Surface Maintenance Engineering Planning Program (SURFMEPP)

DATE: 25 Oct 2018

PRESENTED TO: ASNE

PRESENTED BY: Captain Andy Johnson
SURFMEPP Commanding Officer
Agenda

• Organizational Alignment
• Evolution of SURFMEPP
• Mission and Vision
• Global Footprint
• Maintenance Requirement Development and Product Value Stream
• Directive Maintenance
• Waterfront Offices
• SSEOC and LCHA
• What we are doing to improve on time delivery

SURFMEPP has an enduring focus on the maintenance requirements
SURFMEPP Top Level Organization Chart

SURFMEPP

Deputy EEO Officer
TBD NAVSEA 10

Dashed lines indicate positions that report directly to the Deputy and/or Commanding Officer but are supervised by others.

Commanding Officer
CAPT Andrew P Johnson
Code 100

Deputy
TBD

Executive ASST
A-Joice 100A 0301

Cmd Sec Mgr
TBD 0808

Projects
TBD 0343

DEP
TBD

Operations Support
M Hearl 100AC3

CPI Manager
TBD 100B8 0343

CPI Manager
TBD 100B8 0343

Advise Officer
TBD 0801

Computer Systems
TBD 0801

Data Integration
G McVey 100B3 0000

Cmd Eval Rev
A Plotner 100B1 0343

OPS
TBD 100C 0343

PMP
A-Daves

Midshipman
J-Fitzwater 340DC1

Life Cycle Eng
R Rivera 210D 0801

Military
1 1 1 1

Government
179 144 179 179

Contractor
100 100 100 100

Total
280 245 280 280

Org Chart Total
Military - 1
Government - 179
Contractor - 103
Billet funded by
Others
Total - 283

Current FY 16 FY 17 FY 18

Military 1 1 1 1

Government Req 179 144 179 179

PBIS 179 135 179 179

Contractor 100 100 100 100

Total 280 245 280 280

Last modified: 02 Feb 2018
Our Mission

To enable the Surface Fleet to meet its Expected Service Life by providing centralized Life Cycle Engineering, Class Maintenance, and Modernization Planning.

Our Vision

Excellence in Advance Planning. Empowering the Surface Warrior.

Our Values

- Persistence – Supporting the War Fighter
- Innovation – Challenging the status quo
- Excellence – Pursuing with rigor
- Respect – Treating others the way we want to be treated
- Accountability – Owning what we do
SURFMEPP Global Footprint

**PRODUCT AREAS**

- Availability Analysis Study
- Baseline Availability Work Package
- Change Management Documentation
- Class Maintenance Plans
- Class Standard Work Templates
- Contracting Strategies
- Corrosion Program Management
- Deferral tracking by hull
- Integrated maintenance & modernization work packages
- Master Specification Catalog
- POM Ship Sheets by hull
- Robust Metrics
- DoN/FAST Ship Sheets
- Technical Foundation Papers

Last Modified: 5 Mar 2018
Evolution of SURFMEPP

- **2008 Pre-Surface Ship Life Cycle Management Activity (SSLCM)**
  - 14 people for entire surface Navy
  - Surface Navy was not performing all required life cycle maintenance
  - No Technical Foundation Papers (TFPs)
  - No Baseline Availability Work Packages (BAWPs)
  - Ship Sheets at the Class level

- **SSLCM – May 2009**
  - 36 total staff
  - Class Maintenance Plan (CMP)
  - TFP for DDG 51 class only
  - BAWP
  - Deferral tracking
  - Ship Sheets based on deferrals

- **SURFMEPP – Nov 2010**
  - 83 total staff

- **SURFMEPP today**
  - 280 total staff
  - CMP strengthening
  - TFP for all major ship classes
  - BAWPs for all CNO availabilities
  - Deferral tracking by hull
  - Ship Sheets for every CNO availability
  - Long Range Maintenance Schedules by hull
  - Corrosion Control (CCIMS, TPRs, LRTPRs)

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**Class Level Management**


**Hull Level Management**
SURFMEPP Product Value Stream

Plan Long Range Requirements into Availabilitys

Class Maintenance Plan (CMP)

Technical Foundation Paper (TFP)

Ship Sheets (ship specific LRMS)

Baseline Availability Work Package (BAWP)

Integrate, Execute, Document and Feedback

Technical Reqs

Class Reqs (Man-days)

Specific Ship Reqs (Man-days, Schedule)

Plan FRP Cycle

Document & Feedback

Avail Close Out (Technical & Financial)

Deferred Life Cycle Maintenance

Execute

Execute Availability

Availability Work Package (AWP)

Assessment Results

Ship CSMP Modernization

Integrate Package

Work Item Level

Last Modified: 5 Mar 2018
Class Maintenance Plans

• Class Maintenance Plans (CMP) are the “maintenance manual” of the ship class. Specifically included are:
  
  ➢ Maintenance Delivery Plan including required dry-docking intervals
  
  ➢ Engineered maintenance requirements such as equipment overhauls, shaft replacements, and corrosion protection
  
  ➢ System certification requirements

• CMPs are continuously updated based on class maintenance history

CMP = “Automobile’s Maintenance Manual”
Ship Sheets Overview

- Ship-specific requirement for a specific availability at a point in time defined by a Ship Sheet
- TFP forms the basis for Ship Sheets and the BAWP
- A Ship Sheet contains the following adjustments/considerations:
  - Configuration differences/errata. (Passive Countermeasure Systems, Shafts)
  - C+100 maintenance deferrals from previous avail(s)
  - SSEOC Review (Tanks, corrosion, CSMP, etc.)
  - TYCOM Alterations
    - Program Alterations to support Duration Analysis
    - Duplicate requirements reconciled
- Ship Sheets tailor the TFP for each hull/avail twice before execution: POM (~A-900) and DON/FAST (~A-360).

Total depot-level requirement for a specific availability
Executing the Requirement
Developing & Tracking CMP / CSWT Tasks

Analysis
- Review CMP, SWTs, CSWTs, and LWTs
- Technical Doc.
- Configuration Data
- Failure Analysis
- Return Cost Data

Develop Strategy
- Identify Gaps
- Engage with ISEA
- Identify tasks to be inactivated, modified or created
- Draft Maintenance Strategy

Approval / Develop Task
- TWH Approval
- AP cards
- SWTs or CSWTs and IGEs
- Fielding Plan
- Resource Plan
- CMP task in M&SWP

Implementation
- Socialize with the Waterfront
- Master Spec Catalog
- M&SWP – Go Live
- TWH Follow-up

Avail Close Out
(Variation Analysis)

Execution
(Track growth vs. Est.)

AWP
(Gov. Est.)

BAWP
(Est. $, Scope)

CMP / CSWT
(Technical Req.)

Class Standard Work Template (CSWT)
- Standardizes recurring repair planning – reduces planning costs
- Reduces variance of work scope between ports/contractors
- Provides contract vehicle for detailed technical instructions
- Standardizes cost estimating
- Improves cost return analysis for feedback into the requirement process
- Incorporates best practices/lessons learned

Currently 6,902 active FY 19 & 20 templates in the Master Spec Catalog
Directive Maintenance Overview

• ‘Go do’ vice ‘Go look’
  – Major paradigm shift from cost contracting
  – Work scope based on historical requirement derived from similar/identical work performed on other ships.
  – To minimize potential for contract growth.

• Over 20 in total, examples include:
  – Diesel Maintenance strategy (DMS)
  – Tank Directive Maintenance Strategy (TDMS)
  – Intake/Uptake Maintenance Strategy

• Represent ~40% of total package value
  – Commonly referred to as Baseline Availability Work Package (BAWP) tasking
Tank and Void FY Projections

**Key Messages and Takeaways**

- Metric includes coating aging factor and applies degradation curves to accurately project future tank conditions.
- Considers avails scheduled and avail types to determine when tanks will be reset and applies reset to the projection model (docking avails will have more resets of inner-bottom P3 and P4 tanks).
- Model projections can be analyzed at a Class/Hull/AOR granularity level to better determine projected workloads.
- Improves POM submission process and Advance Planning accuracy by projecting requirements in out years.

**Tank coating demographics based on 75% probability of being in projected condition**
## SSEOC Life Cycle Critical Systems

### 100 Structure
- U/W Hull
- Superstructure / Mast
- Sonar Dome
- Decking, Structure
- Bilges
- Tanks / Voids
- Bulkheads, Structure
- Corrosion, General

### 200 Propulsion
- Steam Turbines
- Boilers
- MPDE
- MRG
- Shafts
- Struts
- Hubs / Propulsors
- Intakes / Uptakes
- Forced Draft Blowers
- Main Feed Pumps
- Main Steam Valves (>4”)
- Gas Turbine Module Mounts
- Piping:
  - Fuel
  - Main / Aux
  - Steam

### 300 Electrical
- SSDG
- EDG
- SSTG
- GTG Module Mounts
- Cabling Distribution
- Switch Boards

### 400 Command/Surveillance
- SPY Array
- PCMS
- MK 82
- SPG 62

### 500 Auxiliary
- Ventilation System - Structure
- Ballast Systems
- Steering
- Hangar Doors
- Rudders
- Aux Blr /WHB
- Elevators - Aircraft
- Boat Davits
- Stern Gate
- Piping:
  - CHT
  - Firemain
  - CMWD
  - Main / Aux SW

### 600 Outfits/Furnishings
- ICCP System
- Corrosion, General
- U/W Hull Paint Systems

### 700 Armament
- VLS
- Magazines
- Elevators - Weapons

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**JSNs are branded and tracked throughout the E2E process**

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Last Modified: 16 Oct 2017
**Lifecycle Health Assessment (LCHA)**

**CONDITION CRITERIA**

<table>
<thead>
<tr>
<th>No.</th>
<th>Criteria</th>
<th>CG</th>
<th>DDG</th>
<th>LCS</th>
<th>LHD/A</th>
<th>LSD</th>
<th>LPD 17</th>
<th>MCM</th>
<th>PC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Ship has been dry-docked since FY 2010 or was BAWP pilot ship</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2.</td>
<td>No technical SSEOC violations</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3.</td>
<td>Life cycle material condition is known *</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>4.</td>
<td>Actual # of condition 4 tanks are less than:</td>
<td>5</td>
<td>5</td>
<td>10</td>
<td>10</td>
<td>N/A</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Dry docking requirements were reset within periodicity</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>6.</td>
<td>Deferred mandatory ESL tasks (&quot;A6&quot; JSN) are less than:</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>7.</td>
<td>Structural repair tasks (&quot;N&quot; TA1/ A5H5 2-kilo) are less than:</td>
<td>40</td>
<td>20</td>
<td>70</td>
<td>50</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>8.</td>
<td>MCM MRG is assessed and mitigated</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>X</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>LCS VARIANT structure assessment</td>
<td>N/A</td>
<td>X</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>10.</td>
<td>Cruiser Level 2 Structure Assessment</td>
<td>X</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

* Life cycle material condition known: Encompasses a detailed review of multiple items. Separate Excel process.

**LCHA criteria focused on ship’s executing engineered lifecycle maintenance requirements in order to reach Expected Service Life**
• Communicate the technical requirement
  ➢ Plan and host Life Cycle Planning Conference, and Mid-Cycle Review to ensure Maintenance Team (MT) understands the technical requirements for the current cycle
  ➢ Review all technical requirements with MT prior to entering in CSMP shore file
  ➢ Track and report the status of Mandatory Technical Requirements
  ➢ Work with the MT and RMC to resolve issues

• Validate the technical requirement
  ➢ Visit ships to validate work in progress
  ➢ Ensure all current technical requirements are on CSMP shore file
  ➢ Verify that MTRs have a clear path for accomplishment by the due date
  ➢ Identify gaps in CMP (missing, incorrect, or unnecessary requirement)
  ➢ Review work specifications to validate that they meet the intent of the MTR, and that Class Standard Work Templates are used when applicable

• Represent SURFMEPP HQ at the waterfront
  ➢ Provide SURFMEPP perspective
  ➢ Communicate changes to the End-to-End Process; educate the waterfront maintenance community

• Be the advocate for the waterfront community
  ➢ Provide a voice back to the technical requirement owners
  ➢ Ensure the process can be executed (barrier ID and removal assistance)
What we are doing to improve ‘On time delivery’

• Improving Class Standard Work Templates
  – Goal: Reduce RCC volume by 20% FY19

• Engineered Maintenance and Mod Plan
  – Generate EMMPs for LHDs in FY19. IPTD tool to aid visualization of crit path and challenges to work integration

• Material forecasting with CNRMC, NAVSUP
  – Execute material forecast and procurement for diesel overhauls on LSDs
Questions / Back-up

Win Them All.

Achieving Expected Service Life...One Ship at a Time