DATA ITEM DESCRIPTION

1. DID NUMBER: DID-V&V-MGT-V&VP-V5.3
2. TITLE: Verification and Validation Plan
3. DESCRIPTION and intended use

The Verification and Validation Plan (V&VP) documents the Verification and Validation (V&V) program to be implemented by the Contractor to meet the V&V requirements of the Contract.

The V&VP is used by the Contractor to plan and implement its V&V program.

The V&VP is used by the Commonwealth Representative to assess the adequacy of, and to monitor the progress of, the Contractor’s V&V program, and to identify the Commonwealth’s involvement in the program.

1. INTER-RELATIONSHIPS

The V&VP is subordinate to the following data items, where these data items are required under the Contract:

Systems Engineering Management Plan (SEMP); and

Integrated Support Plan (ISP).

The V&VP inter-relates with the following data items, where these data items are required under the Contract:

Verification Cross-Reference Matrix (VCRM);

Acceptance Test Plans and Procedures;

Acceptance Test Reports;

Previous V&V Results Package (PV&VRP); and

Contract Master Schedule (CMS).

1. Applicable Documents

The following documents form a part of this DID to the extent specified herein:

Nil.

1. Preparation Instructions
   1. Generic Format and Content

The data item shall comply with the general format, content and preparation instructions contained in the CDRL clause entitled ‘General Requirements for Data Items’.

The data item shall include a traceability matrix that defines how each specific content requirement, as contained in this DID, is addressed by sections within the data item.

* 1. Specific Content
     1. Plan Overview

The V&VP shall describe the Contractor’s V&V strategy, methodology, processes, and sequence of activities for both the Mission System and Support System to meet the following objectives:

that the design yields the specified performance;

that fabrication defects, marginal design, marginal parts, and marginal components (if any exist) are detected early in a test sequence;

that activities are sequenced to manage and control the risk that the program’s next major V&V activity fails to detect significant design inadequacies before the design is too advanced, and significant resources are needed to solve the problem;

that the elements of the system can survive the environments predicted to be encountered during transportation, handling and field operation;

that the system and all of its sub-elements, as built and assembled, are compatible with each other and are capable of performing the required mission functions;

that the system is characterised by establishing the operating signature of performance through calibration and combination of sub-element performance data; and

to define the basis for Acceptance and delivery of the system.

* + 1. Organisation and Management

The V&VP shall include:

the Contractor's organisation for its V&V program, and the inter-relationships between the V&V organisation and the other parts of the Contractor's organisation for the project;

the Contractor's procedures for coordinating its V&V program with its system engineering and logistic engineering efforts to ensure that its Mission System design has due regard for through life support;

the Contractor's procedures for coordinating its V&V program with its Integrated Logistic Support (ILS) efforts to ensure an effective Support System design;

a discussion of how the unique skills and experience of the various groups involved in the V&V program are arranged to provide continuity of V&V effort;

the Contractor's V&V program work breakdown structure and schedule, describing how the schedule supports the achievement of the CMS;

the Contractor's procedures for monitoring, evaluating, and controlling the status of V&V tasks and achievement of the V&V schedules; and

the Contractor and Commonwealth resources (eg, human, machine, and platforms) anticipated being required at the various stages of the V&V program.

The V&VP shall refer to the VCRM for both the Mission System and Support System that, for each requirement of each system’s Functional Baseline, identifies the method and stage of the V&V program at which compliance will be verified.

Where the Contractor proposes to claim previous Verification results as precluding the need for specific Verification activities within the V&V program, the V&VP shall summarise:

the scope and context of the previous Verification activities;

the reasons why the previous results preclude the need for further specific Verification activities, including how the previous results are valid for the configuration of the Supplies, and the intended operational role and environment described in the FPS and OCD; and

how the previous Verification results, delivered in a Contractor’s PV&VRP, will be integrated into the planned Verification activities and the VCRM.

* + 1. Flow Diagram

The V&VP shall include an overall flow diagram of the V&V and deployment program for both the Mission System and the Support System. This flow shall be sequentially arranged to include:

all significant V&V milestones and efforts in the development phase associated with each class of V&V;

hardware and software integration schedules;

requirements for V&V concurrency;

the contractor or group responsible for each V&V event; and

any additional information that clarifies the description of the V&V program.

The flow diagram shall reflect predicted dates for significant milestones.

* + 1. V&V Objectives

The V&VP shall specify the broad objective for each V&V phase for both the Mission System and the Support System. Objectives shall be specified in terms of verifying part or all of system or lower level specifications (eg, subsystem specifications). It is important that the V&VP support a unified set of objectives for the entire V&V program, so that redundant activities are eliminated and the program can evolve smoothly through each succeeding phase.

* + 1. V&V Support Requirements

The V&VP shall identify and describe all significant technical and logistic support required to implement each V&V phase for both the Mission System and the Support System. These requirements should be expressed in sufficient detail to permit a determination of whether the Commonwealth has the capability to support the phase. In addition, the V&VP shall identify the following major requirements for each V&V phase:

any special test equipment and equipment requiring long lead times to develop or procure;

logistics requirements, including supply, maintenance and transportation;

the major and special facilities required to support the V&V effort, including simulation requirements, Commonwealth facilities, environmental test facilities, and plans for validating that facility interfaces and support documentation are both realistic and compliant with design documentation;

requirements for supporting computer equipment for data reduction, analysis or conduct of V&V; and

the proposed method and any activities required for Validation of the test environment and test equipment.

* + 1. Special Testing

The V&VP shall provide details of any special or unusual tests or examinations necessary as part of the V&V program.

* + 1. Developmental V&V

The V&VP shall define the conduct of lower-level developmental V&V activities for both the Mission System and Support System to be conducted by the Contractor but not used as part of formal Acceptance V&V.

* + 1. Documentation

The V&VP shall identify documentation requirements for each phase of the V&V program for both the Mission System and the Support System. It shall describe generation and approval processes, document change and revision control, and the interdependence between the engineering and V&V documentation.

The V&VP shall define the scope and purpose of subordinate plans and their interrelationship with each other and the V&VP.

* + 1. V&V Configurations

The V&VP shall provide details of the expected configurations of the system or system components for both the Mission System and the Support System during the V&V program. The V&VP shall also show how the system configuration will be managed through the V&V phases to ensure that Acceptance V&V will be conducted on equipment that is of the same hardware and software configuration as will be offered for Acceptance.

* + 1. Failure and Corrective Action Management

The V&VP shall describe the Problem Resolution System used for the collection of Failure data for both the Mission System and the Support System (including that of Subcontractors) and shall identify when it will be established.

The V&VP shall identify the process used to analyse Failure data and track the corrective action taken as a result of a Failure, and the interaction with the engineering development groups, logistic organisation, Subcontractors and the Commonwealth.

The V&VP shall identify how regression testing for both the Mission System and the Support System will be managed, following a test failure or design change, throughout the V&V program.