The article by Patrick Green, Radiation Consultant for FoE is followed by a declaration to the ICRP meeting at Como, Italy. As we go to press there is no news from Friends of the Earth about this meeting, but it is clear that the dose limits will be changing and that the FoE initiative has prompted a timetable for change.

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The International Commission on Radiological Protection and the Risks from Ionising Radiation

In the aftermath of Chernobyl there cannot be many people who are not aware of the hazards of ionising radiation. Yet few will know that decisions about whether these risks are acceptable or not are made behind closed doors by a small self appointed group of scientists, the International Commission on Radiological Protection (ICRP), over whom they have no control even though they are directly affected by what the ICRP say.

The ICRP are presented as the world authority on radiation hazards, independent of governments or commercial interests. Their recommendations always form the basis of national and international legislation.

Between September 7th to 17th the ICRP will be holding their annual meeting in Como, Italy. This meeting will be vitally important because it will determine radiation safety standards for the next ten years. It was these standards which determined what action Governments took during the Chernobyl accident.

The most important topic to be discussed will be new scientific evidence from Hiroshima and Nagasaki which shows radiation is at *least* 2 to 5 times more dangerous than the ICRP believed in 1977 when they last published recommendations. Many scientists believe the risks are larger still.

The ICRP claims to be comprised of a group of doctors and scientists independent of governments or commercial interests. Members of the Commission, according to the ICRP, are selected on the basis of their expertise in a scientific field relating to radiation protection, namely, medical radiology, radiology, radiation chemistry, physics, health physics, biology, biochemistry, biophysics and radiobiology. The scientific balance of the Commission, it is claimed, is based upon expertise rather than nationality. The selection of members is made every four years by the Commission itself, and is subject to approval by the International Executive Committee (IEC) of the International Congress of Radiology.

The Commission is comprised of thirteen persons, all of whom are men, in its entire history no women have ever been appointed. The rules governing selection of members of the ICRP state that not less than three but no more than five members can be changed at any one Congress. In addition the ICRP is served by four committees dealing with different aspects of radiological protection. Members of these committees are appointed by the ICRP itself and do no require the approval of the International Congress of Radiology. Each committee is chaired by a member of the main commission.

In reality whilst the ICRP claims independence, many of its leading members also work for or have worked for the nuclear industry or government organisations, creating a potential conflict of interests. One of its UK members, starts work in December as Director of Health and Safety at Sellafield in the UK, the worlds most polluting nuclear establishment!

In addition the ICRP is scientifically unbalanced, the largest single type of scientific group represented, since 1950, are physicists, seconded in number by medical doctors and radiologists who use ionising radiation, not by general practitioners. Only three geneticists, one radiobiologist, one

pathologist and one biophysicist have sat on the commission since 1950. Those scientific professions concerned with public health are conspicuous by their absence. This imbalance is is surprising given the ICRP's terms of reference.

Its is clear that the conflict of interests on the ICRP has been expressed in its recommendations. In 1966, ICRP Publication 9 stated that the 5 rem per year dose limit for radiation workers was retained because the "Commission believes that this level provides reasonable latitude for the expansion of atomic energy in the forseable future". This dose limit was originally introduced in 1959 and is still in use today.

During the 1970's several ICRP members supported the US-Atomic Energy Commission in their dispute with Dr's John Gofman and Aurthur Tamplin. Other scientists who have spoken out against the officially accepted risk estimates have found themselves rejected as irrational by the scientific community, their funding removed and their reputations subjected to an unprecedented level of personal attack.

The most recent recommendations from the ICRP were published in 1977 as ICRP Publication 26. Central to the ICRP's philosophy on radiological protection is the belief that their risk estimates err on the side of caution. This is not the case. Even reports which are frequently quoted by the nuclear industry as representing the consensus view on radiation effects, contain risk estimates which are 2 to 10 times higher than ICRP (2 to 5 times higher for fatal cancer induction only). These are reports by the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) and the United States National Academy of Sciences Committee on the Biological Effects of Ionising Radiations (BEIR III committee).

Members of the ICRP have constantly refused to accept that the real risk from radiation exposure is greater than they claim. In 1980 L.S Taylor, one of the founder members of the ICRP and president of the US-National Council for Radiological Protection and Measurements stated "today we know all we need to know to adequately protect ourselves from ionising radiation". A statement that was made when many scientists were beginning to question the validity of risk estimates based upon studies of the Hiroshima and Nagasaki bomb survivors, suggesting that the risks may have been underestimated at least a factor of two.

ICRP 26 did not only underestimate the risk from radiation, it also permitted increase of between 2 and 8 times in the permissible exposure of internal body organs. This change cannot be justified by the ICRP's own requirement that "all doses must be kept as low as is reasonably achievable" (ALARA), or that "no practice should be adopted unless its introduction produces a positive net benefit". Furthermore in recommending the use of the ALARA principle, the ICRP were recommending a less stringent degree of protection than they had done previously. In 1965 they stated that all doses must be kept as "low as practicable", in 1958 it was as "low as readily achievable" and in 1950 they said "as low as possible".

Following the publication of ICRP 26 the EEC issued a EURATOM directive, which instructed member states to incorporate the recommendations in ICRP 26 into their national legislation. In many cases this has led to a further weakening of standards. The Ionising Radiation Regulations, which became law in the UK in 1986, permit increases in exposure of individual body organs of

between 2 and 10 times that was allowed before. For example, whilst ICRP 26 increased the permissible exposure of the lungs for radiation workers, from 150 mSv (15 rems in ICRP 9) to 420 mSv, the Ionising Radiation Regulations allow the lungs to receive an annual dose of 500 mSv. The largest increase has occurred in the case of the Red Bone Marrow. Under ICRP 9 the maximum permissible dose to this tissue was 50 mSv per year (5 rems), ICRP 26 increased this to 420 mSv, the Ionising Radiation Regulation have allowed a further increase to 500 mSv per year.

ICRP 26 is now ten years old, yet it has not been fully implemented across Europe. In the last ten years the consensus amongst scientists about radiation risks has changed radically; most no longer dispute that radiation risk estimates will have to be raised as a result of the new data from Hiroshima and Nagasaki. Several leading members of the ICRP in the UK have made statements which acknowledge that they will have to modify their risk estimates. The question is no longer will the ICRP changes its risk estimates, but is now by how much will they do so. A recent paper by John Dunster, one of the longest serving ICRP members and Director of the UK National Radiological Protection Board even suggests that the ICRP *might* reduce its dose limits by a factor of between 2 and 5! Mr Dunster states "only time will tell" what the final form of the ICRP's new recommendations will be.

The Como meeting will be vitally important, for it will determine the course of radiological protection standards around the world for the next ten years.

On September 1st in London, Friends of the Earth UK will launch a campaign that aims to make the ICRP recognise that radiation is more dangerous than they previously recognised and reduce their dose limits accordingly.

As part of the campaign FoE has submitted evidence to the ICRP calling for a immediate five fold reduction in the dose limits for radiation workers and members of the public (with a target of an overall ten fold reduction in a reasonable period of time). The ICRP have agreed to discuss this evidence at Como, a previously unheard of concession to an environmental group. In addition FoE are asking scientists to sign an international declaration supporting their case.

Whilst the scientific evidence clearly shows that radiation risks are greater than stated by the ICRP, governments continue to maintain that the ICRP are an independent organisation and that the risk from low level radiation are insignificant. Experience shows that the ICRP cannot be trusted, they have never spoken out against any practice which involved excessive or unnecessary exposure to ionising radiation. During Chernobyl they only acted to play down the risk. Left to their own devices it could be another four years before they recommend any changes to the dose limits.

The most telling statements about the ICRP do not come from governments, but from one of their former members. Karl Z Morgan who is widely regarded as the founder of the science of health physics stated in 1977 "in spite of its usefulness in the past, the ICRP has never been willing to offend the establishment and I'm not sure its an organisation I would trust my life with".

Patrick Green
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DECLARATION TO THE ICRP MEETING AT COMO, ITALY ON SEPTEMBER 8TH 1987

We the undersigned, are concerned by the current ICRP evaluation of the risks to "man" from exposure to ionising radiation. We call upon the members of the ICRP to consider the following areas of concern:

(1) Recent data from studies, of occupationally exposed radiation workers, and the Atomic Bomb Survivors, indicate that the current ICRP risk estimates for fatal cancer underestimate the true risk from exposure to ionising radiation by between 2 and 5 times.

(2) The current system of radiological protection recommended by the ICRP plays insufficient attention to the risks of inducing a non-fatal cancer in an exposed person. These risk may be up to ten times greater than the current ICRP fatal cancer risk (ICRP does not give a risk figure for non-fatal cancer in ICRP 26).

(3) We therefore believe that the ICRP recommended dose limits for radiation workers are too high. An immediate five fold reduction would seem imperative, with a target of a ten fold reduction within a reasonable period of time.

(4) The introduction of "Organ Weighting Factors" in ICRP 26 allowed substantial increases in individual organ exposure. Organ specific dose limits should be introduced which reflect the five fold reduction in the whole body dose limit and which pay proper attention to the risk of non-fatal cancer.

(5) The risk of inducing a cancer in the gonads should be included in the effective dose-equivalent concept, but genetic risks should be considered separately. Data within the UNSCEAR and BEIR III reports suggests that the genetic risk to all generations may be 5 to 10 times greater than the risk estimate given in ICRP 26. The weighting factor currently used for the gonads ignores the cancer risk and underestimates the genetic risk.

(6) There are particular reasons to be concerned by the risk to the foetus from exposure to ionising radiation. In particular it is now known that exposure to ionising radiation during pregnancy, particularly from weeks 8 - 15, is associated with mental retardation in the offspring, and that this effect may be without threshold. In addition, some studies of exposure to diagnostic radiation during pregnancy indicate that the doubling dose for childhood cancer may be less than 10 mSv (1 rem). Although the epidemiological data shows inconsistencies, it is clear that recommendations should err on the side of caution. We believe that the recommendations relating to women workers who may be of "child bearing age" or whom have diagnosed pregnancies are insufficient.

(7) The uncertainty about foetal sensitivity to ionising justifies an immediate reduction in the recommended public dose limit 200 uSv per year (20 mRem).

(8) Excess cases of childhood leukaemia have been documented around the only two reprocessing facilities within the UK, Sellafield and Dounreay. Both discharge significant quantities of long lived alpha emitters, such as Plutonium and Americium. It is quite possible that the current risk models underestimate the biological effect of these actinides in leukaemogenesis, particularly during foetal life, as the target tissue for leukaemia induction in the foetus is not known. Consequently particular attention should be paid to protecting the public from such actinides. Radioactive discharges and hence public doses, should be limit by the principle of ALATA (As Low As Technically Achievable), rather than than by ALARA (As Low As Reasonably Achievable).

(9) ALARA has not been effective in reducing the exposures of some higher exposed radiation workers. ALARA should be replaced by a system gives higher priority to radiological protection, and protecting those most at risk.

(10) The ICRP had frequently been criticised as being unrepresentative of the public and workers it claims to be protecting. If value judgements are to be made by the ICRP, then at the very least there should be worker and public representatives on the Commission.

I support this declaration

NAME

SIGNATURE

POSITION/SCIENTIFIC DISCIPLINE

COUNTRY WORKING IN

I WISH TO RECEIVE FURTHER ICRP BRIEFINGS (Please tick)