

Symposium Proposal

Assessment of Friendly Ground Forces Exposure to Herbicide Spraying in Vietnam

John F. Guilmartin, Jr., Paul F. Cecil, Sr., and Alvin L. Young

In the over thirty years since the end of the Vietnam conflict approximately one out of four American veterans who served in-country have claimed to suffer from detrimental health problems after having been exposed to contamination ~~from the~~ herbicides sprayed in South Vietnam as part of the **US Air Force** defoliation ~~and/or~~ **and** crop destruction program ~~of the USAF~~ (code named Operation RANCH HAND). These veterans have asked for special assistance and/or compensation from the federal government to counteract the damage to their lifestyles. ~~The same~~ **Similar** claims and demands have appeared among the veterans of other allied countries in the conflict, ~~such as~~ **notably** South Korea, Australia, and New Zealand.

Unfortunately, self-identification is a very weak basis for developing the kind of epidemiological studies necessary to determine the validity and extent of exposure and subsequent health effects. The only groups whose exposure could be accurately documented by time and type were the RANCH HAND members who handled the herbicides on a daily basis and US Army Chemical Corps personnel who stockpiled and subsequently destroyed the post-war stocks of military herbicides. Several studies mandated and funded by Congress over the last twenty-five years have failed to identify dioxin (TCDD) as a causal factor in most health defects of even these high exposure veterans, which correlates closely with earlier studies of several major industrial accidents involving significant dioxin exposure. This has not satisfied the demands of veterans nor stilled the public media outcry.

Re-examination of Vietnam-era records and procedures indicates that direct exposure of friendly forces to herbicides sprayed by USAF aircraft was highly unlikely. Application weather requirements precluded significant drift from planned target application, ~~which is~~ **a statement** confirmed by post-spray aerial photography. Due to extensive enemy opposition and concerns for the safety of the RANCH HAND aircrews, Forward Air Controllers (FACs) and fighters were required to accompany the RANCH HAND aircraft in the target areas and the targets were required to be "free-fire" zones, free of friendly ground troops so that the fighters could expend their munitions as needed. Contemporary records documenting large numbers of mission cancellations "due to friendly forces in the area" and a complete lack any report of casualties from "friendly fire" in association with a RANCH HAND mission indicate how strictly these safety procedures were followed, thus precluding the presence of friendly forces in the vicinity of spray targets.

Equally unlikely was significant exposure to forces entering previously sprayed areas. The mechanisms of dissipation and degradation of the contaminated herbicide as it relates to environmental distribution and bioavailability indicate that in tropical forest canopy areas less than 6 percent of the total aerial spray would have reached the forest floor and, in any case, that Agent Orange would have been absorbed into the wax layer of the plant

cuticle within minutes of spraying and could not be dislodged. Furthermore, photolysis by sunlight would have rapidly decreased the concentration of TCDD available in leaf and soil surfaces. Since the purpose of defoliation was to improve combat visibility and expose enemy forces, which took a number of days after spraying to occur, therefore an appreciable period took place before friendly forces could safely move into sprayed areas. Under these circumstances studies indicate that post-spray exposure would have been rare and generally non-repetitious. As a result dioxin concentration in the tissues of ground troops who served in Vietnam would have been small and indistinguishable from normal background levels.

In a final analysis it seems clear ~~[is clear?]~~ that the health of many veterans who served in Vietnam has been ~~effected~~ affected by that service. The question is as to the causal factor. If it is not through the mechanism of exposure to dioxin contamination from military herbicides, ~~as we believe~~, then the questions as to what has impacted these veterans remains open. ~~The best available evidence indicates that~~ ~~It appears that the~~ emotionally and politically directed programs have spent millions of dollars and some 25 years on studies trying prove one prejudged issue at fault, rather than conduct an open and unbiased search for the true reason for the problems of the Vietnam veterans.

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In the over thirty years since the end of the Vietnam conflict approximately one out of four American veterans who served in-country have claimed to suffer from detrimental health problems after having been exposed to contamination from the herbicides sprayed in South Vietnam as part of the US Air Force defoliation and/or crop destruction program of the USAF (code named Operation RANCH HAND). These veterans have demanded special assistance and/or compensation from the federal government to counteract the damage to their lifestyles. The same Similar claims and demands have appeared among the veterans of other allied countries in the conflict, such as notably South Korea, Australia, and New Zealand.

Unfortunately, self-identification is a very weak basis for developing the kind of epidemiological studies necessary to determine the validity and extent of exposure and health effects. The only groups whose exposure could be accurately documented by time and type were the RANCH HAND members who handled the herbicides on a daily basis and US Army Chemical Corps personnel who stockpiled and subsequently destroyed the post-war stocks of military herbicides. Several studies mandated and funded by Congress over the last twenty-five years have failed to identify dioxin (TCDD) as a causal factor in most health defects of even these high exposure veterans, which correlates closely with earlier studies of several major industrial accidents involving significant dioxin exposure. This has not satisfied the claims of veterans nor stilled the public media outcry.

Re-examination of Vietnam-era records and procedures indicates that direct exposure of friendly forces to herbicides sprayed by USAF aircraft was highly unlikely. Application weather requirements precluded significant drift from planned target application, which is a statement confirmed by post-spray aerial photography. Due to extensive enemy opposition and concerns for the safety of the RANCH HAND aircrews, Forward Air Controllers (FACs) and fighters were required to accompany the RANCH HAND aircraft in the target areas and the targets were required to be "free-fire" zones, free of friendly ground troops where the fighters could expend their munitions as needed. Contemporary records documenting large numbers of mission cancellations "due to friendly forces in the area" and a complete lack any report of casualties from "friendly fire" in association with a RANCH HAND mission indicate how strictly these safety procedures were followed, thus precluding the presence of friendly forces in the vicinity of spray targets.

Equally unlikely was significant exposure by forces entering previously sprayed areas. The mechanisms of dissipation and degradation of the contaminated herbicide as it relates to environmental distribution and bioavailability indicate that in tropical forest canopy areas less than 6 percent of the total aerial spray would have reached the forest floor and, in any case, that Agent Orange would have been absorbed into the wax layer of the plant cuticle within minutes of spraying and could not be dislodged. Furthermore, photolysis

by sunlight would have rapidly decreased the concentration of TCDD available in leaf and soil surfaces. Since the purpose of defoliation was to improve combat visibility and this took a number of days after spraying to occur, an appreciable period took place before friendly forces moved into sprayed areas. Under these circumstances studies indicate that the dioxin concentration in ground troops who served in Vietnam would have been small and indistinguishable from background levels.

~~It appears~~ **It seems clear [is clear?]** that the health of **many** American veterans who served in Vietnam has been ~~effected~~ **affected** by that service. The question is as to the causal factor. If it is not through the mechanism of exposure to dioxin contamination in military herbicides, **as we believe**, then the questions remains open. **The best available evidence indicates that** ~~It appears that~~ the politically directed programs have spent millions of dollars and some 25 years on studies to prove one prejudged factor at fault, rather than conduct an open and unbiased search for the reason for the problems of its veterans.