

Rhine pollution

Death of Europe's sewer?

IN the French city of Strasbourg, on a tributary of the Rhine just 100 km downstream from Basel, feelings are running high, as they are all along this long river. Demonstrators gathered in Strasbourg and other riverside towns on Sunday carrying placards with messages such as "Poison ou poisson: il faut choisir" ("Poison or fish: we must choose"). Some fish have survived, but are polluted, and fishing has been banned for six months along the upper Rhine and its canals.

The Rhine seems 'dead' for 100–200 km downstream of Basel in northern Switzerland after the fire in the Sandoz chemical plant led to the discharge into the river of up to 32 pesticides, fungicides and other agricultural chemicals. One of the most important, 'disulfeton', is said to be twice as toxic as potassium cyanide; the average dose to kill 50 per cent of rats (the LD₅₀ criterion) is about 5 mg kg⁻¹ compared with 10 mg kg⁻¹ for potassium cyanide.

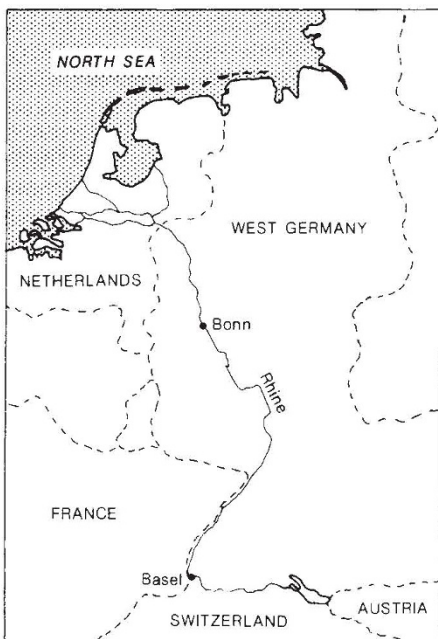
These facts emerged after the owners of the factory made public a list of the 1,000 tonnes of chemicals stored on the Basel site. Disulfeton has been detected as the principal pollutant from the accident as far as the Dutch border, 600 km downstream from Basel; but by this point the disulfeton had been greatly diluted to around 2 mg l⁻¹ of Rhine water, according to informed sources.

Sandoz and the Swiss Federation have admitted liability for the accident, which occurred after firemen had flooded Sandoz's Basel factory with water during a fire, to the extent that a dyke was breached and a toxic 'soup' of some 10–30 tonnes of agrochemicals was released into the Rhine. Mercury-based fungicides such as tillex as well as disulfeton and other organophosphorus compounds were in the mixture, which killed fish, normally resistant eels and insects. The effects on plant life are as yet unknown, and although little organo-mercury was detected downstream, there are fears that such chemicals have been deposited as sediment close to the release point, where they may be slowly released to the food chain for some time.

Thus, according to European environmentalists, the damage has been "enormous". According to the European Environmental Bureau, an organization that acts in Brussels for a number of European environmental groups, the Rhine was beginning to recover until this accident. Industry had been reducing its emissions under a combination of voluntary and statutory controls, to the point where fishermen were beginning to look for salmon at Basel. But this accident released as much pollution in a couple of hours as the Rhine normally receives in a year. "It's set the

clean-up back a decade", a bureau spokesman said.

Meanwhile, people are despondent about the months ahead. The proprietor of one fishing tackle shop said she had had no customers for 3–4 days and expected none now until the spring. Did she



expect any compensation from the authorities? She gave a resigned shrug of the shoulders.

Nevertheless, there is no doubt that the accident has set the European environmental movement and the legislators a good few steps forward, just as the Chernobyl accident gave a boost to the anti-nuclear lobby. Last week, the European Commission was pointing out how many countries have failed to put into effect the 'Seveso directive' of 1982, in which European Community countries agreed (subject to the passage of relevant national legislation) to impose controls on chemical factories. This followed an accident at Seveso in Italy in which a large area was contaminated by dioxin.

But four years after the directive, the Commission is satisfied only with legislation enacted by Denmark, France and Britain. The Netherlands, one of the loudest complainants against the Sandoz accident, has failed to apply the Seveso directive's principles on worker protection; West Germany has problems in the application of rules on the storage of dangerous substances; Greece's legislation has been too vague and "inadequate"; and Italy, most affected by Seveso, has not applied one of the directive's most crucial elements, a requirement to be placed on companies regularly to inform the authorities and their workers of the processes taking place

in a factory, of the chemicals stored and of emergency plans.

The Commission is now planning action against defaulting countries, but to begin with is only taking on a minnow—Luxembourg—in the European Court; with the rest, it has satisfied itself with sending stern diplomatic notes.

Meanwhile, countries belonging to the governmental International Commission for the Protection of the Rhine met in Zurich last week, heard contrite Swiss apologies and offers of damages (to a scale as yet undetermined), and set in motion the investigation of measures that would considerably tighten up controls and safeguards on Rhine industries. Switzerland itself will consider adopting national legislation along the lines of the Seveso directive of the European Communities—although as a non-member it has no obligation to do so—and there is now great pressure for Switzerland to sign an international convention that would oblige Swiss companies to inform their national neighbours of their activities, safety procedures and contingency plans.

The members of the International Commission have also decided in principle to apply to the Rhine the principles of the European convention on the reporting of oil releases at sea (Switzerland was very late in informing its downstream neighbours of the Sandoz release) and to set up an insurance system equivalent to TOVALOP, the tanker owners' voluntary agreement on liability for oil pollution. Any new conventions of this kind would of course apply to all forms of pollutant release and not just to oil. **Robert Walgate**

• Chemical accidents and spills are not confined to Western Europe. During the past few weeks, several incidents have been reported from the Comecon bloc.

On 1 November, at the chlorine and PVC works in Devnya (Bulgaria), there was an accident in which several people were killed, which destroyed the control rooms of two sections of the plant and also the finished products store, and which was apparently caused by rupture by an inadequately maintained pipeline.

On 11 November, in the Buna chemical works in East Germany, a hot-condensate condenser was destroyed by excess pressure, with four workers seriously injured and "considerable damage to property". And on 12 November, Prague radio reported that an accident in the Ostrava sewerage system had led to the discharge of heating oil into the rivers Lucina and Ostravica, and then into the Oder. The damage, the Chechs said, was expected to be long-term because of contamination of the river banks, but "drinking water has not been affected". According to the East German Ministry for Environmental Protection and Water Management, the spillage was not expected to affect the East German reaches of the Oder. **Vera Rich**