Motivation

- Design Process Model is based on “activities”
- Need to understand the work content and interfaces of an “activity”
  - Other process documents may also fulfill the role of Activity Process Definition
- A Design Data Sheet (DDS) provides the process for completing an “activity”
  - Other process documents may also fulfill the role of Activity Process Definition
- DDS complements Standard SOW and Design Process Model Activity Meta-Data
Activity Process Model Elements

- References
- Definitions
- Inputs
- Outputs
- Methods
- Applicability (controls)
- (Tools)
- (Resources)
• Format and procedure for development governed by “NAVSEA Technical Standards Procedures Appendix D – Design Data Sheets”

• Purpose
  – Furnish standard data, methods of calculation, and presentation of data useful in the design of naval ships
  – Establish design standards for those systems or components which are in accordance with naval practice
  – Permit investigation and comparison of ship, system, equipment, or component designs submitted by various contractors.
  – Provide background information and general concepts applicable to naval ship design and construction.
Procedural Steps

1. Market Research
2. Project Initiation Approval (PIAR)
3. Draft Preparation
4. Circulation for Review
5. Comment Adjudication
6. SIB Final Publication Approval
7. Publication

Technical Warrant Holder “owns” the Design Data Sheet
DDS Format

- Contents
- Applicable Documents
- Introduction
- Definitions
- Symbols
- General Requirements
- Specific Requirements
- Tables, Figures, and Appendices

Describe inputs, outputs, and a general description of the process and its applicability

Describe specific calculation method

Provide Use Cases
1. APPLICABLE DOCUMENTS

2. INTRODUCTION

3. DEFINITIONS

4. GENERAL REQUIREMENTS
   4.1 Endurance fuel calculation inputs
   4.2 Endurance fuel calculation outputs

5. SPECIFIC REQUIREMENTS
   5.1 Endurance burnable fuel load
   5.2 Sustained burnable fuel load
   5.3 Mission burnable fuel load
   5.4 Endurance fuel load

APPENDICES

APPENDIX A. Mechanical Drive Use Case
   A.1 Service requirements
   A.2 Design details
   A.3 Calculations
   A.4 Output

APPENDIX B. Integrated Power System Use Case
   B.1 Service requirements
   B.2 Design details
   B.3 Calculations
   B.4 Output
A DDS Can Describe Multiple Methods

• DDS 310-1 Draft
  – Determining and Estimating Load
  – Load Factor Analysis
  – Zonal Load Factor Analysis
  – Demand Factor
  – Stochastic Load Analysis
  – Modeling and Simulation Load Analysis
  – Comparing Trials Data with Load Analysis

• Each Method has a dedicated section
  – General Requirements
  – Specific Requirements
  – Use Cases (Appendix)

Each Method has its own range of Applicability
Bottom Line

- Every Design Activity should have a documented process
- The Design Data Sheet is NAVSEA’s formal way of documenting design processes
- Tailor the DDS format to facilitate process modeling
- A DDS can describe multiple methods for different ranges of applicability
- DDS complements Design Activity Meta-data and Standard SOW
Questions?