KELLY AFB
TEXAS

ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 3273

KELLY RESTORATION ADVISORY BOARD
TECHNICAL REVIEW SUBCOMMITTEE
REVISED MEETING AGENDA
November 13, 2001, 6:30 p.m.
Kennedy High School

I.	**Introduction**	**Dr. Lene, Comm. Co-chair**	**6:30 – 6:40 p.m.**
	A. Agenda Review and Handouts (Dr. Lene to discuss Zone 5 Comment Process)		
II.	**Presentation/Comment Period**	**Russell Rhone**	**6:40 – 7:10 p.m.**
	Zone 5 FFS		
III.	**Briefing**	**William Ryan**	**7:10 – 7:55 p.m.**
	Zone 4 City Council results		
IV.	**Presentation:**	**Dan Zatopek**	**7:55 – 8:15 p.m**
	TAPP Pre-Performance Meeting regarding the Zone 4 RFI		
VII.	**Administrative**	**Dr. Lene, Comm. Co-chair**	**8:15 – 8:30 p.m.**
	A. BCT Update		
	B. Spill Summary Report		
	C. Documents to TRS/RAB		
	D. TAPP Grant Report		
	E. Action Items		
	F. Agenda/Location/Time of Next TRS Meeting		
VII.	**Adjournment**		**8:30 p.m.**

MEETING MINUTES

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

13 November 2001, Kennedy High School,
1922 S. General McMullen
Dr. Gene Lené, TRS Community Co-chair

Attendees

Dr. Gene Lené, Community Co-chair
Dr. David Smith, Facilitator
Mr. Scott Lampright, Bexar Co. Fire Marshal
Mr. Dan Zatopek, AFBCA
Mr. Doug Karas, AFBCA
Mr. Robert Miller, Booz·Allen & Hamilton (BA&H)
Ms. Tracy McLoughlin, BA&H
Ms. Lynn Myrick, BA&H
Mr. Blake Carroll, BA&H
Mr. Eddie Martinez, BA&H
Mr. William Ryan, AFBCA
Mr. Mark Weegar, TNRCC
Ms. Lisa Price, U.S. EPA (alternate for Ms. Stankosky)
Ms. Katherine Ramos, Community Member (alternate for Mr. Quintanilla)
Mr. Robert Silvas, Community Member
Mr. Nicolas Rodriguez, Community Member
Ms. Kyle Cunningham, SAMHD, (Alternate for Mr. Sam Sanchez)
Mr. Russ Rohne, AFBCA
Ms. Abbi Power, TNRCC
Mr. Don Buelter, AFBCA
Mr. Jeff Neathery, TAPP contractor

Several community members were also in attendance.

I. Introduction: The meeting convened at 6:34 p.m.
Dr. David Smith welcomed everyone and indicated that this TRS meeting had to adjourn on time.

II. Zone 5 Presentation

Mr. Russell Rohne gave a presentation on the Focused Feasibility Study for Zone 5, Plume A. He stated that there are 11 distinct plumes within Zone 5, and that this study is focused on Plume A. The corrective measures study (CMS), which was submitted in February 2000, addresses the source and perimeter of the plume. He said that the document is available for review at the San Antonio Central Library downtown and at the Kelly Information Repository. Additionally, handouts were available at a table in the back of the room. Mr. Rohne informed everyone that new technologies have become available since the CMS was submitted. He proceeded to show the map depicting
Plume A. He stated that Plume A consists mostly of Trichloroethylene (TCE) contamination caused by solvents emanating by Building 1414.

Discussion

Mr. Robert Silvas: When did the contamination take place?

Mr. Rohne: The actual contamination that came from Building 1414 began in the 1960s and 1970s, but we believe some other sources contributed to the plume. Any area where suspected sources have been removed, contained high concentrations of TCE. The sources included oil/water separators, lift stations, and drain lines. Since the removal of these components, there has been a decrease in concentrations in the source area and stable concentrations in the plume.

Mr. Silvas: When were the readings on the levels of TCE taken?
Mr. Rohne: Recently.

Mr. Rohne presented a series of charts on Plume A. There were nine alternatives shown in the Focused Feasibility Study. Three of the alternatives were used for this plume. The alternatives were categorized as No Action; in-situ oxygen treatment perimeter, Permeable Reactive Barrier (PRB), and enhanced bioremediation perimeterm, PRB. Enhanced bioremediation, was selected as the alternative. The main reason for this choice was cost. Mr. Rohne went on to explain enhanced bioremediation which is the use of organic supplements to increase microorganism activity and break down chlorinated solvents to harmless byproducts. Typical organic products used are vegetable oil and molasses.

Mr. Scott Lampright: What are the byproducts?
Mr. Rohne: Ethenes.

Mr. Lampright: Are these less harmful than volatile organic compounds (VOCs)?
Mr. Rohne: Yes.

Mr. Rohne went on to explain that this is an emerging technology with good results.

Ms. Katherine Ramos: Has this technology ever been used in areas this big?
Mr. Rohne: I cannot say that it has.

Mr. Rohne went on to explain the PRB. PRB is the use of a wall that reacts with groundwater, and chlorinated solvents are chemically changed to harmless byproducts. Zero valent iron is the preferred reactive media because it is cheaper in the long run, compared to pump and treat systems. There is increasing frequency of use. It is a new but accepted technology.

Mr. Lampright: How deep and wide would it be?
Mr. Rohne: I do not know the exact measurements, but I will get you a response.

Mr. Rohne went on to say that the comment period would start October 22 and end November 20. He added that written comments could either be sent to the Air Force Base Conversion Agency (AFBCA), or they could be accepted during the meeting.

Mr. Mark Weegar: This public comment period is an internal AFBCA CERCLA approach. This is not the start of the regulatory comment period for the CMS.
Mr. Rohne: Yes, this comment period is a voluntary effort by AFBCA.

III. City Council Recommendations on Zone 4 Shallow Groundwater Cleanup

Mr. Ryan gave a background on the City Council Meeting that took place on October 18 and what the recommendations were that resulted from this meeting. In November 2000, Councilman Garcia requested AFBCA to brief City Council on the cleanup of Kelly. City Council then directed the City of San Antonio (CoSA) to hire an independent consultant to assess the groundwater cleanup options. Zephyr Environmental was selected to perform the assessment. Zephyr presented their recommendations at the City Council meeting. The Air Force will submit the Zone 4 CMS within 60 days of receipt of CoSA's report.

Mr. Ryan talked about the well plugging project that the Air Force is working in conjunction with the San Antonio Water System. He stated that the Air Force is willing to pay to have wells over the plume plugged.

Dr. Gene Lené: How many wells have been identified?
Mr. Ryan: There are 115 in the designated area; 25 are actually over the plume.

Ms. Kyle Cunnigham: There are wells that have already been plugged. They may have not been plugged properly, however, which is one thing that will be identified.

Dr. Lené: How can you tell if a well is properly plugged?
Mr. Ryan: Both records of the well and a visual inspection will be used to determine if a well was properly plugged.

Mr. Weegar: Are the city and state aware of plugging regulations?
Ms. Cunningham: A state inspector will be accompanying the identification team.

Mr. Silvas: Are all these wells on the perimeter of the base? If so, are you going to plug wells off- base?
Mr. Ryan: These wells are all off- base.

Mr. Silvas: What has been done to identify these wells?
Mr. Ryan: The process was done in phases; contacting residents in the Kelly vicinity, obtaining United States Geological Survey identification, and comparing electrical records with water records.

Mr. Silvas: What is the specified area where wells will be plugged?
Mr. Ryan: The area will extend past the San Antonio River and go north of Highway 90.

Dr. Lené: Are wells outside the plume going to be plugged?
Mr. Ryan: Yes, if there is potential for contamination.

Mr. Silvas: Are the wells that are going to plugged going to be tested also?
Ms. Cunningham: We will test all wells unless circumstances do not allow for it.

Dr. Lené: Will anything be done for the existing Edwards wells?

Mr. Ryan: A records search showed that more than half the wells have a double casing.

IV. Dan Zatopek Technical Assistance for Public Participation (TAPP) presentation

Ms. Lisa Price asked about how the TAPP grant would be directed. She said that the nature and extent of contamination have been pretty well defined; therefore, the direction for the TAPP contractor should be toward off-site contamination. Mr. Zatopeck agreed that a decision on the focus of the TAPP review should be made before the meeting is adjourned tonight. Dr. Lené expressed concern about overstepping the requirement and that we may be going too far. Ms. Ramos stated that the perception that Mr. Jeff Neathery would be serving as a watchdog instead of an educator might be a problem. Mr. Weegar stated that since the EPA comments are already out, the TAPP review was coming after the fact. He suggested that instead of focusing on the nature and extent of contamination, the TAPP review should focus on the RCRA Facility Investigation (RFI) to see if data are complete enough to make remedy decision. Ms. Price suggested that the RFI could be reviewed to determine whether the report contains enough geologic information; the TAPP contractor agrees with the report's interpretations, and believes that enough information exists to proceed with design and construction. Mr. Neathery said that would fit in with design and original intent. Dr. Lene stated that the intent is not for TAPP to design for the AF. Mr. Neathery said that a decision can be made when the final presentation is ready and comments are evaluated. Mr. Zatopek then reviewed the administrative requirements and stated that the TAPP review would focus on Operable Unit 2 groundwater, and the next steps and validity of design. Mr. Weegar clarified that the focus should be on whether there is sufficient information in the RFI to make a design.

Schedule for TAPP Pre-Performance Meeting Procedures

January 22 – Draft Report to be mailed to TRS members
February TRS – Oral presentation to TRS and question-and-answer session
April RAB – Delivery of final presentation

Mr. Weegar informed members of the TRS that Mr. Roddy Stinson's commentary included information that was given to him prior to its being released at the TRS meeting. Dr.Lené informed the TRS that draft information should not be released.

V. Administrative

A. <u>BRAC Cleanup Team (BCT) Meeting Update</u>

1. The BCT notes were provided to Dr. Lené.
2. The BCT meeting today was shorter due to the ceremonial kickoff of the Public Center for Environmental Health.
3. The demolition of Building 301 is 98 percent complete. There is only a minor amount of debris remaining.
4. Contact was made with 26 individuals who volunteered to participate in the Fruit and Nut Study. Peppers were collected, with collection of pecans to follow this week.

5. The industrial wastewater treatment plant is no longer operational, so it will be demolished beginning in March of next year. The project will take four to five months to complete. Mr. Silvas asked about air monitoring results, but they were not yet available. Mr. Ryan will get the results to Mr. Silvas.

B. Spill Report: No spills to report.

C. Documents Delivered to TRS: Dr. Lene received the documents. Mr. Silvas would like copies of the Building 301 air monitoring results. He also asked what the classifications of the soil were. Mr. Ryan informed him that they were Class 2 non- hazardous. Mr. Silvas also asked how the metal was disposed. Mr. Ryan informed him that the metal was recycled or disposed in accordance with regulations.

D. Action Items: The response to a previous TRS action item was included in the packets.

E. Approval of September TRS minutes: Mr. Weegar disputed use of the word "discovery" as quoted to him. Recommended changes will be made to the minutes that will be included in the RAB packets. Dr. Lené would like to get the TRS minutes with the agenda in the future to better allow review prior to the meeting. Dr. Lené and Mr. Weegar did not get agendas mailed.

E. Agenda for Next Meeting: No items were discussed.

F. Next TRS Meeting: The next meeting is scheduled for December 11, 2001, 6:30 p.m. The location will be the Las Palmas Library.

Adjournment: The meeting adjourned at 8:06 p.m.

10S

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)

13 de noviembre de 2001, Escuela Kennedy High School,
1922 S. General McMullen
Dr. Gene Lené, Copresidente representando a la comunidad en el TRS

Asistentes:

Dr. Gene Lené, Copresidente representando a la comunidad	Srta. Lisa Price, Agencia de Proteccion Ambiental (EPA, por sus siglas en inglés) (Sustituta de la Srta. Stankosky)
Dr. David Smith, Facilitador	Srta. Katherine Ramos, Miembro representando a la comunidad (Sustituta del Sr. Quintanilla)
Sr. Scott Lampright, Jefe de bomberos del Condado de Bexar	Sr. Robert Silvas, Miembro representando a la comunidad
Sr. Dan Zatopek, AFBCA	Sr. Nicolás Rodríguez, Miembro representando a la comunidad
Sr. Dough Karas, AFBCA	Srta. Kyle Cunningham, SAMHD (Suplente del Sr. Sam Sánchez)
Sr. Robert Miller, Booz Allen & Hamilton	Sr. Russ Rohne, AFBCA
Srta. Tracy McLoughlin, BA&H	Srta. Abbi Power, TNRCC
Srta. Lynn Myrick, BA&H	Sr. Don Buelter, AFBCA
Sr. Blake Carroll, BA&H	Sr. Jeff Neathery, Contratista para el TAPP
Sr. Eddie Martínez, BA&H	
Sr. William Ryan, AFBCA	
Sr. Mark Weegar, TNRCC	

I. Introducción: La reunión inició a las 6:34 de la tarde.

El Dr. David Smith dio la bienvenida a todos e indicó que esta reunión del TRS tenía que terminarse a tiempo.

II. Presentación de la Zona 5

El Sr. Russell Rohne dio una presentación sobre el Estudio de Factibilidad de Enfoque para la Zona 5, Pluma A. Dijo que hay 11 plumas distintas dentro de la Zona 5, y que este estudio está enfocado en la Pluma A. El Estudio de Medidas Correctivas (CMS, por sus siglas en inglés) que se emitió en febrero del 2000 trata sobre la fuente y el perímetro de la pluma, y que el documento está disponible para revisión en la Biblioteca Central de San Antonio en el centro de la ciudad y en el Depósito de Información de Kelly. Además, había folletos disponibles en la mesa en la parte de atrás de la sala. El Sr. Rohne informó a todos que hay nuevas tecnologías disponibles desde que se emitió el CMS. Procedió a mostrar el mapa que muestra la Pluma A. Dijo que la Pluma A consiste mayormente de contaminación con tricloroetileno (TCE, por sus siglas en inglés) causada por solventes que surgen del Edificio 1414.

Discusión

Sr. Robert Silvas: ¿Cuándo fue la contaminación?
Sr. Rohne: La contaminación real que vino del Edificio 1414 empezó en los años 1960s y 1970s, pero creemos que algunas otras fuentes contribuyeron a la pluma. Cualquier área en que las fuentes de sospecha han sido removidas contenían altas concentraciones de TCE. Las fuentes incluían los separadores de aceite/agua, las estaciones de elevación y las líneas de drenaje. Desde la remoción de estos componentes, ha habido una disminución en las concentraciones en el área fuente y concentraciones estables en la pluma.

Sr. Silvas: ¿Cuándo se tomaron las lecturas de los niveles de TCE?
Sr. Rohne: Recientemente.

El Sr. Rohne presentó una serie de gráficas sobre la Pluma A. Se mostraron nueve alternativas en el Estudio de Factibilidad de Enfoque. Se usaron tres de las alternativas para esta pluma. Las alternativas se categorizaron como: No Acción; perímetro de tratamiento con oxígeno en el lugar del sitio, Barrera Reactiva Permeable (PRB por sus siglas en inglés), y perímetro de biocorrección mejorada. Se seleccionó la biocorrección mejorada como la alternativa y la razón principal de esta elección fue el costo. El Sr. Rohne explicó que la biocorrección mejorada es el uso de suplementos orgánicos para mejorar la actividad de los microorganismos y descomponer los solventes clorados a subproductos inofensivos. Los productos orgánicos típicos usados son aceites vegetales y melaza.

Sr. Scott Lampright: ¿Cuáles son los subproductos?
Sr. Rohne: Etanos

Sr. Lampright: ¿Son éstos menos dañinos que los compuestos orgánicos volátiles (VOCs por sus siglas en inglés)?
Sr. Rohne: Sí.

El Sr. Rohne siguió explicando que ésta es una tecnología de emergencia con buenos resultados.

Srita. Katherine Ramos: ¿Se ha probado alguna vez esta tecnología en áreas tan grandes?
Sr. Rohne: No lo puedo afirmar.

El Sr. Rohne siguió explicando el PRB. El PRB es el uso de una pared que reacciona con el agua subterránea, y los solventes clorados son cambiados químicamente a productos inofensivos. El hierro con valencia cero es el medio reactivo que se prefiere porque es más barato a la larga, comparado con los sistemas de bombeo y tratamiento. La frecuencia de su uso ha estado aumentando. Es una tecnología nueva pero aceptada.

Sr. Lampright: ¿Qué tan profunda y ancha sería?
Sr. Rohne: No conozco las medidas exactas, pero le voy a conseguir la respuesta.

El Sr. Rohne continuó diciendo que el período de comentarios empezaría el 22 de Octubre y terminaría el 20 de noviembre. Añadió diciendo que los comentarios escritos podían enviarse a la Agencia de Conversión de Bases de la Fuerza Aérea (AFBCA por sus siglas en inglés), o que podían aceptarse durante la reunión.

Sr. Mark Weegar: Este período de comentarios públicos no es una propuesta interna de la AFBCA bajo la ley CERCLA. No es el inicio del período de comentarios regulatorios para el CMS.
Sr. Rohne: Sí, este período de comentarios es un esfuerzo voluntario de la AFBCA.

III. Recomendaciones del Ayuntamiento sobre la Limpieza del Agua Subterránea Superficial de la Zona 4

El Sr. Ryan dio los antecedentes sobre la Reunión del Ayuntamiento que se llevó a cabo el 18 de octubre y cuáles fueron las recomendaciones resultado de esta reunión. En noviembre del 2000, el Consejero García solicitó a la AFBCA que informara al Ayuntamiento sobre la limpieza de Kelly. El Ayuntamiento se dirigió a la Ciudad de San Antonio para que contratara a un consultor independiente para que evaluara las opciones de limpieza del agua subterránea. Se seleccionó a Zephyr Environmental para que llevara a cabo la evaluación. Zephyr presentó sus recomendaciones en la reunión del Ayuntamiento. La Fuerza Aérea emitirá el CMS de la Zona 4 en un período de 60 días después de recibido el reporte de la Ciudad de San Antonio.

El Sr. Ryan habló sobre el proyecto de cierre de pozos que la Fuerza Aérea estaba llevando a cabo en conjunto con el Sistema de Aguas de San Antonio y el Distrito Metropolitano de Salud de San Antonio. Dijo que la Fuerza Aérea está dispuesta a pagar para que se cierren los pozos que están en la pluma.

Dr. Gene Lené: ¿Cuántos pozos se han identificado?
Sr. Ryan: Hay 115 en el área designada; 25 están sobre la pluma.

Srta. Kyle Cunningham: Hay pozos que ya se han cancelado. Puede ser que no hayan sido cerrados correctamente, sin embargo, esto es algo que será identificado.

Dr. Lené: ¿Cómo se puede saber si un pozo está correctamente cancelado?
Sr. Ryan: Se usarán los registros del pozo y una inspección visual para determinar si un pozo está correctamente cancelado.

Sr. Weegar: ¿Conocen el Estado y la Ciudad las reglamentaciones de cancelación de pozos?
Srta. Cunningham: Un inspector estatal acompañará al equipo de identificación.

Sr. Silvas: ¿Están todos estos pozos en el perímetro de la base? Si es así, ¿van a cancelar los pozos fuera de la base?
Sr. Ryan: Estos pozos están fuera de la base.

Sr. Silvas: ¿Qué se ha hecho para identificar estos pozos?
Sr. Ryan: El proceso se llevó a cabo en fases: contactar a los residentes de la comunidad de Kelly, obtener la identificación del Estudio Geológico de los Estados Unidos, y comparar los registros eléctricos con los registros de agua.

Sr. Silvas: ¿Cuál es el área especificada en que se cancelarán los pozos?
Sr. Ryan: El área se extenderá más allá del Río San Antonio hasta el norte de la Carretera 90.

Dr. Lené: ¿Se van a cancelar los pozos fuera de la pluma?
Sr. Ryan: Sí, si existe el potencial de contaminación.

Sr. Silvas: ¿Se van a probar también los pozos que se van a cancelar?
Srta. Cunningham: Probaremos todos los pozos, a menos que las circunstancias no lo permitan.

Dr. Lené: ¿Se hará algo en los pozos existentes del Acuífero Edwards?
Sr. Ryan: Un estudio de los registros mostró que más de la mitad de los pozos tienen doble revestimiento.

IV. Presentación de Dan Zatopek sobre Ayuda Técnica para Participación Pública (TAPP por sus siglas en inglés)

La Srita. Lisa Price preguntó cómo se usaría el subsidio del TAPP. Dijo que la naturaleza y extensión de la contaminación han sido bastante bien definidas; por lo tanto la dirección del contratista del TAPP debe ser hacia la contaminación fuera del sitio. El Sr. Zatopeck estuvo de acuerdo que se debe tomar una decisión sobre el enfoque de la revisión del TAPP antes de que la reunión se suspenda esta noche. El Dr. Lené expresó su preocupación acerca de sobrepasar el requerimiento y que probablemente estemos yendo demasiado lejos. La Srta. Ramos indicó que la percepción de que el Sr. Jeff Neathery estaría funcionando como un perro guardián en lugar de como un educador puede ser un problema. El Sr. Weegar dijo que puesto que los comentarios de la EPA ya salieron, la revisión del TAPP estaba llegando después de los hechos. Sugirió que en lugar de enfocarse en la naturaleza y extensión de la contaminación, la revisión del TAPP debería enfocarse en la Investigación de las Instalaciones (RFI por sus siglas en inglés) del RCRA (por sus siglas en inglés) para ver si la información está lo suficientemente completa como para tomar una decisión correctiva. El Sr. Price sugirió que la RFI (por sus siglas en inglés) podía ser revisada para determinar si el reporte contiene suficiente información geológica; el contratista del TAPP está de acuerdo con las interpretaciones del reporte y cree que existe suficiente información para proceder con el diseño y la construcción. El Sr. Neathery dijo que eso encajaría con el diseño y la intención original. El Dr. Lené dijo que la intención no es que el TAPP diseñe para la Fuerza Aérea. El Sr. Neathery dijo que se puede tomar una decisión cuando esté lista la presentación final y se evalúen los comentarios. El Sr. Zatopeck entonces revisó los requerimientos administrativos y dijo que la revisión del TAPP se enfocaría en el agua subterránea de la Unidad Operable 2, y en los siguientes pasos y validez del diseño. El Sr. Weegar aclaró que el enfoque debería ser en si hay suficiente información en el RFI para hacer un diseño.

Programa para los Procedimientos de la Reunión Previa al Desempeño del TAPP

Enero 22 – Reporte en Borrador a ser enviado por correo a los miembros del TRS.
TRS de febrero – Presentación oral al TRS y sesión de preguntas y respuestas.
RAB de abril – Entrega de la presentación final.

V. Asuntos Administrativos

A. Actualización de la Reunión del Equipo de Limpieza (BCT por sus siglas en inglés) del BRAC (por sus siglas en inglés)

1. Se proporcionaron al Dr. Lené las notas del BCT (por sus siglas en inglés).
2. La reunión del BCT de hoy fue más corta debido a la ceremonia inicial del Centro Público para Salud Ambiental
3. La demolición del Edificio 301 está completa al 98 por ciento. Solamente resta una cantidad menor de escombros.

4. Se hizo contacto con 26 personas que se ofrecieron como voluntarios para participar en el Estudio de la Fruta y la Nuez. Se recolectaron pimientos, y la semana que entra se recolectará nuez.
5. La planta industrial de tratamiento de aguas negras ya no opera, así que será demolida a inicios de marzo del año entrante. El proyecto se completará de cuatro a cinco meses. El Sr. Silvas preguntó sobre los resultados del monitoreo de aire, pero todavía no estaban disponibles. El Sr. Ryan proporcionará los resultados al Sr. Silvas.

B. Reporte de Derrames: No hubo derrames que reportar.

C. Documentos Entregados al TRS: El Dr. Lené recibió los documentos. El Dr. Silvas desea copias de los resultados del monitoreo de aire del Edificio 301. También preguntó cuáles eran las clasificaciones del suelo. El Sr. Ryan le informó que eran Clase 2 no-peligrosos. El Sr. Silvas también preguntó cómo se desechó el metal. El Sr. Ryan le informó que el metal fue reciclado o desechado de acuerdo con las reglamentaciones.

D. Puntos de Acción: La respuesta a los puntos de acción del TRS se incluyó en los paquetes.

E. Aprobación de las minutas del TRS de septiembre: El Sr. Weegar habló del uso de la palabra “descubrimiento” que se le atribuyó. Se harán los cambios recomendados a las minutas que se incluirán en los paquetes del RAB. El Dr. Lené dijo que le gustaría tener las minutas del TRS con la agenda en el futuro para poder hacer una revisión antes de la reunión. El Dr. Lené y el Sr. Weegar no recibieron las agendas por correo.

E. Agenda para la Siguiente Reunión: No se discutieron puntos.

F. Próxima Reunión del TRS: La siguiente reunión está programada para el 11 de diciembre del 2001 a las 6:30 de la tarde. El lugar será en la Biblioteca Las Palmas.

Suspensión: La reunión terminó a las 8:06 de la noche.

Zone 5 Focused Feasibility Study for Plume A at the Former Kelly AFB

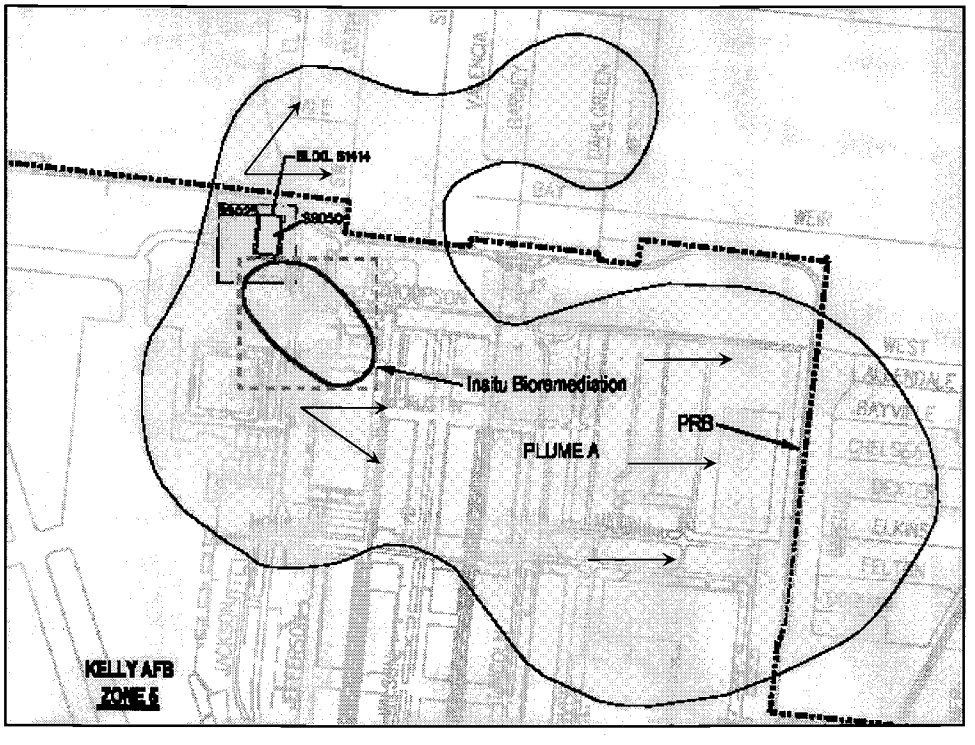
AFBCA/DK

FFS Overview

- Covers Plume A (TCE)
- Addresses source area and perimeter components
- New technologies since CMS
- CMS recommended alternative not feasible
- Separate from CMS process
  - Allows faster cleanup
  - Public comment

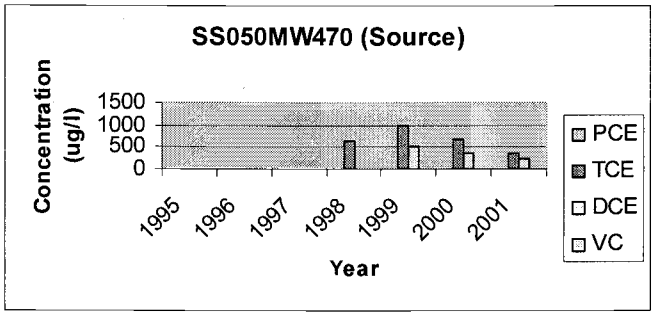
PLUME A

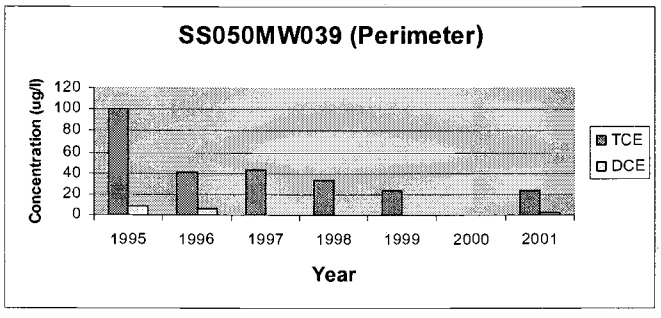
- Trichloroethene (TCE); 5 ug/l is drinking water standard
- Source area near B1414
- Plume has two lobes
  - North
  - East
- Maximum concentration is 990 ug/l in source area
- Concentration at base boundary is 20 ug/l



PLUME A

- Suspected sources have been removed
  - OWS
  - Lift station
  - Drain lines
- Trends
  - Decreasing concentrations in source area
  - Stable concentrations in rest of plume





9 Criteria

- Protection of Human Health/Environment
- Compliance with ARARs
- Long term effectiveness
- Reduction of TMV
- Short term effectiveness
- Implementability
- Cost
- State Acceptance
- Community Acceptance

FFS Alternatives

1. No Action
2. Source: In Situ Oxygen Treatment
   Perimeter: PRB
3. Source: Enhanced Bioremediation
   Perimeter: PRB

Enhanced Bioremediation

- Use of organic supplements to increase microorganism activity and break down chlorinated solvents to harmless byproducts.
- Typical products
  - veggie oil
  - molasses
- Emerging technology with limited but good results.

Permeable Reactive Barrier

- Use of underground wall that reacts with groundwater; chlorinated solvents are chemically changed to harmless byproducts.
- Zero valent iron is the preferred reactive media.
- Cheaper in the long run, compared to P&T
- Increasing frequency of use
- New but accepted technology

Comment Period

- Oct 22 to November 20
- Proposed Plan available tonight
- Written comments to:

  Community Involvement Group, Zone 5
  AFBCA/DK
  143 Billy Mitchell Blvd., Suite 1
  San Antonio TX 78226-1816

- Comment sheets accepted tonight

Summary

- FFS covers Plume A
- New information, new technologies prompted FFS
- Enhanced bioremediation and PRB are the recommended alternatives
- Public comment ends November 20

UNITED STATES AIR FORCE
FORMER KELLY AIR FORCE BASE
SAN ANTONIO, TEXAS

PROPOSED PLAN
INTERIM REMEDIAL ACTION

GROUNDWATER IN ZONE 5, PLUME "A"

October 2001

This Proposed Plan discusses various alternatives and explains the rationale for the preferred alternative for controlling the migration of groundwater **contaminants** from Plume A, located in Zone 5 of Former Kelly Air Force Base (AFB) in San Antonio, Texas. The preferred alternative is to treat groundwater at the source using **enhanced bioremediation** and at the boundary of Kelly AFB using **in situ** permeable reactive barriers. The Air Force will select a final remedy for controlling contaminant migration from Plume A after the public comment period has ended and all comments submitted have been reviewed and considered.

A glossary and descriptions of the criteria used to evaluate the cleanup options appear at the end of this document. Words and phrases defined in the glossary are identified by bold lettering the first time they appear in the text.

The Air Force is issuing this Proposed Plan on a voluntary basis in an effort to promote community involvement in base cleanup. The base is not on the **National Priorities List**, which is the list of sites subject to the **Comprehensive Environmental Response, Compensation, and Liability Act** of 1980 (CERCLA) (also known as "Superfund"). However, the base is proposing to take cleanup action on a voluntary basis. The Air Force is using the CERCLA process to determine what cleanup action is appropriate. Under the CERCLA process, a Proposed Plan is a fact sheet for the public that summarizes the analysis of cleanup options. More details on these options are presented in the Focused Feasibility Study (FFS) prepared for Zone 5, Plume A. The public is encouraged to review the FFS, in addition to this Proposed Plan, to gain a more comprehensive understanding of the site and the nature of environmental conditions there. The FFS is located in the administrative record file at the following location:

San Antonio Central Library
(Government Documents Section)
600 N. Soledad
San Antonio, TX 78205

Hours:

Monday - Thursday	9 a.m. - 9 p.m
Friday and Saturday	9 a.m. - 5 p.m.
Sunday	11 a.m. - 5 p.m.

Kelly AFB Library
Bldg. 1650, Room 138
250 Goodrich Dr., Ste. 6
Kelly AFB TX 78241-5823
Hours:

Monday - Thursday	8 a.m. - 7 p.m
Friday	8 a.m. - 5 p.m.
Saturday	1 p.m. - 5 p.m.

The Air Force may modify the preferred alternative, or select another alternative presented in this Plan, based on new information or public comments. Therefore, the public is encouraged to review and comment on all the alternatives identified in this Plan. An public meeting will be held in conjunction with the Kelly AFB Technical Review Subcommittee meeting on Tuesday November 13, 2001. The meeting will begin at 6:30 p.m. at Kennedy High School.

SITE BACKGROUND

History. Former Kelly AFB is located seven miles southwest of downtown San Antonio and was established in 1916 as an airfield for the United States military. Kelly AFB was realigned under the Base Realignment and Closure Act on July 13, 2001. Current plans call for transferring parts of Zone 5 to the Greater Kelly Development Authority for commercial and light industrial development of the site.

Environmental investigations at Kelly AFB have found soil and groundwater contamination at locations throughout the base, including Zone 5. To organize the cleanup, Kelly AFB was divided into five zones; Zone 5 encompasses the airfield and warehouse areas of the former Kelly AFB. The Zone 5 RCRA Facility Investigation found **organic** and **inorganic** contaminants present in the **shallow groundwater** under Zone 5 and off-base adjacent to Zone 5. Several groundwater plumes have been identified in Zone 5 (Figure 1) and are being addressed separately. The Zone 5 Corrective Measures Study and Proposed Plan for final remedial action will be prepared at a later date and will address remaining on- and off-base shallow groundwater contamination

Plume A is the subject of this Proposed Plan. Plume A resulted from a solvent still that was operated in Building 1414 from 1955 to 1972. Trichloroethene was the primary solvent used at the site and is the primary chemical of concern in the groundwater in this area. Dichloroethene and vinyl chloride are degradation products of trichloroethene and are also found in the shallow groundwater.

Hydrogeology. The shallow subsurface in Zone 5 consists of 35 to 40 feet of sediments that lie on top of a clay layer. Shallow groundwater in Zone 5 is found about 15 to 25 feet below the ground surface, so the shallow groundwater is about 10 to 25 feet thick. The clay under the shallow aquifer is 450 feet thick and forms a barrier between the shallow groundwater and deeper aquifers. Shallow groundwater in Zone 5 generally flows to the east/southeast.

Shallow Groundwater Contamination. The Air Force installed monitoring wells in Zone 5, both on- and off-base, and the shallow groundwater has been evaluated through sampling. Several organic and inorganic contaminants have been detected, but three chlorinated organic solvents are predominant. These three contaminants, and the maximum concentration of each observed in Plume A (in milligrams per liter [mg/L]), include the following:

- Vinyl chloride (0.005 mg/L)
- 1,2-Dichloroethene (0.530 mg/L)
- Trichloroethene (0.990 mg/L)

Concentrations in Plume A are highest near the source near Building 1414 and decrease to the east and southeast. Concentrations are much lower off-base to the east and south of Kelly.

All remedial activities and methods implemented must be conducted in accordance with the Kelly AFB Compliance Plan and Hazardous Waste Permit issued by the TNRCC on June 12, 1998. The Compliance Plan and Permit prescribe applicable state and federal regulations to be utilized in establishing clean-up standards for Kelly AFB. These standards are as follows:

- Vinyl chloride: 0.002 mg/L
- Cis-1,2-Dichloroethene: 0.07 mg/L
- Trichloroethene: 0.005 mg/L

Scope and Role of Action. Contaminants in Plume A are migrating off-base at concentrations that exceed the cleanup standards established in the Compliance Plan.

Cleaning up the shallow groundwater contamination that is already off-base is a complex problem that requires more evaluation, and studies are underway to address this issue. Meanwhile, contamination present in Plume A is contributing additional contamination to the off-base groundwater. The Air Force and the supporting regulatory agencies believe that short-term action is warranted to reduce further off-base migration of

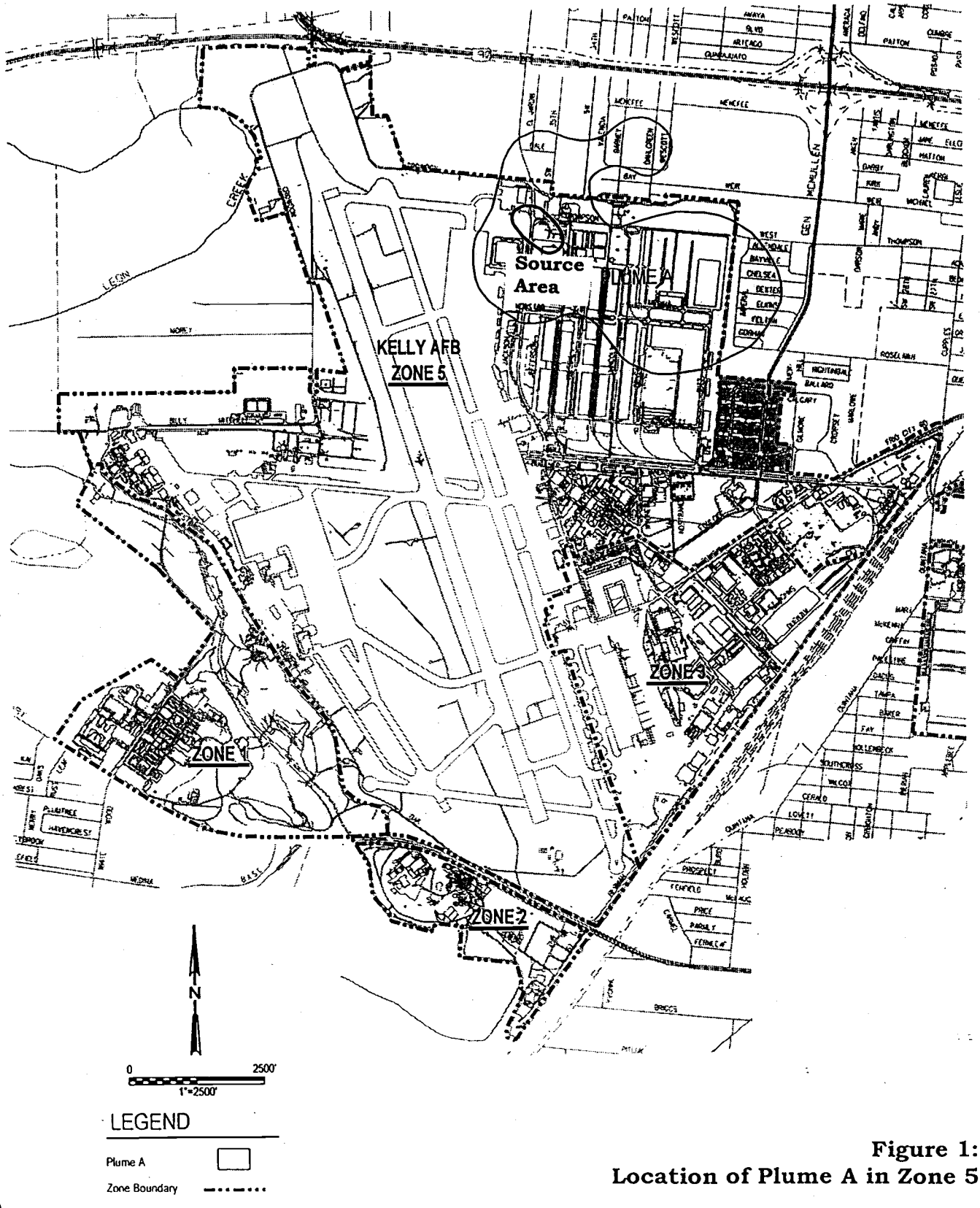


Figure 1:
Location of Plume A in Zone 5

contaminants from Plume A. The primary goal of this proposed action is to reduce or eliminate contaminated groundwater migration off-base from Plume A.

The primary Remedial Action Objective (RAO) in evaluating the Plume A source is to reduce or eliminate further migration of contaminants from the source, thus preventing further contamination of the downgradient groundwater. The RAO for the plume is to prevent any further migration off-base.

The scope of this proposed action and the remedies presented herein is limited to addressing Plume A. The Zone 5 Corrective Measures Study and Proposed Plan for final remedial action will be prepared at a later date and will address remaining on- and off-base groundwater contamination.

SUMMARY OF ALTERNATIVES

During the primary technology screening process, specific technologies were identified for each RAO that might feasibly achieve the purpose of each objective. This step identified potentially applicable technologies and eliminated technologies and process options considered to be incompatible with condition within Plume A or the contaminants of concern. General response actions that were considered included:

- *No action.* The NCP requires that a No Action Alternative be evaluated as a baseline for comparison with other alternatives. The No Action Alternative represents a situation where no restrictions, controls, or active remedial measures are applied to the site.
- ***Monitored natural attenuation.*** **Natural attenuation** cannot be implemented without associated groundwater **monitoring** and source control, because data are required to confirm that natural attenuation is occurring and to demonstrate that RAOs are met.
- ***Institutional controls.*** Institutional controls reduce or prevent public access to contamination. Although institutional controls alone do not result in cleanup, they can reduce exposure to contaminants and thus reduce risk. They are frequently used in conjunction with other remedial elements, either during or at the completion of active cleanup. Institutional controls for this action will consist of physical barriers (e.g., fences) that protect the installed systems.
- *Containment.* Due to the difficulties in implementation and cost, containment will not be retained for further evaluation.
- *Removal of groundwater with treatment.* Results of investigations completed in February 2001 indicate the thickness of the shallow aquifer in the Plume A area will not support the extraction of groundwater.
- *In situ treatment.* Several variations of in situ treatment were identified that were likely to be effective in obtaining short-term results.

Three alternatives were carried forward for detailed analysis. They are summarized below.

Alternative 1: No Action

The "no action" alternative is required by regulations and must be evaluated as an alternative. It establishes a baseline for comparison. Under this alternative, the Air Force would take no action at the site to reduce or eliminate off-base migration of groundwater contaminants. There would be no potential health risk as long as no one uses the groundwater.

Alternative 2: *In situ* Oxygen Treatment at Plume A source area with a PRB along the perimeter of the installation

In situ oxidation requires that relatively large amounts of oxidizing chemicals be injected into the ground. Injection wells typically must be placed every 100 feet or less to clean up an area. Typically, the chemicals must be injected twice for the process to be effective. Disadvantages of oxidation may include heat and gas generation, and the treatment may be detrimental to the naturally occurring bacterial population.

Two common compounds used for *in situ* oxidation are hydrogen peroxide and potassium permanganate. Both can be used to treat the solvents present in shallow groundwater. Once the pollutants come into contact with the oxidizing chemicals, they are turned into carbon dioxide or less toxic or nontoxic substances though chemical reactions.

Permeable reactive barriers, or **flow-through reactive walls**, are structures installed underground to treat contaminated groundwater. The walls are put in place by first constructing a trench across the flow path of contaminated groundwater. The trench is then filled with a chosen material based on the types of contaminants found at a site and covered with soil. As the contaminated groundwater flows through the treatment wall, the contaminants are chemically changed into less toxic or nontoxic substances.

For chlorinated solvents, zero valent iron filings are the most commonly used treatment material. The iron filings will chemically reduce and strip off the chlorines from the solvents, converting them to harmless ethene.

Alternatives 3: Enhanced Bioremediation at Plume A source area with a PRB along the perimeter of the installation

Enhanced bioremediation requires that relatively large amounts of organic supplements, such as vegetable oil and molasses, be injected into the ground. Injection wells typically must be placed very closely (e.g., every 25 feet or less). The organic compounds must be injected every six months, and the entire process can take up to two years to complete.

Microorganisms native to the groundwater digest the added vegetable oil and molasses and during the process remove chlorine atoms from the chlorinated solvents in steps with the eventual result being harmless ethene. However, during the process, byproducts may accumulate from TCE degradation; these include DCE and vinyl chloride. The byproducts themselves will eventually degrade.

Permeable reactive barriers, or flow-through reactive walls, are structures installed underground to treat contaminated groundwater. The walls are put in place by first constructing a trench across the flow path of contaminated groundwater. The trench is then filled with a chosen material based on the types of contaminants found at a site and covered with soil. As the contaminated groundwater flows through the treatment wall, the contaminants are chemically changed into less toxic or nontoxic substances.

For chlorinated solvents, zero valent iron filings are the most commonly used treatment material. The iron filings will chemically reduce and strip off the chlorines from the solvents, converting them to harmless ethene.

EVALUATION OF ALTERNATIVES

The three alternatives described above were further evaluated as potential cleanup methods for treating contaminated groundwater at the Plume A source area and in Plume A along the perimeter of the installation.

These three alternatives were evaluated in detail using the following CERCLA criteria:

- Overall protection of human health and the environment
- Compliance with ARARs
- Long-term effectiveness
- Reduction of toxicity, mobility or volume
- Short-term effectiveness
- Implementability
- Cost
- State acceptance.

One final criterion, community acceptance, will be assessed at the conclusion of the public comment period. A summary of these alternatives and CERCLA criteria can be found in Table 1.

Overall Protection. Protection of human health and the environment is the basis for

the interim remedial action objective (RAO) as well as a "threshold" evaluation criterion (that is, the alternative must be protective in order to be considered for selection.) The primary RAO in evaluating the Plume A source is to reduce or eliminate further migration of contaminants from the source, thus preventing further contamination of the downgradient groundwater.

Alternative 1 does not achieve the objective of substantially reducing or eliminating further migration of contaminants through the groundwater. Alternative 1 will not be selected and is only being used to compare against alternatives 2 and 3. Alternatives 2 and 3 achieve the objective of substantially reducing or eliminating further migration of contaminants through the groundwater. These alternatives would achieve this by intercepting and treating the contaminants in the groundwater associated with Plume A. Treating the source area and base perimeter will eliminate or reduce further releases and prevent further potential for off-base migration of contamination.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs). Interim remedial actions must be protective of public health and the environment. The purpose of this requirement is to make CERCLA actions consistent with other pertinent federal and state environmental requirements, as well as to adequately protect public health and the environment. Compliance with ARARs is also a threshold criterion. To be selected, an alternative must comply with ARARs.

Long-Term Effectiveness. The long-term effectiveness of the three alternatives is highly dependent on how well the alternative reduces the residual contamination in the shallow aquifer. Alternatives 2 and 3 would be effective at permanently reducing the mass of contaminants in the shallow groundwater. These alternatives could efficiently treat the affected groundwater and prevent further off-base migration.

Reduction of Toxicity, Mobility or Volume Through Treatment. Alternatives 2 and 3 all involve in situ treatment to reduce the toxicity, mobility, and volume of the contaminate mass.

Short-Term Effectiveness. Significant effects on workers, the community, or the environment during cleanup would not be expected for any of the alternatives.

Alternatives 2 and 3 would have the best overall short-term effectiveness because they would eliminate the source of contamination and would allow for cessation of the active groundwater treatment sooner than alternative 1.

Implementability. All of the alternatives can be implemented. However, there are technical issues with each of the alternatives. Alternative 3 may present some difficulties in achieving uniform dispersion of organic compounds into the shallow groundwater. In general, alternatives 2 and 3 involve technologies, services, and materials that are readily available. In situ bioremediation at the Plume A source area (Alternatives 2 and 3) are relatively new and innovative technologies. Most applications of these technologies to date have been at relatively small cleanup sites, and have not been proven on larger sites.

Cost. Table 1 presents the estimated capital cost present worth for the three alternatives. The lifetime of the alternatives was assumed to be 5 years for the alternatives that actively eliminate the source or that control or eliminate contamination movement in the groundwater. Alternative 3 is the least costly, and Alternative 2 is the most costly alternative.

State Acceptance. The state has indicated a strong preference toward interim action that addresses the source of contamination. The state would favor implementation of any of the two active Alternatives (Alternatives 2-3).

Community Acceptance. Community acceptance of the alternatives will be summarized and evaluated after the public comment period ends. This evaluation will

include what the public prefers or supports, and has reservations about or opposes.

SUMMARY OF THE PREFERRED ALTERNATIVE

On the basis of the detailed analysis of alternatives, Alternative 3, in-situ bioremediation of groundwater at the Plume A source area with PRB along the base perimeter, is the recommended alternative for Plume A (Figure 2). Alternative 3 should effectively reduce the overall risk to human health and the environment from the source and is lowest in cost to implement. Alternative 3 would comply with state and federal regulations. There are some implementability issues associated with this alternative. All of the other alternatives have similar implementability. Additionally, more characterization data are needed for remedial design, but again, all of the alternatives require some further characterization. The preferred alternative could change based on new information or public comment.

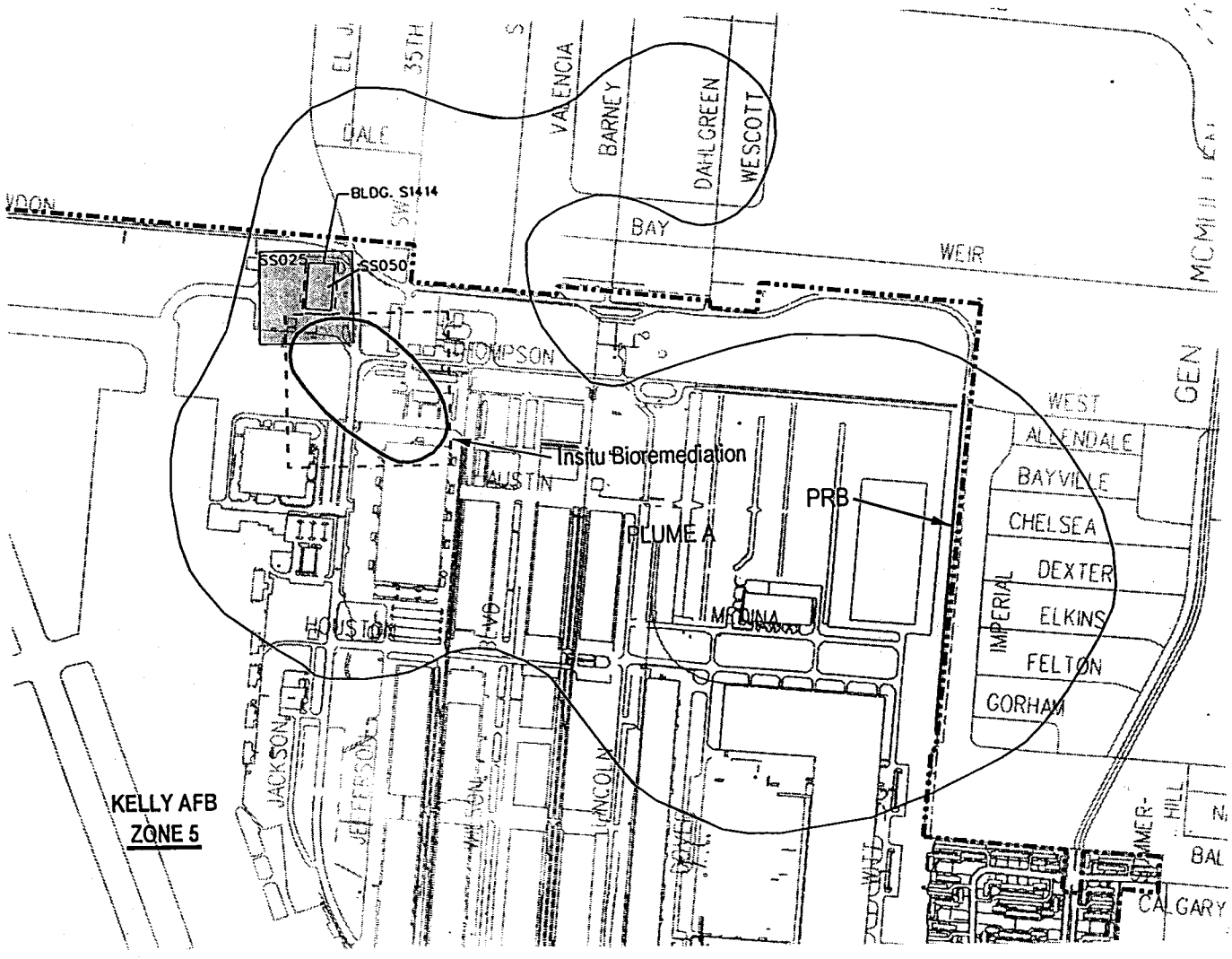


Figure 2:
Location of Preferred Alternative

TABLE 1: SUMMARY OF EVALUATION CRITERIA

	Alternative 1	*Alternative 2*	*Alternative 3*
Overall Protection of Human Health and Environment addresses whether or not a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced, or controlled through treatment, engineering controls or institutional controls.	✓	✓	✓
Compliance with ARARS addresses whether or not a remedy will meet all of the applicable or relevant and appropriate requirements of other federal and state environmental statutes and/or provides grounds for invoking a waiver.	✖	✓	✓
Long-term effectiveness and permanence refers to the magnitude of residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time once cleanup goals have been met.	✓	✓	✓
Reduction of toxicity, mobility, or volume through treatment is the anticipated performance of the treatment technologies that may be employed in a remedy.	✖	✓	✓
Short-term effectiveness refers to the speed with which the remedy achieves protection, as well as the remedy's potential to create adverse impacts on human health and the environment during the construction and implementation period.	✖	✓	✓
Implementability is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement the chosen solution.	✓	○	○
Cost includes capital and operation and maintenance costs.	$0	$8,040,000	$4,360,000
State acceptance indicates whether, based on its review of the FFS and Proposed Plan, the State concurs with, opposes, or has no comment on the preferred alternative.	TBD	TBD	TBD
Community acceptance will be assessed in the Record of Decision following a review of the public comments received on the FFS Report and the Proposed Plan.	TBD	TBD	TBD

Alternative 1: No Action.
Alternative 2: In situ Oxygen Treatment at Plume A source area with a permeable reactive barrier along the perimeter of the installation.
Alternative 3: Enhanced Bioremediation at Plume A source area with a permeable reactive barrier along the perimeter of the installation.

✓ ***Fully meets criteria***
○ ***Partially meets criteria***
✖ ***Does not meet criteria***

GLOSSARY

Applicable or Relevant and Appropriate Requirements (ARARs)--The federal and state requirements with which a selected remedy must comply. The requirements may vary among sites and alternatives.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)--The federal law that addresses problems resulting from releases of hazardous substances to the environment, primarily at inactive sites.

Contaminants--Chemicals present in the environment that are not naturally occurring.

Enhanced bioremediation—A treatment process for groundwater contamination. Bioremediation uses naturally occurring microorganisms (bacteria) to degrade, or break down, hazardous substances into less toxic or nontoxic substances.

Ex situ--Out of place. With respect to cleanup, refers to removing contaminated material then treating it.

In situ--In the original place. With respect to cleanup, refers to treating contaminant material in place rather than removing the contaminated material and then treating it.

Inorganic--Not based on the element carbon. Examples of inorganic chemicals are metals and acids.

Institutional controls--Physical or legal barriers that control exposure to contaminants. Examples include fences and deed restrictions.

Monitoring--Ongoing collection of information about the environment that helps to determine the effectiveness of a cleanup action.

Monitored Natural Attenuation (MNA)--a technology that takes advantage of ongoing natural processes to reduce contaminant concentrations. MNA involves intensive groundwater sampling, and evaluating of contaminant reduction rates to verify how it is working.

Organic--Based on the element carbon. Examples of organic chemicals are solvents, oils, and pesticides.

National Priorities List--EPA's list of waste sites targeted for priority cleanup under Superfund.

Natural attenuation--The use of natural processes to achieve cleanup goals without human intervention. An example is naturally-occurring biodegradation (the break down of chemical compounds by native bacteria).

Shallow groundwater—a thin layer of rock, sand, and soil containing a moderate thickness of water. It lies about 15 to 40 feet below the surface under about one-third of Bexar county, including the area under, east and southeast of Kelly AFB. The layer with water droplets is typically 3 to 15 feet thick.

THE COMMUNITY'S ROLE IN THE SELECTION PROCESS

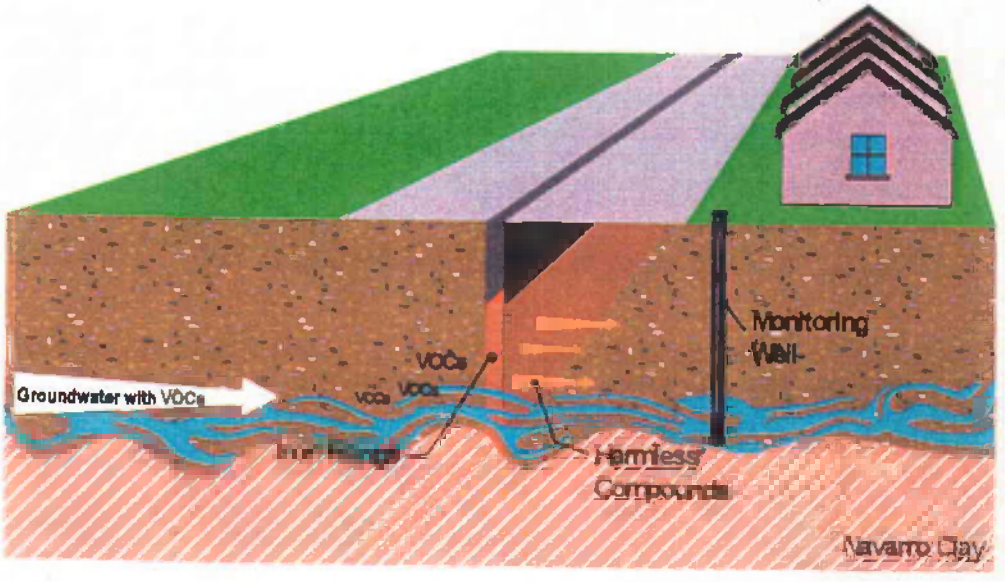
The Air Force is soliciting input from the community on the method proposed to control off-base migration of contaminated groundwater found in Plume A of Zone 5 of the former Kelly AFB. A public comment period will run from October 22 through November 20, 2001, to encourage public participation in the decision-making process. To send written comments or obtain further information, contact:

Community Involvement Group, Zone 5
AFBCA/DCK
143 Billy Mitchell Blvd., Suite 1
San Antonio, TX 78266-1816
210-925-0956 (English and Spanish)
http//:kelly.ch2m.com/

PLEASE USE THE SPACE PROVIDED BELOW TO FURNISH COMMENTS:

Reactive Barriers

Description



Reactive barriers, or treatment walls, are structures installed underground to continuously treat contaminated groundwater. Treatment walls are put in place by first constructing a trench across the flow path of contaminated groundwater. The trench is then filled with a material chosen based on the types of contaminants found at a site.

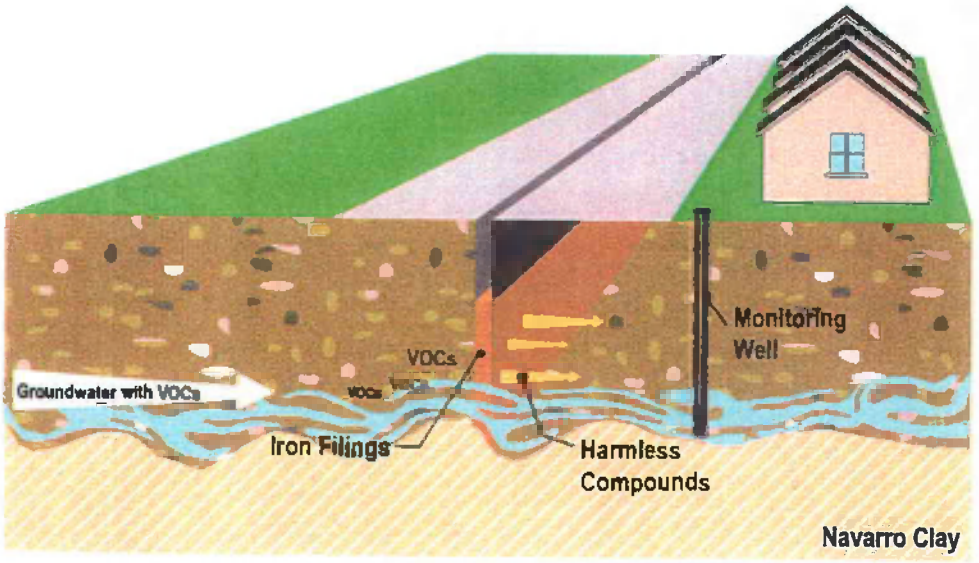
As the contaminated groundwater flows through the treatment wall, the contaminants are chemically changed into less toxic or nontoxic substances. For chlorinated solvents iron filings are the most commonly used treatment material. The iron filings will chemically reduce and strip off the chlorines from the solvents, converting them to harmless compounds.

Reactive barriers can be effective in treating the water that passes through them, but they cannot treat pollutants that are already downstream of them. By placing several parallel walls in a contaminated area, it might be possible to speed up the clean-up.

Since the reactive barriers are typically built using heavy equipment, their construction may result in temporary street closures and other construction-related disturbances.

Barreras Reactivas

Descripción



(1) Aguas subterráneas con VOCs
(2) VOCs (compuestos orgánicos volátiles)
(3) VOCs
(4) VOCs
(5) Compuestos no tóxicos
(6) Pozo de vigilancia
(7) Formación de arcilla Navarro

Las barreras reactivas o muros de tratamiento son estructuras permeables instaladas bajo la superficie para tratar continuamente las aguas subterráneas. Los muros de tratamiento se colocan cavando primero una zanja a través del flujo de las aguas subterráneas contaminadas. Posteriormente se rellena la zanja con un material escogido para reaccionar con los contaminantes encontrados en esa area específica.

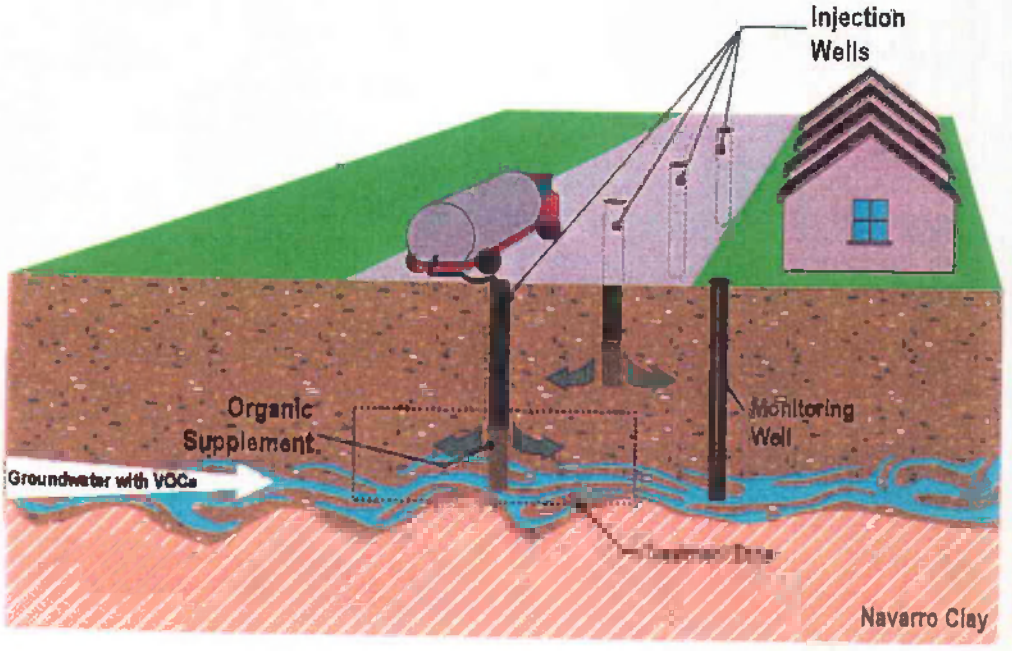
A medida que las aguas contaminadas fluyen a través del muro de tratamiento, los contaminantes reaccionan químicamente con el material dentro del muro y se van volviendo en substancias menos tóxicas o no tóxicas. En el caso de los solventes clorinados se usan más frecuentemente las limaduras de hierro. Estas limaduras de hierro reducen químicamente los solventes, quitándoles los cloruros y convirtiéndolos en compuestos no dañinos.

Las barreras reactivas pueden ser efectivas para tratar las aguas que pasen a través de ellas, pero no se pueden utilizar para tratar contaminantes que ya han pasado en la corriente. Es posible acelerar el procedimiento de limpieza colocando varios muros paralelos a lo largo de la zona contaminada.

Puesto que las barreras reactivas usualmente se construyen utilizando maquinaria pesada, su construcción puede ocasionar cierres temporales de calles y otros trastornos relacionados con el proceso de construcción.

Enhanced Biodegradation

Description

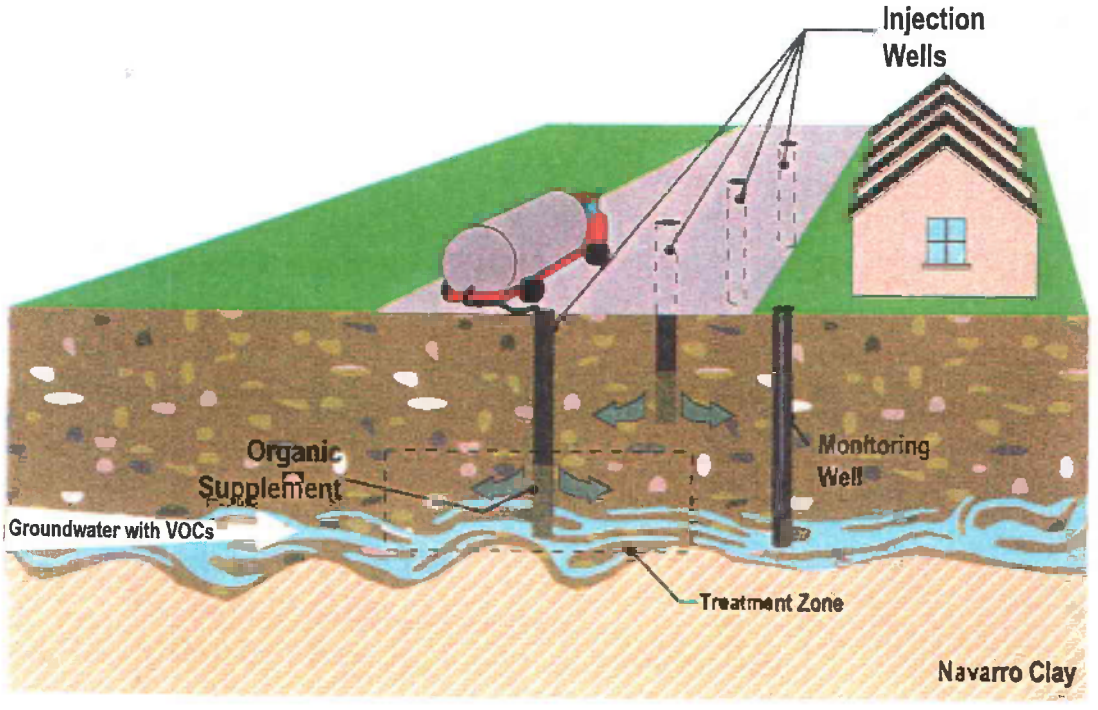


Enhanced biodegradation is a treatment process for groundwater contamination. Biodegradation uses naturally occurring microorganisms (bacteria) to degrade, or break down, hazardous substances into less toxic or nontoxic substances. Microorganisms, just like humans, eat and digest organic substances for nutrients and energy.

To speed up the natural breakdown of fuels or solvents, enhanced biodegradation helps create the best environmental conditions for the microorganisms to break down the contaminants.

Biodegradación Intensificada

Descripción



(1) Pozos de inyección de químicos
(2) Formación de arcilla Navarro
(3) Pozo de vigilancia (de control)
(4) Zona de tratamiento
(5) Suplemento orgánico
(6) Agua subterránea con VOCs

La biodegradación intensificada es un proceso de tratamiento de aguas subterráneas de poca profundidad. La biodegradación utiliza microorganismos naturales (bacterias) para degradar las substancias peligrosas, produciendo subtancias menos tóxicas o no tóxicas. Estos microorganismos, al igual que los humanos, comen y digieren las substancias orgánicas para obtener nutrientes y energía.

Para agilizar la degradación natural de combustibles o solventes, la biodegradación intensificada ayuda a crear las mejores condiciones ambientales para que los microorganismos descompongan los contaminantes.

U.S. Air Force Base Conversion Agency

Integrity - Service - Excellence

San Antonio City Council Involvement in Kelly AFB Cleanup

U.S. AIR FORCE

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U.S. Air Force Base Conversion Agency

Integrity - Service - Excellence

San Antonio City Council Involvement in Kelly AFB Cleanup

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City Council Involvement

- Councilman David Garcia (District 5) requested briefing on Kelly cleanup to City Council, 20 Nov 2000
- First briefing given at 25 Jan 01 City Council meeting, follow-up briefing on 22 Feb 01
  - Council directed staff to contract an independent assessment of groundwater cleanup options
- CoSA released RFQ for "Independent Review of Kelly AFB Groundwater Cleanup Options," 21 Mar 01
  - Ordinance selecting HDR Engineering, Inc. on 24 May City Council agenda
  - City Council rejected recommendation on contractor selection; directed staff to re-compete the project

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City Council Involvement

- Second RFP released, Staff selected winning bidder, Zephyr Environmental and received City Council approval in Aug 01
- Contract awarded with work to be complete in Sep 01
- AF will wait for "Independent Review of Kelly AFB (Kelly AFB) Groundwater Cleanup Options" to be completed prior to AF submittal of Zone 4 CMS to TNRCC
- AF plans to submit Zone 4 CMS within 60 days of receipt of CoSA's recommendations
- Results of consultant's evaluation presented to City Council on 18 Oct 01

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City Council Involvement

- Scope of City Consultant's Review
  - Investigation Work
  - Interim Remedial Actions
  - Groundwater modeling assumptions, methodology and inputs
  - Human health risk assessments
  - Remediation options

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City Council Involvement

- City Consultant's Conclusions:
  - Ingestion of shallow groundwater poses a significant human health concern
  - Dermal contact with shallow groundwater does not pose a significant health concern
  - Inhalation of VOCs may be of concern, requires additional investigation
  - Estimate of 25yrs for groundwater cleanup may be overly optimistic

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City Council Involvement

- City Consultant's Recommendations:
  - Continue to evaluate possibility of cross - communication between shallow groundwater and Edwards Aquifer
  - Install pump and treat system in isolated "hot spots" using vertical wells with phytoremediation at SA River
  - Plug and abandon shallow groundwater wells within plume
  - Monitor groundwater vapors in high risk areas and report to City
  - City should revise ordinances to restrict well drilling and use of shallow groundwater and require double-cased Edwards wells

U.S. AIR FORCE

City Council Involvement

- City Staff Recommendations:
  - Groundwater vapor monitoring - City staff to coordinate with AF to initiate effort and proposes to retain Zephyr on contract
  - Groundwater community outreach - Letter from City to notify residents near Kelly not to drink shallow groundwater, personally contact well owners, SAMHD to sample shallow groundwater wells
  - Groundwater controls - City staff to revise City Code to restrict well drilling and use of shallow groundwater, work with AF to plug wells, participate in Edwards Aquifer study
  - Develop Interlocal Agreement between AF and CoSA encompassing all recommendations

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City Council Involvement

- Milestones and Schedule
  - Feb 01 - Zone 4 RFI submitted to TNRCC, anticipate review complete by 30 Nov
  - 18 Oct 01 - City Council received recommendations from consultant on Zone 4 cleanup options
  - Nov 01 - City Council adopts resolution accepting consultants recommendations
  - Jan 02 - Zone 4CMS to TNRCC & EPA
  - May 02 - Finalize Interlocal Agreement
  - Jul 02 - Zone 4 CMI Work Plan (Design) complete
  - FY 03 Construction begins

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Off-Base Sources

- Data collected by AF indicates the presence of off-base sources of groundwater contamination
- AF consolidated and presented this information in a report in May 2000
- AF responded to EPA comments in an addendum to the report in spring 01
- Anticipate TNRCC review of report and addendum by 30 Nov 01
- TNRCC affects AF's role in cleanup of all off-base contamination in vicinity
- Concern with community's reaction to no action

U.S. AIR FORCE

Off-Base Sources

- Potential Scenarios
  - TNRCC determines AF is not responsible
  - TNRCC determines AF is fully responsible
  - TNRCC determines AF contamination commingles with off-base sources
- Potential responses and issues
  - No AF remediation efforts
  - ADR
  - AF remediation efforts with cost recovery from PRPs
  - Community Relations issues

REPORTS FOR THE ST. MARY'S LIBRARY

	REPORTS LISTED BELOW WERE TAKEN TO THE TRS MEETING	Status	Date	ADM
	13-Nov-01			
356A	Corrective Measures Implementation Work Plan for Site S-8	Final	Jul 2001	Inf
	Replacement sheets for above report			
563A	Focused Feasibility Study for Source and Perimeter Control for Plume A	Final	Oct 2001	Inf
	Replacement sheets for above report			
221B	Closure Report Lot 513 Wash Rack and Oil/Water Separator	Final Draft	Oct 2001	Inf
222B	RFI Report for Zone 2, Site S-9, Jet Engine Test Cell Complex SWMU Number 25	Final Draft	Nov 2001	Inf
316B	Closure Report Building 328 Drum Washing Rack Solid Waste Management Unit ---/220	Final Draft	Oct 2001	Inf
560A	Closure Report for the Oil/Water Separator System at Bldg 1501, SWMU 119	Final	Sep 2001	Inf
561A	Closure Report for the Oil/Water Separator System at Bldg 1519	Final	Sep 2001	Inf
920A	Closure Report for Building 1575 Underground Storage Tanks	Final	Aug 2001	Inf
	Date: November 13 2001			
	Signature:			

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ADMINISTRATIVE RECORD

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