Critics challenge data that led to 2,4,5-T ban

THE recent decision by the US Environmental Protection Agency to issue an emergency order banning the use of the herbicide 2,4,5-T has attracted strong criticism from its manufacturers. They are contesting the EPA's decision in a Michigan district court, claiming that it is based on a "seriously flawed study" and a misreading of data by the EPA to draw conclusions to support the ban.

The ban on 2,4,5-T (2,4,5-trichlorophenoxyacetic acid) was made when a study in the Alsea region of Oregon found a strong correlation between the use of the herbicide and a tripling in the rate of spontaneous abortions among local women. The study was conducted by Dr Eldon Savage of the Epidemiological Studies Programme of Colorado State University and commissioned by the EPA. It was the second investigation into the health effects of 2,4,5-T on residents.

The first study—"Alsea I"—was inconclusive, according to the EPA, and led to the conclusion that the claims of Alsea women that their miscarriages were due to 2,4,5-T "had not been demonstrated from the data presented." However, the spontaneous abortions did appear to follow a seasonal pattern and 10 out of the 13 cases under investigations occurred between April and September; whereas hospital records indicated that increases in spontaneous abortions normally occurred in January-March and October-December.

Alsea II was designed to eliminate any element of bias which may have occurred in the first study, and covered a much larger sample. A 1,600 square mile rural area where 2,4,5-T spraying had taken place was chosen, with another 1,000 mile rural area and an urban area as controls. Data on spontaneous abortions in the first 20 weeks of pregnancy was taken from the records of hospitals in these areas.

The study revealed that the spontaneous abortion index (ratio of abortions/live births) was higher in the study area than in the other rural area. For the months of May, June, July and August, the index for the study areas was 89.9, 130.4, 105.4 and 88.1 compared with 63.2, 46.0, 55.3 and 79.8 for the rural control. In the urban area ratios were even lower. The investigation also showed a significant correlation with the 2,4,5-T spray pattern with a lag period of two to three months. The residents, the study suggests, could have come into contact with the herbicide and its dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin) contaminant in drinking water or through eating fish or other wildlife.

One critic of the Alsea II findings is Professor Nathan Mantel, a statistician at the biostatistics centre of George Washington University, Bethesda. He claims there are "fundamental statistical and logical flaws" in the report. Mantel was asked to review the report by the National Forest Products Association (2,4,5-T is in widespread use in forestry) and his comments have been forwarded to the EPA. He says the EPA were wrong to compare results for a rural study area and an urban control. His analysis revealed no statistically significant differences between the data taken from the study area and a third "control" area.

Referring to the Alsea findings of a correlation between spray times and the seasonal pattern of abortions, Mantel insists that the comparison was based on an improper statistical approach. He claimed this result was of little value anyway, since there was no statistically significant difference in the overall rates of abortion in the areas investigated—the EPA study reported little difference in the percentage of hospitalised spontaneous abortions for women aged 20-49 in the three areas.

Concern about the EPA's misreading of data centres on its use of material from Seveso in Italy. Residents of this town were exposed to dioxin in July 1976 following an accident in a reactor manufacturing trichloropheno. With dioxin known from animal studies to be teratogenic there was concern that the chemical would cause malformation to increase in the Seveso children.

The EPA says this is precisely what happened, and that there was sevenfold increase between 1976 and the first five months of 1977. While admitting that the data collected at Seveso was inadequate, and that there were "methodologic deficiencies" in the way it was analysed, the EPA nevertheless says that the evidence provides "suggestive indications of a possible teratogenic effect [by dioxin] in humans".

Many scientists insist that the EPA is wrong on this point. The EPA has been sent evidence to show that the increase in malformations at Seveso is due to better reportage of these cases and that the increase is more apparent than real. The Italian Parliamentary Commission report on Seveso reached similar conclusions and pointed out that, while many scientists believed that dioxin was potentially teratogenic in humans, the evidence to confirm this point has so far not been found. Furthermore, if dioxin had been responsible for an increase in malformations at Sevesco, then there should be evidence of an increase in specific defects. However, the data does not show this pattern.

The Michigan court hearing on 2,4,5-T will have to consider these conflicting claims. A decision to uphold the EPA ban will not have serious economic repercussions on the manufacturers of 2,4,5-T through loss of sales; it will leave them open to compensation claims from women who have miscarried. **Alastair Hay**

Windscale leak: Benn calls for public inquiry into safety

MR Tony Benn, UK Energy Secretary, has called for a full public inquiry by the next government into the Windscale leak which was found last month during borehole sampling near a temporary storage tank for highly active liquid waste, dissolved in nitric acid prior to concentration and final storage. At a local Labour Party meeting on Saturday, Benn expressed concern about the present leak as well as about "the continuing and unsolved leak of less active subtances that has been going on for several years." Benn asked the Nuclear Installations Inspectorate whether Windscale should be closed but was advised that this step was unnecessary.

Friends of the Earth has asked Peter Shore, UK Environment Secretary, to conduct an inquiry into other Windscale incidents which include possible leaks from the low level waste burial ground, the discovery of ^{137}Cs and ^{60}Co on surface water drains, the closure of building B204 because of radiation hazard and the discovery last year of plutonium on a half incinerated dismantled cooling tower.

The outstanding problem of the present leak is to determine the probable rate of migration of activity from the region of the borehole. Material which has continuously leaked from the sump has progressed to a distance of 10 metres in a year. With the leak stopped, future migration depends critically on the detailed site geology. Preliminary BNFL measurements indicate that an average migration rate is about a metre a year, but according to Friends of the Earth there has never been a full geological site survey at Windscale.

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