KELLY AFB
TEXAS

ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 3279

Kelly Restoration Advisory Board
Technical Review Subcommittee

Meeting Agenda
August 13, 2002, 6:30 – 9:00 p.m.
Environmental Health & Wellness Center
911 Castroville Road
(previously Las Palmas Clinic)

I.	**Introduction** a. Agenda Review b. Packet Review	Dr. Gene Lené
II.	**Technical Assistance for Public Participation (TAPP) Review of the Corrective Measures Study for Zones 4 and 5**	Mr. Mark Hemingway
III.	**TAPP Program Administrative Issues**	Mr Eddie Martinez ~~Mr. Doug Karas~~
IV.	**Administrative** a. BRAC Cleanup Team (BCT) Update b. Spill Summary Report c. Documents to TRS/RAB d. Action Items e. Request for Agenda Items	Dr. Gene Lené

V. Next TRS Meeting
Environmental Health and Wellness Center: September 10, 2002 / 6:30 p.m.

VI. Adjournment

Aug. 2002

Kelly Restoration Advisory Board (RAB)
Technical Review Subcommittee (TRS)
August 13, 2002

Attendees:
Mr. Rick Rogus, CH2MHill
Mr. Mark Stoker, CH2MHill
Mr. Mark Hemingway, CH2MHill
Ms. Blanca Hernandez, San Antonio Metropolitan Health Department (SAMHD)
Ms. Kyle Cunningham, SAMHD
Ms. Deborah Martinez, SAMHD
Ms. Nicole Rodgers, SAMHD
Dr. David Smith, Smith & Associates
Mr. William Ryan, Air Force Base Conversion Agency (AFBCA)
Mr. Don Buelter, ABFCA
Ms. Vanessa Musgrave, AFBCA
Mr. Walter Peck, AFBCA
Mr. Mark Weegar, Texas Natural Resource Conservation Commission (TNRCC)
Ms. Reegan Errera, TNRCC
Mr. Robert Silvas, RAB Community Member
Mr. Paul Person, RAB Community Member
Mr. Hector Morales, Congressman Ciro Rodriguez Special Projects Director
Mr. Gary Martin, Greater Kelly Development Authority (GKDA)
Ms. Bernadette Pena, Community Member
Mr. Eddie Martinez, Booz Allen Hamilton (Booz Allen)
Mr. Hugh Farr, Booz Allen
Mr. Scott Courtney, Booz Allen

Meeting began at 6:39 PM.

Dr. Smith began the meeting by reviewing the agenda for the meeting. Mr. Paul Person asked how many other RAB community members were present at the meeting. After a moment, it became clear that he was the only RAB community member present. The lack of RAB members present meant that the RAB and TRS meeting minutes could not be approved or voted down. He asked that the minutes reflect that he, Mr. Paul Person, was in fact the only RAB member present and that as such, he would be the acting co-chair for the evening. Mr. Robert Silvas, RAB community member, joined the meeting later.

Technical Review of Zone 4 & 5 Corrective Measures Study (CMS) Mr. Mark Hemingway

Mr. Hemingway began by outlining the areas his presentation would cover. He said that if there were any questions, he would be happy to take them at any time during his discussion. He also asked the audience if they understood the regulatory nature of the

Resource Conservation and Recovery Act (RCRA). After a brief pause, Mr. Person turned and asked the audience if anyone did not understand the RCRA process. No one responded, and the presentation continued.

Mr. Hemingway explained that Geomatrix's review consisted of an evaluation of objectives, processes, and conclusions of the Zone 4 and 5 CMS reports in terms of technical validity, regulatory appropriateness and community acceptance. He added that the Geomatrix review did not include confirmation of supporting data, validation of groundwater modeling or a detailed review of cost estimation spreadsheets. Mr. Hemingway discussed the Zone 4 off-base plumes and the CMS recommended remedies as pumping wells, permeable reactive barriers (PRBs) and phytoremediation.

Mr. Silvas asked why the decision was made not to plant poplar trees as part of the phytoremediation cleanup effort. Mr. Hemingway responded saying that the planting of poplar trees, it had been determined would have taken longer and would not have enhanced the cleanup process. Mr. Person also stated that the time it would have taken would have been too long to add any value to the cleanup process.

Mr. Hemingway addressed the Zone 5 CMS portion of his review concluding that the AFBCA's proposed plans would further reduce off-base contaminant migration and restore on and off-base groundwater to Texas standards in a realistic timeframe.

Mr. Hemingway also stated that the remedies proposed by the AFBCA were generally sound and appropriate. He added that the combination of innovative and conventional methods indicated that plume removal within five years was a reasonable timetable. Mr. Hemingway also stated that the most important work will be the design and monitoring of the remedies so that if in fact modifications need to be made, they can be.

TAPP Process presentation – Mr. Eddie Martinez

Mr. Martinez had intended to present the TRS with information on the TAPP process and the project selection process, but due to insufficient number of RAB community members actually present, the project selection process was not covered. This item will be added to the forthcoming TRS meeting agenda scheduled for September 10, 2002.

Administrative

Dr. Smith noted that since only two RAB members were present they could not vote on the acceptance or rejection of the minutes that had been included in the TRS meeting packets. He also suggested that items such as BCT updates, Spill Reports and other documents relevant to the TRS be moved onto the September TRS meeting agenda. Dr. Smith then asked if the members of the audience would move to adjourn the meeting. Mr. Person moved to adjourn, and Mr. Silvas seconded the motion and the meeting closed.

The meeting ended at 7:20 PM.

Junta Asesora de Restauración de Kelly (RAB, por sus siglas en ingles)
Subcomité de Revisión Técnica (TRS, por sus siglas en inglés)
13 de agosto de 2002

Asistentes:
Sr. Rick Rogus, CH2MHill
Sr. Mark Stoker, CH2Mhill
Sr. Mark Hemingway, CH2Mhill
Srta. Blanca Hernández, Departamento Metropolitano de Salud de San Antonio (SAMHD, por sus siglas en inglés)
Srta. Kyle Cunninghan, SAMHD
Srta. Deborah Martínez, SAMHD
Srta. Nicole Rodgers, SAMHD
Dr. David Smith, Smith and Associates
Sr. William Ryan, Agencia de Conversión de Bases de la Fuerza Aérea (AFBCA, por sus siglas en inglés)
Sr. Don Buelter, AFBCA
Srta. Vanesa Musgrave, AFBCA Sr. Walter Peck, AFBCA
Sr. Mark Weegar, Comisión para la Conservación de los Recursos Naturales de Texas (TNRCC, por sus siglas en inglés)
Srta. Reegan Errera, TNRCC
Sr. Robert Silvas, Miembro representado a la Comunidad en el RAB
Sr. Paul Pearson, Miembro representado a la Comunidad en el RAB
Sr. Hector Morales, Director de Proyectos Especiales de la Oficina del Congresista Ciro Rodríguez
Sr. Gary Martín, Autoridad de Desarrollo del Gran Kelly (GKDA, por sus siglas en inglés)
Srta. Bernadette Peña, Miembro representado a la Comunidad
Sr. Eddie Martínez, Booz Allen Hamilton (Booz Allen)
Sr. Hugh Farr, Booz Allen
Sr. Scott Courtney, Booz Allen

La junta se inició a las 6:39 PM.

El Dr. Smith empezó la junta revisando la agenda para la junta. El Sr. Paul Person preguntó cuántos miembros de la comunidad en el RAB estaban presentes en la junta. Después de un momento, quedó claro que él era el único miembro de la comunidad en el RAB que estaba presente. La falta de miembros del RAB presentes significó que las minutas de la junta del RAB y del TRS no podían ser aprobadas o votadas. Pidió que las minutas indicaran que él, el Sr. Paul Person era, de hecho, el único miembro del RAB presente y que como tal, sería el copresidente en funciones durante la noche. El Sr. Robert Silvas, miembro de la comunidad en el RAB llegó a la junta posteriormente.

Revisión Técnica del Estudio de Medidas Correctivas (CMS, por sus siglas en inglés) de las Zonas 4 y 5

Sr. Mark Hemingway

El Sr. Hemingway resumió las áreas que cubriría su presentación. Dijo que con gusto haría referencia a ellas en cualquier momento durante su discusión. También preguntó si los presentes entendían la naturaleza reglamentaria de la Ley de Conservación y Recuperación de Recursos (RCRA, por sus siglas en inglés). Después de una pausa, el Sr. Person preguntó a su vez a los asistentes si alguien entendían el proceso de RCRA. Nadie respondió, y la presentación continuó.

El Sr. Hemingway explicó que la revisión de Geomatrix consistía de una evaluación de los objetivos, procesos y conclusiones de los reportes del CMS de las Zonas 4 y 5, en términos de validez técnica, conveniencia reglamentaria y aceptación de la comunidad. Añadió que la revisión de Geomatrix no incluía la confirmación de la información de soporte, la validación de modelos de agua subterránea o la revisión detallada de hojas de cálculos de estimación de costos. El Sr. Hemingway discutió las plumas fuera de la base de la Zona 4 y las correcciones recomendadas en el CMS como pozos de bombeo, barreras reactivas permeables (PRBs, por sus siglas en inglés) y corrección con el uso de plantas.

El Sr. Scott Courtney tuvo una objeción para que se incluyera la corrección con el uso de las plantas en la porción de alternativas preferidas del CMS. El Sr. Silva preguntó por qué se tomó la decisión de no plantar álamos como parte del esfuerzo de limpieza y corrección con el uso de plantas. El Sr. Hemingway indicó que plantar álamos requería más tiempo para que fuera realmente efectivo y por lo tanto no hubiera mejorado el proceso de limpieza. El Sr. Person añadió que el tiempo necesario hubiera sido demasiado largo para añadir algún valor al proceso de limpieza.

El Sr. Hemingway se refirió a la porción de su revisión del CMS de la Zona 5, concluyendo que los planes propuestos por la AFBCA (por sus siglas en inglés) reducirían adicionalmente la migración de contaminantes fuera de la base y restaurarían el agua subterránea en y fuera de la base a los estándares de Texas en un lapso de tiempo realista.

El Sr. Hemingway también indicó que los remedios propuestos por la Agencia de Conversión de Bases de la Fuerza Aérea (AFBCA, por sus siglas en inglés) eran por lo general razonables y apropiados. Añadió que la combinación de métodos innovadores y convencionales indicaba que la remoción significativa de pluma dentro de un período de 5 años era un tiempo razonable. El Sr. Hemingway también indicó que el trabajo más importante será el diseño y monitoreo de las correcciones para que si de hecho necesitan hacerse modificaciones, se puedan efectuar.

Presentación del Proceso TAPP (por sus siglas en inglés) – Sr. Eddie Martínez

El Sr. Martínez había intentado presentar al TRS la información sobre el proceso del TAPP y del proceso de selección de proyectos, pero debido al número insuficiente de miembros de la comunidad en el RAB presentes, no se cubrió el proceso de selección de proyectos. Dijo que el punto sería añadido a la agenda de la junta del TRS del 20 de septiembre del 2002.

Puntos administrativos

El Dr. Smith hizo notar que con sólo dos miembros del RAB presentes, no se podía llevar a cabo la votación sobre la aceptación o rechazo de las minutas de la junta que se incluían en los paquetes de las juntas del TRS. Sugirió que los puntos tales como las actualizaciones del BCT, los Reportes de Derrames y otros documentos relevantes para el TRS serían transferidos a la agenda de la junta del TRS de septiembre. El Dr. Smith preguntó si los miembros presentes harían una moción para terminar la sesión. El Sr. Person hizo la moción para terminar la sesión y el Sr. Silvas secundó la moción.

La junta terminó a las 7:20 p.m.

Draft
MEETING MINUTES
KELLY AFB TECHNICAL REVIEW SUBCOMMITTEE (TRS)
TO THE RESTORATION ADVISORY BOARD (RAB)

28 May 2002
San Antonio Metropolitan Environmental Health and Wellness Center

Attendees

Dr. Gene Lené, Community Co-Chair
Ms. Katherine Ramos, Community RAB Alternate
Ms. Esmeralda Galvan, Community RAB Member
Mr. Doug Karas, Air Force Base Conversion Agency (AFBCA)
Ms. Rhonda Hampton, AFBCA
Mr. Charlie Mathews, AFBCA
Mr. William Ryan, AFBCA
Mr. Mark Hemingway, Technical Assistance for Public Participation (TAPP) Contractor
Ms. Graciela Fernandez, Air Force Center for Environmental Excellence (AFCEE)
Mr. Keith Matowitz, AFCEE
Mr. Scott Lampright, Bexar County Fire Marshall – Environmental Management
Ms. Abigail Powers, Texas Natural Resource Conservation Commission (TNRCC)
Mr. Mike Chapa, Roy F. Weston Inc.
Ms. Kyle Cunningham, San Antonio Metropolitan Health District (SAMHD)
Ms. Deborah Martinez, SAMHD
Ms. Blanca Hernandez, SAMHD
Mr. Curtis Pearson, SAMHD
Ms. Olivia J. Armentu, Community Member
Ms. Sofia A. Reyna, Community Member
Mr. Jim Clay, Community Member
Mr. Eddie Martinez, Booz Allen Hamilton (Booz Allen)
Mr. Tim Sueltenfuss, Booz Allen
Mr. Hugh Farr, Booz Allen
Dr. David Smith, Smith & Associates (Facilitator)

The meeting began at 6:54 p.m.

Administrative

Dr. David Smith welcomed the TRS members and outlined the agenda for the evening's meeting. Mr. Eddie Martinez addressed the status of the April 16 RAB meeting minutes and said they would be sent out to RAB members soon. Dr. Gene Lené then began to discuss with the TRS members their preferences concerning upcoming presentations of reports and RAB budgetary issues. He asked if anyone on the TRS would like to address Mr. Mark Hemingway with any specific items that they would like addressed in his forthcoming presentation. Mr. Armando Quintanilla stated that he wanted Mr. Hemingway's presentation to be easily understandable to the layperson. He also said the

presentation needed to be independent, and include findings and recommendations. Dr. Lené added that the purpose of the report is to provide an independent review from outside the Air Force to determine if any information has been omitted.

Dr. Lené asked Mr. Hemingway to remind the TRS where Zone 5 is located. Mr. Hemingway responded by saying that Zone 5 referred to the majority of Kelly, and that Zone 4 is also known as East Kelly. Mr. Hemingway explained that the Draft Corrective Measures Studies (CMSs) are formally performed evaluation instruments that take the widest selection of possible cleanup methods for addressing environmental concerns by utilizing the same standard criteria. Mr. Hemingway also said that the CMS examines each measure individually with the goal of providing the most informed judgement on the cleanup options involved. He continued by saying that the CMS process also seeks to determine cleanup and cost effectiveness, as well as ensure that the applicable regulatory requirements have been met.

Dr. Smith asked the TRS members if they wanted to maximize the effectiveness of Mr. Hemingway's effort by having him review both Zone 4 and Zone 5. Dr. Lené then stated that the TRS agreed that both the Zone 4 CMS Draft Final and the Zone 5 CMS Draft Final would be reviewed concurrently under two separate contracts. Mr. Patrick Lynch, with Clearwater Revival, stated that he would be producing a review of the Site MP Remedial Feasibility Investigation Draft Final and would have it by August 27, 2002, for distribution to the RAB members. He added that by the September 10, 2002 TRS meeting, he would make a preliminary presentation of the review and take questions.

Mr. Quintanilla asked Mr. Hemingway what constituted the remedy selection process. Mr. Hemingway said the criteria follows good science, is sensible, and ensures that all the remedies are evaluated accordingly. Mr. Quintanilla asked if the cleanup of Zone 5 evaluated the remedial alternatives to determine if they were all appropriate. Mr. Hemingway said yes, but that his presentation would characterize a variety of options.

In an attempt to capture a schedule of upcoming presentations, Dr. Lené outlined the forthcoming schedule for Mr. Hemingway and Mr. Lynch. Mr. Hemingway's schedule is as follows.

- July 15, 2002: Draft reviews of both the Zone 4 and Zone 5 Draft Final CMS.
- August 13, 2002: Draft preliminary presentation of both reviews will be due to the members of the RAB.
- October 1, 2002: Final versions of both reviews will be due to members of the RAB.
- October 15, 2002: Final presentation of both reviews at October RAB meeting.

Dr. Lené also outlined Mr. Lynch's reporting schedule. Mr. Lynch's schedule is as follows.

- August 27, 2002: Draft version of the review will be due for distribution to members of the RAB.
- September 10, 2002: Preliminary presentation of review at TRS meeting (questions from TRS members regarding the review will be forwarded to Mr. Lynch at that time).

- October 29, 2002: Final version of the review will be due for distribution to the RAB.
- November 12, 2002: Final presentation of the review will be made at a special RAB meeting.

Ms. Abigail Powers interjected that she feared that so many reports might be too much for one meeting. Mr. Quintanilla responded by saying that he felt the TRS would be able to absorb the reporting schedule. He also added that the TRS felt sooner was better than later, and that he feared too much time would be wasted if the reports were delayed. Mr. Quintanilla suggested that the RAB elections would be the most appropriate time to hear all remaining reports. Mr. Keith Matowitz introduced himself to the TRS and said he was taking over for Mr. Dan Zatopek.

Mr. Quintanilla then addressed Mr. William Ryan (not on attendee list) and said the slurry wall is not working. Mr. Ryan responded by saying that the slurry wall at Site MP is working. He added that it was installed as an interim action and that the monitoring wells installed there are also working.

Mr. Doug Karas proposed that an extra RAB be conducted instead of a TRS in November to accommodate the presentation of reports. Mr. Quintanilla said he thought the RAB Charter Review Subcommittee could deliver its final report at the same time as elections. Mr. Karas also spoke to the TRS about the reports that are scheduled for release and asked the TRS to provide input concerning what the TAPP contractors should review in the future. Mr. Quintanilla stated he wanted the TRS to apply for a waiver. Mr. Karas said that would be done. Mr. Karas added that the Agency For Toxic Substances and Disease Registry (ATSDR) is scheduled to release a study on air emissions, and the Corrective Measures Inventory (CMI) workplans on Zone 4 and Zone 5 should come out next year. He added that the SAMHD was also scheduled to release the findings of the fruit and nut study later this summer. Mr. Curtis Pearson from SAMHD added that the fruit and nut study had been contracted out to Dr. Casey Donnelly. Mr. Quintanilla then asked how long the presentation was. Mr. Pearson said the presentation was only 15 minutes long. Mr. Pearson reminded the TRS that Dr. Donnelly would be giving his final report later this summer. Ms. Esmeralda Galvan then asked if the RAB could request more testing. Mr. Pearson replied yes. Mr. Karas then asked the TRS if they wanted to use TAPP monies to review more reports. He added that both Zone 2 and Zone 3 CMSs were also due out soon. Mr. Quintanilla stated he wanted a review of the air emission study to be done because the TRS has not heard these presentations and they are very important.

Charter Review Subcommittee Meeting

Mr. Karas announced that the charter review subcommittee reports would be mailed out to community members for dissemination and comment. He said he hoped all would be pleased with the progress that has been made. Mr. Karas concluded by saying that the RAB would have an opportunity to vote on the new charter. Dr. Smith asked the TRS to review and comment on the document as quickly as possible so that all the changes can be integrated to facilitate a vote on the charter. Ms. Katherine Ramos encouraged the

TRS to carefully examine the charter to see if each of the concerns had been fully addressed within the document. Dr. Smith said that track changes would be left in the document so that changes can be made more easily.

Delivery of Documents

Mr. Martinez said the documents concerning the Zone 4 CMS would be available in the information repository at the Environmental Health and Wellness Center (EHWC). He said the hazard ranking system and the fuel spill response from Boeing would also be available in the information repository.

Action Items

The risk-based numbering system used by the ATSDR is included in the TRS packet.

Community Comment

Mr. Quintanilla addressed his concern that the work performed on Site S-4 was ineffective at reducing contamination levels. He stated that during the Site S-4 construction, the city installed a storm water culvert, which is similar to putting a dam in the middle of a lake. Ms. Galvan asked if the construction activities at Site S-4 were similar to those on Nogalitos Street. Mr. Ryan stated no, and added that the AFBCA had no activity on that property. Mr. Quintanilla stated that his only concern was that the digging of the trench within the community would disturb residents. He asked why the AFBCA did not do it right the first time.

Mr. Pearson said there was some confusion with regard to SAMHD's involvement in the cleanup activities. He explained that the Public Center for Environmental Health (PCEH) is the policy arm for the Health Department. He said that the EHWC answers the concerns of the community directly and is administered by Ms. Linda Kauffman, an environmental health nurse. He said she sees individuals in the community and performs environmental health screenings for the community. Mr. Pearson said that his boss,Mr. Sam Sanchez, and the SAMHD are pleased to be a part of the cleanup effort. Ms. Galvan said she did not believe the center was very sincere. She said the center does no advertising of its services. Mr. Quintanilla added that the Air Force did not provide enough money to the PCEH to perform adequate community outreach. Ms. Kauffman said that Ms. Tanya Huerta, a RAB member, was administering an environmental justice grant that was designed to publicize the center's mission and role. Mr. Quintanilla and Ms. Galvan said they both have little faith in the PCEH's willingness to help the community.

The February 12, 2002 TRS meeting minutes were approved. The next TRS meeting is scheduled for August 13, 2002. Mr. Quintanilla stated that he wanted to hear what had become of the Community Involvement Plan (CIP). Mr. Tim Sueltenfuss responded by saying that the AFBCA was currently in the process of updating the CIP. He added that the AFBCA had just completed five focus groups comprised of members of the community and RAB members. Mr. Sueltenfuss said many suggestions had emerged out

of the focus group sessions. He said the AFBCA is in the process of conducting interviews to augment information gathered via the focus group participants. Mr. Sueltenfuss added that a focus group and interview debrief session will occur July 10, 2002, to share results and allow participants to ask questions. He stated that this would complete one portion of the CIP, which is tentatively scheduled for completion by the end of the year. Mr. Sueltenfuss stressed that it was too early to make any recommendations.

Mr. Pearson asked if the TRS wanted to have a full hour to view the posters. He recommended that the poster viewing time should be reduced to half an hour to keep the meeting on schedule.

Dr Lené asked if an updated RAB member list was available. Mr. Martinez said that the updated member list does exist and that a copy would be forwarded to Dr. Lené. Mr. Quintanilla asked if letters had been sent to RAB members that have repeatedly been absent from scheduled meetings. He stated that this was an issue that the RAB would soon have to address.

Mr. Eddie Martinez stated that the TRS meeting times would revert to their original schedule. The only change this time, he said, was due to the public comment period on Zone 4.

Ms. Galvan asked if air monitoring would continue into the summer. She added that she thought it should continue. She said it is important that soil monitoring be conducted throughout the summer. She added that she knew of children that had smelled the air and had fainted as a result. Mr. Ryan said soil gas monitoring would continue during the summer. The decision to conduct monitoring over the summer was made in February and it would happen based upon that recommendation

The meeting adjourned at 8:05 p.m.

~~Draft~~

Kelly Air Force Base
Environmental Restoration Advisory Board (RAB)
April 16, 2002 Meeting Minutes
Kennedy High School

Members/Alternates Present

Mr. Adam Antwine	Government Co-Chair	Air Force Base Conversion Agency
Mr. Paul Person	Community Member	
Mr. Mike DeNuccio	Community Member	
Mr. Rodrigo Garcia	Community Member	
Mr. Nazarite Perez	Community Member	
Dr. Gene Lené	Community Co-Chair	
Mr. Robert Silvas	Community Member	
Mr. Sam Murrah	Community Member	
Ms. Tanya Huerta	Community Member	
Mr. Larry Bowman	Community Member	
Mr. Mark Puffer	Community Member	
Mr. George Rice	Community Member	
Mr. Armando Quintanilla	Community Member	
Ms. Esmeralda Galvan	Community Member	
Ms. Irma Smith	Community Member/Alternate	
Mr. Gary Miller	Government/EPA	Environmental Protection Agency
Mr. Mark Weegar	Government/TNRCC	Texas Natural Resource Conservation Commission
Mr. Bob Rasmussen	Community Members/GKDA	Greater Kelly Development Authority
Mr. Curtis Pearson	Government/SAMHD	San Antonio Metropolitan Health Alternate
Mr. Nicolas Rodriguez	Government/Bexar Met	Bexar Metropolitan Water District
Mr. William Ryan	Government/AFBCA	Air Force Base Conversion Agency
Dr. David Smith	Contractor	Booz Allen Hamilton

Members/Alternates Absent

Mr. Roy Botello	Community Member	
Ms. Peggy Grybos	Community Member	
Ms. Dominga Adames	Community Member	
Mr. John Villanacci	Government/TDH	Texas Department of Health
Mr. Ed Weinstein	Government/SAWS	San Antonio Water System
Mr. Scott Lampright	Government/BCFM	Bexar County Fire Marshall

The meeting began at 6:30 p.m.

Dr. Gene Lené began by introducing himself and stating that the goals for the meeting were to advise and comment on the cleanup and to help to inform the community. He asked that the RAB members take a moment and review the meeting minutes from the February RAB. Ms. Tanya Huerta asked if the RAB had decided to include alternates as well or just the members present. Mr. Armando Quintanilla replied that members who are not attending should be recognized in order to allow someone from the community to become a RAB member. He added that the RAB charter should be reviewed to determine how many meetings RAB members can miss so that those who are truly interested can become a RAB member. Dr. Lené then stated that if there was no objection to the minutes from the February RAB meeting they were accepted. Dr. David Smith then asked the RAB to review their supplemental packages. The supplemental materials included the final agenda and the Agency for Toxic Substances and Disease Registry (ASTDR) and Zone 4 presentations. He also reminded the RAB members that during their review of the supplemental materials, they should keep track of any questions they might have and then use the question and answer portion of the meeting to present those issues. Ms. Huerta asked if an article had been placed in the local press featuring the upcoming plugging of abandoned wells. Mr. Doug Karas replied that it would be featured in the newsletter that is distributed throughout the community.

Dr. Smith then stated that according to the RAB charter, the April RAB meeting is the time to elect a Community Co-Chair. Mr. Quintanilla stated that he wished to nominate Dr. Lené for the position. His motion was seconded and a vote was taken during which there was unanimous support for Dr. Lené to continue to hold this position.

Dr. Lené indicated that the community comment period of the RAB would now begin. Mr. Robert Silvas opened the discussion saying that he believed the Technical Review Subcommittee (TRS) meeting minutes were inaccurate. He said that the minutes recording process was not right and unreal. He proposed using a digital recording system instead of note takers, and he also recommended that the minutes be passed out to people at Kelly. Mr. Larry Bowman then addressed the audience by saying that the RAB was there for the community and to please ask questions. He said the RAB is happy to answer any and all questions the community might have. Mr. George Rice then stated that it was important to look more closely and discuss the contents of the binder. Ms. Esmeralda Galvan then stated that there were grammatical errors and misquotes reflected in the (TRS) meeting minutes and that the meetings needed to be taped.

Dr. Lené then stated that the TRS and Base Cleanup Team (BCT) had been very active. He added that the presentations made by Mr. David Fleming with Thermal Remediation Services, Inc. at the February TRS on cleanup techniques of soil vapors were meant to provide progress updates. Dr. Lené also stated that when the report came out, the TRS had decided that it not get released to the press. However, it was given to the press and therefore the RAB owed Dr. Katherine Squibb an apology.

Mr. William Ryan addressed the RAB stating that the ultimate goal is to find a way to transfer property to the GKDA with as few problems as possible. He added officials from the AFBCA have been out in the community discussing the shallow groundwater well plugging issue with affected residents. Mr. Ryan also stated that about 30 community members have been sent letters to allow the Air Force to come out to their property and plug wells. Mr. Quintanilla then

asked Mr. Ryan about the BCT meeting, specifically for an answer to a question asked about Johnson Ettinger. Mr. Ryan responded saying that the answer was yes, and that soil vapor sampling is going to be done during the summer and the reports will be given to the city. Mr. Quintanilla proceeded to recommend providing the ATSDR with a copy of sampling reports due this summer. Ms. Galvan stated the location site maps had been lost when the sample modeling was performed. She asked if the RAB would be getting copies of this report as well. Mr. Mark Weegar then interjected saying that the locations had not been lost and that the construction around the area made things difficult to pinpoint. Ms. Galvan said that when she asked Dr. Squibb if sampling would be performed in the most contaminated areas, she agreed that it would be. She asked if that was still going to be done. Mr. Weegar said that discussions on the issue of further sampling with a toxicologist will happen soon and that the process will go forward from there.

Mr. Genaro Rendon, sitting in the audience, asked if there was a handout that listed the acronyms and their meanings. He asked as an example, if the public knew what "BCT" or "TRS" meant and if the AFBCA could issue a handout to everyone. Mr. Ryan responded saying yes and that the cleanup team consisted of the TNRCC, EPA, and AFBCA.

Zone 4 and 5 Corrective Measures Study (CMS)

Dr. Smith then introduced Mr. Doug Karas and asked him to begin his presentation. Mr. Karas thanked Dr. Smith for the introduction and stated that he would be presenting an overview of the Zone 4 and 5 Corrective Measures Studies (CMS). Mr. Rice asked what were the black squares on the conceptual cleanup layout. Mr. Ryan said they are existing monitoring wells. Mr. Quintanilla asked how long the contamination has existed in the neighborhoods. Mr. Karas said since 1988. Mr. Quintanilla asked if the community had to wait another 15 years and what had been done since. Mr. Silvas asked if the permeable reactive barrier (PRB) would breakdown when left alone after completing the cleanup. Mr. Karas said that the engineers working on the project have taken the design of the PRB into account. Ms. Galvan asked if the PRB filters out contaminants, what happens to the wall. Mr. Karas stated that the PRB was made of iron filings. Mr. Ryan stated that the contaminants do not adhere to the wall; they are broken down to less harmful substances.

Mr. Quintanilla asked how many walls were being planned. Mr. Ryan said the AFBCA is proposing to construct two walls. He added that the PRBs would be as deep as they need to be to reach the groundwater contamination and would be about 1,000 feet long and filled with iron filings. Mr. Quintanilla asked if in 15 years would the community be able to drink this water. Mr. Ryan said the water would have to be tested. Mr. Silvas asked if the PRBs posed any risk of to the water. Mr. Ryan said no. Mr. Silvas asked when the testing of the off-base contamination began. Mr. Ryan said since 1982, but that contamination was first detected in 1988. Ms. Galvan asked what year the PRB was last used. Mr. Weegar stated that PRBs were relatively new technologies but they have been in use for the last ~~10~~ several years and that PRBs do work. Ms. Galvan asked where PRBs were being used. Mr. Weegar said ~~that~~ a PRB~~s~~ w~~ere~~as recently installed at ~~working successfully at~~ Carswell Air Force Base in Texas. Mr. Silvas asked if it was common practice to leave PRBs underground. Mr. Weegar said there was no reason to remove the PRBs because they do not retain contamination ~~are not a cloggable filter~~. Mr. Silvas asked if

there was no further contamination being put out into the groundwater. Mr. Weegar said no. Mr. Silvas stated that his question had still not been answered regarding whether or not the technology has worked in the past. Mr. Weegar stated that PRBs are still a relatively new technology, but thus far have been working well. Mr. Rodrigo Garcia said that since PRBs were a relatively new technology, they should be monitored every 5 years. He also asked if the iron filings ever wear out and if it was known what shape they will be in 20 years from now. ~~Mr. Weegar said he wanted to explain monitoring to the RAB~~Mr. Weegar said the effectiveness of PRBs would be monitored. He said it was a new technology and was therefore still in the process of being worked on and evaluated. Mr. Rice asked if the model assumed 100 percent efficiency on the plume map. Mr. Ryan replied yes. Mr. Rice asked if the data would be available to the RAB on compact disc or Adobe format. Mr. Ryan said yes and that it will be made available on the website in Adobe format. Ms. Huerta asked if the wall does not act as a filter, then what should it be referred to as? Mr. Ryan said it should be thought of as an area of contaminant removal, permeable reactive walls or permeable reactive barriers. Mr. Weegar added that if the RAB or anyone in the community wanted to, they could go to the ~~Irrigation Training and Research Center~~Interstate Technology and Regulatory Council (ITRC) website and get more information on PRBs. Ms. Galvan asked if there was a school located by the reactive barrier and if so was there a safety plan in place in case of an accident. Mr. Ryan said the AFBCA did have a health and safety plan for every project and that there will be one available for this reactive barrier. Ms. Huerta asked if Mr. Ryan could please tell the RAB what Zone 5 is again. Mr. Karas answered saying south of highway 90 at General McMullen. Mr. Quintanilla spoke in reference to the PRB. He asked whether the PRB in Zone 5 would be located within the community or on the base. Mr. Karas stated that the PRB would be installed on base. Mr. Silvas asked which was of greater concern, (TCE) or (PCE). Mr. Karas said they are of equal concern because they have the same maximum concentration limits (MCLs). Mr. Rice asked if the barrier that was described in the presentation was in fact going to be built. Mr. Karas answered that the AFBCA was awaiting state guidance. Mr. Weegar said the TNRCC provided the EPA contractor with the documents for review; however, in this case the incorrect documents were reviewed. He said TNRCC decided then to have EPA review all the documents regarding the plume and that they are just waiting on that process to be completed. He concluded saying that Dr. Lené gets a copy of all TNRCC correspondence in relation to RAB findings. Mr. Silvas asked if the 1999 and 2000 year data were available to the RAB. Mr. Karas said there is one available, but that there was not sufficient time to put it together for the RAB.

Mr. Garcia asked if Zone 5 included North Kelly Gardens. He also asked if other contaminants would be discussed, such as aircraft junkyards. Ms. Huerta stated that when one looks at the PCE map, it shows much of the plume above Interstate 90. She asked if there were plans to install any sort of walls in these areas. Mr. Weegar responded saying that walls have already been installed and that a wall was installed in the sidewalk in front of the~~ir~~ dry cleaning business~~es~~.

Ms. Huerta stated there looked to be different levels of PCE along Interstate 90. Mr. Rice asked whether given the documents the Air Force has now, any new documents would be produced showing exactly what is going to be done. Mr. Karas replied that would be the CMS work plan. Mr. Silvas asked if there were any foreseen delays regarding the 2004 deadline. Mr. Karas

responded saying that as an optimist, he is inclined to head toward the 2004 deadline and added that he envisioned no delays in sight.

Announcements

Dr. Smith led the announcements saying that the next RAB Charter Subcommittee was scheduled to meet on May 7, 2002, at 6:30 p.m. Dr. Smith also announced that the Air Force was scheduling a series of focus groups to discuss the Kelly environmental cleanup and that signup sheets were in the rear of the auditorium. He added that one focus group would be devoted to the Spanish-speaking members of the community. He encouraged members of the audience to attend. Dr. Smith then announced that Dr. Katherine Squibb from Johns Hopkins University was here and would be making a presentation of her report later in the meeting. He characterized her presentation as a summary of comments on the ATSDR-petitioned public health assessment at Kelly AFB.

Dr. Squibb's Report

Dr. Squibb introduced her presentation by describing East Kelly. East Kelly is a very small area primarily used for storage. She added that her report would be a brief overview of ATSDR, and she encouraged the audience to follow along with the presentation. She stated that the first report looked at Phase I. In this report, the focus was on exposure pathways. When ATSDR looks at exposure pathways, they look only at the health hazards. She added that they look at amounts and dose and whether it is a harmful amount. Mr. Silvas asked if the numbers referred to in her report were applied nationwide. Dr. Squibb replied yes, and added that they were set by ATSDR. Dr. Squibb stated that it was important to remember that the ATSDR does not collect its own data. She said the ATSDR uses data provided to it by other agencies. Mr. Silvas stated that the ATSDR then could only go back to 1993. Dr. Squibb answered yes, and added that they can look only at the records they have on file and that they are given by other agencies. Mr. Silvas asked if going back to past information would be at all relevant to the current study. Dr. Squibb replied that you can go back to the study and continue to look at information from past years, but it does take a while to put reports together. She added that the ATSDR measures data that are already available. Mr. Silvas asked if these numbers were of concern to the people off base. Dr. Squibb replied that the numbers used were standard numbers. Dr. Smith stated that given the incidents of Lou Gehrig's disease (ALS) and lupus the entire community had to be considered in terms of determining contamination levels. If the Air Force is responsible for gathering the data, why has it not considered the older contamination data, she asked. The information that this report is based upon therefore is inaccurate. She stated that one has to consider past contamination levels. Dr. Squibb replied saying that the data captured in her report were designed to catch current exposure levels. She concluded saying that contamination differs from the kinds of contaminants used as well as external factors at the time of contamination. Mr. Silvas asked if the risk portion of the report from inhaled soil contamination was for off-base purposes. Dr. Squibb said yes. Ms. Galvan stated that for some undisclosed reason it was not investigated by the ATSDR. She asked why that was and if people could still be affected. Mr. Quintanilla added that the RAB needed to draft a letter to the ATSDR regarding the status of their soil testing report. Mr. Quintanilla also asked what the contamination levels were prior to the cleanup. Ms. Huerta asked if pre-cleanup values existed. Mr. Quintanilla then asked why they were not available. Mr. Adam Antwine said the items were stored at a location open to the

public. Mr. Weegar stated that a background value for metals that naturally exist in all environments has been given to the RAB. He said the RAB has been briefed on soil samples that ~~have~~ had been taken as part of ~~a basic~~ EPA's community outreach effort. ~~and comparing groundwater samples.~~ He said one or two locations are associated with areas that we expect to have higher levels, for example ~~when leaded gasoline was more common~~ along highways due to past use of leaded gasoline. Ms. Smith asked if Dr. Squibb could speak to the toxicity levels of arsenic given that a baseline figure was unavailable since records were kept. Dr. Squibb said that the cleanup involved disposal of soil at the site. Mr. Weegar said there was an adaptive model and it was used for determining the use of VOCs. He asked Dr. Squibb what besides VOCs volatilizes at that rate. Dr. Squibb replied that the model was designed specifically for VOCs in the groundwater. Things like benzene are included as well as chlorinated compounds. Mr. Silvas asked why there were no data. Dr. Squibb replied that the EPA simply does not have a lot of data. Mr. Silvas asked if there was an agency that might have the data. Dr. Squibb said that the EPA is the agency with primary responsibility. ~~Mr. Weegar added that there is simply not that much research available~~. Dr. Squibb added that the EPA gets a committee together to analyze certain data and that in this particular case, the data was specific to these chemicals. Ms. Smith stated that you mean your study would not inform you of the toxicity of a certain substance. Dr. Squibb asked if she was referring to a specific substance. Ms. Smith asked if Dr. Squibb used experience or what has been learned. Dr. Squibb replied a little of both. Ms. Smith replied that she got cancer. Mr. Weegar asked if any of the measured concentrations in the 1980s exceed indoor air concentrations. Dr. Squibb said that she would have to go back and look and that she had to review past data to make an informed determination. Mr. Weegar added that the model makes predictions from collecting soil gas samples. He said he was curious as to what was actually collected. Dr. Squibb said she would have to check on that question to be sure. Mr. Paul Roberson asked in regard to the second point of the presentation, if Dr. Squibb had reviewed other ATSDR data. Dr. Squibb said that her report focuses on inhalation effects. She added that the models and the information are new and something ATSDR does not do very often. Ms. Galvan stated that at the last meeting Dr. Squibb said that children and the elderly are at greater risk. Dr. Squibb replied yes. The elderly have decreased immune systems and children are just developing, she added. Mr. Weegar asked if groundwater-monitoring wells were co-located with soil gas monitoring and long-term monitoring wells. Dr. Squibb stated that she was not sure. She added that the soil gas was there but she looked at soil gas that was more recent. Ms. Smith asked if Dr. Squibb had said groundwater meaning shallow groundwater. Dr. Squibb said yes. Mr. Silvas asked that while he was no expert, given the recent proposal by the city to put fluoride in the water, were these chemicals similar. Dr. Squibb replied that fluoride was very different from vinyl chloride. She said they are not the same compounds. Mr. Weegar asked whether, speaking on the issue of validating additional soil gas elements (such as indoor air monitoring ~~soil gas~~) ~~that~~ would that give one an accurate measure. Dr. Squibb said that it would not give an accurate gauge of soil gas. She added that if one is going to use a model, it is important to make certain it is helping achieve the right answers. Mr. Rice stated that it was important to get it right. He added that some assumptions have been incorporated into the model, and some gross errors have been incorporated into the model. Ms. Huerta asked if the information could be used in terms of indoor air modeling in order to determine what past exposure has existed. Dr. Squibb stated that she has never seen that done before and that she did not know how accurate it would be. Ms. Huerta asked what sort of information could be gleaned from this type of investigation. Dr. Squibb answered that in this process one gets a ballpark

figure. She added that it is possible to get those calculations and sometimes there are those who are more aware of natural attenuation figures who would be better equipped to answer that question. She concluded saying that many unknowns exist. Ms. Huerta stated that many cancers exist in the community. Dr. Squibb said the best that can be done is continued monitoring and sampling. Ms. Huerta stated that screening the population could be done as a preventative measure. Dr. Squibb replied that no one can stop past exposures and that groundwater modeling is a new science. Going back in time is going to be difficult, she said. Ms. Huerta asked how unusual this is. Dr. Squibb remarked that it is a very large contamination plume. Mr. Garcia stated that he felt the priority should be further investigation and not more information gathering. Ms. Smith stated that all these chemicals by themselves cause certain things. She asked if they are found in water. Dr. Squibb said yes. Ms. Smith asked that if they cause illness alone, aren't they more toxic when combined. Dr. Squibb replied that toxicity does increase.

Jeff Neathery/TAPP Report Presentation/Zone 4

Mr. Jeff Neathery began his presentation, which was a review of the Volume III report prepared by CH2MHILL discussing the work that had been performed, and a technical review of the document. His presentation identified potential sources, which included Site SS051 (part of the IWCS on East Kelly), AOC MW-125 (off-site refineries), AOC MW-160 (oil-water separators), Yard 68 (vehicle storage area), and MP (Metal Plating). Mr. Neathery concluded saying that the report was well written and that there existed enough data that the design phases could proceed without any further data considerations. His recommendations were for continued monitoring of the plume as well as updating the models.

Community Comment Period

Dr. Smith stated that he wanted to remind the RAB about the survey in front of the binders regarding the last two presentations. He asked that comments regarding these presentations be directed to those forms. Ms. Lisa Sorg addressed the RAB and said she would like to make it clear about a comment that was made regarding leaking to the press and if that comment was being directed toward the San Antonio Current. She added that she had attended the last TRS meeting and that all she reported on was the meeting and that she did not have a copy of the report that was the subject of the press leak issue. Ms. Galvan then stated that the public comment time was cut halfway through the meeting and should be earlier. Mr. Arthur Galindo stated that he wanted to put in a good word for Kelly AFB even though they are already gone. Are we talking about the environment, or are we talking about our health he asked. He continued saying that all he has heard is what Kelly is doing about the environment. He added that what is currently underway at Kelly is being done for millions of dollars and could have been done with half that amount if the Air Force were still at Kelly. Dr. Smith stated that RAB members should not speak during public comment periods. Dr. Lené added that the public comment periods are for the general public, not the RAB members. Mr. Curtis Pearson said he shared the community's concerns regarding health issues and would make a proposal and get it approved internally as well as by the AFBCA. He added that once a proposal has been agreed upon, a contractor could begin working on the project. Mr. Pearson said that the fruit and nut study was received in March and contracted with Dr. Donnelly, a toxicologist, to review that report. Another point Mr. Pearson made was that he had contacted the Veterans Administration

to send a report on the connection between ALS and pesticides. Once they have completed this report, he said, they would send us a copy. The Air Force, along with the Air Force Institute for Environment, Safety, and Occupational Health Risk Analysis (AFIERA) need to conduct their own study of people at Kelly. The website to get more information is *www.alsa.org*. The Air Force has helped to establish an operational clinic available to give information to the public. That facility is located at 911 Castroville Road. Ms. Huerta asked if there was information available to review death certificates of persons that died from contamination within the plume area. Mr. Antwine said he wanted to make two points. First he said the AFBCA has identified 30 shallow groundwater wells and that the community will hear more about the AFBCA going onto properties to remove these wells. Mr. Antwine also said that there have been suggestions to relocate the repository to the Las Palmas Library to make the information more accessible. Ms. Huerta said that she has the final copy of her brochure and that it is ready for distribution. Ms. Huerta said the brochure needs to be printed and sent out. Ms. Huerta added that once the budget is finalized, the brochure will be sent out. Mr. Garcia said he would like to see a staff report on ALS. He added that at the last RAB meeting there was a discussion on Six Mile Creek and Leon Creek and that he and Mr. Quintanilla had requested information on these points, and that both of them would like to see action taken. Mr. Garcia concluded saying that the RAB and community at large needed to have property values studied. Mr. Weegar said the Air Force is performing an assessment on Leon Creek to determine all contaminants. He added that Dr. Lené was provided a copy of these comments and that Six Mile Creek is addressed in the Zone 4 comments.

Quintanilla Presentation

Mr. Quintanilla began his presentation by remarking on the cold temperature in the auditorium. He continued by describing to the RAB the recent developments of the RAB Charter Review Subcommittee. He announced that the next meeting would be held on April 23, 2002. He continued saying that the committee has put forth great efforts to come up with a mission statement that will describe the objectives of the RAB Charter Committee. Mr. Quintanilla said one of the hang-ups is Department of Defense (DOD) guidance. On February 19, the Southwest Worker's Union (SWU) read another letter to the RAB. The letter commented that the community did not receive any reports stating the cleanup process at Kelly AFB.

Administrative

Dr. Smith restated Mr. Quintanilla's question regarding what the RAB would like to have done at future RAB meetings. Dr. Lené asked to what extent are these comments addressed to the Air Force. He recommended that the RAB more clearly differentiate to whom the questions are addressed. Ms. Huerta said she thought that if people care enough to come and speak with us, they deserve a response. She asked Mr. Antwine if they still respond to all letters they receive. Mr. Antwine stated that the AFBCA tries to respond to everything in a timely matter. He added that the AFBCA needed to find a process to distribute those questions to the appropriate agencies so that they can give proper responses. Ms. Huerta asked if we talk about a consolidated response, are we referring to the questions brought up here. Dr. Smith stated that he noted that the RAB wants a process to get the questions to the right agencies. Mr. Garcia said the RAB needed to establish an organized process on how to handle the questions and create a specific procedure for questions. Mr. Bowman agreed with Mr. Garcia up to a point. He said some

questions could be answered directly right then and there. He added that the RAB needed to take action in order to make things happen. Ms. Huerta said that some people do not have all the history of what is being discussed so we need to take that into consideration. She said she agreed that some things could be answered immediately. Mr. Bowman said that a woman wanted to know why there was not a RAB member in the BCT, and her question was never answered; there was a lengthy discussion on the subject. Ms. Huerta said that the RAB needed to keep in mind that it is an advisory board; and people lose sight of that sometimes. Mr. Paul Person suggested that a logbook to keep track of issues being discussed would be helpful. Mr. Mike DeNuccio asked if there was already a process in place that could handle these issues. Mr. Silvas asked if there was any litigation going on regarding land use of the property on Kelly. Mr. Weegar stated that it is important to examine the established processes for answering questions being addressed to RAB members.

Meeting adjourned at 10:20pm.

BCT Agenda
16 April 2002

The meeting was held on Tuesday, 16 April 2002 at 9:00 am in the AFBCA/DK, Building 43 office in San Antonio, Texas.

Members Present and Support Personnel:

Name	Organization	Present	Absent
Antwine, Adam	AFBCA/DK	X	
Atkinson, Patrick	AFCEE/ERB	X	
Brown, Leslie	AFBCA/DK		X
Buelter, Don	AFBCA/DK	X	
Callaway, Laurie	BCA (KPMG)	X	
Glass, John	AFBCA/DK		X
Hampton, Rhonda	AFBCA/DK	X	
Landez, Norma	AFBCA/DK	X	
Miller, Gary	EPA	X	
Peck, Walter	AFBCA/DK	X	
Power, Abigail	TNRCC		X
Price, Fred	Mitretek	X	
Price, Lisa Marie	EPA	X	
Ryan, William	AFBCA/DK	X	
Stough, Mark	AFBCA/DK	X	
Weegar, Mark	TNRCC	X	
Wehner, Ellie	TNRCC		X

Additional Support Personnel:

Name	Organization
Beth Gentry	SAIC
Scott Courtney	BAH

Dates for upcoming meetings:

May 14, 2002
June 11, 2002

Item #	Lead	Support	Discussion Topic	Comments	How will we know it's done?	Disposition
1.	Hampton, R.	SAIC Davis, R	Site S-4 CMI Workplan	Present overview of Site S-4 CMI WP submitted for administrative review on 9 Apr 02	Team receives update.	Closed. The S-4 CMI WP was presented. Clean-up time frames have reduced and off-base groundwater contaminant plumes are shrinking faster than modeled in the S-4 CMS. The final component of proposed final action would be installed as an interim system during the summer of 2002. Public notification will occur prior to the construction.
2.	Hampton, R.	Landez, N.	360 Sampling	Update on B/360 soil sampling inside the building completed on 8 Apr 02	Team receives update.	Closed. Issue raised by TNRCC regarding using ACL and the consequences. Rhonda and Norma are going to consider options and discuss them with William Ryan and Don Buelter. Preliminary soil sampling results from within B/360 were provided. The confirmed results will be sent to the regulators via fax or mail.
3.	Hampton, R	Landez, N Davis, R.	B301 & B360 FFS	B/301 Resistive Heating and SVE B/360 PRB placement	Team receives update.	Closed. Team received update on groundwater concentrations found within the B/301 footprint from new monitoring wells. Design of the resistive heating system is on going.

Item #	Lead	Support	Discussion Topic	Comments	How will we know it's done?	Disposition
4.	Peck, W.		Zone 4 RFI Supplemental Information	Present supplemental information and proposed language	Team receives information.	Closed. Additional language proposed for inclusion in the Final RFI was provided for evaluation IAW comment resolution teleconference.
				Lunch		
5.	Ryan, W.		Zone 4 CMS Overview	Present overview of information from Zone 4 CMS submitted for review on 5 April 2002	Team receives overview.	Closed. Doug Karas gave the presentation that would be presented to the RAB later in the evening.
6.	Landez, N.	Ryan, W.	DRMO Permit Monitoring Requirements	Discuss monitoring requirements within the existing DRMO permit now that some property has transferred to GKDA	Team discusses requirements.	Closed. Mark Weegar will send Abbi Power an e-mail requesting a decision on the permit requirements for property that is covered under the permit, but has been closed and no longer needs to be monitored.
7.	Callaway, L	Ryan, W.	Redevelopment Update	Update the BCT regarding redevelopment status at KellyUSA	Team receives update.	Closed. B171 – GKDA currently not interested in early transfer of the facility. May change if they have an interested tenant. The FOST for 145 Duncan should be submitted to EPA soon AFBCA is evaluating a new technology to encapsulate LBP and asbestos. B1575 secretarial waiver is still under review in DC. 3826- new tenant reviewing information on environmental issues.
8.	Ryan, W.	Buelter, D. Peck, W.	Zone Updates	Provide team with update of current activities in Zones 2, 3, 4 and 5	Team receives updates.	Closed. Team received update.
9.	Ryan, W.	Weegar, M. Price, L.	List of Future Deliverables (Regulators/RAB)	Each month, provide a list of upcoming documents for review	Team receives list of upcoming documents for review.	Closed. Regulators were provided with the list of upcoming documents. All documents that are final will be removed from the list.
10.	Ryan, W.	BCT Members	Begin May Agenda	Each month, begin to establish the next month's agenda at the end of the BCT meeting	Team approves agenda items.	– Boeing (spills) – Eco Comments – SD-1 & SA-2 Plan
11.						

BCT Minutes
11 June 2002

The meeting was held on Tuesday, 11 June 2002 at 9:30 am in the AFBCA/DK, Building 43 office in San Antonio, Texas.

Members Present and Support Personnel:

Name	Organization	Present	Absent
Antwine, Adam	AFBCA/DK		X
Atkinson, Patrick	AFCEE/ERB	X	
Brown, Leslie	AFBCA/DK		X
Buelter, Don	AFBCA/DK	X	
Callaway, Laurie	BCA (KPMG)	X	
Glass, John	AFBCA/DK		X
Hampton, Rhonda	AFBCA/DK	X	
Landez, Norma	AFBCA/DK	X	
Miller, Gary	EPA	X	
Peck, Walter	AFBCA/DK	X	
Power, Abigail	TNRCC	X	
Price, Fred	Mitretek		X
Ryan, William	AFBCA/DK	X	
Stough, Mark	AFBCA/DK	X	
Weegar, Mark	TNRCC	X	
Wehner, Ellie	TNRCC		X

Additional Support Personnel:

Name	Organization
Beth Gentry	SAIC
Reagan Errera	TNRCC – Reg 13
Cecil Irby	JM Waller
Paula Jackson	TNRCC

Dates for upcoming meetings:

July 16, 2002 (RAB)
August 13, 2002 (TRS)
September 10, 2002 (TRS)
October 15, 2002 (RAB)
November 12, 2002 (TRS)
December 10, 2002 (TRS)

Item #	Lead	Support	Discussion Topic	Comments	How will we know it's done?	Disposition
1.	Callaway, L	Ryan, W.	Redevelopment Update	Update the BCT regarding redevelopment status at KellyUSA	Team receives update.	Closed. GKDA's new Executive Director will be announced soon. Position will be effective July 1, 2002. GKDA has had some discussion with existing Kelly tenants about a need for a new hangar on the north end of the runway.
2.	Ryan, W.	Power, A.	Boeing (spills)	Old agenda item we were waiting to discuss when Abbi Power could be at the meeting. Discussion includes community relations with Boeing and Boeing attendance at public meetings. Also letter sent to back to Boeing regarding their request for spill clean-up concurrence.	Team discusses.	Closed. AFBCA does not have direct contact with the KellyUSA tenants. TNRCC reviewed Boeing's spill report and has some questions for Boeing. TNRCC is awaiting a response from Boeing. There was an AFFF spill that TNRCC sent a letter to Boeing on. TNRCC will contact Boeing and offer to present a spill reporting procedures training.

Item #	Lead	Support	Discussion Topic	Comments	How will we know it's done?	Disposition
3.	Irby, C.	Westerman, B.	Pads 21 & 35 and Vaulted Tanks	Presentation on Pads 21 & 35. Discussion on vaulted tanks.	Team receives presentation.	Closed – Mark Weegar stated that Pad 21 and Pad 35 can be closed under PST. A visual assessment needs to be performed at Pad 35 to ensure the grass is growing properly. – Vaulted tanks are in the same category of Pads. An RDR (Release Determination Report) needs to be done for closure. 22 tanks need to be closed and removed from the books. – B1655 hazardous waste letter. Documentation on how waste from the tanks was disposed is most likely not going to be found in EMIS due to the manifest would have occurred in 1994. Cecil Irby and Norma Landez will research to see where the waste was disposed. If no documentation is found, a best guess will be done. There are former SA-ALC/EM employees who now work for AFBCA who are familiar with the procedures and can provide an educated guess if the documentation cannot be located.
4.	Landez, N.		SD-1 & SA-2 Plan	Discuss Air Force plans to fill the sites and impacts of the action to the eco risk assessment.	Team receives information.	Closed. – RRR Standard 2 closure attained for both sites but need to meet Tier 2 PCLs at sites to satisfy Eco-Risk requirements. . – SA-2 was determined by CH2M Hill to be a non-jurisdictional wetland. It is closer to the creek. SD-1 is not a wetland. A design will be developed and a report will go out to the regulators soon. TNRCC advised AFBCA to develop a conceptual plan for the sites for review by the regulators prior to moving forward with the design for the sites. – AFBCA needs to get as much done on the Eco-Risk before 1 Sept 2002 because the positions on the Board of Trustees will change. Need to discuss a plan for the whole area before a design is put together. Ron Porter is reviewing the regulatory comments for the Eco-Risk Assessment and should be ready soon. Will discuss with AFBCA and regulators when response to comments is complete.
Lunch						
5.	Gentry B.	Hampton R., Landez N.	Zone 3 RFI	GIS presentation for soil extent. Discuss the use of groundwater background values. Discuss B/360 and 301 latest data and additional work.	Team receives information.	Closed. Determined the area that needs remediation in B360. B301, more sampling will be done. Same backgrounds as suggested in the Zone 4 RFI will be used. Mark Weegar stated that it was ok to keep the same for Zone 3.
6.	Hampton, R	Landez N, Gentry B.	Site E-1	Discuss Site E-1 issues: Peer review comments, Chromium options, bench scale results.	Team receives information.	Closed. Discussion on Site E-1 Chromium occurred between team members.
7.	Hampton, R	Landez N., Gentry B.	B/ 360 and B/301	Discuss progress of interim actions at B/301 and B/360.	Team receives information.	Closed. – The remedial action of thermal heating may not be approved by AFBCA/DR. Source area will be contained at B360 and a reactive barrier will be installed at B301. – There needs to be one standard used per media. If the PRB is non-detect through the down gradient, it can be closed. If the source area is above non-detect, then the most stringent standard needs to be used. A Class III modification to the Compliance Plan to change cleanup standards will also need to be done. – Mark Weegar needs a letter from Rhonda Hampton as to why AFBCA will not submit and FFS. Instead AFBCA will do an Interim Action with an implementation schedule. There is a white paper from the Peer Review.

Item #	Lead	Support	Discussion Topic	Comments	How will we know it's done?	Disposition
8.	Ryan, W.	Buelter, D. Peck, W.	Zone Updates	Provide team with update of current activities in Zones 2, 3, 4 and 5	Team receives updates.	Closed. Team received zone updates.
9.	Callaway, L.	Ryan, W.	BCT Web Site	Provide an overview of the BCT web site, how to access the site, and information that will be provided there	Team receives information.	Closed. An online web demonstration was provided to BCT members. An instruction manual was also provided. This website will allow team members to view and post documents without having to e-mail them to each other.
10.	Ryan, W.	Weegar, M. Miller, G.	List of Future Deliverables (Regulators/RAB)	Each month, provide a list of upcoming documents for review	Team receives list of upcoming documents for review.	Closed. Team received list of upcoming documents.
11.	Ryan, W.	BCT Members	Begin July Agenda	Each month, begin to establish the next month's agenda at the end of the BCT meeting	Team approves agenda items.	– Sanitary Sewer – S-9 & response to comments
12.	Ryan, W.	BCT Members	Dates for Future Meetings	Need to establish dates for future BCT meetings. **Bring your calendar!**	Team establishes meeting dates.	Closed. Dates coincide with TRS and RAB meetings. See top of page for schedule.
13.			Other	Other items worth mentioning from the BCT meeting		– The regulators requested that a CMI Workplan/Class 3 Modification be submitted after the TNRCC approves the CMS. This will help the agency meet the schedule developed to complete the Class 3 Modification. – Walt Peck will send out the tech memos this week. – Replacement pages to the Zone 4 CMS will be sent out this week. – Add Boeing to mailing list for RABs and TRSs.

Technical Review of Zone 4 and Zone 5 Corrective Measures Studies

Mark P. Hemingway
Geomatrix Consultants, Inc.

Presentation Outline

- **Objectives of Review**
- **Discussion of RCRA Process**
- **Summary of CMS Conclusions**
- **Summary of Geomatrix Review**

GEOMATRIX

Sites

Zone 4

- East Kelly & Site MP

Zone 5

- Most of Main Kelly AFB--Flight Line and Operational Areas

GEOMATRIX

Objectives of Geomatrix Review

- Evaluate Objectives, Process, and Conclusions of CMS Reports for
  - –Technical Validity
  - –Regulatory Appropriateness
  - –Community Acceptance

GEOMATRIX

Objectives of Geomatrix Review

- Did NOT Include:
  - –Confirmation of Supporting Data
  - –Validation of Groundwater Modeling
  - –Detailed Review of Cost Estimation Spreadsheets

GEOMATRIX

RCRA Corrective Action Process

- **Identify a Problem**
- **Control any Immediate Threats**
- **Investigation the Nature of the Problem**
- **Select a Remedy or Combination of Remedies**
- **Design the Remedy**
- **Implement the Remedy and Check Its Effectiveness**

GEOMATRIX

RCRA Corrective Action Process

1. **Presence of Contamination Likely**
2. **Interim Measures**
3. **RCRA Facility Investigation**
4. **Corrective Measures Study**
5. **Corrective Measures Design**
6. **Corrective Measures Implementation**
7. **Performance Monitoring**

GEOMATRIX

Corrective Measures Objectives

Zone 4

- To restore the perched water quality to MCLs in a reasonable timeframe.

GEOMATRIX

Corrective Measures Objectives

Zone 5

- Prevent on-base or off-base use of groundwater exceeding MCLs
- Reduce further migration of contaminated groundwater
- Restore on-base and off-base groundwater to MCLs or Texas standards in a reasonable timeframe.

GEOMATRIX

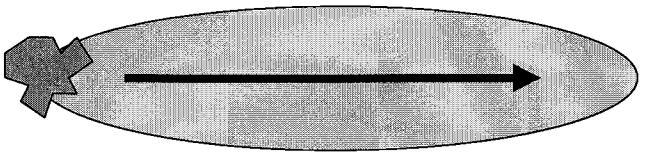
Remedies Should Address

Source Areas

Localized bodies of contamination that can leach or dissolve into groundwater

Plumes

Bodies of contaminated groundwater extending from source areas



GEOMATRIX

CMS Recommended Remedies

Zone 4 Source Areas

- **Site MP**--Continue slurry wall and pumping with MNA and Off-Base Groundwater Remedies
- **Site SS051**--In Situ Enhanced Bio & Chemical Oxidation
- Continue Perimeter Pumping at East Kelly

GEOMATRIX

CMS Recommended Remedies

Zone 4 Off-Base Plumes

- Pumping Wells
- Permeable Reactive Barriers (Iron Walls)
- Phytoremediation

GEOMATRIX

CMS Recommended Remedies

Zone 5 Plumes/Source Areas

- In Situ Enhanced Bio
- Permeable Reactive Barrier
- Pumping
- In Situ Chemical Oxidation
- Monitored Natural Attenuation

GEOMATRIX

The Fundamental Question

DO THE REMEDIES RECOMMENDED IN THE TWO CMS REPORTS MAKE SENSE?

Will They Remove Sources of Contamination?

Will They Help Contain Contaminants On-Base?

Will They Speed the Elimination of Off-Base Contaminants?

GEOMATRIX

Generally, Yes

- The Remedies Proposed by the Air Force are Generally Sound & Appropriate
- Combination of Innovative & Conventional Methods
- Time Frames are Reasonable (Significant Plume Removal within 5 Years)

GEOMATRIX

Recommendations

- Resolve Inconsistencies Between Reports
- Retain Slurry Walls and Horizontal Wells as Possible Remedies for BOTH Zones
- Knock Out ZVI Colloid Injection--Unproven
- Consider PRB or Pumping System for Southern Plume

GEOMATRIX

Final Caveat

- Picking the Right Deer Rifle Doesn't Mean You'll Come Home with Venison--You Still Have to Be Able to Shoot Straight
- The Real Work is Still to Come: Design & Implementation
- Performance Monitoring May Indicate Need for Changes in the Remedy

GEOMATRIX

July 19, 2002
Project 8401

Ms. Grace Fernandez
Air Force Base Conversion Agency
143 Billy Mitchell Boulevard, Suite 1
San Antonio, Texas 78226-1816

Subject: Technical Review of Zone 4 Corrective Measure Study, Draft Final (March 2002) and Revised Draft Final Zone 5 Corrective Measures Study/Feasibility Study (December 2001)
Kelly Air Force Base
Contract/Purchase Order No. F41622-98-A-5881

Ms. Fernandez:

I was tasked to provide a technical review of the two referenced reports, both of which were prepared by CH2M HILL, a consulting company retained by the U.S. Air Force. The objective of this review was to evaluate the methods, findings, conclusions, and recommendations provided in these reports, with respect to applicable regulations, technical merit, industry practice, and other pertinent standards.

I have attached my review in the following draft summary report. I look forward to presenting my findings to the Technical Review Subcommittee and the Restoration Advisory Board.

Please feel free to contact me with any questions.

Sincerely,
GEOMATRIX CONSULTANTS, INC.

Mark P. Hemingway
Principal Hydrogeologist

Enclosure

DRAFT

Summary of Findings from Geomatrix Consultants, Inc., review of:

Zone 4 Corrective Measure Study, Draft Final (March 2002)
and
Revised Draft Final Zone 5 Corrective Measures Study/Feasibility Study
(December 2001)
CH2M HILL

INTRODUCTION AND STATEMENT OF OBJECTIVES

The review was performed by Mark P. Hemingway, Principal Hydrogeologist for Geomatrix Consultants, Inc., under Contract/Purchase Order No. F41622-98-A-5881, Call 0101 and 99001. The two reports (herein, the "Zone 4 CMS" and the "Zone 5 CMS," or "the CMS reports") were both prepared by CH2M HILL, under contract with the U.S. Air Force.

Although separate Contract/Purchase Orders were issued for the review of the two reports, the results of these two reviews were combined into a single report. In part, this was performed at the request of the Technical Review Subcommittee (TRS) of the Kelly Air Force Base (AFB) Restoration Advisory Board (RAB). In addition, given that the two reports were intended to serve virtually identical purposes for two very similar areas, it is useful and enlightening to compare and contrast their respective approaches and findings.

As discussed in the Pre-Performance Meeting with the TRS on May 28, my objective in reviewing the two reports was to evaluate whether the information, methods, conclusions, and recommendations presented were consistent with sound scientific principles, pertinent regulatory requirements, and other applicable standards.

OVERVIEW OF THE ZONE 4 AND ZONE 5 CMS REPORTS

Both reports are Corrective Measures Studies, which is a term utilized for sites being assessed and remediated under a federal environmental law called the Resource Conservation and Recovery Act (RCRA, usually pronounced "reck-rah"). Site that have been contaminated with wastes regulated under RCRA are required to move through a process called Corrective Action. This includes both the investigation of a site, and the selection and implementation of a remedy. It may be helpful to provide a brief overview of the basic Corrective Action process, in order to provide a context for my discussion of the two reports.

Once a site is identified as being regulated under RCRA, and it is believed likely that solid wastes and/or hazardous substances have been released to the environment, the site typically moves through a series of Corrective Action steps. Each of these steps builds generally on the information developed in the preceding step, as described below.

Interim Measures – Interim Measures are utilized to provide short-term control over a contaminant source, mitigate any imminent threat to human health or the environment, and otherwise rapidly provide some stability to the situation. Examples would include the removal of drums or sludges, or the provision of alternate drinking water supplies. The Interim Measures may or may not be incorporated into the final remedy selected later in the Corrective Action process.

RCRA Facility Investigation (RFI) – An investigation to characterize where the contamination is originating, what chemicals are present and at what concentrations, how far the contamination has traveled, and who or what may possibly be exposed to the contamination. The RFI also compiles information regarding the release, the facility, the setting, etc. At its completion, data from the RFI is then incorporated into a Baseline Risk Assessment.

Baseline Risk Assessment – The Baseline Risk Assessment calculates the health risks to humans (human health risk), and the environmental damage risk to animals and plants (ecological risk). These risk levels are compared to either federal and state default levels, or levels calculated specifically for the site following federal and state guidelines. If the Baseline Risk Assessment identifies actual or potential risks that are unacceptable, or if other conditions are present that mandate cleanup, the process proceeds to a Corrective Measures Study.

Corrective Measures Study (CMS) – The CMS first identifies the basic goals of the cleanup—how clean it should leave the site, how fast it should work, etc. The CMS then identifies a reasonable selection of possible options for cleanup or control of the contamination. The obviously unsuitable ones are eliminated, and the remaining options are each then considered based on certain standard criteria—their likely effectiveness, how readily they could be implemented at this site, their cost, their compliance with pertinent regulations, and their acceptance by the community. At the conclusion of this exercise, the CMS recommends a cleanup method or combination of methods that is anticipated to be feasible at the site, effective in cleaning up or controlling the contamination, and cost effective. This recommendation is directed primarily to the governing regulatory agencies, in this case, the Texas Natural Resource Conservation Commission (TNRCC), and the U.S. Environmental Protection Agency (EPA) Region 5. These agencies then decide whether to concur with the remedy recommended in the CMS, or select an alternate remedy for the site.

Corrective Measures Design and Implementation – At this point, the cleanup has basically become an engineering and construction process. The selected remedy, including all necessary infrastructure and monitoring systems, is put into operation at the site.

Performance Monitoring – Often overlooked, this is actually a critical part of the Corrective Action process. There is some measure of uncertainty in most remediation methods, even those with a proven track record. This is especially true for those that rely

on subsurface processes, such as groundwater flow, to aid or support the remedy. It is important to monitor the effectiveness of the cleanup method to ensure it is reaching the goals set for Corrective Action.

I have prepared a brief synopsis of the two CMS reports, including their recommendations for a final remedy in each report.

BACKGROUND

Zone 4 consists of East Kelly AFB, and one area on the southeast border of the main Kelly AFB. Within these two areas, the Zone 4 CMS addresses two specific contaminant sources: Site SS051, at the northwest corner of East Kelly AFB, and Site MP, on the southeast edge of Kelly AFB. In addition, the CMS address the groundwater contamination emanating from East Kelly and Site MP, which travels several miles downgradient.

Zone 5 includes the flight line and several operational areas of Kelly AFB, covering approximately 50 percent of the base. Five specific contaminant sources are addressed by the CMS in Zone 5. These consist of various waste management areas and spill sites.

The environmental contamination present is generally subdivided into source areas, which is typically where the spill or release occurred, or where there is a "pool" of concentrated contamination that is leaking into the groundwater, and off base groundwater contamination. Different remedies are evaluated for these two types of areas.

Both Zone 4 and Zone 5 include other identified contaminant source areas that are not addressed by the CMS. These sites have either already been closed, are regulated under a different regulatory program (e.g., sites with petroleum fuel contamination only), or are being addressed under other CMS reports.

Several Interim Measures have already been implemented at Zone 4 and 5. The largest of these is a series of horizontal wells on the downgradient side of Zone 4 that are removing approximately 450 gallons per minute of groundwater, and a combination slurry wall/groundwater pumping system at Site MP. In addition, there are several measures that are being used or have been used in Zones 4 and 5, including storage tank removal, soil excavation, groundwater extraction, soil vapor extraction, and bioventing. Interim Measures involving in situ oxidation and enhanced in situ bioremediation are being implemented at selected Zone 4 sites. Finally, the U.S. Air Force is working with the local water supply entities to locate and plug and abandon shallow wells that may be affected by groundwater contamination.

Shallow perched groundwater is present at a depth of between 15 and 40 feet below the surface. The groundwater is typically present in transmissive sands and gravels situated atop the clay-rich Navarro Formation. The Navarro Formation represents the base of the shallow aquifer. The flow of perched groundwater is strongly controlled by the topography

of the Navarro's surface. The irregular character of this surface tends to preferentially direct groundwater (and dissolved contaminants) along irregular flow paths.

The primary contamination present in both Zone 4 and 5 is chlorinated solvents and their degradation products. Specific compounds are tetrachloroethene (PCE), trichloroethene (TCE), cis- and trans-1,2-dichloroethene (DCE), and vinyl chloride (VC). These compounds are present both as a hydrocarbon liquid, such as the phase-separated PCE at the MP area, and as dissolved phase in groundwater.

The dissolved phase forms a series of plumes, both on-base and extending several miles beyond the base boundary. A portion of these plumes is discharging low levels of these compounds into the San Antonio River. The CMS attributes the larger, more extensive part of these plumes to Zone 4 sources (especially Site MP). Zone 5 does exhibit some off-base migration of contaminated groundwater, including plumes. The report concludes that off-site sources are the likely causes of a portion of the off-site PCE plume, as well as for off-site dissolved chromium north of East Kelly.

Other, more localized, contaminants include chlorobenzene, arsenic, benzene, and polychlorinated biphenyls (PCBs).

The presence of off-base groundwater contamination is resulting in potentially unacceptable risks to the residential population over those plumes. This risk would result from the use of the perched groundwater as domestic water supply. Although detectable levels of chlorinated compounds are reaching points of discharge along the San Antonio River, concentrations in discharging groundwater and in the river do not exceed default ecological screening levels.

CORRECTIVE MEASURES OBJECTIVES

Each CMS identified the objectives that the Corrective Action process was trying to achieve, i.e., the degree of cleanup, how rapidly it would take effect, etc. For Zone 4, the objective was:

> **To restore the perched water quality to Federal Maximum Contaminant Levels (MCLs) in a reasonable timeframe. MCLs are levels of various contaminants that are allowed to be present in drinking water, as specified in the Federal Safe Drinking Water Act.**

For Zone 5, the objectives were:

- **Prevent on-base or off-base use of groundwater that exceeds MCLs.**
- **Reduce or prevent further migration of groundwater that contains contaminants in excess of the MCLs or applicable Texas standards.**

- **Restore on-base and off-base groundwater to MCLs or applicable Texas standards in a reasonable time frame.**

Although the magnitude of "a reasonable time frame" is not specifically defined, the context of its usage in this report suggests a period of 15 to 20 years.

RECOMMENDED OR PREFERRED ALTERNATIVES FOR CORRECTIVE ACTION

At the conclusion of the evaluation of a number of Corrective Action options, each CMS Report provides a recommendation regarding the preferred approach to contaminant cleanup or control. This approach represents the method or combination of methods that is believed by the report preparer to best meet the Corrective Action objectives from the standpoint of effectiveness, feasibility, cost, regulatory acceptance, and community acceptance. The final remedy selection under RCRA is left to the governing regulatory agencies—in this case, the TNRCC and EPA.

The remedies recommended in the Zone 4 CMS are as follows:

Source Areas

- Site MP – Continue use of existing source control, which consists of a slurry wall and pumping system, with treatment and surface discharge of recovered groundwater. Rely on monitored natural attenuation (MNA) and the Off-Base Groundwater remedies discussed below to reduce groundwater contamination outside the source area.

- **Site SS051** – Implement in situ enhanced bioremediation and chemical oxidation at source areas. Continue use of perimeter pumping system at East Kelly. Rely on MNA and the Off-Base Groundwater remedies discussed below to reduce groundwater contamination outside the source area.

Off-Base Groundwater

- Utilize vertical pumping wells in high concentration areas of the plume near East Kelly. Construct plants to treat the groundwater, which is then presumably discharged to a sewer or surface water body under permit.

- Construct permeable reactive barriers (PRB) of zero valent iron across other high concentration areas of the plume.

- Establish phytoremediation zones, consisting of bands of poplar trees or similar species, at the discharge areas along the San Antonio River.

- Rely on MNA to reduce or remove lower concentration portions of the plume.

The remedies recommended in the Zone 5 CMS are as follows:

Source Areas/Individual Plumes

- **Plume A (north area of Kelly AFB)** – Implement in situ enhanced bioremediation and chemical oxidation at source areas. Install PRB of zero valent iron across downgradient base perimeter.

- **Plume B (off-base, north of Kelly AFB)** – Install PRB of zero valent iron downgradient of the suspected off-base source area.

- **Plume C (north part of Kelly AFB)** – Continue operation of existing groundwater recovery and treatment system.

- **Plume D (east-central part of Kelly AFB)** – Implement in situ enhanced bioremediation and chemical oxidation at source areas. Rely on existing downgradient groundwater pump and treat systems for control of dissolved contaminants.

- **Plume F (east part of Kelly AFB)** – Rely on MNA to reduce or remove dissolved groundwater contamination.

- **Plume H (central flight line area of Kelly AFB)** – Rely on MNA to reduce or remove dissolved groundwater contamination. Rely on existing downgradient groundwater pump and treat systems for control of dissolved contaminants if MNA is not completely effective.

- **Plume J (west area of Kelly AFB)** – Rely on MNA to reduce or remove dissolved groundwater contamination.

- **Plume K (west area of Kelly AFB)** – Rely on MNA to reduce or remove dissolved groundwater contamination.

Off-Base Groundwater Contamination

Off-base portions of Plumes A and B are addressed with monitored natural attenuation and a PRB, respectively. To the extent that that these plumes merge with off-base groundwater contamination from Zone 4, they are also addressed by Zone 4 remedies.

DRAFT

SUMMARY OF GEOMATRIX'S TECHNICAL REVIEW

Our assessment of the two CMS Reports focused primarily on the selection of Correction Action objectives, and the recommendations reached regarding preferred remedial alternatives. Our review was subject to the following specific limitations:

- The reports rely on data developed in other reports, specifically those for the RFI and Risk Assessment. The conclusions of those reports were accepted as an operating premise for the two CMS Reports, and were not subject to this review, unless the summary data provided strongly indicated one of these conclusions was suspect.

- The CMS reports utilized detailed groundwater modeling and cost estimation as a basis for screening and selection of remedial alternatives. A complete validation of these efforts is beyond the scope of this review.

Although I did review the process for screening and evaluation of the various cleanup alternatives, this was not considered a primary focus of the review. The screening and evaluation process can be quite subjective and easily directed toward a pre-existing conclusion, so the process is of less interest than the conclusion. With respect to what I anticipate to be the primary interest of the RAB, I have focused my review on the Corrective Action objectives and the preferred or recommended remedial alternatives, as discussed below.

CORRECTIVE ACTION OBJECTIVES

Corrective Action objectives must generally state how rapid and complete the remediation will be, specific receptors it will protect, and the concentrations to which contaminants will be reduced. My review focused on the following question: Are the objectives for the cleanup appropriate and useful, given the nature of the site and the community, and given the applicable regulations?

The Corrective Action objectives stated for the Zone 4 CMS are too vague to be truly functional. The Zone 5 CMS Corrective Action objectives are an improvement, although a more specific definition or limit to the "reasonable time" term would have enhanced their usability.

EVALUATION AND SCREENING OF CORRECTIVE ACTION OPTIONS

Did the screening and selection process effectively evaluate the remedy options, and were any options eliminated that should have been retained?

The setting and contaminants at Zone 4 and Zone 5 are generally the same, so one would expect the two CMS reports to evaluate the same general set of remedy options, use the same basic decision-making process, and come to roughly the same conclusions. This

expectation does not match the actual contents of the reports, however. Some examples follow, with my related comments:

The Zone 5 CMS concludes that slurry walls are too difficult to implement and too costly to merit further consideration (Page 5-7). The Zone 4 CMS, however, touts the slurry wall at the MP Area as being highly effective in containing that source area. I would recommend that slurry walls be retained for possible use at source areas.

The Zone 5 CMS concludes that horizontal wells may not be effective at Kelly AFB, due to the nature of the subsurface setting, and does not retain them for consideration. The Zone 4 CMS, however, relies heavily on the existing large horizontal well system at East Kelly for providing perimeter control. [Note: The Zone 5 CMS does note that horizontal wells may be reconsidered at a later time.] I would recommend that horizontal well systems be considered at Zone 5 for perimeter control.

The Zone 5 CMS correctly notes that injection of zero-valent iron (ZVI) colloids to form a reactive barrier does not have a proven track record, and therefore does not consider it further. The Zone 4 CMS, however, retains this technology as a possible part of the final recommended remedy. Given the absence of established performance data for this method, I would limit its use to pilot scale, at maximum.

RECOMMENDED REMEDIES

Most importantly, does the remedy proposed in the two CMS reports make sense? Is it likely to remove sources of contamination, contain significant amounts of contamination on-property, and hasten the disappearance of downgradient, off-base contamination?

Generally, my answer is yes. There are source control or removal remedies proposed for the more concentrated source areas, perimeter controls downgradient of larger, more diffuse problems, and remedies to actively treat or control the off-site contaminated groundwater, including off-base. The technologies specified range from innovative to conventional, but the more innovative (i.e., less proven) techniques are used for source removal, where they are backed up by a safety net of more conventional techniques for perimeter and plume control. The more proven techniques include PRBs and pump and treat systems.

The anticipated time frame for relatively complete removal of the off-base plume is long, estimated from modeling at 15 to 20 years. The modeling does project significant reduction, however, in a shorter period (approximately 5 years of operation). Given the extent and nature of the plume, however, and the complexity and heterogeneity of the hydrogeologic setting, this is probably a realistic time frame. No feasible technology exists that would provide immediate removal of the off-base plumes.

DRAFT

As discussed above, one element of the various recommended remedies is perimeter control—this will become particularly important as the various remedies progress. There are probably source areas at Kelly AFB that are currently unknown, and that are not apparent because they are masked by contamination from the larger, more obvious source areas. Relying solely on removing or controlling known sources would not address these unknown sources, but perimeter control should contain their effects until they can be identified and remediated.

I would recommend the consideration of one addition to the planned remedy. The off-base plume may be generally divided into a northern and southern portion, each extending about 3 to 4 miles past the base boundary. Remediation of the northern plume includes a PRB about 1.5 miles downgradient of East Kelly, to accelerate the removal of the distal end of the plume. Treatment of the southern plume is limited to source control and pumping systems at and relatively near the base. The addition of a pumping system or a PRB further along the southern plume should be considered to speed its attenuation.

I should clarify that I consider all of the technologies selected to be capable of working at Kelly AFB. Whether they actually will work is another question. As they move into the design, construction, and operation phases, all of the technologies proposed will involve some degree of hydraulic control—that is, control over groundwater flow conditions in the subsurface. For the chemical oxidation and enhanced bioremediation, this control is required for complete delivery of the oxidant, substrate, or cometabolite to the contaminant sources. For pumping systems, the control is required to ensure adequate capture of the plumes by the horizontal or vertical wells. For the PRBs, hydraulic control is necessary to ensure that the contaminated groundwater flows through the reactive barrier, where it can be treated, and remains within the barrier long enough for treatment to be successful.

In short, the ultimate success of these methods will depend on how well they are designed, installed, and operated. During their operation, performance monitoring will be critical to verify that the system is achieving the desired results. If not, it may be necessary to modify the existing system, add a new control such as a slurry wall, or try a completely different approach. This caveat would include existing systems that are being integrated into the overall Corrective Action, such as the horizontal well system at East Kelly.

Comments on Summary of Findings from Geomatrix Consultants, Inc., review of:
Zone 4 Corrective Measure Study, Draft Final (March 2002) and
Revised Draft Final Zone 5 Corrective Measures Study/Feasibility Study (December, 2001), CH2M Hill

1. The RCRA Corrective Action process is defined in Section VIII of the Compliance Plan No. CP-50130 issued by the TNRCC to Kelly AFB on June 12, 1998. The Compliance Plan requires Kelly AFB comply with the requirements set forth in 30 TAC Chapters 305 and 335. 30 TAC 335 – Risk Reduction Standards (RRS) establishes the criteria for clean up of soil and groundwater sites. RRS No. 1 requires the site be closed to background. RRS No. 2 establishes media specific concentrations which site conditions must meet prior to closure. RRS No. 3 allow for development of site specific clean up standards developed in part using the results of a human health or ecological risk assessment. The Zone 4 RFI report (January 2001) included a human health risk assessment to fulfill internal Air Forces requirements to meet CERCLA guidelines and an ecological risk assessment to fulfill RCRA requirements.

2. The reviewer incorrectly lists phytoremediation as a component of the Zone 4 CMS proposed alternative. The use of phytoremediation zones at the discharge areas along the San Antonio River were eliminated from consideration for several reasons:

- Groundwater concentrations in the area are very low to non-detect,
- A permeable reactive barrier designed to reduce or eliminate contaminant concentrations prior to reaching the San Antonio River is proposed in the vicinity of Commercial Avenue, and
- Contaminant concentrations should be well below regulatory standards in the area of the river long before a phytoremediation system (poplar trees) could become effective (i.e. establishment of a root zone).
- Current plans by the City of San Antonio and the San Antonio River Authority call for a complete re-alignment of the river course and a return to more natural conditions. The schedule for construction in the area of interest is within the next five years.
- The San Antonio River Authority has expressed concerns the installation of trees along the river channel could impede drainage and enhance flooding.

3. The review states "The CMS reports utilized detailed groundwater modeling and cost estimations as a basis for screening and selection of remedial alternatives."

Groundwater modeling and cost estimates were NOT used as a basis for screening and selection of remedial alternatives. The groundwater model simulations were conducted to provide a common platform for estimating cleanup times. Cost estimates were prepared for information purposes only, and were not used to screen alternatives. The criteria for screening and selection of remedial alternatives are listed below:

Technical Criteria

- Protection of human health and environment
- Attain corrective action objectives
- Control the source of releases
- Comply with applicable standards for waste management
- Long-term reliability and effectiveness
- Reduction in toxicity, mobility, or volume of wastes
- Short term effectiveness
- Implementability

In addition the following community concerns were considered when evaluating remedial alternatives:

- Health concerns
- Property values
- Neighborhood disruption
- Cleanup times.

4. The reviewer states "The screening and evaluation of process can be quite subjective and easily directed toward a pre-existing conclusion, so the process if of less interest than the conclusion."

The statement implies AFBCA guided the remedy selection process to a pre-determined remedy. In fact, AFBCA conducted an exhaustive effort in screening technologies, developing corrective measure alternatives, and objectively applying the evaluation criteria in accordance with the RCRA process. In addition, AFBCA included the community early on and throughout the remedy selection process. Many public meetings were held in the community and numerous briefings were provided to community, civic, business, and other organization in an effort to educate the community and obtain their feed back.

5. The review states "Corrective Action objectives must generally state how rapid and complete the remediation will be, specific receptors it will protect, and the concentrations to which contaminant will be reduced." "The Corrective Action objectives stated for the Zone 4 CMS are too vague to be truly functional."

The corrective action objectives for the Zone 4 CMS are clearly stated in **Section 4.0 Corrective Action Objectives.** The text states "the overall goal for this project is to achieve drinking water standards in the shallow groundwater as defined by the maximum contaminant levels (MCLs). The corrective action objectives for the RCRA regulated cleanup program are defined in Section IV of the Compliance Plan No. CP-50130 issued by the TNRCC to Kelly AFB on June 12, 1998. In addition, the Compliance Plan must modified as necessary to assure compliance with 30 TAC Chapters 305 and 335.

6. The review states "The setting and contaminants at Zone 4 and Zone 5 are generally the same, so one would expect the two CMS reports to evaluate the same general set of remedy options, use the same basic decision process, and come to roughly the same

conclusions. This expectation does not match the actual contents of the reports, however. Some examples follow, with my related comments." The reviewer goes on to compare and contrast between the selection or rejection of various technologies including slurry walls, horizontal wells, and zero-valent iron (ZVI) injected reactive barriers.

a. The reviewers assumptions regarding "the settings and contaminants at Zone 4 and Zone 5 are generally the same", are inconsistent with statements made by the reviewer regarding "complexity and heterogeneity of the hydrogeologic setting". The complexity and heterogeneity of the hydrogeologic setting, combined with the site(s) history, contaminant concentrations, corrective action objectives, and advances in technologies require unique solutions that must be developed on a site by site basis. Some specific examples are cited below.

b. The reviewer contends slurry walls should be retained for possible use at source areas for containment in the Zone 5 CMS as they were in the Zone 4 CMS. Due to the nature of the source areas in Zone 5, AFBCA chose a more aggressive approach and selected active remediation of the source areas as opposed to simple containment. Containment of the source area in Zone 5 would also require unnecessary long-term operation and maintenance. Containment of the source area at MP using a slurry wall was retained as a technology and ultimately selected as the remedy due to the fact that, to date no technology is available that can successfully remediate large DNAPL source areas.

c. The reviewer contends horizontal wells should be retained for possible use as perimeter control in the Zone 5 CMS as they were in the Zone 4 CMS. The saturated thickness of the groundwater zone in Zone 5 is relatively thin compared to that in Zone 4. The lack of adequate saturated interval in Zone 5 is the primary reason for not retaining horizontal wells for perimeter control.

d. The reviewer contends construction of reactive barriers using injection technology to emplace reactive media (zero-valent iron) does not have a proven track record as stated in the Zone 5 CMS and therefore should not have been retained as a technology for consideration in the Zone 4 CMS. The Draft Final Zone 5 CMS was originally prepared in the 1997-1998 time frame. At that time there was limited performance data available and the technology was not retained. A Revised Draft Final Zone 5 CMS was published in December 2001 to address comments, however the technology screening section was not revised. The Zone 4 CMS was prepared in 2001-2002 time frame. Advances in reactive media technology along with several years of performance data from existing systems allowed the retention of the technology in the Zone 4 CMS.

7. The reviewer states "addition of a pumping system or a PRB further along the southern plume should be considered to speed its attenuation." The results of the modeling simulations indicate addition of a pumping system or PRB in the area recommended does not produce significantly enhanced cleanup times. A second PRB is proposed in the northern plume to address an area of relatively high concentrations (100 ppb) and prevent further migration of those concentrations toward the San Antonio River.

Technical Assistance for Public Participation (TAPP) Process

Presented to the
Restoration Advisory Board
13 August 2002

Overview

- Identification of Need
- Application Process
- Commander Decision
- Procurement

Identification of Need

- Identify proposed projects
- Decide on best type of assistance
  - local universities
  - community experts
  - state and local health and environmental organizations
- If none of the above are suitable, then community members may seek TAPP Assistance

Application Process

- Community must identify a single point of contact for communication with DoD
- Community completes application w/assistance from DoD RAB co-chair
- Describe the project and desired product
- If possible, suggest potential providers

Commander Decision

- Installation Commander (IC) or the equivalent Decision Authority;
  - determines conformity to eligibility requirements
  - affirms community has sought other avenues
  - determines availability of funding

Procurement

- Contracting officer, Mr. Keith Matowitz, will procure assistance for community members
- Currently available: $22,278.50

Are You Concerned About Pollution in Your Neighborhood?

If so, the Texas Natural Resource Conservation Commission (TNRCC) and the Alamo Area Council of Governments (AACOG) will offer orientation sessions on citizen collected evidence to San Antonio area residents. The orientation will focus on the TNRCC's enforcement process and how private individuals can gather and submit evidence of environmental violations. Admission is free, but seating is limited, so please call the number below or fax the attached form to indicate the session you will attend.

Tuesday, August 6, 2002

① AACOG Board Room - **9:00 AM through 11:00 AM**
8626 Tesoro Drive, Suite 100

② Terry Eskridge Community Room - **7:00 PM through 9:00 PM**
VIA Metropolitan Transit Authority Building, 1021 San Pedro

Thursday, August 8, 2002

③ Terry Eskridge Community Room - **9:00 AM through 11:00 AM**
VIA Metropolitan Transit Authority Building, 1021 San Pedro

④ AACOG Board Room - **7:00 PM through 9:00 PM**
8626 Tesoro Drive, Suite 100

Under the new citizen collected evidence program, which took effect on December 11, 2001, individuals can provide to the TNRCC the evidence they have collected of possible violations of environmental law which the TNRCC could use in a formal enforcement action.

Questions? Call the TNRCC San Antonio Regional Office at **(210) 403-4061** to learn more.

In order to ensure that adequate accommodations are provided at each of the orientation sessions, please contact Mr. Malcolm A. Ferris by phone **(210) 403-4061** or by fax **(210) 545-4329** to indicate the session number you will be attending.

NAME: _____ NUMBER IN PARTY: _____

SESSION NUMBER: ① ___ ② ___ ③ ___ ④ ___

(Please note, you need only attend one session)

Fax to: Mr. Malcolm A. Ferris, TNRCC San Antonio Region Office **(210) 545-4329**

REPORTS FOR THE ST. MARY'S LIBRARY

	REPORTS LISTED BELOW WERE TAKEN TO THE TRS MEETING	Date	Status	ADM
	July 16, 2002			
328B	Closure Report for Building 365 Berman Road Oil/Water Separator	May 2002	Final Draft	Inf
329B	Closure Report for Building 340 Oil/Water Separator	May 2002	Final Draft	Inf
782	Quality Program Plan 2002 RCRA Compliance Plan/Groundwater Monitoring	May 2002	Final	Inf
	Date: 8-13-02			
	Signature: Dick Person			

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE