REMOTE MINEHUNTING & DISPOSAL SYSTEM (RMDS)

REQUEST FOR PROPOSAL (RFP)

IMPORTANT INFORMATION REGARDING THIS RFP:

This RFP is in 3 volumes and to be considered compliant, bidder must bid on the 2 requirements.

VOLUME 2

RMDS Acquisition Resulting Contract Clauses

W8472-105270

This document contains Security Requirement

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PART 7 – ACQUISITION RESULTING CONTRACT CLAUSES

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

7.1 Requirements

THIS CONTRACT CONTAINS A SECURITY REQUIREMENT

7.1.1 Statement of Work

The Contractor must perform the Work in accordance with the Statement of Work at Annex A

The Contractor must deliver quantity two (2) RMDS and all associated subsystems and ILS (one RMDS to each coastal formation) as described in Paragraphs 3 of Annex A and Appendix AA System Requirements Document (SRD).

The RMDS must include the four (4) main subsystems: i) Autonomous Underwater Vehicle (AUV) Subsystem; ii) Mine Disposal Subsystem (MDS); iii) Transportable Command Centre (TCC); and iv) Computer-Based Trainer (CBT).

The Contractor must conduct the RMDS systems integration to ensure the RMDS is delivered as a fully integrated system capable of conducting the end to end mine hunting and disposal mission without the need for 3rd party support systems unless otherwise stated in the SRD.

7.1.2 Optional Goods and/or Services

The Contractor grants to Canada the irrevocable option to acquire the following goods:

a. One (1) or Two (2) additional Light Weight AUV;
b. One (1) or Two (2) additional Operator Portable AUV; and
c. Up to six (6) additional MDV-C

Under the same conditions and at the prices and/or rates stated in the Contract. The option may only be exercised by the Contracting Authority and will be evidenced, for administrative purposes only, through a contract amendment.

The Contracting Authority may exercise the option within 24 months after contract award by sending a written notice to the Contractor.

7.1.3 Industrial and Technological Benefits (ITB) Commitments and Responsibilities

The Contractor must achieve all the ITB commitments in accordance with the schedule and commitments set out in Annex D, Acquisition ITB Terms and Conditions

7.2 Standard Clauses and Conditions

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7.2.1 General Conditions

2030 (2018-06-21), General Conditions - Higher Complexity - Goods, apply to and form part of the Contract.

7.2.2 Supplemental General Conditions

The following supplemental general conditions apply to and form part of the Contract, as applicable:

4006 (2010-08-16), Contractor to Own Intellectual Property Rights in Foreground Information
4010 (2012-07-16), Services - Higher Complexity;

7.3 Security Requirements

The Contractor/Offeror must, at all times during the performance of the Contract/Standing Offer, hold a valid Facility Security Clearance at the level of NATO CONFIDENTIAL, issued by the Contract Security Program (CSP) of the Industrial Security Sector (ISS), Public Works and Government Services (PWGSC).

2. This contract includes access to Controlled Goods. Prior to access, the contractor must be registered in the Controlled Goods Program of Public Works and Government Services Canada (PWGSC).

3. The Contractor/Offeror personnel requiring access to NATO CLASSIFIED information, assets or sensitive work site(s) must be permanent residents of Canada or citizens of a NATO member country and EACH hold a valid personnel security screening at the level of NATO CONFIDENTIAL, granted or approved by the appropriate delegated NATO Security Authority.

4. The Contractor/Offeror MUST NOT remove any CLASSIFIED information or assets from the identified work site(s), and the Contractor/Offeror must ensure that its personnel are made aware of and comply with this restriction.

5. Subcontracts which contain security requirements are NOT to be awarded without the prior written permission of the CSP/ISS/PWGSC.

6. The Contractor must complete and submit a Foreign Ownership, Control and Influence (FOCI) Questionnaire and associated documentation identified in the FOCI Guidelines for Organizations prior to contract award to identify whether a third party individual, firm or government can gain unauthorized access to CLASSIFIED NATO information/assets. **Public Works and Government Services Canada** (PWGSC) will determine if the company is “Not Under FOCI” or “Under FOCI”. When an organization is determined to be Under FOCI, PWGSC will ascertain if mitigation measures exist or must be put in place by the company so it can be deemed “Not Under FOCI through Mitigation”.

7. The contractor shall at all times during the performance of the contract possess a letter from PWGSC identifying the results of the FOCI assessment with a FOCI designation of Not Under FOCI or Not Under FOCI through Mitigation.

8. All changes to Questionnaire and associated FOCI evaluation factors must immediately be submitted to the Industrial Security Sector (ISS) to determine if the changes impact the FOCI designation.

9. The Contractor/Offeror must comply with the provisions of the:

(a) Security Requirements Check List and security guide (if applicable), attached at Annex ____

(b) *Industrial Security Manual* (Latest Edition).

7.4 Term of Contract

The period of the Contract is 4 years from date of award.

7.4.2 Delivery Date

All the deliverables must be received on or before _____ (*insert date*).

7.4.5 Delivery Points

RMDS less combat variant sub-system to be delivered to:

Canadian Forces Base Halifax, Nova Scotia and, and/or Canadian Forces Base Esquimalt, British Columbia

MDV-TI and MDV-C sub-systems to be delivered to:

Canadian Forces Ammunition Depot CFAD Bedford (East), Nova Scotia and/or CFAD Rocky Point (West), British Columbia

7.5 Authorities

7.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Paul Lacoursiere

Supply Team Leader

PWGSC- Acquisitions Branch

Electronics, Munitions and Tactical Systems Procurement Directorate

11 rue Laurier

Place du Portage Phase Ill, 8C2

Cell 343-551-1529

Fax: 819-956-5650

Email: Paul.Lacoursiere@pwgsc.gc.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

7.5.2 Project Authority

The Project Authority for the Contract is: : *(To be identified at contract award, if required)*

Name: _____
Title: _____
Organization: _____
Address: _____

Telephone: ___-___-_____
Facsimile: ___-___-_____
E-mail address: _____

The Project Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Project Authority; however, the Project Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

7.5.3 Procurement Authority

The Procurement Authority for the Contract is: *(To be identified at contract award, if required)*

Name: _____
Title: _____
Organization: _____
Address: _____

Telephone: ___-___-_____
Facsimile: ___-___-_____
E-mail address: _____

The Procurement Authority is the representative of the department or agency for whom the Work is being carried out under the Contract. The Procurement Authority is responsible for the implementation of tools and processes required for the administration of the Contract. The Contractor may discuss administrative matters identified in the Contract with the Procurement Authority however the Procurement Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of Work can only be made through a contract amendment issued by the Contracting Authority

7.5.4 Industrial and Technological Benefits Authority

The Industrial Technological Benefits Authority means the Minister of Innovation, Science and Economic Development or any other person designated by that Minister to act on the Minister's behalf under the Contract and is responsible for evaluating, accepting, monitoring, verifying and crediting ITB, and for assessing the Contractor's ITB performance under this Contract. Industrial and Technological Benefits matters may be discussed with the Industrial and Technological Benefits Authority; however, the Industrial and Technological Benefits Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

7.5.5 Contractor's Representative

Fill in or delete as applicable
(To be inserted at contract award)

Name:
Title:
Address:

Telephone:
Facsimile:
E-mail:

7.6 Proactive Disclosure of Contracts with Former Public Servants

By providing information on its status, with respect to being a former public servant in receipt of a *Public Service Superannuation Act* (PSSA) pension, the Contractor has agreed that this information will be reported on departmental websites as part of the published proactive disclosure reports, in accordance with Contracting Policy Notice: 2012-2 of the Treasury Board Secretariat of Canada.

7.7 Payment

7.7.1 Industrial and Technological Benefits Commitments

7.7.1.1 Holdback

If the Contractor fails to meet any of its ITB Obligations under this Contract, the performance guarantees, in the form of holdbacks and/or stop payment detailed in Annex D Industrial and Technological Benefits Terms and Conditions, section 18.3 will apply.

7.7.1.2 Liquidated Damages

In respect of the failure to achieve any of the Obligations under Annex D Industrial and Technological Benefits Terms & Conditions Articles 3.1.1 to 3.1.5 and 3.1.6 by the end of the ITB Achievement Period, the Contractor shall pay to Canada as liquidated damages 10% of the Shortfall as detailed in under Annex D Industrial and Technological Benefits Terms and Conditions, section 18.3.

7.7.2 Basis of Payment

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid firm unit prices, as specified in Annex “B" for a cost of $ _____ (Canadian Dollars Only) (to be inserted at contract award). Customs duties are included and Applicable Taxes are extra

7.7.3 Limitation of Price

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

7.7.4 Milestone Payments

Canada will make milestone payments in accordance with the Schedule of Milestones detailed in the Contract at Annex "B" and the payment provisions of the Contract if:

a. an accurate and complete claim for payment using PWGSC-TPSGC 1111, Claim for Progress Payment, and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;

b. all the certificates appearing on form PWGSC-TPSGC 1111 have been signed by the respective authorized representatives;

c. all work associated with the milestone and as applicable any deliverable required has been completed and accepted by Canada.

7.7.5 Taxes - Foreign-based Contractor

SACC Manual clause C2000C (2007-11-30) Taxes - Foreign-based Contractor

7.7.6 Exchange Rate Fluctuation Adjustment

SACC Manual clause C3015C (2017-08-17), Exchange Rate Fluctuation Adjustment

7.7.7 Lien – section 427 of the Bank Act

SACC Manual clause H4500C (H4500C), Lien – section 427 of the Bank Act

7.7.8 Taxes – Foreign-based Contractor

SACC Manual clause C2000C (2007-11-30), Taxes - Foreign-based Contractor

7.7.9 Canadian Customs Documentation

SACC Manual clause C2608C (2019-05-30), Canadian Customs Documentation

7.7.10 Customs Duties – department of national Defence – Importer

SACC Manual clause C2610C (2007-11-30), Customs Duties – department of national Defence – Importer

7.7.11 Custom Duties – Contractor Importer

SACC Manual clause C2611C (2007-11-30), Custom Duties – Contractor Importer

7.7.12 Priority Rating

SACC Manual clause C2800C (2013-01-28), Priority Rating

7.7.13 Priority Rating - Canadian-based Contractors

SACC Manual clause C2801C (2017-08-17), Priority Rating - Canadian-based Contractors

7.7.14 Electronic Payment of Invoices – Contract

The Contractor accepts to be paid using any of the following Electronic Payment Instrument(s):

a. Visa Acquisition Card;
b. MasterCard Acquisition Card;
c. Direct Deposit (Domestic and International);
d. Electronic Data Interchange (EDI);
e. Wire Transfer (International Only);
f. Large Value Transfer System (LVTS) (Over $25M)

7.8 Invoicing Instructions

1. The Contractor must submit a claim for payment using form PWGSC-TPSGC 1111, Claim for Progress Payment.

   Each claim must show:

   a. all information required on form PWGSC-TPSGC 1111;

   b. all applicable information detailed under the section entitled "Invoice Submission" of the general conditions;
   c. the description and value of the milestone claimed as detailed in the Contract.

   Each claim must be supported by:

   a. a copy of the invoices, receipts, vouchers for all direct expenses, travel and living expenses;
   b. a copy of the monthly progress report

2. Applicable Taxes must be calculated on the total amount of the claim before the holdback is applied. At the time the holdback is claimed, there will be no Applicable Taxes payable as it was claimed and payable under the previous claims for progress payments.

3. The Contractor must prepare and certify one original and two (2) copies of the claim on form PWGSC-TPSGC 1111, and forward it to the _____ (*insert "Project" or "Technical" or "Inspection"*) Authority identified under the section entitled "Authorities" of the Contract for appropriate certification after inspection and acceptance of the Work takes place. The _____ (*insert "Project" or "Technical" or "Inspection"*) Authority will then forward the original and two (2) copies of the claim to the Contracting Authority for certification and onward submission to the Payment Office for the remaining certification and payment action.

4. The Contractor must not submit claims until all work identified in the claim is completed

7.9 Certifications and Additional Information

7.9.1 Compliance

Unless specified otherwise, the continuous compliance with the certifications provided by the Contractor in its bid or precedent to contract award, and the ongoing cooperation in providing additional information are conditions of the Contract and failure to comply will constitute the Contractor in default. Certifications are subject to verification by Canada during the entire period of the Contract.

7.9.2 Federal Contractors Program for Employment Equity - Default by the Contractor

The Contractor understands and agrees that, when an Agreement to Implement Employment Equity (AIEE) exists between the Contractor and Employment and Social Development Canada (ESDC)-Labour, the AIEE must remain valid during the entire period of the Contract. If the AIEE becomes invalid, the name of the Contractor will be added to the "FCP Limited Eligibility to Bid" list. The imposition of such a sanction by ESDC will constitute the Contractor in default as per the terms of the Contract.

7.10 Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in _____ (*insert the name of the province or territory as specified by the Bidder in its bid, if applicable*).

7.11 Priority of Documents

If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

(a) the Articles of Agreement;
(b) the supplemental general conditions _____ (*insert number, date and title*);
(c) the general conditions _____ (*insert number, date and title*);
(d) Annex X, Statement of Work ***OR*** Requirement;
(e) Annex X, Basis of Payment;
(f) Annex X, Security Requirements Check List (*if applicable*);
(g) Annex X, Insurance Requirements (*if applicable*);
(h) the signed Task Authorizations (including all of its annexes, if any) (*if applicable*);
(i) the Contractor's bid dated _____, (*insert date of bid*) (*If the bid was clarified or amended, insert at the time of contract award:*", as clarified on _____" ***or*** ",as amended on _____" *and insert date(s) of clarification(s) or amendment(s)).*

7.12 Defence Contract

SACC Manual clause A9006C (2012-07-16) Defence Contract

7.13 Foreign Nationals (Canadian Contractor)

SACC Manual clause A2000C (2006-06-16) Foreign Nationals (Canadian Contractor)

7.14 Insurance or Insurance Requirements

SACC Manual clause G1005C _____ (*insert date*) Insurance - No Specific Requirement

7.15 Controlled Goods Program

SACC Manual clause A9131C (2014-11-27), Controlled Goods Program
SACC Manual clause B4060C (2011-05-16) Controlled Goods

7.16 Limitation of Liability

7.17 ...Security Deposit Definition – Contract

7.17.1 *SACC Manual* clause E0008C _____ (*insert date*) Security Deposit Definition – Contract

7.18 Quality Plan

No later than _____ days after the effective date of the Contract, the Contractor must submit for acceptance by the Department of National Defence (DND) a Quality Plan prepared according to the latest issue (at contract date) of *ISO 10005:2005 "Quality management systems - Guidelines for quality plans"*. The Quality Plan must describe how the Contractor will conform to the specified quality requirements of the Contract and specify how the required quality activities are to be carried out, including quality assurance of subcontractors. The Contractor must include a traceability matrix from the elements of the specified quality requirements to the corresponding paragraphs in the Quality Plan.

The documents referenced in the Quality Plan must be made available when requested by Public Works and Government Services Canada or DND.

If the Quality Plan was submitted as part of the bidding process, the Contractor must review and, where appropriate, revise the submitted plan to reflect any changes in requirements or planning which may have occurred as a result of pre-contract negotiations.

Upon acceptance of the Quality Plan by DND, the Contractor must implement the Quality Plan. The Contractor must make appropriate amendments to the Quality Plan throughout the term of the contract to reflect current and planned quality activities. Amendments to the Quality Plan must be acceptable to DND.

If the Contract includes the option for software design, development or maintenance of software, the Contractor must interpret the requirements of *ISO 9001:2008 "Quality management systems - Requirements"*, according to the guidelines of the latest issue (at contract date) of *ISO/IEC 90003:2004 "Software engineering - Guidelines* for the application of *ISO 9001:2000 to computer software"*.

7.19 Canadian Forces Site Regulations

SACC Manual clause A9062C (2011-05-16) Canadian Forces Site Regulations

7.20 Delivery, Inspection and Acceptance

7.20.1 Quality Assurance

Notice to the Bidder: As applicable, clauses below will be deleted from the resulting Contract if not applicable as a result of the location of the selected Bidder. For example, SACC Manual clause D5515C will be deleted in the event the selected Bidder is Canadian-based.

SACC Manual clause D5510C (2014-06-26), Quality Assurance Authority (DND) - Canadian-based Contractor;

SACC Manual clause D5515C (2010-01-11), Quality Assurance Authority (DND) - Foreign-based and United States Contractor;

SACC Manual clause D5545C (2010-08-16), ISO 9001:2008 - Quality Management Systems - Requirements (Quality Assurance Code C);

SACC Manual clause D5540C (2010-08-16), ISO 9001:2008 Quality Management Systems - Requirements (Quality Assurance Code Q);

SACC Manual clause D5604C (2008-12-12), Release Documents (Department of National Defence) - Foreign-based Contractor;

SACC Manual clause D5605C (2010-01-11), Release Documents (Department of National Defence) - United States-based Contractor;

SACC Manual clause D5606C (2012-07-16), Release Documents (Department of National Defence) - Canadian-based Contractor;

7.20.2 Release Documents – Distribution

The Contractor must prepare the release documents in a current electronic format and distribute them as follows:

(a) One (1) copy mailed to consignee marked: "Attention: Receipts Officer";

(b) Two (2) copies with shipment (in a waterproof envelope) to the consignee;

(c) One (1) copy to the Contracting Authority;

(d) One (1) copy to:

National Defence Headquarters
MGen George R. Pearkes Building
101 Colonel By Drive
Ottawa, ON K1A OK2
Attention: *(Technical Authority name to be provided at Contract award)*

(e) One (1) copy to the Quality Assurance Representative;

(f) One (1) copy to the Contractor; and

(g) For all non-Canadian contractors, one (1) copy to:

DQA/Contract Administration
National Defence Headquarters
MGen George R. Pearkes Building
101 Colonel By Drive

Ottawa, ON K1A OK2
E-mail: ContractAdmin.DQA@forces.gc.ca.

7.20.3 SACC Manual Clauses

SACC Manual clause B4059C (2008-06-12), Government Supplied Technical Documents

SACC Manual clause B4042C (2008-05-12), Identification Markings

SACC Manual clause D2025C (2013-11-06), Wood Packaging Materials

SACC Manual clause D6010C (2007-11-30), Palletization

SACC Manual clause D3015C (2014-09-25), Dangerous Goods / Hazardous Products – Labelling and Packaging Compliance

SACC Manual clause D3010C (2016-01-28), Delivery of Dangerous Goods/Hazardous Products

SACC Manual clause A9119C (2011-05-16), Hazardous Waste Disposal

7.20.4 Shipping Instructions – Free on Board Destination and Delivery Duty Paid

Goods must be consigned and delivered to the destination specified in the contract:

Incoterms 2000 "DDP Delivered Duty Paid"

RMDS less combat variant sub-system to be delivered to:

Canadian Forces Base Halifax, Nova Scotia and, and/or Canadian Forces Base Esquimalt, British Columbia

MDV-TI and MDV-C sub-systems to be delivered to:

Canadian Forces Ammunition Depot CFAD Bedford (East), Nova Scotia and/or CFAD Rocky Point (West), British Columbia

7.21 Procedures for Design Change or Additional Work

These procedures must be followed for any design change or additional work.

1. When Canada requests design change or additional work:

    a. The Technical Authority will provide the Contracting Authority with a description of the design change or additional work in sufficient detail to allow the Contractor to provide the following information:

        i. any impact of the design change or additional work on the requirement of the Contract;

        ii. a price breakdown of the cost (increase or decrease) associated with the implementation of the design change or the performance of the additional work using either the form PWGSC-TPSGC 1686, Quotation for Design Change or

Additional Work, or the form PWGSC-TPSGC 1379 (PDF 56KB) - (Help on File Formats) Work Arising or New Work.

iii. a schedule to implement the design change or to perform the additional work and the impact on the contract delivery schedule.

b. The Contracting Authority will then forward this information to the Contractor.

c. The Contractor will return the completed form to the Contracting Authority for evaluation and negotiation. Once agreement has been reached, the form must be signed by all parties in the appropriate signature blocks. This constitutes the written authorization for the Contractor to proceed with the work, and the Contract will be amended accordingly.

2. When the Contractor requests design change or additional work:

a. The Contractor must provide the Contracting Authority with a request for design change or additional work in sufficient detail for review by Canada.

b. The Contracting Authority will forward the request to the Technical Authority for review.

c. If Canada agrees that a design change or additional work is required, then the procedures detailed in paragraph 1 are to be followed.

d. The Contracting Authority will inform the Contractor in writing if Canada determines that the design change or additional work is not required.

3. Approval
The Contractor must not proceed with any design change or additional work without the written authorization of the Contracting Authority. Any work performed without the Contracting Authority's written authorization will be considered outside the scope of the Contract and no payment will be made for such work.

Volume 2
ANNEX A
Acquisition Statement of Work (SOW)

Remote Minehunting and Disposal System (RMDS)

Table of Contents

Appendices

1. SCOPE

1.1 Purpose

1.1.1 The purpose of this Statement of Work (SOW) is to describe the requirements and work effort required from the Contractor by the Department of National Defence (DND) for the supply of items and services to meet the Remote Minehunting and Disposal System (RMDS) requirements.

1.2 Project Background

1.2.1 The Minister of National Defence has been provided a mandate to ensure that the Canadian Armed Forces (CAF) are equipped and prepared, if called upon, to protect Canadian sovereignty, defend North America, provide disaster relief, conduct search and rescue, support United Nations peace operations, and contribute to the security of our allies with their operation and coalition operations abroad. Anti-mine warfare is a critical mission for the Royal Canadian Navy (RCN), as unfriendly nations can easily disrupt the global economy by threatening to plant naval mines in crucial commercial waterways.

1.2.2 The RCN have a need to transform the way it conducts Naval Mine Countermeasures (NMCM) and seabed mapping from a post-cold war that focuses in pre and post-operations mine clearance using surface ships, to a quickly deployable, autonomous systems that are accurate, flexible, replaceable, cost effective, and minimizes risk to personnel. Various allies' research centers and navies employment of these systems has demonstrated they are effective in live NMCM operations.

1.2.3 The RCN's Force Development ambitions for NMCM is to evolve present capabilities to include acquisition of accurate, modularized, portable and deployable systems that minimize ship's staff exposure to potentially explosive ordonnance, and are operable from any platform including from ashore. The RMDS capability is required to ensure safety for RCN warships and commercial ship navigating in critical maritime waterways worldwide. Accordingly, the capability must be modular, portable and operable from various platforms or from shore locations.

1.3 Terminology

1.3.1 The following definitions must apply to this SOW:

a. Acceptance: Written approval by Canada of the Contractor's Objective Evidence (OE) that a deliverable is compliant with this SOW;

b. Authorization: Written approval by Canada for the Contractor to proceed based upon plans proposed by the Contractor. Authorization does not imply Acceptance of any Contractor plans, and the Contractor remains responsible for demonstrating compliance with all aspects of the SOW;

c. Computer Software Configuration Item (CSCI): RMDS software and its respective modules which are under Configuration Management with respect to the Functional and Product Baselines;

d. Controlled Material: Materials designated as Controlled Materials by Health Canada;

e. Design Change: Any change to the physical design of hardware or to the function of software;

f. First Article: The first RMDS configuration to undergo production;

g. Functional Baseline: That deliverable documentation which is necessary to define the functional properties of the First Article RMDS configuration in accordance with the SOW, and how functional properties will be verified. The Functional Baseline is defined following the System Requirement Review;

h. Functional Audit: Verification and acceptance by Canada that all acceptance test and evaluation results, up to and including Factory Acceptance Test (FAT), demonstrate compliance of each RMDS configuration with the Functional Baseline;

i. Government Furnished Information (GFI): Any information furnished by Canada under the Contract;

j. Hardware Configuration Item (HWCI): RMDS hardware and its respective sub-assemblies and components which are under Configuration Management with respect to the Functional and Product Baselines;

k. Objective Evidence (OE): Factual, repeatable, and documented evidence of RMDS compliance with the SOW that can be demonstrated to Canada;

l. Physical Configuration Audit (PCA): The process whereby Canada determines that each RMDS configuration is compliant with its

corresponding Product Configuration Documentation and acceptance of proposed HWCIs and CSCIs and their corresponding Product Baselines;

m. Product Baseline: That deliverable Product Configuration Documentation which has been accepted via the PCA, and that will be the reference for all Configuration Management processes applied to each HWCI and CSCI;

n. Product Configuration Documentation: That deliverable documentation required to define the functional, physical, and interface properties of each RMDS configuration, and its associated HWCI, and CSCI in accordance with the SOW. Product Configuration Documentation includes, at a minimum the System Design Description of CDRL/DID RMDS-SE-004, the Interface Design Document of CDRL/DID RMDS-SE-005, and the Technical Data Package of CDRL/DID RMDS-TD-001;

o. Qualification: Factual, repeatable, and documented OE that the design and function of each Configuration Item and CSCI which has been fully integrated into each RMDS configuration, are compliant with SOW requirements;

p. Qualification Review: The process whereby Canada determines that each RMDS configuration is compliant with the SOW;

q. Recurring Article: The second and all subsequent articles of a RMDS configuration to undergo production;

r. Sea Acceptance Test (SAT): Testing and evaluation of each RMDS conducted at sea in order to demonstrate compliance with this SOW; and

s. System Engineering: Multi-discipline engineering that focuses on design and management over the RMDS life cycle, involving issues of concern to Canada such as reliability, logistics, evaluation measurements, work-processes, optimization methods, and risk management.

1.4 Acronyms

1.4.1 The following acronyms must apply to this SOW:

Acronyms	
ASSB	Ammunition Safety and Suitability Board
ATI	Acceptance Test Index
ATP	Acceptance Test Procedures
AUV	Autonomous Underwater Vehicle
A&E	Ammunition and Explosives
CA	Contract Authority
CAF	Canadian Armed Forces
CBT	Computer-Based Trainer
CDR	Critical Design Review
CDRL	Contract Data Requirement List
CFAD	Canadian Forces Ammunition Depot
CI	Configuration Item
CM	Configuration Management
CFTO	Canadian Forces Technical Order
CSCI	Computer Software Configuration Item
DID	Data Item Description
DND	Department of National Defence
EID	Electrically Initiated Device
FAT	Factory Acceptance Test
FOC	Full Operational Capability
GFR	Government Furnished Resources
HWCI	Hardware Configuration Items
ICT	Initial Cadre Training
ILS	Integrated Logistic Support
IMS	Integrated Master Schedule
IOC	Initial Operating Capability
ITAR	International Traffic and Arms Regulations
LCMM	Life-Cycle Material Manager
LAT	Lot Acceptance Test
LSA	Logistic Support Analysis
LLTIP	Long Lead Time Initial Provisioning
MDS	Mine Disposal Subsystem
MDV	Mine Disposal Vehicle
MDV-C	Mine Disposal Vehicle - Combat
MDV-T/I	Mine Disposal Vehicle – Training/Inspection
MSP	Maintenance and Support Program
NDID	National Defence Index of Documentation
NMCM	Naval Mine Countermeasures
OE	Objective Evidence

Acronyms	
OEM	Original Equipment Manufacturer
PCA	Physical Configuration Audit
PDR	Preliminary Design Review
PM	Project Manager
PMP	Project Management Plan
PSL	Portable Storage Locker
RCN	Royal Canadian Navy
RMDS	Remote Minehunting and Disposal System
SAT	Sea Acceptance Test
SDE	Shared Data Environment
SE	System Engineering
SEMP	System Engineering Management Plan
SOW	Statement of Work
SRD	System Requirements Documents
SRR	System Requirements Review
TCC	Transportable Command Centre
TCSR	Type Classification Summary Report
TEMP	Test and Evaluation Master Plan
TDP	Technical Data Package
TRR	Test Readiness Review

2. APPLICABLE DOCUMENTS

2.1.1 The following documents listed are applicable to and must form part of this SOW:

a. D-01-002-007/SG-006, Requirements for the Selection of Configuration Items.

b. A-P9-050-000/PT-003 Canadian Forces Individual Training and Education System, Analysis of Instructional Requirements.

2.1.2 The latest approved revision of the documents listed in Paragraph 2.1.1 must apply unless otherwise specified.

3. RMDS EQUIPMENT DELIVERABLES

3.1 Remote Mine Disposal System (RMDS)

3.1.1 The Contractor must deliver quantity two (2) RMDS and all associated subsystems and Integrated Logistics Support (ILS) (one RMDS to each coastal formation) as described in Paragraphs 3.1, 3.2, 3.3, 3.4 and 3.5 of this document and Appendix AA System Requirements Document (SRD).

3.1.2 The RMDS must include the four (4) main subsystems: i) Autonomous Underwater Vehicle (AUV) Subsystem; ii) Mine Disposal Subsystem (MDS); iii) Transportable Command Centre (TCC); and iv) Computer-Based Trainer (CBT).

3.1.3 The Contractor must conduct the RMDS systems integration to ensure the RMDS is delivered as a fully integrated system capable of conducting the end to end mine hunting and disposal mission without the need for external supporting systems unless otherwise stated in the SRD.

3.1.4 An RMDS system configuration is shown in Figure 1. Quantities shown in Figure 1 are for an individual, deployed system. Quantities in Paragraphs 3.2-3.5 are the total equipment requirement for two (2) RMDS.

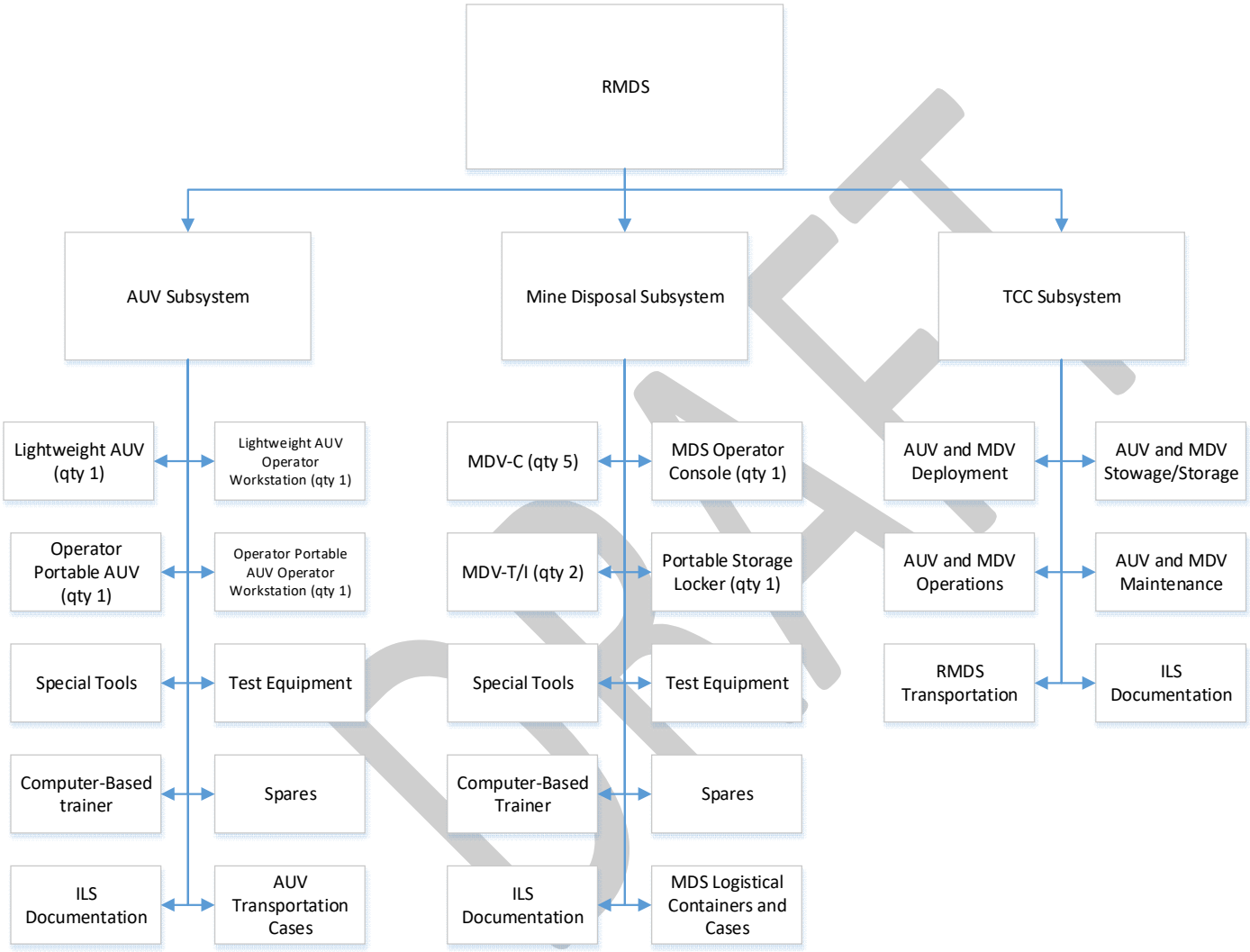


Figure 1: RMDS, Individual Deployed System

3.2 Autonomous Underwater Vehicle Subsystem

3.2.1 The Contractor must deliver quantity two (2) Operator Portable AUVs.

3.2.2 The Contractor must deliver quantity two (2) Light Weight AUVs.

3.2.3 The Contractor must deliver quantity two (2) portable operator workstations for the Operator Portable AUVs. The Contractor must deliver quantity two (2) portable operator workstations for the Light Weight AUVs.

3.2.4 The Contractor must deliver spares, special tools, test equipment, transportation cases and software for the AUV subsystem to support each coastal formation.

3.3 Mine Disposal Subsystem

3.3.1 The Contractor must deliver quantity fourteen (14) Mine Disposal Vehicle Combat (MDV-C) (Explosive) variants. The Mine Disposal subsystem must be capable of deploying a minimum of quantity five (5) for an operation per RDMS. Of the fourteen (14) MDV-C variants delivered, four (4) will be held as spares and are not depicted in Figure 1 as part of a deployed RMDS.

3.3.2 The Contractor must deliver quantity four (4) Mine Disposal Vehicle Inspection/Training (non-Explosive) variants.

3.3.3 The Contractor must deliver quantity two (2) MDV operator consoles, integrated as part of the TCCs that can control both the Combat and Inspection/Training vehicles.

3.3.4 The Contractor must deliver quantity two (2) MDV Portable Storage Locker (PSL) integrated as part of the TCCs and removable for storage at Canadian Forces Ammunition Depots (CFAD).

3.3.5 The Contractor must supply six (6) intact and functional inert Electrically Initiated Devices (EID) of each type and configuration used in the warhead. An EID is a single unit, device, or subassembly that uses electrical energy to produce an explosive, pyrotechnic, thermal, or mechanical output.

3.3.6 The Contractor must deliver spares, special tools, test equipment, transportation cases for Mine Disposal Vehicle - Training/Inspection (MDV-T/I) variant, reusable logistical container for each MDV-C and software for the MDV subsystem to support each coastal formation.

3.4 Transportable Command Centre Subsystem

3.4.1 The Contractor must deliver quantity two (2) dedicated, standalone TCCs (one per coastal formation) that will enable transportation, deployment, operation, maintenance, stowage and storage of the RMDS equipment.

3.5 Computer-Based Training (CBT) Subsystem

3.5.1 The Contractor must deliver quantity two (2) CBTs for classroom use at Canadian Forces Fleet School Esquimalt and Canadian Forces Naval Engineering School Halifax.

3.5.2 The Contractor must deliver a CBT capability for the AUV and MDV subsystems integrated into the RMDS on the operator workstations and consoles.

4. PROJECT MANAGEMENT

4.1 Project Manager

4.1.1 The Contractor must implement and maintain a team, headed by a single Project Manager (PM), to carry out the work required in this SOW.

4.1.2 The PM must be the main point of contact with Canada.

4.2 Project Management Plans

4.2.1 The Contractor must prepare, deliver and maintain a Project Management Plan (PMP) in accordance with CDRL/DID RMDS-PM-001 for Authorization by Canada.

4.2.2 The Contractor must prepare, deliver and maintain an Integrated Master Schedule (IMS) in accordance with CDRL/DID RMDS-PM-002 for Authorization by Canada.

4.3 Scope and Schedule Management

4.3.1 The Contractor must implement and manage the work specified in this SOW in accordance with the PMP.a.

4.3.2 The Contractor must receive authorization from Canada for all schedule and plan changes.

4.3.3 The Contractor must supply all resources required to implement the scope of the work specified in this SOW, except for GSM as detailed in paragraph 5.8 of this SOW.

4.3.4 The Contractor must manage all resources required to perform the work.

4.3.5 The Contractor must complete the Event Prerequisite(s) for each event described in Table 1, and the CDRL of this SOW, prior to the event.

4.3.6 The Contractor must use the IMS as a baseline against which project progress must be controlled and measured, and against which project changes must be evaluated and reported.

Table 1: Key Events and Prerequisites

Event	Event Date	Event Prerequisite(s)	SOW Reference
Contract Kick-Off Meeting	30 business days after Contract award	PMP and subsidiary plans complete	Paragraphs 4.2.1 and 4.7.1.6.a
		IMS complete	Paragraph 4.2.2

Table 1: Key Events and Prerequisites

Event	Event Date	Event Prerequisite(s)	SOW Reference
		System Engineering Management Plan and Ammunition and Explosives (A&E) Design and Qualification Plan complete	Paragraph 5.1.2 and 7.1.1
		Configuration Management (CM) Plan complete	Paragraph 5.6.1.1
		ILS Plan complete	Paragraph 6.2.1.1
System Requirements Review	60 business days after Contract award	Draft System Specification delivered to Canada	Paragraph 5.2.2
Initial A&E Design Review	60 business days after Contract Kick-off Meeting	System Requirements Review (SRR) Minutes Authorized by Canada	Paragraph 5.2.5
		Draft A&E Review documentation delivered to Canada	Paragraph 5.3.1.1
Preliminary Design Review (PDR)	120 business days after Contract award	System Specification Authorization by Canada	Paragraph 5.2.5
		System Requirements Review (SRR) Minutes Authorized by Canada	Paragraph 5.2.5
		Draft PDR Documentation Package delivered to Canada	Paragraph 5.3.2.2
Critical Design Review (CDR)	60 business days after PDR	Draft CDR Documentation Package delivered to Canada	Paragraph 5.3.3.2
ILS Conference	30 business days after CDR	CDR Minutes Authorization by Canada	Paragraph 5.3.3.5

Table 1: Key Events and Prerequisites			
Event	Event Date	Event Prerequisite(s)	SOW Reference
		Final CDR Documentation Package Authorization by Canada	Paragraph 5.3.3.5
		Draft ILS Conference Documentation Package delivered to Canada	Paragraph 6.2.3.2
LLTIP Conference	In accordance with LLTIP Event Prerequisites	Draft LLTIP Conference Documentation Package delivered to Canada	Paragraph 6.3.2.3
First Article Production	In accordance with First Article Production Event Prerequisites	Authorization by Canada following completion of CDR, ILS conference and LLTIP Conference	Paragraph 5.3.3.6
Initial Provisioning Conference	In accordance with Initial Provisioning Conference Event Prerequisites	ILS Conference Minutes Authorization by Canada	Paragraph 6.2.3.6
		LLTIP Conference Documentation Package Authorization by Canada	Paragraph 6.3.2.3
FAT Test Readiness Review (TRR)	In accordance with FAT TRR Event Prerequisite	Following First Article Production and Recurring Production	Paragraph 5.5.5.2

Table 1: Key Events and Prerequisites

Event	Event Date	Event Prerequisite(s)	SOW Reference
FAT	In accordance with FAT Event Prerequisites	30 business days' notice for FAT delivered to Canada	Paragraph 5.5.6.1
		Authorization of FAT TRR Minutes by Canada	Paragraph 5.5.5.3
		All Product Configuration Documentation updates for the First Article RMDS delivered to Canada	Paragraph 5.5.5.2.g
Functional Audit	In accordance with Functional Audit Event Prerequisite	All test reports up to and including FAT Test Report Accepted by Canada	Paragraphs 5.6.3.2 and 5.6.3.3
PCA	In accordance with PCA Event Prerequisite	All deviations identified in the Functional Audit corrected and results Accepted by Canada	Paragraph 5.6.3.2
Conduct Initial Cadre Training (ICT)	In accordance with ICT Event Prerequisites	Training Development Program Report Authorized by Canada	Paragraphs 6.2.3.2.b, 6.4.7 and 6.5.1
SAT TRR	In accordance with SAT TRR Event Prerequisite	Authorization of FAT TRR Minutes by Canada	Paragraph 5.5.5.3
SAT	In accordance with SAT Event Prerequisites	Factory Acceptance Test Report for RMDS configuration Accepted by Canada	Paragraph 5.5.7.3
Qualification Review	In accordance with Qualification Review Event Prerequisite	All test reports and audits up to and including SAT Test Report for each RMDS configuration Accepted by Canada	Paragraph 5.5.8.1

Table 1: Key Events and Prerequisites

Event	Event Date	Event Prerequisite(s)	SOW Reference
Technical Data Package (TDP) Delivery	In accordance with TDP Delivery Event Prerequisite	Authorization of First Article RMDS Qualification Review minutes	Paragraph 5.7.1.3
Final In-Service Manuals Delivery	In accordance with Final In-Service Manuals Delivery Event Prerequisite	Authorization of First Article RMDS Qualification Review minutes	Paragraphs 6.6.1 and 6.6.2
Recurring Production	In accordance with Recurring Production Event Prerequisite	Authorization of First Article RMDS Qualification Review minutes by Canada	Paragraph 5.5.8.4
Contract Completion Meeting	30 business days prior to Contract Completion	In accordance with Event Date	Paragraph 4.7.1.6.d

4.4 Quality Management

4.4.1 The Contractor must implement a Quality Management Program in accordance with the Quality Management Plan authorized by Canada in the PMP for the work specified in this SOW.

4.5 Risk Management

4.5.1 The Contractor must implement a Risk Management Program in accordance with the Risk Management Plan authorized by Canada in the PMP for the work specified in this SOW.

4.5.2 The Contractor must report risks in accordance with the Project Progress Reports CDRL/DID RMDS-PM-003.

4.6 Documentation Deliverables

4.6.1 Shared Data Environment

4.6.1.1 The Contractor must implement, manage and maintain a web-based Shared Data Environment (SDE) that will enable:

a. Only personnel Authorized by Canada to access the SDE;

b. Canada and the Contractor to store, exchange and share information;

c. Canada and the Contractor to render documents as read-only, and to edit documents via password protection;

d. Canada and the Contractor to amend and add comments to deliverable documentation via password protection;

e. Canada and the Contractor to track all amendments and comments to deliverables, including the identification of individual editor or commenters; and

4.6.1.2 The Contractor must deliver all documentation to Canada on the SDE in an unrestricted/unlocked electronic format compatible with Microsoft Office 2013. In addition software must be delivered on DVD media. Canada will retain ownership of all deliverables under the contract.

4.6.1.3 The Contractor must deliver all documentation produced for the project in both official languages English and French, unless provided for otherwise in the Contract. If the Contract provides that the documentation is only required to be provided in one of Canada's official languages, Canada has the right to translate it or have it translated for its own use. Canada owns any translation and is not required to provide it to the Contractor. Canada must include any copyright and proprietary right notices that are part of the original document in any translation. The Contractor is not responsible for technical errors that arise as a result of any translation made by Canada.

4.6.1.4 The Contractor must provide any supporting documentation that was previously produced outside this contract (e.g. test and trial results, hardware specifications) in either French or English.

4.6.1.5 The Contractor must accommodate the periods required for Canada to review all documentation deliverables, in accordance with the CDRL. Canada will issue comments for amendment, or Authorization, or Acceptance as specified by this SOW no later than the next business day following the expiration of applicable review period. Should Canada be unable to return comments as indicated, Canada will advise the Contractor accordingly.

4.6.1.6 The Contractor must amend deliverable documents in accordance with comments received from Canada, and re-submit within 10 business days unless stated otherwise in this SOW or the CDRL.

4.6.1.7 The Contractor must deliver amended documents with a change log and all changes easily identifiable. This may be via a copy with tracked changes or other method.

4.6.2 Progress Reports

4.6.2.1 The Contractor must prepare and deliver Project Progress Reports in accordance with CDRL/DID RMDS-PM-003.

4.7 Meetings and Meeting Documents

4.7.1 Meetings

4.7.1.1 The Contractor must convene and co-chair all meetings required by this SOW at locations agreed to by both parties.

4.7.1.2 The Contractor must provide notice of at least 30 business days for the proposed date and location for all meetings specified in this SOW, for approval by Canada.

4.7.1.3 The Contractor must prepare and deliver all deliverable documentation packages required for meetings in accordance with Table 1 of this SOW and the CDRL.

4.7.1.4 The Contractor must include all meetings required by this SOW, and delivery of their associated deliverable documentation packages, in the IMS.

4.7.1.5 The Contractor must ensure that all required data, facilities, and personnel, including the individual(s) having required approval authority regarding meeting topics, are available for each meeting.

4.7.1.6 The Contractor must convene and co-chair the following Project Management meetings with Canada, in accordance with the Event Prerequisites of Table 1 and the CDRL of this SOW:

a. Contract Kick-Off Meeting - Within 30 business days of Contract award, at the Contractor's facility, to identify any amendments required to the PMP and the plans listed at Paragraphs 4.2.1, 4.2.2, 4.4.1, 4.5.1, 5.1.2, 5.5.2.1, 5.6.1.1, and 6.2.1.1 of this SOW;

b. Project Review Meetings – Monthly, via teleconference, and Quarterly at the Contractor's facility to present and discuss the topics itemized in CDRL/DID RMDS-PM-003 until full compliance of the RMDS is demonstrated via the First Article RMDS Qualification Review, then quarterly via teleconference to project closure;

c. Technical Review Meetings – As required, to present and discuss the topics itemized in CDRL/DID RMDS-PM-003; and

d. Contract Completion Meeting - Within 30 business days, at Canada's or Contractor's facility as mutually agreed, prior to proposed Contract Completion, to identify the deliverables that have been Accepted by

Canada, to plan for the Acceptance of all outstanding work in progress, and to identify all actions required to formally close the Contract.

4.7.1.7 The Contractor must convene and co-chair the following System Engineering and ILS meetings with Canada at the Contractor's facility, in accordance with the Event Prerequisites of Table 1 and the CDRL, of this SOW:

a. SRR, convened at the Contractor's facility – In accordance with paragraph 5.2.1;

b. Initial A&E Review convened at the Contractor and MDS Original Equipment Manufacturer's (OEM) facility – In accordance with paragraph 5.3.1.1

c. PDR, convened at the Contractor's facility – In accordance with paragraph 5.3.2.1;

d. CDR, convened at the Contractor's facility – In accordance with paragraph 5.3.3.1;

e. TRR, convened at a mutually agreed location– In accordance with paragraphs 5.5.5;

f. Functional Audit, convened at the Contractor's facility – In accordance with paragraphs 5.6.3.1, 5.6.3.2 and 5.6.3.3;

g. PCA, convened at the Contractor's facility – In accordance with paragraphs 5.6.3.1, 5.6.3.2, and 5.6.3.3;

h. Qualification Review, convened at Contractor's facility - In accordance with paragraph 5.5.8.1;

i. ILS Conference, convened at the Contractor's facility – In accordance with paragraph 6.2.3.1;

j. Long Lead Time Item Provisioning (LLTIP) Conference, convened at a mutually agreed location – In accordance with paragraph 6.3.2.1; and

k. Initial Provisioning Conference, convened at the Contractor's facility – In accordance with paragraph 6.3.3.1.

4.7.2 Agenda

4.7.2.1 The Contractor must prepare and deliver draft Meeting Agenda in accordance with CDRL/DID RMDS-PM-004 for approval by Canada at least 10 business days prior to all meetings specified in this SOW.

4.7.2.2 The Contractor must incorporate the agenda items requested by Canada in the meeting agenda.

4.7.2.3 The Contractor must deliver approved Meeting Agenda(s) to all attendees at least five (5) business days prior to the scheduled meeting date.

4.7.3 Minutes

4.7.3.1 The Contractor must prepare and deliver draft Meeting Minutes in accordance with CDRL/DID RMDS-PM-005 for Authorization by Canada..

4.7.3.2 The Contractor must incorporate all observations made by Canada, and mutually agreed with the Contractor, in the draft Meeting Minutes

4.7.3.3 The Contractor must prepare and deliver the final Meeting Minutes for Authorization by Canada.

4.7.3.4 The Contractor must deliver Meeting Minutes Authorized by Canada to all attendees.

4.7.3.5 The Contractor must execute all action items assigned to the Contractor in Authorized Meeting Minutes, unless a contract amendment is required.

4.7.3.6 No change in the interpretation of the contract scope, SOW, cost or schedule, as defined in the contract may be authorized by the minutes of meeting. Such action must require formal contract amendment by the Contract Authority (CA).

5. SYSTEM ENGINEERING

5.1 General

5.1.1 The Contractor must designate a single Engineering Manager within its organization who will be responsible to the PM for engineering functions related to the RMDS.

5.1.2 The Contractor must prepare and deliver a System Engineering Management Plan (SEMP) in accordance with CDRL/DID RMDS-SE-001.

5.1.3 The Contractor must conduct system engineering in accordance with the authorized SEMP and the requirements of this SOW.

5.1.4 The Contractor must ensure that all proper approvals for International Traffic in Arms Regulations (ITAR) and other country specific export regulations are obtained for the RMDS and all associated deliverables.

5.1.5 The Contractor must conduct all hardware engineering including development of requirements, design, implementation and verification.

5.1.6 The Contractor must conduct all software engineering including development of requirements, design, implementation and verification.

5.1.7 The Contractor must demonstrate the use of proven software engineering processes using appropriate design methodologies to ensure delivery of high quality, functional, reliable, efficient, usable and easily maintainable software.

5.1.8 The Contractor must deliver all required software programs required for installation, operation and maintenance of the delivered system in executable format.

5.1.9 The Contractor must provide all licenses and license agreements required for Canada to build, operate, modify and maintain the RMDS until the end of its life.

5.2 Requirement Management

5.2.1 The Contractor must convene one SRR with Canada to ensure that each SRD requirement is clarified and reconciled to a common understanding between the Contractor and Canada, so that the Contractor can generate the Functional Baseline.

5.2.2 The Contractor must prepare and deliver a draft System Specification for discussion at the SRR, in accordance with CDRL/DID RMDS-SE-002 to specifically define the Contractor's interpretation and organization of each

SRD requirement for management during the subsequent design and Acceptance processes.

5.2.3 The Contractor must incorporate all observations made by Canada, and mutually agreed with the Contractor, in the draft System Specification.

5.2.4 The Contractor must prepare and deliver a final System Specification in accordance with CDRL/DID RMDS-SE-002 that will become the Functional Baseline when Authorized by Canada.

5.2.5 The Contractor must design the RMDS following Authorization of the System Specification and SRR Minutes by Canada, and in accordance with all other Event Prerequisites of Table 1, of this SOW and the CDRL.

5.2.6 The Contractor must prepare and deliver a Requirements Verification and Assurance Matrix in accordance with CDRL/DID RMDS-SE-003, that must identify for each requirement in the SRD, what verification method(s) will be used by the Contractor to verify compliance of the RMDS and all associated deliverable material, documents, and services within the System Specification(s).

5.3 Design Reviews

5.3.1 A&E Design Reviews

5.3.1.1 The Contractor must convene at minimum four (4) A&E design reviews in accordance with CDRL/DID RMDS-AE-001 including provision of all required documentation.

5.3.1.2 The Contractor must convene an initial A&E Design Review with Canada within 60 days of the Contract Kick-off Meeting, in order to ensure that Canada is introduced and educated early to the specifics and operations of the Mine Disposal Subsystem to ensure proper exchange of information between Canada and the Contractor and to facilitate the certification process of the A&E component of the Mine Disposal Subsystem and its integration in the RMDS design.

5.3.1.3 The Contractor must convene follow-on A&E Design Reviews as part of the PDR and CDR. These may be held as sub-meetings to the PDR and CDR if mutually agreed upon between Canada and Contractor due to requirements of location and personnel.

5.3.1.4 The Contractor must convene one final A&E Design Review with Canada, 60 days after First Article RMDS Qualification Review.

5.3.2 **Preliminary Design Review**

5.3.2.1 The Contractor must convene a PDR with Canada to explain and validate the design of the proposed RMDS with respect to this SOW and SRD within 120 business days of Contract Award.

5.3.2.2 The Contractor must prepare and deliver the following draft PDR Documentation Package:

a. System Specification in accordance with CDRL/DID RMDS-SE-002;

b. Requirements Verification and Assurance Matrix in accordance with CDRL/DID RMDS-SE-003;

c. System Design Document in accordance with CDRL/DID RMDS-SE-004;

d. Interface Design Document in accordance with CDRL/DID RMDS-SE-005;

e. Safety Control Plan in accordance with CDRL/DID RMDS-SE-006;

f. Controlled Material Report if applicable, in accordance with CDRL/DID RMDS -SE-007;

g. Test and Evaluation Master Plan (TEMP) in accordance with CDRL/DID RMDS-SE-009;

h. Acceptance Test Index (ATI) in accordance with CDRL/DID RMDS-SE-010; and

i. Request for GSM in accordance with CDRL/DID RMDS-PM-006.

j. Ammunition & Explosives (A&E) Design and Qualification Plan in accordance with CDRL/DID RMDS-AE-002.

k. A&E Gap Analysis in accordance with CDRL/DID RMDS-AE-004.

l. A&E Test Plan in accordance with CDRL/DID RMDS-AE-005.

m. Environmental Occupational Health and Safety Assessment Report in accordance with CDRL/DID RMDS-AE-006.

n. A&E Safety Data Sheets in accordance with CDRL/DID RMDS-AE-015.

5.3.2.3 The Contractor must incorporate all observations made by Canada, and mutually agreed with the Contractor, in the draft PDR Documentation Package.

5.3.2.4 The Contractor must customize and develop the RMDS, following Authorization of the final PDR Documentation Package and PDR Minutes by Canada, and in accordance with all other Event Prerequisites of Table 1 and the CDRL of this SOW.

5.3.3 Critical Design Review

5.3.3.1 The Contractor must convene and co-chair a CDR with Canada to explain and validate the design of the proposed RMDS with respect to this SOW and SRD within 60 business days of successful completion of the PDR.

5.3.3.2 The Contractor must prepare and deliver the following draft CDR Documentation Package:

a. Requirements Verification and Assurance Matrix in accordance with CDRL/DID RMDS-SE-003;

b. System Design Document in accordance with CDRL/DID RMDS-SE-004;

c. Interface Design Document in accordance with CDRL/DID RMDS-SE-005;

d. Controlled Material Report, if applicable, in accordance with CDRL/DID RMDS-SE-007;

e. Safety Compliance Assessment for the RMDS in accordance with CDRL/DID RMDS-SE-008;

f. TEMP in accordance with CDRL/DID RMDS-SE-009;

g. ATI in accordance with CDRL/DID RMDS-SE-010;

h. Amendments to the Request for GSM in accordance with CDRL/DID RMDS-PM-006;

i. TDP in accordance with CDRL/DID RMDS-TD-001; and

j. Equipment Labelling Package in accordance with CDRL/DID RMDS-CM-002.

k. Ammunition & Explosives (A&E) Design and Qualification Plan in accordance with CDRL/DID RMDS-AE-002.

l. A&E Gap Analysis in accordance with CDRL/DID RMDS-AE-004.

m. A&E Test Plan in accordance with CDRL/DID RMDS-AE-005.

n. Environmental Occupational Health and Safety Assessment Report in accordance with CDRL/DID RMDS-AE-006.

o. ASSB Phase 2 Decision – S^3 Assessment in accordance with CDRL/DID RMDS-AE-007.

p. First Article Testing / Lot Acceptance Testing Criteria in accordance with CDRL/DID RMDS-AE-010.

q. A&E In Service Surveillance Plan in accordance with CDRL/DID RMDS-AE-013.

r. Safety Templates Documentation in accordance with CDRL/DID RMDS-AE-014.

s. A&E Safety Data Sheets in accordance with CDRL/DID RMDS-AE-015.

5.3.3.3 The Contractor must incorporate all observations made by Canada, and mutually agreed with the Contractor, in the draft CDR Documentation Package.

5.3.3.4 The Contractor must perform ILS activities following Authorization of the final CDR Documentation Package and CDR Minutes by Canada, and in accordance with all other Event Prerequisites of Table 1, and CDRL of this SOW.

5.3.3.5 The Contractor must progress to First Article Production of the RMDS configuration following Acceptance by Canada of the CDR, ILS Conference and LLTIP Conference minutes.

5.4 Safety Management

5.4.1 The Contractor must prepare, deliver, and maintain a Safety Control Plan in accordance with CDRL/DID RMDS-SE-006.

5.4.2 The Contractor must prepare, deliver, and maintain a Controlled Material Report for Canada in accordance with CDRL/DID RMDS-SE-007 if hazardous or controlled materials are used in the RMDS.

5.4.3 The Contractor must not use hazardous or Controlled Materials in the RMDS and associated deliverables without Authorization of the Controlled Material Report by Canada.

5.4.4 The Contractor must prepare, deliver, and maintain a Safety Compliance Assessment in accordance with CDRL/DID RMDS-SE-008, for Authorization by Canada.

5.4.5 The Contractor must prepare, deliver, and maintain RMDS equipment safety labels for each hazard identified in the Safety Control Plan in accordance with CDRL/DID RMDS-CM-002 for Authorization by Canada.

5.4.6 The Contractor must not deliver RMDS equipment to Canada without:

a. Authorization of the Safety Compliance Assessment by Canada; and

b. Authorization of equipment safety labels by Canada.

5.5 Acceptance Process

5.5.1 System Acceptance

5.5.1.1 The Contractor must provide OE of RMDS and associated deliverable compliance with all requirements of this SOW for Acceptance by Canada via the Acceptance Program in accordance with CDRL/DID RMDS-SE-009.

5.5.1.2 The Contractor must support the system acceptance program for each RMDS(First Article and Recurring Production) including conducting the FAT, and supporting the Functional Audit, PCA, SAT and Qualification Review.

5.5.2 Test and Evaluation Master Plan

5.5.2.1 The Contractor must prepare, deliver, and maintain a TEMP in accordance with CDRL/DID RMDS-SE-009 for Authorization by Canada, to define the entire process by which compliance of the proposed RMDS and associated deliverables will be demonstrated with respect to this SOW.

5.5.2.2 The Contractor must conduct the tests and evaluations in accordance with the TEMP Authorized by Canada.

5.5.3 Acceptance Test Index

5.5.3.1 The Contractor must prepare, deliver, and maintain an itemized list of each RMDS tests addressed by the TEMP in an ATI in accordance with CDRL/DID RMDS-SE-010, for Authorization by Canada.

5.5.4 Acceptance Test Procedures

5.5.4.1 The Contractor must prepare, deliver, and maintain Acceptance Test Procedures (ATP) in accordance with CDRL/DID RMDS-SE-011, to define the specific requirements for each test itemized in the ATI, for Authorization by Canada.

5.5.5 Test Readiness Reviews

5.5.5.1 The Contractor must convene a TRR with Canada at a mutually agreed location:

a. Prior to the FAT for each RMDS; and

b. Prior to the SAT for each RMDS.

5.5.5.2 The Contractor must demonstrate the following to Canada at each TRR:

a. Required resources have been retained and scheduled for the applicable FAT and SAT;

b. All Event Prerequisites required by Table 1 and the CDRL of this SOW for the applicable FAT and SAT have been met;

c. A review of past testing conducted on the test article, and any known problems;

d. All comments from Canada concerning the applicable ATPs have been resolved to the satisfaction of Canada, so as to enable final Authorization of the procedures;

e. All conditions, constraints, and procedures necessary for Canada to formally witness the FAT and SAT;

f. All conditions, constraints and procedures necessary for Canada to conduct, and the Contractor to formally witness the SAT;

g. Test articles are compliant with Product and Functional Baselines, including verification of all Authorized configuration changes; and

h. Any other issues that impact the test.

5.5.5.3 The Contractor must commence FAT and SAT only upon Authorization of TRR results by Canada or upon Authorization of TRR Minutes by Canada in which resolution of each TRR observation is documented.

5.5.6 Acceptance Testing

5.5.6.1 The Contractor must provide at least 30 business days prior notice to Canada of:

a. The dates for all Acceptance testing, audits and reviews in accordance with the Event Prerequisites of Table 1 and the CDRL, of this SOW; and

b. The dates for FAT.

5.5.6.2 The Contractor must conduct Acceptance Testing in accordance with the:

a. Current versions of the TEMP, ATI, and ATPs; and

b. The outcome of the FAT and SAT TRRs.

5.5.6.3 The Contractor must permit Canada or its representatives to witness all RMDS Acceptance tests and must fully support Canada as required in this role at each Acceptance test.

5.5.6.4 The Contractor must formally witness the SAT for each RMDS organized and conducted by Canada.

5.5.6.5 The Contractor must be available on-site to witness SATs conducted by Canada with 40 business days' notice.

5.5.6.6 The Contractor must demonstrate to Canada during each Acceptance Test, the OE of System compliance with all requirements of this SOW that are applicable to the test.

5.5.6.7 The Contractor must re-conduct and permit Canada to witness all Acceptance Testing as required to demonstrate that all changes Authorized are in accordance with this SOW.

5.5.7 Acceptance Test Reports

5.5.7.1 The Contractor must prepare and deliver an Acceptance Test Report for each Acceptance Test, in accordance with CDRL/DID RMDS-SE-012 to define all OE of SOW and SRD compliance obtained during the test.

5.5.7.2 The Contractor must obtain Acceptance of the FAT Test Report, and meet all other Event Prerequisites of Table 1, and the CDRL, of this SOW, prior to the commencement of the Functional Audit.

5.5.7.3 The Contractor must obtain Acceptance of the SAT Test Reports and meet all other Event Prerequisites of Table 1 and the CDRL, of this SOW, prior to the commencement of the Qualification Review.

5.5.7.4 The Contractor must identify all Acceptance Test results that are non-compliant in the Test Reports.

5.5.7.5 The Contractor must rectify all non-compliance identified in the Test Reports and:

a. Conduct all re-testing required to demonstrate full compliance with this SOW and SRD;

b. Permit Canada to witness all re-testing; and

c. Re-submit Test Reports in accordance with the process specified in paragraph 5.5.7.

5.5.8 Qualification Review

5.5.8.1 The Contractor must demonstrate to Canada during each Qualification Review that all Acceptance tests, evaluation results, and related OE up to and including SAT, verify compliance of each RMDS with the requirements of this SOW.

5.5.8.2 The Contractor must provide all documentation requested by Canada to conduct the Qualification Review.

5.5.8.3 The Contractor must correct all deviations specified by Canada following the Qualification Review.

5.5.8.4 The Contractor must progress to Recurring Production of the RMDS configuration following Acceptance by Canada of the Qualification Review Minutes that address those RMDS configurations.

5.5.9 Initial Operational Capability

5.5.9.1 The Contractor must complete delivery, installation, set-to-work, trial and acceptance of one (1) complete RMDS on a Kingston-class Maritime Coastal Defence Vessel (MCDV) and deliver ICT to at least one team of operators and maintainers to achieve Initial Operating Capability (IOC).

5.5.9.2 The Contractor must achieve IOC within 24 months following contract award.

5.5.10 Full Operational Capability

5.5.10.1 The Contractor must complete delivery, installation, set-to-work, trial and acceptance of all RMDS equipment deliverables specified in paragraph 3 and deliver all ICT, documentation and spares in accordance with the ILS package to achieve Full Operation Capability (FOC).

5.5.10.2 The Contractor must achieve FOC within 36 months following contract award.

5.6 Configuration Management

5.6.1 General

5.6.1.1 The Contractor must prepare, deliver for Acceptance and maintain a CM Plan in accordance with CDRL/DID RMDS-CM-001.

5.6.1.2 The Contractor must implement the CM Process to manage the configuration of the RMDS and associated deliverables in accordance with the Authorized CM Plan.

5.6.2 Configuration Identification

5.6.2.1 The Contractor must identify RMDS Configuration Items (CI) in accordance with D-01-002-007/SG-006.

5.6.2.2 The Contractor must prepare and deliver Product Configuration Documentation in accordance with CDRL/DID RMDS-TD-001 in order to describe the necessary physical and functional characteristics of each Configuration Item (CI) and any verification needed to demonstrate the CI's performance.

5.6.2.3 The Contractor must prepare and deliver the Equipment Labelling Package in accordance with CDRL/DID RMDS-CM-002 for Authorization by Canada.

5.6.2.4 The Contractor must use the standard configuration nomenclature in the Product Configuration Documentation and the Equipment Labelling Package to identify each RMDS HWCI and CSCI in accordance with D-01-002-007/SG-006.

5.6.2.5 The Contractor must maintain the Product Configuration Documentation in accordance with CDRL/DID RMDS-TD-001.

5.6.2.6 The Contractor must maintain the Equipment Labelling Package in accordance with CDRL/DID RMDS-CM-002.

5.6.3 Configuration Audits

5.6.3.1 The Contractor must provide all documentation requested by Canada to conduct the Functional Audit and the PCA.

5.6.3.2 The Contractor must support Canada as required in conducting Functional Audit and subsequent PCA to verify that all Acceptance test and evaluation results demonstrate compliance of the current Authorized configuration of each RMDS with the Functional Baseline.

5.6.3.3 The Contractor must correct all functional deviations specified by Canada following the Functional Audit that exist between the function of RMDS and the Functional Baseline.

5.6.3.4 The Contractor must support Canada as required in conducting PCAs to verify that:

a. Each currently Authorized RMDS HWCI and CSCI complies with the latest Product Configuration Documentation; and

b. Provisioned items are of the correct configuration, are supportable and available.

5.6.3.5 The Contractor must correct all functional and physical deviations, specified by Canada following the PCA.

5.6.3.6 The Contractor must use the Product Configuration Documentation Accepted by Canada as the Product Baseline.

5.6.3.7 The Contractor must maintain the configuration of the Functional and Product Baselines and the corresponding RMDS HWCIs and CSCIs in accordance with the processes as identified in paragraph 5.6.4.

5.6.4 Configuration Control

5.6.4.1 The Contractor must report to Canada all changes that may be required from the RMDS Functional and Product Baselines via Project Progress Reports in accordance with CDRL/DID RMDS-PM-003.

5.6.4.2 The Contractor must obtain Authorization from Canada prior to issuing a Design Change Package in accordance with CDRL/DID RMDS-CM-003, in order to define any required RMDS configuration changes and to amend the RMDS Functional and Product Baselines.

5.6.4.3 The Contractor must prepare and deliver a Design Change Package to Canada in order to define any required RMDS configuration change and to amend the RMDS Functional and Product Baselines as previously Authorized by Canada.

5.6.4.4 The Contractor must implement all changes to RMDS Functional and Product Baselines, CIs and all associated deliverables as defined in Design Change Packages upon Authorization by Canada.

5.6.4.5 The Contractor must re-conduct applicable Acceptance Testing per paragraph 5.5.6, and submit to all Configuration Audits per paragraph 5.6.3, as necessary to verify that all Design Changes have been implemented in accordance with this SOW.

5.6.4.6 The Contractor must amend all deliverable documentation specified by this SOW to reflect the implementation of each Design Change Package, and resubmit this documentation to Canada for Authorization.

5.7 Technical Documentation

5.7.1 Technical Data Package

5.7.1.1 The Contractor must prepare and deliver the TDP in accordance with CDRL/DID RMDS-TD-001 for Authorization by Canada.

5.7.1.2 The Contractor must amend the TDP to reflect comments provided by Canada and resubmit the TDP for Authorization by Canada.

5.7.1.3 The Contractor must amend the TDP upon Acceptance by Canada of the RMDS Qualification Review Minutes.

5.7.1.4 The Contractor must amend the TDP with each of its component documents incorporating Controlled Goods labels as provided by Canada in accordance with Paragraph 5.8.1.d.

5.7.1.5 The Contractor must maintain the TDP to reflect all RMDS changes Authorized by Canada in accordance with paragraph 6.6.

5.8 Government Furnished Resources

5.8.1 The Contractor must request the following GFR in accordance with CDRL/DID RMDS-PM-006 to assist in meeting the requirements of this SOW and Canada will provide this GFR at no cost to the Contractor, within 30 business days, subject to the operational requirements of Canada:

a. National Defence Index of Documentation (NDID) numbers for in-service manuals;

b. In-Service TDP drawing numbers;

c. In-Service TDP drawing title block data;

d. In-Service Manual and TDP Controlled Goods identification;

e. Equipment Identification Plate and Label nomenclature including cable nomenclature;

f. Any other GSM that will be necessary to deliver the RMDS and associated deliverables in accordance with this SOW.

6. INTEGRATED LOGISTIC SUPPORT

6.1 General

6.1.1 The Contractor must designate an ILS Manager within its organization who will be responsible to the PM for all ILS functions related to the RMDS.

6.1.2 The Contractor must undertake all ILS that may be required to implement and maintain each RMDS and its associated deliverables until final Acceptance of each RMDS deliverable by Canada.

6.2 Integrated Logistic Support Planning

6.2.1 Logistic Support Planning

6.2.1.1 The Contractor must prepare and deliver an ILS Plan for Authorization by Canada, in accordance with CDRL/DID RMDS-ILS-001 to define how the ILS requirements of this SOW will be addressed.

6.2.2 Logistic Support Analysis

6.2.2.1 The Contractor must conduct a Logistic Support Analysis (LSA) on the RMDS in accordance with the ILS Plan, including the following as a minimum:

a. Master and Critical Equipment Lists;

b. Failure Mode Effects and Criticality Analysis (FMECA);

c. Reliability Centered Maintenance Analysis (RCMA);

d. Maintenance Task Analysis (MTA);

e. Level of Repair Analysis (LORA);

f. Sparing Analysis;

g. Use Study;

h. Life Cycle Cost Analyses; and

i. Reliability, Availability, Maintainability and Durability (RAMD) Predictions

6.2.2.2 The Contractor must report the LSA results in accordance with the CDRL/DID RMDS-ILS-002.

6.2.2.3 The Contractor must use the results of the LSA to determine required spares in accordance with CDRL/DID RMDS-ILS-005.

6.2.2.4 The Contractor must use the results of the LSA and CDRL/DID RMDS-ILS-005 to conduct Initial Provisioning in accordance with paragraph 6.3.

6.2.2.5 The Contractor must use the results of the LSA to create and deliver a Maintenance and Support Program (MSP) Plan in accordance with CDRL/DID RMDS-ILS-004 using the expected operational life of the RMDS.

6.2.2.6 The Contractor must use the results of the LSA to prepare CDRL/DID RMDS-TD-001 and RMDS-TD-002.

6.2.3 ILS Conference

6.2.3.1 The Contractor must convene an RMDS ILS Conference with Canada to brief the RMDS ILS process with respect to this SOW and the ILS Plan within 30 business days of CDR.

6.2.3.2 The Contractor must prepare and deliver a draft ILS Conference Documentation Package for Authorization by Canada, consisting of at least the following documents:

a. LSA in accordance with CDRL/DID RMDS-ILS-002;

b. Training Development Program Report in accordance with CDRL/DID RMDS-ILS-003;

c. System User Manual in accordance with CDRL/DID RMDS-TD-002;

d. Illustrated Parts List in accordance with CDRL/DID RMDS-TD-003;

e. Maintenance Manual in accordance with CDRL/DID RMDS-TD-004; and

f. MSP Plan in accordance with CDRL/DID RMDS-ILS-004.

g. Supplementary Provisioning Technical Documentation in accordance with CDRL/DID RMDS-AE-008.

6.2.3.3 The Contractor must define the proposed RMDS ILS processes at the ILS Conference in accordance with the ILS Conference Documentation Package.

6.2.3.4 The Contractor must incorporate all observations made by Canada, and mutually agreed with the Contractor, in the draft ILS Conference Documentation Package.

6.2.3.5 The Contractor must prepare and deliver a final ILS Conference Documentation Package for Authorization by Canada.

6.2.3.6 The Contractor must complete the production of First Article RMDS configuration following Authorization of the ILS Conference Minutes and ILS Conference Documentation Package by Canada and in accordance with all other Event Prerequisites of Table 1, of this SOW.

6.3 Initial Provisioning

6.3.1 Sparing

6.3.1.1 The Contractor must provide a list of recommended spares and their quantities required to support each in-service RMDS for the first two (2) years of operation. The Contractor must include recommended spares list for the COTS/MilCOTS subsystems (i.e. AUVs and MDS) as part of their proposal. The ILS conference will be used to refine the recommended sparing.

6.3.1.2 The Contractor must provide supporting data for the COTS/MilCOTS subsystems with their proposal that demonstrates the recommended spares will support two years of operations as outlined in the SRD.

6.3.1.3 The Contractor must deliver all spares and Special Tools and Test Equipment prior to support an RMDS prior to that RMDSSAT.

6.3.2 Long Lead Time Initial Provisioning Conference

6.3.2.1 The Contractor must convene a LLTIP Conference with Canada in order to explain & validate the proposed LLTIP process and associated materiel with respect to this SOW and the ILS Plan.

6.3.2.2 The Contractor must convene the LLTIP Conference at a time that will enable delivery of required Long Lead Time spares in accordance with Paragraph 6.3.1.1.

6.3.2.3 The Contractor must prepare and deliver a draft LLTIP Conference Documentation Package for Authorization by Canada consisting of at least the information specified in CDRL/DID RMDS-ILS-005.

6.3.2.4 The Contractor must define the proposed LLTIP processes and each materiel item at the LLTIP Conference in accordance with the LLTIP Conference Documentation Package of Paragraph 6.3.2.3.

6.3.2.5 The Contractor must incorporate all observations made by Canada and mutually agreed with the Contractor, in the draft LLTIP Conference Documentation Package.

6.3.2.6 The Contractor must prepare and deliver a final LLTIP Conference Documentation Package for Authorization by Canada.

6.3.2.7 The Contractor must progress to provisioning each LLTIP material item Authorized by Canada, following Authorization of the LLTIP Conference Minutes and LLTIP Conference Documentation Package and in accordance with all other Event Prerequisites of Table 1 and the CDRL of this SOW.

6.3.3 Initial Provisioning Conference

6.3.3.1 The Contractor must convene an Initial Provisioning Conference with Canada in order to explain and validate the proposed Initial Provisioning process and associated materiel with respect to this SOW and the ILS Plan.

6.3.3.2 The Contractor must prepare and deliver a draft Initial Provisioning Conference Documentation Package for Authorization by Canada, consisting of at least the information specified in CDRL/DID RMDS-ILS-005.

6.3.3.3 The Contractor must define the proposed RMDS Initial Provisioning processes and each materiel item at the Initial Provisioning Conference in accordance with the Initial Provisioning Conference Documentation Package of Paragraph 6.3.3.2.

6.3.3.4 The Contractor must incorporate all observations made by Canada, and mutually agreed with the Contractor, in the draft Initial Provisioning Conference Documentation Package.

6.3.3.5 The Contractor must prepare and deliver a final Initial Provisioning Conference Documentation Package for Authorization by Canada.

6.3.3.6 The Contractor must procure each Initial Provisioning material item Authorized by Canada, following Authorization of the Initial Provisioning Conference Minutes and Initial Provisioning Conference Documentation Package, and in accordance with all other Event Prerequisites of Table 1 and the CDRL, of this SOW.

6.3.4 Initial Provisioning Documentation

6.3.4.1 The Contractor must provide the final Provisioning Documentation in accordance with CDRL/DID RMDS-ILS-005 for each item Authorized for provisioning by Canada.

6.4 Training Development Program

6.4.1 The Contractor must create a Training Development Program that addresses each of the requirements specified in this SOW and is consistent with the A-P9-050-000/PT-003 Canadian Forces Individual Training and Education System principles.

6.4.2 The Contractor must consult Canada for information on occupations, positions, training and work environments that will be affected by the acquisition of the RMDS.

6.4.3 The Contractor must create a Task List for operators and maintainers, identifying operator and maintenance tasks for system, sub-system, and integrated system.

6.4.4 The Contractor must identify Performance Objectives for each Task List created.

6.4.5 The Contractor must create Enabling Objectives to address the new skills and knowledge required for the Training Development Program.

6.4.6 The Contractor must create a summary of the recommended training materials, aids and equipment required for the Training Development Program.

6.4.7 The Contractor must prepare and deliver a Training Development Program Report in accordance with CDRL/DID RMDS-ILS-003.

6.5 Initial Cadre Training

6.5.1 The Contractor must prepare and deliver an RMDS Operator ICT Package in accordance with CDRL/DID RMDS-ILS-006 based upon the Authorized Training Development Program Report.

6.5.2 The Contractor must prepare and deliver a RMDS Maintainer ICT Package in accordance with CDRL/DID RMDS-ILS-006 based upon the Authorized Training Development Program Report.

6.5.3 The Contractor must structure Operator and Maintainer training around the conventional, classroom, instructor-led format, with provision for "hands-on" time with an RMDS to exercise the required Operator and Maintainer skills.

6.5.4 The Contractor must conduct Operator ICT, based upon the Authorized ICT package, up to a maximum of 15 students, at locations designated by Canada.

6.5.5 The Contractor must provide the following to support the conduct of Operator ICT:

a. Instructors that are experienced in teaching RMDS Operation;

b. Instructional support equipment, as required;

c. Personnel capable of maintaining and repairing the instructional support equipment in order to minimize any interruption to training; and

d. A copy of all required student documentation specified in the Authorized Operator and Maintainer ICT Packages of CDRL/DID RMDS-ILS-006, for each student.

6.5.6 The Contractor must provide the following to support the conduct of Maintainer ICT:

a. Instructors that are experienced in teaching RMDS Maintenance;

b. Instructional support equipment, tools and test equipment;

c. Maintenance supplies and spare parts applicable to Maintenance instructional activities;

d. Personnel capable of maintaining and repairing the instructional support equipment in order to minimize any interruption to training; and

e. A copy of all required student documentation specified in the Authorized Maintainer ICT Package of CDRL/DID RMDS-ILS-006 for each student.

6.5.7 The Contractor must conduct the ICT prior to the conduct of each SAT at the applicable coastal formation for both operator and maintainers including CFAD personnel for handling of the MDV-C.

6.6 Manuals

6.6.1 The Contractor must prepare, and deliver the following manuals:

a. System User Manual in accordance with CDRL/DID RMDS-TD-002;

b. Illustrated Parts List in accordance with CDRL/DID RMDS-TD-003; and

c. Maintenance Manual in accordance with CDRL/DID RMDS-TD-004.

6.6.2 The Contractor must amend the manuals to reflect and incorporate comments provided by Canada.

6.6.3 The Contractor must amend the manuals, upon Authorization of the Qualification Review Minutes, with each of its component documents incorporating Controlled Goods identification for each manual.

6.6.4 The Contractor must maintain the manuals to reflect all RMDS changes Authorized by Canada in accordance with paragraph 5.7.

7. AMMUNITION AND EXPLOSIVE ENGINEERING

The Contractor must conduct the following work specific to the MDV-C.

7.1 Design and Qualification

7.1.1 The Contractor must deliver an A&E Design and Qualification Plan detailing the intended approach for creating A&E products and implementation of design and qualification of A&E activities in accordance with CDRL/DID RMDS-AE-002.

7.2 Safety and Suitability

7.2.1 The Contractor must deliver an Ammunition Safety and Suitability Board (ASSB) Technical Letter in accordance with CDRL/DID RMDS AE-003. The Technical Letter is used to assess safety and suitability of an ammunition and explosive item that has not received an ASSB Phase 2 decision.

7.2.2 The Contractor must deliver an ASSB Phase 2 Decision – S^3 Assessment in accordance with CDRL/DID RMDS-AE-007.

7.2.3 The Contractor must deliver a Type Classification Summary Report (TCSR) in accordance with CDRL/DID RMDS-AE-017, which organizes all data collected throughout the testing of new ammunition and explosive into a cohesive document. The TCSR must include a complete history of Canada's verification of the safety and suitability of the design, the production capability of the manufacturer, and the quality of the product. The TCSR must also include all information required to allow the ammunition or explosive to be stored, transported, used, and disposed of throughout its service life.

7.3 Gap Analysis

7.3.1 The Contractor must conduct a gap analysis in accordance with CDRL/DID RMDS-AE-004 that summarizes the Contractor's review of all available information to determine if the required tests, evaluations and analysis, as defined in the Qualification Plan, have been conducted.

7.4 Test Plan

7.4.1 The Contractor must deliver a Test Plan proposal in accordance with CDRL/DID RMDS-AE-005 that identifies and describes all of the test and analysis details and information applicable to various testing requirements that are either missing, incomplete or not meeting the required standard. The Test Plan Proposal must be based on the Gap Analysis.

7.5 Environment Occupational Health and Safety Assessment

7.5.1 The Contractor must conduct an A&E Environment Occupational Health and Safety Assessment and deliver a report in accordance with CDRL/DID RMDS-AE-006 in support of the Phase 2 S^3 assessment for the ammunition MDV-C. The report must identify and document the Environmental and Occupational Health and Safety impacts of the ammunition MDV-C throughout the various life cycle phases (storage, transportation, testing, use, demilitarization and disposal) from ownership by Canada to demilitarization and disposal.

7.6 Technical Documentation

7.6.1 The Contractor must deliver a Supplementary Provisioning Technical Documentation Package in accordance with CDRL/DID RMDS-AE-008 which uniquely identify each ammunition being considered for provisioning for cataloguing purposes.

7.6.2 The Contractor must deliver Manufacturer's Ammunition Data Cards in accordance with CDRL/DID RMDS-AE-009 which is a referenced record of the history of a lot of ammunition and explosive material.

7.6.3 The Contractor must deliver Logistical Data Sheet in accordance with CDRL/DID RMDS-AE-012 which provides data for the proper storage and transportation of all explosive and inert items.

7.6.4 The Contractor must deliver Safety Templates Documentation in accordance with CDRL/DID RMDS-AE-014 which detail all aspects of the energetic nature of the MDV-C in all environments

7.6.5 The Contractor must deliver A&E Safety Data Sheets in accordance with CDRL/DID RMDS-AE-015 which provides information and instructions on the chemical and physical characteristics of a substance, its hazards and risks, the safe handling requirements and actions to be taken in the event of fire, spill, overexposure or other.

7.6.6 The Contractor must deliver a CFTO – Ammunition and Explosive in accordance with CDRL/DID RMDS-AE-016 which must contain the required technical information for the Life-Cycle Material Manager (LCMM) and DND/CAF users to accomplish their respective daily tasks and activities.

7.7 Acceptance

7.7.1 The Contractor must deliver the First Article Testing / Lot Acceptance Testing Criteria in accordance with CDRL/DID RMDS-AE-010.

7.7.2 The Contractor must deliver First Article Testing and Lot Acceptance Test (LAT) Reports in accordance with CDRL/DID RMDS-AE-011.

7.8 In-Service Plan

7.8.1 The Contractor must deliver an In-Service Surveillance Plan in accordance with CDRL/DID RMDS-AE-013 which details the means by which initial service life estimations of an explosive or ammunition can be confirmed to ensure safe and suitable use throughout the required service life and parameters that could impact the safety and capability of the ammunition items.

ANNEX A

Appendix AA

System Requirements Document (SRD)

Remote Minehunting and Disposal System

Table of Contents

1. INTRODUCTION

1.1 Purpose

1.1.1 The purpose of this System Requirements Documents (SRD) is to state the requirements for a Remote Minehunting and Disposal System (RMDS). The RMDS project will deliver a deployable Naval Mine Countermeasures (NMCM) capability through the acquisition of proven and fielded Autonomous Underwater Vehicle (AUV) technology. The RMDS is intended for primary use on the Kingston-class Maritime Coastal Defence Vessels (MCDV) but will be platform-independent and portable between host platforms. The RMDS will be capable to be operated from a shore location autonomously.

1.2 Scope

1.2.1 This SRD specifies the requirements of the Department of National Defence (DND) for a naval RMDS. The RMDS is to provide an operational NMCM capability to detect, classify, localize, reacquire, allow operator identification and dispose of sea mines and/or maritime improvised explosive devices (IEDs)[1] that pose a threat to Canadian interests or impede the conduct of maritime operations by Royal Canadian Navy (RCN) ships.

1.3 Intended Application

1.3.1 The objective of the RMDS project is to acquire AUV systems and technology necessary to develop a modular, stand-off NMCM capability. The RMDS will provide the RCN with a capability to conduct the full spectrum of naval minehunting operations, seabed mapping, and contribute to underwater domain awareness.

1.3.2 The RMDS capability will provide mission data in existing commercial formats that supports exchange of data with the existing Route Survey Data Analysis Facilities (RSDAF) commercial software. These formats will include extended Triton Format (XTF).

[1]For the purpose of this document, all references to sea mines will include conventional sea mines and maritime Improvised Explosive Devices (IEDs).

1.4 System Overview

1.4.1 The RMDS project will deliver a deployable NMCM capability through the acquisition of proven, already fielded with another Allied Navy, Commercial Off The Shelf (COTS) and/or Militarized Commercial Off The Shelf (MilCOTS) AUV technology. Two (2) separate modular RMDS systems will be acquired, with one system assigned to each coastal formation. Each RMDS system will consist of four (4) subsystems, as follows:

1.4.2 Autonomous Underwater Vehicle Subsystem. A combination of already proven and fielded subsystem components including:

1.4.2.1 Operator Portable AUV (up to 70 kg) designed for shallow water (10-100 m) operations; this system will be deployable by a maximum of two (2) operators;

1.4.2.2 Light Weight AUV (up to 450 kg) designed for long range and deep water (at least 200 m depth) deployment. The Light Weight AUV is to be launched by an integral launch, recovery and handling system. The Light Weight AUVs will have a longer endurance battery making them capable of covering larger areas than their smaller Operator Portable counterparts; and

1.4.2.3 AUV control systems, and all associated spares, tools, technical publications, transportation cases and software.

1.4.3 Mine Disposal Subsystem (MDS). The MDS must consist of the following:

1.4.3.1 Mine Disposal Vehicle - Combat variant (MDV-C) will be a single-shot weapon system, expendable mine disposal Remotely Operated Vehicle (ROV) designed for sea-mine reacquisition, identification, and neutralization through explosive detonation. These already proven and fielded weapon systems are explosive ordnance and once deployed it is expected that they will not be safely recovered;

1.4.3.2 Mine Disposal Vehicle - Training and/or Inspection variant (MDV-T/I) are to provide for a cost-effective capability for Mine-Like Contact (MILCO) inspection. These are an unarmed re-usable training/inspection variant of the MDV may be employed to visually identify the mine-like object prior to launching the explosive variant for disposal;

1.4.3.3 MDS operator console for remote operation of both the MDV-C and the MDV-T/I, and detonation of the MDV-C. The mine disposal operator will deploy the MDV-T/I to positively identify the MILCO using both sonar and underwater video camera, such that the object is unmistakably discernible as a sea mine prior to launching the MDV-C variant. Additional information and

intelligence can be gathered including sea mine type, specific markings, condition and potential sensor packages, as well as positively identifying other non-mine bottom objects; and

1.4.3.4 The MDS Portable Storage Locker (PSL) will be part of the MDS. It will attach to one of the International Standardisation Organisation (ISO) container and will be removable for storage of the MDV-C in the Canadian Forces Ammunition Depots (CFAD). The MDS Portable Storage Locker must be transportable to be moved between the RMDS or the ship and the CFAD. The MDV-C will be stored at one of the CFADs and be deployable only on an as required basis.

1.4.3.5 MDS associated spares, tools, technical publications, reusable logistical container and software.

1.4.4 Transportable Command Centre (TCC) Subsystem. The TCC will consist of two dedicated 20 foot long ISO Intermodal Shipping Container, which will provide a habitable shelter to facilitate the conduct of deployed RMDS operations. All ISO containers will have a maximum exterior height of 2.43 m. The habitable shelter will have Heating, Ventilation and Air Conditioning (HVAC) to provide acceptable room temperature and humidity levels. The TCC Subsystem will act as an Operations Room to support the conduct of RMDS operations, and as a Maintenance Room to support maintenance, storage, and transport of RMDS equipment. The TCC Subsystem will also include a work bench, necessary speciality tools and equipment, spare parts storage, and an AUV and MDVs handling system.

1.4.5 Computer-Based Trainer (CBT) Subsystem. The CBT will consist of high fidelity classroom-based and system-integrated computer based training solutions for the RMDS system that include operator modes, trainer modes, pre-programmed and programmable mission scenarios and electronic manuals.

1.5 ACRONYMS

Acronyms	
AECTP	Allied Environmental Conditions and Test Publication
ATP	Allied Tactical Publication
AUV	Autonomous Underwater Vehicle
BITS	Built in Test Software
BITE	Built In Test Equipment
CAF	Canadian Armed Forces
CBT	Computer-Based Trainer
CFAD	Canadian Forces Ammunition Depot
CGSB	Canadian General Standards Board

Acronyms	
COTS	Commercial off The Shelf
CSA	Canadian Standards Association
dB	Decibels
DND	Department of National Defence
FMF	Fleet Maintenance Facility
HVAC	Heating, Ventilation and Air Conditioning
Hz	Hertz
IED	Improvised Explosive Device
IM	Insensitive Munition
ISO	International Organization for Standardization
kts	Knots
kW	Kilowatt
LRU	Line Replaceable Unit
MCDV	Maritime Coastal Defence Vessel
MDA	Mine Danger Area
MDS	Mine Disposal Subsystem
MDV	Mine Disposal Vehicle
MDV-C	Mine Disposal Vehicle – Combat
MDV-T/I	Mine Disposal Vehicle – Training/Inspection
MILCO	Mine-Like Contact
MilCOTS	Militarized Off the Shelf
m/s	Meters/second
MTBF	Mean Time Between Failure
NATO	North Atlantic Treaty Organization
nmi	Nautical Mile
NMCM	Naval Mine Countermeasures
PSL	Portable Storage Locker
RCAF	Royal Canadian Air Force
RCN	Royal Canadian Navy
RDSM	Removable Data Storage Module
RMDS	Remote Minehunting and Disposal System
ROV	Remotely Operated Vehicle
RSDAF	Route Survey Data Analysis Facility
SIS	Seabed Intervention Section
SLS	Side Looking Sonar
SRD	System Requirements Documents
TCC	Transportable Command Centre
UPS	Uninterruptible Power Supply
VAC	Volt Alternating Current
VOO	Vessel of Opportunity
WMO	World Meteorological Organization
XTF	extended Triton Format

2. APPLICABLE DOCUMENTS

The following documents listed are applicable to and must form part of this SRD:

c. C-03-010-000/MM-001, Technical Manual Canadian Naval Shipboard Techniques for Electromagnetic Compatibility

d. C-09-005-003/TS-000, Ammunition and Explosives Safety Manual – Volume 3 Transportation

e. D-02-002-001/SG-001, Identification markings;

f. D-03-003-005/SF-000, General Electrical Specifications for CAF Ships;

g. D-03-003-007/SG-000, Specification for Design and Test Criteria for Shock Resistant Equipment in Naval Ships;

h. D-03-003-019/SG-001, Specification for Design and Test Criteria for Vibration Resistant Equipment in Ships;

i. D-09-002-004/SG-000, Standard Identification of Ammunition and Ammunition Packaging

j. D-28-163-000/SG-000, Ammunition Lockers and Magazines for Naval Vessels;

k. Environment Canada, National Marine Weather Guide – Chapter 3 Sea State;

l. STANAG-4280, Levels of Packaging

m. STANAG-4439, Policy for introduction and assessment of Insensitive Ammunition;

n. MIL-STD-108E, Definitions of and Basic Requirements for Enclosures for Electric and Electronic Equipment;

o. MIL-STD-461G, Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment;

p. MIL-STD-810H, Environmental Engineering Considerations and Laboratory Tests

q. MIL-STD-1310H, Shipboard Bonding, Grounding, and Other Techniques for Electromagnetic Compatibility, Electromagnetic Pulse (EMP) Mitigation, and Safety

r. MIL-STD-1472G, Department of Defense Design Criteria Standard, Human Engineering;

s. NATO – AECTP-230, Climatic Conditions;

t. FED-STD-595B, Colors Used in Government Procurement;

u. ASTM E1925-04, Specification for Engineering and Design Criteria for Rigid Wall Relocatable Structures;

v. CAN/CGSB-43.151 Packaging, Handling, offering for Transport and Transport of Explosives.

3. SUBSYSTEM REQUIREMENTS

3.1 General

3.1.1 The complete RMDS must consist of the AUV, MDS, TCC and CBT subsystems deployable from a *Kingston*–class MCDV, Vessel of Opportunity (VOO) and shore facility.

3.1.2 The RMDS must be capable of operation within a Mine Danger Area (MDA). The RMDS must provide a trained operator with the capability to detect, classify, localize, reacquire, identify and dispose of the following sea mines:

3.1.1.1 Multi-influence bottom mines, including those with stealth or camouflage features and IED placed on the seafloor and in shallow waters;

3.1.1.2 Close-tethered influence moored mines; and

3.1.1.3 Mid-water and shallow water, contact and influence moored mines;

3.1.3 The RMDS AUVs and MDVs must be COTS and/or MilCOTS. The RMDS should maximize the use of COTS and/or MilCOTS technologies.

3.1.4 The RMDS design must not require any modification to the *Kingston*-class MCDV.

3.2 Autonomous Underwater Vehicle Subsystem

3.2.1 Operator Portable AUV. The Operator Portable AUVs must meet the requirements in this section.

3.2.1.1 The Operator Portable AUVs must be at the same configuration level to allow interchangeability of AUV and AUV components.

3.2.1.2 The Operator Portable AUVs must not exceed 70 kg each.

3.2.1.3 The Operator Portable AUVs must be able to operate in depths of 10 m to 100 m.

3.2.1.4 The Operator Portable AUVs must be able to sustain a speed of at least 4 kts.

3.2.1.5 The Operator Portable AUVS should be able to sustain a speed of 5 kts or more.

3.2.1.6 The Operator Portable AUVs must be deployable by hand by a maximum of two (2) operators from a ship, small boat or shore.

3.2.1.7 The Operator Portable AUVs must have sufficient endurance to loiter 30 minutes, transit at least 5 nmi from the launch site,

conduct at least 4 hours of mission surveying in Survey/Identify modes, and then return at least 5 nmi to the recovery site and loiter for at least 30 minutes prior to recovery.

3.2.1.8 The Operator Portable AUVs must have an external portable battery charger.

3.2.1.9 The Operator Portable AUV must include a dedicated portable operator workstation to support all operations including mission planning, programming, communications and remote command and control.

3.2.1.10 The Operator Portable AUVs must be fitted with an integrated video variable frame rate camera with a minimum 1280x960 pixel resolution combined with sufficient lighting source to support mine-like object classification and identification requirements.

3.2.1.11 The Operator Portable AUVs must be returnable to an operational state within two hours once secured onboard following return from a survey mission including data extraction, reprogramming and recharge or exchange of batteries.

3.2.2 Light Weight AUV. The Light Weight AUV Subsystem must meet the requirements in this section.

3.2.2.1 The Light Weight AUVs must be at the same configuration level to allow interchangeability of AUV and AUV components.

3.2.2.2 The Light Weight AUVs must not exceed 450 kg each.

3.2.2.3 The Light Weight AUVs must be able to operate in depths of 100 m to 200 m.

3.2.2.4 The Light Weight AUVs should be able to reach at least 250 m depth or more.

3.2.2.5 The Light Weight AUVs must be able to sustain a speed of 4kts.

3.2.2.6 The Light Weight AUVs should be able to sustain a speed of 5 kts or more.

3.2.2.7 The Light Weight AUVs must be deployable from a ship or a shore facility with a suitable handling system.

3.2.2.8 The Light Weight AUVs must have sufficient endurance to be able to loiter 30 minutes, transit at least 5 nmi from the launch site, conduct at least 16 hours of mission surveying in Survey/Identify modes, and then return at least 5 nmi to the recovery site and loiter for at least 30 minutes prior to recovery.

3.2.2.9 The Light Weight AUVs must be returnable to an operational state within eight hours following return from a survey mission including recovery, data extraction, reprogramming and recharge or exchange of batteries.

3.2.2.10 The Light Weight AUV must include a dedicated operator workstation to support all operations including mission planning, AUV programming, communications and remote command and control.

3.2.3 AUV Performance Requirements. The RMDS AUVs must meet the performance requirements identified in this section.

3.2.3.1 The RMDS AUVs must have a total system navigational accuracy and repeatability within 10 m.

3.2.3.2 The RMDS AUVs must be fitted with a high-resolution Side Looking Sonar (SLS) operating in Survey/Identify modes.

3.2.3.3 The RMDS AUVs must be capable of detecting and displaying cylindrical, spherical, conical, or cubic bottom laid and moored sea mine shape, 0.5 m in diameter and less than 1.0 m long. Target parameters must be -15 dB or greater at the insonified frequency and be at a maximum depth of 200 m.

3.2.3.4 The RMDS AUVs must be capable of resolving the position of the above sea mines shapes, during detection within ± 5.0 degree vertical arc, ± 2.5 degree horizontal arc and ± 5% of the selected range setting.

3.2.3.5 The Operator Portable AUVs must have a coverage rate in detection only mode of at least 0.052 km^2/hr in a type A1 bottom[2] while meeting the minimum sonar resolution.

3.2.3.6 The Operator Portable AUV should have a coverage rate in detection only mode of at least 0.070 km^2/hr or more in a type A1 bottom while meeting the minimum sonar resolution.

3.2.3.7 The Light Weight AUVs must have a coverage rate in detection only mode of at least 0.27 km^2/hr in a type A1 bottom while meeting the minimum sonar resolution.

[2] NMCM Bottom Classifications are defined in Allied Tactical Publication (ATP) 24, Volume 1, Chapter 6, para 3. These classifications are characterized with an alphanumeric combination of a letter and a figure in which the letter represents the bottom type and the figure represents the Mine Like Echo (MILEC) density. An "A" type bottom is a smooth flat bottom, with ripples less than 15 cm deep with limited potential for mine burial. The numerical figure represents the MILEC density per square nautical mile. The actual values of the MILEC density figures are confidential; however a Type A1 bottom represents an area that would have very good minehunting conditions.

3.2.3.8 The Operator Portable AUV should have a coverage rate in detection only mode of at least 0.40 km^2/hr or more in a type A1 bottom while meeting the minimum sonar resolution.

3.2.3.9 The Operator Portable AUV must have a sonar resolution on screen of pixel size 10cm by 10 cm, or better, at the required coverage rate.

3.2.3.10 The Operator Portable AUV should have a sonar resolution of on screen pixel size of 5 cm x 10 cm, or better, at the required coverage rate.

3.2.3.11 The Light Weight Sonar must have a sonar resolution of on screen pixel size of 5cm by 5 cm, or better, at the required coverage rate.

3.2.3.12 The Light Weight AUV should have a sonar resolution of on screen pixel size of 2 cm x 5 cm, or better, at the required coverage rate.

3.2.4 AUV General Requirements. The RMDS AUVs must meet the requirements in this section.

3.2.4.1 The RMDS AUVs must incorporate an Inertial Navigation System.

3.2.4.2 The RMDS AUVs must include a back-up navigation system for, at minimum, vehicle retrieval in event of a failure.

3.2.4.3 The RMDS AUV operator workstations should be multifunction (i.e. compatible with both AUV variants).

3.2.4.4 The RMDS AUV operator workstations must be capable of receiving Route Survey System data in commercially accepted formats and of employing that historical data for comparison with current data. The supported formats must include XTF.

3.2.4.5 The RMDS AUVs must be capable of providing mission data in open source commercial, workable format. The supported formats must include XTF.

3.2.4.6 The RMDS AUVs must have the ability to record all the data collected during any single mission.

3.2.4.7 The RMDS AUVS shall automatically and continuously save data to non-volatile memory.

3.2.4.8 The RMDS AUVs must collect data that includes, as a minimum, time stamped latitude, longitude, sonar data and video imagery and vehicle data such as pitch, roll, heading, drift, depth, altitude, water temperature, water clarity and salinity.

3.2.4.9 The RMDS AUVs must have a Removable Data Storage Module (RDSM) that can be field changed by a trained operator for ease of mission transition.

3.2.4.10 The RMDS AUVs must have a RDSM that supports an open commercial physical interface to enable data transfer to a government furnished Post Mission Data Analysis workstation.

3.2.4.11 In the event of impact with a stationary solid object in its path while operating within their mission speed profile, the RMDS AUVs must be able to continue its mission without degraded performance. The RMDS AUVs should be able to avoid most collisions and continue with the mission.

3.2.4.12 The RMDS AUVs must be capable of communicating with the control platform via acoustic modem, satellite and Wi-Fi.

3.2.4.13 The RMDS AUVs must be proven and fielded, already in service with either a seabed mapping or other maritime commercial industry or, employed with another Allied government agency.

3.2.4.14 The RMDS AUVs must be capable of displaying a chemical light stick and/or strobe for ease of night time locating and recovery.

3.2.4.15 The RMDS AUVs must be outfitted with a removable means to enhance their visibility when on the surface during daylight hours (e.g. international orange/fluorescent yellow bands fore and aft).

3.2.4.16 The RMDS AUVs must include reusable, buoyant, water-tight transportation cases for each AUV that meet the requirements of STANAG 4280 and MIL-STD-810H Fungal Resistance Test .

3.2.4.17 The RMDS AUVs must be positively buoyant in case of malfunction.

3.3 Mine Disposal Subsystem (MDS)

3.3.1 <u>MDS General Requirements</u>: The MDV-C and the MDV-T/I must both meet the requirements in this section.

3.3.1.1 The MDV-C and the MDV-T/I must be operable from the same operator console.

3.3.1.2 The MDV-C and the MDV-T/I must not exceed 70 kg each.

3.3.1.3 The MDV-C and the MDV-T/I must be able to reach a depth of at least 200 m.

3.3.1.4 The MDV-C and the MDV-T/I must be able to sustain a speed of at least 4 kts under its own on-board/built-in power.

3.3.1.5 The MDV-C and the MDV-T/I must be deployable from a ship or a shore facility with suitable handling system.

3.3.1.6 The MDV-C and the MDV-T/I must be equipped with sufficient lighting, video and/or sonar capabilities to enable visual identification of targets for inspection and training.

3.3.1.7 The MDV-C and the MDV-T/I must have a fibre optic tether with no conductive material.

3.3.1.8 The MDV-C and the MDV-T/I must support a minimum of 1000 m stand-off range under all required operating conditions.

3.3.1.9 The MDV-C and the MDV-T/I must include a MDS operator console for remote operation of all MDV variants including mission planning, control, analysis and remote detonation of the MDV-C.

3.3.1.10 The MDV-C and the MDV-T/I must be capable of impacting a stationary solid object in its path, while operating within their mission speed profile, and continue the mission as designed.

3.3.1.11 The MDV-C and the MDV-T/I operator console must include the capability to record all available mission data including video and telemetry in an open, commercial format locally on removable media.

3.3.1.12 The MDV-C and the MDV-T/I must be proven and fielded, and currently in service with another Allied Navy.

3.3.2 <u>MDV-T/I Requirements</u>: the MDV-T/I must meet the requirements in this section.

3.3.2.1 The MDV-T/I must be capable of displaying a chemical light stick and/or strobe for ease of night time locating and recovery.

3.3.2.2 The MDV-T/I must be outfitted with a removable means to enhance their visibility when on the surface during daylight hours (e.g. international orange/fluorescent yellow bands fore and aft).

3.3.2.3 The MDV-T/I must have sufficient endurance to transit to a target at maximum system range at a speed of 4 kts, conduct target acquisition, conduct target inspection, return to host platform at 4 kts and loiter for 30 minutes for recovery.

3.3.2.4 The MDV-T/I must be unarmed.

3.3.2.5 The MDV-T/I and its fibre optic tether must be reusable.

3.3.2.6 The MDV-T/I must be positively buoyant in case of malfunction.

3.3.2.7 The MDV-T/I must include reusable, buoyant, water-tight transportation cases for each unit.

3.3.2.8 The MDV-T/I must be returnable to an operational state within two hours once secured onboard following return from a

training/inspection mission including recovery, data extraction, reprogramming and recharge or exchange of batteries.

3.3.2.9 The MDV-T/I must exhibit in water behaviour such that training is analogous to operations of the MDV-C

3.3.3 MDV-C Requirements: the MDV-C must meet the requirements in this section.

3.3.3.1 The MDV-C must be designed as a single-shot, expendable weapon system designed to reacquire, identify and dispose of modern Insensitive Munition (IM) as defined in STANAG-4439 and legacy naval mines by high order detonation. The MDV-C warhead must be of a shape charge design.

3.3.3.2 The MDV-C must have an endurance of at least one hour and support transit to a target at maximum system range at a speed of 4 kts, conduct target acquisition and complete target detonation by a trained operator.

3.3.3.3 The MDV-C must be designed with a built-in sterilization system in the event of misfire, misidentification/mission abort, communication failures (internal or external to the vehicle), lack or failure of the propulsion or steering system, loss of localisation, lack of power, improper Safe and Armed Unit operation or any other incidents where the vehicle/weapon system no longer requires detonation or the vehicle becomes unsafe or uncontrollable.

3.3.3.4 The MDV-C must be a negatively buoyant system in case of malfunction. The fibre optic tether should not hinder the MDV-C negative buoyancy under neutralisation, degraded, out of control state or sterilization.

3.3.3.5 The MDV-C must be compatible and compliant with all extant Canadian Armed Forces (CAF) regulations for transportation, embarkation, and storage of explosives in RCN ships; and, the MDV-C must have a separate, physical firing trigger safety mechanism (e.g. firing key). The Contractor must provide a minimum of three (3) copies of the separate firing mechanism.

3.3.3.6 The MDS must include one (1) PSL for storage and deployment of the five (5) MDV-Cs.

3.3.3.7 The PSL must be integrated to the TCC and be removable to be stored in one of the CFADs. The PSL fitted location within the RMDS must be in accordance with D-28-163-000/SG-000.

3.3.3.8 The PSL must be safe and suitable for all transport (crane, forklift, civilian and military trucks, planes, boats and by train) while empty, partially loaded or fully loaded with MDV-C.

3.3.3.9 The PSL must be manufactured to comply with all CAF and RCN magazine safety requirements, including heat and humidity sensors, and a suitable fire suppression system; including D-28-163-000/SG-000.

3.3.3.10 The MDV-C shape charge jet direction must not be aligned with another MDV-C warhead while stored in the PSL. The MDV-C must not be stored with the shape charge jet direction aligned in the hull direction.

3.3.3.11 The MDV-C must be re-stowable and serviceable after being removed from the PSL and exposed to the TCC conditions for purpose of testing or as required.

3.3.3.12 Each MDV-C must be delivered with a reusable logistical container that meets the requirements of CGSB-43.151 Packaging, Handling, offering for Transport and Transport of Explosives.

3.3.3.13 The MDV-Cs, their support equipment and ancillaries must be safe and suitable to operate and be transported and stored when exposed to the entire life cycle defined in CDRL/DID RMDS-AE-004, Attachment AC1 and AC2 and paragraphs 4.1 to 4.5 and 7 of this document.

3.4 Transportable Command Centre Subsystem

3.4.1 TCC Subsystem General Requirements

3.4.1.1 The TCC must have a secure tie down mechanism compatible with the two (2) existing pads and fittings onboard a *Kingston*-class MCDV.

3.4.1.2 The TCC must be integrated in two (2) certified ISO 6.06 m length containers to facilitate transport and ease of deployment and may include a partially open or openable segment to accommodate the Launch and Recovery System and PSL as required by the TCC design.

3.4.1.3 The TCC ISO containers must have a maximum exterior height of 2.43 m.

3.4.1.4 The TCC ISO containers must be constructed new and not manufactured from repurposed containers.

3.4.1.5 The TCC and the integrated RMDS subsystems must be capable of operating from either a single phase, 60 Hertz (Hz), 115 Volt Alternating Current (VAC) or a three phase, 60 Hz, 440 VAC power supply with tolerances of ±8% VAC and ±3% Hz. D-03-

003-005/SF-000, describes the power supplies available to the equipment.

3.4.1.6 The TCC must have an integrated power generator to allow for full RMDS operations in the event an external power source is not available and it must be compatible with diesel fuel readily available on a *Kingston*-class ship.

3.4.1.7 The TCC must provide a habitable shelter with heating, ventilation and air conditioning to facilitate the conduct of deployed RMDS operations.

3.4.1.8 The TCC must provide dedicated space for an RMDS Operations Room to support all RMDS operations.

3.4.1.9 The TCC must provide a dedicated space to act as a Maintenance Room to support maintenance, storage and transport of RMDS equipment.

3.4.1.10 The TCC must be certified by an independent recognized organization in accordance with specifications listed in ASTM E1925-04.

3.4.1.11 The TCC must be compatible with and certified by an independent certification organization for:

a) Worldwide transportation by commercial Air cargo plane as well as Royal Canadian Air Force (RCAF) cargo planes;

b) Worldwide transportation by commercial sea container ship;

c) Worldwide transportation by land using public roads with standard ISO container trailers; and,

d) Worldwide transportation on secondary roads using military trucks in service within the CAF.

3.4.1.12 The TCC must be able to be loaded and unloaded by the built in loading and unloading system of the CAF military trucks. Note that during that operation, the ISO container can be tilted up to 45 degrees.

3.4.1.13 The TCC must provide more additional secure stowage for spare parts, necessary specialty tools, battery chargers, technical data manuals, cases and software. All RMDS stowage requirements must be confined to the TCC.

3.4.1.14 The TCC must include an integrated, powered Launch, Recovery and Handling System for all RMDS AUVs and MDV variants.

3.4.1.15 The TCC should have a single Launch, Recovery and Handling System that is compatible with all AUVs and the MDS.

3.4.1.16 The Launch, Recovery and Handling system must ensure that the MDV-C are not handled beyond their design tactical drop height.

3.4.1.17 The Launch, Recovery and Handling system must ensure that the MDV-C do not reach their tactical impact limits when being handled or launched.

3.4.1.18 The TCC must accommodate for the installation, removal and stowage of the MDV-C PSL.

3.4.1.19 The TCC must be painted in accordance with MIL-T-704 using epoxy topcoat in accordance with MIL-C-22750 and epoxy primer in accordance with MIL-P-53022.

3.4.1.20 The TCC exterior painted surfaces must be painted grey in colour in accordance with FED-STD-595B colour chip 26480.

3.4.1.21 The TCC interior painted surfaces must be painted white in colour in accordance with FED-STD-595B colour chip 17925.

3.4.1.22 The TCC must be protected for lightning and electro static discharges.

3.4.1.23 The TCC must provide multiple access doors on each container that account for varying configurations of the TCC containers and obstructions around the TCC.

3.4.1.24 The TCC must provide lighting external to the TCC for conducting RMDS operations.

3.4.1.25 The TCC design must be able to support the RMDS with a tactical reserve of a total of two (2) Operator Portable AUVs, two (2) Light Weight AUVs, five (5) MDV-C in the PSL, two (2) MDV-T/I and all associated workstations, consoles, sparing, tools as required to support the maximum length mission in paragraph 4.3.1.

3.4.1.26 The TCC containers must be equipped with a proper, built in fire safety and suppression system.

3.4.1.27 The TCC must facilitate a communication system between the TCC containers and the TCC and external personnel (e.g. bridge).

3.4.2 TCC Operations Room Requirements

3.4.2.1 The TCC Operations Room must provide a suitable work area to conduct RMDS operations including accommodating one (1) Operator Workstations for Lightweight AUV, one (1) Operator Workstations for Operator Portable AUV, one Government-Furnished Post Mission Data Analysis and two (2) dedicated MDS operator consoles.

3.4.2.2 The TCC Operations Room must provide a 1 m by 1 m footprint, unobstructed vertically, to accommodate a Government-Furnished

Post Mission Analysis workstation that may be deployed with the RMDS System. The TCC must provide power to the workstation. For design purposes, the power supply of the workstation will not exceed 1 kW.

3.4.2.3 The TCC Operations Room workstations and consoles must include operator seats suitable for maritime environment.

3.4.2.4 The TCC Operations Room must include satisfactory internal and external lighting, satisfactory power supplies and Uninterruptible Power Supply (UPS) capacity to ensure the MDV-C, and any required supporting equipment, can complete any ongoing mission to the end in case of power failure.

3.4.3 TCC Maintenance Room Requirements

3.4.3.1 The TCC Maintenance Room must have an AUV maintenance workbench, with spare parts and specialty tool stowage as defined in MIL-STD-1472G Section 5.10.3.4 and MIL-STD-1472G Section 5.10.2.12.3.

3.4.3.2 The TCC Maintenance Room must have AUV storage racks and securing mechanisms.

3.4.3.3 The TCC Maintenance Room must accommodate the stowage of the RMDS AUV and MDV transportation cases.

3.4.3.4 The TCC Maintenance Room must include RMDS handling systems including a dedicated lifting and handling mechanism.

3.4.3.5 The TCC Maintenance Room must have an air compressor providing a clean line and an oiled line if required to support the design.

3.4.3.6 The TCC Maintenance Room must provide additional secure stowage for spare parts, necessary specialty tools, battery chargers, technical data manuals and software, and any other equipment required to support the RMDS.

3.4.3.7 The TCC Maintenance Room must support maintenance in up to Sea State 4, this includes ensuring components and tools are secure as maintenance is conducted.

3.5 Computer-Based Trainer Subsystem

3.5.1 General Requirements:

3.5.1.1 The RMDS must include a comprehensive CBT component, to enable operator proficiency and maintainer training to be conducted without launching in in-water equipment.

3.5.1.2 The CBT must have an Operator Trainer Mode.

3.5.1.3 The CBT must have an Instructor Trainer Mode.

3.5.1.4 The CBT must have a classroom component that supports the training requirements of Appendix A Acquisition SOW.

3.5.1.5 The CBT must be integrated into the operator consoles or workstations to conduct training while deployed.

3.5.1.6 The CBT for the MDV-C must have clear software and visual warnings to differentiate the combat system from the training system.

3.5.1.7 The CBT must operate in either the Operator Trainer Mode or the Instructor Trainer Mode as selected by the user.

3.5.1.8 The CBT Controls must have a Physical Fidelity level of not less than 4 in accordance with Table 1 of this document.

3.5.1.9 The CBT Display must have a Physical Fidelity level of not less than 3 in accordance with Table 1 of this document.

3.5.1.10 The CBT Software must have a Functional Fidelity level of not less than 4 in accordance with Table 2 of this document.

3.5.1.11 The CBT shall include not less than 10 pre-programmed RMDS Scenarios.

3.5.2 Combat Scenarios:

3.5.2.1 The RMDS Scenarios must vary in levels of complexity to satisfy a range of operator experience levels from beginner to advanced.

3.5.2.2 The RMDS Scenarios must include the following marine operating areas as a minimum:

a) Operability requirements specified in this document;

b) Bottom types specified in this document;

c) Survivability requirements specified in this document;

d) Any additional operating areas or scenarios included in COTS/MilCOTS courseware; and

e) Any additional operating areas or scenarios arising from ammunition suitability and safety considerations.

3.5.3 Operator Trainer Mode:

3.5.3.3 The Operator Trainer Mode must allow the user to choose which RMDS Scenario to initiate.

3.5.3.4 The Operator Trainer Mode must allow the user to access an electronic and interactive version of the RMDS operator manual.

3.5.3.5 The Operator Trainer Mode must simulate all RMDS operator software functions.

3.5.4 Instructor Trainer Mode:

3.5.4.1 The Operator Trainer Mode must simulate all RMDS operator software functions.

3.5.4.2 The Instructor Trainer Mode must allow the instructor to modify lesson plans and lessons.

3.5.4.3 The Instructor Trainer Mode must allow the instructor to create RMDS mission Scenarios.

3.5.4.4 The Instructor Trainer Mode must allow the instructor to edit RMDS mission Scenarios including environment conditions and marine operating areas as defined in paragraph 3.5.2.2.

3.5.4.5 The Instructor Trainer Mode must allow the instructor to save RMDS mission Scenarios to portable media.

3.5.4.6 The Instructor Trainer Mode must allow the instructor to update RMDS mission Scenarios on other CBTs using portable media.

3.5.4.7 The Instructor Trainer Mode must allow the instructor to access an electronic version of the RMDS operator manual.

Level of Fidelity	**Physical Fidelity Description**
1	Lowest - No physical replication is required, or the replication is in the form of a non-functional mock-up. Information typically available from the equipment may be available to trainer staff for role-playing.
2	Low - Use of *COTS* equipment that displays valid information to the student but not necessarily with the format or functionality of the real equipment.
3	Moderate - Use of non-military or *COTS* equipment that may bear little physical resemblance to the actual military equipment, but offers functionality suitable for the operator to perform the tasks required by the training objectives. Typically only the person/machine interface devices that are required by the training objectives are reproduced.
4	Very high - A close replication of the actual equipment, but allowing for slight differences to accommodate the use of proprietary, non-military or *COTS* equivalents. Person/machine interface devices represent close replications of those on the real equipment and in some cases only those required by the training objectives are reproduced.
5	Highest - An exact replication of the actual equipment may be achieved through the use of real equipment or precise form and fit replications. All person/machine interface devices are accurately replicated.

Table 2 : Physical Fidelity Levels

Level of Fidelity	Functional Fidelity Description
1	Lowest - can be simulated by instructions from the trainer staff. Implementation involves "Pretending and Imagination".
2	Low - Replication is achieved through a combination of equipment offering simplistic behaviour, and trainer staff intervention as required to clarify the intent.
3	Moderate - Replication is achieved through provision of idealistic or theoretical information and behaviour. Only occasional trainer staff intervention would be required. May provide functionality only to a level sufficient to achieve the training objectives.
4	Very high - Replication is achieved through provision of cues and interactions that closely replicate those of the actual system and can easily be related, to actual items or typical data information. Items can be distinctly identified from other similar items through details provided in the cues. All operator features are available.
5	Highest - The cues and interactions are as close as possible to those of the actual system. Differences between the simulation and the actual system are discernible only to an experienced operator, and do not detract from training. Must attain near exact replication with effect on all five senses if possible.

Table 3 : Functional Fidelity Levels

4. SYSTEM EFFECTIVENESS REQUIREMENTS

4.1 Operability

4.1.1 The RMDS must be operable from a *Kingston*-class MCDV, , VOO, and from a shore facility, in the following environmental conditions:

4.1.1.1 Able to operate and be stored in environment zones A1, B3, B1, M3 and C1, as defined in Allied Environmental Conditions and Test Publications (AECTP) Category 230, Climatic conditions;

4.1.1.2 Water depths from 10 m to 200 m;

4.1.1.3 AUVs shall be able to scan up to 200 m deep,

4.1.1.4 MDV-C and MDV-T/I identify and dispose of mines up to 200 m deep

4.1.1.5 Littoral seas with freshwater outfalls and freshwater lakes and rivers;

4.1.1.6 Sea States:

4.1.1.6.1 Launch and Recovery - Sea State 3[3];

4.1.1.6.2 Operator Portable AUVs and MDS operate in - Sea State 3;

4.1.1.6.3 Light Weight AUVs operate in - Sea State 4[4]; and

4.1.1.6.4 Survive stowed in TCC Subsystem ISO Intermodal Shipping Containers - Sea State 7[5].

4.1.1.7 Target clutter density, one sea mine sized object per 100 square metres;

4.1.1.8 Seabed with acoustic reverberation level ranging from –15 dB to –35 dB;

4.1.1.9 Seabed terrain with:

4.1.1.9.1 Undulations: maximum slope of 15%; amplitude up to 30 m, and

4.1.1.9.2 Constant average slope of 15%;

4.1.1.10 Sound speed gradient of less than or equal to 0.05 m/s per metre of water depth;

4.1.1.11 Currents or tidal streams up to 2 kts;

[3] Environment Canada, *National Marine Weather Guide –Chapter 3 Sea State*.
Sea State 3 is defined as a Wave Height 0.50-1.25 metres
[4] Sea State 4 is defined as a Wave Height 1.25-2.50metres
[5]Sea State 7 is defined as a Wave Height 6-9 metres

4.1.1.12 Rain, snow, sleet, freezing rain, salt spray and freezing salt spray; and

4.1.1.13 Day and night operation.

4.1.2 The RMDS must be a modular deployable system which can be employed as a complete system or partially employed with a combination of AUV and MDS subsystems.

4.1.3 The RMDS must support operating up to four (4) AUVs simultaneously.

4.2 Maintainability

4.2.1 The RMDS must be deployable for up to 18 days at sea, in areas where the host platform is not accessible for Field Service Representative support and must be fit for operations in those conditions.

4.2.2 The RMDS AUVs and MDV-T/I must have a proven first line maintenance capability.

4.2.3 The MDV-C must not require first line maintenance and will be supported through 3rd line maintenance only.

4.2.4 The RMDS first line maintenance must be adequate to keep the RMDS operational by the replacement of minor components for the duration of the mission per paragraph 4.3.1, or be modular to the point to facilitate the replacement of components of the subsystems within the mean down time in paragraphs 4.4.1 and 4.4.2.

4.2.5 The RMDS subsystems must have Built in Test Software (BITS), Built In Test Equipment (BITE) and make use of high level Line Replaceable Units (LRU) to support the required mean down time.

4.3 Availability

4.3.1 The RMDS must meet the usage criteria of Attachment AB1 Mission Profile and Operational Modes Summary which is summarized below while meeting the requirements in this document:

4.3.1.1 Annual operating hours for each Lightweight AUV of 2812 hours;

4.3.1.2 Annual operating hours for each Operator Portable AUV of 1036 hours;

4.3.1.3 Annual operating hours of each MDV T/I of 255 hours;

4.3.1.4 Annual number of missions per RMDS of 17, including 9 NMCM missions, 3 non-NMCM missions and 5 training missions;

4.3.1.5 Maximum length of mission per RMDS of 18 days at sea, with 12 days on-station for NMCM missions, 5 days on-station for non-NMCM and 5 days on station for training missions;

4.3.1.6 Maximum daily use for RMDS AUV and MDS subsystems of 19 hours;

4.3.1.7 RMDS TCC must support environmental and climatic conditions for 24 hours a day over the number of missions and durations stated in paragraph 4.3.1; and

4.3.1.8 Maximum hours per mission (per individual AUV) of 250 hours for the lightweight AUV and 100 hours for the operator portable AUV.

4.3.2 The RMDS must have redundancy and processing margins on operator consoles and workstations to minimize likelihood of these components making the system unavailable.

4.3.3 The RMDS must have an Achieved Availability of 98.5%. The Achieved Availability excludes logistical and administrative downtime, but must factor in both corrective and preventative maintenance downtime. The Achieved Availability only applies during time at-sea. The RMDS System must be considered available only when the following are available:

a. Either one (1) Light Weight or one (1) Operator Portable AUV;

b. TCC with the Launch and Recovery System;

c. One (1) MDV-T/I;

d. One (1) MDV-C; and

e. All necessary RMDS operator workstations, consoles and support systems needed to conduct RMDS operations.

4.4 Reliability

4.4.1 Each RMDS AUV must have a Mean Time Between Failure (MTBF) of at least 80 hours.[6]

[6] A failure is an event that results in the loss or degradation below normal performance limits of any function, or minor malfunctions related to either critical or non-essential functions. Typically, it is any event that requires corrective maintenance to restore the system to its normal performance standard, which excludes preventive maintenance, but includes any corrective maintenance activities found necessary during preventive maintenance.

4.4.2 Each RMDS AUV must have a mean active maintenance down time of less than 0.5 hours.[7]

4.4.3 Each RMDS AUV should have a MTBF of at least 120 hours

4.4.4 The MDV-T/I must have a MTBF of at least 80 hours.

4.4.5 The MDV-T/I must have a mean active maintenance down time of less than 0.5 hours.

4.4.6 The MDV-C Subsystem must have a probability of successfully completing a disposal mission of at least 95%.

4.4.7 The MDV-C must have a probability of successfully detonating of at least 99%, and probability of safely neutralizing in the event of a subsystem failure of 99.9%.

4.5 Supportability

4.5.1 The RMDS must have an operational life expectancy of not less than 15 years.

4.5.2 The MDV-C must have a service life of at least 60 months.

4.5.3 The RMDS data interfaces between Subsystems and Subsystem components must meet open standard specifications.

4.5.4 The RMDS hardware design must be sufficiently modular to support first line maintenance without major equipment disassembly, support rapid identification of failed components and repair by replacement.

4.6 Environmental Sustainability

4.6.1 The RMDS, including all of its subsystems, must comply with all existing Canadian environmental protection regulations vis-a-vis potential pollutants and emissions for systems operating in oceans and national waterways.

4.7 Safety and Health

4.7.1 Operators and maintainers of the RMDS Project equipment will be required to operate the system for extended periods of time while subjected to physical and mental stress. Maintainers will frequently perform highly cognitive mission-critical tasks while subjected to motion, vibration, noise and low light levels. The design of the RMDS equipment must include consideration of the

[7] Mean down time in this document refers to the time required for corrective and preventative maintenance conducted at first line maintenance.

conditions under which operation and maintenance are likely to be undertaken. The following items must be specifically addressed in system design:

4.7.1.1 Minimization of electrical hazards in accordance with MIL-STD-1472G Section 5.7.9.1 and D-03-003-005/SF-000 Section 1.3.3;

4.7.1.2 The RMDS must be grounded, and protected from lightning in accordance with the requirements of D-03-003-005/SF-000 Part 4 and MIL-STD-1310H (Navy) Section 3.20.

4.7.1.3 Minimization of mechanical hazards (sharp edges, etc.) in accordance with MIL-STD-1472G Section 5.7 and D-03-003-005/SF-000 Section 1.3.3;

4.7.1.4 Noise levels that are in accordance with MIL-STD-1472G Section 5.5.4.

4.7.1.5 Emissions from displays must be as specified in the paragraph 7.4 of this document;

4.7.1.6 Restraints must be fitted that preclude equipment from becoming projectiles during operations and transportation; and

4.7.1.7 Standard ergonomic design practices for controls, visual displays, labelling, hazards and safety, physical accommodations, maintenance accessibility, workspace design and physical environment as specified in MIL-STD-1472G Sections 5.1, 5.2, 5.4, 5.7, 5.8, 5.9, 5.10 and 5.11.

4.7.1.8 The RMDS and components must comply with the Transportation of Dangerous Goods Act, 1992 as required.

4.7.1.9 The RMDS tools must be certified by CSA, or an equivalent standardization organization, for use in hazardous locations.

5. PERSONNEL AND TRAINING REQUIREMENTS

5.1.1 RMDS operators and maintainers must be the same as those who operate and maintain the Route Survey systems, these being *Kingston*-class, Fleet Diving Unit, and Seabed Intervention Section (SIS) personnel. There must be no requirement for an increase to the existing RCN establishment;

5.1.2 The RMDS must be operable and maintainable by a small team of three (3) to six (6) trained personnel.

5.1.3 Training in the operation, first and second line maintenance of the RMDS must be delivered by the contractor to an initial cadre of personnel in the Fleet Staff, *Kingston*-class operators, Fleet Diving Units, SIS personnel, Canadian Forces Naval Operations School, weapon engineering technicians, ammunition

technicians and ammunition technical officers, explosive ordnance disposal personnel and Fleet Maintenance Facility (FMF) personnel as required.

6. NAMEPLATES, PRODUCT MARKING AND PACKAGING

6.1.1 The RMDS must be marked and labelled in accordance with D-02-002-001/SG-001.

6.1.2 The RMDS equipment weighing more than 15 kilograms must be marked to identify its weight.

6.1.3 The RMDS equipment that presents a hazard to personnel must be labelled in accordance with the requirements of MIL-STD-1472G Section 5.7.

6.1.4 The MDV-C must be labelled in accordance with D-09-002-004/SG-000, Parts 1 to 3.

6.1.5 The MDV-C packaging must be labelled in accordance with C-09-005-003/TS-000 Part 1, paragraphs 14 and 31 and D-09-002-004/SG-000, Parts 1 and 4.

7. ENVIRONMENTAL REQUIREMENTS

7.1 Sea State

7.1.1 The RMDS must operate in conditions as outlined in paragraph 4.1.1.6 and defined in the World Meteorological Organization (WMO) code tables.

7.2 Mechanical Shock

7.2.1 The RMDS equipment enclosures, mounts, and retention devices must prevent equipment deflection that could be hazardous to personnel or other shipboard equipment under exposure to shock conditions specified in D-03-003-007/SF-000 Grade 1 Type A, Section 6.

7.2.2 The RMDS equipment must have restraints fitted that preclude equipment from becoming projectiles; remain fully intact, and in their normal operational positions, under exposure to shock conditions specified in D-03-003-007/SF-000 Grade 1 Type A, Section 6.

7.2.3 The RMDS equipment must operate in accordance with this SRD following exposure to shock conditions specified in D-03-003-007/SF-000 Grade 1 Type A, Section 6.

7.3 Vibration

7.3.1 The RMDS equipment enclosures, mounts, and retention devices must remain fully intact and operational, and in their normal operational positions, when excited by Type 1 environmental vibration levels up to and including 33 Hz as specified in MIL-STD-810H, method 528 procedure I.

7.3.2 The RMDS equipment must operate in accordance with this SRD when excited by Type 1 environmental vibration levels up to and including 33 Hz as specified in MIL-STD-810H, method 528 procedure I.

7.4 Electromagnetic Effects

7.4.1 The RMDS must operate in accordance with this SRD when subjected to the shipboard electromagnetic environments specified by MIL-STD-461G, Section 5, requirements CS101, CS103, CS104, CS105, CS114, CS116, RS101, and RS103.

7.4.2 The RMDS must not generate an electromagnetic environment that exceeds the standards described in MIL-STD-461G, Section 5, requirements CE101, CE102, CE106, RE101, RE102 and RE103.

7.4.3 The RMDS must not generate radiated electromagnetic interference emissions into other nearby systems as specified in C-03-010-000/MM-001, Part 4.

MISSION PROFILE AND OPERATIONAL MODE SUMMARY FOR THE ACQUISITION OF THE REMOTE MINEHUNTING AND DISPOSAL SYSTEM

1 INTRODUCTION

1.1 The Remote Minehunting and Disposal System (RMDS) Mission Profile is a time-phased description of the operational events and environments that the RMDS will be subjected to from the start to the end of a specific mission. Tasks, durations, operating conditions, and environmental conditions are identified for each mission. This is described in terms of the Operational Environment and specific Mission Profiles.

1.2 The Operational Mode Summary provides a compilation of the missions, operating conditions and environments the RMDS will expect to see over its useful life cycle. It is described from the perspective of Annual Usage / Life Expectancy and Environmental Profiles.

2 SYSTEM DESCRIPTION

2.1 Two separate modular RMDS payloads will be acquired, with one payload assigned to each of the coastal formations. Each RMDS payload will consist of the following subsystems, as depicted in the functional configuration shown in Figure 1:

2.1.1 **Autonomous Underwater Vehicle (AUV) Subsystem**. This consists of one Operator Portable AUVs, one Lightweight AUVs, AUV operator workstations, spares, special tools, test equipment, transportation cases and software;

2.1.2 **Mine Disposal Subsystem (MDS)**. This includes five (5) Mine Disposal Vehicles (MDV) Combat variant, two of the Training/Inspection variant of the MDV (MDV-T/I), the MDS operator console, Portable Storage Locker (PSL), spares, special tools, test equipment, transportation cases, reusable logistical containers and software;

2.1.3 **Transportable Command Centre (TCC) Subsystem**. The TCC are dedicated shipping containers that provide a habitable shelter that will act as an Operations Room to support the conduct of RMDS operations and enable transportation, deployment, maintenance, stowage and storage of the RMDS equipment. This includes a Launch and Recovery System for deployment of the AUVs and MDVs and

2.1.4 **Computer-Based Training (CBT) Subsystem.** The CBT Subsystem will include a classroom-based trainer and a CBT capability for the AUV and NDV subsystems integrated into the RMDS on the operator workstations and consoles.

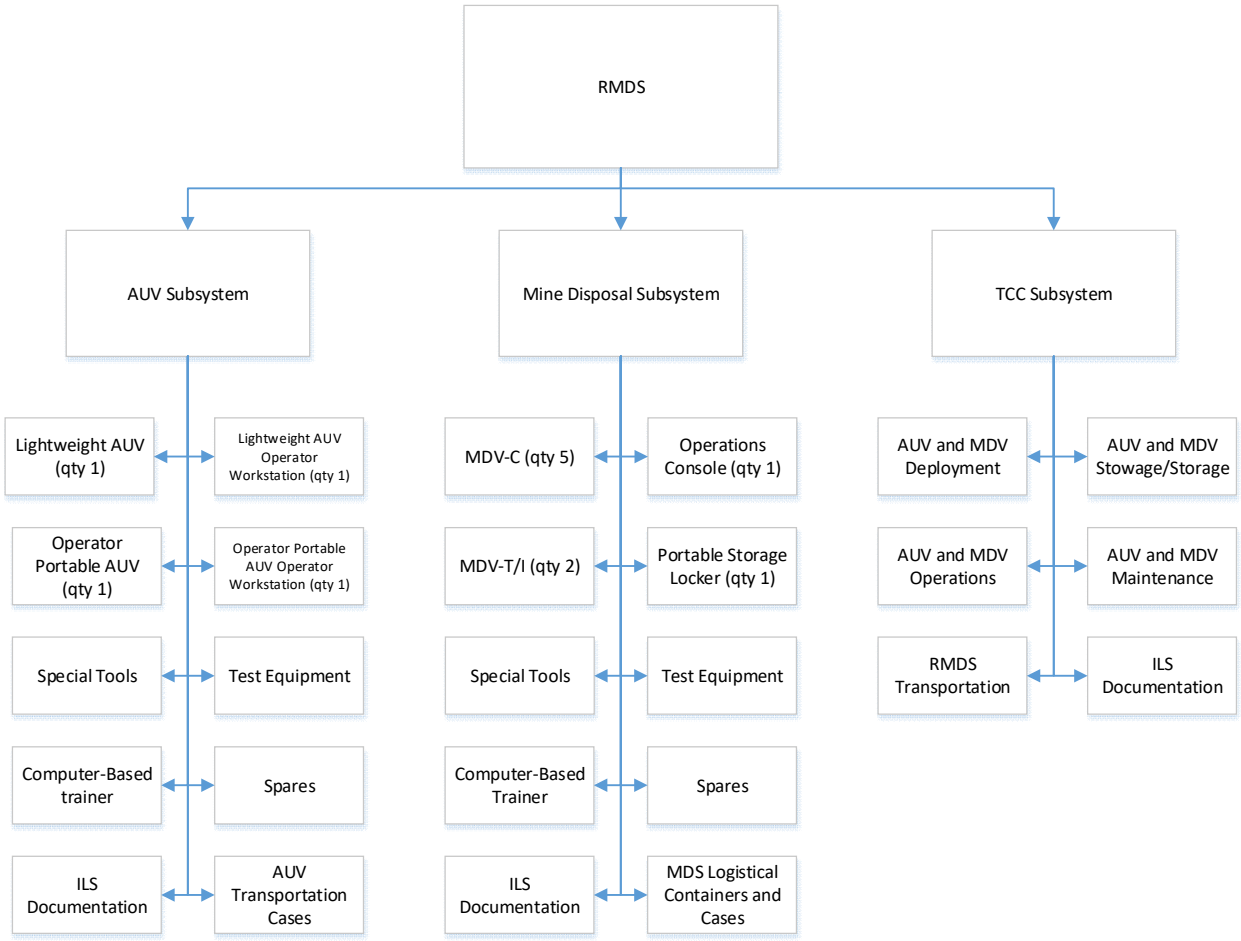


Figure 1 RMDS Payload Functional Configuration

3 OPERATIONAL ENVIRONMENT

3.1 The RMDS will be employed for the conduct of full spectrum naval minehunting operations, seabed mapping, and contribute to underwater domain awareness, including the capability to detect, classify, localize, reacquire, identify and dispose of sea mines or maritime IEDs. As such, the RMDS will be deployed world-wide and be capable of operating in littoral waters, with expected air and water temperatures, and salinity ranging from polar through temperate to equatorial latitudes. The RMDS will not be expected to operate in areas that are ice covered or impeded by drifting ice or other natural underwater obstacles such as kelp forests or sea grass.

3.2 The seabed terrain over which remote minehunting will be conducted will vary from smooth flat sand without obstructions or cluttering material, to irregular and undulating bottoms with high levels of natural or man-made debris and bottom clutter, including potential navigational hazards. This underwater environment is subject to a high-degree of change and variability.

3.3 The RMDS is intended for primary use on the Kingston-class Maritime Coastal Defence Vessels (MCDV) but must be platform-independent and portable between host platforms, or can be operated from shore locations.

3.4 The climates and induced environments expected are detailed in the Environmental Profiles section below.

3.5 The RMDS operators and maintainers will be the same as those who operate and maintain the existing RCN Route Survey systems, these being Kingston-class, Fleet Diving Unit, and Route Survey Office personnel. A small team of trained personnel (up to 6 operators depending on operational intensity and type of vessel) will accompany, operate and support the RMDS.

4 MISSION PROFILES

4.1 The RMDS will typically be deployed on Naval Mine Countermeasures (NMCM) missions, whose expected operational mission profile will follow a maximum 18-days at sea. Outside of NMCM use, the RMDS will be employed on certain non-NMCM missions, such as route survey operations, rapid environmental assessment, search and rescue, humanitarian assistance and disaster relief, and hydrographic support to Other Government Departments. The RMDS will also be used in training missions to ensure operator proficiency. Each of these profiles will be described below.

4.2 NMCM Mission Profile

4.2.1 Each NMCM mission consists of 18-days at sea, of which 12 days will be on-station, lasting approximately 19 hours elapsed time per on-station day, based on a crew work period. Each day on-station will comprise:

4.2.1.1 **One Search Task**. A search task will include activities to detect, classify and localize objects; and

4.2.1.2 **Two Inspect/Dispose Tasks**. An inspect task will include activities to reacquire and identify objects, while a dispose task will include activities to reacquire, identify, and dispose of the object.

4.2.2 **Search Task**. The Search task is performed by the AUV, TCC with Launch and Recovery systems and consists of the following task phases:

4.2.2.1 **Load Mission / Preparation**. This phase includes all the activities associated with preparing the AUV and TCCS for the task, including any mission planning, software preparation, self-tests, communication protocols, start-up routines, hardware configuration/set-up, or power supply provision;

4.2.2.2 **Launch**. This includes all the activities required for deploying the AUVs into the water;

4.2.2.3 **Loiter Outbound**. This includes any time the AUV is required to be in a holding-pattern after launch prior to traveling to the target area;

4.2.2.4 **Transit Outbound**. This includes the travel time for the AUV to reach the target area;

4.2.2.5 **Survey / Identify**. This phase includes all the time required by the AUV to survey the target area or identify a target;

4.2.2.6 **Transit Inbound**. This includes the travel time for the AUV to return to the recovery point;

4.2.2.7 **Loiter Inbound**. As with the Loiter Outbound, this includes any time the AUV is required to be in a holding-pattern upon return to the recovery location prior to recovery;

4.2.2.8 **Recovery**. Includes all the activities required for recovering the AUVs from the water;

4.2.2.9 **Data Analysis**. This phase includes all the activities associated with extracting, conditioning, storing and analyzing the data collected by the AUV during the task; and

4.2.2.10 **Recharge**. Includes all internal and external power supply recharging after task usage.

4.2.3 **Inspect/Dispose Task**. The Inspect/Dispose task is performed by the MDS and TCC with Launch and Recovery subsystem and consists of the following task phases:

4.2.3.1 **Load Mission / Preparation**. This phase includes all the activities associated with preparing the MDS and TCCS for the task, including any mission planning, software preparation, self-tests, start-up routines, hardware configuration/set-up, or power supply provision;

4.2.3.2 **Launch**. This includes all the activities required for deploying the MDV into the water;

4.2.3.3 **Transit Outbound**. This includes the travel time for the MDV to reach the suspected or confirmed mine object;

4.2.3.4 **Survey / Identify**. This phase includes all the time required by the MDV to survey the target area or identify the suspected mine object;

4.2.3.5 **Dispose**. The Dispose phase consists of the neutralization of the mine object by the MDV-C through explosive detonation. This includes the manoeuvre time for the MDV-C to position correctly and dispose the confirmed mine object;

4.2.3.6 **Transit Inbound**. This includes the travel time for the MDV-T/I to return to the recovery point;

4.2.3.7 **Loiter Inbound**. This includes any time the MDV-T/I is required to be in a holding-pattern after launch prior to traveling to the target area;

4.2.3.8 **Recovery**. Includes all the activities required for recovering the MDV-T/I from the water;

4.2.3.9 **Data Analysis**. This phase includes all the activities associated with confirming the nature of the suspected mine object and confirming the mine object has been disposed as planned; and

4.2.3.10 **Recharge**. Includes all internal and external power supply recharging after task usage.

4.2.4 The expected durations by task phase and RMDS subsystem for the Search task are detailed in Table 1, and those for the Inspect/Dispose tasks are shown in Table 2. For the AUVs and MDVs, the described usages are for each underwater vehicle in the payload. In reading Tables 1 and 2, a cell containing an ”X” indicates that the sub-system is used in that phase, but its usage is not time based. The total operating hours for each sub-system by task are shown in the last column of the tables.

4.2.5 There will be nine NMCM missions per year per payload.

4.3 Non-NMCM Mission Profile

4.3.1 Each non-NMCM mission consists of five days on-station, lasting approximately 19 hours elapsed time per day, based on a crew work period. Each day on-station will be the same as the NMCM mission profile comprising one Search task and two Inspect/Dispose tasks.

4.3.2 The task phases are the same as for the NMCM Mission and described in Tables 1 and 2.

4.3.3 There will be three non-NMCM missions per year per payload.

4.4 Training Mission.

4.4.1 Each training mission will be the same as the non-NMCM mission consisting of five days on-station, lasting approximately 19 hours elapsed time per day, based on a crew work period. Each day on-station will be the same as the NMCM mission profile comprising one Search task and two Inspect/Dispose tasks.

4.4.2 The Training mission phases are the same as for the NMCM Mission and described in Tables 1 and 2.

4.4.3 There will be five such training periods per year per payload, and at least one of these will involve detonation of the MDV-C.

Task Phase / RMDS Sub-System	Load Mission / Prep	Launch	Loiter Outbound (op hrs)	Transit Outbound (op hrs)	Survey / Identify (op hrs)	Transit Inbound (op hrs)	Loiter Inbound (op hrs)	Recovery	Data Analysis	Recharge	Total Op Hrs
Operator Portable AUV	X	X	0.5	1	4	1	0.5	X	X	75% of op hrs	7
Lightweight AUV	X	X	0.5	1	16	1	0.5	X	X	75% of op hrs	19
Launch/Recovery Subsystem		X						X			
TCC	X		X	X	X	X	X		X		19

Table 1 Search Task

Task Phase / RMDS Sub-System	Load Mission / Prep	Launch	Transit Outbound (op hrs)	Survey / Identify (op hrs)	Dispose (op hrs)	Transit Inbound (op hrs)	Loiter Inbound (op hrs)	Recovery	Data Analysis	Recharge	Total Op Hrs
MDV-T/I (Reacquire / Identify)	X	X	0.18	0.5	N/A	0.18	0.5	X	X		0.86
MDV-T/I Launch/Rec Sub-System		X						X			
MDV-C (Reacquire / Identify / Dispose)	X	X	0.18	0.1	0.1	N/A	N/A	N/A	N/A	N/A	0.38
Launch/Recovery Subsystem		X						N/A			
TCC	X		X			X			X		

Table 2 Inspect/Dispose Task

	RMDS Sub-System	Operator Portable AUV	Lightweight AUV	MDV-T/I	TCC	Launch/Recovery Subsystem
	Usage Measure	Op Hrs	Op Hrs	Op Hrs	Op Hrs	Cycles Note 2
	Usage per Task	7	19	0.86	19	14 Note 3
	# Search Tasks / Day	1	1	0	Note 1	
	# Inspect/Dispose Tasks / Day	0	0	2	Note 1	
NMCM Mission	# Days On-Station / Mission	12	12	12	12	12
	# Missions / Yr	9	9	9	9	9
	Annual Usage	756	2052	185.8	2052	1,512
Non-NMCM Mission	# Days On-Station / Mission	5	5	5	5	5
	# Missions / Yr	3	3	3	3	3
	Annual Usage	105	285	25.8	285	210
Training Mission	# Days On-Station / Mission	5	5	5	5	5
	# Missions / Yr	5	5	5	5	5
	Annual Usage	175	475	43.0	475	350
	Total Annual Usage	1,036	2812	255	2812	2,072

Total Lifetime Usage (15 years)	15,540	40,725	3,825	40,750	31,080

Table 3 Annual and Lifetime Usages

Notes:

1. The TCC operates for the full day on-station regardless of the mission task.
2. Launch/Recovery Sub-System usage is measured in cycles, where a cycle is either a launch or a recovery.
3. The Launch/Recovery Sub-System incurs 14 cycles per day on-station, as follows:
   a. AUVs - 2 cycles/AUV/day x 1 Task/AUV/day x 2 AUVs = 4 cycles;
   b. MDV-T/I - 2 cycles/MDV x 2 Tasks/day x 2 MDVs = 8 cycles; and
   c. MDV-C - 1 cycle/MDV x 2 Tasks/day = 2 cycles.

4.5 **Annual Usage / Life Expectancy**.

4.5.1 The three mission profiles are summarized and consolidated over an annual period in Table 3 by subsystem. Any usage associated with corrective or preventive maintenance will be in addition to the usages shown. Usages specific to the subsystems are as follows:

4.5.1.1 the described AUV and MDV-T/I usages in Table 3 are for each underwater vehicle in the payload;

4.5.1.2 the MDV-C is not included in Table 3 as it is a one-shot system whose total lifetime operating hours are as shown in Table 2;

4.5.1.3 the Operations Room will be operating as per the TCC;

4.5.1.4 the AUV Control System and MDS Controller will follow the AUV or MDV usage respectively; and

4.5.1.5 the Portable Storage Locker will be operating 24 hours, 7 days per week while MDV-Cs are stored in it.

4.5.2 The expected service life of the RMDS will be 15 years, accumulating the subsystem operating hours shown in Table 3.

5 ENVIRONMENTAL PROFILES

5.1 Levels of Exposure

5.1.1 The RMDS will be employed world-wide within the maritime, or near-maritime, environments, and as such, will be exposed to a variety of natural and induced environments.

5.1.2 **Natural Environment**. The natural environments will include extreme temperatures, thermal changes, solar radiation, and humidity, blowing rain, freezing rain, salt laden atmospheres and repeated exposures to the cold-wet environment. The RMDS will be exposed to the following climatic extremes:

5.1.2.1 sea temperatures from Arctic (ice free -2°C) to tropical (40°C);

5.1.2.2 ambient air temperature from -20°C to 45°C; and

5.1.2.3 relative humidity up to 100%.

5.1.3 **Induced Environment**. The non-naturally occurring or induced environments include mechanical vibration and shocks, changes in load orientation, and intentional or unintentional Electromagnetic Radiation (EMR). Changes in load orientation pertain to the loading and unloading of the shipping containers from a Palletized Loading System. A tilt of up to 45 degrees is to be expected. The mechanical vibration and shocks include those that are associated with:

5.1.3.1 transport of the loaded shipping containers by ground transport (truck and rail), cargo aircraft, and commercial sea container ship;

5.1.3.2 handling of both the shipping containers and the individual sub-systems during operation;

5.1.3.3 up to Sea State 4 when operating (Lightweight AUV);

5.1.3.4 up to Sea State 7 while stowed; and

5.1.3.5 for the AUVs, surviving an impact with a stationary solid object while operating at a forward ground speed of 4 knots (kts).

5.2 **Isolated Use**. The RMDS may be operated from shore locations without access to commercial electrical power, requiring it to use its portable electric power generators. Up to 10% of its usage can be expected in this operating mode.

5.3 **Storage**. Based on the Mission Profiles above, the RMDS will be at sea annually for 202 days, or 55% of its life. The remaining time (163 days per year or 45% of its life) will be in storage either on the deck of a ship (at sea or alongside), on a pier, or in an

exterior or interior coastal storage facility. As such, it will be exposed to the full range of climatic conditions expressed in the Levels of Exposure section.

6 ASSUMPTIONS FOR USAGE DETERMINATION

6.1 AUV/MDV Transit Time

6.1.1 The Transit Outbound and Inbound times were calculated based on the minimum ground speed of the underwater vehicle and distance required to travel. The minimum ground speed is an estimate based on the SRD relative to current speed requirement of 5 kts for the AUVs and 4 kts for the MDVs and an average head-on current of 1 kt. The travel distance is based on the SRD minimum transit distances for the AUVs and the MDV minimum range requirements. These are summarized below by underwater vehicle type:

Underwater Vehicle	Minimum Speed	Travel Distance
Man Portable AUV	4 kts	5 Nm
Lightweight AUV	4 kts	5 Nm
MDV-T/I	3 kts	1 km
MDV-C	3 kts	1 km

ANNEX A
Appendix AB

Contract Data Requirement List (CDRL)

Remote Minehunting and Disposal System

Table of Contents

1. INTRODUCTION

1.1 Purpose

1.1.1 This Remote Minehunting and Disposal System (RMDS) Contract Data Requirement List (CDRL) itemizes all documentation deliverables that must be provided by the Contractor in accordance with the Annex A Statement of Work (SOW), and the associated frequencies, delivery dates, media and quantities.

1.2 Acronyms

1.2.1 Acronyms used throughout this CDRL are defined as follows:

Acronyms	
AE	Ammunition & Explosives
ASSB	Ammunition Safety and Suitability Board
CDR	Critical Design Review
CDRL	Contract Data Requirement List
CFTO	Canadian Forces Technical Order
CKOM	Contract Kick-Off Meeting
CM	Configuration Management
DID	Data Item Description
FA	First Article
FAT	Factory Acceptance Test
ICT	Initial Cadre Training
ILS	Integrated Logistic Support
LLTIP	Long Lead Time Initial Provisioning
NA	Not Applicable
PDR	Preliminary Design Review
PM	Project Management
QR	Quality Review
RMDS	Remote Minehunting and Disposal System
SAT	Sea Acceptance Test
SDE	Shared Data Environment

Acronyms	
SE	System Engineering
SOW	Statement of Work
SRR	System Requirement Review
TD	Technical Document
TRR	Test Readiness Review

2. CONTRACT DATA REQUIREMENT LIST

2.1 CDRL Index

2.1.1 The data requirements referenced by the SOW are shown in Table 1 of this document.

TABLE 1: CONTRACT DATA REQUIREMENT LIST							
DID NUMBER	TITLE	SOW REFERENCE	FREQUENCY	SUBMISSION DATE	CANADA REVIEW PERIOD	DATE OF SUBSEQUENT SUBMISSION	MEDIA & QUANTITY
RMDS-PM-001	Project Management Plan	4.2 4.3.1 4.4.1 4.5.1 4.7.1.6.a	As required and 20 days prior to SRR, PDR, CDR and TRRs	Initially submitted with bid. Re-submitted 15 business days prior to SRR.	10 business days following each submission.	10 business days following Authorization of SRR minutes and in accordance with subsequently Authorized modifications.	SDE
RMDS-PM-002	Integrated Master Schedule	4.2.2 4.3.1 4.3.9 4.7.1.4	As required and 20 days prior to SRR, PDR, CDR and TRRs	Initially submitted with bid. Re-submitted 15 business days prior to SRR.	10 business days following each submission.	10 business days following Authorization of SRR minutes and in accordance with subsequently Authorized modifications.	SDE
RMDS-PM-003	Project Progress Reports	4.5.2 4.6.2.1 4.7.1.6.b 4.7.1.6.c 5.6.4.1	Monthly to First Article Qualification Review, Quarterly thereafter.	10 days prior to each Project Review Meeting.	10 business days following each submission.	Scheduled mid-points between each Project Review Meeting.	SDE
RMDS-PM-004	Meeting Agenda	4.7.2	In accordance with meetings scheduled	Meeting Agenda to Canada for Authorization at least 10 business days prior to all meetings specified in Statement of Work (SOW).	Five (5) business days following each submission.	Authorized Meeting Agenda to all attendees at least five (5) business days prior to the scheduled meeting date	SDE
RMDS-PM-005	Meeting Minutes	4.7.3	In accordance with meetings scheduled	Meeting Minutes to Canada for Authorization within five (5) business days following each meeting.	Five (5) business days following each submission.	Authorized Minutes to all attendees within 10 business days following each meeting	SDE

TABLE 1: CONTRACT DATA REQUIREMENT LIST							
DID NUMBER	TITLE	SOW REFERENCE	FREQUENCY	SUBMISSION DATE	CANADA REVIEW PERIOD	DATE OF SUBSEQUENT SUBMISSION	MEDIA & QUANTITY
RMDS-PM-006	Request for Government Furnished Resources	5.3.2.2.i 5.3.3.2.h 5.8.1	One Time with revisions	As required.	10 business days following each submission. This does not include time for provision of the GFR.	As required	SDE
RMDS-SE-001	System Engineering Management Plan	5.1.2 5.1.3	As required and 20 days prior to SRR, PDR, CDR and TRRs	Initially submitted with bid. Re-submitted 15 business days prior to SRR.	10 business days following each submission.	10 business days following Authorization of SRR minutes and in accordance with subsequently Authorized modifications.	SDE
RMDS-SE-002	System Specification	5.2.2 5.2.3 5.2.4 5.2.5 5.3.2.2a	One Time with revisions	15 business days prior to System Requirement Review (SRR) And 20 business days prior to Preliminary Design Review (PDR).	10 business days following subsequent submissions with Authorized modifications 15 business days prior to PDR	10 business days following Authorization of SRR and PDR minutes and in accordance with subsequently Authorized modifications.	SDE
RMDS-SE-003	Requirements Verification and Assurance Matrix	5.2.6 5.3.2.2.b 5.3.3.2.a	One Time with revisions	20 business days prior to PDR and Critical Design Review (CDR).	15 business days following subsequent submissions with Authorized modifications.	10 business days following Authorization of PDR and CDR minutes and in accordance with subsequently Authorized modifications.	SDE
RMDS-SE-004	System Design Document	5.3.2.2.c 5.3.3.2.b	One Time with revisions	20 business days prior to PDR and CDR.	15 business days following subsequent submissions with Authorized modifications.	10 business days following Authorization of PDR and CDR minutes and in accordance with subsequently Authorized modifications.	SDE

TABLE 1: CONTRACT DATA REQUIREMENT LIST							
DID NUMBER	TITLE	SOW REFERENCE	FREQUENCY	SUBMISSION DATE	CANADA REVIEW PERIOD	DATE OF SUBSEQUENT SUBMISSION	MEDIA & QUANTITY
RMDS-SE-005	Interface Design Document	5.3.2.2.d 5.3.3.2.c	One Time with revisions	20 business days prior to PDR and CDR.	15 business days following subsequent submissions with Authorized modifications.	10 business days following Authorization of PDR and CDR minutes and in accordance with subsequently Authorized modifications.	SDE
RMDS-SE-006	Safety Control Plan	5.3.3.2.e 5.4.1	One Time with revisions	20 business days prior to PDR.	15 business days following subsequent submissions with Authorized modifications.	10 business days following Authorization of PDR minutes, in accordance with subsequent Authorized modifications and as safety issues are discovered up until 10 days after the Sea Acceptance Test (SAT) of the last payload	SDE
RMDS-SE-007	Controlled Material Reports	5.3.2.2.f 5.3.3.2.d 5.4.2 5.4.3	One Time with revisions	20 business days prior to PDR and CDR.	15 business days following subsequent submissions with Authorized modifications.	10 business days following Authorization of PDR and CDR minutes and in accordance with subsequently Authorized modifications.	SDE
RMDS-SE-008	Safety Compliance Assessment	5.3.3.2.e 5.4.4 5.4.6.a	One Time with revisions	20 business days prior to CDR.	15 business days following subsequent submissions with Authorized modifications.	10 business days following Authorization of CDR minutes of RMDS.	SDE

TABLE 1: CONTRACT DATA REQUIREMENT LIST							
DID NUMBER	TITLE	SOW REFERENCE	FREQUENCY	SUBMISSION DATE	CANADA REVIEW PERIOD	DATE OF SUBSEQUENT SUBMISSION	MEDIA & QUANTITY
RMDS-SE-009	Test and Evaluation Master Plan	5.3.2.2.g 5.3.3.2.f 5.5.1 5.5.2 5.5.3.1 5.5.6.2.a	One Time with revisions	submitted 15 business days prior to SRR and 20 business days prior to PDR and CDR.	15 business days following subsequent submissions with Authorized modifications.	10 business days following Authorization of CKOM, PDR and CDR minutes and in accordance with subsequently Authorized modifications.	SDE
RMDS-SE-010	Acceptance Test Index	5.3.2.2.h 5.3.3.2.g 5.5.3.1 5.5.4.1 5.5.6.2.a	One Time with revisions	20 business days prior to PDR and CDR.	15 business days following subsequent submissions with Authorized modifications.	10 business days following Authorization of PDR and CDR minutes and in accordance with subsequently Authorized modifications.	SDE
RMDS-SE-011	Acceptance Test Procedures	5.5.4 5.5.5.2.d 5.5.6.2.a	One Time with revisions	20 business days prior to applicable RMDS Test Readiness Review (TRR) and 20 business days prior to all other tests and reviews.	15 business days for each First Article RMDS Factory Acceptance Test (FAT) and SAT, and 15 business days for all other tests and reviews.	10 business days following Authorization of TRR minutes, and in accordance with subsequently Authorized modifications.	SDE
RMDS-SE-012	Acceptance Test Reports	5.5.7	One Time with revisions	15 business days following the corresponding Acceptance test completion.	10 business days following submission.	10 business days following any required re-testing.	SDE

TABLE 1: CONTRACT DATA REQUIREMENT LIST							
DID NUMBER	TITLE	SOW REFERENCE	FREQUENCY	SUBMISSION DATE	CANADA REVIEW PERIOD	DATE OF SUBSEQUENT SUBMISSION	MEDIA & QUANTITY
RMDS-TD-001	Technical Data Package	5.3.3.2.i 5.6.2.2 5.6.2.5 5.7.1 6.2.2.6	One Time with revisions	20 business days prior to CDR and 20 business days after Acceptance of the First Article (FA) Qualification Review (QR) minutes.	15 business days following each submission.	10 business days following Authorization of CDR minutes and in accordance with subsequently Authorized modifications.	SDE and five (5) hard copies of final submission
RMDS-TD-002	System User Manual	6.2.2.6 6.2.3.2.c 6.6.1.a	One Time with revisions	20 business days prior to Integrated Logistics Support (ILS) Conference, and 20 business days after Acceptance of the FA QR minutes.	15 business days following each submission.	10 business days following Authorization of ILS Conference minutes and in accordance with subsequently Authorized modifications.	SDE and five (5) hard copies of final submission
RMDS-TD-003	Illustrated Parts List	6.2.3.2.d 6.6.1.b	One Time with revisions	20 business days prior to ILS Conference and 20 business days after Acceptance of the FA QR minutes.	15 business days following each submission.	10 business days following Authorization of ILS Conference minutes and in accordance with subsequently Authorized modifications.	SDE and five (5) hard copies of final submission
RMDS-TD-004	Maintenance Manual	6.2.3.2.e 6.6.1.c	One Time with revisions	20 business days prior to ILS Conference and 20 business days after Acceptance of the FA QR minutes.	15 business days following each submission.	10 business days following Authorization of ILS Conference minutes and in accordance with subsequently Authorized modifications.	SDE and five (5) hard copies of final submission

TABLE 1: CONTRACT DATA REQUIREMENT LIST							
DID NUMBER	TITLE	SOW REFERENCE	FREQUENCY	SUBMISSION DATE	CANADA REVIEW PERIOD	DATE OF SUBSEQUENT SUBMISSION	MEDIA & QUANTITY
RMDS-CM-001	Configuration Management Plan	5.6.1.1 5.6.1.2	As required and 20 days prior to SRR, PDR, CDR and TRRs	Initially submitted with bid. Re-submitted 15 business days prior to SRR.	10 business days following each submission.	10 business days following Authorization of SRR minutes and in accordance with subsequently Authorized modifications.	SDE
RMDS-CM-002	Equipment Labelling Package	5.3.2.2.j 5.4.5 5.4.6.b 5.6.2.3 5.6.2.4 5.6.2.6	One Time with revisions	20 business days prior to CDR.	15 business days following each submission.	10 business days following Authorization of CDR minutes and in accordance with subsequently Authorized modifications.	SDE
RMDS-CM-003	Design Change Package	5.6.4.2 5.6.4.3 5.6.4.4 5.6.4.6	One Time with revisions	As required.	15 business days following each submission.	As required	SDE
RMDS-ILS-001	Integrated Logistics Support Plan	6.2.1.1 6.2.2.1 6.3.2.1	As required and 20 days prior to SRR, PDR, CDR and TRRs	Initially submitted with bid. Re-submitted 10 business days prior to SRR and 20 business days prior to ILS Conference.	15 business days prior to ILS Conference.	10 business days following Authorization of SRR and ILS Conference minutes and in accordance with subsequently Authorized modifications.	SDE
RMDS-ILS-002	Logistic Support Analysis	6.2.2.2 6.2.3.2.a	One Time with revisions	Initially submitted with bid. Re-submitted 20 business days prior to ILS Conference.	15 business days following each submission.	10 business days following Authorization of ILS Conference minutes and in accordance with subsequently Authorized modifications.	SDE

TABLE 1: CONTRACT DATA REQUIREMENT LIST							
DID NUMBER	TITLE	SOW REFERENCE	FREQUENCY	SUBMISSION DATE	CANADA REVIEW PERIOD	DATE OF SUBSEQUENT SUBMISSION	MEDIA & QUANTITY
RMDS-ILS-003	Training Development Program Report	6.2.3.2.b 6.4.1 6.4.7 6.5.1 6.5.2	One Time with revisions	20 business days prior to ILS Conference.	15 business days following each submission.	10 business days following Authorization of ILS Conference minutes and in accordance with subsequently Authorized modifications.	SDE
RMDS-ILS-004	Maintenance and Support Program Plan	6.2.2.5 6.2.3.2.f	As required and 20 days prior to SRR, PDR, CDR and TRRs	Initially submitted with bid. 20 business days prior to ILS Conference	15 business days following each submission	10 business days following Authorization of ILS Conference minutes and in accordance with subsequently Authorized modifications.	SDE
RMDS-ILS-005	Provisioning Documentation	6.2.2.3 6.2.2.4 6.3.2.3 6.3.3.2 6.3.4.1	One Time with revisions	20 business days prior to Long Lead Time Initial Provisioning Conference (LLTIP), if held. Otherwise, 20 business days prior to Initial Provisioning Conference. 20 business days prior to First Article Qualification Review.	15 business days following each submission.	10 business days following Authorization of LLTIP (if held) and Initial Provisioning Conference minutes. In accordance with subsequently Authorized modifications.	SDE
RMDS-ILS-006	Initial Cadre Training (ICT) Package	6.5	One Time with revisions	40 business days prior to each applicable scheduled ICT session.	20 business days following each submission.	10 business days following the Canada review period	SDE and 20 hard copies of final submission

TABLE 1: CONTRACT DATA REQUIREMENT LIST							
DID NUMBER	TITLE	SOW REFERENCE	FREQUENCY	SUBMISSION DATE	CANADA REVIEW PERIOD	DATE OF SUBSEQUENT SUBMISSION	MEDIA & QUANTITY
RMDS-AE-001	Ammunition & Explosives (A&E) Design Review	5.3.1	N/A	60 days following CKOM, at PDR, at CDR, 60 days following First Article Qualification review.	N/A	N/A	Two (2) Hard copies of documentation to be provided at initial A&E Design review
RMDS-AE-002	A&E Design and Qualification Plan	5.3.2.2.j 5.3.3.2.k 7.1.1	As required and 20 days prior to SRR, PDR, CDR and TRRs	Initially submitted with bid. Re-submitted 15 business days prior to SRR.	10 business days following each submission.	10 business days following Authorization of SRR minutes and in accordance with subsequently Authorized modifications.	SDE
RMDS-AE-003	Ammunition Safety and Suitability Board (ASSB) Technical Letter	7.2.1	One Time with revisions	100 business days prior to SAT.	30 business days following each submission.	10 business days following Authorization of CDR review minutes. In accordance with subsequently Authorized modifications.	SDE

TABLE 1: CONTRACT DATA REQUIREMENT LIST							
DID NUMBER	TITLE	SOW REFERENCE	FREQUENCY	SUBMISSION DATE	CANADA REVIEW PERIOD	DATE OF SUBSEQUENT SUBMISSION	MEDIA & QUANTITY
RMDS-AE-004	A&E Gap Analysis	5.3.2.2.k 5.3.3.2.l 7.3.1	One Time with revisions	Initially submitted with bid. 20 business days prior to PDR and 90 days prior to CDR.	15 business days following PDR submission and 80 days following CDR submission.	10 business days following Authorization of A&E Design review minutes. In accordance with subsequently Authorized modifications.	SDE and two (2) hard copies with supporting documents and certifications.
RMDS-AE-005	A&E Test Plan	5.3.2.2.l 5.3.3.2.m 7.4.1	One Time with revisions	Draft 20 business days prior to PDR and Final 90 days prior to CDR.	15 business days following PDR submission and 80 days following CDR submission.	10 business days following Authorization of A&E Design review minutes. In accordance with subsequently Authorized modifications.	SDE
RMDS-AE-006	Environmental Occupational Health and Safety Assessment Report	5.3.2.2.m 5.3.3.2.n 7.5.1	One Time with revisions	Draft 20 business days prior to PDR and CDR.	15 business days following PDR submission and 80 days following CDR submission.	10 business days following Authorization of A&E Design review minutes. In accordance with subsequently Authorized modifications.	SDE

TABLE 1: CONTRACT DATA REQUIREMENT LIST							
DID NUMBER	TITLE	SOW REFERENCE	FREQUENCY	SUBMISSION DATE	CANADA REVIEW PERIOD	DATE OF SUBSEQUENT SUBMISSION	MEDIA & QUANTITY
RMDS-AE-007	ASSB Phase 2 Decision – S^3 Assessment	5.3.3.2.o 7.2.2	One Time with revisions	20 business days prior to CDR.	60 business days following each submission.	10 business days following Authorization of CDR review minutes. In accordance with subsequently Authorized modifications.	SDE and four (4) hard copies.
RMDS-AE-008	Supplementary Provisioning Technical Documentation	6.2.3.2.g 7.6.1	One Time with revisions	20 business days prior to Long Lead Time Initial Provisioning Conference (LLTIP), if held. Otherwise, 20 business days prior to Initial Provisioning Conference. 20 business days prior to First Article Qualification Review.	15 business days following each submission.	10 business days following Authorization of LLTIP (if held) and Initial Provisioning Conference minutes. In accordance with subsequently Authorized modifications.	SDE
RMDS-AE-009	Manufacturer's Ammunition Data Card	7.6.2	One Time with revisions	20 business days prior to applicable RMDS Test Readiness Review (TRR) and 20 business days prior to all other tests and reviews.	15 business days following each submission.	10 business days following Authorization of TRR minutes, and in accordance with subsequently Authorized modifications.	SDE

TABLE 1: CONTRACT DATA REQUIREMENT LIST							
DID NUMBER	TITLE	SOW REFERENCE	FREQUENCY	SUBMISSION DATE	CANADA REVIEW PERIOD	DATE OF SUBSEQUENT SUBMISSION	MEDIA & QUANTITY
RMDS-AE-010	First Article Testing / Lot Acceptance Testing Criteria	5.3.3.2.p 7.7.1	One Time with revisions	20 business days prior to CDR.	60 business days following each submission.	10 business days following Authorization of TRR minutes, and in accordance with subsequently Authorized modifications.	SDE
RMDS-AE-011	First Article Testing / Lot Acceptance Testing Report	7.7.2	One Time with revisions	10 business days following the corresponding Acceptance test completion.	15 business days following each submission.	In accordance with all required re-testing	SDE and four (4) hard copies with supporting documents and certifications
RMDS-AE-012	Logistical Data Sheet	7.6.3	One Time with revisions	20 business days prior to ILS Conference.	15 business days following each submission.	10 business days following Authorization of ILS Conference minutes and in accordance with subsequently Authorized modifications.	SDE

TABLE 1: CONTRACT DATA REQUIREMENT LIST							
DID NUMBER	TITLE	SOW REFERENCE	FREQUENCY	SUBMISSION DATE	CANADA REVIEW PERIOD	DATE OF SUBSEQUENT SUBMISSION	MEDIA & QUANTITY
RMDS-AE-013	A&E In Service Surveillance Plan	5.3.3.2.q 7.8.1	One Time with revisions	20 business days prior to CDR.	15 business days following each submission.	10 business days following Authorization of A&E Design review minutes. In accordance with subsequently Authorized modifications.	SDE
RMDS-AE-014	Safety Templates Documentation	5.3.3.2.r 7.6.4	One Time with revisions	20 business days prior to CDR.	60 business days following each submission.	10 business days following Authorization of ILS Conference minutes and in accordance with subsequently Authorized modifications.	SDE and four (4) hard copies with supporting documents and certifications.
RMDS-AE-015	A&E Safety Data Sheets	5.3.2.2.n 5.3.3.2.s 7.6.5	One Time with revisions	Draft 20 business days prior to PDR and Final 90 days prior to CDR.	15 business days following PDR submission and 80 days following CDR submission.	10 business days following Authorization of ILS Conference minutes and in accordance with subsequently Authorized modifications.	SDE and four (4) hard copies with supporting documents and certifications.

TABLE 1: CONTRACT DATA REQUIREMENT LIST							
DID NUMBER	TITLE	SOW REFERENCE	FREQUENCY	SUBMISSION DATE	CANADA REVIEW PERIOD	DATE OF SUBSEQUENT SUBMISSION	MEDIA & QUANTITY
RMDS-AE-016	Canadian Forces Technical Order (CFTO) – Ammunition and Explosives	7.6.6	One Time with revisions	40 business days after CDR.	30 business days following each submission.	10 business days following Authorization of CDR minutes and in accordance with subsequently Authorized modifications.	SDE and four (4) hard copies with supporting documents and certifications.
RMDS-AE-017	Type Classification Summary Report	7.2.3	One Time with revisions	60 business days prior to FOC.	40 business days following each submission.	10 business days following Authorization of A&E Design review minutes. In accordance with subsequently Authorized modifications.	SDE and four (4) hard copies with supporting documents and certifications.

ANNEX A

Appendix AC

Data Item Description (DID)

Remote Minehunting and Disposal System

Table of Contents

1. INTRODUCTION

1.1 Purpose

1.1.1 This Data Item Description (DID) document, specifies the requirements for all documentation deliverables that must be provided by the Contractor in accordance with the Statement of Work (SOW) and as itemized in the Contract Data Requirement List (CDRL).

1.2 Acronyms

1.2.1 Acronyms used throughout this DID are defined as follows:

1.2.1 Acronyms	
ASSB	Ammunition Safety and Suitability Board
ATI	Acceptance Test Index
ATP	Acceptance Test Procedures
ATR	Acceptance Test Report
A&E	Ammunition & Explosives
CAGE	Commercial Activity and Government Entity
CAS	Combustion Analysis System
CASE	Computer Assisted Software Engineering
CDR	Critical Design Review
CDRL	Contract Data Requirement List
CEIL	Contract End Item List
CEPA	Canadian Environmental Protection Act
CFITES	Canadian Forces Individual Training and Education System
CI	Configuration Item
CM	Configuration Management
CRC	Chemical Rubber Company
CSCI	Computer Software Configuration Item
DAEME	Directorate of Ammunition and Explosives Management and Engineering
DAT	Danger Area Template
DFHP	Directorate Force Health Protection
DID	Data Item Description
DND	Department of National Defence
ECP	Engineering Change Proposal
EO	Enabling Objective
EOHSA	Environmental Occupational Health and Safety Assessment
FAT	Factory Acceptance Test
FMECA	Failure Mode Effect Criticality Analysis

1.2.1 Acronyms

FTA	Fault Tree Analysis
GFR	Government Furnished Resources
HWCI	Hardware Configuration Item
ICT	Initial Cadre Training
IDD	Interface Design Document
ILS	Integrated Logistic Support
IM	Insensitive Munition
IMDG	International Maritime Dangerous Goods
IMS	Integrated Master Schedule
IPL	Illustrated Parts List
ISO	International Standards Organization
ISS	In-Service Surveillance
LAT	Lot Acceptance Testing
LLTIL	Long Lead Time Item List
LORA	Level of Repair Analysis
LRU	Lowest Replaceable Unit
LSA	Logistic Support Analysis
MACC	Military Aircraft Cargo Category
MDS	Mine Disposal Subsystem
MDV-C	Mine Disposal Vehicle - Combat
MOPI	Manual Of Proof and Inspections
MSDS	Material Safety Data Sheet
MSP	Maintenance and Support Program
MTA	Maintenance Task Analysis
NA	Not Applicable
NATO	North Atlantic Treaty Organization
NDID	National Defence Index of Documentation
NEQ	Net Explosive Quantity
NPRI	National Pollutant Release Inventory
NRCAN	Natural Resources Canada
NSN	NATO Stock Number
OE	Objective Evidence
OEM	Original Equipment Manufacturer
OHSA	Occupational Health and Safety Assessment
OPI	Office of Primary Interest
PdM	Predictive Maintenance
PDR	Preliminary Design Review
PHA	Preliminary Hazard Assessment
PHST	Packaging, Handling, Storage & Transportability

1.2.1 Acronyms

PM	Project Management
PMP	Project Management Plan
PO	Performance Objective
PPB	Provisioning Parts Breakdown
PSL	Portable Storage Locker
PSPC	Public Services and Procurement Canada
QMP	Quality Management Plan
RAMD	Reliability, Availability, Maintainability and Durability
RCMA	Reliability Centered Maintenance Analysis
RCN	Royal Canadian Navy
RMDS	Remote Minehunting and Disposal System
RVAM	Requirements Verification and Assurance Matrix
SAT	Sea Acceptance Test
SCP	Safety Control Plan
SDD	System Design Document
SE	System Engineering
SEL	Sound Exposure Level
SEMP	System Engineering Management Plan
SEQ	Service Environment Questionnaire
SFS	Supplementary Fire Symbols
SOW	Statement of Work
SPTD	Supplementary Provisioning Technical Documentation
SRD	System Requirements Document
SRR	System Requirement Review
SSC	Ships Stowage Category
STTE	Special Tools and Test Equipment
SWDD	Software Design Document
TA	Technical Authority
TD	Technical Documentation
TCSR	Type Classification Summary Report
TDP	Technical Data Package
TEMP	Test and Evaluation Management Plan
UN	United Nations
WHMIS	Workplace Hazardous Material Information System

1.3 Data Item Descriptions

1.3.1 Each documentation deliverable, including documentation, and software is defined in an individual DID, in accordance with the SOW and the CDRL, in the following sections of this document.

2. DID RMDS-PM-001 – PROJECT MANAGEMENT PLAN

2.1 Description

2.1.1 The Project Management Plan (PMP) must be the master planning document that integrates, summarises, and references other project plans and schedules required by the SOW in order to define how the Contractor will manage the work specified in the SOW. When authorized by Canada, the PMP must be the baseline master planning document for implementing the work specified by the SOW.

2.1.2 The PMP must also itemize, define, and prioritize medium and high risks associated with all aspects of the Contractor's work necessary to address the SOW requirements. The PMP must describe the procedures and assigned responsibilities for risk mitigation.

2.1.3 The PMP must also outline the scope and methodology of the Quality Program that will be implemented by the Contractor to ensure that all deliverables meet the requirements of the SOW.

2.2 Office of Primary Interest

2.2.1 Department of National Defence (DND)

2.3 Office of Collateral Interest

2.3.1 Public Services and Procurement Canada (PSPC)

2.4 Interrelationships

2.4.1 SOW: Paragraphs 4.2.1, 4.3.1, 4.4.1, 4.5.1 and 4.7.1.6.a

2.4.2 DID: RMDS-PM-001 through RMDS-PM-006

2.5 References

2.5.1 A Guide to the Project Management Body of Knowledge, Project Management Institute

2.5.2 ISO 9001:2008, Quality Management Systems – Requirements

2.5.3 ISO 10005:2005, Quality Management – Guidelines for Quality Plans

2.6 Preparation Instruction

2.6.1 Format

2.6.1.1 The PMP must be prepared in the Contractor's format.

2.6.1.2 The PMP must be created following the guidelines in references 2.5.1

2.6.2 Content

2.6.2.1 The PMP must be a stand-alone document that provides sufficient information to allow the reader to understand how the project will be managed without referring to other documents. It is not acceptable to simply reference a document, procedure or standard without providing an overview of the material referenced. The PMP must include the following as a minimum:

a. Project Objectives – This section describes the objectives related to success of the project.
b. System Overview – This section describes at a high level the Remote Minehunting and Disposal System (RMDS).
c. Project Scope – This section identifies the scope of work undertaken for this project by the Contractor and Subcontractors.
d. Project Organization – This section describes the organizational structure responsible for managing and performing the scope of work under the contract. Content includes the Contractor's project management organization, interfaces with other company support organizations, and:
    1) The composition and purpose of each team and sub-team to be employed (e.g., Systems Engineering Team, Integrated Logistic Support Team, etc.);
    2) Position specifications, the responsibilities and authorities for each key staff position within the project team organization, and the skill sets needed to fill that position;
    3) What elements and/or resources are already in place and what is additionally required for this contract; and
    4) The Contractor's contractual relationship with Subcontractors, and the Subcontractors corresponding project organizational structure;
e. Project Planning, Execution, and Control – This section contains a structured list of the plans to be used by the Contractor to:
    1) Ensure the traceability of the SOW requirements to the RMDS and associated Deliverables, and verification of compliance with the SOW;
    2) Specify and manage project scope, cost, schedule, quality, and risk based upon the SOW;
    3) Plan, execute, and control the work required by the SOW, and administer change;
    4) Provide an auditable scope, cost, and schedule performance measurement, tracking, and reporting process for the work specified in the SOW;
    5) Specify and manage the communications required with project stakeholders (e.g. resolve differing or changing stakeholder requirements) in order to progress the work specified in the SOW;
    6) Manage the preparation, submission, change, and Authorization or Acceptance of all documentation deliverables;
    7) Manage sub-contractors and suppliers to ensure that all acquired material and services are compliant with the SOW;

8) Provide Canada and the Contractor with the means to identify problems for acknowledgement and resolution;
9) Support project planning, execution, and control, and describe the planned purpose and usage of each tool; and
10) Identify all stakeholders and their priority ranking.

f. Risk Management – This section describes the:
1) Risk management planning concept(s);
2) Risk identification methodology including the Risk Register;
3) Qualitative and quantitative risk analysis and prioritization methodology;
4) Risk mitigation planning methodology; and
5) On-going risk monitoring, control, and management including maintenance of Risk Management documentation and reporting methodology to both corporate management and Canada.

g. Quality Management – This section identifies:
1) How the Quality Program will be managed, executed, and integrated with other Contractor management processes to ensure RMDS compliance with the SOW;
2) How the Quality Program is in full compliance with ISO9001:2008, and must include a traceability matrix from the Quality Management Plan (QMP) to the applicable elements of ISO 9001:2008;
3) How all Deliverable material, services, and data, whether purchased, or manufactured, or created within the Contractor facilities are addressed by the Quality Program; and
4) The processes that may be employed for Canada to raise all issues regarding the RMDS compliance for formal acknowledgement by the Contractor and the means by which the Contractor will systematically resolve these issues.

h. Deliverable Management Documentation – This section describes, or refers to other DIDs that describe, each document and its contents to be prepared and delivered by the Contractor in accordance with the SOW to define the risk and quality management processes;

i. Management Resources – This section describes:
1) The Contractor's risk and quality management authorities, organization, and skills;
2) Information, materials, equipment, facilities, services, Government Furnished Resources; and
3) The coordination of these resources required to conduct the risk and quality management of the RMDS and associated Deliverables;
4) Subsequent sections will be used to describe how all risk and quality management activities will be coordinated with the following:
a. Project Management (specifically organizational interfaces and communications, schedule, and their overall management as related to risk and quality management);
b. Requirements Management;
c. System Engineering;
d. Acceptance Program;

e. Configuration Management;
f. Integrated Logistic Support (ILS) Management; and
g. Obsolescence Management.

3. DID RMDS-PM-002 – INTEGRATED MASTER SCHEDULE

3.1 Description

3.1.1 The Integrated Master Schedule (IMS) must reflect the time-based sequence of the events and milestones for the Contractor to complete the work identified in the SOW. Upon acceptance by Canada, the IMS must be used as a baseline from which to conduct and measure day-to-day execution, progress tracking, budgeting, and assess changes.

3.2 Office of Primary Interest

3.2.1 DND

3.3 Office of Collateral Interest

3.3.1 PSPC

3.4 Interrelationships

3.4.1 SOW: Paragraphs 4.2.2, 4.3.1, 4.3.9 and 4.7.1.4

3.4.2 DID: RMDS-PM-001

3.5 References

3.5.1 A Guide to the Project Management Body of Knowledge, Project Management Institute

3.6 Preparation Instruction

3.6.1 Format

3.6.1.1 The IMS must be created using a commercially available, network capable scheduling software application (e.g. Microsoft Project, Oracle Primavera).

3.6.1.2 The IMS must be created by following the guidelines in references 3.5.1.

3.6.2 Content

3.6.2.1 The IMS must be the primary schedule for the Contract, and all other schedules must be subordinate to the IMS. The IMS must include the following as a minimum:

a. <u>IMS Display</u> - The IMS must be capable of being displayed in a variety of formats, including:
   1) a Gantt chart;
   2) a network diagram;
   3) a listing of all tasks, together with their planned, and actual start and completion dates;

4) a listing of milestones together with their original, rescheduled, forecast, and actual completion dates; and
5) a breakdown of the project into functional groupings such as project management, design, production, integration, tests and trials, Integrated Logistics Support (ILS), etc., as well as into Control Level WBS elements.

b. IMS Level - The IMS must be capable of being displayed at a number of levels, as follows:
1) Summary Level - A graphical display of Contract activities, key events, milestones, and corresponding progress of the WBS;
2) Intermediate Level - A graphical display of Contract activities, key events, milestones, and corresponding progress at the Control Account level of the WBS. An IMS generated at the Control Account Level must be able to be rolled up to, and must provide visibility of, the Summary Level; and
3) Detailed Level. - A graphical display of Contract activities, key events, and milestones at the work-package level of the WBS. An IMS generated at the Detailed Level must be able to be rolled up to, and must provide visibility of both the Intermediate Level and the Summary Level.

c. IMS Data Content - The IMS must be traceable to, and be integrated with the WBS, and the result must be a fully networked schedule capable of critical path analysis. The IMS must identify:
1) Activities and their estimated durations;
2) Milestones, including Contract Milestones;
3) The relationships and dependencies between activities and milestones;
4) Earliest and latest start and finish dates for all activities and milestones;
5) Critical and non-critical paths;
6) Floats available on all activities and milestones;
7) Notes on the use of the IMS, a glossary of terms and symbols used, and explanations of the cause of each rescheduled activity;
8) Lead and lag times;
9) Subcontractor schedules;
10) Other major events, as mutually agreed between the Contractor and the Canada Representative;
11) External interfaces and critical items from suppliers and teammates; and
12) Canada tasks, where such tasks interface with, and may affect, Contractor tasks.

d. Master Milestone Register - The IMS must include a Master Milestone Register, which records the significant milestones that the Contractor has planned to establish managerial control, contractual control, qualification for payment under the Contract, and any other important events and activities associated with progression of the Contract. The Master Milestone Register must, for each milestone, include a set of measurable conditions that will be used to assess the achievement of the milestone. The Master Milestone Register may be provided as a stand-alone document or may be integrated into the IMS if the IMS tool provides this functionality (e.g. through use of the Notes function).

e. IMS Submissions - Each submission of the IMS must provide:

1) Visibility of actual progress against the current approved schedule baseline;
2) Actual start and finish dates for all activities and milestones;
3) Forecast start and finish dates for all activities and milestones not yet started or finished; and
4) The original contracted baseline schedule, and all Authorized rescheduled baselines.

f. Additional Information. The IMS must include any general information that aids in understanding it. The IMS must also define any terms and acronyms required to understand the schedule.

4. DID RMDS-PM-003 – PROJECT PROGRESS REPORT

4.1 Description

4.1.1 The Project Progress Report must summarize the Contractor's progress and any problems in relation to the approved scope, schedule, cost, plans, approved change implementation, deliverables, and associated Acceptance processes.

4.2 Office of Primary Interest

4.2.1 DND

4.3 Office of Collateral Interest

4.3.1 PSPC

4.4 Interrelationships

4.4.1 SOW: Paragraphs 4.5.2, 4.6.2.1, 4.7.1.6.b, 4.7.1.6.c and 5.6.4.1

4.4.2 DID: RMDS-PM-001

4.5 References

4.5.1 Not Applicable (NA)

4.6 Preparation Instruction

4.6.1 Format

4.6.1.1 The Project Progress Report must be prepared in the Contractor’s format.

4.6.2 Content

4.6.2.1 The Project Progress Report must include the following as a minimum:

a. An executive summary which covers significant elements of the report;
b. Narrative, detailing scope progress against milestones and related information, including:
    1) Status of RMDS developmental areas;
    2) Status of each RMDS Deliverable specified in the Contract End Item List (CEIL), with respect to its production, delivery, Acceptance testing;
    3) All RMDS Deliverable quality issues, medium and high risk issues, and any associated mitigation or work-around plans;
    4) Status of each documentation Deliverable specified in the CDRL, and their Authorization or Acceptance;
    5) Status of all Deliverable services specified in the SOW;

6) Update of progress for major subcontracts;
7) Implementation status of all Authorized changes; and
8) New Problem Reports, and requests for waivers, and requirements for proposed changes;

c. Technical progress including the identification of any technical problems:
1) A detailed description of the observed problem;
2) Identification of the affected HWCI(s) and/or Computer Software Configuration Item(s) (CSCI)(s);
3) Identification of affected SOW requirements;
4) Means by which the problem was observed (obsolescence, supportability, safety analyses, demonstration, Acceptance Test number, etc.);
5) An indication that an attempt was made to duplicate the problem, and whether or not the problem was successfully duplicated;
6) Assessment regarding criticality of the problem and its impact on the RMDS Project implementation;
7) Recommended changes from the current Configuration Item (CI) baselines that may be necessary to rectify the problem;
8) Justification that the changes will optimally address the problem in terms of cost, supportability, minimization of customization, and all other applicable factors;
9) The results of all testing conducted to date that may be affected by the deviation, and the required re-testing that will be necessary to demonstrate that the revised RMDS meets contractual requirements;
10) Itemization of corresponding changes that would be required to associated RMDS deliverable documentation, goods and services via the Design Change Process;
11) All actions required by the Contractor to rectify the problem; and
12) All actions required by Canada to rectify the problem.

d. The IMS with progress up to the last day of the reporting period;

e. An itemized list of Government Furnished Resources in the possession of the Contractor, including an update on the calibration as applicable; and

f. Action items register including completed and outstanding actions by the Contractor and Canada.

5. DID RMDS-PM-004 – MEETING AGENDA

5.1 Description

5.1.1 The Meeting Agenda must summarize the planned topics of discussion, location, and timing of the meeting to be held.

5.2 Office of Primary Interest

5.2.1 DND

5.3 Office of Collateral Interest

5.3.1 PSPC

5.4 Interrelationships

5.4.1 SOW: Paragraph 4.7.2

5.4.2 DID: RMDS-PM-001

5.5 References

5.5.1 Not Applicable (NA)

5.6 Preparation Instruction

5.6.1 Format

5.6.1.1 Meeting Agenda must be prepared in the Contractor's format.

5.6.2 Content

5.6.2.1 Meeting Agenda must include the following as a minimum:

a. Purpose of the meeting;
b. Time, date, location, and expected duration of review, meeting or conference;
c. A detailed schedule of events for the meeting;
d. A list of all required attendees, their organization, and their role in the project;
e. The name and phone number of the meeting coordinator and chairperson;
f. All details that attendees must address to meet security and facility access requirements; and
g. The following agenda items:
    1) Review of the minutes of the previous meeting (if applicable);
    2) Review of progress by the Contractor or Subcontractor, including a brief description of progress on actions or problems, if any, identified at the last review;

3) A list of new agenda items initiated by both Canada and the Contractor;
4) The responsibilities of the attendee(s) who will present each agenda item;
5) The objectives to be achieved for each agenda item; and
6) A brief background of the subject of each agenda item if not a topic of previous meetings, or correspondence.

6. DID RMDS-PM-005 – MEETING MINUTES

6.1 Description

6.1.1 The Meeting Minutes must summarize the topics and discussions covered during meetings held.

6.2 Office of Primary Interest

6.2.1 DND

6.3 Office of Collateral Interest

6.3.1 PSPC

6.4 Interrelationships

6.4.1 SOW: Paragraph 4.7.3

6.4.2 DID: RMDS-PM-001

6.5 References

6.5.1 NA

6.6 Preparation Instruction

6.6.1 Format

6.6.1.1 Meeting Minutes must be prepared in the Contractor's format.

6.6.2 Content

6.6.2.1 Meeting Minutes must include the following as a minimum:

a. Describe the discussion and decisions taken for agenda items;
b. Itemize action items, responsibilities and target dates for each agenda item;
c. Copies of briefing materials and discussion documents;
d. Next meeting date, if applicable;
e. A copy of the tabled agenda;
f. Approval signature blocks for responsible Canada and Contractor managers; and
g. A blanket statement - Minutes are only a record of activity and carry no authority to change the interpretation of the SOW, approved scope, cost, schedule, and associated processes as defined in the Contract. Such changes require formal Contract amendment by the Contract Authority.
h. Additionally, minutes for the Preliminary and Critical Design Reviews must include the following as a minimum:

1) A detailed description of all observations made by Canada that were submitted prior to the review along with observations made during the review;
2) A reference to the origin of each observation;
3) Steps taken to address the observation;
4) Steps planned to resolve the observation; and
5) Proposed date for observation resolution.

6.6.2.2 Action items from meetings must be tracked in an action item register which will accompany all meeting agendas and resulting meeting minutes.

7. DID RMDS-PM-006 – REQUEST GOVERNMENT FURNISHED RESOURCES

7.1 Description

7.1.1 The Request for Government Furnished Resources (GFR) provides the list of proposed Government Furnished Resources, and justification as to why these resources are required, and how they will be employed.

7.2 Office of Primary Interest

7.2.1 DND

7.3 Office of Collateral Interest

7.3.1 PSPC

7.4 Interrelationships

7.4.1 SOW: Paragraphs 4.3.3, 5.3.2.2.i, 5.3.3.2.h, 5.8

7.4.2 DID: RMDS-PM-001

7.5 References

7.5.1 NA

7.6 Preparation Instruction

7.6.1 Format

7.6.1.1 The Request for GFR must be prepared in the Contractor's format.

7.6.2 Content

7.6.2.1 The Contractor must specify all requirements for GFR, which may be required to meet the SOW requirements. The Contractor must specify the following for each GFR item requested:

a. A narrative description of the item, and applicable North Atlantic Treaty Organization (NATO) stock numbers, part numbers, and serial numbers;
   b. Quantities of each required item;
   c. Maintenance, calibration, or set-up action that Canada must undertake on the items prior to provision;
   d. How, where, and when the GFR will be:
      1) transported, received, and stored prior to, and following its usage;
      2) employed in completing the work specified in the SOW;

3) tracked during its usage;
4) maintained during its usage; and
5) returned to Canada;

e. How the provision of the requested GFR will benefit Canada and enhance the value of the RMDS and associated Deliverables to Canada; and

f. Any general information that aids in understanding of the GFR requirement, and definition of any terms and acronyms used.

8. DID RMDS-SE-001 – SYSTEM ENGINEERING MANAGEMENT PLAN

8.1 Description

8.1.1 The System Engineering Management Plan (SEMP) describes the engineering methods to be used by the Contractor to deliver the RMDS, and associated Deliverables.

8.2 Office of Primary Interest

8.2.1 DND

8.3 Office of Collateral Interest

8.3.1 PSPC

8.4 Interrelationships

8.4.1 SOW: Paragraphs 5.1.2 and 5.1.3

8.4.2 DID: RMDS-SE-002 to SE-012, to TD-001, RMDS-CM-001 to CM-003

8.5 References

8.5.1 *Communications Security Establishment Canada, IT Security Risk Management: A Lifecycle Approach* (ITSG-33), November 2012

8.5.2 Treasury Board of Canada Secretariat, Operational Security Standard for the Identification and Categorization of Assets

8.5.3 Systems Security Engineering, NIST Special Publication 800-160, May 2014

8.6 Preparation Instruction

8.6.1 Format

8.6.1.1 The SEMP must be prepared in the Contractor's format.

8.6.2 Content

8.6.2.1 The SEMP must include the following as a minimum:

a. Introduction - This section describes the scope and purpose of the plan, together with applicable definitions, references and related documents;

b. Engineering Design and Development – This section describes how all engineering design and development activities will be conducted to ensure that the RMDS and associated Deliverables are Accepted as compliant with the SOW. This section includes the following, but not limited to:
   1) System Characteristics – This section describes the process of identifying the various system components required for the RMDS and their adaptation to meet RMDS requirements. This section also describes how system component characteristics will be defined with respect to the System Specification;
   2) Life Cycle Model – This section describes the life cycle model(s) which have been chosen to adapt system components, and to develop the in-service support processes as described in RMDS-ILS-004;
   3) Applicable Standards – This section describes which system engineering design and development standards will be used to adapt system components;
   4) Design and Development Methodology – This section describes the methodology that will be used to adapt system components to meet RMDS requirements and associated Deliverable requirements; and
   5) Support Tools – This section describes the use of support tools used in system engineering such as Computer Assisted Software Engineering (CASE) or other high-level support tools, which will be used to support system component adaptation.

c. System Security – This section describes the work that will be performed to address the potential security requirements of the system which may include:
   1) Describing security engineering and management within the Contractors organization, including security risk management; and
   2) Categorizing the system and its information, identifying and analyzing vulnerabilities of the system, and allocating security functions/implementing security controls following the references in 8.5 to mitigate security risks.

d. Engineering Impact to Ship and Shore facilities – This section describes how engineering design for ship considerations will be addressed during the engineering development process.

e. Deliverable System Engineering Documentation - This section describes each document and its contents to be prepared and delivered by the Contractor in accordance with the SOW to define the system engineering processes and the results of these processes.

f. Engineering Resources – This section describes:
   1) The Contractor's engineering authorities, organization, and skills;
   2) Information, materials, equipment, facilities, services, Government Furnished Resources; and
   3) The coordination of these resources required to conduct the engineering design and development of the RMDS and associated Deliverables;

g. Subsequent sections will be used to describe how all engineering design and development activities will be coordinated with the following:

1) Project Management (specifically organizational interfaces and communications, schedule, and their overall management as related to engineering);
2) Quality Management;
3) Risk Management;
4) Requirement Management;
5) Design Reviews;
6) Acceptance Program;
7) Configuration Management;
8) ILS Management;
9) Obsolescence Management; and
10) Objective Evidence (OE).

9. DID RMDS-SE-002 – SYSTEM SPECIFICATION

9.1 Description

9.1.1 The System Specification must define the Contractor's derivation of each RMDS specification requirement and each associated Deliverable requirement into a statement that will be used to direct subsequent RMDS design, development, testing, and which provides traceability to each original Specification requirement.

9.2 Office of Primary Interest

9.2.1 DND

9.3 Office of Collateral Interest

9.3.1 PSPC

9.4 Interrelationships

9.4.1 SOW: Paragraphs 5.2.2, 5.2.3, 5.2.4, 5.2.5 and 5.3.1.2.a

9.4.2 DID: RMDS-SE-001, SE-003 and SE-004

9.5 References

9.5.1 NA

9.6 Preparation Instruction

9.6.1 Format

9.6.1.1 The System Specification must be prepared in the Contractor's format.

9.6.2 Content

9.6.2.1 The System Specification must include the following as a minimum:

a. The Contractor's derivation of each System Requirements Documents (SRD) requirement to the extent necessary to manage the RMDS design, development and testing processes;
b. A tabular listing of the wording for each SRD requirement and paragraph number, arranged according to the numerical order of the SRD, and the corresponding wording for each derived requirement(s) and number(s);
c. A tabular listing of the wording for each derived requirement and number, arranged according to the numerical order of the System Specification , and the corresponding wording for each SRD requirement(s) and paragraph number(s); and

d. A means for indicating whether a given requirement has been changed as the project progresses, and reference to the Authorization for the change.

10. DID RMDS-SE-003 – REQUIREMENTS VERIFICATION AND ASSURANCE MATRIX

10.1 Description

10.1.1 The Requirements Verification and Assurance Matrix (RVAM) must document the requirements verification methods that the Contractor will use to prove to Canada that all requirements of the SRD have been met by the delivered RMDS.

10.2 Office of Primary Interest

10.2.1 DND

10.3 Office of Collateral Interest

10.3.1 PSPC

10.4 Interrelationships

10.4.1 SOW: Paragraphs 5.2.6, 5.3.2.2.b and 5.3.3.2.a

10.4.2 DID: RMDS-SE-001, SE-002, SE-004, SE-005, SE-010 and SE-011

10.5 References

10.5.1 NA

10.6 Preparation Instruction

10.6.1 Format

10.6.1.1 The RVAM must be prepared in the Contractor's format.

10.6.2 Content

10.6.2.1 The RVAM must include the following as a minimum:

a. A table structured such that each row contains only one SRD requirement, and a unique and unambiguous reference to:
   1) Each derived requirement;
   2) The specific point in the Contractor's deliverable documentation that specifies how each SRD requirement is addressed by the proposed Functional Baseline and Product Configuration Documentation;
   3) The specific point in the Contractor's deliverable documentation that specifies how compliance of the RMDS Hardware Configuration Items (HWCI), and Computer Software Configuration Item (CSCI) will be demonstrated with respect to the SRD; and

4) The Acceptance status of each derived requirement.

11. DID RMDS-SE-004 – SYSTEM DESIGN DOCUMENT

11.1 Description

11.1.1 The System Design Document (SDD) must identify the components of the RMDS by summarizing the configuration and function of each HWCI and CSCI and how they are integrated into each RMDS subsystem, in accordance with the System Specification at DID RMDS-SE-002.

11.2 Office of Primary Interest

11.2.1 DND

11.3 Office of Collateral Interest

11.3.1 PSPC

11.4 Interrelationships

11.4.1 SOW: Paragraphs 5.3.2.2.c and 5.3.3.2.b

11.4.2 DID: RMDS-SE-001, SE-002, SE-003, SE-005 and RMDS-TD-001

11.5 References

11.5.1 D-01-002-007/SG-006 Requirements for the Selection of Configuration Items

11.5.2 A-LP-005-000/AG-008 Equipment Management Team Handbook, Section 7

11.6 Preparation Instruction

11.6.1 Format

11.6.1.1 The SDD must be prepared in the Contractor's format.

11.6.2 Content

11.6.2.1 The SDD must specify all RMDS configuration items employing the guidelines of References 11.5. The SDD must include the following as a minimum:

a. <u>Design Approach</u> – A summary of the following as applicable to tailoring equipment and adapting software to meet RMDS requirements and associated deliverable requirements:
   1) Policies and Standards;
   2) Design Strategy;
   3) Design Requirements and their decomposition;

4) Design assumptions, constraints, and dependencies; and
5) Design and development methods.

b. Configuration Item Identification - A top down family tree that specifies overall RMDS architecture, specifically:
   1) all RMDS configuration variants;
   2) their associated HWCIs; and
   3) CSCI resident in each HWCI.

c. Configuration Item Definition - Definition of each RMDS configuration variant and their associated configuration items including:
   1) Item Identification Number;
   2) Item Nomenclature;
   3) Parent and sub-ordinate CIs;
   4) Description of the design and function of each HWCI, and each RMDS configuration variant, including reference to the Technical Data Package of RMDS-TD-001 where details may be found;
   5) Description of the design and function of each CSCI, and each RMDS configuration variant, including reference to the Technical Data Package of RMDS-TD-001 where details may be found; and
   6) Allocation of the Functional Baseline requirements to each HWCI, each CSCI and the system level of the architecture of each RMDS configuration variant.

d. States and Modes - This section describes the RMDS states and modes, explaining the functions of the various CIs and how they interact;

e. Data Architecture - This section describes how the RMDS information domain is organized into data structures, and how these data structures are stored, processed, and integrated with applicable external data structures;

f. System Processes - This section describes the processes that will be performed by the software to address the operational requirements, including inputs and outputs;

g. System Interfaces - This section describes each interface with the RMDS CIs including software interface function and hardware;

h. User Interfaces – This section describes the user screen image that the RMDS operator and maintainer will see, with all objects and corresponding actions described;

i. Software Performance – This section describes the performance for the software, in terms of number of users, response times, reliability, etc.;

j. Hardware Infrastructure – This section describes the hardware infrastructure that will be needed to operate the software at the specified performance levels.

k. Safety Features – This section describes the safety and fail safe functionality of the system;

l. Security and Privacy– This section describes the security and privacy features, such as access control and encryption;

m. Support Features – This section all other features relating to hardware and software support, such as fault diagnosis, built-in test, embedded training, delivery media, etc.; and

n. Traceability to Functional Baseline - All other design details required for Canada to verify, by documentation review, that the RMDS design is fully allocated to, and is fully compliant with the Functional Baseline.

12. DID RMDS-SE-005 – INTERFACE DESIGN DOCUMENT

12.1 Description

12.1.1 The Interface Design Document (IDD) must define all hardware and software details required to implement an interface between each RMDS HWCI and CSCI and the external system with which it must connect, function, and communicate.

12.2 Office of Primary Interest

12.2.1 DND

12.3 Office of Collateral Interest

12.3.1 PSPC

12.4 Interrelationships

12.4.1 SOW: Paragraphs 5.3.2.2.d and, 5.3.3.2.c

12.4.2 DID: RMDS-SE-002, SE-003, SE-004, RMDS-TD-001

12.5 References

12.5.1 NA

12.6 Preparation Instruction

12.6.1 Format

12.6.1.1 The IDD must be prepared in the Contractor's format.

12.6.2 Content

12.6.2.1 The IDD must be prepared in 4 sections:

a. IDD-Structural;
b. IDD-Mechanical;
c. IDD-Electrical; and
d. IDD-Computer.

12.6.2.2 The IDD must include the following as applicable to each RMDS interface:

a. Purpose – This section describes the RMDS HWCIs and CSCIs that are interfacing with the external entity and the purpose of the interface;
b. Standards and Specifications – This section describes all standards and specifications used to guide the design of the interface;

c. Design Requirements – This section describes all System Specification requirements applicable to the interface;

d. Design Constraints – This section describes all other constraining factors on the interface design;

e. Hardware Design – This section describes the hardware design of the interface, including:

1) Structure:

a) Location of the interface;

b) The RMDS component requiring the structural interface;

c) Details of the seating arrangements (flange, bolt pattern, bolt hole, dimensions, materials, etc.) incorporated into each RMDS component that must be interfaced; and

d) All retention devices and fasteners associated with each structural interface as necessary to mount each RMDS component.

2) Mechanical:

a) Location of the interface;

b) The RMDS component requiring the mechanical interface;

c) The specific mechanical service or function associated with the interface (such as cooling water, conditioned air, compressed air, condensate drains, etc.) and how it relates to RMDS operations; and

d) All connection details required to implement the interface.

3) Electrical:

a) Location of the interface;

b) The RMDS component requiring the electrical interface;

c) The specific electrical properties required of the interface; and

d) All connection details required to implement the interface.

4) Computer:

a) The communications processor hardware hosted in the computer system, including manufacturer, model number, and any special configuration options selected;

b) The means of physically connecting to the communication medium of the external entity; and

c) A description of any other data communications hardware elements connecting the CSCI to the external entity.

f. Software Design - This section describes the software design of the interface:

1) Interface Control:

a) Initialization of communications hardware and software;

b) Various interface operating modes, how to control them, and how to switch among them;

c) Service priorities for each interface;

d) Application-level protocols or events, which trigger flows of information across the interface;

2) Messages and Data Formats:

a) Information that will be transmitted across the interface (e.g. messages, data values, state indications, analogue signals, etc.) and the direction of transmission;

b) Formats of all digital messages and data values, including the structure of data fields, their meaning, units of measure, valid ranges, precision, information representation, encoding, or compression;

c) Meanings and signal characteristics of all state indications and analogue signals;

3) Processing:

a) Detailed procedures for the transmission and reception of data via the communications interface;

b) Special processing or data handling functions pertaining to security, safety, reliability, integrity, authentication, encryption/decryption, encoding, compression, buffering, burst transmission, etc.;

4) Communication Protocols and Services:

a) Invocation of applicable data communication protocols, services and attributes; and

5) Other:

a) Mechanisms guaranteeing real-time response, timing or synchronization performance, and any other design features that do not fall into the above categories.

g. Performance – This section describes the full range of expected performance of the interface using the most suitable metrics for the interface type; and

h. Product Configuration Documentation – This section describes all other information, or references to other documentation, as required to supplement the Technical Data Package (TDP) RMDS-TD-001 in defining that part of the Product Baseline that is relevant to RMDS interfaces.

13. DID RMDS-SE-006 – SAFETY CONTROL PLAN

13.1 Description

13.1.1 The Safety Control Plan (SCP) must specify the process to be followed by the Contractor to meet all RMDS safety requirements, and to ensure that all Contractor staff has received the required safety training.

13.2 Office of Primary Interest

13.2.1 DND

13.3 Office of Collateral Interest

13.3.1 PSPC

13.4 Interrelationships

13.4.1 SOW: Paragraphs 5.3.3.2.e and 5.4.1

13.4.2 DID: RMDS-SE-007 and SE-008

13.5 References

13.5.1 A-GG-040-004/AG-001, General Safety Program – Hazardous Material Safety and Management Manual

13.5.2 Health Canada's Safety Code 6

13.6 Preparation Instruction

13.6.1 Format

13.6.1.1 The SCP must be prepared in the Contractor's format.

13.6.1.2 The SCP must be prepared using references 13.5.

13.6.2 Content

13.6.2.1 The SCP must include the following as a minimum:

a. The Contractor's point of contact for the SCP;
b. The organizational structure and processes that will be used to assess safety compliance of the RMDS and associated Deliverables:
   1) Identification of RMDS safety requirements in accordance with the SRD;

2) Identification of derived RMDS safety requirements, based upon safety hazards associated with RMDS configuration, function, maintenance, and failure conditions contributing to safety hazards;
3) Identification of safety requirements and derived safety requirements associated with any change to a HWCI or CSCI;
4) Methods for addressing all safety requirements and for correcting safety hazards; and
5) Reporting of safety hazards via the Safety Compliance Assessment of RMDS-SE-008, and reporting the correction of identified safety hazards.

c. Methods for acquiring and demonstrating completion of the required training.
d. Identification of derived RMDS safety requirements, based upon hazards associated with RMDS configuration, function, maintenance, and failure conditions contributing to safety hazards;
e. Identification of safety requirements and derived safety requirements associated with any change to a HWCI or CSCI;
f. Methods for addressing all safety requirements and for correcting safety hazards to acceptable levels of risk; and
g. Reporting of safety hazards via the Safety Compliance Assessment of DID RMDS-SE-008, and reporting the correction of identified safety hazards.
h. The safety training that the Contractor's staff will require in order to work safely in Royal Canadian Navy (RCN) vessels once the RMDS has been installed, including but not limited to:
    1) Consultation with and reporting to shipboard safety authorities;
    2) General shipboard safety;
    3) Confined spaces;
    4) Fall protection;
    5) Lock-out Tag-out; and
    6) All other training requirements that may arise.
i. Methods for acquiring and demonstrating completion of the required training.

14. DID RMDS-SE-007 – CONTROLLED MATERIAL REPORTS

14.1 Description

14.1.1 The Controlled Material Report must specify all Controlled Material proposed for use in the RMDS and associated Deliverables. The Controlled Material Report must be amended to specify all Controlled Materials subsequently Authorized and denied for use in the RMDS by Canada.

14.2 Office of Primary Interest

14.2.1 DND

14.3 Office of Collateral Interest

14.3.1 PSPC

14.4 Interrelationships

14.4.1 SOW: Paragraphs 5.3.2.2.f, 5.3.3.2.d, 5.4.2 and 5.4.3

14.4.2 DID: RMDS-SE-006

14.5 References

14.5.1 Health Canada Reference Manual for WHMIS Requirements of the Hazardous Products Act and Controlled Product Regulations

14.5.2 A-GG-040-004/AG-001, General Safety Program – Hazardous Material Safety and Management Manual

14.6 Preparation Instructions

14.6.1 Format

14.6.1.1 The Controlled Material Report must be prepared in the Contractor's format.

14.6.1.2 The Controlled Material Report must be prepared using references 14.5.

14.6.2 Content

14.6.2.1 The Controlled Material Report must include the following as a minimum:

a. The Contractor's point of contact for the Controlled Material Report;
b. Identification of each controlled material Authorized for use in the RMDS and associated deliverables by Canada, specifically:
    1) Specifications, technical coding and certifications for each material;

2) Volume and weight of material to be used;
3) Location in which the material will be used;
4) Intended purpose of the material;
5) The material chemical composition;
6) The physical and structure properties;
7) Reference to Material Safety Data Sheet (MSDS) data for the material;
8) The date on which authorization for use was sought from Canada; and
9) If granted, the date on which authorization for use was granted by Canada and reference to all correspondence relating to the approval process.

c. Identification of each controlled material denied for use in the RMDS and associated deliverables by Canada, specifically:
1) Specifications, technical coding and certifications for each material;
2) Intended volume and weight of material;
3) Location in which the material will be used;
4) The material chemical composition;
5) The material physical and structure properties;
6) Reference to MSDS for the material;
7) The date on which authorization for use was sought from Canada; and
8) If denied, the date on which Canada denied use of the material and reference to all correspondence justifying the denial.

d. Application for the use of each new controlled material in the RMDS and associated deliverables, specifically:
1) Specifications, technical coding and certifications for each material;
2) Volume and weight of material to be used;
3) Location in which the material will be used;
4) Intended purpose of the material;
5) The material chemical composition;
6) The material physical and structure properties;
7) Reference to MSDS data for the material;
8) The date on which authorization for use was sought from Canada; and
9) Approval status of the application.

15. DID RMDS-SE-008 – SAFETY COMPLIANCE ASSESSMENT

15.1 Description

15.1.1 The Safety Compliance Assessment must specify for each RMDS safety issue, and the proposed resolution. The Safety Compliance Assessment must also specify the requirements for the safety of the personnel. The Contractor plans to ensure that the required safety training will be acquired and safety compliance will be assured prior to the first RMDS use must be included.

15.2 Office of Primary Interest

15.2.1 DND

15.3 Office of Collateral Interest

15.3.1 PSPC

15.4 Interrelationships

15.4.1 SOW: Paragraphs 5.3.2.2.e, 5.4.5 and 5.4.6.a

15.4.2 DID: RMDS-SE-006 and SE-007

15.5 References

15.5.1 A-GG-040-004/AG-001, General Safety Program – Hazardous Material Safety and Management Manual

15.5.2 Health Canada Safety Code 6

15.6 Preparation Instruction

15.6.1 Format

15.6.1.1 The Safety Compliance Assessment must be prepared in the Contractor's format.

15.6.1.2 The Safety Compliance Assessment must be prepared using references 15.5.

15.6.2 Content

15.6.2.1 The Safety Compliance Assessment must include the following as a minimum:

a. A serialized itemization of each RMDS safety hazard with a detailed description of the hazard, and the applicable RMDS configuration variant, HWCI and/or CSCI;

b. The proposed method for elimination or minimizing of each hazard, clearly referencing any proposed Design Changes that are required;
c. The status of each change required to eliminate each safety hazard;
d. The safety training that the Contractor's personnel will be provided with prior to any work activities in accordance with CDRL RMDS-SE-006; and
e. The status of personnel safety training.

16. DID RMDS-SE-009 – TEST AND EVALUATION MASTER PLAN

16.1 Description

16.1.1 The Test and Evaluation Master Plan (TEMP) describes the methods that will be used by the Contractor to verify RMDS compliance with the SOW for Acceptance by Canada.

16.2 Office of Primary Interest

16.2.1 DND

16.3 Office of Collateral Interest

16.3.1 PSPC

16.4 Interrelationships

16.4.1 SOW: Paragraphs 5.3.2.2.g, 5.3.3.2.f, 5.5.1, 5.5.2, 5.5.3.1 and 5.5.6.2.a

16.4.2 DID: RMDS-SE-001, SE-010, SE-011 and SE-012

16.5 References

16.5.1 NA

16.6 Preparation Instruction

16.6.1 Format

16.6.1.1 The TEMP must be prepared in the Contractor's format.

16.6.2 Content

16.6.2.1 The TEMP must define all the test, evaluation and collection of OE processes that will be required to demonstrate compliance of RMDS and associated Deliverables with the SOW.

16.6.2.2 The TEMP must include the following as a minimum:

a. Introduction – This section must describe the scope and purpose of the plan, together with applicable definitions, references and related documents;
b. Acceptance Program - This section itemizes and describes all test and evaluation that the Contractor proposes for demonstrating compliance of the RMDS and associated Deliverables with the SOW, and acquiring Acceptance from Canada in accordance with the prerequisites of Table 1 of the SOW. This section must include but not be limited to:

1) Developmental Testing - Documentation review, analysis, inspection, demonstration, and testing that the Contractor may wish to propose for Authorization by Canada to conclusively Qualify the function and integration of all developmental RMDS elements;
2) Documentation and Analysis Review - Documentation and analysis review that the Contractor may wish to propose for Authorization by Canada to conclusively demonstrate RMDS compliance with selected SOW requirements that may not be suited for inspections, demonstrations, and tests;
3) Environmental Testing - Documentation review, analysis, inspection, demonstrations, and testing as Authorized by Canada to conclusively Qualify the RMDS design in accordance with the environmental conditions of the SRD, Paragraph 7;
4) First Article Factory Acceptance Testing - Inspections and testing to Qualify the design and the production process of each First Article RMDS configuration variant with respect to the SOW requirements, to the extent possible at the contractor's facilities;
5) Functional Audit - Verification and Acceptance by Canada, that all Acceptance test and evaluation results, up to and including the Accepted FAT Test Report, demonstrate compliance of each First Article RMDS configuration variant with the Functional Baseline;
6) Physical Configuration Audit - Verification by Canada, that each First Article RMDS configuration variant is compliant with its corresponding Product Configuration Documentation, and Acceptance of proposed CIs and their corresponding Product Baselines;
7) First Article Sea Acceptance Test (SAT) - Testing for final Qualification of the design, and production processes of each RMDS configuration variant with respect to the SOW requirements;
8) Qualification Review - Verification and Acceptance by Canada, that all Acceptance test and evaluation results up to and including the Accepted SAT Test Report for each First Article RMDS configuration variant, demonstrate compliance with the SOW. Verification and Acceptance by Canada of First Article RMDS resulting from the First Article Qualification Review will be the final Acceptance for First Article RMDS configuration variants, with the exception of fault rectification in accordance with the specified warranties;
9) Recurring Article FAT - Testing to demonstrate that key physical and functional characteristics of each Recurring Article RMDS are compliant with the SOW, in order to verify the RMDS manufacturing and Configuration Management processes, to the extent possible at the Contractor's facilities; and
10) TDP and Manuals Data Acceptance - Verification by Canada that the final RMDS TDP and Manuals provides Canada with all of the information necessary to operate, maintain, and manage all aspects of the in-service RMDS and associated Deliverables.

c. Deliverable Test and Evaluation Documentation - This section must describe, or refer to other DIDs that describe, each document and its contents to be prepared and delivered by the Contractor in accordance with the SOW to define Acceptance test and evaluation processes and the results of these processes;

d. Test Resources - This section must identify all:
   1) Contractor's test authorities, organization and skills conducting and witnessing Acceptance Testing;
   2) Information, materials, equipment, services, prerequisites, and Government Furnished Resources for Acceptance Testing; and
   3) The coordination of these resources required to complete the Acceptance Program.

e. Subsequent sections will be used to describe how all Acceptance Program activities will be coordinated with the following:
   1) Project Management (specifically organizational interfaces, communications, schedule, and their management related to the Acceptance Program);
   2) Quality Management;
   3) Risk Management;
   4) Requirement Management;
   5) System Engineering;
   6) Design Reviews;
   7) Configuration Management;
   8) ILS Management; and
   9) OE.

17. DID RMDS-SE-010 – ACCEPTANCE TEST INDEX

17.1 Description

17.1.1 The Acceptance Test Index (ATI) must list each RMDS test and evaluation activity that the Contractor will use to demonstrate compliance of the RMDS with the SOW.

17.2 Office of Primary Interest

17.2.1 DND

17.3 Office of Collateral Interest

17.3.1 PSPC

17.4 Interrelationships

17.4.1 SOW: Paragraphs 5.3.2.2.h, 5.3.3.2.g, 5.5.3.1, 5.5.4.1 and 5.5.6.2.a

17.4.2 DID: RMDS-SE-001, SE-009, SE-011 and SE-012

17.5 References

17.5.1 NA

17.6 Preparation Instruction

17.6.1 Format

17.6.1.1 The ATI must be prepared in the Contractor's format.

17.6.2 Content

17.6.2.1 The ATI must itemize all test and evaluation activities listed in the TEMP of RMDS-SE-009 that will be used for demonstrating compliance of the RMDS and associated Deliverables with the SOW, and Acceptance by Canada. The ATI must be presented in tabular form, and must include the following as a minimum for each test:

a. A unique identifying number that correlates with the corresponding Acceptance Test Procedure (ATP);
b. A unique title that correlates with the testing specified in the TEMP;
c. A brief description of the test;
d. The preceding and following tests;
e. Prerequisites for the test;
f. Approximate date for the test;
g. Location for the test; and
h. The RMDS Configuration Item or Configuration Variant being tested.

18. DID RMDS-SE-011 – ACCEPTANCE TEST PROCEDURES

18.1 Description

18.1.1 The ATP must define the specific requirements for each test itemized in the Acceptance Test Index for demonstrating RMDS compliance with the SOW.

18.2 Office of Primary Interest

18.2.1 DND

18.3 Office of Collateral Interest

18.3.1 PSPC

18.4 Interrelationships

18.4.1 SOW: Paragraph 5.5.4, 5.5.5.2.d and 5.5.6.2.a

18.4.2 DID: RMDS-SE-001, SE-009, SE-010 and SE-012

18.5 References

18.5.1 NA

18.6 Preparation Instruction

18.6.1 Format

18.6.1.1 The ATPs must be prepared in the Contractor's format.

18.6.2 Content

18.6.2.1 The ATPs must include the following as a minimum:

a. Test title, number, and revision that specifically match those in the ATI;
b. System Specification line items addressed by the Test Procedure;
c. Test objective;
d. All test pre-requisites, and prior tests that require completion and Authorization or Acceptance by Canada;
e. All subsequent tests that are dependent upon the outcome of this test;
f. Test duration;
g. Authorities responsible for test conduct and Authorization or Acceptance of results;
h. Reference to all documentation that is applicable to conducting the test;

i. All resources required to conduct the test including:
   1) Test articles, defined in accordance with the Authorized RMDS Configuration Item nomenclature;
   2) The supporting test equipment make and model;
   3) Test material;
   4) Test facilities;
   5) Configuration of the test team, with the responsibilities of each organization and test team member in conducting, supporting, and witnessing the test;
   6) All other services required from each supporting organization; and
   7) Safety hazard management.

j. Test preconditions including:
   1) The configuration and status of the test article and its interfaces;
   2) The supporting test equipment set-up; and
   3) All other factors which must exist before the test can be started.

k. Test method with:
   1) Each step in the procedure itemized to define the specific action to be taken; and
   2) All observations, measurements, tolerances, and pass/fail criteria that may be associated with a given step in order to determine the acceptability of results.

l. Analysis and reporting requirements:
   1) The data reduction and analysis processes required to determine the acceptability of results; and
   2) The reporting that must be performed in order to specifically define the OE necessary to demonstrate compliance with the SOW.

19. DID RMDS-SE-012 – ACCEPTANCE TEST REPORTS

19.1 Description

19.1.1 The Acceptance Test Reports (ATR) must describe the results of all Acceptance Tests and provide OE of RMDS compliance with the SOW.

19.2 Office of Primary Interest

19.2.1 DND

19.3 Office of Collateral Interest

19.3.1 PSPC

19.4 Interrelationships

19.4.1 SOW: Paragraph 5.5.7

19.4.2 DID: RMDS-SE-001, SE-009, SE-010 and SE-011

19.5 References

19.5.1 NA

19.6 Preparation Instruction

19.6.1 Format

19.6.1.1 The ATRs must be prepared in the Contractor's format.

19.6.2 Content

19.6.2.1 The ATRs must include the following as a minimum:

a. Test title, number, and revision;
b. System Specification line items addressed by the Test Report;
c. Test objective;
d. All test pre-requisites, and prior tests that required completion and Authorization or Acceptance by Canada;
e. All subsequent tests that are dependent upon the outcome of this test;
f. Authorities responsible for test conduct, and for Authorization or Acceptance of results,
g. Reference to all documentation that is applicable to conducting the test;
    1) The resources used to complete the test:
    2) Test articles, defined in accordance with Authorized RMDS Configuration Item nomenclature;

3) The supporting test equipment make and model;
4) Test material;
5) Test facilities;
6) Configuration of the test team, with the responsibilities of each organization and test team member in conducting, supporting, and witnessing the test; and
7) All other services provided by any supporting organization.

h. Test preconditions including:
1) The configuration and status of the test article and its interfaces;
2) The supporting test equipment set-up; and
3) All other factors that existed before the test was started;

i. Test method with:
1) Any deviations from the applicable ATP;
2) Recorded observations, measurements with respect to tolerances, and pass/fail criteria associated with each step;

j. Analysis and reporting:
1) The data reduction and analysis processes employed to determine the acceptability of result;
2) The acceptability of each result with respect to tolerances and pass/fail criteria;
3) Specific reference to Problem Reports that define failed results, and corresponding action to be taken; and
4) Conclusions and recommendations regarding the results as required to state whether test results provide the OE necessary to demonstrate compliance with the SOW.

20. DID RMDS-TD-001 – TECHNICAL DATA PACKAGE

20.1 Description

20.1.1 The Technical Data Package (TDP) must consist of the documents necessary to:

a. Define the entire configuration of the RMDS, each CI, each component associated with each CI, and their organization within each RMDS configuration variant;
b. Provide Product Configuration Documentation that will describe the necessary physical and functional characteristics of each CI and any verification needed to demonstrate the CI's performance. This includes product, materiel and process specifications: engineering drawings; military specifications; and other technical documentation. This information will assist in defining the RMDS Product Baseline;
c. Provide Supplementary Provisioning Technical Documentation (SPTD) to support the Initial Provisioning Process;
d. Provide technical reference information as required for in-service RMDS manuals; and
e. Provide additional information necessary to supplement information provided by other DIDs, so as to enable Canada or a third party to address all in-service RMDS requirements.
f. Provide additional information necessary to supplement information provided by other DIDs, so as to enable Canada to address all RMDS requirements, analyses, assessments, reports, plans and publications.

20.2 Office of Primary Interest

20.2.1 DND

20.3 Office of Collateral Interest

20.3.1 PSPC

20.4 Interrelationships

20.4.1 SOW: Paragraphs 5.3.3.2.i, 5.6.2.2, 5.6.2.5, 5.7.1 and 6.2.2.6

20.4.2 DID: RMDS-TD-002 to TD-004

20.5 References

20.5.1 D-01-400-002/SF-000, Drawings, Engineering and Associated Lists

20.5.2 D-01-400-001/SG-000, Engineering Drawing Practices

20.5.3 C-01-000-103/AG-000, Guide to the Canadian Government Cataloguing System

20.5.4 ASME Y14.34M, Associated List

20.6 Preparation Instruction

20.6.1 Format

20.6.1.1 The TDP must consist of one package incorporating all new, existing, commercial, and foreign government drawings and specifications.

20.6.1.2 All TDP documents must be marked with the Controlled Goods and Intellectual Property legend.

20.6.1.3 The TDP must incorporate a Design Data List to itemize each document in the TDP.

20.6.1.4 The TDP drawings must:

a. Be formatted in accordance with References 20.5.1;
b. Incorporate drawing;
c. Incorporate title block data;
d. Incorporate Configuration Item nomenclature;
e. Be provided in Adobe Portable Document Format; and
f. Be provided with multi-sheet drawings delivered in one file.

20.6.1.5 The TDP drawing parts lists must be:

a. Integral with the single sheet drawings; or
b. Placed separately on the first sheet of multi-sheet drawings.

20.6.1.6 The TDP drawings must be prepared on standard metric drawing sizes A0 to A4 and B1, or imperial sizes A to K and legal as required.

20.6.1.7 The TDP drawings must use the mono-detail drawing system.

20.6.2 Content

20.6.2.1 The TDP must contain a list of every data item provided in the TDP, including the following as a minimum:

a. An identification number and title for each data item that is the same as that found on TDP;
b. A brief description of each data item type (specification, drawing, list, etc.);
c. A hierarchical organization of the data items;
d. Any copyrights, proprietary rights or translation rights that apply to the items; and
e. Ownership of the data items.

20.6.2.2 The TDP drawings that must be newly created or must be amended for use must include content required by this DID, and Reference 20.5.2.

20.6.2.3 The TDP drawings that exist and are complete commercial or foreign government off-the-shelf documents must include all content required by this DID, and Reference 20.5.1 Section 3.2.

20.6.2.4 All TDP drawings must be Level 3 quality as defined by Reference 20.5.1.

20.6.2.5 All TDP specifications and references must be provided in accordance with Reference 20.5.1 Sections 3.4 and 3.5.

20.6.2.6 The TDP must include the following as a minimum:

a. Schematic representation of the overall family tree of each RMDS configuration variant indicating all HWCIs and resident CSCIs;
b. Schematic representation of the overall architecture and integration of each RMDS configuration variant indicating all HWCIs, resident CSCIs, and interfaces to the ship in which they are installed;
c. General arrangement and assembly of each RMDS configuration variant, its HWCIs, and interfaces to the ship in which they are installed;
d. Detailed configuration of each RMDS HWCI, and all associated components;
e. All materials and components that comprise each RMDS HWCI;
f. Data for each RMDS structural and mechanical interface to a level of detail necessary to acquire all material and components, fabricate the interfaces, and install the RMDS HWCIs; and
g. Cable, connector, and pin-out data for each RMDS power and signal cable for system interconnection and shipboard interface, to the level of detail necessary to acquire all cable components, fabricate cables, and install cables.

20.6.2.7 The Mine Disposal Vehicle – Combat (MDV-C) TDP must also include the following:

a. Diagrams must include section view of main ammunition/explosive/pyrotechnic components, markings for each nature and its associated packaging and markings.

b. Data Lists – Design Data Lists and Data Lists complete with Cover Sheets are required and must be prepared in accordance with ASME Y14.34M and supplied as part of the Engineering Drawings. Data Lists must be prepared at the item level of assembly (and/or end item) declared for future production by the Technical Authority. Cover sheets must be prepared as sheet one (1) of the Data List. Cover Sheets must include the Contract Number and a note that details the Intellectual Property Rights that apply to the data identified on the Data List.

c. Items Descriptions – The TDP must include a general description of the item and components as well as their functioning process and Tabulated data and

technical design specifications of constituent components to include energetic (propellant, explosives, pyrotechnics, primers, stabilizers, etc.), all packaging and Special Tools and Test Equipment (STTE) and critical mechanical parts.

d. Reference Documents – Reference documents called up on the TDP such as Material and Process Specifications or Company Standards, including manufacturing inspection defect level (e.g. Critical, Major, and Minor) must be included as part of the Technical Data Package.

e. Government Certification – The TDP is to be provided with copies of the Canadian Hazardous Classification Certification, United States Department of Transport Certification (if applicable) and NATO Packaging Certification.

f. Data Rights Legend – The Contractor must mark all Foreground & Background Engineering Drawings & Associated Lists delivered under this Contract with a complete notation as detailed at “Intellectual Property Rights” and/or “Data Rights” clause(s) of the Contract

21. DID RMDS-TD-002 – SYSTEM USER MANUAL

21.1 Description

21.1.1 The System User Manual must define all procedures required for the operator to operate and control all RMDS functions.

21.2 Office of Primary Interest

21.2.1 DND

21.3 Office of Collateral Interest

21.3.1 PSPC

21.4 Interrelationships

21.4.1 SOW: Paragraphs 6.2.2.6, 6.2.3.2.c and 6.6.1.a

21.4.2 DID: RMDS-TD-001 andTD-004

21.5 References

21.5.1 C-01-100-100/AG-006, Writing Format and Production of Technical Publications

21.5.2 C-01-100-100/AG-005, Acceptance of Commercial Foreign Government Publications as Adopted Publications

21.5.3 C-03-005-012/AM-001, Naval Materiel Management System Manual

21.5.4 D-01-100-226/SF-001, Specification for Preparation of Test Sheets

21.6 Preparation Instruction

21.6.1 Format

21.6.1.1 The System User Manual must be prepared in accordance with the formatting requirements of References 21.5.

21.6.1.2 The System User Manual must be marked with:

a. An National Defence Index of Documentation (NDID) number for each manual; and
b. The Controlled Goods and Intellectual Property legend.

21.6.1.3 The System User Manual must:

a. Incorporate Configuration Item nomenclature; and

b. Incorporate Copyright statement "© 20xx Canada" at the bottom of the List of Effective Pages, amended to indicate the year of publication.

21.6.1.4 The System User Manual must be formatted in the Contractor's format.

21.6.2 Content

21.6.2.1 The System User Manual must include the following as a minimum:

a. Introduction – This section describes the scope and purpose of the manual, together with applicable definitions, references and related documents;
b. System Summary – This section describes the overall system configuration and capabilities;
c. Safety Precautions – This section provides the overall safety precautions to be observed during RMDS operations. Safety precautions must also be included where applicable throughout the manual;
d. System Conventions – This section describes any conventions used by the RMDS, such as the use of colours in displays, the use of audible alarms, and the use of terminology;
e. System Operation – This section describes the step-by-step procedures with adequate detail for inexperienced users to reliably:
    1) Turn on power, and bring the RMDS to an operational state;
    2) Use each operator control provided with the RMDS;
    3) Understand all system functions and operating modes that correspond to a given control;
    4) Interpret user feed-back that correspond to a given control;
    5) Use the operator display and all associated capabilities;
    6) Use each system capabilities;
    7) Sequence shutdown and turning off power; and
    8) Use each security and privacy capabilities pertaining to RMDS user access.
f. Recovery from Errors and Malfunctions – This section details procedures for:
    1) Interpretation of all alarms and error messages;
    2) Addressing alarms and error messages; and
    3) Restart or recovery from errors or malfunctions.

22. DID RMDS-TD-003 – ILLUSTRATED PARTS LIST

22.1 Description

22.1.1 The Illustrated Parts List (IPL) must provide all information necessary to positively identify all RMDS components and their location in the RMDS.

22.2 Office of Primary Interest

22.2.1 DND

22.3 Office of Collateral Interest

22.3.1 PSPC

22.4 Interrelationships

22.4.1 SOW: Paragraph 6.2.3.2.d and 6.6.1.b

22.4.2 DID: RMDS TD-001, TD-002 and TD-004

22.5 References

22.5.1 D-01-100-207-SF-000, Preparation of Parts Identification List

22.5.2 C-01-100-100/AG-006, Writing Format and Production of Technical Publications

22.5.3 C-01-100-100/AG-005, Acceptance of Commercial Foreign Government Publications as Adopted Publications

22.5.4 C-03-005-012/AM-001, Naval Materiel Management System Manual

22.5.5 D-01-100-226/SF-001, Specification for Preparation of Test Sheets

22.6 Preparation Instruction

22.6.1 Format

22.6.1.1 The IPL must be prepared in accordance with the formatting requirements of References 22.5.

22.6.1.2 The IPL must be marked with:

a. An NDID number for each manual; and
b. The Controlled Goods and Intellectual Property legend.

22.6.1.3 The IPL must:

a. Incorporate Configuration Item nomenclature; and
b. Incorporate Copyright statement "© 20xx Canada" at the bottom of the List of Effective Pages, amended to indicate the year of publication.

22.6.1.4 The IPL must be formatted in the Contractor's format.

22.6.2 Content

22.6.2.1 The IPL must be prepared in accordance with the content requirements of Reference 22.5.

23. DID RMDS-TD-004 – MAINTENANCE MANUAL

23.1 Description

23.1.1 The Maintenance Manual must specify all required procedures, resources, and information necessary to undertake RMDS Level 1 and Level 2 maintenance activities through its in-service period.

23.2 Office of Primary Interest

23.2.1 DND

23.3 Office of Collateral Interest

23.3.1 PSPC

23.4 Interrelationships

23.4.1 SOW: Paragraphs 6.2.3.2.e and 6.6.1.c

23.4.2 DID: RMDS-TD-001 to TD-003

23.5 References

23.5.1 C-01-100-100/AG-006, Writing Format and Production of Technical Publications

23.5.2 C-01-100-100/AG-005, Acceptance of Commercial Foreign Government Publications as Adopted Publications

23.5.3 C-03-005-012/AM-001, Naval Materiel Management System Manual

23.5.4 D-01-100-204/SF-009, Preparation of Naval Preventive Maintenance Schedules

23.5.5 D-01-100-206/SF-001, Preparation of Naval Preventive Maintenance Performance Tests

23.5.6 D-01-100-226/SF-001, Preparation of Test Sheets

23.6 Preparation Instruction

23.6.1 Format

23.6.1.1 The Maintenance Manual must be prepared in accordance with the formatting requirements of references 23.5

23.6.1.2 The Maintenance Manual must be marked with:

a. An NDID number for each manual; and

b. The Controlled Goods and Intellectual Property legend.

23.6.1.3 The Maintenance Manual must:

a. Incorporate Configuration Item nomenclature; and
b. Incorporate Copyright statement "© 20xx Canada" at the bottom of the List of Effective Pages, amended to indicate the year of publication.

23.6.1.4 The Maintenance Manual must be formatted in the Contractor's format.

23.6.2 Content

23.6.2.1 The Maintenance Manual must include the following as a minimum to support Level 1 and Level 2 maintenance:

a. Preventive Maintenance:
   1) Step-by-step procedures;
   2) Frequency;
   3) Required tools and test equipment;
   4) Required spares and consumables identified by part number;
   5) Equipment break-out drawings and diagrams, included or referenced as necessary, to clearly identify the equipment access, orientation, connections, and specific points addressed by the maintenance;
   6) Skills, qualifications, certifications required by personnel conducting the maintenance;
   7) Safety hazards and corresponding warnings; and
   8) Any procedures and routines which are required for software.
b. Corrective Maintenance:
   1) All RMDS error messages, and their meaning;
   2) Step-by-step procedures for diagnosing and identifying faults associated with a failure or malfunction symptom, or an error message;
   3) Step-by-step procedures for conducting repairs of associated with system faults and error messages;
   4) Required tools and test equipment;
   5) Required spares and consumables identified by part number;
   6) Equipment break-out drawings and diagrams, included or referenced as necessary, to clearly identify the equipment access, orientation, connections, and specific points addressed by the maintenance;
   7) Skills, qualifications, certifications required by personnel conducting the maintenance;
   8) Safety hazards and corresponding warnings; and
   9) Any procedures and routines which are required for software.

24. DID RMDS-CM-001 – CONFIGURATION MANAGEMENT PLAN

24.1 Description

24.1.1 The Configuration Management (CM) Plan must specify the CM processes, how they are organized, how they will be conducted, and the methods, procedures and controls that will be used to assure effective configuration identification, change control, status accounting, and audits of the RMDS configuration and associated Deliverables configurations.

24.2 Office of Primary Interest

24.2.1 DND

24.3 Office of Collateral Interest

24.3.1 PSPC

24.4 Interrelationships

24.4.1 SOW: Paragraph 5.6.1.1 and 5.6.1.2

24.4.2 DID: RMDS-SE-001, RMDS-CM-002 to CM-003

24.5 References

24.5.1 D-01-002-007/SG-001, Requirements for the Preparation of Configuration Management Plans

24.5.2 D-01-002-007/SG-006, Requirements for the Selection of Configuration Items

24.6 Preparation Instruction

24.6.1 Format

24.6.1.1 The CM Plan must be prepared in the Contractor's format following the guidelines specified in References 24.5.

24.6.2 Content

24.6.2.1 The CM Plan must include the following as a minimum:

a. Introduction - This section includes:
   1) Purpose, Scope and Objectives – This section describes the Contractor's understanding of the purpose, scope and objectives of the CM Plan;

2) Policies and Standards - This section describes the policies, standards, specifications and manuals of both Canada and the Contractor that will be adhered to in the Contractor's execution of its CM functions in delivering the RMDS. Reference to the document's title, number, issuing authority, revision, and date of issue must be made in this section;
3) Management Processes - This section describes the organization and processes by which the Contractor will perform Configuration Management; and
4) Deliverable CM Documentation - This section describes each document and a summary of its contents that will be used in managing the configuration of the RMDS and associated Deliverables.

b. Development of Configuration Items - This section describes the method for:
1) Developing the Functional Baseline in accordance with the requirements of the SOW;
2) Selecting the level at which the configuration of the RMDS will be managed in order control all processes required to deliver the RMDS and associated Deliverables in accordance with the SOW;
3) Identifying Configuration Items; and
4) Developing corresponding Product Configuration Documentation.

c. Configuration Identification - This section describes the process for the assignment and application of configuration identifiers to Configuration Items. This section also describes the identification scheme that will be used to identify revisions to systems, hardware, software, firmware and documentation resulting from Authorized design changes;

d. Configuration Item Authorization and Acceptance - This section describes how Authorization for the proposed Functional Baseline via System Requirement Review (SRR), and Product Configuration Documentation via Preliminary Design Review (PDR), and Critical Design Review (CDR) will be acquired. This section also describes how Acceptance for the proposed Functional Baseline via the Functional Audit, and for the proposed Product Baseline and Physical Configuration Audit will be acquired;

e. CM of the RMDS and associated Deliverables: This section describes the process for ensuring that the configuration of each RMDS HWCI and CSCI and associated Deliverables and documentation, will be maintained with respect to the Authorized Functional and Product Baselines.

f. Configuration Change Management - This section describes the process by which required changes to CIs will be implemented via:
1) Problem Reports;
2) Authorization by Canada of changes necessary to address Problem Reports;
3) Preparation and delivery of Design Change Packages;
4) Authorization of the Design Change Packages; and
5) Implementation of the Authorized changes in all RMDS HWCIs, CSCIs and associated Deliverables.

g. Configuration Audits – This section describes the information and processes to be used at the Functional Configuration and Physical Configuration Audits for verifying that all First Article RMDS Configuration Variants and Configuration Items are compliant with the SOW. This section also describes the process for collecting, recording, verifying, validating, maintaining, and delivering configuration status accounting information to Canada.

h. CM Resources – This section describes the resources required to conduct CM:
   1) The Contractor's CM authorities, organization, and skills;
   2) Information, materials, equipment, facilities, services, Government Furnished Resources; and
   3) The coordination of these resources required to conduct the CM of the RMDS and associated Deliverables.

i. Subsequent sections will be used to describe how all CM activities will be coordinated with the following:
   1) Project Management (specifically organizational interfaces and communications, schedule, and their overall management as related to CM);
   2) Quality Management;
   3) Risk Management;
   4) Requirement Management;
   5) System Engineering;
   6) Design Reviews;
   7) Acceptance Program;
   8) Configuration Management documentation and reporting deliverables;
   9) Government Furnished Resource management;
   10) ILS Management;
   11) Obsolescence Management; and
   12) OE.

25. DID RMDS-CM-002 – EQUIPMENT LABELLING PACKAGE

25.1 Description

25.1.1 The Equipment Labelling Package must have a full scale reproduction of each label to be applied to the RMDS equipment and associated Deliverables.

25.2 Office of Primary Interest

25.2.1 DND

25.3 Office of Collateral Interest

25.3.1 PSPC

25.4 Interrelationships

25.4.1 SOW: Paragraph 5.3.3.2.j, 5.4.5, 5.4.6.b, 5.6.2.3, 5.6.2.4 and 5.6.2.6

25.4.2 DID: RMDS-SE-001, SE-006, CM-001 and CM-003

25.5 References

25.5.1 D-02-002-001/SG-001, Identification Marking of Canadian Military Property

25.5.2 A-LP-005-000/AG-008, Equipment Management Team (EMT) Handbook

25.5.2.1 C-09-005-003/TS-000, AMMUNITION AND EXPLOSIVES SAFETY MANUAL VOLUME 3 - TRANSPORTATION, Part 1, para. 14 and 31

25.5.2.2 D-09-002-004/SG-000, STANDARD, IDENTIFICATION OF AMMUNITION AND AMMUNITION PACKAGING, Part 4

25.6 Preparation Instruction

25.6.1 Format

25.6.1.1 The Equipment Labelling Package must be prepared in the Contractor's format.

25.6.1.2 The Equipment Labelling Package must be prepared by following the guidelines specified in references 25.5.

25.6.2 Content

25.6.2.1 The Equipment Labelling Package must include the following as a minimum:

a. Introduction: This section describes the scope and purpose of the package, together with applicable definitions, references and related documents;

b. Label Development: This section describes the derivation of each label from the CM process, the safety management process, and from the standard equipment and safety terminology acquired from Canada; and

c. Labels: This section includes full scale drawings of each RMDS equipment label, with the specific terminology to be used on the proposed labels.

26. DID RMDS-CM-003 – DESIGN CHANGE PACKAGE

26.1 Description

26.1.1 The Design Change Package must define all changes that would be required to the Functional and Product Baselines of the RMDS and associated Deliverables, in order to rectify the issues identified in a Problem Report.

26.2 Office of Primary Interest

26.2.1 DND

26.3 Office of Collateral Interest

26.3.1 PSPC

26.4 Interrelationships

26.4.1 SOW: Paragraph 5.6.4.2, 5.6.4.3, 5.6.4.4 and 5.6.4.6

26.4.2 DID: RMDS-PM-006, RMDS-SE-001, RMDS-CM-001 and RMDS-CM-002

26.5 References

26.5.1 NA

26.6 Preparation Instruction

26.6.1 Format

26.6.1.1 The Design Change Package must be prepared in the Contractor's format.

26.6.2 Content

26.6.2.1 The Design Change Package must include the following as a minimum:

a. A description of the required change, referencing the corresponding Problem Report;
b. Redlined change pages to each Deliverable documentation that would be affected by the proposed change;
c. Definition of how the recommended changes will be implemented in all HWCIs and CSCIs.
d. Definition of all Authorization and Acceptance processes that would be nullified by the change, and the resulting re-testing and re-evaluation that would be required to demonstrate compliance of the change with the SOW; and
e. All schedule changes that would be required to fully implement and re-test the change.

27. DID RMDS-ILS-001 – INTEGRATED LOGISTIC SUPPORT PLAN

27.1 Description

27.1.1 The ILS Plan must define the Contractor's strategy and approach to creating the ILS products and implementation of all Authorized ILS activities. The ILS Plan serves as the principal management and planning document for execution of all ILS activities.

27.2 Office of Primary Interest

27.2.1 DN

27.3 Office of Collateral Interest

27.3.1 PSPC

27.4 Interrelationships

27.4.1 SOW: Paragraph 6.2.1.1, 6.2.2.1 and 6.3.2.1

27.4.2 DID: RMDS-PM-001, RMDS-ILS-002 to ILS-006

27.5 References

27.5.1 A-LM-505-001/AG-001, Guidance Manual Integrated Logistics Support

27.5.2 A-LM-505-001/AG-002, Guidance Manual Logistics Support Analysis

27.5.3 C-03-005-012/AM-001, Naval Materiel Management System Manual

27.5.4 SAE TA-STD-0017, Product Support Analysis

27.5.5 SAE GEIA-STD-0007, Logistics Product Data

27.5.6 SAE GEIA-HB-0007B, Logistics Product Data Handbook

27.5.7 SAE AS 1390 Level of Repair Analysis

27.6 Preparation Instruction

27.6.1 Format

27.6.1.1 The ILS Plan must be prepared in the Contractor's format using the References listed in 27.5.

27.6.2 Content

27.6.2.1 The ILS Plan must include the following as a minimum:

a. Introduction – This section describes the scope and purpose of the plan, together with applicable definitions, references and related documents;
b. ILS Deliverable Documentation - This section describes each document and a summary of its contents that will be used in specifying the ILS processes of the RMDS and associated Deliverables.
c. ILS Meetings - This section describes the meetings that the Contractor will conduct with Canada to obtain guidance for the RMDS ILS processes, to present the results of these processes, and to acquire Authorization from Canada regarding ILS results.
d. ILS Planning and Implementation - This section describes how ILS will be planned and implemented to ensure that the RMDS and associated Deliverables are Authorized or Accepted as compliant with the SOW, and are supportable, specifically:
    1) RMDS Logistic Support Analysis;
    2) RMDS Initial Cadre Training;
    3) RMDS Initial Provisioning;
    4) RMDS In-Service Manuals;
    5) RMDS In-Service Support, specifically:
        a) Maintenance Management System;
        b) Supply Chain Management System;
        c) Configuration Management System;
        d) Technical Data Management System; and
        e) Training Management System.
e. ILS Resources – This section describes:
    1) The Contractor's ILS authorities, organization, and skills;
    2) Required ILS information, materials, facilities, services, Government Furnished Resources; and
    3) The coordination of these resources required to specify and conduct ILS for the RMDS and associated Deliverables.
f. Subsequent sections will be used to describe how all ILS activities will be coordinated with the following:
    1) Project Management (specifically organizational interfaces and communications, schedule, and their overall management as related to ILS);
    2) Quality Management;
    3) Risk Management;
    4) Requirement Management;
    5) System Engineering;
    6) Acceptance Program; and
    7) Configuration Management
    8) Obsolescence Management; and
    9) OE.

28. DID RMDS-ILS-002 – LOGISTIC SUPPORT ANALYSIS

28.1 Description

28.1.1 The Logistic Support Analysis (LSA) must report the LSA results.

28.2 Office of Primary Interest

28.2.1 DND

28.3 Office of Collateral Interest

28.3.1 PSPC

28.4 Interrelationships

28.4.1 SOW: Paragraphs 6.2.2.2 and 6.2.3.2a

28.4.2 DID: RMDS-PM-001, RMDS-ILS-001, ILS-003 to ILS-006

28.5 References

28.5.1 A-LM-505-001/AG-002, Guidance Manual Logistics Support Analysis

28.6 Preparation Instruction

28.6.1 Format

28.6.1.1 The LSA must be prepared in the Contractor's format following the guidelines specified in References 28.5.

28.6.2 Content

28.6.2.1 The LSA must include the following as a minimum:

a. Master and Critical Equipment Lists: Which specifically define each of the configuration managed equipment items in question and those items whose criticality of failure demand that their maintenance be addressed via systematic LSA;
b. Failure Mode Effect and Criticality Analysis (FMECA): Which identifies equipment failures, and prioritizes them according to their corresponding criticalities, effects, and frequencies;
c. Reliability Centered Maintenance Analysis (RCMA): Which identifies the minimal Predictive Maintenance (PdM) and preventive maintenance activities

that will minimize the Corrective Maintenance necessary to address the critical failures identified in the FMECA;

d. Maintenance Task Analysis (MTA): Which identifies the human resources, skills, tools, test equipment, facilities, and documentation necessary to undertake the PdM, preventive maintenance, and corrective maintenance identified in the RCMA;

e. Level of Repair Analysis (LORA): Which identifies the locations, lines and levels for PdM and PM specified in the RCMA, specifically to identify the Line Replaceable Units (LRUs) on which the PdM, preventive maintenance, and corrective maintenance activities will be conducted at a given location, and by a given organization;

f. Sparing Analysis: Which identifies the types and quantities spares necessary to support the above activities with respect to many factors such as their consumption rates, obsolescence rates, availability from suppliers, lead times, repairable vs. disposable LRUs, etc. This analysis also identifies where these spares will be held with respect to repair lines, how sparing levels will be maintained, associated packaging handling, and storage;

g. Use Study: in accordance with references 27.5

h. Life-Cycle Cost Analyses: using the guidelines provided on references 27.5.3 to 27.5.6

i. Reliability, Availability, Maintainability and Durability (RAMD) predictions and analyses in accordance with the RAM Program detailed in the SEMP. To include the activities, methods and data sources used in the analyses in accordance with references 27.5.

29. DID RMDS-ILS-003 – TRAINING DEVELOPMENT PROGRAM REPORT

29.1 Description

29.1.1 The Training Development Program Report must describe the training analysis and associated information that the Contractor undertook in order to develop the Operator and Maintainer Initial Cadre Training Packages.

29.2 Office of Primary Interest

29.2.1 DND

29.3 Office of Collateral Interest

29.3.1 PSPC

29.4 Interrelationships

29.4.1 SOW: Paragraphs 6.2.3.2.b, 6.4.1, 6.4.7, 6.5.1 and 6.5.2

29.4.2 DID: RMDS-PM-001, RMDS-ILS-001, ILS-002 and ILS-006

29.5 References

29.5.1 A-P9-050-000/PT-003, Canadian Forces Individual Training and Education System (CFITES), Analysis of Instructional Requirements, Volume 3

29.5.2 A-P9-050-000/PT-004, CFITES, Design of Instructional Programmes, Volume 4

29.6 Preparation Instruction

29.6.1 Format

29.6.1.1 The Training Development Program Report must be prepared in the Contractor's format following the guidelines specified in References 29.5.

29.6.2 Content

29.6.2.1 The Training Development Program Report must include the following as a minimum:

a. The methods and processes the Contractor used to determine the following in accordance with CFITES Volume 3:
   1) Training task list;
   2) No-train task list;
   3) Rationale for selection or rejection of tasks for training; and
   4) Performance Objectives (PO).

b. The methods and processes the Contractor used to determine the following in accordance with CFITES Volume 4:
   1) Enabling Objectives (EO); and
   2) Teaching Points.

c. The methods and processes the Contractor used to determine the following in accordance with CFITES Volume 4:
   1) A concept for achievement testing for each PO and critical EO that specifies how they will be assessed;
   2) Pass/fail policy based upon results of achievement tests;
   3) A concept for progress testing, that specifies how each EO will be assessed; and
   4) Specification for each PO and EO.

d. The methods and processes the Contractor used to determine the following in accordance with CFITES Volume 4:
   1) Lesson specifications; and
   2) Resource requirements.

30. DID RMDS-ILS-004 – MAINTENANCE AND SUPPORT PROGRAM (MSP) PLAN

30.1 Description

30.1.1 The Maintenance and Support Program (MSP) Plan must describe all aspects of RMDS in-service ILS in accordance with the ILS Plan and LSA results, for use by Canada as a guide for managing RMDS maintenance and support.

30.2 Office of Primary Interest

30.2.1 DND

30.3 Office of Collateral Interest

30.3.1 PSPC

30.4 Interrelationships

30.4.1 SOW: Paragraphs 6.2.2.5 and 6.2.3.2.f

30.4.2 DID: RMDS-PM-001, RMDS-ILS-001 and ILS-002

30.5 References

30.5.1 NA

30.6 Preparation Instruction

30.6.1 Format

30.6.1.1 The MSP Plan must be prepared in the Contractor's format.

30.6.2 Content

30.6.2.1 The MSP Plan must include the following as a minimum:

a. Introduction – This section describes the scope and purpose of the plan, together with applicable definitions, references and related documents;
b. Maintenance and Support Program – This section describes the MSP tasks that the contractor would plan to perform during the service life for the RMDS and associated deliverables. This section also describes the process that the Contractor would plan to follow for MSP tasks including:
   1) Maintenance Management Process;
   2) Supply Chain Management Process;
   3) Configuration Management Process;
   4) Technical Data Management Process; and

5) Training Management Process;
6) Obsolescence Management; and
7) Service Life Extension of the MDV-C
8) Demilitarization of the MDV-C
9) All other in-service ILS processes that would be required by the LSA.

c. Deliverable MSP Documentation - This section describes each document and a summary of its contents that will be used in specifying the MSP tasks and processes of the RMDS and associated Deliverables.

d. In-Service ILS Resources - This section describes:
   1) The Contractor's MSP authorities, organization, and skills;
   2) MSP information, materials, equipment, facilities, services, Government Furnished Resources; and
   3) The coordination of these resources required to conduct MSP for the RMDS and associated Deliverables.

e. Subsequent sections will be used to describe how all MSP activities would be coordinated with the following:
   1) Project Management (specifically organizational interfaces and communications, schedule, and their overall management as related to in-service ILS);
   2) Quality Management;
   3) Risk Management;
   4) Requirement Management;
   5) System Engineering;
   6) Acceptance Program; and
   7) Configuration Management.

31. DID RMDS-ILS-005 – PROVISIONING DOCUMENTATION

31.1 Description

31.1.1 The Provisioning Documentation must consist of:

a. Long Lead Time Item List (LLTIL);
b. Provisioning Parts Breakdown (PPB);
c. Supplementary Provisioning Technical Documentation (SPTD).

31.2 Office of Primary Interest

31.2.1 DND

31.3 Office of Collateral Interest

31.3.1 PSPC

31.4 Interrelationships

31.4.1 SOW: Paragraphs 6.2.2.3, 6.2.2.4, 6.3.2.3, 6.3.3.2 and 6.3.4.1

31.4.2 DID: RMDS-PM-001, RMDS-ILS-001, ILS-002 and RMDS-TD-001

31.5 References

31.5.1 D-01-100-214/SF-000, Preparation of Provisioning Documentation for Canadian Forces Equipment

31.5.2 C-01-000-103/AG-000, Guide to the Canadian Government Cataloguing System

31.6 Preparation Instruction

31.6.1 Format

31.6.1.1 The Provisioning Documentation must be prepared in accordance with the formatting requirements of References 31.5.

31.6.2 Content

31.6.2.1 The Provisioning Documentation must be prepared in accordance with the content requirements of References 31.5. The Provisioning Documentation must include the following as a minimum:

a. LLTIL – Only as required to specify and justify the provisioning of those spares that have an acquisition lead time that would not allow them to be supplied

following the Initial Provisioning Conference in accordance with the sparing schedule specified in the SOW Paragraph 6.3.1;

b. PPB – To define the top down organization of the RMDS, it's HWCIs, components that may be procured as spares, and the associated information required by Reference 31.5.1 for each component; and

c. SPTD – In accordance with the requirements of References 31.5.

32. DID RMDS-ILS-006 – INITIAL CADRE TRAINING PACKAGES

32.1 Description

32.1.1 The Initial Cadre Training (ICT) Packages specify the course content for the RMDS Operator and Maintainer ICT to be delivered by the Contractor.

32.2 Office of Primary Interest

32.2.1 DND

32.3 Office of Collateral Interest

32.3.1 PSPC

32.4 Interrelationships

32.4.1 SOW: Paragraph 6.5

32.4.2 DID: RMDS-PM-001, RMDS-ILS-001, ILS-002 and ILS-003

32.5 References

32.5.1 A-P9-050-000/PT-005, CFITES Volume 5, Development of Instructional Programmes

32.6 Preparation Instruction

32.6.1 Format

32.6.1.1 The ICT Packages must be prepared in the Contractor's format following the guidelines specified in References 32.5.

32.6.2 Content

32.6.2.1 The ICT Packages must include the following as a minimum:

a. Course presentation slides;
b. Student handouts;
c. Instructor speaking notes;
d. Examinations;
e. Examination answer keys;
f. Course schedule and sequencing;
g. Any information required by the instructor to simulate faults for maintenance training; and
h. Identification of required resources such as tools, test equipment, pre-faulted components, teaching aids etc.

33. DID RMDS-AE-001 –A&E DESIGN REVIEWS

33.1 Description

33.1.1 The end goal of the Ammunition & Explosive (A&E) design reviews are to confirm that the design meet the requirements, is complete and the technical data package is complete and up to date.

33.1.2 There will be two types of A&E design reviews, the initial review and the follow-on reviews.

33.1.3 The purpose of the initial A&E design review is to introduce and educate (and/or train) the Canadian Subject Matter Experts (SMEs) to the specifics and operations of the existing, current, "off-the-shelf" MDS (MDV-C and its critical ancillaries, packaging/storage and supporting equipment) early in the contract in order to ensure proper follow-on technical reviews, exchanges of information and communications between DND SMEs and the Contractor SMEs. Parts or components of the Canadian MDS specific configuration that are considered mature enough in their design may also be used for the initial review.

33.1.4 The purpose of the follow-on A&E design reviews is to review the progression of the Canadian MDS (MDV-C and its critical ancillaries and supporting equipment) design and likelihood of meeting the requirements. This includes, but limited to, the adequacy of the design documentation of the CIs, the development and completeness of the specifications and of the tests and evaluations. The reviews also address the interface documents, the functional and physical integration of the MDS to the entire RMDS, the technical risks, MDS safety, the schedule and long lead times and trade-off studies.

33.2 Office of Primary Interest

33.2.1 DND

33.3 Office of Collateral Interest

33.3.1 PSPC

33.4 Interrelationships

33.4.1 SOW: Paragraph 5.3.1

33.4.2 DID: RMDS-PM-001 to -005, RMDS-SE-001 to -012, RMDS-TD-001 to -004, RMDS-CM-001 to -003, RMDS-ILS-001 to -006 and RMDS-AE-002 to -017.

33.5 References

33.5.1 STANAG 4170, Principles and Methodology for the Qualification of Explosive Materials for Military Use

33.5.2 AAS3P-11, Safety and Suitability for Service Assessment Testing for Surface and Underwater Launched Munitions

33.5.3 DID: RMDS-AE-004 A&E Test Plan

33.6 Preparation Instruction

33.6.1 Format

33.6.1.1 Initial A&E Design Review

a. The Contractor must convene an Initial A&E review with DND. The review must be held through an in-person meeting at the Contractor A&E installations. The content of the review is detailed in the content section of this DID.

b. The Contractor must provide supporting documents for the review which addresses the content sections of this DID. The documents must be in English or French and in the Contractor format. The documents will be submitted in an electronic format prior to the review in order for Canada to have time to get familiarised with them. At least two hard copies will be provided at the meeting when the meeting are held in-person at the contractor's locations.

c. Should the hard copies be substantial in size or weight, at the discretion of the DND attendees, the Contractor will ensure that those same hard copies are shipped to the attendees at their Canadian office locations. A courier tracking number must be provided to the Canadian attendees at the end of the initial A&E design review. The copies must be delivered within 15 calendar days of the end of the review.

33.6.1.2 Follow-on A&E Design Reviews

a. The Contractor must comply with the paragraph 5.3.1 of the RMDS SOW for the follow-on A&E reviews format.

33.6.2 Content

33.6.2.1 Initial A&E Design Review

a. The review must cover the A&E MDS components which consists of, but not limited to, through the TDP and physical training aids/parts/components review:

(1) Mine Disposal Vehicle – Combat variant (MDV-C);

(2) Control Console c/w with the firing station;

(3) Umbilical/Tether including the umbilical winch;

(4) Communication links (between MDV-C and Control Console)

(5) Launch system;

(6) Software;

(7) Ancillaries (e.g.: remote control, battery charger …);

(8) Special Tools and Testing Equipment (STTE); and

(9) Existing container and storage magazine and locker configurations.

b. The review must cover the MDS in service activities which consist of, but not limited to:

(1) Storage and packaging;

(2) Transportation;

(3) Operation (from storage to end of mission by detonation or vehicle neutralisation):

(4) Details for a standard operation during a typical disposal mission of naval mines or Underwater Improvised Explosive Devices (i.e. from getting the MDV-Cs out of storage and containers to firing the warhead); Descriptions of all the handling and firing safeties either built-in or procedural;

(5) Details of the principle of operation of the warhead, including but not limited to the fuse, safe and arm, charge, booster, battery, capacitor etc. ;

(6) Details for the design and principle of operation of the power/battery pack of the MDV-C, including but not limited to, safeties, charging, depletion etc.;

(7) Descriptions of all the handling and firing safeties either built-in or procedural to the MDV-C;

(8) Maintenance;

(9) Demilitarization and explosive ordnance disposal at end of life and during in-service (e.g.: dud, misfires …).

(10) For each activity above the specific diagnostic tests, faults/troubleshooting decisions and rectification diagrams, STTE, safety and hazardous protection equipment and safety warnings and cautions should be reviewed, and:

(11) High level review of the specific needed training per activities.

c. The review must cover the following MDV-C specific subjects:

(1) The Nations and Services where the MDV-C has been officially qualified/certified for Safety and Suitability for Service Assessment (S^3) or equivalent with and without Portable Storage Locker (PSL), and confirm the vehicle configuration(s) and an user point of contact;

(2) Date of first in-service used;

(3) Number of units supplied, used and frequency of usage and failures;

(4) Conditions of usage (climatic, sea/water conditions, transportation and launch vehicle(s), etc.) including a comparison of the Canadian Life Cycle Environment Profile (LCEP) detailed in DID RMDS-AE-004 – A&E TEST PLAN and the other user(s) and the designed LCEP(s);

(5) The MDV-C configurations and the nature of differences;

(6) Details of shelf lives (in preservation, long term preservation, in container, out of container and repackaged conditions) and its components where a life limit is assigned or relevant;

(7) The list of (complete with nature, type, state and quantity) and location of stored energy (either long or short term) within the MDV-C:

1) Chemical (e.g. battery, fuel, fuel cell, explosive, pyrotechnic, etc.);
2) Hydraulic (e.g. pressurized device, actuator, etc.);
3) Electrical (e.g. capacitor, etc.) part of an electrical circuit, excluding components integrated in a printed circuit board; and
4) Mechanical (e.g. springs, etc.).

(8) All energetic constituents of the warhead (explosives, propellant, pyrotechnics, etc.). The data should include, but not limited to:

1) Official designation;
2) Type of energetic material;
3) Country of origin;
4) Specification number;
5) User countries;
6) Application(s);
7) Composition (name, chemical name, composition and proportion in percentage);
8) Type of loading process;
9) Is the material qualified as per STANAG 4170? :

d. The review must cover the list (c/w nature, type, state and quantity), location and direction of energy emission sources (e.g. light, sonar, Wi-Fi, etc.) of the MDV-C;

e. The review must cover the details of First Article and Lot Acceptance Testing currently conducted for the MDV-C and its energetic constituents (including the main batteries) ;

f. The review must cover the details of A&E in-service surveillance plan currently used;

g. The review must cover the details of hazard assessments using Fault Tree Analysis (FTA), Failure Modes, Effects and Criticality Analysis (FMECA) or equivalent conducted during the design of the MDV-C and its critical ancillaries and supporting equipment and the Safety Assessment Report **(**SAR**)** as defined by AAS3P-11 para.: 6.2.2 or equivalent;

h. The review must cover the details of Reliability, Availability, Maintainability and Durability (RAMD) assessments and reports for actual use in field conditions and factory testing, as well as the supporting requirements and specifications.

i. The review must cover the details of Failure Reporting, Analysis and Corrective Action System (FRACAS) including the Engineering Change Proposal (ECP) process, or equivalent processes, of the MDV-C and its critical ancillaries and supporting equipment since its in-service inception.

j. The review must cover the list and details of ECPs implemented on, of the MDV-C and its critical ancillaries and supporting equipment since its in-service inception.

k. The review must cover the details of Manufacturer's Ammunition Data Card currently supplied

l. The review must cover the contractor understanding of the Canadian Safety and Security for Service process, Service Environment Questionnaire (SEQ), concept of operation and logistic/replenishment and of the other A&E DIDs.

m. The review must include a visit of the MDV-C assembly lines and its warhead and Safety and Arming Unit (SAU) production line. The review should also, if logicality possible, include a visit of the MDV-C power/battery pack production line.

33.6.2.2 Follow-on A&E Design Reviews

a. The reviews must cover and comply with the description section 33.1.1 and 33.1.4 of this DID.

b. The reviews must cover and comply with section 5.3.2 and 5.3.3 of the RMDS SOW

33.6.2.3 The elements of section 33.6.2.1 of this DID must also be covered in the follow-on reviews. If no changes occurred on some elements between the initial review and the follow-on reviews, a simple confirmation will be sufficient to consider the element covered. The element m. will however not be considered necessary unless the assembly lines have changed manufacturer, are relocated or went through major production process change. In such cases, at the discretion of the DND and following a review of the details with the Contractor, the need for visits will be decided.

33.6.2.4 The Reviews must also follow of the A&E Design and Qualification Plan (DID RMDS-AE-002), as they are elements of that plan.

34. DID RMDS-AE-002 – A&E DESIGN AND QUALIFICATION PLAN

34.1 Description

34.1.1 The A&E Design and Qualification Plan must report the intended approach used by the Contractor in creating the A&E products and implementation of Design and qualification of A&E activities. The A&E Design and Qualification Plan serves as the principal management and planning document for execution of all A&E activities.

34.2 Office of Primary Interest

34.2.1 DND

34.3 Office of Collateral Interest

34.3.1 PSPC

34.4 Interrelationships

34.4.1 SOW: Paragraphs 5.3.2.2.j, 5.3.3.2.k and 7.1.1

34.4.2 DID: RMDS-PM-001, RMDS-AE-001 to AE-006

34.5 References

34.5.1 DID: RMDS-PM-001 and -ILS-004

34.6 Preparation Instruction

34.6.1 Format

34.6.1.1 The A&E Design and Qualification plan must be prepared in the Contractor's format.

34.6.2 Content

34.6.2.1 The A&E Design and Qualification Plan must include the following as a minimum:

a. Introduction - This section describes the scope and purpose of the plan, together with applicable definitions, references and related documents;

b. Engineering Design and Development – This section describes how all engineering design and development activities, including all reviews, will be conducted to ensure that the A&E and MDS and associated Deliverables are accepted as compliant with the SOW. This section includes the following, but not limited to:

1) System Characteristics – This section describes the process of identifying the various system components required for the A&E and MDS and their

adaptation to meet RMDS requirements. This section also describes how system component characteristics will be defined with respect to the system specification;

2) Life Cycle Model – This section describes the life cycle model(s) which have been chosen to adapt system components, and to develop the in-service support processes as described in RMDS-ILS-004;
3) Applicable Standards – This section describes which system engineering design and development standards will be used to adapt system components;
4) Design and Development Methodology – This section describes the methodology that will be used to adapt system components to meet RMDS requirements and associated Deliverable requirements; and
5) Support Tools – This section describes the use of support tools used in system engineering such as Computer Assisted Software Engineering (CASE) or other high-level support tools, which will be used to support system component adaptation.

c. System Security – This section describes the work that will be performed to address the security requirements of the system which may include:
   1) Describing security engineering and management within the Contractors organization, including security risk management; and
   2) Categorizing the system and its information, identifying and analyzing vulnerabilities of the system, and allocating security functions/implementing security controls following the references in 8.5 to mitigate security risks.

d. Engineering Interface to Ship and Shore facilities – This section describes how engineering design for ship considerations will be addressed during the engineering development process.

e. Deliverable System Engineering Documentation - This section describes each document and its contents to be prepared and delivered by the Contractor in accordance with the SOW to define the system engineering processes and the results of these processes.

35. DID RMDS-AE-003 – ASSB TECHNICAL LETTER

35.1 Description

35.1.1 An Ammunition Safety and Suitability Board (ASSB) Technical Letter is used to assess safety and suitability of an ammunition and explosive item that has not received an ASSB Phase 2 decision and Level 1 Authority approval, requires to go test, trial or demonstration on DND property or by DND/CAF personnel. The Letter assess safety and suitability, with respect to the use of ammunition and explosive item and must analyze the interactions of the item with its associated system and sub-systems.

35.1.2 AMPLIFYING DETAILS

35.1.2.1 The ASSB Technical Letter is signed by the designated DND trial authority. The ASSB Technical Letter provides the required technical information to the DND trial authority for approval to conduct the trial.

35.1.2.2 Technical Letters are used for time-limited, controlled events, outside of normal operational parameters. Situations, among others, include non-standard ammunition item / weapon / platform combinations and trials outside of DND control, where DND / CAF personnel are involved.

35.1.2.3 The inputs to the document are the detailed trial plan, the description of the ammunition item, and characteristics (safety and arming devices, development history) that help to identify and define risks. The output is a confirmation of the safety precautions that will be implemented to keep trial personnel and observers safe.

35.2 Office of Primary Interest

35.2.1 DND

35.3 Office of Collateral Interest

35.3.1 PSPC

35.4 Interrelationships

35.4.1 SOW: Paragraph 7.2.1

35.4.2 DID: RMDS- AE-002 to AE-006

35.5 References

35.5.1 D-09-002-010/SG-000, Assessment of the Safety and Suitability for service of Ammunition and Explosives

35.6 Preparation Instruction

35.6.1 Format

35.6.1.1 The ASSB Technical Letter must be in accordance with the format described in Part 5 and Annex A of DND Standard D-09-002-010/SG-000.

35.6.2 Content

35.6.2.1 The ASSB Technical Letter must be in accordance with the guidelines described in Part 5 and Annex A of reference 35.5.1, with the following changes:

a. "DAVPM 9" must be replaced by "Directorate of Ammunition and Explosives Management and Engineering" (DAEME)

b. Disposal Plan must include disposition of all trial ammunition items (duds and misfires, unconsumed items, controlled or hazardous waste)

c. The Signature Blocks and Distribution Lists will be provided by Technical Authority (TA). The Contractor is to advise TA when the information is needed

d. Conclusions and recommendations are submitted as draft only. TA will produce the final version.

35.6.2.2 The ASSB Technical Letter considers all known information to determine risks involved with the firing / trial activity including, but not limited to:

a. Control Console c/w with the firing station and power management;

b. Umbilical/Tether including the umbilical winch;

c. Communication links (between MDV-C and Control Console)

d. Launch system and handling;

e. Software;

f. Ancillaries (e.g.: remote control, battery charger …);

g. Special Tools and Testing Equipment (ST&TE);

h. Identification of Manpower and Personnel requirements

i. Personal protection equipment;

j. Operation details for a standard operation during a typical disposal mission of naval mines or Underwater Improvised Explosive Devices (i.e. from getting the MDV-Cs out of storage and containers to firing the warhead); Descriptions of all the handling and firing safeties either built-in or procedural;

k. Details of the principle of operation of the warhead, including but not limited to the fuse, safe and arm, charge, booster, battery, capacitor etc. ;

l. Details for the design and principle of operation of the power/battery pack of the MDV-C, including but not limited safeties, charging, depletion etc. ;

m. Descriptions of all the handling and firing safeties either built-in or procedural to the MDV-C;

n. The specific diagnostic tests, faults/troubleshooting decisions and rectification diagrams, ST&TEs, safety and hazardous protection equipment and safety warnings and cautions should be reviewed.

o. Packaging, Handling, Storage & Transportability (PHST) instructions including repackaging;

p. Transportation detail including a Natural Resources Canada (NRCAN) Classification: all ammunition and explosive imported, transported, manufactured and stored in Canada must be classified for inclusion on the List of Approved Explosives by the Chief Inspector of Explosives of Natural Resources Canada. The Certificate of Classification confirms an A&E item's: Hazard Division and Compatibility Code; and Transportation of Dangerous Goods, stowage and general public safety information based on detailed technical information supplied by the Original Equipment Manufacturer (OEM) and recognized national authorities classifications. This will be required prior to the A&E Supplier delivering its first items to Canada. For a trial or test the A&E might be able to be covered by a permit, certificate or special authority issued by the NRCAN Explosives Regulatory Department for special tests or product trial;

q. Potential drops, impacts and damaged the MDV-C may experience: the diagnostics of the safety and serviceability of the vehicle, the criteria and the handling of the vehicle following the drop or impact. (either packaged or unpackaged);

r. Specific training.

36. DID RMDS-AE-004 – A&E GAP ANALYSIS

36.1 Description

36.1.1 This DID is the summary of the contractor's review of all available information to determine if the required tests, evaluations and analysis, as defined in the Qualification Test Plan, have been conducted. The review includes providing all supporting documentation.

36.2 Office of Primary Interest

36.2.1 DND

36.3 Office of Collateral Interest

36.3.1 PSPC

36.4 Interrelationships

36.4.1 SOW: Paragraphs 5.3.2.2.k, 5.3.3.2.l and 7.3.1

36.4.2 DID: RMDS-AE-005

36.5 References

36.5.1 AOP-15: Guidance on the Assessment of the Safety and Suitability for Service of Non-Nuclear Munitions for NATO Armed Forces

36.6 Preparation Instruction

36.6.1 Format

36.6.1.1 The Gap Analysis must be produced in DND's template, detailed below.

36.6.2 Content

36.6.2.1 The ASSB (Ammunition Safety and Suitability Board) Phase 2 – S^3 (Safety and Suitability for Service) Assessment is initiated through a Gap Analysis. The Analysis is defined as the formal process by which available information is assessed to determine whether or not it satisfies all aspects of the Qualification Test Plan (refer to Attachment AC1), prior to prescribing the A&E Test Plan (DID RMDS-AE-005 – A&E Test Plan), which must be then executed by the Contactor seeking certification.

36.6.2.2 The Gap Analysis reviews the information available and assesses it in detail against the Qualification Test Plan as outlined in the ASSB Phase 1 (refer to Attachment AC1). The comparison must include a complete analysis of each test and analysis requested in the Test Plan. This comparative analysis between the elements of the Test Plan and

the information available must include, among others, the identification of the differences, their impact on the validity of the results and conclusions and the justification to include or exclude, completely or partially, this information in the gap analysis as a source of information providing an equivalent level of confidence of compliance to the requirements of the Qualification Test Plan.

36.6.2.3 When the information available provide an equivalent level of confidence to that which would have been obtained through successful testing as per the Qualification Test Plan, those specific tests or analysis are considered to be not required to be performed or executed as part of the A&E Test Plan (DID/CDRL RMDS-AE-005 – A&E Test Plan).

36.6.2.4 When the information is insufficient to provide a level of confidence equivalent to what would have been obtained through testing or analysis, then these tests or analysis must be part of the A&E Test Plan (DID/CDRL RMDS-AE-005 – A&E Test Plan).

36.6.2.5 The contractor must perform a Gap Analysis Review using all available data from acceptable sources. A list of Acceptable Sources of Qualification Information is provided below. All the supporting data documents used for the Gap Analysis must be delivered with the Gap Analysis.

36.6.2.6 The Contractor must provide certified (refer to section 36.6.5 below) technical data in support of each element of gap analysis to confirm compliance with the Qualification Test Plan.

36.6.2.7 The Gap Analysis may make use of any pertinent S^3 data which is already in existence to substantiate alleviation of testing or analysis requirements. Canada will work with the contractor to access this information only if required by the Custodian of the data or information.

36.6.3 Initial and Final Versions

36.6.3.1 There are two versions of the Gap Analysis including all supporting documents and certifications. The initial version must be submitted once the Gap Analysis is completed. The final version must be submitted after the A&E Test Plan has been executed and all the test results and reports have been done and completed consequently addressing all of the requirements of the Qualification Test Plan. The Gap Analysis must be updated with all those test results.

36.6.4 Amplifying Details

36.6.4.1 It is important to note that the issue is not whether the Service Environments and the Life Cycle Environmental Profiles/ Expected Life Cycles of the A&E design are identical to Canada's exposure requirements but whether they provide an equivalent level of confidence of compliance with regard to the Canadian service environment as defined in the Service Environment Questionnaire (refer to Attachment AC2) and Expected Life Cycle as part of the ASSB S^3 Phase 1 (refer to Attachment AC1). Where parts of elements or sequences requested are missing, the Gap Analysis, using the

Qualification Test Plan (refer to Attachment AC1) as baseline, must appropriately evaluate the hazards, impacts and effects and weigh the risks presented by these anomalies. Then appropriate recommendations must be rendered including the conduct of additional testing. Similarly, where testing has been done to National Standards rather than NATO Standards, the issue is not so much a comparison of the discrete processes, although such a comparison must be conducted to highlight and understand the differences, but rather the value of the resulting information to ensure the Safety and Suitability for Service of the equipment in the Canadian service environment. Guide for the process can be sought in NATO AOP-15.

36.6.5 Acceptable Sources of Qualification Information for the Gap Analysis

36.6.5.1 Trusted Technical Publications

a. NATO Publications;

b. CRC Press Handbook and similar;

c. Similar internationally recognized and trustworthy publications.

36.6.5.2 Original Equipment Manufacturer Test/Analysis Data or Certificate

a. Must be a known trustworthy company or be accredited by a trusted nation or certifying international agency

b. Must have the integral capacity to perform the stated tests/Analyses on a regular basis

c. Certificates must clearly state the test and analysis performed, who was the authority, who performed (and certification if applicable), where and when was the test and analysis performed and the component or equipment configuration tested. The certificates must also include and state profiles, procedures and measuring equipment, or their alternatives, used. Additionally, the certificates must state any environmental or test tailoring, any deviation and waiver departing from the original test or analysis plan, or initial process and specification and any inconclusive results and failures. The certificates must state the qualification level achieved

36.6.5.3 Independent Laboratory Test/Analysis Data or Certificates:

a. Must be a known trustworthy test establishment or be accredited by a trusted nation or certifying agency

b. Must have the integral capacity to perform the stated tests/Analyses on a regular basis

c. Certificates must meet section 36.6.5.2.c. above.

36.6.5.4 Trusted Foreign Nation Test/Analysis Data or Certificates

a. Foreign standards may be cross-correlated by the Contractor's Explosive and Ordnance Analyst. In so doing, the emphasis is to be on the confidence level of final performance provided by the foreign standard relative to the Qualification Test Plan requirements rather than the specifics of the procedures employed, however a comparison as per section 36.6.2.2 must still be conducted;

b. Certificates must meet section 36.6.5.2.c. above and be endorsed by national official considered having appropriate access to validate the source information.

36.6.5.5 Other Domestic Government Agencies Test/Analysis Data or Certificates

a. Must be assessed for applicability to the Canadian military service environment as described in the Service Environment Questionnaire (SEQ) and Expected Life Cycle;

b. Civilian standards may be cross-correlated by the Contractor's Explosive and Ordnance Analyst.. In so doing, the emphasis is to be on the confidence level of final performance provided by the civilian standard relative to the Qualification Test Plan requirements rather than the specifics of the procedures employed, however a comparison as per section 36.6.2.2 must still be conducted;.

c. Certificates must meet section 36.6.5.2.c. above and be endorsed by the domestic government agency and be considered having appropriate access to validate the source information.

36.6.6 Gap Analysis Report Structure

36.6.6.1 A presentation section must be provided which must:

a. Detail the release number and release purpose with the history of the prior and current release of the document.

b. Detail the major modifications and additions per release of the document and tests, assessment or analysis included.

c. Provide an introduction on the source of data that were available and any assumptions made during the gap analysis such as differences between the model or configuration tested and model or configuration being offered to Canada.

d. Summarise the gap analysis findings.

e. Compile at high level the main primary test, assessment or analysis findings.

f. Recommend on the safety and suitability of the Canadian MDV-C configuration for service in the RCN as per the Canadian Service Environments and the Life Cycle Environmental Profiles/ Expected Life Cycles.

36.6.6.2 A summary and cross-reference table must be provided with the structure detailed below.

a. The gap analysis is performed in relation with the testing requirements established within the approved Qualification Test Plan found in Attachment AC1 of this DID. Every test, assessment or analysis requested in the Qualification Test Plan must be addressed in separate lines in the Gap Analysis template below. The same serial must be used for reference between the two documents. Any and every sub- test, assessment or analysis of the main primary test, assessment or analysis must be addressed in a separate line under that main primary test, assessment or analysis. A sub-serial must be used for the additional lines for reference and cross-reference. This cascade must go done up to the last procedure (e.g.: STANAG, DEF-Stan, Mil specification, CFTO, National Standards …). As an example, one of the multiple branches needed for the Explosive Material Qualification Testing would be a covering STANAG, the AAS3P, a covering STANAG, an AOP, out of the multiple tests called in that AOP, a STANAG is called which may call another STANAG or Mil specification or Civilian procedure up to the final tests and results (refer to the example in the template below).

b. The columns of the table must be filled as per the example below and are a summary of the supplied supporting documents for every main primary test, assessment or analysis and for every sub- test, assessment or analysis.

36.6.6.3 A last section with all the supporting documents for the gap analysis, as per section 36.6.2 above, must be provided with the structure detailed below.

a. The first pages of each supporting document folder and sub-folder must include and clearly state their origin, date of release, source, the result, criteria and sentencing of the test or analysis c/w substantiation of the recommendation, assumptions, environment or test method tailoring, deviation, waiver, inconclusive result or failure. Any variation or difference such as, but limited to, must be clearly stated and evaluated:

1) Testing procedure,
2) Test equipment
3) Testing variables (e.g.: compressing factors, vibration profile, height, field strength, pressures, frequencies …) ;
4) Testing environment (e.g.: temperature, pressure, relative humidity, Solar Radiation Equivalent (SRE) , solar radiation, climate zone …)

b. Each test, assessment or analysis or sub-test, assessment or analysis that generates a result, report or analysis must have a supporting document.

c. All supporting documents must be organised and filed in folders using the serials of the Qualification Test Plan and sub-serials on the template as reference.

d. All documents and folders must be linked using and clearly identifying with those same serials and sub-serials.

e. If older release or revision or equivalent test procedures or specifications are used as information or data for the analysis, those older release or revision or equivalent test procedures or specifications must be provided as part of the data supporting documents and the differences with the Qualification Test Plan must be highlighted, detailed and compared.

Gap Analysis Template for Non-Sequential and Sequential Test / Qualification Test Requirements for S^3

Serial (Refer to Qualification Test Plan)	Sub Serial	Test	Test Standard and Criteria	Test Data Available (Type of Documentation and Origin)	Test (Standard Used)	Test Results (Failures, Waiver, Deviation …)	Gap Analysis & Conclusion	Recommendation for S^3 and A&E Test Plan	A&E Test Plan Result
Example									
S12		Explosive Materials Qualification Testing							
	SS1		STANAG 4758, AAS3P-11 para.: 8.5.10	Refer to SS2					
	SS2		STANAG 4170, AOP-7	Qualification report, document XX-XXX, rev.:## from Nation ABC, department DEF, POC: xxxxx, Refer to supporting documentation S12SS2					
	SS2.1		AOP-7, para.:7.4.0 and STANAG 4170, Table 2, High explosive	Refer to supporting documentation S12SS2.1	Main Warhead Charge (High Explosive)				
	SS2.1.1				STANAG 4170, Table 1	All details and information supplied in supporting documentation S12S2.1.1 No failure observed no restriction, waiver or deviation needed.	No Gap detected. No further test or analysis needed.	The results can be used as-is for the MDV-C S^3 qualification. The results confirm that the Canadian MDV-C configuration and Canadian LCEP are compatible. The Canadian MDV-C is safe and suitable for service.	N/A

	SS2.1.2				STANAG 4147	All details and information supplied in supporting documentation S12S2.1.2. Results have been obtained with a different liner.	A Gap exists between the test warhead configuration and the MDV-C warhead configuration supplied.	The results cannot be used as-is for the MDV-C S^3 qualification. New qualification tests are needed to confirmed safety and suitability for service.	Refer to test XXX of the A&E Test Plan
	SS2.1.3				STANAG 4556	…	…	…	…
	SS2.1.4				STANAG 4515				
	SS2.1.5				STANAG 4491				
	SS2.1.6				STANAG 4490				
	SS2.1.7				STANAG 4489				
	SS2.1.8				STANAG 4487				
	SS2.1.9				STANAG 4488				
	SS2.1.10				STANAG 4506				
	SS2.1.11				STANAG 4507				
	SS2.1.12				STANAG 4525				
	SS2.1.13				STANAG 4540				
	SS2.1.14				STANAG 4543				
	SS2.1.15				STANAG 4123	Refer to S5			
	SS2.1.16				STANAG 4284				
	SS2.1.17				AOP-7, para 7.4.1.2 b.				
	SS2.1.17.1				AOP-7, Chap. 8 Ageing Conditions : 6 months at +70ºC and -20ºC				
	SS2.1.17.1.1				STANAG 4489				
	SS2.1.17.1.2				STANAG 4487				
	SS2.1.17.1.3				STANAG 4506				

	SS2.1.17.1.4				STANAG 4443				
	SS2.1.17.1.5				STANAG 4540				
	SS2.1.17.1.6				STANAG 4491				
	SS2.1.17.1.7				National test as per ABCD-XXXX				
	SS2.1.18				AOP-7, para 7.4.1.2 d.				
	SS2.1.19				AOP-7, para 7.4.1.4				
	SS2.1.20				AOP-26, Catalogue Page X-XXX-#				
	SS2.2				Booster Charge				
	…				…				
	SS2.3				Detonator				
	…								
	SS2.3.#				AOP-26, Not Catalogued				
	…				…				
	SS3		STANAG 4333, Para.: 6.2.1	Refer to SS2, S7 (IM), S8 (Fuse safety) and S23 (E3)					
	…								

37. DID RMDS-AE-005 – A&E TEST PLAN

37.1 Description

37.1.1 The A&E Test Plan identifies and describes all of the test and analysis details and information applicable to various testing requirements that are either missing, incomplete or not meeting the required standard of the Qualification Test Plan (refer to DID/CDRL RMDS-AE-004 – A&E Gap Analysis). The Test Plan must be based on the results and conclusions of the Gap Analysis, DID/CDRL RMDS-AE-004 – A&E Gap Analysis.

37.2 Office of Primary Interest

37.2.1 DND

37.3 Office of Collateral Interest

37.3.1 PSPC

37.4 Interrelationships

37.4.1 SOW: Paragraphs 5.3.2.2.l, 5.3.3.2.m and 7.4.1

37.5 References

37.5.1.1 AOP-15: Guidance on The Assessment of the Safety and Suitability for Service of Non-Nuclear Munitions for NATO Armed Forces

37.6 Preparation Instruction

37.6.1 Format

37.6.1.1 The Test Plan could be in the Contractor's format but must be based and made easily to referable to the A&E Gap Analysis report.

37.6.2 Content

37.6.2.1 The A&E Test Plan must address all the gaps identified in the Gap Analysis (DID RMDS-AE-004 – A&E GAP ANALYSIS) in order to fill those gaps.

37.6.2.2 The tests must be in accordance with the Qualification Test Plan (refer to DID RMDS-AE-004 – A&E GAP ANALYSIS). Deviation from the Qualification Test Plan must be detailed, explained and substantiated in order to confirm that the intent of the S^3 to ensure the Safety and Suitability for Service of the equipment in a Canadian service environment is met. Guide for the process can be sought in NATO AOP-15.

37.6.2.3 The Test Plan must identify, describe and contain all of the test and analysis details and information applicable to the scheduling, planning, organizing, conduct, controlling and coordination for each test. The Test Plan must address the above points and include the details required in the paragraphs below.

a. Applicable verification stage, such as S^3 or performance requirements;

b. Test reference (References and cross references must correspond with the requirements or ammunition specifications, the Serial, the Sub Serial, the Tests, Evaluations and Analysis names of the A&E Gap Analysis and of the Qualification Test Plan (refer to DID/CDRL RMDS-AE-004 – A&E Gap Analysis));

c. Purpose and objective of each test and analysis and quantity of units or components tested and their serial number, lot number and configuration;

d. Applicable references, procedure documents and standards and criteria and all supporting documents (e.g.: STANAG, DEF-Stan, Mil specification, CFTO, National Standards …). They must also all be referenced or cross–referenced as part of each individual test as per the section b. above;

e. Sequence and progression;

f. Environmental conditions;

g. Proposed test facilities;

h. Any special conditions, environmental concerns and safety concerns;

i. Participating organizations, sections and personnel;

j. Required support from Canada, including personnel and Government Supplied Material and Furnished Equipment (GSM and GFE);

k. Proposed schedule

l. Template of the results report and forms that must be included in the Gap Analysis report, once the test plan has been executed and all the test results and reports have been done and completed.

38. DID RMDS-AE-006 – A&E ENVIRONMENT OCCUPATIONAL HEALTH AND SAFETY ASSESSMENT REPORT

38.1 Description

38.1.1 The Environmental Occupational Health and Safety Assessment (EOHSA) is conducted in support of the Phase 2 S^3 assessment for the ammunition MDV-C. The report identifies and documents the Environmental and Occupational Health and Safety impacts of the ammunition MDV-C throughout the various life cycle phases (storage, transportation, testing, use, demilitarization and disposal) from contractual ownership by the DND/CAF to demilitarization and disposal. Mitigation measures may be recommended in order to eliminate or reduce significant Environmental and Occupational Health and Safety risks.

38.2 Office of Primary Interest

38.2.1 DND

38.3 Office of Collateral Interest

38.3.1 PSPC

38.4 Interrelationships

38.4.1 SOW: Paragraphs 5.3.2.2.m, 5.3.3.2.n and 7.5.1

38.4.2 DID: RMDS-AE-004 and -AE-015

38.5 References

38.5.1 Canadian Environmental Protection Act

38.5.2 National Pollutant Release Inventory

38.6 Preparation Instruction

38.6.1 Format

38.6.1.1 The EOSHA may be prepared in the Contractor’s format.

38.6.2 Content

38.6.2.1 The EOHSA must contain the following sections and information, as a minimum:.

38.6.2.2 Title Page:

a. A&E Name: RMDS - MDV-C;
b. Date: [Date last modified].

38.6.2.3 Synopsis:

a. This section must provide a brief summary of major concerns with mitigation measures, residual risks, if any, and main conclusions and recommendations.

38.6.2.4 References:

a. Regulations and Policies - This section must list all applicable Canadian regulations and policies;
b. Other references - This section must list the references and material used to produce the EOHSA

38.6.2.5 A&E Description:

a. This section must contain a brief description of the ammunition item under the following sub-paragraphs:
   1) *General Description*: Provide a description of the purpose and concept of operation of the A&E;
   2) *Major Sub-System*: Identify the major sub-components of the A&E and provide a description of their design, material and purpose. A list of all products containing hazardous substances/materials must be provided. Table 1 and 2 show an example. MSDSs of these products must be appended to the EOHSA as stated in Attachment AC3.

1. **Table 1 Ammunition sub-components (non-energetic)**

Major sub-system	Component	Material	Quantity (g)	Controls*
* Substances regulated and proposed to be regulated under the *Canadian Environmental Protection Act (CEPA), 1999*; Targeted in Schedule 1, Toxic Substance List under CEPA and/or subject to the reporting requirements under the National Pollutant Release Inventory (NPRI).				

Table 2 Energetic materials

Major sub-system	Component	Chemical ingredient	CAS#	Quantity (g)	Controls*
* Substances regulated and proposed to be regulated under the *Canadian Environmental Protection Act, 1999*; Targeted in Schedule 1, Toxic Substance List under CEPA and/or subject to the reporting requirements under the NPRI.					

c. *Combustion Products*: Identify the combustion products associated with the ammunition by energetic material or by the complete cartridge if available. The source and method for combustion products identification must also be identified (e.g. combustion products measured or calculated, with accepted

method or algorithm provided). These products must be identified by Name, Combustion Analysis System (CAS) number, Quantity and the Controls (Table 3 illustrates an example).

Table 3 Combustion products

Major Sub-system	Component	Combustion product	CAS #	Quantity (g)	Controls*
* Substances regulated and proposed to be regulated under the *Canadian Environmental Protection Act, 1999*; Targeted in Schedule 1, Toxic Substance List under CEPA and/or subject to the reporting requirements under the NPRI.					

38.6.2.6 Environmental Assessment:

a. This section must provide a discussion of the environmental impacts associated with activities during each life cycle phase (storage, transportation, testing, use, demilitarization and disposal.

1) ***Life cycle phase / Activity Description*** – Identify the activity relevant to the lifecycle phase of the ammunition.

2) ***Environmental Impact*** – Describe in detail the predicted impact on the environmental components considering the severity and duration if possible. Environmental components are defined as fundamental elements of the physical, biological or socio-economic environment, including the air, water, soil, terrain, vegetation, wildlife, fish, birds and land use. A clear identification of whether each major component of the ammunition is a source of any of the following aspects should be done:

   i. Hazardous gases (source, concentration or quantity);
   ii. Hazardous liquids (source, concentration or quantity);
   iii. Hazardous solids (source, concentration or quantity);
   iv. Noise;
   v. Vibration; and
   vi. Other – any other hazard associated with the specific ammunition.

   Examples of various aspects for activities related to life cycle phases that are typically included in the EOHSA discussion are listed on the last page of this template.

3) ***Mitigation Measures*** – Describe actions to be taken to eliminate or reduce the impact of the component or activity.

4) ***Hazards and Impacts that cannot be evaluated –*** Identify hazards and impacts that cannot be evaluated due to lack of details respecting a subcomponent and/or an activity of a lifecycle phase.

5) ***Conclusions and recommendations*** **-** This section must summarize the significant impacts on the environment identified for each life cycle phase. Hazards and impacts that could not be evaluated should also be part of the

conclusions, and recommendations for obtaining the necessary information should also be provided as well as the likely mitigation, monitoring, and follow-up, if appropriate.

38.6.2.7 Occupational Health and Safety Assessment:

a. The purpose of the Occupational Health and Safety Assessment (OHSA) is to assess the potential health risks to operators of the ammunition and any bystanders (ex. training instructors) in the immediate vicinity of its use. This assessment must be conducted for all life cycle phases (storage, transportation, testing, use, demilitarization and disposal) from contractual ownership by the DND/CAF to demilitarization and disposal of the ammunition. The OHSA must:
   1) identify potential health hazards to personnel related to the storage, handling, use and disposal and demilitarization of the ammunition while in CAF service;
   2) assess the exposure of personnel to the identified health hazards;
   3) characterize the health risks to personnel based on their exposure to the identified hazards; and
   4) when necessary, recommend approaches and strategies to mitigate health risks to personnel related to the storage, handling, use and disposal and demilitarization of the ammunition.

b. ***Hazard Identification***:
   1) Occupational health hazards related to the use of ammunition will typically fall into two broad categories: chemical hazards (e.g. combustion products such as carbon monoxide, heavy metals such as lead, etc.) and physical hazards (e.g. noise, vibration, electromagnetic fields, lasers, etc.).
      i. **For chemical hazards**, consideration must be given both to the chemical constituents of the ammunition (its composition) as well as the chemical products that may be produced when the ammunition is used (e.g. combustion products). Potential chemical hazards that may exist for handlers of the residue of the ammunition (e.g. spent casings) and for personnel involved in the long-term or bulk storage and disposal of the ammunition must also be considered.
      ii. **For physical hazards**, the most ubiquitous physical hazard for ammunition will be noise, specifically impulse noise. However, where applicable, consideration must also be given to other potential physical hazards (ex. lasers, electromagnetic fields) related to the use of the weapon system.

c. ***Exposure Assessment:***
   1) Once the types of hazards have been identified, a discussion must be provided regarding the amount, duration, frequency, and route of potential exposure (e.g. for chemical hazards, inhalation, ingestion, or dermal absorption) to the hazards. Specific details that must be considered in order to adequately assess exposure to personnel include:

i. What is the impact from a single round of the ammunition (e.g. types and amounts of chemical hazards released, noise characteristics),

ii. What are the conditions that the ammunition can and/or will be used in (e.g. open air, in a trench, from a building, from a vehicle),

iii. How many rounds in total would be fired by an operator in a single day, how many days would the operator fire the ammunition in a single year, and how frequently are the rounds fired (e.g. one round per minute for one hour; bursts of 5 to 10 rounds every 10 seconds for 10 minutes),

iv. Will the ammunition be fired from a single weapon when used, or will multiple operators be firing the ammunition in relatively close proximity at the same time? If the latter, then how many operators and what is the separation distance and direction),

v. Other than the operator(s) who is/are firing the ammunition, are there bystanders in the immediate vicinity (e.g. instructors, support personnel, observers) when the ammunition is in use? If yes, then:

I. What is the bystander distance and direction from the weapon system being used to fire the ammunition, and

II. How many rounds is the bystander exposed to (rounds fired per day, days per year, firing frequency).

vi. With respect to paras ii. to v., are there any differences between operational and training scenarios and if so, what are they,

vii. With respect to paras ii. to vi., what would be the “typical” scenario and what would be the “worst case” scenario, and

viii. With respect to chemical hazards only, is there the potential for exposure by a route other than inhalation? For example, does the ammunition contain or release a chemical substance that can be absorbed through the skin?

The key consideration for exposure assessment is evaluating exposure at the location of the individual, be it the ammunition operator or bystander. Therefore, for the operator(s) and typical bystander positions, the following information must be provided:

ix. For chemical hazards, the airborne concentration of the chemical (e.g. parts per million, mg/m^3) in the breathing zone of the individual. The effects of firing frequency and use conditions (ex. open air vs. relatively enclosed space with little ventilation, shooter position such as prone vs. standing) will be taken into consideration when determining the airborne concentration. Airborne concentration data should include the mean, maximum, minimum, and standard deviation for both short-term peak exposure and time-weighted average exposure for the duration of time that the ammunition is used,

x. For noise, measurement data is required for different shooter positions (e.g. prone, standing) and applicable ammunition use

environments (e.g. open air, trench, inside a structure or vehicle, etc.). The following parameters should be measured at the location of the exposed individual:

I. Peak sound pressure level of the impulse, in units of Pa or dB,

II. B-duration of the impulse (B-duration is defined as the total time that the envelope of the pressure fluctuations, both positive and negative, are within 20 dB of the peak pressure level), in milliseconds; and

III. The Sound Exposure Level (SEL) of the impulse (SEL is defined as the level in dBA of a constant sound of one second in duration that contains the same acoustical energy as the actual sound to be measured), in dBA,; and

xi. For physical hazards other than noise, Directorate Force Health Protection (DFHP) should be consulted to confirm that the applicable measurement parameters are adequate for subsequent risk characterization purposes.

d. ***Risk Characterization:***

1) Risk characterization entails an assessment of human health risk based on the types of hazards and the degree of exposure to those hazards according to potential exposure scenarios. Regulatory standards and occupational exposure limits applicable to the CAF must be considered during the risk characterization process, and professional judgement is required in their application to ammunition use scenarios. An example of an applicable regulation is the General Safety Program General Safety Standards. In this standard, chapter 13 entitled Hazardous Substances Safety Standard applies to chemical hazards and chapter 10, Noise Control and Hearing Conservation Safety Standard applies to noise. In the absence of specific applicable standards/regulations, DFHP should be consulted for further guidance on interpretation of sampling/monitoring results and exposure assessment findings.

e. ***Risk Management:***

1) The risk characterization process must determine if the use of the ammunition entails health risks that are acceptable/tolerable or not acceptable/tolerable in certain conditions. In the latter case, recommendations must be made regarding options to mitigate the risk down to acceptable levels, such as engineering controls, administrative controls (ex. limits on number of rounds fired per day), or personal protective equipment (ex. use of hearing protective devices, respirators, etc.).

38.6.2.8 Consultation:

a. Internal. This section must list all applicable internal consultations performed in order to produce the EOHSA; and

b. External. This section must list all applicable external consultation performed in order to produce the EOHSA.

38.6.2.9 Signature Block:

EOHSA conducted by:
(Name, position/title, Company/DND division/directorate, phone number, and email address)

Signature _____ Date _____

EOHSA reviewed by:
(Name, position/title, phone number, and email address)

Signature _____ Date _____

39. DID RMDS-AE-007 – ASSB PHASE 2 DECISION – S^3 ASSESSMENT

39.1 Description

39.1.1 The ASSB Phase 2 Decision – S^3 Assessment is used to assess the Safety and Suitability for Service (S^3) of new munition with respect to the Office of Primary Interest (OPI)'s declared Service Life Cycle Profile. If the munition is found safe and suitable, the ASSB Phase 2 Decision – S^3 Assessment will also make recommendations for conditions of in-service use to the appropriate Environmental Chief of Staff.

39.2 Office of Primary Interest

39.2.1 DND

39.3 Office of Collateral Interest

39.3.1 PSPC

39.4 Interrelationships

39.4.1 SOW: Paragraphs 5.3.3.2.o and 7.2.2

39.4.2 DID: RMDS-AE-002 to AE-006

39.5 References

39.5.1 D-09-002-010/SG-000, Assessment of the Safety and Suitability for Service of Ammunition and Explosives

39.6 Preparation Instruction

39.6.1 Format

39.6.1.1 The Phase 2 Decision – S^3 Assessment must be produced in Canada's format and as described in Part 5 and Annex F of reference 39.5.1.

a. "DAVPM 9" must be replaced by "Directorate of Ammunition and Explosives Management and Engineering (DAEME)"

b. Scope of Requirement (SOR) will not be provided but the Contractor is to use the SOW, SRD, and the information provided in the DID RMDS-AE-004 – A&E GAP ANALYSIS for the purpose of drafting the brief summary of SOR

c. The Preliminary Hazard Assessment (PHA) will be provided by the TA. The Contractor is to advise the TA when the information is needed.

d. The Signature Blocks and Distribution Lists will be provided by the TA. The Contractor is to advise the TA when the information is needed

e. Conclusions and recommendations are submitted as draft only. The TA will produce the final version.

39.6.2 Content

39.6.2.1 The Phase 2 Decision – S^3 Assessment must identify and describe all of the reasonably conceivable safety and suitability issues and make appropriate findings and recommendations for introduction of a new munition in service with DND.

39.6.2.2 The Phase 2 Decision – S^3 Assessment must be in accordance with the guidelines described the ASSB standard (reference 39.5.1), including but not limited to the following sections:

a. Purpose;

b. Requirement;

c. Description (System, Ammunition, Launch sequence, Packaging);

d. Supplier;

e. Design History ;

f. Preliminary Hazard Assessment;

g. Ammunition Qualifications;

h. Ballistic Support;

i. Insensitive Munition Assessment;

j. Environment Impact Assessment;

k. Hazards Analysis;

l. Risk Assessment;

m. In-Service Consideration;

n. Conclusions; and

o. ASSB Recommendations.

39.6.2.3 The Phase 2 Decision – S^3 Assessment and resultant recommendations which form part of the ASSB Phase 2 Decision document must account for the following considerations, but not limited to:

a. Storage and operational temperature limits;

b. Initial service life limits;

c. Designed operational life, service life and storage life limits

d. Personnel safety Precautions

e. Operational use limitations

f. If applicable, mitigating measures for ensuring the item's safety and suitability for service throughout its life cycle;

g. Instructions on method of disposal (at end of life and during in service) and render safe procedures; and

h. Method of demilitarization in an environmentally acceptable manner. The open burning and open detonation of ammunition items are no longer acceptable methods of demilitarization therefore, the contractor must propose a breakdown technique for the ammunition with an indication of any salvageable components and by-products of the process.

1) Salvageable components and by-products must be discussed in terms of their utility, ease of reuse, toxicity, and explosive hazard.
2) The cost of the demilitarization method as a percentage of the ammunition's value at acquisition should be considered.

39.6.2.4 AMPLIFYING DETAILS

39.6.2.5 The Phase 2 Decision – S^3 Assessment is focused on ensuring that the combination of energetic materials and inert components, and the proposed procedures for construction and deployment of the device are not inherently unsafe. The Phase 2 Decision – S^3 Assessment also ensures that the assembled device does not create an undue impact on the environment or to human health, or impinge on Canadian or International Law or treaties.

39.6.2.6 The inputs to the document are a statement of the requirement, a detailed description of the item and system including supplier, design history and packaging, the preliminary hazard assessment and detailed results of the qualification that was performed. The outputs of the document are a hazard analysis with risk assessment and approval of item subject to conditions recommended by the ASSB.

40. DID RMDS-AE-008 – SUPPLEMENTARY PROVISIONING TECHNICAL DOCUMENTATION

40.1 Description

40.1.1 The Supplementary Provisioning Technical Documentation (SPTD) provides the TA the required information to uniquely identify each ammunition nature being considered for provisioning in order to catalogue it and to assign it a NSN if not previously assigned.

40.2 Office of Primary Interest

40.2.1 DND

40.3 Office of Collateral Interest

40.3.1 PSPC

40.4 Interrelationships

40.4.1 SOW: Paragraphs 6.2.3.2.g and 7.6.1

40.4.2 DID: RMDS-AE-002 to AE-006

40.5 References

40.5.1 D-01-100-214/SF-000, Preparation of Provisioning Documentation for Canadian Forces Equipment

40.6 Preparation Instruction

40.6.1 Format

40.6.2 The SPTD must be prepared and submitted in accordance with the reference 40.5.1. for all ammunition identified on the contract that do not already have a NSN or that are not identified by a Canadian or US government specification or standard that completely describes the item (including dimensional, mechanical and electrical characteristics).

40.6.3 Content

a. The SPTD must include:

b. Item Name;

c. Reference (Manufacturer’s Part) No. ; and

d. Commercial Activity and Government Entity (CAGE) Code.

40.6.3.2 The SPTD must include, as applicable:

a. Configuration - drawing of item, assembly, illustrated parts list

b. Technical specification, including relevant standards

c. Physical characteristics, such as dimensions, tolerances, materials, mandatory processes, surface finish, protective coating

d. Electrical characteristics

e. Performance data, including the environmental and operating conditions under which the item must perform

f. Mounting requirements

g. Workplace Hazardous Material Information System (WHMIS) data

h. Controlled Goods data

i. Material Safety data

j. Special Packaging data

k. Special features which contribute to the uniqueness of the item

l. Commercial catalogue data.

40.6.4 AMPLIFYING DETAILS

40.6.4.1 The SPTD must be sequenced in the same order as the Provisioning Parts Breakdown (PPB) that it supplements.

40.6.4.2 The SPTD must include of any limitations on the use or publication of any data provided.

41. DID RMDS-AE-009 – MANUFACTURER'S AMMUNITION DATA CARD

41.1 Description

41.1.1 These data items must be prepared using DND Standard D-09-002-002/SG-000.

41.1.2 An Ammunition Manufacturer's Data Card is an easily referenced record of the initial history of a lot of ammunition and explosive materiel or of a serially numbered ammunition item. This card contains essential data pertaining to each lot or each item

41.2 Office of Primary Interest

41.2.1 DND

41.3 Office of Collateral Interest

41.3.1 PSPC

41.4 Interrelationships

41.4.1 SOW: Paragraph 7.6.2

41.4.2 DID: RMDS-AE-002 to AE-006

41.5 References

41.5.1 D-09-002-002/SG-000, Ammunition Loiting Procedure

41.6 Preparation Instruction

41.6.1 Format

41.6.2 The format of the Ammunition Manufacturer's Data must be prepared using the format in reference 41.5.1

41.6.3 A separate Ammunition Manufacturer's Data Card is required for each lot or individually serialized item of ammunition manufactured.

41.6.4 Content

41.6.5 The content and the required information must be in accordance with reference 41.5.1.

42. DID RMDS-AE-010 – FIRST ARTICLE TESTING CRITERIA /LOT ACCEPTANCE TESTING (LAT) CRITERIA

42.1 Description

42.1.1 First Article Testing and Lot Acceptance Testing (LAT) Criteria define the steps the Contractor will take to test product lots of ammunition and explosive.

42.2 Office of Primary Interest

42.2.1 DND

42.3 Office of Collateral Interest

42.3.1 PSPC

42.4 Interrelationships

42.4.1 SOW: Paragraphs 5.3.3.2.p and 7.7.1

42.4.2 DID: RMDS-AE-002 to AE-006

42.5 References

42.5.1 D-09-002-009/SG-000, Procedure for Type Classification of Ammunition and Explosives.

42.6 Preparation Instruction

42.6.1 Format

42.6.1.1 These data items may be prepared using the Contractor's format.

42.6.1.2 These data items Data must be provided in Canadian English and Canadian French.

42.6.1.3 These data items must be provided in an unrestricted/unlocked electronical format using MS Word

42.6.2 Content

The First Article Testing and LAT Criteria must identify step-by-step procedures for conducting First Article Testing and LAT on ammunition and explosive sub-system.

42.6.2.1 There must be a separate First Article Testing and LAT Criteria for each ammunition and explosive nature.

42.6.2.2 The First Article Testing and LAT Criteria must provide:

42.6.2.3 Visual and detailed inspections;

42.6.2.4 Functional tests & tests conditions;

42.6.2.5 Pass/fail criteria;

42.6.2.6 Expected results; and

42.6.2.7 Record sheets.

42.6.3 Additional information on the First Article Testing and LAT criteria can be found in the reference 42.5.1.

43. DID RMDS-AE-011 – FIRST ARTICLE TESTING REPORT / LOT ACCEPTANCE TESTING (LAT) REPORT

43.1 Description

43.1.1 The First Article Testing and Lot Acceptance Testing (LAT) Reports provide detailed results of verification efforts.

43.2 Office of Primary Interest

43.2.1 DND

43.3 Office of Collateral Interest

43.3.1 PSPC

43.4 Interrelationships

43.4.1 SOW: Paragraph 7.7.2

43.4.2 DID: RMDS-AE-002 to AE-006 and 010

43.5 References

43.5.1 D-09-002-009/SG-000, Procedure for Type Classification of Ammunition and Explosives

43.6 Preparation Instruction

43.6.1 Format

43.6.1.1 These data items must be prepared using the Contractor's format.

43.6.2 Content

43.6.2.1 For requirements being verified by test or demonstration the following information, as a minimum, must be provided (if necessary this information must be repeated for each individual test):

43.6.2.2 Executive summary;

43.6.2.3 Date(s) of test;

43.6.2.4 Test procedure reference;

43.6.2.5 Initial conditions/setup conditions;

43.6.2.6 Results of test(s) and

43.6.2.7 Analysis of any failures and corrective action, including any deviation from the initial test procedure (i.e.: environment or test method tailoring, deviation, waiver ...)

43.6.2.8 Additional information on the First Article Testing and LAT can be found in references 45.3.1 and 45.3.2.

44. DID RMDS-AE-012 – LOGISTICAL DATA SHEET

44.1 Description

44.1.1 The Logistical Data Sheet provides data for the proper storage and transportation of all explosive and inert items utilised by DND.

44.2 Office of Primary Interest

44.2.1 DND

44.3 Office of Collateral Interest

44.3.1 PSPC

44.4 Interrelationships

44.4.1 SOW: Paragraph 7.6.3

44.4.2 DID: RMDS-AE-002, to AE-006

44.5 References

44.5.1 A-LM-117-001/FP-001, Transportation of Dangerous Goods by Canadian Forces Aircraft

44.5.1.1 International Maritime Dangerous Goods

44.6 Preparation Instruction

44.6.1 Format

44.6.1.1 These data items must be prepared using the DND format and template provided below in this DID.

44.6.1.2 One (1) Logistical Data sheet must be provided for each nature of explosive and inert item (by NATO Stock Number (NSN)) provided by the Contractor

44.6.2 Content

44.6.2.1 As per template provided herein.

NATO STOCK NUMBER _____

NOMENCLATURE _____

PACK DETAILS _____

SHIPPING DATA	**HCC :**	**UN NO :**	**NEQ/EA**
	SUP RISK:	**MACC :**	**SSC :**
	EX NO :		
PROPER SHIPPING NAME	_____		
NEQ STORAGE (kg)	**NEQ/EACH :**	**NEQ/ BOX :**	**NEQ/ PAL :**
NEQ TRANSPORT (kg)	**NEQ/EACH :**	**NEQ/ BOX :**	**NEQ/ PAL :**
PACK DATA	**QTY:**	**WT:**	**VOL:**
DIMENSIONS (cm)	**L :**	**W :**	**H :**
PALLET DATA	**BOXES:**	**WT:**	**VOL:**
DIMENSIONS (m)	**L :**	**W :**	**H :**
ADDITIONAL INFORMATION /REMARKS	_____		

44.6.3 Code explanations:

44.6.3.1 NSN – As per assigned for each munition

44.6.3.2 Nomenclature – As per item name as designated by the NSN

44.6.3.3 Pack Details – Define the quantity and type of inner container per intermediate and / or outer container

44.6.3.4 Hazard Classification (HCC) – This includes the Hazard Classification and division. In some Instances hazard classes 1.2 and 1.3 have been further divided (i.e. 1.21, 1.34). This last number applies only to storage and must not be used for transportation

44.6.3.5 Compatibility Code – Required for proper mixing of Class 1 Dangerous Goods in storage and transport

44.6.3.6 UN NO – United Nations Number

44.6.3.7 Subsidiary Risk – This is the class or division number of any important subsidiary risks which have been identified

44.6.3.8 EX Number – This is an explosives registration number from the US Department of Transportation. Required on documentation for all Class 1 Dangerous Goods transported into, within and out of the U.S.A

44.6.3.9 MACC – Military Aircraft Cargo Category. Designates those items which are Restricted (Rest), Controlled (Cont) or Forbidden (Forb) for transport on military aircraft in accordance with reference 44.5.1.

44.6.3.10 SSC – Ships Stowage Category. See International Maritime Dangerous Goods (IMDG) Code for details.

44.6.3.11 SFS – Supplementary Fire Symbols. Indicate special precautions to be taken when that ammunition is involved in a fire.

44.6.3.12 NEQ – Net Explosive Quantity (kilograms).

45. DID RMDS-AE-013 – A&E IN SERVICE SURVEILLANCE PLAN

45.1 Description

45.1.1 A&E In-service surveillance (ISS) provides the means by which initial service life estimations of an explosive or ammunition can be confirmed to ensure safe and suitable use throughout the required service life. The information provided by ISS and its techniques are used in life extensions to maximize the service life of the ammunition and explosives. ISS is also used to assess the continued safety of unserviceable items during storage and transportation.

45.1.2 The A&E ISS plan identifies the parameters that could impact the safety and capability of the ammunition item or system or both. The ISS Test Plan identifies specific tests, in-service proofing and inspection requirements and evaluation criteria used to assess those specified parameters.

45.2 Office of Primary Interest

45.2.1 DND

45.3 Office of Collateral Interest

45.3.1 PSPC

45.4 Interrelationships

45.4.1 SOW: Paragraphs 5.3.3.2.q and 7.8.1

45.4.2 DID: RMDS-AE-002, to AE-006

45.5 References

45.5.1 D-09-002-017/SG-001, Standard In-Service Surveillance of Ammunition and Explosives

45.6 Preparation Instruction

45.6.1 Format

45.6.1.1 These Data Items for A&E ISS Plan must be prepared in accordance with the guidelines and format described in Part 4 Para. 7 to 15 and Annex A of reference 45.5.1.

45.6.1.2 Since the plan is only a part of the overall A&E ISS program, the level of detail for the actual plan must be at the same level as identified for an ISS Item Test Plan as defined at para. 16 b of reference 45.5.1.

45.6.2 Content

45.6.2.1 A&E ISS provides the means by which initial ammunition service life estimation can be confirmed to ensure safe and suitable use throughout the required service life. The information provided by ISS and its techniques are used in life extensions to maximise the service life of the ammunition and explosives. ISS is also used to assess the continued safety of unserviceable items during storage and transportation. The plan will include elements such as the proposed inspection tasks including complete round break down process with pass criteria, recommended routine maintenance, surveillance levels and schedules.

45.6.2.2 The A&E ISS Plan must include all the elements of the ISS framework to properly evaluate the safety of the munition through its life cycle. These elements include:

a. In-Service Monitoring (i.e. : Inspection defect and damage criteria needs to be defined with the plan)

b. In-Service Proof (i.e. : Performance and reliability level requirements)

c. Condition Monitoring (i.e. : Identification of degradation modes and evaluation of components)

d. Predictive testing (i.e. : Environment stressing for shelf life extension studies)

45.6.2.3 Item's energetic material content, item service life, storage requirement, periodicity of the A&E ISS testing, and sampling requirement are also included in the A&E ISS Plan.

45.6.2.4 If there are existing STANAGs and related Manual of Proof and Inspection (MOPI) procedures that include specific surveillance testing of the ammunition item, they must be consulted and adopted to the A&E ISS Plan.

45.6.2.5 The A&E ISS plan must provide recommended Open life (shelf life when out of logistical container) and recommended operational shelf life (shelf life when stored in extreme storage conditions).

45.6.2.6 An A&E ISS Plan is required for each munition nature.

45.6.2.7 The following information, as a minimum, must be included and detailed for each plan:

a. Objectives ;

b. Scope;

c. Description;

d. Critical Parameters;

e. Testing required ;

f. Sampling Concept; and

g. Evaluation criteria.

45.6.2.8 The Plan must contain sufficient information to enable Canada to fully implement the plan.

46. DID RMDS-AE-014 – SAFETY TEMPLATES DOCUMENTATION

46.1 Description

46.1.1 The Safety Templates Documentation ensures safe and efficient use of the munitions in addition to providing determination of the danger areas from which unauthorized ships, personnel, equipment, and aircraft are excluded for reasons of safety.

46.2 Office of Primary Interest

46.2.1 DND

46.3 Office of Collateral Interest

46.3.1 PSPC

46.4 Interrelationships

46.4.1 SOW: Paragraphs 5.3.3.2.r and 7.6.4

46.4.2 DID: RMDS-AE-002, to AE-007

46.5 References

46.5.1 NA

46.6 Preparation Instruction

46.6.1 Format

46.6.1.1 The Safety Templates Documentation must be prepared using the Contractor's format.

46.6.1.2 Where NATO standards apply, the specific format called in those standards must be used

46.6.2 Content

46.6.2.1 The Safety Templates Documentation must address all aspects of the energetic nature of the MDV-C in all life cycle environments. The templates must provide danger areas and considerations for all possible releases of energy, intentional (operation or training) or not (failures, unintended behaviours …). These include, but not limited to, during demilitarization, explosive ordnance disposal at end of life and during in-service (e.g.: dud, misfires …) and due to failures, drops, manhandle done or possibly done by DND or at DND installations.

46.6.2.2 The list of energy that must be addressed, within or emitted by the MDV-C, if applicable:

a. Chemical (e.g. battery, fuel, fuel cell, explosive, pyrotechnic, etc.);

b. Hydraulic (e.g. pressurized vessels, actuator, etc.);

c. Mechanical (e.g. springs, etc.); and.

d. Laser.

46.6.2.3 Each template part of the Safety Templates Documentation must include safe distances without protection for non-military vehicle and civilian population and with and without protection for military users and vehicles.

46.6.2.4 Safety Templates must be provided for the following effects or emissions:

a. Noise (acoustic);

b. Over pressure and shock wave;

c. Generated heats and fragments and debris

d. Hazardous and toxic substances, gas, vapours, fumes (e.g.: thermal runaway failure of lithium battery)

e. Emissions (e.g.: laser).

46.6.2.5 The environments that must be considered are on land (unburied) and at sea (on ship and in the water)

46.6.2.6 The template must have graphical and tabular presentation of the data. At a minimum, the data must address the distance from the source (MDV-C) versus the main variable (e.g.: noise level, pressure …).

46.6.2.7 The precision and accuracy of the presented data must be in relation to the variable and precise enough to meet the goal and intent of the templates.

46.6.2.8 All templates will be supplied with stand-alone annex which will contain:

a. The methodology used to generate the data;

b. The list and details of all limitations, assumptions and hypotheses used to generate the data;

c. All the formulas and measurements (including the procedure, specification and method of measurement) used to generate the data;

d. The list and details of all variables and coefficients used in the formulas and their value or range of values used. ;

e. List and detailed all references and sources used in the methodology (including variables and coefficients used in the formulas).

46.6.2.9 The templates and their methodology must be based on current, relevant and in accordance with best standard practises and also based on established science and measurements methods

46.6.2.10 Those special considerations must also be addressed in the appropriate templates or in new templates:

a. Pending confirmation of the MDV-C insensitive munition (IM) assessment results, simultaneous detonation of all MDV-C vehicles in the PSL must be addressed in a specific template;

b. Should the MDV-C be equipped with a shape charge or explosive formed projectile type warhead, the perforation performance (penetration) and unobstructed jet/projectile range of the warhead must be provided;

c. Under water detonations template must consider the detonation of the vehicle alone and with a range of mine of Net Explosive Quantity (NEQ) from 0 to 2000kg. The detonation location must vary in accordance with the MDV-C water depth, fiber optic tether length and in-board power source (battery) capability. The effect of the boundaries (water surface and sea bottom) must be considered;

d. ;

e. Water surface detonations template must consider the detonation of the vehicle alone and with a range of mine of NEQ from 0 to 2000kg

f. The safety templates must consider the MCD-V operational activities such as mission preparation, launch, transit, arming …

47. DID RMDS-AE-015 – A&E SAFETY DATA SHEETS (SDS)

47.1 Description

47.1.1 Safety Data Sheets (SDS), formerly Material Safety Data Sheets (MSDS), provide information and instructions on the chemical and physical characteristics of a substance, its hazards and risks, the safe handling requirements and actions to be taken in the event of fire, spill, overexposure or other.

47.2 Office of Primary Interest

47.2.1 DND

47.3 Office of Collateral Interest

47.3.1 PSPC

47.4 Interrelationships

47.4.1 SOW: Paragraphs 5.3.2.2.n, 5.3.3.2.s and 7.6.5

47.4.2 DID: RMDS-AE-002, to AE-006

47.5 References

47.5.1 Canadian Hazardous Products Regulations

47.5.2 Workplace Hazardous Materials Information System (WHMIS) 2015 - Safety Data Sheet (SDS)

47.6 Format

47.6.1.1 These Data Items must be prepared in accordance with reference 47.5.1, Part 4 and reference 47.5.2.

47.6.1.2 A SDS must be provided for every product found in the MDV-C (including the umbilical system, if applicable)

47.6.1.3 The SDS must be the most current available.

47.6.1.4 The SDS may be provided as one bilingual SDS, or as two SDSs (one each in English and French).

47.6.2 Content

47.6.3 A Safety Data Sheet (SDS) is an information paper containing data relative to a specific product.

47.6.4 The Safety Data Sheet (SDS) information must be in accordance with reference 47.5.1, Part 4 and reference 47.5.2.

48. DID RMDS-AE-016 – CANADIAN FORCES TECHNICAL ORDER (CFTO) – AMMUNITION AND EXPLOSIVES (A&E)

48.1 Description

48.1.1 The Canadian Forces Technical Order (CFTO) – Ammunition and Explosives (A&E) is required to ensure that appropriate and sufficient technical data is acquired to support defence systems.

48.1.1.1 The CFTO – A&E must contain technical information for the Life Cycle Material Manager (LCMM) and DND users to accomplish their respective daily tasks and activities.

48.2 Office of Primary Interest

48.2.1 DND

48.3 Office of Collateral Interest

48.3.1 PSPC

48.4 Interrelationships

48.4.1 SOW: Paragraph 7.6.6

48.4.2 DID: RMDS-AE-002 to AE-007

48.5 References

48.5.1 D-01-002-000/SG-000, Standard for Ammunition and Explosives Technical Information Documents.

48.5.1.1 C-09-005-004/TS-000, Ammunition and Explosives Safety Manual – Volume 4 Demilitarization And Disposal

48.6 Preparation Instruction

48.6.1 Format

48.6.1.1 The CFTO – A&E must be in accordance with the format described in Part 4 and Annex A of reference 48.5.1.

48.6.2 Content

48.6.2.1 The CFTO – A&E must be in accordance with the content described in Part 4 and Annex A of reference 48.5.1.

48.6.2.2 Due to the nature of the A&E, the following additional, but not limited to, subjects must be addressed:

a. Control Console c/w with the firing station and power management;

b. Umbilical/Tether including the umbilical winch;

c. Communication links (between MDV-C and Control Console)

d. Launch system and handling;

e. Software;

f. Ancillaries (e.g.: remote control, battery charger …);

g. Special Tools and Testing Equipment (ST&TE);

h. List of all software (S/W), all firmware (F/W), all programmable components such as, but not limited, to central processing units (CPU), processing units (PU), programmable logic controller (PLC) in the MDV-C and components a. to g. listed above. The list must include name, model, part or constituent of which MDS equipment and main component of that equipment and location, description and function, manufacturer details (name, country and contact information), hardware, S/W and F/W configuration, version and update and date of manufacture.

i. Identification of Manpower and Personnel requirements

j. Personal protection equipment;

k. Operation details for a standard operation during a typical disposal mission of naval mines or Underwater Improvised Explosive Devices (i.e. from getting the MDV-Cs out of storage and containers to firing the warhead); Descriptions of all the handling and firing safeties either built-in or procedural;

l. Details of the principle of operation of the warhead, including but not limited to the fuse, safe and arm, charge, booster, battery, capacitor etc. ;

m. Details for the design and principle of operation of the power/battery pack of the MDV-C, including but not limited safeties, charging, depletion etc. ;

n. Descriptions of all the handling and firing safeties either built-in or procedural to the MDV-C;

o. The specific diagnostic tests, faults/troubleshooting decisions and rectification diagrams, ST&TEs, safety and hazardous protection equipment and safety warnings and cautions.

p. Packaging, Handling, Storage & Transportability (PHST) instructions including repackaging;

q. Transportation, including but limited to, the Resources Canada Classification number in the List of Approved Explosives by the Chief Inspector of Explosives of Natural Resources Canada;

r. Potential drops, impacts and damage the MDV-C may experience: the diagnostics of the safety and serviceability of the vehicle and the criteria and the handling of the vehicle following the drop or impact. (either packaged or unpackaged);

s. Details of life extension requirements, methods of evaluation, specifications and tools needed.

t. End of life demilitarization and in-service explosive ordnance disposal (of dud, damaged vehicles, failures …). The key areas stated in reference 48.5.1, Part 3, para. 10 must be detailed.

48.6.3 AMPLIFYING DETAILS

48.6.4 The magnitude and type of technical data must be the minimum required to effectively acquire the defence system use it and maintain it in service efficiently and safely.

48.6.5 It is important to ensure that the appropriate information is included in a CFTO – A&E so that relevant technical information required by the user, as well as information on hazards, is readily at hand.

49. DID RMDS-AE-017 – TYPE CLASSIFICATION SUMMARY REPORT (TCSR)

49.1 Description

49.1.1 A Type Classification Summary Report (TCSR) organizes all data collected throughout the testing of new ammunition and explosive into a cohesive document. It is in effect a complete history of Canada's verification of the safety and suitability of the design, the production capability of the manufacturer, and the quality of the product. It also includes all information required to allow the ammunition or explosive to be stored, transported, used, and disposed of throughout its service life.

49.1.2 DND

49.2 Office of Collateral Interest

49.2.1 PSPC

49.3 Interrelationships

49.3.1 SOW: Paragraph 7.2.3

49.3.2 DID: RMDS-AE-002 to AE-016

49.4 References

49.4.1 D-09-002-009/SG-000, Procedures for the Type Classification of Ammunition and Explosives

49.5 Preparation Instruction

49.5.1 Format

49.5.1.1 The TCSR must be in in accordance with the guidelines and format described in Part 7 of reference 49.5.1.

49.5.2 Content

49.5.2.1 The TCSR includes, but not limited to, the items and sections of Part 7 of reference 49.5.1, and its related annexes.

49.5.2.2 Additional information:

a. State of Requirement (SOR) will not be provided but the Contractor is to use the SOW, SRD, and the information provided in the DID/CDRL RMDS-AE-004 – A&E GAP ANALYSIS.

b. The ASSB and Safety and Suitability for Service (S^3) Summary information will be provided by the TA. The Contractor is to advise the TA when the information is needed.

c. Danger Area Template (DAT) must be based on the DID AE-014: The Safety Template Documentation

d. Conclusions and recommendations submitted as draft only. Canada will produce the final version.

e. Signature Block will be provided by the TA. The Contractor is to advise TA when the information is needed.

f. Annex B will be produced by Canada.

AMMUNITION & EXPLOSIVE QUALIFICATION TEST PLAN

References:

1. Service Environment Questionnaire, Attachment AC2 of DID RMDS-AE-004
2. AAS3P-1, Safety and Suitability for Service Assessment Testing of Non-Nuclear Munitions
3. AAS3P-11, Safety and Suitability for Service Assessment Testing for Surface and Underwater Launched Munitions
4. AASTP-3, Manual of NATO Safety Principles for the Hazard Classification of Military Ammunition and Explosives
5. AECTP-300, Climatic Environmental Tests
6. AECTP-400, Mechanical Environmental Tests
7. AECTP 250, Electrical and Electromagnetic Environmental Conditions
8. AECTP-230, Climatic Conditions
9. AECTP-500, Electromagnetic Environmental Effects Tests and Verification
10. AECTP-501, Electrical and Electromagnetic Environmental Effects Test and Verification Equipment and Sub System Tests
11. AECTP-508, Introduction to Ordnance Test and Verification Procedures
12. AECTP-600, The Ten Step Method for Evaluating the Ability of Materiel to Meet Extended Life Requirements and Role and Deployment Changes
13. AOP-15, Guidance on the Assessment of the Safety and Suitability for Service of Non-Nuclear Munitions for NATO Armed Forces
14. AOP-16, Fusing Systems: Guidelines for STANAG 4187
15. AOP-20, Safety, Arming and Functioning Systems Manual of Tests
16. AOP-21, Initiation Systems: Characterisation and Safety Test Methods and Procedures for Detonating Explosive Components
17. AOP-39, Policy for Introduction and Assessment of Insensitive Munitions (IM)
18. AOP-39.1, Guidance on the Organisation, Conduct and Reporting of Full Scale Tests
19. AOP-4157, Safety, Arming and Functioning Systems (SAF Systems) Testing Requirements
20. AOP-43, Electro-Explosive Devices Assessment and Test Methods for Characterization - Guidelines for STANAG 4560
21. AOP-4518, Safe Disposal of Munitions, Design Principles and Requirements, and Safety Assessment
22. AOP-52, Guidance on Software Safety Design and Assessment of Munition-Related Computing Systems

23. AOP-62, In-Service Surveillance of Munitions General Guidance
24. AOP-63, In-Service Surveillance of Munitions Sampling and Test Procedures
25. AOP-64, In-Service Surveillance of Munitions Condition Monitoring of Energetic Materials
26. AOP-7, Manual of Data Requirements and Tests for the Qualification of Explosives Materials for Military Use
27. APP-22, Military Pallets, Packages and Containers
28. C-09-005-003/TS000, Ammunition and Explosives Safety Manual – Volume 3 Transportation
29. C-09-005-004/TS-000, Ammunition and Explosives Safety Manual – Volume 4 Demilitarization and Disposal
30. CGSB-43.151, Packaging, handling, offering for transport and transport of Explosives (Class 1)
31. D-03-003-007/SG-000, Specification for Design and Test Criteria for Shock Resistant Equipment in Naval Ships
32. D-09-002-004/SG000, Standard Identification of Ammunition and Ammunition Packaging
33. D-09-002-011/SG-000, Standard Assessment of Ammunition Containers, Packages, and Palletized Unit Loads
34. D-09-002-017/SG-001, Standard In-Service Surveillance of Ammunition and Explosives
35. D-28-163-000/SG000, Design Standard Ammunition Lockers and Magazines for Naval Vessels
36. Def-Stan 00-35, Part 3, Environmental Handbook for Defence Materiel-Environmental Test Methods
37. ITOP -04-2-813, Static Testing of High Explosive Munitions for Obtaining Fragment Spatial Distribution
38. MIL-STD-1472, Human Engineering
39. MIL-STD-464C, Electromagnetic Environmental Effects Requirements for Systems
40. Mil-Std-46855, Human Engineering Requirements for Military Systems, Equipment, and Facilities
41. MIL-STD-810G, Environmental Engineering Considerations and Laboratory Tests
42. STANAG 2828, Military Pallets, Packages and Containers
43. STANAG 4123, Determination of the Classification of Military Ammunition and Explosives
44. STANAG 4157, Safety, Arming and Functioning Systems (Saf Systems) Testing Requirements

45. STANAG 4170, Principles and Methodology for the Qualification of Explosive Materials for Military Use
46. STANAG 4187, Fusing Systems - Safety Design Requirements
47. STANAG 4238, Munition Design Principles, Electrical/Electromagnetic Environments
48. STANAG 4240, Fast Heating Munition Test Procedures
49. STANAG 4241, Bullet Impact Munition Test Procedures
50. STANAG 4297, Guidance on the Assessment of the Safety and Suitability for Service of Non-Nuclear Munitions for NATO Armed Forces
51. STANAG 4333, Underwater Munitions, Principles for Safe Design
52. STANAG 4370, Environmental Testing
53. STANAG 4375, Safety Drop, Munition Test Procedure
54. STANAG 4382, Slow Heating, Munitions Test Procedures
55. STANAG 4396, Sympathetic Reaction, Munition Test Procedures
56. STANAG 4439, Policy for Introduction and Assessment of Insensitive Munitions (IM)
57. STANAG 4452, Guidance on Software Safety Design and Assessment of Munition-Related Computing Systems
58. STANAG 4496, Fragment Impact Test Procedures for Munitions
59. STANAG 4518, Safe Disposal of Munitions, Design Principles and Requirements, and Safety Assessment
60. STANAG 4526, Shaped Charge Jet Munition Test Procedures
61. STANAG 4629, Safety and Suitability for Service Assessment Testing of Non-Nuclear Munitions
62. STANAG 4675, In-Service Surveillance (ISS) of Munitions - AOP-62 Edition A, AOP-63 Edition A & AOP-64 Edition A
63. STANAG 4758, Safety and Suitability for Service Assessment Testing for Surface and Underwater Launched Munitions
64. STANAG 7201, the Human Engineering Test and Evaluation Procedures for Systems, Equipment and Facilities
65. Transportation of Dangerous Goods Act,
66. UN Documents ST/SG/AC.10/1, Recommendation on the transport of Dangerous Good, Model Regulations
67. UN Documents ST/SG/AC.10/11, Recommendation on the transport of Dangerous Good, Manual of Test and Criteria

Qualification Test Plan Details:

1. The qualification test plan consists of two distinct parts, a sequential test plan and non-sequential test plan. Those parts are defined using the S3 test program established by NATO. Specifically STANAG 4758 and AAS3P-11 identify the requirements for the assessment for safety and suitability for service for surface and underwater launched munitions and therefore are used to establish both parts of the MDV-C qualification test plan.

2. The qualification test plan must be conducted on the supplied MDV-C All-Up / complete round configuration or as directed by the specific test. Should sub-components, parts, compounds, compositions, materials be used in specific tests, they must of the same configuration as used in the supplied MDV-C All-Up / complete round configuration. When inert MDV-Cs, sub-components or parts are used for testing, the other sub-components and parts must be of the supplied configuration.

3. In accordance with AAS3P-11, the sequential test plan follows an anticipated sequence of usage and may take many different forms to achieve a similar and acceptable qualification. The "Analytical S3 Test Program" found in Figure B1-1 of AAS3P-11 and part of this document under Sequential and Non-Sequential Testing Requirements is applicable for the MDV-C in conjunction with the MDV-C Expected Life Cycle as defined below in this document in for tailoring the specific variables/stimuli.

4. Due to the nature of the concept of the MDV-C propulsion/delivery system (an electric propulsion), the portion of the Analytical S3 Test Program assessing the Rocket Motor is not applicable and the Dynamic Firing and Munition Flight Dynamics tests has to be modified, adapted or customized to the specific launch and propulsion/delivery method and system of the MDV-C.

5. The SRD of this contract, the Expected Life Cycle of this attachment and the Service Environment Questionnaire (reference 1) are used when tailoring is called or exposure length determination is needed for non-sequential and sequential tests and National Specific Tests, Evaluations and Analysis.

6. A packaging assessment for all configurations and types of packaging is done as per different CFTOs and the applicable UN and NATO test and evaluation to ensure MDV-C packaging meets Canadian legislation and has a UN packaging certification. Where the MDV-C is tested in packaging, which has not been separately tested and has not obtained UN packaging certification, additional tests of the packaging must be carried out in order to obtain those certifications.

7. The sequential qualification tests requires the MDV-C to be packaged so does other non-sequential tests. The nature/type of packaging must follow the Expected Life Cycle below. Where both types of packing are possible, the testing must be done with the packaging generating the worst, most detrimental effect (including considerations for the capacity level of the packaging: one MDV-C, half capacity, full capacity …) on the MDV-C. If the worst case packaging configuration cannot be clearly selected, the MDV-C must be tested in all configurations.

8. Natural Resources Canada Classification: All ammunition and explosive (A&E) imported, transported, manufactured and stored in Canada must be classified for inclusion on the List of Approved Explosives by the Chief Inspector of Explosives of Natural Resources Canada. The Certificate of Classification confirms an A&E item's: Hazard Division and

Compatibility Code; and Transportation of Dangerous Goods, stowage and general public safety information based on detailed technical information supplied by the OEM and recognized national authorities classifications. This will be required prior to the A&E Supplier delivering any MDV-C to Canada.

9. The sequential qualification tests requires a hot and cold stream for all dynamics testing as per the AAS3P-11, Sequential and Non-Sequential Testing Requirements (Analytical):

    a) High Temperature Dynamics testing[1] - Tests should be conducted at the packaged and unpackaged SRE, for packaged and unpackaged tests respectively. The SRE is evaluated in test C.1.5. Otherwise, testing must be conducted at +71ºC. The exposure of 56 days of A1 Induced diurnal cycles (or equivalent steady-state) is intended to support an initial deployment of up to 6 months tactical storage in an A1 environment. OEM should justify the test duration based on the specific energetic materiel to demonstrate that the materiel will remain chemically stable and safe during its service life. Error in Arrhenius calculation in Para C.1.3.: duration at 58ºC should read 22 days (in accordance with para A.1.2.2.2) not 19 days.

    b) Low Temperature Dynamics[8] - Tests should be conducted at C2 (-46ºC). Sea transport tests can be tailored to M3 (-34ºC). Any other tailoring will require a gap analysis on safety and suitability considerations and deployment restrictions. The contractor will have to demonstrate that the energetic materiel and any devices relating to the safety and suitability for service of the energetics remain SAFE FOR USE following STORAGE under C2 conditions (-46ºC). This will prevent the need for environmental monitoring and controls during service. The OPERATING limits could be restricted to less severe temperatures (i.e.: C1 conditions) to accommodate technology limitations. In all cases, the OEM should indicate any design weakness relating to the cold and demonstrate that this will not impact the SAFETY of the unit.

10. The Units Under Test inspections must be performed as indicated in the test flowcharts and must be conducted in accordance with chapter 7 and Annex E of the AAS3P-11.

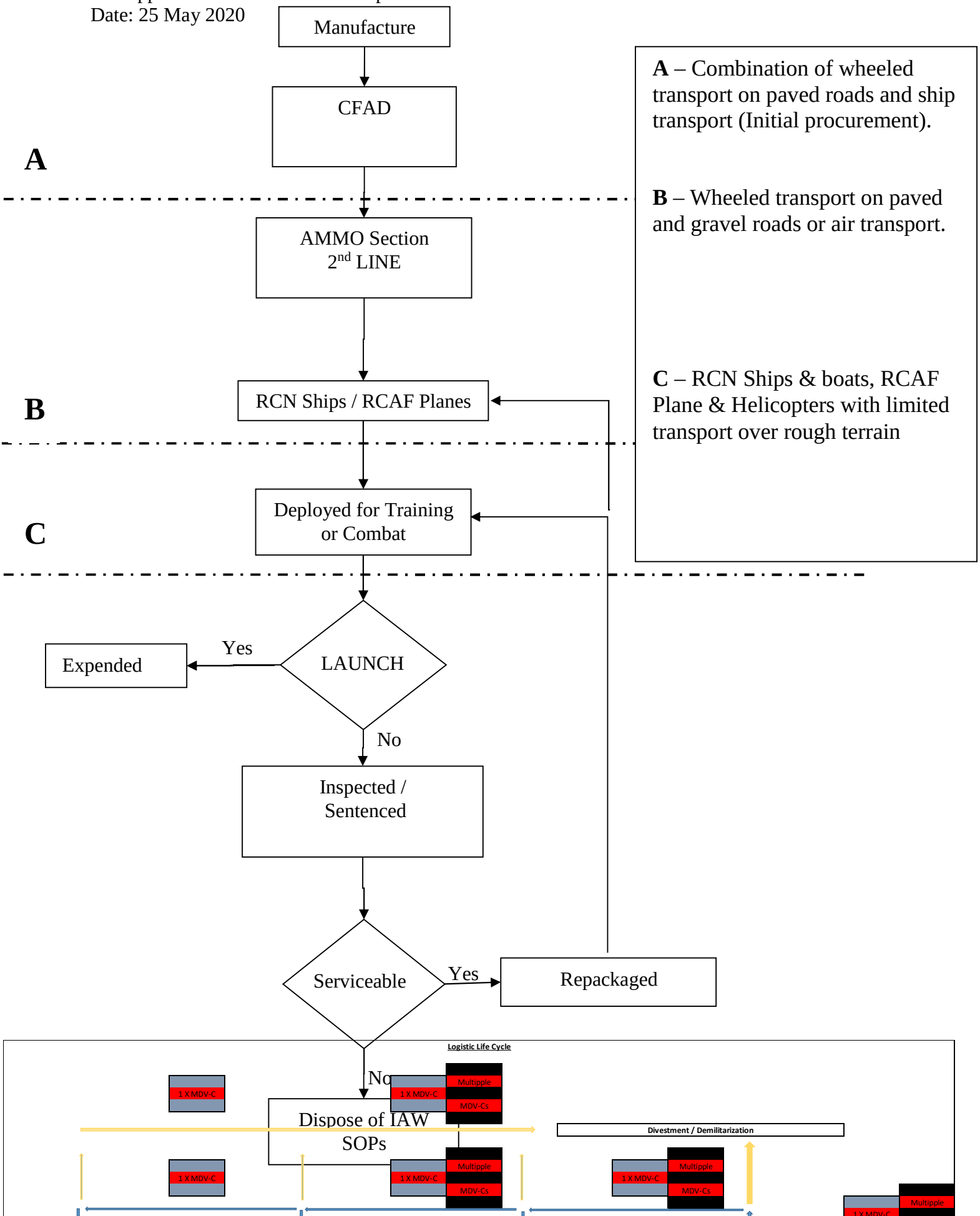
11. The Qualification Test Plan must consider all activities and maintenance performed during the life cycle of the MDV-C. Specific tests or assessments must be tailored and conducted, in addition to the standard tests, if needed. As examples, should a built-in test (BIT) or a pre-launch check requires a ST&TE to be connected to the MDV-C or a battery recharge is required using a charger, then EMI, E3 (ESD, HERO, etc.), Rain/Water tightness and additional assessments must be performed for those specific life cycle tasks under the MDV-C environmental profile.

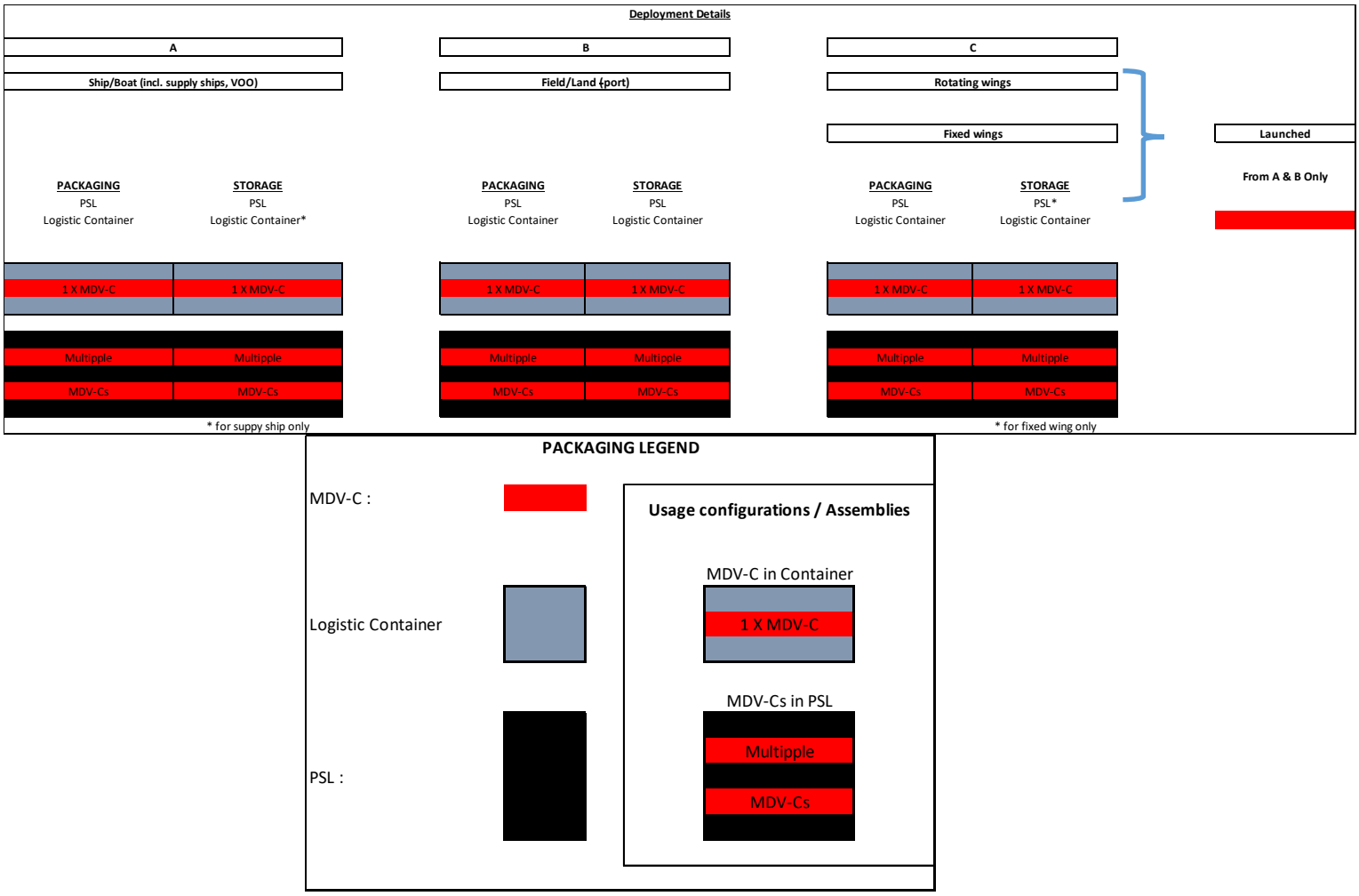
12. If degraded operations of MDV-C and its ancillaries are possible, the Qualification Test Plan must consider them during the life cycle of the MDV-C. Specific tests or assessments must be tailored and conducted, in addition to the standard tests.

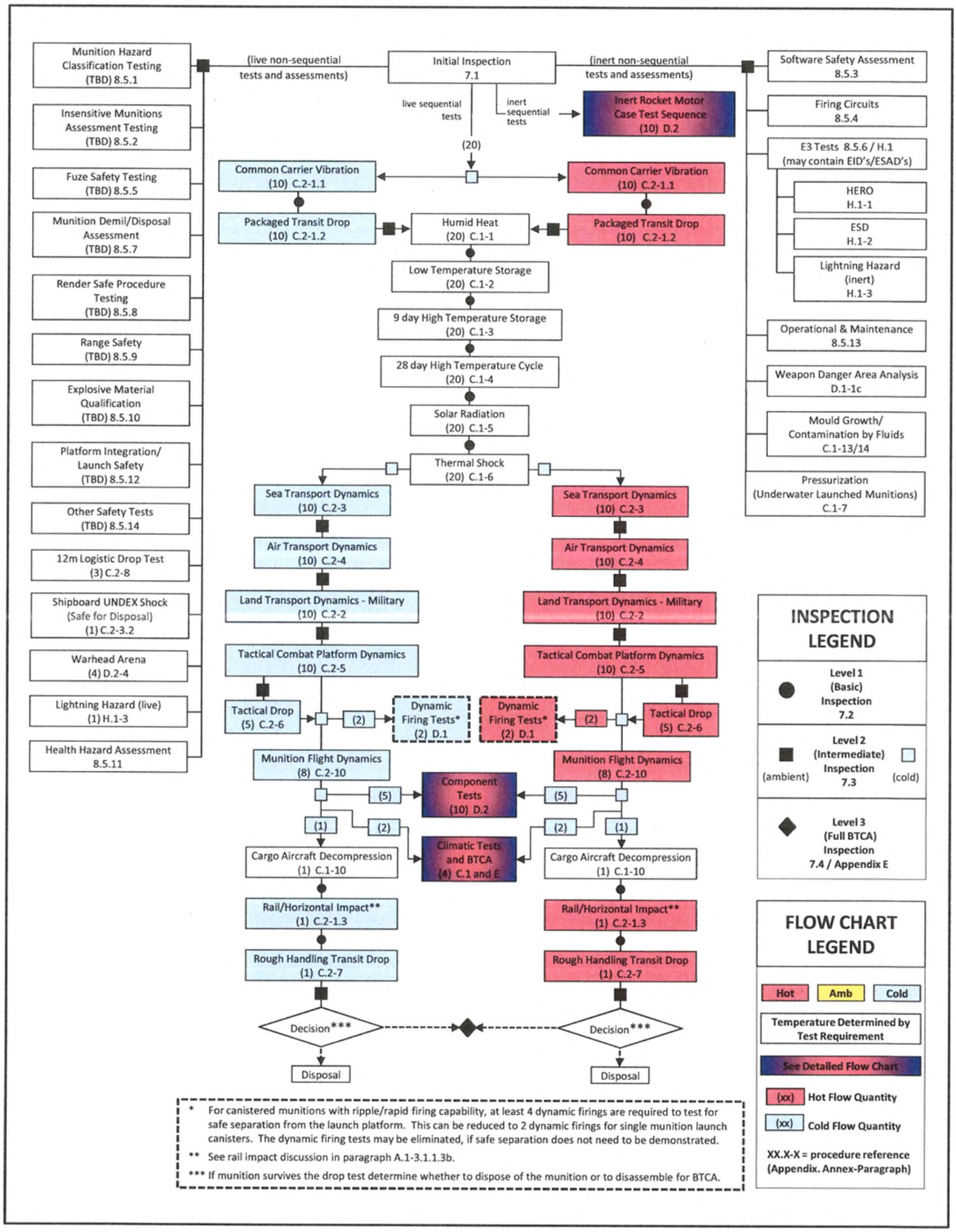
[8] Climatic conditions are defined in accordance with AECTP-230 zones.

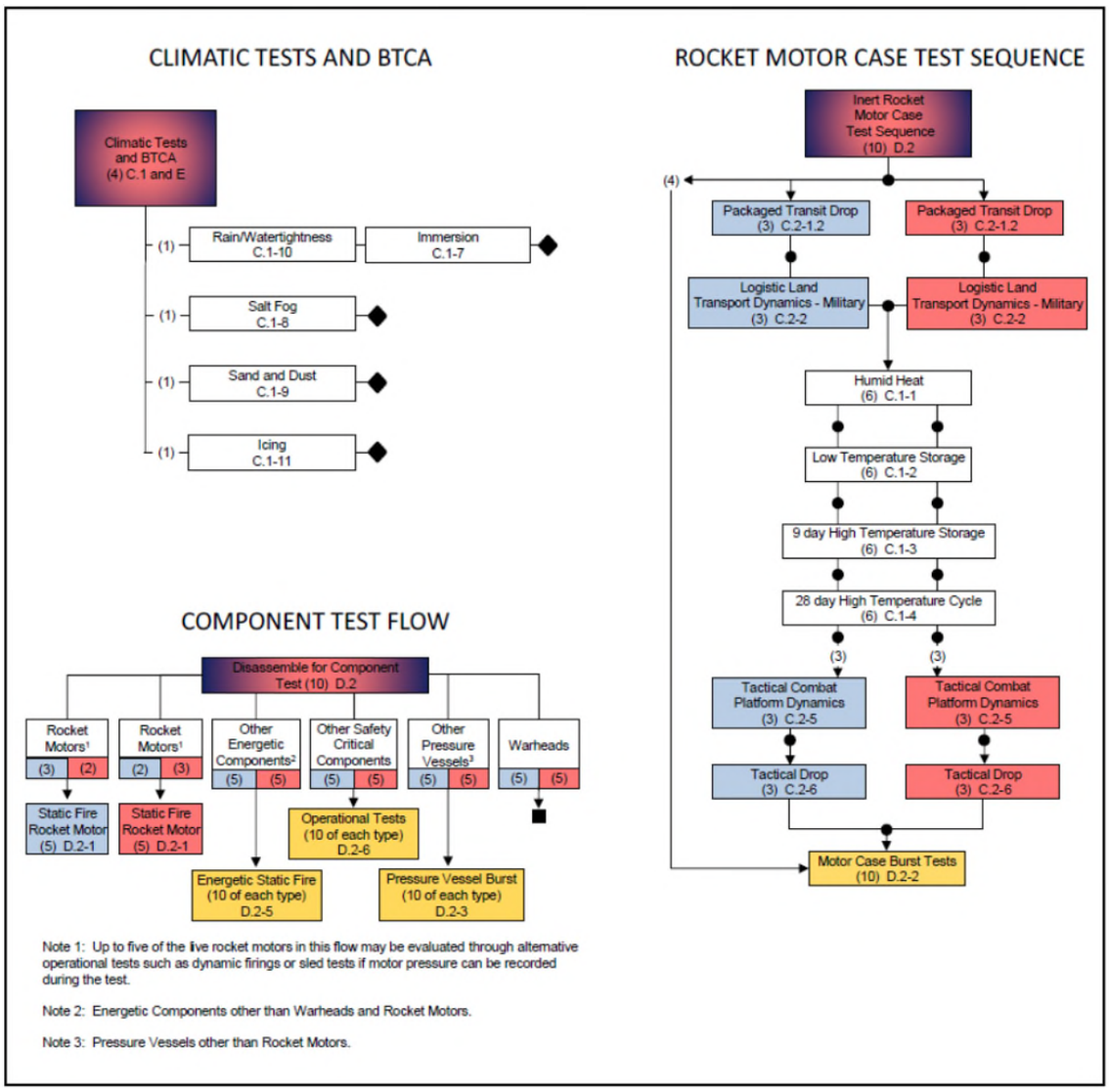
13. Hardening assessment for High Altitude Electromagnetic Pulse (HEMP), ionizing radiation and Nuclear Electromagnetic Pulse (NEMP/EMP) as defined by AECTP 250 will be provided if such Tests, Evaluations and Analysis have been performed on the MDV-C.

Attachment AC1 – Ammunition & Explosive Qualification Test Plan
To: Appendix AC Data Item Description
Date: 25 May 2020




Deployment Details
A
Ship/Boat (incl. supply ships, VOO)
PACKAGING
PSL
Logistic Container
STORAGE
PSL
Logistic Container*
1 X MDV-C
1 X MDV-C
Multipple
Multipple
MDV-Cs
MDV-Cs
* for suppy ship only
B
Field/Land (port)
PACKAGING
PSL
Logistic Container
STORAGE
PSL
Logistic Container
1 X MDV-C
1 X MDV-C
Multipple
Multipple
MDV-Cs
MDV-Cs
C
Rotating wings
Fixed wings
PACKAGING
PSL
Logistic Container
STORAGE
PSL*
Logistic Container
1 X MDV-C
1 X MDV-C
Multipple
Multipple
MDV-Cs
MDV-Cs
* for fixed wing only
Launched
From A & B Only
PACKAGING LEGEND
MDV-C :
Logistic Container
PSL :
Usage configurations / Assemblies
MDV-C in Container
1 X MDV-C
MDV-Cs in PSL
Multipple
MDV-Cs


Munition Hazard Classification Testing (TBD) 8.5.1
Insensitive Munitions Assessment Testing (TBD) 8.5.2
Fuze Safety Testing (TBD) 8.5.5
Munition Demil/Disposal Assessment (TBD) 8.5.7
Render Safe Procedure Testing (TBD) 8.5.8
Range Safety (TBD) 8.5.9
Explosive Material Qualification (TBD) 8.5.10
Platform Integration/ Launch Safety (TBD) 8.5.12
Other Safety Tests (TBD) 8.5.14
12m Logistic Drop Test (3) C.2-8
Shipboard UNDEX Shock (Safe for Disposal) (1) C.2-3.2
Warhead Arena (4) D.2-4
Lightning Hazard (live) (1) H.1-3
Health Hazard Assessment 8.5.11
(live non-sequential tests and assessments)
Initial Inspection 7.1
(inert non-sequential tests and assessments)
live sequential tests
inert sequential tests
Inert Rocket Motor Case Test Sequence (10) D.2
(20)
Common Carrier Vibration (10) C.2-1.1
Common Carrier Vibration (10) C.2-1.1
Packaged Transit Drop (10) C.2-1.2
Humid Heat (20) C.1-1
Packaged Transit Drop (10) C.2-1.2
Low Temperature Storage (20) C.1-2
9 day High Temperature Storage (20) C.1-3
28 day High Temperature Cycle (20) C.1-4
Solar Radiation (20) C.1-5
Thermal Shock (20) C.1-6
Sea Transport Dynamics (10) C.2-3
Sea Transport Dynamics (10) C.2-3
Air Transport Dynamics (10) C.2-4
Air Transport Dynamics (10) C.2-4
Land Transport Dynamics - Military (10) C.2-2
Land Transport Dynamics - Military (10) C.2-2
Tactical Combat Platform Dynamics (10) C.2-5
Tactical Combat Platform Dynamics (10) C.2-5
Tactical Drop (5) C.2-6
(2)
Dynamic Firing Tests* (2) D.1
Dynamic Firing Tests* (2) D.1
(2)
Tactical Drop (5) C.2-6
Munition Flight Dynamics (8) C.2-10
Munition Flight Dynamics (8) C.2-10
(5)
Component Tests (10) D.2
(5)
(1)
(2)
Climatic Tests and BTCA (4) C.1 and E
(2)
(1)
Cargo Aircraft Decompression (1) C.1-10
Cargo Aircraft Decompression (1) C.1-10
Rail/Horizontal Impact** (1) C.2-1.3
Rail/Horizontal Impact** (1) C.2-1.3
Rough Handling Transit Drop (1) C.2-7
Rough Handling Transit Drop (1) C.2-7
Decision***
Decision***
Disposal
Disposal
Software Safety Assessment 8.5.3
Firing Circuits 8.5.4
E3 Tests 8.5.6 / H.1 (may contain EID's/ESAD's)
HERO H.1-1
ESD H.1-2
Lightning Hazard (inert) H.1-3
Operational & Maintenance 8.5.13
Weapon Danger Area Analysis D.1-1c
Mould Growth/ Contamination by Fluids C.1-13/14
Pressurization (Underwater Launched Munitions) C.1-7
INSPECTION LEGEND
Level 1 (Basic) Inspection 7.2
Level 2 (Intermediate) Inspection 7.3
(ambient)
(cold)
Level 3 (Full BTCA) Inspection 7.4 / Appendix E
FLOW CHART LEGEND
Hot
Amb
Cold
Temperature Determined by Test Requirement
See Detailed Flow Chart
(xx) Hot Flow Quantity
(xx) Cold Flow Quantity
XX.X-X = procedure reference (Appendix. Annex-Paragraph)
* For canistered munitions with ripple/rapid firing capability, at least 4 dynamic firings are required to test for safe separation from the launch platform. This can be reduced to 2 dynamic firings for single munition launch canisters. The dynamic firing tests may be eliminated, if safe separation does not need to be demonstrated.
** See rail impact discussion in paragraph A.1-3.1.1.3b.
*** If munition survives the drop test determine whether to dispose of the munition or to disassemble for BTCA.


CLIMATIC TESTS AND BTCA
Climatic Tests and BTCA (4) C.1 and E
(1)
Rain/Watertightness C.1-10
Immersion C.1-7
(1)
Salt Fog C.1-8
(1)
Sand and Dust C.1-9
(1)
Icing C.1-11
ROCKET MOTOR CASE TEST SEQUENCE
Inert Rocket Motor Case Test Sequence (10) D.2
(4)
Packaged Transit Drop (3) C.2-1.2
Packaged Transit Drop (3) C.2-1.2
Logistic Land Transport Dynamics - Military (3) C.2-2
Logistic Land Transport Dynamics - Military (3) C.2-2
Humid Heat (6) C.1-1
Low Temperature Storage (6) C.1-2
9 day High Temperature Storage (6) C.1-3
28 day High Temperature Cycle (6) C.1-4
(3)
(3)
Tactical Combat Platform Dynamics (3) C.2-5
Tactical Combat Platform Dynamics (3) C.2-5
Tactical Drop (3) C.2-6
Tactical Drop (3) C.2-6
Motor Case Burst Tests (10) D.2-2
COMPONENT TEST FLOW
Disassemble for Component Test (10) D.2
Rocket Motors¹ (3) (2)
Rocket Motors¹ (2) (3)
Other Energetic Components² (5) (5)
Other Safety Critical Components (5) (5)
Other Pressure Vessels³ (5) (5)
Warheads (5) (5)
Static Fire Rocket Motor (5) D.2-1
Static Fire Rocket Motor (5) D.2-1
Operational Tests (10 of each type) D.2-6
Energetic Static Fire (10 of each type) D.2-5
Pressure Vessel Burst (10 of each type) D.2-3
Note 1: Up to five of the five rocket motors in this flow may be evaluated through alternative operational tests such as dynamic firings or sled tests if motor pressure can be recorded during the test.
Note 2: Energetic Components other than Warheads and Rocket Motors.
Note 3: Pressure Vessels other than Rocket Motors.

National Specific Tests, Evaluations and Analysis

Serial	Tests, Evaluations and Analysis	Covering STANAG	Standard, Environment & Test/Analysis	Specific Test (if applicable)	Explanation
1	Environmental, Occupational Health and Safety Assessment (EOHSA)	N/A	Refer to DID RMDS-AE-006		EOHSA for determining the impact the MDV-C may have on the environment and the health of the personnel.
2	Cyber mission assurance	N/A	As per OEM	As per OEM	An analysis must be performed for Cyber Mission Assurance on the complete Remote Minehunting and Disposal System to ensure a comprehensive safety and suitability for service of the MDV-C.
3	In-Service Surveillance Program	STANAG 4675	D-09-002-017/SG-001 & AOP-62, 63 & 64		An ISS program must be provided with the information required to ensure that munitions remain safe, reliable and perform correctly throughout the period of their intended life.
4	Service Life Extension and Role Change	STANAG 4629	AAS3P-1, STANAG 4370 &, AECTP-600.		A comparison between the MDV-C. Canadian Life Cycle Environment Profile (LCEP) and MDV-C designed LCEP, including deployment cycles, must be conducted. The potential and requirements for service life extension of the MDV-C must also analysed.

NATO ASSESSMENT IAW AAS3P-11
SAFETY AND SUITABILITY FOR SERVICE ASSESSMENT TESTING FOR SURFACE AND UNDERWATER LAUNCHED MUNITIONS

Non-Sequential Tests, Evaluations and Analysis

Serial	Tests, Evaluations and Analysis	Covering STANAG	Standard, Environment & Test/Analysis	Specific Test (if applicable)	Explanation
5	Packaging Assessment	STANAG 2828	APP-22, STANAG 4123, C-09-005-003/TS000, D-09-002-004/SG000, D-09-002-011/SG-000, D-28-163-000/SG000, UN Documents ST/SG/AC.10/1, UN Documents ST/SG/AC.10/11, CGSB-43.151 & TDG Regulations, Part 12		Assess the MDV-C packaging for the logistic container and the PSL IAW NATO, Canadian legislation and assess its hazard classification and UN number and proper shipping name (UN packaging certification).

Serial	Tests, Evaluations and Analysis	Covering STANAG	Standard, Environment & Test/Analysis	Specific Test (if applicable)	Explanation
6	Munition Hazard Classification	STANAG 4758 & 4123	AAS3P-11 para: 8.5.1, AASTP-3, & UN Documents ST/SG/AC.10/1,& UN Documents ST/SG/AC.10/11		To determine the ammunition's applicable hazard classification and UN number and proper shipping name (UN packaging certification).
7	Insensitive Munitions assessment (IM)	STANAG 4758 & 4439	AAS3P-11 para.: 8.5.2, & AOP-39	AOP-39.1, STANAG 4240, 4382, 4241, 4496, 4526 & 4396	Assess the ammunition Insensitivity.
8	Fuse Safety	7.8.2 STANAG 4758, 7.8.3 4157 & 4333	AAS3P-11 para.: 8.5.5, AOP 20, AOP 21, AOP 43 AOP 4157, STANAG 4187, & 4333		Confirm and document that the fusing system is safe and performs as intended in all expected service environments and includes neutralizing and self-destruction systems.
9	Munition Demilitarization and Disposal Assessment	STANAG 4758 & 4518	AAS3P-11 para.: 8.5.7 & AOP 4518 & C-09-005-004/TS-000		Appropriate safety testing and analysis to assess the demilitarization and disposal qualities of the munition.
10	Render Safe Procedure Testing	STANAG 4758 & 4333	AAS3P-11 para.: 8.5.8 & STANAG 4333		Appropriate testing and analysis must be performed to develop Explosive Ordnance Disposal (EOD) render safe procedures for new munitions entering the inventory.
11	Range Safety	STANAG 4758 & 4297	AAS3P-11 para.: 8.5.9 & AOP-15		In accordance with AOP-15, appropriate testing and analysis must be conducted to assess range safety and sustainability. The testing and analysis must be adapted to the nature and operation characteristics of the MDV-C.
12	Explosive Materials Qualification Testing	STANAG 4758, 4170 & 4333	AAS3P-11 para.: 8.5.10 AOP-7 & STANAG 4333		All explosive materials in a munition must undergo appropriate testing and assessment to determine whether each possesses properties which make it safe for consideration for use in its intended role.
13	Platform Integration/Launch Safety	STANAG 4758, 7201& 4333	AAS3P-11 para.: 8.5.12 & STANAG 7201, Mil-STD-46855, & STANAG 4333		Appropriate testing and analysis must be performed to assess platform integration for new munitions entering the inventory. Sufficient evidence should be provided to determine whether the platform interface and the munition have adequate structural integrity to withstand the anticipated dynamic loading. In addition, live fire testing from applicable launch stations or platforms will be required to provide sufficient evidence of safe operation and separation, launch/blast effects, and human factors associated with weapon system operation. The testing and analysis must be adapted to the MDV-C nature and its launch and control system.

Serial	Tests, Evaluations and Analysis	Covering STANAG	Standard, Environment & Test/Analysis	Specific Test (if applicable)	Explanation
14	Other Safety Tests (Altitude)	STANAG 4758	AAS3P-11 para.: 8.5.14	AAS3P-11 Annex H, Appendix 4, para.: H4.11 & ACETP 300, method 312	Low-pressure (altitude) tests are performed to determine if materiel can withstand and/or operate in a low-pressure environment and/or withstand rapid pressure changes.
15	Other Safety Tests (Safe Separation)	STANAG 4758 & 4333	AAS3P-11 para.: 8.5.14 & STANAG 4333		Appropriate testing and analysis must be performed to assess the separation distance functions prior to arming. The testing and analysis must be adapted to the MDV-C nature and its launch system.
16	Other Safety Tests (Other than Rocket Motors)	STANAG 4758 & 4333	AAS3P-11 para.: 8.5.14 & STANAG 4333		Appropriate testing and analysis must be performed to assess the propulsion system. The testing and analysis must be adapted to the MDV-C propulsion nature.
17	Other Safety Tests (Safe aerial and maritime jettison)	STANAG 4758 & 4333	AAS3P-11 para.: 8.5.14 & STANAG 4333		Appropriate testing and analysis must be performed to assess the safe jettison.
18	Other Safety Tests (Batteries)	STANAG 4758 & 4333	AAS3P-11 para.: 8.5.14 & STANAG 4333		Appropriate testing and analysis must be performed to assess the safety of the batteries during storage, maintenance, use and demilitarisation and disposal.
19	Other Safety Tests (Vertical Replenishment)	STANAG 4758	AAS3P-11 Annex H, Appendix 4, para.: H4.8	AAS3P-11, Annex H, Appendix 4, para.: H4.8 & Def-Stan 00-35, Part 3. The Canadian LCEP calls for a sea state of 06.	Testing and analysis must be performed to assess the safety of performing helicopter vertical replenishment at sea.
20	12m Logistical Drop Test	STANAG 4758	AAS3P-11 Annex C, Appendix 2, para: C.2.9	STANAG 4375	Testing and analysis must be performed to assess if the packaged munition can withstand shocks caused by drops onto a hard surface and remain safe for handling and use or safe for disposal.
21	Warhead Arena	STANAG 4758	AAS3P-11 para. Annex A, Appendix 2, para. A2.2.3 & Annex D, Appendix 2, para: D.2.4	ITOP -04-2-813	Warhead arena trials or analysis are performed to determine safe separation distances and range safety parameters. The testing and analysis must be adapted to the nature and operation characteristics of the MDV-C and its environmental use and must consider demilitarization and in-service explosive ordnance disposal in water and on land (unburied).
22	Health Hazards Testing	STANAG 4758	AAS3P-11 para.: 8.5.11	AAS3P-11 Annex H, appendix 2, & DID RMDS-AE-006	Appendix 2 of AAS3P-11 describes the testing and analysis to assess potential health hazards posed by the elements or combinations present in munitions and by munitions use. The testing and analysis must be adapted to the MDV-C and in conjunction with the EOHSA.
23	Munition Software Safety Assessment	STANAG 4758 & 4452	AAS3P-11 para.: 8.5.3 & AOP-52	AOP-52	Munition software must be designed, assessed and tested to assure its safety and suitability for service.
24	Electromagnetic Environmental Effects (E3)	STANAG 4758, 4370 & 4238	AAS3P-11 para.: 8.5.6, STANAG 4238 and AECTP 250 & 500	STANAG 4238 and AECTP 500	This testing must the design and address Hazards of Electromagnetic Radiation to Ordnance (HERO), Electromagnetic Compatibility (EMC),

Serial	Tests, Evaluations and Analysis	Covering STANAG	Standard, Environment & Test/Analysis	Specific Test (if applicable)	Explanation
24-A	Hazards of Electromagnetic Radiation to Ordnance (HERO)		AECTP 250, Leaflet 258, Table 258-5 NATO Worst-Case EME. Or MIL-STD-464C, Table 9, Maximum External EME Levels for Ordnance. In the 2700 to 3600 MHz frequency range, an unrestricted peak EME level of 11500 V/m and an unrestricted average level of 1500 V/m may be used as per NATO AECTP 250, Leaflet 258, Table 258-5.	AECTP 508, Leaflet 3	Electrostatic Discharge (ESD), Lightning Tests, and Firing Circuit Analysis that are required to demonstrate electrical safety.
24-B	Electrostatic Discharge (ESD), Personnel Handling (PH) and Helicopter-Borne Transportation (HB)		AECTP 250, Leaflet 253	AECTP 508, Leaflet 2	
24-C	Lightning Hazard		.AECTP 250, Leaflet 254	AECTP 508, leaflet 4	

Serial	Tests, Evaluations and Analysis	Covering STANAG	Standard, Environment & Test/Analysis	Specific Test (if applicable)	Explanation
25	Electromagnetic Interference (EMI)		STANAG 4238 & AECTP 250	AECTP- 501, Test Code NRS02 Radiated Susceptibility, (Electric Field), 50 kHz to 40 GHz with 1 kHz square wave modulation or MIL-STD-461, test Code RS103 Radiated Susceptibility (Electric Field) with 1 kHz square wave modulation, & AECTP 500, Category 501, test code NRS04, Generic levels of 300 A/m during degaussing, The maximum shipboard steady state field strength is 1600 A/m. Its maximum rate of change is 1600 A/m per second. The Canadian LCEP calls the values stated in AECTP 250, leaflet 251 and 255, table 255-1 and 500, Leaflet 501, NRS04 to be used. & STANAG 4238	This testing must assess electromagnetic interference in order to detect any electromagnetic disturbances, whether intentional or not, that could obstruct, or limit the effective performance of electronic or electrical equipment. It must demonstrate that the MDV-C remain safe for use.
26	Operational and Maintenance Analysis	STANAG 4758	AAS3P-11 para.: 8.5.13	AAS3P-11 Annex H, Appendix 3, STANAG 7201 & MIL-STD-1472	Operational tests required to assess the safety of operational and maintenance procedures and equipment during field handling exercises. The tests are also In conjunction with the EOHSA
27	Weapon Danger Area Analysis (WDAA)	STANAG 4758	AAS3P-11 Annex D, Appendix 1, para. D.1.1.c.		Weapon Danger Area Analysis Plot all munition impact coordinates (measured during successful and unsuccessful dynamic firings) on weapon danger area profiles. The testing and analysis must be adapted to the MDV-C, nature, propulsion, launch and firing system and the concept of operation.
28	Mould growth	STANAG 4758	AAS3P-11 Annex C, Appendix 1, para: C.1.13	AECTP 300, Method 308	The purpose of this mould growth test is to assess the extent to which the material will support mould growth or how the mould growth may affect performance or use of the materiel.
29	Contamination by Fluids	STANAG 4758	AAS3P-11 Annex C, Appendix 1, para: C.1.14	AECTP 300, Method 314	To determine if materiel is unacceptably affected by temporary exposure to contaminating fluids (liquids) such as may be encountered during its life cycle, either occasionally, Intermittently, or over extended periods. The assessment must consider the overall RMDS design (the two containers content) and the RMDS operational platforms.

Serial	Tests, Evaluations and Analysis	Covering STANAG	Standard, Environment & Test/Analysis	Specific Test (if applicable)	Explanation
30	Immersion/Pressurization	STANAG 4758	AAS3P-11 Annex C, Appendix 1, para: C.1.7	AECTP 300, Method 307, Procedure 1	Immersion tests are conducted to determine if material can withstand immersion water and operate as required during immersion.

Sequential Tests, Evaluations and Analysis

IMPORTANT - THERE IS A HOT AND COLD STREAM FOR THE SEQUENTIAL TESTING. REFER TO AAS3P-11:

- High Temperature - Tests should be conducted at the packaged and unpackaged SRE, for packaged and unpackaged tests respectively. The SRE is evaluated in test C.1.5 of ASS3P-11 (serial 31-A-2-v). Otherwise, testing must be conducted at +71ºC.
- Low Temperature - Tests should be conducted as per zone C2[1] exposure temperature (-46ºC). Sea transport tests can be tailored to zone M3[1] exposure temperature (-34ºC). Any other tailoring requires a gap analysis addressing safety considerations and any deployment restrictions due to that tailoring.

Serial	Test	Covering STANAG	Standard, Environment & Test/Analysis	Specific Test (if applicable)	Explanation	Applicable Comment
31	Sequential Environmental Testing	STANAG 4758	AAS3P-11	AAS3P-11 Chapter 7, Annex C, D & E, & Sequential Testing Requirements (Analytical)	This test is designed to evaluate the effects on the ammunition of logistic and tactical transportation, storage and rough handling, which the ammunition might experience in service in the specified climatic extreme conditions.	The Canadian LCEP is defined in the Service Environment Questionnaire and Expected Life Cycle sections of this DID.
31-A	Transportation, Handling and Storage			Refer to the section: Sequential Tests, Evaluations and Analysis - Transportation, Handling and Storage below.		
31-B	Inert Rocket Motor Case Test Sequence			Not applicable		The tests do not apply to the MDV-C launch method and propulsion system
31-C	Dynamic Firing			AAS3P-11 Annex D, Appendix 2, para: D.1.1, 1.2 & 1.3		This test must be tailored based on MDV-C launch, arming and firing procedure and its control and propulsion system. Test temperatures must be in accordance with AAS3P-11, Annex D, Appendix 1 and to this qualification test plan.

31-D	Component Test			AAS3P-11 Annex D, Appendix 2, para: D.2.3, 2.4, 2.5 & 2.6		Test to be conducted, however only on the warhead, and other energetics and critical components as the MDV-C launch method and propulsion do not apply to the other tests. The test to pressure vessels must tailored to the design of the MDV-C, if applicable.
31-E	Climatic Tests and BTCA			Refer to the section: Sequential Tests, Evaluations and Analysis - Climatic Tests and BTCA below.		

Sequential Tests, Evaluations and Analysis - Transportation, Handling and Storage: Serial 31-A

Serial	AAS3P-11, Group	AAS3P-11, Annex C	Name	Test Reference	Configuration	Axis Information	Canada Specific Requirement
31-A-1-i	Logistic and Transport Dynamics Land - Commercial (C 2-1)	2.1.1.	Common Carrier Vibration	AECTP 400 (3), Method 401, Figure A-2	Packaged	X = 179 min. (4800km) Y = 179 min. (4800km) Z = 72min. (4800km)	Use AAS3P-11 and AECTP 400(3)
31-A-1-ii		2.1.2.	Packaged Transit Drop	AECTP 400 (3), Method 414, Procedure 1, Table A-1	Packaged	Mass Dependant	Use AAS3P-11 and AECTP 400(3)
31-A-2	Climatic Sequential tests C.1-1 to C.1-6	Refer to Sequential Tests Evaluations and Analysis - Climatic Sequential tests section below					

<table>
<tr><td>31-A-3-i</td><td rowspan="2">Logistic and Transport Dynamics

Sea - Military (C 2-3)</td><td>2.3.1</td><td>Shipboard Vibration</td><td>AECTP 400 (3), Method 401, Annex C, Table E-1</td><td>Packaged</td><td>X = 60 min. (No Equivalency)
Y = 60 min. (No Equivalency)
Z = 60 min. (No Equivalency)</td><td>Use AAS3P-11 and AECTP 400(3)</td></tr>
<tr><td>31-A-3-ii</td><td>2.3.2</td><td>Shipboard Shock</td><td>AECTP 400 (3), Method 419</td><td>Packaged</td><td>Vertical Down = 9in, 15in
Vertical Up = 9in, 18in, 36in
Athwart ship = 9in, 15in</td><td>The test/evaluation must consider an UNDEX test equal or greater to CFTO D-03-003-007 SG-000 Shock, Table 3, Grade 1A. See Figure 2 for reference on design acceleration based on equipment weight.</td></tr>
<tr><td>31-A-4-i</td><td rowspan="3">Logistics and Transport Dynamics

Air - Military (C 2-4)</td><td>2.4.1.1</td><td>Fixed Wing Turboprop Cargo Transportation Vibration</td><td>AECTP 400 (3), Method 401, Figure C-1</td><td>Packaged</td><td>X = 60 min. (No Equivalency)
Y = 60 min. (No Equivalency)
Z = 60 min. (No Equivalency)

Divide each axis equally by aircraft</td><td>For all aircraft profiles - Narrowband ASD (L0 @ f0) = 1.2g²/Hz (AAS3P-11)

<u>The following aircraft must be represented:</u>
CC-130H (4 blade)
CC-130J (6 blade)
CC-115 (3 Blade) - f0 = 58Hz: *provide a justification and evaluation if test data does not exist*</td></tr>
<tr><td>31-A-4-ii</td><td>2.4.1.2</td><td>Fixed Wing Jet Aircraft Transportation Vibration</td><td>AECTP 400 (3), Method 401, Figure C-2</td><td>Packaged</td><td>X = 5 min.
Y = 5 min.
Z = 5 min.</td><td>Use AAS3P-11 and AECTP 400(3)</td></tr>
<tr><td>31-A-4-iii</td><td>2.4.2</td><td>Helicopter Cargo Transportation Vibration</td><td>AECTP 400 (3), Method 401, Figure D-1</td><td>Packaged</td><td>X = 50 min.
Y = 50 min.
Z = 50 min.

Divide each axis equally by aircraft.</td><td>Use AECTP 400 (3), Method 401, Table D-1

Canada Specific aircraft parameters:
<table>
<tr><td>Aircraft</td><td># Main Blades</td><td>Cruise RPM</td><td>Rotation Speed (Hz)</td><td># Tail Blades</td><td>Cruise RPM</td><td>Rotation Speed (Hz)</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table></td></tr>
</table>

							CH-146 | 4 | 324 | 5.4 | 2 | 1662 | 27.7 CH-147F | 3 | 225 | 3.75 | n/a | n/a | n/a
31-A-5-i	Logistics and Transport Dynamics Land - Military (C 2-4)	2.2.1	Military Wheeled Vehicle (Tactical/CWV) Transportation Vibration	AECTP 400 (3) , Method 401, Figure A-2	Packaged	X = 10 min. Y = 10 min. Z = 10 min.	Use AAS3P-11 and AECTP 400(3)
31-A-5-ii		2.2.2	Restrained Cargo Transport Shock	AECTP 400 (3), Method 403, (see C2-1 in S3 Doc.)	Packaged	X = 8g x 9, 10g x 5, 12g x 1 Y = 8g x 9, 10g x 5, 12g x 1 Z = 8g x 9, 10g x 5, 12g x 1	Use AAS3P-11 and AECTP 400(3)
31-A-6	Tactical Combat Platform Dynamics Sea (C 2-5)	2.5.2.1	Tactical Ship and Underwater Launch Configuration Vibration	AECTP 400 (3), Method 401, Table E-1,	Packaged	X = 60 min. Y = 60 min. Z = 60 min.	Use AAS3P-11 and AECTP 400(3)
31-A-7	Tactical Drop (C 2-6)	2.6	Tactical Drop/Impact	STANAG 4375 Procedure 2	Unpackaged	Refer to AAS3P-11 C2.6 (c.)	The test must be tailored based on handling exposure due to the Launch and Recovery System and PSL designs and the deployment procedures. It must also consider the maintenance done on the MDV-C and it potential maintenance stands and table heights. Justifications must be provided with the height tailored selection.
31-A-8	Munition Flight Dynamics (C 2-10)	2.10	Munition Flight Dynamics	Tailored based on MDV-C launch procedure and propulsion system	Unpackaged	Refer to AAS3P-11	The test must be tailored based on MDV-C launch procedure and system and propulsion system. The tailoring must address launch shock and free flight (in water) vibration. Test temperatures must meet be in accordance with AAS3P-11, C.2.10 and to this qualification test plan.

						A.1.3.6 and C.2.10	
31-A-9	Rail/Horizontal Impact (C 2-1.3)	2.1.3	Logistic Rail transportation (Velocity) Impact	AECTP 400 (3), Method 416 (Procedure III is Lab) OR MIL-STD-810H Method 516, Procedure VII	Packaged	Refer to AAS3P-11	Use AAS3P-11 and AECTP 400(3)
31-A-10	Rough Handling Transit Drop (C 2-7)	2.7	Rough Handling Transit Drop	AECTP 400 (3), Method 414, Procedure 1 Transit Drop	Unpackaged	Refer to AAS3P-11	Use AAS3P-11 and AECTP 400(3)

Sequential Tests Evaluations and Analysis - Climatic Sequential tests: Serial 31-A-2

Serial	AAS3P-11 Para Ref		Environment	Configuration	AAS3P-11 Requirements
	Annex C	Annex A			
31-A-2-i	C.1.1.	A.1.2.1	Humid Heat	Unpackaged	Aggravated Humidity profiles of +30ºC to +60ºC at 95%RH, 24 hr cycles for 10 days. Allowed: testing at B2[1] Natural or Induced levels if duration is increased to 90 or 180 days respectively for "Hazardous Items" in accordance with MIL-STD-810G.
31-A-2-ii	C.1.2.	A.1.2.2.1	Low Temperature Storage (Cyclic or Steady-state)	Unpackaged	C2[1] (-46ºC) is required for sea munitions. Test conducted under steady-state temperature, unless there are known issues with durability under cyclic conditions. Duration is 3 days.
31-A-2-iii	C.1.3.	A.1.2.2.2	High Temp Storage (Steady-state)	Unpackaged	+71ºC for 216 hrs (9 days) or +58ºC for 528 hrs (22 days). Option: Omit steady-state testing by increasing the number of diurnal cycling in C.1.4 (serial 31-A-2iv) to a total of 56 days using the A1[1] Induced profile.
31-A-2-iv	C.1.4.	A.1.2.2.2	High Temp Storage (Cyclic)	Unpackaged	A1[1] Induced diurnal cycles for a minimum of 28 days
31-A-2-v	C.1.5.	A.1.2.3	Solar Radiation	Unpackaged (where applicable); Ideally both the packaged and unpackaged solar response equivalent (SRE) temperature will be determined from testing.	A1[1] ambient temperature with combined solar radiation for 7 days. Temperatures will be used to determine the SRE for high temperature vibration testing.

31-A-2-vi	C.1.6	A.1.2.4	Thermal Shock	Unpackaged	Low Temp. Shocks: Ambient to C2[1] (-46ºC) High Temp. Shocks: A1[1] (+71ºC) to -5ºC Recommend tailoring the high temperature shocks between ambient and +71ºC. However, the tailored temperature must be in-line with the Canadian MDV-C anticipated LCEP.

Sequential Tests Evaluations and Analysis - Climatic Tests and BTCA: Serial 30-E

Serial	Test	Covering STANAG	Standard, Environment & Test/Analysis	Specific Test (if applicable)	Explanation
31-E-1	Rain/Watertightness	STANAG 4758	AAS3P-11 Annex C, Appendix 1, para: C.1.10	AECTP 300, Method 310	These tests are conducted to determine with respect to rain, water spray or dripping water: a. The effectiveness of protective covers, cases, packaging, or seals; b. The capability of the materiel to satisfy its performance requirements during or following exposure; c. The physical deterioration of the materiel due to wetting/moisture ingress; d. The effectiveness of the water removal systems.
31-E-2	Immersion (Leakage)	STANAG 4758	AAS3P-11 Annex C, Appendix 1, para: C.1.7	AECTP 300, Method 307	Test if materiel can withstand immersion or partial immersion in water and operate as required during or following immersion.
31-E-3	Salt Fog	STANAG 4758	AAS3P-11 Annex C, Appendix 1, para: C.1.8	AECTP 300, Method 309	Test the relative resistance of materiel to the effects of an aqueous salt atmosphere.
31-E-4	Sand and Dust	STANAG 4758	AAS3P-11 Annex C, Appendix 1, para: C.1.9	AECTP 300, Method 313, Procedure I & II	Test if materiel can withstand the effect of small-particle dust and can be stored and/or operated under blowing sand conditions without degradation of performance, effectiveness, reliability, and maintainability.

31-E-5	Icing	STANAG 4758	AAS3P-11 Annex C, Appendix 1, para: C.1.9	AECTP 300, Method 311	Test the resistance of the ammunition to exposure to icing and freezing rain.

Service Environment Questionnaire – RMDS

Reference:

1. AECTP 250, Electrical and Electromagnetic Environmental Conditions
2. AECTP-230, Climatic Conditions
3. AECTP-500, Electromagnetic Environmental Effects Tests and Verification
4. C-03-011-010/MS-001, Canadian Influence Range Safety Instructions
5. C-12-115-000/MB-001, Operating Instructions Cc115 Buffalo Aircraft
6. C-12-130-000/MB-001, Aircraft Operating Instructions - CC130 Hercules
7. C-12-130-0C0/MF-001, Description and Maintenance Instructions - CC130 Hercules - Utility Systems
8. C-74-300-B02/NJ-000, Ammunition and Explosives Manual Inspection of Ammunition
9. D-09-002-010/SG-000, Standard Assessment of the Safety and Suitability for Service of Ammunition and Explosives
10. CC130J-1, Flight Manual
11. CC177, Flight Manual
12. MIL-STD-464C, Electromagnetic Environmental Effects Requirements for Systems
13. STANAG 4375, Safety Drop, Munition Test Procedure

Note: It is assumed that all munitions will be logistically transported by commercial truck, railcar, and ISO sea container outside of Areas of Operations. Transport by General Military Transport (GMT), Standard Military Pattern (SMP) vehicles and aircraft (A/C) shall also be considered. Transport by pressurized aircraft will not be considered unless explicitly defined herein as a reasonably expected user requirement within the munition’s service life.

Logistical Cycle

No.	Question	Answer	Reference, if applicable
1	a. Will the munition have explosive components that would normally be removed for storage and handling prior to delivery to the user? (List)	No	
	b. How would the removed items normally be packaged for storage and transport? (Describe by item)	N/A	
	c. Will the munition be assembled prior to delivery to the user? (Where, when and by whom)	N/A	
2	a. What is the minimum required shelf life? (Months)	60 months	
	b. What is the minimum required open life? (Hours, days or months)	N/A, MDV-C warhead, self-contained in vehicle	
	c. What is the minimum required installed life? (Hours, days or months)	60 months	
3	Should the munition be capable of being disassembled to allow expired energetic components to be replaced? (Yes / no)	No	
4	What is the minimum required interval between user/depot/OEM maintenance? (List intervals by maintenance level)	Under normal storage conditions inspected three years after the date of manufacture or assembly and if still serviceable, every two years thereafter.	As per C-74-300-B02/NJ-000, 2001-02-05, part 2, para.11b
5	What are the minimum and maximum temperature and humidity requirements for transport and storage? (°C, % RH)	-33°C to +71°C @ 100%RH or saturation AECTP-230 zones A1[9] for tarmac exposure worldwide, B3[1] Middle East operations, B1[1] operations and training in Canada, M3[1]	

[9] Climatic conditions are defined in accordance with AECTP-230 zones.

		operations and training in Canada and C1[1] operations and training in Canada.	
6	Will the munition, or any of its detached components, have special storage requirements? (Describe by component)	No	
7	Will external test equipment have any ability to make mechanical, electrical or electromagnetic contact with energetic components of the munition? (Describe by individual test equipment)	No	
8	a. Will the munition be transported by helicopter? (List aircraft types)	CH147:Chinook, CH-148:Cyclone & CH146: Griffon	
	b. Internal or external carriage?	Internal and external	
	c. Packaged or unpackaged?	Packaged	
9	a. Will the munition be transported by fixed-wing aircraft? (List aircraft types)	CC130 J & E/H: Hercules, CC177: Globemaster & CC-115: Buffalo	

	b. Pressurized? (Normalized altitude equivalent)	CC177: 8 000 ft cabin altitude at 35 000 ft. Service ceiling 45 000 ft with cabin altitude of 10 700 ft. CC130J: 8 000 ft cabin altitude at 32 200 ft. Service ceiling 40 000 ft with cabin altitude of 10 000 ft. CC130 E/H: 5 000 ft cabin altitude at 28 000 ft, 8 000 ft cabin altitude at 35 000 ft. Service ceiling 40 000 ft with cabin altitude of 9 600 ft. CC-115: The aircraft is unpressurized. Service ceiling 25 000 ft.	CC177: CC177 Flight Manual 1C-17A-1 Figure 1-144 CC130J: CC130J-1 Flight Manual, Figure 14-5 CC130 E/H: C-12-130-0C0/MF-001 & C-12-130-000/MB-001 CC-115: C-12-115-000/MB-001
	c. Jet or turboprop? (List engine types)	CC177: Jet, Pratt &Whitney F117-PW-100 CC130 J: Turboprop, ALLISON AE 100D3 CC130 E/H: Turboprop, ALLISON T56-A-15/-15LFE CC-115: Turboprop, General Electric T-64-300-3	
	d. Packaged or unpackaged?	Packaged	
10	Will the munition or its components be repackaged at any point in distribution prior to being issued to the end user? (List repack points and describe repack configurations)	No repacking: MDV-C might be provided with a cradle (in PSL and logistic container). Removing and reinstalling MDV-C from cradle is not considered pack/repack due to the nature of the MDV-C. The logistic container will be used for logistic “returns” (i.e.: reusable package)	

11	What is the maximum height the munition might be dropped during maintenance handling? (cm)	150 cm, height may change once the design of the portable storage locker and the launch and recovery system have been designed.	STANAG 4375, Procedure 2, Deployment Drop.
12	What is the maximum height that the munition might be dropped from during embarkation onto a ship or aircraft? (m)	12 m	STANAG 4375, Procedure 2, Logistic Drop.

Tactical Cycle

No.	Question	Answer	Reference, if applicable
1	Which services are anticipated to use this munition? (List)	Navy	
2	On which platforms will this munition be transported and used? (List)	Primary: Kingston Class Secondary: Any other Class, VOO, ports/harbour (jetties/docks)	
3	With which weapons/launchers will this munition be used? (List)	N/A	
4	What are the minimum and maximum temperature and humidity requirements for operational use? (°C, % RH)	In water:-2°C to +40°C In Air: -20°C to +45°C @ 100%RH	
5	Will the munition or any of its detached components have special field handling requirements? (Note requirements by component)	No	
6	What RF environment will the munition be employed in? (Specify spectrum by frequency and field intensity of worst case exposure)	The MDV-C may be exposed to a wide range of RF environment due to the potential platforms and transportation methods. CAF/DND use the NATO EMEs	CAF/DND have adopted Worst-Case Operational EME Field Strength Levels as defined in

		defined in AECTP 250, Leaflet 258, Table 258-5 NATO Worst-Case EME. The US EMEs defined in the MIL-STD-464C, Table 9, Maximum External EME Levels for Ordnance would also be acceptable. In the 2700 to 3600 MHz frequency range, an unrestricted peak EME level of 11500 V/m and an unrestricted average level of 1500 V/m may be used as per NATO AECTP 250, Leaflet 258, Table 258-5.	NATO AECTP 250, Leaflet 258, but will also accept EMEs defined in MIL-STD-464C.
7	Will the munition be exposed to discrete magnetic fields, such as a ship's degaussing system? (Specify field intensity of worst case exposure)	Yes. The RCN subjects their ships to generic levels of 300 A/m during degaussing, The maximum shipboard steady state field strength is 1600 A/m. Its maximum rate of change is 1600 A/m/s. For safety and suitability for service assessment, the values stated in AECTP 250, leaflet 251 and 255, table 255-1 and 500, Leaflet 501, NRS04 will be used.	C-03-011-010/MS-001 – Canadian Influence Range Safety Instructions (CIRSI), Chapter 6, Section 3; NATO AECTP 250, leaflet 251 and 255, table 255-1 and 500, Leaflet 501, NRS04.
8	a. How will the munition and its components be packaged on each platform? (List packaging configuration by platform) b. Will the munition be provided with any additional environmental protection in its stowage positions other than the packaging noted above? (List details by platform and stowage position)	a. Reusable logistical container for all logistic and replenishment activities and the Portable Storage Locker (PSL) for system operation and transportation. b. Not requested	

	c. Will the platform stowage positions be adjacent to any hazardous materials or equipment? (List details by platform and stowage position)	c. No, will be stored in the PSL on ships, VOO decks and on ground operations.	
9	Will any portion of the packaging be expected to perform as the launch container for the munition? (Note which portion of the packaging and during what periods of time a launch configuration would be adopted)	No	
10	Will the munition be air dropped or LAPES delivered to the user?	No	
11	Will the munition be required to survive exposure to elevated installation temperatures, such as a round held in a hot gun chamber or a fire extinguisher cartridge installed near an aircraft power plant? (Describe particulars of each circumstance)	No	
12	Will the munition be exposed to a salt-laden atmosphere? (Describe)	Yes, MDV-C to be used on ships	
13	Will the munition be exposed to dust- or sand-laden atmospheres? (Describe)	Yes, MDV-C have to potential of being used ashore	
14	Will the munition be exposed to extended periods of direct solar radiation? (Describe)	Yes, during operations on decks of ships and ports/harbour (jetties/docks)	
15	Will the munition be exposed to extended periods of driving rain? (Describe)	No	
16	Will the munition be exposed to extended periods of freezing rain? (Describe)	No	
17	Will the munition be exposed to any other solid, fluid or gaseous contaminants? (List and describe)	No	

18	a. Where a launcher/mounting is used how long will the munition remain mounted at any one time? (Hours / days / months) b. How long cumulatively could the munition be expected to be mounted during its service life? (Hours / days / months)	Yes, hours (less than a day) N/A	
19	Will the munition be exposed to burst vibrations such as machinegun recoil? (Describe)	No	
20	Will the munition be expected to survive discrete mechanical shocks such as explosive bursts? (Describe)	Yes, battle conditions	
21	Will the munition be exposed to intense acceleration loadings such as fighter aircraft manoeuvres? (Describe)	No	
22	Will the munition be exposed to rapid thermal cycling such as aircraft ascent and descent? (Describe event and give temperature rate)	No	
23	Will the munition / weapon / launcher be required to function in close proximity to friendly forces? (Describe situations with distance approximations)	No, in the context of direct/indirect firing. But neutralizing a threat within 1000m approx.	
24	a. What is the maximum altitude at which the munition will be carried? (m)	Sea level (Lake and River operations may marginally increase the elevation). Air transport will occur.	
	b. What is the maximum altitude at which the munition will be launched? (m)	Sea level (Lake and River operations may marginally increase the elevation).	

25	What is the maximum sea state: a) for munition carriage? b) in which the munition will be required to function?	a. Sea State 7 b. Sea State 3	
26	a. Will the munition or its launcher be required to have a jettisoning function? (Describe)	No	
	b. Will the munition be required to have a self-destruct function? (Describe)	Yes	

Major Material Safety Data Sheets (MSDS) for controlled products identified in the EOHSA

The following is a tabular listing of environmental aspects that are related to activities during various life cycle phases of ammunition. These aspects and their impacts on the environment are generally discussed in the Environmental assessment part of the EOHSA. Note that this is not an exhaustive list; aspects that are specific to the munitions being addressed are to be included in the EOHSA.

Life cycle phase	Activity	Aspect
Storage and transportation	Accidents such as auto ignition of propellant, overheating of storage facility, car accident, etc.	Gas and particulate emissions, unburned explosives on the soil, etc.
Test and Evaluation	Firing limited numbers of ammunition	Duds, Gas and particulate emissions (firing point, trajectory, impact area) in open air and enclosed areas, Noise, Generated wastes
Use/Operation	Firing large numbers of ammunition	Duds and Unexploded Ordnance, Gas and particulate emissions (firing point, trajectory, impact area) in open air and enclosed areas, Noise, Vibration, Generated wastes
Demilitarization and Disposal	Destruction of surplus or obsolete ammunition by OB/OD or thermal treatment in incinerators or other equipment	Gas and particulate emissions, waste disposal (liquid, solid), Noise

Annex B – Basis of Payment
To: W8472-105270
Date: 25 May 2020

Basis of Payment

1. Milestone Payment Schedule

The schedule of milestones for which payments will be made in accordance with the Contract is as follows

Contract Total as per Volume 1 Pricing Table 1: $_____

Table 1

Milestone #	Description or Deliverable(s)	%	Total Firm Price (Applicable taxes Extra)
1	Contract Kick-Off Meeting	2%	$
2	System Requirements Review (SRR)	2%	$
3	Ammunition and Explosives (A&E) Initial Design Review	5%	$
4	Preliminary Design Review (PDR)	5%	$
5	Critical Design Review (CDR)	5%	$
6	Integrated Logistics Support (ILS) Conference	3%	$
7	Initial Provisioning Conference	3%	$
8	Conduct Initial Cadre Training (ICT) for First Article RMDS East Coast	3%	$
9	Conduct Initial Cadre Training (ICT) for First Article RMDS West Coast	3%	$
10	Completion of 1st System FAT	3%	
11	Completion of 1st System SAT	3%	
12	Acceptance of the 1st complete RMDS (Qualification Review)	20%	$
13	Completion of 2nd System FAT	3%	
14	Completion of 2nd System SAT	3%	
15	Acceptance of the 2nd complete RMDS (Qualification Review)	20%	$
16	Delivery of initial 2 years of spares	2%	$
17	Technical Data Package and In-Service Manuals Delivery	15%	$

Note: Technical manuals will not be returned once approved.

2. Charge-out Rate / Material Mark-up

The following rates are included in the Basis of Payment and must remain valid for the duration of the contract.

The Charge-out Rates specified below include; Engineering services, Foreperson, General Labour Supervision, Administrator and must be inclusive of all overheads and profit. The

Charge-out Rates will be used for pricing unscheduled work, except as noted in the clause entitled "Overtime."

Table 2

Description	**Hourly Rate CDN$ (A)**
Engineering Services	$
Foreperson	$
General Labour	$
Supervision	$
Administrator	$

2.1 Material for Additional Work including Design Chang

For the performance of the Work to procure additional Material as a result of approved additional Work including Design Change or change in the scope of Work, the Contractor shall be paid the Direct Material Cost as defined in Contract Cost Principles 1031-2 plus a firm mark-up of 10% GST/HST extra, as applicable. Other than the 10% mark-up, no additional charges relating to material procurement, insurance, handling, store keeping and activities of this nature, or any other charge whatsoever, will be accepted as part of the additional Work prices.

The material mark-up rate will also apply to subcontracted costs. The mark-up rate includes any allowance for material and subcontract management not allowed for in the Charge-out Labour Rate. The Contractor will not be entitled to a separate labour component for the purchase and handling of materials or subcontract administration.

The material mark-up rate will remain firm for the term of the Contract and any subsequent amendments

2.2 Payment for Additional Work including Design Change

The Contractor may claim payment for Additional Work including Design Change where the Work involved in the additional Work or Design Change has been initiated, fully in accordance with the provisions of the Contract. Payment for Additional Work or Design Change shall be subject to the same conditions herein

3. Travel and Living Expenses - National Joint Council Travel Directive

The Contractor will be reimbursed its authorized travel and living expenses reasonably and properly incurred in the performance of the Work, at cost, without any allowance for profit and/or administrative overhead, in accordance with the meal, and private vehicle allowances specified in Appendices B, C and D of the National Joint Council Travel Directive, and with the other provisions of the directive referring to "travellers", rather than those referring to

"employees". Canada will not pay the Contractor any incidental expense allowance for authorized travel.

All travel must have the prior authorization of the _____ (insert "Technical" or "Project" or "Contracting") Authority.

All payments are subject to government audit.

Estimated Cost: $ _____

4. Overtime

The Contractor must not perform any overtime under the Contract unless authorized in advance and in writing by the Contracting Authority. Any request for payment must be accompanied by a copy of the overtime authorization and a report containing the details of the overtime performed pursuant to the written authorization.
For known work and unscheduled work, the Contractor will be paid in accordance with the Basis of Payment table 1, plus authorized overtime hours paid on normal days and weekends at time and one half per hour, or on statutory holidays at double time per hour, to a maximum of 8 hours per day of overtime.

Overtime is defined as:

Regular time is defined as an 8 hour work day or in accordance with current employment contract.
Overtime Time and One-Half Rate (1.5x the hourly rate) found in table 1 above is defined as time in excess of the regular time; and Overtime Double Time Rate (2.0 x the hourly rate) found in table 1 above if applicable under current employment contract.

5. Downtime while on Sea (Sea Time) and while on Dockyard (Stand-by Time)

a) Downtime while on Sea (Sea Time) is defined as time spent at sea on board a DND marine vessel **without** any tasking.

b) Downtime while on Dockyard (Stand-by Time) is referred to time spent at the dockyard prior to boarding DND marine vessel without any tasking.

c) Each Contractor resource is entitled to a maximum of 15 (fifteen) hours within a 24-hour period of Sea Time, Sunday to Saturday inclusive and totalling 105 (one hundred and five) hours per seven-day week.

d) Sea Time arrangement must be coordinated with and pre-authorized by the Technical Authority or its designated Representative(s).

e) The Contractor will be paid the following for the actual hours while on Sea Time or Stand-by Time:

i) for the initial 15 hours, Monday-Friday, the rate shall be the current year firm hourly rate specified in the Basis of Payment Table 1;

ii) for the initial 8 hours on Saturdays, the rate shall be 1.5 times the current year firm hourly rate specified in in the Basis of Payment Table 1;

iii) for the following 7 hours on Saturdays, the rate shall be the current year firm hourly rate specified in in the Basis of Payment Table 1;

iv) for the initial 8 hours on Sundays and Statutory Holidays, the rate shall be 2 times the current year firm hourly rate specified in in the Basis of Payment Table 1; and

v) for the following 7 hours on Sundays and Statutory Holidays, the rate shall be the current year firm hourly rate specified in in the Basis of Payment Table 1.

f) Once a tasking has been **authorized** by the Technical Authority or its designated Representative(s) while on Sea Time, the normal rates as specified in in the Basis of Payment Table 1 shall apply and for overtime, including work on Saturdays, Sundays and Statutory Holidays, the rates specified in 7.3 above shall apply.

6. Limitation of Expenditure

1. Canada's total liability to the Contractor under the Contract must not exceed $ ___TBD_____. Customs duties are included, and Applicable Taxes are extra.

2. No increase in the total liability of Canada or in the price of the Work resulting from any design changes, modifications or interpretations of the Work, will be authorized or paid to the Contractor unless these design changes, modifications or interpretations have been approved, in writing, by the Contracting Authority before their incorporation into the Work. The Contractor must not perform any work or provide any service that would result in Canada's total liability being exceeded before obtaining the written approval of the Contracting Authority

.

ANNEX C

Security Requirements Check List

Remote Minehunting and Disposal System (RMDS)

Government of Canada / Gouvernement du Canada

Contract Number / Numéro du contrat
W8472-105270
Security Classification / Classification de sécurité Unclassified

SECURITY REQUIREMENTS CHECK LIST (SRCL)
LISTE DE VÉRIFICATION DES EXIGENCES RELATIVES À LA SÉCURITÉ (LVERS)

PART A - CONTRACT INFORMATION / PARTIE A - INFORMATION CONTRACTUELLE

1. Originating Government Department or Organization / Ministère ou organisme gouvernemental d'origine: Department of National Defence	2. Branch or Directorate / Direction générale ou Direction: DGMEPM/MSC
3. a) Subcontract Number / Numéro du contrat de sous-traitance	3. b) Name and Address of Subcontractor / Nom et adresse du sous-traitant

4. Brief Description of Work / Brève description du travail

The work requires the delivery of quantity two (2) Remote Minehunting and Disposal Subsystems, one to each coastal formation. The effort includes delivery of all subsystems, integration into a single containerized system and delivery of integrated logistics support including technical documentation and training.

	No / Non	Yes / Oui
5. a) Will the supplier require access to Controlled Goods? Le fournisseur aura-t-il accès à des marchandises contrôlées?		✓
5. b) Will the supplier require access to unclassified military technical data subject to the provisions of the Technical Data Control Regulations? Le fournisseur aura-t-il accès à des données techniques militaires non classifiées qui sont assujetties aux dispositions du Règlement sur le contrôle des données techniques?		✓
6. Indicate the type of access required / Indiquer le type d'accès requis		
6. a) Will the supplier and its employees require access to PROTECTED and/or CLASSIFIED information or assets? Le fournisseur ainsi que les employés auront-ils accès à des renseignements ou à des biens PROTÉGÉS et/ou CLASSIFIÉS? (Specify the level of access using the chart in Question 7. c) (Préciser le niveau d'accès en utilisant le tableau qui se trouve à la question 7. c)		✓
6. b) Will the supplier and its employees (e.g. cleaners, maintenance personnel) require access to restricted access areas? No access to PROTECTED and/or CLASSIFIED information or assets is permitted. Le fournisseur et ses employés (p. ex. nettoyeurs, personnel d'entretien) auront-ils accès à des zones d'accès restreintes? L'accès à des renseignements ou à des biens PROTÉGÉS et/ou CLASSIFIÉS n'est pas autorisé.	✓	
6. c) Is this a commercial courier or delivery requirement with **no** overnight storage? S'agit-il d'un contrat de messagerie ou de livraison commerciale **sans** entreposage de nuit?	✓	

7. a) Indicate the type of information that the supplier will be required to access / Indiquer le type d'information auquel le fournisseur devra avoir accès

Canada	NATO / OTAN ✓	Foreign / Étranger
7. b) Release restrictions / Restrictions relatives à la diffusion		
No release restrictions Aucune restriction relative à la diffusion	All NATO countries Tous les pays de l'OTAN ✓	No release restrictions Aucune restriction relative à la diffusion
Not releasable À ne pas diffuser		
Restricted to: / Limité à :	Restricted to: / Limité à :	Restricted to: / Limité à :
Specify country(ies): / Préciser le(s) pays :	Specify country(ies): / Préciser le(s) pays :	Specify country(ies): / Préciser le(s) pays :

7. c) Level of information / Niveau d'information

PROTECTED A PROTÉGÉ A	NATO UNCLASSIFIED NATO NON CLASSIFIÉ	PROTECTED A PROTÉGÉ A
PROTECTED B PROTÉGÉ B	NATO RESTRICTED NATO DIFFUSION RESTREINTE	PROTECTED B PROTÉGÉ B
PROTECTED C PROTÉGÉ C	NATO CONFIDENTIAL NATO CONFIDENTIEL ✓	PROTECTED C PROTÉGÉ C
CONFIDENTIAL CONFIDENTIEL	NATO SECRET NATO SECRET	CONFIDENTIAL CONFIDENTIEL
SECRET SECRET	COSMIC TOP SECRET COSMIC TRÈS SECRET	SECRET SECRET
TOP SECRET TRÈS SECRET		TOP SECRET TRÈS SECRET
TOP SECRET (SIGINT) TRÈS SECRET (SIGINT)		TOP SECRET (SIGINT) TRÈS SECRET (SIGINT)

TBS/SCT 350-103(2004/12)

Security Classification / Classification de sécurité

Canada

Government of Canada / Gouvernement du Canada

Contract Number / Numéro du contrat
W8472-105270
Security Classification / Classification de sécurité Unclassified

PART A *(continued)* / PARTIE A *(suite)*

8. Will the supplier require access to PROTECTED and/or CLASSIFIED COMSEC information or assets? — No / Non ✓ — Yes / Oui
Le fournisseur aura-t-il accès à des renseignements ou à des biens COMSEC désignés PROTÉGÉS et/ou CLASSIFIÉS?
If Yes, indicate the level of sensitivity:
Dans l'affirmative, indiquer le niveau de sensibilité :

9. Will the supplier require access to extremely sensitive INFOSEC information or assets? — No / Non ✓ — Yes / Oui
Le fournisseur aura-t-il accès à des renseignements ou à des biens INFOSEC de nature extrêmement délicate?

Short Title(s) of material / Titre(s) abrégé(s) du matériel :
Document Number / Numéro du document :

PART B - PERSONNEL (SUPPLIER) / PARTIE B - PERSONNEL (FOURNISSEUR)

10. a) Personnel security screening level required / Niveau de contrôle de la sécurité du personnel requis

RELIABILITY STATUS COTE DE FIABILITÉ	CONFIDENTIAL CONFIDENTIEL	SECRET SECRET	TOP SECRET TRÈS SECRET
TOP SECRET– SIGINT TRÈS SECRET – SIGINT	✓ NATO CONFIDENTIAL NATO CONFIDENTIEL	NATO SECRET NATO SECRET	COSMIC TOP SECRET COSMIC TRÈS SECRET
SITE ACCESS ACCÈS AUX EMPLACEMENTS			

Special comments:
Commentaires spéciaux :

NOTE: If multiple levels of screening are identified, a Security Classification Guide must be provided.
REMARQUE : Si plusieurs niveaux de contrôle de sécurité sont requis, un guide de classification de la sécurité doit être fourni.

10. b) May unscreened personnel be used for portions of the work? — No / Non — ✓ Yes / Oui
Du personnel sans autorisation sécuritaire peut-il se voir confier des parties du travail?
If Yes, will unscreened personnel be escorted? — ✓ No / Non — Yes / Oui
Dans l'affirmative, le personnel en question sera-t-il escorté?

On DND premises, unscreened pers. may only access public/reception zones

SM

PART C - SAFEGUARDS (SUPPLIER) / PARTIE C - MESURES DE PROTECTION (FOURNISSEUR)

INFORMATION / ASSETS / RENSEIGNEMENTS / BIENS

11. a) Will the supplier be required to receive and store PROTECTED and/or CLASSIFIED information or assets on its site or premises? — ✓ No / Non — Yes / Oui
Le fournisseur sera-t-il tenu de recevoir et d'entreposer sur place des renseignements ou des biens PROTÉGÉS et/ou CLASSIFIÉS?

11. b) Will the supplier be required to safeguard COMSEC information or assets? — ✓ No / Non — Yes / Oui
Le fournisseur sera-t-il tenu de protéger des renseignements ou des biens COMSEC?

PRODUCTION

11. c) Will the production (manufacture, and/or repair and/or modification) of PROTECTED and/or CLASSIFIED material or equipment occur at the supplier's site or premises? — ✓ No / Non — Yes / Oui
Les installations du fournisseur serviront-elles à la production (fabrication et/ou réparation et/ou modification) de matériel PROTÉGÉ et/ou CLASSIFIÉ?

INFORMATION TECHNOLOGY (IT) MEDIA / SUPPORT RELATIF À LA TECHNOLOGIE DE L'INFORMATION (TI)

11. d) Will the supplier be required to use its IT systems to electronically process, produce or store PROTECTED and/or CLASSIFIED information or data? — ✓ No / Non — Yes / Oui
Le fournisseur sera-t-il tenu d'utiliser ses propres systèmes informatiques pour traiter, produire ou stocker électroniquement des renseignements ou des données PROTÉGÉS et/ou CLASSIFIÉS?

11. e) Will there be an electronic link between the supplier's IT systems and the government department or agency? — ✓ No / Non — Yes / Oui
Disposera-t-on d'un lien électronique entre le système informatique du fournisseur et celui du ministère ou de l'agence gouvernementale?

TBS/SCT 350-103(2004/12)

Security Classification / Classification de sécurité

Canada

Government of Canada | Gouvernement du Canada

Contract Number / Numéro du contrat
W8472-105270
Security Classification / Classification de sécurité
Unclassified

PART C - *(continued)* / PARTIE C - *(suite)*

For users completing the form **manually** use the summary chart below to indicate the category(ies) and level(s) of safeguarding required at the supplier's site(s) or premises.
Les utilisateurs qui remplissent le formulaire **manuellement** doivent utiliser le tableau récapitulatif ci-dessous pour indiquer, pour chaque catégorie, les niveaux de sauvegarde requis aux installations du fournisseur.

For users completing the form **online** (via the Internet), the summary chart is automatically populated by your responses to previous questions.
Dans le cas des utilisateurs qui remplissent le formulaire **en ligne** (par Internet), les réponses aux questions précédentes sont automatiquement saisies.

Government of Canada / Gouvernement du Canada

Contract Number / Numéro du contrat
W8472-105270
Security Classification / Classification de sécurité: Unclassified

PART D - AUTHORIZATION / PARTIE D - AUTORISATION

13. Organization Project Authority / Chargé de projet de l'organisme

Name (print) - Nom (en lettres moulées)	Title - Titre	Signature
Shawn Beaudette	MSC 7-2	S. Beaudette

Telephone No. - N° de téléphone	Facsimile No. - N° de télécopieur	E-mail address - Adresse courriel	Date
819-939-3786		Shawn.Beaudette@forces.gc.ca	26 Sept 2019

14. Organization Security Authority / Responsable de la sécurité de l'organisme

Name (print) - Nom (en lettres moulées)	Title - Titre	Signature
Sasa Medjovic - DDSO - Industrial Security Senior Security Analyst		

Telephone No. - N° de téléphone	Facsimile No. - N° de télécopieur	E-mail address - Adresse courriel	Date
Tel: 613-996-0299		E-mail: sasa.medjovic@forces.gc.ca	2019-Oct 02

15. Are there additional instructions (e.g. Security Guide, Security Classification Guide) attached?
Des instructions supplémentaires (p. ex. Guide de sécurité, Guide de classification de la sécurité) sont-elles jointes? No / Non — Yes / Oui

16. Procurement Officer / Agent d'approvisionnement

Name (print) - Nom (en lettres moulées)	Title - Titre	Signature

Telephone No. - N° de téléphone	Facsimile No. - N° de télécopieur	E-mail address - Adresse courriel	Date

atière de sécurité

itle - Titre	Signature: Clark, Lyndsay — Digitally signed by Clark, Lyndsay Date: 2019.10.04 13:43:31 -04'00'	
écopieur	E-mail address - Adresse courriel	Date

Lyndsay Clark – Contract Security Officer
Lyndsay.clark@tpsgc.pwgsc.gc.ca
(613) 957-9388

Annex D
Remote Minehunting and Disposal System

Industrial and Technological Benefits

Terms and Conditions

Industrial and Technological Benefits Terms and Conditions

1. DEFINITIONS

1.1. For the purpose of this Industrial and Technological Benefits (ITB) Terms and Conditions Annex to the Contract, the following definitions apply. Terms not otherwise defined in this Annex have the meaning given to them in the Contract.

1.1.1. "**Achievement Period**" means the period commencing on December 11, 2019, and ending one (1) year after the completion of the Work under this Contract;

1.1.2. "**Allowable Investment**" means:

- for cash contributions, a payment to, or purchase of, non-controlling common or preferred shares of a Canadian Company. It does not include either the purchase of debentures or a repayable loan; and
- for in-kind contributions, a licence for Intellectual Property (e.g. authorization to use the licensed material for commercial use); equipment (e.g. equipment, software, or systems to develop new or improved goods or services); knowledge transfer (e.g. lending of an employee to provide technical or managerial know-how); marketing and sales support (e.g. lending of an employee to undertake marketing or sales activities and share market intelligence, or a licence for brand or trademarks;

1.1.3. **"Bid Price"** – The bidder's acquisition and in-service support bid prices combined and provided in its financial proposal to Canada at bid submission, which includes all options and excludes work arising, task authorization work and applicable taxes;

1.1.4. "**Canadian Company**" means a commercial enterprise that is incorporated pursuant to the laws of Canada and which has ongoing business activities in Canada;

1.1.5. "**Canadian Content Value**" or "**CCV**" has the meaning ascribed thereto in Article 9 of this document;

1.1.6. "**Capitalization**" means the total value of a company's issued shares plus the value associated with instruments that can be converted into shares. For publicly traded companies, this is equal to the total number of issued shares multiplied by the market price plus the equity portion of any derivative instrument according to Canadian generally accepted accounting principles. For privately held companies, this is equal to the total number of issued shares multiplied by the most recent price at which they were sold plus the equity portion of any derivative instrument according to Canadian generally accepted accounting principles;

1.1.7. "**Collaborative Research**" means a Contractor or Eligible Donor working with

one or more Post-Secondary or Public Research Institutions, and in the case of Consortia transactions, with a Canadian company, under a formal written agreement, and sharing Intellectual Property, technical or scientific expertise, or testing equipment or facilities to achieve the common goal of producing scientific knowledge or intellectual knowledge for the benefit of all parties;

1.1.8. "**Commercialization Activity**" means a process through which economic value is extracted from knowledge through the production and sale of new or significantly improved goods and services. It can also include advertising, sales promotion and other marketing activities. Specific Commercialization Activities consist of business and market planning, project feasibility studies, identifying customer needs, market engagement and testing, profitability analysis and financing, and launch advertising;

1.1.9. "**Commitment**" means the Contractor's specific undertakings related to its activities, its Plans, and its Transactions, as referenced in Appendix A (Value Proposition Commitments, Plans and Transactions);

1.1.10. "**Contract Price**", for the purposes of ITB Commitments, includes the value of the contract and any exercised options or option periods, but excludes applicable taxes;

1.1.11. "**Credit**" means the amount attributed to a Transaction, measured in CCV, which has been achieved in whole or in part, as confirmed by written notice from the ITB Authority. All Transactions are subject to annual reporting and verification before Credit is awarded;

1.1.12. "**Defence Sector**" means businesses engaged in the manufacture and delivery of products and services for use in government defence and security applications including but not limited to the following: ammunition and other munitions; missiles and rockets; firearms and other weapons; military systems deployed in space, space launch vehicles, land-based systems for the operation, command and control of space launch vehicles or systems deployed in space and related components; primarily airborne electro-optical, radar and sonar and other sensor/information collection systems, and fire control, warning and countermeasures systems and related components; primarily land-based or man-portable electro-optical, radar and sonar and other sensor/information collection systems, and fire control, warning and countermeasures systems and related components; primarily airborne communications and navigation systems and other information systems including processing and dissemination, software, electronics and components; primarily land based, man portable or non-platform specific communications and navigation systems and other information systems including processing and dissemination, software, electronics and components; naval ship-borne systems (e.g. mission systems) and components; naval ship

fabrication, structures and components; naval ship maintenance, repair and overhaul; combat vehicles and components; combat vehicles maintenance, repair and overhaul; aircraft fabrication, structures and components; military aircraft maintenance, repair and overhaul services; unmanned aerial systems or vehicles and components; simulation systems for aircraft; simulation systems for naval vessels; simulation systems for land vehicles or other applications; live personnel and combat training services; and troop support, all as more particularly described in Appendix I (Defence Sector Definitions);

1.1.13. "**Designated Regions of Canada**" means the following regions that have been designated by the government of Canada for socio-economic purposes: the Atlantic Region (consisting of the provinces of Newfoundland and Labrador, Prince Edward Island, New Brunswick, and Nova Scotia); the Quebec Region (consisting of the province of Quebec); the Northern Ontario Region (consisting of that part of the province of Ontario north of and including Nipissing and Parry Sound Districts); the Southern Ontario Region (consisting of that part of the province of Ontario south of Nipissing and Parry Sound Districts); the Western Region (consisting of the provinces of Manitoba, Alberta, Saskatchewan, and British Columbia); and the Northern Region (consisting of the territories of Yukon, Northwest Territories and Nunavut);

1.1.14. "**Direct Transaction**" means a Transaction that is entered into for Work under the Contract;

1.1.15. "**Eligible Donor**" means the parent corporation of the Contractor and all of the parent's subsidiaries, divisions and subdivisions, and the Contractor's Tier One suppliers related to the performance of the Work, their respective parent corporations, and all of the parent's subsidiaries, divisions and subdivisions. See Article 8.1.4;

1.1.16. "**Export**" means sales of domestic services and goods, produced developed, or manufactured in Canada and leaving the country for a foreign destination;

1.1.17. "**Grouped Transaction**" means a Direct Transaction that has more than one Recipient. Grouped Transactions will only include activities involving Canadian suppliers with similar characteristics of one or more of product, size, or region; specify regional and Small and Medium Business content; and will have a total Canadian Content Value (CCV) of not more than ten percent (10%) of the Obligation contained in Article 3.1.1;

1.1.18. "**Indigenous Peoples**" describes a First Nations, Inuit/Inuk, or Métis person, and has the meaning assigned by the definition "Aboriginal Peoples of Canada" in subsection 35(2) of the *Constitution Act, 1982*;

1.1.19. "**Indirect Transaction**" means a Transaction that is entered into for a business activity that is not Work under the Contract.

1.1.20. "**In-Kind Valuation**" means a valuation report, which is satisfactory to the ITB Authority, provided by a qualified party who possesses a professional designation related to business valuation or similar area of expertise. Valuation reports will contain (a) a statement from the qualified party regarding its expertise and adherence with the standards of its professional designation; and (b) a detailed valuation of the proposed in-kind contribution, including supporting assumptions. The ITB Authority reserves the right to request a valuation report prepared by an independent third party that possesses a professional designation related to business valuation or similar area of expertise. The Contractor or Eligible Donor shall assume all costs associated with obtaining the In-Kind Valuation report(s);

1.1.21. "**In-Service Support**" means capabilities needed to operate and sustain a range of military platforms and systems operating in all domains across their lifespans. In this context, the phrase "operate and sustain" includes a wide array of activities, including maintenance, repair and overhaul; diagnostic, prognostic and health management; spares and supply chain management; configuration management; system and software modification and upgrade for both capability enhancement and life extension; and overall product support integration (PSI).

1.1.22. "**Intellectual Property**" or "**IP**" means all patents, inventions, trade-marks, copyrights, industrial designs, trade secrets, technical information, and other Intellectual Property belonging to or licensed to a company;

1.1.23. "**ITB Annual Report**" has the meaning set out in Article 4 of this Annex;

1.1.24. "**ITB Authority**" means the Minister of Industry or any other person designated by that Minister to act on the Minister's behalf. The ITB Authority is responsible for evaluating, accepting, monitoring, verifying, and crediting ITB, and for assessing the Contractor's ITB performance under these Terms and Conditions;

1.1.25. "**Obligation**" means each of the contractual Obligations that the Contractor must meet, as set forth in Article 3, which are collectively referred to as the Obligations, including options;

1.1.26. "**Overachievement**" means the amount by which the Contractor's Credits, awarded during the Achievement Period, are greater than the Obligation;

1.1.27. "**Plans**" means the Plans prepared by the Contractor, that is the company business Plan, the ITB management Plan, the regional development Plan, the Small and Medium Business development Plan, and the gender and diversity

Plan, all dated *xx* and all bearing reference number *xx [from the contractor's proposal];*

1.1.28. "**Post-Secondary Institution**" means a higher education institution or other organizational entity in Canada that is eligible to receive funding from at least one of the three federal granting councils (the Social Science and Humanities Research Council, the Natural Science and Engineering Research Council, or the Canadian Institutes of Health Research). For informational purposes only: Information on the federal granting councils can be found on the Government of Canada website: http://science.gc.ca/eic/site/063.nsf/eng/h_FEE7261A.html;

1.1.29. "**Proposal**" means the proposal submitted by the Contractor on *day, month, year* bearing reference number *xx*;

1.1.30. "**Public Research Institution**" means a federal, provincial, or territorial organization in Canada that: is engaged in research, research training and related activities in Canada; has as its primary goals the conduct of research, peer review, and the dissemination of results by way of publication, technology transfer or training; and is funded primarily from public resources and has established processes, systems, procedures and controls to ensure achievement of public objectives;

1.1.31. "**Recipient**" means the Canadian Company or organization that receives, from the Contractor or an Eligible Donor, the commercial or business activity described in a Transaction;

1.1.32. "**Remotely-piloted Systems and Autonomous Technologies**" means platforms and systems which make use of autonomous machine operations, including whole unmanned aerial, marine, or ground vehicle systems, and employ AI technologies to enable increasingly autonomous operations in both the military and commercial domains. These technologies rely on various forms of artificial intelligence, including (but not limited to) machine learning, self-learning, and neural networks, in order to increase operational speed or duration, reduce operator exposure to dangerous environments, and enhance overall mission effectiveness.

1.1.33. "**Reporting Period**" means each twelve (12) month period within the Achievement Period upon which the Contractor's annual reporting will be based. Notwithstanding the foregoing, the first Reporting Period may include more than twelve (12) months in that it commences on the first day of the Achievement Period and ends on the last day of the twelfth month after the Effective Date of Contract Award. Subsequent Reporting Periods (e.g. Period 2) will follow in consecutive twelve (12) month periods until the end of the Achievement Period;

1.1.34. "**Research and Development**" or "**R&D**" means a scientific investigation that explores the development of new goods and services, new inputs into production, new methods of producing goods and services, or new ways of operating and managing organizations. Specific R&D activities consist of standard test, measurement, or analysis; test, measurement, or analysis reports; specific thermo-mechanical analysis methodology development projects; product, process design, or engineering; customized product, process, or technology development project; related evaluation and feasibility studies; applied research projects for new product concepts, new technology platforms and new test, measurement, or analysis; basic scientific research for creating better understanding and insights in new phenomena; research to advance scientific knowledge with or without a specific practical application in view; and support work in engineering, design, operations research, mathematical analysis, computer programming, data collection, testing, or research;

1.1.35. "**Research Skills Development**" refers to the knowledge and expertise acquired by students through the conduct of research at a Post-Secondary Institution or through Collaborative Research led or supervised by a faculty member in Canada;

1.1.36. "**Semi-processed Goods**" means goods converted from their natural state of a raw material through the use of a specialized process into a state of readiness for use or assembly into a final product;

1.1.37. "**Shortfall**" means the amount by which the Contractor's Credits, awarded during the Achievement Period, are less than the Obligation;

1.1.38. "**Skills Development and Training**" means a specific activity intended to enhance, or address a gap in, Canadian workforce skills and training capability or capacity through a cash or in-kind contribution (e.g. equipment or a knowledge transfer);

1.1.39. "**Small and Medium Business**" or "**SMB**" means a Canadian Company with fewer than two hundred and fifty (250) full-time personnel as of the date of entering into a Transaction. Neither (i) agents nor distributors of foreign goods and services nor (ii) any subsidiaries of the Contractor or any subsidiaries of an Eligible Donor on any contract with IRB/ITB obligations qualify as a Small and Medium Business;

1.1.40. "**Sonar and Acoustic Systems**" means design, manufacture and integration of sonar and/or acoustic systems used for navigation, surveillance, fire control, survey, scientific and other purposes, both military and civil. This spans both the "dry side" signal processing and system management capabilities, and the "wet side" sensor arrays.

1.1.41. "**Supplier Development**" means the Contractor or an Eligible Donor undertaking Transactions with Canadian Companies that are neither (i) agents nor distributors of foreign goods and services nor (ii) any subsidiaries of the Contractor or an Eligible Donor;

1.1.42. "**Tier One Supplier**" means a company that performs a specific portion of the Work directly for the Contractor, producing or servicing a major subassembly or major component that is installed or used in the platform or system being procured under this Contract;

1.1.43. "**Transaction**" means a commercial or business activity involving the Contractor or an Eligible Donor and a Recipient, that is carried out by means of a contract, sales agreement, licence agreement, letter of agreement or other similar instrument in writing, and which has an identified dollar value;

1.1.44. "**Value Proposition**" or "**VP**" means the portion of Commitments and Transactions, along with any other information, which was submitted in the Proposal; and

1.1.45. "**World Product Mandate**" means a purchase of goods or services from a Canadian Company where there is a long-term supplier relationship between the Contractor or an Eligible Donor and the Canadian Company, pursuant to which the Canadian Company has been legally authorized to carry out and has sole responsibility for specific activities, including the design, development, manufacture, and marketing related to the supply of products, components, modules, or services destined for domestic and world markets.

2. CANADA'S INDUSTRIAL AND TECHNOLOGICAL BENEFITS OBJECTIVES

2.1. Canada has responsibility to set in place programs and policies that ensure that Canada's significant investments in defence-related goods and services generate long-term and high-value economic benefit to Canadian industry and encourages the growth of industry in emerging technologies, established and globally competitive capabilities, and domestic capacity related to national security issues. Canada's Industrial and Technological Benefits (ITB) Policy objectives include:

2.1.1. the economic development and long-term sustainment of Canada's Defence Sector, by maximizing the amount of business activities in Canada involving work directly on the procurement and work in the Defence Sector more broadly;

2.1.2. increased productivity and competitiveness among Canadian Companies, through meaningful opportunities for growth and supply chain integration into major global systems suppliers;

2.1.3. strengthened innovation and R&D in Canada, which positions Canadian Companies to move up the value chain, capture market opportunities, and benefit from subsequent commercialization opportunities;

2.1.4. Canadian Company success in tapping traditional and non-traditional Export markets that have been leveraged from the Project, sharing in long-term jobs and growth;

2.1.5. developing, growing, and sustaining a diverse, talented, and innovative Canadian workforce;

2.1.6. encouraging the participation of Canadian Companies in the Designated Regions of Canada, assisting with long-term quality improvements to their capability, capacity, international competitiveness, and growth potential; and

2.1.7. encouraging the participation of Canadian SMB as suppliers on major federal procurements and increasing their competitiveness and Export market access.

3. STATEMENT OF OBLIGATIONS

3.1. The Contractor shall by the end of the Achievement Period:

3.1.1. Achieve not less than one hundred percent (100%) *[or the total value of its Commitment in the Contractor's Proposal, whichever is higher; TBD on each project]* of the Contract Price, including options, in CCV as Transactions, specified in Appendix A (Value Proposition Commitments, Plans and Transactions), as updated from time to time.

3.1.2. Achieve the following VP Commitments:

3.1.2.1. achieve not less than *[number] percent (xx%)* of the Contract Price, including options, *[to be inserted from the Contractor's Proposal]* as Direct Transactions, measured in CCV;

3.1.2.2. achieve not less than [number] percent (xx%) of the Contract Price, including options, [to be inserted from the Contractor's Proposal] as Transactions involving Research and Development in the areas of Remotely-piloted Systems and Autonomous Technologies; Sonar and Acoustic Systems; and, In-Service Support, measured in CCV;

3.1.2.3. achieve not less than *[number] percent (xx%)* of the Contract Price, including options, *[to be inserted from the Contractor's Proposal]* as Transactions involving Supplier Development, measured in CCV;

3.1.2.4. achieve not less than *[number] percent (xx%)* of the Contract Price, including options, *[to be inserted from the Contractor's Proposal]* as Transactions involving Skills Development and Training, measured in CCV;

3.1.2.5. achieve not less than *[number] percent (xx%)* of the Contract Price *[to be inserted from the Contractor's Proposal]* as Export Transactions, measured in CCV; and

3.1.2.6. demonstrate through annual reporting that the capacity to Export conditions are maintained throughout the Achievement Period, as set out in the Contractor's international Export strategy in Appendix A (Value Proposition Commitments, Plans and Transactions).

3.1.3. Achieve Transactions in the Designated Regions of Canada, as specified in Appendix A (Value Proposition Commitments, Plans and Transactions) and representing no less than the following*:*

[Note: Percentages below are calculated based on the CCV of Transactions identified in the Proposal, divided by the Contract Price at the time of signing this Contract. The percentages will not change over the life of this Contract, but their corresponding dollar value may change if there are changes to the Contract Price.]

3.1.3.1. Atlantic region: [number] percent (xx%);
3.1.3.2. Quebec region: [number] percent (xx%);
3.1.3.3. Northern Ontario region: *[number] percent (xx%)*;
3.1.3.4. Southern Ontario region: *[number] percent (xx%)*;
3.1.3.5. Western region: *[number] percent (xx%)*; and
3.1.3.6. Northern region: [number] percent (xx%).

3.1.4. Achieve not less than fifteen percent (15%) of the Contract Price *[or the CCV of SMB Transactions identified in Proposal, whichever is higher]* in CCV for transactions involving SMBs, as specified in Appendix A (Value Proposition Commitments, Plans and Transactions).

3.1.5. Carry out each and every Transaction as set out in the Transaction list attached at Appendix A (Value Proposition Commitments, Plans and Transactions), as amended from time to time.

3.1.6. Achieve Credits valued at no less than 100% of the Contract Price by the end of Reporting Periods.

3.1.7. The Contractor shall submit to the ITB Authority, Annual Reports describing the performance achieved during each Reporting Period, as follows:

3.1.7.1. these reports shall be submitted sixty (60) calendar days after the end of each Reporting Period;

3.1.7.2. the Contractor shall use the format and electronic template provided by the ITB Authority, as outlined in Article 4; and

3.1.7.3. as evidence of the achievement of the Obligations and compliance with the Lobbying Act, a certificate of compliance, using the template attached as Appendix F (Certificate of Compliance) to this Annex, signed by a senior company official with the authority to bind the Contractor. In addition, the Contractor is required to provide certificates of compliance signed by each Eligible Donor.

3.2. The Contractor shall submit to the ITB Authority proposed new Transactions along the following timeline:

3.2.1. at one (1) year following the Effective Date of the Contract, such that the cumulative total of Transactions is not less than sixty percent (60%) of the Contract Price, including any exercised options, measured in CCV; and

3.2.2. at three (3) years following the Effective Date of the Contract, such that the cumulative total of Transactions is not less than one hundred percent (100%) of the Contract Price, including any exercised options, measured in CCV.

4. ANNUAL REPORTING

4.1. The Contractor shall submit ITB Annual Reports to the ITB Authority. These reports shall be submitted sixty (60) days after the end of the annual Reporting Period. Each Annual Report must have five parts (Parts A through E), as described below. The ITB Annual Report shall be submitted to the ITB Authority in the format provided to the Contractor by the ITB Authority.

4.1.1. Part A must include:

4.1.1.1. Overview and status of the Work on the Project:

- A high-level overview of the work performed during the reporting period, including major highlights and schedule changes.

4.1.1.2. Progress payments:

- A list of all the progress payment claims that have been submitted to the Contracting Authority for Work completed since the

Effective Date of the Contract, broken down by Reporting Period and including the amount, date submitted and payment status.

4.1.1.3. Plans:

- A description of any substantive changes to the Plans, including changes to company officials responsible for administering the Obligation.

4.1.1.4. Value Proposition Overview:

- A detailed overview of each of the Contractor's VP Commitments, the related activities during the Reporting Period and a cumulative summary of the achievement status of each.
- For the export plan specifically, a detailed overview regarding developments impacting the Contractor's execution of the International Export Strategy. This should include any highlights or notable developments over the previous twelve (12) month period as well as relevant new information pertaining to Target Markets and Export Capacity criteria that the Contractor identified in its Proposal.

4.1.2. Part B must include the following, for each Transaction being reported:

4.1.2.1. an update on any changes to details, such as the CCV percentage or Recipient contact information;

4.1.2.2. a description of significant achievements and activities, particularly those associated with Transactions involving multipliers; and

4.1.2.3. a description of any delays, problems or achievement Shortfalls, along with a plan of action to resolve them.

4.1.3. Part C must include, for each Transaction being reported:

4.1.3.1. the CCV of the achievements claimed <u>for the</u> <u>current Reporting Period</u>.

4.1.4. Part D must include, for each Transaction reported:

4.1.4.1. the CCV of the achievements <u>claimed to date in all the Reporting Periods</u> since the beginning of the Achievement Period.

4.1.5. Part E must include:

4.1.5.1. ***SMB and regional development activities:***

- Overview and highlights of activities undertaken during the Reporting Period.

4.1.5.2. New, changed or cancelled Transactions:

- A list of Transactions which have been cancelled, added or substantially altered during the Reporting Period with the approval of the ITB Authority.

4.1.5.3. As evidence of the achievement of the Obligations and compliance with the *Lobbying Act*, a certificate of compliance, using the template attached as Appendix F (Certificate of Compliance) to this Annex, signed by a senior company official with the authority to bind the Contractor. In addition, the Contractor is required to provide certificates of compliance signed by each Eligible Donor.

5. CONTRACT PRICE CHANGES

5.1. In the event that the Contract Price is increased (e.g. options exercised) or decreased, the Contractor's Obligations in Article 3.1 will correspondingly be either increased or decreased.

5.2. If the Contract Price increases after the xx year following the Effective Date of the Contract, the Contractor shall submit to the ITB Authority Transactions valued at one hundred percent (100%) of the increase, measured in CCV, within one (1) year of the date of the increase.

6. OVERACHIEVEMENT OF COMMITMENTS

6.1. The Contractor may achieve Credits for any Transaction in excess of its original value. When this excess Credit occurs, it can be applied to Transactions that have not yet met their original value or used to meet identification milestones in Article 3, as long as the relevant regional, SMB and VP Commitments are achieved.

7. TRANSACTION TYPES AND CANADIAN CONTENT VALUE

7.1. Transactions may be Direct or Indirect and may involve the manufacture of goods by a Canadian Company, the purchase of goods or services from a Canadian Company, grants and donations, or Allowable Investments. The Transaction types listed below are those that have specific requirements or that receive Multipliers; they do not constitute a complete list of possible Transaction types.

7.1.1. These Transactions are measured in CCV in accordance with Article 9.

7.1.2. When an Indirect Transaction involves a World Product Mandate and where the CCV of the product is verified to be seventy percent (70%) or greater, the CCV

shall be deemed to be one hundred percent (100%) for reporting and verification purposes.

7.2. Small and Medium Business Transactions

7.2.1. Valuation for Credit purposes

7.2.1.1. A Transaction where an SMB is the Recipient, and the SMB's product or service has a CCV of at least seventy percent (70%), will have its Credit awarded as follows:

7.2.1.1.1. the portion of the Transaction's CCV that is equal to or less than one million dollars ($1,000,000) will be deemed to have one hundred percent (100%) CCV for reporting and verification purposes; and

7.2.1.1.2. any portion of the Transaction's CCV that is over one million dollars ($1,000,000) will use the actual CCV as calculated using Article 9.

7.3. Cyber Certification Transaction

7.3.1. A cyber certification Transaction will receive Credit for the value of the contribution if it involves:

7.3.1.1. a contribution to the cyber certification of a Canadian Company granted by a governmental or non-governmental provider that provides nationally, internationally, provincially, or territorially recognized cyber certification, which allows Canadian Companies to better access opportunities in Canada and abroad.

7.3.2. Valuation for Credit purposes

7.3.2.1. The value will be the cash contribution from a Contractor or Eligible Donor to a Recipient.

7.4. Skills Development and Training Transactions

7.4.1. A Skills Development and Training Transaction will receive Credit for the value of the cash contribution or in-kind contributions if it involves:

7.4.1.1. donations of equipment or resources intended for Skills Development or Training purposes at current market value (e.g. computers or software);

7.4.1.2. the hourly rate of pay associated with knowledge or technology transfer (e.g. the hourly rate of pay for an employee loaned for teaching or training);

7.4.1.3. salaries of students for work-integrated learning (e.g. co-operative education and work placements);

7.4.1.4. sponsorship costs for apprentices enrolled in a nationally, provincially, or territorially recognized apprenticeship program to obtain the necessary training to complete an apprenticeship program;

7.4.1.5. a contribution to the personal certification of a Canadian citizen or permanent resident (as defined in the *Immigration and Refugee Protection Act*) granted by a provincially, territorially, nationally, or internationally (if no equivalent Canadian association exists) recognized trade association or representative body of a specific profession;

7.4.1.6. a contribution to skills development programs, including a contribution to a charity registered with the Canada Revenue Agency or a not-for-profit organization incorporated federally under the *Canada Not-for-profit Corporations Act* or in the province or territory where it operates, for work related to Skills Development and Training (e.g. science, technology, engineering, or mathematics summer camps); or

7.4.1.7. educational costs, including tuition or course fees, and travel expenses incurred in Canada and covered by the Contractor or Eligible Donor to provide employees with new or upgraded skills that are demonstrably different, improved, or expanded as compared to employees' current skills and which will enhance their career or employment potential.

7.4.2. The Transaction will receive a Credit multiplier of five (5) times if it involves a contribution to Skills Development and Training for Indigenous Peoples or majority Indigenous-controlled educational or training facilities.

7.4.3. The Transaction may be eligible to receive a Credit multiplier of five (5) times if it involves a contribution to Research Skills Development under Article 7.5.1 or 7.6.1.

7.4.4. The following will <u>not</u> be eligible for Credit

7.4.4.1. Any contribution made directly to the Contractor or Eligible Donor by any level of government to cover the cost in whole or in part of the Skills Development and Training activity; and

7.4.4.2. The value of an in-kind contribution that involves a license for Intellectual Property.

7.4.5. Valuation for Credit purposes

7.4.5.1. The initial value will be the cash contribution from a Contractor or Eligible Donor to a Recipient; and

7.4.5.2. The value of any in-kind contributions would then be added.

7.5. Research and Development Transactions

7.5.1. A Research and Development Transaction shall receive a Credit multiplier of five (5) times if it involves:

7.5.1.1. a cash contribution to a Post-Secondary Institution for research or the establishment of research chairs or Collaborative Research undertaken with a Post-Secondary or Public Research Institution.

7.5.2. At the discretion of the ITB Authority, Contractors may be asked to submit a copy of the formal Collaborative Research written agreement covering the roles and responsibilities of the parties to the ITB Authority prior to approval of the Transaction.

7.5.3. The following will <u>not</u> be eligible for Credit

7.5.3.1. The value of an in-kind contribution that involves a license for Intellectual Property.

7.5.4. Valuation for Credit purposes

7.5.4.1. An initial value shall be calculated based on the cash contributions;

7.5.4.2. Once the initial value is established, it will be multiplied by five (5); and

7.5.4.3. The value of any in-kind contributions would then be added, based on an In-Kind Valuation.

7.6. Consortium Transactions

7.6.1. An Allowable Investment into a consortium shall receive a Credit multiplier of five (5) times if it involves:

7.6.1.1. the Contractor or an Eligible Donor;

7.6.1.2. a minimum of one (1) Canadian Company as a Recipient; and

7.6.1.3. a minimum of one (1) Post-Secondary Institution or Public Research Institution as a Recipient.

7.6.2. The Contractor or Eligible Donor shall demonstrate how its contribution contributed to those of the other consortium members.

7.6.3. At the discretion of the ITB Authority, Contractors may be asked to submit a copy of the formal consortium written agreement covering the roles and responsibilities of the parties to the ITB Authority prior to approval of the Transaction.

7.6.4. The following will not be eligible for Credit

7.6.4.1. Any contribution made to the consortium by Post-Secondary Institutions or Public Research Institutions; and

7.6.4.2. Any contribution made directly into the consortium by any level of government.

7.6.5. Valuation for Credit purposes

7.6.5.1. An initial value will be calculated and will be the sum of the value of the cash contributions from the Contractor or an Eligible Donor to the consortium and the combined value of contributions from all other consortium members, up to a maximum value equal to that of the contribution of the Contractor or an Eligible Donor, which have been leveraged by the Contractor or Eligible Donor's participation in the consortium;

7.6.5.2. Once the initial value is established, it will be multiplied by five (5); and

7.6.5.3. The value of any in-kind contributions are then added, based on an In-Kind Valuation.

7.6.6. Other consortium criteria

7.6.6.1. The combined total investment of non-Canadian Companies in the consortium will not exceed fifty percent (50%) of the total investment in the consortium.

7.6.6.2. In cases where an Eligible Donor participates in the same consortium as the Contractor, separate transaction sheets will be submitted that describe the Contractor's and the Eligible Donor's respective contributions to the consortium.

7.6.6.3. The Contractor and the Eligible Donor may only claim the Credits associated with the contributions that each has made or leveraged into the consortium.

7.7. Investment Framework Transactions

7.7.1. A Transaction may involve an investment framework Transaction, which is a long-term and innovation-related contribution made directly to a Canadian SMB. Investment framework Transactions will meet the following criteria:

- demonstrated link to either R&D activities, Commercialization Activities, or both, in Canada;
- the Recipient is an SMB;
- the Eligible Donor and Recipient cannot be the same company;
- the Transaction eligibility criteria, as outlined in Article 8;
- be an Allowable Investment;
- have a duration of at least five (5) continuous years, beginning at the date the investment is made; and
- A business plan must be submitted to the ITB Authority, in the form attached in Appendix D (Template – Investment Framework Business Plan).

7.7.2. Valuation for Credit purposes

7.7.2.1. Contributions made in cash will be valued based on the actual amount of money that has been invested. In-kind investments will be subject to an In-Kind Valuation.

7.7.2.2. The following Credit multipliers will be applied to the value of the contribution:

- cash for R&D activities or licence for IP: nine (9)
- cash to purchase, or in-kind transfer of, equipment: seven (7)
- in-kind transfer of knowledge or marketing/sales support: four (4)

7.7.2.3. The total issued Credits associated with an investment framework Transaction will <u>not</u> exceed twenty-five percent (25%) of the Obligation, specified in Article 3.1.1.

7.7.3. Timeline for Credit award

7.7.3.1. Fifty percent (50%) of Credits will be awarded once the Allowable Investment is made according to the business plan, then reported to and verified by the ITB Authority. The remaining fifty percent (50%) of Credits will be apportioned over the remaining years of the Transaction, as annual reporting requirements are achieved.

7.7.3.2. The entire investment must remain with the SMB for at least five (5) continuous years and be used for the purposes outlined in the business plan in order for Credit to be awarded each year.

7.8. Venture Capital Fund Transactions

7.8.1. A venture capital fund (VCF) is a pooled group of investments directed at assisting the growth of Canadian small businesses and is managed by an unrelated third party. VCF Transactions involve those instances where the Contractor or an Eligible Donor provides funds to a VCF.

7.8.2. VCF criteria

7.8.2.1. A VCF is any organization that manages investments, such as but not limited to banks, trust companies, venture capital funds, and investment companies. A VCF must be both registered to do business as such and managed in Canada.

7.8.2.2. A majority of a chosen VCF's investment activity shall be with small businesses involved in the development, manufacture or commercialization of advanced technology products or services in one or more of the following sectors:

- life sciences (biotechnology, medical devices and pharmaceuticals);
- health;
- advanced materials;
- advanced manufacturing;
- environment;
- information and communications technologies; and
- aerospace and defence.

7.8.2.3. At the commencement of the investment, small businesses receiving the VCF investment shall be privately held and have fifty (50) employees or fewer in service-based industries <u>or</u> one hundred (100) employees or fewer in manufacturing-based industries.

7.8.2.4. In the event that a small business decides to make an initial public offering, no further Credit will be granted by the ITB Authority for that company within the VCF Transaction.

7.8.2.5. Initial investments by the VCF manager, including co-investments, in eligible small businesses will <u>not</u> exceed one million dollars ($1,000,000).

7.8.3. Valuation for Credit purposes

7.8.3.1. The Credit multiplier for VCF investments is five (5). Credit may be claimed for the initial contribution once the Contractor or Eligible Donor deposits it to the VCF. Credit for the remaining multiples may be claimed when the VCF manager assigns the funds to a Canadian small business as defined above.

7.8.3.2. The VCF funds must remain with the Recipient for a minimum of three (3) years, starting from the date the funds are placed. Failure to do so will result in the immediate deduction of all Credits for the Transaction.

7.8.3.3. The multiplied Credit related to VCF investments will not exceed five percent (5%) of the Obligation value in Article 3.1.1.

7.9. ITB Investments for Future Sales

7.9.1. Transactions may take the form of an Allowable Investment to a Canadian Company for its business purposes, including research, design, development, sales, or support of products or services.

7.9.2. The full CCV of any Allowable Investment, including for future sales Credits and the initial investment are part of the Obligations.

7.9.3. Valuation for Credit purposes

7.9.3.1. Credit is based on the CCV of future sales achieved by the Recipient as a result of the Allowable Investment:

7.9.3.1.1 Eligible future sales are limited to work that is not associated with this Contract and to work that is not counted for Credit on any other Industrial and Regional Benefits or ITB contract or agreement. Eligible future sales will be pro-rated by the resulting future sales by the ratio of the Contractor's Allowable Investment in the Recipient, relative to either:

- Recipient's Capitalization at the time the investment was made (in cases of purchase of non-controlling shares); or
- the combined total contributions made by all parties in the activity (in all other cases).

7.9.3.2. In the case of cash Allowable Investment, the value of the Allowable Investment itself may be credited, once the Recipient's future sales achievement surpasses the amount of the Allowable Investment.

7.9.3.3. In the case of an in-kind Allowable Investment, the value of reasonable transfer costs, as determined by the ITB Authority, will be credited once the Recipient's future sales achievement surpasses the amount of the costs. Reasonable transfer costs include infrastructure set-up to exploit technology. The value of the in-kind Allowable Investment itself will not be credited.

7.9.3.4. The Allowable Investment will remain with the Canadian Company for a minimum of three (3) years, starting from the date the investment is placed with the Recipient. Failure to do so will result in the immediate deduction of all Credits for the Transaction.

7.9.3.5. Allowable Investments shall be assessed as to whether they:

- help provide a capability that does not already exist in Canada;
- develop strategic partnerships with Canadian Companies that contribute to their long-term viability and increase sales; and
- do not result in overcapacity, shutdowns of existing companies or losses of prospective sales by existing companies in Canada.

7.9.3.6. The capital associated with the purchase of a Canadian Company that is considered a "going concern" is not an Allowable Investment for ITB Credit. If the investment is for a Canadian Company that is insolvent, or has initiated, or had initiated in respect of it, any proceeding seeking relief under any bankruptcy or insolvency law, or similar law affecting creditors' rights, then the investment can be considered for ITB purposes.

8. TRANSACTION ELIGIBILITY CRITERIA

8.1. Each proposed Transaction is assessed by the ITB Authority against all of the eligibility criteria outlined below.

8.1.1. Causality: Each Transaction must be one which was brought about by either the Contractor or an Eligible Donor, due in part to a current or anticipated IRB or ITB obligation to Canada. It will not be one that probably would have been entered into if an Obligation had not existed or been anticipated. Causality may be demonstrated for a specific project or more broadly to a company's obligations in general.

8.1.1.1. The Contractor or an Eligible Donor must demonstrate causality by providing a detailed statement on causality using the space provided in the transaction sheet template attached at Appendix B (Template – Transaction Sheet). The statement shall outline the steps and timelines involved in its decision about a business activity and clearly show the link between the steps and decision on that business activity and Canada's ITB Policy.

8.1.1.2. The Contractor or an Eligible Donor must also provide evidence that will certify causality, in support of its detailed statement referred to in Article 8.1.1.1. A certification template is found in Appendix E (Certificate of Causality).

8.1.2. Timing: Transactions shall be implemented within the Achievement Period.

8.1.2.1. Transactions that are identified after the Effective Date must only involve work occurring after the date that the Transaction was proposed to the ITB Authority.

8.1.3. Incrementality: Transactions shall involve new work in Canada.

8.1.3.1. Should an Indirect Transaction involve the purchase of goods or services from an existing Canadian supplier to the Contractor or an Eligible Donor, the incremental method of calculating the Credits will apply, as follows:

- a three-year average of previous purchases is calculated, based on the three years immediately preceding the date that the Transaction was proposed to the ITB Authority; and
- Credit will be awarded only for the amounts that exceed the three (3) year average, in each of the Reporting Periods.

8.1.3.2. The incremental method of calculation outlined in Article 8.1.3.1 does not apply in cases where the product or service being purchased in the Transaction:

- involves a Direct Transaction;
- is substantially different than what was previously purchased;
- involves a different end use (e.g. Export market sale or commercial application) for what was previously purchased; or
- follows a competitive process to re-select the Canadian supplier.

8.1.3.3. The Contractor or an Eligible Donor shall demonstrate incrementality by providing a statement on incrementality for every

proposed Indirect Transaction, using the document attached at Appendix H (Incrementality Checklist). The Contractor or an Eligible Donor shall provide supporting evidence of incrementality as indicated in the document.

8.1.4. Eligible Donor: Transactions shall be undertaken by the Contractor or an Eligible Donor.

8.1.4.1. For proposed Eligible Donors that are Canadian Companies with less than five hundred (500) employees, the Canadian Company must certify that it understands and has the capacity to undertake Obligations with respect to this Contract. Capacity includes factors such as: company size, product offerings, market conditions, corporate ownership, management processes, and level of Canadian content. A certification template is attached in Appendix G (Certificate of Eligible Donor). At the discretion of the ITB Authority, Contractors or Eligible Donors that have signed the eligible donor certificate may be asked to submit additional information to confirm their status.

8.1.4.2. For Transactions proposed after the Effective Date of the Contract, Contractors must clearly demonstrate that the Canadian Company has the capacity to undertake ITB Obligations with respect to this Contract and the ITB Authority may seek additional information confirming Canadian Company capacity.

8.1.4.3. The Contractor, and not the Eligible Donors, shall be fully responsible to Canada for all Obligations related to this Contract, regardless of any subcontracting arrangements with Eligible Donors.

8.1.4.4. The Contractor shall include in the subcontract with each Eligible Donor the consents, authorities and approvals that it requires to meet its Obligations under these Terms and Conditions.

8.1.4.5. A list of approved Eligible Donors for the Contract is found in Article 22.

8.1.5. Other Eligibility Criteria

8.1.5.1. Transaction Recipient: Transactions will have one Recipient, unless it is a Grouped Transaction. Government organizations cannot be Recipients, unless it is a Public Research Institution.

8.1.5.2. Level of Technology: Indirect Transactions will involve a level of

technology that is the same or higher than that of the Project, with applications in Canadian advanced technology industries.

8.1.5.3. CCV: Indirect Transactions will have a CCV of no less than thirty percent (30%) of the total value of the Transaction.

8.1.5.4. Alignment with policy features: Transactions will comply with any specific criteria and valuation features outlined within these Terms and Conditions.

8.2. The ITB Authority shall assess eligibility prior to a proposed Transaction becoming an Obligation in the Contract. Contractors should note that all Transactions are subject to annual reporting and verification before Credits are confirmed.

8.3. One Transaction may be used to meet more than one of the Obligations in Article 3. Credits will be awarded based on how much of the Transaction value is attributable to each Obligation.

8.4. Failure to provide the information and certifications outlined in the above Articles may result in a proposed Transaction being rejected. Further, the provision of this information and certification should not be seen as limiting the discretion of the ITB Authority in any decisions related to the eligibility of proposed Transactions.

9. CANADIAN CONTENT VALUE

9.1. CCV means that portion of the value of a product or service that involves Canadian costs. The CCV of any Direct and Indirect Transaction will be determined by the net selling price method or the cost aggregate method, described below.

9.1.1. Net selling price method: This method is used when a product or service included in a Transaction has a substantiated selling price. This method of calculating CCV is as follows:

- begin with the total selling price of the product or service;
- minus the applicable customs duties, excise taxes, Goods and Services Taxes, Harmonized Sales Taxes and all provincial sales taxes;
- minus any ineligible costs, as detailed in Article 9.2; and
- the remaining value is the CCV.

9.1.2. Cost aggregate method: This method is used where a product or service contained in a Transaction cannot be assigned a substantiated selling price (e.g. in-house production). This method of calculating CCV is the aggregate of the following items:

9.1.2.1. the cost of parts produced in Canada and the cost of materials, to the extent that they are of Canadian origin, that are incorporated in the product in the factory of the manufacturer in Canada;

9.1.2.2. the cost of parts or materials of Canadian origin, in that they have been exported from Canada and subsequently imported into Canada as parts or finished goods;

9.1.2.3. transportation costs, including insurance charges, incurred in transporting parts and materials from a Canadian supplier or frontier port of entry to the factory of the manufacturer in Canada for incorporation in the product, to the extent that such costs are not included in the foregoing paragraph; and

9.1.2.4. such part of the following costs, as are reasonably attributable to the production or implementation of the product, service or activity:

9.1.2.4.1 wages and salaries paid for direct and indirect production and non-production labour, paid to employees residing and working in Canada, who are Canadians or Permanent Residents, as defined in the *Immigration and Refugee Protection Act 2001*, c.27;

9.1.2.4.2 materials of Canadian origin used in the work but not incorporated in the final products;

9.1.2.4.3 utilities paid in Canada, such as light, heat, power and water;

9.1.2.4.4 workers compensation, employment insurance and group insurance premiums, pension contributions and similar expenses incurred with respect to wages and salaries of Canadians or Permanent Residents referred to above;

9.1.2.4.5 taxes on land and buildings in Canada;

9.1.2.4.6 fire and other insurance premiums relative to the production plant, its equipment and production inventories, paid to a company authorized by the laws of Canada or any province or territory to carry on business in Canada or such province;

9.1.2.4.7 rental for factory or office premises in Canada paid to a

Canadian Company;

9.1.2.4.8 maintenance and repairs that are executed in Canada to buildings, machinery and equipment used for production purposes;

9.1.2.4.9 tools, dies, jigs, fixtures and other similar plant equipment items of a non-permanent nature that have been designed, developed or manufactured in Canada;

9.1.2.4.10 engineering and professional services, experimental work and product or process development work executed and completed in Canada by Canadians or permanent residents;

9.1.2.4.11

9.1.2.4.12 miscellaneous factory and office expenses paid in Canada, such as: administrative and general expenses; depreciation with respect to production machinery and permanent plant equipment and the installation costs of such machinery and equipment; and a capital allowance not exceeding five percent (5%) of the total capital outlay incurred for buildings in Canada owned by the producer of the work;

9.1.2.4.13 R&D activities performed in Canada;

9.1.2.4.14 Canadian citizen and permanent resident travel expenses specifically associated with Direct Transactions on the Project and incurred in Canada, including transportation, meals, and accommodations;

9.1.2.4.15 fees paid for services performed by Canadians or Permanent Residents in Canada not elsewhere specified; and

9.1.2.4.16 pre-tax net profit upon which Canadian taxes are paid or are payable.

9.2. Costs or business activities that are <u>ineligible</u> for Credit:

9.2.1. non-repayable funding from any level of government (municipal, provincial, territorial, or federal);

9.2.2. the value of materials, labour and services imported into Canada;

9.2.3. in the case of an Indirect Transaction, the value of raw materials and Semi-processed Goods exported from Canada;

9.2.4. the value of any remuneration, living costs, travel expenses and relocation costs paid to non-Canadians for work on the Project;

9.2.5. the amount of all Excise Taxes, Import Duties, Federal and Provincial Sales Taxes, Goods and Services Taxes, Harmonized Sales Taxes and other duties;

9.2.6. the value of any royalties and licence fees paid by the Contractor or an Eligible Donor to a person, company or entity outside of Canada;

9.2.7. the value of goods and services with respect to which Credits have been received or are being claimed by the Contractor or an Eligible Donor as a Transaction to Canada under any other obligation or agreement;

9.2.8. any proposal or bid preparations costs;

9.2.9. all transportation or travel costs not covered under Article 9.1.2;

9.2.10. the cost of government furnished equipment (equipment supplied by Canada to be used in the production process; for example, tooling, jigs, dies, production equipment);

9.2.11. licence fees paid by the Recipient and any on-going royalty payments;

9.2.12. Transactions claimed by a Contractor that pertain to its influence or that of an Eligible Donor over any country's purchasing agent/department;

9.2.13. interest costs associated with letters of credit or other financial instruments to support Transactions;

9.2.14. fees paid to lobbyists (as per the *Lobbying Act*, R.S.C. 1985, c. 44 (4th Supp.)); and

9.2.15. fees paid to third-party consultants or agents for work related to obtaining Credit against this Contract. This includes, but is not limited to, providing advice on the ITB/IRB policy; preparation of proposed Transactions or reports; representing the interests of the Contractor to the ITB Authority; or searching for potential Recipients.

10. STRATEGIC PLANS

10.1. Contractors are encouraged to address their ITB Obligations in a strategic manner, considering how the Contractor's broad corporate plans and vision for Canada might translate in Transactions.

10.2. At the discretion of the ITB Authority, Contractors that hold IRB/ITB Obligations in Canada may be asked to submit a strategic plan to the ITB Authority and to meet to review, discuss, or update it. The Contractor's strategic plan should include:

- a description of the Manufacturer's broad corporate Plans and overarching strategic vision for Canada over the medium term (3–5 years) and long term (5+ years);
- how these corporate Plans and vision may translate into Transactions;
- an overview of the Contractor's current and anticipated obligations to Canada;
- ITB relationships with Eligible Donors and other major Contractors; and
- notice of potential Transactions that will request Pooling.

10.3. If Manufacturer has multiple ITB Obligations totaling less than one (1) billion dollars, it may also submit a Strategic Plan to the ITB Authority; however, neither the ITB Authority nor the Contractor will be required to meet to discuss the Strategic Plan.

11. POOLING

11.1. Pooling refers to the act of splitting the Credits achieved on a single Transaction and applying each portion to one of two or more ITB obligations.

11.2. Pooled Transactions must meet the following criteria:

11.2.1. meet all of the Transaction eligibility criteria as described in Article 8 of this Annex and align with this Annex;

11.2.2. have a value of not less than fifty million dollars ($50,000,000), measured in CCV; and

11.2.3. have strategic and long-term impacts on the Recipient, including but not limited to R&D support; first purchase of innovative Canadian technologies; World Product Mandate; global value chain activities; consortia activities; SMB activities; and/or technology advancement.

11.3. The Contractor must describe and document how any proposed transaction for pooling meets the criteria in Article 11.2.

11.4. A portion of a pooled Transaction may be applied to this Contract. The Contractor shall report on the pooled Transaction through the annual reporting process and schedule agreed to with the ITB Authority at the time of pooled Transaction approval.

11.5. If a portion of a pooled Transaction originates in the bank and Credits have already been confirmed, the value of those Credits will transfer to this Contract, if the Eligible Donor criterion is met. In addition, any uncredited Transaction value, measured in CCV, will also be transferred to this Contract and be subject to the annual reporting and verification processes and the remedies in these Terms and Conditions.

11.6. For informational purposes only: Pooling guidelines are available on the ITB website (www.canada.ca/itb).

12. BANKING

12.1. The Contractor may apply bank transactions to this Contract up to a total value of fifty percent (50%) of the Obligation cited in Article 3.1.1, measured in CCV.

12.2. Any bank transaction applied to this Contract, or portion thereof, shall clearly state that it originated from the bank and be the same in description and details as the approved bank transaction. The bank transaction must meet the Eligible Donor criteria outlined in Article 8.1.4.

12.3. The Contractor may submit bank Overachievements to the bank arising from Transactions in this Contract. For the purposes of banking, a bank Overachievement is the amount of Credit achieved that exceeds the Obligation in Article 3.1.1 and where the Contractor has:

12.3.1. completed its Obligations in Article 3.1.1 through 3.1.4 at least one Reporting Period before the end of the Achievement Period;

12.3.2. elected to continue business activities on selected Indirect Transactions and to continue its annual reporting process until the end of the Achievement Period; and,

12.3.3. applied to bank, within one (1) year after the final notification of Credits from the ITB Authority, those overachieved portions of the selected Indirect Transactions.

12.3.4. applied to bank only those bank Overachievements that:

12.3.4.1. were achieved between the start date of the first Reporting Period after all Obligations were completed and the end date of the Achievement Period; or

12.3.4.2. reflect the achievement of all portions of a pooled Transaction (if applicable).

12.4. With respect to any bank transaction involving a bank Overachievement, the bank account holder is deemed to be the donor for the purposes of assessing the Eligible Donor criteria.

12.5. A bank transaction involving a bank Overachievement, or any portion thereof, is not eligible to be re-banked at a later date as part of a subsequent bank overachievement.

12.6. Trading and/or transfer between companies of bank transactions is not permitted.

12.7. For informational purposes only: Banking guidelines are available on the ITB website (www.canada.ca/itb).

13. PUBLIC COMMUNICATIONS

13.1. The Contractor, its Eligible Donors, and Recipients are strongly encouraged to be as transparent as possible regarding the Obligations, Commitments and specific Transactions, making them publicly available whenever possible.

13.2. The Contractor and the ITB Authority shall jointly coordinate public communications related to the Transactions. The two parties shall also collaborate to identify success stories associated with specific Transactions.

13.3.

13.4. The Contractor consents to public announcements regarding the Project, made by or on behalf of the ITB Authority, which are related to Obligations, Commitments and Transactions. These announcements would include company names, general descriptions of the work being proposed and approximations of CCV. In these cases, the ITB Authority will make all reasonable efforts to ensure that the Contractor has the opportunity to participate in the announcement and/or the preparation of any related materials. The Contractor shall obtain a similar consent from each of the Eligible Donors and Recipients.

13.5. The Contractor consents to allow the ITB Authority to publish and openly disclose the Contractor's track record in fulfilling its Obligations, in a manner that respects commercial confidentiality.

13.6. For all other public communications regarding the Transactions, drafts of announcements and their publication schedule will be delivered by either party to the other as soon as is reasonably possible, but in any event prior to the proposed release date. Each party shall make every effort to inform the other, and seek resolution of, any objections to the content or timing of a proposed announcement.

13.7. Nothing in this Article shall be interpreted as preventing the fulfilment by any company involved in an Obligation or Transaction of its reporting obligations under applicable securities laws.

14. INFORMATION MANAGEMENT

14.1. It is understood and agreed that the Contractor shall submit corporate and transactional business information to the ITB Authority in the implementation of these Terms and Conditions or through a strategic plan, some of which may contain information that is sensitive and confidential to the Contractor. The ITB Authority shall ensure, to the best of its ability, that this information is protected, stored and used according to the Government of Canada's information management and security guidelines.

14.2. The Contractor agrees that the overall, aggregate information related to Obligations, Transactions and Credits is considered by the ITB Authority to be information available to Parliament and the public.

14.3. Subject to all applicable federal laws and processes, such as the *Access to Information Act*, the *Privacy Act* and the *Library and Archives of Canada Act*, the ITB Authority shall not release or disclose outside the Government of Canada any of the Contractor's commercially confidential business information.

14.3.1. Data may be used by the ITB Authority for internal policy analysis purposes. Certain relevant information may also be shared, subject to applicable laws and processes, with other government organizations and agencies with whom the ITB Authority collaborates in the administration of the ITB policy.

15. TRANSACTION ALTERATIONS

15.1. The Contractor shall <u>not</u> alter the Transactions listed in Appendix A (Value Proposition Commitments, Plans and Transactions) unless:

15.1.1. the Contractor has submitted a proposal to the ITB Authority through the Contracting Authority, with respect to the alteration; and

15.1.2. the ITB Authority through the Contracting Authority has given written approval to the Contractor and requested the Contracting Authority to amend the Contract accordingly.

15.2. The Contractor may propose alterations to or substitutions for any of the Transaction(s) listed in Appendix A (Value Proposition Commitments, Plans and Transactions), and the ITB Authority may accept these requests provided that in the judgment of the ITB Authority:

15.2.1. the circumstances requiring the change are exceptional and likely to result in undue hardship upon the Contractor if a change is not made;

15.2.2. the Obligations in Article 3 of these Terms and Conditions are maintained;

15.2.3. the proposed alterations or substitutions meet the eligibility criteria stated in these Terms and Conditions;

15.2.4. the proposed substitute Transaction is not less than the Transaction to be replaced as to the level of technological sophistication of the work to be performed, the CCV, and the extent to which it meets the original VP Proposal submitted by the Contractor. For example:

15.2.4.1. if the Contractor fails to achieve an Allowable Investment Transaction, the full CCV of this Obligation at the multiplied value must be made up with other Transactions;

15.2.4.2. a Transaction in one VP evaluation criteria area must be replaced by a new Transaction under the same VP evaluation criteria area; and

15.2.4.3. the proposed substitute Transaction(s) would not have lowered the Contractor's VP score as determined in the original selection process.

15.3. Mutual Abatement and Trading

15.3.1. Mutual Abatement is the reduction of the Contractor's Obligation in exchange for the reduction of a Canadian Company's obligations to a foreign offset authority and is not permitted. Trading of Obligations, or of Credits, is also not permitted.

16. VERIFICATION AND ACCESS TO RECORDS

16.1. The Contractor shall implement the procedures and practices as described in the ITB management plan.

16.2. The Contractor shall keep proper records and all documentation relating to the Transactions attached to this Contract, including invoices and proof of payments. The Contractor shall not, without the prior written consent of the ITB Authority, dispose of any such records or documentation until the expiration of two (2) years after final payment under this Contract, until settlement of all outstanding claims and disputes, or the end of the Achievement Period, whichever is later.

16.3. All such records and documentation will, during the aforementioned retention period, be open to verification, inspection and examination by the ITB Authority, through access at reasonable times, and within thirty (30) calendar days of being notified by the ITB Authority. The Contractor shall obtain similar undertakings in the subcontracts of all Eligible Donors and arrange for the same in respect of work performed by such Eligible Donors for which ITB Credits are claimed. The Contractor and its Eligible Donors shall ensure through its subcontracts and arrangements that Recipients keep pertinent records.

16.4. Where, subsequent to the verification action taken pursuant to this Article, the ITB Authority determines that the records are insufficient to verify the Contractor's achievements in respect of any ITB Obligation or Commitment, the Contractor shall provide such additional information as may be required by the ITB Authority.

16.5. Where it cannot be verified that a Transaction has been achieved as claimed, that portion of the Transaction which cannot be verified will be considered as not having been achieved and the ITB Authority will give notice to the Contractor of the Shortfall through the Contracting Authority.

16.6. If the ITB Authority determines that a significant deficiency in the Contractor’s achievements exists such that the ITB Authority believes that the Contractor will not meet its Obligations, the ITB Authority may give, through the Contracting Authority, notice to the Contractor and request the Contractor to submit a proposal showing how the Contractor plans to correct the deficiency. The Contractor shall submit its proposal within sixty (60) calendar days of receipt of such notice. If the proposal is not provided within this time period or is not acceptable to the ITB Authority, the ITB Authority may exercise its remedies *xx*.

17. CONFLICT RESOLUTION

17.1. The ITB Authority and the Contractor acknowledge that they have entered into a long-term relationship, with the goal that the Contractor achieves the Obligations and Commitments stated herein, delivers long-term economic benefits to Canada and carries

out these Terms and Conditions.

17.2. Guiding this long-term relationship are common values and approaches, such as mutual accountability, open communication, mutual respect and effective collaboration. The relationship will involve officials at the project level (e.g. ITB and contract managers) and at the management level (e.g. departmental and executive officials). Discussions will be frequent and ongoing over the life of the Contract.

17.3. In the event that a disagreement arises between the ITB Authority and the Contractor regarding an ITB matter, each party will bring their concerns forward to the other for discussion and resolution. Parties are encouraged to raise concerns first at the project level. Should discussions at the project level fail to resolve the issue, the parties are then encouraged to engage at the management level.

18. REMEDIES

18.1. The long-term relationship between the Contractor and ITB Authority is supported by several processes aimed at promoting regular, ongoing engagement between the two parties. These processes include the Transaction identification schedule outlined in Article 3 and the annual reporting process outlined in Article 4. Taken together, these and other monitoring measures are aimed at encouraging positive engagement, use of best practices and the successful completion of the Contractor's Obligations in this Contract.

18.2. Notwithstanding the terms of this Contract that provide remedies in the event of default by the Contractor, one or more of the following remedies may be exercised in the event of default under these Terms and Conditions. Some or all remedies may apply, but combined will not exceed ten percent (10%) of the overall Contract Price. In the event of a default by the Contractor of its obligations pursuant to these Terms and Conditions, the remedies contained in this Article are in addition to, and not in substitution for, any remedies provided elsewhere in the Contract.

18.3. Holdback/Stop Payment

18.3.1. If the contractor has failed to meet any of its Obligations contained in Article 3.1.5, the ITB Authority shall notify the Contractor in writing of such deficiency and Canada may apply a holdback (the Holdback) from any claim for payment then due or payable under the contract.

18.3.2. With respect to the Holdback, a cure period of sixty (60) calendar days (the Cure Period), beginning on the date of notification to the Contractor by the ITB Authority, will apply before the Holdback takes effect.

18.3.2.1. Within the Cure Period, the Contractor may take corrective action by providing to the ITB Authority a corrective action plan to remedy the

deficiency. If the plan is accepted by the ITB Authority, no Holdback will be made.

18.3.2.2. If, after the Cure Period, the plan has not been accepted pursuant to Article 18.3.2, the accruement of the Holdback will be equal to ten percent (10%) (profit) of the [TBD] claim for payment and will accrue until it reaches the amount of the deficiency, or until the Contractor submits a plan that is approved by the ITB Authority, whichever occurs first.

18.3.3. The Holdback will be released progressively as the deficiency is extinguished. During the Holdback period, the ITB Authority shall confirm the amount of Credits achieved and/or Transactions identified within a reasonable amount of time from when the claims or proposed Transactions are submitted by the Contractor. The corresponding amount of the Holdback will be released when the next payment under the Contract is made.

18.4. Liquidated Damages

18.4.1. If the Contractor fails to achieve any of the Obligations in Article 3.1.1, 3.1.3, 3.1.5, 3.1.6 and/or 3.2 by the end of the Achievement Period, after taking into account the provisions of Article 6, Canada may in its sole discretion elect to require the Contractor to pay to Canada as liquidated damages ten percent (10%) percent of the total deficiency, less the amount of any Holdback.

18.4.1.1. In the event that a deficiency is comprised of more than one of the Obligations in Articles 3.1.1., 3.1.3, 3.1.4, 3.1.5, and 3.1.6 the Contractor shall be liable only for the deficiency that arises under the Obligation that results in the highest liquidated damages.

18.4.2. If the Contractor fails to achieve any of the VP Obligations in Article 3.1.2 by the end of the Achievement Period, after taking into account the provisions of Article 6, Canada may in its sole discretion require the Contractor to pay to Canada as liquidated damages twenty percent (20%) of the total deficiency, less the amount of any Holdback.

18.4.3. In the event that a deficiency is comprised of more than one of the Obligations in Article 3.1.2 the Contractor shall be liable in respect to Article 18.4.1 under all deficiencies on an additive basis.

18.4.4. The obligation of the Contractor to pay liquidated damages, if such obligation exists, pursuant to Article 18.4.1 or 18.4.2, will be triggered by notice by either the Minister or the Deputy Minister of Public Works and Government Services to the Contractor, stating that the Contractor is in default under the Contract for

failure to achieve the identified Obligations within the Achievement Period and that Canada is demanding payment of liquidated damages in accordance with this Article.

18.5. Contract Termination

18.5.1. In the event that the Contract is terminated for default pursuant to Section *xx* of General Conditions *xx*, the ITB Authority shall notify the Contractor and the Contractor shall identify Transactions within *xx* months of the date of termination equal to one hundred percent (100%) of the value of Contract Price.

18.5.2. The Contractor shall then, within *xx* days of the date of termination, in its sole discretion, elect either:

18.5.2.1. to take action to achieve all identified Transactions within *xx* years; or

18.5.2.2. to pay Canada as liquidated damages the amount calculated in accordance with Article 18.4, less the amount of any Holdback, after taking into account the provisions of Article 6.

18.5.3. For the purposes of Article 18.5.1, the amount of liquidated damages will be calculated on the basis of the Contract Price. If the Contractor fails to identify the Transactions within the time period in Article 18.5.1, then the requirement to pay liquidated damages as set out in Article 18.4.1 will apply.

18.5.4. The parties agree that Canada's right under Section *xx* of General Conditions *xx* to terminate this Contract for default will not apply to a failure to meet the Contractor's Obligations under these Terms and Conditions, unless the Contractor fails or neglects, within sixty (60) days of the ITB Authority's demand to do so, to satisfy any of the material Obligations listed below:

18.5.4.1. pay the liquidated damages amounts required by Article 18.4; and

18.5.4.2. satisfy its VP Obligations described in Article 3.1.2.

18.5.5. The Parties agree that:

18.5.5.1. the Obligations contained in Article 18.5.1 constitute material obligations under the Contract; and

18.5.5.2. the Obligations contained in Article 18.5.1 will survive termination of this Contract.

18.5.6. In the event that the Contract is terminated for convenience pursuant to Section *xx* of General Conditions *xx*, the Contractor will have no further obligations and liabilities under these Terms and Conditions, including any liabilities arising from VP Obligations.

18.5.7. In the event of partial termination of the Contract under Section *xx* of General Conditions *xx*, the Contractor will be released from the terminated portions of the Obligations and from the provisions of Article 3 as it relates to such terminated portions.

18.6. Letter of Credit

18.6.1. In the event that the Contractor has not completed its Obligations at the time of completing the Work under the Contract and being entitled to receipt of the final progress payment from Canada, the Contractor may be required to provide to Canada a guarantee for completion of the Obligations prior to the expiration of the Achievement Period in the form of a letter of credit. The letter of credit will be in the amount of monies that would be owing by way of liquidated damages should the Contractor not achieve any further Credits after the date of the final progress payment.

18.6.2. The letter of credit will be:

- issued by a financial institution which is a member of the Canadian Payment Association;
- in form and substance satisfactory to the ITB Authority;
- solely at the cost of the Contractor;
- abated as set forth below;
- unconditional and irrevocable; and
- subject to the Uniform Customs and Practice for Documentary Credits, as set out in Publication No. 600, July 2007.

18.6.3. The letter of credit will remain in force until the earliest of:

- the achievement of the Obligations; and
- six (6) months following the submission of the ensuing final Annual Report at which time the letter of credit will be abated in full and will be returned by Canada to the Contractor. Provided that, if the Obligations have not been achieved, Canada will draw down on the letter of credit in the amount of the outstanding Obligations prior to returning it to the Contractor.

18.6.4. The obligation of the financial institution to pay under the letter of credit will be

triggered by notice executed by the ITB Authority to the issuing bank, stating that the Contractor is in default under this Contract for failure to achieve the Obligations within the Achievement Period, that Canada has made a demand by notice for payment of liquidated damages in accordance with the liquidated damages Articles and that the Contractor has failed to pay Canada such liquidated damages. No other event will trigger payment under the letter of credit.

18.7. Performance Incentives

18.7.1. If, during the term of this Contract, a change in the Work is initiated by Canada which results in the Contractor no longer being able to source from a Canadian Company and, as a consequence, Obligations may not be met, the Contractor shall immediately notify the ITB Authority through the Contracting Authority. The Contractor shall fully describe the issue and provide all supporting data, including a complete record of attempts to purchase from Canadian sources and Canadian suppliers' responses, together with an analysis of specific technical, commercial or other factors which result in the inability to source from a Canadian Company. In such instances, the Obligations will be reduced to the extent the CCV associated with the change differs from the CCV of the original Work. Notwithstanding the foregoing, the Obligation in Article 3.1.1 will remain.

18.7.2. The Contracting Authority in accordance with this Article, will have the right to holdback, drawback, deduct and set off from and against the monies owing at any time by Canada to the Contractor, any amounts owing under this Contract.

18.7.3. Nothing in this Article shall be interpreted as limiting the rights and remedies which the Contracting Authority may otherwise have in relation to any breach of the Contract by the Contractor.

18.7.4. Actual damages which would be sustained by Canada in the event of a breach by the Contractor of the Obligations in this Contract would be commercially impracticable or extremely difficult to compute or ascertain and, therefore, the provisions for liquidated damages are agreed to be a fair and reasonable best estimate of such actual damages, and the manner provided herein for the enforcement and collection of liquidated damages is agreed to be fair and reasonable.

19. RESPONSIBILITIES OF THE PARTIES

19.1. The award of this Contract to the Contractor resulted from a procurement process in which the Contractor committed to fulfill the Obligations set out in Article 3.

19.2. It is the responsibility of the Contractor to ensure that it can complete the Transactions and that these are not limited by applicable laws, regulations, policies or standards.

20. COMPLIANCE WITH THE *LOBBYING ACT*

20.1. The Contractor represents, warrants, and undertakes that it and the Eligible Donors are and will remain in compliance with Canada's *Lobbying Act* with respect to these Terms and Conditions.

21. CONTINGENCY AND SUCCESS FEES

21.1. The Contractor represents warrants and undertakes that neither it nor an Eligible Donor will make or agree to make any payment to an individual, company or entity that is contingent on the approval of Credit by the ITB Authority under these Terms and Conditions or upon the entity's success in arranging meetings with public office holders.

21.2. The ITB Authority acknowledges that the Contractor, for the purposes of making the representation and warranties in Articles 21.1 and 22.1 on behalf of the Eligible Donors, has relied on a representation provided by each of them to it.

22. LIST OF APPROVED ELIGIBLE DONORS

22.1. The Eligible Donors to this Contract include the companies and coordinates listed below:

[List to be included at Contract Award.]

APPENDIX A: VALUE PROPOSITION COMMITMENTS, PLANS AND TRANSACTIONS

Value Proposition Commitments:

[To be referenced from Contractor's Proposal.]

Plans:

[To be referenced from Contractor's Proposal.]

Transactions:

[Detailed list and tabular chart, as outlined below, based on the Contractor's Proposal and updated throughout the Achievement Period.]

Transaction number	Title	Description	Donor	Recipient	CCV$
					[Sub-totals for direct, indirect, regional, SMB and VP criteria.]

APPENDIX B: TEMPLATE – TRANSACTION SHEET

(Electronic copy available from the ITB Authority)

[A transaction sheet with project-specific requirements will be generated by the ITB Authority and included in the final RFP as Appendix B.]

Protected B (when completed)

APPENDIX C: TEMPLATE – ANNUAL REPORT
(Electronic copy available on ITB website)

Protected B (when completed)

GENERAL INFORMATION

Project Name:
Contractor Name:
ITB Manager:
Currency
Contract Award
Total # of Reporting Periods
Period #
Report Due Date
Date of Report

CONTRACTUAL OBLIGATIONS

Total Obligation:
Direct:
SMB:
Atlantic
N Ontario:
Ontario
Quebec
West
North

PART A – Overview

An overview and status of Work on the Project:
Please provide a very high level overview of the project over the past year, including any Annual Report highlights and the project schedule. Proposed length of response is 5-10 lines.

Progress Payments:
Please provide a brief written overview of the progress payment activities since contract award. Proposed length of response is 5-10 lines. In addition, please populate the Progress Payments Tab below.

[Progress Payments chart on excel]

Plans:
Please provide an overview of any substantive changes to the Plans, including changes to ITB officials working on the project. Please indicate if no changes are proposed. Proposed length of response is 5-10 lines.

Value Proposition Overview:
Please provide a detailed overview of each VP Commitment and related activity during the Reporting Period, along with a cumulative summary of the achievement status of each.
Please provide an update on the international Export strategy, including details on the progress of target market activities and documentation demonstrating that the five capacity to Export conditions remain in place, as outlined in Article 4.1.1. Proposed length of response is 4-5 lines for each item, accompanied by the documentation as indicated.

PART B, C and D – Transactions
Please fill in all of the information requested in a chart format.

PART E – Additional Information

SMB and Regional Development Activities:
Please provide an overview of the activities that were undertaken on this project with Small and Medium size Businesses. Include highlights of work activities undertaken during this period. Proposed length of response is 5-10 lines.

New, Changed or Cancelled Transactions:
Please provide a brief overview of any changes (listed by Transaction) including any cancelled, new or altered Transaction in the last Reporting Period. Ensure these changes are reflected in the Transaction Tab by highlighting in red all changes indicated below. Proposed length of response if dependent on the number of applicable Transactions.

Certificate of compliance:
Submission of this Annual Report should be accompanied by the completed and signed certificate of compliance. The template is available below.

APPENDIX D: TEMPLATE – INVESTMENT FRAMEWORK BUSINESS PLAN

(Electronic copy available from ITB Authority)

The IF business plan describes the proposed IF project, details the specific activities, goals and duration, outlines how an investment will be used by the SMB, includes a market assessment and provides company information.

Template **IF Business Plan**
Protected B (when completed)
IF Transaction title:
Donor:
SMB Recipient:
Date:
Description of IF activity: *Provide a detailed description of the IF activity, including but not limited to: specific activities to be undertaken; goals; duration; value of the investment and how it will be used by the SMB; the anticipated impacts/outcomes for the SMB; and key IF activity assumptions and risks.* *Anticipated length: 8-10 paragraphs.*
Market Assessment: *Provide an outline of the opportunity, market size, key competitors, sales strategy and the donor/SMB* Recipient*'s competitive advantage.* *Anticipated length: 3-5 paragraphs*
Company profile of SMB: *Provide a description of the SMB's operations, product lines, corporate structure and ownership.*

Anticipated length: 2-3 paragraphs + organizational chart

Certification and signatures

WHEREAS the ITB policy requires that a proposed IF Transaction be accompanied by a business plan outlining the IF activity in detail;

NOW THEREFORE, we the undersigned, in our capacities as senior officers at the Donor and SMB Recipients, do hereby declare and certify that the information included in and attached to this business plan is complete, accurate and can be relied upon by the ITB Branch for the purposes of monitoring the compliance of the proposed IF Transaction.

IN WITNESS THEREOF THIS CERTIFICATION HAS BEEN SIGNED THIS _____ DAY OF _____, 20____ BY A SENIOR OFFICER WHO IS DULY AUTHORIZED IN THAT BEHALF.

Donor

_____
Signature

_____
Name and Title of Senior Officer

SMB Recipient

_____
Signature

_____
Name and Title of Senior Officer

APPENDIX E: CERTIFICATE OF CAUSALITY
INDUSTRIAL AND TECHNOLOGICAL BENEFITS (ITB)

WHEREAS the ITB policy requires that, as evidence of causality, the Contractor shall provide a detailed statement on causality and submit a signed certificate of causality as supporting evidence to the ITB Authority;

NOW THEREFORE, I _____, in my capacity as a senior officer of the (*donor company*), do hereby declare and certify as follows:

i) I am aware of the meaning of causality, as outlined in the Terms and Conditions;

ii) The information contained in the transaction sheet(s) appended herewith provides a detailed statement on causality, which outlines the steps and timelines involved in the decision about a procurement or investment activity and which clearly shows the link between the steps and decision on a business activity and Canada's ITB or IRB policy;

iii) The information contained in the transaction sheet(s) noted below and appended herewith, is to the best of our knowledge and ability complete, true and accurate;

iv) Failure to provide a detailed statement on causality and this certificate may result in the proposed Transaction being rejected pursuant to the Terms and Conditions. Provision of this causality information should not be seen as limiting the discretion of the ITB Authority in decisions related to the eligibility of specific Transactions submitted for approval.

IN WITNESS THEREOF THIS CERTIFICATE OF CAUSALITY HAS BEEN SIGNED THIS _____ DAY OF _____ BY THE SENIOR OFFICER WHO IS DULY AUTHORIZED IN THAT BEHALF.

_____ _____
SIGNATURE NAME AND TITLE OF SENIOR OFFICER

AT:_____

Project and Transaction number(s): _____

Title(s):_____

Recipient Company(ies):_____

APPENDIX F: CERTIFICATE OF COMPLIANCE
For Annual Reporting Purposes

WHEREAS Her Majesty the Queen in right of Canada as represented by the Minister of Public Works and Government Services (referred to herein as the Minister) on the ____ day of _____ has entered into contract with _____ for the Contract.

AND WHEREAS Such Contract requires that, as evidence of the achievement of Canadian content value (CCV) of Transactions and compliance with the *Lobbying Act*, the Contractor will submit a certificate of compliance to that effect to the ITB Authority;

NOW THEREFORE, The Contractor declares and certifies as follows:

- The information contained in the documents appended herewith, which applies to the reporting of the Transaction periods, is to the best of our knowledge and ability complete, true and correct;
- The information contained in the documents appended herewith is compliant with information contained in certificates of compliance submitted to the Contractor by Eligible Donors;
- The CCV shown in documents appended herewith have been determined in accordance with Article 9 of the Contract;
- The Contractor and all Eligible Donors are, subject to Article 20, in compliance with Canada's *Lobbying Act* with respect to this Contract.

IN WITNESS THEREOF THIS CERTIFICATE OF COMPLIANCE HAS BEEN SIGNED THIS _____ DAY OF _____ BY THE SENIOR COMPTROLLER WHO IS DULY AUTHORIZED IN THAT BEHALF.

_____
SIGNATURE

_____
NAME AND TITLE OF SENIOR COMPTROLLER

AT:_____

APPENDIX G: CERTIFICATE OF ELIGIBLE DONOR
INDUSTRIAL AND TECHNOLOGICAL BENEFITS (ITB)

WHEREAS the ITB policy requires Transactions be undertaken by an Eligible Donor, as outlined in the Terms and Conditions;

AND WHEREAS, the ITB policy requires that when a proposed Eligible Donor is a Canadian Company with less than 500 employees, it has the capacity to undertake Obligations with respect to this Contract;

NOW THEREFORE, I _____, in my capacity as an officer of (*Canadian Company name*), do hereby declare and certify as follows:

i) I am familiar with Canada's ITB policy, goals and objectives.

ii) I am aware of the meaning of Eligible Donor, as defined in Article 8 of the Terms and Conditions;

iii) I understand and accept the responsibilities associated with acting as an Eligible Donor and strategic partner in the delivery of the Obligation on the (*insert project name*) project. These responsibilities may include sharing a portion of the Obligation, remedies, planning and undertaking Direct and Indirect Transactions, record keeping and supporting the prime contractor in the areas of annual reporting and verification.

iv) My company has the capability and resources to undertake the role of Eligible Donor on this project.

v) Failure to provide a certificate of Eligible Donor may result in the proposed Transaction being rejected pursuant to the Terms and Conditions. Provision of this certificate should not be seen as limiting the discretion of the ITB Authority in decisions related to the overall eligibility of specific Transactions submitted for approval.

IN WITNESS THEREOF THIS CERTIFICATE OF ELIGIBLE DONOR HAS BEEN SIGNED THIS _____ DAY OF _____ BY THE SENIOR OFFICER WHO IS DULY AUTHORIZED IN THAT BEHALF.

_____ _____
SIGNATURE NAME AND TITLE OF OFFICER

AT:_____

APPENDIX H: INCREMENTALITY CHECKLIST

For Indirect Transactions, complete this checklist and attach supporting documentation

Incremental work is the purchase of a good or service that represents new or additional purchases from a Canadian supplier. These new or additional purchases may take various forms. They may involve:	Please check the appropriate box
i) purchase of a new product or service from a new Canadian supplier on an Indirect Transaction	☐ Written statement attesting the Canadian Recipient is a new supplier + Purchase Order (or PO equivalent if the order has not taken place)
ii) purchase of a new product or service from an existing Canadian supplier on an Indirect Transaction	☐ Written statement attesting the product/service has not previously been purchased + Purchase Order (or PO equivalent if the order has not taken place)
iii) purchase of an existing product or service from an existing Canadian supplier on an Indirect Transaction, but which involves a new application or end use of the product (see example below)	☐ Written statement detailing the new application or end use of the product/service + New part number (where applicable) + Purchase Order (or PO equivalent if the order has not taken place)
iv) purchase of an existing product or service from an existing Canadian supplier on an Indirect Transaction, but where there has been a new competitive process to re-select the supplier	☐ Written statement detailing the Request for Quote (or equivalent) proving a new competition has taken place + Purchase Order (or PO equivalent if the order has not taken place)
v) purchase of an existing product or service from an existing Canadian supplier on an Indirect Transaction, but where none of the above circumstances apply. (in these cases, a three-year average of previous purchases will be calculated, based on the three years immediately preceding the date of identification of the Transaction to the ITB Authority, and Credit may be awarded on those purchase amounts which exceed the three year average, in each of the ensuing Reporting Periods)	☐ Written statement detailing the three-year average calculation
vi) other: _____	☐ Written statement detailing the activity + other evidence
An example of a new application or end use: The Contractor has previously purchased military tripods from a Canadian supplier that mount to Gun A for sale to Country A. The new application or end use could be the purchase of the same military tripods	*The ITB Authority at its discretion will determine if the proposed Transaction is*

from the Canadian supplier, but instead of mounting to Gun A for sale to Country A, they are mounted to Gun A for sale to Country B, or they are mounted to Gun B for sale to Country B.	*incremental taking the information provided into account.*

APPENDIX I: DEFENCE SECTOR DEFINITIONS

Ammunition and Other Munitions: This category includes sales related to production as well as research, development, design, engineering, testing and evaluation services, and disposal activities such as relating to:

- Conventional ammunition in small/medium/large calibers, artillery and mortar rounds, bombs, grenades, torpedoes, mines, other munitions and related precision manufacturing;
- Related propellants and explosives like explosive plastics, gels, liquids, and powders; and nuclear, biological and chemical warheads.

Excluded are sales of missiles, rockets and other related parts and components which should be reported under the category for, 'Missiles and Rockets'.

Missiles and Rockets: This category includes sales related to production as well as research, development, design, engineering, testing and evaluation services relating to military missiles and rockets, including advanced missiles used by anti-ballistic missile (ABM) systems.
Excluded here are sales relating to:

- Space launch vehicles,
- Munitions/sub-munitions and other types of warheads carried on, or delivered by missiles and rockets.

Those are to be reported under either the categories for 'Ammunition and Other Munitions' or for military space systems as appropriate.

Firearms and Other Weapons: This category includes military sales related to production as well as research, development, design, engineering, testing and evaluation services relating to technologies aggressively used to gain or defend a tactical advantage over an adversary; to attack, defend and protect assets and personnel. This includes lethal and non-lethal kinetic and non-kinetic weapon systems like:

- Light/medium/heavy firearms;
- Vehicle-based or mobile weapons like tank guns, howitzers, mortars and missile *launchers*;
- Acoustic, laser, and other electromagnetic based weapon systems.

Military Systems Deployed in Space, Space Launch Vehicles, Land-based Systems for the Operation, Command and Control of Space Launch Vehicles or Systems Deployed in Space; and Related Components: This category includes sales related to production as well as research, development, design, engineering, testing and evaluation services:

- Relating to primarily military systems deployed in space (e.g. satellites, spacecraft, and space robotic systems) and their sub-systems and components; as well as space launch vehicles.
- Related design, engineering and production of earth-based systems *used for the operation,* Command & Control *of* military systems deployed in space and space launch vehicles (e.g. ground stations, satellite tracking systems, and launch facilities).

Primarily Airborne Electro-Optical, Radar, Sonar and Other Sensor/Information Collection Systems; Fire Control, Warning and Countermeasures Systems, and Related Components: This

category includes sales related to production as well as research, development, design, engineering, testing and evaluation services relating to *Primarily Airborne*:

- Electro-optical systems (e.g. image intensification night-vision systems, thermal imaging systems, lasers), radars, dipping sonar, other sensors, and fire-control systems used to aid weapons in target acquisition, tracking and engagement;
- Warning systems (e.g. technologies that detect enemy radars, enemy laser targeting systems, and approaching threats such as missiles); and
- Countermeasures (e.g. electronic jamming equipment, smoke screens, flares to counter heat-seeking missiles).
- Other related aircraft avionics systems.

Note: sales relating to similar systems, parts and components but which are integrated into naval vessels should be reported under the category for "Naval Vessel-Borne Systems (i.e., Mission Systems) and Components".

Primarily Land-Based or Man-Portable Electro-Optical, Radar, Sonar and Other Sensor/Information Collection Systems; Fire Control, Warning and Countermeasures Systems, and Related Components: This category includes sales related to production as well as research, development, design, engineering, testing and evaluation services relating to *Primarily Land-based or Man-Portable:*

- Electro-optical systems (e.g. image intensification night-vision systems, thermal imaging systems, lasers), radars, sonar, other sensors, and fire-control systems used to aid weapons in target acquisition, tracking and engagement;
- Warning systems (e.g. technologies that detect enemy radars, enemy laser targeting systems, and approaching threats such as missiles); and
- Countermeasures (e.g. electronic jamming equipment, smoke screens, flares to counter heat-seeking missiles).

Note: sales relating to similar systems, parts and components but which are integrated into naval vessels should be reported under the category for: "Naval Vessel-Borne Systems (i.e., Mission Systems) and Components".

Primarily Airborne Communications and Navigation Systems; and Other Information Systems (Including Processing and Dissemination), Software, Electronics and Components: This category includes sales related to production as well as research, development, design, engineering, testing and evaluation services relating to *Primarily Airborne:*

- Military communications systems, secure cyber/information systems, and other military Information Technologies (including software);
- Navigation and guidance systems (e.g. Global Positioning System [GPS] based systems, gyroscopes, accelerometers) and other geomatics related systems and services (e.g. geographic information system (GIS) products and services for military applications, remote sensing services for military applications);
- Other technologies for the receipt, exchange/disseminating, processing, synthesizing, analysis and integration of multiple types of data;
- Display technologies, digital control systems and other avionics;

- Other mission system avionics, computers and electronics; and other aircraft avionics for military aircraft not elsewhere specified.

Note: sales relating to similar systems but which are integrated into naval vessels should be reported under the category for: "Naval Vessel-Borne Systems (i.e., Mission Systems) and Components".

Primarily Land-Based, Man-Portable or Non-Platform Specific Communications and Navigation Systems; and Other Information Systems (Including Processing and Dissemination), Software, Electronics and Components: This category includes sales related to production as well as research, development, design, engineering, testing and evaluation services relating to *Land-Based or Man-Portable:*

- Military communications systems, secure cyber/information systems and other military Information Technologies (including software);
- Navigation and guidance systems (e.g. Global Positioning System [GPS] based systems, gyroscopes, accelerometers) and other geomatics related systems and services (e.g. geographic information system (GIS) products and services for military applications, remote sensing services for military applications);
- Other technologies for the receipt, exchange/disseminating, processing, synthesizing, analysis and integration of multiple types of data;
- Display technologies and digital control systems;
- Other defence computer and electronics related products not elsewhere specified.

Note: sales relating to similar systems but which are integrated into naval vessels should be reported under the category for: "Naval Vessel-Borne Systems (i.e., Mission Systems) and Components".

Naval Ship-Borne Systems (i.e., Mission Systems) and Components: This category includes sales related to production as well as research, development, design, engineering, testing and evaluation services relating to such systems as:

- Naval vessel mission/combat systems: command, control, and communications; radar, sonar, electro-optical and other sensors, navigation systems, displays, other Information Technologies (including Software) and electronics, countermeasures; guns, and missile or torpedo *launchers*.

Excluded from this category are sales related to the actual missiles, torpedoes and other munitions or projectiles launched or fired from/by naval vessels' weapon systems; as well as associated warheads. Such sales are to be reported under either the category for 'Missiles and Rockets' or the category for 'Ammunition and Other Munitions' as appropriate.

Naval Ship Fabrication, Structures and Components: This category includes sales related to production as well as research, development, design, engineering, testing and evaluation services relating to:

- Naval surface and subsurface (e.g., submarines) marine vessels (platforms specifically designed or modified for use in combat or the transportation of military goods and personnel), related vessel structures, and associated sub-systems and components (e.g. ship assembly, manufacture of hull sections, bulkheads, ship propulsion and electrical power systems, ship machinery control systems, damage control systems and ballistic protection materials, air ventilation and water treatment systems, hydraulics, plumbing etc.).

Excluded from this category are sales related to naval vessels' combat systems such as command, control, and communications systems; radars, sonar, electro-optical systems, naval countermeasures, navigation systems, displays and other sensors and electronics, naval guns and missile launchers. Those are to be reported under the category for:

- 'Naval Vessel-Borne Systems (i.e., Mission Systems) and Components.

Similarly, sales related to maintenance, repair and overhaul services for naval vessels are to be reported under the separate category for such activities.

Naval Ship Maintenance, Repair and Overhaul: This category includes sales, carried out under contract, related to the provision of services for maintenance, repair, and overhaul of naval surface and subsurface marine vessels (e.g., submarines); as well as for related training activities.

Combat Vehicles and Components: This category includes sales related to production as well as research, development, design, engineering, testing and evaluation services relating to:

- Land-based vehicles designed for use in combat and to transport and protect soldiers, and the systems, sub-systems and components of such vehicles (e.g. vehicle structures, electrical systems, armour, engines, transmission systems, heating/cooling systems, engineering).

Excluded are sales relating to combat vehicle-based weapons systems such as guns and missiles launchers as such sales should be reported under the 'Firearms and Other Weapons' category.
Sales relating to associated projectiles like tank gun rounds or missiles should be reported separately under the 'Ammunition and Other Munitions' or 'Missiles and Rockets' categories as appropriate.
Combat vehicle communication systems, electronics, sensors, fire-control and navigation systems sales should be reported under either the appropriate categories for:

- *'[Primarily Land-Based or Man-Portable]* Electro-Optical, Radar, Sonar and Other Sensor/Information Collection Systems; Fire Control, Warning and Countermeasures Systems; and Related Components';
- *'[Primarily Land-Based, Man-Portable or Non-Platform Specific] Communications and Navigation Systems; and Other Information Systems (Including Processing and Dissemination), Software, Electronics, and Components'*.

Similarly, sales relating to maintenance, repair, overhaul (MRO) and/or training services relating to combat vehicles should also be reported separately in the category for:

- 'Combat Vehicles Maintenance, Repair and Overhaul'.

Combat Vehicles Maintenance, Repair and Overhaul: This category includes sales, carried out under contract, related to the provision of services for maintenance, repair, and overhaul of land-based vehicles designed for use in combat and to transport and protect soldiers; as well as for related training activities.
Aircraft Fabrication, Structures and Components: This category includes sales related to production as well as research, development, design, engineering, testing and evaluation services relating to:

- Military aircraft, and military aircraft structural elements, control surfaces, systems, sub-systems, parts and components of manned military aerial platforms, and complete manned military aerial platforms, intended for use in combat and military transport. This includes things like landing gear (e.g. wheels, shock absorbers and related parts for the retraction and extension of aircraft landing gear, helicopter pontoons); flight control actuators; and propulsion and power systems for military aircraft (e.g. aircraft gas turbine engines, compressors, fuel systems, etc.).

Excluded from this category are sales related to military aircraft maintenance, repair and overhaul (MRO) services; aircraft communication systems; navigation systems; avionics; air-borne sensors; missiles, rockets and projectiles made to be fired from aerial platforms; display units; and other electronics for manned military aerial platforms—these are to be reported under separate defence product and service categories as appropriate

Military Aircraft Maintenance, Repair and Overhaul Services: This category includes sales relating to maintenance, repair and overhaul activities (carried out under contract) in relation to military aircraft, engines and accessories; as well as for related training activities.

Unmanned Aerial Systems/Vehicles (UAS/V) and Components: This category includes sales related to production, research, development, design, engineering, testing and evaluation services relating to:

- Military unmanned aerial vehicles/systems and drones, and related sub-systems, parts, components and accessories (including related ground control systems and launchers).

Excluded are sales relating to missiles; or to weapon systems (e.g., guns, missile launchers) and ammunition, munitions, and missiles carried on/delivered by unmanned aerial systems/vehicles. Such sales should be reported under either the category for: 'Firearms and Other Weapons' or under the category for 'Missiles & Rockets'.

Simulation Systems for Aircraft: This category includes sales related to production as well as research, development, design, engineering, testing and evaluation services for the hardware and software technologies used by military and security forces to develop, experiment and test operational doctrines and to train personnel using situational scenarios (e.g. intelligent software, visual systems, network simulations, real-time simulators, etc.) as primarily related to *aircraft and operations in the air-domain*.

Simulation Systems for Naval Vessels: This category includes sales related to production as well as research, development, design, engineering, testing and evaluation services for the hardware and software technologies used by military and security forces to develop, experiment and test operational doctrines and to train personnel using situational scenarios (e.g. intelligent software, visual systems, network simulations, real-time simulators, etc.) as primarily related to *naval vessels and operations in the maritime-domain*.

Simulation Systems for Land Vehicles or Other Applications: This category includes sales related to production as well as research, development, design, engineering, testing and evaluation services for the hardware and software technologies used by military and security forces to develop, experiment and test operational doctrines and to train personnel using situational scenarios (e.g. intelligent software, visual systems, network simulations, real-time simulators, etc.) *as primarily related to land vehicles/ground-based systems and operations; or for other applications not elsewhere specified*.

Live Personnel and Combat Training Services: This category includes sales related to the provision by operations in Canada of live training services to *military personnel* such as in relation to combat training, including military airborne training services and any similar land or maritime training services; and military marksmen and sniper training.

Excluded are sales of products and services related to:

- Simulated or virtual training activities;
- Training related to the maintenance, repair and overhaul (MRO) of military platforms and systems, as this should be reported under appropriate MRO categories under the survey; and/or to the basic operation of newly acquired or modernized military platforms and systems.

Troop Support: This category includes sales related to production as well as research, development, design, engineering, testing and evaluation services in support of soldiers at home or abroad. Primarily covered are activities (not elsewhere captured) that relate to systems and services like:

- Camp facilities and military shelters;
- Bomb handling, and bomb/explosive/hazmat detection devices and equipment;
- Military clothing, and personal body armour, hazmat and other protective clothing and devices and equipment;
- Logistics and transportation support services;

Excluded are sales related to 'Live Personnel and Combat Training Services' which should be reported under that respective category.