KELLY AFB
TEXAS

ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 3306

KELLY AIR FORCE BASE TECHNICAL REVIEW SUBCOMMITTEE MEETING AGENDA

Tuesday, 25 August 1998, 6:30 P.M.

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

	Topic	Time	Presenter
I.	**Introduction** A. Agenda Review and Handouts	**6:30 - 6:40**	**Damian Sandoval**
II.	**Zone 4 Well Monitoring Data (If Available)**	**6:40 - 7:10**	**Kelly**
III.	**Briefing – Double-Walled Leak**	**7:10 - 7:25**	**GKDC**
IV.	**Break**	**7:25 – 7:40**	**All**
V.	**Discussion Items** A. Strategize Natural Attenuation – Information And Presentation B. Strategize About New TAPP Rules Presentation C. Public Health Issues D. Water Re-use as Viable Option For All Zone Proposed Plans E. Zone Schedule CY99 F. CERCLA/RCRA Review G. Other Discussion Items	**8:55 – 9:30**	**All** **Sam Sanchez** **KAFB** **KAFB**
VI.	**Action Items/Summary** A. Location/Time of Next TRS Meeting	**9:30 - 9:35**	**Damian Sandoval**
VII.	**Adjournment**	**9:35**	**Damian Sandoval**

18 june/rss/#1

MEMORANDUM

TO: KAFB RAB TRS **DATE:** August 17, 1998

FROM: M. Damian Sandoval

SUBJECT: 21 July 1998 KAFB RAB TRS Meeting

I. Introduction

The Kelly Air Force Base (KAFB) Restoration Advisory Board (RAB) Technical Review Subcommittee (TRS) met on Tuesday, 21 July 1998 at 6:30 P.M. in Room 217, Garni Hall, St. Mary's University. RAB, TRS members and members of the community in attendance are noted on the TRS Meeting Attendance List, Attachment 1. The meeting agenda is presented as Attachment 2.

Mr. Sandoval commenced the meeting proceedings reviewing the TRS Agenda items and welcoming TRS members and guests. Mr. Sandoval briefly reviewed the following agenda topics; Zone 4 Preliminary Soil and Groundwater Data, Air Sampling Results for Building 1592, Document Submittal Schedule, and the 1997 Basewide Remedial Assessment (Groundwater) Report, Roundtable discussions and an Action Items/Summary.

II. Zone 4 Preliminary Soil and Groundwater Data

Mr. Ebert presented the preliminary soil and groundwater data obtained during the expanded, radial investigation south and east of Zone 4 (East Kelly). Mr. Ebert stated that a total of 30 soil borings and 15 monitoring wells were installed and sampled for chlorinated solvents. The results preliminary indicate that low levels of contaminates may exit past previously anticipated areas. The potential areas of impact now extend to Ansley Road on the south, Roosevelt Avenue on the east and U.S. 90 on the north.

Action Item:

1. Mr. Ebert will provide additional monitoring well data at the next TRS meeting.
2. KAFB will review all data and inform the TRS when they will officially present this information to the public.
3. Upon validation, KAFB will revise the general contamination map to include the new Zone 4 data and the additional results of the 1997 and 1998 Basewide Remedial Assessment (BRA) Report.

III. Air Sampling Results for Building 1592

Lt. Fitzgerald of KAFB presented the air sampling results collected during this vapor survey and fugitive emissions study for the Building 1592 area. (See Attachment C). The vapor release detection test assessed if leaks occurred at mechanical junctions and/or connections. The fugitive emissions study assessed downwind impacts due to normal filling and transfer fuel operations. The fugitive emissions used a predicable wind direction model to physically place air monitoring devices that recorded data during the 24 hour test.

Action Item:

Lt. Fitzgerald also stated that the large tank, Tank 73, was drained and would be removed by October 1999.

Major. de Venoge reviewed the Zone 3 proposed plan, responsiveness summary and the record of decision. Cpt. de Venoge stated that a "Record of Decision Document" was a CERCLA term and would not be completed by the air force. However, a "Decision Document" would be prepared by the Air Force. Both documents contain all decision and supporting information on the Zone 3.

Some members of the TRS disagreed with the status of the proposed plan and future actions at Zone 3. To avoid a long discussion with only some members of the topic in questions, Mr. Sandoval stated that he would coordinate a meeting with all parties of interest (Action Item).

A Groundwater Modeling Presentation was provided by the Waste Policy Institute (WPI). Copies of the slide presentation are presented in Attachment 3. WPI's scope of work was to determine what effects the planned barrier associated with the storm water culvert will have on the hydrology in the Quintana Road Area. The TRS submitted technical questions regarding the model and the effects that the culvert would have on groundwater and technical questions regarding contamination (see Attachment 4). Questions regarding contamination in Zone 4 would be submitted to the RAB for subsequent submittal to KAFB.

III. Kelly Updates

A. Web Page

Maj. de Venoge stated that KAFB was moving forward on the revision/modification to the WEB Page. Maj. de Venoge will continue to update the TRS at appropriate TRS meetings.

B. Zone 4 Monitoring Wells

KAFB has completed the installation of approximately twenty (20) soil borings south and east of Zone 4 (East Kelly AFB). Soil and groundwater screening results will be provided at the next TRS Meeting.

C. 1998 Basewide Remedial Assessment

KAFB has completed and submitted the 1998 Basewide Remedial Assessment (BRA) to the TRS. The TRS requested a presentation of information at the next TRS meeting (AA).

D. Kelly Air Force Base Air and Noise Issues

Upon discussion, the TRS submits the following questions to KAFB to be addressed;

1. Provide a summary of air and resulting soil contamination in accordance with the work at Building. 1592.
2. Indicate where the results of previous stack sampling or incineration burring that may have resulted in off-site air migration of contaminated soil.
3. Indicate how air and noise (compliance) issues are managed (office, personnel, contact phone numbers).

E. Zone 4 FFS Comments for SS-040 and SS-051

Maj. de Venoge stated the response to comments is provided in the responsiveness summary include with the final document. The TRS requested, that for this document and future documents, KAFB should provided the response directly to the TRS with a cover memorandum (AA).

IV. TRS Member Update

A. Both Mr. Johnson and Mr. Sanchez were not present at the meeting so subsequent topics discussions for item A, C and D were required to be postponed to the next TRS meeting.

B. Off-Base Groundwater Delineation Issues

Mr. Rice stated that there may be several areas off-base that may not be completely assessed for off-site groundwater contamination. Specifically, the areas south of Zone 3, south and east of Zone 4 (on-going assessment), south of Zone 5 and areas within the North Kelly Gardens. Maj. de Venoge would review and report back to the TRS.

C. Future Kelly AFB Zone, Restoration and Re-use Issues

Mr. Pound summarized some of the re-use issues concerning the Greater Kelly Development Corporation (GKDC). Mr. Pound presented the real-property transfer challenges with the Industrial Wastewater Treatment Facility. Mr. Pound also stated some of the most current design and system failure problems with the new collection and transfer system. Mr. Pound stated that he would update the TRS on appropriate transfer and re-use issues at appropriate TRS meetings.

V. Report from the Chairman

A. 1998 Kelly AFB RAB Site Tour

Mr. Sandoval stated that the TRS should consider touring KAFB once a year to physically walk and see the information and sites the TRS reviews on a monthly basis. The TRS should also consider reviewing site in different programmatic stages (i.e. Feasibility Study sites, Interim Action Sites and non further action sites). The TRS should discuss this issue at the next TRS meeting (AA).

B. Video Broadcast of RAB Discussion

Mr. Sandoval stated that initial discussion of taping or broadcasting appropriate RAB meetings was continuing with Mr. Walters of the Pubic Affairs Office. Appropriate discussions with the new Vice-Commander and/or General Childless regarding this issue may be required (AA).

C. Identification of Next TRS Meeting Dates

The TRS voted and adopted the next six (6) meeting dates for 1998.
July 21, August 25, September 22, October 20, November 17 and December 15. All meetings currently scheduled for 6;30 P.M. at St. Mary's University.

D. Solicitation of TRS/RAB Agenda Topics

Mr. Sandoval requested that RAB members provided suggested presentations and/or topics for consideration as agenda items. All RAB members should provide this information no later than three (3) weeks before a meeting.

E. TAPP and RAB Charter Update

Mr. Sandoval stated that two (2) special RAB meetings were conducted within the last two months. The first meeting conducted in May at the City of San Antonio Fire Training Center located on Zarzamora Street presented the information on the Technical Assistance for Public Participation (TAPP). The subsequent meeting on 16 June 98 summarized this information into a draft TAPP Application. This application will be distributed to the RAB prior to the next RAB meeting scheduled for 29 July 1998. The RAB Co-chair will motion to adopt and submit this application to General Childress for final consideration and processing.

Mr. Sandoval stated that several subsequent meetings have been conducted after the RAB Introspection Meeting to discuss integrating the ideas developed during; this meeting into a revised, operating charter. The Draft Final Charter will also distributed to the RAB prior to the next RAB meeting scheduled for 29 July 1998. The RAB Co-chair will motion to adopt this charter at this meeting.

VI. Action Items/Summary

Mr. Sandoval thanked EPA for attending this meeting to demonstrate their commentate to the local community to deal with environmental issues at KAFB.

Mr. Sandoval concluded the meeting by asking each TRS member if they had further questions, comments or suggestions to add to the TRS Meeting. Mr. Sandoval stated that the next TRS Meeting would be held again in Room 217, Garni Hall, St. Mary's on July 21, 1998. A motion was presented and adopted to terminate this meeting at 10:05 P.M.

Action Items/Summary

The following list of action items and corresponding individuals/agencies responsible for completion of each item were derived as a result of the TRS Meeting.

General and Miscellaneous - Mr. Sandoval

1. Continue to discuss the issue of EPA not attending TRS meetings with General Childress.
2. Mr. Sandoval will work with KAFB to develop an appropriate RAB agenda.
3. Request that each RAB member obtain and submit the name of an alternate.
4. Provide a summary and vote upon the submission of the TAPP and adoption of the RAB Charter at the next RAB meeting.
5. Discuss the appropriate KAFB Tour considerations at the next RAB meeting.

Technical Action Items - KAFB/Maj. de Venoge or other Staff

1. Update the TRS Action Item Status Report
2. Provide the response to comments directly to the TRS on the SS-040 and SS-051.
3. Coordinate the following technical presentations at the 27 July 1998 TRS meeting:
    A. Soil and groundwater screening results from the Zone 4 Soil Borings.
    B. Provide a schedule of documents to the TRS.
    C. Presentation of Air Sampling Results on Building 1592.
    D. 1998 BRA Sampling Results and Trend Assessments.
4. Respond to the Air and Noise Action Items presented in section III. D, Kelly Air Force Base Air and Noise Issues.
5. Address the following Zone 3 Contamination Questions
    A. What happens when groundwater contamination is encountered at twenty-five (25) feet below the surface?
    B. Disposal and management options for soil and groundwater encountered during construction?
    C. Have and/or will subsidence test be conducted for this area?
    D. How long before contaminated groundwater is returned to it's natural state?
    E. How credible is this model?
    F. Will the culvert design have a contingency plan for construction design failure?
    G. Where and when will groundwater, off-site issues associated with areas south the culvert project be assessed?
6. Information on the affects and programmatic changes now due to following the RCRA process as opposed to the IRP/CERCLA-like process.
7. Information on how final recommended, feasibility alternatives are modified or de-selected based upon new data?

KELLY AIR FORCE BASE (KAFB)

RESTORATION ADVIOSRY BOARD (RAB) PARIDYME SHIFT

Based upon the complexity of the program, the integral interests and resources of the Local Reuse Authority (Greater Kelly Development Corporation) and the limited resources of this body, the KAFB RAB will transition restoration participation directly to environmental impacts outside the KAFB boundary. This transition will allow the KAFB RAB to;

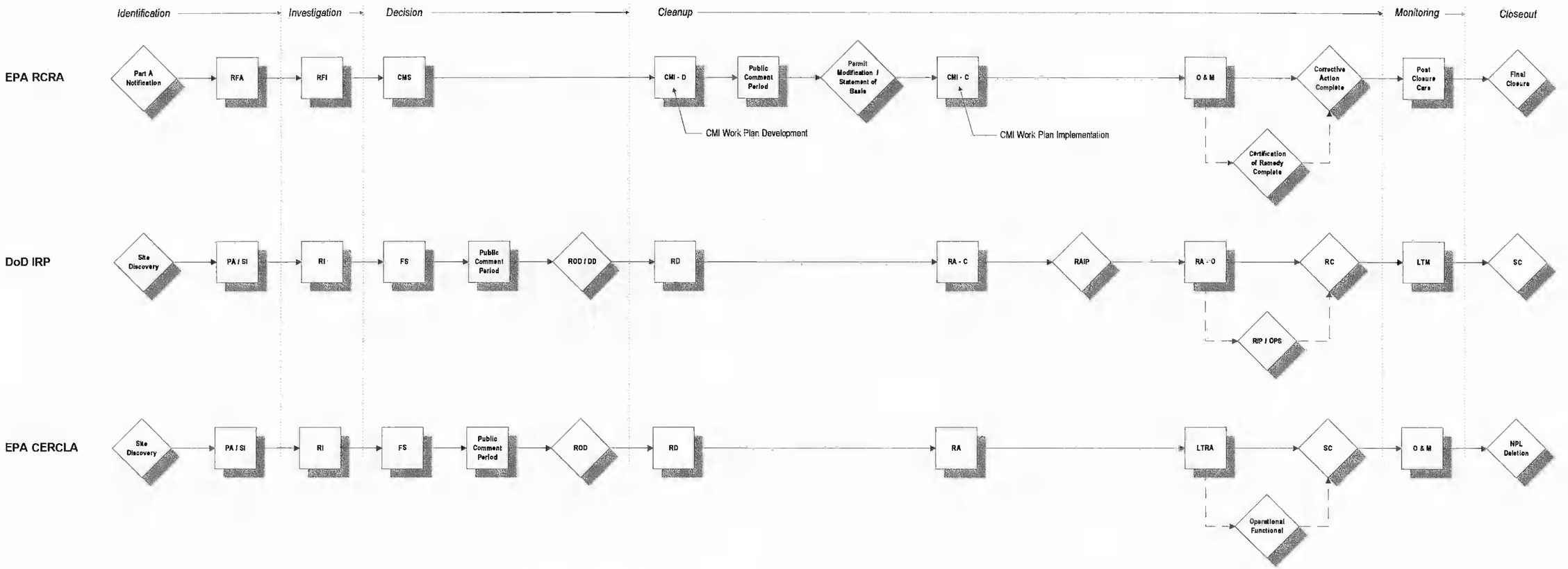
- Focus on restoration issues that will affect the residents adjacent to KAFB,
- Focus on issues that will relate to all proposed restoration plans on KAFB,
- Focus on the environmental justice issues,
- Obtain the best experts to review off-site issues through the use of the TAPP and other DOD resources.

The KAFB RAB will still remain involved with the overall restoration and programmatic issues and schedules of KAFB.

KAFB PARIDYME SHIFT ISSUES

SUBJECT	ORG.	DATE
NATURAL ATTENUATION	**EPA**	**9/22/ 98**
Role as a remedial operation for BRAC Facilities?		
Role in groundwater restoration?		
Monitored and enhanced programs?		
How used, how evaluated?		
Regulations?		
NEW TEXAS RISK REDUCTION RULES	**TNRCC**	**10/6/98**
How will they affect restoration at KAFB?		
Who implements, who monitors?		
Explain major components and milestones?		
Explain risk based cleanup standards?		
CERCLA VS RCRA PROGRAM	**TNRCC**	**10/6/98**
Why the transition?		
Regulatory statues?		
Similarities and differences?		
Major milestones?		
Identify which zones/sites will be transitioned?		
Role of Institutional Controls ?		
Post Care Closure Permit?		

Comparison of RCRA, IRP, and CERCLA Phases and Milestones



Legend

CMI - C	Corrective Measures Implementation	RA - C	Remedial Action Construction
CMI - D	Corrective Measures Implementation Design	RA - O	Remedial Action Operation
CMS	Corrective Measures Study	RC	Response Complete
DD	Decision Document	RD	Remedial Design
FS	Feasibility Study	RFA	RCRA Facility Assessment
LTM	Long - Term Monitoring	RFI	RCRA Facility Investigation
LTRA	Long - Term Response Action	RI	Remedial Investigation
NPL	National Priorities List	RIP	Remedy In Place
O & M	Operation and Maintenance	ROD	Record of Decision
OPS	Operating Properly and Successfully	SC	Site Completion for Entire Installation (CERCLA)
PA	Preliminary Assessment	SC	Site Closeout (RP)
RAIP	Remedial Action In Place	SI	Site Inspection

References

EPA RCRA	40 CFR Chapter 1
DoD IRP	Department of Defense Reporting Conventions (Restoration Management Information System)
EPA CERCLA	National Oil and Hazardous Substances Pollution Contingency Plan; EPA Reporting Guidance

Waste Policy Institute 5/29/98

KELLY AIR FORCE BASE (KAFB)

RESTORATION ADVIOSRY BOARD (RAB) PARIDYME SHIFT (Cont.)

OFF-BASE VS ON-BASE CLEANUP ISSUES Why are there not off-base systems in place? Maximizing interim systems?	**KAFB**	**11/10/98**
KAFB'S PLAN FOR TREATED GROUNDWATER Re-assesses best options for capture and re-use of water as a resource on KAFB. Review SAWS water recycling plan. Research if SAWS's plan can be used to augment treatment and disposal. Re-injection and recycling vs. treatment and surface water discharge?	**KAFB**	**11/10/98**
GKDC'S ON-SITE ENVIRONMENTAL MANAGEMENT PROGRAM Management and review KAFB's restoration program? GKDC's long term environmental role at KAFB? Role of AFBCA? GKDC's property transfer plan? Property Transition/Available Footprint Areas?	**GKDC**	**11/17/97**
PUBLIC HEALTH ISSUES Review possible chronic health affects due to environmental impact by KAFB? Work with community and ATSDR to assess conditions? Conduct additional health studies?	**COSA**	**11/17/98**
TECHNICAL ASSISTANCE FOR PUBLIC PARTICIPATION (TAPP) TAPP Management. TAPP Resource and coordination.	**ALL**	**ALL**
ENVIRONMENTAL JUSTICE	**ALL**	**ALL**

TO: Damian Sandoval/KAFB RAB TRS
From: George Rice
Subject: Concerns regarding modeling of the proposed drain/barrier in the Quintanna Road Neighborhood
Date: 12 August, 1998

Boundary Conditions used in the Model

The model presented at the June 23, 1998 TRS meeting used constant head boundaries along all four sides. This is a standard modeling technique. However, in this case the constant head boundaries may be too close to the area of interest for which water levels, flow rates, and capture zones are being predicted. If so, the constant head boundaries will act as a source of water and the model will under-predict drawdowns resulting from the simulated pumpage. Water levels and capture zones will also be distorted[1].

I believe that the reasonable and prudent thing to do is test the model as recommended below. This quote is from James W. Mercer and Charles R Faust, Ground-Water Modeling (1986).

Note that where it is impractical to include one or more physical boundaries (e.g., an alluvial valley that may be extremely long), the grid can be expanded to an artificial boundary. The artificial boundary should be located far enough from the project area so that it will have negligible effect on the area of interest during the simulation period, but can be much closer than the physical boundary. In this case, the boundary condition is arbitrary (e.g., impermeable conditions), but the influence of the artificial boundary should be checked by comparing the results of two simulation runs using different artificial boundary conditions. Emphasis added.

General Concern

The consequences of installing the drain/barrier and associated pumping system do not appear to have been carefully thought through. For example, the volume of groundwater flowing immediately down gradient of the barrier will be reduced. This will probably increase the time required for contaminants down gradient of the barrier to be flushed from the aquifer.

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[1] Note: the fact that the model was calibrated does not affect the current discussion. The problems associated with the boundaries are likely to manifest themselves only when a stress to the system is simulated (e.g., pumping, introduction of a barrier to flow).

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 PCE 1,2 DCA[3] 1,4 DCB[4] 1,3 DCB Benzene Ethylbenzene Chlorobenzene[5]	2.2 0.2 **36** **149** 305 0.5 39 **435**	Out of service and abandoned December 1996 (1) = average of 2 samples
	3/11/86	1,1,1 TCA[6] 1,2 DCA	1.0(1) 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 1,1,1 TCA	4.0 1.8	Out of service August 1995 Abandoned January 1997
	5/15/86	1,1,1 TCA	1.0	
Bldg. 3010 (AY-68-36-807)	3/11/86	1,2 DCA 1,1,1 TCA	4.5 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] 1,1,2 TCA	4.7 0.6	
Bldg. 313 (AY-68-36-809)	1/22/86	TCE PCE 1,2 DCA Methylene - Chloride[8]	2.8 0.6 **43** **5.0**	Out of service January 1989 Abandoned June 1991 Also known as Well #2 (1) = average of 2 values
	3/11/86	1,2 DCA 1,1,1 TCA	2.6 (1) 1.0 (1)	
	7/7/88		**5.5**	
Bldg. 141 (AY-68-36-810)	1/31/86	lead[9] mercury[10]	**43** **2.5**	Out of service October 1984 Abandoned June 1991
	3/11/86	1,2 DCA 1,1,1 TCA	2.1 (1) 0.9 (1)	(1) = average of 2 samples
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
[10] mercury MCL = 2 µg/l

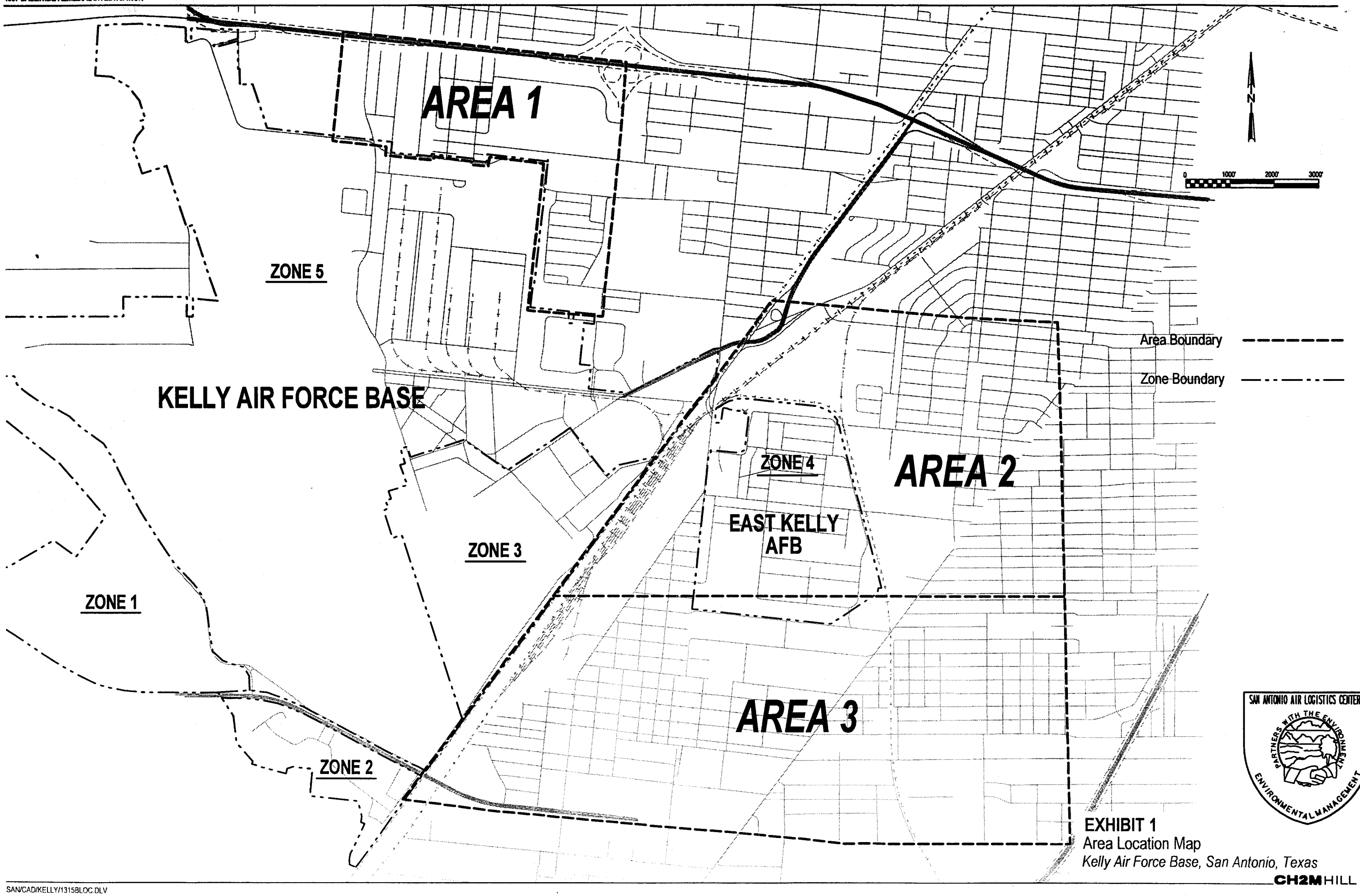

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EXHIBIT 1
Area Location Map
Kelly Air Force Base, San Antonio, Texas

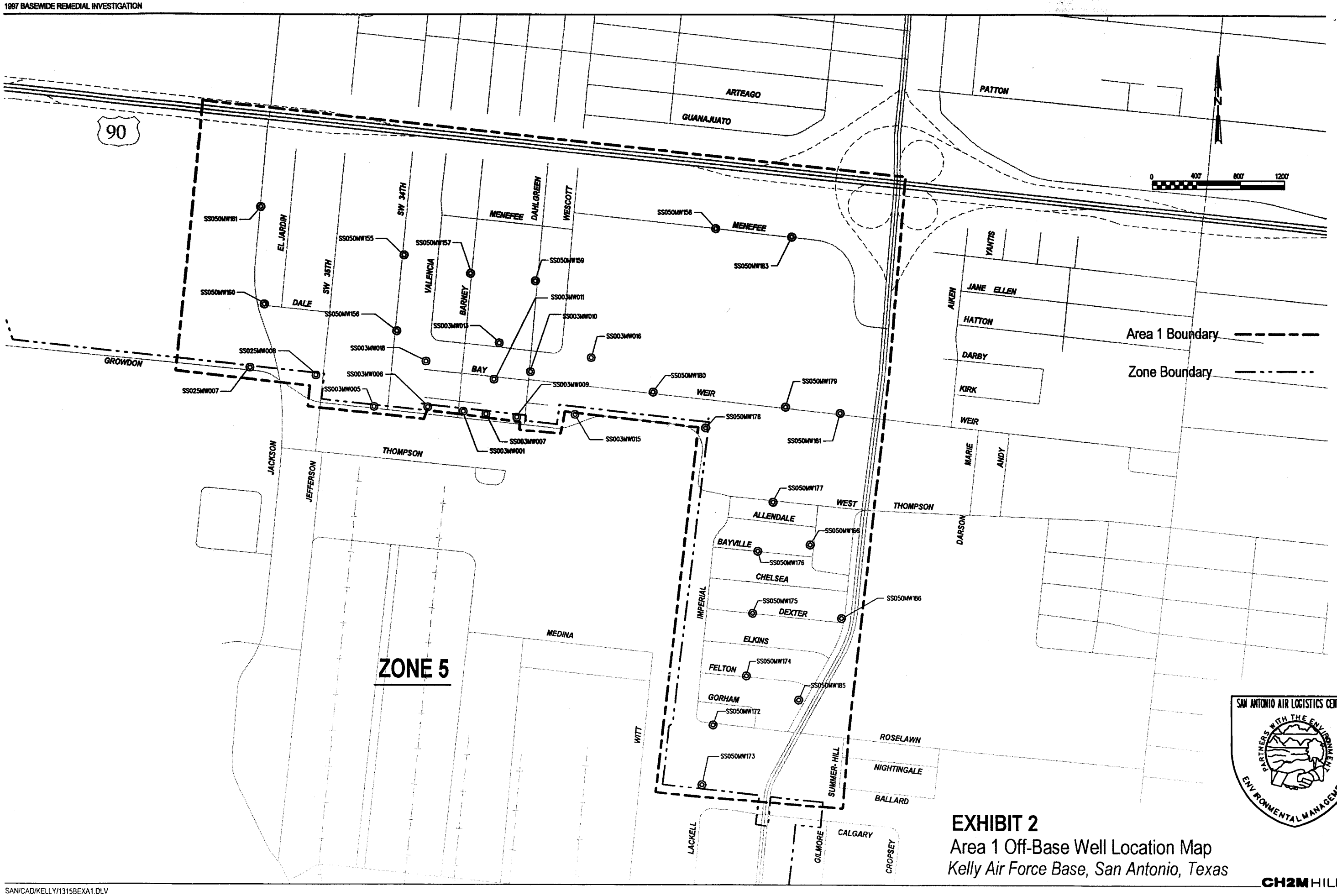

EXHIBIT 2

Area 1 Off-Base Well Location Map

Kelly Air Force Base, San Antonio, Texas

SAN/CAD/KELLY/1315BEXA1.DLV

CH2MHILL

ZONE 5

ZONE 3

ZONE 4

Area 2 Boundary

Zone Boundary

N

0 500' 1000' 1500'

EMERSON
GREENWAY
JEWELL
QUERIDA
ROSELAWN
CUPPLES
JUPITER
HUMBLE
BESSE MLE
HEARNE
LINARES
W THEO
MALONE
ROYSTON
W WINNIPEG
HOOVER
SIMS
CLAIRE
GLADSTONE
SOUTHWAY
DE SOTO
MARJAN
ST ELMO
JENNINGS
ELMO
ELLANA
ROSS
BURKE
WESTWAY
WICHITA
DARSON
CARTHAGE
AVE E
AVE D
HANGAR
FICKEL
McGARIGLE
JONES
AVE A
DE CAMP
CENTENNIAL
BURTON
PEARSON
ALDRUP
MULDOON
ELSER
BARNES
5TH
6TH
EASTERN
TAYMAN
NORTON
LOCKETT
QUINTANA
HARMON
MART
McKENNA
GRIFFIN
PALESTINE
DACUS
TAMPA
BAKER
ORDNANCE
CRICKETT
WALKER
ST JOHNS
TINKER
QUENTIN
FAY
HOLLENBECK
SOUTHCROSS
PIERIAN
LYELL
VOTAW
FITCH
MILVID
ZARZAMORA
BLOOM
ILLINOIS
CARLISLE
HOSACK
DIVISION
AMES
BURGESS
VERMONT
CRYSTAL
KEATS
BRIGHTON
FLANDERS
ELKS
STONEWALL
HUMBOLT
HARLAN
BRUNSWICK
PACKARD
LENARD
LARDNER
HURON
FERNDALE

SS052MW196 SS052MW197 SS052MW179 SS052MW195 SS052MW198 SS052MW180 SS052MW100 SS052MW183 SS052MW270 SS052MW098 SS052MW191 SS052MW192 SS052MW199 SS052MW097 SS052MW154 SS052MW171 SS052MW169 SS052MW133 SS052MW161 SS052MW170 SS052MW126 SS052MW127 SS052MW134 SS052MW135 SS052MW137 SS052MW160 SS052MW132 SS052MW156 SS052MW099 SS052MW129 SS052MW128 SS052MW130 SS052MW131 SS052MW223 SS052MW224 SS052MW226 SS052MW225 SS052MW102 SS052MW101 SS052MW138 SS052MW159 SS052MW249 SS052MW248 SS052MW250 SS052MW003 SS052MW004 SS052MW158 SS052MW104 SS052MW105 SS052MW106 SS052MW107 SS052MW181 SS052MW182 SS052MW271 SS052MW272 SS052MW111 SS052MW114 SS052MW112 SS052MW113 SS052MW115 SS052MW116 SS052MW117 SS052MW118 SS052MW119 SS052MW136

SS004MW002 SS004MW003 SS004MW001 SS004MW008 SS004TW037 SS004MW007 SS004MW010 SS004MW012 SS004MW011 SS004MW009 SS004TW035 SS004TW036 SS004MW005 SS004MW006 SS004TW023 SS004MW013

SS0520W166 SS0520W165 SS0520W162 SS0520W164 SS0520W163 SS0520W167 SS0520W168

SS037MW212 SS037MW029 SS037MW214 SS037MW033 SS037MW220 SS037MW027 SS040MW016 SS037MW038 SS040MW017 SS038MW007 SS037MW219 SS037MW215 SS040MW039 SS037MW217 SS040MW040 SS040MW041 SS037MW218 SS040MW014 SS040MW013

SS038RW023 SS038RW021 SS038RW024 SS038RW022 SS037MW034 SS037MW035 SS038RW025 SS038MW028 SS038RW026 SS037MW032 SS038MW002 SS038MW029 SS037MW031 SS038RW027 SS040MW038

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EXHIBIT 3

Area 2 Off-Base Well Location Map

Kelly Air Force Base, San Antonio, Texas

SAN/CAD/KELLY/1315BEXA2.DLV

CH2MHILL

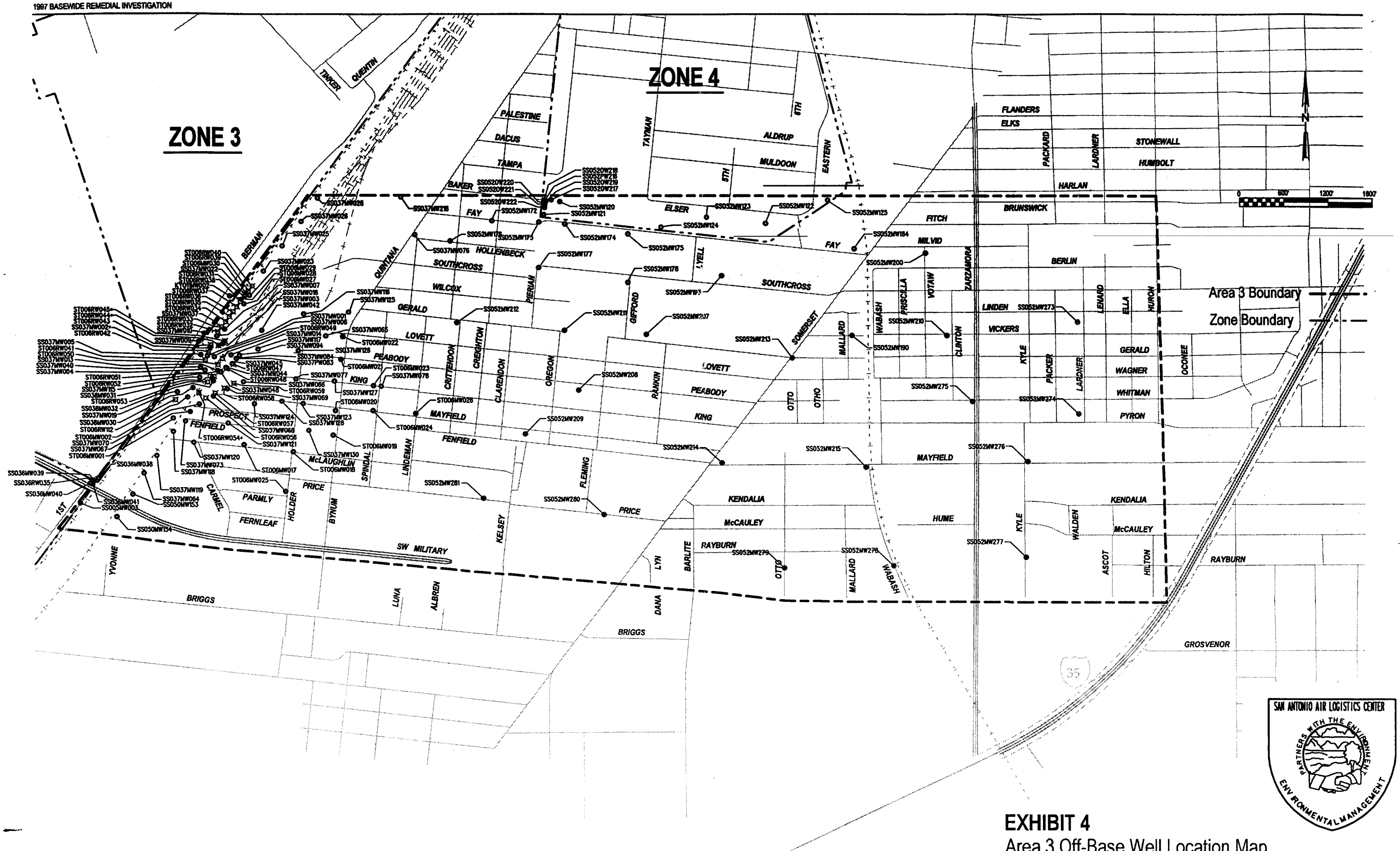

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EXHIBIT 4

Area 3 Off-Base Well Location Map

Kelly Air Force Base, San Antonio, Texas

CH2MHILL

SAN/CAD/KELLY/1315BEXA3.DLV

KELLY AFB OFF-BASE MONITORING WELLS
RESULTS FROM 1997 ANNUAL SAMPLING EVENT FOR SELECTED CHLORINATED SOLVENTS

Monitoring Well #	1,1-DCE	1,2-DCE	PCE	TCE	VC
(MCL)	7	70	5	5	2
SS003MW010	ND	3	ND	4	ND
SS003MW011	ND	2	ND	4	ND
SS003MW013	ND	17	130	31	ND
SS003MW015	ND	2	ND	ND	ND
SS003MW016	ND	2	6	2	ND
SS003MW018	ND	ND	64	ND	ND
SS025MW007	ND	17	3	39	ND
SS025MW008	ND	ND	ND	ND	ND
SS035MW003	ND	2	ND	ND	ND
SS035MW004	ND	ND	ND	ND	ND
SS037MW004	ND	ND	ND	ND	ND
SS037MW007	ND	100	ND	ND	80
SS037MW014	ND	ND	ND	ND	ND
SS037MW020	ND	ND	ND	ND	ND
SS037MW022	ND	460	1100	67	ND
SS037MW023	ND	ND	ND	ND	ND
SS037MW027	ND	4300	ND	ND	1300
SS037MW033	ND	2200	1800	920	190
SS037MW042	ND	550	500	54	31
SS037MW044	ND	ND	ND	ND	ND
SS037MW047	ND	15	ND	ND	3
SS037MW051	ND	ND	ND	ND	ND
SS037MW064	ND	ND	ND	ND	ND
SS037MW065	ND	ND	ND	ND	ND
SS037MW066	ND	24	13	13	ND
SS037MW070	ND	8	ND	1	ND
SS037MW077	ND	32	ND	ND	ND
SS037MW078	ND	4	1	ND	ND
SS037MW079	ND	310	180	35	2
SS037MW116	ND	ND	ND	ND	ND
SS037MW117	ND	130	57	27	ND
SS037MW118	ND	ND	ND	ND	ND
SS037MW119	ND	ND	ND	ND	ND
SS037MW120	ND	2	ND	ND	ND
SS037MW121	ND	36	ND	ND	ND
SS037MW123	ND	160	56	28	ND
SS037MW124	ND	ND	ND	ND	ND
SS037MW125	ND	ND	ND	ND	ND
SS037MW126	ND	50	11	6	ND
SS037MW127	ND	53	9	14	ND
SS037MW128	ND	400	180	29	ND
SS037MW130	ND	3	ND	1	ND
SS037MW212	ND	ND	15	1	ND
SS037MW214	ND	ND	2	1	ND
SS037MW218	ND	ND	ND	ND	ND
SS037MW219	ND	210	110	78	32
SS037MW220	ND	1500	440	440	140
SS038MW002	ND	ND	ND	ND	ND
SS038MW006	ND	ND	ND	ND	ND
SS040MW041	ND	310	210	140	ND
SS042MW008	ND	ND	ND	ND	ND
SS042MW012	ND	4	ND	ND	ND
SS042MW013	ND	3	ND	ND	ND
SS042MW016	ND	11	ND	1	ND
SS042MW017	ND	ND	ND	ND	ND
SS050MW153	ND	ND	3	ND	ND
SS050MW154	ND	ND	ND	ND	ND
SS050MW155	ND	ND	ND	ND	ND
SS050MW156	ND	ND	2600	ND	ND
SS050MW157	ND	21	40	23	ND
SS050MW158	ND	6	12	7	ND
SS050MW159	ND	25	50	31	ND
SS050MW160	ND	17	3	47	ND
SS050MW161	ND	ND	ND	ND	ND
SS050MW166	ND	3	ND	15	ND
SS050MW172	ND	ND	ND	4	ND
SS050MW173	ND	ND	ND	ND	ND
SS050MW174	ND	ND	ND	7	ND
SS050MW175	ND	ND	ND	8	ND
SS050MW176	ND	3	ND	28	ND
SS050MW177	ND	1	ND	4	ND
SS050MW179	ND	ND	15	2	ND
SS050MW180	ND	ND	ND	ND	ND
SS050MW181	ND	7	60	14	ND
SS050MW183	ND	ND	ND	ND	ND
SS052MW136	ND	1	ND	11	ND
SS052MW169	ND	ND	4	2	ND
SS052MW170	ND	ND	19	1	ND
SS052MW171	ND	140	110	63	ND
SS052MW174	ND	3	ND	ND	ND
SS052MW175	ND	480	180	120	ND
SS052MW176	ND	ND	ND	ND	ND
SS052MW177	ND	380	63	77	ND
SS052MW178	ND	350	140	97	ND
SS052MW179	ND	ND	ND	ND	ND
SS052MW180	ND	14	37	47	ND
SS052MW181	ND	ND	5	ND	ND
SS052MW182	30	7	26	6	ND
SS052MW183	ND	10	9	59	ND
SS052MW184	2	24	15	8	ND
SS052MW190	ND	130	44	30	ND
SS052MW191	ND	13	10	49	ND
SS052MW192	ND	5	9	14	ND
SS052MW193	ND	19	6	5	ND
SS052MW194	ND	ND	ND	ND	ND
SS052MW195	25	ND	9	2	ND
SS052MW196	7	ND	2	ND	ND
SS052MW197	5	ND	32	5	ND
SS052MW198	54	27	65	9	ND
SS052MW199	ND	10	12	40	ND
SS052MW200	ND	1	1	ND	ND
SS052MW207	ND	140	56	41	ND
SS052MW208	ND	53	11	14	ND
SS052MW209	ND	ND	ND	ND	ND
SS052MW210	ND	6	12	33	ND
SS052MW211	ND	36	4	4	ND
SS052MW212	ND	ND	ND	3	ND
SS052MW213	ND	ND	ND	ND	ND
SS052MW214	ND	190	37	33	13
SS052MW215	ND	10	3	1	ND
SS052MW270	2	16	5	49	ND
SS052MW271	ND	8	9	33	ND
SS052MW272	1	11	18	50	ND
SS052MW273	1	6	8	33	ND
SS052MW274	1	5	12	25	ND
SS052MW275	ND	ND	ND	ND	ND
SS052MW276	ND	1	4	4	ND
SS052MW277	1	72	19	22	ND
SS052MW278	ND	4	1	2	ND
SS052MW279	ND	ND	ND	ND	ND
SS052MW280	ND	3	ND	3	ND
SS052MW281	ND	ND	ND	36	ND
ST006MW002	ND	ND	ND	ND	ND
ST006MW018	ND	5	2	13	ND
ST006MW021	ND	93	36	11	ND
ST006MW023	ND	9	2	5	ND
ST006MW024	ND	40	11	9	ND
ST006MW026	ND	ND	3	1	ND
WP021MW010	ND	350	ND	ND	ND
WP021MW011	ND	160	ND	ND	12
WP021MW012	ND	1	12	8	ND
WP021MW016	ND	ND	ND	ND	ND
WP021MW017	ND	ND	ND	ND	ND
WP021MW018	ND	ND	ND	ND	ND

All units ug/l (micrograms per liter or parts per billion)
1,1 DCE: 1,1 Dichloroethene
1,2 DCE: Total 1,2-Dichloroethene
PCE: Perchloroethene

TCE: Trichloroethene
VC: Vinyl Chloride
ND: chemical Not Detected during analysis

MCL: Maximum Contaminant Level

Executive Summary

This report documents the results of the 1997 Basewide Remedial Assessment (BRA) annual sampling conducted at Kelly Air Force Base (AFB) in San Antonio, Texas. Kelly AFB voluntarily conducts annual assessments to determine the effectiveness of ongoing remedial activities in improving the quality of the groundwater in the surficial (shallow groundwater) aquifer. The basewide remedial assessment initiative began in 1994.

In this report, the results of 1997 basewide groundwater sampling and analyses are compared with data presented in the 1994, 1995, and 1996 BRA annual reports (CH2M HILL, March 1996, July 1996, and August 1997) and previous remedial investigations (RIs) (Halliburton NUS [HNUS] Environmental Corp., February 1992, March 1992, November 1992, and June 1993). In addition to these data, the analysis for the 1997 assessment considers site hydrogeology, including groundwater and surface water interaction, and the results of the 1996 Draft Capture Zone modeling of existing recovery systems. This report also summarizes the results of the 1997 natural attenuation study and the nickel-chromium study.

Environmental restoration activities under the U.S. Air Force's (USAF's) Installation Restoration Program (IRP) began at Kelly AFB in 1982 and focused on preliminary assessments and site inspections. Since 1988, RI activities have focused on characterizing the nature and extent of compounds in soil and groundwater at the 52 IRP sites identified to date. To manage restoration activities, Kelly AFB has been divided into five IRP zones. In 1989, the Texas Water Commission (now the Texas Natural Resource Conservation Commission [TNRCC]) issued an order establishing requirements for restoration of the base. Additionally, under the TNRCC-proposed post closure care permit application and associated compliance plan, 14 waste management areas (WMAs) were designated. The WMAs are typically located around IRP sites with operating interim remedial action systems. Each WMA has an associated downgradient area, consisting of the constituent with the furthest downgradient plume extent.

Groundwater Remediation

Groundwater recovery systems, bio-venting, and soil vapor extraction (SVE) systems have been installed at Kelly AFB to address groundwater and soil concerns. Current operating systems include three groundwater recovery systems in Zone 1, four groundwater recovery systems and a groundwater collection trench in Zone 2, three groundwater recovery systems in Zone 3, and one groundwater recovery system and two bio-venting systems in Zone 5. No IRAs have been conducted to date in Zone 4.

Hydrogeology

Groundwater in the surficial aquifer beneath Kelly AFB comes from three sources: (1) rainfall, (2) some regional groundwater flow from the north, and (3) recharge from Leon Creek in localized areas. The surficial aquifer under Kelly AFB loses water primarily by regional migration off the base, evapotranspiration, flow into Leon Creek, and removal by

the groundwater recovery systems. Depths to shallow groundwater range from about 3 to 37 feet. The thickness of the alluvial sediments, through which most of the shallow groundwater movement occurs, ranges from zero to 50 feet. The groundwater gradient within the surficial aquifer varies across the base and is an important factor in the rate of groundwater movement. In general, the gradient is lower in the northern sections of Zones 3, 4, and 5. The gradient is higher in the southern sections of Zones 3 and 5 and on the north side of Leon Creek in Zone 2 and the south side of Leon Creek in Zone 1.

Groundwater Monitoring

The 1997 Basewide Remedial Assessment synthesizes data from multiple IRP projects, including the following sampling events conducted during May and June 1997:

- Basewide annual groundwater monitoring (total of 421 monitoring wells)
- Second quarter 1997 Resource Conservation and Recovery Act (RCRA) compliance monitoring of 40 monitoring wells (two wells were inaccessible; therefore, a total of 38 were sampled)
- Zone 5 remedial investigation/feasibility study (RI/FS) followup groundwater sampling of 132 monitoring wells
- Zone 2 - Operable Unit 2 – long-term monitoring of groundwater in nine monitoring wells
- BRA nickel-chromium study consisting of time series sampling of five monitoring wells for total and dissolved nickel-chromium.

Analytical Methods

Basewide groundwater, RCRA, and Zone 5 samples in this assessment were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and metals.

Analytical Approach

Fourteen WMAs were defined in the TNRCC permit application compliance plan. The WMAs and their associated downgradient plumes were quantitatively compared with 1995 and 1996 BRA data. Box plots and historical (1995, 1996, and 1997) minimum and maximum concentrations were used for each WMA to make quantitative comparisons of the 1995, 1996, and 1997 data. Box plots were used to compare data from all wells that were sampled in each year and had at least five detects in at least one of those years. These comparisons were useful in determining if specific parameters have increased or decreased since 1995. Historical minimum and maximum concentration tables were used to compare the distribution of concentrations in all sampled wells in 1995, 1996, and 1997.

The 1997 plume configurations were compared qualitatively to plume maps generated for the 1994, 1995, and 1996 BRAs and the RIs for Zones 1, 2, and 3. The RI data represent the baseline of conditions in 1989, 1990, and 1991, before operation of the recovery systems in Zones 1, 2, and 3.

Summary of Analytical Results

In general, data from the 1997 BRA indicate that most of the plumes associated with known source areas are being addressed by interim recovery systems, which are preventing additional contribution to offsite plumes. The wells that have historically had the highest concentrations of constituents have generally shown a decrease in constituent levels over time. Overall plumes have generally remained the same in extent since 1995. However, the lateral extents of chlorinated hydrocarbon plumes appear to have increased offbase to the southeast of Zone 3, and offbase south and east of Zone 4. This extent of known contamination was expanded based on data collected from additional downgradient monitoring wells installed in early 1997. The 1995 and 1996 extents of plume boundaries shown in respective BRA annual reports were estimated based on the existing well data. The Zone 2 interim remedial systems have contributed to a dramatic Zone 2 WMAs decrease in downgradient constituent concentrations and extents, and Zone 1 WMAs indicate a slight decrease in downgradient constituents and extents of plumes. In Zones 3, 4, and 5, the median, minimum and maximum concentrations for the majority of the WMAs downgradient areas of the plumes have generally remained the same since 1995.

Nickel-Chromium Study

The results of the nickel-chromium study at Kelly AFB indicated that approximately 85 percent of the nickel measured in groundwater samples from the test wells is in solution with the remaining 15 percent resulting from particulates in the water. Both total and dissolved nickel decrease exponentially with sample dilution, i.e. as more water is purged from the well, suggesting that the well screen may be contributing to the nickel concentration of the groundwater.

In the wells tested, 97 to 100 percent of the chromium detected in the groundwater samples was not in solution but resulted from particulates in the sample. The actual source of the chromium, soil or well screen, cannot be confirmed, only that it is not in solution in the groundwater. For each well there was a relationship between the nephelometric turbidity units (NTUs) measured in each sample and the amount of chromium detected.

Visual inspection of clarity may not be a good method for evaluating a metals sample because chromium was detected in unfiltered samples with turbidity less than 10 NTUs. The actual mechanism by which nickel and/or chromium is leached from the well screen was not investigated as part of this study, but these data, in addition to previous research, suggest that the well screen should be considered a potential source of both metals.

TECHNICAL REVIEW SUBCOMMITTEE
August 25, 1998

TECHNICAL ASSISTANCE FOR PUBLIC PARTICIPATION

Procedures for Review of Proposals

Step 1. Review. Review the six proposals received. They have been assigned letters "A" through "F" for identification, as shown in the list on the attached sheet. Please remember that the proposals are confidential proprietary information and they should not be discussed outside of the meetings. Price information is not included, and should not be considered until **Step 4.**

Step 2. Ranking. The TRS must rate and rank the proposed providers as soon as possible, and any event not later than September 10, 1998. The rating should be done as follows:

a. Each member should read each proposal carefully.
b. Each member should rate each proposal as "satisfactory' or "unsatisfactory."
c. Note that there are two categories: health expert and restoration expert. Some proposers have expertise in both categories and thus are eligible for ranking as both a health expert and a restoration expert. Within each category, each member should rank his or her preferred proposals in order of preference. You may use the list on the next page to indicate your preferences.
d. Compare the rankings by the individual TRS members and jointly prepare a composite TRS preference ranking.

Step 3. BPA. Randi Audelo, the contracting officer for AFBCA, will then enter into a Blanket Purchase Agreement ("BPA") with the selected providers. The BPA's will be outstanding for up to five years.

Step 4. Task Assignment. After Ms. Audelo has awarded the BPA based on the TRS' selection, the TRS must then recommend the respective provider for each of the three tasks voted on for Fiscal Year 1998. Price information will be made available to the TRS at this time.

Step 5. Contract Award. Randi Audelo will then award the contracts based on the TRS' recommendation.

LIST OF PROPOSED PROVIDERS

A. **Neatherly Environmental Services, 900 NE Loop 410, Ste D-315, San Antonio, Texas 78209.**

B. **JL Perkins, Inc., 508 Ridgemont, San Antonio, Texas 78209**

C. **Frank D. Masch, Consulting Engineer, 13231 North Hunters Circle, San Antonio, Texas 78230**

D. **Clearwater Revival Company, 305 Spruce Street, Alameda, CA 94501**

E. **Katherine S. Squibb, PhD, University of Maryland, Office of the Director, 660 West Redwood Street, Room 227, Baltimore, Maryland 21201**

F. **Geomatrix Consultants, Inc., 1214 West Sixth Street, Ste 201, Austin, Texas 78703.**

Individual TRS Member's Preference Rankings

Health Expert	**Restoration Expert**
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

signed:_____ **date:**_____

BCT Minutes
July 21-22, 1998

The meeting was held on 21 and 22 July, 1998 9:00 a.m., in the WPI offices.

Lead/Support People	Document	Comments	Estimated Completion Date	How will we know it's done?	Disposition
1. Landez/	TNRCC Resource Use of DSMOA Personnel	Discuss and determine the delegation of responsibilities to Abby Power (TNRCC, Region 13)	7/21/98	The BCT will agree on a plan for delegation of responsibilities to Abby.	Closed. Abby Power has bases besides Kelly. Abby will work particularly on determining sites which require further investigation. Abby will review clean-up documents. Abby will come to Kelly on Thursday each week, with date changes as needed. She will survey field work. She will participate in the Tuesday telecon. She will help with hot transfer issues. Please add her to your database and mailing list. Phone (210) 490-3096. E-mail apower@tnrcc.state.tx.us
2. Buelter/ Posnick,	Define corrections of individual requirements in RCRA/CERCLA documents, provide a correlation table, and provide a document shell.	Define corrections of individual requirements in RCRA/CERCLA documents, provide a correlation table, and provide a document shell.	7/21/98	Team will accept the corrections, correlation table and document shell.	Closed. Use RCRA guidance as document shell. Agree on sections to include case by case at each pre-scope meeting, and document that agreement by memo, cc. BCT.
3. Ryan/Posnick, Hueni	Develop a Plan/Draft Table for the EPA/TNRCC's Involvement in Interim Actions	Develop a Plan/Draft Table for the EPA/TNRCC's Involvement in Interim Actions.	7/21/98	BCT approves Plan/Draft table.	Closed. William distributed a document. It won't work. Kelly will propose a process with these general characteristics: a. case by case, b. Kelly sends notice of IA to TNRCC, with a date for the proposed action, c. notice by certified mail, d. TNRCC will respond within a set interval, e. verbal OK is acceptable, documented in BCT or teleconference minutes. Allan has given OK to go ahead with IA on zone 4 IRA.

4.	Beyer/	Base-wide PA/SI	The Final Draft was sent to the TNRCC requesting a response. Comments are welcome but are not regulatorily driven. (Camille will discuss the EPA review date at the July BCT meeting)	7/22/98	????	Open. Abby will respond to document in conference call 7/28/98. August 20, 1998 is target date for EPA comments. Nothing new has been uncovered according to the document. Change persons responsible to Abby and Camille in hot issues data base.
5.	Posnick/Clark, Lewis.		We have a rare opportunity to have Chet Clarke, Section Manger of the Technical Services Section and Paul Lewis, Corrective Action Section Manager come down and brief Kelly on the new TRRP rule.	7/22/98	Team understands the new TRRP rule.	Closed. Presentation completed, with handout.
6.	Hueni/	Discuss Monitoring Natural Attenuation Off Base	Discuss Monitoring Natural Attenuation for off base locations. Upon review of EPA provided packages and handouts, the team will discuss Sept. meeting date and topics.	7/22/98	BCT will complete discussion. BCT will establish September meeting date and agenda.	Closed. Camille wants to have natural attenuation agenda item at September BCT. Include legal people, contractors and others interested in the topic. Kelly (Mike) will e-mail agenda changes to Camille, cc. BCT.
7.	De Venoge/Posnick, Hueni	List of Documents Going to the RAB at the Conclusion of the BCT Meeting	Clarify which documents go to the RAB and the TRS at the close of the BCT Meeting.	7/22/98	The BCT will agree on the list of documents related to this meeting that will go to the RAB.	Closed. William distributed a list of documents going to RAB members.

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE