National Défense
Defence nationale

Electronic Information Environment (EIE) Project

Business Use Case (BUC)
BUC 4.26 Navy - Exchange Maintenance
Notification Data – ISS Contractor

EIE Project	
document identification	identifier du document
issue date	date de diffusion
20 August 2015	
1.0	
OPI	BPR
PBC - EIE Solution Office	
designator	désignation
EIE Project	
group / division	groupe / division
ADM(IM) / DGEAS	

The information being provided is to illustrate the model that exists for business processes and information exchange within the Performance Based Contracting (PBC) solution for the Department of National Defence. The information is provided to facilitate an understanding of the business architecture and the solution architecture that exist for the PBC program. The content is not intended to reflect the end state specifications for all of the PBC EIE related services.

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1 EIE Business Use Case[1] Overview

1.1 Introduction

Performance Based Contracting (PBC) is a set of guidelines to Canada Major Capital Projects (MCPs) on how to model a Platform acquisition and in-service support (ISS) processes. Under these guidelines Canada is responsible to perform corrective and/or preventive maintenance activities on the Platform. In order for Canada and an ISS Contractor to fulfill their obligations under PBC specific datasets must be exchanged between Canada and ISS Contractor.

The collection of information systems provided by Canada and ISS Contractor used to maintain the Platform and the various information exchange mechanism between Canada and the ISS Contractor, is collectively known as the Electronic Information Environment (EIE).

The collection of web services and supporting infrastructure which enables exchange of data between ISS Contractor and Canada's operational systems in support of PBC between Canada and ISS Contractor(s) is collectively known as Electronic Data Exchange (EDE) within Canada. The EDE components span application nodes, network zones and the Internet.

1.2 Purpose

Canada maintenance activities are tracked in the Canada Maintenance Management System (CMMS). Exchange of maintenance-related data involves new exchange business processes between CMMS and ISS Contractor data consumers which complement already documented maintenance business processes.

This Business Use Case (BUC) describes the exchange of Maintenance Notification records between Canada and the ISS Contractor for a Navy Ship Class managed according to PBC.

1.3 Intended Audience

The intended audience for this business use case includes:

- The ISS Contractor(s) who require detail of their business service-level interactions, benefits and obligations under PBC.
- Canada Program Management Offices implementing PBC.
- Solution Architects who will define a Business Service Model for the business service(s) described here.
- Functional Testers who will use the business use case to define test scenarios for Integration testing.

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[1] "Business Use Case: A business process, representing a specific workflow in the business; an interaction that a stakeholder has with the business that achieves a business goal. It may involve both manual and automated processes and may take place over an extended period of time." - http://www.ibm.com/developerworks/rational/library/apr07/english/.

- Designers who will perform detailed design and unit test.

1.4   References and Traceability

Business Process documents

[Ref. 1]   PBC Business Process Catalogue Annex L: Navy Maintenance Process Model - In the
                  Context of Performance Based Contracting (PBC)

With respect to the referenced documents this BUC addresses the following sections:

Reference	Section
[Ref. 1] PBC Business Process Catalogue: Annex L	Annex L – Navy Maintenance Process Model

2   BUC 4.26 Navy - Exchange Maintenance Notification Data – ISS Contractor

This Business Use Case will identify processes and activities and define scenarios which apply to maintenance notifications coming from the ISS Contractor. Maintenance notifications have several distinct parts (See Functional Data Definition). For the purpose of a maintenance history data exchange, a notification with some or all of its parts will be sent from the ISS Contractor to Canada. "**Notification datasets**" will be used to refer to a set of notifications, including respective parts, prepared for exchange.

2.1   Overview

Identifier	BUC 4.26
Name	Navy - Exchange Maintenance Notification Data – ISS Contractor
Business goal	Send maintenance notification dataset to Canada as necessary to allow the ISS Contractor to fulfill its obligations under PBC.
Stakeholders	Canada and the ISS Contractor(s)
Workflow/interaction	Exchange of maintenance notification dataset from the ISS Contractor to Canada as defined at multiple points in corrective and preventive maintenance business processes. Reference [Ref. 1].
Processes	Information exchange is automated (system to system). The frequency of exchange is determined by Canada and each ISS Contractor. Some error scenarios may require manual intervention.
Context	Business Domain: Maintain Platform Functional Area: Preventive and Corrective Maintenance • Preventive Maintenance (PM) Planning • PM Planning - On-Site Management Team (OSMT)
Period of Time	The full lifecycle of the subject platform.
Description	The ISS Contractor may be assigned preventive maintenance tasks as a result of deadline monitoring, or as a result of work tasking by the On-Site Management Team (OSMT). If the ISS Contractor does not accept the maintenance assignment, the maintenance notification is returned to the OSMT for review and action. On a pre-determined, periodic basis, through the entire platform lifecycle, the ISS Contractor will transfer the maintenance notification datasets to Canada.

2.2   Sub Processes and Activities Supported

Refer to EIE Business Process document, [Ref. 1] for diagrams that capture business process flow supported by this BUC.

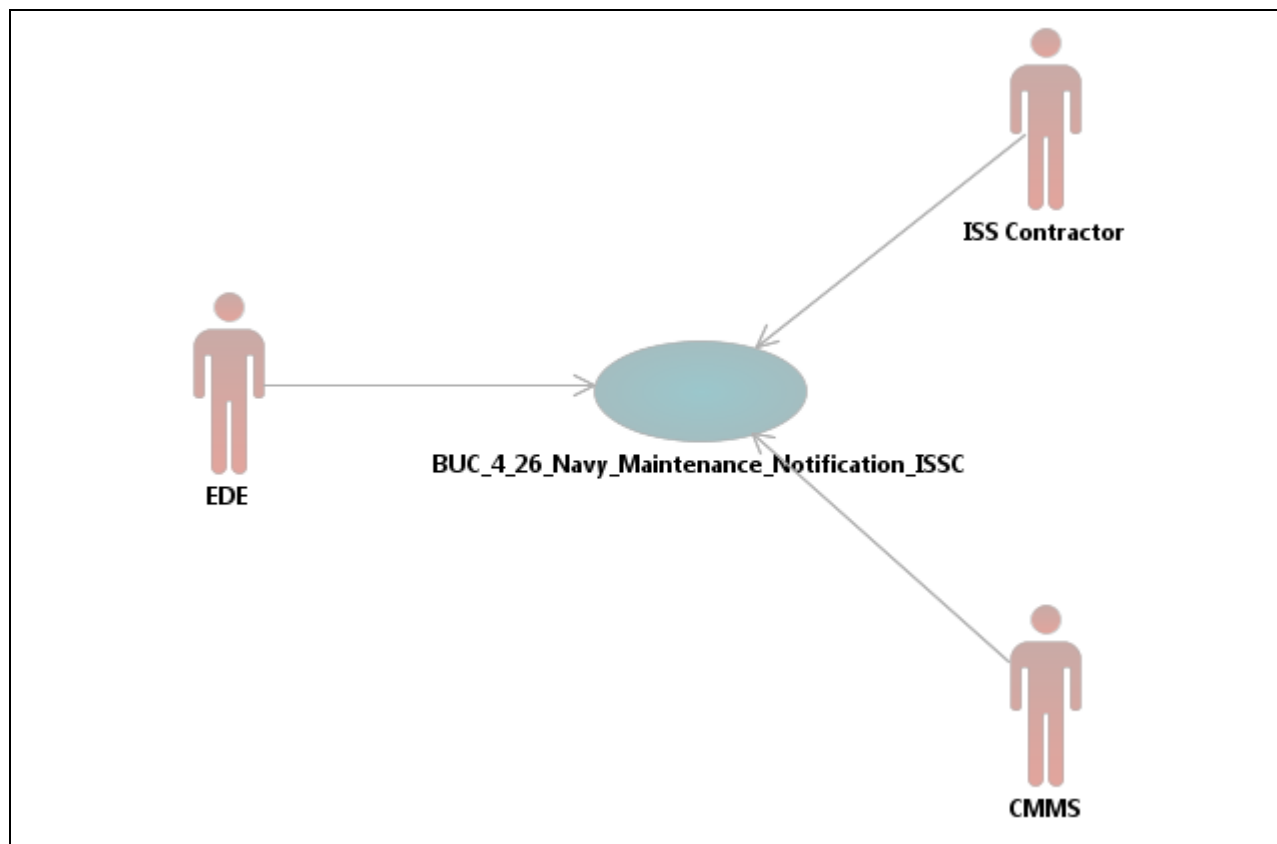## 2.3   Business Rules and Assumptions

1. The CMMS and EDE systems shall ensure Maintenance Notification dataset for a platform is received from the ISS Contractor system which is properly authenticated and authorized to send the maintenance and/or materiel data for that fleet.

2.4   Actors

The following actors have been identified as performing the documented business activities:

Role Name	Role Description / Responsibilities

ISS Contractor	• Provides a system that will have the ability to:
	  − Process and transmit the Maintenance Notification data to Canada, and
	  − Acceptance of the Acknowledgement of data from Canada

EDE	• Transports and transforms the Maintenance Notification data.
CMMS	• Receives and processes Maintenance Notification data.

Figure 2-1 Navy - Exchange Maintenance Notification Data - ISS Contractor

2.5   Common Pre-Conditions

These apply to every scenario unless explicitly stated otherwise.

1. As per PBC, maintenance notification datasets be sent to Canada CMMS System;

2. Canada and the ISS Contractor have agreed upon maintenance notification dataset format (see Functional Data Definition);

3. Canada and the ISS Contractor have agreed upon maintenance notification data exchange mechanism.

2.6   Common Post-Condition(s)

The following applies to every scenario unless explicitly stated otherwise.

1. Maintenance notification dataset has been received by Canada and an acknowledgement has been received by the ISS Contractor.

2.7 Common BUC Steps

Each scenario defined below includes the following common steps:

Common Steps	Step Description	Actor
Receive maintenance notification	EDE receives the maintenance notification	EDE
Convert maintenance notification data to CMMS format	EDE converts data to a format acceptable by CMMS.	EDE
Send maintenance notification data to CMMS	EDE sends maintenance notification datasets to CMMS, in accordance with transmission definition agreed to with CMMS.	EDE
Capture maintenance notification record in CMMS	CMMS receives and processes the maintenance notification.	CMMS

2.8 Scenarios[2]

In the following scenarios the pre-condition and trigger serve to uniquely identify the maintenance notification exchange in the context of a maintenance business process. This supports direct traceability between maintenance business processes and exchange use case scenarios.

Note: The numeric identifier that appears in square brackets besides each scenario name is an identifier that can be used to locate the event in the business process flow as per [Ref. 1].

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[2] A scenario corresponds to a specific activity in a maintenance business process when a triggering event occurs which causes a maintenance notification datasets exchange. Picture the maintenance business process as proceeding horizontally through recognition of a corrective or preventive maintenance situation, through fault isolation, some maintenance activities, and possibly a trial test. Each exchange use case scenario corresponds to a vertical slice from a maintenance business process which results in a maintenance notification being transferred from the ISS Contractor.

2.8.1 4.26.1 Maintenance Notification – ISS Contractor – Full [N1.4.3.1.6]

Scenario Name	**4.26.1 Maintenance Notification – ISS Contractor – Full [N1.4.3.1.6]**
Business Process	This scenario occurs in the following business processes: • Preventive Maintenance Planning: PM Planning - OSMT
Business Context	Non acceptance of maintenance task by the ISS Contractor will trigger sending the Full record of data to Canada by the ISS Contractor. PM Planning - OSMT • The ISS Contractor may be assigned preventive maintenance tasks as a result of deadline monitoring, or as a result of a work tasking by the OSMT. For work tasking which the ISS Contractor does not accept, the maintenance notification user status is set to 'Rejected by ISSC' (RISC), along with the reason for rejection, and returned to the OSMT for review and action. • If the ISS Contractor accepts the maintenance tasking via the EIE EDE, the notification user status is set to 'Accepted by ISSC' (AISC).
Precondition(s)	See Common Pre-Conditions.
Trigger event	The ISS Contractor does not accept maintenance task assigned by Canada.
Steps	

Step Name	Step Description	Actor
Update the User Status of the maintenance notification	The Actor updates the User status of the maintenance notification.	ISS Contractor
Send maintenance notification data	The Actor sends the maintenance notification records as per definition published by Canada.	ISS Contractor
Continue with Common BUC Steps		

Postcondition(s)	See Common Post-Conditions.
Notes	

2.9   Information Requirements

The following maintenance notification types are created in CMMS for preventive and corrective maintenance business processes

- N1:   Maintenance (Corrective)

- N2:   MEPM (Implement Engineering Changes)

- N7:   TRANREQ (Transfer Request, e.g., Rob)

- N9:   Mil. Prev. Maint (Preventive)

- NC: EC Part 1 (Pre-implementation Engineering Changes)

- NR: Navy –CFSS R&O (Off-platform Component Repair & Overhaul).
           Please refer to the BUC 4.25 Navy – Exchange Maintenance Service Request.

Details on the data elements of a Maintenance Notification from the ISS Contractor are provided in Section 3.

2.10 Special Requirements

Notification must include its state, expressed through agreed status codes.

ISS Contractor may include additional information regarding rejection of a Notification by populating Problem Long Text element.

In all cases, the Notification already exists in CMMS.

3 Functional Data Definition

The following fields are used to describe various characteristics of Maintenance Notification datasets. A detailed technical message schema for exchange of datasets will be provided following the awarding of the ISS contract.

3.1 Data Entities Definition

The Data Entities Definition Table 3-1 below contains examples of the reference data. Specific and accurate reference data should be obtained from Canada through official channels prior to using the reference data in downstream design and implementation activities.

Table 3-1 Data Entries Definition

Name	Description	Type	Length
Notification Identifier	A unique identifier for a maintenance notification in the CMMS that will need to be replayed by the ISSC.	Char	12
Record Timestamp	The timestamp a Maintenance Notification record created	Datetime	
Notification Activity Type Description	Text description of the Notification Activity Type	Char	30
Problem Short Description	Short description of the problem reported into notification.	Char	40
Download Identifier	Download identification number. This applies only if the Health and Usage Monitoring System (HUMS) is available.	Char	64
External FLOC Identifier	Functional Location of the installed equipment (if equipment is identified in the notification).	Char	30
CAGE	Commercial And Government Entity (CAGE) code of the manufacturer associated to the equipment	Char	5
MPN	Manufacturer part number Note: DND-supplied parts may have an MPN up to 34 characters in length. Industry-supplied parts must have an MPN of 31 characters or less.	Char	34
Serial Number	Manufacturer's Serial number of the part	Char	30

Name	Description	Type	Length
Assembly CAGE	The CAGE code of the Material Master Record (MMR) (assembly) in the notification(header level)	Char	5
Assembly MPN	The MPN of the MMR (assembly) in the notification (header level) Note: DND-supplied parts may have an MPN up to 34 characters in length. Industry-supplied parts must have an MPN of 31 characters or less.	Char	34
Coding Code Group	Identifies group identifier of the notification. A means of grouping or classifying notifications. **Values: *Coding Code Group*** (Example, Notification type = ND Coding Code Group = DEV Description = Deviation)	Char	8
Coding Group Description	The description of the Code Group	Char	40
Coding Code	A specific code associated with the code group. The list of allowed codes is determined by the selected value of the Coding Group. **Values: *Coding Code*** (Example for Coding Code Group DEV coding codes: Coding Code = 003, Technical Coding Code = 004, General)	Char	4
Coding Code Description	The description of the Coding Code.	Char	40
Problem Long Description	Long text of the notification. Captures text, entered by a user, which is beyond 40 characters long.	Char	2 GB
ISS Contractor Comment	Additional long text for the notification supplied by the ISS Contractor. (In CMMS, this content will be appended to Problem Long Description.)	Char	2 GB

Name	Description	Type	Length
MER Identifier	Platform unique identifier as defined by Canada. For the Navy, this is the Ship identifier.	Char	14
External Reference Number	Unique identifier used to report: • Authorizing document number for the engineering change • Service request number for performing off-platform maintenance (back-shop) These are usually externally provided by the configuration authority.	Char	26
External Maintenance Task List Number	The industry defined identifier of a maintenance task list.	Char	40
User Status Code	User Status is a field used to validate and approve content of the notification or to depict a business condition such as acceptance.	Char	4
User Status Description	The description of the user status	Char	30
User Status Start Date	Date / time stamp the status was set.	Datetime	
System Status Code	Depicts the life cycle status of the Notification. **Values: *System Status Code*** (Example, OSNO Outstanding Notification NOPR Notification in Progress NOCO Notification Closed)	Char	4
System Status Start Date	Date / time stamp the status was set.	Datetime	
System Status Description	Description of each individual status.	Char	30
FMEA Item Number	This uniquely identifies the Code item. May have associated Damage Code, Object Code, Cause Codes and Activity Codes.	Char	4
Component CAGE (FMEA Item level)	Cage code of the manufacturer associated with the Component. The combination of the Component MPN and Component CAGE fields Identifies non-serialized parts that have fault codes recorded against them. The combination of the Component MPN and Component CAGE fields WITHOUT a fault	Char	5

Name	Description	Type	Length
	code identifies consumables used in performance of the maintenance activity.		
Component MPN (FMEA Item level)	MPN of the manufacturer associated to the Component. The combination of the Component MPN and Component CAGE fields identifies non-serialized parts that have fault codes recorded against them. The combination of the Component MPN and Component CAGE fields WITHOUT a fault code identifies consumables used in performance of the maintenance activity. Note: DND-supplied parts may have an MPN up to 34 characters in length. Industry-supplied parts must have an MPN of 31 characters or less.	Char	34
Component Defect Quantity (FMEA Item level)	The quantity of assemblies against which a fault is recorded for a non-serialized part. A combination of the Component MPN and Component CAGE fields identifies a non-serialized part that has a fault code recorded against this part.	Integer	10
Damage Code Group (FMEA Item level)	Identifies group identifier of the Damage. A means of grouping damage codes. CMMS notification catalogue entry for maintenance history. **Values: *Damage Code Group*** (Example, Damage Code Group = HOWMALF Damage Code Group description = How Malfunctioned Damage Code Group = 001 Damage Code Group description = Fails Tune/ Align/Operate)	Char	8
Damage Code Group Description (FMEA Item level)	The description of the Damage Code Group	Char	40
Damage Code (FMEA Item level)	Unique identifier of the damage code within the Damage Code Group.	Char	4

Name	Description	Type	Length
	Values: *Damage Code* (Example, for damage code group HOWMALF, below is the damage code and its description: 001 Fails Tune/Align/Operate 002 Excessive Vibration/Noise 003 Excessive Heat/Arching)		
Damage Code Description (FMEA Item level)	The description of the Damage Code	Char	40
Object Part Code Group (FMEA Item level)	Identifies group identifier of the Object Part. A means of grouping Object Part codes. Values: *Object Part Code Group* (Example, Object Part Code Group = MSG04 Object Part Code Group description = Main Propulsion Object Part Code = SE01 Object Part Code description = Main Batteries)	Char	8
Object Part Code Group Description (FMEA Item level)	The description of the Code Group	Char	40
Object Part Code (FMEA Item level)	The Object Part Code permits a generic categorization of the EMR or FLOC in question. Values: *Object Code* (Example, for object part code group MSG04, object part codes: SE01 Main Batteries SE02 Main DC System SE08 Main Motor)	Char	4
Object Part Code Description (FMEA Item level)	The description of the Object Part Code.	Char	40
Cause Code Item Number (FMEA Item level)	Identifies the specific line item of the cause code	Char	4
Cause Code Group (FMEA Item level)	Identifies group number of the Cause. A means of grouping Cause codes.	Char	8

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Name	Description	Type	Length
	Values: *Cause Code Group* (Example, Cause Code Group = EM0010 Cause Code Group description = Boilers Cause Code Group = 5185 Cause Code Group description = Corrosion)		
Cause Code Group Description (FMEA Item level)	The description of the Cause Code Group	Char	40
Cause Code (FMEA Item level)	Identifies a specific Cause within the Cause Code group. **Values:** *Cause Code* (Example, for EM0010 Cause Code Group cause codes: 5100 – Abnormal Operation 5105 – Abuse 5185 – Corrosion 5275 – Excessive Load)	Char	4
Cause Code Description (FMEA Item level)	The description of the Cause Code.	Char	40
Activity Code Item Number	Identifies the specific line item of the Activity Code	Char	4
Activity Code Group (FMEA Item level or Notification header level)	Identifies group number of the Activity. A means of grouping Activity Codes. **Values:** *Activity Code Group* (Example, Activity Code Group = CMACTION Activity Code Group description = Corrective Maintenance Action Activity Code = 001 Activity Code Description = Adjusted/ Aligned)	Char	8
Activity Code Group Description (FMEA Item level or Notification header level)	The description of the Activity Code Group	Char	40

Name	Description	Type	Length
Activity Code (FMEA Item level or Notification header level)	Identifies a specific Activity within the group. **Values: *Activity Code*** (Example, for Activity Code Group CMACTION, activity codes: 001 Adjusted/Aligned 002 Parts Repaired 003 Cleaned/Lubricated 004 Parts Replaced)	Char	4
Activity Code Description (FMEA Item level or Notification header level)	The description of the Activity Code	Char	40
Work Order Number	A unique identifier of a work order in CMMS	Char	12
FLOC description	Description of the External FLOC Identifier	Char	40
Breakdown Indicator	An indicator, when set, to identify that the object of the notification is in a breakdown state (i.e., it is not even partially usable)	Char	1
Revision	A revision is used to group together multiple, discrete maintenance objects (such as notifications or work orders) using a single identifier	Char	8
Description of Revision	A description of the revision	Char	40
Frame ID	A reference point annotated on ship drawings used to denote major watertight sections within a ship upon a given deck. This field can be used to denote work that cannot be pinned down to a specific compartment.	Char	20
Compartment	An Identification Code used in reference drawings to identify the relative position of major and minor compartments within a ship. **Values: *Compartment*** (Example, 01DA = bridge 01DB0 = Chart room 01DC0 = Fire control equipment)	Char	5

Name	Description	Type	Length
Compartment Description	A description of the Compartment (Example, 'bridge')	Char	80
Risk Assessment	An identifier denoting an assessment related to risk	Char	14
ERN	Equipment Registration Number	Char	10
ERN Location Code	A code related to the location of the ERN	Char	3
End of Malfunction Date End of Malfunction Time	Date and time that records when the malfunction ended	Datetime	
EC Number	Engineering Change Number (Numeric with leading zeroes)	Integer	8
EC Category Code	A code for the type of engineering change	Char	1
EC Category Code Description	A description of the EC category code	Char	60
EC Classification Code	A code for classifying engineering change	Char	1
EC Classification Code Description	A description of the EC Classification Code	Char	60
EC Type Code	A code that identifies the type of engineering change	Char	1
EC Type Code Description	A description of the EC Type Code	Char	60
Tech Inspection Date	The date that the technical inspection was performed (time portion will contain zeroes)	Datetime	
Task Code Item Number	Identifies the specific line item of the Task Code (Numeric with leading zeroes)	Integer	4
Task Code Group	Identifies the group of the Task. A means of grouping Task Codes. **Values: *Task Code Group*** (Example, Task Code Group = EC-PART1 Task Code Group Description = Engineering Change - Part 1	Char	8

Name	Description	Type	Length
	Task Code = F001 Task Code Description = Statement of deficiency)		
Task Code Group Description	The description of the Task Code Group	Char	40
Task Code	Identifies a specific Task within the group **Values: *Task Code*** (Example, for Task Code Group EC-PART1, task codes: F001 = Statement of deficiency F002 = Supporting Documentation F003 = Possible solutions considered	Char	4
Task Code Description	The description of the Task Code	Char	40
Task Text	A description of the task	Char	40
Planned Start for task	The date and time that the task is planned to be executed	Datetime	
Planned Finish for task	The date and time that the task is planned to be finished	Datetime	
Task completed on date	The actual date and time that the task was completed	Datetime	
Task responsibility Code	The type of entity or organization responsible for the task (Example, VN = Vendor)	Char	2
Task responsibility Description	A description of the Task responsibility Code (Example, vendor)	Char	20

4   Issues and Exceptions

None identified at this time.

5   Business Process Flows

Refer to EIE Business Process document, [Ref. 1] for diagrams that capture business process flow supported by this BUC.

6   Definitions, Acronyms, Abbreviations

Term	Description
BUC	Business Use Case
CAGE	Commercial And Government Entity
CMMS	Canada Maintenance Management System
DND	Department of National Defence
EDE	Electronic Data Exchange
EIE	Electronic Information Exchange
EMR	Equipment Master Record
FMEA	Failure Mode and Effects Analysis
HUMS	Health and Usage Monitoring System
ISS	In-Service Support
MCP	Major Capital Project
MER	Master Equipment Record
MMR	Material Master Record
OSMT	On-Site Management Team
PBC	Performance Based Contracting
WO	Work Order

7   Document Control

7.1   Document History

Revision No	Description	Date
1.0	Release for Navy RFP	20 August 2015