



# DEPARTMENT OF THE AIR FORCE

20th FIGHTER WING (ACC)  
SHAW AIR FORCE BASE, SOUTH CAROLINA

MEMORANDUM FOR 20 FW/CV

FROM: 20 CES/CEIE

SUBJECT: Restoration Advisory Board (RAB) Meeting Minutes

1. Meeting information:

- a. Date: 25 August 2014
- b. Time: 1830
- c. Location: New Beginning Banquet Facility, 1335 Hwy 441, Sumter, SC 29154
- d. Co-Chairman: Col William R. Jones, USAF Chairperson
- e. RAB Members/Alternates and Others in Attendance

City/County Officials

Mr. Eddie Newman, 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

Mr. Albert Gagnon (Not Present)

Mr. John Hayes (Not Present)

Mr. Tony Horton (Not Present)

Rev. Willie Lawson

Dr. Wendell Levi, Jr.

Mr. Steven Schmidt (New Member/August 2014) (Not Present)

Ms. Amanda Skelton (Not Present)

Ms. Elizabeth Williams (Resigned/July 2014) (Not Present)

Others, Air Force Affiliated

Mr. Chris Aamold 20 CES/CD

Capt Chad Bond 20 FW/JA

Capt Brittany Tedford 20 FW/JA

Mr. Robert Sexton 20 FW/PA

Lt Col Glenn Donnelly 20 AMDS/CC

TSgt Tony Sewell 20 AMDS/SGPB

Mr. Nick Muszynski 20 CES/CEIE

Mr. Juvenal Salomon AFCEC/CZOE

Mr. Doug Simpleman	US Army Corps of Engineers, Omaha District
Ms. Jean Chytil	US Army Corps of Engineers, Omaha District
Ms. Michelle Lordemann	US Army Corps of Engineers, Omaha District
Mr. Robert Mallisee	URS Corporation
Mr. Dave Overbey	URS Corporation
Mr. Kyle Dermatis	URS Corporation
Mr. William Hays	URS Corporation

Others, State of South Carolina

Ms. Stacey French	SCDHEC
Mr. Michael Danielsen	SCDHEC

Media Representatives

(Not Present)

Community Members

Mr. George Brown  
Mrs. Susan Brown  
Mr. JW Ainsworth  
Ms. Lorraine Aldridge

2. Col Jones, 20th Fighter Wing Vice Commander, opened the meeting, welcomed everyone and thanked them for their participation in Shaw Air Force Base's (AFB) environmental cleanup program. He highlighted the over 200 years of experience in the room that was available to provide answers to all the attendees' questions. Col Jones assigned Mr. Salomon, Base Restoration Project Manager, to serve as moderator and to start the presentation (see attachment 1).
3. Mr. Salomon requested participants to introduce themselves, including those in the audience. He presented the agenda, which included cleanup activities for the past six months since the last meeting, as well as upcoming activities for the next few months.
4. Mr. Salomon briefed the purpose of the meeting explaining the RAB was intended to keep the community informed and up-to-date on Shaw AFB's cleanup efforts. In turn, Shaw AFB seeks continual feedback from the community with regards to issues or concerns they may have relating to the program. He noted that later in the meeting Ms. Poole would offer an opportunity for the community to provide such feedback.
5. Mr. Salomon announced the Department of Defense's (DoD) latest corporate goal of attaining 90% Response Complete for all of its cleanup sites by 2018, 95% by 2021. A site has reached Response Complete when all cleanup objectives have been achieved, allowing SCDHEC to issue a decision of No-Further-Action. He also shared the good news that Shaw AFB has exceeded DoD's 2014 goal of 95% Remedy-In-Place. A site has achieved Remedy-In-Place when the SCDHEC-approved final remedy has been implemented.
6. Mr. Salomon updated the construction status of various treatment systems. The expanded pump, treat, and inject system to clean up the deep aquifer (~150 feet below ground surface) is 100% construction complete. The remedial contractor (URS Corp) had submitted a "Request to Operate" permit from SCDHEC so URS can perform start up testing and finalize the communications/relay setup. Receipt of additional 2014 funds will allow three extraction wells to be drilled into the lower deep aquifer in late-September/early-October 2014. For cleanup of the shallow aquifer contaminants (~30 feet below ground surface), all ten previously planned in-situ chemical oxidation (ISCO) systems were completed and all have started operational performance monitoring. Drilling field work for an eleventh shallow

ISCO system will start in mid-September 2014. For the recent Dieldrin pesticide pilot study, URS Corp will submit the results in the form of a technical memorandum. The fourteen private parcels inside the Dieldrin plume's regulated boundary (~30 feet below ground surface with no known exposure pathways) will receive their recurring annual notices later this year. These notices mainly serve to remind affected residents that the Air Force continues to monitor the Dieldrin plume's stable condition and gradual deterioration, and for parcel owner to notify the proper authorities if there has been a change in the parcel's ownership or water supply status.

7. Status was provided on the seventeen new parcels (marked with red triangles on slides) that were added in 2013 to the bilateral agreement implementation. In February 2014 the owners of the seventeen new parcels were mailed their initial invitations to enter into a voluntary bilateral agreement with the Air Force. This was the first of three required attempts. The original list consisted of 105 parcels in bilateral agreements with the Air Force; now 122 parcels. If parcel owner gives permission, this will allow the Air Force to file a deed notice into the property records to inform future owners of the contamination being cleaned up by the Air Force. The agreement states that the landowner is aware of the groundwater contamination and the obligation to disclose the contamination when transferring the property. The 2013 review also identified 23 parcels (marked with green squares) that are now out of the updated 2013 plume boundaries. If these 23 parcels remain out of bounds for three consecutive years, they will be recommended for removal from the annual notice list. Some parcel owners may receive a second separate annual notice as their parcel(s) may also be inside the regulated boundary of the Dieldrin pesticide plume.

8. At the last (February 2014) RAB meeting, Mr Salomon briefed the 1, 4-Dioxane sampling locations based on known chlorinated solvent detections (such as TCE). Of the 37 locations sampled, three shallow aquifer locations had detections just above the Environmental Protection Agency's (EPA) screening level. Since these three detections did not pose any imminent risks to human health and the environment, no response actions are required at this time. Shaw AFB will continue to monitor this emerging contaminant and will coordinate with SCDHEC on future similar confirmatory samplings. An emerging contaminant is a chemical compound on EPA's watch list needing further health risk evaluation and may not have established cleanup standards.

9. For upcoming activities, Ms. Poole, SCDHEC's program manager for Shaw AFB, announced that the base's Resource Conservation and Recovery Act hazardous waste permit will go through another modification later this year. The public will be given opportunity to participate during a 45-day review involving proposed status changes of nine sites located inside the base's boundary. These nine sites have no off-base impacts. According to Ms. Poole, five sites will receive SCDHEC's No-Further-Action decision; one will get a No-Further-Investigation outcome, and three sites (previously managed by another SCDHEC Division) will be added into the permit. Translating these anticipated SCDHEC decisions to DoD goals, a total of six sites will receive equivalent Response Complete decisions.

10. Questions posted during the meeting, along with answers, are listed in attachment 2.

11. There were no open action items from the last meeting. Mr. Salomon announced that Ms. Elizabeth Williams offered her resignation as a RAB community member last July. Mr. Steven Schmidt was voted in by a simple majority of the community members, had acknowledged his RAB responsibilities and became the newest member of Shaw AFB's RAB team. Before formally adjourning the meeting, Col Jones thanked everyone for their attendance, especially those that travelled long distance. He noted that Shaw AFB team members will remain in place to answer any additional questions.

12. The next meeting will be scheduled in six months, around February/March 2015, starting at 6:30 pm at the New Beginnings Banquet Facility. Questions regarding the meeting may be directed to Shaw AFB's Public Affairs Office, (803) 895-2019.

//SIGNED: jqs/19Sep14//  
JUVENAL Q. SALOMON, GS-12, DAFC  
RAB Administrator

Approved as written.

//SIGNED: wrj/21Oct14//  
WILLIAM R. JONES, Colonel, USAF  
Vice Commander, 20th Fighter Wing

Attachments:

1. RAB Presentation Slides
2. Question and Answer Session

cc:

20 FW/CV/JA/PA

20 MSG/CC/DI

20 CES/CC/CEI/CEIE

20 AMDS/CC/SGPB

AFCEC/CZOE

AFCEC/CZRE (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 ( Ms. Melanie Bennett, Mr. Daniel Burkett, Mr. Chip Chase,  
Mr. Charles Firmbach, Mr. Albert Gagnon, Mr. John Hayes,  
Mr. Anthony Horton, Rev. Willie Lawson, Dr. Wendell Levi, Jr.,  
Mr. Steven Schmidt, Ms. Amanda Skelton)



# *20th Fighter Wing*



## *RESTORATION ADVISORY BOARD*

*Welcome*



**Col William R. Jones**  
**Vice Commander**  
**Shaw Air Force Base**

**25 August 2014**



# Agenda



- **Purpose / mission**
- **Question cards**
- **Shaw Environmental Restoration Program goals**
- **Recent activities**
  - Status update: Treatment systems installation
  - Status update: Bilateral agreement implementation
  - Sampling results: 1,4-Dioxane
- **Upcoming activities**
  - RCRA hazwaste permit modification
- **Intermission**
- **Q&A**
- **Closing remarks**



# ***RAB Purpose/Mission***

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## **PURPOSE:**

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

## **MISSION:**

- **Open and interactive dialogue**
  - Among the Air Force, South Carolina Department of Health and Environmental Control, and our neighbors
  - Concerning Shaw'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



- **Air Force direction: Site closeout**
  - This means unlimited use and unrestricted exposure
  - A step ahead of Department of Defense's (DoD) corporate goal of 90% **Response Complete** (achieve cleanup objectives) by 2018
- **120 total sites listed in RCRA HazWaste Permit (2013)**
  - **24 remaining** active sites to be cleaned up
- **Solution: Performance-based remediation contract**
  - Awarded in 2011, \$20.5M (funded through 2015)
  - Objective: Close 14 sites by 2020 (end of contract period)
- **For remaining 10 open sites, reduce cleanup timeline**

***Exceeded DoD's 2014 Goal of 95% Remedy-In-Place!***



# *Recent Activities*

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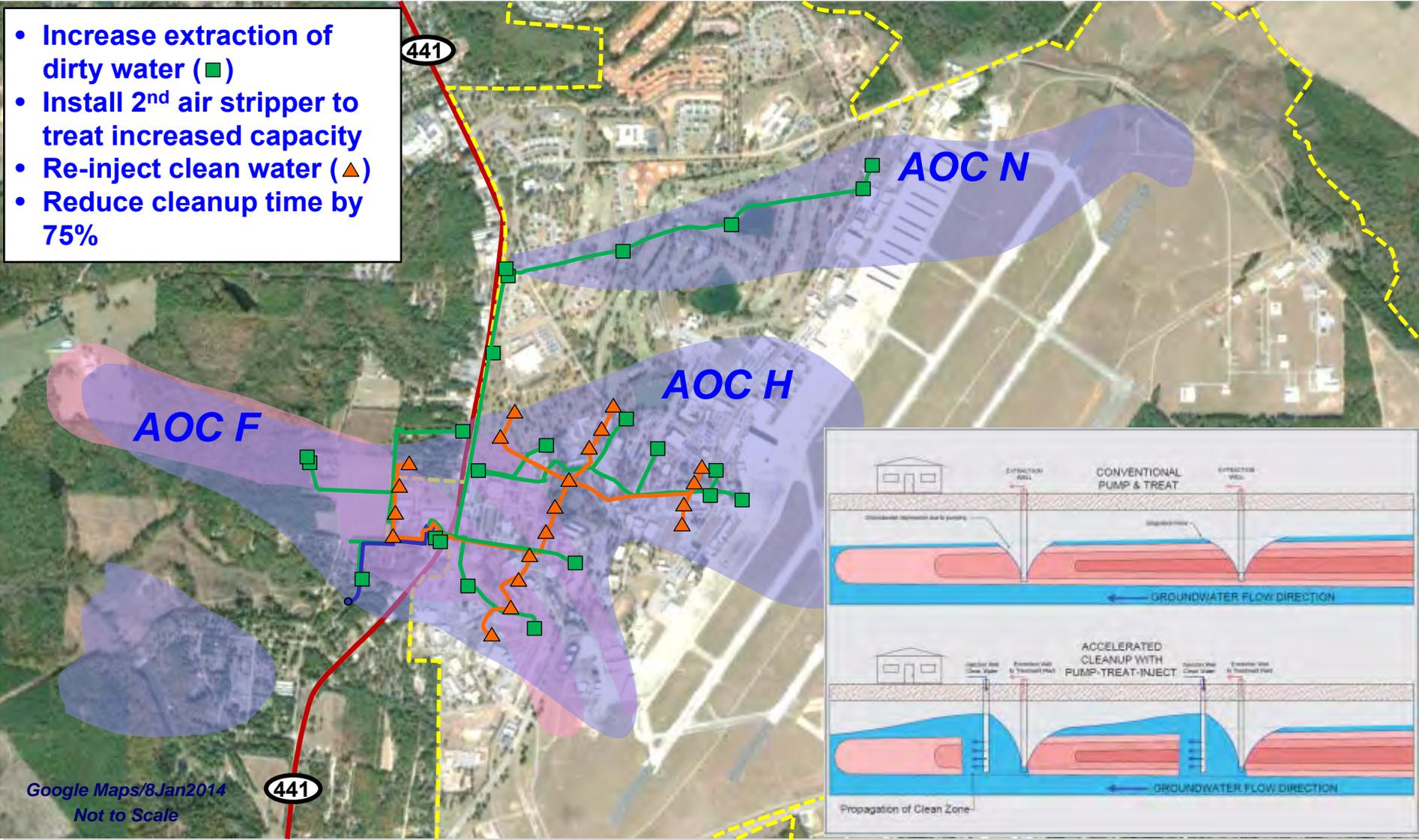
- **Status update: Treatment systems installation**
  - Deep aquifer
  - Shallow aquifer
  - Dieldrin pilot study
- **Status update: Bilateral agreement implementation**
- **Sampling results: 1,4-Dioxane**



# Deep Aquifer Systems Expansion - Concept



- Increase extraction of dirty water (■)
- Install 2<sup>nd</sup> air stripper to treat increased capacity
- Re-inject clean water (▲)
- Reduce cleanup time by 75%



Google Maps/8Jan2014  
Not to Scale



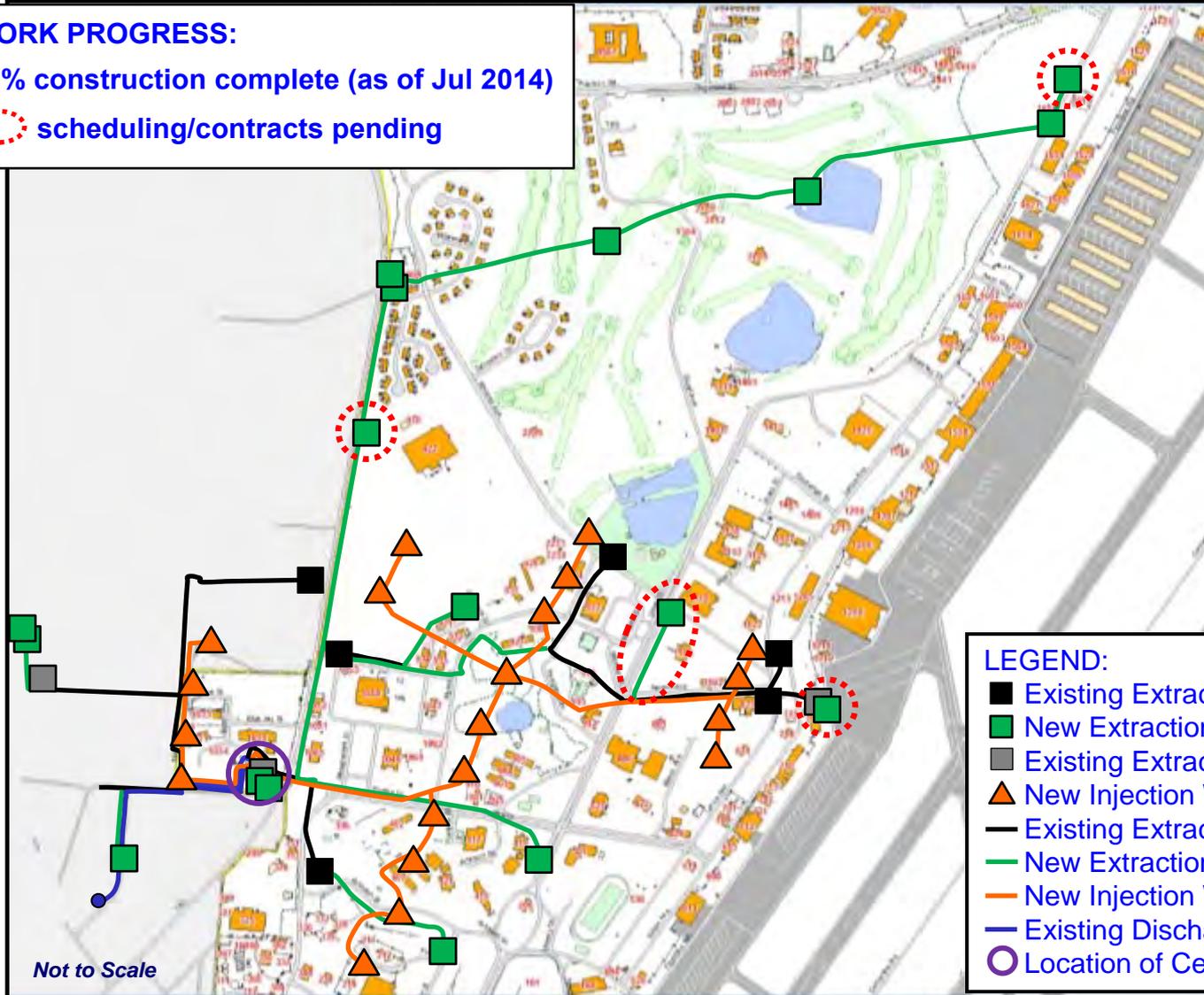
# Deep Aquifer Systems Expansion – Work Progress



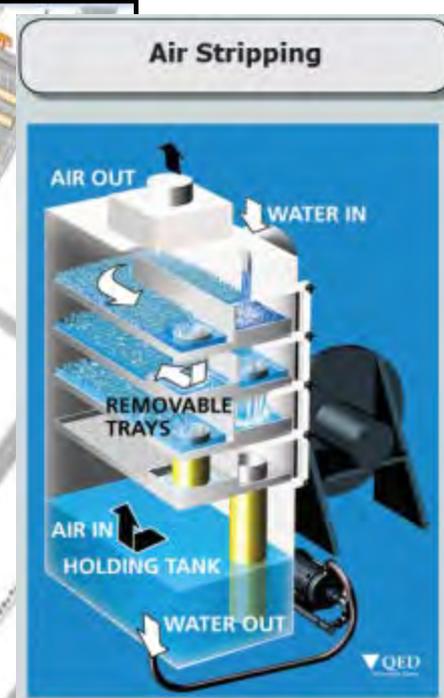
## WORK PROGRESS:

90% construction complete (as of Jul 2014)

 scheduling/contracts pending



Not to Scale



## LEGEND:

-  Existing Extraction Well (6)
-  New Extraction Well (17)
-  Existing Extraction Well to be Abandoned (3)
-  New Injection Well (20)
-  Existing Extraction Well Piping
-  New Extraction Well Piping
-  New Injection Well Piping
-  Existing Discharge Piping
-  Location of Central Air Strippers (2)



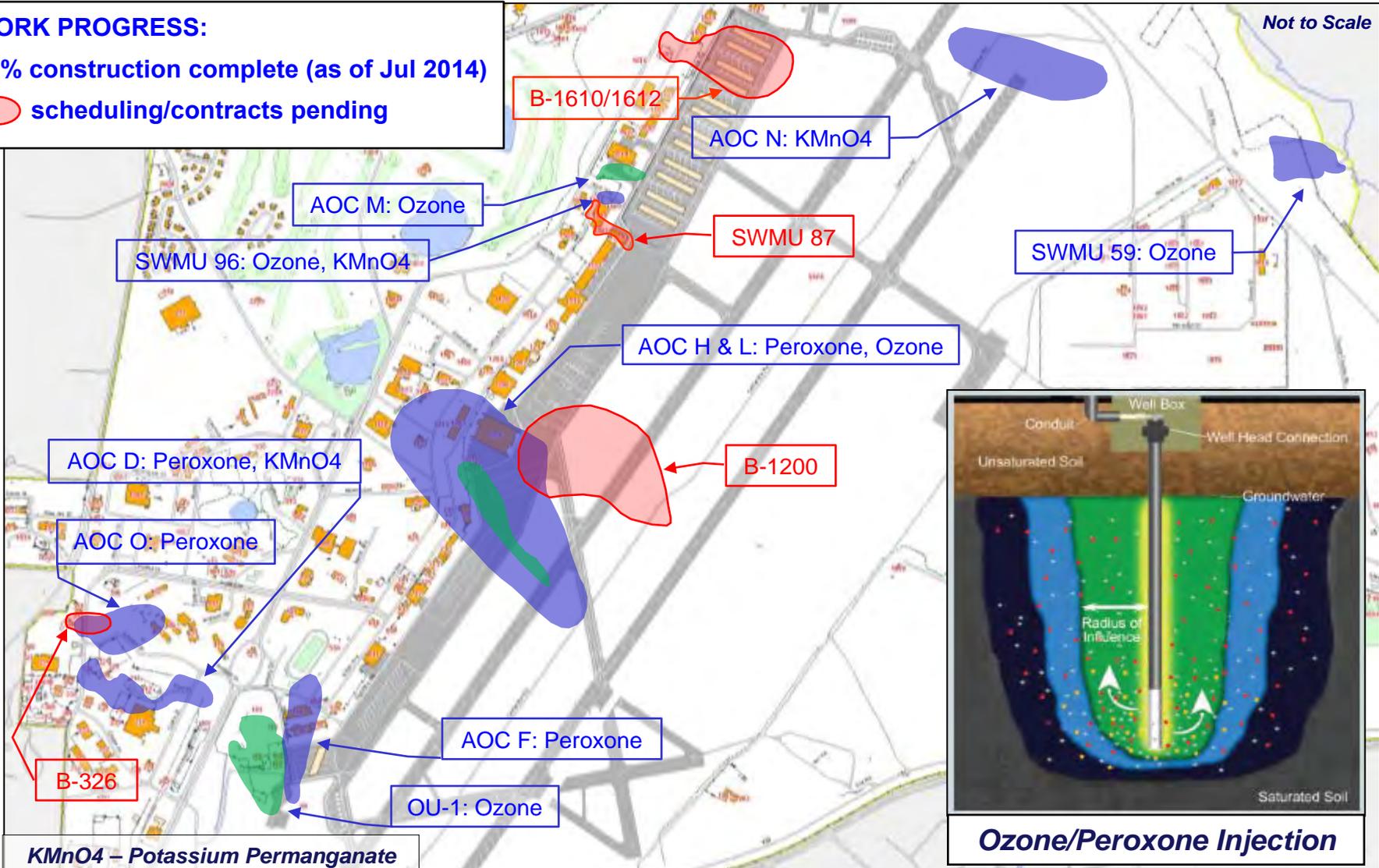
# Shallow Aquifer Systems Installation



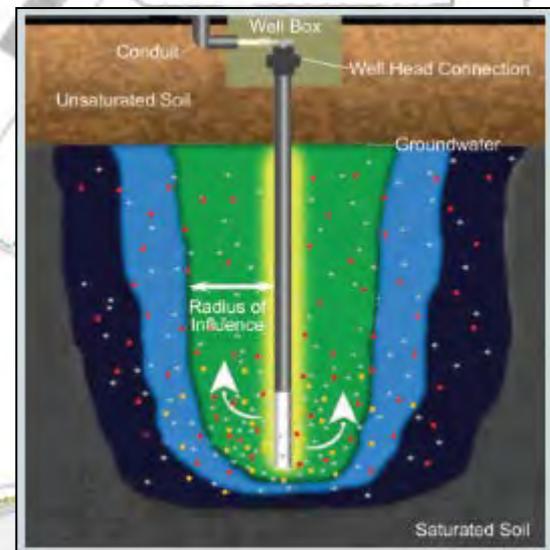
## WORK PROGRESS:

98% construction complete (as of Jul 2014)

 scheduling/contracts pending



Not to Scale



**Ozone/Peroxone Injection**

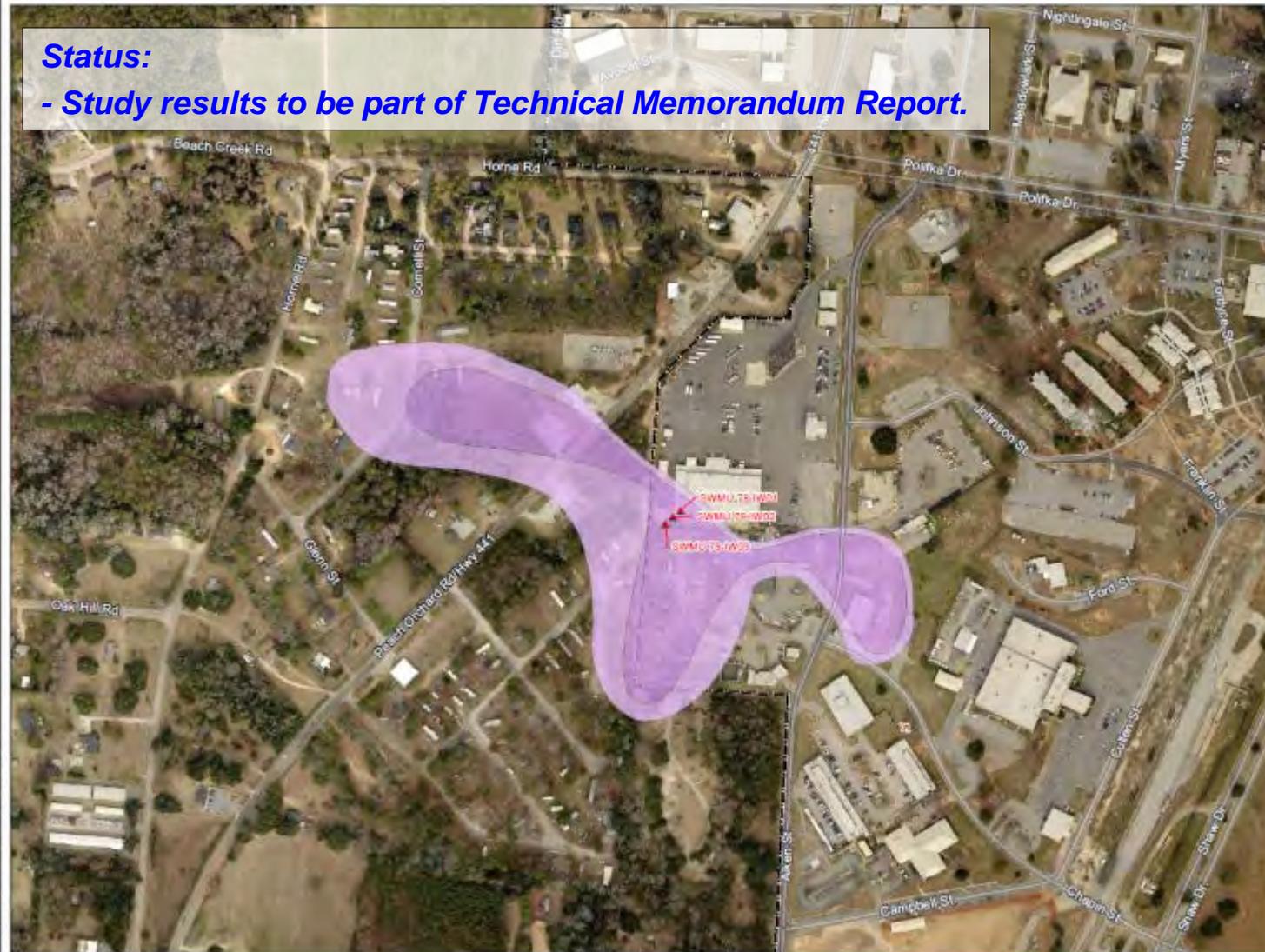


# Dieldrin Pilot Study



## Status:

- Study results to be part of Technical Memorandum Report.



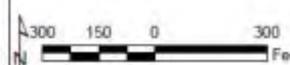
- Legend**
- ◆ Well Location
  - Direct Push Location
  - ▲ Injection Well Location
  - ▭ Installation Boundary

(D.11) 2012  
(Most Recent Dieldrin Sampling Result)  
with Sampling Year

µg/L = micrograms per liter  
ABO = Abandoned  
U = Non Detect

**Note:**

- 1) 2012 results were from Spring LTM event in March or direct push samples collected in December
- 2) 1999 monitoring well samples collected in February
- 3) 1999 direct push samples collected in April
- 4) 2013 direct push samples collected in May

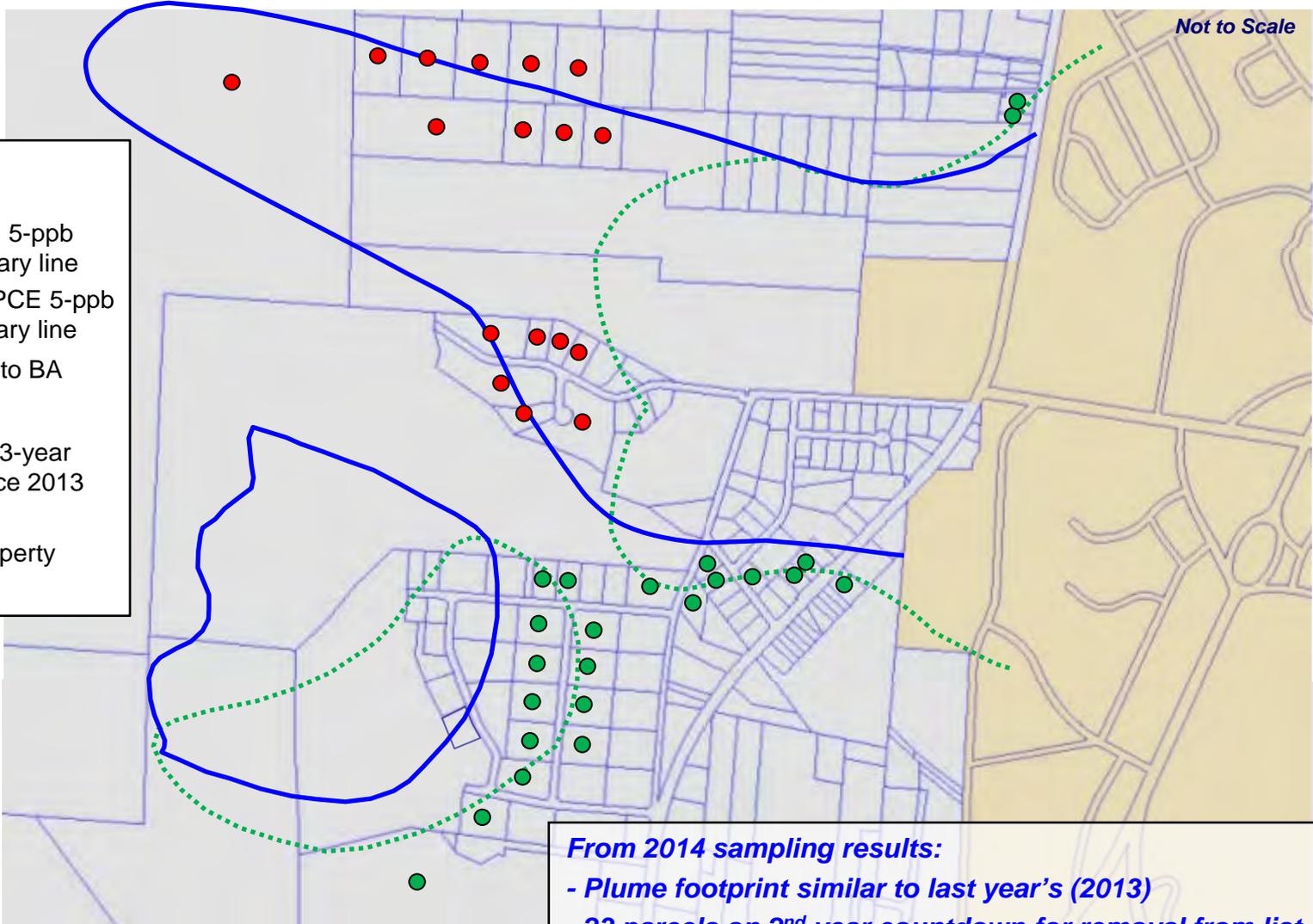


**SWMU 78 Site Location  
Map With Diieldrin Plume  
Shaw Air Force Base,  
Sumter, South Carolina**

Drawn by:	DPS	Date:	8/9/2015	Figure No.:	16179664	Figure 2 of 1
Checked by:	WD	Sheet:	1	Project No.:	16179664	Figure 2 of 1



# Bilateral Agreement Implementation – Status Update



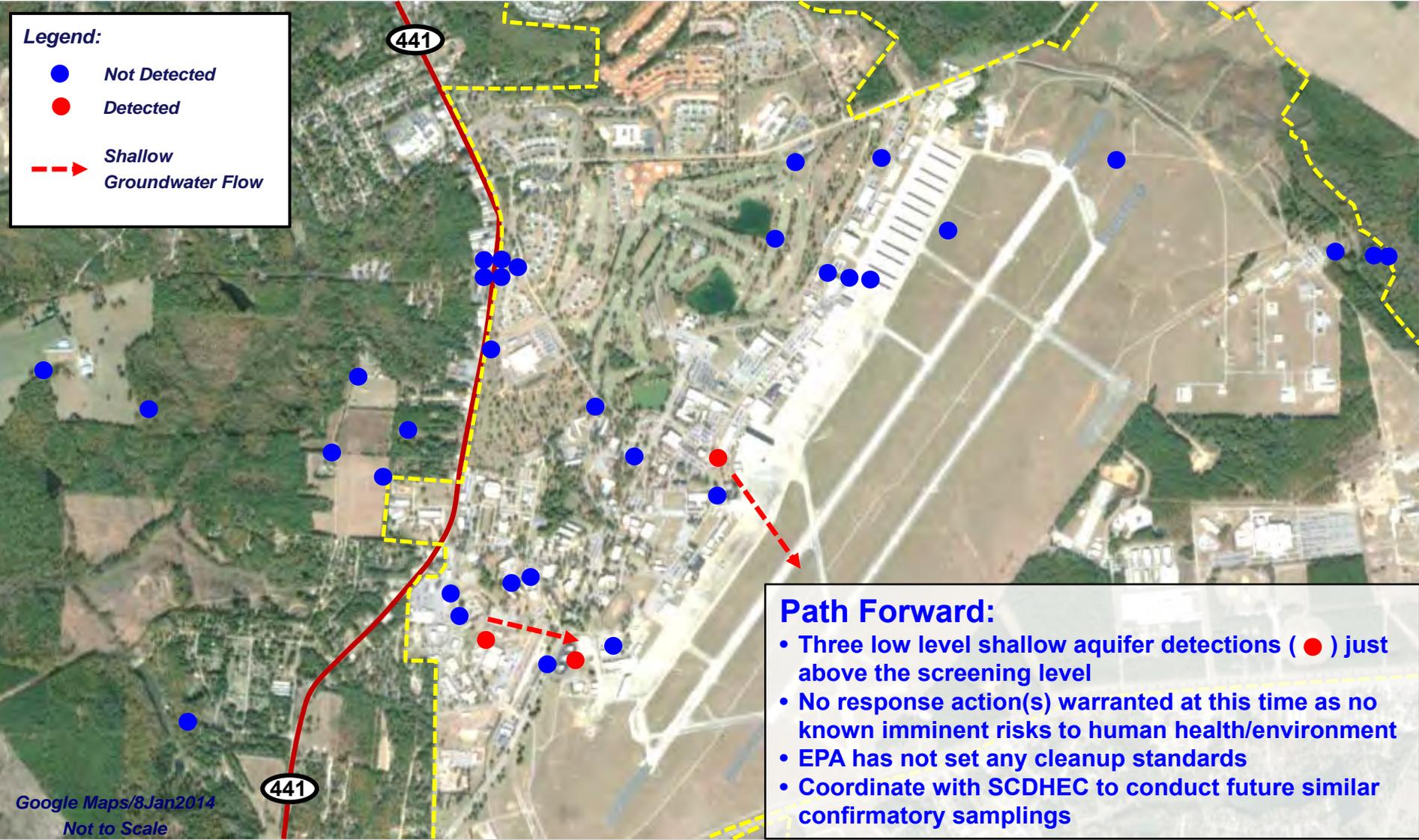


# 1,4 – Dioxane Sampling Results



**Legend:**

- Not Detected
- Detected
- - -> Shallow Groundwater Flow



**Path Forward:**

- Three low level shallow aquifer detections ( ● ) just above the screening level
- No response action(s) warranted at this time as no known imminent risks to human health/environment
- EPA has not set any cleanup standards
- Coordinate with SCDHEC to conduct future similar confirmatory samplings

Google Maps/8Jan2014  
Not to Scale



# *Upcoming Activities*

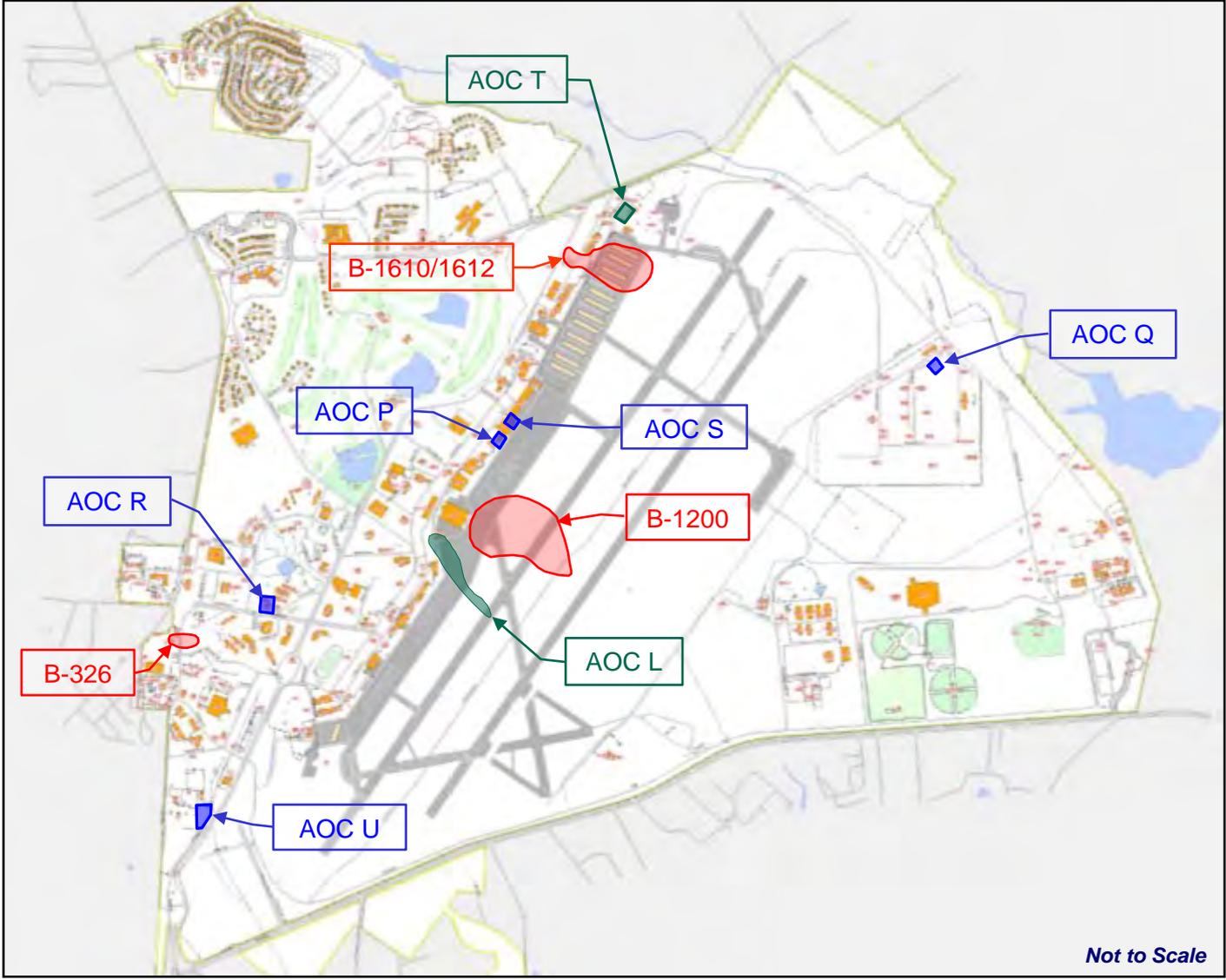
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- **Resource Conservation and Recovery Act hazardous waste permit modification**
  - South Carolina Department of Health and Environmental Control (SC DHEC) is lead agency



# SC DHEC Permit Modification





# *Intermission*

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



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# *Questions & Answers*



# Closing Remarks



- **Inputs from Board Members**
- **Action items**
- **Questions? Contact Shaw AFB Public Affairs**
  - (803) 895-2019
  - <http://www.shaw.af.mil/library/restorationadvisoryboard.asp>
- **Administrative Records**
  - Official record of cleanup action decision documents
  - <http://afcec.publicadmin-record.us.af.mil/Search.aspx>
- **Next meeting**
  - [Approximately February 2015](#)



**Attachment 2**  
**Questions from the Restoration Advisory Board (RAB), 25 August 2014**

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

**1. I commend Shaw AFB for taking aggressive steps in cleaning up the shallow source areas inside the base, conducting active source treatment and even planning to close some of these on-base shallow contaminated sites. Should we be doing the same for the deep aquifer contamination that is migrating off-base? (Mr Eddie Newman)**

*Thank you and yes. Shaw AFB is taking similar aggressive steps for the deep aquifer contamination migrating westward towards off-base properties. The extraction capacity of the current pump and treat system has been increased by 240%, from 500 gallons per minute to 1,200 gallons per minute. The number of deep aquifer extraction wells has nearly doubled from 10 to 19 total extraction wells, plus three more will be drilled later this year and one more next year. Next year, a total of 23 extraction wells will be operating. After contaminated water passes through the two dedicated air stripping equipment, roughly 60% (about 700 gallons per minute) of the treated potable water will be re-injected back into the deep aquifer, using 20 recently-installed, strategically located, deep aquifer injection wells. The purpose of re-injecting clean treated water into the deep aquifer is to flush contaminated water to the nearest extraction well(s). Modeling calculations indicate that this new set-up of 23 extraction and 20 injections wells will reduce cleanup time off-base by ~75%, from 180 years down to 45 years.*

**2. Are we impacting the High Hills Rural Water Company's public water system for the customers that are located near the base, along the pathway of the contamination plume, due to the increased extraction capacity? (Rev. Willie Lawson)**

*No. The deep aquifer contaminant plume that is migrating westward, along with recently installed deep aquifer extraction wells off-base, is located more than 150 feet below ground surface and does not impact any nearby High Hills water system. The High Hills water system in this area is comprised mainly of fully-contained, horizontal drinking water supply pipelines buried less than 10 feet below ground surface.*

**3. Does the increased pumping rate of the Shaw AFB expanded deep aquifer extraction system impact the High Hills' public water system production? (Rev. Willie Lawson)**

*No. Modeling calculations of the deep aquifer extraction wells indicate a radius of extraction influence ranging from 250 to 500 feet. The Shaw AFB extraction wells are pulling water from the Black Creek Aquifer (~150-300 feet below ground surface) while the High Hills drinking water production wells are drawing from the much deeper Middendorf Aquifer (~400-600 feet below ground surface). Furthermore, the entire High Hills production wells are located about one to three miles away from the base and away from the west ward flow of the contamination plume. The closest High Hills production well (located several yards east from the intersection of Highway 441 and Sycamore Street) is over three-quarters of a mile north of the closest extraction well (located beside the base water tower across Highway 441 from the old Pizza Hut restaurant). (Information provided on High Hills well depths and locations were confirmed with the company executive director.)*

**4. Regarding the bilateral agreement implementation, what is the time frame for the two contour lines of contamination? (Mr Eddie Newman)**

*The 2006 contour lines are shown in green and the 2013 contour lines are in blue. The original contour lines of contamination were based on the composite 2006 deep aquifer sampling results. Another comprehensive sampling event was conducted in 2013 which shows the change in boundary line location. Interim results from the 2014 spring sampling event did not show any significant contour changes from the 2013 data set. The upcoming 2015 spring sampling event will be the first sampling event to provide an initial picture on the effect of the deep aquifer expanded pump, treat, and inject system as it will be in full operation by then.*

**5. Regarding the new seventeen parcels affected by the 2013 bilateral agreement contour lines, is Shaw AFB aware that there may be private wells and springs within these new parcels? I personally know that one parcel in that area has a drinking well. (Mr Daniel Burkett)**

*Yes. Prior to the approval of the final remedy in 2007, Shaw AFB conducted extensive drinking water source survey of all off-base parcels contained within a 2000-foot radius outer perimeter of the contaminant plume's leading edge. The original survey included these seventeen parcels. The drinking well cited in the question was documented as being a "shallow well, not used or not operable." Every year since the initial 2005/2006 drinking water survey was conducted, Shaw AFB regularly inquires with SCDHEC regarding Notice of Intent applications to drill a drinking well. Additionally, Shaw sends annual notices to affected parcel owners inquiring if there has been a change in their drinking water source(s).*

**6. Does the deep aquifer treatment system discharge to the Beech Creek? (Dr. Wendell Levi, Jr.)**

*No. The portion of the treated water that is not re-injected flows thru a fully-enclosed outfall connected to a sewer pipeline that ultimately discharges to the bottom of the Wateree River, ~10 miles west of the base. The contaminated groundwater and the re-injected treated water are operating within the Black Creek Aquifer Formation, roughly 150-300 below ground surface. The Black Creek Aquifer naturally flows and eventually discharges towards the Wateree River. The Beech Creek and Black Creek Aquifer are separated by a very thick protective clay layer.*

**7. We live up near the old Pizza Hut and old Mother Goose Day Care, and we are wondering if our well(s) are contaminated? We would like our well water checked on the property. (Mr. JW Ainsworth and Ms. Lorraine Aldridge)**

*The preliminary answer is no, based on parcel location indicated by owner during the meeting. The leading edge of the closest known plume boundary is south of the property, away from the west ward flow migration of this nearby plume. Request for sampling will be submitted for validation review. The resident explained where they lived and that they had talked about their residence at the last meeting. The resident recounted that "airmen came to their property and sampled his soils for TCE back in the 1970s or 1980s." He expressed concern that his wife died of cancer and his daughter is currently battling cancer. They had no history of cancer in their family before his wife got sick. He confirmed they have been connected to High Hills water service since the early 1980s. The resident requested that his old well be tested.*

*Immediately following the meeting, Shaw AFB representatives and the resident's daughter located their property on the aerial photo poster board. The private drinking well was described as roughly 40 feet deep and was operated in the 70s through the early 80s. Based on well depth and location shared by parcel owner, Shaw AFB representatives responded that it is very unlikely that this well was impacted by the base contaminant plumes as they are located 150 feet below ground surface. It is also located far north of the off-base portion of the shallow Dieldrin pesticide plume. On resident's request to sample former well, Shaw AFB representatives noted that it will further review the applicability of sampling this well prior to the next scheduled major sampling event in 2015. It will be an added challenge to locate the well as resident admitted that the former drinking well has been paved over and he is uncertain if it has been filled; precise location is currently unknown. Shaw AFB representatives indicated that if the well no longer exists, it cannot be tested. If it was only 40 feet deep, it likely would not have any water at that depth, based on other shallow wells in the area.*

*At the previous RAB, Shaw AFB representatives also informed the residents that the nearby Korean Church had been sampled at their springs that would be at the same depth as their well and the springs were clean. The well at the Korean Church had also been sampled and tested negative for TCE. This was the northern most testing and the residents are very close to this location.*