

## Cancer in proximity to TV towers in Australia

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There is ongoing controversy about the health effects of low level electro-magnetic fields. An Australian population-based study conducted from 1972 to 1990 has compared cancer incidence and mortality in six northern Sydney municipalities.

The Australian study compared three suburbs which immediately surround three major TV towers with three suburbs which are adjacent but more distant. This provided a ground for comparison as radio-frequency radiation decreases as the square of the distance increases and so the two study groups would have different levels of exposure.

The calculated power density ranged from  $8.0\mu\text{W}/\text{cm}^2$  near the towers, to  $0.2\mu\text{W}/\text{cm}^2$  at a 4Km distance and  $0.02\mu\text{W}/\text{cm}^2$  at a 12Km distance.

In those suburbs immediately surrounding the TV towers, the rate ratio for leukaemia was increased (1.17, 95% CI: 1.03-1.34) compared to the suburbs that are more distant. For children the rate ratio was 1.61 (95% CI: 1.08-2.41) for incidence, and 2.24 (95% CI: 1.29-3.92) for mortality. Brain cancer was not increased.

The study found that there is an association between childhood leukaemia and proximity to these TV towers. It should also be noted that the power density emitted by the TV towers is much below the present Australian Standard. Further studies are needed to confirm the association and determine any dose-response relationship before firm conclusions may be reached.

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## Electromagnetic Field Litigation in the United Kingdom

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### Introduction

In February 1989, Ray and Denise Studholme moved into a semi-detached house on an estate just to the north of Manchester. The house seemed perfect to the couple, particularly its ample room for their two children, Simon, ten and Deborah, eight. However, 18 months later catastrophe struck. In October 1990, Simon started to get some pains in his chest and seemed to bruise very easily. On being taken to the hospital, Simon was diagnosed as suffering from acute lymphatic leukaemia. At about the same time, Deborah started to suffer from epileptic fits.

Over the next two years, Ray and Denise fought to save Simon, a battle that they ultimately lost when Simon died in September 1992.

Following Simon's death, Ray Studholme decided to investigate a suspicion that resulted from seeing a television programme regarding the possible links between electric pylons and childhood cancers like leukaemia. This concern was brought into focus by the fact that their house was literally next door to an electricity substation and that they lived within a 100 metres or so of a set of electric pylons. Subsequent readings of the electromagnetic fields in their property have shown them to be very high indeed, particularly in the area where Simon slept.

### Background

The key question for the Studholmes, and for all those concerned with the downside of the use of electricity, is what evidence there is to prove that high levels of electromagnetic fields (EMF) can cause childhood cancers.

In a report in 1992, Britain's National Radiological Protection Board (NRPB) reviewed the studies that had been published up until the beginning of the year and came out with a view that was rather dismissive of the possible link.

The NRPB suggested a whole series of problems with the design of the studies showing the link and further made the point that when the researchers in



the studies took spot checks of the level of electromagnetic fields in the properties where the excess cancers occur, there appeared to be no relationship between high levels of EMF and the leukaemia levels. Further, the NRPB pointed to a lack of biological evidence of the link to suggest that magnetic fields are very likely to cause the type of damage that can lead to cancers.

Since the NRPB study, there have been three or four further studies published, the most significant of which is the study by Feychting and Ahlbom, on the incidence of leukaemias in Sweden. This is universally agreed to have been an excellently executed study where they found a very strong link between childhood leukaemias and living close to power lines. The increased risk was between two and five for leukaemia. Primarily as a result of that study, the NRPB has changed its tune and, in a recent pronouncement, spoke of the necessity for "urgent research" to be conducted.

In Britain, the scientific community has been slow in following up the American and Scandinavian studies, but at long last a major national study is now underway. The United Kingdom Coordinating Committee for Cancer Research (CCCR), Chaired by Sir Richard Doll has set up a national cancer study looking into five different possible causes of childhood cancers, one of which is the link with electromagnetic fields. That study is being overseen by Professor Nick Day of the MRC Unit in Cambridge and Dr Ray Cartwright from the Leukaemia Research Foundation. The study commenced in 1993 and is expected to be published in two to three years.

While this study is being undertaken, the approach of the British authorities, such as the NRPB and the electricity boards themselves, has been that they are not prepared to acknowledge any possibility that the epidemiological linking of electromagnetic fields and childhood cancers is possibly causal until it is proven conclusively.

### Litigation

The current legal position is that as far as individual claims are concerned, the claim by Ray and Denise Studholme in relation to their children's illnesses and Simon's subsequent death is the test case of the issue in Britain. Legal aid was granted to the family to review the case back in 1993, but was withdrawn following representations from the lawyers for the local electricity company. Legal aid has now been reinstated following an appeal to the Board's Area Committee. This case, together with three other childhood leukaemia cases, is now being pursued again toward trial.

It is not expected that this case will be tried for another two to three years. The amount of resources the electricity board is likely to put in defending the action is perhaps indicated by the fact that they have decided to take on the same legal team as was employed by British Nuclear Fuels to defend the recent childhood leukaemia actions.

Then, in a secondary type of action, we have been advising various groups who are attempting to stop new power lines being installed or turned on. The primary case is that of 275KV cables installed by the National Grid in the North London areas of Woodford Green and Chingford. The line is over six kilometres long and goes through heavily residential areas. The cables have been put at the sides of the roads in the area and are positioned only a few yards from the front doors of peoples' homes. Even on the National Grid's figures, the electromagnetic field exposure to many of the families living along the route will be extremely high and certainly as high as people living close to pylons.

The Secretary of State is under a duty, imposed by Section Two of the Electricity Act of 1989, to protect the public from dangers to health. The NRPB has taken the view that the link between electromagnetic fields and cancers is not yet proven; a view to which there is general agreement.

The question is whether the government needs to act prior to proof being established. In the case of *R v Secretary of State for Trade and Industry Ex parte Duddridge & Ors*, which was an application for Judicial Review of the Secretary of State, we tried to show that the Secretary of State had failed in his duty to protect the public in that he should have laid down guidelines for any new line to ensure that children were not exposed unnecessarily to this risk.

The case was partly based on the European Treaty, as amended by the Maastricht Treaty, where in article 130R it was agreed that community states would adopt a "precautionary approach" in matters of the environment, including damage to health. It was our case, therefore, that the point had been reached where the government should have adopted such an approach and that in coming to a decision on the cost-benefit analysis of actions that could be taken in this field, a moratorium on new lines going ahead until the various national studies are published is a guideline that could easily have been given by the Secretary of State.

In the Court's judgment given in October, Mrs Justice Smith held that while she accepted that the scientific evidence was sufficiently strong, if we could show that the Treaty had imposed a legal duty on the Secretary of State to act in a precautionary



manner, we would have succeeded in saying that he had not complied with that duty. She was not satisfied that the Treaty imposed such a duty, as no Directive has yet been issued by the European Commission.

We now have legal aid to take the matter to appeal, and we will be asking the Court of Appeal to refer this question as to whether this article in the Treaty provides a legally enforceable duty, prior to the issuing of a directive, to the European Court of Justice for it to determine. The Court of Appeal will hear the case in October 1995.

In 1992, there was a lengthy inquiry into the erection of power lines in Yorkshire, and the Secretary of State has stated that he is inclined to follow the view of the inspector that, with certain restrictions, the new line should be built. We have raised objections with the Government Department, and they have agreed to await the outcome of the Court of Appeal on the North London line case before taking any further decision about the health issue.

In Scotland, Scottish Power is proposing to erect a 40 mile stretch of power lines to take power across to Ireland. This is now subject to a public inquiry. With the increasing strength of the epidemiological studies supporting the prospect of there being a link between childhood cancer and high levels of EMF, there can be little doubt that Scottish Power is up against it in that inquiry.

The idea for Scotland to send power to Ireland is one that is reflected in a proposed power line going from Southern France down into Spain. This is all part of a wider ideal for power to be shipped freely from one country to another, but this international policy, promoted by the European Union, is becoming increasingly unrealistic in light of the health threats caused by such a policy.

In addition to the problems for individuals, there are the problems for local authorities who regularly make decisions on planning applications by developers who have purchased cheap land underneath or very close to pylons and who want to build residential homes upon that land. In a number of areas where authorities have attempted to define an exclusionary zone where properties cannot be built close to pylons, this has been challenged, so far to the detriment of the authorities. With the vacuum provided by the government's refusal to become involved in decision making on the issue until the link is proven, and authorities often taking a more concerned approach, the difficulty for them is to have a consistent line.

The timetable in these actions has to take into account that there are currently three major studies

underway. These are taking place in the United States, Canada, and the United Kingdom, and there can be no question that the outcome will have a significant impact on the scientific community's view of this whole issue. It is expected that the three studies will be published over the next two to three years. Clearly, it is not in either side's interest for experts to complete their work and for their reports to be exchanged prior to the publication of these studies, as they will undoubtedly have to review what they have written whichever way the new studies go. It is likely in these cases, therefore, that the exchange of expert reports will be timed to take these studies into consideration.

The hypothesised link between childhood cancers and electromagnetic fields is an issue that is likely to remain at the forefront of public interest while we await the publication of the major national studies over the next two years.

While results from those studies showing a positive association between the two would be good for the court cases, undoubtedly it will send a shiver of fear through the nation's collective spine at the prospect of electricity, which for so long has been viewed as a very positive aspect to modern society, producing a very serious downside.

## Conclusion

Over the last few years there has been a radical change in the public's perspective concerning the risks from the supply of electricity, particularly in terms of high voltage power lines. The studies that have been carried out over the last 14 years have consistently shown a link between living close to power lines and a high level of childhood cancer.

The establishments in this country and abroad have, with rare exceptions, refused to accept the link, but that refusal has increasingly been seen to be more intransigent than realistic. The recent NRPB's pronouncement regarding the need for urgent research and the decision by the United Kingdom CCCR to set up the national study into the link are both indicative of how views are rapidly changing.

In Britain, the case of Ray and Denise Studholme may well epitomise the battle that is ongoing in what will be a judgment carrying enormous implications for the electricity board if it were to lose.

Throughout this century, electricity has been considered one of the wonders of the modern age. During the next century, we may be counting the costs of our unreserved acceptance of electricity as a commodity purely with benefits and no detriment. Only time will tell whether or not that is the case.