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***If Veterans don't help Veterans, who will?***

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**FAIRCHILD C-123K & UC-123K  
MEDIUM ASSAULT TRANSPORT**

# AGENT ORANGE EXPOSURE BRIEFING

BY THE C-123 VETERANS ASSOCIATION

JUNE 2013

Summary:

C-123 medium assault transports used for spraying Agent Orange during the Vietnam War remained contaminated with TCDD until their destruction as toxic waste in 2010. Veterans (aircrew, maintenance and aerial port) assigned to these aircraft need military herbicide exposure benefits from the Veterans Administration. VA denies, stating TCDD hasn't actually been shown to cause harm to humans, TCDD on the aircraft could not have exposed crews via ingestion, inhalation or dermal routes, and TCDD on the warplanes was "dried dioxin" Numerous federal, state and independent medical and scientific agencies and societies, including NIH, CDC, US Public Health Service, EPA, challenge VA. **Only** the VA disputes C-123 veterans' Agent Orange exposure claims. Veterans organizations and political leaders are asked to help us convince the VA of our claims.

<http://www.c123kcancer.com> <http://www.c123kcancer.blogspot.com>



## THE C-123 VETERANS ASSOCIATION

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971 241-9322 www.c123agentorange.com

June 5, 2013

### 2011-2013 OFFICERS:

COL Arch Battista, Legal  
COL Dee Holliday, Women's Health  
CAPT Mike Lewis USN Ret, Naval Aviation  
MAJ Dan Clancy USA Ret, Army Aviation  
MAJ Wes Carter, Chair & Legislative Liaison  
COL Hal Lawrence, Maintenance  
CMS Charles Fusco, Senior Enlisted  
LTCOL John Harris, FAA & ALPA Liaison  
COL Ken Wheeler, VA Liaison  
MAJ Al Harrington, Aerial Port  
LTCOL Paul Bailey, Vice Chair & Publications  
MAJ Gail Harrington, Nurse Corps  
LTCOL Bob Karpinski, Medical Service Corps  
Mrs Joan Carter, MA, MS, Family Liaison  
Mrs Audrey McElwain, Administration  
Vietnam Veterans of America – DC Liaison

### MISSION STATEMENT:

VA RECOGNITION OF C-123 VETERANS' AGENT  
ORANGE ILLNESSES

**To:** C-123 Veterans from the 74AES

**Subject:** *C-123 Aircrew Agent Orange Exposure & VA Claims*

**Action:** Anything of help convincing VA of our legitimate claims.  
Our Petition Link: [C-123 Veterans Association](#)

**Summary:** AFRES C-123 veterans flew the aircraft following its use in Vietnam spraying Agent Orange. The contamination became identified in 1994. Veterans became aware of the tests confirming C-123 contamination in 2011 and sought VA service connection. VA opposes on the basis of "secondary exposure" and creating concept of "dry dioxin" to suggest not "enough" exposure to warrant benefits. Veterans answer with a large amount of evidence from other federal agencies, universities, physicians and scientists...but all dismissed by VA.

Senator Burr and his staff are very familiar with our two-year struggle with this issue. Senator Merkley and Congresswoman Bonamici are newly involved in our support.

1. Number of personnel: estimate 1500-2500 aircrew, aerial port and maintenance from Westover AFB MA, Pittsburgh Air Reserve Station PA and Rickenbacker Air Reserve Station OH. Precise numbers unavailable, mostly traditional Reservists.

2. Background: After Vietnam C-123s returned to US. Spray apparatus was removed and airplanes then flew traditional cargo and aeromedical missions until 1982 retirement. 48% of fleet sprayed AO.

3. USAF records released in 2011 proved C-123s remained contaminated by military herbicides. AF toxicologists first officially confirmed contamination by military herbicide residue in 1979 following complaints from our maintenance personnel. The problem was better revealed with far more extensive official testing in 1994 in which toxicologists confirmed our airplanes were "heavily contaminated" and "a danger to public health." The contamination was not theoretical, but confirmed many times by Air Force military and civilian toxicologists, and by contract laboratories, and also described in sworn testimony by the 1994 testing experts in federal court. In 2010, the C-123s were all destroyed as toxic waste.

4. Agencies providing findings confirming C-123 veterans' exposure include Columbia University, University of Texas Medical School, many others. Contamination was NOT hypothetical, secondary, nor scientifically questioned by any expert, agency, or university...**only** VA disagrees.

5. In 1996, the USAF Office of Environmental Law directed all contamination information "be kept in official channels only." Contaminated aircraft had accidentally been sold to Walt Disney Films and to foreign governments and AO toxicity became potentially embarrassing. USAF directed HAZMAT quarantine of remaining C-123s in a special fenced, restricted area of Davis-Monthan AFB until 2010 destruction of all airplanes as toxic waste. This secrecy decision cost veterans decades of lost awareness of exposures.

6. Affected veterans eventually began to approach the Department of Veterans Affairs claiming exposure to military herbicides and were immediately advised that no exposure was possible. We have been assured by the VA that no exposure occurred during the full decade we flew the C-123, with hundreds of hours aloft, hundreds of hours on the ground, hours spent cleaning, scraping, grinding, repairing, sleeping aboard during tactical deployments, trying to tolerate stench inside the airplanes and also to fly our assigned missions throughout the Western Hemisphere and Europe. On 1 June 2011 Headquarters, Air Force Reserve Command confirmed "**The C-123 aircraft in the 731<sup>st</sup> TAS fleet had been used to disperse chemical defoliants over Southeast Asia during the Vietnam War.**" Specific tail numbers of our aircraft are confirmed as "heavily contaminated."

7. VA advanced an illogical position later labeled "unscientific" by Dr. Jeanne Stellman and others. VA says that the dermal barrier is a near-perfect barrier preventing "dry dioxin transfer." In fact, we learned from IOM and other reports that much occupational exposure to dioxin is via the dermal route. The VA's slant has been described as "unscientific" by other toxicologists, ten of whom joined with five physicians in forwarding their challenge to the Secretary of Veterans Affairs on 29 November 2012. Expert scientists and physicians who concluded our C-123 crews were exposed and need dioxin exposure care.

8. Dr. Tom Sinks, Deputy Director of the Agency for Toxic Substances and Disease Registry, evaluated our situation and stated, "**I believe aircrews operating in this, and similar, environments were exposed to TCDD.**" Drs. Schechter and Stellman differ only in the degree of exposure our crews experienced, with Stellman saying it was more than Vietnam ground soldiers and Schechter saying exposure was about the same as the troops.

9. Dr. Linda Birnbaum, Director of the National Institute of Environmental Health Sciences and also Director of the NIH National Toxicology Program, determined "**exposure is assumed based on wipe-tests demonstrating high dioxin concentrations in the C-123K's.**" VA ignores other agencies resulting in the juxtaposition with one agency (VA) making a ruling that veterans' exposure was "unlikely" and others agencies (CDC, NIH, EPA) with specific authority for determining that C-123 veterans were exposed.

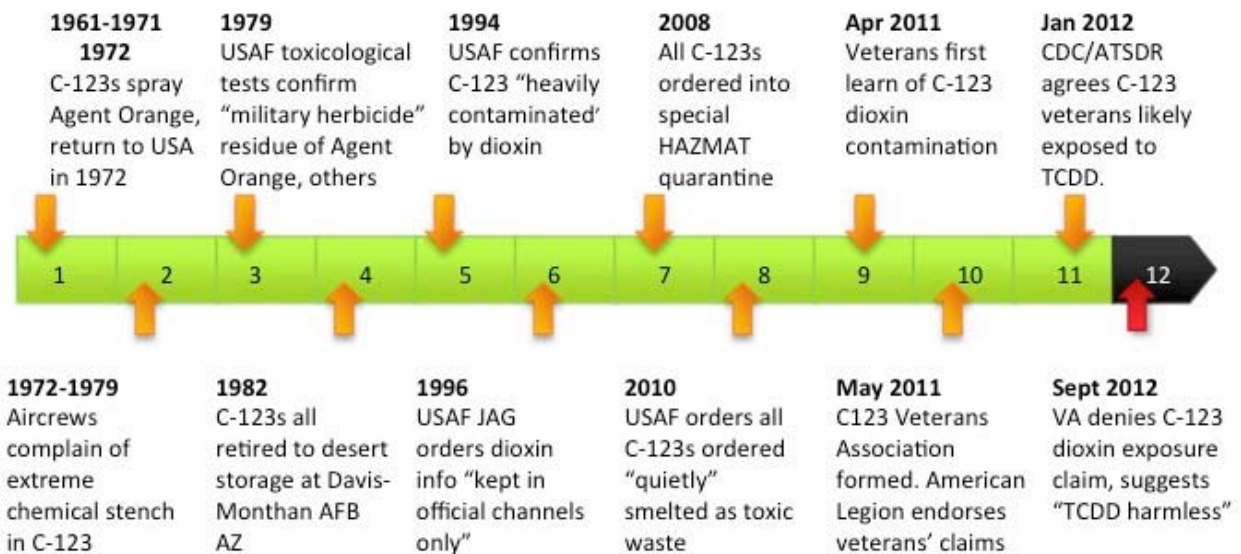


**10. Legal basis:** VA promulgated its herbicide presumption in 2001 and the issue of herbicide exposure outside Vietnam was addressed. 66 Fed. Reg. 23166 (May 8, 2001.) VA explained for non-Vietnam veterans exposed to an herbicide agent defined in 38 C.F.R. 3.307(a)(6) during active military service and with diseases on the list of presumptive service connection (which includes diabetes mellitus type II and ischemic heart disease), VA will presume that the diseases are due to the exposure. 66 Fed. Reg. 23166; 38 C.F.R. 3.309(e).“ While supposedly required to adhere to the 1991 law as well as C.F.R.s, the VA prefers not to, and disregards numerous disinterested proofs of C-123 veterans’ herbicide exposure. VA has stated that no amount of proofs will permit C-123 claims to be approved because VA has predetermined that no exposure was possible.

Thus far, all C-123 veterans’ claims denied in regional offices, each refused on orders of VA Compensation Services even when regional offices recommended approval, using VA-provided boilerplate language, have been reversed and granted upon appeal to Board of Veterans Appeals, but such decisions carry no precedent and can take five years to be heard. Most C-123 veterans are too old, too ill to waste five more years on top of the two years or more needed for the basic claim to be heard and denied for submission to the BVA for correction.

## C-123 Agent Orange Timeline

(greatly abbreviated)



**AGENT ORANGE**

1961-1971: C-123 transports sprayed Agent Orange in Vietnam and became contaminated with dioxin. The warplanes were flown by the USAF until 1982, then retired. In 2000 USAF confirmed in Federal court C-123 fleet remained “heavily contaminated” and “a danger to public health.”



USAF employees with required HAZMAT protection after C-123 contamination was identified. We flew for ten years wearing only regular flight suits without such essential protection (*USAF Official Photo*)



**CHRONOLOGY OF SUPPORTING DOCUMENTS** (*generally newer to older*): note: About one-quarter of all C-123K/UC-123K aircraft were used for spraying Agent Orange in Vietnam until 1971. Most Vietnam-based aircraft returned USAF Reserve inventory in 1971-1972, then flown until 1982 when most were sent to Davis-Monthan AFB AZ for storage with some diverted to museum use. 42% of all post-Vietnam C-123 aircraft had been Agent Orange spray airplanes during the war. VA awards service connection to veterans evidencing a source of Agent Orange contamination, exposure to that contamination, and an Agent Orange-presumptive illness; Title 38 3.09 VA opposes C-123 veterans by refusing to recognize exposure. Full documentation & discussion at <http://www.c123cancer.org>

14 Mar 13, [VA Rating Decision \(Denial\), Major Wes Carteral](#), Portland VARO, denied veteran's claim re: service connection for Agent Orange exposure while flying the dioxin-contaminated C-123, 1974-1980

11 Mar 13. [Official NIH Letter](#), CAPT Aubrey Miller MD MPH, US Public Health Service/NIH, Senior Medical Advisor to National Institutes of Health National Toxicology Program. "Veterans were exposed."

6 /Mar 13. [Official Finding/Consultation](#), Dr. Christopher Portier, Director, CDC/Agency for Toxic Substances and Disease Registry, to Director, Joint Services Records Research Center, "Veterans were exposed" and "200-fold greater cancer risk."

28 Feb 13 [VA Rating Decision \(Denial\) LtCol Paul Bailey of Bath NH](#), Manchester NH Regional Veterans Administration Office; denied veteran's claim re: service connection for Agent Orange exposure while flying the dioxin-contaminated C-123, 1974-1980. Rejected NIH, CDC, EPA, US Public Health expert findings as "unacceptable lay evidence."

10 Jan 13. [Letter](#), Mr. T. Murphy Director VA Compensation Services to Dr. J. Stellman, refuting Dr. Stellman's and colleagues' findings confirming C-123 veterans' exposure, repeats denial of exposure citing "scientific literature" relied upon by VA's Health Benefits Administration study.

3 Jan 13. [Independent Medical Opinion](#), Arnold Schechter M.D., Univ. of Texas School of Public Health; "aircrews were exposed."

29 Nov 12. [Experts' Joint Letter](#), Ten scientists & five physicians challenge to VA re: poor scientific procedures used to deny Agent Orange exposure finding to C-123 veterans, cover letter authored by Dr. Jeanne Stellman.

25 Sept 12. [Advisory Opinion](#), Mr. Thomas Moore, VA Director Compensation Services. Asserted TCDD is harmless, scientists' expert opinions are unacceptable when considering C-123 veterans' claims.

6 May 12. [Agent Orange - 50 Years History and Newest Concerns](#), Dr. T. Irons & others, poster display (no peer review or juried evaluation) at San Francisco SOT, argued against C-123 veterans exposure via "dry dioxin transfer."

1 May 12. [Memorandum Post Vietnam Aircraft Agent Orange Exposure](#), MG Thomas Travis MD CFS, Deputy Surgeon General USAF, reviews USAFSAM report which minimizing exposure; opts not to inform veterans to avoid "undue distress" to exposed populations

6 Mar 12. [Independent Scientific Opinion](#), Dr. Jeanne Stellman, Mailman School of Public Health, Columbia University. Confirmed aircraft contamination and aircrew exposure.

4 Mar 12. [Independent Scientific Opinion](#), Dr. Fred Berman, Director, Toxicology Department, Oregon Health Sciences University. Confirms aircraft contamination and aircrew exposure therein. With attachments.



22 Feb 12. [Scientific Review of Agent Orange in C-123 Aircraft](#), VA Public Health announcement of low probability of crew TCDD exposure and unlikely long-term health problems from the contamination.

26 Jan 12. [Official Letter](#), Dr. T. Sinks, Deputy Director Agency for Toxic Substances and Disease Registry, that C-123 aircraft were contaminated, aircrews exposed, and exposure even higher before first test were completed.

19 Dec 11. [Independent Scientific Opinion](#), Dr. J Goepfner (LtCol, USA Chemical Corps, Ret), confirming aircrew exposure to harmful levels of dioxin.

9 Jun 11. [Official Letter](#). Dr. Linda Birnbaum, Director Nat'l Institute of Environmental Health, and Director National Toxicology Program, concluding "exposure is assumed based on wipe-tests demonstrating high dioxin concentrations in the C-123Ks.

1 June 11. [HQ, Air Force Reserve Command FOIA Response re: C-123 Agent Orange Background](#), report confirms aircraft assigned to 731<sup>st</sup> TAS dispersed "chemical defoliants" over Southeast Asia.

15 Dec 09. *Email*, Mr. Karl Nieman to Mr. Wayne Downs, re: value of C-123 engines and possible parting-out. *Herbicide Characterization of UC-123K Aircraft, Phase I*.

12 Nov 09. [Memorandum](#) and Support Paper for AMARG/CC from Mr. Wm. Boor, requesting "special handling for UC-123K aircraft because of Agent Orange." All C-123s were smelted as toxic waste May 2010.

27 Jul 09. [Memorandum](#), Dr. Alvin Young to Mr. Wm. Boor, re: disposal of UC-123K aircraft. Recommends no add'l sampling to save money and to avoid necessity of designating more aircraft as toxic if tested contaminated.

July 09. [Final Dioxin & Herbicide Report Characterization of UC-123K Aircraft, Phase I](#), Dr. W. Downs 75CEG HAZMAT Program Manager.

26 Jun 09. [Memorandum](#), Dr Alvin Young to Mr. Jim Malmgren, 505<sup>th</sup> ACSS re: Decision Memo for Contaminated UC-123K Aircraft. Discussed disposal of aircraft, preventing veterans' awareness re: claims.

24 Jun 09. Memo for the Record. Summarizes Jim Malmgren's presentation and response to comments.

24 Feb 09. [Decision Memorandum on Contaminated C-123K Airplanes](#) Dr. Alvin Young to Major C. McCrady. Suggests need for speedy destruction of aircraft, proper wording of press release for media.

Mar/Aug 08. [UC-123 HAZMAT Safety Plan](#), Mr. Wayne Downs, 75ABW/CEG and Mr. Karl Neiman, Select Engineering Layton, UT. Reviewed contamination & dioxin tests, C-123s moved into AMARG quarantine area

5 Nov 07. [Board of Veterans Appeals Citation 0734812](#). Award of Agent Orange service connection claim to C-123 veteran, Hanscom & Westover AFB

13 Jun 07. [Board of Veterans Appeals Citation 0717857](#). Award of Agent Orange service connection claim to C-123 veteran, Pittsburgh Air Reserve Station

31 Jul 03. [Study Memorandum](#) for AOO-ALCD/LCD from AFIOS. 100% contamination of all surfaces tested at Air Force Museum; contamination of remaining surplus planes, concerns about contaminated ground soil, etc.

05 Aug 97. [Memorandum](#) for Secretary of the Air Force/IA from Vice Commander, Air Force Security Assistance Center, WPAFB, Ohio. Details of C-123K aircraft provided allied military forces under Military Assistance Program.

18 Mar 97. [Memorandum](#) for AFCM/SG from Dr Ron Porter, Toxicologist Health Risk Assessment/Armstrong Laboratory. Concludes "potential for individual exposure to associated with residues of past mission activities".

10 Jan 97. [Memorandum](#) for AMARC/CD, from Brig. Gen. D. Haines, disposition of contaminated C-123 aircraft. Discusses sale by State Department & other agencies of toxic airplanes. Directed AF to seal all remaining C-123s.

8 Jan 97. [Memorandum of Caution](#) from Ms. Peggy Lowndes, General Services Administration to Major U. Moul, Staff Judge Advocate, AF Office of Environmental Law; describes GSA sales of dioxin aircraft to Disney.

30 Dec 96. [Note](#), Brigadier General O. Waldrop Staff Judge Advocate HQ AFMC to BG Harris, "the political risk, cost of litigation and potential tort liability of third parties make FMS disposal of contaminated aircraft imprudent."

26 Dec 96. *Memo* from Brigadier General Todd Stewart HQ/AFMC/CE to Brigadier General Hanes, HQ AFMC/LG regarding sale of contaminated aircraft as inappropriate, unjustified double standard.

18 Dec 96. *Letter*, Major U. Moul to Mr. Doug Boylan GSA Sales, advising GSA of need to cancel sale of ten surplus UC-123K due to Agent Orange contamination

5 Dec 96. [Memorandum](#), Ralph Shoneman Executive Director to HQ AFMC/LGH, Disposition of Dioxin Contaminated C-123 Aircraft.

31 Oct 96. [JAG Memorandum](#) from Major S. Gempote, Office of the Command Surgeon AFMC. Addresses contaminated C-123K at AMARC, concerns re: military and civilian workers and C-123 dioxin contamination.

31 Oct 96. *Memorandum* for HG AFMC/LtGen Farrell from Mr. R. Schoneman, Executive Director AMARC, re: "disposal contaminated C-123 aircraft" Dioxin-contaminated C-123K aircraft sold by GSA to general public.

30 Oct 96: [Memo](#), HQ AFMC/LOG/JAV to ESOH C&C: JAG attorney Major Ursula Moul, endorsed by Colonel John Abbott, recommends, "*I do not believe we should alert anyone outside official channels of this potential problem.*"

30 Oct 96. *Staff Summary*, Brigadier General G. Haines to staff, decontamination and legal liabilities mentioned. Memo recommended "*for information only.*"

16 Aug 96. [Industrial Hygiene Survey C-123 Aircraft](#), DO Consulting Ltd for AMARG. Tested presence of 2,4-D and 2,4,5-T. Water wipes confirmed herbicide contamination present 25 years after last Vietnam spray missions.

17 Apr 96. [Memo](#). Mr. Wm. Emmer, Chief of Safety 355AMDS, directed personnel HAZMAT protection IAW AFR and USAF Surgeon General standards around all stored Davis-Monthan AFB stored C-123K airplanes.

19 Dec 94. [Memorandum](#) for 645 Med Group/USAF Museum, Capt. Wade Weisman & Dr. Ron Porter, AF Staff Toxicologists. Tested C-123 Tail #362 as "*heavily contaminated on all test surfaces.*" Recommended HAZMAT protection, decontamination. Dr. Porter testified "*a danger to public health*" in a federal court action.

We do not dispute Blue Water Navy claims, but point out that our claims have very solid scientific and archival proofs. To compare, however:

Military Herbicide Issue:	Blue Water Navy Ships	C-123 Transport Aircraft
Plane or ship ever confirmed Agent Orange contamination?	<b>No</b>	<b>Yes</b> , repeatedly between 1979-2009; AF toxicologists confirmed under oath in federal testimony
Plane or ship ever destroyed due to Agent Orange contamination?	<b>No</b>	<b>Yes</b> – all of them still in USAF custody except decontaminated airplanes
Surplus sales ever canceled due to Agent Orange contamination?	<b>No</b>	<b>Yes</b> , but some <i>already</i> sold to Walt Disney Films, foreign governments, US Forest Service
Plane or ship ever ordered into Agent Orange HAZMAT quarantine?	<b>No</b>	<b>Yes</b> , entire fleet of surplus planes
Personnel ever confirmed exposed to military herbicides by NIH, CDC, and independent scientists?	<b>No</b>	<b>Yes</b> , per NIH, ATSDR, J. Stellman, T. Sinks, F. Berman, A. Schecter, L. Birnbaum, L. Schwartz, J. Goepfner, W. Dwernychuk, etc.
Personnel ever ordered into HAZMAT protection re: Agent Orange?	<b>No</b>	<b>Yes</b> ; all C-123 personnel at Wright Patterson AFB and at Davis-Monthan AFB
Plane or ship ever professionally decontaminated of Agent Orange?	<b>No</b>	<b>Yes</b>
Plane or ship ever officially described by military, including flag rank, as “Agent Orange contaminated?”	<b>No</b>	<b>Yes</b>
Plane or ship Agent Orange contamination ever restricted into “official channels only?”	<b>No</b>	<b>Yes</b> , in 1996 per order of USAF Office of Environmental Law
Plane or ship ever ordered destroyed re: Agent Orange contamination to avoid EPA \$3.4 billion fine?	<b>No</b>	<b>Yes</b> , entire fleet; shredded because metal shreds aren’t classified as toxic waste but entire airplane was
Plane or ship date first confirmed military herbicide contaminated?	<b>Never</b>	<b>1979</b> – eight years after last spray mission in Vietnam; still “heavily contaminated” in 1994



Agency for Toxic Substances  
and Disease Registry  
Atlanta, GA 30333

August 9, 2011

Wesley T. Carter, Major, USAF, Retired  
2349 Nut Tree Lane  
McMinnville, Oregon 97128

Dear Major Carter:

Thank you for your recent correspondence. Your letter refers to airmen and flight nurses who flew C-28K/UC-123K *Provider* aircraft from 1972 through 1982. You state that their service led to exposures to Agent Orange (AO). You state that they operated aircraft that had not been adequately decontaminated after serving in Vietnam and spraying AO during operation *Ranch Hand*. Your correspondence includes substantial information to support your claim.

You ask that the Agency for Toxic Substances and Disease Registry (ATSDR) provide emergency assistance by recommending that the Department of Defense (DOD) designate these contaminated aircraft as *Agent Orange Exposure Sites*. I am unable to fulfill your request. ATSDR does not designate Agent Orange exposure sites. I understand that the Department of Defense does evaluate information of this type and determine if an AO exposure occurred. Should DOD confirm past AO exposures, the U.S. Department of Veterans Administration (VA) applies this designation in determining a *service connected* illness. ATSDR has forwarded your information to the VA and requested that it be forwarded to the appropriate office in DOD.

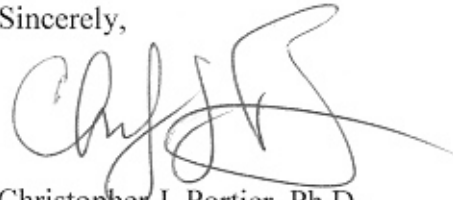
Your letter concluded by stating that VA will automatically deny any Agent Orange exposure claim by a veteran without service in Vietnam. The VA's website provides the presumptive service connection for AO exposure has been extended to veterans deployed in the Korean Demilitarization Zone between April 1, 1968 and August 31, 1971. In addition, veterans involved in duty on or near the perimeters of military bases in Thailand may qualify for benefits. These veterans must show a on a factual basis that they were exposed to herbicides between February 28, 1961 and May 7, 1975.



Page 2 – Wesley T. Carter, Major, USAF, Retired

The effort made by you and your colleagues to collect this information is remarkable. I greatly appreciate the service you and your colleagues have given to our country. I believe the information you have provided should be carefully considered by the Department of Defense.

Sincerely,

A handwritten signature in black ink, appearing to read 'C. Portier', with a long horizontal flourish extending to the right.

Christopher J. Portier, Ph.D.  
Director, National Center for  
Environmental Health, and  
Agency for Toxic Substances and  
Disease Registry



Centers for Disease Control  
and Prevention (CDC)  
Atlanta, GA 30341-3724

March 6, 2013

Domenic A. Baldini  
Chief, Joint Services Records  
Research Center US Army  
Records Management and  
Declassification Agency  
7701 Telegraph Road  
Room 2C12, Kingman Building  
Alexandria, Virginia 22315-3860

Dear Mr. Baldini:

On January 25, 2012, the Agency for Toxic Substances and Disease Registry (ATSDR) sent the attached letter to Wesley T. Carter, USAF Retired. Major Carter had contacted ATSDR seeking an opinion about his potential exposure to 2,3,7,8 tetrachlorodibenzo-p-dioxin (TCDD) while piloting C-123 aircraft from 1972-1982. The letter represented the opinion of ATSDR and our subject matter experts.

The ATSDR letter to Major Carter included several important findings. Information contained within parentheses have been added for explanation:

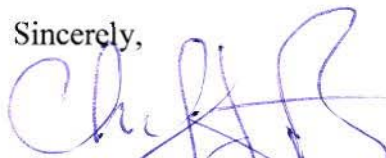
- ATSDR calculated an average value of 6.36 ng TCDD/100 cm<sup>2</sup> for the three C-123 interior wipe samples collected on November 20, 1994. This calculation was based on information from a consultative letter from Capt Wade Weisman & Ronald Porter (see footnote 3 in correspondence to Major Carter).
- This value is 182 times higher than the screening value established by the United States Army Center for Health Promotion and Preventive Medicine – Technical Guide 312. (see footnote 2 in correspondence to Major Carter.) [Levels below a screening value are often considered acceptable. Levels above the screening value are often considered unacceptable because of an associated health risk.]
- ATSDR pointed out that the average value of the three wipe samples represented a 200-fold excess cancer risk above the screening value established by the Department of the Army.
- ATSDR stated that the office worker scenario used in Technical Guide 312 likely underestimates the daily exposures of Air Force flight personnel inside confined contaminated aircraft but that this depends upon exposed skin surface area, duration of exposure, hand washing, and food intake [as well as airborne dust].

page 2 - Domenic A. Baldini

- ATSDR stated that TCDD levels on-board contaminated planes were likely higher in 1972-1982 than in 1994 when samples were taken.
- ATSDR stated that it could not exclude inhalation [or ingestion] exposures to TCDD while working on contaminated aircraft.
- Based upon the available information, ATSDR concluded that aircrew operating in this, and similar, environments were exposed to TCDD.

I hope this information is useful. Please contact Thomas Sinks, Ph.D., Deputy Director at 770 488-0604 if you have any questions.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Chris Portier', with a large, stylized flourish extending to the right.

Christopher J. Portier, Ph.D.  
Director, National Center, and  
Environmental Health, and  
Agency for Toxic Substances and  
Disease Registry

***The Director and also the Deputy Director, CDC Agency for Toxic Substances and Disease Registry (which has the statutory authority and responsibility for making such determinations) having each officially concluded that C-123 aircrews were exposed, Mr. Tom Murphy, VA's Director of Compensation Services, summarized that agency's official finding by completely ignoring Dr. Portier's confirmation and instead deceptively stating, in his summation of the ATSDR finding:***

A letter from Thomas Sinks, PhD, Deputy Director of the National Center for Environmental Health and Agency for Toxic Substances and Disease Registry, dated January 25, 2012, noted that he could not exclude inhalation exposures to TCDD, the toxic substance in Agent Orange, in C-123 aircraft by crewmembers. However, he stated that the "information available is insufficient to establish with accuracy the degree of exposure (low or high) or the risk of adverse health effects to this population. However, it is important to note that even precise environmental or biologic testing data are not predictive of adverse health effects in any individual." In summary, there is no conclusive evidence that TCDD exposure causes any adverse health effects.



National Institutes of Health  
National Institute of  
Environmental Health Sciences  
P. O. Box 12233  
Research Triangle Park, NC 27709  
Website: <http://www.niehs.nih.gov>

March 1, 2013

Wesley T. Carter, Major, USAF, Retired  
2349 Nut Tree Lane  
McMinnville, Oregon 97128

Dear Major Carter,

Thank you for the recent email on February 24 regarding continued discussions about plausible exposures and health effects associated with your work on military equipment contaminated with residues of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD or dioxin). In addition to your email, I have reviewed the correspondence pertaining to this matter provided by Dr. Tom Sinks in his letter dated January 25, 2012 along with other information concerning your inquiries<sup>1</sup>. In his correspondence, Dr. Sinks describes a review of the analytical data obtained from wipe samples collected on November 20, 1994. With limitations outlined by Dr. Sinks, the data indicate surface concentrations on contaminated equipment averaging 6.34ng TCDD/100cm<sup>2</sup>. Dr. Sinks points out that this level of contamination greatly exceeds concentrations generally considered hazardous by the Department of Defense. We understand that there have been possible exposures experienced by individuals working in contact with, or in close proximity to, these surfaces and we agree with Dr. Sinks January 25, 2012 hazard summary for exposure to this residual TCDD contamination.

Regarding the association between dermal exposure and effects that seems to have been a matter of some dispute, it is my opinion that the scientific evidence is clear. Dermal exposures, including exposures to contaminated equipment or secondary exposures through contaminated clothing, tools, vehicles, etc. could result in absorption that would be problematic. Studies conducted in both humans<sup>2</sup> and animals<sup>3</sup> clearly demonstrate the ability of TCDD to be absorbed through the skin. Exposure to TCDD has been associated with a number of both local and systemic effects, including cancer, heart disease, and diabetes, among others.

Sincerely,

Aubrey K. Miller, MD, MPH  
Captain, USPHS  
Senior Medical Officer  
National Institute for Environmental  
Health Sciences

<sup>1</sup> Stellman, JM, Stellman, SD, Christian RC, Weber, TW and Tomasallo, C. The extent and patterns of usage of Agent Orange and other herbicides in Vietnam. *Nature*, 422, 681-687, 2003.

--Weisman, WH and Porter, RC. Consultative Letter AL/OE-CL-1994-0203, Review of Dioxin Sampling Results from C-123 Aircraft, Wright-Patterson AFB, OH and Recommendations for Protection of Aircraft Restoration Personnel. USAF, Armstrong Laboratory, Brooks AFB, TX. 19 December 1994.

--U.S. Army Center For Health Promotion and Preventive Medicine. *Technical Guide 312 Health Risk Assessment Methods and Screening Levels for -- Evaluating Office Worker Exposures to Contaminants on Indoor Surfaces Using Surface Wipe Data*. June 2009 ([http://phc.amedd.army.mil/topics/envirohealth/hrasm/Pages/EH\\_RAP\\_TechGuide.aspx](http://phc.amedd.army.mil/topics/envirohealth/hrasm/Pages/EH_RAP_TechGuide.aspx))

--Comments to the Institute of Medicine. January 16, 2013. Wesley T. Carter. C-123 Veterans Association.

--<http://www.publichealth.va.gov/exposures/agentorange/residue-c123-aircraft.asp>

<sup>2</sup> Kogevinas, M, Saracci, R, Winkelmann, R, et al. (1993) Cancer incidence and mortality in women occupationally exposed to chlorophenoxy herbicides, chlorophenols, and dioxins. *Cancer Causes Control* Nov; 4(6):547-53.

<sup>3</sup> Brewster, DW, Banks, YB, Clark, AM, Birnbaum, LS. Comparative dermal absorption of dioxin and three polychlorinated dibenzofurans. *Toxico Appl Pharmacol*. (1989) 97(1):156-166.

Below is the standardized "boilerplate" language provided by VA to its regional offices to be used in denying all C-123 veterans' claims regardless of merit, evidence, proofs or legal qualification.

One veteran's claim was denied by the Manchester NH regional office with all scientists' findings, physicians' findings, opinions from other federal agencies such as CDC, NIH and US Public Health Service, grouped as "unacceptable lay evidence."

VA's Mr. Tom Murphy, Director of Compensation Services, requires regional offices to deny C-123 veterans' claims despite repeated assurances to veterans and to their legislators that veterans' claims will be "individually evaluated." He informed veterans at a conference in his office that VA Health Benefits Administration had already determined C-123 veterans were not exposed and no amount of proof otherwise would be accepted in countering that predetermination of ineligibility.

VA VHS later informed veterans that because of the unproven "bioavailability" of C-123 dioxin exposures, VA has determined no exposure could have occurred. Toxicologists, however, explain that bioavailability flows from exposure, rather than as VA puts it; one is exposed and then bioavailability may or may not occur, but under the law veterans need only proof exposure. Bioavailability ("medical nexus" is not required and is further virtually impossible to prove under any circumstances, thus the law simply requires proof of exposure alone.)

(quoted - standard language used in all VA C-123 claim denials)

As of this date, the Department of Veterans Affairs (VA) does not currently recognize remote or secondary exposure to Agent Orange from contact with aircraft or equipment previously used in Vietnam. It should also be noted that the U.S. Air Force (USAF) recently collected and analyzed numerous samples from C-123 aircraft to test for Agent Orange. The Air Force's recent risk assessment report dated April 27, 2012 found that potential exposures to Agent Orange in C-123 planes used after the Vietnam War were unlikely to have put aircrew or passengers at risk for future health problems. The report concluded that a) there was not enough information and data to conclude how much individual persons would have been exposed to Agent Orange, b) that exposure to Agent Orange in these aircraft after the Vietnam War was lower than exposure during the spraying missions in Vietnam, and c) potential Agent Orange exposures were unlikely to have exceeded standards set by regulators or to have put people at risk for future health problems.

Consequently, although some evidence supports your claim, the totality of the evidence of record fails to satisfactorily demonstrate that you served in or visited the Republic of Vietnam or were exposed to Agent Orange/herbicides in the meaning of 38 CFR 3.307(6)(iii). Further



***In addition to the Agent Orange Act of 1991, Title 38 and various CFRs, the following from the 8 May 2001 Federal Register, page 23166, is supposed to govern the eligibility of C-123 veterans to Agent Orange service connection. The stress upon "exposure" is why the VA, in turn, opposes any argument of C-123 veterans exposure. They deny exposure to prevent veterans' qualification under this requirement.***

has one of the diseases on the list of diseases subject to presumptive service connection. However, if a veteran who did not serve in the Republic of Vietnam, but was exposed to an herbicide agent defined in 38 CFR 3.307(a)(6) during active military service, has a disease on the list of diseases subject to presumptive service connection, VA will presume that the disease is due to the exposure to herbicides. (See 38 CFR 3.309(e)). We therefore believe that there is no need to revise the regulation based on this comment.



# UNITED STATES DEPARTMENT OF VETERANS AFFAIRS



## PUBLIC HEALTH

### Scientific Review of Agent Orange in C-123 Aircraft

VA's Office of Public Health has investigated the potential exposure to Agent Orange among crew members of C-123 aircraft used previously in spraying missions during the Vietnam War.

Although residual TCDD – the toxic substance in Agent Orange – may be detected in C-123 aircraft by sophisticated laboratory techniques many years after its use, the Office of Public Health concluded that the existing scientific studies and reports support a low probability that TCDD was biologically available in these aircraft. Therefore, the potential for exposure to TCDD from flying or working in contaminated C-123 aircraft years after the Vietnam War is **unlikely to have occurred at levels that could affect health**.

To address the concerns expressed by crew members, the Office of Public Health reviewed available scientific reports and peer-reviewed literature related to potential adverse health effects, such as:

- Physical properties of TCDD (2,3,7,8-tetrachlorodibenzo-p-dioxin)
- Routes of exposure (inhalation, ingestion, dermal) and bioavailability (ability to enter the body) of TCDD over extended periods
- Known levels of safe exposure and threshold levels of TCDD toxicity

#### Properties of TCDD

TCDD may be inhaled as an aerosol. The reports and literature demonstrated that in the vapor stage, TCDD has an atmospheric lifetime of only about three days. Dried TCDD on interior aircraft surfaces does not aerosolize when exposed to temperatures found inside aircraft during any conceivable use. There is a low probability that dried TCDD would aerosolize during routine crew use and present a risk to health by inhalation. Also, there are no data from the U.S. Air Force or other sources confirming dioxins in air samples taken from post-Vietnam C-123 aircraft.

#### Routes of exposure

Ingestion as a route of exposure on these aircraft would require that TCDD would need to have entered the mouth through contaminated food or water or by hands contaminated with TCDD. There is a low probability that transfer of TCDD in food or water or from hand-to-mouth could occur among these crew members, especially given that the sampling for TCDD on the aircraft surfaces required use of a solvent (hexane) to displace and dissolve any residue.

Solid TCDD can be extremely stable in the absence of direct sunlight. Once TCDD dries on hard surfaces, such as on an aircraft, it does not readily cross through human skin. Even if the dried material were to come into contact with perspiration or oils on skin, the skin would act as a barrier prohibiting further penetration of TCDD. There is a low probability that TCDD penetrated through the skin of these aircrews.

#### Scientific review and analysis

The Office of Public Health reviewed the following studies and reports, and will continue to review new findings relevant to this issue as they become available.

##### Air Force sampling reports

- "Aircraft Sampling: Westover AFB, MA." Prepared by W.W. Conway, USAF Occupational and Environmental Health Laboratory, Brooks AFB, TX; 1979.
- "[Memorandum for 645 MedGrp/SGB: Consultative Letter AL/OE-CL-1994-0203, review of Dioxin Sampling results from C-123 Aircraft, Wright-Patterson AFB, OH and Recommendations for Protection of Aircraft restoration Personnel.](#)" (444 KB, PDF) Prepared by WH Weisman and RC Porter, Armstrong Laboratory, Brooks AFB, TX; 1994.
- "[Memorandum for HQ AFMC/SGC: Consultative Letter, AL/OE-CL-1997-0053, Cleanup of Contaminated Aircraft, Aerospace Maintenance and Regeneration Center.](#)" (140 KB, PDF) Prepared by RC Porter, Armstrong Laboratory, Brooks AFB, TX; 1997.
- "Dioxin and Herbicide Characterization of UC-123K Aircraft – Phase I." Prepared for Director of Operations, 505 Aircraft Sustainment Squadron and Hazardous Waste Program Manager, 75CEG/CEVC, Hill AFB, UT (prepared by Select Engineering Services, Layton, UT); 2009.

##### Peer-reviewed literature

- Buffler PA, Ginevan ME, Mandel JS, Watkins DK. [The Air Force health study: an epidemiologic retrospective](#). Ann Epidemiol 2011; 21:673-87.
- Diliberto JJ, Jackson JA, Birnbaum LS. [Comparison of 2,3,7,8-tetrachlorodibenzo-p-dioxin \(TCDD\) disposition following pulmonary, oral, dermal, and parenteral exposures to rats](#). Toxicol Appl Pharmacol 1996; 138:158-68.
- Karch NJ, Watkins DK, Young AL, Ginevan ME. Environmental fate of TCDD and Agent Orange and bioavailability to troops in Vietnam. Organohalogen Compounds 2004; 66:3689-94.
- Keenan RE, Paustenbach DJ, Wenning RJ, Parsons AH. [Pathology reevaluation of the Kociba et al. \(1978\) bioassay of 2,3,7,8-TCDD: implications for risk assessment](#). J Toxicol Environ Health 1991; 34:279-96.
- Michaud JM, Huntley SL, Sherer RA, Gray MN, Paustenbach DJ. [PCB and dioxin re-entry criteria for building surfaces and air](#). J Expo Anal Environ Epidemiol 1994; 4:197-227.
- Newton M, Norris LA. [Potential exposure of humans to 2,4,5-T and TCDD in the Oregon coast ranges](#). Fundam Appl Toxicol 1981; 1:339-46.
- Weber LW, Zesch A, Rozman K. [Penetration, distribution and kinetics of 2,3,7,8-tetrachlorodibenzo-p-dioxin in human skin in vitro](#). Arch Toxicol 1991; 65:421-8.
- Young AL, Giesy JP, Jones PD, Newton M. [Environmental fate and bioavailability of Agent Orange and its associated dioxin during the Vietnam War](#). Environ Sci Pollut Res Int 2004;11:359-70.

#### Risk assessment reports

- Doull J. Acceptable levels of dioxin contamination in an office building following transformer fire. Washington, DC: National Academy Press, 1988.
- Kim NK, Hawley J. [Risk assessment: Binghamton State Office Building](#). (285 KB, PDF) Albany, NY: New York State Department of Health, 1982.
- University of California [Davis]. Department of Environmental Toxicology. Risk Science Program (RSP). [Intermedia transfer factors for contaminants found at hazardous waste sites: 2,3,7,8-Tetrachlorodibenzo-p-dioxin \(TCDD\)](#). (118 KB, PDF) Sacramento, CA: Department of Toxic Substances Control, 1994.

#### Summaries of TCDD

- [2,3,7,8-Tetrachlorodibenzo-p-dioxin \(2,3,7,8-TCDD\)](#) - US Environmental Protection Agency, Air Toxics Website
- [Chlorinated dibenzo-p-dioxins and chlorinated dibenzofurans chronic toxicity summary](#) (46 KB, PDF) - California Environmental Protection Agency, Office of Environmental Health Hazard Assessment
- [Intermedia transfer factors for contaminants found at hazardous waste sites: 2,3,7,8-Tetrachlorodibenzo-p-dioxin \(TCDD\)](#) (118 KB, PDF) - California Department of Toxic Substances Control; Risk Science Program, University of California, Davis

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