

Headquarters U.S. Air Force

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EXIT STRATEGY

***Developed by AFCEE
for the Defense
Logistics Agency***



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Overview

- **Developing Trends in Restoration**
- **Purpose of the Exit Strategy**
- **Elements of the Exit Strategy**
- **Example of an Exit Strategy**



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ENVIRONMENTAL LIABILITY INCREASES

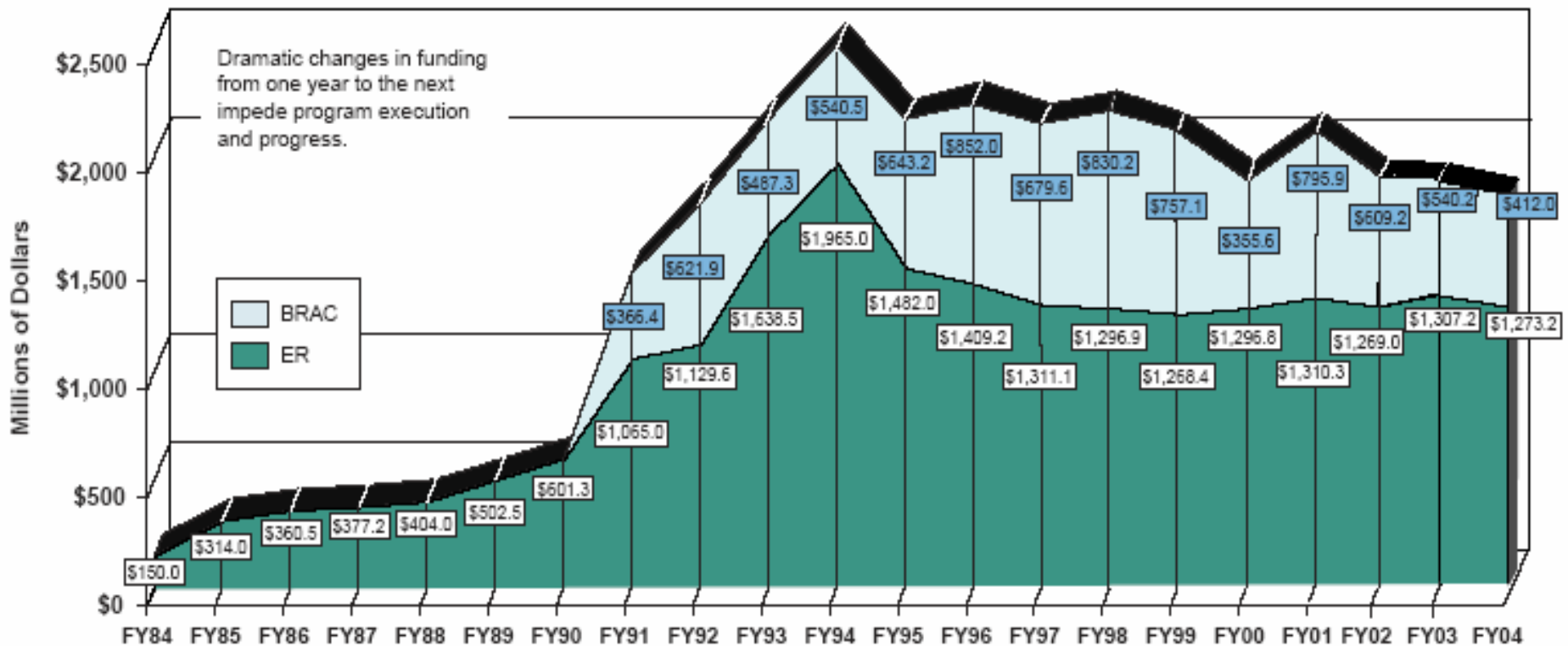
- **More sites are identified and ‘new’ contaminants are added to the list for investigation**
- **Addition of sites often exceeds removal of sites**
 - **Cleanup goals at many sites are unrealistic and not related to protectiveness**
 - **Cleanup time at many sites extends into decades**



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AVERAGE FUNDS AVAILABLE PER SITE IS DECREASING

DoD Active and BRAC Funding Trends



Exit Strategies Will Be Necessary to Overcome These Future Challenges

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PURPOSE OF EXIT STRATEGY

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- **Identify and implement a clearly-definable and achievable path to response-complete status**
- **Reduce and effectively manage environmental response liabilities**





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DEFINITION OF EXIT STRATEGY

- **Systematic and dynamic plan developed with stakeholders input**
 - **Accomplish specific cleanup goals within a defined time period**
 - **Define performance goals & performance metrics that will be used to evaluate the response action over time**
 - **Use decision logic to describe how progress toward performance goals will be pursued (triggers)**
 - **Specify contingency/alternative actions if performance fails to meet expectations**



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ELEMENTS OF EXIT STRATEGY

- A conceptual site model [**CSM**] of sufficient accuracy for decision making
- A summary of the technical, legal, and regulatory basis of the cleanup goals (i.e., ARARs)
- Remediation components based on established technology benchmarks
- The estimated time and cost required to achieve cleanup goals



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ELEMENTS OF EXIT STRATEGY

Continued

- A monitoring plan specifying **performance metrics** for implemented remedies
- A summary of the **decision logic** to be used to achieve and document response complete in the specified timeframe
- **Alternative actions** that will be taken (per decision logic) based on performance metric data



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ARCTIC SURPLUS SALVAGE YARD EXAMPLE

- **Updated CSM and RA strategy to include UXO and low radiation waste cleanup.**
- **Exit Strategy was based on defined problem/objectives:**
 - **Performance goals set for soils, UXO and radiation wastes**
 - **Demonstrate attainment of cleanup goals per agreement**
 - **Optimize landfill and groundwater LTM**
 - **Initiate NPL delisting (completion by Sept 2005)**
 - **Revise RA strategy to achieve cleanup in < 2 years vs. 3-4 years.**
- **Soil cleanup completed in < 7 months**



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IMPORTANCE OF CONCEPTUAL SITE MODEL AND CLEANUP GOALS

- **CSM represents current understanding of contaminants and site conditions**
 - **Source and transport mechanisms of contaminants**
 - **Pathways of exposure**
 - **Exposed receptors**

- **CSM is the technical foundation for developing remedial alternatives and cleanup goals**



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SELECTION OF CLEANUP GOALS

■ **Cleanup goals should be**

- **Necessary** to protect human health and the environment
- **Practicable** (cost effective, not harmful, timely)
- **Measurable**





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USE DECISION LOGIC TO ADDRESS UNCERTAINTIES

- Develop decision logic diagrams to conceptualize **alternative strategies**
- Decision diagrams should be **dynamic** to incorporate **new information** as it becomes available
- Must include **key decision criteria** to “activate” alternative course of action (triggers)



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ARAR ANALYSIS IS INTEGRAL

- **ARARs help to define the necessary and practicable cleanup goals**
- **ARARs may change as site knowledge improves**
- **ARARs should be revisited during routine performance checks (i.e., Five-Year Reviews) to verify their appropriateness to the cleanup process**



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REMEDY SELECTION SHOULD BE CONSIDERED THROUGHOUT

- **Cleanup goals drive *remedy selection***
- **Remedy selection drives response complete and the *cleanup timeframe***
- **Remedies with long-term or indefinite cleanup times compromise response complete and DoD environmental liability**
- **A cleanup time of <10 years reduces DoD environmental liabilities**



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DEFINE PERFORMANCE MONITORING EARLY AND TRACK RESULTS

- **Purpose - verify that a remedy:**
 - is performing as designed
 - will achieve cleanup in <10 years
 - is achieving protectiveness



- **Performance metrics must be established during the design phase**
- **Actual performance is compared with metrics**
- **Annual detailed review of performance is recommended**



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PREPARE FOR ALTERNATIVE ACTIONS

- **Alternative actions (i.e., contingencies) are required when the **remedy fails** to meet protectiveness or cleanup time**

- **Alternative actions may include:**
 - **Optimization** of the existing remedial system
 - **Replacement** with another technology
 - **Revision** of cleanup goals



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SUMMARY OF EXIT STRATEGY

- The **CSM** will serve as the basis for making and improving response decisions and will be updated annually
- Performance expectations and goals are to be **periodically evaluated** (i.e., refined ARAR analysis)
- Remedies must be designed to support a response complete determination



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SUMMARY OF EXIT STRATEGY - concluded

- **Develop a remedy performance monitoring plan based on **performance metrics** - periodically validate the decision logic (annual review)**
 - **Clearly identify the objectives and metrics to support a response-complete determination**
 - **Clearly identify points of compliance and procedure to demonstrate attainment of goals**
- **Failure to meet a **performance metric** shall trigger an evaluation of alternative actions**
- **Select and implement and **alternative** that meets the requirement**



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QUESTIONS?