KELLY AFB
TEXAS

ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 3307

AGENDA

KELLY AFB - RAB

TECHNICAL REVIEW SUBCOMMITTEE MEETING

TUESDAY, SEPTEMBER 22, 1998, 6:30 - 9:00 PM

GARNI HALL, ROOM 217, ST. MARY'S UNIVERSITY

Topic	Time	Presenter
I. Introduction	6:30 - 6:40	Dr. Lené
A. Agenda Review and Handouts		
II. Industrial Water Leak	6:40 - 6:55	KAFB
III. Edwards Well Contamination Presentation	6:55 - 7:15	Mr. Rice
IV. Edwards Well Contamination Presentation	7:15 - 7:35	KAFB
V. Short Videotape on Soil Contamination	7:35 - 7:50	Mr. Murrah
VI. Break	7:50 - 8:05	All
VII. Discussion Items	8:05 - 8:45	All
A. Zone 4 Plume Information		KAFB
B. Special TAPP Meeting - Provider Selection		Dr. Lené
VIII. Action Items/Summary	8:45 - 9:00	All
A. Research/Provide Subsidence Study		KAFB
B. Research/Provide KAFB Re-injection Study		KAFB
C. Specific Questions on Zone 3		Mr. Rice
D. ATSDR Schedule/Contact for TRS Briefing/Info		Mr. Sanchez
E. Location/Time of Next RTS Meeting		Dr. Lené
IX. Adjournment	9:00	Dr. Lené

KELLY AIR FORCE BASE TECHNICAL REVIEW SUBCOMMITTEE MEETING AGENDA

Tuesday, 22 September 1998, 6:30 P.M.

Garni Hall, Room 217, St. Mary's University

Topic	Time	Presenter
I.	**Introduction**	**6:30 - 6:40**

Dr. Lene

A. Agenda Review and Handouts

II. Natural Attenuation Presentation (TBD) **6:40 - 7:40** **TBD**

This was supposed to be a presentation by the EPA on "Monitored Natural Attenuation", but EPA just backed out - they may do it in October. As an alternative, I'm trying to get AFCEE (AF Center for Environmental Excellence) to come speak to the issue. AFCEE has been a lead proponent for the AF, DOD, government, and industry as regards natural attenuation and have some real talent (ie: Patrick Haas) that we need to tap into when dealing with our community.

On a side note: Mr. Quintanilla is out in San Francisco attending a two day conference "National Stakeholders Forum on Natural Attenuation" sponsored by CEPO (Center for Public Environmental Oversight). Interestingly, Patrick Haas is a guest speaker at that conference. Even more interesting is that Mr. Q. (and Damian) asked us (Kelly) to fund the TDY - we did not based on AFBCA policy (which cited this forum as an example of an ineligible event) and counsel from JAV, AFMC/JA, and SAF/JACE. So now we are in the position that we look like the bad guy because we did not fund them and someone else did. Mr. Q is being funded by either AFCEE or DOD. Apparently there is a disconnect. Damian did not make the funding cut -- I'm sure he is not happy about it and so he may mention it to you. Mr. Quintanilla made no mention of this at the TRS last week.

III. Break **7:40 - 7:55** **All**

IV. Industrial Wastewater Leak **8:10 - 8:25** **KAFB**

Dean Pound deferred to us last time. The briefing will discuss a line break in the industrial waste collection system that occurred earlier this year. There is a perception that this was a significant contamination event but in actuality it was not. We will have data to support that assessment. Mr. Quintanilla will claim that we should have notified the RAB (and others) of the incident.

V. Edwards Well Contamination Presentation **8:25 - 8:40** **Mr. Rice**

Mr. Rice will speak to the handout he presented last time and the issue of contamination found in Kelly AFB Edwards wells. The intended purpose as stated by Mr. Rice is to call into question the integrity of the Air Force.

VI. Edwards Well Contamination Presentation **8:40 - 8:55** **KAFB**

We will respond to Mr. Rice with a summary of our data and explanation of the results Mr. Rice presented to the TRS on 25 Aug. This will be a factual, non-emotion based response to Mr. Rice's presentation.

VII. Discussion Items **8:55 - 9:35** **All**

A. New Plume Information for Zone 4 **KAFB**

An update to include a draft map showing the extent of off base contamination as we know it. The mailout to the community will have been sent and received by the off base residents by this date.

KELLY AFB - RAB

TECHNICAL REVIEW SUBCOMMITTEE MEETING MINUTES

The Kelly AFB Restoration Advisory Board Technical Advisory Subcommittee met on Tuesday, September 22, 1998, at 6:40 PM, in Room 217, Garni Science Hall, at St. Mary's University. The meeting agenda is presented as Attachment 1. Persons attending are listed on the TRS Attendance List, Attachment 2.

I. Introduction

Dr. Lene distributed a revised version of the agenda and explained that the presentation on "Natural Attenuation" which had been scheduled had been omitted because EPA was unavailable on this date.

Maj. de Venoge had suggested getting Patrick Haas from AFCEE to fill in but he also was not available. However, he has been scheduled for the October 27, 1998, TRS meeting, assuming he will be available. Maj deVenoge is working this presentation. Dr. Lene also mentioned that Ms. Lisa Price of the EPA Region VI Office is scheduled to make a presentation on "Monitored Natural Attenuation" immediately prior to the RAB meeting on October 20, 1998.

In order to accommodate presenters who would not be able to stay for the entire meeting, Dr. Lene abandoned the order of presentations given in the agenda. The following minutes are chronological, with the numbering and topics on the agenda retained for clarity.

VII. Discussion Items

B. Special TAAP Meeting - Provider Selection

The meeting was turned over to Ms. Randi Audelo of AFBCA from Carswell AFB Contracting Office. Ms. Audelo briefly summarized the TRS Special TAPP Meeting held on September 1, 1998, and the selection process used at that meeting to select providers for the tasks asked for under the TAAP grant application. All five potential providers selected were awarded Blanket Purchase Agreements, and were asked to provide cost estimates for the tasks listed by the TRS. Ms. Audelo went over each estimate in detail, and asked that the TRS choose a provider for each of the tasks. After some discussion, the TRS members voted unanimously to award the contracts as follows:

Basewide Remedial Assessment	- Clearwater
Operable Unit-2	- Neathery
ATSDR report	- University of Maryland

After totaling the estimates, Ms. Audelo announced that the total money committed was well below the money available under the TAPP grant. After further discussion, the number of hours and meetings listed by two of the providers were increased in order to make fuller use of the money available. The TRS members applauded Ms. Audelo for efforts in their behalf.

VII. Discussion Items

A. Zone 4 Plume Information

Mr. Scott Courtney, WPI, presented a recap of the information that was presented to the Special RAB Meeting called by General Murdock on September 21, 1998. This information was the same that was released to the media, and was sent as an information packet to all households in the area affected. Mr. Courtney reported that the soil borings and monitoring wells that have been tested to date have delineated the off-base limits of the shallow groundwater plume in most areas, but that further testing will be necessary in other areas. A map included in the information packet shows the limits which have been established. Once

the limits of the plume have fully established, further testing will be conducted within the plume area to determine the distribution and concentrations of the contaminants. Funding is now available to develop a work plan for the Zone 4 off-base area.
A question was raised regarding possible contamination of the San Antonio River by groundwater from the plume. Mr. Courtney said that data from the USGS and the SARA do not indicate any contamination at this time, and that a plan will be developed with the SARA for future monitoring. Mr. Courtney was thanked for his presentation.

III. Edwards Well Contamination Presentation

Mr. George Rice preceded his presentation with the disclosure of his candidacy for Position # 3 on the Edwards Aquifer Authority. Mr. Rice then presented maps and data to support his contention that the KAFB has contaminated the Edwards Aquifer, although it has denied doing so. Representatives of the TNRCC said that they would take the matter under advisement. A question was raised regarding how this contamination affects the aquifer at present. It was also pointed out that contamination has been found in other wells, particularly across northern Bexar County and in Uvalde County, which have nothing to do with KAFB.

IV. Edwards Well Contamination Presentation

Major Robert Gargiulo, of KAFB, pointed out that many of the wells cited by Mr. Rice have been plugged and abandoned according to regulations and are no longer being used. He also mentioned that a major change in MCLs was made between 1986 and 1988. He also stated that the apparent contamination was most likely the result of cross-contamination and mis-identification of samples by the contractor, Radian Corporation, and the analytical laboratory. Major Gargiulo admitted that an unknown amount of shallow groundwater entered one Edwards well before being detected and sealed off. Subsequent testing in a nearby well showed no evidence of contamination. He stressed that Kelly AFB has complied with the Safe Drinking Water Act (SDWA) requirements for VOCs, including the period in 1986 discussed by Mr. Rice and the incident regarding well 313.

Mr. Rice and Major Gargiulo were thanked for their presentations, and, after discussion, the TRS members voted to have the same material presented to the RAB in an attempt to bring this issue to a close.

At this point, Mr. Mike Carillo of the EPA announced that Ms. Lisa Price and Ms. Laura Stankowski have been added to their staff, and that Ms. Camille Hueni has been reassigned.

II. Industrial Water Leak

Major Tom de Venoge distributed a talking paper detailing an incident in which a small break in an Industrial Waste Collection System pipeline released an unknown amount of industrial wastewater. The leak was repaired and the wastewater was diverted to the base treatment plant. The leak was reported to the EPA and the TNRCC although the release was not a reportable quantity. Some discussion followed as to whether such spills should be reported to either the RAB or the TRS. Ms. Abigail Power of the TNRCC stated that many such reports are not necessary but are made just to be safe.

VIII. Action Items/Summary

A. Research/Provide Subsidence Study

Major de Venoge stated that the Final Subsidence Study is now available, and provided a copy to be housed in the Dept. of Earth Sciences at St. Mary's University. Copies are also available at the Main Library and the Base Library.

B. Research/Provide KAFB Re-injection Study

Major de Venoge said that the Re-injection Study will be presented by the contractor at the next TRS meeting.

C. Specific Questions on Zone 3

Major de Venoge distributed copies of a memorandum from Dr. J. Mark Stapleton of WPI in answer to questions posed by Mr. Rice regarding modeling of the proposed drain/barrier in the

Quintana Road neighborhood. Major de Venoge also distributed a talking paper regarding the AFFF Fire Suppression incident at KAFB.

D. ATSDR Schedule/Contact for TRS Briefing/Info

Mr. Sam Sanchez was not present to make this report, however, a letter from Ms. Laurie Ann Columbo of the ATSDR stated that the ATSDR report will be delayed until it can be reviewed by outside experts.

E. Location/Time of Next TRS Meetng

Dr. Lene announced that the next TRS meeting is scheduled for October 27, 1998, at 6:30 PM, Room 217, Garni Science Hall, St. Mary's University.

Mr. Damian Sandoval, the RAB Community Co-Chair, disclosed that he has taken a position with a firm which does business with the Air Force, and will be re-evaluating his position on the RAB.

The meeting was adjourned at 10:10 PM.

ATTENDENCE SHEET FOR THE SEPTEMBER 22, 1998 TRS MEETING

TRS Members in Attendance:
Mike Carillo - EPA
Gordon Banner - TNRCC
Gene W. Lene - RAB
George Rice - RAB
Damian Sandoval - RAB
Tom de Venoge - KAFB

Also in Attendance:

Mark Arthur - TNRCC
Dominga Adames - RAB
Sam Murrah - RAB
Abigail Power - TNRCC
Annalisa Peace - RAB
William P. Ryan - KAFB
Terry Schaumberg - KAFB
Scott Courtney -WPI/KAFB
Mary Kelly - KAFB
Chuck Ahrens - Bexar Met. Water Dist.
Brian Sassuman - KAFB
John Crist - KAFB
Greg Hammer - City of San Antonio
Armando Quintanilla - RAB
Leslie Brown - KAFB
Randi Audelo - Carswell AFB

#36S
MINUTAS DE LA JUNTA

SUBCOMITÉ DE REVISIÓN TÉCNICA (TRS, POR SUS SIGLAS EN INGLÉS) DE LA BASE KELLY DE LA FUERZA AÉREA

JUNTA ASESORA DE RESTAURACIÓN DE KELLY (RAB, POR SUS SIGLAS EN INGLES)
22 DE SEPTIEMBRE DE 1998, 6:30 – 9:00 P.M.

GARNI HALL, SALA 217, UNIVERSIDAD DE ST. MARY'S

Tema	Hora	Presentador
I. Presentación	6:30 – 6:40	Dr. Lené
A. Revisión de la Orden del Día y Folletos		
II. Fuga de Agua Industrial	6:40 – 6:55	Base Aérea Kelly
III. Presentación de la Contaminación de Pozos de Edwards	6:55 – 7:15	Sr. Rice
IV. Presentación de la Contaminación de Pozos de Edwards	7:15 – 7:35	Base Aérea Kelly
V. Video corto sobre la Contaminación del Suelo	7:35 – 7:50	Sr. Murrah
VI. Receso	7:50 –8:05	Todos
VII. Puntos de Discusión	8:05 – 8:45	Todos
A. Información de la Pluma de la Zona 4		Base Aérea Kelly
B. Junta Especial del TAPP– Selección de Proveedor		Dr. Lené
VIII. Puntos de Acción / Resumen	8:45 – 9:00	Todos
A. Estudio de Hundimiento – Investigación y Proveedor		Base Aérea Kelly
B. Estudio de Re-		Base Aérea Kelly

Base Aérea Kelly - RAB

MINUTAS DE LA JUNTA DEL SUBCOMITÉ DE REVISIÓN TÉCNICA

El Subcomité de Revisión Técnica (TRS, por sus siglas en inglés) de la Junta Asesora de Restauración de la Base Aérea Kelly (RAB, por sus siglas en inglés) se reunió el martes, 22 de septiembre, 1998 a las 6:40 p.m., en la sala 217 en Garni Science Hall de la Universidad de St. Mary's. La orden del día es presentada como el Documento Adjunto # 1. La Lista de Asistencia del TRS está incluida en el Documento Adjunto # 2).

I. Introducción

El Dr. Lené distribuyó una versión revisada de la orden del día y explicó que la presentación sobre la atenuación natural que estaba programada para esta junta se había tenido que omitir porque el representante de la Agencia de Protección Ambiental (EPA, por sus siglas en inglés) no había podido asistir en esta fecha.

El Mayor de Vanoge había sugerido que el Sr. Patrick Haas de AFCEE lo reemplazara pero él tampoco pudo asistir. Sin embargo, se ha vuelto a programar para la junta del TRS del 27 de octubre de 1998, sujeto a que esté disponible. El Mayor de Venoge está trabajando en esta presentación. La Srta. Lisa Price de la EPA Región VI tiene programada una presentación sobre la atenuación natural vigilada inmediatamente antes de la junta del RAB del 20 de octubre de 1998.

Para poder ayudar con los horarios de los oradores que no se pueden quedar a toda la junta, el Dr. Lené tuvo que cambiar el orden de las presentaciones en la orden del día. Las siguientes minutas son cronológicas, pero se mantuvieron los números y los temas originales de la orden del día para mayor claridad.

VII. Puntos de Discusión

B. Reunión Especial del Programa de Asistencia Técnica y Participación Pública (TAPP, por sus siglas en inglés) – Selección del Proveedor
Se le cedió la palabra a la Srta. Randi Audelo de la Agencia de Conversión de Bases de la Fuerza Aérea (AFBCA, por sus siglas en inglés) de la Oficina de Contrataciones de Base Aérea Carswell. La Srta. Audelo brevemente resumió la Junta Especial del TRS sobre el TAPP que se llevó a cabo el 1º de septiembre de 1998. Además explicó el proceso de selección que se usó en la junta para seleccionar a los proveedores que realizaran las tareas que se solicitan bajo el subsidio del TAPP. Se les entregaron los Paquetes del Acuerdo de Compras a los cinco posibles proveedores y se les pidió que proporcionaran un estimado de costos para las tareas descritas por el TRS. La Srta. Audelo explicó en detalle cada uno de los estimados y le pidió al TRS que seleccionara un proveedor para cada tarea. Después de discutir el tema, los miembros del TRS votaron por unanimidad para asignar los contratos de la siguiente manera:

Evaluación de Correcciones en Toda la Base – Clearwater

Unidad Operable-2 – Neathery
Reporte de la Agencia de Sustancias Toxicas y Registro de Enfermedades (ATSDR, por sus siglas en inglés) – Universidad de Maryland

Después de haber sumado los totales, la Srta. Audelo dijo que el total del dinero comprometido era mucho menor de la cantidad disponible del subsidio del TAPP. Después de seguir hablando al respecto, se aumentó el número de horas y reuniones listadas para dos de los proveedores para hacer mejor uso del dinero disponible. Los miembros del TRS aplaudieron a la Srta. Audelo por su gran esfuerzo y trabajo que había hecho en nombre de ellos.

VII. Puntos de Discusión

A. Información de la pluma de la Zona 4

El Sr. Scott Courtney de WPI presentó un resumen de la información presentada en la Junta Especial del RAB por el General Murdock del 21 de septiembre de 1998. Es la misma información que fue entregada a los medios de comunicación y que se mandó como un paquete de información a todos los hogares en el área afectada. El Sr. Courtney reportó que los pozos de vigilancia y de sondeo donde se habían hecho pruebas hasta la fecha habían delineado los límites fuera de la base de la pluma de agua subterránea poco profunda en la mayoría de las áreas, pero que se necesitará hacer más pruebas en otras áreas. En el paquete de información se incluye un mapa que muestra los límites que han sido establecidos. Cuando los límites de la pluma hayan sido establecidos bien, se realizarán más pruebas en el área de la pluma para determinar la distribución y concentraciones de los contaminantes. Ya están disponibles los fondos para desarrollar un plan de trabajo para el área fuera de la base de la Zona 4.

Surgió una pregunta sobre la posible contaminación del Río San Antonio proveniente de la pluma de agua subterránea poco profunda. El Sr. Courtney dijo que la información proveniente de la USGS y de SARA no refleja que exista ninguna contaminación en este momento, y que se desarrollará un plan en conjunto con SARA para que se vigile aún más. Se le agradeció al Sr. Courtney por su presentación.

III. Presentación sobre la Contaminación de Pozos de Edwards

El Sr. Rice inició su presentación divulgando que se había presentado como candidato al Puesto # 3 en la Autoridad del Acuífero Edwards. El Sr. Rice entonces presentó mapas e información que respaldaban su argumento de que la Base Aérea Kelly ha contaminado el Acuífero Edwards, aún cuando lo ha negado. Los representantes de la Comisión para la Conservación de Recursos Naturales de Texas (TNRCC, por sus siglas en inglés) dijeron que considerarían este asunto. Surgió la pregunta de cómo afecta esta contaminación al acuífero de la manera que se encuentra actualmente. También se mencionó que se ha encontrado contaminación en otros pozos, especialmente en la parte norte del Condado

de Bexar y en el Condado de Uvalde, que no tienen nada que ver con la Base Aérea Kelly.

IV. Presentación de la Contaminación de Pozos Edwards

El Mayor Robert Gargiulo de la Base Aérea Kelly dijo que muchos de los pozos citados por el Sr. Rice ya se habían tapado, cancelado y abandonado conforme a los reglamentos y que ya no se están usando. Agregó que entre los años de 1986 y 1988 se había hecho un cambio mayor en los niveles máximos de contaminación (MCL, por sus siglas en inglés). Continuó diciendo que la contaminación aparente era muy probablemente el resultado de una contaminación cruzada y mala identificación de las muestras por parte del contratista, Radian Corporation y el laboratorio analítico. El Mayor Gargiulo admitió que una cantidad desconocida de agua subterránea había entrado a un pozo de Edwards antes de que se detectara y se tapara. Las pruebas subsecuentes en los pozos cercanos no mostraron evidencia de contaminación. Enfatizó que la Base Aérea Kelly ha cumplido con todos los requisitos de la Ley de Agua Potable Segura (SDWA, por sus siglas en inglés) en cuanto a los compuestos orgánicos volátiles, incluyendo el período de tiempo de 1986 mencionado por el Sr. Rice y el incidente del pozo 313.

Se les agradeció tanto al Sr. Rice como al Sr. Gargiulo por sus presentaciones y después del diálogo al respecto, los miembros del TRS votaron para que se presentara el mismo material ante el RAB con la intención de que se pudiera cerrar este asunto.

En este momento, el Sr. Mike Carillo de la EPA anunció que la Srta. Lisa Price y la Srta. Laura Stankowski se han convertido en parte de su personal y que la Srta. Camille Hueni ha renunciado.

II. Fuga de Agua Industrial

El Mayor Tom de Venoge entregó un documento que detallaba un incidente donde una pequeña avería en la tubería de un sistema de recolección de desperdicios industriales había dejado salir una cantidad indeterminada de aguas residuales industriales. Se reparó la fuga y se desvió el agua a la planta de tratamiento de la base. Se reportó la fuga a la EPA y a la TNRCC aún cuando el derrame no había sido una cantidad reportable. Después de eso se habló de si ese tipo de derrames se debía reportar al RAB o al TRS. La Srta. Abigail Power de la TNRCC dijo que muchos de esos reportes no son necesarios pero que se hacen para estar bien seguros.

VIII. Puntos de Acción / Resumen

A. Estudio de Hundimiento – Investigación y Proveedor
El Mayor de Venoge expresó que el Estudio Final de Hundimiento ya está disponible. Proporcionó una copia para que se mantuviese en el Departamento de Ciencias Terrestres de la Universidad de Maryland. También hay copias disponibles en la Biblioteca Central y en la de la base.

B. Estudio de Re-inyección de la Base Aérea Kelly – Investigación y Proveedor
El Mayor de Venoge mencionó que el Estudio de Re-inyección será presentado por el contratista en la siguiente junta del TRS.

C. Preguntas Específicas sobre la Zona 3
El Mayor de Venoge distribuyó copias de un memorando del Dr. J. Mark Stapleton de WPI en respuesta a las preguntas del Sr. Rice sobre el modelaje del drenaje / barrera propuesta en el vecindario de la Calle Quintana. El Mayor de Venoge también distribuyó un documento sobre el incidente de supresión de incendios de AFFF en la Base Aérea Kelly.

D. Programación / Contratista de ATSDR (por sus siglas en inglés) para la Presentación / información del TRS

El Sr. Sam Sánchez no estuvo presente para hacer este reporte, sin embargo, una carta de la Srta. Laurie Ann Columbo de la ATSDR establecía que el reporte de la ATSDR se iba a retrasar hasta que los expertos externos lo pudieran revisar.

E. Lugar / Hora de la Siguiente Junta
El Dr. Lené anunció que la siguiente junta del TRS estaba programada para el 27 de octubre de 1998 a las 6:30 p.m., en la Sala 217 del Garni Science Hall, en la Universidad de St. Mary's.

El Sr. Damián Sandoval, Copresidente representando a la comunidad en el RAB, anunció que había aceptado un puesto en una compañía que realiza trabajos con la Fuerza Aérea y que iba a reevaluar su puesto en el RAB.

Se cerró la junta del TRS a las 10:10 p.m.

LISTA DE ASISTENCIA A LA JUNTA DEL TRS DEL 22 DE SEPTIEMBRE DE 1998

Miembros del TRS presentes:
Sr. Mike Carillo - EPA
Sr. Gordon Banner - TNRCC
Sr. Gene W. Lené - RAB
Sr. George Rice - RAB
Sr. Damián Sandoval - RAB
Sr. Tom de Venoge - Base Aérea Kelly

También presentes:
Sr. Mark Arthur - TNRCC
Srta. Dominga Adames - RAB
Sr. Sam Murrah - RAB
Srta. Abigail Power - TNRCC
Srta. Annalisa Peace - RAB
Sr. William P. Ryan - Base Aérea Kelly
Sr. Terry Schaumberg - Base Aérea Kelly
Sr. Scott Courtney - WPI/ Base Aérea Kelly
Srta. Mary Kelly - Base Aérea Kelly
Sr. Chuck Ahrens - Bexar Met. Water District
Sr. Brian Sassuman -- Base Aérea Kelly
Sr. John Crist -- Base Aérea Kelly
Sr. Greg Hammer – Ciudad de San Antonio
Sr. Armando Quintanilla - RAB
Srta. Leslie Brown - Base Aérea Kelly
Srta. Randi Audelo – Base Aérea Carswell

Memorandum

To: Major Tom DeVenoge, SA-ALC/EMR
CC: William Ryan, SA-ALC/EMR
Captain Chris Wolf, SA-ALC/EMR
Juan Perez, SA-ALC/EMR
Rhonda Hampton, SA-ALC/EMR
Jim Williams, AFCEE-ERC
Dr. Beth Gentry, WPI

From: Dr. J. Mark Stapleton, WPI

Date: September 22, 1998

Re: Response to Concerns regarding modeling of the proposed drain/barrier in Quintana Road Neighborhood letter dated August 12, 1998.

This is WPI's response to the letter from George Rice, KAFB RAB TRS, subject: "Concerns regarding modeling of the proposed drain/barrier in Quintana Road Neighborhood" letter dated August 12, 1998. In summary, the letter raises concerns over the close proximity of the simulated barrier to the constant head boundary in the southern portion of the Quintana Road model. The concern is that the model may be predicting a negatively influenced piezometric surface within the barrier area (north of McLaughlin and west of Bynum). The second concern is that the installation of the barrier and associated wells will impede the migration of existing contaminants south of McLaughlin Road due to reduced ground-water flow once the barrier wall is installed. This would prevent additional plume growth.

In response to the first concern, the Quintana Road model was designed as a flood predictive model, the purpose of which was to produce conservative estimates of the build up of ground-water along the McLaughlin wall (i.e. over-predict). To illustrate this point, an additional, very simplistic model was developed to test whether or not the constant head boundaries would negatively (under-predict) influence the ground-water elevation predictions. In this simplistic test model, a uniform hydraulic conductivity distribution was utilized. Figure A represents simulated water levels within the test model domain under steady state conditions. Figure B, with a simulated barrier in place and no new extraction wells turned on, indicates that water levels will increase by a maximum of 1.5 feet in the study area over steady state conditions shown in Figure A. In Figure C, the same barrier was moved approximately 2000 feet north, to the center of the test model, effectively removing concerns over constant head boundary influences. The test model was run again and demonstrated a water level increase at the vertex of the barrier of about 1 feet. Additional test model simulations were performed that included an extraction well. In both scenarios, the effect of the well on the water levels within the barrier area were the same (*data not shown*). Based on the interpretation of the Quintana Road model results, WPI contends that the increase in water levels will not exceed the barrier elevation or flood the Quintana Road area. In this situation the constant head boundaries

along the southern portion of the Quintana Road model have only a very slight, if any, effect on under-predicting drawdown within the barrier area.

In response to the second concern, based on the lack of available hydraulic and geologic data south of McLaughlin Road, WPI is unable to make an assessment of the regional hydraulic flow patterns as a result of the barrier installation. WPI emphasizes that the purpose of the Quintana Road model is to predict the increase in water levels as a result of the barrier installation. The Quintana Road model is not intended to be used as a remedial design tool and no plans exist to expand the model to make fate and transport predictions.

WPI hopes our explanation has helped clear up your concerns and questions.

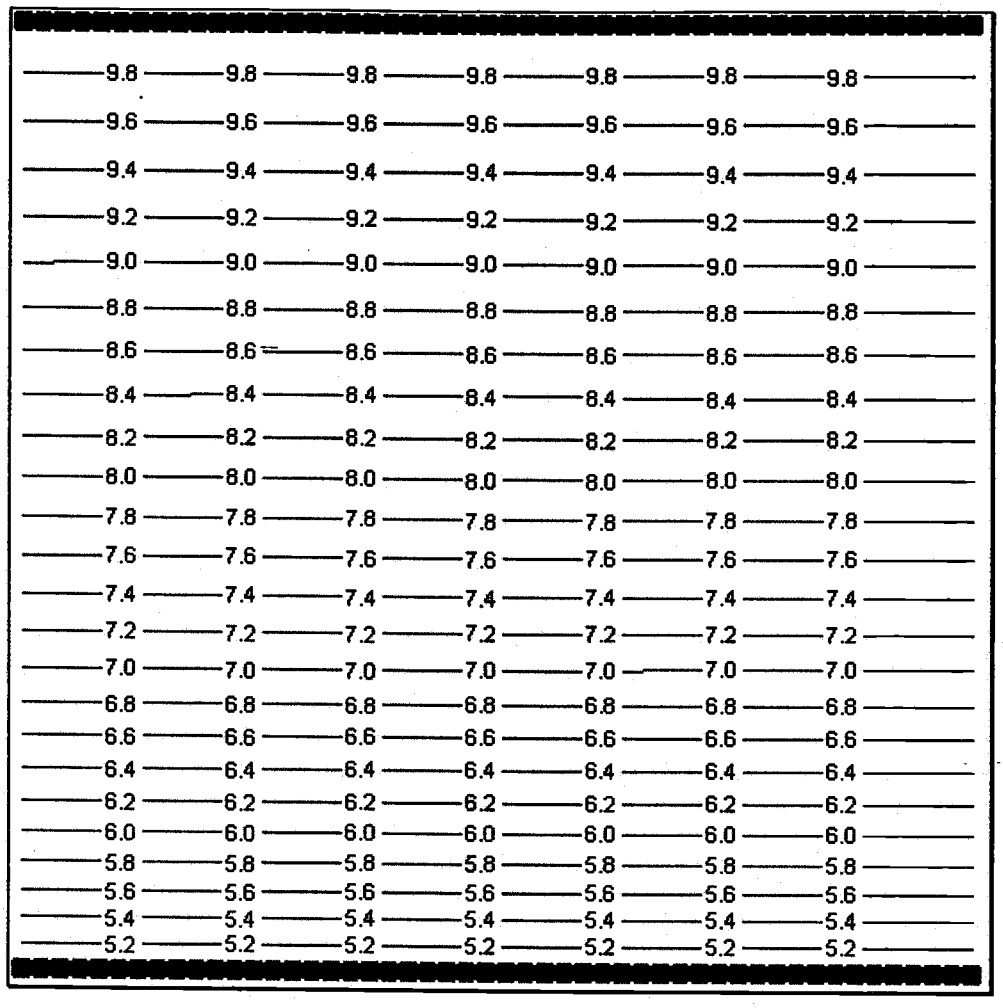


Figure A represents simulated water levels within the test model domain under steady state conditions

September 22, 1998

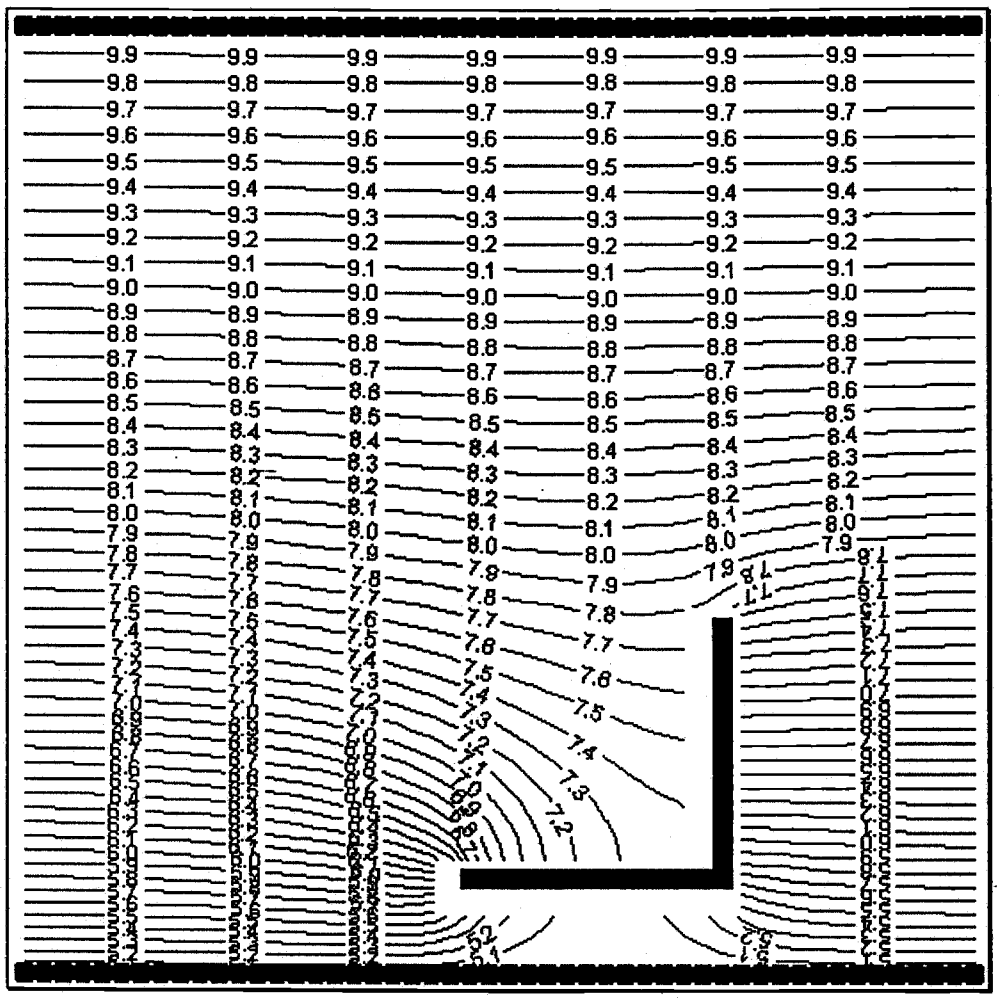


Figure B indicates that water levels will increase by a maximum of 1.5 feet in the study area over steady state conditions shown in Figure A.

September 22, 1998

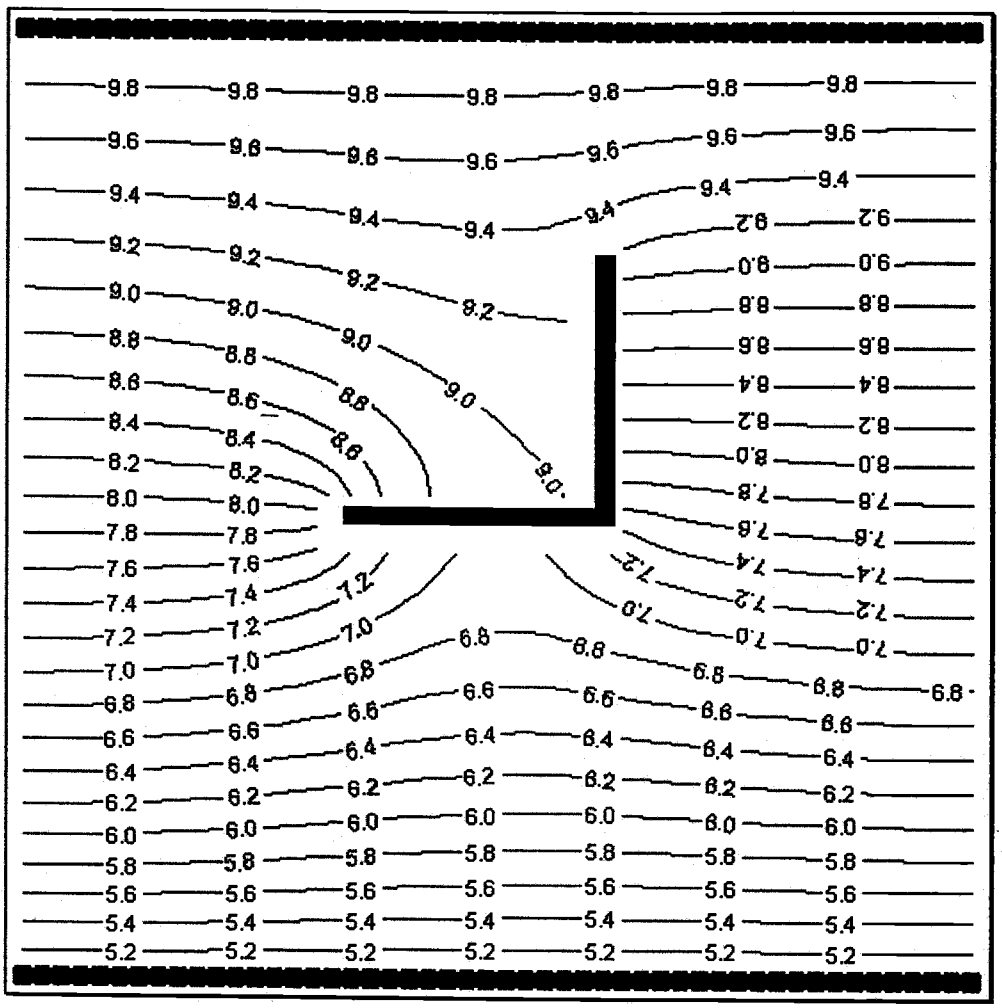


Figure C illustrates the increase in water levels without external influences constant head boundaries.

Agenda Item	Description	Summary of Activity	POC
II	**Natural Attenuation Discussion**	Postponed to 20 Oct -- EPA (Lisa Price) will give an MNA presentation before the RAB.	de Venoge
IV	**Industrial Wastewater Collection System (IWCS) Line Break**	Discussion of the line break and response actions taken.	Russell Rohne
VI	**Edwards Well Contamination Presentation**	Present summary of data and explanation of results handed out by Mr. Rice at the last TRS.	Maj. Gargiulo
VII.	**Discussion Items**		
A.	New Plume Information for Zone 4	Review information briefed to RAB on 21 Sep and mailed out to the local community	Scott Courtney / Dick Walters
B.	Special TAPP meeting	Review status of TAPP process	Randi Audelo
VIII.	**Action Items**		
A.	Research Provide Subsidence Study	Report was completed in July 98. Copy of report delivered to TRS tonight. Results indicate subsidence is not a problem that would result from groundwater extration from Kelly collection systems. See report conclusions form more information.	de Venoge
B.	Research / Provide Kelly AFB Reinjection Study	Kelly has tasked WPI to look into what studies Kelly may have performed, review the status of reinjection around the nation, and report results to Kelly staff in October. A delivearble (report) will be available at the next TRS.	de Venoge

TALKING PAPER

ON

10 SEP 98 AFFF INCIDENT AT KELLY AFB, TX

- On 10 Sep 98, the Aqueous Film Forming Foam (AFFF) Fire Suppression System in the Building 829 C-5 hangar was activated as a result of a power surge.
  - -- AFFF is used in the hangar as a fire suppressant for fast knockdown, control and extinguishment of fires that may occur during aircraft maintenance operations.
  - -- Approximately 500 gallons of AFFF mixed with 15,000 gallons of water was released to the C-5 aircraft and hangar floor.
  - -- Representatives from the Kelly AFB Fire Department, Civil Engineering office, Environmental Management office, Bioenvironmental Engineering office, and 433rd Military Airlift Wing responded.

- AFFF mixture reached the grassy area outside the hangar, and the industrial and sanitary sewer lines.
  - -- Based on the chemicals in AFFF and the dilution with water, the amount was not a reportable quantity (RQ).
    - --- The local TNRCC office was notified of the release to the soil and no excavation or treatment was required.
  - -- AFFF mixture in the industrial line was directed to holding basins at the Environmental Process Control Facility (EPCF).
    - --- No untreated AFFF was released directly to Leon Creek.
    - --- No excursions of either the Texas Natural Resource Conservation Commission (TNRCC) or US Environmental Protection Agency (EPA) National Pollution Discharge Elimination System (NPDES) permit occurred.
  - -- A trace of AFFF mixture was visually identified at the B880 manhole (near Building 829) of the sanitary sewer line.
    - --- Upon identification of the AFFF mixture in the sanitary sewer line, the San Antonio Water System (SAWS) and Dos Rios Treatment Plant offices were informed.
    - --- SAWS personnel inspected the lines and were provided a detailed report of the incident by the Environmental Management office.
  - -- All storm sewer drains near Building 829 were successfully plugged to keep the AFFF mixture from entering Leon Creek.
    - --- The drains remained plugged until acceptable dissolved oxygen (DO) readings in the accumulating water were reached.

Lt Fitzgerald/BMF/EM/5-3100/19 Sep 98

TALKING PAPER
ON THE
IWCS LEAK OF 27 DECEMBER 1997

BACKGROUND: On 27 December 1997 a leak occurred in the Industrial Waste Collection System (IWCS) pipeline near the south end of the runway at Kelly Air Force Base. A work truck drove over a test port, puncturing the IWCS pipe. The water pooled at the break area and was noticed; the service desk was notified at approximately 8:00 p.m. A three-inch diameter hole was discovered upon excavation. The attached map shows where the leak occurred.

DETAILS:

- Industrial wastewater is a dilute waste stream consisting mainly of water, typically with trace amounts of detergents, oils and solvents.
- An unknown amount of industrial wastewater was leaked onto the grassy area around the break.
- Upon discovery of the leak, pumps were turned off and the industrial wastewater was diverted into the old pipeline and sent to the treatment plant on base.
- Notifications were made to base organizations, the TNRCC and the EPA on the day after the leak. The Local Emergency Planning Committee (LEPC) was notified in a summary report. No further actions were required by these agencies.
- Treatment plant personnel (OpTech) sampled and performed analyses on the wastewater, including pH, COD*, BOD**, and metals.
  - Results indicated only trace amounts of inorganic contaminants.
  - VOC/SVOCs were not analyzed due to the operators' knowledge of the waste stream and professional knowledge. Previous results have shown non-detect for VOCs and trace levels for some SVOCs.
- <u>Based on the lab results, the release was not a reportable quantity (RQ) and was not subject to RQ reporting requirements.</u>

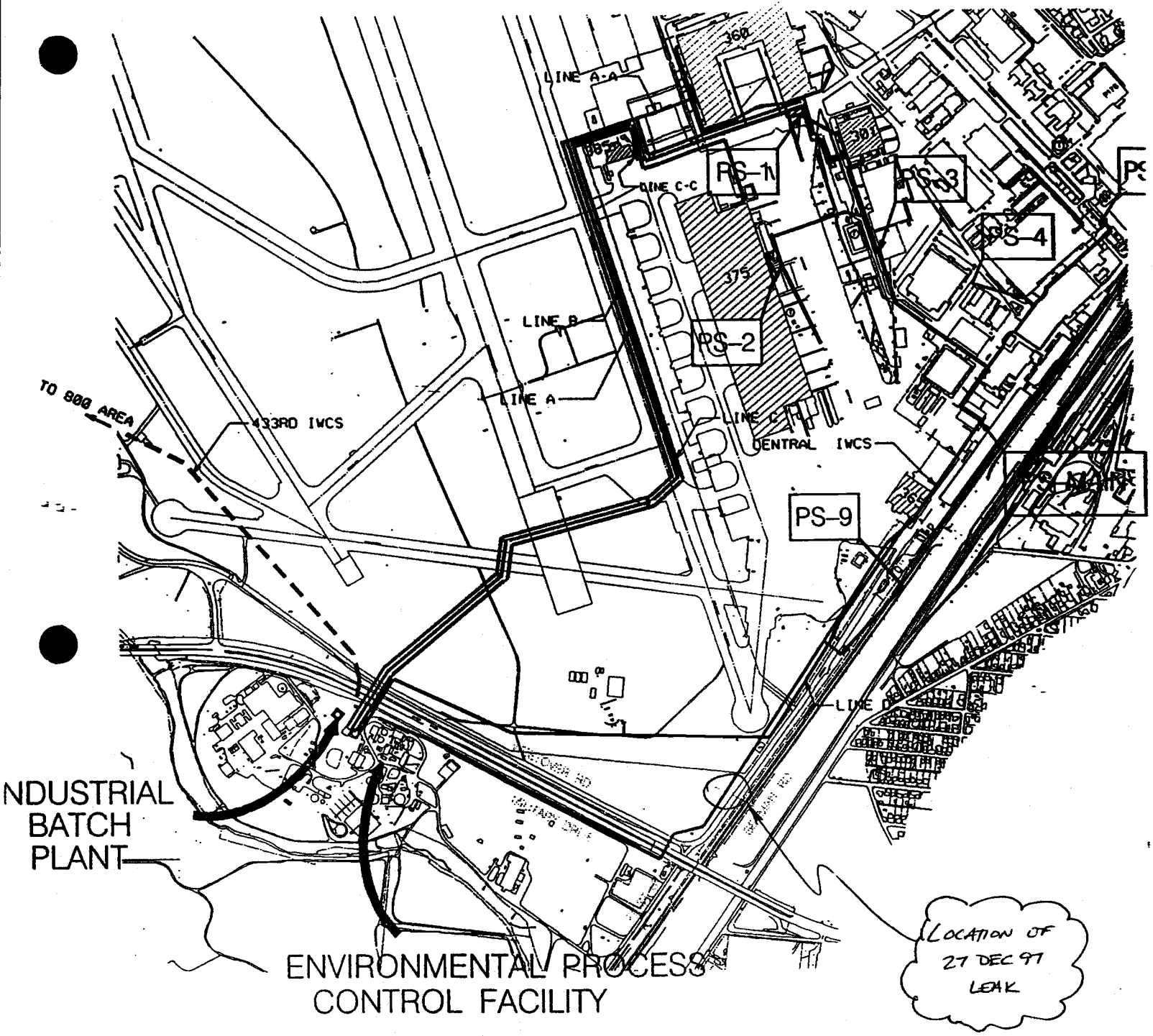
REPAIRS TO THE SYSTEM:

- GKDC subcontractors performed repairs under the Cooperative Agreement. GKDC and its subcontractors are responsible for operation and maintenance of the treatment plant and the IWCS under this agreement.
- The soil around the break was returned to the excavation after the repair was made, based on the following:
  - The wastewater analyses
  - The break was not in an area that is suspected of having existing soil contamination.
- The IWCS was operational again in January 1998.

*COD or Chemical Oxygen Demand: A measure of the oxygen required to oxidize all compounds, both organic and inorganic, in water.

**BOD or Biochemical Oxygen Demand: A measure of the oxygen required for biological processes that break down organic matter in water.

DUSTRIAL WASTE COLLECTION SYS



ENVIR

TITLE: INDUSTRIAL WASTE

SCALE:

Kelly AFB
Edwards Well Data

Maj. Robert Gargiulo
Commander, Bioenvironmental Engineering Flight

Purpose

- Address the concerns raised by Mr. Rice at the 25 August 1998 Technical Review Subcommittee

Kelly AFB Drinking Water Program

- Primary Focus:
  - Health and safety of Kelly AFB residents and workers
  - Compliance with Federal and State Safe Drinking Water program

Sources of Information

- FOIA request -Apr 98
- Installation Restoration Program (IRP), Phase II - Confirmation/Quantification Stage 2 (from 9/85 to 9/87) dated Feb 88
- Conversations/statements from former Bioenvironmental Engineering employees
- Office correspondence, records, & data

Kelly AFB Drinking Water Program

- Active and Inactive wells as of Jan 86
  - I-66, Bldg 1044
  - I-78, Bldg 1556
  - I-93, Bldg 3010
  - I-96, Bldg 141 (inactive Oct 84)
  - I-97, Bldg 313
  - I-123, Bldg 1638
  - I-124, Bldg 314
  - I-77, Bldg 1536
  - I-94, Bldg 3660 (capped/inactive)
- Active wells as of Sep 98
  - I-123, Bldg 1638
  - I-93 Bldg 3010
  - I-77 Bldg 1536
  - Bldg 81
  - Bldg 1040
  - Bldg 2047

Kelly AFB Drinking Water Program

- 1986 Maximum Contaminant Levels (MCL)
  - Metals
  - Pesticides
- MCLs for Jan 1988
  - Metals
  - Pesticides
  - VOC
  - Trihalomethanes (excluded from this presentation - all results within MCL)

IRP Phase II Confirmation/ Quantification Stage 2 Study

- Radian tested Kelly monitoring wells and 8 production (drinking water) wells
  - Split samples w/ Radian Analytical Services (RAS) & Armstrong Lab (OEHL) in Jan 86
  - Used EPA Methods for Municipal & Industrial Wastewater Analysis (600 series) VS Drinking Water & Source Water Analysis (500 series)
    - **Used <u>same</u> sampling container for IRP and drinking water**
    - **Decontamination between IRP and drinking water wells identified as inadequate**

IRP Phase II Confirmation/ Quantification Stage 2 Study

- Follow-up sampling with dedicated containers and VOC specific collection methods did not replicate the contamination levels
  - Mar 86: Kelly AFB split samples analyzed by OEHL
  - Apr 86: Radian samples analyzed by RAS
  - May 85: Kelly AFB samples analyzed by OEHL
- **Indicates cross contamination between IRP and drinking well samples**

Well I-66 (Bldg 1044)

Analyte	86 MCL	88 MCL	OEHL 11/23/83	Radian 1/22/86	OEHL 1/22/86	OEHL 3/11/86	OEHL 3/11/86 (Split)	Radian 4/16/86	OEHL 5/15/86
TCE		**5**	ND	ND	2.2	ND	ND	ND	ND
PCE		**5**	ND	ND	0.2	ND	ND	ND	ND
1,2 DCA		**5**	<0.3	ND	36	2.3	ND	ND	ND
1,3 DCB		**A**	ND	ND	305	ND	ND	ND	ND
1,4 DCB		**75**	ND	ND	149	ND	ND	ND	ND
Benzene		**5**	ND	3.58	0.5	ND	ND	ND	ND
E-benzene		**700**	ND	ND	39	ND	ND	ND	ND
1,1,1 TCA		**200**	ND	ND	ND	2.1	ND	ND	ND
Dichloro methane		**5**	ND	ND	3.8	1.1	ND	ND	ND
Chloro benzene		**100**	ND	ND	435	ND	ND	ND	ND

A – o-dichlorobenzene 600 ppb

Well I-66 (Bldg 1044)

- Suspect 1/22/86 OEHL sample was switched with an IRP water sample
- On 11/23/83 there was a trace amount of 2-chloroethylvinyl ether (no MC L)
- All ND for 7/7/88, 3/24/94, 7/8/94, 8/14/95, and 11/30/95

Well I-78 (Bldg 1556)

Analyte	86 MCL	88 MCL	OEHL 11/23/83	Radian 1/22/86	OEHL 1/22/86	OEHL 3/11/86	OEHL 3/11/86 (Split)	OEHL 5/15/8
1,2 DCA		5	ND	ND	ND	4	3.5	ND
Benzene		5	ND	3.43	ND	ND	ND	ND
1,1,1 TCA		200	ND	ND	ND	1.7	1.8	1
Dichloro methane		5	ND	ND	ND	1.3	1.4	ND

- Non-Detects for sampling on 7/7/88 and 3/24/94
- Well plugged on 1/23/97

Well I-93 (Bldg 3010)

Analyte	86 MCL	88 MCL	Radian 1/22/86	OEHL 1/22/86	OEHL 3/11/86	OEHL 3/11/86 (Split)	Radian 4/16/86	OEHL 5/15/8
Lead	**50**	**15**	9	<20	--	--	--	ND
1,2 DCA		**5**	ND	ND	4.5	ND	ND	ND
Benzene		**5**	3.72	ND	ND	ND	ND	ND
1,1,1 TCA		**200**	ND	ND	2	ND	ND	ND
Dichloro methane		**5**	ND	ND	1.3	ND	ND	ND

- All ND for 7/7/88, 3/24/94, 3/10/95, 11/3/97, & 2/12/98 aside from chlorination/fluorination by-products

Well I-96 (Bldg 141)

Analyte	86 MCL	88 MCL	OEHL 11/23/83	Radian 1/31/86	OEHL 1/31/86	OEHL 3/11/86	OEHL 3/11/86 (Split)	Radian 4/16/86
Cu				15	69			
Pb	50	15		12	43			
Mg (mg/l)				13	15.1			
Mn				95	126			
Hg	2	2		0.9*	2.5			
Zn				99	235			
1,2-DCA		5	<0.3	ND	ND	4.2	ND	ND
1,1,1 TCA		200	ND	ND	ND	1.8	Trace	ND
1122 PCA			ND	0.08	ND	ND	ND	ND
Dichloro methane		5	0.5	ND	ND	1.6	ND	ND
Toluene		1000	ND	1.72	ND	Trace	ND	ND

Well I-96 (Bldg 141)

- Well out of operation since Oct 1984
- Well plugged Jun 1991
- Suspect contamination levels from Jan 86 are due to poor decontamination of sampling equipment and/or an IRP sample was switched with a drinking water sample

Well I-97 (Bldg 313)

Analyte	86 MCL	88 MCL	Radian 1/22/86	OEHL 1/22/86	OEHL 3/11/86	OEHL 3/11/86 (Split)	Radian 4/16/86	OEHL 5/15/86	TDH 7/7/88	TDH 9/23/8
1,1,1 TCA		200	ND	ND	2.1	ND	ND	ND	<1.0	<1.0
1,2 DCA		5	ND	43	3	2.1	ND	ND	<1.0	<1.0
Dichloro methane		5	ND	5	0.5	ND	ND	ND	<1.0	<1.0
TCE		5	ND	2.8	ND	ND	ND	ND	Trace	<1.0
PCE		5	0.34	0.6	ND	ND	0.12	ND	5.5	<1.0
Benzene		5	3.87	ND	ND	ND	ND	ND	<1.0	<1.0

- Suspect cross contamination between sampling equipment
- Well closed Jan 89, plugged Jun 91

Well I-124 (Bldg 314)

Analyte	86 MCL	88 MCL	Radian 1/22/86	OEHL 1/22/86	OEHL 3/11/86	OEHL 3/11/86 (Split)	Radian 4/16/86	OEHL 5/15/86
Benzene		5	3.37	ND	ND	ND	ND	ND
1,1,2-TCA		5	ND	ND	ND	ND	ND	ND
1,1,1 TCA		200	ND	ND	2.7	ND	ND	ND
Dichloro methane		5	ND	ND	2.1	ND	ND	ND

- Trace amounts of 1,2 DCA (<0.3) & PCE (<0.2) 11/23/83
- All ND for 7/7/88, 9/23/88, 3/24/94, and 2/12/98
- All Non-Detects for 2/1/90 with the exception of
  - 4.7 ppb 1112 PCA (not regulated)
  - 0.6 ppb 112 TCA (MCL = 5 ppb)
- Well plugged 21 June 98

Well I-123 (Bldg 1638)

Analyte	86 MCL	88 MCL	Radian 1/22/86	OEHL 1/22/86	OEHL 3/11/86	OEHL 3/11/86 (Split)	OEHL 5/15/86
Benzene		**5**	5.74	ND	ND	ND	ND
1,1,1 TCA		**200**	ND	ND	ND	2.5	<1.0
Dichloro methane		**5**	ND	ND	ND	2.4	ND
Toluene		**1000**	ND	ND	Trace	Trace	ND

- All Non-Detects for 7/7/88, 3/24/94, 8/14/95, 11/30/95, 11/03/97, and 2/12/98 sampling

Well I-77 (Bldg 1536)

Analyte	86 MCL	88 MCL	Radian 1/22/86	OEHL 1/22/86	OEHL 3/11/86	OEHL 3/11/86 (Split)	OEHL 5/15/86
Lead	**50**	**15**	13	<20	--	--	ND
Benzene		**5**	4.22	ND	ND	ND	ND
1,1,1 TCA		**200**	ND	ND	2.6	2.5	ND
Dichloro methane		**5**	ND	ND	1.7	2.3	ND
Toluene		**1000**	ND	ND	Trace	ND	ND

- All Non-Detects for 11/23/83, 4/15/85, 7/7/88, 12/01/93, 3/24/94, 3/10/95, 12/03/96, 11/03/97, and 2/12/98
  - Trace 1,2 DCA (<0.3) on 11/23/83

Summary

- Contamination levels detected in 1986 are most likely
  - Cross contamination between sampling/analytical equipment
  - Switched samples (wells 1044 & 141)
- Well 313 - single occurrence
- Kelly AFB wells have complied with the Safe Drinking Water Act requirements for VOCs, metals, & pesticides inclusive of
  - **1986 questionable well data**
  - **Well 313 incident**

Well I-124 (Bldg 314)

Analyte	86 MCL	88 MCL	Radian 1/22/86	OEHL 1/22/86	OEHL 3/11/86	OEHL 3/11/86 (Split)	Radian 4/16/86	OEHL 5/15/86
Benzene		5	3.37	ND	ND	ND	ND	ND
1,1,2-TCA		5	ND	ND	ND	ND	ND	ND
1,1,1 TCA		200	ND	ND	2.7	ND	ND	ND
Dichloro methane		5	ND	ND	2.1	ND	ND	ND

- Trace amounts of 1,2 DCA (<0.3) & PCE (<0.2) 11/23/83
- All ND for 7/7/88, 9/23/88, 3/24/94, and 2/12/98
- All Non-Detects for 2/1/90 with the exception of
  - 4.7 ppb 1112 PCA (not regulated)
  - 0.6 ppb 112 TCA (MCL = 5 ppb)
- Well plugged 21 June 98

Well I-123 (Bldg 1638)

Analyte	86 MCL	88 MCL	Radian 1/22/86	OEHL 1/22/86	OEHL 3/11/86	OEHL 3/11/86 (Split)	OEHL 5/15/86
Benzene		**5**	5.74	ND	ND	ND	ND
1,1,1 TCA		**200**	ND	ND	ND	2.5	<1.0
Dichloro methane		**5**	ND	ND	ND	2.4	ND
Toluene		**1000**	ND	ND	Trace	Trace	ND

- All Non-Detects for 7/7/88, 3/24/94, 8/14/95, 11/30/95, 11/03/97, and 2/12/98 sampling

Well I-77 (Bldg 1536)

Analyte	86 MCL	88 MCL	Radian 1/22/86	OEHL 1/22/86	OEHL 3/11/86	OEHL 3/11/86 (Split)	OEHL 5/15/86
Lead	**50**	**15**	13	<20	--	--	ND
Benzene		**5**	4.22	ND	ND	ND	ND
1,1,1 TCA		**200**	ND	ND	2.6	2.5	ND
Dichloro methane		**5**	ND	ND	1.7	2.3	ND
Toluene		**1000**	ND	ND	Trace	ND	ND

- All Non-Detects for 11/23/83, 4/15/85, 7/7/88, 12/01/93, 3/24/94, 3/10/95, 12/03/96, 11/03/97, and 2/12/98
  - Trace 1,2 DCA (<0.3) on 11/23/83

Summary

- Contamination levels detected in 1986 are most likely
  - Cross contamination between sampling/analytical equipment
  - Switched samples (wells 1044 & 141)
- Well 313 - single occurrence
- Kelly AFB wells have complied with the Safe Drinking Water Act requirements for VOCs, metals, & pesticides inclusive of
  - **1986 questionable well data**
  - **Well 313 incident**

Bullet Background Paper
on
TRS Presentation -- Kelly AFB Edwards Wells

BACKGROUND:

- At TRS on 25 Aug,, Mr. Rice distributed a handout showing results from samples collected from Edwards wells on Kelly AFB

- Mr. Rice was seeking support from the TRS to make a presentation on Edwards aquifer contamination at the Oct RAB

- TRS consensus was to present the information at the TRS first and if the TRS agreed, then proceed with a RAB presentation

- Mr. Rice stated he would present at the Oct RAB with or without TRS endorsement

- Recall that Mr. Rice is running for election to the Edwards Aquifer Authority -- he stated that he intends to get as much of the public and media as possible at the RAB to hear the "Edwards" presentation

-- Mary Kelly (JAV) called into question Mr. Rice's motive given this obvious conflict of interest

- Mr. Rice's stated purpose is to call into question the integrity of the Air Force

THE HANDOUT: Since the TRS, we know that:

- The data was actually given to Mr. Rice as a result of a recent FOIA request

- The data is from the SGB files -- SGB was running IRP in 1986

- The data is contained in a report that is in the public information repository (need to verify)

- Maj. Gargiulo, SGB, will provide more details on the data at the TRS

CONCLUSION:

- The possible outcome at the TRS is that Mr. Rice will not get TRS support to present at the RAB, but he will do so regardless

-- CV or TRS Chairman should make this clear at the RAB, if Mr. Rice decides to pursue -- Mr Rice is presenting as a member of the community, not as a TRS member

- Kelly (SGB and EM) will be prepared to rebut Mr. Rice in some fashion at the RAB, perhaps by use of a handout

Contaminants Found in Edwards Aquifer Wells on Kelly AFB

Kelly AFB Well ID (State ID)	Date Sampled	Contaminant	Concentration[1] (µg/l, ppb[2])	Remarks
Note: All data in this table was obtained from Kelly AFB through the Freedom of Information Act				
Bldg. 1044 (AY-68-36-713)	1/22/86	TCE	2.2	Out of service and abandoned December 1996
		PCE	0.2	
		1,2 DCA[3]	**36**	
		1,4 DCB[4]	**149**	(1) = average of 2 samples
		1,3 DCB	305	
		Benzene	0.5	
		Ethylbenzene	39	
		Chlorobenzene[5]	**435**	
	3/11/86	1,1,1 TCA[6]	1.0(1)	
		1,2 DCA	1.2	
Bldg.1638 (AY-68-36-805)	3/11/86	1,1,1TCA	2.5	
Bldg. 1556 (AY-68-36-806)	3/11/86	1,2 DCA	4.0	Out of service August 1995 Abandoned January 1997
		1,1,1 TCA	1.8	
	5/15/86	1,1,1 TCA	1.0	
Bldg. 3010 (AY-68-36-807)	3/11/86	1,2 DCA	4.5	
		1,1,1 TCA	2.0	
Bldg. 314 (AY-68-36-808)	3/11/86	1,1,1 TCA	2.7	Scheduled for replacement 1997
	2/1/90	1,1,1,2 PCA[7]	4.7	
		1,1,2 TCA	0.6	
Bldg. 313 (AY-68-36-809)	1/22/86	TCE	2.8	Out of service January 1989 Abandoned June 1991 Also known as Well #2
		PCE	0.6	
		1,2 DCA	**43**	
		Methylene - Chloride[8]	**5.0**	(1) = average of 2 values
	3/11/86	1,2 DCA	2.6 (1)	
		1,1,1 TCA	1.0 (1)	
	7/7/88		**5.5**	
Bldg. 141 (AY-68-36-810)	1/31/86	lead[9]	**43**	Out of service October 1984 Abandoned June 1991
		mercury[10]	**2.5**	
	3/11/86	1,2 DCA	2.1 (1)	(1) = average of 2 samples
		1,1,1 TCA	0.9 (1)	
Bldg. 1536 (AY-68-36-813)	3/11/86	1,1,1 TCA	2.6	

[1] Values in bold for concentrations that exceed maximum contaminant limit (MCL), the drinking water concentration set by regulatory agencies (e.g., EPA) to protect human health.
[2] µg/l, ppb; micrograms per liter, parts per billion, essentially equal in dilute solutions such as these samples
[3] DCA = dichloroethane, MCL 1,2 DCA = 5 µg/l
[4] DCB = dichlorobenzene, MCL 1,4 DCB = 75 µg/l
[5] Chlorobenzene, MCL = 100 µg/l
[6] TCA = trichloroethane, 1,1,1 TCA, MCL = 200 µg/l; 1,1,2 TCA, MCL = 5µg/l
[7] PCA = tetrachloroethane, No MCL
[8] Methylene Chloride, Dichloromethane, MCL = 5 µg/l
[9] lead action level = 15µg/l (88, 50 µg/l in 86)
[10] mercury MCL = 2 µg/l

	Well I66			I-78			I-93			I-96			J-97			I 123			J-124			J-77		
	B/1044 1/22/86	B/1044 3/11/86	B/1044 3/11/86 (SPLIT)	B/1556 1/22/86	B/1556 3/11/86	B/1556 3/11/86 (SPLIT)	B/3010 1/22/86	B/3010 3/11/86	B/3010 3/11/86 (SPLIT)	B/141 1/22/86	B/141 3/11/86	B/141 3/11/86 (SPLIT)	B/313 1/22/86	B/313 3/11/86	B/313 3/11/86 (SPLIT)	B/1638 1/22/86	B/1638 3/11/86	B/1638 3/11/86 (SPLIT)	B/314 1/22/86	B/314 3/11/86	B/314 3/11/86 (SPLIT)	B/1536 1/22/86	B/1536 3/11/86	B/1536 3/11/86 (SPLIT)
ANALYTE																								
ARSENIC	<10			<10			<10			<10			<10			<10			<10			<10		
CADMIUM	<10			<10			<10			<10			<10			<10			<10			<10		
CHROMIUM, TOTAL	<50			<50			<50			<50			<50			<50			<50			<50		
COPPER	<20			<20			<20			69			<20			<20			<20			<20		
LEAD	<20			<20			<20			43			<20			<20						<20		
MAGNESIUM (MG/L)	23.4			15.4			15.8			15.1			15.9			20						15.3		
MANGANESE	<50			<50			<50			126			<50			<50						<50		
MERCURY	<1			<1			<1			2.5			<1			<1						<1		
NICKEL	<50			<50			<50			<50			<50			<50						<50		
SELENIUM	<10			<10			<10			<10			<10			<10						<10		
ZINC	<50			<50			<50			235			<50			<50						<50		
BROMODICHLOROMETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.7	0.6	ND	ND	ND	0.5	0.5	ND	ND	ND	ND	ND	ND	ND
BROMOFORM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.5	5.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BROMOMETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CARBON TETRACHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-CHLOROETHYLVINYL ETHER	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROFORM	6.7	1	TRACE	21	1.7	1.4	10	1.7	TRACE	3.8	1.8	0.4	12	1	ND	16	3.3	2.7	17	ND	ND	4.5	ND	ND
CHLOROMETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DIBROMOCHLOROMETHANE	1.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.6	1.9	1.6	ND	ND	ND	0.8	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DICHLOROFLUOROMETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROETHANE	36	2.3	ND	ND	4	3.5	ND	4.5	ND	ND	4.2	ND	43	3	2.1	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-DICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
(TRANSL)-2-DICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROPROPANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CISL,3-DICHLOROPROPANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
(TRANSL)-1,3-DICHLOROPROPENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND		ND	ND	ND		ND
TRANS 1,3-DICHLOROPROPENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHYLENE CHLORIDE	3.8	1.1	ND	ND	1.3	1.4	ND	1.3	ND	ND	1.6	ND	5	0.5	ND	ND	ND	2.4	ND	2.1	ND	ND	1.7	2.3
1,1,2,2-TETRACHLOROETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHYLENE	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-TRICHLOROETHANE	ND	2.1	ND	ND	1.7	1.8	ND	2	ND	ND	1.8	TRACE	ND	2.1	ND	ND	ND	2.5	ND	2.7	ND	ND	2.6	2.5
1,1,2-TRICHLOROETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHYLENE	2.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROFLUOROMETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
VINLY CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BENZENE	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
CHLOROBENZENE	435	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
1,2-DICHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
1,3-DICHLOROBENZENE	305	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
1,4-DICHLOROBENZENE	149	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
ETHYLBENZENE	39	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
TOLUENE	ND	TRACE	ND	ND	ND	TRACE	ND	TRACE	TRACE	ND	TRACE	ND	ND	ND	ND	ND	TRACE	TRACE	ND	ND	ND	ND		

ND = None Detect. Less than the detection limit.

TRACE = Present, but quantity less than quantitative limit

2.2.5 Bexar Metropolitan Water Development

BMWD provided the record for wells and POEs located near Kelly AFB. Their records contain the most recent data, including the results from the sampling activities conducted in 1997.

2.2.6 Kelly AFB

Sampling results of on-base Edwards Aquifer water supply wells and related well location information were obtained from the base Civil Engineering and Bioenvironmental Engineering Services. The data covers the period from 1988 to 1997.

2.3 WATER QUALITY INVESTIGATION FINDINGS

Historical water quality data collected from USGS, EAA (including EUWD), TWDB, and BMWB were compiled. In addition, the data collected by AGUA were also included. AGUA is a coalition of concerned individuals and citizen groups working to preserve the Edwards Aquifer (AGUA 1994).

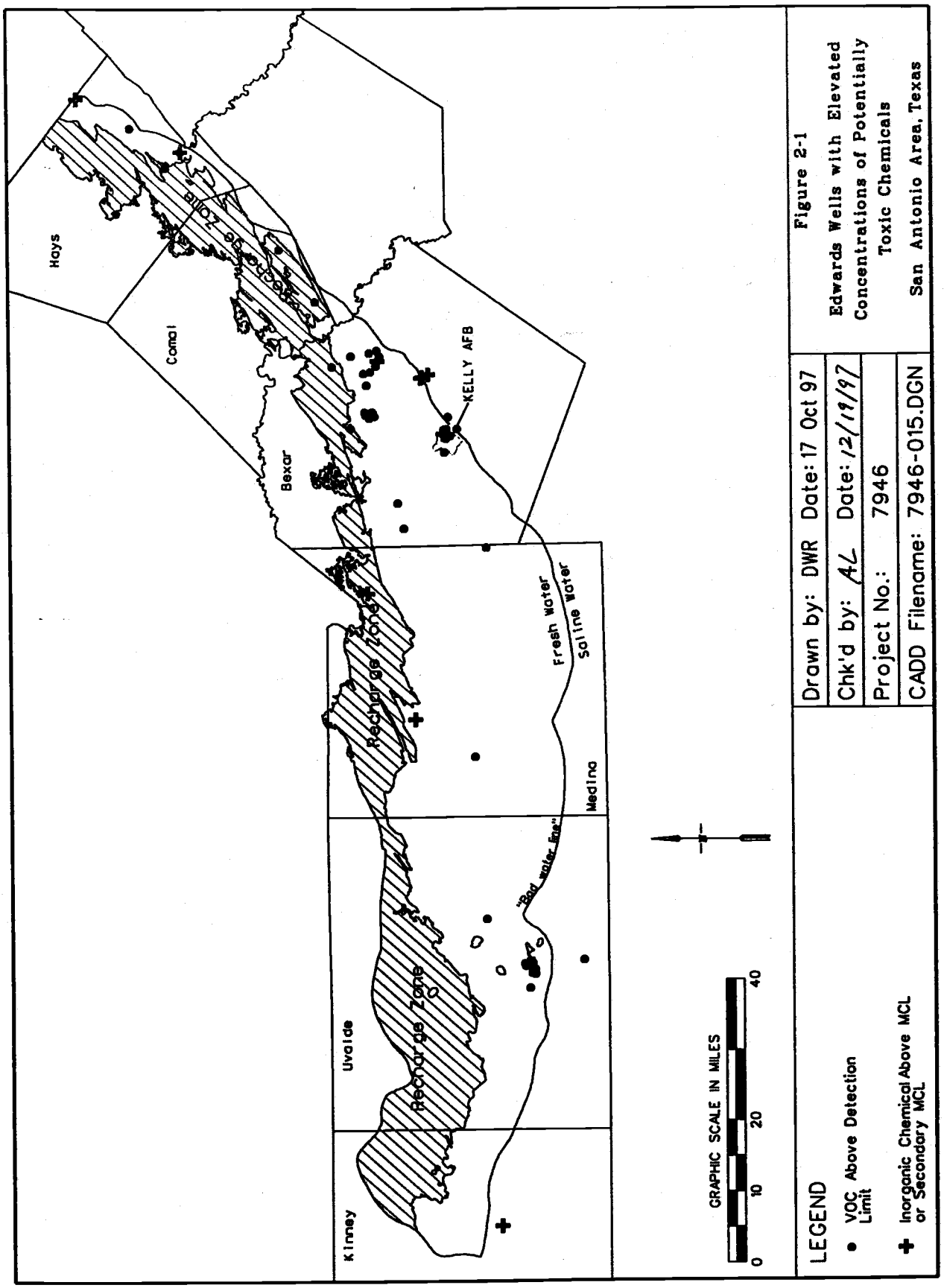
2.3.1 Contamination Found in Six Counties in South Central Texas

Water quality data collected from 1,687 Edwards Aquifer wells and POEs during 1934 through 1997 were screened to identify the inorganics above MCL or secondary MCL and VOCs above the detection limit. The frequency of detection for each county is summarized in Table 2-1. The location of the wells and POEs with potential water quality problems are presented in Figure 2-1 and Appendix A lists the 437 detections.

Table 2-1
Summary of Contaminant Detection in Edwards Aquifer Water Wells

County	Total Wells or POEs with Detection	Total Detections	Number of Inorganics Above MCL or Secondary MCL	Number of VOC Detections	Number of VOCs Above MCL
Bexar	65	307	26	281	21
Uvalde	20	58	0	58	45
Medina	4	15	6	9	0
Hays	4	51	4	47	1
Comal	2	5	0	5	0
Kinney	1	1	1	0	0
TOTAL	**96**	**437**	**37**	**400**	**67**

MCL - Maximum Contaminant Level POE - point of entry VOC - volatile organic compounds


Hays
Comal
Bexar
Uvalde
Medina
Kinney
KELLY AFB
Recharge Zone
Recharge Zone
Fresh Water
Saline Water
"Bad water line"
GRAPHIC SCALE IN MILES
0
10
20
40
LEGEND
VOC Above Detection Limit
Inorganic Chemical Above MCL or Secondary MCL
Drawn by: DWR Date: 17 Oct 97
Chk'd by: AL Date: 12/11/97
Project No.: 7946
CADD Filename: 7946-015.DGN
Figure 2-1
Edwards Wells with Elevated Concentrations of Potentially Toxic Chemicals
San Antonio Area, Texas

The most serious contamination occurred in Uvalde County during 1984 through 1991 and in north central Bexar County during the same period. Tetrachloroethylene (PCE) from 16 Uvalde County wells was detected above MCL, ranging in concentrations from 6 to 120 micrograms/liter (µg/L). The chlorinated solvent formed a plume in Edwards Aquifer around a cluster of wells in south central Uvalde County and remained in the aquifer for at least eight years. The source of this contamination is unclear. Because contaminants are usually rapidly buffered, as soon as they reach the Edwards Aquifer, a plume implies a large amount of contaminants were introduced into the aquifer. Unfortunately, many wells with high PCE and trichloroethylene (TCE) concentrations in 1986 and 1987, do not have water quality data collected after 1987. It is possible that these wells have already been abandoned. Some wells, such as YP-69-50-203, had detections in 1987 but none during the subsequent sampling in 1987 to 1991. EAA has not reported any TCE or PCE above MCLs in Uvalde County in the past five years.

The possible sources of contamination in Bexar County will be analyzed more closely in the next section. Figure 2-2 exhibits the detection frequency from late 1970s until present including VOCs above detection limits and inorganics above MCL or secondary MCL. The peak in 1986 is essentially caused by the detection of the chlorinated solvents, especially PCE and TCE in Uvalde and Bexar Counties. Most detections in late 1990s, however, are the residues of water treatment in water supply systems. The majority of the detections are trihalomethanes (THMs) that includes dichlorobromomethane, bromoform, chlorodibromomethane, and chloroform, formed by chemical interaction of chlorine (added for disinfection) with natural humic substances in untreated water.

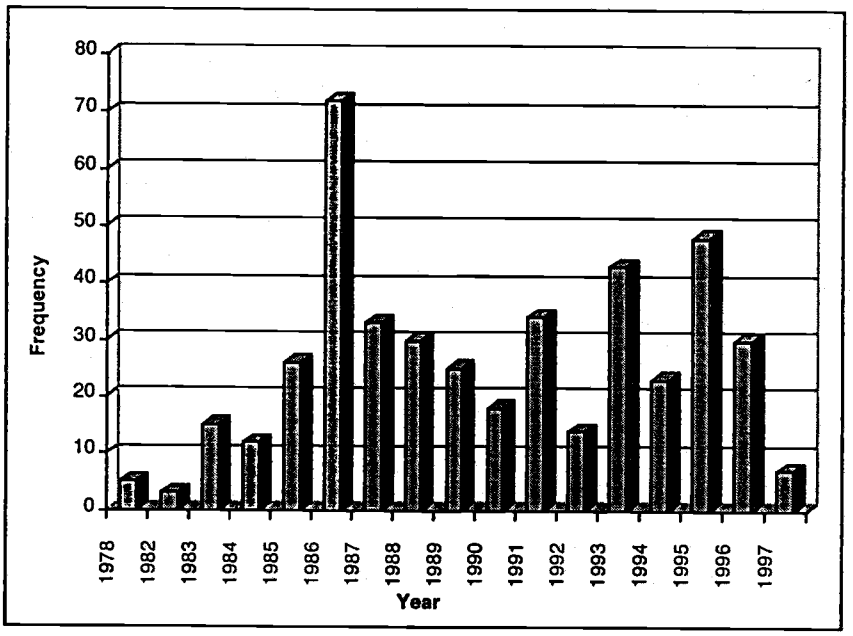


Figure 2-2
Frequency of Detection: Contaminants Detected in Edwards Wells and POEs Each Year During 1978-1997

Figure 2-3 shows the chemicals that were detected more than five times in the aquifer water samples during 1978 through 1997. The most frequently occurring VOCs are PCE and TCE. PCE and TCE are chlorinated solvents that are among the most common groundwater contaminants found in the United States. PCE and TCE are used as dry cleaning agents and degreasers in engine repair shops and in the manufacturing of electrical components. They are also used as fumigants, refrigerants, paint strippers, and household cleaners.

Most frequently detected inorganics are iron and manganese. They are naturally occurring elements. Elevated iron concentration occurred in central Bexar County, in both freshwater and saline water with Total Dissolved Solids (TDS) greater than 1,000 parts per million.

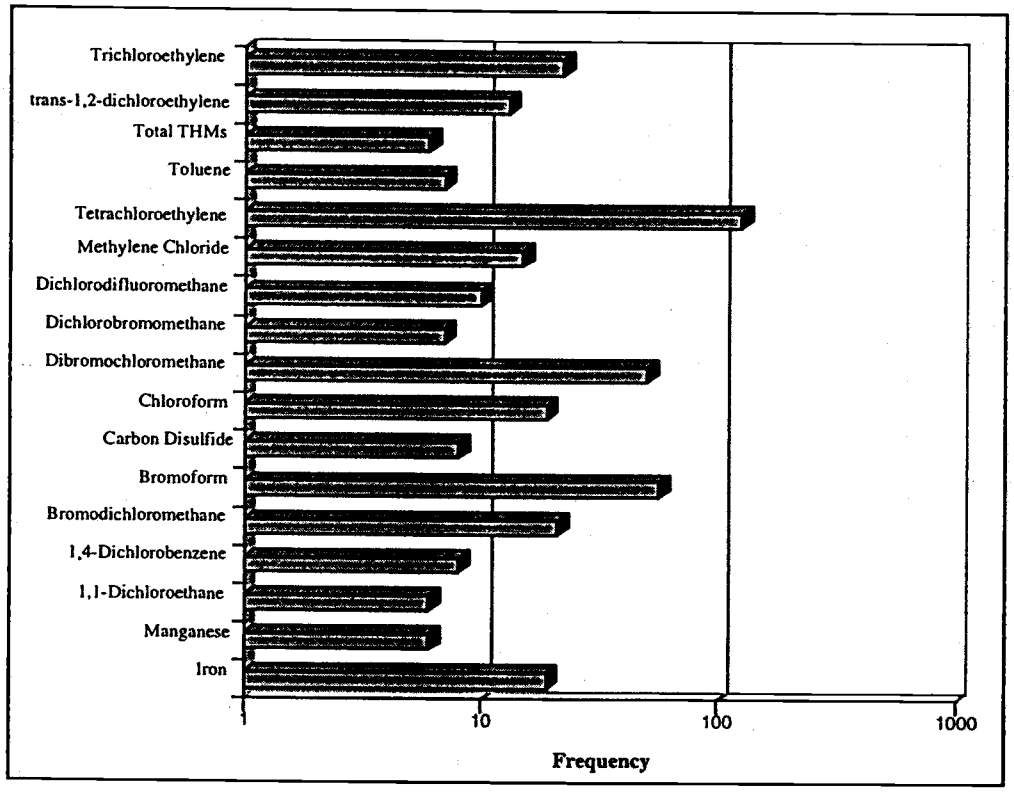


Figure 2-3
Frequency of Detection: Contaminants Detected in Edwards Wells and POEs More Than Five Times During 1978-1997

2.3.2 Contamination Found in Bexar County

Based on the water well listing published by SAWS, there are more than 1,100 wells that connect to the Edwards and associated limestones in Bexar County (SAWS 1994). The categories of the Edwards wells are shown in Figure 2-4. The majority of these wells are categorized as private domestic wells. Most of these wells are shown in the records of TWDB, USGS, EAA, and SAWS. The locations for 424 wells were obtained from TWDB database, 212 wells obtained from the USGS database, 179 wells obtained from the EAA, and 92 wells from SAWS. Excluding the wells recorded in more than one information source, information was collected on 696 wells. It should be pointed out that

an unknown number of wells drilled within Bexar County are undocumented. These would include private domestic and agricultural wells. Wells with potential contaminants are shown in Figure 2-5 and wells with specific chemicals above MCL are shown in Figure 2-6.

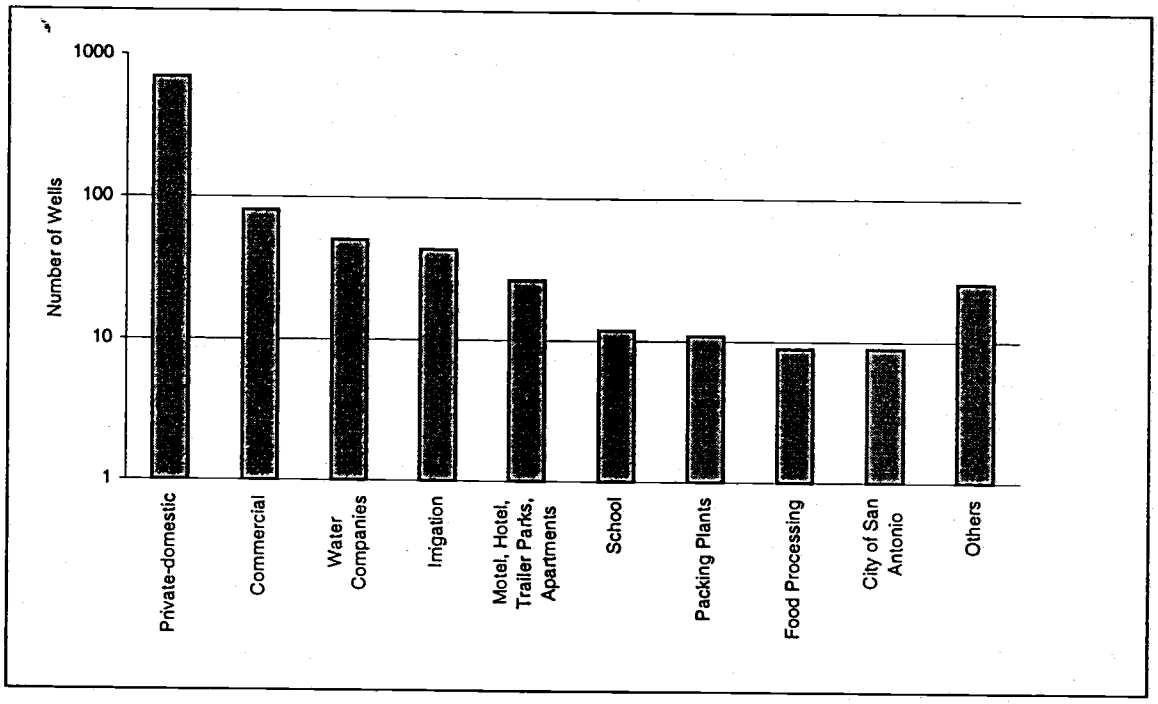


Figure 2-4
Categories of Edwards Aquifer Wells in Bexar County

The most common contaminants in Bexar County are VOCs, especially PCE and TCE. Iron and manganese were above secondary MCLs at several wells. Mercury, arsenic, and nitrate were sporadically detected above MCLs (Table 2-2 and Figure 2-6). No point source of these inorganic contaminants was reported. Several releases of organic contaminants from point sources in Bexar County were reported (Thompson and Hayes 1979, AGUA 1994).

Old Standard Industries Plant, NE Loop 410 and IH 35

Standard Industries is a company which produced lead-acid batteries for more than 40 years. The plant was closed in 1983. In 1984, soil at the plant site was found to be contaminated with lead and organics. The shallow aquifer below the former plant was highly contaminated with chlorinated solvents. Contaminants may have leaked into the Edwards Aquifer from this shallow aquifer through fractures, faults, or wells. The plant's industrial supply well (Well AY-68-29-911) that extended into the Edwards Aquifer was highly contaminated. One sample of this well contained 1,260 µg/L PCE and 2,140 µg/L TCE. PCE and TCE were also found in a public supply well near the plant (AY-68-29-920, Figure 2-6). Standard Industries is the possible source of these contaminants. Current status of these wells is not known.

Table 2-2
Contaminants Exceeding MCL: Bexar County Edwards Aquifer Wells

Well ID/POE	Latitude	Longitude	Location	Compound	Value	Unit	Year	Source	MCL*
6829925	29 30 55.0 N	98 23 52.0 W		iron	1,400	µg/L	1988	TWDB	300
AY-68-21-804	29 37 49.0 N	98 26 36.0 W		mercury	2.7	µg/L	1991	EAA	2
AY-68-28-903	29 32 07.0 N	98 30 44.0 W	Morey Peak	methylene chloride	5.9	µg/L	1984	USGS	5
AY-68-28-903	29 32 07.0 N	98 30 44.0 W	Morey Peak	tetrachloroethylene	5.5	µg/L	1982	BMWD	5
AY-68-28-904	29 31 34.0 N	98 30 34.0 W	Lockhill	methylene chloride	7	µg/L	1994	EAA	5
AY-68-28-918	29 32 20.0 N	98 30 55.0 W		tetrachloroethylene	9.9	µg/L	1986	USGS	5
AY-68-28-919	29 31 55.0 N	98 31 21.0 W	Military	methylene chloride	6	µg/L	1983	USGS	5
AY-68-28-920	29 32 28.0 N	98 30 36.0 W	W Avenue	tetrachloroethylene	9.2	µg/L	1984	USGS	5
AY-68-28-920	29 32 28.0 N	98 30 36.0 W	W Avenue	tetrachloroethylene	6.3	µg/L	1988	USGS	5
AY-68-29-210	29 36 11.0 N	98 25 44.0 W	Elm Rich	mercury	3.5	µg/L	1985	EAA	2
AY-68-29-911	29 30 59.0 N	98 23 52.0 W	Standard Industries	tetrachloroethylene	110	µg/L	1985	Standard Industries	5
AY-68-29-911	29 30 59.0 N	98 23 52.0 W	Standard Industries	tetrachloroethylene	83.8	µg/L	1986	Standard Industries	5
AY-68-29-911	29 30 59.0 N	98 23 52.0 W	Standard Industries	tetrachloroethylene	1,260	µg/L	1986	Standard Industries	5
AY-68-29-911	29 30 59.0 N	98 23 52.0 W	Standard Industries	trichloroethylene	210	µg/L	1985	Standard Industries	5
AY-68-29-911	29 30 59.0 N	98 23 52.0 W	Standard Industries	trichloroethylene	303	µg/L	1986	Standard Industries	5
AY-68-29-911	29 30 59.0 N	98 23 52.0 W	Standard Industries	trichloroethylene	2,140	µg/L	1986	Standard Industries	5

Table 2-2
Contaminants Exceeding MCL: Bexar County Edwards Aquifer Wells (cont.)

Well ID/POE	Latitude	Longitude	Location	Compound	Value	Unit	Year	Source	MCL*
AY-68-29-920	29 31 00.0 N	98 22 24.0 W	Windcrest	tetrachloroethylene	6.6	µg/L	1983	EAA	5
AY-68-29-920	29 31 00.0 N	98 22 24.0 W	Windcrest	tetrachloroethylene	8.6	µg/L	1983	EAA	5
AY-68-29-924	29 30 57.0 N	98 23 51.0 W	-	trichloroethylene	130	µg/L	1986	AGUA	5
AY-68-29-925	29 30 57.0 N	98 23 49.0 W	-	iron	1,400	µg/L	1988	USGS	300
AY-68-29-925	29 30 57.0 N	98 23 49.0 W	-	iron	1,000	µg/L	1991	USGS	300
AY-68-36-802	29 23 24.0 N	98 33 33.0 W	3238 Rose Lawn	thallium	0.0025	mg/L	1993	BMWD	0.002
AY-68-36-802	29 23 24.0 N	98 33 33.0 W	3238 Rose Lawn	thallium	0.0027	mg/L	1993	BMWD	0.002
AY-68-36-802	29 23 24.0 N	98 33 33.0 W	3238 Rose Lawn	thallium	0.003	mg/L	1993	BMWD	0.002
AY-68-36-802	29 23 24.0 N	98 33 33.0 W	3238 Rose Lawn	thallium	0.0033	mg/L	1993	BMWD	0.002
AY-68-36-803	29 23 19.0 N	98 32 59.0 W	150 Querida	methylene chloride	8	µg/L	1994	EAA	5
AY-68-36-803	29 23 19.0 N	98 32 59.0 W	150 Querida	methylene chloride	8	µg/L	1994	EUWD	5
AY-68-36-908	29 22 49.0 N	98 31 18.0 W	411 Carlisle	methylene chloride	7	µg/L	1994	EAA	5
AY-68-36-908	29 22 49.0 N	98 31 18.0 W	411 Carlisle	methylene chloride	7	µg/L	1994	EUWD	5
AY-68-37-523	29 25 05.0 N	98 25 40.0 W	-	manganese	60	µg/L	1987	USGS	50
AY-68-37-523	29 25 05.0 N	98 25 40.0 W	-	manganese	60	µg/L	1988	USGS	50
AY-68-37-524	29 25 46.0 N	98 26 00.0 W	-	iron	1,800	µg/L	1991	USGS	300
AY-68-37-524	29 25 46.0 N	98 26 00.0 W	-	iron	990	µg/L	1992	USGS	300
AY-68-37-524	29 25 46.0 N	98 26 00.0 W	-	iron	1,700	µg/L	1995	USGS	300
AY-68-37-525	29 25 46.0 N	98 26 00.0 W	-	manganese	60	µg/L	1990	USGS	50

Table 2-2
Contaminants Exceeding MCL: Bexar County Edwards Aquifer Wells (cont.)

Well ID/POE	Latitude	Longitude	Location	Compound	Value	Unit	Year	Source	MCL*
AY-68-37-526	29 25 56.0 N	98 26 07.0 W	-	iron	1,400	µg/L	1987	USGS	300
AY-68-37-526	29 25 56.0 N	98 26 07.0 W	-	iron	2,100	µg/L	1988	USGS	300
AY-68-37-526	29 25 56.0 N	98 26 07.0 W	-	iron	1,900	µg/L	1990	USGS	300
AY-68-37-526	29 25 56.0 N	98 26 07.0 W	-	iron	1,700	µg/L	1991	USGS	300
AY-68-37-526	29 25 56.0 N	98 26 07.0 W	-	iron	1,600	µg/L	1992	USGS	300
AY-68-37-526	29 25 56.0 N	98 26 07.0 W	-	iron	530	µg/L	1995	USGS	300
AY-68-37-526	29 25 56.0 N	98 26 07.0 W	-	manganese	52	µg/L	1990	USGS	50
AY-68-37-526	29 25 56.0 N	98 26 07.0 W	-	manganese	52	µg/L	1992	USGS	50
POE 001	-	-	304 W Market	nitrate (As N)	16	mg/L	1996	SAWS	10
POE 030	-	-	7721 Joe Newton	arsenic	0.0626	mg/L	1993	SAWS	0.05
POE 038	-	-	Naco #2	iron	367	µg/L	1995	SAWS	300
Well #313	29 22 33.0 N	98 33 46.0 W	Kelly AFB	tetrachloroethene	5.5	µg/L	1988	Kelly AFB	5

Notes:
AGUA - coalition of concerned individuals and citizen groups working to preserve the Edwards Aquifer
BMWD - Bexar Metropolitan Water Development
EAA - Edwards Aquifer Authority
EUWD - Edwards Underground Water District
MCL - maximum contaminant level
PCE - tetrachloroethylene
TCE - trichlorothylene
TWDB - Texas Water Development Board
µg/L - microgram/liter
USGS - U.S. Geological Survey

* Iron and manganese are secondary MCL.

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212-027-29

INSTALLATION RESTORATION PROGRAM
PHASE II - CONFIRMATION/QUANTIFICATION
STAGE 2

VOLUME 1 - TEXT
AND
VOLUME 2 - APPENDIX A-1

KELLY AFB, TEXAS 78241-5000

RADIAN CORPORATION
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February 1988

FINAL DATA REPORT FOR PERIOD 9/85 - 9/88

PREPARED FOR
HEADQUARTERS AIR FORCE LOGISTICS COMMAND
COMMAND SURGEON'S OFFICE (HQ AFLC/SGPB)
BIOENVIRONMENTAL ENGINEERING DIVISION
WRIGHT-PATTERSON AFB, OHIO 45433-5001

UNITED STATES AIR FORCE
OCCUPATIONAL & ENVIRONMENTAL HEALTH LABORATORY (USAFOEHL)
BROOKS AIR FORCE BASE, TEXAS 78235-5501

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Site FC-2 Fire Control Training Area (Location B-5; Figure 1, p. ES-3)

Potential contaminants associated with fire training exercises at this site are the same as described for Site FC-1; mainly waste POL, JP-4 and AFFF. To evaluate the environmental consequences of past fire control training exercises, three monitor wells were installed and sampled, and soil samples were collected from three shallow boreholes during Phase II Stage 2 field activities (see Section 4.3.21).

The analytical results from two rounds of groundwater sampling are provided in Tables 4-49 and 4-50. Groundwater samples showed the following ranges of contamination: volatile halocarbons - not detected (ND to 21 ug/L (chlorobenzene in well FC-2-2); volatile aromatics - ND to 2400 ug/L (benzene in well FC-2-2); and priority pollutant metals - ND to 0.35 mg/L (chromium in well FC-2-2). Results of analysis for miscellaneous organic parameters (phenols, petroleum hydrocarbons and TOC) were uniformly low.

Concentration ranges for contaminants analyzed in soil samples were as follows: volatile halocarbons - detected only in the shallow (1 to 2 foot) sample from boring FC-2-3 (0.016 mg/Kg); volatile aromatics - none detected; and petroleum hydrocarbons - 250 mg/Kg to 10,000 mg/Kg (shallow sample from boring FC-2-1) and 320 mg/Kg to 1300 mg/Kg (4 to 5 foot sample from boring FC-2-2).

Base Production Wells (BPW) (Location - Figure 3 p. ES-7)

Eight of the existing base production wells were sampled in the IRP Phase II Stage 2 study (see Section 4.3.22). These wells draw potable water from the Edwards Aquifer.

Benzene was reported in seven samples collected in January 1986 at concentrations ranging from 3.4 to 5.7 ug/L. Five of these wells were resampled for volatile organics in April using a specialized sampling attachment

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that eliminates the possibility of cross-contamination. No benzene was detected in any of these samples nor in those collected in a follow-up sampling round conducted by Kelly AFB, independent of the IRP effort. Metals concentrations in the single set of Stage 2 samples analyzed were all below drinking water MCLs (see Table 4-52 and 4-53 for a summary of analytical results).

The singular occurrence of benzene in the BPW samples was probably an artifact of the sampling and field decontamination procedures used for the first sampling effort only. There is no evidence that the detected benzene was associated with any past waste disposal site or base facility at Kelly AFB.

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specified that the height of the sandpack should be five feet above the top of the screen. However, in order to ensure an adequate and complete grout seal, considering the generally shallow water table, Radian recommended and USAFOEHL accepted that this be revised to two feet. This modification was included in the approved TOP.

Well Development

Because of the shallow occurrence of groundwater and the small standing water volumes, wells were developed by hand bailing with a 1.1 liter, Teflon, ball-valve bailer. Wells were developed by a Radian hydrogeologist. Development was complete when three wetted well volumes of water were removed, and the pH and conductivity of the groundwater had stabilized, or the well was bailed to dryness. Table 3-3 summarizes purged volumes and groundwater conditions following development.

3.1.3 Sampling Procedures

During Phase II Stage 2 field activities at Kelly AFB, Radian project personnel collected samples of soil, bottom sediment, groundwater, surface water and aquatic flora in accordance with procedures described in the TOP. Decontamination protocols were strictly observed; all sampling equipment was thoroughly decontaminated between samples to reduce the potential for cross-contamination. Additionally, the daily sampling sequence proceeded from areas of lower to higher suspected levels of contamination. Routine decontamination procedures consisted of: 1) tap water rinse, 2) detergent wash, 3) tap water rinse, 4) methanol rinse, and 5) distilled water rinse. In addition, the glass vessel used to transfer water samples to sample containers was "self-contaminated" with well water or surface water before actual sample capture. Splits of all samples were provided to USAFOEHL, as required by the Statement of Work. The specific field sampling techniques and equipment used in the Phase II Stage 2 effort are described in the following sections.

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Water Level Determination (Monitor Wells Only)

As the first step of groundwater sampling operations at each monitor well, a water level measurement was taken with an electric water-level probe (E-line). The line was calibrated to an accuracy of ±0.1 foot against a steel measuring tape prior to use. The probe and associated electrical line were washed with detergent and tap water, then rinsed with methanol and deionized water after each use to prevent cross-contamination. All measurements were taken to the nearest 0.01 foot with respect to a measuring point permanently marked on the top of the PVC casing. The elevation of each measuring point was professionally surveyed to an accuracy of 0.01 foot from a nearby benchmark (see Section 3.1.6, Surveying).

Synoptic water level measurements were obtained from IRP monitor wells during two gauging events. These events occurred on 15 April and 8 July 1986, and reflect "dry" and "wet" seasonal conditions, respectively. The second synoptic water level survey was initially attempted on 17 June 1986, but heavy rains and associated flooding prevented access to all wells. The April and July synoptic groundwater elevations are tabulated by site in Section 4.

Sample Capture and Preservation

After each monitor well was purged of three wetted casing volumes of water to ensure representative groundwater characteristics, a sample was collected and split into the analytical aliquots required by the Statement of Work. Monitor wells were purged and samples collected with a clean 1.1 liter Teflon, bottom-fill, ball-valve bailer. Samples were poured from the bailer into a glass vessel and acidified, if required, before transfer to the sample container.

Groundwater samples from the seven active BPWs were collected before the chlorination point. Pumps that had not been running for at least 20 minutes before sampling were turned on and allowed to purge the well of

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standing water for approximately 30 minutes. The sample was then collected at the tap in a clean glass vessel from which it was transferred to the appropriate sample containers. During the second round of BPW sampling, EPA Methods 601 and 602 samples were placed directly into 40 ml glass vials with a special tap attachment that was baked before use. This apparatus reduced sample aeration and eliminated the possibility of cross-contamination.

One inactive production well (I-96) was sampled. The pump had been removed, allowing direct access to the well through a hole in the floor of the pumphouse. Samples from this well were obtained from a depth of approximately 50 feet below the water surface with a clean Kemmerer bottle.

All aspects of the groundwater sampling protocol were conducted in accordance with the provisions of the approved TOP. A summary of sample collection and preservation techniques and sample holding times appears in Appendix J, Tables 2-2 and 2-1, respectively. All groundwater samples were kept on ice in the field and were shipped packed in blue ice via overnight air express to Radian Analytical Services (RAS). Appendix E contains the sampling schedule for groundwater. Analytical results are discussed by site in Section 4.

3.1.3.4 Surface Water Sampling

Surface water samples were collected at Site E-2 and at the odd-numbered sediment sampling points along Leon Creek (LC-1, -3, -5, -7, -9, -11). A composite sample was prepared from four grab samples collected at approximately equidistant points in the pond that occupies the site of the former oil evaporation pit (E-2).

Where water depth in Leon Creek allowed, a stratified surface water sample was collected in a clean Kemmerer bottle near the stream axis. At points where the creek was too shallow to use the Kemmerer bottle, a grab surface water sample was collected in a clean glass container. Sample handling procedures were as previously described for groundwater samples (Section 3.1.3.3).

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4.3.22 Base Production Wells (BPW)

The nine existing base production wells at Kelly AFB were included in the Phase II Stage 2 investigation. They were not sampled in the preceding Stage 1 study. One round of samples was scheduled to be collected and analyzed for volatile halocarbons and aromatics (EPA Methods 601 and 602) and for total metals. Figure 4-21 shows the locations of these wells.

4.3.22.1 Results of Investigation

At present, Kelly AFB draws groundwater from seven base wells, all of which are completed in the Edwards Aquifer. Base wells were constructed individually and are not arranged in a well field. Depths of base wells presently in service range from 1,030 feet (I-78) to 1,677 feet (I-66), as listed in Table 4-51. Information collected between 1934-1955 indicates historical water levels in the Edwards averaged 60 feet below land surface (Engineering-Science, 1982). One capped well (I-94) could not be sampled during Phase II Stage 2 activities because of pressure that had built up while the well was inactive.

Because the Edwards is a limestone aquifer and is highly permeable due to faulting, jointing, fracturing, and solutioning, it is highly susceptible to contamination in the recharge zone. Kelly AFB is located about 30 miles south and downdip (i.e., down the formational slope) of the outcrop (recharge) area of the Edwards Aquifer. Because the Edwards lies at significant depths below Kelly AFB, and because vertically extensive confining layers lie between the shallow alluvial aquifer system and the Edwards Formation, contamination of this sole source aquifer by downward infiltration of contaminants originating from base operations is unlikely. However, inadequately completed or abandoned wells could act as conduits for direct migration of contaminants in the shallow groundwater into the Edwards Aquifer. A well inventory, containing all available information on historical and existing Edwards wells located on Kelly AFB appears in Appendix H.

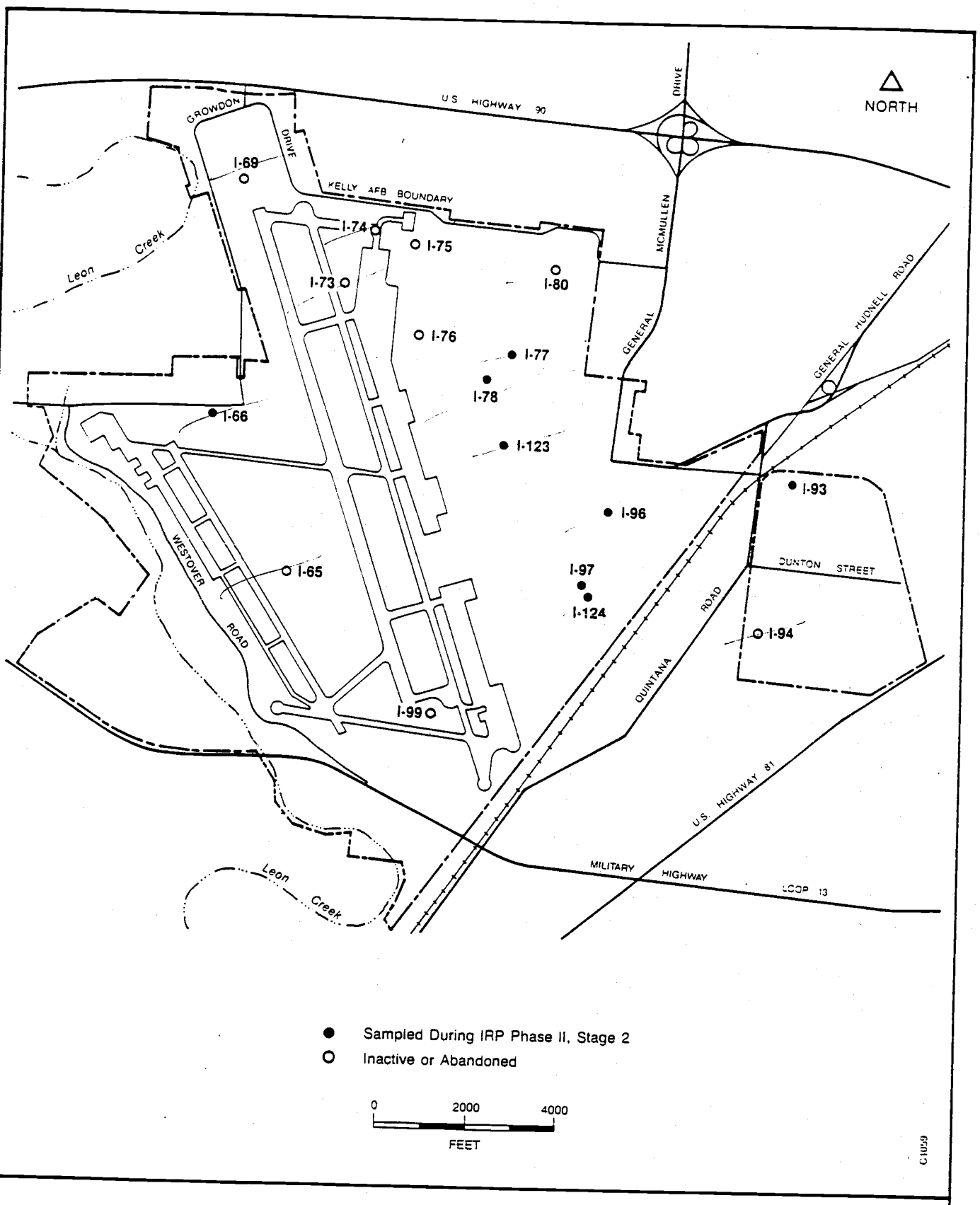

Figure 4-21. Locations of Base Production Wells, Kelly AFB, Texas

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TABLE 4-51. SUMMARY OF BASE PRODUCTION WELL CONSTRUCTION DATA*, KELLY AFB, TEXAS

Well Designation	Location (Building)	Internal Diameter (in)	Depth (ft)	Depth to Aquifer (ft)	Yield (1978) (GPM)
I-66	B-1044	10	1,677	1,138	315
I-78	B-1556	13 5/8	1,030	INA	501
I-93	B-3010	12	1,120	1,090	1,657
I-96	B-141	10	1,400	1,040	916
I-97	B-313	10	1,595	1,054	1,012
I-123	B-1638	18	1,632	1,067	1,012
I-124	B-314	16	1,608.5	INA	984
I-77	NA 1536	9 5/8	1,042	1,026	INA

SOURCE: Engineering-Science, 1982.
*Wells presently in service.
INA = Information Not Available.
NA = Not Applicable. Well is located 1.15 miles from northeast corner of Roselawn Cemetery.

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Seven of the existing nine BPWs were sampled on 22 January 1986. Well I-96 was sampled on 31 January 1986, but an attempt to sample well I-94, which has reportedly been sealed for over 30 years, was unsuccessful. During the attempt to remove the bolted cover plate, hydraulic pressure forced water through the gasket before all the bolts could be removed. The sampling attempt was then abandoned and the well was re-sealed. The BPW sample collection and handling procedures are described in Section 3.

Benzene was detected, at concentrations ranging from 3.4 to 5.7 ug/L, in samples from seven of the BPWs sampled on 22 January 1986. Because of the potentially serious implications of these findings, five of the wells were selected for resampling and analysis by EPA Methods 601 and 602.

The resampling effort was conducted on 16 April 1986 with baked VOA samplers that attached to the spigot and allowed delivery of the samples directly into specially cleaned vials. This apparatus eliminates the possibility of introducing extraneous contaminants associated with non-dedicated sampling equipment. No acid was used to preserve the EPA Method 602 samples, thus eliminating the only remaining potential source of cross-contamination. Benzene was neither detected in any of these samples nor in the trip or field blanks.

Independent of the IRP efforts, another set of samples was collected from BPWs I-66, I-77, I-78, I-93, I-97, I-123 and I-124 in mid-May as part of the Kelly AFB Groundwater Assessment Program. Volatile organic compounds were among the parameters analyzed in these samples.

All volatile organics detected by EPA Method 601 and 602 (including Kelly AFB sampling data) are summarized in Table 4-52. Inorganic results from the IRP samples collected in January are summarized in Table 4-53. Complete lab reports for analyses performed as part of the IRP Phase II Stage 2 effort appear in Appendix A-1.

TABLE 4-52. SUMMARY OF ORGANIC CONTAMINANTS DETECTED IN GROUNDWATER SAMPLES FROM BASE PRODUCTION WELLS, KELLY AFB, TEXAS; IRP PHASE II STAGE 2 AND KELLY AFB SUPPLEMENTAL DATA

Method/Parameter	Method Detection Limit	Well No./Sampling Round[a]											
		I-66			I-77			I-78			I-93		
		II-2A	II-2B	III	II-2A	II-2B	III	II-2A	II-2B	III	II-2A	II-2B	III
EPA Method 601 (ug/L)[b]													
Concentration Factor		1	1	NR	1		NR	1		NR	1	1	NR
Tetrachloroethylene[+]	0.03	ND	ND	ND	ND	NA	ND	ND	NA	ND	ND	ND	ND
Trichlorofluoromethane	0.4	ND	ND	ND	ND	NA	ND	ND	NA	ND	ND	ND	ND
Trichloroethylene	0.12	ND	ND	ND	ND	NA	ND	ND	NA	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane[+]	0.03	ND	ND	ND	ND	NA	ND	ND	NA	ND	ND	ND	ND
1,1,1-Trichloroethane		ND	ND	ND	ND	NA	ND	ND	NA	1.0	ND	ND	ND
EPA Method 602 (ug/L)[b]													
Concentration Factor		1	1	NR	1		NR	1		NR	1	1	NR
Benzene	0.2	3.6	ND	ND	4.2	NA	ND	3.4	NA	ND	3.7	ND	ND
Toluene	0.2	ND	ND	ND	ND	NA	ND	ND	NA	ND	ND	ND	ND

[a] II-2A Phase II Stage 2 Round 1; II-2B Phase II Stage 2 Round 2; III sampling conducted by Kelly AFB on 15-16 May 1986 as part of the base Groundwater Assessment Program.

[b] Compounds not listed were not detected. Sample detection limits are the method detection limit times the concentration factor. Method detection limits are found in Tables 1-5 and 1-6.

ND = Not detected.

NA = Not analyzed.

NR = Not reported.

+ Value less than 5 times the detection limit.

[+] 1,1,2,2-Tetrachloroethane and tetrachloroethylene co-elute.

(Continued)

TABLE 4-52. (Continued)

Method/Parameter	Method Detection Limit	Well No./Sampling Round[a]										
		I-96		I-97			I-123			I-124		
		II-2A	II-2B	II-2A	II-2B	III	II-2A	II-2B	III	II-2A	II-2B	III
EPA Method 601 (ug/L)[b]												
Concentration Factor		1	1	1	1	NR	1		NR	1	1	NR
Tetrachloroethylene[†]	0.03	ND	ND	0.34	0.1*	ND	ND	NA	ND	ND	ND	ND
Trichlorofluoromethane	0.4	0.5*	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND
Trichloroethylene	0.12	0.1*	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane[†]	0.03	0.08*	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND
EPA Method 602 (ug/L)[b]												
Concentration Factor		1	1	1	1	NR	1		NR	1	1	NR
[redacted]	0.2	ND	ND	3.9	ND	ND	5.7	NA	ND	3.4	ND	ND
Toluene	0.2	1.7	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND

[a] II-2A Phase II Stage 2 Round 1; II-2B Phase II Stage 2 Round 2; III sampling conducted by Kelly AFB on 15-16 May 1986 as part of the base Groundwater Assessment Program.

[b] Compounds not listed were not detected. Sample detection limits are the method detection limit times the concentration factor. Method detection limits are found in Tables 1-5 and 1-6.

ND = Not detected.
NA = Not analyzed.
NR = Not reported.
* Value less than 5 times the detection limit.
† 1,1,2,2-Tetrachloroethane and tetrachloroethylene co-elute.

TABLE 4-53. SUMMARY OF METALS CONCENTRATIONS IN IRP PHASE II STAGE 2 GROUNDWATER SAMPLES FROM BASE PRODUCTION WELLS, KELLY AFB, TEXAS

Parameter (mg/L)	Analytical Technique[a]	Method Detection Limit	Well No. I-66	I-77	I-78	I-93	I-96	I-97	I-123	I-124
Ag	E	0.002	0.002*	0.004*	0.005*	0.003*	0.003*	0.01*	0.003*	0.002*
Al	E	0.05	ND	ND	ND	ND	ND	ND	ND	ND
As	GA	0.002-0.005	ND	ND	ND	ND	ND@	ND	ND	ND
Co	E	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Cr	E	0.001-0.005	ND	ND	ND	ND	ND	ND	ND	ND
Cu	E	0.001	0.002*	ND	ND	0.002*	0.015	0.001*	ND	ND
Hg	CA	0.0002	ND	0.0005*	0.0002*	ND	0.0009*	ND	0.0003*	0.0002*
Mg	E	0.01	19	12	11	12	13	13	15	13
Mn	E	0.001	ND	ND	ND	ND	0.095	0.001*	ND	ND
Ni	E	0.003	ND	ND	ND	ND	ND@	ND	ND	ND
Pb	GA	0.003	0.01*	0.01*	0.01*	0.009*	0.01*	0.009*	0.01*	0.01*
Se	GA	0.002-0.006	0.004*	0.005*	ND	ND	ND@	ND	ND	ND
Zn	E	0.003	0.026	0.005*	0.050	0.009*	0.099	0.006*	ND	0.004*

[a] E = ICPES.
GA = Graphite furnace AA.
CA = Cold vapor AA.

* Value less than 5 times the detection limit.
@ Spike recovery not within acceptable limits. Indicates interferent.
ND = Not detected.

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4.3.22.2 Discussion

Benzene was detected at concentrations varying from 3.4 to 5.7 ug/L in seven of the eight BPWs sampled in the first round. Benzene was not detected in the first round sample from I-96, nor in any of the BPW samples collected subsequently.

There are several possible explanations for the non-reproducibility of the benzene results: anomalous introduction of benzene to the samples before analysis (i.e., field or laboratory contamination); analytical error (i.e., instrument malfunction or operator error); or real, measurable differences in the groundwater chemistry at the various sampling times. The identification of benzene in the samples has potential human health and environmental implications only if the third explanation applies. However, the explanation involving anomalous introduction of benzene to the groundwater samples is the most likely possibility.

Sample contact with incompletely decontaminated sampling equipment is the most likely mechanism for field contamination; however, the only collection equipment that contacted the samples in which benzene was detected consisted of a graduated glass vessel and a glass stirring rod. These items were decontaminated in strict accordance with procedures detailed in the approved Technical Operations Plan (TOP): tap water rinse; detergent wash; tap water rinse; methanol rinse; and distilled water rinse before collection of each sample. The glass vessel was also self-contaminated with well water just before sample capture.

The glass vessel was used as an intermediate container so that adjustment to pH <2 with hydrochloric acid (HCl) could be confirmed. This pH adjustment which extends the sample holding time to 14 days, is required by EPA Method 602 if the sample might not be analyzed within seven days from the time of collection.

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During the first sampling event field blanks were not collected at the BPWs to document the level of decontamination achieved. However, the trip blank that accompanied the BPW samples through collection and shipment was clean.

Although field blank data are lacking, part-per-billion (ppb) levels of benzene may have persisted through the multiple cycles of decontamination that occurred during the 22 January sampling event. A review of the sampling log reveals that a highly contaminated groundwater sample was collected from monitor well SS at the Green Worm Spill site on the previous day. Benzene was one of the principal contaminants in that sample.

Although the decontamination procedures outlined in the TOP and used by Radian in the Stage 2 effort are consistent with EPA protocol for sampling volatile organic compounds in monitor wells associated with hazardous waste sites, the irreproducibility of the data suggests that a more rigorous approach may be necessary to accurately assess the presence of these compounds in drinking water supplies.

The specially-designed VOA samplers used to collect the follow-up samples are constructed of brass and copper and were baked at 400°C for 15 to 30 minutes before use. This procedure, currently used by the U.S. Geological Survey to evaluate groundwater quality in the Edwards Formation and other drinking water aquifers (G. Ozuna, verbal communcation), ensures that any residual organic compounds from previous sampling events are driven off. When this apparatus was used to collect samples from the BPWs, no benzene was detected and only one volatile organic compound (1,1,1-trichloroethane) was detected at a concentration of 1 ug/L in a single sample from well I-78.

A review of available QA/QC documentation has eliminated other potential sources of cross-contamination and analytical error. Sample chromatographs were reviewed and verified, and no volatile organic compounds were detected in the system and reagent blanks run on the same day as the

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first set of BPW samples. The reagent grade HCl used to preserve the volatile aromatics (EPA Method 602) samples in January, but not subsequently, was the only known introduced source of possible contamination; however, a sample of the acid was analyzed and no volatile aromatic compounds were detected.

Most of the available evidence suggests that the singular occurrence of benzene in the BPW samples was an artifact of the sampling and field decontamination procedures used.

TABLE F-7. BASE PRODUCTION WELLS - 2 ROUNDS OF SAMPLING

Radian No.	Base Bldg. No.	Temperature (C°)	pH	Conductivity (umhos)	Remarks
First Round (1/22/86)					
I-66[1]	1044	26.0	6.9	540	
I-77[1]	1556	24.5	6.6	500	
I-78[1]	1536	25.0	6.7	500	
I-93[1]	3010	26.5	6.8	490	
I-94[1]	3660	--	--	--	Unable to access
I-96[1]	141	23.0	6.6	430	Open well-pump removed
I-97	313	25.0	6.8	480	
I-123[2]	1638	26.5	7.0	500	
I-124	314	26.0	6.6	480	
Second Round[3] (4/16/86)					
I-66	1044	--	7.2	580	
I-93	3010	--	7.2	510	
I-96	141	--	7.2	360	
I-97	313	--	7.2	510	
I-124	314	--	7.0	510	

[1] Sampled 1/31/86.
[2] Not selected for second round sampling.
[3] Temperature not measured due to broken thermometer.

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

31 Aug 98

SA-ALC/EMC
307 Tinker Drive, Building 306
Kelly AFB, TX 78241-5917
Account ID No. BG-0108-F

Mr. Gordon Banner
TNRCC (MC-127)
P.O. Box 13087
Austin, TX 78711-3087

Re: System 1592 JP-8 Emissions Study

Dear Mr. Banner

In accordance with a request from the Technical Review Subcommittee of Kelly AFB's Restoration Advisory Board, I have attached the subject document. If you have any questions concerning the document, please contact me by phone at (210) 925-3100, ext. 207 or by e-mail at bfitz@emgate1.kelly.af.mil.

Sincerely

BRIAN M. FITZGERALD, Lt, USAF, BSC
Chief, Environmental Compliance Team

Attachment:
System 1592 JP-8 Emissions Study

cc:
SA-ALC/EMR (Maj de Venoge)

Technical Review Subcommittee (TRS)
After Action Report

The TRS met on 22 Sep 98, from 1830 to 2215 hours, in the Garni Science Hall, St. Mary's University.

Administrative Note: The meeting was scheduled to start at 1830. When Kelly representatives arrived at the TRS and entered the meeting room, they were asked to leave. A special meeting with the regulators (EPA and TNRCC), TRS (except Kelly members), community, and some RAB members was in session – a session to which Kelly was not invited and told not to enter in on. At 1840, Maj de Venoge and Mary Kelly entered the TRS meeting room to request the start of the TRS.

Members of the regulatory community later informed Kelly staff of the subject matter, which included the following:

- DOJ questions
- EPA Involvement in the TRS
- Questions on Zone 3 – additional sampling
- Questions on Edwards data

Recommendation: CV discuss with Mary Kelly and then Damian Sandoval. We are not certain as to the purpose of excluding the AF from the discussion. This type of practice does not foster an atmosphere of trust. Furthermore, using a closed-door session of the TRS to inquire about DOJ is disturbing given the lawsuit.

Industrial Water Leak: The IWCS talking paper and map were handed out. Questions were raised as to why the RAB was not notified. Discussion ensued about what was and was not "reportable". Damian indicated that CV said that all spills would be phoned to the RAB (at our meeting last week). That was not my understanding – just the talker on the AFFF "spill" (which was handed out).

Need clarification from CV as to what types of spills we should provide RAB notification. The RAB charter indicates a "reportable" spill. Because neither the IWCS nor the AFFF incident were reportable quantity (RQ) spills, this would mean the RAB would not require notification. TNRCC provided support on the Kelly position during this part of the discussion. Signing up to notify (by phone) the RAB of all spills will be difficult to implement for the staff. Although we have been proactive by agreeing to notify the RAB of RQ spills, this is inadequate for Mr. Quintanilla. We need to discuss a solution because he will raise the issue again at the RAB. One possible solution may to say that we will use our discretion in reporting anything that is not an RQ spill.

Mr. Rice asked for data on additional IWCS spills. I inquired as to the purpose of providing such information – I also commented that the TRS was spending too much time on non-restoration issues and generating too much work for Kelly staff to adequately respond. We (Kelly) spend a lot of time responding to questions and inquiries (from Rice and Quintanilla) that are of no value to AF or solicitation of valuable community participation in restoration activities.

Edwards Well Contamination Presentation: George Rice handed out information on Edwards well contamination. Mr. Rice's stated two-fold purpose for the briefing was to:

- provide information to the public
- explain how "the Air Force has been fundamentally dishonest in keeping this information from the citizens"

Before Mr. Rice started, Mary Kelly asked Mr. Rice to clarify to the TRS that he was running for the EAA (Edwards Aquifer Authority) Board.

Mr. Rice reviewed information he handed out last TRS and also information surrounding the well 313 incident. He called into questions statements made by AF representatives regarding the Edwards aquifer.

Edwards Well Contamination Presentation: Maj. Gargiulo provided a factual, data-based response to Mr. Rice's presentation. The TRS requested a copy of his presentation.

Following these two presentations, the TRS agreed that the discussion should go forward to the RAB. Dr. Lene informed Mr. Rice that he should make clear at the RAB that the accusation that the Air Force has been lying should be stated as his personal opinion, not that of the TRS. Previously, at the last TRS, Mr. Rice's stated purpose was to "call into question the integrity of the Air Force".

Zone 4 Plume: KAFB reviewed the maps from the latest phase of the investigation of the zone 4 off base plume. This was essentially the same information as presented at the special RAB meeting.

TAPP Discussion: Randi Audelo from AFBCA walked the TRS through the 3 contractors for TAPP services. The TRS (with the exception of Kelly participation) decided on contractor selection for tasks developed previously by the TRS.

Subsidence Study: A copy of the July 1998 report was provided to the TRS. Conclusions from the report indicate that subsidence is not a result of the Kelly AFB remedial systems (groundwater extraction).

Reinjection Study: KAFB contractor is reviewing old documents to see what we have done as regards groundwater reinjection studies and will present to the TRS or RAB in October. This was a follow on discussion from our meeting with MGen Childress.

Zone 3 Questions: I provided a handout on the response to Mr. Rice's comments about the Quintana Road culvert model. Mr. Rice's comments expressed a concern that was not addressed in the model. The purpose of the model was to determine expected water levels behind the culvert wall, and not to address the concern raised by Mr. Rice. However, the contractor ran another simulation and confirmed the results stated at the last TRS. No objections were made by Mr. Rice on my response.

ATSDR Schedule: Mr. Quintanilla informed the TRS that Kelly had "vetoed" the ATSDR Report, and actually mentioned the air modeling results, indicating that somebody has been speaking to Mr. Quintanilla about the PHA specifics. Mr. Rice and Quintanilla complained about not getting the report at the same time as the Air Force. I informed them that the report was not Kelly's and that they need to address their concerns to ATSDR. Mr. Rice also mentioned FOIA. FYI – the document is NOT subject to FOIA, nor are our comments (as per Dr. Fowler, ATSDR).

OTHER ITEMS:

Damian Sandoval made his announcement that he would be stepping down from the TRS and possibly the RAB. Mr. Rice encouraged him to reconsider, but Damian appears to be intent on stepping down. There are some conflict of interest issues given that he is now working for Unitech, an AFCEE contractor. As you know, the TRS and RAB (and specifically Rice, Quintanilla, and Sandoval) generate a considerable amount of work for us, and subsequently our AFCEE contractors (which translates to $).

FINAL PAGE

ADMINISTRATIVE RECORD

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