How do we impact corrosion?

US Army Corrosion Summit
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# How do we impact corrosion?

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**2009 U.S. Army Corrosion Summit, 3-5 Feb, Clearwater Beach, FL**

**Abstract**

The report discusses the impact of corrosion on various materials and the strategies to mitigate or prevent it. It covers the latest research findings and practical applications in the field of corrosion science.

**Security Classification:**
- Report: Unclassified
- Abstract: Unclassified
- This Page: Unclassified

**Limitation of Abstract:** Same as Report (SAR)
Overview

• Impact of Corrosion on the US Army
  – Dollars
  – Readiness
• Savings Due to Corrosion Control
• Training as the key to addressing corrosion
• NACE International Strategic Partner with DoD
Impact of Corrosion - $$

• 2002 Cost of Corrosion found a $20 billion cost for the DoD

• The GAO stated the cost is about $10 – 20 billion

• Subsequent studies have found that the cost for the Army is (LMI Study):
  – Ground Vehicles $2.0 Billion per year
  – Army Aviation and Missiles $1.6 Billion per year
  – Army Facilities $0.45 Billion per year
  – Total $4.05 Billion per year
Impact of Corrosion - Readiness

• Corrosion has a direct impact on readiness
Impact of Corrosion - Readiness
Savings Due to Corrosion Control

• Across all sectors, it was estimated that:
  – 33% of total cost of corrosion can be saved
  – It costs 10% of savings to implement better practices
  – 30% net savings is possible

• DoD might save $6B annually
Best Practice Maintenance

• In order to improve we need:
  – An understanding of the extent of the corrosion problem
  – A link between the corrosion problems in the field and the maintenance efforts at all levels

• “Best Practice Maintenance” Program
  – Top Down driven with a commitment by highest levels
  – Include highest industry standard corrosion preventive methods and practices
  – Include continued process improvements
Best Practice Maintenance

• DoD cost of corrosion savings can be realized by systematic optimization
• Most effective program is implemented across all Services and all systems (weapon and facilities)
• Key part of corrosion prevention and mitigation program is awareness and trained personnel
Possible Long-Term Savings

Current Practice

<table>
<thead>
<tr>
<th>Stage 0</th>
<th>Stage 1</th>
<th>Stage 2</th>
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</thead>
<tbody>
<tr>
<td>Repair &amp; Replace</td>
<td>Maintenance</td>
<td>Repair &amp; Replace</td>
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<tr>
<td>Now $10 - $20B</td>
<td>2015 30% Net Savings</td>
<td>2030 50% Net Savings</td>
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<td>Science &amp; Technology</td>
<td>Best Practice Maintenance</td>
<td>Best Practice Design, Manufacturing, Maintenance &amp; New Technology</td>
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Leaders in Corrosion Control Technology
DoD Challenge

- Aging of military systems poses unique challenge
  - Often no immediate promise of replacement
  - A need to develop corrosion maintenance and control programs that can carry systems well into the 21st century
  - Inter-service cooperation is required
  - Optimum approach must be developed that involves inspection, monitoring, and maintenance
DoD Challenge

• Design and acquisition of new systems
  – Use, at a minimum, current industry consensus design practices
  – Use specifications based on industry standards and upgrade where necessary to meet DoD-specific requirements and life expectancies
  – Educate the design and acquisitions professionals about the impact of corrosion
  – Train the corrosion workforce
Strategic Partnership

• With these challenges and opportunities the DoD Office of Corrosion Policy & Oversight (CPO) established a strategic partnership with NACE International

• This is a vital relationship and one of the key aspects of the partnership is to develop and provide education and training

• Also NACE International has been asked to begin an assessment of the corrosion training currently provided by the services
Current Training Opportunities

• DoD and NACE International developed a corrosion 101 (CLM 038) to provide training to the acquisition workforce (on-line at DAU)

• DoD is funding training through NACE International – contact Cliff Johnson (cliff.johnson@nace.org for additional information)

• DoD has developed a number of podcast and videos to address corrosion

• DoD is developing video games to address corrosion
NACE International

- To protect people, assets, and the environment from the effects of corrosion

- Founded in 1943
- 20,000+ Members in 100 Countries
- 300+ Corporate Members
- 400+ Publications
- 350 Technical Committees
- 200+ Standards and reports
- 250+ Education courses offered
- Nearly 12,000 people hold a NACE certification
NACE International

• Training covers a number of areas:
  – Coatings & Coatings Inspection
  – Cathodic Protection
  – Materials Selection
  – Design

• NACE International has developed three courses for the military
  – Corrosion 101
  – CP 3 Marine
  – Water and Waste Water Corrosion
DoD Training Review

• Recently NACE International has begun a review of the current training available to military personnel
• We have been asked to determine the level of training needed for the workforce and the sufficiency of the training available
• What are your thoughts?
• Please contact Helena Seelinger at helena.seelinger@nace.org
Training

• It is important that we raise the awareness about the problem of corrosion with program managers, acquisition personnel, and leadership
• We must ensure those who are doing the work need to be trained and qualified for the job
• This will reduce the impact of corrosion to the military
Questions?