



KELLY AFB
TEXAS

ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 3271

Aug 2001

DRAFT MEETING MINUTES

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

14 August 2001, Las Palmas Library
515 Castroville Road
Dr. Gene Lené, TRS Chairman

Attendees

Dr. Gene Lené, Chairman, Community Member	Mr. Roy Botello, Community Member
Mr. George Rice, Community Member	Mr. Paul Person, Community Member
Ms. Kyle Cunningham, SAMHD	Mr. Armando Quintanilla, Community Member
Ms. Laura Stankosky, EPA	Mr. Mark Weegar, Community Member TNRCC
Mr. Sam Murrah, Community Member	Mr. Nick Rodriguez, Community Member
Mr. Robert Silvas, Community Member	Mr. Bob Mueller, NJDEP
Mr. Názirite Pérez, Community Member	Ms. Abigail Power, TNRCC
Mr. Scott Lampright, Community Member	Ms. Tanya Lopez, TNRCC
Mr. William Ryan, AFBCA	Mr. Brendan Smith, BA & H
Mr. Dan Zatopek, AFBCA	Ms. Lynn Myrick, BA & H
Mr. Doug Karas, AFBCA	Mr. Eddie Martinez, BA & H
Mr. Chuck Meshako, AFBCA	Mr. David Smith, BA & H
Mr. Jack Shipman, AFBCA	Ms. Heather Hoerdemann, BA & H
Major Dan Caputo, AFIERA	Ms. Meg Schnebly, BA & H
Mr. Brian Renaghan, AFIERA	Mr. Scott Courtney, BA & H

I. Introduction

The meeting began at 6:34 p.m. Mr. George Rice had two comments on the minutes from the June 12 TRS meeting. He stated that there was not a Roman numeral four following Roman numeral three. Additionally, Mr. Rice stated that the notes from Mr. John Folk-Williams were to be mailed to the community members as soon as the notes were located.

II. Presentation on the Optimization of Wells on East Kelly

Mr. Scott Courtney, BA & H, presented preliminary results of the effort to evaluate and optimize the hydraulic containment system installed on East Kelly. Mr. Courtney discussed the project objectives, data collection and evaluation, and preliminary results. The project objectives were as follows: evaluate the system ability to contain the groundwater, and optimize the system flow rates to operate efficiently. The data collection and evaluation involved measuring water levels in 80 groundwater monitoring wells, measuring the drawdown and flow rates from the horizontal and vertical recovery wells, preparing and evaluating water level maps, and collecting and evaluating groundwater analytical data. The data collected were used to refine and calibrate the Zone 4 Zoom groundwater model for the purposes of simulating various flow regimes to predict responses and compare to actual conditions. The model can also generate particle track simulations to aid in the evaluation of the capture zone. Based on the observed responses and model simulations, the system will be optimized. Preliminary observations indicate the system is

performing as designed and only minor modifications to flow rates would be required to optimize the system. A report will be prepared this fall presenting all the results and recommendations from the project. A question and answer session followed the presentation.

III. Presentation on Radium in Buildings 324 and 326

Major Dan Caputo presented information on the ongoing investigation of radium contamination in the sanitary sewer system from Buildings 324 and 326. He explained that these buildings once used paint that contained radium and have radiation levels above background levels. This led to an investigation of the sewer system. The investigation had surveyed 81 sewer and utility manholes and found three impacted by the radium at low levels. Radium above background levels was also found in an old sludge drying bed in the southwest portion of the base. Currently, data are being gathered so that a plan can be devised to remediate the sites. Information on Relative Radiological Risk Assessment was presented.

IV. Review of Second Draft of Plume Maps for Public Distribution

Mr. William Ryan, AFBCA, reviewed the changes submitted by the committee members during the June TRS meeting. Members were pleased with the changes and made the additional following recommendations:

- The dashed green lines on the TCE map should match – make estimated lines the same style
- Replace “typically” with “known to be” in the last sentence of paragraph 4 in each map
- Fix typos on all three maps
- Change the explanation of ppb from the gasoline tanker example to the Olympic swimming pool example
- Change the term “shaded areas” to “contoured areas” in paragraph two of all three maps
- Place the words “for example” in front of the second line in paragraph two of the Metals map

V. Administrative

A. BCT meeting update. Mr. William Ryan gave update to Dr. Lené.

B. Spill Report. No spills

C. Documents delivered to RAB

1. Draft Zone 4 OU-2 Human Health Risk Assessment
2. Draft Tier 2 Ecological Risk Assessment
3. Final Semiannual Compliance Plan report for Jul 01 (Jan-Jun01) (vol 1)
4. Replacement Pages for the Draft Final CMI Dated 12/98

D. Action items

1. Mr. George Rice requested a copy of the detailed notes written by Mr. John Folk-Williams, the previous facilitator, at the April TRS meeting (Poss March TRS?). He asked that the notes be mailed to the committee members when found.
2. Mr. Rice requested that BCT reports be presented in the RAB materials packages

E. Agenda for next meeting: No items were discussed.

F. Next TRS meeting: The next TRS meeting will take place at 6:30 p.m. on September 11, 2001. Location is to be determined.

G. Final discussions: Mr. Armando Quintanilla asked what the status of the RFI for Zone 4 is. Mr. Mark Weegar replied that the evaluation is being conducted and should be completed by the end of September.

Adjournment

The meeting adjourned at 8:57 p.m.

MINUTAS DE LA JUNTA EN BORRADOR
SUBCOMITÉ DE REVISIÓN TÉCNICA (TRS, POR SUS SIGLAS EN INGLÉS) DE LA
BASE DE LA FUERZA AÉREA KELLY
PARA LA JUNTA ASESORA DE RESTAURACIÓN DE KELLY (RAB, POR SUS
SIGLAS EN INGLÉS)

14 de agosto de 2001, Biblioteca Las Palmas,
515 Castroville Road

Dr. Gene Lené, Copresidente representando a la comunidad en el TRS

Asistentes:

Dr. Gene Lené, Copresidente representando a la comunidad	Sr. Roy Botello, Miembro representando a la comunidad
Sr. George Rice, Miembro representando a la comunidad	Sr. Paul Person, Miembro representando a la comunidad
Srta. Kyle Cunningham, SAMHD (Suplente del Sr. Sam Sánchez)	Sr. Armando Quintanilla, Miembro representando a la comunidad
Srta. Laura Stankosky, EPA	Sr. Mark Weegar, TNRCC
Sr. Sam Murrah, Miembro representando a la comunidad	Sr. Nick Rodríguez, Miembro representando a la comunidad
Sr. Robert Silvas, Miembro representando a la comunidad en el RAB	Sr. Bob Mueller, NJDEP
Sr. Nazarite Pérez, Miembro representando a la comunidad	Srta. Abigail Power, TNRCC
Sr. Scott Lampright, Jefe de bomberos del Condado de Bexar	Srta. Tanya López, TNRCC
Sr. William Ryan, AFBCA	Srta. Brenda Smith, BA&H
Sr. Dan Zatopek, AFBCA	Srta. Lynn Myrick, BA&H
Sr. Dough Karas, AFBCA	Sr. Eddie Martínez, BA&H
Sr. Chuck Meshako, AFBCA	Sr. David Smith, BA&H
Sr. Jack Shipman, AFBCA	Srta. Heather Hoerdemann, BA&H
Mayor Dan Caputo, AFIERA	Srta. Meg Schnebly, BA&H
Sr. Brian Reniegan, AFIERA	Sr. Scott Courtney, BA&H

I. Introducción:

La reunión empezó a las 6:42 de la tarde. El Sr. George Rice hizo dos comentarios sobre las minutas de la reunión del TRS (del 12 de junio. Dijo que no había un número romano cuatro después del número romano tres. Además, el Sr. Rice dijo que las notas del Sr. John Folk-Williams iban a ser enviadas por correo a la comunidad tan pronto como fueran localizadas.

II. Presentación sobre la Optimización de Pozos en East Kelly

El Sr. Scott Courtney, BA&H, presentó los resultados preliminares del esfuerzo para evaluar y optimizar el sistema de contención hidráulico instalado en East Kelly. El Sr. Courtney discutió los objetivos del proyecto, la recopilación y la evaluación de la información y los resultados preliminares. Los objetivos del proyecto son los siguientes: evaluar la capacidad del sistema para contener el agua subterránea y optimizar la velocidad de flujo para una operación eficiente. La recopilación y evaluación de la información involucra medir los niveles del agua en 80 pozos de monitoreo subterráneos, medir la velocidad de flujo y aspiración adicional de los pozos de recuperación horizontales y verticales, preparar y evaluar los mapas de niveles de agua, y recopilar y evaluar los datos analíticos del agua subterránea. La información recopilada se usó para refinar y calibrar el modelo Zoom de agua subterránea de la Zona 4 con el propósito de simular varios regímenes de flujo para predecir las respuestas y compararlas con las condiciones reales. El modelo también puede generar simulaciones de rastreo de partículas para ayudar en la evaluación de la zona de captura. Con base a las respuestas observadas y las simulaciones del modelo, se optimizará el sistema. Las observaciones preliminares indican que el sistema está funcionando como se planeo y solamente se requerirán modificaciones menores a las velocidades de flujo para optimizar el sistema. Se preparará un reporte este otoño para presentar todos los resultados y recomendaciones del proyecto. Después de la presentación siguió una sesión de preguntas y respuestas.

III. Presentación sobre la Contaminación con Radio en los Edificios 324 y 326

El Alcalde Dan Caputo presentó la información sobre la investigación que se está llevando a cabo sobre la contaminación con radio en el sistema de alcantarillado de los Edificios 324 y 326. Explicó que estos edificios usaron anteriormente pintura que contenía radio y tienen niveles de radiación arriba de los niveles de fondo. Esto llevó a una investigación en el sistema de alcantarillado. La investigación había estudiado 81 registros de inspección de servicios públicos y alcantarillado, y se encontraron tres impactados por el radio a niveles bajos. También se encontró radio sobre de los niveles de fondo en un antiguo lecho de secado de lodos en la porción suroeste de la base. Actualmente, se está recopilando información para que se pueda desarrollar un plan para corregir los sitios. Se presentó información sobre la Evaluación de Riesgos Radiológicos Relativos.

IV. Revisión del Segundo Borrador sobre los Mapas de la Pluma para Distribución Pública

El Sr. William Ryan, de la Agencia de Conversión de Bases de la Fuerza Aérea (AFBCA por sus siglas en inglés) revisó los cambios emitidos por los miembros del Comité durante la junta del TRS de junio. Los miembros se mostraron complacidos con los cambios e hicieron las siguientes recomendaciones:

- Las líneas de trazos color verde en el mapa del tricloroetileno (TCE por sus siglas en inglés) deben coincidir – las líneas de los estimados deben ser del mismo estilo
- Reemplazar “típicamente” con “se sabe que es” en la última oración del párrafo 4 en cada mapa
- Corregir los errores tipográficos en los tres mapas
- Cambiar la explicación del ejemplo de ppb del tanque de gasolina por el ejemplo de la alberca olímpica
- Cambiar el término “áreas sombreadas” a “áreas de contorno” en el párrafo dos de los tres mapas
- Colocar las palabras “por ejemplo” al frente de la segunda línea en el párrafo dos del mapa de los metales.

V. **Asuntos Administrativos**

- A. Actualización de la reunión del Equipo de Limpieza BCT. El Sr. William Ryan puso al corriente al Dr. Lené.
- B. Reporte de Derrames. No hubo derrames.
- C. Documentos entregados al RAB
1. Borrador de la Evaluación de Riesgos para la Salud Humana en el OU-2 de la Zona 4
 2. Borrador de la Evaluación de Riesgos Ecológicos de la Fila 2
 3. Reporte Final del Plan de Cumplimiento Semestral para julio 01 (enero-junio 01) (vol. 1)
 4. Páginas de repuesto para el Borrador Final de la Implementación de Medidas Correctivas (CMI por sus siglas en inglés) fechado 12/98
- D. Puntos de Acción
1. El Sr. George Rice solicitó una copia de las notas en detalle escritas por el Sr. John Folk-Williams, el facilitador anterior, en la junta del TRS de abril (posiblemente la junta de TRS de marzo). Pidió que las notas se enviaran por correo a los miembros del comité cuando se encontraran.
 2. El Sr. Rice solicitó que los reportes del BCT se presentaran en los paquetes de materiales del RAB.
- E. Orden del día para la próxima reunión: No se discutió ningún punto.
- F. Próxima reunión del TRS: La siguiente reunión del TRS se llevará a cabo a las 6:30 de la tarde del 11 de septiembre del 2001. El lugar de la reunión se determinará posteriormente.
- G. Discusiones finales: El Sr. Armando Quintanilla preguntó cuál es la situación de la investigación de la facilidad bajo RCRA (RFI por sus siglas en inglés) para la Zona 4. El Sr. Mark Weegar contestó que se está llevando a cabo la evaluación y que debe estar lista para el mes de septiembre.

Cierre de la Sesión

La reunión se cerró a las 8:57 p.m.

DRAFT MEETING MINUTES

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

12 June 2001, Las Palmas Library
515 Castroville Road
Dr. Lené TRS Chairman

Attendance

Dr. Lené, Chairman, Community Member
Mr. George Rice, Community Member
Ms. Kyle Cunningham, SAMHD
Mr. Názirite Pérez, Community Member
Mr. Scott Lampright, Community Member
Mr. William Ryan, AFBCA

Mr. Roy Botello, Community Member
Mr. Paul Person, Community Member
Mr. Nick Rodriguez
Mr. Bob Mueller, NJDEP
Ms. Vanessa Musgrave, AFBCA

I. Introduction: The meeting began at 6:42 p.m.

II. Presentation on Permeable Reactive Barrier Walls. Mr. Robert T. Mueller, NJDEP, presented information on the Interstate Technology and Regulatory Cooperation (ITRC), and technical/regulatory information on permeable reactive barriers. Several case studies outlining different environmental challenges were presented along with success rates and failures. Mr. Mueller also told members how to receive additional information on ITRC, it's resources, products and services.

Discussion:

Q. Mr. Scott Lampright asked about the price associated with the walls pertaining to the case studies that were presented.

A. Mr. Mueller replied that the price is determined by the wall design and that initially costs were high. However, over the years unit costs have decreased.

Q. Dr. Lené asked what was the iron grain size used in the walls?

A. Mr. Mueller replied that the grain size was similar to powder. This allowed for wider surface area coverage.

Q. Mr. George Rice asked if there were any types of long term permeability problems or clogging within the walls?

A. Mr. Mueller said the permeability of the walls could be adjusted and that site characterization and laboratory testing would alleviate those problems.

Q. Mr. Lampright asked if the case study examples were small compared to the Kelly plume?
 A. Mr. Muller replied that yes these examples were small compared to the Kelly Plume. However, according to the modeling design for a plume, the design could include a number of walls to be used in conjunction with each other.

Q. Mr. Roy Botello, asked how the case study costs compared to other cleanup options?
 A. Mr. Mueller said that costs were initially are high, but overall maintenance costs are low.

Q. Mr. Lampright asked what were the longevity of the walls?
 A. Mr. Mueller said that longevity would be dependent on the design which would be determined by a thorough treatability study.

Q. Mr. George Rice asked if AFBCA was considering using these types of walls and was this technology one of the seven options presented to the public?

A. Mr. Ryan responded that yes, permeable barrier walls were considered in two applications for source control and plume wide treatment.

Q. Dr. Lené asked if the walls could be designed to withstand periods of dryness?
 A. Mr. Mueller said that it was possible. San Antonio was not a unique situation and a similar application could have been performed elsewhere. He did not have an exact example but would forward more information to AFBCA.

Q. Mr. George Rice asked if there were any low limits to treatability by the walls. For example, in the case of Kelly AFB, would the walls be able to treat below a level of 5ppb.

A. Mr. Mueller replied that there were not any limits regarding the treatment and yes, the walls could treat low-level contamination.

Q. Mr. Rice also asked if the iron in any of the walls needed to be replaced?
 A. Mr. Mueller replied that yes the iron had to be replaced but replacement was determined by the design of the wall. Walls could be designed to treat contaminants for the life span of the plume.

III. Review of First Draft of Plume Maps for Public Distribution. William Ryan, AFBCA, reviewed the changes submitted by the committee members during the May TRS meeting. Members were pleased with the changes and made the additional following recommendations:

- Delete the explanation of the isoconcentration line
- Explain what realigned means, use the word transferred, and spell out acronyms such as AFBCA and GKDA. Show AFBCA's area of responsibility
- Show date of transfer from Kelly AFB to Lackland AFB
- Show the 0 and 1 ppb lines and delete the 5 ppb line (5 ppb is MCL)
- Make a note to state that estimated boundary is based on limited data
- Clarify dotted lines. The lines are confusing: both railroad tracks and plume lines use the same symbol type

- Item number six in the legend is too technical. Re-write and use an example that is more visual.
- Rewrite note number three into two statements and simplify
- Place the acronym MCL after the words Maximum Contaminant Level in the legend
- Outline council districts
- Data Sources - designate that the map is designed with 1999-2000 data and review the data sources for corrections
- List "area of AFBCA responsibility"
- Show the property that is being transferred to GKDA
- Spell-out TCE in the title
- Delete item number one in the legend
- Replace the word contours in item number three with "shaded areas"
- Review "white spots" on the map – were they intentional, and are they correct?
- In item number six, replace the last sentence to read "the shallow groundwater in this area is not used for drinking."
- Add the Kelly Public Information Line number, 925-0956, in the legend as a contact number for questions or comments.

V. Administrative:

A. BCT meeting update. No update.

B. Spill Report. The following reports were distributed to the members:

1. Spill of Untreated Groundwater at IRP Site S-1, KAFB
2. Release from Groundwater Bio-Augmentation Test Plot #2 near Building 360, KAFB
3. Wastewater Release at the Environmental Process Control Facility, KAFB

C. Documents delivered to RAB: ?

D. Action Items: Mr. George Rice requested a copy of the detailed notes written by Mr. John Folk Williams, facilitator, at the April TRS meeting. He asked that the notes be mailed to the committee members.

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

F. Next TRS meeting: The next TRS meeting will take place at 6:30 p.m. on August 14, 2001. Location to be determined.

Adjournment: The meeting adjourned at 9 p.m.

12S

MINUTAS DE LA JUNTA EN BORRADOR
SUBCOMITÉ DE REVISIÓN TÉCNICA (TRS, POR SUS SIGLAS EN INGLÉS) DE LA
BASE DE LA FUERZA AÉREA KELLY
PARA LA JUNTA ASESORA DE RESTAURACIÓN DE KELLY (RAB, POR SUS
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- Corregir los errores tipográficos en los tres mapas
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- Cambiar el término “áreas sombreadas” a “áreas de contorno” en el párrafo dos de los tres mapas
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V. **Asuntos Administrativos**

- A. Actualización de la reunión del Equipo de Limpieza BCT. El Sr. William Ryan puso al corriente al Dr. Lené.
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- E. Orden del día para la próxima reunión: No se discutió ningún punto.
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Zone 4 SS052 IRA Horizontal Wells Optimization Study

**Presented by
Scott Courtney, BAH**

Optimization Study Overview

- **Installation and Operational History**
- **Data collection and evaluation**
- **Preliminary Results**

System Installation & Operation History

- **10 Horizontal and 3 Vertical Groundwater Recovery wells installed 1999-2000**
 - Individual well flow range 12-70 GPM
 - Total system flow range 450-525 GPM
 - Horizontal Wells average length 1200 feet, 600 foot screens
- **Groundwater Treatment Plant**
 - UV Oxidation
 - NPDES Discharge Permit to Out-fall 004
- **Operational July 2000**

System Optimization

Objectives:

1. Evaluate hydraulic containment
2. Optimize flow rates

Methodologies

- Collect water level data
 - Ambient
 - Pumping
- Collect well flow rates and draw-down data
- Refine Zone 4 Groundwater Zoom Model
 - Evaluate Capture of existing system
 - Develop alternate flow scenarios
 - Predict responses
 - Measure response
- Implement Optimum Flow rates

Data Collection

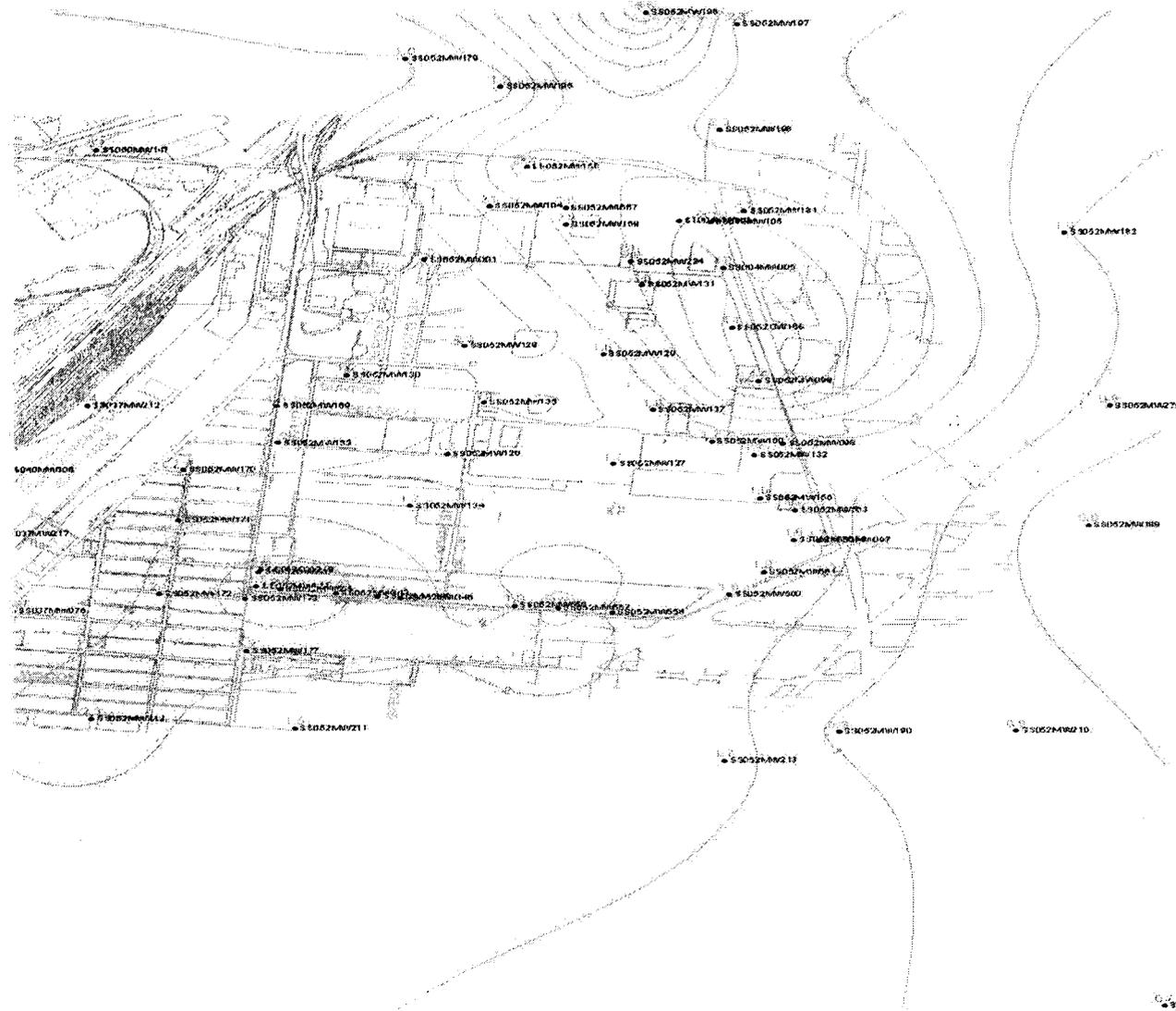
- Measure water levels in 80 wells on and off-Base
- Record draw down data and flow rates from horizontal and vertical recovery wells
- Measure and track precipitation events
- Install transducers and continuous data recorders in 10 monitoring wells
- Measure VOCs concentration in horizontal and vertical recovery wells and in nearby groundwater monitoring wells

Data Evaluation

- Graph water levels during ambient and pumping conditions
 - Nearby horizontal wells
 - Far away from horizontal wells
- Create potentiometric surface maps during ambient and pumping conditions
- Simulate particle tracking and potentiometric surface maps using calibrated zoom model
- Plot VOC data
- Groundwater Modeling

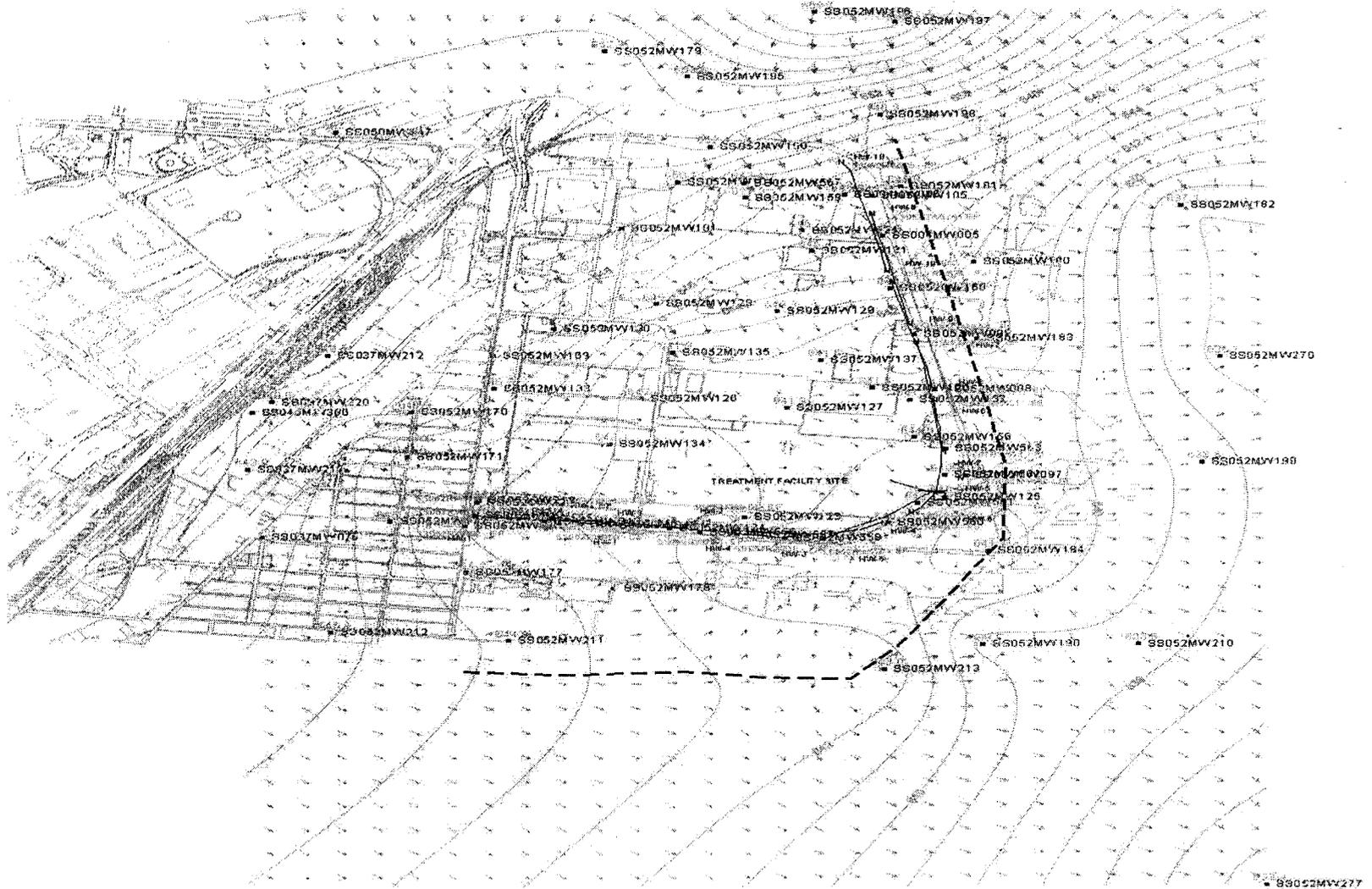
Draw down Contours April 19-24, 2001

Figure 3. Drawdown of East Kelly Pump and Treat System (4-19-2001/4-30-2001)



May 8, 2001 Plume Capture Zone

Figure 4. East Kelly Capture Zone (5-8-2001)



1 inch = 2,000 feet

May 24, 2001 Potentiometric Surface, Flow Lines, Plume Contours

Figure 5. East Kelly Capture Zone (5-24-2001)



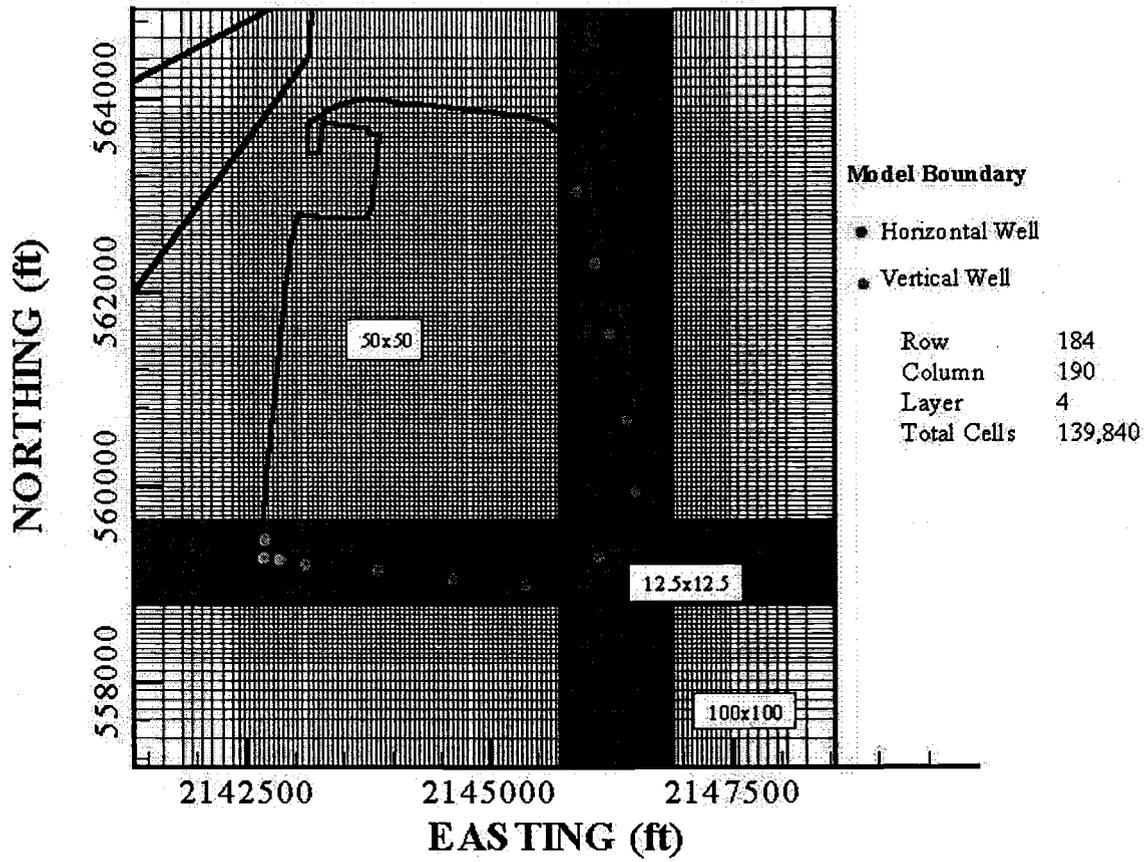


Figure 1 Zoom Model Domain for East Kelly

Initial Flow Rates April 2001

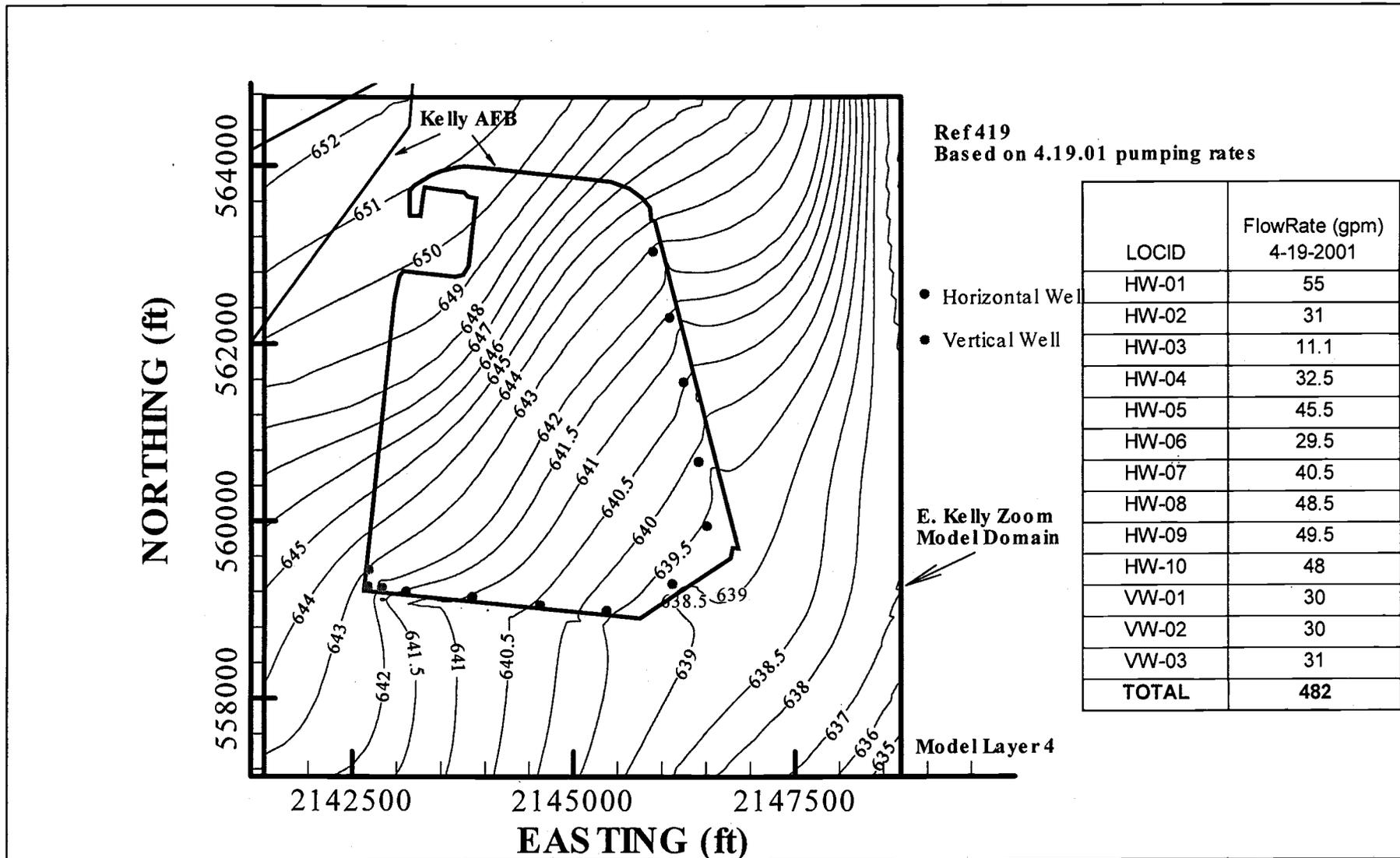


Figure 1 Simulated Head Contours Based on April 19, 2001 Pumping Rates

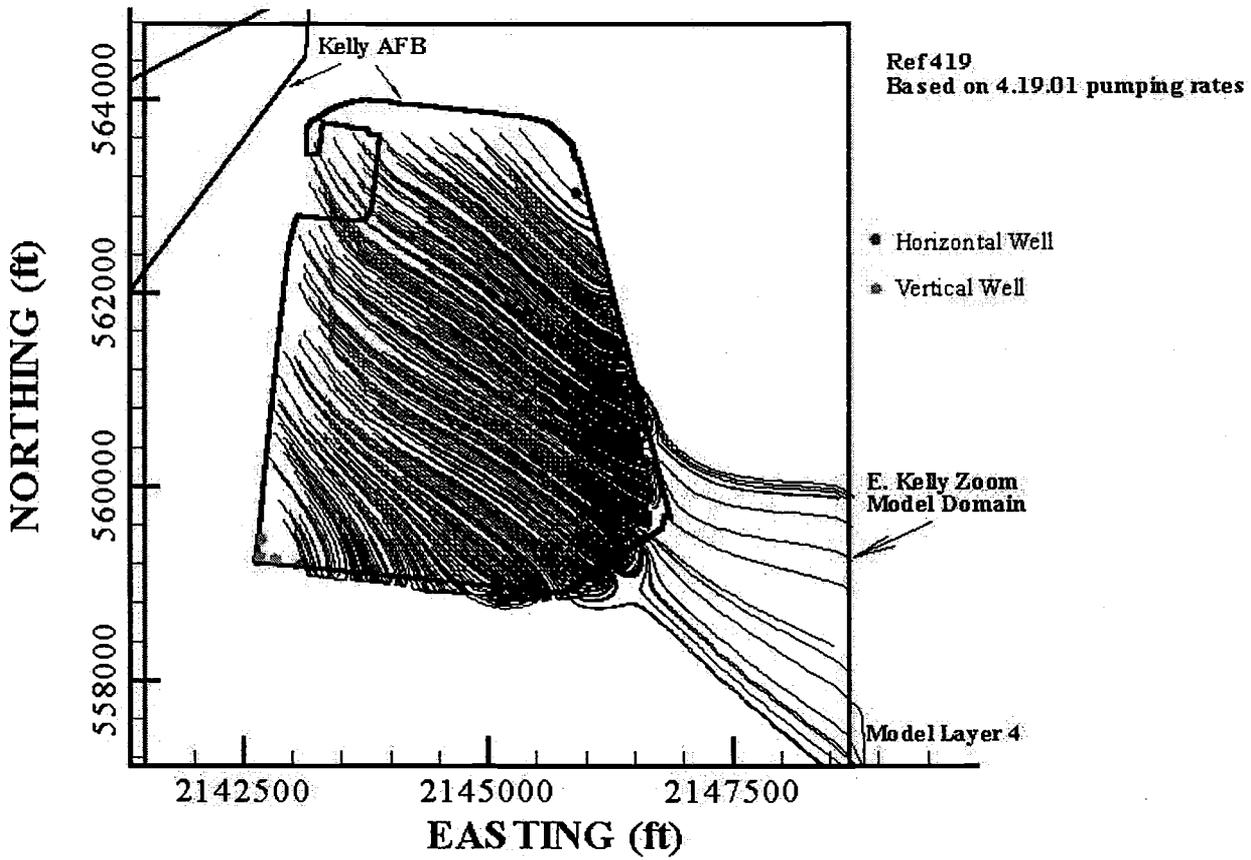


Figure 2 Particle Tracks for Layer 4 Based on April 19, 2001 Pumping Rates

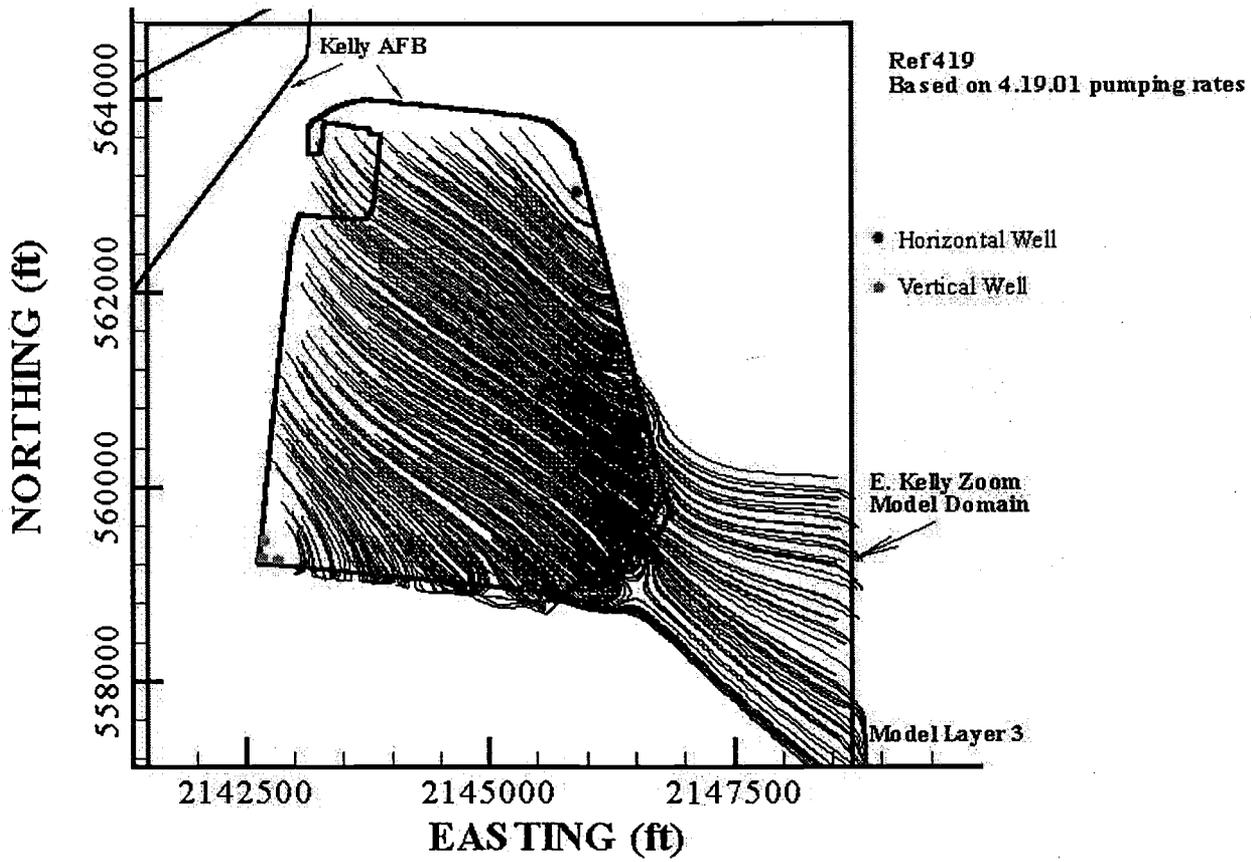


Figure 3 Particle Tracks for Layer 3 Based on April 19, 2001 Pumping Rates

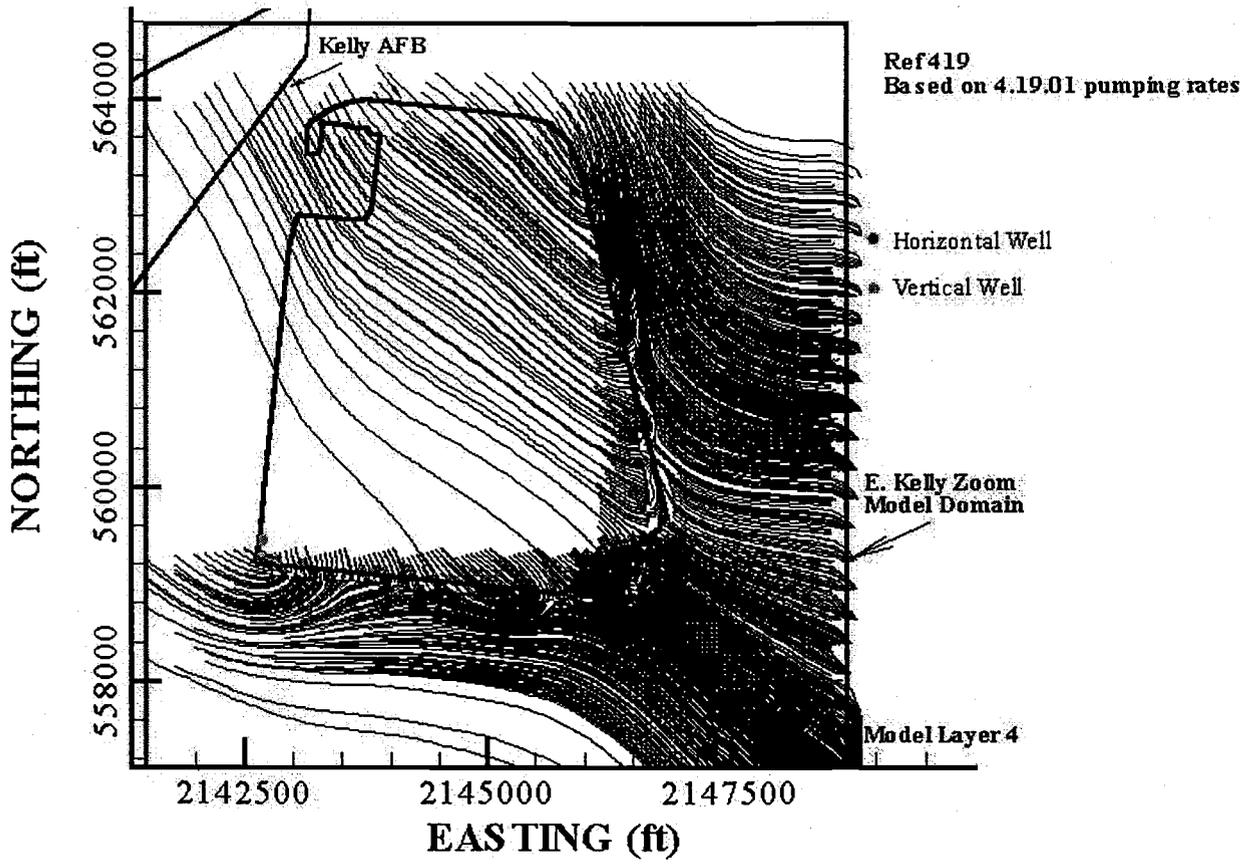


Figure 4 Particle Tracks for Layer 4 Based on April 19, 2001 Pumping Rates. Seeds were Placed along the East Kelly Perimeter.

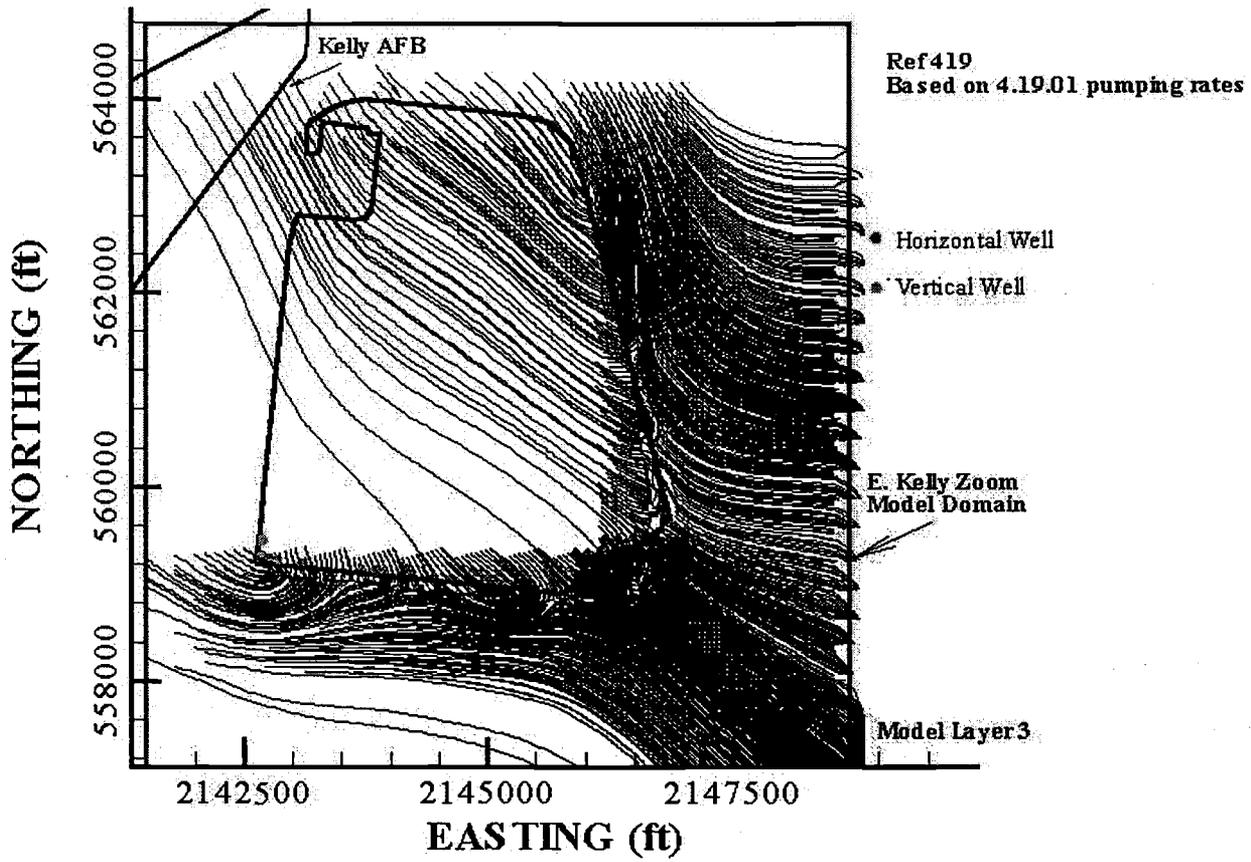


Figure 5 Particle Tracks for Layer 3 Based on April 19, 2001 Pumping Rates. Seeds were Placed along the East Kelly Perimeter.

May 8 Flow Rates

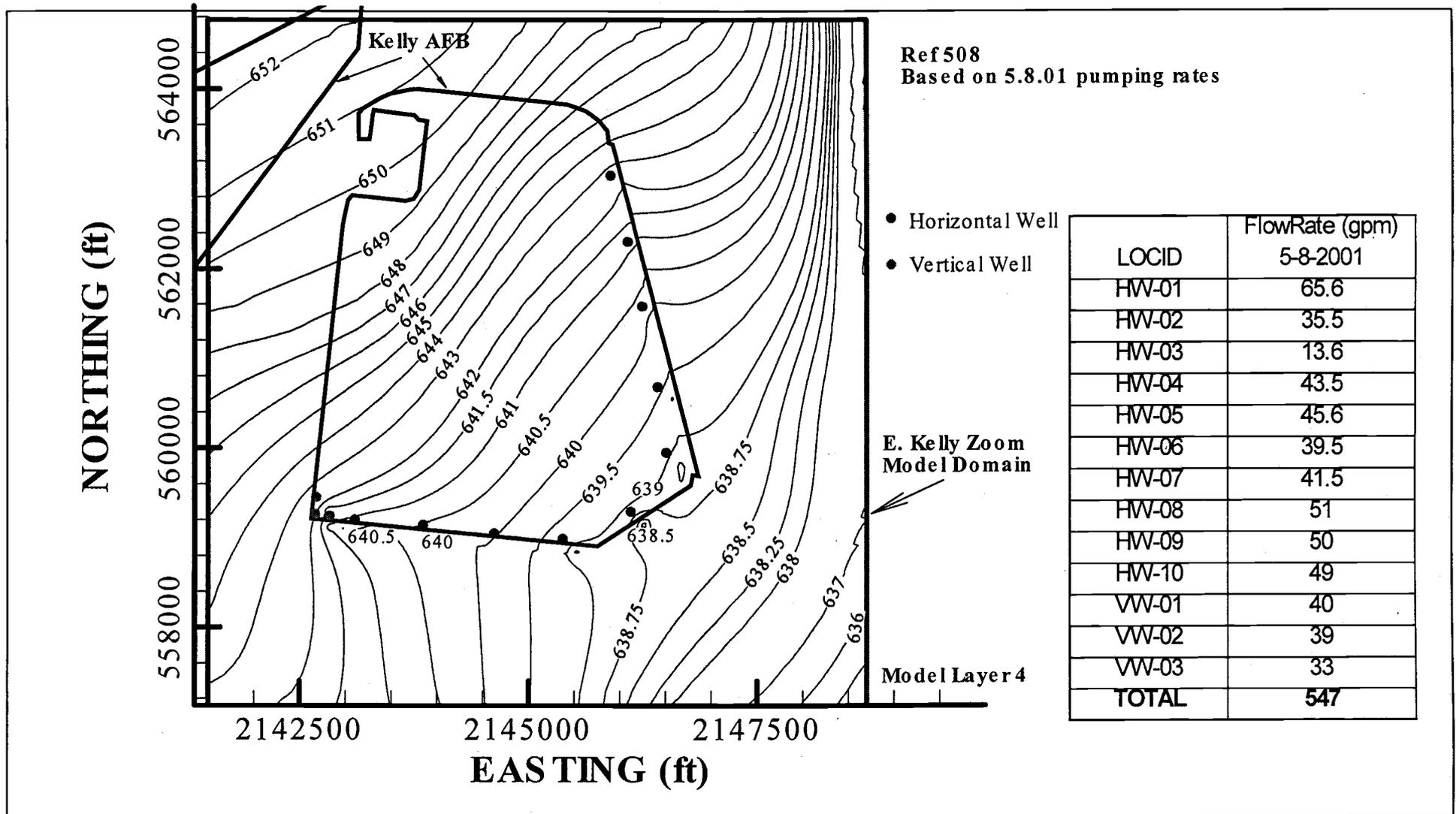


Figure 1 Simulated Head Contours Based on May 8, 2001 Pumping Rates

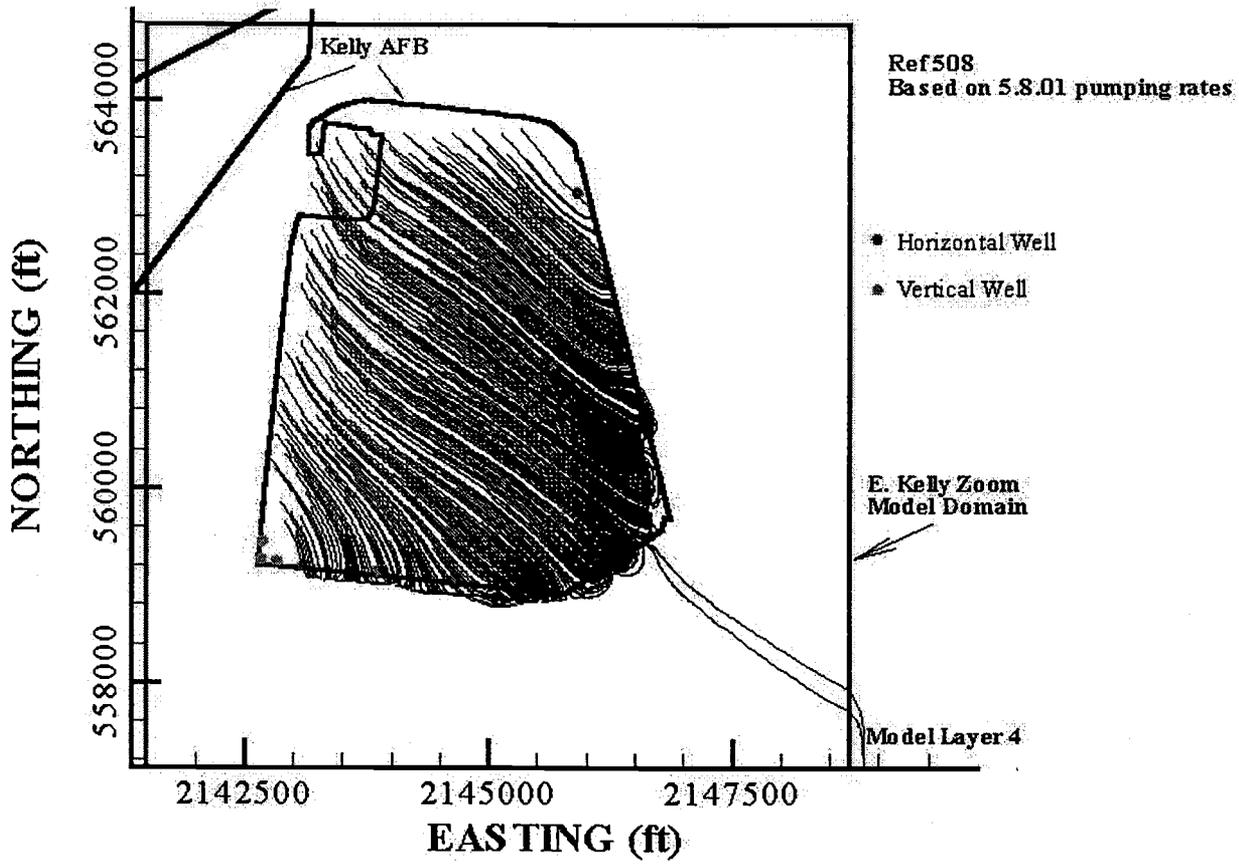


Figure 2 Particle Tracks for Layer 4 Based on May 8, 2001 Pumping Rates.

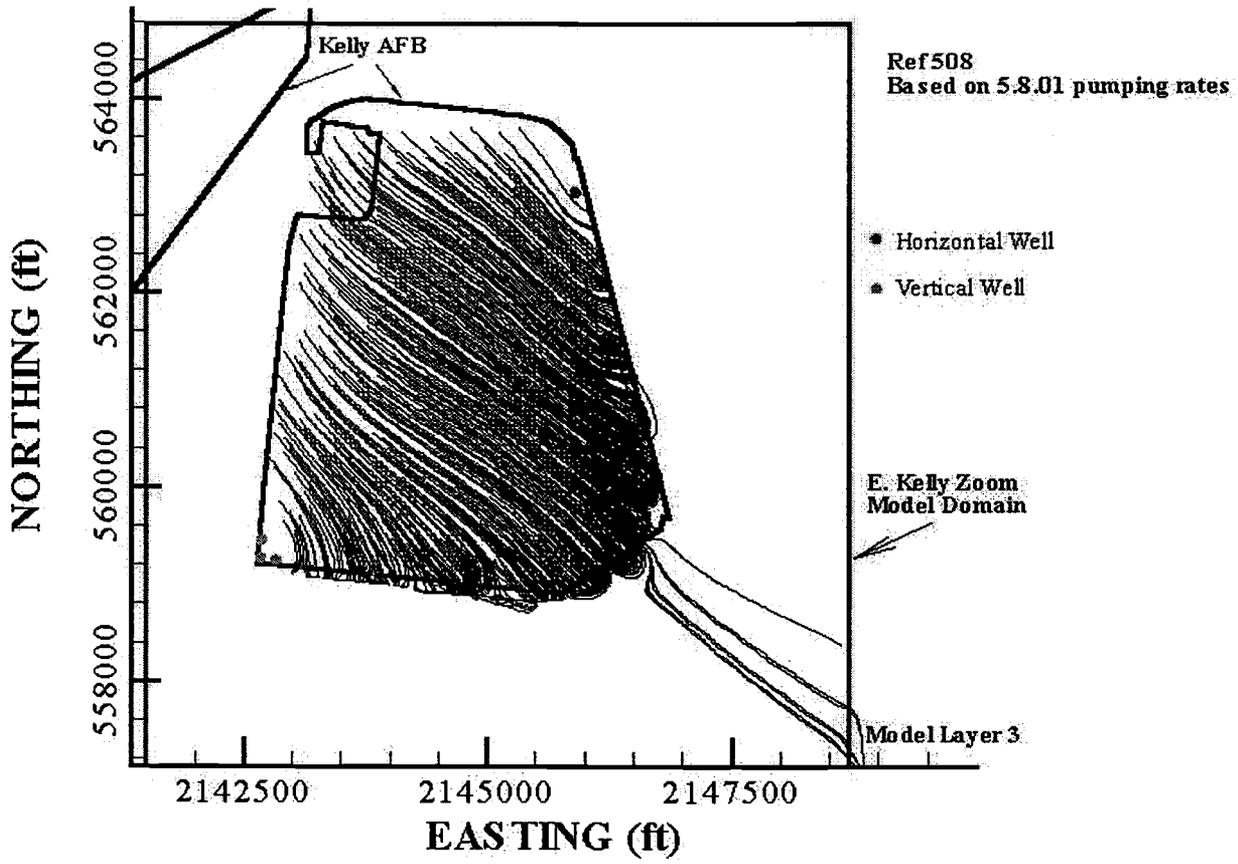


Figure 3 Particle Tracks for Layer 3 Based on May 8, 2001 Pumping Rates.

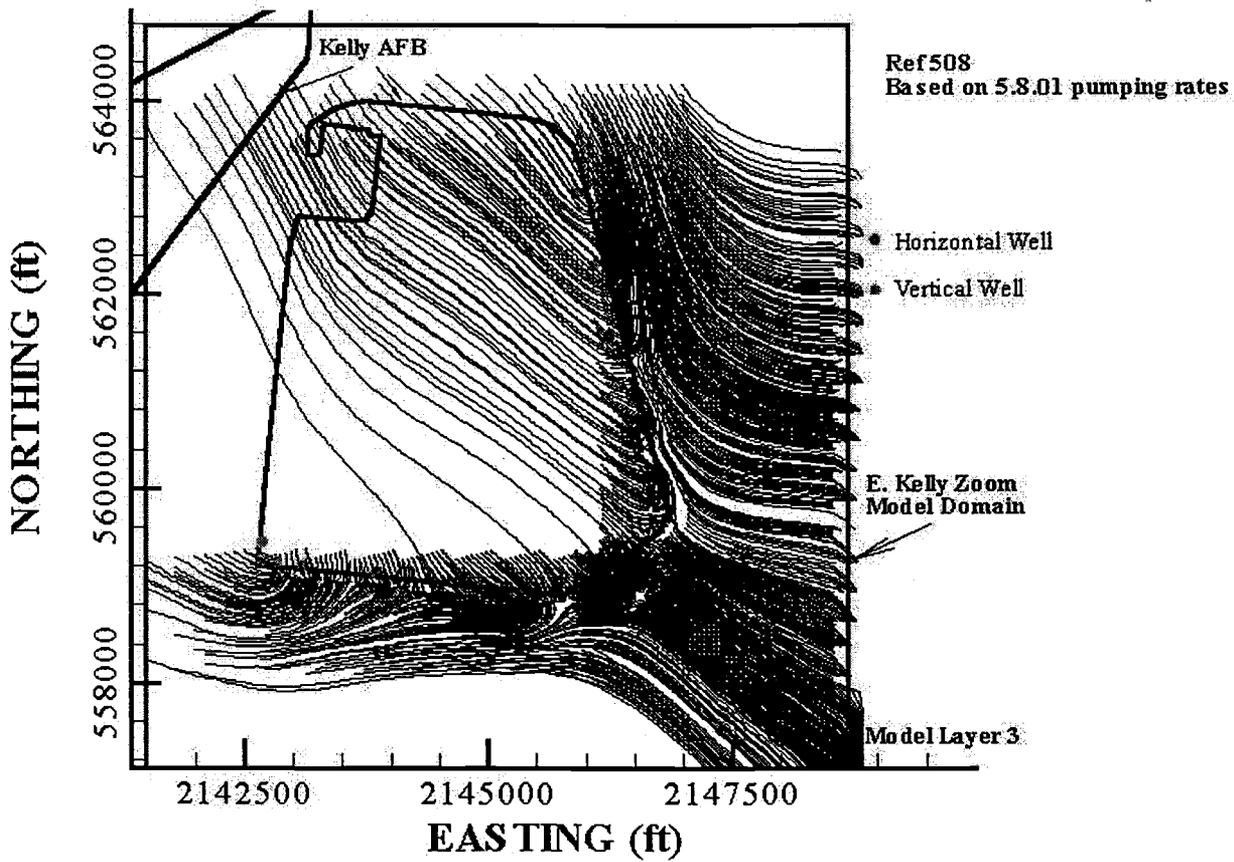


Figure 5 Particle Tracks for Layer 3 Based on May 8, 2001 Pumping Rates. Seeds were Placed along the East Kelly Perimeter.

May 24 Flow Rates

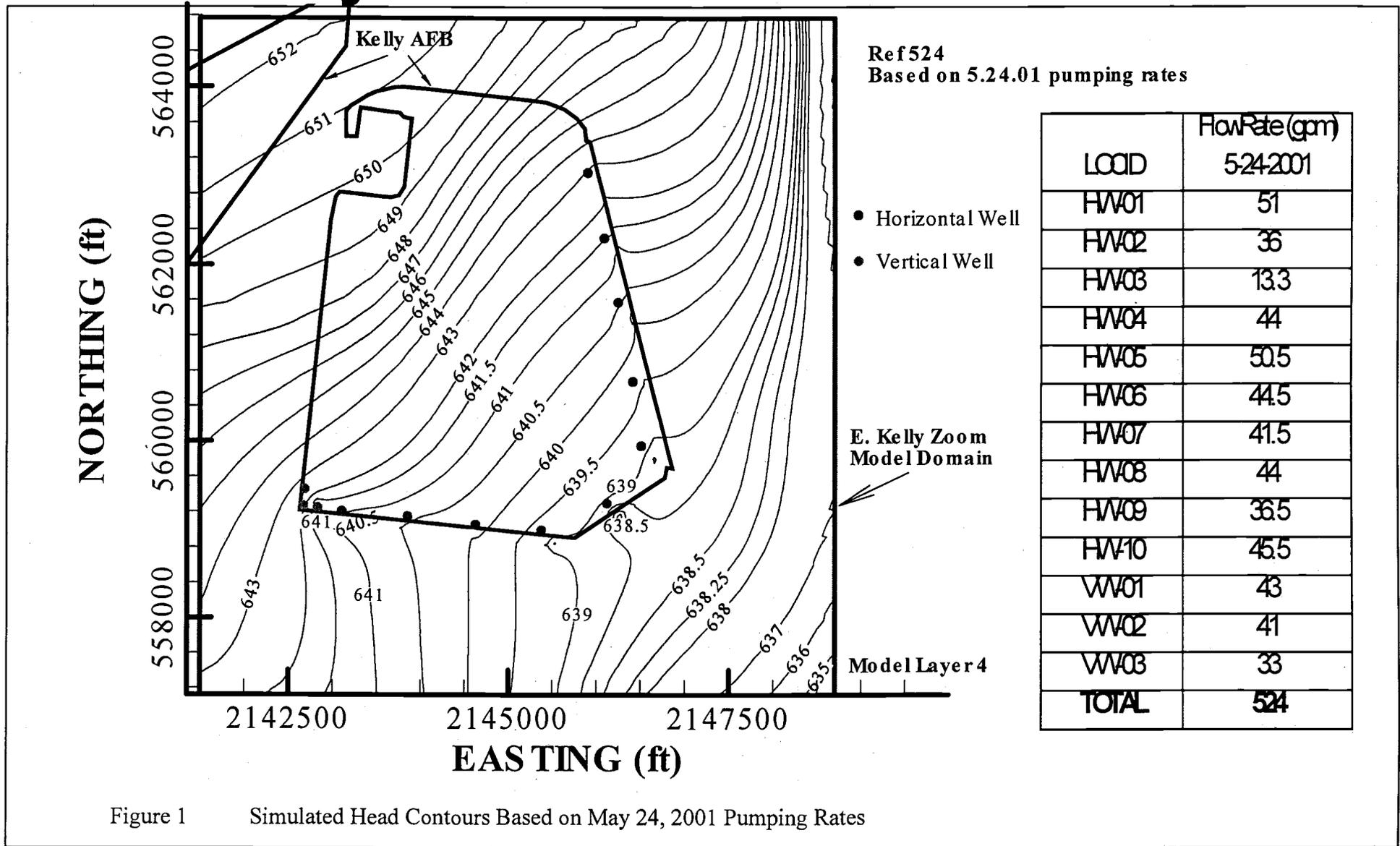


Figure 1 Simulated Head Contours Based on May 24, 2001 Pumping Rates

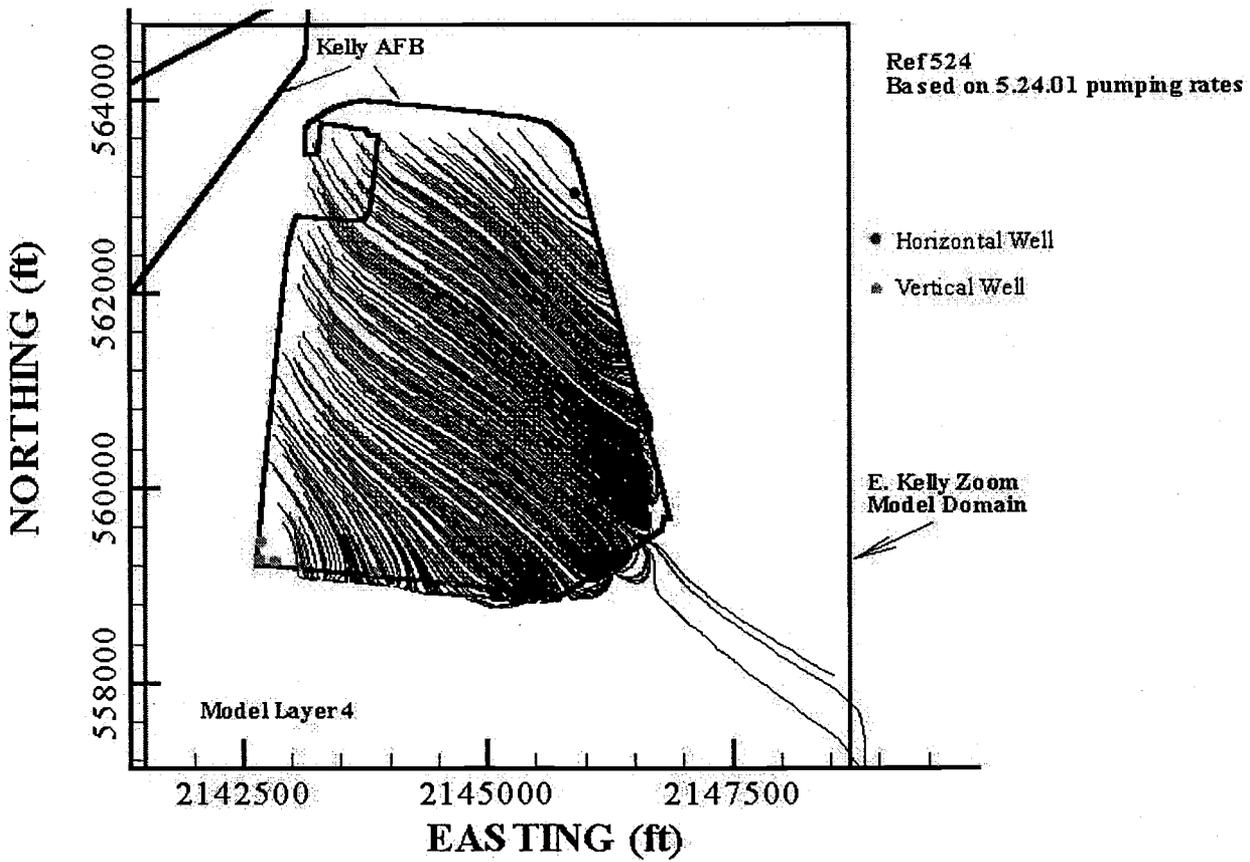


Figure 2 Particle Tracking for Layer 4 Based on May 24, 2001 Pumping Rates

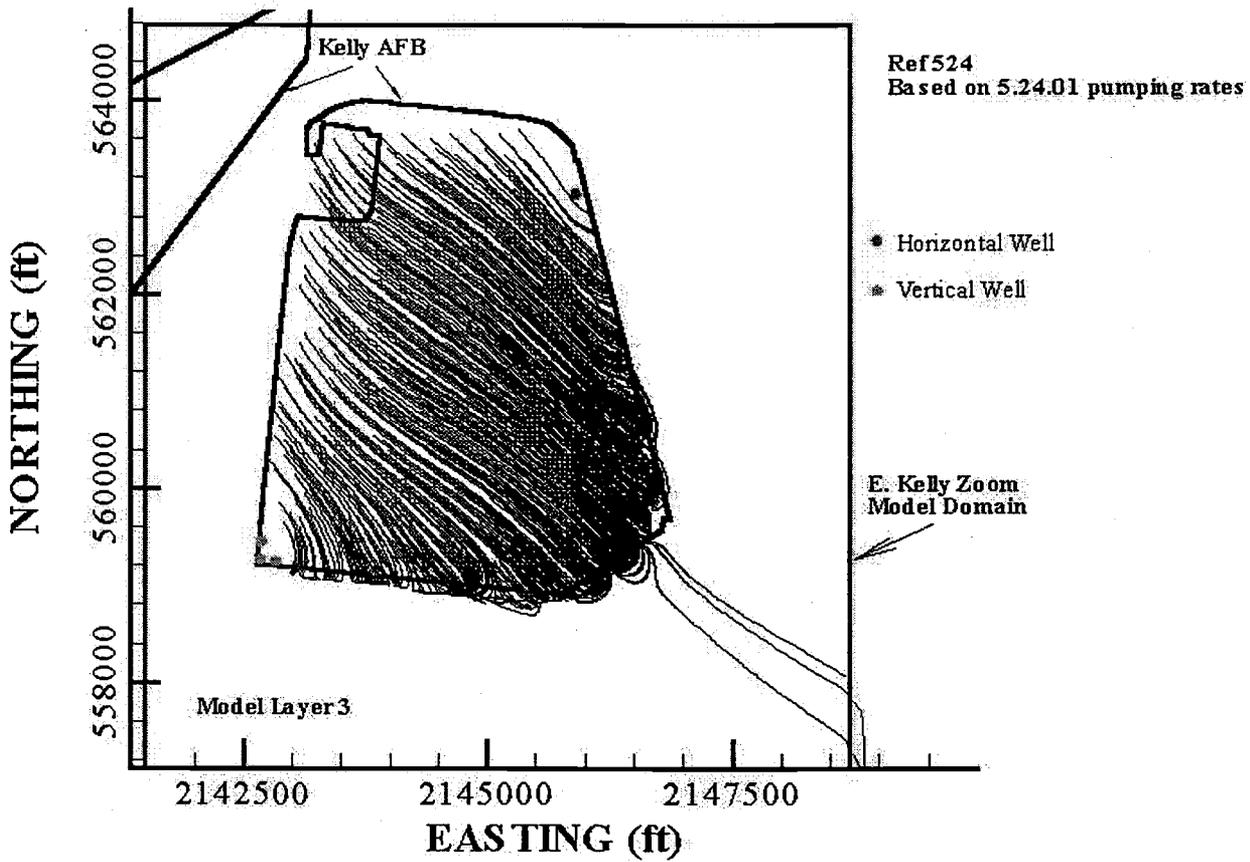


Figure 3 Particle Tracking for Layer 3 Based on May 24, 2001 Pumping Rates

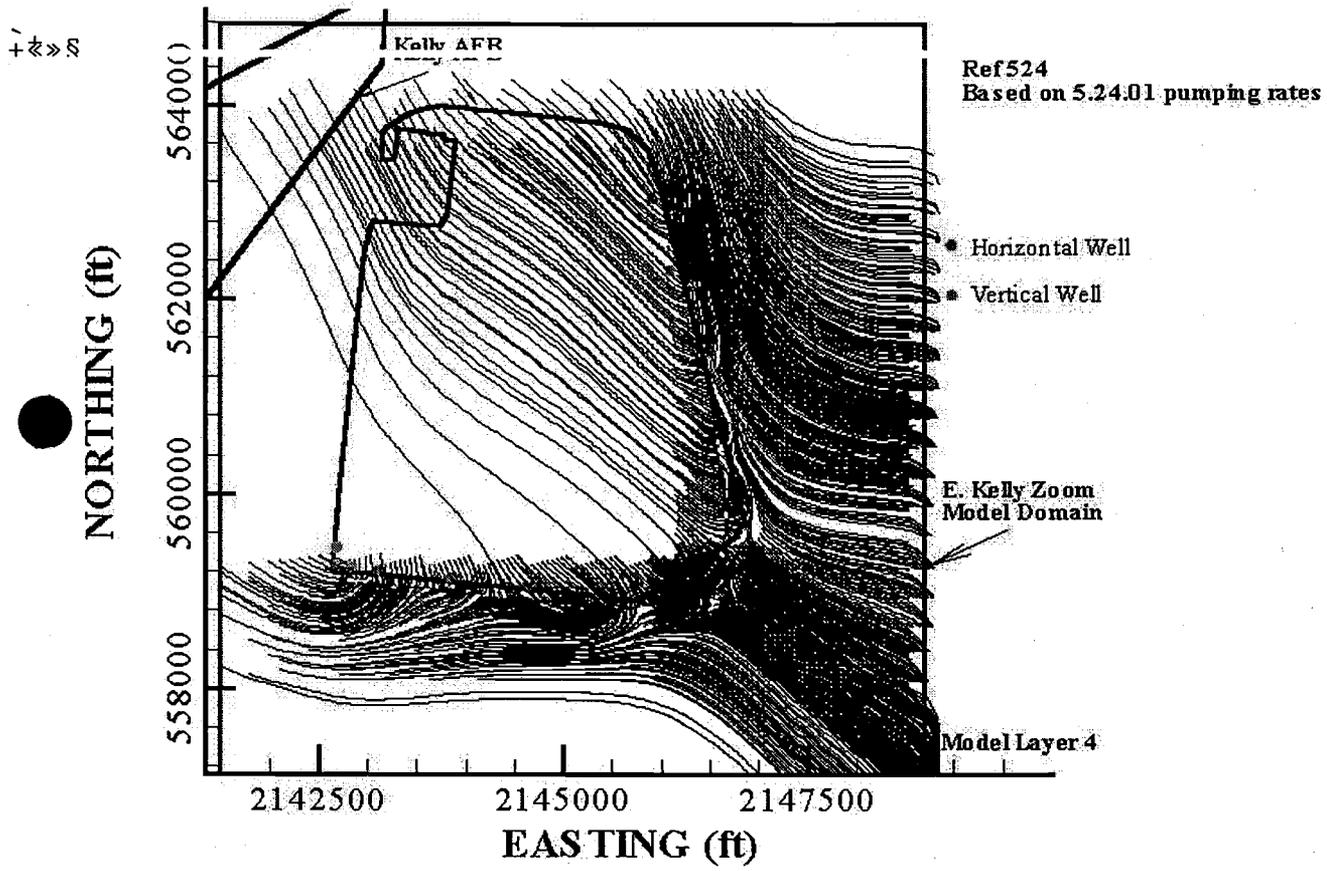


Figure 4 Particle Tracks for Layer 4 Based on May 24, 2001 Pumping Rates. Seeds were Placed along the East Kelly Perimeter.

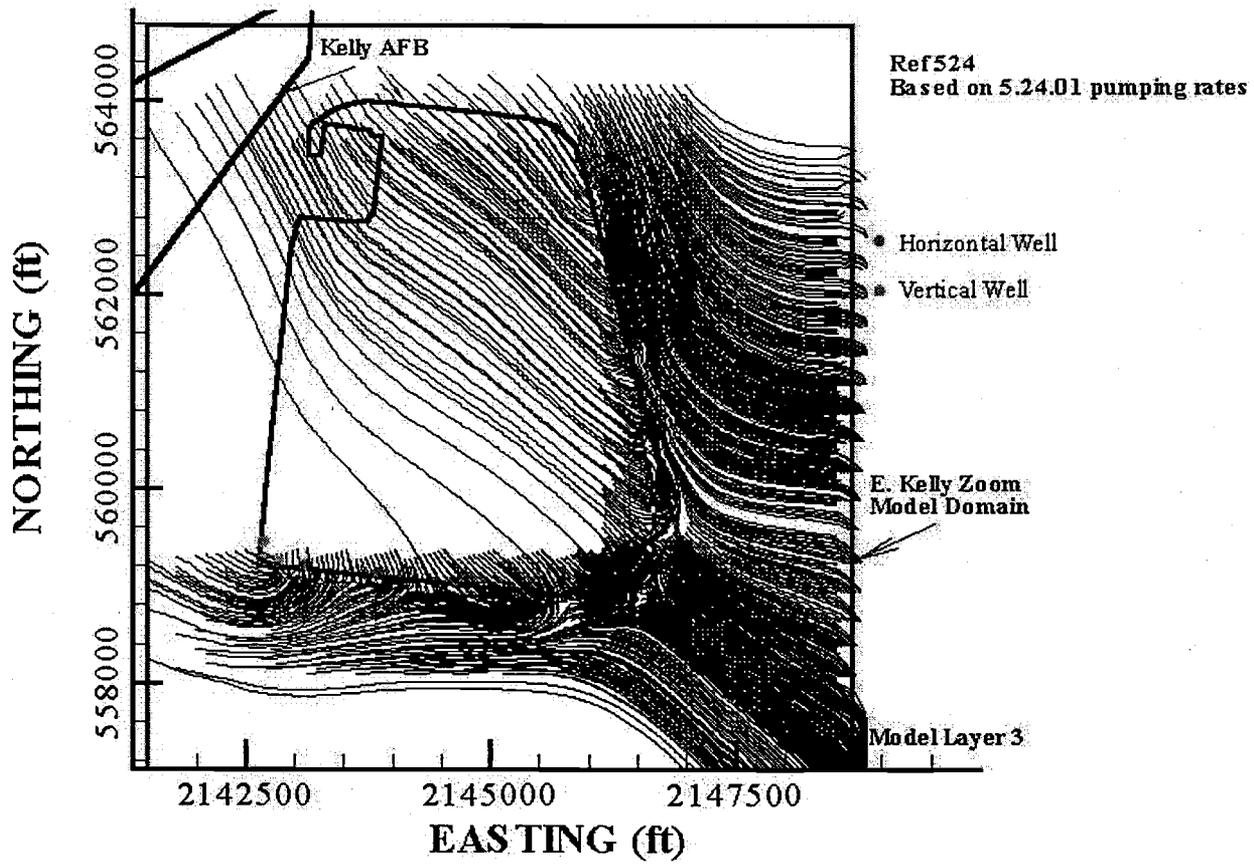


Figure 5 Particle Tracks for Layer 3 Based on May 24, 2001 Pumping Rates. Seeds were Placed along the East Kelly Perimeter.

Preliminary Results

- Initial results indicate adequate capture with existing system
- Flow rates could be optimized to improve efficiency
- No need to adjust flow rates with fluctuating water levels

Future Efforts

- Complete Optimization Study
- Configure System to Optimized Flow Rates
- Continue to monitor and adjust as necessary to ensure capture

**Air Force Institute for Environment, Safety,
and Occupational Health Risk Analysis**

Integrity - Service - Excellence

**Kelly AFB Radium
Project**



U.S. AIR FORCE

Major Daniel Caputo, PhD, CHP

Presented to

Kelly Technical Review Subcommittee

August 14, 2001



U.S. AIR FORCE

Overview

- Background of radium on Kelly AFB
- Source of Kelly AFB radium
- Pathways for release of radium from Bldgs. 324/6
- Receptor locations for potential exposure
- Status of characterization and remediation efforts
- Proposed future actions to mitigate the risk

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Background

- Historic environmental search shows radium dial painting operations in buildings 324/326.
- Screening surveys indicate the presence radium levels above background in building 326 and 324.
- Characterization study of building 326 initiated to determine the extent of radium contamination.
- Initial surveys indicated radium in and around waste water drains.
- AFIERA/SDR initiates screening surveys of sanitary sewer lines outside of building 326 and finds preliminary radiation levels at 5 to 10 times background levels.
- AFIERA/SDR immediately notifies Kelly AFBCA/EM of find, and actions are taken to control access to manholes around buildings 324/326 and to conduct more detailed environmental survey.
- Sanitary and storm water characterization surveys are ongoing with preliminary results showing some limited migration of radium in the sanitary sewer system outside of building 326.

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Radiation and Radium

- Radium is a naturally occurring radioactive material.
- Radium-226 (Ra-226) is the primary isotope of radium with a half-life of 1600 years.
- Ra-226 decays into numerous daughter products with radon gas (Rn-222) of particular interest.
- The average radiation exposure in the US from natural sources is approximately 300 mrem/yr
 - The maximum dose rate from Kelly radium in the sewers is 0.05 mrem/hr or 100 mrem/yr (assuming a SAWS worker spent their entire 2000 hr work-year in the highest radium manhole).
 - The U.S. Nuclear Regulatory Commission and Texas Department of Health limit radiation dose to a member of the public to 100 mrem/yr.

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Source of Kelly Radium

- **Kelly Radium**
 - Radium salts were mixed with phosphorescent materials and binders to produce a paint that was used for luminescent dials and gauges in the aircraft industry.
 - Radium dial paint shops were located in Buildings 324 and 326 during the 1920s-1950s.
 - Accidental spills during radium paint operations caused contamination of building surfaces.
 - Although not a standard practice, some cleanup activities caused contamination of the sanitary sewer lines and provided a pathway for release of radium from the buildings.

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Pathways

- **Direct exposure during work and maintenance activities in buildings 324/326**
- **Radon exposures in confined areas with radium contamination.**
- **Sanitary sewer lines**
 - **Direct disposal through maintenance and cleanup activities**
- **Storm water drains**
 - **Cross connections and potential direct access points**

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Potential Receptor Sites

- Buildings 324/326 during investigations and remediation activities
- Manholes during maintenance and excavation
- Sewer piping and surrounding soils during excavation activities
- Waste water drying beds or storm water drains and outfalls
- Other utility manholes connected to radium contaminated manholes or piping

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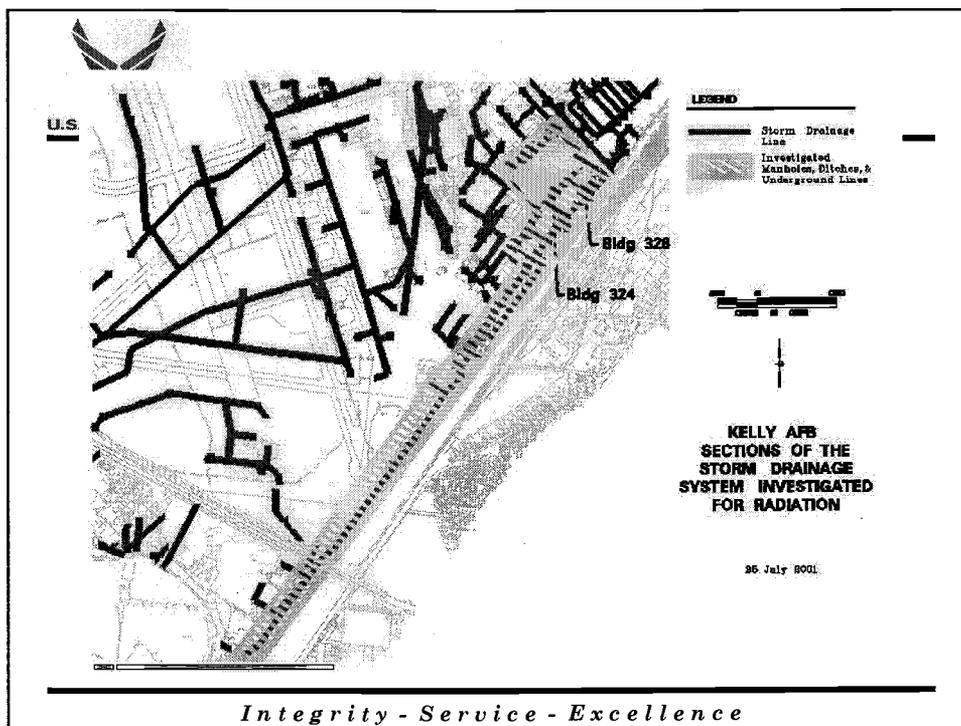
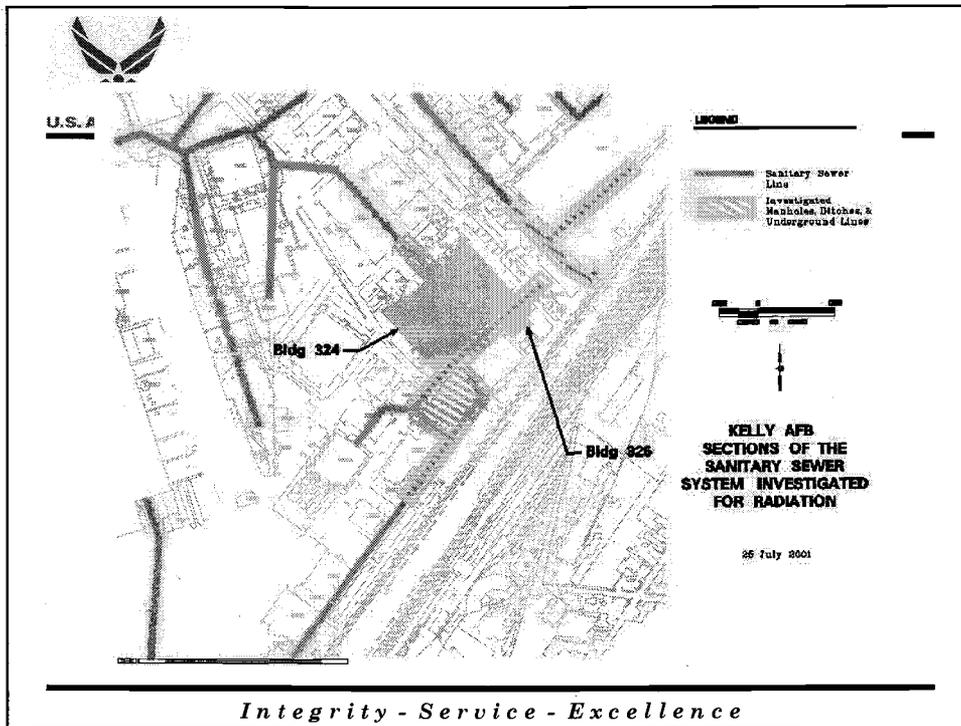


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Preliminary Survey Summary

- Most radium remains inside building 326
- Only 3 out of 81 manholes impacted
- Storm water viaduct and outfalls appear clean
- Area of about 25' x 25' found to have elevated readings in retired drying bed #2 (SD-2)
- Pipe surveys show only low-levels of fixed radium contamination

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Future Activities

- Remediation of building 326 and investigation of 324
- Remediation of piping and manholes around building 326
- Further investigations of drying beds and piping
- Soil and sludge samples to be taken from water treatment areas

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DRAFT Tetrachloroethene (PCE) in Shallow Groundwater 1999-2000

LEGEND

-  Transferred To Lackland Air Force Base July 14, 2001.
-  Air Force Base Conversion Agency Area of Responsibility. Property to be transferred to Greater Kelly Development Authority.
-  < 5 parts per billion
-  5 - 10 parts per billion
-  10 - 100 parts per billion
-  100 - 200 parts per billion
-  200 + parts per billion
-  1 parts per billion (ppb) line
-  Creek
-  River
-  Railroad
-  Groundwater Flow Arrow

1) The figure was mapped using sample data from 1999 and 2000. This figure presents an overall picture of PCE within the shallow groundwater.

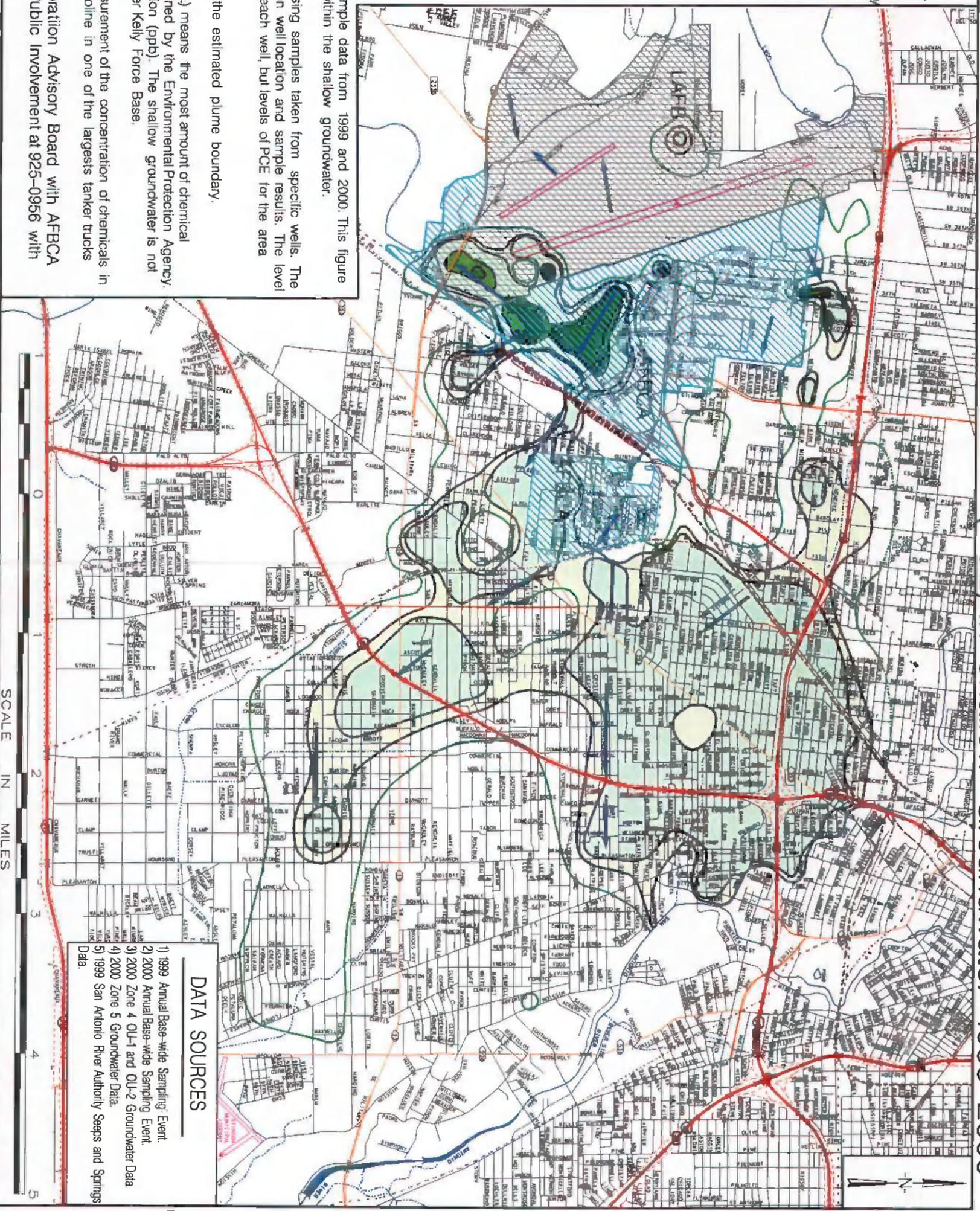
2) The shaded areas are created using samples taken from specific wells. The boundaries are determined based on well location and sample results. The level of PCE is specifically measured for each well, but levels of PCE for the area between wells must be estimated.

3) Dashed lines depict the estimated plume boundary.

4) Maximum Contaminant Level (MCL) means the most amount of chemical allowed in drinking water as determined by the Environmental Protection Agency. The MCL for PCE is 5 parts per billion (ppb). The shallow groundwater is not typically used for drinking near former Kelly Force Base.

5) Parts per billion (ppb) is the measurement of the concentration of chemicals in water. For example, one drop of gasoline in one of the largest tanker trucks filled with water is about 1 ppb.

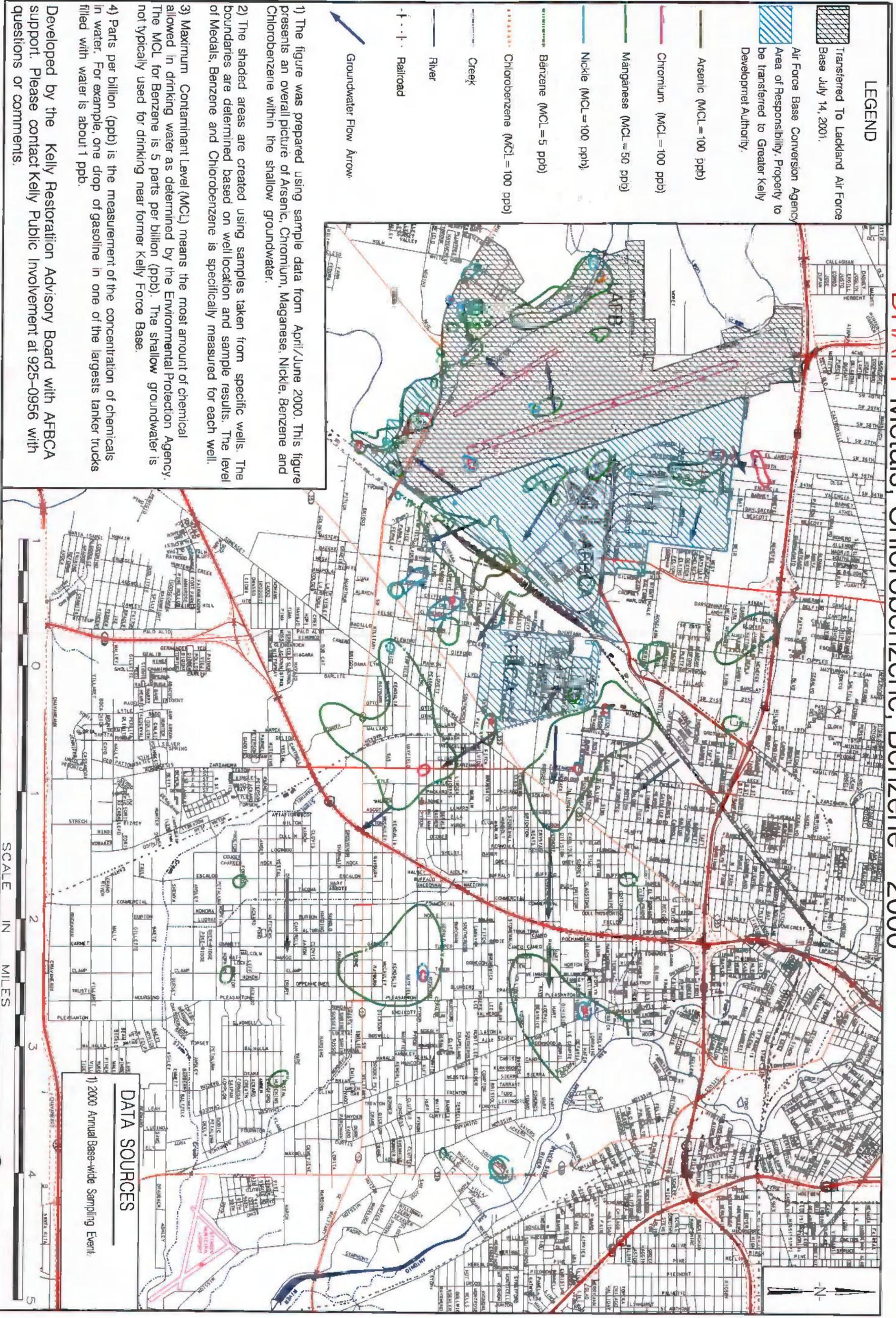
Developed by the Kelly Restoration Advisory Board with AFBCA support. Please contact Kelly Public Involvement at 925-0956 with questions or comments.



DATA SOURCES

- 1) 1999 Annual Base-wide Sampling Event.
- 2) 2000 Annual Base-wide Sampling Event.
- 3) 2000 Zone 4 OU-1 and OU-2 Groundwater Data
- 4) 2000 Zone 5 Groundwater Data
- 5) 1999 San Antonio River Authority Seeps and Springs Data

DRAFT Metals, Chlorobenzene, Benzene 2000



LEGEND

Transferred To Lackland Air Force Base July 14, 2001.

Air Force Base Conversion Agency Area of Responsibility, Property to be transferred to Greater Kelly Development Authority.

- Arsenic (MCL = 100 ppb)
- Chromium (MCL = 100 ppb)
- Manganese (MCL = 50 ppb)
- Nickel (MCL = 100 ppb)
- Benzene (MCL = 5 ppb)
- Chlorobenzene (MCL = 100 ppb)
- Creek
- River
- Railroad
- Groundwater Flow Arrow

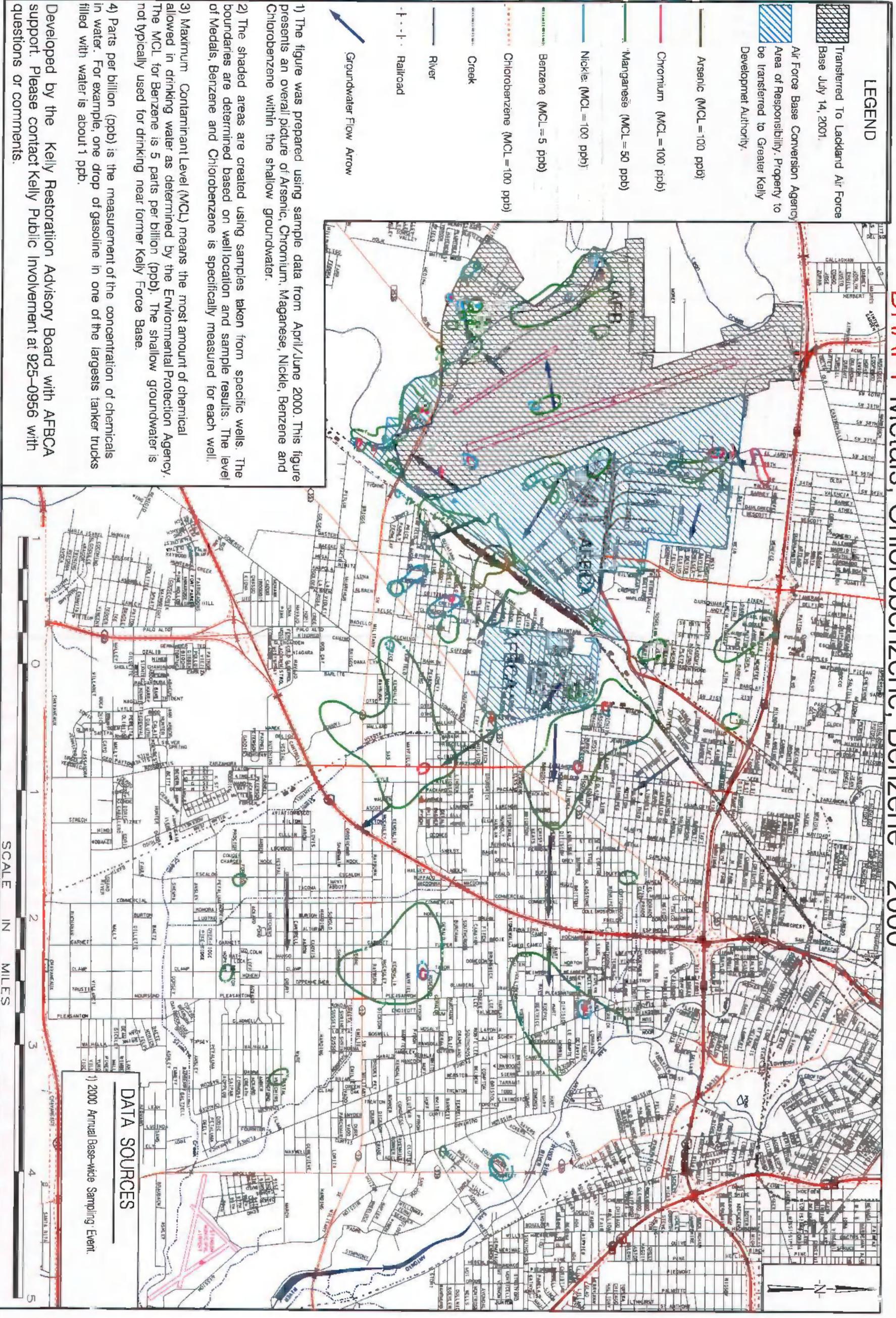
- 1) The figure was prepared using sample data from April/June 2000. This figure presents an overall picture of Arsenic, Chromium, Manganese, Nickel, Benzene and Chlorobenzene within the shallow groundwater.
- 2) The shaded areas are created using samples taken from specific wells. The boundaries are determined based on well location and sample results. The level of Metals, Benzene and Chlorobenzene is specifically measured for each well.
- 3) Maximum Contaminant Level (MCL) means the most amount of chemical allowed in drinking water as determined by the Environmental Protection Agency. The MCL for Benzene is 5 parts per billion (ppb). The shallow groundwater is not typically used for drinking near former Kelly Force Base.
- 4) Parts per billion (ppb) is the measurement of the concentration of chemicals in water. For example, one drop of gasoline in one of the largest tanker trucks filled with water is about 1 ppb.

Developed by the Kelly Restoration Advisory Board with AFBCA support. Please contact Kelly Public Involvement at 925-0956 with questions or comments.

DATA SOURCES

1) 2000 Annual Base-wide Sampling Event.

DRAFT Metals, Chlorobenzene, Benzene 2000



LEGEND

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Air Force Base Conversion Agency Area of Responsibility. Property to be transferred to Greater Kelly Development Authority.

- Arsenic (MCL = 100 ppb)
- Chromium (MCL = 100 ppb)
- Manganese (MCL = 50 ppb)
- Nickel (MCL = 100 ppb)
- Benzene (MCL = 5 ppb)
- Chlorobenzene (MCL = 100 ppb)
- Creek
- River
- Railroad
- Groundwater Flow Arrow

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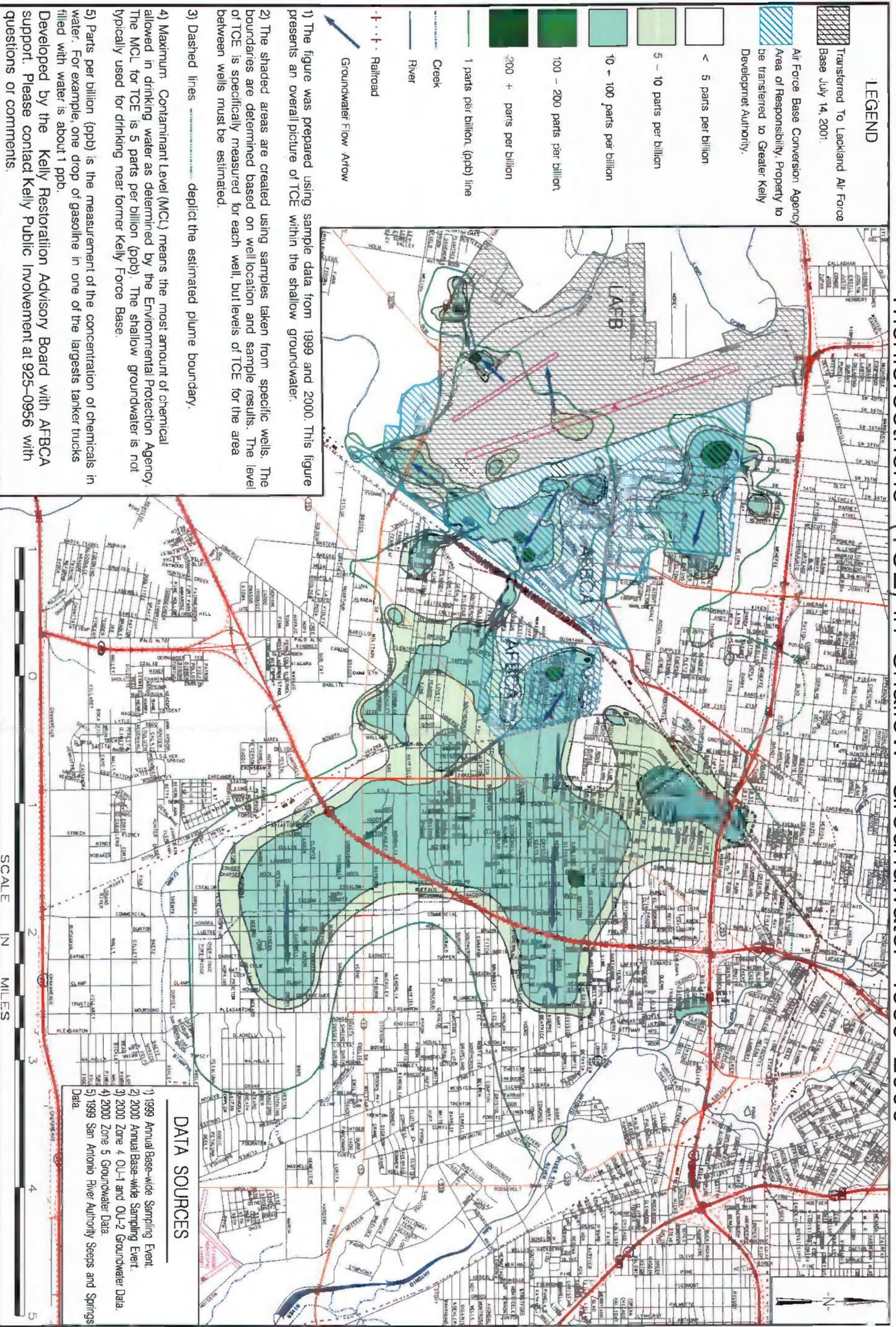
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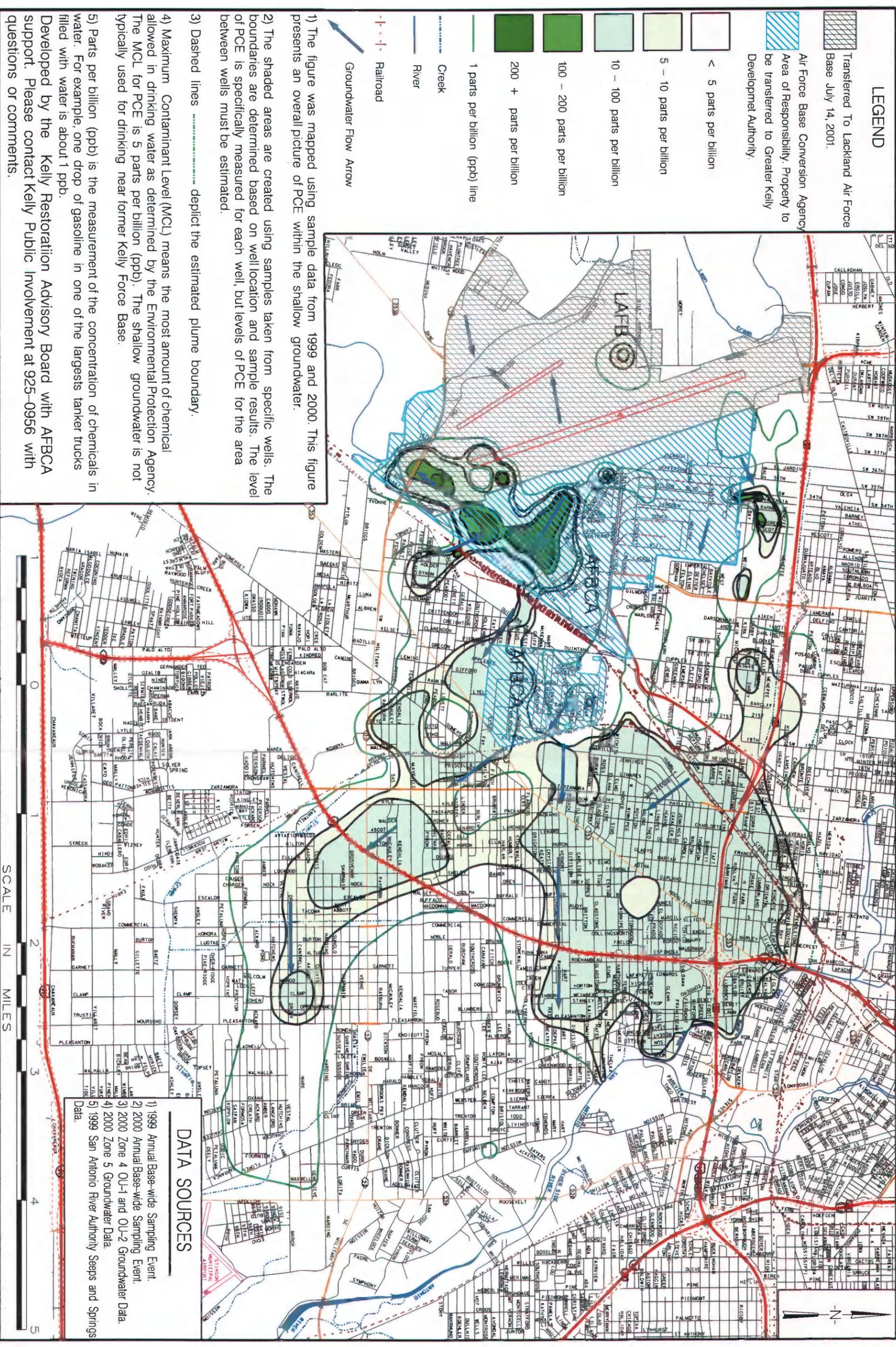
DATA SOURCES

1) 2000 Annual Base-wide Sampling Event.

Trichloroethene (TCE) in Shallow Groundwater 1999-2000



DRAFT Tetrachloroethene (PCE) in Shallow Groundwater 1999-2000



- LEGEND**
- Transferred To Lackland Air Force Base July 14, 2001.
 - Air Force Base Conversion Agency Area of Responsibility. Property to be transferred to Greater Kelly Development Authority.
 - < 5 parts per billion
 - 5 - 10 parts per billion
 - 10 - 100 parts per billion
 - 100 - 200 parts per billion
 - 200 + parts per billion
 - 1 parts per billion (ppb) line
 - Creek
 - River
 - Railroad
 - Groundwater Flow Arrow
- 1) The figure was mapped using sample data from 1999 and 2000. This figure presents an overall picture of PCE within the shallow groundwater.
 - 2) The shaded areas are created using samples taken from specific wells. The boundaries are determined based on well location and sample results. The level of PCE is specifically measured for each well, but levels of PCE for the area between wells must be estimated.
 - 3) Dashed lines depict the estimated plume boundary.
 - 4) Maximum Contaminant Level (MCL) means the most amount of chemical allowed in drinking water as determined by the Environmental Protection Agency. The MCL for PCE is 5 parts per billion (ppb). The shallow groundwater is not typically used for drinking near former Kelly Force Base.
 - 5) Parts per billion (ppb) is the measurement of the concentration of chemicals in water. For example, one drop of gasoline in one of the largest tanker trucks filled with water is about 1 ppb.

DATA SOURCES

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- 3) 2000 Zone 4 OU-1 and OU-2 Groundwater Data.
- 4) 2000 Zone 5 Groundwater Data.
- 5) 1999 San Antonio River Authority Seeps and Springs Data.

Relative Risk Evaluation Summaries



Kelly Air Force Base, TX

April 2000

	Contaminant Hazard Factor (CHF)	Migration Pathway Factor (MPF)	Receptor Factor (RF)	Category Rating
Groundwater	▲	▲	▼	Medium
Surface Water (Human)	▲	▼	▼	Low
Surface Water (Ecological)	▲	▼	▼	Low
Soil	▼	▲	◆	Medium
Sediment (Human)		▼	▼	NE
Sediment (Ecological)		▼	▼	NE

- CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal
- MPF ▲ Evident
 ◆ Potential
 ▼ Contained
- RF ▲ Identified
 ◆ Potential
 ▼ Limited



Relative Risk Evaluation Summary

Site Name: Site D-1 Landfill
Date Entered: 10/13/1997
Site Type: Landfill

Site ID: LF011

Agreement type: RCRA Permits with Corrective
Action Requirements

Overall Relative Risk	High
--------------------------	------

Site Summary

Site Description

Site D-1, designated as MAP Site Number 3, is located along the western base boundary, within the Leon Creek flood plain. The site is separated by Leon Creek into a northern area that extends north from Leon Creek at least 100 feet northeast of Westover Road under Building P962, and a southern area that stretches from the base boundary northeastward towards Leon Creek. From 1917 to 1942 the site was used as a bombing target and a landfill for general refuse, construction debris, World War I munitions, and scrap metal. The majority of the site lies within the boundaries of the base golf course constructed in 1969. Aerial photographs taken in the early 1960s and the presence of concrete rubble at the surface both indicate that the landfill extends into current Lackland AFB property.

Description of Pathways

The site is well vegetated with a sod cover. A 15 foot deep drainage ditch extends northwest across the southern area adjacent to the base boundary, while Westover Road bisects the northern area from the southeast to the northwest. The thickness of landfill and fill material at the site ranges from approximately 5 to 18 feet and, in most places, directly overlies the Navarro Group clay. The top of the Navarro clay has only 5 feet of relief at Site D-1. Groundwater conditions at the site vary from a dry zone in the northern area under normal conditions to a saturated zone approximately 5 feet in thickness flowing towards Leon Creek in the southern area.

Description of Receptors

Human receptors include maintenance and construction workers, golfers, base employees working near the site, local residents who live downwind of the site, and adolescents at the golf course. Ecological receptors include aquatic life in Leon Creek as well as livestock downstream.

See reverse side for medium-specific information.

	Contaminant Hazard Factor (CHF)	Migration Pathway Factor (MPF)	Receptor Factor (RF)	Category Rating
Groundwater	◆	▲	◆	High
Surface Water (Human)	▲	▲	▲	High
Surface Water (Ecological)	▲	▲	▲	High
Soil	◆	▲	▲	High
Sediment (Human)		▲	▲	NE
Sediment (Ecological)		▲	▲	NE

CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal

MPF ▲ Evident
 ◆ Potential
 ▼ Contained

RF ▲ Identified
 ◆ Potential
 ▼ Limited

NE = Not evaluated



Relative Risk Evaluation Summary

Site Name: D-2 Landfill
Date Entered: 10/13/1997
Site Type: Landfill

Site ID: LF012

Agreement type: RCRA Permits with Corrective
Action Requirements

Overall Relative Risk	Medium
--------------------------	--------

Site Summary

Site Description

Site D-2, designated as MAP Site Number 4, occupies approximately 45 acres and is located adjacent to the western base boundary. The site is bounded by Westover Road to the east and Hall Avenue to the north and west, and lies almost entirely within the confines of the base golf course. Leon Creek bisects the former landfill into eastern and western sections. In active operation from 1942 to 1957, the landfill received primarily construction rubble, general refuse, scrap metal, and garbage. Historical data indicate that mixed solvents and/or drummed wastes may have been landfilled in the western site area. The landfill was closed in 1957 by grading and capping with several feet of soil cover.

Description of Pathways

The surface topography of Site D-2 is undulating, and elevations across the site vary by as much as 33 feet, with the lower elevations existing along Leon Creek. In general, the terrain of the western area slopes to the southeast while the eastern area slopes towards the west. Fill at the site ranges in thickness from 2 to 15 feet, landfill material ranges from 3 to 12 feet, and alluvial sediments range from 0 to 13 feet. Underlying the alluvial and disturbed material is Navarro Group clay. The depth to groundwater varies from 2.4 feet BGL along Leon Creek to over 18 feet BGL in the northwest portion of the western area. The saturated thickness of the groundwater ranges from 3.4 to over 13 feet. A slight groundwater gradient is present towards Leon Creek from both the east and west landfill areas.

Description of Receptors

Human receptors include maintenance and construction workers, golfers, base employees working near the site, local residents who live downwind of the site, and adolescents at the golf course. Ecological receptors include aquatic life in Leon Creek as well as livestock downstream.

See reverse side for medium-specific information.

	Contaminant Hazard Factor (CHF)	Migration Pathway Factor (MPF)	Receptor Factor (RF)	Category Rating
Groundwater	▲	▼	◆	Medium
Surface Water (Human)	▼	▼	▲	Low
Surface Water (Ecological)	▼	▼	▲	Low
Soil	◆	◆	◆	Medium
Sediment (Human)		▲	▲	NE
Sediment (Ecological)		▲	◆	NE

- CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal
- MPF ▲ Evident
 ◆ Potential
 ▼ Contained
- RF ▲ Identified
 ◆ Potential
 ▼ Limited

	Contaminant Hazard Factor (CHF)	Migration Pathway Factor (MPF)	Receptor Factor (RF)	Category Rating
Groundwater	▼	▲	◆	Medium
Surface Water (Human)	▼	▲	◆	Medium
Surface Water (Ecological)	◆	▲	▲	High
Soil	◆	◆	◆	Medium
Sediment (Human)		▲	▲	NE
Sediment (Ecological)		▲	◆	NE

CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal

MPF ▲ Evident
 ◆ Potential
 ▼ Contained

RF ▲ Identified
 ◆ Potential
 ▼ Limited

NE = Not evaluated



Relative Risk Evaluation Summary

Site Name: D-4 Landfill
Date Entered: 10/13/0997
Site Type: Landfill

Site ID: LF014

Agreement type: Permits with Corrective Action
Requirements

Overall Relative Risk	Medium
--------------------------	--------

Site Summary

Site Description

The Site D-4 Landfill, designated MAP Site Number 6, comprises approximately 14 acres in an area between Westover Road and Leon Creek at the southeastern end of Zone 1. In active operation during the early 1940s and from 1950 through 1958, the landfill received a variety of wastes including hardfill, general refuse, drums of electroplating sludge, mixed solvents, pesticides, and waste petroleum, oil, and lubrication. Landfill trenches, identified by surface depressions due to settling, are visible at the surface in the northwest and central portions of the site. Ten northwest trenches 80 feet long and 15 to 18 feet wide run perpendicular to Leon Creek, while the central trenches run parallel to Leon Creek and are approximately 15 feet wide by 800 feet long. Following closure, the landfill trenches were covered with two feet of local soil and seeded with grass. Partially intact empty drums were observed at the surface at the northeast end of the central trenches. Landfill trenches are not visible at the southern end of the site; however, concrete rubble is present at the surface..

Description of Pathways

The surface topography of Site D-4 slopes gently to Leon Creek and is grass-covered, with occasional trees along Leon Creek. The site stratigraphy consists of approximately 5 to 24 feet of fill material and alluvial sediments overlying the Navarro Group clay. The depth to the landfill ranges from 2 to 12 feet, and the landfill material itself ranges in thickness from 2 to 10 feet. The surface of the Navarro Group clay generally slopes towards Leon Creek. Groundwater was encountered in the alluvial sediments at depths of approximately 5 to 20 feet below the ground surface. The saturated thickness above the Navarro Group clay ranges from approximately 0.5 to 13 feet. Water level measurements indicate a southerly direction of groundwater flow towards Leon Creek.

Description of Receptors

Receptors could be CE workers digging in the area or golf course maintenance crews. Water from Leon creek that passes through the site could be encountered by golfers

See reverse side for medium-specific information.

	Contaminant Hazard Factor (CHF)	Migration Pathway Factor (MPF)	Receptor Factor (RF)	Category Rating
Groundwater	▲	▼	◆	Medium
Surface Water (Human)	▼	▼	▲	Low
Surface Water (Ecological)	◆	▼	▲	Low
Soil	◆	◆	◆	Medium
Sediment (Human)		▲	▲	NE
Sediment (Ecological)		▲	◆	NE

CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal

MPF ▲ Evident
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NE = Not evaluated

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Surface Water (Human)	▼	▲	▲	High
Surface Water (Ecological)	▲	▲	▲	High
Soil	◆	▲	◆	High
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Sediment (Ecological)		▲	◆	NE

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Groundwater	◆	▲	◆	High
Surface Water (Human)		▼	▲	NE
Surface Water (Ecological)		▼	◆	NE
Soil	◆	▲	◆	High
Sediment (Human)		▼	▲	NE
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Surface Water (Human)		◆	▼	NE
Surface Water (Ecological)		◆	▼	NE
Soil	◆	▲	◆	High
Sediment (Human)		◆	▲	NE
Sediment (Ecological)		◆	◆	NE

CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal

MPF ▲ Evident
 ◆ Potential
 ▼ Contained

RF ▲ Identified
 ◆ Potential
 ▼ Limited

NE = Not Evaluated

	Contaminant Hazard Factor (CHF)	Migration Pathway Factor (MPF)	Receptor Factor (RF)	Category Rating
Groundwater		▲	◆	NE
Surface Water (Human)	▼	▲	▲	High
Surface Water (Ecological)	▼	▲	◆	High
Soil	◆	▲	◆	Medium
Sediment (Human)		▲	▲	NE
Sediment (Ecological)		◆	◆	NE

CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal

MPF ▲ Evident
 ◆ Potential
 ▼ Contained

RF ▲ Identified
 ◆ Potential
 ▼ Limited

NE = Not Evaluated

	Contaminant Hazard Factor (CHF)	Migration Pathway Factor (MPF)	Receptor Factor (RF)	Category Rating
Groundwater	▼	▼	▼	Low
Surface Water (Human)	▼	▼	▼	Low
Surface Water (Ecological)	▼	▼		NE
Soil	▼	▼	▼	Low
Sediment (Human)				NE
Sediment (Ecological)				NE

CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal

MPF ▲ Evident
 ◆ Potential
 ▼ Contained

RF ▲ Identified
 ◆ Potential
 ▼ Limited

NE = Not Evaluated

	Contaminant Hazard Factor (CHF)	Migration Pathway Factor (MPF)	Receptor Factor (RF)	Category Rating
Groundwater	▲	▲	◆	High
Surface Water (Human)		▼	▼	NE
Surface Water (Ecological)		▼	▼	NE
Soil	◆	▲	◆	High
Sediment (Human)		▼	▼	NE
Sediment (Ecological)		▼	▼	NE

CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal

MPF ▲ Evident
 ◆ Potential
 ▼ Contained

RF ▲ Identified
 ◆ Potential
 ▼ Limited

NE = Not Evaluated

	Contaminant Hazard Factor (CHF)	Migration Pathway Factor (MPF)	Receptor Factor (RF)	Category Rating
Groundwater	◆	◆	◆	Medium
Surface Water (Human)		◆	▲	Low
Surface Water (Ecological)		◆	◆	Low
Soil	◆	◆	◆	Medium
Sediment (Human)		◆	▲	NE
Sediment (Ecological)		◆	◆	NE

CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal

MPF ▲ Evident
 ◆ Potential
 ▼ Contained

RF ▲ Identified
 ◆ Potential
 ▼ Limited

NE = Not Evaluated



Relative Risk Evaluation Summary

Site Name: Sludge drying lagoon (SA-8) Site ID: SS030
 Date Entered: 5/5/95
 Site Type: Spill site Agreement type: RCRA agreements with
 corrective action requirements

Overall Relative Risk	High
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Site Summary

Site Description Sludge-drying lagoon (SA-2) was used between 1962 and 1980 for drying and containing IWTP sludges when the sludge-drying beds at Site WP033 (E-3) were not operating. Monitoring activities indicate this site does not significantly impact ground water. A closure plan has been completed for this site. Closure activities include continued monitoring, and administrative control of the site area.

Description of Pathways Potential pathways include groundwater, surface water, soil and sediment.

Description of Receptors Human receptors include maintenance and construction workers, base employees working near the site, and local residents who live downwind of the site. Ecological receptors include aquatic life in Leon Creek as well as livestock downstream.

See reverse side for medium-specific information.

	Contaminant Hazard Factor (CHF)	Migration Pathway Factor (MPF)	Receptor Factor (RF)	Category Rating
Groundwater	◆	▲	◆	High
Surface Water (Human)	◆	▲	▲	High
Surface Water (Ecological)	◆	▲	◆	High
Soil		▲	◆	NE
Sediment (Human)		▲	▲	NE
Sediment (Ecological)		▲	◆	NE

CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal

MPF ▲ Evident
 ◆ Potential
 ▼ Contained

RF ▲ Identified
 ◆ Potential
 ▼ Limited

NE = Not Evaluated



Relative Risk Evaluation Summary

Site Name: Sludge spreading area (SA-4) Site ID: SS032
 Date Entered: 5/5/95
 Site Type: Spill site Agreement type: RCRA agreements with
 corrective action requirements

Overall Relative Risk	High
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Site Summary

Site Description

Sludge spreading area SA-4 is located in zone 2 along the northern boundary mid way between the jet engine test cells and the Industrial Waste Treatment Facility. Study findings indicate the presence of chlorinated solvents, fuel by products and metals, but the contaminant levels were below health risk assessment thresholds of concern. This site is recommended for closure.

Description of Pathways

Main pathways are groundwater and soil, with potential pathways for surface water and sediment.

Description of Receptors

Human receptors include maintenance and construction workers, base employees working near the site, and local residents who live downwind of the site. Ecological receptors include aquatic life in Leon Creek as well as livestock downstream.

See reverse side for medium-specific information.

	Contaminant Hazard Factor (CHF)	Migration Pathway Factor (MPF)	Receptor Factor (RF)	Category Rating
Groundwater	▼	▲	◆	Medium
Surface Water (Human)		◆	▲	NE
Surface Water (Ecological)		◆	◆	NE
Soil	◆	▲	◆	High
Sediment (Human)		◆	▲	NE
Sediment (Ecological)		◆	◆	NE

CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal

MPF ▲ Evident
 ◆ Potential
 ▼ Contained

RF ▲ Identified
 ◆ Potential
 ▼ Limited

NE = Not Evaluated



Relative Risk Evaluation Summary

Site Name: GW Contamination Zone- Leon Creek Site ID: SS035
 Date Entered: 10/13/1997
 Site Type: Spill site area Agreement type: RCRA permits with corrective action requirements

Overall Relative Risk	High
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Site Summary

Site Description

The groundwater associated with Zone 1, designated as MAP Site Number 17, is related to an area of 16 individual IRP sites (MAP Sites 1 through 16) and 3 non-IRP sites located on the western end of the base, bounded by Westover Road and the southern and western base boundaries. The groundwater at the 19 sites is addressed collectively as Zone 1 because of the close proximity of the sites and to optimize the groundwater remediation of the entire area. A large portion of the Zone 1 area has historically been used for waste disposal through landfills, sludge beds, an oil evaporation pit, an oil burning pit, a lumber burning area, and a low-level radioactive waste disposal area. Periods of active operation at Zone 1 sites range from the early 1900s through the early 1970s. The majority of the Zone 1 area now coincides with the present-day base golf course, which was constructed in 1969.

Description of Pathways

Over much of Zone 1, alluvial sediments and shallow unconfined groundwater overlie a tight clay of the Navarro Group. An approximately 75 foot high escarpment extends north-south through Zone 1. On top of the escarpment to the west, the Navarro clay is exposed at the surface and contains limited groundwater that is under confined conditions within thin silt seams. Many sites in Zone 1 are located on top of the escarpment and, therefore, have little or no impact on shallow groundwater quality. Below the escarpment, the shallow groundwater generally flows towards Leon Creek.

Description of Receptors

Human receptors include maintenance and construction workers, golfers, base employees working near the site, local residents who live downwind of the site, and adolescents at the golf course. Ecological receptors include aquatic life in Leon Creek as well as livestock downstream.

See reverse side for medium-specific information.

	Contaminant Hazard Factor (CHF)	Migration Pathway Factor (MPF)	Receptor Factor (RF)	Category Rating
Groundwater	▲	▲	◆	High
Surface Water (Human)	◆	◆	▲	High
Surface Water (Ecological)	◆	◆	▲	High
Soil		▼	▼	NE
Sediment (Human)		▼	▲	NE
Sediment (Ecological)		▼	▲	NE

CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal

MPF ▲ Evident
 ◆ Potential
 ▼ Contained

RF ▲ Identified
 ◆ Potential
 ▼ Limited

NE = Not Evaluated



Relative Risk Evaluation Summary

Site Name: GW Contamination Zone 2 Site ID: SS036
 Date Entered: 10/13/1997
 Site Type: Spill site area Agreement type: RCRA permits with corrective
 action requirements

Overall Relative Risk	High
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Site Summary

Site Description

Zone 2, designated as MAP Site Number 33, is located in the southernmost corner of Kelly AFB along Leon Creek, bounded by Military Drive, the Union Pacific Railroad yards, and the southern base boundary along its western, southern, and eastern sides. The Zone 2 area comprises approximately 174 acres and contains several industrial facilities, including the Jet Engine Test Cell facility and the present EPCF. The Zone includes 16 IRP sites. Because of these sites' close proximity to one another and the need to optimize groundwater remediation of the entire area, groundwater is addressed collectively in Zone 2.

Description of Pathways

The ground around most of the Zone 2 facilities is predominantly grass-covered. The land surface generally slopes towards Leon Creek, with elevations ranging from 610 to 650 feet above NGVD. Surface water from Zone 2 flows into Leon Creek, either directly or through the Berman Road Ditch. In general, Zone 2 is underlain by three main stratigraphic units: Quaternary alluvial sediments; the Cretaceous Navarro Group and Taylor Group clays and marls; and the Cretaceous Edwards Group limestones and dolomites. Contamination associated with surface spills, waste transport lines, and past disposal practices is confined to the near-surface alluvial sediments and its associated aquifer. Comprehensive and detailed discussions of the Kelly AFB regional geology and hydrogeology are presented in the Hydrogeology of Kelly Air Force Base, Report of Findings (1989) and the Basewide Hydrogeologic Assessment (1990).

Description of Receptors

Human receptors include maintenance and construction workers, base employees working near the site, local residents who live downwind of the site, and adolescents at the golf course. Ecological receptors include aquatic life in Leon Creek as well as livestock downstream.

See reverse side for medium-specific information.

	Contaminant Hazard Factor (CHF)	Migration Pathway Factor (MPF)	Receptor Factor (RF)	Category Rating
Groundwater	▲	▲	◆	High
Surface Water (Human)	▼	▲	▲	High
Surface Water (Ecological)	◆	▲	◆	High
Soil		▼	▼	NE
Sediment (Human)		▲	▲	NE
Sediment (Ecological)		▲	◆	NE

CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal

MPF ▲ Evident
 ◆ Potential
 ▼ Contained

RF ▲ Identified
 ◆ Potential
 ▼ Limited

NE = Not Evaluated

	Contaminant Hazard Factor (CHF)	Migration Pathway Factor (MPF)	Receptor Factor (RF)	Category Rating
Groundwater	▲	▲	▲	High
Surface Water (Human)		▼	▲	NE
Surface Water (Ecological)		▼	◆	NE
Soil		▼	▼	NE
Sediment (Human)		▼	▲	NE
Sediment (Ecological)		▼	◆	NE

CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal

MPF ▲ Evident
 ◆ Potential
 ▼ Contained

RF ▲ Identified
 ◆ Potential
 ▼ Limited

NE = Not Evaluated



Relative Risk Evaluation Summary

Site Name: Metal plating shops (OT-2) Site ID: SS040
Date Entered: 5/5/95
Site Type: Spill site Agreement type: RCRA agreements with
corrective action requirements

Overall Relative Risk High
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Site Summary

Site Description This site is the former metal plating shops (OT-2) and was the majority contributor to shallow groundwater contamination. The primary contaminants of concern include chlorinated solvents and benzene, and metals. A groundwater recovery system has been in place and operating since early 1996 and a slurry wall was installed in 1998 to contain the contaminants and preclude further impact to the environment. Ground water impacts from this site remain under investigation as part of the zone wide groundwater site.

Description of Pathways Main pathways are groundwater and soil, with potential pathways of surface water and sediment.

Description of Receptors Human receptors include maintenance and construction workers, base employees working near the site, and local residents who live downwind of the site. There is a potential for groundwater to reach surface water, so ecological receptors include aquatic life and livestock downstream.

See reverse side for medium-specific information.

	Contaminant Hazard Factor (CHF)	Migration Pathway Factor (MPF)	Receptor Factor (RF)	Category Rating
Groundwater	▲	▲	▲	High
Surface Water (Human)		◆	▲	NE
Surface Water (Ecological)		◆	◆	NE
Soil	◆	▲	▲	High
Sediment (Human)		◆	▲	NE
Sediment (Ecological)		◆	◆	NE

CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal

MPF ▲ Evident
 ◆ Potential
 ▼ Contained

RF ▲ Identified
 ◆ Potential
 ▼ Limited

NE = Not Evaluated

	Contaminant Hazard Factor (CHF)	Migration Pathway Factor (MPF)	Receptor Factor (RF)	Category Rating
Groundwater	▲	▲	◆	High
Surface Water (Human)	◆	▲	▲	High
Surface Water (Ecological)	◆	▲	◆	High
Soil	◆	▲	◆	High
Sediment (Human)		▲	▲	NE
Sediment (Ecological)		▲	◆	NE

CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal

MPF ▲ Evident
 ◆ Potential
 ▼ Contained

RF ▲ Identified
 ◆ Potential
 ▼ Limited

NE = Not Evaluated



Relative Risk Evaluation Summary

Site Name: Combined Site (CS-3) Site ID: SS043
 Ravine
 Date Entered: 10/13/1997
 Site Type: Spill site area Agreement type: RCRA permits with corrective
 action requirements

Overall Relative Risk	High
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Site Summary

Site Description

Combined Site Number 3 (Site CS-3), designated as MAP Site Number 2, is contained primarily within the boundaries of a natural draw that extends from Leon Creek at its northern end approximately 1800 feet to the southwest. The western portion of the site, currently occupied by softball fields, is bounded by buildings and parking lots of the Electronic Security Command area. The eastern portion of the site lies within the base golf course. An additional landfill area, referred to as the northern trench area, located north of the eastern end of the draw was incorporated into the Site CS-3 area because of its close proximity. Site CS-3 was formerly used as a landfill for construction rubble and other materials; however, Site RD-2 (Radioactive Disposal Site), lies within the site boundaries.

Description of Pathways

The surface topography at Site CS-3 varies from a relatively flat area in the western portion of the site to a steeply sloping natural draw in the eastern portion of the site. The site stratigraphy consists almost entirely of fill and landfill lying directly atop hard, dense Navarro Group clay. The fill thickness is quite variable and locally increases to nearly 30 feet, generally consisting of silty clay that often contains concrete or brick rubble. Landfill material ranging up to 20 feet in thickness is distributed unevenly throughout the site and generally consists of paper, wood, and plastic refuse. The topography at the site drains surface runoff northeast into Leon Creek. Groundwater at the site flows primarily within fill material and mimics surface water drainage.

Description of Receptors

Human receptors include maintenance and construction workers, golfers, base employees working near the site, local residents who live downwind of the site, and adolescents at the golf course. Ecological receptors include aquatic life in Leon Creek as well as livestock downstream.

See reverse side for medium-specific information.

	Contaminant Hazard Factor (CHF)	Migration Pathway Factor (MPF)	Receptor Factor (RF)	Category Rating
Groundwater	▲	▲	◆	High
Surface Water (Human)	▼	▲	▲	High
Surface Water (Ecological)	◆	▲	▲	High
Soil	◆	▼	◆	Low
Sediment (Human)		▲	▲	NE
Sediment (Ecological)		▲	◆	NE

CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal

MPF ▲ Evident
 ◆ Potential
 ▼ Contained

RF ▲ Identified
 ◆ Potential
 ▼ Limited

NE = Not Evaluated



Relative Risk Evaluation Summary

Site Name: Site ID: SS044
 Date Entered: 5/5/95
 Site Type: Spill site Agreement type: RCRA agreements with
 corrective action requirements

Overall Relative Risk	High
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Site Summary

Site Description

The Industrial Waste Collection System lies predominantly in zone 3, but transits zone 5 into the Environmental Process Control Facility in zone 2. Additionally, a service line extends to zone 4. This collection system was an adapted storm water and domestic sewer line composed primarily of clay pipes. This collection system serviced the industrial area from the early 1950s until late 1995. Releases from the IWCS include chlorinated solvents, chlorinated hydrocarbons and metals.

Description of Pathways

Main pathways are groundwater and soil, with potential pathways of surface water and sediment.

Description of Receptors

Human receptors include maintenance and construction workers, base employees working near the site, and local residents who live downwind of the site. There is a potential for groundwater to reach surface water. Therefore, ecological receptors include aquatic life in Leon Creek as well as livestock downstream.

See reverse side for medium-specific information.

	Contaminant Hazard Factor (CHF)	Migration Pathway Factor (MPF)	Receptor Factor (RF)	Category Rating
Groundwater	▲	▲	▲	High
Surface Water (Human)		◆	▲	NE
Surface Water (Ecological)		◆	◆	NE
Soil	◆	▲	▲	High
Sediment (Human)		◆	▲	NE
Sediment (Ecological)		◆	◆	NE

CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal

MPF ▲ Evident
 ◆ Potential
 ▼ Contained

RF ▲ Identified
 ◆ Potential
 ▼ Limited

NE = Not Evaluated

	Contaminant Hazard Factor (CHF)	Migration Pathway Factor (MPF)	Receptor Factor (RF)	Category Rating
Groundwater	◆	◆	◆	Medium
Surface Water (Human)		▼	▼	NE
Surface Water (Ecological)		▼	▼	NE
Soil	▼	◆	◆	Low
Sediment (Human)		▼	▼	NE
Sediment (Ecological)		▼	▼	NE

CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal

MPF ▲ Evident
 ◆ Potential
 ▼ Contained

RF ▲ Identified
 ◆ Potential
 ▼ Limited

NE = Not Evaluated

	Contaminant Hazard Factor (CHF)	Migration Pathway Factor (MPF)	Receptor Factor (RF)	Category Rating
Groundwater	◆	▲	◆	High
Surface Water (Human)		▼	▼	NE
Surface Water (Ecological)		▼	▼	NE
Soil		▼	▼	NE
Sediment (Human)		▼	▼	NE
Sediment (Ecological)		▼	◆	NE

CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal

MPF ▲ Evident
 ◆ Potential
 ▼ Contained

RF ▲ Identified
 ◆ Potential
 ▼ Limited

NE = Not Evaluated

	Contaminant Hazard Factor (CHF)	Migration Pathway Factor (MPF)	Receptor Factor (RF)	Category Rating
Groundwater	◆	◆	◆	Medium
Surface Water (Human)		◆	▲	Low
Surface Water (Ecological)		◆	◆	Low
Soil	◆	◆	◆	Medium
Sediment (Human)		◆	▲	Low
Sediment (Ecological)		◆	◆	Low

CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal

MPF ▲ Evident
 ◆ Potential
 ▼ Contained

RF ▲ Identified
 ◆ Potential
 ▼ Limited

NE = Not Evaluated

	Contaminant Hazard Factor (CHF)	Migration Pathway Factor (MPF)	Receptor Factor (RF)	Category Rating
Groundwater	◆	▲	▲	High
Surface Water (Human)		▼	▲	NE
Surface Water (Ecological)		▼	◆	NE
Soil		▼	▼	NE
Sediment (Human)		▼	▲	NE
Sediment (Ecological)		▼	◆	NE

CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal

MPF ▲ Evident
 ◆ Potential
 ▼ Contained

RF ▲ Identified
 ◆ Potential
 ▼ Limited

NE = Not Evaluated

	Contaminant Hazard Factor (CHF)	Migration Pathway Factor (MPF)	Receptor Factor (RF)	Category Rating
Groundwater	▲	▲	▲	High
Surface Water (Human)		◆	▲	NE
Surface Water (Ecological)		◆	◆	NE
Soil	◆	▲	◆	High
Sediment (Human)		◆	▲	NE
Sediment (Ecological)		◆	◆	NE

CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal

MPF ▲ Evident
 ◆ Potential
 ▼ Contained

RF ▲ Identified
 ◆ Potential
 ▼ Limited

NE = Not Evaluated

	Contaminant Hazard Factor (CHF)	Migration Pathway Factor (MPF)	Receptor Factor (RF)	Category Rating
Groundwater	▲	▲	◆	High
Surface Water (Human)		◆	▲	NE
Surface Water (Ecological)		◆	◆	NE
Soil	◆	▲	◆	High
Sediment (Human)		◆	▲	NE
Sediment (Ecological)		◆	◆	NE

CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal

MPF ▲ Evident
 ◆ Potential
 ▼ Contained

RF ▲ Identified
 ◆ Potential
 ▼ Limited

 NE = Not Evaluated



Relative Risk Evaluation Summary

Site Name: Site SA-1 Sludge Spreading Area Site ID: WP029
 Date Entered: 10/20/1998
 Site Type: Disposal pit/Dry well Agreement type: RCRA permits with corrective action requirements

Overall Relative Risk	Low
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Site Summary

Site Description

The SA-1 sludge spreading area covers approximately 1 acre and lies within the southwestern section of the base Golf Course. The site is located 500 ft north of Military Drive and the installation boundary, and 1000 feet west of Leon Creek. The site was in active use in the 1960s and consisted of a settling pond and a sludge drying area. By 1970 the settling pond and drying bed were removed by excavation. Cut and fill trenches were excavated in part of the area and became part of LF017 (D-7). The only contaminant found during monitoring was trichloroethylene.

Description of Pathways

The surface of the site is predominately grass covered and slopes downward from west to east. The upper surface soil horizon generally consists of fill and landfill material extending to depths of 3 to 24 feet, directly overlaying the Navarro Group clay. Isolated units of alluvial sediment exist at the site, ranging in thickness from 3.5 to 12.3 feet. The Navarro clay contains thin discontinuous sand and silt lenses and appears to be hydraulically connected to the alluvial water table. Groundwater at the site flows in a southeasterly direction.

Description of Receptors

Human receptors include maintenance and construction workers, golfers, and base employees working near the site. Ecological receptors include aquatic life in Leon Creek, as well as livestock downstream.

See reverse side for medium-specific information.

	Contaminant Hazard Factor (CHF)	Migration Pathway Factor (MPF)	Receptor Factor (RF)	Category Rating
Groundwater				NE
Surface Water (Human)				NE
Surface Water (Ecological)				NE
Soil	◆	▼	◆	Low
Sediment (Human)				NE
Sediment (Ecological)				NE

CHF ▲ Significant
 ◆ Moderate
 ▼ Minimal

MPF ▲ Evident
 ◆ Potential
 ▼ Contained

RF ▲ Identified
 ◆ Potential
 ▼ Limited

NE = Not Evaluated

Radioactive Site Summary

Kelly AFB (As of 1 Aug 01)

T OF A TOTAL OF 27 SITES:

Bldg No.	Description	Rad Material/Waste	RIC Permit	BEE Qtrly Survey	Zone
- 4 sites received NFA status from both the USAFRIC and the EPA on 14 Sep 00					
306	Env Management Office	Fmr Radiac Detection Instr Stor			3
329	Former Electrical Repair Shop	Waste Electron Tubes/Exciters		Yes	3
1470	Fmr Air Freight Terminal Ship/Rec	Multi Sources		Yes	5
3810	Former Radioactive Storage Area	DU	P	Yes	4
- 2 sites received NFA status from both the USAFRIC and the EPA on 8 Jan 01.					
1420	Fmr NW Compound "O" Room	DU		Yes-	5
620	Former Rad Waste Staging Area	Multi Sources			2
- 1 site received NFA status from both the USAFRIC and the EPA on 3 Jul 01.					
1562	Fmr Haz/Rad Mat/Waste Staging Area	Multi Sources			5
- 4 sites underwent Scoping Surveys in 1999. Levels were indistinguishable from background. Final NFA Reports were submitted to the EPA in Jun 00. As of 14 Sep 00, EPA is requiring additional information before NFA status.					
361 (129)	Fmr Instrument Room (1922-29)	Radium Paint			3
365 (133)	Fmr Instrument Room (1929-34)	Radium Paint			3
375-1	Fmr Instrument Shop (1957-94)	Multi Sources		Yes+	3
385	Fmr Aircraft Radioactive Washrack	Multi Sources			3
- 3 sites have completed Characterization Surveys (Mar-Apr 00). Final Characterization Reports were submitted to the RIC, EPA, TNRCC and TDH this year (FY01). All need extensive Remediation. Funding was approved in Sep 00. B326 remediation started in Jan 01. B324 and 375-2LM were delayed until Late FY01.					
326	Former Radium Paint Shop (1942-52)	Radium			3
375-2 (2LM)	Fmr C-5 Flight Controls Shop (1977-94)	DU Counterweights	P	Yes	3
324	Former Radium Paint Shop (1934-42)	Radium			3
- 10 sites have been programmed to undergo Scoping Surveys in Arr 01. Funding was approved in Sep 00. (All but 1556 are minor)					
298/308	2 Fmr ATRAP Trailer locations	Multi Sources	P	Yes	3
308	Fmr Electronic Support Equip Repair Shop	Waste Electron Tubes/Exciters		Yes	3
318	Fmr TIE Laboratory	Chromatograph	P	Yes	3
331	Electronic Repair Shop	Waste Electron Tubes/Exciters			3
340	Fmr Electrical Repair Shop	Waste Elec Tubes/Exciters	P	Yes	3
360	Fmr Metal Shop	Metal Density Guage	P	Yes-	3
375-3	Fmr C-5 Flight Controls Shop (1994-98)	Depleted Uranium (DU)	P	Yes+	3
379	Corrosion Control Facility	2 Static Eliminators	P	Yes-	3
1537	2 Fmr Central Shipping/Receiving Areas	Multi	P	Yes	5
1556	Kelly Main Radioactive Storage Warehouse	Multi	P	Yes	5
- 3 sites are still involved with the active AF mission at Kelly and will be surveyed later when their missions end.					
1530	Kelly Radioactive Mat Stor Area	Multi		Yes-	5
3001	DRMO Scale House	Met Thick Scan/XRF Probe		Yes-	4
3050	DRMO Main Office	Met Thick Scan/XRF Probe		Yes-	4

+ = Area was surveyed more often than quarterly

- = Area was surveyed less often than quarterly

Relative Risk Chart Special Instructions

TRS Members

Please review the attached Relative Risk Ratings and mark whether you agree or disagree with the rating. Please return your marked chart in the enclosed envelope by 22 Sept. 00.

Those site ratings that you disagree with will be the focus of our discussions.

Thank you

8/10/01

10:20am

Russ,

This is what we need some help on (for the TRS).

-Lynn

Relative Risk Evaluation Table

Site Name	Site ID	Category Rating						Overall	Site Closed or Awaiting Closure	Agree or Disagree with rating	
		Groundwater	Surface Water (Human)	Surface Water (Ecological)	Soil	Sediment (Human)	Sediment (Ecological)	Relative Risk		YES	NO
Spill Site S-1	SS003	High	NE	NE	High	NE	NE	High			
Site S-4	ST006	High	NE	NE	High	NE	NE	High			
D-1 Landfill	LF011	High	High	High	High	NE	NE	High	LAFB		
D-3 Landfill	LF013	Medium	Medium	High	Medium	NE	NE	High	LAFB		
D-5 Landfill	LF015	Medium	High	High	High	NE	NE	High	LAFB		
D-6 Landfill	LF016	High	NE	NE	High	NE	NE	High	LAFB		
D-7 Landfill	LF017	High	NE	NE	High	NE	NE	High	LAFB		
D-10 Landfill	LF019	NE	High	High	Medium	NE	NE	High			
Evaporation Pit E-3	WP022	High	NE	NE	High	NE	NE	High			
Sludge Drying Lagoon (SA-8)	SS030	High	High	High	NE	NE	NE	High			
Sludge Spreading Area (SA-4)	SS032	Medium	NE	NE	High	NE	NE	High	Awaiting Closure		
GW Contamination Zone - Leon Creek 1	SS035	High	High	High	NE	NE	NE	High	LAFB		
GW Contamination Zone -2	SS036	High	High	High	NE	NE	NE	High			
Zone 3 Groundwater	SS037	High	NE	NE	NE	NE	NE	High			
Metal Plating Shops (OT-2)	SS040	High	NE	NE	High	NE	NE	High			

NE = Not Evaluated

Site Name	Site ID	Category Rating						Overall	Site Closed or	Agree or Disagree with rating	
		Groundwater	Surface Water (Human)	Surface Water (Ecological)	Soil	Sediment (Human)	Sediment (Ecological)	Relative Risk	Awaiting Closure	YES	NO
Combined Site 2	SS042	High	High	High	High	NE	NE	High	Awaiting Closure		
Combined Site (CS-3) Ravine	SS043	High	High	High	Low	NE	NE	High	LAFB		
Zone 3, IWCS	SS044	High	NE	NE	High	NE	NE	High	Awaiting Closure		
Groundwater Zone 5	SS050	High	NE	NE	NE	NE	NE	High			
Zone 4 Groundwater	SS052	High	NE	NE	NE	NE	NE	High			
Security Hill Area	LF001	Medium	Low	Low	Medium	NE	NE	Medium	LAFB		
Site S-3	SS005	Medium	Low	Low	Medium	NE	NE	Medium	Closed		
D-2 Landfill	LF012	Medium	Low	Low	Medium	NE	NE	Medium	LAFB		
D-4 Landfill	LF014	Medium	Low	Low	Medium	NE	NE	Medium	LAFB		
S-10 Spill Site	SS045	Medium	NE	NE	Low	NE	NE	Medium			
IWCS Site	SS051	Medium	Low	Low	Medium	Low	Low	Medium			
RD-1 RAD Disposal Area	RW026	Low	Low	NE	Low	NE	NE	Low	LAFB		
SA-1 Sludge Spreading Area	WP029	NE	NE	NE	Low	NE	NE	Low	LAFB		
Former IWTP	SS002								♦		
S-2 Storage Yard	SS004								♦		
S-5 UST/Spill Site	ST007								♦		
S-6 UST/Spill Site	ST008								♦		

NE = Not Evaluated

Site Name	Site ID	Category Rating						Overall	Site Closed or	Agree or Disagree with rating	
		Groundwater	Surface Water (Human)	Surface Water (Ecological)	Soil	Sediment (Human)	Sediment (Ecological)	Relative Risk	Awaiting Closure	YES	NO
S-7 UST/Spill Site	ST009								♦		
S-9 Fuel Site	ST010								♦		
D-8 Landfill	LF018								LAFB ♦		
E-2 Evaporation Pit	WP020								LAFB ♦		
E-1 Evaporation Pit	WP021								♦		
FC-1 Fire Training Area	FT023								LAFB ♦		
FC-2 Fire Training Area	FT024								♦		
IS-1 Spill Site	SS025								♦		
RD-2 Radioactive Disposal Area	RW027								LAFB ♦		
S4-A Hazwaste Storage	SS028								LAFB ♦		
SA-4 Sludge Spreading Area	SS031								♦		
SD-1 Sludge Drying Beds	WP033								♦		
SD-2 Sludge Drying Beds	WP034								♦		
OT-1 Liquid Waste Incinerator	SS039								♦		

NE = Not Evaluated

Site Name	Site ID	Category Rating					Overall Relative Risk	Site Closed or Awaiting Closure	Agree or Disagree with rating	
		Groundwater	Surface Water (Human)	Surface Water (Ecological)	Soil	Sediment (Human)			Sediment (Ecological)	YES
B-T Salvage Lumber Burn Area	SS041							LAFB		
Bldg. 182 UST Site	ST046							♦		
Bldg. 386 UST Site	ST047							♦		
Bldg. 308 UST Site	ST048							♦		
Bldg. 38 UST Site	ST049							♦		

NE = Not Evaluated

Relative Risk Site Evaluation

Radioactive Sites, Kelly AFB (As of 8 Aug 01)

OUT OF A TOTAL OF 27 SITES:

Bldg No.	Shop Description	Rad Material/Waste	Zone	RRSE
- 4 sites received NFA status from both the USAFRIC and the EPA on 14 Sep 00				
306	Env Management Office	Fmr Radiac Detection Instr Stor	3	RESP COMPLETE
329	Former Electrical Repair Shop	Waste Electron Tubes/Exciters	3	RESP COMPLETE
1470	Fmr Air Freight Terminal Ship/Rec	Multi Sources	5	RESP COMPLETE
3810	Former Radioactive Storage Area	DU	4	RESP COMPLETE
- 2 sites were remediated in Mar 00 and received NFA status from both the USAFRIC and the EPA on 8 Jan 01.				
1420	Fmr NW Compound "O" Room	DU	5	RESP COMPLETE
620	Former Rad Waste Staging Area	Multi Sources	2	RESP COMPLETE
- 1 site received NFA status from both the USAFRIC and the EPA on 3 Jul 01.				
1562	Fmr Haz/Rad Mat/Waste Staging Area	Multi Sources	5	RESP COMPLETE
- 4 sites underwent Scoping Surveys in 1999. Levels were indistinguishable from background. Final NFA Reports were submitted to the EPA in Jun 00. As of 14 Sep 00, EPA is requiring additional information before NFA status.				
361 (129)	Fmr Instrument Room (1922-29)	Radium Paint	3	RESP COMPLETE
365 (133)	Fmr Instrument Room (1929-34)	Radium Paint	3	RESP COMPLETE
375-1	Fmr Instrument Shop (1957-94)	Multi Sources	3	RESP COMPLETE
385	Fmr Aircraft Radioactive Washrack	Multi Sources	3	RESP COMPLETE
- 1 site has completed a Characterization Survey (Mar-Apr 00). Final Characterization Reports were submitted to the RIC, EPA, TNRC and TDH this year (FY01). Remediation is needed. Funding was approved in Jul 01. B375 field work remediation will start in Sep 01.				
375-2 (2LM)	Fmr C-5 Flight Controls Shop (1977-94)	DU Counterweights	3	LOW
- 2 sites have completed initial Scoping/Characterization Surveys (Mar-Apr 00). A Phase II Characterization/Delineation contract began in Dec 00 and is ongoing.				
324	Former Radium Paint Shop (1934-42)	Radium	3	LOW
* 326	Former Radium Paint Shop (1942-52)	Radium	3	LOW
- 10 sites are currently undergoing Scoping Surveys in Apr 01. (All but 1556 are very minor)				
298/308	2 Fmr ATRAP Trailer locations	Multi Sources	3	NOT EVALUATED
308	Fmr Electronic Support Equip Repair Shop	Waste Electron Tubes/Exciters	3	NOT EVALUATED
318	Fmr TIE Laboratory	Chromatograph	3	NOT EVALUATED
331	Fmr Electronic Repair Shop	Waste Electron Tubes/Exciters	3	NOT EVALUATED
340	Fmr Electrical Repair Shop	Waste Elec Tubes/Exciters	3	NOT EVALUATED
360	Former Metal Shop	Metal Density Gauge	3	NOT EVALUATED
375-3	Fmr C-5 Flight Controls Shop (1994-98)	Depleted Uranium (DU)	3	NOT EVALUATED
379	Corrosion Control Facility	2 Static Eliminators	3	NOT EVALUATED
1537	2 Fmr Central Shipping/Receiving Areas	Multi	5	NOT EVALUATED
1556	Kelly Main Radioactive Storage Warehouse	Multi	5	NOT EVALUATED
- 3 sites are still involved with the active AF mission at Kelly and will be surveyed later when their missions end.				
1530	Kelly Rad Mat Storage Warehouse	Multi	5	NOT EVALUATED
3001	DRMO Scale House	Met Thick Scan/XRF Probe	4	NOT EVALUATED
3050	DRMO Main Office	Met Thick Scan/XRF Probe	4	NOT EVALUATED

RELATIVE RISK SITE EVALUATION WORKSHEET

SITE BACKGROUND INFORMATION

Installation/Property Name for FUDS: KELLY AFB Date Entered /Updated (day, month, year): 8 AUG 01 (UPDATED)
 Location (City/County State): SAN ANTONIO, TX (BEXAR) Media Evaluated (GW, SW, Sediment, Soil, Sed Eco, Soil Eco.): NONE
 Site (Name/DSERTS ID)/Project (Name/Project No.) for FUDS: WR-375 Phase of Execution (SI, RI, FS, EE/CA, IRA, RD/RA, or equiv. RC/RA Stage): RD/RA
 Point of Contact (Name/Phone): JACK SHIPMAN Agreement Status (enter appropriate DERP Site code): Z
925-0253

SITE SUMMARY

(Include only the key elements of information used to conduct the relative risk site evaluation. Attach map view of site if desired.)

Brief Site Description (include site type, materials disposed of, dates of operation, and other relevant information):

- FLIGHT CONTROLS SHOP LOCATED IN THE 2LM AREA OF B375 IN OPERATION FROM 1977-94. COUNTERWEIGHTS ON C-5 AILERONS WERE REMOVED & REPLACED. COUNTERWEIGHTS CONTAINED DEPLETED URANIUM DU CONTAMINATION REMAINS IN CRACKS IN FORMER SHOP AREA.

Brief Description of Pathways (Groundwater, Soil, Surface Water [Human], Surface Water [Ecological], Sediment [Human], Sediment [Ecological]):

- INHALATION OF AIR OR DUST CONTAMINATED W/ RADIATION
 - INGESTION OF CONTAMINATED BUILDING MATERIALS
 - CONTACT W/ CONTAMINATED BUILDING MATERIALS

Brief Description of Receptors (Human and Ecological):

- HUMANS WORKING IN AN OCCUPATIONAL OFFICE/INDUSTRIAL ENVIRONMENT

¹ The term Site is defined as a discrete area for which suspected contamination has been verified and requires further response action. A Site by definition has been, or will be, entered into RMIS/DSERTS. For the FUDS Program, "projects" equates to sites for current installations.

Relative Risk Site Evaluation Primer

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Summer 1996 (Revised Edition)

SURFACE WATER/HUMAN ENDPOINT

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Max. Concentration (ug/l)	Comparison Value (ug/l)	Ratio ¹
Total			

¹Ratio = Max. Concentration/Comparison Value

(Place an "X" next to one below)
 Significant (if Total > 100) _____
 Moderate (if Total 2-100) _____
 Minimal (if Total < 2)

MIGRATION PATHWAY FACTOR (MPF)

Evident - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure
Potential - Contamination in surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined
Confined

Confined - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls)

(Place an "X" next to one below)
 Evident _____
 Potential _____
 Confined

Brief Rationale for Selection: ALL SITES ARE INSIDE BLDGS
NO SURFACE WATER CONTAMINATION

RECEPTOR FACTOR (RF)

Identified - Receptors identified that have access to surface water or sediment to which contamination has moved or can move
Potential - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move

Limited - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move

(Place an "X" next to one below)
 Identified _____
 Potential _____
 Limited

Brief Rationale for Selection: ALL SITES ARE INSIDE BLDGS
NO SURFACE WATER CONTAMINATION

Surface Water/Human Endpoint Category LOW
(High, Medium, Low)

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Summer 1996 (Revised Edition)

SEDIMENT/HUMAN ENDPOINT

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Max. Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio ¹
Total			

¹Ratio = Max. Concentration/Comparison Value

(Place an "X" next to one below)

Significant (if Total > 100) _____

Moderate (if Total 2-100) _____

Minimal (if Total < 2)

MIGRATION PATHWAY FACTOR (MPF)

Evident - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure
Potential - Contamination in surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined
Confined

Confined - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls)

(Place an "X" next to one below)

Evident _____

Potential _____

Confined

Brief Rationale for Selection: ALL SITES ARE INSIDE BLDGS.
NO SEDIMENT CONTAMINATION

RECEPTOR FACTOR (RF)

Identified - Receptors identified that have access to surface water or sediment to which contamination has moved or can move
Potential - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move

Limited - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move

(Place an "X" next to one below)

Identified _____

Potential _____

Limited

Brief Rationale for Selection: ALL SITES ARE INSIDE BLDGS.
NO SEDIMENT CONTAMINATION

Sediment/Human Endpoint Category

(High Medium Low)

LOW

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Relative Risk Site Evaluation Primer

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SURFACE WATER/ECOLOGICAL ENDPOINT

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Max. Concentration (ug/l)	Comparison Value (ug/l)	Ratio ¹
Total			

¹Ratio = Max. Concentration/Comparison Value

(Place an "X" next to one below)
 Significant (if Total > 100) _____
 Moderate (if Total 2-100) _____
 Minimal (if Total < 2)

MIGRATION PATHWAY FACTOR (MPF)

Evident - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure
Potential - Contamination in surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined

Confined - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls)

(Place an "X" next to one below)
 Evident _____
 Potential _____
 Confined

Brief Rationale for Selection: ALL SITES ARE INSIDE BLDGS
NO SURFACE WATER CONTAMINATION

RECEPTOR FACTOR (RF)

Identified - Receptors identified that have access to surface water or sediment to which contamination has moved or can move
Potential - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move

Limited - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move

(Place an "X" next to one below)
 Identified _____
 Potential _____
 Limited

Brief Rationale for Selection: ALL SITES ARE INSIDE BLDGS
NO SURFACE WATER CONTAMINATION

Surface Water/Ecological Endpoint Category
(High, Medium, Low)

LOW

(Page 5 of 7)

GROUNDWATER

CONTAMINANT
HAZARD
FACTOR¹
(C/HF)

Contaminant	Max. Concentration (ug/l)	Comparison Value (ug/l)	Ratio ²
Total			

¹ Evaluate for human contaminants only
² Ratio = Max. Concentration/Comparison Value

(Place an "X" next to one below)
Significant (if Total > 100) _____
Moderate (if Total 2-100) _____
Minimal (if Total < 2)

MIGRATION
PATHWAY
FACTOR
(MPF)

Evident - Analytical data or observable evidence indicates that contamination in the groundwater is moving or has moved away from the source area
Potential - Contamination in the groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined

Confined - Information indicates that the potential for contaminant migration from the source via the groundwater is limited (due to geological structures or physical controls)

(Place an "X" next to one below)
Evident _____
Potential _____
Confined

Brief Rationale for Selection: NO SW CONTAMINATION AT THIS SITE
ALL SITES ARE INSIDE BLDGS

RECEPTOR
FACTOR
(RF)

Identified - There is a threatened water supply downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer)

Potential - There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture, (equivalent to Class I, IIA, or IIB aquifer)

Limited - There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only)

(Place an "X" next to one below)
Identified _____
Potential _____
Limited

Brief Rationale for Selection: NO SW CONTAMINATION AT THIS SITE
ALL SITES ARE INSIDE BLDGS

Groundwater Category LOW
(High, Medium, Low)

(Page 2 of 7)

Relative Risk Site Evaluation Primer

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SURFACE WATER/HUMAN ENDPOINT

CONTAMINANT
HAZARD
FACTOR
(CHF)

Contaminant	Max. Concentration (ug/l)	Comparison Value (ug/l)	Ratio ¹
Total			

¹Ratio = Max. Concentration/Comparison Value

(Place an "X" next to one below)

Significant (if Total > 100) _____

Moderate (if Total 2-100) _____

Minimal (if Total < 2)

MIGRATION
PATHWAY
FACTOR
(MPF)

Evident - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure

Potential - Contamination in surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined

Confined - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls)

(Place an "X" next to one below)

Evident _____

Potential _____

Confined

Brief Rationale for Selection: - ALL SITES ARE INSIDE BLDGS
NO SURFACE WATER CONTAMINATION

RECEPTOR
FACTOR
(RF)

Identified - Receptors identified that have access to surface water or sediment to which contamination has moved or can move

Potential - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move

Limited - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move

(Place an "X" next to one below)

Identified _____

Potential _____

Limited

Brief Rationale for Selection: - ALL SITES ARE INSIDE BLDGS
NO SURFACE WATER CONTAMINATION

Surface Water/Human Endpoint Category
(High, Medium, Low)

LOW

(PAGE 3 OF 7)

SEDIMENT/HUMAN ENDPOINT

Relative Risk Site Evaluation Primer

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CONTAMINANT
HAZARD
FACTOR
(CHF)

Contaminant	Max. Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio ¹
Total			

¹Ratio = Max. Concentration/Comparison Value

(Place an "X" next to one below)

Significant (if Total > 100) _____

Moderate (if Total 2-100) _____

Minimal (if Total < 2)

MIGRATION
PATHWAY
FACTOR
(MPF)

Evident - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure
Potential - Contamination in surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined
Confined

Confined - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls)

(Place an "X" next to one below)

Evident _____

Potential _____

Confined

Brief Rationale for Selection: ALL SITES ARE INSIDE BLDGS.
NO SEDIMENT CONTAMINATION

RECEPTOR
FACTOR
(RF)

Identified - Receptors identified that have access to surface water or sediment to which contamination has moved or can move
Potential - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move

Limited - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move

(Place an "X" next to one below)

Identified _____

Potential _____

Limited

Brief Rationale for Selection: ALL SITES ARE INSIDE BLDGS.
NO SEDIMENT CONTAMINATION

Sediment/Human Endpoint Category
(High, Medium, Low)

LOW

(Page 4 of 7)

SEDIMENT/ECOLOGICAL ENDPOINT

CONTAMINANT
HAZARD
FACTOR
(CHF)

Contaminant	Max. Concentration	units	Comparison Value	units	Ratio ¹
Total					

¹Ratio = Max. Concentration/Comparison Value

(Place an "X" next to one below)
 Significant (if Total > 100) _____
 Moderate (if Total 2-100) _____
 Minimal (if Total < 2)

Relative Risk Site Evaluation Primer

MIGRATION
PATHWAY
FACTOR
(MPF)

Evident - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure
Potential - Contamination in surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined
Confined

Confined - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls)

(Place an "X" next to one below)
 Evident _____
 Potential _____
 Confined

Brief Rationale for Selection: ALL SITES ARE INSIDE BLDGS
NO SEDIMENT CONTAMINATION

RECEPTOR
FACTOR
(RF)

Identified - Receptors identified that have access to surface water or sediment to which contaminant has moved or can move
Potential - Potential for receptors to have access to surface water or sediment to which contaminant has moved or can move

Limited - Little or no potential for receptors to have access to surface water or sediment to which contaminant has moved or can move

(Place an "X" next to one below)
 Identified _____
 Potential _____
 Limited

Brief Rationale for Selection: ALL SITES ARE INSIDE BLDGS
NO SEDIMENT CONTAMINATION

Sediment/Ecological Endpoint Category
(High, Medium, Low)

LOW

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Relative Risk Site Evaluation Primer

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SURFACE WATER/ECOLOGICAL ENDPOINT

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Max. Concentration (ug/l)	Comparison Value (ug/l)	Ratio ¹
Total			

¹Ratio = Max. Concentration/Comparisons Value

(Place an "X" next to one below)

Significant (if Total > 100) _____

Moderate (if Total 2-100) _____

Minimal (if Total < 2)

MIGRATION PATHWAY FACTOR (MPF)

Evident - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure

Potential - Contamination in surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined

Confined - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls)

(Place an "X" next to one below)

Evident _____

Potential _____

Confined

Brief Rationale for Selection: ALL SITES ARE INSIDE BLDGS
NO SURFACE WATER CONTAMINATION

RECEPTOR FACTOR (RF)

Identified - Receptors identified that have access to surface water or sediment to which contamination has moved or can move
Potential - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move

Limited - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move

(Place an "X" next to one below)

Identified _____

Potential _____

Limited

Brief Rationale for Selection: ALL SITES ARE INSIDE BLDGS
NO SURFACE WATER CONTAMINATION

Surface Water/Ecological Endpoint Category
(High, Medium, Low)

LOW

(PAGE 5 OF 7)

RELATIVE RISK SITE EVALUATION WORKSHEET

SITE BACKGROUND INFORMATION

Installation/Property Name for FUIDS: KELLY AFB Date Entered/Updated (day, month, year): 8 AUG 01 (UPDATED)
 Location (City/County State): SAN ANTONIO, BEXAR, TX Media Evaluated (GW, SW, Sediment, Soil, Sed Eco, Soil Eco.): NONE
 Site (Name/DSERTS ID)/Project (Name/Project No.) for FUIDS: WR-324 Phase of Execution (SI, RI, FS, EE/CA, IRA, RD/RA, or equiv. RCRA Stage): RI
 Point of Contact (Name/Phone): JACK SHIPMAN Agreement Status (enter appropriate DERP Site code): Z
925-0253

SITE SUMMARY

(Include only the key elements of information used to conduct the relative risk site evaluation. Attach map view of site if desired.)

Brief Site Description (include site type, materials disposed of, dates of operation, and other relevant information):

- RADIUM PAINT SHOP FROM 1934-42 REPAIRED & REFINISHED AIRCRAFT INSTRUMENTS AND PARTS ADDING RADIOACTIVE RADIUM PAINT TO SURFACES. RESIDUAL RADIATION REMAINS IN FLOORS & WALLS

Brief Description of Pathways (Groundwater, Soil, Surface Water [Human], Surface Water [Ecological], Sediment [Human], Sediment [Ecological]):

- INHALATION OF AIR OR DUST CONTAMINATED W/ RADIOACTIVITY
 - INGESTION OF CONTAMINATED BUILDING MATERIALS
 - CONTACT WITH CONTAMINATED BUILDING MATERIALS

Brief Description of Receptors (Human and Ecological):

- HUMANS WORKING IN AN OCCUPATIONAL OFFICE / INDUSTRIAL ENVIRONMENT

¹ The term Site is defined as a discrete area for which suspected contamination has been verified and requires further response action. A Site by definition has been, or will be, entered into RMIS/DSERTS. For the FUIDS Program, "projects" equates to sites for current installations.

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SOIL*

Contaminant
HAZARD
FACTOR¹
(CHF)

Contaminant	Max. Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio ²
Total			

¹ Evaluate for human contaminants only
² Ratio = Max. Concentration/Comparison Value

(Place an "X" next to one below)
Significant (if Total > 100) _____
Moderate (if Total 2-100) _____
Minimal (if Total < 2)

MIGRATION
PATHWAY
FACTOR
(MPF)

Evident - Analytical data or observable evidence that contamination is present at, is moving toward, or has moved to a point of exposure

Potential - contamination has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined
Confined - Low possibility for contamination to be present at or migrate to a point of exposure

(Place an "X" next to one below)
Evident _____
Potential _____
Confined

Brief Rationale for Selection: ALL SITES ARE INSIDE BLDGS
NO SOIL CONTAMINATION

RECEPTOR
FACTOR
(RF)

Identified - Receptors identified that have access to contaminated soil
Potential - Potential for receptors to have access to contaminated soil

Limited - Little or no potential for receptors to have access to contaminated soil

(Place an "X" next to one below)
Identified _____
Potential _____
Limited

Brief Rationale for Selection: ALL SITES ARE INSIDE BLDGS
NO SOIL CONTAMINATION

Soil Category LOW
(High, Medium, Low)

*Soil samples should be from a depth of 0-6 inches. If samples are not available from the 0-6 inch interval, results from depths up to, but not exceeding, 24 inches can be used.

RELATIVE RISK SITE EVALUATION WORKSHEET

SITE BACKGROUND INFORMATION

Installation/Property Name for FUDS: KELLY AFB Date Entered /Updated (day, month, year): 8 Aug 01 (REVISION)
 Location (City/County State): SAN ANTONIO, BEXAR, TX Media Evaluated (GW, SW, Sediment, Soil, Sed Eco, Soil Eco.): AIR, GW, SW, SEDIMENT
 Site (Name/DSERTS ID)/Project (Name/Project No.) for FUDS: NR-326 Phase of Execution (SI, RI, FS, EE/CA, IRA, RD/RA, or equiv. RCRA Stage): R1
 Point of Contact (Name/Phone): JACK SHIPMAN Agreement Status, (enter appropriate DERP Site code): Z
925-0253

SITE SUMMARY

(Include only the key elements of information used to conduct the relative risk site evaluation. Attach map view of site if desired.)

Brief Site Description (include site type, materials disposed of, dates of operation, and other relevant information):

- RADIUM PAINT SHOP FROM 1942-52. REPAIRED, REFURBISHED, REPAINTED AIRCRAFT INSTRUMENTS & PARTS ADDING RADIOACTIVE PAINT TO SURFACES. RESIDUAL RADIUM RADIATION REMAINS ON FLOOR, WALL & DRAINLINES INTERIOR TO B326 & ALSO EXTERIOR TO B326 IN SEWER LINES & WASTEWATER TREATMENT PLANTS.

Brief Description of Pathways (Groundwater, Soil, Surface Water [Human], Surface Water [Ecological], Sediment [Human], Sediment [Ecological]):

- PATHWAYS TO HUMANS (AIR, SOIL, SEDIMENT, SURFACE WATER)
 - INHALATION OF AIR/DUST CONTAMINATED W/ RADIUM
 - INGESTION OF CONTAMINATED BUILDING MATERIALS, SOIL, SEDIMENT, SURFACE WATER
 - CONTACT WITH CONTAMINATED BUILDING MATERIALS, SOIL, SEDIMENT, SURFACE WATER

Brief Description of Receptors (Human and Ecological):

- HUMANS WORKING IN AN OCCUPATIONAL (OFFICE/INDUSTRIAL SHOP/UTILITY MAINTENANCE) ENVIRONMENT ON KELLY AFB, BOTH INTERIOR TO B326 & EXTERIOR TO B326, IN THE SOUTH EAST & FAR SOUTHWEST AREAS WITHIN FORMER KELLY AFB.

¹ The term Site is defined as a discrete area for which suspected contamination has been verified and requires further response action. A Site by definition has been, or will be, entered into RMIS/DSERTS. For the FUDS Program, "projects" equates to sites for current installations.

GROUNDWATER

Relative Risk Site Evaluation Primer A-4 Summer 1996 (Revised Edition)

CONTAMINANT HAZARD FACTOR¹ (CHF)

Contaminant	Max. Concentration (ug/l)	Comparison Value (ug/l)	Ratio ²
Total			

¹ Evaluate for human contaminants only
² Ratio = Max. Concentration/Comparison Value

(Place an "X" next to one below)
 Significant (If Total >100) _____
 Moderate (If Total 2-100) _____
 Minimal (If Total <2) _____

MIGRATION PATHWAY FACTOR (MPF)

Evident - Analytical data or observable evidence indicates that contamination in the groundwater is moving or has moved away from the source area
Potential - Contamination in the groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined

Confined - Information indicates that the potential for contaminant migration from the source via the groundwater is limited (due to geological structures or physical controls)

(Place an "X" next to one below)
 Evident _____
 Potential _____
 Confined _____

Brief Rationale for Selection: _____

RECEPTOR FACTOR (RF)

Identified - There is a threatened water supply downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer)

Potential - There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture, (equivalent to Class I, IIA, or IIB aquifer)

Limited - There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only)

(Place an "X" next to one below)
 Identified _____
 Potential _____
 Limited _____

Brief Rationale for Selection: _____

** SAMPLES TAKEN JUL 01,
 LAB RESULTS NOT FINAL YET.*

Groundwater Category
 (High, Medium, Low)

** NOT EVALUATED*

(PAGE 2 OF 7)

SURFACE WATER/HUMAN ENDPOINT

CONTAMINANT
HAZARD
FACTOR
(CHF)

Contaminant	Max. Concentration (ug/l)	Comparison Value (ug/l)	Ratio ¹
Total			

¹Ratio = Max. Concentration/Comparison Value

(Place an "X" next to one below)

Significant (if Total > 100) _____

Moderate (if Total 2-100) _____

Minimal (if Total < 2) _____

MIGRATION
PATHWAY
FACTOR
(MPF)

Evident - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure

Potential - Contamination in surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined

Confined - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls)

(Place an "X" next to one below)

Evident _____

Potential _____

Confined _____

Brief Rationale for Selection: _____

RECEPTOR
FACTOR
(RF)

Identified - Receptors identified that have access to surface water or sediment to which contamination has moved or can move
Potential - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move

Limited - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move

(Place an "X" next to one below)

Identified _____

Potential _____

Limited _____

Brief Rationale for Selection: _____

Surface Water/Human Endpoint Category
(High, Medium, Low)

*** NOT EVALUATED**

** SAMPLES TAKEN AUG 01,
LAB RESULTS NOT FINAL YET*

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SEDIMENT/HUMAN ENDPOINT

CONTAMINANT
HAZARD
FACTOR
(CHF)

Contaminant	Max. Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio ¹
¹ Ratio = Max. Concentration/Comparison Value			Total

(Place an "X" next to one below)
 Significant (if Total >100) _____
 Moderate (if Total 2-100) _____
 Minimal (if Total <2) _____

MIGRATION
PATHWAY
FACTOR
(MPF)

Evident - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure
Potential - Contamination in surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined

Confined - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls)

(Place an "X" next to one below)
 Evident _____
 Potential _____
 Confined _____

Brief Rationale for Selection: _____

RECEPTOR
FACTOR
(RF)

Identified - Receptors identified that have access to surface water or sediment to which contamination has moved or can move
Potential - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move

Limited - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move

(Place an "X" next to one below)
 Identified _____
 Potential _____
 Limited _____

Brief Rationale for Selection: _____

* SAMPLES TAKEN JUL 01 Sediment/Human Endpoint Category
 LAB RESULTS NOT FINAL YET

(High, Medium, Low)

NOT EVALUATED

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SURFACE WATER/ECOLOGICAL ENDPOINT

CONTAMINANT
HAZARD
FACTOR
(CHF)

Contaminant	Max. Concentration (ug/l)	Comparison Value (ug/l)	Ratio ¹
Total			

¹Ratio = Max. Concentration/Comparison Value

(Place an "X" next to one below)

Significant (if Total > 100) _____

Moderate (if Total 2-100) _____

Minimal (if Total < 2) _____

MIGRATION
PATHWAY
FACTOR
(MPF)

Evident - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure

Potential - Contamination in surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined

Confined - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls)

(Place an "X" next to one below)

Evident _____

Potential _____

Confined _____

Brief Rationale for Selection: _____

RECEPTOR
FACTOR
(RF)

Identified - Receptors identified that have access to surface water or sediment to which contamination has moved or can move
Potential - Potential for receptors to have access to surface water or sediment to which contamination has moved or can move

Limited - Little or no potential for receptors to have access to surface water or sediment to which contamination has moved or can move

(Place an "X" next to one below)

Identified _____

Potential _____

Limited _____

Brief Rationale for Selection: _____

Surface Water/Ecological Endpoint Category

(High, Medium, Low)

NOT EVALUATED

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SEDIMENT/ECOLOGICAL ENDPOINT

CONTAMINANT
HAZARD
FACTOR
(CHF)

Contaminant	Max. Concentration	units	Comparison Value	units	Ratio ¹
Total					

¹Ratio = Max. Concentration/Comparison Value

(Place an "X" next to one below)
 Significant (if Total > 100) _____
 Moderate (if Total 2-100) _____
 Minimal (if Total < 2) _____

MIGRATION
PATHWAY
FACTOR
(MPF)

Evident - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure
Potential - Contamination in surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined

Confined - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls)

(Place an "X" next to one below)
 Evident _____
 Potential _____
 Confined _____

Brief Rationale for Selection: _____

RECEPTOR
FACTOR
(RF)

Identified - Receptors identified that have access to surface water or sediment to which contaminant has moved or can move
Potential - Potential for receptors to have access to surface water or sediment to which contaminant has moved or can move

Limited - Little or no potential for receptors to have access to surface water or sediment to which contaminant has moved or can move

(Place an "X" next to one below)
 Identified _____
 Potential _____
 Limited _____

Brief Rationale for Selection: _____

Sediment/Ecological Endpoint Category
(High, Medium, Low)

NOT EVALUATED

(PAGE 6 OF 7)

SEDIMENT/ECOLOGICAL ENDPOINT

CONTAMINANT HAZARD FACTOR (CHF)

Contaminant	Max. Concentration	units	Comparison Value	units	Ratio ¹
Total					

¹Ratio = Max. Concentration/Comparison Value

(Place an "X" next to one below)
 Significant (if Total > 100) _____
 Moderate (if Total 2-100) _____
 Minimal (if Total < 2)

MIGRATION PATHWAY FACTOR (MPF)

Evident - Analytical data or observable evidence indicates that contamination in the media is present at, moving toward, or has moved to a point of exposure
Potential - Contamination in surface water or sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined
Confined

Confined - Information indicates a low potential for contaminant migration from the source to a potential point of exposure (could be due to presence of geological structures or physical controls)

(Place an "X" next to one below)
 Evident _____
 Potential _____
 Confined

Brief Rationale for Selection: ALL SITES ARE INSIDE BLDGS NO SEDIMENT CONTAMINATION

RECEPTOR FACTOR (RF)

Identified - Receptors identified that have access to surface water or sediment to which contaminant has moved or can move
Potential - Potential for receptors to have access to surface water or sediment to which contaminant has moved or can move

Limited - Little or no potential for receptors to have access to surface water or sediment to which contaminant has moved or can move

(Place an "X" next to one below)
 Identified _____
 Potential _____
 Limited

Brief Rationale for Selection: ALL SITES ARE INSIDE BLDGS NO SEDIMENT CONTAMINATION

Sediment/Ecological Endpoint Category
 (High, Medium, Low)

LOW

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B301 Removal

Update on Recycling

26 September 2001

B301 Removal

- Equipment Removal
 - Reuse
 - Miscellaneous property (i.e. tanks, vats, cranes, etc.)
 - Recycle
 - 680 tons steel recycled after decon
 - Disposal
 - Some steel sent to disposal if decon unsuccessful
 - Miscellaneous debris

B301 Removal

- Building Removal - Current

- Recycle

- Mercury containing lights & switches
 - Batteries

- Disposal

- Basement concrete (~7000 tons) Hazardous, Class II
 - Decon water (~75,000 gals) Hazardous
 - Decon Sludge (~60 yds) Hazardous

B301 Removal

- Building Removal - Pending
 - Subcontractor discretion to recycle or dispose
 - Disposal classification Class II if not recycled
 - Debris
 - Structure concrete (~15K-20K tons)
 - Steel (~2.5K tons)
 - Other (i.e. copper, lumber, etc.)

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE