

Comparison of arrangement at Devonport and Faslane

Schools

Around Devonport tablets have been pre distributed to 17 schools. No tablets have been pre distributed to any schools near Faslane.

Households

At Devonport, West of the River Tamar tablets have been issued to all households by Cornwall Health Board. East of the river Plymouth Health Board distributed leaflets to 17,500 homes.

These leaflets asked if people wanted to be issued with tablets. Following this tablets have been issued to 1,700 homes. No tablets have been issued ~~to~~ near Faslane. ⁷

Response to an accident occurring on a submarine at sea in the Clyde Estuary

The object of the Clyde Public Safety Scheme is to safeguard the public from a nuclear submarine accident *in the Clyde Area*. ⁸ The Scheme includes specific plans for listed submarine berths, not only at Faslane but also at Coulport, Loch Goil, Campbeltown, Rothesay and Loch Striven.

However there are no specific plans for dealing with a nuclear accident on a submarine while it is at sea in the estuary. Nuclear submarines travel several times a week passing Dunoon, Gourock and Helensburgh. This is far more frequent than visits to Loch Striven, Rothesay or Campbeltown. But yet there is no attempt to detail provisions for these areas.

According to the Safety Scheme there should be *pre planned* countermeasures which can be put into effect within 2 kms of the scene of an accident. There are some plans for the area within 2 kms of berths, but no plans for areas within 2 kms of where submarines sail past. In the event of an accident the civil authorities should be told to implement shelter and Potassium Iodate Tablet distribution within the 2 km zone.

At Devonport tablets have been pre distributed and this should be done in areas around the Clyde, at least to schools and nursery schools. In the appendix is a list of schools and nurseries around Gareloch. Similar lists should be drawn up for Gourock, Dunoon and other coastal areas. The list includes pre-school groups because of the particular importance of distribution of Potassium Iodate Tablets to the youngest age group.

The Clyde Public Safety Scheme also describes an "Extendibility Zone" within which countermeasures might be considered. This extends for 10 kms around the potential scene of an accident. Maps are attached which should show how the 2 km and 10 km zones should be applied around navigation channels frequently used by submarines

Within the immediate area of an accident there is a 550 m "Automatic Countermeasures Zone" from which everyone would be immediately evacuated except the emergency services. There are also a number of places which are within 550 m of navigation channels used regularly by nuclear submarines. These include Kilcreggan, Rosneath, Rosneath Castle caravan park, Rhu spit and Kidston Park. Kilcreggan is particularly at risk as there is a Degaussing Range 600 m from the shore which is used very regularly by nuclear submarines.

⁷ Plymouth Evening Herald 23/7/96 and information from Plymouth Dump Information Group.

⁸ Clyde Public Safety Scheme, July 1997, letter of promulgation, p iii.

Protection of children from the effects of a nuclear submarine accident on the Clyde

Prevention of thyroid cancer

At least 500 children living in Eastern Europe have suffered from thyroid cancer because of the nuclear accident at the Chernobyl.¹ There will continue to be more cases for another 30 years. Young children were found to be particularly sensitive to the effects of radiation and the cancers among children have been more aggressive than the cancers among adults.²

At Chernobyl, radioactive iodine was released into the atmosphere. An accident on a nuclear submarine could also result in radioactive iodine being dispersed. The iodine is absorbed by the thyroid, which is a gland in the neck. This can lead to thyroid cancer. The younger a child is, the smaller his or her thyroid is likely to be and the more sensitive it is to radiation. An infant thyroid is ten times more sensitive to the effects of radiation than that of an adult.³

It is possible to protect children and adults from exposure to radioactive iodine. This can be done by taking a tablet which contains iodine in another form, potassium iodate. The tablets are 98 % effective if taken an hour before exposure, 90% effective if taken at the time of exposure, but only 50 % effective if taken 3 or 4 hours after exposure.⁴ Several days after the Chernobyl accident millions of children in Eastern Europe were given these tablets, but it was too late. The sooner the tablets are taken after an accident the more effective they will be. If it takes several hours to distribute the tablets then more children will be exposed to radiation, and more will develop cancer.

So long as only the recommended dose is taken there is very little risk from side effects from these tablets. There were no reported adverse effects among the 10.5 million children who were issued with tablets after Chernobyl and the risk of severe detriment to the general public is "vanishingly small" (1 in 10 million).⁵

Health boards around the Clyde hold stocks of the Potassium Iodate Tablets and the current plan is that if there was an accident on a nuclear submarine, then they would be distributed. But by then it would be too late. A recent survey of current practice amongst health boards in Britain concludes that pre distribution offers the most effective protection.⁶

At a minimum these Potassium Iodate tablets should be distributed in advance to schools and nursery schools within 2 km of a possible accident. There is also a strong case for wider distribution of these tablets to all households. At the Navy's other nuclear submarine base, Devonport, there has been widespread distribution of these tablets to schools and households.

¹ Open letter by Dr Keith Baverstock, WHO, 28 Apr 95.

² Thyroid effects, ED Williams et al. (<http://www.iaea.or.at/worldatom/>).

³ WHO Guidelines on the use of stable iodine after nuclear accidents, Dr Keith Baverstock, Implications of short term countermeasures after a nuclear accident, NEA 1995, p 17.

⁴ Factors influencing choice of countermeasures, M Morrey NRPB and C Potter HSE, Implications .., NEA, p 126; also RXMED information sheet on thyro-block tablets.

⁵ Effectiveness and risks of stable iodine prophylaxis, PJ Waight, Implications .., NEA, p 74.

⁶ Survey carried out on behalf of North Essex Health Authority 1997.