
DEPLETED URANIUM: A THREAT TO HUMAN PEACE AND SECURITY

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The year 1945 marked the end of another blood soaked chapter in 20th century history. It also saw Virginia Gildersleeve as the only woman appointed by President F.D. Roosevelt to the San Francisco Conference, which drew up the United Nations Charter.

The International Federation of University Women (IFUW) has a proud history in the empowerment of women as advocates for human peace and security. Today, there is no peace in our time, and human rights abuses abound. The Doomsday Clock, January 2007, moved 2 minutes closer to midnight. As a lay person, concerns for human peace and security encouraged me to research and analyse the use of Depleted Uranium Weapons (DUW) and present my findings today, as a contribution towards the 29th IFUW Triennial Conference *Women: Agents for Change*.

This paper deals with the massive proliferation of DUW. DUW destroy people, present and future generations. DUWs destroy the environment, its flora and fauna, now and into the future. This paper will demonstrate the need for an international protocol that bans DUW.

WHAT IS IT?

Depleted Uranium (DU) is the residue from the enrichment process, which uses 11.8kg of uranium to produce a kg of enriched uranium, to be used for nuclear power and weapons. DU retains 60% of radioactivity of uranium, plus small amounts of man-made isotopes U236 and plutonium (Pu239) whose extraction is prohibitively expensive. DU is 1.8 times heavier than lead.⁽¹⁾

The US Dept. of Energy (DOE) has an inventory of 728,000 of DU.⁽²⁾ It is estimated that there are 2 million tons of DU in world stocks. The costs associated with storage are significant: DU waste is highly toxic and radioactive, it must be contained, monitored and managed for dust and airborne particles. In order to defray some of these costs, the DOE supplies DU free of charge to US military and some sectors of private industry.⁽³⁾

The dangers associated with Depleted Uranium are acknowledged in US Civil legislation and Military regulations:

Energy Employees Occupation Illness Compensation Program Act, Congress October 2000, Expanded Act June 11, 2001.

Memorandum for Commanders, MEDCOM major subordinate Commands on 'Medical Management of Army Personnel Exposed to Depleted Uranium, April 29, 2004

Army Regulation 700-48-Logistics-Management of Equipment Contaminated with Depleted Uranium or Radioactive Commodities and

US Army Technical Bulletin – TB-1300-278 ‘Guidelines Response to Handling, Storage and Transportation Accidents Involving Army Tank Munitions or Armour Which Contain Depleted Uranium, July 10, 1996.

WHAT IT DOES

Depleted uranium penetrator ordinance has two particular properties: on impact it sharpens and pierces, simultaneously releasing massive heat energy. US Test data show that 20-40% of the shell becomes very fine aerosol particles of chemical and radiological toxic dust. A DU shell fired from an Abram’s tank can create from 2-7 lbs of uranium oxide dust. From 50-96% of the dust can be inhaled and remain in the lungs and other parts of the body for years.⁽⁴⁾ DU dust can be and is dispersed by the wind. The thousands of tank shell rounds, plus Thunderbolt II’s high velocity shells, give a deadly dimension to ‘blowing in the wind’, particularly in Iraq.

Sixty percent of the penetrator retains its initial shape, leaving a landscape littered with solid pieces of DU.⁽⁵⁾ The geography of the terrain determines environment effects. Soft soils absorb the remains, which may be buried up to 3 meters, with a possibility of leeching into groundwater supplies. In the case of hard and solid surfaces, compacted sand, buildings or tanks, the remains lie on the surface, and corrode into dangerous dust.

DU dust is indiscriminate in where it blows and makes no distinction between military, and civilian personnel, flora or fauna. The Groves Memo-Manhattan response of April 1943 states:

For average terrain no decontamination methods are known. No effective protective clothing for personnel seems possible of development.

US Army Environmental Policy Institute Report 1995 echoes 1943 observations which state:

No available technology can significantly change the inherent chemical and radiological toxicity of DU. These are intrinsic properties of uranium. If DU enters the body it has the potential to generate significant medical consequences. The risks associated with DU are both chemical and radiological.

Military Reports that deny the inherent dangers of Depleted Uranium Weapons (DUW), in view of the above evidence, lack credibility.

HOW IS IT USED?

CIVIL APPLICATIONS

Ballast in aircraft, formula racing cars, boat keels, radiation shields in medical equipment. DU is no longer used in commercial aircraft. The Tenerife and Amsterdam air disasters raised safety issues. Nuclear Metals Inc, suppliers of DU ballast, confirmed that each Boeing 747 carried 1500 kg that would on impact oxidise rapidly, and produce a chemical reaction with thousands of micro particles of uranium oxide that can be inhaled or swallowed.⁽⁶⁾ Commercial aircraft manufacturers have quietly returned to using the more expensive Tungsten for ballast. Tungsten is without the radiological and chemical toxicity of DU.

MILITARY USE

The US, UK, Russia and France produce and export Depleted Uranium Weapons (DUW). DU tank shells are deployed by the armed forces of US, UK, Israel, France, China and others.⁽⁷⁾ Governments and their military forces suppress, refuse, or are reluctant to provide map reference or tonnage of DUW used in combat. Approximate tonnage are: Balkans 7; Gulf War 500; Iraq Shock and Awe phase 2003, 1,000 + DUW use continues in Iraq. DUW use in Afghanistan has been denied.

DUW were fully deployed for the first time in the Gulf War 1991. Familiar to our television screens are Abram tanks operating in deserts, town and city streets, while A-10 Thunderbolts scream overhead. US Military currently use DUW ranging from 7.62mm to 120 mm carrying from 180 gm to 4,500 gm per shell.⁽⁸⁾ Bunker Busters or Mini Nukes carry a payload from 500-1,500 kg. In simple language DU is used from small caliber rifles to Bunker Busters. Bunker Busters were used in Afghanistan.

The current crop of DUW are the progeny of Research and Development reaching back to Nazi Germany in 1943 with the substitution of uranium for wolframite in solid core ammunition. Memo to US General L.R. Groves, in 1943 proposed research that would grind radioactive materials into microscopic size, to be delivered in the form of dust or smoke. Weapons Research and Development is ongoing. 'Enhanced Radiation Warheads' by S. T. Cohen proposed shifting the emphasis from large yield devices to clean low yield discriminating tactical nuclear weapons. Initially introduced as a tactical weapon against tanks, DU tank shells are without the massive blast and heavy radiation fallout of nuclear warheads. They leave in their wake a stealthy legacy of radiological and chemically dust for generations to come.

The Treaty on the Non-proliferation of Nuclear Weapons (NPT) entered into force in March, 1970. Its objective is to halt the spread of nuclear weapons; weapons technology; to promote co-operation in the peaceful use of nuclear energy; and to further the goal of nuclear disarmament and general and complete disarmament. One hundred and eighty-seven parties have joined the NPT.

The April 2005 NPT Review was effectively scuttled by US obstruction. Industry continues to design, research, test and deploy new nuclear weapons system. DUW are touted as innocuous, made from leftovers. They are cheap and deadly. Peace and human security are not part of the Arms Industry bottom line.

EFFECTS US MILITARY

Nine years after the Gulf War, service related deaths grow and disabled veteran numbers increase by 43,000 annually. These rates of attrition are 5 times greater than that recorded for Vietnam Vets. The question to be asked is what killed a further 8,014 and how did 467 wounded in action become 168,000 classified 'disabled veterans', as claimed by Christopher Bollyn in 'Blamed for Cancer Clusters Among Iraq War Veterans.'⁽⁹⁾

US Military Casualties Gulf War	1991
Total served	696,778
Killed in battle	148
Killed in other than battle	145
Wounded in action	467

US DEPT OF VETERANS AFFAIRS, MAY 2002

Veteran Deaths service connected	8,013
Classified disabled veterans as a consequence of war time service	168,011
Casualty rate for combat related duties 1990-1991	29.3%

Veterans Affairs has claims pending from 23,612 individuals.⁽¹⁰⁾

WHAT IS THE RELATIONSHIP BETWEEN GULF WAR SYNDROME AND DEPLETED URANIUM?

Military officials strenuously deny any relationship. Reports cited indicate denials, official suppression of evidence and cover-ups, reminiscent of Agent Orange allegations. Subsequently Vietnam Vets have been awarded \$180 million compensation from Dow Chemicals, Monsanto and other producers of Agent Orange.⁽¹¹⁾

US Army Major Doug Rokke PhD, DU assessment team health and physicist, and

subsequently Director of US Army Clean Up Project, reported on site investigations which revealed uranium oxides and other hazardous material inside damaged/destroyed equipment and buildings. Unstable unexploded ordinance presented a further hazard.

Official documents provided to the Assessment Team state that 57% of oxide dust is insoluble, 43% soluble. At least 50% is respirable and chemically toxic.⁽¹²⁾ Most of this fine aerosol of uranium oxides are less than 10 microns, and enter the body by inhalation, ingestion or wounds.

Despite potential problems cited as early as 1943,⁽¹³⁾ and evidence provided by serving medical personnel, the US Military denied DU health effects. A March 1991 memo to Rokke's team

mandated that Reports be limited to information that supported the continued use of DUW.⁽¹⁴⁾ Physicians, scientists and other medical personnel have recommended immediate medical care during March, April and May 1991 and many times since.⁽¹⁵⁾ There has been no mass screening of Gulf War Vets⁽¹⁶⁾.

DU symptoms observed by Dr Doug Rokke⁽¹⁷⁾	Gulf War Syndrome identified by Health Encyclopaedia Diseases Conditions
Reactive airway disease	Laboured breathing
Neurological abnormalities	Motor neuron disease
Kidney stones, chronic kidney pain	Kidney diseases
Skin rashes	Skin rashes
Birth defects in offspring	excess birth defects, still births
Vision degradation	Weight loss, chronic fevers
Gum tissue problems	Memory loss
Lymphoma	Leukemia
Various forms of skin and organ cancer	Headaches
Uranium in semen	Thick saliva
Sexual dysfunction	Irritability

Dr Asaf Durakovic, nuclear medicine authority served in the Gulf War, as former chief of the Nuclear Science Division of the Armed Forces Radiobiology Research Institute. His service was terminated in 1997, as Chief of Nuclear Medicine Department of Nuclear Medicine at the Veterans Administration Authority. Dr Durakovic campaigned on behalf of his patients.

US Army Environmental Policy Institute Report 1994 address the central health issue.

Due to the nature of high energy penetrator impacts, there are no effective measures that can be applied to reduce the toxicity of spent projectiles. DU must be managed carefully and appropriately in light of these risks.

additionally

January 1993 General Accounting Office found that the Desert Storm Army had no comprehensive, DU battlefield plan. Soldiers doing recovery and maintenance work around US contaminated equipment were unaware of potential risk, and were without appropriate training.

Clearly the use and management of DU weapons was seriously flawed, and must be seen as a major contributor to the even increasing classified disabled vets. The potential health outcomes from 2003, and the ongoing conflict is frightening, as official military speak continues to peddle the negligible if not benign DU effects credo.

THE LAW FOR ARMED FORCES, INTERNATIONAL RED CROSS COMMITTEE, GENEVA, 1987

The following rules provide a reference to analyse the legality and the impact on the population and environment of Iraq as a result of Gulf War 1991, and the war of 2003.

Geneva Law: Legality Test for Weapons Under International Law.

- Temporal Test, Weapons must not continue to act after the battle is over.
- Environmental Test, Weapons must not be unduly harmful to the environment.
- Humaneness Test, Weapons must not kill or wound inhumanely.

Conduct application:

- As soon as the tactical situation permits, commanders and individual combatants shall contribute to restore normal conditions for the civilian population.
- Combat areas shall be restored to their previous condition (e.g. Removal of obstacles and dangerous objects such as mines, repair of passages essential for the civilian population).

Protocol I Additional to the Geneva Convention, 1987.

- Care shall be taken in warfare to protect the natural environment against widespread long-term damage. This protection includes prohibition of the use of methods or means of warfare which are intended or may be expected to cause such damage to the natural environment and thereby to prejudice the health of the population.

IRAQ - HEALTH

Where are the statistics of the Iraqi health disaster? A Medline Survey on Gulf War health related research revealed that of 369 only four related to the Iraqi people. The majority referred to health effects on the American troops.⁽¹⁸⁾ Serious research on DU effects on health and environment should focus on the people who were at the receiving end of DU munitions.

Further evidence on the relationship between DU and the incidence of malignancies with specific reference to Leukemias among children in Basrah, Southern Iraq by Dr Alim Yacoub, that the incidence of malignancies among children below 15 increased, 100% for the period 1990-1999. There is a rapid escalation of cases reported from 1995-1999, particularly in the

under 5 age group. A supporting geographical data graph shows the highest incidence in areas most heavily attacked or nearest the battleground. There is an overall increase across Basrah.⁽¹⁹⁾

Dr Jawad Al-Ali, Director of the Oncology Centre reports on infrastructure destruction, buildings both military and civilian, hospitals, factories producing pharmaceuticals, bridges, water and sanitation plants. More than 300 tons were delivered in the west parts of Basrah. The levels of radiation in the area measured by the Department of Environmental Engineering reached 1000-1,000 times normal background levels in the soil. This radiation and other factors like chemicals caused many diseases, cancers, congenital malformation in children, kidney diseases and infections.⁽²⁰⁾ The public health crisis was increased by post war sanctions. The death rate among children increased because of poor nutrition and infections, more than 5 million children died with 12 years. Sanctions prohibited the import of current technology, journals, books and many pharmaceuticals.

The 2003 Coalition of the Willing invasion plunged the Public Health System into chaos. Infrastructure was destroyed to a greater extent. More buildings were destroyed, libraries and other government buildings burned. Occupation forces took no action to protect schools and hospitals from damage. Children and girls were kidnapped from their schools, and doctors killed in their clinics. The rate of crime increased to a dangerous level. 'Till now we have no elected government, and we have a weak police force, and no army to protect the people and their property. The electricity is not available and no healthy drinking water supply. No security, but we hope this situation will improved in the near future.'⁽²¹⁾ Little has changed. Reuters 3rd July 2007, reporting Dr Ahmed Assad Naji, Baghdad Health Directorate, stated that the acute safe water shortage was responsible for the increased incidence of viral hepatitis, diarrhoea and typhoid.

The cities of Baghdad, Babylon, Karbala and Najef were subjected to concentrated air strikes from DU ordinance in the early stages of Gulf War II. *The Guardian* newspaper reported that 1,000-2,000 tons of DU were delivered on 51 local areas in different cities. Dr Al-Ali states that he witnessed A-10 aircraft over a period of three days delivering DU rounds against tanks and armoured vehicles near Basrah airport and the southern parts of the city, in a more intense attack than 1991. He reports significant increase in cancer rates after 1991; significant increase in death rates from cancers after 1991; increased rate of congenital malformations in children borne after 1991; cancer clustering in families is noticed only after 1991, stating:

The only cancer producing factor that is added to our environment is the radiation factor.

We need to confirm the cause by testing the soil for levels of radiation, confirming the uranium particles in the tissues and urine of patients, chromosomal analysis and cytogenic studies of the affected patients. We are lacking the equipment for investigations and nobody is allowed to find evidence to prove that there was a great crime committed.⁽²²⁾

The Lancet Vol. 364, November 20, 2004 published an article 'Mortality rates before and after the 2003 invasion of Iraq: cluster sample survey', a unique US-Iraqi collaboration between Les Roberts and his colleagues under testing circumstances – an ongoing war. Roberts and his colleagues presented a scientific method generally well described and readily repeatable.⁽²³⁾ Their central estimate of 98,000 civilian dead, excluded the Falluja cluster; two thirds of all violent deaths were reported in the city of Falluja. Falluja, as all who watched television news saw, was systematically reduced to rubble. Air strikes (mainly by US) were carried out using armed helicopters and aircraft using canon, rockets and guided missiles. This

information, which can be readily assessed by military intelligence, remains classified. Public health science would be well served by a limited sharing of key information.⁽²⁴⁾ The statement of General Tommy Franks, US Central Command that they do not do body counts may influence this attitude.⁽²⁵⁾

The Report states the importance of measuring civilian deaths accurately. These statistics remind all parties to respect the principle of humanitarian law, regardless of military might.⁽²⁶⁾ After the invasion, violence was the major cause of death. Violent deaths were widespread, reported in 15 of 33 clusters, and were mainly attributed to coalition forces. Most individuals reportedly killed by coalition forces were women and children. The risk of death from violence post invasion was 58 times higher than in the period before the war.⁽²⁷⁾

The number of dead and wounded post 2003 form the main focus of health statistics. The Ministry for Health, like all sectors of Iraqi bureaucracy, is barely functioning, which leaves in question who will provide substantive, independent, well resourced, empirical research on the effect of DU weapons upon the people of Iraq.

ENVIRONMENT – IRAQ

The stench of raw sewage rising from Basra's streets haunts Simon Fradd, a British physician who spent 3 months in Iraq. A half finished sewage treatment plants sits on the edge of the city. The drains that are supposed to carry human waste into the Shat Al-Arab river are blocked.⁽²⁸⁾ This is the environment of but one city in Iraq. How to prioritize needs? Where does Depleted Uranium clean-up come in the queue?

The deserts of Iraq are littered with burnt out Iraqi tanks, spent and unexploded DU projectiles, and oxide dust, as are other areas of combat, urban, rural and regional. Scott Petersen of the *Christian Science Monitor* took radioactivity reading in four sites in Baghdad, in April 2003; most registered 1,000 times or higher background radiation levels. Near the Ministry of Planning, small spent DU shells littered the ground. Petersen's Geiger counter registered close to 1,900 background radiation levels.⁽²⁹⁾ The public is not warned of DU danger.⁽³⁰⁾

No Clean Up plans have been put into operation, either post 1991 or 2003. The US Army Environmental Policy Institution Report states that 'under current international law, there is no legal requirement to remediate environmental damage to battle fields'.⁽³¹⁾ Clearly this statement conflicts with The Geneva Convention for restoring of combat areas, and 'removal of obstacles and dangerous objects.'

The Post Conflict Branch of the United Nations Environment Programme, (UNEP) April 2003, outlined the strategy for protecting people and the environment in post war Iraq. Priorities included the restoration of water supply, sanitation, cleaning up pollution 'hot spots', accumulated municipal and medical waste sites. A recommendation was made that guidelines be immediately distributed to military, civil personnel and the general public on how to minimize risk of accidental exposure to DU. 'Environmental protection is a humanitarian issue' said Klaus Toepler, UNEP Executive Director. 'Not only do environmental hazards threaten human health and well being, but they can impede aid operations'.⁽³²⁾

Today, there is no reliable power supply, water and sanitation are inadequate and incomplete. Hospitals are short of basic medicines and simple technology, even shorter of staff. Women, because of security issues, are no longer an integral part of the health system. Children continue

to play around burnt out equipment and buildings. Parents and children alike collect contaminated scrap metal for sale. Shelling in rural and built up areas of town and cities have left in their wake untold and unrecorded amounts of DU.

Protocol I Additional to the Geneva Convention, 1977 with respect of the Natural Environment states:

Care shall be taken in warfare to protect the natural environment against widespread long-term and severe damage. This protection includes a prohibition of the use of methods or means of warfare which are intended or may be expected to cause such damage to the natural environment and thereby prejudice the health or survival of the population.

Depleted Uranium Weapons and their impact on the environment of Iraq represent another abrogation of international human rights law.

ENVIRONMENT – U.S.A.

In February 1980 National Lead Industries of Upper State New York, manufacturers of 30 mm DU cannon penetrator shells for the US Air Force, were closed by order of New York State Government Department of Environment. The closure followed monitored detection of 4-6 micron DU particles 26 miles from the plant. The facility was sold to the Department of Energy for a nominal fee, in lieu of clean up costs. A full scale clean up, including dismantling of buildings and removal of contaminated soil began in 1996. Still incomplete in 2000, the operation had cost \$100 million.⁽³³⁾

In twenty years of DU testing at the Jefferson Proving Grounds in Indiana, roughly 150,000 pounds of uranium were discharged over 500 acres. The Pentagon has assessed the cost of radioactive clean up to make the area safe for future use at four to five billion dollars. To date they have not cleared up the cordoned-off site.⁽³⁴⁾

Congressional Record Statements on Introduced Bills and Joint Resolutions (Senate – July 15, 1998, 'United States Enrichment Corporation Privatization' (UNEC). The current operators, UNEC, were responsible for the treatment and disposal of the uranium waste from their two sites in Kentucky and Ohio. In order to meet this environmental liability the company had already collected \$385 million from its customers.⁽³⁵⁾ Clearly clean up costs are expensive to consumers and tax-payer alike.

The Depleted Uranium Munitions Study Act, 2003 sponsored by Representative Jim McDermott called for 'studies on the health effects of exposure to depleted uranium munitions, to require the clean up and mitigation of depleted uranium contamination at sites of depleted uranium use and production in the United States and for other purposes.' This Bill just died away. Certainly, the clean up requirement would not have been welcomed by the US Military, who have consistently refused to provide coordinates and details of munitions used as requested by the United Nations Environment Post Conflict Program to address pollution 'hot spots'. The UK, a major coalition partner in the war in Iraq has provided the UN with coordinates where its forces have used DU.

The military position that depleted uranium weapons have no adverse effects on people or the environment is in stark contrast to the US Environmental Protection Agency's and US Nuclear

Regulatory Commission's treatment of DU as an environmental hazard and danger to public health, as evidenced in the situations already noted. This no care no responsibility attitude echoes that of General Tommy Franks, Commander US Military in Iraq.

The clean up costs in Iraq alone are astronomical. The operation itself will take many years. The obligations under International Law are clear and must be met if we are not to face future conflict where there are no rules, and no one will be held responsible for any actions taken. The International Criminal Court will disappear into oblivion. With civilians making up ninety percent of casualties in armed conflict the rule of law effects us all.

Depleted Uranium Weapons threaten people and their environment, now and for generations to come. The production and use of DUW must be banned by International Law.

There is good news: Belgium, on 7 March 2007, banned DUW on its territory. This means that the port of Antwerp will no longer allow access to US Military DU weapons or armour. Brussels, the Headquarters of NATO, has provided an example that supports people and the world we live in.

ENDNOTES

- 1 Doug Rokke, Depleted Uranium: Uses and Hazards, <http://www.ratical.org/radiation/DU/DUuse+hazard.html>
- 2 *ibid.*
- 3 Albrecht Schott, Damacio A. Lopez & John M. LaForge, 'A Treatise on Military Weapons containing Radioactive Material'; <http://www.tacomajh.org/du2.htm>
& Uranium Medical Research Centre, Uranium and Weapons, p.
1. http://www.umrc.net/uurbnaium_weapons.aspx
- 4 H. Patricia Hynes and Sardor Ibragimov 'Depleted Uranium: Questions and Answers on its use in War', p. 2 http://www.iicph.org/docs/du_qa.htm
- 5 Rokke, *op. cit.*, p. 4
- 6 World Information Service in Energy, 'Uranium pollution from the Amsterdam 1992 plane crash' statement by Paul Loewenstein, Technical Director for Nuclear Metals Inc supplier of DU to Boeing, p.1 <http://www.antenna.nl/wise/463-464/4609.html>
- 7 Chugoku Shimbun, 'Discounted Casualties', <http://www.chugoku-np.co.jp/abom/uran/special/index3.html>
- 8 Rokke, *op. cit.*, p. 3.
- 9 Christopher Bollyn, 'Blamed for Cancer Clusters Among Iraq War Veterans'
<http://www.globalproblematique.net/pipermail/mai-not/2004-August/000216.html>
- 10 US Dept of Veteran Affairs, Benefits Administration Office of Performance Analysis and Integrity Data Information Services Gulf War Veterans, 'Expected US Casualties from War, 2000.' A Commentary by Dr Doug Rokke, former US Army Depleted Uranium Health physicist, for US Army depleted Uranium Director, p.2, and The Geneva Report of Depleted Uranium from 55th session of the sub-commission on the Promotion and Protection of Human Rights in Geneva, Switzerland, 4 August, 2003 p.10 <http://www.traprockpeace.org/gulfcasualties.html>
2/04/07 <http://www.idust.net/Docs/UNReport2003.htm> 10/04/05
- 11 'Agent Orange' http://en.wikipedia.org/wiki/Agent_Orange 2/04/07
- 12 D.Rokke *op. cit.*, & Uranium Medical Research Centre, 'Uranium and Weapons' p.1
- 13 Albrecht Schott, Damacio A. Lopez & John M. La Forge *op. cit.*, p.10
- 14 D.Rokke *op. cit.*, p. 12.
- 15 *ibid.*, p. 9.
- 16 Geneva Report, *op. cit.*, p. 8.
- 17 Rokke, *op. cit.*, p.9 see also Dr Asaf Durakovic 'Depleted Uranium – Far Worse Than 9/11 /depleted Uranium Dust-Public Disaster for Iraq and Afghanistan'.

<http://www.globalresearch.ca/index.php?context=va&aid=2374>

18 Walid Abdul-Hamid, 'Where are the statistics on the Iraq health disaster?' <http://radstats.org.uk/no072/article2.htm>

19 Alim Yacoub, Imad Al-Sadoon & Jenan G. Hassan. 'The Evidence for Causal Association between exposure to Depleted Uranium and Malignancies among Children in Basrah by Applying Epidemiological Criteria of Causality', http://www.iraq.be/ned/archief/Depleted%20Uranium_bestanden/DU-CausalAssociationBasrah.htm

and 'Further Evidence On the Relation Between Depleted Uranium and the Incidence of Malignancies (With specific Reference to Leukemia Among Children in Basrah, Southern Iraq)' <http://people.tribe.net/22252/photos/3e6df0a0-326a-4d8d-a964-ce979b2cd671>

20 Jaward Al-Ali, director of Oncology, Basrah, 'Effects of Wars and the Use of Depleted Uranium on Iraq, *Japan Peace Conference*, Naha, Okinawa January 29 February 1, 2004, p.1.

21 *ibid*, p. 2.

22 *ibid*, p. 3.

23 Richard Horton, *The Lancet*, Vol.364, 20 November 2004, 'The War in Iraq civilian casualties, political responsibilities' p. 1832 www.thelancet.com

24 *ibid*, p. 1833.

25 *ibid*, p.1834.

26 *ibid*, p. 1834.

27 *ibid*, p. 1837.

28 Hannah Brown, *The Lancet*, Vol. 364 July3, 2004, 'An opportunity lost', p. 15 www.thelancet.com

29 Scott Peterson, *The Christian Monitor*, May 15, 2003, pp.1-2.

30 The Geneva Report *op. cit.*, p. 7.

31 US Army Environmental Policy Institute, 'Summary Report to Congress, Health and Environmental Consequences of Depleted Uranium Use by the US Army', June 1994, p. 2.

32 UEP Post Conflict Branch, 'UNNEP outlines strategy for protecting people and the environment in post-war Iraq', Geneva, 24 April 2003, p.

1. <http://www.un.org/news/Press/docs/2003/ik351.doc.htm>

33 Chugoku Shimbun, May 2, pp.1-2. 'Discounted Casualties: Pt 2: The Threat to our Backyards' http://www.chugoku-np.co.jp/abom/uran/index_e.html 22/09/06

34 S. Brian Willson, 'Depleted Uranium', 1999, updated September 25, 2003 p.3

www.brianwillson.com/awoldu.html

35 Congressional Record Statements on Introduced Bills and Joint Resolutions (Senate July 15, 1998), 'United States Enrichment Corporation Privatization' p. 1-3 <http://www.fas.org/spp/starwars/congress/1998/s980715-usec.htm>

REFERENCES

- Walid Abdul-Hamid *Where are the statistics on the Iraq health disaster?* <http://www.radstats.org.uk/no072/article2.htm>
- Jaward Al-Ali *Effects of Wars and the Use of Depleted Uranium on Iraq* Japan Peace Conference, Naha, Okinawa 2004.
- Christopher Bollyn *Blamed for Cancer Clusters Among Iraq War Veterans* <http://www.globalproblematique.net/pipermail/mai-not/2004-August/000216.html>
- Hannah Brown *The Lancet* vol.364 July 3, 2002 *An Opportunity Lost.* www.thelancet.com
- Chogoku Shimbun *Discounted Casualties Part 6 & The Threat to our Backyards* http://www.chugoku-np.co.jp/abom/uran/us2_e/000502.html
- Congressional Record Statements on Introduced Bills and Joint Resolutions (Senate-July15, 1998) *United States Enrichment Corporation Privatization* <http://www.fas.org/spp/starwars/congress/1998/s980715-usec.htm>
- Dr Asaf Durakovic *Depleted Uranium – Far Worse Than 9/11 Depleted Uranium Dust-Public Health Disaster for Iraq and Afghanistan* <http://www.globalresearch.ca/index.php?context=va&aid=2374>
- The Geneva Report on Depleted Uranium: from the 55th Session of the Sub-Commission on the Promotion and Protection of Human Rights in Geneva, Switzerland August 4,2003 <http://www.idust.net/Docs/UNReport2003.htm>
- Richard Horton *The Lancet*, Vol. 364, 20 November *The War in Iraq: civilian casualties, political responsibilities.* www.thelancet.com
- H. Patricia Hynes and Sardor Ibragimov *Depleted Uranium: Questions and Answers on its Use in War* http://www.iicph.org/docs/du_qa.htm
- Law Offices of Thomas J. Lamb, P.A. *Agent Orange Information* <http://www.lamblawoffice.com/Agent-Orange-information.html>
- Doug Rokke, Ph.D. 2001 *Depleted Uranium: Uses and Hazards* <http://www.ratical.org/radiation/DU/DUuse+hazard.html>
- Doug Rokke, Ph.D. 2002 *Expected US Casualties from War* <http://www.traprockpeace.org/gulfcasualties.html>
- Scott Peterson *The Christian Scientist Monitor* May 15, 2003.
- Albrecht Schott, Damacio A.Lopez, & John M.LaForge *A Treatise on Military Weapons containing Radioactive Material* Tamara Journal of Critical Postmodern Organization Science 3039 <http://www.tacomapjh.org/du2.htm>
- UNEP Post Conflict Branch 2003 *UNEP outlines strategy for protecting people and the environment post-war Iraq* <http://www.un.org/news/Press/docs/2003/ik351.doc.htm>

Uranium Medical Research Centre *DU and NDU; Uranium and Weapons; Facts and Fictions* www.umrc.net/ 24/12/2007

US Army Environmental Policy Institute 1994 *Summary Report to Congress, Health and Environmental Consequences of Depleted Uranium Use by the US Army.*

S. Brian Willson 1999; updated 2003 *Depleted Uranium* www.brianwillson.com/awoldu.html

World Information Service on Energy *Uranium pollution from the Amsterdam 1992 Plane Crash* <http://www.10antenna.nl/wise/463-464/4609.htm>

Alim Yacoub, Imad Al-Saddom & Jenan G.Hassan *Further Evidence On The Relation Between Depleted Uranium and the Incidence of Malignancies (With Specific Reference to Leukaemia) Among Children in Basrah, Southern Iraq.*

FURTHER READING

REPORTS

International Criminal Tribunal For Afghanistan at Tokyo 10 Mar04 *The People versus George Walker Bush President of the United States of America*
www.mindfully.org/Reform/2004/Afghanistan-Criminal-Tribunal10mar04.htm

Albert C. Marshall July 2005 *Sandia Report An Analysis of Uranium Dispersal and Health Effects Using a Gulf War Case Study*

Report of the World Health Organization Depleted Uranium Mission to Kosovo 22 to 31 January 2001

OTHER MATERIAL

Environmental Health: A Global Access Science Source *Teratogenicity of depleted uranium: review from an epidemiological perspective.*
<http://www.ehjournal.net/content/4/1/17>

IAEA Features: Depleted Uranium
<http://www.iaea.org/NewsCenter/Features/DU/>

Journal of Radiological Protection London, 13 June 2001 *The Health Hazards of Depleted Uranium* <http://www.iop.org/EJ/abstract/0952-4746/21/3/614>

ECCR 2003 Recommendations of the European Committee on Radiation Risk The Health Effects of Ionising Radiation Exposure at Low Doses for Radiation Protection Purposes. Regulators' Edition <http://www.euradcom.org/2003/execsumm.htm>

David Kriege November 2003 *Toward The 2005 Non-Proliferation Treaty Review Conference* http://www.transcend.org/t_database/articles.php?ida=253

Gretel Munro *Grassroots Actions for Peace* Second Edition, October 2004 *Health Effects of Depleted Uranium* <http://www.idust.net/Docs/HealthEffects01.htm>

WHO *Depleted uranium: sources, exposure and health effects*

Key to Metals *Refractory Metals: Tungsten and Tungsten alloys*
www.key-to-metals.com/Article110.htm 24/04/07