



Installation Management Command - Pacific

Hawai'i Island Depleted Uranium Update

COL Howard Killian, Deputy Region Director

3 February 2009

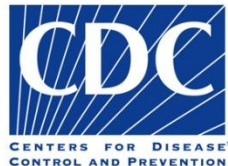
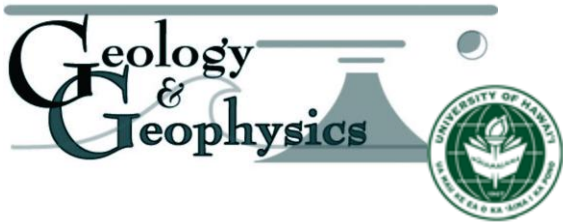
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HAWAII STATE DEPARTMENT OF HEALTH
HEALTHY PEOPLE - HEALTHY COMMUNITIES - HEALTHY ISLANDS





Project Current Status

- **General**
 - Deputy Assistant Secretary of Army Davis visited with key leaders 26-31 OCT 08 and briefed current status of various efforts
 - Comprehensive Army-wide archive search underway for Davy Crockett System
 - Air Monitoring Study working
- **Pohakuloa Training Area (PTA)**
 - Activated a Community Advisory Council
 - Characterization Survey: Aerial survey to start 3 NOV – 15 DEC 08
 - PTA air monitoring sample analysis:
 - Partially (half) complete 12 APR 08 results were published May 08
 - Half Awaiting analytical data
 - Modified Risk Assessment anticipated by APR 09
 - Developed B-2 impact assessment and temporary deconfliction measures
- **ATSDR Health Consultation complete – 25 AUG 08** “ATSDR also concludes that no adverse human health effects would be expected as a result of potential exposure to depleted uranium at Pohakuloa Training Area if the depleted uranium rounds were left at their current locations.”



Nuclear Regulatory Commission

- **General**
 - License number SUC-1593
 - Docket number 040-09083
- **Site Visit**
 - 17-18 March 2009 (NRC does not plan to visit PTA)
- **Final NRC License Approval expected April 2009**





Repositories for Research

(Comprehensive Research)

- National Archives and Records Administration (NARA), College Park, MD
- Regional NARAs (Record Centers and Archives)
 - Kansas City
 - Fort Worth
 - Seattle
 - Atlanta
 - New York
 - Philadelphia
 - Denver
 - Suitland
- Corps of Engineers Districts (applicable districts)
- Installation Research (at each installation)
 - Engineering Offices
 - Range Offices
 - Museums and Historical Offices
 - Public Works
 - Forestry Offices
 - Holdings of Opportunity
- Independent Research
 - National Personnel Records Center (NPRC) Saint Louis
 - US Army Military History, DC
 - Carlisle Barracks, PA
 - US Army Technical Library

Research is comprehensive; every repository that may hold relevant documents is visited by experienced Historians (15+ years experience each in producing Archive Search Reports (ASRs) and Preliminary Assessments (PAs)).



Accounting of M101 Spotting Rounds

- M101 spotting rounds manufactured and distributed: **75,318**
- M101 spotting rounds shipped directly to installations: **34,070**
- Number of rounds shipped to depots: **41,248**
- M101 spotting rounds demilitarized at the LCAAP during the 1970's: a maximum of **44,000**
- Number of M101 spotting rounds unaccounted for: **20**

- Notes:**
- 1) Cannot account for rounds once shipped to installations or to depots.
 - 2) Cannot account for rounds demilitarized (i.e., which rounds were demilled).
 - 3) “Unaccounted” means receipt point is unknown.

Army Archive Search Report Results: Original documents located for the government purchased quantities of Cartridge, 20mm Spotting M101 were DD Forms 550. These were Ordnance Corp Ammunition Lot Records. When the entire lot was shipped off and the lot became “zeroed out”, the form was pulled and filed. The form was annotated with carriers, transportation control numbers, and destinations. An analysis of each destination with quantities is shown in a spreadsheet.

Destination	Quantity of Cartridge, 20mm Spotting M101
Aberdeen Proving Ground, MD	200
Fort Benning, GA	9,700
Fort Campbell, KY	681
Fort Hood, TX	4,038
Fort Knox, KY	3,956
Fort Lewis, WA	1,756
Fort Riley, KS	105
Frankford Arsenal, PA	50
Frankfurt, Germany	7,833
Inchon, South Korea	1,440
Lake City Ordnance Plant, MO	45
Letterkenny Ordnance Depot, PA	17,183
Oahu, Hawaii	714
Pirmasens, Germany	3,384
Pueblo Ordnance Depot, CO	24,065
Ryukus Island (Okinawa) Japan	103
San Jose, CA	45
Doc No. JO 3-20718-1, destination unknown	20
TOTAL	75,318



DU Inventory in Hawaii

Negative Response from other Services

- **Navy response:** “I have not found any evidence that the Navy ever had torpedoes with DU. We did accidentally fire less than 5 rounds of 25mm CIWS ammunition to a forested area in Hawaii (Oahu). The incident occurred during maintenance of the phalanx. This incident was reported to the USNRC.”
- **Marine response:** “I have also reviewed the Ordnance Technical Data Sheets in the back of the RIPRA to see if there is any mention of DU as a component of any of the munitions expended on MCB Hawaii ranges. Again there were no findings of DU as a component of the same. These documents reflect known range and munitions use of Marine Corps installations up to 1999.

TECOM Ammunition Section which manages training ammunition for all ground training throughout the Marine Corps has checked their records and they state that there has been no allocation of DU munitions for ground training. They also checked with aviation training and they said there is no allocation for DU used in aviation training as well.”

- **Air Force response:** “We queried AF Safety folks, A3 range folks, and the folks who work on the Radioisotope Committee (RIC). We have no permitted AF activities on Hawaii nor any record of historical use of DU on Hawaii by AF.”



Pohakuloa Training Area

Activity Summary

2007

- **Scoping Survey:** Verified four areas with DC pistons via aerial survey / verified M101 SRB in one area via visual survey on foot. Collected limited soil samples around DU area, no DU detected.

2008

- **Aerial Survey:** Conducted limited trial of aerial survey using A-CLASS. Soil samples were collected contemporaneously with the aerial surveys. All samples will be analyzed for Uranium using alpha spectroscopy.
- **Ground Survey:** Down range, ground surveys using hand held equipment were conducted in areas that show elevated Uranium readings during the aerial surveys. Surveys were completed Dec 2008.
- **Air Sample Analysis:** No release of DU detected.
- **Air Samplers:** Air samplers purchased, awaiting deployment 2-6 FEB 09.
- **Modified Risk Assessment:** Based upon characterization data. ETA April 2009. (preliminary results Jan 2009)





AERIAL SURVEY PHOTOS



Spotter round recovered



Spotter round recovered



Legend

-  DC Spotter Round
-  Piston Locations
-  DC Range Area (Estimated)



DC RANGE AREA (ESTIMATED)

POHAKULOA TRAINING AREA
HILO, HAWAII
ISLAND OF HAWAII

04/2008

DRAWING N
fig 4.3

Figure 4.3

FIGURE 4-3: LOCATIONS OF PISTONS SUGGESTING PAST DAVY CROCKETT RANGE AT PTA

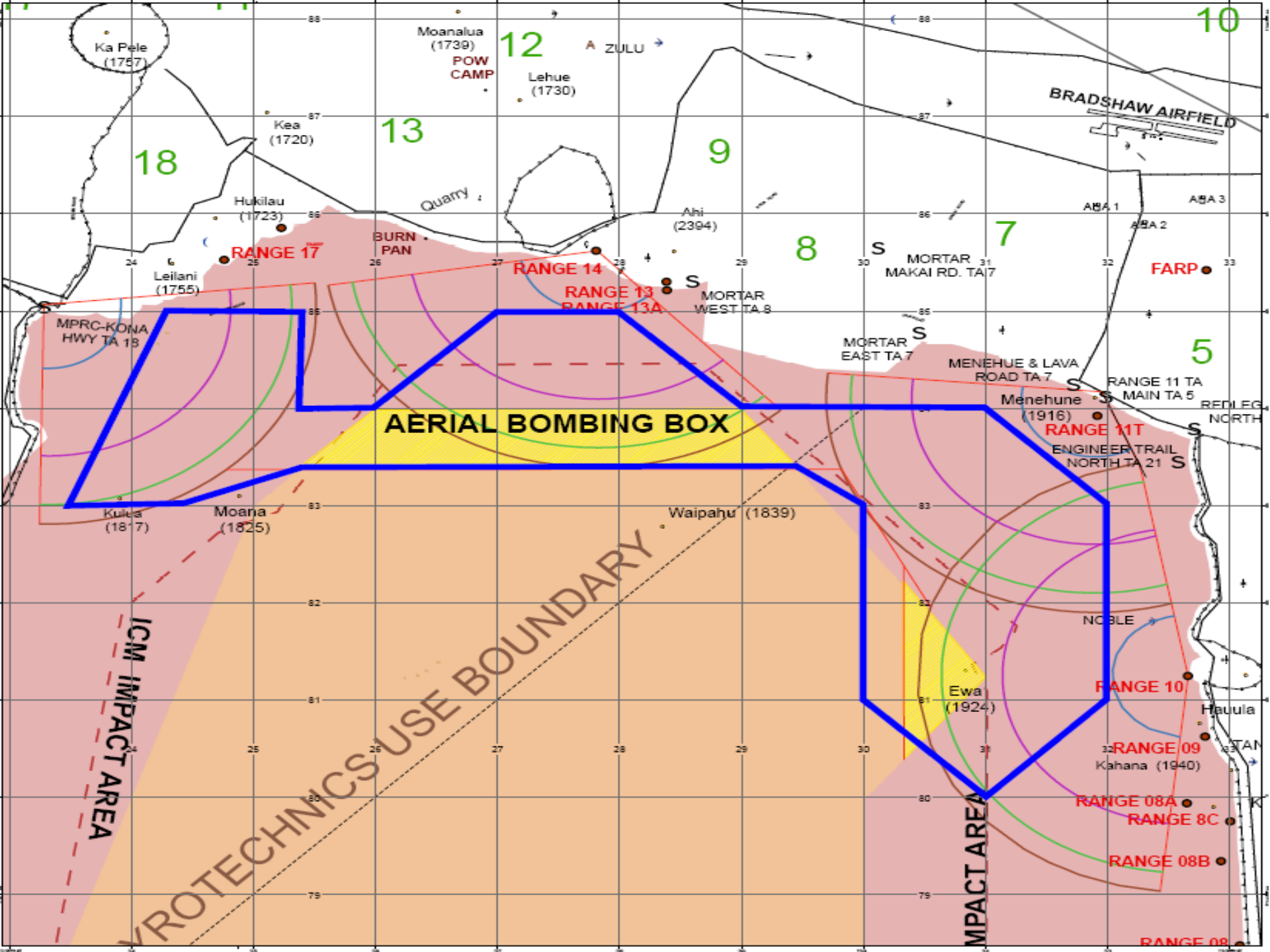


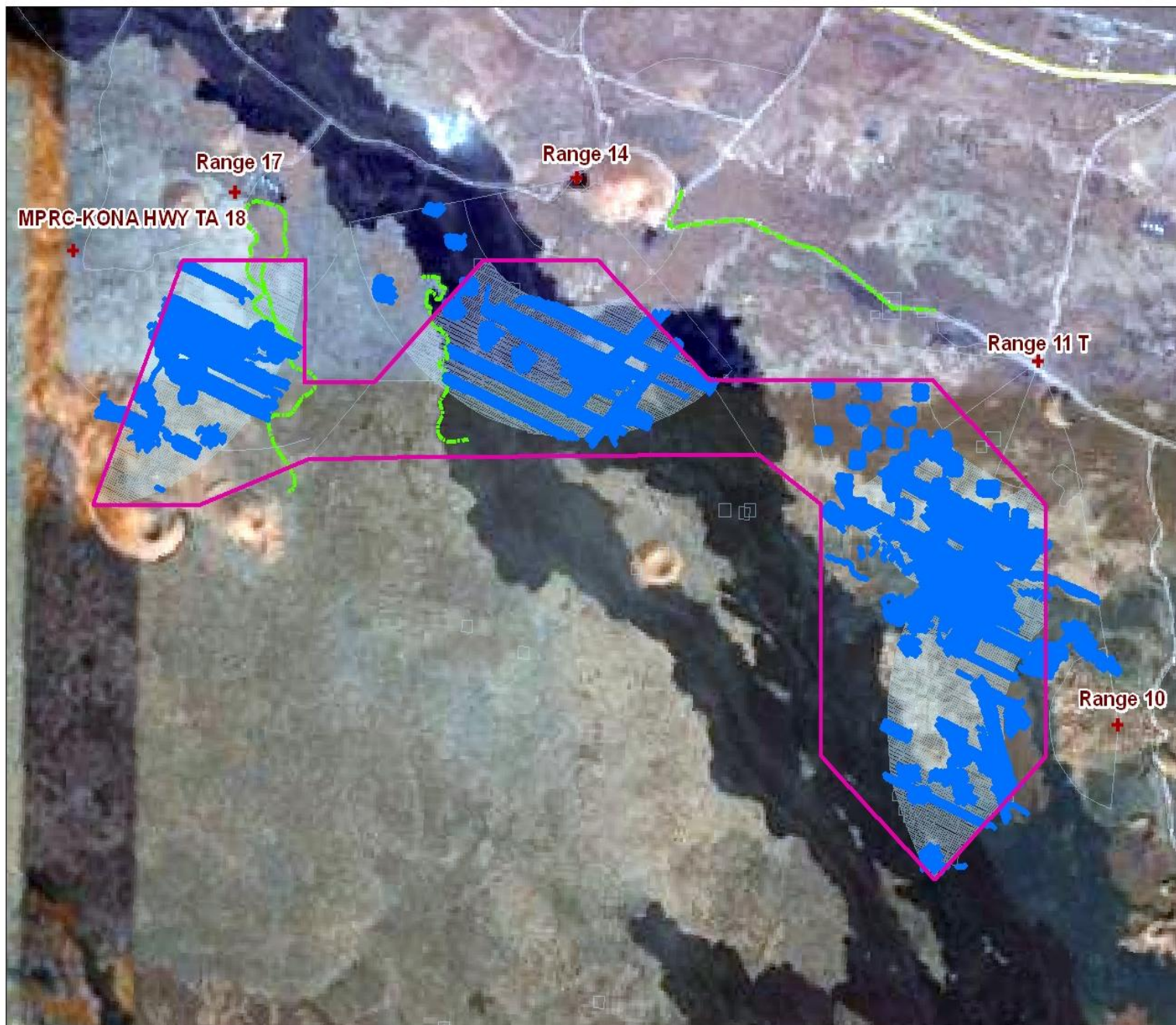
A-CLASS

Aerial - Cabrera Large Area Scanning System (A-CLASS)



Aerial visual and gamma spectroscopy surveys were conducted from the air at low altitude (approximately 10 to 12 feet above ground level) using a helicopter equipped with a specialized array of 4 large volume NaI detectors and gamma spectroscopy equipment. The aerial surveys were augmented by both visual and instrument ground surveys using large area handheld NaI scintillators, low level exposure rate meters, as well as beta sensitive radiation detectors at the ground surface.





Legend

- ◆ Collected Flyovers Data
- ✚ Range Locations
- Tree Line
- RGM Navigation Lines
- ▭ Areas of Interest

570 0 570 Meters

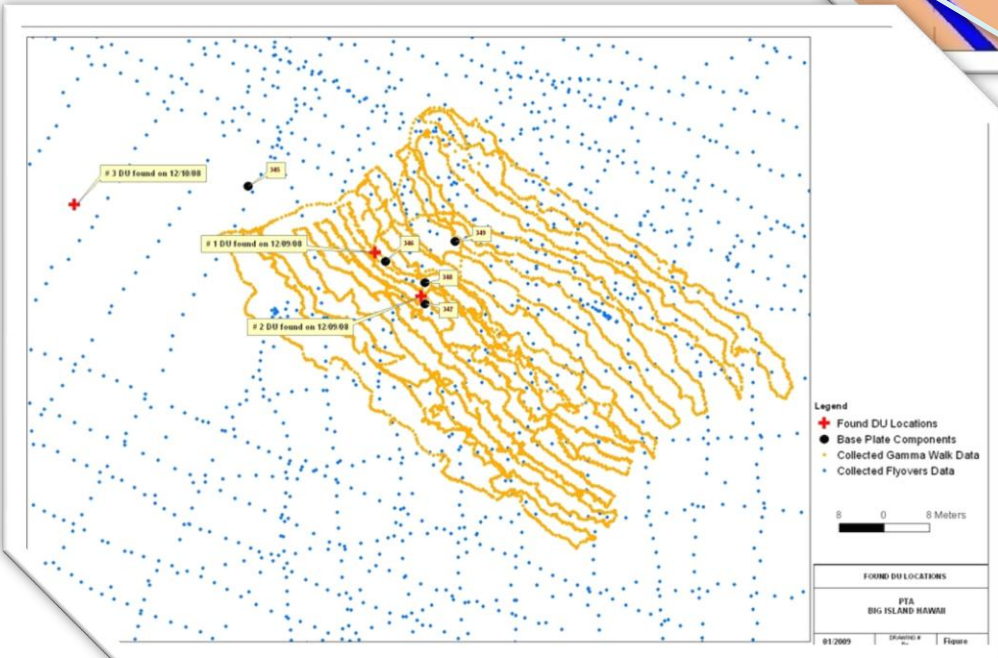
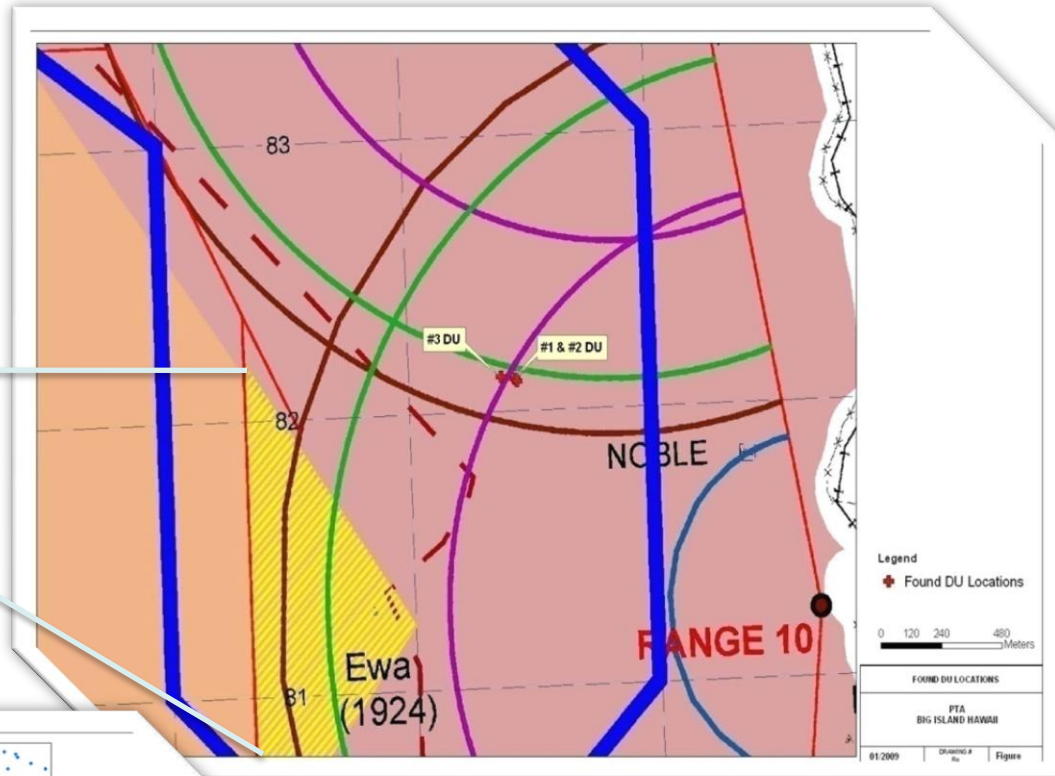
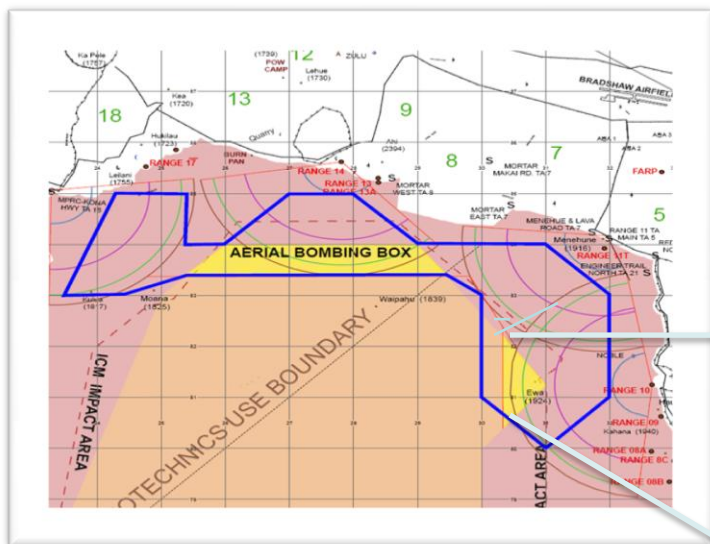
ENTIRE RANGE COVERAGE WITH FLYOVERS

PTA
BIG ISLAND HAWAII

01/2009

DRAWING #
Fig

Figure



Range 11T



Pohakuloa Training Area

Characterization Survey Results

Visual indications of Davy Crockett weapons system components (base plates) were identified on Range 11T in line with historical firing points and ground gamma walkover surveys were conducted in those areas and several hundred meters down range and surrounding these finds. One partial spotter round body, one tailfin and two small fragments (approximately 1" long and 1/2" wide) were found. These items have been, or will be removed from the range.

No visual or instrument indications of DU were identified on other firing ranges surveyed (Range 17/18, Range 14, or Range 10). Preliminary results on the soil/sand samples taken from the ranges show no indications of the presence of depleted uranium. Approximately 910 acres were surveyed via helicopter and 40+ acres covered via ground based gamma walkover surveys. DU was only located on range 11T. Additional gamma spectroscopic processing of the aerial data is in process.



1. Helicopter hours at PTA: 125 hours.
2. Sampling: Soil samples, total of 20 soil samples taken.

Samples are in the process of being analyzed via Alpha Spectroscopy at a NELAP certified Lab. Paragon Analytics in Ft. Collins Colorado for Isotopic Uranium.



Current PTA Air Monitoring Scope

PTA AIRBORNE URANIUM MONITORING PROJECT MONITORING SITES

Part I – Analysis of Existing Filter Samples

Existing Teflon filter samples (approximately 244) which were collected as part of the Keamuku Parcel dust study will be sent to a laboratory for analysis of their uranium content. A report of those results will be provided.

Part II – Install and Operate an Airborne Uranium Monitoring System

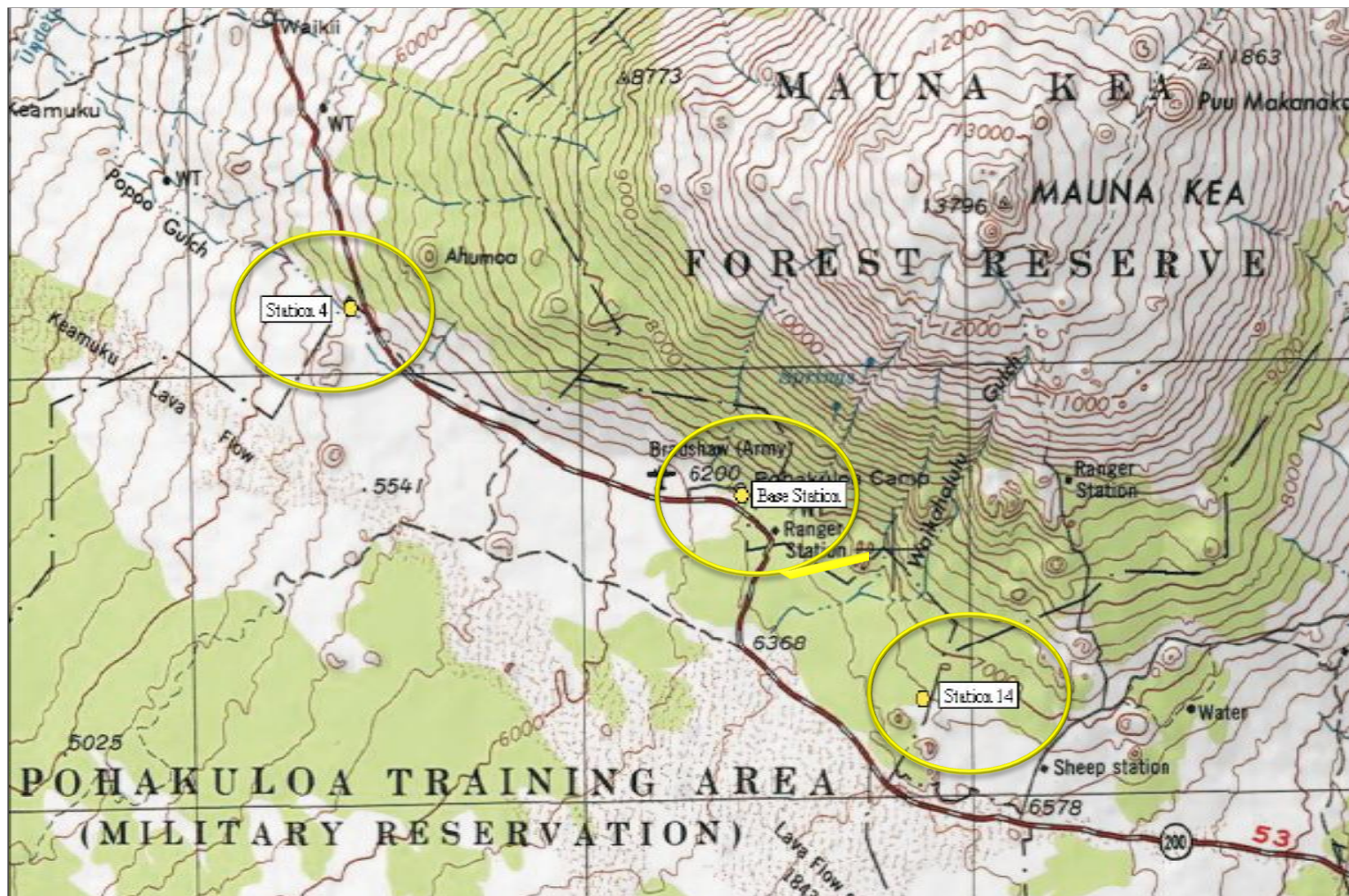
The general approach is to install a base station at PTA which includes a federal reference method (FRM) (40 CFR 53) high volume (HIVOL) sampler for total suspended particulate matter (TSP). Co-located with this FRM sampler will be a portable TSP sampler. The purpose is to establish a correlation between the respective collected masses on the FRM sampler and the non-FRM portable sampler, two more of which will be installed and operated at locations upwind and downwind of the area where depleted uranium (DU) has been found. Sampling will be conducted in accordance with EPA's quality assurance and quality control guidelines. Samples will be collected once-every-6-days for one year in accordance with EPA's published annual schedule. Independent audits of the TSP samplers at each site will be conducted quarterly. Laboratories in Wyoming (FRM sampler) and Oregon (portable samplers) will follow EPA methods for tare and final weighing of the sampler filters. An EPA-certified laboratory in Colorado will perform the uranium analyses on the 47-mm Teflon filters from the portable samplers using the highly sensitive inductively coupled plasma - mass spectrometry (ICP-MS) method. Chain-of-custody forms will accompany filters from start to finish of the sampling process. Monthly and final reports of monitoring results will be provided.

Estimated Cost: \$150k



Current PTA Air Monitoring Scope

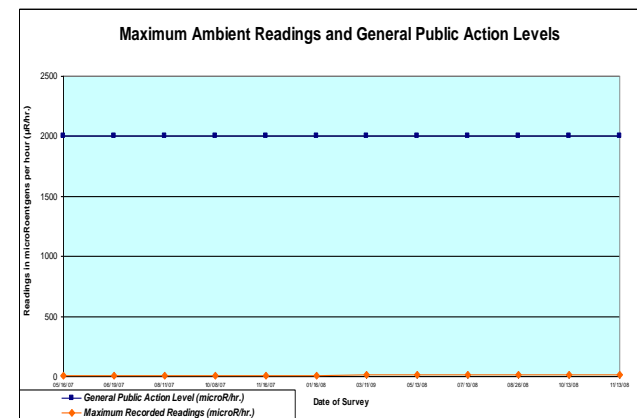
PTA AIRBORNE URANIUM MONITORING PROJECT MONITORING SITES





HEALTHY PEOPLE - HEALTHY COMMUNITIES - HEALTHY ISLANDS

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- A photograph of a person standing in a field of dry grass and shrubs. The person is wearing a light-colored short-sleeved shirt, dark trousers, and a backpack. They are holding a clipboard and a water bottle. In the background, there are trees and a clear blue sky.



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AMBIENT RADIATION SURVEYS ON THE ISLAND OF HAWAII

General Public Action Level (microR/hr.)		2000						
Date of Survey:		16-May-07	19-Jun-07	11-Aug-07	08-Oct-07	16-Nov-07		
***Maximum Recorded Reading in microR/hr. (µR/hr.)		8	7	7	7	6		
SITE:		<u>µR/hr.</u>	<u>µR/hr.</u>	<u>µR/hr.</u>	<u>µR/hr.</u>	<u>µR/hr.</u>		
1 - Konawaena HS		3-4	3-5	2-4	2-4	2-4		
2 - Kona Comm. Hospital		3-4	3-4	2-4	2-3	2-3		
3 - Bishop Road		3-4	2-4	2-4	2-4	2-3		
4 - Waiono Meadows		3-4	2-4					
5 - Keopu Mauka		3	2-4	2-3	2-3	2-4		
6 - Puulani Drive		6-7	5-7	3-5	3-5	3-4		
7 - Waikii Ranch		4-5	3-5	2-3	2-4	2-3		
8 - Waikoloa Villages		7-8	4-6	2-3	2-3	2-4		
9 - Girl Scout Camp			3-6	2-3	2-3	2-4		
10 – Puuanahulu Ranch			3-6	5-7	5-7	3-6		
Date of Survey:		16-Jan-08	11-Mar-08	13-May-08	10-Jul-08	26-Aug-08	13-Oct-08	13-Nov-08
***Max. Rec. Rdg. (µR/hr.)		7	12	12	17	12	12	12
SITE:		<u>µR/hr.</u>	<u>µR/hr.</u>	<u>µR/hr.</u>	<u>µR/hr.</u>	<u>µR/hr.</u>	<u>µR/hr.</u>	<u>µR/hr.</u>
1 - Konawaena HS		3-4	3-4	5-6	16-17	5-6	4-5	3-5
2 - Kona Comm. Hospital		2-3	1-2	1-3	15-16	2-3	1-2	2-3
3 - Bishop Road		2-3	2-3	2-4	14-15	2-4	3-4	2-4
4 - Waiono Meadows		2-3	1-3	2-4	12-13	2-3	2-3	1-3
5 - Keopu Mauka		2-3	1-3	1-3	11-12	1-3	1-3	2-4
6 - Puulani Drive		3-5	7-8	7-8	11-12	5-7	7-9	5-7
7 - Waikii Ranch		2-3	3-4	3-5	7-8	2-4	3-4	3-4
8 - Waikoloa Villages		2-4	4-5	5-6	10-11	5-7	4-7	5-7
9 - Girl Scout Camp		2-3	3-4	3-5	8-9	2-4	3-5	3-4
10 – Puuanahulu Ranch		5-7	11-12	10-12	8-9	10-12	9-12	10-12

*** Maximum Recorded Reading (µR/hr.) based on highest reading at any given site during monitoring period.



Follow on Actions

THE BOTTOM LINE:

DU present on Hawaii's ranges does not pose an imminent or immediate threat to human health, but Army is working in concert with state and federal agencies to thoroughly assess the risk and determine actions required to address

- Continue access restrictions and environmental monitoring
- Operate training programs sustainably
- Manage use of impact areas to minimize any potential for dispersal, even though dispersal of DU from impact areas is unlikely
- Maintain community engagement efforts
- Work with the DOH to establish PTA air monitoring network
- Given presence of unexploded ordnance and environmental damage associated with complete removal, leave DU in place
- Obtain NRC license
- Remediate DU residue within any construction areas, as necessary



Any Questions?

<http://www.imcom.pac.army.mil/du/>

State Department of Health:

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- E-mail: imcom-pacific-du@hawaii.army.mil
- IMCOM-Pacific
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AVAILABLE REPORTS

**SCHOFIELD BARRACKS IMPACT RANGE
BASELINE HUMAN HEALTH RISK ASSESSMENT
FOR RESIDUAL DEPLETED URANIUM**

**CHARACTERIZATION REPORT
Schofield Barracks Davy Crockett Impact Area**

**TECHNICAL MEMORANDUM
Schofield Barracks Firing Range
Monitoring of Air Quality During Burning of
Vegetation**

**TECHNICAL MEMORANDUM
Depleted Uranium Scoping Investigations
Makua Military Reservation
Pohakuloa Training Area
Schofield Barracks Impact Area
Islands of Oahu and Hawaii**

**TECHNICAL MEMORANDUM
PTA -- FOR TOTAL SUSPENDED PARTICULATE AIR
FILTERS**

**ATSDR Health Consultation Depleted Uranium at
Hawaiian Military Sites 21 JUL 2008**