Army National Guard:
Uncertainty in PFAS Site Inventory and Release Screening

Bonnie Packer, PhD - ARNG-IED
Rosa Gwinn, PG PhD - AECOM

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Agenda

- Army National Guard (ARNG) PFAS Priorities
- ARNG PFAS Program
- Contracting Approach
- Public Affairs
- Challenges
- Innovative Sampling/Treatment

ARNG PFAS: **Priorities**

- Safety and protection of human health
- Address “worst first”
- Rely on open dialogue with state and community partners for success

ARNG PFAS: **Program**

- Numerically ranked ~180 ARNG facilities based on:
  - Likelihood of release
  - Size of release
  - Proximity to drinking water receptor
  - Proximity to Third Unregulated Contaminant Monitoring Rule (UCMR3) exceedance or ARNG exceedance in drinking water supplies

- CERCLA* PFAS Program
  - Preliminary Assessment (PA) initiated SEP 2017
  - Site Inspection (SI) initiated immediately upon evidence of complete pathway in PA
  - Remedial Investigation (RI) (SEP 2018)

*CERCLA – Comprehensive Environmental Response, Compensation and Liability Act, “Superfund”

ARNG PFAS: **Program** *(continued)*

- ARNG PFAS challenges:
  - Few very large installations
  - Many ARNG properties are small (<50 acres) decreasing groundwater ‘buffer’ from potential drinking water sources
  - Many co-located with/on/near:
    - Air Guard Bases
    - Municipal Airports
    - Former US Department of Defense properties (e.g., Base Realignment and Closure Act or Formerly Used Defense Site locations)

ARNG PFAS: **Program** *(continued)*

- Prioritize visiting facilities according to ranking
- Approximately 180 facility PAs
  - Initial data collection
  - Visual site inspection
  - Personnel interviews—active/retired ARNG personnel, community members
- Perform SI based on PA initial findings
  - 16 SIs progressing to date
- Perform RI where data indicate off post drinking water risk
  - 3 RIs initiated to date
- Program and plan for remaining SIs as funding allows

ARNG PFAS: **Program** *(continued)*

- All PA visual site inspections complete by DEC 2019
- Rank facilities with PA data for reprioritization
- Complete the first 3 SIs for known drinking water risk facilities by DEC 2019
- Drive remaining 13 SIs for early 2020 reporting
- Proceed quickly to RI and Time Critical Removal Action (TCRA) for drinking water alternatives

Contracting Approach

- Innovative contracting - US Army Corps of Engineers
- Base SI - defined quantity of wells, soil and groundwater samples
  - SI optional tasks – sampling ‘menu’; drinking water TCRA
- Base RI - defined quantity of wells, soil and groundwater samples
  - Flexible RI approach supplemented through a variety of optional tasks

Public Affairs

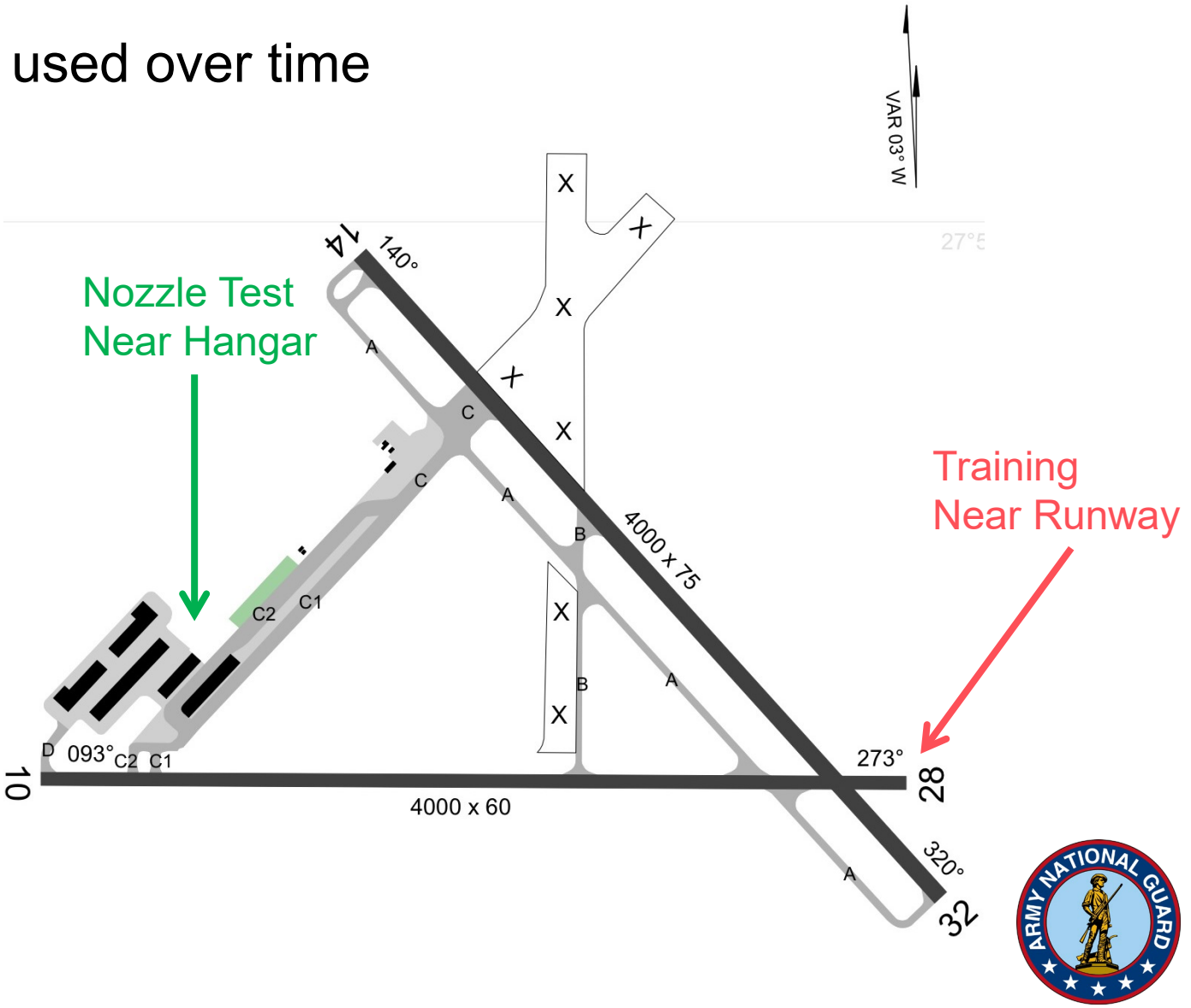
- Meet early and often with State and community partners
- Keep dialogue open
- Solicit for Restoration Advisory Boards, and establish where communities want them

Challenges

- What happened in 1970? 1980?
- Degree of use varied between facilities
- Combine boundary and release area sampling
  - Small informal use areas- hard to pin-point
  - Leaks of AFFF concentrate - very challenging to find vs broad areas of foam use
- Keep talking
  - Build rapport
  - Emphasize “fact-finding not fault-finding”
  - Repeat probing questions

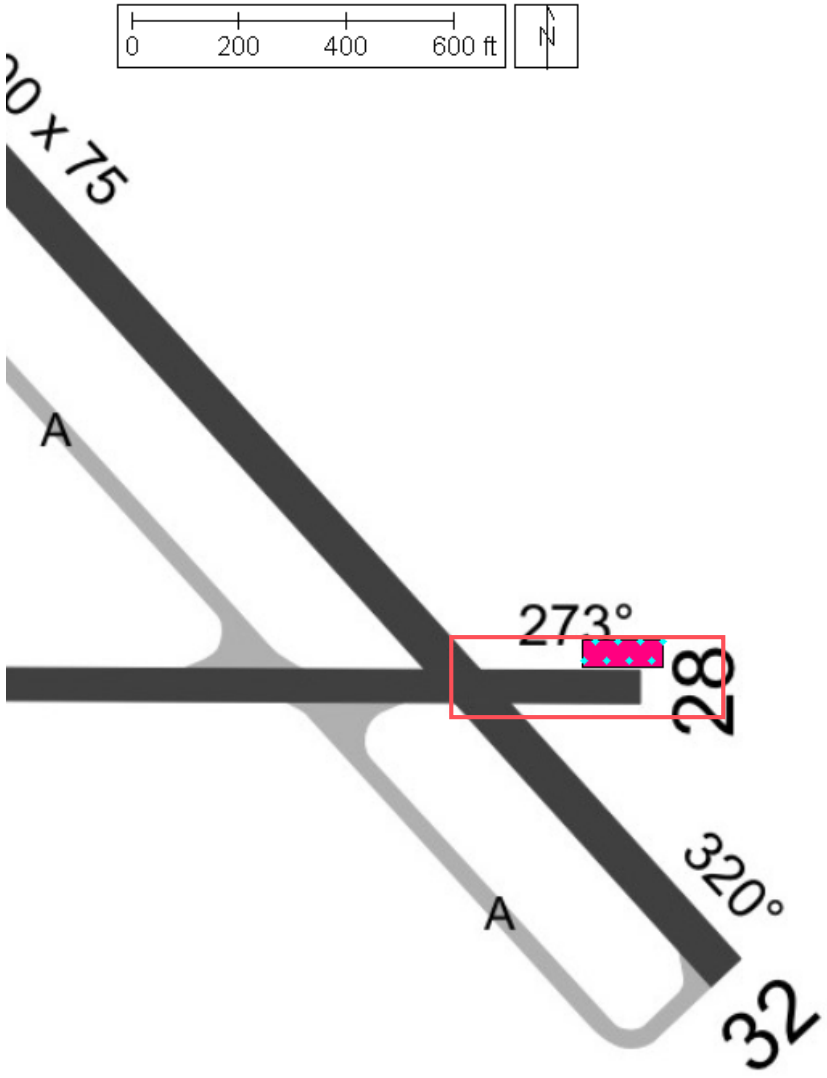
RI - Sampling Strategy

- Point sources versus large areas used over time



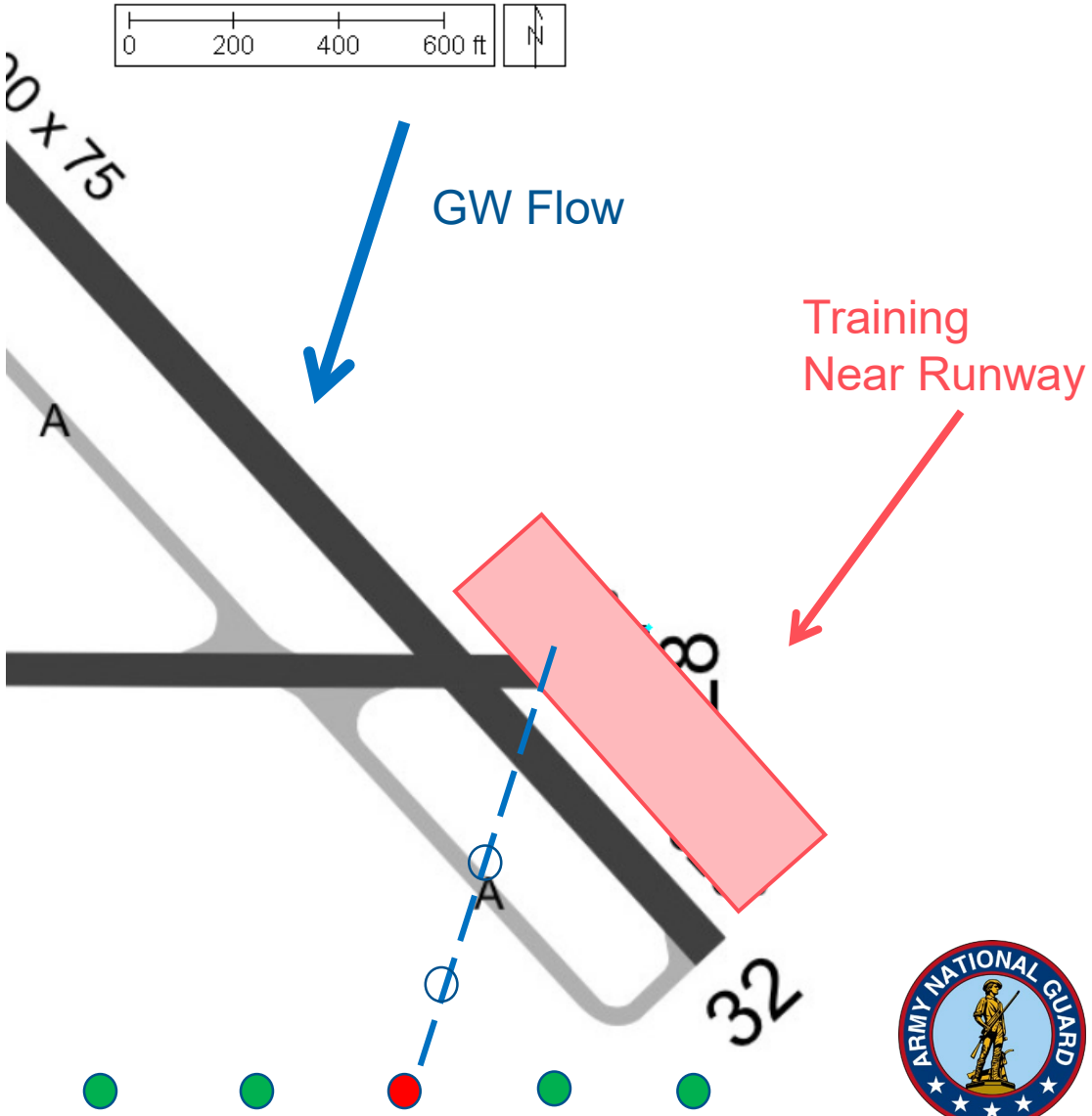
RI - Sampling Strategy

- To find a hotspot with 95% certainty
  - In an area of 50 x 150 ft
    - With 25ft semi-major axis - 5 samples
    - With 10ft semi-major axis - 31 samples
- To find a hotspot with 95% certainty
  - In an area of 150 x 500 ft
    - With 25ft semi-major axis - 44 samples
    - With 10ft semi-major axis - 270 samples



RI - Sampling Strategy

- When only drinking water impacts are known, but no historical source data
  - Perimeter groundwater sampling
  - Between receptor and larger source area
  - Sample groundwater from downgradient toward source
    - Increased cost of drilling program to find source areas
    - Potentially ‘lose the trail’
    - Rely on environmental sequence stratigraphy where applicable



Innovative Sampling/Treatment

- Michigan Guard use of “Plume Stop”

- Encourage other SERDP/ESTCP demonstrators access where State Guard agrees

Summary

- Protection of human health remains priority #1
- ARNG has a large inventory of potentially affected facilities
  - Worst first is most protective
  - Historical information used to refine facility ranking
  - Small sites create greater potential for off-site migration
- Conceptual site model refinement essential to minimize uncertainty
  - Press for detailed historical information
  - Apply and refine historic training methods
  - Use common sense for where/ how often training occurred
  - Leverage statistical sampling to minimize ‘shots in the dark’
  - Improve geological understanding continually

Thank You!

Contact info
Bonnie Packer – ARNG IED
bonnie.packer@mail.mil

Rosa Gwinn – AECOM
rosa.gwinn@aecom.com