LAW REVIEW 16010
February 2016

Agent Orange VA Claims—Don't Forget the "Blue Water" Sailors

By Captain Morgan Little, USN (Ret.)[1] and
Captain Samuel F. Wright, JAGC, USN (Ret.)[2]

11.0—Veterans' claims
14.0—Tort claims involving service members and military families.

Agent Orange is the nickname for a tactical herbicide that was very widely used by United States forces during the Vietnam War.[3] At the time, Agent Orange was thought to be benign with respect to its effect on human health, but over time it became clear that humans suffer major adverse health effects from exposure to this chemical through inhalation, ingestion, or exposure via the skin. Individuals who have been exposed to Agent Orange have a much higher incidence of diabetes, prostate cancer, and other diseases and conditions, and these diseases and conditions often manifest themselves decades after exposure.

Of course, it is also true that millions of humans who have never served a day in the uniform of this or any other country and who have not been exposed to Agent Orange have developed these common diseases and conditions, because of genetic predisposition or because of environmental or occupational exposure to other harmful agents. In an individual case, there is no way to distinguish a disease caused by exposure to Agent Orange in military service from a disease that the individual may suffer anyway without regard to having served in the U.S. military.

The United States Department of Veterans Affairs (VA) administers the provisions of title 38 of the United States Code that provide for monetary compensation for injuries and illnesses incurred during or resulting from military service. Claims involving wounds and other injuries are generally straightforward—the individual's service record usually shows contemporaneous evidence of the wound or injury, and it is possible (even decades later) for physicians to offer

---

[1] BS, University of Arizona, 1964; MS, University of Arizona, 1966; MBA, Rider University, 1978. Little served in the Navy and Navy Reserve as a Surface Warfare Officer and retired in 1998. Little is a life member of the Reserve Officers Association (ROA) and has served in offices at the chapter, department, and national levels, including serving as Vice President for Naval Services in 2007-08.

[2] BA, Northwestern University, 1973; JD, 1976, University of Houston; LLM, 1980, Georgetown University. Wright served in the Navy and Navy Reserve as a Judge Advocate General's Corps officer and retired in 2007. Wright is a life member of ROA and served as the Director of ROA's Service Members Law Center from June 2009 through May 2015.

[3] An official U.S. Government website explains: "'Agent Orange' refers to a blend of tactical herbicides the U.S. military sprayed in the jungles of Vietnam and around the Korean demilitarized zone to remove trees and dense tropical foliage that provided enemy cover." http://www.benefits.va.gov/compensation/claims-postservice-agent_orange.asp.

informed judgments as to whether the individual's ailments and disabilities can reasonably be attributed to the wound or injury suffered during military service.

Occupational disease claims are inherently much more difficult. Because of the limitations of medical science and available evidence, it is not possible to conclude definitively that the individual's prostate cancer in 2007 was caused by exposure to Agent Orange during military service in Vietnam in 1969. The individual may have a genetic predisposition to prostate cancer. The individual may have been exposed to carcinogens before or after his military service. It will likely be impossible to prove from blood or urine tests performed four decades after the alleged exposure that the individual was even exposed to Agent Orange while serving in Vietnam.

The usual standard for adjudicating VA claims of this nature is "more likely than not." To get the claim approved by the VA, the individual must demonstrate that it is more likely than not that the present disease or condition was caused by environmental exposure to a harmful substance while in military service. Applying the more likely than not standard to Agent Orange claims will inevitably result in the denial of most of these claims, simply because of the limitations of medical science and available evidence.

In 1991, Congress made a policy judgment that it is better to pay VA claims for some Vietnam veterans who have diseases or conditions that they may have suffered anyway, without regard to their military service, than to deny other claims of veterans who have those diseases or conditions because of Agent Orange exposure in military service. Because it is not possible to ascertain, in any specific case, that a veteran's disease or condition was caused by Agent Orange exposure, Congress gave these veterans the benefit of the doubt. If an individual veteran served in the relevant place at the relevant time, it is *presumed* that he or she was exposed to Agent Orange. If the veteran now suffers from a disease or condition that has a demonstrated higher rate of incidence among persons exposed to Agent Orange, it is *presumed* that the disease or condition was caused by Agent Orange exposure in military service.

Operation Desert Storm (the liberation of Kuwait) began on January 15, 1991, after Saddam Hussein ignored the ultimatum to evacuate his troops from Kuwait and return the country to the Kuwaitis. As our country was dispatching a new generation of service members into combat, it seemed an opportune time to correct an injustice done to veterans from the last war, which had ended 16 years before. Accordingly, Representative G.V. "Sonny" Montgomery[4]

[4] Representative Montgomery was a World War II Army veteran, and he attained the rank of Major General in the Army National Guard and as Adjutant General of Mississippi. In 1991, he was the Chairman of the House Committee on Veterans' Affairs and was known as the "godfather" of many great laws for veterans and Reserve Component personnel, including the Uniformed Services Employment and Reemployment Rights Act (USERRA), which was enacted in 1994. Representative Montgomery was also a life member of the Reserve Officers Association (ROA). He retired from Congress in 1996 and passed away in 2005.

of Mississippi introduced the proposed "Agent Orange Act of 1991." The bill proceeded through the congressional process with amazing alacrity. It passed the House of Representatives on January 29 and the Senate on January 30. On February 6, 1991, President George H.W. Bush signed the bill into law.[5]

The Agent Orange Act added a new section to title 38 and amended several existing sections. The gist of the Act is set forth in that new section, as follows:

> (a) (1) For the purposes of section 1110 of this title, and subject to section 1113 of this title,--
>
> (A) a disease specified in paragraph (2) of this subsection becoming manifest as specified in that paragraph in a veteran who, during active military, *naval*, or air service, served in the Republic of Vietnam[6] during the period beginning on January 9, 1962, and ending on May 7, 1975; and
>
> (B) each additional disease (if any) that (i) the Secretary determines in regulations prescribed under this section warrants a presumption of service-connection by reason of having positive association with exposure to an herbicide agent, and (ii) becomes manifest within the period (if any) prescribed in such regulations in a veteran who, during active military, naval, or air service, served *in the Republic of Vietnam*[7] during the period beginning on January 9, 1962, and ending on May 7, 1975, and while so serving was exposed to that herbicide agent, shall be considered to have been incurred in or aggravated by such service, notwithstanding that there is no record of evidence of such disease during the period of such service.
>
> (2) The diseases referred to in paragraph (1)(A) of this subsection are the following:
>
> (A) Non-Hodgkin's lymphoma becoming manifest to a degree of disability of 10 percent or more.
>
> (B) Each soft-tissue sarcoma becoming manifest to a degree of disability of 10 percent or more other than osteosarcoma, chondrosarcoma, Kaposi's sarcoma, or mesothelioma.
>
> (C) Chloracne or another acneform disease consistent with chloracne becoming manifest to a degree of disability of 10 percent or more within one year after the last date on which the veteran performed active military, naval, or air service in the Republic of Vietnam during the period beginning on January 9, 1962, and ending on May 7, 1975.
>
> (D) Hodgkin's disease becoming manifest to a degree of disability of 10 percent or more.
>
> (E) Porphyria cutanea tarda becoming manifest to a degree of disability of 10 percent

---

[5] Agent Orange Act of 1991, Public Law 102-4, 105 Stat. 11. The citation means that this was only the fourth Public Law enacted during the 102nd Congress (1991-92). You can find this act in Volume 105 of *Statutes at Large,* starting on page 11.

[6] The "Republic of Vietnam" was the official name of South Vietnam.

[7] Applying U.S. domestic law and international law, the "Republic of Vietnam" included the territorial sea of that nation. Like most of the world's nations, then and now, the Republic of Vietnam claimed territorial waters extending 12 miles from the nation's shoreline.

or more within a year after the last date on which the veteran performed active military, naval, or air service in the Republic of Vietnam during the period beginning on January 9, 1962, and ending on May 7, 1975.

(F) Respiratory cancers (cancer of the lung, bronchus, larynx, or trachea) becoming manifest to a degree of disability of 10 percent or more.

(G) Multiple myeloma becoming manifest to a degree of disability of 10 percent or more.

(H) Diabetes Mellitus (Type 2).

(3) For purposes of this section, the term "herbicide agent" means 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.[8]

On an official website, the VA explains the presumption policy as follows:

VA and federal law presumes that certain diseases are a result of exposure to these herbicides [Agent Orange]. This "presumption policy" simplifies the process for receiving compensation for these diseases since VA foregoes the normal requirements for proving that an illness began during or was worsened by your military service…

VA presumes that Veterans were exposed to Agent Orange or other herbicides if they served

*In Vietnam anytime between January 9, 1962 and May 7, 1975, including brief **visits ashore** or service aboard a ship that operated on the **inland waterways** of Vietnam.

*In or near the Korean demilitarized zone anytime between April 1, 1968 and August 31, 1971.

If you fall into either category listed above, you do not have to show that you were exposed to Agent Orange to be eligible for disability compensation for diseases VA presumes to be associated with it.[9]

Those who served as stated above are presumed to have been exposed to Agent Orange. Certain diseases and conditions have a demonstrated higher incidence among persons who were exposed to Agent Orange, as compared to the incidence of those diseases and conditions in the general U.S. population. A person who served in one of the enumerated places and who suffers from one of the enumerated diseases or conditions (even decades later) is presumed to have a compensable service-connected disability.[10]

---

[8] 38 U.S.C. 1116(a). The citation refers to subsection (a) of section 1116 of title 38 of the United States Code.

[9] http://www.benefits.va.gov/compensation/claims-postservice-agent_orange.asp (**emphasis by bold in original)**.

[10] The presumptive diseases and conditions are AL Amyloidosis, Chronic B-Cell Leukemias, Chloracne, Diabetes Mellitus Type 2, Hodgkins Disease, Ischemic Heart Disease, Multiple Myeloma, Non-Hodgkins Lymphoma, Parkinson's Disease, Peripheral Neuropathy (early onset), Porphyria Cutanea Tarda, Prostate Cancer, Respiratory Cancers, and Soft Tissue Sarcomas. http://www.publichealth.va.gov/exposures/agentorange/conditions/index.asp.

After the enactment of the Agent Orange Act, the VA applied the presumption of Agent Orange exposure and causation of diseases and conditions to anyone who served in any branch of the U.S. armed forces (including the Navy) *anywhere in the Vietnam Service Medal Area.*[11] In 1994, the VA substantially amended its regulation and limited the Agent Orange presumption to veterans who served *on the ground* in the Republic of Vietnam or on the *inland waterways* of that nation.

In 1994, the VA made a clear distinction between the "Brown Water Navy" (Navy and Coast Guard vessels serving on the Mekong River and other inland waterways of South Vietnam) and the "Blue Water Navy" (vessels operating off the coast of South Vietnam but often very close to the coast). We believe that the *per se* exclusion of these blue water sailors is based on a fundamental misunderstanding of physics, chemistry, engineering, and the details of naval service during the Vietnam War. We also believe that the exclusion violates the express terms of the 1991 Act of Congress.[12]

One of us (Little) served as a Lieutenant (junior grade) on board *USS EPPERSON* (DD-719), a Gearing-class destroyer, during the Vietnam War. For six months (June through December 1969) while I was on board, the ship operated in the Western Pacific -- off the central coast of South Vietnam (II Corps Area), near Phan Thiet for a period. This was just a few miles north of the mouth of the Mekong River and south of the mouths of the Cai River and the Luy River.

Together with the claim I filed with the VA, I attached a declaration under oath by Robinson Hordoir, PHD, a researcher for the Swedish Meteorological and Hydrological Institute, and agency of the government of Sweden. Dr. Hordoir's statement includes the following paragraphs:

> The object of the Mekong River[13] Delta Plume Study [in which Dr. Hordoir participated] was to model the Mekong River plume and its impact on the coastal waters of southern Vietnam. Most rivers create plumes. A plume is formed when the outflow of fresh water from a river system empties into a larger body of water. The plume, generally speaking, is the area of the larger body that is influenced by the fresh water discharge. The existence of the plume is mostly related to the salinity difference between river water (i.e., fresh water) and that of the larger body that is the sea in most cases. Because of

---

[11] 38 C.F.R. 3.313 (1991). C.F.R. is the abbreviation for the Code of Federal Regulations. The year 1991 is shown in this citation because this regulation was substantially amended in 1994. The Vietnam Service Medal Area extended scores of miles out into the Pacific Ocean and included aircraft carriers and other Navy ships operating in "Yankee Station" and conducting air operations against North Vietnam.

[12] As has been stated, the Agent Orange Act of 1991 expressly applies the Agent Orange presumption to veterans who served in the military, *naval,* or air service "*in the Republic of Vietnam."* When Congress used the phrase "in the Republic of Vietnam" it presumably intended that preexisting U.S. domestic law and international law definitions would apply. Thus, the territorial sea of the Republic of Vietnam (within the 12 mile limit) must be considered to be part of the Republic of Vietnam.

[13] The Mekong River is one of the world's major rivers, comparable to the Mississippi or the Amazon.

> their density difference, river water and sea water do not mix immediately but create a density front. The presence of the front usually creates a coastal current that is influenced by the Earth's rotation (also known as the "Coriolis Force"). … The input of fresh water creates what is called a "baroclinic" current in the coastal area. "Baroclinic" is a term that is used in both ocean and atmospheric dynamics and that refers to this density difference. This baroclinic current is made up of two layers, the upper layer that is a mix of fresh water and seawater, and the lower layer that is mostly seawater. … That mix of fresh water and seawater is the main body of the upper part of the plume. If wind blows in the same direction as the coastal current, or if wind can be neglected, this coastal current becomes "coastally trapped." This means it flows with the coast on its right (in the Northern Hemisphere) and flows parallel to the coast. For major river systems, like the Mekong River, the Amazon or Mississippi, the river's plume can be considerable. Depending upon latitude, on meteorological, oceanographic and other conditions, a river's plume may extend hundreds of kilometers from the river's delta area.

Together with my VA claim, I presented evidence (from *USS EPPERSON* deck logs) that during the period the ship was operating for periods of time well within the 12 mile limit of the Republic of Vietnam[14] and well within the plume of the Mekong River. I presented evidence that the II Corps Area of the South Vietnam (right up to the shoreline) was among the areas most heavily sprayed with Agent Orange, and that was also true of the Mekong River and its tributaries. It is reasonable to conclude that the waters in which we operated contained substantial Agent Orange contamination.

Aboard our ship and other Gearing-class destroyers and on board all steam-powered U.S. Navy ships of that era, seawater was brought on board and soon distilled. Untreated seawater was used for fire-fighting and flushing toilets. "Feed water" for the ship's propulsion system was distilled three times; "potable water" water for the crew was distilled only once. "Feed water" for the propulsion system was distilled three
times, but "potable" water for the crew was distilled only once. Apparently, the preservation of the propulsion system was a higher priority than the health of the crew.

Distillation was used to produce potable water on steam-powered U.S. Navy vessels of that era. Seawater was boiled in the tanks and then the water vapor passed through tubes called "evaporators" into other tanks, where the vapor cooled and returned to the liquid state. We had no way to clean the insides of the evaporators. Eventually, the evaporators were replaced when the ship underwent an overhaul, approximately once every three years for most destroyer classes.

[14] At times, our ship operated within 1000 yards of shore for naval gunfire support and other missions.

During the Cold War decades and beyond, Australia was our country's best and most reliable ally in the Pacific. During the Vietnam War, the Royal Australian Navy (RAN) operated off the coast of the Republic of Vietnam, together with *USS EPPERSON* and other U.S. Navy ships. Three RAN ships were sister ships of U.S. Navy guided missile destroyers (Charles F. Adams class DDGs) — produced at Defoe Shipyard in Bay City Michigan, the United States and with the same design as U.S. Navy ships. A definitive study by Australia's esteemed National Research Centre for Environmental Toxicology (NRCET) showed that RAN sailors of that time period who served off the coast of South Vietnam showed higher rates of the presumptive Agent Orange diseases and conditions than Australian Army and Air Force personnel who served on the ground in South Vietnam in the same time period.[15]

The Executive Summary of the Australian study contains the following pertinent paragraphs:

> During the Vietnam War, large quantities of phenoxy herbicides (Agent Orange) contaminated with 2,3,7,8-tetrachlorobenzodioxin (TCDD), arsenical herbicides (Agent Blue) and organochlorine pesticides were used. There has been concern that exposure to these chemicals may have long-term adverse health effects. TCDD for example is now known to have many toxic effects in humans, including carcinogenesis.
>
> RAN veterans, exposed to chemicals such as the TCDD were unlikely to be related to overhead spraying or other forms of direct contact.
>
> The aim of this study was to investigate the potential for exposure to sailors to contaminants via drinking water. On Navy ships and Army small ships, potable water was produced from evaporative distillation of surrounding estuarine water. This water would have had variable salinity and amounts of suspended solids. It may have also contained contaminants in solution.
>
> The study was carried out in two phases. First, the co-distillation of organic pollutants such as dioxins along with water in ship's distillation units was examined. Phase One results of this study demonstrated that:
>
> *Co-distillation of organochlorine pesticides and dioxins was observable in all experiments conducted;
>
> *In pure or saline water, between 75% and 95% of 2,3,7,8-TCDD was co-distilled with the first 10% of water distilled. Thus, *distillation results in an increase in the contaminant concentration in the distillate;*
>
> *The tendency of several other organochlorines to co-distill was greater than for TCDD. For dioxins a tendency of decrease in co-distillation with increasing molecular mass was

[15] *See* "Examination of the Potential Exposure of Royal Australian Navy (RAN) Personnel to Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans via Drinking Water", a Report to the Department of Veterans Affairs, Australia, dated December 12, 2002. I provided a copy of this scholarly report to the VA as an attachment to my claim. In my case, and in the case of other "blue water" sailors who have filed Agent Orange claims, the VA has contended (not very convincingly) that this study is somehow flawed, but the VA has not offered any credible criticism of this Australian study, nor has the VA cited any other studies with conflicting results.

apparent. Hepta- and octochlorinated dioxins showed little tendency to enrich in distilled water;
*A compound's co-distillation decreased with increasing levels of suspended solids in the water. This can be attributed to the increase in sorption (fugacity) capacity in the source water. At a highest level of 1.44 g total suspended solids in the water about 38% of 2,3,7,8-TCDD co-distilled in the in the first 10% of water distilled. Nevertheless, even at these relatively high levels of suspended solids TCDD was enriched by almost a factor of 4 in the distillate (assuming only 10% of the water is distilled).
*Co-distillation of dioxins and organochorines from water collected from the Brisbane River (water was added to known amount of chemicals of interest) demonstrated that the process is reproducible using estuarine water. In these samples 48-60% of the TCDD co-distilled within the first 10% of distilled water.
Overall, Phase One of the study *clearly demonstrated that if source water is contaminated, co-distillation is a process which can result in contamination of ships' water supplies with chemicals such as dioxins.*
In Phase Two of the study the investigations included the potential co-distillation of the Agent Blue component dimethylarsenic acid, which is now known to be a potent carcinogen.
In addition, experiments were carried out in which the capacity for de-novo synthesis of dioxins from the main components of Agent Orange was evaluated. Evaporative distillation entails heating of the source water using copper elements. Combustion of the components of Agent Orange has great potential to produce dioxins. Moreover, copper (which formed part of the distillation unit) is a known catalyst for dioxin formation.
Finally exposure calculations were carried out for personnel on board ships. These calculations were based on some of the first analytical results from fish samples that were caught in the early 1970s in contaminated waters from Vietnam and analysed in the 1970s for TCDD.
Phase Two results of the study were:
*Dimethylarsenic acid does not co-distill at significant levels during evaporation and thus the drinking water on board RAN ships was unlikely to be contaminated with dimethylarsenic acid;
*No de-novo synthesis of TCDD or any other dioxins from the other components of Agent Orange was detected under the experimental conditions. However, the copper element on board ships was probably significantly hotter than in the simulation experiments selected in the laboratory, and thus these results should not be used as absolute evidence that such formation did not occur in the distillation units of the RAN ships;
**TCDD exposure via drinking water may have been substantial, and it is likely that solely the consumption of drinking water resulted in exposure levels that exceeded the recommended Total Monthly Intake (TMI) values for TCDD of 70 pg/kg bw/month*

> *significantly.* A TMI of 70 pg/kg bw/month is a level set by many European authorities; it is also the level proposed by the draft recommendation of the National Health and Medical Research Council in Australia.
> *Overall the findings of this study demonstrate that evaporative distillation of water does not remove but rather enriches certain contaminants such as dioxins in drinking water. The study provides some evidence that use in the distillation process of water contaminated with TCDD would result in contamination of potable water. Subsequent ingestion by sailors on board ships (as well as soldiers and airmen, who were passengers) is thus a vector for exposure to these chemicals.*[16]

The ship's supply of potable water was contaminated with Agent Orange to a significant degree. We drank that water in the ship's scuttlebutts (water fountains). That water was used in the preparation of food and beverages and for washing dishes and utensils. We showered and shaved and brushed our teeth with that water. Our uniforms and other clothing were washed in seawater and then a final rinse in potable water. Over the course of time, a sailor on board *USS EPPERSON* and other "Blue Water" U.S. Navy ships in that area during that time period would be exposed to a substantial amount of Agent Orange.

Recently, I have suffered from prostate cancer, one of the diseases on the Agent Orange list, and I have filed a VA claim. I have no known family history of predisposition to prostate cancer. Other than the six months on *USS EPPERSON* off the coast of Vietnam in 1969, I have no known occupational or environmental exposure to carcinogens that might explain my prostate cancer. I have spent the majority of my career as a statistician supporting medical research studies on the health effects of new pharmaceuticals and other potentially dangerous products.

Almost a year ago (March 2015), I participated in a hearing before a VA administrative judge. At some trouble and expense, I presented scientific evidence in support of my claim. The VA judge seemed impressed with my evidence but offered no time frame for a decision, and I am still waiting.

This is not just about me, Morgan Little. Thousands of other U.S. Navy sailors of that era also may have valid VA claims for diseases that are attributable to Agent Orange exposure. I have prepared a list of Navy ships and time periods that may be affected. This list will soon be posted at www.destroyers.org/shipslists.

[16] Australian Study, Executive Summary, pages 5-8.