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**RACHEL'S HAZARDOUS WASTE NEWS #212**

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## **REPORT LINKS HERBICIDE EXPOSURE TO ILLNESSES AMONG VIETNAM VETS.**

For more than a decade Vietnam veterans have sought compensation for illnesses they believe were caused by their wartime exposure to herbicides, which were used heavily during the war to defoliate the jungle, to reduce available cover for enemy troops. U.S. soldiers and airmen who prepared, handled or sprayed the herbicides, and ground troops who were doused, have been routinely denied compensation by the federal Department of Veterans Affairs (VA) because the VA has taken the position that there is not enough scientific evidence linking herbicide exposure to disease.

Now an independent scientific review sponsored by the American Legion, the Vietnam Veterans of America, and the National Veterans Legal Services Project has concluded that there is a "significant statistical association" between exposure to chemical herbicides and several serious illnesses. According to the April, 1990, report of the Agent Orange Scientific Task Force, there is "a significant statistical association" between exposure to the herbicide Agent Orange and various cancers (non-Hodgkin's lymphoma and soft tissue sarcomas), serious skin disorders (chloracne), and liver disorders. The Task Force said, "The aggregate interpretation of several sound studies showing a statistically significant association for each of these conditions makes this conclusion inescapable." Agent Orange was the military code name for the chemical herbicide used most often in Vietnam to defoliate the jungle. Agent Orange was a chlorinated phenoxy herbicide made up of two common weed killers, 2,4,5-T and 2,4-D, both of which are routinely contaminated with dioxins during manufacture. Anyone exposed to Agent Orange is presumed to have been exposed to dioxins.

When a scientist says there is a "significant statistical association" between one event (such as exposure to an herbicide) and another event (such as the onset of illness), he or she means it is very unlikely that the two events occurred together by random chance; it is much more likely that the two events occurred together for a reason. (What is meant by "very unlikely" differs from study to study; often "very

unlikely" means there is less than a 5% probability that the observed relationship occurred by random chance; sometimes "very unlikely" means there was less than a 1% probability that the observed relationship occurred by random chance. In each individual study, the author decides which definition of "very unlikely" he or she will use.)

The 1990 report is based on a review of 285 different published studies of human exposure to phenoxy herbicides and/or dioxins, all appearing in scientific journals from 1978 onward. The 285 studies are listed on pages 49-75 of the 1990 report; the list provides a unique resource for anyone seeking additional information on phenoxy herbicide effects on humans. The VA does not allow consideration of animal studies, so only human data were evaluated for the 1990 report. However, to make the point that animal studies are universally recognized as valid evidence for human cancer risk, the 1990 report contains an appendix in which various scientists and government agencies are quoted saying that animal studies provide valid evidence for those trying to understand human cancers in relation to chemical exposures. This appendix (pgs. 42-48 of the 1990 report) is a unique resource for citizens trying to make the case that animal studies should be heeded in public policy decisions involving human exposure to chemicals.

The 1990 report concludes further that three additional health effects "are at least as likely as not" to be associated with exposure to phenoxy herbicides: Hodgkin's disease (a cancerous enlargement of the lymph nodes, spleen, and general lymphoid tissues, which usually appears first in the neck), neurologic effects, and reproductive and developmental disorders.

The observed reproductive and developmental disorders include (a) low sperm count among Vietnam vets compared to a control group of non-Vietnam veterans; (b) increased incidence of spontaneous abortion among wives of Vietnam vets; (c) increased incidence of birth defects in children of Vietnam vets, including skin defects, nerve defects, heart defects, kidney defects, and oral clefts (cleft lip and cleft palate).

The conclusion that these illnesses are "at least as likely as not" to occur from Agent Orange exposure is important within the VA because the VA's rules for compensation require a finding that a disease is "as likely as not" to occur from a chemical exposure before that disease becomes compensable.

The report concludes further that there is "sound scientific evidence of an association with exposure to agent orange, but the evidence does not reach the level of formal statistical significance for the following additional effects:" cancers of the kidney, testicles, stomach, prostate, colon, hepatobiliary tract (liver and related systems), brain, and blood-forming cells (leukemia); psychosocial effects; immune system disorders; gastrointestinal ulcers; and altered lipid metabolism (the body's ability to digest and handle fats and some oils).

Authors of the report (the Agent Orange Scientific Task Force) are seven prominent independent scientists and physicians: Richard W. Clapp, Barry Commoner, John D. Constable, Samuel S. Epstein, Peter C. Kahn, James R. Olson, and David M. Ozonoff.

This is an important report because the issue of compensation for Vietnam vets is merely the tip of an enormous iceberg. The components of agent orange (2,4,5-T and 2,4-D) are both still widely used in the United States for clearing rights of way beneath power lines and along highways; rain then carries the chemicals into water supplies. Many homeowners use these chemicals (knowingly or not) to kill lawn "pests" (broad-leaf plants such as crab grass and dandelions). Farmers use them extensively for weed control. Thus exposure to these chemicals is very widespread among the American people.

Since the 1990 report appeared (in April), the VA has reversed itself and declared that soft tissue sarcomas and non-Hodgkin's lymphomas in Vietnam vets are compensable. The VA's Advisory Committee on Environmental Hazards continues to study the relationship of other diseases to Agent Orange exposures among vets.

Get: HUMAN HEALTH EFFECTS ASSOCIATED WITH EXPOSURE TO HERBICIDES AND/OR THEIR ASSOCIATED CONTAMINANTS -CHLORINATED DIOXINS (Washington, DC: National Veterans Legal Services Project [2001 S Street, NW, Washington, DC 20009-1125; phone 202/265-8305], April, 1990); 41 pages, plus 33 pages of useful appendices; \$10.00 plus \$3.00 shipping.

--Peter Montague, Ph.D.

Descriptor terms: vietnam veterans; studies; agent orange; cancers; skin disorders; liver disorders; 2,4,5-t; 2,4-d; dioxin; herbicides; health effects; birth defects; nervous system; heart; kidneys; immune system; pesticides;

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