



# Integrating Green and Sustainable Practices with Navy's Remediation Projects

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# NAVFAC Emphasis on Sustainability



- **DON Environmental Strategy, April 2008**

- Vision "Sustaining our Environment, Protecting our Freedom"
  - Links accomplishing Navy's warfighting mission with our responsibility to safeguard the natural systems upon which our quality of life depends.

- **Opportunities exist within the NAVFAC Environmental Restoration (ER) Program to minimize a remedy's environmental footprint and support EO 13423**

- reducing energy and greenhouse gasses; promoting renewable energy; reducing water consumption, air emissions, waste generation, community impacts; and improving safety

- **"Green / Sustainable" optimization of Navy ER Sites will:**

- Complement current optimization approaches
- Draw on already existing methods and technologies
- Demonstrate commitment to long-term stewardship

- **DON Optimization Workgroup recently tasked by HQ:**
  - **Determine how Optimization and Tiger Team reviews will incorporate and evaluate methods to utilize green / sustainable engineering and reduce environmental impacts of remedies**
  - **Define scope and develop Navy's general approach**
    - Consider sustainability during remedy selection and optimization of existing remedies
    - Use the life cycle approach
    - Establish parameters (e.g., GHG footprint, energy use, water consumption, air emissions, community impacts, safety, etc.)
  - **Immediately identify potential Navy sites for applying green/sustainable remediation concepts**

## DON Optimization Workgroup Tasking, continued

- Determine metric(s) of success
- Apply & evaluate sustainability tools at ~3 Navy sites
- Increase awareness and support of green / sustainable remediation within DON

- e.g., Informational Fact Sheet for RPMs. Draft 01/09.

## •DON Optimization Policy & Guidance Documents

- Currently describes optimizing for cost, performance of the remedy, and timeliness in meeting cleanup objectives
- With approval from ER Managers, guidance will be updated to include minimizing a remedy's environmental footprint

# Navy's Path Forward



- **Outreach to Navy RPMs:**
  - Winter RPM Newsletter Article
  - T2 E-mail announced USEPA Green Remediation Primer and Website
  - Navy/Marine Corps Cleanup Conference Presentation
  - Future RITS Topic (Fall 2009)
- **Participation in:**
  - SURF Meetings, including supporting development of a white paper
  - ITRC Remediation Risk Management team - new proposal for Green Remediation
  - FRTR Meeting
- **Partner with AFCEE and USACE to address issues from a DoD perspective**
- **NAVFAC ESC proposed project to NESDI Program**
  - Evaluating and Optimizing the Tradeoff between the Environmental Cleanup Benefits of a Remedy and the Carbon Footprint of that Remedy

# Camp Pendleton Success Story



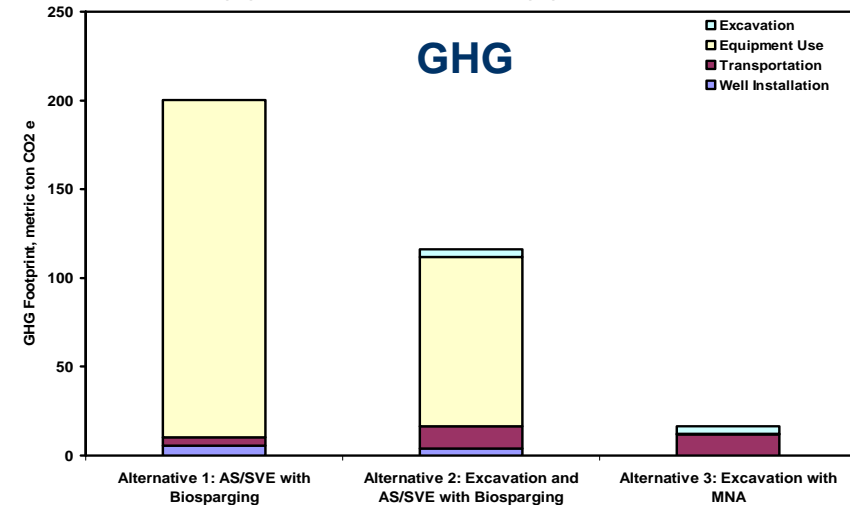
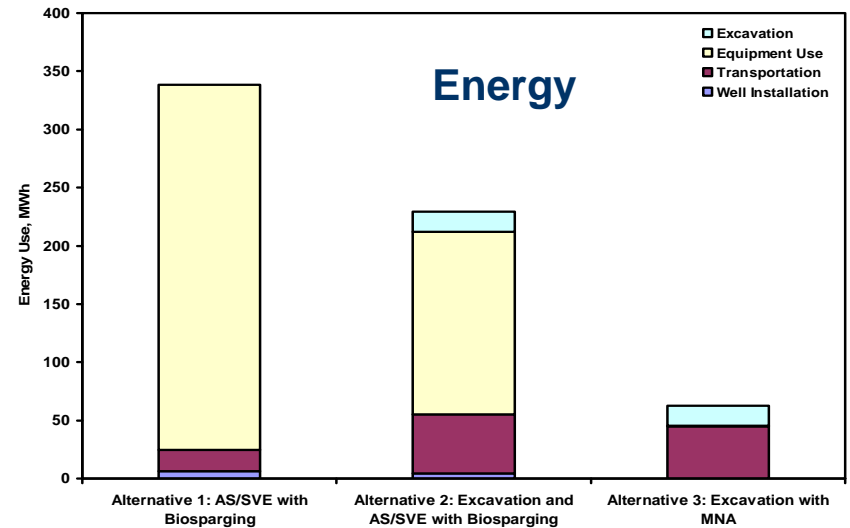
- Honored by USEPA's Cleanup - Clean Air Initiative
- Excavated 120,000 cubic yards of contaminated soil using:
  - clean diesel technologies
  - retrofitted equipment
  - ultra low sulfur diesel fuel
  - biofuels
- Excavated soil sent to a landfill via train instead of truck, kept 6,250 trucks off Southern California highways
- Relocating endangered Southwest Arroyo Toads away from the cleanup site
- Saved \$27M from original cost estimate
- RPM: Theresa Morley



# NAS Meridian – Remedy Alternatives Evaluation



- Remediation alternatives to address BTEX in groundwater
  - AS/SVE and biosparging; Soil excavation and biosparging; Soil excavation and MNA
- Included green/sustainability considerations in addition to effectiveness, implementability and cost
- Battelle conducted this evaluation for NAVFAC SE
- Qualitative evaluation for hydrogeological impact, land use, collateral risk, and disturbances
- Quantified GHG emissions and energy use over project lifetime
  - AS/SVE – high energy use and high GHG footprint
  - Operational modifications to reduce impact



# Summary



- **DON taking actions to integrate green / sustainable practices with remediation projects**
- **DON Optimization workgroup tasking**
  - Identify sites
  - Conduct case studies
  - Evaluate tools
  - Develop guidance
- **Working with other agencies for sharing lessons learned**