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ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 3222

Kelly Restoration Advisory Board (RAB)

Technical Review Subcommittee (TRS)

Meeting Agenda*

March 8, 2005, 6:30 p.m.
Environmental Health & Wellness Center
911 Castroville Road
(formerly Las Palmas Clinic)

6:30 – 6:40	**Introduction** A. Agenda Review B. Packet Review	Dr. Patti Smith
6:40 – 7:00	**Update on Building 326**	Mr. Jack Shipman
7:00 – 7:15	**Question & Answer Session on the Update of Building 326**	Dr. Patti Smith
7:15 – 7:45	**Semi-Annual Compliance Plan Report**	Mr. Mark Stough
7:45 – 8:00	**Question & Answer Session on the Semi-Annual Compliance Plan Report**	Dr. Patti Smith
8:00 – 8:10	**Administrative** A. BRAC Cleanup Team (BCT) Update B. Spill Summary Report C. Documents to TRS/RAB D. RFI Responses E. Action Items F. Approve December TRS meeting transcript and summary	 Ms. Norma Landez Ms. Norma Landez Ms. Sonja Coderre Ms. Sonja Coderre Dr. Patti Smith Dr. Patti Smith
8:10 – 8:25	**TAPP Update**	Ms. Sonja Coderre
8:25-8:30	**Meeting Wrap-up**	

Next RAB Meeting
Location to be determined: April 19, 2005, 6:30 p.m.*

Next TRS Meeting
Environmental Health and Wellness Center: May 10, 2005, 6:30 p.m.*

8:30 **Adjournment**

Meeting dates, locations and agenda item times are subject to change.

March 8, 2005
Technical Review Subcommittee (TRS)
of the Kelly Restoration Advisory Board (RAB)
~~Draft~~ Meeting Minutes

RAB Community Member Attendees:
Mr. Robert Silvas, Community Co-chair
Ms. Esmeralda Galvan
Ms. Nancy Garcia, Alternate for Mr. Ruben Martinez
Mr. Rodrigo Garcia, Jr.
Ms. Coriene Hannapel
Ms. Henrietta LaGrange
Mr. Sam Murrah, Alternate for Mr. Michael Sheneman
Mr. Nazirite Perez
Mr. Armando Quintanilla

RAB Government Member Attendees:
Mr. Greg Lyssy, Environmental Protection Agency (EPA) - Alternate
Mr. Gary Miller, EPA
Ms. Abbi Power, Texas Commission on Environmental Quality (TCEQ) - Alternate
Mr. Mark Weegar, TCEQ

Other Attendees:
Mr. Don Buelter, Air Force Real Property Agency (AFRPA)
Ms. Sonja Coderre, AFRPA
Ms. Leigh-Ann Fabianke, AFRPA Contractor
Mr. William Hartman, Community Member
Ms. Blanca Hernandez, Environmental Health and Wellness Center (EHWC)
Ms. Cheri Kirkpatrick, AFRPA Contractor
Ms. Norma Landez, AFRPA
Ms. Alexandra Ororpe, Community Member
Mr. David Plylar, Representative for Councilwoman Patti Radle
Mr. Jack Shipman, AFRPA
Ms. Melanie Rodriguez, Public Center for Environmental Health (PCEH)
Dr. Patti Smith, Facilitator
Mr. Mark Stough, AFRPA
Mr. Tim Sueltenfuss, AFRPA Contractor
Mr. Glenn Wilkinson, Community Member

The meeting began at 6:39 p.m.

I. Introduction – Dr. Patti Smith
Dr. Patti Smith began the meeting by welcoming RAB members and other attendees.

II. Update on Building 326 – Mr. Jack Shipman
Mr. Jack Shipman provided an Update on Building 326.

Question and answer session followed regarding Building 326.

III. Semi-Annual Compliance Plan Report – Mr. Mark Stough
Mr. Mark Stough provided a presentation on the January 2005 Semi-Annual Compliance Plan Report.

Question and answer session followed regarding the January 2005 Semi-Annual Compliance Plan Report.

IV. Administrative
A. BRAC Cleanup Team (BCT) Update - Ms. Norma Landez
A BCT update was given.
B. Spill Summary Report – Ms. Norma Landez
A spill summary report was given.
C. Documents to TRS/RAB - Ms. Sonja Coderre
A report was given regarding documents included in the RAB community co-chair library at the Environmental Health and Wellness Center Reading Room.
D. RAB Recruitment – Ms. Sonja Coderre
RAB members were reminded of the January elections and encouraged to invite community members.
E. Action Items - Dr. Patti Smith
The action items from the February TRS meeting were reviewed.

V. TAPP Update – Ms. Coderre
Ms. Coderre provided a TAPP update.

VI. Meeting Adjournment
A community member moved for adjournment. Motion carried.

The meeting was adjourned at 9:26 p.m.

These minutes have been composed in accordance with Robert's Rules of Order as per the request of the RAB members.

R. Silvas 10/11/05
Robert Silvas Date
Community Co-chair

Adam Antwine 10/11/05
Adam Antwine Date
Installation Co-chair

U.S. Air Force Real Property Agency

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Kelly Radiation Program 1997-2005

Jack Shipman
Kelly Radiation Program Mgr
Kelly TRS, 8 Mar 05

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Kelly Radiation Program
Overview

Briefing Overview

- Summary of All Sites
- Main Sites - 4 Radium Paint Shops
- 2 Priority Radium Shops (B326 & B324)
- Regulators
- Clean Up Levels
- Questions

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Kelly Radiation Program
Site Summary

- 27 Total Sites
  - 17 Active Sites, active during Kelly's last years (i.e. shops used electron tubes or Depleted Uranium counterweights)
  - 10 Historical Sites (including 4 former Radium shops)
- Status
  - 24 No Further Actions (NFA) from EPA
  - 1 in Leaseback bldg still under Lackland control (B1530)
  - 2 Priority Sites - Radium Paint Shops, B324 & B326, inc associated Sanitary Sewer (SS) systems, still in remediation phases

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Kelly Radiation Program
4 Radium Paint Shops

- Where Kelly workers painted aircraft instruments and parts with paint containing Radioactive (Luminous) Radium Salts from the 1920s to about 1952.
- 4 Radium Paint Shops
  - B361 (1922-29) – Original shop was under existing hangar B361, Surveyed in 2002, No surface contamination found, Sub-foundation Contamination Deed Recorded Aug 03 (Boeing Incident, 8 Oct 03)
  - B365 (1929-34) - Original shop was under existing hangar B365, Surveyed in 2002, No surface contamination found, Deed Recorded Aug 03
  - B324 (1934-42) – Remediation completed, EPA NFA (5 Sep 03)
  - B326 (1942-52) – Remediation began in 2000, Final Remediation, Phase III (2300 lf Sanitary Sewer, SS) scheduled for completion in Jun 2005

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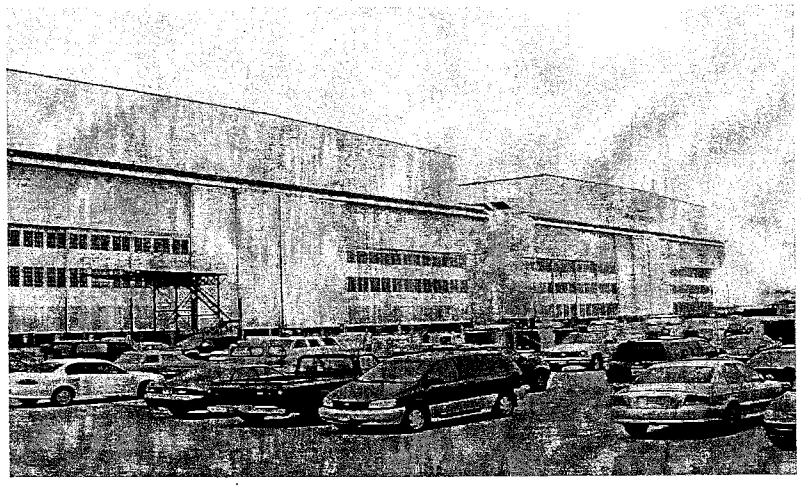
Kelly Radiation Program
B361 & 365



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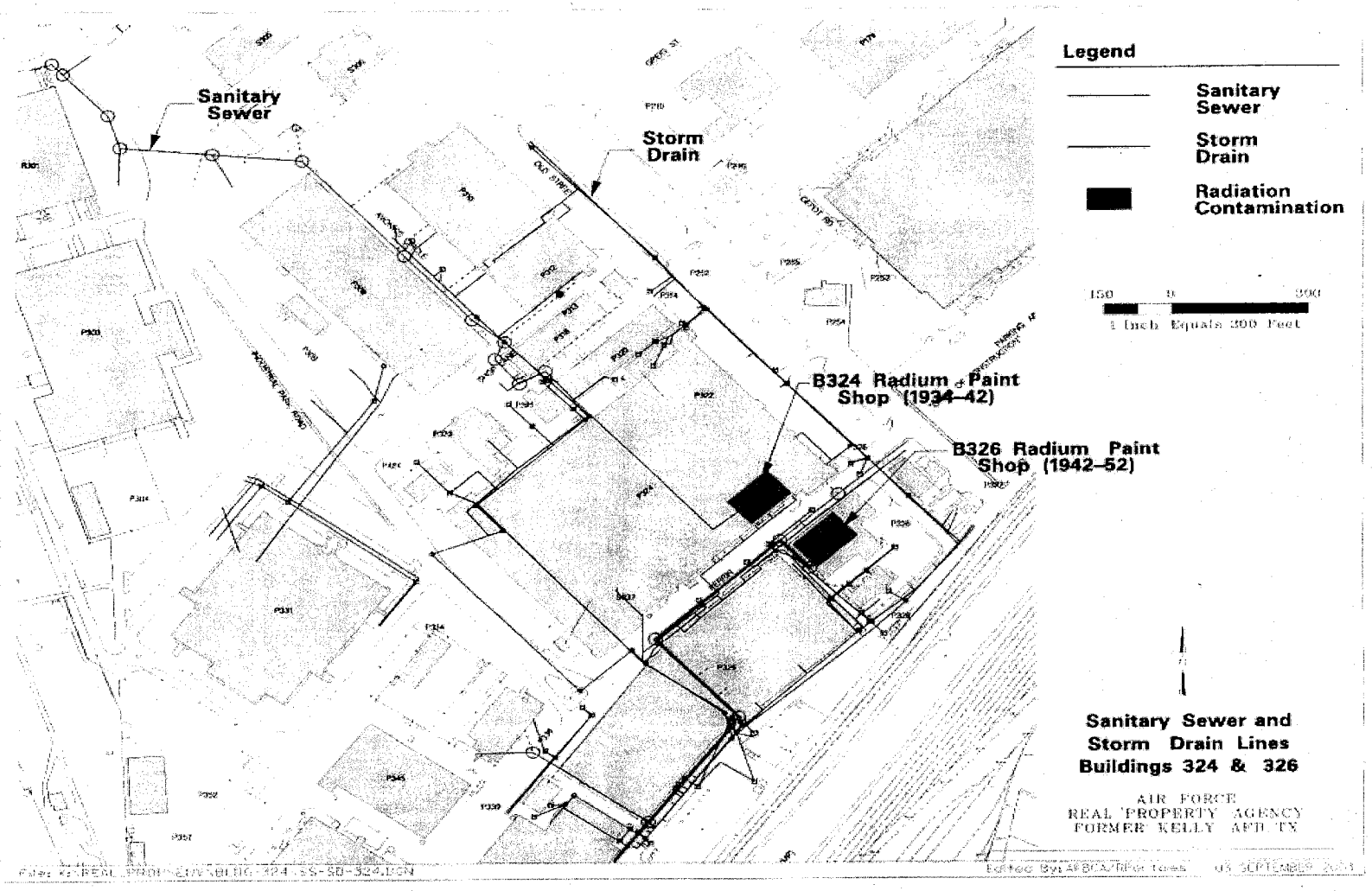
Kelly Radiation Program

2 Priority Sites – Map of Area



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Kelly Radiation Program
2 Priority Sites – B324

- B324 Luminous (Radium) Paint Shop (1934-42)
  - Surveyed in 1999 and 2000, characterized and completely remediated in 2002
  - Contamination removed from former shop concrete floors & walls, exhaust duct to roof and 100 feet of interior sanitary sewer (SS) line from under slab.
  - Exterior SS, Storm water lines, soils & shallow GW not impacted
  - Final Status Survey Report, 9 Jul 03
  - Received NFA concurrence from EPA on 5 Sep 03
  - Awaiting Air Force Radioisotope Commission (USAFRIC) Permit termination .....as soon as B326 SS is remediated.

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Kelly Radiation Program
B324 – Original Shop Area

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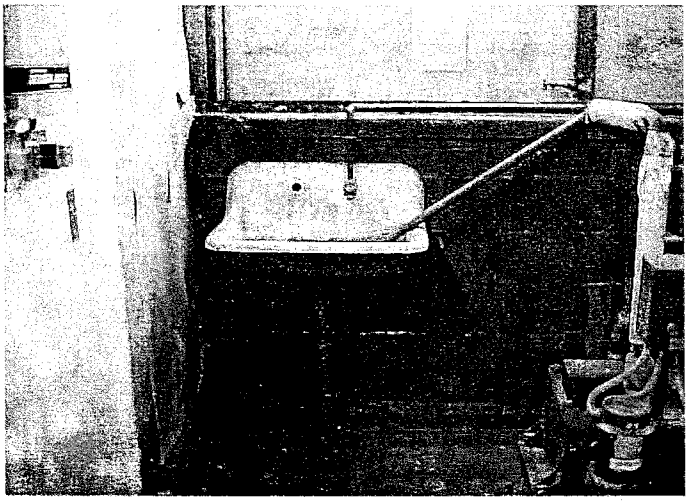
Kelly Radiation Program
B324 - 1934 sink



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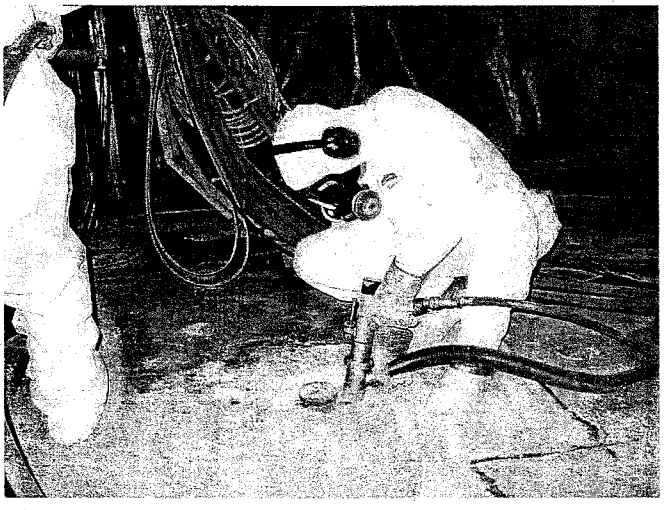
B324 - 1934 sink drain



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Kelly Radiation Program
B324 SS Pipe

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Kelly Radiation Program
2 Priority Sites – B326

- **B326 Luminous (Radium) Paint Shop (1942-52)**
  - Initial surveys in 1999 and 2000
  - Phase I - (Awarded Dec 00) B326 fully characterized in 2001 and partially remediated
  - Phase II – (Awarded Sep 02) Contamination removed from former shop concrete floors & walls, interior under floor crawlspaces and only 100 feet of exterior building SS lateral to main.
  - Surveyed Former Kelly WWTP Sludge Drying Beds (1940s-50s) – 3 elevated areas found and excavated.
  - Surveyed Storm Water lines & Shallow GW - not impacted.
  - Surveyed Off Base City of SA WWTPs – not impacted.
  - Final Status Survey Report (9 Jul 03)

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Kelly Radiation Program
2 Priority Sites – B326

- Phase III (Awarded Aug 04 for $2.2M)
- As of today.....we have remediated 500 lf of the total 2300 lf of Sanitary Sewer (SS)
- Radiation levels (Radium 226) in the pipe and the soil under the SS pipe range up to about 100 pCi/g or about 20X background..... In a few areas we have had to excavate up to 3 feet deep under the pipe.
- Texas cleanup level is 15 pCi/g soil but we are using 10 pCi/g to be safe
- Scheduled for completion in Jul 05
- Should get EPA NFA status for B326 and 324 by Oct 05 and then USAFRIC Permit termination by Dec 05

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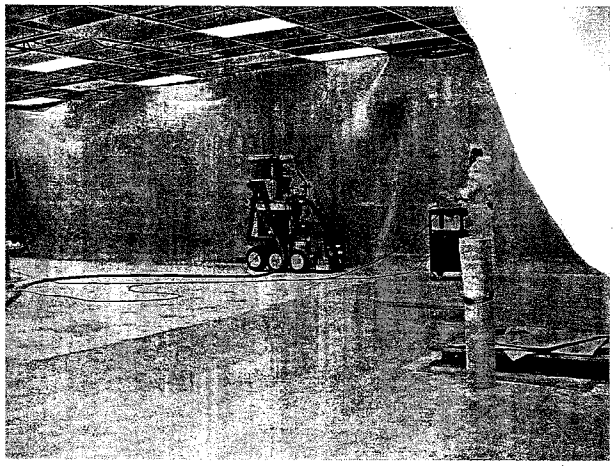
Kelly Radiation Program
B326 Interior



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Kelly Radiation Program
B326SS Alley

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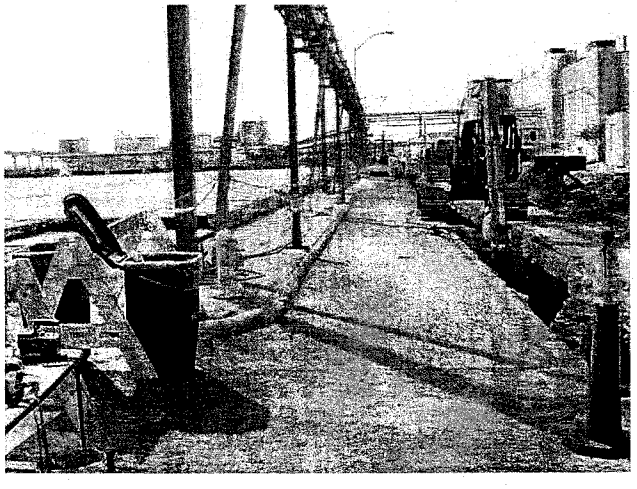
Kelly Radiation Program
B326SS Perrin Rd



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Kelly Radiation Program
Regulators

- EPA, Region 6 – Oversee State Regulators and lead in absence of a state radiation program. EPA leads at Kelly and approves all closures.
- Texas (TCEQ and TDH) – Usually regulate non-federal facility civilian radioactive material usage, storage and waste in Texas (X-ray machines). At Kelly they will yield to EPA and prefer to only monitor AFRPA radiation site remediations.
- AFMOA/SGOR - USAF Radioisotope Committee (RIC), Wash DC – Has Master License from NRC and issues Radioactive Material Permits (RAMPS) to AFBs like Kelly. The RIC governs all radioactive material usage, disposal, etc. on mainly active bases. They want to permit AF remediation projects.
- AFIOH/SDRE (Brooks AFB) - Worldwide AF radiation experts and our advisors. The Permit Radiation Safety Officers on our projects.

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Kelly Radiation Program
Clean Up Requirements

- EPA will lead – jurisdiction is on federal facilities (closure bases) where the state prefers not to lead.
  - 15 mrem annual dosage of radiation to a human, or a risk assessed value. Everyone receives 360 mrem of radiation per year from natural and medical sources
  - EPA will accept Texas clean up levels for B324 & B326.
  - AFRPA needs EPA's approval for property transfer to the GKDA and City of SA.
- State Regulations (TCEQ & TDH) TAC, Title 25, Chapter 289
  - Building surfaces – 5,000 dpm alpha/100 sq cm.
  - Soil – 5 pCi/g (up to 15cm deep) & 15 pCi/g (deeper than 15 cm).
  - (Both meet or exceed EPA's 15 mrem annual dosage maximum)

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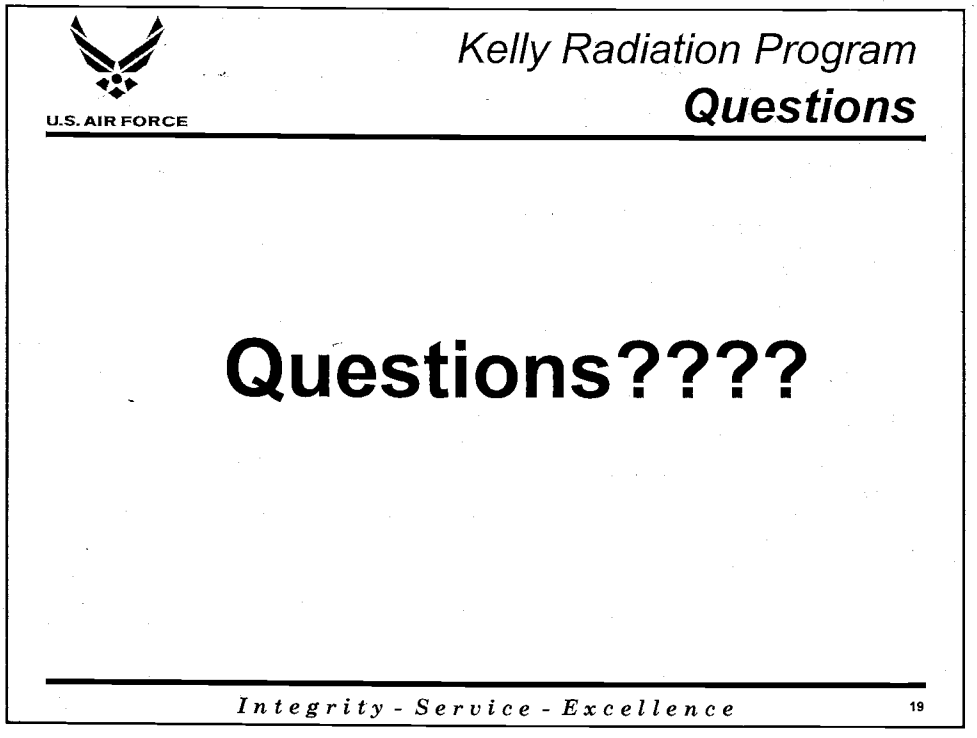
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Kelly Radiation Program
Questions
Questions????
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March 8, 2005 Briefing to TRS

January 2005 Semiannual Compliance Plan Report

Mark Stough, TPM

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Tonight's Presentation

- Discuss the scope and content of the January 2005 Semiannual Compliance Plan Report
- Types of data collected
- Tool used to evaluate the data
- Summary of the results

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Project Scope

- Fulfill the monitoring and reporting requirements of the Compliance Plan issued by the TCEQ
- Provide an annual "snapshot" of groundwater plumes and Leon Creek
- Used for remedial system evaluation
- Number of data points is about 110,000

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What this Report/Presentation Does Not Cover

- Selection of remediation methods
- Design of remediation methods
- Scheduling of remediation
- Air monitoring
- Source determination

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January 2005 Semiannual Compliance Plan Report (4 Binders)

- Part I: Introduction
  Part II: Leon Creek Semiannual Assessment
  Part III: Semiannual Groundwater Assessment for RCRA-Regulated Units
- Part IV: Annual SWMU Assessment and Statistical Evaluation (Volume 1)
- Part IV: Annual SWMU Assessment and Statistical Evaluation (Volume 2) Appendices A-L
- Part IV: Annual SWMU Assessment and Statistical Evaluation (Volume 2) Appendices M (Plume Maps)

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Compliance Monitoring

- Groundwater Monitoring
  - 14 Waste Management Areas (WMAs)
  - WMAs are groups of sites called Solid Waste Management Units (SWMUs)
  - These sites are also referred to as IRP Sites by the Air Force
  - 4 RCRA-permitted units
- Surface water, sediment and biological monitoring of Leon Creek

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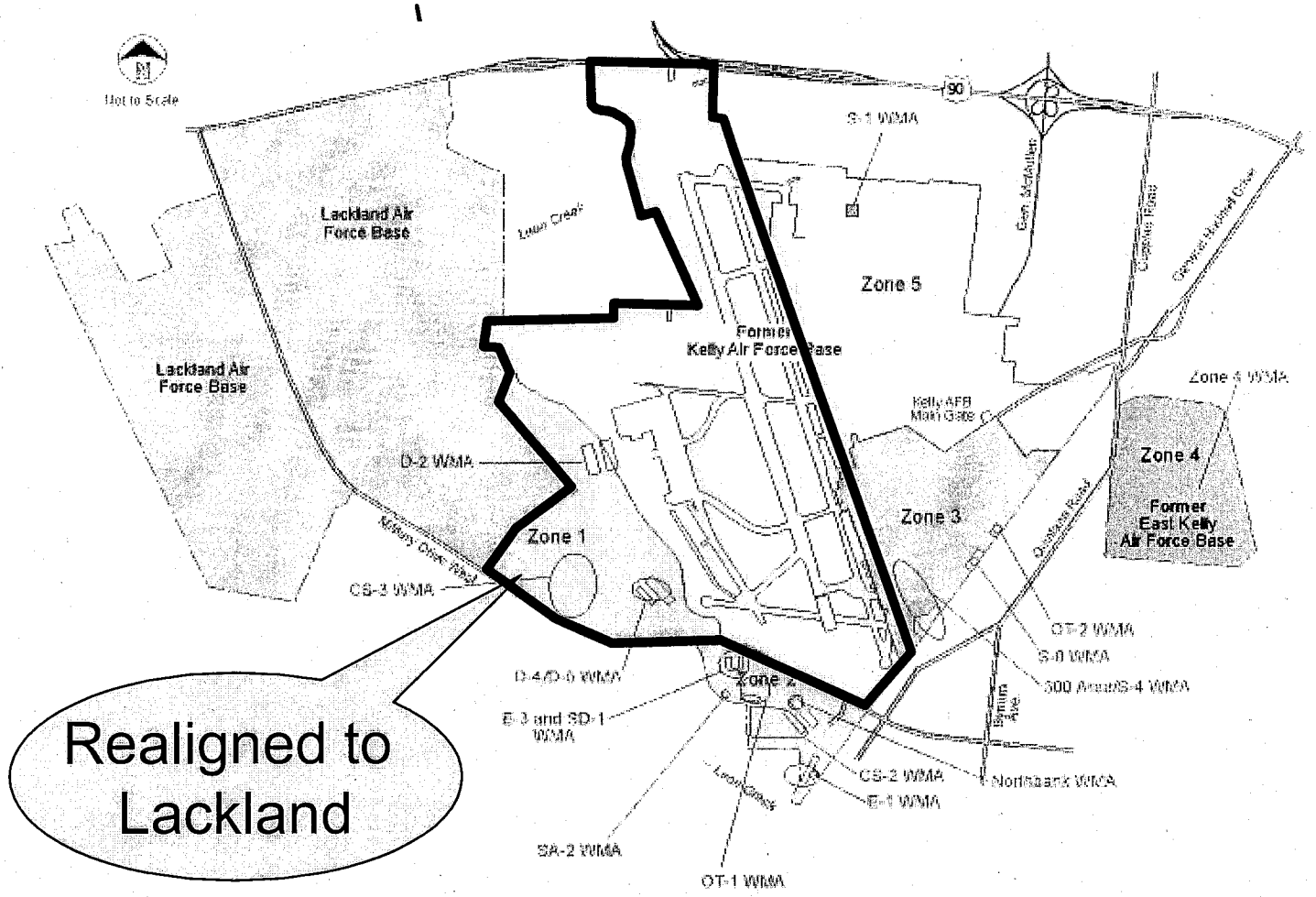
Waste Management Areas



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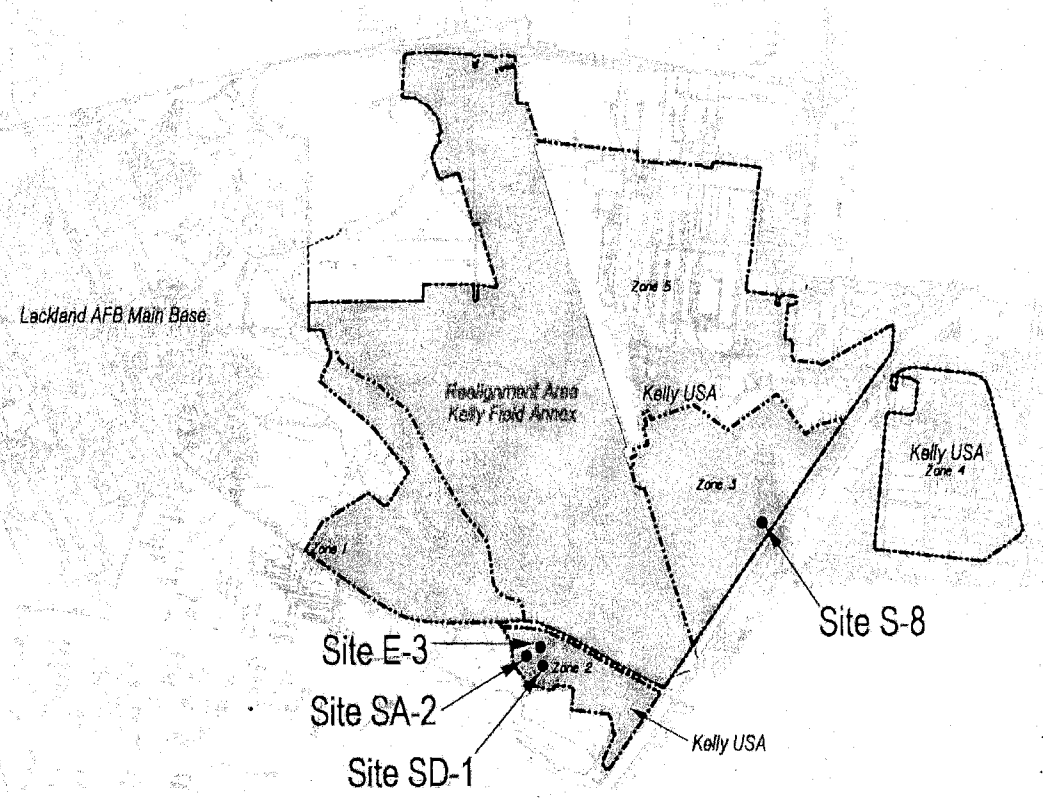
4 RCRA-Regulated Units



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Sampling/Monitoring Events

January[1]

- Semi-annual sampling of RCRA wells and Leon Creek, with elevations and flow measurements

March[1,2]

- Annual GW level measurements

[redacted]

- Annual GW sampling of Waste Management Areas (basewide)

[redacted]

- Semi-annual GW sampling of four RCRA-regulated units
- Semi-annual surface water/sediment sampling of Leon Creek
- Annual biological sampling of Leon Creek

[1] Reported in July Semiannual Report

[redacted]

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Annual WMA Sampling

- Sampled over 450 monitoring wells on and off-base during April – June 2004
- Samples sent to a laboratory for analysis of a broad range of chemicals including:
  - VOCs: volatile organic compounds
  - SVOCs: semi-volatile organic compounds
  - metals, cyanide, pesticides and polychlorinated biphenyls (PCBs)

    (Pests/PCBs - Zones 1 & 2 only)
- Also field parameters
  - oxygen, redox potential, turbidity, pH, conductivity and temperature

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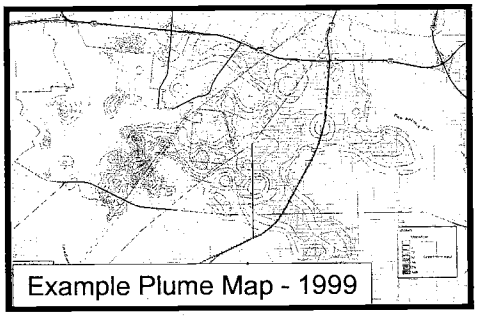
2004 Results for the Annual Sampling

- **We use plume maps as the primary tool for evaluating changes in groundwater**
- **Decreases in the magnitude and extent of chlorinated solvents in the source areas and downgradient of the remedial systems has been shown in the following areas:**



Example Plume Map - 1999

- WP022 (E-3)
- Zone 4 off-base
- Downgradient of Site SS040 (MP)

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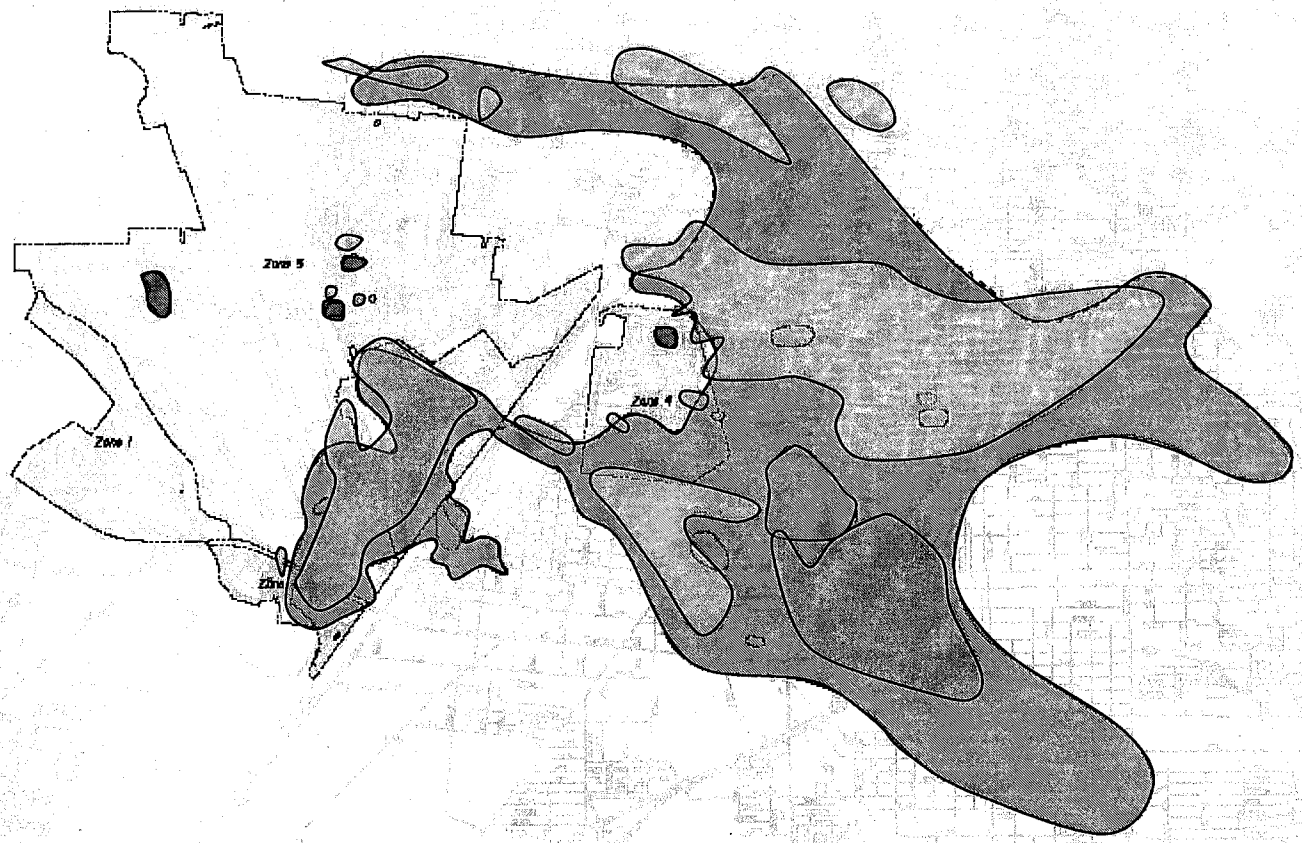
Comparison of '04 to '00



2000 - PCE

2004 - PCE

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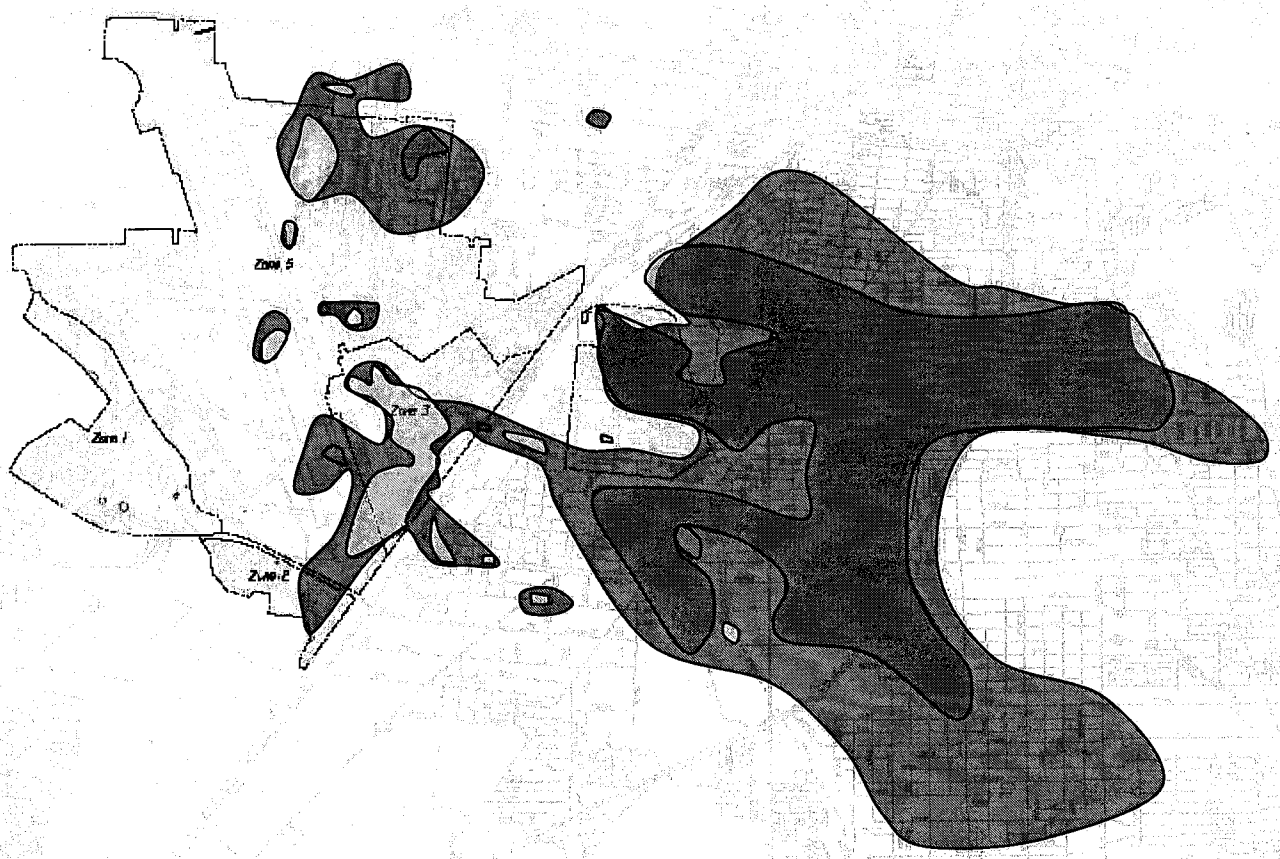
Comparison of '04 to '00



2000 - TCE

2004 - TCE

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Semi-annual Sampling of four RCRA Units

Zone 2: SA-2, SD-1 and E-3

- parts of the old industrial wastewater treatment plant
- all of the structures/wastes have been removed and pits backfilled
- SA-2* and SD-1 have achieved remediation goals
- E-3 undergoing active soil and groundwater remediation

Zone 3: S-8

- had underground storage tanks for fuel and solvents
- area once used for engine parts cleaning
- fuel and solvents are in the groundwater
- fuel and groundwater are being remediated

* closure pending approval of ecological risk assessment

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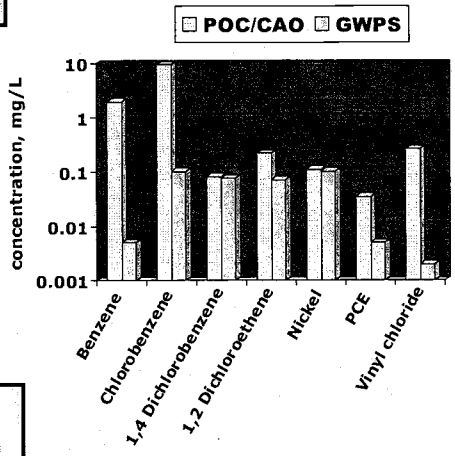
RCRA Sampling Results

Site E-3

- Several chemicals dissolved in groundwater exceed the cleanup criteria, mostly solvents (VOCs)
- VOC concentrations in the shallow groundwater have been reduced over time and now remain stable and confined within the recovery system perimeter



POC: point of compliance well
CAO: corrective action observation well
GWPS: groundwater protection standard

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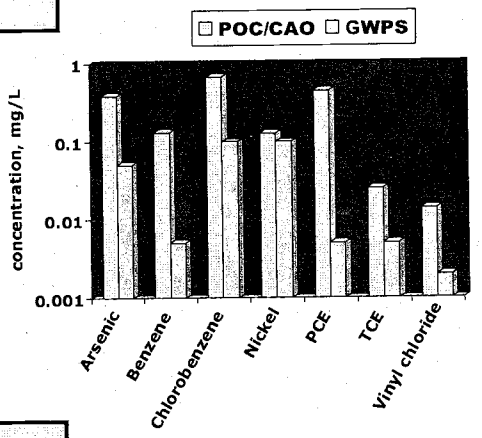
RCRA Sampling Results

Site S-8

- Minor amounts of fuel are present on the water table and are being removed
- Several chemicals dissolved in groundwater exceed the cleanup criteria, mostly solvents (VOCs)
- Monitoring indicates that natural degradation is occurring



POC: point of compliance well
CAO: corrective action observation well
GWPS: groundwater protection standard

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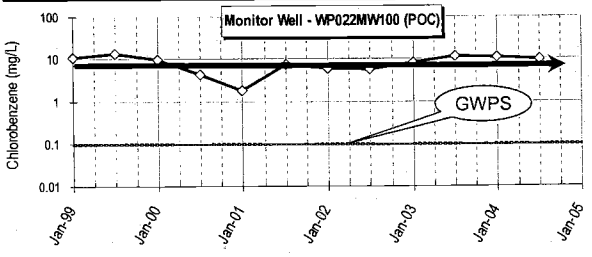
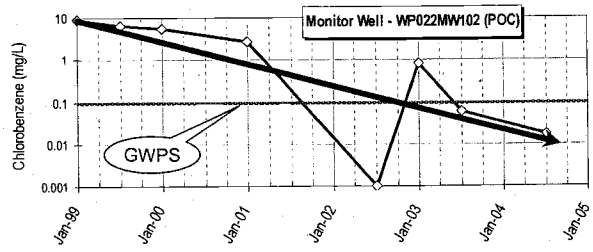
Remediation Progress at Site E-3



Stable Concentrations



Decreasing Concentrations

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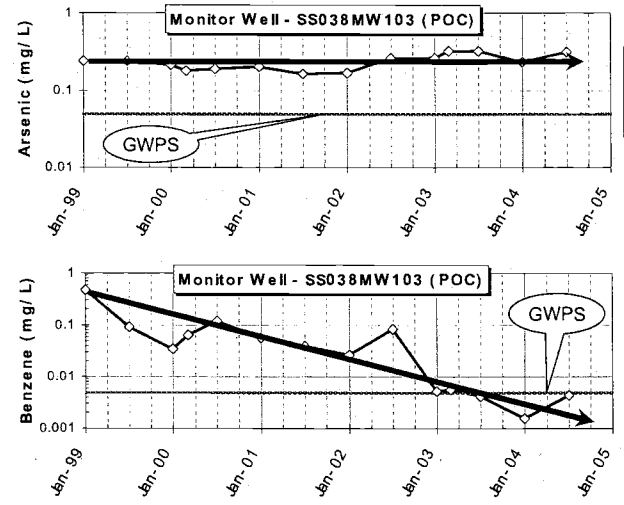
Remediation Progress at Site S-8



Stable Concentrations

Decreasing Concentrations

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Leon Creek Monitoring

1. **Physical Assessment**
   - elevation and flow measurements

2. **Chemical Assessment**
   - Water and sediment

3. **Biological Assessment**
   - Toxicity, habitat and fish tissue

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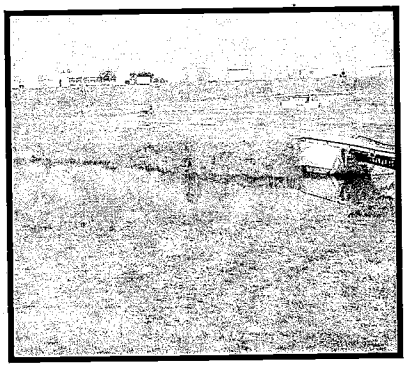
Physical Assessment of Leon Creek

- During July 2004 we measured:
  - Stream flow in 4 segments
  - Flow from selected seeps(5) and outfalls(7)
  - Surface water elevations at 23 stations
- Created sketches and took photographs to document changes in the stream's physical appearance.



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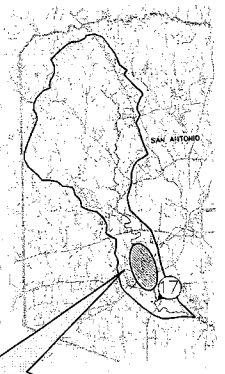
Leon Creek Physical Assessment Results

- Small, shallow, slow moving urban stream flowing through western San Antonio
- Lack of tree cover causes high water temperatures, which reduces the amount of oxygen in the water
- Highly susceptible to flash flooding
- Receptacle for urban runoff



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Chemical Assessment of Leon Creek

- During July 2004 we sampled:
  - 31 surface water stations
  - 28 sediment stations
  - 7 outfalls and 5 seeps
- Sample analyses:
  - VOCs, SVOCs, metals, cyanide, pesticides/PCBs, General Chemistry:
    - alkalinity, BOD, COD, chloride, chlorine, fecal coliform, hardness, MBAS, ammonia, nitrate, nitrite, oil/grease, phosphate, phosphorous, sulfate, TDS, TOC, TPH

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Leon Creek Chemical Results

- Initial screening against the Texas Water Quality Standard (TWQS) guidelines
  - 2 surface water parameters exceeded the criteria (coliform bacteria and vinyl chloride)
  - 18 chemicals in sediment exceeded the criteria

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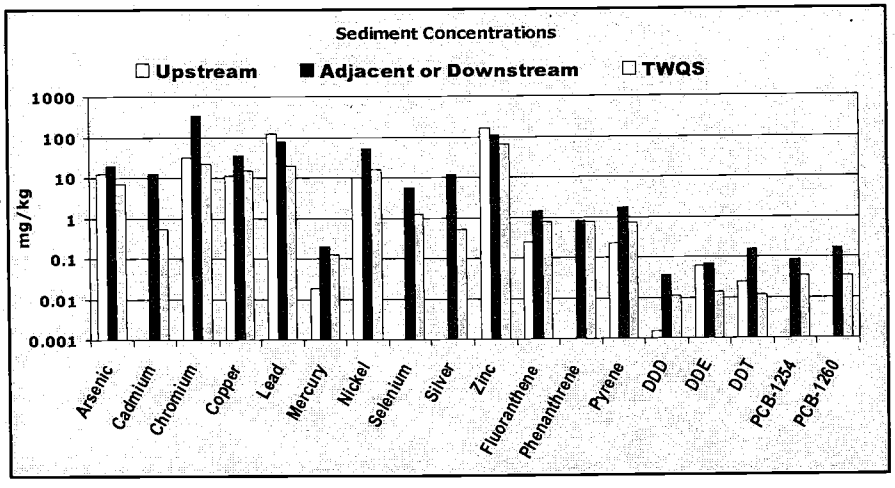
Leon Creek Sediment Results



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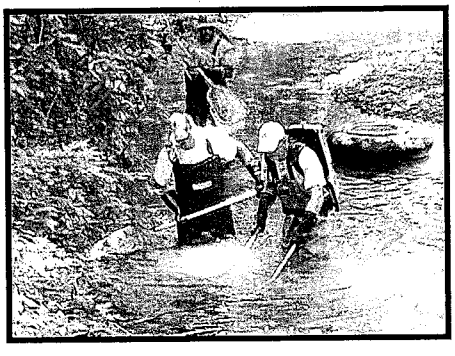
Biological Assessment of Leon Creek

- During July 2004 we conducted the following tests at 8 stream stations and 3 reference stations* :
  - Chronic Toxicity
  - Fish tissue
  - EPA Rapid Bioassessment



* Reference stations: Medio and Salado Creeks, Medina River

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Leon Creek
Biological Assessment Results

- Chronic toxicity results showed potential surface water and sediment toxicity at some of the stations
- Ecological risk assessment has shown that the majority of the toxicity is due to habitat limitations, not chemical impacts

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Leon Creek
Biological Assessment Results

- Aquatic Life Designation:
  - Medio station is meeting its aquatic life use designation, which is Intermediate Aquatic Life
  - Leon and Salado stations do not meet High Aquatic Life designation
- PCBs exceeded TWQS guidelines in the fish tissue samples
  - whole body samples (not fillets)
  - below the FDA tolerance for PCBs in the edible portion of fish

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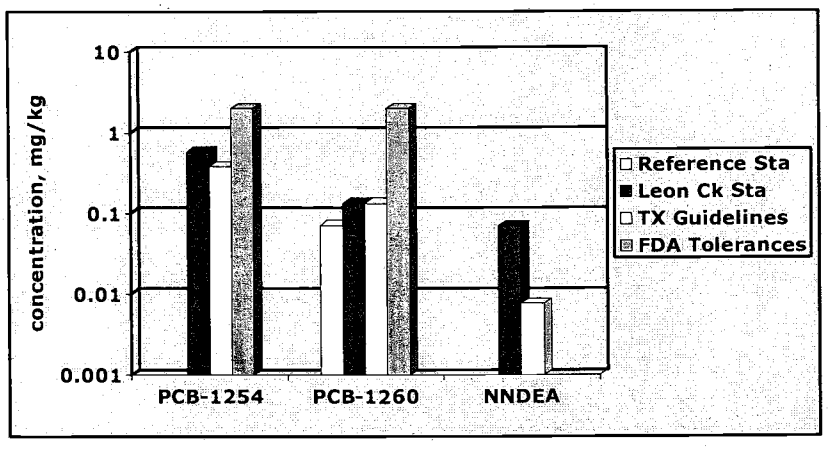
Fish Tissue Results



1. FDA Regulation 21 CFR 109.30: Unavoidable Contaminants in Food for Human Consumption and Food Packaging Material
2. NNDEA: n-nitrosodiethylamine

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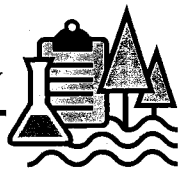
Leon Creek



- Trend analysis shows that Leon Creek has remained fairly constant over the years
- A final Tier 2/Tier 3 Ecological Risk Assessment report was submitted to the regulators the first week of May (2004)
- Findings of the report show no elevated risks to the ecological receptors in Leon Creek from the chemicals

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Questions ??

Report Available for Review at:

(1) **Public Library - Downtown**
Central Library - Government documents (2nd floor)
600 North Soledad St.

(2) **Environmental Health and Wellness Center**
911 Castroville Road

Technical Assistance for Public Participation (TAPP) Projects for the Kelly Restoration Advisory Board

		Beginning Amount	**$100,000.00**
Fiscal Year	**Project/Document Name**	**Contractor**	**Amount**
1998	ATSDR Report (Water)	University of Maryland	$9,706.00
1998	1997 Basewide Remediation Assessment	Clearwater Revival	$6,975.00
1998	OU-2 Workplan	Neathery Environmental	$5,145.00
1999	Zone 3 Corrective Measures Study Addendum	Clearwater Revival	$6,375.00
1999	Remedial Investigation of Zone 4 OU-2	Neathery Environmental	$6,195.00
1999	Final Zone 5 Corrective Measures Study	Geomatrix	$3,617.50
2000	Shallow Groundwater Report	Geomatrix	$5,572.50
2000	Site S-8 Draft Final Corrective Measures Investigation	Neathery Environmental	$5,660.00
2000	Site MP Draft RCRA Facility Investigation	Clearwater Revival	$5,925.00
2001	Zone 3 RCRA Facility Investigation	Clearwater Revival	$5,775.00
2001	Zone 4 Corrective Measures Study	Geomatrix	$8,390.00
2001	ATSDR Health Assessment	University of Maryland	$7,428.00
2003	(Mod-01)	Clearwater Revival	$500.00
2003	Zone 2/3 Correctives Measures Study	Neathery Environmental	$5,570.00
2003	ATSDR Air Emission Study	University of Maryland	$8,366.00
		Total Spent to Date	**$91,200.00**
		Remaining Balance	**$8,800.00**

Documents to the TRS/RAB

I, Robert Silvas, Co-chair of the Kelly Restoration Advisory Board, accept the following document(s) to be included in the Co-chair Library at the Environmental Health and Wellness Center. The document(s) will remain in the Co-chair library to allow fellow RAB members the opportunity for review. The documents will not be replaced if removed.

1. Audio tapes from the January 18, 2005 RAB meeting
2. Proposed RAB Rule
3. January 2005 Semi-Annual Compliance Plan Report

_____/_____

Sonja Coderre Date
Public Relations Officer

Drafting Information

The principal authors of these regulations are Bruce Perlin and Linda S.F. Marshall of the Office of the Division Counsel/Associate Chief Counsel (Tax Exempt and Government Entities). However, other personnel from the IRS and Treasury participated in their development.

List of Subjects in 26 CFR Part 1

Income taxes, Reporting and recordkeeping requirements.

Proposed Amendments to the Regulations

Accordingly, 26 CFR part 1 is proposed to be amended as follows:

PART 1—INCOME TAX; TAXABLE YEARS BEGINNING AFTER DECEMBER 31, 1986

Paragraph 1. The authority citation for part 1 continues to read in part as follows:

Authority: 26 U.S.C. 7805 * * *

Par. 2. Section 1.401(a)–20 is amended by:

1. Adding a sentence to the end of Q&A–16.

2. Adding a sentence to the end of Q&A–36.

The additions read as follows:

§ 1.401(a)–20 Requirements of qualified joint and survivor annuity and qualified preretirement survivor annuuity.

* * * * *

A–16 * * * A plan does not fail to satisfy the requirements of this Q&A–16 merely because the amount payable under an optional form of benefit that is subject to the minimum present value requirement of section 417(e)(3) is calculated using the applicable interest rate (and, for periods when required, the applicable mortality table) under section 417(e)(3).

* * * * *

A–36 * * * However, the rules of § 1.401(a)–20, Q&A–36, as it appeared in 26 CFR Part 1 revised April 1, 2003, apply to the explanation of a QJSA under section 417(a)(3) for an annuity starting date prior to February 1, 2006.

* * * * *

Par. 3. Section 1.417(a)(3)–1 is amended by:

1. Removing the language "paragraph (c)(3)(iii) of" from paragraph (c)(2)(ii)(A).

2. Adding a sentence to the end of paragraph (d)(2)(ii).

3. Adding paragraph (d)(5).

4. Revising paragraph (f).

The additions and revision read as follows:

§ 1.417(a)(3)–1 Required explanation of qualified joint and survivor annuity and qualified preretirement survivor annuity.

* * * * *

(d) * * *

(2) * * *

(ii) *Actual benefit must be disclosed.* * * * Reasonable estimates of the type described in paragraph (c)(3)(i) may be used to determine the normal form of benefit for purposes of this paragraph (d)(2)(ii) if the requirements of paragraphs (c)(3)(ii) and (iii) of this section are satisfied with respect to those estimates.

* * * * *

(5) *Use of participant-specific information in generalized notice.* A QJSA explanation does not fail to satisfy the requirements of this paragraph (d) merely because it contains an item of participant-specific information in place of the corresponding generally applicable information.

* * * * *

(f) *Effective date*—(1) *General effective date for QJSA explanations.* Except as provided in paragraph (f)(2) of this section, this section applies to a QJSA explanation with respect to any distribution with an annuity starting date that is on or after February 1, 2006.

(2) *Special effective date for certain QJSA explanations—(i) Application to QJSA explanations with respect to certain optional forms that are less valuable than the QJSA.* This section also applies to a QJSA explanation with respect to any distribution with an annuity starting date that is on or after October 1, 2004, and before February 1, 2006, if the actuarial present value of any optional form of benefit that is subject to the requirements of section 417(e)(3) (*e.g.*, single sums, distributions in the form of partial single sums in combination with annuities, social security level income options, and installment payment options) is less than the actuarial present value (as determined under § 1.417(e)–1(d)) of the QJSA. For purposes of this paragraph (f)(2)(i), the actuarial present value of an optional form is treated as not less than the actuarial present value of the QJSA if—

(A) Using the applicable interest rate and applicable mortality table under § 1.417(e)–1(d)(2) and (3), the actuarial present value of that optional form is not less than the actuarial present value of the QJSA for an unmarried participant; and

(B) Using reasonable actuarial assumptions, the actuarial present value of the QJSA for an unmarried participant is not less than the actuarial present value of the QJSA for a married participant.

(ii) *Requirement to disclose differences in value for certain optional forms.* A QJSA explanation with respect to any distribution with an annuity starting date that is on or after October 1, 2004, and before February 1, 2006, is only required to be provided under this section with respect to—

(A) An optional form of benefit that is subject to the requirements of section 417(e)(3) and that has an actuarial present value that is less than the actuarial present value of the QJSA (as described in paragraph (f)(2)(i) of this section); and

(B) The QJSA (determined without application of paragraph (c)(2)(ii) of this section).

(3) *Annuity starting date.* For purposes of paragraphs (f)(1) and (2) of this section, in the case of a retroactive annuity starting date under section 417(a)(7), as described in § 1.417(e)–1(b)(3)(vi), the date of commencement of the actual payments based on the retroactive annuity starting date is substituted for the annuity starting date.

(4) *Effective date for QPSA explanations.* This section applies to any QPSA explanation provided on or after July 1, 2004.

Mark E. Matthews,

Deputy Commissioner for Services and Enforcement.

[FR Doc. 05–1553 Filed 1–27–05; 8:45 am]

BILLING CODE 4830–01–P

DEPARTMENT OF DEFENSE

32 CFR Part 202

Restoration Advisory Boards (RABs)

AGENCY: Department of Defense, Office of the Deputy Under Secretary of Defense (Installations and Environment), DoD.

ACTION: Proposed rule.

SUMMARY: The Department of Defense (DoD) requests public comment on these proposed regulations regarding the scope, characteristics, composition, funding, establishment, operation, adjournment, and dissolution of Restoration Advisory Boards (RABs). DoD has proposed these regulations in response to 10 U.S.C. 2705(d)(2)(A), which requires the Secretary of Defense to prescribe regulations regarding RABs.

The propose of the RAB is to facilitate public participation in DoD environmental restoration activities and active and closing DoD installations and formerly used defense sites where local communities express interest in such activities. The proposed regulations are based on DoD's current policies for

reestablishing and operating RABs, as well as DoD's experience over the past ten years in using RABs.

DATES: Comments on this proposed rule must be submitted on or before March 29, 2005.

ADDRESSES: Comments on this proposal should be sent to the following address: RAB Rule, P.O. Box #5413, McLean, VA 22103–5413.

The public must send the original, and (whenever possible) a 3.5-inch computer disk containing comments in a common word processing format such as Microsoft Word. Public comments will also be collected via the Defense Environmental Network and Information eXchange (DENIX), located at the following Web site: *https://www.denix.osd.mil/rabruleTBD.*

FOR FURTHER INFORMATION CONTACT: Ms. Patricia Ferrebee, Office of the Deputy Under Secretary of Defense (Environmental Management), at (703) 695–6107.

SUPPLEMENTARY INFORMATION:

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I. Authority

These regulations are proposed under the authority of section 2705 of title 10, United States Code (U.S.C.).

II. Background

The Defense Environmental Restoration Program (DERP) was established in 1986 to "carry out a program of environmental restoration of facilities under the jurisdiction of the Secretary." Goals of the program include: "(1) Identification, investigation, research and development, and cleanup of contamination from hazardous substances, and pollutants and contaminants. (2) Correction of other environmental damage (such as detection and disposal of unexploded ordnance) which creates an imminent and substantial endangerment to the public health or welfare or to the environment. (3) Demolition and removal of unsafe buildings and structures, including buildings and structures of the Department of Defense at sites formerly used by or under the jurisdiction of the Secretary." (10 U.S.C. 2701) DoD conducts these activities at active and closing Department of Defense (DoD) installations and formerly used defense sites (FUDS). DoD created distinct programs within the DERP to address sites environmentally impacted by DoD's past activities. The Installation Restoration program (IRP) established in 1986 covers environmental restoration activities to address hazardous substances, and, pollutants and contaminants. In September 2001, DoD established the Military Munitions Response program (MMRP) to manage cleanup of unexploded ordnance, discarded military munitions, and munitions constituents at areas other than operational ranges. The Building Demolition/Debris Removal (BD/DR) program category addresses the demolition and removal of unsafe buildings and structures at facilities or sites that are or were owned by, leased to, or otherwise possessed by the United States and under the jurisdiction of the Secretary of Defense.

During the early years of the DERP, the Office of the Secretary of Defense (OSD) managed the Defense Environmental Restoration Account (DERA) for the Department's Military Components—the Army, Navy, Air Force, Defense Logistics Agency (DLA), and Defense Threat Reduction Agency (DTRA)—who execute environmental restoration activities at their respective installations. In 1996, DoD decided to separate, or devolve, DERA into five Environmental Restoration (ER) accounts to better align each Military Component's DERP responsibilities and accountability for environmental cleanup efforts. Policy direction and oversight of the DERP is the responsibility of the Office of the Deputy Under Secretary of defense (Installations and Environment). The DoD Military Components are responsible for program implementation. The Army, Navy, and Air Force manage their own ER accounts. The U.S. Army Corps of Engineers manages the FUDS program for the Army, the Department's designated executive agent for FUDS. The FUDS program addresses environmental impacts on properties DoD once owned, leased, or operated and were under the jurisdiction of the Secretary of Defense. The final ER account, the Defense-Wide account, funds cleanup programs for DLA and DTRA in addition to providing the operating funds for OSD's oversight of the DERP. While DoD manages environmental restoration at Base Realignment and Closure (BRAC) installations as part of the DERP, it funds these environmental restoration activities through a separate BRAC Program account, which is part of DoD's overall Military Construction appropriation.

DoD recognizes the importance of public involvement at military installations. For the purposes of this proposed rule, the term installation means operating and closing DoD installations and FUDS that require environmental restoration. DoD has developed community involvement policies to ensure that local communities are provided the

opportunity as early as possible to obtain information about, and provide input to, the decisions regarding the environmental restoration activities at military installations. It is DoD policy to provide the public an opportunity to participate through the establishment of RABs, among other public involvement opportunities.

Based on statutory and regulatory requirements for community involvement and recommendations from the Federal Facilities Environmental Restoration Dialogue Committee (FFERDC), DoD has strengthened its community involvement efforts, including the RAB initiative, under its environmental restoration program. DoD believes that working in partnership with local communities and addressing the concerns of those communities early in the restoration process has enhanced its efforts under, and increased the credibility of, the environmental restoration program. DoD remains committed to involving communities neighboring its installations in environmental restoration decision processes that may affect human health, safety, and the environment. RABs have become a significant component of DoD's efforts to increase community involvement in DoD's environmental restoration program. RABs provide a continuous forum through which members of affected communities can provide input to an installation's ongoing environmental restoration activities. RAB members provide recommendations regarding environmental restoration to DoD, RABs are not Federal Advisory Committees and are specifically excluded from the requirements of the Federal Advisory Committee Act (10 U.S.C. 2705(d)(2)).

On September 27, 1994, DoD and the Environmental Protection Agency (EPA) jointly issued guidelines for the formation and operation of RABs ("Restoration Advisory Board Implementation Guidelines"). The guidelines describe how to implement the DoD RAB policy and identify each stakeholder's role with the RAB. The guidelines also state that existing Technical Review Committees (TRCs) or similar groups may be expanded or modified to become RABs, and that RABs may fulfill the statutory requirements for establishing TRCs (10 U.S.C. 2705(d)(1) grants DoD the authority to establish RABs instead of TRCs at installations undergoing environmental restoration).

As of September 30, 2003, DoD reported the existence of 298 active RABs across all of the Military Components' installations. Over the past several years, the number of RABs has remained fairly consistent, although the number fluctuates as some RABs adjourn and others form. RABs are one part of DoD's and the Military Components' extensive community outreach and public participation activities, which include compliance with the public notice and participation requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), and other federal and state environmental laws as well as considerable consultation with our partners at federal, state and local government agencies. A RAB, however, may address only issues associated with environmental restoration activities under the DERP at DoD installations, including activities conducted under the MMRP category of the DERP to address unexploded ordnance, discarded military munitions, and the chemical constituents of munitions. If a RAB already exists at an installation and MMRP sites are identified, the RAB may be expanded to consider additional issues related to the MMRP sites. If the current RAB or DoD installation decides that it is necessary to involve new stakeholders, the installation should notify potential stakeholders of its intent to expand the RAB and solicit new members who have an interest in issues related to the MMRP. If there is no current RAB active at the installation and MMRP sites are identified, the installation will follow the prescribe guidance for determining sufficient community interest in forming a RAB.

The Secretary of Defense is required to "prescribe regulations regarding the establishment, characteristics, composition, and funding of restoration advisory boards" (10 U.S.C. 2705(d)(2)(A)). DoD's issuance of regulations is not, however, a precondition to the establishment of RABs (10 U.S.C. 2705(d)(2)(B)). Therefore, DoD proposes these regulations regarding the scope, characteristics, composition, funding, establishment, operation, adjournment, and dissolution of RABs. DoD recognizes that each RAB established will be a unique organization dealing with installation-specific issues. This proposal, developed consistent with the recommendations set forth in the FFERDC's Final Report, is consistent with existing DoD and EPA policy on RABs, and reflects over ten years of experience in establishing and operating RABs throughout the United States. DoD has structured this proposal to maximize flexibility for RAB members and installations nationwide.

III. Summary of the Proposed Rule

DoD is requesting public comment on these proposed regulations regarding the scope, characteristics, composition, funding, establishment, operation, adjournment, and dissolution of RABs. This section of the preamble provides a summary of the proposed regulations in 32 CFR part 202.

A. General Requirements

In this section of the proposed rule, DoD discusses the purpose, scope, relevant definitions, and applicability of the proposed regulations for RABs. DoD is required by 10 U.S.C. 2705(d)(2)(A) to issue regulations concerning the establishment, characteristics, composition, and funding of RABs. When issued as a final rule, the regulations will apply to all RABs, regardless of when they were established.

In this proposal, DoD defines the purposes of a RAB as follows:

- Provide an expanded opportunity for stakeholder involvement in the environmental restoration process at DoD installations.
- Act as a forum for the discussion and exchange of restoration program information, addressing the concerns of stakeholders and effectively reaching key groups and representatives from DoD, regulatory agencies, tribes, and the community.
- Provide an opportunity for RAB members to review progress and participate in a dialogue with the installation's decision makers concerning environmental restoration matters. Installations will listen, carefully-consider, and provide specific responses to the recommendations provided by the individual RAB members. While a RAB will complement other community involvement efforts the installation undertakes concerning environmental restoration, a RAB does not replace other types of community outreach and participation activities required by applicable federal and state laws.

A RAB may address issues associated with environmental restoration activities under the DERP at DoD installations. DoD funds RABs with money dedicated to supporting environmental restoration activities under the DERP. DoD understands that RABs may want to address environmental issues beyond the scope of environmental restoration activities. In these circumstances the installation co-chair should assist the interested individuals in finding the proper venue

to support a broader scope of issues. Environmental groups or advisory boards that address issues other than environmental restoration activities are not governed by this regulation.

The Office of the Deputy Under Secretary of Defense for Installations and Environment will issue guidance regarding the scope, characteristics, composition, funding, establishment, operation, adjournment, and dissolution of RABs pursuant to this rule. The issuance of the guidance is not a precondition to the establishment of RABs or the implementation of this rule.

This section of the proposed rule also discusses the criteria for establishment, notification of the formation, and composition of a RAB.

B. Operating Requirements

In this section of the proposed rule, DoD establishes basic requirements for the operation of a RAB. DoD proposes that each RAB will have a mission statement that describes its overall purpose and goals. DoD also specifies certain requirements regarding the selection process for co-chairs.

DoD proposes that each RAB will develop a set of operating procedures. Areas that may be addressed in the procedures include: clearly defined goals and objectives for the RAB, as determined by the DoD installation co-chair in consultation with the RAB; development and approval procedures for the RAB meeting minutes; attendance of members at meetings; meeting frequency and location; rules of order; frequency and procedures for conducting training; procedures for selecting, adding, or removing RAB members and co-chairs; specifics on the size of the RAB membership and the length of service for RAB members and co-chairs; methods for resolving disputes; processes for reviewing and responding to public comments on issues being addressed by the RAB; procedures for public participation in RAB activities; and keeping the public informed about RAB proceedings.

DoD is not proposing specified requirements concerning the conduct of RAB meetings because the meeting format of each RAB will vary and be dictated by the needs of the participants. DoD proposes, however, that all RAB meetings be open to the public; the installation will provide timely notice of each meeting in a local newspaper of general circulation; each RAB meeting will be held at a reasonable time and in a manner or place reasonably accessible to and usable by persons with disabilities; the installation co-chair will prepare meeting minutes of the RAB meetings; and the meeting minutes and other relevant documents will be available for public inspection and copying at a single, publicly accessible location. Additionally, the installation will document information on the activities of a RAB in the information repository.

In this section of the proposed rule, DoD also establishes requirements for adjourning a RAB. An Installation Commander may adjourn a RAB when there is no longer a need for a RAB or when community interest in the RAB declines. For FUDS, the Installation Commander may be the District Commander or equivalent.

Although Installation Commanders are expected to make every reasonable effort to ensure that a RAB performs its role as efficiently as possible, circumstances may prevent a RAB from operating efficiently or fulfilling its intended purpose. When this occurs, the Installation Commander will make a concerted attempt to resolve the issues that affect the RAB's effectiveness. If unsuccessful, the Installation Commander may elect to dissolve the RAB. The Installation Commander should discuss dissolution with regulators and the community as a whole before making a final decision. This section of the rule provides guidelines for how an Installation Commander may elect to dissolve a RAB.

In this section of the proposed rule, DoD sets forth requirements for adjourning a RAB, adjournment procedures, dissolving a RAB, dissolution procedures, reestablishing an adjourned or dissolved RAB, and public comment.

C. Administrative Support, Funding, and Reporting Requirements

In this section of the proposed rule, DoD sets forth requirements regarding administrative support for establishing, operating, and adjourning or dissolving a RAB, funding for administrative support, and reporting requirements regarding the activities and administrative expenses associated with RABs.

The Installation Commander, or if there is no such Commander, an appropriate DoD official, is authorized to pay for routine administrative expenses of a RAB established at an installation (10 U.S.C. 2705(d)(3)). To implement this provision, this proposed rule requires that the installation provide administrative support to establish and operate a RAB, subject to the availability of funds. The scope of this support corresponds to those activities that are eligible for DoD funding, including:

- RAB establishment
- Membership selection
- Training that meets certain criteria
- Meeting announcements
- Meeting facility, including accommodations necessary to comply with the Americans with Disabilities Act
- Meeting facilitators, including translators
- Meeting materials and minutes preparation
- RAB-member mailing list maintenance and RAB materials distribution
- RAB adjournment and dissolution.

The Secretaries of the Military Departments will make funds available for RAB administrative expenses (10 U.S.C. 2705(g)), subject to appropriations. The proposed rule establishes these requirements and specifies that active installations should pay for RAB administrative expenses using funds from their Military Component's ER accounts. The ER-FUDS account is used to pay for RAB administrative expenses at FUDS. At BRAC installations, the Base Closure account is used to pay for RAB administrative expenses.

This section of the rule also discusses the opportunities for the RAB to obtain technical assistance to facilitate members' understanding of the scientific and engineering issues underlying environmental restoration activities through DoD's Technical Assistance for Public Participation (TAPP) program. The DoD installation may also provide in-house assistance to discuss technical issues.

DoD is required to report annually to Congress on the activities of Technical Review Committees (TRCs) and RABs (10 U.S.C. 2706(a)(2)(J)). In order to fulfill this requirement, this proposed rule requires that where RABs are established the installation documents the activities of the RAB and tracks expenditures for administrative expenses of the RAB. This proposed rule does not prescribe specific procedures for the installation to follow as part of DoD's information collection when reporting to Congress. Rather, DoD will rely on existing internal reporting mechanisms within the Department and Military Components to collect this information annually.

IV. Section-by-Section Analysis of the Proposed Rule

This section of the preamble presents an analysis of each section of the proposed rule.

A. General Requirements

1. Purpose, Scope, Definitions, and Applicability

a. Purpose. The purpose of this part is to establish regulations regarding the characteristics, composition, funding, and establishment of RABs, as required by 10 U.S.C. 2705(d)(2)(A), and the operation, adjournment, and dissolution of RABs.

b. Purpose and Scope of Responsibilities of a RAB. DoD is proposing the purposes of a RAB be:

- To provide an expanded opportunity for stakeholder involvement in the environmental restoration process at DoD installations. DoD considers "stakeholders" to be parties that are actually or potentially affected by environmental restoration activities at an installation.
- To act as a forum for the discussion and exchange of restoration program information between DoD, regulatory agencies, and the community.
- To provide an opportunity for RAB members to review progress and participate in a dialogue with the installation's decision makers concerning environmental restoration matters. Installations will listen, give careful consideration, and provide specific responses to the recommendations provided by individual RAB members. Consensus is not a prerequisite for RAB member recommendations.

A RAB may address issues associated with environmental restoration activities under the DERP at DoD installations. DoD funds RABs with money dedicated to supporting environmental restoration activities under the DERP. DoD understands that RABs may want to address environmental issues beyond the scope of environmental restoration activities. In these circumstances the installation should assist the interested individuals in finding the proper venue to support a broader scope of issues. Environmental groups, advisory boards, or other entities that address issues other than environmental restoration activities are not RABs.

This proposed rule does not list specific responsibilities of RAB members, but DoD considers the following types of activities within the scope of RAB members' functions:

- Providing advice to the installation, EPA, state regulatory agency, and other government agencies on restoration activities and community involvement.
- Addressing important issues related to restoration, such as the scope of studies, cleanup levels, waste management, and remedial action alternatives.
- Reviewing and evaluating documents associated with environmental restoration activities, such as plans and technical reports.
- Identifying environmental restoration projects to be accomplished in the next fiscal year and beyond.
- Recommending priorities among environmental restoration sites or projects.
- Attending regular meetings that are open to the public and scheduled at convenient times and locations.
- Interacting with the local redevelopment authority (LRA) or other land use planning bodies to discuss future land use issues relevant to environmental restoration decision-making.
- Providing feedback to other community members on RAB activities and share community concerns and input with the RAB.

By establishing a RAB, DoD hopes to ensure that interested stakeholders have a voice and can actively participate in a timely and thorough manner in the planning and implementation of the environmental restoration process. A RAB will serve as one method for the expression and careful consideration of diverse points of view.

Installations will listen and give careful consideration to all advice provided by individual members.

DoD proposes that each installation undergoing environmental restoration activities establish a RAB where there is sufficient and sustained community interest. Where TRCs or similar advisory groups already exist, the TRC or similar advisory group will be considered for conversion to a RAB, provided there is sufficient and sustained interest within the community. DoD will recognize only one RAB or TRC per installation.

c. Definitions. In this section:

- Installation will include active and closing Department of Defense (DoD) installations and formerly used defense sites (FUDS).
- Community RAB member shall mean those individuals identified by community members and appointed by the Installation Commander to participate in a RAB who live and/or work in the affected community or are affected by the installation's environmental program.
- Environmental restoration shall include the identification, investigation, research and development, and cleanup of contamination from hazardous substances, and pollutants and contaminants.
- Installation Commander will include the Commanding Officer of an installation; the Installation Commander or other Military Department officials who close the facility and are responsible for its disposal at BRAC installations; or the U.S. Army Corps of Engineers Project Management District Commander at FUDS properties.
- Public participants shall include anyone else who may want to attend the RAB meetings, including those individuals who may not live and/or work in the affected community or may not be affected by the installation's environmental program but would like to attend and provide comments to the RAB.
- Stakeholders are those parties that may be affected by environmental restoration activities at an installation, including family members of military personnel and civilian workers, and tribal community members and indigenous people, as appropriate.
- Tribes means any federally recognized American Indian and Alaska Native government as defined by the most current Department of Interior/ Bureau of Indian Affairs list of tribal entities published in the Federal Register pursuant to Section 104 of the Federally Recognized Tribe Act.
- RAB adjournment means when an Installation Commander, in consultation with the EPA, state, tribes, RAB members, and the local community, as appropriate, closes the RAB based on a determination that there is no longer a need for a RAB or when community interest in the RAB declines sufficiently.
- RAB dissolution means when an Installation Commander disbands a RAB that is no longer fulfilling the intended purpose of advising and providing community input to an Installation Commander and decision makers on environmental cleanup projects. Installation Commanders are expected to make every reasonable effort to ensure that a RAB performs its role as effectively as possible and makes a concerted attempt to resolve issues that affect the RAB's effectiveness. There are circumstances, however, that may prevent a RAB from operating efficiently or fulfilling its intended purpose.

d. Other Public Involvement Activities. RABs are one part of DoD and the Military Components' extensive community outreach and public participation activities, which include compliance with the public notice and participation requirements of CERCLA, RCRA, and other federal and state environmental laws, as well as considerable consultation with our partners at federal, state, and local environmental and resource agencies.

e. Applicability of Regulations to Existing RABs. DoD is proposing these

regulations regarding the establishment, characteristics, composition, and funding of RABs (10 U.S.C. 2705(d)(2)A)) to formalize current Department policy. DoD intends that the final regulations will apply to all RABs, including RABs established prior to the effective date of the final rule. DoD does not consider that applying final regulations to RABs already established will pose any additional requirements or conflict because the proposed regulations are based on existing DoD policy that has been implemented since September 1994.

f. Guidance. The Office of the Deputy Under Secretary of Defense for Environment will issue guidance regarding the scope, characteristics, composition, funding, establishment, operation, adjournment, and dissolution of RABs pursuant to this rule. The issuance of the guidance is not a precondition to the establishment of RABs or the implementation of this rule.

2. Criteria for Establishment

a. Determining if Sufficient Interest Warrants Establishing a RAB. In this rule, RABs may only be established at installations undergoing environmental restoration. There may be only one RAB per installation. In accordance with existing policy, DoD proposes that a RAB be established when the Installation Commander finds sufficient and sustained community interest and any of the following criteria are met:

- The closure of an installation involves the transfer of property to the community;
- At least 50 local citizens petition for a RAB;
- Federal, state, tribal, or local government representatives request formation of a RAB; or
- The installation determines the need for a RAB.

To clarify how an installation will determine the need for a RAB, DoD proposes that the Installation Commander determine the level of interest within the community for establishing a RAB by:

- Reviewing correspondence files;
- Reviewing media coverage;
- Consulting community members;
- Consulting relevant government officials; and
- Evaluating responses to communication efforts, such as notices placed in local newspapers.

At the majority of installations that have an environmental restoration program, DoD expects that local communities will be interested in forming a RAB. DoD notes that installation efforts identify the level of community interest in establishing a RAB should not be limited to a one-time assessment of the criteria discussed above. In special circumstances it may be advantageous to establish a joint RAB for multiple installations. The decision to establish a joint RAB must be made in consultation with RAB members. Only one RAB, however, will be recognized per installation. If a RAB already exists at an installation and there will be MMRP sites, the RAB may be expanded to consider issues related to the MMRP sites. If the current RAB or DoD installation decides that it is necessary to involve new stakeholders, then installation should notify potential stakeholders of its intent to expand the RAB and solicit net members who have an interest in issues related to the MMRP.

Where RABs are not formed initially, installations undergoing environmental restoration activities will reassess community interest at least every 24 months. Reassessment of community interest should include public notice through local media, such as a local newspaper. Where the reassessment finds sufficient and sustained community interest, the installation should establish a RAB. Where the reassessment does not find sufficient and sustained community interest in a RAB, the installation will document, in a memorandum for the Administrative Record, the procedures followed in the reassessment and the findings of the reassessment.

When all environmental restoration decisions have been made and required remedies are in place and properly operating at an installation, reassessment of the community interest for establishing or reestablishing a RAB is not necessary every 24 months. When additional environmental restoration decisions have to be made resulting from subsequent actions, such as long-term monitoring and five-year reviews, the installation will reassess community interest for establishing or reestablishing a RAB.

b. Responsibility for Forming and Operating a RAB. Once the installation determines that a RAB will be established, DoD proposes that the Installation Commander have the lead responsibility for forming and operating the RAB. The Installation Commander should have lead responsibility because the RAB will be an integral part of the installation's community involvement and outreach programs. The Installation Commander may also delegate his or her duties to appropriate personnel but retains oversight authority and responsibility. DoD recommends that installations involve, as appropriate, EPA, and state, tribal, and local governments and community members in all phases of RAB planning and operation.

c. Converting Existing Technical Review Committees (TRCs) to RABs. Before the implementation of RABs, TRCs were established at DoD installations to provide interested parties with a forum to discuss and provide input into environmental restoration activities. In accordance with 10 U.S.C. 2705(d)(1), a RAB fulfills the requirements of 10 U.S.C. 2705(c), which directs DoD to establish TRCs. DoD recommends that, where TRCs or similar advisory groups already exist, provided there is sufficient and sustained interest within the community for a RAB, the TRC or similar advisory group should be considered for conversion to a RAB.

RABs expand the TRC initiative in the following ways: (1) RABs involve a greater number of community members than TRCs, thereby better incorporating the diverse needs and concerns of the community directly affected by environmental restoration activities; and (2) chairmanship of the RAB is shared between the installation and community, promoting partnership and careful consideration of the community's concerns in the decision-making process.

In order to convert a TRC to a RAB, DoD should increase community representation, evaluate and ensure the diversity of community representation, add a community co-chair, and open meetings to the public.

3. Notification of Formation of a RAB

a. Public Notice and Outreach. Prior to establishing a RAB or converting a TRC to a RAB, DoD proposes that an installation notify potential stakeholders of its intent to form a RAB. In announcing the formation of a RAB, the installation should describe the purpose of a RAB and discuss membership opportunities.

DoD recommends that every effort be made to ensure that a broad spectrum of individuals or groups representing the community's interests are informed about the RAB, its purposes, and membership opportunities. In some cases, it may necessary that the installation directly solicit some groups or organizations, particularly groups that may be traditionally under represented, such as low-income and minority segments of the population. It is important that RAB memberships are fairly balanced in terms of points of view represented and functions to be performed. Installations should consult the existing TRC, EPA, and state, tribal, and local government representatives

for information or other comments before providing this notice.

b. RAB Information Meeting. While not required in the proposed rule, DoD suggests that an installation sponsor an informational meeting prior to establishing a RAB. The focus of this meeting will be to introduce the concept of RABs to the community and to begin the membership solicitation process.

4. Composition of a RAB

a. Membership. RAB membership shall be well balanced and reflect the diverse interests within the local community. Therefore, DoD proposes that each RAB should consist of representatives of the Military Component (the U.S. Army Corps of Engineers for FUDS), members of the community, EPA, and state, tribal, or local government representatives, as appropriate. RAB meetings will be widely publicized and open to all. Representatives of organizations and agencies who lie and work outside the affected area are encouraged to voice their opinions at RAB meetings within the rules of conduct established by the RAB.

b. Government Representation. In addition to the Military Component, DoD proposes that EPA and state, tribal, and local governments should be represented on the RAB, as they fulfill important roles because of their regulatory oversight of DoD environmental restoration activities. Potential candidates may include the Remedial Project Manager (RPM) from the installation, EPA at the discretion of the EPA Administrator, as well as representatives from the state, tribal, or local government agencies. In the case of closing military installations, members of the BRAC Cleanup Team (BCT) may serve on the RAB as government representatives. It is important that any government representative chosen for RAB membership dedicate the time necessary, and have sufficient authority, to fulfill all RAB responsibilities.

Ideally, DoD believes that RABs should have only one representative from each government agency, so as to prevent an inordinate representation by government and DoD officials. While DoD encourages other government representatives to attend RAB meetings, these representatives' role will be strictly one of providing information and support.

c. Community Representation. While DoD is not proposing specific procedures to be used for selecting community members of the RAB, DoD notes that one of the most sensitive issues facing installations that establish a RAB concerns the selection of community members. When members of the community feel the selection process for RAB members, particularly of community members, is conducted in an objective and unbiased manner, it enhances their perception that the RAB can be a credible forum for the discussion of their issues and concerns. If the selection of community members is not approached carefully, the result can be a loss of trust.

To support the objective selection of community RAB members, installations will use a selection panel comprised of community members to nominate community RAB members. The Installation Commander in consultation with the state, tribal, and local governments and EPA, as appropriate, will identify community interests and solicit names of individuals who can represent these interests on the selection panel. The panel will establish and announce the following:

- Procedures for nominating community RAB members,
- Process for reviewing community interest,
- Criteria for selecting community RAB members, and
- List of RAB nominees.

Following the panel nominations, the Installation Commander, in consultation with the state and EPA as appropriate, will review the nominations to ensure the panel fairly represents the local community. The Installation Commander will then appoint the community RAB members.

Some installations are located in close proximity to American Indian and Alaska Native communities. While DoD encourages individual tribal members to participate on RABs, RABs in no way replace or serve as a substitute forum for the government-to-government relationship between DoD and federally-recognized tribes, as defined by the most current Department of Interior/Bureau of Indian Affairs list of tribal entities published in the **Federal Register** pursuant to Section 104 of the Federally Recognized Indian Tribe List Act.

RAB community members should live and/or work in the affected community or be affected by the installation's environmental restoration program. DoD will not limit participation in the RAB of potential members who have or may bid on DoD contracts, if proper and appropriate assurances to avoid any potential conflicts of interest are issued. DoD will, however, apply applicable conflict of interest rules, pursuant to the Federal Acquisition Regulation.

At closing installations, members of the LRA, as defined under BRAC, are included as stakeholders and are encouraged to attend RAB meetings. There is not a specific requirement, however, that LRA members be invited to be a member of the RAB.

d. Chairmanship. DoD proposes that chairmanship of the RAB be shared between the installation and the community. DoD believes this will promote partnering between DoD and the community and reflect DoD's commitment to consider the community's concerns when making decisions about the environmental restoration process. Together, the installation and community co-chairs jointly will determine meeting agendas, run meetings, and ensure that issues related to environmental restoration are raised and adequately considered.

e. Compensation for Community RAB Members. DoD also is specifying in the proposed rule that the community co-chair and community RAB members are expected to serve without compensation for their services. DoD considers community membership on a RAB to be voluntary, and, therefore, DoD will not pay these members for their participation.

f. Roles and Responsibilities of Members. DoD is not proposing specific requirements concerning the roles and responsibilities of individual members of a RAB. DoD considers the issuance of such regulations to be overly burdensome to the formation and operation of RABs, and, therefore, unnecessary.

B. Operating Requirements

1. Creating a Mission Statement

DoD proposes that each RAB should have a mission statement that articulates the overall purpose of the RAB. DoD considers this necessary to provide focus and objectives for the group. In addition, when members of the RAB understand their mission from the onset, it provides a framework for discussions. Without the framework, discussions may become hampered with issues that are not relevant to the environmental restoration process. The DoD installation co-chair in conjunction with the RAB members will determine the RAB mission statement consistent with guidance provided by the DoD Component. The mission statement should be discussed with the RAB and the DoD installation co-chair will listen to and consider the RAB members' comments before finalizing.

2. Selecting Co-Chairs

DoD proposes that the installation co-chair be selected either by the Installation Commander or equivalent,

or defined by military service-specific guidance, while the community members of the RAB will select the community co-chair. DoD considers it necessary for the community members to select their co-chair to ensure their active participation in the operation of the RAB and to help ensure that the RAB can be a credible forum for discussing community issues and concerns. Public participants are not afforded the opportunity to vote for the community co-chair.

3. Developing Operating Procedures

DoD considers a formal and agreed-upon set of operating procedures necessary to manage the business of RABs. While DoD will allow each RAB to customize or tailor its operating procedures as it sees fit, DoD proposes that the co-chairs be responsible for the operating procedures, to include:

- Setting clearly defined goals and objectives for the RAB. These should be discussed with the RAB, and the DoD installation co-chair will listen to, consider, and provide specific responses to the RAB members' comments before finalizing the goals and objectives.
- Ensuring that an agenda is developed for RAB meetings. The agenda is considered an important organizational tool that should be developed to reflect the interests and concerns of RAB members.
- Announcing meetings.
- Establishing attendance requirements of members at meetings.
- Developing and approving procedures for the minutes of RAB meetings.
- Meeting frequency and location.
- Establishing the Rules of Order.
- Announcing the frequency and procedures for conducting training.
- Establishing procedures for selecting or replacing the community co-chair and selecting, replacing, or adding community RAB members.
- Specifying the size of the RAB membership and the periods for membership and co-chair length of service.
- Reviewing and responding to public comments.
- Establishing the participation of the public.
- Keeping the public informed about proceedings of the RAB.
- Discussing the agenda for the next meeting and issues to be addressed.

4. Training RAB Members

DoD is not proposing a requirement for training members of the RAB. DoD believes, however, that RAB members may need some initial orientation training to enable them to fulfill their responsibilities. DoD recommends that the installation should work with EPA, the state, tribes, and environmental groups to develop methods to quickly inform and educate the RAB members and to promote the rapid formation of a fully functioning RAB.

DoD notes that under this proposed rule, only certain types of training will be considered within the scope of administrative support for RABs, and therefore, may be financed using funds allocated to the administrative expenses of RABs. DoD further discusses training in context of administrative support eligible for available funding in section IV.C.1.b. of this preamble.

5. Conducting RAB Meetings

a. Public Participation. DoD believes the meeting format of each RAB will vary and be dictated by the needs of the participants. Therefore, DoD is not proposing specific procedures for conducting RAB meetings. All RAB meetings, however, shall be open to the public. The installation co-chair should prepare and publish a timely public notice in a local newspaper of general circulation announcing each RAB meeting. Each RAB meeting will be held at a reasonable time and in a manner or place reasonably accessible to and usable by persons with disabilities. Interested persons will be permitted to attend, appear before, or file statements with any RAB, subject to such reasonable rules or regulations that may be prescribed.

b. Nature of Discussions. Regarding the nature of discussions at RAB meetings, the installation will listen and give careful consideration to all advice provided by the individual RAB members. While voting or polling the members may facilitate RAB discussions, such votes are advisory only and not binding on agency decision makers. It is a RAB's decision on how to propose and debate recommendations; and this decision should be agreed upon by the RAB. Group consensus is not a prerequisite for RAB input; each member of the RAB may provide advice as an individual.

c. Meeting Facilitator: RABs may recommend to use a trained facilitator who is a neutral third-party and is acceptable to all members of the board. The facilitator's role is to guide the RAB through a cooperative communication process in order to fulfill the group's stated purpose or agenda as easily as possible. The facilitator has no substantive decision-making authority. The facilitator focuses on the group's communication process rather than the technical content of what is discussed.

d. Meeting minutes. DoD proposes that the installation co-chair, in coordination with the community co-chair, will prepare minutes of each RAB meeting. The RAB meeting minutes will be kept and will contain a record of the persons present, a complete and accurate description of matters discussed and opinions voiced, and copies of all reports received, issued, or considered by the RAB. At the installation's discretion, a court reporter or electronic taping is allowable, whether through live transmission or video or audiotape. The accuracy of all minutes will be certified by the RAB co-chairs. Although not required, DoD recommends that the installation consider mailing copies of the minutes to all community members who attended the meeting and/or to people identified on the installation's community relations mailing list. This is to ensure dissemination of the results to community members and interested parties.

6. RAB Adjournment and Dissolution

In this section of the proposed rule, DoD sets forth requirements for adjourning a RAB, adjournment procedures, dissolving a RAB, dissolution procedures, reestablishing an adjourned or dissolved RAB, and public comment.

a. RAB Adjournment

(1) Requirements for RAB Adjournment. An Installation Commander may adjourn a RAB when there is no longer a need for a RAB or when community interest in the RAB declines.

RABs may adjourn in the following situations:

- A record of decision has been signed for all DERP sites on the installation.
- An installation has achieved response complete at all sites and no further environmental restoration decisions are required.
- An installation has all remedies in place. When all environmental restoration decisions have been made and required remedies are in place and properly operating at an installation, the RAB may adjourn or decide to become inactive. The installation (or the designated authority at closure installations) will establish a mechanism to inform the community, including former RAB members, about subsequent actions, such as long-term monitoring and five-year reviews, that may interest the RAB and allow the community to address this information as appropriate. At a minimum, the installation will provide this

information to the community through status report mailings, Web sites, or local information repositories.

• The RAB has achieved its objectives as defined in the RAB Operating Procedures.

• If there is no longer sufficient, sustained community interest, as documented by the installation with RAB community members and community-at-large input, to sustain the RAB. The Installation Commander will be responsible for reassessing community interest that could warrant reactivating or reestablishing the RAB.

• The installation has been transferred out of DoD control and DoD is no longer responsible for making restoration response decisions.

(2) Adjournment Procedures. The Installation Commander should consult with EPA, states, tribes, RAB members, and the local community, as appropriate, regarding adjourning the RAB before making a final decision. The Installation Commander should consider all responses when determining the appropriate action.

If the Installation Commander decides to adjourn the RAB, the Installation Commander will document the rationale for adjournment in a memorandum for inclusion in the Administrative record, notify the public of the decision through written notice to the RAB members and through publication of a notice in a local newspaper of general circulation, and describe other ongoing public involvement opportunities that are available.

b. RAB Dissolution

(1) Requirements for RAB Dissolution. An Installation Commander may recommend dissolution of a RAB when a RAB is no longer fulfilling the intended purpose of advising and providing community input to an Installation Commander and decision makers on environmental cleanup projects as described in IV.A.1.b. Although Installation Commanders are expected to make every reasonable effort to ensure that a RAB performs its role as effectively as possible, circumstances may prevent a RAB from fulfilling the intended purpose as described in this rule. When this occurs, the Installation Commander will make a concerted attempt to resolve the issues that affect the RAB's effectiveness. If unsuccessful, the Installation Commander may elect to recommend dissolution of the RAB. In making such a decision, if environmental restoration activities are not complete, the Installation Commander should ensure that the community involvement program detailed in the Community Relations Plan provides for continued effective stakeholder input.

(2) Dissolution Procedures. The installation co-chair should consult with the community, EPA and state, tribal and local government representatives as appropriate, regarding dissolving the RAB. The installation co-chair should notify the RAB community co-chair and members in writing of the intent to dissolve the RAB and the reasons for doing so, and provide the RAB members 30 days to respond in writing. The installation co-chair should consider RAB member responses, and in consultation with EPA and state, tribal and local government representatives, as appropriate, determine the appropriate action.

If the Installation Commander decides to proceed with recommending the RAB for dissolution, the Installation Commander should notify the public of the proposal to dissolve the RAB and provide a 30-day public comment period on the proposal (see section d. Public Comment for further discussion). At the conclusion of the public comment period, the Installation Commander will review the public comments, consult with EPA, state, tribal and local government representatives, as appropriate, and render a recommendation.

The recommendation, responsiveness summary, and all supporting documentation should be sent via the chain-of-command to the Military Component's Environmental Deputy Assistant Secretary (or equivalent) for approval or disapproval. The Military Component's Environmental Deputy Assistant Secretary (or equivalent) will notify the Office of the Deputy Under Secretary of Defense (Installations & Environment) (or equivalent) of the decision to approve or disapprove the request to dissolve the RAB and the rationale for that decision.

Once the Military Component's Environmental Deputy Assistant Secretary (or equivalent) makes a final decision, the Installation Commander will document the rationale for dissolution in a memorandum for inclusion in the Administrative Record, notify the public of the decision through written notice to the RAB members and through publication of a notice in a local newspaper of general circulation, and describe other ongoing public involvement opportunities that are available.

c. Reestablishing an Adjourned or Dissolved RAB. An installation may reestablish an adjourned or dissolved RAB if there is sufficient and sustained community interest in doing so and there are environmental restoration activities still ongoing at the installation. Where a RAB is adjourned or dissolved and environmental restoration activities continue, the installation should reassess community interest at least every 24 months. When all environmental restoration decisions have been made and required remedies are in place and properly operating at an installation, reassessment of the community interest for reestablishing the RAB is not necessary. When additional environmental restoration decisions have to be made resulting from subsequent actions, such as long-term monitoring and five-year reviews, the installation will reassess community interest for reestablishing the RAB.

Reassessment should include, at a minimum, consultation with the chain-of-command, EPA, state, tribes, and the local community as appropriate, and a 30-day public comment period (see section d. Public Comment for further discussion). Where the reassessment finds sufficient and sustained community interest, at a previously adjourned RAB the Installation Commander should reestablish a RAB.

If there is interest for reestablishment at a previously dissolved RAB, but the Installation Commander determines that the same conditions exist that required the original dissolution, he or she will request, through the chain of command to the service component deputy assistant secretary, an exception to reestablishing the RAB. If those conditions no longer exist at a previously dissolved RAB, and there is interest in reestablishment the Installation Commander should notify the deputy assistant secretary of their recommendation for the RAB to be reestablished. The deputy assistant secretary will take the Installation Commander's recommendation under advisement and may approve that RAB for reestablishment.

Where the reassessment does not find sufficient and sustained community interest in reestablishing the RAB, the Installation Commander should document (in a memorandum for the record) the procedures followed in the reassessment and the findings of the reassessment. This document will be included in the Administrative Record for the installation.

d. Public Comment. If the Installation Commander intends to recommend dissolution of a RAB or reestablish a dissolved RAB, the Installation Commander will notify the public of the proposal to dissolve or reestablish the RAB and provide a 30-day public comment period on the proposal. The Installation Commander will notify the public of the decision through

publication of a notice in a local newspaper of general circulation and distribute the notice to community members. The installation's Public Affairs Office should have an updated mailing list. At the conclusion of the public comment period, the Installation Commander will review public comments, consult with the RAB, EPA, and state, tribal, or local government representatives, as appropriate, prepare a responsiveness summary, and render a recommendation. The Installation Commander will notify the public of the decision.

7. Documenting RAB Activities

Additionally, the installation will document the relevant information on the activities of a RAB in the Administrative Record. These activities will include, but are not limited to:

- Installation's efforts to survey community interest in forming a RAB,
- Steps taken to establish a RAB where there is sustained community interest,
- How the RAB relates to the overall community involvement program, and
- Steps taken to adjourn the RAB.

The records, reports, minutes, appendixes, working papers, drafts, studies, agenda, or other documents that were made available to or prepared for or by each RAB will be available for public inspection and copying at a single, publicly accessible location, such as the information repositories established under the installation's Community Relations Plan, a public library, or in the offices of the installation to which the RAB reports, until the RAB ceases to exist.

To the extent that RAB input is considered in a decision regarding environmental restoration activities, relevant information on the RAB activities will be included in the Administrative Record.

C. Administrative Support, Funding, and Reporting Requirements

1. Administrative Support and Eligible Expenses

a. Administrative Support. The Installation Commander, or if there is no such Commander, an appropriate DoD official, is authorized to pay for routine administrative expenses of a RAB established at an installation (10 U.S.C. 2705(d)(3)). To implement this provision, this proposed rule requires that the installation provide administrative support to establish, operate, and adjourn a RAB, subject to the availability of funds. Securing ongoing administrative support is especially important for closing or closed installations.

DoD proposes to define the scope of activities that are unique to the establishment and operation of RABs, and therefore eligible as a RAB administrative expense.

b. Eligible Administrative Expenses. In order for an activity to be considered as an eligible RAB administrative cost, the activity must be unique to and directly associated with establishing and operating the RAB. For example, an advertisement for a RAB meeting is an eligible RAB administrative cost. However, producing a fact sheet as part of obtaining a hazardous waste storage permit under RCRA or hosting an installation open house as specified by the Community Relations Plan under CERCLA, may not necessarily be relevant to a RAB's mission statement or operations. The costs incurred in preparing and distributing such a fact sheet or holding the open house would not be considered administrative support required for a RAB.

While DoD cannot identify all possible examples of activities unique to and directly associated with establishing and operating a RAB, DoD proposes to consider the following activities as typical of administrative support required for a RAB:

- RAB establishment.
- Membership selection.
- Training if it is unique to and mutually benefits the establishment and operation of a RAB and relevant to the environmental restoration activities occurring at the installation.
- Meeting announcements.
- Meeting facility.
- Meeting facilitators, including translators.
- Meeting agenda materials and minutes preparation.
- RAB-member mailing list maintenance and RAB materials distribution.
- RAB adjournment.

Training for RAB members is considered an eligible administrative cost if it mutually benefits all members of a RAB and is relevant to the environmental restoration activities occurring at the installation. For example, if the installation were to hold an orientation training for members of a RAB, costs incurred in preparing training manuals, slides, or other presentation materials would be considered an allowable administrative expense because such training is mutually beneficial to all members of the RAB. A type of training that would not qualify as a RAB administrative support includes specialized training for an individual member of a RAB, such as an off-site workshop on building leadership capabilities. However, DoD notes that types of training that are not eligible for funding as a RAB administrative expense may qualify and be eligible for funding as technical assistance.

RAB administrative support is for RAB purposes only. RAB administrative expenses do not include general community involvement expenses, such as preparation of public outreach materials, responses to public comment, or repository costs. RAB administrative support does not include efforts to determine community interest in forming a RAB that does not result in the actual formation of a RAB. These items will be categorized as a community involvement expense.

Additional types of expenses ineligible as RAB administrative costs include, but are not limited to:

- Salaries for DoD personnel.
- Dedicated equipment such as computers, software, facsimile machines, telephone lines, or electronic mail for community RAB members.
- Renting dedicated office space for community RAB members.
- Administrative support to community members of the RAB.
- Printed stationery and personal business cards.
- Temporary duty/travel, conference attendance, or fees, except where prior approval has been granted by DoD.
- Compensation to RAB members for meeting attendance, work hours lost, time reviewing and commenting on documents, travel to meetings, or long distance telephone calls.

c. *Funding.* The Secretaries of the Military Departments will make funds available for RAB administrative expenses (10 U.S.C. 2705(g)), subject to the availability of funds. Funds requested for environmental restoration activities that were appropriated to Military Components' ER or BRAC accounts or the ER–FUDS account may be used to provide administrative support to RABs. Such funds will not be used to support the activities of environmental groups or advisory boards in addressing issues other than environmental restoration activities. The Installation Commander is authorized to pay routine administrative expenses of the RABs, in accordance with 10 U.S.C. § 2705(d)(3). The activities of the RAB and expenditures of such funds for administrative expenses will be reported to ODUSD(I&E), at a minimum, on an annual basis.

2. Technical Assistance for Public Participation (TAPP)

Community members of a RAB may request technical assistance from the

private sector to assist their understanding of the scientific and engineering issues underlying eligible DoD environmental restoration activities. Technical assistance may be made available to community members of RABs or TRCs in accordance with 10 U.S.C. 2705(e) and the TAPP regulations found at 32 CFR part 203. RABs may submit TAPP requests to the Installation Commander, or to an appropriate DoD official. The DoD installation may also provide in-house assistance to discuss technical issues.

3. Documenting and Reporting Activities and Expenses

DoD is required to report to Congress on the activities of TRCs and RABs (10 U.S.C. 2706(a)(2)(J)). In order to fulfill this requirement, this proposed rule requires that, where RABs are established, the installation documents the activities of the RAB and tracks expenditures for administrative expenses of the RAB. With regards to tracking expenses, DoD recommends that installations tally costs according to the specific activities identified above (see section IV.C.1.b. of this rule) that are typical of administrative support required for RAB.

Although this proposed rule requires installations to document RAB activities and track expenditures, DoD is not prescribing specific procedures to accomplish this. In addition, DoD will use internal Department and Military Component-specific reporting mechanisms to obtain required information from installations on RAB activities and expenditures when reporting to Congress.

V. Regulatory Analysis

A. Regulatory Impact Analysis Pursuant to Executive Order 12866

Under Executive Order 12866 (58 FR 51735, October 4, 1993), as amended, DoD must determine whether a regulatory action is "significant" and therefore subject to review by the Office of Management and Budget (OMB) and the requirements of the Executive Order.

DoD has determined that this proposed rule is not a "significant regulatory" action because it is unlikely to:

(1) Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, productivity, competition, jobs, environment, public health, or safety of state, local, or tribal governments or communities;

(2) Create serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) Materially alter the budgetary impact of entitlements, grants, user fees, or loan program or the rights and obligations of recipients thereof; or

(4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

B. Regulatory Flexibility Act

It has been certified that this proposed rule is not subject to the Regulatory Flexibility Act of 1980, 5 U.S.C. 601 *et seq.* because it would not, if promulgated, have a significant economic impact on a substantial number of small entities. The primary effect of the proposed rule will be to increase community involvement in DoD's environmental restoration program.

C. Paperwork Reduction Act

It has been certified that the proposed rule does not impose any reporting or recordkeeping requirements subject to the Paperwork Reduction Act of 1995 (Pub. L. 104–13).

VI. Unfunded Mandates

Under section 202 of the Unfunded Mandates Reform Act of 1995, DoD must prepare a statement to accompany any rule where the estimated costs to state, local, or tribal governments in the aggregate, or to the private sector, will be $100 million or more in any one year.

DoD has determined that this proposed rule will not include a federal mandate that may result in estimated costs of $100 million or more to either state, local, or tribal governments in the aggregate, or to the private sector.

List of Subjects in 32 CFR Part 202

Administrative practice and procedure, Environmental protection—restoration, Federal buildings and facilities, Organization and functions (Government agencies).

Title 32 of the Code of Federal Regulations, Chapter I, Subchapter M, is proposed to be amended by adding part 202 to read as follows:

PART 202—RESTORATION ADVISORY BOARDS (RABs)

Subpart A—General Requirements

Sec.

202.1 Purpose, scope, definitions, and applicability.
202.2 Criteria for establishment.
202.3 Notification of formation of a Restoration Advisory Board.
202.4 Composition of a RAB.

Subpart B—Operating Requirements

202.5 Creating a mission statement.
202.6 Selecting co-chairs.
202.7 Developing operating procedures.
202.8 Training RAB members.
202.9 Conducting RAB meetings.
202.10 RAB adjournment and dissolution.
202.11 Documenting RAB activities.

Subpart C—Administrative Support, Funding, and Reporting Requirements

202.12 Administrative support and eligible expenses.
202.13 Technical assistance for public participation (TAPP).
202.14 Documenting and reporting activities and expenses.

Authority: 5 U.S.C. 551 *et seq.* and 10 U.S.C. 2705.

Subpart A—General Requirements

§ 202.1 Purpose, scope, definitions, and applicability.

(a) *Purpose.* The purpose of this part is to establish regulations regarding the scope, characteristics, composition, funding, establishment, operation, adjournment, and dissolution of Restoration Advisory Boards (RABs).

(b) *Purpose and scope of responsibilities of RABs.* The purpose of a RAB is to provide:

(1) An opportunity for stakeholder involvement in the environmental restoration process at Department of Defense (DoD) installations. Stakeholders are those parties that may be affected by environmental restoration activities at the installation.

(2) A form for the discussion and exchange of environmental restoration program information between DoD installations, regulatory agencies, tribes and the community.

(3) An opportunity for RAB members to review progress, participate in a dialogue with, and provide comments and advice to the installation's decision makers concerning environmental restoration matters. Installations shall give careful consideration to the comments provided by the RAB members.

(c) *Definitions.* In this section:

(1) *Community RAB member* shall mean those individuals identified by community members and appointed by the Installation Commander to participate in a RAB who live and/or work in the affected community or are affected by the installation's environmental program.

(2) *Environmental restoration* shall include the identification, investigation, research and development, and cleanup of contamination from hazardous substances, and pollutants and contaminants.

(3) *Installation* shall include active and closing Department of Defense (DoD) installations and formerly used defense sites (FUDS).

(4) *Installation Commander* shall include the Commanding Officer or the equivalent of a Commanding Officer at active installations; the Installation Commander or other Military Department officials who close the facility and are responsible for its disposal at Base Realignment and Closure (BRAC) installations; or the U.S. Army Corps of Engineers Project Management District Commander at FUDS.

(5) *Public participants* shall include anyone else who may want to attend the RAB meetings, including those individuals may not live and/or work in the affected community or may not be affected by the installation's environmental program but would like to attend and provide comments to the RAB.

(6) *Stakeholders* are those parties that may be affected by environmental restoration activities at an installation, including family members of military personnel and civilian workers, and tribal community members and indigenous people, as appropriate.

(7) *Tribes* shall mean any federally recognized American Indian and Alaska Native government as defined by the most current Department of Interior/ Bureau of Indian Affairs list of tribal entities published in the **Federal Register** pursuant to Section 104 of the Federally Recognized Tribe Act.

(8) *RAB adjournment* shall mean when an Installation Commander, in consultation with the Environmental Protection Agency (EPA), state, tribes, RAB members, and the local community, as appropriate, closes the RAB based on a determination that there is no longer a need for a RAB or when community interest in the RAB declines.

(9) *RAB dissolution* shall mean when an Installation Commander disbands a RAB that is no longer fulfilling the intended purpose of advising and providing community input to an Installation Commander and decision makers on environmental restoration projects. Installation Commanders are expected to make every reasonable effort to ensure that a RAB performs its role as effectively as possible and a concerted attempt to resolve issues that affect the RAB's effectiveness. There are circumstances, however, that may prevent a RAB from operating effectively or fulfilling its intended purpose.

(d) *Other public involvement activities.* A RAB should complement other community involvement efforts occurring at an installation; however, it does not replace other types of community outreach and participation activities required by applicable laws and regulations.

(e) *Applicability of regulations to existing RABs.* The regulations in this part apply to all RABs regardless of when the RAB was established.

(f) *Guidance.* The Office of the Deputy Under Secretary of Defense for Environment shall issue guidance regarding the scope, characteristics, composition, funding, establishment, operation, adjournment, and dissolution of RABs pursuant to this rule. The issuance of any such guidance shall not be a precondition to the establishment RABs or the implementation of this rule.

§ 202.2 Criteria for establishment.

(a) *Determining if sufficient interest warrants establishing a RAB.* A RAB should be established when there is sufficient and sustained community interest, and any of the following criteria are met:

(1) The closure of an installation involves the transfer of property to the community;

(2) At least 50 local citizens petition the installation for creation of a RAB;

(3) Federal, State, tribal, or local government representatives request the formation of a RAB; or

(4) The installation determines the need for a RAB. To determine the need for establishing a RAB, an installation should:

(i) Review correspondence files;

(ii) Review media coverage;

(iii) Consult local community members;

(iv) Consult relevant government officials; and

(v) Evaluate responses to communication efforts, such as notices placed in local newspapers.

(b) *Responsibility for forming or operating a RAB.* The installation shall have lead responsibility for forming and operating a RAB.

(c) *Converting existing Technical Review Communittees (TRCs) to RABs.* In accordance with 10 U.S.C. 2705(d)(1), a RAB may fulfill the requirements of 10 U.S.C. 2705(c), which directs DoD to establish TRCs. DoD recommends that, where TRCs or similar advisory groups already exist, the TRC or similar advisory group be considered for conversion to a RAB, provided there is sufficient and sustained interest within the community.

§ 202.3 Notification of formation of a Restoration Advisory Board.

Prior to establishing a RAB, an installation shall notify potential stakeholders of its intent to form a RAB. In announcing the formation of a RAB, the installation should describe the purpose of a RAB and discuss opportunities for membership.

§ 202.4 Composition of a RAB.

(a) *Membership.* At a minimum, each RAB shall include representatives from DoD and the community. RAB community membership shall be well balanced and reflect the diverse interests within the local community.

(1) *Government representation.* The RAB may also include representatives from the EPA at the discretion of the Administrator of the appropriate EPA regional office, and state, tribal, and local governments, as appropriate. At closing installations, representatives of the BRAC Cleanup Team (BCT) may also serve as the government representative(s) of the RAB.

(2) *Community representation.* Community RAB members should live and/or work in the affected community or be affected by the installation's environmental restoration program. While DoD encourages individual tribal members to participate on RABs, RABs in no way replace or serve as a substitute forum for the government-to-government relationship between DoD and federally-recognized tribes.

(b) *Chairmanship.* Each RAB established shall have two co-chairs, one representing the DoD installation and the other the community. Co-chairs shall be responsible for directing and managing the RAB operations.

(c) *Compensation for community members of the RAB.* The community co-chair and community RAB members serve voluntarily; therefore, DoD will not compensate them for their participation.

Subpart B—Operating Requirements

§ 202.5 Creating a mission statement.

The DoD installation co-chair in conjunction with the RAB members shall determine the RAB mission statement in accordance with guidance provided by the DoD Component.

§ 202.6 Selecting co-chairs.

(a) *DoD installation Co-chair.* The DoD installation co-chair shall be selected by the Installation Commander or equivalent, or in accordance with Military Service-specific guidance.

(b) *Community Co-chair.* The Community co-chair shall be selected by the community RAB members.

§ 202.7 Developing operating procedures.

(a) Each RAB shall develop a set of operating procedures. Areas that should be addressed in the procedures include:

(1) Clearly defined goals and objectives for the RAB, as determined by

the DoD installation co-chair in consultation with the RAB.

(2) Meeting announcements.

(3) Attendance requirements of members at meetings.

(4) Development and approval procedures for the minutes of RAB meetings.

(5) Meeting frequency and location.

(6) Rules of order.

(7) The frequency and procedures for conducting training.

(8) Procedures for selecting or replacing co-chairs and selecting, replacing, or adding RAB members.

(9) Specifics on the size of the RAB, periods of membership, and co-chair length of service.

(10) Review and responses to public comments.

(11) Participation of the general public.

(12) Keeping the public informed about proceedings of the RAB.

(13) Discussing the agenda for the next meeting and issues to be addressed.

(b) [Reserved].

§ 202.8 Training RAB members.

Training is not required for RAB members. It may be advisable, however, to provide RAB members with some initial orientation training to enable them to fulfill their responsibilities. Funding for training activities must be within the scope of administrative support for RABs, as permitted in § 202.12.

§ 202.9 Conducting RAB meetings.

(a) *Public participation.* RAB meetings shall be open to the public.

(1) The installation co-chair shall prepare and public a timely publish notice in a local newspaper of general circulation announcing each RAB meeting.

(2) Each RAB meeting shall be held at a reasonable time and in a manner or place reasonably accessible to and usable by persons with disabilities.

(3) Interested persons shall be permitted to attend, appear before, or file statements with any RAB, subject to such reasonable rules or regulations as may be prescribed.

(b) *Nature of discussions.* The installation shall give careful consideration to all comments provided by the individual RAB members.

(c) *Meeting minutes.* The installation co-chair, in coordination with the community co-chair, shall prepare minutes of each RAB meeting.

(1) The RAB meeting minutes shall be kept and shall contain a record of the persons present, a complete and accurate description of matters discussed and comments received, and copies of all reports received, issued, or approved by the RAB. The accuracy of all minutes shall be certified by the RAB co-chairs.

(2) The records, reports, minutes, appendixes, working papers, drafts, studies, agenda, or other documents that were made available to or prepared for or by each RAB shall be available for public inspection and copying at a single, publicly accessible location, such as the information repositories established under the installation's Community Relations Plan, a public library, or in the offices of the installation to which the RAB reports, until the RAB ceases to exist.

§ 202.10 RAB adjournment and dissolution.

(a) *RAB adjournment.* (1) Requirements for RAB adjournment. An Installation Commander may adjourn a RAB when there is no longer a need for a RAB or when community interest in the RAB declines. RABs may adjourn in the following situations:

(i) A record of decision has been signed for all DERP sites on the installation.

(ii) An installation has achieved response complete at all sites and no further environmental restoration decisions are required.

(iii) An installation has all remedies in place.

(iv) The RAB has achieved the desired end goal as defined in the RAB Operating Procedures.

(v) There is no longer sufficient, sustained community interest, as documented by the installation with RAB community members and community-at-large input, to sustain the RAB. The installation shall continue to monitor for any changes in community interest that could warrant reactivating or reestablishing the RAB.

(vi) The installation has been transferred out of DoD control and DoD is no longer responsible for making restoration response decisions.

(2) Adjournment procedures. If the Installation Commander is considering adjourning the RAB, the Installation Commander shall:

(i) Consult with the EPA, state, tribes, RAB members, and the local community, as appropriate, regarding adjourning the RAB and consider all responses before making a final decision.

(ii) Document the rationale for adjournment in a memorandum for inclusion in the Administrative Record, notify the public of the decision through written notice to the RAB members and through publication of a notice in a local newspaper of general circulation, and describe other ongoing public involvement opportunities that are available, if the Installation Commander decides to adjourn the RAB.

(b) *RAB dissolution.* (1) *Requirements for RAB dissolution.* An Installation Commander may recommend dissolution of a RAB when a RAB is no longer fulfilling the intended purpose of advising and providing community input to an Installation Commander and decision makers on environmental restoration projects as described in § 202.1(b).

(2) *Dissolution procedures.* If the Installation Commander is considering dissolving the RAB, the Installation Commander shall:

(i) Consult with EPA, state, tribal and local government representatives, as appropriate, regarding dissolving the RAB.

(ii) Notify the RAB community co-chair and members in writing of the intent to dissolve the RAB and the reasons for doing so and provide the RAB members 30 days to respond in writing. The Installation Commander shall consider RAB member responses, and in consultation with EPA, state, tribal and local government representatives, as appropriate, determine the appropriate action.

(iii) Notify the public of the proposal to dissolve the RAB and provide a 30-day public comment period on the proposal, if the Installation Commander decides to proceed with dissolution. At the conclusion of the public comment period, the Installation Commander will review the public comments, consult with EPA, state, tribal and local government representatives, as appropriate, and render a recommendation.

(iv) Send the recommendation, responsiveness summary, and all supporting documentation via the chain-of-command to the Military Component's Environmental Deputy Assistant Secretary (or equivalent) for approval or disapproval. The Military Component's Environmental Deputy Assistant Secretary (or equivalent) shall notify the Office of the Deputy Under Secretary of Defense (Installations & Environment) (or equivalent) of the decision to approve or disapprove the request to dissolve the RAB and the rationale for that decision.

(v) Document the rationale for dissolution in a memorandum for inclusion in the Administrative Record, notify the public of the decision through written notice to the RAB members and through publication of a notice in a local newspaper of general circulation, and describe other ongoing public involvement opportunities that are

available, once the Military Component's Environmental Deputy Assistant Secretary (or equivalent) makes a final decision.

(c) *Reestablishing an adjourned or dissolved RAB.* An Installation Commander may reestablish an adjourned or dissolved RAB if there is sufficient and sustained community interest in doing so and there are environmental restoration activities still ongoing at the installation. Where a RAB is adjourned and environmental restoration activities continue, the Installation Commander should reassess community interest at least every 24 months. When all environmental restoration decisions have been made and required remedies are in place and properly operating at an installation, reassessment of the community interest for reestablishing the RAB is not necessary. When additional environmental restoration decisions have to be made resulting from subsequent actions, such as long-term monitoring and five-year reviews, the installation will reassess community interest for reestablishing the RAB. Where the reassessment finds sufficient and sustained community interest at previously adjourned RAB, the Installation Commander should reestablish a RAB. Where the reassessment does not find sufficient and sustained community interest in reestablishing the RAB, the Installation Commander shall document in a memorandum for the record the procedures followed in the reassessment and the findings of the reassessment. This document shall be included in the Administrative Record for the installation. If there is interest for reestablishment at a previously dissolved RAB, but the Installation Commander determines that the same conditions exist that required the original dissolution, he or she will request, through the chain of command to the service component deputy assistant secretary, an exception to reestablishing the RAB. If those conditions no longer exist at a previously dissolved RAB, and there is interest in reestablishment the Installation Commander should notify the deputy assistant secretary of the recommendation for the RAB to be reestablished. The deputy assistant secretary will take the Installation Commander's recommendation under advisement and may approve that RAB for reestablishment.

(d) *Public comment.* If the Installation Commander intends to recommend dissolution of a RAB or reestablish a dissolved RAB, the Installation Commander shall notify the public of the proposal to dissolve or reestablish the RAB and provide a 30-day public comment period on the proposal. At the conclusion of the public comment period, the Installation Commander shall review public comments, consult with EPA, and state, tribal, or local government representatives, as appropriate, prepare a responsiveness summary, and render a recommendation. The recommendation, responsiveness summary, and all supporting documentation should be sent via the chain-of-command to the Military Component's Environmental Deputy Assistant Secretary (or equivalent) for approval or disapproval. The Installation Commander shall notify the public of the decision.

§ 202.11 Documenting RAB activities.

The installation shall document information on the activities of a RAB in the Information Repository. When RAB input has been used in decision-making, it should be documented as part of the Administrative Record. These activities shall include, but are not limited to:

(a) Installation's efforts to survey community interest in forming a RAB;

(b) Steps taken to establish a RAB where there is sustained community interest;

(c) How the RAB relates to the overall community involvement program; and

(d) Steps taken to adjourn, dissolve, or reestablish the RAB.

Subpart C—Administrative Support, Funding, and Reporting Requirements

§ 202.12 Administrative support and eligible expenses.

(a) *Administrative support.* Subject to the availability of funding, the installation shall provide administrative support to establish and operate a RAB.

(b) *Eligible administrative expenses for a RAB.* The following activities specifically and directly associated with establishing and operating a RAB shall qualify as an administrative expense of a RAB:

(1) RAB establishment.

(2) Membership selection.

(3) Training if it is:

(i) Unique to and mutually benefits the establishment and oeration of a RAB; and

(ii) Relevant to the environmental restoration activities occurring at the installation.

(4) Meeting announcement.

(5) Meeting facility.

(6) Meeting facilitators, including translators.

(7) Preparation of meeting agenda materials and minutes.

(8) RAB-member mailing list maintenance and RAB materials distribution.

(c) *Funding.* Subject to the availability of funds, administrative support to RABs may be funded as follows:

(1) At active installations, administrative expenses for a RAB shall be paid for using funds from the Military Component's Environmental Restoration accounts.

(2) At BRAC installations, administrative expenses for a RAB shall be paid using BRAC funds.

(3) At FUDS, administrative expenses for a RAB shall be paid using funds from the Environmental Restoration account for the Formerly Used Defense Sites program.

§ 202.13 Technical assistance for public participation (TAPP).

Community members of a RAB or TRC may request technical assistance for interpreting scientific and engineering issues with regard to the nature of environmental hazards at the installation and environmental restoration activities conducted, or proposed to be conducted at the installation in accordance with 10 U.S.C. 2705(e) and the TAPP regulations found at 32 CFR part 203.

§ 202.14 Documenting and reporting activities and expenses.

The installation at which a RAB is established shall document the activities and record the administrative expenses associated with the RAB. Installations shall use internal department and Military Component-specific reporting mechanisms to submit required information on RAB activities and expenditures.

Dated: January 19, 2005

Jeannette Owings-Ballard,

Federal Register Liaison Officer, Department of Defense.

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DEPARTMENT OF HOMELAND SECURITY

Coast Guard

33 CFR Part 117

[CGD08–05–003]

RIN 1625–AA09

Drawbridge Operation Regulation; Gulf Intracoastal Waterway, Houma, LA

AGENCY: Coast Guard, DHS.

ACTION: Notice of proposed rulemaking.

The extent and patterns of usage of Agent Orange and other herbicides in Vietnam

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Herbicides including Agent Orange were sprayed by United States forces for military purposes during the Vietnam War (1961–1971) at a rate more than an order of magnitude greater than for similar domestic weed control. In 1974, the US National Academy of Sciences published estimates of the extent and distribution of herbicides sprayed. Here we present revised estimates, developed using more-complete data. The spray inventory is expanded by more than seven million litres, in particular with heavily dioxin-contaminated herbicides. Estimates for the amount of dioxin sprayed are almost doubled. Hamlet census data reveal that millions of Vietnamese were likely to have been sprayed upon directly. Our identification of specific military herbicide targets has led to a more coherent understanding of spraying. Common errors in earlier interpretations of the spray data are also discussed.

Between 1961 and 1971 herbicide mixtures, nicknamed by the coloured identification band painted on their 208-litre storage barrels, were used by United States and Republic of Vietnam forces to defoliate forests and mangroves, to clear perimeters of military installations and to destroy 'unfriendly' crops as a tactic for decreasing enemy food supplies[1]. The best-known mixture was Agent Orange. About 65% of the herbicides contained 2,4,5-trichlorophenoxyacetic acid (2,4,5-T), which was contaminated with varying levels of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). Herbicide mixtures are listed in Table 1.

In 1970, the US Congress directed the US Department of Defense (DoD) to engage the National Academy of Sciences to conduct a comprehensive study (NAS-1974) of the ecological and physiological effects of defoliation in Vietnam[2]. NAS-1974 relied on a chronological record, the HERBS file[3], which contained flight path coordinates of Air Force spraying missions carried out between August 1965 and December 1971 and from 1968 on US Army helicopter spraying missions. In 1985, the DoD supplemented this file with the Services-HERBS file, derived from additional record searches. The HERBS file error rate was about 10%, attributable largely to transcription, data entry and pilot recording errors[4]. Under contract to the NAS, using data more complete than were then available, we undertook, in close collaboration with the US Armed Services Center for Research of Unit Records (CRUR), to correct both files (see Methods) and during this process discovered much additional archived data.

Military herbicide operations in Vietnam became a matter of scientific controversy from their inception[5,6]. In April 1970, 2,4,5-T was banned from most US domestic uses, on the basis of evidence of its teratogenicity[7]. The Agent Orange Act of 1991 requested the Institute of Medicine (IOM) to assess the strength of the evidence for association between exposure to military herbicides and disease in veterans and the feasibility of conducting further epidemiological studies. The IOM recommended that the Department of Veterans Affairs develop historical reconstruction methods for characterizing exposure to herbicides in Vietnam[8,9]. The present report is the result of that recommendation.

Background to military use of chemical defoliants

The DoD's Advanced Research Project Agency's (ARPA) Project Agile was instrumental in the US development of herbicides as a military weapon, an undertaking inspired by the successful British use of 2,4,5-T to destroy jungle-grown crops during the insurgency in Malaya. ARPA supported tests on combinations and concentrations of herbicides; calibration studies of the spray delivery system to achieve the desired 28 l ha^{-1} (3 gallons/acre) rate; and experiments on optimal conditions to minimize spray drift[10]. ARPA also developed the Hamlet Evaluation System[11] which collected the political census data that we use here for estimating population exposures.

The first large-scale US military defoliation took place in Camp Drum, New York, in 1959, using Agent Purple (a 50:50 mixture of 2,4-D and 2,4,5-T) and a spray system which was the model for those used in Vietnam. Herbicide tests were run from August to December 1961 in the Republic of Vietnam (RVN), using dinoxol and trinoxol[12,13]. An insecticide test series was also undertaken. The first major herbicide shipment arrived in RVN in January 1962; defoliation targets were sprayed during September and October 1962 (Agent Purple); crop destruction targets were sprayed in November 1962 (Agent Blue)[14]. Systematic testing of herbicides and calibration of herbicide delivery systems continued for several years[15].

A 1962 pact assigned ownership of the herbicides to RVN when they entered its territory. Vietnamese physically handled the herbicides during off-loading, transport, and transfer to storage tanks. RVN ownership complicated United States Air Force (USAF) logistics and record-keeping, and disposal when Agent Orange use was abandoned in mid-1970 (ref. 16). US policy emphasized that its forces were assisting the RVN in the herbicide programme. C-123 aircraft carried out the missions camouflaged and equipped with removable identification insignias. Crop destruction aircraft bore South Vietnamese markings and were accompanied by a Vietnamese crew member under a State Department/DoD concept known as *Farmgate*[17]. Flight crew wore civilian clothing.

The herbicide targets and US Air Force project folders

US Air Force (USAF) operations, codenamed Operation Ranch Hand, dispersed more than 95% of all herbicides used in Operation

Trail Dust, the overall herbicide programme. Other branches of the US armed services and RVN forces, generally using hand sprayers, spray trucks (Buffalo turbines), helicopters and boats, sprayed much smaller quantities of herbicide. Operation Ranch Hand was organized into projects that underwent a complex combined South Vietnamese and US approval system which could sometimes last as long as one year. Each project consisted of specific targets that were often amended or deleted during the approval process. Crop destruction also required White House approval until 1963, after which final approval was delegated to the US Ambassador to the RVN.

We reconstructed the project number to which each mission in the HERBS file belonged by concatenating two data fields. Aggregating missions by project number transforms the HERBS file from a chronological listing of criss-crossing flight paths into target-related groups of flights flown at different points in time (Figs 1 and 2). The importance of projects and targets has not been sufficiently appreciated. NAS-1974, and even the USAF itself[18], inverted the hierarchy thus: "All missions within a target formed a project".

With US National Archives staff assistance we located a collection of USAF operational project folders for about 50% of the projects and nearly 60% of the volume of herbicide inventoried in the HERBS file[19]. Many folders contained 'after action reports' or other documentation on completed missions which had not been included in any HERBS file and permitted us to identify some 200 new missions that pre-date August 1965, the date of the earliest missions on the NAS-1974 HERBS file. The early years of the Vietnam War have incorrectly been regarded as of minor importance with regard to herbicide spraying. In total, about 1.9 million litres of Agent Purple were sprayed between 1962 and 1965, which is particularly significant because herbicides manufactured in the early 1960s were almost certainly more heavily TCDD-contaminated than those produced later[20]. Further, pre-1965 spraying was limited to a relatively small area (Fig. 1c), which thus may be at particular risk for TCDD contamination. Recent data on TCDD residues in soil sampled near US Army Special Forces camps where Agent Purple was sprayed[21], and results of soil assays at the testing grid in Eglin Air Force Base, Florida[22], support this interpretation.

Revised spray inventory

We have re-estimated the volume and type of herbicides sprayed between 1961 and 1971 to have 7,131,907 more litres than the 'uncorrected' NAS-1974 inventory and 9,440,028 l more than NAS-1974's 'corrected' inventory, in which about 10% of all missions had been discarded because of obvious recording errors. Figure 3 shows the areas sprayed; Fig. 4 shows the yearly distribution of spray; Fig. 5 shows the numbers of sorties flown, 1961–1971. Table 2 gives estimates of the frequency with which land areas were repeatedly sprayed.

Contamination of 2,4,5-T with TCDD varied widely by production run, manufacturer, and the percentage 2,4,5-T in the formulation. In early 1966, Agent White, which did not contain 2,4,5-T and hence was not TCDD-contaminated, began to replace Agent Orange. Chemical market forces had led to a shortage of Agent Orange. From a tactical perspective, Agent White was less satisfactory than Agent Orange because several weeks were required for defoliation to begin. It was accepted by the DoD, however, because Agent Orange would apparently no longer be available in sufficient quantities[23]. Agent Blue was the agent of choice for crop destruction by desiccation throughout the entire War, but more than four million litres of the other agents, primarily containing 2,4,5-T, were also used on crops.

Procurement records show that at least 464,164 l of Agent Pink and 31,026 l of Agent Green, with comparatively higher TCDD levels, were purchased, but we have been able to document little more than 50,000 l as having been sprayed in RVN and about 15,000 l that were used in tests. We have identified missions which dispersed about 1,900,000 of Agent Purple, but available procurement data show purchase of only 548,100 l (ref. 24), indicating that the procurement records are incomplete.

Extent of dioxin contamination

Estimates of how much TCDD was deposited in Vietnam are based on the volume of 2,4,5-T-containing herbicide sprayed (which has been revised upward on the basis of the new inventory), and on TCDD contamination levels. Estimates of the mean contamination level used by the USAF[18] and by NAS-1974 are probably too low.

Table 1 **Use of military herbicides in Vietnam (1961–1971)**[13,15,29]

Name	Chemical constituents	Concentration active ingredient	Years used	Estimated quantities sprayed (litres)*
Agent Pink†	60%–40% n-Butyl: isobutyl ester of 2,4,5-T§	961–1,081 g l^{-1} acid equivalent‡	1961;1965	50,312 sprayed; 413.852 additional on procurement records
Agent Green†	n-Butyl ester 2,4,5-T	(Should have same acid equivalent as Agent Pink)	(Unclear but within timeframe for Agent Pink)	31,026 shown on procurement records
Agent Purple†	50% n-Butyl ester 2,4,-D; 30% n-butyl ester 2,4,5-T; 20% isobutyl ester 2,4,5-T	1,033 g l^{-1} acid equivalent	1962–1965	1,892,773
Agent Orange†	50% n-Butyl ester 2,4,-D; 50% n-butyl ester 2,4,5-T	1,033 g l^{-1} acid equivalent	1965–1970	45,677,937 (may include Agent Orange II)
Agent Orange II †	50% n-Butyl ester 2,4-D; 50% isooctyl ester 2,4,5T	910 g l^{-1} acid equivalent	After 1968 (?)	Unknown but at least 3,591,000 shipped
Agent White‖	Acid weight basis: 21.2% tri-isopropanolamine salts of 2,4-D and 5.7% picloram	By acid weight: 240.2 g l^{-1} 2,4,-D and 64.9 g l^{-1} picloram	1966–1971	20,556,525
Agent Blue (powder)¶	Cacodylic acid (dimethylarsinic acid) and sodium cacodylate	Acid: 65% active ingredient; salt: 70% active ingredient	1962–1964	25,650
Agent Blue (H_2O solution)	21% sodium cacodylate + cacodylic acid to yield at least 26% total acid equivalent by weight	Acid weight: 360.3 g l^{-1}	1964–1971	4,715,731

Other chemicals used in testing programme but not in Vietnam operations include Modified Orange (4-amino-3,5,6-trichloropicolinic acid (picloram) added to Orange), Dalapon, Bromacil, Tandex, Monuron, Diuron and maleic hydrazide. Dinoxol (1890 l) (butoxyethanol esters of 2,4-dichlorophenoxyacetic acid (2,4-D) and 2,4,5-T), Trinoxol (1455 l) (40% ethanol ester of 2,4,5-T) and 378 l Conc D (30% ethyl ester of 2,4,-D in H_2O) were also used in tests during 1961.

*Nominal application rate: 4.78 kg ha^{-1}.

†Contaminated with varying levels of TCDD.

‡Acid equivalent is the mass of pure acid that results from complete de-esterification or deamination of salts and esters. Total ester masses are approximately 20% greater.

§80–20% mixture when mixed with Agent Green. Agent Green was never sprayed alone but was immediately mixed with Agent Pink for spraying.

‖Proprietary product of Dow Chemical Company (Tordon 101).

¶Ansul Chemical Co. product Phytar 560 was only arsenical before July 1969.

After Agent Orange spraying ended in May 1970, the USAF was required to dispose of very large stockpiles of surplus herbicide that were ultimately incinerated aboard the M/T *Vulcanus* in 1977. (The US government had also assumed liability for large unblended inventories of 2,4,5-T and 2,4-D from contracted suppliers, either paying for storage or stockpiling the chemicals at Kelly Air Force Base, Texas, in December 1970 (ref. 25). We do not know the fate of the stockpiles.)

TCDD concentrations varied widely in the mixtures. The USAF was required to provide the US Environmental Protection Agency with an Environmental Impact Statement (EIS) prior to incineration[26]. The EIS sheds light on TCDD levels in the over three million litres of herbicide stockpiled at the Naval Construction Battalion Center (NCBC), Gulfport, Mississippi, and the approximately 26,000 208-litre barrels in the Johnston Island stockpile.

TCDD concentrations ranged from 6.2 to 14.3 p.p.m., and averaged 13.25 p.p.m. in samples drawn for incineration-effluent modelling studies from 28 different NCBC barrels chosen by the USAF as representative of the seven manufacturers of the NCBC stockpile[26]. However, in other samples drawn from the NCBC stockpile, the TCDD range was about 0.05 to 13.3 p.p.m. (weighted average 1.77 p.p.m.). (NAS-1974, however, calculated a range of <0.05 to 17.0 p.p.m., and an arithmetic mean of 2.99 p.p.m. from the same analytical data[2].) The large discrepancies between the effluent modelling study and the other samples analysed by the USAF and NAS-74 can be explained by information in the background analytical documentation in which runs analysed by NAS-1974 are consistent with the 'low dioxin' analytical series[27,28]. The documentation also reports dioxin levels to be heterogeneous, even within production runs. USAF chemists had concluded that generalization from tested barrels to untested ones in the same production batch was not reliable. NAS-1974 appears not to have been provided information either on the heterogeneity of production runs or that they were generalizing from data consistent with a 'low dioxin' analytical series.

Two hundred random samples from the Johnston Island stockpile were also analysed for TCDD content. The Johnston Island stockpile is likely to have been primarily contracted for in 1967 or later and to consist almost exclusively of Agent Orange, because Agents Purple, Pink and Green were not manufactured after the use of Agent Orange began[29] and in mid-1966 Ranch Hand missions were curtailed because of a severe herbicide shortage[17]. NAS-1974 calculated a mean TCDD level of 1.91 p.p.m. ± 20% for the stockpile[2]. USAF documentation that is widely viewed as authoritative[18], however, disputes this mean and contends that the four highest values (17, 22, 33 and 47 p.p.m.) must have been Agent Purple, and not Agent Orange, because these values exceeded the mean reported for the NCBC inventory, citing a personal communication from a military officer who recalled that as many as 20 drums of Agent Purple may have been present in the stockpile and redrummed into

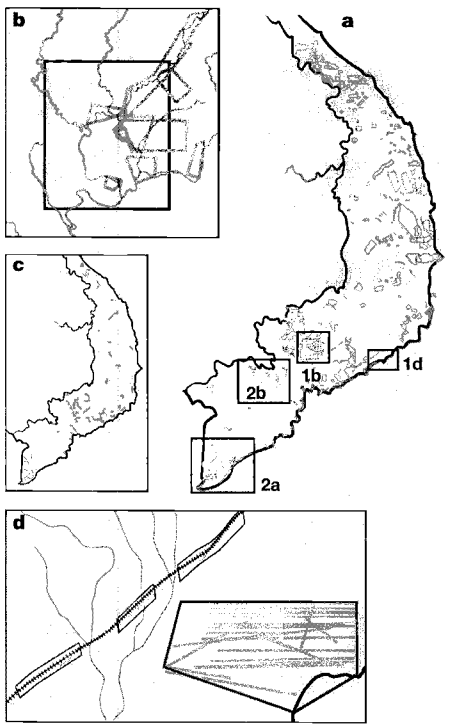

Figure 1 Herbicide projects, targets and spraying[19]. **a**, Spraying operations were directed at specific targets, 487 of which are shown. Labels in **a** refer to areas blown up in the corresponding parts of Figs 1 and 2. **b**, Some areas were targeted in multiple projects at different times: black box, 1964; red boxes, 1965; green boxes, 1966. **c**, We identified targets active before 1965; at least 4.7 million litres of herbicides were used to destroy 33,339 ha of crops and defoliate 101,300 ha of land. Dioxin contamination may be particularly relevant for this time period. **d**, Correspondence between HERBS file Agents Orange and White mission paths (orange and white lines) and target boxes, three of which enclose a railroad right-of-way. In Figs 1 and 2, waterways such as canals and rivers are shown in blue.

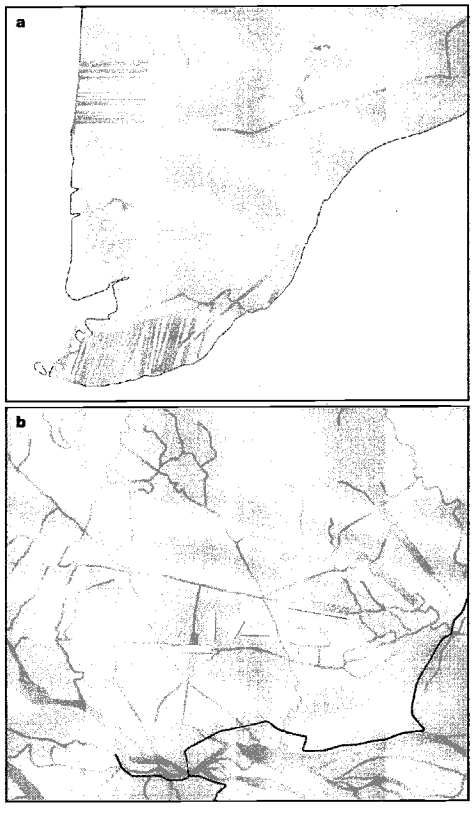

Figure 2 We could not locate target documentation for half the Ranch Hand missions on the HERBS file. **a**, Missions clearly directed at specific targets. Our current work is to identify probable targets through such mapping. Colours represent the flight paths of spray missions delivering Agents Orange and White **b**, HERBS file problem. Some purposes defined in the HERBS file documentation[3], such as waterways and communication lines, are often labelled defoliation in the spray tapes, as shown. NAS-1974 and others have analysed spraying by HERBS file purpose but this is inaccurate.

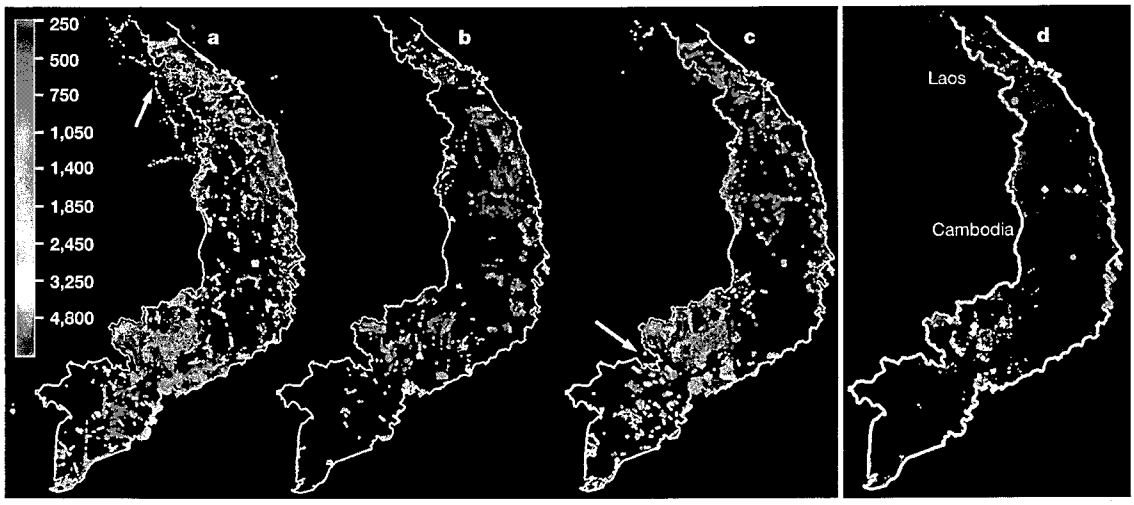

Figure 3 Volumes of herbicide sprayed. **a**, **b** and **c** represent known volumes of Agents Orange, White and Blue, respectively, sprayed by US military forces in RVN, 1961–1971. Volumes are calculated for individual grids spaced at 0.01 degrees (~1.2 km^2), that divide up Vietnam in a geographic information system developed by us[45]. Colours in **a**, **b** and **c** correspond to volumes as shown in key. Arrows in **a** and **c** point to missions in Laos and in the Parrot's Beak region of Cambodia, respectively. **d**, Grids sprayed with volumes greater than 4,800 l (about 10% of total), with marker size increasing in proportion to volume and colours corresponding to herbicide codenames. All herbicides containing 2,4,5-T are represented by orange markers.

Agent Orange containers. (The hypergeometric probability of selecting four of the 20 Agent Purple drums from the stockpile is 1.32×10^{-5}.) In fact, the range observed is completely consistent with the USAF's own analysis of the range and heterogeneity of TCDD levels[27,28]. By 1988, Young, the senior author of the USAF documentation, dropped the word "may" and simply reported the four high values to have been Agent Purple[30]. This latter reference has been relied upon as authoritative by the IOM[8], and many others.

A 1971 NAS-1974 analysis of six core soil samples collected from the central calibration grid at Pran Buri, Thailand, over which all ARPA test flights had flown, found TCDD levels ranging from non-detectable (<0.0012 p.p.m.) to 0.0233 p.p.m. and 2,4,5-T residue from non-detectable (<0.02 p.p.m.) to 0.61 p.p.m.. NAS-1974 estimated the original herbicide to have contained <3 to 50 p.p.m. TCDD, consistent with the range observed in the Johnston Island stockpile[2]. (The USAF documentation[18] incorrectly asserts that NAS-1974 had erred in attributing the TCDD to Agent Orange rather than to Agents Purple and Pink. These misstated findings are used as further rationale for assuming the four high TCDD values to have been Agent Purple.)

Although Agent Purple is, indeed, likely to have been more highly contaminated with TCDD (an archived sample of Agent Purple at Eglin Air Force Base contained 45 p.p.m. TCDD[18] and historical TCDD contamination data show early 1960s contamination levels to have been much higher)[20], it is also likely that mean TCDD levels in Agent Orange were far higher than 3 p.p.m. for much of the herbicide used. An average value closer to 13 p.p.m. may be more realistic.

If 3 p.p.m., the mean associated with the 'low dioxin' series is conservatively applied to the new inventory we have presented here, the estimate for TCDD present in the spray grows to 221 kg from NAS-1974 estimates of 106–163 kg. Applying 32.8 p.p.m. and 65.5 p.p.m. as the average TCDD in Agents Purple and Pink, we obtain an additional 165 kg, or 366 kg in total (which still does not take into account the herbicides sprayed by RVN forces, and possibly by US Army and Navy forces by trucks, boats, hand sprayers and helicopters, nor the more than 400,000 l of Agent Pink shown in procurement records but not found in any recorded missions). If, indeed, dioxin contamination of Agent Orange could be fourfold or more higher, then this increased dioxin load grows proportionally. It is also possible that some missions recorded as having dispersed Agent Orange did, in fact, spray the much more highly contaminated but unaccounted-for Agent Pink, but we know of no way to determine this. It is more likely that the unaccounted-for herbicides were used by Vietnamese troops, although about 50,000 l of Agent Pink do appear on the 1965 inventory.

Estimates of population exposure to herbicides

A Hamlet Evaluation System (HES) in which US district advisors and Vietnamese district chiefs filled out monthly political survey and census forms was established in June 1967 and a gazetteer of place names and precise geographical locations was also created. The HES data provide a comprehensive rural census that permits us to estimate the numbers of hamlets and size of the population directly sprayed upon[31]. HES files were not made available to NAS-1974 early enough to permit analyses[2].

More than 20,585 unique hamlets are represented in the corrected version of the database used here. Population data are not

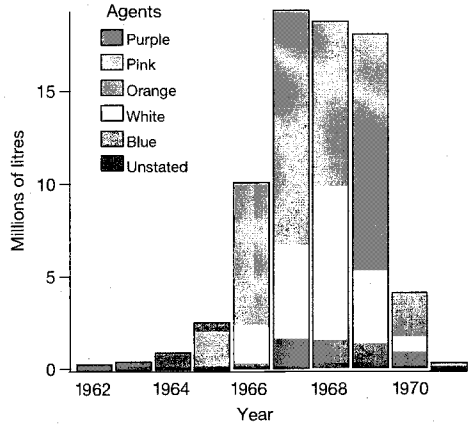

Figure 4 Litres of herbicides sprayed over 1962–1971. The data are taken from the corrected HERBS file and do not include Dinoxol and Trinoxol used in 1961.

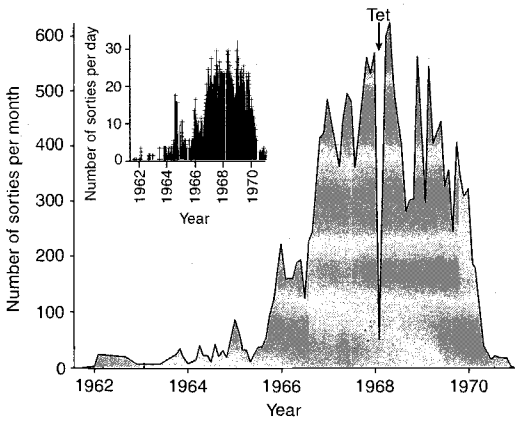

Figure 5 Time course of herbicide sorties. At least 19,905 sorties were run between 1961–1971 (1–34 daily, with a daily average of 10.7 sorties). These data disagree with USAF estimates[18]. The number of daily sorties mirrors the course of the Vietnam War itself: a slow build-up, maximum activity 1968–1969, then a slow but steady decline. The abrupt spraying drop-off at the end of January 1968 corresponds to the Tet Offensive wherein North Vietnamese forces carried out massive, coordinated attacks throughout RVN for nearly 2.5 months. Spray equipment was removed from Ranch Hand aircraft and crew and aircraft participated in airlift operations.

available for 18% of these hamlets and population data are not systematically reported each month for all years. Among the hamlets with some population data, 3,181 were sprayed directly and at least 2.1 million but perhaps as many as 4.8 million people would have been present during the spraying. Another 1,430 hamlets were also sprayed, but we cannot estimate the population involved. In all, at least 3,851 out of 5,958 known fixed-wing missions had flight paths directly over the hamlet coordinates given in the HES and gazetteer data and about 35% of the total herbicide sprayed was flown by these missions, although, in general, flight paths extended beyond hamlet borders.

Aborted missions and emergency dumps

Forty-two missions originally intended to spray 120,000 l of herbicide are known to have ended with emergency herbicide dumps where the chemical was jettisoned in about 30 s, compared to the usual 4 to 5 min. At least five herbicide-loaded aircraft crashed. Hundreds of other missions were aborted after take-off because of poor weather at the target site, heavy anti-aircraft fire, or mechanical problems. Such aircraft returned to base with herbicide load intact. It has been erroneously reported that aborted missions automatically dumped herbicide before landing[32]. Many flights were 'aborted' before take-off because of mechanical problems. One extensive but incomplete list of aborted missions is contained in a large-format uncorrected version of the HERBS file, known as the Map Book, which has served as the basis for much analysis of potential exposure, particularly by Vietnamese scientists[33]. When the Map Book list is checked against the USAF Daily Air Activities Reports (DAARS), it is found to consist primarily of mechanical aborts, not herbicide dumps. Conversely, the list does not contain many actual dumps identified by CRUR and has other inaccuracies which have been corrected over the years by the DoD and now by us.

In 1971, NAS-1974 analysed five soil samples from an area in which about 3700 l of Agent Orange had been dumped in December 1968. No 2,4,5-T could be detected. TCDD was not analysed[34]. Aborted missions may not represent the significant source of exposure that it has been represented to be by others, and studies which have relied on the uncorrected data in the Map Book will, of necessity, be inaccurate.

Table 2 **Estimated area and frequency of spraying**

Times sprayed	Hectares	
	All herbicides	2,4,5-T herbicides
1	368,556	343,426
2	369,844	332,249
3	361,862	275,770
4	341,037	236,232
5	272,709	153,192
6	216,724	119,127
7	153,391	75,062
8	138,610	51,371
9	115,103	32,988
10 +	293,461	60,316
Total ha	2,631,297	1,679,734

Frequency of spraying is the number of times spray mission flight paths overflew grids in Vietnam GIS developed for herbicide exposure assessment[45].

Discarded drums

Approximately two litres of herbicide residue remains in the 208-litre barrel after it has been 'emptied'. Typically about 20% of the residue remains after three rinses. Residue, on average, contained 5.96 mg of TCDD, arising from heavily contaminated herbicides and about 1.25 mg per drum from 'low dioxin' herbicides[26]. Barrel residues had led to inadvertent defoliation of trees and gardens in Da Nang, Nha Trang, Bien Hoa, Phu Cat and Saigon civilian areas near USAF airbases that handled the herbicides when the empty barrels were transported to local merchants for commercial uses[35]. Improved handling procedures were adopted in 1969 following the Da Nang defoliation incident but the ultimate fate of most of the empty barrels is not known and the extent to which people who used the barrels for other purposes may have been exposed is not known.

Spraying in Laos and Cambodia

Operation Ranch Hand flew its first missions outside RVN in December 1965 to defoliate the major reinforcement and supply route through Laos known as the 'Ho Chi Minh trail'. Known spraying was above the 17th parallel (the northern border of RVN), along Routes 92, 922, 96 and 965 below Tchpone and the Sihanouk Trail that went from Laos to Cambodia. Missions in both countries below the 17th parallel can clearly be seen in Fig. 3a and c. A small amount of crop destruction using Agent Blue was also documented. Laos was also the site of a brief experiment to determine whether F-4E Phantom II jet fighters could successfully be used to carry out spray operations and avoid anti-aircraft fire. At least five F-4E missions were flown until a fighter was shot down and the strategy was abandoned. Documentation of spray activities in Laos is incomplete. The Services-HERBS file shows flight paths for 210 missions, which sprayed about 1.8 million litres. NARA-held documentation shows as much as 14% more herbicides as having been sprayed but no coordinates are given so that these data cannot be included in the revised HERBS file[36].

Unlike in Laos, it was official US policy to avoid spraying Cambodia either directly or indirectly by spray drift[37] (cited by Cecil[38]). Records show several heavily sprayed regions of RVN, near Cambodia. The HERBS file shows one five-aircraft Ranch Hand mission dispersing approximately 19,000 l of Agent Orange on 5 April 1969 inside Cambodia. Another nine missions dispersed about 136,000 l of Agent Orange while partly over Cambodian territory (Fig. 3c). At the typical rate of 28 l ha^{-1} this would cover about 5,500 ha. Undocumented spray drift may have also occurred. In May 1969 a diplomatic crisis arose when Cambodia charged the US with repeatedly spraying it and defoliating 70,930 ha; evidence of defoliation was confirmed by visiting foreign scientists[39]. Cambodian claims seem to be exaggerated in that to achieve the extent of alleged defoliation nearly half of the Ranch Hand flights for April–May 1969 would have to have been directed towards Cambodia.

Records are not available to resolve the controversy, particularly since the area was devastated by US B-52 bombing raids in 1970.

Discussion

The Vietnam War ended in 1975, yet no large-scale epidemiological study of herbicides and the health of either the Vietnamese population or war veterans has been carried out. Discussions of health and ecology studies in Vietnam have recently taken place[40]. During the course of developing an exposure methodology, we have unexpectedly come upon primary data which expanded existing herbicide spraying databases and could help guide the design of human health and of environmental studies.

NAS-1974 found the HERBS file to be a powerful tool for studying exposure to herbicides. The concordance between HERBS file mission coordinates, operational folders, and the precise locations of roadways, rail lines, power lines, canals and so on given in modern mapping software increases our confidence in the HERBS file. Viewing the HERBS file as a carefully planned target-based military exercise, rather than chronological unrelated missions criss-crossing RVN in straight-line paths affords a coherent analytical approach.

Our analyses using original operational records raise questions about the spraying data and dioxin contamination relied upon by researchers and policymakers. For example, we find that the '202 Tasks Realized' document used by NAS-1974 assumed missions that are missing from the HERBS file[41] to represent targeted areas and anticipated spraying rather than operations completed. (Further, the '202 Tasks Realized' document contains many errors, such as misplaced decimal points for subtotals of volume sprayed, which cumulate and greatly exaggerate the total volume)[42]. Therefore, some NAS-1974 estimates of 'missing' spray must be revised downward. On the other hand, dioxin contamination estimates should be revised upward. Comparatively small amounts of Agent Purple and Pink sprayed in Vietnam between 1961–1965 may have deposited a large percentage of the total dioxin.

Large numbers of Vietnamese civilians appear to have been directly exposed to herbicidal agents, some of which were sprayed at levels at least an order of magnitude greater than for similar US domestic purposes[20]. Other analyses being carried out by us show large numbers of American troops also to have been directly exposed or to have served in recently sprayed areas. Areas sprayed during the early years and in the various test sites around the world[15] may be of particular interest for follow-up ecological and epidemiological studies. □

Methods

We constructed a new version of the HERBS file using operational records for the USAF 12th Air Commando Squadron (ACS), which carried out the Ranch Hand missions and by systematic comparisons of four different versions of the herbicides files found at the US National Archives[43] and the active file at CRUR. Of 18,087 mission records there were 1,264 non-matches between HERB2REV and the current CRUR file (that is, 2.5 million litres out of more than 66.6 million litres). About 3.4% of the total volume is represented at CRUR but not the other files. We also identified errors by mapping flight paths and by consistency checking (for example, legs that were very short or very long, over water, and so on). Discrepancies which we could not thus resolve were reviewed by a small panel of experts. The same panel reviewed each proposed amendment to the HERBS file. A small number of missions which remained ambiguous were discarded. All discarded missions were from the Services-HERBS.

Flight paths for 65 missions of fixed-wing aircraft missions that had been represented in the original HERBS file only by a single point (usually the calculated centre-of-mass) were readily deduced by comparison with similar missions or known targets. (Some missions are correctly represented as single points because they document perimeter spraying carried out by spraying specific discrete points, such as outside base camps near guard posts.) The revised file contains 9,141 missions, primarily by air, but also using other means of delivery.

We used digitizing software[44] to derive the longitudes and latitudes defining the target perimeters from hand-drawn maps in the USAF Project Folders[19]. For folders with no map we extracted the Universal Transverse Mercator (UTM) coordinates from written descriptions of the targets and entered them into a Geographic Information System (GIS) which we created[45], similar to a databank model created by NAS1974 (we are willing to assist researchers in using our GIS software for estimating exposure using these data). Population and hamlet exposure estimates used data contained in the HES and Vietnam gazetteer data files[31]. Each hamlet location was assigned a grid identifier and proximity to spray was calculated using our GIS system software.

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Competing interests statement The authors declare that they have no competing financial interests.

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FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE