KELLY AFB
TEXAS

ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 3290

KELLY RESTORATION ADVISORY BOARD
TECHNICAL REVIEW SUBCOMMITTEE
MEETING AGENDA

20 December 2000, 6:30 P.M.
St. Mary's University, Garni Science Hall

I.	**Introduction** A. Agenda Review and Handouts	**6:30 - 6:40**	**Dr. Lené**
II.	**TAPP Review - Shallow Groundwater Report**	**6:40 - 7:20**	**Mr. Mark Hemingway, Geomatrix Consultants Inc.**
III.	**Zone 2 & 3 Status**	**7:20 – 8:00**	**Mr. William Ryan, AFBCA**
IV.	**Review of Potential TAPP Review Subjects**	**8:00 – 8:15**	**Dr. Lené**
V.	**Area 1592 Project Update**	**8:15 – 8:20**	**Mr. William Ryan, AFBCA**
VI.	**Administrative** A. BCT Update B. Spill Summary Report C. Documents to TRS/RAB D. Action Items E. Agenda/Location/Time of Next TRS Meeting	**8:20 - 8:45**	**Dr. Lené**
VII.	**Adjournment**	**8:45**	

MEETING MINUTES

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

20 December 2000, St. Mary's University, Garni Science Hall
Dr. Lené, TRS Chairman

I. Introduction: The TRS meeting began at 6:45 p.m. Attachment 1 is the attendance report.

II. TAPP Review of Mitre Tek Shallow Groundwater Report: Mr. Mark Hemingway, Geomatrix Consultants Incorporation, presented his draft report. (see Attachment 1) He emphasized that the report was reviewed as a "stand alone" document and none of the network of supporting documents was examined. He reviewed the conclusions offered by the Mitre Tek report.

A. He made the following observations/conclusions:

1. More investigation is needed to examine undiscovered contamination sources, plume migration and groundwater flow channels.
2. More data is required to confirm off-site sources.
3. Even if off-sites sources are present, the Air force should, at a minimum, retain shared responsibility to investigate off-site plumes.

B. Mr. Hemingway sited several differences he had with the report:

1. The nature of the shallow groundwater does not preclude its potential use. The water meets state regulatory standards for potential use. It also largely meets Federal standards.
2. Although the distribution of contamination may support the presence of off-base sources of the contamination north of the base the evidence is not conclusive.
3. No off-base plumes could be attributed solely to off-base sources.
4. The Air Force should continue investigating in the area.

C. Discussion:

Comment: Mr. George Rice complemented Mr. Hemmingway on the report. He also suggested including some of the figures and maps from the report reviewed, if the budget permitted.

Q - Mr. Rice asked if an outline of a basic plan to fill the data gaps could be include.

A - Mr. Hemmingway said that with the limited budget any plan would have to be very general and would be of limited use.

Comment: Mr. Mark Weegar, Texas Natural Resource Conservation Commission (TNRCC), said the data gaps had been identified and work had already started on filling them.

Q - Mr. Rice asked if there were there any evidence that the contamination was from on-base.

A - Mr. Hemmingway said his difficulty is answering this question is because there were no test wells between off-base hotspots and all areas of the base.

Comment: Mr. Weegar, TNRCC, said they understand there is a city-operated waste line in the area and it is possible a past leakage could account for hot spots.

Comment: Mr. Hemmingway said he was disappointed that his draft report had been given to the media. He said he considered it irresponsible to release a report that wasn't finalized. He recommended this be seriously considered in future activities

Q - Dr. Lené asked if it was possible to determine a one-time spill or a chronic problem.

A - Mr. Hemmingway said that would be very difficult because of the nature of the solvent creating the hotspot.

Q - Dr. Lené asked Mr. Hemmingway if he could estimate the original amount of contaminant.

A - Mr. Hemmingway said that there were to many variables to give an estimate.

D. Dr. Lené asked that any further questions be submitted by Friday (15 Dec 00) to himself or Mr. Dan Zatopek, Air Force Base Conversion Agency (AFBCA).

III. Zone 2 & 3 Status: Mrs. Rhonda Hampton, AFBCA, provided an update on the work that has been accomplished. She highlighted the optimization of systems at site MP and throughout the zones. She also reported the Zone 2 Draft RFI will be made public on 19 January 2001.

A. Discussion:

Q - Dr. Lené asked if the Corrective Measure Study (CMS) would include both zones.

A - Ms. Hampton, AFBCA, said the CMS, due out on 15 April 2001, will include both zones.

IV. Review of Potential TAPP Review Subjects: Mr. Zatopek, AFBCA, asked the subcommittee to consider what projects should receive TAPP monies in 2001. Several projects are holdovers from last year. Mr. William Ryan, AFBCA, said he would review upcoming deliverables for other reports that may be of interest and report to Dr. Lené.

A. The committee prioritized a current list of deliverables The result are:

1. ATSDR Reports
2. Zone 4 CMS
3. Zone 2 &3 CMS
4. CMI S-4 Workplan

B. Discussion:

Comment: Mr. Weegar, TNRCC, suggested the money should be used to look at documents where are being proposed rather than documents that concern solutions already selected.

Comment: Mr. Zatopek, AFBCA, said the monies for TAPP grants were 'locked up' and the committee did not need to rush their decisions.

V. Area 1592 Project Update: Ms. Vanessa Musgrave, AFBCA, briefed that the two above-ground fuel tanks were down and the contractor is starting to breaking up the berm concrete. Any errant paint chips are being swept up and the area is watered down to limit dust. She did not have the schedule for the underground vaulted fuel tank removal.

A. Ms. Musgrave reported an extensive effort had been made to ensure the community was well informed about the area 1592 project. The community outreach included three community bulletins, personal visits by staffers to area neighbors, media coverage and a 24/7 hotline. During one neighbor visit an explosion was heard coming from the base. The team was able to determine on the spot that the blast was from Lackland AFB training program. She also commented that the public could get daily air sampling results taken four times a day done at the fence line along Growdon Road.

B. Discussion:

Q - Mr. Weegar, TNRCC, asked when the concrete containment walls would be gone.

A - Ms. Musgrave, AFBCA, reported that approximately a fourth to one third of the concrete containment walls were broken and the rest would be shortly.

Q - A subcommittee member asked if the area would be used by the Edgewood Independent School for practice fields as has been suggested and, if so, would that require cleanup at a higher level.

A - Ms. Musgrave, AFBCA, said the land use was up to the Greater Kelly Development Authority (GKDA).

A - Mr. Weegar, TNRCC, said that currently the state is considering future use as industrial. To use the area as practice fields the cleanup may have to be done at residential use levels.

VI. Administrative:

A. Base Conversion Team (BCT) handouts were presented to Dr. Lené (see Attachment 3). Mr. Ryan reported the new off-base data requested by TNRCC is in but not validated. The data should be validated in time for the next meeting. He also said the Runway joint use agreement had been signed by the Air Force.

B. Spill Summary Report: There were no reportable spills during the month of November 2000 (see Attachment 4). A spill was reported on 9 November 2000 in the 1592 fuel tank area of less than 10 gallons of JP-8. Ms. Abbey Powers asked if GKDA tenants were reporting spills to the Air Force. Mr. Ryan said no.

C. Documents to TRS/RAB: There were two new documents (see Attachment 5).

D. Action Items: No Action Items.

E. Next TRS meeting: The next TRS meeting will be an abbreviated one held prior to the Special RAB meeting at 6:00 p.m. on 13 February 2001. The unconfirmed location is South San Antonio High School. The Subcommittee decided not to hold a January TRS meeting. BCA will send info packets out in lieu of a January meeting.

1. Other RAB meetings were detailed
   a) 16 January 2001 – regular RAB meeting
   b) 23 January 2001 – RAB workshop on Zone 4 shallow groundwater
   c) 31 January 2001 – Public Forum
   d) 13 February 2001 – Abbreviated TRS meeting at 6:00 p.m. to discuss TAPP grant topics. Special RAB meeting at 6:30 p.m. (Discussed with and agreed to by Dr. Lené, RAB Community Co-Chair)
   e) 21 February 2001 – Public Comment Forum on Zone 4 shallow groundwater

VII. Adjournment: The TRS adjourned at 8:30 p.m.

Attachments:

1. Attendance Report
2. TAPP Review of Mitre Tek Shallow Groundwater Report
3. BCT Minutes
4. Spill Summary Report
5. Documents List

MINUTAS DE LA JUNTA
SUBCOMITÉ DE REVISIÓN TÉCNICA (TRS, por sus siglas en inglés) DE LA BASE DE LA FUERZA AÉREA KELLY
JUNTA ASESORA DE RESTAURACIÓN DE KELLY (RAB, por sus siglas en ingles)

20 de diciembre de 2000, Sala Garni Science Hall, Universidad de St. Mary's

Dr. Gene Lené, Presidente en el TRS

I. Introducción: La reunión del TRS comenzó a las 6:45 de la tarde. El Documento Adjunto # 1 es el reporte de asistencia a la misma.

II. Revisión bajo el Programa de Asistencia Técnica y Participación Pública (TAPP, por sus siglas en inglés) del Informe de Agua Subterránea Poco Profunda de Mitre Tek: El Sr. Mark Hemingway, de Geomatrix Consultants Incorporation, presentó su informe en borrador (ver el Documento Adjunto # 1). Enfatizó que el informe se revisó como un documento "que habla por sí mismo" y no se examinó ningún documento de soporte al mismo. El Sr. Hemingway revisó las conclusiones que presentó el reporte de Mitre Tek.

A. Hizo las siguientes observaciones/conclusiones:
   1. Es necesaria más investigación para examinar las fuentes de contaminación que todavía no se descubren, la migración de la pluma y los canales de flujo del agua subterránea.
   2. Se necesitan más datos para confirmar las fuentes que están fuera del sitio.
   3. Aun cuando haya fuentes presentes fuera de la base, la Fuerza Aérea debe, como mínimo, mantener una responsabilidad compartida para investigar las plumas que estén fuera del sitio.

B. El Sr. Hemingway citó varias diferencias que él tenía con relación al informe:
   1. La naturaleza del agua subterránea poco profunda no impide su uso potencial. El agua cumple con los estándares reglamentarios estatales para uso potencial, y también cumple en gran parte con los estándares federales.
   2. A pesar de que la distribución de la contaminación al norte de la base puede apoyar la presencia de fuentes fuera de la base , la evidencia no es conclusiva.
   3. Ninguna pluma fuera de la base se puede atribuir únicamente a fuentes fuera de la base.
   4. La Fuerza Aérea debe continuar investigando el área.

C. Discusión:
   Comentario: El Sr. George Rice felicitó al Sr. Hemingway por su reporte. También sugirió incluir algunas de las cifras y mapas de la revisión del reporte, si lo permitía el presupuesto.
   P – El Sr. Rice preguntó si se podía incluir un resumen de un plan básico para llenar la información faltante.
   R – El Sr. Hemingway dijo que con el presupuesto tan limitado cualquier plan tendría que ser muy general y de uso limitado.

Comentario: El Sr. Mark Weegar, de la Comisión para la Conservación de Recursos Naturales de Texas (TNRCC por sus siglas en inglés), dijo que se había identificado la información faltante y que ya se había iniciado el trabajo para llenar tales faltantes.

P – El Sr. Rice preguntó si había alguna evidencia de que la contaminación proviniera de fuera de la base.

R – El Sr. Hemingway dijo que la dificultad para contestar esa pregunta era porque no había pozos de prueba entre los puntos críticos fuera de la base y todas las áreas de la base.

Comentario: El Sr. Weegar de la TNRCC dijo que ellos han sabido que hay una línea de desechos operada por la ciudad en el área y que es posible que una fuga anterior pudiera ser la causa de los puntos críticos.

Comentario: El Sr. Hemmingway dijo que se sentía desilusionado de que su informe en borrador hubiese sido proporcionado a los medios de comunicación. Dijo que consideraba irresponsable el hacer público un informe que no estaba finalizado y que recomendaba que esto se tomara en cuenta seriamente para actividades futuras.

P - El Dr. Lené preguntó si era posible determinar cuándo se trataba de un derrame de una sola vez o un problema crónico.

R – El Sr. Hemmingway dijo que sería muy difícil debido a la naturaleza del solvente que creaba el punto crítico.

P – El Dr. Lené preguntó al Sr. Hemmingway si él podía estimar la cantidad original de contaminante.

R – El Sr. Hemmingway dijo que había demasiadas variables como para dar un estimado.

El Dr. Lené pidió que las preguntas adicionales fueran presentadas para el viernes (15 de diciembre del 2000) a él mismo o al Sr. Dan Zatopek, de la Agencia de Conversión de Bases de la Fuerza Aérea (AFBCA por sus siglas en inglés).

III. **Situación de la Zona 2 & 3**: La Sra. Rhonda Hampton de la AFBCA dio una actualización sobre el trabajo que se ha hecho. Enfatizó la optimización de los sistemas en el sitio MP y a través de las zonas. También reportó que el Borrador de la Investigación de la Facilidad bajo RCRA (RFI, por sus siglas en inglés) de la Zona 2 se haría público el 19 de enero del 2001.

A. Discusión:

P – El Dr. Lené preguntó si el Estudio de Medidas Correctivas (CMS por sus siglas en inglés) incluiría a ambas zonas.

R – La Sra. Hampton, de la AFBCA dijo que el CMS que estaría listo para el 15 de abril del 2001 incluiría ambas zonas.

IV. **Revisión de los Asuntos Potenciales para Revisión del TAPP:** El Sr. Zatopeck de la AFBCA pidió al subcomité que considerara qué proyectos deberían recibir el dinero del TAPP en 2001. Varios proyectos están pendientes del año pasado. El Sr. William Ryan de la AFBCA dijo que revisaría las próximas entregas para otros informes que pudieran ser de interés y que lo reportaría al Dr. Lené.

A. El comité indicó una lista actualizada de entregas prioritarias, que son:

1. Informes de la Agencia para el Registro de Sustancias Tóxicas y Enfermedades (ATSDR por sus siglas en inglés)
2. CMS de la Zona 4
3. CMS de la Zona 2 & 3
4. Plan de Trabajo de la Implementación de Medidas Correctivas (CMI, por sus siglas en inglés) del S-4

B. Discusión:

Comentario: El Sr. Weegar de la TNRCC sugirió que el dinero debería usarse para examinar los documentos que se están proponiendo en lugar de documentos que tienen que ver con soluciones que ya han sido seleccionadas.

Comentario: El Sr. Zatopek de la AFBCA dijo que el dinero que el TAPP otorga estaba "inmovilizado" y que el comité no necesitaba apresurar sus decisiones.

V. Actualización del Proyecto del Área 1592: La Srta. Vanessa Musgrave de la AFBCA reportó que los dos tanques de combustible sobre del nivel del suelo ya habían sido derribados y que el contratista está empezando a romper el concreto de la banqueta. Los fragmentos de pintura que se levantan están siendo barridos y el área se conserva mojada para limitar el polvo. Ella no tenía la fecha para la remoción del tanque de combustible abovedado subterráneo.

A. La Srta. Musgrave reportó que se había hecho un gran esfuerzo para asegurar que la comunidad estuviera bien informada sobre el proyecto del área 1592. El contacto con la comunidad incluyó tres boletines para la comunidad, tres visitas personales del personal a los vecinos del área, cobertura en los medios de comunicación y una línea telefónica abierta las 24 horas del día, los 7 días de la semana. Durante una visita a los vecinos, se escuchó una explosión proveniente de la base. El equipo pudo determinar en el acto que la explosión era del programa de entrenamiento de la Base Aérea Lackland. También comentó que el público podía obtener resultados diarios del muestreo de aire que se lleva a cabo cuatro veces al día en el límite a lo largo de la Calle Growdon.

B. Discusión:

P – El Sr. Weegar de la TNRCC preguntó cuándo se derribarían las paredes de contención de concreto.

R – La Srta. Musgrave de la AFBCA reportó que aproximadamente una cuarta parte a una tercera parte de las paredes de contención de concreto ya estaban demolidas y que el resto lo estaría en poco tiempo.

P – Un miembro del subcomité preguntó si el Distrito Escolar Independiente de Edgewood usaría el área como campos de prácticas como se había sugerido, y que de ser así, se requeriría una limpieza a un nivel más alto.

R – La Srita. Musgrave de la AFBCA dijo que la Autoridad de Desarrollo del Gran Kelly (GKDA por sus siglas en inglés) decidiría el uso de la tierra.

R – El Sr. Weegar de la TNRCC dijo que el estado está considerando su uso futuro como industrial. Si el área fuese usada como campos de prácticas, la limpieza probablemente tendría que hacerse a niveles de uso residencial.

VI. Puntos Administrativos

A. Se presentaron los folletos del Equipo de Conversión de la Base (BCT por sus siglas en inglés) (ver el Documento Adjunto # 3). El Sr. Ryan reportó que la nueva información de fuera de la base solicitada por la TNRCC ya está lista, pero todavía no está validada. La información debe estar validada a tiempo para la siguiente reunión. También dijo que el acuerdo para usar conjuntamente la pista ya había sido firmado por la Fuerza Aérea.
B. Reporte del Resumen de Derrames: No hubo derrames reportados durante el mes de noviembre de 2000 (Ver Documento Adjunto # 4). Se reportó un derrame el 9 de noviembre de 2000 en el área del tanque combustible 1592 de menos de 10 galones de JP-8. La Srta. Abbey Powers preguntó si los arrendadores de la GKDA estaban reportando los derrames a la Fuerza Aérea. El Sr. Ryan dijo que no.
C. Documentos al TRS/RAB: Hubo dos nuevos documentos (ver el Anexo 5).
D. Puntos de Acción: No hubo puntos de acción.
E. Siguiente junta del TRS. La siguiente reunión del TRS será una junta corta que se llevará a cabo antes de la reunión especial del RAB a las 6:00 de la tarde del 13 de febrero de 2001. El lugar no confirmado es la escuela South San Antonio High School. El Subcomité decidió no hacer una junta del TRS en enero. La AFBCA enviará paquetes de información en lugar de la junta de enero.
    1. Se detallaron otras juntas del RAB
        a) 16 de enero de 2001 – Junta regular del RAB
        b) 23 de enero de 2001 – Mesa de trabajo del RAB sobre el agua subterránea poco profunda de la Zona 4
        c) 31 de enero de 2001 – Sesión Pública
        d) 13 de febrero de 2001 – Junta corta del TRS a las 6:00 de la tarde para discutir los temas del subsidio del TAPP. Junta especial del RAB a las 6:30 de la tarde (discutida y convenida con el Dr. Lené, Copresidente representando a la Comunidad en el RAB
        e) 21 de febrero del 2001 – Sesión Pública de Comentarios sobre el agua subterránea poco profunda de la Zona 4

VII. Cierre de la Sesión: La reunión concluyó a las 8:30 de la noche.

Documentos Adjuntos:

1. Lista de Asistencia
2. Revisión del TAPP del Informe del Agua Subterránea Poco Profunda de Mitre Tek
3. Minutas y Folletos del BCT de noviembre de 2000
4. Reporte del Resumen de Derrames
5. Lista de Documentos

Attch. # 4

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS SAN ANTONIO AIR LOGISTICS CENTER (AFMC)
KELLY AIR FORCE BASE, TEXAS

MEMORANDUM FOR REMEDIAL ACTION BOARD/TECHNICAL REVIEW SUBCOMMITTEE (RAB/TRS)

FROM: SA-ALC/EMC
307 Tinker Drive, Bldg. 306
Kelly AFB, TX 78241-5917

SUBJECT: Monthly Spill Report for November 2000

There have been no reportable quantity spills for the month of November 2000. There was one notable incident involving a JP-8 fuel sheen at the 1592 fuel system on November 8, 2000. A courtesy call was made to TNRCC Regional Office to let them know of the incident. Record review and field investigation concluded a release of less than ten gallons of JP-8. Residual JP-8 in recovery tank piping was displaced when the fire suppression system at the subject facility was activated due to an electrical outage. A follow up call to TNRCC was made on November 13, 2000 for a status update.

If you have any further questions or require any additional information, please contact Capt. Sean M. O'Brien at (210) 925-3100, ext. 229, or e-mail at sean.o'brien@kelly.af.mil.

Sincerely

Sean M. O'Brien

SEAN M. O'BRIEN, Capt, USAF
Director, Environmental Management

DEPARTMENT OF THE AIR FORCE
AIR FORCE BASE CONVERSION AGENCY

Attach. #2

02 NOV 2000

AFBCA/DK
143 Billy Mitchell Blvd
Kelly AFB, TX 78241-6017

Dear TRS Member

Enclosed is the Draft Review of the Shallow Groundwater Report to be presented at the TRS meeting scheduled for **12 Dec 00**. This report is part of the taskings for the Technical Assistance for Public Participation (TAPP) contract F41622-98-A-5881-CALL 0001 with Geomatrix Consultants Inc.

Sincerely

daniel F Zatopek
DANIEL F. ZATOPEK
Contracting Officer

Attachment:
Draft TAPP review of Shallow Groundwater Report

DRAFT

October 26, 2000
Project No.

Mr. Daniel F. Zatopek
AFBCA/DK
143 Billy Mitchell Boulevard
Kelly Air Force Base, Texas 78241-6017

Subject: Review of Mitretek Systems Report
Physical and Chemical Characteristics of the Shallow Groundwater Zone and Sources of Groundwater Contamination in the Vicinity of Kelly Air Force Base, Texas (February 2000)

Dear Mr. Zatopek,

Geomatrix Consultants, Inc. (Geomatrix) has completed a technical review of the referenced Mitretek Systems (Mitretek) report (hereinafter, "the report"). The report is comprised of two volumes:

- Volume 1—Analysis and Recommendations
- Volume 2—Aerial Photographs and Related Correspondence and Plates

As we discussed in our Pre-Performance Meeting on September 26, our objective in reviewing the report was to evaluate whether the information, conclusions, and recommendations presented were:

- Consistent with sound scientific principles and pertinent regulatory requirements, and
- Appropriately supported by the data.

Our review was limited to an assessment of the information contained within the two report volumes, and did not include efforts to independently verify the presented data or to identify and review other data that may be available.

OVERVIEW OF THE MITRETEK REPORT

The information presented by Mitretek was compiled from previously conducted environmental investigations or publicly available literature sources. In preparing their report, Mitretek did not conduct environmental sampling or testing of their own.

The Mitretek report focuses on two off-base areas where previous investigations have documented shallow groundwater contamination. Mitretek refers to these two areas as

"potential off-base source areas." The locations of the two subject areas are shown in Figure 1-1 of the Mitretek report.

With regard to the two subject areas, the Mitretek report addresses four primary technical topics:

- **Groundwater**: the report discusses such issues as, where shallow groundwater is found (e.g. its depth, thickness, lithology, etc.), its general quality and use, and its flow characteristics (e.g. flow direction, slope, and velocity, etc.).

- **Contamination**: the report discusses the types, amounts, and locations of the shallow groundwater contamination in the subject and surrounding areas.

- **Contamination Sources**: the report identifies and discusses potential sources of the off-base contamination.

- **Additional Investigation and Remediation:** the report discusses the need for additional investigations in the off-base areas, and who should conduct them. The report also provides recommendations regarding the type of remediation that would be appropriate for the areas.

I have prepared a brief synopsis of the primary technical issues addressed in the report. This synopsis represents a summary of the technical data, interpretations, and conclusions. Because this synopsis is based on my own personal view of the information presented, it should be understood that other individuals' opinions of the same report might differ from my own. Based on my review, the report reaches the following conclusions:

- Shallow 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 saturated thickness of the aquifer ranges from 0 to 45 feet. Overall, the shallow groundwater is of relatively low value due to:

  - its naturally poor quality (for example, the groundwater has naturally high iron and manganese concentrations),
  - its poor quantity and spatial distribution (for example, in certain areas the groundwater zone is very thin or even absent), and
  - the fact that alternative water supplies (i.e. City of San Antonio) are readily available in the area.

- The contamination at the subject off-base locations is comprised primarily of chemicals called chlorinated volatile organic compounds (CVOCs), which were widely used industrial solvents. The important CVOCs at the subject off-base locations are tetrachloroethene (PCE) and 1,1-dichloroethene (DCE), as illustrated

in Figures 3-2 and 3-5, respectively. These chemicals naturally degrade into other chemicals, which are called "daughter products." Primary daughter products in the two areas include trichloroethene (TCE) (Figure 3-3), 1,2-dichloroethene (Figure 3-4) and vinyl chloride (not illustrated). The chemical concentrations of certain of these chemicals, namely PCE and DCE, have been determined to be highest in wells that are located off base. This fact, among others, indicates the PCE and DCE contaminant plumes in the subject off-base areas originate from off-base (i.e. non-Kelly) sources.

- Both of the two subject areas of contamination are located where historical non-Kelly industrial activities have occurred (refer to Section 4, pg. 4-1 and aerial photographs). The types of industries include aircraft engine maintenance and repair, welding, machine shops, and documented use of hazardous substances. These types of operations are consistent with the types of contamination present in the shallow groundwater.

- The investigations to date have been conducted by the U.S. Air Force and have been significantly limited to city easements and other public rights of way. To more fully understand the potential off-base source areas, additional investigations are necessary. The additional investigations will require access to individual private properties and should be conducted by regulatory agencies or private parties, including corporations and other businesses. The U.S. Air Force should not conduct the additional investigations in the subject off-base areas because they are not responsible for the contamination.

- Considering the relatively low-value of the shallow groundwater, a reasonable approach to cleanup is to identify and either remove or control all significant CVOC sources and to control the highest CVOC groundwater concentrations. Relatively lower concentrations of CVOCs should be allowed to naturally degrade over time.

SUMMARY OF GEOMATRIX'S TECHNICAL REVIEW

My technical assessment of the Mitretek report focused on the primary topics and conclusions as presented above. Within this report, I have attempted to focus on the major issues with which I disagree, or for which I feel additional discussions or clarification is warranted.

The vast majority of the technical interpretations and conclusions presented within the Mitretek report, as summarized above, appear to be based on sound scientific principals and are presented with adequate support. However, there are certain potentially important matters where I either have disagreement with Mitretek's interpretations/conclusions, or I feel additional clarifications and/or discussions are warranted. Each of these matters is discussed below.

The Value of the Shallow Groundwater

On balance, the Mitretek report argues the shallow groundwater in the study area is of low value and should not be considered an "aquifer." This opinion is based on their

conclusion that the groundwater zone has relatively poor characteristics with regard to its spatial distribution, use, quality, and quantity within the study area.

Mitretek's opinion on this matter does have merit, particularly in certain on-base areas. For instance, as shown in Figure 2-4, a majority of the western on-base area is either dry or has a saturated thickness of less than five feet. In addition, there is apparently no current or planned on-base use of this groundwater. However, as one moves off base to the east just a short distance, the character of the water bearing zone changes significantly. In most areas immediately off base, and throughout East Kelly, the character of the groundwater zone would be expected to support its use on a local scale.

For instance, the saturated interval is commonly 20 to 40 feet thick (refer to Figure 2-4). The amount of water that could be pumped from most wells would be expected to exceed 150 gallons per day, which is one of the criteria the Texas Natural Resource Conservation Commission (TNRCC) uses to classify potential water sources. Although there are areas where the zone is dry, or reportedly would not produce adequate volumes of water, these areas represent a small percentage of its overall expanse off base.

Also, although the shallow groundwater is not of the same quality as the Edwards Aquifer (see Section 2.7, pg. 2-14), this comparison is not relevant when classifying the groundwater for potential use. Although certain constituents are shown to exceed secondary drinking water standards, these standards are primarily aesthetic in nature and do not prevent the local use of the water. The total dissolved solids (TDS) concentrations in the shallow groundwater are below 10,000 milligrams per liter (mg/l), and therefore the TNRCC does consider this groundwater to be of potential use.

In summary, consistent with applicable TNRCC criteria, it is my opinion that the shallow groundwater does meet the definition of an aquifer and does have potential use. Given this, Mitretek's arguments for reduced levels of cleanup, although not without merit, could be countered with relatively strong arguments to the contrary.

Sources of Off-Base Groundwater Contamination

The Mitretek report identifies current and historic areas of industrial activities which are alleged to have significantly contributed to, or caused, the subject off-base areas of CVOC contamination. My assessment of this allegation is discussed as follows:

- The allegation that other potential CVOC sources are, or have been, located within the subject areas is based on sound scientific principals and is adequately supported by the site data. Aerial photographs and various historical documents clearly identify industrial activities in the subject areas. Although the report does not present proof that any of these industries used the types of chemicals actually found in the groundwater, or experienced releases that would have resulted in the contamination, it is reasonable to identify the industrial operations as potential sources based on the existing data.

- The allegation that the off-base operations have contributed to the groundwater contamination is also based on sound scientific principals and supported by the data. The primary evidence supporting this allegation are 1) the fact that the highest concentrations of certain chemicals are found in off-base wells and 2) the fact that certain types of contaminants are not found in adjacent on-base areas. For instance, the northern off-base plume has PCE concentrations that are significantly higher than PCE concentrations documented in nearby on-base areas. Also, north of East Kelly, the shallow groundwater contains 1,1-DCE, whereas no evidence of 1,1-DCE has been found in the area on base. These chemical findings do support a conclusion that off-base sources have contributed to the off-base groundwater contamination.

- The allegation that off-base potential sources are the sole cause of certain areas of off-base groundwater contamination is not based on sound scientific principals or adequately supported by the data. As presented in Figure 3-13, based on the analytical data and the suspected source areas, the Mitretek report categorizes off-base groundwater contamination into three types:

    - Kelly AFB sources only,
    - Multiple sources, and
    - Off-base sources only.

  A significant portion of the off-base contamination has been attributed to off-base sources only (Figure 3-13). As discussed previously, the chemical data does suggest PCE and 1,1-DCE in the subject areas may be coming from off-base sources only. However, the areas where these chemicals are also contain chemicals apparently from on-base sources. In particular, the PCE and 1,1-DCE plumes are in the same areas where TCE is present, as shown in Figure 3-3. This TCE appears to have originated primarily or solely from on-base sources.

  Mitretek suggests the TCE found within the PCE plume area is due to PCE degradation, but this conclusion is not adequately supported by the data. Groundwater flow patterns and chemical contour patterns are entirely consistent with the TCE plume (or a significant portion of it) having originated from the identified on-base TCE sources. Based on Mitretek's illustrations, the TCE originating from on-base sources clearly migrates along the same paths as the alleged off-base PCE plume. This can be observed in the comparison of the chemical contours presented in Figures 3-2 and 3-3. Although it is possible some of the off-base TCE contamination is due to degradation of the off-base PCE, the analytical data presented in the report does not conclusively demonstrate this. Specifically, the data provided does not permit one to distinguish TCE due to PCE degradation from TCE originating from a TCE source. In summary, Mitretek's conclusions that there are potential off-base sources of CVOCs located in the subject areas, and that these sources appear to have contributed to groundwater contamination, are based on sound scientific principals and adequately supported. However, the conclusion that the northern portion of the off-base groundwater

contamination can be attributed entirely, or even primarily, to off-base sources is not based on sound scientific principals nor adequately supported. In fact, the analytical data strongly supports a conclusion that contamination from Kelly AFB sources is present throughout essentially all areas of off-base contamination.

The Need for Additional Investigations

The Mitretek report concludes that additional investigations are needed to investigate potential off-site sources of contamination in the two subject areas. The report further states that the U.S. Air Force should not conduct these additional studies, because Kelly AFB operations are not the source of the plumes.

I agree that additional investigations are needed. I also agree that the additional studies should include efforts to identify possible off-base sources. Mitretek's attempts to absolve Kelly AFB of responsibility for contamination in the northern portions of the study area, however, is not supported by the technical data. Although there is evidence to indicate contaminant contributions from off-base sources, similar evidence shows that Kelly AFB operations have also contributed significantly to contamination in the same subject areas.

Given this, the U.S. Air Force, as an identified responsible party for the off-base contamination, would continue to investigate the off-base plumes with regard to overall character and extent. To perform this, the TNRCC may have to support the U.S. Air Force's efforts to obtain access to critical off-site areas. The goals of an effort focused on the overall delineation of the plume and its margins, however, could be met by continuing to place wells in public rights-of-way. Unless the TNRCC concurs with Mitretek's arguments that Kelly AFB operations are not responsible for any significant portion of the northern off-base plume, I expect this approach will be mandated by that agency.

- Given that other, additional sources of off-base contamination do appear to be present, however, the U.S. Air Force could reasonably request that the TNRCC initiate action to identify those additional responsible parties. This effort would consist of a more focused source identification investigation (i.e. placement of a large number of sampling locations around contaminant "hot-spots." The U.S. Air Force may then have legal alternatives, such as cost contribution, which may be pursued with those parties. Identification and discussion of such options are beyond the scope of this evaluation.

CONCLUSIONS

My review of the Mitretek report leaves me in substantial agreement with the technical data and conclusions presented. Three primary points of disagreement and/or required clarification, however, have been identified:

- The Mitretek report argues the groundwater zone is of low value, should not be defined as an aquifer, and reduced cleanup requirements should be considered on

this basis. It is my opinion that an equally strong argument can be made for the groundwater to be considered an aquifer of potential use. This characterization may be a focus issue when determining the appropriate cleanup requirements.

- The Mitretek report identifies a significant portion of contaminated groundwater as being caused by sources other than Kelly AFB. It is my opinion that essentially all off-base areas of groundwater contamination include substantial contamination from on-base sources.

The Mitretek report concludes the U.S. Air Force should not investigate certain off-base areas of contamination further because Kelly AFB operations are not responsible. It is my opinion, as stated previously, that there are no areas where Kelly AFB operations are not a contributing source; therefore, this is not a valid reason for absolving Kelly's responsibilities in the subject areas. I appreciate having the opportunity to provide this review. If you have any questions about the information presented herein, please contact me at (512) 494-0333.

Sincerely,

GEOMATRIX CONSULTANTS INC.

Mark Hemingway
Principal Hydrogeologist

BCT Meeting
19 December 2000

The meeting was held on Tuesday, 19 December 2000 at 9:00 am in the WPI Office, 12th floor conference room.

Members Present and Support Personnel:

Name	Organization	Present	Absent
Brown, Leslie	AFBCA/DK		X
Buelter, Don	AFBCA/DK	X	
Callaway, Laurie	BCA (KPMG)	X	
Farrell, Philip	GKDA		X
Landez, Norma	AFBCA/DK	X	
Meshako, Chuck	AFBCA/DK	X	
Neff, Richelle	UNITEC	X	
Peck, Walter	AFBCA/DK	X	
Power, Abigail	TNRCC	X	
Price, Lisa Marie	EPA		X
Rohne, Russell	AFBCA/DK	X	
Ryan, William	AFBCA/DK	X	
Stankosky, Laura	EPA	X	
Stough, Mark	AFBCA/DK		X
Underwood, Tim	BCA (KPMG)	X	
Weegar, Mark	TNRCC	X	
Wehner, Ellie	TNRCC		X

Dates for upcoming meetings:

January 16, 2001
February 6-7, 2001
March 13, 2001
April 10, 2001
May 8, 2001
June 12,2001

ATTACH. # 3

BCT MINUTES
19 December 2000

Item #	Lead	Support	Discussion Topic	Comments	How will we know it's done?	Disposition
1.	Underwood, T.	BCT Members	Redevelopment Update	Update the BCT regarding redevelopment status at Kelly AFB.	Team receives update.	Closed. Secretary of the Air Force decided that the Environmental Process Control Facility would not be transferred. Water transfer documents are expected to be signed 19 Dec 2000. Representatives from the Mexican government visited Kelly AFB to inspect potential areas to setup a showroom for Mexican exports. The Joint Use runway agreement has been signed.
2.	Rohne, R.		Off Base Investigation Update	Discuss recent off-base sampling effort.	Discussion is complete.	Open. The Air Force sampled 10 off base wells from 6-8 December 2000. The results of the December sampling event were compared to the August 2000 sampling event. Three wells that were dry in August were sampled in December. The preliminary sample results from December are consistent with the August results (for wells that contained water for both sampling events). The Air Force will prepare a summary of the off base investigation findings and present the findings to the EPA and TNRCC at the February 2001 BCT meeting.
3.	Peck, W.	Stoker, M. Goodson, B.	Zone 4 RFI/CMS	Provide an update on the status of the RFI/CMS reports.	Team receives update.	Closed. The CMS is underway. The Air Force is currently modeling proposed remedies. Public comments are being incorporated into the report. An Informal Technical Information Report (ITIR) is expected to be submitted by the end of January 2001.
4.	Hampton, R.	SAIC	CS-2 Northbank Performance Test Results	Present the preliminary performance test results for the new recovery wells at CS-2 Northbank.	Discussion is complete.	Closed. Presented pump test results from the CS-2 Northbank optimized system. The optimized system consists of two new recovery wells as well as the existing recovery system. After the two week pump test, TCE concentrations at CS-2 Northbank decreased and one seep dried up. Modeling of the optimization effort will start soon.
5.	Hampton, R.	SAIC	Site E-1RFI	Present an overview of Site E-1RFI report.	Presentation is complete.	Open. This item has been moved to the January BCT meeting.
6.	Ryan, W.	Buelter, D. Peck, W. Rohne, R.	Zone Updates	Provide team with update of current activities in Zones 2, 3, 4 and 5.	Team receives updates.	Closed. Handouts were distributed for Zones 2, 3, 4 and 5.
7.	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. Handouts distributed.
8.	Ryan, W.	BCT Members	Begin January Agenda	Each month, begin to establish the next month's agenda at the end of the BCT meeting.	Team approves agenda items.	Closed. The January BCT meeting has been moved to 16 January. January agenda items are: • Site E-1 RFI • Zone 4 RFI/CMS • IWCS • EPCF

Attach. # 5

REPORTS FOR ST MARY'S

	REPORTS LISTED BELOW WERE TAKEN TO THE ST. MARY'S	Date	Status	ADM
	LIBRARY - BCT On 19 Dec 2000			
206B	RCRA Facility Investigation Site E-1	Draft Final	Nov 2000	Inf
384A	Corrective Measures Study Addendum for Site S-4 Groundwater	Final	Dec 2000	Inf

Date: December 20, 2000

Signature: [signature]

UNITED STATES AIR FORCE
INSTALLATION RESTORATION PROGRAM
KELLY AIR FORCE BASE
SAN ANTONIO, TEXAS

RCRA FACILITY INVESTIGATION
SITE E-1
KELLY AFB, TEXAS

DRAFT FINAL

Kelly Air Force Base, Texas
Contract No. DAHA90-94-D-0007
Task Order No. 0604

NOVEMBER 2000

EXECUTIVE SUMMARY

Science Applications International Corporation conducted an RFI at Site E-1 located in Zone 2 at Kelly AFB. As a result of stipulations presented in *Compliance Plan No. CP 50310* (issued in 1998) by TNRCC, this investigation (1) determined the nature and extent of contamination resulting from past activities at the base, (2) identified contaminant transport mechanisms and pathways, and (3) gathered data to support recommendations for corrective actions. The RFI activities from April 1999 to September 2000 are required to fill critical data gaps and complete characterization of contaminant sources and the nature and extent of soil and groundwater contamination associated with releases of hazardous wastes or waste constituents.

USACE, Tulsa District is assisting Kelly AFB and the Air Force Base Conversion Agency in complying with TNRCC and USEPA requirements. The information collected during this RFI will be used to either determine the need for the next step in the corrective action process or to support the recommendation for no further action. Should further action be necessary, the data collected during the RFI will be used to support the decision-making process for identifying potential technologies for remediation.

Site E-1 is a former chemical evaporation pit used for disposal of chromium sludge, contaminated fuels and oils, hazardous solvents, acid sludge, and other wastes. This site is at the southernmost corner of Kelly AFB and located approximately 100 to 150 feet southeast of Leon Creek. The former evaporation pit is presently covered by broken asphalt pavement and used as an equipment storage yard, however not all areas are paved within the site.

This Site E-1 RFI was triggered by two major developments on the site. The first development was a technology demonstration at the site by AFCEE between 1997 and 1998. TCE concentrations in soil and groundwater appeared to suggest TCE DNAPL. The second development resulted from an evaluation of the interim remedial system at Site E-1. Existing information appeared to suggest the collection trench did not tag the aquitard, hence not providing adequate containment. Overall, these developments suggested the site condition was not fully characterized for final remedial activities.

Interpretations of the nature and extent of contamination are based on direct comparison of validated analytical results for individual site samples and the RFI decision criteria. Analytical results which were not used because they did not meet the data validation criteria are discussed in detail in the Data Validation Report. Determining which contaminants of concern are site-specific contaminants resulting from a release of hazardous waste or waste constituents requires a case-by-case assessment of the frequency of constituents occurrence and concentrations. Because of the nature of Site E-1 historical waste generation, no contaminants of concern were eliminated from further consideration.

Historical data and data collected during the performance of this RFI indicate volatile and semivolatile compounds and inorganic concentrations above TNRCC RRS2 levels in surface soil, subsurface soil, and groundwater.

Because of these exceedances, human receptors that have potential to be exposed to contaminants originating from Site E-1 include site visitors, construction workers, base personnel, and off-site residents.

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