



# Moving Technical Knowledge into Decision Making

US Army Corrosion Summit  
February 9, 2010

| Report Documentation Page                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                    |                                     |                                                                  | Form Approved<br>OMB No. 0704-0188                  |                                    |
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# Outline

- Who is NACE
- Why this matters
- Impact of Corrosion on the Department of Defense
- Communication Gap
- Training & Certification Review



# Mission

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





# History of NACE

- Since 1943 we've been dedicated to a single mission – to protect people, assets, and environment from the effects of corrosion.
- From just 11 engineers, our association has grown to more than 20,000 members in 100 countries.
- Built upon decades of knowledge and expertise from dedicated members all around the world, NACE International is involved in every industry and area of corrosion prevention and control, from chemical processing and water systems to transportation and infrastructure protection.



# What We Do

- Set technical standards
- Disseminate the latest technology worldwide through peer-reviewed journals and technical papers
- Host and manage international conferences, exhibits and topical meetings
- Enhance programs, services and connections with the corporate community
- Promote the interests of the corrosion science and engineering industry through government relation activities
- Offer education and certification programs internationally





# What We Do

- ⌘ Over 60 years of leading the industry
- ⌘ Over 20,000 members worldwide
- ⌘ 16,000+ certified
- ⌘ 400+ Publications
- ⌘ 350+ Technical Committees
- ⌘ 200+ Standards and reports

Continued...



# What We Do

- ⌘ We are the Training and Certification body for the profession
- ⌘ Programs include CIP, CIP Bridges, CIP Marine, CP, CP Marine, Basic, Designing for Corrosion Control
- ⌘ New courses and standards for Bridges, Nuclear, Water Supply and Treatment, DoD
- ⌘ Public Voice for the Corrosion Profession

# NACE Education Facility

- ⌘ 15,000 Sq Ft Education and Training Center
- ⌘ 1,000 Sq Ft Coatings Lab
  - ⌘ Spray Booth
  - ⌘ Blast Booth
  - ⌘ Coatings Prep Lab
- ⌘ Cathodic Protection Test Field





# Cathodic Protection Program

CP 1—Cathodic Protection Tester

CP 2—Cathodic Protection Technician

CP 2 – Cathodic Protection Marine

Technican (developed for NAVSEA)

CP 3—Cathodic Protection Technologist

CP 4—Cathodic Protection Specialist



# Coatings Inspection Program

*Over 25 Years of Excellence*



NACE Coating Inspector Level 1-Certified

NACE Coating Inspector Level 2-Certified

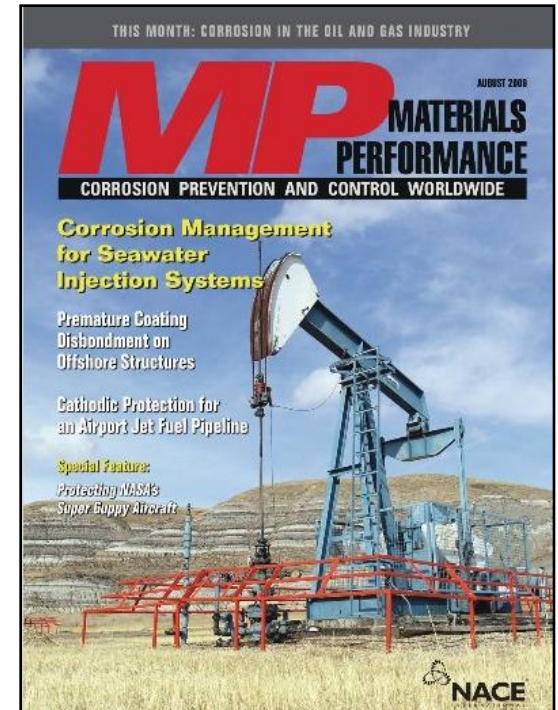
NACE Certified Coating Inspector Level 3

NACE CIP One Day Bridge Course

NACE CIP Marine

# Publications

- Materials Performance
- Corrosion Journal
- CoatingsPro
- InspectThis!
- Stay Current
- NACE Advocate
- CorrDefense



# Why This Matters

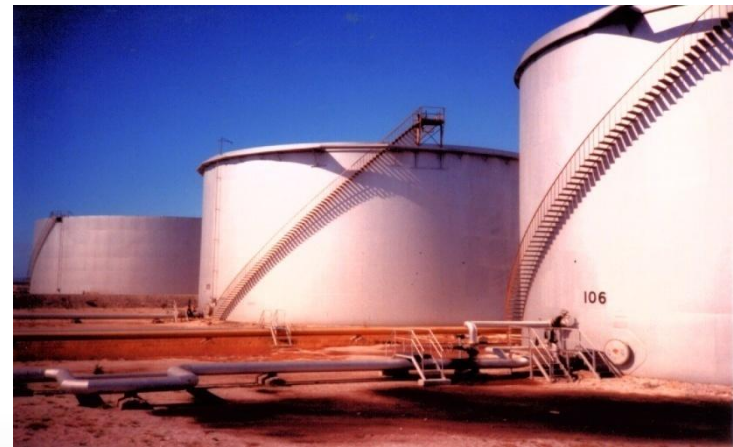
## *Aging Infrastructure*



# Why This Matters



Leaking Above  
and  
Underground  
Storage Tanks



# Why This Matters



## Steel Reinforced Concrete



# Why This Matters



## Aging Water & Wastewater





# Why This Matters





# Why This Matters

*\$276\* Billion Dollars Lost due to Corrosion*



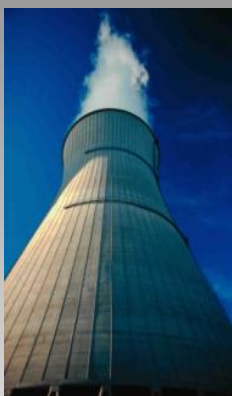
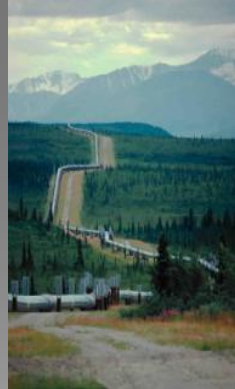
\*NACE Study with U.S. Federal Highways Administration, 2002  
Study available at [www.nace.org](http://www.nace.org)



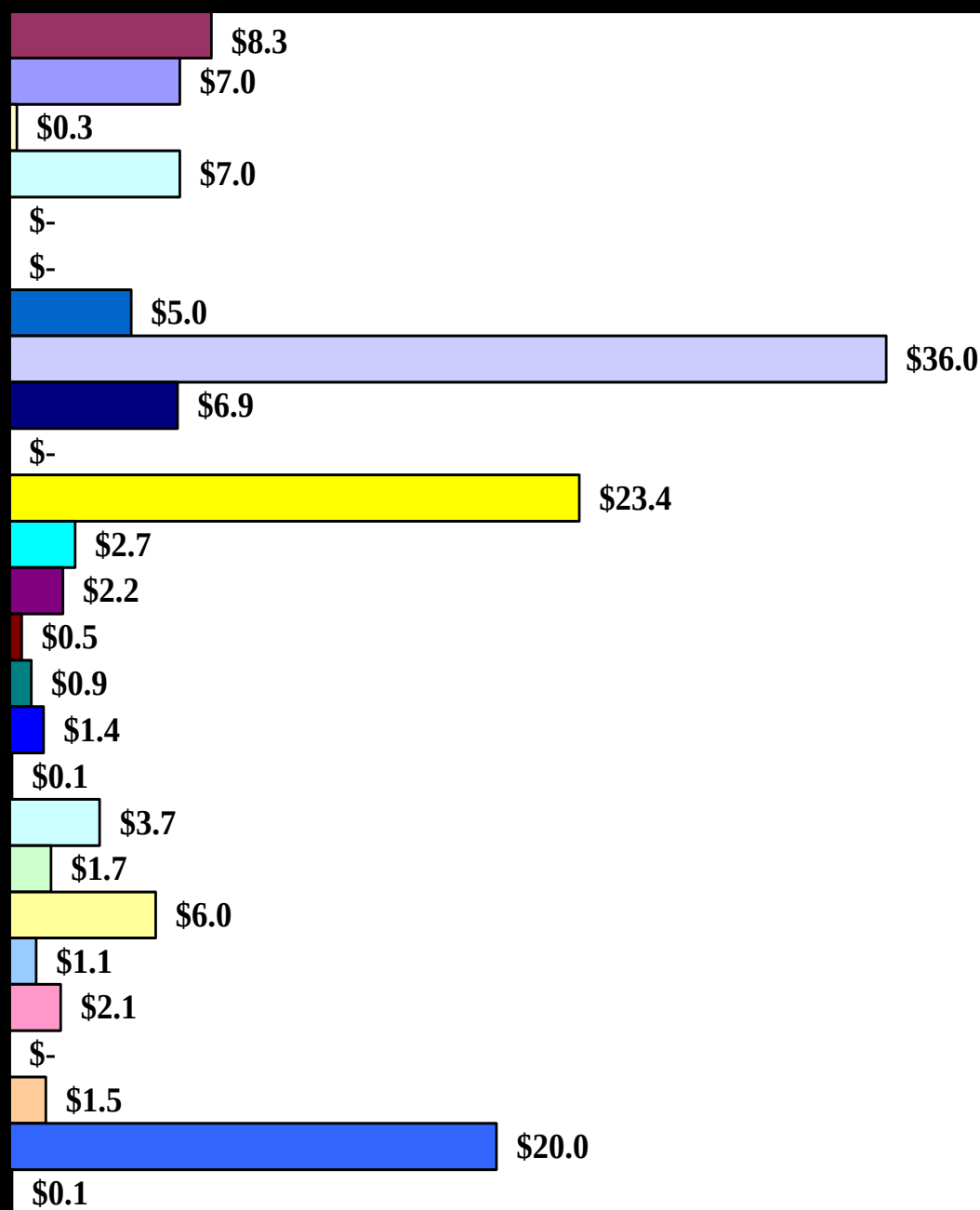
# Industry Sector Analysis

- 26 Sectors in 5 Categories:
  - Infrastructure
  - Utilities
  - Transportation
  - Production and Manufacturing
  - Government





- Highway Bridges
- Gas and Liquid Transm. Pipelines
- Waterways and Ports
- Hazardous Materials Storage
- Airports
- Railroads
- Gas Distribution
- Drinking Water and Sewer Systems
- Electrical Utilities
- Telecommunication
- Motor Vehicles
- Ships
- Aircraft
- Railroad Cars
- Hazardous Materials Transport
- Oil and Gas Expl.and Production
- Mining
- Petroleum Refining
- Chem., Petrochem., Pharm.
- Pulp and Paper
- Agricultural
- Food Processing
- Electronics
- Home Appliances
- Defense
- Nuclear Waste Storage





# Impact to the US Department of Defense

# Why This Matters

Harsh  
environments



# Army Equipment in Transit







# Why This Matters



## Aircraft Examples



# Impact of Corrosion

- Over \$20 Billion per year
- Readiness
- Troop Safety
- Environment





# Communication Gap

# Communication Gap

- Corrosion is a very technical issue
- Slow developing challenge
- Not well understood by decision makers
- Easy to put off the needed investment
- Need to address early
- Corrosion focus on the parts and not the big picture



# Communication Gap

- Proving a negative
- Corrosion Professional feels a need to justify their position
- Management asks what to do with all the data
- How to manage the assets that they are responsible for



# Changing the Dialogue

- Moving beyond maintenance
- Design for corrosion prevention
- Asset Preservation
- Life cycle cost
- Corrosion Management
- Total cost of ownership



# Changing the Dialogue

- Cradle to grave consideration for key assets
- Educating decision makers in terms that they understand
- Developing technical and non-technical teams to address corrosion
- Adding corrosion to the discussions in the design phase and the long term use of the asset





# **Corrosion Training to Reduce the Cost of Corrosion within DoD Weapon Systems and Infrastructure**

# Background

- Defense Science Board, Corrosion Control (2004)
  - Trained assessors
  - O / I / D level training
  - Trained materials engineer for PM
  - Prerequisite for IPT leadership
  - Match expertise and job function
- OSD Strategic Plan (2008)
  - “Education and training...vital to the...CPC Program”
  - Foundation of the DoD Program
  - Address weapons and infrastructure
  - Properly train individuals who measurably prevent or mitigate the Department’s equipment and infrastructure corrosion.
  - Verify that individuals are effectively educated and capable of performing

# Background

- 2009 Contract with NACE International
  - 24 month effort
- Phase I – Gap Analysis
  - Identify potential training areas
  - Identify internal & external available training
  - Resolve gaps in training needed
- Phase II – USMC Pilot Program
  - Resolve applicability of training (field / acquisition)
  - Note “certifiable” personnel
- Will not provide training or develop curricula

# Current Project Phase

- Identify most significant areas which might “measurably impact” system corrosion.
- These are embodied in system specifications and TMs concerned about corrosion control and existing OSD strategic plans
- Review:
  - Specifications and TM’s
    - Reflect key CPC technologies and processes
    - Collect similar / unique requirements
  - DoD / Service CPC training strategies



# Current Project Phase

- Review results via survey with DoD
- Detailed process discussion
  - NACE SME meeting on 12 Aug
    - Focus: methodology to validate survey process
  - Next SME Meeting at CORROSION 2010
- Surveys are available in the NACE booth this week
  - Surveys will be performed on on-line and in print
  - Will cover both infrastructure and weapon systems





# Project SME Group

## Subject Matter Expert Group

Chairman: Dr. Oliver Moghissi

Michael Carpenter

Vincent Hock

Col. Frank Dement

Dick Kinzie

Matt Koch

Sean Morefield

Forrest Pilgrim

Greg Redick

David Schramm

Mike Baach

Steve Spadafora

Tom Tehada

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Dan Zarate

Roger Hammerlinck



# Questions?

# Thank you!

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