

~~Mon~~Santo

AO file

38

FROM
(NAME-LOCATION-PHONE) S. G. Collins - A3ND - 4-3860

DATE : May 27, 1982

cc. G. D. Ingenthron - A3NB

SUBJECT :

REFERENCE :

TO : R. T. Berendt - E2ND
~~To Mr. Dist. E2ND~~
J. R. Condray - G3WG

Attached are updated versions of our Agent Orange
Position Statements.

Comments?

Sarah Gainer Collins

Sarah Gainer Collins

: cm

Attachments

CONFIDENTIAL
SUBJECT TO PROTECTIVE ORDER.

C24772

AGENT ORANGE ... MONSANTO COMPANY POSITION

We genuinely sympathize with the plight of our Vietnam Veterans. But we believe that the substantial amount of scientific and medical evidence available today suggests that there is no link between Agent Orange and human health problems of the magnitude claimed by the veterans.

Monsanto was one of the companies asked to produce this herbicide mixture for the U.S. Government during the Vietnam War. Now, much to our regret, we find that we are both an object of the veterans' frustrations and a target of a class action suit filed by thousands of veterans against the producers.

~~The suit seeks \$40 billion trust fund to compensate Vietnam veterans for cancer, miscarriages, and birth defects allegedly caused by the use of Agent Orange.~~

Agent Orange, used ^{during the} in Vietnam ^{War} between 1962 and 1970, was supplied at the government's request, formulated to government specifications, applied by military personnel under the orders of the government, and used in war situations ... utterly beyond the control of the manufacturers.

The controversy ^{continues stays in} ~~(surrounding Agent Orange) has continued~~ to grow despite the lack of virtually any scientific evidence that this herbicide posed a danger to the veterans. To the ~~contrary~~ there is a substantial amount of scientific/medical evidence on the record (attached) ^{indicating} that ~~says~~ there is no link between Agent Orange and human health problems of the magnitude claimed by the veterans.

Obviously, this conflict is not of our making. However, having been drawn into it, we have no alternative but to defend ourselves. We are confident that good science will ultimately prevail over the emotions of the moment and exonerate the producers of Agent Orange. At the same time, we sincerely hope that good science will also provide many of the answers the veterans now seek regarding possible service-related health problems.

-000-

June, 1982

For additional information, contact:
Sarah Gainer Collins
Environmental Communications
Monsanto Company
800 N. Lindbergh Blvd.
St. Louis, MO 63167
314-694-3860

CONFIDENTIAL

SUBJECT TO PROTECTIVE ORDER.

C24773

What are they going to do with this?

It really goes beyond just the magnitude - doubts as to the type of complaints

AGENT ORANGE -- MONSANTO COMPANY BACKGROUND

Monsanto began producing the components of Agent Orange — 2,4,5-T and 2,4-D — in the late 1940s. We continued the manufacture of these herbicides until 1970 when we decided to get out of the business for economic reasons.

During the Vietnam War, Monsanto was one of the companies asked by the U.S. government to produce a special formulation of these herbicides for use in Vietnam. Consequently, today, we are a target of a class action suit filed by thousands of veterans against the producers. The suit seeks \$40 billion trust fund to compensate Vietnam veterans for cancer, miscarriages, and birth defects allegedly caused by the use of Agent Orange.] ?

We genuinely sympathize with the plight of our Vietnam Veterans. The unpopular war they fought has left inevitable scars and Agent Orange has become an outlet for accumulated frustrations.

Also, in the past few years, a great deal of information has been gathered from health studies on human populations exposed to dioxin...a trace contaminant found in 2,4,5-T. One such study offers us a good insight into long-term or chronic health effects of dioxin exposure. In 1949, there was an accident at one of Monsanto's plants during which 121 employees were exposed to relatively high concentrations of dioxin.

A standardized mortality analysis — a study of the cause of death — was recently conducted on these 121 employees of who which 32 were exposed in 1949, and have since died from any and all causes. That study, conducted by Monsanto and the Institute of Environmental Health at the University of Cincinnati, found no apparent excess in death from cancer or cardiovascular disease, based on statistics taken from the total U.S. population. among 11 studies show

as compared to
Monsanto is confident that good science will ultimately prevail over the emotions of the moment and exonerate the producers of Agent Orange. At the same time, we sincerely hope that good science will provide answers to Vietnam veterans regarding their health problems.

-o0o-

Marked up FI - as written by
SGC - makes no sense!

June 1982

CONFIDENTIAL

SUBJECT TO PROTECTIVE ORDER.

C24774

AGENT ORANGE -- MONSANTO COMPANY BACKGROUND

Monsanto began producing the components of Agent Orange--2,4,5-T and 2,4-D--in the late 1940's. We continued the manufacture of these herbicides until 1970 when we decided to get out of the business for economic reasons.

During the Vietnam War, Monsanto was one of the companies asked by the U.S. government to produce a special formulation of these herbicides for use in Vietnam. Consequently, today, we are a target of a class action suit filed by thousands of veterans against the producers. ~~The suit seeks \$4.8 billion trust funds to compensate Vietnam veterans for cancer, miscarriages, and birth defects allegedly caused by use of Agent Orange.~~

We genuinely sympathize with the plight of our Vietnam Veterans. The unpopular war they fought has left inevitable scars and Agent Orange has become an outlet for accumulated frustrations.

Also, in the past few years, a great deal of information has been gathered from health studies on human populations exposed to dioxin--a trace contaminant found in 2,4,5-T. One such study offers us a good insight into long-term or chronic health effects of dioxin exposure. In 1949, there was an accident at one of Monsanto's plants during which 121 employees were exposed to relatively high concentrations of dioxin.

Non | A standardized mortality analysis--a study of the cause of death--was recently conducted by Monsanto and the Institute of Environmental Health at the University of Cincinnati on those employees who were exposed in 1949. The study found no apparent excess in death from cancer or cardiovascular disease among the study group as compared to the total U.S. population.

Monsanto is confident that good science will ultimately prevail over the emotions of the moment and exonerate the producers of Agent Orange. At the same time, we sincerely hope that good science will provide answers to Vietnam veterans regarding their health problems.

oOo

June 1982

CONFIDENTIAL
SUBJECT TO PROTECTIVE ORDER.

C24775

MONSANTO RESEARCH CORPORATION

Inter-Office Correspondence

From LOCATION : Monsanto Research Corporation/Dayton Laboratory cc
 DATE : 22 February 1983
 SUBJECT : Analytical Capabilities in the Analysis of TCDD
 REFERENCE :

T. Bistline
 P. BENNETT
 Don Weber
 2/9/83
 MAR 10 1983

Attorney Work Product
 Attorney-Client Privilege

TO : J. R. Condry G3WG FEB 24 1983

This memo is a chronology of Monsanto's ability to analyze for tetrachlorodibenzo-p-dioxin (TCDD) in 2,4,5-T and TCP. The emphasis has been to evaluate whether the procedures used to analyze our products described in the documents provided to me by Townley and Updike were both adequate for the levels of TCDD present and comparable to state of the art techniques.

To facilitate this chronology all references will give the tab number, the legal document page numbers and date in the documents provided to me by Townley and Updike.

Tab	Notebook Page	Date	Comment
1	055386	4-2-65	The analysis of 2,4,5-T acid was initially carried out by the Agricultural Chemicals Research Department on GC-flame ionization detector (FID) (see tab 12, page 055377) in accordance with the method specified by Dow.
3	055394	4-10-65	1.1 ppm of TCDD is detected using this method which is close to the 1 ppm detection limit specified in the Dow Method.
3	055397	4-14-65	Using an additional concentration step a value of 0.4 ppm is reported which shows an ability to analyze TCDD below 1 ppm which could be interpreted as exceeding "state of the art."
3	055401	4-21-65	A result is listed as "trace (>>> 1 ppm)" again demonstrating the ability to detect TCDD at or below 1 ppm.
1	055409	5-7-65	A common problem occurs here in that maintaining "state of the art" is difficult and the analyst moves from the specified flame ionization detector (FID) to the less sensitive thermal conductivity (TC) detector. Some compensation for lost sensitivity is achieved by injecting larger sample volumes. Analyses in the 16 to 40 ppm range previously obtained using the FID are readily carried out using the TC.
1	055301	7-26-65	Based on the peak height for a sample at 11 ppm, a reasonable estimate of the detection limit for TCDD at this point in time is 2 to 4 ppm using the conditions listed.
4	055307	8-4-65	By injecting an even larger sample volume into the chromatograph a value of 4.2 ppm is reported. Therefore the detection limit for the GC-TC combination is below 4 ppm.

CONFIDENTIAL

SUBJECT TO PROTECTIVE ORDER.

Tab	Notebook Page	Date	Comment
4	055331	8-31-65	A value described as "trace" was stated to be equivalent to 2 ppm. This would constitute a reasonable estimate of the detection limit which is a factor of two higher than the "state of the art". Note that a 2 ppm chromatographic peak for TCDD would only be 4 mm in height which is quite small.
6	24196	7-18-66	The method for the analysis of 2,4,5-T for TCDD is sent to Nitro where it is set up again using a GC-TC combination comparable to that used since 5-7-65 by the Agricultural Chemicals Research Department.
6	24197	7-21-66	The newly established method at Nitro analyzed a series of 2,4,5-T samples for TCDD. Values range from 3.5 ppm to 28 ppm. This suggests that the detection limit was below 3.5 ppm which corresponds to the 2 ppm detection limit estimated from the results of 8-31-65.
6	001487	7-22-66	A memo from F. L. Rupel states that typical TCDD values in 2,4,5-T range from 5 to 18 ppm and that a problem occurs when values are above this range. As an analytical chemist with a method able to detect TCDD approximately one order of magnitude lower than the value considered to be a problem, I would have considered the method adequate while not necessarily being "state of the art".
6	24217	2-17-67	The analysis report lists a TCDD value as 1 ppm and other values as "trace" and "nil". This implies an ability to detect less than 1 ppm which could be interpreted as "state of the art". No obvious reason is given for the improved sensitivity.
6	001430	10-17-66	The analyses of TCDD from February to October have ranged from 1-26 ppm indicating the method was adequate in its ability to analyze for TCDD since there were no "none detected" values reported. However, the memo issued on this day indicates TCDD as "less than 5 ppm" which could indicate some degree of raising of the detection limit. This problem is quickly corrected and by 11-17-67 (Tab 6, page 001437) results of 3 ppm are again being reported.
2	85303	9-24-68	The analysts back at the Agricultural Chemical Research Department state the TCDD method was updated to allow assays of TCDD at 1 ppm or less. By 11-27-68 this goal was achieved in reporting TCDD values of <.1 ppm (Tab 7, page 57707) using a GC-FID combination. This would be state of the art analysis for TCDD at this time.

CONFIDENTIAL
SUBJECT TO PROTECTIVE ORDER.

C23022

Tab	Notebook Page	Date	Comment
6	001629	12-9-68	The TCDD analyses being conducted at Nitro are listed in this report as "trace" levels. By inference from the results given on 7-25-68 (Tab 6, page 001443) this trace level is less than 3 ppm. The levels of TCDD in 2,4,5-T have been lowered to an extent that the method is now just adequate.
6	23464	3-6-70	At this time the analyses at Nitro are apparently moved to a GC with an FID detector and results are now being reported to 0.3 ppm. This action may have been in response to Dow's specification of 0.1 ppm TCDD content in 2,4,5-T acid on February 12, 1970 and the fact that the levels of TCDD in 2,4,5-T have been low since 2-22-68 (Tab 6, page 001440).
12	50180	1970	A Monsanto method is described using election capture (EC) detection in combination with a gas chromatograph for the analysis of TCDD in chloropenols. The use of GC-EC for the TCDD analysis was first mentioned by Higginbottom in 1964 (J.A.O.A.C. vol. 47, pages 772-776, 1964). The Monsanto GC-EC method could quantitate "chlorodioxins" at a few tenths of a ppm to a few ppm depending on the particular chlorinated dibenzo-p-dioxin was being examined. Note that the Agricultural Chemicals Research Department was analyzing for TCDD at 0.1 since 11-27-68 (Tab 7, page 57707).
10	058370	12-7-70	Analyses performed at Agricultural Chemicals Research Department on unknown instrumentation give TCDD results to 0.072 ppm but the matrix being analyzed is not clear. Concentrated sulfuric acid washes are being used in sample preparation indicating an awareness of the FDA's chick edema work (Tab 12, page 057305).
11	058377	12-16-70	Mention is made of a USDA method for TCDD without giving any details. Also a detection limit of 0.3 ppm is given for the analysis of what appears to be an eluant from 2,4,5-T which had been cleaned up by treatment with carbon.

In general the TCDD analysis capability within Monsanto during its production of 2,4,5-T at various times approached and may have exceeded state of the art but was adequate at all times. There were very few instances in which a series of analyses went with no TCDD being detected. Results of no TCDD being detected might delude one into thinking that the products were clean when the real problem was analytical sensitivity. For most of the Monsanto products the TCDD level was most often a factor of two to a factor ten greater than the estimated detection limit. Thus the analyses for TCDD (particularly those going on at Nitro) were adequate while not necessarily being state of the art.

I hope this review and comments have been of use to you. If I can answer any of your questions please contact me.

CONFIDENTIAL
SUBJECT TO PROTECTIVE ORDER.

Fred Hileman

Fred Hileman

C25023