



**ANNEX B**  
**Appendix 2**

**Data Item Description**

**Naval Remote Weapon Station System**

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# 1. INTRODUCTION

## 1.1 Purpose

- 1.1.1 This Data Item Description (DID) document, specifies the requirements for all documentation deliverables that shall be provided by the Contractor in accordance with the Statement of Work (SOW) and as itemized in the Contract Data Requirement List (CDRL).

## 1.2 Acronyms

- 1.2.1 Acronyms used throughout this DID are defined as follows:

Acronyms	
ATI	Acceptance Test Index
ATP	Acceptance Test Procedures
ATR	Acceptance Test Report
CDR	Critical Design Review
CDRL	Contract Data Requirement List
CEIL	Contract End Item List
CFITES	Canadian Forces Individual Training and Education System
CI	Configuration Item
CM	Configuration Management
COTS	Commercial Off-The-Shelf
CSCI	Computer Software Configuration Item
DID	Data Item Description
DND	Department of National Defence
EC	Engineering Change
ECGP	Engineering Change Guidance Package
EO	Enabling Objective
FAT	Factory Acceptance Test
FMECA	Failure Mode Effect Criticality Analysis
FSR	Field Service Representative
GFR	Government Furnished Resources
HAL	Halifax Class (abbreviation)
HAT	Harbour Acceptance Test

<b>Acronyms</b>	
HWCI	Hardware Configuration Item
ICT	Initial Cadre Training
IDD	Interface Design Document
IEC	International Electrotechnical Commission
ILS	Integrated Logistic Support
IMS	Integrated Master Schedule
IPB	Illustrated Parts Breakdown
ISO	International Standards Organization
ISS	In-Service Support
IT	Information Technology
JSS	Joint Support Ship
LLTIL	Long Lead Time Item List
LORA	Level of Repair Analysis
LSA	Logistic Support Analysis
MSDS	Material Safety Data Sheet
MTA	Maintenance Task Analysis
NA	Not Applicable
NaMMS	Naval Materiel Management System
NATO	North Atlantic Treaty Organization
NRWS	Naval Remote Weapon System
OE	Objective Evidence
PDR	Preliminary Design Review
PM	Project Management
PMP	Project Management Plan
PO	Performance Objective
PPB	Provisioning Parts Breakdown
PWGSC	Public Works Government Services Canada
QMP	Quality Management Plan
RMP	Risk Management Plan
SAT	Sea Acceptance Test
SCP	Safety Control Plan

<b>Acronyms</b>	
SDD	System Design Document
SE	System Engineering
SEMP	System Engineering Management Plan
SOW	Statement of Work
SPTD	Supplementary Provisioning Technical Documentation
SRR	System Requirement Review
SS	System Specification
STP	Software Test Plan
STW	Set-To-Work
SWDD	Software Design Document
SWDP	Software Development Plan
SWRS	Software Requirement Specification
TD	Technical Documentation
TDDL	Technical Data Deliverable List
TDP	Technical Data Package
TEMP	Test and Evaluation Management Plan
VCRM	Verification Cross Reference Matrix

## 1.3 Data Item Descriptions

- 1.3.1 Each documentation deliverable is defined in an individual DID, in accordance with the SOW and the CDRL, in the following sections of this document.

## **2. DID NRWS-PM-001 – PROJECT MANAGEMENT PLAN**

### **2.1 Description**

- 2.1.1 The Project Management Plan (PMP) shall be the master planning document that integrates, summarises, and references other project plans and schedules required by the SOW in order to define how the Contractor will manage the work specified in the SOW. When authorized by Canada, the PMP shall be the baseline master planning document for implementing the work specified by the SOW.
- 2.1.2 The PMP shall also itemize, define, and prioritize medium and high risks associated with all aspects of the Contractor's work necessary to address the SOW requirements. The PMP shall describe the procedures and assigned responsibilities for risk mitigation.
- 2.1.3 The PMP shall also outline the scope and methodology of the Quality Program that will be implemented by the Contractor to ensure that all deliverables meet the requirements of the SOW.

### **2.2 Office of Primary Interest**

- 2.2.1 Department of National Defence (DND)

### **2.3 Office of Collateral Interest**

- 2.3.1 Public Works and Government Services Canada (PWGSC)

### **2.4 Interrelationships**

- 2.4.1 SOW: Sections 3.2.1, 3.3.1, 3.7.1.6.a
- 2.4.2 DID: NRWS-PM-001 through NRWS-PM-006

### **2.5 References**

- 2.5.1 A Guide to the Project Management Body of Knowledge, Project Management Institute
- 2.5.2 ISO 9001:2008, Quality Management Systems – Requirements
- 2.5.3 ISO 10005:2005, Quality Management – Guidelines for Quality Plans

### **2.6 Preparation Instruction**

#### **2.6.1 Format**

- 2.6.1.1 The PMP shall be prepared in the Contractor's format.

## 2.6.2 Content

- 2.6.2.1 The PMP shall be a stand-alone document that provides sufficient information to allow the reader to understand how the project will be managed without referring to other documents. It is not acceptable to simply reference a document, procedure or standard without providing an overview of the material referenced. The PMP shall include the following as a minimum:
- a. Project Objectives – This section describes the objectives related to success of the project.
  - b. System Overview – This section describes at a high level the NRWS System.
  - c. Project Scope - This section identifies the scope of work undertaken for this project by the Contractor and Subcontractors;
  - d. Project Organization – This section describes the organizational structure responsible for managing and performing the scope of work under the contract. Content includes the Contractor's project management organization, interfaces with other company support organizations, and:
    - (1) The composition and purpose of each team and sub-team to be employed (e.g., Systems Engineering Team, Integrated Logistic Support Team, etc.);
    - (2) Position specifications, the responsibilities and authorities for each key staff position within the project team organization, and the skill sets needed to fill that position;
    - (3) What elements and/or resources are already in place and what is additionally required for this contract;
    - (4) The Contractor's contractual relationship with Subcontractors, and the Subcontractors corresponding project organizational structure;
  - e. Project Planning, Execution, and Control - This section contains a structured list of the plans to be used by the Contractor to:
    - (1) Ensure the traceability of the SOW requirements to the NRWS System and associated Deliverables, and verification of compliance with the SOW;
    - (2) Specify and manage project scope, cost, schedule, quality, and risk based upon the SOW;
    - (3) Plan, execute, and control the work required by the SOW, and administer change;



- (4) Provide an auditable scope, cost, and schedule performance measurement, tracking, and reporting process for the work specified in the SOW;
- (5) Specify and manage the communications required with project stakeholders in order to progress the work specified in the SOW;
- (6) Manage the preparation, submission, change, and Authorization or Acceptance of all documentation deliverables;
- (7) Manage sub-contractors and suppliers to ensure that all acquired material and services are compliant with the SOW;
- (8) Provide Canada and the Contractor with the means to identify problems for acknowledgement and resolution; and
- (9) Support project planning, execution, and control, and describe the planned purpose and usage of each tool.

f. Risk Management – This section describes the:

- (1) Risk management planning concept(s);
- (2) Risk identification methodology including the Risk Register;
- (3) Qualitative and quantitative risk analysis and prioritization methodology;
- (4) Risk mitigation planning methodology; and
- (5) On-going risk monitoring, control, and management including maintenance of Risk Management documentation and reporting methodology to both corporate management and Canada.

g. Quality Management – This section identifies:

- (1) How the Quality Program will be managed, executed, and integrated with other Contractor management processes to ensure NRWS System compliance with the SOW.
- (2) How the Quality Program is in full compliance with ISO9001:2008, and shall include a traceability matrix from the QMP to the applicable elements of ISO9001:2008.
- (3) How all Deliverable material, services, and data, whether purchased, or manufactured, or created within the Contractor facilities are addressed by the Quality Program.
- (4) The processes that may be employed for Canada to raise all issues regarding the NRWS System compliance for formal acknowledgement

by the Contractor and the means by which the Contractor will systematically resolve these issues.

- h. Deliverable Management Documentation - This section describes, or refer to other DIDs that describe, each document and its contents to be prepared and delivered by the Contractor in accordance with the SOW to define the risk and quality management processes;
- i. Management Resources – This section describes:
  - (1) The Contractor’s risk and quality management authorities, organization, and skills;
  - (2) Information, materials, equipment, facilities, services, Government Furnished Resources;
  - (3) The coordination of these resources required to conduct the risk and quality management of the NRWS System and associated Deliverables;
- j. Subsequent sections will be used to describe how all risk and quality management activities will be coordinated with the following:
  - (1) Project Management (specifically organizational interfaces and communications, schedule, and their overall management as related to risk and quality management);
  - (2) Requirement Management;
  - (3) System Engineering;
  - (4) Acceptance Program;
  - (5) Configuration Management;
  - (6) ILS Management; and
  - (7) Obsolescence Management.

### **3. DID NRWS-PM-002 – INTEGRATED MASTER SCHEDULE**

#### **3.1 Description**

- 3.1.1 The Integrated Master Schedule (IMS) shall reflect the time-based sequence of the events and milestones for the Contractor to complete the work identified in the SOW. Upon acceptance by Canada, the IMS shall be used as a baseline with which to conduct and measure day-to-day execution, progress tracking, budgeting, and assess changes.

#### **3.2 Office of Primary Interest**

- 3.2.1 DND

#### **3.3 Office of Collateral Interest**

- 3.3.1 PWGSC

#### **3.4 Interrelationships**

- 3.4.1 SOW: Sections 3.2.2, 3.3.1, 3.3.7, 3.7.1.4, 4.5.1.1, 4.5.4.5
- 3.4.2 DID: NRWS-PM-001

#### **3.5 References**

- 3.5.1 A Guide to the Project Management Body of Knowledge, Project Management Institute

#### **3.6 Preparation Instruction**

##### **3.6.1 Format**

- 3.6.1.1 The IMS shall be created using a commercially available, network capable scheduling software application (e.g. Microsoft Project, Oracle Primavera).

##### **3.6.2 Content**

- 3.6.2.1 The IMS shall be the primary schedule for the Contract, and all other schedules shall be subordinate to the IMS. The IMS shall include the following as a minimum:
- a. IMS Display - The IMS shall be capable of being displayed in a variety of formats, including:
    - (1) a Gantt chart;
    - (2) a network diagram;

- (3) a listing of all tasks, together with their planned, and actual start and completion dates;
  - (4) a listing of milestones together with their original, rescheduled, forecast, and actual completion dates; and
  - (5) a breakdown of the project into functional groupings such as project management, design, production, installation, integration, tests and trials, Integrated Logistics Support (ILS), etc., as well as into Control Level WBS elements.
- b. IMS Level - The IMS shall be capable of being displayed at a number of levels, as follows:
- (1) Summary Level - A graphical display of Contract activities, key events, milestones, and corresponding progress of the WBS;
  - (2) Intermediate Level - A graphical display of Contract activities, key events, milestones, and corresponding progress at the Control Account level of the WBS. An IMS generated at the Control Account Level shall be able to be rolled up to, and shall provide visibility of, the Summary Level.
  - (3) Detailed Level. - A graphical display of Contract activities, key events, and milestones at the work-package level of the WBS. An IMS generated at the Detailed Level shall be able to be rolled up to, and shall provide visibility of both the Intermediate Level and the Summary Level.
- c. IMS Data Content - The IMS shall be traceable to, and be integrated with the WBS, and the result shall be a fully networked schedule capable of critical path analysis. The IMS shall identify:
- (1) Activities and their estimated durations;
  - (2) Milestones, including Contract Milestones;
  - (3) The relationships and dependencies between activities and milestones;
  - (4) Earliest and latest start and finish dates for all activities and milestones;
  - (5) Critical and non-critical paths;
  - (6) Floats available on all activities and milestones;
  - (7) Notes on the use of the IMS, a glossary of terms and symbols used, and explanations of the cause of each rescheduled activity;
  - (8) Lead and lag times;

- (9) Subcontractor schedules;
  - (10) Other major events, as mutually agreed between the Contractor and the Canada Representative;
  - (11) External interfaces and critical items from suppliers and teammates;  
and
  - (12) Canada tasks, where such tasks interface with, and may affect, Contractor tasks.
- d. Master Milestone Register - The IMS shall include a Master Milestone Register, which records the significant milestones that the Contractor has planned to establish managerial control, contractual control, qualification for payment under the Contract, and any other important events and activities associated with progression of the Contract. The Master Milestone Register shall, for each milestone, include a set of measurable conditions that will be used to assess the achievement of the milestone. The Master Milestone Register may be provided as a stand alone document or may be integrated into the IMS if the IMS tool provides this functionality (e.g. through use of the Notes function).
- e. IMS Submissions - Each submission of the IMS shall provide:
- (1) visibility of actual progress against the current approved schedule baseline;
  - (2) actual start and finish dates for all activities and milestones;
  - (3) forecast start and finish dates for all activities and milestones not yet started or finished; and
  - (4) the original contracted baseline schedule, and all Authorized rescheduled baselines.
- f. Additional Information. The IMS shall include any general information that aids in understanding. The IMS shall also define any terms and acronyms required to understand the schedule.

## **4. DID NRWS-PM-003 – PROJECT PROGRESS REPORT**

### **4.1 Description**

- 4.1.1 The Project Progress Report shall summarize the Contractor's progress and any problems in relation to the approved scope, schedule, cost, plans, approved change implementation, deliverables, and associated Acceptance processes.

### **4.2 Office of Primary Interest**

- 4.2.1 DND

### **4.3 Office of Collateral Interest**

- 4.3.1 PWGSC

### **4.4 Interrelationships**

- 4.4.1 SOW: Sections 3.5.2, 3.6.2.1, 3.7.1.6.b, 3.7.1.6.c, 4.7.4.1
- 4.4.2 DID: NRWS-PM-001

### **4.5 References**

- 4.5.1 Not Applicable (NA)

### **4.6 Preparation Instruction**

#### **4.6.1 Format**

- 4.6.1.1 The Project Progress Report shall be prepared in the Contractor's format.

#### **4.6.2 Content**

- 4.6.2.1 The Project Progress Report shall include the following as a minimum:
  - a. An executive summary which covers significant elements of the report;
  - b. Narrative, detailing scope progress against milestones and related information, including:
    - (1) Status of NRWS System developmental areas;
    - (2) Status of each NRWS System Deliverable specified in the Contract End Item List (CEIL), with respect to its production, delivery, installation, set-to-work, Acceptance testing;
    - (3) All NRWS System Deliverable quality issues, medium and high risk issues, and any associated mitigation or work-around plans;

- (4) Status of each documentation Deliverable specified in the CDRL, and their Authorization or Acceptance;
  - (5) Status of all Deliverable services specified in the SOW;
  - (6) Update of progress for major subcontracts;
  - (7) Implementation status of all Authorized changes; and
  - (8) New Problem Reports, and requests for waivers, and requirements for proposed changes;
- c. Technical progress including the identification of any technical problems:
- (1) A detailed description of the observed problem;
  - (2) Identification of the affected HWCI(s) and/or Computer Software Configuration Item(s) (CSCI)(s);
  - (3) Identification of affected SOW requirements;
  - (4) Means by which the problem was observed (obsolescence, supportability, Acceptance Test number, etc.);
  - (5) An indication that an attempt was made to duplicate the problem, and whether or not the problem was successfully duplicated;
  - (6) Assessment regarding criticality of the problem to the NRWS Project implementation;
  - (7) Recommended changes from the current CI baselines that may be necessary to rectify the problem;
  - (8) Justification that the changes will optimally address the problem in terms of cost, supportability, minimization of customization, and all other applicable factors;
  - (9) The results of all testing conducted to date that may be affected by the deviation, and the required re-testing that will be necessary to demonstrate that the revised NRWS System meets contractual requirements;
  - (10) Itemization of corresponding changes that would be required to associated NRWS System deliverable documentation, goods and services via the Design Change Process;
  - (11) All action required by the Contractor to rectify the problem; and
  - (12) All action required by Canada to rectify the problem.

- d. The IMS with progress up to the last day of the reporting period;
- e. An itemized list of Government Furnished Resources in the possession of the Contractor; and
- f. Action items outstanding by the Contractor and Canada.



## **5. DID NRWS-PM-004 – MEETING AGENDA**

### **5.1 Description**

- 5.1.1 The Meeting Agenda shall summarize the planned topics of discussion, location, and timing of the meeting to be held.

### **5.2 Office of Primary Interest**

- 5.2.1 DND

### **5.3 Office of Collateral Interest**

- 5.3.1 PWGSC

### **5.4 Interrelationships**

- 5.4.1 SOW: Section 3.7.2
- 5.4.2 DID: NRWS-PM-001

### **5.5 References**

- 5.5.1 NA

### **5.6 Preparation Instruction**

#### **5.6.1 Format**

- 5.6.1.1 Meeting Agenda shall be prepared in the Contractor's format.

#### **5.6.2 Content**

- 5.6.2.1 Meeting Agenda shall include the following as a minimum:
  - a. Purpose of the meeting;
  - b. Time, date, location, and expected duration of review, meeting or conference;
  - c. A detailed schedule of events for the meeting;
  - d. A list of all required attendees, their organization, and their role in the project;
  - e. The name and phone number of the meeting coordinator and chairperson;
  - f. All details that attendees must address to meet security and facility access requirements; and
  - g. The following agenda items:

- (1) Review of the minutes of the previous meeting (if applicable);
- (2) Review of progress by the Contractor or Subcontractor, including a brief description of progress on actions or problems, if any, identified at the last review;
- (3) A list of new agenda items initiated by both Canada and the Contractor;
- (4) The responsibilities of the attendee(s) who will present each agenda item;
- (5) The objectives to be achieved for each agenda item; and
- (6) A brief background of the subject of each agenda item if not a topic of previous meetings, or correspondence.

## **6. DID NRWS-PM-005 – MEETING MINUTES**

### **6.1 Description**

- 6.1.1 The Meeting Minutes shall summarize the topics and discussions covered during meetings held.

### **6.2 Office of Primary Interest**

- 6.2.1 DND

### **6.3 Office of Collateral Interest**

- 6.3.1 PWGSC

### **6.4 Interrelationships**

- 6.4.1 SOW: Section 3.7.3
- 6.4.2 DID: NRWS-PM-001

### **6.5 References**

- 6.5.1 NA

### **6.6 Preparation Instruction**

#### **6.6.1 Format**

- 6.6.1.1 Meeting Minutes shall be prepared in the Contractor's format.

#### **6.6.2 Content**

- 6.6.2.1 Meeting Minutes shall include the following as a minimum:
  - a. Describe the discussion and decisions taken for agenda items;
  - b. Itemize action items, responsibilities and target dates for each agenda item;
  - c. Copies of briefing materials and discussion documents;
  - d. Next meeting date, if applicable;
  - e. A copy of the tabled agenda;
  - f. Approval signature blocks for responsible Canada and Contractor managers;  
and

- g. A blanket statement - Minutes are only a record of activity and carry no authority to change the interpretation of the SOW, approved scope, cost, schedule, and associated processes as defined in the Contract. Such changes require formal Contract amendment by the Contract Authority.
- h. Additionally, minutes for the Preliminary and Critical Design Reviews shall include the following as a minimum:
  - (1) A detailed description of all observations made by Canada that were submitted prior to the review along with observations made during the review;
  - (2) A reference to the origin of each observation;
  - (3) Steps taken to address the observation;
  - (4) Steps planned to resolve the observation; and
  - (5) Proposed date for observation resolution.

## **7. DID NRWS-PM-006 – REQUEST GOVERNMENT FURNISHED RESOURCES**

### **7.1 Description**

- 7.1.1 The Request for Government Furnished Resources (GFR) provides the list of proposed Government Furnished Resources, and justification as to why these resources are required, and how they will be employed.

### **7.2 Office of Primary Interest**

- 7.2.1 DND

### **7.3 Office of Collateral Interest**

- 7.3.1 PWGSC

### **7.4 Interrelationships**

- 7.4.1 SOW: Sections 4.3.1.2.i, 4.3.2.2.h, 4.9.1
- 7.4.2 DID: NRWS-PM-001

### **7.5 References**

- 7.5.1 NA

### **7.6 Preparation Instruction**

#### **7.6.1 Format**

- 7.6.1.1 The Request for GFR shall be prepared in the Contractor's format.

#### **7.6.2 Content**

- 7.6.2.1 The Contractor shall specify all requirements for GFR, which may be required to meet the SOW requirements. The Contractor shall specify the following for each GFR item requested:
  - a. A narrative description of the item, and applicable NATO stock numbers, part numbers, and serial numbers;
  - b. Quantities of each required item;
  - c. Maintenance, calibration, or set-up action that Canada must undertake on the items prior to provision;

- d. How, where, and when the GFR will be:
  - (1) transported, received, and stored prior to, and following its usage;
  - (2) employed in completing the work specified in the SOW;
  - (3) tracked during its usage;
  - (4) maintained during its usage; and
  - (5) returned to Canada;
- e. How the provision of the requested GFR will benefit Canada and enhance the value of the NRWS System and associated Deliverables to Canada; and
- f. Any general information that aids in understanding of the GFR requirement, and definition of any terms and acronyms used.

## **8. DID NRWS-SE-001 – SYSTEM ENGINEERING MANAGEMENT PLAN**

### **8.1 Description**

- 8.1.1 The System Engineering Management Plan (SEMP) describes the engineering methods to be used by the Contractor to deliver the NRWS System, and associated Deliverables.

### **8.2 Office of Primary Interest**

- 8.2.1 DND

### **8.3 Office of Collateral Interest**

- 8.3.1 PWGSC

### **8.4 Interrelationships**

- 8.4.1 SOW: Sections 4.1.2, 4.1.3
- 8.4.2 DID: NRWS-SE-002 to SE-012, NRWS-TD-001 to TD-002, NRWS-CM-001 to CM-003

### **8.5 References**

- 8.5.1 Communications Security Establishment Canada, IT Security Risk Management: A Lifecycle Approach (ITSG-33), November 2012
- 8.5.2 Treasury Board of Canada Secretariat, Operational Security Standard for the Identification and Categorization of Assets
- 8.5.3 Systems Security Engineering, NIST Special Publication 800-160, May 2014

### **8.6 Preparation Instruction**

#### **8.6.1 Format**

- 8.6.1.1 The SEMP shall be prepared in the Contractor's format.

#### **8.6.2 Content**

- 8.6.2.1 The SEMP shall include the following as a minimum:
  - a. Introduction - This section describes the scope and purpose of the plan, together with applicable definitions, references and related documents;

- b. Engineering Design and Development – This section describes how all engineering design and development activities will be conducted to ensure that the NRWS System and associated Deliverables are Accepted as compliant with the SOW. This section includes the following, but not limited to:
  - (1) System Characteristics – This section describes the process of identifying the various system components required for the NRWS System and their adaptation to meet NRWS System requirements. This section also describes how system component characteristics will be defined with respect to the SS;
  - (2) Life Cycle Model – This section describes the life cycle model(s) which have been chosen to adapt system components, and to develop the in-service support processes as described in NRWS-ILS-004;
  - (3) Applicable Standards – This section describes which system engineering design and development standards will be used to adapt system components;
  - (4) Design and Development Methodology – This section describes the methodology that will be used to adapt system components to meet NRWS System requirements and associated Deliverable requirements;
  - (5) Support Tools – This section describes the use of support tools used in system engineering such as Computer Assisted Software Engineering (CASE) or other high-level support tools, which will be used to support system component adaptation.
- c. System Security – This section describes the work that will be performed to address the potential security requirements of the system which may include:
  - (1) Describing security engineering and management within the Contractors organization, including security risk management;
  - (2) Categorizing the system and its information, identifying and analyzing vulnerabilities of the system, and allocating security functions/implementing security controls following the references in 8.5 to mitigate security risks.
- d. Engineering Impact to Ship and Shore facilities – This section describes how engineering design for ship considerations will be addressed during the engineering development process.
- e. Deliverable System Engineering Documentation - This section describes each document and its contents to be prepared and delivered by the Contractor in accordance with the SOW to define the system engineering processes and the results of these processes.



- f. Engineering Resources – This section describes:
- (1) The Contractor's engineering authorities, organization, and skills;
  - (2) Information, materials, equipment, facilities, services, Government Furnished Resources;
  - (3) The coordination of these resources required to conduct the engineering design and development of the NRWS System and associated Deliverables;
- g. Subsequent sections will be used to describe how all engineering design and development activities will be coordinated with the following:
- (1) Project Management (specifically organizational interfaces and communications, schedule, and their overall management as related to engineering);
  - (2) Quality Management;
  - (3) Risk Management;
  - (4) Requirement Management;
  - (5) Design Reviews;
  - (6) Acceptance Program;
  - (7) Configuration Management;
  - (8) ILS Management;
  - (9) Obsolescence Management; and
  - (10) Objective Evidence (OE).

## **9. DID NRWS-SE-002 – SYSTEM SPECIFICATION**

### **9.1 Description**

- 9.1.1 The System Specification (SS) shall define the Contractor's derivation of each NRWS System Specification requirement and each associated Deliverable requirement into a statement that will be used to direct subsequent NRWS System design, development, testing, and which provides traceability to each original Specification requirement.

### **9.2 Office of Primary Interest**

- 9.2.1 DND

### **9.3 Office of Collateral Interest**

- 9.3.1 PWGSC

### **9.4 Interrelationships**

- 9.4.1 SOW: Sections 4.2.2, 4.2.4, 4.3.1.2.a
- 9.4.2 DID: NRWS-SE-001, SE-003, SE-004

### **9.5 References**

- 9.5.1 NA

### **9.6 Preparation Instruction**

#### **9.6.1 Format**

- 9.6.1.1 The SS shall be prepared in the Contractor's format.

#### **9.6.2 Content**

- 9.6.2.1 The SS shall include the following as a minimum:
  - a. The Contractor's derivation of each TSOR requirement to the extent necessary to manage the NRWS System design, development and testing processes, including the integration of the NRWS System with each required shipboard interface;
  - b. A tabular listing of the wording for each TSOR requirement and paragraph number, arranged according to the numerical order of the TSOR, and the corresponding wording for each derived requirement(s) and number(s);

- c. A tabular listing of the wording for each derived requirement and number, arranged according to the numerical order of the SS, and the corresponding wording for each TSOR requirement(s) and paragraph number(s); and
- d. A means for indicating whether a given requirement has been changed as the project progresses, and reference to the Authorization for the change.

## **10. DID NRWS-SE-003 – VERIFICATION CROSS REFERENCE MATRIX**

### **10.1 Description**

- 10.1.1 The Verification Cross Reference Matrix (VCRM) shall document the requirements verification methods that the Contractor will use to prove to Canada that all requirements of the TSOR have been met by the delivered NRWS System.

### **10.2 Office of Primary Interest**

- 10.2.1 DND

### **10.3 Office of Collateral Interest**

- 10.3.1 PWGSC

### **10.4 Interrelationships**

- 10.4.1 SOW: Sections 4.2.6, 4.3.1.2.b, 4.3.2.2.a
- 10.4.2 DID: NRWS-SE-001, SE-002, SE-004, SE-005, SE-010, SE-011

### **10.5 References**

- 10.5.1 NA

### **10.6 Preparation Instruction**

#### **10.6.1 Format**

- 10.6.1.1 The VCRM shall be prepared in the Contractor's format.

#### **10.6.2 Content**

- 10.6.2.1 The VCRM shall include the following as a minimum:
- a. A table structured such that each row contains only one TSOR requirement, and a unique and unambiguous reference to:
    - (1) Each derived requirement;
    - (2) The specific point in the Contractor's deliverable documentation that specifies how each TSOR requirement is addressed by the proposed Functional Baseline and Product Configuration Documentation;

- (3) The specific point in the Contractor's deliverable documentation that specifies how compliance of the NRWS System Hardware Configuration Items (HWCI), and CSCI will be demonstrated with respect to the TSOR; and
- (4) The Acceptance status of each derived requirement.

## **11. DID NRWS-SE-004 – SYSTEM DESIGN DOCUMENT**

### **11.1 Description**

- 11.1.1 The System Design Document (SDD) shall identify the components of the NRWS System by summarizing the configuration and function of each HWCI and CSCI, how they are integrated into each NRWS System variant, and how each NRWS System variant is integrated into vessels, in accordance with the SS at DID NRWS-SE-002.

### **11.2 Office of Primary Interest**

- 11.2.1 DND

### **11.3 Office of Collateral Interest**

- 11.3.1 PWGSC

### **11.4 Interrelationships**

- 11.4.1 SOW: Sections 4.3.1.2.c, 4.3.2.2.b
- 11.4.2 DID: NRWS-SE-001, SE-002, SE-003, SE-005, NRWS-TD-002.

### **11.5 References**

- 11.5.1 D-01-002-007/SG-006 Requirements for the Selection of Configuration Items.
- 11.5.2 A-LP-005-000/AG-008 Equipment Management Team Handbook, Section 7.

### **11.6 Preparation Instruction**

#### **11.6.1 Format**

- 11.6.1.1 The SDD shall be prepared in the Contractor's format.

#### **11.6.2 Content**

- 11.6.2.1 The SDD shall specify all NRWS System configuration items employing the guidelines of References 11.5. The SDD shall include the following as a minimum:
  - a. Design Approach – A summary of the following as applicable to tailoring equipment and adapting software to meet NRWS System requirements and associated Deliverable requirements:
    - (1) Policies and Standards;

- (2) Design Strategy;
  - (3) Design Requirements and their decomposition;
  - (4) Design assumptions, constraints, and dependencies; and
  - (5) Design and development methods.
- b. Configuration Item Identification - A top down family tree that specifies overall NRWS System architecture, specifically:
- (1) all NRWS System configuration variants;
  - (2) their associated HWCI;
  - (3) CSCI resident in each HWCI;
- c. Configuration Item Definition - Definition of each NRWS System configuration variant and their associated configuration items including:
- (1) Item Identification Number;
  - (2) Item Nomenclature;
  - (3) Parent and sub-ordinate CIs;
  - (4) Description of the design and function of each HWCI, and each NRWS System configuration variant, including reference to the Technical Data Package of NRWS-TD-002 where details may be found;
  - (5) Description of the design and function of each CSCI, and each NRWS System configuration variant, including reference to the Technical Data Package of NRWS-TD-002 where details may be found;
  - (6) Allocation of the Functional Baseline requirements to each HWCI, each CSCI, and the system level of each NRWS System configuration variant;
- d. States and Modes - This section describes the NRWS System states and modes, explaining the functions of the various CIs and how they interact;
- e. Data Architecture - This section describes how the NRWS System information domain is organized into data structures, and how these data structures are stored, processed, and integrated with applicable external data structures;

- f. System Processes - This section describes the processes that will be performed by the software to address the operational requirements, including inputs and outputs;
- g. System Interfaces - This section describes each interface with the NRWS System CIs including software interface function and hardware;
- h. User Interfaces – This section describes the user screen image that the NRWS System operator and maintainer will see, with all objects and corresponding actions described;
- i. Software Performance – This section describes the performance for the software, in terms of number of users, response times, reliability, etc.;
- j. Hardware Infrastructure – This section describes the hardware infrastructure that will be needed to operate the software at the specified performance levels.
- k. Safety Features – This section describes the safety and fail safe functionality of the system;
- l. Security and Privacy– This section describes the security and privacy features, such as access control and encryption;
- m. Support Features – This section all other features relating to hardware and software support, such as fault diagnosis, built-in test, embedded training, delivery media, etc.; and
- n. Traceability to Functional Baseline - All other design details required for Canada to verify, by documentation review, that the NRWS System design is fully allocated to, and is fully compliant with the Functional Baseline.



## **12. DID NRWS-SE-005 – INTERFACE DESIGN DOCUMENT**

### **12.1 Description**

- 12.1.1 The Interface Design Document (IDD) shall define all hardware and software details required to implement an interface between each NRWS System HWCI and CSCI and the external system with which it must connect, function, and communicate.

### **12.2 Office of Primary Interest**

- 12.2.1 DND

### **12.3 Office of Collateral Interest**

- 12.3.1 PWGSC

### **12.4 Interrelationships**

- 12.4.1 SOW: Sections 4.3.1.2.d, 4.3.2.2.c
- 12.4.2 DID: NRWS-SE-002, SE-003, SE-004, NRWS-TD-002

### **12.5 References**

- 12.5.1 NA

### **12.6 Preparation Instruction**

#### **12.6.1 Format**

- 12.6.1.1 The IDD shall be prepared in the Contractor's format.

#### **12.6.2 Content**

- 12.6.2.1 The IDD shall be prepared in 4 sections:
  - a. IDD-Structural;
  - b. IDD-Mechanical;
  - c. IDD-Electrical; and
  - d. IDD-Computer.
- 12.6.2.2 The IDD shall include the following as applicable to each NRWS System interface:
  - a. Purpose – This section describes the NRWS System HWCIs and CSCIs that are interfacing with the external entity and the purpose of the interface;

- b. Standards and Specifications – This section describes all standards and specifications used to guide the design of the interface;
- c. Design Requirements – This section describes all SS requirements applicable to the interface;
- d. Design Constraints – This section describes all other constraining factors on the interface design;
- e. Hardware Design – This section describes the hardware design of the interface, including:
  - (1) Structure:
    - (a) Location of the interface;
    - (b) The NRWS System component requiring the structural interface;
    - (c) Details of the seating arrangements (flange, bolt pattern, bolt hole, dimensions, materials, etc.) incorporated into each NRWS System component that must be interfaced;
    - (d) All retention devices and fasteners associated with each structural interface as necessary to mount each NRWS System component;
  - (2) Mechanical:
    - (a) Location of the interface;
    - (b) The NRWS System component requiring the mechanical interface;
    - (c) The specific mechanical service or function associated with the interface (such as cooling water, conditioned air, compressed air, condensate drains, etc) and how it relates to NRWS System operations;
    - (d) All connection details required to implement the interface;
  - (3) Electrical:
    - (a) Location of the interface;
    - (b) The NRWS System component requiring the electrical interface;
    - (c) The specific electrical properties required of the interface;

- (d) All connection details required to implement the interface;
- (4) Computer:
  - (a) The communications processor hardware hosted in the computer system, including manufacturer, model number, and any special configuration options selected;
  - (b) The means of physically connecting to the communication medium of the external entity; and
  - (c) A description of any other data communications hardware elements connecting the CSCI to the external entity.
- f. Software Design - This section describes the software design of the interface:
  - (1) Interface Control:
    - (a) Initialization of communications hardware and software;
    - (b) Various interface operating modes, how to control them, and how to switch among them;
    - (c) Service priorities for each interface;
    - (d) Application-level protocols or events, which trigger flows of information across the interface;
  - (2) Messages and Data Formats:
    - (a) Information that will be transmitted across the interface (e.g. messages, data values, state indications, analogue signals, etc.) and the direction of transmission;
    - (b) Formats of all digital messages and data values, including the structure of data fields, their meaning, units of measure, valid ranges, precision, information representation, encoding, or compression;
    - (c) Meanings and signal characteristics of all state indications and analogue signals;
  - (3) Processing:
    - (a) Detailed procedures for the transmission and reception of data via the communications interface;
    - (b) Special processing or data handling functions pertaining to security, safety, reliability, integrity, authentication,

encryption/decryption, encoding, compression, buffering, burst transmission, etc;

(4) Communication Protocols and Services:

- (a) Invocation of applicable data communication protocols, services and attributes; and

(5) Other:

- (a) Mechanisms guaranteeing real-time response, timing or synchronization performance, and any other design features that do not fall into the above categories.

- g. Performance – This section describes the full range of expected performance of the interface using the most suitable metrics for the interface type.
- h. Product Configuration Documentation – This section describes all other information, or references to other documentation, as required to supplement the TDP NRWS-TD-002 in defining that part of the Product Baseline that is relevant to NRWS System interfaces.

## **13. DID NRWS-SE-006 – SAFETY CONTROL PLAN**

### **13.1 Description**

- 13.1.1 The Safety Control Plan (SCP) shall specify the process to be followed by the Contractor to meet all NRWS System safety requirements, and to ensure that all Contractor staff has received the required safety training prior to any work activities in Canadian Shipyards, DND dockyards, and shore facilities.

### **13.2 Office of Primary Interest**

- 13.2.1 DND

### **13.3 Office of Collateral Interest**

- 13.3.1 PWGSC

### **13.4 Interrelationships**

- 13.4.1 SOW: Sections 4.3.1.2.e, 4.4.1, 4.4.4, 4.4.5, 4.4.7, 4.5.3.2, 4.5.4.1, 4.5.4.3
- 13.4.2 DID: NRWS-SE-007, SE-008

### **13.5 References**

- 13.5.1 A-GG-040-004/AG-001, General Safety Program – Hazardous Material Safety and Management Manual
- 13.5.2 C-02-040-002/AA-000, NDHQ Directive, Evaluation and Control of Laser Hazards
- 13.5.3 Health Canada's Safety Code 6
- 13.5.4 STANAG 3606, Laser Safety Evaluation for Outdoor Military Environments

### **13.6 Preparation Instruction**

#### **13.6.1 Format**

- 13.6.1.1 The SCP shall be prepared in the Contractor's format.

#### **13.6.2 Content**

- 13.6.2.1 The SCP shall include the following as a minimum:
- a. The Contractor's point of contact for the SCP;
  - b. The organizational structure and processes that will be used to assess safety compliance of the NRWS System and associated Deliverables:

- (1) Identification of NRWS System safety requirements in accordance with the TSOR;
  - (2) Identification of derived NRWS System safety requirements, based upon safety hazards associated with NRWS System configuration, function, installation, maintenance, and failure conditions contributing to safety hazards;
  - (3) Identification of safety requirements and derived safety requirements associated with any change to a HWCI or CSCI;
  - (4) Methods for addressing all safety requirements and for correcting safety hazards; and
  - (5) Reporting of safety hazards via the Safety Compliance Assessment of NRWS-SE-008, and reporting the correction of identified safety hazards;
- c. The processes, documentation, and meetings required for the Contractor to submit the NRWS System design, function, and installation details to Canada laser safety authorities, as necessary to gain authorization for NRWS System implementation. This section is to include as a minimum:
- (1) The Contractor's point of contact for laser safety;
  - (2) A description of all hazards associated with lasers used in the NRWS System;
  - (3) The plans for incorporating training for lasers users;
  - (4) Describe the system hazards as evaluated in accordance with STANAG 3606.
- d. The safety training that the Contractor's staff will require in order to work safely in RCN vessels, including but not limited to:
- (1) Consultation with and reporting to shipboard safety authorities;
  - (2) General shipboard safety;
  - (3) Man Aloft;
  - (4) Confined spaces;
  - (5) Fall protection;
  - (6) Lock-out Tag-out;

- (7) All other safety training that may be required by commercial shipyards involved in NRWS System implementation;
  - (8) All other training requirements that may arise; and
- e. Methods for acquiring and demonstrating completion of the required training.

## **14. DID NRWS-SE-007 – CONTROLLED MATERIAL REPORT**

### **14.1 Description**

- 14.1.1 The Controlled Material Report shall specify all Controlled Materials proposed for use in the NRWS System and associated Deliverables. The Controlled Material Report shall be amended to specify all Controlled Materials subsequently Authorized and denied for use in the NRWS System by Canada.

### **14.2 Office of Primary Interest**

- 14.2.1 DND

### **14.3 Office of Collateral Interest**

- 14.3.1 PWGSC

### **14.4 Interrelationships**

- 14.4.1 SOW: Sections 4.3.1.2.f, 4.3.2.2.d, 4.4.2, 4.4.3
- 14.4.2 DID: NRWS-SE-006

### **14.5 References**

- 14.5.1 Health Canada Reference Manual for WHMIS Requirements of the Hazardous Products Act and Controlled Product Regulations
- 14.5.2 A-GG-040-004/AG-001, General Safety Program – Hazardous Material Safety and Management Manual

### **14.6 Preparation Instruction**

#### **14.6.1 Format**

- 14.6.1.1 The Controlled Material Report shall be prepared in the Contractor's format.

#### **14.6.2 Content**

- 14.6.2.1 The Controlled Material Report shall include the following as a minimum:
- a. The Contractor's point of contact for the Controlled Material Report;
  - b. Identification of each controlled material Authorized for use in the NRWS System and associated Deliverables by Canada, specifically:
    - (1) Specifications, technical coding, and certifications for each material;



- (2) Volume and weight of material to be used;
  - (3) Location in which the material will be used;
  - (4) Intended purpose of the material;
  - (5) The material chemical composition;
  - (6) The material physical and structure properties;
  - (7) Reference to Material Safety Data Sheet (MSDS) data for the material;
  - (8) The date on which authorization for use was sought from Canada;
  - (9) If granted, the date on which authorization for use was granted by Canada, and reference to all correspondence relating to the approval process;
- c. Identification of each controlled material denied for use in the NRWS System and associated Deliverables by Canada, specifically:
- (1) Specifications, technical coding, and certifications for each material;
  - (2) Intended volume and weight of material;
  - (3) Location in which the material will be used;
  - (4) The material chemical composition;
  - (5) The material physical and structure properties;
  - (6) Reference to MSDS for the material;
  - (7) The date on which authorization for use was sought from Canada;
  - (8) If denied, the date on which Canada denied use of the material, and reference to all correspondence justifying the denial;
- d. Application for the use of each new controlled material in the NRWS System and associated deliverables, specifically:
- (1) Specifications, technical coding, and certifications for each material;
  - (2) Volume and weight of material to be used;
  - (3) Location in which the material will be used;
  - (4) Intended purpose of the material;

- (5) The material chemical composition;
- (6) The material physical and structure properties;
- (7) Reference to MSDS data for the material;
- (8) The date on which authorization for use was sought from Canada; and
- (9) Approval status of the application.

## **15. DID NRWS-SE-008 – SAFETY COMPLIANCE ASSESSMENT**

### **15.1 Description**

- 15.1.1 The Safety Compliance Assessment shall specify each NRWS System safety issue, and the proposed resolution, prior to the first shipboard NRWS System installation. The Safety Compliance Assessment shall also specify Canadian Shipyards, DND Dockyards and corresponding shore facility safety requirements, where corresponding work will occur, and Contractor plans to ensure that the required safety training will be acquired, and safety compliance will be assured prior to the first shipboard NRWS System installation.

### **15.2 Office of Primary Interest**

- 15.2.1 DND

### **15.3 Office of Collateral Interest**

- 15.3.1 PWGSC

### **15.4 Interrelationships**

- 15.4.1 SOW: Sections 4.3.2.2.e, 4.4.6, 4.4.8.a, 4.5.3.2, 4.5.4.1, 4.5.4.3
- 15.4.2 DID: NRWS-SE-006, SE-007

### **15.5 References**

- 15.5.1 A-GG-040-004/AG-001, General Safety Program – Hazardous Material Safety and Management Manual
- 15.5.2 C-02-040-002/AA-000, NDHQ Directive, Evaluation and Control of Laser Hazards
- 15.5.3 Health Canada Safety Code 6

### **15.6 Preparation Instruction**

#### **15.6.1 Format**

- 15.6.1.1 The Safety Compliance Assessment shall be prepared in the Contractor's format.

#### **15.6.2 Content**

- 15.6.2.1 The Safety Compliance Assessment shall include the following as a minimum:

- a. A serialized itemization of each NRWS System safety hazard with a detailed description of the hazard, and the applicable NRWS System configuration variant, HWCI and/or CSCI;
- b. The proposed method for elimination or minimizing of each hazard, clearly referencing any proposed Design Changes that are required;
- c. The status of each change required to eliminate each safety hazard;
- d. The safety training that the Contractor's personnel will be provided with prior to any work activities in accordance with CDRL NRWS-SE-006; and
- e. The status of personnel safety training.

## **16. DID NRWS-SE-009 – TEST AND EVALUATION MASTER PLAN**

### **16.1 Description**

- 16.1.1 The Test and Evaluation Master Plan (TEMP) describes the methods that will be used by the Contractor to verify NRWS System compliance with the SOW for Acceptance by Canada.

### **16.2 Office of Primary Interest**

- 16.2.1 DND

### **16.3 Office of Collateral Interest**

- 16.3.1 PWGSC

### **16.4 Interrelationships**

- 16.4.1 SOW: Sections 4.3.1.2.g, 4.3.2.2.f, 4.6.1.1, 4.6.2, 4.6.3.1, 4.6.6.2.a
- 16.4.2 DID: NRWS-SE-001, SE-010, SE-011, SE-012

### **16.5 References**

- 16.5.1 NA

### **16.6 Preparation Instruction**

#### **16.6.1 Format**

- 16.6.1.1 The TEMP shall be prepared in the Contractor's format.

#### **16.6.2 Content**

- 16.6.2.1 The TEMP shall define all the test, evaluation and collection of OE processes that will be required to demonstrate compliance of NRWS System and associated Deliverables with the SOW.
- 16.6.2.2 The TEMP shall include the following as a minimum:
- a. Introduction – This section describes the scope and purpose of the plan, together with applicable definitions, references and related documents;
  - b. Acceptance Program - This section itemizes and describes all test and evaluation that the Contractor proposes for demonstrating compliance of the NRWS System and associated Deliverables with the SOW, and acquiring

Acceptance from Canada in accordance with the prerequisites of Table 1 of the SOW. This section shall include but not be limited to:

- (1) Developmental Testing - Documentation review, analysis, inspection, demonstration, and testing that the Contractor may wish to propose for Authorization by Canada to conclusively Qualify the function and integration of all developmental NRWS System elements;
- (2) Documentation and Analysis Review - Documentation and analysis review that the Contractor may wish to propose for Authorization by Canada to conclusively demonstrate NRWS System compliance with selected SOW requirements that may not be suited for inspections, demonstrations, and tests;
- (3) Environmental Testing - Documentation review, analysis, inspection, demonstrations, and testing as Authorized by Canada to conclusively Qualify the NRWS System design in accordance with the environmental conditions of the TSOR, Section 7;
- (4) First Article Factory Acceptance Testing - Inspections and testing to Qualify the design and the production process of each First Article NRWS System configuration variant with respect to the SOW requirements, to the extent possible at the contractor's facilities;
- (5) Functional Audit - Verification and Acceptance by Canada, that all Acceptance test and evaluation results, up to and including the Accepted FAT Test Report, demonstrate compliance of each First Article NRWS System configuration variant with the Functional Baseline;
- (6) Physical Configuration Audit - Verification by Canada, that each First Article NRWS System configuration variant is compliant with its corresponding Product Configuration Documentation, and Acceptance of proposed CIs and their corresponding Product Baselines;
- (7) First Article HAT - Testing to Qualify the design, production, installation, and Set-To-Work (STW) processes of each implemented HAL Class First Article NRWS System configuration variant with respect to the SOW requirements, to the extent possible when fitted in HAL Class vessels;
- (8). First Article SAT - Testing for final Qualification of the design, production, installation, and STW processes of each implemented HAL Class First Article NRWS System configuration variant with respect to the SOW requirements;
- (9) Qualification Review - Verification and Acceptance by Canada, that all Acceptance test and evaluation results up to and including the

Accepted SAT Test Report for each HAL Class First Article NRWS System configuration variant, demonstrate compliance with the SOW. Verification and Acceptance by Canada of First Article NRWS System resulting from the First Article Qualification Review will be the final Acceptance for HAL First Article NRWS System configuration variants, with the exception of fault rectification in accordance with the specified warranties;

- (10) Recurring Article FAT - Testing to demonstrate that key physical and functional characteristics of each Recurring Article NRWS System are compliant with the SOW, in order to verify the NRWS System manufacturing and Configuration Management processes, to the extent possible at the Contractor's facilities;
- (11) Recurring Article HAT - Testing to demonstrate that key physical and functional characteristics of each Recurring Article NRWS System are compliant with the SOW, in order to verify correct NRWS System installation, integration, and STW in vessels. Acceptance by Canada of each Recurring Article NRWS System HAT Report will be the final Acceptance for the corresponding HAL Class Recurring Article NRWS System, with the exception of fault rectification in accordance with the specified warranties; and
- (12) TDP and Manuals Data Acceptance - Verification by Canada that the final NRWS System TDP and Manuals provides Canada with all of the information necessary to install, set-to-work, operate, maintain, and manage all aspects of the in-service NRWS System and associated Deliverables;

c. Software Testing - This section itemizes and describe all test and evaluation that the Contractor proposes for:

- (1) Adaption of software to meet the NRWS System requirements and other Deliverable requirements;
- (2) Verification that NRWS System software provides the required connectivity and communications with all required external interfaces;
- (3) Demonstrating compliance of the NRWS System software and associated Deliverables with the SOW, and acquiring Acceptance from Canada;

d. Deliverable Test and Evaluation Documentation - This section shall describe, or refer to other DIDs that describe, each document and its contents to be prepared and delivered by the Contractor in accordance with the SOW to define Acceptance test and evaluation processes and the results of these processes;

- e. Test Resources - This section shall identify all:
  - (1) Contractor's test authorities, organization and skills conducting and witnessing Acceptance Testing ;
  - (2) Information, materials, equipment, services, prerequisites, and Government Furnished Resources for Acceptance Testing; and
  - (3) The coordination of these resources required to complete the Acceptance Program;
- f. Subsequent sections will be used to describe how all Acceptance Program activities will be coordinated with the following:
  - (1) Project Management (specifically organizational interfaces, communications, schedule, and their management related to the Acceptance Program);
  - (2) Quality Management;
  - (3) Risk Management;
  - (4) Requirement Management;
  - (5) System Engineering;
  - (6) Design Reviews;
  - (7) Configuration Management;
  - (8) ILS Management; and
  - (9) OE.



## **17. DID NRWS-SE-010 – ACCEPTANCE TEST INDEX**

### **17.1 Description**

- 17.1.1 The Acceptance Test Index (ATI) shall list each NRWS System test and evaluation activity that the Contractor will use to demonstrate compliance of the NRWS System with the SOW.

### **17.2 Office of Primary Interest**

- 17.2.1 DND

### **17.3 Office of Collateral Interest**

- 17.3.1 PWGSC

### **17.4 Interrelationships**

- 17.4.1 SOW: Sections 4.3.1.2.h, 4.3.2.2.g, 4.6.3.1, 4.6.4.1, 4.6.6.2.a
- 17.4.2 DID: NRWS-SE-001, SE-009, SE-011, SE-012

### **17.5 References**

- 17.5.1 NA

### **17.6 Preparation Instruction**

#### **17.6.1 Format**

- 17.6.1.1 The ATI shall be prepared in the Contractor's format.

#### **17.6.2 Content**

- 17.6.2.1 The ATI shall itemize all test and evaluation activities listed in the TEMP of NRWS-SE-009 that will be used for demonstrating compliance of the NRWS System and associated Deliverables with the SOW, and Acceptance by Canada. The ATI shall be presented in tabular form, and shall include the following as a minimum for each test:
- a. A unique identifying number that correlates with the corresponding Acceptance Test Procedure (ATP);
  - b. A unique title that correlates with the testing specified in the TEMP;
  - c. A brief description of the test;
  - d. The preceding and following tests;

- e. Prerequisites for the test;
- f. Approximate date for the test;
- g. Location for the test; and
- h. The NRWS System Configuration Item or Configuration Variant being tested.

## **18. DID NRWS-SE-011 – ACCEPTANCE TEST PROCEDURES**

### **18.1 Description**

- 18.1.1 The Acceptance Test Procedures (ATP) shall define the specific requirements for each test itemized in the Acceptance Test Index for demonstrating NRWS System compliance with the SOW.

### **18.2 Office of Primary Interest**

- 18.2.1 DND

### **18.3 Office of Collateral Interest**

- 18.3.1 PWGSC

### **18.4 Interrelationships**

- 18.4.1 SOW: Section 4.6.4.1
- 18.4.2 DID: NRWS-SE-001, SE-009, SE-010, SE-012

### **18.5 References**

- 18.5.1 NA

### **18.6 Preparation Instruction**

#### **18.6.1 Format**

- 18.6.1.1 The ATPs shall be prepared in the Contractor's format.

#### **18.6.2 Content**

- 18.6.2.1 The ATPs shall include the following as a minimum:
  - a. Test title, number, and revision that specifically match those in the ATI;
  - b. SS line items addressed by the Test Procedure;
  - c. Test objective;
  - d. All test pre-requisites, and prior tests that require completion and Authorization or Acceptance by Canada;
  - e. All subsequent tests that are dependent upon the outcome of this test;
  - f. Test duration;

- g. Authorities responsible for test conduct and Authorization or Acceptance of results;
- h. Reference to all documentation that is applicable to conducting the test;
- i. All resources required to conduct the test including:
  - (1) Test articles, defined in accordance with the Authorized NRWS System Configuration Item nomenclature;
  - (2) The supporting test equipment make and model;
  - (3) Test material;
  - (4) Test facilities;
  - (5) Configuration of the test team, with the responsibilities of each organization and test team member in conducting, supporting, and witnessing the test;
  - (6) All other services required from each supporting organization;
  - (7) Safety hazard management;
- j. Test preconditions including:
  - (1) The configuration and status of the test article and its interfaces;
  - (2) The supporting test equipment set-up;
  - (3) All other factors which must exist before the test can be started;
- k. Test method with:
  - (1) Each step in the procedure itemized to define the specific action to be taken;
  - (2) All observations, measurements, tolerances, and pass/fail criteria that may be associated with a given step in order to determine the acceptability of results;
- l. Analysis and reporting requirements:
  - (1) The data reduction and analysis processes required to determine the acceptability of result; and
  - (2) The reporting that must be performed in order to specifically define the OE necessary to demonstrate compliance with the SOW.

## **19. DID NRWS-SE-012 – ACCEPTANCE TEST REPORTS**

### **19.1 Description**

- 19.1.1 The Acceptance Test Reports (ATR) shall describe the results of all Acceptance Tests and provide OE of NRWS System compliance with the SOW.

### **19.2 Office of Primary Interest**

- 19.2.1 DND

### **19.3 Office of Collateral Interest**

- 19.3.1 PWGSC

### **19.4 Interrelationships**

- 19.4.1 SOW: Section 4.5.4.2, 4.5.4.4, 4.6.7
- 19.4.2 DID: NRWS-SE-001, SE-009, SE-010, SE-011

### **19.5 References**

- 19.5.1 NA

### **19.6 Preparation Instruction**

#### **19.6.1 Format**

- 19.6.1.1 The ATRs shall be prepared in the Contractor's format.

#### **19.6.2 Content**

- 19.6.2.1 The ATRs shall include the following as a minimum:
- a. Test title, number, and revision;
  - b. SS line items addressed by the Test Report;
  - c. Test objective;
  - d. All test pre-requisites, and prior tests that required completion and Authorization or Acceptance by Canada;
  - e. All subsequent tests that are dependent upon the outcome of this test;
  - f. Authorities responsible for test conduct, and for Authorization or Acceptance of results,

- g. Reference to all documentation that is applicable to conducting the test;
  - (1) The resources used to complete the test;
  - (2) Test articles, defined in accordance with Authorized NRWS System Configuration Item nomenclature;
  - (3) The supporting test equipment make and model;
  - (4) Test material;
  - (5) Test facilities;
  - (6) Configuration of the test team, with the responsibilities of each organization and test team member in conducting, supporting, and witnessing the test;
  - (7) All other services provided by any supporting organization;
- h. Test preconditions including:
  - (1) The configuration and status of the test article and its interfaces;
  - (2) The supporting test equipment set-up; and
  - (3) All other factors that existed before the test was started;
- i. Test method with:
  - (1) Any deviations from the applicable ATP;
  - (2) Recorded observations, measurements with respect to tolerances, and pass/fail criteria associated with each step;
- j. Analysis and reporting:
  - (1) The data reduction and analysis processes employed to determine the acceptability of result; and
  - (2) The acceptability of each result with respect to tolerances and pass/fail criteria;
  - (3) Specific reference to Problem Reports that define failed results, and corresponding action to be taken; and
  - (4) Conclusions and recommendations regarding the results as required to state whether test results provide the OE necessary to demonstrate compliance with the SOW.

## **20. DID NRWS-TD-001 – ENGINEERING CHANGE GUIDANCE PACKAGE**

### **20.1 Description**

- 20.1.1 The Engineering Change Guidance Package (ECGP) shall describe the NRWS System in sufficient detail to provide assistance in defining all changes required to HAL Class vessels to accommodate the NRWS System installation.

### **20.2 Office of Primary Interest**

- 20.2.1 DND

### **20.3 Office of Collateral Interest**

- 20.3.1 PWGSC

### **20.4 Interrelationships**

- 20.4.1 SOW: Sections 4.3.2.2.i, 4.5.2.2, 4.8.1
- 20.4.2 DID: NRWS-SE-001, NRWS -TD-002

### **20.5 References**

- 20.5.1 C-07-007-000/AG-001, Guide, Development of Engineering Change Installation Package
- 20.5.2 C-03-010-000/MM-001, Canadian Naval Shipboard Techniques for Electromagnetic Compatibility, Part 6, paragraphs 77 to 117

### **20.6 Preparation Instruction**

#### **20.6.1 Format**

- 20.6.1.1 The ECGP shall be formatted in accordance with the Reference 20.5.1.

#### **20.6.2 Content**

- 20.6.2.1 The ECGP shall describe all instructions and material necessary to install the NRWS System in HAL Class vessels, including the requirements for clearance of equipment, requirements for ship modifications such as cable runs, paint, deck modifications etc.
- 20.6.2.2 The ECGP shall include the required content as described in Reference 20.5.1.
- 20.6.2.3 The ECGP shall include the required content as described in Reference 20.5.2.

## **21. DID NRWS-TD-002 – TECHNICAL DATA PACKAGE**

### **21.1 Description**

- 21.1.1 The Technical Data Package (TDP) shall consist of the documents necessary to:
- a. Define the entire configuration of the NRWS System, each CI, each component associated with each CI, and their organization within each NRWS System configuration variant;
  - b. Provide Product Configuration Documentation that will describe the necessary physical and functional characteristics of each CI and any verification needed to demonstrate the CI's performance. This includes product, materiel and process specifications: engineering drawings; military specifications; and other technical documentation. This information will assist in defining the NRWS System Product Baseline;
  - c. Provide Supplementary Provisioning Technical Documentation (SPTD) to support the Initial Provisioning Process;
  - d. Provide technical details required for the ECGP;
  - e. Provide technical reference information as required for in-service NRWS System manuals; and
  - f. Provide additional information necessary to supplement information provided by other DIDs, so as to enable Canada or a third party to address all in-service NRWS System requirements.

### **21.2 Office of Primary Interest**

21.2.1 DND

### **21.3 Office of Collateral Interest**

21.3.1 PWGSC

### **21.4 Interrelationships**

21.4.1 SOW: Sections 4.3.2.2.j, 4.7.2.2, 4.7.2.5, 4.8.2, 5.2.2.6

21.4.2 DID: NRWS-TD-003 to TD-006

### **21.5 References**

21.5.1 D-01-400-002/SF-000, Drawings, Engineering and Associated Lists



21.5.2 D-01-400-001/SG-000, Engineering Drawing Practices

21.5.3 C-01-000-103/AG-000, Guide to the Canadian Government Cataloguing System

## **21.6 Preparation Instruction**

### **21.6.1 Format**

21.6.1.1 The TDP shall consist of one package incorporating all new, existing, commercial, and foreign government drawings and specifications.

21.6.1.2 All TDP documents shall be marked with the Controlled Goods and Intellectual Property legend.

21.6.1.3 The TDP shall incorporate a Design Data List to itemize each document in the TDP.

21.6.1.4 The TDP drawings shall:

- a. Be formatted in accordance with References 21.5.1;
- b. Incorporate drawing;
- c. Incorporate title block data;
- d. Incorporate Configuration Item nomenclature;
- e. Be provided in Adobe Portable Document Format;
- f. Be provided with multi-sheet drawings delivered in one file.

21.6.1.5 The TDP drawing parts lists shall be:

- a. Integral with the single sheet drawings; or
- b. Placed separately on the first sheet of multi-sheet drawings.

21.6.1.6 The TDP drawings shall be prepared on standard metric drawing sizes A0 to A4 and B1, or imperial sizes A to K and legal as required.

21.6.1.7 The TDP drawings shall use the mono-detail drawing system.

### **21.6.2 Content**

21.6.2.1 The TDP shall contain a list of every data item provided in the TDP, including the following as a minimum:

- a. An identification number and title for each data item that is the same as that found on TDP;

- b. A brief description of each data item type (specification, drawing, list, etc);
  - c. A hierarchical organization of the data items;
  - d. Any copyrights, proprietary rights or translation rights that apply to the items; and
  - e. Ownership of the data items.
- 21.6.2.2 The TDP drawings that must be newly created or must be amended for use shall include content required by this DID, and Reference 21.5.2.
- 21.6.2.3 The TDP drawings that exist and are complete commercial or foreign government off-the-shelf documents shall include all content required by this DID, and Reference 21.5.1 Section 3.2.
- 21.6.2.4 All TDP drawings shall be Level 3 quality as defined by Reference 21.5.3.
- 21.6.2.5 All TDP specifications and references shall be provided in accordance with Reference 21.5.1 Sections 3.4 and 3.5.
- 21.6.2.6 The TDP shall include the following as a minimum:
- a. Schematic representation of the overall family tree of each NRWS System configuration variant indicating all HWCIs and resident CSCIs;
  - b. Schematic representation of the overall architecture and integration of each NRWS System configuration variant indicating all HWCIs, resident CSCIs, and interfaces to the ship in which they are installed;
  - c. General arrangement and assembly of each NRWS System configuration variant, its HWCIs, and interfaces to the ship in which they are installed;
  - d. Detailed configuration of each NRWS System HWCI, and all associated components;
  - e. All materials and components that comprise each NRWS System HWCI;
  - f. Data for each NRWS System structural and mechanical interface to a level of detail necessary to acquire all material and components, fabricate the interfaces, and install the NRWS System HWCIs; and
  - g. Cable, connector, and pin-out data for each NRWS System power and signal cable for system interconnection and shipboard interface, to the level of detail necessary to acquire all cable components, fabricate cables, and install cables.

## **22. DID NRWS-TD-003 – INSTALLATION AND SET-TO-WORK MANUAL**

### **22.1 Description**

- 22.1.1 The Installation and Set-To-Work Manual shall define all procedures required to install each NRWS System configuration variant, and to bring the NRWS System to a state of full technical readiness for operation.

### **22.2 Office of Primary Interest**

- 22.2.1 DND

### **22.3 Office of Collateral Interest**

- 22.3.1 PWGSC

### **22.4 Interrelationships**

- 22.4.1 SOW: Sections 5.2.2.6, 5.2.3.2.c, 5.6.1.a
- 22.4.2 DID: NRWS-TD-002, TD-005, TD-006

### **22.5 References**

- 22.5.1 C-01-100-100/AG-006, Writing Format and Production of Technical Publications
- 22.5.2 C-01-100-100/AG-005, Acceptance of Commercial Foreign Government Publications as Adopted Publications
- 22.5.3 C-03-005-012/AM-001, Naval Materiel Management System Manual
- 22.5.4 D-01-100-226/SF-001, Specification for Preparation of Test Sheets

### **22.6 Preparation Instruction**

#### **22.6.1 Format**

- 22.6.1.1 The Installation and Set-To-Work Manual shall be marked with:
- a. An NDID numbers for each manual; and
  - b. The Controlled Goods and Intellectual Property legend.
- 22.6.1.2 The Installation and Set-To-Work Manual shall:
- a. Incorporate Configuration Item nomenclature; and

- b. Incorporate Copyright statement “© 20xx Canada” at the bottom of the List of Effective Pages, amended to indicate the year of publication.
- 22.6.1.3 The Installation and Set-To-Work Manual shall be formatted in the Contractor’s format.
- 22.6.2 **Content**
- 22.6.2.1 The Installation and Set-To-Work Manual shall include the following as a minimum:
  - a. All NRWS System configuration variant installation requirements including, but not limited to, structural, mechanical, electrical power, grounding, and electronic/digital interfaces, and interfaces to any other ship services;
  - b. Installation requirements for each NRWS System configuration variant shall be itemized to the level of detail, and references to the TDP provided, as necessary for a third party to:
    - (1) Design all aspects of the installation, produce the shipboard installation specification, acquire and fabricate all required material, customize the full range of shipboard elements necessary to accommodate the NRWS System, and to conduct all associated installation activities.
  - c. NRWS System removal, transportation, handling, and storage requirements;
  - d. All procedures, associated measurements, and criteria necessary to inspect, set-to-work, and test the NRWS System, and verify that its configuration and functions are at a high state of technical readiness for operations; and
  - e. All NRWS System terminology which is consistent with the TDP.

## **23. DID NRWS-TD-004 – SYSTEM USER MANUAL**

### **23.1 Description**

- 23.1.1 The System User Manual shall define all procedures required for the operator to operate and control all NRWS System functions.

### **23.2 Office of Primary Interest**

- 23.2.1 DND

### **23.3 Office of Collateral Interest**

- 23.3.1 PWGSC

### **23.4 Interrelationships**

- 23.4.1 SOW: Sections 5.2.2.6, 5.2.3.2.d, 5.6.1.b

- 23.4.2 DID: NRWS-TD-002, TD-003, TD-006

### **23.5 References**

- 23.5.1 C-01-100-100/AG-006, Writing Format and Production of Technical Publications
- 23.5.2 C-01-100-100/AG-005, Acceptance of Commercial Foreign Government Publications as Adopted Publications
- 23.5.3 C-03-005-012/AM-001, Naval Materiel Management System Manual
- 23.5.4 D-01-100-226/SF-001, Specification for Preparation of Test Sheets

### **23.6 Preparation Instruction**

#### **23.6.1 Format**

- 23.6.1.1 The System User Manual shall be marked with:

- a. An NDID number for each manual; and
- b. The Controlled Goods and Intellectual Property legend.

- 23.6.1.2 The System User Manual shall:

- a. Incorporate Configuration Item nomenclature; and
- b. Incorporate Copyright statement “© 20xx Canada” at the bottom of the List of Effective Pages, amended to indicate the year of publication.

23.6.1.3 The System User Manual shall be formatted in the Contractor's format.

## 23.6.2 **Content**

23.6.2.1 The System User Manual shall include the following as a minimum:

- a. Introduction – This section describes the scope and purpose of the manual, together with applicable definitions, references and related documents;
- b. System Summary – This section describes the overall system configuration and capabilities;
- c. Safety Precautions – This section provides the overall safety precautions to be observed during NRWS System operations. Safety precautions shall also be included where applicable throughout the manual;
- d. System Conventions – This section describes any conventions used by the NRWS System, such as the use of colours in displays, the use of audible alarms, and the use of terminology;
- e. System Operation – This section describes the step-by-step procedures with adequate detail for inexperienced users to reliably:
  - (1) Turn on power, and bring the NRWS System to an operational state;
  - (2) Use each operator control provided with the NRWS System;
  - (3) Understand all system functions and operating modes that correspond to a given control;
  - (4) Interpret user feed-back that correspond to a given control;
  - (5) Use the operator display and all associated capabilities;
  - (6) Use each system capabilities;
  - (7) Sequence shutdown and turning off power;
  - (8) Use each security and privacy capabilities pertaining to NRWS System user access;
- f. Recovery from Errors and Malfunctions – This section details procedures for:
  - (1) Interpretation of all alarms and error messages;
  - (2) Addressing alarms and error messages;
  - (3) Restart or recovery from errors or malfunctions;

## **24. DID NRWS-TD-005 – ILLUSTRATED PARTS BREAKDOWN**

### **24.1 Description**

- 24.1.1 The Illustrated Parts Breakdown (IPB) shall provide all information necessary to positively identify all NRWS System components and their location in the NRWS System.

### **24.2 Office of Primary Interest**

- 24.2.1 DND

### **24.3 Office of Collateral Interest**

- 24.3.1 PWGSC

### **24.4 Interrelationships**

- 24.4.1 SOW: Section 5.2.3.2.e, 5.6.1.c
- 24.4.2 DID: NRWS TD-002 to TD-004, TD-006

### **24.5 References**

- 24.5.1 D-01-100-207-SF-000, Preparation of Parts Identification List
- 24.5.2 C-01-100-100/AG-006, Writing Format and Production of Technical Publications
- 24.5.3 C-01-100-100/AG-005, Acceptance of Commercial Foreign Government Publications as Adopted Publications
- 24.5.4 C-03-005-012/AM-001, Naval Materiel Management System Manual
- 24.5.5 D-01-100-226/SF-001, Specification for Preparation of Test Sheets

### **24.6 Preparation Instruction**

#### **24.6.1 Format**

- 24.6.1.1 The IPB shall be prepared in accordance with the formatting requirements of References 24.5.
- 24.6.1.2 The IPB shall be marked with:
- a. An NDID number for each manual; and
  - b. The Controlled Goods and Intellectual Property legend.

24.6.1.3 The IPB shall :

- a. Incorporate Configuration Item nomenclature; and
- b. Incorporate Copyright statement “© 20xx Canada” at the bottom of the List of Effective Pages, amended to indicate the year of publication.

24.6.1.4 The IPB shall be formatted in the Contractor’s format.

24.6.2 **Content**

24.6.2.1 The IPB shall be prepared in accordance with the content requirements of Reference 24.5.



## **25. DID NRWS-TD-006 – MAINTENANCE MANUAL**

### **25.1 Description**

- 25.1.1 The Maintenance Manual shall specify all required procedures, resources, and information necessary to undertake NRWS System Level 1 and Level 2 maintenance activities through its in-service period.

### **25.2 Office of Primary Interest**

- 25.2.1 DND

### **25.3 Office of Collateral Interest**

- 25.3.1 PWGSC

### **25.4 Interrelationships**

- 25.4.1 SOW: Sections 5.2.3.2.f , 5.6.1.d
- 25.4.2 DID: NRWS-TD-002 to TD-005

### **25.5 References**

- 25.5.1 C-01-100-100/AG-006, Writing Format and Production of Technical Publications
- 25.5.2 C-01-100-100/AG-005, Acceptance of Commercial Foreign Government Publications as Adopted Publications
- 25.5.3 C-03-005-012/AM-001, Naval Materiel Management System Manual
- 25.5.4 D-01-100-204/SF-009, Preparation of Naval Preventive Maintenance Schedules
- 25.5.5 D-01-100-206/SF-001, Preparation of Naval Preventive Maintenance Performance Tests
- 25.5.6 D-01-100-226/SF-001, Preparation of Test Sheets

### **25.6 Preparation Instruction**

#### **25.6.1 Format**

- 25.6.1.1 The Maintenance Manual shall be marked with:
  - a. An NDID number for each manual; and
  - b. The Controlled Goods and Intellectual Property legend.

25.6.1.2 The Maintenance Manual shall:

- a. Incorporate Configuration Item nomenclature; and
- b. Incorporate Copyright statement “© 20xx Canada” at the bottom of the List of Effective Pages, amended to indicate the year of publication.

25.6.1.3 The Maintenance Manual shall be formatted in the Contractor’s format.

## 25.6.2 **Content**

25.6.2.1 The Maintenance Manual shall include the following as a minimum to support Level 1 and Level 2 maintenance:

a. Preventive Maintenance:

- (1) Step-by-step procedures;
- (2) Frequency;
- (3) Required tools and test equipment;
- (4) Required spares and consumables identified by part number;
- (5) Equipment break-out drawings and diagrams, included or referenced as necessary, to clearly identify the equipment access, orientation, connections, and specific points addressed by the maintenance;
- (6) Skills, qualifications, certifications required by personnel conducting the maintenance;
- (7) Safety hazards and corresponding warnings; and
- (8) Any procedures and routines which are required for software.

b. Corrective Maintenance:

- (1) All NRWS System error messages, and their meaning;
- (2) Step-by-step procedures for diagnosing and identifying faults associated with a failure or malfunction symptom, or an error message;
- (3) Step-by-step procedures for conducting repairs of associated with system faults and error messages;
- (4) Required tools and test equipment;
- (5) Required spares and consumables identified by part number;

- (6) Equipment break-out drawings and diagrams, included or referenced as necessary, to clearly identify the equipment access, orientation, connections, and specific points addressed by the maintenance;
- (7) Skills, qualifications, certifications required by personnel conducting the maintenance;
- (8) Safety hazards and corresponding warnings; and
- (9) Any procedures and routines which are required for software.

## **26. DID NRWS-CM-001 – CONFIGURATION MANAGEMENT PLAN**

### **26.1 Description**

- 26.1.1 The Configuration Management (CM) Plan shall specify the CM processes, how they are organized, how they will be conducted, and the methods, procedures and controls that will be used to assure effective configuration identification, change control, status accounting, and audits of the NRWS System configuration and associated Deliverables configurations.

### **26.2 Office of Primary Interest**

- 26.2.1 DND

### **26.3 Office of Collateral Interest**

- 26.3.1 PWGSC

### **26.4 Interrelationships**

- 26.4.1 SOW: Section 4.7.1.1, 4.7.1.2
- 26.4.2 DID: NRWS-SE-001, NRWS-CM-002 to CM-003

### **26.5 References**

- 26.5.1 D-01-002-007/SG-001, Requirements for the Preparation of Configuration Management Plans
- 26.5.2 D-01-002-007/SG-006, Requirements for the Selection of Configuration Items

### **26.6 Preparation Instruction**

#### **26.6.1 Format**

- 26.6.1.1 The CM Plan shall be prepared in the Contractor's format following the guidelines specified in References 26.5.

#### **26.6.2 Content**

- 26.6.2.1 The CM Plan shall include the following as a minimum:
- a. Introduction - This section includes:
    - (1) Purpose, Scope and Objectives – This section describes the Contractor's understanding of the purpose, scope and objectives of the CM Plan;

- (2) Policies and Standards - This section describes the policies, standards, specifications and manuals of both Canada and the Contractor that will be adhered to in the Contractor's execution of its CM functions in delivering the NRWS System. Reference to the document's title, number, issuing authority, revision, and date of issue must be made in this section;
  - (3) Management Processes - This section describes the organization and processes by which the Contractor will perform Configuration Management; and
  - (4) Deliverable CM Documentation - This section describes each document and a summary of its contents that will be used in managing the configuration of the NRWS System and associated Deliverables.
- b. Development of Configuration Items - This section describes the method for:
  - (1) Developing the Functional Baseline in accordance with the requirements of the SOW;
  - (2) Selecting the level at which the configuration of the NRWS System will be managed in order control all processes required to deliver the NRWS System and associated Deliverables in accordance with the SOW;
  - (3) Identifying Configuration Items;
  - (4) Developing corresponding Product Configuration Documentation;
- c. Configuration Identification - This section describes the process for the assignment and application of configuration identifiers to Configuration Items. This section also describes the identification scheme that will be used to identify revisions to systems, hardware, software, firmware and documentation resulting from Authorized design changes;
- d. Configuration Item Authorization and Acceptance - This section describes how Authorization for the proposed Functional Baseline via System requirement Review (SRR), and Product Configuration Documentation via Preliminary Design Review (PDR), and Critical Design Review (CDR) will be acquired. This section also describes how Acceptance for the proposed Functional Baseline via the Functional Audit, and for the proposed Product Baseline and Physical Configuration Audit will be acquired;
- e. CM of the NRWS System and associated Deliverables: This section describes the process for ensuring that the configuration of each NRWS System HWCI and CSCI and associated Deliverables and documentation, will be maintained with respect to the Authorized Functional and Product Baselines.

- f. Configuration Change Management - This section describes the process by which required changes to CIs will be implemented via:
- (1) Problem Reports;
  - (2) Authorization by Canada of changes necessary to address Problem Reports;
  - (3) Preparation and delivery of Design Change Packages;
  - (4) Authorization of the Design Change Packages;
  - (5) Implementation of the Authorized changes in all NRWS System HWCIs, CSCIs and associated Deliverables.
- g. Configuration Audits – This section describes the information and processes to be used at the Functional Configuration and Physical Configuration Audits for verifying that all First Article NRWS System Configuration Variants and Configuration Items are compliant with the SOW. This section also describes the process for collecting, recording, verifying, validating, maintaining, and delivering configuration status accounting information to Canada.
- h. CM Resources – This section describes the resources required to conduct CM:
- (1) The Contractor's CM authorities, organization, and skills;
  - (2) Information, materials, equipment, facilities, services, Government Furnished Resources;
  - (3) The coordination of these resources required to conduct the CM of the NRWS System and associated Deliverables;
- i. Subsequent sections will be used to describe how all CM activities will be coordinated with the following:
- (1) Project Management (specifically organizational interfaces and communications, schedule, and their overall management as related to CM);
  - (2) Quality Management;
  - (3) Risk Management;
  - (4) Requirement Management;
  - (5) System Engineering;
  - (6) Design Reviews;

- (7) Acceptance Program;
- (8) Configuration Management documentation and reporting deliverables;
- (9) Government Furnished Resource management;
- (10) ILS Management;
- (11) Obsolescence Management; and
- (12) OE.

## **27. DID NRWS-CM-002 – EQUIPMENT LABELLING PACKAGE**

### **27.1 Description**

- 27.1.1 The Equipment Labelling Package shall have a full scale reproduction of each label to be applied to the NRWS System equipment and associated Deliverables.

### **27.2 Office of Primary Interest**

- 27.2.1 DND

### **27.3 Office of Collateral Interest**

- 27.3.1 PWGSC

### **27.4 Interrelationships**

- 27.4.1 SOW: Section 4.3.2.2.k, 4.4.7, 4.7.2.3, 4.7.2.4, 4.7.2.6

- 27.4.2 DID: NRWS-SE-001, SE-006, CM-001, CM-003

### **27.5 References**

- 27.5.1 D-02-002-001/SG-001, Identification Marking of Canadian Military Property

### **27.6 Preparation Instruction**

#### **27.6.1 Format**

- 27.6.1.1 The Equipment Labelling Package shall be prepared in the Contractor's format.

#### **27.6.2 Content**

- 27.6.2.1 The Equipment Labelling Package shall include the following as a minimum:

- a. Introduction: This section describes the scope and purpose of the package, together with applicable definitions, references and related documents.
- b. Label Development: This section describes the derivation of each label from the CM process, the safety management process, and from the standard equipment and safety terminology acquired from Canada.
- c. Labels: This section includes full scale drawings of each NRWS System equipment label, with the specific terminology to be used on the proposed labels.



## **28. DID NRWS-CM-003 – DESIGN CHANGE PACKAGE**

### **28.1 Description**

- 28.1.1 The Design Change Package shall define all changes that would be required to the Functional and Product Baselines of the NRWS System and associated Deliverables, in order to rectify the issues identified in a Problem Report.

### **28.2 Office of Primary Interest**

- 28.2.1 DND

### **28.3 Office of Collateral Interest**

- 28.3.1 PWGSC

### **28.4 Interrelationships**

- 28.4.1 SOW: Section 4.7.4.2, 4.7.4.3, 4.7.4.4, 4.7.4.6
- 28.4.2 DID: NRWS-PM-006, NRWS-SE-001, NRWS-CM-001, NRWS-CM-002

### **28.5 References**

- 28.5.1 NA

### **28.6 Preparation Instruction**

#### **28.6.1 Format**

- 28.6.1.1 The Design Change Package shall be prepared in the Contractor's format.

#### **28.6.2 Content**

- 28.6.2.1 The Design Change Package shall include the following as a minimum:
- a. A description of the required change, referencing the corresponding Problem Report;
  - b. Redlined change pages to each Deliverable documentation that would be affected by the proposed change;
  - c. Definition of how the recommended changes will be implemented in all HWCIs and CSCIs.
  - d. Definition of all Authorization and Acceptance processes that would be nullified by the change, and the resulting re-testing and re-evaluation that

would be required to demonstrate compliance of the change with the SOW;  
and

- e. All schedule changes that would be required to fully implement and re-test the change.

## **29. DID NRWS-ILS-001 – INTEGRATED LOGISTIC SUPPORT PLAN**

### **29.1 Description**

- 29.1.1 The Integrated Logistic Support (ILS) Plan shall define the Contractor's strategy and approach to creating the ILS products and implementation of all Authorized ILS activities. The ILS Plan serves as the principal management and planning document for execution of all ILS activities.

### **29.2 Office of Primary Interest**

- 29.2.1 DND

### **29.3 Office of Collateral Interest**

- 29.3.1 PWGSC

### **29.4 Interrelationships**

- 29.4.1 SOW: Section 5.2.1.1, 5.2.2.1
- 29.4.2 DID: NRWS-PM-001, NRWS-ILS-002 to ILS-006

### **29.5 References**

- 29.5.1 A-LM-505-001/AG-001, Guidance Manual Integrated Logistics Support
- 29.5.2 A-LM-505-001/AG-002, Guidance Manual Logistics Support Analysis
- 29.5.3 C-03-005-012/AM-001, Naval Materiel Management System Manual
- 29.5.4 MIL-STD-1388 1A, Logistics Support Analysis
- 29.5.5 MIL-STD-1388 2B, Logistics Support Analysis Record (LSAR)

### **29.6 Preparation Instruction**

#### **29.6.1 Format**

- 29.6.1.1 The ILS Plan shall be prepared in the Contractor's format using the References listed in 29.5.

#### **29.6.2 Content**

- 29.6.2.1 The ILS Plan shall include the following as a minimum:
  - a. Introduction – This section describes the scope and purpose of the plan, together with applicable definitions, references and related documents;

- b. ILS Deliverable Documentation - This section describes each document and a summary of its contents that will be used in specifying the ILS processes of the NRWS System and associated Deliverables.
- c. ILS Meetings - This section describes the meetings that the Contractor will conduct with Canada to obtain guidance for the NRWS System ILS processes, to present the results of these processes, and to acquire Authorization from Canada regarding ILS results.
- d. ILS Planning and Implementation - This section describes how ILS will be planned and implemented to ensure that the NRWS System and associated Deliverables are Authorized or Accepted as compliant with the SOW, and are supportable, specifically:
  - (1) NRWS System Logistic Support Analysis;
  - (2) NRWS System Initial Cadre Training;
  - (3) NRWS System Initial Provisioning;
  - (4) NRWS System In-Service Manuals;
  - (5) NRWS System In-Service Support, specifically:
    - (a) Maintenance Management System;
    - (b) Supply Chain Management System;
    - (c) Configuration Management System;
    - (d) Technical Data Management System; and
    - (e) Training Management System.
- e. ILS Resources – This section describes:
  - (1) The Contractor's ILS authorities, organization, and skills;
  - (2) Required ILS information, materials, facilities, services, Government Furnished Resources;
  - (3) The coordination of these resources required to specify and conduct ILS for the NRWS System and associated Deliverables;
- f. Subsequent sections will be used to describe how all ILS activities will be coordinated with the following:

- (1) Project Management (specifically organizational interfaces and communications, schedule, and their overall management as related to ILS);
- (2) Quality Management;
- (3) Risk Management;
- (4) Requirement Management;
- (5) System Engineering;
- (6) Acceptance Program; and
- (7) Configuration Management
- (8) Obsolescence Management; and
- (9) OE.

## **30. DID NRWS-ILS-002 – LOGISTIC SUPPORT ANALYSIS**

### **30.1 Description**

30.1.1 The Logistic Support Analysis (LSA) shall report the LSA results.

### **30.2 Office of Primary Interest**

30.2.1 DND

### **30.3 Office of Collateral Interest**

30.3.1 PWGSC

### **30.4 Interrelationships**

30.4.1 SOW: Sections 5.2.2.2, 5.2.3.2a

30.4.2 DID: NRWS-PM-001, NRWS-ILS-001, ILS-003 to ILS-006

### **30.5 References**

30.5.1 A-LM-505-001/AG-002, Guidance Manual Logistics Support Analysis

### **30.6 Preparation Instruction**

#### **30.6.1 Format**

30.6.1.1 The LSA shall be prepared in the Contractor's format following the guidelines specified in References 30.5.

#### **30.6.2 Content**

30.6.2.1 The LSA shall include the following as a minimum:

- a. Master and Critical Equipment Lists: Which specifically define each of the configuration managed equipment items in question and those items whose criticality of failure demand that their maintenance be addressed via systematic LSA;
- b. Failure Mode Effect and Criticality Analysis (FMECA): Which identifies equipment failures, and prioritizes them according to their corresponding criticalities, effects, and frequencies;
- c. Reliability Centered Maintenance Analysis (RCMA): Which identifies the minimal Predictive Maintenance (PdM) and preventive maintenance activities

that will minimize the Corrective Maintenance necessary to address the critical failures identified in the FMECA;

- d. Maintenance Task Analysis (MTA): Which identifies the human resources, skills, tools, test equipment, facilities, and documentation necessary to undertake the PdM, preventive maintenance, and corrective maintenance identified in the RCMA;
- e. Level of Repair Analysis (LORA): Which identifies the lines and levels for PdM and PM specified in the RCMA, specifically to identify the Line Replaceable Units (LRUs) on which the PdM, preventive maintenance, and corrective maintenance activities will be conducted at a given location, and by a given organization; and
- f. Sparing Analysis: Which identifies the types and quantities spares necessary to support the above activities with respect to many factors such as their consumption rates, obsolescence rates, availability from suppliers, lead times, repairable vs. disposable LRUs, etc. This analysis also identifies where these spares will be held with respect to repair lines, how sparing levels will be maintained, associated packaging handling, and storage.

## **31. DID NRWS-ILS-003 – TRAINING DEVELOPMENT PROGRAM REPORT**

### **31.1 Description**

- 31.1.1 The Training Development Program Report shall describe the training analysis and associated information that the Contractor undertook in order to develop the Operator and Maintainer Initial Cadre Training Packages.

### **31.2 Office of Primary Interest**

- 31.2.1 DND

### **31.3 Office of Collateral Interest**

- 31.3.1 PWGSC

### **31.4 Interrelationships**

- 31.4.1 SOW: Sections 5.2.3.2.b, 5.4.7, 5.5.1
- 31.4.2 DID: NRWS-PM-001, NRWS-ILS-001, ILS-002, ILS-006

### **31.5 References**

- 31.5.1 A-P9-050-000/PT-003, Canadian Forces Individual Training and Education System (CFITES), Analysis of Instructional Requirements, Volume 3
- 31.5.2 A-P9-050-000/PT-004, CFITES, Design of Instructional Programmes, Volume 4

### **31.6 Preparation Instruction**

#### **31.6.1 Format**

- 31.6.1.1 The Training Development Program Report shall be prepared in the Contractor's format following the guidelines specified in References 31.5.

#### **31.6.2 Content**

- 31.6.2.1 The Training Development Program Report shall include the following as a minimum:
- a. The methods and processes the Contractor used to determine the following in accordance with CFITES Volume 3:
    - (1) Training task list;



- (2) No-train task list;
  - (3) Rationale for selection or rejection of tasks for training; and
  - (4) Performance Objectives (PO).
- b. The methods and processes the Contractor used to determine the following in accordance with CFITES Volume 4:
  - (1) Enabling Objectives (EO); and
  - (2) Teaching Points.
- c. The methods and processes the Contractor used to determine the following in accordance with CFITES Volume 4:
  - (1) A concept for achievement testing for each PO and critical EO that specifies how they will be assessed;
  - (2) Pass/fail policy based upon results of achievement tests;
  - (3) A concept for progress testing, that specifies how each EO will be assessed; and
  - (4) Specification for each PO and EO.
- d. The methods and processes the Contractor used to determine the following in accordance with CFITES Volume 4:
  - (1) Lesson specifications; and
  - (2) Resource requirements

## **32. DID NRWS-ILS-004 – IN-SERVICE SUPPORT PLAN**

### **32.1 Description**

- 32.1.1 The In-Service Support (ISS) Plan shall describe all aspects of NRWS System in-service ILS in accordance with the ILS Plan and LSA results, for use by Canada as a guide for managing NRWS System in-service support.

### **32.2 Office of Primary Interest**

- 32.2.1 DND

### **32.3 Office of Collateral Interest**

- 32.3.1 PWGSC

### **32.4 Interrelationships**

- 32.4.1 SOW: Sections 5.2.2.5, 5.2.3.2.g
- 32.4.2 DID: NRWS-PM-001, NRWS-ILS-001, ILS-002

### **32.5 References**

- 32.5.1 NA

### **32.6 Preparation Instruction**

#### **32.6.1 Format**

- 32.6.1.1 The ISS Plan shall be prepared in the Contractor's format.

#### **32.6.2 Content**

- 32.6.2.1 The ISS Plan shall include the following as a minimum:
- a. Introduction – This section describes the scope and purpose of the plan, together with applicable definitions, references and related documents;
  - b. In-Service Support – This section describes the ISS tasks that the contractor would plan to perform during a period of ISS for the NRWS System and associated Deliverables. This section also describes the process that the Contractor would plan to follow for ISS tasks including:
    - (1) Maintenance Management Process;
    - (2) Supply Chain Management Process;

- (3) Configuration Management Process;
  - (4) Technical Data Management Process; and
  - (5) Training Management Process;
  - (6) Obsolescence Management; and
  - (7) All other in-service ILS processes that would be required by the LSA.
- c. Deliverable ISS Documentation - This section describes each document and a summary of its contents that will be used in specifying the ISS tasks and processes of the NRWS System and associated Deliverables.
- d. In-Service ILS Resources - This section describes:
- (1) The Contractor's ISS authorities, organization, and skills;
  - (2) ISS information, materials, equipment, facilities, services, Government Furnished Resources;
  - (3) The coordination of these resources required to conduct ISS for the NRWS System and associated Deliverables;
- e. Subsequent sections will be used to describe how all ISS activities would be coordinated with the following:
- (1) Project Management (specifically organizational interfaces and communications, schedule, and their overall management as related to in-service ILS);
  - (2) Quality Management;
  - (3) Risk Management;
  - (4) Requirement Management;
  - (5) System Engineering;
  - (6) Acceptance Program; and
  - (7) Configuration Management.

### **33. DID NRWS-ILS-005 – PROVISIONING DOCUMENTATION**

#### **33.1 Description**

33.1.1 The Provisioning Documentation shall consist of:

- a. Long Lead Time Item List (LLTIL);
- b. Provisioning Parts Breakdown (PPB); and
- c. Supplementary Provisioning Technical Documentation (SPTD).

#### **33.2 Office of Primary Interest**

33.2.1 DND

#### **33.3 Office of Collateral Interest**

33.3.1 PWGSC

#### **33.4 Interrelationships**

33.4.1 SOW: Sections 5.2.2.3, 5.2.2.4, 5.3.2.3, 5.3.3.2, 5.3 4.1

33.4.2 DID: NRWS-PM-001, NRWS-ILS-001, ILS-002, NRWS-TD-002

#### **33.5 References**

33.5.1 D-01-100-214/SF-000, Preparation of Provisioning Documentation for Canadian Forces Equipment

33.5.2 C-01-000-103/AG-000, Guide to the Canadian Government Cataloguing System

#### **33.6 Preparation Instruction**

##### **33.6.1 Format**

33.6.1.1 The Provisioning Documentation shall be prepared in accordance with the formatting requirements of References 33.5.

##### **33.6.2 Content**

33.6.2.1 The Provisioning Documentation shall be prepared in accordance with the content requirements of References 33.5. The Provisioning Documentation shall include the following as a minimum:

- a. LLTIL – Only as required to specify and justify the provisioning of those spares that have an acquisition lead time that would not allow them to be

supplied following the Initial Provisioning Conference in accordance with the sparing schedule specified in the SOW Section 5.3.1;

- b. PPB – To define the top down organization of the NRWS System, it's HWCIs, components that may be procured as spares, and the associated information required by Reference 33.5.1 for each component.
- c. SPTD – In accordance with the requirements of References 33.5.

## **34. DID NRWS-ILS-006 – INITIAL CADRE TRAINING PACKAGES**

### **34.1 Description**

- 34.1.1 The Initial Cadre Training (ICT) Packages specify the course content for the NRWS System Operator and Maintainer ICT to be delivered by the Contractor.

### **34.2 Office of Primary Interest**

- 34.2.1 DND

### **34.3 Office of Collateral Interest**

- 34.3.1 PWGSC

### **34.4 Interrelationships**

- 34.4.1 SOW: Sections 5.5.1, 5.5.2, 5.5.4, 5.5.5, 5.5.6, 5.5.7
- 34.4.2 DID: NRWS-PM-001, NRWS-ILS-001, ILS-002, ILS-003

### **34.5 References**

- 34.5.1 A-P9-050-000/PT-005, CFITES Volume 5, Development of Instructional Programmes

### **34.6 Preparation Instruction**

#### **34.6.1 Format**

- 34.6.1.1 The ICT Packages shall be prepared in the Contractor's format following the guidelines specified in References 34.5.

#### **34.6.2 Content**

- 34.6.2.1 The ICT Packages shall include the following as a minimum:
- a. Course presentation slides;
  - b. Student handouts;
  - c. Instructor speaking notes;
  - d. Examinations;
  - e. Examination answer keys;
  - f. Course schedule and sequencing;

- g. Any information required by the instructor to simulate faults for maintenance training; and
- h. Identification of required resources such as tools, test equipment, pre-faulted components, teaching aids etc.