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MEETING MINUTES FROM RESTORATION ADVISORY BOARD MEETING AGENDA FROM 20 FEBRUARY 2003 NAS FORT WORTH TX
2/20/2003
RESTORATION ADVISORY BOARD

CARSWELL AFB
TEXAS

ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 763

Carswell/Plant 4
Restoration Advisory Board Meeting
February 20, 2003
6:00–8:00 pm

Agenda

Welcome/Introductions/Minutes	5 minutes
Westworth Redevelopment Authority Update	10 minutes
Action Items	15 minutes
Air Force Plant 4/George Walters Project Update	10 minutes
Carswell Off-Base/Charles Pringle Project Update – AeroSpace Museum Project, Sanitary Sewer System Remedial Action Project, RCRA/HSWA Permit Renewal Status, Projected Future Land Transfers, WSA Land Transfer, WSA EOD Clearance to Residential from Agricultural, Project to Expand Permeable Reactive Barrier(PRB) to stop TCE, GW flow in Golf Course Property, Land Use Controls/Institutional Controls (LUC/IC) Modeling for Future Golf Course Land Transfers	14.5 minutes
Carswell On-Base/Mike Dodyk Project Update	15 minutes
Presentation of RAB Certificates of Appreciation	10 minutes
RAB Business	5 minutes
Next Meeting Agenda	5 minutes
Open Discussion/Questions	5 minutes

CARSWELL/AIR FORCE PLANT 4
RESTORATION ADVISORY BOARD MEETING

Revised Draft
Summary Minutes of February 20, 2003
Regular Quarterly Meeting

A regular meeting of the Carswell/Air Force Plant 4 Restoration Advisory Board (RAB) was held February 20, 2003 at the Lockheed Martin Recreational Association Ranch House, 3400 Bryant Irvin Road. The RAB meeting began at 6:13 p.m.

Agenda

Welcome/Introductions/Minutes

Westworth Redevelopment Authority Update (Leland Clemons)

Air Force Plant 4 (George Walters)
Project Update

Carswell Off-base (Charles Pringle)
Project Update

Carswell On-Base (Mike Dodyk)
Project Update

Open Discussion/Questions
Presentation of RAB Certificates of Appreciation

Welcome and Introduction of Attendees

Mr. George Walters filled in for Chairperson Ms. Allison Thompson. Mr. Walters called the meeting to order and after introductions asked if everyone was in favor of approving the minutes from the previous RAB Meeting. Everyone agreed to approve the minutes.

Westworth Redevelopment Authority

Mr. Walters introduced Leland Clemons to discuss the Westworth Redevelopment Authority (WRA) activities. Mr. Clemons stated that the golf course has opened. The rains during December through February have made the course very wet. The course has been very well received in the community.

There have been significant amounts of interest in the commercial sites. Presently, the WRA has been working with a group under a Letter of Intent to begin a very significant development.

The renovation of the military houses has been a very stable program. Approximately 88 former military houses have been renovated and leased to active, retired and reserve military. Since the program began, over 500 families have leased homes.

Mr. Walters noted that the November RAB meeting was canceled due to the passing of Don Yates, AFCEE RAB coordinator from Wright Patterson AFB. Mr. Walters stated that Don would be missed.

Air Force Plant 4

Mr. George Walters from Wright Patterson AFB in Dayton, OH stated that he is going to give updates on three projects at Air Force Plant 4. These projects include: USGS PCB sediment sampling, Electrical Resistance Heating, and future plans for projects.

USGS Sediment Sampling, Phase II

Mr. Walters discussed various web sites with information on the history and uses of PCBs. He also stated that all states have a fish consumption advisory. Some states distinguish between bottom-dwellers that could possibly have PCBs and other fish. So to be conservative, the fish consumption advisory is in effect in many states.

Mr. Walters discussed the sediment sampling conducted by the USGS during the Phase I sampling. Shallow sediment samples and deep core samples were taken in Lake Worth to test for elevated PCB levels. Three deep samples were taken and the hottest spot found was 139 microgram per kilogram. We have obtained funding from USGS to take more samples (Phase II) and do more studying along the inlet. The bottom line is that 139 micrograms per kilogram is still considered relatively low but they are going back to see if there are any hotter areas of concern.

Building 181, Electrical Resistance Heating

Mr. Walters explained that the historical trichloroethylene (TCE) contamination occurred at Building 181 prior to 1990, and in 1991 there was a large release from a leaking tank. Mr. Walters described the mechanism of how the TCE has moved through the soil and into the groundwater and bedrock. He described the complex migration behavior or the contamination and how hard it is to find and treat. Mr. Walters described the remediation technique, Electrical Resistive Heating, presently being employed to treat the contamination. After successful completion of a small scale (1/2 care) pilot test, a full scale system was installed within Building 181. Mr. Walters described the difficulty the contractors had installing the electrode within an existing building that is currently being utilized. Mr. Walters described the heating process where 62 electrodes are utilized to heat up the ground to approximately 72 and 87 degrees Celsius. The heat causes the TCE to change from liquid to gas where 92 extraction wells remove the vapors from the ground. The electrodes extend down to approximately 32 feet below ground

surface. The water table is at approximately 28 feet below ground surface. The system was turned off on December 18th to allow for additional time for heating the deeper soils. To date the treatment system has removed approximately 800 pounds of TCE.

The goal was to reduce the TCE concentration in groundwater to 10,000 mg/L. All but one well still has concentrations above 10,000 mg/L. Additional samples were collected and a report will be completed within a couple of months. Mr. Walters stated that he was pretty comfortable that a good job was done on the project.

Five Year Review

Mr. Walters stated that all super fund sites must conduct a five year review of the remediation activities on the site. In 1996 Air Force Plant 4 installed a treatment system on the east parking lot and additional treatment system on the base. The base installed a treatment system in Building 181, and have been conducting long-term monitoring. The five year review has been completed and recently submitted to EPA. A copy of the report is available at the library or can be obtained by email.

Carswell Off Base

Mr. Pringle introduced himself from the Air Force Base Conversion Agency. His primary mission is do the clean-ups of the off base sites including the golf course, the stables, housing, and the Weapons Storage Area and then transfer the land. Mr. Pringle is responsible for 19 sites, 18 of which are closed. He has done investigations on the sanitary sewer line and found 12 sites that are considered to be hot spots. He is currently waiting for the money before doing the clean-up. Most of the land he is responsible for has already been transferred. The two area that are left are the golf course and the Weapons Storage Area.

The golf course has a plume running across it and as long as there is a plume there the land won't be transferred. Mr. Pringle is thinking about transferring some of the golf course land up to that point.

The Weapons Storage Area is probably going to be closed shortly. The Finding of Suitability Transfer is currently being reviewed by The Environmental Protection Agency and the Texas Natural Resource Conservation Commission, as well as AFBCA. If everything goes well then the transfer will happen on time. Mr. Pringle stated that he has had four or five people interested in the site, however one individual that owns the land next door is capable of knocking the igloos down and building a residential site. Furtherr investigations will be needed in the DoD area.

Carswell On-Base

Mr. Dodyk, the resident engineer at Carswell, was introduced. He works for AFCEE at Brooks, AFB, but is on-site at Carswell. To date, the Air Force has received closure on 78 of the 88 sites. Since the last meeting several sites have been submitted for closure to the TNRCC. Since the last meeting several sites have been recommended for closure to the TCEQ: SWMU 50 (wash rack), SWMUs 5, 6, 12, 31, and 61 (waste accumulation areas), SWMU 64 (french drain), and Landfills 2, 6, 7, and 9.

Several rounds of performance monitoring on the newly installed permeable reactive barrier have been completed. From the results thus far he thinks it is going to work real well.

Groundwater levels and water quality samples were collected in October for the semi-annual base wide groundwater sampling project.

The groundwater remediation system at the base gas station is currently being installed. Ten years ago the gas station has underground tanks that leaked. The fuel is still in the ground and it needs to be cleaned before it goes into the river.

Soil and sediment samples were collected at SWMUs 54 and 55. These are associated with the base storm water drainage system.

In January, groundwater samples were collected in the north part of the base where there have been transient aircraft have been parked. The samples were collected for an upcoming remediation demonstration consisting of introducing vegetable oil into to groundwater to provide a carbon source for bioremediation.

Soil samples were collected at a former jet engine test facility. Additional soil samples were collected within SWMU 21 (former fire training area) and SWMU 49 (former wash rack).

Several document have been submitted to the State for review: focus feasibility study on the southern lobe of the TCE plume, Site Plan A site assessment (Buildings 1040, 1191, 4115, 1658, and 1750).

Mr. Dodyk presented an animation of the groundwater sampling results from the permeable reactive barrier.

Open Discussion

It was asked if there was a timetable for the vegetable oil injection. Mr. Dodyk stated that the demonstration project should be started in the spring.

Presentations of certificates were presented to RAB members.

Mr. Olshefski asked when the remediation will be complete. Mr. Walters stated that the remediation systems will continue to operate for many years. Additional questions were asked relating to the drainage outfalls from the base. Mr. Dodyk stated that the investigations indicated that no contamination was coming from the outfalls.

The meeting was adjourned at 7:21 pm.

Next Meeting

The next RAB meeting will be May 8th.

In Attendance

Carswell DERA (On-Base)

Joe Ebert, HQ AFCEE/ERD
Mike Dodyk, AFCEE, Resident Engineer
Rich Wheeler, Ellis Environmental Group
Rick Levin, Ellis Environmental Group
Mark Webster, Ellis Environmental Group
Miquette Rochford, HydroGeoLogic, Inc.
Lynn Morgan, HydroGeoLogic, Inc.
Greg McGraw, Shaw Group
Audrie Medina, Booz Allen Hamilton
Andrea Linder, Booz Allen Hamilton

Carswell AFBCA (Off-Base)

Charles C. Pringle, HQAFCEE/ERD

Air Force Plant 4

George Walters, AFP 4 Project Manager, Wright Patterson Air force Base

United States Air Force

Karen Katzenback, USAF
David Rose, USAF
Jim McClain, USAF
Mike Hawkins, AFCEE

Texas Commission on Environmental Quality

Tim Sewell

U.S. Environmental Protection Agency

Noel Bennett
Robert Sullivan

Lockheed Martin

Elizabeth Rowls

Others (Off-Base)

Leland Clemons, Westworth Redevelopment Authority
W.F. Olshefski, Lake Worth Civic Club
Jim Scanlan, City of Fort Worth Water Department
D.W. Owens, River Oaks
Greg Hendrickson, River Oaks
Clarence Reed, City of Fort Worth
Robert Taylor, City of Fort Worth

Comments regarding the meeting minutes should be sent to:

Mr. Rick Levin
Ellis Environmental Group, LC
414 SW 140th Terrace
Newberry, FL 32669
Phone: (352)-332-3888
Fax: (352)-332-3222
e-mail: Rick.Levin@ellisenv.com

CARSWELL / PLANT 4 RAB Restoration Advisory Board FORT WORTH, TEXAS

Carswell/Plant 4

FINAL RCRA FACILITY INVESTIGATION REPORT SWMUs 17, 29, 30, and 62 / Landfills 7, 2, 9, and 6

Restoration Advisory Board Executive Summary #38 • February 20, 2003

INTRODUCTION

Naval Air Station Fort Worth Joint Reserve Base (NAS Fort Worth JRB), formerly Carswell Air Force Base, is in the process of planning and conducting activities for the identification, remediation, and closure of contaminated sites at the base through the Installation Restoration Program (IRP). The IRP is the primary mechanism of the Department of Defense for environmental response actions on U.S. Air Force installations. IRP activities are governed by provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Resource Conservation and Recovery Act (RCRA), and other applicable federal and state regulations. The IRP at NAS Fort Worth JRB is being conducted through the combined efforts of the Air Force Center for Environmental Excellence (AFCEE) and the Air Force Base Conversion Agency (AFBCA).

PROJECT BACKGROUND

A RCRA Facility Investigation (RFI) was conducted on solid waste management units (SWMU) 17, 29, 30, and 62, also known as Landfills 7, 2, 9, and 6, respectively. (See Figure 1 for the SWMU locations). SWMU 17 is 3.4 acres in size, and the official period of operation was from 1978 to 1983, although activity was noted in aerial photographs until the early 1990s. SWMU 29 is 11 acres in size and operated from 1952 to 1956. SWMU 30 is 6 acres in size and operated from 1978 to 1983. SWMU 62 is approximately 1.5 acres in size and operated between 1975 and 1978. Each of the SWMUs reportedly received primarily construction debris, a variety of wastes, and possibly small quantities of hazardous waste. The RFI of SWMUs 17, 29, 30, and 62 is required by the base's RCRA hazardous waste permit (HW-50289) that was issued by the Texas Commission on Environmental Quality (TCEQ).

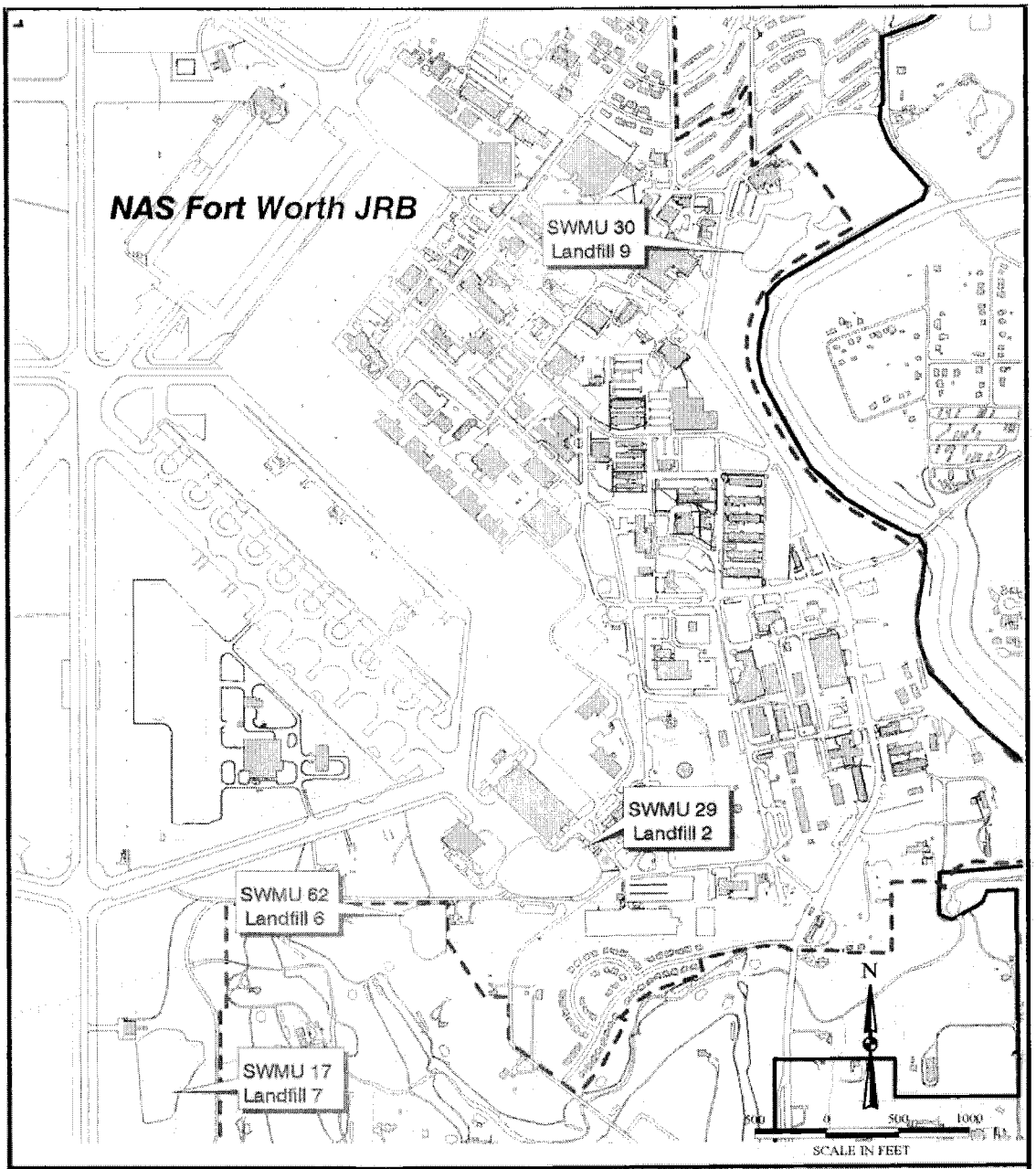
RCRA FACILITY INVESTIGATION STRATEGY

The goal of the RFI was to obtain closure of the sites under the TCEQ Risk Reduction Standard (RRS) program. Therefore, the RFI sampling plan was designed to determine if a release from SWMUs 17, 29, 30, or 62 had occurred. If contamination was encountered, the nature and extent of the contaminant of concern (COC) was delineated. Essential information consisting of soil lithology, the nature of wastes encountered, and an assessment of potential contaminant impacts on the quality of soil and groundwater within and around the former landfills was obtained to determine if SWMUs 17, 29, 30, or 62 presented a threat to human health or the environment.

RFI activities at the SWMUs were initiated in February 1998 and were concluded in February 2002. These activities included 7 geophysical surveys; the installation of 227 soil borings and 25 monitoring wells; the analysis of 306 soil samples and 120 groundwater samples; and Interim Remedial Actions consisting of the removal of contaminated soils from 7 excavation locations.

Construction debris consisting of concrete, asphalt, glass, wood, floor tiles, roofing tiles, paint chips, and scrap metal was encountered in the various landfills. Evidence of a release of metals, volatile organic compounds, semivolatile organic compounds, pesticides, and polychlorinated biphenyls into soil also was found. In areas where concentrations in soil exceeded allowable levels per TCEQ regulations, removal actions were conducted to eliminate areas with higher soil concentrations. No significant groundwater impacts were identified at SWMUs 29, 30, and 62. Benzene-impacted groundwater at SWMU 17 was delineated and monitored until concentrations were below RRS 2. Consequently, the RFI Report recommended closure under RRS 2 for SWMUs 17, 29, 30, and 62. The RFI Report was submitted to the TCEQ for review in September 2002.

For More Information:
If you would like more information, please see our website at http://www.afcee.brooks.af.mil/er/carswell/nasfw/ or contact Michael Dodyk, HQ AFCEE, at (817) 782-7167 or via e-mail at Mike.Dodyk@carswell.af.mil.



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Revised:11/04/02 CF
Source: HydroGeoLogic, Inc ArcView Database, 2002

HYDRO GeoLogic

Legend

- NAS Fort Worth JRB Boundary
- Former Carswell AFB Boundary
- Solid Waste Management Unit

Figure 1

Locations of SWMUs 17, 29, 30, and 62 NAS Fort Worth JRB, Texas

CARSWELL / PLANT 4 RAB Restoration Advisory Board FORT WORTH, TEXAS

Carswell/Plant 4

FINAL RCRA FACILITY INVESTIGATION REPORT SWMU 50 / Former Aircraft Washing Area No. 2

Restoration Advisory Board Executive Summary #39 • February 20, 2003

INTRODUCTION

Naval Air Station Fort Worth Joint Reserve Base (NAS Fort Worth JRB), formerly Carswell Air Force Base, is in the process of planning and conducting activities for the identification, remediation, and closure of contaminated sites at the base through the Installation Restoration Program (IRP). The IRP is the primary mechanism of the Department of Defense for environmental response actions on U.S. Air Force installations. IRP activities are governed by provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Resource Conservation and Recovery Act (RCRA), and other applicable federal and state regulations. The IRP at NAS Fort Worth JRB is being conducted through the combined efforts of the Air Force Center for Environmental Excellence (AFCEE) and the Air Force Base Conversion Agency (AFBCA).

PROJECT BACKGROUND

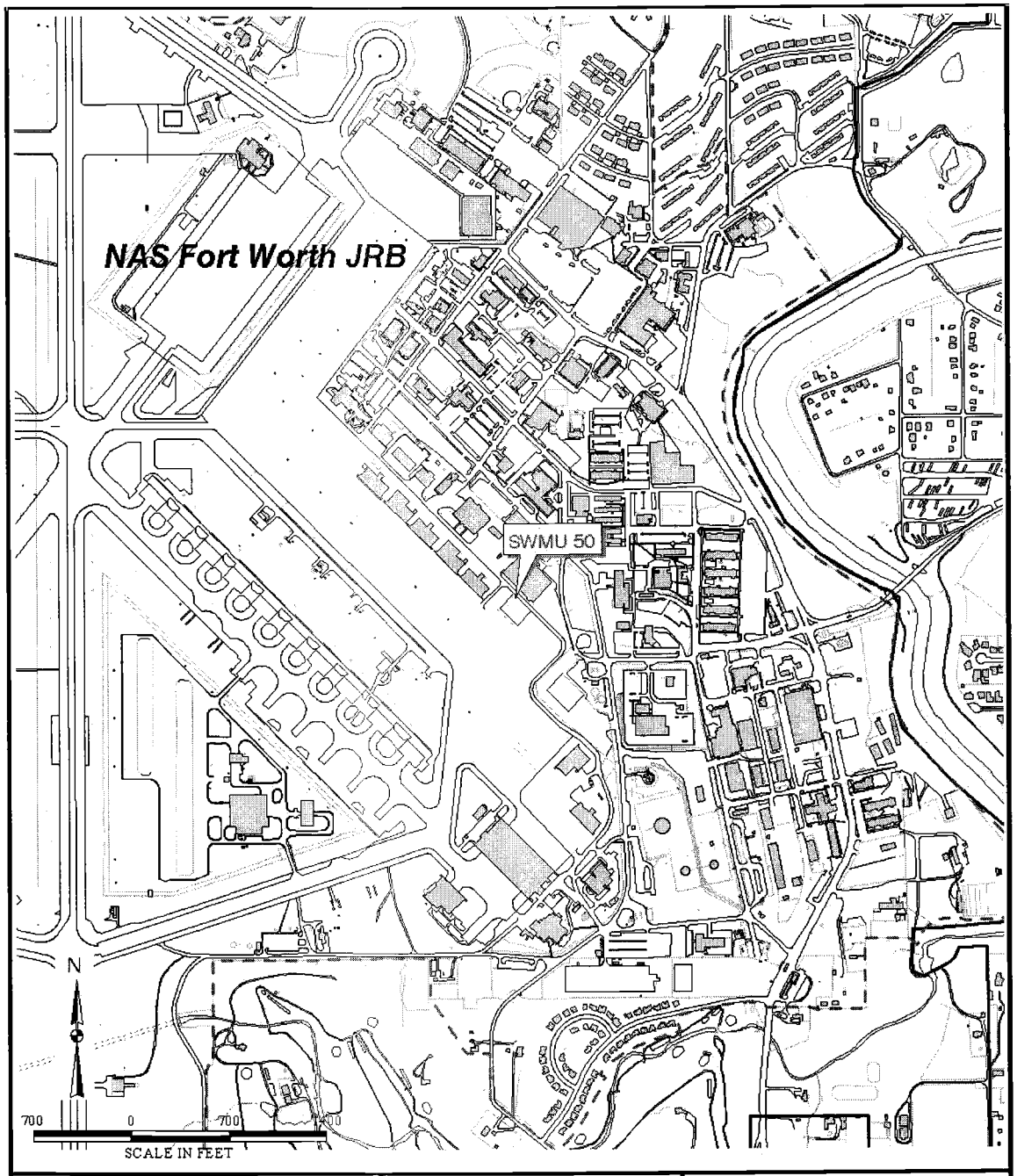
A RCRA Facility Investigation (RFI) was conducted on solid waste management unit (SWMU) 50, also known as the Former Aircraft Washing Area No. 2. (See Figure 1 for SWMU location). The unit served as an aircraft washing area and drain collecting wastewater resulting from cleaning and maintenance activities for military aircraft. The SWMU 50 site consists of a concrete pad about 3.3 acres in size that slopes in all directions to a centrally located grated drain. Based on aerial photographs, operations at SWMU 50 began between 1946 and 1950 and ceased between 1992 and 1996. While operational, the drain discharged through the base storm sewers to an oil water separator where any petroleum products were separated. The remaining discharge was then directed to the West Fork Trinity River. The RFI of SWMU 50 is required by the base's RCRA hazardous waste permit (HW-50289) that was issued by the Texas Commission on Environmental Quality (TCEQ).

RCRA FACILITY INVESTIGATION STRATEGY

The goal of the RFI was to obtain closure of the site under the TCEQ Risk Reduction Standard (RRS) program. Consequently, an RFI sampling plan was designed to determine if a release from SWMU 50 had occurred and, if contamination was encountered, the nature and extent of the contamination was delineated. Essential information consisting of soil lithology and an assessment of potential contaminant impacts on the quality of soil and groundwater within and around SWMU 50 was obtained. In addition, standing water present in the drain was characterized and the integrity of the drain and pipe junctions was assessed. RFI activities at SWMU 50 were initiated in December 2000 and were concluded in April 2002. These activities included the installation of 11 soil borings and 4 monitoring wells and the analysis of 51 soil samples, 14 groundwater samples, and 1 surface water sample from within the drain.

Analytical results indicate that SWMU 50 may have had an impact on the surrounding soil. However, there is no evidence of a release to groundwater. In addition, the drain and pipe junctions were found to be intact and all metals detected in the water sample collected from within the drain were within applicable discharge limitations. Therefore, this RFI Report recommended closure under RRS 2 for SWMU 50. Analytes detected in soil included in the RRS 2 deed certification include arsenic; chromium; lead; 1,1-DCE; cis-1,2-DCE; ethylbenzene; m,p-xylenes; o-xylene; PCE; TCE; 2-methynaphthalene; naphthalene; and pyrene. The Final SWMU 50 RFI Report recommending closure under RRS 2 was submitted to the TCEQ for review in October 2002.

For More Information:
If you would like more information, please see our website at http://www.afcee.brooks.af.mil/er/carswell/nasfw/ or contact Michael Dodyk, HQ AFCEE, at (817) 782-7167 or via e-mail at Mike.Dodyk@carswell.af.mil.



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Source: HydroGeoLogic, Inc ArcView Database, 2002

HYDRO GeoLogic

Legend

- NAS Fort Worth JRB Boundary
- Former Carswell AFB Boundary
- Solid Waste Management Unit

Figure 1

SWMU 50 Location
NAS Fort Worth JRB, Texas

Headquarters U.S. Air Force

Integrity - Service - Excellence

Carswell Off-Base BRAC UPDATE Restoration Advisory Board

Charles C. Pringle, BEC

18 FEBRUARY 2003

U.S. AIR FORCE

U.S. AIR FORCE

Carswell Off-Base/Agenda

- **Program Update**
  - **Aerospace Museum Site**
  - **Sanitary Sewer System Field Work Update**
  - **RCRA Permit Renewal Update**
  - **Permeable Reactive Barrier near Golf Course**
  - **Land Use Controls/Institutional Controls**
- **Projected Future Land Transfers**
  - **Off-Site Weapons Storage Area FOST Update**
  - **Golf Course Parcels/Total**

U.S. AIR FORCE

Carswell Off-Base/Agenda

- **Property Transfer Updates**
  - **Stables Transfer, Aug. 2001**
  - **Golf Course/LF 6 Lease Expansion, Oct 2001**
  - **Federal Bureau of Prison Transfer, Dec. 2000**
  - **Kings Branch Housing Area Transfer, Oct. 2000**

U.S. AIR FORCE

Property Transfer Update

- **Federal Bureau of Prison Hospital - 145 Acre Parcel**
  - **Transferred to the Dept of Justice (DOJ) for the Federal Bureau of Prisons on December 15, 2000.**
  - **DOJ accepted the property on Jan 29, 2001.**
- **Kings Branch Housing Area - 40 Acre Parcel**
  - **Completed transfer in October 2000 to Westworth Redevelopment Authority.**
- **Stables - Approx 50 Acre Parcel**
  - **Transfer accomplished August 2001.**

NAS Fort Worth JRB Installation Restoration Program Update

Michael R. Dodyk, P.E.

February 20, 2003

Site Closure Update

- Several sites were submitted for closure to the Texas Commission on Environmental Quality since the August Restoration Advisory Board meeting:
  - Solid Waste Management Unit (SWMU) 50 (approved)
  - Petroleum Storage Tank (PST) Sites 1411 and 4210 (pending)
  - SWMUs 5, 6, 12, 31, 61 (approved)
  - 11 Oil/Water Separators (approved)
  - SWMU 64 (approved)
  - Landfills 2, 6, 7, and 9 (approved)
- To date, the Air Force has received closure on 78 of the 88 total SWMUs and Areas of Concern (AOC) basewide.

Fall/Winter Field Activities

- Performance sampling was conducted for the Permeable Reactive Barrier (PRB) in September and December.
- The semi-annual basewide groundwater sampling event was conducted in October.
- Additional soil and sediment sampling was conducted at SWMUs 54 and 55 in November and December.

January Field Activities

- Groundwater samples were collected in the North Apron area to provide data necessary for a remediation demonstration study injecting vegetable oil into the groundwater.
- Installation of a groundwater treatment system at AOC 1 began.
- An initial round of soil sampling was conducted at a former Jet Engine Testing Facility.
- Soil sampling continued at SWMU 21, part of former fire training area.
- Soil sampling was conducted at SWMU 49, a former wash rack drain.

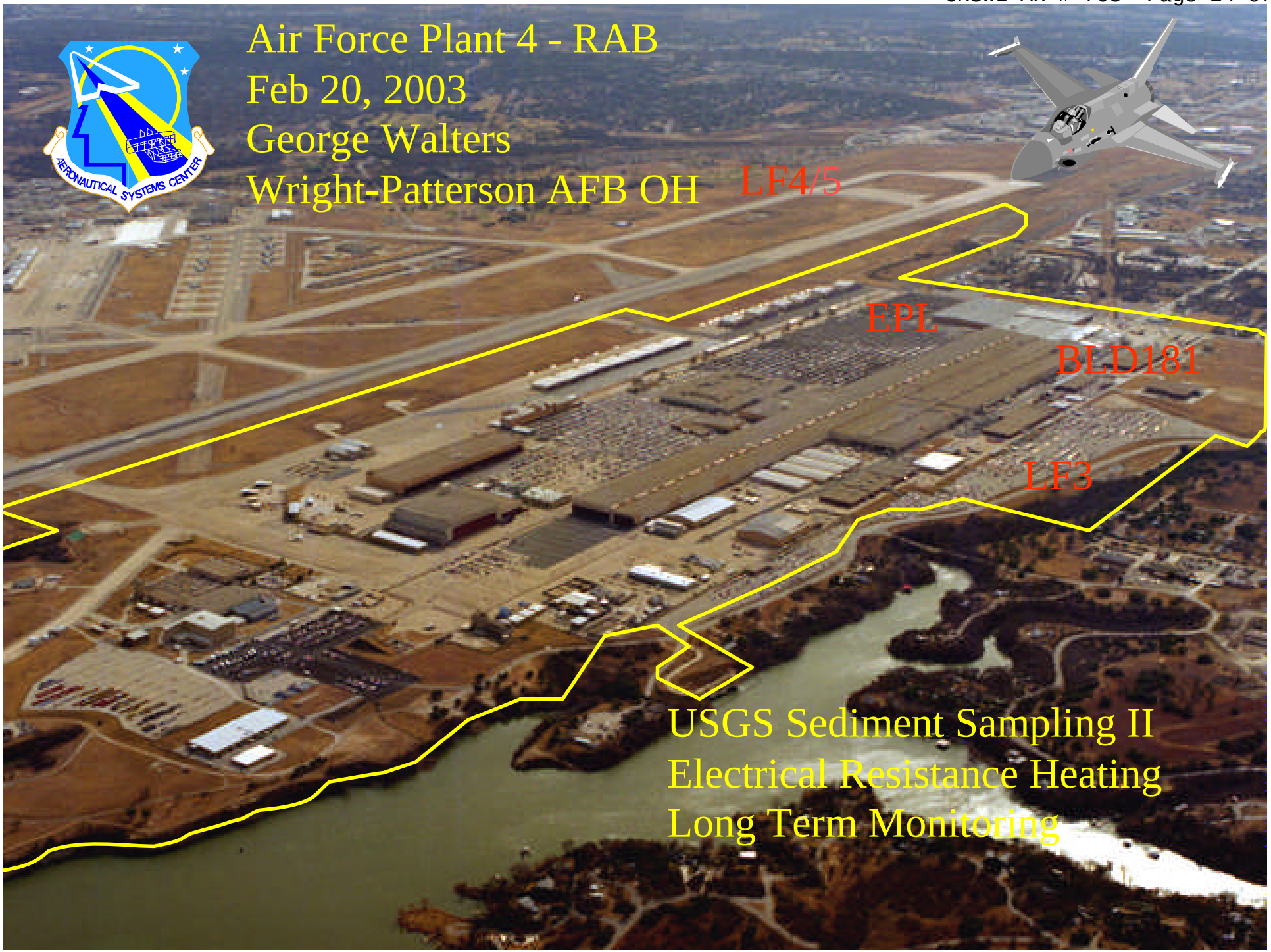
View of AOC 1 construction area looking southeast

Upcoming Field Work

- **February/March 2003:**
  - Completion of the groundwater remediation system at the base service/gas station (AOC 1).
  - Additional performance monitoring of the PRB.
- **Spring 2003**:
  - Baseline groundwater sampling at AOC 1 before system start-up.
  - Semi-annual basewide groundwater sampling event in April.

Documents Under Review

- **Draft Documents Under Review by AFCEE:**
  - Plan A Site Assessments PST Sites 1040, 1191, 4115, 1658, and 1750
- **Documents Under Review by Regulators:**
  - Focused Feasibility Study on the Southern Lobe TCE Plume


Air Force Plant 4 - RAB
Feb 20, 2003
George Walters
Wright-Patterson AFB OH
LF4/5
EPL
BLD181
LF3
USGS Sediment Sampling II
Electrical Resistance Heating
Long Term Monitoring

PCBs - Polychlorinated Biphenyls

-PCBs are mixtures of up to 209 chlorinated compounds.

- an oily liquid or solid
- colorless to light yellow
- no taste or smell

-Used as a coolant or lubricant in transformers, capacitors, and other electrical Equipment (fluorescent lights).

-Manufacturing stopped in 1977 because of evidence of build up in environment.

-Some PCBs can exist as a vapor. Can travel long distances. PCBs in Canada have been tracked to Asia.

-PCBs bind strongly to soil (sediment), not water.

-Some level of PCBs are found just about everywhere!

Agency for Toxic Substances and Disease Registry - www.atsdr.cdc.gov/toxfaq.html

Fish Facts

-All States have fish consumption advisories

-However, the Texas Department of Health does not distinguish between bottom dwelling fish (carp, catfish) and pan fish (crappie). Minnesota assumes Anglers can tell the difference.

-Texas DH averaged all species together. Perhaps this under estimates the risk from bottom dwellers.

-Is there Risk from low level intake? Should animal studies be used to estimate human risk? Experts disagree.

-Lake Worth's water is tested regularly – IT IS CLEAN!

-USGS states that Lake Worth sediment is comparable to most urban lakes.

http://www.health.state.mn.us/divs/eh/fish/safeeating/tips.html

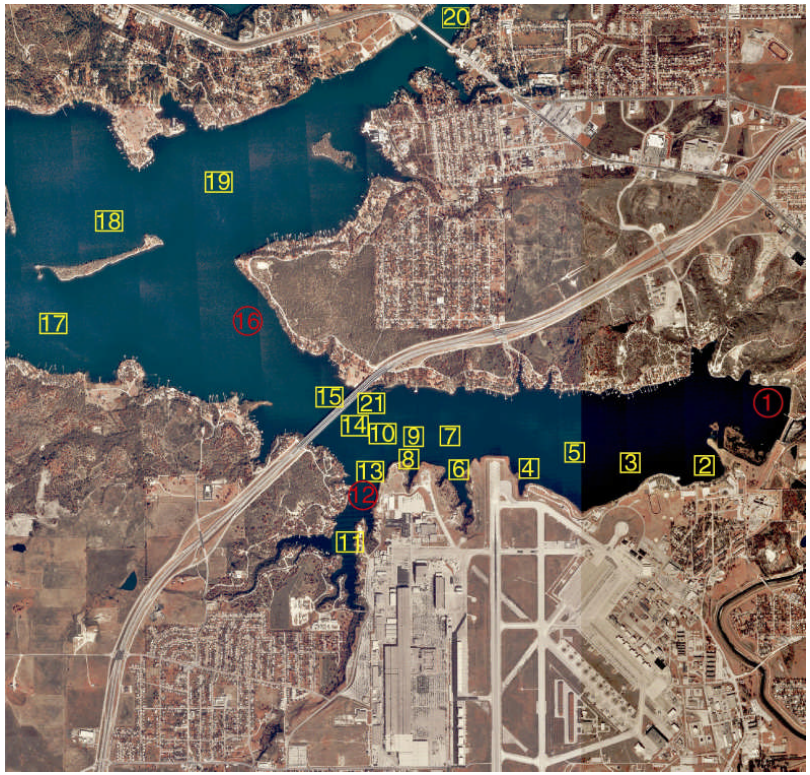
http://hudsonvoice.com/TechReports2.html

GE;s Detailed Response to EPA's Upper Hudson Human Health Assessment

Attachment A: A Weight of Evidence Assessment of the Human Health Risks of PCB's

USGS Sediment Sampling at Lake Worth Phase I

- Surficial sediment samples were collected from 21 sites distributed throughout the lake.
- Gravity cores were collected at 3 of the 21 sites (red numbers) and had numerous samples analyzed down core to reconstruct contaminant histories.



Lake Worth Sediments Phase 1 Results

Total PCB concentrations (ug/kg) in the surficial sediments of Lake Worth indicate one area of elevated concentrations, Woods Inlet, where runoff from AFP4 and urban area enter the lake.

USGS science for a changing world

USGS Sediment Studies at Lake Worth Phase 2

Objectives

- Map the extent of sediments containing elevated levels of PCBs (approximately greater than 20 ug/kg) in Woods Inlet on Lake Worth near Air Force Plant 4, and,
- Determine likely sources of PCBs to sediments entering Woods Inlet from Meandering Road Creek, Air Force Plant 4, and other small tributaries.

Approach

- Use surficial sediment sampling and sediment cores to map PCB and heavy metal concentrations in more detail spatially and temporally in Woods Inlet.
- Install passive samplers on inflowing creeks and sample PCBs and heavy metals in storm water from potential source areas.
- Measure PCBs using a congener-specific chemical analysis in an attempt to 'fingerprint' different mixtures of PCBs from different sources.

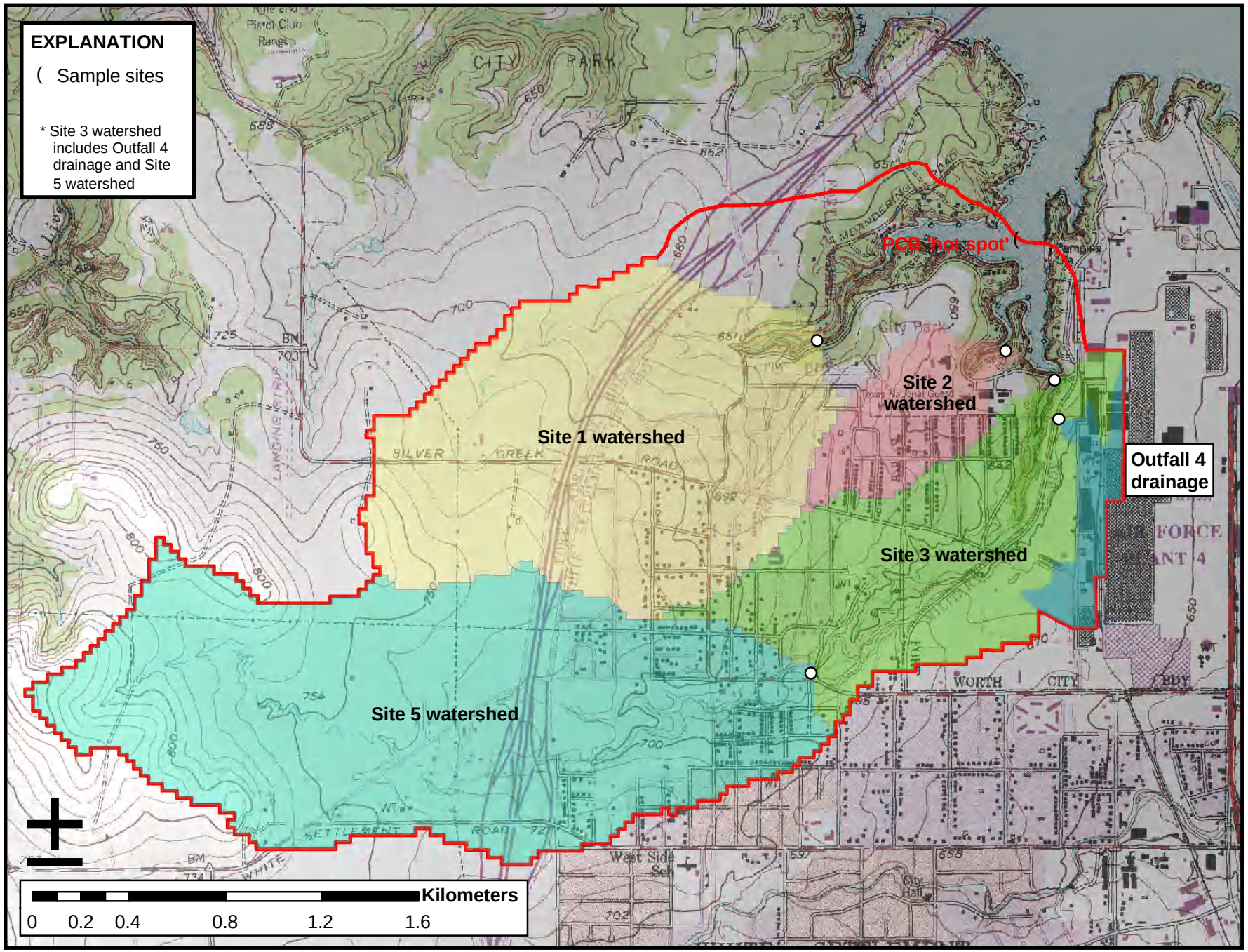
USGS
science for a changing world

USGS Sediment Studies -- Phase 2

Site Reconnaissance January 14, 2003

- Five sites selected to monitor stormwater for PCBs.
- The sites include AFP4, Tx Guard, and urban areas.
- Most of watershed to Woods Inlet covered, including all likely sources.

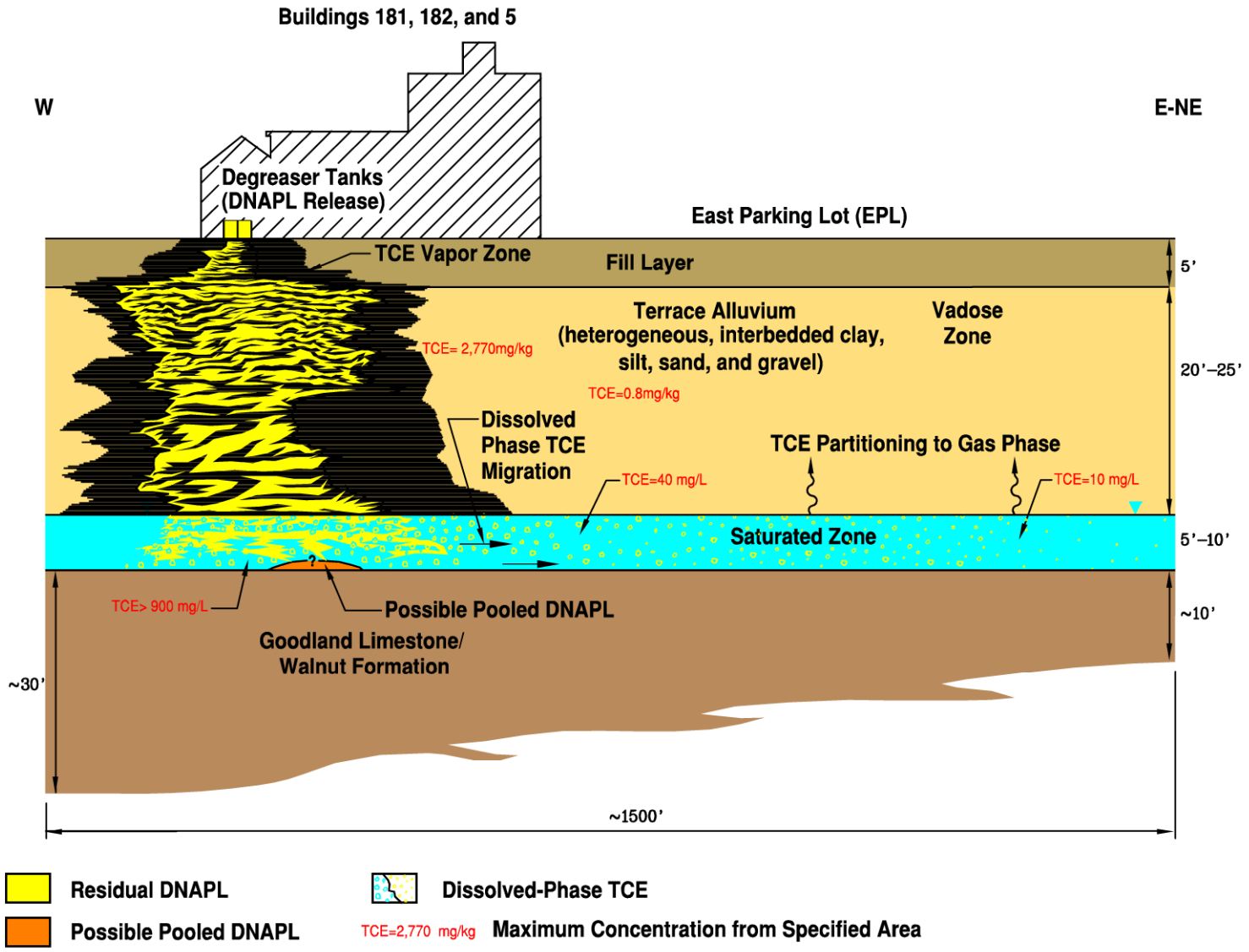
Mouth of Meandering Road Creek at Lake Worth, upper end of Woods Inlet. Site #3


EXPLANATION
(Sample sites
* Site 3 watershed includes Outfall 4 drainage and Site 5 watershed
PCB 'hot spot'
Site 1 watershed
Site 2 watershed
Site 3 watershed
Site 5 watershed
Outfall 4 drainage
Kilometers
0 0.2 0.4 0.8 1.2 1.6

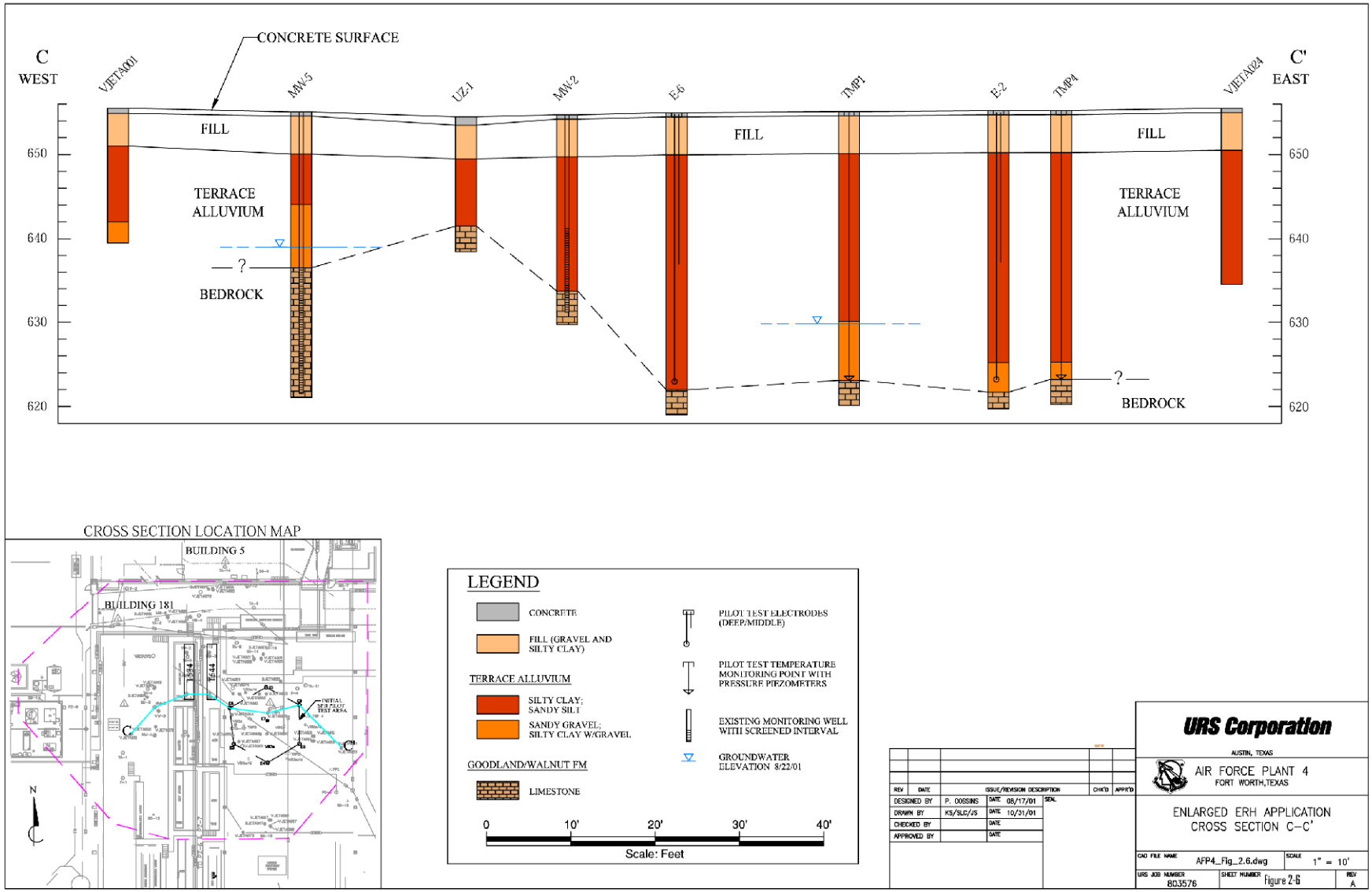
Phase 2 Sites -- Land Use

Site	Informal Name	Area (sq. km.)	% urban
1	west creek	2.04	55.1
2	Tx guard	0.36	70.8
3	Meandering Road Creek, lower	4.12	46.4
4	AFP4, outfall #4	0.17	95.9
5	Meandering Road Creek, upper	2.81	38.2
Woods Inlet	Drainage to PCB "hot spot"	7.49	49.0
Notes:			
1) Site 3 includes Outfall 4 & Site 5			
2) 2000 land-use / land-cover data provided by North Centra			
3) % industrial includes utilities			

Electrical Resistance Heating - 3 Phase (was 6)

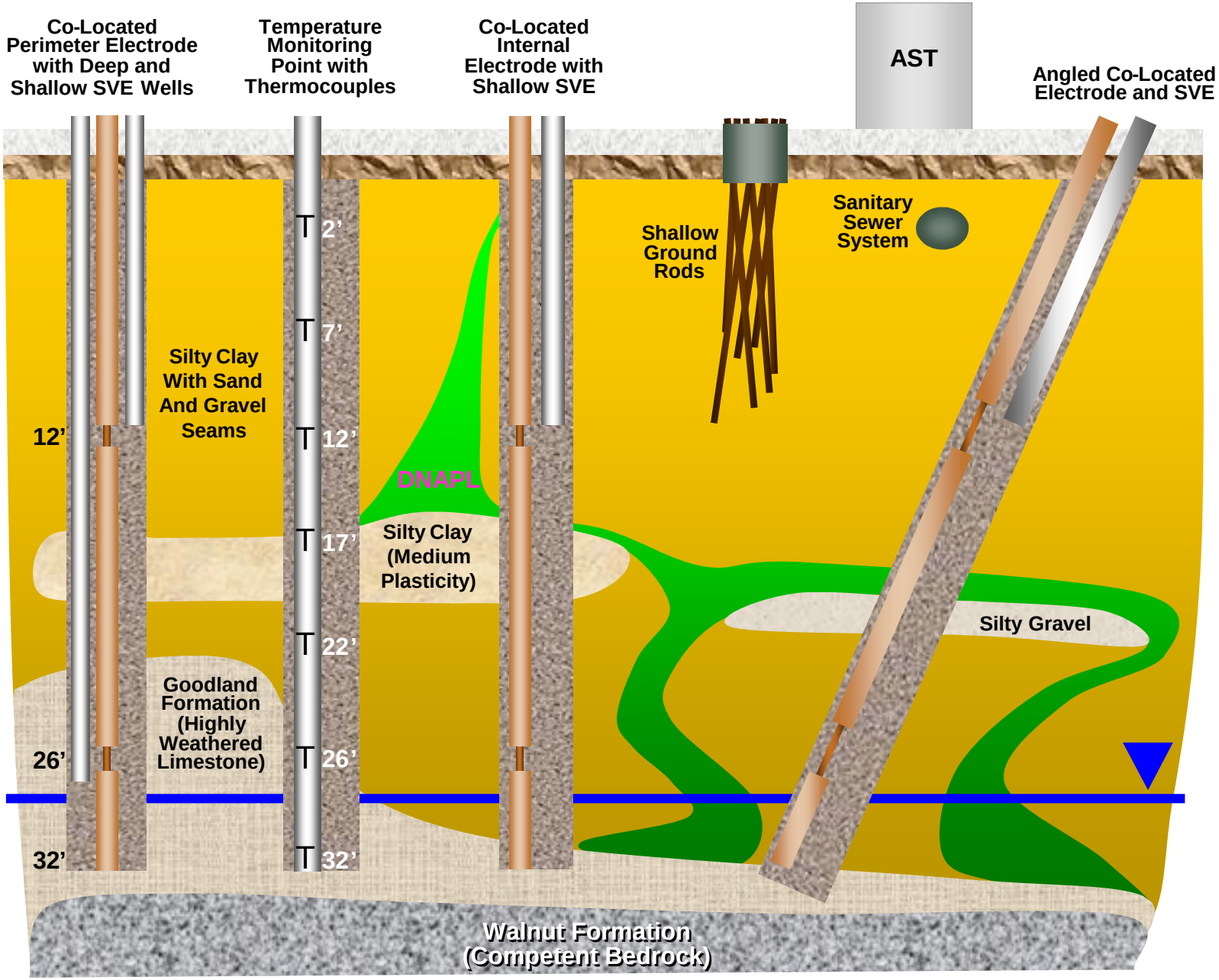


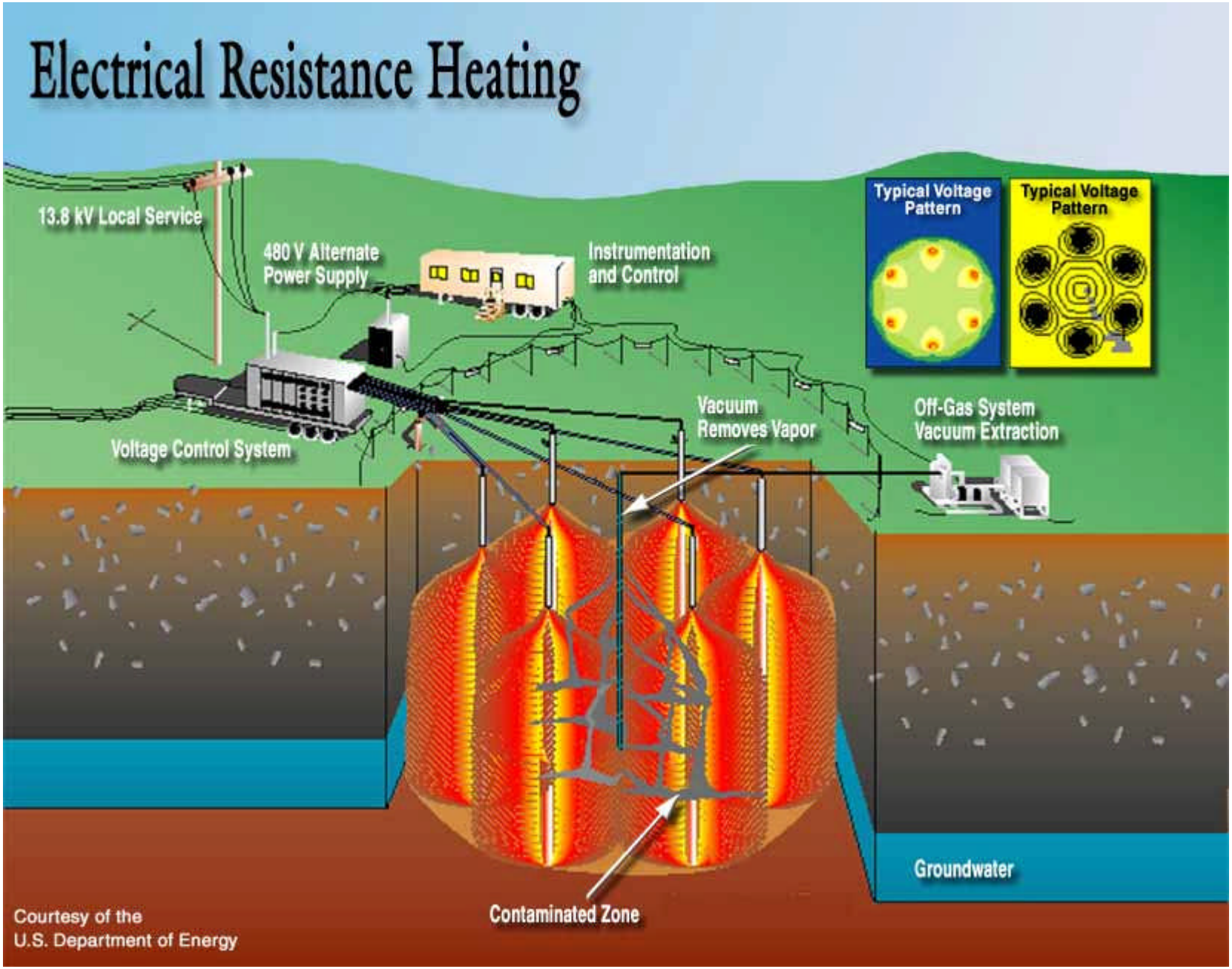
Building 181 and EPL Conceptual Site Model

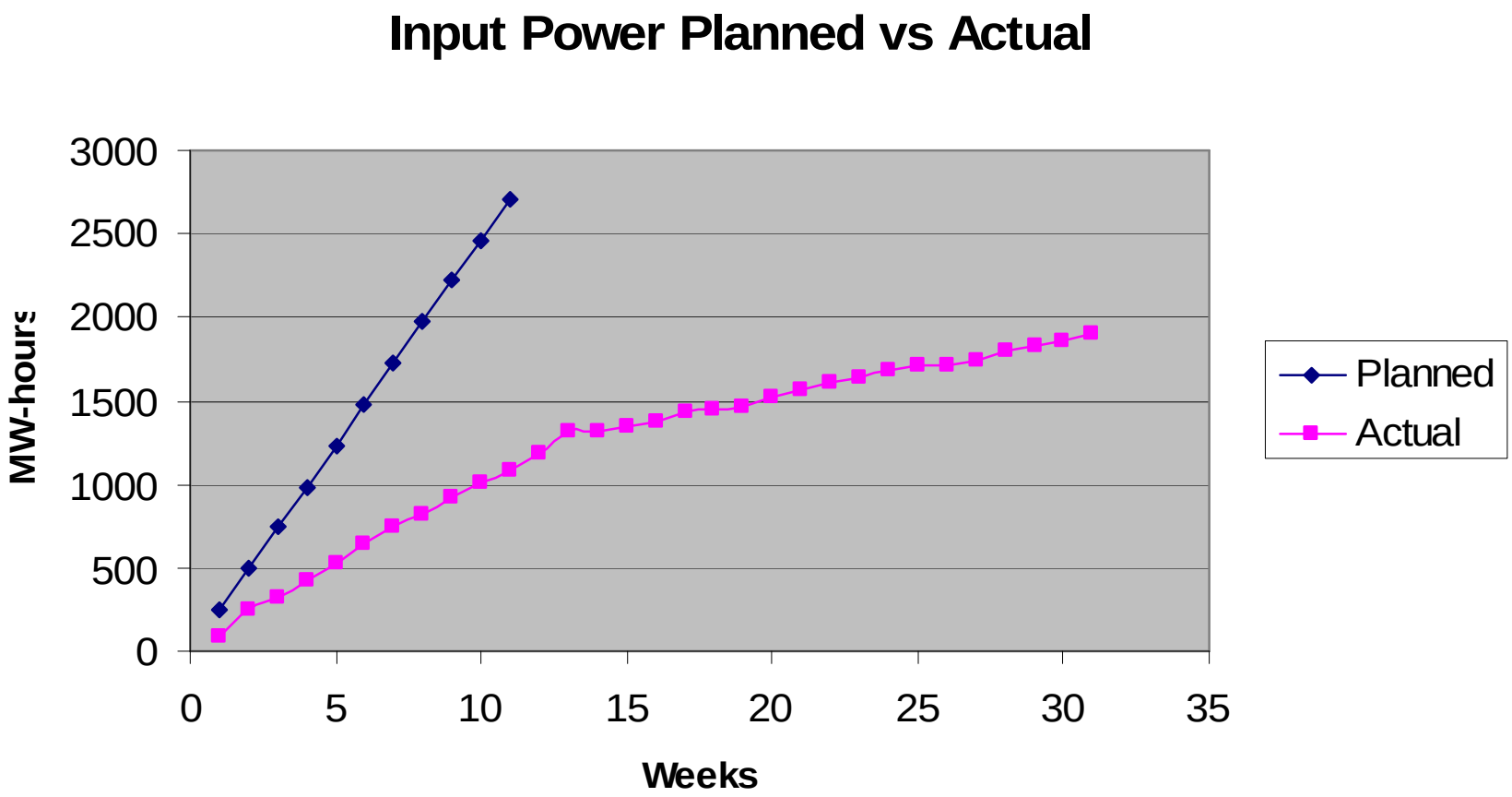


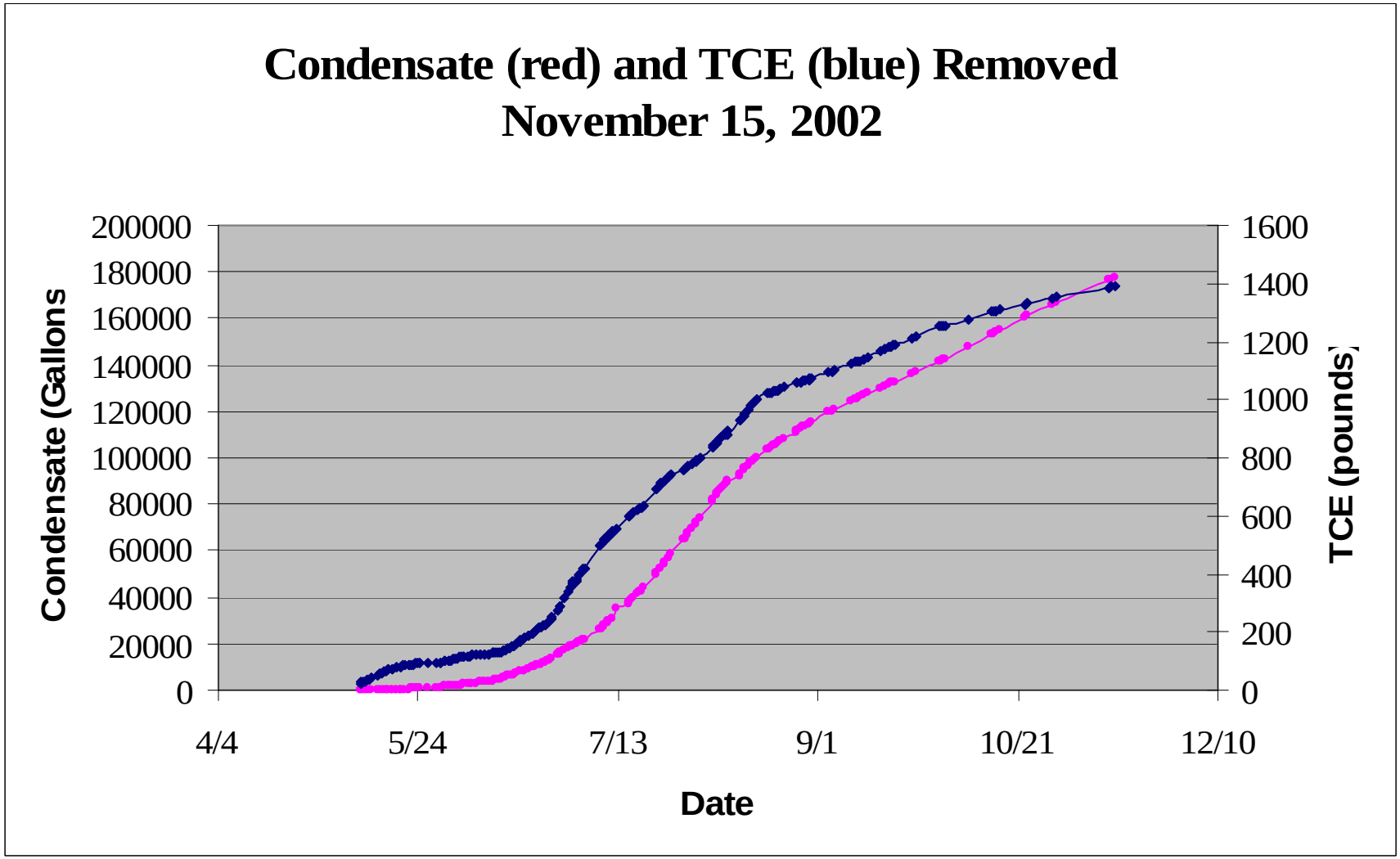
Enlarged ERH Application Cross Section C-C’

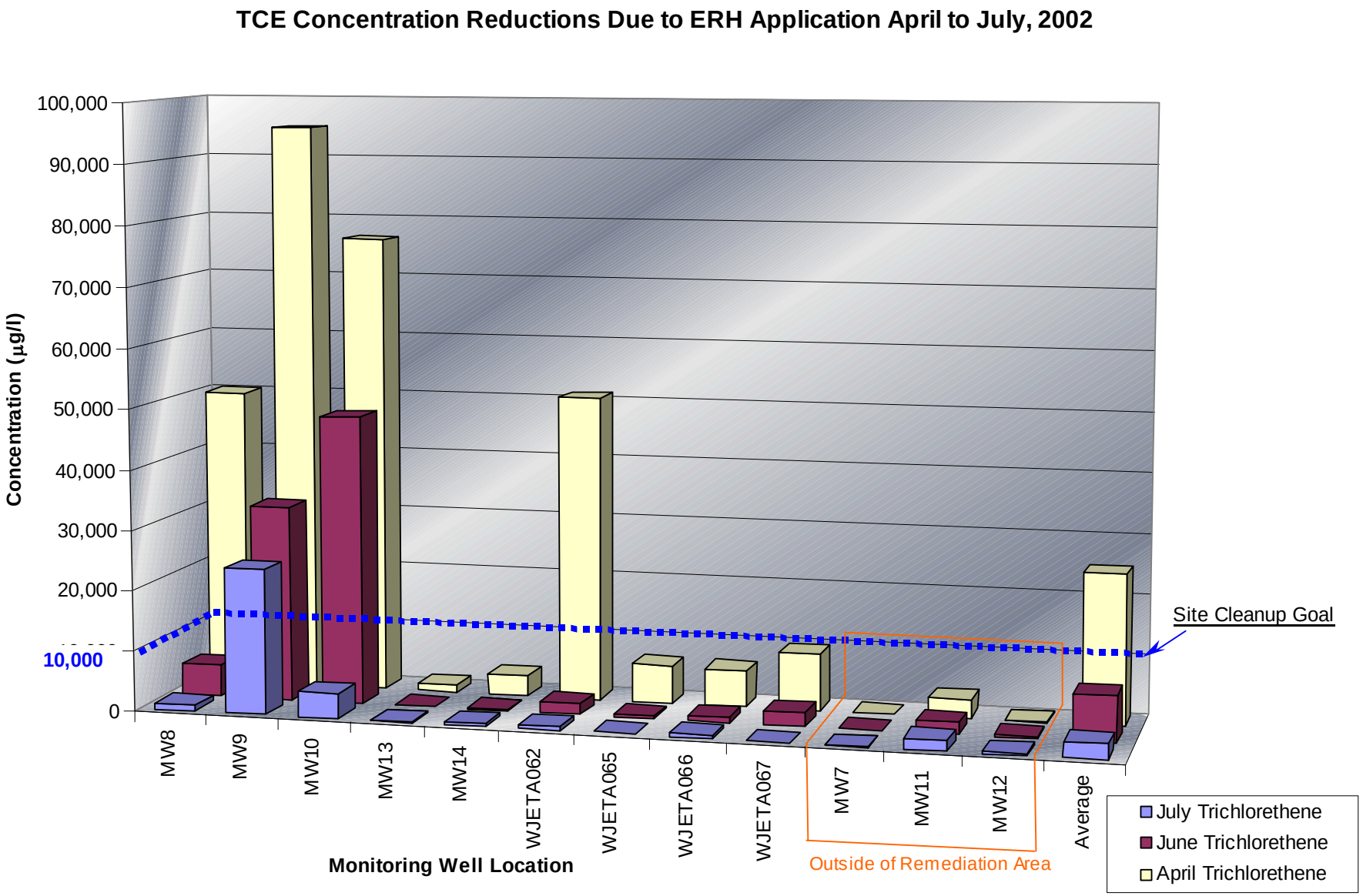
ERH Subsurface Cross Section




Electrical Resistance Heating
13.8 kV Local Service
480 V Alternate Power Supply
Instrumentation and Control
Typical Voltage Pattern
Typical Voltage Pattern
Vacuum Removes Vapor
Off-Gas System Vacuum Extraction
Voltage Control System
Groundwater
Contaminated Zone
Courtesy of the U.S. Department of Energy


Input Power Planned vs Actual
MW-hours
3000
2500
2000
1500
1000
500
0
0
5
10
15
20
25
30
35
Weeks
Planned
Actual


Condensate (red) and TCE (blue) Removed
November 15, 2002
Condensate (Gallons
200000
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
1600
1400
1200
1000
800
600
400
200
0
TCE (pounds)
4/4
5/24
7/13
9/1
10/21
12/10
Date


TCE Concentration Reductions Due to ERH Application April to July, 2002
Concentration (µg/l)
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
MW8
MW9
MW10
MW13
MW14
WJETA062
WJETA065
WJETA066
WJETA067
MW7
MW11
MW12
Average
Monitoring Well Location
Outside of Remediation Area
Site Cleanup Goal
July Trichlorethene
June Trichlorethene
April Trichlorethene

5 Year ROD Review Report (I can email to you, or at Library)

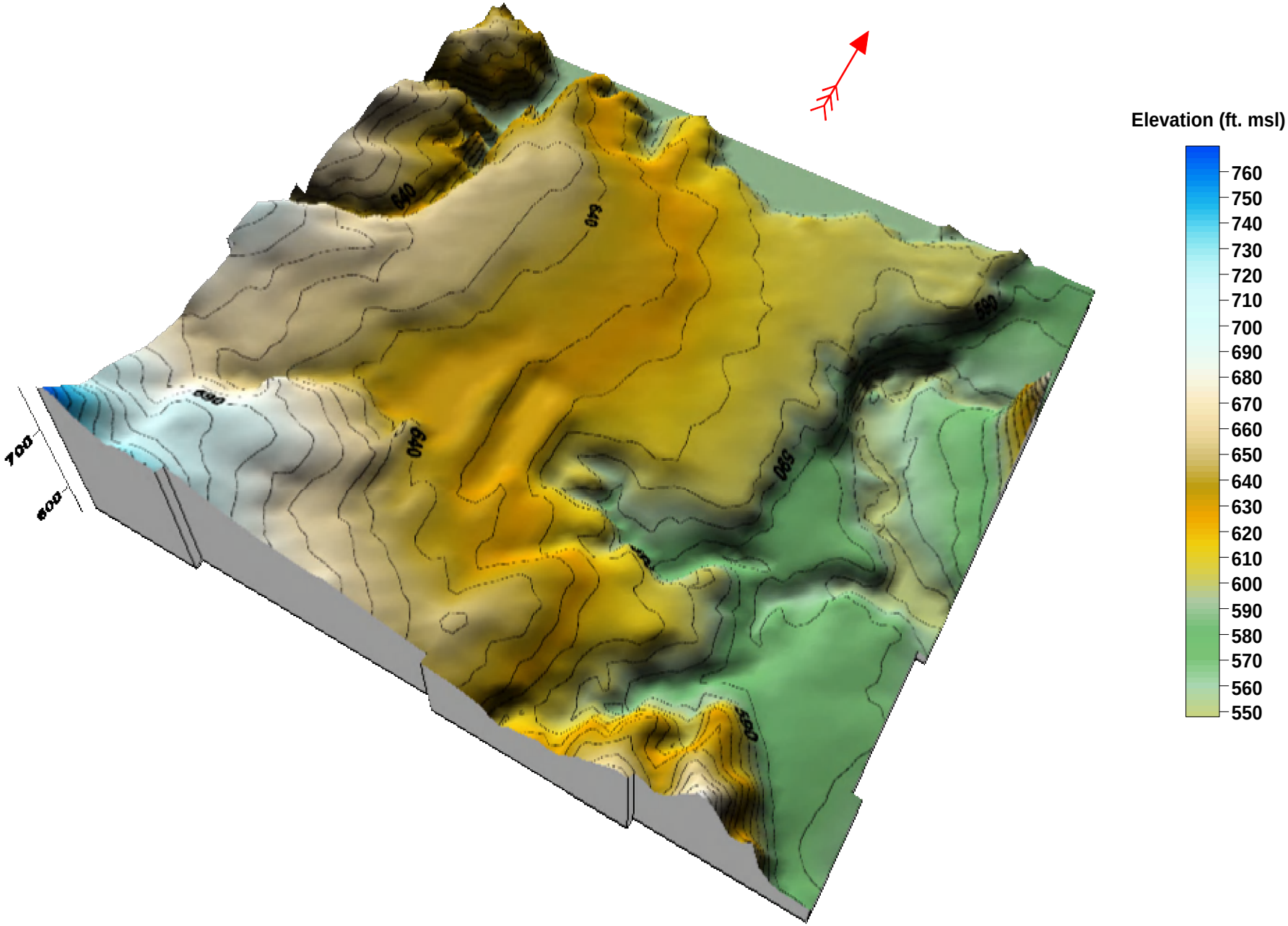
Long term monitoring in Oct/Nov 2002

Additional investigation on
north side of building.

Equipment removed from
Heating area, soil samples taken.

USGS working on sediment sampling, radioisotope report,
Conceptual modeling.

Budget is very tight the next few years!


Elevation (ft. msl)
760
750
740
730
720
710
700
690
680
670
660
650
640
630
620
610
600
590
580
570
560
550
640
640
640

Don Yates
1944-2002
U.S. Air Force Environmental Clean Up Program
AFP4-Carswell
Community Involvement
Restoration Advisory Board
RAB
Pollution Prevention
Phytoremediation
How to get involved:

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE