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NAS KEY WEST  
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MINUTES FROM 30 SEPTEMBER 1996 RESTORATION ADVISORY BOARD MEETING WITH  
ATTACHMENTS NAS KEY WEST  
9/30/1996  
NAS KEY WEST

**RESTORATION ADVISORY BOARD  
NAVAL AIR STATION KEY WEST**

**Meeting Agenda  
September 30, 1996; 7:00 p.m.**

*Installation Restoration: A Navy Pledge to the Future*  
Video viewing: 6:45 - 7:00 p.m.

Welcome and Introductions  
Public Comment Management for This Meeting  
Ron Demes  
Navy Co-Chair

Old Business  
CO Approval Letter for Robin Orlandi  
Sites IR2 & IR6 No Further Action Decision Document  
Update on Relative Risk Rankings  
RAB Comments/Questions on Draft Background Report  
Susan Loder  
Community Co-Chair

Update of Interim Remedial Activities  
Dudley Patrick  
Naval Facilities Engineering Command-Southern Division

Conclusions from *Draft RCRA Facility Investigation/Remedial Investigation Report*  
Kevin Walter  
Brown & Root Environmental

Potential Topics for Next Meeting  
*Final Report of the Federal Facilities Environmental Restoration Dialogue Committee*  
Selection of RAB Community Co-Chair for 1997  
Update of Interim Remedial Activities  
Update of RFI/RI Activities  
Susan Loder and Ron Demes

Adjournment and Invitation  
Ron Demes

Poster Session and Refreshments  
*Installation Restoration: A Navy Pledge to the Future*  
Video viewing

Final transmitted to  
P. Williams NAS Key West  
10/17/96

NAVAL AIR STATION KEY WEST  
RESTORATION ADVISORY BOARD  
PUBLIC MEETING SUMMARY

cc J. Shipman  
S. Flickinger  
M. Whitten  
C. Bryan

7:00 p.m.

September 30, 1996

Holiday Inn Beachside, Tortuga Room  
Key West, Florida

Restoration Advisory Board Members Present:

Ron Demes, Navy Co-Chair  
Susan Loder, Community Co-Chair  
Robin Orlandi, Community Member  
Dudley Patrick, Southern Division, Naval Facilities Engineering Command  
Dent Pierce, Community Member  
Jim Smith, Community Member  
Mimi Stafford, Community Member  
Martha Berry, U.S. Environmental Protection Agency Region IV

Other government or contractor personnel present:

Jim Reed, Southern Division, Naval Facilities Engineering Command  
Byas Glover, Southern Division, Naval Facilities Engineering Command  
Luis Vazquez, Southern Division, Naval Facilities Engineering Command  
Phillip Williams, NAS Key West Public Works Office  
Mark Ewing, NAS Key West Resident Officer-In-Charge-Of-Construction  
Lt. Jonathan Hupp, NAS Key West Public Affairs Officer  
Kevin Walter, Brown & Root Environmental  
Mike Whitten, Brown & Root Environmental  
Scott Flickinger, Brown & Root Environmental  
Alford Barnett, Brown & Root Environmental

Members of the public present (who signed the attendance sheet):

Barbara Black, Florida Keys Outreach Coalition  
R. L. Blazevic, Key West, Florida

Welcome and Introductions

Ms. Loder opened the meeting and welcomed the attendees. Mr. Demes introduced representatives from Southern Division (SouthDiv) involved with NAS Key West: Mr. Reed, who is responsible for Base Realignment and Closure (BRAC) activities; Mr. Glover, Underground Storage Tanks (UST) activities; and Mr. Vazquez, who is responsible for

procurement activities. He also introduced Mr. Williams, the NAS Key West Installation Restoration (IR) Coordinator.

#### Public Comment Management

Mr. Demes stated that the public could make comments and ask questions at the conclusion of each presentation.

#### Old Business

Ms. Loder indicated that the RAB submitted comments to Mr. Demes on the draft Background Report at the end of August.

#### CO Approval Letter for Robin Orlandi

The Commanding Officer, NAS Key West, has signed a letter confirming Robin Orlandi from Reef Relief as a member of the RAB.

#### No Further Action Decision Document

Mr. Patrick indicated that NAS Key West will prepare a No Further Action (NFA) Decision Document for Sites IR-2 and IR-6 for submittal to the U.S. Environmental Protection Agency Region IV and Florida Department of Environmental Protection by October 31, 1996. A copy of the document will be available for review in the Information Repository of the Monroe County Library in Key West.

#### Update on Relative Risk Rankings

Mr. Patrick explained that in response to comments from the RAB (July 1996) on the Relative Risk Rankings, SouthDiv has changed the receptor factors for sites IR-7, IR-8 and AOC-A. These changes, however, have not altered the final priority rankings of these sites. Copies of the complete relative risk rankings with these changes were made available at the meeting.

#### Draft Background Report Comments

Mr. Patrick distributed NAS Key West Response to Comments on the draft Boca Chica Background Report. He thanked Robin Orlandi of the RAB for her comments.

#### Update on Interim Remedial Activities

Mr. Patrick reviewed the status of the SWMU-9 pump-and-treat system (now in operation) and IR-8 Erosion Control System (planned for construction beginning in early 1997). He explained the preliminary operational effects of the treatment system to withdraw the solvents in the groundwater of SWMU-9. He stated that the system has been operational for 6 weeks and has experienced minor startup delays associated with the automated treatment systems. He also

explained that the IR-8 Erosion Control System was undergoing preliminary design based on the initial surveys of the southern and western sides of unit. He stated that planned use of an articulating concrete block would prevent further degradation of the IR-8 shoreline.

#### Conclusions from the Draft RCRA Facility Investigation Report

Mr. Walter described the draft report conclusions from the investigation of the sampling performed during January 1996 at SWMU-1, -2, -3, and -9. The conclusions for SWMU-1 indicate a potential ecological and human health risk. Brown & Root Environmental will perform further field investigation of the SWMU-1 groundwater (to confirm the recent diminishment of metals contamination) under the upcoming Resource Conservation and Recovery Act (RCRA) Corrective Measures Study (CMS) scheduled to be completed by February 24, 1997. SWMU-2 will not need additional cleanup but the report recommends additional ecological monitoring. The nature of the additional monitoring will be subject to the RCRA CMS. SWMU-3 will need no further action, and SWMU-9 will continue operation of the groundwater treatment system and continued monitoring will evaluate its progress.

#### Potential Topics for Next Meeting (November 18, 1996)

Mr. Patrick requested RAB comments on the DOD Keystone Report (April 1996). He distributed copies and will put a copy in the Information Repository. Ms. Loder led a discussion of the agenda for the next meeting. Mr. Demes stated that elections of the community co-chair will occur at the next meeting. He expressed his appreciation for the RAB for its first year's work. He also indicated that the Navy would look to expand membership of the RAB in the near future.

Mr. Reed explained the tentative schedule for BRAC activities on the parcels of the Truman Annex and Trumbo Point, including completion of the ongoing Environmental Baseline Study (EBS) in the Fall of 1996 and performance of a Site Investigation in the Spring 1997. A documentation review of the parcels is under way as part of the EBS. Mr. Reed will present the EBS findings at the next RAB meeting.

#### Adjournment

Mr. Demes adjourned the meeting at approximately 8:20 p.m. and invited members of the public to view the Navy video *Installation Restoration: A Navy Pledge to the Future*.

**NAVAL AIR STATION KEY WEST**  
**RESTORATION ADVISORY BOARD**  
**PUBLIC MEETING**  
**SEPTEMBER 30, 1996**  
**7:00 P.M.**  
**HOLIDAY INN BEACHSIDE**

NAME	ADDRESS	TELEPHONE
R. L. BLAZEVIC BYNS GROUP	3052 RIVIERA DR NAVFAC SOUTH DIO	(305) 820-5651
Luis Meyer	SEARCHING	(303) 820-5013
AMANTHA BERRY US EPA	100 ALABAMA ST SW ATLANTA, GA 30303	404/562-8833
Susan Loder	705 Catherine St. Key West	305-292-1910
Rev. Barbara Black Fl. Keys Outreach Coalition	P.O. Box 119 Key West, FL	(305) 293-0075
Attend. i. Bennett	705 Day Rd.	305-292-1911
Mike Watten	537 Greenway Rd Aven. SE 32905	706-643-1101
Maria Lopez	4332 Ave. N Tampa, FL 33614	813-288-1994
JIM REID	NAVFAC SOUTH DIO	(805) 820-5615





**Naval Air Station Key West  
Restoration Advisory Board  
Public Meeting  
September 30, 1996**





# Agenda

**Video Viewing**

**Ron Demes**

**Susan Loder**

**Dudley Patrick**

**Kevin Walter**

**Susan Loder/Ron Demes**

**Susan Loder**

**Installation Restoration: A Navy Pledge to the Future**

**Welcome and Introductions**

**Public Comment Management (for this meeting)**

**Old Business**

**CO Approval Letter for Robin Orlandi**

**Sites IR2 and IR6 No Further Action Decision Document**

**Update on Relative Risk Ranking**

**RAB Comments/Questions on Draft Background Report**

**Update of Interim Remedial Activities**

**Conclusions from Draft Supplemental RCRA Facility  
Investigation/Remedial Investigation (RFI/RI) Report**

**Potential Topics for Next Meeting**

**Adjournment and Invitation**

**Poster Session and Refreshments**

**Video Viewing**





**Ron Demes**  
**Navy Co-Chair**  
**Restoration Advisory Board**

**Welcome and Introductions**  
**Public Comment Management**  
**(for this meeting)**





**Susan Loder**  
**Community Co-Chair**  
**Restoration Advisory Board**

- Old Business
- CO Approval Letter for Robin Orlandi
- Sites IR2 and IR6 No Further Action Decision Document
- Update on Relative Risk Ranking
- RAB Comments/Questions on Draft Background Report





## Sites IR2 and IR6 Status

IR2 - Transformer oil disposal area on gravel parking lot surrounding building 795 Truman Annex

- Samples taken in 1987 showed no contamination

IR6 - Dredgers Key (Sigsby Key) refuse disposal area reported to have been used in the 1940's for refuse disposal

- Samples taken in 1995 showed no contamination
- Draft Decision Document recommending no further action IR2 and IR6 to be submitted to regulators by October 30, 1996.





**Dudley Patrick**  
**Naval Facilities Engineering Command**  
**Southern Division**

**Update of Interim Remedial Activities**



## Military Programs

Ms. Virginia B. Wetherell, Secretary  
Florida Department of Environmental Protection  
Twin Towers Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Dear Ms. Wetherell:

It is a pleasure to report the approval of your Cooperative Agreement (CA) renewal application, including the addition of four new installations - Hurlburt Field, Avon Park BR, Correy Station and Orlando NRL - to Attachment A under the Department of Defense and State Memorandum of Agreement (DSMOA). Approval was made in coordination with the interested Military Services - the Navy and Air Force. This letter authorizes initial funding to provide state support of environmental restoration projects under the Defense Environmental Restoration Program (DERP) and the Base Realignment and Closure (BRAC) Program at defense installations listed under the updated Attachment A (see enclosure 1).

The Navy in its review of the CA application determined that the State's request for funding was in line with its DERP and BRAC workload requirements coincident with the CA effective period. The Air Force, on the other hand, determined that for DERP-funded activities that the State's request was excessive. The Air Force has concurred to provide DERP funding up to \$000,000 for the two years under the CA. Therefore, your total CA is approved for \$0,000,000.

Your account for the CA renewal application is designated as EL 96-1, effective between August 1, 1996, and July 1, 1998. Due to limited funds presently available, we are obligating \$000,000.

This sum comprises approximately six months of DERP funding; one year of BRAC 93 funding; and about one year of BRAC 95 funding. Your CA resource breakdown is summarized at enclosure 2 by funding source, funds requested, funds approved and funds obligated. Additional funding will be provided as it becomes available during Federal Fiscal Year 1997. We will keep your office informed about this.

As in the past, funds cannot be transferred between DERP and BRAC, nor between different BRAC closure rounds. Also, with the possibility of devolvement starting on October 1, 1996, requirements for the financial administration of the CA may

change. We have discussed this with your staff when visiting in May, and will keep you apprised of any significant developments.

If you have any questions concerning the implementation of the CA renewal application, please contact Mr. Paul Lancer at (202) 761-8884. If you have any questions about financial issues, including the close out of your FL 94-1 account, please contact Ms. Sandy Snelling or Renee Cantave at (202) 761-1176. You should plan to have this account closed out by October 29, 1996.

Sincerely,

Cary Jones  
Chief, Environmental Restoration  
Division  
Directorate of Military Programs

Copy furnished:

Robin Mills, ACSIM-ODEP

Phil Clark, HQUSAF/CEVR

Jerry Cleaver, AFBCA/CEVR

Bill Judkins, NAVFACENGCOM (Code 41BJ)

Sandy Snelling & Renee Cantave, DSMOA/CA Team

Vic Wieszek, OADUSD(ES/CL)

CEMP-RI

Cooperative Agreement Award (September, 1996)  
State of Florida

Account FL 96-1  
August 1, 1996, to July 31, 1998

<u>Funding Source</u>	<u>Funds Requested</u>	<u>Funds Approved<sup>b</sup> (9/96)</u>	<u>Funds Obligated<sup>c</sup> (9/96)</u>
DERP -			
Navy	709,350	180,000	180,000
Air Force	\$ 767,540	TBD	TBD
BRAC 93 -			
Navy	336,739	170,000	170,000
Air Force	152,850	80,000	80,000
BRAC 95 -			
Navy	27,187	15,000	15,000
Total	\$1,993,666 <sup>a</sup>	\$ 445,000++ <sup>a</sup>	\$ 445,000++

<sup>a</sup> *The balance between the funds requested and the funds approved may be authorized and provided at a later date.*

<sup>b</sup> *The Navy in its review of the CA application determined that the State's request for funding was in line with its workload requirements coincident with the CA effective period. The Air Force determined that for DERP-funded activities that the State's request was excessive. Funds approved for DERP to support Air Force bases under the CA is limited to a total of \$000,000; the sum of \$000,000 provided represents six months of funding.*

*<sup>c</sup> Funds obligated are those set aside in an account from which reimbursements are paid to a state. The obligated amounts for each funding source may be increased up to the approved level of funds, depending upon availability and workload requirements. Reimbursements cannot exceed the obligated amount for each funding source.*

ATTACHMENT A TO DSMOA

DOD INSTALLATIONS COVERED BY THIS AGREEMENT

State of Florida

Air Force -

1. Avon Park BR
2. Cape Canaveral Air Force Station
3. Eglin Air Force Base
4. Florida Air National Guard (FANG) (*125th Fighter Interceptor Group*)
5. Homestead Air Force Base
6. Hurlburt Field
7. MacDill Air Force Base
8. Patrick Air Force Base
9. Tyndall Air Force Base

Navy -

1. Cecil Field, Naval Air Station
2. Correy Station
3. Jacksonville Naval Air Station
4. Key West Naval Air Station
5. Mayport Naval Station
6. Orlando Naval Training Center
7. Orlando NRL
8. Panama City NCSC
9. Pensacola Naval Air Station
10. Whiting Field Naval Air Station

INSTALLATIONS MAY BE ADDED TO THIS LIST PERIODICALLY AS NECESSARY  
IN ACCORDANCE WITH SECTION V, REOPENER.

DATE: September, 1996

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**UPDATE**

*Interim Remediation &  
Source Removal of Contaminants  
NAS Key West Florida*

*Bechtel Environmental, Inc.*

9/30/96

# *Status: 30 September 96*

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## ● Complete

- » *SWMU-9*
- » *Installation of equipment complete*
- » *Startup period complete*
- » *Operation continuing*

## ● In Progress

- » *IR-8*                      *1800 lf*
- » *Subcontract awarded to Ocean Breeze Construction, Inc. for design / build.*
- » *Construction scheduled January - March, 1997*

9/30/96

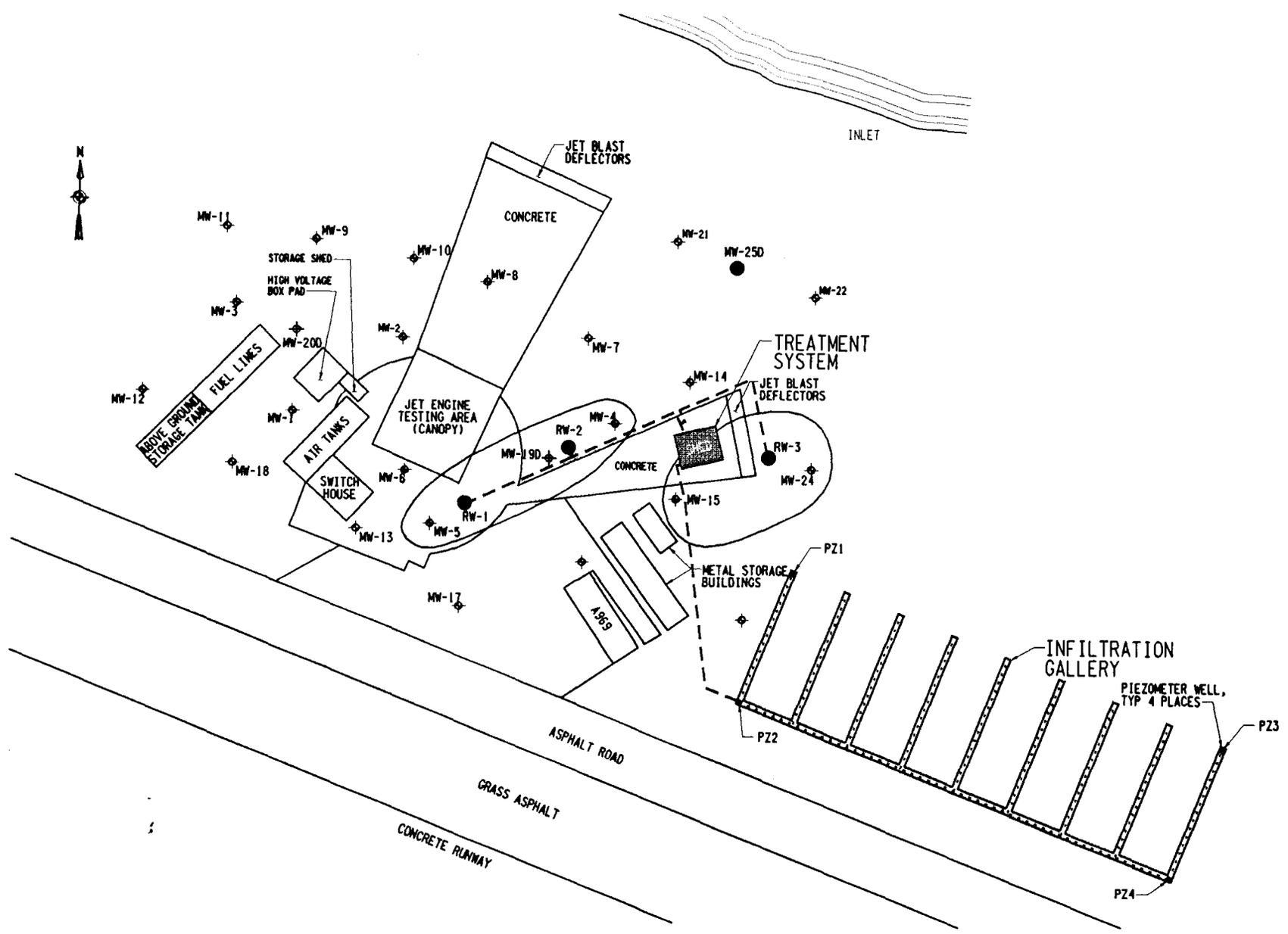
# *SWMU-9 (Jet Eng Test Cell)*

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**Problem: Free Product and Chlorinated Solvent Plume**

**Solution: Install Groundwater Pump & Treat System**

- » *3 Recovery wells (16 ft)*
- » *1 Deep monitoring well (27 ft)*
- » *Package treatment system*
- » *Infiltration gallery to discharge treated groundwater*
- » *Installation accomplished July 96*



# *SWMU-9 (Jet Eng Test Cell)*

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- Completed Installation of groundwater treatment system
- Commenced operations (pump & treat) phase
  - » *Duration dependent on efficiency of system*
  - » *Some minor equipment problems were uncovered during the shakedown period and those have been corrected.*

9/30/96

### SWMU-9 Groundwater Treatment Results - TCE

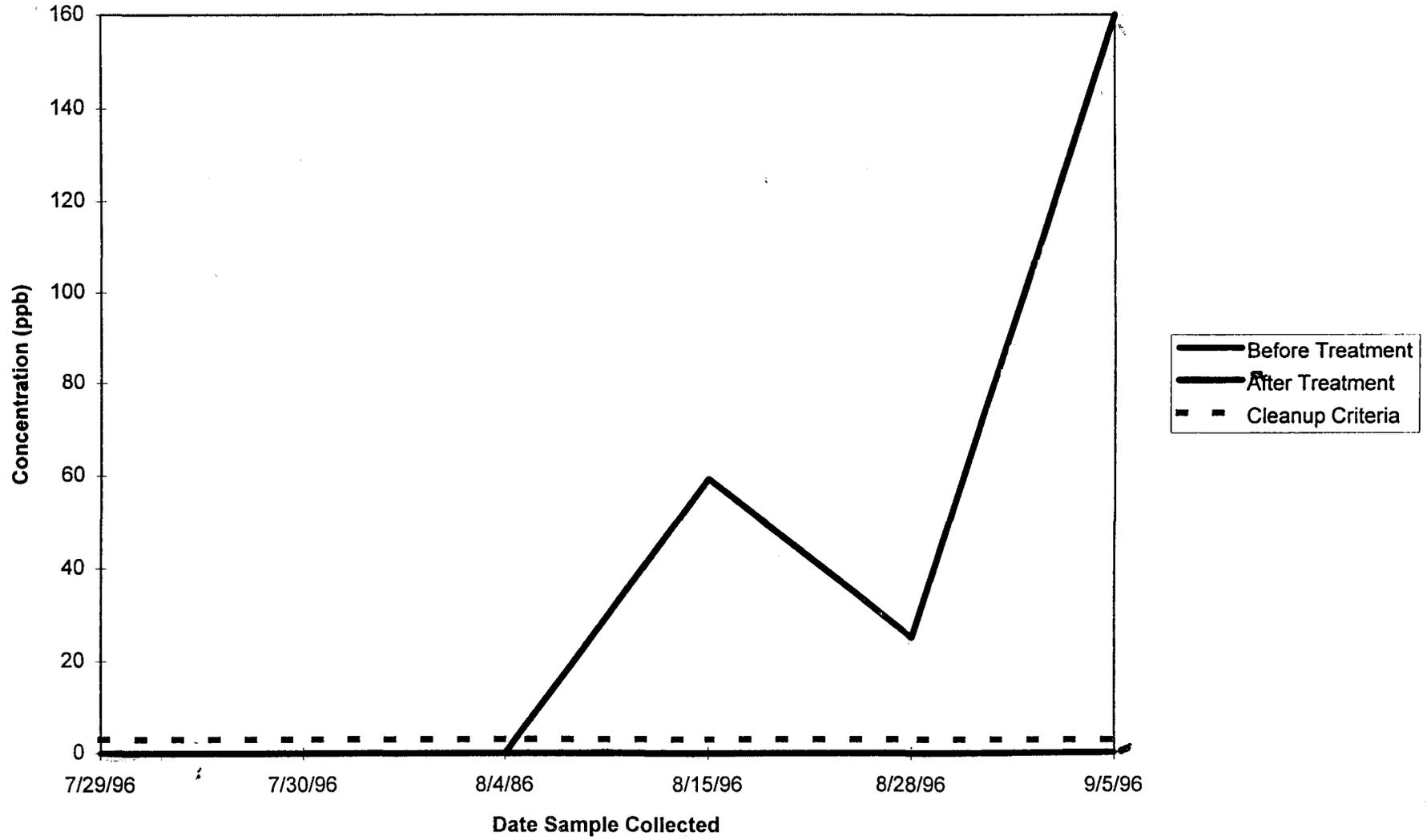
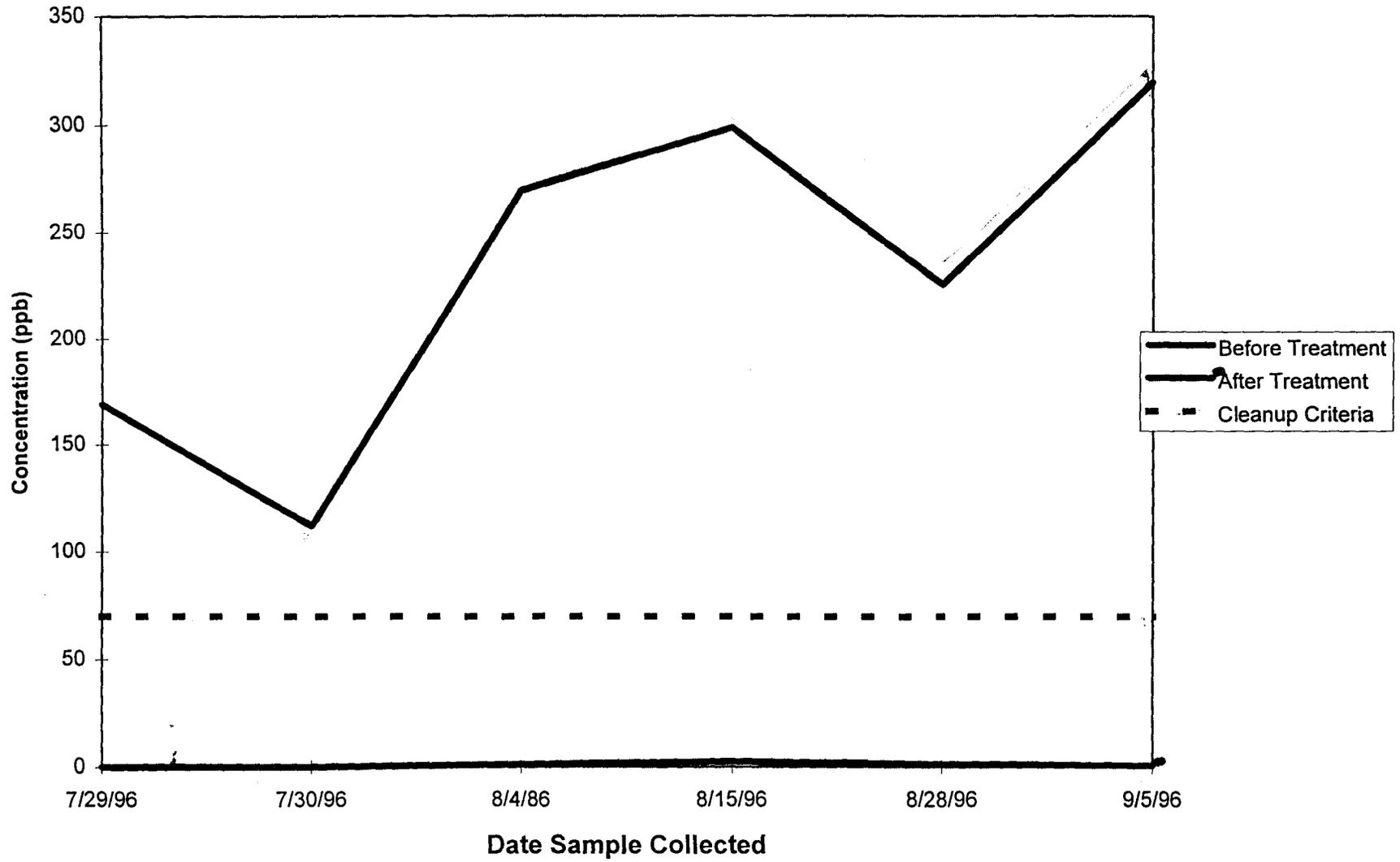
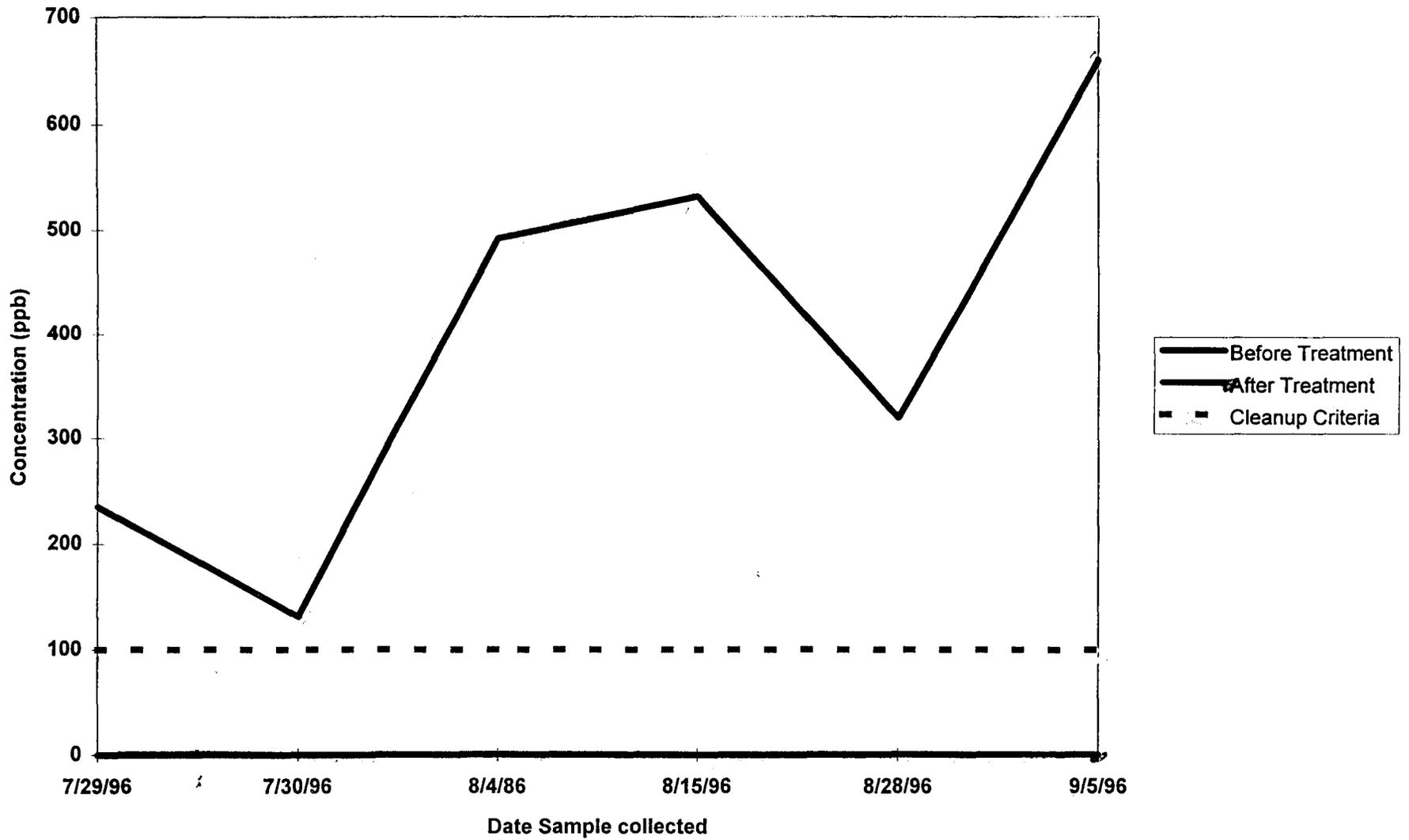


Chart1

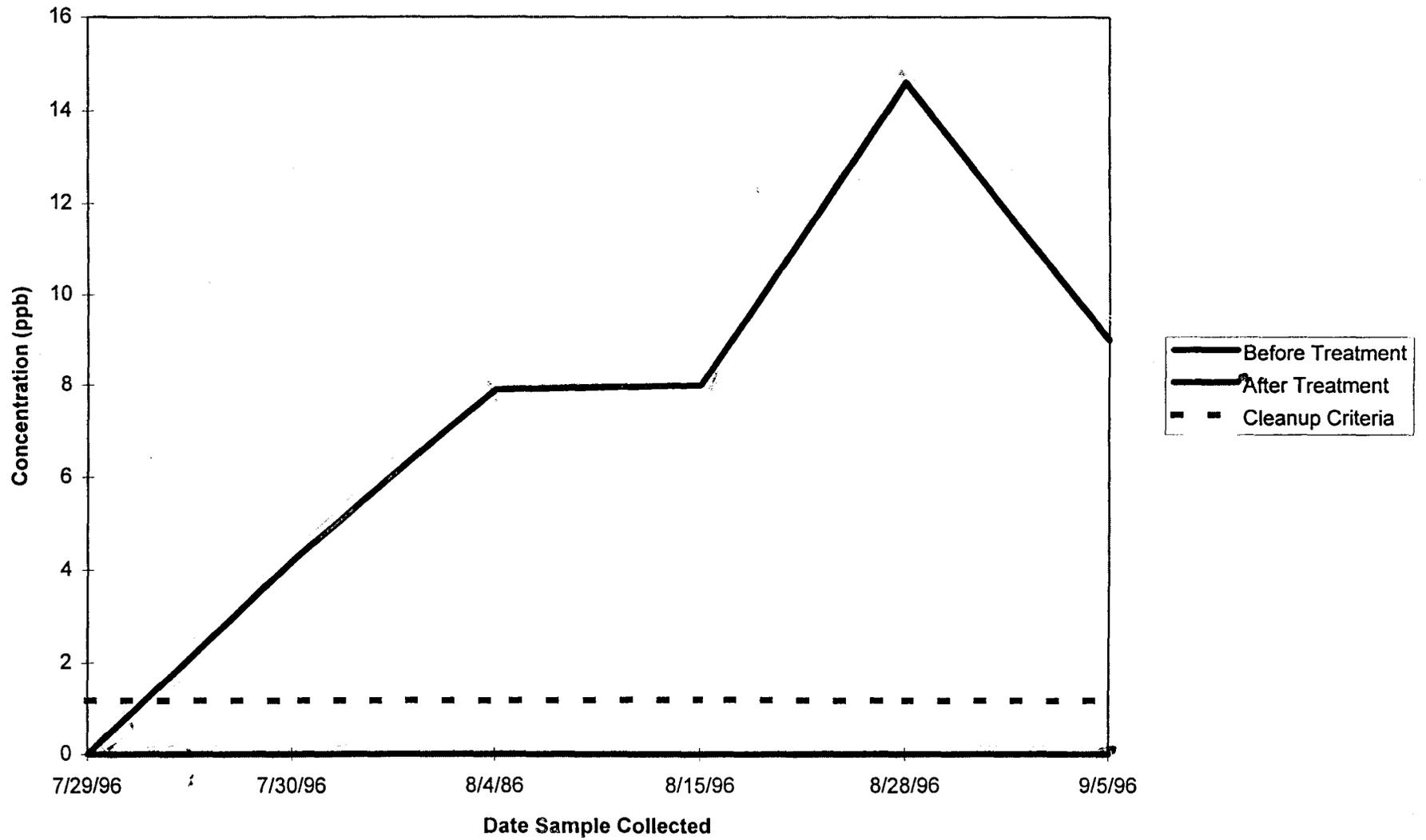
### SWMU-9 Groundwater Treatment Results cis 1,2 DCE



SWMU-9 Groundwater Treatment Results - trans 1,2-DCE



### SWMU-9 Groundwater Treatment Results - Benzene



# *IR-8 (Fleming Key)*

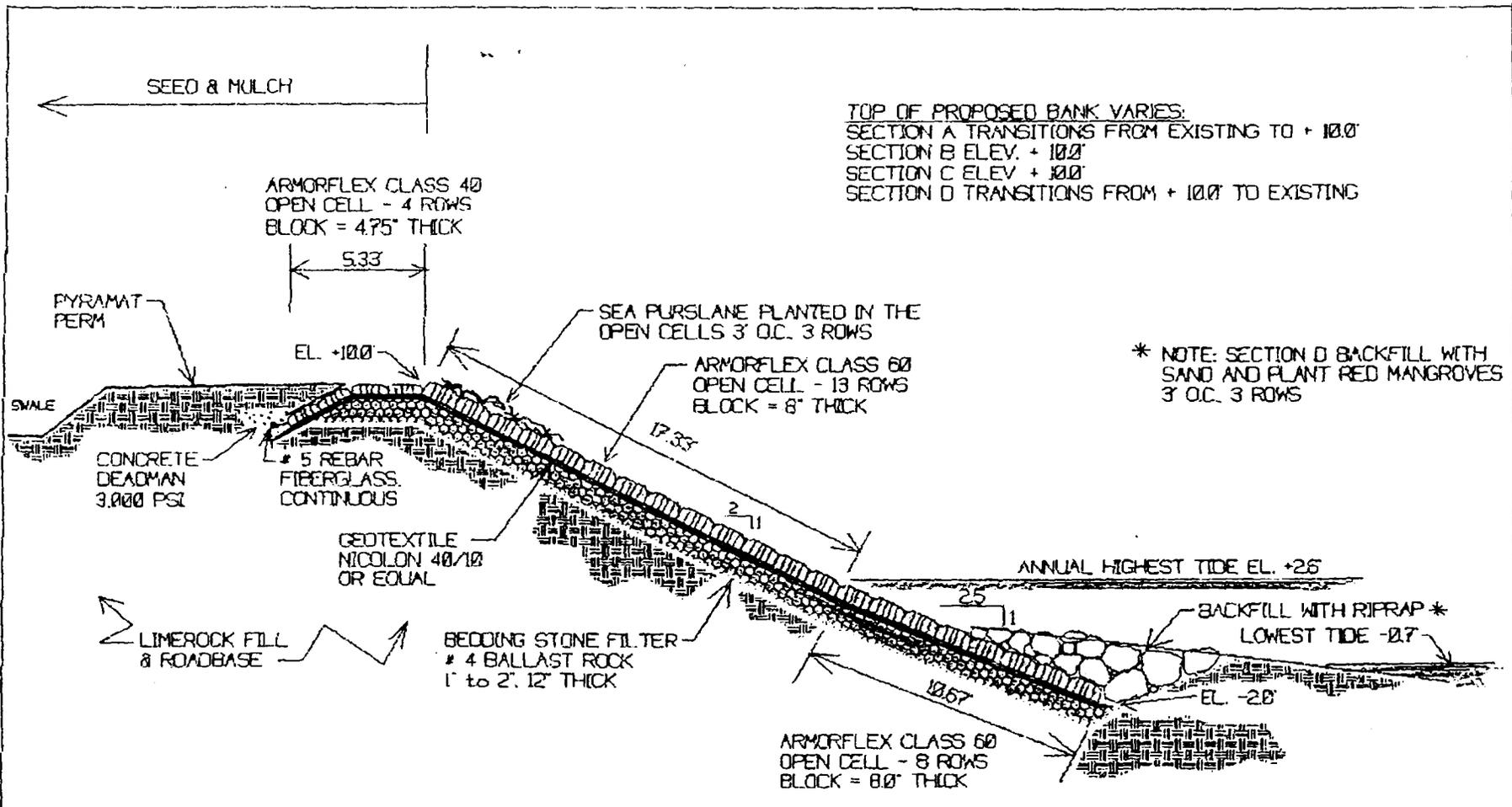
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**Problem:** Erosion of beach around landfill

**Solution:** Install Shoreline Protection System

- » *Approx 1800 linear feet west from water treatment plant*
- » *Berm-type structure*
- » *Pre-cast concrete mats on face (Armor Flex)*
- » *Height: 10 ft above MSL*
- » *Wetlands permit submitted September 1996*
- » ***Final design review this week***
- » ***Construction January - March 1997***

9/30/96



TOP OF PROPOSED BANK VARIES:  
 SECTION A TRANSITIONS FROM EXISTING TO + 10.0'  
 SECTION B ELEV. + 10.0'  
 SECTION C ELEV. + 10.0'  
 SECTION D TRANSITIONS FROM + 10.0' TO EXISTING

\* NOTE: SECTION D BACKFILL WITH SAND AND PLANT RED MANGROVES 3' O.C. 3 ROWS

TYPICAL ARMORFLEX CROSS SECTION

<p>OCEAN BREEZE CONSTRUCTION CO., INC.                  10276 Riverside Drive                  Palm Beach Gardens, Florida 33410                  (407) 627-4407. Fax 527-4408</p>	<p>PROJECT: Key West Shoreline Protection                  PROJECT NO: 22567-321-SC-0248                  RE: ALTERNATE REVETMENT DESIGN                  PRIME CONTRACTOR: BECHTEL ENVIRONMENTAL, INC.</p>	<p>PAGE 1 of 2                  SCALE: N.T.S.                  FILE:G00\KEYWA                  Drawn by: AKH 7/96</p>
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**Kevin Walter**  
**Brown & Root Environmental**

**Conclusions from Draft  
Supplemental RFI/RI Report**





# Draft Supplemental RCRA Facility Investigation/Remedial Investigation (RFI/RI) Report

- Further investigation of four priority sites and three background sites on Boca Chica
- Contaminants of concern: pesticides, metals, petroleum compounds
- Draft RFI/RI report was officially submitted to regulators 9/27/96







# Summary Conclusions

Site	Contamination				Eco Risk	Human Risk	Further Action
	Surface Water	Sediment	Soil	Ground Water			
SWMU 1	✓	✓	✓	✓	Yes, (Borderline, Limited Receptors)	Yes, for Residential	Possibly Needed
SWMU 2		✓	✓	✓	Yes, Future Monitoring	No	Monitor
SWMU 3					No	No	None
SWMU 9			✓	✓	No	No	Continue Pump & Treat; Evaluate





## Conclusions

- Background Sites
  - Concentrations of contaminants in surface water, sediment, and soil from background locations were low relative to ambient quality standards (except higher levels of lead and arsenic in soil)
  - Concentrations of contaminants in fish and oyster tissue were generally within the range of values considered to be normal (except high values of pyridine in oyster tissue)





## **SWMU 1: Open Disposal Area**

- Interim Soil Excavation - completed Spring 1996 - over 6,000 cubic yards of soil/ sediment removed
- Remaining Contamination:
  - surface water - metals
  - sediment - metals, pesticides, PAHs
  - soil - metals, pesticides, PAHs
  - groundwater - metals, PAHs





## Conclusions - Ecological Risk

- SWMU 1 - Open Disposal Area
  - Soil, surface water, and sediment in some areas of mangrove swamp east of excavated area contain low to moderate concentrations of metals, pesticides, and PAHs
  - Contamination of soil and sediment in some areas may pose a risk to ecological receptors
  - Ecological habitat limited
  - Borderline ecological risk





## Conclusions - Human Health Risk

- SWMU 1
  - SWMU 1 is the site with the highest estimated carcinogenic and non-cancer risks of the four SWMUs
  - The estimated cancer risk and non-cancer risks are higher than  $1E-04$  and 1.0, respectively for the future residential exposure scenario (i.e., remediation required for residential use)
  - SWMU 1 may require further remediation depending on future land use





## **SWMU 2: DDT Mixing Area**

- Interim excavation of Soil and Sediment - completed Spring 1996 - over 1,900 cubic yards soil and sediment removed
- Elevated levels of PCBs and DDT in fish sampled immediately prior to soil/sediment remediation





## **SWMU 2: DDT Mixing Area (cont.)**

- Remaining Contamination
  - surface water - metals, organochlorine pesticides
  - sediment - organochlorine pesticides
  - soil - minor pesticides, metals
  - groundwater - organochlorine pesticides





## Conclusions - Ecological Risk

- SWMU 2 - DDT Mixing Area
  - Ecological risk documented prior to source removal
  - Minor soil and sediment contamination present after interim remediation
  - Monitoring of surface water and fish tissue is recommended to determine whether levels of PCBs and DDT (and metabolites) in fish remain high





# Conclusions - Human Health Risk

- SWMU 2
  - The estimated non-cancer risk is less than 1.0 and poses no adverse risk for any future exposure scenario. The estimated cancer risk is in the range of 1.0E-04 to 1.0E-06
  - SWMU 2 poses no adverse human health risk, especially given likely future non-residential land use





# **SWMU 3: Fire-Fighting Training Area**

- Interim Soil Excavation - completed in 1995
  
- Remaining Contamination
  - surface water - metals, (low values)
  - sediment - metals (low values)
  - soil - none
  - groundwater - organics (low values)





## Conclusions - Ecological Risk

- SWMU 3 - Fire-Fighting Training Area
  - No remaining soil contamination after remediation
  - Low levels of metals in surface water, and elevated PCB tissue levels in some fish from nearby large lagoon are probably not due to site-related activities
  - No risk to ecological receptors





## Conclusions - Human Health Risk

- SWMU 3
  - The estimated cancer risks are within the range of  $1E-04$  to  $1E-06$  for the future residential and trespasser exposure scenario. No adverse non-carcinogenic health effects posed for any future use.
  - Given future non-residential land use, SWMU 3 poses no adverse human health risk





## **SWMU 9: Jet Engine Test Cell**

- Interim Groundwater Pump and Treat Remediation started Summer 1996
- Contamination
  - surface water - none
  - sediment - none
  - soil - elevated chromium values in soil
  - groundwater - organics (fuel and chlorinated solvents)





## Conclusions - Ecological Risk

- SWMU 9 - Jet Engine Test Cell
  - High chromium concentrations in soil; no chromium in surface water; low chromium in sediment
  - No contamination detected in surface water benthic organisms
  - Little or no risk to ecological receptors from contaminated groundwater





# Conclusions - Human Health Risk

- SWMU 9
  - The estimated non-cancer risk is higher than 1.0 for the future residential exposure scenario. The estimated cancer risk is in the range of 1E-04 to 1E-06 for future residents and trespassers.
  - Given future non-residential land use, SWMU 9 poses no adverse human health risk





# Summary Conclusions

Site	Contamination				Eco Risk	Human Risk	Further Action
	Surface Water	Sediment	Soil	Ground Water			
SWMU 1	✓	✓	✓	✓	Yes, (Borderline, Limited Receptors)	Yes, for Residential	Possibly Needed
SWMU 2		✓	✓	✓	Yes, Future Monitoring	No	Monitor
SWMU 3					No	No	None
SWMU 9			✓	✓	No	No	Continue Pump & Treat; Evaluate





# Where Do We Go From Here?

1. Corrective Measures Study (CMS) for Boca Chica Key high priority sites
  - Reviews all possible further remedial alternatives (including no further action, institutional control, continued monitoring, and additional remediation)
  - Recommends alternative most protective of human health and the environment
  - CMS Report due February 24, 1997
2. RFI/RI Report for remainder of NAS Key West sites: field sampling and analysis  
August - October 1996.  
Draft report - June 1, 1996





**Susan Loder/Ron Demes**

**Potential Topics for Next Meeting**





DEPARTMENT OF THE NAVY  
OFFICE OF THE CHIEF OF NAVAL OPERATIONS  
2000 NAVY PENTAGON  
WASHINGTON, D.C. 20350-2000

IN REPLY REFER TO

5090

Ser N453/60597999  
19 April 96

1885 PAW  
WHERE ARE THEY  
PLEASE CALL  
AND RT.

for  
188  
4:

From: Chief of Naval Operations  
To: Distribution

Subj: Restoration Advisory Boards

Encl: (1) Federal Facilities Environmental Restoration Dialogue  
Committee Report, April 1996  
(2) Directory of Restoration Advisory Boards,  
February 1996

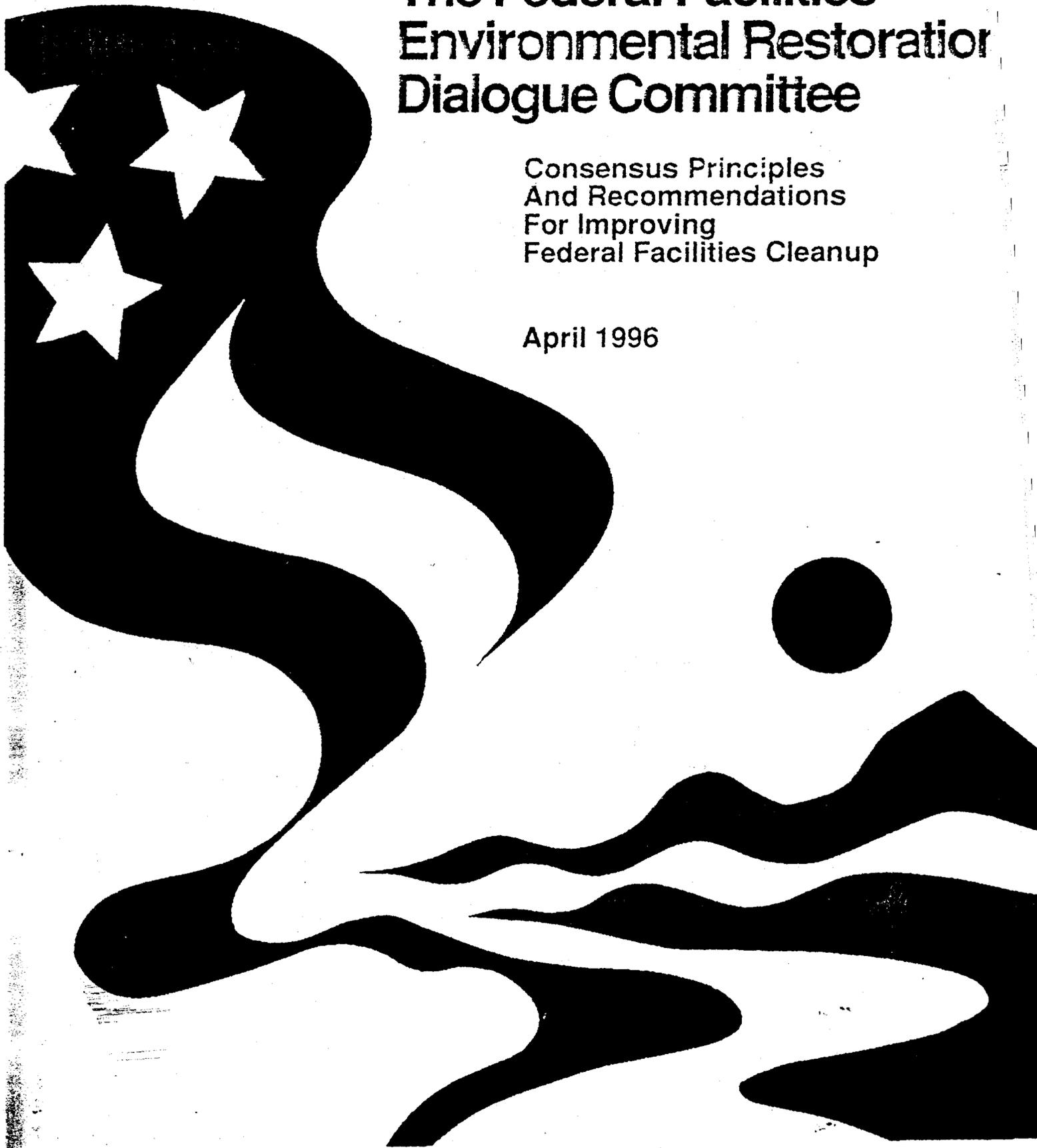
1. This letter forwards important information directly to installation Restoration Advisory Boards (RABs) that should be disseminated, reviewed, and discussed among all stakeholders.
2. The Federal Facilities Environmental Restoration Dialogue Committee Report (commonly known as the Keystone Report), enclosure (1), represents a discussion on how to involve all stakeholders in the federal facilities cleanup program. The report focuses on advisory boards and the budget process. Since the report is a consensus of the Committee members acting as individuals, the report recommendations will need to be reviewed and incorporated in Navy policy where appropriate. A number of the recommendations have been implemented in DON policy and OPNAV guidance over the past six months. We recommend that you distribute the report to your RAB and encourage open and frank discussions on how the principles outlined in the report can be used by your RAB to improve the cleanup process at your installation.
3. DOD has put together a directory of Restoration Advisory Boards, enclosure (2). It can be useful in contacting other RABs to see how they may have approached a particular issue.

L. F. SCHRIEFER  
By direction

# Final Report Of The Federal Facilities Environmental Restoration Dialogue Committee

Consensus Principles  
And Recommendations  
For Improving  
Federal Facilities Cleanup

April 1996



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Printed on paper that contains  
at least 50% recycled fiber

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# Who's Who

“advisory boards” = NAS Key West RAB

“federal facility” = NAS Key West

“agency” or “regulated agency” =  
Department of the Navy

“regulators” = FDEP or EPA

“stakeholders” = the Key West community,  
FDEP and EPA, and NAS Key West

The Federal Facilities Environmental Restoration Dialogue Committee is an advisory committee federally chartered by the United States Environmental Protection Agency. Participants also include individuals from: the United States Departments of Agriculture, Defense (and its Military Services), Energy, and the Interior, the National Oceanic and Atmospheric Administration, and the Agency for Toxic Substances and Disease Registry; state, tribal, and local governments; and numerous other nationally, regionally and locally based environmental, community, environmental justice, and labor organizations. The members of the Committee participate as individuals, not as official representatives of their agencies and organizations.

The recommendations in this report reflect a consensus of the individuals serving on the Committee. The recommendations are aimed at improving the process of making decisions and setting priorities for cleanup efforts at federal facilities. The Committee recognizes that each facility, community and agency has different circumstances they are addressing, and has designed the recommendations to be flexible to address different situations. The Committee hopes the implementation of the recommendations contained in its Final Report will be done with a philosophy of inclusiveness, openness, and accountability. While this executive summary attempts to be as comprehensive as possible, the Committee strongly urges readers to obtain a copy of the Final Report in its entirety.

For copies of the Final Report, please contact:

Federal Facilities Restoration and Reuse Office    or  
U.S. Environmental Protection Agency  
401 M Street, S.W. (5101)  
Washington, DC 20460  
(202) 260-9924  
fax (202) 260-5646

The Keystone Center  
Science and Public Policy Program  
P.O. Box 8606  
Keystone, CO 80435  
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The Committee's Final Report is also available electronically on the Internet conference "[tkc-ffer-forum@keystone.org](mailto:tkc-ffer-forum@keystone.org)."

**TO:**

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Alan Pasnick, TX  
Dan Miller, CO

Attached is draft guidance that would implement one of Ms. Browner's Superfund Reform Initiatives announced last October. As previously discussed, we would appreciate your Department or Association's review of this guidance. Please provide me with your comments by September 20. My fax number is 202-260-5646. My E-mail address is: "mccrillis.lucy@epamail.epa.gov"

<WP Attachment Enclosed>

----- Doc1.wpd follows -----

Version: September 4, 1996

**MEMORANDUM**

**SUBJECT: Setting Priorities for Cleanup Actions at Federal Facilities**

**FROM:** Elliott P. Laws, Assistant Administrator  
Office of Solid Waste and Emergency Response

Steven A. Herman, Assistant Administrator  
Office of Enforcement and Compliance Assurance

**TO:** RCRA/CERCLA National Policy Managers  
Office of Regional Counsel

**I. PURPOSE**

The purpose of this document is to set forth policy on:

- o the role of risk and other factors in determining the sequence of funding for cleanup actions at Federal facilities;

- o the appropriate use of relative risk ranking tools developed by Federal agencies;
- o the role of regulators and public stakeholders in the priority setting process;
- o how risk should be considered after a decision is made to negotiate or renegotiate milestones.

## II. BACKGROUND

Tools and processes for setting environmental priorities based on an assessment of the "relative risk" of a site have been developed by Federal agencies and some EPA programs. These tools, when used in consultation with regulators and stakeholders, and with consideration of other factors, ensure protection of human health and the environment in the most effective manner, help build and justify Federal agency budget request, and ensure that appropriate funds are focused on the most important activities. These tools benefit EPA as well as Federal agencies. EPA has limited resources to devote to overseeing Federal agency cleanup actions and must demonstrate that it is applying its efforts and resources to the most significant sites first.

The policies contained in this document are consistent with the principles found in the Final Report of the Federal Facility Environmental Restoration Dialogue Committee (April 1996).

### A. Existing Federal Agency Risk Ranking Tools

DOD and DOE have developed tools to evaluate the relative risk of sites to aid in setting priorities. These tools group sites into high, medium, and low categories. While DOD's method looks primarily at risk to human health and the consideration of environment, the approach recently used by DOE considers not only human (including worker) and some consideration of environmental risk but also economic considerations such as the possible increased cost of cleanup due to delay. (DOE's approach for looking at risk continues to evolve and is, over time, looking more like DOD's approach.) These tools provide a framework for assessing sites in a comparable way within a Federal agency and with regulator and stakeholder involvement, help build a consensus around priorities and the sequencing of cleanup work.

### B. Definitions

A common lexicon is important when addressing the subject of risk and priority setting. First, the term risk refers to risks to human health and the environment associated with a release or threat of a release. It is not used to apply to other kinds of "risks" such as risks of harm to the economy, to cultural or historical resources, or risk of increased cost. Second, comparative risk ranking or grouping (hitherto referred to as risk ranking) is a separate step on the way to setting priorities. Priority setting is the subsequent process of using the results of risk ranking, along with other factors, to determine which cleanup projects warrant attention sooner than others.

Milestones for purposes of this guidance, are the dates contained in enforceable agreements by which certain activities are required to be completed. Historically, some but not all of the milestones in agreements (or attached site management plans) are "enforceable"--the rest are milemakers along the way. The establishment of both enforceable and non-enforceable milestones is distinct for risk ranking and priority setting and relies on the results of those efforts.

Ultimately, these three preceding steps--risk ranking, priority setting and milestone establishment provide some of the information needed to formulate a Federal agency's budget submission.

## III. APPLICABILITY

This policy applies only to cleanup actions at Federal facility sites where EPA is involved. This policy is consistent with approaches used by EPA to set priorities for privately-owned facilities.

This policy applies to cleanup actions under CERCLA including base closure sites. At the discretion of the regulatory agency, this policy may also be applied to RCRA corrective action; however, in general, EPA's existing risk-based priority setting approach, the National RCRA Corrective Action Priority setting procedure (NCAPs), will take precedence over approaches developed by Federal agencies. Similarly, at the discretion of the overseeing regulatory agency, this policy may be applied when establishing alternative schedules for completion of closure and post-closure activities at RCRA regulated units; however, in general, the schedules for completion of closure and post-closure care prescribed by the applicable regulations will take precedence over approaches developed by other Federal agencies.

EPA does not consider it appropriate, and accordingly does not endorse the use of risk-based ranking tools to justify postponement of "compliance" projects such as the design, operation and maintenance and groundwater monitoring requirements associated with RCRA regulated units. Proper handling of active waste management issues (e.g., nuclear weapons production, electroplating, paint stripping degreasing, incineration) and full compliance with applicable waste management requirements are prerequisites of active waste management and should be funded as part of the cost of the waste management activity or operation. They are not considered discretionary in terms of timing and are not subject to this policy. (NOTE: the term compliance here does not include cleanup of historical releases specified in "compliance agreements.")

Because the underground storage program (UST) is more "compliance" in nature and has its own well developed approach to setting priorities, this policy does not apply to underground storage tanks except at the discretion of the State or local regulators. The UST program has adopted a risk-based decision-making approach that takes into account relative risk underground storage tank releases may pose to human health and the environment (RBCA) that has been widely accepted and adopted by ASTM (American Society of Testing and Materials).

This policy addresses EPA's consideration of risk-based tools developed by other Federal agencies. In some cases, cleanup of Federal facilities will be subject to state regulation and oversight instead of EPA or to joint oversight. Where the state is overseeing the Federal facility cleanup, use of Federal agency developed tools to set priorities is at the state's discretion. In cases of joint (EPA and state) oversight, EPA will encourage its state partner to adopt this policy when establishing state priorities.

#### IV. POLICY

##### A. Use of Federal Agency Risk Ranking Tools

The comparative risk ranking tools developed by the Federal agencies (e.g., DOD and DOE's Relative Risk) when used in cooperation with regulators and stakeholders are useful tools to aid in decision-making about the relative risk of sites within a Federal agency. The methods should serve as starting point/point of departure in discussion about relative risk of sites.

Some Regional staff have indicated that Federal facilities have not been particularly forthcoming with their relative risk results and have proposed that regulators review the results at the same time as the local stakeholders. This is inappropriate and not consistent with DOD policy. It is our clear expectation that the Federal agencies will provide EPA regions with a timely opportunity to review and revisit the results and, if the Regions so desires, to engage in the development of risk ranking scores. Without such review, it may be difficult if not impossible for the parties to reach consensus on setting priorities and disputes may ensue. To the maximum extent possible, State and local stakeholders should be involved in deliberations over risk and priorities, however, EPA involvement/review should not be delayed if it will take the Federal facility inordinate time to get the community together for such an effort.

It is perfectly appropriate for EPA Regions to disagree with the results of these relative risk-ranking tools if the results do not make sense based on scientific judgment or if, due to the design

of the comparative risk tool, inadequately considers relevant site characteristics. EPA expects its views on relative risk and priority setting to be conveyed within the Federal agency priority setting and budget development process.

Comparative risk-ranking, while helpful, is not an accurate assessor or predictor of the risks posed by sites. The limitations are due in part to frequent reliance on incomplete data and liberal use of assumptions, approximations, judgement, and simplification of a complex subject matter. While approximations, simplification and judgement may be appropriate in screening decision-making, they are sufficiently unrefined to provide any accurate assessment of risk. Accordingly, they should not be used to evaluate remedial options or as a sole means to measure progress in risk or relative risk reduction due to site cleanup; nor are they designed to serve as a substitute for a baseline risk assessment.

Federal agencies remain fully obligated to complete all removal, remedial or corrective actions at their facilities regardless of the results of relative risk methods. Comparative risk approaches may not be used to indefinitely delay completion of cleanup action nor may they influence remedy selection. Although cost may be considered in remedy selection, the selection of the remedy is driven by the statute and regulations, not by the availability of funds in any particular fiscal year. Risk ranking tools are only to be used as a point of departure to set the relative pace of cleanup.

#### B. Role of Risk and Other Factors in Setting Priorities

The results of such comparative risk evaluation tools should serve as a starting point/point of departure for prioritizing site activities. Other important factors must also be considered, including, but in no particular order.

- o statutory and legal requirements;
- o cultural, social and economic factors including environmental justice;
- o short and long term ecological effects and environmental impacts in general, including damage to natural resources and lost use;
- o making land available for other uses;
- o acceptability of the action to tribes and public stakeholders;
- o pragmatic considerations (such as the ability to exclude cleanup projects in a given year, the feasibility of carrying out the activity in relation to other activities, etc.)

(Note: Federal agency budget caps or appropriations should not be considered at this stage.)

These factors may increase or decrease the relative priority of a given site activity. For example at base closure facilities, economic development may supersede risk as a driving fact in setting priorities and accordingly cause a site to become a high priority due to the need for economic revitalization and job creation.

Like the risk-ranking stage, it is EPA's clear expectation that the Federal agencies will set their priorities with the full consideration of the regulators and having taken into account other factors listed above.

#### C. Application of Risk and Priority Setting in Enforceable Milestones.

The results of priority setting, based in part of relative risk and other factors listed above and expectations regarding future availability of funds should be considered in the establishment of new milestones in enforceable agreements. But, to determine the cleanup work that is required, milestones shall not be "driven by" budget targets or the outcome of relative risk results. Enforceable agreements include:

- o Interagency Agreements (IAGs);

- o Federal Facility Agreements (FFAs);
- o RCRA Permits; and
- o Corrective Action Orders.

While regions are not required to grant a Federal agency's request for a delay in milestones, EPA Regions should be willing to engage in discussions with the Federal agencies regarding their requested changes in enforceable milestones. It is appropriate for the Region to expect Federal agencies to examine and pursue other means of achieving cleanup objectives in a timely manner including the potential for the Federal facility or agency to adopt productivity improvements that would offset the need to postpone projects. For already negotiated agreements, to revise existing milestones, Regions should consider recently issued; or soon to be released, EPA policy on DOD and DOE budgeting processes. Furthermore, the Regions should encourage State, tribal, and other stakeholder involvement in the discussion.

The sequence of milestones for cleanup projects should generally correlate with the relative priority of the project. That is, in general, higher priority projects should be completed first and as early as technically possible. Additional time should be provided for lower priority projects as long as the ultimate completion date is not inconsistent with the CERCLA 120(e) mandate that "remedial actions at Federal facilities subject interagency agreements under this section shall be completed as expeditiously as practicable."

More specific guidance on how OMB targets and agency budgeting concerns are considered is the subject of recently or soon to be released EPA policies entitled: Guidance for EPA participation in DOE FY 1998 Environmental Management Budget Formulation (May 16, 1996) and Federal Facility Environment Policy in Response to Cleanup Funding Shortfalls (imminent). Additional guidance beyond these is forthcoming.

#### D. EPA Involvement in Federal Agency Risk Ranking and Priority Setting Events

Regions are strongly encouraged to participate with the Federal agencies in facility-specific, cross-state, cross-regional, cross-command and/or cross-service efforts to ensure consistency in risk grouping, site priorities, budget formulation and responses to Congressional appropriation cuts. At a minimum, EPA should meet annually with the appropriate Federal facility/agency contacts to establish and agree on priorities. This process needs to occur well in advance of formulation of the budget for the next year.

There are two very discrete times when EPA should be involved in the priority setting process. The first is at the facility level when the requested budget for the site is being formulated based on the cleanup requirements. The second time is when the congressional appropriation is allocated to the facility.

#### E. Federal Agency Responsibilities in Risk Ranking, Priority Setting and Budget Development

As discussed earlier, it is EPA's expectation that Federal agencies will seek full EPA, State, Tribal and stakeholder involvement when applying risk ranking tools with the full cooperation and involvement of the EPA. Where such involvement is not obtained or sought, EPA does not endorse the use or results of these ranking methods.

It is appropriate for the EPA Regions to expect and advocate for the Federal facility to advocate for funding in the Federal agency's internal budget-building/budget justification processes that reflects the agreements reached at the site level regarding priorities and milestones. This is particularly true when such priorities "appear" to diverge from the results of the relative risk rankings. For example, if the Region takes the position that a site that scores low on relative risk is a high priority for other reasons, the reason for accelerated response should be included in the facility's budget justification documentation.

## F. Role of Stakeholders

Although it is the lead Federal agency's responsibility to initiate local stakeholders involvement in risk ranking and priority setting, EPA should support and encourage timely stakeholder input. This may include meeting with stakeholders, providing technical assistance and helping the community to understand the situation.

The degree of stakeholder input, whether to simply review the results of, or to assist in "scoring" the sites, ultimately should be decided by the stakeholders. Stakeholders can also be involved in other related ways by:

- o providing information for use in ranking sites and setting priorities;
- o developing alternative or additional tools to evaluate risks and other factors;
- o commenting on the Federal agency's budget development and appropriation and recision distribution; and
- o helping to reconcile budgets across state, regional, military commands and services.

## G. Other Issues

### 1) Interface with Anticipated New Technology

The Regions may consider the near-term availability of new technology in establishing milestones for permanent remedies. In making such a decision, Regions should consider, among other factors:

whether delay 1) would result in continued exposure, 2) would allow further significant deterioration of the environment, and/or 3) would increase cost that could not be otherwise temporarily mitigated through appropriate containment or interim measures.

Consistent with the Administrator's August 1994 policy on Innovative Technologies at Federal facilities, EPA should continue to promote the use of Federal facilities as demonstration centers for innovative site characterization and remediation technologies. As appropriate, Regions should be flexible in setting cleanup milestones and consider exercising enforcement discretion to promote this policy.

### 2) Role of Data Quality

The Regions may consider the quality and adequacy of data used to evaluate a site's relative risk. Although a site may have a lower relative risk score, the lack of confidence in the data could easily lead to the conclusion that the site is a high priority for sampling.

## V. CONCLUSION

This policy should clarify the role of relative risk approaches to sequencing work and setting priorities, clarify respective roles of EPA and the Federal agencies and promote a more rational and consistent approach to setting priorities for Federal facility cleanup projects. Following the approach should help prevent disputes later. However, it is appropriate for the Region to dispute a Federal agency's decisions if such decisions are inconsistent with previously and mutually agreed to site decisions, if the Federal agency chooses to disregard the Region's final decision, or if the Federal agency sets priorities without Regional input.

## VI. DISCLAIMER

This guidance and any internal procedures adopted for implementation are intended solely as guidance for employees of the US EPA. Such guidance and procedures do not constitute rule making by the Agency and many not be relied upon to create a right or benefit, substantive or

procedural, enforceable at law or in equity, by any person. The agency may take action at variance with this guidance and its internal implementing procedures.

Questions about this Policy should be directed to Ms. Lucy McCrillis, Federal Facility Restoration and Reuse Office, OSWER, 202-260-2457.



**Adjournment and Invitation  
Poster Session and Refreshments  
Video Viewing**



## Contaminants by Site and Media

SITE: SITE 00001

DESCRIPTION: TRUMAN ANNEX DISPOSAL AREA

<u>Media</u>	<u>Compound</u>	<u>Concentration</u>	<u>Units</u>	<u>CHF</u>
Ground Water	Lead	5,700.00	ug/L	1,425.00
	Mercury and compounds (inorganic)	640.00	ug/L	58.18
	Antimony and compounds	563.00	ug/L	38.56
	Arsenic (cancer)	62.20	ug/L	16.37
	Manganese	2,940.00	ug/L	16.33
	Copper and compounds	10,200.00	ug/L	7.52
	Chromium (total)	657.00	ug/L	3.60
	Cadmium and compounds	54.50	ug/L	2.98
	Zinc	15,200.00	ug/L	1.39
	Aluminum	46,500.00	ug/L	1.27
	Beryllium and compounds	1.60	ug/L	1.00
	Heptachlor epoxide	0.63	ug/L	0.85
	Barium and compounds	1,380.00	ug/L	0.54
Sediment Ecological Marine	PCBs	10.33	mg/kg	206.60
	Lead	134.00	mg/kg	3.83
	Endrin	0.07	mg/kg	3.45
	Antimony and compounds	6.80	mg/kg	3.40
	Copper and compounds	132.00	mg/kg	1.89
	Zinc	150.00	mg/kg	1.25
	Mercury	0.15	mg/kg	1.00
	Dieldrin	0.01	mg/kg	0.60
Soil	Lead	3,700.00	mg/kg	9.25
	Manganese	874.00	mg/kg	2.73
	Arsenic (cancer)	44.70	mg/kg	1.40
	Benzo[a]pyrene	4.30	mg/kg	0.70
Surface Water Ecological Marine	Antimony and compounds	257.00	ug/L	0.51

## Contaminants by Site and Media

SITE: SITE 00002

DESCRIPTION: TRANSFORMER OIL DISPOSAL

<u>Media</u>	<u>Compound</u>	<u>Concentration</u>	<u>Units</u>	<u>CHF</u>
Ground Water	Lead	1,200.00	ug/L	300.00
	Naphthalene	3,250.00	ug/L	13.54
Soil	Polychlorinated biphenyls (PCBs)	4.20	mg/kg	0.64

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## Contaminants by Site and Media

**SITE: SITE 00003**

**DESCRIPTION: TRUMAN ANNEX DDT MIXING AREA**

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<u>Media</u>	<u>Compound</u>	<u>Concentration</u>	<u>Units</u>	<u>CHF</u>
Ground Water	Lead	77.00	ug/L	19.25
	Naphthalene	2,800.00	ug/L	11.67
	Arsenic (cancer)	38.80	ug/L	10.21
	Antimony and compounds	83.20	ug/L	5.70
	Benzene	220.00	ug/L	5.64
	Dieldrin	1.20	ug/L	2.86
	Fluorene	260.00	ug/L	1.08
	Aroclor	0.80	ug/L	0.92
Soil	Lead	653.00	mg/kg	1.63

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## Contaminants by Site and Media

SITE: SITE 00006

DESCRIPTION: DREDGER KEY REFUSE DISPOSAL AREA

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<u>Media</u>	<u>Compound</u>	<u>Concentration</u>	<u>Units</u>	<u>CHF</u>
Soil	Benzo[a]pyrene	62.00	mg/kg	10.16
	Dibenz[ah]anthracene	27.00	mg/kg	4.43
	Chrysene	76.00	mg/kg	3.17
	Benzo[b]fluoranthene	100.00	mg/kg	1.64
	Anthracene	25.00	mg/kg	1.32
	Benz(a)anthracene	66.00	mg/kg	1.08
	Indeno[1,2,3-cd]pyrene	45.00	mg/kg	0.74

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## Contaminants by Site and Media

SITE: SITE 00007

DESCRIPTION: NORTH FLEMING KEY LANDFILL

<u>Media</u>	<u>Compound</u>	<u>Concentration</u>	<u>Units</u>	<u>CHF</u>
Ground Water	Lead	2,000.00	ug/L	500.00
	Antimony and compounds	464.00	ug/L	31.78
	Arsenic (cancer)	61.80	ug/L	16.26
	Mercury and compounds (inorganic)	73.00	ug/L	6.64
	Copper and compounds	5,560.00	ug/L	4.10
	Chromium (total)	384.00	ug/L	2.10
	Cadmium and compounds	21.70	ug/L	1.19
	Vanadium	229.00	ug/L	0.90
	Zinc	8,790.00	ug/L	0.80
	Nickel and compounds	409.00	ug/L	0.56
Sediment Ecological Marine	Mercury	0.24	mg/kg	1.60
	Lead	38.00	mg/kg	1.09
	Copper and compounds	46.00	mg/kg	0.66
Soil	Antimony and compounds	50.30	mg/kg	1.62
	Lead	337.00	mg/kg	0.84
Surface Water Ecological Marine	Mercury	0.63	ug/L	25.20
	Lead	72.20	ug/L	8.49

## Contaminants by Site and Media

SITE: SITE 00008

DESCRIPTION: SOUTH FLEMING KEY LANDFILL

<u>Media</u>	<u>Compound</u>	<u>Concentration</u>	<u>Units</u>	<u>CHF</u>
Ground Water	Lead	1,870.00	ug/L	467.50
	Mercury and compounds (inorganic)	620.00	ug/L	56.36
	Arsenic (cancer)	109.00	ug/L	28.68
	Antimony and compounds	236.00	ug/L	16.16
	Thallium sulfate	11.60	ug/L	4.00
	Aluminum	72,000.00	ug/L	1.97
	Chlorobenzene	71.00	ug/L	1.82
	Cadmium and compounds	31.00	ug/L	1.69
	Copper and compounds	1,780.00	ug/L	1.31
	Manganese	195.00	ug/L	1.08
	Beryllium and compounds	1.10	ug/L	0.69
	Chromium VI and compounds	115.00	ug/L	0.63
Sediment Ecological Marine	Lead	1,680.00	mg/kg	48.00
	Zinc	1,620.00	mg/kg	13.50
	Mercury	1.60	mg/kg	10.67
	Antimony and compounds	20.70	mg/kg	10.35
	Nickel and compounds	65.40	mg/kg	2.18
	Arsenic (cancer)	43.50	mg/kg	1.32
	Chromium VI and compounds	70.70	mg/kg	0.88
Surface Water Ecological Marine	Aroclor	1.10	ug/L	36.67
	Lead	155.00	ug/L	18.24
	Mercury	0.43	ug/L	17.20
	Silver and compounds	10.20	ug/L	11.09
	Cadmium and compounds	19.80	ug/L	2.13
	Arsenic (III)	57.30	ug/L	1.59
	Chromium VI and compounds	37.20	ug/L	0.74
	Zinc	62.30	ug/L	0.72

## Contaminants by Site and Media

SITE: SITE 00018

DESCRIPTION: BIG COPPITT KEY DISPOSAL AREA (AOC B)

<u>Media</u>	<u>Compound</u>	<u>Concentration</u>	<u>Units</u>	<u>CHF</u>
Ground Water	Lead	309.00	ug/L	77.25
	Arsenic (cancer)	83.40	ug/L	21.95
	Antimony and compounds	240.00	ug/L	16.44
	Chromium (total)	428.00	ug/L	2.35
Sediment Ecological Marine	Zinc	2,590.00	mg/kg	21.58
	Antimony and compounds	8.90	mg/kg	4.45
	Cadmium and compounds	15.60	mg/kg	3.12
	Mercury	0.22	mg/kg	1.47
	Lead	44.70	mg/kg	1.28
	Nickel and compounds	38.10	mg/kg	1.27
	Chromium VI and compounds	67.40	mg/kg	0.84
	Arsenic (cancer)	27.10	mg/kg	0.82
Surface Water Ecological Marine	Aroclor	8.00	ug/L	266.67
	Zinc	1,290.00	ug/L	15.00
	Mercury	0.24	ug/L	9.60
	Lead	71.00	ug/L	8.35
	Nickel and compounds	49.60	ug/L	5.98
	Chromium VI and compounds	115.00	ug/L	2.30
	Arsenic (III)	70.30	ug/L	1.95
	Antimony and compounds	268.00	ug/L	0.54

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## Contaminants by Site and Media

SITE: SITE 00020

DESCRIPTION: DEMOLITION KEY (AOC A)

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<u>Media</u>	<u>Compound</u>	<u>Concentration</u>	<u>Units</u>	<u>CHF</u>
Ground Water	Lead	1,610.00	ug/L	402.50
	Antimony and compounds	249.00	ug/L	17.05
	Copper and compounds	4,070.00	ug/L	3.00
	Cadmium and compounds	52.20	ug/L	2.85
	Zinc	23,500.00	ug/L	2.15
Soil	Lead	46,800.00	mg/kg	117.00
	Lead	46,800.00	mg/kg	117.00
	Antimony and compounds	512.00	mg/kg	16.52
	Arsenic (cancer)	73.80	mg/kg	2.31
	Copper and compounds	1,540.00	mg/kg	0.55

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## Contaminants by Site and Media

SITE: SWMU 00001

DESCRIPTION: BOCA CHICA OPEN DISPOSAL AREA

<u>Media</u>	<u>Compound</u>	<u>Concentration</u>	<u>Units</u>	<u>CHF</u>
Ground Water	Arsenic (cancer)	94.50	ug/L	24.87
	Lead	74.40	ug/L	18.60
	Antimony and compounds	251.00	ug/L	17.19
	Vinyl chloride	16.00	ug/L	8.00
	Thallium sulfate	20.10	ug/L	6.93
	Mercury and compounds (inorganic)	66.00	ug/L	6.00
	Naphthalene	725.00	ug/L	3.02
	Aluminum	27,000.00	ug/L	0.74
	Benzene	25.00	ug/L	0.64
	Chromium VI and compounds	106.00	ug/L	0.58
Sediment Ecological Marine	Mercury	1.90	mg/kg	12.67
	Lead	181.00	mg/kg	5.17
	Copper and compounds	211.00	mg/kg	3.01
	Zinc	216.00	mg/kg	1.80
Soil	Lead	436.00	mg/kg	1.09
	Antimony and compounds	21.70	mg/kg	0.70
Surface Water Ecological Marine	Mercury	0.32	ug/L	12.80
	Lead	83.30	ug/L	9.80
	Zinc	129.00	ug/L	1.50
	Cadmium and compounds	13.70	ug/L	1.47

## Contaminants by Site and Media

SITE: SWMU 00002

DESCRIPTION: BOCA CHICA DDT MIXING AREA

<u>Media</u>	<u>Compound</u>	<u>Concentration</u>	<u>Units</u>	<u>CHF</u>
Ground Water	Dichloroethane, 1,2- (EDC)	773.00	ug/L	64.42
	Aldrin	2.70	ug/L	6.75
	Antimony and compounds	88.00	ug/L	6.03
	Thallium sulfate	11.70	ug/L	4.03
	Chlorobenzene	120.00	ug/L	3.08
	Vinyl chloride	3.00	ug/L	1.50
	Benzene	54.00	ug/L	1.38
Sediment Ecological Marine	DDD,4,4-	17.20	mg/kg	17.20
	DDT	14.80	mg/kg	7.40
	DDE,4,4-	7.50	mg/kg	3.75
	Zinc	170.00	mg/kg	1.42
	Lead	24.00	mg/kg	0.69
Soil	HCH (beta)	51.00	mg/kg	2.04
	HCH (alpha)	7.20	mg/kg	1.01
	Chlordane	24.00	mg/kg	0.71
Surface Water Ecological Marine	Lead	80.40	ug/L	9.46

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## Contaminants by Site and Media

SITE: SWMU 00003

DESCRIPTION: BOCA CHICA FFTA

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<u>Media</u>	<u>Compound</u>	<u>Concentration</u>	<u>Units</u>	<u>CHF</u>
Ground Water	Antimony and compounds	161.00	ug/L	11.03
	Arsenic (cancer)	39.30	ug/L	10.34
	Vinyl chloride	17.00	ug/L	8.50
Sediment Ecological Marine	Lead	136.00	mg/kg	3.89
	Copper and compounds	163.00	mg/kg	2.33
	Zinc	88.90	mg/kg	0.74
Surface Water Ecological Marine	Lead	14.40	ug/L	1.69
Surface Water Human	Lead	14.40	ug/L	3.60

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## Contaminants by Site and Media

SITE: SWMU 00004

DESCRIPTION: AIMD BLDG A980

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<u>Media</u>	<u>Compound</u>	<u>Concentration</u>	<u>Units</u>	<u>CHF</u>
Ground Water	Antimony and compounds	78.70	ug/L	5.39
	Arsenic (cancer)	11.30	ug/L	2.97
	Lead	7.60	ug/L	1.90
	Carbon disulfide	34.90	ug/L	1.66
	Vinyl chloride	2.70	ug/L	1.35
Sediment Ecological Marine	Antimony and compounds	8.80	mg/kg	4.40
	Lead	38.10	mg/kg	1.09
Surface Water Ecological Marine	Lead	80.40	ug/L	9.46

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## Contaminants by Site and Media

SITE: SWMU 00005

DESCRIPTION: AIMD BLDG A990

<u>Media</u>	<u>Compound</u>	<u>Concentration</u>	<u>Units</u>	<u>CHF</u>
Ground Water	Beryllium and compounds	1.30	ug/L	0.81
Sediment Ecological Marine	Lead	966.00	mg/kg	27.60
	Cadmium and compounds	120.00	mg/kg	24.00
	Zinc	824.00	mg/kg	6.87
	Chromium (total)	428.00	mg/kg	5.35
	Antimony and compounds	4.00	mg/kg	2.00
	Nickel and compounds	26.60	mg/kg	0.89
	Copper and compounds	38.90	mg/kg	0.56
Surface Water Ecological Marine	Lead	68.90	ug/L	8.11
	Chromium VI and compounds	58.20	ug/L	1.16
	Cadmium and compounds	9.70	ug/L	1.04

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## Contaminants by Site and Media

SITE: SWMU 00007

DESCRIPTION: BLDG A824

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<u>Media</u>	<u>Compound</u>	<u>Concentration</u>	<u>Units</u>	<u>CHF</u>
Ground Water	Lead	9.50	ug/L	2.38
Sediment Ecological Marine	Silver and compounds	29.10	mg/kg	29.10
	Mercury	1.80	mg/kg	12.00
	Aroclor	0.37	mg/kg	7.40
	Antimony and compounds	7.00	mg/kg	3.50
	Zinc	382.00	mg/kg	3.18
	Lead	86.50	mg/kg	2.47
	Cadmium and compounds	2.80	mg/kg	0.56
Soil	Polychlorinated biphenyls (PCBs)	17.00	mg/kg	2.58

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## Contaminants by Site and Media

SITE: SWMU 00009

DESCRIPTION: JET ENGINE TEST CELL

<u>Media</u>	<u>Compound</u>	<u>Concentration</u>	<u>Units</u>	<u>CHF</u>
Ground Water	1,2-Dichloroethylene (cis)	1,560.00	ug/L	25.57
	1,2-Dichloroethylene (trans)	3,060.00	ug/L	25.50
	Benzene	56.00	ug/L	1.44
Sediment Ecological Marine	Mercury	1.10	mg/kg	7.33
	Lead	23.10	mg/kg	0.66
	Arsenic (noncancer)	17.80	mg/kg	0.54
Soil	Lead	434.00	mg/kg	1.09

# Key West Relative Risk Ranks

SITE: SITE 00001

DESCRIPTION: TRUMAN ANNEX DISPOSAL AREA

<u>MEDIA</u>	<u>CHF WAS</u>	<u>CHF NOW</u>	<u>MPF WAS</u>	<u>MPF NOW</u>	<u>RF WAS</u>	<u>RF NOW</u>	<u>RANK WAS</u>	<u>RANK NOW</u>
Ground Water	Significant	Significant	Potential	Potential	Limited	Limited	Med	Med
Sediment Ecological Marine	Moderate	Significant	Evident	Evident	Identified	Identified	High	High
Soil	Significant	Moderate	Potential	Potential	Potential	Potential	High	Med
Surface Water Ecological Marine	N/A	Minimal	N/A	Potential	N/A	Potential	N/A	Low

**OVERALL SITE RANK**    WAS    High                    NOW    High

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## Key West Relative Risk Ranks

SITE: SITE 00002

DESCRIPTION: TRANSFORMER OIL DISPOSAL

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<u>MEDIA</u>	<u>CHF WAS</u>	<u>CHF NOW</u>	<u>MPF WAS</u>	<u>MPF NOW</u>	<u>RF WAS</u>	<u>RF NOW</u>	<u>RANK WAS</u>	<u>RANK NOW</u>
Ground Water	Significant	Significant	Confined	Confined	Limited	Limited	Low	Low
Soil	Minimal	Minimal	Potential	Potential	Potential	Potential	Low	Low

**OVERALL SITE RANK    WAS    Low                    NOW    Low**

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## Key West Relative Risk Ranks

SITE: SITE 00003

DESCRIPTION: TRUMAN ANNEX DDT MIXING AREA

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<u>MEDIA</u>	<u>CHF WAS</u>	<u>CHF NOW</u>	<u>MPF WAS</u>	<u>MPF NOW</u>	<u>RF WAS</u>	<u>RF NOW</u>	<u>RANK WAS</u>	<u>RANK NOW</u>
Ground Water	Moderate	Moderate	Potential	Potential	Identified	Potential	High	Med
Soil	Moderate	Moderate	Potential	Confined	Identified	Potential	High	Low

**OVERALL SITE RANK    WAS    High                    NOW    Medium**



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# Key West Relative Risk Ranks

SITE: SITE 00006

DESCRIPTION: DREDGER KEY REFUSE DISPOSAL AREA

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<u>MEDIA</u>	<u>CHF WAS</u>	<u>CHF NOW</u>	<u>MPF WAS</u>	<u>MPF NOW</u>	<u>RF WAS</u>	<u>RF NOW</u>	<u>RANK WAS</u>	<u>RANK NOW</u>
Soil	N/A	Moderate	N/A	Potential	N/A	Potential	N/A	Med

OVERALL SITE RANK    WAS    N/A                    NOW    Medium

# Key West Relative Risk Ranks

SITE: SITE 00007

DESCRIPTION: NORTH FLEMING KEY LANDFILL

<u>MEDIA</u>	<u>CHF WAS</u>	<u>CHF NOW</u>	<u>MPF WAS</u>	<u>MPF NOW</u>	<u>RF WAS</u>	<u>RF NOW</u>	<u>RANK WAS</u>	<u>RANK NOW</u>
Ground Water	Significant	Significant	Potential	Potential	Limited	Limited	Med	Med
Sediment Ecological Marine	Moderate	Moderate	Evident	Evident	Potential	Potential	High	High
Soil	Moderate	Moderate	Potential	Potential	Potential	Limited	Med	Low
Surface Water Ecological Marine	Moderate	Moderate	Evident	Evident	Identified	Potential	High	High

OVERALL SITE RANK WAS High

NOW High

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## Key West Relative Risk Ranks

SITE: SITE 00008

DESCRIPTION: SOUTH FLEMING KEY LANDFILL

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<u>MEDIA</u>	<u>CHF WAS</u>	<u>CHF NOW</u>	<u>MPF WAS</u>	<u>MPF NOW</u>	<u>RF WAS</u>	<u>RF NOW</u>	<u>RANK WAS</u>	<u>RANK NOW</u>
Ground Water	Significant	Significant	Potential	Potential	Limited	Limited	Med	Med
Sediment Ecological Marine	Moderate	Moderate	Evident	Evident	Potential	Potential	High	High
Soil	Minimal	Minimal	Potential	Potential	Potential	Limited	Low	Low
Surface Water Ecological Marine	Moderate	Moderate	Evident	Evident	Identified	Potential	High	High

OVERALL SITE RANK    WAS    High                    NOW    High

# Key West Relative Risk Ranks

SITE: SITE 00018

DESCRIPTION: BIG COPPITT KEY DISPOSAL AREA (AOC B)

<u>MEDIA</u>	<u>CHF WAS</u>	<u>CHF NOW</u>	<u>MPF WAS</u>	<u>MPF NOW</u>	<u>RF WAS</u>	<u>RF NOW</u>	<u>RANK WAS</u>	<u>RANK NOW</u>
Ground Water	Significant	Significant	Potential	Potential	Limited	Potential	Med	High
Sediment Ecological Marine	Moderate	Moderate	Evident	Evident	Identified	Potential	High	High
Soil	N/A	Minimal	N/A	Potential	N/A	Potential	N/A	Low
Surface Water Ecological Marine	Moderate	Significant	Evident	Evident	Identified	Potential	High	High

OVERALL SITE RANK    WAS    High                    NOW    High

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## Key West Relative Risk Ranks

SITE: SITE 00020

DESCRIPTION:

DEMOLITION KEY (AOC A)

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<u>MEDIA</u>	<u>CHF WAS</u>	<u>CHF NOW</u>	<u>MPF WAS</u>	<u>MPF NOW</u>	<u>RF WAS</u>	<u>RF NOW</u>	<u>RANK WAS</u>	<u>RANK NOW</u>
Ground Water	Significant	Significant	Potential	Potential	Potential	Potential	High	High
Sediment Ecological Marine	Minimal	Minimal	Potential	Potential	Identified	Potential	Med	Low
Soil	Significant	Significant	Potential	Potential	Limited	Potential	Med	High

OVERALL SITE RANK    WAS    High

NOW    High

# Key West Relative Risk Ranks

SITE: SWMU 00001

DESCRIPTION: BOCA CHICA OPEN DISPOSAL AREA

<u>MEDIA</u>	<u>CHF WAS</u>	<u>CHF NOW</u>	<u>MPF WAS</u>	<u>MPF NOW</u>	<u>RF WAS</u>	<u>RF NOW</u>	<u>RANK WAS</u>	<u>RANK NOW</u>
Ground Water	Moderate	Moderate	Potential	Potential	Potential	Potential	Med	Med
Sediment Ecological Marine	Significant	Moderate	Evident	Evident	Identified	Identified	High	High
Soil	Moderate	Moderate	Potential	Potential	Potential	Limited	Med	Low
Surface Water Ecological Marine	Moderate	Moderate	Evident	Evident	Identified	Identified	High	High

OVERALL SITE RANK    WAS    High                    NOW    High

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## Key West Relative Risk Ranks

SITE: SWMU 00002

DESCRIPTION: BOCA CHICA DDT MIXING AREA

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<u>MEDIA</u>	<u>CHF WAS</u>	<u>CHF NOW</u>	<u>MPF WAS</u>	<u>MPF NOW</u>	<u>RF WAS</u>	<u>RF NOW</u>	<u>RANK WAS</u>	<u>RANK NOW</u>
Ground Water	Moderate	Moderate	Evident	Potential	Potential	Limited	High	Low
Sediment Ecological Marine	Significant	Moderate	Evident	Evident	Identified	Identified	High	High
Soil	Moderate	Moderate	Potential	Potential	Limited	Limited	Low	Low
Surface Water Ecological Marine	Moderate	Moderate	Potential	Evident	Potential	Identified	Med	High

**OVERALL SITE RANK    WAS    High                    NOW    High**

# Key West Relative Risk Ranks

SITE: SWMU 00003

DESCRIPTION: BOCA CHICA FFTA

<u>MEDIA</u>	<u>CHF WAS</u>	<u>CHF NOW</u>	<u>MPF WAS</u>	<u>MPF NOW</u>	<u>RF WAS</u>	<u>RF NOW</u>	<u>RANK WAS</u>	<u>RANK NOW</u>
Ground Water	Moderate	Moderate	Potential	Potential	Potential	Limited	Med	Low
Sediment Ecological Marine	Moderate	Moderate	Potential	Potential	Identified	Potential	High	Med
Soil	Minimal	Minimal	Potential	Potential	Potential	Limited	Low	Low
Surface Water Ecological Marine	Minimal	Minimal	Potential	Potential	Potential	Potential	Low	Low

OVERALL SITE RANK    WAS    High                    NOW    Medium

# Key West Relative Risk Ranks

SITE: SWMU 00004

DESCRIPTION: AIMD BLDG A980

<u>MEDIA</u>	<u>CHF WAS</u>	<u>CHF NOW</u>	<u>MPF WAS</u>	<u>MPF NOW</u>	<u>RF WAS</u>	<u>RF NOW</u>	<u>RANK WAS</u>	<u>RANK NOW</u>
Ground Water	Minimal	Moderate	Potential	Potential	Potential	Limited	Low	Low
Sediment Ecological Marine	Moderate	Moderate	Potential	Potential	Potential	Potential	Med	Med
Soil	Minimal	Minimal	Potential	Potential	Potential	Potential	Low	Low
Surface Water Ecological Marine	Moderate	Moderate	Potential	Potential	Potential	Potential	Med	Med

**OVERALL SITE RANK    WAS    Medium    NOW    Medium**

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## Key West Relative Risk Ranks

SITE: SWMU 00005

DESCRIPTION: AIMD BLDG A990

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<u>MEDIA</u>	<u>CHF WAS</u>	<u>CHF NOW</u>	<u>MPF WAS</u>	<u>MPF NOW</u>	<u>RF WAS</u>	<u>RF NOW</u>	<u>RANK WAS</u>	<u>RANK NOW</u>
Ground Water	Minimal	Minimal	Potential	Potential	Potential	Limited	Low	Low
Sediment Ecological Marine	Moderate	Moderate	Potential	Potential	Potential	Potential	Med	Med
Soil	Minimal	Minimal	Potential	Potential	Potential	Potential	Low	Low
Surface Water Ecological Marine	Moderate	Moderate	Potential	Potential	Potential	Potential	Med	Med

**OVERALL SITE RANK**    WAS    **Medium**            NOW    **Medium**

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## Key West Relative Risk Ranks

SITE: SWMU 00007

DESCRIPTION: BLDG A824

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<u>MEDIA</u>	<u>CHF WAS</u>	<u>CHF NOW</u>	<u>MPF WAS</u>	<u>MPF NOW</u>	<u>RF WAS</u>	<u>RF NOW</u>	<u>RANK WAS</u>	<u>RANK NOW</u>
Ground Water	Moderate	Moderate	Potential	Potential	Potential	Potential	Med	Med
Sediment Ecological Marine	Moderate	Moderate	Potential	Potential	Potential	Potential	Med	Med
Soil	Moderate	Moderate	Potential	Potential	Potential	Limited	Med	Low
Surface Water Ecological Marine	Minimal	Minimal	Potential	Potential	Potential	Potential	Low	Low

**OVERALL SITE RANK**    WAS    Medium            NOW    Medium

# Key West Relative Risk Ranks

SITE: SWMU 00009

DESCRIPTION: JET ENGINE TEST CELL

<u>MEDIA</u>	<u>CHF WAS</u>	<u>CHF NOW</u>	<u>MPF WAS</u>	<u>MPF NOW</u>	<u>RF WAS</u>	<u>RF NOW</u>	<u>RANK WAS</u>	<u>RANK NOW</u>
Ground Water	Moderate	Moderate	Evident	Evident	Identified	Limited	High	Med
Sediment Ecological Marine	N/A	Moderate	N/A	Potential	N/A	Identified	N/A	High
Soil	N/A	Moderate	N/A	Potential	N/A	Potential	N/A	Med
Surface Water Ecological Marine	N/A	*	N/A	Potential	N/A	Identified	N/A	*

\* No risk-based concentrations are provided by the relative risk model for contaminants found in this media. These constituents will be evaluated in the risk assessment.

**OVERALL SITE RANK    WAS    High                      NOW    High**



DEPARTMENT OF THE NAVY

NAVAL AIR STATION  
PO BOX 9001  
KEY WEST FL 33040-9001

5090  
Ser 1883PW/1350  
30 Sep 96

Ms. Robin Orlandi  
NAS Key West Restoration Advisory Board  
c/o Reef Relief  
P.O. Box 430  
Key West, Florida 33041

Dear Ms. Orlandi:

We at the Naval Air Station appreciate your interest in our cleanup efforts and welcome the chance to provide answers to your questions on the Draft Background Report for Boca Chica Key. This report was transmitted to state and federal regulators on 3 July 1996. Responses to your questions are enclosed and by copy of this letter are being sent to all other RAB members and to regulators.

Although we believe we have answered your questions with the attached responses and clarifications, please note that the report is still a draft document. It was released in July to regulators and the RAB for information and was formally submitted to state and federal regulators on 27 September 1996 as an appendix of the Draft Supplemental RCRA Facility Investigation/Remedial Investigation for Boca Chica Key. Following the regulators review over the next several weeks, their comments as well as those of the RAB will be incorporated in a final version of the Background Report, which will be again submitted for regulatory approval later in the year.

I hope these responses answer or address your concerns adequately. If you have additional questions or would like to discuss any of these issues further, please feel free to call me at (305) 293-2194 or the Navy's Remedial Project Manager, Mr. Dudley Patrick, at (803) 820-5541. We will also be available at the 30 September RAB meeting to answer any questions you may have.

Sincerely,

R.A. DEMES  
Engineering Director  
Public Works Department  
By direction of  
the Commanding Officer

Encl.(1) Background Report Questions

Copy to:

Susan Loder, Community RAB Member  
Jim Smith, Community RAB Member  
Jorge Caspary, FDEP  
Dudley Patrick, SOUTHNAVFACENGCOM

Mimi Stafford, Community RAB Member  
Dent Pierce, Community RAB Member  
Martha Berry, EPA IV  
Kevin Walter, Brown & Root Environmental

**Responses to Comments of RAB member Robin Orlandi on Draft Background Report for Boca Chica Key dated July 1996**

*Orlandi Comment #1: The functions of "upper confidence limit" and "upper tolerance limit" are not well defined. How do these factors function in calculating the background characterization? Also how are the background parameters used in the assessment of on-site risks? The purpose of background characterization as a part of the overall site evaluation and restoration plan isn't made clear in the draft report.*

**Navy Response: Section 1.1 of the background report (Purpose) will be re-evaluated and modified to make clearer how the background report relates to the overall site evaluation, site restoration and the main body of the Supplemental RFI/RI report.**

**The upper confidence limit (UCL) and upper tolerance limit (UTL) are two statistical tools that were used in the background report to help describe background conditions at Boca Chica Key. These values were presented with other descriptive statistics such as the minimum value, maximum value and the mean to provide the reader with specific statistical information about the various parameters detected in background samples collected from Boca Chica Key. No comparison to site data was performed in the background report because such comparisons are made in the Supplemental RFI/RI report (i.e., the background report is not intended to be a stand-alone report). Thus, the background report is included as an Appendix in the Supplemental RFI/RI report to support the statements and analytical comparisons made in the risk assessment portions of the main body of the Supplemental RFI/RI report.**

**The human health risk assessment calculates risk for all parameters regardless of background conditions. This is done to comply with EPA guidelines for performing human health risk assessments at hazardous waste sites. It is, therefore, possible to calculate a human health risk for a particular chemical that exists naturally at NAS Key West. Basically, this situation indicates that a human health risk (as defined by EPA) exists not from the site under study but from naturally occurring conditions external to the site. In these situations, a compromise is normally reached whereby a site is not required to be cleaned up to levels or conditions that are "cleaner" than natural background conditions. The descriptive statistics presented in the background report will be used to help determine if a calculated human health risk for a particular chemical is due to site conditions or background conditions.**

**The ecological health risk assessment considered background conditions as one of the screening criteria used when selecting ecological contaminants of concern (ECCs). This allowed the ecological assessment process to continue for those chemicals that were both: high enough to affect the ecology (i.e., exceed ecological benchmark values); and above background levels. Again, the descriptive statistics presented in the background report**

support the comparisons and decisions made in the ecological risk assessment portions of the Supplemental RFI/RI report.

The definitions of UCL and UTL are provided in Attachment A of the background report. For use in the background report, the UCL and UTL provide values that are higher than 95 percent of the values observed from background sample results. The primary purpose of the UCL and UTL is to identify an upper bound for observed background values. The UCL is based (theoretically) on large sample sizes, but it does not provide any confidence (or certainty) in its calculated result. The UTL will result in a value that has 95 percent confidence (or certainty) that the result is higher than 95 percent of the observed values. Adding the certainty of 95 percent confidence normally results in the UTL being calculated as a higher value than the UCL. Although the UCL and UTL can be calculated for low number of samples, they are generally considered meaningless for sample populations less than 4.

*Orlandi Comment #2: What are the implications of all three background sites appearing" to have been impacted to some extent by previous activities on Boca Chica Key"? How does this effect the assessment of SWMU and RI sites/site data?*

Navy Response: Background sampling is conducted to ensure that site-related contamination can be distinguished from naturally occurring or on-site-related anthropogenic contamination. Ideally, background sampling is conducted at locations which have not been subjected to human activity and previous development. However, the historical use of Boca Chica Key and Key West by the Navy, as well as extensive non-military development and human-related activities throughout the Florida Keys, have resulted in the absence of pristine habitats in the area. In other words, all habitats in the Keys have been subjected to some degree of human activity and development. Thus, the conclusion that "all three site-wide background sites appear to have been impacted to some extent by previous activities" is not surprising.

Overall, the results of chemical analyses and toxicity tests of soil, surface water, sediment, and biota show that the three background sites, although not pristine, are relatively uncontaminated. The conclusion that the background sites have been impacted "to some extent by previous activities" will not significantly effect the assessment of SWMU sites.

Additionally it should be noted that the overall purpose of background site data is to assist in the evaluation of SWMU/RI site specific data. Often contaminants measured at sites are present at very low levels and it is unclear whether the contaminants at the site got there because of the past site-specific activities or whether they naturally or ubiquitously exist there not as a result of any site-specific activities. These evaluations are used in the determination of what remediation is appropriate.

*Orlandi Comment #3: Why were so few oyster samples collected? What equivalent was used to represent their trophic level at BG1 and BG2?*

**Navy Response: Mangrove oysters were collected at BG 3, but were not available at BG 1 nor at BG 2. At BG 1 and BG 2, fish were collected instead of mangrove oysters. Similarly, mangrove oysters were collected at SWMU 9, but they were not available at SWMUs 1, 2, nor 3.**

**Very few samples were available for analyses because only a minuscule amount of soft tissue is present within this bivalve. Thus, the collection of many mangrove oysters yielded only a few samples of tissue.**

*Orlandi Comment #4: In section 10.1.3 concerning Aroclor 1260, the conclusion appears to be inconsistent with the data cited: UC "recommended 100 ug/kg total PCBs as a whole body maximum fish residue to protect birds and mammals that consume fish" At BG1 "concentrations in 7 of 10 of the larger fish exceeded 100 ug/kg". At BG3 "three gulf killfish samples exceeded 100 ug/kg". "In conclusion concentrations of Aroclor 1260 do not appear to be elevated above values considered to be typical of the region". Are Aroclor values above 100 ug/kg and in excess of the UC's recommended maximum typical to the Florida Keys? Or is the conclusion referring to the average of all samples from all BG locations?*

**Navy Response: As stated in Section 10.1.3, PCBs in fish collected nationwide contained the following mean values: 892 ppb (1970-1976), 880 ppb (1976-1977), 850 ppb (1978-1979), and 530 ppb (1980-1981) (ATSDR, 1995). In the present study, only one PCB (Arochlor 1260) was detected in any background fish on Boca Chica Key; this compound was detected in 26 of 53 fish from background sites. Detected values ranged from 27 to 294 ppb. These values were substantially less than the mean values for PCBs in fish collected nationwide (ATSDR, 1995). Thus, the PCB concentrations in fish from background sites do not appear to be elevated in comparison to PCB concentrations in fish collected throughout the USA.**

#### **REFERENCES**

**Agency for Toxic Substances and Disease Registry (ATSDR). 1995. Draft Toxicological Profile for Polychlorinated Biphenyls. US DHHS, PHS. Atlanta, GA.**

*Orlandi Comment #5: The site maps are inadequate. It's not possible to accurately consider the background testing locations or the location of IR and SWMU sites in reference to relevant manmade, topographical and watershed features. An intermediate scale map that delineated those features (akin to a US Geological Survey map) and the precise locations of background and SWMU/IR test wells and site boundaries should be included in the final draft of the report.*

**Navy Response: The background report is not meant to be a stand alone report containing all information about the RFI/RI of Boca Chica Key. Rather the background report will be an appendix of the Draft RFI/RI Report to be issued to state and federal regulators on 27 September 1996. The Draft RFI/RI does contain numerous figures which show all of the features and sampling locations in great detail.**