3/21/96-01505

RESTORATION ADVISORY BOARD MEETING

MARCH 21, 1996

7:00	Opening Remarks	Rear Admiral Robert. S. Cole Commander, Naval Base, Norfolk
7:15	Defense Environmental Restoration Account (DERA) Funding	Dave Forsythe - LANTDIV
7:30	Questions	
7:35	Break	
7:50	Relative Risk Ranking	Dave Forsythe - LANTDIV
8:05	Questions	
8:15	National Priorities List (NPL) Update	Dianne Bailey - Navy Co-chair
8:30	Questions	
8:40	Administrative Issues	Dianne Bailey - Navy Co-chair Jack Ruffin - Community Co-chair
8:50	General Questions/Comments	

NATIONAL PRIORITIES LIST (NPL) STATUS

Dianne Bailey
Naval Base, Norfolk
3/21/96

NPL STATUS

What is "NPL" ?

- EPA's list of industrial sites (federal & commercial) which are considered to be of national environmental concern
- Anticipate NBN being "proposed" in Spring/Summer 1996

NPL STATUS

Who "proposes" sites?

- EPA determines who gets listed using the Hazard Ranking System (HRS)
- Sites scoring greater than 28.5 are considered for listing
- States have to concur

NPL STATUS

What does HRS score?

- HRS scores:
  - Air contamination
  - Water contamination
  - Land contamination
  - Potential for human health risk
- Score is cumulative for *all sites* at Federal Facilities

NPL STATUS

What happens next?

- "Proposed" sites appear in Federal Register
- 45-day public comment period
- Become a "Listed" site
- Navy/EPA/State negotiate Federal Facility Agreement (FFA)

NPL STATUS

What is a FFA?

- Agreement between Navy, EPA and State
  - Sets time constraints for reports and cleanups
  - EPA oversees cleanup actions
  - EPA signs Records of Decision (RODs)
  - FFA includes IR sites and Solid Waste Management Units (SWMUs)

NPL STATUS

What is a SWMU?

- SWMUs are:
  - Hazardous Waste Accumulation Areas
  - Areas of past spills
  - Oil Storage Areas
  - Underground Storage Tanks
- Most SWMUs are still in use

NPL STATUS

How were SWMUs identified?

- 1991 study by EPA contractor
- SWMUs are not IR sites
  - IR sites identified under CERCLA; past actions
  - SWMUs identified under RCRA; current actions
- SWMUs are added to FFA for cleanup under DERA program

NPL STATUS

How many SWMUs are there?

- Study identified 140 SWMUs needed further action; sampling or documentation
- Three types of SWMUs
  - Site Screening Areas
  - Areas of Concern
  - Sites identified in an aerial photography study

NPL STATUS

Will the Base have to clean 140 sites?

- Most SWMUs will be visited by EPA officials to determine those needing cleanup
- Navy can negotiate with EPA on sites requiring cleanup
- Anticipate 50 SWMUs being added to FFA

NPL STATUS

What are pros/cons of NPL?

- Pros
  - EPA adheres to review schedule
  - Dedicated resources at EPA/State
  - Cleanups occur faster
- Cons
  - Potential negative publicity
  - EPA oversees all cleanups
  - EPA signs Record of Decision

NPL STATUS

Summary

- NBN to be "Proposed" in Spring/Summer
- 50 SWMUs added to list of sites needing cleanup
- Being on NPL will provide quicker cleanup of sites

RELATIVE RISK SITE EVALUATION WITHIN THE DEPARTMENT OF DEFENSE

Naval Base, Norfolk Virginia
Restoration Advisory Board Briefing
21 March 96

What is Relative Risk Evaluation?

Definition	The grouping of sites in the Defense Environmental Restoration Program into High, Medium, and Low categories based on an evaluation of site information using three factors: the contaminant hazard, the migration pathway, and the receptors
It is	A common methodology for evaluating the relative risk posed by a site
	A screening tool
	An evolutionary instrument
	A framework for dialogue with stakeholders
It isn't	A way to avoid our legal agreements
	A means of reducing our financial obligations
	An abdication of our cleanup responsibilities
	An absolute assessment of risk
	A substitute for a health assessment

Site Evaluation Framework is a Method for Placing Sites into Relative Risk Categories

It evaluates source, pathway, and receptor relationships in:	**Groundwater (human endpoint)** **Surface water (human and ecological endpoints)** **Sediment (human and ecological endpoints)** **Surface soils (human endpoint)**
Based on:	**Contaminant Hazard Factor (CHF)** ***How high are contaminant concentrations relative to standards?***
	Migration Pathway Factor (MPF) ***Is the contamination moving or likely to move?***
	Receptor Factor (RF) ***Are there humans or sensitive environments affected or potentially affected by the contamination?***

Benefits

Benefits

The framework provides a common approach among DoD components for categorizing sites by relative risk

The most urgent sites are identified so that resources can be focused on higher relative risk projects first

The rating serves as a basis for dialogue with stakeholders on sequencing work at installations

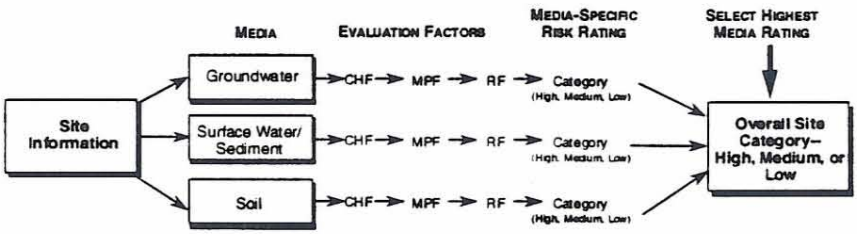
Periodic ratings serve as an indicator of progress in reducing relative risk

Site Evaluation Factor Information for Groundwater

Factor	Rating	Definition
Contaminant Hazard Factor (CHF)*	Significant	Sum of ratios [maximum concentration/standard] > 100
	Moderate	Sum of ratios [maximum concentration/standard] = 2 - 100
	Minimal	Sum of ratios [maximum concentration/standard] < 2
Migration Pathway Factor (MPF)	Evident	Analytical data or observable evidence indicates that contamination in the media is moving away from the source
	Potential	Possibility for contamination to be present at or migrate to a point of exposure; or information is not sufficient to make a determination of Evident or Confined
	Confined	Information indicates that the potential for contaminant migration from the source is limited (due to geological structures or physical controls)
Receptor Factor (RF)	Identified	There is a threatened or potentially threatened water supply downgradient of the source. The groundwater (contaminated or not) is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer)
	Potential	There is no potentially threatened water supply well downgradient of the source. The groundwater is potentially usable for drinking water, irrigation, or agriculture, but is not presently used (equivalent to Class IIB aquifer)
	Limited	There is no potentially threatened water supply well downgradient of the source. The groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only)

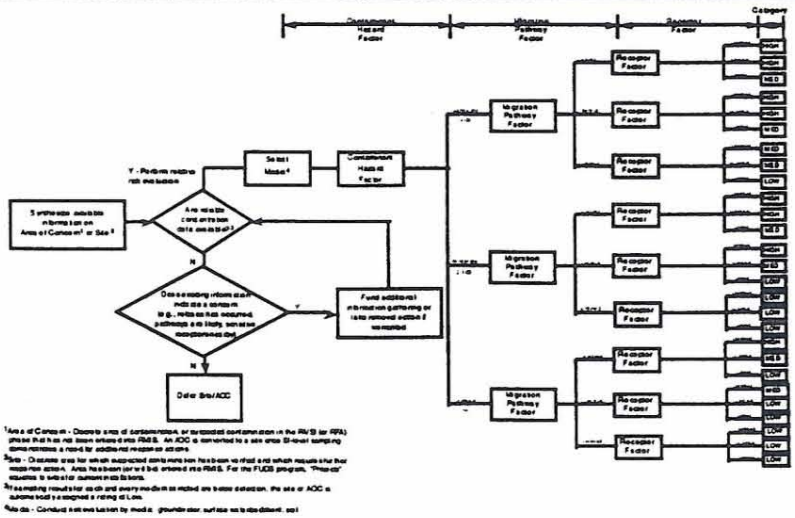
*Evaluate using standards in Appendix B-1

Structure of Relative Risk Evaluation Framework

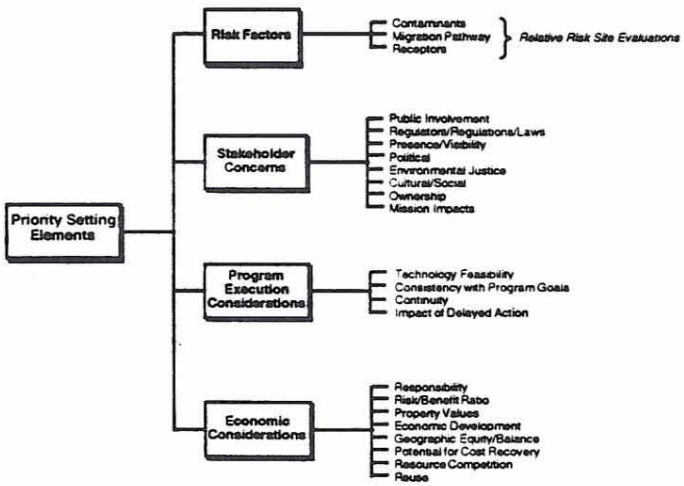


CHF = Contaminant Hazard Factor
MPF = Migration Pathway Factor
RF = Receptor Factor

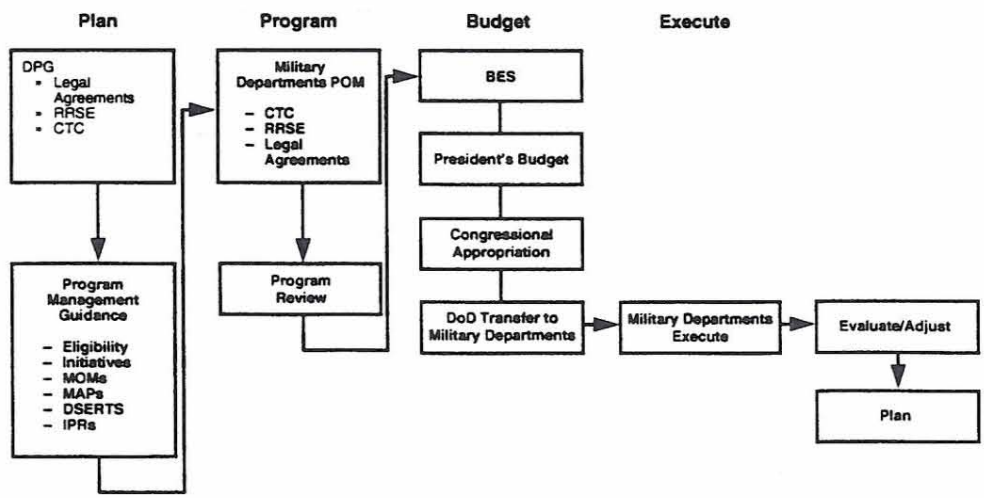
Risk-Based Site Evaluation Framework: Decision Flowchart



Relationship Between Relative Risk Site Evaluations and Other Risk Management Considerations



DERP Planning, Programming, Budgeting, and Execution



Relative Risk Site Evaluation within the Department of Defense Cleanup Program

Outline

- Introduction
  - Origins of relative risk
  - Work group composition and products
- Description of framework
  - What it is and is not
  - Media and factors
  - Documentation
  - Example
  - Benefits
- Use of relative risk in program management
- Detailed descriptions of each relative risk factor

Origin of Relative Risk within DoD

- DoD issued new Management Guidance for DERP on 14 April 1994
- Two new major policies
  - » Restoration Advisory Boards (RABs)
  - » Relative Risk Site Evaluation Concept

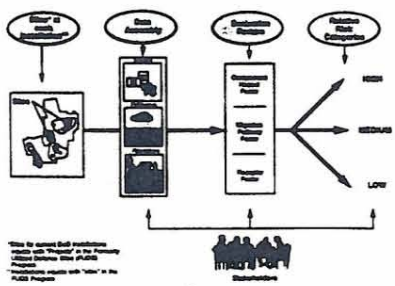
Work Group Participants

- DoD
- Army
  - Army Environmental Center
  - Army Center for Health Promotion and Preventive Medicine
- Navy
  - Chief of Naval Operations
  - HQ Navy Facilities Engineering Command
- Air Force
  - HQ Air Force Environmental Restoration Program Directorate
  - Office of the Deputy Assistant Secretary of the Air Force
  - Air Force Institute of Technology
- FUDS
  - HQ and Omaha District U.S. Army Corps of Engineers (COE)
- Defense Logistics Agency
- HQ Environmental Protection Agency

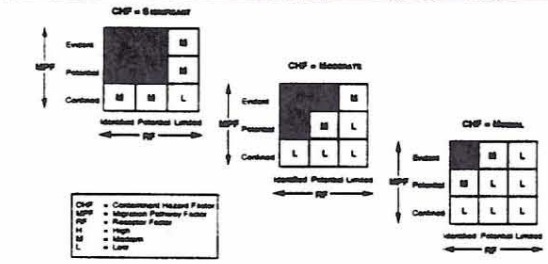
Work Group Products

- Produced the *DoD Relative Risk Site Evaluation Primer*
- Developed *DoD Question and Answer Fact Sheet, Progress Measurement Addendum,* and response to EPA comments
- Produced the *Interservice Relative Risk Site Evaluation Peer Review Report*

Relative Risk Site Evaluation Concept Summary



Relative Risk Site Evaluation Matrix

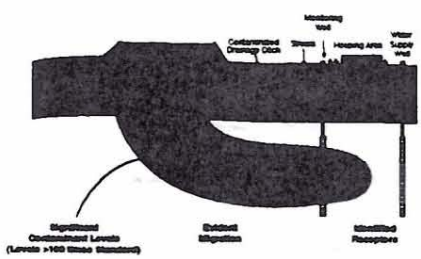


How is Relative Risk Evaluated?

Documentation

- The *Relative Risk Site Evaluation Primer* is the primary source for direction
- The *Relative Risk Evaluation Worksheet* in the Primer is used to record pertinent information on each site that is evaluated
- Instructions in the *Primer* show how to fill out the *Relative Risk Evaluation Worksheet*
- A stand-alone/executable computer program has been developed for conducting relative risk evaluations consistent with the *Primer*
- Stakeholder input is obtained on project evaluations, where possible

Relative Risk Evaluation Example

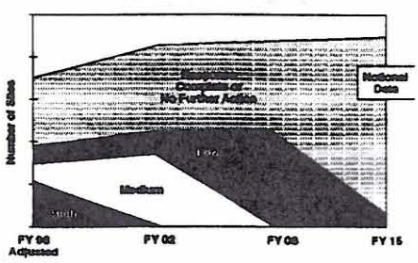


Requirements from Defense Planning Guidance

- Complete relative risk evaluations at every Defense Environmental Restoration Account (DERA) and Base Realignment and Closure (BRAC) site by July 1995
- Implement actions that lower relative risk for all high relative risk sites in the DERA program by the end of FY 2002 or have remedial systems in place where necessary for these sites
- Implement actions that lower relative risk for all medium relative risk sites in the DERA program by the end of FY 2008 or have remedial systems in place where necessary for these sites
- Have remedial systems in place where necessary for all relative risk sites by the end of FY 2015

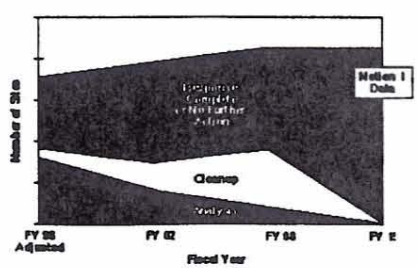
Measure of Merit #1: DERA Site Relative Risk Categorization

"The number of sites classified as high, medium, and low relative risk, and as response complete/no further action required."

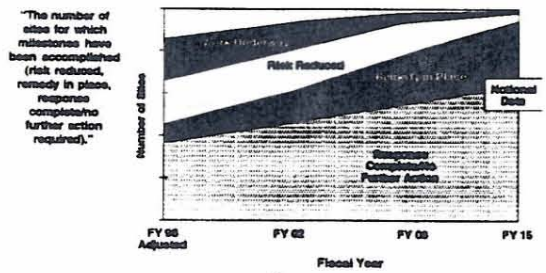


Measure of Merit #2: DERA Site Phase Categorization

"The number of sites in each phase category (analysis, cleanup, or RC/NFA) of the restoration process."



Measure of Merit #3: Relative Risk Reduction and Remedy in Place



Results of Relative Risk Evaluations in DoD

Relative Risk	No. of Sites	
High	3,301	6,456
Medium	1,571	
Low	1,584	
Not Evaluated	3,757	
Total	10,213	

Relative Risk Data Reports to Help Manage Cleanup Program

- Percentage of high, medium, and low relative risk sites in DoD and by service (FY96 baseline and in out years)
- Relative risk occurrences by environmental media (groundwater, surface water, sediment, soil; human and ecological endpoints)
- Relative risk as a function of National Priorities List (NPL) status or regulatory agreement status
- Costs associated with high, medium, and low relative risk sites
- Number of installations with 100 percent high relative risk sites

Relative Risk Data Reports to Help Manage Cleanup Program (Concluded)

- Magnitude of CHF values (<2 to >5000)
- Predominant contaminants across DoD, by service, by installation
- Predominant site types for each relative risk category
- Costs associated with responses at various sites (e.g., specific site types or sites with specific contaminants)
- Other

Contaminant Hazard Factor (CHF)

- Comparison of maximum project contaminant concentrations in each medium to Relative Risk concentration standards

$$CHF = \sum \frac{\text{[maximum concentration of A]}}{\text{Standard for A}}$$

- Three tiers
  - Significant = CHF > 100
  - Moderate = CHF of 2 - 100
  - Minimal = CHF < 2

Standards for CHF Calculation

- Human health
  - Carcinogens = concentration that presents a 1 in 10,000 risk of increased cancer incidence
  - Non-carcinogens = the reference dose (equivalent to Hazard Quotient of 1)
- Ecological
  - Ambient Water Quality Criteria (AWQC) or EPA Lowest Observed Effects Levels in the absence of AWQC
  - Sediment screening criteria from National Oceanic and Atmospheric Administration (NOAA)

Appendix B-1: Concentration Standards (For Human Endpoints)

- Apply to water and soil media
- Used in conjunction with potential or actual human exposures
- Derived from EPA Region IX Preliminary Remediation Goals (PRGs) with exception of military materials and radionuclides
- Military Materials standards are taken from [place holder for Army Report/citation]
- Radionuclide standards ("benchmarks") are taken from EPA's Superfund Chemical Data Matrix (SCDM) maintained as part of the Hazard Ranking System and from Argonne National Laboratory [place holder for citation]

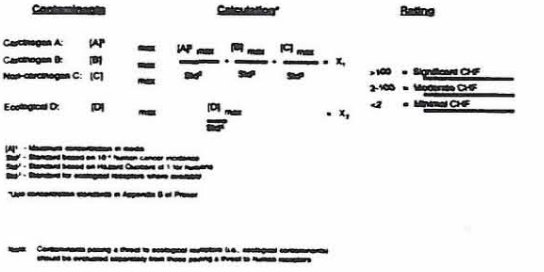
Appendix B-2: Concentration Standards (Ecological Endpoint)

- Apply to surface water medium
- Used in conjunction with potential or actual ecological exposures
- Based on Aquatic Water Quality Criteria or the Lowest Observed Effects Level
- Fresh water and marine (use appropriate column)

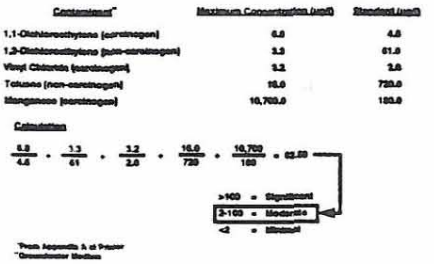
Appendix B-3: Concentration Standards (Ecological Endpoint)

- Apply to sediment medium
- Used in conjunction with potential or actual ecological exposures
- Based on NOAA Sediment Screening Values
- Values used represent concentrations that produced response effects in less than 5% of the observations

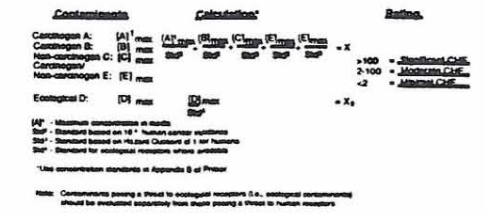
Mechanics of the CHF Calculation



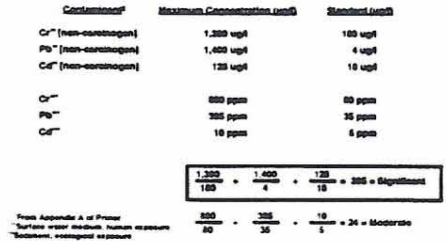
Mechanics of the CHF Calculation—Example*



Mechanics of the CHF Calculation for Substances with both Carcinogenic and Non-Carcinogenic Effects

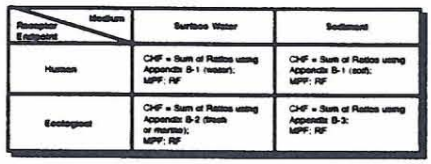


Mechanics of the CHF Calculation—Example 2*



Mechanics of Surface Water/Sediment Evaluation

- Summary of Relative Risk Evaluation possibilities



- Evaluate separately; take highest rating

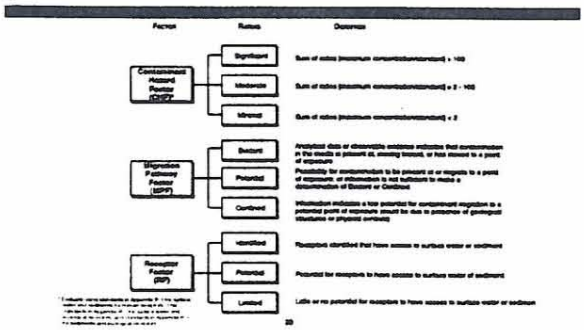
Migration Pathway Factor (MPF)

- Each media pathway evaluated (groundwater, surface water/sediment, soil)
- Three tiers
  - *Evident*: Contamination in media moving away from source
  - *Potential*: Contamination in media could move downgradient; or information not sufficient to make determination of Evident or Confined
  - *Confined*: Potential for contaminant migration from source is limited due to geological structures or physical controls
- Opportunity for input from regulators and community

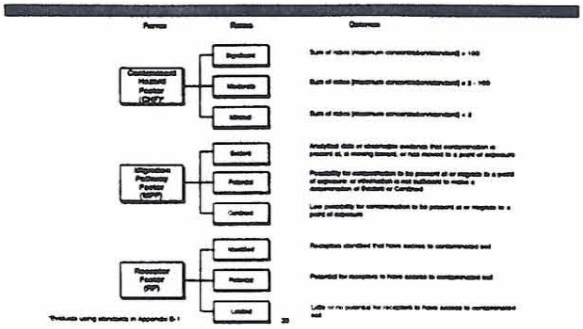
Receptor Factor

- Receptors (human or sensitive ecological species/environments) evaluated for each media
- Three tiers
  - *Identified*: Receptors are threatened or have access to potentially contaminated media
  - *Potential*: Receptors are not threatened but have potential access to media of concern
  - *Limited*: Receptors are not threatened or have little or no access to potentially contaminated media
- Opportunity for input from regulators and community

Site Evaluation Factor Information for Surface Water/Sediment



Site Evaluation Factor Information for Soils



RELATIVE RISK SITE EVALUATION WITHIN THE DEPARTMENT OF DEFENSE

Naval Base, Norfolk Virginia
Restoration Advisory Board Briefing
21 March 96

1

Relative Risk Ranking
- DEFINITION

Definition	The grouping of all sites in the Department of Defense into High, Medium, and Low categories based on an evaluation of site information using three factors: the contaminant hazard, the migration pathway, and the receptors
It is	A standard method for evaluating the relative risk posed by a site
	A screening tool
	A framework for dialogue with stakeholders
It isn't	A way to avoid our legal requirements
	A means of reducing our financial obligations
	A way to avoid cleanup
	An absolute assessment of risk

2

Relative Risk Ranking
-METHODOLOGY

It evaluates source, pathway, and receptor relationships in:

Groundwater (human endpoint)
Surface water (human and ecological endpoints)
Sediment (human and ecological endpoints)
Surface soils (human endpoint)

Based on:

1. **Contaminant Hazard Factor (CHF)**
   How high are contaminant concentrations relative to standards?

2. **Migration Pathway Factor (MPF)**
   Is the contamination moving or likely to move?

3. **Receptor Factor (RF)**
   Are there humans or sensitive environments affected or potentially affected by the contamination?

Relative Risk Ranking
-Matrix -Groundwater Example

Factor	Rating	Definition
Contaminant Hazard Factor (CHF)*	Significant	Sum of ratios [maximum concentration/standard] > 100
	Moderate	Sum of ratios [maximum concentration/standard] = 2 - 100
	Minimal	Sum of ratios [maximum concentration/standard] < 2
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Receptor Factor (RF)	Identified	There is a threatened or potentially threatened water supply downgradient of the source. The groundwater (contaminated or not) is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer)
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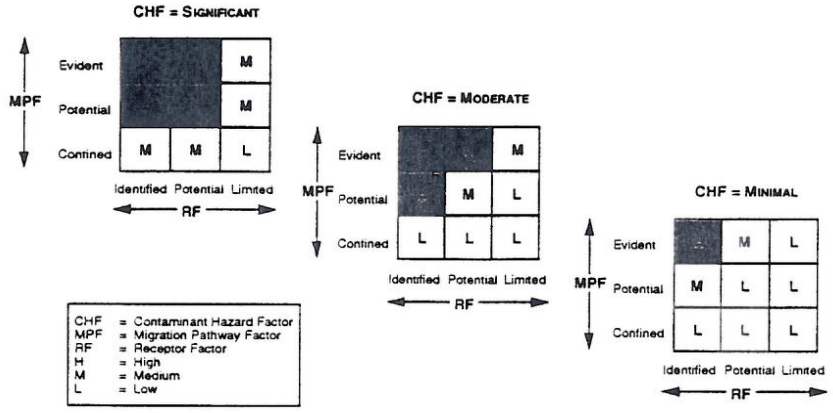
*Evaluate using standards in Appendix B-1

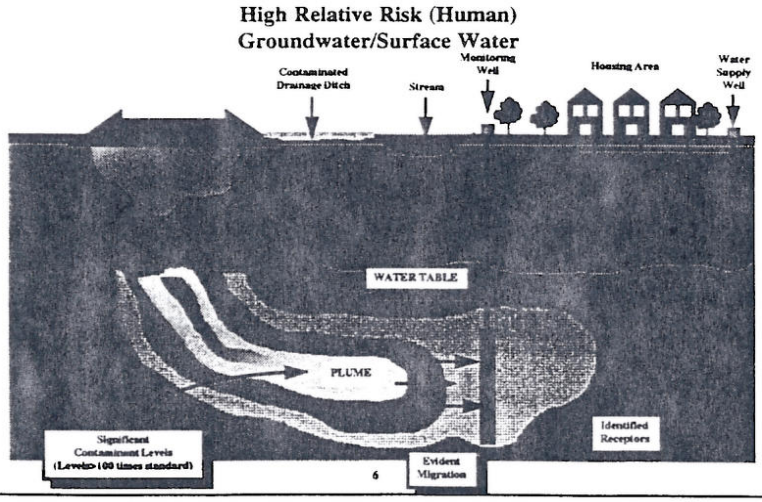
Relative Risk Ranking

-Evaluation Matrix



Relative Risk Ranking

-Evaluation Example



NAVY ENVIRONMENTAL BUDGET PROCESS

Naval Base, Norfolk Virginia
Restoration Advisory Board Briefing
21 March 96

DERA BUDGET PROCESS

-Planning Guidance

- Definition: **DERA** - Defense Environmental Restoration Account

➡ Complete relative risk evaluations at every Defense Environmental Restoration Account (DERA) and Base Realignment and Closure (BRAC) site by July 1995

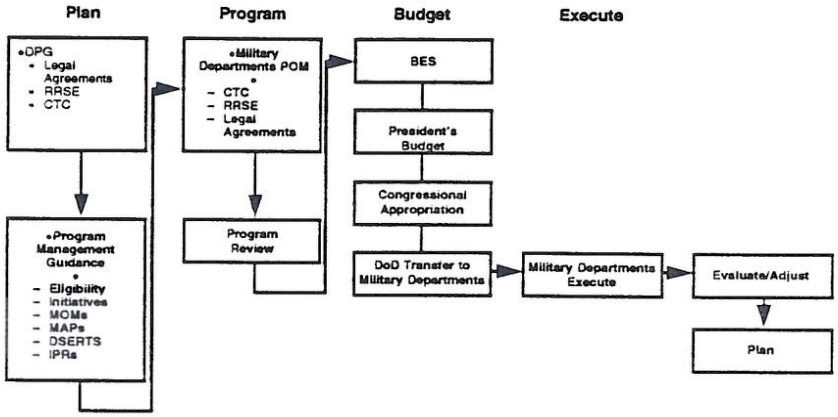
➡ Implement actions that lower relative risk for all high relative risk sites in the DERA program by the end of FY 2002 or have remedial systems in place where necessary for these sites

➡ Implement actions that lower relative risk for all medium relative risk sites in the DERA program by the end of FY 2008 or have remedial systems in place where necessary for these sites

➡ Have remedial systems in place where necessary for all relative risk sites by the end of FY 2015

BUDGET PROCESS

-DERP Planning, Programming, Budgeting, and Execution

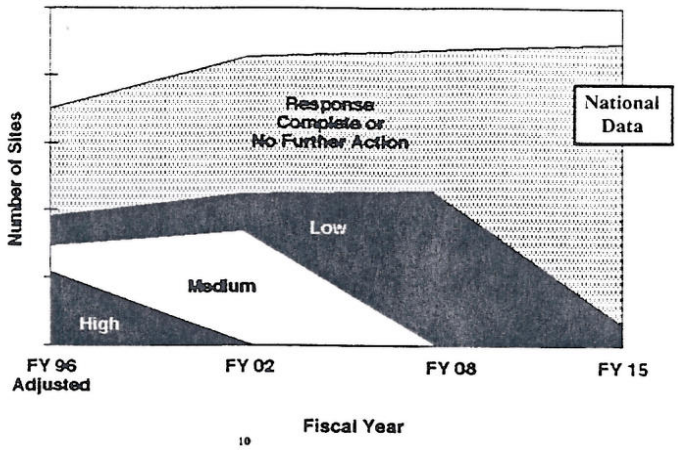


9

BUDGET PROCESS

-DERA Site Relative Risk Categorization

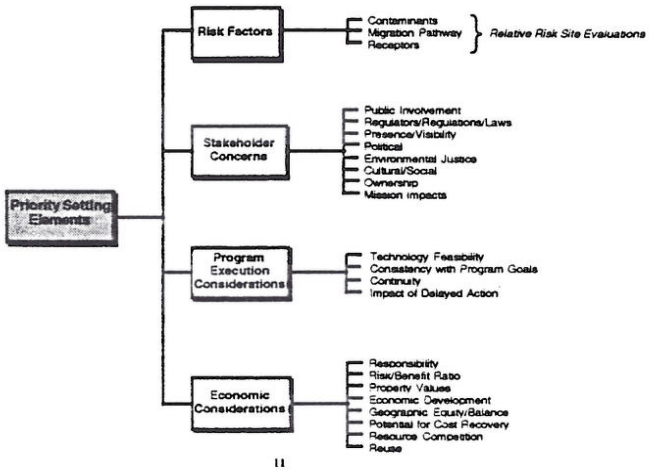
"The number of sites classified as high, medium, and low relative risk, and as response complete/no further action required."



10

BUDGET PROCESS

-Risk Management Considerations



NAVAL BASE SPENDING

- **1994** Spending ($7,715,426)

  Construction ($6,975,403)
  Study/Design ($740,023)

- **1995** Spending ($1,013,666)

- **1996** Spending Planned ($3,626,553)

BUDGET PROCESS

-Risk Results in DOD

Relative Risk	No. of Sites	
High	3,301	6,456
Medium	1,571	
Low	1,584	
Not Evaluated	3,757	
Total	10,213	

Defense Budget Process
Glossary of Terms

Acronym	Full Name
LANTDIV	Atlantic Divison of the Naval Facilities Engineering Command
EPA	Environmental Protection Agency of the United States
VDEQ	Virginia Department of Environmental Quality
DOD	Department of Defense
RRR	Relative Risk Ranking
DPG	Defense Planning Guidance (To be used to develop budget)
RRSE	Relative Risk Site Evaluation
CTC	Cost to Complete (Cost Estimate to Investigation and Cleanup)
MOMs	Measure of Merits (Special Individual Programs)
MAPs	Management Action Plans (Programs across several bases)
DSERTS	Defense Site Environmental Tracking System (System for tracking cleanup progress)
IPRs	In-Progress Reviews
BES	Budget Execution Summary

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