

Implementation of the IMO Performance Standard for Coating of Ballast Tanks.

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The Performance Standard for Protective Coatings (PSPC)

- ▶ PSPC is the technical requirements for protective coatings in dedicated sea water ballast tanks of all types of ships of >500 gt and double sided skin spaces on bulk carriers of >150m in length.

Aims of PSPC

- ▶ To provide a 15 year life for ballast tank coatings defined as being in 'good' condition (resolution A.744(18)).
- ▶ Better coating systems with less maintenance
- ▶ Improved safety at sea



Entry into Force

- ◆ Applies to vessels:
 - For which the building contract is placed on or after 1st July 2008, or
 - In the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1st January 2009, or..
 - The delivery of which is on or after 1st July 2012



Entry into Force

- ◆ It will be mandatory and is intended to be included as amendments to SOLAS regs II-1/3-2 and XII/6.
- ◆ However IACS are applying the proposals from ratification (**December 2006**) to tankers and bulkers under the Common Structural Rules (CSR)
- ◆ CSR apply to **tankers** (L>150m) and **bulkers** (L>90m).
- ◆ First ships already being built applying the PSPC.

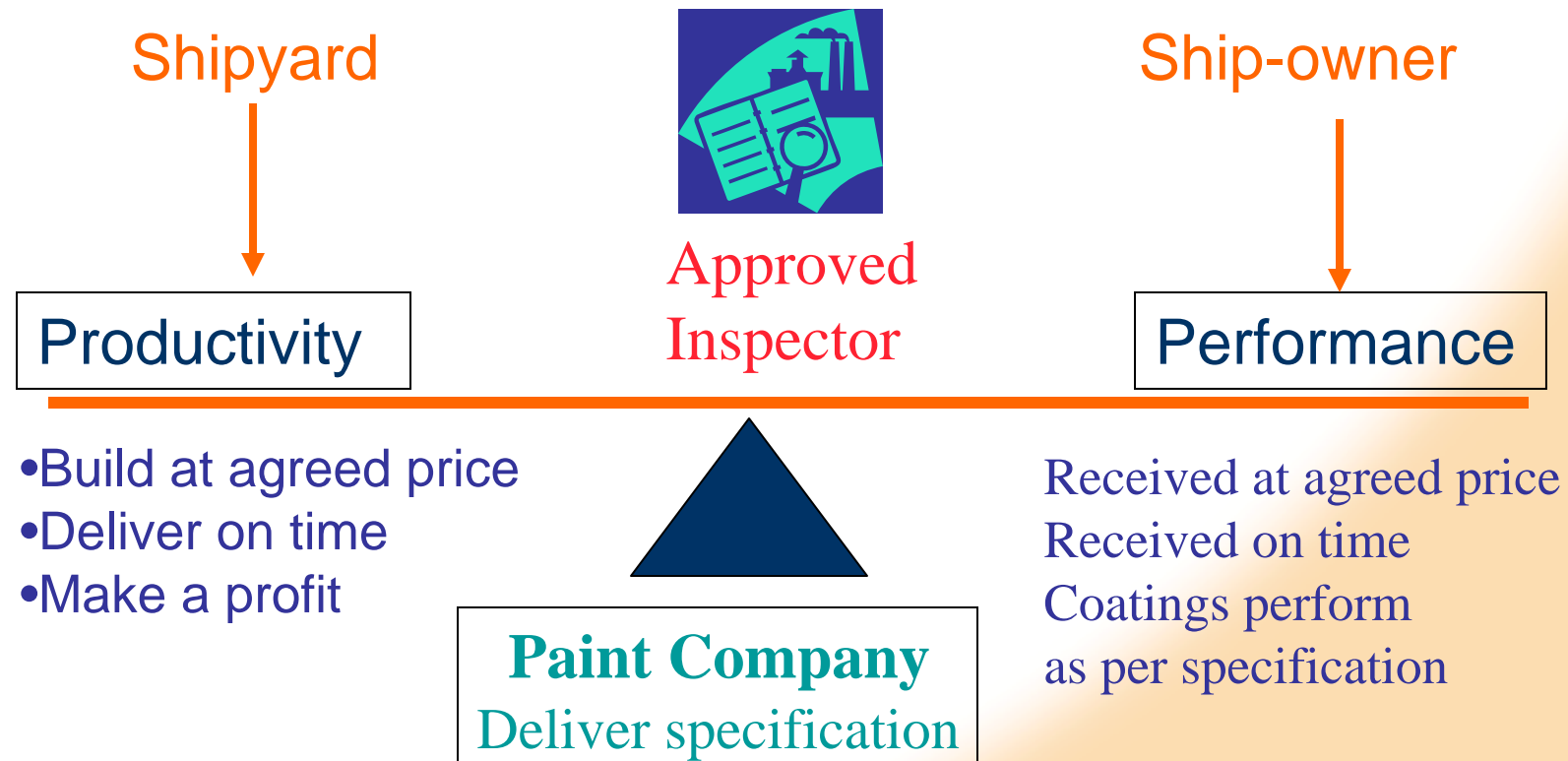
Main Elements of the PSPC

- ◆ Design of a specification and coating system
- ◆ Coating System approval
- ◆ Definition of inspection procedures
- ◆ Production of a **Coating Technical File (CTF)** which records all aspects of the process
- ◆ Verification of compliance

Parties Involved & Expectations

- ◆ For the PSPC the parties involved are:
 - Ship-owner
 - Vessel built to specification at agreed price and on time
 - Coatings to last as long as possible
 - Shipyard + Painting Contractor
 - Build and deliver vessels within the agreed price and time making maximum use of its assets
 - Make a profit
 - Coating Manufacturer
 - To supply coatings that will be applied to an agreed specification and give the desired performance
 - Make a profit
 - The Approved Inspector

The Parties Involved

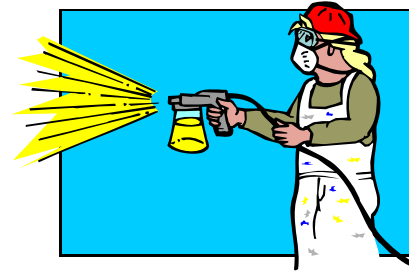


Problem

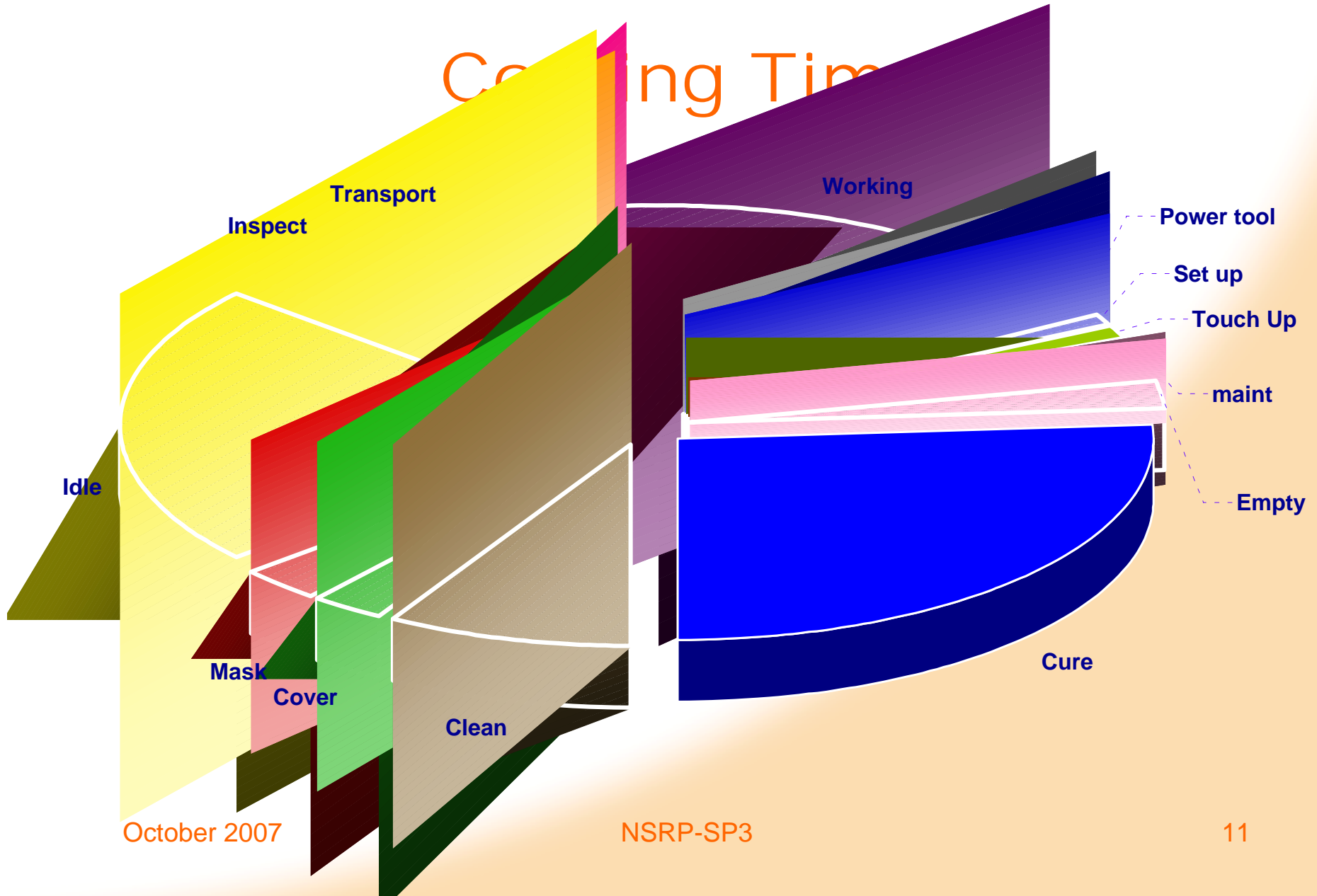
- ▶ Today the surface preparation and coating process is considered by most shipyards as a 'bottleneck' in the process.

The Coating Process

- ◆ Part of the critical path to produce the ship on time.
- ◆ Is not predictable
 - Weather
 - Drying times
 - Application methods
 - Thickness applied
 - Access to surfaces
 - Not an exact science
- ◆ Amazing that it works!



Curing Time



October 2007

NSRP-SP3

Impact of PSPC Requirements

- ◆ The PSPC imposes specific, detailed inspection requirements at all stages of the coating process;
 - All inspection records and individual measurements to be compiled in a CTF report
 - Increase time for coating process
 - Reduce productivity
 - Requires a qualified* inspector on site
- * NACE level II or FROSIO red



Effect of PSPC

- ▶ For a VLCC estimate over 1 million DFT measurements will be required.
- ▶ Estimated +10% on coating/production time
- ▶ Compilation the CTF file
- ▶ Audit of CTF as condition of SOLAS

Coating Technical File (CTF)

◆ Contents

- Statement of compliance or Type approval of coating
- Documented performance records of the coating
- Technical data sheet supplying all data needed
- Shipyard work records - location, times, surface preparation, environmental conditions etc
- Inspection procedures and repair of coating during construction (and also in-service maintenance)
- Coating log issued by the coating inspector
- Shipyards inspection report

Coating Technical File

- ▶ Produced by the Ship Yard
- ▶ Audited by the Administration (Class)
- ▶ Assumption it will be written in English
- ▶ Can be electronic e.g. on CD, or paper
- ▶ Needs updating through M&R
- ▶ CTF is dynamic not static





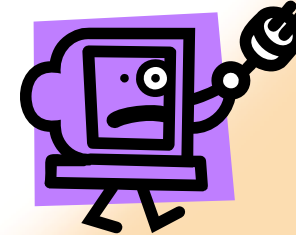
EcoDock Project

- ◆ Safinah was 1 of 10 partners in EU FP7 research on coating application to reduce cost and environmental impact of the coating process through lifetime of the ship.
- ◆ Researched software solutions applicable to PSPC requirements together with:
 - 3 European Ship Yards
 - DNV



Software for Coating Process

- ▶ IMO PSPC created a specific need in shipyards to record, track and distribute large amounts of data to obtain class approval.
- ▶ The concept of using
 - software
 - hand held electronic device
- ▶ to capture data was seen as a positive step forwards for shipyards.





Shipyard

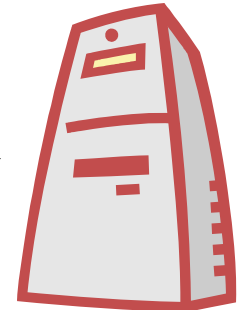
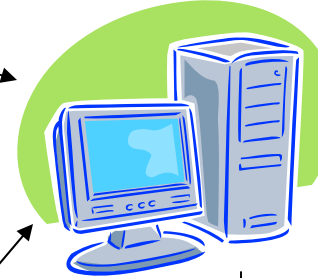
Future Vision



Inspector gathers data

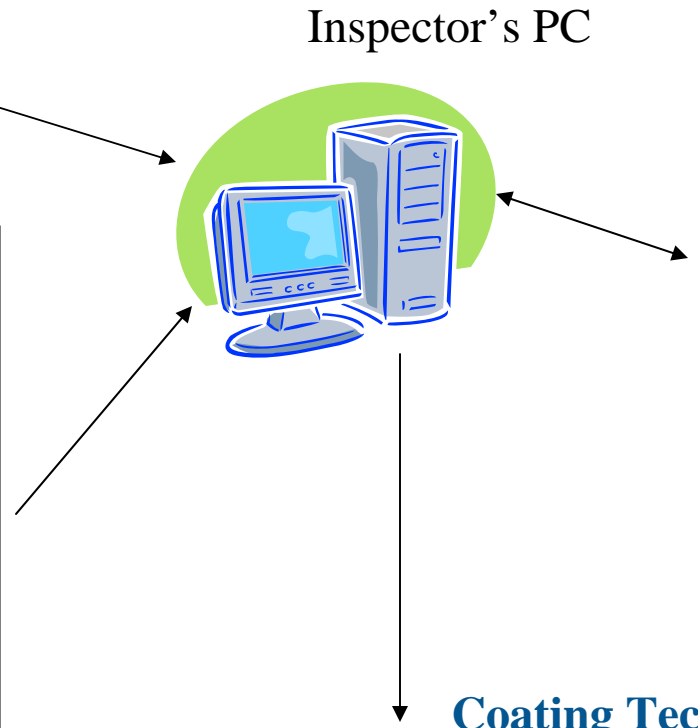
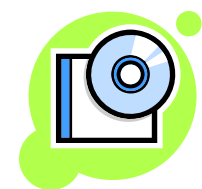
Inspector's PC

Database



- STANDARD DOCUMENTS**
- IMO regs
 - Agreement between owner, yard and paint company
 - Amendments record
 - List of tanks to be coated and build programme
 - Paint specification and application
 - Paint TDS / MSDS
 - Product approval certificate
 - Test certificate
 - Yard work procedures
 - Paint company application procedures
 - Compliance with secondary corrosion control system
 - Repair procedures at new build and in service

Coating Technical File



Reality

- ✦ PSPC concept still not fully understood
- ✦ Genuine shortage of trained coating inspectors
- ✦ Currently all CTF information unlikely to be in one location
- ✦ No 'off the shelf' software / hardware for this concept actually available
- ✦ True additional cost on New Build as yet not verified

Thank You

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