



# Installation Management Command - Pacific

## Depleted Uranium Update

COL Howard Killian, Deputy Region Director

January 2008

**Our Mission:** *Our mission is to provide the Army the installation capabilities and services to support expeditionary operations in a time of persistent conflict, and to provide a quality of life for Soldiers and Families commensurate with their service.*

***Leading Change for Installation Excellence***

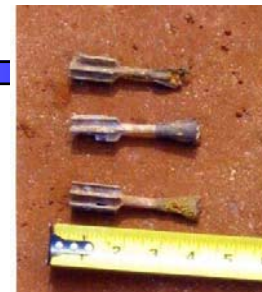
# Purpose

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To inform the public of the Army's efforts and progress to address the presence of historical Depleted Uranium (DU) on Army Ranges in Hawaii.

# DU Discovery in Hawaii



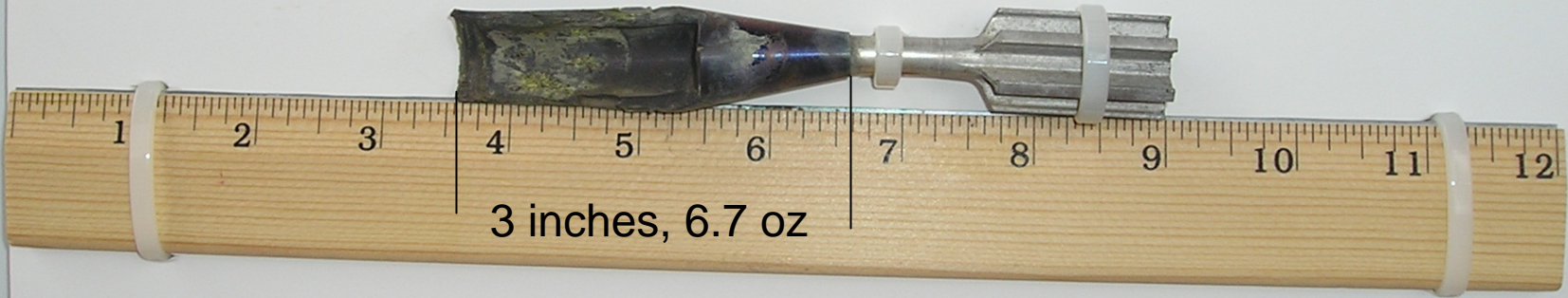
- In August 2005, a contractor working on a range clearance project at Schofield Barracks found 15 tail assemblies from the M-101 spotting round -- a munition used with the Davy Crockett weapons system.
- This system was used from 1962 until 1968.
- The M101 spotting round (20 mm) was manufactured with D38 Uranium Alloy (92% depleted uranium (DU) and 8% molybdenum) for weight purposes only. It is about seven inches in length and about one pound in weight.
- This round was not a armor piercing penetrator and was not designed to burn. Where it impacted the ground it remained intact or in large fragments.
- The Army prohibited all training with DU in 1996 and it requires a site license from the Nuclear Regulatory Commission to do so. The Army does not possess such a license and has no intention of seeking one.



# DAVY CROCKETT

M28, 120mm  
Recoilless Rifle  
Max Range 2000m





3 inches, 6.7 oz

# Army Strategy



Addison D. Davis, IV  
Deputy Assistant Secretary of the Army  
(Environment, Safety and Occupational Health)

## The Army is implementing its four-point plan to address the DU discovered on Army Ranges in Hawaii:

- 1 – We will provide all information obtained about the presence of DU to the Hawai'i Department of Health (DOH) in a timely manner.
- 2 – The State will be a partner in the planning and execution of an extensive survey and monitoring effort this summer to address Schofield Barracks' range, Makua Military Reservation and Pohakuloa Training Area.
- 3 – The State will be a partner in the planning and execution of a mutually agreed upon response.
- 4 – The Army will provide any necessary training to State participants.



# Army Strategy



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Deputy Assistant Secretary of the Army  
(Environment, Safety and Occupational Health)

## Investigative Steps

- 1 – Army implements its four point plan
- 2 – Archival research of Davy Crockett use in Hawaii conducted by the Corps of Engineers
- 3 – U.S. Army Joint Munitions Command (JMC) Scoping Survey, sampling and testing to confirm the presence of DU conducted by U.S. Army Joint Munitions Command (JMC). Is DU present?
- 4 – JMC conducts a Characterization Survey, determines how much DU with specific geographic boundaries.
- 5 – Data is provided to laboratories for analysis and results are compiled and sent to UH, CDC, and NRC.
- 6 – Health risk assessment is published.
- 7 – NRC issues permit and addresses measure to mitigate the hazards identified in the risk assessment to include possible remediation.

# World Class Team



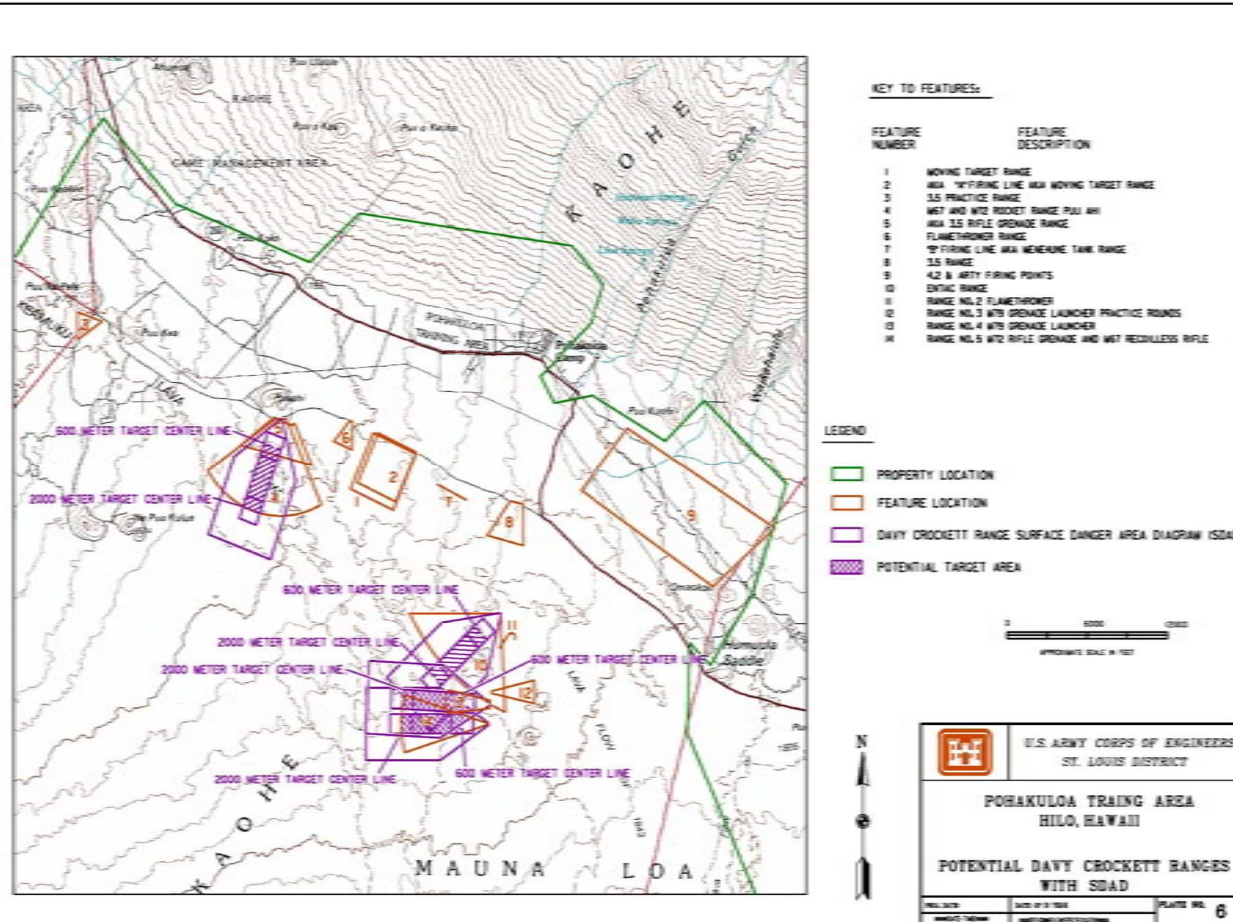
HAWAII STATE DEPARTMENT OF HEALTH  
HEALTHY PEOPLE - HEALTHY COMMUNITIES - HEALTHY ISLANDS







# Archival Research



- May 2007 the U.S. Army Corps of Engineers, St. Louis District published a report
- 508 page report.
- Confirmed 714 M101 rounds were shipped to HI
- Led us to investigate PTA and MMR

# Field Work Summary

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- 10 July – 2 August: Schofield Barracks Range Burn Monitoring
- 6 August – 14 September: Schofield Barracks Characterization Survey (Area A)
- 13-14 August: MMR Scoping Survey
- 16-18 August: PTA Scoping Survey
- 21-21 August: Schofield Area B Scoping Survey
- 17 September – 19 October: Schofield Area B Characterization Survey

# Range Burn Monitoring

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- Reference Burn
  - Performed in area free of DU
- Test Burn
  - Performed in area contaminated with surface DU
- Full Range Burn
  - Monitored two full days of prescribed range burn
- Results: No DU effluent detected during any phase of the project
- Draft Report due 15 November 2007



# Characterization Survey at Schofield Barracks



- Walkover surveys with highly-sensitive radiation instruments linked to GPS.
- Soil samples collected.
- Water sampling has been difficult due to drought conditions; streams are dry.





# Schofield Barracks Characterization Survey (Area A & B)

- Gross Gamma Survey of over 425 acres of range complex
  - Area A 140+ acres
  - Area B 288+ acres)
- Collected 1,400+ soil samples
  - Analysis being performed for Uranium (U) isotopes and Lead



# Scoping Surveys

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- Makua Military Reservation
  - Heavy ground cover
  - Endangered species
  - No evidence of Davy Crockett use
- Pohakuloa Training Area
  - Distinctive terrain-lava field
  - Evidence of Davy Crockett use



# Makua Military Reservation

## Scoping Survey

- Performed aerial reconnaissance of area
- Collected soil samples in low lying, sediment areas
- Preliminary results:
  - No Davy Crockett pistons spotted during aerial reconnaissance
  - No elevated Uranium detected in any samples and no DU detected
  - No DU detected





# Pohakuloa Training Area

## Scoping Survey

- Performed aerial reconnaissance of the training area
- Collected soil samples from low lying, sediment areas
- Performed visual survey for Davy Crockett debris





# Aerial Survey PTA





# PTA Scoping Survey

## Preliminary Results

- Spotted 4+ areas with Davy Crockett pistons
- No elevated DU readings in any samples
- Survey team recovered one M101 spotting round (survey halted at that point)



# Project Current Status

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- Field team has demobilized
- Laboratory is in possession of all samples
- Analytical results received for:
  - Effluent Monitoring samples
  - MMR Scoping Survey samples
  - PTA Scoping Survey samples
  - Schofield Area B Scoping survey samples
- All Schofield Characterization samples currently undergoing analysis
- Estimate all sample data received by 30 December 2007
- Planning the PTA Characterization Survey and Air Monitoring Plan

# Project Current Status



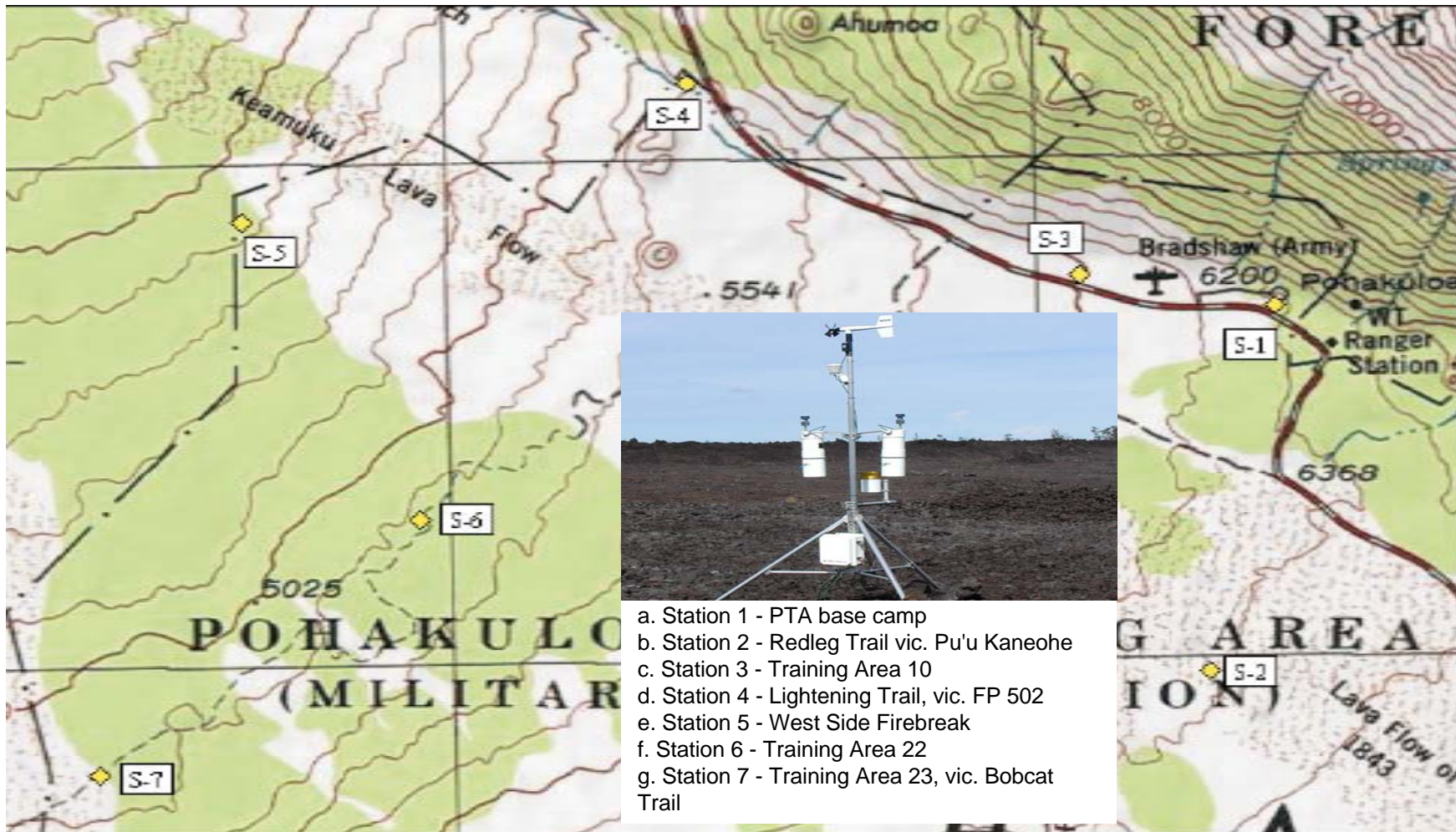
- Kenneth H. Rubin, Ph.D., Professor and Chair of the Volcanology, Geochemistry and Petrology Division, Department of Geology and Geophysics, School of Ocean and Earth Science and Technology, University of Hawaii
- The high binding affinity that U has for Fe-rich particulates found in Hawaii soils should help immobilize the U (i.e., DU particles) near the point of impact.
- Although chemical analysis of environmental samples in the affected areas will ultimately demonstrate the stability and extent of migration of U in the local environment, general geochemical arguments suggest U is generally not easily leached from rocks and soils in Hawaii.





# PTA Air Monitoring Test

PM sampling commenced on 29 Jan 06 and terminated on 30 Jan 07



Map created with TOPO!® ©2002 National Geographic ([www.nationalgeographic.com/topo](http://www.nationalgeographic.com/topo))

# Project Reports

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- Effluent Sampling Report
  - Draft Summary November 2007
- Scoping Survey Reports (MMR, PTA, Schofield Area B)
  - Draft January 2008
- Schofield Barracks Range Characterization
  - Draft January 2008
- Dave Allard, DOH Third Party Auditor provides a report
  - December 2007
- Final report forwarded to the NRC.
  - February 2008

# Expectations

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- Completion of baseline human health risk assessment.
- Determination of actions to be taken.
- Public health assurance.
- Technology survey to determine the best approach to scoping at Makua and characterization at PTA.
- Continued monitoring.

# Field Work Summary

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- Over 5000 man-hours
- Over 1600 samples collected (air, vegetation, soil)
- Work completed ahead of schedule
- Over \$2.2m spent to date
- Weekly Team Synchronization Teleconference

## The Bottom Line:

***There is no imminent or immediate threat to human health from the DU present on Hawaii's ranges, but the Army is working in concert with state and federal agencies to thoroughly assess the risk and determine the actions required to address the DU present on Hawaii's ranges.***



# Any Questions?

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