



KELLY AFB  
TEXAS

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ADMINISTRATIVE RECORD  
COVER SHEET

AR File Number 3323

## KELLY AIR FORCE BASE TECHNICAL REVIEW SUBCOMMITTEE

### MEETING AGENDA

27 January 1998 @ 6:30 P.M.  
Bldg. 217, Garni Science Hall, St. Mary's University

<u>Topic</u>	<u>Time</u>	<u>Presenter</u>
I. Introduction	6:30 - 6:40	Damian Sandoval
II. Organizational Tasks	6:40 - 7:15	Damian Sandoval
a. Approve minutes 12 Nov 97 & 1 Dec 97		Ron Scharven
b. Finalize TRS Comments on Zone 5 RI Report		Damian Sandoval
c. Prioritize Document Reviews		Camile Hueni
d. Review TRS Technical Issues		Damian Sandoval
e. Establish Next Six TRS Meeting Dates		Damian Sandoval
f. Review RAB Meeting Presentation		Damian Sandoval
g. Report on North Kelly Gardens Meeting		David Johnson
III. Bldg. 1592 Surface Soil Report	7:15 - 7:45	Gerardo Arriaga
IV. Bldg. 1592 Air Sampling	7:45 - 8:15	Capt Tom de Venoge
V. Break	8:15 - 8:30	All Personnel
VI. Formalize Document Comments	8:30 - 9:00	Damian Sandoval
VII. Action Items/Summary	9:00 - 9:15	Damian Sandoval
VIII. Adjournment	9:15	Damian Sandoval

To: Ron Scharven  
From: Gary Beyer

**MEMORANDUM FOR: Kelly RAB Technical Review Subcommittee**

**FROM: Gary Beyer**

**SUBJECT: 27 Jan 98 RAB TRS Meeting Notes**

**I. Introduction:**

The Restoration Advisory Board Technical Review Subcommittee (RAB TRS), met on Tuesday, 27 Jan 98 from 6:30 to 10 pm in the Garni Science Hall, St. Mary's University. Members in attendance or absent are noted on the TRS Meeting Attendance List, Attachment 1. The meeting agenda is included as Attachment 2. TRS Chairman, Mr. Damian Sandoval opened the meeting with a review of the agenda. One change to the agenda was submitted by Captain de Venoge regarding the presentation of the 1592 Air Sampling Report. A status-update on this item was moved to the last of the meeting. Problems with reading the emailed minutes was discussed and acknowledged by Mr. Sandoval.

**II. Organizational Tasks:**

- a. Meeting minutes - The minutes of the 01 Dec 97 TRS were reviewed and approved.
- b. TRS Comments for Zone 5 RI - Damian Sandoval recommended that a process to formalize TRS review comments be instituted. Comments regarding various environmental restoration projects would be documented in memo format and agreed upon by TRS members. These comments would be presented at the next meeting of the RAB for discussion for approval and forwarded to Kelly AFB.

Next, the members of the TRS reviewed the comments presented in memo form concerning the Zone 5 Remedial Investigation Report, Final Draft, Jan 97, and presented at the 01 Dec TRS meeting. All seven items were approved for forwarding to the 28 Jan RAB meeting.

- c. Prioritize Document Reviews - Camille Hueni, EPA, presented a list of environmental documents that were up for regulatory review that would be of potential interest to members of the TRS. These include Final Draft, Focused Feasibility Study Report Contaminated Groundwater Associated with Site SS040 and Site SS051 (Zone 4 FFS); Zone 5 Remedial Investigation Report (Zone 5 RI); and Draft RCRA Facility Investigation Report for the Environmental Process Control Facility (EPCF RFI). It was decided that the TRS would review the Zone 4 FFS at the 24 Feb TRS meeting. Tom de Venoge stated he would 1) ask the Kelly environmental restoration to brief the TRS on the Zone 4 FFS, and 2) inquire as to the distribution of documents for review by the TRS.
- d. Review TRS Technical Issues - Damian Sandoval and Kelly AFB attorney, Mary Kelly discussed the procedures by which TRS comments on documents would be considered by the RAB and the Air Force (see item b., above). It was concluded that the initiative

members limit the number of questions to two per person, also in the interest of time.

#### Question and Answer Session

George Rice - Mr. Rice reiterated his concerns with this particular study, namely that the surface soil samples that were collected were gathered from more recently deposited fill material and would not reflect historical contamination.

David Johnson - Mr. Johnson provided a brief, informal discussion of the history of the topography of the Groden Road Area. He recalled three separate road building episodes which raised the level of the Groden Road three inches or greater which affected the historical drainage pattern. He could remember that, as a child, he and others would play in standing floodwater in the area which may have been contaminated.

Jerry Arriaga - Mr. Arriaga stated his recollection of the construction of Hwy. 90 and drainage problems associated with that project such as run-off associated with the local landfill. He also stated that the lead levels found in soils at the site were within the action levels of the EPA and TNRCC for corrective action.

Damian Sandoval - Mr. Sandoval suggested that research of road construction records may produce an accurate historical perspective.

Gary Beyer - Mr. Beyer stated that a more in-depth investigation of soil contamination conditions would be required as part of the closure of Site S-1. Mr. Arriaga stated that the investigation of the Building 1592 area was not considered a site. Mr. Beyer stated that the information from this investigation would be considered as part of the closure of Site S-1 and that soil lead levels must meet not only soil/air injection criteria but also must be protective of ground water due to leaching.

Both David Johnson and George Rice discussed concerns with the modeling conducted as part of the study and had questions concerning the use of default values and lack of a sensitivity study. Mr. Arriaga stated that default values are used when exact site conditions are not known, such as soil concentrations. He also stated that, for determining the need for corrective action, a statistical comparison of means, using the 95% upper confidence limit is allowed and that the site is not a problem.

#### IV. Bldg. 1592 Air Sampling

Mr. Tom de Venoge stated that the results of the air sampling study were not completed, but, hopefully, would be available by the next TRS meeting. Lt. Fitzgerald provided an intent of sampling as a handout (Attachment 4).

George Rice inquired as to the reason the air sampling plan was not coordinated with neighborhood residents. Mr. de Venoge stated that this was due to an oversight on part of the Air Force in coordinating with Southwest Research. David Johnson stated that wind rose

diagrams could be used for the placement of air monitoring equipment. Mr. De Venoge stated that he would provide a status update of the project at the next TRS.

Damian Sandoval asked for and received TRS concurrence on establishing operating procedures for the technical presentations to be incorporated in the existing operating rules as follows:

1. Presenters should provide copies of all overheads to TRS members
2. If requested by the presenter, allow the presenter to finish presentation prior to questions being asked.
3. Schedule the presentations for the beginning of the meeting, in the interest of time.

He stated that Larry Hoffman could no longer serve on the TRS. It was moved and seconded that David Johnson be recommended to the RAB to serve as his replacement.

Camille Hueni stated, in the event of her absence, Michael Carrillo would be her alternate from EPA.

Damian Sandoval discussed the initiation of several new road projects by TxDot and is seeking public input.

George Rice discussed the installation of the monitoring well on Armando Quintanilla's property.

It was moved and seconded that the meeting be adjourned.

MEMORANDUM FOR Kelly RAB Technical Review Subcommittee

19 Dec 97

FROM: Captain Tom de Venoge

SUBJECT: 01 Dec 97 RAB TRS Meeting Notes

**I. INTRODUCTION:**

The Restoration Advisory Board Technical Review Subcommittee (RAB TRS), met on Monday, 01 Dec 97, from 1830-2130 hours in the Garni Science Hall, St. Mary's University. Members and others present are noted on the sign in sheet, Atch 1. Members absent included Mr. Allan Hagelthorn, the meeting agenda is Atch 2. TRS chairman, Mr. Damian Sandoval opened the meeting with a review of the agenda. One change to the agenda was submitted by Captain de Venoge regarding the presentation of the 1592 Air Sampling Report. This item was moved to the next TRS and will include a discussion of the air sampling plan and results. The Building 1592 Area - Human Health Risk Assessment of Surface Soil (Jul 97 - - Final) will also be reviewed.

TRS members briefly discussed disposition of the meeting minutes which will now be provided to the RAB following a comment period by TRS members. The TNRCC and EPA will also be given copies. Captain de Venoge volunteered to serve as the meeting secretary; a rotating duty.

Mr. Sandoval passed around a draft copy of the RAB TRS presentation for the 02 Dec 97 RAB for members to review and edit.

Mr. Sandoval also made available a report by TXDOT regarding investigative work along the New Laredo Highway and clarified the purpose of the TXDOT work was different from that of Kelly AFB, which characterizes much more extensively.

**II. SUMMARY OF REPORTS:**

1592 Air Sampling: postponed until next TRS

Zone 5 Health Assessment: Mr. John Coffey, CH2MHILL provided a review of the risk assessment results performed as part of the Zone 5 Remedial Investigation. A copy of the presentation is included as Atch 3. The following is a summary of some of the questions by TRS members and answers by Mr. Coffey.

Mr. David Johnson inquired about the dermal exposure calculations, what references were used and what was the geographic area considered for calculations. Mr. Coffey noted that for soils, on base soils were used. For the off base scenario, an average result from the three highest concentrations in off base wells was used. The references used by Mr. Coffey included an exposure factor handbook and TNRCC regulations.

Mr. George Rice inquired about risk from volatilization via soils and whether actual soil gas measurements or calculated values were used. Mr. Coffey replied that estimated values from calculations were used and not results from soil gas surveys. Mr. Arriaga added that soil gas surveys were only performed on base. Mr. Rice further inquired as to whether

conservative estimates and site specific soil parameters were used if available. Mr. Coffey noted that RBCA (Risk-Based Corrective Action) calculations were used and are very conservative and generally overestimate concentrations. Actual soil parameters were used where available, for the calculations. This data is available in the appendices to the Zone 5 RI.

Mr. Hoffman asked if any illnesses had been reported. This led to a side discussion regarding the community health survey performed in the North Kelly Gardens area by Dr. Yana Bland. Mr. David Johnson agreed to bring a copy of the amended report to the next TRS.

Mr. Damian Sandoval inquired if all sources had been addressed in the Zone 5 area. Mr. Ed Shorey, CH2M Hill, responded that site S-1 is the only known source area but an effort is underway to further investigate and find additional sources. Sewer lines in particular are suspect. Mr. Sandoval asked if concentrations could possibly increase, to which Mr. Shorey replied that such an occurrence would be unlikely. Further questions by Mr. Sandoval regarded TPH (Total Petroleum Hydrocarbon) as a consideration in the risk assessment, how the new risk reduction rules (program) would impact the present document, the contaminants of concern, particularly vinyl chloride, and future land use scenarios. Mr. Coffey noted that a specific fraction of TPH (e.g. benzene) is used for risk assessment versus a wide range of hydrocarbons. Mr. Beyer noted that the new risk reduction program should not impact the present risk assessment. Cleanup must still be performed to either standard 1, 2, or 3. Mr. Coffey noted that vinyl chloride is not the biggest risk driver because the concentration of the parent compound is usually the critical factor. Vinyl chloride concentrations are so low that they do not drive the risk. Regarding the future land use scenario (a hypothetical case of an occasional recreational user frequenting an industrial property setting was mentioned), Mr. Coffey noted that the on-base worker scenario presents the greatest risk. This is based on duration of exposure and activity. Because this is the most conservative case presenting the greatest risk, it obviates the need for consideration of less exposed scenarios - - the most sensitive and protective case has been considered. Mr. Sandoval noted that this point should be clearly stated in the risk assessment.

Mr. Sandoval noted that he would prepare a summary of specific questions on the presentation. This is included as atch 4.

Mr. Rice inquired as to the status of the Zone 5 Groundwater Cleanup. Mr. Shorey noted that the Zone 5 Feasibility Study is underway and will address cleanup levels, evaluation of technologies and alternatives. The draft Feasibility Study should be completed in Spring 1998.

### **III. ACTION ITEMS SUMMARY:**

Mr. Sandoval summarized the action items:

- Bring in a copy of the Yana Bland report (Opr: Mr. Johnson)
- Draft TRS Minutes (Opr: Capt. de Venoge)

- Formalize comments and put into meeting minutes for RAB on 28 Jan 98  
(Opr: Mr. Sandoval)

Mr. Sandoval noted that only the Oct 97 TRS Minutes would be given out at the 02 Dec 97 RAB. The Bldg 1592 discussion for next TRS will include the soil sampling and air sampling results. Mr. Rice inquired as to the decision process for the 1592 Air Sampling Survey; Captain de Venoge agreed to investigate. Captain de Venoge also agreed to find out when the report will be available describing the results from the geophysical survey work done as part of the Zone 3 project.

#### IV. ADDITIONAL DISCUSSION:

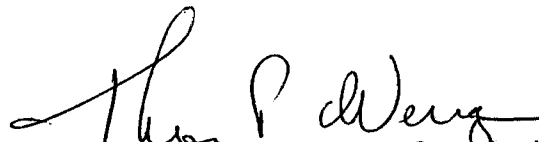
Ms Camille Hueni distributed a copy of the Human Health Screening Guidelines developed by Maria Martinez, and noted that these are guidelines only, and have limitations.

A brief discussion was held on the preparation and distribution of meeting minutes. The following process was agreed to by TRS members:

- The draft is prepared by the secretary and e-mailed out to all TRS Members.
- TRS Members review the draft minutes and reply back to the secretary within two weeks. No reply will be construed as no comments (regulators are included)
- Final draft is prepared and delivered electronically to Mr. Sandoval and Mr. Sharven.
- Final minutes are mailed out by Mr. Scharven.
- Mr. Sandoval reviews minutes at the following TRS.

The next TRS Meeting was scheduled for 27 Jan 98 at 1830. The location will be the same unless noted otherwise.

The meeting adjourned at approximately 2130 hours.



THOMAS P. DEVENOGE, Captain, USAF, BSC  
Technical Review Subcommittee  
Restoration Advisory Board, Kelly AFB

#### Atch:

1. Attendance Sheet
2. Agenda
3. Zone 5 Presentation Slides
4. Memo on Zone 5 questions



DRAFT

Meeting Notes:

Kelly AFB Restoration Advisory Board  
 Technical Review Subcommittee Meeting  
 Wednesday, November 12 1997

Post#	Date	# of pages
Fax Note R7673		5
To	CD. TOM D.	
Fax#	925-1814	
From		
Phone#		

The RAB Technical Review Subcommittee met at St. Mary's University. The meeting was chaired by Damian Sandoval. Six members were present: Damian Sandoval, Gary Beyer, George Rice, Gene Lene', Paul Person, and Maria Martinez (for Camille Hueni). Other attendees are listed on the sign-in sheet. The meeting began about 1830 and ended about 2130. It was not recorded.

### Introduction

Damian thanked Gene for allowing the RAB to use St. Mary's facilities. He also said that the subcommittee would follow parliamentary procedures and asked that non-members submit any questions in writing.

Damian passed out an Express-News column by Roddy Stinson (11-8-97) regarding the San Antonio Health Department's plans to sample drinking water in neighborhoods that overlay groundwater contamination emanating from Kelly AFB.

The subcommittee accepted a new member - Air Force Captain Tom deVenoge.

Damian and George each had an item they wanted to add to the agenda:

Damian - Letter from health Department Director Dr. Fernando Guerra to residents near Kelly AFB.

George - Letter from Ed Riojas to General Childress regarding the RAB's request that all environmental data be released to the public.

Ron Scharvan (Gary Emery's/Denton Langford's replacement) gave members copies of two documents that will be discussed at the next subcommittee meeting:

Text of the Zone 5 Remedial Investigation Report (North Kelly Gardens Neighborhood, large maps and most tables containing analytical data were not included. George and Damian will bring complete copies to the next meeting).

Building 1592 Area Human Health Risk Assessment of Surface Soil (North Kelly Gardens Neighborhood)

### Scheduled Presentation

Maria Martinez of EPA Region 6 (Dallas) gave a presentation on Human Health Risk Assessments. A copy of her view graphs is attached. Maria also handed out a list of EPA Guidance Documents that are available to the public. The following points are from statements Maria made during her presentation and her answers to questions.

Risk assessments are performed by Kelly AFB and its contractors. The EPA reviews the assessments.

Risk assessments do not estimate the synergistic effects of multiple contaminants. This is an area of on-going research. Currently, risk assessment rules call for adding the effects of individual contaminants, but don't account for possible interactions that could multiply (or cancel) harmful effects.

Risk assessments themselves don't take economic factors into account, although the EPA may consider economic factors when making clean-up decisions.

The EPA has a data base (IRIS) that contains information used to perform risk assessments. This public cannot easily access this data base. It is not available from libraries or on the internet (password required). Question - how do Air Force contractors access IRIS?. Another data base - HEAST - is available to the public.

Carcinogens (cancer causing substances) are divided into several groups: Group A - known human carcinogens, Group B - probable human carcinogens, group C - possible human carcinogens, Group D - not enough data, and Group E - non-carcinogens. There are less than 50 Group A carcinogens.

The carcinogenicity of TCE is being re-evaluated. It is currently in group B, but may be reclassified to group C.

**General discussion:**

The Texas Department of Transportation (TX DOT) has conducted environmental studies in the vicinity of Kelly AFB. Damian said that TX DOT data had been given to Kelly AFB. Also, the pumps at the underpass on General Hudnell remove surface water, not groundwater.

The Air Force has completed geophysical work in Zone 3 (including Union Pacific property). Question – when will report be available to the public?

Question – how will regulators decide who is responsible for much of the contamination found off-base? There could be sources other than Kelly AFB. Gary Beyer said the Texas Natural Resource Conservation Commission (TNRCC) was beginning to look into the issue. Captain deVenoge said the Air Force was beginning to look for other parties that may have caused contamination, but this was really TNRCC's job.

-----Approx. 15 minute break-----

**Scheduled Presentation**

Gary Beyer of TNRCC Austin gave a presentation on Risk Reduction Standard 3. A copy of his viewgraphs is attached. The following points were raised by Gary during his presentation or in response to questions.

Different portions of Kelly AFB are subject to different standards. Most is subject to Risk Reduction Standard 3 (least stringent requirements). However, some portions are subject to Standard 2 and Standard 1 (most stringent).

Under Standard 3 the waste can remain in place but it must be monitored to ensure that it does not act as a source of contaminants to adjacent properties.

Question -- if land use changes will the Risk Reduction Standard be changed? Probably not - difficult to change Standard once its been set. The best way to handle this is to anticipate land use changes and start with the appropriate Standard.

Air Force will be out of compliance with its' permit as soon as it is issued because contamination in excess of standards (MCLs - health based Maximum Contaminant Levels) is moving beyond the boundaries of regulated units. Thus, the permit will have to be amended in a way that spells out what the Air Force must do to correct the problems. Question -- will the public be allowed to participate in this process as it is participating in the initial permit hearings?

Shallow aquifer is a Class II aquifer - the State considers it a potential source of domestic water. It must be cleaned up to meet drinking water standards (MCLs). Gary does not know of anyone trying to get the aquifer reclassified, and he does not believe there is a realistic chance that it would be reclassified.

People who know their property has been contaminated (above or below ground) are required to inform potential buyers and record the fact in the property deed. However, the question of whether the TNRCC could "deed record" private property has not been resolved.

#### **General discussion:**

Contamination of Edwards Aquifer in the vicinity of Kelly AFB. George said he (and the Air Force) had data showing that chlorinated solvents had been found in several Edwards Aquifer wells around Kelly AFB. In most cases contaminants were only found once, and concentrations were far below MCLs. However, well 313 on Kelly AFB was found to contain concentrations of PCE that exceeded the MCL (5.5 µg/l vs 5.0 µg/l, 7/7/88). When this well was resampled (9/23/88) no contaminants were found. The well has been plugged.

#### **Added Agenda Items**

Damian - Letter Dr. Fernando Guerra to residents near Kelly AFB.

According to an article by Roddy Stinson, Dr. Fernando Guerra of the Metropolitan Health Department sent a letter to residents in Neighborhoods above the groundwater contaminant plume emanating from Kelly AFB. The letter stated that the Health Department would be collecting drinking water samples from homes and schools in the area. Damian suggested that the Air Force might split samples with the Health Department -- if not during this sampling round, in a future round.

George - Letter from Ed Riojas to General Childress regarding release of environmental data.

George said that Ed Riojas altered the RAB's request in a draft of a letter to General Childress. Instead of asking that *all data* be made public, Ed's draft asked that *all [Installation Restoration Program] data* be released to the public. Because of the altered language, Community Co-Chair Annalisa Peace didn't sign the letter. George said that if this issue wasn't resolved by the next RAB meeting, he would bring Ed's draft to the next meeting.

### Next Meeting

Attendees agreed to hold the next meeting on December 1, 1830, at St. Mary's University, Gami Science Hall, room 217.

Kelly AFB personnel will make presentations on two recent documents:

Zone 5 Remedial Investigation (January 1997)

Building 1592 Risk Assessment for Surface Soils (July 1997)

Subcommittee members should review these documents before the meeting. Contact Ron Scharven (925-3100 x 226) to obtain copies of the documents.

NO. 038 P05

TXDOT-ENV SEC → 1111

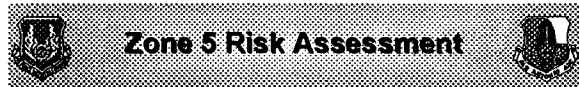
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11/24/97



**Kelly AFB  
Zone 5 Human Health Risk  
Assessment**

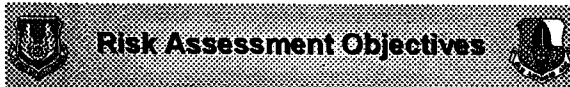
Restoration Advisory Board  
Technical Review Subcommittee Meeting  
December 1, 1997  
St. Mary's University



**Zone 5 Risk Assessment**

**Agenda**

- Objectives of the risk assessment
- Overall approach to the risk assessment
- Zone 5 Study Areas
- Selection of contaminants of concern
- Development of exposure scenarios
- Target Risk Ranges
- Risk assessment results by study area



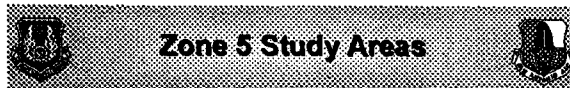
**Risk Assessment Objectives**

- Summarize/interpret analytical data to identify chemicals of potential concern (COPC)
- Identify migration pathways and human receptors
- Identify appropriate toxicity criteria
- Estimate risks and assess actual/potential adverse effects to human health



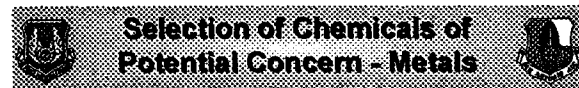
**Risk Assessment Approach**

- Risk Assessment Guidance for Superfund (U.S. EPA, 1989)
- Texas Risk Reduction Standards (1993)



**Zone 5 Study Areas**

- Zone 5 sub-divided into Study Areas identified based on groundwater flow patterns, potential presence of chemicals of concern and land use.
  - North Study Area
  - South Study Area
  - West Study Area
  - East Study Area



**Selection of Chemicals of Potential Concern - Metals**

- Evaluation of presence of field sampling and/or laboratory contamination (data evaluation)
- Comparison of maximum detected metal concentrations in soils to Kelly AFB background levels (Halliburton NUS, 1994)
- Comparison of maximum detected concentrations in soil and groundwater to essential nutrient levels

ITCH 3

**Selection of Chemicals of Potential Concern - Organics**

- Evaluation of presence of field sampling and/or laboratory contamination (data evaluation)
- Evaluation of frequency of detection (only those chemicals detected in greater than 5 % of samples retained as COPCs)
- Background levels for organic chemicals in soil and groundwater not established

**Development of Exposure Scenarios**

- On base residential exposures:
  - Ingestion, inhalation, and dermal exposures to surface soils
  - Hypothetical domestic use of shallow groundwater (for drinking water and bathing)
- On base worker exposures:
  - Ingestion, inhalation, and dermal exposures to surface and subsurface soils
  - Inhalation of volatile constituents from shallow groundwater

**Development of Exposure Scenarios Cont'd**

- Off base residential exposures
  - Volatilization of chemicals from groundwater into indoor air
  - Use of shallow groundwater for gardening or washing the car
  - Hypothetical domestic use of groundwater (for drinking water and bathing)

**Development of Exposure Scenarios Cont'd**

- On base residential exposures
  - North and East Study Areas
- On base worker exposures
  - All Study Areas
- Off base residential exposures
  - North Study Area

**Agency-Established Target Risk Ranges**

- Carcinogenic risk of 1 in 10,000 to 1 in 1,000,000
- Noncarcinogenic Hazard Index less than 1.0

**Risk Assessment Results - North Study Area**

- On Base Exposures
  - Exposures to soils for on base residents and workers:
    - 2 in 100,000 or less
    - Hazard Index less than 1
  - Hypothetical use of shallow groundwater for bathing:
    - 1 in 10,000
    - Hazard Index of 24
  - Hypothetical use of shallow groundwater for drinking:
    - 3 in 10,000
    - Hazard Index of 7

**Risk Assessment Results - North Study Area Cont'd**

- Exposures for Off Base residents:
  - Use of shallow groundwater for gardening or washing cars:
    - Less than 1 in 1,000,000
    - Hazard Index less than 0.1
  - Volatilization to indoor air:
    - 1 in 1,000,000 or less
    - Hazard Index less than 0.1

**Risk Assessment Results - North Study Area Cont'd**

- Exposure for Off Base residents cont'd:
  - Hypothetical use of shallow groundwater as drinking water:
    - Cancer risks up to 1 in 1000
    - Hazard Index of 16

**Risk Assessment Results - North Study Area Cont'd**

- Chemicals contributing to On Base Risks
  - Chlorinated solvents: TCE, PCE, DCE
  - Fuel-related chemicals: Benzene
  - Metals: Arsenic
- Chemicals contributing to Off Base Risks
  - Chlorinated solvents: TCE, PCE, Chlorobenzene
  - Metals: Arsenic

**Risk Assessment Results - South Study Area**

- Exposures to soils for on base workers:
  - 4 in 1,000,000 or less
  - Hazard Index less than 0.01
- Risk by inhalation of chemicals volatilized from the shallow groundwater:
  - Less than 2 in 10,000,000
  - Hazard Index of less than 1.0

**Risk Assessment Results - West Study Area**

- Exposures to soils for on base workers:
  - 2 in 1,000,000 or less
  - Hazard Index less than 0.001
- Risk by inhalation of chemicals volatilized from the shallow groundwater:
  - Less than 5 in 10,000,000
  - Hazard Index of less than 0.001

**Risk Assessment Results - East Study Area**

- Exposures to soils for on base residents and workers:
  - 3 in 100,000 or less
  - Hazard Index less than 0.4
- Hypothetical use of shallow groundwater for bathing:
  - 4 in 10,000
  - Hazard Index of 40
- Hypothetical use of shallow groundwater for drinking:
  - 2 in 1000
  - Hazard Index of 10







**Risk Assessment Results -  
East Study Area Cont'd**



- **Chemicals contributing to On Base Risks**
  - Chlorinated solvents: TCE, PCE, DCE
  - Fuel-related chemicals: Benzene
  - Metals: Arsenic
  - Others: Benzo(a)pyrene



**Conclusions**



- **Current and potential future exposure to on base soils not at levels that would present health risks**
- **Current exposure to groundwater not at levels that would present health risks. Future domestic use of groundwater would pose unacceptably high risks.**

# MEMORANDUM

**TO:** KAFB Technical Review Subcommittee (TRS) Members **DATE:** December 19, 1997

**FROM:** M. Damian Sandoval  
KAFB TRS Chairperson

**SUBJECT:** Formal TRS Comments on the Zone 5 Remedial Investigation Report, Final Draft, Jan 97.

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The KAFB Technical Review Subcommittee conducted a meeting on December 1, 1997 to review, discuss and provide formal comments on the aforementioned document. The following comments will be submitted to the KAFB Restoration Advisory Board (RAB) for submission to the Air Force with a copy of the comments provided to both the Environmental Protection Agency, Attention: Ms. Camille Hueni, and the Texas Natural Resource Conservation Commission (TNRCC), Attention: Mr. Gary Beyer.

1. Did KAFB collect soil gas survey data from outside the north area of Zone 5 (North Kelly Gardens Area) for the human health risk assessment for the north area of Zone 5?
2. Have all the sources contributing to soil and groundwater contamination in Zone 5 been identified, removed and/or controlled? If not, describe approach or methods of investigation to determine the sources.
3. Identify which regulatory regulations will take precedence at during site closures and property transfers. For example, indicate if EPA regulations for the human health risk assessment or the regulations under TNRCC's Risk Reduction Rules will take precedence at KAFB?
4. Present a section within the RI document that describes how the toxicity of TPH will be considered during the human health risk assessment? Indicate if TPH as a fuel or individual fuel constituents (e.g. Benzene) will be assessed for toxicity in the human health risk assessment?
5. Describe how the implementation of the new TNRCC's Risk Reduction Standards will impact this human health risk assessment. Describe the concept of "grandfathering in" KAFB sites assessed under the current TNRCC regulations ?
6. Discuss how the presence and concentrations of PCE and TCE presently found in the groundwater will be evaluated in regards to the future presence of the daughter chemical, vinyl chloride? As was discussed, PCE and TCE are not very volatile, hence, are not expected to easily escape as vapor from the dissolved phase, therefore, do not have an increased potential for risk of inhalation? As an unstable molecule with a tendency to transform into the vapor phase, vinyl chloride in the future may drive the risk for inhalation.
7. Even though the occasional, trespasser exposure pathway is not as protective as the residential exposure scenario, this document should discuss this scenario? This exposure scenario should be discussed and referenced that the residential exposure scenario is more protective and more conservative

cc: Camille Hueni, EPA  
Gary Beyer, TNRCC

ATCH 4

## TALKING PAPER

ON

AIR QUALITY SAMPLING AND ANALYSIS PLAN FOR  
KELLY AFB FUEL STORAGE AND DISTRIBUTION FACILITY

- In response to community concerns, Kelly AFB's Environmental Management office requested an air quality study be performed in the North Kelly Gardens (NKG)
- The purpose of the study was to determine the impact on air quality from JP-8 vapors during operations at the base's Fuel Storage and Distribution Facility
- The goals of the study included:
  - Characterization of fuel vapors from System 1592
  - Measurement of JP-8 hydrocarbon concentrations in NKG during worst-case fueling and filling operations
  - Prediction of the contribution of System 1592 operations to the ambient hydrocarbon concentrations in NKG community
  - Determination of potential health risk based on measured and predicted ambient air concentrations of JP-8 hydrocarbons based on state and federal air quality
- The Sampling and Analysis Plan was developed by SwRI with consultation from Air Force scientists, engineers and an environmental consulting firm, CH2M HILL.
- Continuous monitoring and solid sorbent collection, followed by laboratory analyses were used to characterize the ambient air for hydrocarbons
  - An organic vapor analyzer (OVA) was used to screen ambient air concentrations and to identify fugitive emissions
  - Charcoal tubes were used in accordance with NIOSH Method 1550 to concentrate the organics and carbon disulfide were used to desorb the organics for analysis
  - Hydrocarbons extracted from the charcoal tubes by carbon disulfide were analyzed by a gas chromatograph/mass spectrometer (GC/MS)
- The survey was conducted in three phases
  - Phase I of the survey characterized the fugitive releases from each of the tanks and the distribution system at System 1592
  - Phase II work included collecting samples of each tank at the previously identified fugitive release points including floating pan seals, pumps, valves and truck vents. A fence line study was also completed to determine total fugitive releases
  - Phase III work used the results of Phase II to model the predicted plume width. Using this information, sample locations on Kelly AFB and NKG were selected and sampled during ambient conditions
  - A one time sampling event involving a probable worst-case scenario of fuel storage and transfer was also conducted in order to determine an upper limit of potential risk to the NKG residential area

BULLET BACKGROUND PAPER  
and  
AFTER ACTION REPORT  
TECHNICAL REVIEW SUBCOMMITTEE (TRS) – 27 JAN 98

- TRS is subcommittee to the RAB;
- Chairman is Mr. Damian Sandoval (TXDOT)
  - Previous chairman, George Rice, was removed -- now is member only
- TRS met for 3<sup>rd</sup> time with Mr. Sandoval as Chair on 27 Jan 98 at St. Mary's University
- Mr. Sandoval will report TRS activities to the RAB on 28 Jan 98, to include:
  - Information:
    - TRS Meeting on 1/27
    - Oversight Issues
    - Comment on RI Report
    - Summary of proposed TRS meeting dates
    - Membership and participation in TRS
    - Process review of meeting minutes
  - TRS Recommendations
    - Approval to formally submit written remarks on a Kelly technical report (Zone 5 RI) and request formal reply
    - Summary contamination map: Request for Kelly AFB to develop a map showing off base plumes for use at RABs
    - TRS Membership:
      - Add: David Johnson (Community Member), and Dean Pound (GKDC)
      - Accept resignation of Larry Hoffman.
- Other important discussion and background information:
  - BIG ISSUE: David Johnson, community member, will speak as such and solicit a recommendation from the RAB to support ongoing community health survey issues. This may include endorsement of CEJA activities in conjunction with FCS, Foundation (Feminists) for a Compassionate Society (see atch). The survey will continue in much the same manner as was done in the NKGa survey (North Kelly Gardens Area).
    - The NKGa survey was presented at a RAB by an FCS representative several months ago, after which there was discussion that this issue was not within the realm or purview of the RAB (focus on RESTORATION)
    - This is very sensitive subject matter that should not be addressed
  - George Rice alleged that the AF has not yet accepted responsibility for off-base contamination originating from Kelly AFB.
    - Requested motion by TRS to RAB to request Kelly Zone managers to provide a comprehensive map delineating those off base plumes for which AF accepts responsibility
      - TRS soundly rejected Mr. Rice's request (1 for, all others against)
      - Regulators and other TRS members clearly disagree with Mr. Rice on this issue
      - Mr. Rice then recommended another approach: direct communication with MGen Childress as a community member.
      - Mary Kelly (Kelly Legal) then informed Mr. Rice that a clear process had been established by the TRS Chairman and that he was essentially attempting to circumvent the TRS process. Mary advised Mr. Rice that he was presently involved in legal actions against the base and this was inappropriate to use the TRS in this manner. No one disagreed with Mary except Mr. Rice.
      - This matter (not on the agenda) was discussed for over an hour with no relenting by Mr. Rice after clear dissent by the remainder of the TRS.
- Zone 5 Remedial Investigation Technical Report: Damian Sandoval recommended letter be sent to Kelly AFB requesting a formal written response to TRS comments regarding this document.
  - Results of this report were presented at the previous TRS on 1 Dec 97 by CH2M Hill.

- Many of the comments were addressed verbally at that time and appeared to be sufficiently answered.
- Some of the questions should be addressed to the regulatory community – not Kelly AFB.
  
- Mr. Sandoval had developed a list of “TRS Technical Issues” that he distributed at the TRS and will submit to the RAB as part of the TRS information
  - This list of issues should really be decided at a higher level than the TRS
    - RAB consensus
    - Decision of the Co-Chairs

**FINAL PAGE**

**ADMINISTRATIVE RECORD**

**FINAL PAGE**