Sustainable Painting Operations for the Total Army: SUCCESS!

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<th>b. ABSTRACT</th>
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**18. NUMBER OF PAGES**  
11

**19a. NAME OF RESPONSIBLE PERSON**

Standard Form 298 (Rev. 8-98)  
Prescribed by ANSI Std Z39-18
What I am not going to present today (but could)

- List of projects
  - Chemical Agent Resistant Coatings (CARC) and non-CARC paints
  - Sealants, adhesives and other coatings
  - Solvents, thinners, cleaners and paint removers

- Regulatory and performance status
  - Enabling compliance with hazardous air pollutant (HAP) standards, including those not yet issued
  - Minimizing other environmental impacts – volatile organic compounds (VOCs), metals, energy consumption
  - Not just meeting but blowing past minimum required levels of emissions and performance
  - Filling gaps left by products currently (un)available to Army users
What I am **not** going to present today (but could)

- Technical jargon
  - CIE L*, a*, b* color space designation
  - GMW 14872 cyclic corrosion resistance
  - ASTM F519 hydrogen embrittlement
  - König pendulum hardness
  - Etc.

- Lots of numbers
  - **10’s** of new, modified or revised specifications
  - **100’s** of types/classes of products affected
  - **1,000’s** of new, modified or revised National Stock Numbers (NSNs)
  - **10,000’s** of pages of technical manuals, bulletins and drawings used for implementation
  - **100,000’s** of soldiers and civilians touched
  - **1,000,000’s** of gallons of surface coatings impacted (and pounds of HAPs reduced)
What am I going to present today?

- Sustainability in action
- RDECOM as agent of change
- Success!

**2010 Secretary of the Army Environmental Award**
Environmental Excellence in Weapon System Acquisition, Small Program
Sustainable Painting Operations for the Total Army

**2010 Secretary of Defense Environmental Award**
Environmental Excellence in Weapon System Acquisition, Small Program
Sustainable Painting Operations for the Total Army

**2009 Army Research and Development Achievement Award**
Outstanding Technical Achievement
Development and Application of Low Solar Absorbing Chemical Agent Resistant Coatings

**SAE Environmental Excellence in Transportation Award**
Reduction of Methylene Chloride-Based Paint Strippers at Anniston Army Depot
Army query to paint industry

Q: All of our coatings use resins dissolved in HAP solvents. Do you have an alternative, HAP-free resin system suitable for Army paints?

A: No.

Q: Could you make one for us?

A: Gee, no one has ever asked us that before…

As it turns out, “yes”

“HAP-free” now starting point for new paints

“Reformulating with oxygenated solvents can significantly reduce or eliminate solvent-related HAPs while maintaining virtually the same performance characteristics.”

- Paint & Coatings Industry Magazine (Sep ‘02)
Two primary air emission mechanisms from conventional spray application:
1. Solvent/volatile evaporation (organic)
2. Solid/particulate atomization (inorganic)

Alternative application methods eliminate one or both air emission mechanisms, offer other process improvements:

- **Touch-up kits**
  1. Solvent/volatile
  2. Solid/particulate

- **E-coat**
  1. Solvent/volatile
  2. Solid/particulate

- **Powder**
  1. Solvent/volatile
  2. Solid/particulate

- **UV-curable**
  1. Solvent/volatile
  2. Solid/particulate
Changing the Culture at Army Installations

- Keep an open mind
- Work with, not against regulators
- Use “green” for your benefit

Anniston Army Depot (ANAD) has made a commitment to becoming more sustainable... will test and evaluate alternatives that meet mission requirements... will provide suitable location, manpower and parts to validate the performance of the alternative(s).

- ANAD General Manager, Production Operations
## Keeping Responsibility and Authority Together (Where They Belong)

You can delegate authority but not responsibility

### Old Paradigm

<table>
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<tr>
<th>Headquarters/PEO/PM</th>
<th>Installation/Field/User</th>
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<tr>
<td><strong>AUTHORIZE</strong> cleaners to be used for each application</td>
<td>Follow orders by using each cleaner as required</td>
</tr>
<tr>
<td>Require use of authorized cleaners in technical manuals, bulletins, drawings, etc.</td>
<td>Be held <strong>RESPONSIBLE</strong> if required cleaner fails to comply with any/all regulations</td>
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### SPOTA Paradigm

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<th>Headquarters/PEO/PM</th>
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<tr>
<td><strong>AUTHORIZE</strong> HAP-free cleaners to be used for each application</td>
<td>Follow orders by referring to specification as required</td>
</tr>
<tr>
<td>Write new specification to encompass all authorized options</td>
<td><strong>AUTHORIZE</strong> local use of cleaners (from qualified product list) that are most appropriate to local conditions</td>
</tr>
<tr>
<td>Reference new specification in technical manuals, bulletins, drawings, etc.</td>
<td>Be held <strong>RESPONSIBLE</strong> if chosen cleaners fail to comply with local requirements/regulations</td>
</tr>
<tr>
<td>Take <strong>RESPONSIBILITY</strong> for preventing introduction of HAPs</td>
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**Technology Driven. Warfighter Focused.**
Enacting Change Despite Limited Market Share

- Sealant used to detect vibration loosening
  - Baseline contains methanol/ethanol blend
  - SPOTA reformulation contains ethanol only

- Issue: Manufacturer implementation concerns
  - Dozens of DoD users at a handful of tubes per year
  - No economies of scale so production cost rises
  - Sales price rises so customer base shrinks
  - Why even bother?

- Solution: Army partnership with General Services Administration (GSA)
  - Establish new NSNs for each required color
  - Create economies of scale as single large user
SPOTA is helping installations comply with regulations...  
...but SPOTA is not a compliance program.

SPOTA is churning out great and varied products...  
...but SPOTA is not a collection of eaches.

SPOTA is filling capability gaps for the Warfighter...  
...but SPOTA is more than a technology program.

**SPOTA is sustainability in action.**