



# Statement of readiness to supply Ukraine with depleted uranium ammunition



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***Alongside our granting of a squadron of Challenger 2 main battle tanks to Ukraine, we will be providing ammunition including armour piercing rounds which contain depleted uranium.***

***Such rounds are highly effective in defeating modern tanks and armoured vehicles.***

***Minister of State for Defence  
Annabel Goldie***

**MailOnline**

Daily Mail, a popular British daily newspaper

"I'm scared. The British government has gone crazy, sending shells with uranium to this disastrous cause. They are dragging us deeper into the conflict, trying to please the Yankees."— *Blue Light.*

"We are run by idiots. Not our war, not our country, not our responsibility, but we will suffer"— *RaumTCUK.*

"Thanks to Zelensky for getting us involved"— *Jemimalawlor.*





# Comparative analysis of sub-caliber armor-piercing depleted uranium-based ammo and tungsten-based ammo



## Comparison of depleted uranium and tungsten-based armour-piercing sub-calibre projectiles

Parameter	Depleted uranium projectile core	Tungsten-based projectile core
Core density	18,2-18,4 g/cm <sup>3</sup>	17,1-17,3 g/cm <sup>3</sup>
Armour-piercing ability	Increased by 10%	Sufficient
Physical and mechanical properties in storage	Not preserved	Preserved
Temperature range	Low	High
Damage to the environment	Significant damage	No damage
Complexity of disposal	Significant	Not significant

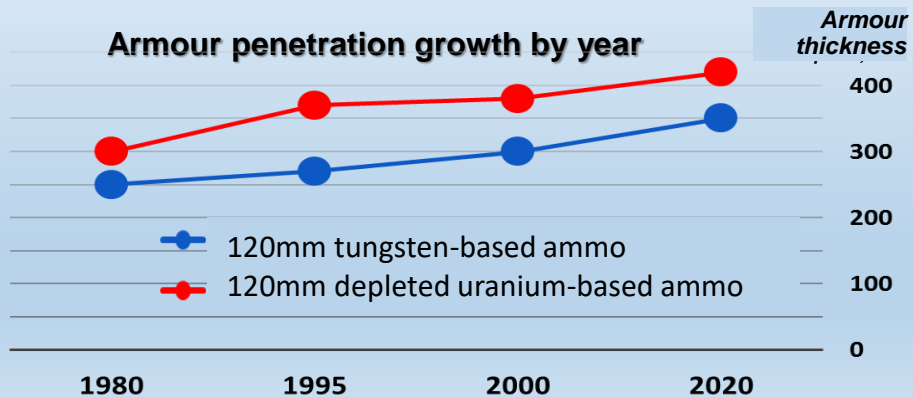
## Structural layout of sub-caliber armor-piercing projectile



Projectile based on depleted uranium



Projectile based on tungsten



Designed for engaging highly protected armored vehicles equipped with active or dynamic protection systems. It is the main shell for Challenger main battle tank

Parameter description	Unit of measurement	APFSDS L26A1	APFSDS L27A1
Calibre	mm	120	120
Military hardware		Main battle tank Challenger 2	
Round type		Separate	
Active part material		uranium alloy	
Round weight	kg	19.4	
Projectile weight	kg	8.5	7.6
Muzzle velocity	m/s	1,540	
Armour penetration at 2,000-m range:			
normal	mm	460	540
at an angle of 60° to the normal	mm	230	270

**Design features:** uranium alloy projectile core has greater armour penetration and has increased impact ensuring defeat of modern tanks at distance of over 2,000 m.



Designed for engaging highly protected armored vehicles equipped with active or dynamic protection systems. It is the main shell for M1 Abrams main battle tank

Name of Parameter	Unit of measurement	APFSDS M829A3	APFSDS M829A4
Calibre	mm	120	
Military hardware		Main battle tank M1 Abrams	
Round type		quickfiring	
Active part material		uranium alloy	
Round weight	kg	22.3	19.5
Projectile weight	kg	10	9.5
Muzzle velocity	m/s	1,555	1,780
Armour penetration at 2,000-m range:			
normal	mm	800	900
at an angle of 60° to the normal	mm	400	450

### Construction features:

The ammo core is made of Stabilloy uranium alloy, possessing more armour penetration than projectiles with tungsten-based cores (by 15%-20%) and having increased armour penetration. The M829 projectile has improved armour penetration to defeat modern tanks at ranges of over 3,000 metres.

The use of depleted uranium-based ammunition has no significant advantage over tungsten ammunition in contemporary military conflict

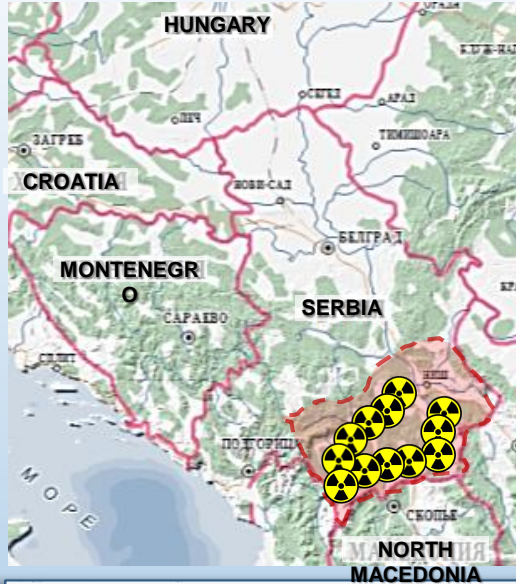




# Facts about the use of depleted uranium ammunition

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## Use of depleted uranium by NATO in bombardment of Yugoslavia



President of Serbia  
Aleksandar Vučić

"I have never completely believed all our theories about depleted uranium, that it was all the fault of those who destroyed and bombed this country in 1999.

But today, in talking to doctors, I realised that there are certainly many factors in the rise in cancer among children, but depleted uranium is definitely one of them, as it is most often recorded in children whose parents were born around 1990"

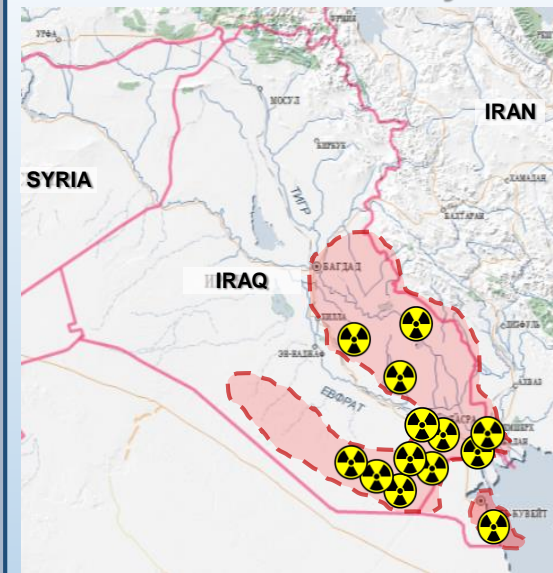
### Bombs

with depleted uranium with a weight of **600** kg were used to destroy the runways

In the NATO bombings, over **40,000** shells with a total weight of **15** tonnes of depleted uranium were used

Armour-piercing carrier rounds with uranium core weighing **3.2** kg were used to destroy vehicles

## Use of depleted uranium by U.S. Air Force in Iraq



"The use of depleted uranium ammunition by the U.S. military in Iraq has caused a four to six fold increase in civilian cancers as well as birth defects and all diseases that are related to radioactivity and toxicity"

In Iraq, the USA employed more than **300,000** of depleted uranium ammunition

The USA used not less than **300** tonnes of depleted uranium

Around **300** areas in Iraq have yet to be cleaned from radioactive contamination

"Bomb fragments or particles of depleted uranium have been found in five of the six areas surveyed by a team of experts who conducted surveys under the auspices of the UN environmental programme in October and November 2001"

"Experts were 'surprised' by the fact that two years after the bombings, depleted uranium particles are present in the air of the surveyed areas".

UN report on the effects of NATO depleted uranium ammunition use by NATO aircraft, 2002.





# Consequences of depleted uranium ammunition use

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## Negative impact on human health

### Internal organ irradiation

Human organs	Index
Reproductive glands	0,2
Red bone marrow	0,12
Large intestine	0,12
Stomach	0,12
Lungs	0,12
Bladder	0,05
Liver	0,05
Esophagus	0,05
Thyroid gland	0,05
Skin	0,01
Bone surface cells	0,01
Cerebrum	0,025
Other tissues	0,05
Organism in general	1

**Sensibility**

- Low (Green dot)
- Medium (Yellow dot)
- High (Red dot)



## Iraq files suit against the USA

*"The biggest trouble is that the Iraqi state has not lifted a finger all these years. Authorities have not cleaned up the contamination and failed to demand that the international community oblige US and its allies to clean up the contamination or demand compensation".*

Adviser to the Iraqi Parliament's Foreign Affairs Committee  
Hatif al-Rikabi

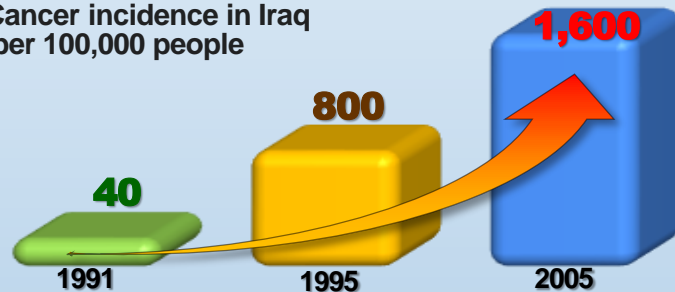
## UN REPORT on the effects of NATO depleted uranium ammunition use by NATO aircraft

- it is necessary to organise annual monitoring of soil and groundwater conditions in areas where NATO used depleted uranium ammunition to assess the potential risk in the long term;
- the problem of corrosion of uranium cores remaining in the ground requires special attention.

UN

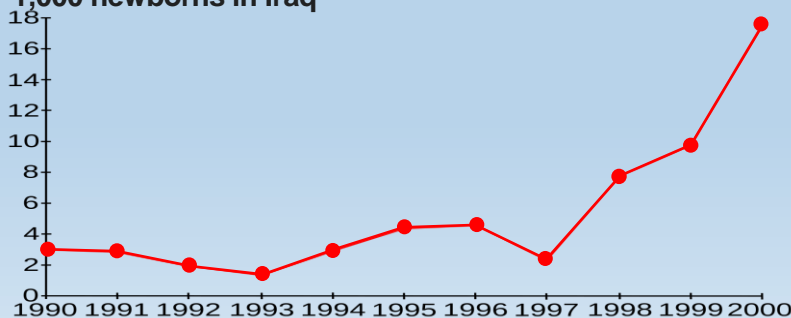
## Increase in cancer diseases

Cancer incidence in Iraq  
per 100,000 people



## Increase in congenital deformities

Congenital deformities per  
1,000 newborns in Iraq



## Negative impact on environment

### Pollution of soil and groundwater

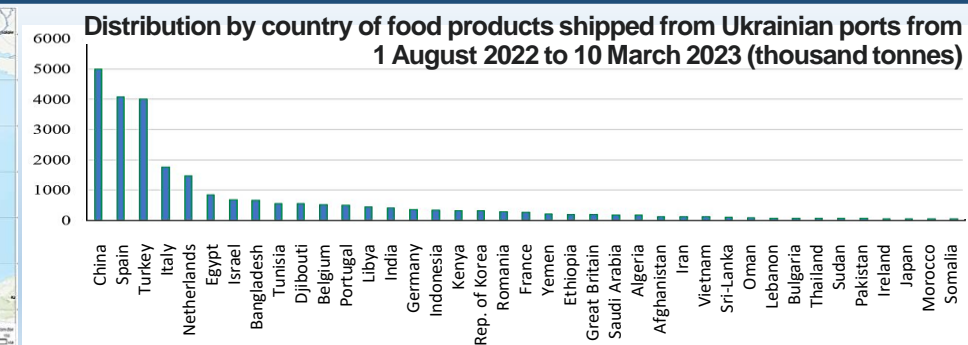


### Pollution of agricultural crops



## Refusal to supply grain crops

Distribution by country of food products shipped from Ukrainian ports from  
1 August 2022 to 10 March 2023 (thousand tonnes)







# Awareness of Western nations about the danger of using depleted uranium ammo

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## SUMMARY REPORT TO US CONGRESS

### Health and Environmental Consequences of Depleted Uranium use by the U.S. Army

SUMMARY REPORT TO CONGRESS  
HEALTH AND ENVIRONMENTAL CONSEQUENCES OF  
DEPLETED URANIUM USE BY THE U.S. ARMY  
Prepared By  
U.S. Army Environmental Policy Institute  
June 1994

A recent report by the United Kingdom Atomic Energy Authority warned about possible long-term consequences of depleted uranium (DU) left on the battlefield in the Persian Gulf. As a result, Congress directed the Army Environmental Policy Institute to conduct a study to determine:

1. The health and environmental consequences of using DU on the battlefield
2. Which remediation technologies exist or might be developed to clean up DU contamination
3. Ways to reduce DU toxicity
4. How to best protect the environment from the long-term consequences of DU use.

The Army Environmental Policy Institute, under the direction of the Office of the Secretary of the Army, conducted a study on the health and environmental consequences of DU. The Institute assembled a team of health, environmental, systems and legal professionals to review the technical literature, statutes, policies, procedures, regulations and training programs relevant to the Army's use of DU. The team also conducted interviews to assess the adequacy of technical understanding, procedural control and regulatory compliance with respect to the Army's use of DU.

Although this report does not directly address DU weapon systems produced by the Department of Energy (DOE) or used by other services (i.e., the Air Force or Navy), the health and environmental consequences associated with using these systems should be similar.

If providing the fighting soldier with the maximum battlefield advantage means using DU, then methods to minimize potential health and environmental consequences must be employed. It should be noted that under current international law, there is no legal requirement to remediate environmental damage to battlefields. Furthermore, it is unlikely that future remediation of battlefields solely to remove DU will be required.

Depleted uranium is a byproduct of fuel- and weapons-grade uranium refining. While naturally occurring uranium, a radioactive element, contains a small amount of the isotope <sup>235</sup>U, nuclear power requires greater concentrations of <sup>235</sup>U to sustain the nuclear chain reaction. The process to concentrate the <sup>235</sup>U is called enrichment. One byproduct of the enrichment process is depleted uranium. DU retains uranium's natural toxicological properties and approximately half of its radiological

- **there is no technology to reduce the toxicity of depleted uranium;**
- **it is extremely difficult to clean the area of the depleted uranium ammunition application;**
- **threats to the lives and health of U.S. troops operating in Iraq where this ammunition is used are extremely high. All at-risk soldiers and officers are required to be identified in order to provide them with specialised medical care. Pay particular attention to assessing the effects of inhaling toxic aerosols.**

U.S. Army Environmental Policy Institute

## RESEARCH ARTICLE

### Depleted uranium. Is it potentially involved in the recent upsurge of malignancies in populations exposed to war dust?

Depleted Uranium  
It is potentially involved in the recent upsurge of malignancies in populations exposed to war dust?

Hamid H. Shihab, MD, PhD

#### ABSTRACT

لقد دلت الدراسات المتعددة التي أجريت في العديد من البلدان العربية مؤخراً على وجود علاقة ارتباطية بين استخدام اليورانيوم المنضب في الحروب وبين زيادة معدلات الإصابة بالسرطان في مناطق الحرب. ومع ذلك، فإن هذه الدراسات كانت محدودة جداً في حجمها ونوعيتها. وبما أن اليورانيوم المنضب هو مادة سامة جداً، فإننا نعتقد أنه من الضروري إجراء مزيد من الدراسات لتأكيد هذه العلاقة. وفي هذا الصدد، فإننا نوصي بإجراء دراسات طويلة الأمد ومتعددة المراكز في مختلف البلدان العربية لتقييم المخاطر الصحية الناتجة عن استخدام اليورانيوم المنضب في الحروب. كما نوصي أيضاً بتطبيق تدابير وقائية صارمة لحماية المدنيين من مخاطر الحرب الكيميائية.

Due to its intense density, depleted Uranium (DU) has recently entered the warfare industry and become a major pollutant to the biosphere. Although DU is less radioactive than natural Uranium, it still retains all its chemical toxicity. Limited data exist regarding the long-term hazards of DU on humans, however, it is suspected to be a major toxin and carcinogen agent. Literature review reveals the scarcity of the World Health Organization's knowledge regarding related DU-malignancies. Battlefield exposure constitutes a steady rise of malignancies and numerous malformations; after war, that is, in Isrealia.

- **analysis of the total number of pathologies among the inhabitants of Iraq and the Balkan region where depleted uranium munitions were used;**
- **gives information on the harmful effect that depleted uranium has on the human health;**
- **conclusions were drawn that the use of depleted uranium ammunition posed a definite risk to the health of civilians and that a ban on such weapons should be considered.**

Ministry of Health of the Kingdom of Saudi Arabia

## BILL

### to require suspension of the use, sale, development production, testing, and export of depleted uranium munitions

107TH CONGRESS  
1ST SESSION  
H. R. 3155  
To require the suspension of the use, sale, development, production, testing, and export of depleted uranium munitions pending the outcome of certain studies of the health effects of such munitions, and for other purposes.  
IN THE HOUSE OF REPRESENTATIVES  
OCTOBER 17, 2001  
Mr. McKENNEY (for himself, Mr. ALCANTARA-VILLALBA, Mr. BALLEW, Mr. McHENRY, Mr. KENNEDY, and Mr. LEE) introduced the following bill, which was referred to the Committee on Armed Services, and in addition to the Committee on Energy and Commerce, and International Relations, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned:  
A BILL  
To require the suspension of the use, sale, development, production, testing, and export of depleted uranium munitions pending the outcome of certain studies of the health effects of such munitions, and for other purposes.  
1 Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,  
2 SECTION 1. SHORT TITLE; TABLE OF CONTENTS.  
3 (a) SHORT TITLE.—This Act may be cited as the  
4 "Depleted Uranium Munitions Suspension and Study Act  
5 of 2001".

107th US Congress, 17 October 2001

## REPORT

### The Health Hazards of depleted uranium ammunition

THE ROYAL SOCIETY

The health hazards of depleted uranium munitions  
Part I

- **lung cancer is the main type of cancer among victims of depleted uranium ammunition;**
- **studies that would fully replicate real combat conditions have not been carried out. Therefore, the experimental data are unreliable;**
- **further research on the formation of carcinogenic aerosols and their influence on cancer development is required.**

The Royal Society