**Presentation 7 – Mark Melanson**

## Depleted Uranium CAPSTONE Aerosols Study and Human Health Risk Assessment


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## Introduction

- Depleted uranium (DU) is the by-product of enriching uranium for use as a fuel or weapon
- DU is 40 % less radioactive than the natural uranium that we all eat, drink, and breathe daily
- The health effects of uranium (including DU) are very well understood and are based on over a half-century of scientific research that continues to this day
- As with all potentially hazardous materials, the amount of intake determines the risk

## Military Applications of Depleted Uranium

- DU is used in armor-penetrating munitions and tank armor packages
- Its ability to "self-sharpen" makes DU the most effective anti-armor munition on the battlefield
- DU munitions allow U.S. Forces to kill enemy tanks at greater distances
- When used in armor, DU resists penetration – it has never been perforated in combat

## Military Unique Exposures

- For over 30 years, the DoD has evaluated the safety of DU munitions and armor with this most recent assessment in 2004
- U.S. used DU for the first time in combat during Operation Desert Storm in 1991
- Fratricide ("friendly fire") involving six Abrams tanks and fourteen Bradley Fighting Vehicles in 1991
- As reported in the USACHPPM 2000 Report, existing data were not robust enough for modeling doses to personnel inside Abrams and Bradleys perforated by DU munitions

## DU Exposure Categories

| Category | Description |
|---|---|
| I | Service members in, on, or near (within 50 meters) of armored vehicle struck with DU at the time of penetration by the DU munition |
| II | Service members whose military occupational specialty (MOS) require entering vehicles damaged by DU |
| III | Service members who have incidental exposure to DU |

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## DU CAPSTONE Aerosol Study and Human Health Risk Assessment

- $ 6 Million Project
- 5 years to complete
- Rigorous science
- External Peer Review
- Transparent process
- Unlimited release of data


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U.S. Army Materiel Command

U.S. Army Heavy Metals Office

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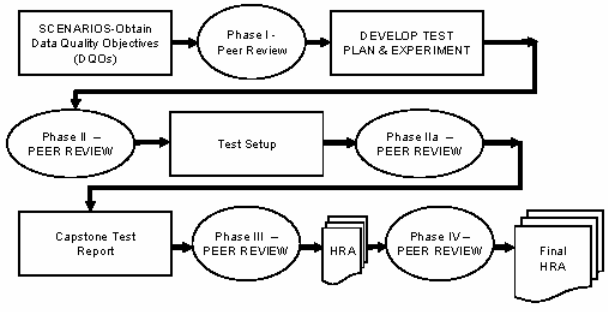
## DU CAPSTONE Process

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## Other Depleted Uranium Initiatives



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## Environmental Base Camp Assessments

- Environmental sampling at bivouac sites to ensure areas are safe
- Sampling includes direct measurements, air, soil, and water sampling
- Analysis includes radioactivity and DU


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## Post Deployment Screening for Depleted Uranium

- 24-hour urine specimen analyzed by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS)
- DoD policy requires testing for Level I and II personnel. Level III may be tested if desired.
- Lab analysis by accredited lab with over 30 years experience
- Over 1,700 personnel tested with 5 DoD Service Members identified as having elevated DU in their urine and referred to the Baltimore VA DU Medical Follow Up Program

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## Reevaluation of Areas of Potential DU Contamination

- As Samawah, Iraq, location of the 442nd Military Police Company, New York Army National Guard
- Allegations of DU contamination
- Laboratory analysis of samples is ongoing

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## International Cooperation

- Participation in three United Nations Environment Programme (UNEP) missions to the Balkans (Kosovo, Serbia and Montenegro, and Bosnia)
- Consultative support to the World Health Organization (WHO)
- Consultative support to the International Atomic Energy Agency (IAEA)

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