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The Dow Chemical Company
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(Attn: TSCA Section 8(e) Coordinator)
Office of Pollution Prevention and Toxics
Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460-0001

CONTAINS

2004 OCT 22 11:07:49

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Re: 2,3,7,8-Tetrachlorodibenzo-p-dioxin
CASRN 1746-01-6

Dear Sir/Madam:

The following information is being submitted by The Dow Chemical Company (Dow) pursuant to current guidance issued by EPA indicating EPA's interpretation of Section 8(e) of the Toxic Substances Control Act. Dow has made no determination as to whether a significant risk of injury to health or the environment is actually presented by the findings.

The New Zealand Ministry of Health has issued a report entitled, "A Study of 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) Exposures in Paritutu, New Zealand, Phase II: Serum Testing". The report is available at the following website: <http://www.moh.govt.nz/dioxins>. The report involves a facility operated by Dow's affiliate Dow AgroSciences (NZ)Limited. The facility formerly manufactured 2,4,5-T.

The following are excerpts from the report's summary:

Background

In October 2001 the Ministry of Health (MoH) contracted the Institute of Environmental Science & Research (ESR) to investigate non-occupational exposure to dioxins among residents of Paritutu, a suburb of New Plymouth.

The investigation into suspected exposure to 2,3,7,8-tetrachlorodibenzo-p-dioxin(TCDD) related to a point source of production of the herbicide 2-4-



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5,T[sic], namely the Ivon-Watkins Dow [IWD] plant, now operating as Dow AgroSciences [sic].

Results

A statistically significant elevation in serum TCDD compared to national TCDD serum concentrations was found in the study group. The mean serum TCDD level for the group was 10.8 pg/g lipid, while the expected national mean for a similar group was 3.5 pg/g lipid.

Mean TCDD elevations in the subgroups ranged from two-fold (7.1 vs. 3.6 pg/g lipid in women aged 50-64) to nearly five-fold (14.6 vs 3.0 pg/g lipid in men aged 65+). These elevations fell within the range predicted by the modelling.

The mean TCDD concentrations in the subgroups were: 6.2 pg/g lipid (females aged 35-49), 7.1 pg/g lipid (females aged 50-64), 17.8 pg/g lipid (females aged 65+), 9.8 pg/g lipid (males aged 50-64), and 14.6 pg/g lipid (males aged 65+). The range of individual TCDD concentrations was 1.3 - 33.3 pg/g lipid. For nine out of the 24 people sampled, the concentrations of TCDD in serum were more than three standard deviations higher than the mean concentration for the relevant age and gender group from the OCP study. The largest difference for any individual was 21.7 standard deviations above the OCP mean.

Although there was a significant elevation in the serum TCDD, the elevation in total serum dioxin toxic equivalents (TEQ) was less pronounced, exceeding three standard deviations above the OCP mean for three individuals, and there was no elevation in PCB (measured as TEQ) compared with the OCP. The average elevation in TEQ was 1.4-fold. TCDD was the only consistently elevated compound, and subtracting the contribution of TCDD to TEQ removed significant differences from the OCP means.

Duration of residence was the key factor in determining the likelihood of measuring an increase

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in serum TCDD. Only one person, out of 12, who lived in the area less than 20 years in the period 1962 - 1987 showed a significant elevation in TCDD, while eight of 12 living in the area for at least 20 years had highly significant elevations. Consumption of home-grown produce, including home-grown poultry and eggs, did not appear to contribute significantly to elevations in serum TCDD.

Discussion

These findings support the premise that aerial emissions containing TCDD were responsible for the soil and serum dioxin concentrations in Paritutu. Dioxin profiles in the Paritutu environment, its residents and the measured TCDD elevations are most likely not a result of combustion processes, such as incineration

These elevations are, in all probability, due to inhalational exposures from aerial emissions originating from the IWD plant. Present soil contamination is not likely to be the source of the observed serum TCDD levels.

Questions or follow-up may be addressed to the undersigned.

Sincerely,



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