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ADMINISTRATIVE RECORD  
COVER SHEET

AR File Number 3223

# Kelly Restoration Advisory Board (RAB) Technical Review Subcommittee (TRS)

## Meeting Agenda\*

May 10, 2005, 6:30 p.m.

Environmental Health & Wellness Center

911 Castroville Road

(formerly Las Palmas Clinic)

- |             |  |  |
|-------------|--|--|
| 6:30 – 6:40 | <b>Introduction</b><br>A. Agenda Review<br>B. Packet Review  | Dr. David Smith  |
| 6:40 – 7:00 | <b>Administrative</b><br>A. Approve December TRS Meeting Summary, February TRS Meeting Summary and March TRS Meeting Minutes<br>B. BRAC Cleanup Team (BCT) Update<br>C. Spill Summary Report<br>D. Documents to TRS/RAB<br>E. RFI Responses<br>F. Action Items | Dr. David Smith<br><br>Ms. Norma Landez<br>Ms. Norma Landez<br><i>Please refer to your packets</i><br><i>Please refer to your packets</i><br>Dr. David Smith |
| 7:00 – 7:20 | <b>Zones 2/3 Update</b>  | Mr. Don Buelter  |
| 7:20 – 7:30 | <b>Question &amp; Answer Session on the Zones 2/3 Update</b>   | Dr. David Smith  |
| 7:30 – 7:45 | <b>Update on Building 361</b>  | Mr. Jack Shipman   |
| 7:45 – 7:55 | <b>Question &amp; Answer Session on the Update on Building 361</b>   | Dr. David Smith  |
| 7:55 – 8:00 | <b>Meeting Wrap-up</b>   |  |
|             | <b>Special RAB Meeting</b><br>485 Quentin Roosevelt, Room 723: June 14, 2005, 6:30 p.m.*   |  |
|             | <b>Next RAB Meeting</b><br>Location to be determined: July 19, 2005, 6:30 p.m.*  |  |
| 8:00        | <b>Adjournment</b>   |  |

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

May 10, 2005  
Technical Review Subcommittee (TRS) Meeting  
of the Kelly Restoration Advisory Board (RAB)  
Environmental Health and Wellness Center  
911 Castroville Road  
San Antonio, Texas 78237

~~UB~~ Draft Meeting Minutes

**RAB Community Member Attendees:**

Mr. Robert Silvas, Community Co-chair  
Mr. Rodrigo Garcia, Jr.  
Ms. Coriene Hannapel  
Ms. Henrietta LaGrange  
Mr. Sam Murrah; Alternate for Mr. Michael Sheneman  
Mr. Nazirite Perez  
Mr. Armando Quintanilla  
Mr. Micheal Sheneman

**RAB Government Member Attendees:**

Ms. Kyle Cunningham, Alternate for Melanie Ritsema  
Mr. Gary Martin, Greater Kelly Development Authority (GKDA)  
Mr. Gary Miller, EPA Region VI  
Ms. Abbi Power, Texas Commission on Environmental Quality (TCEQ);  
Alternate for Mr. Mark Weegar  
Ms. Melanie Ritsema, San Antonio Metropolitan Health District  
Mr. William Ryan; Alternate for Mr. Adam Antwine, Installation Co-chair  
Mr. Mark Weegar, TCEQ

**Other Attendees:**

Mr. Don Buelter, Air Force Real Property Agency (AFRPA)  
Ms. Leigh-Ann Fabianke, AFRPA Contractor  
Ms. Blanca Hernandez, Environmental Health and Wellness Center  
Ms. Cheri Kirkpatrick, AFRPA Contractor  
Ms. Norma Landez, AFRPA  
Mr. David Plylar, Representative for Councilwoman Patti Radle  
Ms. Heather Ramon-Ayala, AFRPA Contractor  
Mr. Jack Shipman, AFRPA  
Dr. David Smith, Facilitator

The meeting began at 6:39 p.m.

**I. Introduction – Dr. David Smith**

Dr. David Smith began the meeting by welcoming RAB members and other attendees.

**II. Administrative – Ms. Norma Landez and Dr. David Smith**

Dr. Smith stated that the action items from the March meeting were turned into Requests for Information and are currently being coordinated at AFRPA.

Mr. Quintanilla moved to not approve the December and February TRS Meeting Minutes and the March TRS Meeting Summary. Mr. Silvas seconded the motion. The motion was voted on by the RAB, 6 for and no opposed. The motion passed.

**III. Zone 2/3 Update – Mr. Don Buelter**

Mr. Buelter gave a briefing on the status update of Zones 2 and 3.

Question and Answer session followed regarding the Zone 2/3 Update

**IV. Update on Building 361 – Mr. Jack Shipman**

Mr. Shipman gave a briefing on Building 361 concerning radium.

Question and Answer session followed regarding the update on Building 361

**V. Meeting Wrap-up– Dr. David Smith**

Dr. David Smith reviewed the recommended action items from the meeting:

1. The RAB needed to designate TRS membership
2. TRS Chair and Secretary discussed by co-chairs and referred to the RAB
3. Zone 4/5 briefing to RAB
4. Site E-1 rebate amount



Dr. Smith stated that the next meeting would be a Special RAB held in place of the regularly scheduled TRS meeting on June 14, 2005. The meeting will begin at 6:30 p.m. at 485 Quentin Roosevelt, in room 723.

The next regularly scheduled RAB meeting will be July 19, 2005, at 6:30 p.m. at a location to be determined.

Motion to adjourn the meeting. Motion seconded and passed.

The meeting 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.*

	
Robert Silvas	Adam Antwine
RAB Co-chair	Installation Co-chair
10/10/05 Date	10/11/05 Date

# Headquarters U.S. Air Force

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## Former Kelly AFB Technical Review Subcommittee 10 May 2005



Zone 2 and 3 Update

Mr. Don Buelter, P.G.

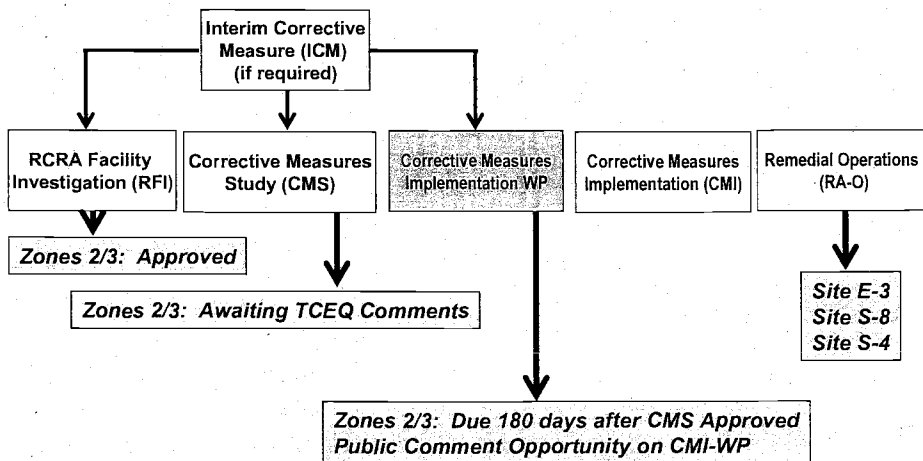
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### Sites with Long-term Operations



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## Zone 2 Treatment Systems

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Selected Alternative	~ Cost	Installed?
Site E-3 – Soil Vapor Extraction / Pump and Treat	\$1,700,000	Installed
Site FC-2 – Bioventing	\$293,000	Site Closed
Bldg. 522 – Soil Vapor Extraction	\$350,000	Installed
Bldg. 522 – Enhanced Bioremediation		FY07
Northbank – Permeable Reactive Barrier	\$3,945,000	Installed
Site E-1 – Excavation / Enhanced Bioremediation	\$4,900,000	Installed
Site E-1 – Pump and Treat	\$1,500,000	Installed

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## Zone 3 Treatment Systems

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Selected Alternative	~ Cost	Installed?
Bldg. 360 – Permeable Reactive Barrier	\$3,500,000	Installed
Bldg. 301 – Permeable Reactive Barrier	\$1,500,000	Installed
Site MP – Slurry Wall / Pump and Treat	\$3,200,000	Installed
Site S-8 – Bioventing / Pump and Treat	\$1,400,000	Installed
Site S-4 – Pump and Treat	\$1,700,000	Installed
Bldg. 360 – Soil Vapor Extraction and Enhanced Bioremediation		FY07
Bldg. 301 – Enhanced Thermal Extraction		FY07
Bldg. 348 – Soil Vapor Extraction		FY07
Bldg. 324 – Soil Excavation		FY07

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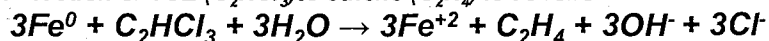


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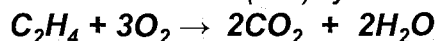
## Permeable Reactive Barriers – Question concerning Fact Sheet

**Kelly PRB Fact Sheet: “the iron filings react with the contaminants, converting them into water carbon dioxide and minerals.”**

The reaction of TCE ( $C_2HCl_3$ ) to ethene ( $C_2H_4$ ) is as follows:



Ethene is converted to carbon dioxide ( $CO_2$ ) by this reaction:



**A mineral is defined as “a mineral element in the form of an ion, compound or complex.” Therefore, the chloride ( $Cl^-$ ) and hydroxide ( $OH^-$ ) produced in the first reaction are by definition minerals. The complete reaction of TCE produces carbon dioxide and water. The Kelly Fact Sheet is thereby correct.**

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## Building 301 PRB

- Purpose: Contain Bldg. 301 Groundwater Source
  - PCE (primary), TCE, 1,2-DCE and vinyl chloride
- Installation was completed in Late June 2003
  - Total Length 690 feet
- Sampling Events
  - 1<sup>st</sup> Round of samples collected in December 2003
    - Three transects (nine wells) sampled
      - PCE, TCE non-detect within wall
      - VC and DCE detected in southern transect within wall
  - 2<sup>nd</sup> Round of samples collected in June 2004
    - Three transects (nine wells) sampled
      - PCE, TCE non-detect within wall
      - VC and DCE detected in southern transect within wall
  - 3<sup>rd</sup> Round of samples collected in November 2004
    - Three transects (nine wells) sampled
      - VC and DCE detected in southern transect within wall
      - PCE, TCE, DCE below MCL downgradient well
      - VC not migrating beyond Building 301 area

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## Building 301 - Monitoring Results – South Transect

Parameter	Upgradient			In Wall			Downgradient		
	Nov 03	Jun 04	Nov 04	Nov 03	Jun 04	Nov 04	Nov 03	Jun 04	Nov 04
PCE (µg/L)	336	2490	2380	<1	<1	10	<1	121	5
TCE (µg/L)	387	1020	235	<1	<1	10	<1	37	5
1,2-DCE (µg/L)	937	643	195	2.3	8.5	493	8.5	434	3.4
VC (µg/L)	310	102	29	5.1	374	120	374	25	120

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## Building 360 PRB

- **Purpose: Contain Bldg. 360 Groundwater Source**
  - PCE (primary), TCE, 1,2-DCE and vinyl chloride
- **Installation was completed in March 2004**
  - PRB Total Length: 800 feet
  - Slurry Wall total length: 400 feet
- **Sampling Event**
  - **1<sup>st</sup> Round of samples collected in May 2004**
    - VOCs not detected
    - Inorganic chemistry showing positive trends
      - pH, GW levels, methane
  - **2<sup>nd</sup> Round of samples collected in November 2004**
    - Five transects (15 wells) sampled
    - No VOCs detected within wall or downgradient of wall

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## Zone 2 PRB

- Purpose: Contain Zone 2 Groundwater Plume before Leon Creek
  - PCE, TCE, 1,2-DCE and vinyl chloride
- Installation was completed in December 2004
  - PRB Total Length: 875 feet
  - Slurry Wall total length: 700 feet
- Sampling Event
  - 1<sup>st</sup> Round of samples collected in January 2005
    - Four transects (12 wells) sampled
    - No PCE, TCE or VC detected downgradient of wall
  - 2<sup>nd</sup> Round of samples collected in April 2005
    - Four transects (12 wells) sampled
    - No PCE, TCE or VC detected downgradient of wall

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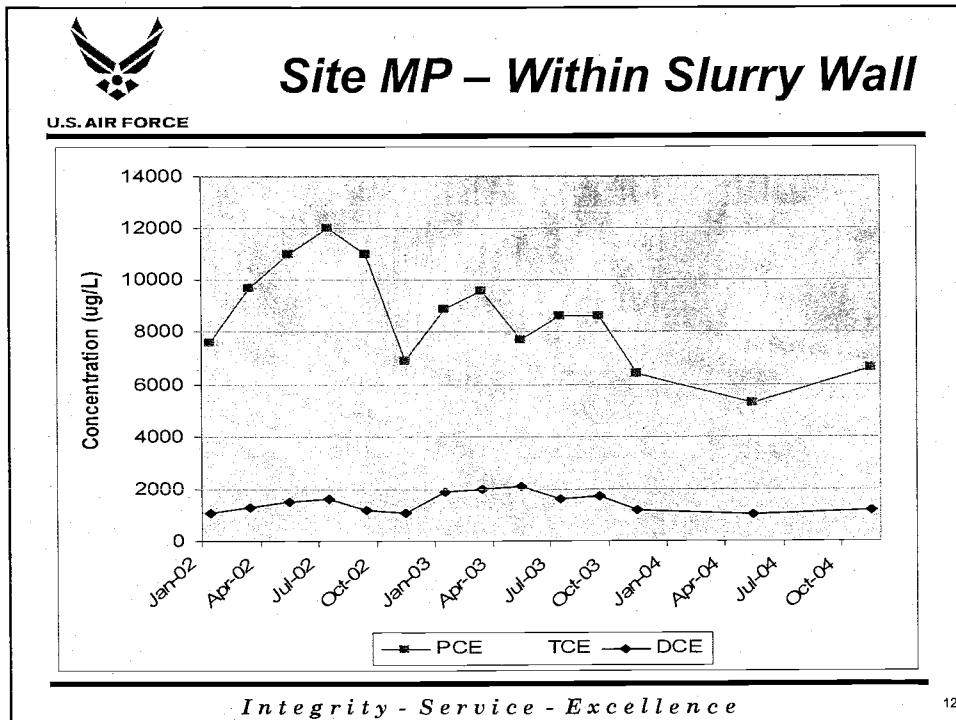
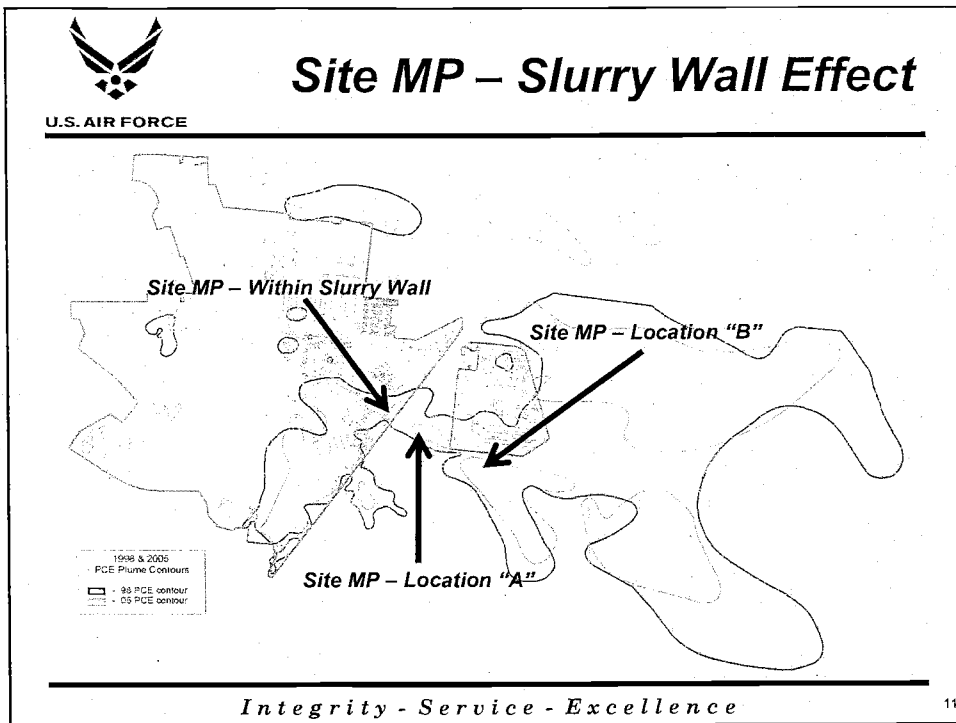
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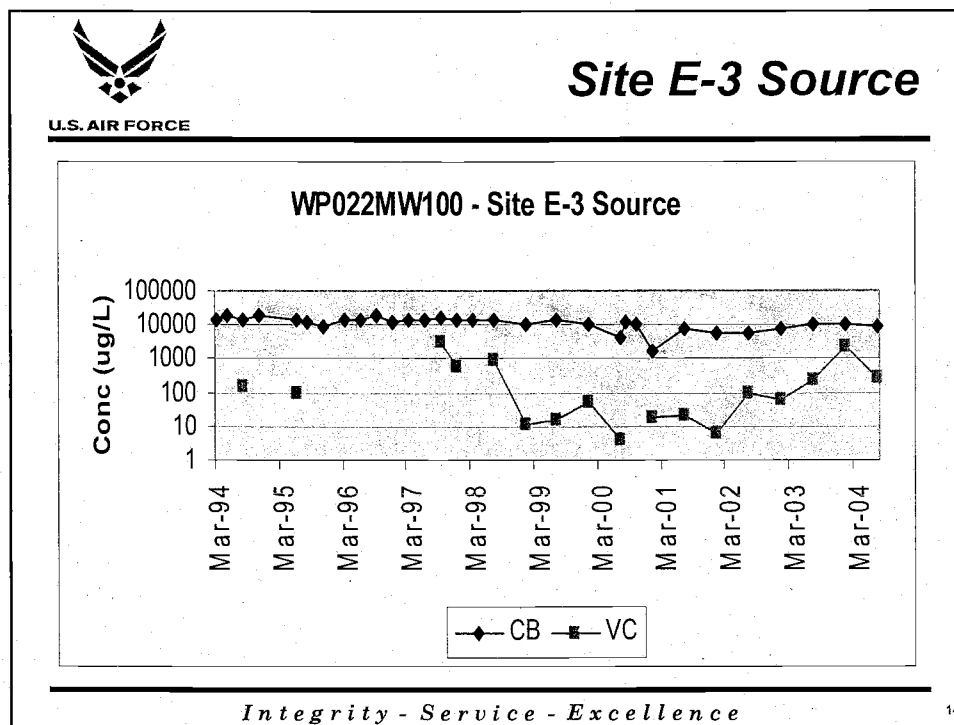
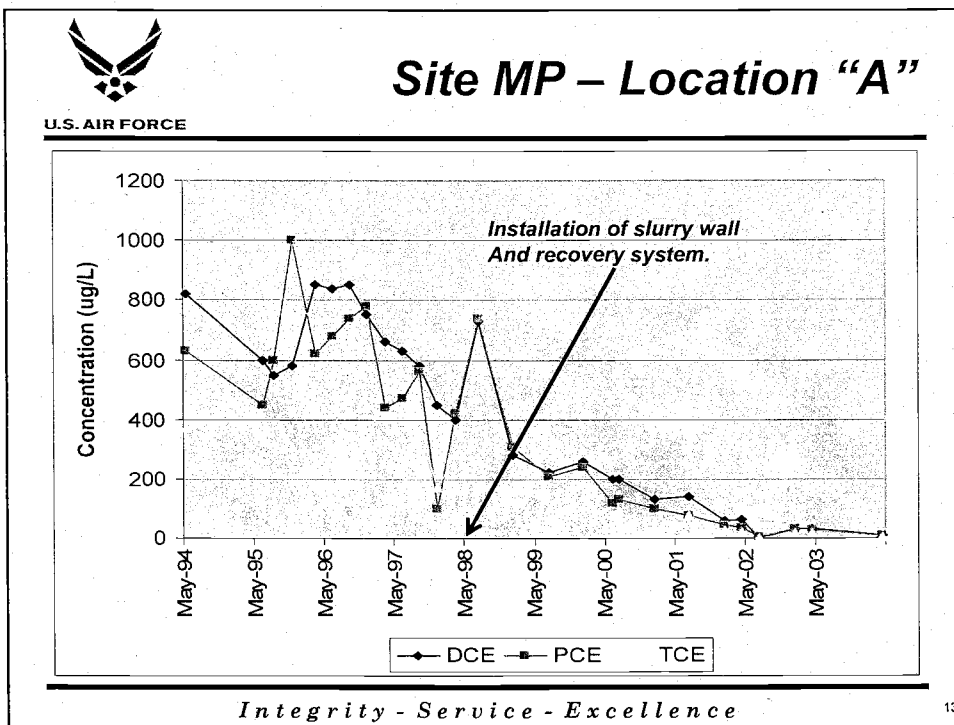
## Building 522 Area Transect - Monitoring Results

Parameter	Upgradient		In Wall		Downgradient	
	Jan 05	Apr 05	Jan 05	Apr 05	Jan 05	Apr 05
PCE (µg/L)	11	20	<1	<1	<1	<1
TCE (µg/L)	210	170	<1	<1	<1	<1
1,2-DCE (µg/L)	150	20	46	3.3	13	6.1
VC (µg/L)	<1	<1	<1	<1	<1	<1

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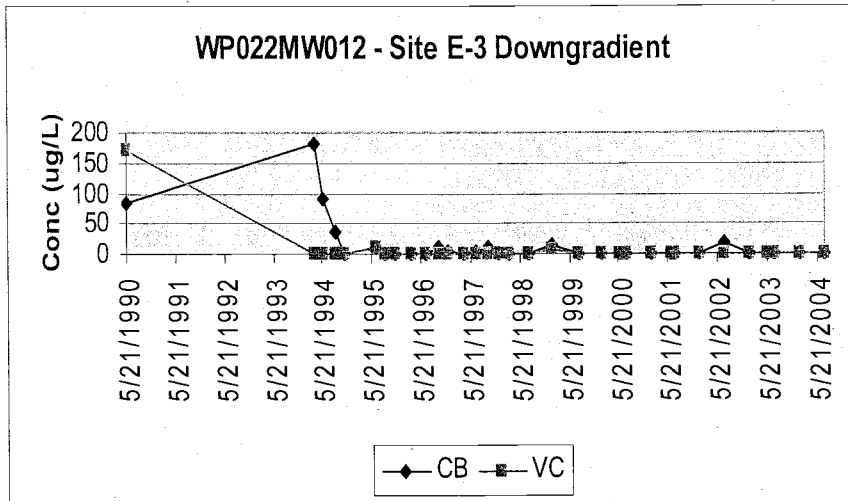






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### Site E-3 Downgradient



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## ***U.S. Air Force Real Property Agency***

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### **Kelly Radiation Program Building 361 Incident 7 Oct 03**



**Jack Shipman  
Kelly Radiation Program Mgr  
Kelly TRS, 10 May 05**

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### ***Kelly Radiation Program Overview***

#### **Briefing Overview**

- Kelly Radiation Site Summary (inc 4 Historical Radium Paint Shops)
- Pre-incident Rad Survey and Deed Recordation
- 7 Oct 03 Incident inside B361
- Investigation and Radiation Survey
- Worker Exposure Testing
- 12 Jan 04 - Boeing Contractor Goes Back to Work
- Current Status
- Questions

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## Kelly Radiation Program Kelly Site Summary

- Kelly had 27 Total Radiation Sites
  - 17 Active Sites (Active up to late 1990s)
  - 10 Historical Sites (Including 4 former Radium shops)
- 4 Radium Paint Shops
  - Where Kelly workers refurbished and painted aircraft instruments and parts with paint containing Radioactive (Luminous) Radium Salts from the 1920s to about 1952. Spills contaminated shop floors and were washed down building floor drains and sinks and into the exterior SS.
  - B361 (1922-29) – Original shop was under existing hangar B361
  - B365 (1929-34) - Original shop was under existing hangar B365
  - B324 (1934-42) – Remediation Completed in 2003
  - B326 (1942-52) – Remediation Scheduled for completion in 2005

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## Kelly Radiation Program B361 & 365



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## *Kelly Radiation Program* ***B361 – History and Surveys***

- Kelly's 1<sup>st</sup> Radium Paint Shop from 1922-29, demolished in 1930s.
- Current hangar (Building 361) built on site in 1941
- BRAC 95 – Kelly was on list
- AFRPA researched all radioactive material/waste sites basewide. To transfer the B361 property, AFRPA did initial radiation survey in Jul 99. Survey results were.....
  - Interior hangar floors – Not Impacted
  - Exterior perimeter of building – Not Impacted
  - Downgradient GW monitoring wells - Not Impacted
  - Area utility manholes - Not Impacted
- Due to this situation, only option.....TCEQ Deed Recordation Survey in Jun 02
- 22 Apr 03 - Received NFA concurrence from EPA

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## *Kelly Radiation Program* ***Boeing Incident – 7 Oct 03***

- 1999 - Boeing leased Building 361 as an Aircraft Paint Stripping Facility
- Jul 03 - Boeing awarded a contract for a new stripping system & was installing new equipment which required excavating into the slab for a waste water collection trench
- Project progressed for a few months
- 7 Oct 03 – During a lease compliance inspection, AFRPA saw the trench and alerted the Boeing contractor of possible underslab radiation, recommending they get a radiation consultant to survey the area to protect their workers

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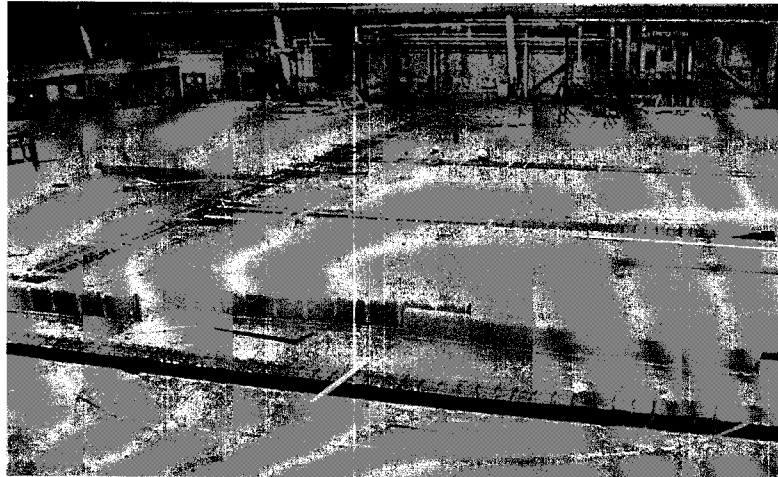
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## *Kelly Radiation Program* **B361 Waste Water Collection Trenches**



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## *Kelly Radiation Program* **Radiation Survey**

- AF, GKDA and Boeing took immediate action to address this issue to ensure worker safety and to resume project schedule ASAP.
- 8 Oct 03 - Boeing hired Earth Tech, Inc. (an environmental contractor licensed to do radiation investigation in Texas) to survey B361 for residual radiation to confirm worker safety
- Surveyed the entire bldg interior, including the trench and the later on in the project, the exterior SS manhole connection.
- Survey was complicated by existing steel in trench

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## Kelly Radiation Program Radiation Survey (Continued)

- Earth Tech discovered elevated levels (above Texas action levels) of Radium 226 in one small section of the trench only.....old cast iron piping discovered 3 feet below floor in native soil below existing slab base material. Initial meter readings were.....
  - 150,000 cpm (30x BG)
  - 200 uR/hr
- 9 Oct 03 – Work Stoppage
- 10 Oct 03 - All regulators informed
- In coming days.....ET took concrete , trench soil and pipe sediment samples for analysis
  - Highest levels (Radium 226) in soil was 53 pCi/g and highest pipe sediment readings were 4,800 pCi/g
  - Texas soil cleanup level is 15 pCi/g

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## Kelly Radiation Program Radiation Survey (Continued)

- We learned that some waste soil and pipe had already been disposed of at area landfills
  - ET Investigated and sampled these locations – NOT IMPACTED
  - BFI landfills had no entry gate radiation alerts lately
- ET performed electromagnetic and video techniques to determine where pipes went or came from – UNSUCCESSFUL
- 17 Nov 03 - The USAF Radiolotope Commission (RIC) in the Washington area issued a Remediation Permit for this site which puts controls and limits on activities at the site, protecting workers. This also insures that this site will be addressed satisfactorily before it is closed

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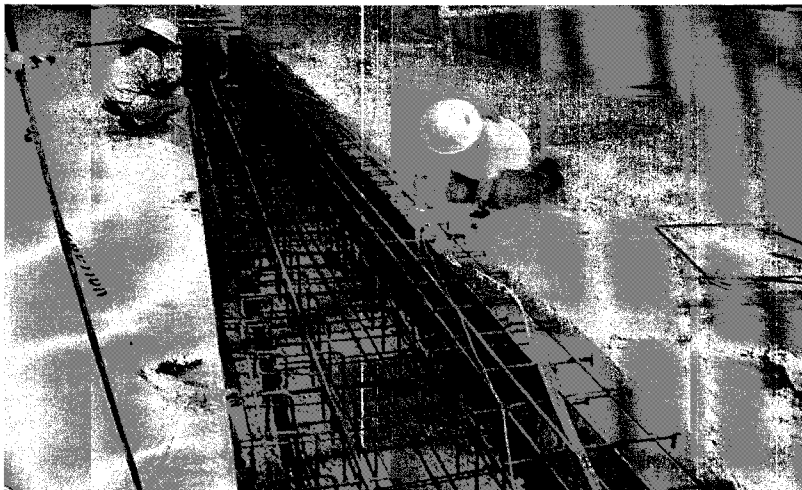
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## Kelly Radiation Program Trench Steel Complicates Survey



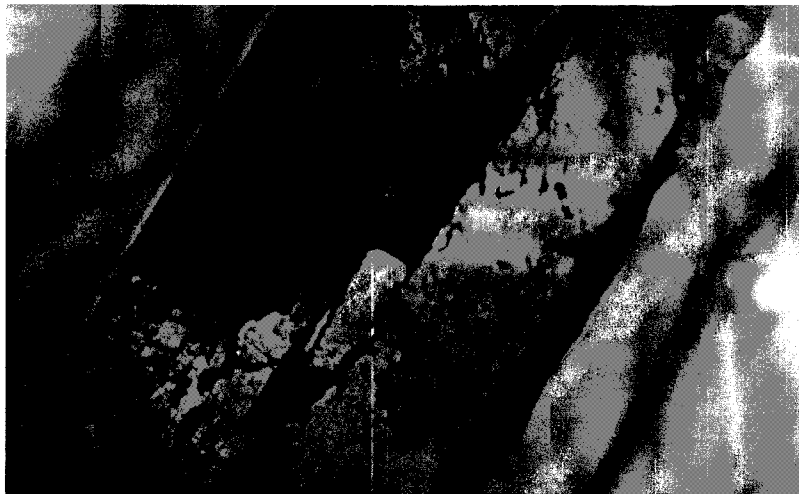
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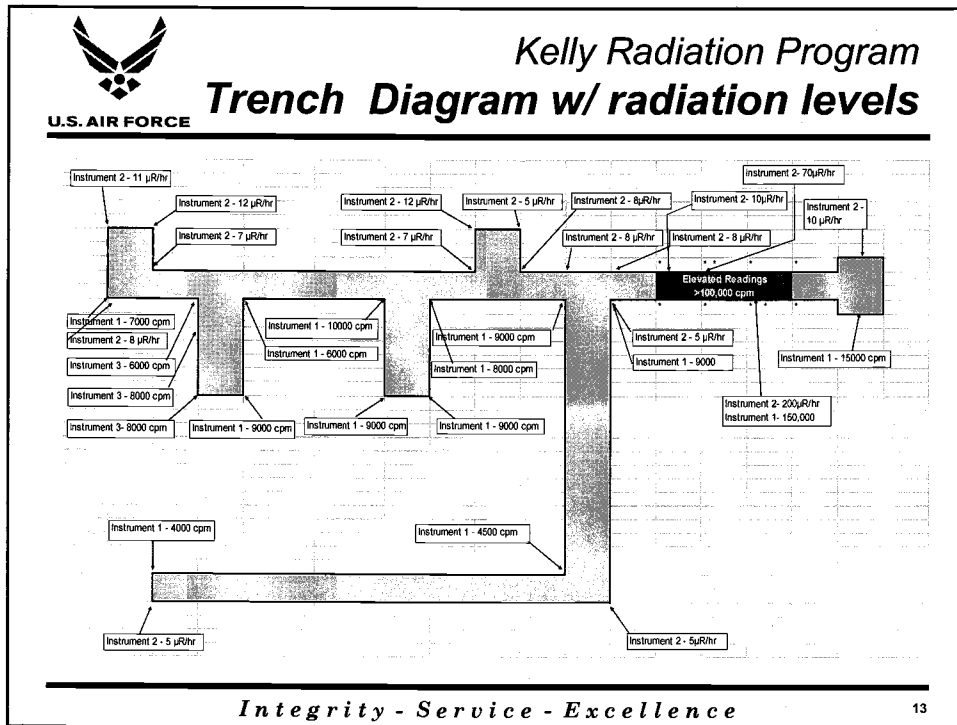
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## Kelly Radiation Program Elevated Pipes



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**Kelly Radiation Program**  
**Worker Exposure Testing**

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- 23 Oct 03 – Boeing called meeting of all contractor and Boeing workers that were working on the project and were exposed to the radiation discovered in the trench. Incident was explained and worker questions were answered.
  - Boeing, AF and TDH Radiation experts were in attendance to answer all questions from the workers
  - 12 subcontractor employees asked for Urine Bioassays targeting the Radium 226 they might have been exposed to.
  - AFIOH and Boeing split the samples and sent them to different labs as a QA/QC measure
  - RESULTS: Radium levels in all the workers were within normal ranges for all populations (<.3 pCi/L)

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## Kelly Radiation Program Back to Work

- ET and AFIOH determined that worker radiation exposures in the hangar were at no more than background levels
- Pipes were capped and plugged
- 12 worker bioassay results were normal
- Experts agree that the foot of concrete between the worker and pipes shields most of the gamma radiation emitted from these pipes. (3 basic pathways - Inhalation, Ingestion, Direct)
- AFIOH and Earth Tech accomplished independent final surveys to confirm area was safe
- AFRIC, AFIOH, TDH, and the EPA all approved area as safe
- 12 Jan 04 - Boeing Contractor was allowed to finish construction of the trench and the new paint stripping system.
- Jul 04 - ET final report was approved

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## Kelly Radiation Program Current Status

### As of Today.....

- Boeing project was finished in mid 2004
- No Boeing or contractor worker complaints
- Site is Deed Recorded with Bexar County, TDH & TCEQ
- AFRPA and GKDA have improved their communication
  - GKDA Digging Permits (AFRPA e-mail)
  - Lease Compliance Procedures
- Awaiting Air Force Radioisotope Commission (USAFRIC) Permit termination .....as soon as the last radium shop (B326) and SS is remediated.

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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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*Kelly Radiation Program*  
**Questions**

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**Questions????**

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<b>DOCUMENTS LISTED BELOW WERE TAKEN TO THE TRS MEETING</b>	<b>Date</b>	<b>Adm</b>
10 May 2005		
TCEQ Letter Approval w/Comments on Zone 5 Corrective Measures/Feasibility Studies	April 5, 2005	Yes
TCEQ Letter Approval on Zone 4 Corrective Measures Study	April 8, 2005	Yes
TCEQ Letter Approval on Request to Turn Off Northbank WMA GW System	April 8, 2005	Yes
TCEQ Letter Notice of Enforcement for Emergency Response; Compliance Investigation	April 20, 2005	Yes
Date:		
Signature:		

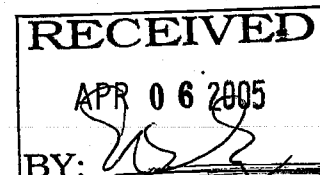
Kathleen Hartnett White, *Chairman*  
 R. B. "Ralph" Marquez, *Commissioner*  
 Larry R. Soward, *Commissioner*  
 Glenn Shankle, *Executive Director*



## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

April 5, 2005



Ms. Norma Landez  
 BRAC Environmental Coordinator  
 AFRPA/DK  
 143 Billy Mitchell, Suite 1  
 Kelly AFB, TX 78226-1816

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED  
 #8275

RE: Kelly Air Force Base (AFB)  
 Solid Waste Registration No. 31750  
 EPA ID No. TX2571724333  
 Permit/Compliance Plan HW/CP-50310  
Approval with Comment - Final Zone 5 Corrective Measures Study/ Feasibility Study

Dear Ms. Landez:

The Texas Commission on Environmental Quality (TCEQ) has completed our review of the *Final Zone 5 Corrective Measures Study/ Feasibility Study* dated December 2003 and received by the TCEQ on December 11, 2003. The TCEQ also reviewed comments received from EPA Region 6 dated May 19, 2004. In addition, the TCEQ reviewed the Air Force Real Property Agency's (AFRPA) response to TCEQ and EPA Region 6 comments related to the *Revised Draft Final Zone 5 Corrective Measures Study/ Feasibility Study* dated December 9, 2003. Your December 9, 2003 response to comments letter has been incorporated into the TCEQ's Kelly AFB administrative record. The CMS was conducted in order to fulfill the requirements of Provision VIII.E. of Compliance Plan CP-50310, issued June 12, 1998 and last modified on September 17, 2004.

Compliance Plan Provision VIII.E. requires that the CMS "*identify and evaluate corrective measure alternatives and recommend corrective measures to protect human health and the environment*". The Final Zone 5 Corrective Measures Study/ Feasibility Study (CMS) screened potential corrective measure alternatives for eight (8) separate groundwater contamination plumes identified as; Plume A, Plume B, Plume C, Plume D, Plume F, Plume H, Plume J, and Plume K. Following receipt of the Zone 5 CMS, the Air Force Real Property Agency (AFRPA) submitted a closure report for Plume J dated January 2005. The TCEQ approved the Risk Reduction Standard (RRS) No. 2 closure of Plume J pursuant to Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters A and S via letter dated February 22, 2005, therefore, Plume J was deleted from our review of the Zone 5 CMS.

The Zone 5 CMS identified and completed a detailed evaluation of the following remedial alternatives for groundwater:

- Alternative 1: No Further Action
- Alternative 2: Monitored Natural Attenuation (MNA) (All Plumes)
- Alternative 3: Pump and Treat (Plumes C, D, K); Enhanced Bioremediation (Plume A); In



Ms. Norma Landez  
 Page 2  
 April 5, 2005

Situ Reactive Walls (Plume B); Soil Vapor Extraction (Plume C); MNA (Plumes F, H)

- Alternative 4: Pump and Treat (Plumes A (off-site), C, D); Enhanced Bioremediation (Plume A source area); In Situ Reactive Walls (Plumes A, B); Soil Vapor Extraction (Plume C); MNA (Plume K); Perimeter Control (Plumes D, F, H)
- Alternative 5: Pump and Treat (Plumes C, D); Enhanced Bioremediation (Plume A Source Area); In Situ Reactive Walls (Plumes A, B); Soil Vapor Extraction (Plume C); MNA (Plumes F, H, K); Perimeter Control (Plume D, H)
- Alternative 6: Pump and Treat (Plume C); Enhanced Bioremediation (Plume A Source Area); In Situ Reactive Walls (Plumes A, B); Soil Vapor Extraction (Plume C); MNA (Plumes D, F, H, K); Perimeter Control (Plume D, H)
- Alternative 7: Pump and Treat (Plume C); Enhanced Bioremediation (Plumes A (Source Area), D); In Situ Reactive Walls (Plumes A, B); Soil Vapor Extraction (Plume C); MNA (Plumes F, H, K)

According to the CMS, the various corrective measure alternatives were evaluated based upon the following nine CERCLA criteria: 1) Protection of human health and the environment; 2) Compliance with applicable or relevant and appropriate requirements (ARARs); 3) Long-term effectiveness and premanence; 4) Reduction in toxicity, mobility, or volume through treatment; 5) Short-term effectiveness; 6) Implementability; 7) Cost; 8) Community Acceptance; and 9) State Acceptance.

Although the corrective action at Kelly AFB is not being conducted pursuant to CERCLA, in general, the nine criteria used to evaluate alternatives are consistent with the requirements of 30 TAC §335.562 Remedy Evaluation Factors for Risk Reduction Standard (RRS) No. 3. It is important to note, however, that Compliance Plan CP-50310 requires contaminated ground water to be remediated to the Ground-Water Protection Standards (GWPS) shown on Table I of the Compliance Plan. Generally speaking, the GWPS are based upon the federally promulgated Maximum Contaminant Level (MCL), Medium-Specific Concentration (MSC) promulgated by the TCEQ, or non-detectable values as determined by analytical method practical quantitation limits based on Appendix IX of 40 CFR Part 264. Attainment of the GWPS by the Zone 5 corrective action systems should therefore correspond to RRS No. 2 media specific concentration for groundwater.

Based upon our review of *Section 7.2 Comparative Evaluation of Groundwater Remediation Alternatives* and *Section 8.0 Recommended Alternative*, the TCEQ concurs with the selection of **Alternative 7: Pump and Treat (Plume C); Enhanced Bioremediation (Plumes A (Source), D); In Situ Reactive Walls (Plumes A, B); Soil Vapor Extraction (Plume C); MNA (Plumes F, H, K)**. As required by Compliance Plan Provision VIII.F. Corrective Measure Implementation, AFRPA must submit a CMI work plan within one-hundred eighty (180) days of receipt of this letter. The CMI work plan must be submitted as part of an application to modify/amend the compliance plan. Implementation of the selected remedy as the final corrective action will require the approval of the compliance plan modification/amendment by the TCEQ.

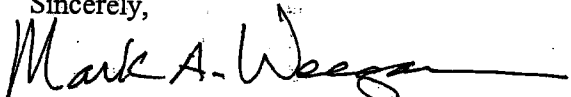
Ms. Norma Landez  
Page 3  
April 5, 2005

With regard to the required CMI work plan submittal and application for a compliance plan modification, the CMI work plan must address the following comment:

1) As noted in our correspondence dated May 9, 2003 which addressed potential non-Air Force sources of contamination in the vicinity of Kelly AFB and our correspondence dated August 8, 2003 regarding our review of the *Revised Draft Final Zone 5 Corrective Measures Study/Feasibility Study, December 2001*, the TCEQ views Plume B (a.k.a. Off-Base Northern PCE Plume) as a commingled plume which appears to have an off-site (non-Air Force) source as well as contributions from Kelly AFB sources such as Site IS-1 and S-1. In addition to the proposed remedy for Plume B which is the permeable reactive barrier which was installed off-base along SW 34<sup>th</sup> Street as an interim action, the Zone 5 CMI work plan must also propose a groundwater monitoring system to monitor the effectiveness of this portion of the Zone 5 final corrective action.

Any questions concerning this letter should be directed to me at (512) 239-2360. When responding by mail, please submit an original and one copy of all correspondence and reports to the Corrective Action Section at Mail Code MC-127 with an additional copy submitted to the TCEQ Region 13 Office in San Antonio. The TCEQ Solid Waste Registration Number and Unit Name should be referenced in all submittals.

Sincerely,



Mark A. Weegar, PG, Senior Project Manager  
Team II, Corrective Action Section  
Remediation Division  
Texas Commission on Environmental Quality

MW/mw

cc: Mr. Gary Miller, U.S. EPA Region 6, Dallas, TX (6PD-NB)  
Mr. Robert Silvas, Community Co-chair, Kelly AFB RAB, San Antonio, TX  
Ms. Abbi Power, TCEQ Region 13 Office, San Antonio, TX (MC-R13)

Kathleen Hartnett White, *Chairman*  
 R. B. "Ralph" Marquez, *Commissioner*  
 Larry R. Soward, *Commissioner*  
 Glenn Shankle, *Executive Director*



## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

April 8, 2005

Ms. Norma Landez  
 BRAC Environmental Coordinator  
 AFRPA/DK  
 143 Billy Mitchell, Suite 1  
 Kelly AFB, TX 78226-1816

RE: Kelly Air Force Base (AFB)  
 Solid Waste Registration No. 31750  
 EPA ID No. TX2571724333  
 Permit/Compliance Plan HW/CP-50310  
Approval - Request to Turn Off Northbank Waste Management Area (WMA)  
Interim Groundwater Recovery System

Dear Ms. Landez:

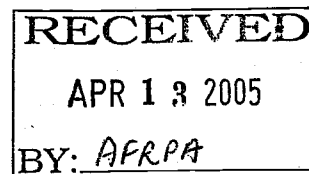
The Texas Commission on Environmental Quality (TCEQ) has completed our review of your request to turn off the Northbank WMA interim groundwater recovery system dated January 7, 2005 and received by the TCEQ on January 10, 2005. According to your request, a permeable reactive barrier (PRB) and slurry wall has been constructed approximately 60 feet up-gradient of the Northbank WMA interim groundwater recovery system. The PRB and slurry wall were constructed to eliminate the use of the Northbank WMA interim groundwater recovery system. Your request indicates that the Northbank WMA interim groundwater recovery system will remain in place until the PRB has been shown to be operating as designed. Based upon the information provided, and other information available to staff, your request is approved.

Any questions concerning this letter should be directed to me at (512) 239-2360. When responding by mail, please submit an original and one copy of all correspondence and reports to the Corrective Action Section at Mail Code MC-127 with an additional copy submitted to the TCEQ Region 13 Office in San Antonio. The TCEQ Solid Waste Registration Number and Unit Name should be referenced in all submittals.

Sincerely,

Mark A. Weegar, PG, Senior Project Manager  
 Team II, Corrective Action Section  
 Remediation Division

MW/mw



cc: Mr. Gary Miller, U.S. EPA Region 6, Dallas, TX (6PD-NB)  
 Mr. Robert Silvas, Community Co-chair, Kelly AFB RAB, San Antonio, TX  
 Ms. Abbi Power, TCEQ Region 13 Office, San Antonio, TX (MC-R13)

Kathleen Hartnett White, *Chairman*  
 R. B. "Ralph" Marquez, *Commissioner*  
 Larry R. Soward, *Commissioner*  
 Glenn Shankle, *Executive Director*



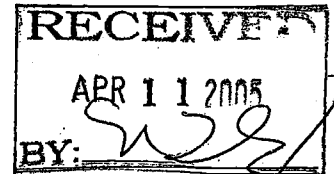
## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

April 8, 2005

Ms. Norma Landez  
 BRAC Environmental Coordinator  
 AFRPA/DK  
 143 Billy Mitchell, Suite 1  
 San Antonio, Texas 78226-1816

CERTIFIED MAIL  
 RETURN RECEIPT REQUESTED  
 #8473



Re: Kelly Air Force Base (Kelly AFB)  
 Solid Waste Registration No. 31750  
 EPA ID No. TX2571724333  
 Permit and Compliance Plan HW/CP - 50310  
Approval - Final Zone 4 Corrective Measures Study

Dear Ms. Landez:

The Texas Commission on Environmental Quality (TCEQ) has completed the review of the *Final Zone 4 Corrective Measures Study, July 2004* (Final Zone 4 CMS) received by the TCEQ on September 14, 2004. The Final CMS was submitted in response to our approval with comments letter dated August 25, 2003 related to the *Draft Final Zone 4 Corrective Measures Study, March 2002* (Draft Zone 4 CMS) with revisions dated July 18, 2002 and August 1, 2002. Our review of the Draft Zone 4 CMS also included a review of comments provided by the Kelly Restoration Advisory Board (RAB) via the RAB's contractor (Geomatrix Consultants, Inc.) at the October 15, 2002 RAB meeting, and comments provided by the City of San Antonio dated July 26, 2002. The Final CMS was submitted by the Air Force Real Property Agency (AFRPA) in order to fulfill the requirements of Provision VIII.E of Groundwater Compliance Plan CP-50310 issued by the TCEQ on June 12, 1998 and last modified on September 17, 2004.

Compliance Plan Provision VIII.E. requires that the corrective measures study "*identify and evaluate corrective measure alternatives and recommend corrective measures to protect human health and the environment*". The Final Zone 4 CMS completed a detailed evaluation of seven (7) alternatives for the remediation of on-base groundwater contamination associated with Site MP and Site SS051, and twelve (12) alternatives for the remediation of the off-base Zone 4 groundwater plume. The evaluation of corrective action alternatives related to the Site MP source area will be addressed in the Zone 2 and 3 CMS.

According to the Final Zone 4 CMS, the selected corrective measure alternatives were evaluated based upon the following criteria: 1) Protection of human health and the environment; 2) Attainment of corrective action objectives; 3) Control the sources of releases; 4) Comply with applicable standards for waste management; 5) Long-term reliability and effectiveness; 6) Reduction in toxicity, mobility, or volume of waste; 7) Short-term effectiveness; 8) Implementability; and 9) Cost.

In general, the criteria AFRPA used to evaluate alternatives are consistent with the requirements of 30 TAC §335.562 Remedy Evaluation Factors for Risk Reduction Standard (RRS) No. 3. The goal of the selected corrective measures are to contain and remediate the on-base groundwater contamination associated with Site MP and Site SS051 and remediate the off-site Zone 4 groundwater contamination until concentrations of

Ms. Norma Landez  
Page 2  
April 8, 2005

chemicals of concern comply with the media-specific concentrations of 30 TAC 335.568, Appendix II and Compliance Plan Table I (Table of Hazardous and Solid Waste Constituents and Concentration Limits for the Ground-Water Protection Standard).

According to Sections 8.0 Summary of Corrective Measures the following remedial actions are proposed:

1. Site MP On-Base Groundwater Contamination - Existing Source Control Systems (Slurry Wall for DNAPL Containment, Vertical Groundwater Recovery Wells Between Site MP and Kelly AFB Boundary), and Monitored Natural Attenuation (MNA).
2. Site SS051 On-Base Groundwater Contamination - Existing Source Control System (Horizontal and Vertical Groundwater Recovery Wells along Southern and Eastern Boundaries of East Kelly AFB), and MNA.
3. Off-Base Zone 4 Groundwater Contamination Plume - Vertical Groundwater Recovery Wells, Flow-through Reactive Walls/Treatment Zones, and MNA

Based upon our review of the Final Zone 4 CMS, the TCEQ concurs with the proposed remedial alternatives listed above. As required by Compliance Plan Provision VIII.F. Corrective Measure Implementation (CMI), AFRPA must submit a CMI work plan within one-hundred eighty (180) days of receipt of this letter. The CMI work plan must be submitted as part of an application to modify/amend the compliance plan. Implementation of the selected remedy as the final corrective action will require the approval of the compliance plan modification/amendment by the TCEQ.

If you have any questions concerning this letter, please direct them to me at (512) 239-2360. When responding by mail, please submit an original and one copy of all correspondence and reports to the Corrective Action Section at Mail Code MC-127 with an additional copy submitted to the TCEQ Region 13 Office in San Antonio.

Sincerely,



Mark A. Weegar, P.G., Senior Project Manager  
Team II, Corrective Action Section  
Remediation Division  
Texas Commission on Environmental Quality





MW:mw

cc: Mr. Gary Miller, EPA Region 6, Dallas (6PD-F)  
Mr. Robert Silvas, Community Co-chair, Kelly AFB RAB, San Antonio  
Ms. Abigail Power, TCEQ Region 13, San Antonio (MC-R13)

### 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. TCEQ Letter Approval with Comments on Zone 5 Corrective Measures/Feasibility
2. TCEQ Letter Approval on Zone 4 Corrective Measures Study
3. TCEQ Letter Approval on Request to Turn Off Northbank WMA GW System
4. TCEQ Letter Notice of Enforcement for Emergency Response; Compliance Investigation
5. \_\_\_\_\_
6. \_\_\_\_\_

	
Robert Silvas	Adam Antwine
RAB Co-chair	Installation Co-chair
	
Date	Date

**FINAL PAGE**

**ADMINISTRATIVE RECORD**

**FINAL PAGE**