



KELLY AFB
TEXAS

ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 3361

RESTORATION ADVISORY BOARD AGENDA
25 September 1995
6-8 pm
Price Ave. Elementary School

1. Review/Approval of Previous Meeting Minutes.....Mr. Hagelthorn

2. Membership Actions.....Mr. Hagelthorn
 - New members (2 applications)
 - Resignations/Removals

3. Training Opportunities.....Mr. Walters
 - Air Force Institute of Technology Courses - process/funding
 - Written guidance
 - Other Local courses

4. Subcommittee reports
 - Newsletter (vote on name).....Mr. Sanchez
 - Technical Assistance Grants.....Mr. Ayala
 - Groundwater.....Mr. Rice
 - Charter.....Mr. Quintanilla

5. Discussion/vote concerning Agency for Toxic SubstancesMr. Hagelthorn
and Disease Registry

6. Briefing - Soil Proposed Plans & public comment period.....Mr. Medina & staff
 - ZONE 1
 - ZONE 2
 - ZONE 3

7. New business.....Mr. Hagelthorn

8. Selection of date, location and time of next meeting.....Mr. Hagelthorn

**Minutes
of
The Kelly AFB Restoration Advisory Board Meeting
25 September 1995**

The tenth meeting of the Kelly Air Force Base Restoration Board (RAB) took place at 6:00 p.m. at Price Elementary School, San Antonio, Texas.

The RAB meeting agenda is attachment 1.

These minutes follow the progression of topics as the meeting took place and correspond to similarly numbered agenda topics.

Mr. Larry Bailey, Kelly AFB Co-Chair, welcomed RAB members and the audience in attendance. 12 RAB members or alternates were present. A list of attendees is provided at attachment 2.

1. Review/Approval of Previous Meeting Minutes

The minutes were approved with corrections provided as attachment 3 with one exception. Approval of the fifth paragraph of the attachment was tabled.

2. Membership Actions

New members (2 applications)

Two new members were unanimously accepted. Mr. Sam Murrah and Mr. Tom Culbertson.

Resignations/Removals

A motion to remove Mr. Tom Smith and Mr. Florencio Martinez for non-attendance was unanimously approved. Kelly AFB will send letters notifying the members of their removal.

3. Training Opportunities

Mr. Walters briefed the RAB on training opportunities. There are three directions of training. 1.) Local, 2.) Wright Patterson AFB, (AFIT) and 3.) TNRCC. RAB members may attend a week long training session in Ohio at AFIT (with expenses paid), if slots are available. Information will be sent to members in the next mail-out.

4. Subcommittee reports

Newsletter (vote on name)

In the absence of Mr. Sam Sanchez, Mr. Kirk Loftin presented a draft newsletter called RAB Voices with Dr. Guerra (director of Health) and Mr. Garcia (TNRCC Region 13 Manager) having submitted articles. Under the proposal, Mr. Bill Sain, Mr. Armando Quintanilla and Mr. Sanchez would act as editors of this publication. Kelly AFB Staff would prepare. This newsletter would be distributed 6 times a year (every other month). After discussion, this issue was tabled until the next RAB meeting.

Technical Assistance Grants

In the absence of Mr. Ayala, this topic was not discussed.

Groundwater

Mr. George Rice stated that two major problems may exist based on his review of groundwater feasibility studies. 1). Subjection of people to high risk of cancer and 2). The plan may be illegal. (see attachment 4)
He proposed meeting with Mr. Bailey and contractor(s) to resolve the issues.

Charter

Mr. Quintanilla submitted proposed changes to the charter (attachment 5). The Board approved a motion to accept the changes and vote on the complete charter at the next RAB meeting.

5. Discussion/vote concerning Agency for Toxic Substances and Disease Registry

Mr. Bailey stated that experts from Armstrong Labs (Brooks AFB) are looking at information from 1986 to present. He also stated that Kelly has acquired a physician that is researching data gaps and voids and researching important information. This professional is highly skilled in Toxicology and performing Public Health assessments.

The RAB voted and approved the writing of a letter to ATSDR. Mr. Quintanilla and Mr. Tom Moore, with the assistance of Mr. Mike Estrada (Kelly AFB/Public Affairs) will draft a letter to be signed by the RAB co-chairs by the end of next week. (October 6).

6. Briefing - Soil Proposed Plans & public comment period

Mr. Dan Medina (Geologist) presented a briefing (attachment 6)

ZONE 1 Briefing presented by Mr. Roby Gregg, Mechanical Engineer (attachment 7)

ZONE 2 Briefing presented by Mr. Kenny Johnson, Mechanical Engineer (MS. Environmental Engineer) (attachment 8)

ZONE 3 Briefing presented by Mr. Ron Catchings, Civil Engineer (attachment 9)

7. New business

Mr. Kenny Johnson will be leaving Kelly AFB and will be going to Randolph AFB. Mr. Eupi Quiñones will be taking his place overseeing Zone 2.

Mr. Bailey agreed to meet with Mr. Rice, Dr. Lené, Mr. Beyer, Mr. Culbertson and Mr. Murrah at a later date to discuss off-base contamination in Zone 3.

A special RAB technical committee meeting was set for 10 October to discuss concerns and issues relating to clean-up of off-base contamination in Zone 3.

The Public meeting will most likely be held 60 to 120 days from now.

8. Selection of date, location and time of next meeting

The next meeting will be held at the Knights of Columbus Hall, 5763 Ray Ellison Drive, 13 November 1995, 6:00 P.M.

RAB MEETING ATTENDANCE LIST

25 September 1995

Members (M) & Alternates (A) Present			
Allan Hagelthorn	M	Tom Culbertson	M
Tom Moore	M	Sam Murrah	M
George Rice	M	Roy Gill	M
Armando Quintanilla	M	Gary Beyer	M
Carl Mixon	M	Edward Weinstein (*J. Falkenburg)	A
Yolanda Johnson	M	Larry Bailey	M
Gene W. Lené	M	Kirk Loftin (*Sam Sanchez)	A
Members absent (*-Alternate present)			
Mr. Ayala		Ms. Thurlow	
Ms. Falkenburg	*	Mr. Sain	
Mr. Sanchez	*	Mr. Solis, Sr.	
TNRCC Region 13 Representative			

**Minutas
de la
Sesión de la Junta Consultiva de Restauración de Kelly AFB
25 de septiembre de 1995**

La décima sesión de la Junta Consultiva de Restauración de la Base Aérea de Kelly (RAB) sellevó a cabo a las 6:00 p.m. en la Escuela Primaria Price en la ciudad de San Antonio, Texas.

La agenda de la sesión se encuentra como anexo 1.

Estas minutas reflejan la forma en que se llevaron a cabo los puntos durante la sesión, los cuales corresponden a temas igualmente enumerados en la agenda.

El señor Larry Bailey co-presidente, dió la bienvenida a los miembros de la RAB y a todos los presentes. Doce miembros o alternos de la RAB estuvieron presentes. La lista de asistentes se encuentra como anexo 2.

1. Repaso y Aprobación de las minutas de la sesión pasada

Las minutas fueron aprobadas con las correcciones presentadas en el anexo 3 con una excepción. La aprobación del quinto párrafo del anexo fue aplazada.

2. Acciones de Membrecías

Nuevos miembros (dos solicitudes)

Dos nuevos miembros fueron aceptados unánimemente. Los señores Sam Murrah y Tom Culbertson.

Renuncias y Destituciones

La proposición para destituir por inasistencia a los señores Tom Smith y Florencio Martínez fue aprobada unánimemente. Kelly AFB les enviará a estos miembros la notificación de su destitución.

3. Oportunidades de Entrenamiento

El Sr. Walters dió un breve informe de las oportunidades de entrenamiento. Hay tres direcciones de entrenamiento. 1.) Local, 2.) Wright Patterson AFB, (AFIT) y 3.) TNRCC. Los miembros podrán asistir toda una semana a la sesión de entrenamiento en la ciudad de Ohio en AFIT (con los gastos pagados) si hay lugares disponibles. Se enviará más información al los miembros en el siguiente envío postal.

4. Reportes del Sub-Comité

Boletín de Noticias (voto)

En la ausencia del Sr. Sam Sánchez, el Sr. Kirk Loftin presentó un borrador del boletín de noticias llamado Voces RAB con artículos de el Dr. Guerra (director de Salud) y el Sr. García (TNRCC Director de la Región 13) Bajo la propuesta el Sr. Bill Sain, el Sr. Armando Quintanilla y el Sr. Sánchez serán los encargados de editar esta publicación. Los empleados de Kelly lo prepararían. Este boletín de noticias sería distribuido 6 veces al año (cada dos meses). Después de la discusión este tema fue pospuesto hasta la siguiente junta de la RAB.

Concesiones de Ayuda Técnica

Debido a la ausencia del Sr. Ayala no se discutió este tema.

Aguas Subterráneas

El Sr. George Rice dijo que dos problemas de suma importancia podrían existir de acuerdo a su revisión a los estudios de Factibilidad de las Aguas Subterráneas. 1). Exponer a la gente a un alto riesgo de contraer cáncer y 2). El plan podría ser ilegal. (véase anexo 4)

E Sr. Rice propuso una junta con el Sr. Bailey y con los contratista(s) para analizar los puntos.

Constitución

El Sr. Quintanilla sometió y propuso cambios a la constitución (anexo 5). El Consejo aprobó la moción para aceptar los cambios y dejar el voto de toda la constitución en la siguiente junta de la RAB.

5. Discusión y votación referentes a La Agencia de Substancias Tóxicas y Registro de Enfermedades

El Sr. Bailey dijo que expertos de los Laboratorios Armstrong (Brooks AFB) están examinando información generada desde 1986 hasta el presente. EL también dijo que la Bas Aérea Kelly había contratado los servicios de un médico para investigar fallas en la información e invalidez así como cualquier otra información importante. Este profesional es un experto en Toxicología y en realizar evaluaciones de la Salud Pública.

Los miembros de la RAB votaron y aprobaron redactar una carta para ser enviada ATSDR. Los señores Quintanilla y Tom Moore, con la ayuda del Sr. Mike Estrada (oficina de Relaciones Públicas de Kelly AFB) escribirán una carta que será firmada por los co-presidentes de la RAB para finales de la siguiente semana. (Octubre 6).

6. Información - Planes Propuestos para la limpieza de los Suelos y período de Comentarios Públicos

El Sr. Dan Medina (Geólogo) presentó una información (anexo 6)

ZONA 1 Información presentada por el Sr. Roby Gregg, Ingeniero Mecánico (anexo 7)

ZONA 2 Información presentada por el Sr. Kenny Johnson, Ingeniero Mecánico (MS. Ingeniero Ambiental) (anexo 8)

ZONA 3 Información presentada por el Sr. Ron Carchings, Ingeniero Civil (anexo 9)

7. Asuntos Nuevos

El Sr. Kenny Johnson ha sido Contratado para trabajar en Randolph AFB y pronto dejará de trabajar en la Base Kelly. Eupi Quiñones estará tomando su lugar para supervisar la Zona 2.

El Sr. Bailey estuvo de acuerdo en reunirse en esta ocasión con los señores Rice, Murrh, Beyer, Culberston y Dr. Lené para discutir lo referente a la contaminación fuera de base en la Zona 3.

Una junta especial del comité técnico de la RAB fue fijada para el 10 de octubre para discutir cuestiones y asuntos relacionados a la limpieza de la contaminación fuera de base in la Zona 3.

La junta pública sellevará a cabo lo más probable de 60 a 120 días de hoy.

8. Selección de fecha, lugar y hora para la siguiente junta

La siguiente junta se llevará a cabo en la Sala de los Caballeros de Colón, localizada en el 5763 Ray Ellison Drive, el 13 de noviembre de 1995, a las 6:00 P.M.

**Correction to Draft RAB Meeting Minutes
Aug. 21, 1995**

4d. Charter Revision [*specific additions or changes are italicized*]

Mr. Quintanilla presented the Charter committee report (Attachment 3). Each section was presented with a vote to accept or decline the committee's recommendations. *Other changes were proposed by Mr. Quintanilla and are included at Attachment 4. The Board accepted the committee's report with the following changes:*

Redesignate section 2B to 2C, insert as the new 2B: *Kelly Air Force Base shall consult with and seek the advice of the Board Members on the following issues:*

- a. Identifying environmental restoration activities and projects at Kelly Air Force Base.*
- b. Monitoring progress on these activities and projects.*
- c. Collecting information regarding restoration priorities at Kelly Air Force Base.*
- d. Addressing land use, level of restoration, acceptable risk and waste management and technology development issues related to environmental restoration at Kelly Air Force Base.*
- e. Developing environmental restoration strategies for Kelly Air Force Base.*

Change section 4A to read: "Individual community members must reside *or work* in Bexar County or currently work or live on Kelly Air Force Base."

Change the first sentence of section 4D to read: Members unable to continue to fully participate shall submit their resignations in writing *or by orally notifying* either of the Restoration Advisory Board co-chairs.

Change the last sentence of section 4Ib to read: The Base Co-Chair and *a designated representative speaking on behalf of the Board members will each be offered the opportunity to provide a written summary of the rationale and their recommendations, and if requested by either party, be allowed an audience with the installation commander at the San Antonio Air Logistics Center.*

Change section 5D to read: The Restoration Advisory Board shall meet quarterly, *at formally advertised times and locations*. More frequent *formal* meetings may be held, if deemed necessary by the Restoration Advisory Board. *The minimum number of members required to be present before the Board can transact business is 50 percent of the membership.*

Change the second and third sentences of section 5H to read: Restoration Advisory Board members should submit *any written comments to either the Community Co-Chair or individually to the base community involvement coordinator* on the subject documents within the time frame specified (30-60 days). The Community Co-Chair will consolidate comments from the Members *who wish to have him submit them on their behalf.*

Change the fourth sentence of 5K and add an additional sentence to read: In addition, a listing of any *reportable* releases or incidents as described above and a summary of remedial actions taken or planned will be made available to Members at the Restoration Advisory Board meeting following the release or incident. *The Restoration Advisory Board will be notified of all reportable spills prior to a review of the meeting minutes.*



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

**FEASIBILITY STUDY
FOR ZONE 3
GROUNDWATER
PUBLIC DRAFT**



JUNE 1995

PUBLIC DRAFT

2.0 DEVELOPMENTS SINCE THE TECHNICAL MEMORANDUM

1
2
3

4 Because the FS is a dynamic process, new developments may be incorporated whenever
5 appropriate. The following sections present new developments since the issuance of the Technical
6 Memorandum (Halliburton NUS 1993a).

7
8
9

2.1 REMEDIAL INVESTIGATION ADDENDUM 1

10 Since the issuance of the RI report (Halliburton NUS 1993b), two off-base field efforts were
11 conducted to delineate the leading edge of the dissolved-phase chlorinated plume. In November
12 1992, six monitoring wells were installed in the Quintana Road residential area, and nine monitoring
13 wells were installed in the UPR yard hydraulically downgradient of IBP Site MP. The new
14 monitoring wells in conjunction with selected existing wells nearby were sampled and analyzed in
15 December 1992. Details of the off-base field work are presented in Appendix A. Well boring logs,
16 analytical results, and data validation cover letters are also presented in Appendix A.

17

18 Kelly AFB has instituted the Shallow Aquifer Assessment Project to determine the uses, general
19 groundwater quality parameters, and the distribution of organic and inorganic compounds within
20 the shallow surficial groundwater in the vicinity of Kelly AFB. The study is not completed but
21 some information has been obtained. For the Shallow Aquifer Assessment Project, Kelly AFB
22 mailed questionnaires to over 3000 residents to the north, east, and south of Kelly AFB. The
23 questionnaires requested information on shallow wells known or suspected to be on the resident's
24 property. The questionnaires were mailed in both Spanish and English. There was a similar survey
25 conducted in 1990 by the U.S. Geological Survey (not for public release) which identified 55
26 respondents. The shallow Aquifer Assessment conducted from 1993 to the present had 80
27 respondents, who indicated a potential well completed within the surficial aquifer was located on
28 their property. Kelly AFB performed follow-up surveys of all identified sites. For sites with a
29 shallow water well, attempts were made to sample the well; however, some wells had
30 disconnected pumps in the wells, or the wells were no longer accessible. Of those respondents, 12
31 locations (five were in the vicinity of Zone 3) had wells that could be sampled. Based on the data
32 available, several shallow water wells are located between Kelly AFB and East Kelly AFB or the
33 southeast of Kelly AFB. Kelly AFB also discussed with each landowner, the use of the water from
34 the well, and all of the owners reported that the wells were used for irrigation purposes only (i.e.,
35 lawn irrigation or personal gardens).

RISK CALCULATIONS FOR IRRIGATION SCENARIO

Constituent	Kd (L/kg)	Ksp (Bv) (kg/kg)	FVG* (kg/day)	FVG/BW (kg/kg-day)	Fraction of FVG Homegrown*	fir	PDF
1,2 DCA	0.013	5.42	0.20	2.86E-03	0.4	1	8.06E-05
PCE	0.325	0.84	0.20	2.86E-03	0.4	1	3.11E-04
TCE	0.113	1.55	0.20	2.86E-03	0.4	1	2.00E-04
VC	0.051	7.53	0.20	2.86E-03	0.4	1	4.39E-04

Kd - Distribution coefficient of organics in soil (Kd = foc x Koc).

foc - Fraction of organic carbon in soil.

Koc - Soil/organic carbon partition coefficient.

Ksp - Soil/plant partition coefficient is the ratio of concentration in above-ground plant parts in mg/kg (plant dry mass) to concentration in dry soil in mg/kg (also know as Bv - Biotransfer factor vegetable).

FVG - Fruit, Vegetable, and Grains.

BW - Body Weight

fir - Fraction of time that contaminated water is used to water the homegrown vegetables.

BW assumed to be 70 kg. Risk Assessment Guidance (RAGS Part A), Volume 1, Human Health Evaluation Manual.

* OSWER Directive 9285.6-03, Standard Default Exposure Factors.

Step 3

Calculate Associated Average Daily Dose (ADD)

ADD(FVG ingestion) = PDF x Concentration in Irrigated Water (i.e., groundwater). Ref. #2

Constituent	PDF (L/kg-day)	Concentration Groundwater (mg/L)	ADD (mg/kg-day)
1,2 DCA	8.06E-05	0.350	2.82E-05
PCE	3.11E-04	0.054	1.68E-05
TCE	2.00E-04	0.040	7.99E-06
VC	4.39E-04	0.010 ←	4.39E-06 ←

ADD - Average Daily Dose is the amount of FVG ingested per body weight per day.

Ref. # 2 OSA, Exposure Guidance.

Step 4

Calculate Cumulative Risk Associated with Activity

Carcinogenic Risk = CSF x ADD x ED/ET* Ref. #3

Hazard Index = ADD/Rfd*(ED/ET) Note (for HI, ED=ET) Ref #4

Constituent	CSF (mg/kg-day) ⁻¹	Rfd (mg/kg-day)	ED/ET	ADD (mg/kg-day)	Carcinogenic Risk	Hazard Index
1,2 DCA	0.091	NA	0.429	2.82E-05	1.10E-06	NA
PCE	0.052	0.010	0.429	1.68E-05	3.75E-07	1.68E-03
TCE	0.011	NA	0.429	7.99E-06	3.77E-08	NA
VC	1.93	NA	0.429	4.39E-06	3.63E-06 ←	NA
Total Risk					5.14E-06	1.68E-03

CSF - Cancer slope factor

Rfd - Reference dose

NA - Not Available

ED-Exposure Duration-30 years

ET-Exposure Time-70 years for carcinogens, 30 years for toxicants.

Ref. #3 and 4# Risk Assessment Guidance (RAGS Part A) for Superfund, Volume 1, Human Health Evaluation Manual.

* OSWER Directive 9285.6-03, Standard Default Exposure Factors.

PUBLIC DRAFT

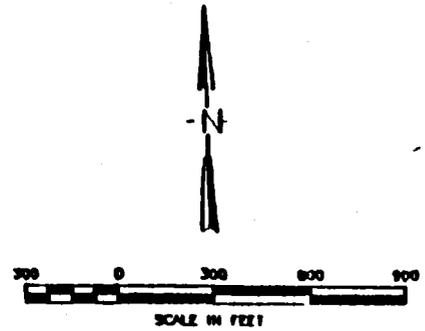
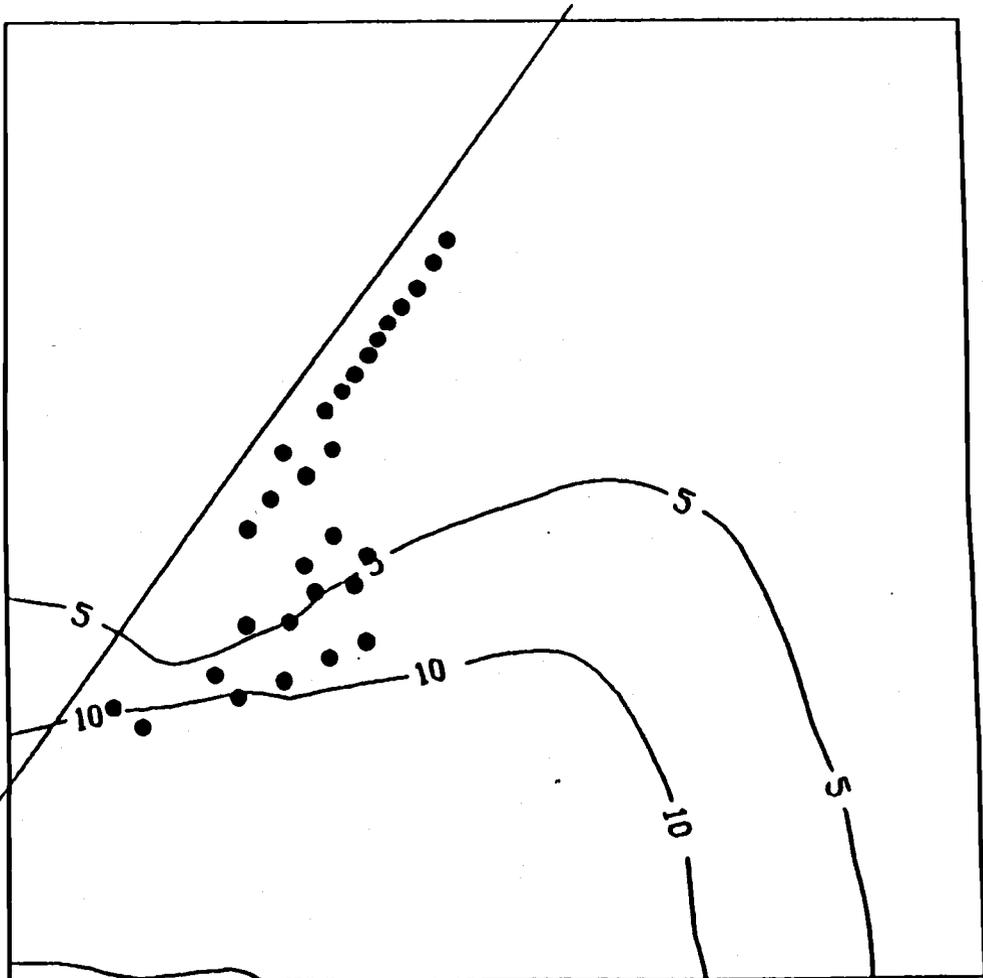
1 toxicant is established using a Hazard Quotient for individual systemic toxicants that does not
2 exceed one. The Hazard Index for multiple systemic toxicants shall not exceed one. Residential
3 standard exposure factors will be used unless the person documents to the satisfaction of the
4 executive director that future land use will be non-residential.

5
6 Groundwater media cleanup levels shall not exceed MCLs. The cleanup levels shall be achieved
7 throughout the plume of contaminated groundwater. Upon approval and based on "sound scientific
8 principles" fate and transport modeling may be used for groundwater cleanup consideration. The
9 executive director may determine that remediation of groundwater is not necessary if the person
10 demonstrates to the executive director's satisfaction that restoration of the groundwater to these
11 levels is technically impracticable.

12
13 Post closure care is required where the executive director determines that either engineering or
14 institutional control measures are required to protect human health and the environment. However,
15 post closure care is not required where the executive director determines that neither engineering
16 nor institutional control measures are required to protect human health and the environment.

17
18 Summary

19
20 The TNRCC Risk Reduction Standards are ARARs which will be used to close and/or remediate
21 groundwater within the zone. Groundwater was analyzed against Standard Number 3. The
22 following section will analyze and explain the process in greater detail.



● RECOVERY WELL

BASE BOUNDARY

FIGURE C-21. IRP SITE S-4, ALTERNATIVE GW-4 AND GW-5, 30 YEARS. S-4 IFPRS + S-4 FFS WELLS AND TRENCH, 36 GPM TOTAL.

PROPOSED CHANGES TO DRAFT RAB CHARTER
Sept. 25, 1995

Section IV

I. Decisions regarding termination of Restoration Advisory Board membership or limitations imposed on a Member's participation in Board meetings may be appealed on the following bases:

a. In the event a Member is dissatisfied with the Base Co-Chair decision for removal or limitation of Member participation based upon information regarding a conflict or appearance of a conflict of interest, the decision may be appealed in writing to the ~~Commander~~Executive Director, San Antonio Air Logistics Center.

b. In the event the Base Co-Chair and Board membership disagree on the termination or limitation of membership for an individual based upon information regarding a conflict or an appearance of conflict of interest, the decision shall be elevated in writing to the ~~Commander~~Executive Director, San Antonio Air Logistics Center. The Base Co-Chair and a designated representative speaking on behalf of the Board Members will each be offered the opportunity to provide a written summary of the rationale and the recommendations, ~~and if requested by either party, be allowed an audience with the installation commander at the San Antonio Air Logistics Center.~~

c. An appeal presented by an individual Member or an unresolved dispute over termination or limitation of participation between the Board and the Base Co-Chair shall be administratively handled for the ~~Commander~~Executive Director outside the Environmental Management function to ensure objectivity in handling the matter. The appeal shall be addressed with a summary of the rationale and recommendation of both the Base Co-Chair and Board through the Public Affairs Office Community Involvement Coordinator, SA-ALC/PAE, 807 Buckner, Suite 1, Kelly AFB, TX 78241-5842.

Kelly AFB IRP Soil Proposed Plan Presentation 25 September 1995



Directorate of Environmental Management

Strategy

- * Remediation of source areas takes priority
- * Attain compliance with ARARs. These include:
 - * Preliminary Remediation Goals (PRGs) and the State of Texas Risk Reduction Rules (ARAR)
 - * Standard Number 1 - Closure/Remediation to Background
 - * Standard Number 2 - Closure/Remediation to Health-Based Standards and Criteria
 - * Standard Number 3 - Closure/Remediation with Controls
- * CERCLA Nine Criteria
 - * Threshold Criteria
 - * Balancing Criteria
 - * Modifying Criteria

Directorate of Environmental Management



Strategy (Cont.)

- * Combine with the Groundwater Remedial Actions to reduce/ eliminate exposure and risk. The Groundwater Proposed Plans addressed saturated soils and groundwater. The Soil Proposed Plans will address dry (unsaturated) soils.
- * Use of Operable Units (OUs)
- * Provide analysis of available alternatives and select treatment technologies consistent with site conditions
- * Address areas above PRGs with common technologies
- * Address areas below PRGs for no further action
- * Awaiting Regulatory Approval

Directorate of Environmental Management



Selected Alternative

- * **Administrative Controls**
- * **Provides Containment at Base Boundary**
- * **Permanent Treatment**
- * **Source Area Remediation**
- * **Focuses on Remediating Highly Contaminated Areas**
- * **Attainment of Preliminary Remediation Goals**

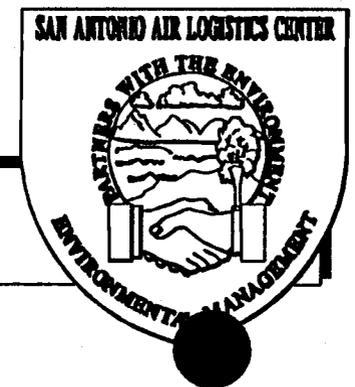
Directorate of Environmental Management



Conceptual Design

- * **Technical Memorandum Technology/Process Option Update**
- * **Representative Process Options for Soils**
- * **Alternative Range Development**
 - * **No Action**
 - * **Containment/Limited Action**
 - * **Treatment - Addresses Principal Threats**
 - * **Treatment Addresses Long Term Management**

Directorate of Environmental Management



Conceptual Design (Cont.)

- * **Assembly of Soil Alternatives**
 - * **Combine with Interim Systems at Operable Unit**
 - * **Achieve ARARs**
 - * **Protect Human Health and the Environment**

- * **Preliminary Screening of Operable Unit Alternatives**
 - * **Screening Based on:**
 - * **Effectiveness**
 - * **Implementability**
 - * **Cost**

Directorate of Environmental Management



On-Base Areas

- * **Industrial Area**
- *
- * **Present Exposure Pathways**
 - * **Human - Ingestion, Inhalation, Dermal Contact**
 - * **Environment - Leaching into Groundwater**
 - *
- * **Future Exposure Pathways**
 - * **Humans - Ingestion, Inhalation, Dermal Contact**
 - * **Environment - Leaching into Groundwater**

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Off-Base Areas

- * Privately Owned Property
- *
- * Present Exposure Pathways
 - * Human - Ingestion, Inhalation, Dermal Contact
 - * Environment - Leaching into Groundwater
 - *
- * Future Exposure Pathways
 - * Humans - Ingestion, Inhalation, Dermal Contact
 - * Environment - Leaching into Groundwater

Directorate of Environmental Management



Determination of Operable Units

Hierarchy for Assignment of Operable Units

- * Location - On Base, Off Base, Flood Plain
- * Constituents exceeding Preliminary Remediation Goals
- * Technical Implementability - Obstructions, Buildings, etc.

Directorate of Environmental Management



Technologies

- * NO ACTION
- * ADMINISTRATIVE CONTROLS
- * MONITORING
- * CAPPING
- * SLURRY WALL WITH LEACHATE COLLECTION
- * BACKFILL
- * HAZARDOUS LANDFILL
- * NON-HAZARDOUS LANDFILL
- * BULK EXCAVATION
- * SOIL VENTING (AEROBIC BIOVENTING/VAPOR EXTRACTION)
- * LOW-TEMPERATURE THERMAL STRIPPING

Directorate of Environmental Management



Technologies (Cont.)

* Capping

- * Use of soils, concrete, and vegetation to reduce likelihood of exposure, reduces infiltration of water

* Underground Storage Tank Removals / Upgrades

- * Removal of Underground Storage Tanks that are no longer in operation
- * Replacement of Storage Tanks still required for tanks in use. These tanks are placed in concrete vaults or use leak detection systems to prevent future releases into the environment

Directorate of Environmental Management



Technologies (Cont.)

* Industrial Waste Collection System Upgrade

- * Double Walled Piping using industry proven materials to prevent corrosion and releases to the environment. Monitoring between pipes ensures safe operation and detection of leaks.

* Hazardous / Non-Hazardous Material Handling

- * Regulatory and Industry Approved Methods used for Hazardous and Non-Hazardous Waste Disposal
- * Disposal of waste into permitted landfills for Hazardous and Non-Hazardous Waste

Directorate of Environmental Management



Kelly AFB ZONE 1 IRP Soil Proposed Plan Presentation



25 SEPTEMBER 95

Soil - Zone 1 Overview

* Location:

- * Adjacent to Military Drive
- * Golf Course
- * HQ Air Intelligence Agency

* Site Characteristics:

- * 383 acres

Directorate of Environmental Management



Soil - Zone 1 Overview

- * **Historical Uses of Zone 1 include:**
 - * **Disposal of waste materials through landfills, sludgebeds, an oil evaporation pit, and an oil burning pit**
 - * **Landfilling, trenching and grading, and related operations have disturbed much of the near surface soils**
 - * **Golf course constructed in the late 1960's on the landfill sites**

Directorate of Environmental Management



Zone 1 Soil Impact

- * Leaching of landfill material
- * Impacted groundwater concentrations above regulatory limits
- * Impacted groundwater may reach Leon Creek

Directorate of Environmental Management



Soil - Zone 1 Preferred Alternative Summary

* OPERABLE UNIT 1

* ADMINISTRATIVE CONTROLS

* IN SITU BIOVENTING AND VAPOR EXTRACTION

* Installation of 70 bioventing and vapor extraction wells

* Construction of two maintenance buildings

* MONITORING

* Shortest Remedial Time - 6 years

* Cost:

* Total Project Cost: \$3,500,000

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Soil - Zone 1

Preferred Alternative Summary

* OPERABLE UNIT 2

- * ADMINISTRATIVE CONTROLS
- * SLURRY WALL WITH LEACHATE COLLECTION
- * SOIL CAPPING
- * MONITORING

* Shortest Remedial Time - 30 years

* Cost:

* Total Project Cost: \$12,505,000

Directorate of Environmental Management



Soil - Zone 1 Preferred Alternative Summary

* OPERABLE UNIT 3

- * ADMINISTRATIVE CONTROLS
- * LOW TEMPERATURE THERMAL STRIPPING
- * BACKFILL
- * MONITORING

* Shortest Remedial Time - 8 Months

* Cost:

* Total Project Cost: \$4,900,000

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Soil - Zone 1 Preferred Alternative Summary

* OPERABLE UNIT 4

- * ADMINISTRATIVE CONTROLS
- * SOIL CAPPING
- * MONITORING

- * Shortest Remedial Time - 30 Years
- * Cost:

* Total Project Cost: \$820,000

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Soil - Zone 1 Preferred Alternative Summary

* OPERABLE UNIT 5

- * ADMINISTRATIVE CONTROLS
- * MONITORING

* Shortest Remedial Time - 30 Years

* Cost:

* Total Project Cost: \$375,000

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Kelly AFB IRP Zone 2 Soil Proposed Plan Presentation



25 September 95

Soil - Zone 2 Overview

Location:

- * Military Drive
- * Union Pacific Railroad Yards
- * Southern Base Boundary

Site Characteristics:

- * 174 acres
- * 16 individual IRP Sites
- * 3 RCRA units (E-3, SD-1, and SA-2)

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Soil - Zone 2 Overview (cont.)

Historical Uses:

- * Jet Engine Testing
- * Wastewater Treatment
- * Fire Control Training
- * Waste Disposal in Evaporating Pits
- * Sludge Drying in Land Spreading Areas
- * Equipment and Material Storage

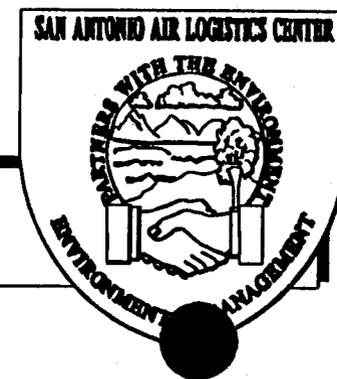
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Zone 2 Soil Impact

- * Soil impacted above regulatory limits
- * Potential for chemicals to leach into the groundwater and eventually enter Leon Creek
- * Impacted groundwater from source areas moving off-base

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Soil - Zone 2

Preferred Alternative Summary

* Operable Unit 1

- * Administrative Controls (Fencing)
- * Monitoring
- * Capping (Type I)
- * Excavation
- * Disposal
- *

* Shortest Remedial Time - 1 year

* Cost:

* Total Project Cost: \$350,000

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Soil - Zone 2

Preferred Alternative Summary

* Operable Unit 2

- * Administrative Controls (Fencing)
- * Monitoring
- * Bulk Excavation
- * Disposal

*

* Shortest Remedial Time - 1 year

* Cost:

* Total Project Cost: \$200,000

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Soil - Zone 2

Preferred Alternative Summary

* Operable Unit 3

- * Administrative Controls (Fencing)
- * Monitoring
- * Bulk Excavation
- * Ex Situ LTTS
- * In Situ Soil Venting
- * Backfill

*

* Shortest Remedial Time - 5 years

* Cost:

* Total Project Cost: \$3,500,000

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Soil - Zone 2 Preferred Alternative Summary

* Operable Unit 4

- * Administrative Controls (Fencing)
- * Monitoring
- * Capping (Type I)
- * Bulk Excavation
- * In Situ Soil Venting
- * Disposal

*

* Shortest Remedial Time - 5 years

* Cost:

* Total Project Cost: \$500,000

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Soil - Zone 2

Preferred Alternative Summary

* Operable Unit 5

- * Administrative Controls (Fencing)
- * Monitoring
- * Bulk Excavation
- * In Situ Soil Venting
- * Disposal

*

* Shortest Remedial Time - 5 years

* Cost:

* Total Project Cost: \$1,700,000

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Kelly AFB IRP Zone 3 Soil Proposed Plan



25 September 1995

Soil Zone 3 Overview

* Location:

- * Southeast Portion of Base
- * Union Pacific Railroad Yards
- * Industrial Operations Area

* Site Characteristics:

- * Two Operable Units
 - * Site S-4
 - * Site S-8

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Soil - Zone 3 *Overview (cont.)*

* Historical Uses:

- * Aircraft Maintenance - B-52s (Past)
- * Aircraft Maintenance C-5s (Current)
- * Jet Engine Overhaul
- * Industrial Aircraft Operations
- * Fuel Distribution - Underground
- * Industrial Waste Collection System

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Zone 3 Soil Impact

- * Leaching of fuels and solvents into groundwater
- * Impacted groundwater concentrations above regulatory limits
- * Impacted groundwater migrating off-base

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Soil - Zone 3 Preferred Alternative Summary

* OPERABLE UNIT 1

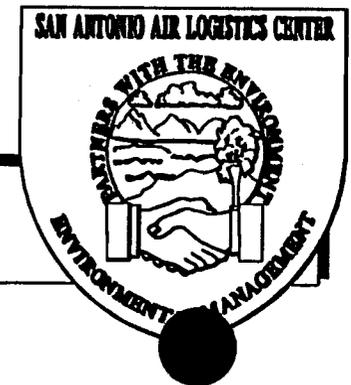
- * ADMINISTRATIVE CONTROLS
- * MONITORING
- * CAPPING
- * IN SITU BIOVENTING AND / OR VAPOR EXTRACTION

* Shortest Remedial Time - 30 Years (Groundwater)

* Cost:

* Total Project Cost: \$ 2,100,000

Directorate of Environmental Management



Soil - Zone 3

Preferred Alternative Summary

* OPERABLE UNIT 2

- * ADMINISTRATIVE CONTROLS
- * MONITORING
- * CAPPING
- * IN SITU BIOVENTING AND / OR VAPOR EXTRACTION

* Shortest Remedial Time - 30 Years (Groundwater)

* Cost:

* Total Project Cost: \$ 2,100,000

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ADMINISTRATIVE RECORD

FINAL PAGE