptrollership
DND	Department of National Defence
DSFC	Director Strategic Finance and Costing
EPA	Effective Project Approval
ELE	Equipment Life Expectancy
FWSAR	Fixed Wing Search and Rescue
FY	Fiscal Year
GOV	Governance
IOC	Initial Operating Capability
IP	Intellectual Property
ISSC	In-Service Support Contracting
KNet	Knowledge Network
L1	Level One
MCF	Management Control Framework
MCPIOC	Major Crown Project Integrated Oversight Committee
MGPMC	Materiel Group Program Management Committee
MOB	Main Operating Base
O&M	Operations and Maintenance
OCI	Office of Collateral Interest
OPI	Office of Primary Interest



**Audit of Fixed Wing Search and
Rescue (FWSAR) Project**

Final – May 2009

PAG	Project Approval Guidance
PMB	Program Management Board
PMO	Project Management Office
PMPR	Project Management Personnel Resource
P, O&M	Personnel, Operations and Maintenance
PPA	Preliminary Project Approval
PPRA	Project Profile and Risk Assessment
PYE	Previous Year Expenditure
R&O	Repair and Overhaul
RMF	Risk Management Framework
RMP	Risk Management Plan
SAR	Search and Rescue
SCIP	Strategic Capability Investment Plan
SOI	Statement of Operational Intent
SOIQ	Statement of Interest and Qualifications
SOR	Statement of Operational Requirements
SRB	Senior Review Board
SSI	Statement of Support Intent
SS(ID)	Synopsis Sheet Identification
SS(PPA)	Synopsis Sheet Preliminary Project Approval
VCDS	Vice Chief of the Defence Staff
YFR	Yearly Flying Rate



Synopsis

In April 2007, Chief Review Services (CRS) completed an analysis of 162 capital equipment projects¹ and identified five projects that would warrant an audit. One of the projects was the acquisition of the Fixed Wing Search and Rescue (FWSAR)² aircraft. The indicative cost of the project represents only 1.2 percent of the Capital Acquisition Program. Accordingly, one cannot assume that the management practices that were in place to manage this project are representative of Department of National Defence (DND) project management practices for all projects in the Capital Equipment Program.

Based on the March 2004 federal budget plan to begin delivery of FWSAR aircraft within 12 to 18 months, a project office was established to proceed with the definition phase. However, due to unresolved procurement strategy issues, the project office was dissolved in June 2006. The FWSAR project office will be fully re-established, after government approval is received to continue with the definition phase, to replace the current fleet by 2015 in accordance with the Canada First Defence Strategy.

When the audit was initiated, less than 1 percent of the indicative cost of the project had been incurred. The audit was scheduled early to ensure that any issues or concerns raised could be addressed at the outset by the new project office as well as to enable downstream improvements in the management of the project.

The project approval documents will be revised to better communicate the current capability deficiencies and will update the estimated life cycle costs of the new aircraft. A revised statement of requirement will address some observations on the operational capabilities of the new fleet. The statement of support intent will also be revised to reflect the Department's new in-service support procurement strategy. New risk management practices within Assistant Deputy Minister (Materiel) (ADM(Mat)) will be adopted by the new FWSAR project office.

The management action plans are sound and will address the improvements needed for the remainder of the project. In addition, measures have been put in place to monitor progress regarding the implementation of the management action plans.

Regarding the acquisition program governance issues, the Vice Chief of the Defence Staff (VCDS) analysts ensure that all project Senior Review Boards (SRB) meet as frequently as necessary and that the project information required for decision making is available to monitor the capital program.

¹ Risk Analysis of Capital Projects, April 2007 (<http://www.crs-csex.forces.gc.ca/reports-rapports/2007/114P0714-eng.asp>).

² The majority of the documentation reviewed was created between 2002 and 2006. The project will be reactivated again upon government approval.



Results in Brief

In April 2007, CRS completed an analysis of 162 capital equipment projects³ and identified five projects that would warrant an audit. One of the projects identified was the acquisition of the FWSAR aircraft. The project has been on hold since June 2006 due to procurement strategy issues. In June 2008, the Canada First Defence Strategy reiterated the importance of the FWSAR replacement and thus the project office will be reactivated.

The objective of this audit was to assess the adequacy of risk management, controls and governance processes that were in place during the definition phase of the FWSAR aircraft acquisition.

Overall Assessment

- Improvements can be made so that all controls function as intended to manage the FWSAR project prior to its being put on hold.
- Improvements to a reactivated FWSAR project will help strengthen areas such as: governance, project information, and cost validation of complete life cycle costs.

Findings and Recommendations

Project Governance. SRB guidance and the SRB checklist are integral parts of the capital acquisition governance process to ensure a broad range of issues have been reviewed and analyzed prior to project approval. To fully adhere to the requirements of the Project Approval Guide (PAG), SRB⁴ checklist information needs to be presented and SRB oversight needs to be improved for the FWSAR project once it is reactivated.⁵ This being said, it is important to note that other bodies did provide oversight of the FWSAR project at specific stages.

When the project is reactivated, it is recommended that SRBs be conducted in accordance with the PAG and checklists be provided accordingly.

..... Project approval documents should fully address the

.....

..... Although total recurring maintenance cost savings for the existing aging fleets were included in the March 2004 project submission to the Program Management Board (PMB), the impact of FWSAR project delays, \$40 million per year, was not identified as a schedule risk.

³ Risk Analysis of Capital Projects, April 2007 (<http://www.crs-csex.forces.gc.ca/reports-rapports/2007/114P0714-eng.asp>).

⁴ The SRB is chaired by the Project Leader who is accountable to the Deputy Minister for project delivery.

⁵ The PAG requires that project leaders ensure that all capital acquisition projects are reviewed by an SRB each year.



It is recommended that the impact of capability deficiencies and the costs of delays to the FWSAR project be included in the Statement of Operational Requirements (SOR) and any other pertinent documents.

Statement of Operational Requirements. Since 2005 there has been limited departmental guidance on the process to develop mandatory requirements in SORs. Although there is sufficient evidence to support the FWSAR project mandatory requirements in the October 2006 version of the SOR, in some respects they could be more robust. The flying speed requirement of 273 knots for the new FWSAR is slower than the current CC130 Hercules fleet. This lower flying speed will result in a longer response time for some search and rescue (SAR) incidents currently responded to by the CC130 Hercules. However, those FWSAR incidents responded to by the CC115 Buffalo (40 percent) will have a shorter response time. With respect to airlift maneuver requirements, there was only maneuver from potential SAR maneuvers listed to qualify competitors in the draft Solicitation of Interest and Qualification (SOIQ). All maneuvers should be tested. Finally, the stated fleet size of 15 may not address the long-term operational life of the new FWSAR fleet.

It is recommended that the SOR observations be assessed and guidance for the mandatory requirements process be developed.

In-Service Support Concept. The 2005 FWSAR Statement of Support Intent (SSI) needs to be updated to align with the Department's new In-Service Support Contracting (ISSC) framework. While the FWSAR fleet may spend more time operating out of the main operating bases (MOB), the
.....
.....
.....

..... all outcomes such as aircraft availability.

It is recommended that updates to the FWSAR SSI plan take into consideration the most recent ISSC framework.

Financial Management. There needs to be an independent cost validation process for complete life cycle personnel, operations and maintenance (P, O&M) estimates for capital projects—as opposed to only support costs during the acquisition phase. Some of the assumptions used to calculate the 30-year life cycle P, O&M savings of \$2.3 billion in the FWSAR project submission could have been more accurate and could have led to an overstatement.

Good Management Practices

Option Analysis:

- A wide range of options were considered; and
- Included lease option to address funding limitations.

Statement of Requirements:

- Independent research was used to help develop and support requirements; and
- Collaborative approach in developing requirements with internal stakeholders.



**Audit of Fixed Wing Search and
Rescue (FWSAR) Project**

Final – May 2009

It is recommended that major assumptions for life cycle P, O&M estimates be validated in all projects. The FWSAR P, O&M savings model assumptions should be validated to ensure accuracy of support costs.

Risk Management. The FWSAR project did not have a detailed risk management plan (RMP) to manage risks.

It is recommended that a FWSAR project RMP be developed in accordance with the DND risk management guidelines.

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



Introduction

Background

The \$1.55-billion FWSAR project⁶ will acquire a new off-the-shelf fleet of fixed wing aircraft to replace the existing fleet of six CC115 Buffalo and ten CC130 Hercules SAR aircraft by 2015. A project objective is to provide an equivalent level of SAR service to Canadians while reducing costs associated with supporting the fleets.

The project identification phase was approved in November 2002. Based on the 23 March 2004 federal budget plan to begin delivery of FWSAR aircraft within 12 to 18 months, PMB approval was given on 26 March 2004 to establish a project office to proceed with the definition phase. In September 2004, PMB secretarial approval was given to transfer Vote 5 definition money from the Corporate General reserve to the FWSAR project even though further option analysis was subsequently directed to consider additional MOBs and a larger fleet. The project office was dissolved in June 2006 to work on other priority projects. In June 2008, the Canada First Defence Strategy reiterated the importance of replacing the fleet by 2015 with 17 FWSAR aircraft. The FWSAR project office will be re-established, after government approval is received, to continue with the definition work.

Objective

The objective of this audit was to assess the adequacy of risk management, controls and governance processes that were in place early in the project life (i.e., definition work) of the FWSAR aircraft acquisition to mitigate significant downstream issues.

Scope

The audit scope included:

- FWSAR project options analysis and definition work activities from November 2002 to December 2006;
- FWSAR project expenditures of \$7.4 million between fiscal year (FY) 2004/05 and FY 2007/08; and
- Common issues as of November 2008 with the Department's capital acquisition program.

⁶ The original indicative project costs of 15 FWSAR aircraft was \$1.3 billion (not including financing charges) but has recently been increased to \$1.55 billion.

Methodology

- Interviews with staff of the Chief of the Air Staff (CAS), VCDS, ADM(Mat), as well as end users;
- Examination of project documents and comparison to the Department's PAG—Synopsis Sheet Identification (SS(ID)), Synopsis Sheet Preliminary Project Approval (SS(PPA)), SOR, SSI, and Project Charter;
- Review of information systems—Financial Managerial Accounting System, Aerospace Equipment Program Management Performance and the Capability Investment Database (CID); and
- Site visits to end users at 19 Wing in Comox and 17 Wing in Winnipeg.

Criteria

Some of the key criteria assessed during this audit include:

- Appropriate governance is in place for project approval processes and accurate information for decision making;
- Management controls are in place to:
 - Ensure operational requirements are consistent with policies and based on independent research,
 - Assure financial management practices are appropriate; and
- Risks are understood and appropriately managed.

[Annex B](#) provides a complete list of criteria for each audit objective with a corresponding scorecard assessment.



Findings and Recommendations

Project Governance

Project oversight and approval documentation need to be improved to ensure full compliance with the PAG.

Project Oversight

The SRB is a forum chaired by the project leader that allows all level one (L1) advisors and other stakeholders to have input to the management of a project.⁷ Although the FWSAR project charter specified that an SRB would meet annually as a minimum, an SRB was not convened between December 18, 2003 and June 30, 2006, nor was secretarial approval given prior to the FWSAR project office being dissolved. However, other bodies did provide some oversight for the project. Although the PAG states that an SRB review of the general project performance shall occur annually, there is also a provision for secretarial approval with concurrence of all members.⁸

Completeness and Reliability of Information

FWSAR SRB Checklist. The PAG⁹ requires that an SRB checklist be part of annual SRBs and be included in the submission document at PMB to ensure a broad range of issues have been brought to the attention of the SRB. The FWSAR project office did not attach SRB checklists.

FWSAR Monthly Progress Report. FWSAR project monthly progress reports in the CID had a number of inconsistencies. For example, over a three-year period:

- the projected cash flow was significantly higher than the indicative project value of \$1.3 billion; and
- no data was entered for cost, schedule, technical performance or procurement strategy.

Recommendation

For all projects, ensure project leaders ensure SRBs are held in accordance with the PAG and that checklists are submitted accordingly. Implement measures to improve capital project information in the CID and follow up where information is not reliable.

OPI: VCDS

⁷ Project Approval Guide, Chapter 4, 4.6.1.

⁸ Project Approval Guide, Chapter 4, 4.6.3.

⁹ Project Approval Guide, Chapter 2, 2.5.15.



- A 2007 Director of Flight Safety report on pilot proficiency¹² concludes that for the CC130 fleet “there is a very strong relationship between decreasing flying hours and increasing personnel-related cause factor rates.”¹³ The report also mentions that the increase in pilot error rate could be as a result of better reporting of incidents as well as the lower experience levels in the pilot pool. The pilot error rates and YFR decreases are shown in [Annex C](#).

Fleet Load Capacity

When flying in mountain regions, the CC115 Buffalo carries a standard load that is below the FWSAR SOR mandatory requirements for a standard SAR load of 6,900 lbs necessary to provide SAR technicians with all the equipment needed for a SAR incident. This current CC115 cargo carrying deficiency should be addressed in the SOR.

Fleet Delay Costs

Based on a project office operations and maintenance (O&M) cost model, with minor revisions by CRS, the new FWSAR fleet may save approximately \$40 million per year in recurring O&M costs than the current FWSAR fleet. Although PMB was apprised of the total O&M savings, the risks associated with schedule delay did not include the impact of lost O&M savings. The initial operating capability (IOC) for the FWSAR project was summer 2007. With the external delays in the endorsement of the procurement strategy, the current IOC has been pushed out to summer 2014. The aging fleets are costly to maintain and each year that the project is delayed the opportunity for additional O&M savings are lost.

Recommendation

Ensure that the FWSAR project office include the impact of the capability deficiencies as well as the cost of delaying the project in the SOR and any other pertinent documents.

OPI: CAS

¹² National Defence Flight Safety Trend Analysis of Pilot Proficiency report, June 2007.

¹³ Personnel proficiency cause factor rates are the number of pilot error incidents per 10,000 hours of flying.

Statement of Operational Requirements

Formal SOR guidelines are needed for the development of mandatory requirements. As well, some of the FWSAR mandatory requirements could be more robust.

Department Guidance for Mandatory Requirements

Since 2005, there has been limited written guidance available to project staff on how to develop mandatory requirements in SORs based on high-level capability requirements. The FWSAR project office generated its 15 mandatory requirements from the original version of the SOR that contained a large number of essential requirements. There was no criteria established for the project office to determine which of the approximately 150 essential requirements¹⁴ in the first version of the SOR should be selected as mandatory.¹⁵ Since the mandatory requirement introduction in 2005, this type of SOR has been used in five major Crown projects. Formal guidance would ensure consistency in process across the Department in developing SORs.

FWSAR Statement of Requirements

Operational needs could be addressed with more robust mandatory requirements if the project reassesses the following issues found in the October 2006 version of the SOR.

Response Time. The 273 knots speed requirement is lower than the current CC130E¹⁶ Hercules speed of 292 knots. This lower speed will be able to respond to 98 percent of the incidents that the CC130 currently responds to within a four hour response time.¹⁷ For FWSAR incidents that are responded to by the CC115 Buffalo (40 percent) the response time will be faster.

.....
.....
.....
.....
.....

Maneuverability. to test the maneuverability of the aircraft in the draft SOIQ. The SOR requires that FWSAR maneuvers conducted by the CC115 Buffalo and the CC130 Hercules fleets, as specified in the SOI, will be done by the new FWSAR fleet. Although the SOR addresses the maneuverability requirements, the final SOIQ should include the essential maneuvers.

¹⁴ There is no documented SOR guidance for the criteria to establish essential or desirable requirements.

¹⁵ Mandatory requirements relate to approved high-level mandatory capabilities to be assessed in the SOIQ. Previous essential requirements that are not mandatory are now rated requirements in the new mandatory requirement SOR.

¹⁶ Currently, the CC130H aircraft is also used for FWSAR missions and under similar conditions has a speed capability of approximately 10 knots greater than the CC130E.

¹⁷ Director Aerospace Requirements study, 9 December 1993.



Audit of Fixed Wing Search and Rescue (FWSAR) Project**Final – May 2009**

Fleet Size. The SOR provides for a fleet of 15 FWSAR aircraft. However, a benchmark with four other CF aircraft fleets, portrayed in Table 1,¹⁸ indicates the percentage of aircraft in repair and overhaul (R&O) to be low relative to the other fleets. There is a risk of insufficient aircraft availability over the life of the fleet to meet FWSAR readiness standards.

Fleet	Number of Aircraft in Fleet	Average Aircraft in R&O	Percentage in R&O
CC130J Hercules	17	...	...
C17	4	...	...
CP140 Aurora	21	...	...
CC115 Buffalo	6	...	...
New FWSAR	15	...	...

Table 1. Comparison of Different CF Fleet Sizes. A comparison to the CC130J Hercules, C17, CP140 Aurora and CC115 Buffalo fleets indicates the percentage of FWSAR aircraft in R&O is 7 percent, which is 5 to 10 percent lower than the number of aircraft in R&O from the four other fleets.

Cargo Compartment. When configured for a SAR mission, but tasked for the secondary role of medical evacuation, the FWSAR aircraft cargo compartment must be

Recommendations

Develop guidelines in the PAG for project staff to develop mandatory requirements.

OPI: VCDS

Re-assess the requirements in the FWSAR SOR and revise the SOR and draft SOIQ accordingly.

OPI: CAS

¹⁸ The fleets used in the comparison varied in age and readiness requirements. The CP140 and CC115 Buffalo are over 25 years old and the CC130J and C17 are modern fleets.



In-Service Support Concept

SSI updates are required to align with the departmental framework for long-term ISSC concepts.

In-Service Support Contracting Framework Guidance

The draft ISSC¹⁹ concept was first introduced by ADM(Mat) in 2005. Although not approved at the time of the FWSAR SSI, now it is expected that all new equipment acquisitions will adopt this ISSC strategy. In April 2008, ADM(Mat) conducted an ISSC Project Alignment Assessment to ensure all major capital acquisitions were aligned with the concept. In October 2008, DAOD 3022-0 *Procurement of ISS for CF Platforms* was drafted to ensure compliance with the ISSC framework. This concept is an improvement on the Optimized Weapons System Management with the following main principles:

- One performance- and incentive-based, fixed-price contract per fleet with the original equipment manufacturer;
- Contractor to own spares;
- Terms of the support contract is long term (20 years); and
- Power by hour basis of payment with award fees based on availability.

The September 2005 FWSAR SSI addresses the life-cycle support approach for the fleet. There are a number of areas in the SSI that should be updated to align with ISSC guidance.

-
..... However, the ISSC framework states that “contractors will perform all ISS activities unless the activity must be performed by the Government of Canada to force-generate CF personnel to support deployable or critical role platforms.” Although the FWSAR fleet would spend more time operating out of the MOB,
.....
.....
-
.....
.....
-
.....
-
.....
.....

¹⁹ First Draft In-Service Support Framework, October 2005; second draft, May 2008.



Recommendation

In conjunction with ADM(Mat), consider updating the SSI plan to align with the ISSC framework.

OPI: CAS



Financial Management

Indicative estimates for project P, O&M savings need to be fully validated. As well, the project funding approval needs to comply with the Department's acquisition policy.

The \$2.3-billion P, O&M savings over the FWSAR aircraft 30-year life cycle were overstated. The PAG requires that recurring P, O&M costs be included in the Department and Treasury Board submissions²⁰ to ensure that stakeholders and decisions makers have reliable information for downstream support costs. Overstated P, O&M savings could be deducted from the life-cycle support budgets once the old fleet is retired.

Recurring P, O&M Savings

As shown in Table 2, the FWSAR project P, O&M cost model was based on assumptions that should be revisited.

FWSAR Life Cycle P, O&M Cost Savings Assumptions	Adjustment Value (\$M)
New fleet YFR too low
New fleet maintenance costs too low
Current fleet O&M cost escalation too high
Projected current fleet size too small

Table 2. CRS Adjustments to FWSAR P, O&M Cost Savings. The comparison of the existing fleet O&M costs to the new fleet resulted in overstated savings based on questionable assumptions.

- The assumed YFR for the new FWSAR fleet was too low. The O&M cost model used 433 hours versus the planned 700 YFR in the SOI, resulting in an overstatement of O&M savings of for the new fleet.
- The O&M cost model for the new fleet used lower maintenance costs of a non-compliant aircraft. This assumption resulted in an overstatement of in O&M savings for the new fleet.
- The cost escalation factor applied to O&M for the existing fleet was much higher than both the historical research of aging fleets²¹ and the last 20-year O&M cost trend²² for the CF CC130 fleet. The O&M flying costs of the current fleet and potential savings over the next 30 years were overstated by
- It was assumed that the size of the existing fleet could be reduced to 10 aircraft. At least 13 aircraft would be necessary to meet readiness standards. This would increase the existing fleet O&M cost estimate by over 30 years.

²⁰ PAG chapter 2, 2.5.1.

²¹ 2003 RAND Non-Profit Research of Aging Aircraft, pages 125, 136, 146 and 151.

²² Cost Factors Manual Spares, Engine Services, R&O, In-Service Maintenance from 1988 to 2008.



Non-Recurring P, O&M Savings

The P, O&M savings estimate included of non-recurring O&M costs for the old fleet. Inclusion of these costs is contrary to the policy that only recurring costs should be considered for comparison between two fleets of aircraft.²³

Validation of P, O&M Savings

Director of Strategic Finance and Costing (DSFC) staff did not validate all of the Preliminary Project Approval (PPA) recurring P, O&M costs in the FWSAR project. Validation was provided by DSFC on project acquisition P, O&M cost estimates, but not on the recurring post acquisition P, O&M portion in the submission documents. The PAG states that the complete life cycle P, O&M costs, even though not a part of formal project costs, must be addressed accordingly because they are critical for Defence Service Program decisions.²⁴ This was more recently clarified in the September 2008 Program Guidance Memorandum which states that DSFC is responsible for validating project cost estimates.²⁵ Appropriate validation could have identified these concerns with the P, O&M cost savings assumptions.

Recommendations

Revisit the recurring P, O&M model and ensure accuracy of financial data in submission documents.

OPI: ADM(Mat)

In conjunction with ADM(Mat), validate the major assumptions for recurring life cycle P, O&M costs for new combat system acquisitions.

OPI: ADM(Fin CS)

²³ PAG chapter 2, 2.4.29.

²⁴ PAG chapter 4, 4.2.3.

²⁵ Program Guidance Memorandum 02/08, page 3.



Risk Management

Formal risk management was not fully exercised by the FWSAR project office.

Given the fluid nature of this “fast track” project, the risk management process for the FWSAR project was more informal. Within each phase of DND risk management methodology²⁶ certain risk management practices were not in place in the project office.

Planning. A formal RMP to supplement the December 2003 Project Profile and Risk Assessment (PPRA) should have been in place. The project charter indicated that a RMP would be in place for all phases of the project. The RMP and the mandatory PPRA should outline how risks will be managed throughout the project. Although there are a number of unknowns in the option analysis phase, the risks identified in the PPRA should have included a detailed plan on managing the risks over the life of the project.

Assessment. There was no specific method to assess risk levels or rank them based on likelihood and impact of the risks. As well, a clear linkage of the project’s low- to medium-risk severity with the 10-percent project contingency funds should be established. This amount of contingency equates to a medium- to high-risk severity level in the ADM(Mat) Knowledge Network (KNet) guidance. The severity of the following risks should have been higher in the PPRA:

- Bid evaluation risk of best value versus least cost;
- Awarding a single contract for acquisition and ISS;
- Human resources shortage in DND and Public Works and Government Services Canada;
- The ISS concept for non-deployable critical role aircraft;
- Foreign exchange rate fluctuations; and
- Schedule slippage.

Monitoring and Evaluation. On-going monitoring of risks was not sufficiently documented. Risk management is a continuous process of identification and analysis, so that risks can be prioritized, managed and mitigated appropriately. The only documented risk reassessment was an updated PPRA completed two years after the original PPRA.

Reporting. Communication of risks is necessary for stakeholders to develop mitigation plans.

- The PPRA needs to address how the project office was going to address the management of risks, project complexity, and human resources challenges.
- The 2003 PPRA contained some inconsistencies in risk assessment ratings within the same document.

²⁶ ADM(Mat) KNet.

**Audit of Fixed Wing Search and
Rescue (FWSAR) Project**

Final – May 2009

Since the FWSAR project office was closed in 2006, there have been major Crown project risk management improvements within the Director General Major Project Delivery Air. In August 2006, the first monthly Major Crown Project Integrated Oversight Committee (MCPIOC) was held. At the MCPIOC meetings, the major risks and mitigation strategies for each project are presented. Once approval is given for the FWSAR project it will also be governed by this interdepartmental oversight committee.

Recommendation

Develop a FWSAR RMP that incorporates the DND/CF integrated risk management guidelines and re-evaluate the risks identified and their level of impact on the project.

OPI: ADM(Mat)



Annex A—Management Action Plan

Project Governance

CRS Recommendation

1. For all projects ensure project leaders ensure SRBs are held in accordance with the PAG and that checklist are submitted accordingly. Implement measures to improve capital project information in the CID and follow up where information is not reliable.

Management Action

Projects in CID will be reviewed to determine overdue SRBs. Affected L1s will be contacted to set a date for SRB completion. DFPPC analysts will ensure Annex G of PMB submissions will include SRB checklists iaw Program Guidance Memo 02/08.

OPI: VCDS

Target Date: April 2009

Management Action

DFPPC staff will implement a quarterly review of CID projects to determine out-of-date material and then work with Project Leaders to provide updates.

OPI: VCDS

Target Date: June 2009

Current FWSAR

CRS Recommendation

2. Ensure that the FWSAR project office include the impact of capability deficiencies as well as the cost of delaying the project in the SOR and any other pertinent documents.

Management Action

The FWSAR SOR operational impact of maintaining the status quo beyond 2010 will be revised to address the impact of maintaining these fleets beyond 2015—the current FWSAR project timeline. The PPRA is currently being revised.

OPI: CAS

Target Date: April 2009



Statement of Operational Requirements

CRS Recommendation

3. a. Develop guidelines in the PAG for project staff to develop mandatory requirements.

Management Action

C Prog will meet with CFD to determine where these guidelines should reside.

OPI: VCDS

Target Date: May 2009

CRS Recommendation

3. b. Re-assess the requirements in the FWSAR SOR and revise the SOR and draft SOIQ accordingly.

Management Action

The FWSAR SOR is undergoing review. All items, including those identified by the CRS audit, will be scrutinized and inconsistencies will be addressed.

OPI: CAS

Target Date: June 2009

In-Service Support Concept

CRS Recommendation

4. In conjunction with ADM(Mat), consider updating the SSI plan to align with the ISSC framework.

Management Action

The SSI is undergoing review and all necessary revisions will be made.

OPI: CAS

Target Date: By EPA

Management Action

In cooperation with CAS, ADM(Mat) intends to modify the 2005 version of the SSI where required. MGPMC was briefed in Oct 08 that the project will be aligned with current ISSC guidelines.

OPI: OCI: ADM(Mat)

Target Date: By EPA



ANNEX A

Financial Management

CRS Recommendation

5. a. Revisit the recurring P, O&M model and ensure accuracy of financial data in submission documents.

Management Action

The recurring P, O&M costs will be reviewed during the definition phase with DAR to ensure accuracy of replaced fleet ELE, phase out timelines, impact to MOBs, personnel and other elements from both an operational and maintenance perspective. DSFC is currently reviewing their policy on the level of validation required concerning recurring P, O&M. With this in mind, DSFC will be requested to review and validate the costing to ensure accuracy of data, use of applicable DND financial documentation such as the Cost Factors Manual, Economic Model, use of compounding escalation factors, general ledgers and other costing elements.

OPI: ADM(Mat)

Target Date: By EPA

CRS Recommendation

5. b. In conjunction with ADM(Mat) validate the major assumptions for recurring life cycle P, O&M costs for new combat system acquisitions.

Management Action

DSFC in conjunction with DMG Compt will explore the methodologies to improve recurring P, O&M estimates. This improvement will be incorporated in the Strategic Cost Model to support the Canada First Defence Strategy implementation.

OPI: ADM(Fin CS)

Target Date: July 2010

Risk Management

CRS Recommendation

6. Develop a FWSAR RMP that incorporates the DND/CF integrated risk management guidelines and re-evaluate the risks identified and their level of impact on the project.

Management Action

The FWSAR PMO is committed to incorporating a comprehensive risk management process. The RMP will align with current departmental guidelines and the PPRA has been updated. It should be reiterated that the original FWSAR project never formally entered the definition phase; therefore, the risk management process was not as rigorous as it would have been if the project had progressed.

OPI: ADM(Mat)

Target Date: Once PPA is achieved and project formally enters definition phase.



Annex B—Audit Criteria Scorecard

Objective

1. GOV

Criteria

Appropriate skills, staff and resources are available.

Assessment

Shortage of procurement staff and other PMPR resources. Ceiling on PMPR resource allocated.

OCG Core Controls: PPL 2, 4

Ref/Score: Needs Moderate Improvement (Briefed)

Objective

2. GOV

Criteria

Project approval and monitoring processes with accurate information for decision making.

Assessment

Project approval documentation not complete and lack of integrity in project monthly progress reports.

OCG Core Controls: G-6

Ref/Score: Needs Significant Improvement

Objective

3. RMF

Criteria

Risks are identified, assessed, ranked, mitigated, quantified, reported by the Project Office.

Assessment

No five-level impact/probability threshold criteria. Risks were underestimated, not ranked, not reassessed or quantified and not well communicated.

OCG Core Controls: RM 1-6

Ref/Score: Needs Moderate Improvement



ANNEX B

Objective

4. RMF

Criteria

Stakeholder analysis has been performed to ensure project success.

Assessment

Analysis was completed by continuous communication with stakeholders. Delay from external stakeholders not anticipated.

OCG Core Controls: CFS-2

Ref/Score: Needs Minor Improvement (Briefed)

Objective

5. MCF

Criteria

Valid operational requirement is in accordance with defence policy, clearly defined, complete, prioritized and traceable.

Assessment

Response time and fleet size concerns. No process for selection of high-level mandatory capabilities.

OCG Core Controls: G 3, 4

Ref/Score: Needs Moderate Improvement

Objective

6. MCF

Criteria

Option analysis alternatives are measurable and based on research.

Assessment

Wide variety of options considered; however, some key guidance elements were not included. SCIP limitations were considered.

OCG Core Controls: PP 1

Ref/Score: Needs Minor Improvement



ANNEX B

Objective

7. MCF

Criteria

Cost estimates based on valid information from reliable sources with appropriate contingency.

Assessment

O&M savings model inaccuracies. Lack of validation of the life cycle O&M costs.

OCG Core Controls: ST 2

Ref/Score: Needs Significant Improvement

Objective

8. MCF

Criteria

The procurement plan provided value for money assurance.

Assessment

Original procurement strategy delayed the project. SOIQ process reduces unnecessary cost for non-compliant bids but eliminates some competition.

OCG Core Controls: ST 2

Ref/Score: Needs Moderate Improvement (Briefed)

Objective

9. MCF

Criteria

Project schedule meets operational requirements and reduces O&M costs of existing fleets.

Assessment

Cost of delay increases and associated operational risks of the current fleet are not being documented as urgent.

OCG Core Controls: ST 1

Ref/Score: Needs Significant Improvement



Annex C—CC115 Buffalo and CC130 Hercules
Proficiency Rates

In 1993, the Buffalo fleet was reduced to a fleet of six. For the Buffalo fleet the DFS report concluded “the proficiency-related cause factor rate increases sharply in 1993 despite YFR remaining with a stable band from 1993 through 2004. Thus, the rate of proficiency-related cause factors does not appear to be YFR-related....”

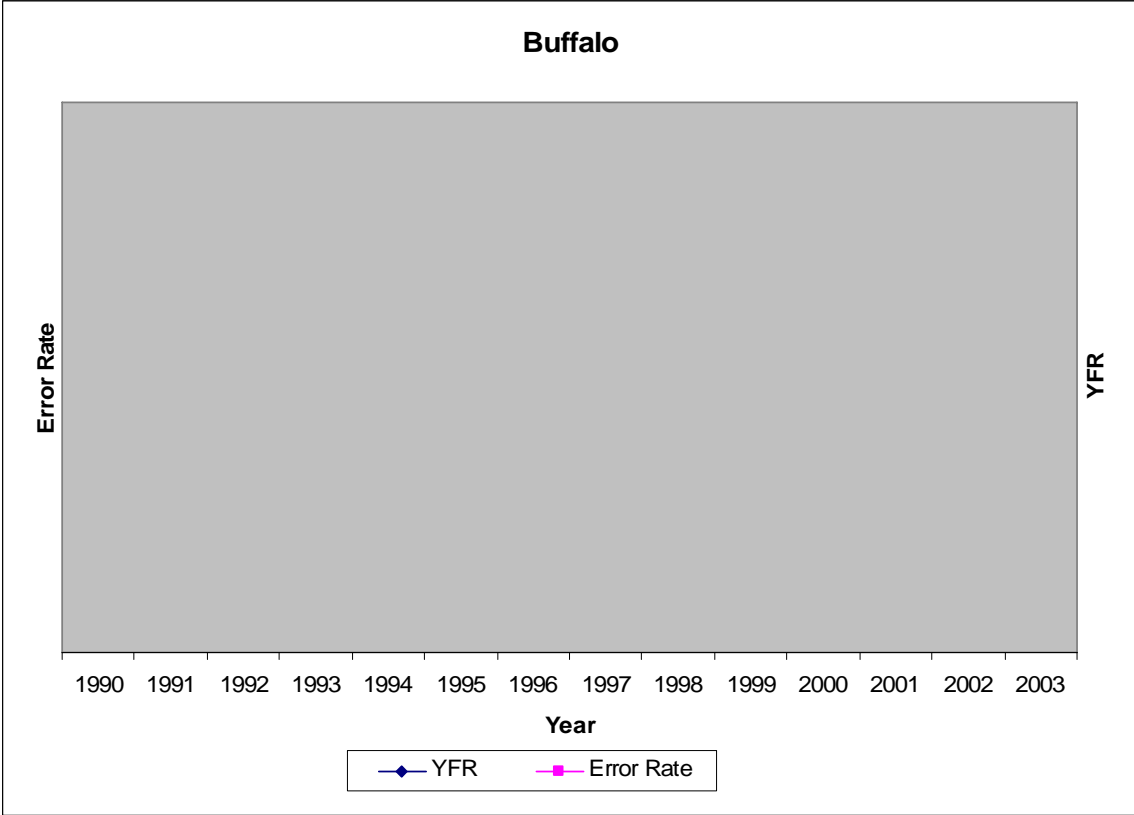


Figure 1. CC115 Buffalo Proficiency Rate. This graph plots the pilot error rate ranging from against the year of operations ranging from 1990 to 2003. The yearly fleet flying rate for the CC115 Buffalo aircraft (ranging from is also plotted against the same years of flying operations. The yearly flying rate was in 1990, declined to in 1993 and has remained relatively constant since then. The data is summarized in the following table:

ANNEX C

Year	Error Rate	YFR
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
Average from 1997 to 2003	11	.....

Table 3. CC115 Buffalo Proficiency Rate.



ANNEX C

The DFS report concluded

.....

.....

.....

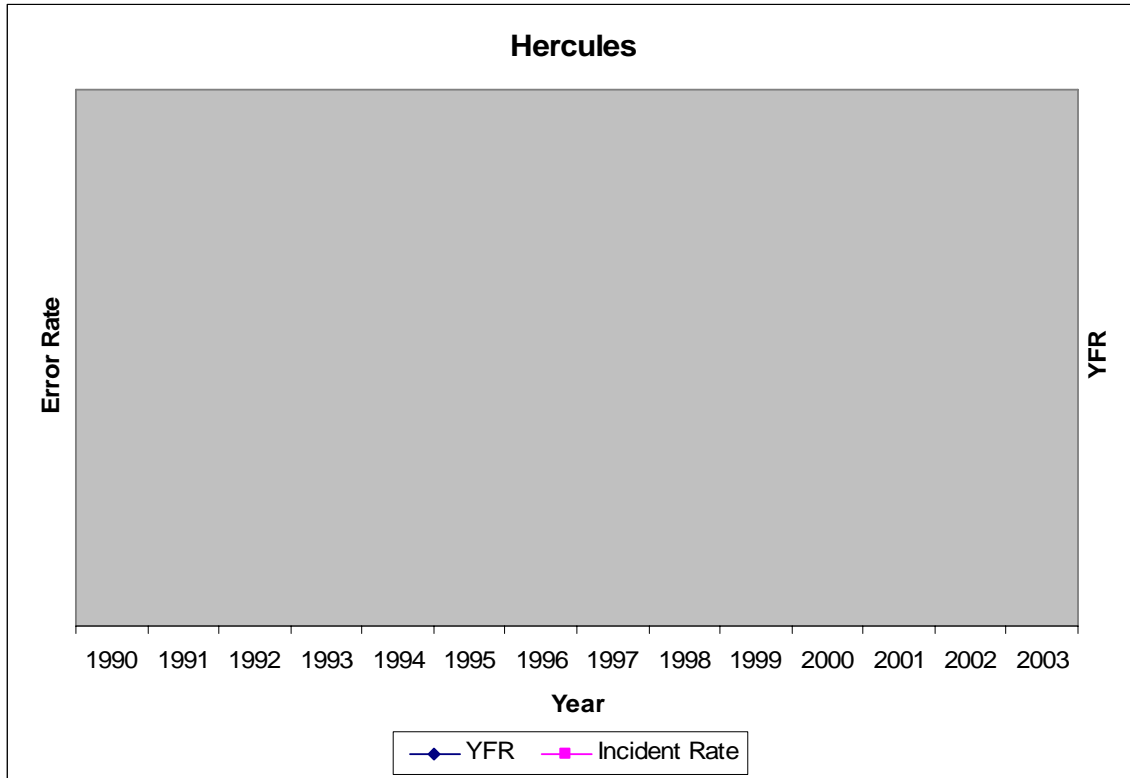


Figure 2. CC130 Hercules Proficiency Rate. This graph plots the pilot error rate ranging from against the year of operations ranging from 1990 to 2003. The yearly fleet flying rate for the CC130 Hercules aircraft (ranging from is also plotted against the same years of flying operations. The yearly flying rate was in 1990; it increased to in 1993, and has steadily declined to in 2003. The data is summarized in the following table:

ANNEX C

Year	Error Rate	YFR
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
Average from 1997 to 2003	10	.....

Table 4. CC130 Hercules Proficiency Rate.

