

The Jerome N. Frank Legal Services Organization

YALE LAW SCHOOL

January 18, 2014

BY ELECTRONIC MAIL

Wesley T. Carter, Major, USAF Retired
Chair, The C-123 Veterans Association
2349 Nut Tree Lane
McMinnville, Oregon 97128

Dear Major Carter,

On behalf of the C-123 Veterans' Association, you have asked us to consider whether existing medical and scientific evidence satisfies the U.S. Department of Veterans' Affairs ("VA") legal standard for "actual exposure" to herbicide agents such that veterans who served on C-123 aircraft (also referred to as UC-123K) between 1972 and 1982, which were used to spray Agent Orange and other tactical herbicides in Vietnam, are eligible for presumptive service connection for disability compensation benefits. We are pleased to provide our legal opinion on this question.

We conclude that existing evidence indicates that C-123 veterans satisfy the legal standard for "actual exposure" to tactical herbicides. These veterans are thus entitled to presumptive service connection for listed diseases. Because those veterans who served on C-123 aircraft formerly used to spray Agent Orange and other tactical herbicides can prove actual exposure, by law and regulation they need not demonstrate that they served in the Republic of Vietnam, nor are they required to present evidence bearing on "bioavailability" of herbicides, the duration or magnitude of their exposure, or any other criteria. Under existing medical and scientific evidence, service on C-123 aircraft used to spray Agent Orange satisfies the VA's standard for actual exposure to herbicides. Thus, veterans who served on such aircraft and who have a disease listed as service-connected for exposure to tactical herbicides are entitled to disability benefits on that basis. In addition, like all veterans, C-123 veterans are eligible to seek benefits even for non-listed diseases, if the veteran can establish a medical nexus between the disease and the herbicide exposure.

Below, we explain in depth the medical evidence and the legal basis for our opinion.

I. STATEMENT OF FACTS

A. 1991 AGENT ORANGE ACT AND THE PRESUMPTION OF EXPOSURE TO HERBICIDE

The 1991 Agent Orange Act provides that any veteran who served in Vietnam from Jan. 9, 1962 to May 7, 1975, is presumed to have been exposed to Agent Orange and automatically qualifies for disability rating and medical care if that veteran suffers specific diseases. *See* Agent Orange Act of 1991, Pub. L. No. 102-4, 105 Stat. 11 (1991) (codified as amended at 38 U.S.C. § 1116).

During the Vietnam War, the United States Air Force sprayed toxic herbicides, including Agent Orange, over large swaths of the country using low-altitude aircraft. After the war, veterans who were exposed to tactical herbicides began to develop a host of serious diseases, such as cancer, Parkinson's disease, and birth defects in their children, which veterans believed were associated with their exposure to herbicide during the war. *See* U.S. Congress, House Committee on Veterans' Affairs, Veterans' Dioxin and Radiation Exposure Compensation Standards Act. Report to Accompany H.R. 1961, 98th Congress, 2nd sess., H.Rept. 98-592. Despite the seriousness of these ailments and the mounting evidence of a causal link between exposure and disease, for years the U.S. Department of Veterans Administration issued blanket denials to veterans seeking disability compensation and medical coverage arising from these conditions. *See* Barton F. Stichman, *Between the Courts and Congress*, in *The Legacy of Vietnam Veterans and Their Families: Survivors of War* 302 (Dennis K. Rhoades et al, eds. 1995).

In the 1980s, Veterans and their supporters sought to facilitate veterans' ability to receive disability compensation for these serious diseases. Although Congress required the VA in 1984 to develop disability policies specifically for veterans exposed to Agent Orange, *see* Veterans' Dioxin and Radiation Exposure Compensation Standards Act of 1984 (P.L. 98-542), the VA continued to stymie Veterans' efforts to seek compensation for their ailments. *See* 38 C.F.R. § 3.311(d) (1988) (limiting presumptive exposure to only those veterans suffering from chloracne, a skin condition). Under VA regulations, any veteran seeking compensation for a disease they believed was related to herbicide exposure had to establish a causal linkage between the veteran's exposure to herbicide and the onset of the disease. *See* Congressional Research Service, *Veterans Affairs: Presumptive Service Connection and Disability Compensation*, Report R41405 at 7 (2010). Additional advocacy, as well as class action litigation, helped demonstrate the need to ease the burden on veterans seeking compensation for herbicide-related ailments. *See, e.g., Nehmer v. U.S. Veterans Admin.*, 712 F.Supp. at 1420, 1423 (N.D. Cal. 1989).

By passing the Agent Orange Act in 1991 ("Act"), Congress eased the burden on veterans seeking to establish service connection for herbicide-related diseases. The Act established two statutory presumptions for veterans seeking to link their disabling condition to exposure to herbicides: (1) a presumption of service connection for certain diseases that, based on sound scientific and medical evidence, are associated with exposure to herbicide; and (2) a presumption of exposure to herbicides for those veterans who served on the ground in Vietnam during a specified period. *See* 38 U.S.C. § 1116.

The Act directs the Department of Veterans Affairs ("VA") to contract with the National Academy of Sciences ("NAS") to "review and evaluate the available scientific evidence regarding associations between diseases and exposure to dioxin and other chemical compounds in herbicides." *Id.* If the Secretary of the VA determines on the basis of "sound medical and scientific evidence" that a

positive association exists between (a) human exposure to herbicide, and (b) the incidence of disease in humans, the Secretary “shall prescribe regulations providing that a presumption of service connection is warranted for that disease for the purposes of this section” (a “listed disease”). 38 U.S.C. § 1116(b)(1)-(2). Additionally, the Act establishes a presumption of exposure to tactical herbicides for any veteran who served in Vietnam between January 9, 1962 and May 7, 1975. *See* § 1116(a)(1)(B).

Pursuant to this legislation, the VA promulgated regulations that listed numerous diseases, requiring the VA to determine that “if a veteran was exposed to an herbicide agent during active military, naval, or air service, [those] diseases shall be service-connected if the requirements of § 3.307(a)(6) are met.” 38 C.F.R. 3.309(e). Neither the Act nor any VA regulations define “exposed.” Similarly, neither the Act nor any implementing regulations direct the VA to consider “magnitude” or “duration” of exposure. However, in 2001, the VA extended the presumption of service connection to veterans who did not serve in Vietnam, but were nevertheless exposed to herbicide agents. *See* 66 Fed. Reg. 23166 (May 8, 2001) (“if a veteran who *did not serve* in the Republic of Vietnam, but was exposed to an herbicide agent defined in 38 C.F.R. § 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.”).

B. THE TOXICOLOGY OF HERBICIDES USED IN VIETNAM

C-123 aircraft used in Operation Ranch Hand transported, sprayed, and stored approximately 19-20 million gallons of tactical herbicide.¹ Agent Orange—a tactical herbicide contaminated with 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD, or “dioxin”)—accounted for the majority of the herbicide that was transported, stored, and sprayed within Vietnam, estimated at approximately 12 million gallons.² Dioxin’s toxicity is well-documented in the medical literature.³ Other toxic herbicide combinations, however, were also sprayed by C-123s in Operation Ranch Hand, including approximately 5.4 million gallons of Agent White, containing the carcinogen picloram arsenic, 2,4-D, and 1.3 million gallons of Agent Blue, containing dimethylarsinic acid.⁴ Picloram arsenic and dimethylarsinic acid are also known carcinogens.⁵

¹ *See* U.S. Department of Veterans Affairs, Public Health, *Facts About Herbicides*, available at: <http://www.publichealth.va.gov/exposures/agentorange/basics.asp>; National Academy of Sciences, Institute of Medicine, VETERANS AND AGENT ORANGE: HEALTH EFFECTS OF HERBICIDES USED IN VIETNAM 47-49 (2008) [hereinafter “IOM Agent Orange Review”].

² *See* Jeanne Mager Stellman, Ph.D., Steven D. Stellman, Ph.D., M.P.H., *Characterization of Exposure to Agent Orange in Vietnam Veterans As A Basis for Epidemiological Studies*, 13 J.L. & POL’Y 505, 512 (2005) (Agent Orange comprised 12M out of approximately 20M gallons sprayed in Vietnam).

³ *See, e.g.*, U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry (ASTDR), Division of Toxicology and Environmental Medicine, *Frequently Asked Questions: Chlorinated Dibenzo-P-Dioxins* (Feb. 1999), available at: <http://www.atsdr.cdc.gov/tfacts104.pdf> (TCDD “has been shown to be very toxic in animal studies,” and documenting potential health effects related to exposure to TCDD); *see also* IOM Agent Orange Review, *supra* note 1.

⁴ *See* Jeanne Mager Stellman et al., *The Extent and Patterns of Usage of Agent Orange and Other Herbicides in Vietnam*, 422 NATURE 681, 682 (2003)

⁵ *See* Letter from Jeanne Stellman to Wesley Carter (Feb 7, 2012).

Absorption of toxic substances occurs in humans through three main routes of contact: inhalation, ingestion or dermal routes.⁶ The National Academy of Sciences states that “[e]xposure of humans to TCDD is thought to occur primarily via the mouth, skin, and lungs.”⁷ A 1995 study in *Organohalogen Compounds* by medical researchers reports that, based on its review of the scientific literature, “dermal uptake to TCDD is probably the primary route of exposure in the workplace.”⁸

Many of the studies associated with the toxicity of dioxin residues have been conducted based on persons exposed to active spray operations in Vietnam, meaning absorption of herbicides may have occurred through any or all three routes. In contrast, no quantitative data exists regarding the extent of human contamination by means of contact with dioxin residues adhering to the surface of both organic and inorganic materials found on the interior of C-123 aircraft (including wood, paper, fiberglass, aviation grade aluminum, painted surfaces, canvas, leather, cotton and other materials).⁹ Nevertheless, the C-123 aircraft used in Operation Ranch Hand continued to test positive for dioxin on every surface tested for over twenty years after the planes returned from Vietnam.

C. SIGNIFICANT AMOUNTS OF DIOXIN ENTERED C-123 AIRCRAFT DURING OPERATION RANCH HAND IN THE VIETNAM WAR

As part of Operation Ranch Hand, significant amounts of dioxin were present in C-123 aircraft. During the operation, the aircraft transported, stored, and sprayed approximately 19-20 million gallons of tactical herbicide in Vietnam.¹⁰ Headquarters, Air Force Reserve Command has confirmed, “the C123 aircraft in the 731 TAS fleet had been used to disperse chemical defoliants over Southeast Asia during the Vietnam War.”¹¹ C-123s were uniquely suited to spray herbicides during the Vietnam War. Flying at a very low altitude, the planes could empty a 1,000-gallon pressurized tank full of defoliant in less than four minutes.¹²

During the tactical missions, dioxin entered into and contaminated the aircraft. While flying, the “the cockpit and side doors of C-123s stayed open, inviting Agent Orange spray mist back inside” the plane.¹³ Moreover, herbicide often leaked out of the pressurized tanks and the nozzles on the aircraft spray bars, leaving dioxin residue within the aircraft.¹⁴ A hearing before the Subcommittee on National Security, Veterans Affairs, and International Relations of the Committee on Government Reform reported that “the spraying is done through an aircraft,” and though spraying was initiated through a

⁶ See National Toxicology Program, Department of Health and Human Services, REPORT ON CARCINOGENS 397(12th Ed.) (2011) (citing ASTDR 1998 for proposition that military personnel exposure to TCDD has been primarily through inhalation and dermal contact).

⁷ See IOM Agent Orange Review, *supra* note 1 at 68.

⁸ Kerger et. al., Validating Dermal Exposure Assessment Techniques for Dioxin Using Body Burden Data and Pharmacokinetic Modeling, 25 ORGANOHALOGEN COMPOUNDS 172, 172 (1995).

⁹ See Letter to Wes Carter from Dr. Joe Goepfner at 3 (Dec 19, 2011)

¹⁰ See U.S. Department of Veterans Affairs, Public Health, *Facts About Herbicides*, available at: <http://www.publichealth.va.gov/exposures/agentorange/basics.asp>

¹¹ See Memorandum for 439 AW/CC (in “Consolidated Proof Set”).

¹² See Hisao Furukawa, Ecological Destruction, Health, and Development: Advancing Asian Paradigms, at 142.

¹³ Interview with Dr. Richard Berman, cited in Lynne Peebles, *Veterans Sick from Agent Orange-Poisoned Planes Still Seek Justice*, HUFFINGTON POST (July 10, 2013).

¹⁴ See Alvin L. Young, *The History, Use, Disposition and Environmental Fate of Agent Orange*, at 81 citing Paul F. Cecil, *Herbicide Warfare: The Ranch Hand Project*, 1986.

switch, many aircrewmembers reported that they were “sprayed in the face” with Agent Orange when opening the tank valve from inside the plane.¹⁵ Further, combat damage resulted in thousands of gallons of herbicide released inside the spray aircraft once the pressurized tanks were penetrated.¹⁶ Taken together, these facts demonstrate that dioxin was substantially present inside the C-123 aircraft during Operation Ranch Hand.

D. UNITED STATES AIR FORCE SERVICEMEMBERS CONTINUED TO FLY IN AND WORK ABOARD CONTAMINATED C-123 AIRCRAFT AFTER THE CONCLUSION OF THE VIETNAM WAR

The USAF Historical Research Records Agency has confirmed that USAF members continued to fly and work on these very planes years after the war had ended. It appears that at least ten planes used in Operation Ranch Hand were reused after the war by personnel of the 439th Tactical Airlift Wing and subordinate squadrons and groups.¹⁷ However, to date, the USAF has released detailed combat and post-Vietnam flight records regarding only five such planes. Of the planes described in the records released, all five were reused after Vietnam. USAF Historical Records Research Agency has confirmed that aircrews flew and maintenance personnel maintained contaminated planes C123K, including: s/n 54-607; C123K, s/n 54-586; C123K, s/n 54-635; C123K s/n 54-583; and C123B, s/n 56-4362 (“Patches”), all formerly of Operation Ranch Hand from Westover AFB from 1976 to 1982. *See* Exhibit A.¹⁸

E. HERBICIDE CONTAMINATION TESTING OF C-123 AIRCRAFT

Despite the end of Operation Ranch Hand in 1971 and the U.S. Government’s awareness of the possible health hazards of Agent Orange in the 1960s,¹⁹ the U.S. Air Force waited eight years to test C-123 aircraft for herbicide contamination. The first study of a single aircraft, conducted in 1979, established the presence of airborne herbicides in one plane used in Operation Ranch Hand. Fifteen years later, the Air Force conducted a second test to measure surface TCDD contamination on the interior of the same C-123 aircraft studied in 1979. The results are summarized below.

In March 1979, the USAF Occupational and Environmental Health Laboratory, Aerospace Medical Division (AFSC) conducted a study of one returned C-123 aircraft (“Patches” S/N 564362) stationed at Westover AFB, MA, “to determine possible health hazards from Herbicide Orange and Malathion contamination.”²⁰ The sampling study (“1979 Study”) took place over six years after the

¹⁵ Hearing before the Subcommittee on National Security, Veterans Affairs, and International Relations of the Committee on Government Reform, March 15, 2000. Serial No. 106-163.

¹⁶ *See* WILLIAM A. BUCKINGHAM, JR., *THE AIR FORCE AND HERBICIDES IN SOUTHEAST ASIA 1961-1971*, 129 (1982).

¹⁷ The 439th Tactical Airlift Wing was the largest C-123K organization, flying most of the former Agent Orange spray aircraft.

¹⁸ Though the USAF Historical Research Records Agency has not released records of the remaining five airplanes, other sources, including agency internal memoranda have confirmed that the following C-123 airplanes flew in Operation Ranch Hand and were later reused on bases in the United States and Panama: C123K, s/n 54-535, C123B, s/n 56-4351, of Westover AFB, and C123 55-4570, 55-4571, 54-585 and 54-693 of Howard AFB in Panama.

¹⁹ *See* BUCKINGHAM, *supra* note 16 at 163-64, 189.

²⁰ Conway, William, September 1979, *Aircraft Sampling Westover AFB, MA*, USAF OEHL Technical Report No. 79-59.

aircraft had ceased spraying operations in Vietnam.²¹ The survey was prompted by reports of a chemical odor experienced by the crew while flying the aircraft; the purpose was to determine the source of such odor. As such, the survey team personnel took air samples. The survey team detected airborne phenoxyherbicides, and measured airborne levels of Agent Orange in a range from 0.243 mg/m³ to 0.428 mg/m³ (combined 2,4-D/2,4,5-T); and levels of Malathion in a range from 1.7 mg/m³ to 3.0 mg/m³.

Researchers confirmed the presence of airborne herbicide in the aircraft, even seven years after it had returned from Vietnam, notwithstanding the fact that USAF Reserve aircrews had been flying these contaminated aircraft during the intervening period with USAF assurances of their safety. The authors noted that the air sampling did not take place under in-flight conditions. The authors specifically stated that sampling “under actual inflight conditions” would help “determine what effect changes in altitude and temperature have upon the levels of contaminant concentrations and to better define the source.”²²

The 1979 Study did not test for dioxin and only measured levels of “airborne phenoxyherbicides,” so it could not determine what the actual toxicity was. The 1979 Study did not conduct wipe samples for TCDD residue or any other carcinogens and it did not test for any other herbicides such as Agent White or Blue.

Twenty-three years after the end of Operation Ranch Hand and twelve years after the C-123 aircraft were decommissioned (following a decade of post-Vietnam service with various USAF squadrons), the Air Force in 1994 commissioned another assessment of contaminants present in “Patches,” finding the aircraft to present a toxic risk to members of the public and museum personnel in or around the aircraft. In anticipation of restoring “Patches” for public display at the Wright Patterson Air Force museum, the Air Force asked two toxicologists to conduct a dioxin contamination assessment using surface wipe samples (the “1994 Study”).²³ The results demonstrated that the plane remained contaminated with dioxin.

The experts took four wipe samples: three from inside the aircraft and one from the exterior wing.²⁴ Based on the data collected, the 1994 Study concluded that, based on the current contamination levels, if one 70kg man performed anticipated restoration efforts for 1.5 years at an estimated 250 days per year in the interior of the aircraft, that person would reach an “acceptable level for a lifetime exposure,” but only “if restoration personnel had *no additional lifetime exposure*.”²⁵ In other words, in 1994, twelve years after the last active crew worked on Patches, the plane still contained enough dioxin for a person working on it to meet and exceed the maximum lifetime exposure limit. The study found that the aircraft was “heavily contaminated on all test surfaces” and “a danger to public health.”²⁶ Subsequently, three separate decontamination efforts were required to reduce toxicity to 1/54th of the initial level of contamination, which then permitted limited access to the aircraft.

²¹ *Id.* at 1 (stating that “[i]n November 1972, the aircraft was transported to the 901st Tactical Air Group (TAG), L.G. Hanscomb Field, MA, and moved with the unit to its present location at Westover AFB MA”).

²² *Id.* at 2.

²³ Porter and Weisman, Consultative Letter AL/OE-CL-1994-0203, Review of Dioxin Sampling Results from UC-123 Aircraft, Wright-Patterson AFB OH and Recommendations for Protection of Aircraft Restoration Personnel 1 (Dec. 1994).

²⁴ *Id.* at 1.

²⁵ *Id.* at 2.

²⁶ *Id.* at 4.

At the direction of its Deputy Director, the Center for Disease Control Agency for Toxic Substances and Disease Registry (“ATSDR”) used the data produced by the 1994 Study to conduct a second exposure analysis, concluding that the dioxin levels in the 1994 Study exceeded the military’s own occupational safety standards. From the three interior wipe samples, the ASTDR study determined that an average of 6.36 nanograms (ng) of TCDD was still present per 100 cm² of surface area. This value—6.36 ng/100 cm²—is 182 times higher than workplace occupational safety standards established by the U.S. Army Center for Health Promotion and Preventive Medicine, as published in *Technical Guide 312*.²⁷ In *Technical Guide 312*, the U.S. Army provides a method for evaluating potential health risks to office workers from exposure to chemical contaminants on indoor work surfaces—including TCDD.²⁸ Surface wipe samples are analyzed for concentrations of contaminant to determine “screening levels,” which are threshold levels of human exposure above which cancer risk exceeds 1 in 1,000,000.²⁹ This screening level incorporates exposure by (a) incidental ingestion; (b) dermal exposure; and (c) inhalation.³⁰

The amount of dioxin continuing to contaminate “Patches” 21 years after its last active Agent Orange-spraying mission exceeded the Army’s threshold exposure level by 182 times. *Technical Guide 312* sets the acceptable screening level for Dioxin at .035 ng/100cm².³¹ The ASTDR, in contrast, calculated the average value of the C-123 interior surface wipes at 6.36 ng/100 cm². That concentration presents “a 200-fold greater cancer risk” above average.³² Moreover, the “office worker scenario” used to develop screening levels in *Technical Guide 312* “likely underestimates the daily exposures of Air Force personnel inside confined contaminated aircraft.”³³ Their exposure would “depend[] upon exposed skin surface area, duration of exposure, hand washing, and food intake.”³⁴ Based on the available information, the ASTDR articulated its belief that “aircrew operating in this, and similar, environments were exposed to TCDD.”³⁵ This finding was subsequently confirmed by the ASTDR Acting Director, Rear Admiral Robin Ikeda.³⁶

Although “Patches” was the only aircraft to undergo extensive testing (albeit many years after C-123K aircrew had already been working on the contaminated aircraft), additional testing confirmed the presence of 2,4-D and 2,4,5-T in seventeen C-123K aircraft. In 1996, the Aircraft Maintenance and Regeneration Center (AMARC) at [Davis-Monthan Air Force Base](#) provided funding to have swipe test

²⁷ 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).

²⁸ *Id.* at 1.

²⁹ *See id.* at 171 (establishing the Target Cancer Level at 1E-06, or 1/1,000,000).

³⁰ *Id.* at 2 (“The method assumes that people may be exposed to chemicals on room surfaces by three potential exposure routes: absorption of chemical through skin contact with contaminated surfaces, incidental ingestion by hand-to-mouth behaviors, and inhalation through breathing resuspended particles.”).

³¹ *See id.* at 171 (final surface wipe screening level is 3.54E-05 µg/100 cm², or .0354 ng/100cm²)

³² Letter from Thomas Sinks to Wesley Carter (Jan. 25, 2012).

³³ *Id.*

³⁴ *Id.*

³⁵ *Id.* In addition, Air Force records establish that many of the C-123K aircraft continued to fly herbicide spray missions for several years longer than did “Patches”, which stopped spraying in 1968. Other aircraft, which were not tested as comprehensively as “Patches”, continued spray operations for several more years before returning from Vietnam.

³⁶ *See* Letter from Admiral Robin Ikeda, Acting Director, Agency for Toxic Substances and Disease Registry, to Wesley Carter (March 6, 2013).

samples taken from all C-123K aircraft present at AMARC.³⁷ The laboratory confirmed the presence of herbicide in all seventeen aircraft as well as the presence of dioxin.³⁸ The laboratory concluded that the level of contamination was unknown, recommending that further testing be done.³⁹ Pursuant to this recommendation, however, the Air Force concluded that testing was “prohibitively expensive,” owing to the estimated cost of \$15,000 per plane.⁴⁰ Even though the Air Force was, at the time, attempting to sell the surplus C-123K aircraft to a private corporation, the Air Force recommended to the General Services Corporation that the sale be terminated because of the “public health concerns” associated with the contaminated C-123K planes.⁴¹

These studies conclude that, for decades after the C-123 returned from Vietnam, the aircraft remained contaminated with herbicide residue from Operation Ranch Hand, and that individuals working inside the aircraft were at risk of meeting or exceeding lifetime dioxin exposure limits.

II. ARGUMENT

A. C-123 VETERANS WERE ACTUALLY EXPOSED TO HERBICIDE AND SHOULD BE SERVICE-CONNECTED FOR LISTED DISEASES.

1. *C-123 Veterans Were Actually Exposed to Herbicide While Aboard C-123 Aircraft Previously Used in Operation Ranch Hand*

While working on and flying the reused C-123 airplanes, veterans were exposed to herbicide. Whether or not a veteran was actually exposed to herbicide agents is a question of fact for the VA to determine on an individual basis, “after full development of the facts.” *See Pearlman v. West*, 11 Vet. App. 443, 447 (1998). Such a determination must consider all evidence in the veteran’s application and file, and must weigh the credibility of the veteran’s own testimony in light of all the evidence in the file. *Id.* The VA must give “due consideration” to any evidence provided by the veteran to establish actual exposure. *See Slater v. Shinseki*, No. 10-0382, 2011 WL 3330930 at *6 (Vet. App. Aug. 4, 2011) (finding that BVA failed to give “due consideration” to both: (a) a veteran’s lay statements that he believed he was exposed to Agent Orange while on active duty in Puerto Rico; and (b) anonymous Internet article indicating that Agent Orange was tested in Puerto Rico during time of the veteran’s active duty in areas in which veteran claimed to have regularly recreated).

Furthermore, the veteran is entitled to the benefit of the doubt in favor of the veteran’s claim. “[W]hen there is an approximate balance of positive and negative evidence regarding any issue material to the determination of a matter,” the Secretary of the VA must give the benefit of the doubt to the claimant. 38 U.S.C § 5107(b). With regards to the agency’s role as fact-finder, “when a veteran seeks benefits and the evidence is in relative equipoise, the law dictates that veteran prevails.” *Gilbert v. Derwinski*, 1 Vet. App. 49, 54 (1990). In other words, “the preponderance of the evidence must be against the claim for benefits to be denied.” *Id.* Moreover, the fact that a C-123 veteran suffers from

³⁷ Ronald J. Black, U.S. Air Force, Aircraft Maintenance and Regeneration Center, Talking Paper on Dioxin Contaminated C-123 Aircraft (Oct. 9, 1996).

³⁸ *See* Western Aviation Maint., Inc., GSBCA No. 14165, 00-2 B.C.A. at 8 (Sept. 22, 2000).

³⁹ *Id.*

⁴⁰ *Id.* at 9.

⁴¹ *Id.*

multiple listed diseases supports a veteran's claim of exposure. See *Trusty v. Shinseki*, No. 11-1129, 2012 WL 4017824 at *3 (Vet. App. Sept. 13, 2012) (that the veteran suffers from multiple "listed" conditions supports the veteran's claim of exposure).

Individual crewmembers who worked aboard the C-123 aircraft after the planes returned from Vietnam were more likely than not exposed to tactical herbicide. First, military records demonstrate, and the VA does not dispute, that C-123 aircraft used in Operation Ranch Hand contained substantial quantities of herbicide during their use in Vietnam. See U.S. Department of Veterans Affairs, Public Health, *Facts About Herbicides*, <http://www.publichealth.va.gov/exposures/agentorange/basics.asp>; U.S. Department of Veterans Affairs, Public Health, *Agent Orange Residue on Post-Vietnam War Airplanes*, <http://www.publichealth.va.gov/exposures/agentorange/residue-c123-aircraft.asp> (noting that C-123 aircraft were "formerly used to spray Agent Orange during the Vietnam War"); see also National Academy of Sciences, Institute of Medicine, *Veterans and Agent Orange: Health Effects of Herbicides Used in Vietnam* 47-49 (2008).

Second, military records demonstrate that the C-123 aircraft remained contaminated with airborne herbicide and surface dioxin residue long after the aircraft returned from Vietnam. The U.S. Court of Appeals for Veterans Claims has noted that a veteran's lay testimony stating that he observed residue on the surface of the ship may support a finding of actual exposure to herbicide. See *Lundy v. Shinseki*, No. 09-1206, 2010 WL 3759925 at *4 (Vet. App. Sept. 23, 2010); *Boles v. Shinseki*, No. 11-3295, 2012 WL 4711643 at *4 (Vet. App. Oct. 4, 2012) (holding that BVA must thoroughly consider credibility of lay statement by veteran, who claimed that "he flew in helicopters that either had previously transported or applied herbicides or were landing in areas where herbicides had been applied, and that the helicopters became coated with the herbicides and had to be cleaned.").

In the case of C-123 veterans, expert evidence demonstrates the presence of herbicide on returned C-123 aircraft. The 1979 Study authored by William Conway concluded that on the one aircraft they sampled—"Patches"—airborne phenoxyherbicides were present in a range from 0.243 mg/m³ to 0.428 mg/m³ (combined 2,4-D/2,4,5-T). William Conway, *Aircraft Sampling Westover AFB, MA, USAF OEHL Technical Report No. 79-59* (Sept. 1979).

Furthermore, in a study conducted in 2012, the United States Air Force agreed that the Conway report's sampling "resulted in quantifiable levels of 2,4-D and 2,4,5-T, which are components of the herbicides used during Operation Ranch Hand." See Col. Mark E. Smallwood, *UC-123 Agent Orange Exposure Assessment, Post-Vietnam (1972-1982)*, USAF School of Aerospace Medicine Consultative Letter No. 88ABW-2012-2550 at 3 (Apr 27, 2012). Although the study concluded that "[t]he results of this sampling indicated these chemicals were below the permissible exposure limits and not a health hazard," *id.*, the author did not dispute the likelihood of exposure to herbicides. The 2012 Air Force Study furthermore concedes that the 1994 and 1996 studies of C-123 aircraft—which used surface wipe samples to detect surface dioxin residue—demonstrated surface contamination. *Id.* at 2-3.

Third, flight records demonstrate that individual crewmembers were assigned to and present on the aircraft. The U.S. Court of Appeals for Veterans Claims has found that a veteran's proximity to areas contaminated with herbicide may count as a factor in determining actual exposure. See *Hover v. Shinseki*, No. 10-3112, 2011 WL 5215431 at *4 (Vet. App. Nov. 3, 2011). As noted, the USAF Historical Research Records Agency confirmed that C-123 veterans flew, cleaned, and worked on at

least five planes after they returned from Operation Ranch Hand. *See* Exhibit A. The Department of Veterans Affairs has accepted plane provenances—derived from print outs from the National Museum of the United States Air Force website—as sufficient proof of a plane’s service, and statements of service reports that list a veteran’s corresponding days of active service as evidence of presence on the plane. *See, e.g.*, BVA No. 06-18 270 (Nov. 5, 2007); BVA No. 04-00 806 (Oct. 20, 2011).

Fourth, expert toxicologists—including government toxicologists and experts whom the Agency has regularly relied on to provide expert toxicology guidance—agree that, given the available toxicological evidence related to airborne and surface contamination in returned C-123 aircraft, crewmembers assigned to such aircraft were, “more likely than not,” exposed to herbicide during military service. *See* Exhibit B.

- Dr. Jeanne Stellman, Ph.D., Professor Emerita & Special Lecturer at Columbia University’s Mailman School of Public Health, concluded that, for veterans serving on returned C-123 aircraft, “there is every likelihood that [these veterans] would have been exposed to both airborne herbicides and their contaminants, as well as come into contact with surfaces contaminated by these toxic substances.” Letter from Jeanne Stellman to Wesley Carter (Feb 7, 2012). Dr. Stellman determined that, “[i]n my opinion, the extent and manner of exposure is analogous to that experienced by many Vietnam veterans, with service in-country.” *Id.*
- Dr. Thomas Sinks, Ph.D., Deputy Director, National Center for Environmental Health and Agency for Toxic Substances and Disease Registry, also agreed that, “[g]iven the available information, I believe that aircrew operating in this, and similar, environments were exposed to TCDD.” Letter from Dr. Thomas Sinks to Wesley Carter (Jan. 25, 2012).
- Dr. Christopher J. Portier, Ph.D., Director, National Center, and Environmental Health, and Agency for Toxic Substances and Disease Registry, confirmed that “[the] ATSDR stated that TCDD levels on-board contaminated planes were likely higher in 1972-1982 than in 1994 when samples were taken”; that, in addition to dermal exposure, “ASTDR...could not exclude inhalation (or ingestion) exposures to TCDD while working on contaminated aircraft”; and that “based upon the available information, ATSDR concluded that aircrew operating in this, and similar, environments were exposed to TCDD.” Letter from Christopher Portier to Mr. Dominic Baldini, Chief, Joint Services Records Research Center (March 6, 2013). This finding was subsequently confirmed by ASTDR Acting Director Rear Admiral Robin Ikeda. *See* Letter from Admiral Robin Ikeda to Wesley Carter (March 6, 2013). !
- CAPT Aubrey Miller, M.D., Captain, U.S. Public Health Service, confirms the hazards associated with dermal exposure to residual TCDD contamination, affirming that, “[w]e 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.” Letter from CAPT Aubrey Miller to Wesley Carter (March 1, 2013).
- A committee of concerned scientists and physicians stated in a letter to Brigadier General Allison Hickey USAF (retired), Undersecretary for Benefits, Department of Veterans Affairs, that “there exists the likelihood of exposures to multiple environmental toxins in the C-123s, in addition to dioxin.” *See* Letter from Jeanne Stellman et. al. to Brig. Gen. Allison Hickey (Nov. 29, 2013)

Neither the Federal Circuit nor the U.S. Court of Appeals for Veterans Claims (“CAVC”) has required a veteran to provide evidence of the magnitude or duration of exposure for a veteran to establish “actual exposure” to herbicide in order to satisfy the statutory presumption of service connection.⁴² This contrasts with how the VA has treated exposure for non-presumptive conditions. *See, e.g.*, 38 C.F.R. § 3.311(e)(1) (including duration of exposure as factor in establishing causal connection between radiation exposure and disease); *Short v. Peake*, No. 06-2556, 2008 WL 3318724 (Vet. App. Aug. 5, 2008) (reversing VARO decision denying medical nexus for lung disease where expert medical evidence showed exposure to asbestos was short in duration and of limited magnitude). VA’s determination, based on the 2012 report by the USAF, 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,” is thus irrelevant to the question of whether veterans who served aboard C-123 aircraft were “actually exposed” to herbicide. Nor, for that matter, may the VA rely on the fact that the veteran is *not* within the category of individuals entitled to presumptive exposure as evidence negating proof of actual exposure. *See Trusty v. Shinseki*, 2012 WL 4017824 at *4. As such, the C-123 veterans can prove actual exposure to herbicides while flying on the repurposed airplanes.⁴³

2. *C-123 Veterans Are Entitled to a Statutory Presumption of Service Connection if they Suffer From a “Listed” Disease and Can Prove Actual Exposure to Herbicide*

Given their actual exposure to herbicide, C-123 veterans are entitled to a statutory presumption of service connection. In order to receive disability compensation, a veteran must establish that the disability was service-connected. 38 U.S.C. § 101(16). A veteran can establish service connection in one of two ways. *See id.* § 3.303(a) (2013). *First*, a veteran may prove service connection directly, by showing that a disease was incurred or exacerbated while in service. *Id.*; *see Stefl v. Nicholson*, 21 Vet. App. 120, 123 (2007). *Second*, the veteran may establish service connection through a statutory presumption. *Id.*; *Haas v. Peake*, 525 F.3d 1168, 1197 (Fed. Cir. 2008); *Combee v. Brown*, 34 F.3d 1039, 1043 (Fed. Cir. 1994). Under the latter route, the veteran need only demonstrate: (a) that the veteran was exposed to “an herbicide agent” during active service, 38 C.F.R. 3.309(e); and (b) that the veteran suffers from a disease associated with exposure to herbicide, as listed by the Secretary, *id.* § 3.309 (“Diseases subject to presumptive service connection”).⁴⁴ Most C-123 Veterans seek to establish

⁴² The IOM Agent Orange reports (IOM, 1994, 1996, 1999, 2001, 2003b, 2005b) did not explicitly include a causal category in their evaluations. By contrast, recent Gulf War reports (IOM, 2000a, 2003a, 2005a, 2006, 2007) did include a category for evidence sufficient to infer causation when characterizing the strength of evidence for agents evaluated. For neither set of reports does the VA describe in its Federal Register notices how it accounted for exposure potential or magnitude in making its presumptive decisions. *See* Committee on Evaluation of the Presumptive Disability Decision-Making Process for Veterans, *Improving the Presumptive Decision-Making Process* (2008). The statutorily prescribed process by which the VA lists diseases, therefore, does not require duration of magnitude and relies only on the broad category of exposure. Similarly, when the VA finds no positive association, it does so based on exposure of any magnitude. Taken together, it is clear that the science behind presumptive service connection does not require any minimum threshold level of exposure.

⁴³ At a minimum, for the VA to deny a claim of actual exposure for a C-123 veteran with a listed disease, it must provide reasons and an adequate statement stating the basis for rejecting competent evidence. *See Parrish v. Shinseki*, 24 Vet.App. 391, 399 (2011); *Campbell v. Shinseki*, 12-0787, 2013 WL 4520183 at *3 (Vet. App. Aug. 27, 2013) (in the context of a veteran seeking to prove actual exposure to herbicide, where the BVA rejects evidence favorable to a claimant without discussing why the evidence lacks credibility or competence, the BVA violates the rule of *Parrish*, and fails to comply with the VA’s statutory duty to provide a statement of adequate reasons or bases, *see* 38 U.S.C. § 7104(d)(1)).

⁴⁴ An “herbicide agent” is defined as a chemical in an herbicide used in support of the United States and allied military operations in the Republic of Vietnam during the period beginning on January 9, 1962, and ending on May 7, 1975,

service connection through the statutory presumption based on a diagnosis of diseases listed in 38 C.F.R. § 3.309.

The Agent Orange Act of 1991 establishes a presumption of service connection for diseases associated with exposure to certain herbicide agents. Agent Orange Act of 1991, Pub. L. No. 102-4, 105 Stat. 11 (1991), *codified in part at* 38 U.S.C. § 1116. The Act also establishes a statutory presumption of *exposure* for those veterans who served in Vietnam between January 9, 1962 and May 7, 1975. *Id.* The Act and regulations governing presumptive *service connection* on the basis of herbicide exposure “are not limited in scope to veterans who served in Vietnam if a veteran can prove actual exposure to Agent Orange during service.” *See Bauman v. Shinseki*, No. 12-0053, 2012 WL 3089741 at *4 (Vet. App. July 31, 2012) (citing 38 U.S.C. § 1116(a)(1)(A), 38 C.F.R. § 3.307(a)(6)(iii)). If a veteran proves actual exposure to herbicides during service, the veteran need not establish medical nexus to establish service connection. *See Holliday v. Shinseki*, No. 04-1725, 2009 WL 301871 at *3 (Vet. App. Feb. 9, 2009) (citing 38 U.S.C. § 1116(a); 38 C.F.R. §§ 3.307(a)(6) and 3.309(e)). As demonstrated above, the veterans in question were actually exposed. With a listed disease, they are therefore entitled to a statutory presumption of service connection and need not establish a medical nexus.

Veterans who did not serve in Vietnam during the covered timeframe—and thus are not entitled to the statutory presumption of *exposure*—may nevertheless qualify for the statutory presumption of *service connection* provided they show that they were actually exposed to herbicide agent during active service. *Haas v. Peake*, 525 F.3d at 1193 (“even servicemembers who are not entitled to the presumption of exposure are nonetheless entitled to show that they were actually exposed to herbicides”); *Ruiz-Rojas v. Peake*, No. 06-3590, 2008 WL 4414306 at *7 (Vet. App., Sept. 16, 2008) (citing with approval 66 Fed. Reg. 23166 (May 8, 2001), which provides that for a veteran “who did not serve in the Republic of Vietnam, but was exposed to an herbicide agent defined in 38 C.F.R. § 3.307(a)(6) during active military service, [and] has a disease on the list of diseases subject to presumptive service connection, [that the] VA will presume that the disease is due to the exposure to herbicides.”);⁴⁵ *Bauman*, 2012 WL 3089741 at *4 (citing with approval 66 Fed. Reg. 23166).

As a result, the C-123 veterans are entitled to a statutory presumption of service connection regardless of the fact that they did not serve in Vietnam.

specifically: 2, 4-D; 2, 4, 5-T and its contaminant TCDD; cacodylic acid; and picloram.” 38 C.F.R. § 3.307(a)(6)(i)(2012).

⁴⁵ The Federal Register notice, 66 Fed. Reg. 23166 (May 8, 2001) contained the VA’s final rule adding type 2 diabetes to the presumptive list of diseases in 38 C.F.R. § 3.309(e). In its comment on the final rule, the VA noted that the Agent Orange Act of 1991, which establishes presumptions of service connection for diseases associated with exposure to herbicide agents, “establishes a presumption of *exposure* to certain herbicides for any veteran who served in the Republic of Vietnam between January 9, 1962 and May 7, 1975, and 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 C.F.R. § 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.” 66 Fed. Reg. 23166 (2001).

3. *C-123 Veterans Who Experience Non-Listed Diseases May Nevertheless Qualify for Service Connection by Establishing Service Connection Directly*

For C-123 veterans who do not suffer from diseases listed in 38 C.F.R. § 3.309, individual veterans may nevertheless prove service connection directly by showing that a disease was incurred or exacerbated while in service. *See id.* § 3.303(a) (2013); *Shedden v. Principi*, 381 F.3d 1163, 1166–67 (Fed. Cir. 2004) (explaining that direct service connection may be shown where there is evidence of: “(1) the existence of a present disability; (2) in-service incurrence or aggravation of a disease or injury; and (3) a causal relationship between the present disability and the disease or injury incurred or aggravated during service”).

Unlike proving actual exposure, proving direct service connection requires the veteran to establish a “nexus” between the exposure and the disease, which demands proof of magnitude and duration of exposure to a given toxin sufficient to cause or exacerbate disease. *See McCartt v. West*, 12 Vet. App. 164, 168 (1999) (holding that, in absence of applicable presumption of service connection, claimant alleging disability due to Agent Orange exposure must submit “medical evidence of a nexus between Agent Orange exposure and the appellant’s current [disease]”). Only in the instance of claims for diseases not recognized as Agent Orange-presumptive illnesses (e.g., non-listed diseases) may the VA require a showing of medical nexus.

B. VA RELIANCE ON MEDICAL EVIDENCE TO DENY C-123 VETERANS CLAIMS IS AN ERROR

Medical evidence is irrelevant in determining presumptive service connection based on actual exposure. *See Campbell v. Shinseki*, No. 12-0787, 2013 WL 4520183 at *3 (Vet. App. Aug. 27, 2013) (“Medical findings may be necessary to determine whether a veteran is entitled to service connection ... based on ‘a causal relationship’ between an in-service injury and current disability (i.e., on a direct basis) ... but are irrelevant to determine whether a veteran is entitled to presumptive service connection based on actual exposure to Agent Orange.”) If the VA finds that the veteran was actually exposed to herbicides, it is constrained from relying on medical evidence or a lack thereof. *See Trusty v. Shinseki*, 2010 WL 173908 at *2 (“Medical evidence is not needed to prove that the appellant was actually exposed to Agent Orange and the appellant’s diabetes may be presumed to be connected to service without the need for medical evidence if the Board finds that such exposure occurred.”). Any discussion of medical evidence is therefore beyond the scope of the VA’s inquiry in presumptive service connection cases.

Even if the Board erroneously requires medical evidence of bioavailability,⁴⁶ a rejection of a claim based on “low availability” should nevertheless fail, as the VA guidance on bioavailability is not binding. The statute requires that any interpretive rules or guidance of general policy be published in the Federal Register. *See* Exhibit C. 5 U.S.C. § 552(a)(1)(D). This is especially so given that a statement of policy or interpretation may be “used, or cited as precedent by an agency against a party...only if—(i) it has been indexed and either made available or published as provided by this paragraph; or (ii) the party has actual and timely notice of the terms thereof.” *Id.* § 522(a)(2). The VA’s rule that suggests that

⁴⁶ Requiring a veteran to demonstrate bioavailability would also be in conflict with generally accepted scientific definitions of “exposure,” including the definition used by the ASTDR.

bioavailability is necessary to prove service connection is neither published in the Federal Register nor subject to the required notice and comment rulemaking.⁴⁷ A VA bioavailability requirement is therefore not binding, and VA reliance on it to deny claims is erroneous.

Finally, to the extent the VA claims that “there are no studies that we are aware of showing harmful health effects for any such secondary or remote herbicide contact that may have occurred,” *see* Exhibit D such an argument is similarly irrelevant in C-123 veteran cases. *See also* BVA No. 07-20 153, 2012 WL 7014575 at *9 (Dec. 10, 2012) (citing M21-1MR, Part IV, Subpart 2, Section C, ¶ 10, block r, as support for proposition that “a VA Memorandum for the Record indicates that there are no studies that show harmful health effects for any secondary or remote herbicide exposure, such as that which occurs based on being near or working on aircraft that flew over Vietnam or handling equipment once used in Vietnam”). VA reliance on an absence of medical evidence—including the purported absence of medical evidence pertaining to secondary exposure—is erroneous, as medical evidence is irrelevant to the inquiry of determining presumptive service connection through actual exposure.

C. THE DESTRUCTION OF C-123 AIRCRAFT CREATES A HEIGHTENED DUTY FOR THE SECRETARY TO APPLY THE BENEFIT OF THE DOUBT STANDARD FOR C-123 VETERANS

The Secretary has a duty to apply the benefit of the doubt standard to the C-123 veterans. The C-123 veterans have submitted sufficient evidence to entitle them to a finding of actual exposure. Even if, however, the VA finds the evidence to be in equipoise, a heightened duty to apply the benefit of the doubt standard applies. As discussed *supra* Section II.A.1, the Secretary of the VA must give the benefit of the doubt to the claimant “when there is an approximate balance of positive and negative evidence regarding any issue material to the determination of a matter.” 38 U.S.C § 5107(b). Courts have recognized and applied this statutory standard, holding “when a veteran seeks benefits and the evidence is in relative equipoise, the law dictates that veteran prevails.” *Gilbert v. Derwinski*, 1 Vet.App. 49, 54 (1990). In other words, “the preponderance of the evidence must be against the claim for benefits to be denied.” *Id.* Given that the VA has failed to show a preponderance of the evidence exists *against* C-123 veterans, the VAROs, BVA, and CAVC should invoke the benefit of the doubt standard and the veteran’s claim should be granted.

In addition, because the Air Force destroyed the contaminated C-123 aircraft as toxic waste and deprived C-123 veterans of the opportunity to more fully present medical and forensic evidence of their actual exposure to herbicide agents, the Secretary has a “heightened” duty to apply the benefit of the doubt standard in these cases. The CAVC has held, “where service medical records are presumed destroyed, in such a case, the BVA's obligation...to consider carefully the benefit-of-the-doubt is heightened.” *O’Hare v. Derwinski*, 1 Vet.App. 365, 367 (1991); *see also Cuevas v. Principi*, 3 Vet.App. 542, 548 (1992). Department of Defense destruction of C-123 airplanes is analogous to the loss or destruction of service medical records (SMRs). Like SMRs, the C-123 airplanes are the key pieces of evidence. Had the Department of the Air Force not destroyed the planes, the VA would have an opportunity and an obligation to evaluate and discuss them as evidence. *See Dela Cruz v. Principi*, 15

⁴⁷ Similarly, the VA is constrained from requiring an applicant to prove that he or she had physically handled or tested herbicide in order to prove actual exposure. No such requirement is published in the Federal Register, nor has any requirement been subject to the required notice and comment rulemaking.

Vet.App. 143, 149 (2001) (Board not required to discuss all evidence of record but must discuss relevant evidence); *Schafrath v. Derwinski*, 1 Vet.App. 589, 593 (1991) (Board must discuss all relevant evidence and all “potentially applicable” laws and regulations). As with SMRs, the Court may not rely on the absence of such planes as proof of non-exposure. Instead, the Court should look more carefully at the relative balance of evidence to apply the benefit of the doubt standard in favor of the veteran.

III. CONCLUSION

For the reasons state above, C-123 veterans are entitled to service connection for listed diseases, because the available scientific and lay evidence demonstrates that veterans were “actually exposed” to tactical herbicides. Veterans also remain eligible to seek benefits for non-listed diseases if the veteran can establish a medical nexus between the disease and the herbicide exposure.

Sincerely,



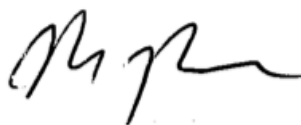
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