KELLY AFB
TEXAS

ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 3260

"What actually happened" agenda

Kelly Restoration Advisory Board
Technical Review Subcommittee (TRS)

Meeting Agenda
Wednesday, November 12, 2003, 6:30 p.m.
Greater Kelly Development Authority Office
143 Billy Mitchell, Building 43, Suite 6
San Antonio, TX 78226

I.	**Introduction** a. Agenda Review b. Packet Review	Dr. David Smith
II.	**Discuss election of TRS Chair**	Dr. David Smith
III.	**Building 361 Update**	~~Mr. Jack Shipman~~ William Ryan & Gary Watkin
IV.	**Palm Heights PRB Update**	~~Mr. Walter Peck~~ Scott Courtney
V.	**Administrative** a. BRAC Cleanup Team (BCT) Update (Ryan) b. Spill Summary Report c. Documents to TRS/RAB d. Action Items e. Request for Agenda Items f. Approval of Minutes from Previous Meeting	~~Mr. Buddy Pletz~~ — Dr. Smith • Britt Watts •

VI. Next TRS Meeting
Environmental Health and Wellness Center: December 9, 2003, at 6:30 p.m.

VII. Next RAB Meeting
Kennedy High School Auditorium: January 20, 2004 at 6:30 p.m.

VIII. Adjournment

Nov. 2003

November 12, 2003
Technical Review Subcommittee (TRS)
of the Kelly Restoration Advisory Board (RAB)
Meeting Minutes

Meeting Attendees:
Dr. Gene Lené, RAB Community Representative
Mr. Sam Murrah, RAB Community Representative
Mr. Rodrigo Garcia, RAB Community Representative
Mr. Daniel Gonzales, RAB Community Representative
Mr. Armando Quintanilla, RAB Community Alternate
Mr. William Ryan, Air Force Real Property Agency (AFRPA)
Ms. Larisa Dawkins, AFRPA
Mr. Gary Martin, Greater Kelly Development Authority (GKDA)
Ms. Kyle Cunningham, San Antonio Metropolitan Health District (SAMHD)
Mr. Gary Miller, Environmental Protection Agency (EPA)
Ms. Abigail Power, Texas Commission on Environmental Quality (TCEQ)
Mr. Paul Flaningan, Boeing Communications Representative
Ms. Robyn Thompson, Booz Allen Hamilton (Booz Allen)
Mr. Tim Sueltenfuss, Booz Allen
Ms. Megan Mabee, Booz Allen
Ms. Susan Hook, Booz Allen
Mr. Scott Courtney, Booz Allen
Dr. David Smith, Smith and Associates (Facilitator)
Ms. Brittany Watts, Smith and Associates
Mr. Randy Alvarez
Ms. Crystal Gomez
Ms. Jill Johnston
Mr. Shawn Duffy
Ms. Elizabeth Gomez
Ms. Rachel Lumsdon
Ms. Martha Cave
Mr. Juan Reyes
Ms. Hilary Ramos
Mr. Bill Heasy
Mr. Jslu Siberl

The meeting began at 6:33 p.m.

Welcome and Introductions
Dr. David Smith
Dr. Smith introduced himself as the facilitator and welcomed all the RAB members and meeting attendees. He conducted a review of the meeting agenda and supplemental packets. He stated that Mr. Scott Courtney would be presenting the Palm Heights Permeable Reactive Barrier (PRB) update for Mr. Walt Peck, and Mr. Gary Martin and Mr. William Ryan would be giving the Building 361 update for Mr. Jack Shipman. (Mr. Peck and Mr. Shipman were unable to attend the meeting.)

Discuss Election of TRS Chair
Dr. David Smith
Dr. Smith explained that several RAB members had voiced concerns about the election process at the September TRS meeting. The main concern was that some felt that the voting was not handled appropriately and should be re-approached. He added that no formal voting guidelines for subcommittees had been established by the RAB charter, and stated the Executive Committee would review the process and discuss how to handle it for future elections. He noted that Mr. Buddy Pletz would remain the Chair, with the aid of Mr. Rodrigo Garcia, until after RAB elections in January; at that time, the RAB plans to have established new guidelines and plans to conduct new elections at the February TRS.

Mr. Armando Quintanilla asked if it was the job of the RAB members present at the TRS to appoint the TRS co-chair. Dr. Smith replied that it is the job of the TRS members to elect the co-chair, and the RAB Executive Committee was going to develop guidelines to conduct elections in the future. Dr. Gene Lené asked if any RAB member could be a TRS member and if the TRS appointed its own chair. Dr. Smith answered that, to his understanding, any RAB member could serve as a member of the TRS, and those participants are voting members at the TRS elections.

Building 361 Update
Mr. Gary Martin
Mr. Martin explained that ten employees had come forward and volunteered to be tested for radium exposure; he expected three more volunteers by the end of the week. The Greater Kelly Development Authority (GKDA) took seven urine samples and sent them to the lab. Those results should be back sometime after the Thanksgiving holidays. He explained that Boeing and the Air Force had conducted separate environmental tests, and all excavated soil was located and tested. The Texas Department of Health (TDH) used a radium detector when testing the soil and found nothing alarming. Boeing collected two samples and the results should be available next week.

Mr. William Ryan said there will continue to be a lot of construction at KellyUSA to further the redevelopment efforts. He added that the Air Force continues to work closely with Mr. Martin and GKDA to coordinate plans of excavation and digging. Mr. Ryan noted that the Air Force wants to be actively involved in the process early on and is currently looking at ways to improve the communication process between all parties. The Air Force and GKDA are trying to create this process quickly. They are also developing a plan to close this site, as all parties are anxious to complete the project at Building 361.

Mr. Garcia asked if the Building 361 hangar was still shut down. Mr. Martin said yes, and provided radium and radon fact sheets for the TRS to review. Mr. Garcia said he was concerned and wants the polychlorinated biphenyls (PCB's) and radium issues to be ongoing agenda items. Mr. Martin said that radon and radium are naturally-occurring substances. The soil sample results should be available next week or the following week and GKDA will assess any health and safety dangers. Mr. Dan Gonzales asked about the pre-bid process, stating that maybe GKDA and the Air Force need to emphasize steps more clearly to the contractors coming in to avoid this in the future. He stated that there should be a penalty for contractors who do not follow certain steps. Mr. Martin replied the problem was not with the contractor but with the

information exchanged between the contractor and the Air Force. He continued by stating that there is now an improved communications process and they will ensure that the right people see the right documents at the right time. The Air Force and GKDA are scheduled to meet every Monday morning from now on to discuss construction projects.

Mr. Quintanilla asked if Radium 266 was found at Building 361 and if the half life of Radium is 6.7 years. Mr. Martin said it is more like 1600 years. Mr. Quintanilla then asked if the area was to be cleaned up under CERCLA. He stated that if Kelly is a Superfund site, then the work should be done under CERCLA. Mr. Ryan replied the Air Force has a Radioisotope Committee that will oversee any remediation at the site. Mr. Quintanilla questioned if people at Brooks had looked at it yet and whether the groundwater had been tested. Mr. Ryan said yes. Mr. Quintanilla then asked if it had higher levels of radioactivity. Mr. Ryan said they do not know at this point. Mr. Quintanilla inquired about the Environmental Protection Agency's (EPA) role in this. Mr. Gary Miller, the EPA representative, said that TCEQ is overseeing what is happening at Building 361. However, EPA will eventually have to review the plans, as they are required to sign off when the land is transferred. Mr. Quintanilla said he wanted to see a comparison of the radioactivity data with San Antonio Water System (SAWS) and Bexar Metropolitan Water District data.

Mr. Ryan explained that the PCB issue is being monitored by Lackland Air Force Base. Mr. Garcia stated that the Leon Creek area was Kelly's responsibility before it became a Lackland problem and that Kelly should continue to review it. Mr. Quintanilla said Congressman Rodriguez's staff is looking into the PCB issue. Dr. Smith reviewed the proposed action items from this discussion.

Palm Heights Permeable Reactive Barrier (PRB) Update
Mr. Scott Courtney

Mr. Courtney introduced himself and stated that he has worked as a hydrogeologist with Booz Allen Hamilton (Booz Allen) for the last six years on the groundwater cleanup team. He explained that for the past 6–8 years they have conducted soil and groundwater investigations in Zone 4. The Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI), submitted to TCEQ and EPA, reported the results of the soil and groundwater investigation. Following this, the Air Force completed the Corrective Measures Study (CMS), which evaluated the technologies and determined which ones best fit the site. A combination of remedial approaches was recommended and narrowed down to the preferred alternatives. For Palm Heights, the AFRPA proposed to install PRBs to intercept the groundwater contamination. There are two areas of groundwater contamination along the Union Pacific Railroad (UPRR) line, and the Air Force has installed monitoring wells there. Two PRBs are planned, one 1,000 and the other 500 feet in length. The contractors will drill wells and inject a mixture of iron filings and gel using a high-pressure injection technique.

Mr. Courtney added that once wells have been installed, the PRB and wells will not be noticeable to the community. Mr. Quintanilla inquired about the cost of the project. Mr. Courtney said it will cost approximately $4 million for construction. Mr. Quintanilla asked the start dates. Mr. Courtney replied the AFRPA is planning to begin construction in early 2004, and the entire process should take a few months. Mr. Quintanilla then asked how often the monitoring wells are checked. Mr. Courtney said they had already collected the first round of samples. He added that once the PRB was installed, another round of samples would be collected. An annual monitoring program will take place that is consistent with regulatory

requirements. Mr. Quintanilla stated his concern about what the Air Force is looking for. Mr. Courtney said the contaminants of concern are tetrachloroethene (PCE), trichloroethene (TCE), dichloroethene (DCE), and vinyl chloride (VC). Mr. Quintanilla asked what streets were in the area. Mr. Courtney stated there are no streets along the UPRR line where this project is taking place. Mr. Quintanilla then asked how the Air Force is handling deed restrictions. Mr. Courtney replied that the Air Force is working access agreements with the railroad. Mr. Garcia asked if this meant they would not have to deal with residents. Mr. Courtney replied this was right.

Mr. Garcia asked what happens if the iron filings become dirty and need to be changed out. Mr. Courtney said there are techniques to rejuvenate the PRB, but that this will not likely be necessary. Mr. Quintanilla asked how long it would take to clean up the area. Mr. Courtney said the PRBs will address plumes coming from off-base sources and will not treat the source area. Mr. Sam Murrah asked how they identify the sources. Mr. Courtney replied there are ongoing investigations at the present.

Administrative
BRAC Cleanup Team (BCT) Update
William Ryan
Mr. Ryan gave a Building 361 update. He said the Air Force is in the process of responding to comments from TCEQ on the Zone 3 RFI. In the new fiscal year the Air Force has new goals for property transfers and expects to transfer 200 acres to GKDA by the end of September 2004. The Air Force will determine whether the parcels are suitable for transfer and are trying to transfer properties to GKDA as quickly as possible that do not have restrictions associated with them. Properties with restrictions are more difficult to transfer. Mr. Quintanilla asked if there were any restrictions for the 200 acres. Mr. Ryan said none had been identified. He stated that they have already transferred a new administrative building at 145 Duncan. The 200 acres include Lindberg Park, the Non-commissioned Officers (NCO) club, the base clinic, the terminal area, and Bungalow Colony (a historical district).

Mr. Sam Murrah asked how the Air Force knows what is contaminated. Mr. Ryan replied there are 1400 wells that determine where groundwater is and where it is moving. The Air Force must demonstrate to EPA that the parcel will not be affected. He said all property will be transferred eventually. Mr. Ryan said the Air Force will provide EPA with a history of data from the wells that have been monitored for some time.

Ms. Kyle Cunningham asked to move the minutes up on the agenda for approval as she had to leave early.

Approval of Minutes from Previous Meeting
Dr. David Smith
Ms. Cunningham asked to change a comment on page five. She stated that air monitoring will be conducted on a real-time basis. Mr. Quintanilla said the spelling on page five for the Quintana Road project needed to be changed. Mr. Murrah asked to change his title in the attendee's portion of the minutes. Minutes were approved as corrected.

Spill Summary Report
Ms. Brittany Watts
There was one spill to report. Ms. Watts explained that a vehicle caught fire while being jump-started. The resulting fire melted the battery and radiator hose, which caused a release of battery

- Invite Texas Department of Health (TDH) to present findings of fish study in Leon Creek where a health advisory was issued (and for the Agency for Toxic Substances and Disease Registry to review study).

Other topics discussed for future meetings

- Provide executive summaries of submitted reports for review.
- Provide list of Lackland CCR meetings and a copy of meeting minutes.
- Ms. Power requested that photocopied material be duplexed.

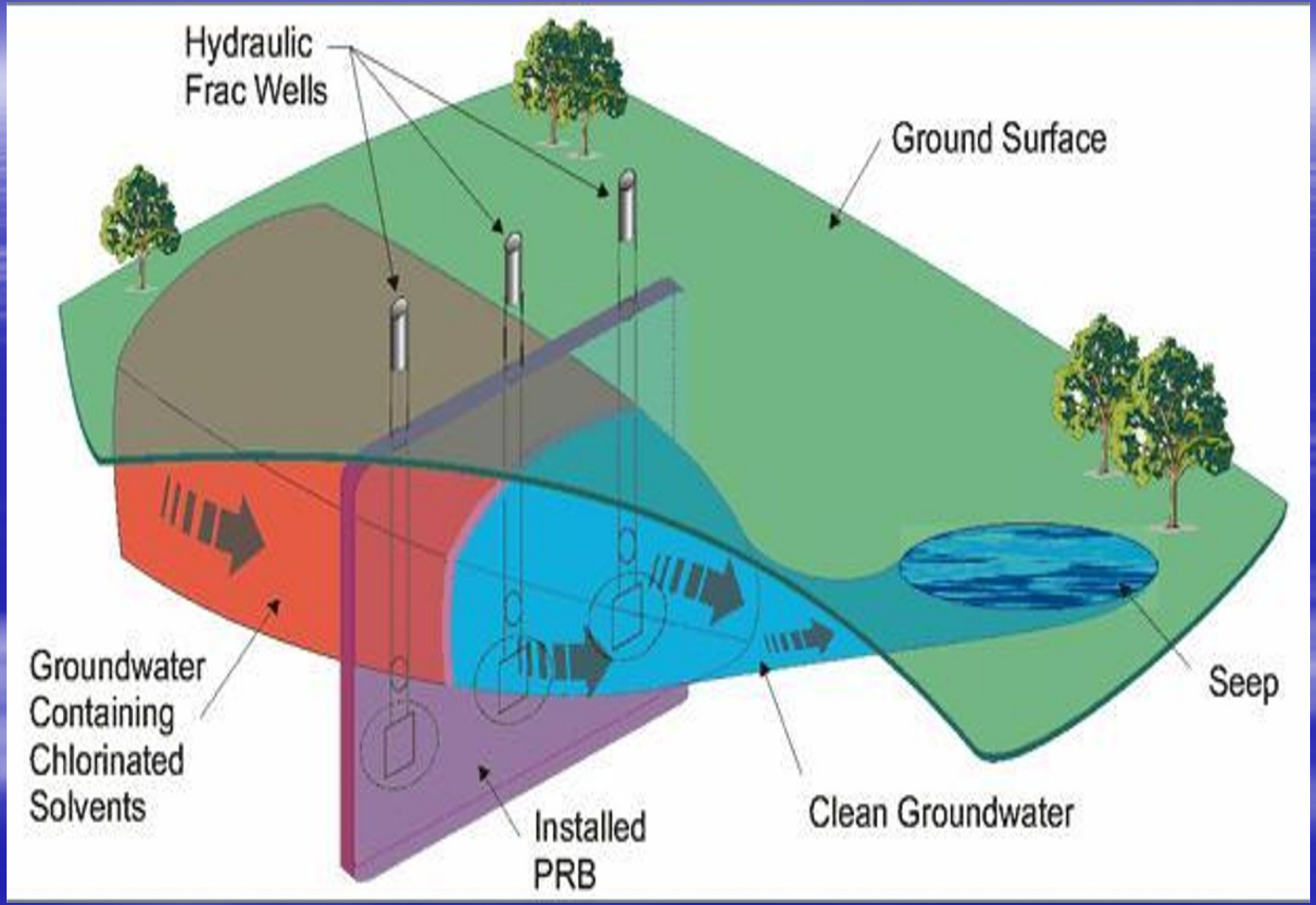
Mr. Quintanilla stated that he favored the seating setup at this meeting and asked that we change it at the meetings at the EHWC to reflect this new style.

Additional Comments

Dr. Smith thanked everyone for coming and reminded them of the upcoming meetings. The next TRS is scheduled for December 9, 2003 at the EHWC. The next RAB is scheduled for January 20, 2004 when new RAB members will be elected. He added that application packets were on the sign-in table for those might be interested. He also asked that the TRS members return their nametags.

The meeting adjourned at 7:45 p.m.


Potential Permeable Reactive Barrier Location
East Kelly
PALM HEIGHTS PRB PROPOSED ALIGNMENT
AIR FORCE
REAL PROPERTY AGENCY
FORMER KELLY AFB, TX
SCALE IN FEET
500
0
1000
INDUSTRIAL
JEWELL
QUERIDA
HUMBLE
BESSIE MAE
CAVALIER
HEARNE
DE SOTO
MARIAN
GARLA
LINARES
THEO
MALONE
GLADYS
ADINA
ROYSTON
WINNIPEG
HOOVER
FERNDALE
SIMS
ELMO
ELLANA
CLAIRE
GLADSTONE
SOUTHWAY
WESTWAY
WICHITA
DARSON
CARTHAGE
AMARILLO
ROSS
BURKE
CULBERSON
JENNINGS
MINER
UP RR
RR
UP
AVE E
AVE D
HANGAR
FICKEL
McGARIGLE
JONES
AVE A
HARMON
QUINTANA
NORTON
LOCKETT
BARNES
DE CAMP
CENTENNIAL
BURTON
PEARSON
TAYMAN
5TH
6TH
ALDRUP
MULDOON
EASTERN
FITCH
ZARZAMORA
BLOOM
ILLINOIS
HOSACK
AMES
BURGESS
PACKARD
FLANDERS
ELKS
38
File: X:\REAL_PROP\ENV\REMEDIAL-ALT\Z4_REM-ALT3.DGN
Edited By: AFBCA/RPortales
12 NOVEMBER 2003


Hydraulic
Frac Wells
Ground Surface
Groundwater
Containing
Chlorinated
Solvents
Installed
PRB
Clean Groundwater
Seep


CAB-RCH


FracTrak

September 9, 2003
Technical Review Subcommittee (TRS)
of the Kelly Restoration Advisory Board (RAB)

Dr. Gene Lené, TRS Chairperson
Mr. Sam Murrah, RAB Co-Chair, Community Member
Mr. Rodrigo Garcia, RAB Community Member
Mr. Daniel Gonzales, RAB Community Member
Mr. Nazarite Perez, RAB Community Member
Mr. Paul Person, RAB Community Member
Mr. Buddy Pletz, RAB Community Member
Mr. Armando Quintanilla, RAB Community Alternate
Ms. Angel Martinez, RAB Community Alternate
Mr. Leroy Johnson, Community Member
Ms. Yolanda Johnson, Community Member
Mr. Robert Alvarado, Community Member
Ms. Guadalupe Alvarado, Community Member
Mr. Carmelo Casillas, Community Member
Ms. Frances Casillas, Community Member
Ms. Joleen Garcia, Community Member
Ms. Lisa Sorg, *San Antonio Current*
Mr. William Ryan, Air Force Real Property Agency (AFRPA)
Mr. Don Buelter, AFRPA
Mr. John Glass, AFRPA
Ms. Larisa Dawkins, AFRPA
Ms. Linda Kaufman, San Antonio Metropolitan Health District (SAMHD)
Ms. Kyle Cunningham, SAMHD
Ms. Abigail Power, Texas Commission on Environmental Quality (TCEQ)
Mr. Ed Roberson, Environmental Flight Chief, Lackland Air Force Base
Ms. Robyn Thompson, Booz Allen Hamilton (Booz Allen)
Ms. Megan Mabee, Booz Allen
Mr. Eddie Martinez, Booz Allen
Ms. Brittany Watts, Booz Allen
Dr. David Smith, Smith and Associates (Facilitator)

The meeting began at 6:30 p.m.

Dr. Smith introduced himself as the facilitator and welcomed all the RAB members and meeting attendees. He conducted a review of the meeting agenda and pointed out that the agenda had changed: the fruit and nut study was removed and will be presented at a later meeting and the Leon Creek Fishing Advisory moved to beginning of meeting.

Election of TRS Chair
Dr. David Smith
Mr. Rodrigo Garcia and Mr. Buddy Pletz were nominated to be the new TRS Chair. Dr. Smith asked each nominee to say a few words. Mr. Garcia told the audience that he asks a lot of questions, wants a review of the TAPP process, upcoming projects, and oversight of contractors.

Mr. Pletz said his duty as Co-chair would be to steer the committee toward meeting its goals, and to represent the community.

The vote was tied with four votes for each nominee. Dr. Smith asked for a re-vote, which was also tied four to four. Mr. Martinez then researched the guidelines, and found that they were not specific to procedures of the TRS. Dr. Gene Lene, the current TRS Chair, made the decision to allow all RAB community members and their alternates, and government members and their alternates to vote. This extended the role of Co-chair to Mr Buddy Pletz.

Leon Creek Fishing Advisory Discussion
Mr. Ed Roberson

Mr. Roberson began by saying that since 1989, sampling has been conducted at Leon Creek. The Air Force has always looked at how groundwater affects the creek, all the while looking for degreasing solvents and plating metals. In 1992, monitoring of Leon Creek began. He said that PCBs are not attributed to Kelly, and that there is no pattern to what appears in creek. They collected 2,000 samples of groundwater and re-sampled for PCBs. They found that less than 20 samples had traces of PCBs. He stated that PCBs don't normally mix with water, they normally mix with soil in creek sediments. In 1976, PCBs were banned because they don't break down in fish with fatty tissue such as carp, or in high predator species such as gar. PCB is the second most commonly found chemical in fish the US, and 38 states have issued fish advisories against PCBs.

The primary use of PCBs was in transformers for electrical distribution. Some of these transformers are still around. From the Helotes to the Medina River, anything in that drainage area ends up in the Creek. Most sediments get washed away after rain. The heavy rain weekend of July 4, 2002 caused fish to swim upstream, and then get trapped in the five-foot dam. Upstream of Lackland AFB there is not much water. The sites had been monitored before and after realignment, and the landfills showed no traces of PCBs. They have also checked groundwater, but that is not a source. He said that the Air Force is not the source of the PCBs.

A community member asked if anyone ever monitored before 1992? Ms. Powers said the state of Texas has been monitoring since 1970s. Mr. Armando Quintanilla asked about the landfill area near golf course, and how many transformers were dumped there? Mr. Roberson said they have sampled groundwater and it does not contain PCBs. He also mentioned that they have sampled the golf course soil from 1989-1994. Mr. Quintanilla asked about using the Freedom of Information Act to obtain more information. Mr. Roberson told Mr. Quintanilla that he could find more information in the public library. Ms. Guadalupe Alvarado asked what was killing the fish. Mr. Roberson stated that the fish are not dying. He said it would take one fish meal every week for 30 years to cause harm to humans. Statistics report that there is a 2 in 10,000 chance of getting cancer after that level of consumption of fish with PCB's. Texas Department of Health (TDH) says one in 10,000 is the limit for human consumption.

Ms. Angel Martinez asked who found PCBs in the fish? Mr. Roberson said that PCBs have been found off and on since 1992. The Environmental Protection Agency requires that Lackland submit information to TDH. Ms. Martinez then asked why the information was just coming out now? Ms. Abbi Power stated that the fish advisory is not for all of Leon Creek, only for that one portion of creek. Mr. Roberson pointed out that area on a map. TDH had samples from three stations, the area near the Kelly golf course, another are closer to Highway 90, and the third area

near the south Kelly. Mr. Roberson stated that low interaction levels of heavy metals were found, but noted that every urban stream has them.

Mr. Buddy Pletz asked what other things cause fish problems. Mr. Roberson said sewage can be a source. Mr. Garcia asked how often sampling has been done since 1994. He also asked who would look for the source of PCB contamination? Mr. Roberson said they have sampled once a year, every year, since 1992. Mr. Garcia then said they should be monitored more than once a year. Mr. Roberson then stated that there is nothing that shows the source to be from Lackland, and they will not look for a source that is not on Lackland property. Mr. Garcia asked if they would be doing more sampling. Mr. Roberson said the results change with each sampling. There is no pattern to sediment, soil, and groundwater related to a specific site.

Mr. Sam Murrah inquired about rainfall and its effects on the creek. Mr. Roberson said that low rainfall causes the water to stagnate, and sediments to fall out of water. High rainfall causes everything to get mixed around. They will not sample within one month of rainfall in order to let sediments settle down. If there were indicators, Mr. Roberson said he would be investigating and establishing a new site.

A community member asked who gives the second opinion of work. He was informed that TCEQ, EPA, and TRS gave a second opinion. Abi Power suggested getting information from the health department. Mr. Quintanilla asked if there were no transformers in golf course. Mr. Roberson said there were no transformers or PCBs at the golf course. Everyone in COSA had transformers that used PCBs to generate electricity.

Mr. Person asked if the levels of PCBs were less than one part per million. Mr. Roberson stated that 2 parts per million is the level we encounter which is harmless. He said when rain fills sewer lines with water, sewage will kill fish faster than anything because it uses up oxygen in water. Mr. Gonzales asked when next results of testing would be determined. Mr. Roberson said he doesn't know what TDH's shedule is, but that in Jan. 2004 the results of the Aug. 2003 testing will be released. Mr. Gonzales asked what Mr. Roberson would recommend the group to do. Mr. Roberson said if they test now and don't find PCBs, they could test again next year and find them, and that there really is no good answer to his question. There is a possibility that next time we could see contaminated fish elsewhere. Mr. Roberson said that they must eliminate the source to eliminate contamination.

Ms. Powers asked if the industries will bring in power using their own transformers, lines, etc. She said no one told them on a certain date they had to get rid of transformers, and that there is a possibility that some industries in San Antonio still have active transformers. The property owner is responsible for cleaning up their own PCB contamination. PCBs are found in transformers, and also used as a good lubricating oil. Mr. Roberson said PCBs will be in the environment for some time like DDT, even though they have been banned. He also stated that there is a chance of another chemical like PCB able to happen in the future. This is the price to pay for living in an urban society.

A community member stated that we shouldn't accept it as a fact of life that our populations get sick. Eating one fish meal a week for 30 years is misleading. The population is already burdened with other health problems like weakened immune systems, and they are getting overburdened with additional risks. Mr. Roberson said that the Toxic Substances Control Act was passed to regulate environmental problems such as this. Mr. Murrah said we should just

start buying organic products. Mr. Roberson said people can buy organic, but there will be chemicals produced that will cause adverse health effects eventually from that too. Mr. Person said that the consumer society buys animals fed with animal byproducts. Mr. Roberson said people choose to have electricity, eat meat, and do things that are out of his control. They are spending $30 million on investigations, and $200 million over the next four years on investigations.

A motion was made to have TDH present information on the study. In order to clarify the motion, Dr. Smith asked if the Health Department should be invited. Mr. Quintanilla made a motion to invite TDH to present findings of the fish study in Leon Creek where health advisory was issued (and ATSDR to review study). Mr. Perez seconded the motion. Motion was approved.

Mr. Ed Roberson invited the TRS members to the next Lackland Community Council on Restoration (CCR) meeting to be held at Valley High Elementary School. The discussion about the fish sampling study is on the agenda. Ms. Power added that the meeting will be held on Wednesday October 15, 2003, at 7:00 p.m. Mr. Person asked if this referenced property was part of Kelly. Mr. William Ryan stated that the Property was realigned to Lackland.

34th Street PRB Update
John Glass

Mr. Glass explained that the draft final Corrective Measure Study (CMS) for Zone 5, Plume B, isolates the off-base source of Kelly contamination. As part of the CMS, samples were collected of the soil and groundwater and that data was used earlier this year to determine the location of the PRB. The PRB will be 540 feet long, and vary in depth depending on the Navarro Clay. Shaw Environmental as awarded the contract for Results-Based Product Delivery. The contractor will receive a fixed amount of money and incentives if the end result meets the government requirements.

The Air Force is currently installing wells upgradient and downgradient of the future wall. Trenching will begin in mid-November, and could take up to seven weeks for construction. Additional monitoring could extend through January. Impact on community will involve closing the streets, noise (won't break city limit), dust reduced by use of guar gum, material in trench hauled off to landfill (no odor), because the level of contamination is low, there is little risk from the volitilazation of contaminants. Metro Health will conduct air monitoring at site.

Mr. Pletz asked where the waste will be disposed. The two approved disposal sites are Covel and DFI. Mr, Pletz asked if guar gum breaks down to allow water to flow through barrier. The answer was yes. How many times has the Air Force used this incentive based program before. It has been used four times at Kelly. How is it working? One Huge success. Mr. Quintanilla asked what the name of street is that is closing? He also asked if the Air Force has a permit from the city to close the street. The name of the street is 34th street and the answer is yes. How many monitoring wells? There are 17 wells in and around the wall. Total cost of contract? 1.4 million if successful, 900,000 if not.

Ms. Angel Martinez asked what happens if chemicals exceed levels for air monitoring. Ms. Kyle Cunningham replied that the community would be notified immediately. Mr. Garcia asked how

often the monitoring stations are read? There is no determination yet as to what type of air monitoring, but real time monitoring is not feasible in this case said Cunningham.

A community member asked how successful the Quintanilla road project was. Mr. Ryan said it has been successful; the concentrations of contamination declining. Mr. Carmello Casillas inquired about the monitoring well in his front yard. He stated that it had not been tested in a while. Mr. Ryan said not all wells are monitoring wells and monitoring wells are not routinely measured.

Revisiting of Election of TRS Chair
Dr. David Smith

Mr. Martinez researched the RAB Charter and found that it applied to the RAB only. Therefore, Dr. Lene, the current TRS chair decided that all TRS members are allowed to vote, including government members and alternates. Dr. Lene said that the TRS Chair represents the whole TRS, not just the community members. The revote gave 5 to Mr. Garcia and 6 to Mr. Pletz.

Administrative
BRAC Cleanup Team (BCT) Update
William Ryan

Zone 2/3 CMS is in first stages, and was briefed to state and EPA today. Closure of 10 Solid Waste Management Units (SWMU) is pending. 6 are categorized as risk reduction standard (RRS) 1 for closure, the other 4 units can be categorized as either RRS 1 or RRS 2. Firing range investigations are ongoing, one in Zone 2 and one on east Kelly. The Zone 2 range has exploratory trenches.

Spill Summary Report
Eddie Martinez

There were no spills since June TRS meeting.

Documents to TRS/RAB
Eddie Martinez

The reports listed below were delivered to the library at the Environmental Health and Wellness Center

- Revised RCRA Closure Report for the Liquid Incinerator Area Site OT-1
- ITIR Site E-3 Bioventing System in Situ Respiration Test for the 1st Qtr (3-03)
- Project Completion Report Removal of EPCF Former KAFB
- RCRA Facility Investigation Report for Zone 4
- Semiannual Compliance Plan Report for July 2003 (Jan-Jun 2003) for RCRA regulated units and LC

Action Items from previous meeting
Eddie Martinez

acid and radiator fluid. The spill was contained and cleaned up. The waste is being characterized for disposal. A courtesy notification was made to TCEQ.

Documents to TRS/RAB
Ms. Brittany Watts
Ms. Watts had two documents to be submitted.

- 240B Six Sites Closure Investigation Report for Zone 2 (Revised Section 7, Site CS-2)
- 581A Closure Report for Yard S-01 (DRMO SWMU 018) and Yard U (DRMO SWMU 016)

Mr. Quintanilla expressed his desire to be briefed on submitted reports. Dr. Smith asked if the TRS should put a process in place to review the documents. Ms. Cunningham explained that the reports are available to the community at the Environmental Health and Wellness Center (EHWC) Library. Mr. Quintanilla stated it is the job of the TRS to review the reports. Ms. Cunningham said that Ms. Linda Kaufman at the center would be able to host a group or allow people to come individually to review them. Mr. Garcia said he wants an executive summary of the reports provided to the RAB in their material packets. Dr. Lené asked if any of the reports have executive summaries. Mr. Ryan replied that some do, while others contain only data.

Action Items from Previous Meeting
Ms. Brittany Watts
Ms. Watts explained that the action item from the last meeting was postponed to the December TRS due to scheduling conflicts.

Action Items from Present Meeting

- Compare radioactivity levels in Building 361 groundwater to Edwards Aquifer wells/SAWs data. Mr. Armando Quintanilla motion, Mr. Rodrigo Garcia seconded. The motion was approved.
- Continue to report on radium issue at future meetings.
  Mr. Garcia made the motion, Mr. Quintanilla seconded. The motion was approved.
- Continue to report PCBs issues at Leon Creek
  Mr. Gonzales made the motion; Mr. Quintanilla and Mr. Garcia seconded. Dr. Lené and Mr. Murrah expressed concern that this issue is related to Lackland and the Lackland Community Council on Restoration is the forum for discussion on this topic. Ms. Abigail Power stated that there are environmental professionals at Lackland who deal with the Leon Creek PCB questions. Mr. Quintanilla said the meetings are not publicized. Ms. Power replied that the meetings are publicized in area surrounding Lackland and in local papers. At the last TRS, the meeting was announced, and the Booz Allen staff sent notices reminding the RAB to go if interested. She also stated that the next Lackland CCR meeting will be held January 21, 2004 at 7:00 p.m. at Valley High Middle School. Dr. Lené said this issue was taking away time from issues the Kelly RAB should handle. Mr. Gonzales asked if the CCR would forward their meeting minutes to the TRS to incorporate in materials packets. Ms. Power said they could put in a request for this. The motion was approved three votes to two.
- Status report of Technical Assistance for Public Participation (TAPP) funding, overview of TAPP program, and listing of past TAPP projects.
  All were in favor.
- Liquid incinerator report review.

Both action items from the previous meeting will be addressed at Executive Committee meeting scheduled for September 10, 2003.

TRS Action Items

Invite TDH to present findings of fish study in Leon Creek where health advisory issued (and ATSDR to review study).

Approve Minutes from Previous Meeting

Mr. Perez asked that his name be added to the minutes. Dr. Lene motioned to accept the minutes and Mr. Murrah seconded. The motion was approved.

Additional Comments

Mr. Martinez reminded the audience that the RAB retreat workshop would be held on October 9, 2003 to discuss past accomplishments and future projects. Mr. Martinez noted that a video would be made available at the Oct. RAB to show the construction of the Building 360 PRB. Since the next TRS would normally fall on Nov. 11, which is Veteran's Day, Mr. Martinez asked for suggestions for a different date. Mr. Person made motion to move meeting to Wed. Nov. 12, which Mr. Gonzales seconded and the motion was approved.

The meeting adjourned at 9:10 p.m.

September 9, 2003
Technical Review Subcommittee (TRS)
of the Kelly Restoration Advisory Board (RAB)

Dr. Gene Lené, TRS Chairperson
Mr. Sam Murrah, RAB Community Member
Mr. Rodrigo Garcia, RAB Community Member
Mr. Daniel Gonzales, RAB Community Member
Mr. Nazarite Perez, RAB Community Member
Mr. Paul Person, RAB Community Member
Mr. Buddy Pletz, RAB Community Member
Mr. Armando Quintanilla, RAB Community Alternate
Ms. Angel Martinez, RAB Community Alternate
Mr. Leroy Johnson, Community Member
Ms. Yolanda Johnson, Community Member
Mr. Robert Alvarado, Community Member
Ms. Guadalupe Alvarado, Community Member
Mr. Carmelo Casillas, Community Member
Ms. Frances Casillas, Community Member
Ms. Joleen Garcia, Community Member
Ms. Lisa Sorg, *San Antonio Current*
Mr. William Ryan, Air Force Real Property Agency (AFRPA)
Mr. Don Buelter, AFRPA
Mr. John Glass, AFRPA
Ms. Larisa Dawkins, AFRPA
Ms. Linda Kaufman, San Antonio Metropolitan Health District (SAMHD)
Ms. Kyle Cunningham, SAMHD
Ms. Abigail Power, Texas Commission on Environmental Quality (TCEQ)
Mr. Ed Roberson, Environmental Flight Chief, Lackland Air Force Base
Ms. Robyn Thompson, Booz Allen Hamilton (Booz Allen)
Ms. Megan Mabee, Booz Allen
Mr. Eddie Martinez, Booz Allen
Ms. Brittany Watts, Booz Allen
Dr. David Smith, Smith and Associates (Facilitator)

The meeting began at 6:30 p.m.

Dr. Smith introduced himself as the facilitator and welcomed all the RAB members and meeting attendees. He conducted a review of the meeting agenda and pointed out that the agenda had changed: the fruit and nut study was removed and will be presented at a later meeting and the Leon Creek Fishing Advisory moved to beginning of meeting.

Election of TRS Chair
Dr. David Smith
Mr. Rodrigo Garcia and Mr. Buddy Pletz were nominated to be the new TRS Chair. Dr. Smith asked each nominee to say a few words. Mr. Garcia told the audience that he asks a lot of questions, wants a review of the TAPP process, upcoming projects, and oversight of contractors.

Mr. Pletz said his duty as Co-chair would be to steer the committee toward meeting its goals, and to represent the community.

The vote was tied with four votes for each nominee. Dr. Smith asked for a re-vote, which was also tied four to four. Mr. Martinez then researched the guidelines, and found that they were not specific to procedures of the TRS. Dr. Gene Lene, the current TRS Chair, made the decision to allow all RAB community members and their alternates, and government members and their alternates to vote. This extended the role of Co-chair to Mr Buddy Pletz.

Leon Creek Fishing Advisory Discussion
Mr. Ed Roberson

Mr. Roberson began by saying that since 1989, sampling has been conducted at Leon Creek. The Air Force has always looked at how groundwater affects the creek, all the while looking for degreasing solvents and plating metals. In 1992, monitoring of Leon Creek began. He said that PCBs are not attributed to Kelly, and that there is no pattern to what appears in creek. They collected 2,000 samples of groundwater and re-sampled for PCBs. They found that less than 20 samples had traces of PCBs. He stated that PCBs don't normally mix with water, they normally mix with soil in creek sediments. In 1976, PCBs were banned because they don't break down in fish with fatty tissue such as carp, or in high predator species such as gar. PCB is the second most commonly found chemical in fish the US, and 38 states have issued fish advisories against PCBs.

The primary use of PCBs was in transformers for electrical distribution. Some of these transformers are still around. From the Helotes to the Medina River, anything in that drainage area ends up in the Creek. Most sediments get washed away after rain. The heavy rain weekend of July 4, 2002 caused fish to swim upstream, and then get trapped in the five-foot dam. Upstream of Lackland AFB there is not much water. The sites had been monitored before and after realignment, and the landfills showed no traces of PCBs. They have also checked groundwater, but that is not a source. He said that the Air Force is not the source of the PCBs.

A community member asked if anyone ever monitored before 1992? Ms. Powers said the state of Texas has been monitoring since 1970s. Mr. Armando Quintanilla asked about the landfill area near golf course, and how many transformers were dumped there? Mr. Roberson said they have sampled groundwater and it does not contain PCBs. He also mentioned that they have sampled the golf course soil from 1989-1994. Mr. Quintanilla asked about using the Freedom of Information Act to obtain more information. Mr. Roberson told Mr. Quintanilla that he could find more information in the public library. Ms. Guadalupe Alvarado asked what was killing the fish. Mr. Roberson stated that the fish are not dying. He said it would take one fish meal every week for 30 years to cause harm to humans. Statistics report that there is a 2 in 10,000 chance of getting cancer after that level of consumption of fish with PCB's. Texas Department of Health (TDH) says one in 10,000 is the limit for human consumption.

Ms. Angel Martinez asked who found PCBs in the fish? Mr. Roberson said that PCBs have been found off and on since 1992. The Environmental Protection Agency requires that Lackland submit information to TDH. Ms. Martinez then asked why the information was just coming out now? Ms. Abbi Power stated that the fish advisory is not for all of Leon Creek, only for that one portion of creek. Mr. Roberson pointed out that area on a map. TDH had samples from three stations, the area near the Kelly golf course, another are closer to Highway 90, and the third area

near the south Kelly. Mr. Roberson stated that low interaction levels of heavy metals were found, but noted that every urban stream has them.

Mr. Buddy Pletz asked what other things cause fish problems. Mr. Roberson said sewage can be a source. Mr. Garcia asked how often sampling has been done since 1994. He also asked who would look for the source of PCB contamination? Mr. Roberson said they have sampled once a year, every year, since 1992. Mr. Garcia then said they should be monitored more than once a year. Mr. Roberson then stated that there is nothing that shows the source to be from Lackland, and they will not look for a source that is not on Lackland property. Mr. Garcia asked if they would be doing more sampling. Mr. Roberson said the results change with each sampling. There is no pattern to sediment, soil, and groundwater related to a specific site.

Mr. Sam Murrah inquired about rainfall and its effects on the creek. Mr. Roberson said that low rainfall causes the water to stagnate, and sediments to fall out of water. High rainfall causes everything to get mixed around. They will not sample within one month of rainfall in order to let sediments settle down. If there were indicators, Mr. Roberson said he would be investigating and establishing a new site.

A community member asked who gives the second opinion of work. He was informed that TCEQ, EPA, and TRS gave a second opinion. Abi Power suggested getting information from the health department. Mr. Quintanilla asked if there were no transformers in golf course. Mr. Roberson said there were no transformers or PCBs at the golf course. Everyone in COSA had transformers that used PCBs to generate electricity.

Mr. Person asked if the levels of PCBs were less than one part per million. Mr. Roberson stated that 2 parts per million is the level we encounter which is harmless. He said when rain fills sewer lines with water, sewage will kill fish faster than anything because it uses up oxygen in water. Mr. Gonzales asked when next results of testing would be determined. Mr. Roberson said he doesn't know what TDH's shedule is, but that in Jan. 2004 the results of the Aug. 2003 testing will be released. Mr. Gonzales asked what Mr. Roberson would recommend the group to do. Mr. Roberson said if they test now and don't find PCBs, they could test again next year and find them, and that there really is no good answer to his question. There is a possibility that next time we could see contaminated fish elsewhere. Mr. Roberson said that they must eliminate the source to eliminate contamination.

Ms. Powers asked if the industries will bring in power using their own transformers, lines, etc. She said no one told them on a certain date they had to get rid of transformers, and that there is a possibility that some industries in San Antonio still have active transformers. The property owner is responsible for cleaning up their own PCB contamination. PCBs are found in transformers, and also used as a good lubricating oil. Mr. Roberson said PCBs will be in the environment for some time like DDT, even though they have been banned. He also stated that there is a chance of another chemical like PCB able to happen in the future. This is the price to pay for living in an urban society.

A community member stated that we shouldn't accept it as a fact of life that our populations get sick. Eating one fish meal a week for 30 years is misleading. The population is already burdened with other health problems like weakened immune systems, and they are getting overburdened with additional risks. Mr. Roberson said that the Toxic Substances Control Act was passed to regulate environmental problems such as this. Mr. Murrah said we should just

start buying organic products. Mr. Roberson said people can buy organic, but there will be chemicals produced that will cause adverse health effects eventually from that too. Mr. Person said that the consumer society buys animals fed with animal byproducts. Mr. Roberson said people choose to have electricity, eat meat, and do things that are out of his control. They are spending $30 million on investigations, and $200 million over the next four years on investigations.

A motion was made to have TDH present information on the study. In order to clarify the motion, Dr. Smith asked if the Health Department should be invited. Mr. Quintanilla made a motion to invite TDH to present findings of the fish study in Leon Creek where health advisory was issued (and ATSDR to review study). Mr. Perez seconded the motion. Motion was approved.

Mr. Ed Roberson invited the TRS members to the next Lackland Community Council on Restoration (CCR) meeting to be held at Valley High Elementary School. The discussion about the fish sampling study is on the agenda. Ms. Power added that the meeting will be held on Wednesday October 15, 2003, at 7:00 p.m. Mr. Person asked if this referenced property was part of Kelly. Mr. William Ryan stated that the Property was realigned to Lackland.

34th Street PRB Update
John Glass

Mr. Glass explained that the draft final Corrective Measure Study (CMS) for Zone 5, Plume B, isolates the off-base source of Kelly contamination. As part of the CMS, samples were collected of the soil and groundwater and that data was used earlier this year to determine the location of the PRB. The PRB will be 540 feet long, and vary in depth depending on the Navarro Clay. Shaw Environmental as awarded the contract for Results-Based Product Delivery. The contractor will receive a fixed amount of money and incentives if the end result meets the government requirements.

The Air Force is currently installing wells upgradient and downgradient of the future wall. Trenching will begin in mid-November, and could take up to seven weeks for construction. Additional monitoring could extend through January. Impact on community will involve closing the streets, noise (won't break city limit), dust reduced by use of guar gum, material in trench hauled off to landfill (no odor), because the level of contamination is low, there is little risk from the volitilazation of contaminants. Metro Health will conduct air monitoring at site.

Mr. Pletz asked where the waste will be disposed. The two approved disposal sites are Covel and DFI. Mr, Pletz asked if guar gum breaks down to allow water to flow through barrier. The answer was yes. How many times has the Air Force used this incentive based program before. It has been used four times at Kelly. How is it working? One Huge success. Mr. Quintanilla asked what the name of street is that is closing? He also asked if the Air Force has a permit from the city to close the street. The name of the street is 34th street and the answer is yes. How many monitoring wells? There are 17 wells in and around the wall. Total cost of contract? 1.4 million if successful, 900,000 if not.

Ms. Angel Martinez asked what happens if chemicals exceed levels for air monitoring. Ms. Kyle Cunningham replied that the community would be notified immediately. Mr. Garcia asked how

often the monitoring stations are read? There is no determination yet as to what type of air monitoring.

A community member asked how successful the Quintana road project was. Mr. Ryan said it has been successful; the concentrations of contamination declining. Mr. Carmello Casillas inquired about the monitoring well in his front yard. He stated that it had not been tested in a while. Mr. Ryan said not all wells are monitoring wells and monitoring wells are not routinely measured.

Revisiting of Election of TRS Chair
Dr. David Smith

Mr. Martinez researched the RAB Charter and found that it applied to the RAB only. Therefore, Dr. Lene, the current TRS chair decided that all TRS members are allowed to vote, including government members and alternates. Dr. Lene said that the TRS Chair represents the whole TRS, not just the community members. The revote gave 5 to Mr. Garcia and 6 to Mr. Pletz.

Administrative
BRAC Cleanup Team (BCT) Update
William Ryan

Zone 2/3 CMS is in first stages, and was briefed to state and EPA today. Closure of 10 Solid Waste Management Units (SWMU) is pending. 6 are categorized as risk reduction standard (RRS) 1 for closure, the other 4 units can be categorized as either RRS 1 or RRS 2. Firing range investigations are ongoing, one in Zone 2 and one on east Kelly. The Zone 2 range has exploratory trenches.

Spill Summary Report
Eddie Martinez

There were no spills since June TRS meeting.

Documents to TRS/RAB
Eddie Martinez

The reports listed below were delivered to the library at the Environmental Health and Wellness Center

- Revised RCRA Closure Report for the Liquid Incinerator Area Site OT-1
- ITIR Site E-3 Bioventing System in Situ Respiration Test for the 1st Qtr (3-03)
- Project Completion Report Removal of EPCF Former KAFB
- RCRA Facility Investigation Report for Zone 4
- Semiannual Compliance Plan Report for July 2003 (Jan-Jun 2003) for RCRA regulated units and LC

Action Items from previous meeting
Eddie Martinez

Both action items from the previous meeting will be addressed at Executive Committee meeting scheduled for September 10, 2003.

TRS Action Items

Invite TDH to present findings of fish study in Leon Creek where health advisory issued (and ATSDR to review study).

Approve Minutes from Previous Meeting

Mr. Perez asked that his name be added to the minutes. Dr. Lene motioned to accept the minutes and Mr. Murrah seconded. The motion was approved.

Additional Comments

Mr. Martinez reminded the audience that the RAB retreat workshop would be held on October 9, 2003 to discuss past accomplishments and future projects. Mr. Martinez noted that a video would be made available at the Oct. RAB to show the construction of the Building 360 PRB. Since the next TRS would normally fall on Nov. 11, which is Veteran's Day, Mr. Martinez asked for suggestions for a different date. Mr. Person made motion to move meeting to Wed. Nov. 12, which Mr. Gonzales seconded and the motion was approved.

The meeting adjourned at 9:10 p.m.

June 10, 2003
Technical Review Subcommittee (TRS)
to the Kelly Restoration Advisory Board (RAB)

Approved as amended November TRS on the 12th

Dr. Gene Lené, RAB Community Member
Mr. Ruben Peña, RAB Co-Chair, Community Member
Mr. Rodrigo Garcia, RAB Community Member
Mr. Chico Rodriguez, RAB Community Member
Mr. Robert Silvas, RAB Community Member
Mr. Buddy Pletz, RAB Community Member
Mr. Robert Montez, Community Member
Ms. Angel Martinez, Community Member
Mr. Richard Perez, City Councilman District 4
Ms. Rose Ann Sanchez, Office of Councilman Richard Perez
Mr. Yohei Mori, Ryukyu Shindo
Mr. William Ryan, Air Force Real Property Agency (AFRPA)
Mr. Don Buelter, AFRPA
Ms. Norma Landez, AFRPA
Mr. Robert Tijerina, AFRPA
Mr. Doug Karas, AFRPA
Ms. Linda Kaufman, San Antonio Metropolitan Health District (SAMHD)
Ms. Kyle Cunningham, SAMHD
Mr. Gary Martin, Greater Kelly Development Authority (GKDA)
Ms. Abigail Power, Texas Commission on Environmental Quality (TCEQ)
Mr. Mark Weeger, TCEQ
Mr. Patrick Lynch, Clearwater Revival Company
Mr. Jim Clary, CH2MHill
Mr. Rick Rogus, CH2MHill
Ms. Jennifer Wright, CH2MHill
Ms. Sarah Warden, CH2MHill
Ms. Betty Leite, CH2MHill
Mr. Bob Goodson, CH2MHill
Ms. Robyn Thompson, Booz Allen Hamilton (Booz Allen)
Ms. Megan Mabee, Booz Allen
Mr. Eddie Martinez, Booz Allen
Ms. Stephanie Trevino, Booz Allen
Mr. Scott Courtney, Booz Allen
Mr Perez name added — updated 10/14/03
The meeting began at 6:37 p.m.

Mr. Martinez introduced himself as the facilitator and welcomed all the RAB members and meeting attendees. He conducted a review of the meeting agenda and the contents of the meeting packet. Mr. Martinez stated that the next RAB meeting will be held on July 15, 2003, and the next TRS meeting will be held on August 12, 2003.

Patrick Lynch
Presentation of the Draft Technical Assistance for Public Participation (TAPP) Review of the Zone 3 Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI)

Mr. Lynch explained that the purpose of the Zone 3 RFI Report was to investigate 20 source areas within Zone 3 to determine whether any hazardous wastes had been released, and if so, what the impact of the release was. His review of the report indicated that under risk reduction standard number one, closure would not be appropriate to apply to any source area in Zone 3. In addition, his review determined that a Corrective Measures Study (CMS) is recommended for the Building 308/312 area, the Building 10988 Oil-Water Separator, and the east taxiway.

Mr. Garcia asked if Mr. Lynch would be undergoing a process to determine the source of contamination for unidentified contaminants and wanted to know if additional research would be conducted. Mr. Lynch agreed that additional sampling is needed, but that this type of request was outside of the scope of his contract. He encouraged Mr. Garcia to submit his comments to the TRS. Dr. Lené added that he must receive all comments by June 20.

Mr. Silvas asked for an explanation of benzo(a)pyrene. Mr. Lynch answered that it is wastewater from herbicides/weed killers found in soil and groundwater samples. In reference to Mr. Lynch's assertion that there were inconsistencies in the data presented, Mr. Pletz asked why the data was recorded in parts per million and billion, as shown in Appendix 1 of the Zone 3 RFI Report for Building 375. Mr. Lynch reiterated that he interpreted the data in the table as being in parts per million, because labs cannot analyze data for this specific chemical in parts per billion. Mr. Silvas asked whether there were some contaminants of concern that were below acceptable levels. Mr. Lynch responded that some contaminants of concern were both above and below acceptable levels.

Mr. Garcia asked if Mr. Lynch had requested any additional background or historical data from the Air Force. Mr. Lynch replied that there is a large section of historical documentation in the report, which is complete with aerial photos, etc. Mr. Silvas pointed out that the base had been in operation since 1917 or 1918 and wanted to know how far back the data went. Mr. Lynch responded that references start in the 1950s and 1960s, but that he prefers to analyze actual soil samples rather than additional documents.

Mr. Silvas pointed out that tenants are conducting due diligence reports themselves. Mr. Lynch replied that chemical use activities are not necessarily documented. Mr. Silvas asked if the chemicals of concern had an odor that could be detected. Mr. Lynch said that especially after a rainfall, you could smell some chemicals, such as the historic calibration fluid spill, which is known as source of contamination in Zone 3. Mr. Garcia asked if air sampling would be conducted. Mr. Lynch responded that some soil gas samples were taken, but the results were not significant.

Mr. Montez asked if any studies of city landfills had been conducted, as he noted that Building 360 used to have a scrubber to remove contaminants, which were then dumped in city landfills. Mr. Lynch said that there is a landfill in Zone 1; however, he only reviewed sites in Zone 3. Mr. Montez asked why Building 301 was torn down. Mr. Karas informed him that a briefing on Building 301 would be given later during the meeting.

Mr. Martinez reminded meeting attendees that Mr. Lynch would be making a final presentation on the TAPP review of the Zone 3 RFI to the RAB at the July 2003 meeting.

Rick Rogus
Presentation of the Semiannual Compliance Plan Report

Mr. Rogus introduced himself and explained that he would be presenting the January 2003 Semiannual Compliance Plan Report, which covers the period July thorough December 2002. The scope of the report is to fulfill the TCEQ Compliance Plan requirements for monitoring and reporting, conduct an assessment of the interim remedial action systems, and provide a snapshot of groundwater contamination. The report analyzed 14 waste management areas, 4 RCRA-permitted units, and Leon Creek.

Mr. Rogus presented the results of the sampling by saying that decreases in the magnitude of chlorinated solvents in the source areas and downgradient of the remedial systems is occurring in the Zone 4 off-base plume, around the recovery systems in Zone 2 near Leon Creek, in the E-3 source area, and downgradient of Site SS040. In addition, semivolatile organic compounds (SVOCs), pesticides and polychlorinated biphenyls (PCBs) were not detected in 99 percent of the samples.

Mr. Rogus added that monitoring has indicated: VOC concentrations in the shallow groundwater have been greatly reduced at E-3, Sites SD-1 and SA-2 have no impact on the shallow groundwater, and natural degredation is occurring at Site S-8. At Leon Creek, sampling results indicated: 3 surface water and 25 sediment contaminants exceeded the conservative Texas Water Quality Standard guidelines, potential surface water toxicity exists at some sampling stations, pesticide contamination was found in several fish species (which is not uncommon in urban streams), and sensitive fish species were identified downstream of the former base.

On a slide that described the frequency of detection of volatile organic compounds, Mr. Pletz asked what ug/L means. Mr. Rogus explained that ug/L means parts per billion. Mr. Montez asked where the sampling at Leon Creek starts. Mr. Rogus replied that it begins below the city's treatment plant, approximately one mile from the base.

Mr. Pletz inquired whether Leon Creek feeds into the Medina River. Mr. Rogus affirmed that it does feed into the river below the city's treatment plant. Mr. Pletz asked if any testing had been conducted in the Medina River. Mr. Rogus stated that it had not, but that testing in the Medina River and Salado Creek would be conducted later this year. Ms. Powers added that TCEQ conducts regular monitoring on the Medina and San Antonio Rivers, and the results are posted on the TCEQ's Web site.

Mr. Martinez reminded meeting attendees that the report can be found at the EHWC library.

Norma Landez
Former Building 301 Interim Remedial System Update

Ms. Landez provided an overview of the installation of a permeable reactive barrier (PRB) near the former Building 301. She stated that AFRPA started construction activities in mid-May, installed the PRB in two weeks, and finished the project on June 2. After AFRPA left the site, GKDA started putting in a parking lot. When GKDA finishes installing the parking lot, AFRPA

will construct monitoring wells. Ms. Landez expressed her satisfaction with the success of the project, and said that AFRPA will transfer lessons learned to the installation of a PRB at Building 360.

Ms. Landez said that AFRPA is currently conducting a precharacterization study of the Building 360 area, will begin trench work on July 7, and will complete the project by September. Ms. Landez encouraged meeting attendees to visit the site of Building 360 during the PRB installation, and asked that interested parties call Mr. Martinez to schedule a site tour and receive clearance though Lockheed Martin.

Mr. Silvas asked if AFRPA would be conducting air monitoring during construction activities at Building 360. Ms. Landez affirmed that AFRPA would be monitoring the air on site while installing the PRB. Mr. Silvas asked why Building 301 was demolished. Ms. Landez explained that GKDA didn't want to use Building 301 as a plating shop.

Mr. Garcia requested background information on the contaminants found at Building 301. Ms. Landez replied that a construction completion report would be made available for review once it is finalized. She indicated that chlorinated solvents were detected in the vadose zone and groundwater near Building 301, which was why a PRB was installed at that particular location.

Mr. Silvas asked how many cleanup systems AFRPA would install. Ms. Landez responded that AFRPA constructed a PRB at Building 301, two systems at Building 360 (one PRB in the middle of the U and on the southern end of the building, and a slurry wall on the west end), one PRB in Zone 5 along the eastern boundary, and one PRB on 34th Street.

Administrative
BRAC Cleanup Team (BCT) Update
William Ryan

Mr. Ryan recapped the June 10 BCT meeting, noting Mr. Martin's briefing on the redevelopment of Kelly. Mr. Ryan said that AFRPA would continue to coordinate the transfer of property by deed with GKDA and determine whether the environmental cleanup of Kelly would have any impact with its redevelopment, and vice versa. GKDA recently expressed interest in acquiring Building 1680, Mr. Ryan noted. In addition, AFRPA will construct a PRB off base in Zone 5 along 34th Street. Mr. Ryan said that the statement of work is out, bids have been coming in, and the contract will be awarded by the end of the month. AFRPA will install the PRB in late summer or early fall and will conduct long-term monitoring.

Mr. Silvas inquired whether AFRPA would reach out to the affected community before installing the PRB. Mr. Ryan responded that the AFRPA conducted door-to-door outreach in the community this spring, and will conduct outreach activities again before the construction begins. Mr. Ryan added that AFRPA is currently collecting design data for the 34th Street PRB.

Spill Summary Report
Eddie Martinez

Mr. Martinez recounted that there have been two spills since the April 2003 RAB meeting. One spill occurred at Site S-8, where 200 gallons of untreated groundwater were released. Since the groundwater did not pose a hazard, it was allowed to commingle with the soil, which is

scheduled to be cleaned up. No removal action was taken. A second spill at Calidad Environmental Services involved a 0.5 gallon of Calgon CC540 scale dissolver, which was released from a container while being loaded onto a truck. The spill was contained, the acid solution was neutralized, and the residue from the release is currently awaiting characterization.

Documents to TRS/RAB
Eddie Martinez

Mr. Martinez added three documents to the Environmental Health and Wellness Center's (EHWC) library: the Quality Program Plan Sanitary Sewer System; Closure Reports for Solid Waste Management Units (SWMUs) at Buildings 317 and 424; and Closure Report for SWMUs at Buildings 331, 352, 360, 365, 375, 385, 645, 655, 3768, and 10998. Mr. Martinez pointed out that there are also libraries downtown and at Kelly, and that the binders can be checked out from library at the EHWC.

Action Items from previous meeting
Eddie Martinez

Mr. Martinez reviewed all action items from the March TRS which were addressed at the April 15, 2003, RAB meeting.

TRS Action Items

- Mr. Garcia expressed his dissatisfaction with air pollution studies conducted by the Alamo Area Council of Governments, as he felt that they did not contain enough information on Kelly. Mr. Garcia wanted to know where the monitoring stations near Kelly were, if they had received any EPA violations, etc. and said that he would write a letter to AFRPA detailing his concerns so that they could be addressed at an upcoming TRS meeting. Mr. Pletz suggested that the Agency for Toxic Substances and Disease Registry (ATSDR) air emissions study, which is due to be released in September, be reviewed at a future RAB meeting. Mr. Peña made a motion to wait until the ATSDR study is released before taking up the issue at the RAB; Mr. Pletz and Mr. Rodriguez were in favor, Messrs. Garcia, Silvas, and Perez were opposed. Mr. Silvas made a motion to present the issue to the RAB for decision, Mr. Pletz seconded the motion, and all were in favor.
- Mr. Silvas requested historical data on Alamo Aircraft, the permits they have for storing exotic metals, and information on any responsibility they have for cleaning up contamination resulting from their operations. Mr. Silvas made a motion for a representative from Alamo Aircraft to make a presentation to the RAB, which Mr. Garcia seconded. All TRS members were in favor of the motion to send out a letter to all parties involved: Alamo Aircraft, appropriate city council representatives, Bexar Appraisal District, Code Compliance, etc.

The meeting adjourned at 8:45 p.m.

QUESTIONS AND ANSWERS ON INVESTIGATION INTO RADIATION CONTAMINATION FROM BLDG 361

What is radium?

Radium (Ra-226) is a naturally occurring radioactive element that was commonly used in luminous paints that were applied to the faces of clocks, watches, and aircraft instruments during the first half of the twentieth century.

Was Radium used on Kelly Air Force Base?

There were four radium painting shops on Kelly. The two earliest known paint shop buildings were demolished and other facilities were built over the sites. The radium paint shop that preceded Building 361 operated from 1922 until it was demolished in 1929. The paint shop that preceded Building 365 operated from 1929 until it was demolished in 1934. Two buildings that housed radium paint shops still exist. Building 324 housed Kelly AFB radium painting operations from 1934 to 1942, and Building 326 housed a shop from 1942 to 1952. The Air Force has finished investigation and cleanup of Building 324, and cleanup related to Building 326 has completed its initial phase.

Is Building 361 contaminated?

The building itself was investigated and found safe. The Air Force received a letter from the Environmental Protection Agency this April saying that no further action was required for the building. That was possible because suspected radium beneath the concrete foundation of the building had no pathway for worker exposure. Now, because of the construction there is a pathway and we're investigating the levels of radium and what contact construction workers in the immediate vicinity may have had with it. If someone worked in close proximity to the pipe for the entire project, we do not expect any immediate or long-term health affects. Such an exposure would be a fraction of the exposure received during a chest x-ray.

Worker exposures will be further evaluated by confirmation of the initial measurements and assessment of workers.. Our investigations and evaluation will continue and we will keep the affected workers informed every step of the way. Additionally, with proper safeguards there is no reason that the project cannot be completed.

How was the contamination discovered?

Construction crews building a trench system beneath the building discovered an abandoned pipe. Later evaluation of radiation levels in the area showed that they were higher than could be expected from the normal radiation levels in San Antonio. The work was then stopped so to ensure worker safety and investigations began to determine what level of exposure may have occurred.

Has radium contamination spread from these buildings?

Our initial evaluations indicate that the radium is contained in an abandoned pipe and possibly some soil beneath the building. We are continuing the investigation to learn more, and will share that information as it becomes available.

Did the radium get into the sewer system?

We can't say for sure. While the paint shop was in operation in the 1920's, that is possible. Though it was not standard procedure to dispose of radium paint via the sewer system, one way the radium could be present in the pipe is that someone mopped up a spill of radium paint and washed the mop out in a sink in a janitor's closet.

As a result of investigations of other buildings, the Air Force has taken readings from 57 manholes in the area. This testing has shown radiation levels that were either at background level or were the result of the natural radiation from bricks in the manholes.

What is the danger to the community?

The levels of radiation are low and these areas aren't handily accessible to the public. There is no reason to believe that anyone from the general community would be affected.

How badly were the construction workers exposed?

We are still evaluating that.

What about the soil and pipe taken off-base?

The Boeing Company is determining where the soil and pipe were taken.

What will the cleanup involve?

We will continue our evaluations with the regulators to determine the best course of action. The priority now is to ensure that health and safety are not impacted.

How long will this take? How much will it cost?

It is too soon to speculate on the time to complete the investigation and the costs.

Will the soil at Building 361 be cleaned up?
We will continue our evaluations with the regulators to determine the best course of action. There is no reason at this time to believe that the project can't be completed with the appropriate supervision and safeguards.

Is there any impact on reuse?

This project can continue with the site supervision that will ensure the health and safety of construction crews and those who will work in the building later.

Who is responsible for any cleanup?

Boeing, the Air Force, and GKDA are working together with regulators to complete the necessary investigation, determine the next moves and get the project back on line. Right now, everyone's focus is on health and safety.

Why didn't the construction crews know about the contamination?

The focus now is on worker health and safety. Each organization has stepped up to the responsibility of taking care of the situation at hand, and making sure this does not happen again.

(Note: Below is some words I proposed to explain the mistake. This isn't what we have used, Boeing didn't want to use it. Above is what we said at the RAB.)
There is a process in place to make sure that environmental conditions don't affect construction, or, if they do, safeguards are in place. When a process doesn't work properly, you can usually identify a gap in communication.

The Air Force reviewed conceptual plans and did not feel any environmental conditions would preclude design. The Air Force expectation was that it would receive final plans prior to the start of the project and could comment on project execution.

The Boeing Company was carrying out the project with a design/construct contract. With that sort of project, initial construction begins prior to completing final design. The Boeing assumption was that the conceptual approval was also approval to begin some construction.

The Air Force, Boeing and KellyUSA have discussed what happened, are working ensure the health and safety of workers at Building 361, and are committed to strict adherence to a process that makes sure this never happens again.

Now, we are all working together to get the Boeing project up and running again, with the site supervision they need to complete it safely.

What is the danger to KellyUSA, SAWS, and CPS workers?

The Air Force has taken readings from manholes at Kelly. There are two manholes near Building 326 that have levels above background. The levels of radiation found are low and ventilation of the manholes before entry along with protective equipment will ensure the safety of SAWS and CPS workers.

The Air Force has also tested 57 manholes in the area. This testing has shown radiation levels that were either at background level or were the result of the natural radiation from bricks in the manholes.

The Air Force continues to work with GKDA, SAWS and CPS to ensure the safety of their workers in this area. The Air Force has provided training and briefings to SAWS and CPS crews. If crews need access to manholes that haven't been evaluated, the Air Force arranges for readings to be taken before they are accessed.

KellyUSA workers don't have a reason to access any of the contaminated areas, and so aren't at risk.

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

RADIUM
CAS # 7440-14-4

Agency for Toxic Substances and Disease Registry ToxFAQs **July 1999**

This fact sheet answers the most frequently asked health questions (FAQs) about radium. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Radium is a radioactive substance formed from the breakdown of uranium and thorium. Exposure to high levels results in an increased risk of bone, liver, and breast cancer. This chemical has been found in at least 18 of the 1,177 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is radium?

(Pronounced rā′dē-əm)

Radium is a naturally occurring silvery-white radioactive metal that can exist in several forms called isotopes. Radium is formed when uranium and thorium break down in the environment. Uranium and thorium are found in small amounts in most rocks and soil. Two of the main radium isotopes found in the environment are radium-226 and radium-228.

Radium undergoes radioactive decay. It divides into two parts—one part is called radiation and the other part is called a daughter. The daughter, like radium, is not stable, and it also divides into radiation and another daughter. The dividing of daughters continues until a stable, nonradioactive daughter is formed. During the decay process, alpha, beta, and gamma radiation are released. Alpha particles can travel only a short distance and cannot travel through your skin. Beta particles can penetrate through your skin, but they cannot go all the way through your body. Gamma radiation can go all the way through your body.

Radium has been used as a radiation source for treating cancer, in radiography of metals, and combined with other metals as a neutron source for research and radiation instrument calibration. Until the 1960s, radium was a component of the luminous paints used for watch and clock dials, intrument panels in airplanes, military instruments, and compasses.

What happens to radium when it enters the environment?

- Radium is constantly being produced by the radioactive decay of uranium and thorium.
- Radium is present at very low levels in rocks and soil and may strongly attach to those materials.
- Radium may also be found in air.
- High concentrations are found in water in some areas of the country.
- Uranium mining results in higher levels of radium in water near uranium mines.
- Radium in the soil may be absorbed by plants.
- It may concentrate in fish and other aquatic organisms.

How might I be exposed to radium?

- Everyone is exposed to low levels of radium in the air, water, and food.

ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html

- Higher levels may be found in the air near industries that burn coal or other fuels.
- It may be found at higher levels in drinking water from wells.
- Miners, particularly miners of uranium and hard rock, are exposed to higher levels of radium.
- It may also be found at radioactive waste disposal sites.

How can radium affect my health?

Radium has been shown to cause effects on the blood (anemia) and eyes (cataracts). It also has been shown to affect the teeth, causing an increase in broken teeth and cavities. Patients who were injected with radium in Germany, from 1946 to 1950, for the treatment of certain diseases including tuberculosis were significantly shorter as adults than people who were not treated.

How likely is radium to cause cancer?

Exposure to high levels of radium results in an increased incidence of bone, liver, and breast cancer. The EPA and the National Academy of Sciences, Committee on Biological Effects of Ionizing Radiation, has stated that radium is a known human carcinogen.

Is there a medical test to show whether I've been exposed to radium?

Urine tests can determine if you have been exposed to radium. Another test measures the amount of radon (a breakdown product of radium) in exhaled air. Both types of tests require special equipment and cannot be done in a doctor's office. These tests cannot tell how much radium you were exposed to, nor can they be used to predict whether you will develop harmful health effects.

Has the federal government made recommendations to protect human health?

The EPA has set a drinking water limit of 5 picocuries per liter (5 pCi/L) for radium-226 and radium-228 (combined).

The EPA has set a soil concentration limit for radium-226 in uranium and thorium mill tailings of 5 picocuries per gram (5 pCi/g) in the first 15 centimeters of soil and 15 pCi/g in deeper soil.

The federal recommendations have been updated as of July 1999.

Glossary

Anemia: A decreased ability of the blood to transport oxygen.

Carcinogen: A substance that can cause cancer.

CAS: Chemical Abstracts Service.

National Priorities List: A list of the nation's worst hazardous waste sites.

Picocurie (pCi): A unit used to measure the quantity of radioactive material.

rem: A unit used to measure radiation dose.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1990. Toxicological profile for radium. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop E-29, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 404-498-0093. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

RADIO (RADIUM)
CAS # 7440-14-4

División de Toxicología ToxFAQs™ **Julio 1999**

Esta hoja informativa contesta las preguntas más frecuentes acerca de los efectos del radio sobre la salud. Para más información, por favor llame al Centro de Información de ATSDR al 1-888-422-8737. Esta hoja informativa forma parte de una serie de resúmenes acerca de sustancias peligrosas y sus efectos sobre la salud. Es importante que usted entienda esta información ya que esta sustancia puede ser dañina. Los efectos de la exposición a cualquier sustancia tóxica dependen de la dosis, la duración, la manera como usted está expuesto, sus hábitos y características personales y de la presencia de otras sustancias químicas.

IMPORTANTE: El radio es una sustancia química radioactiva formada de la degradación del uranio y el torio. La exposición a niveles altos de radio produce un aumento en la tasa de cáncer de los huesos, el hígado y los senos. El radio se ha encontrado en por lo menos 18 de los 1,177 sitios de la Lista de Prioridades Nacionales identificados por la Agencia de Protección Ambiental (EPA).

¿Qué es el radio?

El radio es un metal radioactivo blanco-plateado que ocurre naturalmente y que puede existir en varias formas llamadas isótopos. El radio es formado cuando el uranio y el torio se degradan en el ambiente. El uranio y el torio se encuentran en pequeñas cantidades en la mayoría de las rocas y en el suelo. Dos de los principales isótopos del radio que existen en el ambiente son el radio-226 y el radio-228.

El radio sufre decaimiento radioactivo. Cuando el radio decae, se divide en dos partes — una parte se llama radiación y la otra se llama progenie. La progenie, al igual que el radio, es inestable, y también se divide en radiación y en otra progenie. La división de las progenies continúa hasta que se forma una progenie estable, no radioactiva. Durante el proceso de decaimiento se liberan radiación, alfa, beta y gama. Las partículas alfa solamente pueden viajar una distancia corta y no pueden atravesar la piel. Las partículas beta pueden penetrar la piel pero no pueden pasar completamente a través del cuerpo. La radiación gama puede atravesar completamente el cuerpo.

El radio ha sido usado como fuente de radiación para tratar cáncer, en radiografía de metales y en combinación con otros metales como fuente de neutrones en investigación y para calibrar instrumentos de radiación. Hasta los 1960s, el radio era un componente de pinturas luminosas usadas en esferas de relojes, paneles de instrumentos en aviones, instrumentos militares y brújulas.

¿Qué le sucede al radio cuando entra al medio ambiente?

❑ El radio está siendo producido constantemente por el decaimiento radioactivo del uranio y el torio.
❑ El radio está presente en niveles muy bajos en rocas y en el suelo y puede adherirse firmemente a estos materiales.
❑ También puede encontrarse en el aire.
❑ Se encuentran altas concentraciones en el agua en ciertas áreas del país.
❑ El minado de uranio produce niveles de radio mayores en aguas cerca de minas de uranio.
❑ Las plantas pueden absorber radio del suelo.
❑ Puede concentrarse en peces y en otros organismos acuáticos.

¿Cómo podría yo estar expuesto al radio?

❑ Todo el mundo está expuesto a bajos niveles de radio en el aire, el agua y en los alimentos.
❑ Niveles mayores pueden ocurrir en el aire cerca de industrias que queman carbón u otros combustibles.
❑ Niveles más altos pueden encontrarse en agua potable de pozos.
❑ Los mineros, especialmente los mineros de uranio y de roca firme, están expuestos a niveles de radio más elevados.
❑ También puede encontrarse en sitios de desechos radioactivos.

RADIO (RADIUM)
CAS # 7440-14-4

La dirección de ATSDR vía WWW es http://www.atsdr.cdc.gov/es/

¿Cómo puede afectar mi salud el radio?

Se ha demostrado que el radio produce efectos en la sangre (anemia) y los ojos (cataratas). También se ha demostrado que afecta los dientes, produciendo un aumento de dientes quebrados y de caries. Pacientes a los que se les inyectó radio en Alemania, de 1946 a 1950, para tratar ciertas enfermedades incluyendo tuberculosis, alcanzaron una estatura significativamente más baja como adultos que gente no tratada con radio.

¿Qué posibilidades hay de que el radio produzca cáncer?

La exposición a niveles altos de radio produce un aumento en la incidencia de cáncer de los huesos, del hígado y los senos. La EPA y el Comité de Efectos Biológicos de la Radiación Ionizante de la Academia Nacional de Ciencias han manifestado que el radio es un carcinógeno reconocido en seres humanos.

¿Hay algún examen médico que demuestre que he estado expuesto al radio?

Hay exámenes de orina que pueden determinar si usted ha estado expuesto al radio. Otro examen mide la cantidad de radón (un producto de degradación del radio) en el aire que se exhala. Ambos tipos de exámenes requieren equipo especial y no pueden realizarse en el consultorio de un doctor. Estos exámenes no pueden decirle a cuanto radio estuvo expuesto o si le afectará la salud.

¿Qué recomendaciones ha hecho el gobierno federal para proteger la salud pública?

La EPA ha establecido un límite en agua potable de 5 picocuries por litro (5 pCi/L) para el radio-226 y el radio-228 (combinados).

La EPA ha establecido un límite de concentración en el suelo para el radio-226 en relaves de uranio y de torio de 5 picocuries por gramo (5 pCi/g) en los primeros 15 centímetros de suelo y 15 pCi/g en suelo más profundo.

Las recomendaciones federales han sido actualizadas con fecha de Julio de 1999.

Definiciones

Anemia: Disminución de la capacidad de la sangre para transportar oxígeno.
Carcinógeno: Sustancia que puede producir cáncer.
CAS: Servicio de Resúmenes de Sustancias Químicas.
Lista de Prioridades Nacionales: Una lista de los peores sitios de desechos peligrosos de la nación.
Picocurie (pCi): Unidad usada para medir la cantidad de material radioactivo.
rem: Unidad usada para medir dosis de radiación.

Referencias

Agencia para Sustancias Tóxicas y el Registro de Enfermedades. (ATSDR). 1990. Reseña Toxicológica del Radio (en inglés). Atlanta, GA: Departamento de Salud y Servicios Humanos de los EE.UU., Servicio de Salud Pública.

¿Dónde puedo obtener más información? Para más información, contacte a la Agencia para Sustancias Tóxicas y el Registro de Enfermedades, División de Toxicología, 1600 Clifton Road NE, Mailstop E-29, Atlanta, GA 30333. Teléfono: 1-888-422-8737, FAX: 404-498-0093. La dirección de la ATSDR via WWW es http://www.atsdr.gov/es/ en español. La ATSDR puede informarle donde encontrar clínicas de salud ocupacional y ambiental. Sus especialistas pueden reconocer, evaluar y tratar enfermedades causadas por la exposición a sustancias peligrosas. Usted también puede contactar su departamento comunal o estatal de salud o de calidad ambiental si tiene más preguntas o inquietudes.


Potential
Permeable
Reactive
Barrier
Location
East
Kelly
INDUSTRIAL
JEWELL
QUERIDA
HUMBLE
BESSIE MAE
CAVALIER
HEARNE
LINARES
THEO
MALONE
ROYSTON
WINNIPEG
HOOVER
ELMO
ELLANA
WICHITA
DARBON
CARTHAGE
AMARILLO
BURKE
CULBERSON
WESTWAY
HANGAR
FICKEL
McGARIGLE
CAMP
CENTENNIAL
BURTON
PEARSON
ALDRUP
MULDOON
FITCH
EASTERN
ZARZAMORA
ILLINOIS
AMES
BURGESS
PACKARD
FLANDERS
ELKS
QUINTANA
NORTON
LOCKET
TAYMAR
500
0
1000
SCALE IN FEET
PALM HEIGHTS
PRB PROPOSED
ALIGNMENT
AIR FORCE
REAL PROPERTY AGENCY
FORMER KELLY AFB, TX
File: X:\REAL_PROP\ENV\REMEDIAL-ALT\Z4_REM-ALT3.DGN
Edited By: AFBCA/RPortales
12 NOVEMBER 2003

Groundwater Remediation
Iron Reactive Barriers

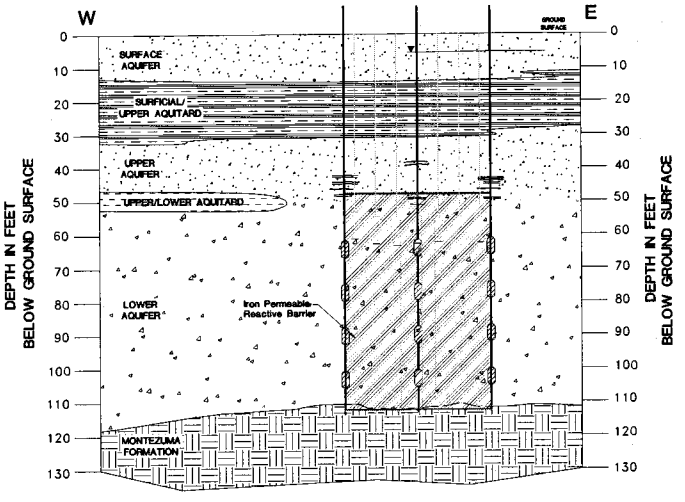
Iron Reactive Barriers

Location: *Bay Area, California*
Year completed: *2001 (on-going)*

A former chemical manufacturing facility in the Bay Area, California was contaminated with volatile organic compounds (VOC's). The existing remedy involved a groundwater pump and treat system which had showed to have minimal impact on groundwater contaminant or site remediation. An *in situ* iron reactive barrier for groundwater remediation was selected to replace the pump and treat system. The reactive barrier was selected over pump and treat due to better remedial performance, minimal operation and maintenance and lower cost. GeoSierra was retained to design and build the iron reactive barrier by the azimuth control vertical hydraulic fracturing technology.

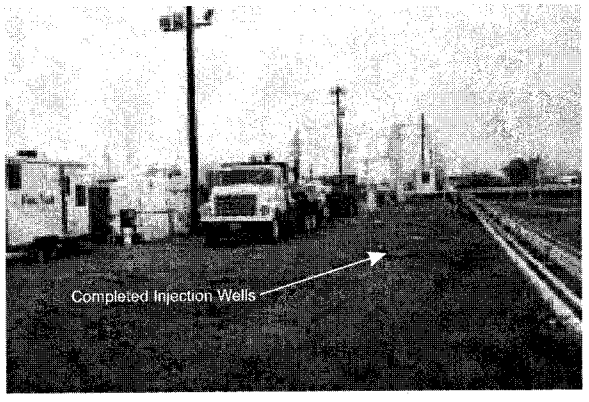
The iron reactive barrier system was constructed to intercept sands and gravel characterized as loose flowing sands with a permeability of approximately 50 Darcy. The iron permeable reactive barrier is 500 feet long installed from a depth of 45 feet down to a total depth of 110 feet below ground surface with an average thickness of 6 inches. The first phase of the barrier being 110' long was installed in January 2001. The reactive barrier was installed by GeoSierra's azimuth control vertical hydraulic fracturing technology with the reactive barrier constructed perpendicular to the groundwater flow direction.

Aerial View of Site



Cross Section of Iron Reactive Barrier

The first phase of the reactive barrier has performed as predicted as determined from sampling of downgradient monitoring wells. The second phase installation is planned for late 2002 or early 2003. The *in situ* reactive barrier has the capacity to degrade extremely high concentrations of volatile organic compounds. Of particular importance in selecting the remedy was that the reactive barrier system is complimentary and enhances the natural attenuation mechanisms active at the site.



Above ground view of completed injected Reactive Barrier

GeoSierra

GeoSierra, LLC
3730 Chamblee Tucker Rd.
Atlanta, GA 30341
Tel: (678) 406-0094
Fax: (770) 934-9476
Web: www.geosierra.com

Groundwater Remediation
Iron Reactive Barriers

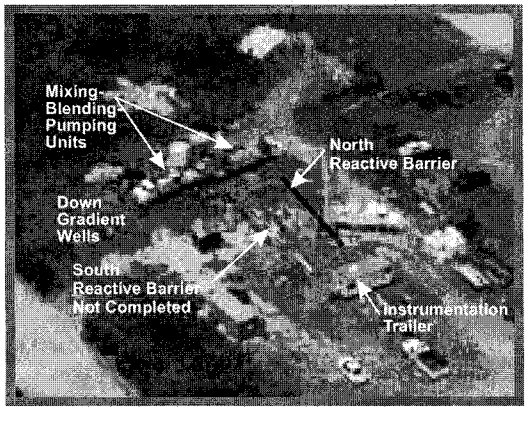
Deep Iron Reactive Barrier

Location: *Cape Cod, Massachusetts*
Year completed: *1998*

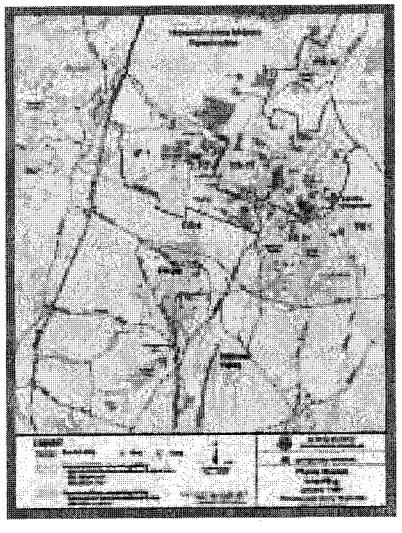
The Massachusetts Military Reservation (MMR) covers 34 square miles and includes ten major groundwater contamination plumes of TCE, PCE, and cDCE. GeoSierra, in conjunction with the University of Waterloo under contract to AFCEE, was retained to conduct a full scale field pilot study to install iron reactive barriers using GeoSierra's azimuth controlled vertical hydrofracturing technology. The iron reactive barriers were designed to *in situ* dechlorinate a PCE contaminated groundwater plume of approximately 300ppb of PCE. The chlorinated solvent contamination is reduced to non-toxic end products as the groundwater flows through the iron reactive barrier.

The MMR is located on glacial outwash deposits that constitute an important water supply aquifer for western Cape Cod. The glacial drift that constitutes the aquifer of western Cape Cod consists of sediments that are primarily coarse sands in the vicinity of the MMR. The permeability of the sediments at the site of the iron reactive barriers range from 5 to 20 Darcy.

The permeable iron reactive barrier was installed in June 1998 by GeoSierra's orientated vertical fracturing technology. The North permeable barrier was 50' long and extended from the water table, at a depth of 80', down to a total depth of 125'. The South reactive barrier was not completed due to encroachment of monitoring wells onto the barrier alignment. The reactive barrier is passive, orientated perpendicular to the natural groundwater flow gradient, and thus relies on the natural hydraulic gradient for groundwater flow through the barrier. Construction of the barrier was monitored in real time by active resistivity from down hole receiver arrays. The hydraulic continuity of the North barrier was evaluated by hydraulic pulse interference tests, conducted from boreholes located on either side of the barrier.

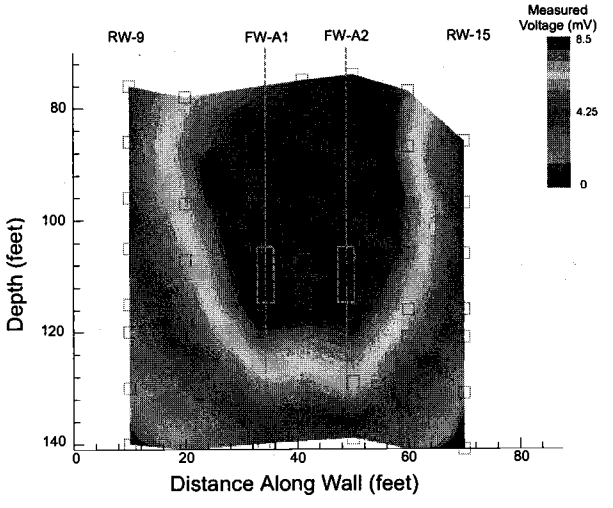


Aerial View of Reactive Barrier



Massachusetts Military Reservation

The University of Waterloo is monitoring the barrier's performance by chemical analysis of ground water sampled both up gradient and down gradient of the reactive barrier.



Cross Section of North Reactive Barrier

GeoSierra

GeoSierra, LLC
3730 Chamblee Tucker Rd.
Atlanta, GA 30341
Tel: (678) 406-0094
Fax: (770) 934-9476
Web: www.geosierra.com

Groundwater Remediation

Design Build Projects: Iron Reactive Barriers

Gardena, CA (Click here for details)

System: Subsurface Iron PRB, 775' long, 18' to 100' deep
Contaminants: PCE, TCE and cis-1, 2-DCE
Contract: Design, Construction & Performance Monitoring
Construction: Vertical Hydrofracturing
Status: 100' long pilot to be constructed in fall 2002.

Montross, VA (Click here for details)

System: Subsurface Iron PRB, 1175' long, 5' to 44' deep
Contaminants: PCE, TCE, cis-1, 2-DCE, 1,1,1 TCA and 1,1 DCE
Contract: Design, Construction & Performance Monitoring
Construction: Vertical Hydrofracturing
Status: Construction completed June 2002, performance monitoring ongoing.

Oakley, CA (Click here for details)

System: Subsurface Iron PRB, 500' long, 45' to 110' deep to replace existing Pump & Treat System
Contaminants: CT, TCM, Freon II and Freon 113
Contract: Design, Construction. (Performance Monitoring by client)
Construction: Vertical Hydrofracturing
Status: 110' long pilot completed January 2001, performance monitoring satisfactory and ongoing, extended PRB construction planned for 2003. Existing Pump & Treat System was shutdown 3 months after pilot PRB installed, and dismantled 9 months after pilot PRB installed.

Centerville, IA (Click here for details)

System: Subsurface Iron PRB, 240' long, 25' to 75' deep
Contaminants: TCE and cis-1, 2-DCE
Contract: Design, Construction & Performance Monitoring
Construction: Vertical Hydrofracturing
Status: Construction completed October 1999, performance monitoring satisfactory and ongoing.

Fairfield, NJ (Click here for details)

System: Subsurface Iron PRB, 120' long, 20' to 65' deep
Contaminants: PCE, TCE, cis-1, 2-DCE, 1,1 DCE, VC, TCM, 1,1,1 TCA and 1,1 DCA
Contract: Design, Construction & Performance Monitoring
Construction: Vertical Hydrofracturing in Soils and Permeation Injection in Bedrock
Status: Construction completed June 1999, performance monitoring satisfactory and ongoing.

Jacksonville, FL

System: Subsurface Iron PRB, 150' long, 23' to 40' deep
Contaminants: TCE, cis-1, 2-DCE and VC
Contract: Design
Construction: Vertical Hydrofracturing or Biopolymer Slurry Wall
Status: Construction planned for 2003.

Cape Cod, MA (Click here for details)

System: Subsurface Iron PRB, 50' long, 80' to 125' deep
Contaminants: PCE, TCE and cis-1, 2-DCE
Contract: Demonstration for deep PRB placement.
Construction: Vertical Hydrofracturing
Status: Study by USGS and AFCEE Confirmed the PRB wall was placed in accordance with design.

Fairfield, NJ (Click here for details)

System: Subsurface Iron PRB, 240' long, 20' to 65' deep
Contaminants: PCE, TCE, cis-1, 2-DCE, 1,1 DCE, VC, TCM, 1,1,1 TCA and 1,1 DCA
Contract: Design, Construction and Performance Monitoring
Construction: Vertical Hydrofracturing
Status: Construction completed March 1998, additional enzyme added June 1998, performance monitoring satisfactory and ongoing.

Atlanta, GA

System: Subsurface Horizontal Iron Fractures in Pump and Treat Collection Well System.
Contaminants: PCE
Contract: Design and Construction. (Performance Monitoring by others)
Construction: Horizontal Hydrofracturing
Status: Construction completed November 1996, performance monitoring satisfactory and ongoing.

Frac Enhanced SVE (Click here for details)

Frac Enhanced Dual Phase SVE (Click here for details)

PRB Inclined Profiling (Click here for details)

Hydraulic Pulse for Site Characterization (Click here for details)

Hydraulic Pulse for Integrity Testing (Click here for details)

GeoSierra

GeoSierra, LLC
3730 Chamblee Tucker Rd.
Atlanta, GA 30341
Tel: (678) 406-0094
Fax: (770) 934-9476
Web: www.geosierra.com

cd-Projects.cdr

REPORTS FOR THE ST. MARY'S LIBRARY

	REPORTS LISTED BELOW WERE TAKEN TO THE TRS MEETING	Date	Status	ADM
	12-Nov			
240B	Six Sites Soils Closure Investigation Report for Zone 2 (Revised Section 7, Site CS-2)	September 200	Revised	Yes
581A	Closure Report for Yard S-01 (DRMO SWMU 018) & Yard U (DRMO SWMU 016)	September 200	Draft	Inf
	Date:			
	Signature:			

RESTORATION ADVISORY BOARD

RAB MEMBERSHIP REQUIREMENTS

Term of service is two years.

Availability to Community

Members should be willing to communicate with local community members and interest groups concerned with specific base cleanup issues. Members will serve as a direct and reliable conduit for information flow to and from the community.

Document Review

Members are expected to review and provide comments on draft environmental documents.

Attendance

Members are expected to attend all RAB meetings or send an alternate. If a member fails to attend or send an alternate to three consecutive meetings, the RAB co-chairs may ask the member to relinquish his/her membership.

Resignation/Removal

Members unable to fully participate shall submit their resignations in writing to either of the RAB co-chairs. Resigning members may nominate new members to replace them from their organization.

Residency

Individual community members or members representing organizations must reside in Bexar County or live, work or own property on or near the former Kelly AFB.

Background

Kelly Air Force Base was founded in 1917 as the first military air base in Texas. Since 1954, Kelly AFB was involved in logistics and maintenance.

This support included managing more than 75 percent of the Air Force engine inventory; equipment for automatic test, precision measurement and ground support; and fuels and lubricants used by the Air Force and National Guard.

The Air Force Real Property Agency (AFRPA) identifies past activities and procedures that may have affected the environment or human health. Numerous interim systems have been installed to control the sources of contamination on the base. The cleanup program at Kelly is entering a very important phase. In the next year we will be installing several systems off base in the area north of main Kelly and near East Kelly. Community involvement is vital to the success of this next phase. We encourage anyone interested to learn more about the program and submit an application for membership.

What is a RAB?

"RAB" is an acronym for Restoration Advisory Board. This advisory board is comprised primarily of members of the community affected by cleanup activities at the former Kelly AFB. Various government agencies also have members on the Board. The primary objective of the RAB is to foster a partnership between the community and the AFRPA that will aid the cleanup of the former Kelly AFB. Members of the Board are asked to seek and receive input from the public on cleanup activities. They will work with AFRPA in discussing key issues, reviewing plans and reports, and recommending priorities for all cleanup activities. This partnership will provide information and seek input and discussion on cleanup activities among the community, regulatory agencies, and the AFRPA.

The RAB holds quarterly public meetings in the evening. Sometimes additional meetings are scheduled. The RAB meetings provide an opportunity for the community to learn about the cleanup process and provide input to the decision-makers. It is co-chaired by the Senior Representative of the AFRPA and a community member selected by the community RAB members.

WHO SHOULD JOIN?

To ensure opinions on cleanup and environmental restoration reflect the diverse interests within the local community, members should include, but are not limited to:

- Residents/community members
- Local homeowners associations
- Elected officials
- School districts
- Business community
- Local environmental groups
- Religious community
- Labor organizations
- Public interest groups
- Civic interest groups
- Local officials/agencies
- Regulatory agencies

HOW DO YOU BECOME A MEMBER?

If you are interested in becoming a member of the Kelly Restoration Advisory Board, please fill out a RAB Membership Application Form and return no later than January 6, 2004 to the following address:

Doug Karas
AFRPA/PA

Mail:
143 Billy Mitchell Blvd, Ste 1
San Antonio, TX 78226

Telephone:
210-925-0956

Fax:
210-925-3636

E-mail:
doug.karas@afrpa.pentagon.af.mil

Forms can be requested at the addresses and numbers above. Applications will be reviewed and approved by the community RAB members.

CONDITIONS FOR MEMBERSHIP

- Members should be available to communicate with concerned community members and interest groups to advise the AFRPA on specific environmental cleanup issues.
- Members will be expected to comment on draft documents.
- The RAB meets quarterly (additional meetings may be scheduled, if necessary). Members are expected to attend all RAB meetings or send an alternate. If a member fails to attend or send an alternate to two consecutive meetings, the RAB co-chairs may ask the member to relinquish his/her membership.
- Individual community members or organizations must reside in Bexar County or currently work or live on or near the former Kelly AFB. Priority for RAB membership will be given to local residents who are directly affected by cleanup activities at the former Kelly AFB.
- Members provide individual advice to government decision-makers; the RAB is not a decision-making body.
- Participation in the RAB is strictly voluntary and members will not be financially compensated.

APPLICATION FOR MEMBERSHIP
TO THE
RESTORATION ADVISORY BOARD
FOR THE FORMER KELLY AFB

I. BASIC INFORMATION:

Name _____

Address _____

City, State, Zip Code _____

Home Phone _____

Work Phone _____

Home Fax _____

Work Fax _____

E-mail _____

Place of Employment Company Name: _____

Address: _____

City, State, Zip Code _____

II. BASIC QUESTIONNAIRE:

A. Have you ever worked at Kelly AFB? ___ Yes ___ No
If yes, please explain where and for how long?

_____

_____

B. Attached to this application is a map, which shows the area surrounding the contaminant plume. Please put an "X", in ink, which shows approximately where you live, work, or own property if it is within this area.

III. SPECIFIC QUESTIONS:

A. Will you have the time to attend necessary meetings, seminars, briefing and training sessions during daytime hours, if necessary? Most meetings are after 6:00 p.m. ___Yes ___No
If no, please explain exceptions: _____

_____

Might you be available for occasional daytime or weekend meetings? ___Yes ___No

B. Finally, please provide specific comments to the board, detailing your commitment and dedication to being a functional part of the Kelly Restoration Advisory Board and your specific proposals to make this board more effective in its work.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

COMMUNITY FEEDBACK FORM

We value your feedback on the Air Force's environmental cleanup at the former Kelly Air Force Base. Please take a moment to answer the questions below.

During the past 12 months, have you...	Yes	No	Don't Know
Received by mail any information about the cleanup?			
Heard anything about the cleanup in the news?			
Talked to a friend or neighbor about the cleanup?			
Spoken or interacted with an Air Force representative?			

How familiar or unfamiliar are you with the environmental cleanup at Kelly?

Very Familiar ❑ Somewhat Familiar ❑ Somewhat Unfamiliar ❑ Very Unfamiliar ❑

Please tell us how much you agree or disagree with the following statements:	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Don't Know
The Air Force is being very open in its communications.						
The Air Force is very responsive to community concerns.						
The Air Force is providing useful information to me.						
I can easily understand information from the Air Force.						
The environmental cleanup is being done safely.						
The environmental cleanup is being done as quickly as possible.						
In general, the environmental cleanup is going well.						

During the next 12 months, how likely is it that you will do the following?	Very Likely	Likely	Somewhat Likely	Not Very Likely	Not Sure
Read information about the cleanup.					
Talk to my neighbor(s) about the cleanup.					
Attend community meetings about the cleanup.					
Call the Air Force with questions about the cleanup.					
Meet with an Air Force representative about the cleanup.					
Write a letter to a news editor about the cleanup.					
Play an active role in representing my community's interests regarding the cleanup.					

OPTIONAL: (Complete if you would like to receive information or updates regarding the environmental cleanup at Kelly)

Name (Mr. / Mrs. / Ms. / ___)

Organization

Street address

City State Zip

Phone

U.S. AIR FORCE

DEPARTMENT OF THE AIR FORCE
AIR FORCE REAL PROPERTY AGENCY

Douglas S. Karas
Air Force Real Property Agency
143 Billy Mitchell Boulevard, Suite 1
San Antonio, Texas 78226

5 November, 2003

Dear RAB Member

Please be advised that due to scheduling conflicts, the upcoming Technical Review Subcommittee (TRS) meeting will now be held on Wednesday, November 12, 2003 at 6:30 p.m. at the Greater Kelly Development Authority offices located at 143 Billy Mitchell Boulevard, Building 43, Suite 6, San Antonio, Texas 78226.

I apologize for any inconvenience this may cause you, and have attached a map for you to reference.

If you have any other questions or comments, please call Ms. Brittany Watts at (210) 925-3013.

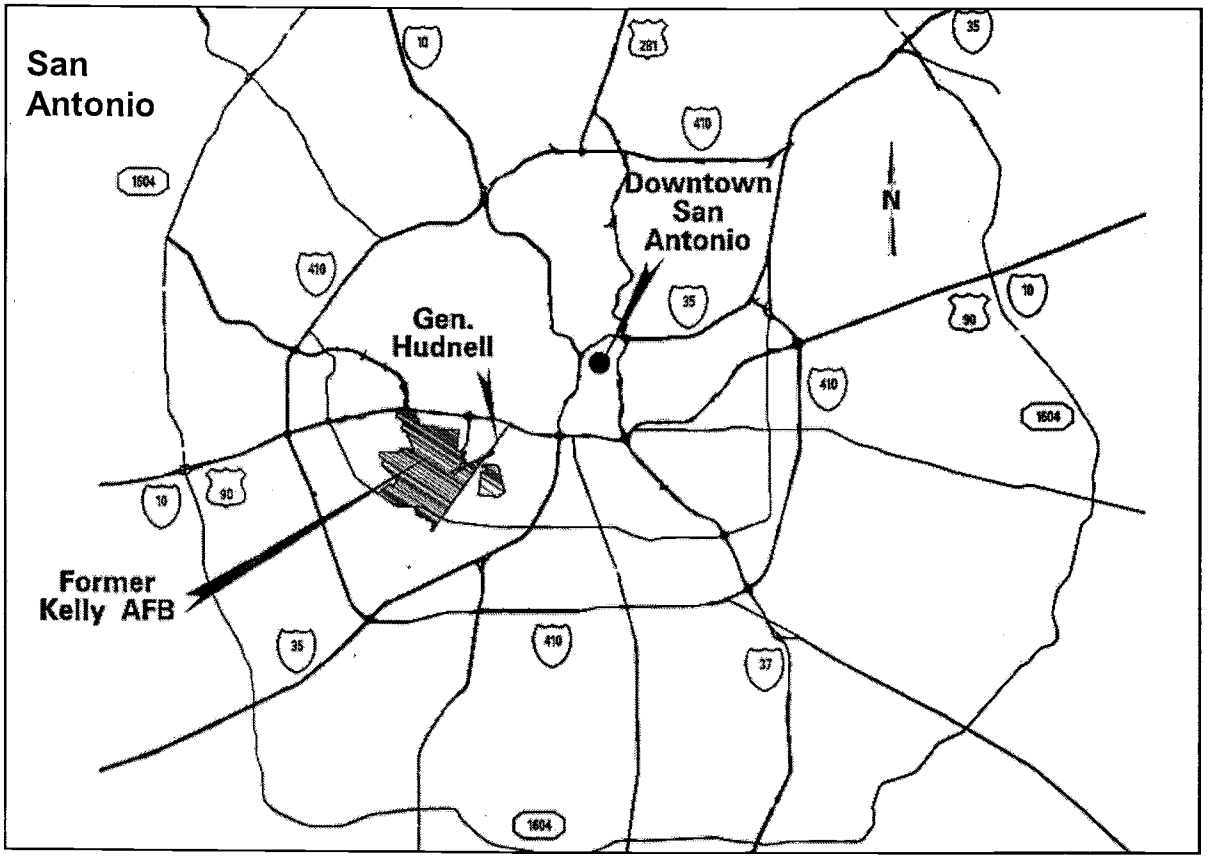
Sincerely

Douglas S. Karas

DOUGLAS S. KARAS, GS-12, DAF
Public Affairs Officer

CC:
file

GREATER KELLY DEVELOPMENT AUTHORITY (GKDA)
DRIVING DIRECTIONS



Address

143 Billy Mitchell Boulevard, Suite 3
San Antonio, TX 78226

From the West:

- Follow Highway 90 and exit Nogalitos.
- Take the turnaround and re-enter Highway 90.
- Follow the directions 'from the east.'

OR

- Follow Highway 90 and exit 36th Street.
- Turn right onto 36th Street and follow it to Billy Mitchell
- Turn left on Billy Mitchell and go through 3 traffic lights.
- The GKDA is the last building on the left after the third traffic light and GKDA is written on the outside of the building.

From the East:

- Follow Highway 90 and take the General Hudnell Drive/Spur 371/Kelly USA exit.
- Follow General Hudnell/Spur 371 to the first light (Billy Mitchell) and turn left.
- The GKDA building is located in Building 43. It is the last building on your left.
- Park in the lot adjacent to General Hudnell/ Spur 371 and enter through the main door.

Posted at EHWC

Please be advised that the
Technical Review
Subcommittee (TRS) Meeting
is being held Wednesday,
November 12, 2003 at 6:30 p.m.
at the
Greater Kelly Development
Authority (GKDA) office
143 Billy Mitchell Boulevard
Suite 3

The letters "GKDA" are posted
on the exterior of the building.
Please call 210.887.8494 with
any questions.

Thank You!

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE