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February 10, 2020

Hon. Robert L. Wilkie
Secretary of Veterans Affairs
810 Vermont Ave., NW
Washington, DC 20420

Re: Amplification of rulemaking request concerning the presence of herbicide and veteran exposure in Thailand.

Dear Mr. Secretary:

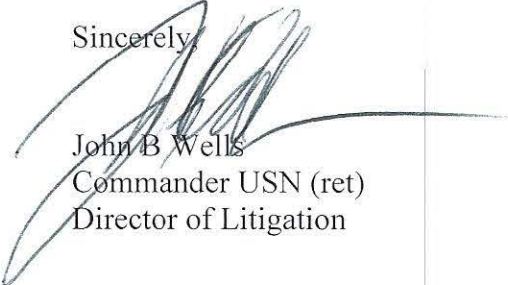
I write in amplification of our rulemaking request dated January 3, 2020 concerning the extension of the presumption of exposure to herbicide to those veterans serving at Royal Thai Air Force bases in Thailand during and after the Vietnam era. Military-Veterans Advocacy believes that you have the authority to grant such rulemaking under the provisions of 38 U.S.C. §§ 1110, 1113(b) and 1116(a)(3).

In addition to the evidence referenced in our January 3, 2020 letter, I am enclosing an expert opinion from Dr. Wayne Dwernychuk, an environmental scientist and Agent Orange specialist. I have also enclosed Dr. Dwernychuk's resume to establish his credentials.

Please consider this additional information as part of our rulemaking request.

Thank you for your consideration.

Sincerely,


John B. Wells
Commander USN (ret)
Director of Litigation

TO WHOM IT MAY CONCERN

JANUARY 22, 2020

Re: Thailand military bases – Exposure to TCDD(DIOXIN) during military service

I have been asked to provide a professional opinion on the probability of dioxin (2,3,7,8-Tetrachlorodibenzo-*p*-dioxin or TCDD) exposure of US military personnel on US military installations in Thailand where Agent Orange (AO) was used. AO was a 50:50 mixture of two phenoxy herbicides, 2,4-D and 2,4,5-T. The 2,4,5-T fraction contained the TCDD dioxin impurity generated during this herbicide's manufacturing process.

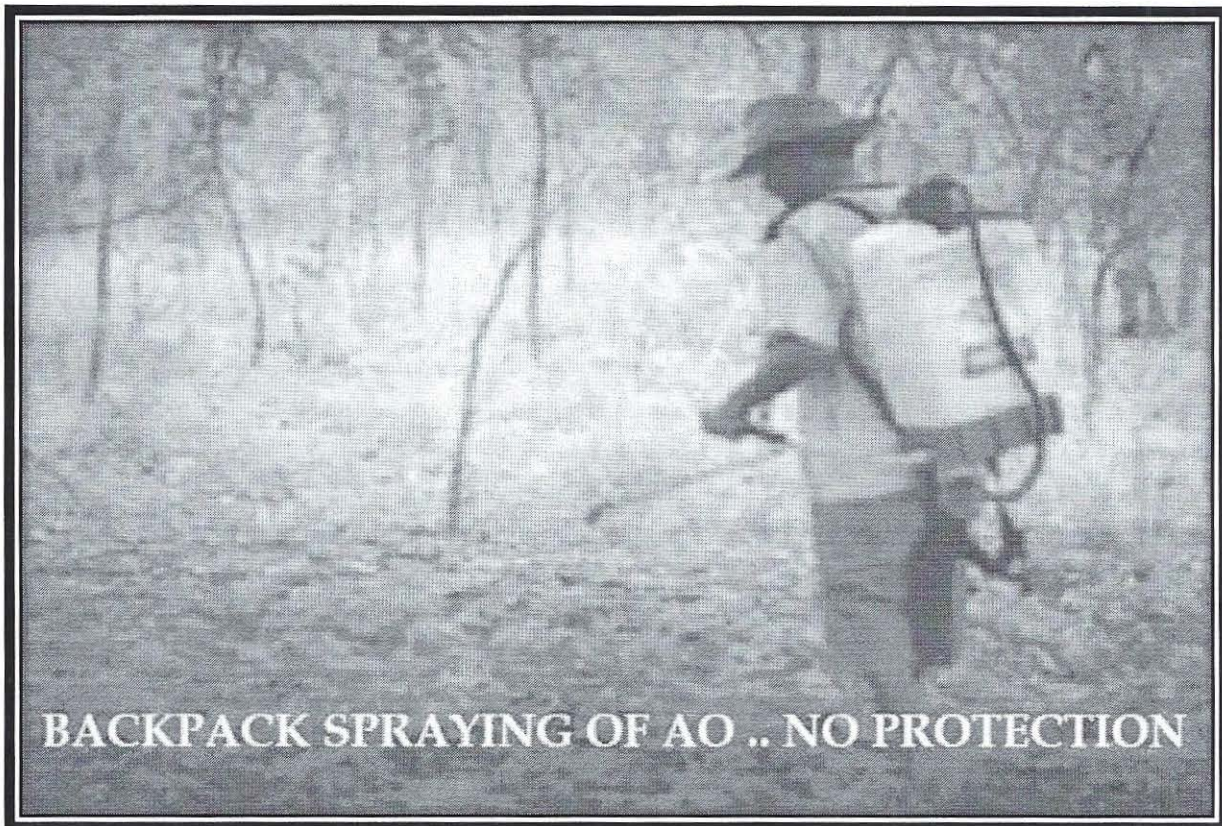
My understanding is (*pers. comm.*, CDR J. B. Wells U. S. Navy [Retired]; William L. Rhodes, Jr., Staff Sargent, Marines)

- The CHECO Report of 1973 (*Contemporary Historical Examination of Current Operations Report for Base Defense in Thailand*) clearly states that part of the security operations included the use of herbicides for vegetation control on all Royal Thailand Air Force Bases.
- There existed over 50 US military bases in Thailand. This does 'not' include specialty installations like radar, radio, artillery, etc. These 'other' installations were also subject to herbicide use.
- The USMACTHAI 210-10 regulation from the Dept. of Defense applied to all armed forces in Thailand, where it states: "*Foliage at the perimeter and within the confines of installations [my emphasis] must be controlled to enforce security and reduce fire hazards. Vegetation control can be accomplished by methods such as cutting, plowing [sic], burning, spraying of oil, and application of herbicides (an agent used to destroy and inhibit plant growth.*"
- The USMACTHAI 210-10 regulation also states that strong justification must exist for the approval of herbicide use on all military installations.

- Herbicides were used on the perimeters and within the confines of each military base in Thailand where alternate methods of control were not appropriate or effective.
- As confirmed and acknowledged by the Department of Veterans Affairs, Center for Disease Control, and other medical and scientific communities, it is immaterial whether the herbicides were called 'tactical' or 'commercial'. These designations represent a distinction without a difference as both contained 2, 4-D, 2,4,5-T and the unintended by product of 2,3,7,8-TCDD (see GAO Report *Agent Orange, Actions Needed To Improve Accuracy and Communication of Information on Testing and Storage Locations*, GAO 19-242, Nov. 2018).
- The Army Field Manual 3-3 *Tactical Employment of Herbicides* discusses the susceptibility of herbicide spraying to the effects of wind drift. The Army Field Manual recommended that ground dissemination systems, which were primarily used in Thailand, maintain a 500 meter (546.8 yards) buffer area.



- The herbicide was mixed with diesel fuel at the rate of 5 gallons of agent to 50 gallons of diesel fuel. The diesel fuel permits better adherence to vegetation. Unfortunately, it also adhered to the shoes of personnel and any equipment, vehicles or containers crossing the perimeter. Spray drift could also settle on clothing. Moving equipment vehicles or containers into the base would result in the herbicide being transported into the base interior. It is noteworthy that personnel spraying AO wore no protective clothing or appliances like face masks. This was undoubtedly related to the consensus during those periods that AO was harmless.



- Personnel stationed on the perimeter or even crossing the perimeter would track the petroleum-herbicide mixture of AO into the base proper ... this would include barracks, eating facilities, latrines, offices, and warehouses.

- Many barracks backed on to the sprayed perimeters and were definitely within the 500 meter buffer. Spray drift could easily enter barracks through open windows, doors, etc.
- Many veterans with duties other than herbicide applications, would move freely throughout the installations where AO was applied.
- As with all of these bases, there were common laundries, showers and latrines.

My personal experience, regarding Agent Orange investigations, is summarized in my CV (accompanying this document). I served as the Chief Scientist on numerous scientific studies in Vietnam documenting the impact of Agent Orange/TCDD on local natural environments and associated human populations living near AO storage areas, and within and in close proximity to areas sprayed with AO. My tenure on these research programs extended from 1994 through 2006, with an advisory role following retirement. Continuation of my personal efforts regarding Agent Orange extend to the present ... 2020.

A highly significant fact involving TCDD is the persistence of this contaminant in the natural environment. Hatfield Consultant studies in the late 1990s involved the collection of ploughed-field soils in the A Luoi Valley; this being the A Chau Valley, named so during the conflict.

These agricultural fields were ploughed for agricultural purposes by local hill-tribes people a number of times per year. Within the Valley, *per se*, there were no industrial developments which may have generated 'confounding' variables as to the origin of TCDD. Our data show that nearly 30 years following the cessation of hostilities, TCDD remained in the surface soils of these ploughed fields and unquestionably originated as a result of applications of AO during the conflict (*see* Hatfield Consultant studies).

Paustenbach *et al.* (1992) in his research, concluded that TCDD originating from AO can remain in soil for well over 100 years. On this basis, I have no

hesitation stating that during the tenure of US military personnel living/working on any of the Thai bases were exposed to TCDD dioxin, as likely as not. The fact that herbicide applications were throughout each base and not limited to base perimeters, the probability of exposure to TCDD dioxin would increase significantly. I would venture to say that if samples of soils in the areas heavily sprayed were taken today, there is a very high probability TCDD would be detected in the top 10 cm of the soil fraction. My work in Vietnam indicated that this soil fraction (top 10 cm) proved to be the primary location for TCDD accumulation (*see* Hatfield Consultant studies).

There exist three avenues of dioxin entrance into the human body ... inhalation, dermal absorption, and ingestion. In the case of inhalation, winds undoubtedly caused fine sediments in the treatment areas to be carried by winds around the bases with military personnel breathing in fine particulates. The TCDD molecule is adsorbed onto fine inorganic particulate matter, and absorbed into fine organic materials, which in turn can be inhaled. Similarly, contaminated particulate matter settling on human skin could result in dermal absorption of dioxin into the body.

Tracking contaminated soils into mess halls, along with contaminated dust particles on clothing, and other facilities also adds to the increasing probability of exposure to TCDD. The relative level of exposure cannot be ascertained given the situation as it stands today is that no TCDD data on environmental levels on these Thai bases exist.

I am confident in concluding that any US military personnel serving on Thai bases were exposed to the toxic compound TCDD/DIOXIN. Perimeter spraying and entire base spraying of AO provided ample opportunity of personnel to come in contact with the toxin and it being incorporated into their bodies. TCDD has a very high affinity for fatty materials in the human body. Consequently, dioxin would accumulate in the liver, blood of exposed individuals, and any high-fat concentration organ.

My assessment is based solely on science and direct experience in Vietnam and Canada addressing TCDD contamination of the environment, food

materials, human blood, and human breast milk. Various studies focussing on these topics may be perused in Hatfield Consultants reports.

CITATIONS

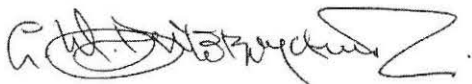
Commander J. B. Wells U. S. Navy (Retired),
Attorney at Law,
Chairman of the Board and Director of Litigation,
Military-Veterans Advocacy, Inc.

Hatfield Consultants.

<https://www.hatfieldgroup.com/services/contaminant-monitoring-agent-orange/hatfield-agent-orange-reports-and-presentations/>

Paustenbach, et al., 1992. Recent developments on the hazards posed by 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin in soil: Implications for setting risk-based clean-up levels at residential and industrial sites. *Jour. of Toxicology and Environmental Health* 36:103-149

William L. Rhodes, Jr.,
Staff Sargent, Marines,
Board of Directors,
Section Chief for Veterans of South East Asia,
Military-Veterans Advocacy, Inc.
With respect ...



Dr. Wayne Dwernychuk

Environmental Scientist: Agent Orange Specialist
RETIRED (Sr. V.P. ... Hatfield Consultants)
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920 Shorewood Drive
Parksville, BC
V9P 1R9
CANADA

CAREER SYNOPSIS: [LinkedIn](#)

Contact

www.linkedin.com/in/dr-wayne-dwernychuk-38b06b39 (LinkedIn)

Top Skills

Research
Strategic Planning
Environmental Awareness

Publications

"Dioxin hot spots in Viet Nam"
Dioxin reservoirs in southern Viet Nam – a legacy of Agent Orange
The Agent Orange Dioxin Issue in Viet Nam: A Manageable Problem

Dr. Wayne Dwernychuk

Environmental Scientist: Agent Orange Specialist
Parksville, British Columbia, Canada

Summary

Dr. Dwernychuk has designed, implemented, and authored numerous environmental assessment and monitoring studies/ reports for over 35+ years. The impact of industrial developments on physical/chemical/biological components of ecological systems constitutes a major segment of his expertise. He has been involved in environmental programs in Canada and internationally.

Early on in Dr. Dwernychuk's career, he, through his M.Sc. research on island-nesting waterfowl, documented peculiar behavioral patterns in the selection of nesting habitat. In 1972, he and his research advisor formulated the concept of the ECOLOGICAL TRAP. Ecological traps are scenarios in which rapid environmental change and certain ecological factors lead organisms to select poor-quality habitats, which may result in detrimental consequences for that wildlife species. More on the ecological trap concept : http://en.wikipedia.org/wiki/Ecological_trap .

He served as PRINCIPAL SCIENTIST for Hatfield Consultants' studies in Viet Nam from 1994 through 2006 addressing the impact of AGENT ORANGE/DIOXIN on the environment and human populations exposed to the toxicant. Mitigative strategies were developed to address chemical contamination in these populated areas.

Dr. Dwernychuk was involved in Hatfield Consultants' investigation in Viet Nam focusing on landmines and unexploded ordnance which was an integrated approach to landmine/unexploded ordnance clearance in areas also contaminated with war chemicals (i.e., herbicides).

He also served as DIRECTOR/SENIOR SCIENTIST for Hatfield Consultants' joint-venture companies in Indonesia (PT Hatfindo Prima) and Thailand (Pro-En Envirosiences Ltd.). He retired from his position as SENIOR VICE PRESIDENT and MAJOR

SHAREHOLDER of Hatfield Consultants in November 2006. He continues to serve as SENIOR SCIENTIFIC ADVISOR to Hatfield Consultants.

Experience

Hatfield Consultants Ltd.

36 years 2 months

RETIRED

2006 - Present (14 years)

SENIOR SCIENTIST/SENIOR VICE PRESIDENT

January 1984 - November 2006 (22 years 11 months)

Beak Consultants Ltd.

ENVIRONMENTAL BIOLOGIST

May 1975 - January 1984 (8 years 9 months)

VANCOUVER, BC

Education

BOYLE ELEMENTARY, BOYLE, AB, CANADA

· (1950 - 1958)

H. A. KOSTASH HIGH SCHOOL, SMOKY LAKE, AB, CANADA

· (1958 - 1963)

UNIVERSITY OF ALBERTA, EDMONTON, AB, CANADA

HONS. B.SC. & M.SC., Zoology/Animal Biology · (1963 - 1969)

UNIVERSITY OF REGINA, SK, CANADA

PH.D., Biology/Biological Sciences · (1969 - 1975)