

Overarching issues

- ❑ Cultural/financial
 - Requirements for clean treatments not on radar, not in contracts. Hence, no willingness to pay more for green solutions even where LCC is clearly positive
 - ◆ LCC and green systems are not clear DoD mandates
 - ◆ No requirement for LCC in contracts
 - ◆ **How do we overcome this?**
 - For Engineer – high personal risk, low reward
 - ◆ Employees not empowered to take risks
 - ◆ No mid-level support for engineering changes
 - ◆ **How do we change the culture?**
- ❑ DoD is small part of industry
 - We are stuck with industry solutions – fasteners, Pb-free solders, etc
 - **How do we get our needs taken care of?**
 - **Often DoD does not adopt industry technologies**
 - ◆ **Worse environment**
- ❑ Chrome wash primer – a problem for everyone
- ❑ Every solution today seems to be a problem tomorrow

Bringing to production

- ❑ SERDP/ESTCP funding validates technologies
- ❑ Implementation \$ not standardized across DoD
 - Always need champion
 - How do we get follow-on?
 - Color of \$
- ❑ Agreed upon testing
 - E.g. HE, corrosion
 - Need for round robin re-embrittlement testing
 - In some cases disparate needs – how encompass in one JTP or need separate tests for different users

Specific systems

- ❑ Gun barrels essentially taken care of
 - Know what we need and how to get there
 - Entirely performance-driven
- ❑ Fasteners
 - Big problem as we must use what industry provides
 - Cd will become less available, more costly, but not a driver now
 - Not one anyone's radar, not anyone's responsibility, no \$
 - **Need data on alternatives – JTP formulated**
 - ◆ Is it broad enough?
 - **What is the impact of torque-tension?**
 - **Need data on impact on occupational health**

Specific systems

- ❑ GTEs
 - Torque tension for fasteners – **is this for CRES?**
 - HE an issue
 - Need colored Cr3+ alternatives
 - Need Cr3+ alts for touch-up
 - **How reduce cost of drawing changes?**
 - Less industry participation in spec bodies
- ❑ Some important areas outside mandate
 - Dry film lubes
 - Be replacements

Specific systems

- ❑ Structural
 - Round robin HE testing
 - ◆ Do we need to understand HE better to make better test?
 - Changes in Air Force, but nowhere else
 - ◆ How can we get changes implemented in Navy and Army?
- ❑ Cost analysis is a big issue
 - Cannot include some important costs
 - If cost saving is big, budget is reduced accordingly
 - Nobody believes cost savings – how can we make cost saving predictions that are really believable?

Specific systems

□ Hydraulics

- Not a big issue – everyone feels in compliance
- HVOF is a good solution for OD of rods
 - ◆ Not cost-effective for small R&R parts
- IDs still an issue
 - ◆ Are current programs (Ni NLOS and nCo-P) a good solution, or do we still need others?
- Cd – most aero hydraulics use 15-5PH so no coating needed
 - ◆ Where else is this a viable approach?
- Legacy aircraft – are they worth changing?

