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CORRESPONDENCE CONTROL TICKET

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ACTION OFFICE: EDO

To: Paperiello, RES

AUTHOR: James Salsman

AFFILIATION:

ADDRESSEE: Andrew Lankowicz

SUBJECT: Study finds little risk from depleted uranium particles

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ACTION: Appropriate

DISTRIBUTION: RF

LETTER DATE: 11/30/2004

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NOTES:

FILE LOCATION: ADAMS

DATE DUE:

DATE SIGNED:

From: James Salsman <james@bovik.org>
To: "Lankowicz, Andrew J LTC USAARL-Ft Rucker"
<Andrew.Lankowicz@se.amedd.army.mil>
Date: Tue, Nov 30, 2004 6:46 PM
Subject: Re: FW: [health.mil] Study Finds Little Risk From Depleted-UraniumParticles {01}

Dear Lt. Col. Lankowicz:

Thank you very much for the depleted uranium information. I understand the concerns on both sides of the issue. I don't have any direct interest in the issue either; I'm simply astonished by how much the apparent effects have changed over time. When uranium is inhaled as a *partially soluble compound*, which hasn't been considered in any of the studies I've seen, then the bio-kinetics are much different than with the oxides and metal particles, which have been studied carefully. I'm not even sure whether the EPA is going to accept my petition, because I don't have any direct involvement, and Administrative Procedure Act petitioners must be "interested" persons.

On one hand, there's a huge tactical advantage of D.U. rounds in air support fire. I understand that the 30 mm DU rounds perform better than any other 30 mm ordnance in most situations.

On the other hand, just this year, birth defect incidence rate in children fathered by Gulf War I vets is seriously increasing, from an initial bump around 1993, to undetectable levels seven years after the first gulf war, to a 50% increase in birth defects among children fathered by all G.W. I vets over the past decade in research published this year. The statistics from civilians in Basrah have a similar steep trend, with an initial bump coincident with miscarriages and then several years of apparently undetectable effects, and now a very steep increase.

The solution might be to put some wadding between the DU slug and the propellant, at least for 30 mm DU rounds. That should keep the hot nitrogen ions away from the metal, and significantly reduce the mass of nitrogen compounds produced in muzzle flash. If you and/or your colleagues agree, this can be suggested to the responsible people such as:

Brig. Gen. Paul S. Izzo.
Program Executive Officer, Ammunition
Picatinny Arsenal
izzop@pica.army.mil

Brig. Gen. Jerome Johnson
Commander
Joint Munitions Command
afsc-ofc-gc@afsc.army.mil

Mr. Jim Wheeler
Director
Defense Ammunition Center
dir-dac@dac.army.mil

I'm going to try to ask CHPPM to make that suggestion, too.

But the problem here is that nobody has verified the nitrogen compound theory. I have a feeling that at least a few people, perhaps at Oak Ridge Laboratory, who were supposed to do this for the NRC back in the 1980s, just let it slide; what may have happened is that the D.U. munitions were approved without any consideration of the combustion products in the presence of a shell's explosive or a round's propellant.

The problem with Aberdeen's Capstone study is that they looked for dust (metal oxides) instead of nitrates, which remain dissolved in the air for long time (melting points are 60 deg. C for uranyl nitrate versus > 2800 deg. C for the oxides.) I'm coming to the conclusion that inhaling uranium oxides is safer overall than inhaling 1/1000th as much nitrogen compounds; maybe even more disparate. The oxides are insoluble, and they flush out from the lungs over time without ending up in the testes, which is where the dissolved uranyl ions end up to do the congenital damage. The uranyl ions also get put into bone where they catalyze white blood cell chromosome damage, too, which is easy to detect. The oxides, and even the chelate dissolved from tissue-embedded DU shrapnel, just don't do the same thing or end up near the same tissues.

I would hope that someone with a uranyl ionophore test can get some real measurements of muzzle flash gasses from 30 mm DU rounds sooner rather than later. Some simple insulation such as cellulose, Nomex, or sodium borate-treated wadding could keep the plasma-state nitrogen ions from the trailing end of the slug. That could even slightly increase the muzzle velocity, so there's not necessarily a downside to trying to get relative measurements.

Sincerely,
James Salsman

P.S. I'm using "nitrates" as shorthand for all the uranium-nitrogen compounds, of which there are at least a handful known from uranium combustion in air and more from propellant and explosive burns.

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Subject: Re: FW: [health.mil] Study Finds Little Risk From Depleted-UraniumParticles {01}
Creation Date: Tue, Nov 30, 2004 6:37 PM
From: James Salsman <james@bovik.org>
Created By: james@bovik.org

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