



CARSWELL AFB TEXAS

ADMINISTRATIVE RECORD COVER SHEET

AR File Number 767



**Carswell/Plant 4
Restoration Advisory Board Meeting
February 12, 2004
6:00–8:00 pm**

Agenda

Welcome/Introductions/Minutes	5 minutes
Westworth Redevelopment Authority Update	10 minutes
Action Items	
Community Co-Chair Nomination and Election	5 minutes
Air Force Plant 4/George Walters	
USGS Lake Worth Sediment Sampling Update	20 minutes
Program Update	10 minutes
Carswell Off-Base/Charles Pringle	35 minutes
Program Update	
– Weapons Storage Area EOD Conversion to Residential Safety Clearance Update	
– Sanitary Sewer System Field Work Update	
– 5-Year Program Performance Review/Golf Course Monitoring System	
– FFS/Plant 4 ROD Amendment/Accomplish OPS for Golf Course Update	
Projected Future Land Transfers	
– Permeable Reactive Barrier Expansion Near Golf Course Update	
– Off-Site Weapons Storage Area FOST Update	
– Golf Course 12-Acre Parcel Update	
Radiological Maintenance Munitions Waste Survey	
Carswell On-Base/Mike Dodyk	10 minutes
Program Update	
Community Relations Program Update	15 minutes
Next Meeting Agenda	5 minutes
Open Discussion/Questions	5 minutes

CARSWELL/PLANT 4 RESTORATION ADVISORY BOARD MEETING

DRAFT Summary Minutes of February 12, 2004 Regular Quarterly Meeting

A regular meeting of the Carswell/Plant 4 Restoration Advisory Board (RAB) was held February 12, 2004 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

Westworth Redevelopment Authority Update

Action Items

Community Co-Chair Nomination and Election

Air Force Plant 4 (George Walters)

USGS Lake Worth Sediment Sampling Update
Program Update

Carswell Off-Base (Charles Pringle)

Program Update

- Weapons Storage Area EOD Conversation of Residential Safety Clearance Update
- Sanitary Sewer System Field Work Update
- 5-year Program Performance Review/Golf Course Monitoring System
- FFS/Plant 4 ROD Amendment/Accomplish OPS for Golf Course Update

Projected Future Land Transfers

- Off-Site Weapons Storage Area FOST Update
- Golf Course 12-Acre Parcel Update

Radiological Maintenance Munitions Waste Survey

Carswell On-Base (Mike Dodyk)

Program Update

Community Relations Program Update

Next Meeting Agenda

Open Discussion/Questions

WELCOME AND INTRODUCTION OF ATTENDEES

George Walters, project manager for Air Force Plant 4, called the meeting to order. The minutes from November 2003 were approved. Chris Baack was nominated and elected community co-chair. No action items remain from the November 2003 meeting.

WESTWORTH REDEVELOPMENT AUTHORITY

Leland Clemmons was not present at the meeting, therefore an update was not provided by the Westworth Redevelopment Authority.

AIR FORCE PLANT 4

Program Update

Mr. Walters indicated that the fish tissue sampling report has been distributed and that the Phase One study of the sediment sampling would be coming out soon. Phase Two sampling had recently been completed, and Phase Three would focus on the area near Plant 4 over the next couple of years.

Mr. Walters commented on Lockheed's employment increase from 15,000 last year to over 16,000 employees this year. Lockheed recently won the largest airplane contract ever awarded by the Air Force, the Joint Strike Fighter Program. As a result, a lot of construction is ongoing at Lockheed. Mr. Walters indicated that the environmental people will work hand-in-hand with Lockheed on the construction activities so that monitoring wells can be maintained.

Mr. Walters indicated that throughout the meeting and in the future the Air Force will be referencing a lot of monitoring results. He explained that a part per million (ppm) which is a term used for measuring contamination is essentially a drop of a contaminant into a bathtub full of water. He explained further that a part per billion (ppb) is a drop in an Olympic-sized swimming pool. The maps of the trichloroethene (TCE) plume used during tonight's meeting show the leading edge of the plume which is 5 ppb. Even though the groundwater at Carswell is not used for drinking, the Air Force is required to monitor, and in some cases clean up, contamination to drinking water standards. Several treatment plants have been installed at Air Force Plant 4 and Carswell to treat the TCE plume. One of these treatment technologies is a permeable reactive barrier (PRB) that was placed along the property boundary near Carswell. Also, in the northern lobe of the plume, the Air Force is conducting an experiment where vegetable oil was injected in the groundwater to spur the growth of naturally occurring bacteria which in turn eat the TCE. As reported at previous meetings, inside Building 181 electrical resistance heating technology was used to remove TCE.

Mr. Walters explained that on Air Force Plant 4 there is a former landfill that has TCE in the ground where it is collected by using bailers and buckets and that's the cheapest way to remove it. This method costs about \$15 or \$20 a pound. The east parking lot has a pump and treat system that costs approximately \$6,000 per pound to remove TCE, because so much

water has to be treated, like an Olympic-sized swimming pool full, to get out those small drops of TCE. Pump and treat systems work by removing water from extraction wells drilled into the ground, and running the water through columns that remove the TCE from the groundwater. The water is then run through a carbon filter to make sure the water is clean to drinking water standards.

In the early 1990s a small pump and treat system was installed for a couple of million dollars, then the system was upgraded each year and more extraction wells were added. Mr. Walters estimated that approximately \$20 million has been spent on this system to remove approximately 3,000 pounds of TCE. Over a million gallons of contaminated water has been treated. Overall, TCE concentrations are decreasing site wide, but it will require many more years of treatment to get to the current goal of 400 ppb.

Mr. Walters indicated that if anyone had any questions about active remediation at Air Force Plant 4 or anything else that's being done, he can provide additional information. With that, Mr. Walters then introduced Pete Van Metre from the United States Geological Survey (USGS) in Austin, Texas. A handout of Mr. Van Metre's briefing wasn't available during the meeting; however Mr. Walters indicated that a copy of the briefing would be included with the mailing with the meeting minutes.

USGS Lake Worth Sediment Sampling Update

Mr. Van Metre began by introducing himself and the USGS. The USGS is federal agency that has a presence in all 50 states. The USGS does cooperative work with other federal agencies and with state and local agencies. The USGS is non-regulatory and nonpartisan whose primary purpose is earth science. The work at Lake Worth is being conducted at the request of the U.S. Air Force. The issue for Lake Worth is poly chlorinated biphenyls (PCBs) which were detected in fish tissue samples collected from Lake Worth in 2000. The Texas Department of Health conducted a risk assessment with the fish tissue sample results and concluded the levels of PCBs in fish from Lake Worth were at levels that pose a risk to people eating the fish. As a result, an advisory, not a closure on the lake was issued. The Air Force was concerned about where the PCBs might be coming from so they asked the USGS to investigate Lake Worth sediments.

Mr. Van Metre explained that PCBs are a family of many closely-related organic compounds. He further explained that "biphenyl" means the compound has two carbon rings that are joined together and "poly chlorinated" means the compound contains chlorine atoms around the outside in different combinations and mixtures. There are 209 possible kinds of PCBs, each called a congener, but all together they comprise the group of PCBs. PCBs are kind of like an oily liquid and their biggest characteristic is they do not conduct electricity. With these characteristics, PCBs were used inside electric power transformers and other things like hydraulic and pump motors. Mr. Van Metre indicated that the EPA website is a good resource for a lot of background information for things like PCBs.

In January 2001 bottom sediments collected from all over Lake Worth were sampled by the USGS. Mr. Van Metre showed a map showing the concentrations detected in bottom

sediment samples. The top 2 centimeters of the sediment, which is slightly less than 1 inch, was sampled. The one area that showed up with elevated concentrations is Woods Inlet, an area along side of Air Force Plant 4. One sample had a concentration of 139 ppb and some results were around 20 ppb, and then 10 or less throughout the main part of the lake. Mr. Van Metre explained that PCBs are ubiquitous in the environment. In fact, they have been measured in samples from the Arctic and in ice cores in Greenland, but at very low levels. The concentrations detected from Lake Worth sediment samples are not very high compared to other urban lakes around the country. But they are at least high enough that fish in the lake have PCBs in them.

UNIDENTIFIED SPEAKER ASKED: Could you elaborate on what you consider an MCL or action level on PCBs?

Mr. Van Metre responded that it depends on what the concern is. In the sediment quality guidelines -- the consensus-based sediment quality guidelines that are the most accepted that he is aware of is approximately 670 ppb. But the sediment quality guidelines are mainly concerned with toxicity to ventricle organisms or other aquatic organisms. For PCBs toxicity isn't really the problem as much as it is bioaccumulation up the food chain. At very low concentrations PCBs will accumulate up the food chain into the fish and into bald eagles and people too. That's how they cause a problem.

The concentration depends on the relationship between sediment concentrations and fish which varies a lot in different water bodies. The USGS has done a lot of work at Mountain Creek Lake in the mid-1990s for a PCB issue there as well, and a fishing closure was issued because of PCBs in fish from Mountain Creek Lake. In the more contaminated part of Mountain Creek Lake the PCB concentrations were around 200 to 300 ppb in the surface sediments.

The USGS has also conducted sampling at the Donna Canal in southern Texas where similar PCB concentrations were detected. But at the Donna Canal site the sediments were in suspension in the canals which seems to result in much higher PCB concentrations in the fish. An action level for concentrations in fish has not yet been issued by any government agency.

The data for Lake Worth is already included in a report which Mr. Walters indicated will be available soon. The report has already been written and approved by the USGS, but it's waiting to be printed. Mr. Van Metre indicated that he hopes the report will be available in the next few weeks or months.

Mr. Van Metre described the Phase Two study which had two objectives: To map the extent of PCBs in Woods Inlet and to try and determine the sources of the PCBs. Currently, there are only a couple of data points that don't give much detail. For the purposes of this project, the main question is whether the PCBs are coming largely from Air Force Plant 4 or from the urban area around that whole side of the lake. Almost any urban area has some PCBs in it.

To meet the objectives the USGS conducted more sediment coring work in the inlet using the same approach as the first time but only sampling within the inlet. They also conducted

specialized storm water sampling in the little creeks -- Meandering Road Creek and a couple of other little creeks -- that drain into the inlet. The specialized storm sampling consist of collecting large volumes of water and filtering it to get enough sediment for analysis, like you would a bottom sediment sample. The PCBs are hydrophobic, which means they are not soluble in water. Because PCBs don't dissolve in water, they tend to stick to the sediment or accumulate in tissues. Mr. Van Meter explained that a regular water sample analyzed in a lab probably won't show any PCBs.

The USGS had the laboratory conduct special chemical analysis of PCB congeners to identify the individual PCB compounds instead of a total PCB measurement. In fact both kinds of measurements were obtained in order to fingerprint different types of PCBs in the different samples to locate sources. Mr. Van Metre showed pictures of a sediment core from Woods Inlet that is about 5 to 6 feet long. About 6 feet of sediment had been deposited there since the lake was built in 1914.

He further explained that the sediment cores are sliced into little sections for age dating. An age date can be assigned to the core based on profiles from weapons testing, and then one can measure the chemistry of each of those slices and get some idea of how much PCBs or DET or whatever was released into the environment back in 1955 or 1975, etc. This was done at three new sites along with 17 sites where surface samples were collected. Mr. Van Metre showed a map with the PCB results. The squares on the map indicated where the long cores were collected. The rest of the numbers represent PCB concentrations from the top two centimeters of sediment. The highest concentration was near Meandering Road Creek. The other tributaries were also sampled to see if there was a difference.

Lower concentrations were detected in the area near the Texas National Guard armory. The west arm of the lake is referred to as Gruggs Arm because of the park in that area. The concentrations decrease further down the inlet. In fact, contour lines can be drawn based on this data. From the concentration profile, it looks like the main source is located near Meandering Road Creek.

Mr. Van Metre provide an illustration of a core sample collected in front of Meandering Road Creek with the peak 55 centimeters or almost 2 feet below the top of the sediments at 650 ppb. This has decreased to 33 ppb at the very top. A similar pattern is evident in the middle of the inlet, but not with as high a peak. On the west side in Gruggs Arm, are much lower concentrations back in time. This trend shows how fast the PCBs have been decreasing over the last 30 years. This is a typical profile of PCBs in an urban lake core.

Mr. Van Metre showed a map containing five yellow stars to indicate the locations of the storm water sampling. Sampling along Meandering Road Creek was conducted above and below outlets from Air Force Plant 4. The main storm water outfalls from that side of Air Force Plant 4 were also sampled.

Mr. Van Metre showed pictures of the sampling device which consisted of a steel drum with a large plastic bottle inside. The 25-liter plastic bottle had small intake tubes. So whenever it rains and the flow comes up in the creek, it fills the bottle. Once the bottle is full, the 25 liters

of water is then filtered. Several bottles of water are collected in order to get enough sediment for analysis. Three storm events were sampled within a little over a month there.

Mr. Van Metre showed maps with data results. He indicated that some of these data were brand new to the point of having just gotten them from the laboratory by fax this morning in order to present the data at this meeting. He described from the data that it was pretty clear where the PCBs are coming into the lake. It may not be the only place, but it is pretty clear that they are coming into Meandering Road Creek from the facility.

Mr. Van Metre presented more lines of evidence. After the three storms a stream bed sediment sample was collected, which means the mud lying in the bottom of the creek after the flow has gone by. The upper Meandering Road Creek site had very low concentrations. Some of the congeners again at the lower site were in this 50 to 100 ppb range.

Mr. Van Metre discussed fingerprinting using these individual compound and congeners. The way that's done is to look at them in proportion to each other. Mr. Van Metre explained that PCBs are marketed as the brand name Aroclor. Each congener has a fairly distinctive pattern.

Mr. Van Metre indicated that these data were recently obtained and have not been officially reported yet. He has been talking with Mr. Walters and with others involved with the facilities out here about what to do next. The obvious thing is to try to figure out specifically where inside that that drainage area the PCBs are and getting into the storm water flow. Mr. Van Metre concluded that this is where the project stands now and it's a pretty clear story.

A Question and Answer Period Followed Mr. Van Metre's presentation:

Mr. Walters indicated that the Air Force wanted to show the public the data as soon as it was available and that they have a project for next year to look at Plant 4 and bring EPA and TCEQ people in who know about PCBs and good contractors that have studied this stuff before to look for source areas. The amount of money the Air Force is going to be spending here on this next project will be more than the three last projects combined. Mr. Walters wanted to make sure the money is spent properly.

Mr. Van Metre explained that looking at things in longer terms, there has been a significant decrease over the last 30 or 40 years. It takes a long time for PCBs to get out of the system to get buried and isolated before the fish concentrations decrease. When people think about bioavailability of contaminants in the sediments they usually are thinking about that top 5 to 15 centimeters, equivalent to a half a foot or less. And that's just from what kind of organisms are digging around the sediments and bring them up to the top.

Mr. Walters explained that one of the questions a lot of people ask is why not dredge the sediments immediately? The answer is the highest concentrations are buried and dredging would allow the PCBs to become suspended and spread out in the water further in the lake.

Mr. Van Metre added that dredging was also very expensive so it would be better overall to focus on other strategies such as cutting off the source should help.

UNIDENTIFIED SPEAKER ASKED: Then what do you do about the materials that are in the lake, the device? You cut off the source. Now what do you do about the materials from the lake?

Mr. Walters replied that one has to make the decision on whether to leave the higher stuff in place because it's buried or risk stirring it up by any other method. The Hudson River in New York contains significant PCB contamination. The clean up goal there is to get concentrations down to 1,000 ppb, much higher concentrations than those at Lake Worth. This is something the EPA with TCEQ will decide. Mr. Walters reiterated that the Air Force does not want to do anything that would make the situation worse.

UNIDENTIFIED SPEAKER ASKED: What does that do as far as utilizing the fish in the lake? You're basically saying to the next generation you are not going to be able to eat any of the fish.

Mr. Van Metre answered that biodegradation is very slow. It's more likely that the PCBs are gradually being buried or becoming less available to new fish. He explained further that there is a national fish sampling program that the Fish and Wildlife Service conducted from the late 1960s until the late 1980s. In fish concentrations PCBs nationally decreased at a rate of approximately half every 5 years. This is a 50 percent decrease every 5 years.

Mr. Walters explained further that the bottom dwellers have higher PCB concentrations. So the State of Texas decided that nobody should eat any fish even if you could tell the difference between a crappie and a catfish.

UNIDENTIFIED SPEAKER ASKED: Just one of the concerns I have is that for a number of years the Corps of Engineers has talked about dredging Lake Worth since there has been so much sediment deposition for last 90 years to get some increased yield out of it. And, of course, those in Fort Worth drink that water and I guess I am a little concerned about it. Before you comment on the water part of it, it's more involved with the water lab. Basically that's not an issue with the drinking water.

Mr. Van Metre indicated that the sediments in the upper part of the lake are very clean. They are one the few places other than the Rocky Mountains remote lakes sampled by the USGS where DTP and DDE weren't detected. Mr. Van Metre speculated that it is because west of Lake Worth is mostly undeveloped range land.

UNIDENTIFIED SPEAKER ASKED: When you said you took three stream bed sediments, did you mean three samples or three locations with one or more samples?

Mr. Van Metre explained that four locations were sampled after each of the three storm events. For each one of the suspended sediment samples, there is a stream bed sediment sample, except at the Air Force Plant 4 outfall, because it is a cement pipe.

UNIDENTIFIED SPEAKER: Again, in our discussions with the Corps about the dredging project, you have to weigh the consequences. And, again, there is a lot of apprehension about what's going to happen to the fish.

Mr. Van Metre indicated that the USGS has a good understanding from this sampling effort where the PCBs are in the lake and the area is fairly isolated. Phase One sampling included long cores in Woods Inlet. The peak was maybe 150 ppb or something like that. In the main lake where a long core was collected, PCBs weren't detected at all, even in the older sediments. The USGS took another one down near at the dam, and it had PCBs. But the peak there was probably pretty low, well under 100 ppb.

Mr. Walters offered to provide a copy of the USGS report. Estella Holmes will send it to the concerned meeting attendee.

UNIDENTIFIED SPEAKER STATED: Just for everybody's edification, the inlet for the water supply is far from where the high concentrations are.

Mr. Van Metre explained that the contamination appears to be coming from the creek based on the data.

UNIDENTIFIED SPEAKER ASKED: If it's coming down the creek, it could have been generated by that old dump area. There used to be an old dump there where all the equipment is now.

Mr. Van Metre explained that the 139 ppb hit is located where the hit of 47 ppb was measured more recently. Although when two gab samples are collected a couple of years apart, it doesn't mean that the 139 ppb concentration has decreased to 47 necessarily. Higher concentrations were detected further up towards the end of the bay, up towards the creek.

UNIDENTIFIED SPEAKER ASKED: Was there not some data generated when the work was done on that old dump site that accumulated PCB concentrations?

UNIDENTIFIED SPEAKER EXPLAINED: They used to have some kind of paint booth or noise suppressor where they sprayed water into that concrete engine run stand. And they cooled the exhaust with water and ran it back into the lake right there where the road goes down to the lake. And the water run into the lake from there. Possibly that higher concentration could have come from that area where they were washing down the exhaust gasses to suppress the noise from that engine test run. For years there was a huge volume of water. It just ran into the lake from Lockheed Martin.

UNIDENTIFIED SPEAKER ASKED: Can you tell from the PCB samples that it has increased over the last 20 years?

Mr. Van Metre indicated that the concentrations were decreasing as evidenced by the long cores that contain sediment going back in time with the deeper sediments. Mr. Van Metre showed an illustration of data indicating that concentrations were much higher further back in

time. When the USGS conducts the age-dating, they estimate that the samples in both these cores were deposited in about 1960. PCBs were banned in the 1970s which is evident in the decreasing data points from the core samples.

UNIDENTIFIED SPEAKER: Years ago they used to oil down the gravel road all the way around the lake with a high oily substance. They quit doing that after they paved the road around 1950 but before that it was gravel. During the summer when it would get real dusty, they'd control the dust with an oily substance which eventually would run into the lake when it rained.

Mr. Walters indicated that the Air Force would make a note of that and will sample under the asphalt when we do sampling. That's good to know because the City is planning on repaving the road and they will strip off what's there. When they do that work the Air Force will have somebody take a grab sample.

UNIDENTIFIED SPEAKER: You mentioned there is data out there that indicates what was in those dump sites.

Mr. Van Metre explained that it was quantified as Aroclor 1254. That's one of the common ones in the samples from the earlier reports. But usually Aroclor 1206 is present, however in these samples there is a predominance of 1254.

CARSWELL OFF-BASE

Charles Pringle introduced himself and stated that he works for the Air Force Center for Environmental Excellence in San Antonio and also represents the Air Force Real Property Agency. The Air Force Real Property Agency (AFRPA) currently owns the land at the former Carswell Air Force Base (AFB). Mr. Pringle is responsible for overseeing the clean up of the BRAC property in order for the Air Force to transfer the property to the Westworth Redevelopment Authority.

Mr. Pringle updated the participants on the progress with the Weapons Storage Area, a 247-acre property due west of the Naval Air Station. When Carswell AFB was active, the Air Force would use the Weapons Storage Area for training and explosive ordnance disposal. To date, the Air Force has obtained an agricultural clearance, but it has since been decided to go back to the Department of Defense Explosive Safety Board to obtain a residential clearance so that the land may be used for the development of residential homes.

To obtain the residential safety clearance the Air Force has to test the soil down to 10 feet as opposed to 12 inches for the agricultural. To date, two contractors have conducted sampling at the site and nothing has been found. Weston Solutions has been awarded a contract to go out and perform the third round of surveying. Mr. Pringle anticipates the survey will be conducted next month (March 2004). Once that survey is completed, and assuming Weston Solutions also finds no explosive materials, the Real Property Agency will produce a Finding of Suitability for Transfer (FOST) and submit it to the EPA and TCEQ for their concurrence

based on the findings. It is anticipated that the Weapons Storage Area will be available in the August-September time frame to be offered to the public for sale.

Next, Mr. Pringle indicated that Shaw Environment and Infrastructure will be managing the cleanup of 12 sites along the Sanitary Sewer System (SWMU 66) on the Naval Air Station. It is anticipated that work will commence the week of February 16th and be completed by August or September. After the field work is conducted, a report will be submitted to regulators recommending site closure.

Mr. Pringle explained that of the 68 sites that exist, 60 of them are closed. Mr. Pringle was responsible for cleaning up 19 sites, and SWMU 66 is the last one. After sites are closed, they can then be transferred either to the public or the Navy, depending on their location.

All sites on base are undergoing a 5-year review by HydroGeoLogic that was awarded February 11, 2004. Currently, the focus of the 5-year review is BRAC sites only. HydroGeoLogic was chosen for this work because they have been working on base for the past 6 or 7 years and have significant institutional site knowledge. The 5-year review will also look at the TCE concentrations to evaluate the effectiveness of remediation systems such as the PRB. HydroGeoLogic will also continue to monitor the performance of groundwater treatment by the PRB.

HydroGeoLogic is also working on a Focused Feasibility Study to show how long it will take and how much money it will cost to submit a Record of Decision necessary to change the Federal property boundary and establish a determination of Operating Properly and Successfully. Mr. Pringle is hopeful that the Air Force will be able to sell the land next year to Westworth Redevelopment Authority.

The Focused Feasibility Study is a joint effort between Mr. Ebert (On-Base), Mr. Walters (Air Force Plant 4), and Mr. Pringle (AFRPA). Mr. Pringle explained that Air Force Plant 4 is a National Priorities List site, which means that investigation and clean up work follows the Superfund program and the site has a Record of Decision.

There is a 12-acre site that is going to be subleased for the building of townhouses. The land has been investigated and no TCE has been found. However, some fuel contamination was identified. There are two pipelines running in this area. Pride and Chevron are the owners of the pipelines. Pride Gas previously brought jet fuel to the base and Chevron brought gasoline to the base. Both of these have not been in use since 1993. The Pride line might be the one that contaminated the 12 acre parcel. In 1997 there was a fuel spill in this area. Even though the land is clear for building right now, there has to be clarification on whether this pipe line will be a contaminant in the future. The Air Force will officiate the clean up if they can find the source. In the meantime, the Westworth Redevelopment Authority is subleasing this land and the investor will start building houses sometime within the next year. Mr. Pringle has to produce a determination of operating and performing successfully (OPS) for this site which will explain the source of the fuel contamination.

Mr. Pringle provided an additional description of the Weapons Storage Area. He indicated that back in the 1950s and 1960s, when the Atomic Energy Commission was responsible for our bombs (A-bombs, H-bombs, etc), it was necessary to perform trigger maintenance on the bombs. Air Force personnel would wipe them down to ensure that they didn't corrode and would function properly. The gloves and clothes used by Air Force personnel were buried in the ground. In May of 2003, information that was previously classified became available. This information indicated that at some of the Weapons Storage Areas might have buried waste gloves, clothes, and rags that contain low levels of radiation.

If the waste materials were buried correctly, the radiation levels wouldn't be detected at the ground surface using a Geiger counter. To date, the Air Force has conducted two surveys at the Weapons Storage Area which have found nothing. Next month, another survey will be conducted and if anything is found, it will be removed from the ground for disposal.

Mr. Pringle mentioned that Mr. Hale from Tarrant County has contacted the Air Force with a request to run a pipeline through the Weapons Storage Area coming from the lake and to bring water out to a possible residential area. It is on hold until the investigation has been completed.

Mr. Pringle discussed funding for his projects. He indicated this was a banner year for him because last year he hardly got any funding. This year he has enough money to execute his projects.

CARSWELL ON-BASE

Mike Dodyk, the Air Force's resident engineer at Carswell, began by giving the participants background on the environmental restoration program at Carswell. Carswell AFB officially closed on September 30th, 1993, and the majority of the base was realigned as the Naval Air Station Joint Reserve Base. A small portion of the base has been leased or transferred to the Westworth Redevelopment Authority. The Air Force is responsible for clean up of contamination occurring before October 1st, 1993, during the time Carswell AFB was active.

In compliance with the Resource Conservation and Recovery Act (RCRA) the Air Force was required to conduct a RCRA Facility Assessment (RFA) which was done in 1989. The RFA identified 87 sites on base that required investigation and 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.

Mr. Dodyk gave an update on the site closures. Of the 87 sites, 82 of them have achieved closure. The most recent site is SWMU 49 which was approved for closure by the TCEQ under risk reduction standard 2 last month (January 2004). There are five sites remaining and it is anticipated to have four closed out by the end of this year.

Mr. Dodyk gave an update of field activities that have taken place. There are approximately 600 monitoring wells that exist on base. Some of them have become obsolete as sites are

closed. Between October 2003 and January 2004 an Air Force contractor has decommissioned 200 groundwater monitoring wells that are no longer necessary. Mr. Dodyk provided pictures of the well decommissioning activities.

Mr. Dodyk updated meeting participants on the quarterly sampling at AOC 1 that was conducted last month (January 2004). There had been problems with two of the extraction wells so they were redeveloped to enhance the groundwater removal. 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 then goes to the city sewer.

Mr. Dodyk provided an update of sampling at the Permeable Reactive Barrier which occurs every three months. The PRB wall was installed in the April-May timeframe of 2002. Mr. Dodyk provided an animation of the PRB cleaning up groundwater. The last round of quarterly sampling was done last week. The next event will be conducted in May.

This spring, sampling will be conducted at SWMUs 28, 54, and 55. The northern portion of the TCE plume, PRB, and gas station site (AOC 1) will also be sampled this spring. Sampling will also be conducted in the area of the northern TCE plume where vegetable oil was injected into the groundwater to study the effects of bioremediation.

Upon completion of these sampling efforts, the Air Force contractors will prepare reports with the results. Two other reports that are currently being worked on include a Basewide Historical Operations Report and the Focused Feasibility Study for the Southern Lobe of the TCE plume.

NEXT MEETING

The next RAB meeting is scheduled for May 13, 2004.

OPEN DISCUSSION/QUESTIONS

Mike Hawkins of AFCEE asked to speak at the end of the meeting regarding the phasing out of AFCEE participation in the RAB meetings. They are planning on using the community relations update to gather community concerns and information anyone may want to share with them as they phase out of the RAB meetings over the next 18 months. It is anticipated that August 2004 will be the last technical briefing.

The community interviews will begin March 22, 2004 to determine the interest level of people in them continuing their involvement in the RAB. He asked that if anyone would like to participate in the interviews to contact Brittany Watts or him. The community review results will be presented at the May 2004 meeting and the community relations plan will be updated afterwards.

Mr. Walters asked that if anyone has anything they would like further information on or to discuss to please notify them for the next agenda. He asked if there were any further questions and there were not.

The meeting was adjourned. Following the closure of the meeting, two community members (Mr. Tom Reid and Mr. Franic Palomino) and Barbara A. Nickerson of Freese & Nichols, Inc. requested copies of the fish tissue sample results.

IN ATTENDANCE

Carswell DERA (On-Base)

Mike Dodyk, AFCEE, Resident Engineer
 Miquette Rochford, HydroGeoLogic, Inc.
 Lynn Morgan, HydroGeoLogic, Inc.
 Mike Hawkins, Public Affairs, AFCEE
 Audrie Medina, Booz Allen & Hamilton
 Pete Van Metre, United States Geological Survey
 Brittany Watts, Booz Allen & Hamilton

Carswell AFBCA (Off-Base)

Charles Pringle, HQAFCEE/ERB
 Doug Karas, Air Force Real Property Agency
 Mark Stough, Air Force Real Property Agency

Air Force Plant 4

George Walters, AFP 4 Project Manager, ASC, Wright Patterson Air Force Base
 Gregg McGraw, Shaw Group
 Estella Holmes, Public Affairs, Wright Patterson Air Force Base
 George Watts, Air Force
 Rick Wice, Shaw Group

Texas Commission on Environmental Quality

Ray Risner
 Tim Sewell

U.S. Environmental Protection Agency

Bob Sullivan
 Noel Bennett

Lockheed Martin

Sarah Young
 Norma Robbins

Others (Off-Base)

Jim Scanlan, City of Fort Worth Water Department
Greg Henderson, River Oaks
John Maddux, Community Member
Michael Cook, TX ANG
Chris Breitling, City of Fort Worth Environmental Management Department
Chris Baack, Community Member
Barbara McPherson, City of Fort Worth
Tom Reid, Community Member
Ed Von Koan, Westworth
Franc Palomino, Community Member
Vince Wilcox, Community Member
Paul Bounds, City of Fort Worth
Richard Talley, City of Fort Worth Water Department

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

Ms. Miquette Rochford
HydroGeoLogic, Inc.
1155 Herndon Parkway, Ste. 900
Herndon, VA 20170
Phone: (703) 736-4511
Fax: (703) 471-4180
e-mail: mer@hgl.com

Headquarters U.S. Air Force

Integrity - Service - Excellence

Carswell Off-Base BRAC UPDATE BCT/Restoration Advisory Board Action Items



Charles C. Pringle, PM/BEC

12 FEB 04

U.S. AIR FORCE



U.S. AIR FORCE

Carswell Off-Base/Agenda

- **FY 04 Program Updates (20 Minutes)**
 - **Convert WSA's EOD to Residential Safety Clearance**
 - **Sanitary Sewer System Field Work**
 - **5 Year Program Performance Review/Golf Course Monitoring System**
 - **FFS/Amend Plant 4 ROD/Accomplish OPS for Golf Course**
- **Projected Future Land Transfers (10 Minutes)**
 - **Expand Permeable Reactive Barrier near Golf Course**
 - **Off-Site Weapons Storage Area Update**
 - **Golf Course 12 Acre Parcel Update**
- **Radiological Maintenance Munitions Waste Survey (5 Minutes)**
 - **NOTE: AFRPA'S Administrative Record Web Site address is:
<http://www.adminrec.com/afbcnew.htm>**

Integrity - Service - Excellence



U.S. AIR FORCE

Carswell FY 04 Projects

- **1st Qtr. --**
- **DDPF20036005 RFI, EOD Residential Clr., WSA**
- **2nd Qtr. - -**
- **DDPF20026105 RA, San. Sewer System**
- **DDPF20037002 RA-C, Expand PRB**
- **DDPF20047002 LTM, TCE Groundwater**
- **DDPF20047110 Five-Year Performance Review**
- **DDPF20037001 ROD Amend/OPS Golf Course**



Air Force Center for Environmental Excellence

Promoting Readiness through Environmental Stewardship

NAS Fort Worth JRB Installation Restoration Program Update

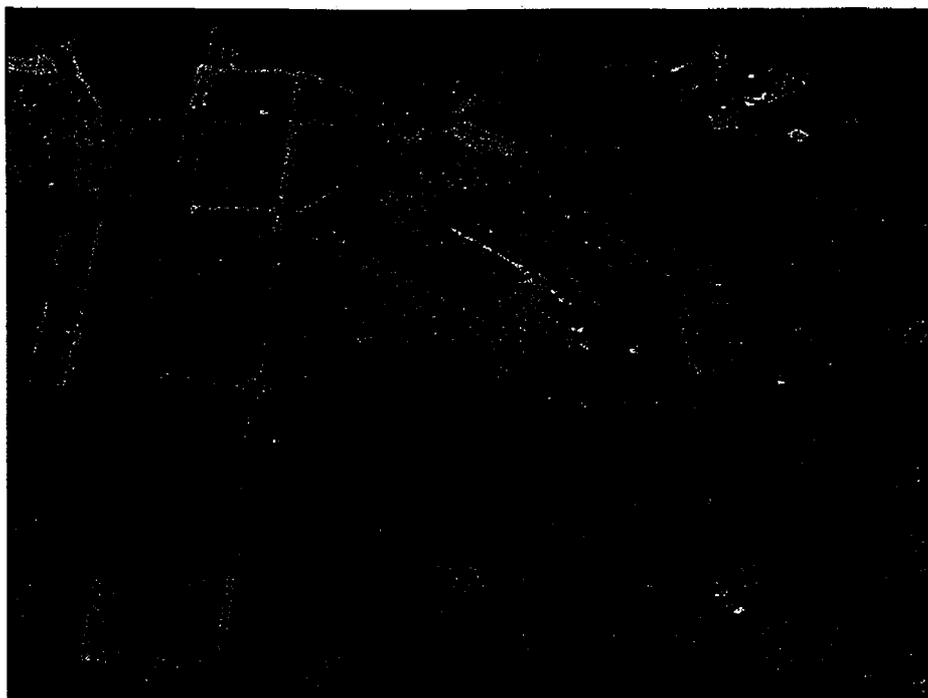
Michael R. Dodyk, P.E.
AFCEE
February 12, 2004



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)**

Promoting Readiness through Environmental Stewardship



Site Closure Update

- To date, the Air Force has received closure on 82 of the 87 sites (5 sites remaining).
 - Most recently, regulators approved site closure under Risk Reduction Standard (RRS) 2 of SWMU 49 (Former Aircraft Washing Area) in January 2004.

- Of the 5 remaining sites:
 - 4 will be closed by 12/30/04 (SWMUs 28, 54, 55, 66)

Promoting Readiness through Environmental Stewardship

4



Field Activities

- A total of 200 groundwater monitoring wells were decommissioned during October 2003 and January 2004.
- Quarterly groundwater sampling at the former base gas/service station (AOC 1) occurred during January 2004.
- Two groundwater extraction wells were redeveloped to enhance the rate of groundwater treatment at AOC 1.

Promoting Readiness through Environmental Stewardship

6



Well Decommissioning



Promoting Readiness through Environmental Stewardship

6



Redeveloping Wells at AOC 1



Promoting Readiness through Environmental Stewardship 7



Permeable Reactive Barrier

- The PRB was installed in April/May 2002 to remediate groundwater contaminated with trichloroethene (TCE). Groundwater sampling is conducted every 3 months to monitor performance of the PRB.
- Quarterly PRB Performance monitoring was conducted in November 2003, and February 2004.
- The PRB is successfully remediating TCE in groundwater.

Promoting Readiness through Environmental Stewardship 8



PRB Animation

PRB Performance Sampling Results



Promoting Readiness through Environmental Stewardship

9



Upcoming Work

Field Work Spring 2004:

- Additional sampling at SWMUs 28, 54, and 55.
- Confirmation sampling for vegetable oil injection demonstration project next month.

Documents to be prepared:

- Draft Historical Report will be submitted to AFCEE for review in May 2004.

Documents Recently Approved by Regulators:

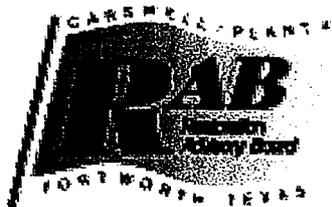
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Documents to be Finalized:

- Focused Feasibility Study on the Southern Lobe TCE Plume.

Promoting Readiness through Environmental Stewardship

10



Carswell On-Base Community Involvement Update

February 12, 2004

Mike Hawkins



- 1 - AFCEE's on-base cleanup responsibilities are nearing completion
 - Over the next 18 months we will be phasing out of the RAB

- 2 - An update of our community involvement plan is due
 - We will use this to gauge community members' responses to the phase out and ensure we have a plan to continue meeting their needs for information



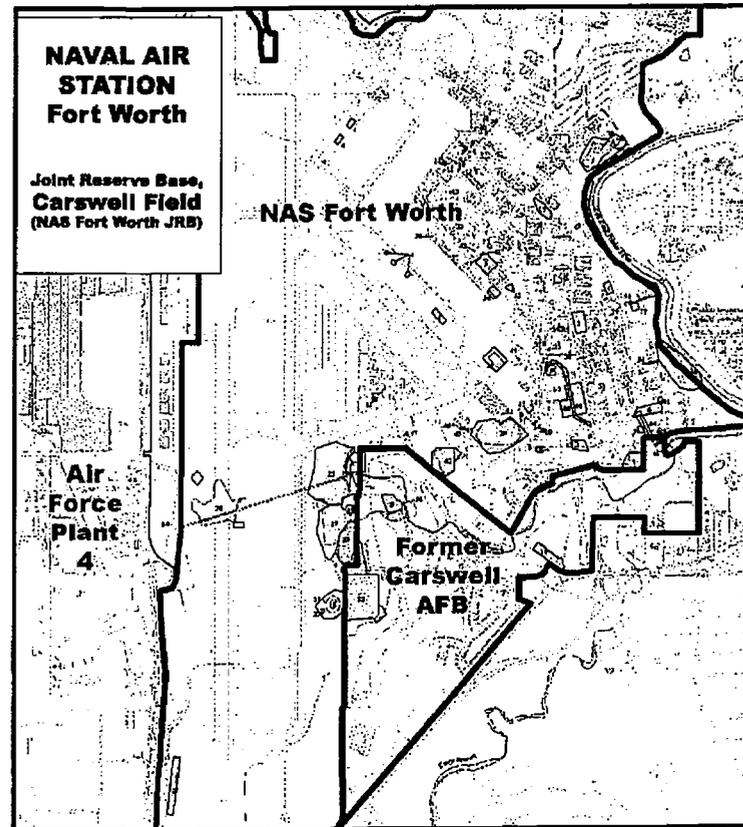
Three agencies currently participate in the RAB

- Air Force Plant 4 (AFP4)
- Air Force Real Property Agency (AFRPA)
- Air Force Center for Environmental Excellence (AFCEE)



AFCEE's phase out won't impact the other agencies' participation in the RAB.

It will however, make the RABs...





Shorter!



Naval Air Station Fort Worth Joint Reserve Base (NAS Fort Worth JRB)



AFCEE Phase out Timeline

- Feb 2004: Notify RAB members and regulators of intent to phase out
- Mar 2004: Conduct interviews in communities affected by the cleanup to update AFCEE community relations plan
– focus on questions and concerns about phase out
- May 2004 : Brief interview results at the RAB, including actions planned to address questions and concerns from the interviews



AFCEE Phase out Timeline

- June 2004: Publish community relations plan
- Aug 2004: Provide final regularly scheduled on-base cleanup briefing to RAB
- Nov 04-05: Attend RABs to answer questions as they arise, provide briefings only as requested
- Feb 06 on: Attend RABs and provide briefings only upon request

We will continue to be available if any questions or concerns come up after the phase out



Carswell Community Relations Plan (CRP)

As we phase out, we want to know
what this means to you and how
best to continue providing
information



Carswell Community Relations Plan (CRP)

- March 22-25 we will interview community members for our CRP update. Reactions to the phase out plan will be central to the interviews
- Those reactions will help us determine whether our plan meets the community's needs for information
- We'd like to interview as many RAB members as possible. We'd also like your help in identifying others who would be interested in being interviewed



Get Involved!

To participate in AFCEE's CRP interviews, or for more information, please contact:

Brittany Watts

Contractor

(210) 925-3013

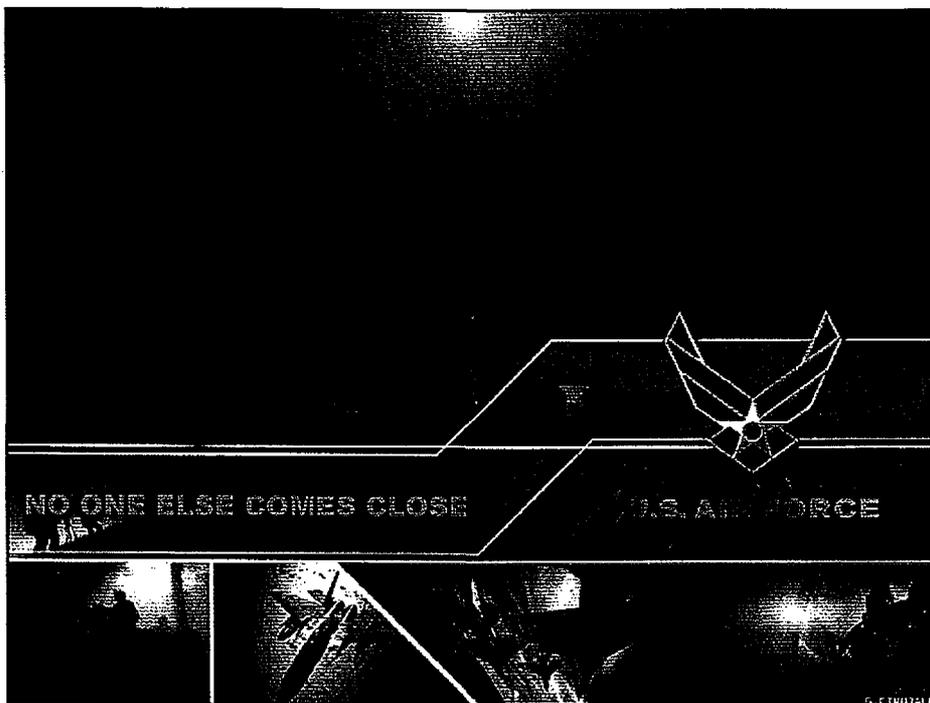
brittany.watts@afarpa.pentagon.af.mil

Or

Mike Hawkins

(210) 536-3072

mike.hawkins@brooks.af.mil

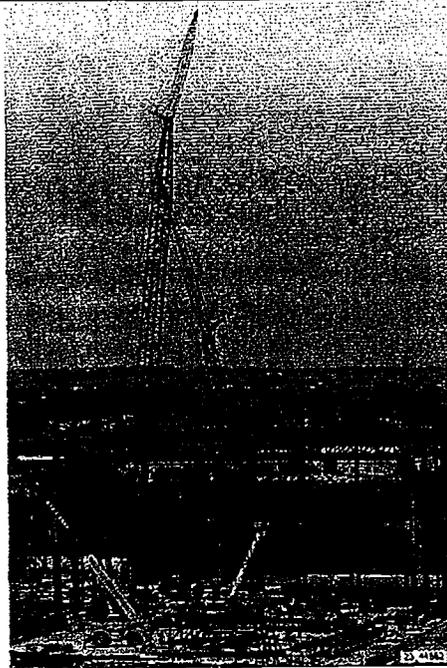


LM Aero Ft. Worth Statistics

- **16,800 Employees**
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 - LM Owned 3
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 - Gov't Owned 120
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Joint Strike Fighter (F-35) AFP4 expansion well underway!



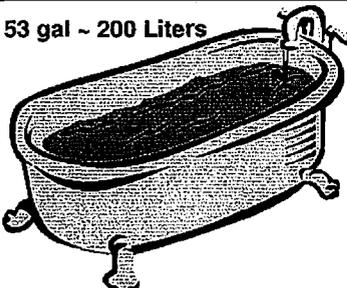
Measurements in Water



1 drop

= 2 part per Million
(ppm)
(mg/L)

53 gal ~ 200 Liters

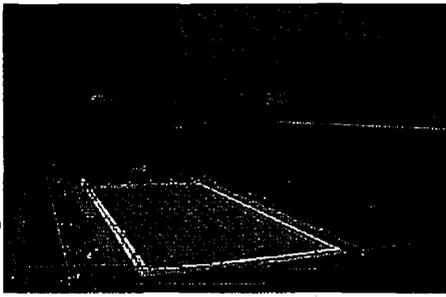


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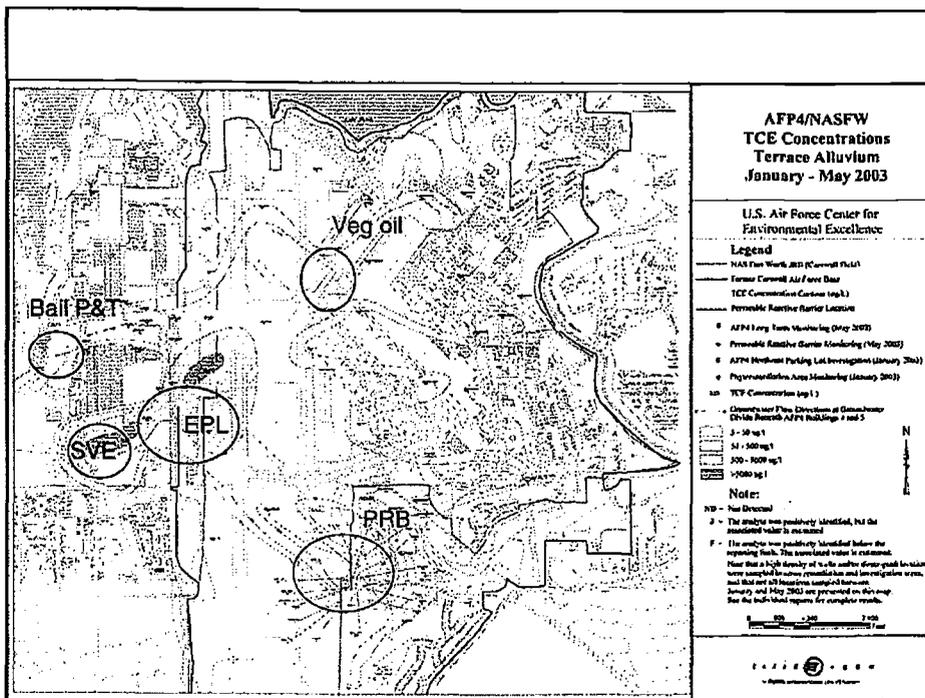
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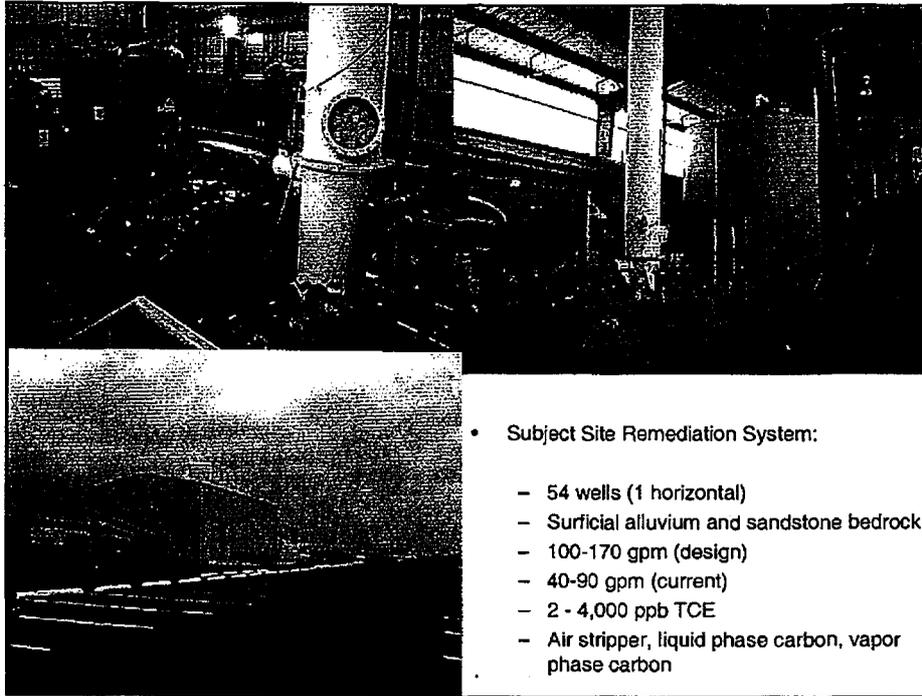
(or, 1 minute in 1,903 years!)

130,000 gal Olympic Pool ~ 500,000 L



(Source: Alaska Dept of Environmental Conservation)





- Subject Site Remediation System:
 - 54 wells (1 horizontal)
 - Surficial alluvium and sandstone bedrock
 - 100-170 gpm (design)
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 - 2 - 4,000 ppb TCE
 - Air stripper, liquid phase carbon, vapor phase carbon

East Parking Lot Groundwater Pump and Treat

Costs (so far!)

Total Costs for Calc Unit costs (est)	\$20,000,000
Pounds of TCE removed (est)	2,968
Calc unit costs (\$/lb)	\$6000
Volume of Treated Media (Gallons)	103,240,050

Rick Wice. PG
 Shaw Environmental, Inc.
 2790 Mosside Blvd.
 Monroeville, PA 15146
 412-858-3309
 fax 412-372-8968



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 12, 2004**





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Solid Waste Management Units
Areas of Concern



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Promoting Readiness through Environmental Stewardship



Redeveloping Wells at AOC 1



Promoting Readiness through Environmental Stewardship



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PRB Performance Sampling Results



Promoting Readiness through Environmental Stewardship



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Carswell On-Base Community Involvement Update

February 12, 2004

Mike Hawkins



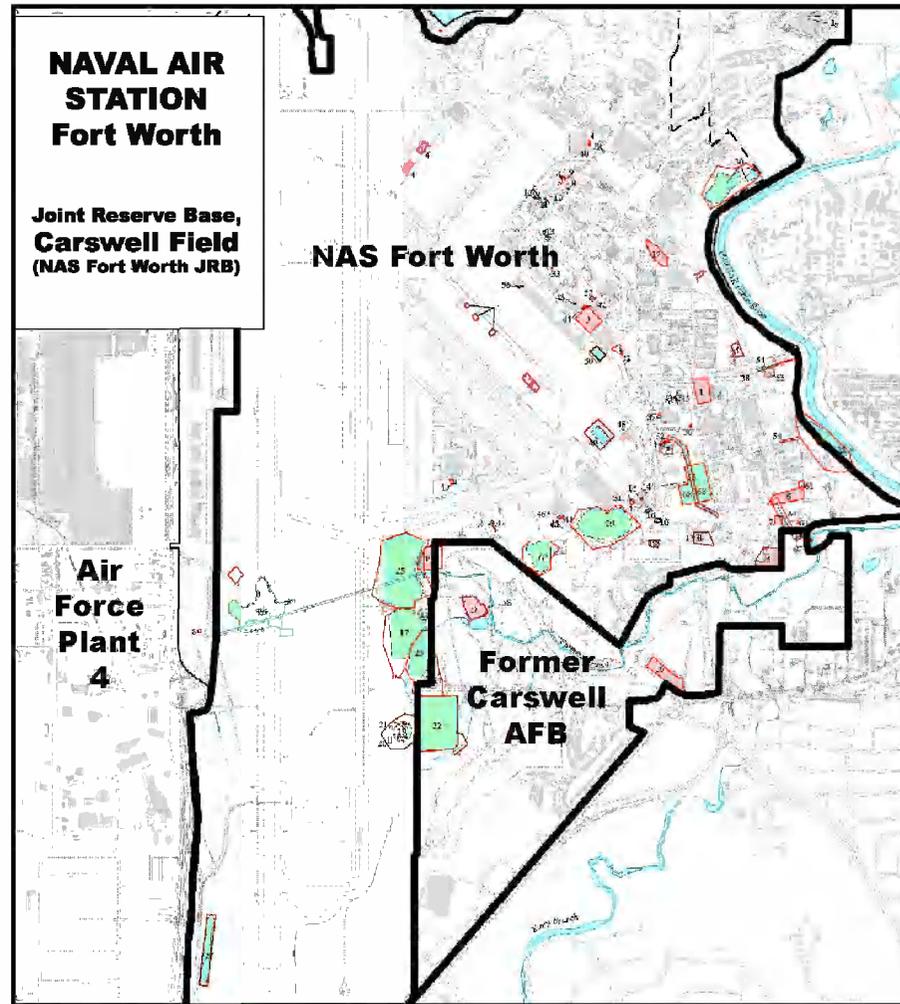
Agencies Participating in the RAB

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AFCEE's on-base cleanup responsibilities are nearing completion and they will be phasing out of the RAB.



Base Map





We want to know what this
means to you



Carswell Community Relations Plan (CRP)

- This spring, AFCEE will be seeking community input on their phaseout from the RAB

- Personal interviews help AFCEE to
 - identify present community concerns
 - outline community relations efforts
 - encourage community participation

- AFCEE will use this feedback to update their CRP, which guides their community outreach efforts

- Once updated, the CRP will outline the level of future involvement with the RAB



Proposed AFCEE Phaseout Timeline

- Step 1: Notify the RAB community members and regulators of intent
- Step 2: Conduct interviews March 22-26, 2004, to determine what AFCEE's phaseout means to the community
- Step 3: Brief the interview results at the May RAB
- Step 4: Update the CRP and outline AFCEE's level of future involvement
- Step 5: Be available on an as-needed basis



Get Involved!

To participate in AFCEE's CRP interviews, or for more information, please contact:

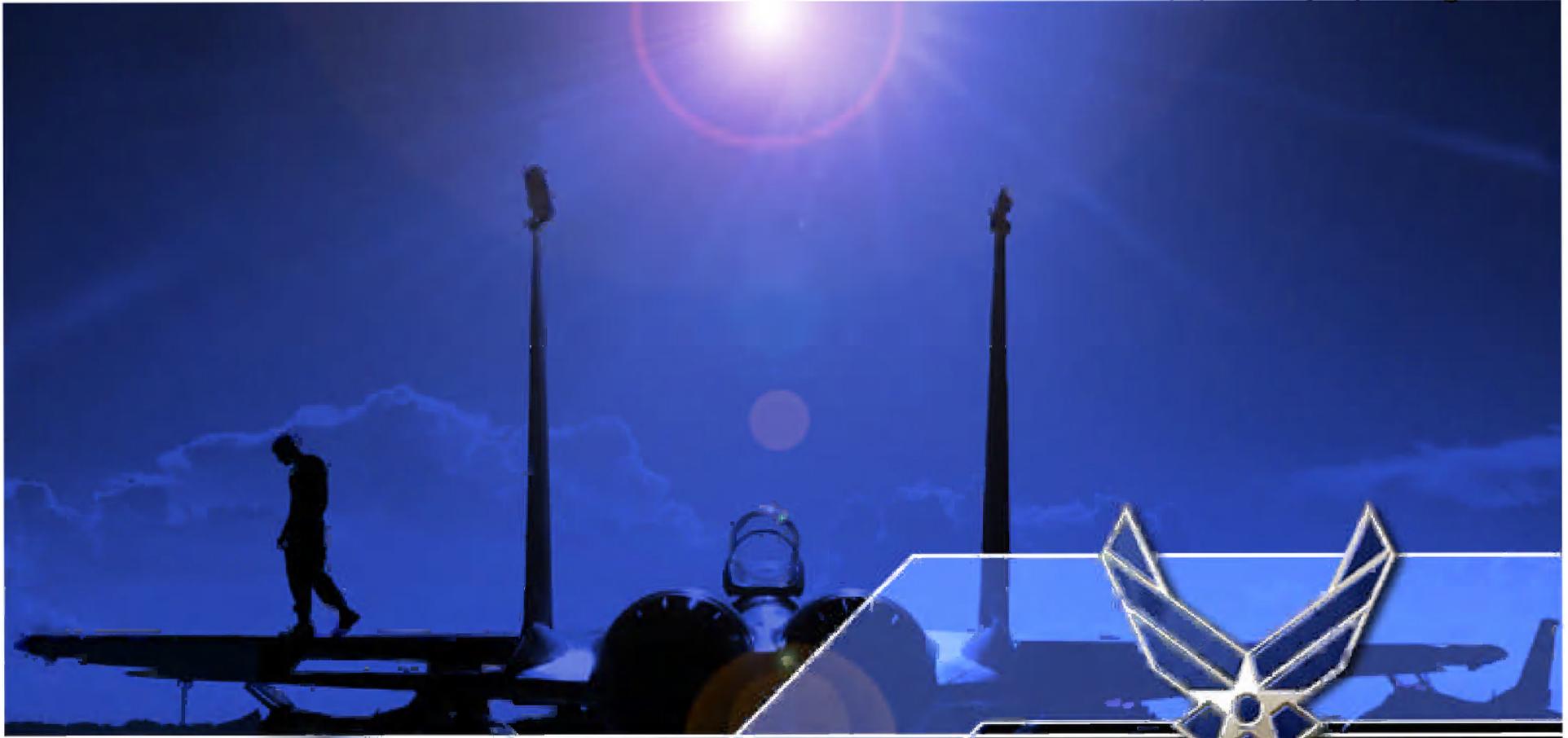
Brittany Watts
(210) 925-3013
brittany.watts@afropa.pentagon.af.mil

OR

Mike Hawkins
(210) 536-3072
mike.hawkins@brooks.af.mil

For more information on the Carswell/Plant 4 RAB, please visit the Web site at:

<http://www.afcee.brooks.af.mil/er/carswell/nasfw/>



NO ONE ELSE COMES CLOSE

U.S. AIR FORCE



G. CIRUJALES



Air Force Plant 4 - RAB
February 12, 2004
George Walters
Wright-Patterson AFB OH

Treatment Systems
Long Term Monitoring
USGS Sediment

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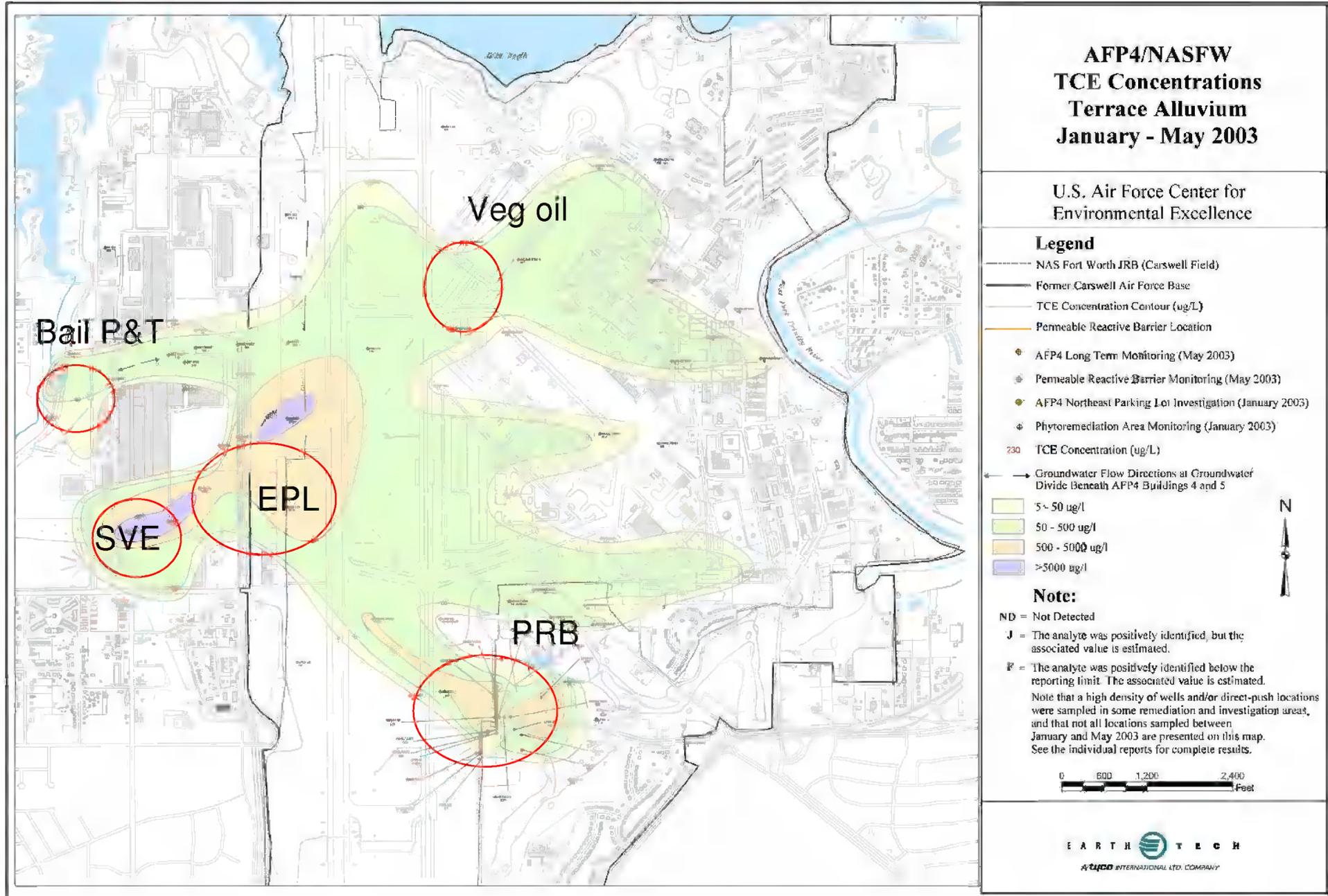
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AFP4/NASFW TCE Concentrations Terrace Alluvium January - May 2003

U.S. Air Force Center for
Environmental Excellence

Legend

- NAS Fort Worth JRB (Carswell Field)
- Former Carswell Air Force Base
- TCE Concentration Contour (ug/L)
- Permeable Reactive Barrier Location
- ◆ AFP4 Long Term Monitoring (May 2003)
- ◆ Permeable Reactive Barrier Monitoring (May 2003)
- ◆ AFP4 Northeast Parking Lot Investigation (January 2003)
- ◆ Phytoremediation Area Monitoring (January 2003)
- 230 TCE Concentration (ug/L)
- Groundwater Flow Directions at Groundwater Divide Beneath AFP4 Buildings 4 and 5
- 5 - 50 ug/l
- 50 - 500 ug/l
- 500 - 5000 ug/l
- >5000 ug/l

Note:

- ND = Not Detected
 - J = The analyte was positively identified, but the associated value is estimated.
 - R = The analyte was positively identified below the reporting limit. The associated value is estimated.
- Note that a high density of wells and/or direct-push locations were sampled in some remediation and investigation areas, and that not all locations sampled between January and May 2003 are presented on this map. See the individual reports for complete results.





- Subject Site Remediation System:
 - 54 wells (1 horizontal)
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Rick Wice. PG
Shaw Environmental, Inc.
2790 Mosside Blvd.
Monroeville, PA 15146
412-858-3309
fax 412-372-8968

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>

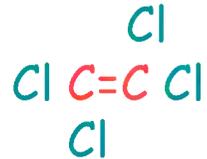
GE;s Detailed Response to EPA's Upper Hudson Human Health Assessment
Attachment A: A Weight of Evidence Assessment of the
Human Health Risks of PCB's

Common Chlorinated Solvents

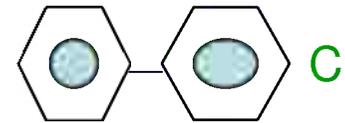
- Tetrachloroethene

- Perc

- PCE



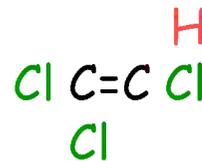
- PCBs Aroclors



Polychlorinated Biphenyls

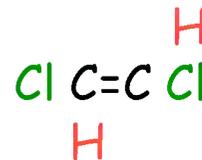
- Trichloroethene

- TCE

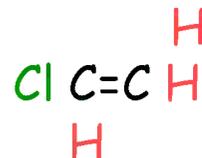


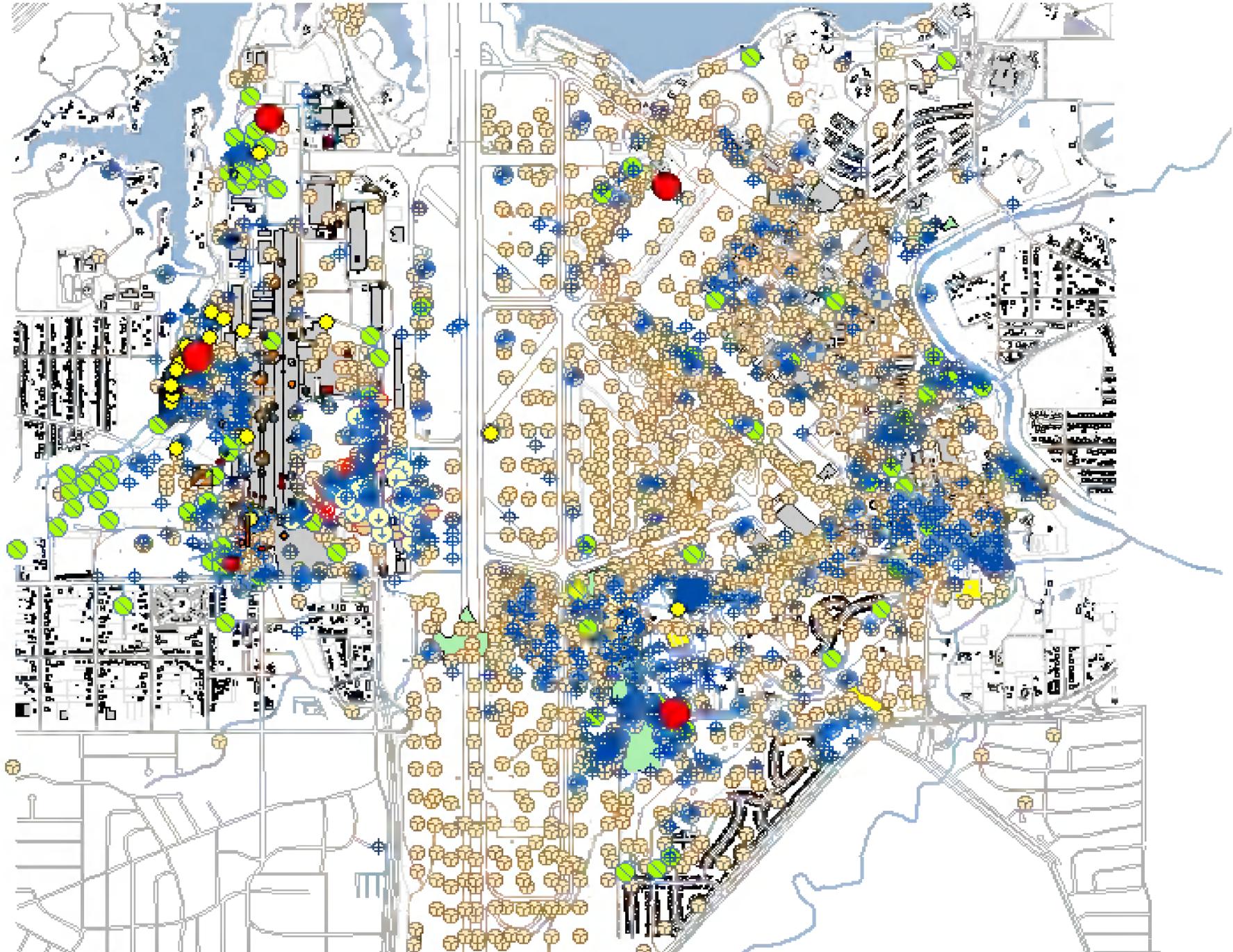
- Dichloroethene

- DCE (cis/trans)



- Vinyl chloride





FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE