STATEMENT OF WORK (SOW)

FOR THE

WATERTIGHT PRESSURE VESSELS SYSTEM FOR USE IN THE VICTORIA CLASS SUBMARINES SUBMARINE SMALL BOAT STOWAGE AND DEPLOYMENT SYSTEM

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1. Scope

1.1 Purpose

This Statement of Work (SOW) describes the requirements and work to be performed by the Contractor for Canada's Department of National Defence (DND) to supply Watertight Pressure Vessel (WTPV) Systems for use on the Royal Canadian Navy (RCN) Victoria Class Submarines (VCS) Submarines. The System includes a Watertight Pressure Vessel capsule, its Mounting Arrangements (MA) on to the Submarine, and an Outboard Motor (OBM) Restraining Arrangements (RA) to secure either a 25 HP or a 35HP Outboard motor inside the Watertight Pressure Vessel, both are to be supplied with the system.

1.2 Background

Each of the RCN's four (4) submarines are equipped with a Small Boat Stowage (SBS) Well, capable of holding two (2) deflated and folded inflatable rubber boats, four (4) full fuel bladders and two (2) Watertight Pressure Vessel Systems.

When the Victoria Class Submarines were procured they did not come with boats, fuel bladders or Watertight Pressure Vessel Systems. Subsequently, a requirement was identified to procure two Watertight Pressure Vessel Systems as a buy and try and these Watertight Pressure Vessel Systems were trialled at sea. Lessons learned from these trials have been incorporated into the accompanying Concept of Operations (COO) and System Requirements Document (SRD) found at Appendices 1 and 2 to this SOW respectively.

1.3 Intended Use

The Watertight Pressure Vessel System is intended to contain the submarine's Outboard Motors (OBM) for use with the submarine's inflatable boats. The WTPV System will protect the embarked outboard motors against sea pressure and water ingress during diving operations. When the submarine dives, the Small Boats Stowage Well is flooded and any components inside are subjected to sea pressure proportional to the depth of the submarine. The inflatable boats and the fuel batters are stowed in the small boats well next to the Watertight Pressure Vessel System.

1.4 Objectives

The objectives of this project is to procure and receive a Watertight Pressure Vessel System:

a. The contractor is to design, develop, test and qualify a Watertight Pressure Vessel System comprised of:
   i. a Watertight Pressure Vessel capsule capable of securely containing either one (1) DND selected smaller 25 HP outboard motor or larger 35 HP outboard motor (specifications can be found in Appendix 3 under government furnished equipment);
   ii. an interchangeable restraining arrangement configuration, capable of restraining the smaller or larger outboard motors, whichever is operationally required; and
   iii. the Watertight Pressure Vessel capsule Mounting Arrangements attaching the capsule to the submarine.

b. The contractor is to deliver:

i. 4 shipsets (quantity two (2) per shipset) Watertight Pressure Vessel Systems;
ii. any related Special Purpose Tools and Test Equipment (SPTATE), Spares and Repair Parts; and
iii. all accompanying Design, Test, Integrated Logistics Support (ILS) Data.

1.5 Acronyms and Abbreviations

AIL	Action Item List
CA	Contract Authority or Contract Award
CCM	Contract Closure Meeting
CCP	Configuration Change Proposal
CDR	Critical Design Review
CDRL	Contract Data Requirements List
CEIL	Contract End Items List
CM	Configuration Management
CMP	Configuration Management Plan
COO	Concept of Operations
COTS	Commercial Off The Shelf
CSA	Configuration Status Accounting
DA	Design Authority
DD	Detailed Design
DID	Data Item Description
DND	Department of National Defence
DD Rpt	Detailed Design Report
EC	Engineering Change
ECP	Engineering Change Proposal
FAT	Factory Acceptance Test
FAST Pln	First Article System Test Plan
FCA	Functional Configuration Audit
FEA	Finite Element Analysis
GFI	Government Furnished Information
GQA	Government Quality Assurance
HAZMAT	Hazardous Material
IAW	In Accordance With
ILS	Integrated Logistics Support
MA	Mounting Arrangements
MCN	Material Change Notice
ML	Material List

MOTS	Military Off the Shelf
MP	Maintenance Plan
SDS	Safety Data Sheet
OBM	Out Board Motor
PCA	Physical Configuration Audit
PD	Preliminary Design
PDF	Portable Document Format
PDR	Preliminary Design Review
PD Rpt	Preliminary Design Report
PE	Project Engineer
PKO	Project Kick-Off
PM	Project Management
PMP	Project Management Plan
PPB	Provisioning Parts Breakdown
PRM	Progress Review Meeting
ProdT Pln	Production Test Plan
PS	Project Schedule
PSR	Project Status Report
QA	Quality Assurance
QAA	Quality Assurance Authority
QAR	Quality Assurance Representative
RA	Restraining Arrangements
RCN	Royal Canadian Navy
RR	Requirements Review
RSPL	Recommended Spare Parts List
SBS	Small Boat Stowage
SME	System Matter Expert
SOW	Statement Of Work
SPTATE	Special Purpose Tools and Test Equipment
SRCL	Security Requirements Check List
SRD	Systems Requirements Document
SRR	System Requirement Review
SRR Rpt	System Requirements Review Report
SS	System Specification
SSSPEC	Sub-system Specification
SSBSD	Submarine Small Boat Stowage and Deployment System
TDP	Technical Data Package
TM	Technical Manual
USG	US Gallon
VCRM	Verification Requirements Cross-Reference Matrix
VCS	Victoria Class Submarines

WBS	Work Breakdown Structure
WTPV	Water Tight Pressure Vessel

2 Applicable Documents

The prescribed versions of the following documents form a part of this specification to the extent specified herein. References and the Government Furnished Information (Appendix 3) will only be provided to the winning bidder at Contract Award (CA).

Table 1: Reference Documents

Reference	Document Number	Title
1.	MIL-STD-1521B	Technical Reviews and Audits for Systems, Equipment, and Computer Software
2.	D-02-006-008/SG-001	The Design Change Deviation and Waiver Procedure
3.	D-01-001-215/SF-000	Preparation of Material Change Notices (MCN) for the Canadian Forces
4.	D-01-002-007/SG-006	DND Standard for the Selection of Configuration Items
5.	D-LM-008-002/SF-001	Specification for Marking for Storage and Shipment
6.	A-EN-007-00/FP-001	Canadian Environmental Assessment Act definition of Hazardous material

2.1 Order of Precedence

In the event of a conflict between the reference documents, the SOW and the System Requirements Document (SRD) found at Appendix 2 to this SOW, the following Order of Precedence must apply.

a. SOW;
b. SRD; and
c. The reference documents.

In the event of that the Contractor cannot resolve the precedence issue, the contractor is to inform Canada of the differences and request for a resolution.

3 General Requirements

3.1 Scope of Work

The Contractor must procure/design, customize, manufacture, integrate, test, and deliver the WTPV System components as required to satisfy the requirements of this SOW.

3.2 Tasks

3.2.1 Project Management

The Contractor must execute WTPV System Project Management tasks as detailed in Section 4 of this SOW.

3.2.2 Engineering

The Contractor must execute WTPV System Engineering tasks as detailed in Section 5 of this SOW.

3.2.3 Production

The Contractor must execute WTPV System Production tasks as detailed in Section 6 of this SOW.

3.2.4 Quality Assurance

The Contractor must execute WTPV System Quality Assurance tasks as detailed in Section 7 of this SOW.

3.2.5 Configuration Management

The Contractor must execute WTPV System Configuration Management tasks as detailed in Section 8 of this SOW.

3.2.6 Integrated Logistics Support

The Contractor must execute WTPV System ILS tasks as detailed in Section 9 of this SOW.

3.2.7 Acceptance Process

The Contractor must follow the WTPV System Acceptance Process as identified in Section 10 of this SOW.

3.2.8 Documentation

The Contractor must deliver the WTPV System data as identified in Appendix 4 Contract Data Requirements List.

4 PROJECT MANAGEMENT

4.1 Organization

The Contractor must establish and maintain a project management organization (referred to as the "Contractor's Project Management Organization") with the capability and capacity to manage the work to be performed under this contract.

4.1.1 Project Manager

The Contractor's Project Management Organization must be led by a dedicated Project Manager (PM) who must have the authority to plan, direct, control and make decisions for the Contract IAW this SOW. The Contractor's PM must be the main point of contact with Canada. The PM must have a minimum of five years experience managing projects of a similar nature.

4.2 Project Management Plan

The Contractor must prepare and deliver a Project Management Plan (PMP) in accordance with (IAW) Contract Data Requirements List (CDRL) item CDRL-PM-01 and Data Item Description (DID) DID-PM-01. The PMP must identify how the Contractor intends to fulfill the requirements of this SOW. The Contractor must manage the project IAW the approved PMP.

4.2.1 Work Breakdown Structure

The Contractor's PMP must refer to the project's Work Breakdown Structure (WBS). The Contractor must prepare and deliver a WBS IAW CDRL item CDRL PM-02 and DID-PM-02.

4.2.2 Project Schedule

The Contractor's PMP must reference a Project Schedule (PS). The Contractor must prepare and deliver a PS IAW CDRL item CDRL-PM-03 and DID-PM-03.

4.3 Risk Management

The Contractor's PMP must address the Contractor's program and procedures for identification, assessment, management, reporting, tracking, reduction and elimination of risks arising from the performance of the work. The Contractor must conduct Risk Management IAW the approved PMP.

4.3.1 Risk Register

The Contractor must prepare and deliver a Risk Register (RR) IAW CDRL item CDRL-PM-04 and DID-PM-04.

4.4 Reporting and Communications

4.4.1 Project Status Reports

The Contactor must monitor progress and deliver Project Status Reports (PSRs) IAW CDRL item CDRL-PM-05 and DID-PM-05.

4.4.2 Problem Reporting

Should an issue arise that could cause delay in the schedule or otherwise impact the contract, the Contractor must advise Canada in writing by e-mail within three (3) working days of the issue arising. Upon notification Canada will advise, within ten (10) working days whether an unscheduled meeting or other actions are required.

4.5 Security Management

4.5.1 Security Requirements

Contract requirements for personnel and facilities security clearances are identified in the contract's Security Requirements Check List (SRCL).

4.5.2 Access to Canada's Facilities

The Contractor may be provided access to Canada's facilities on an as required and non-interference basis, to allow the Contractor to view systems and obtain relevant data. Site visits may also be used to interview Subject Matter Experts (SMEs) to determine or confirm equipment functionality and operational parameters.

4.5.3 Visit Request Notice

The contractor must provide at least twenty (20) working days notice for any submarine site visits.

4.6 Project Meetings

4.6.1 Meetings General

4.6.1.1 Meeting Support

The Contractor must, at the Contractor's facility or elsewhere as agreed to by Canada, host and attend project reviews and meetings as required by this SOW. For all reviews and meetings hosted by the Contractor, the Contractor must:

a. Arrange the venue;
b. Coordinate with Canada as appropriate;
c. Provide all administrative facilities and presentation equipment;
d. Ensure that qualified Contractor and Contractor's Subcontractor personnel attend the reviews or meetings;

e. Ensure and report that action items and decisions under the control of the Contractor as a result of the various meetings and review are implemented where applicable; and
f. Maintain files, records, and documents of all reviews and meetings.

4.6.1.2 Agenda

The Contractor must prepare and submit a review or meeting agenda IAW CDRL item CDRL-PM-06 and DID-PM-06. An electronic copy of the agenda will be submitted to Canada at least 10 working days in advance of each review or meeting except in the case of unscheduled meeting in which case the contractor must submit an electronic copy of the agenda in an agreed to time frame prior to the meeting. Canada and the Contractor must mutually agree to the contents of the agenda.

4.6.1.3 Minutes (6.4.5.3)

The Contractor must record, produce, deliver and revise, as required, the Minutes for all reviews and meetings IAW CDRL item CDRL-PM-07 and DID-PM-07. An electronic copy of the Minutes must be submitted to Canada within five (5) working days of each review or meeting. Canada will advise the Contractor of any issues with the Minutes within two (2) working days of receiving the Minutes. Meeting Minutes are accepted once signed by Canada.

4.6.1.4 Meeting Cancellation

Canada may cancel in writing any review or meeting at their discretion with a minimum of five (5) working days notice. Rescheduling of meetings by the Contractor must be done only with the explicit agreement of Canada.

4.6.1.5 Issue/Action Item List

The Contractor must maintain a historical, chronological and up-to-date Issue/Action Item List (AIL) resulting from reviews, meetings, or correspondence between Canada and the Contractor in a format acceptable to Canada for the duration of the project.

In the AIL, the Contractor must record, as a minimum:

a. Identification number;
b. Title or Description;
c. Date Opened;
d. Issue Causing the Action to be Raised;
e. Action Required;
f. Priority;
g. Organization and Person Responsible for Action;
h. Brief Statement of Action Taken to Date and associated Results;
i. Status (Open/Closed)
j. Date Closed

The Contractor must ensure that once created, no action is deleted.

The Contractor must include a subset of the AIL containing all open action items as an attachment to Progress Review Meetings.

The Contractor must, upon request by Canada at any time, make a copy of the AIL available to Canada.

4.6.2 Project Management Meetings

4.6.2.1 Project Kick-Off Meeting

The Contractor, within ten (10) working days of Contract Award, must conduct a Project Kick-Off (PKO) Meeting with Canada, at the Contractor's facility, or elsewhere as agreed to with Canada. The PKO Meeting must include as a minimum a review of the Project:

a. Deliverable Requirements;
b. Technical Requirements;
c. Schedule including Critical Path Activities;
d. Plans for activities during the following review period;
e. Risk management concerns and mitigation actions;
f. Issue management concerns and mitigation actions;
g. Any other contractual or programmatic issues associated with the project as mutually agreed between Canada and the Contractor.

4.6.2.2 Progress Review Meetings

The Contractor must coordinate and conduct, every six weeks or at a frequency to be mutually agreed with Canada, Progress Review Meetings (PRMs). The first PRM must be held at the agreed to frequency after the PKO Meeting. Each PRM must include as a minimum a discussion of the project's status against the items identified for the PKO meeting. PRMs may be held by Teleconference or when they coincide with Engineering Reviews, at the Contractor's facility or elsewhere as agreed to by Canada.

4.6.2.3 Other Scheduled Meetings

The Contractor may identify through other requirements stipulated in this SOW and included in the Contractor's Plan the necessity to schedule other meetings. The Contractor must identify these meetings in the PS. Canada's approval of the PS confirms Canada's intention to attend such Other Scheduled Meetings.

4.6.2.4 Unscheduled Meetings

The Contractor may conduct Unscheduled Meetings as agreed to by the parties. When calling for and scheduling an Unscheduled Meeting, the party calling the meeting must provide the other party with a minimum of 10 days advanced notice of the meeting.

4.6.2.5 Contract Closure Meeting

The Contractor must hold a Contract Closure Meeting (CCM) within one (1) month of Canada's acceptance of the last deliverable. The CCM must provide a complete review of the entire project.

5 ENGINEERING

5.1 Engineering Management

5.1.1 Engineering Organization, Management and Planning

The Contractor must establish and maintain, within its company a discreet Engineering Organization with suitable capability to perform the engineering work identified in the contract. The Contractor's Engineering Organization and its plan to execute the project's engineering work must be described in the PMP, WBS and PS. The Contactor must conduct engineering work in accordance with the PS.

5.1.2 Project Engineer

The Contractor must assign a dedicated Project Engineer (PE) responsible to the Contractor's PM to manage the engineering work required for this project. The Contractor's PE must have the authority to plan, direct, control and make decisions for the Contractor with respect to the engineering aspects of this project. The PE must have a minimum of five years experience managing projects of a similar nature.

5.1.3 Engineering Reviews and Audits

The Contractor must prepare and conduct Engineering Reviews and Audits in accordance with (IAW) reference 1.

5.2 Engineering Tasks

5.2.1 Requirements Review

5.2.1.1 General

The Contractor must review the WTPV System -SRD found at Appendix 2 to this SOW and confirm that the requirements are complete, well formulated and consistent with the intent stated in the Concept of Operations Document found at Appendix 2 to this SOW.

5.2.1.2 System Requirements Review Report

The Contractor must develop and deliver a System Requirements Review Report (SRR Rpt) in accordance with CDRL item CDRL-ENG-01 and DID-ENG-01.

5.2.1.3 System Requirements Review Meeting

The Contractor must, within ten (10) working days of contract award, in conjunction with the PKO meeting, conduct, at the Contractor's facilities a Systems Requirements Review (SRR) Meeting. The SRR Meeting will review the SRR Rpt and any recommended and agreed to changes to the SRD. Should there be agreed to changes to the SRD, the contract will be amended to reflect these changes.

5.2.2 System Definition

5.2.2.1 General

The Contractor must conduct system definition activities.

5.2.2.2 System Specification

The Contractor must develop a WTPV System Specification (SS) and any associated Sub-System Specifications (SSSPEC) IAW CDRL item CDRL ENG-02 and DID-ENG-02.

The Contractor must, for the WTPV System show traceability from each requirement in the SRD to the SS/SSSPEC with rationale for any proposed modifications. Where a modification is proposed, Canada's concurrence with the modification must be sought.

Once the SS/SSSPEC is approved by Canada, the SS/SSSPEC becomes the baseline requirements for the development and verification of the WTPV System.

5.2.2.3 Requirements Verification Cross Reference Matrix

The Requirements Verification Cross Reference Matrix (Requirements VCRM) captures the design requirements and the requirements verification methodology (e.g. analysis, demonstration, inspection, test, similarity etc.) as requested and proposed in Appendix 6 to this SOW and identifies the objective evidence that proves a requirement has been met. It is filled in as the objective evidence becomes available and when complete Requirements VCRM provides a record that the design requirements have been met.

The Contractor must develop and deliver a Requirements Verification Cross Reference Matrix (Requirements VCRM) VCRM IAW CDRL item CDRL-ENG-03 and DID-ENG-03.

5.2.3 System Preliminary Design

5.2.3.1 General

The Contractor must develop and deliver a WTPV System Preliminary Design (PD) meeting the requirements of the SS/SSSPEC. This PD may be based on the existing design (details provided as Government Furnished Information (GFI) at Appendix 3 to this SOW), an existing or modified Commercial Off the Shelf (COTS) or Military Off the Shelf (MOTS) solution, or be of a new design. This preliminary design must be supported by any required Engineering Drawings and Associated Lists, supporting Engineering Analyses, Material Lists, and Safety Data Sheets.

5.2.3.2 Engineering Drawings and Associated Lists

Through the WTPVS Design and First Article Qualification Activities, the Contractor must develop, update and deliver Engineering Drawings IAW DID-ENG-000.

5.2.3.3 Engineering Analysis

5.2.3.3.1 Stress Analysis

The Contractor must conduct a Stress Analysis of the WTPV System components and attachments (both internal and external to the WTPF) and must develop and deliver a WTPVS Stress Analysis Report, in Contractor's format IAW CDRL item CDRL-ENG-04.

5.2.3.3.2 Frequency and Vibration Analysis

The Contractor must conduct a Frequency and Vibration Analysis of the WTPV System components and attachment (both internal and external to the WTPV) and Must develop and deliver a WTPVS Frequency and Vibration Analysis Report, in Contractor's format, IAW CDRL item CDRL-ENG-05.

5.2.3.3.3 Other Qualification by Analysis

The Contractor may propose, and Canada may agree to Qualification by Analysis of some Requirements. The Contractor must develop and deliver any agreed to Other Qualification by Analysis Reports, in Contractor's format, IAW CDRL item CDRL ENG-06.

5.2.3.3.4 Safety and Environment

Dangerous/Hazardous Material is defined as any substance capable of posing a risk to health, safety, property or environment when stored, handled or transported, and is so classified in regulations governing transportation. Hazardous materials include (but are not limited to) dangerous goods identified in the Canadian Transportation of Dangerous Goods Act.

The Contractor must propose materials that are not hazardous. Canada will review and assess the proposed materials and approve them for use in the VCS.

To facilitate Canada's review and assessment of the Contractor's proposed material, the contractor must provide a Material List (ML) and any associated Safety Data Sheets (SDS).

Where the Contractor cannot propose materials that are not hazardous, the Contractor must, IAW Canada's Treasury Board Hazardous Material (HAZMAT) Policy, Canada's Workplace Hazardous Material Legislation and Canada's Submarine Material Use Policy only incorporate dangerous/hazardous materials in the design of the WTPV System with the agreement of Canada when no acceptable, less hazardous material is available.

5.2.3.3.4.1 Material List

The Contractor must develop and deliver and update a WTPV System ML IAW CDRL item CDRL-ENG-07 and DID-ENG-04.

5.2.3.3.4.2 Safety Data Sheets

The Contractor must, for any material assessed as Hazardous under Canada's Workplace Material Legislation deliver for inclusion in the submarine's Workplace hazardous Material Information System (WHMIS) that material's associated SDS IAW CDRL item CDRL-ENG-08 and DID-ENG-05.

5.2.3.3.5 Preliminary Design Report

The Contractor must develop and deliver a Preliminary Design Report (PD Rpt) IAW CDRL item CDRL-ENG-09 and DID-ENG-06.

5.2.3.3.6 Preliminary Design Review (7.3.2)

The Contractor must, within forty (40) working days of the SRR Meeting, conduct a Preliminary Design Review (PDR) Meeting at the Contractor's facilities. The PDR Meeting will review the PD Rpt. The Contractor must provide meeting support, agenda, and minutes for this meeting IAW Section 4.7.1 above.

5.2.4 System Detailed Design

5.2.4.1 General

The Contractor must develop a WTPV System Detailed Design (DD) meeting the requirements of the SS/SSSPEC and any PD documentation that has been updated as a result of the PDR. The detailed design must be supported by updates to Engineering Drawings and Associated Lists, including any required additional Engineering Analyses and any required updates to ML and SDS.

5.2.4.1.1 Detailed Design Report

The Contractor must develop and deliver a Detailed Design Report (DD Rpt) IAW CDRL item CDRL-ENG-10 and DID-ENG-07

5.2.4.1.2 Critical Design Review

The Contractor must, within four (4) months of the PDR Meeting, conduct a Critical Design Review (CDR) Meeting at the Contractor's facilities. The CDR Meeting will review the DD Rpt. The Contractor must provide meeting support, agenda, and minutes for this meeting IAW Section 4.6.1 above.

5.2.5 Test Plans and Procedures

5.2.5.1 First Article System Test Plan

The Contractor must, for the WTPV System, develop and deliver a First Article System Test Plan (FAST Pln) IAW CDRL item CDRL-TST-01 and DID-TST-01.

5.2.5.2 Production Test Plan

The Contractor must, for the WTPV System, develop and deliver a Production Test (ProdT Pln) IAW CDRL item CDRL-TST-02 and DID-TST-01.

5.2.5.3 Factory Acceptance Test Procedure

The Contractor must, for the WTPV System develop and deliver a Factory Acceptance Test (FAT) Procedure IAW CDRL item CDRL-TST-03 and DID-TST-02.

5.2.5.4 Functional Qualification Test Procedure

The Contractor must, for the WTPV System, develop and deliver a Functional Qualification Test Procedure IAW CDRL item CDRL-TST-04 and DID-TST-02.

5.2.5.5 Vibration Test Procedure

The Contractor must, for the WTPV System, develop and deliver a Vibration Test Procedure IAW CDRL item CDRL-TST-05 and DID-TST-02.

5.2.5.6 Pressure Qualification Test Procedure

The Contractor must, for the WTPV System, develop and deliver a Pressure Qualification Test Procedure IAW CDRL item CDRL-TST-06 and DID-TST-02.

5.2.5.7 Other Qualification Test Procedure

In the event that the Contractor's proposed design for the WTPV System cannot be qualified by similarity or analysis (an example may be Shock), the Contractor must, for the WTPV System, develop and deliver Other Test Procedures IAW CDRL item CDRL-TST-07 and DID-TST-02.

5.2.6 First Article System Build

The Contractor must build WTPV System First Article Systems (FAS) based on the CDR approved design in sufficient numbers to support FAS Tests within the approved schedule. Build of WTPV System FAS must be completed not later than eighty (80) working days after CDR.

5.2.7 First Article System Test

5.2.7.1 General

The Contractor must perform FAS tests for those elements of the design that were agreed to be qualified by Test. The Contractor must Factory Acceptance Test (FAT) the WTPV System under test prior to each FAS Qualification Test and include the FAT Test as part of respective Qualification Report. As a minimum FAS Tests must include:

a. Functional Qualification (Functional Qual) Test;
b. Vibration Qualification (Vibration Qual) Test;
c. Pressure Qualification (Pressure Qual) Test; and
d. Other Identified (e.g. as necessary Shock) Qualification Tests.

Canada must be invited to witness any Qualification Test.

Canada, if requested, will provide a representative of each type of OBM for use in these qualification tests.

Canada, if requested, will provide representative sets of the small boats and the fuel bladders for use in these qualification tests.

5.2.7.1.1 Functional Qualification Testing

The purpose of Functional Qualification testing is to prove that the following Functional Qualification Requirements are met:

a. WTPV Fit as identified in Appendix 2 SRD Section 3.2.3;
b. WTPV Opening and Cover Size as identified in Appendix 2 SRD Section 3.2.4.1
c. WTPV Opening Cover Attachment as identified in Appendix 2 SRD Section 3.2.4.3;
d. WTPV Opening Cover Securing Arrangements as identified in Appendix 2 SRD Section 3.2.4.4;
e. WTPV Maintenance as identified in Appendix 2 SRD Section 3.2.15;
f. OBM RA Ease of Use as identified in Appendix 2 SRD Section 3.3.3; and
g. OBM RA Noise Level Removal/Replacement OBM as identified in Appendix 2 SRD Section 3.3.5.

5.2.7.1.1.1 Functional Qualification Testing Mock Up

The Contractor must, in support of Functional Qualification Testing, build a full scale Mock-Up of the SBS Well (including SBS Well Covers) and surrounding deck, of sufficient fidelity to prove that WTPV System will fit and for Functional Qualification Testing. The design of this Mock-Up will be inspected and approved by Canada as having sufficient fidelity to support functional qualification testing.

5.2.7.1.1.2 Functional Qualification Test

The Contractor must, using the Mock Up, conduct WTPV System Functional Qual Tests using the approved test procedure.

5.2.7.1.1.2.1 Functional Qualification Test Report

The Contractor must, on successful completion of Functional Qual Testing, develop and deliver a Functional Qual Test Report (Tst Rpt) IAW CDRL Item CDRL-TST-08 and DID-TST-03.

5.2.7.1.2 Vibration Qualification Testing

The purpose of Vibration Qualification Testing is to prove that the following Vibration Qualification Requirements are met:

a. WTPV Vibration as identified in Appendix 2 SRD Section 3.2.14;
b. WTPV RA Vibration as identified in Appendix 2 SRD Section 3.3.13; and
c. WTPV MA Vibration as identified in Appendix 2 SRD Section 3.4.14.

5.2.7.1.2.1 Vibration Qualification Test

The Contractor must conduct the WTPV System Vibration Qualification Test using the approved test procedure.

5.2.7.1.2.1.1 Vibration Qualification Test Report

The Contractor must, on successful completion of Vibration Qualification Testing, develop and deliver a Vibration Qualification Test Report (Tst Rpt) IAW CDRL Item CDRL-TST-09 and DID-TST-03.

5.2.7.1.3 Pressure Qualification Testing

The purpose of WTPV System Pressure Qualification testing is to prove the following Pressure Qualification Testing Requirements are met:

a. WTPV Design Pressure as identified in Appendix 2 SRD Section 3.2.5; and
b. WTPV Pressure Equalizing as identified in Appendix 2 SRD Section 3.2.8.

5.2.7.1.3.1 Pressure Qualification Test

The Contractor must conduct the WTPV System Pressure Qual Test using the approved Pressure Qualification Test Procedure.

5.2.7.1.3.1.1 Pressure Qualification Test Report

The Contractor must, on successful completion of Pressure Qual Testing, develop and deliver a Pressure Qual Test Report (Tst Rpt) IAW CDRL Item CDRL-TST-10 and DID-TST-03.

5.2.7.1.4 Other Agreed Qualification Testing

Should the Contractor recommend and Canada agree to other Qualification Testing, this testing must be carried out using the approved test procedures.

5.2.7.1.4.1 Other Qualification Reports

The Contractor must, on successful completion, of other agreed to tests, develop and deliver Other Qualification Test Reports IAW CDRL item CDRL-TST-11 and DID-TST-03.

5.2.7.1.5 Design Qualification Report

The Contractor must, on completion of all Design Qualification activities, develop and deliver a Design Qualification Report (Design Qual Rpt) IAW CDRL Item CDRL-ENG-11 and DID-ENG-08.

5.2.8 Design Update

The Contractor must, on successful completion of WTPV System Qualification Testing, update the design documentation to reflect any changes required by the design to pass qualification testing.

6 PRODUCTION

6.1 Production Management

6.1.1 Production Organization and Planning

The Contractor must be responsible for and oversee a Production Organization with the capability and capacity to perform the Production Aspects of the contract. The Contractor's Production Organization and its plan to execute the project's production work must be described in the Project Management Plan.

6.1.2 Production Manager

The Contractor must have a dedicated Production Manager responsible to the Project Manager to carry out the work required for this contract. The Contractor's Production Manager must have the authority to plan, direct, control and make decisions for the Contractor with respect to the production aspects of this contract.

6.2 Production Tasks

6.2.1 Production of the Supplies

The Contractor must produce the required number of WTPV System shipsets, SPTATE, spares and repair parts.

6.2.1.1 Factory Acceptance Test

The Contractor must for each of the WTPV System shipsets, spares, and as applicable to the repair parts conduct a production Factory Acceptance Test (FAT) using the items approved FAT Procedure.

FAT conduct must be witnessed by Canada or a delegated representative.

6.2.1.1.1 Factory Acceptance Test Report

On successful completion of production FAT for each WTPV System shipset, spares and as applicable repair parts, must record the results in a FAT report prepared IAW CDRL item CDRL-PROD-01 and DID-TST-03.

7 QUALITY ASSURANCE

7.1 Quality Organization Management and Planning

The Contractor must establish and maintain within its company a Quality Organization with suitable capability and capacity to perform the Quality Activities of this contract. This Quality Organization and its plan to execute the contract's Quality tasks must be described in the Project Management Plan (PMP). The Contractor must develop a schedule of Quality Activities as part of the Project Schedule (PS).

7.2 Quality System

The Contractor is responsible for implementing, for the duration of the Contract a Quality System appropriate to the scope of the work to be performed. It is recommended that the quality system be based on ISO 9001:2008 "Quality Management Systems-Requirements".

The Contractor is responsible for performing or having performed all inspections and tests necessary to substantiate that the materiel or services provided conform to the drawings, specifications and requirements of the contract. The Contractor must keep accurate and complete inspection records which must, upon request be made available to the authorized Department of National Defence (DND) representative, who may make copies and take extracts during the performance of the Contract and for a period of one (1) year after the completion of the Contract.

The Contractor must ensure that all approved subcontractors have a quality management system appropriate to the work required under the subcontract and that all work performed under a subcontract meets the Contractor's subcontract quality requirements.

7.3 Quality Assurance and Audits

7.3.1 Government Quality Assurance

All work will be subject to Government Quality Assurance (GQA) at the Contractor's or subcontractor's facility or at destination by the Quality Assurance Authority (QAA)

7.3.2 Quality Audits

Canada reserves the right to perform Government Quality Audits with a minimum of three (3) working days notice. This requirement does not relieve the Contractor and/or subcontractor(s) of Quality Assurance (QA) responsibilities for the work carried out under this contract. Canada reserves the right to use independent third parties to assist in these reviews.

7.4 Design Change/Deviation and Waiver

7.4.1 Requests for Design Change/Deviation

If the Contractor wishes to depart from the requirements of the technical data specified in the contract, the Contractor must request either a Design Change or Deviation. The Contractor may request this in Contractor format or may, in accordance with the instructions found at reference 2 complete the reference's Form DND 672 in MS Word.

7.4.2 Authorization of Design Change/Deviation

Each Design Change or Design Deviation request will be authorized by both Canada's Design Authority (DA) and Contracting Authority (CA). Canada's DA has the sole right to deny authorization of a Design Change or a Design Deviation. Should this right be exercised, all parties will be advised accordingly by an appropriately annotated copy of the Request for Design Change/Deviation Form.

7.4.3 Implementation of Design Change/Deviation

The Contractor must implement the Design Change or Design Deviation on receipt of authorization.

7.4.4 Request for Waiver Authorization

When the Contractor wishes to request acceptance of items which are found during or after manufacture to depart from the technical data requirements of the contract, the Contractor must request a Waiver. The Contractor may request this in Contractor format or may, in accordance with the instructions found at reference 2 completing the reference's Form DND 675 in MS Word.

7.4.5 Waiver Authorization

Each Waiver request will be prepared by the Quality Assurance Representative (QAR) and authorized by Canada's DA and CA. Canada's DA has the sole right to refuse the Waiver request. Should this right be exercised, all parties will be advised accordingly by an appropriately annotated copy for the Request for Waiver Form.

7.4.6 Material Change Notice

Where the Design Change/Deviation/Waiver results in new material requirements for the WTPV System, Spares or Repair Parts the Contractor must originate a Material Change Notice (MCN)) in accordance with the instructions found at reference 3 must be reflected in the Contract by amendment.

8 CONFIGURATION MANAGEMENT

8.1 General

The Contractor must adhere to the Configuration Management (CM) Principles identified in EIA-649-A National Consensus Standard for Configuration Management. The Contractor's CM approach, organization and plan to execute CM must be discussed in the Project Management Plan. The Contractor must develop a schedule of CM activities in the Project Schedule.

8.2 Configuration Identification, Status, Baselines

8.2.1 Configuration Status Account

The Contractor, for each WTPV System - System, Spare, Repair Part and SPTATE must develop, deliver and update a Configuration Status Account (CSA) IAW CDRL-CM-01 and DID-CM-01.

8.2.2 Configuration Identification

The Contractor, for the WTPV System –System, Spare, Repair Part and SPTATE must:

a. identify all the Configuration Items (CIs) in accordance with the guidance found at reference 4; and
b. uniquely identify all documents that disclose the performance, functional and physical attributes of the WTPV System, so that they may be accurately associated with the Configuration Baseline for each WTPVS System.

8.2.3 Configuration Baselines

The Contractor, for the WTPV System,-System, Spare, Repair Part and SPTATE, as required, must develop and maintain at least each of the following configuration baselines during the Contract:

a. Functional Baseline;
b. Allocated Baseline; and
c. Product Baseline.
d. Design Changes, Deviations

Once the Functional, Allocated and Product baselines have been established and approved the Contractor must manage Design Changes and Deviations in accordance with Section 7.4 above. This includes the:

a. identification;
b. request and documentation;
c. for configuration changes only, classification as Major Changes or
d. Minor Changes;
e. evaluation and coordination; and
f. implementation and verification of the changes.

The Contractor's must submit to Canada Contract Change Proposals (CCPs) supplemented by Engineering Change Proposals (ECPs) in accordance with the Approved Configuration Management Plan (CMP) as described in the Project Management Plan (PMP) to implement changes to Approved Functional and Product Baselines.

All changes to a Functional Baseline must be classified as a Major Change.

The Contractor must classify changes to a Product Baseline as either a Major Change or a Minor Change.

The Contractor must submit all proposed Major Changes to the Product Baseline to the Customer for Approval as CCPs supplemented by ECPs.

The Contractor must submit all proposed Minor Changes to the Product Baseline to the Customer Representative for review.

At the request of the Customer, the contractor must resubmit a proposed Minor Change to the Product Baseline as a proposed Major Change to that Product Baseline.

The Contractor must, for any proposed change to a Configuration Baseline, ensure that all Configuration Baselines will be mutually consistent and compatible.

8.3 Configuration Status Accounting

The Contractor must establish and maintain, in accordance with the Approved CMP as described in the Project Management Plan (PMP), a Configuration Status Accounting (CSA) system that correlates, stores, maintains and provides readily available views of all configuration information relating to the WTPV System-System, Spares, Repair Parts and SPTATE System Components and their Configuration Baselines.

The Contractor must provide all facilities and assistance reasonably required by Canada in order for Canada to access the Contractor's CSA system for the duration of the Contract.

8.3.1 Configuration Status Account System Reports

The Contractor must deliver reports to Canada from the Contractor's CSA System Reports IAW CDRL-CM-02 and DID-CM-02.

8.4 Master Record Index

The Contractor must develop, deliver and update for the WTPV System, System, Spares, Repair Parts, and SPTATE a Master Record Index (MRI) IAW CDRL-CM-03 and DID-CM-03.

8.5 Configuration Audits

8.5.1 Functional Configuration Audit

The Contractor, for each WTPV System, and as required for associated Spares, Repair Parts and SPTATE must conduct a Functional Configuration Audit (FCA) on the First Production System.

8.5.1.1 Functional Configuration Audit Report

The Contractor must provide a FCA Audit Report IAW CDRL item CDRL- CM-04 and DID-CM-04.

8.5.2 Physical Configuration Audit

The Contractor, for each WTPV System-System and as required for associated Spares, Repair Parts and SPTATE must conduct a Physical Configuration Audit (FCA) on the First Article.

8.5.2.1 Physical Configuration Audit Reports

The Contractor must provide a PCA Audit Report IAW CDRL item CDRL- CM-05 and DID-CM-05.

8.5.3 Audit Witnessing

The Contractor, must invite Canada to witness First Article and associated First Article Spares, Repair Parts and SPTATE FCAs and PCAs.

Unless otherwise notified in writing by Canada, a representative or appointed representative(s) must witness configuration audits that are conducted for the purpose of Acceptance.

Unless the Canada has notified that it will not witness a configuration audit the Contractor must not conduct that configuration audit in the absence of Canada or representative of Canada.

9 INTEGRATED LOGISTICS SUPPORT

The Contractor must perform the following ILS Tasks:

9.1 Maintenance Plan

The Contractor must, for the WTPV System, develop and deliver a Maintenance Plan (MP) IAW CDRL item CDRL-ILS-01 and DID-ILS-01.

9.2 Recommended Spare Parts List

The Contractor must, for the WTPV System, develop and deliver a Recommended Spare Parts List (RSPL) IAW CDRL item ILS-02 and DID-ILS-02.

9.3 Provisioning Parts Breakdown

Once Canada has agreed to the RSPL, the Contractor must develop and deliver a Provisioning Parts Breakdown (PPB) IAW CDRL item ILS-03 and DID-ILS-03.

9.4 Recommended Special Purpose Tools and Test Equipment List

The Contractor must, for the WTPV System, develop and deliver a Recommended Special Purpose Tools and Test Equipment (SPTATE) List IAW CDRL item ILS-04 and DID-ILS-04.

9.5 Provisioning SPTATE Breakdown

Once Canada has agreed to the Recommended SPTATE List, the contractor must develop and deliver a Provisioning SPTATE Breakdown IAW CDRL item ILS-05 and DID-ILS-05.

9.6 Technical Manual

The Contractor must, for the WTPV System, develop and deliver a Technical Manual (TM) in the English language, IAW CDRL item CDRL-ILS-06 and DID-ILS-06.

9.7 Technical Data Package

The Contractor must, for the WTPV System, develop and deliver a Technical Data Package (TDP) IAW CDRL item CDRL-ILS-07 and DID-ILS-07.

9.8 Packaging, Handling, Storage and Transportability

9.8.1 Packaging Methods and Level

The Contractor must ensure that packaging of the supplies will provide adequate protection for a minimum of five (5) years, consistent with good economy, against damage, deterioration, and loss of identification during storage, handling and shipment.

9.8.2 Marking of Packages

The Contractor must mark all packages, shipping containers and consolidation containers the instructions found at reference 5, as applicable.

9.8.3 Marking of Dangerous/Hazardous Items

The Contractor must mark Dangerous/Hazardous Items as follows:

a. Shipping Container: “In accordance with Canada’s Transportation of Dangerous Goods Act”; and
b. Immediate Product Container: “In accordance with Canada’s Hazardous Products Act, Controlled Products Regulation”.

9.8.4 Shelf Life of Items

The Contractor must mark the individual package for each Shelf Life Item with:

a. Date of manufacture;
b. Shelf Life expiry date;
c. Storage environment restrictions (e.g. no freezing, no sunlight); and
d. Any storage requirements (e.g. rotate every X weeks).

9.8.5 Contractor End Items List

The Contractor must provide a Contract End Items List (CEIL) for supplies developed or acquired under this SOW IAW CDRL item CDRL-ILS-08 and DID-ILS-08.

10 ACCEPTANCE AND DELIVERY

10.1 Acceptance

10.1.1 Contract Data Deliverables

The WTPVS System Contract Data Deliverable acceptance will follow the process and criteria outlined below.

10.1.1.1 Data Reviews and Revisions

10.1.1.1.1 Data Item Production and Delivery

The Contractor must produce, update and deliver to Canada all Data Items required by the Contract in accordance with the Contract Data Requirements List (CDRL) found at Appendix 4 to this SOW. The requirements of a deliverable data item are defined in that items Data Item’s Description (DID) which can be found at Appendix 6 to this SOW. The Contractor must ensure that submitted data item is a complete document compliant with the requirements of this SOW and the item’s DID.

10.1.1.1.2 Data Item Review

Data Items delivered to Canada IAW this SOW will be subject to review and comments or review and approval by Canada. Unless otherwise indicated, Canada’s review will take no more than ten (10) working days from the receipt of data, at which time Canada will either approve the document or provide comments requiring further clarification by the Contractor prior to document approval. Subsequent re-submissions of a document will be subject to this same review period.

10.1.1.1.3 Contractor's Data Item Clarification

In the event that Canada has provided comments the Contractor must address Canada's comments, and provide, within ten (10) working days either a response, satisfactory to Canada with no data deliverable update required, or an agreed to updated data deliverable.

10.1.1.1.4 Clarified Contractor's Data Item Approval

Canada, on receipt of a satisfactory no update required response, or on receipt of an agreed to updated data deliverable, will take no more than ten working days to approve the data deliverable.

10.1.2 Design

Acceptance of the WTPVS System Contract Design will be progressive. Design Requirements Acceptance Criteria and Results are defined and recorded in the Section 5.2.2.2 Requirements Verification Cross-Reference Matrix. Once the Cross-Reference Matrix has been completed showing that all the defined Designed Acceptance Criteria have been met, the Design will be accepted.

10.1.3 Supplies, SPTATE, Spares and Repair Parts

The WTPV System Contract Supplies, SPTATE, Spares and Repair Parts will be inspected on receipt by Canada and provided they pass visual inspection and their accompanying paperwork (including any required Test Reports and a Certificate of Conformance) is complete they will be accepted.

10.2 Delivery

The Contractor must deliver WTPV System Supplies, SPTATE, Spares and Repair Parts to both Halifax N.S and Esquimalt British Columbia as follows.

Item	Halifax	Esquimalt
WTPV	2	6
WTPV Spare	1	1
25 HP OBM RA	2	6
35 HP OBM RA	2	6
WTPV MA	2	6
WTPV On Board SPTATE	1	3
WTPV Depot SPTATE	1	1
WTPV On Board Spares Sets	1	3
WTPV Depot Spares Sets	1	1
WTPV Repair Parts Sets	1	1

* Note: SPTATE, Spares and Repair Parts as recommended by the Contractor and approved by Canada.

11 APPENDICIES AND ATTACHMENTS

Appendix 1: Concept of Operations
Appendix 2: System Requirements Document
Appendix 3: Government Furnished Equipment/Government Furnished Information
Appendix 4: Contract Data Requirements List
Appendix 5: Data Item Descriptions
Appendix 6: Compliance Verification Matrix

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Appendix 1-Concept of Operations

SUBMARINE SMALL BOAT STOWAGE AND DEPLOYMENT (SSBSD) CONCEPT OF OPERATIONS

Draft 1.0 May 13, 2015

1 Introduction

1.1 Purpose

The Victoria Class Submarines (VCS) are equipped with a Special Boat Service (SBS) Well which is intended to hold inflatable boats along with their associated engines and fuel bladders. When the submarine dives, the SBS Well is flooded and any components inside are subjected to sea pressure proportional to the depth of the submarine. The engines are housed inside a Water-Tight Pressure Vessel (WTPV) to protect them from sea pressure.

The primary objective of the Submarine Small Boat Stowage and Deployment (SSBD) capability is to hold, at a maximum, two inflatable boats, two outboard engines, and multiple fuel bladders and to have a process to rapidly deploy and recover the boats in support of submarine operating requirements or embarked land forces. The SSBSD will be employed in the following foreseeable situations:

a. Diving Operations: In accordance with the CF Diving manual (Volume 2), a power driven safety boat displaying the appropriate warning signals must be underway in the vicinity of diving operations unless divers are carrying out attended diving on lines from a ship or jetty.
b. Personnel and Equipment Transfer: The small boat will support the submarine's ability to readily transfer personnel and equipment without assistance from external agencies.
c. Force Protection: As stated in Chapter 8 of the Naval Boarding and Force Protection Operations Manual, if permitted by the port authority, the ship would also use the small boat for random patrols or as a picket boat to deter attacks or unauthorized approach.
d. In support of embarked land forces needs and requirements.

This Concept of Operations (CONOP) describes the intended use of the SSBSD capability as it relates to stowing, deployment, and recovery of small boats and their auxiliary equipment. The CONOP will discuss the development of the SSBSD vision, mission, roles and functions. It will then discuss how the SSBSD activities will be performed in support of its mission, roles and functions.

1.2 Overview of Submarine Small Boat Stowage and Deployment

The Submarine Small Boat Stowage and Deployment Capability is a surfaced deployed capability that:

a. Utilizes the SBS Well to its fullest extent while minimizing the amount of auxiliary equipment required to be stored inside the submarine;

b. Is designed to contain, at a minimum two (2) inflatable boats, the associated fuel bladders, and two (2) WTPV housing the engines;
c. Is designed for rapid deployment and recovery of embarked land forces;
d. Is designed to store various types of engines and inflatable boats based upon operational requirements; and
e. Is designed such that it will not add to current submarine acoustic signature.

2 Functional Analysis

A functional analysis was completed in order to define the roles and tasks of the SSBSD within the Royal Canadian Navy (RCN). The different activities requiring SSBSD involvement are Canadian Submarine Forces (CANSUBFOR), the Canadian Army (normally Patrol Pathfinders) and Canadian Special Operations Forces Command (CANSOFCOM) elements that have not been adequately completed or supported in the past.

3 Vision

The aim of the SSBSD capability is to effectively and efficiently store, deploy, and recover the inflatable boats along with their auxiliary equipment. Whilst most situations do not require a rapid deployment of an inflatable boat, embarked land forces must be able to deploy without hesitation or delay.

4 Mission

To stow up to two inflatable boats with their associated engines and fuel bladders with the capability to rapidly and safely deploy and recover the boat, with its associated equipment, to meet the operational requirements of the associated task.

5 Submarine Small boat Stowage and Deployment Roles

A role is defined as "what a person or thing is appointed or expected to do". The roles of the SSBSD capability are to:

a. Provide guidance and direction on stowage, deployment, and recovery of the inflatable boats, engines, fuel bladders and auxiliary equipment;
b. Provide operation, storage and maintenance coordination for the SSBSD;
c. Develop a utilization plan for the SSBSD defining proper stowage locations and requirement inside the SBS Well;
d. Develop terms of reference for operational team roles and responsibilities for stowage, deployment, and recovery of the inflatable boats;
e. Develop a plan for deployment of the inflatable boats and their teams;
f. Develop a plan for recovery and subsequent stowage of the inflatable boats and their teams; and
g. Develop inspection, maintenance, and a repair and overhaul plan for the SSBSD.

6 Small Boat Stowage and Deployment Functions

A function is defined as an "activity proper to a person or institution…activity by which a thing fulfils its purpose". The SSBSD will fulfil its mission or purpose by:

6.1 Installation and removal of the SSBSD equipment:

a. The WTPV System and their associated mounting and securing arrangements will be installed and removed with the submarine alongside in a dockyard supported by dockyard personnel and a crane. Placement of the outboard engine within the WTPV and the placement of the inflatable boats and fuel bladders within the SBS Well must be able to be completed by hand by a minimum four person team;
b. The installation of the WTPV System and their associated mounting and securing arrangements will be completed as per the procedures provided by the equipment designer.

6.2 Deployment, Recovery and Stowage of the SSBSD

a. Opening and shutting of the WTPV will be carried out as per the instructions provided by the equipment designer.
b. Extraction, launching and recovery and stowage of the equipment within the SBS Well will be completed in accordance with established operating procedures (CFCD 106(D), TACNOTE 8532C); and
c. SSBSD is limited to Sea State 5 for deployment.

6.3 Emergency Procedures

a. Any necessary emergency procedures associated with this equipment will be development and promulgated by the Submarine Training Group.

6.4 Maintenance of SSBSD

a. Preventive maintenance routines and schedules are to be completed in accordance with the instructions provided by the equipment designer. First and second line maintenance will be provided and funded by the coastal Formation. Third level maintenance will be provided and funded by DGMEPM;
b. Corrective maintenance will be conducted by either Ship's Staff or dockyard personnel depending upon the complexity of the required work. Repair and Overhaul, and certification will be addressed through maintenance scheduling;
c. Inspection will be annual and after every deployment.

7 Governance

The Commander Canadian Submarine Force (CCSF) will provide guidance and direction to submarine crews on the procedures and limits for the use of the system. CCSF will develop Tactics, Techniques and Procedures (TTPs) in consultation with Submarine Sea Training Group, the Canadian Forces Maritime Warfare Centre (CFMWC), and the Canadian Army Advanced Warfare Centre (CAAWC) and CANSOFCOM representatives.

8 Command and Control

The submarine Commanding Officer will exercise command of all personnel on board including any embarked land forces. The Officer Commanding the embarked

Land forces will exercise command of that force when they are not embarked in or on the submarine.

9 Human Resources

No extra personnel, above that embarked for the mission, will be required to operate the stowage equipment or inflatable boat. The operator of the inflatable boat must be qualified as a small boat coxswain.

10 Telecommunication & Information Systems

Not applicable

11 Communication

Not applicable

12 Conclusion

The SSBSD equipment will provide an enhanced capability to support both submarine operations and those of any embarked land force.

13 List of Abbreviations

CAAWC	Canadian Army Advanced Warfare Centre
CANSOFCOM	Canadian Special Operations Forces Command
CANSUBFOR	Canadian Submarine Forces
CCSF	Commander Canadian Submarine Force
CF	Canadian Forces
CFCD	Canadian Forces Confidential Document
CFMWC	Canadian Forces Maritime Warfare Centre
CONOP	Concept of Operations
DGMEPM	Director General Maritime Equipment Program Management
RCN	Royal Canadian Navy
SBS	Special Boats Services
SSBSD	Submarine Small Boat and Deployment
TACNOTE	Tactical Note
TTP	Tactics, Techniques and Procedures
VCS	Victoria Class Submarines
WTPV	Water Tight Pressure Vessel

Appendix 2-System Requirements Document

WATER TIGHT PRESSURE VESSEL (WTPV) SYSTEM REQUIREMENTS DOCUMENT (SRD)

1 SCOPE

1.1 System Identification

Water Tight Pressure Vessels (WTPV), quantity two (2) in number and their associated Mounting Arrangements (MA) are part of the Victoria Class Submarine (VCS), Submarine Small Boat Stowage and Deployment (SSBSD) System.

1.2 System Overview

A VCS is equipped with one (1), under the casing, Small Boat Stowage (SBS) Well (Figure 1). The SBS Well is located aft of the Fin-Bridge, outside the submarine pressure hull, underneath casing. The SBS Well is accessed by upward folding non-removable hatches (Figure 1). The SBS Well is intended to hold two (2) WTPV System, two (2) deflated and folded six (6) or ten (10) man small boats, and four (4) full 18 US Gallon (USG) fuel bladders. A WTPV System is comprised of a WTPV, WTPV Out Board Motor (OBM) Restraining Arrangements (RA) (within the WTPV) and WTPV Mounting Arrangements (MA). The WTPV Systems are secured in the forward end of the SBS well within the WTPV MA as shown in the left hand Figure 1 Photo. The remaining items are secured in the after end of the SBS well as shown in the right hand Figure 1 Photo. When the submarine dives, the SBS Well is flooded and any components inside are subjected to sea pressure proportional to the depth of the submarine.

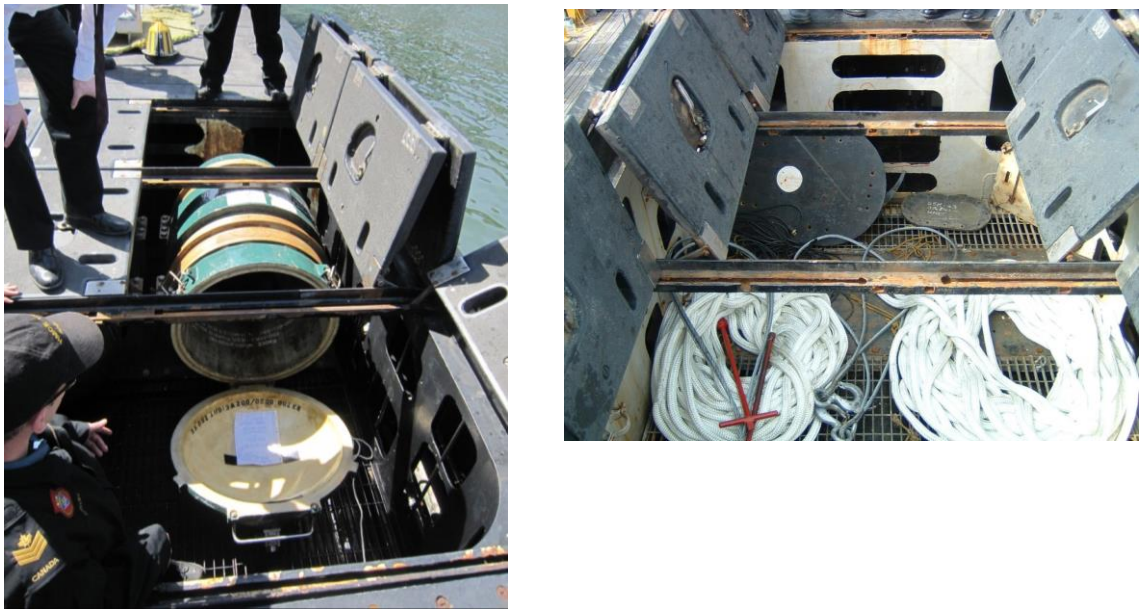


Figure 1: Small Boat Storage (SBS) Well

The current configuration has the WTPV located in the forward end of the SBS well sitting in a WTPV MA Cradle which is anchored to a steel plate (Figure 2) which is welded to the submarine's pressure hull. The WTPV is held in the WTPV MA Cradle via a WTPV MA Securing Bracket (Figure 3).

Figure 2: WTPV Cradle and Steel Plate Anchors

Figure 3: WTPV Securing Bracket

Each WTPV is intended to securely hold one (1) OBM. An OBM is secured within the WTPV against noise and vibration by the OBM RA. During submerged operations, the WTPV must be able to protect its content from sea pressure and water ingress. The size of the OBM depends on intended size of the inflatable boat. A small OBM is used to support submarine crew general use with the 6 man inflatable boat. A larger OBM is used to support Army and Special Operations forces with the 10 man inflatable boat.

The current WTPV was subject to sea trials and the following deficiencies were identified:

a. The larger OBM could not fit into the current WTPV without some disassembly of the steering handle/throttle assembly with the handling of small bolts and nuts resulting in unacceptable delays in the time it takes to deploy and re-package the OBM into the WTPV;
b. The current rubber components that formed part of the WTPV's securing arrangement compressed proportional to sea pressure causing the WTPV to rattle against the non-compressible restraints, resulting in an unacceptable increase in the submarine's noise signature; and
c. Removal and replacement of the OBM, even in calm waters. took four men and was challenging due to the weight of the OBM and the fouling of its removal and replacement route in the SBS Well due to the fact that the WTPV Opening's Cover not dropping completely below the level of the opening due to the placement of the pressure/vacuum test fittings on the cover.

1.3 System Requirements Document Overview

1.3.1 Section 1 Scope

Section 1 Scope includes System Identification, System Overview, and System Requirements Document Overview.

1.3.2 Section 2 Applicable Documents

Section 2 Applicable Documents includes documents that are referenced in this SRD.

1.3.3 Section 3 Requirements

Section 3 Requirements has three subsections, one each for WTPV requirements, OBM RA requirements and MA requirements.

1.3.4 Section 4 Acronyms and Abbreviations

Section 4 includes the Acronyms and Abbreviations used in this SRD.

1.3.5 Section 5 Attachments

Section 5 includes the Attachments to this SRD.

2 APPLICABLE DOCUMENTS

Reference	Document Number	Title
1.	Drawing 001280377/001	SBS Well
2.	D-03-003-007/SG-000	Specification for Design Test Criteria for Shock Resistant Equipment in Naval Ships
3.	D-03-003-019/SG-001	Department of National Defence Standard for Vibration Resistant Equipment

3 REQUIREMENTS

3.1 Water Tight Pressure Vessel

3.1.1 Function

The function of the Water Tight Pressure Vessel (WTPV) is to securely hold the Out Board Motor (OBM) and its associated Restraining Arrangements (RA) for use with the selected small boat.

3.1.1.1 Opening Cover Opening/Closing

The WTPV Opening Cover must be easily operated (open or closed) and secured by a team of not more than two people.

3.1.1.2 OBM Removal/Replacement

The removal/replacement of an OBM and its associated RA from the WTPV must be able to be safely and easily accomplished by a team of not more than four personnel.

3.1.2 Interfaces

3.1.2.1 External Interfaces

The WTPV must externally interface with the WTPV Mounting Arrangements.

3.1.2.2 Internal Interfaces

The WTPV must internally interface with the OBM Restraining Arrangements.

3.1.3 Design and Construction

3.1.3.1 Size

The WTPV must be sized such that it is capable of securely stowing, without disassembly the largest of the following out board motors (OBM), or motors of a similar size, identified for intended stowage in the WTPV:

a. 35 Horsepower (HP) Multi-Fuel Engine (MFE) Evinrude and
b. 25 HP Yamaha.

3.1.3.2 Fit

The WTPV must fit on its MA within the SBS Well (as defined by the Sketches found at Attachment 1 to this SRD) under the SBS Well hatches, leaving sufficient room for:

a. A second WTPV and associated Mounting Arrangements;
b. Removal and replacement, without disassembly of either of the OBMs; and
c. Stowage of the two (2) deflated six (6) or ten (10) man small boats and four (4) filled 18 USG fuel bladders.

3.1.3.3 Opening with Opening Cover

3.1.3.3.1 Opening and Opening Cover Size

The WTPV must have a watertight and pressure tight opening with cover through which either of the OBMs may be removed or replaced.

3.1.3.3.2 Opening Cover Location

The location of this opening with cover must be on the end of the WTPV which faces the small boat and fuel bladder stowage space in the SBS well.

3.1.3.3.3 Opening Cover Interference

When opened, the WTPV's opening cover must not impede the removal of an OBM and its associated RA from the opened WTPV.

3.1.3.3.4 Opening Cover Securing Arrangements - Location

The WTPV Opening Cover Securing Arrangements must be located such that they are easily accessible from the working end of the SBS well.

3.1.3.3.5 Opening Cover Securing Arrangements-Size

The WTPV Opening Cover Securing Arrangements must be sized such that they can be operated by personnel with or without gloves.

3.1.3.4 Pressure Equalizing

The WTPV must have an easily accessible pressure equalizing capability

3.1.3.5 Vacuum Test Capability

The WTPV must have an easily assessable vacuum test capability.

3.1.3.6 Drainage

The WTPV must have an easily accessible capability to drain any accumulated water.

3.1.4 Material

3.1.4.1 Material Safety

The WTPV must be comprised of non-hazardous materials.

3.1.4.2 Material Suitability

The WTPV must be comprised of materials that are suitable for use in the submerged marine environment.

3.1.4.3 Material Life

The WTPV must have a material life of at least nine (9) years.

3.1.4.4 Colour

The WTPV must have a black non-reflective colour.

3.1.5 Environmental

3.1.5.1 Temperature

The WTPV must operate in temperatures between -40°C to + 48°C.

3.1.5.2 Design Pressure

The WTPV must, as an empty unit, be capable of withstanding a seawater design pressure of 35 Bar.

3.1.5.3 Fatigue Limits

The WTPV must survive at least 15 cycles to 35 Bar.

3.1.5.4 Not Used

3.1.5.5 Vacuum

The WTPV must be able to hold a 90mbar vacuum for 15 minutes.

3.1.5.6 Shock

The WTPV, when containing either OBM, and when mounted in the WTPV Mounting Arrangements must meet the Grade 3 shock resistance requirements defined at reference 2.

3.1.5.7 Vibration

The WTPV, when containing either OBM, and when mounted in the WTPV Mounting Arrangements must be vibration resistant and meet the vibration resistance requirements defined at reference 3.

3.1.6 Maintenance

WTPV maintenance must be defined.

3.1.6.1 Preventive Maintenance

WTPV Preventive Maintenance must consist of those Preventive Maintenance Routines that can be carried out on a periodic basis by ship's staff. These routines must include, for any preventive maintenance activities impacting the water/pressure tight integrity for the WTPV, a vacuum test on completion of these preventive maintenance activities.

3.2 Out Board Motor Restraining Arrangements

3.2.1 Function

The function of the Out Board Motor (OBM) Restraining Arrangements (RA) are to secure and protect the OBMs within the WTPV and minimize any noise and vibration resulting from contact between the OBM and WTPV due to motion of the WTPV.

3.2.2 Interfaces

3.2.2.1 External Interfaces to the WTPV

The OBM RA must be externally interfaced to the WTPV.

3.2.2.2 External Interfaces to the OBM

The OBM RA must be externally interfaced to the OBM.

3.2.2.3 Securing Arrangements

The OBM RA must be tethered to the WTPV such that when being removed or replaced, they are not lost during this evolution.

3.2.3 Design and Construction

3.2.3.1 Size

The OBM RA must accommodate, within the WTPV, the following out board motors (OBM):

a. 35 HP MFE Evinrude; and
b. 25 HP Yamaha

Separate sets of OBM RA are acceptable.

3.2.3.2 Removal/Replacement

The OBM RA must be easily removed from or replaced on the OBM by not more than two people.

3.2.3.3 Noise Level Removal/Replacement OBM

The OBM RA must minimize the noise level associated with the removal/replacement of OBM from the WTPV.

3.2.4 Material

3.2.4.1 Material Safety

The OBM RA must be comprised of non-hazardous material.

3.2.4.2 Material Permeability

The OBM RA material must be non-permeable.

3.2.4.3 Material Susceptibility

The OBM RA material must not lose their integrity or mechanical capability when contact with salt water, grease or fuel.

3.2.4.4 Material Life

The OBM RA material must have a life of at least nine (9) years.

3.2.4.5 Colour

The OBM RA material must have a black, non-reflective colour.

3.2.5 Environmental

3.2.5.1 Operating Temperature

The OBM RA must operate in temperatures between -40°C to + 48°C.

3.2.5.2 Shock

The OBM RA, when containing either OBM, and when secured in the WTPV, with the WTPV in the WTPV Mounting Arrangements, must meet the Grade 3 shock resistance requirements as defined at reference 2.

3.2.5.3 Vibration

The OBM RA, when containing either OBM, and when secured in the WTPV, with the WTPV in the WTPV Mounting Arrangements, must be vibration resistant and meet the vibration resistance requirements defined at reference 3.

3.2.6 Maintenance

OMB RA maintenance requirements, if any, must be defined.

3.2.6.1 Preventive Maintenance

OMB RA Preventive Maintenance must consist of those Preventive Maintenance Routines that can be carried out on a periodic basis by ship's staff.

3.3

3.4

3.5 WTPV Mounting Arrangements

3.5.1 Function

The function of the Water Tight Pressure Vessel (WTPV) Mounting Arrangements (MA) is to secure the WTPV to the submarine within the SBS well.

3.5.2 Interfaces

3.5.2.1 External Interface to the WTPV

The WTPV MA must externally interface with the WTPV.

3.5.2.2 External Interface to the Submarine

The WTPV MA must be externally interface with the submarine via the submarine's existing WTPV mounting plates defined in the drawing at reference 1.

3.5.3 Design and Construction

3.5.3.1 Size

A WTPV MA must be sized such that it is capable of securely mounting one (1) WTPV.

3.5.3.2 Not Used

3.5.3.3 Mounting/Dismounting

The WTPV MA must easily disassemble and reassemble to permit mounting and dismounting of WTPV System.

3.5.3.4 WTPV/MA Interface Security

The WTPV's MA/WTPV Interface must hold the WTPV System securely in place independent of speed and depth.

3.5.3.5 WTPV/MA Interface Noise and Vibration

The WTPV's Mounting Arrangement/WTPV Interface must prevent noise and vibration between the WTPV and the WTPV Mounting Arrangements independent of speed and depth.

3.5.4 Material

3.5.4.1 Material Safety

The WTPV MA must be comprised of non-hazardous material.

3.5.4.2 Material Suitability

The WTPV MA must be comprised of materials that are suitable for use in the submerged marine environment.

3.5.4.3 Material Life

The WTPV MA must have a Material Life of at least nine (9) years.

3.5.4.4 Colour

The WTPV MA must have a black and non-reflective colour.

3.5.5 Environmental

3.5.5.1 Operating Temperature

The WTPV MA must operate in temperatures between -40°C to + 48°C.

3.5.5.2 Shock

The WTPV MA, with a WTPV mounted containing either OBM must meet the Grade 3 shock resistance requirements as defined in reference 2.

3.5.5.3 Vibration

The WTPV MA, with a WTPV mounted containing either OBM, must be vibration resistant and meet the vibration resistance requirements as defined at reference 3.

3.5.6 Maintenance

WTPV MA maintenance must be defined.

3.5.6.1 Preventive Maintenance

WTPV MA Preventive Maintenance must consist of those Preventive Maintenance Routines that can be carried out on a periodic basis by ship's staff.

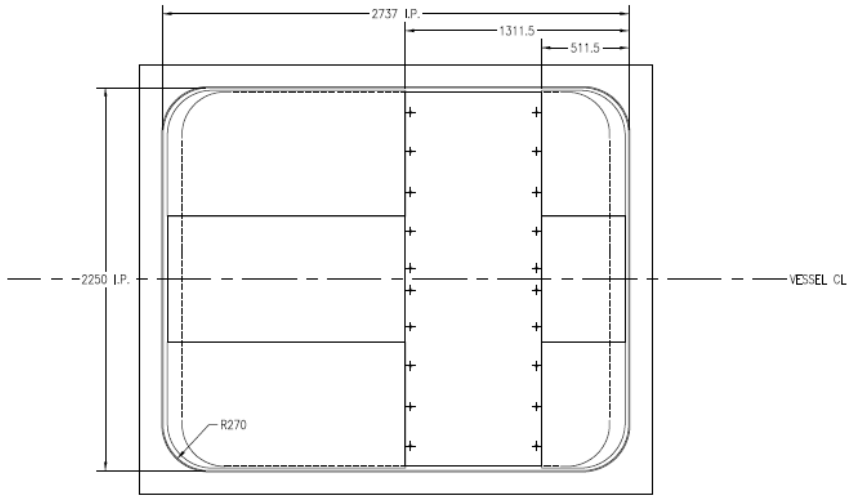
4 ACRONYMS AND ABBREVIATIONS

HP	Horse Power
MA	Mounting Arrangements
MFE	Multi-Fuel Engine
OBM	Out Board Motor
RA	Restraining Arrangements
SBS	Small Boat Stowage
SSBSD	Submarine Small Boat Stowage and Deployment
USG	US Gallon
VCS	Victoria Class Submarine
WTPV	Water Tight Pressure Vessel

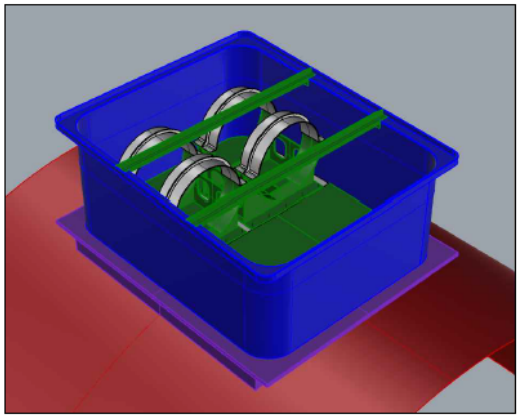
5 ATTACHEMENTS

Attachment 1 – Small Boat Stowage Well Sketches

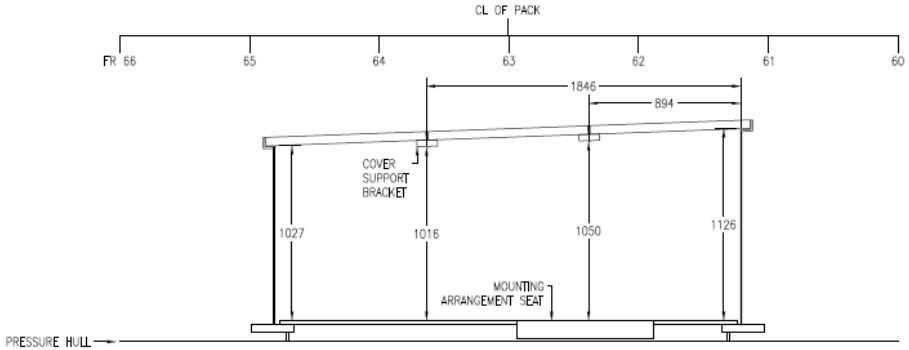
Appendix 2 Attachment 1 –SBS Well Sketches



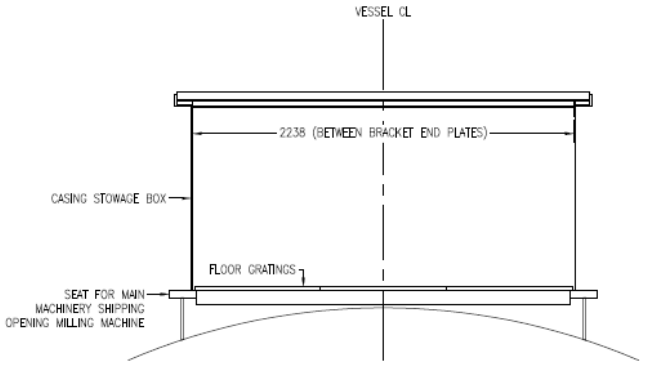
PLAN VIEW AT MOUNTING ARRANGEMENT SEAT



NOTES:
1. ALL UNITS IN MILLIMETRES
2. SKETCH HAS BEEN DEVELOPED FROM EXISTING DRAWINGS AND MAY NOT REFLECT CURRENT CONFIGURATION OF SBS WELLS
3. CENTRELINE OF PACK IS LOCATED 7 mm AFT OF FR 63
4. CURVATURE OF COVER SUPPORT BRACKETS HAS NOT BEEN MODELED

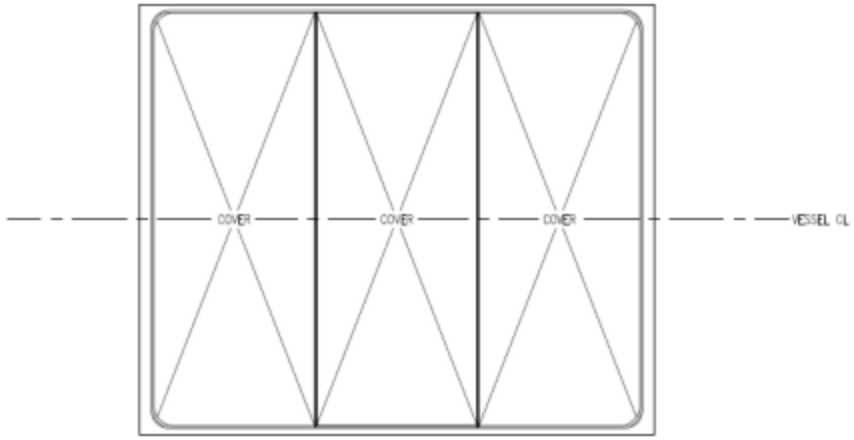


PROFILE AT CL
LOOKING TO PORT

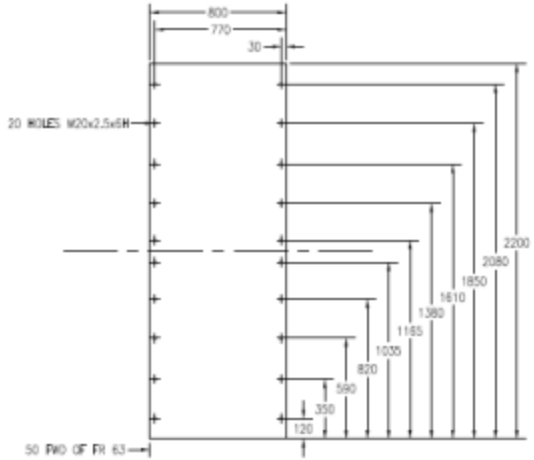


SECTION AT PACK CL
LOOKING FORWARD
FWD COVER SUPPORT BRACKET SHOWN, COVERS NOT SHOWN

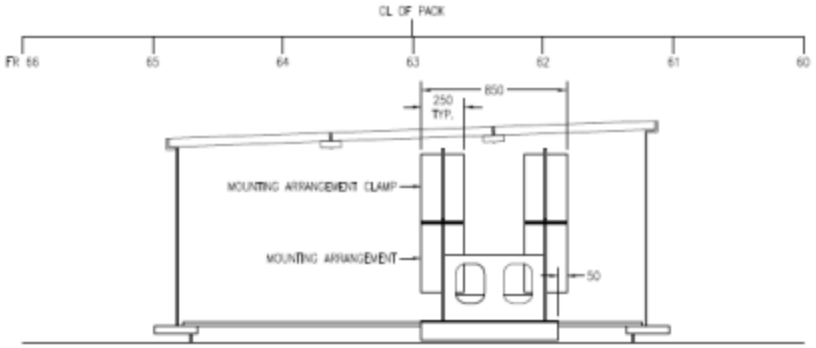
SKETCH – FOR BIDDING PURPOSES ONLY			TITLE: SMALL BOAT STOWAGE WELL	SCALE: 1:25
SHEET: 1 OF 2	REVISION: –	DIMENSIONS: MM		MATERIAL: N/A
DRAWN BY: M. FULLER	DRAWING DATE: 2018–01–19		APPLICABLE TO: VICTORIA CLASS	EC NO.: TBD



TOP VIEW

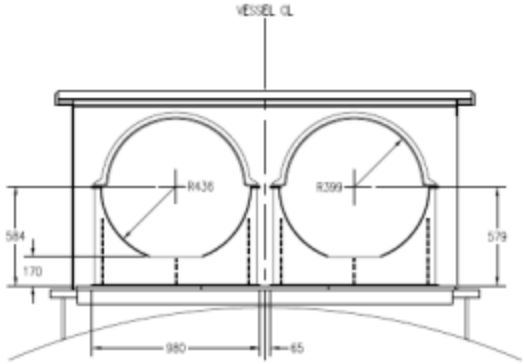


PLAN VIEW OF MOUNTING ARRANGEMENT SEAT



PROFILE AT CL

LOOKING TO PORT, ORIGINAL WTPV MOUNTING ARRANGEMENT SHOWN



SECTION AT PACK CL

LOOKING FORWARD, ORIGINAL WTPV MOUNTING ARRANGEMENTS SHOWN
FWD COVER SUPPORT BRACKET SHOWN, COVERS NOT SHOWN

ETCH – FOR BIDDING PURPOSES ONLY		TITLE: SMALL BOAT STOWAGE WELL	SCALE: 1:25
2 OF 2	REVISION: – / DIMENSIONS: MM		MATERIAL: N/A
Y: M. FULLER	DRAWING DATE: 2018–01–19	APPLICABLE TO: VICTORIA CLASS	EC NO.: TBD

Appendix 3-List of GFE and GFI

WATER TIGHT PRESSURE VESSEL (WTPV) SYSTEM LIST OF GOVERNMENT FURNISHED EQUIPMENT (GFE) AND GOVERNMENT FURNISHED INFORMATION (GFI)

1 SUPPORT PROVIDED BY CANADA

1.1 Government Furnished Information

Canada, will provide the Contractor with Drawings and Pictures identified Section 1 to Appendix 3 to this Statement of Work.

Canada will provide the Contractor, at Contract Award (CA) the following Government Furnished Information (GFI).

1.2 Drawings

ITEM#	DWG#	TITLE
1	001280377/001	Casing Pack FRS 61/65 CL
2	001280377/002	Casing Packs FRMS 61/65 Cover Assembly
3	001280377/003	Casing Pack FRS 61/65 (Open/Close Assembly)
4	001280377/004	Casing Pack FR 61/65(drawing List)
5	001280377/005	Casing Pack FR 61/65 (Outboard Motor Cradle)
6	001280377/006	Casing Pack FR61/65(Cover Hinge)
7	001280377/007	Casing Pack FRS 61/65(Partition Bulkhead)
8	001280377/008	Casing Pack FRS 61/65 (Cradle Shock)
9	001280377/009	Casing Pack FRS 61/65(Cradle Seat Support STBD)
10	001280377/010	Casing Pack FRS 61/65(Cradle Clamp)
11	001280377/011	Casing Pack FRS 61/65(Bracket Part)
12	001280377/012	Casing Pack FRS 61/65(Cover A)
13	001280377/013	Casing Pack FRS 61/65(Cover B)
14	001280377/014	Casing Pack FRS 61/65(Cover Support Bracket)
15	001280377/015	Casing Pack FRS 61/65(Coaming Hinge)
916	001280377/016	Casing Pack FRS 61/65(Catch Bar)
17	001280377/017	Casing Pack FRS 61/65(Clip Part)
18	001280377/018	Casing Pack FRS 61/65(Spindle Part)
19	001280377/019	Casing Pack FRS 61/65(Bush Part)
20	001280377/020	Casing Pack FRS 61/65(Pivot Plate)
21	001280377/021	Casing Pack FRS 61/65(Cam Plate)
22	001280377/022	Casing Pack FRS 61/65(Securing Lever Part)
23	001280377/023	Casing Pack FRS 61/65(Adjusting Bracket)
24	001280377/024	Casing Pack FRS 61/65(Lever Pin)

ITEM#	DWG#	TITLE
25	001280377/025	Casing Pack FRS 61/65(Cradle Seat Part)
26	001280377/026	Casing Pack FRS 61/65(Floor Grating)
27	001280377/027	Casing Pack FRS 61/65(Floor Grating)
28	001280377/028	Casing Pack FRS 61/65(Retaining Bar)
29	001280377/029	Casing Pack FRS 61/65(Lever Part)
30	001280377/030	Casing Pack FRS 61/65(Back Plate)
31	001280377/031	Casing Pack FRS 61/65(Hinge Pin)
32	001280377/032	Casing Pack FRS 61/65(Floor Grating)
33	001280377/033	Casing Pack FRS 61/65(Floor Grating)
34	001280377/034	Casing Pack FRS 61/65(Cover D Cover C)
35	001280377/035	Casing Pack FRS 61/65(Drawing List)
36	001280377/036	Casing Pack FRS 61/65(Can Pivot Pin)
37	001280377/037	Not Available
38	001280377/038	Casing Pack FRS 61/65(Bush Part)
39	001280377/039	Casing Pack FRS 61/65(Drawing List)
40	001280377/040	Casing Pack FRS 61/65(Bush Parts)
41	001280377/041	Casing Pack FRS 61/65(Bush Part)
42	001280377/042	Casing Pack FRS 61/65(Bush Part)
43	001280377/043	Casing Pack FRS 61/65(Bush Part)
44	001280377/044	Casing Pack FRS 61/65(Bush part)
45	001280377/045	Casing Pack FRS 61/65(Chock Part)
46	001280377/046	Casing Pack FRS 61/65(Thumb Screw)
47	001280377/047	Casing Pack FRS 61/65(Bush part)
48	001280377/048	Casing Pack FRS 61/65(Nut)
49	001280377/049	Casing Pack FRS 61/65(Tab Washer)
50	001280377/050	Casing Pack FRS 61/65(Washer)
51	001280377/051	Casing Pack FRS 61/65(Bush Part)
52	001280377/052	Casing Pack FRS 61/65(Catch Brackets)
53	001280377/053	Casing Pack FRS 61/65(Part List)
54	001280377/054	Casing Pack FRS 61/65(Screw-Hex. Head
55	001280377/055	Casing Pack FRS 61/65(Screw-Csk. Head)
56	001280377/056	Casing Pack FRS 61/65(Screw-Csk. Head)
57	001280377/057	Casing Pack FRS 61/65(Hinge Bolt)
58	001280377/058	Casing Pack FRS 61/65(Bolt-Hex. Head)
59	001280377/059	Casing Pack FRS 61/65(Coaming Hinge)
60	001280377/060	Casing Pack FRS 61/65(Hinge Retaining Plate)
61	001280377/061	Casing Pack FRS 61/65(Hinge Retaining Plate)
62	001280377/062	Casing Pack FRS 61/65(Portable Cover Support)
63	001280377/063	Casing Pack FRS 61/65(Cover Support Leg)
64	001280377/064	Casing Pack FRS 61/65(Cover Support Plate)
65	001280377/065	Casing Pack FRS 61/65(Cover Support Packer)

ITEM#	DWG#	TITLE
66	001280377/066	Casing Pack FRS 61/65(Screw Csk. Slotted)
67	001280377/067	Casing Pack FRS 61/65(Nut Hex.)
68	001280377/068	Casing Pack FRS 61/65(Part List)
69	001280377/069	Casing Pack FRS 61/65(Screw Hex.)
70	001280377/070	Casing Pack FRS 61/65(Screw Hex.)
71	001280377/071	Casing Pack FRS 61/65(Cover Support Base Plate)
72	001280377/072	Casing Pack FRS 61/65(Aft Pilar/Grating Support Plate Arrangement)
73	001280377/073	Casing Pack FRS 61/65(Grating Support Plate)

Drawing 001280377 SBS Well

1.3 Models

Solidworks 3D Model SBS STOWAGE LOCKER FROM DRAWINGS.SLDASM

1.4 Pictures

ITEM#	PICT#	DESCRIPTION
1	CIMG008	General View of the Small Boat Stowage Container
2	CIMG0015	General View of the Small Boat Towage Container Open
3	DSCF0013	View of the top of the well on the submarine
4	DSCF0014	View of the top of the well, partially open
5	DSCF0015	View of the inside of the open well
6	DSCF0016	View of the inside of the open well
7	DSCF0017	View of the inside of the open well
8	DSCF0020	View of the inside of the open well
9	IMG 5035	Detail view of the boat
10	IMG 5036	Detail view of the boat
11	IMG 5037	Detail view of the boat
12	IMG 5038	Detail view of the boat
13	IMG 5039	Detail view of the boat
14	IMG 5040	Detail view of the boat
15	IMG 5041	Detail view of the boat
16	IMG 5042	Detail view of the boat
17	IMG 5043	Detail view of the boat
18	IMG 5044	Detail view of the boat
19	IMG 5045	Detail view of the boat
20	IMG 5046	Detail view of the boat
21	IMG 5047	Detail view of the boat
22	IMG 5049	View of the Open well with an Open container
23	IMG 5050	View of the Open well with a close container
24	IMG 5051	View of Cradle and bolt
25	IMG 5052	View of Cradle and bolt

26	IMG 5053	View of Cradle and bolt
27	IMG 5054	View of Cradle and bolt
28	IMG 5055	View of Cradle and bolt
29	IMG 5056	View of the Open well with a close container

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Appendix 4-Contract Data Requirements List

WATER TIGHT PRESSURE VESSEL (WTPV) SYSTEM CONTRACT DATA REQUIREMENTS LIST (CDRL)

1 Contract Data Requirements List (CDRL)

1.1 General

1.1.1 Document Changes/Updates

All the approved documents must be prepared and updated as required by the CDRL. All changes to updated versions of documents must be identified as follows:

1. On a change page indicating page numbers, paragraph numbers, date of change and reason for change;
2. Within the hard copy, by use of change bars in the side margins of the printed document; and
3. Within the soft copy, using a method appropriate to the authoring tools that clearly differentiates old content from new or revised content.

Proposed amendments and the list of effective pages must be forwarded to the Canada for approval as described in the CDRL.

1.1.2 Deliverable Format and Number of Copies

The number of documentation copies required for each CDRL is defined within each CDRL.

NOTE: All soft copies of documentation must be in the original editable source file format, e.g. Microsoft Word.

1.1.3 Abbreviations

The following abbreviations are used in the CDRLs and DIDs.

A	Approval	PCA	Physical Configuration Audit
AT	Acceptance Test	PDR	Preliminary Design Review
CA	Contract Award	R	Review
CDR	Critical Design Review	SRR	System Requirements Review
I	Information only	wed	Working day
Month	Calendar month		

2 CDRLs

2.1 Project Management CDRL Summary

Project Management CDRL					
CDRL #	**DID #**	**Deliverable**	**Review Level**	**Due**	**Section in SOW**
CDRL-PM-01	DID–PM-01	Project Management Plan	A	Original with Proposal Update CA +10 wd	4.2
CDRL-PM-02	DID-PM-02	Work Breakdown Structure	I	Original with Proposal Update CA+10 wd	4.2.1
CDRL-PM-03	DID-PM-03	Project Schedule	A	Original with Proposal Subsequently with Project Status Report	4.2.2
CDRL-PM-04	DID-PM-04	Risk Register	A	Original with Proposal With Project Status Reports	4.3.1
CDRL-PM-05	DID-PM-05	Project Status Reports	I	Progress Review Meeting date -5 wd	4.4.1
CDRL-PM-06	DID-PM-06	Meeting Agendas	A	Meeting date - 5 wd	4.6.1.2
CDRL-PM-07	DID-PM-07	Meeting Minutes	A	Meeting date + 5 wd	4.6.1.3

2.2 Engineering CDRL Summary

Engineering CDRL					
CDRL #	**DID #**	**Deliverable**	**Review Level**	**Due**	**Section in SOW**
CDRL-ENG-01	DID-ENG-01	System Requirements Review Report	R	SRR-5wd	5.2.1.2
CDRL-ENG-02	DID-ENG-02	System/Sub-System Specifications	R	PDR-10wd CDR-10wd With TDP	5.2.2.2
CDRL-ENG-03	DID-ENG-03	Requirements Verification Cross Reference Matrix	A	PDR-10wd CDR-10wd With TDP	5.2.2.3
CDRL-ENG-04	N/A	Stress Analysis Report	R	PDR-10wd	5.2.3.3.1

Engineering CDRL					
CDRL #	**DID #**	**Deliverable**	**Review Level**	**Due**	**Section in SOW**
CDRL-ENG-05	N/A	Frequency and Vibration Analysis Report	R	PDR-10wd	5.2.3.3.2
CDRL-ENG-06	N/A	Other Qualification By Analysis Reports	A	PDR-10wd CDR-10wd	5.2.3.3.3
CDRL-ENG-07	DID-ENG-04	Material List	R	PDR-10wd CDR-10wd With TDP	5.2.3.3.4.1
CDRL-ENG-08	DID-ENG-05	Safety Data Sheets	R	PDR-10wd CDR-10wd With TDP	5.2.3.3.4.2
CDRL-ENG-09	DID-ENG-06	Preliminary Design Report	R	PDR-10 wd	5.2.3.3.5
CDRL-ENG-10	DID-ENG-07	Detailed Design Report	R	CDR-10 wd	5.2.4.1.1
CDRL-ENG-11	DID-ENG-08	Design Qualification Report	A	Completion 1st Article Tests +20wd	5.2.8.1.5

2.3 Testing CDRL Summary

Testing CDRL					
CDRL #	**DID #**	**Deliverable**	**Review Level**	**Due**	**Section in SOW**
CDRL-TST-01	DID-TST-01	First Article Test Plan	A	PDR-10wd	5.2.5.1
CDRL-TST-02	DID-TST-01	Production Test Plan	A	CDR-10wd	5.2.5.2
CDRL-TST-03	DID-TST-02	Factory Acceptance Test Procedure	A	1st First Article Tst-20wd	5.2.5.3
CDRL-TST-04	DID-TST-02	Functional Qualification Test Procedure	A	TST-20wd	5.2.5.4
CDRL-TST-05	DID-TST-02	Vibration Qualification Test Procedure	A	TST-20wd	5.2.5.5
CDRL-TST-06	DID-TST-02	Pressure Qualification Test Procedure	A	TST-20wd	5.2.5.6
CDRL-TST-07	DID-TST-02	Other Identified Qualification Test	A	TST-20wd	5.2.5.7

		Procedures			
CDRL-TST-08	DID-TST-03	Functional Qualification Test Report	A	TST+5wd	5.2.7.1.1.2.1
CDRL-TST-09	DID-TST-03	Vibration Qualification Test Report	R	TST+5wd	5.2.7.1.2.1.1
CDRL-TST-10	DID-TST-03	Pressure Qualification Test Report	R	TST+5wd	5.2.7.1.3.1.1
CDRL-TST-11	DID-TST-03	Other Qualification Test Reports	R	TST+5wd	5.2.7.1.4.1

2.4 Production CDRL Summary

Production Testing CDRL					
CDRL #	**DID #**	**Deliverable**	**Review Level**	**Due**	**Section in SOW**
CDRL-PROD-01	DID-TST-03	Factory Acceptance Test Reports	A	FAT+5wd	6.2.1.1.1

2.5 Configuration Management CDRL Summary

Quality Assurance CDRL					
CDRL #	**DID #**	**Deliverable**	**Review Level**	**Due**	**Section in SOW**
CDRL-CM-01	DID-CM-01	Configuration Status Account	I	With TDP	8.2.1
CDRL-CM-02	DID-CM-02	Configuration Status Account Report	I	CDR-10wd Production Complete+ 20wd	8.3.1
CDRL-CM-03	DID-CM-03	Master Record Index	I	Production Complete +20wd	8.4
CDRL-CM-04	DID-CM-04	Functional Configuration Audit Report	A	FCA+5wd	8.5.1.1
CDRL-CM-05	DID-CM-05	Physical Configuration Audit Report	A	PCA+5wd	8.5.2.1

2.6 Integrated Logistics Support CDRL Summary

ILS CDRL					
CDRL #	**DID #**	**Deliverable**	**Review Level**	**Due**	**Section in SOW**
CDRL-ILS-01	DID-ILS-01	Maintenance Plan	R	CDR-10wd	9.1
CDRL-ILS-02	DID-ILS-02	Recommended Spare Parts List	A	CDR-10wd	9.2
CDRL-ILS-03	DID-ILS-03	Provisioning Parts Breakdown	R	Production Start-10wd	9.3
CDRL-ILS-04	DID-ILS-04	Recommended SPTATE List	A	CDR-10wd	9.4
CDRL-ILS-05	DID-ILS-05	Provisioning SPTATE Breakdown	R	Production Start-10wd	9.5
CDRL-ILS-06	DID-ILS-06	Technical Manual	A	Production Start-10wd	9.6
CDRL-ILS-07	DID-ILS-07	Technical Data Package	R	1st Delivery +10wd	9.7
CDRL-ILS-08	DID-ILS-08	Contract End Items List	R	Final Delivery +10wd	9.8.5

3 Project Management CDRL Details

3.1 CDRL-PM-01

1	**Sequence Number:**	PM-01
2	**Title or Description of Data**	Project Management Plan
3	**Data Item Description Number:**	DID-PM-01
4	**Reference:**	SOW Section 4.2
5	**First Submission:**	With Proposal
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	With Contract Award
9	**Subsequent Submission:**	PKO-5wd, if changes needed. Deliver soft copy of the change pages only
10	**Remarks:**	Deliver via email or FTP

3.2 CDRL-PM-02

1	**Sequence Number:**	PM-02
2	**Title or Description of Data:**	Work Breakdown Structure
3	**Data Item Description Number:**	DID-PM-02
4	**Reference:**	SOW 4.2.1
5	**First Submission:**	With Proposal
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	N/A
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

3.3 CDRL-PM-03

1	**Sequence Number:**	PM-03
2	**Title or Description of Data:**	Project Schedule
3	**Data Item Description Number:**	DID-PM-03
4	**Reference:**	SOW 4.2.2
5	**First Submission:**	With Proposal
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	N/A
9	**Subsequent Submission:**	With Monthly Project Status Report
10	**Remarks:**	Deliver via email or FTP

3.4 CDRL-PM-04

1	**Sequence Number:**	PM-04
2	**Title or Description of Data:**	Risk Register
3	**Data Item Description Number:**	DID-PM-04
4	**Reference:**	SOW 4.3.1
5	**First Submission:**	With Proposal
6	**Number of Copies:**	1 soft copy in MS Excel, 1soft copy in PDF
7	**TA Approval Required:**	No
8	**Approval Lead Time:**	N/A
9	**Subsequent Submission:**	With Project Status Reports
10	**Remarks:**	Deliver via email or FTP

3.5 CDRL-PM-05

1	**Sequence Number:**	PM-05
2	**Title or Description of Data:**	Project Status Reports
3	**Data Item Description Number:**	DID-PM-05
4	**Reference:**	SOW 4.4.1
5	**First Submission:**	5 wd prior to 1st Progress Review Meeting (PRM)
6	**Number of Copies:**	1 soft copy in MS Excel, 1soft copy in PDF
7	**TA Approval Required:**	No
8	**Approval Lead Time:**	N/A
9	**Subsequent Submission:**	5wd prior to subsequent PRMs
10	**Remarks:**	Deliver via email or FTP

3.6 CDRL-PM-06

1	**Sequence Number:**	PM-06
2	**Title or Description of Data:**	Meeting Agenda
3	**Data Item Description Number:**	DID-PM-06
4	**Reference:**	SOW 4.6.1.2
5	**First Submission:**	5 wd prior to Meeting
6	**Number of Copies:**	1 soft copy in MS Word, 1soft copy in PDF
7	**TA Approval Required:**	No
8	**Approval Lead Time:**	N/A
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

3.7 CDRL-PM-07

1	**Sequence Number:**	PM-07
2	**Title or Description of Data:**	Meeting Minutes
3	**Data Item Description Number:**	DID-PM-07
4	**Reference:**	SOW 4.6.1.3
5	**First Submission:**	Meeting +5wd
6	**Number of Copies:**	1 soft copy in MS Word, 1soft copy in PDF
7	**TA Approval Required:**	No
8	**Approval Lead Time:**	N/A
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

4 Engineering CDRL Details

4.1 CDRL-ENG-01

1	**Sequence Number:**	ENG-01
2	**Title or Description of Data:**	System Requirements Review Report
3	**Data Item Description Number:**	DID-ENG-01
4	**Reference:**	SOW 5.2.1.2
5	**First Submission:**	SRR-5 wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	No
8	**Approval Lead Time:**	N/A
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

4.2 CDRL-ENG-02

1	**Sequence Number:**	ENG-02
2	**Title or Description of Data:**	System/Sub-System Specifications
3	**Data Item Description Number:**	DID-ENG-02
4	**Reference:**	SOW 5.2.2.2
5	**First Submission:**	RR Meeting -5wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10wd
9	**Subsequent Submission**	PDR-10wd, CDR-10wd and with TDP
10	**Remarks:**	Deliver via email or FTP

4.3 CDRL-ENG-03

1	**Sequence Number:**	ENG-03
2	**Title or Description of Data:**	Requirements Verification Cross Reference Matrix
3	**Data Item Description Number:**	DID-ENG-03
4	**Reference:**	SOW 5.2.2.3
5	**First Submission:**	RR-5wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10wd
9	**Subsequent Submission:**	PDR-10wd, CDR-10wd, Prod Start -10wd
10	**Remarks:**	Deliver via email or FTP

4.4 CDRL-ENG-04

1	**Sequence Number:**	ENG-04
2	**Title or Description of Data:**	Stress Analysis Report
3	**Data Item Description Number:**	N/A
4	**Reference:**	SOW 5.2.3.3.1
5	**First Submission:**	PDR-5wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

4.5 CDRL-ENG-05

1	**Sequence Number:**	ENG-05
2	**Title or Description of Data:**	Frequency and Vibration Analysis Report
3	**Data Item Description Number:**	N/A
4	**Reference:**	SOW 5.2.3.3.2
5	**First Submission:**	PDR-5wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

4.6 CDRL-ENG-06

1	**Sequence Number:**	ENG-06
2	**Title or Description of Data:**	Other Qualification By Analysis Reports
3	**Data Item Description Number:**	N/A
4	**Reference:**	SOW 5.2.3.3.3
5	**First Submission:**	CDR-5wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

4.7 CDRL-ENG-07

1	**Sequence Number:**	ENG-07
2	**Title or Description of Data:**	Material List
3	**Data Item Description Number:**	DID-ENG-04
4	**Reference:**	SOW 5.2.3.3.1
5	**First Submission:**	PDR-10wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10wd
9	**Subsequent Submission:**	CDR-10wd, with TDP
10	**Remarks:**	Deliver via email or FTP

4.8 CDRL-ENG-08

1	**Sequence Number:**	ENG-08
2	**Title or Description of Data:**	Safety Data Sheet
3	**Data Item Description Number:**	DID-ENG-05
4	**Reference:**	SOW 5.2.3.3.4.2
5	**First Submission:**	PDR -10wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10wd
9	**Subsequent Submission:**	CDR-10wd, with TDP
10	**Remarks:**	Deliver via email or FTP

4.9 CDRL-ENG-09

1	**Sequence Number:**	ENG-09
2	**Title or Description of Data:**	Preliminary Design Report
3	**Data Item Description Number:**	DID-ENG-06
4	**Reference:**	SOW 5.2.3.3.5
5	**First Submission:**	PDR-10wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10wd
9	**Subsequent Submission:**	
10	**Remarks:**	Deliver via email or FTP

4.10 CDRL-ENG-10

1	**Sequence Number:**	ENG-10
2	**Title or Description of Data:**	Detailed Design Report
3	**Data Item Description Number:**	DID-ENG-07
4	**Reference:**	SOW 5.2.4.1.1
5	**First Submission:**	CDR-10wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

4.11 CDRL-ENG-11

1	**Sequence Number:**	EN-11
2	**Title or Description of Data:**	Design Qualification Report
3	**Data Item Description Number:**	DID-ENG08
4	**Reference:**	SOW 5.2.8.1.5
5	**First Submission:**	Last FAS Test +20wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

5 Testing CDRL Details

5.1 CDRL-TST-01

1	**Sequence Number:**	TST-01
2	**Title or Description of Data:**	First Article System Test Plan
3	**Data Item Description Number:**	DID-TST-01
4	**Reference:**	SOW 5.2.5.1
5	**First Submission:**	PDR-10 wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10 wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

5.2 CDRL-TST-02

1	**Sequence Number:**	TST-02
2	**Title or Description of Data:**	Production Test Plan
3	**Data Item Description Number:**	DID-TST-01
4	**Reference:**	SOW 5.2.5.2
5	**First Submission:**	CDR-10 wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10 wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

5.3 CDRL-TST-03

1	**Sequence Number:**	TST-03
2	**Title or Description of Data:**	Factory Acceptance Test Procedure
3	**Data Item Description Number:**	DID-TST-02
4	**Reference:**	SOW 5.2.5.3
5	**First Submission:**	1st First Article Test -20wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10 wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

5.4 CDRL-TST-04

1	**Sequence Number:**	TST-04
2	**Title or Description of Data:**	Functional Qualification Test Procedure
3	**Data Item Description Number:**	DID-TST-02
4	**Reference:**	SOW 5.2.5.4
5	**First Submission:**	TST-20 wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10 wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

5.5 CDRL-TST-05

1	**Sequence Number:**	TST-05
2	**Title or Description of Data:**	Vibration Test Procedure
3	**Data Item Description Number:**	DID-TST-02
4	**Reference:**	SOW 5.2.5.5
5	**First Submission:**	Tst-20 wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10 wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

5.6 CDRL-TST-06

1	**Sequence Number:**	TST-06
2	**Title or Description of Data:**	Pressure Test Procedure
3	**Data Item Description Number:**	DID-TST-06
4	**Reference:**	SOW 5.2.5.6
5	**First Submission:**	Tst-20 wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10 wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

5.7 CDRL-TST-07

1	**Sequence Number:**	TST-07
2	**Title or Description of Data:**	Other Qualification Test Procedures
3	**Data Item Description Number:**	DID-TST-02
4	**Reference:**	SOW 5.2.5.7
5	**First Submission:**	Tst-20 wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10 wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

5.8 CDRL-TST-08

1	**Sequence Number:**	TST-08
2	**Title or Description of Data:**	Functional Qualification Test Report
3	**Data Item Description Number:**	DID-TST-03
4	**Reference:**	SOW 5.2.7.1.1.2.1
5	**First Submission:**	Tst+5 wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10 wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

5.9 CDRL-TST-09

1	**Sequence Number:**	TST-09
2	**Title or Description of Data:**	Vibration Qualification Test Report
3	**Data Item Description Number:**	DID-TST-03
4	**Reference:**	SOW 5.2.7.1.2.1.1
5	**First Submission:**	Tst+5 wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10 wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

5.10 CDRL-TST-10

1	**Sequence Number:**	TST-10
2	**Title or Description of Data:**	Pressure Qualification Test Report
3	**Data Item Description Number:**	DID-TST-03
4	**Reference:**	SOW 5.2.7.1.3.1.1
5	**First Submission:**	Tst +5wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10 wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

5.11 CDRL-TST-11

1	**Sequence Number:**	TST-11
2	**Title or Description of Data:**	Other Qualification Test Reports
3	**Data Item Description Number:**	DID-TST-03
4	**Reference:**	SOW 5.2.7.1.4.1
5	**First Submission:**	Tst +5wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10 wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

6 Production CDRL Details

6.1 CDRL-PROD-01

1	**Sequence Number:**	PROD-01
2	**Title or Description of Data:**	Factory Acceptance Test Reports
3	**Data Item Description Number:**	DID-TST-03
4	**Reference:**	SOW 6.2.1.1.1
5	**First Submission:**	Tst +5wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10 wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

7 Configuration Management CDRL Details

7.1 CDRL-CM-01

1	**Sequence Number:**	CM-01
2	**Title or Description of Data:**	Configuration Status Account
3	**Data Item Description Number:**	DID-CM-01
4	**Reference:**	SOW 8.2.1
5	**First Submission:**	With TDP
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	No
8	**Approval Lead Time:**	N/A
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

7.2 CDRL-CM-02

1	**Sequence Number:**	CM-02
2	**Title or Description of Data:**	Configuration Status Account Report
3	**Data Item Description Number:**	DID-CM-02
4	**Reference:**	SOW 8.3.1
5	**First Submission:**	CDR-10wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10 wd
9	**Subsequent Submission:**	Production Complete +20wd
10	**Remarks:**	Deliver via email or FTP

7.3 CDRL-CM-03

1	**Sequence Number:**	CM-03
2	**Title or Description of Data:**	Master Record Index
3	**Data Item Description Number:**	DID-CM-03
4	**Reference:**	SOW 8.4
5	**First Submission:**	Production Complete +20wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10 wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

7.4 CDRL-CM-04

1	**Sequence Number:**	CM-04
2	**Title or Description of Data:**	Functional Configuration Audit Report
3	**Data Item Description Number:**	DID-CM-04
4	**Reference:**	SOW 8.5.1
5	**First Submission:**	FCA+5wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10 wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

7.5 CDRL-CM-05

1	**Sequence Number:**	CM-05
2	**Title or Description of Data:**	Physical Configuration Audit Report
3	**Data Item Description Number:**	DID-CM-05
4	**Reference:**	SOW 8.5.2
5	**First Submission:**	PCA+5wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10 wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

8 Integrated Logistics Support CDRL Details

8.1 CDRL-ILS-01

1	**Sequence Number:**	ILS-01
2	**Title or Description of Data:**	Maintenance Plan
3	**Data Item Description Number:**	DID-ILS-01
4	**Reference:**	SOW 9.1
5	**First Submission:**	CDR-10 wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10 wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

8.2 CDRL-ILS-02

1	**Sequence Number:**	ILS-02
2	**Title or Description of Data:**	Recommended Spare Parts List
3	**Data Item Description Number:**	DID-ILS-02
4	**Reference:**	SOW 9.2
5	**First Submission:**	CDR-10 wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10 wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

8.3 CDRL-ILS-03

1	**Sequence Number:**	ILS-03
2	**Title or Description of Data:**	Provisioning Parts Breakdown
3	**Data Item Description Number:**	DID-ILS-03
4	**Reference:**	SOW 9.3
5	**First Submission:**	Production Start-10 wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10 wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

8.4 CDRL-ILS-04

1	**Sequence Number:**	ILS-04
2	**Title or Description of Data:**	Recommended SPTATE List
3	**Data Item Description Number:**	DID-ILS-04
4	**Reference:**	SOW 9.4
5	**First Submission:**	CDR-10 wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10 wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

8.5 CDRL-ILS-05

1	**Sequence Number:**	ILS-05
2	**Title or Description of Data:**	Provisioning SPTATE Breakdown
3	**Data Item Description Number:**	DID-ILS-05
4	**Reference:**	SOW 9.5
5	**First Submission:**	Production Start -10 wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10 wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

8.6 CDRL-ILS-06

1	**Sequence Number:**	ILS-06
2	**Title or Description of Data:**	Technical Manual
3	**Data Item Description Number:**	DID-ILS-06
4	**Reference:**	SOW 9.6
5	**First Submission:**	Production Start-10 wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10 wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

8.7 CDRL-ILS-07

1	**Sequence Number:**	ILS-07
2	**Title or Description of Data:**	Technical Data Package
3	**Data Item Description Number:**	DID-ILS-07
4	**Reference:**	SOW 9.7
5	**First Submission:**	1st Delivery +10wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10 wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

8.8 CDRL-ILS-08

1	**Sequence Number:**	ILS-08
2	**Title or Description of Data:**	Contract End Item List
3	**Data Item Description Number:**	DID-ILS-08
4	**Reference:**	SOW 9.8.5
5	**First Submission:**	Final Delivery +10 wd
6	**Number of Copies:**	1 soft copy in source format
7	**TA Approval Required:**	Yes
8	**Approval Lead Time:**	10 wd
9	**Subsequent Submission:**	N/A
10	**Remarks:**	Deliver via email or FTP

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Appendix 5-Data Item Descriptions

WTPV SYSTEM DATA ITEM DESCRIPTIONS (DIDs)

1 Project Management DIDs

1.1DID-PM-01

1. TITLE	2. IDENTIFICATION NUMBER
Project Management Plan	DID-PM-01

3. DESCRIPTION / PURPOSE

The project's Project Management Plan (PMP) describes the Contractor's process and activities for managing the development and implementation of the project. The plan describes the managerial, technical and supporting processes and activities. The activities are ordered and assigned resources to create a baseline work plan that is the basis for project tracking. In addition the PMP defines the organization and infrastructure required to execute the project.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	4.2

7. APPLICATION / INTERRELATIONSHIP

The PMP may be used in conjunction with DID-PM-02 Project Work Breakdown Structure, DID-PM-03 Project Schedule, and DID-PM-06 Project Status Report.

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

Reference: ISO21500:212-Guidance on Project Management

10.1 Format: The Project Management Plan (PMP) must be prepared in Contractor's format using Microsoft (MS) Word.

10.2 Content: Contractor Defined, but using the reference as a guide, should as a minimum include the following sections:

1. Overview
    a. Project Summary
        i. Purpose, Scope, Objectives
        ii. Assumptions and Constraints
        iii. Project Deliverables
        iv. Master Schedule and Budget Summary
    b. Evolution of the Plan
    c. Document Structure
2. References
    a. Standards and Documents
    b. Deviations and Waivers
3. Definitions
4. Project Organization
    a. Project Organization, Roles and Responsibilities
    b. Project Interfaces with External Organizations
    c. Project Interfaces with Internal Organizations
5. Management Processes
    a. Start Up
        i. Estimations
        ii. Staffing
        iii. Resource Acquisition
        iv. Staff Training

b. Work Planning
    i. Work Activities
    ii. Schedule Allocation
    iii. Resource Allocation
    iv. Budget Allocation
c. Project Controls
    i. Requirements Control
    ii. Schedule Control
    iii. Budget Control
    iv. Quality Control
    v. Project Reporting and Communication
d. Contracts/Subcontracts
e. Risk and Issue Management
f. Project Close Out

6. Technical Process
    a. Product Design and Development
        i. Methods, tools and techniques
        ii. Infrastructure
    b. Product Qualification
    c. Production
        i. Methods, tools and techniques
        ii. Infrastructure
    d. Product Acceptance
7. Installation Support Process
8. Supporting Process
    a. Problem Resolution
    b. Subcontractor Management
    c. Documentation Control
    d. Testing
    e. Integrated Logistics Support
    f. Configuration Management
    g. Quality Assurance
    h. Reviews and Audits
9. Appendices (delivered once with the PMP)
    a. Project Work Breakdown Structure
10. Attachments (delivered initially with the PMP, then updated if required throughout the project)
    a. Project Schedule
    b. Project Supplies Deliverables Register
    c. Project Risk Register
    d. Project Issues/Action Register
    e. Project Data Deliverables Register
    f. Project Communications Directory
11. Enclosures (delivered once with the PMP)
    a. Subcontractor Project Management Plan

10.3 Delivery Instructions, Review and Approval Requirements:

1. Number of Copies/Format: 1 soft copy in MS Word and .PDF format.
2. Delivery Venue: e-mail or FTP
3. First Submission: With Proposal
4. TA Review/Approval: Yes/No
5. Review/Approval Lead Time: N/A//5wd
6. Subsequent Submission: PKO-5 wd if updates required
7. Remarks: N/A

1.2DID-PM-02

1. TITLE	2. IDENTIFICATION NUMBER
Work Breakdown Structure	DID-PM-02

3. DESCRIPTION / PURPOSE

The project's Work Breakdown Structure (WBS) defines the project in terms of hierarchically related, product-oriented elements. Each element provides logical summary levels for assessing technical accomplishments, supporting the required event-based technical reviews and for measuring cost and schedule performances.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	4.2.1

7. APPLICATION / INTERRELATIONSHIP

The WBS may be used in conjunction with the contract Statement of Work, DID-PM-01 Project Management Plan, DID-PM-03 Project Schedule, and DID-PM-06 Project Status Reports

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

Reference: MIL-STD-188C dated 3 October 2011

10.1 Format: The Project WBS must be prepared in Contractor's format in Microsoft (MS) Word.

10.2 Content: The Contractor must structure the WBS using the reference as guidance. The goal is to develop a WBS that defines the logical relationship among all project elements to a specific level (typically Level 3) of indenture that does not constrain the Contractor's ability to define or manage the project or resources.

10.3 Delivery Instructions, Review and Approval Requirements:

1. Number of Copies/Format: 1 soft copy in MS Word and .PDF format.
2. Delivery Venue: e-mail or FTP
3. First Submission: With Proposal
4. PM Review/Approval: Yes/No
5. Review/Approval Lead Time: N/A//5wd
6. Subsequent Submission: PKO-5wd if updates required.
7. Remarks: N/A

1.3DID-PM-03

1. TITLE	2. IDENTIFICATION NUMBER
Project Schedule	DID-PM-03

3. DESCRIPTION / PURPOSE
The purpose of the project's Project Schedule (PS) is to describe the Contractor's schedule to execute the tasks and activities described in the contract's Statement of Work (SOW) and Work Breakdown Structure (WBS).

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	4.2.2

7. APPLICATION / INTERRELATIONSHIP
The PS may be used in conjunction with the contract Statement of Work, DID-PM-01 Project Management Plan, DID-PM-02 Project Work Breakdown Structure, and DID-PM-06 Project Status Reports.

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

Reference: MIL-STD-188C dated 3 October 2011

10.1 Format: The PS must be prepared in Contractor's format in Microsoft (MS) Project format.

10.2 Content: The PS must contain the contract deliverables, milestones and accomplishments and discreet tasks/activities (including planning packages where applicable) from contract award to the completion of the contract. The schedule must be an integrated, logical network-based schedule that correlates the WBS and is vertically and horizontally traceable to the cost/schedule reporting instrument used to address variances (if applicable). The schedule must have a numbering system that provides traceability to the SOW. It must contain contractual deliverables, milestones and descriptions and display summary, intermediate, and detailed schedules and periodic analysis of progress to date. It must include fields and data that enable the user to access the information by product, process or organizational lines.

10.3 Delivery Instructions, Review and Approval Requirements:

1. Number of Copies/Format: 1 soft copy in MS Project and .PDF format.
2. Delivery Venue: e-mail or FTP
3. First Submission: With Proposal
4. TAA Review/Approval: Yes/Yes
5. Review/Approval Lead Time: N/A//N/A
6. Subsequent Submission: With Monthly Project Status Reports
7. Remarks: N/A

1.4DID-PM-04

1. TITLE	2. IDENTIFICATION NUMBER
Risk Register	DID-PM-04

3. DESCRIPTION / PURPOSE
The purpose of the project's Risk Register (RR) is to be capture and maintain the status of the project's risks as they arise.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	4.3.1

7. APPLICATION / INTERRELATIONSHIP
The RR may be used in conjunction with the DID-PM-01 Project Management Plan, DID-PM-03 Project Schedule, DID-PM-05 Project Issue/Action Register and DID-PM-06 Project Status Reports.

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

10.1 Format: The RR must be prepared in Contractor's format using Microsoft (MS) Excel.

10.2 Content: The Content of the RR must as a minimum include:

1. Risk ID No.
2. Risk Source Reference (Telecon, e-Mail, Meeting Minutes, Other)
3. Risk Initiating Organization (Canada, Contractor, Subcontractor/Supplier)
4. Risk Originator (Name, Position, Telephone, e-mail)
5. Risk Identification Date
6. Risk Category (Contractual, Project Management, Technical, ILS, etc.)
7. Risk Description/Potential Impact
8. Risk Impact Area (Scope, Cost, Schedule)
9. Risk Impact Assessment (High, Medium, Low)
10. Risk Assigned Organization (Canada, Contractor, Subcontractor/Supplier)
11. Risk Owner (Name, Position, Telephone, e-mail0
12. Risk Resolution Strategy (Accept, Monitor, Mitigate, Transfer)
13. Risk Resolution Action
14. Risk Resolution By Date
15. Risk Status (Open, Closed)
16. Risk Closed Date

10.3 Delivery Instructions, Review and Approval Requirements:

1. Number of Copies/Format: 1 soft copy in MS Excel and .PDF format.
2. Delivery Venue: e-mail or FTP
3. First Submission: With Proposal
4. TAA Review/Approval: Yes/Yes
5. Review/Approval Lead Time: N/A//N/A
6. Subsequent Submission: With Project Status Report
7. Remarks: N/A.

1.5DID-PM-05

1. TITLE	2. IDENTIFICATION NUMBER
Project Status Report	DID-PM-05

3. DESCRIPTION / PURPOSE

The purpose of the Project Status Report (PSR) is to document the status of the Contractor's effort towards achieving the contract's objectives. It identifies accomplishments to date and difficulties encountered, and compares the status achieved to planned goals and resources expended. It is used by Canada to monitor and evaluate the progress of the work to date.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	4.4.1

7. APPLICATION / INTERRELATIONSHIP

The PSR may be used in conjunction with the Contract Statement of Work, DID-PM-01 Project Management Plan, DID-PM-03 Project Schedule, DID-PM-04 Project Risk Register, and DID-PM-05 Project Issue/Action Register

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

10.1 Format: The PSR must be prepared in Contractor's format using Microsoft (MS) Word.

10.2 Content: The Content of the PSR must as a minimum include:

1. A narrative summary of the Contractor's progress during the reporting period
2. Review of Milestones/Tasks/Deliverables
3. Schedule Status, changes, and planned activities for the next reporting period
4. Review of Arising and Open Issues/Actions
5. Review of Arising and Open Risks
6. Review of Financial Status
7. Other Matters

10.3 Delivery Instructions, Review and Approval Requirements:

1. Number of Copies/Format: 1 soft copy in MS Word and .PDF format.
2. Delivery Venue: e-mail or FTP
3. First Submission: 5 working days prior to the first Progress Review Meeting (PRM)
4. TAA Review/Approval: Yes/No
5. Review/Approval Lead Time: 5wd//N/A
6. Subsequent Submission: 5 working days prior to each subsequent PRM.
7. Remarks: N/A

1.6 DID-PM-06

1. TITLE	2. IDENTIFICATION NUMBER
Meeting Agenda	DID-PM-06

3. DESCRIPTION / PURPOSE
The purpose of the Meeting Agenda is to propose topics for discussion during the meeting.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	4.6.1.2

7. APPLICATION / INTERRELATIONSHIP
Meeting Agenda may be used in support of all project meetings and reviews whether held physically or by teleconference or video conference. The Meeting Agenda may be used in conjunction with the DID-PM-08 Meeting Minutes, or meeting or review supporting documentation Reports (e.g. DID-PM-06 Project Status Report, DID-ENG-03 System Requirements Review Report).

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

10.1 Format: The Meeting Agenda must be prepared in Contractor's format using Microsoft Word.

10.2 Content: The Content of the Meeting Agenda must as a minimum include:

1. Purpose of the meeting;
2. Time, date, location, and expected duration of the meeting;
3. List of expected attendees;
4. Security Requirements of the meeting;
5. Facilities and equipment to be provided for the attendees;
6. List meeting supporting documentation, including Minutes of the previous meeting and associated Action Item List, Documents to be reviewed during the meeting (e.g. Project Status Reports, Review or Other Reports). Note: the contractor is to ensure that adequate copies of meeting supporting documentation are available for attendees at the meeting.

10.3 Delivery Instructions, Review and Approval Requirements:

1. Number of Copies/Format: 1 soft copy in MS Word and .PDF format.
2. Delivery Venue: e-mail or FTP
3. First Submission: Meeting -5wd
4. TAA Review/Approval: Yes/Yes
5. Review/Approval Lead Time: 5wd/5wd
6. Subsequent Submission: N/A
7. Remarks: Review and Approval Lead Time run concurrently

1.7 DID-PM-07

1. TITLE	2. IDENTIFICATION NUMBER
Meeting Minutes	DID-PM-07

3. DESCRIPTION / PURPOSE

The purpose of the Meeting Minutes is to formally record the discussions, agreements, and actions resolved and assigned (with responsible parties and closure dates) during the meeting.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	4.6.1.3

7. APPLICATION / INTERRELATIONSHIP

Meeting Minutes may be used in support of all project meetings and reviews whether held physically or by teleconference or video conference. The Meeting Minutes may be used in conjunction with the DID-PM-08 Meeting Agenda, or meeting or review supporting documentation Reports (e.g. DID-PM-06 Project Status Report, DID-ENG-03 System Requirements Review Report).

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

10.1 Format: The Meeting Minutes must be prepared in Contractor's format using Microsoft Word.

10.2 Content: The Content of the Meeting Minutes must as a minimum include:

1. Time, date and location, of the meeting;
2. List of attendees and their contact information (Organization, Position, telephone, e-mail);
3. Purpose and objective of the meeting;
4. Summary of Action Items (new or changes to existing) arising from the meeting);
5. Meeting Agenda/Changes to the Agenda;
6. For each Item Discussed:
    a. A brief summary of the item;
    b. And any agreed to course of action with respect to the item (and associated recommended changes to Action Item List).

10.3 Delivery Instructions, Review and Approval Requirements:

1. Number of Copies/Format: 1 soft copy in MS Word and .PDF format.
2. Delivery Venue: e-mail or FTP
3. First Submission: At meeting or Meeting +5wd
4. TAA Review/Approval: Yes/Yes
5. Review/Approval Lead Time: 5wd/5wd
6. Subsequent Submission: N/A
7. Remarks: If possible, Minutes should be distributed at the end of the meeting and signed by the responsible parties.
   Where this is not possible, Review and Approval Lead Time run concurrently.

2 Engineering DIDs

2.1 DID-ENG-00

1. TITLE	2. IDENTIFICATION NUMBER
Engineering Drawings, Associated Lists and CAD Models	DID-ENG-00

3. DESCRIPTION / PURPOSE

Level 1 Drawings. Level 1, Conceptual and Developmental Design. Engineering Drawings, Associate Lists and CAD Models prepared to this level must, as a minimum, disclose engineering design information sufficient to evaluate an engineering concept as meeting stated military requirements, and may provide information sufficient to fabricate developmental hardware. These types of drawings generally consist of simple sketches, models, artist's renderings, and/or basic textual data.

Level 2 Drawings. Level 2, Production Prototype and Limited Production. Engineering Drawings, Associated Lists and CAD Models prepared to this level must disclose directly or by reference a design approach suitable to support the manufacture of a production prototype and limited production models. Engineering drawings must include, as applicable, parts lists, detail and assembly drawings, interface control data, diagrams, performance characteristics, critical manufacturing limits, and details of new materials and processes.

Level 3 Drawings. Production. Engineering Drawings, Associated Lists and CAD Models prepared to this level must provide engineering definition sufficiently complete to enable a competent manufacturer to produce and maintain quality control of the item. These Engineering Drawings reflect the end product. They reflect approved, tested, and accepted configuration of the defined delivered item and provide the necessary data to permit competitive procurement or re-procurement.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	5.2.3.2

7. APPLICATION / INTERRELATIONSHIP

The Engineering Drawings, Associated Lists and CAD Models may be used in conjunction with System/Sub-System Specification, Preliminary, Detailed, First Article and Final Design Reports, and As-Delivered Drawings, Associated Lists and CAD Models.

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

10.1 Format:

1. Commercial Off the Shelf Equipment/Systems-Contractor format in its native Model or Drawing format.
2. Contractor Developed Equipment/Systems-3D Models (see order of preference below) and/or ASME-Y14 Drawing Standards in the Contractor's sheet format.

   Order of preference for 3D Models:

   a. Solid Works part and assembly and or drawing files;
   b. STEP format; or
   c. IGES format.

   2D drawings of flat items produced in software other than Solid Works (i.e. wiring diagrams) should be prepared in DWG or DXF format.

10.2 Content:

1. COTS Equipment-Level 1 Drawings comprised of available Manufacturers Data Sheet and Outline and Installation Drawings and 3D Models.
2. Contractor Developed Equipment-Level 2 Drawings and 3D Models.
3. For all drawings items on the drawings parts list considered to be First Level in accordance C-23-VIC-000/AM-001

must be annotated as First Level.

10.3 Delivery Instructions, Review and Approval Requirements:

1. Number of Copies/Format: 1 soft copy in its native model or drawing formant and .PDF format.
2. Delivery Venue: e-mail or FTP
3. First Submission: With PD Report
4. TAA Review/Approval: Yes/Yes
5. Review/Approval Lead Time: 10wd/10wd
6. Subsequent Submission: With CD Report and with TDP.
7. Remarks: Review and Approval run Concurrently

2.2DID-ENG-01

1. TITLE	2. IDENTIFICATION NUMBER
Requirements Review Report	DID-ENG-01

3. DESCRIPTION / PURPOSE

The purpose of the Requirements Review (RR) Report is for the Contractor to present the material that will be reviewed with Canada at the RR Meeting. The RR Meeting is a formal review conducted to ensure that system requirements have been properly identified and that a mutual understanding between Canada and the Contractor exists. It ensures that the system under review can proceed into initial systems development and that all system and performance requirements derived from the TSOR are defined and testable.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	5.2.1.2

7. APPLICATION / INTERRELATIONSHIP

The RR Report may be used in conjunction with the SOW, TSOR and the RR Meeting.

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

10.1 Format: The RR Report must be prepared in Contractor's format using Microsoft Word or Power Point (PPT).

10.2 Content: As a minimum, the RR Report must have the following content:

1. Section 1-Review Items of Supply and their quantities:
    a. Identify/recommend changes to existing quantities; and
    b. Identify/recommend additions/deletions to existing items and for additions their quantities.
2. Section 2-Review TSOR
    a. Identify/recommend changes to existing Technical Requirements
    b. Identify where clarification is required to existing Technical Requirements;
    c. Identify/recommend additions/deletions to existing Technical Requirements; and
    d. Identify/recommend verification method for Technical Requirements.
3. Section 3-Review SOW
    a. Identify/recommend changes to existing SOW Requirements;
    b. Identify where clarification is required to existing SOW Requirements; and
    c. Identify/recommend deletions to existing SOW Requirements.
4. Section 4-Project
    a. Schedule Progress Report;
    b. Budget Status Report;
    c. Resource Status Report; and
    d. Project Risk Status Report.
5. Enclosures as required.

Delivery Instructions, Review and Approval Requirements:

10.3

8. Number of Copies/Format: 1 soft copy in source format (e.g. MS Word or PPT) and .PDF format.
9. Delivery Venue: e-mail or FTP
10. First Submission: RR Meeting -5wd
11. TAA Review/Approval: Yes/Yes
12. Review/Approval Lead Time: 5wd/5wd
13. Subsequent Submission: N/A
14. Remarks: Review and Approval run Concurrently

2.3DID-ENG-02

1. TITLE System/Sub-System Specification		2. IDENTIFICATION NUMBER DID-ENG-02
3. DESCRIPTION / PURPOSE The Systems/Sub-System Specification (SS/SSSPEC) provides a comprehensive description of the technical requirements for material, equipment and services.		
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI) Technical Authority, DNPS 4-2	6. SOW SECTION 5.2.2.2
7. APPLICATION / INTERRELATIONSHIP The SS/SSSPEC may be used in conjunction with the Technical Statement of Requirements (TSOR) and Requirements Verification Cross Reference Matrix (RVCRM).		
8. ORIGINATOR DNPS 4-2	9. APPLICABLE FORMS	

10. PREPARATION INSTRUCTIONS

Reference: MIL-STD-961E Defence and Program-Unique Specifications Format and Content

10.1 Format: The SS/SSSPEC must be, using the reference as a guide, prepared in Contractor's format in Microsoft Word.

10.2 Content: The SS/SSSPEC must be prepared using the references recommended content, as outlined below as a guide. Where the SS/SSSPEC is describing a COTS item, the COTS item's Data Sheet may be added as an Appendix and referenced in the main body of the specification.

1. Section 1-Scope
2. Section 2-Applicable Documents
3. Section 3- Requirements:
    a. General;
    b. Material;
    c. Performance;
    d. Design;
    e. Physical Characteristics;
    f. Interface, Interoperability and Compatibility;
    g. Process;
    h. Parts;
    i. Construction, Fabrication and Assembly;
    j. Operating Characteristics;
    k. Workmanship;
    l. Reliability;
    m. Maintainability; and
    n. Environmental Operating Requirements.
4. Section 4-Verification:
    a. General;
    b. First Article;
    c. Inspection Conditions; and
    d. Qualification.
5. Section 5-Packaging
6. Section 6-Notes

10.3	Delivery Instructions, Review and Approval Requirements: 1. Number of Copies/Format: 1 soft copy in source format (e.g. MS Word) and .PDF format. 2. Delivery Venue: e-mail or FTP 3. First Submission: PDR -10wd 4. TAA Review/Approval: Yes/Yes 5. Review/Approval Lead Time: 10wd//Review Event +5wd 6. Subsequent Submission: CDR -10wd, and with TDP 7. Remarks: N/A

2.4DID-ENG-03

1. TITLE	2. IDENTIFICATION NUMBER
Requirements Verification Cross-Reference Matrix	DID-ENG-03

3. DESCRIPTION / PURPOSE
The purpose of the Requirements Verification Cross-Reference Matrix (RVCRM) is to plan and record the results of the Contractor's Verification Activities.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	5.2.2.3

7. APPLICATION / INTERRELATIONSHIP
The RVCRM may be used in conjunction with the Technical Statement of Requirements (TSOR), System First Article Test Plans, Procedures and Test Reports, and First of Class System Functional, Harbour and Sea Acceptance Test Plans, Procedures and Test Reports.

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

10.1 Format: The RVCRM shall be prepared in Contractor's format using Microsoft Excel.

10.2 Content:

1. General
   The RVCRM is expected to be an evolving document which is used during the analysis and design phases of the program to capture agreement on how the Functional baseline requirements are to be verified.

   The RVCRM is likely to be based in electronic form (e.g. database or spreadsheet), but when printed shall consist of a table with an entry for every requirement in the Functional Baseline. Canada only requires the RVCRM in order to manage Verification against the Functional Baseline; however, the Contractor may choose to include other levels of specification within the same document. In this case the Contractor shall clearly identify which entries pertain to the Verification of the Functional Baseline.

2. Part 1 Requirements
   a. For delivery of the Part 1 RVCRM requirements, each entry in the RVCRM table shall contain at least:
      i. a unique reference to the corresponding requirement in the Functional Baseline;
      ii. the requirement words or a brief precis of the requirement to provide context;
      iii. the proposed Verification method(s) (i.e. on or more of Inspection, Demonstration, Analysis, Test, Simulation , Modeling, Experiment, Trial, Walk-through, Comparison, System Review, Audit, Historical Data, and /or Conformance Certificate;
      iv. the project phase during which requirements will be Verified and the associated Verification method to be applied at this phase; noting that where Verification across multiple phases may be proposed, the scope and aims of the activities at each phase must be clearly described;
      v. a brief description of the proposed Verification method, intended as a vehicle for early agreement by both parties to define the scope of the Verification activities; and
      vi. other comments as required.
3. Part 2 Requirements
   a. For the delivery of the Part 2 RVCRM requirements, each entry in the RVCRM table shall contain at least:
      i. the Part 1 requirements specified at clause Part 1 a. of this DID;
      ii. a reference to the specific Verification/Test procedure(s) and relevant documentation, including unique version identifiers;
      iii. a reference to the report which contains the pertinent Verification results and, as required, data analysis (including any red-line mark-ups and signatures of witnesses to those results);
      iv. the progressive state of each phase of the Verification program with respect to the requirements;
      v. a result summary (i.e. PASS/FAIL or Verification Incomplete if all of the Verification activities

10.3	associated with the requirement have not been completed); and vi. other comments as required. Number of Copies/Format: 1 soft copy in source format (e.g. MS Word or PPT) and .PDF format. vii. Delivery Instructions, Review and Approval Requirements 1. Number of Copies/Format 1 soft copy in MS Excel and .PDF format. 2. Delivery Venue: e-mail or FTP 3. First Submission: PKO/RR Meeting -5wd 4. TAA Review/Approval: Yes/Yes 5. Review/Approval Lead Time: 10wd//Review/Event+10wd 6. Subsequent Submission: PDR-10wd, CDR-10wd, Production Start -10wd. 7. Remarks: N/A

2.5DID-ENG-04

1. TITLE	2. IDENTIFICATION NUMBER
Material List	DID-ENG-04

3. DESCRIPTION / PURPOSE

The purpose of the Material List (ML) is to identify the materials incorporated into the supplies being delivered, so that they may be assessed from suitability for use in submarines perspective.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	5.2.3.3.4.1

7. APPLICATION / INTERRELATIONSHIP

The ML may be used in conjunction with the System/Sub-System Specification, Engineering Drawings and Associated Lists, and Material Safety Data Sheets.

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

10.1 Format: The ML must be prepared in Contractor format in Microsoft Excel Spreadsheet.

10.2 Content: As a minimum, the ML must include the following content:

1. The spreadsheet must have rows and comprised of an indentured list of parts and parts associated components;
2. The spreadsheet must have as a minimum columns comprised of;
    a. Part/Component Identification;
    b. Part/Component Number;
    c. Part/Component Material Type;
    d. Part/Component Material Type Specification;
    e. Part/Component Material Type Specification Safety Data Sheet Reference (as applicable); and
    f. Notes.
3. The ML must provide disposal instructions for any components that are;
    a. Repair by replacement;
    b. Require special handling instructions; and
    c. Cannot be disposed of by conventional means.

10.3 Delivery Instructions, Review and Approval Requirements:

1. Number of Copies/Format: 1 soft copy in MS Excel and .PDF format.
2. Delivery Venue: e-mail or FTP
3. First Submission: PDR Meeting -10wd
4. TAA Review/Approval: Yes/Yes
5. Review/Approval Lead Time: 10wd/10wd
6. Subsequent Submission: CDR Meeting -10wd and with TDP
7. Remarks: Review and Approval run concurrently.

2.6DID-ENG-05

1. TITLE	2. IDENTIFICATION NUMBER
Safety Data Sheet	DID-ENG-05

3. DESCRIPTION / PURPOSE

A Safety Data Sheet (SDS) is an important component of product stewardship and occupational safety and health. It is intended to provide workers and emergency personnel with procedures for handling or working with that substance or material in a safe manner, and includes information such as physical data (melting point, boiling point, flash point, etc.), toxicity, health effects, first aid, reactivity, storage, disposal, protective equipment, and spill handling procedures.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	5.2.3.3.4.2

7. APPLICATION / INTERRELATIONSHIP

The SDS may be used in conjunction with the Material List, System Sub-System Specification, Engineering Drawings and Associated Lists, and the Submarine's Hazardous Materials Portfolio (SHMP).

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

10.1 Format: The SDS must be in the Material Supplier format as a .PDF.

10.2 Content: Canadian Hazardous Product Regulations specifies the sections and content for the SDS, as follows:

	SDS Section and Heading	Specific Information Elements
1	Identification	• Product identifier (e.g. Product name) • Other means of identification (e.g. product family, synonyms, etc.) • Recommended use • Restrictions on use • Canadian supplier identifier+ o Name, full address and phone number(s) • Emergency telephone number and any restrictions on the use of that number, if applicable

2	Hazard identification	• Hazard classification (class, category) of substance or mixture or a description of the identified hazard for Physical or Health Hazards Not Otherwise Classified
		• Label elements:
		  ○ Symbol (image) or the name of the symbol (e.g., flame, skull and crossbones)
		  ○ Signal word
		  ○ Hazard statement(s)
		  ○ Precautionary statement(s)
		• Other hazards which do not result in classification (e.g., molten metal hazard)

3	Composition/Information on ingredients	• When a hazardous product is a material or substance:
		  ○ Chemical name
		  ○ Common name and synonyms
		  ○ Chemical Abstract Service (CAS) registry number and any unique identifiers
		  ○ Chemical name of impurities, stabilizing solvents and/or additives*
		• For each material or substance in a mixture that is classified in a health hazard class**:
		  ○ Chemical name
		  ○ Common name and synonyms
		  ○ CAS registry number and any unique identifiers
		  ○ Concentration
		NOTE: Confidential business information rules can apply

4	First-aid measures	• First-aid measures by route of exposure:
		  ○ Inhalation
		  ○ Skin contact
		  ○ Eye contact
		  ○ Ingestion
		• Most important symptoms and effects (acute or delayed)
		• Immediate medical attention and special treatment, if necessary

5	Fire-fighting measures	• Suitable extinguishing media • Unsuitable extinguishing media • Specific hazards arising from the hazardous product (e.g., hazardous combustion products) • Special protective equipment and precautions for fire-fighters
6	Accidental release measures	• Personal precautions, protective equipment and emergency procedures • Methods and materials for containment and cleaning up
7	Handling and storage	• Precautions for safe handling • Conditions for safe storage (including incompatible materials)
8	Exposure controls/ Personal protection	• Control parameters, including occupational exposure guidelines or biological exposure limits and the source of those values • Appropriate engineering controls • Individual protection measures (e.g. personal protective equipment)
9	Physical and chemical properties	• Appearance (physical state, colour, etc.) • Odour • Odour threshold • pH • Melting point/Freezing point • Initial boiling point/boiling range • Flash point • Evaporation rate • Flammability (solid; gas) • Lower flammable/explosive limit • Upper flammable/explosive limit • Vapour pressure • Vapour density • Relative density • Solubility • Partition coefficient - n-octanol/water • Auto-ignition temperature • Decomposition temperature • Viscosity

10	Stability and reactivity	• Reactivity • Chemical stability • Possibility of hazardous reactions • Conditions to avoid (e.g., static discharge, shock, or vibration) • Incompatible materials • Hazardous decomposition products
11	Toxicological information	Concise but complete description of the various toxic health effects and the data used to identify those effects, including: • Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact) • Symptoms related to the physical, chemical and toxicological characteristics • Delayed and immediate effects, and chronic effects from short-term and long-term exposure • Numerical measures of toxicity
12	Ecological information***	• Eco toxicity • Persistence and degradability • Bio accumulative potential • Mobility in soil • Other adverse effects
13	Disposal considerations***	Information on safe handling for disposal and methods of disposal, including any contaminated packaging
14	Transport information***	• UN number • UN proper shipping name • Transport hazard class(es) • Packing group • Environmental hazards • Transport in bulk, if applicable • Special precautions
15	Regulatory information***	Safety, health and environmental regulations specific to the product
16	Other information	Date of the latest revision of the SDS

+The supplier that must be identified on an SDS is the initial supplier identifier (i.e., the name, address and telephone number of either the Canadian manufacturer or the Canadian importer). There are two exceptions to this requirement. In a situation where a hazardous product is being sold by a distributor, the distributor may replace the name, address and telephone number of the initial supplier with their own contact information. In a situation where an importer imports a hazardous product for use in their own workplace in Canada (i.e., the importer is not selling the hazardous product), the importer may retain the name, address and telephone number of the

10.3	foreign supplier on the SDS instead of replacing it with their own contact information. *These impurities and stabilizing products are those that are classified in a health hazard class and contribute to the classification of the material or substance. **Each ingredient in the mixture must be listed when it is classified in a health hazard class and is present above the concentration limit that is designated for the hazard class in which it is classified or is present in the mixture at a concentration that results in the mixture being classified in any health hazard class. ***Sections 12 to 15 require the headings to be present, but under Canadian regulations, the supplier has the option to not provide information in these sections. Delivery Instructions, Review and Approval Requirements: 1. Number of Copies/Format: 1 soft copy in .PDF format. 2. Delivery Venue: e-mail or FTP 3. First Submission: PDR Meeting -10wd 4. TAA Review/Approval: Yes/Yes 5. Review/Approval Lead Time: 10wd/10wd 6. Subsequent Submission: CDR Meeting -10wd, and with TDP 7. Remarks: N/A

2.7DID-ENG-06

1. TITLE	2. IDENTIFICATION NUMBER
Preliminary Design Report	DID-ENG-06

3. DESCRIPTION / PURPOSE

The purpose of the Preliminary Design (PD) Report is for the contractor to present the material that will be reviewed with Canada at the Preliminary Design Review (PDR) Meeting. The PDR Meeting is a formal review conducted to ensure that the PD meets all system requirements. The PDR establishes the basis for proceeding with Detailed Design (DD). It will show that the correct design options have been selected, interfaces have been identified, and verification methods have been described.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	5.2.3.3.5

7. APPLICATION / INTERRELATIONSHIP

The PD Report may be used in conjunction with the Requirements Review Report, Minutes of the Requirements Review Meeting, System/Sub-System Specifications, Engineering Drawings and Associated Lists, Requirements Verification Cross Reference Matrix; and First Article Test Plan.

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

10.1 Format: The PD Report must be prepared in Contractor format in Microsoft Word or Power Point (PPT).

10.2 Content: As a minimum, the PD report must contain sections (as applicable to the project) under the following headings.

1. Section 1 - Background
    a. Project Origin;
    b. Project Objectives and Significant Requirements;
    c. Design Approach Overview;
    d. Key Assumptions;
    e. Changes Since Previous Review;
    f. Competitive Analysis;
    g. Alternatives and Rationale for Selected Design Approach; and
    h. Risks (expected or encountered).

2. Section 2 – Product Design
    a. Design vs Critical Requirements;
    b. Product Design:
        i.) Hardware supported by preliminary drawings, associated lists and CAD models produced in accordance with DID-ENG-00; and
        ii) Software/Firmware supported by preliminary Software Design Documentation.
    c. Process Supporting Design (e.g. testing, simulation, calculations);
    d. Assumptions Validation;
    e. Product Risk Assessment and Abatement;
    f. Issues and Associated Recommendations; and
    g. Issues Requiring Clarification.

3. Section 3 - Project
    a. Schedule Progress Report;
    b. Budget Status Report;
    c. Resource Status Report; and

	d. Project Risk Status Report. 4. Enclosures (see their separate CDRLs and associated DIDs): System/Sub-System Specifications (Draft); Engineering Drawings, Associated Lists and CAD Models (Preliminary); Engineering Analysis Reports Material List/Safety Data Sheets Requirements Verification Cross Reference Matrix (Initial); and First Article Test Plan (Draft).
10.3	Delivery Instructions, Review and Approval Requirements: 1. Number of Copies/Format: 1 soft copy in MS Word or PPT and .PDF format. 2. Delivery Venue: e-mail or FTP 3. First Submission: PDR Meeting -10wd 4. TAA Review/Approval: Yes/Yes 5. Review/Approval Lead Time: 10wd/PDR +5wd 6. Subsequent Submission: N/A 7. Remarks: N/A

2.8DID-ENG-07

1. TITLE	2. IDENTIFICATION NUMBER
Detailed Design Report	DID-ENG-07

3. DESCRIPTION / PURPOSE

The purpose of the Detailed Design (DD) Report is for the contractor to present the material that will be reviewed with Canada at the Critical Design Review (CDR) Meeting. The CDR Meeting is a formal review conducted to demonstrate that the maturity of the design is appropriate to support with proceeding with the production, assembly, integration and test of the First Article Unit(s).

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	5.2.4.1.1

7. APPLICATION / INTERRELATIONSHIP

The DD Report may be used in conjunction with the Preliminary Design Report, Minutes of the Preliminary Design Review Meeting, System/Sub-System Specifications, Engineering Drawings and Associated Lists, Requirements Verification Cross Reference Matrix, and First Article Test Plan, Production Test Plan, and First Article Test Procedures.

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

10.1 Format: The DD Report must be prepared in Contractor format in Microsoft Word or Power Point (PPT).

10.2 Content: As a minimum, the DD report must contain sections (as applicable to the project) under the following headings.

5. Section 1 - Background
    a. Project Origin;
    b. Project Objectives and Significant Requirements;
    c. Design Approach Overview;
    d. Key Assumptions;
    e. Changes Since Previous Review; and
    f. Competitive Analysis.

6. Section 2 – Product Design
    a. Design vs Critical Requirements;
    b. Product Design:
        i) Hardware: supported by detailed drawings, associated lists and CAD Models produced in accordance with DID-ENG-00; and
        ii) Software/Firmware: supported by detailed Software Design Documentation.
    c. Process Supporting Design (e.g. testing, simulation, calculations);
    d. Assumptions Validation;
    e. Product Risk Assessment and Abatement;
    f. Issues and Associated Recommendations; and
    g. Issues Requiring Clarification.

7. Section 3 - Project
    a. Schedule Progress Report;
    b. Budget Status Report;
    c. Resource Status Report; and
    d. Project Risk Status Report.

10.3	8. Enclosures (see their separate CDRLs and associated DIDs): System/Sub-System Specifications (Final) Engineering Drawings, Associated Lists and CAD Models (Detailed) Requirements Verification Cross Reference Matrix -Update First Article Test Plan (Final) First Article Test Procedures (including FAT Procedure) (Draft) Delivery Instructions, Review and Approval Requirements: 8. Number of Copies/Format: 1 soft copy in source format (e.g. MS Word or PPT) and .PDF format. 9. Delivery Venue: e-mail or FTP 10. First Submission: CDR -10wd 11. TAA Review/Approval: Yes//Yes 12. Review/Approval Lead Time: 10wd/CDR+5wd 13. Subsequent Submission: N/A 14. Remarks: N/A

2.9DID-ENG-08

1. TITLE	2. IDENTIFICATION NUMBER
Design Qualification Report	DID-ENG-08

3. DESCRIPTION / PURPOSE

The Design Qualification Report provides a summary of FAS test results, reservations, and any recommended follow on actions.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	5.2.8.1.5

7. APPLICATION / INTERRELATIONSHIP

The Design Qualification Report may be used in conjunction with First Article Test Plan, First Article Test Procedures (Functional, Noise and Vibration, Pressure and as necessary Shock) and their associated First Article Test Reports, as well as the Requirements Verification Cross Reference Matrix.

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

10.1 Format: The FAS Test Report must be prepared in Contractor format in Microsoft Word.

10.2 Content: The Design Qualification report must as a minimum, include the following information for each FAS tested:

1. Type of FAS Tested:
   a. Part number/version number;
   b. Serial number; and
   c. Photographs, if available.
2. Summary of FAS Test Results (Pass/Fail, Reservations, Recommended Follow-on Action) for the following tests.
   a. Functional
   b. Noise and Vibration;
   c. Pressure; and
   d. Other.

10.3 Delivery Instructions, Review and Approval Requirements:

1. Number of Copies/Format: 1 soft copy in MS Word and .PDF format.
2. Delivery Venue: e-mail or FTP
3. First Submission: Last FAS Test +20wd
4. TAA Review/Approval: Yes/Yes
5. Review/Approval Lead Time: 10wd/10wd
6. Subsequent Submission: N/A
7. Remarks: Review and Approval run concurrently

3 Testing DIDs

3.1DID-TST-01

1. TITLE Test Plan		2. IDENTIFICATION NUMBER DID-TST-01
3. DESCRIPTION / PURPOSE The purpose of the Test Plan (TPln) is to document the Plan for the types of testing to be done.		
4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI) Technical Authority, DNPS 4-2	6. SOW SECTION 5.2.5.1, 5.2.5.2
7. APPLICATION / INTERRELATIONSHIP The TPln may be used in conjunction with the First Article Test Plan and the Production Test Plan.		
8. ORIGINATOR DNPS 4-2		9. APPLICABLE FORMS

10. PREPARATION INSTRUCTIONS

10.1 Format: A TPln must be prepared in Contractor format in Microsoft Word.

10.2 Content: As a minimum, the DD report must contain sections (as applicable to the project) under the following headings.

1. Section 1 – Plan Overview. This section of the TPln typically describes the Contractor's strategy, methodology, processes and sequence of activities for the types of testing involved. The TPln typically provides Inspection and Test Points.
2. Section 2- Organization and Management. This section of the TPln typically describes the Contractor's organization and management for the types of testing.
3. Section 3-Flow Diagram. The TPln typically includes a type of test Flow Diagram for the test program.
4. Section 4-Objectives. The TPln typically outlines the Test Program Objectives.
5. Section 5 – Support Requirements. The TPln typically identifies the significant technical and logistic support required to the types of tests.
6. Section 6-Special Testing. The TPln typically identifies any Special Testing which forms part of the Test Program.
7. Section 7-Documentation. The TPln typically identifies the documentation requirements for each type of test in the Test Program
8. Section 8-Configrurations. The TPln typically provides the System/Equipment Configuration(s) that will be tested and shows how this configuration is the same configuration that will be offered for acceptance.
9. Section 9-Failure and Corrective Action Management. The TPln typically describes the Problem Resolution System used for the collection of failure data, track corrective action, and how follow up testing will be managed following a test failure.

10.3 Delivery Instructions, Review and Approval Requirements:

1. Number of Copies/Format: 1 soft copy in MS Word and .PDF format.
2. Delivery Venue: e-mail or FTP
3. First Submission: Requirement Date -50wd
4. TAA Review/Approval: Yes/Yes
5. Review/Approval Lead Time: 10wd/10wd
6. Subsequent Submission: N/A
7. Remarks: Review and Approval run concurrently.

3.2DID-TST-02

1. TITLE	2. IDENTIFICATION NUMBER
Test Procedure	DID-TST-02

3. DESCRIPTION / PURPOSE

The purpose of the Test Procedure (TP) is to document the step by step operations to be performed on items undergoing development, qualification and acceptance testing. The TP identifies the items to be tested, the test equipment, support required, the test conditions to be imposed, the parameters to be measured, and the pass/fail criteria against which the test results will be measured. The document is a compilation of individual test procedures for related elements of a system, subsystem or equipment.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	5.2.5.3,5.2.5.4 5.2.5.5,5.2.5.6,5.2.5.7

7. APPLICATION / INTERRELATIONSHIP

The TP may be used in conjunction with the First Article Test Plan and the Production Test Plans, Factory Acceptance Test Procedure, Noise and Vibration Test Procedure, EMC/EMI Test Procedure, Shock Test Procedure, Environmental Test Procedure, Endurance Test Procedure.

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

10.1 Format: A TP must be prepared in Contractor format in Microsoft Word.

10.2 Content: As a minimum, the TP must contain the following information (as applicable).

1. Front Matter

Cover and Title Page. The following information must appear on the outside front cover and title page:

a. Date of issue;
b. Revision date (if applicable);
c. Procedure document identification number;
d. Contract number;
e. Contractor's name and address;
f. Type of procedure. Including purpose (e.g., first article test, developmental evaluation, qualification, environmental (specify), acceptance, or other;
g. Identification of the system, subsystem, or equipment to be tested; and
h. Security classification (if applicable).

Record of changes. A record of change pages must be included to provide for the tracking of changes to the test procedures.

Table of contents. A table of contents is required when more than one test procedure is included in the test procedures document. It must identify the page location of each procedure number, procedure title, and related equipment nomenclature.

2. Body of Document. For each test procedure, the following information is required.

Procedure number. Each procedure must have a unique number assigned to it.

Title of Procedure. The title should relate to the purpose of the test.

Introduction. The following must be addressed in the introduction:

a. Purpose of test. (As specified in the contract tasking document).
b. System, sub-system or equipment to be tested. The following identification must be provided.
    1) Nomenclature;
    2) Model or part number;
    3) Type of test item (prototype, production item, laboratory model, etc.); and
    4) Applicable specification.
c. Test requirements. Included the following, each related to the prescribing contract requirement paragraph (specification, standard, plan, or work statement)
d. Required tests, and parameters to be measured.
e. Performance requirements, acceptance of compliance limits, and Environmental criteria.
f. Referenced documents. A list by title, number, date, and source of those documents cited in the test

procedure.

Required test equipment. Includes the following for each piece of test equipment required to perform the procedure:

a. Nomenclature;
b. Use of test equipment;
c. Model number (if applicable);
d. Manufacturer (if mandatory);
e. Accuracy and calibration requirements; and
f. Range or spectrum of measurements required.

Table of tests. This table lists each test performed under the procedure in the sequence it is to be performed, identified to the procedure paragraph, and the related specification/contract requirement.

Step by step procedure. The following must be included for each step of the test procedure:

a. Test set-up diagrams, including test equipment connections.
b. Input and output instrumentation points.
c. Test item operating limits and test conditions to be imposed.
d. Performance parameters to be measured.
e. Step-by-step operations to obtain the required data.
f. Caution and safety warnings as appropriate.

Data Sheets. Data sheets must be included with the procedure, or be separately attached at the end of all procedures. They must provide for:

a. Identification of item tested, including model and serial numbers.
b. Recording of test measurements
c. Identification of required or objective performance values, with tolerances.
d. Identification of applicable procedure paragraphs.
e. Date of test.
f. Signature of technician or inspector performing the tests.

Support requirements. Any special support requirement would be included in this section such as:

a. Use of special facilities or test ranges.
b. Personnel requirements (numbers, types, qualifications).
c. Unusual electrical, hydraulic, pneumatic, etc., requirements.
d. Support equipment requirements.

10.3 Delivery Instructions, Review and Approval Requirements:

1.	Number of Copies/Format:	1 soft copy in MS Word and .PDF format.
2.	Delivery Venue:	e-mail or FTP
3.	First Submission:	Requirement Date -10wd
4.	TAA Review/Approval:	Yes/Yes
5.	Review/Approval Lead Time:	10wd/10wd
6.	Subsequent Submission:	N/A
7.	Remarks:	Review and Approval run concurrently

3.3DID-TST-03

1. TITLE	2. IDENTIFICATION NUMBER
Test Report	DID-TST-03

3. DESCRIPTION / PURPOSE

The purpose of the Test (TST) Report is to document the test/inspection results, findings and analyses that will enable Canada to evaluate compliance with system requirements, performance objectives, specifications, and test/inspection plans.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	5.2.7.1.1.2.1 5.2.7.1.2.1.1 5.2.7.1.3.1.1 5.2.7.1.4.1.

7. APPLICATION / INTERRELATIONSHIP

The TST Report may be used to report the results of the tests conducted in accordance with the Factory Acceptance Test Procedure, Noise and Vibration Test Procedure, EMC/EMI Test Procedure, Shock Test Procedure, Environmental Test Procedure, and Endurance Test Procedure.

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

10.1 Format: A TST Report must be prepared in Contractor format in Microsoft Word.

10.2 Content: The TST Report must contain the following information (as applicable).

1. Front Matter

Cover and Title Page. The following information must appear on the outside front cover and title page:

a. Date of issue;
b. Revision date (if applicable);
c. Contractor's name, address, and commercial and government entity code;
d. Contract number;
e. Contractor's name and address;
f. Type of test/inspection (e.g. EMC/EMI Test, Deliverable Unit 1 FAT Test, etc.);
g. . Including purpose (e.g., first article test, developmental evaluation, qualification, environmental (specify), acceptance, or other;
h. Identification of the item tested/inspected;
i. Date or period of test/inspection;
j. Name and address of requiring government activity; and
k. Security classification (if applicable).

Record of changes. A record of change pages must be included to provide for the tracking of changes to the test report.

Table of contents. A table of contents is required identifying the following:

a. The title and starting page of each major section, paragraph, and appendix of the report; and
b. The page, identifying number and title of each illustration (for example figure, table, photograph, chart and drawing).

2. Introduction. The introduction must include the following information.

Test/inspection objective(s). The specific test/inspection objective(s) as specified in the contract tasking document.

Item(s) tested/inspected. Completed identification of the items tested/inspected including the following:

a. Nomenclature.
b. NATO Stock Number.
c. Model number, part number, and serial number.
d. Type of item (for example, prototype, production item, laboratory model).
e. Serial or lot number.

f. Applicable engineering changes.
g. Production item specification, if applicable.
h. Date of manufacture.

Test/inspection requirements. Complete identification of the test/inspection requirements correlated to contractual requirements including the following:

a. Required test/inspection parameters.
b. Performance requirements, acceptance or compliance limits, and environmental criteria.

3. Summary. Complete test/inspection report summary including the following:
   a. A brief discussion of the significant test/inspection results, observations, conclusions, and recommendations covered in greater detail elsewhere in the reports.
   b. Proposed corrective actions and schedules for failures or problems encountered.
   c. Identification of deviations, departures, or limitations.
   d. Tables, graphs, illustrations, or charts as appropriate to simplify the summary date.

4. Reference documents. Complete identification of all documents referenced in the test/inspection report including the following as applicable:
   a. Prior test/inspection reports on the same item.
   b. Test/inspection plans and procedure documents.
   c. Prior certifications of compliance.
   d. Contractor's file designation where test/inspection records are maintained.
   e. Input parameters used.

   The applicable issue of the documents cited therein, including their approval dates and dates of any applicable amendments, notices, and revisions, must be specified in the contract.

5. Body of Document. For each test procedure, the following information is required.

Test Equipment Identification. Complete identification of each item of test equipment used in the test/inspection including the following:

a. Nomenclature.
b. Model number.
c. Serial number.
d. Manufacturer.
e. Calibration status.
f. Accuracy data.
g. Comments, if applicable.

Title/inspection facility installation and set-up. Complete description of the physical set-up used in conducting the test/inspection to include the following:

a. Location or orientation of the item;
b. Location, orientation, or settings of test equipment and instrumentation.
c. Location, orientation, or settings of sensors and probes.
d. Location or orientation of interconnections, cables and hoop ups.
e. Electrical power, pneumatic, fluidic, and hydraulic requirements.

Drawings, illustrations, and photographs may be used for clarification.

Test/inspection procedures. Complete description of the procedures used in conducting the test/inspection to include the following:

a. Item selection and inspection that verified suitability for test/inspection.
b. Summarized sequence of testing/inspection steps, including a description of how the item was operated during the test/inspection, and any control conditions imposed.

Test/inspection results and analysis. A copy of all test/inspection results and analysis to include the following:

Recorded data. The actual recorded data. If the recorded data is extensive provide it as an appendix.

Test/inspection results. Identification of all test/inspection results to include the following:

a. Matrices comparing results achieved against test/inspection objectives or requirements.
b. A discussion of these matrices as to their significance, and how they compare to any prior test/inspections.
c. Calculation examples.
d. Discussion of anomalies, deviations, discrepancies, or failures, including their impact, causes, and proposed corrective actions. The discussion must address discrepancies between design requirements and the tested/inspected configuration.

Conclusions. Test/inspection conclusions distinguished between objective and subjective to include the following:

a. The effectiveness of the test/inspection procedures in measuring item performance.
b. The success or failure of the item to meet required test/inspection objectives.
c. The need for repeat, additional, or alternative tests/inspections.
d. The need for item redesign or further development.
e. The need for improved test/inspection procedures, techniques, or facilities.
f. The adequacy and completeness of the test/inspection requirements.

Recommendations: Recommendations appropriate to the test/inspection results and conclusions including the following

a. Acceptability of the item tested/inspected (pass or fail).
b. Additional testing/inspection required.
c. Redesign required.
d. Problem resolution.
e. Test/inspection procedure or facility improvements.
f. Disposition of items tested/inspected.
g. Documentation changes required.
h. Testing/inspection improvements.

Authentication. The following certifications must be included, as applicable:
Authentication of test/inspection results. A statement that the test/inspection was performed in accordance with the applicable test/inspection plans and procedures, and that the results are true and accurate. The authentication must include the signature of the contractor personnel that performed the test(s)/inspections(s), a contractor representative authorized to make such certification, and any government witness.
Authentication of prior validation. A statement identifying those requirements not tested/inspected or measured that were previously validated. Include identification of the data and method employed for such validation (for example, prior test/inspection, analytical verification, equivalent item, and so on). The authentication must include the signature of a contractor representative authorized to make such authentication and any government witness.
Authentication of acceptability. A statement that the item tested/inspected either passed or failed item acceptability requirements. This authentication must include the signature of a contractor representative authorized to make such authentication and any government witness.

6. Appendices. Appendices must be used to append detailed test/inspection data, drawings, photographs, or other documentation too voluminous to include in the main body of the report. This includes referenced documentation not previously provided by the government, and test/inspection reports from any associated test/inspection activity that may have performed some of the testing/inspection requirements.

10.3

Delivery Instructions, Review and Approval Requirements:

8. Number of Copies/Format: 1 soft copy in MS Word and .PDF format.
9. Delivery Venue: e-mail or FTP
10. First Submission: Test +5wd
11. TAA Review/Approval: Yes/Yes
12. Review/Approval Lead Time: 10wd/10wd
13. Subsequent Submission: N/A
14. Remarks: Review and Approval run concurrently

4 Production DIDs

4.1 FAT Reports

Factory Acceptance Test (FAT) Procedures will be developed IAW DID-TST-02.
FAT Reports will be developed IAW DID-TST-03.

5 Quality DIDs

No QA DIDs

6 Configuration Management DIDs

6.1 DID-CM-01

1. TITLE	2. IDENTIFICATION NUMBER
Configuration Status Account	DID-CM-01

3. DESCRIPTION / PURPOSE
The Configuration Status Account (CSA) is a database that collects, records, stores, handles, verifies and validates and presents Configuration Status Accounting information for each Configuration Item identified in the Configuration Management Plan that is under configuration management and control.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	8.2.1

7. APPLICATION / INTERRELATIONSHIP
The CSA may be used in conjunction with the Configuration Management Plan for deliverable documents and items of supply.

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

10.1 Format: The CSA must be prepared in Contractor format in Microsoft Excel.

10.2 Content: A Configuration Items Record in CSA must as a minimum include:

1. An indentured list of the item and its sub-components.
2. For each indentured item (or sub-component):
   a. the current approved configuration identifier;
   b. reference to its associated documentation;
   c. proposed changes from initiation, review, approval, disapproval, and implementation;
   d. configuration audit results and disposition of identified discrepancies;
   e. installation status of approved configuration changes to all CIs at all locations;
   f. next higher assembly using the part number, except for assembly into standard parts;
   g. composition of any CI or part number with respect to other CIs or part numbers;
   h. serial numbers associated with part numbers;
   i. critical components by both part number and serial number;
   j. reference to specifications and specification control numbers associated with any contractor, subcontractor, vendor, or supplier part number;
   k. reference to all changes to superseded configurations formally accepted by the Canada; and
   l. all engineering changes released for production incorporation.

10.3	Delivery Instructions, Review and Approval Requirements: 1. Number of Copies/Format: 1 soft copy in source format (e.g. MS Excel) and .PDF format. 2. Delivery Venue: e-mail or FTP 3. First Submission: PDR Meeting -10wd 4. TAA Review/Approval: Yes/N/A 5. Review/Approval Lead Time: 10//N/A 6. Subsequent Submissions: CDR,-10 wd, Production Complete + 20 wd 7. Remarks: N/A

6.2DID-CM-02

1. TITLE	2. IDENTIFICATION NUMBER
Configuration Status Account Report	DID-CM-02

3. DESCRIPTION / PURPOSE

The Configuration Status Account (CSA) Report provides details about the current Configuration Items (CI) being developed under the contract; documentation and identification numbers relating to those CIs and changes to items and their configuration documentation.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	8.3.1

7. APPLICATION / INTERRELATIONSHIP

The CSA Report may be used in conjunction with the Configuration Management Plan and the Configuration Status Account.

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

Reference: ANSI/EIA 649-B Configuration Management Standard

10.1 Format: The CSA Report must be prepared in Contractor format in Microsoft Word.

10.2 Content: The CSA Report must include.

1. Data from the CSA database including:
   a. the identification of the currently approved configuration documentation and configuration identifiers associated with each CI;
   b. the status of proposed engineering changes from initiation to implementation;
   c. the status and disposition of discrepancies from configuration audits;
   d. the status of requests for deviations and waivers;
   e. the ability to trace changes from the baseline documentation of each CI; and
   f. the effectiveness and installation status of configuration changes to all CIs at all locations.

2. The CSA Report must identify design information using descriptive documentation and identification numbers meeting the requirements of ANSI/EIA 649:
   a. Specification revision excepting that reference to Source Control Numbers does not apply;
   b. Specification revision history excepting that reference to SCNs does not apply;
   c. Drawing revision level;
   d. Drawing revision history;
   e. Software version level;
   f. Software version history; and
   g. CI component indentured listing.

3. The CSA Report must include current information about active change processing meeting the requirements of ANSI/EIA 649:
   a. Changes being processed status;
   b. Changes being processed history;
   c. Event Date Entries; and
   d. Change processing history.

4. The CSA Report must include current information about approved changes to CIs.

	5. The CSA Report must include current information about implementation of approved changes meeting the requirements of ANSI/EIA 649: a. Approved change implementation activities; b. Drawing revision activity; c. Software revision activity; d. Technical manual and other related document preparation/ revision; e. Spares purchase and distribution; f. Support equipment design, purchase or modification; and g. Retrofit / modification kit development 5. The CSA Report must include current information about configuration items meeting the requirements of ANSI/EIA 649-B.
10.3	Delivery Instructions, Review and Approval Requirements: 1. Number of Copies/Format: 1 soft copy in source format (e.g. MS Word or PPT) and .PDF format. 2. Delivery Venue: e-mail or FTP 3. First Submission: PDR Meeting -10wd 4. TAA Review/Approval: Yes/Yes 5. Review/Approval Lead Time: 10/10 6. Subsequent Submission: CDR -10wd, Production Complete + 20 wd 7. Remarks: N/A

6.3DID-CM-03

1. TITLE	2. IDENTIFICATION NUMBER
Master Record Index	DID-CM-03

3. DESCRIPTION / PURPOSE

The Master Record Index (MRI) defines the standard of build of the Equipment/System. The index comprises a key to the approved drawings and associated records and list all design changes introduced by amendment and modifications.

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4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	8.4

7. APPLICATION / INTERRELATIONSHIP

The MRI may be used in conjunction with the Configuration Management Plan, Configuration Status Account and As Delivered Drawings.

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

10.1 Format: The MRI must be prepared in Contractor format in Microsoft Word.

10.2 Content: As a minimum the MRI must consist of the following:

1. Cover Sheet;
2. Index of Amendments and Modifications;
3. Index of Subsidiary Master Record Indexes;
4. Index of Configuration Items (Cis);
5. Indentured Drawing List;
6. Index of Configuration Documentation;
7. Index of Technical Manuals;
8. Index of Engineering Change Proposals;
9. Index of Requests for Deviation and Waivers; and
10. Index of Ancillary Equipment.

Sections hall have contents as defined in the attached section.

10.3 Delivery Instructions, Review and Approval Requirements:

1. Number of Copies/Format: 1 soft copy in source format (e.g. MS Word or PPT) and .PDF format.
2. Delivery Venue: e-mail or FTP
3. First Submission: Production Complete+20wd
4. TAA Review/Approval: Yes/N/A
5. Review/Approval Lead Time: 10//N/A
6. Subsequent Submission: N/A
7. Remarks: N/A

MASTER RECORD INDEX CONTENTS

1. INDEX OF CONFIGURATION ITEMS

1.1 The Index of Configuration Items must list, in hierarchical form, all the CIs constituting the Equipment/System. The Index of Configuration Items must be developed from data from the Configuration Item List.

1.2 For each CI, the Index of Configuration Items must detail the following information:

a. CI Reference Number. This field must detail the reference number allocated to the CI by the Contractor. This number is to relate the CI to higher level assembly to which it belongs in a hierarchical manner to system level;

b. CI Nomenclature. This field must detail the name allocated to the CI;

c. CI Type. This field must detail whether the CI is a Hardware Configuration Item (HWCI) or a Computer Software Configuration Item (CSCI);

d. HWCI. This field is applicable to CSCIs only and must detail the HWCI the CSCI is resident in;

e. Subsystem. This field must detail the CI's parent Subsystem;

f. System. This field must detail the CI's parent System; and

g. Design Organization. This field must detail the organization responsible for design of the CI.

1.3 The Index of Configuration Items must be sorted in System and then Subsystem order.

1.4 Headings must be positioned in the Index of Configuration Items to identify where each System and Subsystem begin.

2. INDEX OF COMPONENTS

2.1 The Index of Components (IOC) must be detailed in hierarchal form, the physical build structure of the System and must go down to and include piece parts. The Index of Components must be developed from data contained in the Specifications and Drawings.

2.2 For each Item in the IOC, the IOC must detail the following information:

a. Indenture Level. This field must document the indenture level of the Item. The System is indenture level 1;

b. Part Number. This field must document the Item's Part Number;

c. Variant Number. When more than one variant of an Item has been used in the construction of the System, the Part Number of each variant is to be given a variant number (e.g. 1, 2, 3). This field must default to one (1) when only one variant of an Item has been used;

d. Part Number Status. This field must contain the status of the Part Number (e.g. PROPOSED, CURRENT, OBSOLETE and HISTORICAL);

e. Quantity Fitted. This field must document the quantity of the Item fitted to the Item's next higher assembly;

f. Drawing Number. This field must document the Drawing Number of the Item; and

g. Nomenclature. This field must document the Item's nomenclature. The IOC must be sorted in System then Subsystem then CI order.

2.3 Headings must be positioned in the IOC to identify where each System, Subsystem and CI begin.

3. INDENTURED DRAWING LIST

3.1.1.1 The Indentured Drawing List (IDL) must list, in hierarchal form, all the drawings constituting the System design, including Subcontractor drawings.

3.1.1.2 For each drawing, the IDL must detail the following information:

a. Indenture Level. This field must document the indenture level of the drawing;

b. Drawing Number. This field must document the drawing number;

c. Revision Letter. This field must document the latest revision letter of the drawing applicable to the System;

d. Drawing Title. This field must document the title of the drawing;

e. Drawing Type. This field must document the drawing type which the drawing belongs to e.g. Detail Assembly Drawing, Specification Control Drawing, Wiring List, etc.;

f. Drawing Size. This field must document the sheet size of the drawing e.g. A2, A3, etc.; and

g. Number of Sheets. This field must document the number of sheets making up the drawing.

4. INDEX OF CONFIGURATION DOCUMENTATION

4.1 The Index of Configuration Documentation (IOCD) must list the Configuration Documentation describing the functional, allocated and product baselines for the System (drawings are to be excluded from the IOCD as they have been listed elsewhere).

4.2 For each document, the IOCD must detail the following information:

a. CI Reference Number. This field must detail the CI Reference Number the Document is applicable to;

b. CI Nomenclature. This field must detail the CI's nomenclature;

c. Document Reference Number. This field must detail the Document's Reference Number;

d. Document Revision Number. This field must detail the Revision Number of the Document; and

e. Document Type. This field must detail the type of document the Document belongs to (e.g., Development Specification, Test Requirement Document, and Software Requirements Specification etc.).

4.3 The following types of Configuration Documentation, as a minimum where produced, must be included in the list:

a. System Specifications;

b. Development Specifications;

c. Product Specifications;

d. Interface Control Documents;

e. Software Requirements Specifications;

f. Interface Requirements Specifications;

g. Software Product Specifications;

h. Software Version Descriptions;

i. Software Design Descriptions;

j. Interface Design Descriptions;

k. Database Design Descriptions;

l. Material Specifications; and

m. Process Specifications.

4.4 The IOCD must be divided into two (2) sections. Section 1 must be sorted in System then Subsystem then CI order. Section 2 must be sorted in Document Type then Document Reference Number order.

4.5 Headings must be positioned in Section 1 to indicate where each System, Subsystem and CI begins.

4.6 Headings must be positioned in Section 2 to indicate where each Document Type begins.

5. INDEX OF TECHNICAL MANUALS

5.1 The Index of Technical Manuals (IOTM) must list the technical manuals developed under the Contract.

5.2 For each Technical Manual, the IOTM must detail the following information:

a. CFTO Number or equivalent. This field must detail the DND CFTO Number or equivalent allocated to the Technical Manual. Where there is no need to allocate a DND CFTO Number to a Technical Manual this field is to contain the following entry: NOT REQUIRED;

b. Contractor Reference Number. This field must detail the Contractor Reference Number for the Technical Manual;

c. Title. This field must detail the title of the Technical Manual; and

d. Related CIs. This field must detail the Configuration Items the Technical Manual is applicable to.

5.3 The IOTM must be divided into two (2) sections. Section 1 must be sorted in System then Subsystem then CI order. Section 2 must be sorted in CFTO Number then Contractor Reference Number order.

5.4 Headings must be positioned in Section 1 to indicate where each System, Subsystem and CI begins.

5.5 No headings need to be positioned in Section 2.

6. INDEX OF MAJOR ENGINEERING CHANGE PROPOSALS

6.1 The Index of Major Engineering Change Proposals (ECPs) must document all Major ECPs raised against the System and its constituent Items during the Contract, including those raised by the Subcontractors.

6.2 For each ECP, the Index of Major ECPs must detail the following information:

a. ECP Number. This field must document the unique ECP identification number;

b. ECP Revision Letter. This field must document the revision level of the ECP;

c. ECP Justification Code. This field is as defined in MIL-HDBK-61A-;

d. ECP Title. This field must document the title of the ECP;

e. Date Raised. This field must document the date the ECP was raised;

f. ECP Status. This field must document the status of the ECP;

g. Status Date. This field must document the date the status of the ECP changed;

h. CCB Decision. This field must document the decision made by the Configuration Control Board (CCB);

i. Decision Date. This field must document the date of the CCB decision;

j. Impacted CIs. This field must document the CIs impacted by the ECP;

k. Affected Part Numbers. This field must document the CI Part No variants impacted by the ECP;

l. New Part Numbers. This field must document the new CI Part No variants introduced as a result of the ECP. Where the new Part No is simply a re-identification of an existing Part No this relationship must be clearly shown;

m. Production Effectivity. This field must document the production effectivity of the ECP; and

n. Retrofit Effectivity. This field must document the retrofit effectivity of the ECP.

7. INDEX OF MINOR ENGINEERING CHANGE PROPOSALS

7.1 The Index of Minor Engineering Change Proposals (ECPs) must document all Minor ECPs raised against the System and its constituent Items during the Contract, including those raised by the Subcontractors.

7.2 For each ECP, the Index of Minor ECPs must detail the following information:

a. ECP Number. This field must document the unique ECP identification number;

b. ECP Revision Letter. This field must document the revision level of the ECP;

c. ECP Title. This field must document the title or a brief description of the ECP;

d. Date Raised. This field must document the date the ECP was raised;

e. ECP Status. This field must document the status of the ECP;

f. Approval Authority. This field must document who approved or rejected the ECP;

g. Decision Date. This field must document the date the approval authority approved or rejected the ECP;

h. Impacted CI. This field must document the CI impacted by the ECP;

i. CI Part Numbers. This field must document the CI Part No variants impacted by the ECP; and

j. Production Effectivity. This field must document the production effectivity of the ECP.

8. INDEX OF REQUESTS FOR DEVIATION

8.1 The Index of Requests for Deviation (RFDs) must document all RFDs raised against the System and its constituent Items during the Contract, including those raised by the Subcontractors.

8.2 For each RFD, the Index of RFDs must detail the following information:

a. RFD Reference Number. This field must document the unique RFD identification number;

b. RFD Title/Description. This field must document the title or provide a brief description of the RFD;

c. RFD Class. This field must document the class of the RFD i.e. Critical, Major or Minor;

d. Date Raised. This field must document the date the RFD was raised;

e. RFD Status. This field must document the status of the RFD;

f. Approval Authority. This field must document who approved or rejected the RFD;

g. Decision Date. This field must document the date the approval authority approved or rejected the RFD;

h. Impacted CI. This field must document the CI impacted by the RFD;

i. CI Part Number. This field must document the CI Part Number variant impacted by the RFD;

j. Affected Part Number. This field must document the Part Number of the Item subject to the RFD;

k. Affected Serial Numbers. This field must document the Serial Number(s) of the Item subject to the RFD;

l. MMI Part Number. If the affected Item is not a Maintenance Managed Item (MMI) and does not build directly to the CI then this field must document the Part Number of the higher level MMI; and

m. MMI Serial Number(s). This field must document the Serial Number(s) of the MMI specified at subparagraph (l).

8.3 The Index of RFDs must be divided into three (3) sections. Section 1 must list RFDs classified as Critical, Section 2 must list RFDs classified as Major and Section 3 must list RFDs classified as Minor.

8.4 Each Section must be further subdivided into two (2) Subsections. Subsection 1 must be sorted in RFD Reference Number order. Subsection 2 must be sorted in System then Subsystem then CI order.

8.5 Headings must be positioned in Subsection 2 to indicate where each System, Subsystem and CI begins.

8.6 No headings need to be positioned in Subsection 1.

9. INDEX OF ANCILLARY EQUIPMENT

9.1 The Index of Ancillary Equipment (IAE) must list the Support and Test Equipment (S&TE) and Training Equipment (hereinafter known as Ancillary Equipment) required to support the maintenance/operation of the System and its constituent Items.

9.2 For each piece of Ancillary Equipment, the IAE must detail the following information:

a. Ancillary Equipment Designation. This field must document the designation of the Ancillary Equipment;

b. Nomenclature. This field must document the nomenclature of the Ancillary Equipment;

c. Ancillary Equipment Type. This field must document the support equipment type the Ancillary Equipment belongs to (for example Ground Support Equipment, Automatic Test Equipment, Special to Type Tooling, etc.);

d. Supported CI(s). This field must document the CI(s) supported by the Ancillary Equipment;

e. CI Part Number Variants. This field must document the CI Part Number variant(s) supported by the Ancillary Equipment; and

f. Affected Part Numbers. If the Item(s) supported by the Ancillary Equipment is (are) below the CI level then this field must document the Part Number(s) of the Item(s) supported by the Ancillary Equipment.

9.3 The IAE must be divided into two (2) Sections. Section 1 must be sorted by Ancillary Equipment Type then by Ancillary Equipment Designation. Section 2 must be sorted by Supported CI then Ancillary Equipment Type then Ancillary Equipment Designation order.

9.4 Headings must be positioned in Section 1 to indicate where each Ancillary Equipment Type begins.

9.5 Headings must be positioned in Section 2 to indicate where each CI begins.

6.4DID-CM-04

1. TITLE	2. IDENTIFICATION NUMBER
Functional Configuration Audit Report	DID-CM-04

3. DESCRIPTION / PURPOSE

The Functional Configuration Audit (FCA) Report provides the results of the FCA. The purpose of the FCA is to verify that the Configuration Item's (CI) actual performance complies with its Design and Interface Requirements Specifications. Test data must be reviewed to verify that the CI performs as required by its functional allocated configuration identification. The FCA is a prerequisite to design acceptance.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	8.5.1.1

7. APPLICATION / INTERRELATIONSHIP

The FCA Report may be used in conjunction with System/Sub-System Specifications, Requirements Verification Cross Reference Matrix, First Article Test Plan, Factory Acceptance Test Procedures, First of Class Functional Test Procedures, and Requirements Verification Cross Reference Matrix.

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

10.1 Format: The FCA Report must be prepared in Contractor format in Microsoft Word.

10.2 Content: As a minimum the FCA Report must include the following:

1. FCA Pre-requisite Information:
   a. Identify Canada and Contractor Representation;
   b. Identify item(s) that were audited:
      i) Nomenclature;
      ii) Specification Identification Number;
      iii) Configuration Number;
      iv) Current listing of al deviations/waivers against the configuration item either requested of, or approved by Canada
2. Procedures and Requirements
   a. Report on FCA Checklist used to identify documentation and Cis to be available and tasks to be accomplished at the FCA for the CI
   b. Report on Test Procedures against Specification Requirements;
      i) Test plans, specifications, descriptions, procedures, and reports for the CI;
      ii) List of successfully accomplished functional tests during with pre-acceptance data was recorded;
      iii) A complete list of successful functional tests if detailed test data are not recorded; and
      iv) A complete list of functional tests required by the specification but not yet performed (and where in the test and acceptance process they will be performed).
3. Report Results

   Repot on sufficiency of testing accomplished with the approved test procedures and validated data (witnessed) to ensure CI functional performance as set forth in the specification meets the quality assurance provisions/qualification requirements contained in the specification.

10.3	Delivery Instructions, Review and Approval Requirements: 1. Number of Copies/Format: 1 soft copy in source format (e.g. MS Word or PPT) and .PDF format. 2. Delivery Venue: e-mail or FTP 3. First Submission: FCA + 5wd 4. TAA Review/Approval: Yes/N/A 5. Review/Approval Lead Time: 10wd/10wd 6. Subsequent Submission: N/A 7. Remarks: Review and Approval run concurrently

6.5DID-CM-05

1. TITLE	2. IDENTIFICATION NUMBER
Physical Configuration Audit Report	DID-CM-05

3. DESCRIPTION / PURPOSE

The Physical Configuration Audit (PCA) Report provides the results of the PCA. The PCA is the formal examination of the as-built version of the Configuration Item (CI) against its design documentation in order to establish the product baseline. After successful completion of the PCA, all subsequent configuration changes are processed by engineering change action.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	8.5.2.1

7. APPLICATION / INTERRELATIONSHIP

The PCA Report may be used in conjunction with System/Sub-System Specifications, Requirements Verification Cross Reference Matrix, First Article Test Plan, Factory Acceptance Test Procedures, Functional Configuration Audit Report, and Requirements Verification Cross Reference Matrix.

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

10.1 Format: The PCA Report must be prepared in Contractor format in Microsoft Word.

10.2 Content: As a minimum the PCA Report must include the following:

1. FCA Prerequisite Information:
   a. Identify Canada and Contractor Representation;
   b. Identify item(s) that were audited:
      i) Nomenclature;
      ii) Specification Identification Number;
      iii) Configuration Number;
      iv) Serial Number;
      v) Drawing and Parts Numbers; and
      vi) Identification Numbers
      vii) Current listing of all deviations/waivers against the configuration item either requested of, or approved by Canada
2. Procedures and Requirements
   a. Report on PCA Checklist used to identify documentation and Cis to be available and tasks to be accomplished at the FCA for the CI
   b. Report on required audit of data including:
      i) CI Product Specification;
      ii) List of approved or outstanding changes against the CI;
      iii) Complete shortage list;
      iv) Acceptance test procedures and associated test data;
      v) Engineering Drawing Index including revision letters;
      vi) Operating, Maintenance, and Illustrated Parts Catalogue Manuals;
      vii) Material Inspection and Receiving Reports;
      viii) Approved Nomenclature and Nameplates;
      ix) FCA Report for each CI; and
      x) Any findings/status of Quality Assurance Program.
3. Report Results
   Repot on whether the CI has been built in accordance with the drawings and the specifications and whether the CI is

approved for acceptance.

10.3 Delivery Instructions, Review and Approval Requirements:

1. Number of Copies/Format: 1 soft copy in source format (e.g. MS Word or PPT) and .PDF format.
2. Delivery Venue: e-mail or FTP
3. First Submission: PCA+5wd
4. TAA Review/Approval: Yes/N/A
5. Review/Approval Lead Time: 10wd//10
6. Subsequent Submission: N/A
7. Remarks: Review and Approval run concurrently

7 ILS DIDs

7.1 DID-ILS-01

1. TITLE	2. IDENTIFICATION NUMBER
Maintenance Plan	DID-ILS-01

3. DESCRIPTION / PURPOSE
The purpose of the Maintenance Plan (MP) is to set out the maintenance routines that are carried out on the Equipment/System by ship's staff and/or by Fleet Maintenance Facility (FMF) staff.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	9.1

7. APPLICATION / INTERRELATIONSHIP
The MP may be used in conjunction with the Logistics Support Analysis Record, Technical Manual, Recommended Spare Parts List, and Special Purpose Tools and Test Equipment List, As Delivered Specifications and Drawings.

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

10.1 Format: Contractor Format.

10.2 Content: The MP should identify those elements of the WTPV System that require or are recommended for periodic maintenance (including replacement of any components with a life or wear consideration), the frequency of this maintenance and the tools and parts required to conduct this maintenance and for the recommended maintenance any specific procedures required to carry out this maintenance.

10.3 Delivery Instructions, Review and Approval Requirements:

1. Number of Copies/Format: 1 soft copy in source format (e.g. MS Word or PPT) and .PDF format.
2. Delivery Venue: e-mail or FTP
3. First Submission: CDR Meeting -10wd
4. TAA Review/Approval: Yes/Yes
5. Review/Approval Lead Time: 10/10
6. Subsequent Submission: N/A
7. Remarks: Review and Approval run Concurrently

7.2DID-ILS-02

1. TITLE	2. IDENTIFICATION NUMBER
Recommended Spare Parts List	DID-ILS-02

3. DESCRIPTION / PURPOSE

The purpose of the Recommended Spare Parts List (RSPL) is to propose a list of recommended Installation, On-board, and Depot level Spares required to support the Equipment/System.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	9.2

7. APPLICATION / INTERRELATIONSHIP

The RSPL may be used in conjunction with the Contract, Logistics Support Analysis Record, Technical Manual, Special Purpose Tools and Test Equipment List, As Delivered Specifications and Drawings.

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

References: CFTO D-01-100-214/SF-000 – Preparation of Provisioning Documentation for CF Equipment, dated 1 May 2002

10.1 Format: The RSPL must be prepared, following the guidance at the references, in Microsoft Excel.

10.2 Content:

1. The RSPL for each listed item must, have the following completed data fields:
   a. Item Number (unique sequence number for the list);
   b. Indenture Code;
   c. Item Name;
   d. Reference (Manufacturer's Part) Number;
   e. NSCM/CAGE Code;
   f. OEM Part Number;
   g. NATO Stock Number (if available);
   h. Quantity Per Assembly;
   i. Standard Unit Price;
   j. Unit of Issue (UOI);
   k. Unit of Measure;
   l. Reparability Indicator (REP);
   m. Government Supplied Material (GSM);
   n. Procurement Lead Time (PLT);
   o. Reference Designation;
   p. Shelf Life;
   q. Usage Rate;
   r. Mean Time Between Failure;
   s. Recommended Buy Quantity Total summing up:
      1) Recommended Buy Installation Spares/Shipset;
      2) Recommended Buy On-Board Spares/Shipset;
      3) Recommended Buy Depot Spares
   t. SMR Code;
   u. Logistics Control Number (LCN);
   v. Used On Code;

w. Extended Price Per Item (Standard Unit Price times Recommended Buy Quantity).
The RSPL must have a recommended Total RSPL price summing up the Extended Price Per Items.

2. Sparing Assumptions:
a. Installation- Assume quantity four (4) submarine installs.
b. On-Board Maintenance-Assume quantity four (4) submarines.
b. Depot- Assume quantity 1 supply depot.
c. Two (2) years' worth of On-Board Spares
d. Nine (9) years' worth of Depot Spares.

10.3 Delivery Instructions, Review and Approval Requirements:

1.	Number of Copies/Format:	1 soft copy in MS Excel and .PDF format.
2.	Delivery Venue:	e-mail or FTP
3.	First Submission:	CDR Meeting -10wd
4.	TAA Review/Approval:	Yes/Yes
5.	Review/Approval Lead Time:	10wd/10wd
6.	Subsequent Submission:	N/A
7.	Remarks:	Review and Approval run concurrently

7.3DID-ILS-03

1. TITLE	2. IDENTIFICATION NUMBER
Provisioning Parts Breakdown	DID-ILS-03

3. DESCRIPTION / PURPOSE

The purpose of Provisioning Parts Breakdown (PPB) is to provide the approved list of Installation, On-Board and Depot Level Spares required to support the equipment/system.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	9.3

7. APPLICATION / INTERRELATIONSHIP

The PPB may be used in conjunction with the Contract, Logistics Support Analysis Record, Technical Manual, Provisioning Special Purpose Tools and Test Equipment Breakdown, As Delivered Specifications and Drawings.

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

References: CFTO D-01-100-214/SF-000 – Preparation of Provisioning Documentation for CF Equipment, dated 1 May 2002

10.1 Format: The PPB must be prepared, following the guidance at the references, in Microsoft Excel.

10.2 Content: The PPB , as a minimum, must have the following content for each line:

1. The RSPL for each listed item must have the following completed data fields:
   a. Item Number (unique sequence number for the list);
   b. Indenture Code;
   c. Item Name;
   d. Reference (Manufacturer's Part) Number;
   e. NSCM/CAGE Code;
   f. OEM Part Number;
   g. NATO Stock Number (if available);
   h. Quantity Per Assembly;
   i. Standard Unit Price;
   j. Unit of Issue (UOI);
   k. Unit of Measure;
   l. Reparability Indicator (REP);
   m. Government Supplied Material (GSM);
   n. Procurement Lead Time (PLT);
   o. Reference Designation;
   p. Shelf Life;
   q. Usage Rate;
   r. Mean Time Between Failure;
   s. Recommended Buy Quantity Total summing up:
      1) Approved Buy Installation Spares/Shipset;
      2) Approved Buy On-Board Spares/Shipset;
      3) Approved Buy Depot Spares
   t. SMR Code;
   u. Logistics Control Number (LCN);
   v. Used On Code;
   w. Extended Price Per Item (Standard Unit Price times Recommended Buy Quantity).

	2. Supplementary Provisioning Technical Documentation (SPTD). For each item that has not already been assigned a NATO Stock Number (NSN), the following Supplementary Provisioning Technical Documentation is required to assist in the NSN cataloguing process: a. Item Name; b. Manufacturer's Part Number; c. CAGE Code; and d. As applicable: i. Configuration-drawing of item, assembly, wiring or schematic drawing, illustrated parts list; ii. Technical Specification, including relevant standard; iii. Physical Characteristics, such as dimensions, tolerances, materials, mandatory processes, surface finish, protective coating; iv. Electrical Characteristics; v. Performance data, including the environmental and operating conditions under which the item must perform; vi. Mounting Requirements; vii. Special features which contribute to the uniqueness of the item; and viii. Commercial Catalogue Data. The SPTD must be sequenced in the same order as the provisioning list that it supplements; The SPTD must include identification of any limitations on the use or publication of any data provided.
10.3	Delivery Instructions, Review and Approval Requirements: 1. Number of Copies/Format: 1 soft copy in MS Excel and .PDF format. 2. Delivery Venue: e-mail or FTP 3. First Submission: Production Start -10wd 4. TAA Review/Approval: Yes/Yes 5. Review/Approval Lead Time: 10wd/10wd 6. Subsequent Submission: N/A 7. Remarks: Review and Approval run concurrently

7.4DID-ILS-04

1. TITLE	2. IDENTIFICATION NUMBER
Special Purpose Tools and Test Equipment List	DID-ILS-04

3. DESCRIPTION / PURPOSE
The purpose of the Special Purpose Tools and Test Equipment (SPTATE) List is to provide a list of recommended Installation, On-board, and Repair Facility SPTATE required to support the Equipment/System.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	9.4

7. APPLICATION / INTERRELATIONSHIP
The SPTATE List may be used in conjunction with the Contract, Logistics Support Analysis Record, Technical Manual, Recommended Spare Parts List, As Delivered Specifications and Drawings.

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

References: CFTO D-01-100-214/SF-000 – Preparation of Provisioning Documentation for CF Equipment, dated 1 May 2002

10.1 Format: The SPTATE List must be prepared, following the guidance at the references, in Microsoft Excel.

10.2 Content: The SPTATE List, as a minimum must have the following content for each line:

1. For each proposed SPTATE item include:
   a. Part Description;
   b. Manufacturer's Part Number;
   c. Original Equipment Manufacturer (OEM);
   d. OEM NSCM/CAGE Code;
   e. OEM Part Number;
   f. NATO Stock Number (if available);
   g. Procurement Lead Time (PLT);
   h. Recommended Quantity Buy to Support Installation;
   i. Recommended Quantity Buy Per On-Board Maintenance;
   j. Recommended Quantity Per Repair Facility Maintenance;
   k. Total Quantity (Installation, On-Board, Repair Facility);
   l. Price Per item; and
   m. Extended Price Per Item.

2. For custom SPTATE, including automatic test equipment (ATE) include:
   a. description and function of SPTATE; and
   b. SPTATE development cost.

3. SPTATE Assumptions:
   a. Installation-Assume quantity four (4) submarine installations.
   B. On-Board Maintenance-Assume quantity four (4) submarines.
   c. Repair Facility- Assume quantity two (2) Fleet Maintenance Facilities.

10.3	Delivery Instructions, Review and Approval Requirements: 8. Number of Copies/Format: 1 soft copy MS Excel and .PDF format. 9. Delivery Venue: e-mail or FTP 10. First Submission: CDR -10wd 11. TAA Review/Approval: Yes/Yes 12. Review/Approval Lead Time: 10wd/10wd 13. Subsequent Submission: N/A 14. Remarks: Review and Approval run concurrently

7.5DID-ILS-05

1. TITLE	2. IDENTIFICATION NUMBER
Provisioning Special Purpose Tools and Test Equipment Breakdown	DID-ILS-05

3. DESCRIPTION / PURPOSE
The purpose of Provisioning Special Purpose Tools and Test Equipment Breakdown (PSB) is to provide the approved list of Installation, On-Board and Depot Level Spares required to support the equipment/system.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	9.5

7. APPLICATION / INTERRELATIONSHIP
The Provisioning SPTATE Breakdown may be used in conjunction with the Contract, Logistics Support Analysis Record, Technical Manual, Provisioning Parts Breakdown, As Delivered Specifications and Drawings.

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

References: CFTO D-01-100-214/SF-000 – Preparation of Provisioning Documentation for CF Equipment, dated 1 May 2002

10.1 Format: The PSB must be prepared, following the guidance at the references, in Microsoft Excel.

10.2 Content: The PSB, as a minimum must have the following content for each line:

1. For each approved SPTATE item include:
   a. Part Description;
   b. Manufacturer's Part Number;
   c. Original Equipment Manufacturer (OEM);
   d. OEM NSCM/CAGE Code;
   e. OEM Part Number;
   f. NATO Stock Number (if available);
   g. Procurement Lead Time (PLT);
   h. Approved Quantity Buy to Support Installation;
   i. Approved Quantity Buy Per On-Board Maintenance;
   j. Approved Quantity Per Repair Facility Maintenance;
   k. Total Quantity (Installation, On-Board, Repair Facility);
   l. Price Per item; and
   m. Extended Price Per Item.

SPTATE Assumptions:

1. Installation – Assume quantity four (4) submarines.
2. On-Board Maintenance-Assume quantity four (4) submarines.
3. Repair Facility- Assume quantity two (2) Fleet Maintenance Facilities.

10.3	Delivery Instructions, Review and Approval Requirements: 1. Number of Copies/Format: 1 soft copy MS Excel and .PDF format. 2. Delivery Venue: e-mail or FTP 3. First Submission: Production Start -10wd 4. TAA Review/Approval: Yes/Yes 5. Review/Approval Lead Time: 10wd/10wd 6. Subsequent Submission: N/A 7. Remarks: Review and Approval run concurrently

7.6DID-ILS-06

1. TITLE	2. IDENTIFICATION NUMBER
Technical Manual	DID-ILS-06

3. DESCRIPTION / PURPOSE

The purpose of the Technical Manual (TM) is to provide instructions for the Operation and Maintenance of the Equipment or System.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	9.6

7. APPLICATION / INTERRELATIONSHIP

The TM may be used in conjunction with Recommended Spare Parts List, Special Purpose Tools and Test Equipment List, As Delivered Specifications, As Delivered Drawings, Naval Preventive Maintenance Schedules, Standard Ship Maintenance and Repair Specifications, and Training Documentation.

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

References: CFTO C-01-100-100/AG-006 – Writing, Format and Production of Technical Publications, dated 1 March 1996

10.1 Format: The TM must be prepared, following the guidance at the references, in Microsoft Word.

10.2 Content: The TM, as a minimum must have the following content as applicable.

1. Purpose
2. Identify:
   a. Manufacturer/Supplier; and
   b. Equipment Location x Quantity, Type/Stock Code NSN.
3. Design and Performance Data
   a. May reference associated publications.
4. Services Required
   a. Identify power and other services.
5. Logistics Requirements
   a. Identify any special logistics requirements.
6. Safety Precautions
   a. Identify safety precautions.
7. Associated Documentation
   a. Maintenance Schedules;
   b. Drawings;
   c. Ship's Operating Procedures (SOPs); and
   d. Emergency Operating Procedures (EOPs).
8. Functional Diagram
9. Operating Information
   a. Cautions
      i) "Category 2 operating information defines the design performance intentions based on operational design intent. The equipment operation given in this category is based on manufacturer's recommendations, the procedures and sequences described do not override Ship's Operation Procedures (SOP) or Emergency Operating Procedures (EOP), local orders or statutory requirements concerning operating procedures or safety precautions, any inadequate or incorrect procedures should be reported to the appropriate administrative authority."

b. Operating Limitations
   i) Normal Mode;
   ii) Alternative Mode;
   iii) Arctic and Tropical Climates;
   iv) Shore Supplies;
   v) Radiation hazard;
   vi) Ship Listed; and
   v) Defects.

c. Pre-Start Checks and Setting-Up Prior to Starting
   i) Services Required
   ii) Equipment/System-General
   iii) Equipment/System Sub-Elements Specific

d. Starting Procedures
   i) Normal Mode; and
   ii) Alternative Mode

e. Running Procedures
   i) Normal Mode;
   ii) Equipment/System Sub-elements; and
   iii) Additional Elements.

f. Control Change-Over Procedures

g. Stopping Procedures
   i) Normal Mode; and
   ii) Alternative Mode.

h. Maintenance Procedures
   i) Shipboard-Refer to Ship's Staff NPMS; and
   ii) Repair Facility- Refer to RF NPMS.

i. Emergency Procedures
   i) Emergency Procedure 1;
   ii) Emergency Procedure 2; and
   iii) Emergency Procedure etc.

j. Diagnostic and Repair Information
   i) Fault Diagnostic and Repair Information 1;
   ii) Fault Diagnostic and Repair Information 2; and
   iii) Fault Diagnostic and Repair Information etc.

k. Illustrated Parts Catalogue
   In sufficient detail to aid in the identification of component parts or assemblies of parts to provide the information necessary for the demanding of spares.

10.3 Delivery Instructions, Review and Approval Requirements:

1. Number of Copies/Format: 1 soft copy in source format (e.g. MS Word or PPT) and .PDF format.
2. Delivery Venue: e-mail or FTP
3. First Submission: Production Start -10wd
4. TAA Review/Approval: Yes/Yes
5. Review/Approval Lead Time: 20wd/20wd
6. Subsequent Submission: N/A
7. Remarks: Review and Approval Run Concurrently

7.7DID-ILS-07

1. TITLE	2. IDENTIFICATION NUMBER
Technical Data Package	DID-ILS-07

3. DESCRIPTION / PURPOSE

The purpose of the Technical Data Package (TDP) is to provide a final consolidated delivery of project developed Engineering and Integrated Logistics Support documentation required to support the equipment/system In-Service.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-2	9.7

7. APPLICATION / INTERRELATIONSHIP

The TDP may be used in conjunction with the Logistics Support Analysis Record, Technical Manual, Recommended Spare Parts List, and Special Purpose Tools and Test Equipment List, As Delivered Specifications and Drawings.

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-2	

10. PREPARATION INSTRUCTIONS

10.1 Format: The TDP elements must be prepared, following the guidance of their associated DIDs, in their respective formats.

10.2 Content: The TDP must include:

1. System Requirements Document (SRD) (Proposal/Contracted). Contracted if different from Proposal.
2. System/Subsystem Specifications (Final Version), including Procurement Specifications for OTS Components.
3. Engineering Drawings and Associated Lists (As Built Versions).
4. Material List (Final Version).
5. Safety Data Sheets (Final Versions)
6. Technical Manuals (Final Version).
8. Approved Spare Parts List (Parts Provisioning Breakdown (PPB).
9. Approved SPTATE List. (SPTATE Provisioning Breakdown (SPTATEPB)

Delivery Instructions, Review and Approval Requirements:

1. Number of Copies/Format: 1 soft copy in source format and .PDF format.
2. Delivery Venue: e-mail or FTP
3. First Submission: 1st Delivery +10wd
4. TAA Review/Approval: Yes/Yes
5. Review/Approval Lead Time: 10/10
6. Subsequent Submission: N/A
7. Remarks: Review and Approval run concurrently

10.3

7.8 CDRL-ILS-08

1. TITLE	2. IDENTIFICATION NUMBER
Contractor End Items List (CEIL)	DID-ILS-08

3. DESCRIPTION / PURPOSE

The purpose of the Special Purpose Tools and Test Equipment (SPTATE) List is to provide a list of recommended Installation, On-board, and Repair Facility SPTATE required to support the Equipment/System.

4. APPROVAL DATE	5. OFFICE OF PRIMARY INTEREST (OPI)	6. SOW SECTION
	Technical Authority, DNPS 4-5	9.8

7. APPLICATION / INTERRELATIONSHIP

The SPTATE List may be used in conjunction with the Contract, Logistics Support Analysis Record, Technical Manual, Recommended Spare Parts List, As Delivered Specifications and Drawings.

8. ORIGINATOR	9. APPLICABLE FORMS
DNPS 4-3	

10. PREPARATION INSTRUCTIONS

References: CFTO D-01-100-214/SF-000 – Preparation of Provisioning Documentation for CF Equipment, dated 1 May 2002

10.1 Format: The SPTATE List must be prepared, following the guidance at the references, in Microsoft Word.

10.2 Content: The SPTATE List, as a minimum must have the following content for each line:

1. Part Description;
2. Manufacturer's Part Number;
3. Original Equipment Manufacturer (OEM);
4. OEM NSCM/CAGE Code;
5. OEM Part Number;
6. NATO Stock Number;
7. Recommended Quantity Per System Installation;
8. Recommended Quantity Per On Board Maintenance;
9. Recommended Quantity Per Repair Facility Maintenance;
10. Total Quantity (Installation, On-Board, Repair Facility);
11. Price Per item; and
12. Extended Price Per Item.

SPTATE Assumptions:

1. Installation, On-Board Maintenance-Assume quantity four (4) submarines.
2. Repair Facility- Assume quantity two (2) Fleet Maintenance Facilities.

10.3 Delivery Instructions, Review and Approval Requirements:

1. Number of Copies/Format: 1 soft copy in source format (e.g. MS Word or PPT) and .PDF format.
2. Delivery Venue: e-mail or FTP
3. First Submission: At meeting or Meeting -10wd
4. TAA Review/Approval: Yes/N/A
5. Review/Approval Lead Time: 10//N/A
6. Subsequent Submission: N/A
7. Remarks: N/A

Appendix 6-Compliance Verification Matrix

Note: Should there be a discrepancy between the wording in the table below, and the requirements wording in Section 3 of the Systems Requirements Document (SRD), the wording in the SRD shall take precedence.

SRD SECTION	REQUIREMENT	VERIFICATION METHOD	Remarks
3.1	Water Tight Pressure Vessel	N/A	Sub-Heading
3.1.1	Function	N/A	Sub-Sub-Heading
3.1.1.1	The WTPV Opening Cover must be easily operated (open or closed) and secured by a team of not more than two people.	Demonstration	Functional Qualification Test (FQT) Using WTPV System in SBS Well Mock-Up
3.1.1.2	The removal/replacement of an OBM and its associated RA from the WTPV must be able to be safely and easily accomplished by a team of not more than four personnel.	Demonstration	FQT Using WTPV System in SBS Well Mock-Up and both small and large OBMs
3.1.2	Interfaces	N/A	Sub-Sub-Heading
3.1.2.1	The WTPV must externally interface with the WTPV Mounting Arrangements.	Demonstration	FQT using WTPV System in SBS Well Mock-Up
3.1.2.2	The WTPV must internally interface with the OBM Restraining Arrangements.	Demonstration	FQT using WTPV and both sizes of OBMs.
3.1.3	Design and Construction	N/A	Sub-Sub-Heading
3.1.3.1	The WTPV must be sized such that it is capable of securely stowing, without disassembly the largest of the following out board motors (OBM), or motors of a similar size, identified for intended stowage in the WTPV: a. 35 HP MFE Evinrude; and b. 25 HP Yamaha.	Demonstration	FQT using WTPV System in SBS Well Mock-Up and both large and small OBM
3.1.3.2	The WTPV must fit on its MA within the SBS Well (as defined by the Sketches found at Attachment 1 to this SRD) under the SBS Well hatches, leaving	Demonstration	FQT using WTPV System in SBS Well Mock-Up and both large and small OBM

SRD SECTION	REQUIREMENT	VERIFICATION METHOD	Remarks
	sufficient room for: a. A second WTPV and associated Mounting Arrangements; b. Removal and replacement, without disassembly of either of the OBMs; and c. Stowage of the two (2) deflated six (6) or ten (10) man small boats and four (4) filled 18 USG fuel bladders.		
3.1.3.3.1	The WTPV must have a watertight and pressure tight opening with cover through which either of the OBMs may be removed or replaced.	Demonstration	WT and PT Remove/Replace OBMs
3.1.3.3.2	The location of this opening with cover must be on the end of the WTPV which faces the small boat and fuel bladder stowage space in the SBS well.	Inspection	During FQT
3.1.3.3.3	The WTPV's opening cover must not impede the removal of an OBM and its associated RA from the opened WTPF.	Demonstration	During FQT in SBS Well Mock-Up
3.1.3.3.4	The WTPV Opening Cover Securing Arrangements must be located such that they are easily accessible from the working end of the SBS well.	Demonstration	During FQT in SBS Well Mock-Up
3.1.3.3.5	The WTPV Opening Cover Securing Arrangements must be sized such that they can be operated by personnel with or without gloves.	Demonstration	During FQT in SBS Well Mock-Up
3.1.3.4	The WTPV must have an easily accessible pressure equalizing capability.	Test	
3.1.3.5	The WTPV must have an easily	Demonstration	

SRD SECTION	REQUIREMENT	VERIFICATION METHOD	Remarks
	accessible vacuum test capability.		
3.1.3.6	The WTPV must have an easily accessible capability to drain any accumulated water	Demonstration	
3.1.4	Material	N/A	Sub-Sub-Heading
3.1.4.1	The WTPV must be comprised on non-hazardous materials.		
3.1.4.2	The WTPV must be comprised of materials that are suitable for use in the submerged marine environment.		
3.1.4.3	The WTPV must have a material life of at least nine (9) years.		
3.1.4.4	The WTPV must have a black non-reflective colour.		
3.1.5	Environmental	N/A	Sub-Sub-Heading
3.1.5.1	The WTPV must operate in temperatures between -40°C to + 48°C		
3.1.5.2	The WTPV must, as an empty unit, have a seawater design pressure of 35 Bar.	Analysis Test	Pressure Test
3.1.5.3	The WTPV must survive up to 15 cycles to 35 Bar.	Analysis Test	Pressure Test
3.1.5.4	Not Used		
3.1.5.5	The WTPV must be able to hold a 90mbar vacuum for 15 minutes	Test	
3.1.5.6	The WTPV, when containing either OBM, and when mounted in the WTPV Mounting Arrangements must meet the Grade 3 shock resistance requirements as defined at reference 2.	Similarity or Test	Must test if WTPV System design is significantly different from current design.
3.1.5.7	The WTPV, when containing either OBM, and when mounted in the WTPV Mounting Arrangements must be vibration resistant and meet the vibration resistance requirements as defined at reference 3.	Analysis and Test	
3.2	OBM Restraining Arrangements	N/A	Sub-Heading

SRD SECTION	REQUIREMENT	VERIFICATION METHOD	Remarks
3.2.1	Function	N/A	Sub-Sub-Heading
3.2.2	Interfaces	N/A	Sub-Sub-Heading
3.2.2.1	The OBM RA must be externally interfaced to the WTPV.		
3.2.2.2	The OBM RA must be externally interfaced to the OBM.		
3.2.2.3	The OBM RA must be tethered to the WTPV such that when being removed or replaced, they are not lost during this evolution.	Inspection Demonstration	
3.2.3	Design and Construction	N/A	Sub-Sub-Heading
3.2.3.1	The OBM RA must accommodate, within the WTPV, the following out board motors (OBM): a. 35 HP MFE Evinrude and b. 25 HP Yamaha Separate sets of OBM RA are acceptable.	Demonstration	
3.2.3.2	The OBM RA must be easily removed from or attached to the OBM by not more than two people.	Demonstration	
3.3.3.3	The OBM RA must minimize the noise level associated with the removal/replacement of OBM from the WTPV.	Demonstration	
3.2.4	Material	N/A	Sub-Sub-Heading
3.2.4.1	The OBM RA must be comprised of non-hazardous material.	Analysis	
3.2.4.2	The OBM RA material must be non-permeable.	Demonstration	
3.2.4.3	The OBM RA material must not lose their integrity or mechanical capability when contact with salt water, grease or fuel.	Analysis	
3.2.4.4	The OBM RA material must have a life of at least nine (9)	Similarity	

SRD SECTION	REQUIREMENT	VERIFICATION METHOD	Remarks
	years.		
3.2.4.5	The OBM RA material must have a black, non-reflective colour.	Inspection	
3.2.5	Environmental		
3.2.5.1	The OBM RA must operate in temperatures between -40°C to + 48°C.	Similarity	
3.2.5.2	The OBM RA, when containing either OBM, and when secured in the WTPV, with the WTPV in the WTPV Mounting Arrangements, must meet the Grade 3 shock resistance requirements as defined at reference 2.	Similarity or Test	Must test if OBM RA design is significantly different from current design.
3.2.5.3	The OMB RA, when containing either OBM, and when secured in the WTPV, with the WTPV in the WTPV Mounting Arrangements, must be vibration resistant and meet the vibration resistance requirements as defined at reference 3.	Test	
3.3	WTPV Mounting Arrangements	N/A	Sub-Heading
3.3.1	Function	N/A	Sub-Sub-Heading
3.3.2	Interfaces	N/A	Sub-Sub-Heading
3.3.2.1	The WTPV MA must externally interface with the WTPV.		
3.3.2.2	The WTPV MA must externally interface with the submarine via the submarine's existing WTPV mounting plates defined in the drawing at reference 1.	Analysis	WTPV MA Installation Drawing.
3.3.3	Design and Construction	N/A	Sub-Sub-Heading
3.3.3.1	A WTPV System MA must be sized such that it is capable of securely mounting one (1) WTPV.	Demonstration	
3.3.3.2	Not Used		
3.3.3.3	The WTPV MA must easily disassemble and reassemble to permit mounting and	Demonstration	

SRD SECTION	REQUIREMENT	VERIFICATION METHOD	Remarks
	dismounting of WTPV System.		
3.3.3.4	The WTPV's MA/WTPV Interface must hold the WTPV System securely in place independent of speed and depth.	Analysis	
3.3.3.5	The WTPV's Mounting Arrangement/WTPV Interface must prevent noise and vibration between the WTPV and the WTPV Mounting Arrangements independent of speed and depth.	Analysis	
3.3.4	Material	N/A	Sub-Sub-Heading
3.3.4.1	The WTPV MA must be comprised of non-hazardous material.	Analysis	
3.3.4.2	The WTPV MA must be comprised of materials that are suitable for use in the submerged marine environment.	Analysis	
3.3.4.3	The WTPV MA must have a Material Life of at least nine (9) years.	Similarity	
3.3.4.4	The WTPV MA must have a black and non-reflective colour.	Inspection	
3.3.5	Environmental	N/A	Sub-Sub-Heading
3.3.5.1	The WTPV MA must operate in temperatures between -40°C to + 48°C.	Similarity	
3.3.5.2	The WTPV MA, with a WTPV mounted containing either OBM must meet the Grade 3 shock resistance requirements as defined in reference 2.	Similarity or Test	Must test if WTPV MA design is significantly different from current MA design.
3.3.5.3	The WTPV MA, with a WTPV mounted containing either OBM, must be vibration resistant and meet the vibration resistance requirements as defined at reference 3.	Analysis and Test	