



DEPARTMENT OF THE ARMY  
OFFICE OF THE CHIEF OF STAFF  
200 ARMY PENTAGON  
WASHINGTON DC 20310-0200

REPLY TO  
ATTENTION OF

November 1, 2000

Army Safety Office

U.S. Nuclear Regulatory Commission  
Mail Stop T8F5  
Attn: Mr. Torres  
Washington, DC 20555-0001

Dear Mr. Torres:

I am pleased to forward to you comments from the Army's depleted uranium licensees regarding Dr. Rokke's request for a hearing.

I add to the enclosed remarks that the Army has safely developed and tested depleted uranium armor packages and munitions for many years. We are determined to continue this record.

I also note that our use in battle of depleted uranium munitions is essential in support of the Army's mission to defeat state-of-the-art enemy armor. Further, our use of depleted uranium armor packages and munitions will continue to save American lives because they are so effective.

The U.S. Army thanks the U.S. Nuclear Regulatory Commission for its licensing and inspection of our depleted uranium programs. You have helped to assure that we have safely handled and used depleted uranium in full compliance with your regulations.

Sincerely,

A handwritten signature in black ink that reads "Robert N. Cherry, Jr." in a cursive style.

Robert N. Cherry, Jr.  
Colonel, U.S. Army  
Army Radiation Safety Officer

Enclosure



DEPARTMENT OF THE ARMY  
HEADQUARTERS, U.S. ARMY MATERIEL COMMAND  
5001 EISENHOWER AVENUE, ALEXANDRIA, VIRGINIA 22333-0001

REPLY TO  
ATTENTION OF

AMCSF-P

1 November 2000

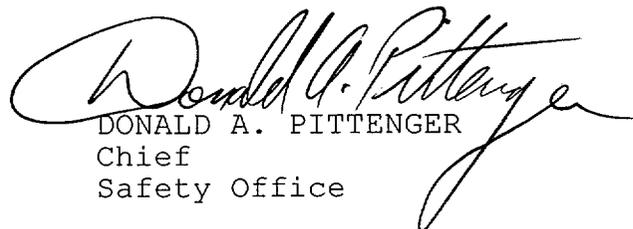
MEMORANDUM FOR Headquarters, Department of the Army,  
ATTN: DACS-SF (COL Robert Cherry)  
200 Army Pentagon, Washington, DC 20310-0200

SUBJECT: Transmittal of Response to the Nuclear Regulatory  
Commission, Request by Douglas L. Rokke for Hearing in Accordance  
with Title 10, Code of Federal Regulations, Section 2.206

1. Reference meeting, U.S. Army Center for Health Promotion and Preventive Medicine (CHPPM), 26 October 2000, subject as above.
2. As agreed in the referenced meeting, the responses to the NRC are provided as indicated for dispatch to the NRC:
  - a. Enclosure 1 contains the combined responses from the U.S. Army Materiel Command, The U.S. Army Test and Evaluation Command, and the U.S. Army Training and Doctrine Command. This enclosure discusses statements made by the requestor that were considered to involve the NRC licensing process.
  - b. Enclosure 2 contains and memorandum of transmittal and three files furnished by CHPPM. These files contain the Army's response to statements made by the requestor that were considered to involve non-license issues.
3. Enclosures were staffed, coordinated, and developed with input from Army Materiel Command depleted uranium licensees as well as USACHPPM, the U.S. Army Medical Command, and HQTRADOC.
4. We appreciate your support throughout this process and thank you for your assistance in dispatching the report.
5. Point of contact is Mr. John G. Manfre, 703-617-9340, fax 703-617-9469, or email ManfreJ@alexandria-emh1.army.mil.
6. AMC -- Your Readiness Command ... Serving Soldiers Proudly!

FOR THE COMMANDER:

Encl

  
DONALD A. PITTENGER  
Chief  
Safety Office

AMCSF-P

SUBJECT: Transmittal of Response to the Nuclear Regulatory Commission, Request by Douglas L. Rokke for Hearing in Accordance with Title 10, Code of Federal Regulations, Section 2.206

CF(w/encl):

Commander

U.S. Army Armament research, Development, and Engineering Center,  
ATTN: AMSTA-AR-QAW-R (Mr. Richard Fliszar)

U.S. Army Operations Support Command, ATTN: AMSOS-SF  
(Mr. Kelly Crooks)

U.S. Army Soldier and Biological Chemical Command,  
ATTN: AMSSB-RCB-RS (Ms. Joyce Kuykendall)

U.S. Army Tank-automotive and Armaments Command,  
ATTN: AMSTA-CM-PS (Ms. Karen Lapajenko McGuire)

U.S. Army Center for Health Promotion and Preventive Medicine,  
ATTN: MCHB-TS-OHP (Mr. Dave Alberth)

U.S. Army Medical Command, ATTN: MCHO-CL-W (COL Eric Daxon)

U.S. Army Test and Evaluation Command, ATTN: CSTE-ILE-S  
(Mr. Clyde McCorkle)

U.S. Army Developmental Test Command, ATTN: CSTE-DTC-S  
(Mr. Dal Nett)

U.S. Army Training and Doctrine Command, ATTN: ATBO-SO  
(Mr. Edward Duke)

U.S. Army Materiel Command, ATTN: AMCAM-LG  
(Mr. Harvey Burnsteel)

U.S. Army Materiel Command, ATTN: AMCCC-G  
(Mr. Bob Lingo/Ms. Linda Mills)

U.S. Army Materiel Command, ATTN: AMCSG-R  
(MAJ Jason Dunavant)

Director

Army Research Laboratory, ATTN: AMSRL-CS-IS-SH  
(Mr. Mike Borisky)

Army Heavy Metals Office, ATTN: Mr. Wade Bunting

U.S. Army Materiel Command/U.S. Army Test and Evaluation Command  
Response to Petition from Dr. Douglas L. Rokke IAW 10 CFR 2.206  
Concerns Army Considers to be Under NRC Jurisdiction

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1. METHODOLOGY. In our response to the concerns in the petition, we will cite the page number and the paragraph and/or line number at the beginning of the response.

2. GENERAL STATEMENT. The Army has been subject to radioactive material licensing since the establishment of the U.S. Atomic Energy Commission and successor agency, the U.S. Nuclear Regulatory Commission (NRC).

a. The Army has operated radiation safety programs involving most of the radioactive materials used in the industrial and medical arena at different levels, including the Command, the installation, and the activity. Equipment, commodities and materials made from depleted uranium (DU) have been and are part of many of these NRC licensed radiation safety programs.

b. The Army has always insisted that both NRC licensed and non-licensed radiation safety programs be operated in accordance with sound, recognized principles of safety and occupational health, with primary consideration for employees and the environment, as well as in accordance with applicable laws, regulations, and policies.

c. Our record bears this out. The NRC regularly inspects our licensed programs and knows that the Army pays close attention to safety in our programs. The programs maintain radiation exposure to employees, the general public, and the environment As Low As Reasonably Achievable (ALARA). There have been cases where the Army has had license violations, but in all cases corrective action has been promptly taken to the satisfaction of the NRC, including programs involving depleted uranium.

d. The Army uses licensed depleted uranium in tank armor, and in ammunition penetrators. The Army also uses DU as shielding in industrial machines and instruments, and has licensed firing ranges to test ammunition and armor.

e. The NRC has the Army's continuing commitment to operate all licensed programs with due consideration for people and the environment, with due consideration for law, regulation, and policies (especially ALARA).

U.S. Army Materiel Command/U.S. Army Test and Evaluation Command  
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CONCERNS BY PAGE AND/OR PARAGRAPH

3. Page 1, Second paragraph, line 9. Statement: "The continuing deliberate use of DU munitions during battle and peacetime is resulting in serious health and environmental consequences". **RESPONSE:** The Army does not know of serious health consequences that have occurred as a result of licensed operations with depleted uranium. In fact, all of the reviews done to date reach the opposite conclusion. As for the environmental concerns, the licensed peacetime use of DU has resulted in the deposition of DU on some test ranges where the land is restricted due to live fire hazards and/or concerns involving unexploded ordnance. Some DU contamination has also been introduced to Army and/or contractor facilities where DU research/manufacturing was conducted and cleanup has been performed or feasible. The foregoing notwithstanding, the radiation safety programs are (or were, in the case of closed facilities) controlled by administrative and operational procedures and are (or were) inspected regularly by the NRC for compliance with NRC regulations.

4. Page 3, "How is DU Used by the Military?" Listed: "7.62mm with unspecified mass", ".50 cal. with unspecified mass", and "Submunitions such as the PDM and ADAM whose structural body contain (sic) a small proportion of DU". **RESPONSE:** The 7.62 mm and .50 caliber rounds were manufactured for research and development purposes and were never released for general use. The Pursuant Deterrent Munition (PDM) and Area Denial Artillery Munition (ADAM) are items containing exempt amounts of source material per 10 CFR 40.13. Additionally, logistics operations with these items have been, are, and will continue to be in accordance with federal, state, and local laws, regulations and policies. Finally, any use of these items will be in areas not under the jurisdiction of the NRC.

5. Page 7, second paragraph, line 6. "Unfortunately, only a few personnel have been trained". **RESPONSE:** The Army trains personnel involved in the management of licensed DU. Our training programs are in accordance with 10 CFR 19 and inspected by the NRC.

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6. Page 8, "What has occurred", bullets 1 through 5. **RESPONSE:** The Army interprets these bullets as applying to situations not under NRC jurisdiction. However, with regard to bullet 3, "DU contaminated and damaged equipment and materials have been recycled to manufacture new products", all contaminated equipment and materials have been (or is) either properly cleaned before use or recycle, or properly disposed of. Also, residual cleaning materials have also been properly disposed of. The Army has an ongoing program to recycle demilled DU penetrators for use in new DU penetrators. The Operations Support Command has sent DU contaminated equipment to commercial companies that specialize in radiation related services for metal melt and reuse in shielding blocks by the DOE. To the best of our knowledge, only properly cleaned materials have been (or are) recycled for use in consumer products.

7. Page 25, Second Paragraph, Expert #6, "My own concerns follow:": **RESPONSE:** The Army interprets these concerns to be about matters not under NRC jurisdiction. For NRC licensed operations, there are training, dosimetry, and survey programs in place to ensure compliance with NRC regulations.

8. Page 27, second paragraph, "In my own case, although a urinalysis was completed in November 1994 and the results reported to DOE/Army on March 6, 1995, I was not notified in writing until a letter was sent dated July 30, 1997...Thus in my own case we have a verified violation of 10 CFR 19.13". **RESPONSE:** This issue involved the use of DU under the control of the U.S. Department of Energy at the Nevada Test Site, which was not under NRC jurisdiction. We suggest you contact DOE if you have further questions on this matter.

9. Page 27, third paragraph: "7. The willful neglect of training and education as verified by written admissions by Navy officials sworn testimony of USAF personnel, and the GAO report is again a willful violation of : 19.12 Instructions to Workers". **RESPONSE:** The Army will not address statements concerning the U.S. Navy or U.S. Air Force. As far as the "GAO Report" is concerned, actions in that report pertain to matters

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not under NRC jurisdiction (i.e., the use of DU in a military operational mode). In our licensed operations, the Army has comprehensive training programs in place; training has been and is being conducted as required by 10 CFR 19.

10. Page 28, Paragraph 8: "The willful and uncontrolled use of depleted uranium munitions has subjected military personnel, other citizens of the world, and U.S. citizens in Vieques to DU contamination without any viable radiation protection program as required by 10 CFR 20.1101 Radiation Protection Programs".

**RESPONSE:** Use of depleted uranium in areas and at facilities under NRC jurisdiction has always been through sanctioned, established radiation protection programs operated in accordance with 10 CFR 20. The NRC regularly inspects the Army's licenses and knows this.

11. Page 33, Paragraph 10. "DU has been used willfully with total disregard for human respiratory protection. During ODS no formal respiratory program was put into place even though it was requested". **RESPONSE:** The Army uses proper respiratory protection in its DU licensed activities and operations. The radiation protection programs attest to this as do NRC inspections. The Army uses both personnel protective equipment (e.g. respirators approved by the National Institute for Occupational Safety and Health), as well as engineering controls in our facilities. The Army licensees use bioassay to monitor the effectiveness of respiratory protection programs. The "ODS" refers to Operation Desert Storm, which involved operations not under NRC jurisdiction.

12. Page 36, Paragraph 11. "Because of the willful and uncontrolled use of depleted uranium munitions and total disregard for monitoring(,) the dose to the general public is unknown as required by 10 CFR 20.2107". **RESPONSE:** The Army operations involving DU licensed by the NRC are monitored via surveys to check for unwarranted exposure to the general public. Instrumentation readings, contamination surveys, and, where required, measurement/calculations of stack emissions, soil sampling and other environmental sampling are in place to ensure that the dose to the general public remain in accordance with 10 CFR 20 requirements.

U.S. Army Materiel Command/U.S. Army Test and Evaluation Command  
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13. Page 40, first paragraph. "There has been and continues to be a formal pattern of verbal and written warnings (threats) directed against myself and others to cease our activities. Many of us have also lost our federal and civilian jobs because we challenged official policy regarding DU use as specified in the famed Los Alamos (March 1991) memorandum". **RESPONSE:** No actions were taken against Dr. Rokke because of his DU concerns. The records show that he was terminated from his position as a Supervisory Physicist GS 1310-13 on 18 January 1997 for failure to satisfactorily complete his probationary period. For further information contact Commander, U.S. Army Chemical School, Fort Leonard Wood, Missouri.

14. Page 40, third paragraph, line 13: "The Army Materiel Command (General John Coburn) holds the Nuclear Regulatory Commission license for Uranium-238 (DU) munitions and consequently there must be some acceptance of responsibility for what has and continues to transpire". **RESPONSE:** The Army Materiel Command (AMC) (General Coburn, Commander) does not possess a single DU license. Rather, AMC manages its DU NRC licensing through its subordinate commands, and where appropriate, it's installations and activities. AMC NRC licenses are managed and operated in accordance with applicable federal, state, and local regulations and policies. The Commander, AMC, maintains oversight of the program through his Headquarters, AMC staff office, the AMC Safety Office. The Army Test and Evaluation Command, Alexandria, VA, also manages subordinate installations that have DU licenses for testing purposes.

15. Pages 40-43, Paragraphs 1-27, "I would like to review some facts": **RESPONSE:** These concerns of Dr. Rokke do not concern operations that occurred under NRC jurisdiction.

Point of Contact: JOHN G. MANFRE  
Health Physics Manager  
HQ, U.S. Army Materiel Command  
Alexandria, VA



**DEPARTMENT OF THE ARMY**  
**U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE**  
**5158 BLACKHAWK ROAD**  
**ABERDEEN PROVING GROUND, MARYLAND 21010-5403**

REPLY TO  
ATTENTION OF

MCHB-TS-OHP (40)

31 October 2000

MEMORANDUM FOR Commander, U.S. Army Materiel Command,  
ATTN: AMCSF-P/Mr. John Manfre, Room 10N36,  
5001 Eisenhower Avenue, Alexandria, Virginia  
22333-0001

SUBJECT: Input to Department of Army Response for the Nuclear  
Regulatory Commission regarding Dr. Douglas Rokke's 10 CFR 2.206  
Petition

1. References:

a. Electronic message between Mr. John Manfre, AMC Safety Office, and COL Eric Daxon, POPM-SA, 18 September 2000, subject: DU, the NRC, and Doug Rokke.

b. Electronic message between Mr. John Manfre, AMC Safety Office, and COL Eric Daxon, POPM-SA, 27 October 2000, subject: Trip Report for USACHPPM Meeting, 26 October 2000.

c. Electronic message between Mr. John Manfre, AMC Safety Office, and COL Eric Daxon, POPM-SA, 30 October 2000, subject: RE: Dr. Rokke/NRC Responses.

2. The requested U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) input (reference 1a) to the Department of Army response for the Nuclear Regulatory Commission regarding Dr. Douglas Rokke's 10 CFR 2.206 Petition is provided in the enclosure.

3. Revisions have been made to the USACHPPM original draft input to include guidance and specific changes provided by:

a. COL Daxon, Director, U.S. Army Proponency Office for Preventive Medicine-San Antonio (POPM-SA), and the Office of The Surgeon General Consultant for Depleted Uranium Issues;

b. Army Materiel Command reviewers, and

c. Attendees of an AMC Meeting at USACHPPM on 26 October 2000 (reference 1b).

*Readiness thru Health*

MCHB-TS-OHP

SUBJECT: Input to Department of Army Response to the Nuclear  
Regulatory Commission regarding Dr. Douglas Rokke's 10 CFR 2.206  
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4. COL Daxon reviewed and concurred with USACHPPM's input document on 30 October 2000 (reference 1c).
5. The point of contact is LTC Mark A. Melanson or Mr. David P. Alberth, who both can be reached at (410)436-3502.

FOR THE COMMANDER:



STEPHEN L. KISTNER  
Deputy for Technical Services

Encl

CF:

OSD, OSAGWI, ATTN: I&AD (COL ABREU)  
DIR, POPM-NCR, ATTN: DASG-PPM-NC (DASG-HS-PM/COL WOLFE)  
DIR, POPM-SA, ATTN: MCPO-SA (MCHO-CL-W/COL DAXON)  
CDR, AMC, ATTN: AMCSG-R (MAJ DUNAVANT)  
CDR, ARDEC, ATTN: AMSTA-AR-QAW-R (MR. FLISZAR)  
CHIEF, ARMY HEAVY METALS OFFICE, ATTN: SAAL-RP (MR. BUNTING)

## Military Applications of Depleted Uranium

### Health and Environmental Aspects

Dr. Douglas Rokke, in his electronic message of 1 June 2000, states, "The continuing deliberate use of DU munitions during battle and during peacetime is resulting in serious health and environmental consequences."

The health effects of uranium have been extensively studied since the mid 1940s and been reviewed by expert panels on multiple occasions. The most recently published document was by the Institute of Medicine, National Academy of Sciences, in 2000. Prior to and following the use of depleted uranium, the health and environmental aspects in using this material were carefully considered. Each review concurred with the efficacy and use of this material for military applications. Since the 1991 Gulf War (Operation Desert Storm), several independent panels of health and environmental experts have scrutinized depleted uranium once again and, in each case, the conclusions of these earlier reviews were verified. These reviews have included those of the U.S. Presidential Advisory Committee on Gulf War Illnesses, the U.S. Presidential Special Oversight Board, and the National Defense Research Institute (RAND Corporation), as well as the Institute of Medicine.

As you are aware, we are continuing to conduct research to ensure that our depleted uranium exposure assessments and health risk characterizations are valid. The Armed Forces Radiobiology Research Institute (AFRRI) research cited by Dr. Rokke is a part of this ongoing effort. The joint Department of Veterans Affairs (VA) and Department of Defense (DOD) medical follow-up program to monitor the health of our Gulf War Veterans with embedded depleted uranium fragments is also a part of this effort. The results of these studies are being published in the open literature. To date, these studies are consistent with our initial estimates of potential health and environmental effects related to the military applications of depleted uranium.

The medical care afforded to our Gulf War Veterans concerned about depleted uranium exposure is actually a "good news" story for DOD. In addition to our providing extensive medical follow-up for veterans with embedded DU fragments, the joint DOD and VA program also provides counseling and testing for any Gulf War

Enclosure 2

Military Applications of Depleted Uranium - Health and Environmental Aspects (continued)

Veteran with concerns about their possible depleted uranium exposure. All of the results of these follow-up studies have been and are consistent with DOD's earlier prospective and now retrospective analyses of depleted uranium exposures. A specific investigation was carried out concerning Dr. Rokke's potential exposure during a DOE-sponsored test and the results were provided to him.

As outlined in the basic response, the Army has a training program for personnel coming in contact with depleted uranium during peacetime operations. In addition, the Army has instituted an awareness training program for all soldiers who may come in contact with depleted uranium as a result of combat operations, as discussed in the U.S. General Accounting Office (GAO) report cited by Dr. Rokke.

The DOD has effective policies for mitigating the impact of military operations on the environment. Our handling of depleted uranium is consistent with its potential risks and consistent with our policies for all other materials potentially released to the environment. Depleted uranium use is consistent with the international law obligations of the United States.

Some of Dr. Rokke's key non-NRC license concerns, which are repeated throughout his electronic message, are listed in enclosure 2.1.

Dr. Rokke does not provide verifiable sources for a number of his allegations. He should identify his six Experts and their sources of information so that their allegations may be properly assessed. Peer-reviewed references would assist in evaluating his information. A list of several DOD and non-DOD publications is provided in enclosure 2.2 for your review.

In summary, the DOD, other Federal Agencies, and other Non-Governmental Organizations (NGOs) have not verified "... any serious health and environmental consequences..." from the use of depleted uranium in spite of extensive, comprehensive efforts to do so.

DR. ROKKE'S CONCERNS:	RESPONSE:	REFERENCE:
2. (p. 25) "DU training still has not been completed as ordered by DOD and other government officials as confirmed by GAO."	At the beginning of FY 95, through March 2000, DU training was provided to 21 MOS (Military Occupational Specialty) courses and NCO and Officer leadership courses.	P.17, GAO/NSIAD-00-70
3. (p.25) "Ordered and required medical care for confirmed or suspected uranium exposures is still inadequate, ineffective, and provided only selectively."	The DOD and VA expanded the medical screening in 1998, following the USACHPPM interim report of 3 Aug 98. Medical screening is available to any Gulf War Veteran.	P.15, GAO/NSIAD-00-70
5. (p.25) "DU dose assessments for those of us with verified exposures have still not been completed."	No dose reconstruction is anticipated. However, USACHPPM Report, HRAC 26-MF-7555-OOD, completed 15 Sep 00, provides generic exposure assessment and risk characterization.	USACHPPM HRAC 26-MF-7555- OOD, 15 Sep 00.
7. (p. 27) "The willful neglect of training and education as verified by written admissions by Navy officials, sworn testimony of USAF personnel, and the GAO report is again a willful violation of §19.12 Instruction to workers...."	Training is required for all Army personnel. Training procedures are in place.	Secretary of Defense memorandums, TRADOC and MEDCOM implementation of training.
8. (p. 28) "The willful and uncontrolled use of depleted uranium munitions has subjected military personnel, other citizens of the world, and U.S. citizens in Vieques to DU contamination hazards without any viable radiation protection program as required by §20.1101 Radiation protection programs...."	The military services have radiation protection programs in place to support their licenses. The use of DU during military conflicts rests with DOD. Radiation safety awareness training is provided to all potentially exposed personnel, not just occupationally exposed individuals covered under NRC licenses.	Applicable DOD and individual military service regulations.
12.(p. 37) "I do not know of any report provided to you by DOE regarding the March 5, 1995 report on my internalized exposure nor has far as I know of any reports on any other individuals exposures. This would be difficult because DOD and VA still have not provided care for all DU casualties as ordered by June 8, 1993 directive, as required by regulations and as required by: §20.2205 Reports to individuals of exceeding dose limits...."	On 13 June 2000 Dr. Rokke received his copy of an Army Surgeon General report on a re-analysis of a bioassay sample collected from him by DOE during a November 1994 test at the Nevada Test Site involving DOE DU. The bioassay data for individuals in the VA Follow-up Program are maintained in the individual s' medical records. The VA has published reports that provide dose estimates for the embedded DU fragment patients. In other comments, Dr. Rokke indicates he is a VA patient and has been evaluated by VA. DOD and VA provide medical care to individuals that qualify for medical care in their government facilities (AR 40-5 and AR 40-14 implement Presidential Executive Order 12196).	Hopper, F.J. et al., HP 77(5) pp 512-519, 1999.  McDiarmid, M.A. et al., Env RES 82 (2) pp 168-180, 2000.  McDiarmid, M.A. et al., HP 77 (3) pp 251-264, 1999.
14. (p.38) "I just spoke with Jane Stolte at VA DU program in Baltimore. ... They still do not have names of all known DU casualties. ...."	The actions to the Office of The Army Surgeon General that MAJ Thomas Little, Major, U.S. Army Medical Corps, took in Saudi Arabia in June 1991 stimulated the Army to review medical records for individuals who may have been injured during fratricide ("friendly fire") incidents, these individuals had the highest potential for exposure to DU from inhalation and ingestion, as well as from embedded fragments. The DOD and VA instituted a joint DU medical follow-up program.  The DOD and VA expanded the medical screening in 1998, following the USACHPPM interim report of 3 Aug 98. Medical screening is available to any Gulf War Veteran.	DOD Comprehensive Clinical Evaluation Program (CCEP) documents and VA documents.  GAO/NSIAD-93-90, 1993  GAO/NSIAD-00-70, 2000.
23. (p. 39) "The incidence of adverse health effects among those with known uranium exposures continues to escalate without any effective medical response on part of either HQDA-OTSG, AMC-OTSG, nor VA. These expressed concerns reflect substantial experience and fears of knowledgeable scientists and physicians. There has been and continues to be a formal pattern of verbal and written warnings (threats) directed against myself and others to cease our activities. Many of us have also lost our federal and civilian jobs because we challenged official policy regarding DU use as specified in the famed Los Alamos (March 1991) memorandum."	Escalation of the incidence of adverse health effects among those with known uranium exposures has not been validated. Medical response on part of HQDA-OTSG (Headquarters, Department of the Army-Office of The Surgeon General), AMC-Surgeon's Office (Army Materiel Command Surgeon's Office), and VA has been documented.	RAND report  DOD Comprehensive Clinical Evaluation Program (CCEP) documents and VA documents.

Enclosure 2.1

## Publications List

A list follows which notes several DOD and non-DOD publications, which review:

1. Multiple independent scientific panels evaluating the military applications of depleted uranium,
2. Summary reviews of health effects of uranium,
3. Peer-reviewed studies related to health effects of uranium and depleted uranium,
4. Depleted uranium developmental testing, including health and safety aspects,
5. Depleted uranium training and operations,
6. Environmental depleted uranium assessment, and
7. Independent assessments.

Your review of these DOD and non-DOD studies is encouraged.

In addition, the Office of the Special Assistant to the Secretary of Defense for Gulf War Illnesses, Medical Readiness and Military Deployments has a website, [www.gulflink.osd.mil](http://www.gulflink.osd.mil), on the internet, where many key documents concerning depleted uranium may be viewed.

### 1. Reviews of Independent Scientific Panels:

Institute of Medicine, Committee on Health Effects Associated with Exposures During the Gulf War. Gulf War and Health, Volume 1. Depleted Uranium, Sarin, Pyridostigmine Bromide, Vaccines, National Academy Press, Washington, DC, 2000 (Fulco, C.E. et al Eds., "Gulf War and Health: Volume 1. Depleted Uranium, Sarin, Pyridostigmine Bromide, Vaccines," Institute of Medicine, 7 Sept 00, <http://books.nap.edu/catalog/9953.html>.)

National Academy of Sciences Assessment in 1988.

National Academy of Sciences, National Materials Advisory Board Reviews - 1971 and 1979 (agreed with use of depleted uranium).

Department of Defense (DOD) Reviews in 1974, 1979, 1990, and 1995.

Joint Technical Coordinating Group for Munitions Effectiveness - 1974 (concurred with depleted uranium use). (Joint Technical Coordinating Group/Munitions Effectiveness *ad hoc* working group for depleted uranium, Medical and Environmental Evaluation of Depleted Uranium, Volume 1, April 1974).

Enclosure 2.2

Military Applications of Depleted Uranium - Health and Environmental Aspects (continued)

U.S. Presidential Advisory Committee on Gulf War Illnesses.

U.S. Presidential Special Oversight Board.

2. Summary Reviews of Health Effects of Uranium:

National Academy of Sciences, Committee on the Biological Effects of Ionizing Radiations, BEIR IV, Health Risks of Radon and other internally Deposited Alpha-Emitters, 1988.

National Academy of Sciences, Committee on the Biological Effects of Ionizing Radiations, BEIR V, Health Effects of Exposure to Low Levels of Ionizing Radiation, 1990.

Agency for Toxic Substances and Disease Registry (ATSDR), Toxicological Profile for Uranium, U.S. Department of Health and Human Services, September 1999. (Research Triangle Institute for Agency for Toxic Substances and Disease Registry, Atlanta, Ga., Sept 1999. <http://www.atsdr.cdc.gov/toxpro2.html>).

National Defense Research Institute, RAND, "A Review of the Scientific Literature as Pertains to Gulf War Illnesses, Volume 7: Depleted Uranium", December 1998 (<http://www.gulflink.osd.mil/library/randrep/du/>).

Voegtlin C, Hodge HC, eds. 1949. Pharmacology and toxicology of Uranium compounds. Vols 1 and 2. New York, NY: McGraw-Hill.

Voegtlin C, Hodge HC, eds. 1953. Pharmacology and toxicology of Uranium compounds. Vols 3 and 4. New York, NY: McGraw-Hill.

3. Uranium health effects studies (toxicological and radiological properties intensely studied since early 1940s):

Adams, N. and N.L. Spoor, Kidney and Bone Retention Functions in the Human Metabolism of Uranium, Phys. Med. Biol. (19)4: 460-471, 1974.

Armed Forces Radiobiology Research Institute, AFRRI Technical Report 93-2, Protocol for Monitoring Gulf War Veterans with Imbedded Depleted Uranium Fragments, March 1993.

Military Applications of Depleted Uranium - Health and Environmental Aspects (continued)

Armed Forces Radiobiology Research Institute, AFRRRI Technical Report 93-1, Assessment of the Risks from Imbedded Depleted Uranium Fragments, March 1993.

Armed Forces Radiobiology Research Institute, AFRRRI Technical Report 96-3, Establishment of an Animal Model to Evaluate the Biological Effects of Intramuscularly Embedded Depleted Uranium Fragments, July 1996.

Armed Forces Radiobiology Research Institute, AFRRRI Special Publication 98-3, Health Effects of Embedded Depleted Uranium Fragments, June 1998.

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