



Navy Optimization Strategy

Richard G. Mach Jr., P.E.



**“Our Goal is to
Achieve
Environmentally
Protective Site Close-
Outs At Least Cost.”**

-The Honorable Robert B. Pirie, Jr.
Former Assistant Secretary of the
Navy Installation and Environment

December 3, 1996

BUZZ WORDS/ACRONYMS – Past and Present



- **SACM**
- **DPGs**
- **Triad**
- **Optimization**
- **Streamlined**
- **Metrics**
- **Performance based**
- **Risk Based**
- **Cost effective**
- **Better, Faster, Cheaper**
- **Execution goals**

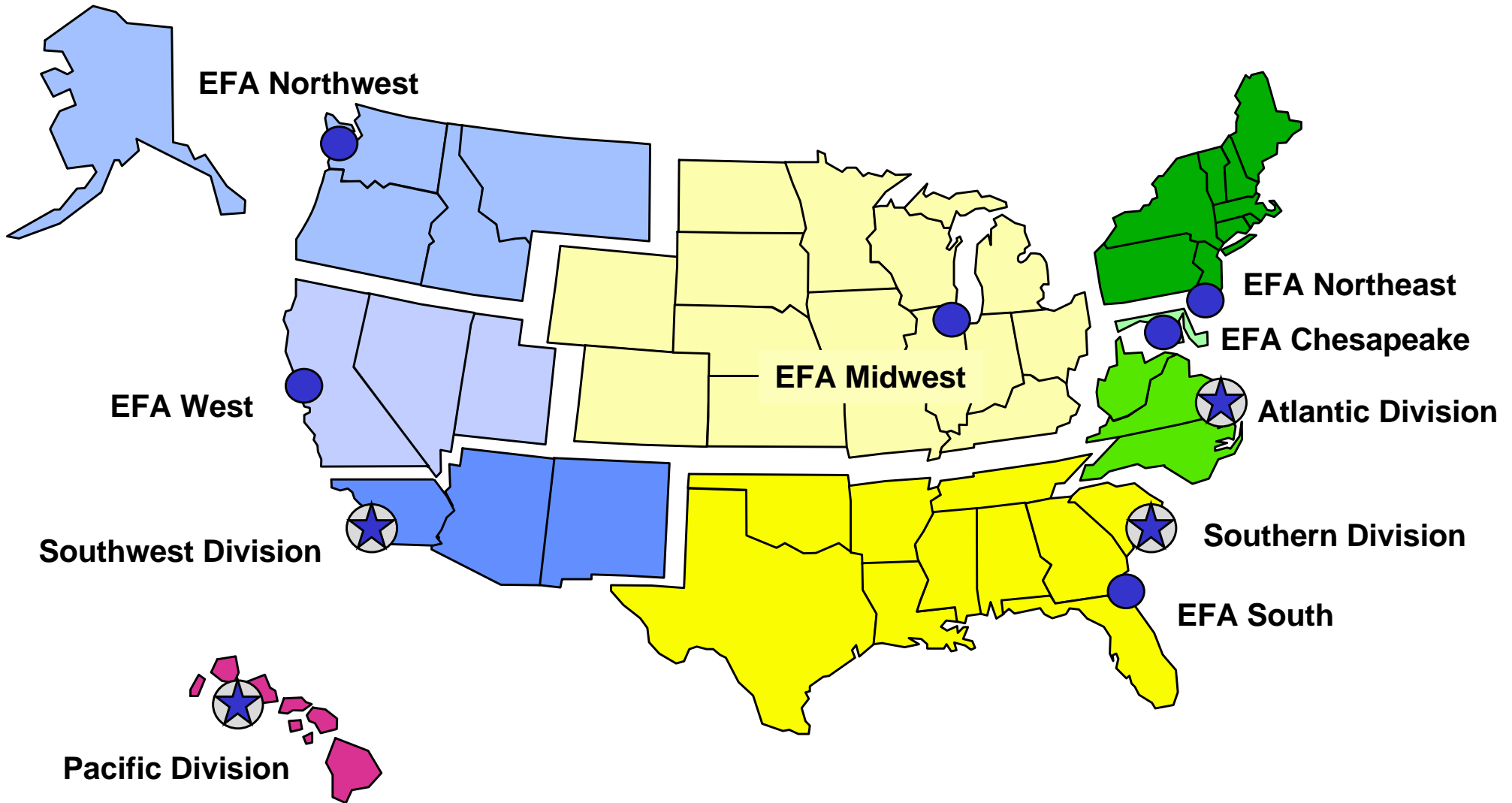
- **September 2001**
- **Optimization requirements apply to all environmental restoration response actions**
- **DoD Components should continually evaluate implemented remedies**
 - **Optimizing overall performance and effectiveness**
 - **Controlling O&M costs during the RAO phase**
 - **Assessing the need for further remediation at a site**
 - **Determining if a different remediation goal is needed**
 - **Determining if an alternative technology or approach is more appropriate**

DON Cleanup Execution Players

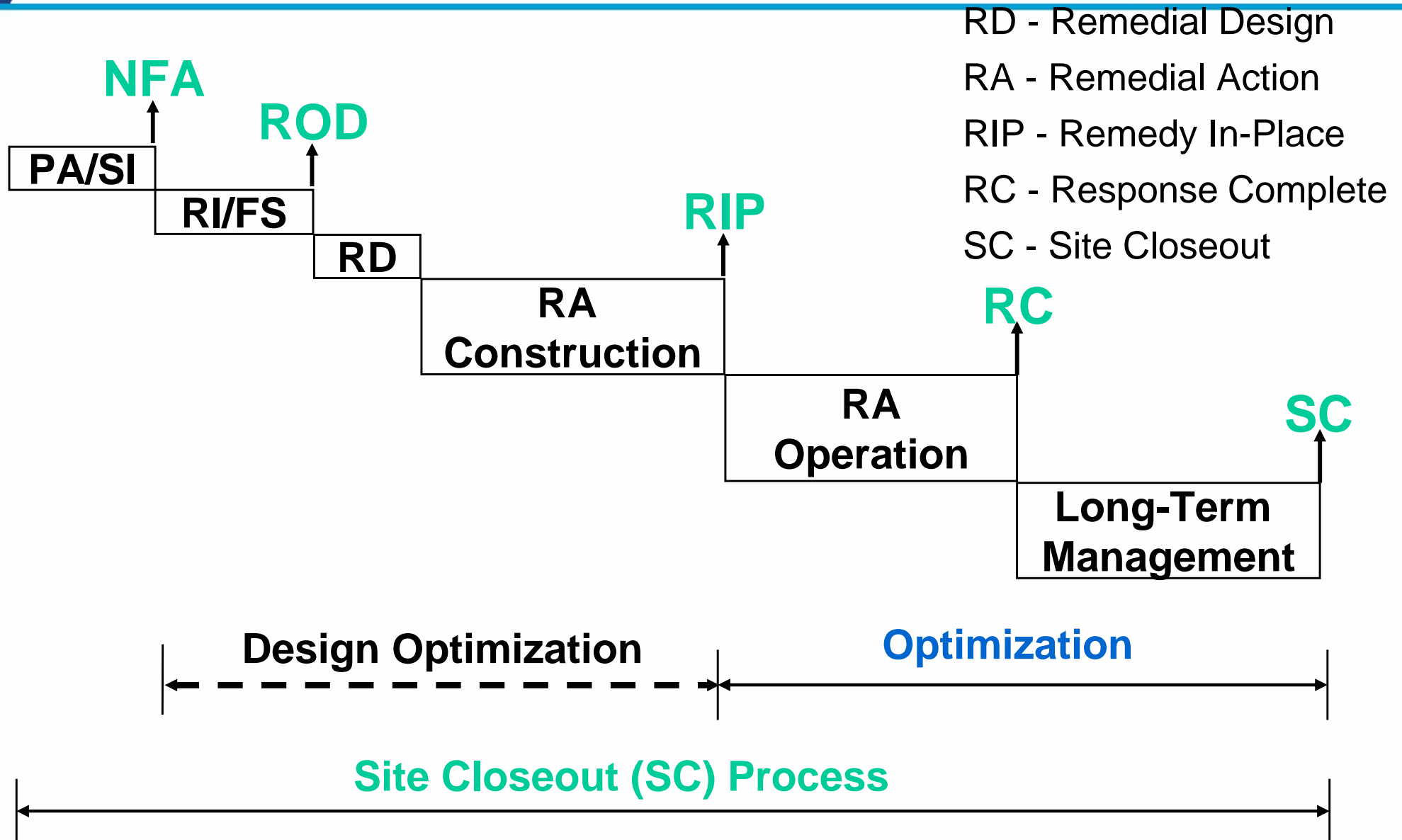


- **Assistant Secretary of the Navy**
- **Chief of Naval Operations**
- **Naval Facilities Engineering Command, HQ**
- **Engineering Field Divisions/Activities**
- **Activities**

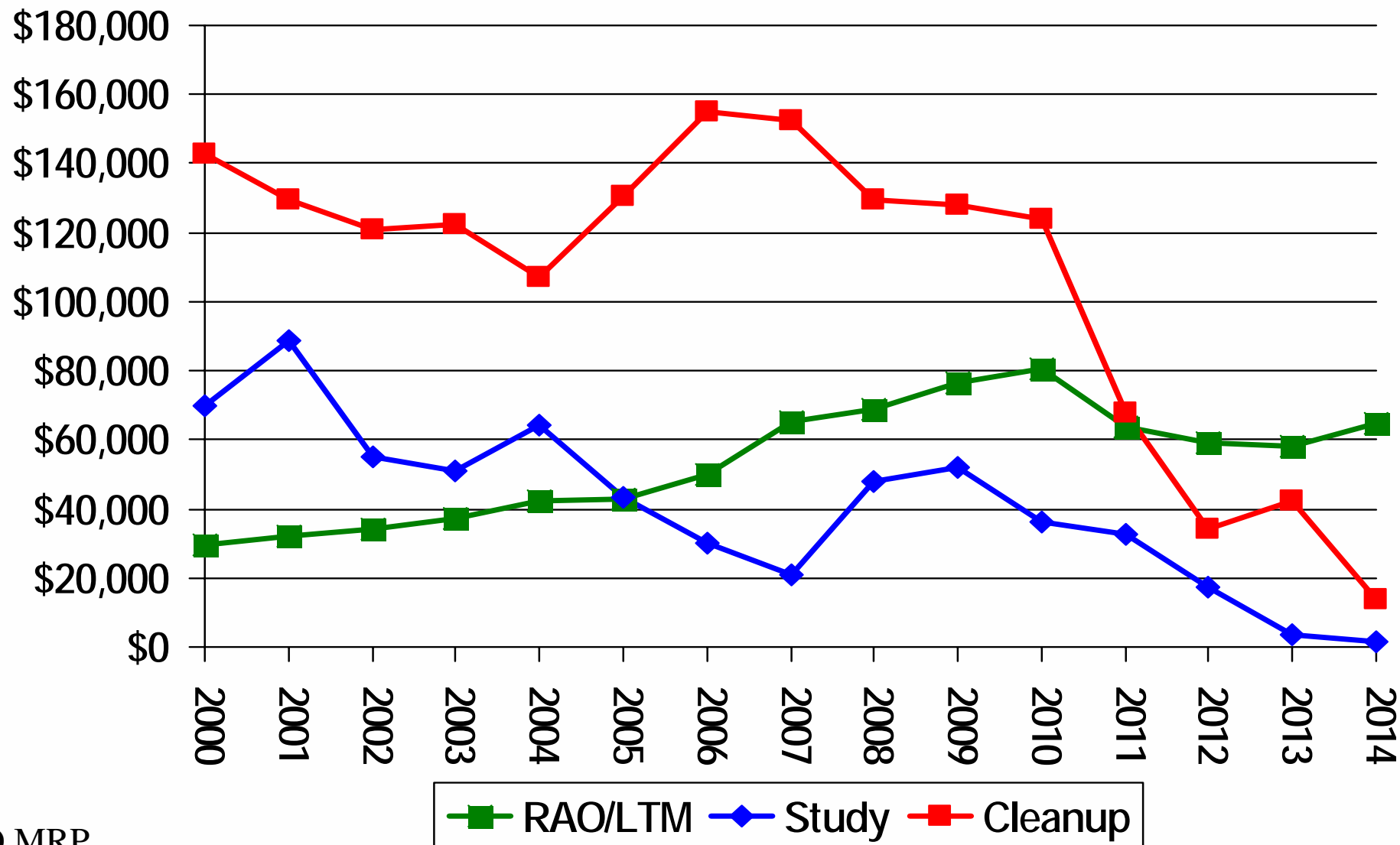
Naval Facilities Engineering Command



Environmental Restoration Process Phases



ER,N FUNDING FOR STUDY/CLEANUP/LTM-LTO



NO MRP

DON Optimization Policy



- **April 2004**
- **Required by NAVFAC for all remediation response actions**
 - Started with top 20% most costly operating remediation systems in FY-03 Spring budget guidance
 - Requirement to use three NAVFAC Optimization Guidance Docs
 - Requires HQ approval for all new P&T systems
- **3rd Party Evaluation**
 - In-House Technical Support or Independent Contractor
- **Track progress within NORM**
 - Recommendations from optimization study
 - Implemented Strategies
 - Results
 - Cost Savings

- **Navy Guidance for Optimizing Remedial Action Operation (RAO), April 2001**

- **Navy Guide to Optimal Groundwater Monitoring, January 2000**

Navy Guidance for Optimizing Remedy Evaluation, Selection and Design, April 2004

Applicability to Cleanup Phases



- **Feasibility Study and/or Engineering Evaluation/Cost Analysis**
- **Record of Decision and/or Action Memorandum (Remedy Selection)**
- **Remedial Design**
- **Remedial and/or Removal Action Construction**
- **Remedial/Removal Action Operation**
- **Long Term Management**

New P&T Requirements



Any plans to install new pump and treat systems on Navy and Marine Corps installations requires approval from Headquarters (HQ) at the Naval Facilities Engineering Command (NAVFAC). This requirement applies to all “pump and treat” systems (remedial and removal actions) where groundwater is removed from the subsurface by pumping or other means, treated above ground in any way, and discharged in any way (i.e. off site disposal, sewer systems, re-injected, etc.). In order to receive the NAVFAC HQ approval, the IR Manager shall forward a summary of the site background, the conceptual site model (CSM), the remedial action objectives, a listing of the technologies screened for the site, a summary of the alternatives analysis, and a statement of why “pump and treat” is the most appropriate technology to be used at the site, including a life cycle cost analysis (net present value and total site cost) and exit strategy. NAVFAC HQ will provide a written approval/dis-approval response to the IR Manager based on review of this submittal.



Optimization View



Round:

1

Phase:

2

Study Name:

NFESC Tiger Team

Study Description Details:

text here

Save

Cancel

Study End Date:

1/1/2001

Study Cost in Dollars:

\$111

Implementation Cost

\$111

Implementation Type

Actual

Potential Cost Avoid:

\$111

Act Cost Avoid:

\$111

Persons of Contact:

Name	Phone	Email
▶ name her	202 685-9328	email@here.mil

Add New

Edit

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Recommendations of Study:

recommendations here

Actions Taken on Recommendations:

actions take here

RAO/LTMgt Optimization Workgroup Members



- Tanwir Chaudhry
- Kelly Dreyer
- Jeff Dale
- Karla Harre
- Richard Mach
- Mike Maughon
- Bob McGee
- Michael Pound
- Joe Rail
- Teresa Thomas
- Michelle Yoshioka

NFESC (Intergraph)
USMC HQ
EFANE
NFESC
NAVFAC HQ
EFDSOUTH
EFDLANT
EFDSW
EFANE
EFANW
EFD PAC

Department of Navy BRAC Environmental Program Cost to Complete Validation

July 2002

PROBLEM



- Scope Growth (Cleanup and Reuse)
- CTC cost growth from fall 01 to spring 02.
- Increase and changing cost of BRAC environmental estimates has resulted in:
 - Loss of credibility in the Budget/POM process
 - Uncoordinated execution goals and transfer efforts
- Questions regarding what is needed to complete the BRAC program.

PLAN OF ACTION

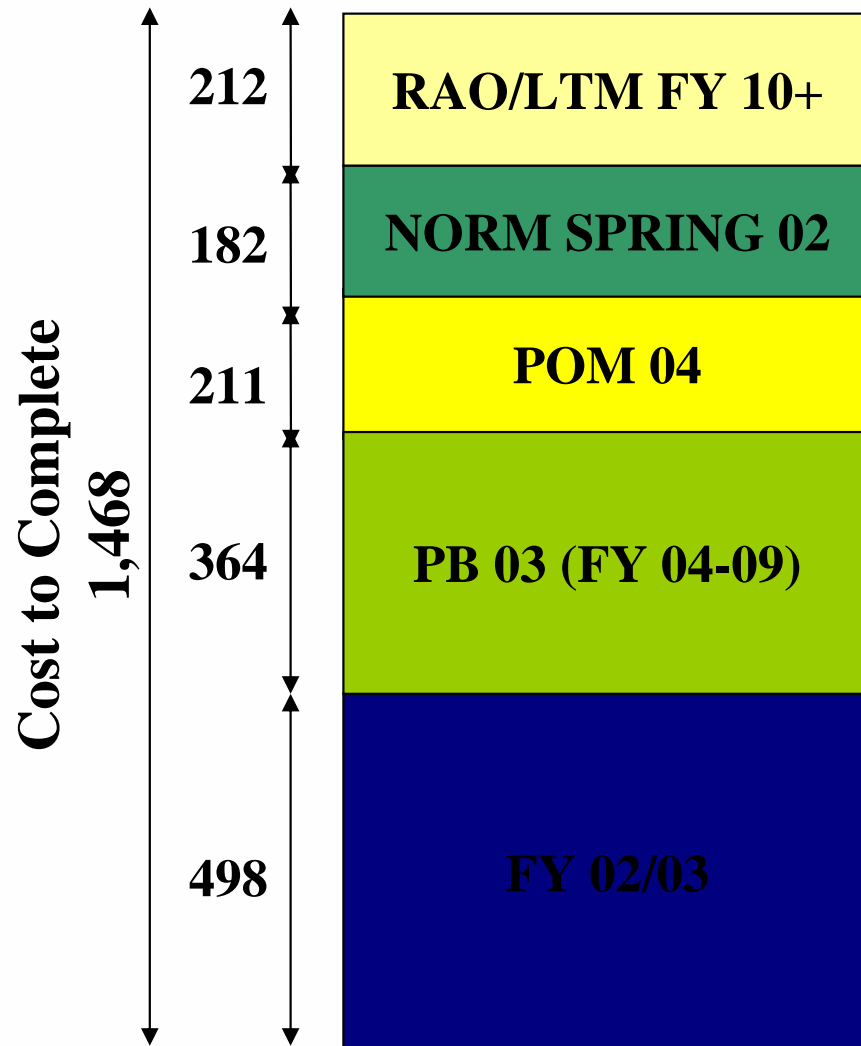


- Stand down – Scrub the CTC
- Letter to EFD/As
 - Guidance (conference call)
 - Spreadsheets
- EFD/As submit basis for estimates and certify cost to HQ
- Technical Peer Review Team Q&As
- VTCs with EFD/As
- Follow-up Q&As
- Resolve differences and certify scope/cost

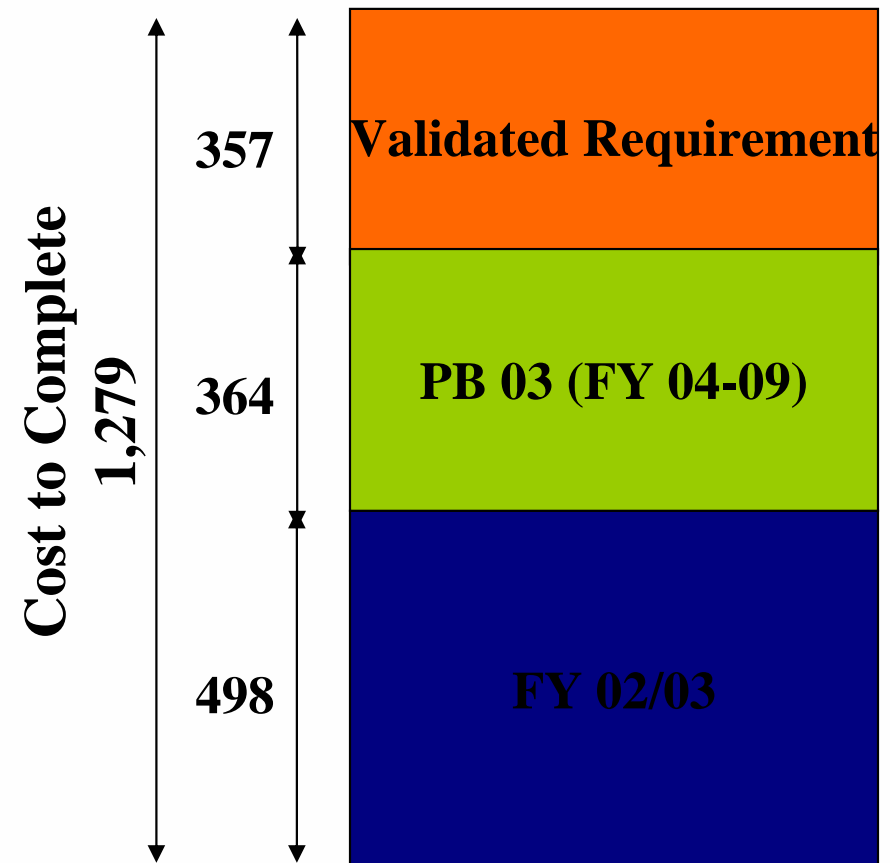
Validation of Cleanup Program CTC



Before



After



Net Change ↓ \$ 189 mil

PEER REVIEW TEAM



- HQ Management
 - Brian Harrison, P.E.
 - Bill Judkins, P.E.
- Early Transfer Hub
 - David Criswell, P.E.
 - Cliff Casey, P.E.
- Technical Personnel
 - SOUTHDIV – Mike Maughon, P.E.
 - LANTDIV – Mark Barnes, P.E.
 - Headquarters
 - Richard Mach, P.E.
 - Rob Sadorra, P.E.
- Contractor Support - Ensafe

Department of Navy ER,N Program Cost to Complete Validation

February 2004

ER,N CTC Validation Objectives (FY-04)



- **Validate**
 - cleanup requirements
 - strategies and technologies
 - associated cost
- **Goal - ID CTC Cost avoidance through Optimization (EOY FY 03 baseline)**
 - 8% initially
 - 2% in the following 2 years
- **Provide technical review and assistance in overall cleanup approach**
- **Identify departures from strict risk and regulations based cleanup**

VALIDATION PROCESS



- 1. Selected 220 of the highest CTC sites**
 - Highest 15% of all ER,N program sites
 - Represents sites with CTC of \$ 3 M and greater
 - Represents 67% of total ER,N program CTC
- 2. Distributed questionnaire in a standard template for submittal**
- 3. Selected Review Team Members**
- 4. Established interactive web-based document repository for Team and RPM collaboration**

VALIDATION PROCESS, cont.



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Project Documents

!

 Too much or not enough information submitted to make an assessment at this time. Please resubmit concise information and be prepared to discuss during VTC.

☎

 Information provided is sufficient, but questions have been raised regarding approach and/or CTC. Please be prepared to discuss in VTC.

?

 Early-phase site with little data to support remediation strategy or CTC. Spring Budget Guidance will outline the procedures for CTC Revisions.

✓

 Approach and cost appear reasonable. No further discussion at this time.

🔄

 Optimization in process or required - Site deferred until optimization complete.

👤

 Questions, but only minor and can be deferred for now.

* Status Changed

Home :

Folders	Replies/Documents	Documents	Comments	Focus Site	Print Comments
WEST	(8)/(5)	(15)	(52)	Yes(24)/No(17)	
CHES	(8)/(0)	(13)	(83)	Yes(27)/No(44)	
LANT	(19)/(12)	(77)	(305)	Yes(189)/No(82)	
NORTH	(15)/(12)	(84)	(200)	Yes(133)/No(50)	
NWEST	(1)/(0)	(35)	(70)	Yes(52)/No(16)	
PAC	(24)/(16)	(86)	(234)	Yes(134)/No(65)	
SOUTH	(49)/(0)	(54)	(256)	Yes(122)/No(80)	
SWEST	(47)/(6)	(81)	(329)	Yes(195)/No(81)	

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VALIDATION PROCESS, cont.



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creative thinking. custom solutions.
client gateway

ERNA/CTC Review Team Extranet

Projects: ERN/CTC Review

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2183-BARSTOW CA MCLB-SITE 00038 Information

Return to Documents

		2183_Barstow Backup_038.doc	12/16/2003
		2183_Barstow_038.doc	12/16/2003

Print All Comments

- Mike M
\$16.8M CTC appears excessive for site with max conc of TCE = 422 ppb, PCE = 17 ppb, and where AS/SVE for source reduction is only system being operated. 5-year review indicates AS/SVE now being operated in pulse-mode so source reduction apparently successful. Suggest considering removing stand-by Pump and Treat system at boundary if monitoring data indicates plume is stable/decreasing. Also suggest assessing natural attenuation capacity (NAC) of aquifer and plan to phase out operation of AS/SVE as source area concs decrease to levels within NAC.

- Mach
Agree with Maughon. Also, should look at hot spot (if you can call it that) treatment with ZVI and use the NAS software. Response to TCE MCL provided in Site 37 comment. Plan to discuss optimization efforts on VTC.

follow-up - rob
agree, need to look at optimization plan

- Deb F
Agree.

- CAzuma
Concur with comments.

- Lawrence
Agree optimization plan needs to be revisited.

Additional Info - Kim
Again, sorry for the delay in responding. The CTC here also reflects the ROD's 30 year cleanup at what is required to complete our obligations under the ROD. Groundwater in this area moves at about 2-3feet/year. We just completed the treatability study in the Nebo North area for the AS/SVE that is to be installed per the ROD. They found high soil vapor concentrations (~1mil ppbv) of PCE in the source area. They also found concentrations at MCL in one of their deepest groundwater samples. There are also some clay layers effecting the distribution. We still need to design and install the entire system - once done we'll be operating two full systems. The groundwater is shallower in Nebo North (35-55bgs), so a permeable barrier wall may be more of a candidate

VALIDATION PROCESS, cont.



5. Team selected sites for further discussion, based on:

- Level of information submitted
- Strength of cleanup approach assumptions
- Strength of technologies selected
- Consistency of cost
- Other concerns (i.e. ER,N eligibility)
- 152 sites slated for further discussions with RPMs/Managers

6. Team and RPM conferences

In discussions, sites were classified in 1 of 4 categories:

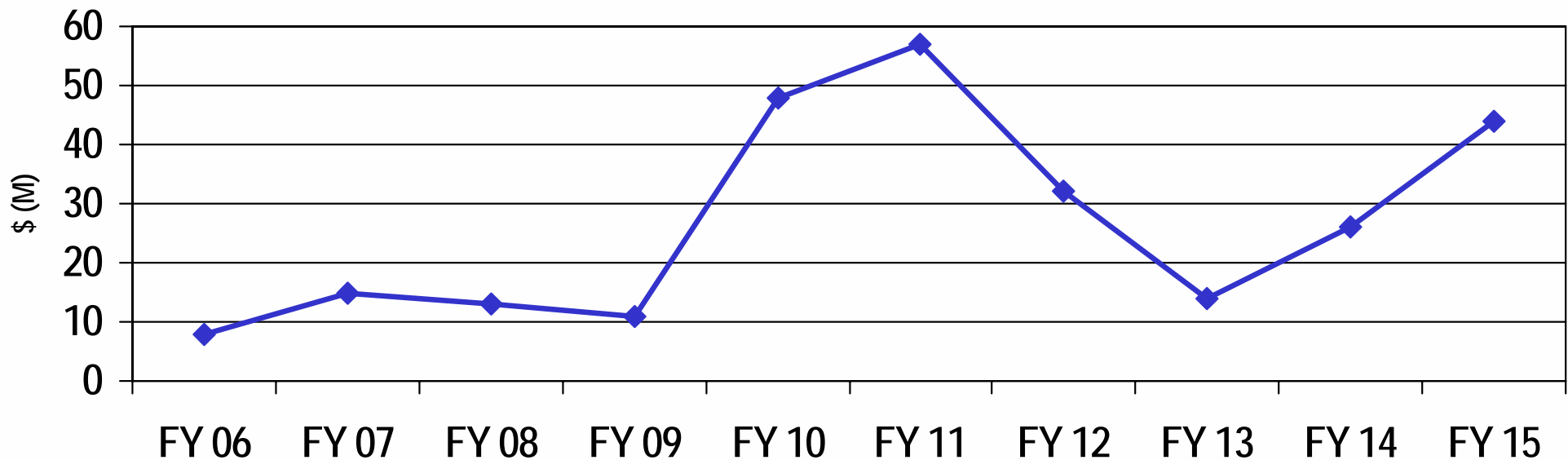
- **(Cat. 1)** - No change in site strategy or cost necessary
- **(Cat. 2)** - Team and RPM agree CTC may not be up-to-date or may be overly conservative, and can be revised immediately
- **(Cat. 3)** - Early Phase Site: uncertain, but probable/less conservative CTC should be considered in future
- **(Cat. 4)** - Mature Site: could benefit from further RPM review, optimization study or Tiger team review
- Also identified some sites with apparent potential cost growth, or other issues (i.e. MRP policy, ER,N eligibility issues, etc.)

RESULTS – Category 2



- Immediate savings achieved in our category 2 sites
 - \$271 M savings FY 05 and out
 - \$156 M savings FY 05 to FY 11

FY 05	FY 06	FY 07	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15
\$ 5 M	\$ 8 M	\$ 15 M	\$ 13 M	\$ 11 M	\$ 48 M	\$ 57 M	\$ 32 M	\$ 14 M	\$ 26 M	\$ 44 M



SUMMARY AND FUTURE ACTIONS



- **With 9.5% savings, we have exceeded the initial year goal of 8%**
- **Continue finding program efficiencies**
 - Follow-up action on category 3 and 4 sites
 - Extend process to other sites below the \$ 3 M threshold
- **Options:**
 - EFD review teams
 - East and West coast review teams (available HQ and ESC support)

VALIDATION REVIEW TEAM MEMBERS



Cowan Azuma, PACDIV

Michael Pound, SWDIV

Lawrence Lansdale, SWDIV

Mark Wicklein, EFANW

Mark Barnes, LANTDIV

Debra Felton, EFANE

Mike Maughon, SDIV

Cliff Casey, SDIV

David Criswell, SDIV

Steve McCarel, NFESC

Richard Mach, HQ

Rob Sadorra, HQ

Contract Support provided by Ensafe Inc.

Navy Path Forward



- **Ensure optimization at all phases**
- **Minimize/eliminate use of P&T**
- **Track optimization efforts**
- **Work with EPA on promoting Triad**
- **Perform additional validation efforts**

Questions?

