

Navy Experience with Hexavalent Chromium

A photograph of a large Navy ship, possibly an amphibious transport dock, and a submarine on the ocean. The scene is set at sunset or sunrise, with a dramatic sky of dark clouds and bright light breaking through. The ship is in the middle ground, and the submarine is in the foreground, partially submerged. The water is dark blue-grey.

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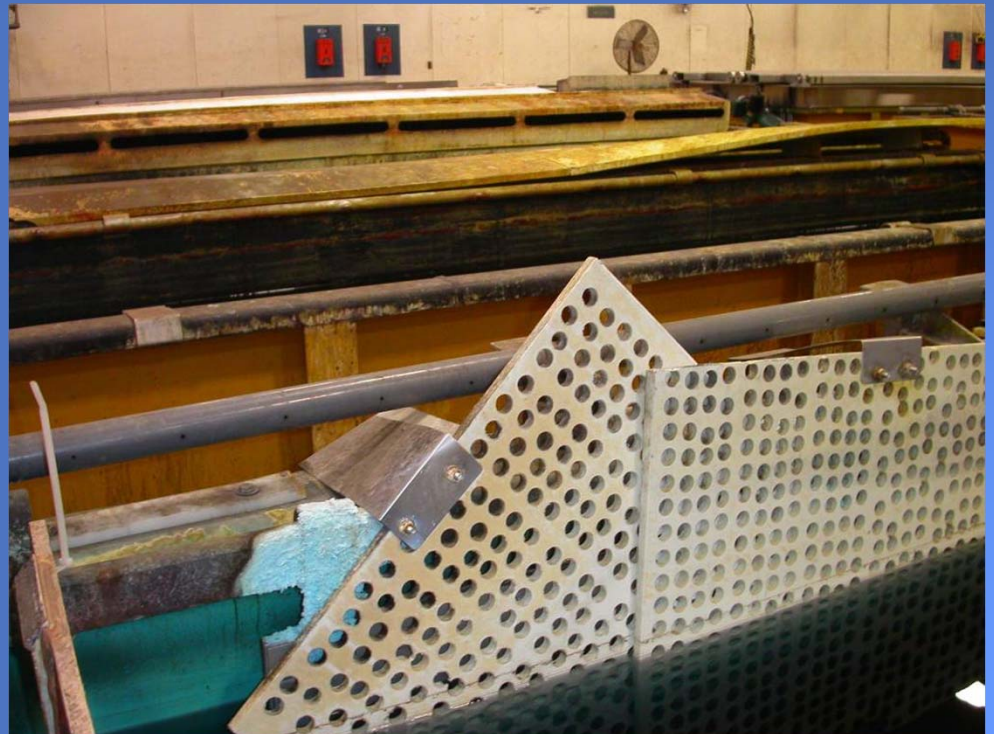
Status of Cr⁺⁶ Use

- Removed from shipboard primers
- Still used on airframes (primers, sealants, adhesives)
- Conversion coatings
- Product of hot operations
- Limited hard chrome plating



Processes with Potential Cr+6 Exposures

- Metal Cleaning (abrasive blasting, sanding, grinding, needle gunning)
- Electroplating
- Painting / Coating



Processes with Potential Cr⁺⁶ Exposures

- Welding
- Cutting (thermal & non-thermal)
- Services (motor vehicle maintenance)
- Filter Maintenance (spray paint bay, dust collection chamber for abrasive blast rooms)

Use Reduction Efforts

- Pollution Prevention (P2)
 - Reformulation of primers
 - Anodizing methods
 - Metal deposition vice hard chrome plating

Use Reduction Efforts

- Use of conductive gaskets to prevent corrosion and eliminate need for Cr⁺⁶ containing polysulfide sealants



Use Reduction Efforts

- Demisters for control of Cr+6 mists at large scale plating shops
 - 99.8% removal efficiency IAW APCD
- Environmental Control Booths



Use Reduction Efforts

- Wetting agents / fume suppressants in electroplating operations
 - Fumetrol



Use Reduction Efforts

- Engineering designs
 - Application equipment (HVLP Paint Guns)
 - Control methods



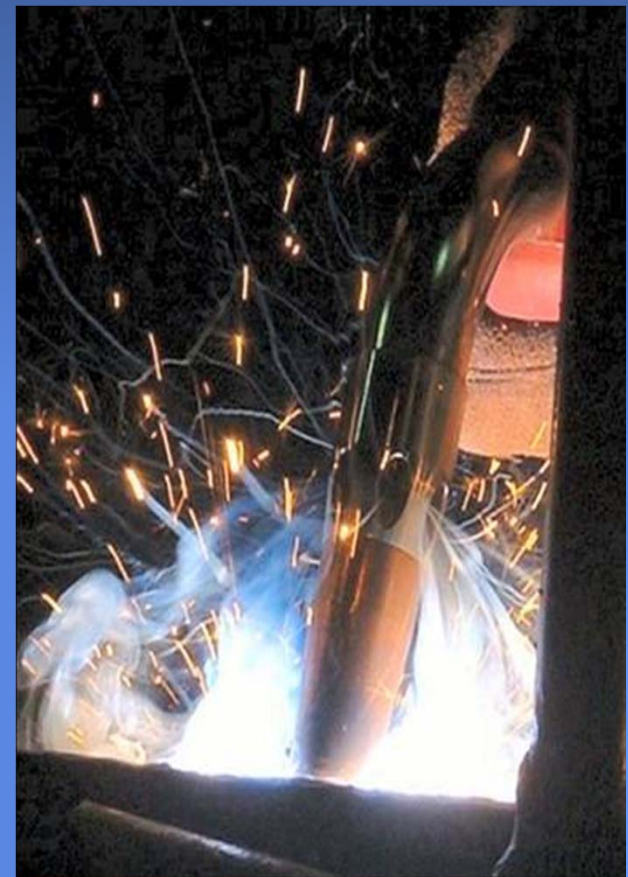
Continuing Issues

- Hexavalent Chrome in welding
 - Stainless Steel
 - Sodium and potassium flux
 - Shielding gases



Continuing Issues

- Welding ventilation
 - Limits on capture
 - Configuration issues
 - Fume guns



Continuing Issues

- Whole aircraft painting (engineering controls/ventilation issue)
- Aircraft paint removal



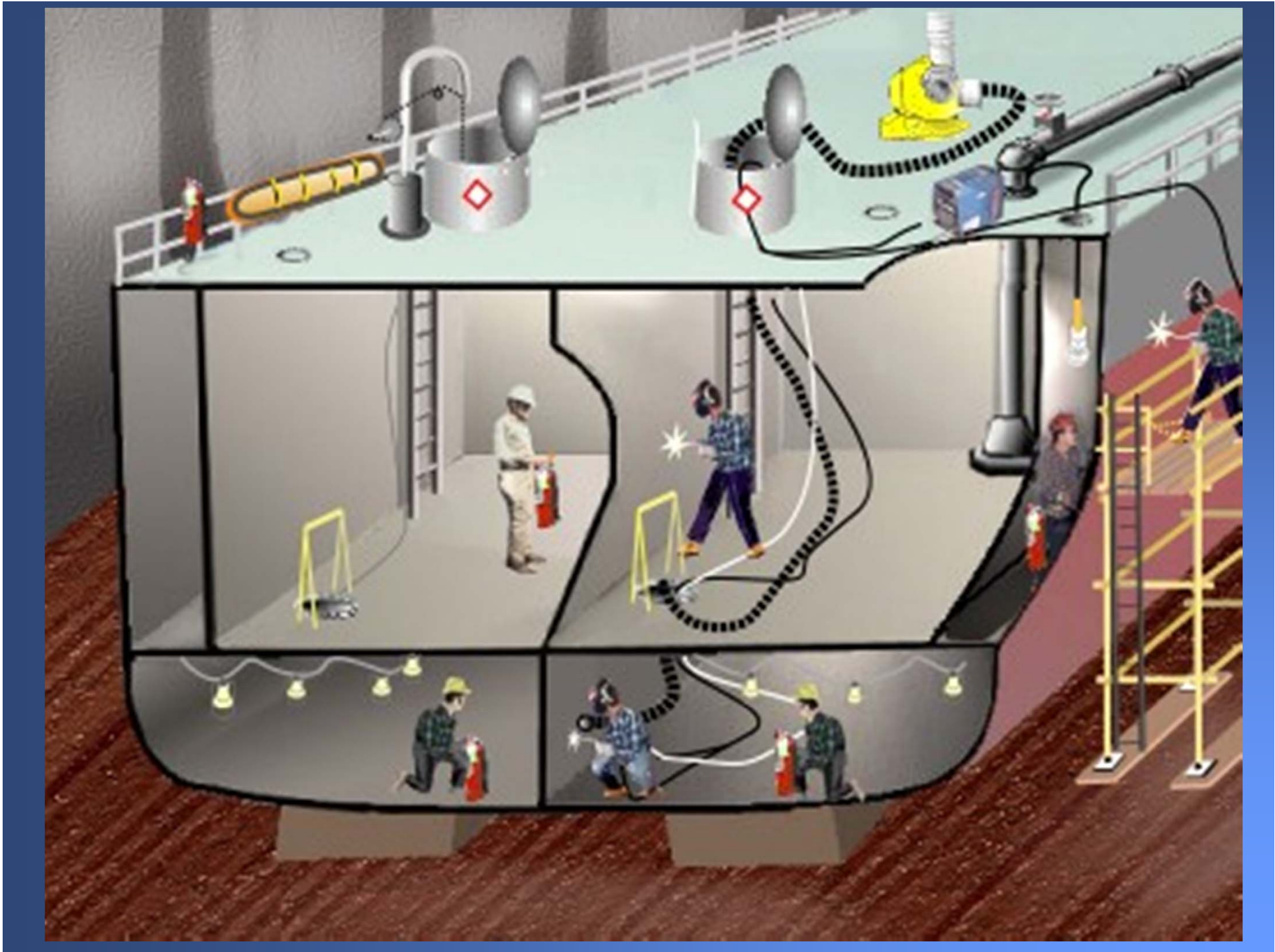
Containment Limitations



Surface Preparation







Future Issues:

EPA's Residual Risk Analysis

- NESHAP changes based on Cr^{+6} emissions
- State and local APCD's



Success stories:

- Environmental Security Technology Certification Program:
 - <http://www.estcp.org/technology/WP-Heavy-Metal-Elimination.cfm>
- Navy Environmental Leadership Program
 - <http://www.nelp.navy.mil>

Another workday in San Diego...

For some lucky few!

Questions?

