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**Item ID Number** 05269  **Not Scanned**

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**Report/Article Title** Appendix to Rebuttal Comments of Respondent  
Environmental Protection Agency in re: Emergency  
Suspension Order for 2,4,5-T and Silvex, FIFRA Docket  
Nos. 409-410

**Journal/Book Title**

**Year** 1979

**Month/Day** April

**Color**

**Number of Images** 0

**Description Notes** Also includes cover letter from L. Mark Wine of Kirkland and  
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Enclosed is a copy of EPA's rebuttal comments which greatly expands its discussion of the data and sets forth the points it intends to prove at the hearing. We must respond as fully as possible to all of these claims both in preparation of Dow's testimony and in cross-examination of EPA witnesses.

Sincerely yours,



L. Mark Wine

LMW:bac  
Enclosure



## APPENDIX

### I. Introduction

- Exhibit 1, cited at p. 3, "USDA to Suspend Use of 2,4,5-T in Forest Management", USDA 1979.

### II. Animal Data

- Exhibit 1, cited at p. 14, "Reproductive Dysfunction. . .", Barsotti, 1977.
- Exhibit 2, cited at p. 14, "Hormonal Alternatives . . .", Barsotti, 1979.
- Exhibit 3, cited at p. 15, "Environment and Birth Defects", 1973.
- Exhibit 4, cited a p. 14, "TCDD Toxicity in Various Animal Models", Spencer 1979.
- Exhibit 5, cited pp. 15-16, "The non-teratogenicity . . .", Dougherty, 1975.
- Exhibit 6, cited at p. 16, "Abnormalities of Intrauterine Development . . .", 1971, Wilson.
- Exhibit 7, cited at p. 20, "Response to Rebuttal Comments. . .", Albert, 1979.

### III. Alsea

- Exhibit 1, cited a p. 44, "Status Report", EPA, Feb. 8, 1979.
- Exhibit 2, cited at p. 44, "Congenital Abnormalities", Infante.
- Exhibit 3, cited at p. 45, "Proceedings, Conference on Women in the Workplace, Infante 1976.
- Exhibit 4, cited a p. 45, "Significant Factors . . .", Bailar, 1967.
- Exhibit 5, cited p. 45, "The Effects of Maternally Inhaled Vinyl Chloride . . .", John, 1977.

#### IV. Exposure

- Exhibit 1, cited p. 66, letter, McGuire to Costle, 11-13-78.
- Exhibit 1a, cited p. 69, Burkett affidavit, 4-3-79.
- Exhibit 2, cited p. 68, Clary affidavit, 4-3-79.
- Exhibit 3, cited p. 69, Cromwell affidavit, 3-14-74.
- Exhibit 4, cited p. 77, "General Review of Environmental Movement of 2,4,5-T and Silvex".
- Exhibit 5, cited p. 78, Exposure Report, "Ditch Contamination . . .".
- Exhibit 6, cited p. 79, "Soil Application of 2,4,5-T".
- Exhibit 7, cited p. 79, "Railroad Rows".
- Exhibit 8, cited p. 79, "Testimony of Hal Weber", 3-14-78.
- Exhibit 9, cited p. 79, "Testimony of Kathleen O'Hagan", 3-14-78.
- Exhibit 9a, cited p. 79a, "Chlorodioxins in Pesticides, Soils and Plants", Helling, 1973.
- Exhibit 10, cited p. 79a, "Persistence and Metabolism of Chlorodioxins in Soils", Kearney, 1972.
- Exhibit 11, cited p. 79a, "Studies on Bioaccumulation . . .", Matsumura, 1973.
- Exhibit 12, cited p. 79a, "Fate of 2,3,7,8 Tetrachlorodibenzo-p-Dioxin. . .", Ward & Matsumura, 1978.
- Exhibit 13, cited p. 79a, "Conquering the Monster", Crosby, 1977.

#### V. Benefits

- Exhibit 1, cited at p. 83, "Memorandum of Understanding. . .".
- Exhibit 2, cited at p. 87, "USDA to Suspend Use of 2,4,5-T in Forest Management", 3-1-79.

U.S. ENVIRONMENTAL PROTECTION AGENCY

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In Re: Emergency Suspension Order ) FIFRA Docket Nos.  
for 2,4,5-T and Silvex ) 409-410  
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ERRATA SHEET FOR REBUTTAL COMMENTS  
OF RESPONDENT ENVIRONMENTAL PROTECTION AGENCY

The following corrections should be incorporated into the text of the "Rebuttal Comments of Respondent Environmental Protection Agency," filed April 4, 1979.

- 1) p. iii, §B., "chemical residue" not "chemicals residue"
- 2) p. iii, §(1), "causal" not "causual"
- 3) p. 1, line 4, "pages," not "pages"
- 4) p. 3, line 1, "Dow's" not "Dow s"
- 5) p. 6, line 2, "manufacturers" not "manufactures"
- 6) p. 6, line 6, "510 F2d. 1292," not "§10 2d. 1292,"
- 7) p. 6, line 23, "variety" not "varity"
- 8) p. 7, line 6, "another study," not "other study,"
- 9) p. 7, line 18, "hypotheses" not "nyphothesis"
- 10) p. 8, line 3, delete "to"
- 11) p. 9, line 14, "510" not "§510"
- 12) p. 10, line 14, "at 10," not "at \_\_,"
- 13) p. 10, line 15, "at 10." not "at \_\_."

- 14) p. 10, line 18, "teratogenic," not "terotogenic,"
- 15) p. 11, line 8, "pesticides" not "pesticide"
- 16) p. 12, heading B., line 1, "Fetotoxic," not "Fetotoxic"
- 17) p. 13, line 2, "has" not "had"
- 18) p. 13, \*\*/, delete "a" in last line -- should read "that no NOEL had"
- 19) p. 14, line 22, "three" not "thre"
- 20) p. 17, line 19, "rather" not "rathr"
- 21) p. 21, line 10, "studies." not "studies"
- 22) p. 22, line 1, delete second "effects"
- 23) p. 24, line 3, "ug/kg.," not "ug/kg."
- 24) p. 24, fn \*/ "at 19-20," not "at \_\_\_\_\_,"
- 25) p. 26, third indented paragraph; insert the following after "ingesting": "TCDD was clearly affected at dose levels"
- 26) p. 29, line 15, delete second "in the"
- 27) p. 38, line 4, "hospitalized" not "hositalized"
- 28) p. 38, line 11, "risk" not "isk"
- 29) p. 39, line 5, "study area" not "study are"
- 30) p. 43, line 11, add "is" after "conclusion"
- 31) p. 43, line 12, "an" not "on"
- 32) p. 44, line 17, "medical" not "mdeical"
- 33) p. 46, line 7, "fishing," not "fishing"
- 34) p. 47, line 20, "plausibility." not "pluasibility."
- 35) p. 48, line 5, "(See, text, supra. at 9.)," not "(See Section \_\_, infra.),"



- 36) p. 49, line 14 "no more than 1-10 ppt in"
- 37) p. 51, line 1, "respond" not "rspond"
- 38) p. 51, line 2, "whether" not "hether"
- 39) p. 52, line 3, "may be" not "maybe"
- 40) p. 52, line 6, "cross-correlation analysis." not "cross-correlationanalysis."
- 41) p. 52, line 7, "regulatory" not "regulation"
- 42) p. 52, §(1), first line, "causal" not "causual"
- 43) p. 53, line 9, "thoughtful" not "thgouthtful"
- 44) p. 53, line 15, "response" not "reponse"
- 45) p. 53, line 20, "waste of time and funds." not "waste time and fund."
- 46) p. 53, line 24, "pursued" not "pursue"
- 47) p. 54, line 20, "charges." not "changes."
- 48) p. 55, line 16, "under-reports" not "under reports"
- 49) p. 56, line 1, delete "there"
- 50) p. 57, line 3, "hypothesis" not "hpothesis"
- 51) p. 58, line 3, "on" not "or"
- 52) p. 60, line 4, "questionable" not "questionabel"
- 53) p. 62, fn. \*\*/, line 3, "correction" not "ccorrection"
- 54) p. 62, line 15, "Dow" not "Bow"
- 55) p. 63, 2nd indented paragraph, line 4, "ways" not "wasy"
- 56) p. 63, 2nd indented paragraph, line 7, "at 50-52;" not "at 50-51;"
- 57) p. 63, line 4, "proceeded" not "provided"

- 58) p. 64, line 2, "dealt" not "death"
- 59) p. 64, line 4, "they" not "it"
- 60) p. 64, line 11, "unpersuasive," not "unpresuasive,"
- 61) p. 64, line 21, "chemicals" not "chemicasls"
- 62) p. 65, line 8, "application." not "affication."
- 63) p. 65, line 16, "and habitation," not "hibitation,"
- 64) p. 65, line 18, "conformance" not "conforming"
- 65) p. 65, line 19, "on" not "in"
- 66) p. 65, line 22, "unknowingly" not "unknowningly"
- 67) p. 66, line, "diffusion" not "difffusion"
- 68) p. 66, line 1, "through" not "though"
- 69) p. 66, line 2, delete "and"
- 70) p. 66, line 5, "also" not "aslo"
- 71) p. 67, line 5, "descriptions" not "discriptions"
- 72) p. 73, fn. \*/ , line 4, "follow" not "follw"
- 73) p. 74, fn. \*/ , line 6, place "generally" after "is"
- 74) p. 74, line 2, "\*/" not "\*\*/"
- 75) p. 74, line 14, "during" not "dueing"
- 76) p. 74, line 15, "same" not "ame"
- 77) p. 75, line 7, delete ", treated"
- 78) p. 76, line 13, "quantification" not "qualification"
- 79) p. 76, line 15, "from a qualitative" not "from qualitative"
- 80) p. 77, line 20, "from" not "for"
- 81) p. 78, line 11, "site" not "iste"

- 82) p. 80, line 19, "of" not "a"
- 83) p. 81, line 2, "indicate" not "indicatae"
- 84) p. 82, line 16 "costs" not "cost"
- 85) p. 84, line 11, "exercised" not "exercized"
- 86) p. 84, line 13, "exercise" not "exercize"
- 87) p. 85, line 13, delete comma after "partially"
- 88) p. 87, line 10, insert ", Dow asserts" after "treatment"
- 89) p. 87, line 13, insert ", Dow claims" after "feasible"

-75a-

Dow contends that environmental monitoring has failed to reveal any significant TCDD residues and that studies fail to demonstrate the presence of TCDD as a residue in the American food supply. They contend that this is because the short half-lives of 2,4,5-T, silvex and TCDD prevent a significant contamination of environmental media.

Doubt is cast upon these claims by the evidence. Monitoring studies done by EPA indicate that 2,4,5-T and/or silvex are present in human urine, ambient air and surface waters. Recent preliminary results from a national urine survey show trace amounts of 2,4,5-T in 3 of 1085 samples, quantifiable silvex residues in 4 samples, and trace amounts of silvex in an additional 13 samples. During the period May, 1976 - August, 1978, 2,4,5-T was detected in 6 of 1350 whole water samples; silvex was detected twice. Ambient air monitoring of agricultural areas from 1970-1971 shows residues of 2,4,5-T ranging from 0.5 ng/m<sup>3</sup> to 36 ng/m<sup>3</sup>.

The U.S. Forest Service has done some limited monitoring studies in connection with herbicide spray projects on National Forest Lands in the Pacific Northwest. Analyses were only done for 2,4,5-T since Silvex is generally not used by the Forest Service. Some of those analyses were positive for 2,4,5-T. The Bureau of Land-Management analyzed a limited number of Oregon water samples for silvex only, since 2,4,5-T is not usually used by the Bureau. Silvex was detected within 72 hours after treatment. Data collected by the U.S. Geological Survey for 1968 - 1971 showed that 2,4,5-T was the most commonly detected herbicide in western streams.

3. The environmental persistence of TCDD allows for exposure after the actual use-time.

While 2,4,5-T and silvex are not environmentally persistent chemicals, TCDD is capable of great persistence. Helling et al. (1973) concluded that this persistence is not surprising since it is an insoluble, non-polar, chlorinated molecule, devoid of biologically labile functional groups. The half-life in soil has been estimated to be about one year in two different soils (Kearney et al., 1972). Of 100 strains of microorganisms which have the capability to degrade other persistent pesticides, only five showed some ability to degrade TCDD (Matsumura and Benezet, 1973). Matsumura (1978) found that TCDD was stable in lake sediments and had a half-life of about 600 days.

TCDD usually first appears in the environment at a very low concentration in a thin film on foliage or soil, as a result of spraying. The extent of its persistence depends upon the current environmental circumstances. Under certain conditions, including principally the presence of a hydrogen-donating solvent and adequate sunlight intensity, photodechlorination of TCDD to lower chlorinated dioxins can take place.

Dow contends that TCDD has a short half-life in the environment when "on vegetation in the presence of a hydrogen donor and that photochemical degradation also occurs in soil." Dow Comments at 37. However, these conditions are clearly not always available. As noted by Crosby (1977), breakdown would be expected to be slower in the shade even if efficient hydrogen donors were available. Much of the forest area in the Northwest is subject to long periods

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing "ERRATA Sheet for Rebuttal Comments of Respondent Environmental Protection Agency" and "Appendix to Rebuttal Comment of Respondent of Environmental Protection Agency" were hand-delivered or mailed first class postage prepaid, on April 9, 1979, to the following persons:

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April 9, 1979