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PMS-403 Remote Minehunting System (RMS)

Practical Systems Engineering

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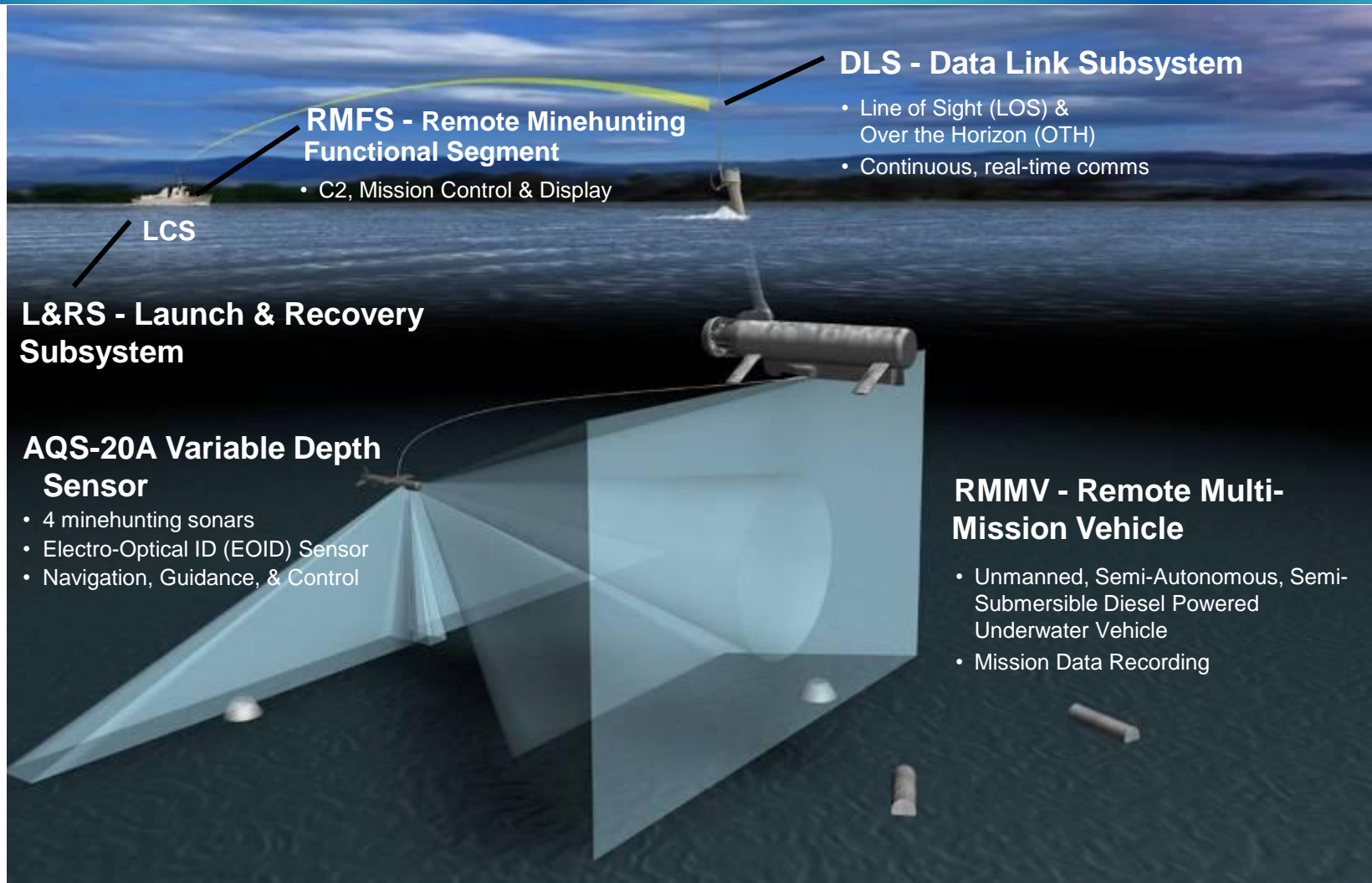**Program Manager**

PMS403

M. Jackson 2006

Program Overview

- **RMS is one of the mission systems that make up the Littoral Combat Ship (LCS) Mine Countermeasure (MCM) Mission Package (MP)**

- **Program restructured following Nunn McCurdy in 2009 and subsequent certification in 2010**
  - As part of the restructuring, a 3 Phased Reliability Growth Program was directed to be implemented to increase the MTBOMF of the Remote Multi Mission Vehicle (RMMV)

- **Program is currently executing in water testing of the first reliability spiral phase and concurrent development of the 2nd Phase**

Remote Minehunting System (RMS) Overview

DLS - Data Link Subsystem
- Line of Sight (LOS) & Over the Horizon (OTH)
- Continuous, real-time comms

RMFS - Remote Minehunting Functional Segment
- C2, Mission Control & Display

LCS

L&RS - Launch & Recovery Subsystem

AQS-20A Variable Depth Sensor
- 4 minehunting sonars
- Electro-Optical ID (EOID) Sensor
- Navigation, Guidance, & Control

RMMV - Remote Multi-Mission Vehicle
- Unmanned, Semi-Autonomous, Semi-Submersible Diesel Powered Underwater Vehicle
- Mission Data Recording

Mission: Detect, Classify, Localize and Identify Bottom and Moored Mine Threats in Shallow and Deep Water

System Engineering and RMS

- **Sound system engineering was not done as part of the RMS original design**
  - Robust Failure mode, effects and criticality analysis (FMECA) not performed
  - Reliability & Maintainability not included as part of core effort
  - Allocated Baseline done by Physical Section of the vehicle
  - Failure Reporting And Corrective Action System (FRACAS) process not initially employed

- **Program utilizing two pronged approach for reliability improvement as defined in the Program's System Engineering Plan (SEP)**
  - Test – Analyze – Fix
  - Design for Reliability

- **Program is employing predictive modeling tools to assist in selection of the best value changes**

RMS SE Challenges

- **Should Cost – SE needs to be actively involved and help drive the development and execution of Program Should Cost**

- **Integration of Reliability and Maintainability (R&M) Engineering into programs that over 10 years old**

- **Alignment of the SE Processes used for the Mission Package (MP) and the Mission System (MS)**

- **Maintaining required discipline in the rapid and parallel development and test of multiple reliability increments/spirals while also participating in the LCS MP DT/TECHEVAL/IOT&E**

- **Balancing Degree of Change implemented vs. program risk**