DoD Corrosion Prevention and Control

Program Policy Overview and Status

Alternative Fuels Workshop

Daniel J. Dunmire
Department of Defense
Special Assistant for Corrosion Policy and Oversight

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Why I Am Here

• Almost all fuels require:
  – Production systems
  – Transfer systems
  – Storage systems
  – Delivery systems

• Many of these systems are vulnerable to corrosion and its effects due to:
  – Material selection
  – System design
  – Production methods
  – Inadequate treatment, detection and maintenance methods

• Corrosion prevention and control is a vital part of any new system development

• DoD leads Government agencies in corrosion prevention and control of infrastructure and warfighting equipment
Agenda

• The Law
• The Response
• DoD Corrosion Organization
• Specific Approaches
• Strategies
• Directions
Congressional Response to Corrosion Problem

Members of Congress
• Reviewed Transportation Department study
• Noted severe, pervasive corrosion during 2002 Pacific Rim tour
• Subsequently enacted corrosion control legislation because –

DOD Cost of Corrosion
• Estimated at $10B to $20B, and as high as $40B per year
• Where most dollars go toward
  - Detection and assessment of corrosion
  - Treatment to prevent or retard added effects
  - Repair of damaged equipment or facilities
The Law

Public Law 107-314 Sec: 1067 [portions codified in 10 U.S.C. 2228]: Prevention and mitigation of corrosion of military infrastructure and equipment requires that:

• DoD designate a responsible official or organization
• DoD develop a long-term corrosion strategy to include
  • Expansion of emphasis on corrosion prevention & mitigation
  • Uniform application of requirements and criteria for the testing and certification of new corrosion prevention technologies within common materiel, infrastructure, or operational groupings
  • Implementation of programs to collect and share information on corrosion within the DoD
  • Establishment of a coordinated R&D program with transition plans

Strategy to include policy guidance & assessment of funding and personnel resources required
DoD Response to Congressional Mandate

• Response to the law
  – Developed organization
  – Developed strategy
  – Reported to Congress

• Assembled corrosion forum
  – Organized overarching corrosion program IPT
  – Established WIPTs (focus groups)

• Developed and published a strategic plan

• Interacted with the Government Accountability Office (GAO)
Pending Revision to Law

• Retains the requirements of the basic law
• Makes the following changes
  – Eliminates DoD Corrosion Executive
  – Elevates SA/CPO to Director CPO
  – Assigns Corrosion Executive duties to DCPO
  – DCPO becomes direct report to USD(AT&L)
  – Requires annual financial reporting
  – Codifies ongoing CPO activities
IPT Structure

• Corrosion Prevention and Control IPT (CPC IPT)
  - Provide strategic review and advice
  - Develop and recommend policy guidance

• Working IPTs (WIPTs)
  - Policy and requirements
  - Impact, metrics and sustainment
  - Science and technology
  - Communication and outreach
  - Training and Doctrine
  - Facilities
  - Specifications and standards
Specific Approaches to CPCP Success

- Policy changes – transcend traditional methods
- Strategic plan – develop and implement
- Specifications, standards and qualification processes – update and standardize
- Research projects – submit, select and execute
- Communication and outreach – change culture
- Training and certification – improve competence
- Infrastructure – equal emphasis as equipment
- Strategic partnerships – leverage networks
- Cost of corrosion baseline study – quantify problem
Transcending - Updated Strategies

• Overarching strategy: transcend traditional control methods, organizations, management and funding approaches
• Attack corrosion early in acquisition or construction
• Focus life-cycle corrosion research and development efforts on four primary areas
  – Materials and manufacturing processes that prevent or reduce the incidence and effects of corrosion
  – Detection of corrosion in fielded systems and facilities and prognosis of the expected growth, potential impact and predicted effects
  – Coatings, treatments and other applications to prevent, arrest or retard corrosion
  – Repair processes that restore materials to an acceptable level of structural integrity and functionality
• Publish direction and guidance regarding corrosion prevention and mitigation policies and strategies at all DoD and Service levels
Sharing Problems and Solutions

Industry
DoD
Corrosion
Agencies
Societies
Forum
International
Partnerships
New Directions

• Education and training
  – Corrosion Engineering Degree at University of Akron
  – Advanced Corrosion Training Video and Continuous Learning Module – including 1 hour training video
  – Initiation of virtual corrosion gaming video

• Outreach and culture change
  – 2007 Tri-Service Corrosion Conference in Denver in December
  – Implement Phase 3 of supplier online product qualification process
  – Premier Outreach and Communication corrosion effort public video

• International Initiatives
  – Australasia, UK, France, Germany cooperative efforts
  – Australasian Conference and World Congress on Corrosion
Summary

• Congressional interest very high – recent disasters amplifying interest
• CPC program implements modern strategies that produce
  – significant reduction in corrosion incidence and impact
  – better education and understanding
  – cultural changes
  – international interest and cooperation
• Combined efforts of industry, government, academia and user community essential to combat corrosion
• Partnership between DoT and DoD on alternative fuels corrosion prevention and control can strengthen both programs