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ENVIRONMENTAL PROTECTION AGENCY
D.C. 20460



OFFICE OF TOXIC SUBSTANCES

SUMMARY OF SEQUENCE OF EVENTS IN THE STURGEON SPILL
OF JANUARY 10, 1979

OFFICE OF TESTING AND EVALUATION

- January 10 Spill of orthochlorophenol and other phenols.
- February 5 EPA headquarters notified of spill.
- February 6 Services of Dr. William Deichmann, (Professor of Pharmacology and Head of the Research Teaching Center of Toxicology, School of Medicine, University of Miami, Florida,) a recognized expert on the toxicology of phenols including orthochlorophenol were enlisted. [Exhibit 1A - Report by Lenora Barnes to Dave O'Connors.]
- February 8 Deichmann, Landau (APHA), Charles Poole (EPA) and Joseph Seifter (EPA) represented headquarters EPA at a town hall meeting. Analysis of urines from spill workers for possible content of orthochlorophenols and phenols were recommended. These were requested to serve as indicators for the need for an epidemiology study of the less exposed resident population. Action was instituted. [Exhibits 1A and 2.]
- February 9 Monsanto Chemical Company notified EPA that the spill contained a dioxin which was not 2,3,7,8 TCDD. As a result blood analysis for dioxins were requested in the 3 spill workers who were diagnosed by a layman to have "chemical burns". The purpose of the blood analysis was to determine if any TCDD had entered their bodies, even though the published literature had no reports of blood level determination in humans.* Blood levels

* Analysis of feces was not done because the presence of TCDD in feces would not establish that any of the compound had been absorbed and passed through body compartments, excepting possibly the liver where it might be excreted by the

can show that a chemical has passed through most compartments of the body thereby exposing various organs to its effects. This was instituted. [Exhibits 1A and 2.]

March 9 Written results of urine analyses of the spill workers were received. No urine contained either orthochlorophenol or phenol in amounts of toxicological significance. [Exhibits 3 and 4.]

March 21 Written confirmation was received that blood from 2 of the 3 spill workers contained 31 and 7 ppt TCDD. Exhibits 1, page 2 and 4A. The possibility of a needle fat biopsy for TCDD analysis was considered. The analytical chemists supporting the Agency Pesticides program indicated that the degree of exposure required a sample of fat at least 1 inch cube. Because this would require surgery that was not of diagnostic, or therapeutic relevance, and would have involved approval by a human experimentation committee a fat biopsy was not recommended.

A repeat urine analysis on the spill workers with the highest orthochlorophenol values was requested. In addition, urine analysis was requested on 9 residents with complaints of their possible exposure to the spill.

A request for a second round of blood specimens was made for spill workers for a profile of liver function, including enzyme induction, and for the advisability of liver biopsy. Finally, a dermatological examination of spill workers and permanent residents was requested to check for any signs of exposure to TCDD, especially chloracne. [Exhibits 2 and 4.]

April 16 Dr. Stephen B. Tucker, (Department of Dermatology, University of Minnesota Hospitals), a recognized expert in skin manifestations of dioxin exposure, found no local or systemic manifestations of such exposure in 12 subjects he examined on April 11. [Exhibit 5.]

April 20 Results of the second round of urine analyses showed that no specimen contained detectable amounts of orthochlorophenol or unusual amounts of phenol. Even the most heavily exposed worker was rid of orthochlorophenol. [Exhibit 7.]

April 25

Report from Dr. Carlo H. Tamburro, (Professor of Medicine and Chief, Division of Digestive Diseases and Nutrition, University of Louisville Health Sciences Center) was received that 3 spill workers had abnormality in liver function but only that of the most heavily exposed worker might be the result of exposure. There was no indication of enzyme induction, however. [Exhibit 6] This worker was advised to consult his physician for advice for further study. He is now under care of his physician who repeated the blood profile and has concluded that no invasive studies are justified at present.

June 4

Instituted studies on spill workers who are now in Oregon. [Exhibit 8.]

June 5

Received results of repeat blood analysis for Liver function. There is no evidence of liver injury due to TCDD. [Exhibit 9.]

June 18

Received verbal report that blood level of TCDD from the most heavily exposed spill worker had decreased from 31 ppt to 3 ppt. His physician has agreed to collect a third blood sample for verification of decrease. [Exhibit 10.]

Prepared by:

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June 19, 1979

GATX 12932 - KLI - 8001 - 1/7/79

ppb LEVELS OF CHLORINATED
DIBENZO-P-DIOXINS AND DIBENZOFURANS

		# CHLORINES / MOLECULE							
SAMPLE		1	2	3	4*	5	6	7	8
9020701									
SAMPLE 1									
	DIOXINS	~380(1)	200(2)	210(2)	34(3)	ND<100	ND<10	ND<20	ND<
	FURANS	14(2)	8.2(2 or 3)	ND<5	ND<5	ND<5	ND<10	ND<20	ND<
9020701									
REPLICATE 1									
	DIOXINS	~230(1)	180(2)	180(2)	40/41(3)	ND<10	ND<10	ND<20	ND<
	FURANS								
9020701									
REPLICATE 2									
	DIOXINS				36/44(3)				
	FURANS	22(2)	11(2 or 3)	ND<5	ND<5	ND<5	ND<10	ND<20	ND<3
OCH FISHER									
SCI. CO.									
LOT 776410									
11/72	DIOXINS	ND<5	ND<5	ND<5	ND<5	ND<40	ND<10	ND<20	ND<2
	FURANS	ND<5	ND<5	ND<5	ND<5	ND<5	ND<10	ND<20	ND<2

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() # ISOLERS OBSERVED IN SIM CHROMATOGRAPHY
APPROXIMATE CONCENTRATION - NO STANDARD
AVAILABLE.

* ESTIMATE. 90% comparable with similar
2376 - ISOLER

Retention Time to 2, 3, 7, 5.
CONC

