



Mining CERCLA Five-Year Review Reports to Improve Remedy Performance and Accelerate Site Closeout

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- Background
- Goals
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- Goal of Air Force Real Property Agency (AFRPA) is to quickly return Base Realignment and Closure properties to useful purpose while providing enhanced protection of human health and the environment
- Early 2003, AFRPA and PPC recognized the possible value of data contained in CERCLA five-year review reports and set out to use existing remedy performance and optimization evaluations to look at remedy performance on an Agency-wide scale

- Identify potential issues with AFRPA five-year reviews
 - Understand the type and quality of data contained in the reviews
 - Evaluate technical performance issues associated with common remedies
 - Identify and outline remediation liabilities, needs, and opportunities for system improvement
 - Enable AFRPA to be proactive, not reactive, in managing five-year reviews
- Identify how the AFRPA could improve their implementation of the five-year review program
 - Identify training needs
 - Improve quality of remedies selected

- Build upon RPO efforts already underway
- Collaborated with EPA to identify and review all existing DOD five-year reviews
 - Evaluated 82 DOD completed five-year review reports
 - Included BRAC and Active Bases
 - 75% were completed *before* the issuance of the June 2001 EPA Five-Year Review Guidance
- Mined critical base and remedy information at OU level, when possible
- Compiled information into standard categories in a database

- Extracted and analyzed data to discover problems identified by Bases and regulators
 - Evaluated technical performance issues associated with common remedies
 - Determined the reasons remedies were deemed not protective
 - Identified corrective measures most frequently used at various types of sites

- Need to re-emphasize that basewide five-year reviews should be prepared
 - No need to prepare a separate report on individual OUs
 - Reduces reporting frequency
 - Provides clear overview of basewide activities, issues, and status
- Large variations in reviews
 - Quality
 - Type and amount of back-up data
 - Inconsistent format, structure, and readability
- No costs associated with recommendations

Misunderstanding of trigger dates and due dates

Trigger Date

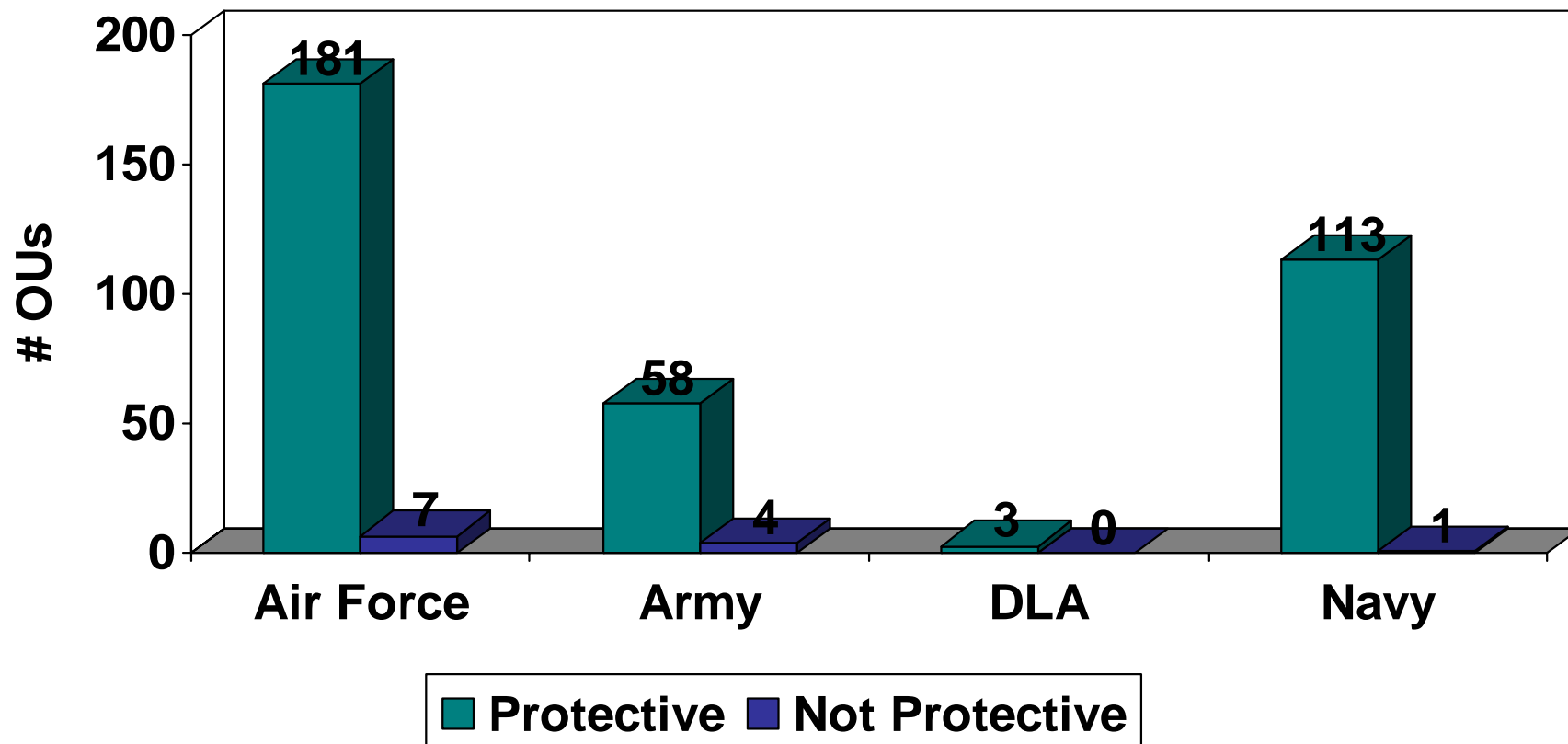
- ✓The initiation of the first remedial action (interim or final) that leaves hazardous substances, pollutants, or contaminants on site above levels that allow for unlimited use and unrestricted exposure. Generally, the 'actual RAC start date'.
- ✓Signature or EPA concurrence date of previous five-year review, regardless of original due date. *If EPA is delayed in their response or does not concur the review schedule is pushed back based upon their concurrence.*

Due Date

- ✓Five years from the trigger date regardless of whether the review is a statutory or policy review.
- ✓Lead agencies may choose to conduct a five-year review earlier, or more frequently, than every five years to ensure the protection of human health and the environment.

- Poor correlation between protectiveness statement and the issues/deficiencies and recommended path forward
 - Issues or deficiencies were not always identified
- Poor correlation between OU's identified in protectiveness statements and narrative of the site/remedy history
- Poor correlation between specific remedies and protectiveness statements
 - Common issues at OUs with multiple remedies and media

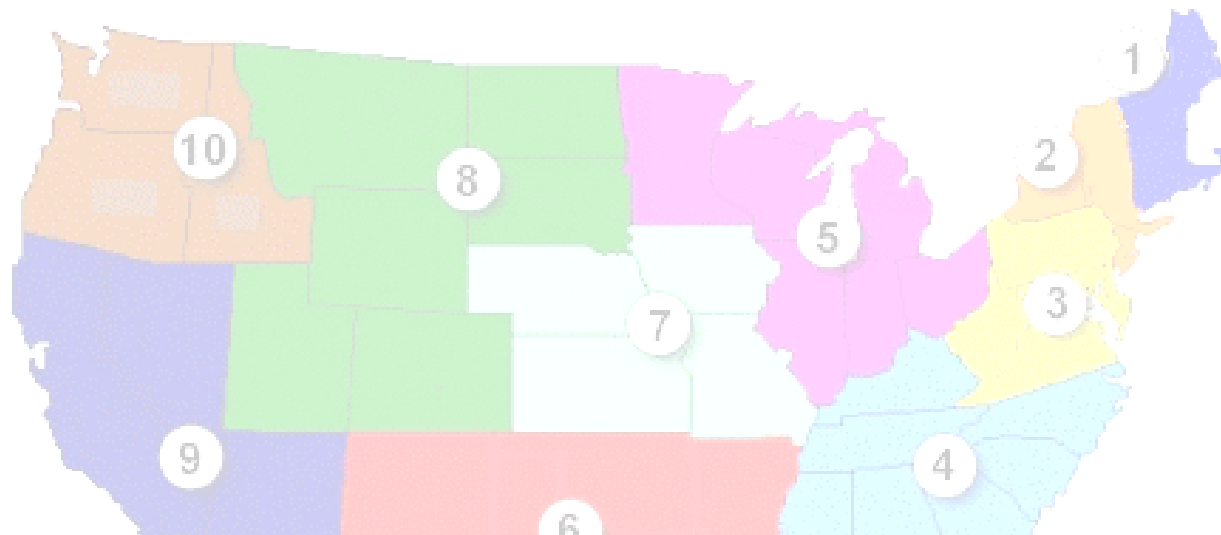
Operable Unit Protectiveness Findings by Service*



*Does not include OUs where no protectiveness determination was provided.

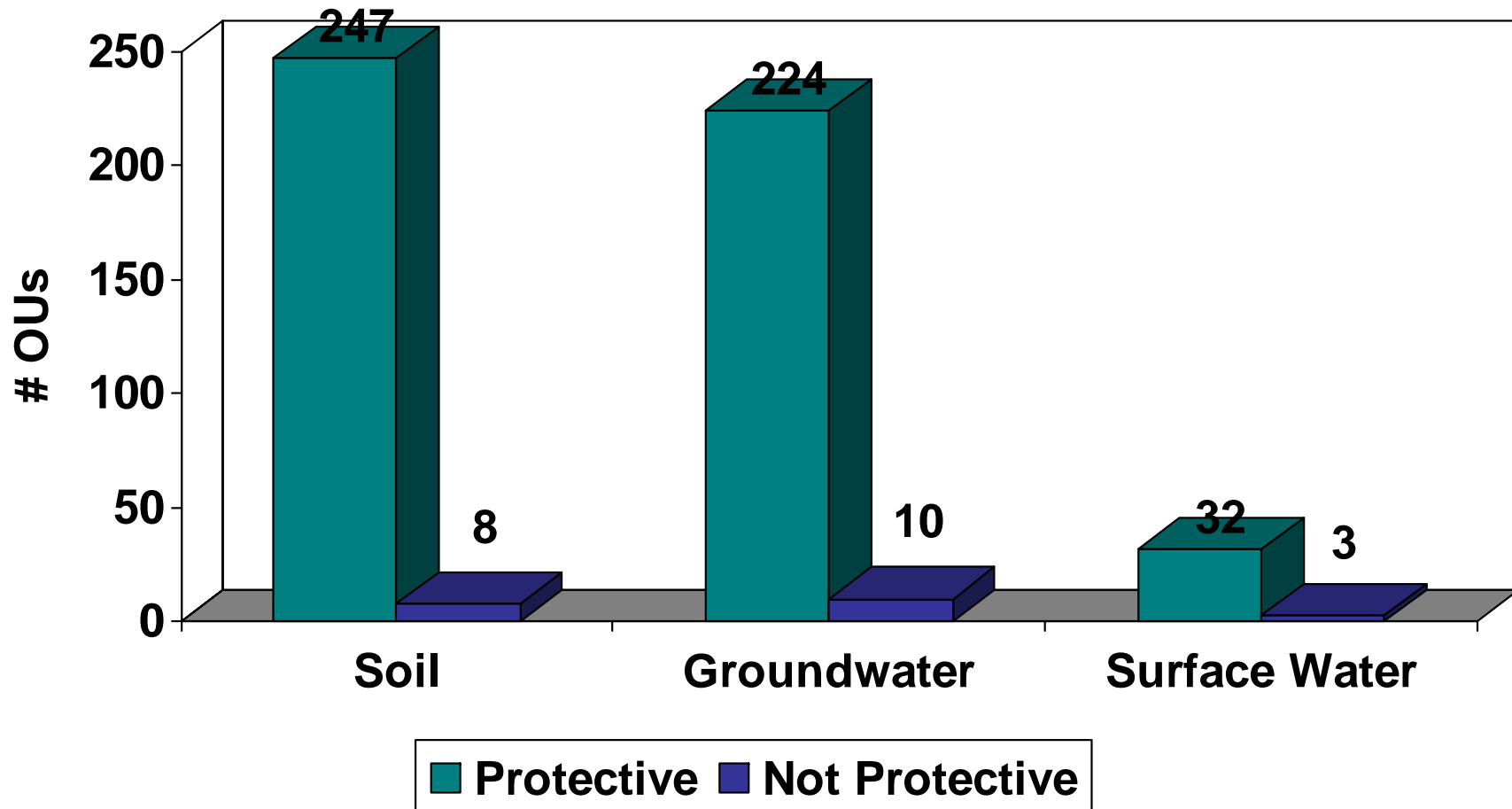
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Preliminary Results



EPA Region	1	2	3	4	5	6	7	8	9	10
# OUs Protective	113	22	19	36	9	4	2	23	39	88
# OUs Not Protective	2	1	1	2	0	0	0	3	2	1
# OUs No Determination	52	9	10	32	1	4	0	17	17	68

OU Protectiveness by Media



- Nearly all “not protective” findings were related to groundwater remedies
 - MNA not achieving RAOs
 - Wells outside institutional controls boundaries exceeding MCLs
 - Pump-and-treat system not capturing contaminants of concern and/or not treating them to expected levels
 - All aspects of plume not being addressed by remedy

- New contaminant discovery since remedy decision
- Data provided does not support protectiveness findings
- Lack of Operation and Maintenance plans
- Apparent lack of community awareness of base remedial operations
 - Based on review of comments made by draft versions

Commonly Identified Issues: No Determination Made

- 36 percent (210) of all OUs did **not** contain a protectiveness determination
 - Remedy not yet selected / selection in progress
 - Determination could not be made – not enough data
 - No further action – not included in remedy
 - Unclear statements that did not state whether remedy is protective or not

- Institutional controls not implemented as planned
- Improper use of landfill surface areas
 - used to store heavy machinery
 - road passing over landfill
 - surface damage during base construction activities
- Improper maintenance and monitoring of wells, engineered units, and access controls
- Insufficient education of on-site personnel about institutional controls

- MCLs and RAOs not being achieved
 - Poor plume definition
 - Need to readdress remedy selected, remedy design, or evaluate alternative remedies
 - Systems not fully implemented as designed
- Biofouling of pump and treat equipment
 - Delays
 - Downtime
 - Costly repairs
- Operational life of pump and/or motor shorter than expected
- Regular monitoring not being carried out

- Normalize data and due dates
 - Verify with field and EPA
 - Ensure consistent terminology across bases
- Initiated interagency project to identify performance measures for EPA and other Federal Agency five-year review programs
 - Institutionalize performance tracking system
 - Expand dataset to include all Federal Facilities