Depleted Uranium Ammunition

Anatomy of a Super Weapon

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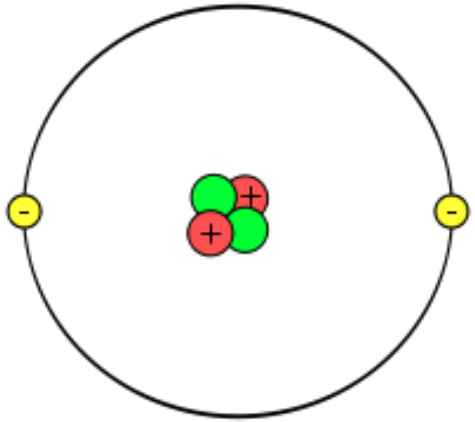
International Physicians for the Prevention of Nuclear War

April 13th 2012

Atoms

- atom: consists of neutrons (0), protons (+) and electrons (-)
- number of protons/electrons define the element
- neutrons: "glue" of the nucleus



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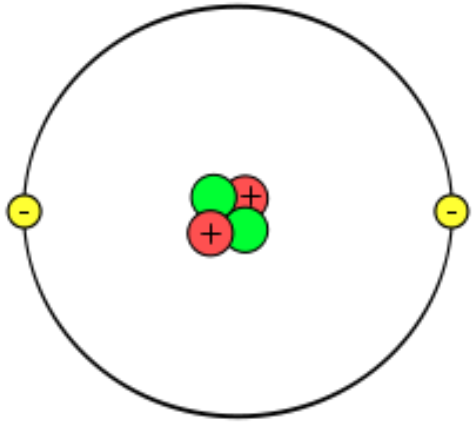

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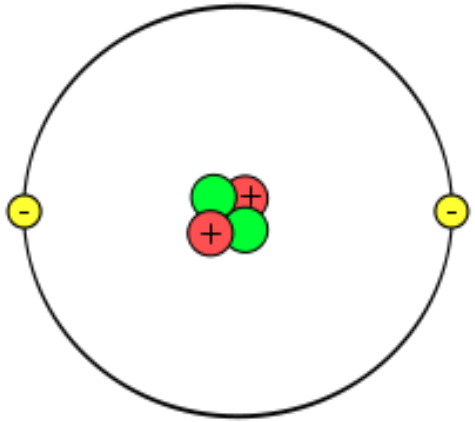

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- isotopes of natural uranium:
  - about 99,3 % U238 (stable) (92 protons + 146 neutrons)
  - about 0,7 % U235 (rather unstable) (92 protons + 143 neutrons)

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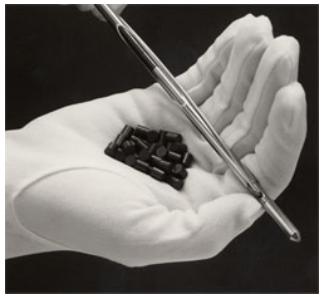
- nuclear power plant fuel: 3-5 % U235
- nuclear weapon fuel: up to 95 % U235
- by-product: depleted uranium (about 0,3 % U235)
- average German nuclear power plant : about 107 t U depleted uranium per year [2] [3]



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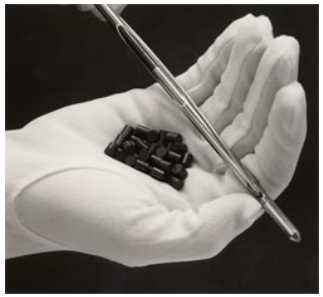

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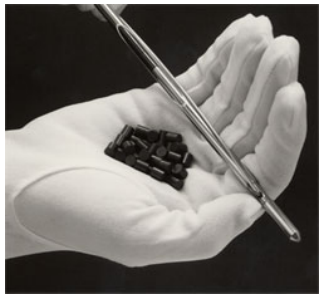

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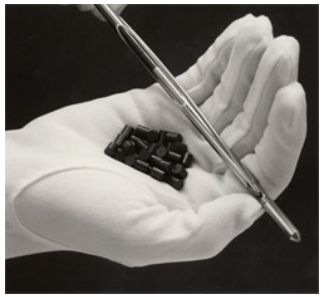

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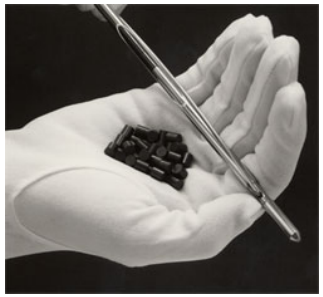

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- density of (depleted) uranium: $19,1 \frac{g}{cm^3}$ (lead has $11,34 \frac{g}{cm^3}$)

$\rightarrow$ a cube (10 cm edge length) of uranium would weigh 19 kg

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- e.g. 120 mm tank grenade

Figure: DU penetrator for 20 mm bullet [8]

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Firing a DU Projectile

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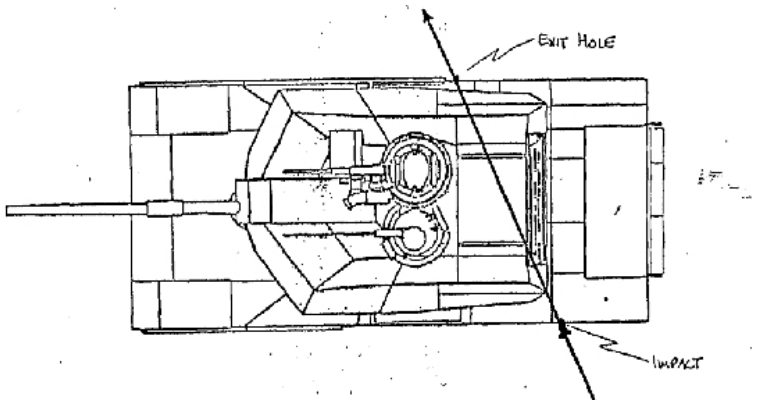
→ temperatures of up to 5000 °C

→ projectile hull melts of and part of the DU core vaporises

→ DU dust (UO_2) gets into the environment



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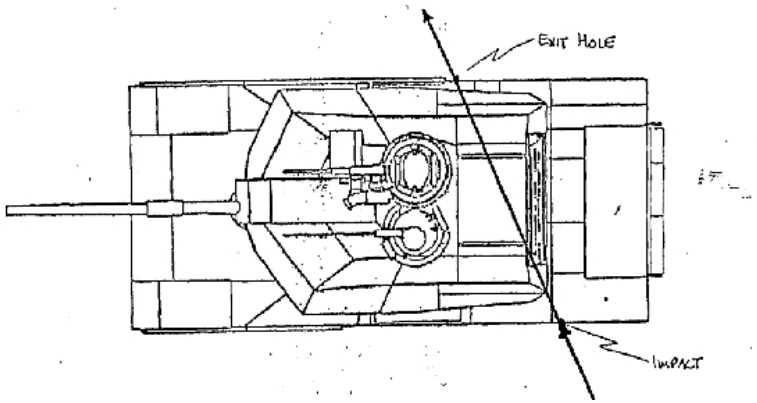

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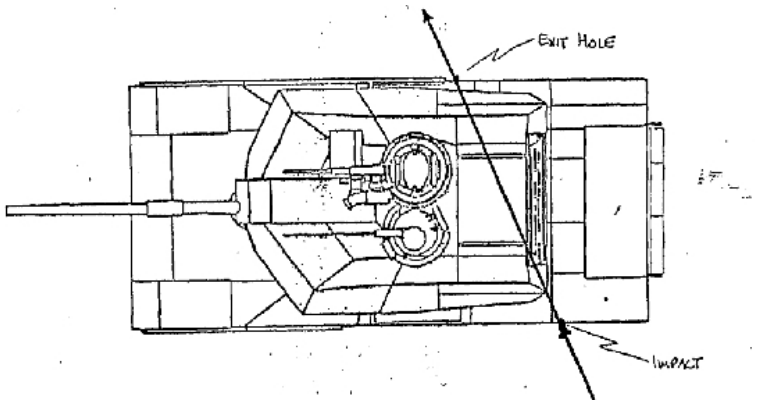

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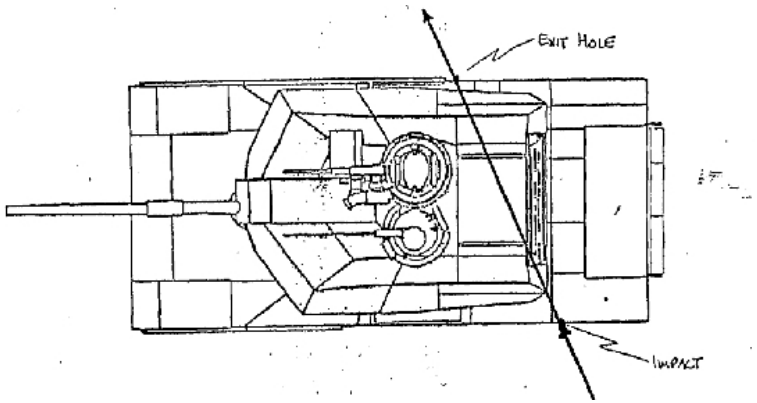

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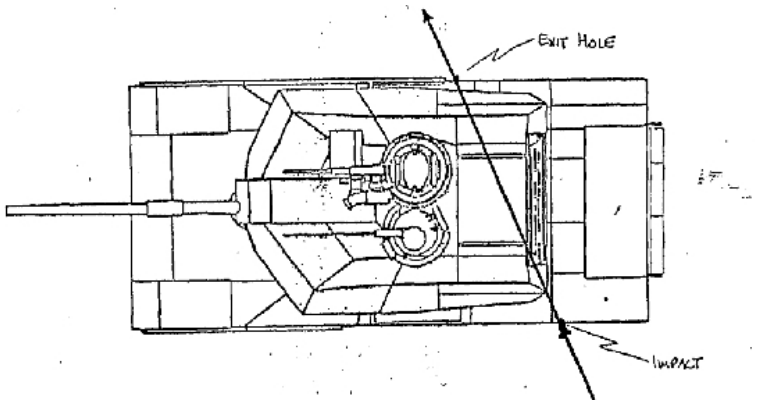

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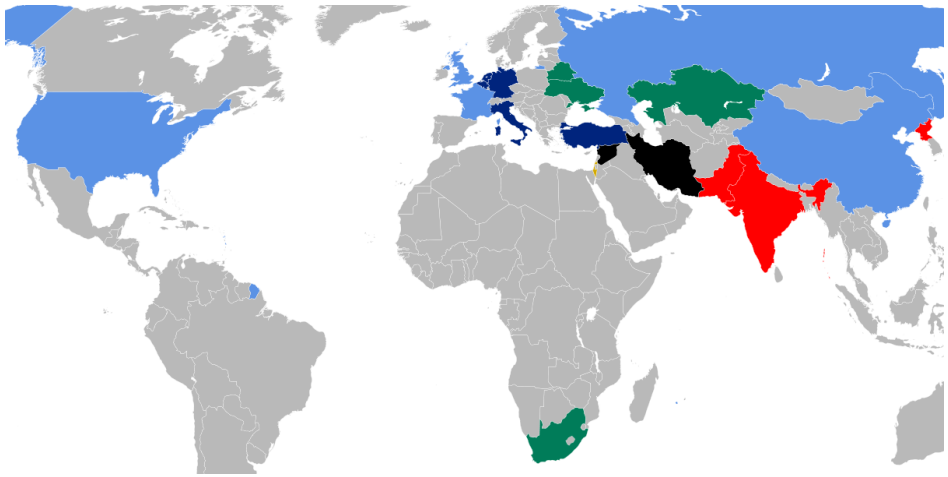

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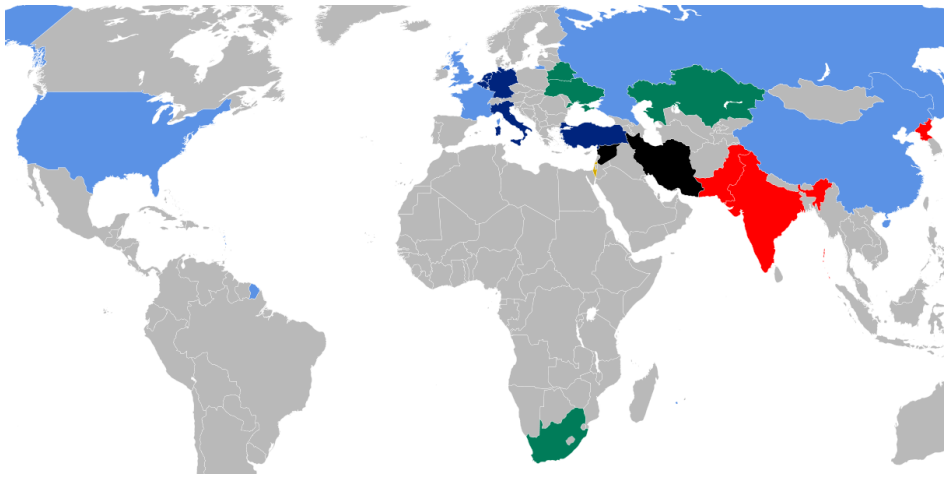

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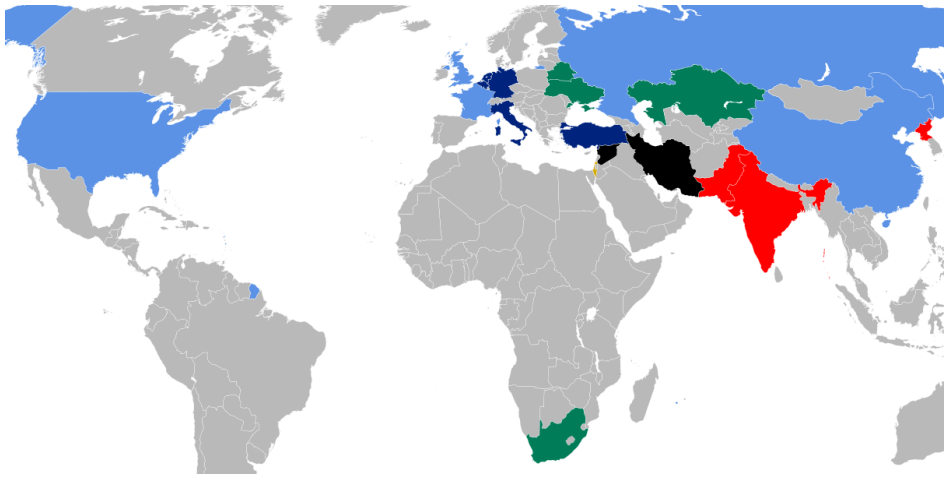

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- ingestion through drinking water, food, breathing air or even skin
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- radiation and chemotoxicity
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Genetic Damage / Transgenerational Damage

- DU breaks mother-child-barrier and does harm to unborn children
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- Afghanistan (2001)?
- Gulf Wars / Iraq Wars (1991, 2003)
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  - 1991: about 340t
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  - largest known amount of DU ammunition used ever [14]
- high contamination in and around Basra [15]
- soldiers come home with Gulf-War Syndrome

→ research by Prof. Dr. Siegwart Horst Günther (morbus günther)

- also studies about Fallujah (Ariabi, 2010)[16]

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Iraq Wars

- in both cases: US troops attack Iraq using DU ammunition
  - 1991: about 340t
  - 2003: about 1000-2000 t
  - largest known amount of DU ammunition used ever [14]
- high contamination in and around Basra [15]
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Balkan Wars

- in both cases: NATO troops try to intervene in an existing conflict and use DU ammunition (mainly US troops)
  - Bosnia (1994): about 4000 rounds of DU ammunition (about 1,3t)
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Marking Contaminated Territory

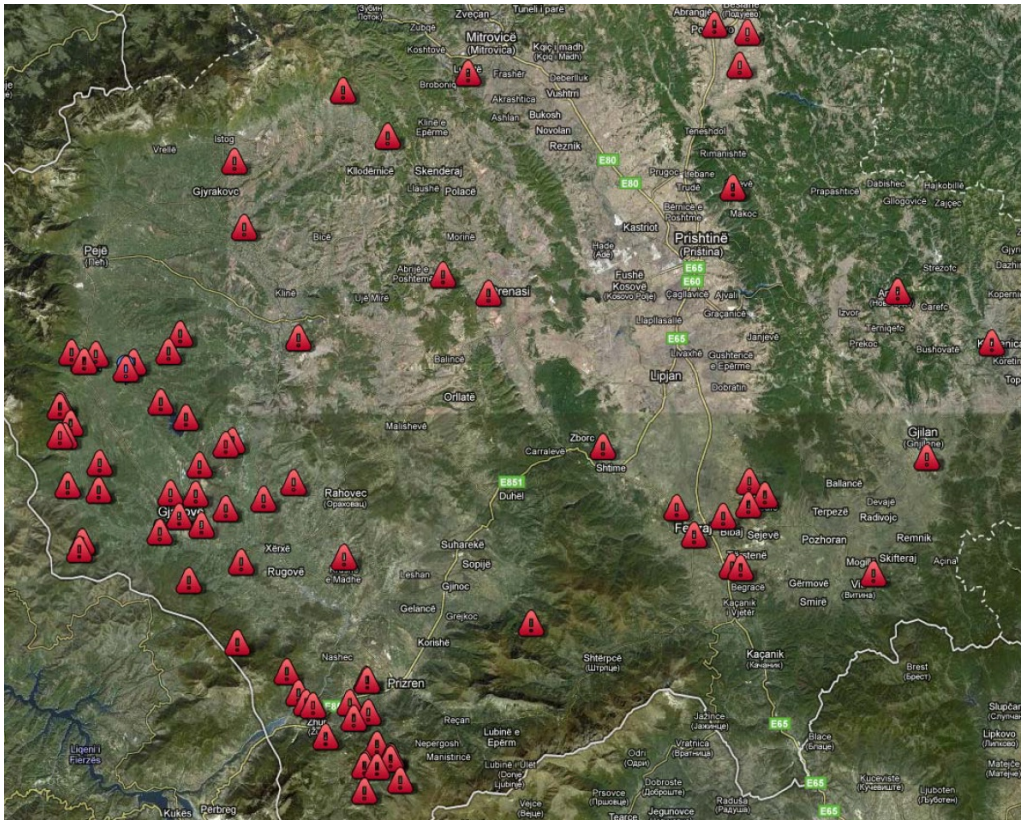

Figure: known areas contaminated with DU in Kosovo [18]

[18] ICBUW / Doug Weir

Relocating Affected Population

- relocation of population from contaminated areas extremely expensive
  - e.g. Basra: 3.5 million residents
- civil health structures destroyed in war → health monitoring difficult
- erosion (wind etc.) spreads contamination → probably further relocation needed
  - e.g. hotspots in Arbil (Northern Iraq / Kurdistan, over 800.000 residents): winds have spread contamination from the south [19]

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- high financial costs & high amount of manpower needed [20]
- contaminated material (earth, ammunition) has to be contained even after clean-up
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+ military benefits
+ cost effective

Contra

– hits enemies and civil population indifferently
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– transgenerational effects
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Possible Campaign Targets

- force DU users to clean up their mess
- individual laws for each country (already passed in Costa Rica and in legislation process in Ireland and New Zealand[21])
- **international convention to ban all uranium weapons ($\rightarrow$ ICBUW)**

[21] Doug Weir / IPPNW Chernobyl Congress 2011

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- different treaties ban weapons already:
  - Chemical & Biological Weapons Convention
  - anti-personnel mine convention (Ottawa Treaty)
- 9 NATO-states agree with a ban (e.g. Germany)
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Thank you for listening

References

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