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Corporate Author

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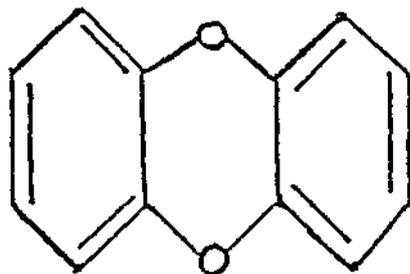
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Description Notes Appears to be printouts from a slide presentation.

SEP 28 1983

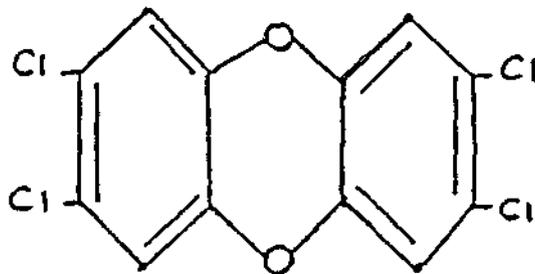
**USE OF HERBICIDES IN VIETNAM
1961-1971**

A dioxin is any of a family of compounds known chemically as dibenzo-para-dioxins.



There are 75 different chlorinated dioxins.
There are 22 different tetra isomers

Dioxin of Concern = 2,3,7,8-TCDD



TOXICITY OF 2,3,7,8-TCDD

<u>Acute Toxicity:</u>	<u>Single Dose LD₅₀ (µg/kg)</u>
Guinea Pig	0.6
Rat	40
Rabbit	115
Monkey	70
Dog	150
Mouse	200
Hamster	3500
Bullfrog	Over 1000
Man	No deaths reported in literature
Teratogenic (Birth Defects)	
Mouse	Cleft palate, kidney abnormality
Other species	Embryo-and Fetotoxic
Mutagenic (Mutation)	Probably not a mutagen in higher animals
Carcinogenic (Cancer)	Liver, lung and oropharynx cancer noted in rats
Significance:	Bioavailability on Environmental matrices

EXPOSURE TO AGENT ORANGE CAN

NEVER BE QUANTIFIED!

HOWEVER

AN INDEX FOR LIKELIHOOD OF EXPOSURE

HAS BEEN DEVELOPED

EPIDEMIOLOGY IS THE STUDY OF THE FREQUENCY
AND CAUSE OF DISEASE IN HUMAN POPULATIONS.

- CASE-CONTROL STUDY - SUBJECTS (CASES) ARE SELECTED FOR HAVING A PARTICULAR DISEASE AND CONTROL SUBJECTS ARE SELECTED ON BASIS OR ABSENSE OF DISEASE. THE EXPERIENCES OF THE TWO GROUPS ARE COMPARED.
- COHORT STUDY - STUDY POPULATION IS SELECTED ON THE BASIS OF KNOWN EXPOSURE AND KNOWN NON-EXPOSURE AND IS EXAMINED FOR THE PRESENCE OF DISEASE.

HOW DO WE REACH A SCIENTIFIC CONSENSUS?

CONSENSUS WILL BE ACHIEVED WHEN:

- EPIDEMIOLOGICAL DATA ARE STATISTICALLY SIGNIFICANT
- RESEARCH FINDINGS CAN WITHSTAND THE SCRUTINY OF PEER REVIEW
- AND RESEARCH RESULTS CAN BE DUPLICATED BY OTHER INVESTIGATORS.

ARE THERE ANY DISEASES ON WHICH THE
MEDICAL COMMUNITY HAS REACHED CONSENSUS AS
BEING ASSOCIATED WITH DIOXIN EXPOSURE?

YES1

- Chloracne
- Temporary Health Effects

CHLORACNE - SKIN CONDITION, RESEMBLING COMMON
ACNE, WHICH APPEARS WITHIN A FEW WEEKS OF
EXPOSURE TO DIOXIN AS WELL AS SOME OTHER
CHLORINATED CHEMICAL COMPOUNDS.

OTHER CONDITIONS REPORTED IMMEDIATELY
AFTER DIOXIN EXPOSURE AND THAT ARE TEMPORARY

ABNORMAL LIVER FUNCTIONS

HEADACHE

APATHY

FATIGUE

MUSCLE PAIN

JOINT PAIN

SEXUAL DYSFUNCTION

LOSS OF APPETITE

WEIGHT LOSS

SLEEP DISTURBANCES

DECREASED LEARNING
ABILITY

DECREASED MEMORY

TINGLING IN EXTREMITIES

WHAT ARE THE LONG-TERM HEALTH ISSUES
WHICH HAVE BEEN ATTRIBUTED TO THE USE
OF AGENT ORANGE IN VIETNAM?

- Skin disorders including chloracne and PCT
- Birth Defects and Miscarriages
- Increased Death Rate
- Development of unusual or rare cancers
- Dioxin in human tissue as a cause of future disease

**HAS CHLORACNE BEEN DOCUMENTED
IN VIETNAM VETERANS?**

**PRESENT STATUS: INITIAL REVIEW OF OVER 3,000
VIETNAM VETERAN CLAIMS REVEALED
NO DEFINITE CASES OF CHLORACNE.**

ON-GOING STUDIES: AIR FORCE HEALTH STUDY-JAN 1984

ARE VIETNAM VETERANS MORE
LIKELY TO HAVE CHILDREN
WITH BIRTH DEFECTS?

PRESENT STATUS: EPA ARKANSAS STUDY-1979
NIOSH NEW YORK STATE STUDY
1979
NEW ZEALAND HERBICIDE
APPLICATORS-1982
AUSTRALIAN BIRTH DEFECTS
STUDY-1983

PRESENT CONCLUSION: MEN AND WOMEN ARE AT
NO INCREASED RISK

ON-GOING STUDIES: CDC/DOD/VA BIRTH DEFECTS
STUDY-JAN 1984
AIR FORCE HEALTH STUDY-JAN 1984

ARE VIETNAM VETERANS DYING IN
INCREASED NUMBERS, AT EARLIER
AGES OR FROM UNEXPECTED CAUSES?

STUDIES COMPLETED: FOUR INDUSTRIAL HEALTH
STUDIES-1980-1983
FINLAND MORTALITY STUDY OF
HERBICIDE APPLICATORS-1982
AIR FORCE HEALTH STUDY-
BASELINE MORTALITY-1983

PRESENT CONCLUSION: NO EVIDENCE OF INCREASED
DEATH RATE

ON-GOING STUDIES: NEW YORK STATE MORTALITY STUDY
(JAN 1984)
VA MORTALITY STUDY (DEC 1984)

ARE VIETNAM VETERANS MORE LIKELY TO DEVELOP
CONNECTIVE TISSUE CANCER (SOFT TISSUE SARCOMA)?

COMPLETED STUDIES: SWEDISH SOFT TISSUE SARCOMA (STS)
STUDIES-1978-1983

NEW ZEALAND STS STUDY-1982

FINLAND CANCER STUDY-1982

INDUSTRIAL STUDIES-1980-1983

PRESENT CONCLUSION: NO CONSENSUS

ON-GOING STUDIES: NCI STUDIES IN KANSAS,
WASHINGTON, MINNESOTA-1984/85

VA/ARMED FORCES INSTITUTE OF
PATHOLOGY (VIETNAM VETERAN
STUDY)-1985

CENTERS FOR DISEASE CONTROL
STUDY-1985

NIOSH INVESTIGATION-1985

NEW YORK STATE DEPARTMENT OF
HEALTH-1984

ARE VIETNAM VETERANS MORE LIKELY
TO DEVELOP OTHER FORMS OF CANCER?

COMPLETED STUDIES: FINLAND CANCER STUDY-1982
SWEDISH RISK EVALUATION OF
PESTICIDES-1982
NCI FLORIDA PESTICIDE
APPLICATOR STUDY-1983
INDUSTRIAL STUDIES-1980-1983

PRESENT CONCLUSION: NO CONSENSUS

ON-GOING STUDIES: AIR FORCE HEALTH STUDY-1984
NIOSH DIOXIN REGISTRY-1985
CDC AGENT ORANGE EPIDEMIOLOGIC
STUDY-1987

DO VIETNAM VETERANS WHO WERE EXPOSED
TO AGENT ORANGE HAVE RESIDUAL LEVELS
OF DIOXIN IN THEIR BODY TISSUE? IF SO,
IS IT LIKELY TO CAUSE ANY HEALTH PROBLEMS?

STUDIES COMPLETED: VA FEASIBILITY STUDY

PRESENT CONCLUSIONS: SMALL AMOUNTS OF DIOXIN
CAN BE DETECTED

NO CORRELATION BETWEEN
DIOXIN LEVEL, EXPOSURE
OR HEALTH

ON-GOING STUDIES: VA/EPA DIOXIN AND FURAN STUDIES
OF HUMAN ADIPOSE TISSUE

ARE THERE OTHER HEALTH PROBLEMS
PECULIAR TO VIETNAM VETERANS?

ON-GOING STUDIES: AIR FORCE HEALTH STUDY-1984
CDC EPIDEMIOLOGIC STUDIES-1987
VA VIETNAM EXPERIENCE TWIN STUDY
1986

OTHER RELATED EFFORTS: VA AGENT ORANGE REGISTRY
VA PATIENT TREATMENT FILE

COMPONENTS OF THE FEDERAL STUDIES

ON-GOING HEALTH SURVEILLANCE

MORTALITY

MORBIDITY

SOFT TISSUE SARCOMAS/LYMPHOMAS

REPRODUCTIVE PROBLEMS

TCDD IN HUMAN ADIPOSE

INFORMATION DISSEMINATION