

Monsanto

FROM  
(NAME-LOCATION-PHONE)

D. R. Bishop - F3EE - 4-2891

DATE : October 27, 1983

cc. J. F. Hussey - F3EA  
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SUBJECT :

REFERENCE :

TO : R. T. Berendt - E2ND  
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W. D. Carpenter - G3WG  
W. G. McCarville - G3WG  
G. Roush - G2WG

OCT 28 1983


As you may know, we have been offered the opportunity to provide a general article on dioxin for the Post-Dispatch Special Supplement, now scheduled for Nov. 14. The only restraint is length -- we've been allotted up to 54 column inches which, by our calculations, equates to 8 pages double-spaced.

Attached, for your prompt review and approval, is a draft done by Gerry Ingenthron from a longer first cut I gave him last week.

The P-D deadline for this article is next Tuesday, Nov. 1. We need your cooperation in clearing this for publication. Please send or phone your comments/approval direct to Ingenthron as I may be out of the office Monday and/or Tuesday.

One final point: if there are no objections from the legal department, we'd like to put Dr. McCarville's name on the article as the author. We need a name, and since Bill is a Ph.D. scientist and the chairman of our corporate dioxin task force, he seems to be appropriate. If anyone has any thoughts or problems with this, let Gerry know that, as well.

Thanks.

  
Dan R. Bishop

DRB:ec

Attachment

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Draft: 10/27/83

Special to the St. Louis Post-Dispatch

**MONSANTO SAYS DIOXIN SCARE IS OVERREACTION**

by William J. McCarville, Ph.D.  
Director, Environmental Affairs  
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Since late in 1982, after public hearings focused attention on dioxin contamination in Missouri, there has been a continuing barrage of news stories about the chemical and its dangers.

Early in that period, stories labeled dioxin "one of the deadliest substances known" and reported that animal tests also showed it causes a variety of health problems. Those early stories said the same effects on humans were suspected, though "test results are inconclusive."

In recent months, reports have been more scientifically thorough, qualified authorities on the subject have been relied upon more often, and known facts about dioxin have been more thoroughly reflected.

But the fear generated in early public hearings, in the reactions of frightened citizens of contaminated areas, and reflected and reinforced in news reports, remains today.

In light of extensive studies of the human experience with the toxic chemical, that level of fear and the reaction to dioxin is simply unwarranted.

What is called for is now taking place: a careful scientific and medical assessment of the known hazards and risks of dioxin, a realistic program of protection against dangerous levels and disposal of dioxin-containing waste; and a continuation of health studies to further broaden our knowledge about the chemical

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Dioxin is, indeed, a useless, unwanted toxic chemical. It exists only because it can be produced unintentionally as a contaminant during the manufacture of certain industrial chemicals and pesticides and as a by-product of certain non-industrial combustion processes. (While there are some 75 different dioxin compounds possible, <sup>2,3,7,8-</sup>TCDD is the most toxic and is generally the chemical referred to in stories about "dioxin.")

*The above said we don't know some things*

Contrary to some news reports, however, the scientific community knows quite a lot about both short-term and long-term human health effects of dioxin exposure (based on documented evidence).

*More is known vs. the effects are not believed from news*

Between 1949 and 1976 more than 800 industrial workers were exposed to dioxin in nine separate industrial accidents in various locations. Also, in a 1976 accident, thousands of people in Seveso, Italy, were exposed after an explosion when a (chemical cloud containing dioxin) spread across that city.

All of these incidents have been carefully studied by medical authorities. The health status of those exposed is being carefully monitored. Those exposed workers who have died in intervening years also have been identified -- their various causes of death determined and compared to expected death rate statistics from similar populations. *Conclusion?*

Dioxin was also a contaminant in Agent Orange, the herbicide sprayed in Vietnam, and a careful analysis also is being conducted on a <sup>1200</sup> large group of former U.S. Air Force personnel <sup>149</sup> who <sup>149</sup> handled and sprayed Agent Orange. *according to USAF had heavy exposure from*

These medical and statistical studies show:

*check with some of them M. M.*

- No person is known to ever have died as a result of exposure to dioxin

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Chloracne is also an acute, severe reaction to TCDF exposure

Potentially confounding

- All known short-term health effects were non-permanent and gradually disappeared, once exposure ceased.
- Long-term human exposure has been scientifically linked to only one health problem -- a skin condition called chloracne.

This skin condition is considered an important marker. Chloracne is widely regarded by medical experts as the hallmark, or first visible symptom, of toxic exposure to dioxin. It manifests itself shortly after exposure (usually within two to three months) and in most cases clears up fairly rapidly. In a few instances, chloracne has been found to persist for up to 30 years.

The overwhelming weight of medical evidence published in scientific literature to date indicates that a person who does not get chloracne has not been exposed to a toxic or harmful level of dioxin. ~~and further that chloracne is the only documented long-term health effect (ever) observed in humans.~~

Not exactly true - e.g. lipid levels unchanged

The literature further indicates that there is no documented evidence of any other long-term health effect to humans.

what is long-term? we have at least one case of Porphyria cut. Tar @ NID from 1960s

This opinion is shared by scientific groups including the American Medical Association and the British Advisory Committee on Pesticides. Others who have studied the evidence and concur include a host of independent medical experts as well as the Veterans' Administration and the U.S. Air Force.

Every population includes many people who are ill. Certainly there are Vietnam veterans, some former residents of Times Beach and some chemical plant workers who are truly ill --

no doubt suffering a wide range of very real health problems, which they may have concluded are linked to <sup>dioxin</sup> exposure.

Others who were exposed or fear they may have been exposed to dioxin are no doubt suffering mental anguish. Still others may well be experiencing very real symptoms but from psychosomatic illness.

And, finally, some may well have become ill and depressed as they have watched their property values plunge and their life savings disappear.

There is no scientific evidence linking exposure to dioxin with serious long-term health effects, and there is no evidence that the health of those who may have been exposed to dioxin is any different from those with no exposure.

The Source of Fear

What are the factors that contributed to the current state of public fear? There are many.

First is animal data. Dioxin is very toxic when fed to some species of laboratory animals. The guinea pig is by far the most sensitive. [More than half the guinea pigs tested were almost instantly killed by a single oral dose of dioxin, in the billionth of an ounce range] However, other test animals are far less sensitive and can tolerate doses ranging from 100 to 7,000 times greater than those of the guinea pig.

It is on the basis of the extreme toxicity to guinea pigs that dioxin has been called "one of the most toxic substances known to man." (Coincidentally, the guinea pig is also extremely sensitive to many highly beneficial chemicals as well, including the penicillins.)

*From  
many  
toxic  
agents  
which  
are  
not  
well  
known*

*NO*

When scientists do not have human data to rely on, they are forced to use animal tests to make human risk assessments. But the scientific community readily admits that it does not know how to accurately extrapolate animal data to humans. This problem was at the root of the saccharin controversy a few years ago, and it's still unresolved.

*That human are not nearly as sensitive*

However, it's clear from the accumulated human data that we are not nearly as sensitive to dioxin as the guinea pig or probably any other laboratory animal. For instance, based on projections of lethal toxicity from animal studies, the accidental release of dioxin in Seveso, Italy, would have killed every human being within miles of the incident; fortunately, no one died. In fact, the only documented health effect observed to date from this exposure has been some cases of chloracne.

*if one were to make projects*

*in fact, fortunately, no*

Another factor in the fear was the increased attention and public concern focused on dioxin when the Agent Orange controversy spread across the national scene in the late '70s. Sympathetic television reports first informed the public that Vietnam veterans were suffering from diseases and were fathering deformed children -- both at "unusually large" rates. In fact, there was and still is no scientific evidence to support these allegations. [Only three-thousandths of one percent (.003%) of the veterans thus far have been found to be suffering any kind of health problem.] *No vet has chloracne*

*This is health - Do we consider .003% to have dioxin injury?*

*what he is the*

Many Americans already sympathetic to problems the Vietnam veterans face, reacted with shock to the claims. Agent Orange became a rallying point for some veterans, and its emotional appeal was magnified by television news coverage. [But despite nearly five years of heavy publicity, of the 2.4 million

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American military personnel who served in Vietnam, <sup>fewer</sup> less than 10,000 have joined in the class action lawsuit.]

More recently, local and national news coverage has focused on the contamination of Times Beach, the Minkler-Stout sites and other Missouri locations. News reports also were fueled by local hearings, by the Federal EPA resignations, congressional hearings and the Christmas Eve, 1982, pronouncement by an official of the Centers for Disease Control (CDC) urging the residents of Times Beach to evacuate immediately due to the "imminent threat" posed by the dioxin-tainted soil there.

Together, these events led up to the EPA buy-out at a cost to taxpayers of about \$33 million. Yet, not one resident of Times Beach or any other Missouri dioxin site has ever had chloracne.

The CDC evacuation recommendation was made on the basis of a dioxin risk assessment which concluded that the presence of dioxin in the soil at levels above 1 part per billion (ppb) "constituted an unacceptable risk."

The CDC's so-called "safe level" guideline of 1 ppb first assumes that humans are as sensitive to dioxin as laboratory animals and that dioxin is a human cancer-causing agent. Next it assumes that a small child may eat one gram of dioxin-contaminated soil every day for several years, while being further exposed to another gram every day through direct skin contact. CDC then added a safety factor of 1,000. Using this basis, CDC then projected that a child, so exposed for 6½ years, would accumulate a large enough dose of dioxin to raise his/her risk of cancer by one additional chance in a million. It's

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023095

interesting to note that according to the EPA, smoking four cigarettes also increases the risk of cancer by one in a million.

On this basis, the citizens of Times Beach were urged to evacuate immediately on Christmas Eve. (In October, 1983, the Federal CDC said tests on people exposed to dioxin in Eastern Missouri showed no "meaningful ill-health effects," though many frightened residents remain skeptical.)

Industry critics including Samuel Epstein and EPA's Hugh Kaufman have used the dioxin issue to gain press and TV coverage for their viewpoints.

[Dioxin also has become a potential source of huge cash rewards for a few attorneys of the plaintiffs' bar and some of the alleged victims of alleged dioxin exposure.] Damage awards in a recent trial in Madison County, Ill. -- while still on appeal -- could make millionaires out of some railroad workers and their lawyers. In that case, no evidence of the existence of dioxin or exposure to it was presented; the mere possibility of exposure was enough to convince a jury to find for the plaintiffs.

The plaintiffs' bar recently formed a dioxin task force to share information about cases and coordinate future dioxin-related litigation.

The costs of the fear and hysteria resulting from these factors are already staggering -- e.g., the Federal government's \$33 million buy out of Times Beach, the mental anguish of many confused citizens, ~~(and the \$58 million jury award in the Madison County case.)~~

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These examples will be only a prelude unless reason and knowledge are brought to bear on societal questions of this kind. Fear, hysteria, political or legal exploitation are all poor substitutes for reasoned decision-making on public issues affecting the health, safety and livelihood of millions of Americans.

It is clear that dioxin is not wanted in our environment. However, once it becomes bound to soil, it does not pose much potential for exposure. Still, it is toxic and great care should be taken in ensuring that dioxin-containing waste is disposed of properly and safely. Success in curtailing the amount formed from industrial and non-industrial sources should be and is being pursued with vigilance.

Additional research should go forward to help scientists better understand this puzzling compound and its ultimate fate in the environment. [Health studies should continue until even the most cynical critic is finally convinced that dioxin is not a major health threat.] *Fact!*

*OBJECT  
IS TO  
DISCOVER  
HEALTH  
PROBLEMS  
AND SEE  
A WAY*

The best way of coping with the increasingly complex and costly decisions we face with dioxin is through objective, reasoned evaluation of the true risk to mankind, and that risk should be based on good science -- not political expediency.

Who pays the bills? We all do, of course. So it behooves those who make the judgments concerning risks and costs to make them carefully, unswayed by the hysteria of the moment.

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