RAINBOW HERBICIDES: A Brief History and Impact

“Tactical Herbicides”
Vietnam and Southeast Asia
1965-1970

Developed for use by Vietnam Veterans of America
Wisconsin State Council’s Toxic Exposure Committee & Education Team - Team Wisconsin

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Preface

The intent of this document is to:
a) provide a brief history of the use of “tactical herbicides” in Vietnam and Southeast Asia,
b) share the impact tactical herbicides have had on Veterans exposed to these chemicals in the U.S. as well as exposure to these herbicides during testing, storage, and shipping,
c) the impact on personnel who dispersed the more than 11 million gallons of Orange herbicide, hereafter referred to as Agent Orange or AO, used from 1965 to 1971” (Perkins Studdard, 2017) and the long-term impact of those tactical herbicides on our Veterans who served in Vietnam and Southeast Asia during the dispersal period, and
d) the impact tactical herbicides with dioxins have had on Veterans, their children, grandchildren, and future generations.

The information provided has been gathered from articles, research, and stories shared by Veterans. Today marks 55 years since the beginning (1964-1975) of the U.S. combat role in Vietnam. According to statistics gathered by The U.S. Wardogs Association, Inc. from 1995 and 2000 census reports during the Vietnam Era:
a) 9.1 million military personnel served on active duty,
b) 8.7 million were on active duty during the war,
c) 2.7 million Americans served in Vietnam,
d) 3.4 million (including .5 million offshore) served in throughout Southeast Asia (i.e., Vietnam, Laos, Cambodia, and Thailand),
e) More than seven thousand women served in Vietnam - 83.5 percent were nurses, and
f) 58,202 Americans were killed in action.

Astonishingly, more than 300 thousand Veterans have died from Agent Orange exposure (i.e., five times the number who died in combat). Moreover, there exists no reliable data as to the actual impact of Agent Orange on U.S. service members, with the exception of Blue Water Navy personnel, Congress has mandated presumptive of herbicide exposure to all Vietnam Veterans, including those serving in the Southeast Asia Theatre of Operations. Therefore, there is a potential all living Veterans who served in Vietnam and a significant number of Veterans who served in theatre have been exposed to the effects of the herbicides and dioxins.

Although research and support in Vietnam since the war has shown the devastating generational impact of Agent Orange the U.S. has not recognized or acted on any findings. Many U.S. Vietnam Veterans exposed to Agent Orange have unsuccessfully sought assistance to aid their children and grandchildren they believe have been affected by their exposure to Agent Orange during their service in Vietnam.

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1 More than 19 million gallons of commercial and tactical herbicides were dispersed in Vietnam and surrounding countries from 1961-1970 (i.e., an estimated 7.7 million gallons of Green, Pink, Purple, Blue, and White and 11.7 million gallons of Agent Orange).
According to A.L. Young (The History, Use, Disposition and Environmental Fate of Agent Orange, 2009) there had been a great deal of confusion as to the type of herbicides used in Vietnam, specifically whether they were commercially available herbicides or “tactical herbicides”. The Defense Department began using herbicides in Vietnam in 1961 (Green) as part of Project AGILE (Brown, 1961) and later that year began using four other tactical herbicides - later labeled Pink, Blue, White, and Purple - all containing varying formulations of 2,4-dichlorophenoxyacetic acid (2,4-D) and 2,4,5-trichlorophenoxyacetic acid (2,4,5-T) and a toxic contaminant - dioxin (2,3,7,8-tetrachloro-dibenzopara-dioxin or TCDD). Using C-123 aircraft deployed to Vietnam under Code Name “Operation Ranch Hand” in 1962, initial aerial spraying resulted in the recommendation of Purple, Pink, and Green as the tactical herbicides. These herbicides were used in Vietnam from 1961 - 1965 when the United States’ role changed from training and supplying the South Vietnamese armed forces to direct combat.

When the U.S. changed to a combat mission in Vietnam the Operational Phase of Operation Ranch Hand ramped up - March 1965 to the beginning of January 1971. During this time Orange or Herbicide Orange was used (1965-70) - named Agent Orange (AO) because of the painted orange band around the drums. Agent Orange II, a more potent form of AO was used from 1968 to 1971, unclear as to the date of its introduction Agent Orange III was added, and later, again no clear date, Enhanced Agent Orange, Orange Plus, or Super Orange (SO) were employed until 1971. While manufacturers of the tactical herbicide Agent Orange had specified formulas, random tests uncovered concentrations 20 times and greater (Aspen Institute, 2019).

What was learned early on in the use of the tactical herbicides was that they remained toxic from a few days to weeks and then degraded; however, the dioxin did not degrade, in fact, the half-life of dioxin in the human body is believed to be 20 years (Aspen Institute, 2019). Thus, the Rainbow Herbicides tested and dispersed in Vietnam was from 1961 to Fall 1971. In all, there were more than 19 million gallons of nine herbicides and tactical herbicides used in Vietnam and an unavailable number of gallons used in the Southeast Asia countries the U.S. included in its theatre of operation. Because of the rapid degradation of the herbicides, multiple dispersals over the same terrain in Vietnam and the surrounding theater of operations were ordered.

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<th>Table 1. Herbicides and Tactical Herbicides used in Vietnam 1961-1971</th>
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The World Health Organization (WHO) (WHO Fact Sheet, 2016) shared that “short-term exposure of humans to high levels of dioxins may result in skin lesions, such as chloracne and patchy darkening of the skin, and altered liver function.” The WHO, in the same report, indicated “long-term exposure is linked to impairment of the immune system, the developing nervous system, the endocrine system, and reproductive functions.” Moreover, a study published in 2012, funded in part by the National Institute of Environmental Health Sciences (Skinner, 2012) concluded their findings on the health effects of dioxins “have implications for human populations exposed to dioxins…which increases in adult onset, with the potential to transmit to later generations.” The study further indicated the transgenerational effects of dioxin exposure. Skinner’s laboratory findings have been borne out by anecdotal reports of Vietnam Veterans’ stories in “Faces of Agent Orange” published by Vietnam Veterans of America. In each of these stories, Vietnam Veterans have shared their stories of the physical, educational, and emotional anomalies that have plagued their children and grandchildren.

An estimated 2.8 million Americans served in Vietnam, 58,220 were killed, and more than 300,000 have died from Agent Orange exposure with an unknown number dying. Sadly, the legacy of Vietnam is it is the war that continues to kill our Veterans and has brought an untold number of their physical, educational, and emotional illnesses on their progeny.