



CARSWELL AFB TEXAS

ADMINISTRATIVE RECORD COVER SHEET

AR File Number 752

CARSWELL/PLANT 4 RESTORATION ADVISORY BOARD MEETING

DRAFT Summary Minutes of February 10, 2005 Regular Quarterly Meeting

A regular meeting of the Carswell/Plant 4 Restoration Advisory Board (RAB) was held February 10, 2005 at the Lockheed Martin Recreation Association Ranch House, 3400 Bryant Irvin Road. The RAB meeting began at 6:00 p.m.

AGENDA

Welcome/Introductions/Minutes

Action Items

WRA Update (Leland Clemons)

Air Force Plant 4 (George Walters)

Program Update

USGS Measuring Progress Toward Cleanup, Groundwater Flow Modeling (Sachin Shah)

Carswell Off-Base (Norma Landez)

Program Update

Projected Future Land Transfers

Carswell On-Base (Mike Dodyk)

Program Update

RAB Business

Next Meeting Agenda

Open Discussion/Questions

Ms. Chris Baack, Community Co-Chairman, called the meeting to order. The minutes from the September 2004 RAB meeting were approved. No action items remain from the September 2004 meeting.

Westworth Redevelopment Authority

Mr. Leland Clemons provided background on the Westworth Redevelopment Authority (WRA). He mentioned that the goal of the WRA is to develop the surrounding land either

independently, through partnerships, or by the sale of properties to third parties; in order to re-establish an economic base for the cities of Westworth Village, White Settlement, and Fort Worth. He added that through an economic development conveyance, the WRA acquired approximately 400 acres of surplus land from the Air Force and Department of Defense (DoD). Mr. Clemons indicated that the transferred property included approximately 450 abandoned military houses, 12-acres located at the intersection of Route 183 and Roaring Springs Road, as well as property along Route 183, which will be used for commercial development.

Mr. Clemons provided a brief update on each project. He indicated that the former Carswell Air Force Base (AFB) golf course was in poor condition and therefore it was closed, renovated, and then renamed the "Hawks Creek Golf Club". Since renovation, the golf course has been very successful and well received within the community. Mr. Clemons mentioned that the abandoned military houses have been removed intact or demolished. He added that there are approximately 85 houses that are currently being removed. Mr. Clemons indicated that the WRA partnered with a development group out of Dallas to build a 312-unit apartment complex named, the "Villages of Hawks Creek". He added that this apartment complex is located on 12-acres at the intersection of Route 183 and Roaring Springs Road. The WRA has also established a commercial development plan for Route 183, near the Lowe's Home Center. The commercial development will include a bank, drug store, office buildings, upscale restaurants, and other retail businesses. Mr. Clemons added that the WRA has been in negotiations with Wal-Mart for over a year and they are expected to finalize negotiations within 2 to 3 weeks. He explained that the Sam's Club and Wal-Mart stores in White Settlement will be closed and the new stores built near Route 183 will be the largest in North Texas. These new stores will also include some architectural adjustments to improve their exterior appearances.

Mr. Clemons mentioned that the WRA has also developed a residential subdivision (Westworth Park) across from the Shady Oaks Country Club. The WRA has managed the Westworth Park development, infrastructure, and sale of lots, of which 40% have been sold thus far. He added that with the exception of the golf course, only 5 of 400 acres remain undeveloped to the WRA. Mr. Clemons stated that the development process has been successful due to the cooperation between the private sector, local municipalities, regulators, and DoD. Mr. Clemons explained that prior to the WRA's efforts there has been little residential or commercial development within the areas, such that from 1968 to 1998 revenue from building permits totaled less than \$250,000. However, from 1998 to 2008, when the WRA development is expected to be complete, the estimated total value of building permits issued will total approximately \$250 to \$350 million.

Ms. J'Nell Pate, a community member, inquired whether the Thompson Cemetery is located in the City of Westworth Village or in the City of White Settlement. Mr. Clemons indicated that there are two cemeteries, one on each side of the highway and both are located in the City of Westworth Village. He added that Thompson is actually part of a family interment and the original family farm created both cemeteries. Mr. Clemons indicated there was no intention to sell either cemetery. However, if they were to be sold they would be sold to the Cemetery Association created by the Thompson family.

AIR FORCE PLANT 4

Program Update

Mr. Walters introduced himself as the Restoration Project Manager for Air Force Plant 4 (AFP 4) and provided a brief update on the projects at AFP 4. During his presentation, he displayed photographs and maps of AFP 4 which identified the areas discussed.

Mr. Walters explained that soil and groundwater investigations have been conducted at AFP 4 since 1982 and groundwater investigations will continue to be performed on a semi-annual basis until the trichloroethene (TCE) plume beneath AFP 4, Naval Air Station Fort Worth Joint Reserve Base (NAS Fort Worth JRB) and former Carswell AFB is remediated. He indicated that he will be managing long term groundwater monitoring conducted at the former Carswell AFB, in addition to his remediation activities at AFP 4. Mr. Walters identified the various groundwater treatment systems located on AFP 4 and former Carswell AFB and indicated that during 2005 he will continue the Operation and Maintenance (O&M) of the groundwater pump and treatment system and continue to conduct long term monitoring (LTM). He then provided an overview of the treatment systems that will be monitored during 2005.

Mr. Walters explained that a electrical resistance heating (ERH) and soil vapor extraction (SVE) system was installed at Building 181 to remove TCE from the soils beneath the building. He added that this treatment system is the largest indoor application of this technology, which consists of one half acre at a cost over \$2 million. The ERH system was turned off a few years ago but there are still vapor systems in place, removing residual TCE contamination from the soil.

Mr. Walters described the groundwater treatment system located in the east parking lot of AFP 4 which consists of 52 extraction wells and continues to operate, pumping approximately 90 gallons of groundwater a minute. He indicated that the east parking lot system cost over \$7 million to construct.

Using a map in his presentation, Mr. Walters identified the location of the permeable reactive barrier (PRB) which was installed as a remediation demonstration project at the former Carswell AFB in order to remediate the southern lobe of the TCE plume. The PRB is located along the boundary between NAS Fort Worth JRB on a portion of the former Carswell AFB, near the golf course. He mentioned that the PRB was constructed of iron filings and sand. Mr. Walters added that the PRB has reduced the TCE plume significantly since its installation in the Spring of 2001. The installation of the PRB replaced a treatment system that was located in the same area, however did not appear to be treating the TCE plume and therefore was turned off prior to the construction of the PRB. He added that the PRB has saved the DoD money because there are only costs associated with semi-annual monitoring and not O&M.

Ms. Baack inquired about the longevity of the iron filings. Mr. Walters asked Ms. Lynn Morgan, HydroGeoLogic, Inc., to respond to Ms. Baack's question. Ms. Morgan indicated that the first PRB was installed approximately 12 years ago and it is still functioning properly

therefore the lifetime of the iron has not been determined, but it is not expected to be as effective forever.

Mr. Walters went on to describe activities at Landfill 3. Landfill 3 is located on the west side of AFP 4 and the groundwater in this area contains low levels of TCE that were slightly above the maximum contaminant level (MCL) of 5 micrograms per liter ($\mu\text{g/L}$). A groundwater treatment system previously existed at Landfill 3 but the system was turned off 3 years ago after pumping for approximately 5 years at \$350,000 a year in O&M costs. The Air Force conducted a cost benefit analysis of the treatment system and it determined that the system should be turned off. Regular monitoring of the Landfill 3 creek ensures that the TCE concentrations are not increasing. He mentioned that the Landfill 3 creek water has been monitored for several years and TCE concentrations have been below drinking water standards ($5 \mu\text{g/L}$). Mr. Walters added that Landfill 3 is a "no further action site" based on the Record of Decision (ROD) for AFP 4; however the Air Force continues to monitor the groundwater concentrations as a precautionary measure.

Mr. Walters mentioned that due to the success of the former Carswell AFB PRB, it was suggested that a smaller pilot study PRB be installed at Landfill 3 because bedrock was shallow, approximately 10 feet deep, and a PRB could be easily installed with a backhoe. Mr. Walters indicated that a few borings were drilled to confirm the depth to bedrock and then the United States Environmental Protection Agency (USEPA) approved the PRB installation. Mr. Walters mentioned that a month or two prior to installation, a test trench was dug to ensure that the soils would maintain an open trench, and that trenching to depths below the groundwater interface would not result in collapsing sidewalls difficult to keep the trench open. The test trench was successful therefore; the PRB was installed as planned. Mr. Walters indicated that in order for a PRB to effectively remediate TCE, there needs to be a carbon source in the reactive media. He added that the carbon source does not have to be iron like the former Carswell AFB PRB. Wood chips and cotton gin byproduct were used as the carbon source for the Landfill 3 PRB. He added that permeable sand was placed on top of the wood chips and cotton gin to weight it down in the trench. Following installation, monitoring wells were installed to monitor the Landfill 3 PRB's performance. Mr. Walters indicated that performance monitoring was conducted in December 2004 and in January 2005, but results are still pending.

An unidentified meeting attendee, inquired about the amount of money that has been spent on remediation to date. Mr. Walters indicated that \$80 million has been spent on AFP 4 investigations and LTM programs. Mr. Dodyk indicated that former Carswell AFB remediation has cost approximately \$25 million. The unidentified meeting attendee mentioned that total remediation between AFP 4 and former Carswell AFB is over \$100 million. Mr. Walters indicated that some DoD sites cost an order of magnitude higher due to radioactive material contamination.

Mr. Walters then provided an update on the polychlorinated biphenyl (PCB) investigation being conducted at AFP 4. A study is ongoing to determine the source of the PCBs found in Lake Worth. He added that PCB sampling has been performed on the Lake Worth fish tissue, sediment, and now plant tissue. During October and November 2004, a sewer pipe

assessment was performed using cameras to identify leaks. Mr. Walters indicated that preliminary data showed low level PCB concentrations under the USEPA's Superfund regulatory limit; however AFP 4 also has a Resource Conservation and Recovery Act (RCRA) permit which may have more stringent standards. The United States Geological Society (USGS) sampled the Lockheed outfall drains however the results are still pending. Mr. Walters mentioned that these results will be reported at the next RAB meeting.

An unidentified meeting attendee inquired whether the referenced sewer is a storm sewer. Mr. Walters indicated that it is a storm sewer and added that it would be expected that the higher PCB concentrations would be located next to the substation, which is a building that was constructed in 1941. Mr. Walters mentioned that the highest PCB concentration was approximately 216 $\mu\text{g/L}$. He explained that most PCB residential cleanup levels around the country are approximately 1,000 $\mu\text{g/L}$. Therefore, at sites where contamination is much higher, such as 100,000 $\mu\text{g/L}$, the cleanup goal is often 1,000 $\mu\text{g/L}$. Relative to PCB contamination at sites nationwide, the PCB concentrations at AFP 4 are considered to be low.

An unidentified meeting attendee inquired about the timeframe on the PCB investigations, as well as the sediment investigation. Mr. Walters indicated that the results should be available in March 2005. The results will help to determine if further investigation is necessary.

Mr. Walters described the tour of AFP 4 conducted on September 23, 2004. He indicated that one of the highlights was the inside of the facility. He added that time ran out due to security processing, but additional tours can be held in the future. Mr. Walters mentioned that the tour group was also shown the photoremediation area located in the northwest portion of the former Carswell AFB property. He added that the phytoremediation area is a pilot study funded by the USEPA and other agencies to see if cotton wood trees utilize VOCs, specifically TCE, to remediate the groundwater.

Mr. Walters provided several informational websites listed on the AFP 4 handouts.

Mr. Walters then introduced Mr. Sachin Shah, a hydrologist with the USGS who provided an overview of a searchable database that the USGS is creating. Mr. Shah explained that the database provides the user a realistic view of groundwater contamination flow patterns. He indicated that the USGS has created two types of models, a three dimensional model and a groundwater flow model. He mentioned that the USGS' goal was to 1) consolidate all environmental data from AFP 4, NAS Fort Worth JRB, and former Carswell AFB; 2) create an interactive database, called a "geodatabase" to allow the user to look at things across the site; 3) create a three-dimensional model to allow the user to see the hydrogeologic units, and 4) transfer this data into a groundwater model. Mr. Shah's presentation slides displayed the various frames and views within the database.

Mr. Shah indicated that data is utilized from the Environmental Resources Program Information Management System, which is a DoD centralized database containing previous investigation information. However, in order to illustrate the full picture of groundwater conditions at the site, all historical data gaps (i.e., types of investigations conducted, groundwater and surface elevations, precipitation, monitoring well locations and functionality, monitoring well status,

public roads, fence lines, easements, rivers, streams, etc.) must be organized and inserted into the geodatabase. Mr. Shah explained that a geodatabase is essentially a spatial extension of tabular data. He provided an example where a monitoring well location was unknown. The geodatabase presents the well in relation to a separate physical structure (i.e., building, landfill, etc.) and then provides properties of the well (i.e., coordinates, status of well (active/abandoned), historical water levels, contaminant concentrations, etc.). Mr. Shah further explained that once data is in the geodatabase, it can be used to create a three-dimensional model that allows the user to see the underlying geology of the site and how the groundwater interacts with the geology. He mentioned that the final step of this database is to run the data through a groundwater flow model, which allows the user to separate the entire site into cells that can be numbered to represent what is occurring at the site. This allows the user to assign a specific number to a particular unit (i.e., hydraulic conductivity, which is how water flows through a particular unit), which provides a realistic way of looking at things.

Mr. Tim Sewell, TCEQ, inquired whether the user looks at the grid from the top as opposed to the side. Mr. Shah responded that the user views the grid from the top. Mr. Sewell asked if the assigned conductivity value is a representative value based on the entire column of water within the associated grid square. Mr. Shah responded affirmatively.

Mr. Shah mentioned that one of the main objectives of the USGS' work is to evaluate the effects of groundwater pumping on contaminant migration. This will allow the USGS to determine if a particular treatment system is containing the plume or a portion of the plume.

CARSWELL OFF-BASE

Ms. Norma Landez introduced herself and indicated that she is the Base Environmental Coordinator for former Carswell AFB. She provided an update on all former Carswell off-base activities.

Ms. Landez discussed activities that occurred during Fiscal Year 2004 (FY04). She indicated that a Five-Year Review Summary was conducted for all BRAC sites in early 2004. This report is still under review by the Air Force Real Property Agency (AFRPA) legal and Headquarters, therefore, it can not yet be submitted to the regulators. She hopes to submit the Five-Year Review Summary Report to the regulators in early 2005. Ms. Landez indicated that samples were collected from the sanitary sewer system in June and July and additional delineation was conducted in November 2004. Results from the November delineation sampling indicated that soil excavation for the sanitary sewer system is not necessary in order to obtain closure from TCEQ. The Final Sanitary Sewer System Report is expected to be submitted to the regulators in May 2005.

Ms. Landez explained that two areas were transferred to the WRA during FY04, 12-acres located at the intersection of Route 183 and Roaring Springs Road was transferred on November 18, 2004, and the property along Route 183 where the Wal-Mart and Sam's Club will be developed was transferred December 16, 2004.

Ms. Landez then discussed the PRB performance monitoring conducted in May and October 2004. She indicated that the TCE plume is receding and the PRB is working as intended.

Ms. Landez mentioned that the AFRPA was hoping to transfer the golf course property (187 acres) to the WRA and amend the AFP 4 ROD. However an Operating Properly and Successfully (OPS) report must be completed to certify that all treatment systems associated with the southern lobe TCE plume are working properly. This OPS report will be submitted to the USEPA for review as part of the Focused Feasibility Study (FFS) in order to transfer the golf course by deed to the WRA. Ms. Landez indicated that the OPS has been put on hold until the FFS is completed. Further, the AFP 4 ROD will not be amended, rather an Explanation of Significant Difference (ESD) will be submitted to the regulators for approval. The ESD will document that the PRB and LTM of natural attenuation are added treatment systems to the AFP 4 ROD.

Ms. Landez added that the FY05 budget has been reduced and therefore funds are limited. AFRPA allocated funding to AFP 4 in order to perform PRB monitoring in conjunction with the AFP 4 LTM program. Ms. Landez indicated that in the future, additional money may be allocated for AFP 4 to perform PRB monitoring as well as funding to monitor the institutional controls to be established in the deed prior to the transfer of the golf course to the WRA. Institutional controls will define certain restrictions for WRA's use of the transferred property. It has not been determined how long the institutional controls will be in place or what agency will monitor the institutional controls.

Ms. Landez provided an update on the Weapons Storage Area which consists of 247-acres and is located approximately 5 miles west of the main portion of former Carswell AFB. When Carswell AFB was active, the Air Force used the Weapons Storage Area for training and explosive ordnance disposal (EOD) as well as storage of munitions and bombs. Originally, the Air Force decided to sell this land under agricultural clearance designation, but it has since been decided to obtain residential clearance. Clearance under residential designation will allow the land to be used for the development of residential homes. In order to obtain residential clearance, the Air Force has to investigate 10 feet below ground surface for ordnance. Surveys were conducted down to 10 feet and anomalies were identified which require further investigation. Ms. Landez added that due to budget restraints, further investigation may not be possible until next year.

Ms. Landez indicated that a radiological maintenance munitions waste survey is also being conducted at Weapons Storage Area site. This investigation is being conducted by the AFRPA Headquarters. A gamma walkover survey was conducted and some high level soil samples were detected and collected for further evaluation. Elevated levels of gamma radiation were identified in the concrete floor of bunker 8531. At the end of January, a Scabbler was used to remove and then vacuum the radiation from the concrete. The Scabbler went as deep as 3/16th of an inch. Ms. Landez mentioned that the area of concrete that was removed was larger than originally surveyed. The Scabbler operates by pounding a number of rods, tipped with steel, down on the concrete surface in a rapid succession. Following the scabbling, swipe samples were collected to confirm all radiation had been removed. These results should be available in a month and will hopefully confirm all radiation has been

removed and then the findings can be reported to the regulators. Ms. Landez mentioned that the AFRPA would like to transfer this property however until the EOD area is cleared, property transfer is not possible.

Mr. Sewell inquired of the size of the concrete scabbling removal area in bunker 8531. Ms. Landez indicated that she could not recall. Mr. Sewell mentioned that he believes that the original area was approximately 10 square feet (ft²). Ms. Landez indicated that she thought the actual area removed was slightly larger, approximately 15 ft².

CARSWELL ON-BASE

Mr. Michael Dodyk, the Air Force Resident Engineer at former Carswell AFB, began by giving the participants background on the environmental restoration program at the former Carswell AFB. Carswell AFB officially closed on September 30th, 1993, and the majority of the base was realigned as the NAS Fort Worth JRB. As Ms. Landez and Mr. Clemons explained, a smaller portion of the base has been transferred to the WRA and another small portion of the base remains to be deeded to the WRA. The Air Force is responsible for clean up of contamination occurring prior to October 1, 1993, during the time former Carswell AFB was an active Air Force installation.

In compliance with RCRA, the Air Force is required to conduct a RCRA Facility Assessment (RFA) which was performed in 1989. The RFA identified 87 sites on base that required investigation in order to obtain regulatory closure. These sites included landfills, fire training areas, and underground tanks. These sites are identified as either solid waste management units (SWMUs) or Areas of Concern (AOCs). There are 68 SWMUs and 19 AOCs, totaling 87 sites basewide. Of the 87 sites, 83 have been closed and of the 4 remaining sites, it is anticipated to have 3 (SWMUs 54, 55, and 66) closed by the end of 2006. The remaining site (AOC 1), is the former base gas station with an ongoing pump and treat groundwater remediation system which will likely continue to operate for another few years.

Mr. Dodyk gave an update of recent field activities that have taken place. He updated meeting participants on the quarterly sampling at AOC 1 that was conducted during July and October 2004, and January 2005. January results are pending but the July and October results show a continued decrease in contamination. Once the contaminated groundwater is removed from the ground, it is run through the treatment system to strip the gasoline products out of the water. The clean water is then discharged to the city sewer.

Mr. Dodyk provided an update on the delineation soil sampling conducted at SWMUs 54 and 55 in December 2004. He mentioned that the storm water interceptor at SWMU 54 and the east gate oil/water separator at SWMU 55 are in close proximity and therefore are treated as one project. There are two areas at SWMUs 54 and 55 that require delineation sampling before excavation of the contaminated soils can commence.

Mr. Dodyk gave an update on the vegetable oil injection study. He indicated that this pilot study used vegetable oil as a carbon source to evaluate this remediation technology in the northern lobe TCE plume. Sample results from October generally show a decrease in TCE

concentration. Ms. Baack inquired to how this carbon source works compared to cotton gin, wood chips, and/or iron. Mr. Dodyk indicated that a comparison has not been studied but the vegetable oil is working.

Mr. Dodyk indicated that the upcoming field events include, delineation sediment sampling at SWMUs 54 and 55 which will define the area of contaminated soils to be excavated. He mentioned that the monitoring wells associated with various sites on base that have been approved for site closure are being decommissioned to avoid the potential for future contamination pathways. The third round of monitoring well decommissioning will occur later in February. In addition, quarterly groundwater monitoring at AOC 1 and additional sampling of the vegetable oil study will be performed this spring. Upon completion of these sampling efforts, the Air Force contractors will prepare reports with the results.

Mr. Dodyk mentioned that the Air Forces' involvement in the RAB meetings is nearing completion and therefore this is the last meeting he will be attending. He added that he will be relocated to AFCEE Headquarters at Brooks City-Base in San Antonio. A representative from AFCEE will attend future meetings, but no Carswell on-base updates will be provided. All questions should be directed to Mr. Mike Hawkins at AFCEE in San Antonio. Contact information for Mr. Hawkins is provided on the Fact Sheet.

Mr. Sewell asked who will be responsible the investigation derived waste (IDW) management. Mr. Dodyk indicated that he would come up to sign off on the necessary waste manifests. Mr. Sewell inquired if the waste would still be maintained by the contractors such that everything will be properly labeled and placed in the IDW yard. Mr. Dodyk indicated that of the remaining field work, the SWMUs 54 and 55 excavation will be on a larger scale and therefore the IDW will be stored and transported in roll-offs. Mr. Sewell inquired whether the procedures at AOC 1 will remain the same. Mr. Dodyk indicate that since AOC 1 is a treatment system, the purge water is filtered back through the treatment system.

Ms. Rochford commented that Mr. Dodyk should mention his last day at NAS Fort Worth JRB. Mr. Dodyk indicated that March 18th is his last day at NAS Fort Worth JRB.

NEXT MEETING

The next RAB meeting is scheduled for May 12, 2005 and will be held at the Lockheed Martin Recreation Association Ranch House, 3400 Bryant Irvin Road, Fort Worth, Texas.

OPEN DISCUSSION/QUESTIONS

Ms. Pate indicated that an archeologist had inquired whether she knew where the World War II gun emplacements on the west side of former Carswell AFB were located. Mr. Ebert indicated that the base historian may know. Ms. Pate asked if Mr. Ebert was referring to the Naval Base historian or the Air Force historian. Ms. Baack mentioned that all of the records should be at the Base. Ms. J'Nell mentioned that she has had difficulty locating former Carswell AFBs records and that they may be in Abilene at Dyess AFB. An unidentified

speaker mentioned that the Air Force came to the Fort Worth Water Department looking for water and sewer line easements but the Fort Worth Water Department did not have them.

Ms. Meena Balabishnan, of Tarrant County College inquired if it was known how TCE affects the human or animal population from a risk standpoint. Mr. Walters indicated that chemical information can be found on the Agency for Toxic Substances and Disease Registry (ATSDR) website referenced in the AFP 4 handouts. Ms. Kathy Ware, a Community Member asked if a demographics study had been conducted on TCE. Ms. Morgan, indicated that a risk assessment has been conducted on the southern lobe of the TCE plume, which would be very similar across the base, to determine the risk exposure of humans and animals to TCE, and there were no unacceptable risks. Ms. Morgan added that the only risk would be from a human health standpoint where a construction worker was working in a trench for a year, which is unlikely. She added that there were no ecological risks identified after studying the mouse, bald eagle, and other species of animals in the area.

An unidentified speaker mentioned that she had been exposed to Lake Worth's water for 20 years. Mr. Rick Wice, Shaw Group, mentioned that the groundwater has never been identified as a pathway because it has not reached the municipal well water that is used for human consumption. An unidentified speaker inquired about Lake Worth and if the water was safe. Mr. Sullivan indicated that the Air Force has tested Lake Worth and there was no risk to human health.

An unidentified speaker indicated that Mr. Walters mentioned that the Air Force is investigating the PCB issue in Lake Worth and data will be presented at the next RAB meeting. Mr. Walters also mentioned that surface water samples from Lake Worth have been collected and no PCBs were found, therefore any recreation in the water is low risk.

Ms. Balabishnan asked why so much money is being spent to clean up the water if there is not an environmental risk. Mr. Bob Sullivan, USEPA, indicated that the USEPA, in conjunction with the Centers for Disease Control and ATSDR are the health based federal organizations that conduct the toxicological study of chemicals. The COC at this site is TCE in groundwater and the USEPA and the Safe Drinking Water Act established the MCL as 5 µg/L for drinking water. The USEPA considers TCE concentrations greater than 5 µg/L to pose a chronic, long term risk to human health if ingested. The USEPA wants to cleanup the groundwater in order to have future usability as drinking water sources. The Safe Drinking Water Act has three classifications of aquifers: 1) Special aquifers that require special protection as a drinking water source, 2a) aquifers that are used as drinking water sources, 2b) aquifers that may be used in the future as drinking water sources, and 3) unusable groundwater. Mr. Sullivan added that there are very few aquifers classified as Class 3. He added that in North Texas, all groundwater is classified as Class 2b.

Mr. Sullivan mentioned that while we wait for the TCE plume to recede, LTM programs are in place to ensure the site is fully characterized and monitored. In addition, there should be land use controls established to prevent the installation of drinking water wells in the future. Mr. Sullivan indicated that the cost of remediation to taxpayers is a concern as well, and if the remediation reached a symbiotic state and the treatment systems are not reducing the plume,

then there needs to be land use controls in place to ensure future generations do not use the water as drinking water. Mr. Sullivan indicated that the treatment systems at AFP 4, NAS Fort Worth JRB, and former Carswell AFB are working properly. He mentioned that TCE concentrations were as high as 200,000 µg/L at the start of this remediation and today the concentrations are below 30,000 µg/L.

Ms. Baack mentioned that the RAB Charter has not been updated since 2001 therefore there are several names on the RAB that are not involved in the Charter anymore. Ms. Baack indicated that she would like to contact everyone on the RAB Charter by mail to make sure they have a copy of the Charter and to see if there are any recommendations for improvement. No objections were made.

Mr. Walters asked if the community members had any action items they would like discussed at the next RAB meeting. No suggestions were made. Mr. Walters asked that if anyone thought of specific items they would like addressed at the next RAB meeting, to contact him before the second week of May 2005.

IN ATTENDANCE

Carswell On-Base

Mike Dodyk, AFCEE, Resident Engineer

Mike Hawkins, Public Affairs, AFCEE

Joe Ebert, AFCEE/ISA

Carswell Off-Base

Norma Landez, Air Force Real Property Agency

Mark Stough, Air Force Real Property Agency

Sonja Coderre, Air Force Real Property Agency

Air Force Plant 4

George Walters, AFP 4 Project Manager, ASC, Wright Patterson Air Force Base

Estella Holmes, Public Affairs, Wright Patterson Air Force Base

Texas Commission on Environmental Quality

Ray Risner

Tim Sewell

Luda Voskov

U.S. Environmental Protection Agency

Robert Sullivan

Noel Bennett

Lockheed Martin

Sarah Young

Norman Robbins

U.S. Geological Society

Sachin Shah

Community

J'Nell Pate, Community Member

Chris Baack, Community Member

Ed Vonkohn, Community Member

Kathy Ware, Community Member

Meena Balabishnan, Tarrant County College (TCC)

Humera Chaudhry, Community Member

Leland Clemons, WRA

Paul Bounds, City of Fort Worth Water Department

Richard S. Talley, City of Fort Worth Water Department

Barbara Nickerson, City of Fort Worth Water Department

Chris Breitling, City of Fort Worth Environmental Management Department

Barbara Nickerson, City of Fort Worth

Air Force Contractors

Audrie Medina, Booz Allen & Hamilton

Miquette Rochford, HydroGeoLogic, Inc.

Lynn Morgan, HydroGeoLogic, Inc.

Jennifer Spies, HydroGeoLogic, Inc.

Andrea Linder, Booz Allen & Hamilton

Dave Parse, EarthTech, Inc.

Rick Wice, Shaw Group

Gregg McGraw, Shaw Group

Randall McDaniel, Shaw Group

Russ Cason, Weston Solutions

Comments/corrections regarding these meeting minutes should be sent to:

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NAS Fort Worth JRB Installation Restoration Program Update

Michael R. Dodyk, P.E.
AFCEE
February 10, 2005



- The Air Force is responsible for cleanup of environmental contamination that occurred prior to October 1, 1993 (while Carswell AFB was active.)
- A total of 87 sites were identified that required investigation and closure.
 - 68 Solid Waste Management Units (SWMU)
 - 19 Areas of Concern (AOC)

Promoting Readiness through Environmental Stewardship

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- To date, the Air Force has received closure on 83 of the 87 sites (4 sites remaining)
 - SWMU 54 – Storm Water Interceptors
 - SWMU 55 – East Gate Oil/Water Separator
 - SWMU 66 – Sanitary Sewer System (AFRPA site)
 - AOC 1 – Former Base Service Station (PST site)
- Of the 4 remaining sites, 3 are expected to be closed by 12/30/2006 (SWMUs 54, 55, and 66).

Promoting Readiness through Environmental Stewardship



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- Conducted quarterly groundwater monitoring at the former base gas/service station (AOC 1) in July and October 2004, and January 2005.
 - January 2005 results are pending. July and October 2004 results show a continued decrease in contamination.
- Conducted soil sampling in preparation for excavation of SWMUs 54/55 in December 2004.
 - Two areas near Interceptor 005 require further sampling.
- Vegetable oil demonstration study in northern lobe TCE plume completed.
 - Began in 2003, last sampling round was conducted in October 2004. Results generally show decrease in TCE concentrations in study area.

Promoting Readiness through Environmental Stewardship



Upcoming Field Work – Spring 2005:

- Additional soil/sediment delineation at SWMUs 54/55 (timeframe to be determined).
- Excavation of SWMUs 54/55 (timeframe to be determined)
- Third round of well decommissioning to occur in Feb 2005.
- AOC 1 quarterly groundwater monitoring in Apr 2005.
- Additional monitoring at vegetable oil demonstration site.

Documents to be prepared:

- Draft RFI of SWMUs 54/55 scheduled for submittal to AFCEE for review this summer.
- Final RFI of SWMUs 54/55 scheduled for submittal to TCEQ this fall.

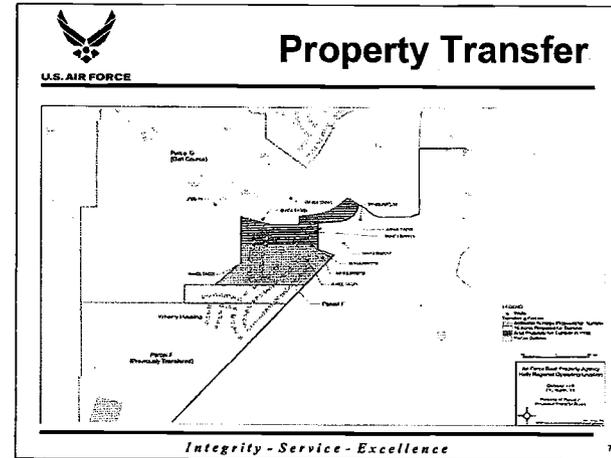
Promoting Readiness through Environmental Stewardship



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A representative from AFCEE will attend future meetings, but no updates will be provided.

Contact information should be directed to Mike Hawkins at AFCEE in San Antonio (contact information is provided in the Fact Sheet).



-
- The figure is a text box titled "Property Transfer" under the U.S. AIR FORCE logo. It contains a list of bullet points:
- **Remainder of Golf Course – 187 acres**
 - Met with EPA Region 6 and TCEQ in Jan 2005 to discuss path forward
 - Final Focused Feasibility Study (FFS) to be submitted Spring 2005
 - Explanation of Significant Difference (ESD) will be prepared based on FFS
 - Operating Properly and Successfully (OPS) document will be prepared to support property transfer
 - Land Use Controls to be established in the deed
- The text "Integrity - Service - Excellence" is at the bottom.



U.S. AIR FORCE

Property Transfer

- Off-Site WSA – 247 acres
 - Radiation survey completed at Bunker 8531 in January 2005
 - EOD Clearance required prior to transfer
 - Limited funding available in FY05 Program

Integrity - Service - Excellence



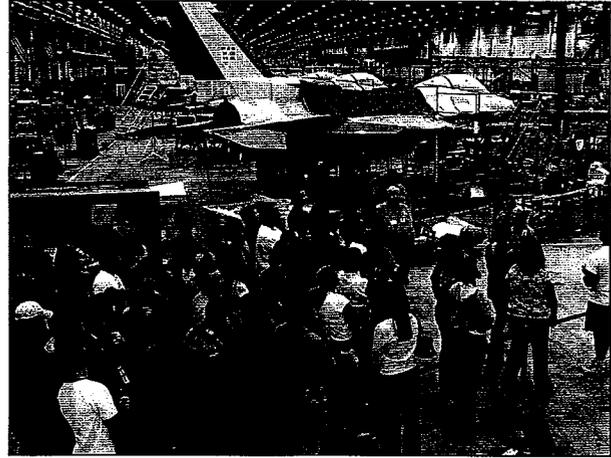
U.S. AIR FORCE

Off-Site WSA

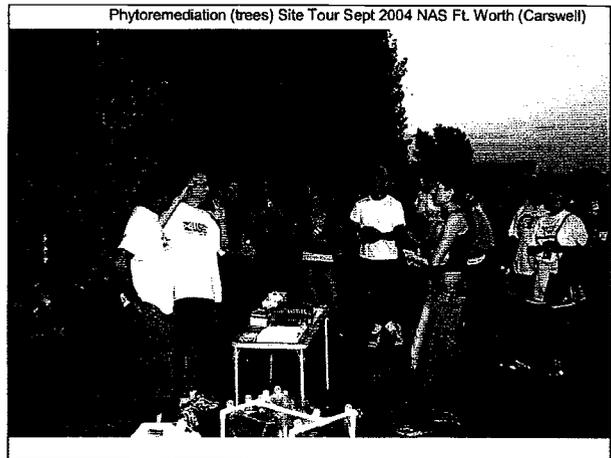


Integrity - Service - Excellence

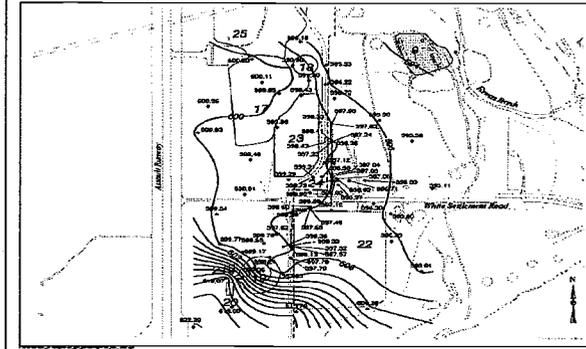


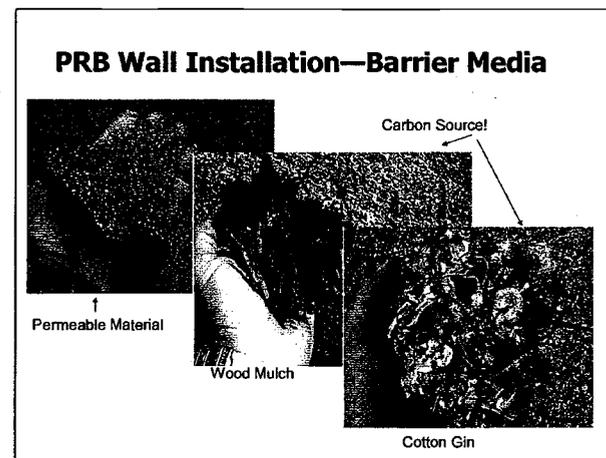
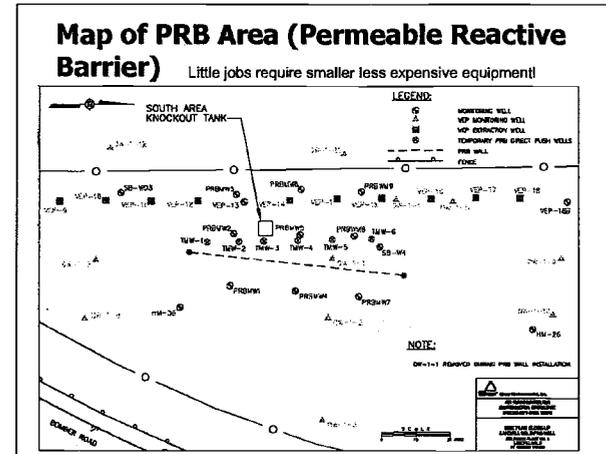


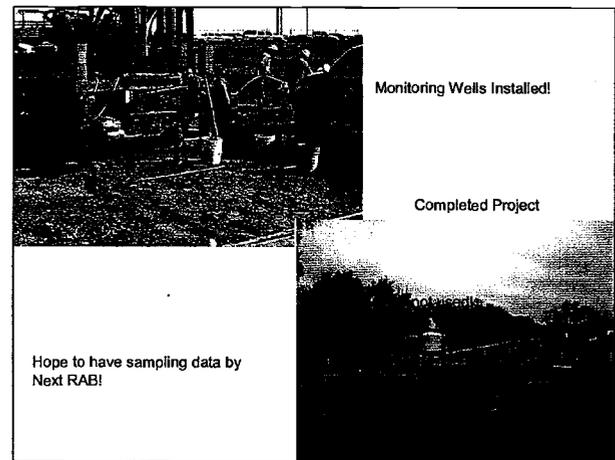
Phytoremediation (trees) Site Tour Sept 2004 NAS Ft Worth (Carswell)

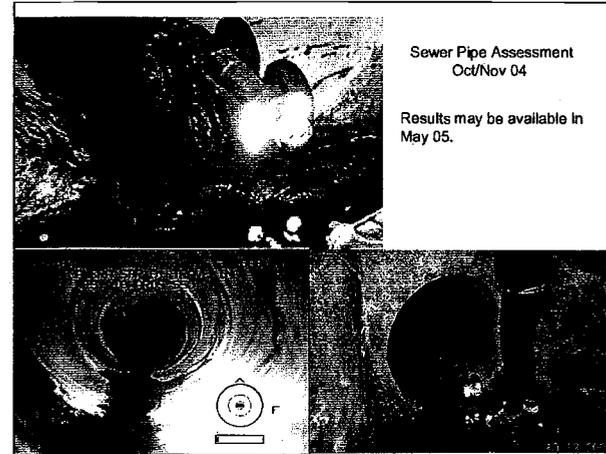


Longest Treatment System Ever Installed
Permeable Reactive Barrier









GREAT ENVIRO WEB SITES

- <http://engineering.wpafb.af.mil/es&h/es&h.asp> → Admin Record, all docs from Investigations!!!!
- <http://www.epa.gov/earth1r6/index.htm>
- <http://www.tceq.state.tx.us/index.html>
- <http://www.usgs.gov/>
- <http://www.shawgrp.com/> → Operate treatment systems, sampling
- <http://www.earthtech.com/> → Longterm Monitoring, sampling
- <http://www.hgl.com/flash/index.cfm> → Carswell AFB sampling and investigations
- www.boozallen.com → Air Force support
- <http://www.atsdr.cdc.gov/toxfaq.html> → Fairly easy to read info on Chemicals we investigate
- <http://hazlett-kincaid.com/HTML/main.htm> → Water Modeling, stumbled across web site!
- <http://www.thermalrs.com/> → Ground Heating Contractor (Sub)
- <http://www.urscorp.com/> → Oversight Heating contractor (Prime)
- <http://www.regenesis.com/> → Supply \$\$\$\$ substances which degrade chemicals in groundwater



Developing a Three-Dimensional and Ground-Water Flow Model at U.S. Air Force Plant 4 and vicinity, Fort Worth, Texas

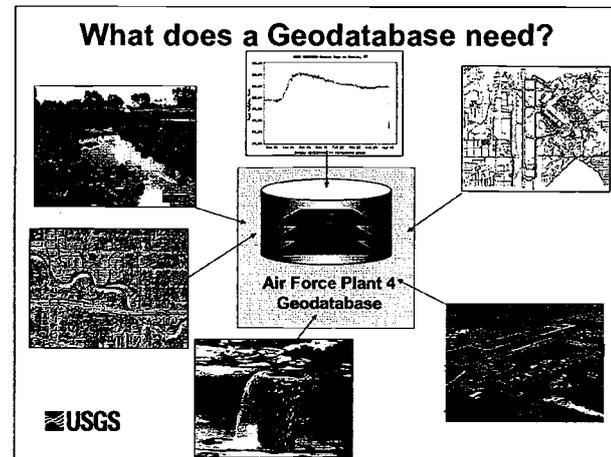
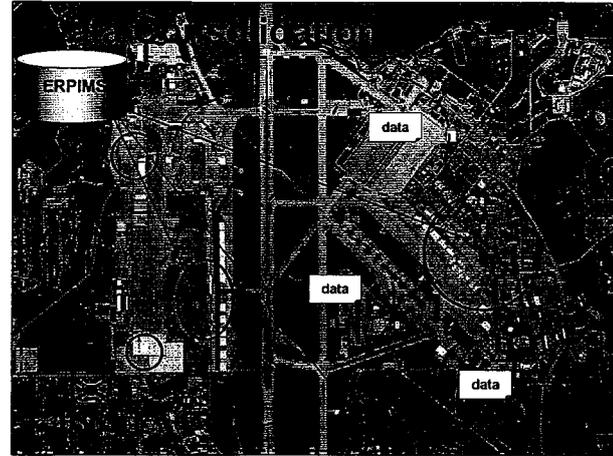
Sachin D. Shah and Natalie A. Houston
Hydrologists
Austin, Texas

U.S. Department of the Interior
U.S. Geological Survey

Objectives of the study

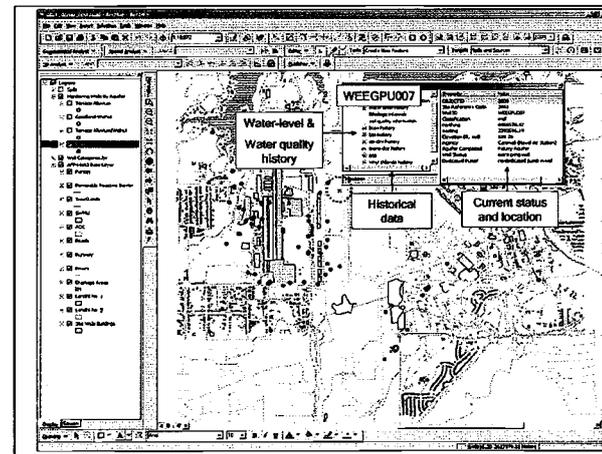
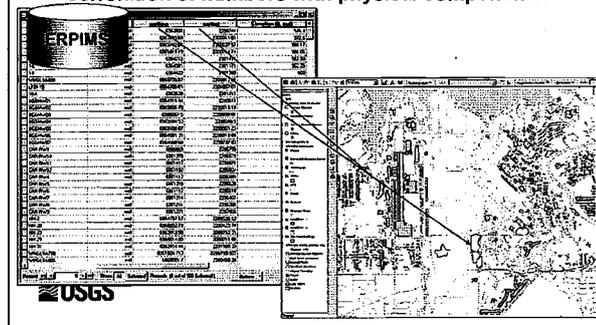
- Consolidate data from every source and location at the site for a realistic understanding.
- Create an interactive database (spatial database).
- Design 3-D model of the geology from data within the geodatabase.
- Feed all consolidated data into a *Ground-Water Flow Model*.

Labels on map: Lake Worth, Trinity River, Naval Air Station, APP4, White Settlement, Study area



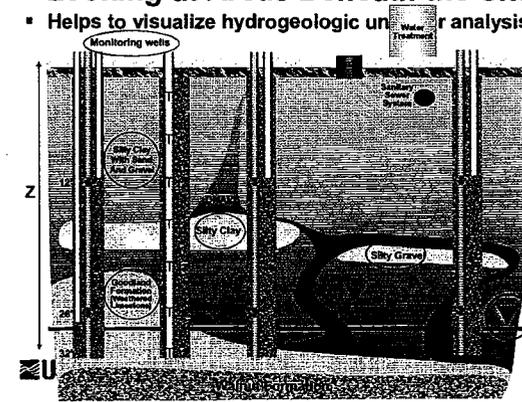
What is a Geodatabase?

- Spatial extension of tabular data to allow correlation of numbers with physical components.



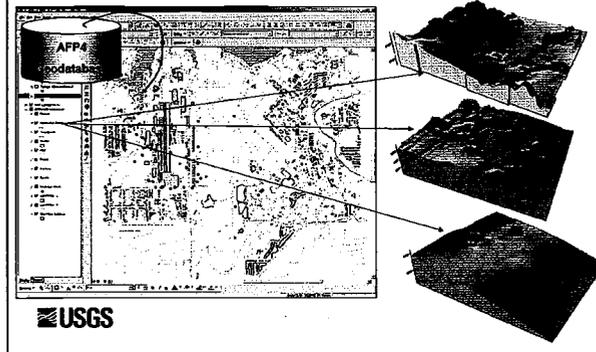
Looking at Areas Beneath the Site

- Helps to visualize hydrogeologic unit analysis.



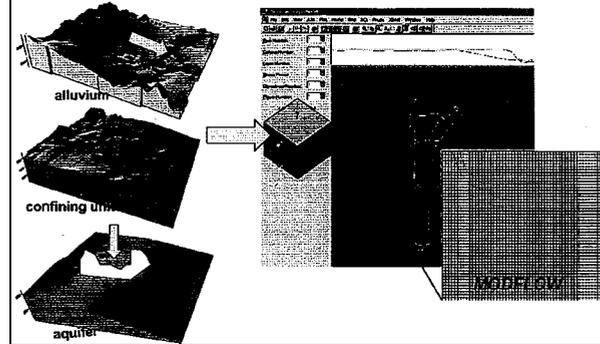
Site-wide Three-Dimensional Model

- Geodatabase is framework for 3-D creation.

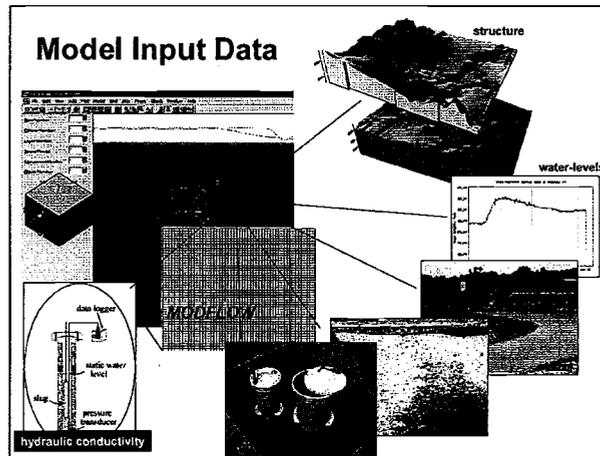


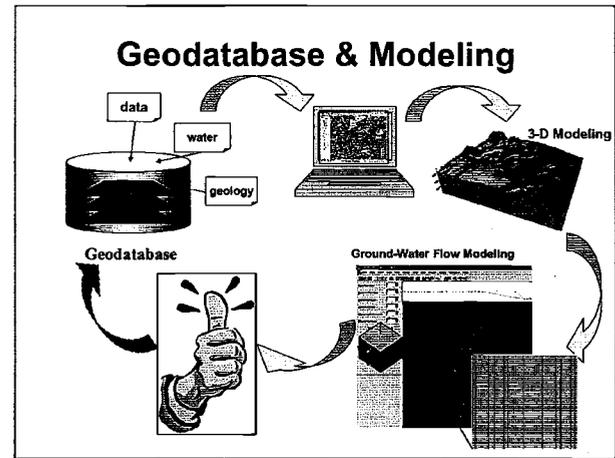
How does this help our cause?

- Facilitates 3-dimensional visualization of the geologic, hydrologic, and water-quality features of AFP4.



Model Input Data





Headquarters U.S. Air Force

Integrity - Service - Excellence

**Carswell Off-Base
BRAC UPDATE**



U.S. AIR FORCE

Norma J. Landez
Base Environmental Coordinator
February 10, 2005

1



U.S. AIR FORCE

Program Update

- FY04
- FY05
- Property Transfer

Integrity - Service - Excellence

2



U.S. AIR FORCE

FY04 Program

- Sanitary Sewer System Investigation
- 5 Year Performance Review
- Golf Course Monitoring
- Amend ROD/Accomplish OPS to Support Golf Course Property Transfer
- Off-site WSA EOD Clearance Survey
- Radiological Maintenance Munitions Waste Survey

Integrity - Service - Excellence

3



U.S. AIR FORCE

Off-Site WSA



Integrity - Service - Excellence

4



U.S. AIR FORCE

FY05 Program

- Golf Course Monitoring
- Off-site WSA EOD Clearance Survey

Integrity - Service - Excellence

5



U.S. AIR FORCE

Property Transfer

- FY04
 - Fam Camp Area – 12 acres
 - Transfer to Westworth Redevelopment Authority (WRA) completed November 18, 2004
 - Portion of Parcel F, Wherry Housing – 23.66 acres
 - Transfer to WRA completed December 16, 2004

Integrity - Service - Excellence

6



Air Force Center for Environmental Excellence

Promoting Readiness through Environmental Stewardship

NAS Fort Worth JRB Installation Restoration Program Update

**Michael R. Dodyk, P.E.
AFCEE
February 10, 2005**





Installation Restoration History

- **The Air Force is responsible for cleanup of environmental contamination that occurred prior to October 1, 1993 (while Carswell AFB was active.)**
- **A total of 87 sites were identified that required investigation and closure.**
 - **68 Solid Waste Management Units (SWMU)**
 - **19 Areas of Concern (AOC)**



Solid Waste Management Units
Areas of Concern



Site Closure Update

- **To date, the Air Force has received closure on 83 of the 87 sites (4 sites remaining)**
 - **SWMU 54 – Storm Water Interceptors**
 - **SWMU 55 – East Gate Oil/Water Separator**
 - **SWMU 66 – Sanitary Sewer System (AFRPA site)**
 - **AOC 1 – Former Base Service Station (PST site)**
- **Of the 4 remaining sites, 3 are expected to be closed by 12/30/2006 (SWMUs 54, 55, and 66).**



Field Activities Since May 2004

- **Conducted quarterly groundwater monitoring at the former base gas/service station (AOC 1) in July and October 2004, and January 2005.**
 - **January 2005 results are pending. July and October 2004 results show a continued decrease in contamination.**
- **Conducted soil sampling in preparation for excavation of SWMUs 54/55 in December 2004.**
 - **Two areas near Interceptor 005 require further sampling.**
- **Vegetable oil demonstration study in northern lobe TCE plume completed.**
 - **Began in 2003, last sampling round was conducted in October 2004. Results generally show decrease in TCE concentrations in study area.**



Upcoming Work

Upcoming Field Work – Spring 2005:

- **Additional soil/sediment delineation at SWMUs 54/55 (timeframe to be determined).**
- **Excavation of SWMUs 54/55 (timeframe to be determined)**
- **Third round of well decommissioning to occur in Feb 2005.**
- **AOC 1 quarterly groundwater monitoring in Apr 2005.**
- **Additional monitoring at vegetable oil demonstration site.**

Documents to be prepared:

- **Draft RFI of SWMUs 54/55 scheduled for submittal to AFCEE for review this summer.**
- **Final RFI of SWMUs 54/55 scheduled for submittal to TCEQ this fall.**



Future RAB Meetings

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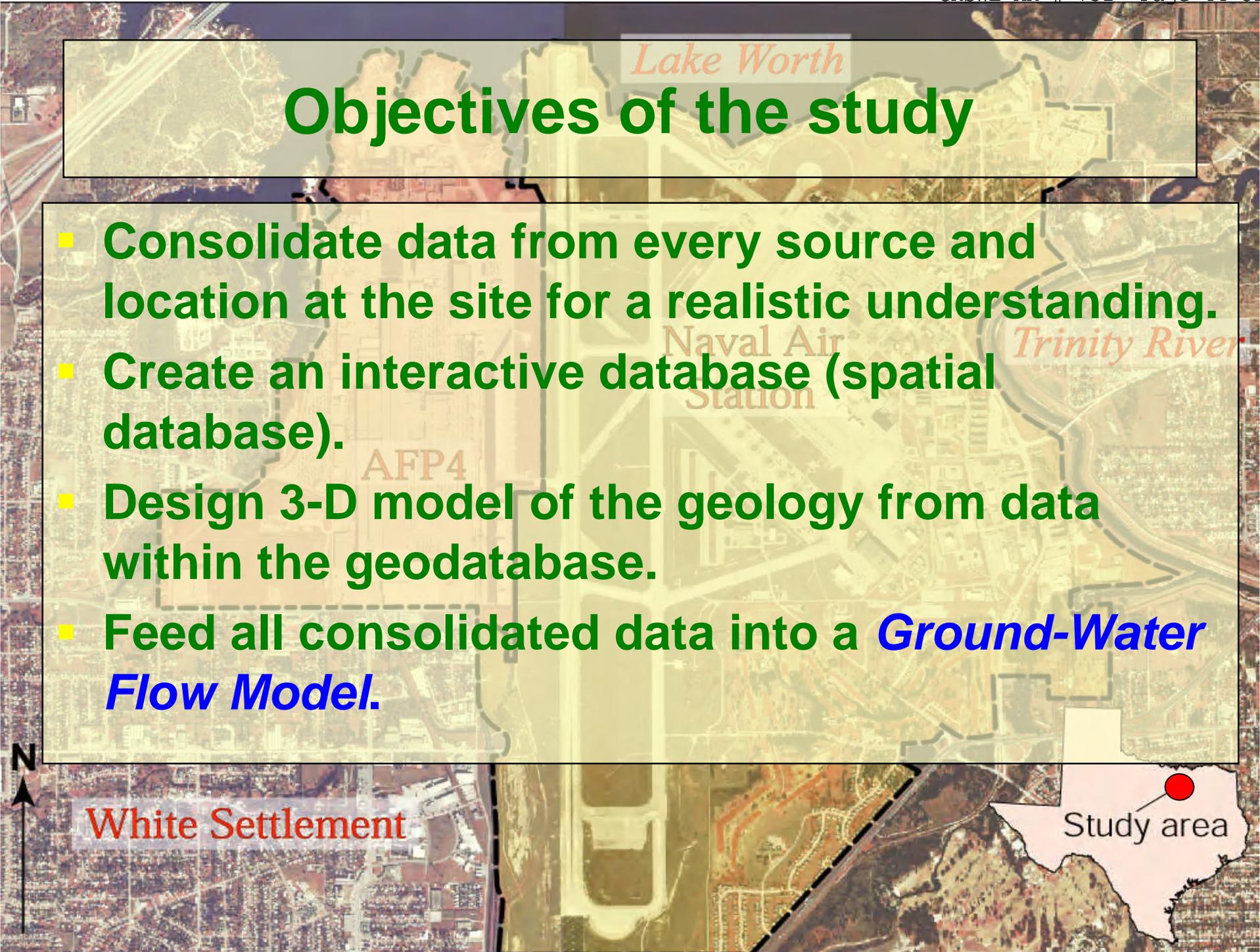
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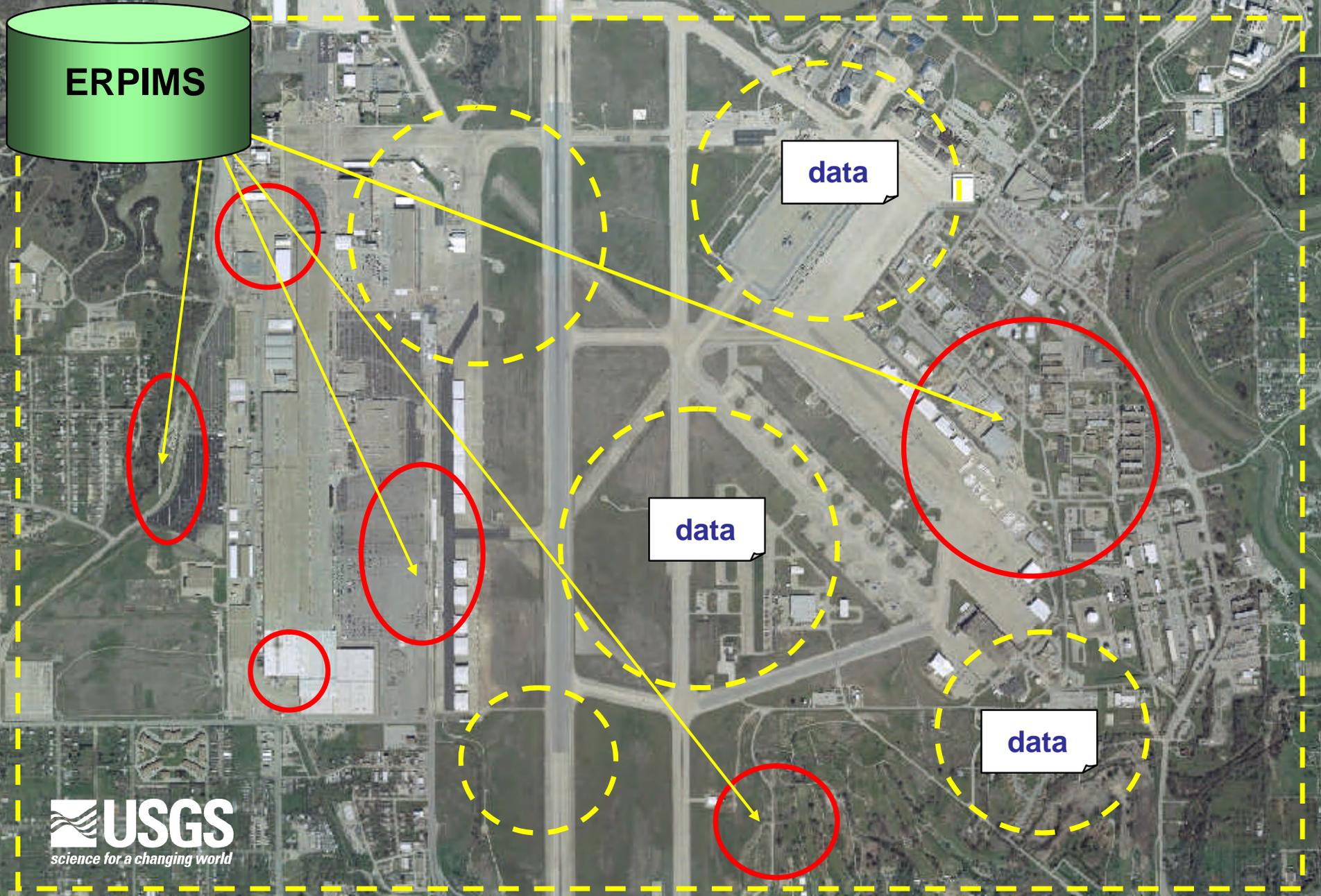
U.S. Department of the Interior
U.S. Geological Survey



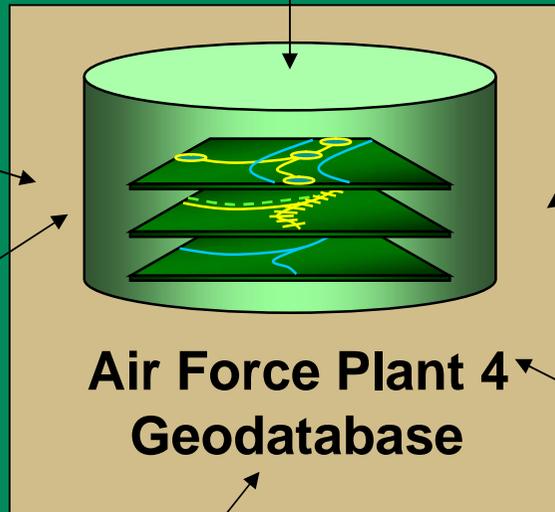
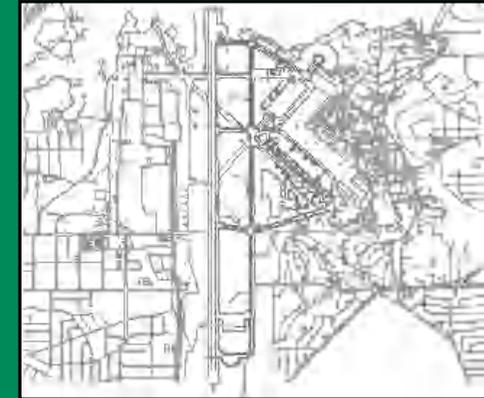
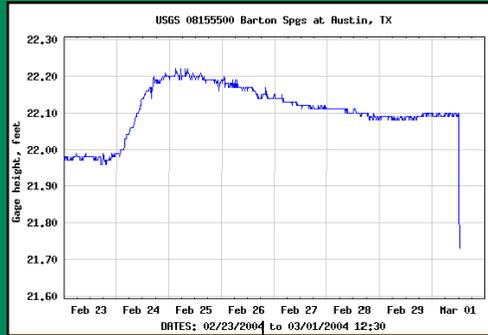
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- Design 3-D model of the geology from data within the geodatabase.
- Feed all consolidated data into a *Ground-Water Flow Model*.

Data Consolidation



What does a Geodatabase need?



What is a Geodatabase?

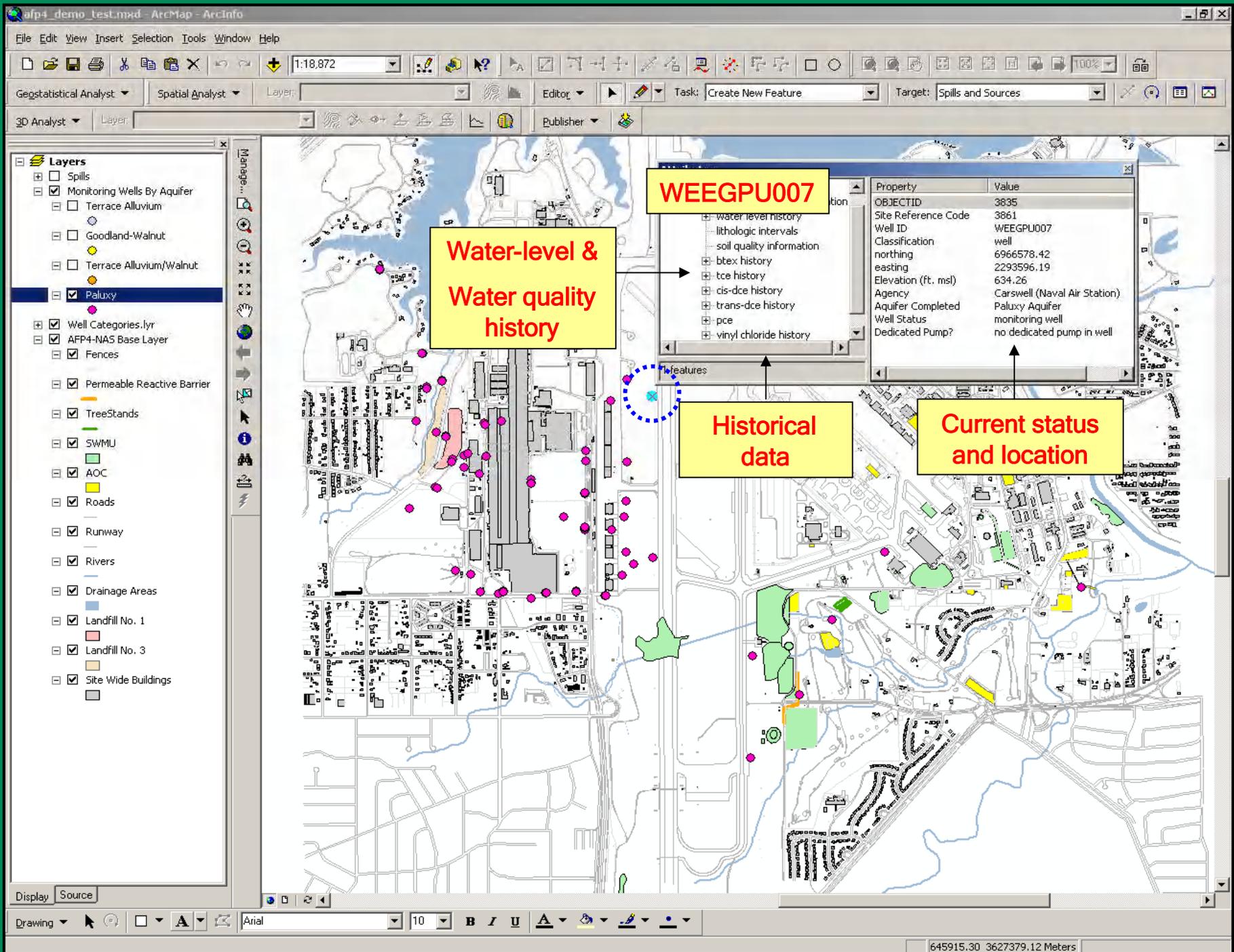
- Spatial extension of tabular data to allow correlation of numbers with physical components.

The screenshot displays a GIS interface with a data table and a map view. A green cylinder labeled "ERPIMS" is positioned over the table. Blue arrows originate from the cylinder and point to specific geographic locations on the map, illustrating the spatial extension of the tabular data.

		northing	easting	Elevation (ft. msl)
	well	6963801	2299744	574.4
	well	6963789.69	2300041.81	572.6
	well	6965742.84	2300537.57	558.17
	well	6965819.19	2300744.74	556.06
	well	6964272	2301417	563.93
	well	6964591	2301179	562.25
	well	6964422	2301380	560
1-E				
1-F				
WHGLTA059	well	6965755.87	2300813.58	
LF01-1B	well	6964700.81	2301057.01	
15-A	well	6963539	2301012	
BGSMW01	well	6964916.44	2299511	
BGSMW02	well	6965006.79	2299618.19	
BGSMW03	well	6965067.5	2299690.06	
BGSMW04	well	6965084.53	2299589.5	
BGSMW05	well	6965150.67	2299961.23	
BGSMW06	well	6964981.31	2299910.09	
BGSMW07	well	6964990.68	2299737.83	
CAR-RW1	well	6960869	2296755	
CAR-RW10	well	6961279	2296079	
CAR-RW11	well	6961412	2296076	
CAR-RW12	well	6961192	2295934	
CAR-RW4	well	6961112	2296685	
CAR-RW5	well	6961318	2296638	
CAR-RW6	well	6961112	2296510	
CAR-RW7	well	6961214	2296407	
CAR-RW8	well	6961214	2296306	
CAR-RW9	well	6961221	2297006	
HM-2	well	6964757.17	2289526.63	
HM-20	well	6966052.79	2290425.74	
HM-23	well	6963113.58	2288752.31	
HM-29	well	6966014.89	2290711.88	
HM-31	well	6963114.44	2291505.33	
WHGLTA709	well	6961934.713	2295750.927	
WHGLTA036	well	6966001.7	2300458.39	

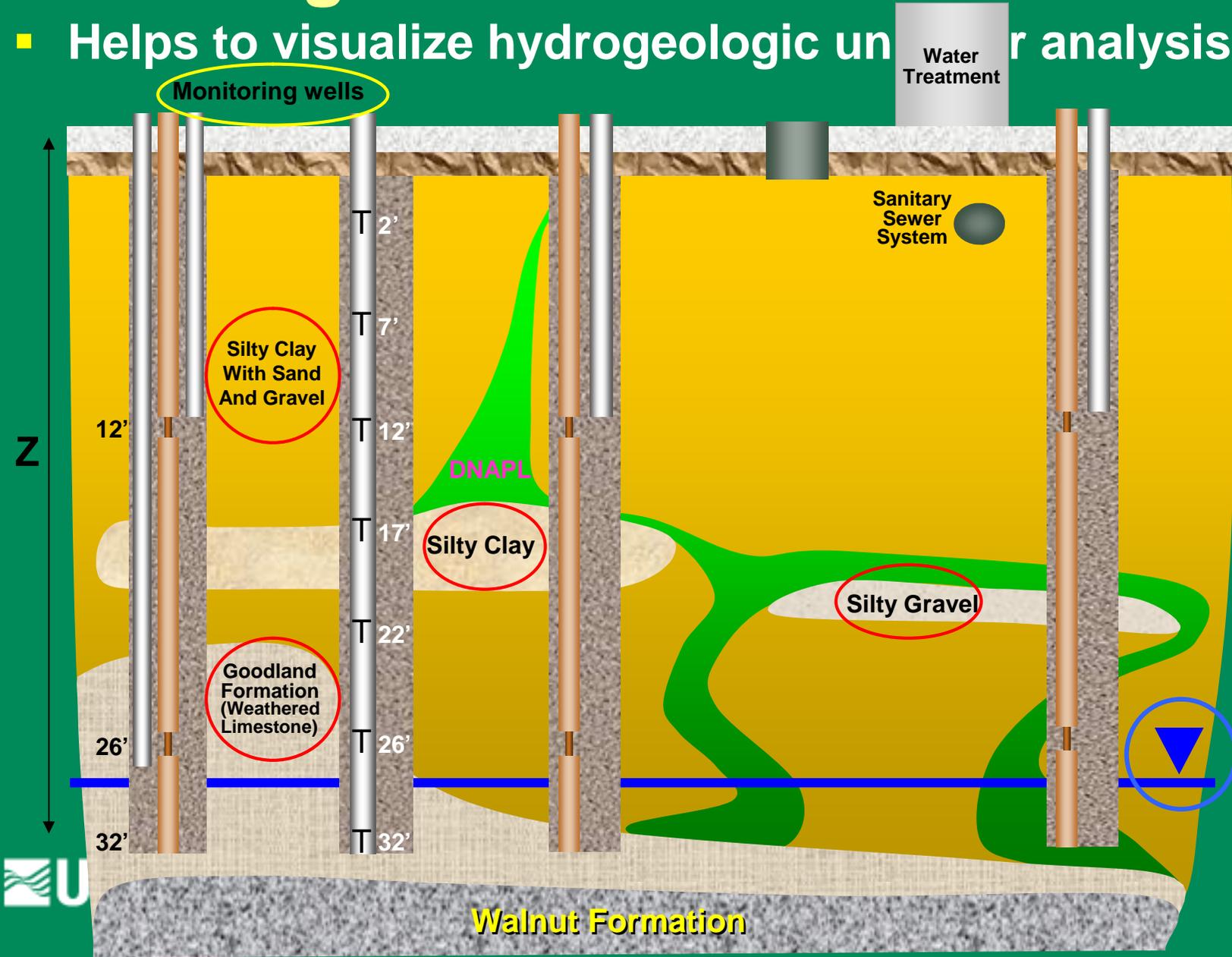
The map view shows a detailed geographic area with various features. The legend includes categories such as Spills, Monitoring Wells By Aquifer, Terrace Alluvium, Goodland Walnut, Terrace Alluvium/Walnut, Paluxy, Site Categories Lyr, AP4-NAS Base Layer, Fences, Permeable Reactive Barrier, Trees/Bands, SWHU, AOC, Roads, Runway, Drainage Areas, Landfill No. 1, Landfill No. 3, Site Wide Buildings, and AP4 and vicinity geologic map. The geologic map includes Terrace alluvium deposits, Duck Creek Limestone, Klamachi Shale, Goodland Limestone, and Walnut Formation. Other features include Paluxy, Lake Worth, and no data.





Looking at Areas Beneath the Site

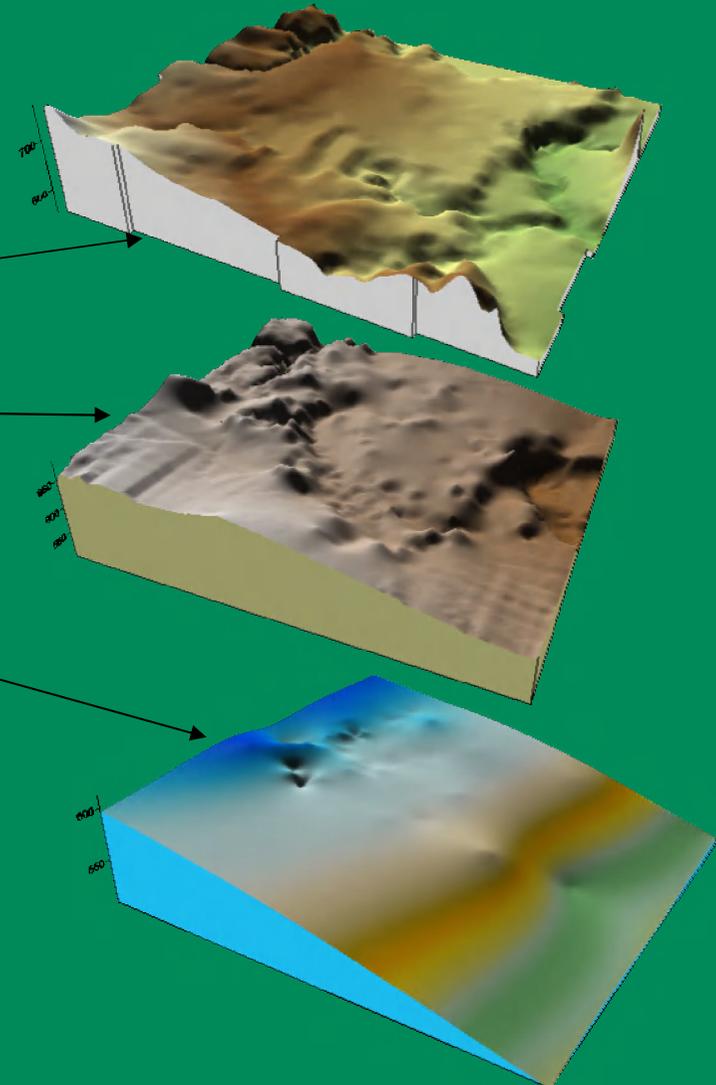
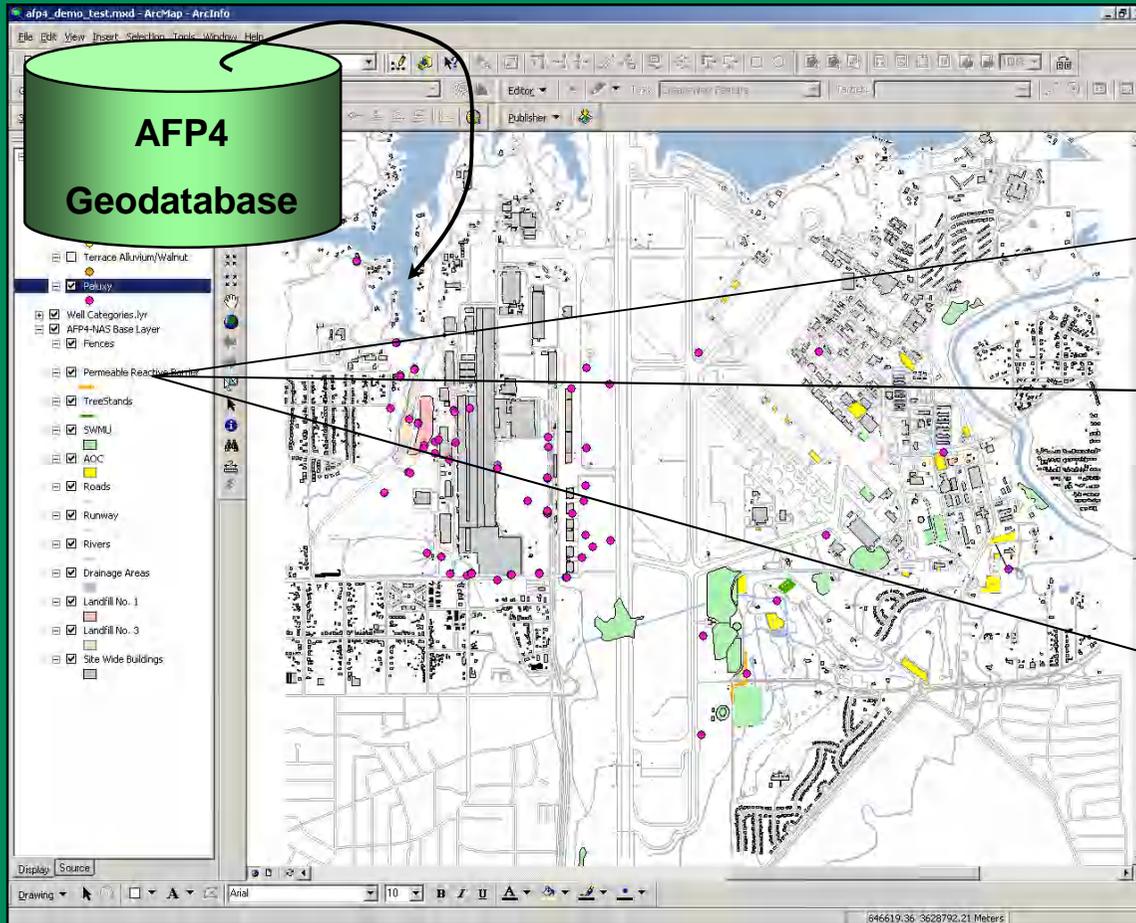
- Helps to visualize hydrogeologic un... for analysis.



Walnut Formation

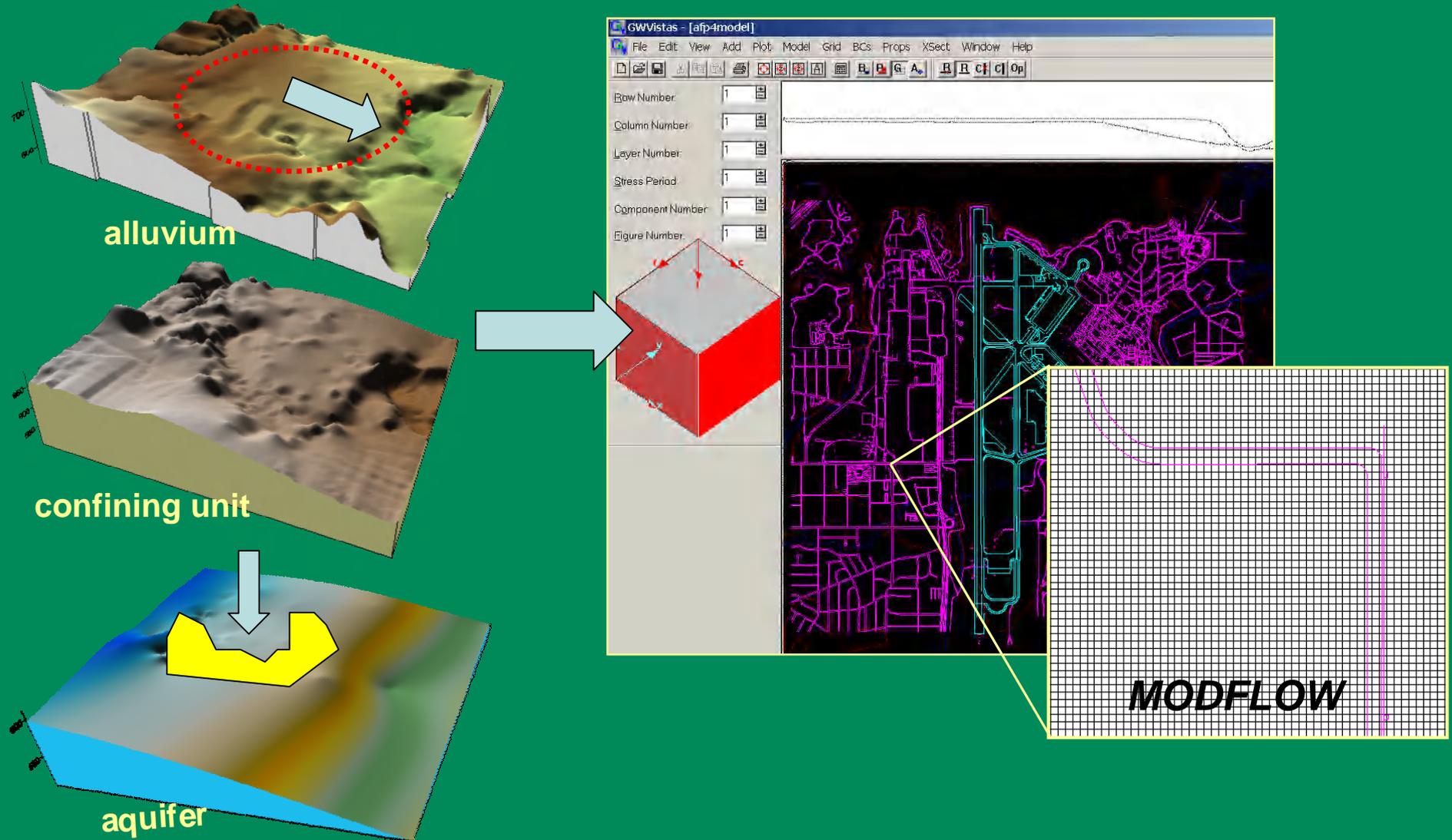
Site-wide Three-Dimensional Model

- Geodatabase is framework for 3-D creation.

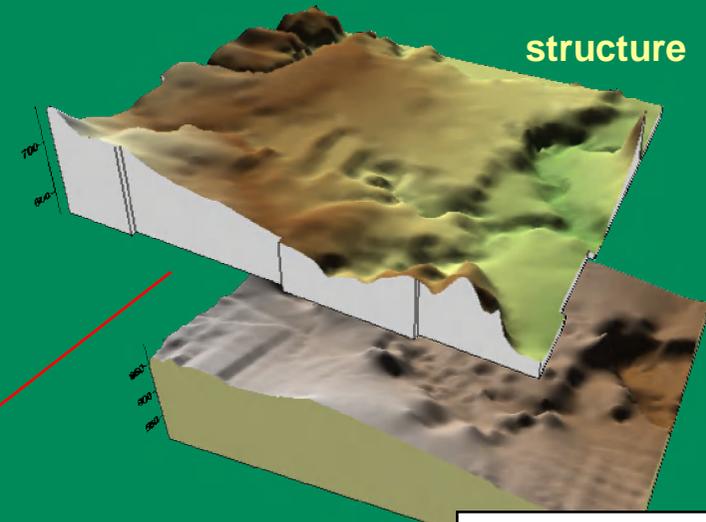
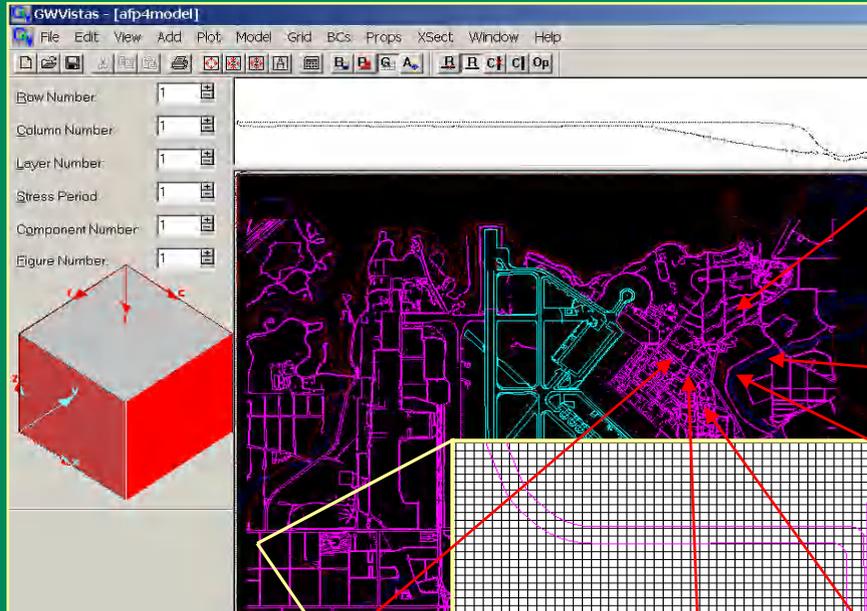


How does this help our cause?

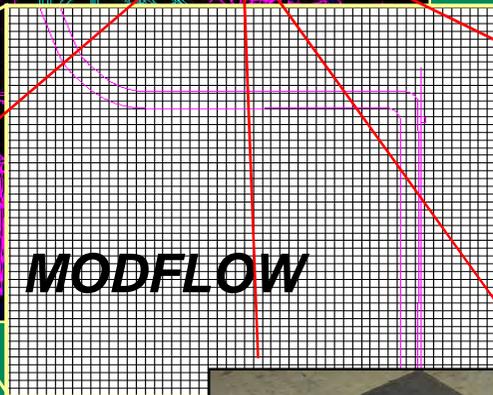
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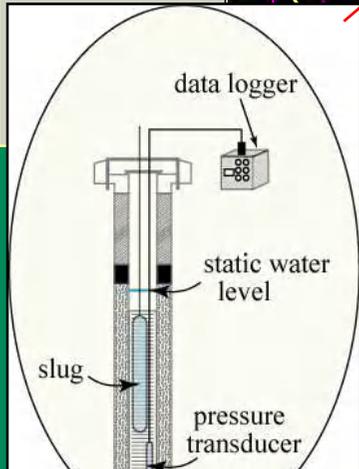
Model Input Data



water-levels



streams



hydraulic conductivity

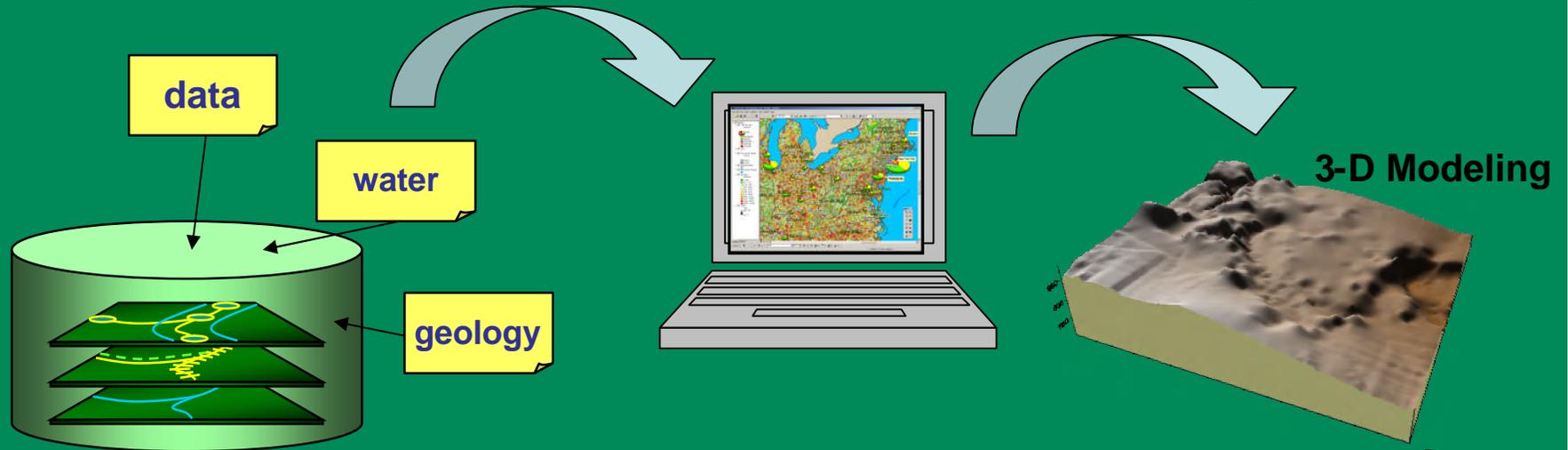


ground water pumping



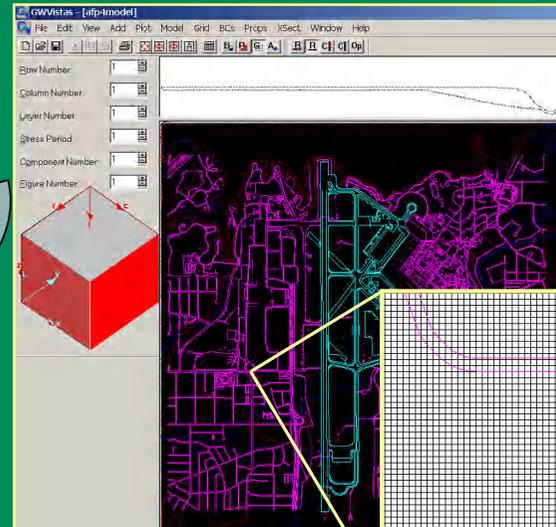
recharge

Geodatabase & Modeling



Geodatabase

Ground-Water Flow Modeling





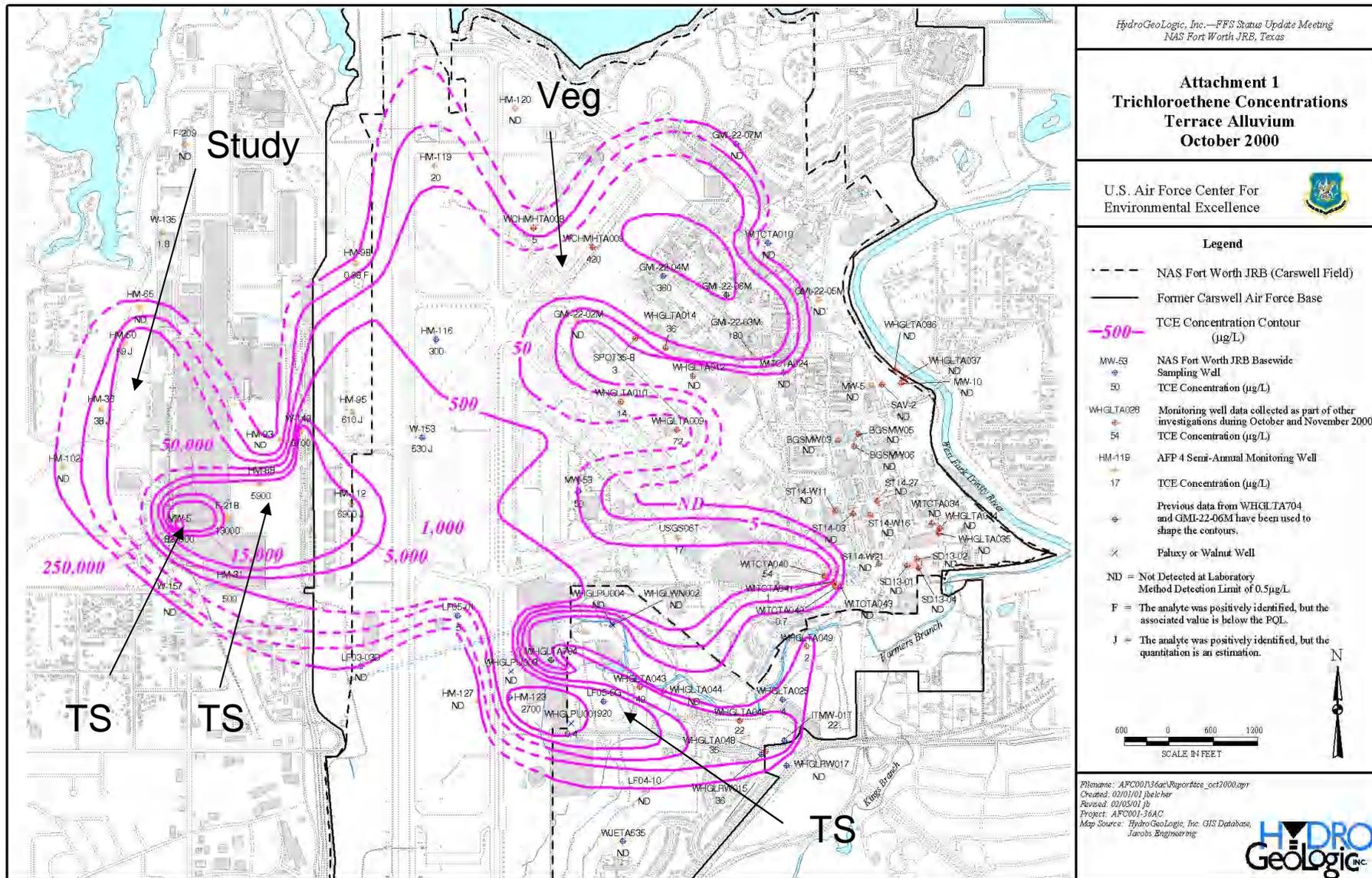
George Walters
Aeronautical Systems Center
Wright-Patterson AFB, OH

Restoration Advisory Board
Feb 10, 2005

Longterm Monitoring
Site Tour Pics
Low Cost Perm Wall
Recent Sewer Samples
Good Web Enviro WWW



Long Term Groundwater Monitoring – YEAR 2000 Every Six months till it is cleaned up!



HydroGeologic, Inc.—FFS Status Update Meeting
NAS Fort Worth JRB, Texas

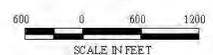
Attachment 1 Trichloroethene Concentrations Terrace Alluvium October 2000

U.S. Air Force Center For
Environmental Excellence



Legend

- - - - - NAS Fort Worth JRB (Carswell Field)
- Former Carswell Air Force Base
- 500— TCE Concentration Contour (µg/L)
- MW-53 NAS Fort Worth JRB Base-wide Sampling Well
- 50 TCE Concentration (µg/L)
- WHGLTA028 Monitoring well data collected as part of other investigations during October and November 2000
- 54 TCE Concentration (µg/L)
- HM-119 AFP 4 Semi-Annual Monitoring Well
- 17 TCE Concentration (µg/L)
- Previous data from WHGLTA704 and GMI-22-06M have been used to shape the contours.
- × Paluxy or Walnut Well
- ND = Not Detected at Laboratory Method Detection Limit of 0.5µg/L
- F = The analyte was positively identified, but the associated value is below the PQL.
- J = The analyte was positively identified, but the quantitation is an estimation.



Filename: AFD00136ae/Report/acc_0012000.rpt
Created: 02/01/01 jbc/cher
Revised: 02/05/01 jbc
Project: AFD001-36AC
Map Source: HydroGeologic, Inc. GIS Database,
Jacobs Engineering

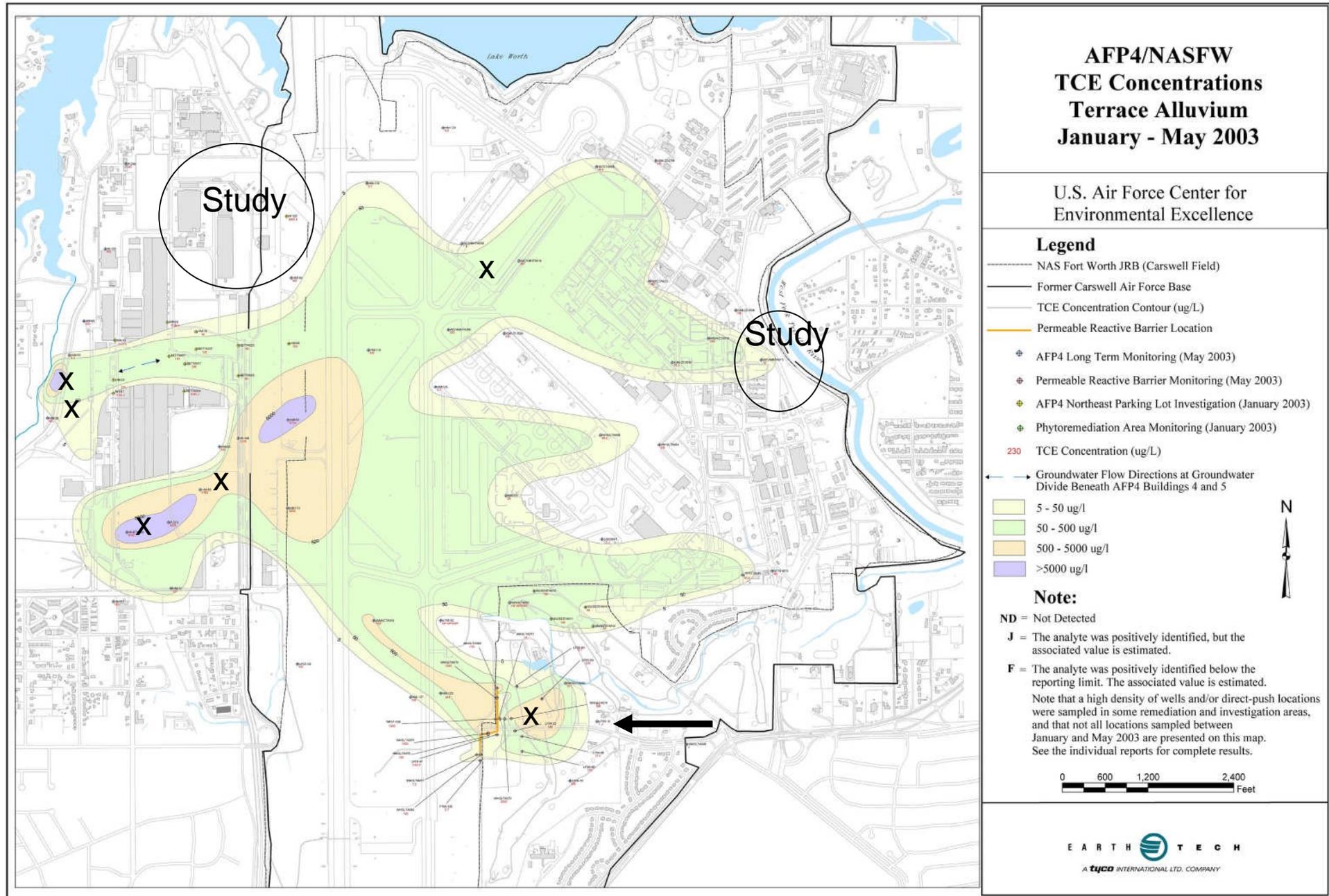


TS = Treatment System

ND = Non Detect (below detection limit!)

VEG = Vegetable Oil Injection

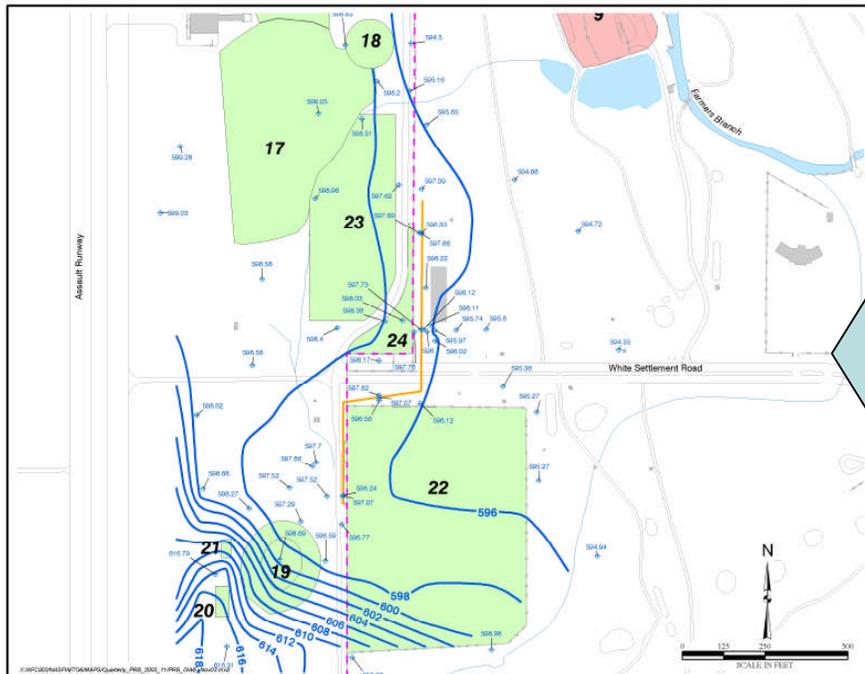
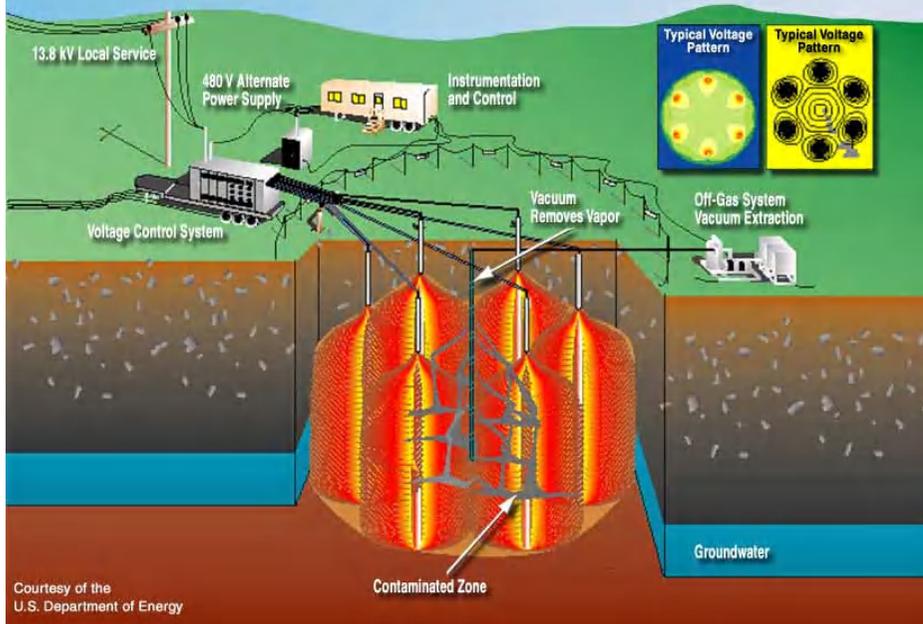
LTM 2003



LTM 2004



Electrical Resistance Heating



Site Tour – Sept 2004



Phytoremediation (trees) Site Tour Sept 2004 NAS Ft. Worth (Carswell)

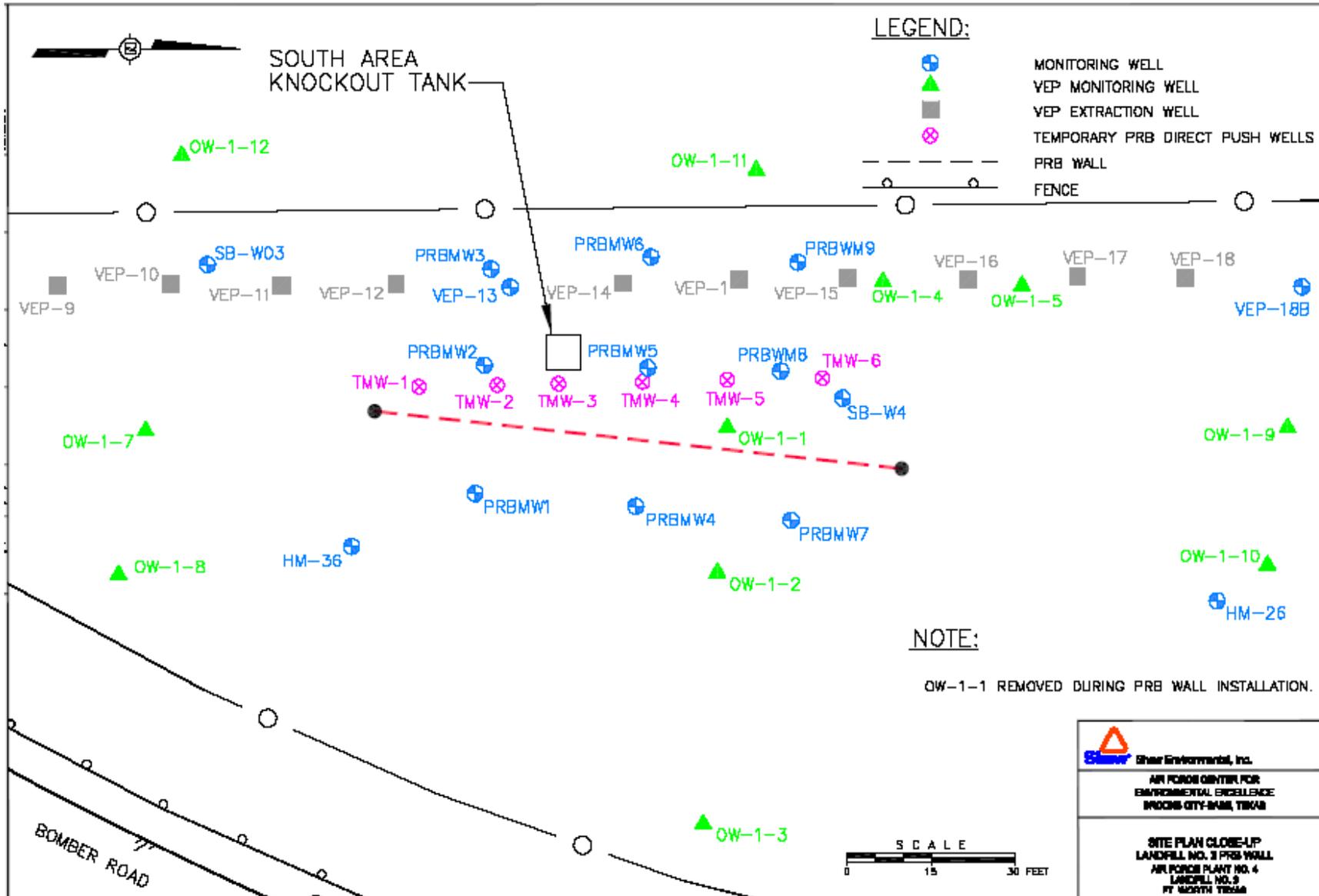


Deep Big Jobs Require Big Expensive Equipment



Map of PRB Area (Permeable Reactive Barrier)

Little jobs require smaller less expensive equipment!



PRB Wall Installation—Barrier Media



↑
Permeable Material

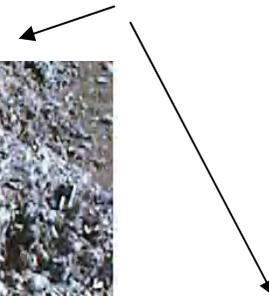


Wood Mulch



Cotton Gin

Carbon Source!







Monitoring Wells Installed!

Completed Project



Hope to have sampling data by
Next RAB!

Sewer Pipe Assessment Oct/Nov 04

Results may be available in
May 05.



GREAT ENVIRO WEB SITES

<http://engineering.wpafb.af.mil/es&h/es&h.asp> → Admin Record, all docs from Investigations!!!!

<http://www.epa.gov/earth1r6/index.htm>

<http://www.tceq.state.tx.us/index.html>

<http://www.usgs.gov/>

<http://www.shawgrp.com/> → Operate treatment systems, sampling

<http://www.earthtech.com/> → Longterm Monitoring, sampling

<http://www.hgl.com/flash/index.cfm> → Carswell AFB sampling and investigations

www.boozallen.com → Air Force support

<http://www.atsdr.cdc.gov/toxfaq.html> → Fairly easy to read info on Chemicals we investigate

<http://hazlett-kincaid.com/HTML/main.htm> → Water Modeling, stumbled across web site!

<http://www.thermalrs.com/> → Ground Heating Contractor (Sub)

<http://www.urscorp.com/> → Oversaw Heating contractor (Prime)

<http://www.regenesis.com/> → Supply \$\$\$\$ substances which degrade chemicals in groundwater

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE