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→ 1) Dr Wm Richard
2) D. Olson
3) H S Bergen/MS

REPORT OF MEETING WITH MINISTRY OF AGRICULTURE,

FISHERIES AND FOOD

FISHERIES LABORATORY, BURNHAM-ON-CROUCH.

IN LONDON ON 27th JANUARY, 1970.

Aroclor Toxicity

Present for Ministry : Dr. J.E.Portmann
Mr. P.C.Wood

For Monsanto : D.S.Cameron
H.A.Vodden

Copies to:-

| | | | |
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C O N F I D E N T I A L

SUMMARY

This laboratory has been assigned the task of surveying British coastal waters to determine the incidence of PCB residues in marine life. To facilitate this work they seek our assistance in identifying areas and applications of major Aroclor usage. We agreed to help as best we could, subject to whatever limitations might be needed to protect our competitive position, and explained we could not name specific customers without their prior consent.

Their ultimate objective is to determine the source of PCB residues, how they reach the sea and, if possible, to prevent them. A further meeting was arranged for the 10th March in London, when it was hoped we could discuss applications and areas of usage in more detail than the generalities that were discussed today.

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EXHIBIT NO. 1099
11/4/92 [illegible]

DETAIL

1) They regularly find PCB concentrations of up to 1 ppm in herring muscle and liver. Fish for examination are normally taken from commercial catches. There seems to be a difference between estuaries - fish taken from the Thames estuary appear to have the highest PCB concentration, with the North West coast and Greater Clyde estuary the next.

2) It is invariably the higher chlorinated compounds (5 and 6 chlorines) that are found and they therefore assume, incorrectly, that these are the commercial grades most widely used. (In 1969, Aroclor 1242 accounted for 78% of total U.K. Aroclor sales). Portmann postulated that concentrations as low as one part in $10^{12}$ in the sea of the Continental shelf could account for one ppm in herring muscle.

3) We were told confidentially that the dead seals found off the Cornish coast towards the end of last year had concentrations of up to 2,000 ppm in the blubber. The Ministry of Agriculture Laboratory at Pitlochry had done the analysis. These seals were admittedly in poor condition and had only one quarter of the blubber that a healthy seal would normally carry. Nevertheless, this figure was exceptionally high and compared with the 50 ppm found in the blubber of healthy seals taken from the Farne Islands off the North East coast.

Wood thought it likely that this information would be included in the NERC report that is expected in March, and would provoke a further wave of adverse publicity. This finding is also prompting them to pay greater attention to the examination of fish taken from the Bristol Channel and Severn Estuary.

4) They confirmed there was apparently no acute toxicity problem. An $LC_{50}$ figure (i.e. the concentration of chemical in water to give 50% fish mortality) of 0.3 ppm had been established for the brown shrimp, but they regarded this as high since the comparable figure for DDT was 0.003 ppm. Static tests with fish (presumably herring) had been abandoned when concentrations of 10 ppm had produced no adverse effect.

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5) Some official concern is developing over the fitness for human consumption of fish containing 1 ppm PCB. The WHO are trying to develop residue limits relating to DDT, some of which Wood said could not be met under current U.K. practices and conditions. Extension of this work to PCB was possible in the future.

An estimate of recent annual consumption of DDT plus Dieldrin in the U.K. was only 400 tons.

6) We were questioned closely about the quantities of PCB used in the U.K. and the major industrial applications. Our response was limited to the applications given in the authorized press statement, i.e. those uses or proposed uses that are given in the literature. No mention was made of NCR but it will become increasingly difficult to maintain this position.

Indeed, continuing to do so might only highlight the NCR paper application when it becomes, as it must, more widely known. Wiggins Teape make NCR paper at their Treforest Mill in South Wales, so mill effluent might easily enter the Bristol Channel. ( In 1969, NCR's offtake of 4.4M lbs. Aroclor 1242 accounted for 46% of total U.K. Aroclor sales; BICC came next with 1.4M lbs.)

7) Portmann will gladly exchange views with R.A.Lidgett on analytical techniques, and it would be useful if this could be done concurrently with their examination of Bristol Channel fish. They would also appreciate all available data from the U.S.A. on recent toxicological work, and hopefully we can present this to them at the next meeting.

We confirmed we would be mailing all U.K. customers and visiting major users to advise on bulk handling, disposal and housekeeping methods etc. Thus, for the time being they will not attempt to make direct contact with any PCB user. Wood confirmed that if we considered any particular estuary or sea area was more likely to yield fish with above average PCB concentrations, they have facilities to arrange for fish sampling and analysis.

ACTION

H.A.V. - Arrange for meeting on analytical techniques.
- Provide Portmann with samples of 1242, 1248 & 1262.

D.S.C. - Ascertain policy on identifying major Aroclor users and, if necessary, secure their agreement.

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5.2.70.

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