

# Tremors in Chip valley

THE governor of California has ordered an urgent inquiry into links between high rates of miscarriage and birth defects in Silicon Valley, and pollution of the local water table from leakage of chemical.

Silicon Valley, south of San Francisco, is the original home of America's microprocessor industry. Usually thought to be "pollution-free", there are now fears that its chemicals are the reason for the water pollution, and hence the health problems.

George Deakmejian, the Republican governor, decided on the 51m inquiry in the wake of an alarming report last month from California's health department, which confirms the findings of a Sunday Times investigation, published on July 31, 1983 into congenital defects in children born in San Jose, the valley's main city.

The Sunday Times found unusual numbers of miscarriages and birth problems in the city's Los Pasos area. Babies had been born with holes in the heart, down's syndrome, and deformities of the ears, palate, tear ducts and genitalia. Some had webbed toes.

The health department's report found a rate of miscarriages there 2.4 times the normal figure, and a threefold



**Puppo: born with heart defects**

greater incidence of birth defects. However, the report stopped short of laying direct blame on chemicals in the water, because of uncertainties over when the leaks that might be responsible started. But the state's public-health chief, Dr Kenneth Kizer, says it "cannot be ruled out", and the governor's inquiry aims to pin down the cause of the problem.

Drinking water in the area was contaminated when underground storage tanks belonging to one silicon-chip manufacturer, Fairchild Camera and Instrument Corporation, leaked 60,000 gallons of toxic chemicals, mainly trichloroethane (TCA).

Most of the valley's water comes from wells. The contaminated well, supplying 2,000 households with drinking water in Los Pasos, was sealed off in 1981. Since then, more than 400 lawsuits have been filed against Fairchild, but they are not expected to get a hearing in court until next year.

Brian Puppo, now four, was one of the children with congenital heart defects. He was born with two holes in his heart, and had had three major operations by the time he was six months old.

Among the lawyers representing families in the Fairchild cases are John Tyndall and his colleague, Amanda Hawes.

Tyndall has just returned from India, where he acts for 10,000 people in the Bhopal factory disaster compensation claim. While finding the report "significantly positive", he added that the situation could turn out to be even more serious as families who have moved away are traced.

Amanda Fawes said: "It's clear the writing is on the wall for the industry, which managed to bamboozle neighbours into thinking it's OK to build factories in residential neighbourhoods."

TOXIC chemicals and gases are used throughout Silicon Valley to make chips for hi-tech industries, and most of them are stored in underground tanks. According to the state water control board, almost 100 leaks have been found and could threaten the ground water. "In some cases the leaks are due to just poor housekeeping at the manufacturing plants," said the water board's executive officer, Roger James. Water from 14 wells has been found to contain the chemical TCA.

One of the most serious leaks is at IBM's factory in Santa Clara county, which takes in most of the valley's water. Four years ago an underground tank there started to leak TCA and another chemical, freon. Contamination has travelled in a half-mile-wide "plume", three miles in one direction and five in another.

TCA has got into ground water, forced the closure of two public drinking-water wells and cost IBM an estimated \$20m so far in clean-up efforts. Some wells are still being used because officials say the contamination is not serious. The water board says it is doing "extensive monitoring" of contamination levels.

Groundwater contamination from the IBM leak was measured at levels of up to six parts per billion of TCA. (California's recommended health standards allow 200 parts per billion of it in drinking water.) But just what standards are legally enforceable is a confused issue, and the next state budget in July is expected to allocate \$5m to look again at limits for more than 50 chemicals in drinking water. Health officials say the governor's inquiry will get under way shortly after the budget.

It is believed that nothing like this could happen in Silicon Glen, the hi-tech belt between Glasgow and Edinburgh, where American and Japanese chip-makers have been expanding. The Health and Safety Executive's Scottish director, Brian Burke, says he has "never come across any underground storage tanks" there.

However, there is no specific legislation to control what kind of chemicals can be stored, or what kind of tanks they can be stored in. The HSE factory inspectors' job is to check that general regulations of the Health and Safety At Work Act are kept to.

"The risk of chemicals leaking and polluting water supplies is most unlikely because, firstly, the firms don't use underground storage, and secondly, in this country we have very tight control on the purity of the water supply," Burke said.

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**SPECTRUM**