



**DEPARTMENT OF THE AIR FORCE**  
**20th FIGHTER WING (ACC)**  
**SHAW AIR FORCE BASE, SOUTH CAROLINA**

MEMORANDUM FOR 20 CES/CC

FROM: 20 CES/CEIER

SUBJECT: Restoration Advisory Board (RAB) Meeting Minutes

1. Meeting information:

- a. Date: 26 August 2013
- b. Time: 1830
- c. Location: New Beginning Banquet Facility, 1335 Hwy 441, Sumter, SC 29154
- d. Co-Chairman (Acting): Lt Col Terrance Walter, USAF Chairperson
- e. RAB Members/Alternates and Others in Attendance

City/County Officials

Mr. Eddie Newman, County Representative

Ms. Karen Hyatt, County Representative

Mr. Bill Rozier, City Representative (Not Present)

South Carolina Department of Health and Environmental Control (SCDHEC)

Ms. Rachel Poole, SCDHEC, Columbia Office

Mr. Keith Lane, SCDHEC Region 4, Sumter Office (Not Present)

RAB Community Members

Mr. Daniel Burkett (RAB Community Co-Chair)

Ms. Melanie Bennett (Not Present)

Mr. Chip Chase

Mr. Charles Firmbach (Not Present)

Mr. Albert Gagnon (Not Present)

Mr. John Hayes

Mr. Tony Horton (Not Present)

Rev. Willie Lawson (Not Present)

Dr. Wendell Levi, Jr.

Ms. Jennie Skelton (Alternate for Ms. Amanda Skelton)

Ms. Elizabeth Williams (Not Present)

Others, Air Force Affiliated

Lt Col Joseph Roriguez 20 MSG/CD

Mr. John McKinley 20 MSG/DI

2d Lt Earon Brown 20 FW/PA

Mr. Robert Sexton 20 FW/PA

Maj Greg Garrison 20 AMDS/SGPB

Mr. Nick Muszynski 20 CES/CEIE

Mr. Juvenal Salomon 20 CES/CEIER

Ms. Aliza Tindall 20 CES/CEIER

Mr. Doug Simpleman	US Army Corps of Engineers
Ms. Jean Chytil	US Army Corps of Engineers
Mr. Denny Jorgenson	URS Corp.
Mr. Dave Overbey	URS Corp.
Mr. Kyle Dermatis	URS Corp.
Ms. Jeny Mitchell	URS Corp.

Others, State of South Carolina

Mr. Michael Danielsen	SCDHEC
-----------------------	--------

Media Representatives

(Not Present)

Community Members

Ms. Gloria Wright  
Ms. Diana McKinley  
Mr. Douglas E. Oliver  
Mr. John Roach

2. Mr. Salomon, Base Restoration Project Manager, served as meeting moderator and opened the meeting. He introduced 20th Civil Engineer Squadron Commander, Lt Col Terrance Walter.
3. Lt Col Walter opened the meeting by welcoming and thanking the community for their attendance.
4. Mr. Salomon facilitated the remainder of the meeting. He introduced the RAB members and explained the purpose of the meeting. The purpose of this meeting is to keep the community informed of the status of Shaw AFB's Environmental Restoration Program. Shaw AFB's goal is to be transparent to what the base is doing to clean up the contamination. He highlighted the meeting's focus is the 5-Year Review of in place remedies, expansion of the pump, treat and inject system, dieldrin pilot study and the second drilling mobilization. The slide presentation is attached (Atch 1).
5. Mr. Salomon briefed the Shaw AFB Environmental Restoration Program cleanup goals. In 2011 the Air Force implemented a more aggressive clean-up program; their solution, Performance-Based Remediation (PBR) contract. PBR contract focuses on the achievement of the objectives and not how to accomplish the work thus leveraging the contractor's expertise. The contractor's proposal included closing 14 of the 23 sites by the end of their contract performance period. The challenge is that there are nine sites that will not reach site closeout by this period of performance. These challenging sites include three landfills where it is more cost effective to monitor every five years than to completely dig up; a dieldrin pesticide site with an on- and off-base footprint that is being monitored; five PCE and/or TCE (perchloroethylene and/or trichloroethylene) sites undergoing long cleanup processes; and a fuel spill site that is relatively easy to clean up, but unfortunately this site is located in the middle of the runways and presents other challenges.
6. Mr. Salomon briefed recent activities regarding the 5-Year Review of 14 active sites and the expansion of the pump, treat and inject system. The object of the 5-Year Review is to ensure remedies are protective of human health and the environment. An independent consultant conducts the 5-Year Review. Remedies at all Shaw AFB sites were determined to be protective of human health and the environment. The contractor made a few recommendations at some sites to enhance the remedy, which are currently being addressed. The next 5-Year Review is scheduled for 2016. The contractor is in the process of expanding the pump, treat and inject system by increasing the number of extraction wells and adding injection wells. The extraction wells will extract the groundwater and it will go through the air stripper and aerate the TCE/PCE. Two-thirds of the clean water will be injected back into the groundwater

through injection wells to expedite the cleanup process and one-third will go through the outfall which flows to Wateree River. It is important that the wells be positioned where they provide the most benefit. Shaw AFB has worked with landowners for long-term easements regarding the placement of these wells. With the current system, it would take 180 years to clean up the TCE/PCE site; expanding the system will reduce the time to 45 years to clear up the contamination's off-base footprint.

7. Mr. Salomon briefed upcoming activities of the dieldrin pilot study and the second drilling mobilization. Dieldrin is very persistent, sticks to the soil and does not readily breakdown. Dieldrin may stay in this plume unchanged for several years. Currently, Shaw AFB's is monitoring the plume's stability. The contractor is investigating technology that may degrade the dieldrin more rapidly and conducting a pilot study using peroxone sparging. The technology is comparable to inserting a straw into the ground and blowing bubbles. The air bubbles will react with the contaminant and break it down. The pilot study began in December 2012 and the results of the pilot study will be submitted in early 2014. The second drilling mobilization involves drilling shallow air injection wells that will be utilized for in-situ chemical oxidation treatments. The purpose of this treatment is to aggressively clean up the contamination in the groundwater on base in the shallow aquifer. This will prevent the contamination from continuing to flowing down to the deeper aquifer and off-base. These injection wells comprise over 90 percent of the 500 to 600 wells being drilled on base in 10 treatment locations. Five locations are estimated to be utilized for about four years and the other five treatment locations are long range for the more persistent contamination.

8. Ms. Poole briefed the upcoming permit modification. Ms. Poole explained that when a facility treats, stores or dispose of hazardous waste, they are required by the state to have a hazardous waste permit. When a remedy is revised or chosen to clean-up the contamination there is a permit modification process, which involves a public comment period. South Carolina Department of Health and Environmental Control (SCDHEC) writes the permit and conducts the public meeting. The permit comment period starts August 26 and runs through the end of October. The public has the opportunity to comment about the permit modification and SCDHEC is required to respond to all comments. The public meeting is scheduled for Tuesday, September 24, 2014 starting at 6:00 p.m. at Oakland Primary School.

9. Community members posted a few questions. Answers to these questions are attached (Atch 2).

10. Prior to closing, Mr. Salomon sought inputs from the RAB panel. There were no inputs from the RAB panel.

11. Lt Col Walter provided closing remarks. He thanked everyone for their interest and attendance.

12. The next meeting will be scheduled in six months, around February 2014, starting at 6:30 pm at the New Beginning Banquet Facility. Questions regarding the meeting may be directed to Shaw AFB's Public Affairs Office, (803) 895-2019.

//signed-jqs-11Sep2013//  
JUVENAL Q. SALOMON, GS-12, DAFC  
RAB Administrator

Approved as written.

///SIGNED – TLW – 17 Sep 13///

TERRENCE L. WALTER, Lt Col, USAF  
Commander, 20th Civil Engineer Squadron

Attachments:

1. RAB Presentation Slides
2. Question and Answer Session

cc:

20 FW/CV/JA/PA

20 MSG/CC

20 CES/CC/CEI/CEIE

20 AMDS/SGPB

AFCEE/ERB (Mr. Anthony Williams)

US Army Corps of Engineers (Mr. Doug Simpleman)

SCDHEC (Ms. Rachel Poole, Mr. Keith Lane)

Sumter County Public Works Director (Mr. Eddie Newman)

Sumter City Engineer (Mr. Bill Rozier)

RAB Community Members (Mr. Daniel Burkett, Rev. Willie Lawson, Ms. Melanie Bennett,  
Dr. Wendell Levi, Jr., Mr. Chip Chase, Mr. Charles Firmbach,  
Mr. Albert Gagnon, Mr. John Hayes, Mr. Tony Horton,  
Ms. Amanda Skelton, Ms. Elizabeth Williams)



# ***20th Fighter Wing***



## ***RESTORATION ADVISORY BOARD***

***“Welcome”***



**Lt Col Terrence L. Walter**  
**Civil Engineer Squadron Commander**  
**Shaw Air Force Base**

**26 August 2013**



# Agenda



- **Purpose / Mission**
- **Question Cards**
- **Shaw AFB Environmental Restoration Program Goals**
- **Recent Activities**
  - 5-Year Reviews of In Place Remedies
  - Expanded Pump, Treat, & Inject System
- **Upcoming Activities**
  - Dieldrin Pilot Study
  - Second Drilling Mobilization
- **Announcement / Intermission**
- **Q&A**
- **Closing Remarks**



# ***RAB Purpose/Mission***

---



- **Shaw AFB RAB Charter guides our direction ...**

## **PURPOSE:**

- **Promote community awareness**
- **Obtain constructive community review/comment/input on current/proposed environmental cleanup actions**

## **MISSION:**

- **Open and interactive dialogue**
  - **between the U.S. Air Force, SC Department of Health and Environmental Control, and local community**
  - **concerning Shaw AFB's Environmental Restoration Program**



# Question Cards



- Health       Technical  
 Legal       Other

Question:

What is ...?

John Doe  
123 Question St.  
Sumter, SC 29154  
(803) 895-XXXX

***Please turn in question cards during intermission.  
Questions will be addressed after briefing.***



# Shaw AFB Environmental Restoration Program Goals

---



- **New AF direction ... Site Closeout**
  - This means ... Unlimited Use / Unrestricted Exposure
- **23 remaining active sites to cleanup**
  - Includes 6 “new” post-1986 compliance cleanup sites
- **Solution: Performance-Based Remediation Contract**
  - Awarded in 2011, \$19.8M (funded through 2015)
  - Objective: Close 14 sites by 2020 (end of contract period)
- **For remaining 9 open sites, reduce cleanup timeline**
  - 4 TCE/PCE plumes (long cleanup period)
  - 3 landfills (costly removal of buried waste)
  - 1 Dieldrin pesticide plume (persistent, long half-life)
  - 1 fuel spill site (in shallow aquifer but underneath runway)



# *Recent Activities*

---



- **5-Year Reviews of In Place Remedies**
- **Expanding the Pump, Treat, & Inject System**



# 5-Year Reviews



## ■ Multiple objectives

- Are remedies still protective of human health and the environment?
- Can we optimize the remedy (i.e., reduce costs)?
- What else can we do to get the site to clean closure?
- Does any new information affect the AF exit strategy for a site?

## ■ Initiated 2011 ... will be scheduled every 5 yrs thereafter

- DHEC required assessment of two sites w/ off-base impact
- New AF policy expanded coverage to all sites w/ remedies

## ■ Review coverage ... follows EPA guidance

- 14 site remedies, listed in base permit



# *Findings and Recommendations*



- Remedies at all sites were determined to be protective of human health and the environment
- Several sites had recommendations which are currently being addressed
  - SWMU 59: re-evaluate 2009 progress and 2010 optimization report recommendations as they may affect the monitoring program or the remedy at this site
  - SWMU 52: replacement of well to help in assessing remedy effectiveness
  - AOC-D: recommended reinjection of treatment product to ensure sufficient treatment of plume



# *Findings and Recommendations*

*continued ...*



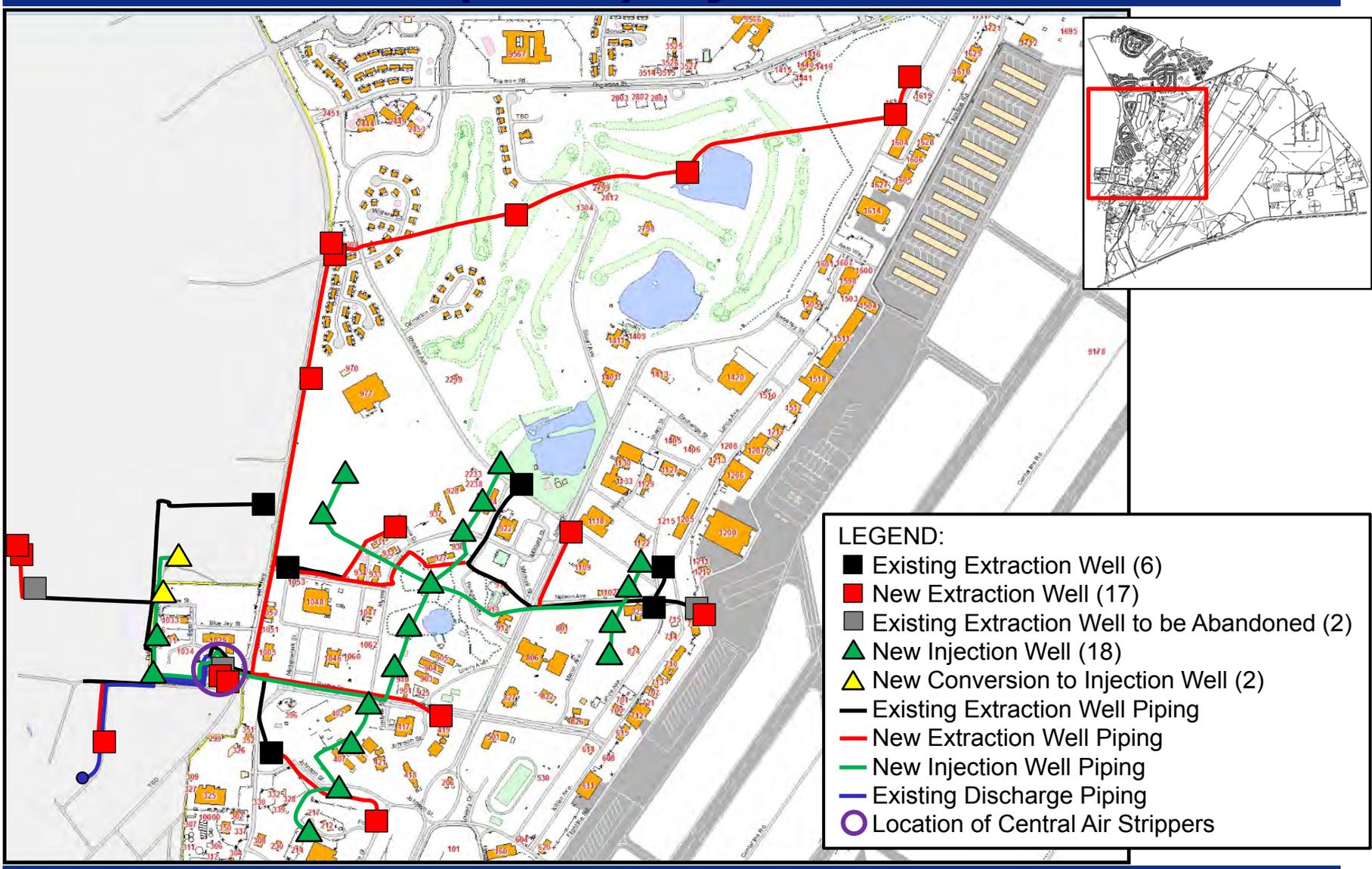
## ■ AOC-F / AOC-H:

- Need to enhance current institutional controls to include:
  - More comprehensive Land Use Control reporting and documentation
  - More frequent property ownership/occupancy reviews
- Enhance the extraction well system operations & maintenance
- Continue to evaluate vapor intrusion impact every 5 years

*(Copy of 5-Year Review Report, Feb2013, available upon request.)*



# Expanded Pump, Treat, & Inject (PT&I) System



**LEGEND:**

- Existing Extraction Well (6)
- New Extraction Well (17)
- Existing Extraction Well to be Abandoned (2)
- ▲ New Injection Well (18)
- ▲ New Conversion to Injection Well (2)
- Existing Extraction Well Piping
- New Extraction Well Piping
- New Injection Well Piping
- Existing Discharge Piping
- Location of Central Air Strippers



# *Upcoming Activities*

---



- **Dieldrin Pilot Study**
- **Second Drilling Mobilization**



# ***Dieldrin Pilot Study***



## ■ **Background**

- Dieldrin is a man-made pesticide (ultimately banned in 1987)
  - Persistent ... “sticks to dirt”
  - Long half-life ... does not readily degrade or breakdown
- Dieldrin plume ... very low concentrations
  - Located on former cotton field, AF purchased in early 1950’s
  - ~20-30 feet below ground surface ... stable, minimal to no movement
  - No set EPA clean up standards ... will monitor plume stability thru 2025

## ■ **Prompted by success of a previous ozone pilot study**

- Approach ... Peroxone Sparging
- Milestones
  - Dec 2012: 3 injection wells installed
  - Jan 2013: 2-month injection started
  - Post-injection monitoring continues ... submit Study Report in early 2014



# ***Second Drilling Mobilization***

---



- **Purpose**

- Install treatment systems at 12 sites

- **Roughly 500-600 new wells**

- Over 90% are shallow injection wells at 10 treatment locations on base

- **Started early July ... will run through Fall 2013**

- 10-day-On / 4-day-Off shifts
- Multiple teams & rigs



# Announcement



- **Shaw AFB Resource Conservation and Recovery Act Hazardous Waste Permit Modification**
  - Lead Agency is the SC Department of Health and Environmental Control
- **Public Review Period: 23 Aug – 30 Oct 2013**
- **Public Meeting: 24 Sep 2013 (tentative)**
- **POC: Ms Rachel Poole, 803-898-0249 (new phone #)**

*(Minutes of 4Feb2013 RAB meeting has detailed discussion of permit modification process. Meeting minutes are located on RAB website.)*



# *Intermission*

---



- **10 Minutes**
  - Please turn-in question cards



---

# *Questions & Answers*



# Closing Remarks

---



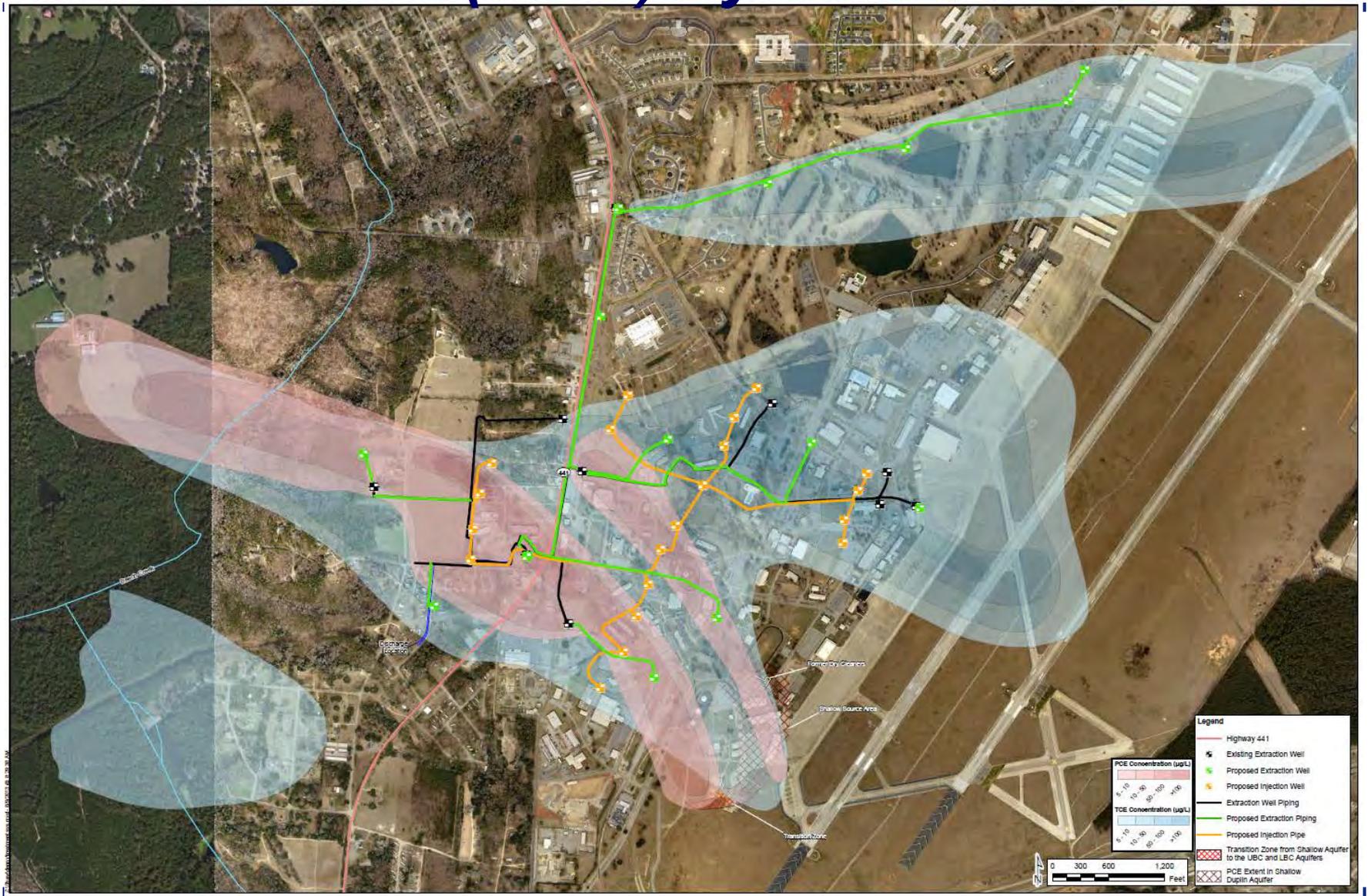
- **Inputs from Board Members**
- **Action Items**
- **Address questions to Shaw AFB Public Affairs**
  - (803) 895-2019
  - <http://www.shaw.af.mil/library/restorationadvisoryboard.asp>
- **Administrative Records/Information Repository**
  - Contact Shaw AFB Freedom of Information Act Manager, (803) 895-1630
    - <http://www.shaw.af.mil/library/foia.asp>
- **Next Meeting**
  - [Approximately February 2014](#)







# Expanded Pump, Treat, & Inject (PT&I) System



Optimize Readiness • Comprehensive Fitness of All Airmen and Families • Continuously Improve Mission Performance



# Dieldrin Pilot Study



**Attachment 2**  
**Questions from the Restoration Advisory Board (RAB), 26 August 2013**

*(\* Questions and answers were paraphrased for clarity.)*

**1. What type of contamination is in the three landfills?**

*Landfills 1 and 2 were established when the Shaw AFB was built in the early 1940s. These landfills were used only for six months and contained municipal waste. Shaw AFB could not use Landfill 1 and 2 because they kept filling up with water. Shaw AFB monitors the groundwater every five years for Landfill 1 and 2. Landfill 3 has mostly construction debris. In the early investigations of Landfill 3 it had some contaminated groundwater, but has since gone below the cleanup levels. There is no contamination emanating from these three landfills.*

**2. What type of well was drilled on Cornell Street?**

*It is an extraction well.*

**3. When did dieldrin come into the market?**

*Dieldrin was developed in 1948 and was widely used from 1950 through the early 1970s.*

**4. Which contamination is the most toxic of all the contaminants we discussed?**

*This is a very subjective question. If you look at simply from a regulatory standard, EPA has no regulatory standard for dieldrin, but they do for TCE/PCE. Does that mean that the EPA considers dieldrin less hazardous or does it mean that the EPA hasn't conducted enough research to come up with a regulatory standard? Rachel Poole from SCDHEC stated that in her opinion that one contaminant is not more or less toxic than the other contaminants.*

**5. Is this a new Permit?**

*No, it is a permit modification. A permit is issued for 10 years; Shaw AFB's last permit was issued in 2009 and runs until 2019. When new sites are added, remedies chosen for sites and/or sites that require no further action before the next permit is issued, a permit modification is issued. When a permit is modified, only the portion of the permit that it modified is published, in this case it is Appendix A. Shaw AFB permit modification is located on SCDHEC's public web site. SCDHEC web site is: <http://www.scdhec.gov/environment/lwm/publicNotice.htm>.*