

DAY 1 - AGENT ORANGE TRIAL
MOYER V. DOW

2007
D
0-2090

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NEW YORK

FILED
IN CLERK'S OFFICE
U.S. DISTRICT COURT E.D.N.Y.

★
MDL No. 381

JUL 12 1982

TIME

★
ANSWERS OF DEFENDANT

MONSANTO COMPANY TO PLAINTIFFS'

PRODUCT LIABILITY LITIGATION. : SUPPLEMENTAL DISCOVERY REQUESTS

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Defendant Monsanto Company ("Monsanto"), by its attorneys Townley & Updike, answers and responds as follows to the supplemental discovery requests set forth in the June 9, 1982 letter of plaintiffs' counsel, Irving Like, Esq., to defendants' counsel:

Supplemental Request 1:

Identify all representatives of defendants who attended a dioxin meeting at The Dow Chemical Company facility in Midland, Michigan, on or about March 21, 1965. (Schedule I A.2 pp. 1, 2).

Answer to Supplemental Request 1:

No representative of Monsanto attended a dioxin meeting at The Dow Chemical Company in Midland, Michigan on or about March 21, 1965.

Supplemental Request 2:

Produce all documents related to such meeting. (Schedule II, 2. (w) p. 13).

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Answer to Supplemental Request 2:

The only documents in Monsanto's possession which relate to such a meeting are those which were produced to both plaintiffs and defendants by defendant The Dow Chemical Company.

Supplemental Request 3:

Produce all documents, if any, indicating defendants informed or disclosed to the U.S. the extent or level of dioxin contamination in the herbicides supplied to the U.S., and the means available for reduction of such contamination. (Schedule II, 2. (a)-(e), pp. 10, 11).

Answer to Supplemental Request 3:

Monsanto possesses no such documents dated on or before January 22, 1969, the date on which Monsanto apparently last shipped phenoxy herbicides to the United States government pursuant to a contract subject to the Government Contract Defense.

Supplemental Request 4:

Identify all representatives of defendants who made such disclosure to the U.S. Government.

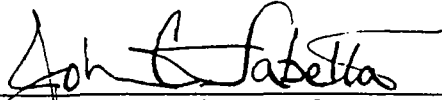
Answer to Supplemental Request 4:

Monsanto presently knows of no representative who disclosed to the United States government the extent or level of dioxin contamination in the herbicides supplied to the United States government, and the means available for the reduction of such contamination. However, R. Emmet Kelly communicated with government representatives concerning health

effects to workers exposed to 2,4,5-T and its precursors, and John Mullendore communicated with government representatives concerning the dioxin content of chlorinated phenols.

Dated: New York, New York
July 9, 1982

TOWNLEY & UPDIKE

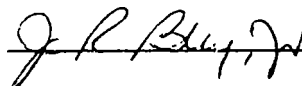
By 
Attorneys for Defendant
Monsanto Company
405 Lexington Avenue
New York, New York 10174
(212) 682-4567

TO: SEE ATTACHED SERVICE LIST

VERIFICATION

STATE OF MISSOURI)
) ss.:
COUNTY OF ST. LOUIS)

J. R. Bley, Jr., being duly sworn, deposes and says that he is an assistant secretary of defendant Monsanto Company, a corporation; that he has read the foregoing Answers of Defendant Monsanto Company to Plaintiffs' Supplemental Discovery Requests and is familiar with the contents thereof; that deponent is without personal knowledge of the matters stated in the foregoing Answers, and is informed and believes that no officer or employee of Monsanto Company has personal knowledge of all such matters; that the foregoing Answers have been assembled by authorized employees and counsel of Monsanto Company, who have informed deponent that the foregoing Answers are true; and that to the best of deponent's knowledge those Answers are true.


J. R. Bley, Jr.

Sworn to before me this
7th day of July, 1982


Notary Public

My Comm. Expires 12/31/84
NOTARY PUBLIC - STATE OF MISSOURI
JULIA M. SCHRÖDER, Notary Public
ST. LOUIS COUNTY

2011

0-2094

AFFIDAVIT OF SERVICE BY MAIL

STATE OF NEW YORK)
) ss.:
COUNTY OF NEW YORK)

ISABELLE GANS, being duly sworn, deposes and says:
deponent is not a party to the action, is over 18 years of
age and resides at 2134-72nd Street, Brooklyn, New York. On
the 9th day of July , 1982, deponent served the within
Answers of Defendant Monsanto Company to Plaintiffs'
Supplemental Discovery Requests upon the following attorney(s)
in this action:

SEE THE ATTACHED RIDER

at the above address(es) designated by said attorney(s) for that purpose by depositing a true copy of same enclosed in a postpaid properly addressed wrapper in an official depository under the exclusive care and custody of the United States Postal Service within the State of New York.

Isabelle Gans
ISABELLE GANS

Sworn to before me this
9th day of July , 1982.

Gregory P. Conway
Notary Public

ANGELA P. CALVAGNA
Notary Public, State of New York
No. 24-4658364
Qualified in Kings County
Cert. Filed in New York County
Commission Expires March 30, 1983

2012

D-2095

R I D E R

SERVICE LIST

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UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NEW YORK

IN CLERK'S OFFICE
U.S. DISTRICT COURT E.D.N.Y.

★ JUL 12 1982 ★

-----x
In re

: MDL TIME A.M. 10:30
P.M.

"AGENT ORANGE"

: RESPONSE OF DEFENDANT
DIAMOND SHAMROCK CORPORATION
: TO PLAINTIFFS' "SUPPLE-
MENTAL INTERROGATORIES"

Product Liability Litigation

: DATED JUNE 9, 1982
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Defendant Diamond Shamrock Corporation ("Diamond Shamrock") hereby answers plaintiffs' "supplemental interrogatories" dated June 9, 1982, served on Diamond Shamrock on June 15, 1982. Diamond Shamrock reserves the right to supplement or amend its answers, and to object to the admissibility as evidence of the answers or the subject matter thereof in any subsequent proceeding herein or the trial of this or any other action.

Interrogatory No. 1: Identify all representatives of defendants who attended a dioxin meeting at the Dow Chemical Company facility in Midland, Michigan, on or about March 21, 1965.

Answer:

Edward L. Chandler and Francis R. Kennedy attended, as representatives of Diamond Shamrock*, a meeting concerning chloracne at The Dow Chemical Company on March 24, 1965. Both Dr. Chandler and Mr. Kennedy are further identified in the Responses

* Diamond Shamrock was formerly known as the Diamond Alkali Company. The current name was adopted when Diamond Alkali merged with The Shamrock Oil and Gas Corporation on December 19, 1967.

of Defendant Diamond Shamrock Corporation to Plaintiffs' Interrogatories to Defendants (First Wave), dated February 13, 1981.

Representatives of other companies who appear to have been in attendance at the meeting on March 24, 1965 are identified in the documents referenced in Diamond Shamrock's answer to Interrogatory No. 2.

Interrogatory No. 2: Produce all documents related to such meeting.

Answer:

Interrogatory No. 2 requests production of documents that Diamond Shamrock already produced to plaintiffs for inspection and copying on June 25, 1982. Those documents are referenced in Diamond Shamrock's Index of Documents Responding to Plaintiffs' Interrogatories to Defendants (First Wave), Revised as of June 25, 1982 ("Diamond Shamrock's June 25, 1982 Index").

Diamond Shamrock, however, has also ascertained that one or more copies of the following documents relating to the March 24, 1965 meeting at The Dow Chemical Company were included in its June 25, 1982 production:

- (a) Memorandum dated March 25, 1965 from E. L. Chandler to John Cort, Jr.;
- (b) Memorandum dated March 30, 1965 from F. R. Kennedy to J. S. Cort, Jr., and accompanying notes.

Courtesy copies of the above documents (Doc. Nos. DS 00012609-00012617) are enclosed.

Interrogatory No. 3: Produce all documents, if any, indicating defendants informed or disclosed to the U.S. the extent or level of dioxin contamination in the herbicides supplied to the U.S., and the means available for reduction of such contamination.

Answer:

Interrogatory No. 3 requests production of documents that Diamond Shamrock already produced to plaintiffs for inspection and copying on June 25, 1982. Any documents responsive to Interrogatory No. 3 may be located by reference to the records identified in Diamond Shamrock's June 25, 1982 Index as responsive to plaintiffs' Interrogatories Nos. 2B(v), 4D, 4E, 4F, 4G, 4K, 4Q and 4T to Defendants (First Wave).

Objection:

Diamond Shamrock objects to Interrogatory No. 3 to the extent that it requests production of documents that relate to the time period subsequent to December 31, 1971, on the ground that it does not seek information relating to a relevant time period.

Interrogatory No. 4: Identify all representatives of defendants who made such disclosure to the U.S. Government.

Answer:

Pursuant to Federal Rule 33(c), the answer to Interrogatory No. 4 may be ascertained by plaintiffs from the records produced by Diamond Shamrock for inspection and copying on June 25, 1982 and specified in Diamond Shamrock's June 25,

1982 Index as responsive to plaintiffs' Interrogatories Nos. 2B(v), 4D, 4E, 4F, 4G, 4K, 4Q and 4T to Defendants (First Wave). The burden of ascertaining the answer to Interrogatory No. 4 is substantially the same for plaintiffs and Diamond Shamrock.

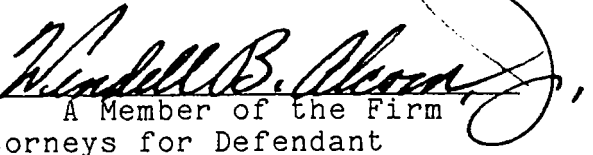
Objection:

Diamond Shamrock objects to Interrogatory No. 4 to the extent that it requests information for the time period subsequent to December 31, 1971, on the ground that it does not seek information relating to a relevant time period.

Dated: New York, New York
June 30, 1982

Signature as to Objections:

CADWALADER, WICKERSHAM & TAFT

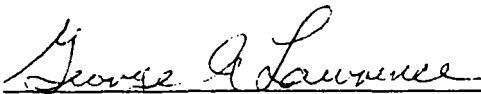
By 
A Member of the Firm

Attorneys for Defendant
Diamond Shamrock Corporation
One Wall Street
New York, New York 10005
(212) 908-7000

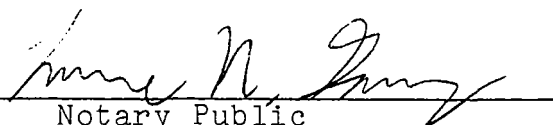
TO: ATTACHED SERVICE LIST
HON. SOL SCHREIBER

STATE OF OHIO)
 : ss.:
COUNTY OF CUYAHOGA)

George A. Lawrence, being duly sworn, says that he is Vice President and General Manager, Agricultural Chemicals Division, of defendant Diamond Shamrock Corporation; that he has read the foregoing answers of Diamond Shamrock to plaintiffs' "supplemental interrogatories" dated June 9, 1982; and that the foregoing answers to said interrogatories were prepared under his supervision on the basis of records of Diamond Shamrock, information furnished by present and former employees of Diamond Shamrock, and in part on his personal knowledge and to the best of his knowledge information and belief, are true and correct.


George A. Lawrence

Sworn to before me this
30th day of June, 1982.


Notary Public
LAWRENCE N. GANG, Attorney
Notary Public
My commission has no expiration date
Section 147.03 R.C.

2018

D-2/01

AFFIDAVIT OF SERVICE

STATE OF NEW YORK)
 : ss.:
COUNTY OF NEW YORK)

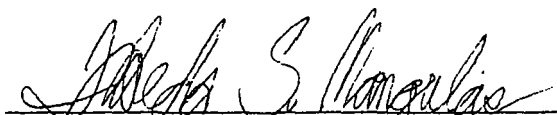
MICHAEL M. GORDON, being duly sworn, deposes and says:

1. I am not a party to this action, am over 18 years of age and reside at 12 West 72nd Street, New York, New York 10023.

2. On July 9, 1982, I served the annexed Response of Defendant Diamond Shamrock Corporation to Plaintiffs' "Supplemental Interrogatories" Dated June 9, 1982 on each of the persons named on the annexed list by depositing a true copy of same enclosed in a postpaid properly addressed wrapper, in an official depository under the exclusive care and custody of the United States Postal Service within the State of New York.


Michael M. Gordon

Sworn to before me this
9th day of July, 1982


Notary Public

FRIEDA S. MANGULAS
Notary Public, State of New York
No. 24-4664761
Qualified in Kings County
Certificate filed in New York County
Commission Expires March 30, 1984

2012

D-2102

LISTING OF ATTORNEYS

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COPIES OF ALL DOCUMENTS MUST
BE SENT TO:

Clerk of the Panel
Judicial Panel on Multidistrict
Litigation
1120 Vermont Avenue, N.W.
Suite 1002
Washington, D.C. 20005

FOR PLAINTIFFS

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FILED
IN CLERK'S OFFICE
U. S. DISTRICT COURT E.D. N.Y.
★ JUN 29 1982 ★
TIME A.M. _____
P.M. _____

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NEW YORK

-----X
In re :
"AGENT ORANGE" : MDL No. 381
Product Liability Litigation :
:
-----X

DIAMOND SHAMROCK'S INDEX OF
DOCUMENTS RESPONDING TO
PLAINTIFFS' INTERROGATORIES
TO DEFENDANTS (FIRST WAVE),
REVISED AS OF JUNE 25, 1982

EXHIBIT B

CADWALADER, WICKERSHAM & TAFT
One Wall Street New York, N. Y. 10005
(212) 908-7000

2036 D-2119

#92

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00000001- 00000141	Files of F. G. Steward	Newark Product Files: Ester - Product & Samples	2B(iii) and 4I, J, P
00000142- 00000148	Files of F. G. Steward	Newark Product Files: 2,4,5-T Reaction Section	2B(iii) and 4I, J, P
00000149- 00000181	Files of F. G. Steward	Newark Product Files: Single Shot	2B(iii) and 4I, J, P
00000182- 00000225	Files of F. G. Steward	Melt Analysis	2B(iii) and 4I, J, P
00000226- 00000389	Files of F. G. Steward	Laboratory Procedures	2B(iii) and 4I, J, K, P
00000390- 00000531	Files of F. G. Steward	Newark Product Files: Ester - Batch Process	2B(iii) and 4I, J, P
00000532- 00000646	Files of F. G. Steward	Newark Product Files: Ester - Government Specifications & Orange	2B(i), (ii), (iii); 4A, B, C(iv) [p.9] and 4I, J, P
00000647- 00000659	Files of F. G. Steward	Newark - Plant Capacities & Conversion Data	2B(iii) and 4I, J, P
00000660- 00000672	Files of F. G. Steward	Newark Product Files: Silvex Acid & Ester	2B(iii) and 4I, J, P

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00000673- 00000701	Files of F. G. Steward	Newark Plant File: Melt-Approved Appropriation	2B(iii) and 4I, J, P
00000702- 00000730	Files of F. G. Steward	2,4-D & 2,4,5-T Acetic Acids Process Studies by: E. Bak	4A, B, C [p.11] and 4P
00000731- 00000745	Files of F. G. Steward	Newark Production Files: TCP Quality	2B(iii) and 4I, J, P
00000746- 00000756	Files of F. G. Steward	Newark Product Files: 2,4,5-T Quality	2B(iii) and 4I, J, P
00000757- 00000837	Files of F. G. Steward	Newark Product Files: Dacamine - Foreign Production	2B(iii) and 4I, J, P
00000838- 00000897	Files of F. G. Steward	Newark Product Files: Ester Operating Instructions	2B(iii) and 4I, J, P
00000898- 00001017	Files of F. G. Steward	Operating Comments - 1966	2B(iii) and 4I, J, P
00001018- 00001159	Files of F. G. Steward	Operating Comments - 1967	2B(iii) and 4I, J, P
00001160- 00001300	Files of F. G. Steward	Operating Comments - 1968	2B(iii) and 4I, J, P

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00001301- 00001412	Files of F. G. Steward	2,4 - Dichlorophenoxyacetic Acid - Melt Washing & Drying	2B(iii) and 4I, J, P
00001413- 00001458	Files of F. G. Steward	Operating Instructions	2B(iii) and 4I, J, P
00001459- 00001511	Files of F. G. Steward	Newark Product Files: TCP - ML Recovery	2B(iii) and 4I, J, P
00001512- 00001592	Files of F. G. Steward	Newark Product Files: TCP - Reaction Section	2B(iii) and 4I, J, P
00001593- 00001648	Files of F. G. Steward	Newark Product Files: 2,4,5-T Operating Instructions	2B(iii) and 4I, J, P
00001649- 00001723	Files of F. G. Steward	Projects & Approp. - Project Orange - Economics & Design	2B(iii) and 4I, J, P
00001724- 00001798	Files of F. G. Steward	Newark Product Files: General Products	2B(iii) and 4I, J, P
00001799- 00001925	Files of F. G. Steward	Projects & Approp. - 2,4-D & 2,4,5-T Expansion Approp. - 6739 Basic Calculations	2B(iii) and 4I, J, P
00001926- 00001979	Files of F. G. Steward	Newark Product Files: 2,4,5-T - Melt Wash & Dry	2B(iii) and 4I, J, P

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00001980- 00002285	Ag Chem Division Document Storage	Defense Supply Agency Contracts with Diamond Shamrock	2B(i), (ii), (iii); 4A, B, C(iv) [p.9] and 4P
00002286- 00002357	Files of Joseph G. Smeraldi	U.S. Dept. of Commerce publication entitled "The Defense Materials System and Priorities" (Feb. 1967)	4A, B [p.9]
00002358- 00002549	Ag Chem Division Document Storage	Agent Orange Monthly Production Reports 1968	2B(iii) and 4P
00002550- 00002699	Ag Chem Division Document Storage	Government Contract, F. R. Kennedy, C-1297	2B(i), (ii), (iii); 4A, B, C(iv) [p.9] and 4P
00002700- 00002849	Ag Chem Division Document Storage	Government Contract, F. R. Kennedy, C-2893	2B(i), (ii), (iii); 4A, B, C(iv) [p.9] and 4P
00002850- 00003102	Ag Chem Division Document Storage	Government Contract, No. DSA-400-67-C-8642	2B(i), (ii), (iii); 4A, B, C(iv) [p.9] and 4P
00003103- 00003188	Ag Chem Division Document Storage	Government Contract, No. DSA-400-68-C-4708	2B(i), (ii), (iii); 4A, B, C(iv) [p.9] and 4P

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00003189- 00003214	Diamond Shamrock Corporate Library	Engineering Dept. Files relating to Newark Plant Expansion Project	2B(iii) and 4P
00003215- 00003309	Ag Chem Division Document Storage	General	2B(i), (ii), (iii); 4A, B, C(iv) [p.9] and 4P
00003310- 00003392	Ag Chem Division Document Storage	Orange	2B(i), (ii), (iii); 4A, B, C(iv) [p.9] and 4P
00003393- 00003444	Ag Chem Division Document Storage	2,4,5 TCP Crude	2B(iii), (v); and 4I, J, K, P
00003445- 00003529	Ag Chem Division Document Storage	Trichlorophenol	2B(iii), (v); and 4D, J, K, P, Q
00003530- 00003676	Files of F. R. Kennedy	Loose - No Folder	2B(i), (ii), (iii); 4A, B, C(iv) [p.9] and 4P
00003677- 00003705	Files of F. R. Kennedy	Orange - I. R.	4P
00003706- 00003922	Files of F. R. Kennedy	U.S. Army	2B(i), (ii), (iii); 4A, B, C(iv) [p.9] and 4P

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00003923- 00004188	Files of F. R. Kennedy	Gov't. Butyl	2B(i), (ii), (iii); 4A, B, C(iv) [p.9] and 4P
00004189- 00004277	Files of F. R. Kennedy	Gov't. Inventory & Production Form	2B(iii) and 4P
00004278- 00004504	Files of F. R. Kennedy	Government Contract, No. DSA-400-68-C-5898	2B(i), (ii), (iii); 4A, B, C(iv) [p. 9]; and 4P
00004505- 00004618	Files of F. R. Kennedy	Ester and Butyl Work	2B(iii) and 4I, J, P
00004619- 00004656	Files of F. R. Kennedy	Dacamine Bars	2B(iii) and 4I, J, P
00004657- 00004872	Files of F. R. Kennedy	Products - Esters General	2B(iii) and 4I, J, P
00004873- 00004881	Files of F. R. Kennedy	Ester Unit Rehabilitation of	2B(iii) and 4I, J, P
00004882- 00005004	Files of F. R. Kennedy	Products Esters - 2EH	2B(iii) and 4I, J, P
00005005- 00005074	Files of F. R. Kennedy	Esters - Mixed	4A, B, C [p.11] and 4P

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00005075- 00005196	Files of F. R. Kennedy	Products - Esters - Lo-V Volatility Rating	4A, B, C [p.11] and 4P
00005197- 00005441	Files of F. R. Kennedy	Esters	4A, B, C [p.11] and 4P
00005442- 00005523	Files of F. R. Kennedy	2,4-D Acid Recovery	4A, B, C [p.11] and 4P
00005524- 00005648	Files of F. R. Kennedy	2,4-D Acid Dryer, Drying of	2B(iii) and 4I, J, P
00005649- 00005745	Files of F. R. Kennedy	2,4-D Expansion	4A, B, C [p.11] and 4P
00005746- 00006013	Files of F. R. Kennedy	2,4-D Acid New Process	2B(iii) and 4I, J, P
00006014- 00006121	Files of F. R. Kennedy	2,4-D Plant Yields Process Improvement	4A, B, C [p.11] and 4P
00006122- 00006155	Files of F. R. Kennedy	2,4-D Recovery of DCP from M.L.	4A, B, C [p.11] and 4P
00006156- 00006197	Files of F. R. Kennedy	D&T Acid Suspensions	4A, B, C [p.11] and 4P

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00006198- 00006381	Files of F. R. Kennedy	2,4-D & 2,4,5-T Filters	4A, B, C [p.11] and 4P
00006382- 00006421	Files of F. R. Kennedy	Na ₂ SO ₄ Recovery 2,4-D	4A, B, C [p.11] and 4P
00006422- 00006514	Files of F. R. Kennedy	Esters - Mixed	2B(iii) and 4I, J, P
00006515- 00006579	Files of F. R. Kennedy	Products Acetic Acid	2B(iii) and 4I, J, P
00006580- 00006639	Files of F. R. Kennedy	Products - Chlorine Recovery	4A, B, C [p.11] and 4P
00006640- 00006710	Files of F. R. Kennedy	Drying of 2,4-D	4A, B, C [p.11] and 4P
00006711- 00006811	Files of F. R. Kennedy	Sodium Salt	2B(iii) and 4I, J, P
00006812- 00006863	Files of F. R. Kennedy	Esters - Iso-Octyl	2B(iii) and 4P
00006864- 00007026	Files of F. R. Kennedy	U.S. Public Health Service	3 and 4D, G, Q, T

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00007027- 00007313	Files of F. R. Kennedy	Products 2,4-D Misc. & Heat of Neutralization	2B(iii); 4A, B, C [p.11] and 4P
00007314- 00007382	Files of F. R. Kennedy	Competitor Samples 1959	4A, B, C [p.11]
00007383- 00007498	Files of F. G. Kennedy	Competitor Samples 1957-58	4A, B, C [p.11]
00007499- 00007500	Files of F. R. Kennedy	4 #DMA-D	2B(iii) and 4P
00007501- 00007568	Files of F. R. Kennedy	Dinitro-Ortho- Isopropyl-Phenol	4A, B, C [p.11] and 4P
00007569- 00007802	Files of F. R. Kennedy	Complaint and Trade Reports Open	4A, B, C [p.11] and 4P
00007803- 00007967	Files of F. R. Kennedy	Tetrachlorobenzene	2B(iii); 4A, B, C [p.11] and 4P
00007968- 00008210	Files of F. R. Kennedy	2,4,5-TCP Manufacturing	2B(iii); 4A, B, C [p.11] and 4D, J, P, Q
00008211- 00008282	Files of F. R. Kennedy	Trichlorophenol Reports	4A, B, C [p.11] and 4D, J, P, Q
00008283	Files of F. R. Kennedy	TCP Process Work	(empty folder)

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00008284- 00008365	Files of F. R. Kennedy	2,4,5 - TCP Process File	4A, B, C [p.11] and 4D, J, P, Q
00008366- 00008374	Files of F. R. Kennedy	2,4,5-Trichlorophenate	4A, B, C [p.11] and 4D, J, K, P, Q
00008375- 00008410	Files of F. R. Kennedy	Production of TCP	4A, B, C [p.11] and 4P
00008411- 00008513	Files of F. R. Kennedy	TCP - Process Development - Current	4A, B, C [p.11] and 4D, J, P, Q
00008514- 00008651	Files of F. R. Kennedy	TCP General	4A, B, C [p.11] and 4D, P, Q
00008652- 00008662	Files of F. R. Kennedy	TCP Start Up	4A, B, C [p.11] and 4D, P, Q
00008663- 00008791	Files of F. R. Kennedy	Products 2,4,5 - TCP (for sale)	4A, B, C [p.11] and 4D, P, Q
00008792- 00008959	Files of F. R. Kennedy	Products TCP - Quality	4A, B, C [p.11] and 4D, J, P, Q
00008960- 00009056	Files of F. R. Kennedy	Products 2,4,5-T Acid	2B(iii) and 4P

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00009057- 00009130	Files of F. R. Kennedy	Products 2,4,5-T Acid - Dry	2B(iii); 4A, B, C [p.11] and 4K, P
00009131- 00009180	Files of F. R. Kennedy	Products 2,4,5- Trichlor-propionic	2B(iii); 4A, B, C [p.11] and 4P
00009181- 00009200	Files of F. R. Kennedy	Product File 2,4,5-TP	2B(iii) and 4P
00009201- 00009510	Files of F. R. Kennedy	Products Competitive Formulations	2B(iii); 4A, B, C [p.11] and 4P
00009511- 00009555	Files of F. R. Kennedy	Product File Line Rider	2B(iii); 4A, B, C [p.11] and 4P
00009556- 00009636	Files of F. R. Kennedy	Product Formulations - New	2B(iii); 4A, B, C [p.11] and 4P
00009637- 00009696	Files of F. R. Kennedy	Products Organics	2B(iii); 4A, B, C [p.11] and 4P
00009697- 00009762	Files of F. R. Kennedy	Products Tetrachlorobenzene Molten	2B(iii); 4A, B, C [p.11] and 4D, P, Q
00009763- 00009843	Files of F. R. Kennedy	Products MCP Sales and Uses	4A, B, C [p.11] and 4P

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00009844- 00009848	Files of F. R. Kennedy	Products Muriatic Acid	4A, B, C [p.11] and 4P
00009849- 00009878	Files of F. R. Kennedy	Trichlorophenol Dilution Process	4A, B, C [p.11] and 4D, J, P, Q
00009879- 00009885	Files of F. R. Kennedy	Propionic Acid	4A, B, C [p.11] and 4P
00009886- 00009983	T.R. Evans Research Center Library Files	Anal. & Res. Studies Ag. Chem. 2,4-D & 2,4,5-T	3, 4A, B, C [p.11] and 4D, E, Q, T
00009984- 00010297	T.R. Evans Research Center Library Files	Formulation & Evaluation Ag. Chem. 2,4-D & 2,4,5-T	4A, B, C [p.11]
00010298- 00010464	T.R. Evans Research Center Library Files	Process Misc. Eng. Files Ag. Chem. 2,4-D & 2,4,5-T	2B(iii), (v); 4A, B, C [p.11] and 4I, J, P
00010465- 00010627	T.R. Evans Research Center Library Files	Ag. Chem. Agent Orange	4A, B, C [p.11] and 4K
00010628- 00010953	T.R. Evans Research Center Library Files	Ag. Chem. 2,4-D & 2,4,5-T Gen. 1958-	4A, B, C [p.11] and 4E, P, Q

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00010954- 00011145	T.R. Evans Research Center Library Files	Ag. Chem. 2,4-D & 2,4,5-T Gen. July 1955-1957	4A, B, C [p.11] and 4P
00011146- 00011342	T.R. Evans Research Center Library Files	Ag. Chem. 2,4-D & 2,4,5-T Gen 1945-June 1955	4A, B, C [p. 11] and 4D, P, Q
00011343- 00011618	T.R. Evans Research Center Library Files	Ag. Chem. 2,4-D & 2,4,5-T Processes-1961	2B(ii), (iii); 4A, B, C [p. 11] and 4D, I, J, P, Q
00011619- 00011814	T.R. Evans Research Center Library Files	Ag. Chem. 2,4-D & 2,4,5-T Processes 1949-1960	4A, B, C [p.11] and 4D, P, Q
00011815- 00011937	T.R. Evans Research Center Library Files	Ag. Chem. Tech. Service Gran.	4A, B, C [p.11] and 4P
00011938- 00012065	T.R. Evans Research Center Library Files	Ag. Chem. Tech. Service Granules Wright Pat.	4A, B, C [p. 11] and 4P
00012066- 00012188	Diamond Shamrock Corporate Library	Documents Relating to February 1960 Explosion at Newark Plant	4H

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00012189- 00012394	Registration Files of Regis. Dept., Ag. Chem. Division	Labels Accepted for Registration Under FIFRA	4L
00012395- 00012554	Files of F.R. Kennedy	Orange	2B(i), (ii), (iii); 4A, B, C (iv) [p. 9] and 4P
00012555- 00012646	Files of F.R. Kennedy	Chloroacne	2B(iii), (v); 3, and 4D, F, G, I, J, K, P, Q, T
00012647- 00012669	Files of F.R. Kennedy	Loose Papers - No Folder	2B(iii), (v); 4I, J, K, P
00012670- 00012738	Files of F.R. Kennedy	2,4,5-T	2B(iii) and 4I, J, P
00012739- 00012788	Files of F.R. Kennedy	D/T Acid - Reports	2B(iii) and 4I, J, P
00012789- 00012870	Files of F.R. Kennedy	2,4-D	2B(iii) and 4I, J, P
00012871- 00012965	Files of F.R. Kennedy	2,4-D (Old)	4A, B, C [p.11] and 4P
00012966- 00013006	Files of F.R. Kennedy	DCP	4A, B, C [p.11] and 4P

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00013007- 00013225	Files of F.R. Kennedy	Ester Program	2B(iii), (v); 4A, B, C [p.11] and 4I, J, K, P
00013226- 00013246	Files of F.R. Kennedy	Esters	4A, B, C [p.11] and 4P
00013247- 00013273	Files of F.R. Kennedy	Newark Esters	4A, B, C [p.11] and 4I, J, K, P
00013274- 00013391	Files of F.R. Kennedy	Operating Instructions Dichlorophenol	2B(iii) and 4I, J, P
00013392- 00013468	Files of F.R. Kennedy	Operating Instructions 2,4-D Acid	2B(iii) and 4I, J, P
00013469- 00013533	Files of F.R. Kennedy	Operating Instructions Butyl D & T	2B(iii) and 4I, J, P
00013534- 00013630	Files of F.R. Kennedy	Operating Instructions Iso D & T	2B(iii) and 4I, J, P
00013631- 00013648A	Files of F.R. Kennedy	Operating Instructions BEP D & T	2B(iii) and 4I, J, P
00013649- 00013691	Files of F.R. Kennedy	Operating Instructions Amines	2B(iii) and 4I, J, P

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00013692- 00013720	Files of F.R. Kennedy	Operating Instructions Ester Solvent Recovery	2B(iii) and 4I, J, P
00013721- 00013739	Files of F.R. Kennedy	Operating Inst.	2B(iii) and 4I, J, P
00013740- 00013810	Files of F.R. Kennedy	Products Phenol	2B(iii) and 4I, J, P
00013811- 00013888	Files of F.R. Kennedy	Products Esters - BEP D & T	2B(iii) and 4I, J, P
00013889- 00013962	Files of F.R. Kennedy	Products Esters - Iso-D	2B(iii) and 4I, J, P
00013963- 00013994	Files of F.R. Kennedy	Products Esters Iso-T	2B(iii) and 4I, J, P
00013995- 00014257	Files of F.R. Kennedy	Products Esters - Butyl D & Butyl Carbitol Chloride	2B(iii) and 4I, J, P
00014258- 00014267	Files of F.R. Kennedy	Products MCA - Sales & Uses	4A, B, C [p.11] and 4P
00014268- 00014310	Files of F.R. Kennedy	MCA - Manufacturing	4A, B, C [p.11] and 4P

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00014311- 00014313	Files of F.R. Kennedy	MCA	4A, B, C [p.11] and 4P
00014314- 00014331	Files of F.R. Kennedy	Technical Reports G. H. Burris	4A, B, C [p.11] and 4P
00014332- 00014357	Files of F.R. Kennedy	Technical Reports J. Ginos	4A, B, C [p.11] and 4P
00014358- 00014431	Files of F.R. Kennedy	Newark Product Control Tests	4A, B, C [p.11] and 4K
00014432- 00014494	Files of F.R. Kennedy	Chromatograph and Chromatographic Procedures	4A, B, C [p.11]
00014495- 00014596	Files of F.R. Kennedy	2,4-Dichlorophenoxyacetic Acid Melt Washing and Drying	2B(iii) and 4I, J, P
00014597- 00014602	Files of F.R. Kennedy	MCA	4A, B, C [p.11] and 4P
00014603- 00014609	Files of F.R. Kennedy	Chloray Progress Reports	4A, B, C [p.11] and 4D, K, Q
00014610- 00014651	Files of F.R. Kennedy	Chloray Engineering	4A, B, C [p.11] and 4P

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00014652- 00014662	Files of F.R. Kennedy	(documents re Chloray)	4D, F, G, I, J, K, Q
00014663- 00014675	Files of F.R. Kennedy	1975 Newark Comments Orange Reclamation	4A, B, C [p.11] and 4K
00014676- 00014702	Files of F.R. Kennedy	Random Misc.	4A, B, C [p.11] and 4P
00014703- 00014710	Files of F.R. Kennedy	Health Survey '75	3 and 4G, T
00014711- 00014754	Files of F.R. Kennedy	Environmental Control- New Jersey	4A, B, C [p.11]
00014755- 00014812	Files of F.R. Kennedy	Proposed IGI Process Sale	2B(iii) and 4I, J, P
00014813- 00014996	Files of F.R. Kennedy	Dacamine	4A, B, C [p.11] and 4P
00014997- 00015056	Files of F.R. Kennedy	Dacamine - 1969	4A, B, C [p.11] and 4P
00015057- 00015135	Files of F.R. Kennedy	Dacamine - 1968	4A, B, C [p.11] and 4P

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00015136- 00015182	Files of F.R. Kennedy	Dacamine - 1967	4A, B, C [p.11] and 4P
00015183- 00015284	Files of F.R. Kennedy	Dacamine - 1966	4A, B, C [p.11] and 4P
00015285- 00015350	Files of F.R. Kennedy	Dacamine - 1965	4A, B, C [p.11] and 4P
00015351- 00015441	Files of F.R. Kennedy	Dacamine - 1964	4A, B, C [p.11] and 4P
00015442- 00015594	Files of F.R. Kennedy	Dacamine - 1963 and earlier	4A, B, C [p.11] and 4P
00015595- 00015692	Files of F.R. Kennedy	Dacamine Work - 1969	4A, B, C [p.11] and 4P
00015693- 00015703	Files of F.R. Kennedy	Dacamine - Foreign	4A, B, C [p.11] and 4P
00015704- 00015869	Files of F.R. Kennedy	Specification Manual Des Moines Herbicides No. 8 Gen	4A, B, C [p.11] and 4P
00015870- 00016059	T.R. Evans Research Center Library Files	Phenol. Trichloro	2B(iii), 4A, B, C [p.11] and 4D, I, J, P, Q

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00016060- 00016122	T.R. Evans Research Center Library Files	Phenol Dichloro	4A, B, C [p.11] and 4P
00016123- 00016125	Diamond Shamrock Advertising Dept.	Heritage - Small Price Card	4B [p.11]
00016126- 00016141	Diamond Shamrock Advertising Dept.	Heritage - Price Sheets	4B [p.11]
00016142- 00016150	Diamond Shamrock Advertising Dept.	Heritage - Catalogs	4B [p.11]
00016151- 00016175	Diamond Shamrock Advertising Dept.	Heritage - Lawn Guide	4B [p.11]
00016176- 00016177	Diamond Shamrock Advertising Dept.	Heritage - 1968 Planning Kits	4B [p.11]
00016178- 00016182	Diamond Shamrock Advertising Dept.	Heritage - Advertising 1969 Sheet	4B [p.11]
00016183- 00016189	Diamond Shamrock Advertising Dept.	Heritage - Price Sheets 1969	4B [p.11]
00016190- 00016198	Diamond Shamrock Advertising Dept.	Heritage - Catalogs 1969	4B [p.11]

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00016199- 00016205	Diamond Shamrock Advertising Dept.	Heritage House - 1969 "The cure for the common lawn"	4B [p.11]
00016206- 00016570	Files of Diamond Shamrock Corporate Law Department	(Heritage House catalogs and sales literature)	4B [p.11]
00016571- 00016582	Files of Diamond Shamrock Corporate Law Department	(Heritage House catalogs and sales literature)	4B [p.11]
00016583- 00016642	Files of Diamond Shamrock Corporate Law Department	(Heritage House catalogs and sales literature)	4B [p.11]
00016643- 00016648	Files of P. Ben Grosscup	(draft product labels)	4B [p.11]
00016649- 00016709	Ag Chem Division Document Storage	U.S. Government - General	2B(i), (ii); 4A, B [p.9]
00016710- 00016731	Ag Chem Division Document Storage	F.R. Kennedy - Mail	2B(i), (ii); 4A, B [p.9]
00016732- 00016817	Ag Chem Division Document Storage	TCB	2B(iii), 4A, B, C [p.11] and 4P

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00016818- 00017117	Files of General Manager, Ag. Chem. Division	Orange	2B(i), (ii), (iii); 4A, B, C(iv) [p.9] and 4K, P
00017118- 00017353	Files of General Manager, Ag. Chem. Division	Orange - Weldon Springs	2B(i), (ii), (iii); 4A, B, C (iv) [p.9] and 4P
00017354- 00017418	Files of General Manager, Ag. Chem. Division	Chloracne	3, 4A, B, C [p.11] and 4D, F, G, J, K, R, Q, T
00017419- 00017478	Files of General Manager, Ag. Chem. Division	Newark	3 and 4D, G, J, K, Q, R, T
00017479- 00017619	Files of General Manager, Ag. Chem. Division	NACA - Hearing on Effects of 2,4,5-T - 1970	3 and 4F, K, Q, T
00017620- 00017694	Files of General Manager, Ag. Chem. Division	California, State of	3 and 4F, Q, T
00017695- 00017722	Files of General Manager, Ag. Chem. Division	Unico	4F, Q

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00017723- 00017738	Files of General Manager, Ag. Chem. Division	Herbicides	4A [p.11]
00017739- 00017793	Files of General Manager, Ag. Chem. Division	Dacamine	4A, B, C [p.11] and 4J, P
00017794- 00017824	Files of General Manager, Ag. Chem. Division	Labelling	4B [p.11]
00017825- 00017837	Files of General Manager, Ag. Chem. Division	U.S.D.A.	4B [p.11]
00017838- 00017843	Files of General Manager, Ag. Chem. Division	Monsanto Company	4B [p.11]
00017844- 00017847	Files of General Manager, Ag. Chem. Division	"D"	2B(i)
00017848- 00017849	Files of General Manager, Ag. Chem. Division	"G"	2B(i)

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00017850- 00017851	Files of General Manager, Ag. Chem. Division	Dow Chemical Company	2B(ii)
00017852- 00017859	Files of General Manager, Ag. Chem. Division	(Diamond Shamrock Chem. Co. Offers Newark Plant For Sale)	4I, P
00017860- 00017976	Files of Lawrence Cecil	Colombia Weedkiller Problems #1	4D, F, Q, T
00017977- 00018086	Files of Lawrence Cecil	Colombia Weedkiller Problems #2	4D, E, F, Q, T
00018087- 00018164	Files of Lawrence Cecil	Colombia Weedkiller Problems #3	4D, F, Q
00018165- 00018193	Files of Lawrence Cecil	Colombia Weedkiller Claim Folder 1968	4D, F, Q
00018194- 00018254	Files of Lawrence Cecil	Colombia Weedkiller Claim Folder 1967	4D, F, Q
00018255- 00018332	Files of F.R. Kennedy	Explosion and Fire - Newark Plant	4H
00018333- 00018360	Files of Mktg. & Sales Manager, Ag. Chem. Division	Phenoxy Task Force	3 and 4E, K, T

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00018361- 00018640	Files of Mktg. & Sales Manager, Ag. Chem. Division	Phenoxy Task Force	3 and 4E, K, T
00018641- 00018828	Files of Mktg. & Sales Manager, Ag. Chem. Division	Phenoxy Task Force	3 and 4E, K, T
00018829- 00019038	Files of Mktg. & Sales Manager, Ag. Chem. Division	Phenoxy Residue Studies	3 and 4E, K, T
00019039- 00019277	Files of Mktg. & Sales Manager, Ag. Chem. Division	NACA Phenoxy Herbicide Task Force	3 and 4E, K, T
00019278- 00019323	Files of Mktg. & Sales Manager, Ag. Chem. Division	2,4-D and 2,4,5-T	2B(iii); 4A, B, C [p.11] and 4I, J, P
00019324- 00019414	Files of Mktg. & Sales Manager, Ag. Chem. Division	Dow - 2,4-D	4A, B, C [p.11] and 4P
00019415- 00019555	Diamond Shamrock Health & Envir. Affairs Dept.	Chloracne 1956-68	3 and 4D, F, G, K, Q, R, T
00019556- 00019576	Former Files of Alex Hlynsky (at T.R. Evans)	2,4-D	4A, B, C [p.11] and 4P

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00019577- 00019582	Former Files of Alex Hlynsky (at T.R. Evans)	2,4,5-Trichlorophenoxy Acetic Acid, 2,4,5-T	4A, B, C [p.11] and 4P
00019583- 00019632	Former Files of Alex Hlynsky (at T.R. Evans)	Agricultural Chemicals 1953 (Includes MCP Process)	4A, B, C [p.11] and 4P
00019633- 00020492	T.R. Evans Research Center Library Files	(responsive pages from research notebooks)	4A, B, C [p.11] and 4P
00020493- 00020569	T.R. Evans Research Center Library Files	(research reports)	4A, B, C [p.11] and 4P
00020570- 00021607	T.R. Evans Research Center Library Files	(progress reports)	4A, B, C [p.11] and 4P
00021608- 00021794	Files of Diamond Shamrock Patent Dept.	U.S.A. Patent Application Serial No. 582,809 Hydrolysis of Polychlorobenzenes	4A, B, C [p.11] and 4K
00021795- 00021841	Files of Diamond Shamrock Patent Dept.	Canadian Patent No. 722,210	4A, B, C [p.11] and 4K

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00021842- 00022032	Files of Diamond Shamrock Patent Dept.	German Patent No. 1,222,934	4A, B, C [p.11] and 4D, F, K, Q
00022033- 00022115	Files of Diamond Shamrock Patent Dept.	Swiss Patent No. 413,858	4A, B, C [p.11] and 4K
00022116- 00022296	Files of Diamond Shamrock Patent Dept.	U.S. Patent No. 3,257,453, Process For Preparing Halophenoxy-carboxylic Acids	4A, B, C [p.11] and 4P
00022297- 00022346	Files of Diamond Shamrock Patent Dept.	Canada Patent No. 764,486 Process For Preparing Halophenoxy-carboxylic Acids	4A, B, C [p.11] and 4P
00022347- 00022471	Files of Diamond Shamrock Patent Dept.	German Serial No. P 15 43 515.1, Filed March 31, 1966	4A, B, C [p.11] and 4P
00022472- 00022499	T.R. Evans Research Center Library Files	Toxicity General	3 and 4D, F, G, Q
00022500- 00022536	Former Files of Edgar A. Lavergne (at T.R. Evans)	(1972 proposal re herbicide disposal)	4A, B, C [p.11] and 4K
00022537- 00022554	Former Files of Alex Hlynsky (at T.R. Evans)	(1960 research)	4A, B, C [p.11] and 4P

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00022555- 00022587	Former Files of L.E. Limpel (at T.R. Evans)	Correspondence on 2,4-D Volatility and Herbicide Testing, New Diamond Formulations	4A, B, C [p.11] and 4P
00022588- 00022626	T.R. Evans Research Center Library Files	(responsive pages from research notebooks)	4A, B, C [p.11] and 4P
00022627- 00022628	Engineering Study Files (T.R. Evans)	(memo re 1966 expansion of Newark Plant)	4A, B, C [p.11] and 4D, P, Q
00022629- 00022674	Engineering Study Files (T.R. Evans)	Agent Orange Distillation Process Group Central File	4A, B, C [p.11] and 4K
00022675- 00022725	T.R. Evans Research Center Library Files	U.S. Government Army Biological Labs BTI Porter	4A, B, C (iv) [p.9] and 4A, B, C [p.11]
00022726- 00022818	T.R. Evans Research Center Library Files	U.S. Government Army Biological Labs Gen	4A, B, C (iv) [p.9] and 4A, B, C [p.11]
00022819- 00023033	Ag Chem Division Document Storage	2,4-D Patents - used	4A, B, C [p.11] and 4P
00023034- 00023039	Diamond Shamrock Health & Envir. Affairs Dept.	(material safety data sheets)	4A, B, C [p.11] and 4P

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DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00023040- 00023095	Files of F.G. Steward	Lit. Reprints Medically Related	3 and 4D, F, K, Q, T
00023096- 00023174	Files of F.G. Steward	Newark Product Files: Na 2,4-D Production	2B(iii) and 4I, J, P
00023175- 00023203	Files of F.G. Steward	Newark Product Files: Ester-Color Reductions	2B(iii) and 4I, J, P
00023204- 00023347	Files of F.G. Steward	Newark Product Files: TCP Purification	2B(iii), (v); 4A, B, C, [p.11] and 4I, J, K, P
00023348- 00023388	Files of F.G. Steward	Operating Instructions (documents from same folder as Nos. 00001413-1458)	2B(iii), 4A, B, C, [p.11] and 4I, J, P
00023389- 00023557	Files of F.G. Steward	Newark Product Files: 2,4-D Operating Instructions	2B(iii) and 4I, J, P
00023558- 00023615	Files of F.G. Steward	Newark Product Files: 2,4-D Quality	2B(iii) and 4I, J, P
00023616- 00023709	Files of F.G. Steward	Newark Product Files: 2,4-D Filtrations and Process Efficiency	2B(iii) and 4I, J, P
00023710- 00023841	Files of F.G. Steward	Newark Product Files: 2,4-D Reaction and Mole Ratio	2B(iii) and 4I, J, P

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00023842- 00023990	Files of F.G. Steward	Newark Product Files: 2,4-D Melt Wash and Dry	2B(iii) and 4I, J, P
00023991- 00024199	Files of F.G. Steward	Monthly Operating Comments	2B(iii) and 4I, J, P
00024200- 00024237	Files of F.G. Steward	Safety - Industrial Hygiene	4A, B, C [p.11] and 4P
00024238- 00024243	Files of F.G. Steward	Safety Notices	4A, B, C [p.11] and 4P
00024244- 00024333	Files of F.G. Steward	Chloracne	3 and 4E, Q, T
00024334- 00024373	Files of F.G. Steward	Chloracne - Urinalysis Tests 10-15	3 and 4G, Q, T
00024374- 00024477	Files of F.G. Steward	Chloracne - General 10-12 1963	3 and 4G, Q, T
00024478- 00024646	Files of F.G. Steward	Chloracne and P-Dioxin	3 and 4G, K, Q, T
00024647- 00024728	Files of F.G. Steward	Operating Comments - 1969	2B(iii) and 4I, J, P
00024729- 00024760	Files of F.G. Steward	Newark Product Files: TCP Operating Instructions	2B(iii) and 4I, J, K, P

DOCUMENT NUMBERS	SOURCE	FOLDER TITLE (OR OTHER FILE DESCRIPTION)	INTERROGATORIES TO WHICH RESPONSIVE
00024761- 00024793	Files of F.G. Steward	Physical Properties	4A, B, C [p.11] and 4P
00024794- 00024805	Files of F.G. Steward	Newark Monthly Reports	2B(iii) and 4I, J, P
00024806- 00024828	Files of F.G. Steward	Newark Plant	2B(iii) and 4I, J, P
00024829- 00025023	Files of F.G. Steward	Newark Product Files: Na 2,4-D Drying	2B(iii) and 4I, J, P
00025024- 00025136	Files of F.G. Steward	Newark Product Files: 2,4-DCP	2B(iii) and 4I, J, P

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10-2150

AFFIDAVIT OF SERVICE

STATE OF NEW YORK)
 : ss.:
COUNTY OF NEW YORK)

MICHAEL M. GORDON, being duly sworn, deposes and says:

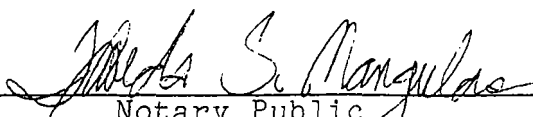
1. I am not a party to this action, am over 18 years of age and reside at 12 West 72nd Street, New York, New York 10023.

2. On June 25, 1982, I served the annexed Diamond Shamrock's Index of Documents Responding to Plaintiffs' Interrogatories to Defendants (First Wave), Revised as of June 25, 1982, on each of the persons named on the annexed list by depositing a true copy of same enclosed in a postpaid properly addressed wrapper, in an official depository under the exclusive care and custody of the United States Postal Service within the State of New York.


Michael M. Gordon

Sworn to before me this

25th day of June, 1982


Notary Public
FRIEDA S. MANGULAS
Notary Public, State of New York
No. 24-4664761
Qualified in Kings County
Certificate filed in New York County

2068 0-2/51

LISTING OF ATTORNEYS

FOR DEFENDANTS

Leonard L. Rivkin
Rivkin, Leff, Sherman & Radler
(for DOW CHEMICAL)
100 Garden City Plaza
Garden City, New York 11530

Morton B. Silberman
Clark, Gagliardi & Miller
(for T H AGRICULTURE &
NUTRITION COMPANY, INC.)
The Inns of Court
99 Court Street
White Plains, New York 10601

John C. Sabetta
Townley & Updike
(for MONSANTO)
405 Lexington Avenue
New York, New York 10174

William Krohley
Kelley Drye & Warren
(for HERCULES, INC.)
101 Park Avenue
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John M. Fitzpatrick
Dilworth, Paxson, Kalish & Levy
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2600 The Fidelity Building
Philadelphia, Pennsylvania 19109

Joan Bernott
Department of Justice
(for THIRD PARTY DEFENDANT USA)
Safeway Building, Room 904D
521 12th Street, N.W.
Washington, D.C. 20530

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Budd, Lerner, Kent, Gross
Picillo & Rosenbaum
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33 Washington Street
Newark, New Jersey 07102

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120 Broadway
New York, New York 10271

Paul V. Esposito
Lewis, Overbeck & Furman
(for RIVERDALE CHEMICAL CO)
135 South LaSalle Street
Suite 1060
Chicago, Illinois 60603

COPIES OF ALL DOCUMENTS MUST
BE SENT TO:

Clerk of the Panel
Judicial Panel on Multidistrict
Litigation
1120 Vermont Avenue, N.W.
Suite 1002
Washington, D.C. 20005

FOR PLAINTIFFS

Victor J. Yannacone, Jr.
(lead counsel)
Yannacone & Yannacone
Post Office Drawer #109
Patchogue, New York 11772

Irving Like, Esq.
Reilly, Like & Schneider
200 West Main Street
Babylon, N. Y. 11702

U. S. DISTRICT

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NEW YORK

★ JUN 17 1982

TIME AM. _____
P.M. _____

-----X

In re

"AGENT ORANGE"

Product Liability Litigation

MDL No. 381

: RESPONSE OF DEFENDANT
: DIAMOND SHAMROCK CORPORATION
: TO PLAINTIFFS' INTERROGATOR
: NO. 3 TO DEFENDANTS (FIRST
: WAVE)

-----X

Defendant Diamond Shamrock Corporation ("Diamond Shamrock") pursuant to Pretrial Order No. 26 dated December 26, 1980, Pretrial Order No. 33 dated February 24, 1982, and the agreement with counsel for plaintiffs of May 27, 1982, hereby answers Interrogatory No. 3 of plaintiffs' Interrogatories to Defendants (First Wave), served January 23, 1981. Diamond Shamrock reserves the right to supplement or amend its answer, and to object to the admissibility as evidence of the answer or the subject matter thereof in any subsequent proceeding herein or the trial of this or any other action.

Interrogatory No. 3: Identify by name and last known address, and if retired so state and supply the last known address of each and every person, scientific, medical, or otherwise, retained by or known to this defendant or known by this defendant to have been retained by or known to any of the other defendants who has studied, evaluated, or reported or directly or indirectly communicated any findings referable to whatever effects were so found upon animals or human beings resulting from exposure, directly or indirectly, in the formulation, design, manufacture, and production, of phenoxy herbicides such as 2,4,5-Trichlorophenoxy Ali-phatics containing but not limited to the synthetic organic

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chemical 2,3,7,8-Tetrachlor Dibenzo p-dioxin (TCDD or "Dioxin") and other herbicides containing Polychlorinated Dibenzo-p-dioxins (PCDDs) and Polychlorinated Dibenzo furans (PCDFs) including the ultimate users and those expected to be exposed to same.

Answer:

Dr. Irving L. Applebaum
Director of Medical Education
and Consultant in Medicine
Newark Beth Israel Hospital
201 Lyons Avenue
Newark, New Jersey

Mr. William F. Barthel
Chief, Toxicology Laboratory
Pesticides Program
Department of Health, Education and Welfare
Public Health Service
National Communicable Disease Center
Atlanta, Georgia

Dr. Donald J. Birmingham
Medical Director - Chief
Dermatology Section
Occupational Health Research and
Training Facility
Department of Health, Education and Welfare
Public Health Service
1014 Broadway
Cincinnati, Ohio

Dr. Jacob Bleiberg
(Deceased, 1974)

Dr. Roger Brodtkin
769 Northfield Avenue
West Orange, New Jersey

Hazleton Laboratories, Incorporated
Falls Church, Virginia

Dr. E. Hurtado
State of New Jersey
Department of Health
Trenton, New Jersey

Industrial Hygiene Foundation of America, Inc.
Mellon Institute
4400 Fifth Avenue
Pittsburgh, Pennsylvania

Dr. Marcus M. Key
Dermatology Section
Occupational Health Research and
Training Facility
Department of Health, Education and Welfare
Public Health Service
1014 Broadway
Cincinnati, Ohio

Dr. Richard W. McBurney
Staff Vice President
Diamond Shamrock Corporation
717 North Harwood Street
Dallas, Texas

Dr. Norman Olivier
Department of Health, Education and Welfare
Public Health Service
Cincinnati, Ohio

Dr. Alan P. Poland
Toxicology Laboratory Pesticides Program
Department of Health, Education and Welfare
National Communicable Disease Center
Atlanta, Georgia

Dr. Paul Possick
Department of Health, Education and Welfare
Public Health Service
Cincinnati, Ohio

E. Lynn Schall
Chief, Occupational Health Program
State of New Jersey
Department of Health
Trenton, New Jersey

Dr. Donald Smith
Department of Health, Education and Welfare
Public Health Service
Atlanta, Georgia

Objection:

Diamond Shamrock continues to object to Interrogatory No. 3 to the extent that it: (a) requests information for phenoxy herbicides that do not contain 2,4,5-trichlorophenoxyacetic acid, 2,4-dichlorophenoxyacetic acid, or an ester, amine, salt or other form thereof; and (b) requests information for the time period subsequent to December 31, 1971. See Defendants' Objections to Plaintiffs' First Wave Interrogatories, dated January 23, 1981, at pages 3-4.

Dated: New York, New York
June 16, 1982

Signature as to Objections:

CADWALADER, WICKERSHAM & TAFT

By Wendell B. Alcorn, Jr.
A Member of the Firm
Attorneys for Defendant
Diamond Shamrock Corporation
One Wall Street
New York, New York 10005
(212) 908-7000

TO: ATTACHED SERVICE LIST
HON. SOL SCHREIBER

STATE OF OHIO)
 : ss.:
COUNTY OF CUYAHOGA)

George A. Lawrence, being duly sworn, says that he is Vice President and General Manager, Agricultural Chemicals Division, of defendant Diamond Shamrock Corporation; that he has read the foregoing answer of Diamond Shamrock to plaintiffs' Interrogatory No. 3 to Defendants (First Wave); and that the foregoing answer to said interrogatory was prepared under his supervision on the basis of records of Diamond Shamrock, information furnished by present and former employees of Diamond Shamrock, and in part on his personal knowledge and to the best of his knowledge, information and belief, is true and correct.


George A. Lawrence

Sworn to before me this
16th day of June, 1982.


Notary Public

LAWRENCE N. GANG, Attorney At Law
Notary Public - State of Ohio
My commission has no expiration date.
Section 147.03 R. C.

2074 02457

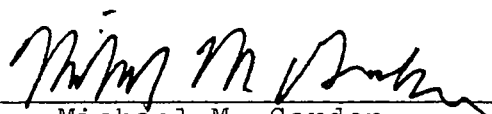
AFFIDAVIT OF SERVICE

STATE OF NEW YORK)
 : ss.:
COUNTY OF NEW YORK)

MICHAEL M. GORDON, being duly sworn, deposes and says:

1. I am not a party to this action, am over 18 years of age and reside at 12 West 72nd Street, New York, New York 10023.

2. On June 17, 1982, I served the annexed Response of Defendant Diamond Shamrock Corporation to Plaintiffs' Interrogatory No. 3 to Defendants (First Wave) on each of the persons named on the annexed list by depositing a true copy of same enclosed in a postpaid properly addressed wrapper, in an official depository under the exclusive care and custody of the United States Postal Service within the State of New York.


Michael M. Gordon

Sworn to before me this
17th day of June, 1982


Notary Public
JENIDA S. MANGULAS
Notary Public, State of New York
No. 24-4864761
Qualified in Kings County
Certificate filed in New York County
Commission Expires March 30, 1984

2075 D-358

LISTING OF ATTORNEYS

FOR DEFENDANTS

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100 Garden City Plaza
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(for T H AGRICULTURE &
NUTRITION COMPANY, INC.)
The Inns of Court
99 Court Street
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Joan Bernott
Department of Justice
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Budd, Larner, Kent, Gross
Picillo & Rosenbaum
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(for HOFFMAN-TAFF)
120 Broadway
New York, New York 10271

Paul V. Esposito
Lewis, Overbeck & Furman
(for RIVERDALE CHEMICAL CO.)
135 South LaSalle Street
Suite 1060
Chicago, Illinois 60603

COPIES OF ALL DOCUMENTS MUST
BE SENT TO:

Clerk of the Panel
Judicial Panel on Multidistrict
Litigation
1120 Vermont Avenue, N.W.
Suite 1002
Washington, D.C. 20005

FOR PLAINTIFFS

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(lead counsel)
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Patchogue, New York 11772

Irving Like, Esq.
Reilly, Like & Schneider
200 West Main Street
Babylon, N. Y. 11702

MDL 381

YANNAcone & YANNAcone

Professional Corporation

Attorneys and Counselors at Law

Victor J. Yannacone (Dec'd)
Victor John Yannacone, Jr.
W. Keith Kavenagh, Ph.D.
Michael T. Sullivan

Area Code 516

Workers Compensation Division: 475-0231 (nights also)
Retirement & Social Security Division: 654-0231
Medical-Legal & Litigation Division: 654-2299
General Practice Division: 654-2222
Environmental, Consumer &
Public Interest Law Division: 654-2662

Townley & Updike, Esqs.
Chrysler Building
405 Lexington Avenue
New York City, New York 10017

FILED
IN CLERK'S OFFICE
U. S. DISTRICT COURT E.D. N.Y.

ATTENTION: John C. Sabetta, Esq.

★ MAY 19 1982 ★

re: Depositions of Monsanto employees

TIME A.M. _____
P.M. _____

Dear counselor:

In MDL 381 document 628, "Answers of Defendant Monsanto Company to Plaintiffs' Interrogatories to Defendants (First Wave)" in response to MDL 381 document 570, you stated that certain "lists of Monsanto and Government employees will be provided to plaintiffs as Supplemental Answers to plaintiffs' Interrogatories Numbers 2 and 4 within a reasonable time hereafter and as soon as possible after they have been compiled." No such lists have been provided to date and we submit that a series of exhibits consisting of merely six digit document numbers is not substantial compliance with our Interrogatories (document 570).

PLEASE TAKE NOTICE that by this letter we request the production of certain present or former employees of defendant Monsanto Company for depositions commencing Tuesday 25 May 1982 at 10:00 AM in the United States Courthouse at Uniondale, and request that each of said witnesses bring with them whatever documents may be necessary to refresh their recollection as to the information sought by Plaintiffs in those Interrogatories designated 3 in document 134, and 2.A. through 2.B, 4.A. through 4.C., 4.I.J., 4.P, 4.K, 4.L., 4.N.O., in document 570, and 2.1 through 2.4, 3.1 through 3.82, 4.1 through 4.14 in document 568.

The specific employees or former employees we request you to produce for oral deposition and a brief description of their titles and positions are:

Dan J. FORRESTAL, former director of Public Relations
Edward A. O'NEAL, JR., retired Chairman of the Board
Tom K. SMITH, JR., former General Manager, Agricultural Chemicals Division
Charles H. SOMMER, JR., retired Chairman of the Board
Frederick W. HATCH, Agricultural Products Consultant, 19581960
Monte C. THRODAHL, Director, Group Vice President
Dr. R. Emmett KELLY, retired Director, Medical Department
Elmer P. WHEELER, Medical Department

We would prefer to commence our examinations with the deposition of Mr. Forrestal, followed immediately by Mr. Smith.

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YANNAKONE & YANNAKONE *Attorneys and Counselors at Law*

Townley & Updike, Esqs.

-2-

18 May 1982

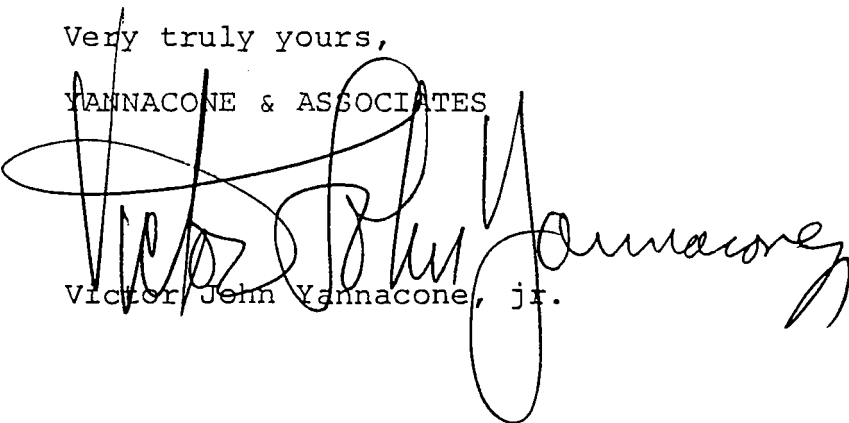
We are willing to accept other present or former employees of Monsanto Company with actual knowledge of the matters on which information is specifically sought:

1. The manufacture of phenoxy herbicides, in particular 2,4,5T;
2. The sources and extent of dioxin contamination of those herbicides;
3. The extent of knowledge within Monsanto about such contamination;
4. The notice given, if any, to the United States Department of Defense about the dioxin contamination of the phenoxy herbicides;
5. The extent of knowledge within Monsanto about the toxicity of the dioxin contaminants of chlorinated phenols;
6. The warnings given, if any, to the United States Department of Defense about the toxicity of dioxins.

We expect our examinations to be conducted in consecutive fashion and proceed to completion wherever possible in a single day. We would appreciate your cooperation toward this end.

Very truly yours,

YANNAKONE & ASSOCIATES


Victor John Yannacone, Jr.

BY HAND: 18 May, 1982 Townley & Updike; Special Master
By Hand: 19 May, 1982 All counsel at Pre-Trial Conference
by mail 19 May 1982 to remainder of counsel of MDL 381 Service List
telephone notice 18 May 1982 to Joan M. Bernott, Esq., U.S. Dept. of Justice

2078 D-2161

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NEW YORK

-----X
In re : MDL No. 381
"AGENT ORANGE" : NOTICE OF DEPOSITION
Product Liability Litigation : UPON ORAL EXAMINATION

FILED

IN CLERK'S OFFICE
U. S. DISTRICT COURT E.D. N.Y.

★ MAY 17 1982 ★

TIME A.M. _____

P.M. _____

PLEASE TAKE NOTICE that, pursuant to Rules 30 and 45 of the Federal Rules of Civil Procedure, defendants will take the deposition upon oral examination of the United States Army Medical Research Institute of Chemical Defense, by an officer, director or managing agent thereof having knowledge of the documents described in the attached Schedule of Documents, before a Notary Public or some other official authorized by law to administer oaths at the United States Courthouse, Uniondale Avenue at Hempstead Turnpike, Uniondale, New York at 10:00 A.M. on May 21, 1982. The examination will continue from day to day until completed. You are invited to attend and cross-examine.

PLEASE TAKE FURTHER NOTICE that pursuant to the Federal Rules of Civil Procedure the person to be examined is commanded

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2162
D-13
#870

to produce at said examination the documents requested in the attached Schedule of Documents.

Dated: New York, New York
May 17, 1982

CADWALADER, WICKERSHAM & TAFT

By Wendell B. Alcorn, Jr. *mmh*
A Member of the Firm
Attorneys for Defendant
Diamond Shamrock Corporation
One Wall Street
New York, New York 10005
(212) 908-7000

TO: SEE ATTACHED SERVICE LIST

SCHEDULE OF DOCUMENTS

In accordance with the definitions and instructions set forth in Defendants' Phase I First Wave Interrogatories (First Set) dated January 15, 1981, a copy of which is annexed hereto as Exhibit A, you are to produce the following documents for inspection and copying by defendants at the time, date and place set forth in the accompanying subpoena duces tecum and ad testificandum (or at such other time, date and place as may be agreed upon):

1. All trip reports prepared by Dr. Fritz Hoffman, former Chief of the Agents Research Branch of the U.S. Army Chemical Research Laboratory, or by anyone else in or about 1962 which refer or relate to dioxin or to an incident at a European factory where certain workers' health was allegedly affected by a chemical compound later identified as dioxin.

2. All minutes, memoranda, notes, outlines and other documents which refer or relate to any oral presentation made by Dr. Fritz Hoffman to employees of the U.S. Army's Biomedical Laboratories and Chemical Laboratories in or about 1962 concerning a visit by Dr. Hoffman to Europe, during which reference was made to dioxin or to an incident at a European factory where certain workers' health was allegedly affected by a chemical compound later identified as dioxin.

3. All minutes of the meetings of Review Point 1, Review Point 2 and Review Point 3 at Edgewood Arsenal (hereinafter

"the Review Points"), and all recommendations, memoranda, notes and other documents prepared by or for members of the Review Points, which refer or relate to dioxin.

4. All documents that refer or relate to a sample of dioxin received by John J. Callahan of the Toxicology Division of the U.S. Army's Biomedical Laboratories in the early 1960's.

5. All documents that refer or relate to research, testing, experimentation, toxicity studies or other work concerning dioxin undertaken by or under the auspices of John J. Callahan, Dr. Edmund Owens, Dr. Bernard P. McNamara, or by any other employee of the U.S. Army's Biomedical Laboratories and Chemical Laboratories.

6. All documents that refer or relate to proposed research, development, testing or evaluation of dioxin in the Chemical Research Laboratory of the U.S. Army's Chemical Laboratories, including all communications to or from Dr. Bernard Jandorf or Dr. Benjamin Witten concerning such research, development, testing or evaluation.

7. All files or former files of John J. Callahan, Ron Castle, Dr. Milton Christianson, Dr. Charles Hasset, Dr. Fritz Hoffman, Dr. Richard Horton, Dr. Bernard Jandorf, Dr. Kazuo Kimura, Elmer Lee, James Lennox, Dr. Bernard P. McNamara, Dr. Edward Metcalf, Jacob Miller, Lester Miller, Dr. Edmund Owens, Dr. Seymour Silver, Dr. Van M. Sim, Dr. Thomas Simmons, Dr. Walter

2082 D-2165

E. Sultan, Dr. William H. Summerson, Dr. Benjamin Witten or any other employee of the U.S. Army's Biomedical Laboratories and Chemical Laboratories which refer or relate to dioxin.

8. All documents relating to any communications to or from the U.S. Army Chemical Corps Intelligence Agency, including all communications to or from Dr. Nathan Gordon, which refer or relate to dioxin.

9. All documents relating to any communications to or from the U.S. Public Health Service, including all communications to or from Dr. Boris Oshoroff, which refer or relate to dioxin, trichlorophenol, 2,4,5-trichlorophenoxyacetic acid, 2,4-dichlorophenoxyacetic acid, or an ester, amine, salt or other form thereof including Agent Orange, Agent Pink, Agent Purple and Agent Green.

10. All documents, not called for in response to paragraphs 8 or 9, relating to any communications to or from any person which refer or relate to dioxin, trichlorophenol, 2,4,5-trichlorophenoxyacetic acid, 2,4-dichlorophenoxyacetic acid, or an ester, amine, salt or other form thereof, including Agent Orange, Agent Pink, Agent Purple and Agent Green.

11. All copies of studies, reports, publications and other literature which refer or relate to dioxin, trichlorophenol, 2,4,5-trichlorophenoxyacetic acid, 2,4-dichlorophenoxyacetic acid, or an ester, amine, salt or other form thereof, including any of the following:

- (a) Kimmig, J., Schulz, K.H.:
Chlorierte aromatische zyklische Ather
als Ursache der sogenannten Chlorakne,
Naturwissenschaften 44,337-338 (1957);
- (b) Kimmig, J., Schulz, K.H.:
Berufliche Akne (sog. Chlorakne)
durch chlorierte aromatische zyklische
Ather, Dermatologica 115,540-546 (1957);
- (c) Schulz, K.H.:
Klinische und experimentelle Unter-
suchungen zur Atiologie der Chloracne,
Arch. Klin. Exp. Dermatol. 206,589-596
(1957);
- (d) Bauer, H., Schulz, K.H., Spiegelberg, U.:
Berufliche Vergiftungen bei der Herstellung
von Chlorphenol-Verbindungen, Arch. Gewerbe-
pathol. Gewerbehyg. 18,538-555 (1961);
- (e) Sandermann, W., Stockmann, H., Casten, R.:
Über die Pyrolyse des Pentachlorphenols,
Chem. Ber. 90,690-692 (1957);
- (f) Bleiburg, J., Wallen, M., Brodtkin, R.,
Appelbaum, I.L.:
Industrially acquired porphyria, Arch.
Dermatol. 89,793-797 (1964).

12. All documents that refer or relate to a meeting held to discuss and evaluate the toxicity of 2,4-D and 2,4,5-T compounds on April 26, 1963 at Edgewood Arsenal, Maryland, including all minutes of said meeting and all data, reports, medical literature, appendices and other documents referred to in the minutes.

13. All organization charts for each laboratory, division, branch, committee and other unit of the U.S. Army's Biomedical Laboratories and Chemical Laboratories at Edgewood Arsenal for the period from January 1, 1960 to January 1, 1972.

14. All documents not called for in response to the preceding paragraphs that are responsive to Defendants' Phase I

First Wave Interrogatories (First Set) dated January 15, 1981 (Exhibit A hereto), but which have not yet been produced to the parties by the United States of America in In re "Agent Orange" Product Liability Litigation, MDL No. 381.

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NEW YORK

-----x
In re : MDL No. 381
"AGENT ORANGE" : DEFENDANTS' PHASE I
Product Liability Litigation : FIRST WAVE INTERROGATORIES
: (FIRST SET)
-----x

PLEASE TAKE NOTICE that, pursuant to Rule 33 of the Federal Rules of Civil Procedure and Pretrial Order No. 26, filed December 29, 1980, the undersigned defendants demand that the United States of America and each plaintiff herein serve and file answers to each of the following Interrogatories under oath on or before February 13, 1981, in accordance with the definitions and instructions attached hereto and made a part hereof.

ENTERED

JAN 7 1981

car

INTERROGATORIES

FOUND FILE

A. RESEARCH, DEVELOPMENT, TESTING
AND EVALUATION OF HERBICIDES

1. Identify separately each unit of the United States, as defined herein, including those listed on Appendix A hereto, that engaged during the period prior to January 1, 1972 in any activities relating to the research, development, testing or evaluation of herbicides for potential use in connection with military activities, and as to each such unit, describe:

- a. The nature and extent of its involvement in such activities; and
- b. The duration of its involvement in such activities.

2. As to each separate unit of the United States identified in the response to Interrogatory 1, identify each

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person in charge of or with responsibility for any of its activities relating to the research, development, testing or evaluation of herbicides for potential use in connection with military activities.

3. Give an organization chart for each separate unit of the United States identified in the response to Interrogatory 1 for each period prior to January 1, 1972 during which it was involved in activities relating to the research, development, testing or evaluation of herbicides for potential use in connection with military activities.

4. Identify each communication, meeting, contract or other transaction between the United States and any of the defendants herein, or any officer, agent, employee or other person acting or purporting to act on behalf of a defendant, that concerns or relates to any research, development, testing or evaluation of herbicides prior to January 1, 1972 for potential use in connection with military activities.

5. Identify each document constituting, memorializing, disclosing, referring or relating to each communication, meeting, contract or other transaction identified in the response to Interrogatory 4.

6. Identify each project concerning the research, development, testing or evaluation of herbicides for potential use in connection with military activities, including those projects listed on Appendix B hereto.

7. As to each project identified in the response to Interrogatory 6, identify each document that constitutes, memorializes, discloses, refers or relates to the results of research,

development, testing or evaluation that was conducted pursuant to that project.

B. SPECIFICATION, SELECTION, PURCHASE,
PROCUREMENT, PRODUCTION, SHIPMENT
AND DELIVERY OF HERBICIDES

8. Identify separately each unit of the United States, as defined herein, including those listed on Appendix A hereto, that engaged during the period prior to January 1, 1972 in any activities relating to the specification, selection, purchase, procurement, production, shipment or delivery of herbicides for potential use in connection with military activities, and as to each such unit, describe:

a. The nature and extent of its involvement in such activities; and

b. The duration of its involvement in such activities.

9. As to each separate unit of the United States identified in the response to Interrogatory 8, identify each person in charge of or with responsibility for any of its activities relating to the specification, selection, purchase, procurement, production, shipment or delivery of herbicides for potential use in connection with military activities.

10. Give an organization chart for each separate unit of the United States identified in the response to Interrogatory 8 for each period prior to January 1, 1972 during which it was involved in activities relating to the specification, selection, purchase, procurement, production, shipment or delivery of herbicides for potential use in connection with military activities.

11. Identify each communication, meeting, contract or other transaction between the United States and any of the defendants herein, or any officer, agent, employee or other person acting or purporting to act on behalf of a defendant, that concerns or relates to the specification, selection, purchase, procurement, production, shipment or delivery of herbicides prior to January 1, 1972 for potential use in connection with military activities.

12. Identify each document constituting, memorializing, disclosing, referring or relating to each communication, meeting, contract or other transaction identified in response to Interrogatory 11.

13. Identify each herbicide used or tested by the United States prior to January 1, 1972 for potential use in connection with military activities, and with respect to each such herbicide:

a. State the dates during which it was used and/or tested;

b. Identify each geographical location at which it was used and/or tested; and

c. Identify the suppliers and/or manufacturers, and state the amounts contracted for by the United States and the amounts delivered to the United States by each such supplier and/or manufacturer.

14. For the period from January 1, 1961 to January 1, 1972, identify each person in charge of, with responsibility for, or who participated in or was consulted with respect to:

a. Selecting, contracting with or making changes in suppliers and manufacturers of herbicides for potential use in

connection with military activities;

b. Preparing, evaluating, selecting, modifying or approving technical specifications for each herbicide selected, purchased or procured by the United States for potential use in connection with military activities;

c. Preparing, evaluating, selecting, modifying or approving labeling specifications for each herbicide selected, purchased or procured by the United States for potential use in connection with military activities; and

d. Preparing, evaluating, selecting, modifying or approving shipping and financial specifications for each herbicide selected, purchased or procured by the United States for potential use in connection with military activities.

15. For the period from January 1, 1961 to January 1, 1972, identify each document that describes, refers or relates to

a. The selection of, contracts with, or the making of changes in suppliers and manufacturers of herbicides for potential use in connection with military activities;

b. The preparation, evaluation, selection, modification or approval of technical specifications for each herbicide selected, purchased or procured by the United States for potential use in connection with military activities;

c. The preparation, evaluation, selection, modification or approval of labeling specifications for each herbicide selected, purchased or procured by the United States for potential use in connection with military activities; and

d. The preparation, evaluation, selection, modification or approval of shipping and financial specifications for each herbicide selected, purchased or procured by the United States for potential use in connection with military activities.

16. For the period from January 1, 1961 to January 1, 1972, identify each person in charge of, with responsibility for, or who participated in or was consulted with respect to:

a. Contacting and negotiating with suppliers and manufacturers concerning contracts for, and the purchase or procurement of herbicides for potential use in connection with military activities;

b. Evaluating, considering or determining conformity or compliance by suppliers and manufacturers with technical specifications for each herbicide selected, purchased or procured by the United States for potential use in connection with military activities;

c. Evaluating, considering or determining conformity or compliance by suppliers and manufacturers with labeling specifications for each herbicide selected, purchased or procured by the United States for potential use in connection with military activities;

d. Evaluating, considering or determining conformity or compliance by suppliers and manufacturers with shipping and financial specifications for each herbicide selected, purchased or procured by the United States for potential use in connection with military activities; and

e. Evaluating, considering or determining performance by suppliers and manufacturers of any contracts for herbicides selected, purchased or procured by the United States for potential use in connection with military activities.

17. For the period from January 1, 1961 to January 1, 1972, identify each document that describes, refers or relates to:

a. Contracts and negotiations with suppliers and manufacturers concerning contracts for, and the purchase or

procurement of herbicides for potential use in connection with military activities;

b. The evaluation, consideration or determination of conformity or compliance by suppliers and manufacturers with technical specifications for each herbicide selected, purchased or procured by the United States for potential use in connection with military activities;

c. The evaluation, consideration or determination of conformity or compliance by suppliers and manufacturers with labeling specifications for each herbicide selected, purchased or procured by the United States for potential use in connection with military activities;

d. The evaluation, consideration or determination of conformity or compliance by suppliers and manufacturers with shipping and financial specifications for each herbicide selected, purchased or procured by the United States for potential use in connection with military activities; and

e. The evaluation, consideration or determination of performance by suppliers and manufacturers of any contracts for herbicides selected, purchased or procured by the United States for potential use in connection with military activities.

18. For the period from January 1, 1961 to January 1, 1972, identify each person in charge of, with responsibility for, or who participated in or was consulted with respect to:

a. The implementation, application or use of the Defense Production Act of 1950, the Defense Materials System, or any regulations, orders, procedures, directives or priority ratings issued or available pursuant thereto, in connection with the production, procurement, purchase or shipment of herbicides for use in connection with military activities.

19. For the period from January 1, 1961 to January 1, 1972, identify each document that:

a. Discusses, refers or relates to the implementation, application or use of the Defense Production Act of 1950, the Defense Materials System, or any regulations, orders, procedures, directives or priority ratings issued or available pursuant thereto, in connection with the production, procurement, purchase or shipment of herbicides for use in connection with military activities; and

b. Contains a reference to the Defense Production Act of 1950, the Defense Materials System, or any regulations, orders, procedures, directives or priority ratings issued or available pursuant thereto, and which was prepared in connection with the production, procurement, purchase or shipment of herbicides for use in connection with military activities.

C. USE, APPLICATION AND
DISPOSAL OF HERBICIDES

20. Identify separately each unit of the United States as defined herein, including those listed on Appendix A hereto, that engaged during the period from January 1, 1961 to January 1, 1972 in any activities relating to the use, application (i.e., dispersal) or disposal of herbicides in connection with military activities in Southeast Asia, and as to each such unit, describe:

a. The nature and extent of its involvement in such activities; and

b. The duration of its involvement in such activities.

21. As to each separate unit of the United States identified in the response to Interrogatory 20, identify each

person in charge of or with responsibility for any of its activities relating to the use, application or disposal of herbicides in connection with military activities in Southeast Asia.

22. Give an organization chart for each separate unit of the United States identified in the response to Interrogatory 20 for each period between January 1, 1961 and January 1, 1972 during which it was involved in activities relating to the use, application or disposal of herbicides in connection with military activities in Southeast Asia.

23. Identify each communication, meeting or other transaction between the United States and any of the defendants herein or any officer, agent, employee or other person acting or purporting to act on behalf of a defendant, that concerns or relates to the use, application or disposal during the period from January 1, 1961 to January 1, 1972 of herbicides in connection with military activities in Southeast Asia.

24. Identify each document describing, referring or relating to each communication, meeting or other transaction identified in the response to Interrogatory 23.

25. Identify each person in charge of, with responsibility for, or who participated in or was consulted with respect to:

a. Evaluating, considering or determining whether and the purposes for which herbicides would be used in connection with military activities in Southeast Asia;

b. Evaluating, considering or determining which herbicides would be used in connection with military activities in Southeast Asia;

c. Developing, considering, evaluating, selecting, modifying, issuing and approving procedures, guidelines, instructions, directives, orders or rules and regulations relating to the time, place and manner of application of each herbicide used in connection with military activities in Southeast Asia;

d. Developing, considering, evaluating, selecting, modifying, issuing and approving procedures, guidelines, instructions, directives, orders or rules and regulations relating to the conditions for and all other considerations pertaining to the application of each herbicide used in connection with military activities in Southeast Asia;

e. Evaluating, considering or determining the effectiveness, usefulness and tactical or strategic value of each herbicide used in connection with military activities in Southeast Asia; and

f. Evaluating, considering or determining whether to suspend, modify or discontinue the application of any herbicide used in connection with military activities in Southeast Asia.

26. Identify each document that constitutes, memorializes, discloses, describes, refers or relates to:

a. The evaluation, consideration or determination of whether and the purposes for which herbicides would be used in connection with military activities in Southeast Asia;

b. The development, consideration, evaluation, selection, modification, issuance and approval of procedures, guidelines, instructions, directives, orders or rules and regulations relating to the time, place and manner of application of each herbicide used in connection with military activities in Southeast Asia;

c. The development, consideration, evaluation, selection, modification, issuance and approval of procedures, guidelines, instructions, directives, orders or rules and regulations relating to the conditions for and all other considerations pertaining to the application of each herbicide used in connection with military activities in Southeast Asia;

d. The evaluation, consideration or determination of the effectiveness, usefulness and tactical or strategic value of each herbicide used in connection with military activities in Southeast Asia; and

e. The evaluation, consideration or determination of whether to suspend, modify or discontinue the application of any herbicide used in connection with military activities in Southeast Asia.

D. HEALTH EFFECTS AND DIOXIN

27. For the period prior to January 1, 1972, identify each person in charge of, with responsibility for, or who participated in or was consulted with respect to:

a. Evaluating, considering or determining the toxicity or health effects of dioxin, 2,4,5-trichlorophenoxyacetic acid, 2,4-dichlorophenoxyacetic acid or any of the herbicides involved in this action;

b. Evaluating, considering or determining matters relating to the synthesis, analysis, identification, origin, destruction or removal of dioxin; and

c. Evaluating, considering or determining matters relating to the presence or possible presence of dioxin in 2,4,5-trichlorophenoxyacetic acid, 2,4-dichlorophenoxyacetic acid or any of the herbicides involved in this action.

28. For the period prior to January 1, 1972, identify each document that discusses, mentions, refers or relates to:

a. The toxicity or health effects of dioxin, 2,4,5-trichlorophenoxyacetic acid, 2,4-dichlorophenoxyacetic acid or any of the herbicides involved in this action;

b. The synthesis, analysis, identification, origin, destruction or removal of dioxin; and

c. The presence or possible presence of dioxin in 2,4,5-trichlorophenoxyacetic acid, 2,4-dichlorophenoxyacetic acid or any of the herbicides involved in this action.

DEFINITIONS AND INSTRUCTIONS

1. The following definitions apply herein:

a. "Dioxin" means all polychlorinated dibenzo-p-dioxins (PCDDs) and all polychlorinated dibenzofurans (PCDFs).

b. "Document" is used in the broadest possible sense and means any written or graphic matter of whatever kind or nature, or any other means of preserving thoughts or expression (including, without limitation, tape recordings and/or transcriptions thereof), and all tangible things from which information can be processed or transcribed, whether originals, copies or drafts (including without limitation, non-identical copies), however produced or reproduced. Note that a document with handwritten or typewritten notes, editing or other marks, etc., is not and shall not be deemed identical to one without such notes, marks, etc. "Documents" also means all graphic, mechanical, or electronic reproductions, representations, recordings, or compilations of data of any kind, including but not limited to, drawings, charts, graphs, motion picture films, microfilms, microfiles, photographs, tape recordings,

videotapes, any transcripts or printouts produced therefrom, and all drafts of any of the foregoing.

c. "Draft" means any earlier, preliminary, preparatory or tentative version of all, or part of the document, whether or not such draft was superseded by a later draft, and whether or not the terms of the draft are the same as, or different from the terms of the final document.

d. "Herbicide" means any substance containing 2,4,5-trichlorophenoxyacetic acid, 2,4-dichlorophenoxyacetic acid, or an ester, amine, salt or other form thereof, including Agent Orange, Agent Pink, Agent Purple, Agent Green and any other herbicide involved in this action.

e. "Identify" when used with reference to a natural person means state:

- (i) his full name and present address (or if his present address is not known, his last known address); and
- (ii) his present (or, if his present is not known, his last known) job, position, rank, and/or professional affiliations, and the same information for the time of the acts or other matters to which the Interrogatory is addressed.

f. "Identify" when used with reference to any person other than a natural person means state:

- (i) the full name thereof;
- (ii) the nature of the activity engaged in;
- (iii) the address and principal place of business; and
- (iv) if applicable, the jurisdiction under the laws

of which it has been organized and the date of such organization.

g. "Identify" when used with reference to a document means state:

- (i) its nature (e.g., letter, telegram, memorandum, chart, report, list, etc.), date, and the identity of the author and addressees;
- (ii) the identity of each person who signed the document and each person who participated in preparing the document;
- (iii) its title or heading;
- (iv) its substance; and
- (v) its present (or, if the present is not known, the last known) location and custodian.

h. "Identify" when used with reference to a communication, meeting or transaction means state:

- (i) its nature (e.g., telephone conversation, face-to-face conversation or meeting, letter, memorandum, etc.);
- (ii) the date and place thereof (and if a telephone conversation, the place each participant was located);
- (iii) the identity of each person participating in, present during, or witness to, all or any part thereof; and
- (iv) the substance thereof.

i. "Identify" when used with reference to a herbicide means state its full chemical formulation and any trade or other names by which it is known.

j. "Identify" when used with reference to a project or military operation means state any names by which it was known, its purpose or goal, the dates it began and ended, the locations at which it was conducted, and identify separately persons:

(i) who approved or authorized its undertaking;

(ii) who were responsible for operational management; and

(iii) who were responsible for evaluating its results.

k. "Identify" when used in any context other than hereinaabove set forth means describe the pertinent act, work, situation, event, etc., as fully as possible, and identify each person in any way involved therein and each document or communication in which such act, work, situation, event, etc., is recorded, described, discussed or otherwise referred to.

l. "Labeling specifications" means those portions of contract specifications for a product that direct what markings shall be made on the product or its container.

m. "Person" means any natural person, individual, partnership, company, corporation, government body or any other entity.

n. "Shipping and financial specifications" means those portions of contract specifications for a product that direct the packing and manner of shipping for the product and that pertain to the price and payment terms.

o. "Technical specifications" means those portions of contract specifications that detail the chemical or other composition, performance and production standards of the product.

p. "United States" means THE UNITED STATES OF AMERICA and its offices, departments, bureaus, agencies, representatives, department heads, agency heads, bureau chiefs, agents, attorneys, employees, or any other persons, acting or purporting to act for, or on behalf of THE UNITED STATES OF AMERICA, under the authority or control of THE UNITED STATES OF AMERICA, or any one or more of the foregoing.

q. "You" means the United States, as defined above, and each plaintiff herein.

2. Each Interrogatory is to be answered to the extent of all information available to you, including all documents and other sources of knowledge within your possession, custody or control, or within the possession, custody or control of your attorneys, wherever located, and including your documents placed in independent storage facilities.

3. Unless otherwise indicated, each Interrogatory requests information for the period prior to January 1, 1972, including all information available from documents dated, prepared, sent or received, in whole or in part, prior to January 1, 1972. In addition, however, when any document refers or relates to the period prior to January 1, 1972, you should include the information from that document in your response without limitation as to when the document was dated, prepared, sent or received.

4. Each Interrogatory that refers to any group of persons is to be answered separately and with particularity as to each member of any such group.

5. Each Interrogatory that refers to herbicides is to

be answered separately and with particularity as to each applicable herbicide.

6. Except where explicitly indicated otherwise, each Interrogatory herein should be construed independently and not by reference to any other paragraph for the purpose of limitation.

7. If the answer to all or any part of an Interrogatory is not now known or you are otherwise not able to answer fully, so state in response to such Interrogatory or part thereof, state the reasons, and furnish whatever responsive information is now known or otherwise available.

8. If any privilege is claimed as to any information called for, or as to any document required to be identified by an Interrogatory:

- (i) state the nature of the privilege claimed (e.g., attorney-client, work product, etc.);
- (ii) state the basis for claiming the privilege as to the specific information or document;
- (iii) if the privilege is claimed with respect to any information, identify each person who has knowledge of such information, or to whom such information has been communicated in any way, at any time; and
- (iv) if the privilege is claimed as to any document, identify such document.

9. Certain of the Interrogatories herein seek disclosure that goes beyond the issues defendants contend should be tried in Phase I. Defendants have nevertheless included such Interrogatories because the issues for Phase I trial have not yet

been defined by the Court. Defendants reserve their right to modify or supplement these Interrogatories to the extent required by the Court's determinations as to the standards and elements of the government contract defense.

10. "And" as well as "or" shall be construed either disjunctively or conjunctively as necessary to bring within the scope of the specification all responses which might otherwise be construed to be outside its scope. "Each" shall be construed to include the word "every" and "every" shall be construed to include the word "each". "Any" shall be construed to include the word "all" and "all" shall be construed to include the word "any". "Including" shall be construed to include the phrase "without limitation".

Dated: New York, New York
January 15, 1981

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TO: MDL SERVICE LIST

APPENDIX A

EXECUTIVE BRANCH

I. Department of Defense

A. Defense Supply Agency

1. Defense General Supply Center
Richmond, Virginia

a. Directorate of Procurement
and Production

2. Contract Administration Services

a. Office of Contracts Compliance

b. Offices of Contract Administration
Services Regions

B. Defense Advanced Research Projects Agency

C. Department of the Army

1. Fort Detrick, Maryland

a. Biological Laboratories

2. Edgewood Arsenal, Maryland

a. Weapons Development and Engineering
Laboratories - Chemical Process Laboratory

b. Office of Procurement and Production

3. Camp Drum, New York

4. Dugway, Utah Proving Grounds

D. Department of the Air Force

1. Eglin Air Force Base, Florida

a. Armament Development and Test Center

2. Brooks Air Force Base, Texas

a. Occupational and Environmental Health
Laboratory

3. Wright-Patterson Air Force Base, Ohio

a. Aerospace Research Laboratories

b. Air Force Logistics Command

- 4. Directorate of Aerospace Fuels
 - a. Kelly Air Force Base, Texas
 - b. Aerospace Fuels Field Offices - Transportation Branch
- 5. Surgeon General
- 6. Operation RANCH HAND
- E. Department of the Navy
 - 1. Naval Construction Battalion Center Gulfport, Mississippi
- F. Military Assistance Command in Vietnam
 - 1. "203 Committee"
- G. Institute for Defense Analyses
 - 1. Project AGILE

II. Department of Commerce

- A. Business and Defense Services Administration
 - 1. Chemicals and Allied Products Division
 - 2. Office of Industrial Mobilization

III. Department of Agriculture

- A. Office of Science and Education
 - 1. Agricultural Research Service
 - a. Pesticide Regulation Division
 - b. Crop Research Division - Crops Protection Research Branch
 - c. Texas and Puerto Rico operations
 - d. Plant Industry Station Beltsville, Maryland
- B. Advisory Committee on 2,4,5-T
- C. Forest Service

IV. Department of Health, Education and Welfare

- A. Public Health Service
 - 1. National Institute of Environmental Health Sciences
 - a. NIEHS Laboratories Research Triangle, North Carolina

2. Food and Drug Administration

V. Department of State

- A. American Embassy, Republic of Vietnam

VI. Department of the Interior

VII. Executive Office of the President

- A. Office of Civil and Defense Mobilization
- B. Council on Environmental Quality
- C. National Security Council
 - 1. Central Intelligence Agency
- D. Office of Science and Technology
 - 1. Panel on Herbicides of the President's Science Advisory Committee

INDEPENDENT AND QUASI-OFFICIAL AGENCIES

VIII. National Academy of Sciences

- A. "ABC Committee" (a committee to investigate biological and chemical warfare)
- B. Committee on the Effects of Herbicides in Vietnam

IX. National Research Council

X. Environmental Protection Agency

- A. Advisory Committee on 2,4,5-T

MISCELLANEOUS

XI. Department of War

- A. War Research Service

Appendix B

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APPENDIX B

1. Projects concerning the testing of herbicides for potential use during World War II;
2. Projects undertaken after World War II which were conducted in greenhouses and/or Puerto Rico;
3. Projects conducted at or involving Fort Detrick, Maryland, Eglin Air Force Base, Florida and Camp Drum, New York;
4. Projects rendering assistance to or undertaken in cooperation with foreign nations, including specifically the United Kingdom;
5. Projects undertaken pursuant to or in connection with a request by the Department of Defense in or about May 1961 to determine the feasibility of herbicide operations in Vietnam;
6. Projects concerning the possible manufacture of herbicides by or under the direct control of the United States at Weldon Springs, Missouri, Muscle Shoals, Alabama or elsewhere;
7. Operation HADES;
8. Operation RANCH HAND; and
9. Project AGILE.

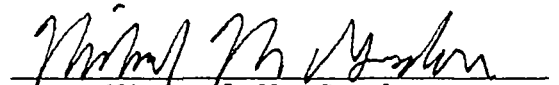
AFFIDAVIT OF SERVICE

STATE OF NEW YORK)
 : ss.:
COUNTY OF NEW YORK)

MICHAEL M. GORDON, being duly sworn, deposes and says:

1. I am not a party to this action, am over 18 years of age and reside at 12 West 72nd Street, New York, New York 10023.

2. On May 17, 1982, I served the annexed Notice of Deposition Upon Oral Examination on each of the persons named on the annexed list by depositing a true copy of same enclosed in a postpaid properly addressed wrapper, in an official depository under the exclusive care and custody of the United States Postal Service within the State of New York.


Michael M. Gordon

Sworn to before me this
17th day of May, 1982


Notary Public

ALAN M. PARNES
Notary Public, State of New York
No. 30-4504183
Qualified in Nassau County 83
Commission Expires March 30, 1986

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D-2194

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COPIES OF ALL DOCUMENTS MUST
BE SENT TO:

Clerk of the Panel
Judicial Panel on Multidistrict
Litigation
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Moyer v. Dow
Memos

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D-2196

re: The Dow Chemical Co., et al.

EPA ATTORNEY
Michael S. Winer
Dorothy E. Patton
Kevin Lee

THE DOW CHEMICAL COMPANY ATTOR
Edward W. Warren
Kirkland & Ellis

DATE	WITNESS	PP OF TRANS	EXHIBIT
7-11-79	Prehearing Conference (Second)	1 - 117	-----
10-17-79	Prehearing Conference (Third)	1 - 93	-----
12-4-79	Prehearing Conference (Fourth)	1 - 148	-----
1-9-80	Prehearing Conference (Fifth)	1 - 91	-----
1-23-80	Prehearing Conference (Sixth)	1 - 105	-----
2-20-80	Prehearing Conference (Seventh)	1 - 113	-----
2-29-80	Prehearing Conference (Eighth)	1 - 102	-----
3-14-80	Ronald L. Thomas Anne Barton	1 - 205 **165-205**	No. 1 - 8, 9, 10 11, 1001 1002, 10 1004
3-17-80	Dr. Dawn Goodman	206 - 460	12 - 18 20 - 31 1005, 100 1007, 100 1009
3-18-80	Dr. Roy E. Albert	464 - 4528	Nos. 32--
3-26-80	Administrative Conference (Special)	1 - 106	-- --
4-3-80	Dr. Diane Kay Courtney	548 - 774	EPA 41 - Dow's 1010, 10
4-4-80	Dr. Diane Kay Courtney (Resumed)	779 - 850	Dow's 1012-102 EPA's 89
4-8-80	Mary Burr Paxton	868 - 1103	EPA 82 - Dow 1026 thru 103 1015-1
4-9-80	Dr. Gary D. Hodgen Wilbur P. McNulty	1108 - 1163 1164 - 1202	EPA 91-10 Dow - 103
4-10-80	Michael I. Luster	1209 - 1265	EPA 110-1 Dow - 103 & 1037

In re The Dow Chemical Company, et al.

- 2 -

DATE	WITNESS	PP OF TRANS.	EXHIBIT
4-11-80	Dr. Renate D. Kimbrough	1271 - 1311	EPA 124 -130
4-16-80	William M. Upholt	1330 - 1430	EPA 139 & 140 Dow 1038,1039 1040,1041, 1042 1043,1044 & 1045
4-17-80	Dr. Morton Beroza	1440 - 1657	EPA 141-163 & 150-151 Dow 1046,1047 1048,1049 & 1050
4-18-80	Robert A. Maxey Thomas E. Dixon	1665 - 1729 1731 - 1861	EPA 165,166, 167,169,170- 183 & 176-1 Dow 1053,1054 1055,1056 & 1057
4-22-80	Robert W. Baughman Frederick W. Kutz	1877 - 1961 1964 - 2047	EPA 184 -199 Dow 1058-106 EPA 200,131- Dow 1065 & 1
4-23-80	Aubrey E. Dupuy,Jr. Dr. Gunter Zweig	2059 - 2177 2177 - 2213	EPA 200 -211 Dow 1068-107
4-24-80	Robert L. Harless	2221 - 2469	EPA 212 - 22 Dow 1078 -10 1086 -10
4-25-80	Robert L. Harless Thomas O. Tiernan	2475 - 2532 2533 - 2693	EPA 211-222 Dow 1078-110.
4-30-80	Dr. Michael L. Gross	2700 - 2902	EPA 223 - 2. Dow 1109-111.
5-1-80	James J. Boland	2911 - 3101	EPA 229 - 23 Dow 1113 & 11

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In re The Dow Chemical Co., et al.

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DATE	WITNESS	PP OF TRANS.	EXHIBITS
5-2-80	Michael J. Dellarco	3110 - 3358	-----
5-6-80	Michael J. Dellarco Charles Lewis	3387 - 3500 3510 - 3626	EPA 234 thru 241 1115, 1116, 1117 EPA 242 thru 286
5-7-80	Charles Lewis	3632 - 3865	EPA 248 - 293 Dow 1117 - 1121
5-8-80	Lester Baker William Edgar Matthews Richard Petrie	3872 - 3928 3929 - 3984 3985 - 4131	EPA 294 - 328 Dow 1122 & 1123
5-9-80	Richard Petrie Wilbur D. Wise Emil Regelman	4137 - 4168 4177 - 4223 4235 - 4365	EPA 242 - 247 296-321, 321a 322-331 Dow 1124
5-12-80	George W. Keitt	4371 - 4592	Dow 1126 - 1129
5-13-80	George W. Keitt William Loy John Anderson	4598 - 4669 4700 - 4812 4812 - 4859	EPA 333 - 364 365 - 386 424 - 426 481a, 382a, 383a
5-14-80	John Anderson Bernard Smale	4865 - 4959 4980 - 5145	EPA 387 - 390 395 - 423 DOW 1130-1132 1133 withdra 1134-1138 & 1140
5-15-80	Thomas Harrison Thomas Ellwanger Gisela Green	5156 - 5311 5312 - 5386 5387 - 5431	EPA 431-432, 44 434-455 & 4 DOW 1141 - 1144
5-16-80	Dr. Daniel Elam	5439 - 5555	EPA 457-461 460c & 460c DOW 1145

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DATE	WITNESS	PP. OF TRANS.	EXHIBIT
5-20-80	Ugo E. Pezzi	5561 - 5726	EPA 464 - 467 DOW 1146-1152
5-21-80	Dr. Jack D. Griffith	5734 - 5983	EPA 468-472 DOW 1153
5-22-80	Dr. Jack D. Griffith	5988 - 6318	EPA 468 -472 DOW 1158 & 1162 - 117
5-23-80	Dr. Thomas J. Keefe	6324 - 6587	EPA 476 Dow 1171, 1172
5-27-80	Robert C. Duncan	6594 - 6707	EPA 476-478
5-29-80	Ian C.T. Nisbet	6725 - 7001	EPA 494 DOW 1173 - 1175 1177 - 1179
5-30-80	Bonnie Hill	7009 - 7106	EPA 483 - 493a
6-3-80	Administrative Session	7110 - 7159	-----
6-5-80	Neil T. Skill	7167 - 7235	EPA 462 & 463 DOW 1132
6-6-80	James R. Yowell	7244 - 7330	EPA 495 - 512 DOW 1180 - 118
6-12-80	Frank J. Beck, Jr. Connie J. Stone	7381 - 7451 7459 - 7499	EPA 513 - 534
6-17-80	Dr. Rainer Frentzel-Beyme	7505 - 7710	EPA 535 - 540 DOW 1183
6-18-80	Kirk T. Kitchin	7763 - 7786	EPA 541 - 558
6-24-80	Joseph F. Holson	7792 - 7954	EPA 559 - 561 DOW 1184 - 119
6-25-80	Michale L. Gross (recalled) Robert L. Harless (recalled)	7970 - 8142 8143 - 8168	EPA 223A, 562 563 DOW 1192-1204
6-27-80	Dr. George Streinsinger	8185 - 8459	EPA 564 - 573 DOW 1206

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DATE	WITNESS	PP. OF TRANSCRIPT	EXHIBITS
6-30-80	Conference	8466 - 8483	--
7-1-80	Arthur W. Galston	8495 - 8588	EPA 579 - 583 DOW 1210
7-3-80	Dr. Matthew Meselson	8633 - 8787	EPA 584,585 & 586 DOW 1211 & 1212
7-7-80	Olav Axelson	8821 - 9098	EPA 587 - 599 DOW 1213 - 1219
* 7-9-80	Patricia Clary Irene Durbin	18 - 101 103 - 157	EPA 600 - 621 DOW 1220-1224
* 7-10-80	Gail Slentz	165 - 231	EPA 622 - 631 DOW 1225 - 1229
7-15-80	Jere Christner	9132 - 9316	USDA - 650 - 653 DOW 1230 and 1231
7-16-80	Dr. Logan Norris	9327 - 9520	Nos. 654 - 663 DOW 1232, 1233, 1234
7-17-80	Dr. Logan Norris	9526 - 9716	USDA 654 - 663 DOW 1237,1238, 1239 1240
7-21-80	Lavell O. Stanger	9725 - 9852	EPA 664 - 667
7-22-80	Dr. Alvin L. Young	9903 - 10092	
7-23-80	Dr. Alvin L. Young (resumed)	10105 - 10341	DOW 1241-1245
7-24-80	Dr. Alvin L. Young (resumed) Rodney W. Bovey	10365 - 10392 10401 - 10532	EPA 668 - 675
7-25-80	Rodney W. Bovey (resumed)	10537 - 10565	EPA 676,685-689 DOW 1246 & 1247
8-27-80	Conference	10570 - 10626	
9-3-80	David Graham	10642 - 10851	DOW 1248 - 1259
9-4-80	David Graham (Resumed) Roy J. Smith	10860 - 10933 10962 - 11069	EPA 691-736-1 DOW 1260
9-5-80	Dr. Roy J. Smith, Jr.	11076 - 11269	EPA 736 - 750 DOW 1261 - 1266

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E	WITNESS	PP OF TRANS	EXHIBITS
9-10-80	Louis T. Bouse	11283 - 11343	EPA 751 - 75
9-15-80	Robert A. Squire	11349 - 11448	EPA 759 - 7 DOW 1267-127
9-22-80	Administrative Conference	11452 - 11485	-----
9-23-80	Roy E. Albert	11491 - 11685	EPA 32A-37, 574-578 DOW 1271 - 1
9-24-80	Roy E. Albert	11691 - 11812	1283 thru 12
9-25-80	Philip C. Kearney	11818 - 12025	EPA 148A
9-26-80	Administrative Conference	12027 - 12031	EPA 757, 758 DOW 1290 129
9-29-80	Lennart Hardell (Morning Session)	12052 - 12148	EPA 775
9-29-80	Lennart Hardell (Afternoon Session)	12150 - 12247	-----
9-30-80	Lennart Hardell	12265 - 12542	EPA 762 - 772 775 & 776 DOW 1298 - 13
10-1-80	Richard R. Monson	12550 - 12680	EPA 773 & 774 DOW 1319, EPA -
10-7-80	Gunter Zweig	12693 - 12883	EPA 776 DOW 1320-1322 1324-1327
10-8-80	William D. Schutte Emil Regelman	12892 - 13053 13054 - 13203	EPA 777 DOW 1328 - 133
10-9-80	David A. Graham Kenneth V. Thimann Robert R. Bumb	13210 - 13298 13299 - 13349 13351 - 13440	EPA 698a, 800- 805a&b DOW 1337 - 134
10-10-80	Robert R. Bumb (Resumed)	13447 - 13638	EPA 806 - 809 DOW 1349 - 136
10-14-80	David T. Buzzelli	13644 - 13873	EPA 810 - 812 DOW 1365 - 13

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DATE	WITNESS	PP OF TRANS	EXHIBITS
10-15-80	Robert Kilpatrick (Recalled) Richard J. Kociba	13879 - 13922 13922 - 14058	EPA 813 - 821
10-16-80	Richard J. Kociba (Resumed) Francis J.C. Roe	14063 - 14166 14167 - 14219	EPA 822 - 828 DOW 1376 - 1383
10-17-80	Francis C.J. Roe (Resumed)	14224 - 14371	EPA 829 - 841 DOW 1381-1390
10-21-80	James G. Wilson	14383 - 14492	DOW 1391 - 1395
10-22-80	James G. Wilson (resumed)	14498 - 14609	EPA 842 - 844 DOW 1391 - 1395 & 1397 - 1402
10-27-80	Bernard A. Schwetz	14615 - 14821	EPA 845 - 850 DOW 1403 - 1406 1407 withdraw.
10-28-80	Bernard A. Schwetz (Resumed)	14827 - 15112	EPA 845 - 850 DOW 1408 - 1414
10-29-80	Ewen G. McQueen Colin N. Park	15118 - 15190 15201 - 15317	EPA 854
10-30-80	Colin N. Park(Resumed) E. Marshall Johnson	15323 - 15350 15351 - 15554	EPA 851 & 852 DOW 1415 - 1431
10-31-80	Dr. Sheldon L. Wagner Alan Agresti	15560 - 15665 15683 - 15820	EPA 855 & 856 DOW 1432 - 1436
11-3-80	Administrative Session	15822 - 15838	-----
11-4-80	Dr. Michel A. Ibrahim	15843 - 15943	EPA 857 & 858 DOW 1437 - 1440
11-5-80	Ralph R. Cook	15949 - 16088	EPA 859 DOW 1441 - 1443
11-6-80	Philip Cole	16094 - 16258	-----
11-7-80	Philip Cole (Resumed)	16266 - 16502	EPA 860, 860a & 860 DOW 1444 - 1457
11-10-80	Dr. Giuseppe Reggiani	16508 - 16680	EPA 861a

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DATE	WITNESS	PP OF TRANS.	EXHIBITS
11-12-80	Guiseppe Reggiani (Resumed) H. Tuchmann-Duplessi	16686 - 16842 16844 - 16873	EPA 861, A, B, C, - 8 DOW 1459 - 1471
11-13-80	H. Tuchmann-Duplessi (Resumed) V. K. Rowe	16877 - 17038 17039 - 17064	EPA 864, A, B, 865 866, DOW 1472-1480
11-14-80	V.K. Rowe (Resumed)	17069 - 17237	EPA 865 & 866 DOW 1481 - 1487
11-17-80	Kenneth D. Crow	17242 - 17349	EPA 867, 867a - 868 DOW 1488 - 1493
11-18-80	Otto Hutzinger	17357 - 17516	EPA 870 & 871 DOW 1493 - 1504
11-19-80	Ralph T. Ross	17528 - 1-668	EPA 872 - 874 DOW 1505 - 1510
11-20-80	Ford L. Baldwin	17673 - 17785	EPA 875, 876 (A-I L-T)
11-21-80	John L. Merrill	17790 - 17955	EPA 877 - 885A-Z DOW 1511 - 1516
11-25-80	Lewis A. Shadoff	17963 - 18095	EPA 886- 888 DOW 1517 - 1527
11-26-80	Steven H. Lamm	18109 - 18208	EPA 853 DOW 1528a&b, 1529, 1530a&b
12-2-80	Henry Freiser	18213 - 18350	-----
12-3-80	Henry Freiser (resumed)	18355 - 18576	EPA 889 DOW 1531 & 1532
12-4-80	Hyland R. Johns	18585 - 18703	EPA 890 & 891 DOW 1533 & 1534
12-5-80	Dr. John C. Ramsey	18713 - 18930	EPA 892 - 895 DOW 1535 - 1556

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DATE	WITNESS	PP OF TRANS.	EXHIBITS
12-8-80	Richard Wilson	18939 - 19201	EPA 892 - 895 DOW 1549 - 15
12-9-80	Dr. Richard Wilson (Resumed) Dr. Michael Newton	19209 - 19357 19365 - 19447	EPA 896 & 896 DOW 1557 - 15
12-10-80	Dr. Michael Newton (Resumed)	19453 - 19679	
12-11-80	Michael Newton (Resumed) Werner H. Braun	19685 - 19861 19861 - 19926	EPA 897 - 901 DOW 1561 1562 rejected 1563 - 1568
12-12-80	Werner H. Braun (Resume)	19932 - 20167	EPA 902 - 904 DOW 1569 - 15
12-15-80	Philip G. Watanabe	20174 - 20377	
12-16-80	Philip G. Watanabe (Resumed) Perry J. Gehring	20383 - 20406 20407 - 20649	EPA 905a&b, 906-911 DOW 1578 - 15
12-17-80	Perry J. Gehring (Resumed)	20655 - 20893	EPA 912-918 DOW 1596 - 16
1-27-81	Dr. Michael L. Gross	20900 - 21042	EPA 930, 931 & 932 DOW 1611 - 16
1-30-81	Joseph S. Carra	21046 - 21156	EPA 935
2-3-81	Robert G. Heath	21164 - 21205	EPA 148B
2-4-81	John C. Bailar, III	21210 - 21319	EPA 936 & 937 DOW 1618 - 16 1624 a-e 1625
2-9-81	Lennart Hardell	21426 - 21664	EPA 956 - 958 956A, DOW 162 1631
2-11-81	Dr. Robert M. Delvin	21670 - 21821	EPA 925 & 926 DOW 1632 - 16
2-26-81	Julie K. Gorte	21847 - 22005	Dow 2000-2004
2-27-81	Phillip Sollins	22014 - 22170	Nos. 1612, 16 4000, 4001A-G 4002, 4003
3-3-81	David A. Perry	22179 - 22287	Nos. 2007 & 2

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DATE	WITNESS	PP OF TRANS.	EXHIBITS
3-4-81	James B. Hart, Jr.	22295 - 22401	EPA 2009 & 2010 DOW 4004 & 4005
3-5-81	John Hoffman	22409 - 22540	EPA 2011 - 2013 DOW 4006 & 4007
3-6-81	James Michael Frazier	22545 - 22621	EPA 2014
3-12-81	Richard C. Koven	22628 - 22839	DOW 4008 thru 40
3-13-81	Richard C. Koven (resumed)	22844 - 22996	EPA 2016 & 2016a DOW 4008 - 4014 EPA (Chapt. 6 of Exh. 655)
3-17-81	Chris Maser	23017 - 23117	DOW 4015, 4011(a) EPA 2017 thru 202
3-18-81	Howard Horowitz	23133 - 23336	DOW 4016, 4017, 4008
3-19-81	Howard Horowitz	23343 - 23440	EPA 2027 - 2042 DOW 4016 - 4021
-20-81	Hugh Mobley	23453 - 23631	EPA 2043 - 2052 DOW 4022 - 4026
4-10-81	Administrative Session	23637 - 23641	-----
7-28-81	Administrative Session	23643 - 23648	-----

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LARRY SILVERSTEIN
MOYER V DOW

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LAWRENCE SILVERSTEIN - Kimberly Moyer vs. Dow Chemical - March 9-10, 1993

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Associated Reporting, Inc.

(317) 631-0940

**CONDENSED TRANSCRIPT
PREPARED BY:**

***Associated Reporting, Inc.
Two Market Square Center
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Page 1

(1) STATE OF FLORIDA)
) SS:
 (2) COUNTY OF ORANGE)
 IN THE CIRCUIT COURT FOR ORANGE COUNTY, FLORIDA
 (3) KIMBERLY MOYER, as Personal)
 Representative of the Estate of)
 (4) ROBERT W. MOYER, II, Deceased,)
)
 (5) Plaintiffs,) Case No. CI 89-8657
) Div. 32 Thompson
 (6) vs.)
)
 (7) DOW CHEMICAL COMPANY, et al.,)
)
 (8) Defendants.)
 (9) The deposition upon oral examination of
 (10) LAWRENCE G. SILVERSTEIN, a deponent produced and
 (11) sworn to before me, Aprille Rigsbee Lucas, RPR, a
 (12) Notary Public at large in and for the State of
 (13) Indiana, taken on behalf of the Plaintiff at
 (14) DowElanco, 9001 Purdue Road, Quad III,
 (15) Indianapolis, Marion County, Indiana, on March 9,
 (16) 1993, at 10:00 a.m., taken pursuant to the Florida
 (17) Rules of Civil Procedure in the above-captioned
 (18) matter.
 (19) ASSOCIATED REPORTING, INC.
 (20) TWO MARKET SQUARE CENTER
 (21) 251 EAST OHIO STREET
 (22) SUITE 940
 (23) INDIANAPOLIS, INDIANA 46204

Page 2

(1) APPEARANCES
 (2) FOR THE PLAINTIFF: Richard D. Schuler, Esq.
 (3) Schuler, Wilkerson, Halvorson &
 (4) Williams, P.A.
 (5) 1615 Forum Place
 (6) West Palm Beach, FL 33401
 (7) FOR THE DEFENDANT Alan F. Wagner, Esq.
 (8) DOW CHEMICAL: Carlton, Fields, Ward,
 (9) Emmanuel, Smith & Cutler, P.A.
 (10) First Florida Bank Building
 (11) P.O. Drawer 190
 (12) Tallahassee, FL 32302
 (13) FOR THE DEFENDANT H. Roger Lutz, Esq.
 (14) HELENA CHEMICAL: Lutz, Webb, Bobo & Baitty, P.A.
 (15) Two North Tamiami Trail
 (16) Sarasota, FL 34236
 (17) INDEX
 (18) PAGE
 (19) DIRECT EXAMINATION,
 (20) Questions by Mr. Schuler 4

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(1) EXHIBITS
 (2) PAGE
 (3) Plaintiff's Exhibit 1 - Chloracne Problem, Biochem's
 (4) Contribution 73
 (5) Plaintiff's Exhibit 2 - Memo dated 3-29-65 101
 (6) Plaintiff's Exhibit 3 - "Chloracne in the Dow
 (7) Trichlorophenol Plant" Circa, 1964 115
 (8) Plaintiff's Exhibit 4 - Memo entitled Hazard of Monsanto
 (9) T Acid 132
 (10) Plaintiff's Exhibit 5 - Notes to J.E. Johnson dated
 (11) 11-25-69 139
 (12) Plaintiff's Exhibit 6 - Letter from F.D. Axe dated
 (13) 4-22-66 140
 (14) Plaintiff's Exhibit 7 - Letter on Farlow Environmental
 (15) Engineers, Inc. letterhead 145
 (16) Plaintiff's Exhibit 8 - Silverstein resume' 145
 (17) Plaintiff's Exhibit 9 - Article entitled Mortality
 (18) Experience of Employees Exposed to
 (19) 2,3,7,8-Tetrachlorodibenso-p-dioxin (TCDD) 156

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(1) LAWRENCE G. SILVERSTEIN,
 (2) having been first duly sworn to tell the truth,
 (3) the whole truth and nothing but the truth,
 (4) relating to said matter, was examined and
 (5) testified as follows:
 (6) DIRECT EXAMINATION,
 (7) QUESTIONS BY MR. SCHULER:
 (8) Q Would you state your name, please.
 (9) A Lawrence G. Silverstein.
 (10) Q What is your present address?
 (11) A Home address is Carmel, Indiana, 790-A Indian
 (12) Trails, is the street address, 46032.
 (13) Q How long have you lived in the Indianapolis area,
 (14) sir?
 (15) A Since October 1st.
 (16) Q Of this year, 1992?
 (17) A '92, correct.
 (18) Q Prior to that where did you live?
 (19) A Midland, Michigan.
 (20) Q How long had you lived in Midland, Michigan?
 (21) A 37 years, with a couple timeouts for transfers.
 (22) Q Are you presently employed?
 (23) A Yes, sir.

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(1) Q What company employs you?
 (2) A The Farlow Environmental Engineers, Incorporated.
 (3) Q Where is that company located?
 (4) A It's at 9202 North Meridian Street in
 (5) Indianapolis.
 (6) Q What is your position with that company?
 (7) A I am director of industrial hygiene, safety and
 (8) training.
 (9) Q What type of company is Farlow Environmental
 (10) Engineers, Incorporated?
 (11) A They are a consulting engineering firm that
 (12) specializes in hazardous waste site evaluation and
 (13) remediation.
 (14) Q And you, prior to working with Farlow, worked with
 (15) Dow Chemical Company?
 (16) A Yes, sir.
 (17) Q When did you cease working with Dow Chemical
 (18) Company?
 (19) A December of 1979.
 (20) Q After December of 1979, can you give me a little
 (21) history of your employment with various companies?
 (22) Or if you were retired, tell me that.
 (23) A I was manager of industrial hygiene for the Dow

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(1) Corning Corporation from December 1979 to
 (2) September 1st, 1990, when I retired.
 (3) Q Dow Corning Corporation is also located in
 (4) Midland, Michigan, is it not?
 (5) A Correct.
 (6) Q And if I recall correctly, Dow Corning Corporation
 (7) is a 50 percent joint venture between Dow Chemical
 (8) Corporation and Corning Corporation?
 (9) A Yes.
 (10) Q Did you transfer from Dow Chemical to Dow Corning?
 (11) A Yes.
 (12) Q And let me go back to your history with Dow
 (13) Chemical Company, and tell me a little bit about
 (14) your educational background before you started
 (15) with the company and then the history of your
 (16) various positions with the company, Dow Chemical
 (17) I'm talking about now, not Dow Corning.
 (18) A Well -
 (19) MR. WAGNER: I'll object to the breadth,
 (20) since that covers about 40 years, but go ahead and
 (21) give him an overview.
 (22) A Educational background is a Bachelor of Arts
 (23) degree in chemistry, 1954, State University of New

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- (1) York, Binghamton, New York; Master's degree in
 (2) radiation biology, University of Rochester in New
 (3) York in 1955. I began -
 (4) Q The Master's was in what discipline?
 (5) A The university called it radiation biology. It's
 (6) more accurately radiation safety. I began work
 (7) with Dow Chemical September 1st, 1955, as an
 (8) entry-level industrial hygienist and radiation
 (9) safety specialist.
 (10) In 1960 I transferred to the Texas
 (11) division as chief industrial hygienist, returned
 (12) to Midland in 1962 as an industrial hygienist in
 (13) the same laboratory situation. In 1970 I became
 (14) safety and industrial hygiene manager for the Dow
 (15) Midland division, now called Michigan division.
 (16) Q That was in '67?
 (17) A I said '70.
 (18) Q '70?
 (19) A Yes. In 1971 I went back to health and
 (20) environmental sciences as an industrial hygienist.
 (21) 1976, I transferred to the Dow Badische Company in
 (22) Williamsburg, Virginia, as director of industrial
 (23) hygiene, returned to Midland in 1978 as manager of

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- (1) industrial hygiene research and manager of the
 (2) industrial hygiene lab.
 (3) MR. WAGNER: That's B-A-D-I-S-C-H-E.
 (4) A Then in December of 1979 it catches up to where I
 (5) transferred to Dow Corning.
 (6) Q From 1970, if my numbers are correct, here, from
 (7) 1971 to 1976 you were present or employed at
 (8) Midland, Michigan, correct?
 (9) A Yes.
 (10) Q And from 1971 through 1976, in your capacity as an
 (11) industrial hygienist, did you have any
 (12) responsibility for industrial hygiene in the
 (13) manufacturing process for 2,4-D or 2,4,5-T or
 (14) Silvex or their components?
 (15) MR. WAGNER: I object to the form.
 (16) A To the best of my recollection, I had no primary
 (17) responsibility for manufacturing operations during
 (18) that time period.
 (19) Q Do you know who would have had responsibility for
 (20) the industrial hygiene aspect of the manufacturing
 (21) process for those chemicals?
 (22) MR. WAGNER: Same objection.
 (23) A You are challenging my memory, of course. I

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- (1) believe about 1972 Dr. Ralph Langner became the
 (2) Michigan division industrial hygiene manager, so
 (3) he would have had the basic responsibility for
 (4) that.
 (5) Q Dr. Ralph?
 (6) A Langner, deceased.
 (7) Q L-A-N?
 (8) A L-A-N-G-N-E-R.
 (9) Q What was his position during that time period, if
 (10) you know, with the company?
 (11) A To the best of my memory, he was manager of
 (12) industrial hygiene for the Michigan division, was
 (13) the title.
 (14) Q You mentioned this Michigan division before. What
 (15) was the Michigan division?
 (16) A It's the production division of Dow Chemical
 (17) located in Midland, Michigan.
 (18) Q Do you know what other divisions are located in
 (19) Midland, Michigan, other than the Michigan -
 (20) A It's corporate headquarters for the company, so
 (21) there are many corporate offices and functions
 (22) going on there.
 (23) Q Have you ever seen a flow chart or a diagram of

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- (1) the corporate organization in Michigan?
 (2) MR. WAGNER: At any point in time?
 (3) Q During the time we're talking about, between '70
 (4) and '75?
 (5) A I don't remember.
 (6) Q Who would your boss have been between 1970 and
 (7) 1975?
 (8) A Harold R. Hoyle.
 (9) Q And if memory serves me correctly, Dr. Hoyle was
 (10) head of industrial hygiene in the seventies?
 (11) A Yes.
 (12) Q From 1970 to '75, how many industrial hygienists
 (13) were at Midland, Michigan, involved in the
 (14) manufacturing process?
 (15) MR. WAGNER: I object to the form.
 (16) A Wow, there may have been four or five, but not
 (17) full time, to my recollection.
 (18) Q Okay, when I spoke with - have you reviewed the
 (19) deposition of Dr. Rowe?
 (20) A No.
 (21) Q Dr. Rowe mentioned that he thought, in the
 (22) industrial hygiene division in the seventies,
 (23) there were ten to 15 industrial hygienists. Does

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- (1) that refresh your recollection at all?
 (2) MR. WAGNER: Let me object to the form.
 (3) That question is different than the one you've
 (4) asked, but -
 (5) A It doesn't help a whole lot, because I was trying
 (6) to remember as best I could, you know, from my
 (7) personal experience, and I gave you my best guess.
 (8) Q That's fine. Who were the other four or five
 (9) industrial hygienists that you recall back between
 (10) 1970 and '75?
 (11) MR. WAGNER: Let me, as a point of
 (12) clarification, because it's the problem with your
 (13) initial question then followed up by Dr. Rowe, you
 (14) initially asked about hygienists involved in
 (15) production, and then made reference to Rowe's
 (16) answer about how many industrial hygienists in the
 (17) industrial hygienists' division. I don't know if
 (18) that's a greater number, but is your question how
 (19) many industrial hygienists were there in the
 (20) safety and industrial hygiene department, separate
 (21) and apart from whether or not they were involved
 (22) in the production end of it?
 (23) MR. SCHULER: Correct.

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- (1) A You fellows have thoroughly confused me. Would
 (2) you restate the question, please?
 (3) Q What I'm trying to find out, Mr. Silverstein, is
 (4) what was the number of industrial hygienists that
 (5) worked under Dr. Hoyle from 1970 to '75?
 (6) A That's a bit clearer, and I think my four or five
 (7) is the best I can do.
 (8) Q And as head of industrial hygiene during that time
 (9) period, Dr. Hoyle - was industrial hygiene part
 (10) of the biomedical research lab?
 (11) A Oh, another memory stretcher, it was part of the
 (12) biochemical research department when I joined in
 (13) the fifties. Somewhere in the time period you
 (14) mentioned the name was changed to health and
 (15) environmental research, I believe. Biochemical
 (16) research is not biomedical, careful distinction.
 (17) Q I understand. Who did Dr. Hoyle report to between
 (18) '70 and '75, if you know?
 (19) A Dr. Don D. Irish, for part of that period, anyway.
 (20) Q Is Dr. Hoyle still alive?
 (21) A Yes.
 (22) Q And where is he located, if you know?
 (23) A Probably on the eighth tee about now.

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- (1) Q Not in Midland, Michigan?
- (2) A Delray Beach, Florida. Actually it's too early
- (3) for the eighth tee.
- (4) Q Now, to get back to my other question, other than
- (5) yourself, who are the other four or five
- (6) industrial hygienists in the department?
- (7) A To the best of my recollection, Arnold Schaffer,
- (8) S-C-H-A-F-F-E-R, Richard D. Olson -
- (9) MR. WAGNER: O-N or E-N?
- (10) A O-N. The D is important because there's a Richard
- (11) A. there, too. George Florez, I believe was one
- (12) of our group at that time, and Edward J.
- (13) Schneider, S-C-H-N-E-I-D-E-R. Oh, Donald Rapp,
- (14) R-A-P-P.
- (15) Q Did any of these individuals, Mr. Schaffer, Mr.
- (16) Olson, Mr. Florez, Mr. Schneider, Mr. Rapp, have
- (17) responsibility for industrial hygiene in the
- (18) production of Silvex or 2,4,5-T or 2,4-D?
- (19) A To the best of my recollection, each of those
- (20) folks had some responsibility for some area, but
- (21) no one had total responsibility for the Michigan
- (22) division.
- (23) Q When you say each had some responsibility, do you

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- (1) recall what the breakdown of that responsibility
- (2) was?
- (3) A No.
- (4) Q What were your duties and responsibilities in that
- (5) time period between 1970 and 1975? And if they
- (6) changed, let me know that, too.
- (7) MR. WAGNER: I object to the breadth.
- (8) A My recollection of that particular time period is
- (9) that my main effort was in two projects. One was
- (10) called Dow Environmental Health Services, a
- (11) consulting-for-fee effort to offer industrial
- (12) hygiene and a number of other services to
- (13) industry. I was the lead industrial hygienist for
- (14) that effort, which was headed up by Arnie
- (15) Schaffer.
- (16) The other role I played was as chief
- (17) health physicist, which is radiation safety
- (18) officer for the Dow Nuclear Services program,
- (19) which offered Dow services to the nuclear power
- (20) industry.
- (21) Q Now, back in the 1960s, and I have some memoranda
- (22) here that I'm going to show you in a minute, you
- (23) apparently were given some responsibilities with

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- (1) regard to doing some industrial hygiene work
- (2) regarding the process for the manufacture of
- (3) trichlorophenol, correct?
- (4) MR. WAGNER: I object to the form.
- (5) A Yes.
- (6) Q Who initially assigned you those responsibilities?
- (7) A Harold R. Hoyle.
- (8) Q Do you know why you were selected for those
- (9) responsibilities?
- (10) A I could only guess, conjecture at this point.
- (11) Q I don't want you to guess, but if you've got a
- (12) reasonable estimate, I want to hear it.
- (13) A I was a good industrial hygienist, and I was
- (14) available.
- (15) Q Okay, sounds reasonable. And prior to being given
- (16) the responsibilities or assigned some
- (17) responsibilities with regard to the production of
- (18) trichlorophenol and potential TCDD contamination,
- (19) what were you doing before you were assigned those
- (20) tasks?
- (21) MR. WAGNER: I object to the form of the
- (22) question, no predicate.
- (23) A To the best of my recollection, in the early

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- (1) sixties I was doing industrial hygiene in the
- (2) Midland division production plant, and doing
- (3) radiation safety for the division and for the
- (4) company.
- (5) Q Were there any industrial hygienists prior to your
- (6) assignment in the sixties that had been assigned
- (7) to the production of trichlorophenol in terms of
- (8) monitoring the safety of the workers in that
- (9) production?
- (10) A I do not remember.
- (11) Q What was the reason - well, let me go back. Your
- (12) first assignment in that area was approximately
- (13) what year, do you recall?
- (14) A 1964.
- (15) Q Before 1964 had you ever had any responsibilities
- (16) with regard to industrial hygiene for the
- (17) production of trichlorophenol?
- (18) A Not that I recall.
- (19) Q Or 2,4,5-T?
- (20) A Not that I recall.
- (21) Q Silvex?
- (22) A I don't remember.
- (23) Q Or 2,4-D?

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- (1) A I don't remember that either.
- (2) Q Had you worked at all with the industrial hygiene
- (3) aspect of the production of any agricultural
- (4) chemicals prior to 1964?
- (5) A I don't remember specifics on that. I may have,
- (6) but I just don't recall any specific project.
- (7) Q Had you investigated any cases of chloracne prior
- (8) to 1964?
- (9) A I think one time, yeah.
- (10) Q And do you recall when that was?
- (11) A Sometime, oh, a year or so before, maybe.
- (12) Q About 1963 or so?
- (13) A Roughly, yeah.
- (14) Q Prior to that time had you investigated any cases
- (15) of chloracne at any Dow plants?
- (16) MR. WAGNER: I object to the form.
- (17) A Not to my recollection.
- (18) Q Prior to 1964 or '63, do you know if there was any
- (19) individual industrial hygienist that was
- (20) responsible for monitoring the production of
- (21) trichlorophenol or 2,4-D, 2,4,5-T or Silvex?
- (22) MR. WAGNER: I object, asked and
- (23) answered.

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- (1) A No.
- (2) Q No, you don't know?
- (3) A No, I don't know, if I understood your question,
- (4) yeah.
- (5) Q Okay. In 1963, when you were first asked to
- (6) investigate a case of chloracne, what was that in
- (7) connection with, what process?
- (8) A It was a different process called Dow 6-X.
- (9) Q And what is it the 6-X stands for?
- (10) A I believe it stood for hexachlor - oh, my
- (11) goodness, hexachloro, I want to say phenoxy, but
- (12) that doesn't fit, because you can't put six
- (13) chlorines in that. It was a hexachlorophenolic
- (14) compound that I cannot name for you at this point.
- (15) Q And did you write any reports with regard to that?
- (16) A I don't remember.
- (17) Q Now, when you were assigned by Dr. Hoyle to
- (18) investigate chloracne in 1964, how did you proceed
- (19) to do that?
- (20) A Well, I visited the plant to observe the actions
- (21) of the employees, which is the standard initial
- (22) step in industrial hygiene investigation.
- (23) Q So you went to the plants, themselves?

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- (1) A I spent quite a bit of time in that plant, yeah.
 (2) Q Did you actually have an office in the plant?
 (3) A No, I didn't have an office in the plant.
 (4) Q What else did you do?
 (5) A Proceeded to do some air sampling and wipe testing
 (6) of the plant environment.
 (7) Q Anything else?
 (8) A I'm pretty sure that I issued a quick report,
 (9) because we had an urgent situation, so I must have
 (10) written a report. I don't remember for sure.
 (11) Q Anything else that you recall?
 (12) A I'm not sure what you want, but if you give me a
 (13) specific -
 (14) Q I'm not sure what you did. That's why I'm asking
 (15) the question.
 (16) A Well, that was phase one. Is there a question on
 (17) the floor?
 (18) Q If that was phase one, what else did you do, what
 (19) was phase two?
 (20) A My recollection is that my next assignment was as
 (21) safety officer in the plant, with the
 (22) responsibility for assuring safe operation.
 (23) Anything that happened in the plant, I had to

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- (1) specify safety precautions and make sure people
 (2) followed them.
 (3) Q When you say in the plant, what are you referring
 (4) to?
 (5) A The building housing the production process.
 (6) Q Referring to trichlorophenol?
 (7) A Specifically.
 (8) Q Was there more than one physical building that
 (9) that applied to?
 (10) A No.
 (11) MR. WAGNER: That -
 (12) THE DEPONENT: I'm sorry, I -
 (13) MR. WAGNER: That's all right. So we're
 (14) clear, you meant was there more than one building
 (15) producing trichlorophenol?
 (16) Q Other than the building that he had responsibility
 (17) for, right, producing trichlorophenol?
 (18) A Either way, the answer is no.
 (19) Q That's what I understood your answer to be. What
 (20) was the building number, do you recall?
 (21) A It was 199 building.
 (22) Q And after becoming a safety officer and
 (23) instituting safety precautions and making sure

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- (1) there was compliance, was there any other duty
 (2) that you discharged in connection with the
 (3) responsibility to review industrial hygiene for
 (4) trichlorophenol manufacture?
 (5) A I was involved in a number of things in that whole
 (6) situation, both some laboratory studies and
 (7) investigating other buildings in the division, and
 (8) I just do not remember timing, you know, on that,
 (9) but I do remember that I was wandering around
 (10) doing other duties, as well.
 (11) Q Is one of the things that you did to check
 (12) exposure levels of the workers in the plant to
 (13) TCDD?
 (14) MR. WAGNER: I object to the form.
 (15) A Well, that was one of my responsibilities, yes.
 (16) Q And was it one of your responsibilities to correct
 (17) operating procedures where excessive exposures may
 (18) be occurring?
 (19) MR. WAGNER: I object to the form.
 (20) A At what time period now? During my health officer
 (21) duties, yes.
 (22) Q Okay. And was it part of your duties and
 (23) responsibilities to identify areas where

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- (1) difficulties with exposure may occur?
 (2) A Yes.
 (3) Q And did you also serve as kind of a liaison between
 (4) the toxicology department and medical department
 (5) and production?
 (6) MR. WAGNER: I object to the form,
 (7) vague.
 (8) A Yes.
 (9) Q Prior to 1964, had there ever been a case of
 (10) chloracne in a Dow worker working with
 (11) trichlorophenol that you're aware of?
 (12) A No.
 (13) Q Prior to 1964, were you aware of any case of
 (14) chloracne in a Dow worker working with the
 (15) finished product of 2,4,5-T?
 (16) A I do not remember.
 (17) Q Or Silvex?
 (18) A I don't remember.
 (19) Q Or 2,4-D?
 (20) A I don't remember.
 (21) Q In the course of your career at Dow Chemical, are
 (22) you aware of any cases of cancer in Dow workers
 (23) that were exposed to trichlorophenol in the

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- (1) manufacturing process?
 (2) A No.
 (3) Q Same question with regard to 2,4,5-T?
 (4) A No.
 (5) Q Silvex?
 (6) A No.
 (7) Q 2,4-D?
 (8) A No.
 (9) Q As a practical matter, back in 1964, with these
 (10) workers that came down with the chloracne, how
 (11) would you first become aware of that? Would they
 (12) go to the medical department first, to report this
 (13) before you became aware of it? How did that work?
 (14) MR. WAGNER: I object to the form.
 (15) A The answer is yes, they would have gone to
 (16) medical.
 (17) Q And somebody, would somebody in the medical
 (18) department then contact you to make you aware of
 (19) the problem?
 (20) A No, they would have -
 (21) MR. WAGNER: I object to the form, calls
 (22) for speculation and vague as to time.
 (23) Q How would you come to be aware of the problem?

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- (1) MR. WAGNER: Same objection.
 (2) A From Harold Hoyle.
 (3) Q So the medical department would contact him?
 (4) MR. WAGNER: Same objection, calls for
 (5) speculation.
 (6) A Yes.
 (7) Q And then he would tell you, and then you would
 (8) investigate it, is that the way it would work?
 (9) MR. WAGNER: I object to the form.
 (10) A Yes.
 (11) Q How many cases, to your recollection, of chloracne
 (12) were there from the exposure to trichlorophenol in
 (13) 1964?
 (14) A I don't know, for a particular year, how much we
 (15) had.
 (16) Q Can you give me an estimate, to the best of your
 (17) recollection?
 (18) A Before the event, about 60, as I recall it.
 (19) Q Did you have occasion to see each one of the
 (20) workers that came down with the chloracne?
 (21) A I don't remember that.
 (22) Q Did the workers that came down with the chloracne
 (23) continue to work in the plant generally, or were

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- (1) *they transferred somewhere or what?*
 (2) **A They continued to work in the plant.**
 (3) *Q Do you recall the names of any of the workers?*
 (4) **A Wow. Just one.**
 (5) *Q Who was that?*
 (6) MR. WAGNER: Let me stop you for a
 (7) moment, because I'm concerned about the medical
 (8) privilege, and in releasing confidential medical
 (9) information about that person, and I have not yet
 (10) gotten a direction from Dow as to whether or not
 (11) they want pursued by certiorari or not the court's
 (12) decision to require release of those names.
 (13) I don't - Dick, why don't you go ahead.
 (14) At this point I'm going to instruct you not to
 (15) answer, but I'm going to ask you to let me know
 (16) the person's name before we get out of here today,
 (17) and I won't restrict Mr. Schuler from asking you
 (18) questions about that person, what he was doing,
 (19) what position he had, anything else he wants to
 (20) know, but for the moment let's not reveal his
 (21) name.
 (22) MR. SCHULER: My position is we've got a
 (23) court order saying we can have the names, and the

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- (1) addresses, as well, and phone numbers. He says he
 (2) knows one of the names, and there's no stay been
 (3) entered based on any petition or writ of
 (4) certiorari, so I think it's a violation of the
 (5) order not to allow him to answer the question.
 (6) That's my position.
 (7) MR. WAGNER: I understand, and I'll give
 (8) it some thought when we break.
 (9) *Q Dow Chemical was involved in making*
 (10) *trichlorophenol since approximately 1946, correct?*
 (11) **A Yes.**
 (12) *Q And was the trichlorophenol, as far as you know,*
 (13) *in your time with the company, always made in the*
 (14) *199 building?*
 (15) **A Yes.**
 (16) *Q Not having been to Midland, Michigan, before, can*
 (17) *you describe for me, is the 199 building part of a*
 (18) *manufacturing complex, or does it stand by itself*
 (19) *somewhere?*
 (20) MR. WAGNER: I object to the form,
 (21) vague.
 (22) **A It's in the midst of a very large manufacturing**
 (23) **complex.**

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- (1) *Q And around the 199 building are other buildings*
 (2) *where other chemicals or components of chemicals*
 (3) *are made?*
 (4) MR. WAGNER: I object to the form of the
 (5) question.
 (6) **A Yes.**
 (7) *Q From a timing standpoint, do you recall that the*
 (8) *chloracne in the 199 building was first noticed in*
 (9) *January or February of 1964?*
 (10) **A Yes.**
 (11) MR. WAGNER: Let me object to the form
 (12) of that as vague. It doesn't identify noticed by
 (13) whom.
 (14) *Q Was the chloracne mostly due to the exposure to*
 (15) *the caustic insoluble oils of the trichlorophenol?*
 (16) MR. WAGNER: I object to the form of the
 (17) question, calls for conclusion, no predicate for
 (18) the opinion.
 (19) **A Now I need a repeat.**
 (20) (THE REQUESTED MATERIAL WAS READ BY THE
 (21) REPORTER.)
 (22) **A I believe so.**
 (23) *Q What are the caustic insoluble oils, is that a*

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- (1) *by-product of the manufacture, if you know?*
 (2) **A It's a waste stream.**
 (3) *Q A waste? I didn't hear you.*
 (4) **A Waste stream.**
 (5) *Q Stream, okay. Can you describe for me what the*
 (6) *chloracne looked like that you saw?*
 (7) MR. WAGNER: I object as to the breadth,
 (8) time frame.
 (9) **A Collection of blackheads on the face.**
 (10) *Q Did it look something like teenage acne?*
 (11) MR. WAGNER: I object to the form.
 (12) **A Yes.**
 (13) *Q Did Dow Chemical know that certain chlorinated*
 (14) *organic compounds caused chloracne since 1941?*
 (15) MR. WAGNER: I object to the form,
 (16) imprecise as to Dow and attributing knowledge.
 (17) **A Some people in Dow Chemical knew that.**
 (18) MR. LUTZ: Would you read that back.
 (19) (THE REQUESTED MATERIAL WAS READ BY THE
 (20) REPORTER.)
 (21) *Q Do you know which certain people at Dow knew that*
 (22) *since that time period?*
 (23) **A Don D. Irish and others in the biochemical**

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- (1) **research department are the only ones I know for**
 (2) **sure.**
 (3) *Q Would Dr. Rowe be one of those?*
 (4) **A I believe so.**
 (5) *Q In 1944 or '45, did Dow first test the caustic*
 (6) *insoluble oil portion of the trichlorophenol*
 (7) *production to determine whether that was causing*
 (8) *chloracne?*
 (9) MR. WAGNER: I object, no predicate as
 (10) to personal knowledge, calls for speculation
 (11) otherwise.
 (12) **A I wasn't employed at that time at Dow Chemical.**
 (13) *Q You reviewed the history, however, did you not, at*
 (14) *some point in time, as to the trichlorophenol and*
 (15) *history of chloracne at the company?*
 (16) **A Yes, I did.**
 (17) MR. WAGNER: I object, compound, vague.
 (18) *Q And based on your review of the history in 1944 or*
 (19) *'45, did Dow Chemical first test the caustic*
 (20) *insoluble oil portion of the trichlorophenol*
 (21) *production to see if it caused chloracne?*
 (22) MR. WAGNER: I object, no predicate,
 (23) vague.

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- (1) **A I believe so.**
 (2) *Q At some point in the 1950s, and then, and this is*
 (3) *either based on your personal knowledge or your*
 (4) *review of the history of this matter, at Dow*
 (5) *Chemical, did a German company propose that there*
 (6) *may be a compound, TCDD, responsible for causing*
 (7) *chloracne?*
 (8) MR. WAGNER: I object, vague, no
 (9) personal knowledge.
 (10) **A I believe so.**
 (11) *Q And I think that, in your memoranda, when you*
 (12) *first got involved with the problem in 1964, you*
 (13) *called it by the name TCBD, correct?*
 (14) MR. WAGNER: You mean TCDD?
 (15) MR. SCHULER: Right.
 (16) **A Yes.**
 (17) THE REPORTER: Wait a minute, is it TCBD
 (18) or TCDD?
 (19) *Q I'll ask the question again to make it clear, in*
 (20) *your memoranda, TCDD was called TCBD?*
 (21) **A Yes.**
 (22) *Q And I'm going to refer to it as TCDD since we have*
 (23) *been referring to it in this case, and in the*

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- (1) *scientific literature, apparently those are the*
 (2) *initials of preference -*
 (3) MR. WAGNER: For clarification purposes,
 (4) you're talking about the 2,3,7,8 isomer?
 (5) MR. SCHULER: Right.
 (6) Q Was TCDD the primary culprit in the causation of
 (7) the chloracne outbreak in 1964 at Dow Chemical
 (8) Company at the 199 building?
 (9) MR. WAGNER: I object to the form, calls
 (10) for opinion, no predicate.
 (11) A I think so.
 (12) Q Had you ever been told that TCDD was the most
 (13) potent chemical ever tested in Dow's toxicology
 (14) laboratory?
 (15) A To the best of my recollection, yes.
 (16) Q Prior to 1964, had the German company, Boehringer
 (17) Sohn, sent a letter to Dow and other manufacturers
 (18) of trichlorophenol with suggestions on how to
 (19) avoid generating the chemical that causes
 (20) chloracne in the TCP process?
 (21) MR. WAGNER: I object to the form of the
 (22) question.
 (23) A Yes.

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- (1) Q Do you recall what those suggestions were?
 (2) MR. WAGNER: Same objection, best
 (3) evidence rule.
 (4) A The only one I remember specifically was a
 (5) temperature limit for the process.
 (6) Q And what was the suggestion with regard to
 (7) temperature?
 (8) MR. WAGNER: Same objection.
 (9) A I believe it was 150 degrees, but to be honest, I
 (10) don't remember whether it was F or C, which makes
 (11) a little difference.
 (12) Q Do you know, in 1964, whether Dow Chemical, in its
 (13) manufacture of trichlorophenol, at least to the
 (14) extent you investigated it, was raising the
 (15) temperature above 150 degrees Centigrade?
 (16) A Run that by one more time, please.
 (17) Q Yes. Do you know in 1964 whether Dow Chemical, in
 (18) its manufacture of trichlorophenol at the 199
 (19) building, was raising its temperature in the
 (20) manufacturing process above 150 degrees
 (21) Centigrade?
 (22) A I was told they were, yes.
 (23) Q Do you know what the temperature was that was

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- (1) *being used for the manufacture of trichlorophenol*
 (2) *then at that time?*
 (3) A I don't know it with certainty, but I believe it
 (4) was around 200 degrees.
 (5) Q Do you know why the temperature for the
 (6) manufacturing process of TCP was at 200 degrees at
 (7) that time?
 (8) A No.
 (9) Q Who was responsible for making decisions like
 (10) that, as far as the manufacturing process is
 (11) concerned?
 (12) MR. WAGNER: Temperature decisions?
 (13) MR. SCHULER: Right.
 (14) A Engineers or plant management, I don't know for
 (15) sure.
 (16) Q Do you know who the person who would have been
 (17) responsible for that decision at that time was?
 (18) A I don't know with certainty who that would be, no.
 (19) Q Do you have some names that you recall of people
 (20) that were involved?
 (21) MR. WAGNER: I object to the form of the
 (22) question.
 (23) A The plant superintendent was Ray Holmes,

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- (1) H-O-L-M-E-S, I believe.
 (2) Q At the 199 building?
 (3) A Yes.
 (4) Q Is Mr. Holmes still around, to your knowledge?
 (5) A I don't know, to be honest with you.
 (6) THE DEPONENT: I'd like to request a
 (7) two-minute restroom break.
 (8) Q Let me ask you one more question before you leave,
 (9) because I want to establish a parameter here, then
 (10) we'll take a break. At what point chronologically
 (11) did your responsibilities, if they did, end with
 (12) regard to chloracne and TCDD and the
 (13) trichlorophenol process?
 (14) MR. WAGNER: I object, breadth and
 (15) vagueness.
 (16) A I need to hear that one again.
 (17) (THE REQUESTED MATERIAL WAS READ BY THE
 (18) REPORTER.)
 (19) THE DEPONENT: Did you make your
 (20) objection?
 (21) MR. WAGNER: Yes.
 (22) A Then I can answer. There's no clearcut cutoff
 (23) time. The way things worked, about 1967 I took on

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- (1) other responsibilities.
 (2) MR. SCHULER: Okay, let's take a break.
 (3) (RECESS.)
 (4) BY MR. SCHULER:
 (5) Q In 1964 was the chemical or the oils that appeared
 (6) to be causing the chloracne, were they - was that
 (7) substance tested on rabbits?
 (8) MR. WAGNER: I object to the form of the
 (9) question.
 (10) Q To your knowledge?
 (11) A Yes.
 (12) Q And did it turn out that the concentration of the
 (13) chemical causing the chloracne was so high in 1964
 (14) that the rabbits tested by the rabbit ear test
 (15) died?
 (16) MR. WAGNER: I object to the form of the
 (17) question, vague.
 (18) A Yes.
 (19) Q Now, prior to your being given the industrial
 (20) hygiene assignment for the 199 building, among the
 (21) other responsibilities that you told us you had in
 (22) connection with the outbreak of chloracne, can you
 (23) describe for us what the worker safety routine was

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- (1) *in the plant at the time before you made your*
 (2) *recommendations?*
 (3) MR. WAGNER: I object to the form of the
 (4) question, vague.
 (5) A Only in general terms and with no certainty
 (6) because that's been a long time. It would be
 (7) basically skin protection and the use of gloves
 (8) when working in areas that may be contaminated,
 (9) plus personal hygiene instructions on washing
 (10) thoroughly after any action.
 (11) Q So gloves were used and then washing. What type
 (12) of gloves were used, do you recall?
 (13) A I have no idea.
 (14) Q Any other safety measures that were in use before
 (15) you made your recommendations?
 (16) A I don't remember.
 (17) Q Were there any type of barriers in the plant 199
 (18) and the manufacture of TCP? When I say barrier, I
 (19) mean was it done behind walls or anything like
 (20) that to protect the workers, or was it an open
 (21) manufacturing process?
 (22) MR. WAGNER: I object to the form,
 (23) vague, over broad.

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- (1) **A It was basically a closed process within vessels**
 (2) **and piping and such.**
 (3) *Q And were there joints in the pipes, or were there*
 (4) *places in which the chemical came out, or was it*
 (5) *all enclosed in piping and vessels?*
 (6) MR. WAGNER: I object to the form of the
 (7) question, compound, vague.
 (8) **A I'm not really sure what the question is, here.**
 (9) **It was basically closed. There were exits for**
 (10) **product and waste streams, and there were joints**
 (11) **within the piping, yeah.**
 (12) *Q Prior to your prescribing additional measures, did*
 (13) *the workers wear any type of protective clothing*
 (14) *other than the gloves, other than the normal*
 (15) *clothing they might wear?*
 (16) **A I honestly don't remember.**
 (17) *Q What type of recommendations did you make as far*
 (18) *as the worker safety and improving the protection*
 (19) *for the workers from the potential for exposure to*
 (20) *TCDD?*
 (21) MR. WAGNER: I object, over broad, time
 (22) frame.
 (23) **A At the time I was safety officer, I required full**

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- (1) **company-supplied clothing from the skin out,**
 (2) **required shower time, at least twice a day for**
 (3) **lunch break and at the end of the shift, and then**
 (4) **respiratory protection at any time there was a**
 (5) **risk of airborne material.**
 (6) *Q What type of respiratory protection, do you*
 (7) *recall?*
 (8) **A Two basic forms, depending on the nature of the**
 (9) **action the guy was going to take, the cartridge**
 (10) **type or air purifying, and in some instances, most**
 (11) **of the time it was air supplied self-contained**
 (12) **breathing apparatus or air-line respirator.**
 (13) *Q What type of company-supplied clothing did you*
 (14) *prescribe?*
 (15) **A Underwear, shoes, coveralls, gloves.**
 (16) *Q The coveralls, were they made from any particular*
 (17) *material, if you recall?*
 (18) **A Nothing out of the ordinary, no.**
 (19) *Q Cotton, if you know?*
 (20) **A I don't know.**
 (21) *Q Any boots?*
 (22) **A Yes, as a matter of fact, I left out that we used**
 (23) **a lot of disposal coveralls over the work clothes.**

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- (1) **By disposal, I mean use once and throw away, and**
 (2) **that included boots that covered their work shoes.**
 (3) *Q Did you put the safety recommendations into the*
 (4) *form of writing?*
 (5) **A I believe so.**
 (6) *Q Who was in charge of follow up to make sure that*
 (7) *there was compliance with the safety requirements*
 (8) *that you outlined?*
 (9) **A I was.**
 (10) *Q And would you do this by physical observation at*
 (11) *the plant, primarily?*
 (12) MR. WAGNER: I object to the form of the
 (13) question.
 (14) **A I basically lived at the plant, yes.**
 (15) *Q Were the workers provided with double lockers?*
 (16) **A To my recollection, yes.**
 (17) *Q What was the purpose of that?*
 (18) MR. WAGNER: Did you say double lockers?
 (19) MR. SCHULER: Right.
 (20) **A The purpose was to separate contaminated work**
 (21) **clothes from street clothes.**
 (22) *Q Were there any special instructions for washing*
 (23) *the contaminated clothing or getting rid of it,*

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- (1) *one way or the other?*
 (2) **A Yes.**
 (3) *Q What were the instructions for that?*
 (4) **A To the best of my recollection, we instructed**
 (5) **Dow's own laundry, which did the work clothes, in**
 (6) **special handling to avoid contact with the**
 (7) **contaminated clothing they were laundering. As**
 (8) **far as the waste disposal, there was an operating**
 (9) **waste disposal department, and I do not recollect**
 (10) **- I do not recall any specific interaction with**
 (11) **them, to be honest with you.**
 (12) *Q I think you said you recommended two showers a*
 (13) *day, is that correct?*
 (14) **A During a period of time, yes, I did.**
 (15) *Q What period of time?*
 (16) **A When I was full-time safety officer in the plant.**
 (17) *Q And how would that work, it would be a shower on*
 (18) *the way in and a shower on the way out, or how*
 (19) *would it work?*
 (20) **A No. A shower before the lunch break and then a**
 (21) **shower at the end of the shift.**
 (22) *Q Were there any special instructions for the*
 (23) *showering, other than the normal shower with soap*

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- (1) *and water?*
 (2) **A Not that I recall.**
 (3) *Q Was the shower and wash time, I think you*
 (4) *mentioned this earlier, was that paid time for the*
 (5) *employees?*
 (6) **A Yes.**
 (7) *Q Now, while you were health officer at the*
 (8) *particular plant, were there daily safety*
 (9) *meetings?*
 (10) **A I do not remember specifically.**
 (11) *Q How long did you actually serve as health officer*
 (12) *for the particular plant, 199?*
 (13) **A It was a matter of months, six or seven months, I**
 (14) **would guess.**
 (15) *Q Then after you stopped serving as health officer*
 (16) *for the particular plant, what was your next*
 (17) *responsibility, if you recall?*
 (18) **A No, I don't, to be honest with you.**
 (19) *Q The trichlorophenol that was being manufactured,*
 (20) *was that used in the manufacture of 2,4,5-T or*
 (21) *Silvex, if you know?*
 (22) **A Yes.**
 (23) *Q Did you ever serve as health officer for any of*

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- (1) *the plants where the final product was made?*
 (2) MR. WAGNER: Silvex or 2,4,5-T?
 (3) MR. SCHULER: Yes.
 (4) **A No.**
 (5) *Q Are you familiar enough with the chemical process*
 (6) *to know or describe for me physically how it was*
 (7) *done? In other words, was the trichlorophenol*
 (8) *taken in some vat to another building where the*
 (9) *2,4,5-T or Silvex was made?*
 (10) MR. WAGNER: I object to the form of the
 (11) question.
 (12) **A My recollection is it was transported in rail car**
 (13) **tanker.**
 (14) *Q To another building?*
 (15) **A Yes.**
 (16) *Q Did you ever witness the final manufacturing*
 (17) *process where the trichlorophenol and other*
 (18) *elements were combined to make the 2,4,5-T or the*
 (19) *Silvex?*
 (20) MR. WAGNER: I object to the form of the
 (21) question.
 (22) **A I don't remember, to be honest with you. I've got**
 (23) **to quit saying that.**

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- (1) Q Now, at the time that you first got involved with
(2) this process, and the trichlorophenol process and
(3) the chloracne outbreak in building 199 in 1964, do
(4) you recall what the measurement was for the amount
(5) of TCDD in the caustic insoluble oil?
(6) A At the time I initially became involved, we didn't
(7) know what was in the caustic insoluble oil.
(8) Q Do you recall initially - now, I'm talking about
(9) initially when you first got involved - what the
(10) measurement was for the TCDD and the
(11) trichlorophenol, the manufactured trichlorophenol?
(12) MR. WAGNER: This is not the caustic
(13) waste oils, but the TCP, itself?
(14) MR. SCHULER: Right.
(15) A No.
(16) Q At some point were there methods developed for
(17) measuring the concentrations of TCDD in the
(18) trichlorophenol, for example?
(19) A Yes.
(20) Q When did that occur, to the best of your
(21) recollection?
(22) A Early 1965.
(23) Q And who developed those methods, if you recall?

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- (1) A The Dow analytical laboratory in Midland.
(2) Q Do you remember specifically who was involved in
(3) that project?
(4) A Harold Gill, G-I-L-L, was the name I recall.
(5) Q Is he still around, to your knowledge?
(6) A To my knowledge, yes.
(7) Q In Midland or elsewhere?
(8) A Last I knew it was Midland.
(9) Q Is he retired from the company, do you know?
(10) A I think so.
(11) Q And was the method that he developed the vapor
(12) chromatography or gas chromatography method?
(13) A Yes.
(14) Q And do you recall, back in 1964 or 1965, anything
(15) about the measurements that were taken of the
(16) finished trichlorophenol as far as the amounts of
(17) TCDD that may have been in that particular
(18) chemical?
(19) A Yes. I'm trying to get a handle on that question.
(20) You're asking if I remember any amounts found?
(21) Q Yes, if you remember the measurements that were
(22) taken, through this gas chromatographic method, of
(23) any amounts of TCDD that were in the finished

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- (1) trichlorophenol that was produced back at that
(2) time?
(3) A Yes, generally undetectable, yeah.
(4) Q And when you say undetectable, can you describe
(5) that a little more fully for me?
(6) A Below the limit of detection of the analytical
(7) method at that time.
(8) Q And what was the sensitivity, if you know, of the
(9) analytical method developed back at that time?
(10) A Early on, it was as high as ten parts per million
(11) of TCDD.
(12) Q And then did that improve, later on, to some
(13) lesser amount?
(14) A Over a period of time, yes.
(15) Q And if you recall, over what period of time did
(16) the sensitivity improve and to what level did the
(17) sensitivity improve?
(18) MR. WAGNER: If you have a recollection.
(19) I caution you not to guess because there are
(20) people that would have that knowledge, but if you
(21) know, please give him the information.
(22) A Okay. Over some period of time after the
(23) development of the method, it improved in stages

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- (1) to one per million, one-tenth, .01, I think, part
(2) per million.
(3) Q Do you know whether the final commercial grade
(4) product of 2,4,5-T or Silvex was ever tested
(5) through the gas chromatographic method to
(6) determine the amount of TCDD that may have carried
(7) over in the process to the final product?
(8) MR. WAGNER: I object as to the breadth.
(9) A That's a mouthful. You're asking if I know
(10) whether any of the products were tested by the
(11) analytical method? Yes.
(12) Q And can you tell me, and you can make it specific
(13) to point in time, if you would like, what the
(14) results were for the testing of the final product?
(15) MR. WAGNER: Same objection as to
(16) breadth and vagueness.
(17) A Generally non-detectable in products.
(18) Q At what point in time, if you recall?
(19) A Mid sixties.
(20) Q And what was the sensitivity level of the
(21) detection equipment?
(22) A It improved over time.
(23) Q Can you tell me what the level was, if you know,

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- (1) at a specific point in time?
(2) A It was one part per million at some point in time,
(3) yeah.
(4) Q Had Dow Chemical determined that there was some
(5) safe level of TCDD in its final product that was
(6) acceptable to the company?
(7) MR. WAGNER: I object to the form,
(8) vague, undefined terms, and over broad as to time.
(9) A The answer is no.
(10) Q Was there ever any manufacture of 2,4,5-T or
(11) Silvex that you're aware of, while you were with
(12) the company, that was completely devoid of the
(13) TCDD contaminant, in other words, a clean product?
(14) MR. WAGNER: I object to the form of the
(15) question and you cannot detect - my problem with
(16) the form of that is it's impossible to detect the
(17) absence of anything in a chemical, so it's
(18) unanswerable in its present form.
(19) A Give it to me one more time.
(20) (THE REQUESTED MATERIAL WAS READ BY THE
(21) REPORTER.)
(22) A I have no way of knowing. The answer is I don't
(23) know.

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- (1) Q Do you know whether there was testing of the
(2) trichlorophenol to determine whether it would
(3) carry dioxin, the TCDD dioxin into the final
(4) 2,4,5-T product?
(5) MR. WAGNER: I object to the form of the
(6) question, vague.
(7) A Yes.
(8) Q What was the result of that, what was determined?
(9) A Most of the 2,4,5-T contained undetectable amounts
(10) of the TCDD.
(11) Q Would the same be true for Silvex?
(12) A I don't remember.
(13) Q What about 2,4-D, was that ever tested, to your
(14) knowledge, to determine whether that contained any
(15) detectable amounts of TCDD?
(16) A I believe it was.
(17) Q Do you know what the result of that was at a
(18) specific point in time?
(19) A No.
(20) Q In addition to the manufacturing process, did you
(21) also develop lab safety procedures for handling
(22) the dioxin TCDD in the laboratory?
(23) A Yes.

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- (1) Q What type of procedures did you institute at what
(2) point in time for that?
(3) A My recollection is the late sixties I wrote lab
(4) safety procedures that basically instructed
(5) employees to avoid all contact and to wash
(6) thoroughly after any handling, just in case there
(7) was contact.
(8) Q Were there any other procedures with regard to the
(9) wearing of clothing like gloves or boots or
(10) coveralls for the lab people?
(11) A Yes.
(12) Q What specifically do you recall about that?
(13) A Gloves.
(14) Q Anything else?
(15) A Nothing else specifically.
(16) Q Were the lab people supposed to wear respirators,
(17) also, or wasn't that in the recommendation?
(18) A I don't believe it was recommended.
(19) MR. WAGNER: Just for your timing
(20) purposes, Larry has expressed a desire to go to
(21) Max and Irma's, which is across the street, so if
(22) you could shoot for a break, about five to 12:00,
(23) we'll beat the lunch cRowed.

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- (1) Q Have you had any experience with dioxins other
(2) than TCDD that caused chloracne at Dow Chemical
(3) Company?
(4) MR. WAGNER: I object, no predicate.
(5) A Not to my knowledge.
(6) Q Do you know whether there were dioxins, other than
(7) TCDD, which caused chloracne in the
(8) trichlorophenol back in 1964?
(9) MR. WAGNER: I object, no predicate.
(10) A Not to my knowledge.
(11) Q What about other compounds, such as furans, that
(12) caused chloracne, in the trichlorophenol back in
(13) 1964? Are you familiar with whether or not there
(14) were any of those in the trichlorophenol?
(15) MR. WAGNER: Same objection.
(16) A Not to my knowledge.
(17) Q Do you know, in the finished product of 2,4,5-T or
(18) Silvex, whether those finished products, in your
(19) experience, were tested for either furans or other
(20) dioxins that were chloracnegenic in the sixties?
(21) MR. WAGNER: Same objection.
(22) A Not to my knowledge.
(23) Q What about in the seventies?

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- (1) A I don't know.
(2) Q Do you know who has that information or knowledge?
(3) A No, I don't, to be honest with you.
(4) Q Was one of the concerns back in the sixties that
(5) TCDD might be a problem for customers using the
(6) end product Silvex or 2,4,5-T?
(7) MR. WAGNER: I object to the form of the
(8) question, over broad as to time, vague as to whom
(9) he's making reference.
(10) A Yes.
(11) Q What specifically was the concern regarding the
(12) customers using Silvex or 2,4,5-T end products?
(13) MR. WAGNER: Same objection.
(14) A The concern, as I recall it, was that customers
(15) would not be as careful in protecting employees as
(16) was Dow Chemical, less controlled conditions for
(17) the employees, in other words.
(18) Q After the 1964 chloracne outbreak in the
(19) trichlorophenol plant, there was a meeting, I
(20) believe, that was called by Dow Chemical and some
(21) other chemical manufacturers regarding TCDD,
(22) correct?
(23) MR. WAGNER: I object to the form of the

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- (1) question, and no predicate.
(2) A Yes.
(3) Q Were any of Dow's customers, in the sense of the
(4) chemical companies that Dow sold these products
(5) to, Silvex or 2,4,5-T, notified of this problem
(6) back in 1964?
(7) MR. WAGNER: I object to the form of the
(8) question.
(9) A The form of your question is -- I think the answer
(10) is I don't know.
(11) Q Are you aware of any testing that Dow Chemical
(12) Company did of any of the end products, 2,4,5-T or
(13) Silvex, to determine whether those products were
(14) toxic to humans?
(15) MR. WAGNER: Contains undefined terms
(16) and vague.
(17) A I don't know.
(18) Q You were not involved in anything like that,
(19) correct?
(20) A No, I don't believe so.
(21) Q You mentioned one part per million contamination
(22) level for TCDD. Was that an established level by
(23) Dow Chemical Company for Silvex and 2,4,5-T in the

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- (1) 1960s?
(2) MR. WAGNER: I object to the form of the
(3) question. It mischaracterizes the prior testimony
(4) which was in reference to a detection limit.
(5) A Not to my knowledge is the answer.
(6) Q As far as the one part per million TCDD in Silvex
(7) or 2,4,5-T, was this a detection limit for the
(8) equipment back then in the 1960s?
(9) A At some time, yeah.
(10) Q Was there any testing done to determine whether a
(11) contamination level of one part per million of
(12) TCDD in Silvex or 2,4,5-T was safe to human
(13) beings?
(14) MR. WAGNER: I object to the form of the
(15) question, undefined terms, not enough there to
(16) meaningfully answer.
(17) A I do not know.
(18) Q Do you know what the detection limit was for TCDD
(19) in end product 2,4,5-T or Silvex in 1975?
(20) A I do not know.
(21) Q Do you know who would know that?
(22) A No.
(23) Q Do you know what division in the company was

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- (1) responsible for determining that?
(2) A Probably agricultural products division.
(3) Q Do you know who the head of agricultural products
(4) was back in 1975?
(5) A No, I don't.
(6) Q Did you work with anyone in that division,
(7) agricultural products, in the 1974-75 time period?
(8) A Not that I recall.
(9) Q Would the product quality control people, who had
(10) tested the final product, be in that division,
(11) agricultural products division, is that what
(12) you're saying to me?
(13) A I believe so.
(14) Q Was the agricultural products division located in
(15) Midland in 1974-75, the headquarters of it?
(16) A I believe so.
(17) Q And we're sitting here today in some buildings
(18) that have DowElanco on the front of it. Do you
(19) know the relationship between DowElanco and Dow
(20) Chemical Company?
(21) A No is a good answer to that.
(22) Q Do you know, at some point in time, was there a
(23) division of Dow Chemical that was here in

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- (1) Indianapolis that was renamed DowElanco, if you
(2) know?
(3) **A I really don't know.**
(4) MR. WAGNER: He really doesn't know.
(5) Off the record.
(6) (DISCUSSION HELD OFF THE RECORD.)
(7) MR. SCHULER: Let's go back on the
(8) record.
(9) **Q So I'm clear about this, the testing of the final**
(10) **product Silvex and 2,4,5-T for any contaminants**
(11) **back in 1974 and '75, let's say, would have been**
(12) **done someplace in Midland, Michigan, if you know?**
(13) **A I just have to guess, yes. I wasn't involved.**
(14) MR. WAGNER: Your role is not to guess.
(15) THE DEPONENT: Thank you, sir. I got
(16) tired of hearing myself say I don't know.
(17) **Q Was there, again, going back to '74 and '75, but**
(18) **even earlier, if you know, did Dow have a**
(19) **government affairs division?**
(20) MR. WAGNER: Over broad as to time.
(21) **A I don't remember.**
(22) **Q Did you know a fellow by the name of Andrew**
(23) **Anderson?**

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- (1) **A I don't remember.**
(2) **Q Did you know an A.P. Beutel, B-E-U-T-E-L?**
(3) **A I believe so.**
(4) **Q Do you know what Mr. Beutel's role?**
(5) **A My recollection of A.P. Beutel is general manager**
(6) **of the Texas division when I started work at Dow**
(7) **and for many years afterward.**
(8) **Q You mentioned the Texas division earlier. What**
(9) **was the Texas division responsible for, what kind**
(10) **of manufacturing?**
(11) MR. WAGNER: I object as to breadth,
(12) time frame.
(13) **A Basic industrial chemicals.**
(14) **Q Including agricultural chemicals?**
(15) **A Not to my knowledge.**
(16) **Q If I understand you correctly, you do not know who**
(17) **Andrew Anderson is, correct, you don't recognize**
(18) **the name?**
(19) **A The name is vaguely familiar, but I have no**
(20) **recollection of the gentleman or what he did.**
(21) **Q And Mr. Beutel, you said you remembered for his**
(22) **being the manager of the Texas division at some**
(23) **point in time?**

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- (1) **A Yes.**
(2) **Q But that's about all you know about him?**
(3) **A That's all I remember about him, yeah.**
(4) **Q Did you know a Dr. Hoerger, H-O-E-R-G-E-R? I'm**
(5) **probably mangling that name, also.**
(6) **A I remember the name, yes.**
(7) **Q Do you know what his role was at Dow Chemical, to**
(8) **your knowledge?**
(9) **A My only recollection of him is as a chemist**
(10) **research scientist.**
(11) **Q Did he have anything to do with 2,4,5-T, Silvex or**
(12) **2,4-D, to your knowledge?**
(13) **A I don't remember him having any involvement.**
(14) **Q Was there a group called the product stewardship**
(15) **group?**
(16) MR. WAGNER: I object as to the breadth,
(17) time frame.
(18) **A Not in the sixties.**
(19) **Q When did that come about, if you know?**
(20) **A I have no idea.**
(21) **Q Do you recall such a group, or you just don't have**
(22) **any recollection?**
(23) **A I have no recollection.**

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- (1) **Q Do you know a Dr. Hinman, H-I-N-M-A-N?**
(2) **A Yeah.**
(3) **Q Who is Dr. Hinman?**
(4) **A For some period of time he was director of the**
(5) **biochemical research lab.**
(6) **Q Do you know approximately what point in time?**
(7) **A No. It would be guessing.**
(8) **Q Sixties or seventies, can you be that specific?**
(9) **A Late sixties.**
(10) **Q Do you know whether he did any research with**
(11) **regard to 2,4-D, 2,4,5-T or Silvex?**
(12) **A I have no knowledge of that at all.**
(13) **Q Was there ever a 2,4-D task force set up within**
(14) **Dow Chemical Company, to your knowledge?**
(15) **A No.**
(16) **Q Did you know a fellow by the nature of Chet Otis,**
(17) **O-T-I-S?**
(18) **A I remember Chet Otis, yes.**
(19) **Q And what was his position at the company?**
(20) **A I don't know his official position in the company.**
(21) **Q Dr. Rowe mentioned in his deposition that at some**
(22) **point in the fifties there was a visit from a**
(23) **fellow from a German chemical company, by the name**

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- (1) **of Oettel, O-E-T-T-E-L. Do you recall meeting**
(2) **with this gentleman?**
(3) MR. WAGNER: I object to the form of the
(4) question.
(5) **A No.**
(6) **Q Do you know a J.D. Doedens, D-O-E-D-E-N-S?**
(7) **A I remember the name.**
(8) **Q Do you know what his role with the company?**
(9) **A I remember nothing more about him.**
(10) **Q When you were involved with the trichlorophenol**
(11) **process back in 1964 and sought to determine**
(12) **exposure levels, was the process of doing that the**
(13) **taking of the wipe tests and the air samples, is**
(14) **that how you did it?**
(15) MR. WAGNER: I object to the form of the
(16) question.
(17) **A Yes.**
(18) **Q Were there any other ways that you determined**
(19) **exposure levels other than that?**
(20) **A Observation.**
(21) **Q Physical observation at the plant, itself?**
(22) **A Yes.**
(23) **Q Do you recall any specific recommendations with**

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- (1) **regard to correcting operating procedures or**
(2) **changing operating procedures as far as the**
(3) **manufacture of trichlorophenol is concerned in '64**
(4) **and '65?**
(5) MR. WAGNER: I object to the form of the
(6) question, as far as operating procedures is
(7) undefined and vague.
(8) **A I can't recall any specifics.**
(9) **Q Who did you primarily deal with in the '64-65 time**
(10) **period in the toxicology department?**
(11) MR. WAGNER: I object, no predicate.
(12) **A V.K. Rowe, the director, Dr. Kenneth Olson,**
(13) **toxicologist.**
(14) **Q What about the medical department, who did you**
(15) **deal with primarily there?**
(16) **A Dr. Benjamin Holder.**
(17) **Q And what about in production, who did you deal**
(18) **with primarily there?**
(19) **A That's too broad a question, I'm sorry.**
(20) **Q Specifically with regard to the production of**
(21) **trichlorophenol, who did you deal with?**
(22) **A Ray Holmes, the superintendent, and Al Lueck, the**
(23) **assistant superintendent.**

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- (1) Q How do you spell his last name?
 (2) A L-U-E-C-K, I believe.
 (3) Q Did you deal with anyone specifically that was
 (4) involved in the production of 2,4,5-T, the end
 (5) product, or Silvex?
 (6) A Not that I recall.
 (7) Q Do you know who would have been involved in
 (8) working on the process to reduce the content of
 (9) dioxins in the final product after 1964?
 (10) MR. WAGNER: I object, no predicate.
 (11) A No, I really don't.
 (12) Q Was there a specific file on dioxin at Dow
 (13) Chemical Company that information was fed into, to
 (14) your knowledge?
 (15) MR. WAGNER: I object as to the breadth.
 (16) A Not to my knowledge.
 (17) Q Were there specific, to your knowledge, toxicology
 (18) files on the different chemicals, 2,4-D, Silvex,
 (19) 2,4,5-T?
 (20) A Yes.
 (21) Q And where were those kept, if you know?
 (22) A In the building where toxicology was located,
 (23) biochemical research department.

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- (1) Q Prior to today, has your deposition been taken in
 (2) any other cases involving allegations that either
 (3) 2,4-D or Silvex or 2,4,5-T caused physical injury?
 (4) A Not to my knowledge.
 (5) Q And when I say any other cases, I'm talking about
 (6) any other civil cases, other than that one?
 (7) A Not to my knowledge, is the answer.
 (8) Q Was your deposition taken at all in the, for lack
 (9) of a better term, Agent Orange group of cases?
 (10) MR. WAGNER: I object to the form of the
 (11) question.
 (12) A Yes.
 (13) Q Once or more than once?
 (14) A I don't remember.
 (15) Q Do you recall at what point in time it may have
 (16) been taken? Was it back in the early eighties or
 (17) late seventies?
 (18) A Early eighties.
 (19) Q And do you recall who may have taken your
 (20) deposition back then?
 (21) A No, I do not.
 (22) Q Was it taken in Midland or some other place?
 (23) A It was taken in Long Island, somewhere.

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- (1) Q Other than that deposition, has your deposition
 (2) been taken before in context with any claimed
 (3) allegations of defects in the 2,4-D or 2,4,5-T or
 (4) Silvex products?
 (5) MR. WAGNER: I object to the form of the
 (6) question.
 (7) A I just do not remember.
 (8) Q Did you know an F.D. Axe, A-X-E?
 (9) A Yes.
 (10) Q Was he an industrial hygienist?
 (11) A Yes.
 (12) Q I don't remember him being named in the group that
 (13) you named earlier, but do you recall when he was
 (14) with the company?
 (15) A He's been with the company for a lot of years,
 (16) mostly in the western division. He spent some
 (17) time in the industrial hygiene group in Midland.
 (18) Timing is vague in my memory.
 (19) Q When you say western division, what are you
 (20) talking about?
 (21) A There is a production division at Pittsburg,
 (22) California, and research lab, also, and Rick was
 (23) the industrial hygienist out there most of the

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- (1) time he was with Dow Chemical.
 (2) Q Pittsburg, California, is that right?
 (3) A Yes, with no H.
 (4) Q Was that division involved in manufacturing either
 (5) 2,4-D or 2,4,5-T or Silvex, to your knowledge?
 (6) A Not to my knowledge.
 (7) Q Did you have any input into labeling of 2,4-D or
 (8) 2,4,5-T or Silvex?
 (9) A No.
 (10) Q Do you know who was responsible for that?
 (11) A No.
 (12) Q When you would submit your reports regarding
 (13) contamination of trichlorophenol or the caustic
 (14) insoluble oil involved in the trichlorophenol
 (15) process as a by-product, would your reports
 (16) generally be submitted to the toxicology section,
 (17) Dr. Rowe and those folks?
 (18) MR. WAGNER: I object as to the breadth.
 (19) A Yes.
 (20) Q Would the reports be submitted to any type of
 (21) governmental affairs section or anything like that
 (22) at Dow Chemical?
 (23) MR. WAGNER: Same objection.

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- (1) A I don't remember.
 (2) Q Do you know Marguerite Leng, L-E-N-G?
 (3) A Yes.
 (4) MR. WAGNER: Did you say Marguerite?
 (5) Q Marguerite. Who is Marguerite Leng?
 (6) A She was a scientist. My recollection of her was
 (7) as a member of the toxicology lab for some period
 (8) of time. Vague recollection that she spent some
 (9) time in agricultural research department at Dow in
 (10) Midland.
 (11) Q Do you know what her role was with either the
 (12) toxicology lab or agricultural research?
 (13) A I really do not remember.
 (14) Q Did Dow, if you know, have any specific department
 (15) or division or group of people that were involved
 (16) with the registration of agricultural pesticides?
 (17) MR. WAGNER: I object as to the breadth,
 (18) time period.
 (19) A I was aware that they did, yeah.
 (20) Q Did you ever deal with any of those folks
 (21) yourself?
 (22) A Not that I remember.
 (23) Q Do you know who the head of that department was or

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- (1) anybody in that department?
 (2) MR. WAGNER: Same objection.
 (3) A No.
 (4) Q Do you know whether Marguerite Leng has anything
 (5) to do with that?
 (6) A She may have, but I don't know for sure.
 (7) MR. SCHULER: You want to take a break?
 (8) It's five to 12:00.
 (9) MR. WAGNER: Sure.
 (10) (RECESS.)
 (11) MR. SCHULER: Back on the record.
 (12) Q Mr. Silverstein, let me ask you initially, as we
 (13) begin this afternoon, did you review anything
 (14) before your deposition here today of a documentary
 (15) nature?
 (16) MR. WAGNER: That's a yes or a no.
 (17) A Yes.
 (18) Q What did you review, sir?
 (19) MR. WAGNER: To the extent you reviewed
 (20) things with me, I instruct the witness not to
 (21) answer. If you reviewed things on your own, feel
 (22) free to tell him.
 (23) MR. SCHULER: If you reviewed documents

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- (1) of the company, I think it's included. Just
 (2) because you handed them to him -
 (3) MR. WAGNER: His discussions or
 (4) preparations with me before this deposition, the
 (5) substance of that is work product.
 (6) MR. SCHULER: I'm not asking for
 (7) discussions. I'm asking if he reviewed documents.
 (8) MR. WAGNER: It's work product.
 (9) **Q What have you reviewed, sir?**
 (10) MR. WAGNER: I'll instruct you not to
 (11) answer.
 (12) MR. SCHULER: All right, we'll be back
 (13) on that one, I'll guarantee you that.
 (14) **Q Have you reviewed any depositions, sir?**
 (15) **A No.**
 (16) **Q Have you reviewed any Dow Chemical Company**
 (17) **documents?**
 (18) **A Yes.**
 (19) **Q What have you reviewed that are Dow Chemical**
 (20) **Company documents?**
 (21) MR. WAGNER: Same instruction.
 (22) **Q I want to be clear for the purpose of the record,**
 (23) **so when we come back at your expense, that I'm not**

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- (1) asking if you have reviewed anything prepared by
 (2) any attorneys of any shape or form whatsoever.
 (3) I'm asking you if you reviewed any Dow Chemical
 (4) Company documents, not prepared by any lawyers?
 (5) MR. WAGNER: Same instruction.
 (6) **Q Have you reviewed anything else in preparation for**
 (7) **your deposition here today, sir?**
 (8) MR. WAGNER: To the extent that you
 (9) reviewed things with me, I instruct the witness
 (10) not to answer. If you did things apart from me -
 (11) **A No, I haven't.**
 (12) **Q So your testimony here today is that you haven't**
 (13) **reviewed any documents that were not handed to you**
 (14) **by a lawyer, I guess, is that fair enough?**
 (15) MR. WAGNER: You can answer that.
 (16) **A Yes.**
 (17) **Q Let me ask you if you have spoken with anybody**
 (18) **other than the attorneys, regarding preparation**
 (19) **for your deposition here today?**
 (20) **A No.**
 (21) **Q Have you ever testified before the Environmental**
 (22) **Protection Agency or any of its subcommittees?**
 (23) **A No.**

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- (1) **Q Since leaving Dow in 1979, I believe you said, is**
 (2) **that correct?**
 (3) **A That's correct.**
 (4) **Q Do you maintain, either personally or through your**
 (5) **company, any consulting arrangements with Dow?**
 (6) **A No, sir.**
 (7) **Q When I say Dow, I mean any of its divisions like**
 (8) **DowElanco or any subsidiaries or anything of that**
 (9) **nature?**
 (10) **A No.**
 (11) **Q Do you maintain contact, and when I say maintain**
 (12) **contact with, either on a professional or personal**
 (13) **level, with anyone you worked with at the company,**
 (14) **Dow?**
 (15) **A Yes.**
 (16) **Q Who particularly do you maintain contact with?**
 (17) **A Primarily in the industrial hygiene and toxicology**
 (18) **areas, a number of folks.**
 (19) **Q And give me the names of three or four of those.**
 (20) **A Dr. Larry Rampy, Gordon Ingdol.**
 (21) **Q Who is Dr. Rampy?**
 (22) **A He was, at the time, the director of industrial**
 (23) **hygiene, Dow Chemical U.S.A., I believe.**

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- (1) **Q And during what years did he hold that position?**
 (2) **I gather from what you're saying he doesn't hold**
 (3) **it anymore?**
 (4) **A No. He recently got a new job that I don't know**
 (5) **about, but I don't know, '75 to '90 or '91, or**
 (6) **'92, somewhere in that range.**
 (7) **Q Where is he working now?**
 (8) **A He's still at Dow, but I don't know his new**
 (9) **position.**
 (10) **Q Still in Midland?**
 (11) **A As far as I know.**
 (12) **Q And Rampy, R-A-M-P-E?**
 (13) **A R-A-M-P-Y.**
 (14) **Q What other folks do you still maintain contact**
 (15) **with?**
 (16) **A Bruce Houhman, manager of industrial hygiene for**
 (17) **DowElanco. Greg Socha is radiation safety officer**
 (18) **here. They're friends from Midland.**
 (19) **Q How do you spell the last name?**
 (20) **A S-O-C-H-A.**
 (21) **Q Any others?**
 (22) **A Patty Houhman, worked for me at Dow Corning when I**
 (23) **was manager.**

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- (1) **Q How do you spell her name?**
 (2) **A I think it's officially Patricia, H-O-U-H-M-A-N.**
 (3) **Q What was her position when she was working with**
 (4) **you?**
 (5) **A She was an industrial hygienist at Dow Corning.**
 (6) **Q Is she still there?**
 (7) **A No.**
 (8) **Q Where is she located now?**
 (9) **A Physically here in the Indianapolis area.**
 (10) **Q Is she with another company?**
 (11) **A No.**
 (12) **Q Still with Dow?**
 (13) **A She doesn't work full time to my knowledge.**
 (14) **Q She doesn't work with Dow any longer or part time**
 (15) **or -**
 (16) **A Last I knew she was part time with Dow Corning,**
 (17) **industrial hygiene.**
 (18) **Q In 1964, when you were called in to help evaluate**
 (19) **the chloracne problem in the trichlorophenol**
 (20) **process, and in the course of your involvement**
 (21) **with that, did you ever communicate to any**
 (22) **governmental agencies the fact that there was a**
 (23) **substance in the trichlorophenol process that was**

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- (1) **causing chloracne in Dow workers?**
 (2) **A No.**
 (3) MR. WAGNER: I object as to the
 (4) predicate.
 (5) **Q Did you ever communicate that fact to any**
 (6) **scientific organizations?**
 (7) MR. WAGNER: I object on the predicate.
 (8) **A Not that I remember.**
 (9) **Q Did you ever communicate that fact publicly**
 (10) **outside the company in any way?**
 (11) **A Not that I remember.**
 (12) **Q Do you know if there were any claims by workers,**
 (13) **as a result of the 1964 chloracne outbreak,**
 (14) **against Dow?**
 (15) **A No.**
 (16) **Q You don't know one way or the other?**
 (17) **A I don't know one way or the other.**
 (18) **Q Have you ever testified in any case or proceeding**
 (19) **involving any claim by any worker who got**
 (20) **chloracne as a result of working at Dow, whether**
 (21) **it was 1964 or any other time?**
 (22) **A No.**
 (23) **Q I asked you earlier if you testified in any civil**

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- (1) cases where there were allegations of personal
 (2) injury from exposure to a Dow product. Have you
 (3) testified in any cases whatsoever, civil cases,
 (4) where Dow Chemical Company was a defendant?
 (5) **A No.**
 (6) **Q** Let me show you some documents that I have here,
 (7) and most of these, if not all of them, were marked
 (8) as exhibits to the deposition of Dr. Rowe. This
 (9) particular one happens to be Deposition Exhibit 10
 (10) to that deposition, and I'll ask you, first of
 (11) all, if you can identify that particular document?
 (12) **A** To the extent that it is, you know, entitled, and
 (13) obviously I wrote it, yes, I can identify it.
 (14) **Q** What is the document? Just give me a general
 (15) identification for the purpose of the record.
 (16) **A** It is a description of the part played by my
 (17) department, the biochemical research department,
 (18) in Dow's chloracne problem.
 (19) **MR. SCHULER:** And we'll just go ahead
 (20) and mark that as Exhibit 1 to this deposition.
 (21) **MR. LUTZ:** What exhibit was it to Rowe's
 (22) deposition?
 (23) **MR. SCHULER:** 10.

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- (1) **(Plaintiff's Exhibit 1 was marked for**
 (2) **identification.)**
 (3) **Q** Looking at Plaintiff's Exhibit 1, it's entitled
 (4) the Chloracne Problem, Biochem's Contribution.
 (5) Who asked you to prepare this document, do you
 (6) recall, Mr. Silverstein?
 (7) **A** I don't recall specifically.
 (8) **Q** At the top, in handwritten letters, it says
 (9) Mr. Lynn, and then there's some handwriting that
 (10) says early history of - early Dow history of, is
 (11) that your handwriting?
 (12) **A** This, I don't think is. I'm pretty sure that
 (13) isn't, and I know that isn't. That and the date
 (14) look like my handwriting.
 (15) **Q** Do you know whose handwriting this would be at the
 (16) top that's not yours?
 (17) **A** I don't recognize that, no.
 (18) **Q** In the first paragraph of Plaintiff's Exhibit 1,
 (19) you make the comment there's evidence that other
 (20) compounds, than the one already isolated and
 (21) identified and studied, are capable of producing
 (22) trichlorophenol, and I've highlighted those words
 (23) there. Can you tell me what other compounds you

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- (1) were referring to?
 (2) **A** At that time there was nonspecific analytical
 (3) evidence that there was a whole series of things
 (4) in that waste oil, and those are the other
 (5) compounds I would be referring to.
 (6) **Q** But they were not specifically identified at that
 (7) point in time, is that what you're saying?
 (8) **A** At that point in time, this is March 11th, '65.
 (9) **Q** I'm looking at page 2 of Plaintiff's Exhibit 1,
 (10) and the second full paragraph, and I'll show this
 (11) to you, I only have one copy, but it says, this
 (12) compound, referring to what appears to be the
 (13) TCDD, do you see that?
 (14) **A** Yes.
 (15) **Q** And others, which have been shown to cause
 (16) chloracne, have also been shown by animal tests
 (17) and some human experience in other companies to
 (18) produce liver damage if the exposure is more
 (19) extensive. Again, do you know what those other
 (20) compounds are? Can you identify them at this
 (21) point in time?
 (22) **A** They would be the families that I was then aware
 (23) of that had caused chloracne in humans, such as in

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- (1) the thirties, the chlorinated naphthalenes, and
 (2) earlier Dow experience, before I came there, with
 (3) materials they suspected, you know, of being the
 (4) culprits, the chlorinated furans and that type of
 (5) thing, yes.
 (6) **Q** But you're not referring there to other compounds
 (7) in the trichlorophenol waste oil?
 (8) **A** I don't remember if that was meant to do that or
 (9) not, to be honest with you.
 (10) **Q** You refer in the last sentence to some European
 (11) experience with chloracne. Can you tell me who
 (12) you're referring to there?
 (13) **A** Well, there were, as I remember, three big
 (14) companies in Europe that had had accidents in
 (15) their plant that had caused some employees to have
 (16) the chloracne and also some liver damage in other,
 (17) you know, some of their employees. That's about
 (18) all I remember of it.
 (19) **Q** Do you remember the names of the companies?
 (20) **A** The one was Boehringer Chemical in Germany. I do
 (21) not remember the one in the Netherlands, and I
 (22) don't remember the one in France, either.
 (23) **Q** You mention on page 3, and I'll show you this

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- (1) section of Plaintiff's Exhibit 1, that
 (2) folliculitis in rabbits appears to be produced,
 (3) regardless of the severity of exposure. Do you
 (4) see that there?
 (5) **A** Yes, this part that you've highlighted?
 (6) **Q** Yes.
 (7) **A** All right, let me read the whole sentence here.
 (8) **Q** Go ahead.
 (9) **A** Yes, okay.
 (10) **Q** Do you recall where you got that information from?
 (11) **A** It had to be from toxicology, our toxicology
 (12) department.
 (13) **MR. WAGNER:** For purposes of the record,
 (14) if this is ever offered at trial, this document, I
 (15) want to object to the highlighting of it and would
 (16) want a clean copy submitted, as opposed -
 (17) **MR. SCHULER:** You'll certainly get a
 (18) clean copy.
 (19) **Q** In the next sentence you indicate there's evidence
 (20) that unknowns, it looks like acnegens, may produce
 (21) folliculitis in rabbits with a shorter induction
 (22) period. Can you tell me what you are referring to
 (23) there?

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- (1) **A** I have no idea what that refers to.
 (2) **Q** Are you referring to -
 (3) **A** I don't recall.
 (4) **Q** I didn't mean to cut you off. Are you referring
 (5) to the contents or contaminants of the
 (6) trichlorophenol waste oil?
 (7) **A** I just don't know whether I was or not.
 (8) **Q** I'm looking at the last paragraph on page 3 of
 (9) Plaintiff's Exhibit 1, where you're talking about,
 (10) you start off talking about some 1944 research,
 (11) and I can't make out the last sentence, the word
 (12) that was inserted there. It says the something
 (13) product was shown to be inactive by animal tests.
 (14) Do you know what that says, can you make that out
 (15) for me?
 (16) **A** The handwritten insertion appears to be the word
 (17) phenate.
 (18) **Q** Is that your writing or was that someone else's?
 (19) **A** I can't tell. It's too indistinct.
 (20) **Q** Can you make out the handwritten scratches that
 (21) are crossed out at the bottom, or at least tell me
 (22) if that's your writing?
 (23) **A** I can't make out what it says, except for the last

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- (1) word which is obviously experience, and it is not
(2) my writing.
(3) Q Do you know whose writing it is?
(4) A No. I don't recognize that writing.
(5) Q You mention at the top of page 4 in Plaintiff's
(6) Exhibit 1, that in 1955 a number of German
(7) manufacturers of trichlorophenol and at least one
(8) French company had human experience with chloracne
(9) that caused them to shut down production plants
(10) and to study the problem. Are those the same
(11) companies you referred to earlier, Boehringer, and
(12) you couldn't remember the names of the other two?
(13) A I believe so.
(14) Q On page 4 of Plaintiff's Exhibit 1, you talk about
(15) something that happened in 1957 historically in
(16) the 199 and 349 buildings, that there were process
(17) samples tested on animals, and the caustic
(18) insoluble oil and coil reactor product in 199 were
(19) active and that tar from color stills in 349 was
(20) also active.
(21) Are you referring to rabbit testing
(22) there?
(23) A Yes.

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- (1) Q And when you say active, are you referring to
(2) causing chloracne?
(3) A No.
(4) Q What are you referring to?
(5) A To cause folliculitis in the animal, or the rabbit
(6) ear, and there's a technical difference between
(7) that and chloracne.
(8) Q What is the difference between folliculitis and
(9) chloracne?
(10) A I'm not a medical person, so I really just as soon
(11) not give you an answer, if that's all right.
(12) Q If you can't answer it, if you don't feel
(13) qualified to answer something, tell me that you
(14) don't feel qualified to answer that.
(15) A I think that's a good answer, I don't feel
(16) qualified.
(17) Q You mention in the next sentence, page 4 of
(18) Plaintiff's Exhibit 1, that over the years some
(19) samples of end products, such as Silvex, and I
(20) can't make out the next name, it's handwritten
(21) over, can you make out the next one?
(22) A Where are we?
(23) Q That last highlighted sentence.

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- (1) A Over the years?
(2) Q Right.
(3) MR. WAGNER: Are you asking what that
(4) word is?
(5) MR. SCHULER: Yes.
(6) A Looks like Ronnel, R-O-N-N-E-L
(7) Q What is Ronnel, do you know?
(8) A It's a agricultural product, but I could not give
(9) you the chemical components, okay?
(10) Q Okay. You mention that Ronnel, Silvex and 2,4,5-T
(11) had been tested on animals and in no case was
(12) chloracne activity detected in these products.
(13) Where did you get that information?
(14) A Probably from toxicology.
(15) Q At Dow Chemical Company?
(16) A Yes.
(17) Q In the next sentence you mention in 1962 there was
(18) additional testing of samples from the then
(19) existing process from the pilot run with a
(20) decrease in the caustic concentration, and to
(21) follow on the next page, those samples were tested
(22) in animals and that certain insoluble oil was
(23) found to be active. Are you referring to causing

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- (1) chloracne there or some other problem?
(2) A I'm referring to causing folliculitis in the
(3) animal tests, specifically.
(4) Q The next paragraph, then, in your history you
(5) refer to the outbreak that occurred in 1964 of
(6) chloracne and that the two samples of the oil that
(7) were tested were dramatically different than those
(8) tested before. Let me show you that and ask you
(9) what you mean by that?
(10) MR. WAGNER: I object to the form.
(11) A Well, as it says, the samples killed the rabbits
(12) in the test, in contrast to earlier tests where
(13) the rabbits did not die.
(14) Q You're referring to the strength of the
(15) contaminant there?
(16) MR. WAGNER: I object to the form of the
(17) question.
(18) A Simply the end result.
(19) Q Okay, the fact that the rabbits died?
(20) A Yes.
(21) Q And you subsequently refer, in the next couple of
(22) sentences that I'll show you on page 5 of
(23) Plaintiff's Exhibit 1, that the concentration of

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- (1) the caustic insoluble oils had to be diluted from
(2) the usual 10 percent to .1 percent concentration
(3) before the animals survived, do you see that?
(4) A Yes.
(5) Q Where did you get that information from?
(6) A Toxicology.
(7) Q Do you know who was conducting these tests at this
(8) time in 1964?
(9) A To the best of my knowledge, it was Dr. Kenneth
(10) Olson.
(11) Q He was a toxicologist with the company at that
(12) time?
(13) A Yes.
(14) Q You mention at the bottom of the first full
(15) paragraph on page 5 of Plaintiff's Exhibit 1 that
(16) the tests had been repeated periodically, to the
(17) extent that over 600 animal tests directly related
(18) to the chloracne problem had been run since July,
(19) and there's a date that's cut off there. Do you
(20) see that last sentence?
(21) A Yes, I see it.
(22) Q Was that information you got from toxicology,
(23) also?

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- (1) A Yes.
(2) Q And would that have been Dr. Olson, as well, that
(3) was doing that testing?
(4) MR. WAGNER: I object, the predicate.
(5) Q The circle around the sentence with the insertion
(6) of the phrase in that particular sentence, is that
(7) something that you did, or did somebody else edit
(8) this?
(9) A I -
(10) MR. WAGNER: I object to the form of the
(11) question.
(12) A I honestly don't remember.
(13) Q There is a reference in the last paragraph to a
(14) Mr. Skelly. Was he one of the toxicologists in
(15) the analytical lab?
(16) A No.
(17) Q What was Mr. Skelly?
(18) A Analytical chemist.
(19) Q And what division or department was he in?
(20) A Analytical laboratories.
(21) Q Is that part of the biochemical research lab?
(22) A No.
(23) Q Separate?

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- (1) **A Yes, separate.**
 (2) **Q** You mention in that same sentence that Skelly
 (3) isolated a number of fractions and among them was
 (4) the TCDD. Was he the first one in the company to
 (5) identify that by-product?
 (6) **A** May I see the reference?
 (7) **Q** Sure.
 (8) **A** Your question again, please?
 (9) **Q** Was Mr. Skelly the first one at Dow Chemical to
 (10) isolate the TCDD, to your knowledge?
 (11) **A** I don't know the answer.
 (12) **Q** Again, there's some editing of the last paragraph.
 (13) Do you know if that was yours or someone else's?
 (14) **A** That doesn't look like my handwriting. I don't
 (15) know whose it is.
 (16) **Q** In the next sentence you refer to two materials
 (17) that were identical from infrared melting point
 (18) analysis. Do you know what you're referring to
 (19) there?
 (20) **A** I don't know what that refers to.
 (21) **Q** Was Harold Gill in the analytical laboratory also?
 (22) **A** Yes.
 (23) **Q** Was he the head of it?

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- (1) **A** Not to my knowledge.
 (2) **Q** You mention on page 6 of Plaintiff's Exhibit 1
 (3) that the vapor phase chromatography, I guess it
 (4) was called, sensitivity at that time was
 (5) sensitive, could detect samples - I guess of the
 (6) TCDD, down to one part per million by weight, do
 (7) you see that there?
 (8) **A** Yes.
 (9) **Q** And there is a subsequent statement that the
 (10) rabbits are sensitive to the TCDD down to
 (11) approximately five parts per billion by weight, do
 (12) you see that next sentence there?
 (13) **A** Yes.
 (14) **Q** Where did you get that information, from
 (15) toxicology also?
 (16) **A** The part relating to the rabbits from toxicology,
 (17) and the other from analytical.
 (18) **Q** With respect to those two measurements, if the
 (19) machines were only sensitive to a measurement of
 (20) one part per million, how could it be detected,
 (21) and again, if you're not qualified or can't tell
 (22) me how they arrived at this, but how could you
 (23) arrive at the conclusion that the rabbits were

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- (1) sensitive down to five parts per billion?
 (2) THE DEPONENT: Okay to answer?
 (3) MR. WAGNER: Sure.
 (4) **A** Because the analytical samples, process samples
 (5) had lots of interferences. Starting with pure
 (6) material we could accurately dilute down to five
 (7) parts per billion and test on the animals, so
 (8) that's what we did.
 (9) **Q** So you took the pure and diluted the pure to five
 (10) parts per billion? You worked up instead of down,
 (11) if you will?
 (12) **A** I don't remember which way we went.
 (13) **Q** Who would have done that research, do you know?
 (14) **A** Probably toxicology - well, I know it was.
 (15) **Q** Would that have been Dr. Olson again?
 (16) **A** To the best of my recollection, yes, Dr. Olson.
 (17) **Q** There's a lot of editing that went on on page 6
 (18) here of Plaintiff's Exhibit 1. Again, do you know
 (19) whether you did that or that was somebody else?
 (20) **A** Just about impossible to tell, but I don't think I
 (21) did it.
 (22) **Q** And you don't know who did, correct?
 (23) **A** No. I can't recognize that handwriting.

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- (1) **Q** Referring to the last highlighted sentence here on
 (2) page 6 of Plaintiff's Exhibit 1, you make the
 (3) comment that wipe samples with no detectable TCDD
 (4) but varying amounts of unknowns have shown more
 (5) activity on the animals than can be accounted for
 (6) by the low level of TCDD which may be present.
 (7) Can you tell me where you got that information?
 (8) THE DEPONENT: Okay?
 (9) MR. WAGNER: Okay.
 (10) **A** My wipe test samples were tested on the rabbit ear
 (11) because of its great sensitivity. At the same
 (12) time we had them analyzed by the analytical lab
 (13) for the materials they could find on it, and that
 (14) statement arose because wipe samples that showed
 (15) very little or no TCDD by analytical analysis did
 (16) produce an effect on the animals.
 (17) **Q** And so, I'm not sure I understood you, in other
 (18) words, the wipe samples were analyzed chemically
 (19) and then they were also tested on the rabbits?
 (20) **A** Yes.
 (21) **Q** And in the chemical analysis, even if there was no
 (22) TCDD collected, they might still be bio-reactive
 (23) on the animals, is that what you are saying?

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- (1) **A** That's correct.
 (2) **Q** And the chemical analysis was done with the vapor
 (3) phase chromatography?
 (4) **A** Yes.
 (5) **Q** At that time down to a sensitivity of one part per
 (6) million measurement?
 (7) MR. WAGNER: I object, no predicate.
 (8) **A** To the best of my recollection.
 (9) **Q** There's a sentence scratched out at the end that
 (10) talks about the chlorinated dibenzofurans were
 (11) tested on animals many years ago and shown to be
 (12) quite active. Do you recall where that
 (13) information came from?
 (14) MR. WAGNER: I object to the form of the
 (15) question.
 (16) **A** Somewhere in the files.
 (17) **Q** Toxicology again?
 (18) **A** Yes.
 (19) **Q** And in the next sentence that was scratched out,
 (20) it says research was abandoned on these products
 (21) because of their high acnegenic reactivity. Do
 (22) you recall what products you were referring to
 (23) there?

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- (1) **A** No, I don't.
 (2) **Q** There's a handwritten page 6, is that in your
 (3) handwriting?
 (4) **A** That appears to be my handwriting.
 (5) **Q** That highlighted sentence, could you read into the
 (6) record for me?
 (7) **A** Peaks coincided with some unknowns which were seen
 (8) in wipe samples and process samples. Both the
 (9) biochem lab and the Germans have reported animal
 (10) tests with these compounds which showed acnegenic
 (11) activity.
 (12) **Q** What compounds are you referring to there?
 (13) **A** Well, let me see, I think it goes back to the
 (14) impure chlorinated dibenzofurans that I didn't
 (15) read. I just read the highlighted.
 (16) THE DEPONENT: Can I take a break?
 (17) MR. SCHULER: Sure.
 (18) (RECESS.)
 (19) BY MR. SCHULER:
 (20) **Q** Let me show you page 7 of Plaintiff's Exhibit 1,
 (21) and I'll ask you to read that first highlighted
 (22) portion there.
 (23) **A** The analytical laboratory and the toxicology

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- (1) laboratory are presently conducting a project to
 (2) determine the analytical and animal test limits of
 (3) sensitivity for TCBD in various Dow products, I
 (4) think the word is made, M-A-D-E, from
 (5) trichlorophenol. This project is aimed at
 (6) developing a quality control specification for
 (7) TCBD in consumer products.
 (8) Q Do you know who was in charge of that project?
 (9) A No.
 (10) Q Do you know what standard was ultimately
 (11) developed?
 (12) A During the time I was involved, our standard was
 (13) nothing detectable in the material.
 (14) Q And I think in one of these other documents we'll
 (15) get to the various measurements, but in the period
 (16) of the 1960s, up until 1969, what was the limit of
 (17) detection, if you know?
 (18) A I don't remember.
 (19) Q You have a section here in Plaintiff's Exhibit 1,
 (20) starting at page 7, that deals with the 199
 (21) building and talks about an animal test that was
 (22) done, conducted in 1945, which showed the caustic
 (23) insoluble oil to be active. Do you know what

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- (1) precautions were recommended back at that time? I
 (2) know that was before you were with the company,
 (3) but you referred to precautions.
 (4) A I don't remember specifically.
 (5) Q What about 1957, do you know what precautions were
 (6) recommended at that time?
 (7) A I do not remember specifics.
 (8) Q On page 8 of Plaintiff's Exhibit 1, you refer to
 (9) the Boehringer Sohn Company in Germany asking for
 (10) information from a Givaudan, G-I-V-A-U-D-A-N,
 (11) Corporation. Do you know where that company was
 (12) located and whether or not Dow Chemical had an
 (13) interest in it?
 (14) A I have no recollection of that company, Givaudan.
 (15) Q You mention in the next sentence on page 8 that a
 (16) letter describing the hazards and precautions for
 (17) safe handling of 2,4,5-Trichlorophenol was sent to
 (18) Boehringer with a data sheet from biochem. Did
 (19) you author that letter?
 (20) A No.
 (21) Q Do you know who did?
 (22) A No.
 (23) Q It mentions that the letter answered seven

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- (1) specific questions regarding our own plant
 (2) experience. Do you recall what those questions
 (3) were?
 (4) A I do not.
 (5) Q On page 9 of Plaintiff's Exhibit 1, you refer to a
 (6) January 1964 first medical report of a case of
 (7) chloracne, initiated a survey by the environmental
 (8) research laboratory. Do you know who was involved
 (9) in doing that survey?
 (10) A That was my assignment to the plant being referred
 (11) to there.
 (12) Q And that was, I forget the fellow's name, who was
 (13) your boss?
 (14) A Harold Hoyle.
 (15) Q Hoyle, okay. And where you refer to the
 (16) operator's job being studied closely and a report
 (17) being issued on February 5th, 1964, recommending
 (18) changes in the procedure and the personal hygiene
 (19) habits, that was your report?
 (20) A I presume so.
 (21) Q You mention a company by the name of Phoenix
 (22) Sprinkler as the company that came in to change
 (23) some of the equipment on the 199 building. Was

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- (1) that a company separate from Dow Chemical, a
 (2) subcontractor?
 (3) A To my knowledge, yes.
 (4) Q And you mention that apparently some of their
 (5) workers developed chloracne in the process of
 (6) changing some of this equipment. Do you recall
 (7) how many?
 (8) A No, I don't.
 (9) Q Did you ever meet those men that developed
 (10) chloracne that were employed by Phoenix Sprinkler?
 (11) A Not to my knowledge.
 (12) Q How did you find out about that?
 (13) A I was told by someone.
 (14) Q At your company, Dow Chemical?
 (15) A I would guess so, yeah.
 (16) MR. WAGNER: Don't guess.
 (17) THE DEPONENT: You are right.
 (18) MR. LUTZ: Does that mean you are
 (19) changing your last answer to you don't recall?
 (20) THE DEPONENT: I'll change my last
 (21) answer to I don't recall.
 (22) MR. LUTZ: I had to say something.
 (23) Q You mention at the top of page 10 of Plaintiff's

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- (1) Exhibit 1 that very stringent safety precautions
 (2) were instituted at the 199 building. Those were
 (3) the ones we discussed earlier in your deposition
 (4) here?
 (5) A Yes.
 (6) Q You say these include a full-time health
 (7) supervisor. Do you recall who that was?
 (8) A Yes.
 (9) Q Who?
 (10) A Myself.
 (11) Q Was there anyone that followed you in that
 (12) position?
 (13) A Yes.
 (14) Q Who?
 (15) A I don't recall the name.
 (16) Q Was that a full-time position after you left it,
 (17) that was permanently maintained at that building?
 (18) A No.
 (19) Q How many followed you, one other person or more,
 (20) if you remember?
 (21) A I don't remember.
 (22) Q The closures that you refer to on page 10 that
 (23) were put up around parts of the process and that

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- (1) you refer to being put up in November and December
 (2) of 1964, what type of closures were they, do you
 (3) recall?
 (4) A It was basically a very large, metal, rectangular
 (5) structure around the main process equipment.
 (6) Q Kind of a wall that was put up around it?
 (7) A A wall, yeah.
 (8) Q Was it completely self-contained, did it
 (9) completely enclose the process equipment, or was
 (10) it open at some point?
 (11) A It was a closure, as I stated, enclosing the
 (12) process, yes.
 (13) Q Was it completely enclosed, or was it open at the
 (14) top or one of the sides?
 (15) A It was open only to let pipes and such things
 (16) through it, yeah.
 (17) Q Do you remember what material it was made out of?
 (18) A No.
 (19) Q On page 11 there's some comment and criticisms, I
 (20) guess, of the language here. Do you recall who
 (21) may have written that?
 (22) MR. WAGNER: I object to the form of the
 (23) question.

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- (1) Q Either the insertions up here or the word out
(2) here, that says poor?
(3) MR. WAGNER: Same objection.
(4) A I don't know who critiqued or edited it, no.
(5) Q The 349 building that you refer to on page 11 of
(6) Plaintiff's Exhibit 1, you talk about contaminated
(7) phenate being processed in that building. Is that
(8) a chemical which is a component of any of the
(9) herbicides 2,4-D, 2,4,5-T or Silvex?
(10) MR. WAGNER: Phenate?
(11) MR. SCHULER: Phenate.
(12) A Can I see the reference?
(13) Q The last -
(14) A Oh, the one that was poor, uh-huh. I'm really not
(15) sure is the answer.
(16) Q You refer to a building superintendent at 349 by
(17) the name of Clare Bailey. Is that a man or a
(18) woman, if you know?
(19) A It was a man.
(20) Q Is he still employed by Dow?
(21) A I don't know.
(22) Q You mention at the top of page 12 of Plaintiff's
(23) Exhibit 1 that there were objections by workmen to

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- (1) working in 349, which caused the adoption of
(2) full-scale protective measures in that building in
(3) regard to the trichlorophenol process. Were any
(4) of those objections in written form, if you
(5) recall?
(6) A I do not recall.
(7) Q Do you remember the names of any people who would
(8) have objected, any of the workmen?
(9) A I wouldn't know any names of the folks.
(10) Q You mention in paragraph two of page 12 of
(11) Plaintiff's Exhibit 1 that a health supervisor is
(12) now stationed at the 349 building. Do you recall
(13) who that was?
(14) A No, I don't.
(15) Q At the top of page 13 in the first full paragraph
(16) you discussed Dowicide 3. Do you know what the
(17) components were of that particular chemical?
(18) A No, I don't.
(19) Q In the 267 building, on page 13 of Plaintiff's
(20) Exhibit 1, you mention that that is the building
(21) where the trichlorophenol from 349 is processed to
(22) 2,4,5-T acid and 2,4,5-T esters, and you mention
(23) that in 1965, samples taken from that building

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- (1) showed no activity with one exception, and that is
(2) the residue from the sodium salt filter press
(3) showed slight activity on the rabbit ear. Do you
(4) know what activity was shown on the rabbit ear
(5) that you're referring to there?
(6) A Where the heck are we here?
(7) Q Here.
(8) A That's not what -
(9) Q Right here, I'm sorry.
(10) A That's the folliculitis activity.
(11) Q You distributed this March 10th, 1965, memorandum
(12) that we marked as Plaintiff's Exhibit 1. There is
(13) a handwritten statement at the end that says unit
(14) index. Can you tell me what that is?
(15) MR. WAGNER: I object to the form of the
(16) question.
(17) A That was an indexing method used in the lab,
(18) meaning write out, you know, the key word so that
(19) it could be retrieved, presumably.
(20) Q For filing purposes?
(21) A Filing purposes, strictly.
(22) Q Was there computerization of these things back in
(23) 1965, or was it manual?

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- (1) MR. WAGNER: I object to the form of the
(2) question.
(3) A I don't remember.
(4) Q Can you tell me who these people are at the end in
(5) the chain of distribution?
(6) MR. WAGNER: I object to the form of the
(7) question.
(8) Q Is that your handwriting, first of all?
(9) A I don't think that's my handwriting.
(10) Q Can you read the names there that are listed?
(11) A Under distribution is Hutchenreuther.
(12) Q And where was he located at the time?
(13) A He was a manager in the Midland plant at the time.
(14) Goergea, same as Hutchenreuther, G-O-E-R-G-E-A;
(15) Staehling, S-T-A-E-H-L-I-N-G, another major
(16) manager. I can't read - oh, Amstutz,
(17) A-M-S-T-U-T-Z; J. Kelly, parentheses, W, period,
(18) disposal; Shannon, ditto marks under disposal, and
(19) Leuck, L-U-E-C-K; Bailey, B-A-I-L-E-Y, and
(20) Sculati, S-C-U-L-A-T-I.
(21) Q It mentions a J. Kelly. It says something
(22) disposal. Who is that individual?
(23) A I don't remember Mr. Kelly.

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- (1) Q And Mr. Staehling, where is he located?
(2) A He was manager in the Midland plant at that time.
(3) Q Mr. Leuck?
(4) A He was assistant superintendent at 199 building at
(5) the time.
(6) Q And I think Bailey we have covered. And the last
(7) name -
(8) A Sculati.
(9) Q What was his position?
(10) A He was plant superintendent, but I don't remember
(11) where.
(12) Q At one of the buildings?
(13) A Yeah.
(14) Q Let me show you this document and ask you if you
(15) can identify that?
(16) A Yes.
(17) Q What is it, first of all?
(18) A It is the, a report of a meeting held at the
(19) biochemical research laboratory.
(20) Q What is the date?
(21) A Memo is dated March 29th, 1965.
(22) MR. SCHULER: We'll mark that as Exhibit
(23) 2.

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- (1) (Plaintiff's Exhibit 2 was marked for
(2) identification.)
(3) Q Plaintiff's Exhibit 2 is a report authored by you,
(4) Mr. Silverstein?
(5) A If you referring to the document we just looked
(6) at, yes.
(7) Q And what was the purpose of this report,
(8) Plaintiff's Exhibit 2?
(9) A To document a meeting that was held at the
(10) biochemical research laboratory on the date
(11) indicated.
(12) Q There is some handwriting at the top, it says copy
(13) to a Bill something or other, I can't make out the
(14) name. Is that your handwriting?
(15) A No, it isn't.
(16) Q Do you recognize the name, can you make it out?
(17) A Yes, Bill Haberstoh.
(18) Q Better spell that one.
(19) A H-A-B-E-R-S-T-O-H. That appears to be V.K.R.,
(20) V.K. Rowe.
(21) Q Who is Mr. Haberstoh?
(22) A I don't remember.
(23) Q You were present at that meeting of the various

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- (1) representatives of the chemical companies,
 (2) correct?
 (3) **A Yes.**
 (4) **Q** And you mention in your report that Mr. Rowe
 (5) referred to evidence for unknown acnegens, and you
 (6) can take a look at that, if you want. Again, I'll
 (7) ask you, do you know what he was referring to in
 (8) the context of that meeting?
 (9) MR. WAGNER: I object to the form of the
 (10) question.
 (11) **A** The number of other compounds in the caustic
 (12) insoluble oil.
 (13) **Q** Other than the TCDD?
 (14) **A Yes.**
 (15) **Q** Was the location of this meeting at the
 (16) biochemical research laboratory, 1701 building, or
 (17) was it someplace else?
 (18) **A** I don't remember which building it was in.
 (19) **Q** But it was on the Dow premises?
 (20) **A Yes.**
 (21) **Q** On page 2 of Plaintiff's Exhibit 2, you mention
 (22) that Dr. Holder reviewed the medical side of the
 (23) Dow experience. He was the fellow that you

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- (1) referred to earlier that was head of the medical
 (2) division?
 (3) **A** I didn't say he was head of the medical division.
 (4) He was the gentleman I dealt with at the medical
 (5) department, yes.
 (6) **Q** Sorry. And you refer to the fact that he said we
 (7) now have approximately 60 to 70 cases of
 (8) individuals with chloracne, ranging from two
 (9) severe cases to some very mild cases that were
 (10) difficult to diagnose. Are you referring to,
 (11) there, just the cases from the 199 building?
 (12) **A** I couldn't tell you.
 (13) MR. WAGNER: I object to the form of the
 (14) question.
 (15) **A** I couldn't tell you what Dr. Holder was referring
 (16) to at the time.
 (17) **Q** You mention that he showed slides of the more
 (18) dramatic cases. Did you have a chance to observe
 (19) the slides yourself?
 (20) **A Yes.**
 (21) **Q** Did he put them in a slide projector and put them
 (22) up on a screen, is that the way he did that?
 (23) **A Yes.**

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- (1) **Q** Do you remember how many slides there are that he
 (2) showed?
 (3) **A No.**
 (4) **Q** You mention that he reviewed clinical studies that
 (5) were being made on these people with emphasis on
 (6) the liver function tests. Do you recall what he
 (7) said about the impact of these unknown acnegens
 (8) and the TCDD on liver functions?
 (9) **A** I do not recall what he said.
 (10) **Q** You mention that Dr. Holder also discussed or
 (11) mentioned the incidence of fatigue among the
 (12) afflicted people. Do you recall what he said
 (13) about that?
 (14) **A No.**
 (15) **Q** Do you recall Dr. Holder's discussion of what
 (16) topical treatments were tried on the
 (17) chloracnogenic condition of these folks?
 (18) **A** I do not.
 (19) **Q** You mention a doctor in the first full paragraph,
 (20) a Dr. Sadek, S-A-D-E-K, showed slides of ears and
 (21) livers of rabbits that had been exposed to TCDD.
 (22) Who is Dr. Sadek?
 (23) **A** He was, at that time, a veterinary pathologist in

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- (1) the toxicology lab.
 (2) **Q** With Dow Chemical Company?
 (3) **A Yes.**
 (4) **Q** You also made a presentation at that meeting, is
 (5) that correct?
 (6) **A** I don't remember.
 (7) **Q** It mentions, here at the bottom of page 2 of
 (8) Plaintiff's Exhibit 2, that Silverstein described
 (9) the plant study on washing of contamination of
 (10) tools and surfaces. Does that refresh your
 (11) recollection?
 (12) **A Yes.**
 (13) **Q** And you can look at this to further refresh your
 (14) recollection, if you would like. It's at the very
 (15) bottom of page 2 of Plaintiff's Exhibit 2. Was it
 (16) your experience with contamination that in order
 (17) to remove it from tools and other objects, that
 (18) you either had to use the chemicals referenced in
 (19) that paragraph there or proceed with vigorous
 (20) scrubbing with soap and water to do that?
 (21) MR. WAGNER: I object to the form of the
 (22) question.
 (23) **A** I need a rerun of the question because it got a

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- (1) little long.
 (2) **Q** Okay. Was it your experience with the
 (3) contamination of tools and other objects with this
 (4) foreign material that you either had to use the
 (5) substances you outlined to remove it or to use
 (6) soapy water, soap and water with vigorous
 (7) scrubbing?
 (8) MR. WAGNER: I object to the form of the
 (9) question.
 (10) **A Yes.**
 (11) **Q** Did you feel, and having looked at this now, that
 (12) washing with water alone would be sufficient to
 (13) remove the contamination?
 (14) MR. WAGNER: I object, no predicate.
 (15) **A** My recollection is it could be done.
 (16) **Q** With water alone?
 (17) **A** Mm-hmm - yes. I'm sorry, you said water alone?
 (18) **Q** Yes.
 (19) **A** Water, detergents and vigorous scrubbing was
 (20) required.
 (21) **Q** The question, though, is, did you feel that the
 (22) use of water alone would be insufficient without
 (23) detergent?

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- (1) **A** I think I missed a word in there, a key word.
 (2) **Q** Did you feel that water alone without detergent
 (3) would be insufficient?
 (4) MR. WAGNER: I object to the form of the
 (5) question.
 (6) **A Yes.**
 (7) **Q** You mention in the next paragraph on page 3 of
 (8) Plaintiff's Exhibit 2 that Harold Gill discussed
 (9) the analysis by vapor phase chromatography, and at
 (10) that time he referred to a limit of one part per
 (11) million for trichlorophenol and for 2,4,5-T acid,
 (12) either acetic or propionic. Is that your
 (13) recollection of the limit of detection of the
 (14) machinery at that time?
 (15) **A** At the time -
 (16) MR. WAGNER: I object to the form of the
 (17) question, since the paragraph refers to two limits
 (18) of detection.
 (19) **A** My recollection at the time, for the sentence
 (20) highlighted, yeah.
 (21) **Q** You mention, at the bottom of page 4 of
 (22) Plaintiff's Exhibit 2, some concern, and we
 (23) discussed earlier, about as a group, that we could

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(1) not afford to sell contaminated products. Was
(2) that because of the concern that the customers
(3) would not be using the products under the same
(4) conditions of health control and hygiene as your
(5) workers would be?

(6) MR. WAGNER: I object to the form of the
(7) question, over broad and vague.

(8) **A I honestly can't remember that.**

(9) **Q Do you have any independent recollection of the**
(10) **comments of any of the other manufacturers'**
(11) **representatives at this meeting with regard to**
(12) **Dow's disclosure of this contaminant in both**
(13) **trichlorophenol and potentially in its end**
(14) **products?**

(15) MR. WAGNER: I object to the form of the
(16) question.

(17) **A I have no recollection of any comments by anyone**
(18) **at the meeting at this time.**

(19) **Q Do you have any recollection of what the reaction**
(20) **of the other manufacturers' representatives were**
(21) **from your observation, standpoint?**

(22) **A I don't remember.**

(23) **Q At this point in time, I'm referring to the date**

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(1) of this meeting, which was on March 24th, 1965,
(2) had Dow developed the technology to attempt to
(3) reduce the contamination of TCDD or other
(4) chloracnogens in its end products or its
(5) trichlorophenol?

(6) MR. WAGNER: I object to the form of the
(7) question.

(8) **A I honestly do not recall time frames that well.**

(9) **Q You mention on page 5 of Plaintiff's Exhibit 2**
(10) **that even if the vapor phase chromatography does**
(11) **not detect TCDD, an animal response may still**
(12) **occur. Where did you get that information?**

(13) **A I didn't say that.**

(14) **Q My question is, where did you get that**
(15) **information?**

(16) **A It would have come probably from toxicology. I**
(17) **was just reporting what Jack Peterson said at that**
(18) **point.**

(19) **Q Who is Jack Peterson?**

(20) **A He was an industrial hygienist in the same group**
(21) **in biochemical research with myself at the time.**

(22) **Q Is he still with Dow?**

(23) **A No.**

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(1) **Q Do you know where he's located now?**
(2) **A I believe he's in San Diego in retirement.**
(3) **Q You mention in the next to last paragraph on page**
(4) **5 of Plaintiff's Exhibit 2 that some air samples**
(5) **have shown activity on the animals. Were those**
(6) **air samples that you collected?**

(7) **A Yes.**

(8) **Q And were they collected from the 199 building, is**
(9) **that what you're referring to?**

(10) **A I'm not sure, at this point, where they were**
(11) **collected.**

(12) **Q There is a postscript on Plaintiff's Exhibit 2,**
(13) **that's page 6. Is that a postscript from Dr.**
(14) **Rowe, or is that something that you wrote?**

(15) **A The V.K.R. was his standard way of initializing**
(16) **things, so I would interpret that to be from V.K.**
(17) **Rowe.**

(18) **Q The last paragraph on page 6?**

(19) **A Yes.**

(20) THE DEPONENT: While you are collecting
(21) your thoughts, let's take a break.

(22) (RECESS.)

(23) BY MR. SCHULER:

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(1) **Q Let me show you this document. This doesn't**
(2) **appear to have been one that was marked to Rowe's**
(3) **deposition, either.**

(4) MR. WAGNER: Before you move on to that
(5) document, I've asked Mr. Silverstein about the
(6) individual who he recalls having chloracne, and
(7) with your agreement that he - I will let him
(8) identify that person without waiving the right to
(9) object to others, revealing others' names, with
(10) your agreement, if the court approves, that I can
(11) still seek to expunge this individual's name from
(12) this record so it's not public record if he later
(13) agrees with me or the judge later changes his
(14) mind.

(15) MR. SCHULER: I agree, that, you know,
(16) you've objected to it, and the judge has overruled
(17) it, and you certainly have the right to appeal or
(18) petition for certior, but I'm not going to
(19) stipulate to another objection. The judge ruled
(20) on it.

(21) MR. WAGNER: I didn't say that. I don't
(22) want to, by letting him give you a name, let that
(23) serve as a springboard for you saying, well, I've

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(1) waived it for everybody else; I can't object. I
(2) can't go to the 5th D.C.A. I don't want it to be
(3) a waiver in any other context.

(4) MR. SCHULER: In other words, the fact
(5) that he discloses the name will not prevent you
(6) from taking the appeal?

(7) MR. WAGNER: Correct.

(8) MR. SCHULER: I'll agree to that.

(9) MR. WAGNER: Go ahead.

(10) MR. LUTZ: The mystery guest.

(11) **Q Let me restate the question.**

(12) **A I wish you would.**

(13) **Q I asked you to identify any of those people that**
(14) **you remembered that had sustained chloracne as a**
(15) **result of exposure to chloracnogens in your**
(16) **experience at Dow Chemical, and you thought for a**
(17) **minute, and I think your answer was you remembered**
(18) **one person, and I'll ask you the name of the**
(19) **person.**

(20) **A I remember only one name, Rose, R-O-S-E.**

(21) **Q A man or a woman?**

(22) **A That's a man.**

(23) **Q Do you remember the first name?**

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(1) **A No, I don't know.**

(2) **Q Still alive?**

(3) **A I have no idea.**

(4) **Q Do you know where Mr. Rose worked, in what part of**
(5) **the company? Did he work in the 199 building?**

(6) **A Only that he worked had 199 building, yeah.**

(7) **Q Do you know what his job function was?**

(8) **A I do not remember it.**

(9) **Q How did it come about that you met him or remember**
(10) **him?**

(11) **A I have no idea.**

(12) **Q Was there something significant about him that was**
(13) **different than the others, that's why you remember**
(14) **him?**

(15) **A Only that I was acquainted with him.**

(16) **Q Was his case of chloracne worse than the others?**

(17) **A I don't remember.**

(18) **Q And this would have been about 1964 that you met**
(19) **him?**

(20) **A Yes.**

(21) **Q You don't have any idea at this point whether he's**
(22) **still with the company or still in Midland or not?**

(23) **A No, I do not.**

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- (1) Q Okay. I handed you a document, and I'll ask you
 (2) to review that particular document, if you
 (3) wouldn't mind.
 (4) A You want me to read the entire thing or -
 (5) Q Just look at it to familiarize yourself with it.
 (6) A Okay.
 (7) Q Do you recognize that as being a document that you
 (8) authored?
 (9) A Yes.
 (10) Q Let's go ahead and - is there a date on that?
 (11) A On the last page.
 (12) Q What is the date?
 (13) A February 24th, 1976.
 (14) (Plaintiff's Exhibit 3 was marked for
 (15) identification.)
 (16) Q Before I ask you some questions about Plaintiff's
 (17) Exhibit 3, Mr. Silverstein, do you know anything
 (18) about the facts of this case, Moyer versus Dow
 (19) Chemical, et al, case?
 (20) MR. WAGNER: To the extent you may have
 (21) been told anything by me, I instruct you not to
 (22) answer. If you've heard about it from a source
 (23) other than a lawyer, feel free to give him that.

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- (1) A The answer is no.
 (2) Q So you haven't looked at any depositions of
 (3) witnesses or parties or experts outside of what
 (4) the lawyer for Dow Chemical communicated to you,
 (5) you would have no knowledge of any of the facts of
 (6) this case?
 (7) A That is correct.
 (8) Q Plaintiff's Exhibit 3 appears to be a document
 (9) that you identified, and it's entitled, quote,
 (10) Chloracne in the Dow Trichlorophenol plant, close
 (11) quote, Circa, 1964, correct?
 (12) A Correct.
 (13) Q And it's broken down into various sections. It
 (14) says dictated February 24th, 1976, as you
 (15) testified earlier. Why was this dictated on
 (16) February 24th, 1976, do you recall?
 (17) MR. WAGNER: I object to the form of the
 (18) question.
 (19) A Yes, I do recall. It's because I was about to
 (20) transfer to Dow Badische -
 (21) Q Which we spelled earlier, I think.
 (22) A - in Williamsburg, and wanted that done before I
 (23) left.

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- (1) Q Was this document, Plaintiff's Exhibit 3,
 (2) requested by someone, or was this done by you for
 (3) your own summary purposes?
 (4) A I don't remember.
 (5) Q Why did you want it done before you left?
 (6) A It would be strictly conjecture to answer that.
 (7) Q You have no clear recollection at this point in
 (8) time, is that correct?
 (9) A That's correct.
 (10) Q Do you know what file this was put into upon your
 (11) leaving?
 (12) A No, I don't.
 (13) Q This document appears to have been marked with
 (14) exhibit numbers from other litigation. Were you
 (15) ever questioned about this particular document in
 (16) other cases?
 (17) A I don't remember specifically.
 (18) Q There appear to be some edit marks at various
 (19) points in this document. Do you know whether you
 (20) edited the document or whether it was edited by
 (21) someone else?
 (22) A I don't know.
 (23) Q Do you know whether this document was used for any

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- (1) purpose outside of keeping it in your own file
 (2) within the company?
 (3) A I do not know.
 (4) Q Do you know whether this document was used for any
 (5) purpose outside of the company?
 (6) A I don't know that.
 (7) Q On page 5 of Plaintiff's Exhibit 3 you mention
 (8) that in February of 1964, the plant assistant
 (9) superintendent and some operators were examined by
 (10) the medical department and were found to have
 (11) chloracne. My question to you is, do you recall
 (12) the name of the assistant plant superintendent
 (13) that you were referring to there?
 (14) A Yes.
 (15) Q Who was that, sir?
 (16) MR. WAGNER: Same understanding with
 (17) referring to identifying the person's name?
 (18) MR. SCHULER: Yes.
 (19) A I can answer? Al Lueck, L-U-E-C-K.
 (20) Q And that is the Mr. Lueck who I think appeared on
 (21) the routing slips for some of the other memoranda?
 (22) MR. WAGNER: Object to the form of the
 (23) question.

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- (1) A Yes.
 (2) Q Do you recall whether Mr. Lueck had a severe, mild
 (3) or moderate case of chloracne?
 (4) A I don't recall that.
 (5) Q Do you know where Mr. Lueck is located now?
 (6) A No.
 (7) Q Do you know if he's still employed with Dow
 (8) Chemical Company?
 (9) A To my knowledge, yes.
 (10) Q At Midland someplace?
 (11) A As far as I know, that's why I said no earlier.
 (12) Q Do you remember the names of any of the operators,
 (13) who you referred to on page 5, who reported to the
 (14) medical department or were examined by the medical
 (15) department and were found to have chloracne?
 (16) A No.
 (17) Q When you say operators, do you recall how many
 (18) there were in the plant, or is that just a generic
 (19) description for the people who worked in the
 (20) process in the plant?
 (21) A Yes.
 (22) Q The latter?
 (23) A The latter, yeah.

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- (1) Q You mention on page 7 that you, Larry Silverstein,
 (2) were the first full-time safety officer. Are you
 (3) referring to in any of the plants or this
 (4) particular building 199?
 (5) A Referring to 199.
 (6) Q Were there other safety officers for other
 (7) manufacturing buildings?
 (8) A I do not know.
 (9) Q You mention on page 8 of Plaintiff's Exhibit 3
 (10) that thorough safety training indoctrinations for
 (11) all persons working in that plant were held. Do
 (12) you recall the frequency of those safety training
 (13) indoctrinations?
 (14) A I don't.
 (15) Q Were those meetings that you conducted?
 (16) A I don't remember.
 (17) Q Did you have any assistants that helped you to or
 (18) that would have conducted meetings like that?
 (19) MR. WAGNER: I object to the form of the
 (20) question.
 (21) A Repeat the question.
 (22) Q Were there any assistants that would have
 (23) conducted these safety training indoctrinations

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- (1) for persons working at the plants?
 (2) **A No.**
 (3) **Q** You mention on page 10 of Plaintiff's Exhibit 3
 (4) that you were one of the persons who went to
 (5) Europe, in late 1964, to talk to companies who had
 (6) experienced a similar problem and claimed to have
 (7) found answers to it, and you mention the one
 (8) French company and a German company. Does that
 (9) help refresh your recollection at all about who
 (10) the companies may have been?
 (11) **A Well, I think I've mentioned Boehringer in**
 (12) **Germany.**
 (13) **Q** Do you recall the French company or the other -
 (14) **A I think the French is Progil, P-R-O-G-I-L.**
 (15) **Q** You mention on page 11 of Plaintiff's Exhibit 3
 (16) that while the caustic insoluble oil in the new
 (17) process still contains a few parts per million of
 (18) the known acnegen that caused our trouble in the
 (19) old plant, it is orders of magnitude less than was
 (20) found to be in the old plant's Cl oil. With
 (21) regard to that statement, are you referring to the
 (22) new process as being that process that was
 (23) purchased, if you will, from the German company

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- (1) and that was installed at Midland sometime after
 (2) 1964?
 (3) **A Yes.**
 (4) **Q** And you mention that the contaminant was orders of
 (5) magnitude less than was found in the old Cl oil.
 (6) Do you recall what the numbers were?
 (7) **A No.**
 (8) **Q** Now, I'm going to jump over to page 14 of your
 (9) memorandum we have marked as Plaintiff's Exhibit
 (10) 3, and you mention that your recollection was, at
 (11) the beginning of the company's quality control
 (12) guideline, was that the product must contain less
 (13) than one part per million by weight of TCDD. Does
 (14) that comport with your recollection today?
 (15) **MR. WAGNER:** Object to the form of the
 (16) question.
 (17) **A Yes.**
 (18) **Q** And then you go on to say that improvements in the
 (19) analytical method came about so that this quality
 (20) control limit was reduced to .05, and now stands,
 (21) you said, I believe, at .01 parts per million in
 (22) the final product. Is that the limit or the
 (23) standard that existed, to your recollection, when

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- (1) you did this memorandum in February of 1976?
 (2) **MR. WAGNER:** I object to the form,
 (3) compound.
 (4) **A To the best of my recollection, yes.**
 (5) **Q** And when you mention that the standard was .01
 (6) parts per million in the final product, are you
 (7) referring to the Silvex and 2,4,5-T?
 (8) **A I do not recall.**
 (9) **Q** In the next sentence you mention that all of this
 (10) quality control analysis data for the production
 (11) from the new plant has been retained by plant
 (12) supervision and is available if needed or desired.
 (13) What type of data, as you recall, would be kept by
 (14) plant supervision?
 (15) **MR. WAGNER:** I object to the form of the
 (16) question.
 (17) **A I honestly couldn't answer that.**
 (18) **Q** When you refer to plant supervision, what are you
 (19) referring to?
 (20) **A Plant superintendent.**
 (21) **Q** For that particular building?
 (22) **A Yes.**
 (23) **Q** In other words, if I wanted to get - if I wanted

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- (1) to look at that documentation or data, to the best
 (2) of your recollection, anyway, back in 1976, that
 (3) data would have been located in some file at the
 (4) plant, itself, 199?
 (5) **A Yes.**
 (6) **Q** You mention in the next paragraph that there was
 (7) instituted, although not quite so rigid, quality
 (8) controls by analysis backed up by animal testing
 (9) for the end product into which the trichlorophenol
 (10) went, namely the esters, and so there was quality
 (11) control data available on that, as well. Are you
 (12) referring there to the end product, to the esters
 (13) 2,4,5-T?
 (14) **A Let me see the statement.**
 (15) **Q Sure.**
 (16) **A It would refer to the esters specifically, as I**
 (17) **read it.**
 (18) **Q** The esters of 2,4,5-T?
 (19) **A If you're - If you're using 2,4,5-T to denote the**
 (20) **trichlorophenol, yes.**
 (21) **Q** What I'm referring to is the end product -
 (22) **A Yeah.**
 (23) **Q - that the trichlorophenol was a component of?**

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- (1) **A Mm-hmm.**
 (2) **Q** The esters of 2,4,5-T?
 (3) **MR. WAGNER:** Object to the form of the
 (4) question.
 (5) **A Yes.**
 (6) **Q** What about the amine form, do you know if there
 (7) was information, the same information in the amine
 (8) form?
 (9) **A By amine, do you mean A-M-I-N-E -**
 (10) **Q Yes, of -**
 (11) **A - meaning the amine?**
 (12) **Q Right.**
 (13) **A I do not know.**
 (14) **Q** You mention, on page 15, that you prepared a
 (15) safety precautions brochure of five or six pages
 (16) regarding the handling or laboratory handling of
 (17) the TCDD. Do you know where that would be located
 (18) within the company?
 (19) **MR. WAGNER:** It's the one he provided to
 (20) the government?
 (21) **MR. SCHULER:** Yes.
 (22) **Q** Do you know where that would be in the company?
 (23) **A No, I don't.**

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- (1) **Q** Going back to page 13, you mentioned that there
 (2) was also developed a list of known
 (3) acnegen-producing materials by the company. Do
 (4) you know where that would be kept?
 (5) **MR. WAGNER:** Object to the form.
 (6) **A No.**
 (7) **Q** There's an insertion here, regarding human
 (8) testing, after page 13, is that in your
 (9) handwriting?
 (10) **A Unfortunately it appears to be, yes.**
 (11) **Q** That human testing that you're referring to, does
 (12) that refer to the testing that was done on jail
 (13) inmates, I think it was the Harrisburg prison?
 (14) **A I don't know at what prison, but it says the**
 (15) **consulting dermatologist, yes.**
 (16) **Q** Do you recall the name of the doctor who did that?
 (17) **A Kligman.**
 (18) **Q** So you're referring to the Kligman testing here on
 (19) page, the handwritten page 13?
 (20) **A Yes.**
 (21) **Q** There's a graph here that deals with response of
 (22) rabbits and humans to TCDD. Is that something you
 (23) prepared, or was that prepared somewhere else?

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- (1) **A I prepared this originally, yes.**
 (2) *Q And where did you get the information to prepare this from?*
 (3) **A The human data came from Kligman's report. The animal data came from Dow toxicology.**
 (4) *Q Back in 1976, when you prepared this report, was it your understanding that the Kligman work was a valid scientific experiment?*
 (5) **MR. WAGNER:** Object to the form of the question; undefined terms, vague and over broad.
 (6) **A At the time it was considered, I believe, to be valid information.**
 (7) *Q And would you have gotten the information regarding the Kligman prisoner experiments from the toxicology department?*
 (8) **A Yes.**
 (9) *Q To your knowledge, were any follow-up studies done of those Dow workers that were exposed to TCDD in 1964 and who showed evidence of chloracne?*
 (10) **A Yes.**
 (11) *Q Can you tell me who conducted those follow-up studies?*
 (12) **A Epidemiology section of the same laboratory.**

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- (1) *Q Of the toxicology laboratory?*
 (2) **A Well, toxicology, epidemiology, industrial hygiene were all in health and environmental research back then.**
 (3) *Q Do you recall the name of the individual or individuals who conducted the follow-up studies?*
 (4) **A Dr. Ralph Cook, M.D., was the head of epidemiology.**
 (5) *Q Was anyone else involved besides Dr. Cook?*
 (6) **A Yeah, a number of folks.**
 (7) *Q Do you recall any of the other names?*
 (8) **A Not for that time period.**
 (9) *Q Do you recall for how long the follow-up studies were done?*
 (10) **MR. WAGNER:** Object to the form of the question.
 (11) **A I don't understand your question. Do I -**
 (12) *Q How long were the workers followed after 1964?*
 (13) **A I really don't know the answer. There's a publication on it, but I don't remember when it came out.**
 (14) *Q Do you remember what decade it came out, the sixties, seventies, eighties?*

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- (1) **A I think it was the seventies, but even that is vague.**
 (2) *Q Do you recall the results of the follow-up study?*
 (3) **A To my recollection, there was no excess of any disease found, and they were looking especially for cancer and found no statistical significance in terms of the fate of those people who passed on.**
 (4) *Q Do you recall whether the study was published in a scientific journal or not?*
 (5) **A Yes.**
 (6) *Q Do you recall what journal it was published in?*
 (7) **A I believe it was the Journal of Occupational Medicine.**
 (8) *Q And indirectly I asked you this before, but do you recall what year it may have been published?*
 (9) **A I don't remember the year.**
 (10) *Q As far as your responsibility is concerned, I take it from what you're telling me that you did not participate in the follow-up study, is that right -*
 (11) **A No, that's not -**
 (12) *Q - as an industrial hygienist?*

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- (1) **A No.**
 (2) **MR. WAGNER:** Object to the form.
 (3) *Q Did you?*
 (4) **A Yes.**
 (5) *Q What did you do?*
 (6) **A I estimated the categories of exposure for the workers being studied.**
 (7) *Q Were your results committed to writing?*
 (8) **MR. WAGNER:** In a form other than the article that was published?
 (9) **MR. SCHULER:** Yes.
 (10) **A I don't recall.**
 (11) *Q Do you remember what the results were of your estimation of the exposure?*
 (12) **A No, sir.**
 (13) *Q And I say that, I mean, can you give me a range?*
 (14) **A Not a numerical range.**
 (15) *Q But that information would be in the article?*
 (16) **A In the article, correct, yeah.**
 (17) *Q Did you do anything else other than estimate exposures in connection with the follow-up study of the 1964 workers?*
 (18) **A Not to my recollection.**

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- (1) *Q To your knowledge, and this was an in-house Dow study, correct?*
 (2) **MR. WAGNER:** Object to the form of the question. Let me ask a clarifying question. Do you mean all the authors were Dow employees?
 (3) **MR. SCHULER:** Correct.
 (4) **MR. WAGNER:** Okay.
 (5) **A Yes.**
 (6) *Q And there wasn't anybody brought in from the outside, any independent laboratory or scholars or anybody to take part in the study?*
 (7) **MR. WAGNER:** Object to the form of the question.
 (8) **A No.**
 (9) *Q Do you know whether there was anyone in that study that died from cancer?*
 (10) **A I don't remember.**
 (11) *Q Well, you wouldn't remember then if there was anyone that died from a specific type of cancer, then, I assume?*
 (12) **A That's correct, I would not.**
 (13) *Q Have you participated in any other epidemiological studies done within the Dow Chemical Company with*

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- (1) *regard to exposure to TCDD in humans?*
 (2) **A Not that I recall.**
 (3) *Q Is that the only one that you're aware of, the 1964 group?*
 (4) **A Yes.**
 (5) *Q Do you know whether anyone was included in that study that did not evidence chloracne?*
 (6) **MR. WAGNER:** I object to the form.
 (7) **A I don't know.**
 (8) *Q Let me show you this document, and I'll ask you if you can identify that, and it's been marked as Exhibit Number 17 to the deposition of Row.*
 (9) **THE DEPONENT:** You guys have the worst copying machines in the world.
 (10) **MR. SCHULER:** We got it from Dow originally.
 (11) **MR. WAGNER:** It's not all his fault.
 (12) *Q Would you identify that for the record, please?*
 (13) **A The document is a memo with a date that is illegible, entitled the Hazard of Monsanto T Acid, by L.G. Silverstein. Is that March 14th? I can't tell.**
 (14) **(Plaintiff's Exhibit 4 was marked for**

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- (1) **Identification.)**
 (2) Q This was a memo that you had done regarding some
 (3) 245T acid that Dow had purchased from Monsanto,
 (4) correct?
 (5) A That's correct.
 (6) Q And the material purchased from Monsanto was found
 (7) to contain TCDD in concentrations averaging about
 (8) ten parts per million, according to this, correct?
 (9) MR. WAGNER: Object to the form of the
 (10) question.
 (11) A I'd like to see it, here.
 (12) Q It's the bottom of the first paragraph.
 (13) A Yes.
 (14) Q And you were concerned because this product
 (15) constituted a hazard, is that correct?
 (16) MR. WAGNER: Object to the form of the
 (17) question.
 (18) Q In your opinion?
 (19) A That's correct.
 (20) Q And product was sold to Riverdale and Woodbury at
 (21) some point, correct?
 (22) A My recollection -
 (23) MR. WAGNER: Object to the form of the

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- (1) question.
 (2) A - was that it was proposed to be transferred to
 (3) some other place, and those two names sound
 (4) familiar. I do not recall that it happened.
 (5) Q Well, look at the memorandum and see if the
 (6) memorandum refreshes your recollection. As a
 (7) predicate question, Woodbury and Riverdale are
 (8) what type of companies?
 (9) A I have no idea.
 (10) Q Don't you state in page 4 that the product was
 (11) already sold to those two companies?
 (12) MR. WAGNER: Object to the form of the
 (13) question.
 (14) A No, I don't read it that way, but I see in
 (15) paragraph two, I'm talking about the requirements
 (16) if we processed it in 199 and 349, and my
 (17) recollection is that's what we planned to do with
 (18) it when we got it, and it says Dow's involvement
 (19) in shipping this material to Riverdale concerns
 (20) me. It doesn't say we shipped it. I don't
 (21) remember it being shipped. I don't know. I just
 (22) don't know what happened to it.
 (23) Q Did Dow, in the 1970s, to your knowledge, purchase

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- (1) 2,4,5-T or 2,4-D from any other manufacturers for
 (2) resale to chemical suppliers?
 (3) MR. WAGNER: Object to the form, over
 (4) broad, vague.
 (5) A I do not know.
 (6) Q Who would know about something like that?
 (7) A I don't know that either.
 (8) Q Do you know whether there was any follow up from
 (9) this memorandum, looks like of March - you're
 (10) right, it's hard to make out, it looks like March
 (11) 15th, 1965, do you know whether there was any
 (12) follow up from this memorandum we marked as
 (13) Plaintiff's Exhibit 4?
 (14) A My recollection is that the material in question
 (15) was reprocessed within Dow Chemical until it was
 (16) non-detectable by analysis, and then it was
 (17) processed, but that's strictly my recollection at
 (18) this point.
 (19) Q Do you know who would have been responsible for
 (20) the reprocessing?
 (21) A No.
 (22) Q Do you recall any complaints from Dow customers
 (23) from, say, 1964 through 1976, regarding any

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- (1) chloracne from any of the 2,4-D or 2,4,5-T or
 (2) Silvex products sold by Dow?
 (3) MR. WAGNER: Object to the form of the
 (4) question.
 (5) A No.
 (6) Q If there were some complaints, would you be
 (7) involved in responding to those?
 (8) A No.
 (9) Q Do you know who would be involved in responding to
 (10) complaints from customers?
 (11) A No.
 (12) Q Do you recall any complaints from any Dow
 (13) customers or end users of 2,4,5-T or 2,4-D or
 (14) Silvex from 1964 through 1975, regarding it
 (15) causing - the causing of cancer in any users of
 (16) 2,4-D, 2,4,5-T or Silvex?
 (17) MR. WAGNER: Object to the form of the
 (18) question, vague, over broad as to time, as well.
 (19) A No.
 (20) Q And I assume your answer would be the same if
 (21) there were such complaints, you would not be
 (22) involved in responding to them, correct?
 (23) A That's correct.

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- (1) Q Are you being paid for your time in testifying in
 (2) this case today?
 (3) A Yes.
 (4) Q And what's the compensation understanding that you
 (5) have regarding your time for the preparation or
 (6) time in deposition here for this case?
 (7) A My present employer is being paid for my time
 (8) spent here, and I will receive my normal
 (9) compensation from him.
 (10) Q That is Farlow Environmental Engineers, Inc.?
 (11) A That's correct.
 (12) Q And what is your understanding of the compensation
 (13) arrangement to Farlow Environmental Engineers,
 (14) Inc., for your time involved in the preparation or
 (15) testimony in this case?
 (16) A For my services in legal areas, it's \$150 an hour.
 (17) Q And that's for preparation and deposition time?
 (18) A Yes.
 (19) Q And is it your understanding that Dow Chemical
 (20) Company is paying that amount to Farlow?
 (21) A My understanding that Dow Elanco will pay Farlow,
 (22) yes.
 (23) Q And Dow Elanco is, to the best of your knowledge,

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- (1) a division or a part of Dow Chemical Company?
 (2) MR. WAGNER: Object to the form of the
 (3) question.
 (4) A In some way, yes.
 (5) Q Are you getting any portion of that \$150 directly,
 (6) or do you get paid a salary as your compensation?
 (7) A I am paid a salary, yes.
 (8) Q Do you get any type of credit for that billing?
 (9) A No.
 (10) Q In other words, you hire your time out, your
 (11) employer charges for your time, and you get paid a
 (12) straight salary?
 (13) MR. WAGNER: Object to the form of the
 (14) question.
 (15) A That's correct.
 (16) Q And I assume the salary is based to some extent on
 (17) what you produce?
 (18) MR. WAGNER: I object.
 (19) A I didn't understand.
 (20) Q I assume your salary is based to some extent on
 (21) what you produce in terms of billing?
 (22) MR. WAGNER: Same objection.
 (23) A It's a straight salary, annual compensation, at

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- (1) **this point.**
 (2) *Q I understand that, but I assume that it's based,*
 (3) *to some extent, on what you produce for the*
 (4) *company, billing-wise, right?*
 (5) MR. WAGNER: Object to the form of the
 (6) question.
 (7) **A That is not correct.**
 (8) *Q Do you know who J.E. Johnson was at Dow Chemical*
 (9) *Company back in 1969?*
 (10) **A There was a Julius Johnson who was a vice**
 (11) **president for research, I think.**
 (12) *Q Let me show you this document that's been marked*
 (13) *as Exhibit 24 to the deposition of Row, and I'll*
 (14) *ask you if you've ever seen it before?*
 (15) **A I have never seen this before, to my knowledge.**
 (16) MR. SCHULER: So we have a record here,
 (17) let's mark this.
 (18) (Plaintiff's Exhibit 5 was marked for
 (19) identification.)
 (20) *Q As part of Plaintiff's Exhibit 5, there's a*
 (21) *handwritten memorandum here, appears to be three*
 (22) *pages. Do you recognize who may have prepared*
 (23) *that?*

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- (1) MR. WAGNER: Object to the form of the
 (2) question, calls for speculation.
 (3) **A The answer is no, I don't recognize that.**
 (4) *Q And you've never seen that handwritten memorandum*
 (5) *before?*
 (6) **A That's right, I have not.**
 (7) *Q Let me show you this document that's already*
 (8) *marked as Exhibit 20 to Row's deposition, and I'll*
 (9) *ask you if you've seen that before?*
 (10) **A I don't remember if I've ever seen it before.**
 (11) (Plaintiff's Exhibit 6 was marked for
 (12) identification.)
 (13) *Q In Plaintiff's Exhibit 6 - before I get into*
 (14) *that, Mr. Axe signs this as a member of the safety*
 (15) *department, I think you testified earlier, and I*
 (16) *mentioned his name, that he was a member of the*
 (17) *same department that you were a member of, is that*
 (18) *correct?*
 (19) **A For a period of time, yes.**
 (20) *Q And he was also an industrial hygienist?*
 (21) **A Yes.**
 (22) *Q He mentions in Plaintiff's Exhibit 6 that there*
 (23) *was some reports of chloracne from what's called a*

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- (1) Tordon, T-O-R-D-O-N, plant. Are you familiar with
 (2) the chemical, Tordon?
 (3) **A In a general sense, yes.**
 (4) *Q Does Tordon contain 2,4-D?*
 (5) **A I don't know.**
 (6) *Q Do you know of any of the chemical components of*
 (7) *Tordon?*
 (8) **A I couldn't name one of them, for you, no, I'm**
 (9) **sorry.**
 (10) *Q Are you familiar with a product named Kuron?*
 (11) **A No, I'm not.**
 (12) *Q How about Estron?*
 (13) **A A vague familiarity with that term.**
 (14) *Q Do you know whether either Kuron or Estron*
 (15) *contained 2,4,5-T or Silvex?*
 (16) **A I do not know.**
 (17) *Q In your assignment in connection with the 199*
 (18) *building, did you have occasion to deal with any*
 (19) *governmental entitles regarding workers' safety in*
 (20) *1964, '65 or '66?*
 (21) **A No.**
 (22) *Q How about later years?*
 (23) **A No.**

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- (1) *Q Did you, yourself, Mr. Silverstein, ever contract*
 (2) *a case of chloracne?*
 (3) **A No.**
 (4) *Q Did you participate at all in the decision by the*
 (5) *Dow Chemical Company to withdraw 2,4,5-T or Silvex*
 (6) *from the market?*
 (7) **A No, sir.**
 (8) *Q Were you aware that that decision process was*
 (9) *going on at Dow Chemical Company at any point in*
 (10) *time?*
 (11) MR. WAGNER: Object to the form of the
 (12) question.
 (13) **A No.**
 (14) *Q Have you participated in any groups or, I'm not*
 (15) *talking about just in connection with your*
 (16) *employment with the Dow Chemical Company, but even*
 (17) *since your employment at 1979, participated in any*
 (18) *groups that have studied safety of 2,4-D as a*
 (19) *herbicide?*
 (20) **A No.**
 (21) *Q Do you belong to any professional organizations,*
 (22) *you told me what your educational background was,*
 (23) *but do you belong to any professional*

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- (1) *organizations or have you in the past belonged to*
 (2) *any professional organizations in connection with*
 (3) *your employment?*
 (4) **A Yes.**
 (5) *Q What organizations?*
 (6) **A The American Industrial Hygiene Association and**
 (7) **the Health Physics Society, and State chapters of**
 (8) **the Industrial Hygiene Association.**
 (9) *Q Have you held any positions with those*
 (10) *organizations at one time or another?*
 (11) **A Yes.**
 (12) *Q What type of positions have you held?*
 (13) **A Well, I was a member of, chairman of the**
 (14) **Laboratory Accreditation Committee for the**
 (15) **Industrial Hygiene Association.**
 (16) *Q How long ago was that?*
 (17) **A 15 years ago. Let's see, I can tell you, 1975,**
 (18) **'76, '77.**
 (19) *Q Any other positions?*
 (20) **A I was president of the now defunct Northeast**
 (21) **Michigan section of the American Industrial**
 (22) **Hygiene Association. That's it, I believe.**
 (23) *Q Do you have a curriculum vitae that you maintain,*

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- (1) *listing your educational background and various*
 (2) *organizations that you belong to?*
 (3) **A Yes.**
 (4) *Q Do you have a copy of that with you?*
 (5) MR. WAGNER: I haven't seen it. I'll be
 (6) happy to get one for you.
 (7) MR. SCHULER: I think I asked for that
 (8) to be produced. If I don't have it, I can't ask
 (9) any questions about it.
 (10) MR. WAGNER: I didn't recall that,
 (11) frankly, but you may have. Have you got one here?
 (12) THE DEPONENT: All right, if we're going
 (13) into this, I need to take a break.
 (14) MR. SCHULER: That's fine.
 (15) (RECESS.)
 (16) MR. SCHULER: Okay, let's go back on the
 (17) record.
 (18) *Q Let me show you this document that you handed me,*
 (19) *Mr. Silverstein. If that wasn't intended to go*
 (20) *with it, you can take it off, if you want.*
 (21) **A You want the document?**
 (22) *Q I'm asking you to identify it for the record.*
 (23) **A I'm sorry, I see - I didn't realize we were going**

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- (1) on the record. This is a letter describing the
 (2) industrial hygiene services offered by Farlow
 (3) Environmental Engineers, Incorporated.
 (4) (Plaintiff's Exhibit 7 was marked for
 (5) identification.)
 (6) Q And this document here, if you would identify
 (7) that, please, sir.
 (8) A This is my resume', that of Lawrence G.
 (9) Silverstein, most recent copy, to my knowledge.
 (10) (Plaintiff's Exhibit 8 was marked for
 (11) identification.)
 (12) Q Looking at your resume' that we have had marked as
 (13) Plaintiff's Exhibit 8, you make the statement in
 (14) here that you have routinely worked with attorneys
 (15) on cases involving real or perceived injuries
 (16) related to exposure to hazardous materials in the
 (17) workplace. And my question to you is what kind of
 (18) numbers are we talking about here where you work
 (19) routinely with attorneys for real or perceived
 (20) injuries related to exposure to hazardous
 (21) materials?
 (22) A My draft of the document you are holding said
 (23) occasionally, or words to that effect, that

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- (1) routinely is a word substituted by my present
 (2) supervisor, when he revised my resume'. I have
 (3) done it occasionally, is more accurate.
 (4) Q Tell me about your occasional experience, then, at
 (5) working with attorneys in personal injury, toxic
 (6) tort cases?
 (7) A It's been -
 (8) MR. WAGNER: Let me see it for a second,
 (9) excuse me.
 (10) Now, the question said the word toxic
 (11) tort, and I object to the form. The resume'
 (12) doesn't say that.
 (13) A I was going to say -
 (14) MR. WAGNER: Listen to the question, and
 (15) I object to the form of the question. It's
 (16) undefined as to what toxic tort is.
 (17) Q How long have you been a gun for hire, that's what
 (18) I'm asking?
 (19) MR. WAGNER: I object to the form. You
 (20) don't have to answer that one.
 (21) Q How long have you been working with attorneys in
 (22) cases involving injuries from exposure to
 (23) hazardous substances, as you so eloquently worded

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- (1) it here?
 (2) MR. WAGNER: Object to the form of the
 (3) question.
 (4) A I'm trying to recall my first such event. I
 (5) believe it was in the mid-seventies, and the only
 (6) occasions on which I have worked with attorneys
 (7) since the mid-seventies were involved with cases
 (8) having to do with Dow Chemical Company.
 (9) Q And can you give me some idea of the numbers of
 (10) cases that you've been involved in since the
 (11) mid-seventies?
 (12) A Less than half a dozen.
 (13) Q And can you tell me what types of chemicals were
 (14) involved in the half a dozen cases?
 (15) MR. WAGNER: Object to the form of the
 (16) question.
 (17) A In all but one instance it involved the dioxins.
 (18) Q Can you give me the names of some of the cases?
 (19) A That, I cannot do. I don't remember.
 (20) Q Would the bulk of your being involved with
 (21) attorneys have been on Dow Chemical Company's
 (22) behalf?
 (23) MR. WAGNER: Object to the form of the

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- (1) question.
 (2) A Yes.
 (3) Q I assume an attorney wouldn't hire you to testify
 (4) against a dioxin manufacturer while you were
 (5) working for Dow Chemical Company, or maybe I'm
 (6) wrong. Has that ever happened?
 (7) MR. WAGNER: Object to the form of the
 (8) question.
 (9) A Was there a question?
 (10) (THE REQUESTED MATERIAL WAS READ BY THE
 (11) REPORTER.)
 (12) MR. WAGNER: Same objection, I object to
 (13) the form.
 (14) A I don't know.
 (15) Q You don't know?
 (16) A I don't know. You asked, has that ever happened?
 (17) That's a whole big universe.
 (18) Q Six cases doesn't sound like an universe to me.
 (19) What attorneys have you worked with who have hired
 (20) your services in the past?
 (21) A Give me the question again, please.
 (22) (THE REQUESTED MATERIAL WAS READ BY THE
 (23) REPORTER.)

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- (1) A I'd like to question the wording of the question.
 (2) You said, hired me. I've never been paid by an
 (3) attorney, to my knowledge, for anything.
 (4) Q Well, let me explore that a little bit. You said
 (5) that you've routinely worked with attorneys on
 (6) cases involving real or perceived injuries related
 (7) to exposure to hazardous materials in the
 (8) workplace, and let me ask you what attorneys
 (9) you've worked with in that context?
 (10) MR. WAGNER: Object to the form of the
 (11) question.
 (12) A I have worked with attorneys representing the Dow
 (13) Chemical Company exclusively.
 (14) Q And I assume in the past that was probably the
 (15) Rivkin, Radler law firm for the time period you're
 (16) talking about from the mid-seventies?
 (17) A I don't know for sure.
 (18) Q Do you remember the names of any of the lawyers
 (19) that you worked with?
 (20) A Yes.
 (21) Q Who were they, the ones that you remember?
 (22) A I remember one by the name of Sam Pierce.
 (23) Q Maybe I can shorten this up by asking you, have

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- (1) you been hired by any lawyers other than lawyers
 (2) representing Dow Chemical Company to work on this
 (3) type of case?
 (4) MR. WAGNER: Object to the form of the
 (5) question.
 (6) A No.
 (7) Q Since you left Dow Chemical Company in 1979, have
 (8) you or your firm been retained, other than this
 (9) case, have you or your firm been retained by any
 (10) other attorneys for Dow Chemical Company other
 (11) than the attorneys in this case?
 (12) MR. WAGNER: Object to the form of the
 (13) question, no predicate.
 (14) A I don't even understand the question. It was
 (15) confusing to me.
 (16) Q Okay. Have you ever testified in trial,
 (17) Mr. Silverstein, on behalf of Dow Chemical Company
 (18) in any case?
 (19) A No.
 (20) Q In your list of publications, you list or you make
 (21) the statement you co-authored an epidemiological
 (22) study on dioxin-exposed workers. Was that the
 (23) study we referred to earlier of the 1964 workers

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- (1) at Dow Chemical?
- (2) **A Yes.**
- (3) **Q And your name is on that study?**
- (4) **A Yes.**
- (5) **Q Other than the case that we have at hand here, the**
- (6) **Moyer case, is your company, Farlow, being paid by**
- (7) **DowElanco or Dow Chemical in any other cases,**
- (8) **presently?**
- (9) **MR. WAGNER: Object to the form of the**
- (10) **question.**
- (11) **A I don't know.**
- (12) **Q No other ones that you're involved in?**
- (13) **A None to my knowledge, sir.**
- (14) **Q You mention, also, in your resume, here, that you**
- (15) **are a senior IH, I assume that's industrial**
- (16) **hygienist, for dioxin, and then in Agent Orange**
- (17) **investigations. Is that in connection with the**
- (18) **1964 incident that we've discussed here, or is**
- (19) **that some other position that you held at the**
- (20) **company?**
- (21) **A The former.**
- (22) **Q When you have dioxin here, and then parentheses,**
- (23) **agent orange, are you equating the two?**

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- (1) **A No, sir.**
- (2) **Q Why did you put the agent orange in parentheses?**
- (3) **A Because to the lay people, agent orange is more**
- (4) **familiar than dioxin, presumably.**
- (5) **Q When you state manager of industrial hygiene**
- (6) **research and AIHA accredited laboratory, what does**
- (7) **the AIHA mean?**
- (8) **A American Industrial Hygiene Association.**
- (9) **Q Is that the laboratory that you're referring to,**
- (10) **was that the laboratory at Dow Chemical?**
- (11) **A Yes.**
- (12) **Q In connection with your work at Dow Coming**
- (13) **Corporation, I think you said you started there in**
- (14) **1979, have you testified in any lawsuits?**
- (15) **A No.**
- (16) **Q Do you consider dioxin to be a hazardous material?**
- (17) **MR. WAGNER: Object to the form of the**
- (18) **question.**
- (19) **A Yes.**
- (20) **Q You mention in this letter describing your**
- (21) **industrial hygiene services that you were the**
- (22) **first manager of industrial hygiene and safety for**
- (23) **the Dow Midland plant. Are you referring to that**

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- (1) **199 building or the combination of buildings**
- (2) **there?**
- (3) **A It refers to the Midland production division.**
- (4) **Q And you mention in the next sentence that this**
- (5) **facility was claimed to be the largest chemical**
- (6) **production plant at one site at that time. What**
- (7) **I'm trying to get at here is, you're referring to**
- (8) **the production of all chemicals generically that**
- (9) **were done at that location at Midland, or specific**
- (10) **types of chemicals?**
- (11) **MR. WAGNER: Object to the form of the**
- (12) **question.**
- (13) **A I don't understand your question, but -**
- (14) **Q Let me make it clearer, then. I'm trying to get**
- (15) **at, were you the safety officer for the overall**
- (16) **production facilities for Dow?**
- (17) **A Yes.**
- (18) **Q Okay.**
- (19) **A In Midland.**
- (20) **Q And that encompassed, I assume, the production of**
- (21) **many different types of chemicals?**
- (22) **A Yes.**
- (23) **Q Not just trichlorophenol or 2,4,5-T or Silvex or**

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- (1) **2,4-D, but other chemicals, as well?**
- (2) **A Yes.**
- (3) **Q How many chemicals, do you know, did you ever get**
- (4) **a count?**
- (5) **A I have no idea.**
- (6) **Q In the hundreds?**
- (7) **A Easily.**
- (8) **Q Did you ever have any input into the writing of**
- (9) **any standards through OSHA or NIOSH, for example,**
- (10) **for dioxin or any related materials?**
- (11) **A I didn't understand your question. I missed a key**
- (12) **word someplace.**
- (13) **Q Let me repeat it. Did you ever have any input**
- (14) **into the writing of any OSHA or NIOSH standards**
- (15) **for dioxin or related materials?**
- (16) **A No.**
- (17) **Q Now, I've asked for some additional documentation,**
- (18) **here in the notice of deposition, that had to do**
- (19) **with documents that you produced or were produced**
- (20) **at your direction in the course of your employment**
- (21) **with Dow Chemical Company that pertain to**
- (22) **research, analysis, formulation, study or**
- (23) **production of 2,4-D, 2,4,5-T, Silvex or any**

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- (1) **product containing those chemicals. Do we have**
- (2) **any of those documents here today?**
- (3) **MR. WAGNER: He didn't have any, no.**
- (4) **MR. LUTZ: Not today, or he didn't have**
- (5) **any period?**
- (6) **MR. WAGNER: He didn't have any**
- (7) **documents responsive to the subpoena.**
- (8) **MR. SCHULER: You're not saying Dow**
- (9) **doesn't have the documents; you're saying he**
- (10) **doesn't have the documents?**
- (11) **MR. WAGNER: That's correct, it was a**
- (12) **subpoena to him.**
- (13) **Q You don't maintain any documents, is that correct,**
- (14) **Mr. Silverstein, you don't have any copies of**
- (15) **documents you generated at Dow Chemical Company?**
- (16) **A That's correct, I do not have copies.**
- (17) **Q You don't keep any files at home with any of your**
- (18) **work product from that, what was it, 20-year**
- (19) **employment history?**
- (20) **A No, I don't.**
- (21) **Q Do you have copies of the article that you**
- (22) **published on the epidemiological study?**
- (23) **A I believe I do have a copy of that.**

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- (1) **Q Do you have it with you here today?**
- (2) **A No, I don't.**
- (3) **Q That would also fit the description of what I have**
- (4) **requested here.**
- (5) **MR. WAGNER: I didn't know that you had**
- (6) **that - I asked - I think I've got a copy.**
- (7) **THE DEPONENT: Did you ask me if I had a**
- (8) **copy of that?**
- (9) **MR. WAGNER: Yes.**
- (10) **THE DEPONENT: No. I have it at home,**
- (11) **but not here.**
- (12) **MR. WAGNER: I've got a copy.**
- (13) **Q Let me show you, before I read further, let me**
- (14) **show you this particular document that your lawyer**
- (15) **has given to me, and I'll ask you to identify it.**
- (16) **A It is a copy of a published article. You want the**
- (17) **precise title?**
- (18) **Q Yes, please.**
- (19) **A Mortality Experience of Employees Exposed to**
- (20) **2,3,7,8-Tetrachlorodibenzo-para-dioxin,**
- (21) **parentheses, TCDD.**
- (22) **(Plaintiff's Exhibit 9 was marked for**
- (23) **identification.)**

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- (1) Q *Incidentally, let me just go back, to digress for*
 (2) *a minute, with regard to Farlow, how many*
 (3) *employees are in Farlow?*
 (4) A **About 20.**
 (5) Q *And it's located here in Indianapolis?*
 (6) A **Yes.**
 (7) Q *And in the organization of the company, you*
 (8) *mention that you're director-industrial hygiene*
 (9) *safety and training. How is the company broken*
 (10) *down? Are there other specific sections of the*
 (11) *company?*
 (12) A **Well, there's an engineering group. That's pretty**
 (13) **much the rest of the company, except for**
 (14) **administration.**
 (15) Q *How many people are in the industrial hygiene*
 (16) *safety and training area?*
 (17) A **Three total.**
 (18) Q *And yourself, and who are the others?*
 (19) A **An industrial hygienist and an instructor,**
 (20) **training specialist.**
 (21) Q *What are the names of the other two people*
 (22) *involved?*
 (23) THE DEPONENT: *Is this all pertinent?*

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- (1) MR. SCHULER: **Sure.**
 (2) A **Linda Jackowiak is the industrial hygienist.**
 (3) **Russell Farlow is the training specialist.**
 (4) Q *Do you hold any officialship in the company,*
 (5) *president or vice president, treasurer, anything*
 (6) *like that?*
 (7) A **No.**
 (8) Q *Do you have any stock in the company?*
 (9) A **No.**
 (10) Q *Looking at this article we have marked as*
 (11) *Plaintiff's Exhibit 9, the mortality study done on*
 (12) *the 61 workers involved in the 1964 chloracne*
 (13) *incident, it's mentioned in the head note to the*
 (14) *article that there were three deaths attributed to*
 (15) *cancer out of the group, with 1.6 expected. Can*
 (16) *you tell me, and you can look at this -*
 (17) MR. WAGNER: *What kind? It says what*
 (18) *kind at the very end.*
 (19) MR. SCHULER: *That's what I'm looking*
 (20) *for.*
 (21) Q *I know you told me earlier, but usually it tells*
 (22) *you what the journal is at the top. I don't see*
 (23) *that on this. Can you tell me again what journal*

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- (1) *this was published in?*
 (2) A **I believe it was the Journal of Occupational**
 (3) **Medicine.**
 (4) Q *Can you tell me the year of publication*
 (5) *approximately?*
 (6) A **Somewhere in the seventies, I think.**
 (7) Q *Is there continued follow up of this group, if you*
 (8) *know?*
 (9) A **I do not know.**
 (10) Q *But you haven't participated in it, if there has*
 (11) *been?*
 (12) A **I have not participated, correct.**
 (13) Q *You mention that you were involved in calculating*
 (14) *the exposures, and I'm trying to read an obviously*
 (15) *very technical -*
 (16) MR. WAGNER: *I think he said*
 (17) *characterizing, not calculating.*
 (18) Q *Okay, let me ask you to - it looks like a table*
 (19) *that you may have done. Let me ask you to just*
 (20) *take a look at that and tell me how you*
 (21) *characterize the exposure.*
 (22) A **You're referring to this table?**
 (23) Q **Well, whatever you need to refer to answer the**

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- (1) *question.*
 (2) A **From memory, I characterized the exposure based on**
 (3) **my familiarity with the plant environment,**
 (4) **physical layout and that type of thing, plus the**
 (5) **data in terms of wipe tests and air samples taken**
 (6) **through the event. And with all that information,**
 (7) **I could - I did the best I could in judging high**
 (8) **versus low exposure, in essence.**
 (9) Q *Did you quantify it all or just put it in*
 (10) *categories, high, low?*
 (11) A **Not quantified, no.**
 (12) Q *So based on what you just said, if I understood*
 (13) *you correctly, through using the wipe tests and*
 (14) *the air sampling, and what was the third thing,*
 (15) *observing the workers, also?*
 (16) A **Yes.**
 (17) Q *You just kind of put them in groups of high or low*
 (18) *exposure?*
 (19) A **That's correct.**
 (20) Q *Other than to the characterization of the*
 (21) *exposure, I assume that the other conclusions in*
 (22) *the study were those of Dr. Cook, essentially?*
 (23) MR. WAGNER: *Object to the form of the*

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- (1) *question.*
 (2) Q *Would that be a fair statement?*
 (3) A **Yes.**
 (4) Q *Is Dr. Cook still with Dow?*
 (5) A **No.**
 (6) Q *Is he still around, still alive?*
 (7) A **Yes.**
 (8) Q *Where is he located now, if you know?*
 (9) A **Yes.**
 (10) Q *Where?*
 (11) A **Dow Corning Corporation.**
 (12) Q *Also in Midland?*
 (13) A **Yes.**
 (14) Q *How many hours, if you know, has your company*
 (15) *billed for your time so far in this matter?*
 (16) A **None.**
 (17) Q *How many hours have you accumulated to date in*
 (18) *this matter?*
 (19) A **I haven't really calculated yet.**
 (20) Q *Can you give me an estimate?*
 (21) A **Okay, hang on just a minute. 15 maybe.**
 (22) Q *Other than this article that's now been produced*
 (23) *as Plaintiff's Exhibit 9, do you have any other*

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- (1) *documents in your possession, including reports,*
 (2) *articles, or transcripts relating to any opinion*
 (3) *you have ever formed regarding the cause of soft*
 (4) *tissue sarcoma or the toxicology or health effects*
 (5) *of exposure to 2,4-D, 2,4,5-T, Silvex, 2,4,5-T or*
 (6) *any product or substance containing any of these*
 (7) *chemicals?*
 (8) A **No. You asked if I have any documents pertaining**
 (9) **to all that, right?**
 (10) Q *That's correct.*
 (11) A **The answer is no, I do not.**
 (12) Q *Do you have any documents in your possession*
 (13) *relating to any instance since 1981 that you have*
 (14) *been employed by a party or his attorney in*
 (15) *connection with or related to litigation involving*
 (16) *personal injury or the risk of personal injury*
 (17) *allegedly cause by exposure to a pesticide,*
 (18) *herbicide or other chemical or substance?*
 (19) A **Oh, boy, I have, in my files at home, a statement**
 (20) **I made. I don't think it was even a deposition.**
 (21) **I do not know what case. I do not know for sure**
 (22) **if it's involved with your materials or not, but**
 (23) **that's the only thing I can remember, and I do not**

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- (1) have a copy of that with me. When I say at home,
 (2) I mean at home in Midland, Michigan, because I
 (3) didn't move it down here.
 (4) Q A statement made in connection with litigation?
 (5) A Yes, but I have no recollection of what case, what
 (6) materials.
 (7) Q When you say a statement, are you talking about a
 (8) deposition or -
 (9) A I don't even know if it was a deposition, to be
 (10) honest with you. I believe it was a statement
 (11) made, and I was asked to review it for accuracy
 (12) and sign it if I agreed it was accurate.
 (13) MR. SCHULER: I would ask that that
 (14) statement be produced, as well, since you have
 (15) that in your possession.
 (16) MR. WAGNER: I haven't seen it, so I'll
 (17) have to get it. I don't know if it's a work
 (18) product statement or not.
 (19) A I just have no idea what it relates to, but in the
 (20) interest of outright honesty, I had to tell you
 (21) I've got it. I don't know what it is.
 (22) MR. WAGNER: I'll have to look at it. I
 (23) need to make a telephone call.

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- (1) (RECESS.)
 (2) BY MR. SCHULER:
 (3) Q Let's go back to where we were. You had mentioned
 (4) that you had some type of statement or affidavit
 (5) or something along those lines in your records,
 (6) Mr. Silverstein, at home?
 (7) MR. WAGNER: In Midland.
 (8) Q On some other case?
 (9) A Yes.
 (10) Q Do you still have a home there?
 (11) A Yes.
 (12) Q And I've requested that be produced. Obviously
 (13) I'm in a whipsaw here, because I can't ask you any
 (14) questions about it.
 (15) MR. WAGNER: In the break I tried to get
 (16) in touch with a Dow lawyer to find out - it's the
 (17) first I heard of the statement, and I tried in the
 (18) quick break to find out whether or not it is a
 (19) work product statement or what it is, and I was
 (20) unsuccessful in tracking down the lawyer I need to
 (21) talk with.
 (22) THE DEPONENT: I'm certain it's not a
 (23) deposition. That, I know.

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- (1) MR. SCHULER: But, I mean, my position
 (2) for the record is I'm obviously here, I've
 (3) requested that certain documents be produced, and
 (4) if that document fits the subpoena and was not
 (5) produced, I can't ask any questions about it
 (6) without seeing it.
 (7) THE DEPONENT: You do understand it's a
 (8) copy?
 (9) MR. SCHULER: I understand. Copies are
 (10) not an issue here. The issue is the statement,
 (11) itself. And I reserve the right to question this
 (12) witness on any items that are not produced that
 (13) fit the description of the subpoena that he may
 (14) have.
 (15) Q Let me go down the remaining documents here. The
 (16) next request was for all documents relating to
 (17) every instance since 1981 that you have been
 (18) employed by a party or his attorney in connection
 (19) with or related to litigation involving personal
 (20) injury or the risk of personal injury allegedly
 (21) caused by exposure to a pesticide, herbicide or
 (22) other chemical or substance. Other than the
 (23) document you mentioned, do you have any other

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- (1) documents that would fit that description?
 (2) A No.
 (3) Q The next request was for all documents relating to
 (4) any opinion you have communicated or formed since
 (5) 1981 in connection with any employment or
 (6) professional services rendered as an expert
 (7) witness or consultant, including but not limited
 (8) to deposition transcripts, contracts, reports,
 (9) trial transcripts, correspondence, or documents
 (10) summarizing any opinion formed and the grounds for
 (11) your opinion. Do you have any documents that fit
 (12) that description?
 (13) A No, sir.
 (14) Q Do you have any documents in your possession that
 (15) you obtained from the defendants in this case or
 (16) their attorneys, through either this lawsuit or
 (17) other lawsuits?
 (18) A No, sir.
 (19) Q Do you maintain files at home with regard to the
 (20) cases in which you have consulted attorneys in
 (21) other lawsuits?
 (22) A No.
 (23) Q This statement or affidavit or whatever it is that

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- (1) you do have, what kind of a file do you keep that
 (2) in?
 (3) A Miscellaneous.
 (4) Q In that miscellaneous file folder, is there any
 (5) other documents that pertain to litigation
 (6) concerning Dow Chemical Company or any other
 (7) company, for that matter?
 (8) A No.
 (9) Q Have you ever been retained or testified on behalf
 (10) of a plaintiff injured as a result of exposure to
 (11) a chemical or toxic substance?
 (12) A No.
 (13) Q In your connection with your employment with Dow
 (14) Chemical Company and subsequent employment with
 (15) Dow Coming and your subsequent employment with,
 (16) as a consultant with Farlow Environmental
 (17) Engineers, do you have an opinion as to whether or
 (18) not there is any safe level of exposure to TCDD?
 (19) MR. WAGNER: Object to the form of the
 (20) question.
 (21) A No, I do not.
 (22) MR. SCHULER: That's all I've got.
 (23) Thank you.

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- (1) MR. LUTZ: No questions.
 (2) MR. WAGNER: He'll read it.
 (3) AND FURTHER THE DEPONENT SAYETH NOT
 (4)
 (5) LAWRENCE G. SILVERSTEIN

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- (1) STATE OF INDIANA)
 (2)) ss:
 (3) COUNTY OF MARION)
 (4) I, Aprille Rigsbee Lucas, RPR, Notary
 (5) Public in and for the County of Marion, State of
 (6) Indiana, do hereby certify that the deponent
 (7) herein was by me first duly sworn to tell the
 (8) truth, the whole truth and nothing but the truth,
 (9) in the aforementioned matter;
 (10) That the foregoing deposition was taken
 (11) on behalf of the Plaintiff;
 (12) That said deposition was taken at the
 (13) time and place heretofore mentioned between the
 (14) hours of 8:00 a.m. and 6:00 p.m.;
 (15) That said deposition was taken down in
 (16) stenograph notes and afterwards reduced to
 (17) typewriting under my direction and thereafter
 (18) presented to said witness for signature; that this
 (19) certificate does not purport to acknowledge or
 (20) verify the signature hereto of the deponent;
 (21) I do further certify that I am a
 (22) disinterested person in this cause of action; that
 (23) I am not a relative or attorney of any of the
 parties, or otherwise interested in the event of

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- (1) this cause of action, and am not in the employ of
(2) the attorneys for any of the parties.
(3) IN WITNESS WHEREOF, I have hereunto set
(4) my hand and affixed my notarial seal this 15th day
(5) of March, 1993.
(7) Aprille Rigsbee Lucas, RPR
My Commission Expires:
(9) September 21, 1996

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MOYER v. DOW

ANNOTATION OF DEPOSITION OF LAWRENCE G. SILVERSTEIN
TAKEN ON MARCH 9, 1993

- 4/9 Lawrence G. Silverstein, 790-A Indian Trails, Carmel, Indiana 46032.
- 5/2 I am presently employed by Farlow Environmental Engineers, Inc., as director of industrial hygiene, safety and training.
- 5/11 They are a consulting engineering firm that specializes in hazardous waste site evaluation and remediation.
- 5/19 Prior to working with Farlow, I worked with Dow Chemical Company until December of 1979.
- 5/23 I was manager of industrial hygiene for the Dow Corning Corporation from December, 1979 to September 1, 1990, when I retired.
- 6/22 -
8/9 Educational and employment background.
- 8/16 To the best of my recollection, I had no primary responsibility for manufacturing operations during the time period from 1971 through 1976.
- 9/1 I believe about 1972 Dr. Ralph Langer became the Michigan division industrial hygiene manager, so he would have had the basic responsibility for that. He is now deceased.
- 10/11 My boss between 1970 and 1975 would have been Harold R. Hoyle, who was head of industrial hygiene.
- 10/16 There may have been four or five industrial hygienists at Midland, Michigan involved in the manufacturing process from 1970 to 1975, but not full time to my recollection.
- 10/20 I have not reviewed the deposition of Dr. Rowe.
- 12/11 Industrial hygiene was part of the biochemical research department when I joined in the fifties. Somewhere in the time period of 1970 to 1975 the name was changed to health and environmental research, I believe.
- 12/19 Dr. Hoyle reported to Dr. Don D. Irish between '70 and '75, for part of that period anyway.
- 13/2 Dr. Hoyle is still alive and in Delray Beach, Florida.
- 13/7 The other industrial hygienists were Arnold Schaffer, Richard D. Olson, George Florez, Edward J. Schneider and

Donald Rapp.

- 13/19 To the best of my recollection, each of those folks had some responsibility for industrial hygiene in the production of Silvex, 2,4,5-T or 2,4-D for some area, but no one had total responsibility for the Michigan division.
- 14/8 My recollection of that particular time period is that my main effort was in two projects. One was called Dow Environmental Health Services, a consulting-for-fee effort to offer industrial hygiene and a number of other services to industry. I was the lead industrial hygienist for that effort, which was headed up by Arnie Schaffer.
- 14/16 The other role I played was as chief health physicist, which is radiation safety officer for the Dow Nuclear Services Program, which offered Dow services to the nuclear power industry.
- 15/5 Back in the 1960s, I was given some responsibilities with regard to doing some industrial hygiene work regarding the process for the manufacture of trichlorophenol by Harold R. Hoyle.
- 15/13 I guess I was selected because I was a good industrial hygienist and I was available.
- 15/23 To the best of my recollection, in the early sixties I was doing industrial hygiene in the Midland division production plant, and doing radiation safety for the division and for the company.
- 16/14 My first assignment in the area of the production of trichlorophenol in terms of monitoring the safety of the workers was in 1964.
- 16/18 Before 1964 I do not recall having any responsibilities with regard to industrial hygiene for the production of trichlorophenol, 2,4,5-T, Silvex, or 2,4-D.
- 17/5 I may have worked with the industrial hygiene aspect of the production of some agricultural chemicals prior to 1964, but I just don't recall any specific project.
- 17/9 I think one time before 1964 we investigated a case of chloracne. Roughly 1963 or so.
- 18/8 That case of chloracne was in connection with a different process called Dow 6-X. That was a hexachlorophenolic compound that I cannot name for you at this point.

18/20 When I was assigned by Dr. Hoyle to investigate chloracne in 1964, I visited the plant to observe the actions of the employees, which is the standard initial step in industrial hygiene investigation.

19/5 I spent quite a bit of time in that plant and proceeded to do some air sampling and wipe testing of the plant environment.

19/8 I'm pretty sure that I issued a quick report, because we had an urgent situation, so I must have written a report.

19/20 My recollection is that my next assignment was as safety officer in the plant, with the responsibility for assuring safe operation. Anything that happened in the plant, I had to specify safety precautions and make sure people followed them.

20/5 The plant that I am referring to is the building housing the production process referring to trichlorophenol.

20/21 There was only one physical building that that applied to, and that was 199 building.

21/15 One of my responsibilities was to check exposure levels of the workers in the plant to TCDD.

21/20 During my health officer duties it was one of my responsibilities to correct operating procedures where excessive exposures may be occurring and to identify areas where difficulties with exposure may occur.

22/8 I also served as kind of a liaison between the toxicology department and medical department and production.

22/12 Prior to 1964, there had never been a case of chloracne in a Dow worker working with trichlorophenol that I'm aware of.

22/16 I do not remember any cases of chloracne prior to 1964 in a Dow worker working with the finished product of 2,4,5-T, or Silvex, or 2,4-D.

23/2 I don't remember any cases of cancer in Dow workers that were exposed to trichlorophenol, 2,4,5-T, Silvex or 2,4-D in the manufacturing process.

23/15 Back in 1964, those workers that came down with chloracne, would have gone to the medical department first, the medical department would contact Harold Hoyle and then he would tell me and I would investigate it.

24/18 In 1964 before the event, there were about 60 cases of chloracne from the exposure to trichlorophenol, as I recall it.

25/2 The workers that came down with chloracne continued to work in the plant.

25/4 I recall the name of just one of those workers.

26/11 Dow was involved in making trichlorophenol since approximately 1946, and it was always made in the 199 building.

26/22 The 199 building was in the midst of a very large manufacturing complex, and around it are other buildings where other chemicals or components of chemicals are made.

27/10 The chloracne in the 199 building was first noticed in January or February of 1964.

27/22 I believe the chloracne was mostly due to the exposure to the caustic insoluble oils of the trichlorophenol.

28/2 The caustic insoluble oils is a waste stream.

28/9 The chloracne that I saw looked like a collection of blackheads on the face. Something like teenage acne.

28/17 Some people in Dow Chemical knew that certain chlorinated organic compounds caused chloracne since 1941.

28/23 Don D. Irish and others in the biochemical research department are the only ones I know for sure that knew. I believe Dr. Rowe would be one of those.

30/1 Based on my review of the history in 1944 or '45, I believe Dow first tested the caustic insoluble oil portion of the trichlorophenol production to see if it caused chloracne.

30/10 I believe at some point in the 1950s a German company proposed that there may be a compound, TCDD, responsible for causing chloracne.

30/16 In my memoranda, when I first got involved with the problem in 1964, I called it TCBD.

31/11 I think TCDD was the primary culprit in the causation of the chloracne outbreak in 1964 at Dow Chemical at the 199 building.

- 31/15 To the best of my recollection, I was told that TCDD was the most potent chemical ever tested in Dow's toxicology laboratory.
- 31/23 Prior to 1964, the German company, Boehringer Sohn, had sent a letter to Dow and other manufacturers of trichlorophenol with suggestions on how to avoid generating the chemical that causes chloracne in the TCP process.
- 32/4 The only suggestion I remember specifically was a temperature limit for the process. I believe it was 150 degrees, but to be honest, I don't remember whether it was F or C, which makes a little difference.
- 33/3 I don't know it with certainty, but I believe Dow was raising its temperature to around 200 degrees.
- 33/18 I don't know with certainty who the person would have been that was responsible for that decision.
- 33/25 The plant supervisor at the 199 building was Ray Holmes, I believe.
- 34/22 There's no clearcut cut-off time as to when my responsibilities ended with regard to chloracne and TCDD and the trichlorophenol process. The way things worked, about 1967 I took on other responsibilities.
- 35/11 In 1964 the chemical or the oils that appeared to be causing the chloracne was tested on rabbits.
- 35/18 It turned out that the concentration of the chemical was so high that the rabbits tested by the rabbit ear test died.
- 36/5 I can only describe the worker safety routine at the plant at the time before I made my recommendations in general terms and with no certainty because that's been a long time. It would be basically skin protection and the use of gloves when working in areas that may be contaminated, plus personal hygiene instructions on washing thoroughly after any action.
- 37/1 The manufacturing process in building 199 was basically a closed process within vessels and piping and such.
- 37/9 There were exits for product and waste streams, and there were joints within the piping.
- 37/23 At the time I was safety officer, I required full company supplied clothing from the skin out, required shower

time, at least twice a day for lunch break and at the end of the shift, and then respiratory protection at any time there was a risk of airborne material.

38/8 There were two basic forms of respirators, depending on the nature of the action the guy was going to take, the cartridge type of air purifying, and in some instances, most of the time it was air supplied self-contained breathing apparatus or air-line respirator.

38/15 The company supplied clothing I prescribed: underwear, shoes, coveralls, gloves.

38/22 We used a lot of disposal coveralls over the work clothes. By disposal, I mean use once and throw away, and that included boots that covered their work shoes.

39/5 I believe I put my safety recommendations in writing.

39/9 I was in charge of follow up to make sure that there was compliance with the safety requirements that I outlined.

39/16 The workers were provided with double lockers. The purpose was to separate contaminated work clothes from street clothes.

40/4 We instructed Dow's own laundry, which did the work clothes, in special handling to avoid contact with the contaminated clothing they were laundering. As far as the waste disposal, there was an operating waste disposal department, and I do not recall any specific interaction with them.

40/16 When I was full-time safety officer in the plant, I recommended two showers a day. A shower before the lunch break and then a shower at the end of the shift.

41/13 I served as health officer for building 199 for six or seven months, I would guess.

41/22 The trichlorophenol that was being manufactured was used in the manufacture of 2,4,5-T or Silvex.

42/12 My recollection is that the trichlorophenol was transported in rail car tanker to another building where the 2,4,5-T or Silvex was made.

43/6 At the time I initially became involved, we didn't know what was in the caustic insoluble oil.

43/22 In early 1965, the Dow analytical laboratory in Midland developed methods for measuring the concentrations of

TCDD in the trichlorophenol.

- 44/4 Harold Gill is the name I recall involved in that project.
- 44/13 He developed the vapor chromatography or gas chromatography method.
- 45/3 The amounts of TCDD that were in the finished trichlorophenol that was produced back 1964 or 1965 were generally undetectable, below the limit of detection of the analytical method at that time.
- 45/10 Early on, the sensitivity of the analytical method developed back at that time was as high as ten parts per million of TCDD. Over a period of time it improved to some lesser amount.
- 45/22 Over some period of time after the development of the method, it improved in stages to one million, one-tenth, .01, I think, part per million.
- 46/17 The results for the testing of the final product by the analytical method was generally non-detectable in products. That was in the mid sixties.
- 47/2 The sensitivity level was one part per million at some point in time.
- 47/9 Dow had not determined that there was a safe level of TCDD in its final product that was acceptable to the company.
- 48/7 There was testing of the trichlorophenol to determine whether it would carry dioxin, the TCDD dioxin into the final 2,4,5-T product. The result - most of the 2,4,5-T contained undetectable amounts of the TCDD.
- 48/16 I believe 2,4-D was tested to determine whether that contained any detectable amounts of TCDD. I do not know the result.
- 49/3 My recollection is the late sixties I wrote lab safety procedures that basically instructed employees to avoid all contact and to wash thoroughly after any handling, just in case there was contact. Employees were also to wear gloves. Nothing else specifically.
- 50/22 To my knowledge, the finished product of 2,4,5-T or Silvex, were not tested for either furans or other dioxins that were chloracnegenic in the sixties. I don't know about the seventies.

- 51/10 One of the concerns back in the sixties was that TCDD might be a problem for customers using the product Silvex or 2,4,5-T. The concern was that customers would not be as careful in protecting employees as was Dow Chemical, less controlled conditions for the employees.
- 52/2 There was a meeting that was called by Dow and some other chemical manufacturers regarding TCDD after the 1964 chloracne outbreak.
- 53/17 I do not know if there was testing done to determine whether a contamination level of one part per million of TCDD in Silvex or 2,4,5-T was safe to human beings.
- 54/2 Probably the agricultural products division was responsible for determining what the detection limit was for TCDD in end product 2,4,5-T or Silvex in 1975.
- 56/5 My recollection of A. P. Beutel is general manager of the Texas division when I started work at Dow and for many years afterward. They were responsible for the manufacturing of basic industrial chemicals.
- 56/19 The name Andrew Anderson is vaguely familiar, but I have no recollection of the gentleman or what he did.
- 57/9 My only recollection of Dr. Hoerger is as a chemist research scientist. I don't remember him having any involvement with 2,4,5-T, Silvex, or 2,4-D.
- 58/4 For some period of time, Dr. Hinman was director of the biochemical research lab, in the late sixties.
- 58/15 There was never a 2,4-D task force set up within Dow Chemical Company to my knowledge.
- 58/18 I remember Chet Otis, I don't know his official position in the company.
- 59/5 I do not recall meeting Mr. Oettel from Germany.
- 59/7 I remember the name J. D. Doedens. I remember nothing more about him.
- 59/17 When I was involved with the trichlorophenol process in 1964, the process of determining exposure levels was taking of the wipe tests and the air samples and physical observation at the plant.
- 60/12 In '64-'65, in the toxicology department, I primarily dealt with V. K. Rowe, the director, and Dr. Kenneth Olson, the toxicologist.

- 60/16 I dealt primarily with Dr. Benjamin Holder in the medical department.
- 60/22 In the production department, specifically with regard to the production of trichlorophenol, I dealt with Ray Holmes, the superintendent, and Al Lueck, the assistant superintendent.
- 61/22 There were toxicology files on the chemicals, 2,4-D, Silvex, 2,4,5-T in the building where toxicology was located, biochemical research department.
- 62/4 Other than today, my deposition has not been taken in any other cases involving allegations that either 2,4-D or Silvex or 2,4,5-T caused physical injury.
- 62/12 My deposition was taken in the Agent Orange group of cases in the early eighties.
- 63/8 I know F. D. Axe. He was an industrial hygienist with the company for a lot of years.
- 63/21 There is a production division at Pittsburg, California, and research lab, also, and he was the industrial hygienist out there most of the time he was with Dow Chemical.
- 64/9 I had no input into labeling of 2,4-D, 2,4,5-T or Silvex and I don't know who was responsible for that.
- 64/19 I would generally submit my reports regarding contamination of trichlorophenol to the toxicology section.
- 65/6 Marguerite Leng was a scientist. My recollection of her was as a member of the toxicology lab for some period of time. Vague recollection that she spent some time in agricultural research department at Dow in Midland.
- 65/19 I was aware that Dow had a specific department that was involved with the registration of agricultural pesticides.
- 68/16 I have not reviewed any documents in preparation for today's deposition that were not handed to me by a lawyer.
- 68/23 I have not testified before the EPA or any of its subcommittees.
- 69/6 Since leaving Dow in 1979, I do not maintain any consulting arrangements with Dow.

- 69/17 I do maintain contact with a number of folks primarily in the industrial hygiene and toxicology areas of Dow. Dr. Larry Rampy - who was the director of industrial hygiene at Dow Chemical, U.S.A., Gordon Ingdol, Bruce Houhman - manager of industrial hygiene for DowElanco, Greg Socha, Patty Houhman - she was an industrial hygienist at Dow Corning.
- 72/2 In 1964 when I was called in to help evaluate the chloracne problem in the trichlorophenol process, I did not communicate to any governmental agencies the fact that there was a substance in the trichlorophenol process that was causing chloracne in Dow workers.
- 72/11 I do not remember communicating that fact publicly outside the company in any way.
- 73/5 I have never testified in any civil cases whatsoever where Dow Chemical Company was a defendant.
- 74/1 Plaintiff's Exhibit 1 marked - Chloracne Problem, Biochem's Contribution.
- 75/2 At that time there was non-specific analytical evidence that there was a whole series of things in that waste oil, and those are the other compounds I would be referring to.
- 75/22 The other compounds that I refer to at page 2 of Plaintiff's Exhibit 1 would be the families that I was then aware of that had caused chloracne in humans, such as in the thirties, the chlorinated naphthalenes, and earlier Dow experience, with materials they suspected of being the culprits, the chlorinated furans and that type of thing.
- 76/13 As I remember, there were three big companies in Europe that had had accidents in their plant that had caused some employees to have the chloracne and also some liver damage in some other employees. One company was Boehringer Chemical in Germany. I do not remember the one in the Netherlands or the one in France.
- 77/11 In Plaintiff's Exhibit 1 it states that folliculitis in rabbits appears to be produced, regardless of the severity of exposure. I had to have received that information from our toxicology department.
- 79/23 On page 4 of Plaintiff's 1, when I talk about something that happened in 1957 historically in the 199 and 349 buildings, that there were process samples tested on animals, and the caustic insoluble oil and coil reactor

- product in 199 were active and that tar from color stills in 349 was also active, I am referring to rabbit testing.
- 80/5 I am referring to causing folliculitis in the animal, or the rabbit ear, and there's a technical difference between that and chloracne.
- 81/14 Where I mention that Ronnel, Silvex and 2,4,5-T had been tested on animals and in no case was chloracne activity detected in these products. I probably got that information from toxicology at Dow.
- 82/11 In my history I refer to the outbreak that occurred in 1964 of chloracne and that the two samples of the oil that were tested were dramatically different than those tested before. The samples killed the rabbits in the test, in contrast to earlier tests where the rabbits did not die.
- 82/18 I am referring simply to the end result.
- 83/6 Where I stated that the concentration of the caustic insoluble oils had to be diluted from the usual 10 percent to .1 percent concentration before the animals survived, I received that information from toxicology.
- 83/9 To the best of my knowledge, Dr. Kenneth Olson was conducting these tests at this time in 1964.
- 84/1 On page 5 where I stated that the tests had been repeated periodically, to the extent that over 600 animal tests directly related to the chloracne problem had been run since July, I received that information from toxicology also.
- 84/18 Mr. Skelly was an analytical chemist in the analytical laboratories, which is separate from the biochemical research lab.
- 85/22 Harold Gill was in the analytical laboratory also.
- 86/2 On page 6 I stated that the vapor phase chromatography sensitivity at that time could detect samples, I guess of TCDD, down to one part per million by weight, and a subsequent statement that the rabbits are sensitive to the TCDD down to approximately five parts per billion by weight.
- 86/16 The information relating to the rabbits I received from toxicology, the other part from analytical.
- 87/4 We could arrive at the conclusion that the rabbits were

sensitive down to five parts per billion because the analytical samples, process samples had lots of interferences. Starting with pure material we could accurately dilute down to five parts per billion and test on the animals, so that's what we did.

87/16 To the best of my recollection, Dr. Olson would have done that research.

87/20 It's just about impossible to tell who did the editing on Plaintiff's 1, but I don't think I did it.

88/10 My wipe test samples were tested on the rabbit ear because of its great sensitivity. At the same time we had them analyzed by the analytical lab for the materials they could find on it, and my statement, "wipe samples with no detectable TCDD but varying amounts of unknowns have shown more activity on the animals than can be accounted for by the low level of TCDD which may be present" arose because wipe samples that showed very little or no TCDD by analytical analysis did produce an effect on the animals.

89/1 In the chemical analysis, even if there was no TCDD collected, they might still be bio-reactive on the animals.

90/7 On page 6 - "Peaks coincided with some unknowns which were seen in wipe samples and process samples. Both the biochem lab and the Germans have reported animal tests with these compounds which showed acnegenic activity".

90/13 The compounds I'm referring to there, I think it goes back to the impure chlorinated dibenzofurans that I didn't read. I just read the highlighted.

90/23 On page 7 - "The analytical laboratory and the toxicology laboratory are presently conducting a project to determine the analytical and animal test limits of sensitivity for TCBD in various Dow products, made from trichlorophenol. This project is aimed at developing a quality control specification for TCBD in consumer products."

91/12 During the time I was involved, our standard was nothing detectable in the material.

93/5 On page 9 of Plaintiff's Exhibit 1, I refer to a January 1964 first medical report of a case of chloracne, initiated a survey by the environmental research laboratory. That was my assignment to the plant being referred to there.

- 94/3 Phoenix Sprinkler was a company that came in to change some of the equipment on the 199 building. They were separate from Dow, a subcontractor. Apparently some of their workers developed chloracne in the process of changing some of this equipment.
- 95/10 I was full-time health supervisor at the 199 building.
- 96/4 The closures that were being put up in November and December of 1964 were basically a very large, metal, rectangular structure around the main process equipment.
- 96/15 It was open only to let pipes and such things through it.
- 97/16 The building superintendent at 349 was a man by the name of Clare Bailey.
- 98/9 There were objections by workmen to working in 349, which caused the adoption of full-scale protective measures in that building in regard to the trichlorophenol process. I wouldn't know any names of the folks who objected.
- 99/17 A handwritten statement at the end of Plaintiff's Exhibit 1 says unit index. That was an indexing method used in the lab, meaning write out, the key word so that it could be retrieved. For filing purposes, strictly.
- 100/11 Hutchenreuther was a manager in the Midland plant; Goergea, same as Hutchenreuther; Staehling, another major manager; Amstutz; J. Kelly; Shannon; Lueck; Bailey and Sculati.
- 100/23 I don't remember Mr. Kelly.
- 102/1 Plaintiff's Exhibit 2 marked (report of a meeting held at the biomedical research laboratory).
- 103/2 I was present at the meeting of the various representatives of the chemical companies.
- 103/4 When Mr. Rowe referred to evidence for unknown acnegens, he was referring to the number of other compounds in the caustic insoluble oil other than the TCDD.
- 105/23 Dr. Sadek was at that time, a veterinary pathologist in the toxicology lab with Dow Chemical Company.
- 107/10 It was my experience with the contamination of tools and other objects with this foreign material that you either had to use the substances I outlined to remove it or to use soap and water with vigorous scrubbing.

- 108/6 I feel that washing with water along without detergent would be insufficient.
- 108/19 I mention on page 3 of Plaintiff's 2 that Harold Gill discussed the analysis by vapor phase chromatography, and at that time he referred to a limit of one part per million for trichlorophenol and for 2,4,5-T acid, either acetic or propionic. That is my recollection at the time.
- 109/17 I have no recollection of any comments by anyone at the meeting at this time.
- 110/16 On page 5 I mention that even if the vapor phase chromatography does not detect TCDD, an animal response may still occur. That information would have come probably from toxicology. I was just reporting what Jack Peterson said at that point.
- 110/20 Jack Peterson was an industrial hygienist in the same group in biochemical research with myself at the time.
- 113/20 I remember only one name of a person who sustained chloracne as a result of exposure to chloracnogens in your experience at Dow Chemical, and that is Rose. That's a man. I don't remember a first name and I have no idea if he is still alive.
- 114/11 I have no idea why I remember him. Only that I was acquainted with him.
- 115/14 Plaintiff's Exhibit 3 marked (document dated 2/24/76 authored by Larry Silverstein).
- 116/1 I know nothing about the facts of this case, Moyer v. Dow.
- 118/19 Page 5 of Plaintiff's 3 states that in February of 1964 the plant assistant superintendent and some operators were examined by the medical department and were found to have chloracne. That plant superintendent was Al Lueck.
- 119/16 I don't know who any of the operators were.
- 120/5 I was the first full time safety officer for building 199.
- 121/11 I went to Europe in late 1964 to talk to companies who had experienced a similar problem and claimed to have found answers to it. The German company was Boehringer.
- 121/14 I think the French company is Progil.

- 122/3 On page 11 of Plaintiff's 3 where I refer to a new process, I am referring to the new process that was purchased from the German company and that was installed at Midland sometime after 1964.
- 122/17 Pertaining to page 14, it is my recollection that at the beginning of the company's quality control guideline, the product must contain less than one part per million by weight of TCDD.
- 123/4 Report goes on to say that improvements in the analytical method came about so that this quality control limit was reduced to .05, and now stands at .01 parts per million in the final product. That is the limit or standard that existed, to my recollection, when I did this memorandum in February of 1976.
- 124/16 It is stated in the next paragraph that there was instituted, although not quite so rigid, quality controls by analysis backed up by animal testing for the end product into which the trichlorophenol went, namely the esters, and so there was quality control data available on that, as well. That would refer to the esters specifically, as I read it.
- 125/5 The esters of 2,4,5-T.
- 126/17 The human testing that I referred to was done in a prison, I don't know what prison, but the doctor's name was Kligman.
- 127/1 The graph that deals with response of rabbits and humans to TCDD I prepared originally.
- 127/4 The human data came from Kligman's report. The animal data came from Dow toxicology.
- 127/11 At the time, I believe the Kligman report was considered to be valid information.
- 127/16 I would have received the information regarding the Kligman prisoner experiments from the toxicology department.
- 127/20 Follow-up studies were done of those Dow workers that were exposed to TCDD in 1964 and who showed evidence of chloracne by the epidemiology section of the same laboratory.
- 128/7 Dr. Ralph Cook was the head of epidemiology, and a number of other folks but I don't recall their names.

- 129/4 The results of the follow-up study, to my recollection, there was no excess of any disease found, and they were looking especially for cancer and found no statistical significance in terms of the fate of those people who passed on.
- 129/11 The study was published in a scientific journal. I believe it was the Journal of Occupational Medicine.
- 130/6 Yes I did participate in the study. I estimated the categories of exposure for the workers being studied.
- 131/8 This was an in-house Dow study. No one was brought in from the outside to take part in the study.
- 132/5 The 1964 group is the only study that I am aware of with regard to exposure to TCDD in humans.
- 132/23 Plaintiff's Exhibit 4 marked (memo entitled the Hazard of Monsanto T Acid by L. G. Silverstein).
- 133/5 This was a memo that I had done regarding some 2,4,5-T acid that Dow had purchased from Monsanto. And the material was found to contain TCDD in concentrations averaging about ten parts per million.
- 133/19 I was concerned because this product constituted a hazard in my opinion.
- 134/15 I see in paragraph two, I'm talking about the requirements if we processed it in 199 and 349, and my recollection is that's what we planned to do with it when we got it, and it says Dow's involvement in shipping this material to Riverdale concerns me. It doesn't say we shipped it.
- 135/14 My recollection is that the material in question was reprocessed within Dow Chemical until it was non-detectable by analysis, and then it was processed, but that's strictly my recollection at this point.
- 136/5 No, I do not recall any complaints from Dow customers from 1964 through 1976 regarding any chloracne from any of the 2,4-D or 2,4,5-T or Silvex products sold by Dow. Nor do I recall any complaints regarding the causing of cancer in any users of 2,4,-D, 2,4,5-T or Silvex.
- 137/7 My present employer, Farlow Environmental Engineers, Inc. is being paid for my time spent her, and I will receive my normal compensation from him.
- 137/16 For my services in legal areas, it's \$150 an hour.

- 138/23 I am paid a straight salary, annual compensation, at this point.
- 139/18 Plaintiff's 5 marked (handwritten memo to J. E. Johnson).
- 140/6 I have never seen that memorandum before.
- 140/11 Plaintiff's 6 marked (Letter from F. D. Axe dated 4/22/66).
- 140/19 Mr. Axe was a member of the same department that I was a member of for a period of time. He was also an industrial hygienist.
- 141/3 Mr. Axe mentions in Exhibit 6 that there was some reports of chloracne from what's called a Tordon plant. I am familiar with that chemical in a general sense, but I don't know the chemical components.
- 141/11 I am not familiar with Kuron. I have a vague familiarity with the term Estron.
- 142/3 No, I never contracted a case of chloracne myself.
- 142/7 I did not participate at all in the decision by the Dow Chemical Company to withdraw 2,4,5-T or Silvex from the market.
- 143 Lists professional organizations Silverstein is a member of.
- 145/4 Plaintiff's 7 marked (letter describing industrial hygiene services offered by Farlow Environmental Engineers, Inc.).
- 145/10 Plaintiff's 8 marked (resume of Lawrence G. Silverstein).
- 147/4 I'm trying to recall the first such event when I worked with attorneys in cases involving injuries from exposure to hazardous substances. I believe it was in the mid-seventies, and the only occasions on which I have worked with attorneys since the mid-seventies were involved with cases having to do with Dow Chemical Company.
- 147/12 I've probably been involved in less than half a dozen cases since the mid-seventies.
- 147/17 In all but one instance it involved the dioxins.
- 149/12 I have worked with attorneys representing the Dow Chemical Company exclusively.

- 149/22 I remember working with one attorney by the name of Sam Pierce.
- 150/19 I have never testified in trial on behalf of Dow Chemical Company in any case.
- 151 -
- 152/11 Information pertaining to resume of Silverstein.
- 152/19 Yes, I consider dioxin to be a hazardous material.
- 153/17 I was the safety officer for the overall production facilities for Dow in Midland.
- 153/22 That encompassed the production of many different types of chemicals. Not just trichlorophenol or 2,4,5-T or Silvex or 2,4-D, but in the hundreds.
- 154/16 No, I never had any input into the writing of any OSHA or NIOSH standards for dioxin or related materials.
- 155/16 I do not have copies of any documents that I generated at Dow Chemical Company.
- 156/22 Plaintiff's 9 marked (article "Mortality Experience of Employees Exposed to 2,3,7,8-Tetrachlorodibenzo-paradioxin, TCDD).
- 159/9 In Exhibit 9, the mortality study done on the 61 workers involved in the 1964 chloracne incident, it's mentioned in the head note to the article that there were three deaths attributed to cancer out of the group, with 1.6 expected. I do not know if there was a continued follow up of this group. But if there has been, I have not participated in it.
- 160/2 From memory, I characterized the exposure based on my familiarity with the plant environment, physical layout and that type of thing, plus the data in terms of wipe tests and air samples taken through the event. And with all that information I did the best I could in judging high versus low exposure, in essence.
- 161/3 Other than to the characterization of the exposure, the other conclusions in the study were those of Dr. Cook essentially.
- 161/11 Dr. Cook is now with Dow Corning Corporation in Midland.
- 161/21 I have accumulated maybe 15 hours to date in this matter.

- 162/19 I have in my files at home, a statement I made. I don't think it was even a deposition. I do not know what case. I do not know for sure if it's involved with your materials or not, but that's the only thing I can remember, and I do not have a copy of that with me. When I say at home, I mean at home in Midland, Michigan, because I didn't move it down here.
- 163/19 I just have no idea what it relates to, but in the interest of outright honesty, I had to tell you I've got it. I don't know what it is.
- 167/21 No, I do not have an opinion as to whether or not there is any safe level of exposure to TCDD.

STATE OF FLORIDA)
) SS:
COUNTY OF ORANGE)

IN THE CIRCUIT COURT FOR ORANGE COUNTY, FLORIDA

KIMBERLY MOYER, as Personal)
Representative of the Estate of)
ROBERT W. MOYER, II, Deceased,)
)
Plaintiffs,)Case No. CI 89-8657
)Div: 32 Thompson
vs.)
)
DOW CHEMICAL COMPANY, et al.,)
)
Defendants.)

The deposition upon oral examination of
LAWRENCE G. SILVERSTEIN, a deponent produced and
sworn to before me, Aprille Rigsbee Lucas, RPR, a
Notary Public at large in and for the State of
Indiana, taken on behalf of the Plaintiff at
DowElanco, 9001 Purdue Road, Quad III,
Indianapolis, Marion County, Indiana, on March 9,
1993, at 10:00 a.m., taken pursuant to the Florida
Rules of Civil Procedure in the above-captioned
matter.

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2160

D-2257

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1 LAWRENCE G. SILVERSTEIN,
2 having been first duly sworn to tell the truth,
3 the whole truth and nothing but the truth,
4 relating to said matter, was examined and
5 testified as follows:

6 DIRECT EXAMINATION,

7 QUESTIONS BY MR. SCHULER:

8 Q Would you state your name, please.

9 A Lawrence G. Silverstein.

10 Q What is your present address?

11 A Home address is Carmel, Indiana, 790-A Indian
12 Trails, is the street address, 46032.

13 Q How long have you lived in the Indianapolis area,
14 sir?

15 A Since October 1st.

16 Q Of this year, 1992?

17 A '92, correct.

18 Q Prior to that where did you live?

19 A Midland, Michigan.

20 Q How long had you lived in Midland, Michigan?

21 A 37 years, with a couple timeouts for transfers.

22 Q Are you presently employed?

23 A Yes, sir.

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1 Q What company employs you?

2 A The Farlow Environmental Engineers, Incorporated.

3 Q Where is that company located?

4 A It's at 9202 North Meridian Street in
5 Indianapolis.

6 Q What is your position with that company?

7 A I am director of industrial hygiene, safety and
8 training.

9 Q What type of company is Farlow Environmental
10 Engineers, Incorporated?

11 A They are a consulting engineering firm that
12 specializes in hazardous waste site evaluation and
13 remediation.

14 Q And you, prior to working with Farlow, worked with
15 Dow Chemical Company?

16 A Yes, sir.

17 Q When did you cease working with Dow Chemical
18 Company?

19 A December of 1979.

20 Q After December of 1979, can you give me a little
21 history of your employment with various companies?
22 Or if you were retired, tell me that.

23 A I was manager of industrial hygiene for the Dow

1 Corning Corporation from December 1979 to
2 September 1st, 1990, when I retired.

3 Q Dow Corning Corporation is also located in
4 Midland, Michigan, is it not?

5 A Correct.

6 Q And if I recall correctly, Dow Corning Corporation
7 is a 50 percent joint venture between Dow Chemical
8 Corporation and Corning Corporation?

9 A Yes.

10 Q Did you transfer from Dow Chemical to Dow Corning?

11 A Yes.

12 Q And let me go back to your history with Dow
13 Chemical Company, and tell me a little bit about
14 your educational background before you started
15 with the company and then the history of your
16 various positions with the company, Dow Chemical
17 I'm talking about now, not Dow Corning.

18 A Well --

19 MR. WAGNER: I'll object to the breadth,
20 since that covers about 40 years, but go ahead and
21 give him an overview.

22 A Educational background is a Bachelor of Arts
23 degree in chemistry, 1954, State University of New