

Welcome



Environmental Advisory Board (EAB) Meeting

Robins Air Force Base

May 5, 2022



Welcome and Program Introduction

**Dr. Linda Smyth
EAB Community Co-chair**



Acronyms and Abbreviations

- **AO - Alternate Objective**
- **AS - Air Sparge**
- **ASC - Advanced Site Characterization**
- **BZJV - Bhate Zapata Joint Venture**
- **CAP - Corrective Action Plan**
- **COR - Contracting Officer's Representative**
- **CSE - Comprehensive Site Evaluation**
- **CSM - Conceptual Site Model**
- **DD - Decision Document**
- **EAB - Environmental Advisory Board**
- **FS - Feasibility Study**
- **GA EPD - Georgia Environmental Protection Division**
- **HPT - Hydraulic Profiling Tool**
- **HRSC - High-Resolution Site Characterization**
- **HVR - High Vacuum Remediation**
- **ISCO - In-situ Chemical Oxidation**
- **LF001 - Landfill No. 1**
- **LF002 - Landfill No. 2**



Acronyms and Abbreviations

- **LF003 - Landfill No. 3**
- **LF004 - Landfill No. 4**
- **LIF - Laser-Induced Fluorescence**
- **LNAPL - Light Non-Aqueous Phase Liquid**
- **LTM - Long-term Monitoring**
- **LUC - Land Use Control**
- **LUCIP - Land Use Controls Implementation Plan**
- **MIP - Membrane Interface Probe**
- **mL/min - milliliters per minute**
- **MNA - Monitored Natural Attenuation**
- **MNR - Monitored Natural Recovery**
- **MRA - Munitions Response Area**
- **MRS - Munitions Response Site**
- **ORC - Optimized Remediation Contract**
- **PAH - Polycyclic Aromatic Hydrocarbon**
- **PAL - Project Action Limits**
- **psi - pounds per square inch**
- **PP - Proposed Plan**



Acronyms and Abbreviations

- **RA-O - Remedial Action - Operation**
- **RC - Response Complete**
- **RD/RA - Remedial Design/Remedial Action**
- **RI - Remedial Investigation**
- **RL - Remediation Level**
- **SC - Site Closure**
- **SOP - Standard Operating Procedure**
- **SSI - Supplemental Site Investigation**
- **SVE - Soil Vapor Extraction**
- **SWMU - Solid Waste Management Unit**
- **UFP-QAPP - Uniform Federal Policy - Quality Assurance Project Plan**
- **US EPA - United States Environmental Protection Agency**
- **uV - Ultraviolet**



Environmental Advisory Board



EAB Transitions

Tammy Hebel
Principal
Geosyntec Consultants, Inc.

May 5, 2022



Overview

- EAB members
- EAB elections



EAB Members

- **Community Co-Chair – Linda Smyth**
- **Installation Co-Chair – Shan Williams**
- **Community members**
 - **Tiffany Bowen (New Member, Centerville)**
 - **Lawrence Collins (Byron)**
 - **Jim Harden (Warner Robins)**
 - **John Harley (Centerville)**
 - **Steve Johnson (Macon)**
 - **Mike Maffeo (Macon)**
 - **Clarence Riley (Warner Robins)**
 - **Brian Rood (Macon)**
- **EAB Manager – Fred Otto**



EAB Members

■ Regulatory participation

- Georgia Environmental Protection Division (GA EPD) – Jim Ashworth
- United States Environmental Protection Agency (US EPA) – Craig Benedikt

■ Retired during COVID-19

- Debra Jones (Warner Robins)
- Penrose Wolf (Perry)

■ Transferred to new position on base

- Laurel Cordell, Former EAB Manager



EAB Members

■ Membership

- Anyone can nominate new members
- Prospective member will complete Community Interest Application Form
- Selection and approval responsibility of Community and Installation Co-Chairs



EAB Election

- **Community Co-chair**
 - **Previous election – May 2019**
 - **Charter has three-year term**
 - **May serve more than one term**
 - **Next election planned for August 2022**
 - Vote of EAB community members



Environmental Advisory Board



Optimized Remediation Contract (ORC) Overview

Tammy Hebeler
Principal
Geosyntec Consultants, Inc.

May 5, 2022



Overview

- **What is the ORC?**
- **ORC Team**
- **Performance Objectives (POs) and Sites**
- **Recap of Select ORC Activities**



What is the ORC?

- **Performance-based contract – Contractor paid to achieve Performance Objectives (POs)**
 - Replaces Performance-Based Remediation (PBR) contract
 - Lessons learned from PBR + regulatory involvement
 - Contractor provided POs by Government; no stretch-goals
 - Each site has minimum PO to continue meeting regulatory requirements
- **Awarded September 2020**
- **7-year contract (expires September 2027)**
- **19 sites at Robins AFB**
- **Facilitation of EAB is part of ORC**



ORC Team

- **GA EPD - Regulatory Oversight**
 - Kim Hembree, Manager, DoD Facilities Unit
 - Jim Ashworth, Geologist 3
- **USEPA - Regulatory Oversight (Landfill No. 4 [LF004])**
 - Craig Benedikt, Senior Remedial Project Manager
- **United States Army Corps of Engineers (USACE) - Contracting Agency**
 - Shauna Stotler, Contracting Officer's Representative (COR)
 - Brandy DeArmond, Technical Oversight
- **AFCEC - Air Force Customer**
 - Griff Cox, Remedial Project Manager
 - Antonio Lodico, Remedial Program Manager
 - Fred Otto, Remedial Project Manager
- **Bhate Zapata LLC (BZJV) - Prime Contract Holder**
 - Key subcontractor
 - Geosyntec



**US Army Corps
of Engineers®**
Savannah District



bhate | ZAPATA

Geosyntec
consultants

engineers | scientists | innovators



Performance Objectives and Sites

- **Performance Objectives (POs)**
 - Long-term monitoring (LTM)
 - Remedial Action - Operation (RA-O)
 - Update Corrective Action Plan (CAP)
 - Achieve Response Complete (RC)
 - Achieve Remediation Levels (RLs)
 - Achieve Site Closure (SC)
 - Alternative Objective (AO)



Performance Objectives and Sites

- **Long-term monitoring (LTM)**
 - **Maintenance of Land Use Controls (LUCs)**
(e.g., fencing, gates, signage)
 - **Quarterly or annual site inspection and maintenance of LUCs**



Fencing and Signage



Fencing, Gates, and Signage



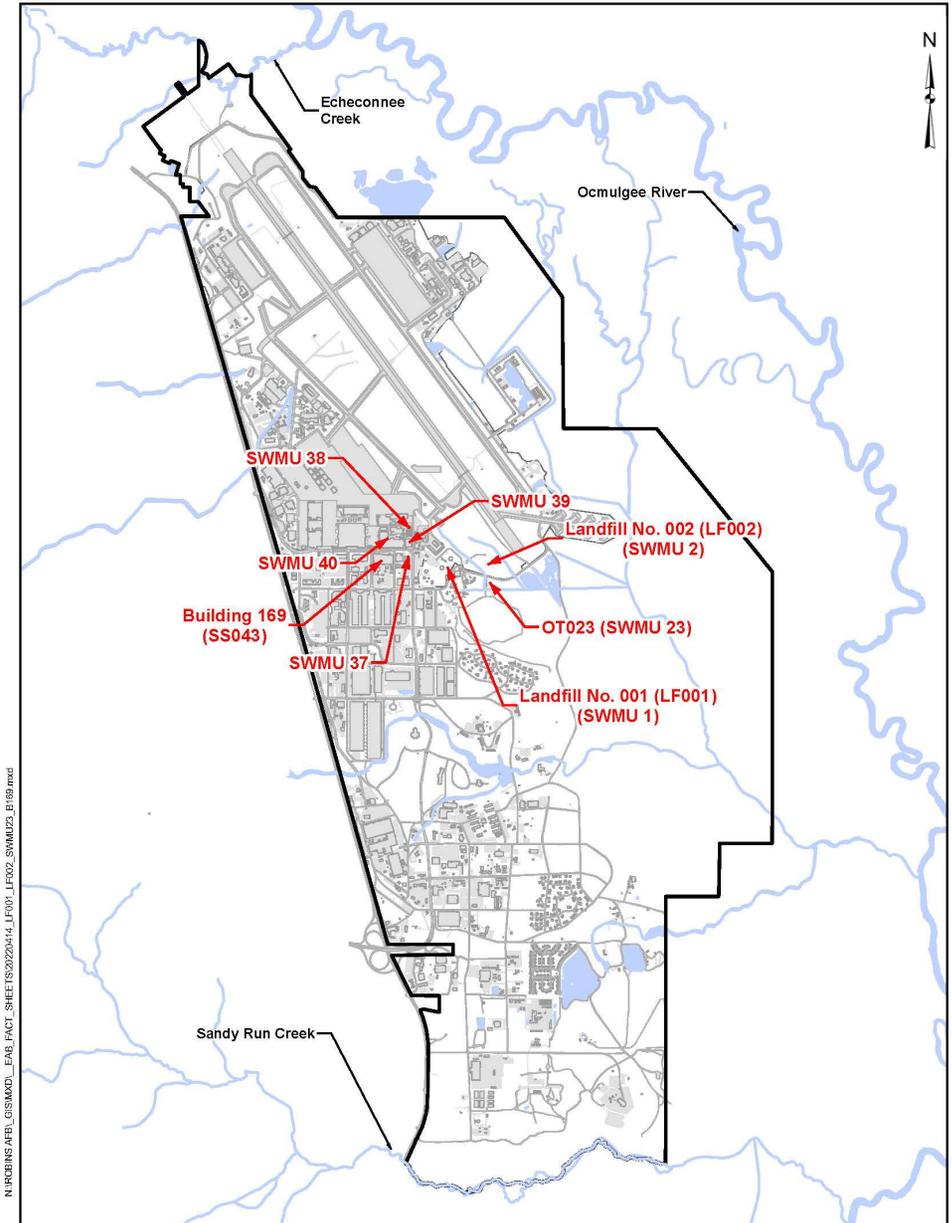
Signage



Performance Objectives and Sites

■ LTM sites

- Landfill No. 1 (LF001) (SWMU 1)
- Landfill No. 2 (LF002) (SWMU 2)
- OT023 (SWMU 23)
- Building 169 (SS043)
- Solid Waste Management Units (SWMUs) 37, 38, 39, and 40; part of OT020/SWMU 20



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Performance Objectives and Sites

■ Remedial-Action Operation (RA-O)

- Inspection and maintenance of LUCs
 - Perimeter sign and fencing inspections, deficiency notations
- Operations of remedial system
- Annual groundwater sampling



Diversion Ditch Cleanup at
Landfill No. 4



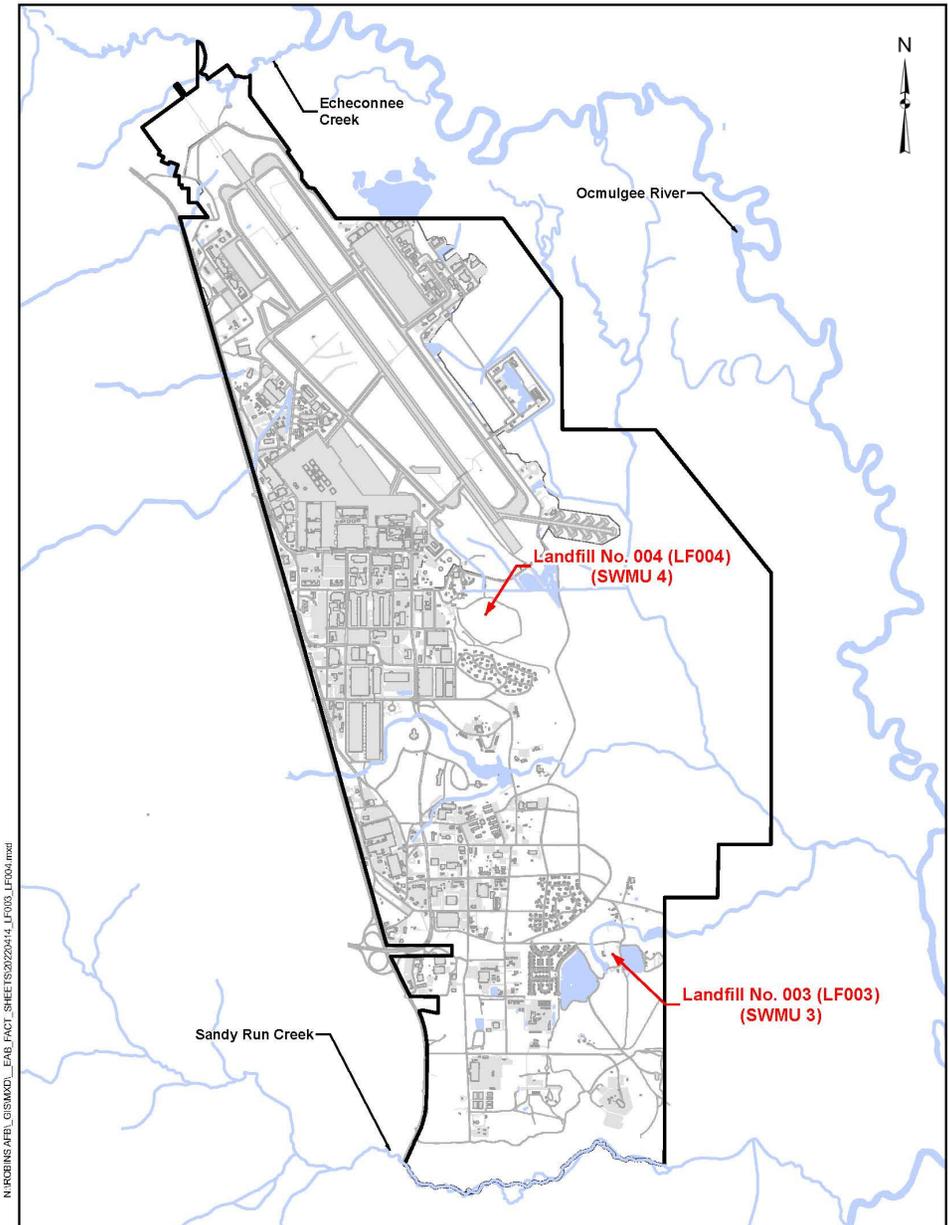
Fence Repair at Landfill No. 3



Performance Objectives and Sites

■ RA-O sites

- Landfill No. 3 (LF003) – groundwater pump and treat system
 - LF003 also has PO for Supplemental Site Investigation (SSI)
- Landfill No. 4 (LF004) – monitored natural attenuation (MNA) and cover maintenance





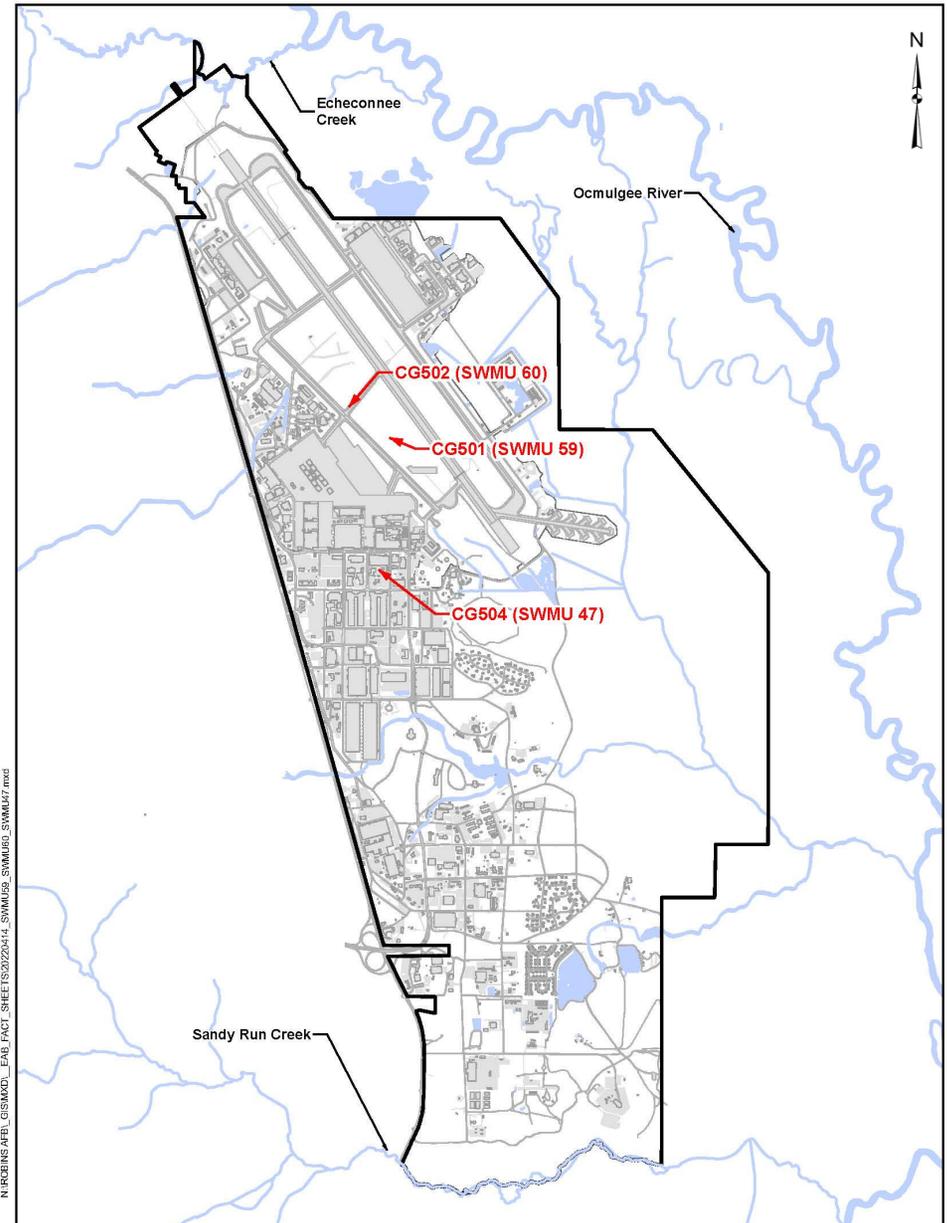
Performance Objectives and Sites

- **Update Corrective Action Plan (CAP)**
 - **Reduce time to closure through modification of site remedy**
 - Need for CAP revision was identified through SSIs completed during PBR contract
 - **Operations of remedial system**
 - **Annual groundwater sampling**



Performance Objectives and Sites

- **CAP Update sites**
 - **CG501 (SWMU 59) and CG502 (SWMU 60) – Expand biosparge system**
 - **CG504 (SWMU 47) – Conduct chemical injections with Modified Fenton's Reagent**





Performance Objectives and Sites

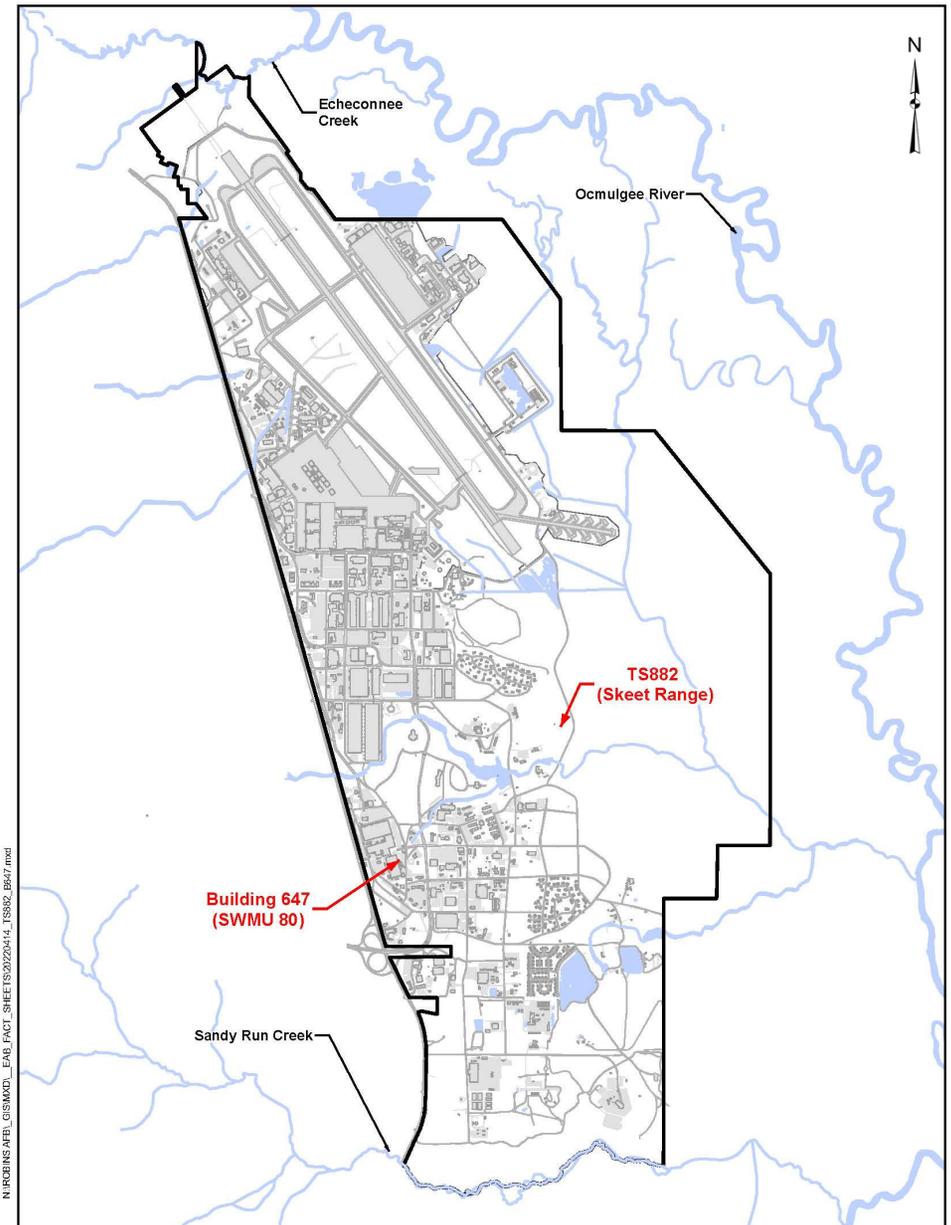
- **Achieve Response Complete (RC)**
 - **Implement remedy proposed by Decision Document (DD)**



Performance Objectives and Sites

■ Achieve RC sites

- **TS882 (Former Skeet Range)**
 - Excavate polycyclic aromatic hydrocarbons (PAHs) - impacted upland area
 - LUCs and Monitored Natural Recovery for lead-impacted wetland area
- **Building 647 (SWMU 80)**
 - Submitted CAP
 - CAP proposes LUCs
 - Implement LUCs (Pending GA EPD approval)





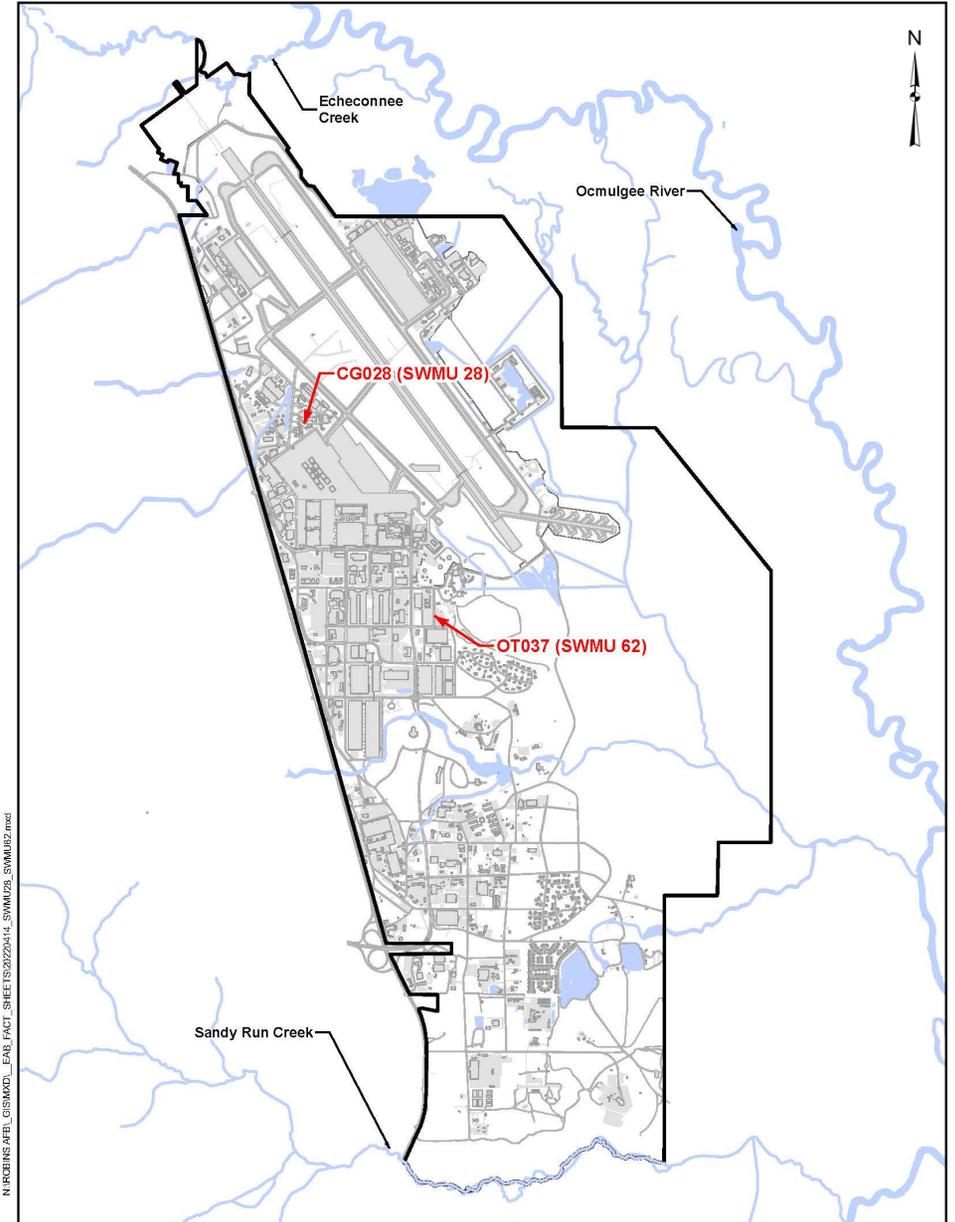
Performance Objectives and Sites

- **Achieve Remediation Levels (RLs)**
 - **Achieve site-specific RLs in groundwater and/or soil by the end of the ORC period of performance**
 - **Operations of remedial system**
 - **Annual groundwater sampling**



Performance Objectives and Sites

- **Achieve RLs sites**
 - **CG028 (SWMU 28) – Light non-aqueous phase (LNAPL) removal via high vacuum remediation (HVR)**
 - **OT037 (SWMU 62)**
 - SSI conducted to collect additional data
 - SSI report under GA EPD review
 - Proposed path forward: In-situ Chemical Oxidation (ISCO)





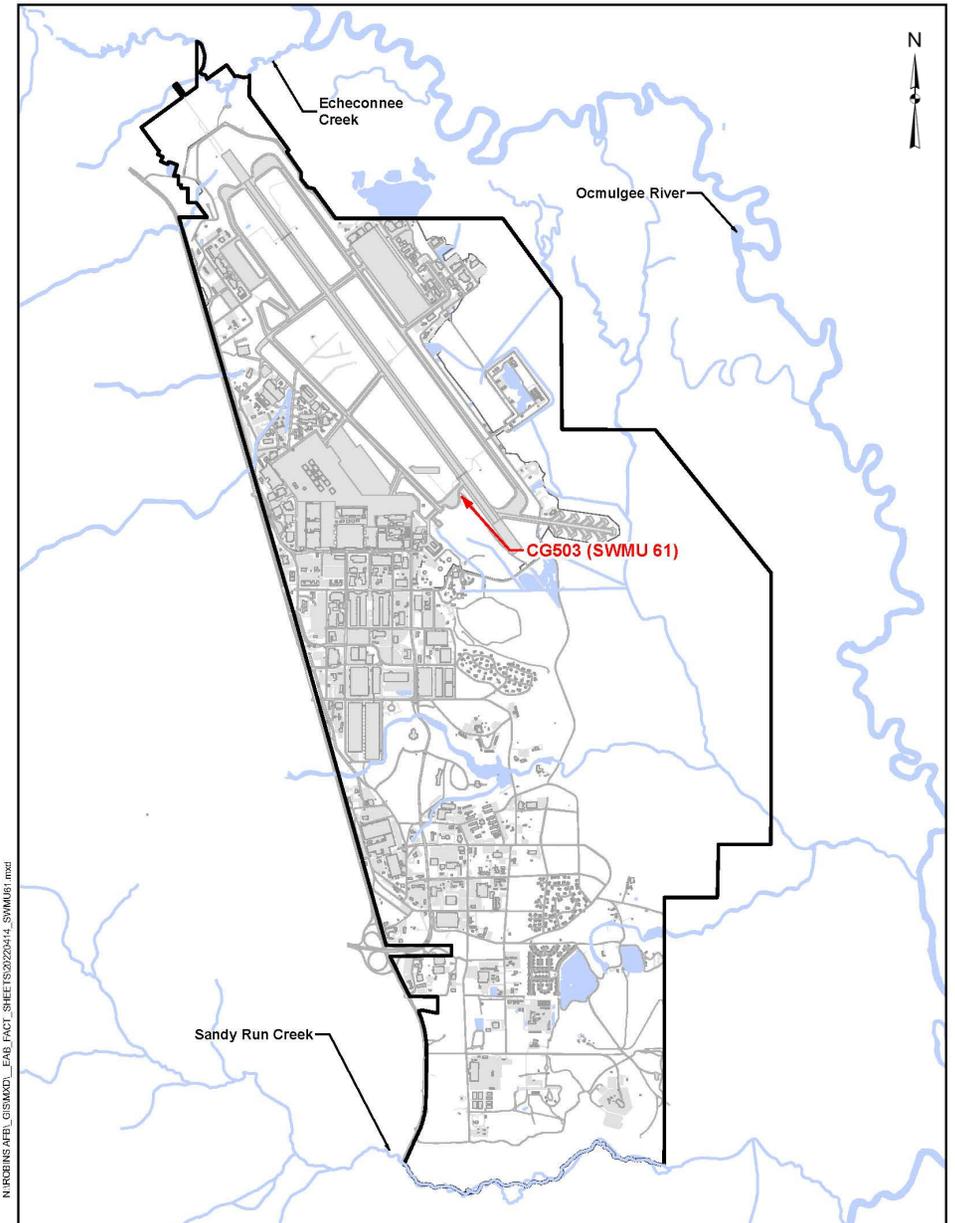
Performance Objectives and Sites

- **Achieve Site Closure (SC)**
 - **Operations of remedial system**
 - **Annual groundwater sampling**
 - **Achieve RLs**
 - **Complete 3-year of monitoring post-achievement of RLs with no rebound**
 - **Decommission monitoring wells and system**



Performance Objectives and Sites

- Achieve SC site
 - CG503 (SWMU 61)
 - CAP Addendum under GA EPD review
 - Chemical injections with Modified Fenton's Reagent





Performance Objectives and Sites

■ Alternative Objective (AO)

- Sites with *“complex attributes that have, to date, inhibited progress toward the achievement of RC [Response Complete].”*
- AO sites generally have incomplete conceptual site model (CSM) and are expected to require longer than 30 years to achieve Response Complete under current remedial approach



Performance Objectives and Sites

■ AO POs (continued...)

- **Advanced Site Characterization (ASC)/High-Resolution Site Characterization (HRSC)**
 - SSI
 - Revised CSM
 - Updated groundwater monitoring program
- **Remedy Evaluation and Recommendation**
 - Pilot Studies/Treatability Tests, as applicable
- **Decision Document amendment, as applicable**
- **Remedial system operation**
- **Annual groundwater sampling**

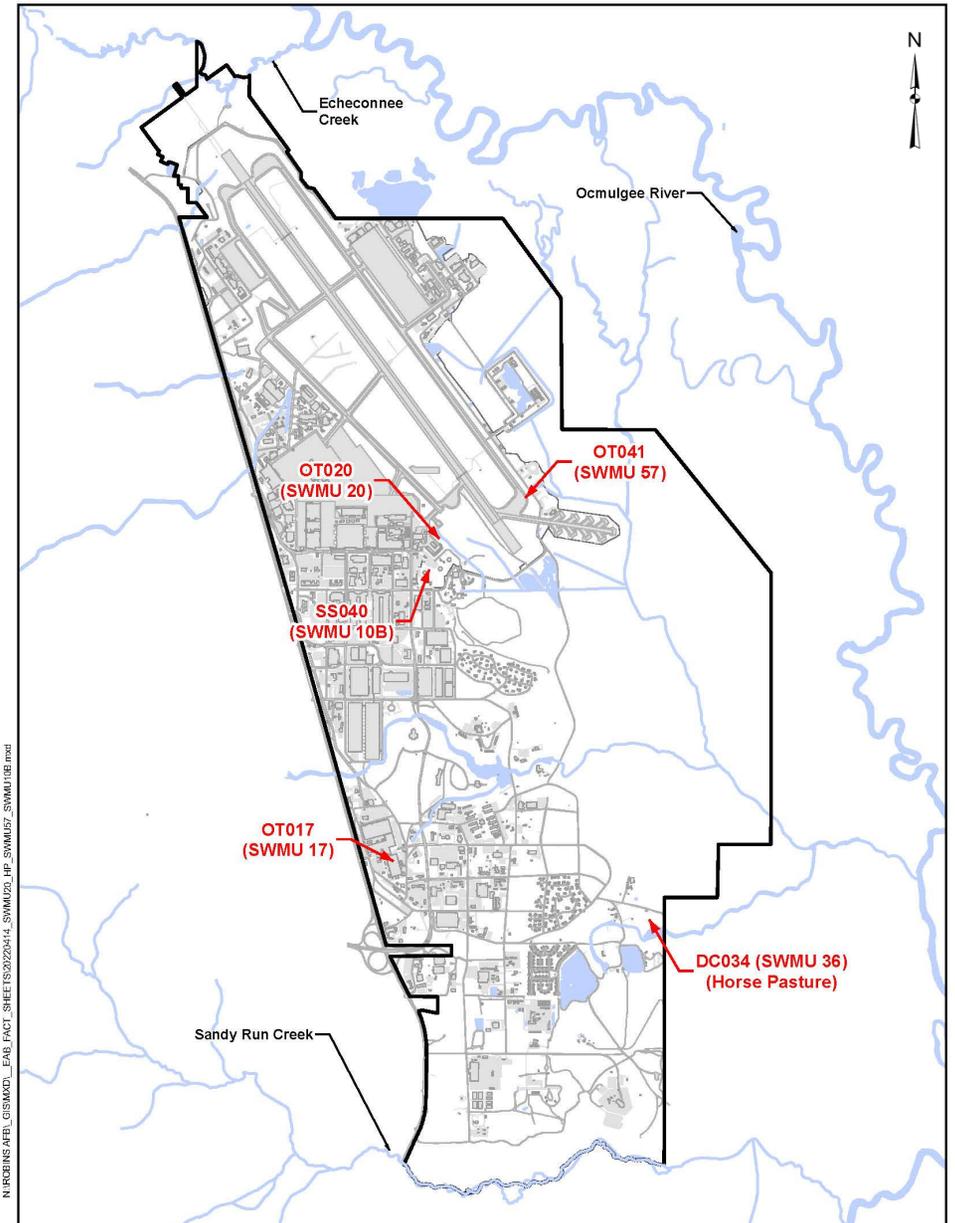
} Implementation of these tasks will be based on outcome of the site investigations



Performance Objectives and Sites

■ AO sites

- DC034 (SWMU 36)
(Horse Pasture)
- OT017 (SWMU 17)
- OT020 (SWMU 20)
- OT041 (SWMU 57)
- SS040 (SWMU 10B)





Performance Objectives and Sites

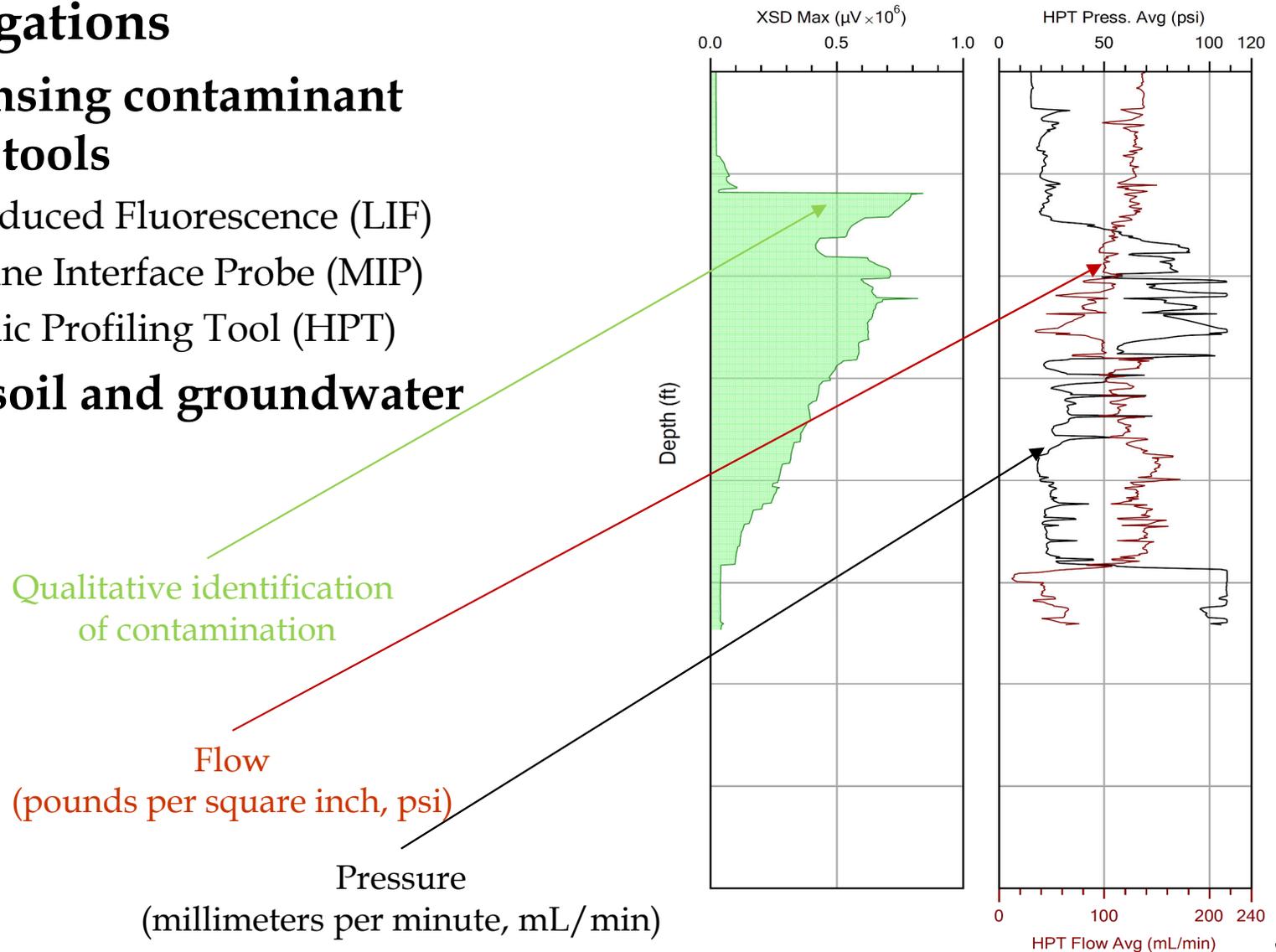
- **AO site characteristics**
 - **Contaminants generally include fuel related and/or chlorinated solvent compounds**
 - **Varying geology/hydrogeology**
 - Contaminant mass in low permeability layers/zones
 - **Variety of current remedies**
 - Biosparge
 - Soil Vapor Extraction (SVE)
 - Air Sparge (AS)/SVE
 - Bioremediation
 - In-situ submerged oxygen curtains



Performance Objectives and Sites

■ Site Investigations

- **Direct sensing contaminant profiling tools**
 - Laser-Induced Fluorescence (LIF)
 - Membrane Interface Probe (MIP)
 - Hydraulic Profiling Tool (HPT)
- **Discrete soil and groundwater sampling**





Performance Objectives and Sites

- **Collect data to inform CSM refinement**
 - Optimize remedial approach
 - Assess long-term remedial action objectives and remedy performance metrics
 - Reduce life-cycle costs
- **Key focus:**
 - Where is contaminant mass?
 - What are contaminant transport pathways?



Performance Objectives and Sites

■ SSI components

• Work Plan

- Optimized Uniform Federal Policy for Quality Assurance Project Plan (UFP-QAPP) [e.g., field standard operating procedures (SOPs), analytical methods/procedures, data management, data validation]

- Approved by GA EPD for each AO site

• Field Investigation

- DC034 – Initial mobilization in December 2021/January 2022
- OT017 – April 2022

• Data Validation and Management

• Reporting – Revised CSM



Recap of Select ORC Activities to Date

- **Basewide groundwater sampling**
 - March 2021
 - March 2022
- **High vacuum remediation (HVR) events at SWMUs 28 and 47 – March 2021**
- **LF003 site investigation – Ongoing**
- **SSI for SWMU 28 – Report in Final GA EPD review**
- **SSI for SWMU 62 – Report in Draft Final GA EPD review**
- **CAP Addendum for SWMUs 59/60 – Approved October 2021**
- **CAP for SWMU 80 – In Final GA EPD review**
- **CAP Addendums for SWMU 47 and SWMU 61 to GA EPD in May 2022**
- **TS882 (Former Skeet Range) (*Subject of next briefing*)**



HVR Event at SWMU 28



Questions?



Environmental Advisory Board



TS882 (Former Skeet Range) – Update on Progress

James S. Lord
Project Manager
Bhate/ZAPATA JV
May 5, 2022



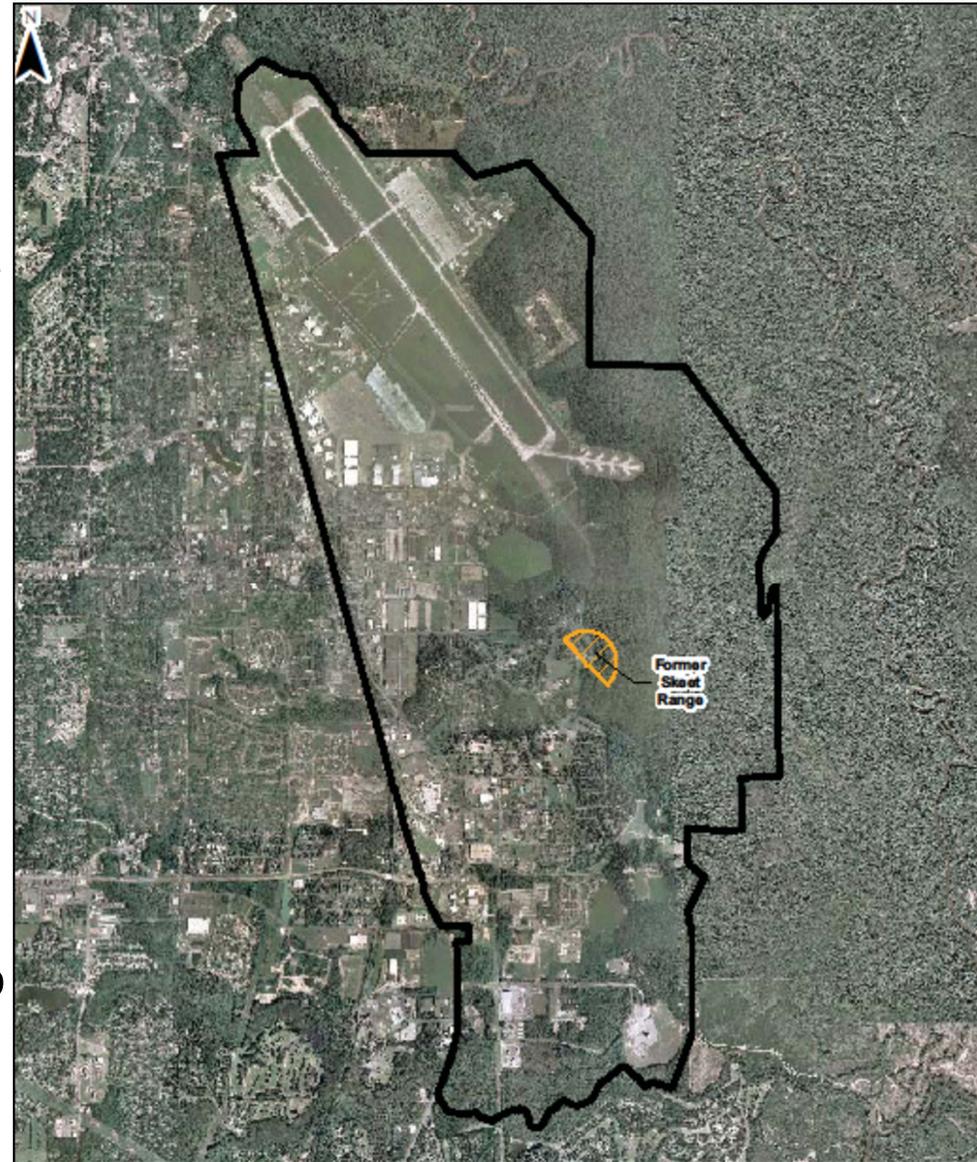
Overview

- **TS882 History**
- **Previous investigations**
- **Remedial Design / Remedial Action (RD/RA)**
 - **Planning documents**
 - **Field work in progress**
- **Path forward**



TS882 History

- Former Skeet Range – 29.4-acre site
- Skeet houses, firing line, and safety fan
- Identified from 1955 & 1958 aerial photographs
- Active from 1942 until 1953
- Used exclusively for shotgun firing practice at clay pigeons
- All features removed by 1966 due to golf course construction



Location of TS882 on Robins AFB



TS882 History

- Site overlaps Base golf course
- Site (to east) lies in wooded wetland
- Former firing point on golf course
- Clay pigeon debris found on surface/subsurface near firing point
- Green hatched area = wooded wetlands



TS882 Location/Features



TS882 History



Treeline = Wooded Bluff
Dropping off to Wetland

Former Firing Point - Pine Oaks Golf Course
(Clay Pigeon Debris Area)



TS882 History



Wooded Wetland (Dry Season)



Previous Investigations

■ Archaeological Digs (1998 - 2004)

- During investigation of culturally sensitive sites across the base, clay pigeon debris discovered at TS882 (Former Skeet Range)

■ Comprehensive Site Evaluation (CSE) Phase I (2008)

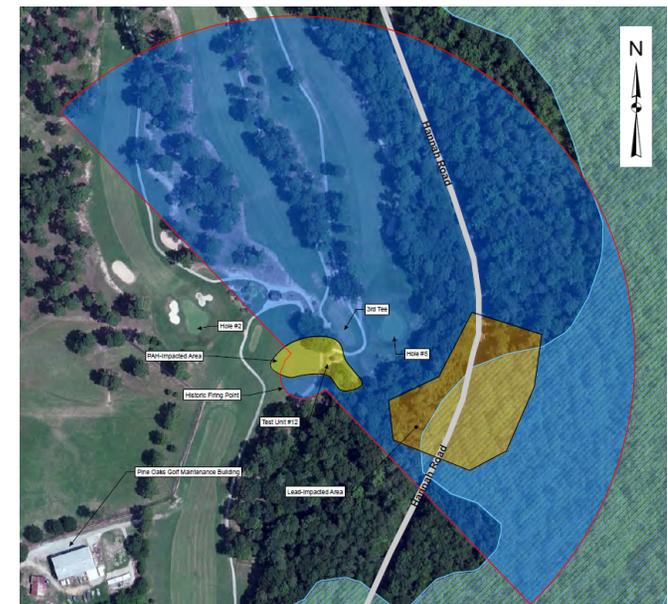
- Identified site as TS882 (Former Skeet Range)
- Confirmed presence of clay pigeon debris as source of polycyclic aromatic hydrocarbons (PAHs)
- Recommendation to proceed to Phase II

■ CSE Phase II (2011)

- Lead exceeded ecological and human health risk-based screening levels in 2.33-acre area
- PAHs in soil at firing point area exceeded human and ecological risk-based screening levels over a 0.46-acre area
- Recommendation to proceed to Remedial Investigation phase



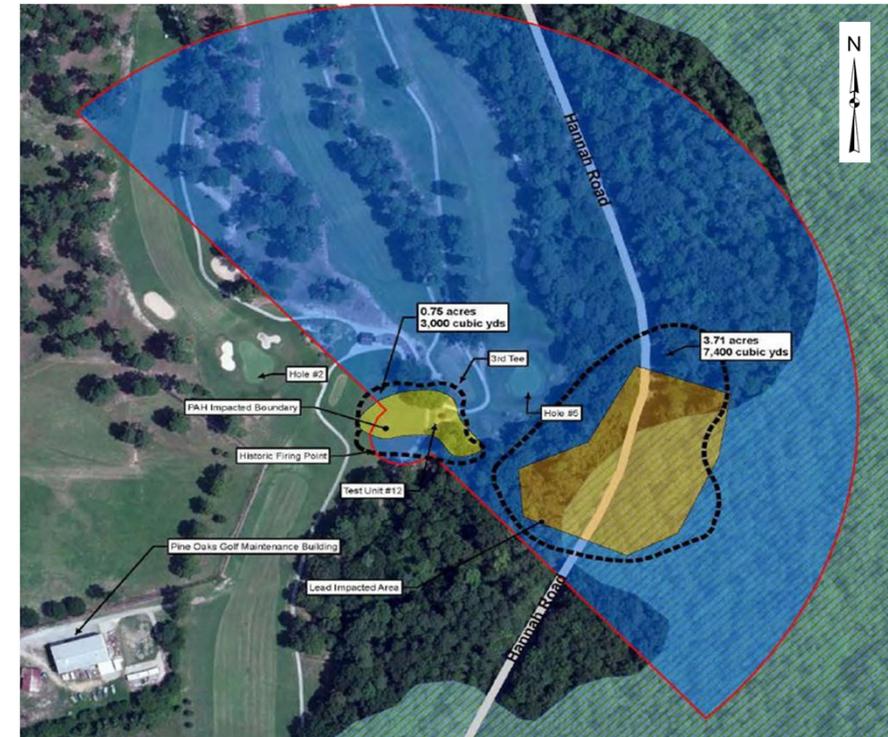
Typical Clay Pigeon Debris (not TS882)





Previous Investigations

- Remedial Investigation (RI)
 - Former Firing Point (PAH-Impacted Area)
 - Refined PAH-Impacted Area from 0.46 acres to 0.75 acres
 - Wetland (Lead-Impacted Area)
 - Refined Lead-Impacted Area from 2.33 acres to 3.71 acres
 - Recommendation
 - Complete Feasibility Study (FS) to evaluate remedial alternatives



MRA - Munitions Response Area
MRS - Munitions Response Site



Previous Investigations

■ Feasibility Study (FS)

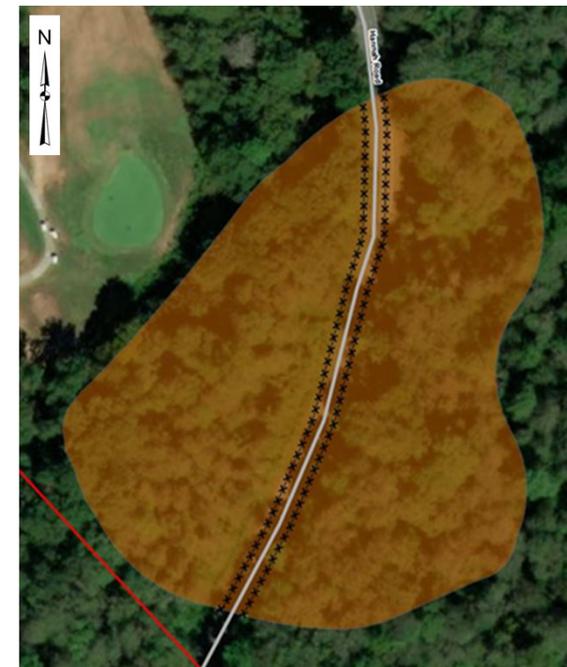
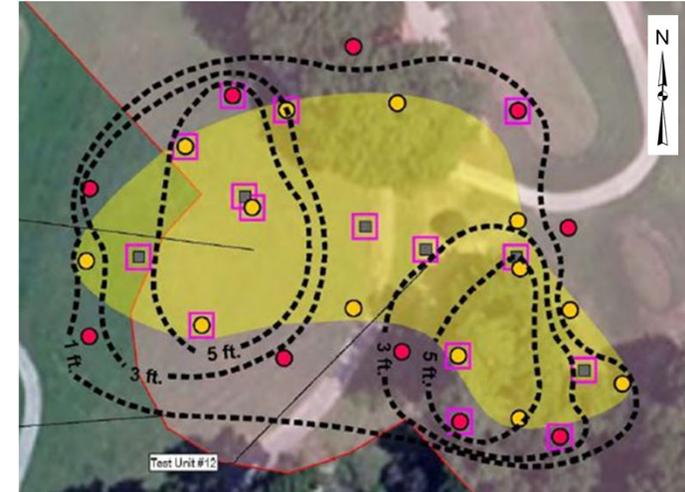
- Developed and evaluated four appropriate remedial alternatives such that relevant information concerning remedial action alternatives can be presented to decision-maker

■ Proposed Plan (PP)

- Presented evaluation of clean-up alternatives and provided recommendation for preferred alternative
- Public notice published in Macon Telegraph and Houston Home Journal on January 17, 2018.
 - PP made available to public from January 31 to March 5, 2018
 - Public meeting to present PP held in conjunction with EAB meeting on February 1, 2018

■ Decision Document (DD)

- Documented remedial action selected by decision-makers
- Selected Alternative (Alternative #4)
 - Excavation, off-site Disposal, Backfilling, and Restoration of the PAH-Impacted Area
 - Land Use Controls (LUCs), which include fencing and signs
 - Monitored Natural Recovery (MNR) for Lead-Impacted Area





RD/RA Planning Documents

- **LUC Implementation Plan (LUCIP) (Approved May 19, 2021)**
 - Described methods for implementing LUCs at Lead-Impacted Area
- **RD/RA Work Plan (Approved 18 January 2022)**
 - Described method for removal of PAH-impacted soil
- **MNR Implementation Plan (current under GA EPD review)**
 - Describe plan to perform monitoring in support of risk management decision of MNR for Lead-Impacted Area

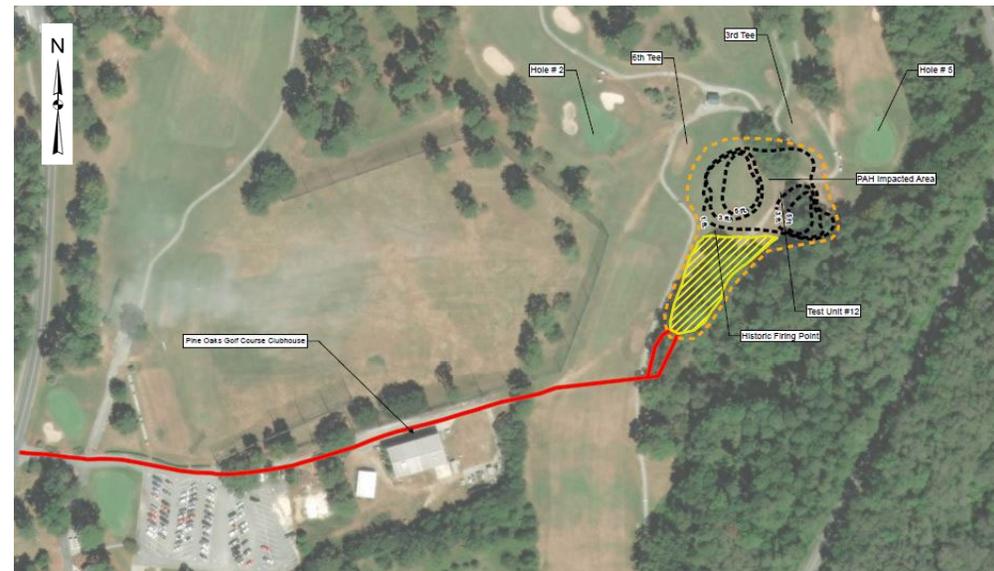
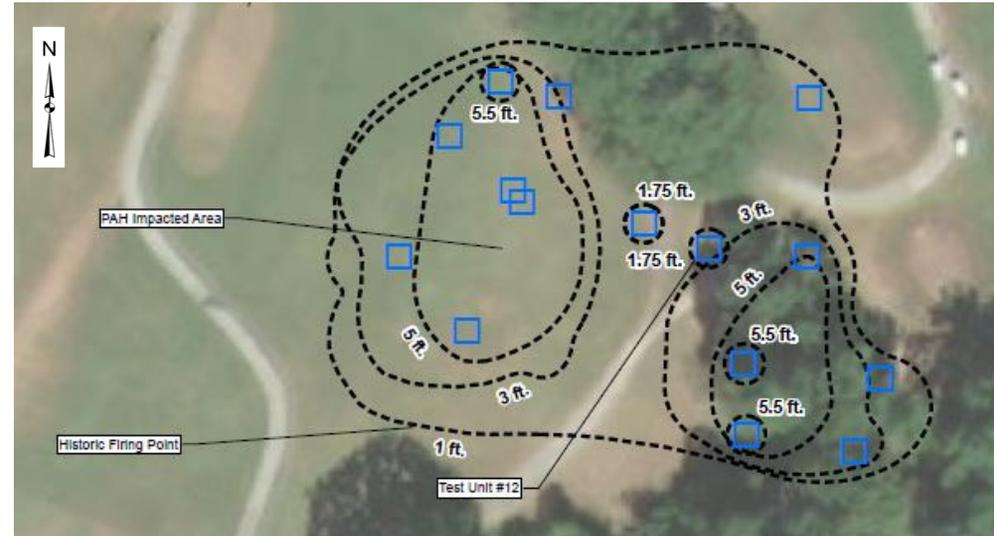


RD/RA

Fieldwork in Progress

■ PAH-Impacted Area (Removal Action)

- Field work started on February 21, 2022 and is currently ongoing
- Original design footprint has been excavated as designed
- Approximately 180 confirmation samples have been collected
- Evaluating confirmation samples that have exceeded project action limits (PALs)
- Archeologist remains on-site for all intrusive activities





RD/RA Fieldwork in Progress

■ Excavation Site Progress Photos



Temporary
Haul Road
with
Fencing



Excavation



Confirmation Sampling



RD/RA

Fieldwork in Progress

■ Excavation Site Progress Photos (continued)



Loading Truck



Golfers at Temporary Tee Box



RD/RA Fieldwork in Progress

■ Archaeological Findings





Path Forward

■ PAH-Impacted Area (Removal Action)

- Complete on-going excavation along with restoration of golf course playing surface

■ Lead-Impacted Area

- Implementation of Land Use Controls (LUCs)
- Complete Monitored Natural Recovery (MNR) Study



Questions?



New Business and Program Closing

**Dr. Linda Smyth
EAB Community Co-chair**



Next EAB Meeting

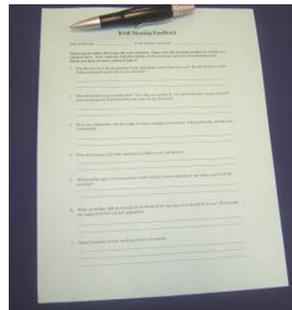
Thursday, August 4, 2022





Please...

Complete the meeting evaluation and feedback form and return to sign-in table or leave at seat



Leave your name tag at the sign-in table or seat for the next meeting



Thank you!