

Operational Range Assessment Program (ORAP)

Public Meeting
February 4, 2015

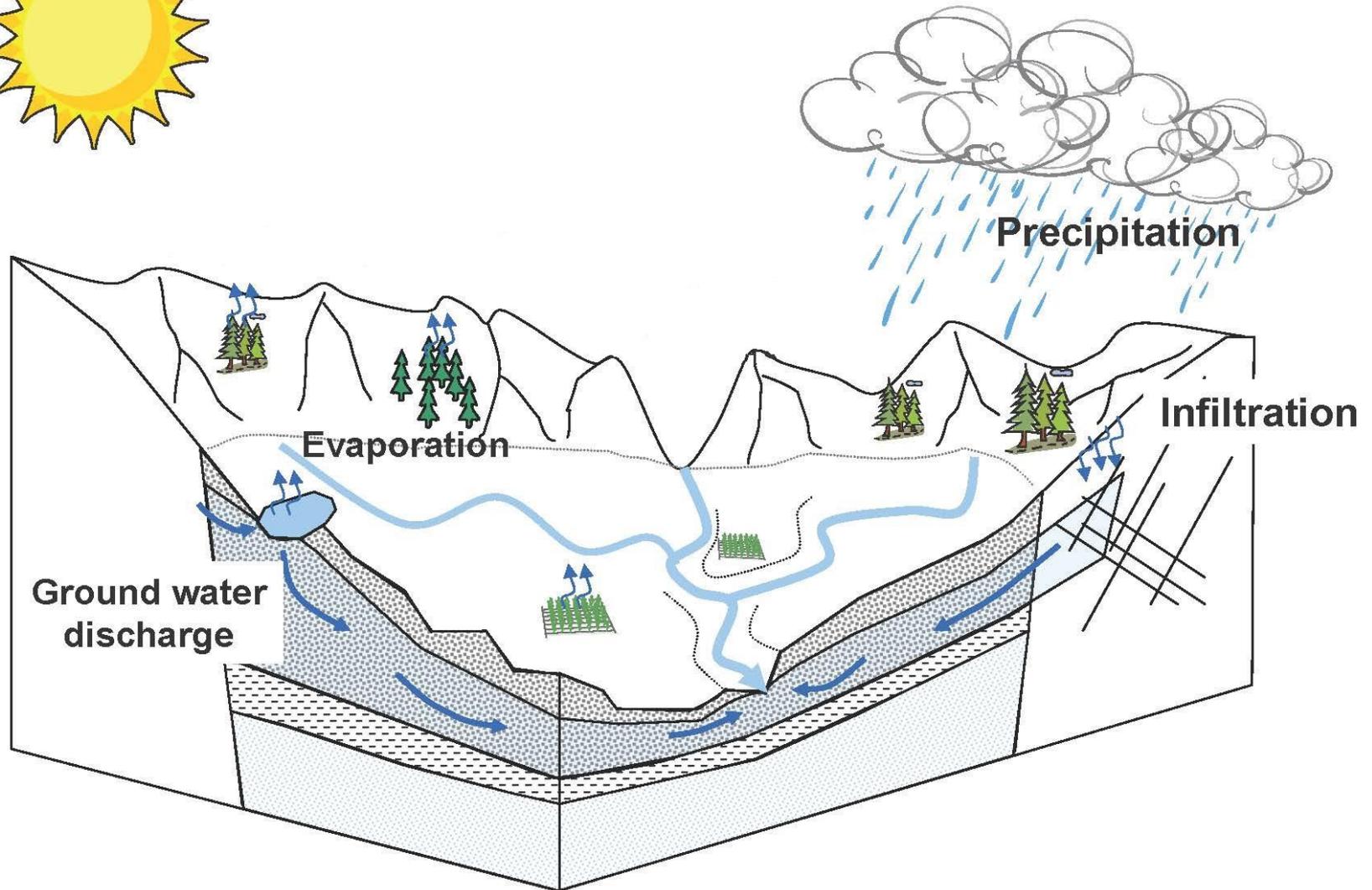
Operational Range Assessment Program (ORAP)

- Proactive Department of Defense (DOD) initiative to identify any issues with munitions constituents of concern (MCOCs) migrating off operational ranges so DOD can address them before they become a bigger issue threatening human health or the environment and training
- DOD is requiring all Services to complete assessments
- The ORAP is the Army's effort to satisfy this DOD requirement.

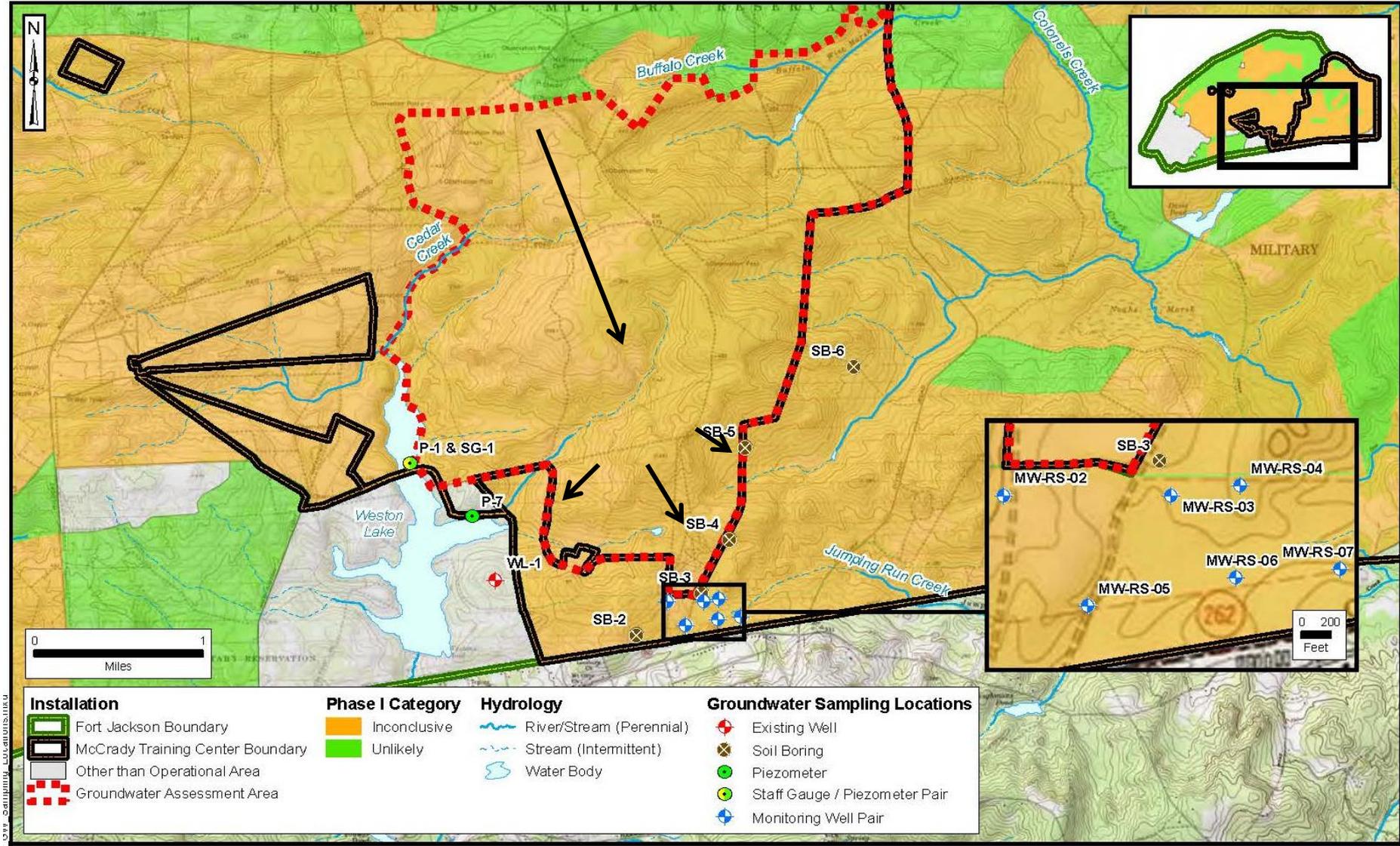
Army's ORAP

- ORAP applies to Army Installations with operational ranges within the U.S. and its territories. This began with 425 installations and >10 million acres.
- Phase I Assessment was conducted at Fort Jackson and McCrady Training Center from 2006-2008. Used readily available information to determine if potential MCOC sources, migration mechanisms, and human and/or sensitive ecological receptors were present.
- Phase II Assessment included groundwater sampling around the East Impact Area near the installation's southern boundary.

How Does Ground Water Connect with Surface Water?



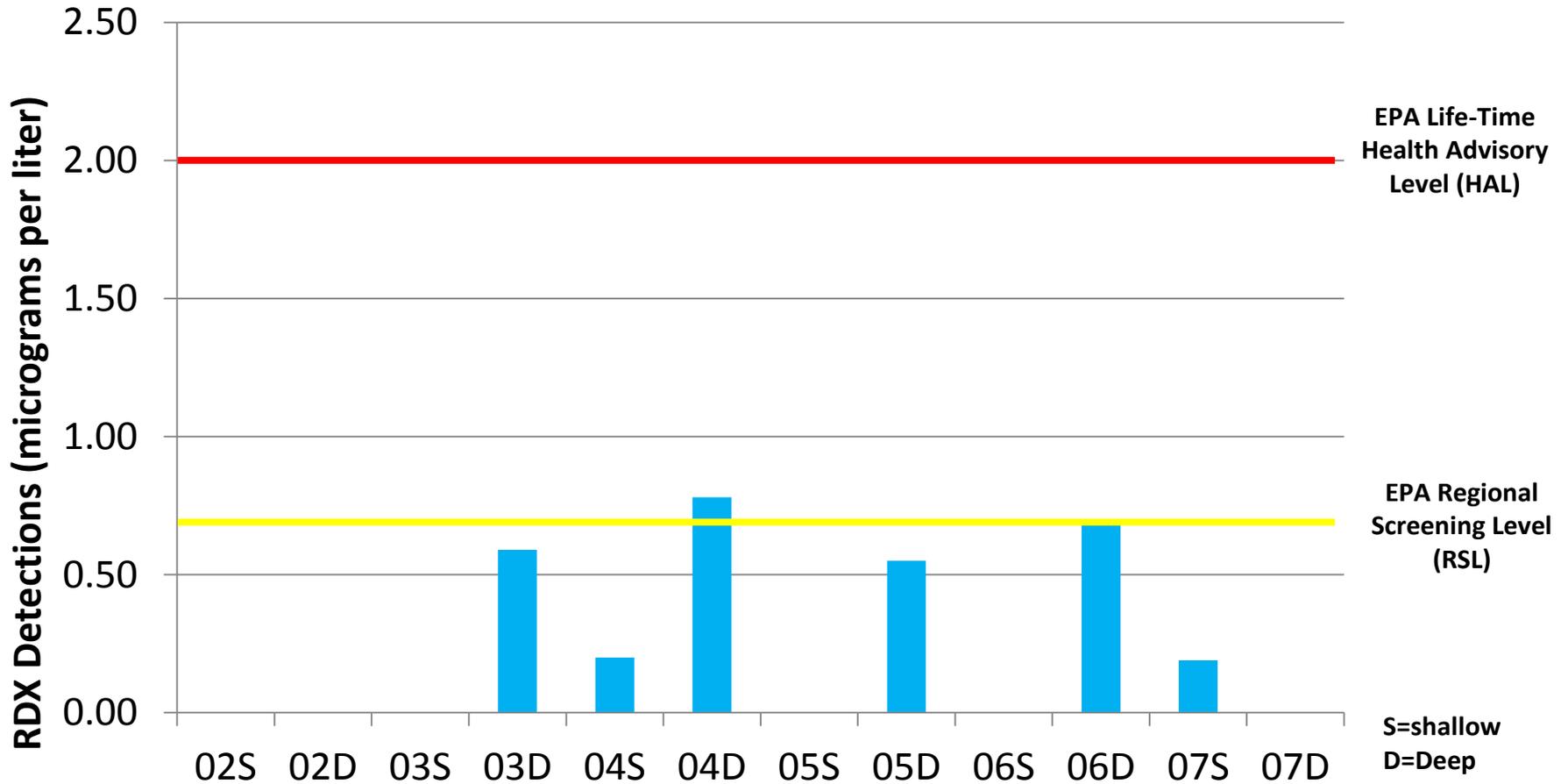
Groundwater Sampling Locations 2012-2013



Source: Sampling Locations/Status

On-Post Well Sample Results

(from expanded box on previous slide)



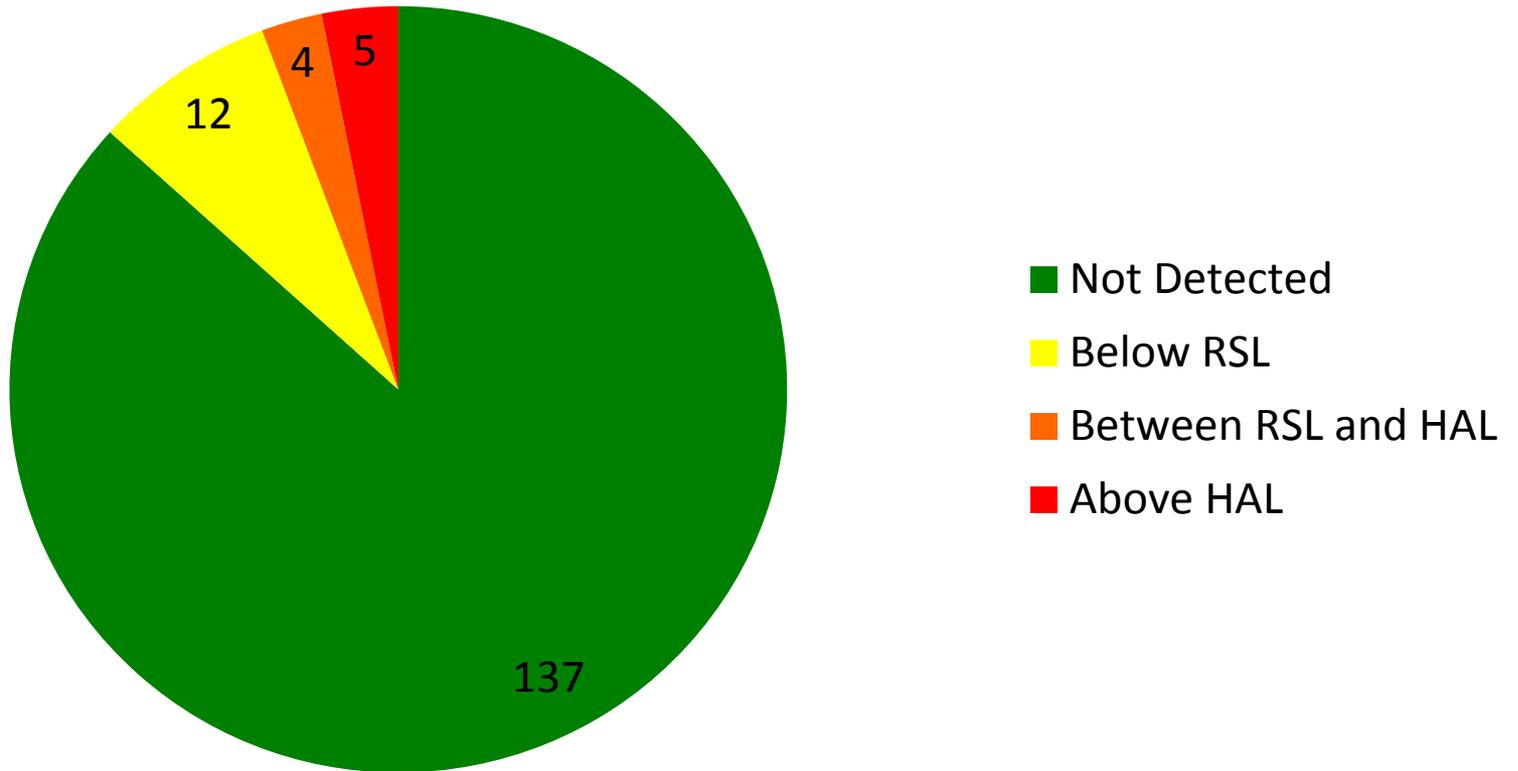
Past Actions

- Nov 2013: Held Media Round-Table (television, radio, & newspaper) and Public Meeting #1 to discuss Royal Demolition Explosive (RDX) detections. Asked residents living near southern boundary for permission to sample their wells.
- Dec 2013-Jan 2015:
 - Collected 229 off-post water samples from 158 wells and analyzed them for 16 explosives.
 - RDX was detected in 5 wells at levels above the US Environmental Protection Agency (EPA) Health Advisory Level (HAL) of 2.0 $\mu\text{g}/\text{L}$, and 4 wells below the HAL but above the EPA Regional Screening Level (RSL) of 0.7 $\mu\text{g}/\text{L}$.
 - Only 1 other explosive was detected above the RSL (in 1 well).
- Feb 2014: Public Meeting #2

Past Actions (continued)

- Apr 2014: St Louis District Corps of Engineers (COE) began Archives Search Report (ASR)
- Jun 2014: Public Meeting #3
- Jul 2014: Savannah COE began installing 15 paired (shallow & deep) groundwater monitoring wells along installation boundary and 3 wells at Remagen hand grenade range
- Oct 2014: St Louis District COE interviewed residents and visited homes where munitions had been seen
- Dec 2014:
 - ASR completed
 - Received analytical results from new on-post groundwater monitoring wells
 - Whole-house filtration systems installed on 2 wells with RDX \geq HAL

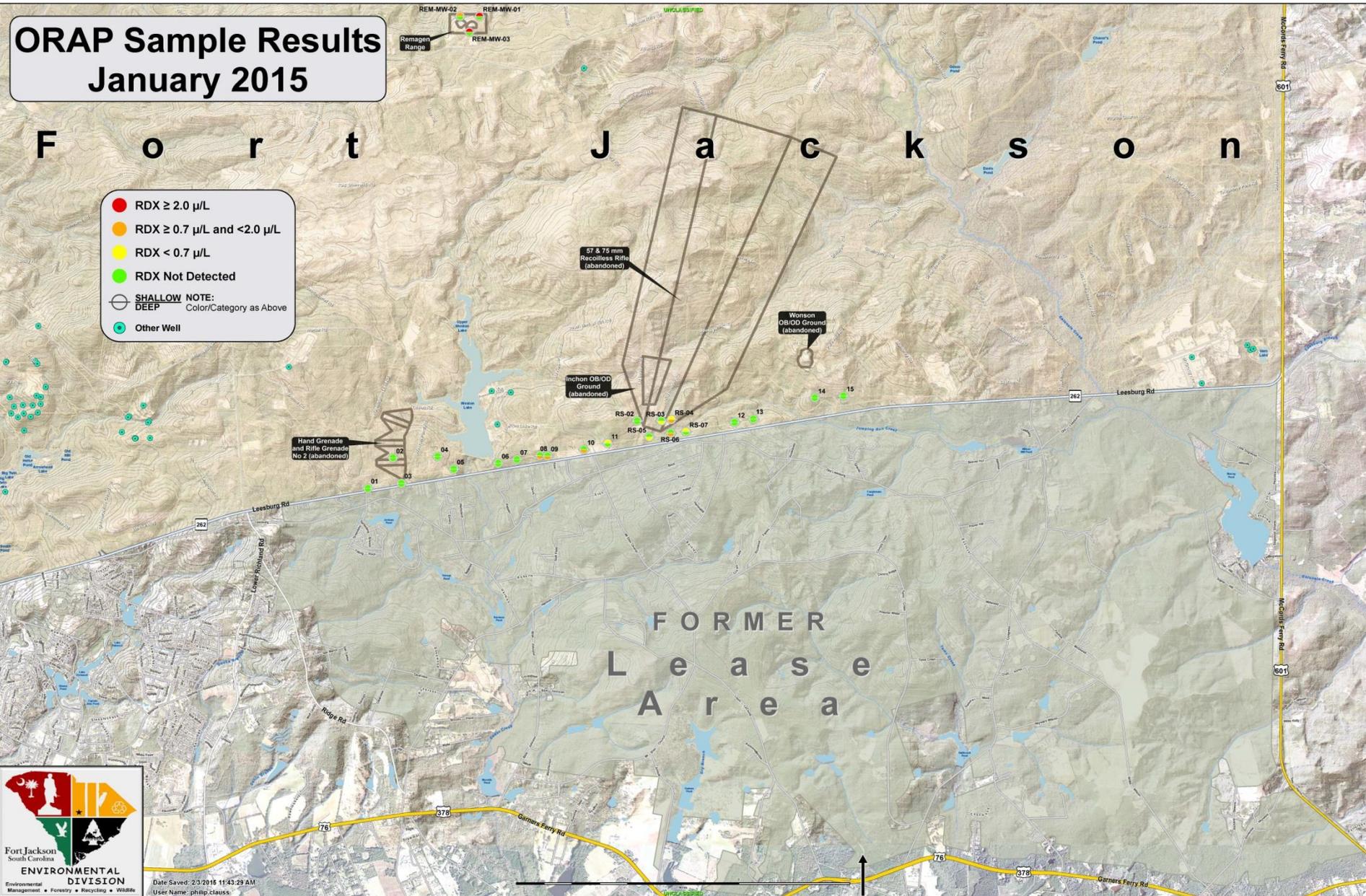
Residential Well Sample Results for RDX ($\mu\text{g/L}$)



ORAP Sample Results January 2015

F o r t J a c k s o n

- RDX \geq 2.0 μ L
- RDX \geq 0.7 μ L and $<$ 2.0 μ L
- RDX $<$ 0.7 μ L
- RDX Not Detected
- **SHALLOW** NOTE:
DEEP Color/Category as Above
- Other Well



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Research Methods/Approach

Archival research to identify munitions training areas/ranges and determine which munitions contain RDX

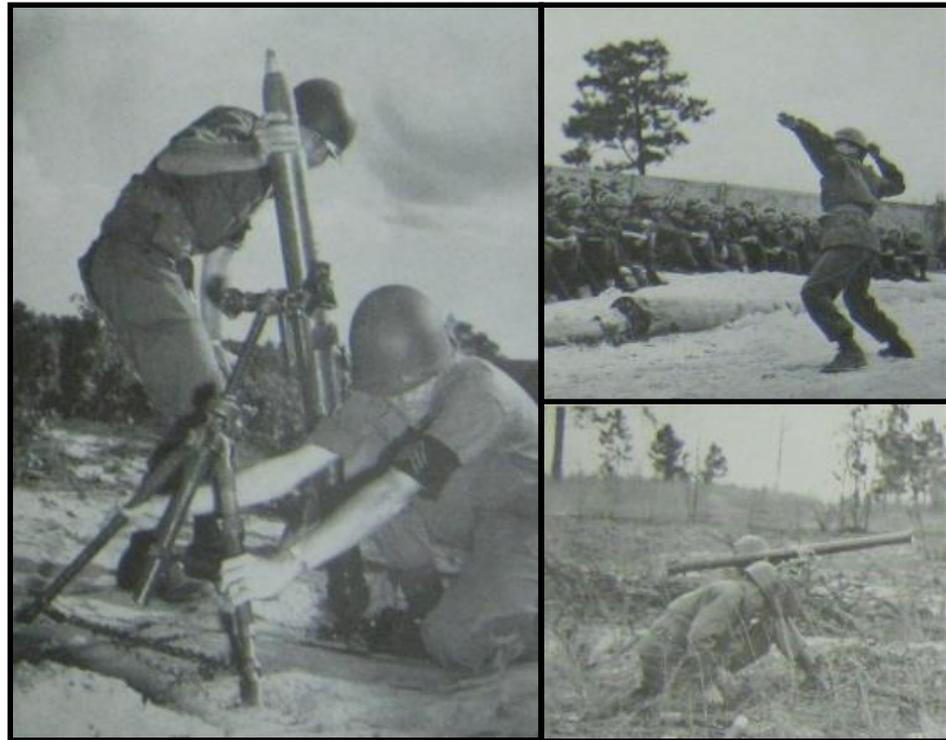
Review research investigating which munitions release significant RDX residues upon detonation

Site visit to determine likely RDX source areas based on visual evidence of munitions training



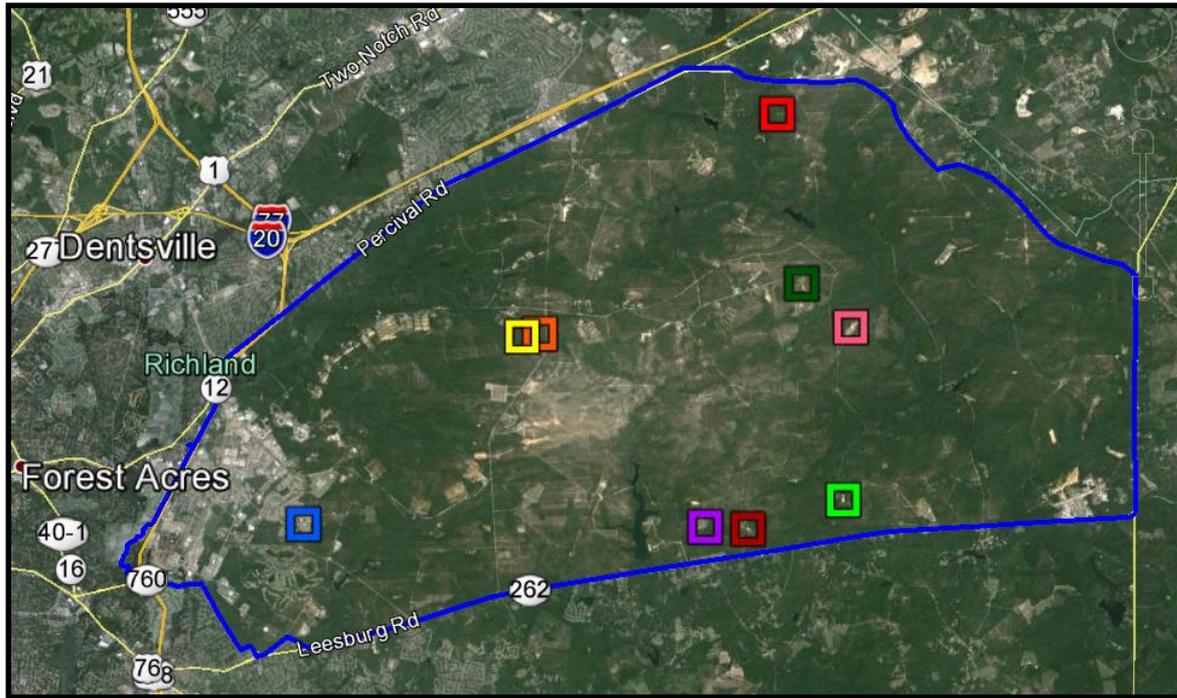
RDX History: Appearance in munitions was over time with prevalent use by late ~1950s

- Rocket Ranges
- Mortar Ranges
- Artillery Ranges
- Recoilless Rifle Ranges
- Anti-Tank Range
- Anti-Tank and Antipersonnel Mines Firing Areas
- Rifle Grenade Ranges
- **Hand Grenade Ranges**
- **Ordnance Demolition and Demolition Training Areas**



Fort Jackson Demolition Ranges

(approximate locations)

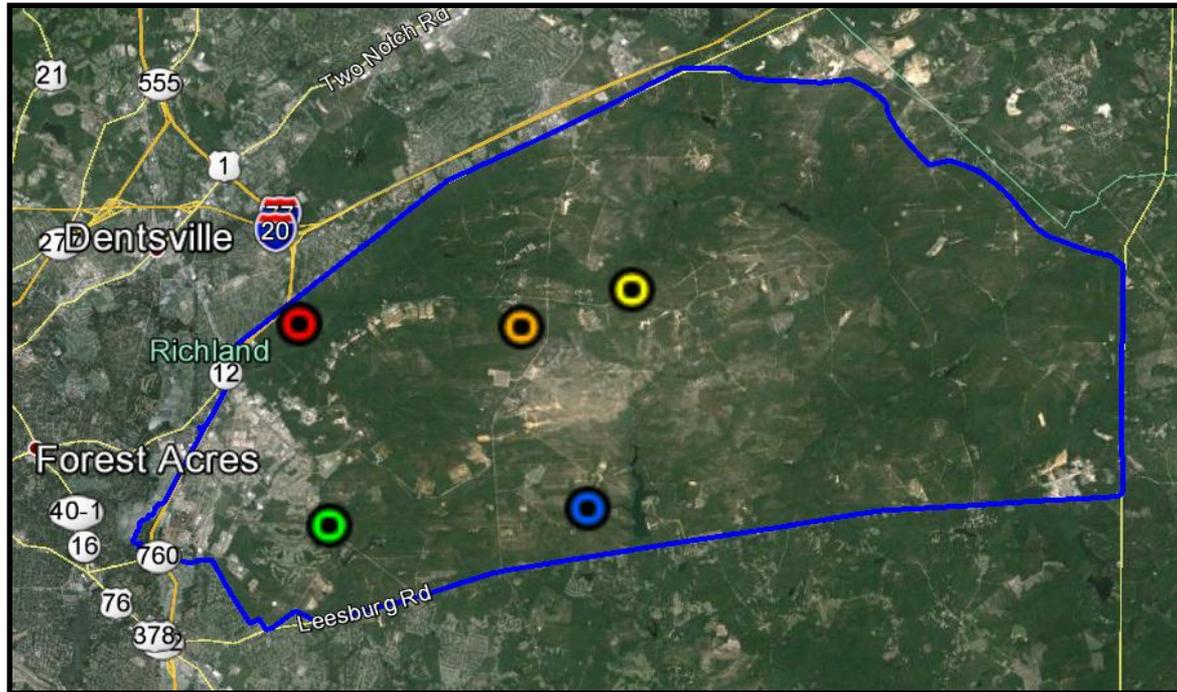


Approximate Years of Use:

- | | |
|---------------|------------------|
| □ 1955 - 1959 | □ 1964 - 1976 |
| □ 1959 - 1980 | □ 1973 - 1981 |
| □ 1960 - 1971 | □ 1984 - Present |
| □ 1961 - 1978 | □ 2009 - Present |
| □ 1964 | |

Fort Jackson Hand Grenade Ranges

(approximate locations)



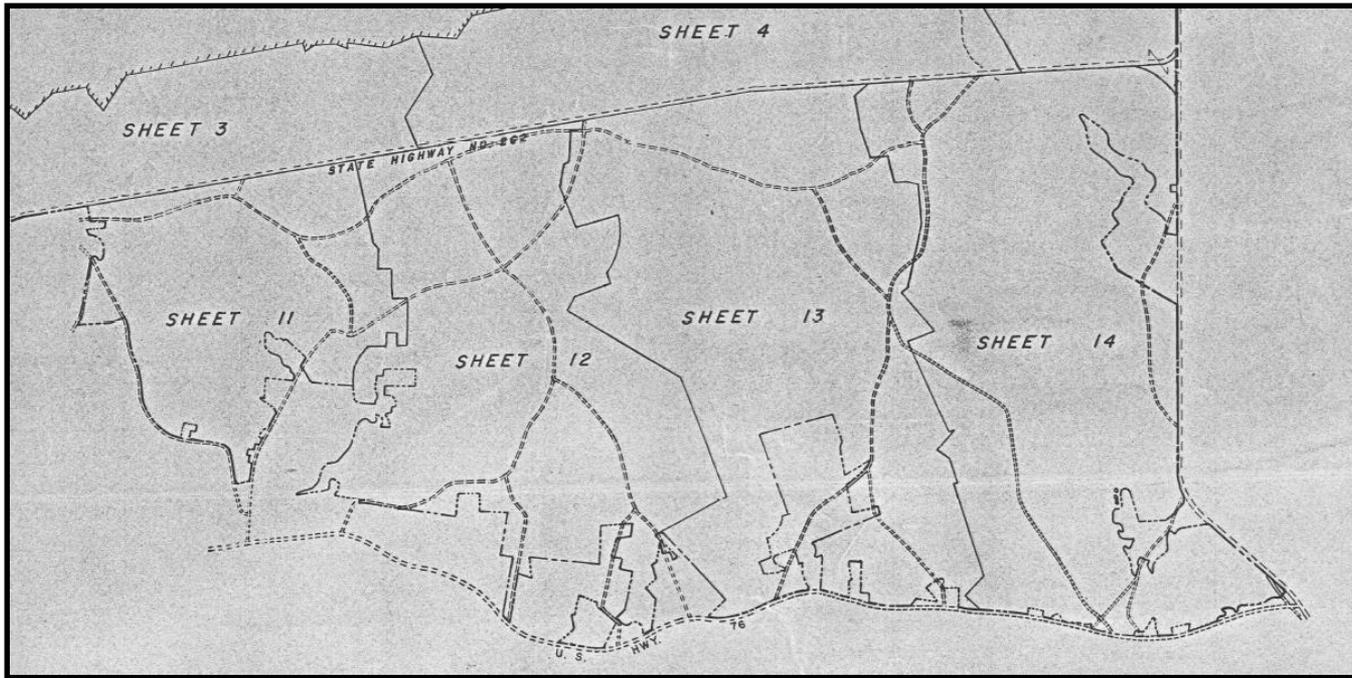
Approximate Years of Use:

-  1943 - 1950 (No RDX Use Suspected)
-  1943 - 1979
-  1950 - 1960
-  1965 - 1975
-  1979 - Present

Army Training South of Fort Jackson

Army leased ~17,000 acres during the 1950s for maneuvers

- Known or suspected munitions used included small arms (blanks), smoke grenades and signal flares
- No munitions containing RDX



Army also leased land north of Fort Jackson during WWI & WWII but no RDX use suspected

Current & Future Actions

- Feb 2015: Periodic sampling of residential wells + new requests
- Conduct feasibility study on connecting residents to City of Columbia water system
- Apply lime to Remagen hand grenade range on a regular basis
- Further investigation to locate source(s)
- Mitigation/treatment methods will depend on source(s)
- Ongoing: Contact residents who may be negatively impacted
- Ongoing: Provide bottled water or whole-house filtration systems to homes with $RDX \geq HAL$
- Ongoing: Monitor on- and off-post wells
- Ongoing: Inform public and SCDHEC of progress

Questions?

Please visit our website at

[http://jackson.armylive.dodlive.mil/
units/usag/dpw/env/orap/](http://jackson.armylive.dodlive.mil/units/usag/dpw/env/orap/)

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