



U.S. Army Research, Development and
Engineering Command

**Developmental
Environment, Safety
and Occupational
Health Evaluation:
PESHE Junior**

For E2S2 - June 17, 2010



TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

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What does RDECOM do?



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Materials/processes/technologies should **not** be considered innocent until proven guilty in the court of environmental sustainability





Current Policy and Guidance vs. Changing Regulations



Army Regulation 70-1

Army Regulation 40-10

Army/DoD Policy and Directives

Research, Development, and Acquisition

Army Acquisition Policy

Medical Services

Health Hazard Assessment Program in Support of the Army Acquisition Process



Department of Defense
DIRECTIVE

NUMBER 5000.01
May 12, 2003
Certified Current as of November 20, 2007

USD(AT&L)

SUBJECT: The Defense Acquisition System

- References: (a) DoD Directive 5000.1, "The Defense Acquisition System," October 23, 2000 (hereby canceled)
(b) DoD Instruction 5000.2, "Operation of the Defense Acquisition System," May 12, 2003



Changing Regulations

REACH

in brief

Why do we need REACH?

How will REACH work?

What are the benefits and costs?

[DISCUSSION DRAFT]

111TH CONGRESS
2D SESSION

H. R. _____

To amend the Toxic Substances Control Act to ensure that the public and the environment are protected from risks of chemical exposure, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

Mr. RUSH (for himself and Mr. WAXMAN) introduced the following bill; which was referred to the Committee on _____

WH11002

S.L.C.

111TH CONGRESS
2D SESSION

IN THE SENATE OF THE UNITED STATES

Mr. LAUTENBERG introduced the following bill, which was read twice and referred to the Committee on _____

A BILL

To amend the Toxic Substances Control Act to ensure that risks from chemicals are adequately understood and managed, and for other purposes.

1. *To be enacted by the Senate and House of Representatives of the United States of America in Congress assembled,*

SHORT TITLE.

Act may be cited as the "Safe Chemicals Act"

PURPOSES.

The purpose of this Act to ensure that risks from chemicals are adequately understood and managed.

Guide to Development of the PROGRAMMATIC ENVIRONMENTAL, SAFETY, AND OCCUPATIONAL HEALTH EVALUATION (PESHE)



Environmental and Human Health Hazard Assessment of Chemicals to Support DoD Acquisitions

Office of the Deputy Under Secretary of Defense (Installations and Environment)

US Army Corps of Engineers
Contract Number W9128F-06-D-0015



3150 Fairview Park Drive South
Falls Church, Virginia 22042-4519

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Designation: E 2552 - 08

Standard Guide for Assessing the Environmental and Human Health Impacts of New Energetic Compounds¹

This standard is issued under the fixed designation E 2552; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reappraisal. A superscripted epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

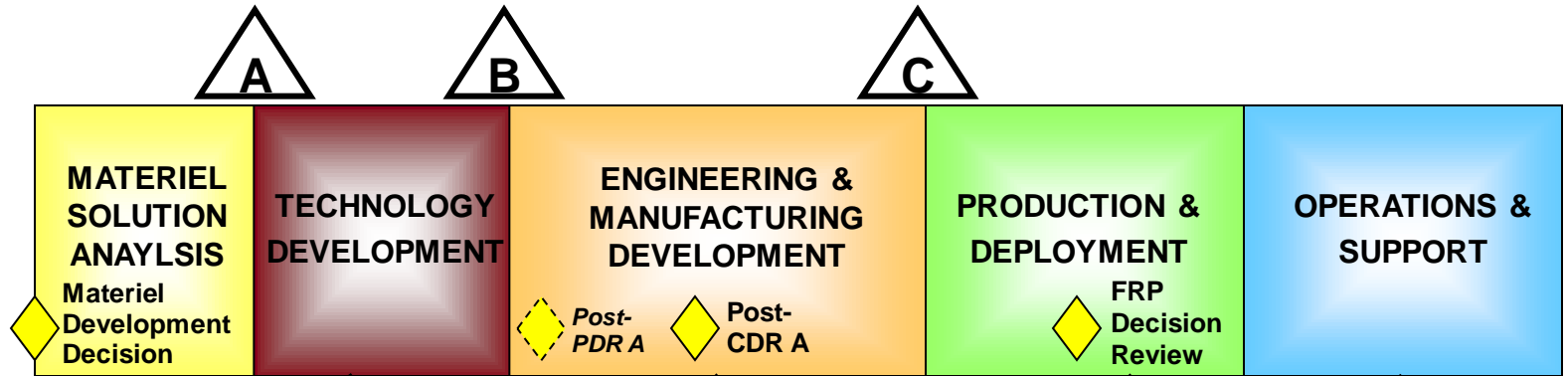
Current/Proposed Guidance Documents

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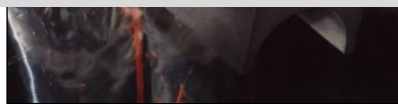
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Why do we need ESOH Guidance?



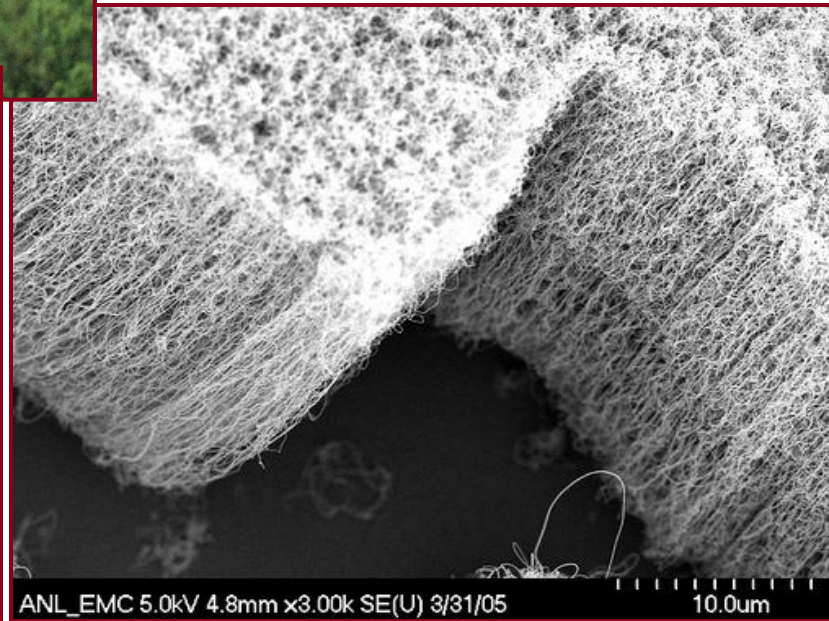
Bottom Line: Need to make Environment, Safety and Occupational Health (ESOH) a performance characteristic



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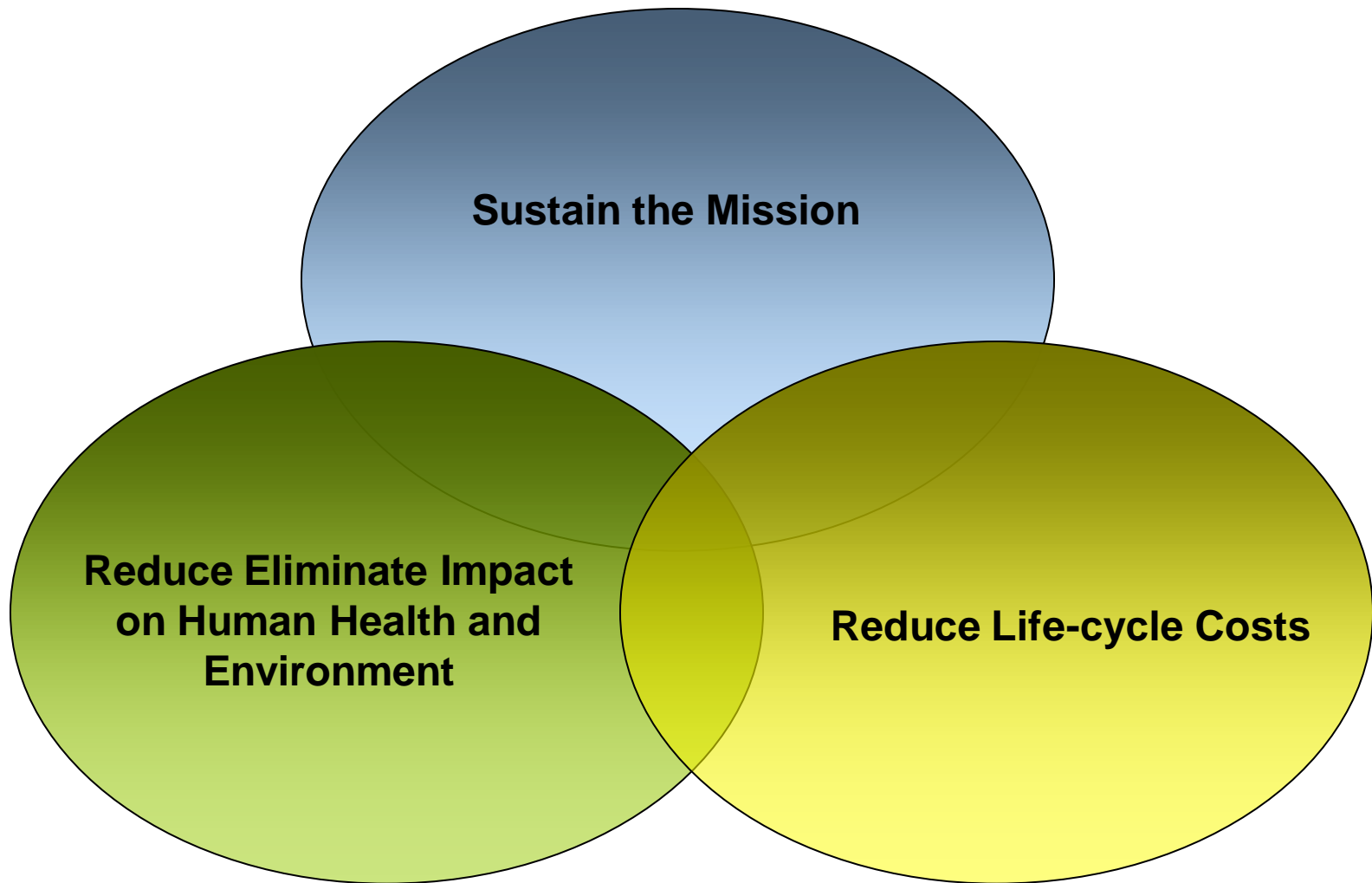
Examples of Need for ESOH Data Guidance



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Goals of ESOH Data Development



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What is DESHE?



- Developmental Environment, Safety and Occupational Health Evaluation (DESHE)
 - Process and not a report or document
- Purpose: Develop and document a baseline level of ESOH performance data for each level of research in order to support risk-based decisions
- Phased approach to gather, develop and document ESOH performance data for materials, processes and technologies during all phases of RDT&E
 - Data requirements determined by Budget Activity (BA) level or technology readiness level (TRL)
 - Early stages - qualitative data
 - Higher maturity technologies - More robust, quantitative data



What is DESHE?



Scope

All Army RDTE projects (BA1-BA4) not part of acquisition program (i.e. pre-system), with some exceptions (e.g. software development)

Applicability

Initially required for select programs (based on level of funding and scope) though all Army RDTE projects can use DESHE process

Use

ESOH performance data should be used to support required ESOH acquisition documentation/support informed decisions

Driven by Army RDECOM
Designed with the researcher in mind



Programmatic Environment, Safety and Occupational Health Evaluation (PESHE)

- Scope: All Acquisition programs must maintain a PESHE
- Target Audience: DoD Acquisition community (Program Managers)

ASTM E2552-08 - Standard Guide for Assessing the Environmental and Human Health Impacts of New Energetic Compounds (Army Public Health Command)

- Published May 2008
- Scope: New energetic materials in Research and Development
- Target Audience: Researchers, toxicologists working with new energetic compounds

Environmental and Human Health Hazard Assessment of Chemicals to Support DoD Acquisitions (OSD Chemical and Material Risk Management Directorate)

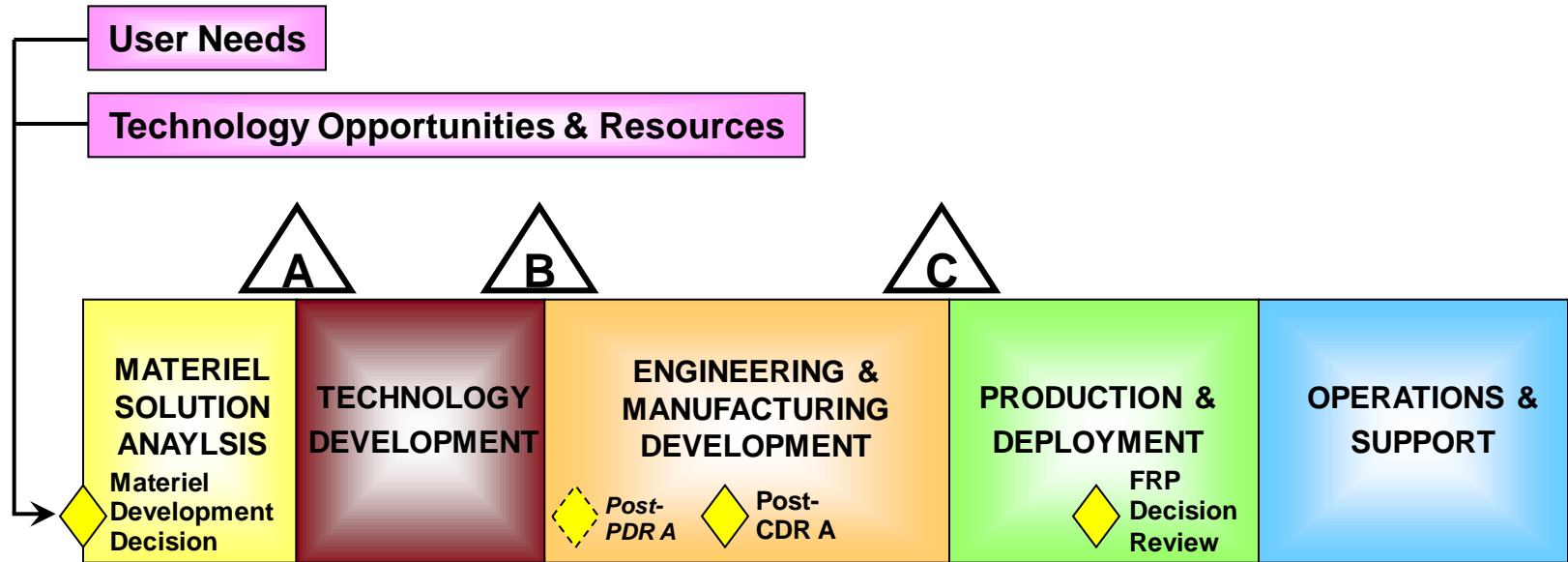
- Draft
- Scope: New materials throughout acquisition
- Target Audience: DoD Acquisition community (Program Managers)

DESHE (Army RDECOM)

- Early Draft
- Scope: All Army RDTE on materials, processes and technologies
- Target Audience: Army researchers, lab managers, research program directors



Where the DESHE Fits



DESHE (RDECOM)

PESHE

Environmental and Human Health Hazard Assessment of Chemicals to Support DoD Acquisitions (OSD)

ASTM E2552-08 - Standard Guide for Assessing the Environmental and Human Health Impacts of New Energetic Compounds (Army Public Health Command)

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Recipe for DESHE



One DESHE

(Serves the Entire Army)

- 2 c. technology maturity
- 1 c. available funding
- 2 tsp exposure scenarios
- 2 tsp potential for environmental release
- 2 tsp intended use(s)
- Scoop of existing data
- Pinch of regulatory rqts.
- Dash of professional judgment

- Mix well and share



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How Does it Work?



BA2

- Experimental values of chemical and physical characteristics
- In-vitro toxicity screening methods
- Acute toxicity data (optional)
- *Computational predictions from chemical/physical performance parameters and toxicity*
- Professional judgment

BA1

- Computational predictions from chemical/physical performance parameters and toxicity

BA3

- Biodegradation in various media
- In vivo toxicity testing; acute, sub-acute
- Environmental toxicity
- *Computational predictions from chemical/physical performance parameters and toxicity*
- *Experimental values of chemical and physical characteristics*
- *In-vitro toxicity screening methods*
- Acute toxicity data
- Professional judgment

BA4

- Chronic toxicity
- Occupational exposure studies, including absorption tests
- *Computational predictions from chemical/physical performance parameters and toxicity*
- *Experimental values of chemical and physical characteristics*
- *In-vitro toxicity screening methods*
- Acute toxicity data
- *Biodegradation in various media and environmental toxicity*
- *In vivo toxicity testing; acute, sub-acute*
- Professional judgment

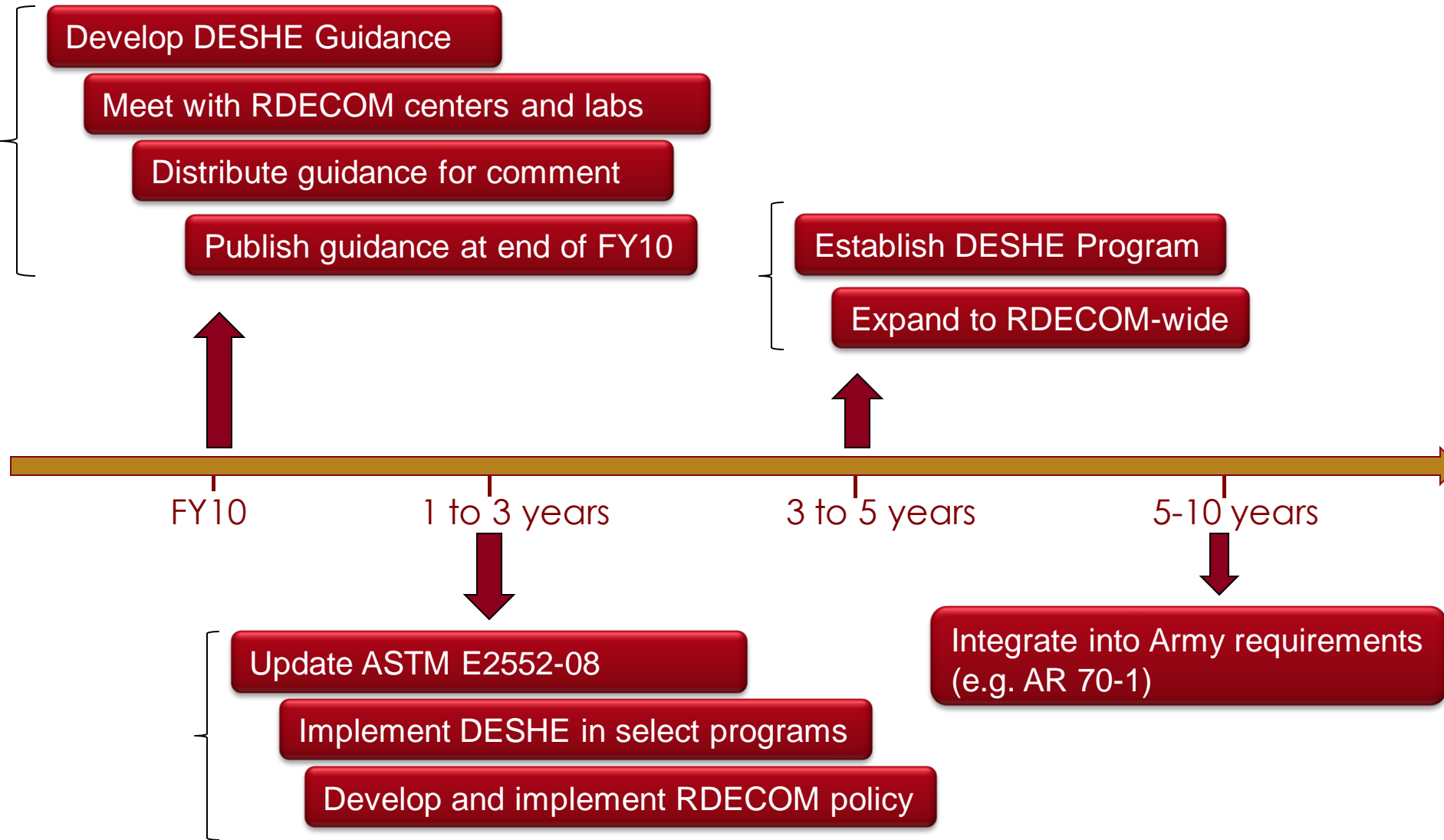
Acquisition Documentation

- PESHE
- NEPA
- HHA

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DESHE Timeline for Execution



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- Leverage existing guidance and ongoing efforts
- Team based approach
 - Crosstalk with Acquisition, installation and research community
- Establish centralized location for DESHE support
 - Document development, data gathering, publication, data repository
- Make ESOH Performance another performance characteristic
 - DESHE not another box to check
 - Data developed through DESHE process should be incorporated into risk-based decisions and Acquisition environmental documentation



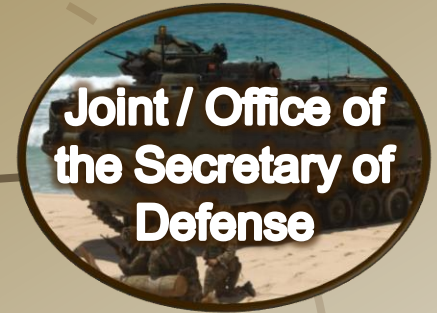
- RDECOM
 - Erik Hangeland
 - Kimberly Watts
- Hughes Associates, Inc.
 - Dan Verdonik
 - Bill Ruppert
 - Sharon Chen
- OSD Chemical and Material Risk Management Directorate
 - Paul Yaroschak
 - Drew Rak (Noblis)
- U.S. Army Public Health Command
 - Dr. Mark Johnson



Environmental Acquisition & Logistics Sustainment Program Elements



- ORDNANCE ENVIRONMENTAL PROGRAM
- TOXIC METAL REDUCTION PROGRAM
- ZERO FOOTPRINT CAMP
- SUSTAINABLE PAINTING OPERATIONS FOR THE TOTAL ARMY
- STRATEGIC ENVIRONMENTAL RESEARCH AND DEVELOPMENT PROGRAM
- ENVIRONMENTAL SECURITY TECHNOLOGY CERTIFICATION PROGRAM
- ARMY-INDUSTRY SOLVENTS ALTERNATIVES DATABASE
- ARMY-NAVY CHROMATE ALTERNATIVE TESTING



- PROTECTIVE COATING DEVELOPMENT
- MATERIAL DURABILITY TESTING
- NON-METAL RESEARCH

- PERCHLORATE REDUCTION PROGRAM
- OZONE DEPLETING CHEMICALS
- GREENHOUSE GASES



- RDT&E MATRIX SUPPORT
- ENVIRONMENTAL RISK MANAGEMENT
- PROGRAMMATIC INFORMATION INTEGRATION



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