



KELLY AFB
TEXAS

ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 3221

February 08, 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

~~MC~~ Draft Meeting Minutes

RAB Community Member Attendees:

Mr. Robert Silvas, Community Co-chair
Mr. Rodrigo Garcia, Jr.
Ms. Coriene Hannapel
Ms. Blanca V. Hernandez
Ms. Henrietta LaGrange
Mr. Sam Murrah, Alternate for Mr. Michael Sheneman
Mr. Pete Muzquiz
Mr. Nazarite R. Perez
Mr. Armando Quintanilla

RAB Government Member Attendees:

Mr. Gary Martin, Greater Kelly Development Authority (GKDA)
Mr. Gary Miller, Environmental Protection Agency (EPA) Region VI
Ms. Abbi Power, Texas Commission on Environmental Quality (TCEQ), Alternate for Mr. Mark Weegar

Other Attendees:

Mr. Don Buelter, Air Force Real Property Agency (AFRPA)
Ms. Sonja Coderre, AFRPA
Ms. Kyle Cunningham, Public Center for Environmental Health (PCEH)
Ms. Jennifer Edgar, Community Member
Ms. Leigh-Ann Fabianke, AFRPA Contractor
Ms. Linda Kaufman, Environmental Health and Wellness Center (EHWC)
Ms. Cheri Kirkpatrick, AFRPA Contractor
Ms. Norma Landez, AFRPA
Ms. Alexandra Orozpe, Community Member
Mr. David Pylar, Community Member
Dr. David Smith, Facilitator
Dr. Katherine Squibb, TAPP Contractor
Mr. Tim Sueltenfuss, AFRPA Contractor
Mr. Glenn Wilkinson, Community Member

The meeting began at 6:30 p.m.

I. Introduction – Dr. David Smith

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

II. Technical Assistance for Public Participation (TAPP) Review of the ATSDR Past Air Emissions Study - Dr. Katherine Squibb, University of Maryland

Question & Answer/Community Comment Session followed regarding the TAPP Review.

III. Administrative

A. BRAC Cleanup Team (BCT) Update - Ms. Norma Landez

No BCT meeting was held this month.

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 of documents included in the Information Repositories.

D. Action Items - Dr. David Smith

There were no action items from the previous TRS meeting.

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

E. Approve December TRS meeting transcript and summary – Dr. David Smith

The approval of the December TRS meeting transcript and summary was postponed until the TRS meeting 8 March 2005.

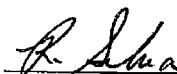
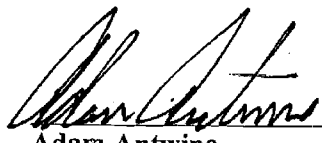
Dr. Smith announced the 2005 RAB Workshop will be held Saturday, February 19, 2005, from 8:00 a.m. – 3:00 p.m., at the Greater Kelly Development Authority (GKDA) offices (participants must provide their own lunch).

IV. Meeting Adjournment

Mr. Pete Muzquiz moved for adjournment. Mr. Nazarite Perez seconded the motion. Motion carried.

The meeting was adjourned at 8:26 p.m.

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

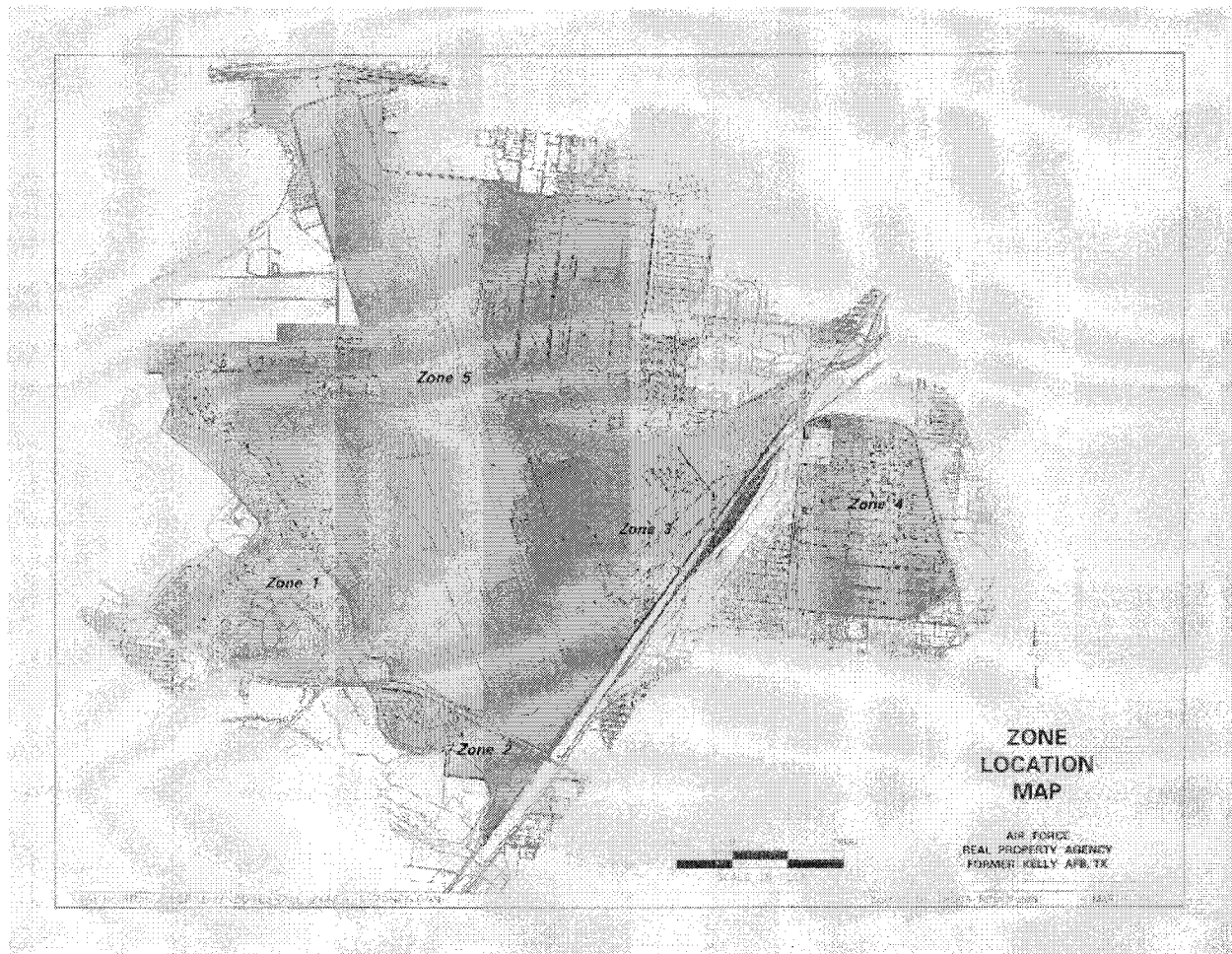
	
Robert Silvas	Adam Antwine
Community Co-chair	Installation Co-chair
<u>1/10/11/05</u>	<u>1/19/11/05</u>
Date	Date

Environmental Cleanup Acronyms

AFCEE	Air Force Center for Environmental Excellence
AFIOH	Air Force Institute for Operational Health
AFRPA	Air Force Real Property Agency
ATSDR	Agency for Toxic Substances and Disease Registry
ARARs	Applicable or Relevant and Appropriate Requirements
AST	Aboveground Storage Tank
BCP	BRAC Closure Plan
BCT	BRAC Cleanup Team
BEC	Base Environmental Coordinator
BRAC	Base Realignment and Closure
BTEX	Benzene, toluene, ethylbenzene, xylene
CAA	Clean Air Act
CAP	Corrective Action Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CMI	Corrective Measures Implementation Plan
CMI UP	Corrective Measures Implementation Plan Update
CMS	Corrective Measures Study
COC	Chemical of Concern
COPC	Chemical of Potential Concern
CRP	Community Relations Plan
CWA	Clean Water Act
DCE	Dichloroethylene
DNAPL	Dense, Nonaqueous Phase Liquid
DoD	Department of Defense
EBS	Environmental Baseline Survey
EDC	Economic Development Conveyances
EE/CA	Engineering Evaluation/Cost Analysis
EHWC	Environmental Health and Wellness Center
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FAR	Federal Acquisition Regulations
FFA	Federal Facility Agreement
FOST	Finding of Suitability to Transfer
FOSET	Finding of Suitability for Early Transfer
FOSL	Finding of Suitability for Lease
FS	Feasibility Study
GKDA	Greater Kelly Development Authority
GWTP	Ground Water Treatment Plant
IAG	Interagency Agreement
IC	Institutional Controls
IRA	Interim Remedial Action

IRP	Installation Restoration Program
LRA	Local Redevelopment Authority
LRIP	Last Remedy in Place
LTM	Long-term Management
LTO/LTM	Long-term Operations/Monitoring
LUCs	Land Use Controls
MCLs	Maximum Concentration Levels
MNA	Monitored Natural Attenuation
MP	Metal Plating
NCP	National Contingency Plan
ND	Not Detected
NEPA	National Environmental Policy Act
NFA	No Further Action
NOV	Notice of Violation
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
OEA	Office of Economic Adjustment
O&M	Operational and Maintenance
OSHA	Occupational Safety and Health Administration
OWS	Oil/Water Separator
PCB	Polychlorinated Biphenyl
PCE	Perchloroethylene or Tetrachloroethylene
PCEH	Public Center for Environmental Health
<i>ppb</i>	parts per billion
<i>ppm</i>	parts per million
<i>ppt</i>	parts per trillion
PRB	Permeable Reactive Barrier
QA/QC	Quality Assurance/Quality Control
RA	Remedial Alternative or Remedial Action
RAB	Restoration Advisory Board
RA-O	Remedial Action-Operations
RBCA	Risk Based Corrective Action
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RFI	RCRA Facility Investigation
RI	Remedial Investigation
ROD	Record of Decision
RS	Responsiveness Summary
SAP	Sampling and Analysis Plan
SI	Site Investigation
SOW	Statement of Work
SVE	Soil Vapor Extraction
SVOC	Semivolatile Organic Compound
SWMU	Solid Waste Management Unit
TAPP	Technical Assistance for Public Participation

TCE	Trichloroethylene
TCEQ	Texas Commission on Environmental Quality
TPH	Total Petroleum Hydrocarbon
TRS	Technical Review Subcommittee
UST	Underground Storage Tank
VOC	Volatile Organic Compound
Zone 1	The Westside of Kelly AFB including the golf course and Security Hill
Zone 2	A small part of Kelly AFB that extends southwest of Military Drive
Zone 3	The industrial area on the southeast side of Kelly AFB
Zone 4	Adjacent to the flight line and the main Kelly warehouse area
Zone 5	The runways, warehouse, taxi, and associated operations areas, base housing, base administration, and aircraft maintenance areas



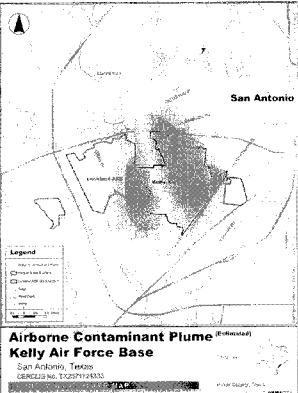
Technical Review Report

ATSDR Health Consultation Phase II

**Past Air Emissions
Kelly AFB**

Katherine S. Squibb, PhD
Program in Toxicology
University of Maryland, Baltimore

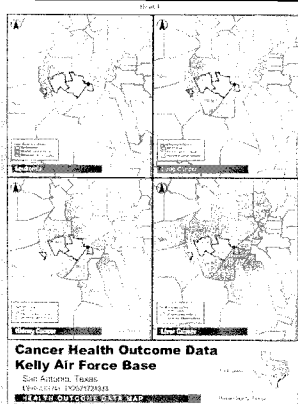
February 8, 2005



**Current air emissions
1995 and after:**

**No apparent health
hazard**

**ATSDR
Public Health Assessment
Phase I
1999**



**Cancer Health Outcome Data
Kelly Air Force Base**

San Antonio, Texas
EPA/600/R-99/019

Purpose of Health Consultation

- ✦ Evaluate potential exposure to past air emissions from Kelly AFB (prior to 1995)
- ✦ Evaluation of potential increased risk of cancer from past air emissions

$Risk = Hazard \times Exposure$

ATSDR's Approach

- ✦ Gathered relevant data on air emissions from:
 - Stationary sources
 - Aircraft emissions
- ✦ Reconstructed potential past inhalation exposures off base by air dispersion modeling.
- ✦ Toxicity data for individual chemicals

**Past Emissions Data
(Before 1995)**

- ✦ Stationary sources
 - Hexavalent Cr emitted from 5 plating shops
 - Painting
 - Degreasing
 - Incineration of cyanide wastes (not evaluated)
- ✦ Aircraft Emissions:
 - JP-4 jet fuel used prior to 1994
 - Emissions during takeoff, landing and taxiing
 - benzene, 1,3-butadiene, formaldehyde

Aircraft Emissions

- # Aircraft emissions modeling – Worse case scenario. Annual averages.
 - Used 360,000 takeoff and landings
 - Used least efficient engine (TF33-3)
 - Plane with greatest number of engines (B52H)
- # Misting: No records of fuel jettisoning and no quantitative records on misting. Not evaluated.

ISCST3 Model

- # Air dispersion of emitted chemicals modeled using EPA's Industrial Source Complex Short Term Version 3 model
- # Determines annual average concentrations
- # Uncertainty from model – 0.5 to 2.0 times reported value
- # Largest uncertainty was the emissions data used in the model.
 - Available data not comprehensive

Stationary Source Emissions Data

- # Stationary sources (industrial)
 - Tetrachlorethylene (PCE), methylene chloride, methyl ethyl ketone, benzene, ethyl benzene, formaldehyde, toluene, xylene, styrene, naphthalene, acrolein, acetaldehyd, trichloroethylene, trichloroethane, dichloroethane.
- # Data supplied were sufficient for analysis and making conclusions except for hexavalent Cr prior to 1980 and cyanide incineration.

Results from Stationary Sources

- # 8 of 15 chemicals from stationary sources compared to chronic non-cancer comparison values. No exceedances.
- # 4 of 15 chemicals calculated cancer risk
 - Methylene chloride: 5×10^{-5}
 - PCE: 7×10^{-5}
 - Benzene: 5×10^{-9}
 - Formaldehyde: 1×10^{-8}
- # Hexavalent Cr not evaluated

Results from Aircraft Emissions Maximum Concentrations Off Base

	Prior to 1973	1973-1994
# 1,3 Butadiene	4.4 to 10 ug/m ³	1.5 to 7 ug/m ³
# Benzene	10 to 20 ug/m ³	1.5 to 7 ug/m ³
# Formaldehyde	58 ug/m ³	19 ug/m ³
# Acetaldehyde	5 ug/m ³	2 ug/m ³
# Napthalenes	16 ug/m ³	5 ug/m ³
# Acrolein	4.2 ug/m ³	1.4 ug/m ³

Combined Results from Stationary and Aircraft Emissions

- # Estimated Cancer Risk (before 1973) (Table B-8)
 - 1,3 Butadiene: F16 vs B52
 - 8×10^{-6} to 3×10^{-5} (human)
 - 4×10^{-4} to 2×10^{-3} (animal)
 - Benzene: F16 – B52
 - 2×10^{-5} to 5×10^{-5}
 - Formaldehyde: B52
 - 2×10^{-4}
 - Acetaldehyde: B52
 - 3×10^{-6}

Concern

Why was cancer risk from methylene chloride and PCE from stationary sources not included in Table B-8?

Summary of ATSDR's Conclusions

- # **No apparent health hazard (Cancer risk 10^{-5})**
 - Individual chemicals from stationary sources
 - Individual chemicals from aircraft emissions
- # **Indeterminate health hazard**
 - Hexavalent Cr before 1980 (lack of data)
 - Interactive effects of chemicals in stationary and aircraft emissions (uncertainty)
- # **No assessment of incineration of cyanide waste and fuel emissions from misting (no data)**
 - Indeterminant health hazard

Conservative Estimates vs Uncertainty

<p>Conservative Estimates</p> <ul style="list-style-type: none"> ■ Aircraft with most engines ■ Least efficient engine ■ Engine with highest emissions ■ Year with largest number of take offs and landings 	<p>Uncertainties</p> <ul style="list-style-type: none"> ■ Available information was often scarce or lacking <ul style="list-style-type: none"> ■ Lack of data for Cr(IV) prior to 1980 ■ Cancer slope factor for 1,3 butadiene (animal versus human)
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Uncertainties Due to Limitations of Study as Noted by ATSDR

- # Speciation of chemicals in aircraft emissions from JP-4 may not be representative.
- # No consideration of metals in aircraft emissions or PM₁₀ exposure.
 - Arsenic and Cadmium were above screening levels in estimation of current air emissions

Recommendations

Aircraft emissions represent an **indeterminant health hazard** rather than no apparent health hazard due to lack of comprehensive data and consideration of additional chemicals

Cumulative Risk From Multiple Chemicals

- Additive Cancer Risk: 3.5×10^{-4} to 2.3×10^{-3}
- **Low to Moderate increased risk**
- ATSDR concludes Indeterminant health hazard
 - Based on insufficient information known about interactive effects of mixtures of these chemicals
- Could have synergism due to lung damage and increased absorption between
 - Benzene, 1,3 butadiene and formaldehyde
 - Other chemical components in JP-4 fuel and aircraft exhaust
 - 16 chemicals from stationary sources

Recommendations

- # Aircraft emissions as modeled represent a **low to moderate health hazard** based on additive risk from multiple chemicals
- # Potential synergistic effects likely to increase risk further

ATSDR Recommendations

- # Further investigation of emissions of hexavalent Cr prior to 1980
 - Include hexavalent Cr health outcomes in Kelly AFB Civilian Worker Study
- # Further investigation of potential interactions from chemical mixtures
 - Investigate elevated leukemia outcomes
- # Consider biologically plausible health outcomes from potential on-base exposure in Kelly AFB Civilian Worker Study

Recommendations

- # Support ATSDR's recommendation for:
 - Further investigation of leukemia outcomes
 - Need more definitive guidance on what "biologically plausible" outcomes should be considered in Kelly AFB Civilian Worker Mortality Study

Concerns

- # Risk assessments based on annual average concentrations due to lack of more discrete data
 - Cannot compare to OSHA standards for 8 hr days for 5 days per week
 - OSHA standards established for healthy workers, not young children, pregnant mothers, the elderly

Concerns

- # Non-carcinogenic health effects not addressed in the conclusions
 - Acrolein, formaldehyde, naphthalene, methyl-naphthalenes above non-cancer comparison values (Table B-8)
 - Irritating and exacerbating respiratory effects
 - 1,3 Butadiene does have an RfC not listed in Table B-8.
 - Based on ovarian atrophy
 - Estimated concentrations ranged from 1.5 to 10 times higher than RfC=2 ug/m³

Recommendation

- # Follow-up on non-cancer effects of:
 - Formaldehyde and acrolein
 - Exacerbation of asthma and COPD
 - 1,3 Butadiene
 - Infertility from ovarian atrophy

Recommendations

- ✦ Follow-up on elevated incidence of birth defects observed (especially heart defects)
 - Consideration of cumulative effects of exposure (indoor and outdoor) to solvents
 - Zipcode 78237 Ratios of observed/expected
 - Significant increases for three categories of congenital anomalies of heart 2.82, 3.70 and 4.45

Summary

- ✦ ATSDR report is comprehensive and acknowledges uncertainties due to lack of comprehensive data
- ✦ Summary findings do not acknowledge potential health risks identified
- ✦ Good recommendations for follow-up on biologically plausible health outcomes, including leukemia, are good

Summary

- ✦ Need to recognize potential non-cancer health effects
 - Need to follow-up on birth defects
 - Need to follow up on potential for acute effects not observed due to annual averaging
- ✦ Need to determine potential for synergistic effects for all chemicals emitted from stationary sources and in aircraft emissions
- ✦ Need to model dispersion of metals

FINAL PAGE

ADMINISTRATIVE RECORD

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