

M67386.AR.000221  
MCRCO KANSAS CITY  
5090.3a

MINUTES FOR BASE REALIGNMENT AND CLOSURE CLEANUP TEAM MEETING HELD 7  
MAY 1998 KANSAS CITY MO  
5/29/1998  
CCI



DEPARTMENT OF THE AIR FORCE  
AIR FORCE BASE CONVERSION AGENCY

May 29, 1998

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Meeting Minutes of the Richards-Gebaur BCT

PLACE: 15471 Hangar Road, Kansas City, Missouri

DATE: Thursday, May 7, 1998

Attending:

Peter Barrett, CH2MHILL

John Fringer, BEC

Guy Frazier, MDNR

Kay Grosinske, AFCEE/ERB

Stan Hewins, TCAT

Robert Koke, EPA Region 7

Bob Zuiss, OLQ

Syd Courson, CCI

Page 2. May BCT Minutes

#### AGENDA ITEMS

(Bold face highlights action items, persons responsible and applicable due dates.)

Item 1. (Approval of April BCT Minutes)

The minutes were approved, with two spelling corrections requested by Guy Frazier: On page 2, the minutes referred to "Fred Hudson" of the state's UST program. The last name is corrected to "Hutson." Additionally, on the same page and in the same item, the reference to "USDT" is corrected to read "UST."

Item 2. (Updates on review of past BCT minutes by Frazier and OL-Q files by John Fringer, AFBCA)

Frazier and Fringer each reported that their reviews are continuing. **Each estimated the reviews would be completed by the end of June.**

Item 3. (Update on status of OWS 965)

Fringer said the Air Force had just received the final closure report on OWS 965 and that the internal review was in process. He said the report showed no soil samples where contaminants exceeded MCL levels. **Fringer estimated the internal review should be completed in time for MDNR and EPA to receive the closure report by the end of May.**

Item 4. (Update on WPI Contractor Monica Rakovan 's visit to MDNR to expedite registration and closure of USTs on Air Force property)

Frazier said **the schedule calls for WPI contractor Monica Rakovan to visit Richards-Gebaur on May 18-19 and MDNR in Jefferson City May 20-21 to continue efforts to register all of the unregistered USTs**

Item 5. (Update on ECS Schedule)

Peter Barrett of CH2MHILL reported that the Evaluation and Consolidation Study was on track. He said there are still some data needs that must be addressed for certain sites. Barrett the work leading to NFRAPs is virtually complete for six sites, and 60 percent complete on seven other sites. Fringer asked if Barrett had a timetable for submitting NFRAPs. Barrett said his answer was predicated upon BCT members agreeing on the general format of the draft NFRAP to be presented at this meeting. **He said if they agreed, CH2MHILL should have six or seven NFRAPs out within two weeks, and all of them (considered appropriate for NFRAP status) should be completed by the end of May.**

Page 3. May BCT Minutes

Frazier asked Fringer if he had reason to believe the Air Force would take less time to review the NFRAPs. Fringer replied that since the format has been standardized, and the major bugs removed, it should make it easier and faster. Fringer pointed out that while the agreed-upon timetable for written comments by MDNR and EPA is 60 days, he hoped they might be able to move faster, so the public comments period of 30 days could begin earlier; otherwise it would stretch the period out to a full 90 days.

Fringer said it would be helpful if EPA and MDNR could inform the Air Force later in the day (May 7<sup>th</sup>) if they had any major comments or changes with the NFRAP model. Barrett commented that Frazier, during the April BCT meeting, suggested that the BCT have an open panel discussion on the NFRAP that CH2MHILL would present at the May meeting. He said he wants to make sure the first one presented is acceptable, rather than give them all to EPA and MDNR and find out there was a problem.

Fringer said if EPA or MDNR have significant comments he would like to attach them to the NFRAPs before the NFRAPs are submitted to the public. He said the Air Force plans to announce at the July Restoration Advisory Board meeting that some NFRAPs are available.

Item 6 (Update on Belton Training Center Drop Zone Clearance)

Fringer said he spoke with an Air Force Reserve representative who said the property is suitable for the US Army Reserve's training purposes. Fringer said the PA-SI found no evidence of any explosive compounds in the soil.

Frazier asked if the Army Reserve had been given copies of a report that included data and photos of the burn area. He said some of the photos showed rocket fins and other ordnance-related debris.

Fringer said investigators talked to people who were familiar with the site and they reported the only things that were burned there were small arms ammunition, such as bullets, and flares, and things like that. There was no evidence they used any other ordnance there.

Frazier said it is important that the Army Reserve receive a copy of the PA-SI.

Bob Zuiss of AFBCA pointed out that SAIC, the USAF Reserve and VERSAR each did a study of the area. He suggested the Army Reserve may want a copy of each report.

Page 4. May BCT Minutes

Item 7 (Discussion of site status: Summary of E&C Study findings to date/see attachment)

Barrett said the scope has been evolving, with 23 sites, up from the original 19, adding the two stressed vegetation AOCs, the steamline and the tarmac area.

Barrett said CH2M HILL looked at the historical record for each site, at the sampling, the sampling reports, evaluated the completeness of the sampling, the analytical data that came out of the sampling, and looked at response actions that ensued, based on the analytical results. Then the contractor matched the appropriate regulatory setting to the individual site. He said, for example, if it involved an Oil Water Separator that had been handling wastewater then it would be under the UST program, which would be an ARAR.

He said for each site they asked some simple questions:

- What are the contaminants here?
- Are these contaminants consistent with the chemicals that were handled at this site?
- What are the contaminated media? Soil and/or ground water?
- What was the response? Were the tanks removed? Was the contaminated soil removed?
- Was the response successful? One way to answer that is to say is there any threat to human health at the site?

He said some of these sites need more work to bring them to an acceptable level. He said CH2MHILL is reviewing these sites to determine the correct actions.

He outlined closure criteria, saying the most fundamental criterion is removal of the source of contamination. Another is whether the site meets ARARs or screening levels, either during the source removal or currently. Was the response action protective of the public health and environment.

CH2M HILL believes that 15 of the 23 are potential NFRAP sites. Of the remaining eight sites, two have clear data needs (the industrial waste line and the fuel hydrant line), and six of them require additional work.

Frazier asked what the Air Force planned to do about the industrial waste line. Fringer said the Air Force was considering a video survey to see if there are any gaps in the line, and – if there are – sampling along those gaps. The results of the sampling will determine the next step, Fringer said.

Page 5. May BCT Minutes.

Frazier asked if the Air Force planned to close the line and Fringer said that was the plan. Frazier said it couldn't be closed because it is the sewage system for Richards-Gebaur. Fringer said it was an industrial waste line.

Zuiss said it is not being used. He said it was for floor drains and sinks in the industrial operations buildings. The wastewater would be treated and then put into the sanitary sewer. Zuiss said there is a proper way to close it, and that the line is basically dry. He said as far as he knows there is no connection between the industrial waste line and the sanitary sewer line.

Frazier said the former base environmental coordinator, Robert Lodato, had indicated to him last year that they were connected.

Koke said that there ought to be some records that would resolve this question, and **Zuiss said he would get the answer and report back at the June BCT meeting.**

Barrett resumed his presentation, identifying the 15 sites that CH2MHILL feels confident that enough work has been done so that they do not pose an unacceptable risk to human health or the environment, and are eligible for NFRAPs. The sites are:

SS003 (Oil Saturated Area)	CS004 (UST 620A)
SS004 (Hazardous Waste Storage)	FT002 (North Burn Pit)
SS006 (Hazardous Material Storage)	AOC-002 (Drainage Pond)
SS008 (Test Cell Area)	AOC-004 (Stressed Vegetation, Bldg 603)
SS009 (Fire Valve Area)	AOC-005 (Stressed Vegetation, Bldg 918)
ST007 (Leaking USTs)	AOC-009 (Steamline Bleeder)
CS001 (Fuel Line 942)	AOC-010 (Bldg 918 Parking Lot)
CS002 (OWS Bldg 704)	

Barrett said the eight sites that need more work or where there is insufficient data are:

- AOC-001 (Central Drainage Area) metals in sediments
- AOC-003 (Firing Range) metals in soils
- AOC-006 (Tarmac Fuel Line) unsampled
- AOC-12 (Fuel Hydrant Line) insufficient data
- ST005 (Industrial waste line) insufficient data
- XO-001 (Belton Training Complex) metals in soil, surface water
- CS-003 (OWS 947 OB-POL Yard) (still in operation).

Barrett said NFRAPs have been completed on CS001, CS002, SS003, SS004, SS006, ST007, and SS008. (See attachment for specifics)

Page 6. May BCT Minutes

Barrett discussed each of the sites deemed ready for NFRAP status, detailing the data that led CH2M HILL to reach the conclusion. (See attachment)

During the discussion of ST007 (POL Yard), Barrett said the four underground storage tanks were removed in 1988, the hole was backfilled, and a passive bio-venting system was installed to increase the flow of oxygen to microbes that feed on hydrocarbons. Barrett said that during 1989-91 16 borings were sampled and analyzed for TPH, BTEX and metals. The highest TPH level was 1,618 ppm, VOCs were nondetectable, AS was 14.9 ppm, slightly above the ASL of 11 ppm. Additional sampling in 1996 showed TPH and BTEX levels below MCLs.

Fringer asked about the diesel fuel, and Barrett said diesel isn't as volatile and tends to get sequestered in the soil strata, especially in a clay soil. He said this could be why the ground water keeps coming back with no evidence of hydrocarbon contamination.

Barrett said the site is eligible for NFRAP because the source of contamination has been removed, any residual diesel fuel in the ground is not mobile, and there is no groundwater issue. He said CM2H HILL just doesn't believe there is a health risk.

Frazier said he didn't understand how ST007 could pass the NFRAP test if the TPH level of 500 ppm (UST regulations) was exceeded. He asked if Barrett was saying UST regulations did not apply in this case. Barrett said that the UST regulations do apply, but that because of other factors CH2M HILL determined through risk assessment that the site is suitable for NFRAP status.

Barrett said the site is unused, the residual contaminant is trapped and immobile in the soil, and that there is no potable water to be contaminated. These and other factors helped CH2M HILL conclude that the site posed no risk to human health or to the environment.

Following a brief recess for BCT members to visit site SS006, Barrett led the BCT through CH2M HILL's deliberations in recommending SS006 for NFRAP. Fringer earlier in the meeting distributed copies of the SS006 NFRAP Decision Document to Koke and Frazier, along with a cover letter (See Attachment). The site behind Buildings 927 and 930 was used to store oil drums on metal racks near top of a grass embankment. Runoff from the storage area plus probably spills from the drums, caused stressed vegetation in an area of about 800 square feet. This was noticed in 1988. Two surface soil samples were taken in 1990, and later that year the storage structure was removed and the vegetation recovered. In 1991, six soil borings were conducted at the site and, in 1993, in an IRP remedial action, contractors excavated 40 cubic yards of soil. There was a ground water assessment in 1996, when one well was installed and samples taken.

Page 7. May BCT Minutes

Barrett said CH2M Hill's rationale for recommending SS006 for NFRAP involves the following considerations:

- The original contamination was very limited.
- The source of contamination was removed.
- Distressed vegetation has recovered.
- Residually contaminated soil has been removed.
- Groundwater contamination was very limited.
- Contamination is biodegradable.
- Ground water is perched and non-potable.

He said there is no well within a one-mile radius of the site, and only five wells within two miles (one abandoned, the other four at least 35 years old) They were drilled to depths of 123 to 402 feet, and two wells (320 feet and 402 feet) were described as dry and abandoned.

Frazier asked if RCRA ARARs would not apply. Barrett said RCRA would have applied, and that based on available data the work met RCRA transportation and storage criteria.

Frazier also questioned the assumption that the ground water could not migrate deeper and into an aquifer that supplies water in the area. He asked if Barrett knows how close the site is to the nearest geologic fault, and then said there was a fault right along the runway.

Fringer pointed out that the soil at the site has a depth of about 75 feet of virtually impermeable clay and shale. Frazier said the immobility of the ground water had not been proven to him, and he asked Koke if he agreed.

Koke said even if the water does drop down, there is no potable water below. Barrett said that Mr. Vandyke, chief of groundwater supplies with the Division of Geological and Land Survey agrees with Koke.

**Fringer asked for EPA and MDNR to provide written comments about the NFRAP at least five days before the July 9<sup>th</sup> BCT and RAB meetings.**

Item 8 (Summary of Tarmac Area proposed sampling strategy per MDNR UST guidance) Zuiss said that, based on MDNR UST guidance, a local contractor will take soil samples 12 inches below the metering pits – one sample every 100 feet – for specific contaminants designated by the BCT.

Page 8. May BCT Minutes

Frazier suggested that the BCT also sample where the pipes were crimped shut when the line was decommissioned. The BCT agreed, bringing the number of samples to 14. **Zuiss said he would produce the work plan for the BCT by the June meeting.**

Item 9 (Other Business)

Koke raised the issue of the absence of a padlock on the monitoring well at SS006 (noticed during the recess site visit) **Zuiss will look into the missing padlock issue and report at the June BCT meeting.**

Item 10 (Proposed June 4<sup>th</sup> BCT Agenda Items)

1. Report on BCT Workshop (meeting in St. Louis next week)
2. Status of locks on monitoring wells.
3. Update on the UST registration project
4. Written comments on the SS006 NFRAP
5. Discussion of additional NFRAPs
6. Tarmac area workplan update
7. Regionalization update

Meeting adjourned

Minutes compiled and submitted by



Syd Courson, CCI

Attachments:

1. Memo and NFRAP Decision Document (Site SS006) from John Fringer to Bob Koke (EPA), and Guy Frazier (MDNR).
2. Scope of E&C Study by CH2M HILL.



DEPARTMENT OF THE AIR FORCE  
AIR FORCE BASE CONVERSION AGENCY

May 7, 1998

MEMORANDUM FOR: MISSOURI DEPARTMENT OF NATURAL RESOURCES  
ATTENTION: MR GUY FRAZIER

U.S. ENVIRONMENTAL PROTECTION AGENCY, Region VII  
ATTENTION: MR BOB KOKE

FROM: AFBCA/DB  
1700 N. Moore Street, Suite 2300  
Arlington, VA 22209-2802

SUBJECT: No Further Response Action Planned (NFRAP) Decision Document for  
Site SS006 at Richards-Gebaur ARS

The attached NFRAP Decision Document for Site SS006 is provided for your review and comment. We previously agreed to a maximum 60-day review period for each NFRAP, so the latest date we would expect to receive your written comments is Monday, July 6, 1998. To prevent schedule and cost delays and to expedite completion of quality documents, please remember that we welcome comments submitted as soon as possible by fax (703-696-8828 or -8833) or e-mail. With this and subsequent NFRAPs, we would like to provide a pre-final document (with your comments incorporated) to the public for their 30-day review before the end of your review period. In any case, if we do not receive your comments by the close of business of July 6, 1998, we will proceed with finalizing the document.

Thank you for your cooperation. If you have any questions, comments, or concerns, please call me at (703) 696-5573.

Sincerely

A handwritten signature in cursive script that reads "John H. Fringer".

JOHN H. FRINGER, P.E.  
BRAC Environmental Coordinator

Attachment  
As stated

cc.  
Mr. Bob Zuiss, AFBCA Richards-Gebaur

# No Further Response Action Planned (NFRAP)

Draft Decision Document

for:

Site SS006 – Hazardous Material Storage Area

Prepared for:

Air Force Base Conversion Agency (AFBCA)

Washington, DC

# 1. Declaration Summary

# Site SS006

---

## 1.1 SITE NAME AND INSTALLATION

Site SS006 - Hazardous Material Storage Area. The site is part of.  
Richards-Gebaur Air Force Base - Operating Location Q, Kansas City, Missouri

## 1.2 SITE LOCATION AND DESCRIPTION

Site SS006 is located east of Building 927, east of Hanger Road, north of 155<sup>th</sup> Street. The site is classified by the Air Force as an Installation Restoration Program (IRP) Site. From 1957 to 1994, Building 927 was used as an aircraft engine and propeller maintenance shop. Outside the rear of the building an area was used to keep bulk supplies of degreasers, solvents, and oils until needed inside. The materials were routinely stored in 55-gallon drums or other containers and placed off the ground on racks. The racks were located at the top of the grass embankment above the central drainage area that lies between Hanger Road and Andrews Road.

## 1.3 STATEMENT OF BASIS

The NFRAP Decision Document is based on the results of a Preliminary Assessment of the site (O'Brien & Gere, 1991); an IRP Remedial Action (Burns & McDonnell, 1993); and a Groundwater Assessment (Versar, 1996). The site investigation data show that a limited amount of soil contamination occurred at the site as a result of hazardous material storage activities. The results of the IRP Remedial Action indicate that the contaminated soil was successfully removed in accordance with applicable Missouri Department of Natural Resources (MDNR) guidelines, as set forth in *How Clean is Clean? Uniform Cleanup Standards for the State of Missouri* (MDNR, 1995) and the *Underground Storage Tank Closure Guidance Document* (MDNR, 1996). The Groundwater Assessment indicated trace levels of residual organic chemicals in the shallow groundwater. However, groundwater in the vicinity of the site is non-potable and not used by the community. Therefore, Site SS006 - The Hazardous Material Storage Area - is an Area Below Action Levels (ABAL) and does not pose a significant risk to human health or the environment.

## 1.4 DESCRIPTION OF SELECTED REMEDY

Site SS006 is an ABAL. Therefore, no further response action is planned (NFRAP) and the site satisfies the criteria for a Category IV NFRAP Decision, that is, all actions necessary to protect human health and the environment have been implemented and completed.

## 1.5 DECLARATION

The selected action for Site SS006 - The Hazardous Material Storage Area - is consistent with CERCLA, SARA, and the NCP. The selected remedy attains Federal and State ARARs, and does not pose an unacceptable risk to human health and the environment.

### Signatures and Dates

---

Mr. Bob Koke, P.E.  
U.S. Environmental Protection Agency,  
Region VII

---

Date

---

Mr. Guy Frazier  
Missouri Department of Natural Resources

---

Date

---

Mr. John Fringer, P.E.  
BRAC Environmental Coordinator  
Richards-Gebaur AFB

---

Date

## 2. Decision Summary

---

### 2.1 Introduction

The following sections describe the site setting, surrounding land use, and site history, including the sequence of environmental activities carried out at the site. Regulatory involvement and community relations efforts are identified. The scope and role of the response action are summarized. Technical information and analytical data are not discussed at this time; the material is presented later in Section 2.2 – Site Characteristics.

#### Site Name, Location, and Description

Site SS006 is located on Richards-Gebaur Air Force Base east of Building 927. Figure 1 depicts the site location within the general site plan of the Base. Building 927 is located on the east side of Hanger Road, north of 155<sup>th</sup> Street. The area was formerly used to store bulk containers of oils, solvents, and other common workshop materials.

Site SS006 is flat lying, although there is a steep downhill embankment immediately east of the storage area. The site's surface drainage is separated from the building drainage by a six inch high curb (Versar, 1996). The site is approximately 600 square feet in area. The site is situated at one of the highest parts of the Base, near the airfield. It is not located in a floodplain.

#### Land Use and Nearest Populations

The land use immediately surrounding Site SS006 is light-industrial, consisting of small workshops, offices, warehouses, and aircraft hangars. However, a steep grass embankment exists just east of the hazardous materials storage area and leads down toward the facilities located along Andrews Road. The nearest residential populations are military personnel that are housed on the Air Force Base in the Billeting Complex, about three-quarters of a mile southeast of Site SS006. Non-military residential populations live about one and a half miles east of Site SS006. The towns closest to the Base are Belton, with a population of 18,150, and Grandview, with a population of 24,967 (USAF, 1995a).

#### Surface Water and Groundwater Resources

The nearest surface water body is the small creek that runs down through the central drainage area, northeast of Building 927 about 150 feet north of the site. The central drainage area potentially receives runoff from Hanger Road. The central drainage area in turn feeds Scope Creek. Scope Creek runs southwest to northeast, generally parallel to Andrews Road, and forms the southern boundary of the Base. It is an intermittent stream that carries water most of the time. Scope Creek is a tributary of the Little Blue River.

I:\144012\SS006.DWG PLOT DATE 04-09-98 FIG 1-2

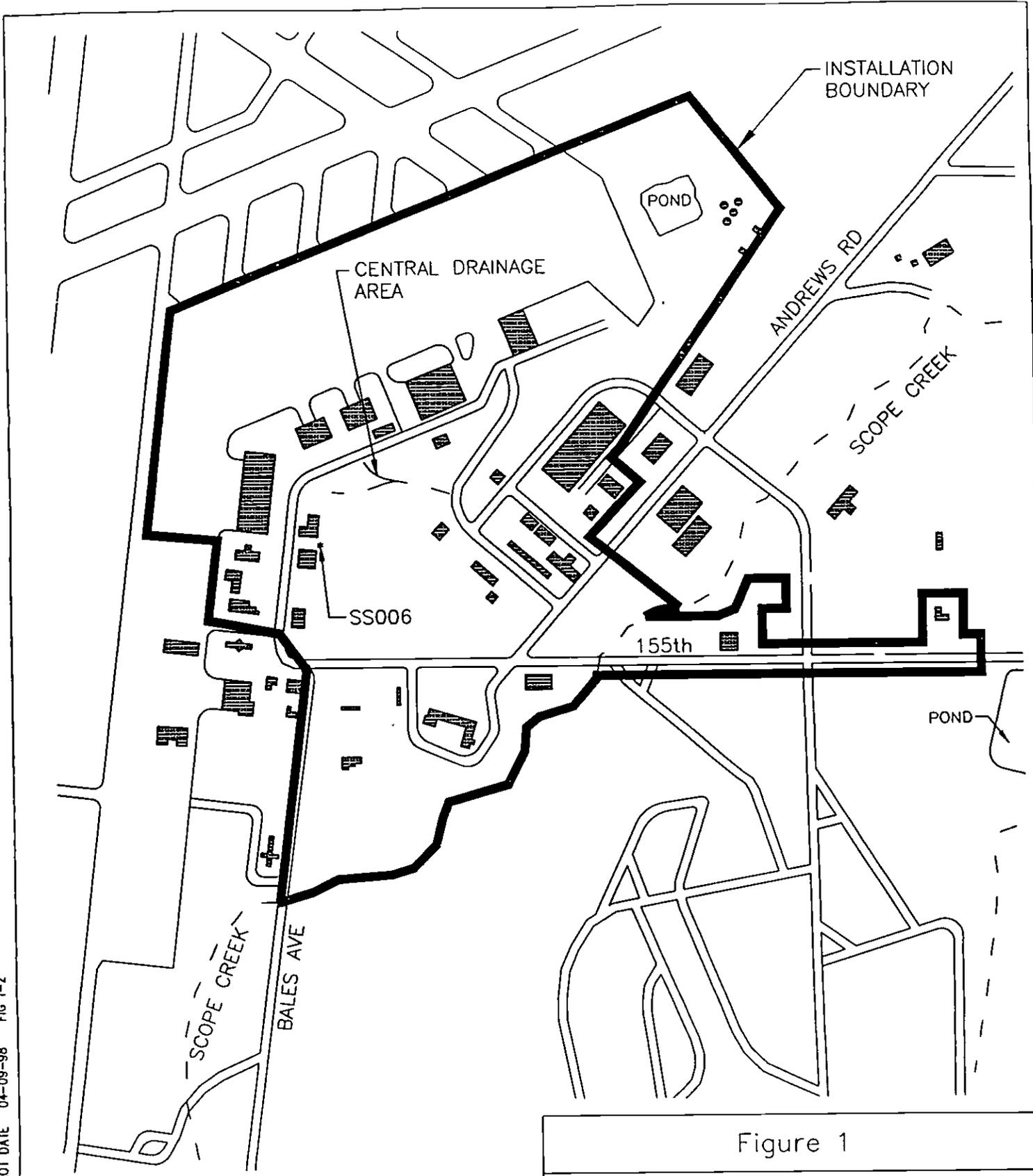
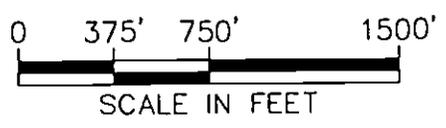


Figure 1

GENERAL SITE PLAN:  
 SITE LOCATION SS006  
 Richards-Gebaur A.F.B.  
 Kansas City, Missouri



Groundwater aquifers beneath the site are classified within the Osage-Salt Plains area of the Central Nonglaciated Plains groundwater region. The groundwater in the bedrock aquifers is known to be highly saline and generally non-potable. Shallow (typically within 20 feet of the ground surface) lenses of perched groundwater occur locally in the unconsolidated overburden and weathered bedrock but are not used for drinking water (Jacobs Engineering, 1995). There are no natural springs on the Base and, reportedly, no major springs in the vicinity. Drinking water is supplied to the Base and surrounding communities by the Kansas City Water and Pollution Control Department. The source of the water is the Missouri River, upstream of the Base (USAF, 1994).

## Site History

Site SS006, the hazardous materials storage area, is used by the aircraft maintenance workers in Building 927 and is part of Richards-Gebaur Air Force Base. The Base has occupied the present location since 1953. Between 1941 and 1953 Kansas City owned and operated the property as Grandview Airport. Before 1941, the area consisted of farmland.

The site was initially identified during a Site Inspection in 1990. Degreasers, solvents, oils, and lubricants were stored on racks outside at the rear of the building. According to records, the grass immediately behind the storage racks was discolored and showed signs of distress. In response, two surface soil samples were collected as part of a Preliminary Assessment (O'Brien and Gere, 1991). Additional field samples were collected in 1991 during an IRP Site Inspection (Burns and McDonnell, 1993). At this time, the storage rack had been removed and signs of stressed vegetation were now absent. Subsequently, in 1993, approximately 40 cubic yards of contaminated soil were removed from Site SS004 (Burns and McDonnell, 1993). Following soil removal, a groundwater assessment was conducted at the site (Versar, 1996).

## Enforcement Activities

Richards-Gebaur AFB is not on the National Priority List, and the ongoing Installation Restoration Program is not subject to a Federal Facility Agreement with the U.S. EPA Region VII. The Department of Defense has entered into a cooperative agreement known as the Department of Defense and State Memorandum of Agreement with the Missouri Department of Natural Resources (MDNR) for oversight and guidance of site restoration activities (Tetra Tech, 1994). Richards-Gebaur AFB has worked closely with the MDNR and the EPA through frequent correspondence and regularly scheduled meetings.

## Community Participation

The Restoration Advisory Board (RAB) was formed in February of 1994 and held its first meeting on March 1, 1994. The RAB ensures that the community is aware of and also has a voice in environmental restoration issues of the Base. The group meets quarterly and assists the BRAC Cleanup Team (BCT) by providing community input on cleanup priorities (Tetra Tech, 1994). Information regarding work at Site SS006 and other environmental issues is regularly available through the RAB process. In addition to the ongoing RAB meetings, a Community Relations Plan for the Air Force Base at large is available to the public (U. S. Air Force, 1995a).

## Scope of Response Action

Site SS006 was used as a temporary storage area for containers and drums of solvents, oils, and lubricants. Several site investigations indicated that spills of petroleum products and other substances had occurred at the site. Based on the observed shallow (less than 4 feet below grade) depth of contamination, it was determined that the most reasonable response action was to excavate the potentially contaminated soils; dispose of them offsite at an appropriately permitted solid waste landfill; conduct post-excavation soil sampling to verify that the removal was satisfactory, and perform groundwater sampling to confirm that contaminants had not migrated to greater depth and significantly affected groundwater quality.

## 2.2 SITE CHARACTERISTICS

The purpose of this section is to describe the pertinent physical and chemical characteristics of the site in question, together with an assessment of potentially exposed populations. When available, site-specific information is used; however, much of the information is regional in scope. Select environmental sampling data is used to illustrate the nature of the contamination and the results of the response action, as appropriate. Further details of the sampling episodes are provided in the referenced reports listed in Appendix A of the Decision Document.

### Physiography and Climate

Richards-Gebaur AFB is located within the Osage Plains region of the Central Lowlands physiographic province. The Osage Plains are characterized by low relief, wide, maturely dissected uplands, and relatively steep valley slopes carved on sedimentary rocks of Pennsylvanian age. The topography of the Base is gently rolling, with relief between 960 and 1060 ft above mean sea level (Versar, 1996). Site SS006 is adjacent to Building 927. Building 927 is situated toward the northwest corner of the site on the same level as the airfield and directly east of Hangar Road.

The average temperature at the site ranges from 26° F in January to 78° F in July. The average annual precipitation is 36.8 inches with the majority falling in the late spring and early autumn (CH2M HILL, 1983). The average seasonal snowfall is 21.6 inches.

### Geology

Richards-Gebaur Air Force Base is underlain by thick sedimentary deposits of Pennsylvanian age limestones and shales. The bedrock is overlain by hard residual clays derived from in situ weathering of the bedrock. The residual clays are in turn overlain by wind-blown loess deposits. The unconsolidated materials overlying the bedrock range in thickness from 1 foot to 20 feet thick (Gentile, 1991). The soils belong to the Macksburg-Urban Series and are characterized as poorly drained silt and silt-clay loams (Versar, 1996).

Based on previous studies at the Base, the upper underlying formations are of the Pennsylvanian System, Kansas City Group. This group consists of the following (from the surface downward): the Wyandotte, Lane, Iola, Chanute, Drum, and Cherryvale Formations. Reportedly, the Kansas City Group is about 120-feet thick at the site (Gentile, 1991). The Wyandotte, Lane, Iola, and Chanute formations are most common at the Base.

The Argentine Member of the Wyandotte Formation outcrops at higher elevations on the Base. It consists of a light gray limestone characterized by thin, wavy bedding, and is approximately 40 feet thick. A calcareous shale, about three feet thick, known as the Quindaro Shale Member, exists at the base of the Argentine Limestone. The Lane Formation, ranging from 25 feet to 40 feet in thickness at Richards-Gebaur, is a medium-gray to bluish-gray shale that is commonly silty to sandy in the upper portion. These shales are impermeable and form a barrier to vertical groundwater flow (Gentile, 1991). The Raytown Limestone Member of the Iola Formation is generally a massive bluish-gray, wavy bedded limestone ranging from 5 feet to 10 feet in thickness. This member also locally contains interbedded lenses of shale that are approximately 3 inches thick (Versar, 1996). The Chanute Formation is a maroon and green claystone and shale with local occurrences of cross-bedded sandstone and conglomerate. The formation ranges from 10 to 15 feet in thickness, and is interbedded with thin nodular limestone near the middle of the formation. The high percentage of shale and claystone prevents the Chanute from transmitting significant amounts of fluids (Gentile, 1991).

Based upon the available site data, it is likely that Site SS006 is underlain by weathered limestone of the Argentine Formation (Gentile, 1991). Bedrock is shallow, encountered between 1 foot to 4 feet below grade during a subsurface groundwater investigation (Versar, 1996).

### Structural Geology

The Kansas City Group sediments underlying Richards-Gebaur belong to the Upper Pennsylvanian System. They have been gently folded into a series of synclines, domes, and anticlines that, taken overall, dip north-northwest. The regional joint pattern consists of two major sets that trend NE-SW and NW-SE and are essentially vertical, oriented at right angles to one another (Gentile, 1991).

### Hydrogeology

Richards-Gebaur is located in the Osage-Salt Plains groundwater area of the Central Nonglaciaded Plains region. The Osage-Salt Plains, characterized by Pennsylvanian and Mississippian age sedimentary aquifers, consist of low permeability strata that tend to impede vertical groundwater movement. Groundwater in the Pennsylvanian aquifers is generally non-potable (Jacobs, 1995). Wells deeper than 400 feet yield non-potable mineralized water (MDNR, 1986). The shale and claystone that comprise the Kansas City Group have very low permeability, effectively acting as confining layers to the lower limestone units (Versar, 1996).

In general, groundwater yields from wells completed in the shallow bedrock aquifers are poor and erratic, generally less than 20 gallons per minute, and appear to be seasonal. The water is mineralized and of poor quality (Ecology and Environment, 1988). Groundwater from deeper aquifers is known to be highly saline, reportedly exceeding 40,000 parts per million (ppm) total dissolved solids in some areas (USAF, 1994b). The federal Secondary Maximum Contaminant Level for TDS is 500 ppm. For these reasons the groundwater at and in the vicinity of the Base is considered non-potable (Gentile, 1991, Versar, 1996). A 1990 well survey found 12 water wells within a mile of the Base, but all were either inactive, abandoned, or unlocatable (O'Brien and Gere, 1990; Jacobs, 1995). A 1998 well search reported no drinking water wells within 1 mile of the site (CH2M HILL, 1998).

During the subsurface investigation at Site SS006 in 1996, three direct-push borings met bedrock within four feet of the ground surface. The borings were left open for 48 hours but did not collect water. A single groundwater monitoring well, located in the center of the site, was installed into bedrock to a depth of 16 feet. Groundwater was encountered at a depth of eight and a half feet below ground surface. The groundwater is representative of the perched water conditions that are prevalent at the site. Such conditions would tend to reflect seasonal precipitation, local geologic discontinuities, surface drainage features, and topography. It is likely that shallow lateral groundwater flow, if present, would be controlled to a degree by the orientation and dip of the upper bedrock surface (Versar, 1996).

### Extent and Distribution of Chemicals in Soils

In this section, concentrations of the standard petroleum indicator chemicals total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, and xylenes (BTEX) are compared to the MDNR Underground Storage Tank Closure Guidance Document action levels (e.g., TPH action level of 50 ppm). Cleanup levels are provided only for the UST petroleum indicator chemicals, and are calculated following the MDNR recommended Matrix Table 4, LUST Soil Cleanup Guidelines for Undisturbed soil. In accordance with MDNR guidance set forth in *How Clean is Clean? Uniform Cleanup Standards for Contaminated Sites in Missouri* (MDNR, 1995), other chemicals are compared to Any-Use Soil Levels (ASLs) published by the Missouri Department of Health (MDOH, 1996).

In 1988, two surface (0-2 feet below grade) soil samples collected from Site SS006 were analyzed for volatile organic chemicals (VOCs), semi-volatile organic chemicals (SVOCs), and metals. VOCs were not detected in any samples and no samples showed chemical concentrations above the applicable MDNR action levels with the single exception of chrysene. Chrysene, a polycyclic aromatic hydrocarbon, was detected in a single sample at a concentration of 4.2ppm. The MDNR any-use soil level (ASL) is set at 0.44 ppm for chrysene. However, no PAHs were present in the associated duplicate soil sample. Metal concentrations were below applicable ASLs (O'Brien and Gere, 1991).

A follow-up Site Inspection was conducted in 1991 because elevated laboratory detection limits for SVOCs had been reported during the O'Brien & Gere investigation and the results were therefore unreliable (Burns & McDonnell, 1993). Six soil borings were advanced and six soil samples collected, one per boring. The six samples were collected at different depths, from 1 foot to 6 feet below ground surface, and analyzed for SVOCs. One of the six samples, taken at a depth of 2 feet, was reported to contain chemicals at concentrations exceeding the applicable MDNR any-use soil level of 0.44 ppm for carcinogenic PAHs.

Based upon the site data, forty cubic yards of soil around the hazardous material storage area were excavated to three feet below grade in 1993 (Burns & McDonnell, 1993). Three post-excavation soil samples were collected from the base of the excavation and analyzed for semi-volatile compounds (Figure 2). Three duplicate soil samples were also collected from the same post-excavation sampling locations. The concentrations of SVOCs in the six soil samples were either below the analytical quantitation limits or else qualified as undetected by the QA/QC review (see Table 3, Burns and McDonnell, 1993).

## Extent and Distribution of Chemicals in Groundwater

A preliminary groundwater assessment was conducted at Site SS006 in 1996 (Versar, 1996). Three direct-push monitoring points were installed to the top of bedrock at the site (about four feet below grade) but remained dry after a 48-hour period. One groundwater monitoring well was installed into bedrock to a depth of 16 feet below ground surface (Fig. 2). A groundwater sample was collected and analyzed for metals, VOCs, SVOCs, and TPH constituents. Metal concentrations were below applicable MDNR action levels. Three VOCs (vinyl chloride, cis-1,2-Dichloroethene, and Trichloroethene) exceeded State maximum contaminant levels (MCLs), but were within one order of magnitude. One SVOC, bis(2-ethylhexyl)phthalate, was detected at a concentration of 10 ppb, slightly above the State MCL of 6 ppb. However, this chemical is a common artifact of field sampling monitoring wells constructed with PVC and is not consistent with chemical use at Site SS006. No TPH constituents were detected. The following table summarizes the chemicals that exceeded the State's groundwater/drinking water criteria.

<b>Site SS006 – Groundwater Sample Results Above MCLs at MW-01</b>		
<b>Analyte</b>	<b>MCL (ppb)</b>	<b>Sample Result (ppb)</b>
VOC		
Cis-1,2-Dichloroethene	70	74
Trichloroethene	5.0	44
Vinyl Chloride	2.0	18
SVOC		
Bis(2-ethylhexyl)phthalate	6.0	10.0

*Note: Results are shown only for parameters that exceed the MCL.*

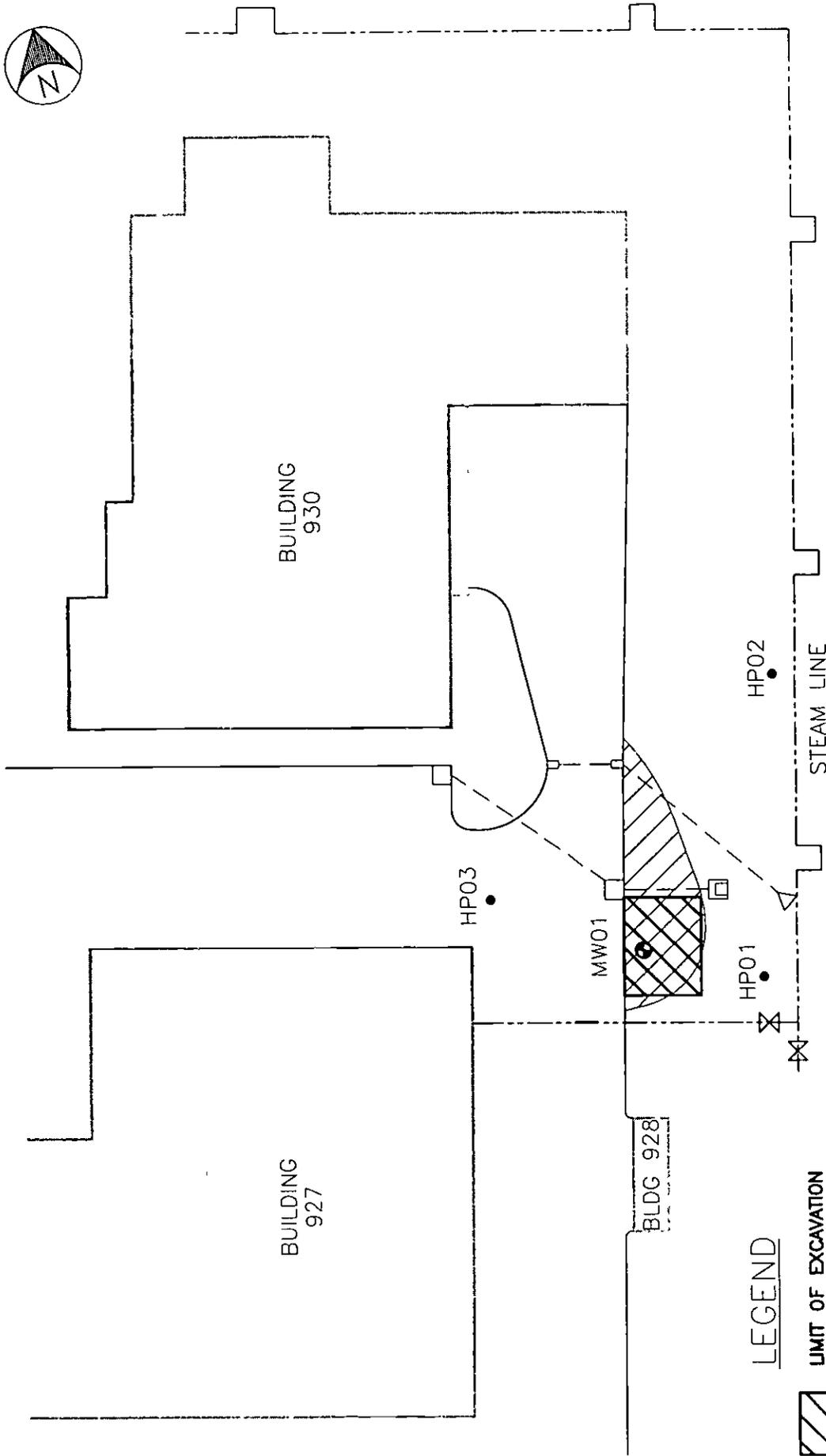
## Potentially Exposed Populations

A complete exposure pathway must have a contaminant source, a transport medium for the contaminant, a point of contact for the receptor with the contaminant, and a route of uptake of the contaminant by the potential receptor.

The source of the contamination at Site SS006, soils contaminated by spilled petroleum products, has been successfully removed. Because there is no contaminant source in the site soils, there is no exposure pathway associated with the soil medium. Consequently, there is no exposure pathway associated with air.

Shallow groundwater has been sampled and analyzed and shown to contain trace levels of four organic chemicals. Although groundwater has been affected, it is considered non-potable because of low yields and high salinity. Additionally, groundwater is not a preferred supply of drinking water in the area because of the abundant supply of Missouri River water. Since groundwater at and surrounding the site is considered non-potable, the groundwater exposure pathway is incomplete because the point of contact with the contaminant does not exist. Therefore, there are no potentially exposed populations at Site SS006 because there are no current or reasonable future complete exposure pathways.

There are no surface waters or sediments at Site SS006. Therefore there are no complete exposure pathways for these media.



LEGEND

-  LIMIT OF EXCAVATION
-  FORMER AREA OF STRESSED VEGETATION
- DIRECT PUSH BORING LOCATION
- ⊗ MONITORING WELL



Figure 2

SITE SS006  
 MONITORING WELL LOCATIONS  
 Richards-Gebaur A.F.B.  
 Belton, Missouri

CH2M HILL

## 2.3 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs) and To-be-considered Guidance (TBCs)

The following regulations and laws were identified and applied as ARARs or TBCs for Site SS006 - Hazardous Material Storage Area:

- |    |              |                                                                         |
|----|--------------|-------------------------------------------------------------------------|
| 1  | 10 CSR 20-7  | Water Quality Standards                                                 |
| 2  | 10 CSR 20-10 | Underground Storage Tanks - Technical Regulations                       |
| 3  | 40 CFR 131   | Water Quality Standards                                                 |
| 4. | Guidance     | How Clean is Clean? Uniform Cleanup Standards for the State of Missouri |
| 5. | CSR 20-9.020 | Proposed Rule - Any-Use Soil Levels for Residential Settings            |

## 2.4 SUMMARY OF REMEDIAL RESPONSE

### Remedial Response Design Criteria

The primary remedial response design criterion was to restore the site to a condition that poses no significant risk to human health or the environment. The secondary response criterion was to restore the site to allow unrestricted land use in the future. These goals were accomplished through the removal of soils with SVOC constituent concentrations above applicable State cleanup levels.

Groundwater monitoring results indicated trace concentrations of four organic chemicals. However, groundwater at and in the vicinity of the site is not used as a source of drinking water. Therefore, no further response action planned is the appropriate remedial response design criterion for the groundwater because there are no potentially exposed populations associated with the site.

### Remedial Response Implementation

In 1993, 40 cubic yards of contaminated soil were excavated. The depth of excavation was approximately 3 feet. The limits of the excavation were determined by visual observation and standard field screening techniques. The three soil samples collected at the base of the excavation were either below the quantitation limits or qualified as undetected by the QA/QC review. The excavated area was backfilled with clean fill material and the site was restored to its original condition (Burns & McDonnell, 1993).

### QA/QC Demonstration

Field sampling methods were conducted in accordance with standard U.S. EPA operating procedures. An accredited laboratory using standard U.S. EPA analytical protocols did laboratory analyses

### **Site Monitoring Results Summary**

The response action at the site was completed successfully, as demonstrated by the post-excavation sampling results. The detection of four organic chemicals at concentrations within one magnitude of their respective MCLs is not considered significant because the groundwater is locally perched and not a potable source of drinking water. In addition, there are no records of current groundwater use within 1 mile of the Base. Public drinking water is supplied to local residents by the Belton Public Works Department. The source of the water is the Missouri River, supplied to Belton by Kansas City Department of Water Pollution Control. Therefore, no long-term monitoring was performed at the site.

### **Operation and Maintenance (O & M) Records Summary**

Because no long-term remedial actions or post-remediation monitoring took place at the site, there are no records available to summarize.

## **2.5 RISK CHARACTERIZATION**

The affected soil was excavated and disposed of offsite at an appropriately permitted facility. Post-excavation soil sampling demonstrated that the site contamination had been successfully removed. Although groundwater may have been affected, the groundwater is not considered a potential source of drinking water because of low yields, high salinity, and ease of access to the Missouri River public water supply system. Records show that groundwater is not used by local communities for drinking water. Because there is no source of contamination remaining at Site SS006, and because the groundwater is non-potable, the site does not pose a significant threat to health or the environment.

## **2.6 RATIONALE FOR NFRAP DECISION**

The chosen decision for the Hazardous Material Storage Area is No Further Response Action Planned. This decision is consistent with CERCLA and the NCP, and complies with Federal and State ARARs. The rationale for this decision is that the contamination characterized at SS006 has been successfully removed and that the site does not pose a significant threat to health and the environment.

## 3. Responsiveness Summary

---

Once the BCT approves the NFRAP Decision Document, the NFRAP report and all supporting documents listed below in the Administrative Index will be provided for public review and comments at the administrative record public repository at the City of Belton Public Library. After the 60 day comment period, the BCT will address the comments. Once the comments have been adequately addressed, the NFRAP will be amended to reflect the comments.

### 3.1 Public Comments

(A list of public comments concerning the environmental issues at this site will be provided together with the agreed upon responses).

### 3.2 Administrative Record Index

Appendix A presents the list of references that were used as the basis for the Decision Document. The Administrative Record Index for the Base is also available at the City of Belton Public Library. The Administrative Record will include date, title, author, recipient of document, number of pages, and a short description of the document.

## Appendix A: List of References

- Burns & McDonnell, 1993 *IRP Remedial Action, SS006 Hazardous Material Storage Area, Richards-Gebaur Air Force Base, Missouri, Final Closure Report*
- CH2M HILL, 1983 *Installation Restoration Program Records Search for Richards-Gebaur Air Force Base, Kansas City, Missouri.*
- CH2M HILL, 1998 *Well Searches 1 mile, 1-2 miles, and 2-4 miles MDNR Division of Geology and Land Survey.*
- Ecology and Environment, Inc., 1988 *Installation Restoration Program, Phase II, Confirmation/Quantification, Stage 2, Richards-Gebaur Air Force Base, Kansas City, Missouri - Final Report Vol. I-II and Supplement.*
- Gentile, R.J, et al., 1991. *Hydrogeologic Analysis of Richards-Gebaur AFB, Kansas City, Missouri*
- Jacobs Engineering Group, Inc., 1995. *Groundwater Evaluation Report (Revised), Richards-Gebaur Air Force Base, Kansas City, Missouri.*
- Missouri Department of Health, 1996. *Proposed Rule - Any Use Soil Levels for Residential Setting*
- MDNR, 1986. *Missouri Water Atlas*
- MDNR, 1995. *How Clean is Clean? Uniform Cleanup Standards for Contaminated Sites in Missouri.*
- MDNR, 1996. *Underground Storage Tank Closure Guidance Document.*
- O'Brien & Gere Engineers, Inc., 1991. *Preliminary Assessment for the Hazardous Material Storage Area (site SS006), Richards-Gebaur Air Force Base, Belton, Missouri*
- Tetra Tech, Inc., 1994. *BRAC Cleanup Plan (BCP), Richards-Gebaur Air Force Base, Kansas City, Missouri.*
- U.S. Air Force, 1993 *Basewide Environmental Baseline Survey, Richards-Gebaur Air Force Base, Kansas City, Missouri*
- U.S. Air Force, 1994. *Final Environmental Impact Statement, Richards-Gebaur Air Force Base, Kansas City, Missouri*
- U.S. Air Force, 1995a *Community Relations Plan, Richards-Gebaur Air Force Base, Kansas City, Missouri.*
- Versar, 1996 (Nov) *Final - Preliminary Groundwater Assessment SS003, SS004, SS006, SS009*

# RICHARDS-GEBBAUR A.F.B

## Scope of E&C Study

- 23 Sites Total
  - 9 IRP Sites
  - 4 Compliance Sites
  - 10 Areas of Concern

# *RICHARDS-GEBAUR A.F.B*

## *Review Methodology*

- historical record
- sampling approach
- analytical results
- response actions
- regulatory setting

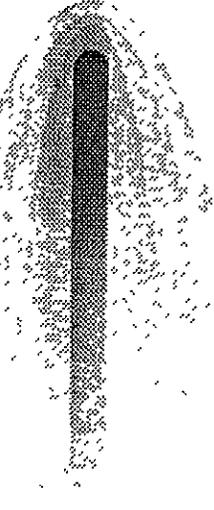
# *RICHARDS-GEBBAUR A.F.B*



## *Site Evaluation Criteria*

- What are the contaminants ?
- What are the contaminated media ?
  - What was the response ?
  - Was the response successful ?
- Does the site pose a significant risk ?

# RICHARDS-GEBAUR A.F.B



## Goals of the review

- identify sites that satisfy closure criteria
- identify data needs
- identify response options
- recommend further work

# RICHARDS-GEBBAUR A.F.B

## NFRAP Closure Criteria

- Has contaminant source been removed ?
- Does site meet ARARs and TBCs ?
- Is response protective of public health and the environment ?
- Does site pose a significant risk to public health and the environment ?

# RICHARDS-GEBAUR A.F.B



## Results of the review

- 15 potential NFRAP sites
- 2 with data needs
- 6 requiring additional work

# *RICHARDS-GEBBAUR A.F.B*

## *NFRAPSITES (15)*

- SS003 Oil Saturated Area • CS004 UST 620A
- SS004 Hazwaste Storage • FT002 North Burn Pit
- SS006 Hazmat Storage • AOC-002 Drainage Pond
- SS008 Test Cell Area • AOC-004 Str. Veg. Bldg 603
- SS009 Fire Valve Area • AOC-005 Str. Veg. Bldg. 918
- ST007 Leaking USTs • AOC-009 Streamline Bleeder
- CS001 Fuel Line 942 • AOC-010 Bldg. 918 Lot
- CS002 OWS Bldg. 704

# RICHARDS-GEBBAUR A.F.B

## Non-NFRAP Sites (8)

- AOC-001 Central Drainage Area (*metals in sediments*)
- AOC-003 Firing Range (*metals in soils*)
- AOC-006 Tarmac Fuel Line (*unsampled at this time*)
- AOC-12 Fuel Hydrant Line (*insufficient data*)
- AOC-12A Industrial Waste Line (*insufficient data*)
- ST005 POL Yard (*hydrocarbons in soils*)
- XO-001 Belton Training Complex (*metals in soil, surface water*)
- CS003 OWS 9470B - POL Yard (*still in operation*)

# RICHARDS-GEBBAUR A.F.B

## Completed NFRAP Sites (7)

- CS001 Fuel Line - 942 Section
- CS002 OWS Bldg. 704
- SS003 Oil Saturated Area
- SS004 Hazwaste Drum Storage Area
- SS006 Hazmat Storage Area
- ST007 Leaking USTs
- SS008 Test Cell Area

# *RICHARDS-GEBBAUR A.F.B*

## *NFRAP Site CS001 - Fuel Line 942 Section*

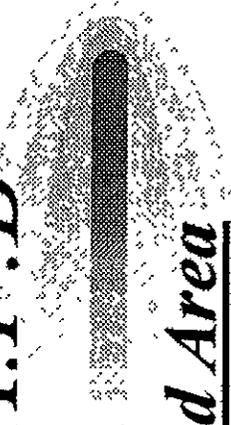
- site discovered as a result of a 1993 soil gas survey
- Jet Fuel release from buried 8-inch hydrant line behind Building 942
- 4 soil borings sampled and 3 wells installed in 1995
- soil data (12 samples): TPH max. = 63 ppm; benzene = 0.023 ppm
- groundwater data (3 samples): results below PQLs
- 900 cubic yards of soil removed and disposed offsite
- 7 post-excavation soil samples: all ND for TPH and BTEX
- site backfilled to original grade

# *RICHARDS-GEBBAUR A.F.B*

## *NERAP Site CS002 - OWS Bldg. 704*

- 500-gal. UST (wastewater clarifier) and 250-gal. UST (washwater)
- USTs removed and replaced in 1993: 205 cubic yards of soil removed
- 5 post-excavation soil samples analyzed for TPH, BTEX, and metals
- no BTEX or metals found above MDNR UST cleanup levels
- TPH max = 349 ppm; cleanup goal for site calculated at 500 ppm
- 2 wells installed in 1996, analyzed for TPH, VOCs, and metals
- no constituents above respective MCLs
- site restored to original condition

# *RICHARDS-GEBBAUR A.F.B*



## *NERAP Site SS003 - Oil Saturated Area*

- stained ground associated with waste oil storage area
- soil sampled in 1988-89: TPH max = 3,800 ppm; Pb max = 343 ppm
- no VOCs or SVOCs detected
- 27 cubic yards soil excavated in 1991; 2 post-excavation samples taken
- TPH max = 28,000 ppm
- 15 cubic yards excavated in 1992; 2 post-excavation samples taken
- TPH max = 53 ppm; cleanup goal for site calculated at 500 ppm
- 3 wells installed, analyzed for TPH, VOCs, and metals
- no constituents above applicable MCLs
- site backfilled to original grade

# *RICHARDS-GEBBAUR A.F.B*

## *NFRAP Site SS004 - Hazwaste Storage Area*

- stained ground associated with hazardous materials storage
- sampled in 1988-89: TPH max = 1,900 ppm
- no VOCs, SVOCs, or metals detected
- 15 cubic yards soil excavated in 1991; 2 post-excavation samples taken
- TPH max = 15 ppm; Pb max = 17 ppm
- 3 wells installed in 1996, analyzed for TPH, VOCs, and metals
- no constituents above applicable MCLs
- site backfilled and restored to grade

# *RICHARDS-GEBAUR A.F.B*

## *NFRAP Site SS008 - Test Cell Area*

- sheen noted on puddle of water in utility trench excavation
- 16 soil borings done and 42 soil samples taken in 1993
- samples analyzed for TPH, VOCs, and metals
- no constituents above applicable MDNR guideline action levels
- 19 soil samples, 1 grab water sample taken in 1996
- analyzed for TPH, VOCs, and PCBs (1 for SVOCs)
- TPH max = 240 ppm ; PAH max = 1.3 ppm (1 sample; other 18 ND)
- grab water sample: TPH = 2,240 ppm; but sample unrepresentative
- 8 borings at the site were dry

# *RICHARDS-GEBBAUR A.F.B*

## *NFRAP Site ST007 - Leaking USTs*

- 3 former USTs removed in 1988; observations noted stained soils
- passive bioventing system installed
- 16 borings sampled in 1989-91, analyzed for TPH, BTEX, and metals
- TPH max = 1,618 ppm; VOCs ND; As = 14.9 ppm (ASL = 11 ppm)
- 14 borings sampled in 1996: TPH max = 2,150 (DRO)
- 3 wells installed, analyzed in 1991: TPH, VOCs, and metals < MCLs
- wells resampled in 1996: TPH and BTEX levels remain below MCLs
- source removed, residuals immobile, groundwater not affected
- therefore no complete exposure pathways the site

# *RICHARDS-GEBAUR A.F.B*

## *Site SS006 - Hazardous Materials Storage Area*

- Site Setting
- Site History
- Site Sampling Data
- Response Actions
- NFRAP Rationale

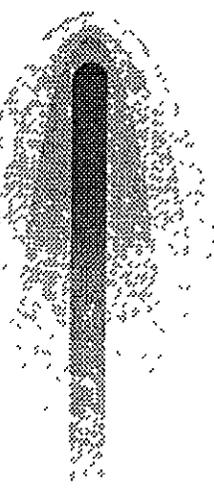
# RICHARDS-GEBBAUR A.F.B



## SS006 - Site Setting

- located behind Buildings 927 and 930, east of Hangar Rd.
- Building 927 used for aircraft engine and propeller repairs
- drums of oil stored on metal racks near top of grass embankment and adjacent to asphalt pavement
- runoff from the storage area adversely affected nearby grass
- spills from the drums probably occurred too
- result was an area of distressed vegetation - about 800 sq. ft.

# *RICHARDS-GEBBAUR A.F.B*



## *SS006 - Site History*

- 1957 - Building 927 in use as repair shop
- 1988 - Site Investigation - distressed vegetation noted
- 1990 - Preliminary Assessment, 2 surface soil samples taken
- 1990 - storage structure removed, stressed vegetation recovers
- 1991 - Site Inspection, six soil borings advanced at site
- 1993 - IRP Remedial Action, 40 cubic yards of soil excavated
- 1996 - Groundwater Assessment, 1 well installed and sampled

# *RICHARDS-GEBBAUR A.F.B*

## *SS006 - Site Sampling Data*

- 2 surface soil samples (1990 Preliminary Assessment)
  - chrysene: 4.2 ppm (duplicate: ND); lead: 120 ppm (duplicate: 57 ppm)
- 6 subsurface soil samples (1991 Site Inspection)
  - 5 samples non-detect for SVOCs
  - 1 sample with 2.8 ppm chrysene
- 6 post-excavation soil samples (1993 IRP Remedial Action)
  - all samples non-detect for SVOCs
- groundwater (1996 groundwater assessment)
  - cis-1,2-DCE: 74 ppb; TCE: 44 ppb; vinyl chloride: 18 ppb

# RICHARDS-GEBBAUR A.F.B



## ARARs for SS006

- 10 CSR 20-7 Water Quality Standards
- 10 CSR 20-10 Underground Storage Tanks - Technical Regulations
- 40 CFR 131 Water Quality Standards

## TBCs for SS006

- How Clean is Clean? Uniform Cleanup Standards for Missouri
  - Missouri Site Characterization Guidance Document
- Underground Storage Tank Closure Guidance Document
  - Any-Use Soil Levels for Residential Settings

# RICHARDS-GEBBAUR A.F.B



## SS006 - Response Actions

- source removal (drum storage structure)
  - contaminant delineation
- excavation of residually contaminated soil
- post-excavation verification soil sampling
  - groundwater assessment

# *RICHARDS-GEBAUR A.F.B*

## *SS006 - NFRAP Rationale*

- original contamination limited in degree
- source of contamination removed
- distressed vegetation recovers
- residually contaminated soil removed
- groundwater contamination limited in degree
  - contaminants readily biodegrade
    - groundwater perched
    - groundwater non-potable
  - no wells within 1 mile of site

# *RICHARDS-GEBBAUR A.F.B*

## *Results of Well Search (4-28-98)*

- no active wells within 1 mile
- 5 wells within 1-2 miles
  - 140' - 250' deep
  - 4 are at least 35 years old
  - the other (drilled 1988) is abandoned
- 17 wells within 2-4 miles
  - 123' - 402' deep
  - 12 wells at least 50 years old
  - 8 wells known to be abandoned
  - wells 320' and 402' deep described as "dry and abandoned"

5/4/98

CH2M HILL, St. Louis, MO

23

# *RICHARDS-GEBAUR A.F.B*

## *DGLS Comments on Site Groundwater (5-01-98)*

- extremely difficult to develop any water supply
- very marginal aquifer for domestic supply
- virtually impossible for public water supply
- average yields < 3 gallons per minute
  - wells often dry
- deeper water (> 150ft.) highly mineralized, non-potable
- MDNR Class 2 Area requires 40 ft. minimum casing depth
  - therefore shallow perched water cannot be used
- Agency recommends hook-up to available public water supplies