

## **DI-SESS-81823**

### **DATA ITEM DESCRIPTION**

**Title: Reliability-Centered Maintenance (RCM) Class Maintenance Plan (CMP)**

**Number: DI-SESS-81823**

**AMSC Number: N9146**

**DTIC Applicable: N/A**

**Office of Primary Responsibility: SH/SEA04RM**

**Applicable Forms: N/A**

**Approval Date: 20100630**

**Limitation: N/A**

**GIDEP Applicable: N/A**

#### **Use/Relationship:**

The Reliability-Centered Maintenance (RCM) Class Maintenance Plan (CMP) provides the Government the transparency into the development of the CMP to assure that it is developed in accordance with the policies and directives.

The following reference documents can be obtained as specified in the contract. NAVSEA S9040-AA-IDX-020-ESW (User's Guide for Expanded Ship Work Breakdown Structure for All Ships and Ship/Combat Systems), ASME Y14.38, NAVSEAINST 4790.8 (Series) (Ship's Maintenance and Material Management (3-M) Manual), MIL-P-24534A, and NAVSEA Tech. Spec. 9090-700 for CDMD-OA fields.

#### **Requirements:**

1. Reference documents. The applicable issue of documents cited herein, including approval dates of any applicable amendments, notices, and revisions, shall be as cited in the contract.

2. Format. This report shall be in Contractor's format.

3. Content. The CMP shall identify all the fields used to create the CMP tasks in CMP database. The plan shall also contain the requirements of a PMS load into the Navy standardized planned maintenance scheduling software (current version of SKED) system for all items designated at the organizational level. The report shall contain the following:

3.1 CMP Organization. The plan shall identify CMP tasks identified by the configuration and the appropriate maintenance level. The plan shall also contain information showing the relationship between the configuration items and tasks.

3.2 Maintenance Requirement Development. Maintenance requirements shall be identified in the CMP, and shall include all standardized (to the maximum extent possible) maintenance data. . The CMP shall contain the following fields to relate to maintenance task information:

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3.2.1. Expanded Ship Work Breakdown Structure (ESWBS). The plan shall indentify the ESWBS for each system, equipment, and component in a vessel's configuration. The plan shall include the ESWBS level 5 nomenclature, the number of the equipment/component to which the task is applicable. If applicable to the entire subsystem/system, the ESWBS level 4/level 3 nomenclature and number shall also be included.

3.2.2. Task Description. A complete description of specific maintenance actions required by each task identified in the plan shall be included. The task description shall begin with the maintenance action verb, (i.e., Replace, Clean, Inspect, etc). This field shall be limited to 1000 characters .

3.3 The plan shall also include the following:

3.3.1. Task Abbreviation. The plan shall include an abbreviated version of the task description. All abbreviations shall be identified in accordance with ASME Y14.38. (Abbreviations and Acronyms for use on Drawings and Related Documents). This field shall be limited to 30 characters.

3.3.2 Procedure Type. The procedure type shall identify the document (i.e., MRC, technical manual, instruction, etc) which specifies how to accomplish the task.

3.3.3 Maintenance Instruction Document (MID). The plan shall identify all maintenance instruction documents, and also shall contain technical and design information for acceptable restoration/overhaul, refurbishment, inspection, and testing of components/systems.

3.3.4. Maintenance Instruction Comments. Maintenance instruction comments shall contain additional detailed information about the MID being used (i.e., page number and chapter), as applicable. This field shall be limited to 2000 characters.

3.3.5 Job Summary. The job summary shall identify the task abbreviation to a specific equipment, and shall include configuration level for the Ship's Maintenance Action. This field shall be limited to 30 characters.

3.3.6 Problem Description. The problem description shall contain a brief narrative explanation of the maintenance problem/trigger, which shall require performance of the task. This field shall have a 2000-character limit, and shall contain the first portion of the narrative.

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3.3.7 Recommended Solution. The recommended solution shall contain a narrative explanation of the maintenance required to correct the problem described or complete the scheduled task. This 2000-character field shall expound upon the task description, and contain the second portion of the narrative. The solution shall include amplifying information to include reporting requirements, situational requirements, and relationships with other tasks.

3.3.8 Frequency/Periodicity. The frequency/periodicity shall include information identified by RCM analysis. The plan shall contain the results of the analysis performed and shall identify that the longest period between scheduled maintenance tasks selected to ensure that a predicted failure will not occur. The CMP shall also identify knowledge of component failure and how it occurred as it relates to age and potential failure region from the RCM analysis information. Frequency of maintenance, identified in months and the regular interval at which a task shall be accomplished shall also be identified. The plan shall specify all periodicities/frequencies for each configuration item, and shall also include :

a. Planned Periodicity/Frequency shall be identified in calendar period between maintenance actions, and shall specify acceptable equipment maintenance during an operational condition.

b. Situational Periodicity shall be identified by an evolution (i.e., dry-dock/operating condition of the equipment), and the situational requirements of the maintenance shall also be identified.

3.3.9 Level of Maintenance (LOM)/Recommended Maintenance Level (RML). The LOM/RML shall identify the activity level that will perform the work for the particular task. Selections shall also identify the following:

- a. Depot (D level)
- b. Intermediate (I level)
- c. Tech Support Unit (specify type of I level maintenance)
- d. Organizational (O level).

3.3.10 Capable Maintenance Level (CML). The CML identifies the activity level identified to perform the maintenance, if the LOM/RML activity became unavailable. The CML shall identify O, I or D level as applicable.

3.3.11 Equipment Per Task. The plan shall identify the number of pieces of like equipment, up to three digits, on which the maintenance task needs to be performed.

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3.3.12 Man-days. The plan shall contain the number of man-days, up to five digits, required to perform the maintenance task based on one person working an eight-hour workday.

3.3.13. Man-hours. The plan shall contain the number of man-hours required to complete the maintenance task. If the number required is less than one hour, a zero shall appear before the tenths of an hour portion (i.e., 0.1 and 0.4). If the number exceeds eight hours, man-days shall be identified.

3.3.14 Material Estimate. The plan shall contain the estimated material cost (rounded to the nearest dollar) to accomplish the full intent of the CMP task for one equipment. This field shall be limited to six figures and shall be based on the corresponding Task Material List (TML). The estimate shall be configuration specific.

3.3.15 Maintenance Index Page (MIP). The MIP shall contain the maintenance required for a system, equipment or component on a combatant(s) where MRCs are being used for the requirement. MIPs shall list all applicable MRCs, periodicities and manpower levels. MIPs shall also contain the first four numbers of the ESWBS.

3.3.16 Maintenance Requirement Card (MRC). The plan shall contain the MRC applicable to completion of the task. MRCs shall identify procedures and requirements necessary to perform planned maintenance on a type of equipment, specific systems and components.

3.3.17 Configuration. The plan shall identify that the configuration fields that are maintained in the Configuration Data Managers Database-Open Architecture (CDMD-OA), and identify how they are linked to each required maintenance task needed to properly complete the CMP.

3.3.18 Hull. The plan shall contain the combatant type and hull number (if applicable) originating the maintenance action.

3.3.19 Hierarchical Structure Code (HSC)/Recommended HSC. The HSC shall identify the functional/hierarchical relationship of the combatant, combatant system, and equipment configuration records. The HSC number shall be identify for each system, equipment, and component in a combatant's configuration, and shall be in accordance with NAVSEA S9040-AA-IDX-020-ESW. HSCs shall be identified for all configuration data records and shall be identified across the combatant class. The HSC shall also identify essential data organization that will be used for its efficient and effective control, display, and retrieval.

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3.3.20 Equipment Functional Description (EFD)/Recommended EFD. The EFD shall identify the function performed by a specific piece of equipment /component within a system. The EFD shall include a full description of each unique/complete HSC. The EFD's Equipment System Designator (ESD) shall be identified at its next higher level of indenture. Each EFD shall be identified as a unique identifier within the combatant's database, and shall be identified consistently across the combatant class.

3.3.21 The EFD shall show a one-to-one correspondence between HSC and EFD. When major equipment types are involved, the EFD identification shall begin with the identity of the major equipment, followed by the unit identity. The noun name shall be included in accordance with ASME Y14.38. The remainder of the functional description shall follow with a comma and no space. Abbreviations shall be from right to left, when applicable.

3.3.22 Equipment System Designator (ESD). ESD shall identify the principal system/subsystem into which a group of individual components are combined to perform a specific function. The ESD shall have a valid entry and shall be uniformly identified across the class with standardization controlled by the Configuration Data Manager (CDM). The description shall begin with the identity of the principal equipment/subsystem followed by any unit identity. The ESD shall be contained within the EFD (i.e., ESD represents up to the first five characters of the HSC). ESDs shall be fifteen-alpha/numeric characters, and shall be specified to all data records.

3.3.23 Allowance Parts List (APL)/Allowance Equipage List (AEL). The APL shall specify documents that list all maintenance significant repair parts for each system and major components on board the ship. The AEL shall specify documents that list the portable equipage, repair parts and consumable items authorized and required to be on board a ship for the performance of its missions. The APL/AEL number shall identify systems, equipment, components/tools, and materials addressed by the task. This identifier shall be in accordance with Naval Technical Specification 9090-700 series. The Master Index of APLs/AELs (MIAPL) shall contain available APLs/AELs and cross references various equipment identification numbers to an existing APL/AEL.

3.3.24 Noun Name. The noun name shall identify the component at the lowest unit/type designator/assembly with its own configuration identity. The component may have its own APL. The noun name shall be a nomenclature/description of the equipment, and shall be the same nomenclature assigned to the Equipment Identification Code (EIC).

3.3.25 Location. The plan shall identify the onboard location of an installed equipment/component, and the space and location of the equipment on which maintenance was required.

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3.3.26 Positional Reference Identification (PRID). The PRID shall be a fifteen-alpha/numeric character positional reference notation for combatant/activity configuration items/functional components. PRID shall include software and firmware media type, valve marks, and electrical and electronics symbol numbers identified through other data, including system level schematics and Damage Control Book and Diagrams. PRIDs shall be identified as in the CDMD-OA . When the field can not contain the entire PRID value, the tilde (~) shall be entered in the last position of the PRID to indicate it was incomplete.

4. End of DI-SESS-81823.