



KELLY AFB
TEXAS

ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 3282

KELLY RESTORATION ADVISORY BOARD
TECHNICAL REVIEW SUBCOMMITTEE
REVISED MEETING AGENDA
Tuesday, 8 February 2000, 6:30 P.M.
St. Mary's University, Garni Science Hall

- | | | |
|--|-------------|------------|
| I. Introduction | 6:30 - 6:35 | Dr Lené |
| A. Agenda Review and Handouts | | |
| II. TAPP Report | 6:35 -7:10 | Mr. Lynch |
| III. Zone IV Interim Action Status Report | 7:10 - 7:40 | Kelly Rep. |
| IV. Administrative | 7:40 - 8:00 | Dr Lené |
| A. BCT Update | | |
| B. Spill Summary Report | | |
| C. Documents to TRS/RAB | | |
| D. Action Item Review | | |
| 1. Number of wells off base | | |
| E. Agenda/Location/Time of Next TRS Meeting | | |
| V. Adjournment | 8:00 | All |

MEETING MINUTES
KELLY AFB TECHNICAL REVIEW SUBCOMMITTEE (TRS)
TO THE RESTORATION ADVISORY BOARD (RAB)
8 February 00, St. Mary's University, Garni Science Hall

- I. Introduction:** The TRS meeting began at 6:50 p.m. Attachment 1 is the attendance report.
- II. Draft TAPP Review of S-4 Groundwater Corrective Measure Study (CMS):** Mr. Patrick Lynch, Clearwater Revival Company, presented the S-4 CMS. Mr. Lynch covered the report's design alternatives, computer modeling assumptions, accelerated biodegradation, and model results verification. Mr. Lynch's presentation is included as attachment 4.
- III. Zone IV Interim action status Report:** Mr. Charlie Matthews from Kelly AFB shared with the committee the progress that was being made on East Kelly. He reported 8 of the 10 horizontal wells and three vertical have been installed. When completed the wells will form a barrier on the eastern and southern borders of East Kelly for the containment of contaminated groundwater. Work is continuing in the northeast corner, and on the treatment plant. It was emphasized that these are interim actions with the final cleanup proposal expected by years end. Handouts on the project are provided attachment 6.
- IV. Administrative**
- A. Documents to TRS/RAB: Ten documents were present to the TRS/RAB (attach 2).
 - B. Spill Summary Report: There were no reportable spills during the month of January 2000. A copy of the spill summary report is included in attachment 3.
 - C. Next TRS meeting: The next TRS meeting will be held Wednesday 8 March 2000 at 6:30 p.m. at St. Mary's Garni Science Hall.
 - D. Action Items:
 - 1. Mr. Quintanilla requested a copy of the CERCLA Alternatives criteria.
 - 2. Mr. Rice asked when will the 300 area contamination sources be controlled.
 - E. Other Administrative Items:
 - 1. Mr. Zatopek asked members to submit comments and questions concerning the briefed TAPP Report to him NLT March 11, 2000. This is to allow Mr. Lynch adequate time to address them.
 - 2. Ms. Laura Stankosky invited everyone to watch the sampling going on in North Kelly Gardens Wednesday February 9 2000

IV. Adjournment: The TRS adjourned at 8:50 p.m.

Attachments:

- 1. Attendance List
- 2. Document List
- 3. Spill Summary Report
- 4. S-4 Groundwater Corrective Measure Study Presentation Slides
- 5. Zone IV Handouts
- 6. BCT Minutes, 8 February 2000

OFF-BASE WELLS Kelly AFB

TOTAL NUMBER OF ACTIVE WELLS = 296

BREAKDOWN OF WELLS

WELLS	
WELL TYPE	NUMBER OF WELLS
MONITORING WELLS	249
RECOVERY WELLS	28
PIEZOMETER WELLS	13
PUMPING WELLS	6

Definitions

1. **MONITORING WELLS** - Monitoring wells are used for delineating groundwater contaminant plumes and monitoring movement of these plumes through the collection of groundwater samples for analysis. Monitoring wells can also be used in obtaining groundwater elevation data.
2. **RECOVERY WELLS** - Recovery wells are used when the primary purpose of the well is to extract groundwater for remediation or to recover free product out of an aquifer or soil stratum while remediating groundwater.
3. **PIEZOMETER WELLS** - Piezometers are used when the primary purpose is to monitor groundwater elevations in areas not associated with pumping wells, recovery wells, or injection wells.
4. **PUMPING WELLS** - Pumping wells are used when the primary purpose of the well is to pump groundwater out of an aquifer while conducting a pump test.



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

7 FEB 2000

MEMORANDUM FOR REMEDIAL ACTION BOARD/TECHNICAL REVIEW
SUBCOMMITTEE (RAB/TRS)

FROM: SA-ALC/EMC
307 Tinker Drive, Bldg. 306
Kelly AFB, TX 78241-5917

SUBJECT: Monthly Spill Report for January 2000

1. There have been no reportable quantity spills for the month of January 2000. One notable incident occurred on 07 Jan 00 during chemical transfer operations at facility 301. A chemical reaction occurred when chromic solution was pumped into a bowser that contained ethylene glycol residue. The incident was controlled and cleaned up without adverse impact.

2. On 08 Jan 00, the Kelly Command Post was notified of an incident involving a hydrocarbon product in Leon Creek. Air Force (AF) response teams were dispatched to the site for control and clean up procedures. Analytical results identified the product as JP-5. AF and Greater Kelly Development Authority (GKDA) investigations did not identify a specific spill incident that led to the Leon Creek release. The Texas Natural Resource Conservation Commission (TNRCC) was notified of the incident. Should you have any further questions or require additional information, please contact Mr. Jerry Pantoja at 925-3100 ext 310 or by email jerry.pantoja@kelly.af.mil.

Sincerely

A handwritten signature in black ink that reads "B. M. Fitzgerald".

BRIAN M. FITZGERALD, Capt, USAF, BSC
Chief, Environmental Compliance Division

EXECUTIVE SUMMARY

This report documents the removal and closure of an unregulated solid waste management unit (SWMU) located at Building 50, Kelly Air Force Base (AFB), San Antonio, Texas. The subject unit was discovered during paving operations. The unregulated SWMU at Building 50 consisted of an oil/water separator (OWS) and an associated leach field that formerly served two wash racks at an automotive maintenance facility.

Field activities associated with this closure included: (1) removal and disposal of the concrete oil/water separator and leach field, the tank contents, and rinsate water; (2) capping of former wash rack drainage pipes; (3) collection of screening samples to assess media-specific concentrations in the excavation cavity; (4) soil assessment to evaluate impacts to human health and to native groundwater; (5) collection and analysis of closure verification samples; (6) backfilling of the tank cavity; (7) resurfacing with asphalt; and (8) surveying of excavation boundaries for deed recordation.

Due to the depth of site paving and the location of unit drainage pipes, chemical concentrations and closure criteria were evaluated for subsurface soils only. Exposure scenarios for other potentially impacted media (surface soils, surface water, air, groundwater) were evaluated and eliminated from further consideration.

No field evidence of a release was noted during this assessment. Total petroleum hydrocarbon (TPH) screening results ranged from below detection limits to 29.26 ppm. Total benzene, toluene, ethylbenzene and xylenes (BTEX) were below detection limits at all sampling points.

Based upon sample screening results, the following analyses were performed: volatile organic compounds (VOCs) method 8240, semivolatile organic compounds (SVOCs) method 8270, and total metals method 6010. Chemicals of concerns (COCs) established for this assessment were total arsenic, selenium, cadmium, and mercury which were present at concentrations exceeding Health Risk Reduction Standard No. 2 (HRR2). HRR2 is defined in this report as the larger number derived from a comparison of established background levels (HNUS 1994) vs. Industrial Groundwater Protection Standard (GWP-Ind) concentrations. Following two rounds of overexcavation, COCs concentration boundaries were established within HRR2 and are therefore acceptable for Standard No. 2 closure (as per 30 TAC Chapter 335.559, Subsection G).

Based upon media-specific soil sampling and exposure pathway analysis, conditions for closure under Risk Reduction Standard No. 2 have been met. The residual COCs concentrations pose no threat to human health as defined by 30 TAC Chapter 335, Subchapter S. Based upon media-specific sampling and analyses, Kelly AFB recommends that the unregulated SWMU at Building 50 be granted closure by TNRCC.

EXECUTIVE SUMMARY

This report documents the removal and closure of a solid waste management unit (SWMU) located at Building 894, Kelly Air Force Base (AFB), San Antonio, Texas. The SWMU located at Building 894 is registered in the Kelly AFB Notice of Registration (NOR) as System (No.) 72. SWMU No. 72 consisted of a concrete oil/water separator (OWS).

Field activities associated with this closure included: (1) removal and disposal of OWS contents and rinsate water; (2) removal and disposal of the concrete OWS; (3) collection of screening samples to assess media-specific concentrations in the unit cavity; (4) soil assessment to evaluate potential risk to human health and to the environment; (5) collection and analysis of closure verification samples; (6) backfilling of the SWMU cavity; (7) resurfacing with reinforced concrete; and (8) surveying of excavation boundaries for deed recordation.

Due to the depth of site paving and the location of unit drainage pipes, chemical concentrations and closure criteria were evaluated for subsurface soils only. Exposure scenarios for other potentially impacted media (i.e., groundwater subsurface soils, surface water, air, fauna) were evaluated and eliminated from further consideration for this report.

No visual evidence of a release was noted during this assessment. Total petroleum hydrocarbon (TPH) soil screening results ranged from 23.4 parts per million (ppm) to 1,340 ppm. Total benzene, toluene, ethylbenzene, and xylenes (BTEX) ranged from below detection limits to 0.187 ppm. Based upon screening sample results, the following analyses were performed: volatile organic compounds (VOC), semivolatile organic compounds (SVOC), and total metals.

Health Risk Reduction Standard No. 2 (HRR2) is defined in this report as the larger number from a comparison of established background levels (HNUS 1994) vs. Industrial Soil-to-Groundwater Cross-Media Protection Standard (GWP-Ind) concentrations. Chemicals of concern (COC) for this assessment were individual constituents present at concentrations above background levels. Samples collected from the SWMU No. 72 excavation did not exhibit concentrations exceeding HRR2. Therefore, these soils are acceptable for Standard No. 2 closure in accordance with Texas Natural Resource Conservation Commission (TNRCC) 30 Texas Administrative Code (TAC) Chapter 335, Subchapter S, Section 335.559(g)(2).

Based upon media-specific soil sampling and exposure pathway analyses, conditions for closure under HRR2 have been met. No residual contaminant concentrations pose a threat to human health as defined by TNRCC 30 TAC Chapter 335, Subchapter S. Based upon the sampling and analyses of the subsurface soils surrounding SWMU No. 72, Kelly AFB recommends that partial facility closure under Risk Reduction Standard No. 2 be granted for this site by TNRCC.

Summary of Findings for Leon Creek

Overall Quality of Leon Creek

Leon Creek is an extensive urban stream approximately 45 miles long that drains over 200 square miles of land in western Bexar County. Upstream of Kelly AFB, the creek passes near natural forests, residential communities, a golf course, industrial areas, and agricultural areas. Historically, the 3.5-mile-long segment of Leon Creek adjacent to Kelly AFB typically has little water flow (< 10 cubic feet per second [cfs]) during any given year, but during storm events has had streamflows exceeding 10,000 cfs. Groundwater in this area typically contributes to some of the streamflow, as demonstrated by recent measurements; however, daily discharge from the Environmental Process Control Facility (EPCF) contributes to the nearly continuous flow in the lower onsite portion of the stream.

A number of surface water and sediment contaminants have been identified in Leon Creek. Nine organic and 15 inorganic parameters were detected in the surface water during the current assessment, and 37 organic and 19 inorganic parameters were detected in stream sediments. Some of the surface water contaminants are potentially related to nearby groundwater plumes; however, other creek contaminants were directly related to upstream conditions, onsite stormwater, and wastewater outfalls.

Three surface water and 25 sediment contaminants exceeded Texas Water Quality Standards (TWQS) surface water and sediment quality guidelines. This screening-level evaluation indicates potential ecological effects. The results of laboratory toxicity tests of Leon Creek water indicate that surface water toxicity occurred at only two stations (KY030LC058 and KY030LC018) for just one test organism (fathead minnow). All surface water contaminant levels at these two stations were below screening levels. Because toxic effects have been consistently observed at the upstream (background) station, offsite water quality may be contributing to onsite toxicity. Onsite monitoring of fish and benthic invertebrate populations indicated some biological impairment at the upstream (background) station and at all three downstream stations (potentially a result of water quality effects and poor aquatic habitat).

Overall, the structure of Leon Creek's biological communities (fish and benthic macroinvertebrate) is impaired. Some of this impairment can be attributed to habitat characteristics; however, many of the biological indices show that water quality may contribute to this effect. Water quality in this portion of Leon Creek may be affected by the surrounding land use, extreme water flow conditions, and elevated levels of some surface water and sediment contaminants. Chronic toxicity to surface water organisms was identified in one test species, and this toxicity appears to be potentially related to background conditions. Slight contamination found in Leon Creek fish species reinforces these results.

Summary of Findings for Annual Basewide Remedial Assessment and Statistical Evaluation

In general, data from the 1999 *Annual Basewide Sampling Event* indicate that most of the plumes associated with known source areas are being addressed by interim recovery systems, which are preventing additional offsite migration. The wells that have historically had the highest concentrations of constituents have generally shown a decrease in constituent levels over time. Overall, the plumes have generally remained the same in extent since 1995. However, the lateral extents of the PCE, TCE, and total 1,2-DCE plumes have been further delineated off base to the southeast of Zone 3 and off base south of Zone 4. This was discovered during the installation of downgradient monitoring wells in 1998 and 1999. The previous extent of plume boundaries were estimated based on the existing monitoring well data. Also, the lateral extents of the TCE and total 1,2-DCE plumes have been further delineated off base to the east of Zone 4, also discovered during the installation of downgradient monitoring wells in 1998 and 1999.

The percentage of VOC detections remained generally the same from 1997 through 1999. Overall, the basewide distribution of chlorinated hydrocarbons has remained generally the same, but their magnitude has decreased in the vicinity of source areas and just downgradient of most operating recovery systems. Concentration decreases are particularly evident around recovery systems along Leon Creek in Zone 2, where concentrations in many wells between Leon Creek and operating recovery systems have been reduced. Dramatic reductions in chlorinated hydrocarbon concentrations have been achieved within the WP022 (E-3) source area.

Statistically-derived representative concentrations for groundwater data collected at Kelly AFB were evaluated to determine whether the corrective action programs have achieved the Groundwater Protection Standards (GWPS).

The WMA statistical evaluation provided the following conclusions:

- Overall, the typical COPCs exceeded the criteria at the WMAs with which they have always been associated. These COPCs include PCE, TCE, total 1,2-DCE, vinyl chloride, chlorobenzene, benzene, arsenic, nickel, and chromium.
- Some semivolatile organic compounds (SVOCs) were identified as exceeding the criteria, but in most instances only one or two detects occurred. The most frequently detected SVOC, bis(2-ethylhexyl)phthalate, is a common field sampling/laboratory contaminant. In cases where SVOCs other than bis(2-ethylhexyl)phthalate were detected, further verification sampling is recommended.
- Lead, beryllium, and cadmium were infrequently detected inorganic contaminants that exceeded criteria. In most cases, there were only one or two detects.

EXECUTIVE SUMMARY

Science Applications International Corporation was contracted by Kelly AFB to study and determine the use and quality of the shallow aquifer in two areas surrounding Kelly AFB.

Area one is bounded from west to east by General McMullen to Cupples Road and from north to south by U.S. Highway 90 to the Kelly AFB boundary. Area two is bounded from west to east by the Kelly AFB boundary to IH-35 and from north to south by West Malone to Southwest Military Drive to Somerset Road to IH-35.

A two-part study was conducted from April through June 1998. Part one consisted of an electric and water utility survey to discover if an address had its own water well. If the address had electric utility service but no water utility service, it was assumed to have its own water well. Billing account information was obtained from City Public Service (electric utility), San Antonio Water System, and Bexar Metropolitan Water District (water purveyors), and subsequently entered into a database. It was determined that 2,557 addresses had electric service but did not have water service. This information was delivered to the San Antonio Metropolitan Health District for further investigation.

Part two was conducted to identify all shallow water wells within the study area. This was accomplished by a mailout to 3,000 to 5,000 addresses during the Shallow Aquifer Assessment, Phase II. Nineteen shallow water wells were identified but only fifteen sampled during the Phase III assessment. The results are summarized below:

- Three wells were determined to be dry. One well was filled with debris and could not be sampled.
- Of the remaining 15 wells, total petroleum hydrocarbons (TPH), semivolatile organic compounds, arsenic, cadmium, chromium, cyanide, hexavalent chromium, mercury, nickel, selenium and silver were all non-detect (ND).
- Seven wells were ND for trichloroethene (TCE). Eight wells had TCE concentrations ranging from 0.94 micrograms per liter ($\mu\text{g/L}$) to 60 $\mu\text{g/L}$. Three wells (1310 Division, 416 Fay, Residence 9) exceeded maximum contaminant level (MCL) concentrations for TCE (5.0 $\mu\text{g/L}$).
- Seven wells were ND for tetrachloroethene (PCE). Eight wells had concentrations of PCE ranging from 0.34 $\mu\text{g/L}$ to 41 $\mu\text{g/L}$. Three wells (1310 Division, 416 Fay, Residence 5) exceeded MCL concentrations for PCE (5.0 $\mu\text{g/L}$).
- Eight wells were ND for concentrations of cis-1,2-dichloroethene (DCE). Seven wells had concentrations of DCE ranging from 0.7 $\mu\text{g/L}$ to 190 $\mu\text{g/L}$. One well (416 Fay) exceeded the MCL concentration for DCE (70 $\mu\text{g/L}$).
- Vinyl chloride was not detected at any of the sampled wells.
- One well (Residence 2) exceeded the MCL for thallium (2.0 $\mu\text{g/L}$) at 10.7 $\mu\text{g/L}$.

Summary of Findings for Semiannual Groundwater Assessment for RCRA-Regulated Units

The semiannual monitoring of four RCRA-regulated sites determined the adequacy of the monitoring network to detect and evaluate the nature, rate, and extent of groundwater plumes.

The Compliance Plan listed 48 monitoring wells to be sampled semiannually as part of the RCRA monitoring program. This list of monitoring wells was modified, with TNRCC approval, to 42 monitoring wells. However, only 40 wells could be sampled because of the wells being damaged.

Site E-3/SD-1

Quarterly and semiannual monitoring results suggest that installing and operating the groundwater recovery system surrounding Site E-3 has greatly reduced VOC concentrations in the shallow groundwater. In addition, the plume morphologies for chlorobenzene and arsenic indicate that the current monitoring network adequately evaluates the extent of these constituents.

Site SA-2

Low levels of COPCs found adjacent to the site indicate removal actions at this site effectively removed the primary source of contamination. Groundwater monitoring at Site SA-2 indicates the site has minimally affected the shallow aquifer.

Site S-8

The results of the groundwater monitoring indicate that Site S-8 has contributed both inorganic compounds and organic hazardous COPCs to the shallow aquifer. The presence of arsenic and chlorinated VOCs in upgradient wells indicates the likelihood of an additional source in the vicinity of Site S-8. Natural degradation of chlorinated solvents is occurring at Site S-8. The current monitoring well network sufficiently defines the extent of the constituents.

Recommendations

An assessment of the July 1999 semiannual RCRA monitoring network with respect to groundwater elevations, flow directions, contaminant concentrations, and migration rates confirmed that the current monitoring well network adequately evaluates the nature, rate, and extent of contaminant plumes associated with the four RCRA-regulated sites. Therefore, no recommendations to alter the network are suggested.

**REPORTS
FOR
ST MARY'S**

REPORTS LISTED BELOW WERE TAKEN TO THE ST. MARY'S		Date	Status	ADM
LIBRARY - BCT On 8 Feb 2000				
288A	Decision Document, No Further Action, for Zone 2, Site CS-2 (SS042)	Sep 99	Final	Yes
289A	Decision Document, No Further Action, for Zone 2, Site SA-4 (SS032)	Sep 99	Final	Yes
367A	Decision Document for Zone 3, Site IWCS (SS044) Risk Reduction Standard 3 Closure	Jul 99		Yes
539A	Remedial Investigation Report for Zone 5 (Insert Sheets for Replacement)	Jan-99	Final	Yes
617B	Semiannual Compliance Plan Report for Jan 2000 (Jul-Dec 99) w/Lab Data Pkgs & BRA	Jan 00	Final	Inf
618B	Tier 2 Ecological Risk Assessment, Technical Memorandum Number 1	Jan 00		Inf
619B	Shallow Aquifer Assessment Phase III Technical Report for KAFB	Jan 00	Final	Yes
883	Site-Specific Environmental Baseline Surveys for the Civil Engineering (CE) Yard	Dec-99	Final	Inf
904A	Solid Waste Managemen Unit Closure Report for Building 50	Aug 99	Final	Inf
905A	Solid Waste Managemen Unit Closure Report for Building 894, SWMU No. 72	Aug 99	Final	Inf
Date: Feb 8, 2000 <i>[Signature]</i>				
x				

BCT Meeting 8 February 2000

The meeting was held on 8 February 2000 at the WPI office in San Antonio, Texas.

Members Present and Support Personnel:

Name	Organization	Present	Absent
Brown, Leslie	KAFB		X
Buelter, Don	KAFB	X	
Callaway, Laurie	BCA (KPMG)	X	
Carrillo, Mike	EPA	X	
Landez, Norma	KAFB	X	
Meshako, Chuck	BCA	X	
Neff, Richelle	UNITEC	X	
Pavlo, Tina	GKDC (OpTech)		X
Power, Abigail	TNRCC	X	
Price, Lisa Marie	EPA	X	
Ryan, William	KAFB	X	
Sassaman, Captain Brian	KAFB		X
Stankosky, Laura	EPA	X	
Underwood, Tim	BCA (KPMG)	X	
Weegar, Mark	TNRCC	X	
Wehner, Ellie	TNRCC	X	

Dates for upcoming meetings:

March 8, 2000*
 April 11, 2000
 May 9, 2000
 June 13, 2000
 July 11, 2000
 August 8, 2000
 September 12, 2000
 October 10, 2000
 November 14, 2000
 December 12, 2000

*Meeting date is not on the second Tuesday of the month.

**Draft BCT Minutes
8 February 2000**

Item #	Lead	Support	Discussion Topic	Comments	How will we know it's done?	Disposition
1.	O'Brien, S.	CH2M Hill	Eco-risk Assessment	CH2M Hill will provide a presentation on the current status of the Eco-risk assessment.	Presentation is complete.	Closed. Received update on status of ecological risk assessment in Zones 1, 2, 3 and 5. Reviewed the objectives and discussed the approach of the eco-risk assessment. A food web model diagram was distributed. EPA and TNRCC will coordinate with the Air Force to address Tier I comments.
2.	Underwood, T.	BCT Members	Redevelopment Update	Update the BCT regarding redevelopment status at Kelly AFB.	Team receives update.	Closed. Most of the new plating and cleaning lines are operational. Demolition of the old cleaning line in Building 360 is in progress. Equipment removal in Building 301 is underway. Boeing has expressed interest in construction of a new hanger on Kelly AFB.
3.	Weegar, M.	BCT Members	Full Closure Model Revisited	Review matrix relating the old and new TNRCC public participation model, if matrix has been completed.	Team reviews matrix.	Closed. TNRCC provided information on the revised public participation process.
4.	Buelter, D.	Landez, N. Hampton, R.	Zone 2 Update and Closure Strategy; Zone 3 Fieldwork Update	Provide overview of Zone 2 site activities and strategy for site closure. Provide update on Zone 3 fieldwork.	Team receives updates.	Open. Provided an overview of site conditions at six Zone 2 sites and the current approach to evaluating surface and subsurface soil at these sites. Site E-3 soil vapor extraction system is complete; groundwater remediation system optimization is scheduled for completion in March. Site CS-2 Northbank is on schedule for optimization this summer. Kelly AFB will review the 1993 Risk Assessments in the Zone 2 and 3 RIs to determine if they can be used for the closure of sites in Zone 2 and 3 via RRS 3. Discussed the SWMU 258 CMS scoping decision. The BCT agreed to address only the source in the SWMU 258 CMS and agreed that the groundwater would be covered under the Zone 4 CMS. As a result of the SWMU 258 CMS scoping decision, the scope of the SWMU258 RFI and Zone 4 RFI will change to remain consistent throughout the RFI/CMS process for both of these sites. The team also agreed to a zonewide Zone 2 CMS and CMI, instead of a separate CMI for Site E-3. A teleconference will be scheduled to discuss the Site E-1 RFI.
5.	Sassaman, B.	Peck, W. Courtney, S.	Zone 4 Update and Closure Strategy	Provide overview of site activities and strategy for site closure.	Team receives update.	Closed. Provided an overview of Zone 4 projects. OU-2 soil vapor sampling is scheduled for February 2000. Installation of the Zone 4 interim remedial action (horizontal wells) is scheduled to be completed in the Spring of 2000. The RFI reports are expected to be completed by the end of the summer.
6.	Sassaman, B.	Courtney, S.	Zone 4 OU-1 Work Plan	Discuss comments to OU-1 RI Draft Final Report and discuss RFI Work Plan activities.	Team agrees to approach.	Closed. Discussed the OU-1 RI and proposed amendments to the RFI.
7.	Meshako, C.	Landez, N. Price, L.	SWMU/EBS Site Closeout List	Provide a merged and updated SWMU/EBS closeout list to the BCT members.	Team reviews list and receives update.	Closed. Distributed the merged and updated SWMU/EBS closeout list. The list is a working document and will change as sites are added and removed from the list.
8.	Ryan, W.	Buelter, D. Rohne, R. Sassaman, B.	Zone Update	Provide team with update of current activities in Zone 5.	Team receives updates.	Closed. Distributed the Zone 5 status report. Discussed the submittal of the Zone 5 CMS and the Building 894 OWS deed certification. Kelly AFB will submit the MitreTek report before the distribution of the Zone 5 CMS.

Item #	Lead	Support	Discussion Topic	Comments	How will we know it's done?	Disposition
9.	Ryan, W.	Weegar, M. Carrillo, M.	List of Future Deliverables (Regulators/RAB)	Each month, provide a list of upcoming documents for review.	Team receives list of upcoming documents for review.	Closed. Distributed the list of documents to be submitted to the EPA and TNRCC over the next 60 days.
10.	Ryan, W.	BCT Members	BCT Teleconference Scheduling	Each month, establish the coming schedule of teleconferences.	Teleconference schedule adopted by the team.	Closed. A BCT teleconference was not scheduled prior to the next BCT meeting.
11.	Ryan, W.	BCT Members	Begin March Agenda	Each month, begin to establish the next month's agenda at the end of the BCT meeting.	Team approves agenda items.	Closed. The date of the March BCT meeting has been moved up to 8 March.

**Kelly AFB Documents Going to the TNRCC/EPA
60-Day Projection
(8 February 00 to 7 April 00)**

Zone	Site	Document	Regulator Activity	Date to be Received
2	FC-2, S-9, OT-1	Draft Final Zone 2 Site Closures	Document Review/ Comment	6/26/00
2	Site E-1	Draft Final Site E-1 RFI	Document Review/ Comment	3/6/00
2	SA-2	Final Closure Report	Document Approval	2/11/00
3	Building 258	Draft Final Closure Report	Document Review/ Comment	3/6/00
3	300 Area	Building 362 RFI Report	Document Review/ Comments	4/20/00
3	300 Area	B375 Trailer Holding Area Release Assessment	Document Review/ Comment	4/20/00
3	Building 348 Release	Draft Final Investigation Report	Document Review/ Comment	3/24/00
3	Site S-4 Soil	Final Closure Report	Document Approval	3/3/00
3	IWCS Closure Project	Draft Final IWCS Closure Plan	Document Review/ Comments	4/17/00
4	Zone 4 OU-1	RFI Addendum Work Plan	Information only	4/7/00
5	Zone 5 CMS	Draft Final CMS	Document Review/ Comment	2/22/00
5	1418 OWS	Removal and Assessment Report	Document Review/ Comment	2/14/00
5	B894 OWS	Deed Certification	NA	3/22/00
BW	Ecological Risk Assessment	Draft Final Ecological Risk Assessment Tier II	Document Review/ Comment	3/21/00

FEBRUARY 8, 2000 BCT ZONE 5 STATUS REPORT

PROJECT	STATUS	DELIVERABLE DATE
Zone 5 RFI	Revised pages completed IAW regulator comments.	11 Jan 00
Zone 5 CMS	Draft CMS for Zone 5	22 Feb 00
Site S-1 (SS003) IRA	Excavation/backfill completed 1 Dec 99. Installation of SVE system to begin in February (6 week duration).	N/A
Warehouse Area SWMUs	<p>B1420: Closure report submitted 15 Nov 99. Request regulator concurrence.</p> <p>B1501 OWS: work ongoing.</p> <p>B1501 vaulted oil tank: pending contract mod.</p> <p>B1519 wash rack: TNRCC concurs with NFA. Request NFRAP document be signed by regulators.</p>	Submitted
SWMU Closures	<p>B50 OWS: Closure report (RRS2) submitted 3 Dec 99. Request regulator concurrence.</p> <p>B70 OWS: Additional investigation ongoing.</p> <p>B894 OWS: Closure report (RRS2) submitted 3 Dec 99. TNRCC approved report on 23 Dec 99. Kelly AFB to submit proof of deed certification. <u>Certificate of remediation has been filed with Bexar County.</u></p> <p>B914 OWS: Timeline Building 914 demo changed from 2002 to 2001. Kelly plans to close site at time of building demolition (2001). Letter was sent 10 Jan 00.</p> <p>B920 OWS (removal/replacement): RRS2. Pending contract mod.</p> <p>B946 OWS (removal/replacement): RRS2. Pending contract mod.</p> <p>B966 OWS: Additional investigation required for closure. USACE has submitted a New Contract Solicitation SOW dated 26 Jan 00 to contractor.</p> <p>B1147 OWS (removal/replacement): RRS2. Pending contract mod.</p> <p>B1151 OWS (removal/replacement): RRS2. Pending contract mod.</p> <p>B1418 Lift station: work ongoing</p> <p>B1418 OWS Report to reflect removal and assessment instead of closure report.</p>	<p>Submitted</p> <p>22 Mar 00</p> <p>18 Feb 00</p>

CRC's Evaluation

- Alternative Design
- Computer Modeling Assumptions
- Accelerated Biodegradation
- Verifying Model Results

Alternative Analysis

1. Pump and Treat (on-base)	28.5	25.7	\$4,789,031
2. Pump and Treat (500 ppb)	28.4	26.4	\$5,843,214
3. Off-base Bioaugmentation	28.4	25.4	\$9,451,031
4. Pump and Treat (MCL)	28.4	26.4	\$6,722,460
5. Off-base Reactive Wall	28.4	25.6	\$12,740,331

Selected Alternative

- **Six on-base extraction wells**
- **Existing extraction trench**
- **Quintana Road Barrier**
- **New Horizontal Well**

Alternative No. 1



No Barrier



Vinyl Chloride Plume at 20 Years

Alternative No. 2

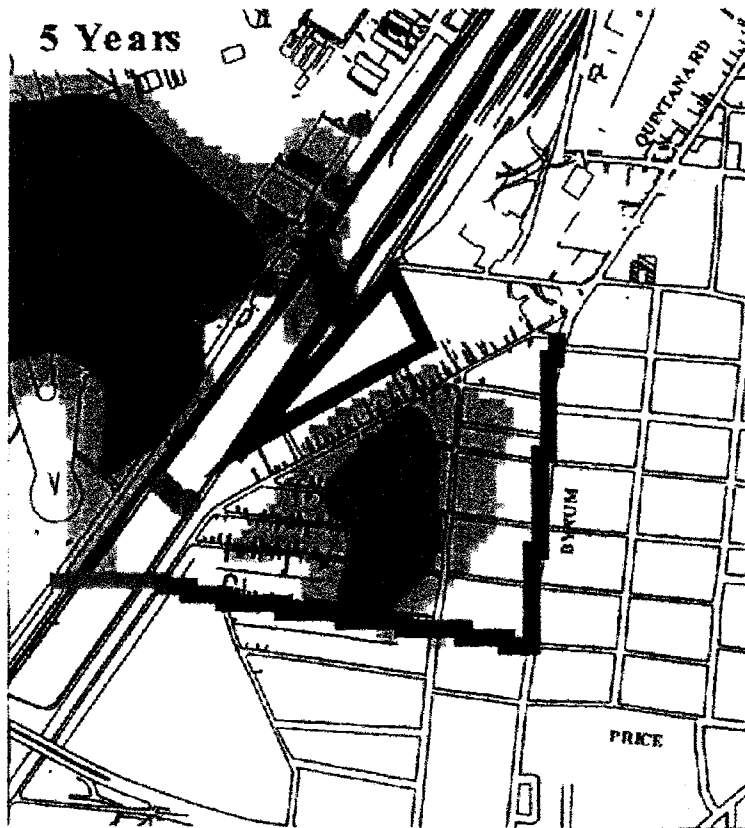


Alternative No. 4

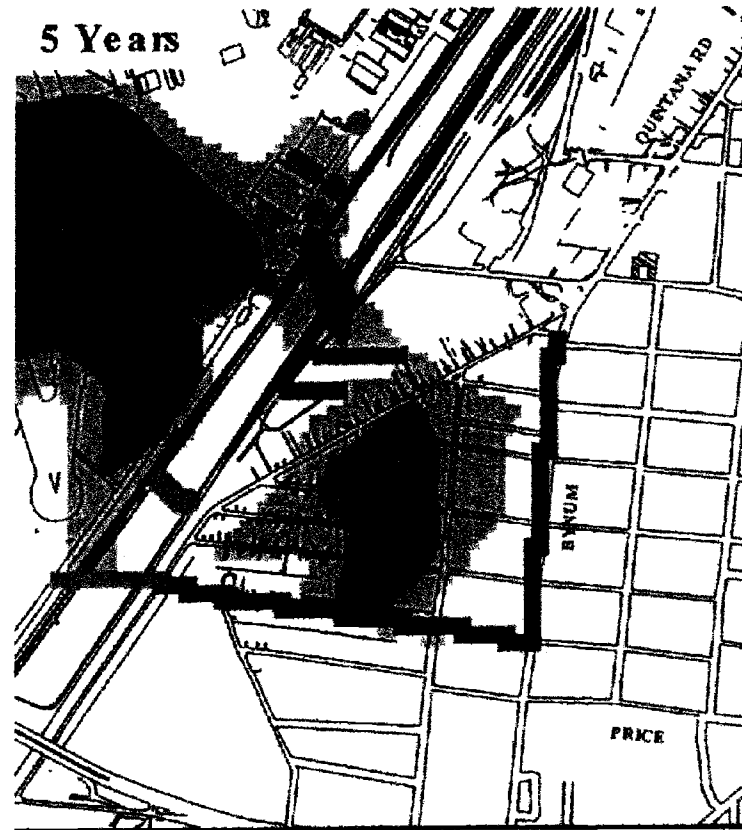


Vinyl Chloride Plume at 20 Years

Alternative No. 3

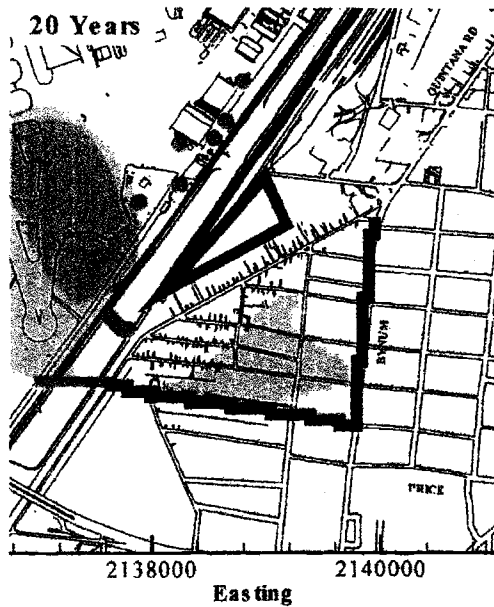


Alternative No. 5

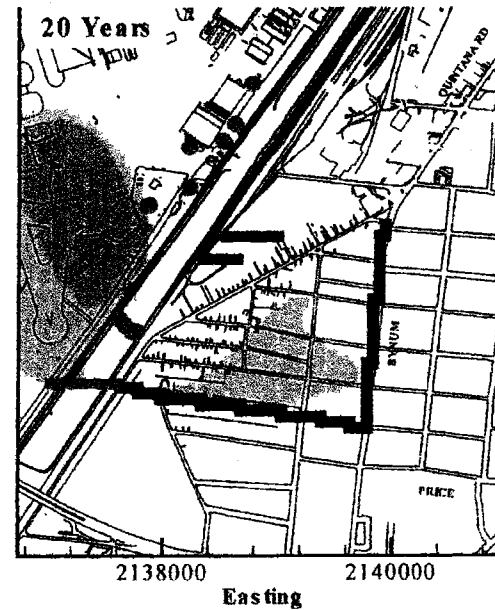


Tetrachloroethylene (PCE) at 5 years

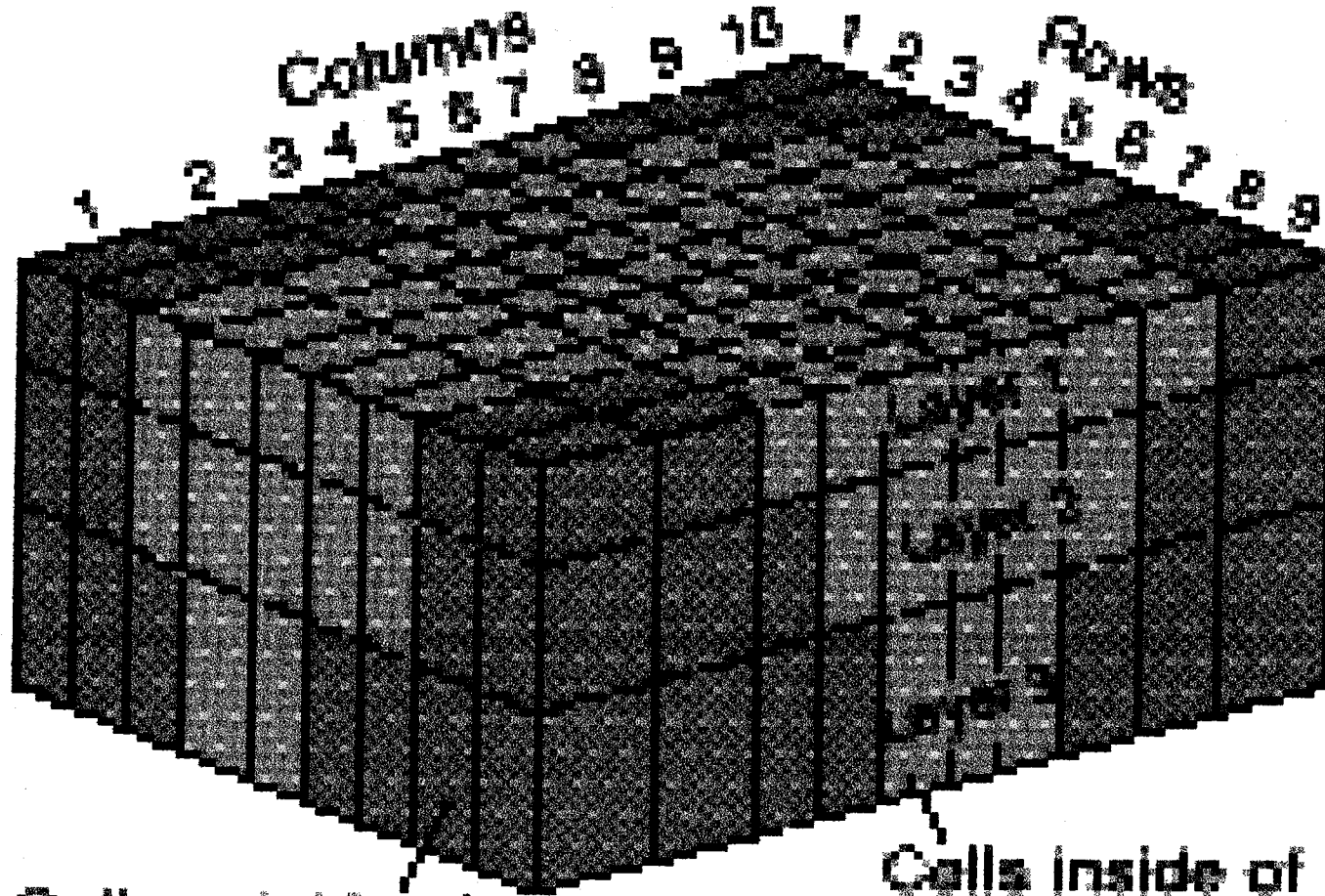
Alternative No. 3



Alternative No. 5

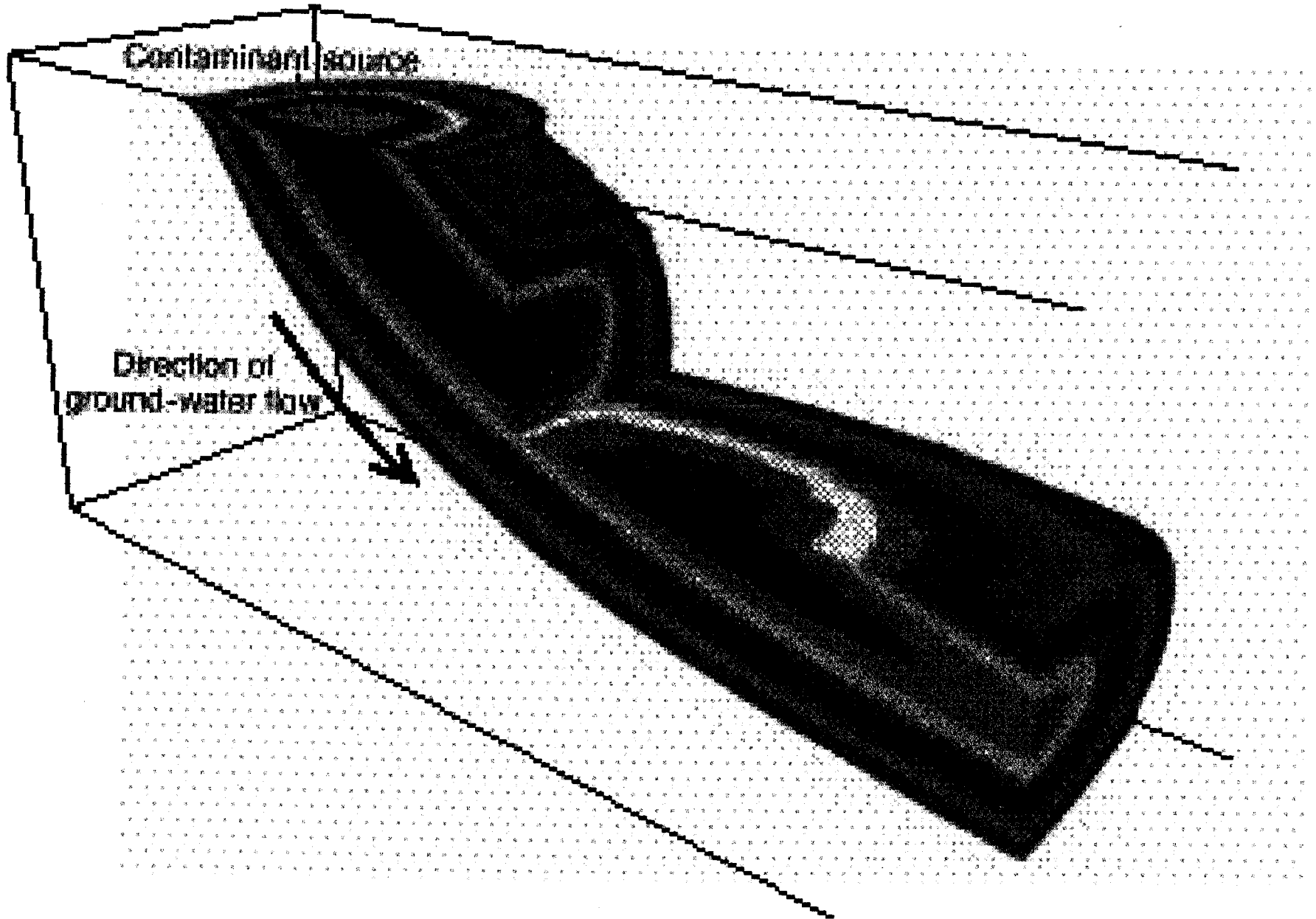


Vinyl Chloride Plume at 20 Years



Cells outside of
aquifer system

Cells inside of
aquifer system



Groundwater Flow Balance

	In	Out
Rainfall/Irrigation	445	0
Leon Creek	12	34
Extraction Wells	0	120
Model Boundaries	1,227	1,530
Total	1,685	1,684

Well Pumping Rates

(gallons per minute)

	Alt. #1	Sustain	Dewater
RW116	14.4	>40	40-70
RW117	6.8	>15	15-25
RW118	4.1	2-3	<4
RW153	26.4	10-15	<27
RW163	2.2	>40	40-50
RW1_1	5.7	not installed	
Trench (RW112)	2.4		
Horizontal Well	23.9		

Contaminant Mass Balance

(@ five years in kilograms)

	Pump	Decay	Other	Total
Initial Condition				385
Alternative No. 1	224	36	0	259
Alternative No. 2	227	32	0	260
Alternative No. 3	221	31	13	265
Alternative No. 4	229	32	0	261
Alternative No. 5	221	33	8	262
No Barrier	204	36	0	240

Retardation Factor

- Soil-water Equilibrium

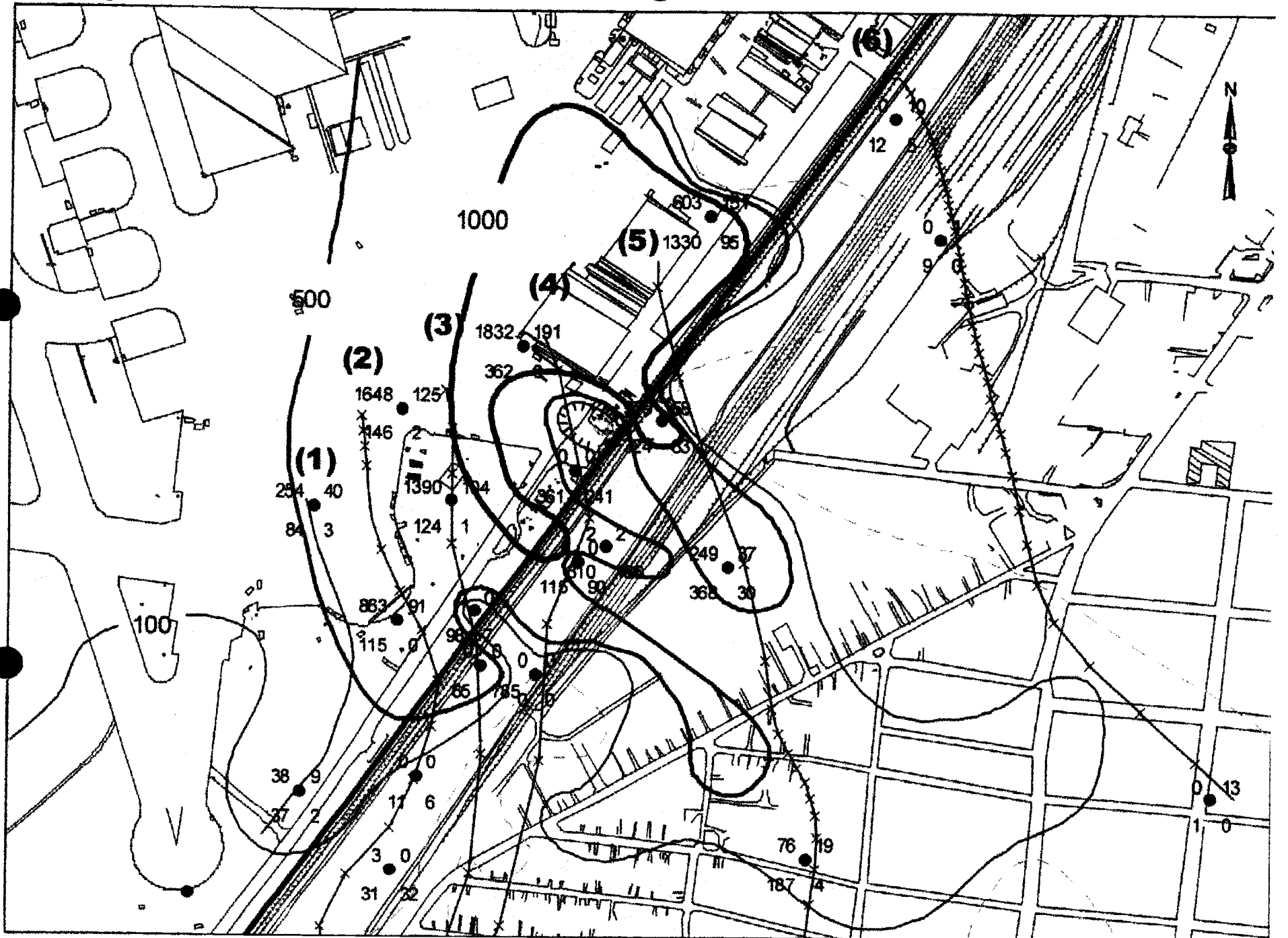
$$K_d = C_{\text{soil}} / C_{\text{water}}$$

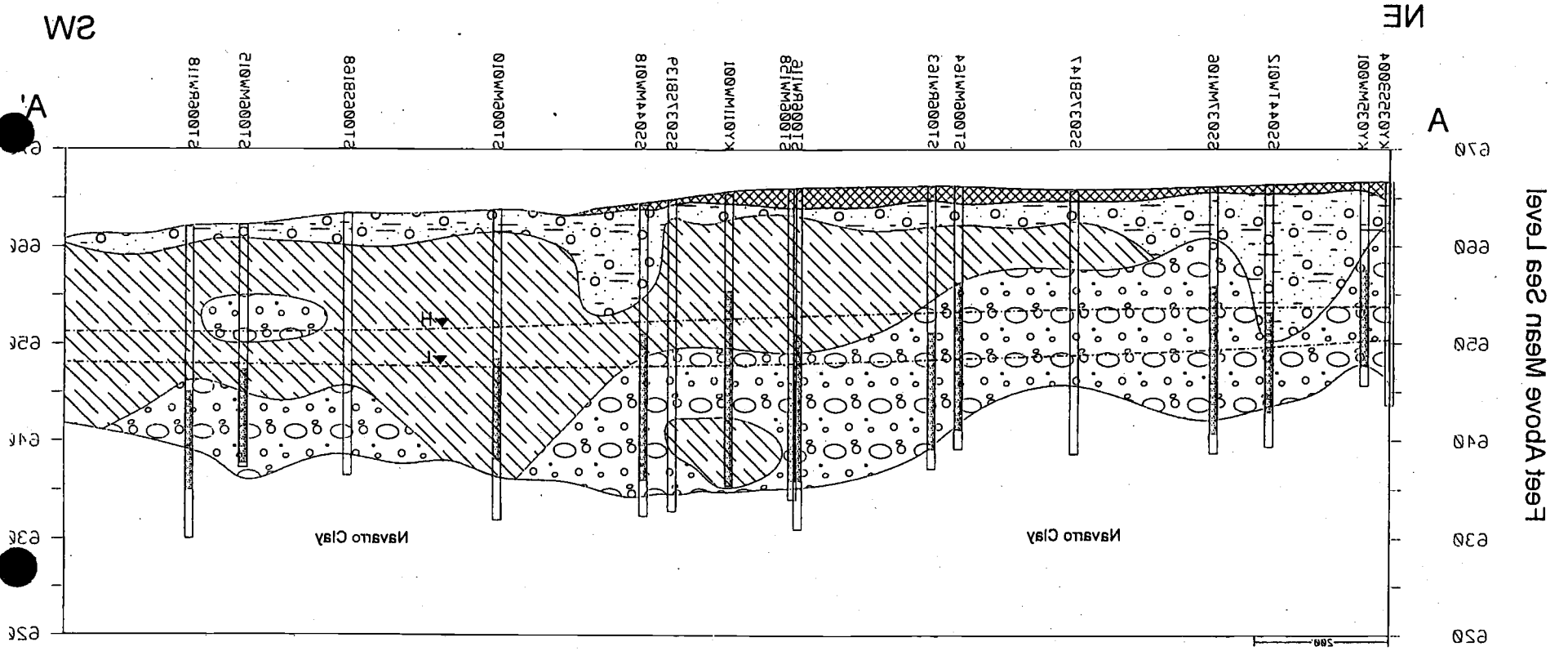
- Fraction Organic Carbon

$$K_d = f_{\text{oc}} \times K_{\text{oc}}$$

Accelerated Biodegradation

- + Literature Review
- + Site Evidence
- + Simulated Spill
- + Breakthrough Curves

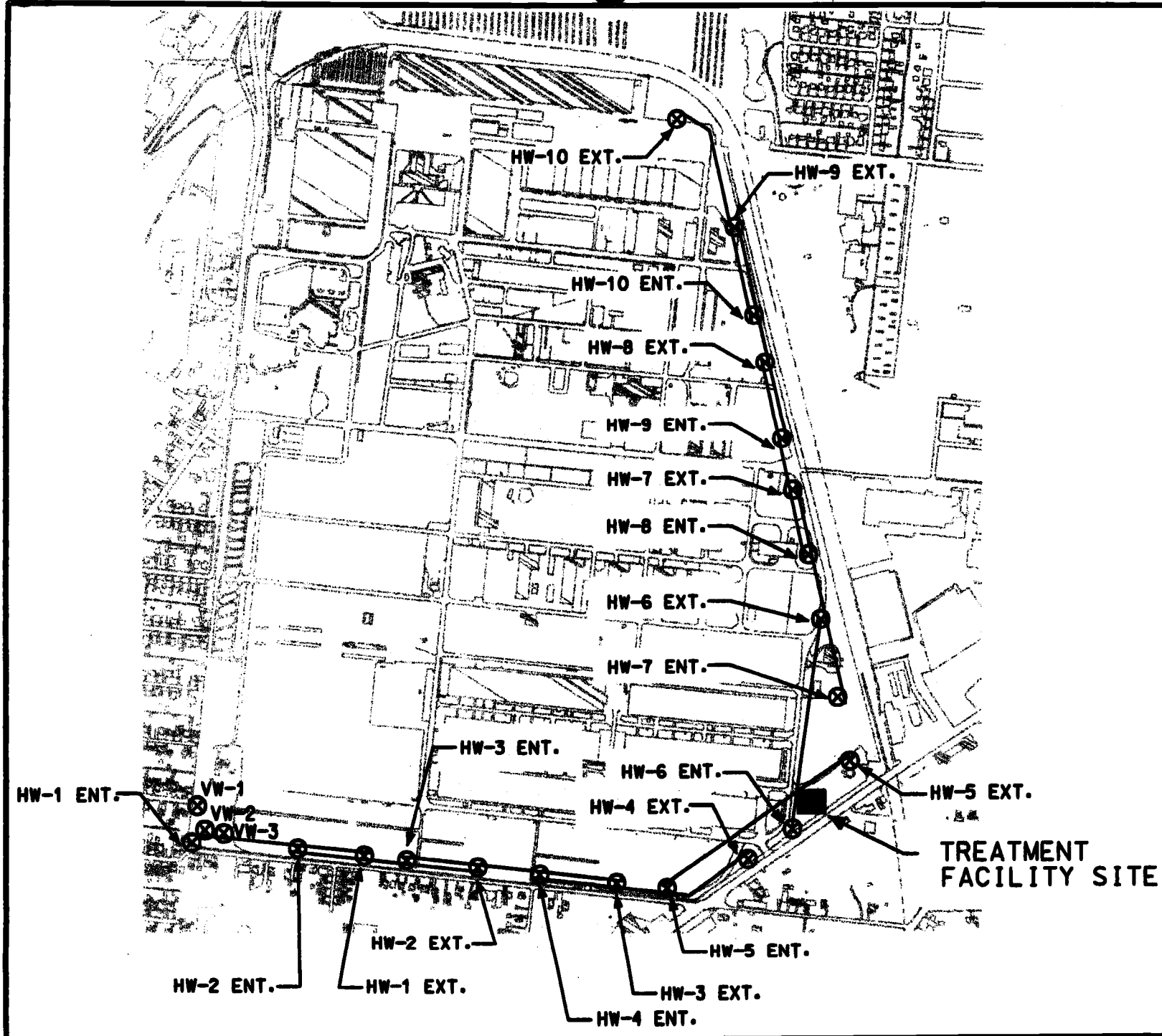




Level 692 nasM avoda 1997

Verifying Model Results

- Upgradient Sources Removed
- Significant Cleanup in 5 years
- Flow rates from individual wells
- Monitor Elevations across Barrier



Zone 4 Project Overview



February 8, 2000



Units included in Zone 4



- **OU-1 - On-Base Soil Contamination**
- **OU-2 - Shallow Groundwater Plume**
- **DRMO Permit Closure Sites**



OU-1 Sites

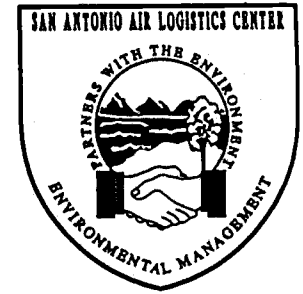


- S051 East Kelly IWCS Line
- AOC Y68S
- AOC MW160 (aka Bldg 3764)
- AOC MW125
- Initial RFI Completed June 1998
- On-board meeting to review comments
May 1999
- Additional RFI Effort to be discussed
separately as the next item - Final report
expected Summer 2000



OU-2 Shallow Groundwater Plume

- Initial RFI field effort completed in Spring/Summer 1998
- Additional sampling required to determine lateral extent and to characterize the plume interior was completed Spring 1999
- Natural Attenuation sampling conducted Fall 1999
- Soil Vapor sampling scheduled for February 2000
- ATSDR public health risk report, based on RFI data, due late summer 2000
- RFI report expected to be complete by Summer 2000



Groundwater IRA - Concept

- Intended to prevent further migration of contaminants off-base.
- Consists of 10 horizontal and three vertical recovery wells together with water treatment facility
- Horizontal wells significantly reduced cost and disruption to adjacent land users during installation compared to trench collection system



Groundwater IRA - Progress

- Engineering design effort began in late 1998
- Installation of two horizontal "constructability" test wells completed spring 1999
- Pump tests and capture modeling followed in spring 1999
- Installation of remaining wells and construction of treatment plant begun fall 1999
- Wells 1 thru 6 completed, drilling of Wells 7 & 8 is currently underway
- Completion expected spring 2000



Zone 4 - the Path to Closure



- Both parts of the RFI Report are expected about August 2000
- A CMS project is to be begun about of April 2000
- CMS will combine all Zone 4 efforts (except DRMO, addressed separately) into one contract and one report to be submitted as required by the Compliance Plan



Zone 4 - the Path to Closure (Continued)



- **The Groundwater IRA is expected to be an integral part of the final proposed remedy**
- **Additions to the IRA collection system may be considered depending on initial results and preliminary results of the CMS**



DRMO Permit Sites Closure



- Bldg 3065 - Closure Report Approved
- Yard N - Closure Report filed (Sept 97) and reviewed. Additional data provided (Oct 98) is pending TNRCC review
- Lot Z04 - Closure Report filed (Nov 99) and pending TNRCC review
- Building 3096 (Permitted facility) Closure Report filed - Kelly to provide additional info requested by comments
- Yard 13 - CMS currently scheduled for Spring/Summer 2000

Zone 4 OU-1 RFI Review Comments and Work Plan Issues



February 8, 2000



Zone 4 OU-1 RFI Review

Comments and Work Plan Issues

Overview



- **Purpose and Objective**
- **Background**
- **SS051**
- **OU-1**
- **AOC Yard 68**
- **AOC B3794 (SS052MW160)**
- **AOC MW125**
- **Risk Assessment**
- **RFI Report**



Zone 4 OU-1 RFI Review

Comments and Work Plan Issues



Purpose and Objective

■ Purpose

- Revisit Zone 4 OU-1 RI Report review comments**
- Discuss developments since RI submittal and review**
- Discuss scope of field activities**

■ Objective

- Obtain consensus on additional effort to complete Zone 4 OU-1 RFI**



Zone 4 OU-1 RFI Review

Comments and Work Plan Issues

Background



- **Draft Final Remedial Investigation Report IRP Zone 4, OU-1 (Sites SS051 and SS052) submitted June 1998**
- **EPA comments - December 1998**
- **TNRCC comments - April 1999**
- **Comment Response Matrix May 1999**
- **Meeting to discuss comments May 1999**
- **Developments since Report/Comments**
 - **Compliance Plan**
 - **Background Values/Interpretation**
 - **TNRCC Representative**
 - **RRS vs TRRP**
- **Contract awarded January 2000**
- **Work Plan under development**



Zone 4 OU-1 RFI Review

Comments and Work Plan Issues



Site SS051

Issue: Site SS051 requires more comprehensive data presentation and additional characterization

■ **Additional information will be presented in the revised RFI Report**

- Soil Gas Survey, Soil samples, groundwater samples
- No source (vadose zone, DNAPL) identified
- Focused Feasibility Study terminated
- Site will be evaluated in the Zone 4 CMS

■ **Shallow Soils (0-2 feet)**

- No exceedance of SAI
- Localized exceedance of GWP for metals and SVOCs (1 location)

■ **Subsurface (2-30 feet)**

- Minor exceedance of metals for GWP
- Localized exceedance of GWP for SVOCs (1 location, 1-5 feet)

Future Actions/Recommendations

- Characterize GW Hotspot along storm drain, east of SS004MW010
- Characterize minor soils contamination



Zone 4 OU-1 RFI Review

Comments and Work Plan Issues

OU-1 Soils



Issue: TNRCC comment on RI Report stated OU-1 soils subset too large, calculate Representative Concentrations on smaller on smaller areas impacted from yet-to-be-designated SWMUs

FUTURE ACTION / RECOMMENDATION

- Drop OU-1 Soils designation and evaluation
- Evaluate locations by:
 - Review site history
 - Comparison background
 - Determine need for further characterization/evaluation
- Characterize and evaluate AOCs: Yard 68, Bldg. 3794, and SS052MW125



Zone 4 OU-1 RFI Review

Comments and Work Plan Issues

AOC Yard 68



Issue: TNRCC requiring additional delineation of extent in surface soils

- Area in the vicinity of Site SS009, occupied by Rail Car America
- Site SS009 Closed under RRS No. 2, 33 acre tract encompassing area of concern has been deed recorded, compounds and total concentration left in place are listed in the deed recordation certification
- TNRCC comments on the RI Report require delineation of COPCs which meet RRS No. 2 Criteria (SAI/GWP) and have been deed recorded
- COPC demonstrated to exist near surface soils (0-0.2 feet)
- Rail Car America activities have changed conditions
- Further characterization difficult to implement and would not provide further protection to HH & E

Future Actions/Recommendations

- No further action at AOC Yard 68/Re-evaluation of data in the RFI Report



Zone 4 OU-1 RFI Review

Comments and Work Plan Issues

AOC Bldg. 3794 (SS052MW160)



Issue: AOC 3794 requires additional characterization

- **Low level TCE detected in side wall during closure of Building 3794 Oil Water Separator/Underground Storage Tank (Site Closed in 1995 under RRS No. 2)**
- **SS052MW160 installed to evaluate TCE detection**
- **VOCs detected in shallow and subsurface soils**
- **Designated as AOC by TNRCC**

Future Actions/Recommendations

- **Plan up to 6 soil boring to delineate hotspot**
- **Site Closure evaluated under the Zone 4 CMS**



Zone 4 OU-1 RFI Review

Comments and Work Plan Issues

AOC MW125 (SS052MW125)



Issue: AOC MW125 requires additional characterization

- VOCs and SVOCs characteristic of hydrocarbon fuels along with industrial solvent (MIBK) detected at depth (18-22 feet), below water table
- Constituents not commonly detected on Kelly AFB
- Soil COPC not detected in groundwater
- Suspected off-Base source, Tropicana facility under federal Superfund authority, Base has requested copy of Report from EPA

Future Actions/Recommendations

- Plan 6 soil borings to delineate on-Base extent



Zone 4 OU-1 RFI Review

Comments and Work Plan Issues

Risk Assessment



Issue: What to do with the Risk Assessment?

- Risk Assessment section of RI Report not reviewed or commented on by EPA or TNRCC
- Contains human health and ecological risk assessment
- RA states no risk to HH & E
- Only required if closing under RRS No. 3 or TRRP Remedy Standard B

Future Action/Recommended Action

- Take out of RFI and if necessary conduct site specific risk assessment



Zone 4 OU-1 RFI Review

Comments and Work Plan Issues

RFI Report



- Tentative submittal date August 2000
- Section 1.0 will include more thorough description of all sites in Zone 4 as well as previous investigations
- Report title and format will change from RI to RFI in accordance with the Compliance Plan
- All previous and new data will be incorporated
- Risk assessment will be removed unless required for individual sites
- Report will include recommendations for closure pathway at each site



Zone 4 OU-1 RFI Review

Comments and Work Plan Issues

Conclusions



- **Revise OU-1 Soils Evaluation**
- **No Further Action at AOC Yard 68**
- **Characterize Soil and GW hotspots SS051**
- **Characterize AOC MW 160**
- **Characterize AOC MW 125, On-Base**
- **Remove or Revise Risk Assessment**
- **Revise report to RFI format**
- **Report recommend site(s) closure pathway (i.e. RRS vs TRRP)**

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE