The Environment Agency at the Cross-roads

A briefing on

- The Environment Agency's proposed Decision on disposal of radioactive waste from MAGNOX power stations
- The Government's decision on the Sellafield MOX plant
- Consultation on the future of radioactive waste disposal from BNFL Sellafield.

The Environment Agency's problem

In making policy on radioactive waste disposal the UK Government relies on the Environment Agency to weigh all the issues and then to recommend a decision to the Government. This involves the Agency in considering complex arguments about radiation protection, epidemiology, and radiobiology. Unfortunately the Agency has no relevant scientific expertise of its own and relies on advice from the National Radiological Protection Board (NRPB).

The Agency has a legal duty to make sure that it uses "sound" science when making decisions, so it is even more unfortunate that NRPB's view of radiation risk was formulated even before the structure of DNA was discovered. NRPB's model may be reasonably accurate for high doses and for external radiation, but where it concerns *internal* radiation from radioactive pollution that we inhale or ingest it is complete rubbish.

The role of the Low Level Radiation Campaign

Last year LLRC told the Environment Agency in detail about the flaws in NRPB's advice. In particular we pointed out that the sharp increase in infant leukaemia in five countries immediately after the Chernobyl accident provides incontrovertible evidence that NRPB's risk factors are wrong - they underestimate the hazard by a factor of at least 100.[1] We asked to meet the staff who have to implement the Agency's duty to make sure they use "sound science" and we explained why our information was relevant to all the many sources of man-made radioactivity in the environment.

The Agency's one-sided response

It took the EA nine months to answer us. Robert Smith, its Policy Adviser on Radioactive Substances Regulation, says the EA is *satisfied that ... NRPB's current advice on radiological risk factors ... provide (*sic*) the best current advice.*

The EA is reducing the industry's "headroom" - i.e. the amount of emissions they are now authorised for but which they don't actually need to use - but this is a window-dressing exercise to mask the fact that their recommendation is "business as usual" for the nuclear industry.

About a quarter of the Agency's draft Decision Document on discharges from Magnox stations (published at the end of August) is taken up with answering the many arguments submitted by LLRC and others.

The Document shows that

- The EA sent all the criticisms of NRPB's model to - guess who - NRPB, who (prisoner, judge and jury in their own court) found themselves "not guilty".
- The EA allowed NRPB space to attack Chris Busby's Second Event theory (which explains why chronic doses from some forms of internal radiation have a disproportionately high probability of causing genetic damage) but they did not give Busby a chance to reply to NRPB's obvious omissions.
- The EA printed (twice) a paper in which Colin Muirhead, NRPB's head of epidemiology, attempted to refute a paper [1] which quantifies the error in NRPB's risk factors, but did not print LLRC's demolition of Muirhead's arguments. A very significant point is Muirhead's claim that the increased number of babies who had leukaemia after the Chernobyl disaster doesn't present a problem for NRPB's risk factors. This, he argues, is because some of the babies might have had bigger doses than the rest of the population. This is crucial; the risk factors depend on the idea that dose variations would make no difference, high doses and high risks being balanced out by lower risks from lower doses. Muirhead's argument admits the invalidity of NRPB's approach of averaging out risks from population exposures, but the Environment Agency's Decision Document does not even mention our submissions on this point.

- The EA reproduced in full a paper from the Small Area Health Statistics Unit which uses questionable figures for cancer mortality in an attempt to refute findings of raised cancer rates near the polluted Blackwater estuary in Essex, but did not print the original study, which used figures which are probably reliable since they came from the Office of National Statistics. This one-sided approach characterises the whole draft Decision Document.

Consultative Exercise on Radiation Risk from Internal Emitters

The UK Departments of Health and of the Environment have set up a new Working Group to investigate the health effects of internal radiation. This is the Consultative Exercise on Radiation Risk from Internal Emitters (CERRIE; see note on page 4). It means that NRPB's risk factors are in effect under review. Announcing the Working Group in July, Environment Minister Michael Meacher said: *There are significant differences of view among experts about the precise impacts of the internal ingestion of radionuclides and these need to be resolved. This new Working Group will reach across all parties in the debate on risks of radiation, to assess the impact and reach a consensus on whether the current risk models continue to be valid.*

LLRC has two representatives on CERRIE. The Group's workload will include the post-Chernobyl infant leukaemia effect, biological mechanisms including Second Event effects, and new research on human minisatellite mutations in Chernobyl liquidators' children [(2)] which shows a 2000-fold error in NRPB's estimation of risk.

Risk model melt-down

The Environment Agency accepts that there is ongoing research on various aspects of low level radiation and health. Robert Smith says the Agency *will remain alert to developments in this area and, if appropriate, will review relevant authorisations ... accordingly.* Relevant topics mentioned by the Agency are:-

- leukaemia studies current in UK (though the Agency does not say that the Medical Research Council is investigating one of the studies, following a complaint to the General Medical Council),
- the newly discovered childhood leukaemia cluster in Chepstow,
- NRPB's admission that evidence on radiation-induced diseases other than cancer is only just beginning to emerge.

Other developments

- A unanimous resolution of the European Parliament in May this year [(3)] says *... based on new scientific evidence suggesting doubts about aspects of the radiation risk model, particularly as concerns the effects of the Chernobyl fall-out,* [the Parliament] *requests the Commission to arrange an epidemiological study of the effects of Chernobyl through wider Europe as a whole; also calls on the IAEA and UNSCEAR, as well as ICRP and Euratom, to re-examine the risk model*.
- The Precautionary Principle [(4)] requires Governmental action if there is significant scientific uncertainty about the effects of pollution. The Consultative Exercise on Radiation Risk from Internal Emitters may mean that the UK is the only state in the EU complying with the Principle.
- The European radiation protection Directive[(5)] set in stone the "Justifications" of all the existing types of process which expose us to radioactivity BUT Article 6(2) allows the Justifications to be revised if *new and important evidence about their .... consequences is received*. There certainly is "new and important evidence", so there should be a complete recalculation of the "cost" side of the Justification equations.
- Although Margaret Beckett and Alan Milburn, acting for the UK Government, have claimed that MOX is justified they explicitly accept [(6)] that if new information about the effects of fuel reprocessing becomes available the Justification will have to be reviewed.

Two Big Questions:-

1) How can the Government make new decisions about exposing us to radioactive pollution when they obviously know that there are serious problems with the risk estimates? The many uncertainties have to be resolved before they can proceed with MOX, decommissioning old Magnox stations, recycling contaminated waste, delicensing contaminated land, or tolerating a new generation of nuclear power stations. And so on through Trident, Depleted Uranium weapons, nuclear medicine, incinerating radioactive hospital waste, and all the other sources of radioactive junk in the environment.

2) When will the European Commission act on the European Parliament's call [(3)] for the risk models to be re-examined?

This is a political issue ...

It is clear to us that the radiation risk agencies and the regulators will continue with business as usual unless and until they are forced to take account of new scientific information. Science alone is not the driver for change. Political pressure is vital.

... and then there's the law.

One UK campaign group has already initiated the process leading to a Judicial Review if the Government makes a premature decision on Magnox emissions. In the Irish High Court the prosecution of BNFL grinds on. We will, once more, plug all the available evidence into the current consultation on the regulation of waste from Sellafield [Consultation closes on 3rd December 2001]. We will seek a Judicial Review if the Agency fails to consider any of it fully.

What you can do.

[Personal names in **bold** mean we give addresses ☞]

■ **Respond to the Sellafield waste consultation** by 3rd December [details on page 4]. Demand that the Agency takes full account of flaws in NRPB's modelling, evidence of errors in the risk factors, and the many uncertainties now being investigated by CERRIE.

■ Write to the Environment Agency's Chief Executive, **Baroness Barbara Young,** asking

- why the Agency has refused to enter into a dialogue with the LLRC,
- why the Agency did not allow LLRC a chance to respond to NRPB's attacks or consider our responses to such attacks as we knew about (e.g. Muirhead's paper) even when we had sent copies to the Agency's **Robert Smith**.
- how the Agency can recommend allowing radioactive emissions when they have been forced to admit that there are so many uncertainties about the science.

■ Write to **Dr Patrick Smeesters** Chair of the Research Implications on Health Safety Standards Working Party of the Article 31 Group of Experts and **Dr Stephen Kaiser** of the European Commission's radiation protection department, asking when the Commission will comply with the request of the European Parliament [3] and asking them to initiate a review of the Justification of Practices under Article 6(2) of the Council Directive 96/29/EURATOM [Don't let them fob you off - see Note *Article 31 Group* on page 4] **Send copies to Dr Caroline Lucas MEP.**

■ Write to **Margaret Beckett**, Secretary of State for the Environment, Food and Rural Affairs and **Alan Milburn**, Secretary of State for Health demanding a review of the Justification for MOX, and that all other emissions of radioactivity to the environment should be stopped pending the results of research to be recommended by the new Consultative Exercise on Radiation Risk from Internal Emitters. Send copies to **Michael Meacher**.

■ Write to your own MP and MEP to raise their awareness of these issues.

■ We would like to see copies of the replies to any of your letters.

Addresses

Rt. Hon. Margaret Beckett, Secretary of State, Department of the Environment, Food and Rural Affairs, Nobel House, 17 Smith Square, London, SW1P 3JR. [no email address available]

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Rt. Hon. Michael Meacher, Minister for the Environment Department of the Environment, Food and Rural Affairs Nobel House, 17 Smith Square, London, SW1P 3JR [no email address available]

Rt. Hon. Alan Milburn, Secretary of State, Department of Health, 79 Whitehall London SW1A 2NS fax 020 7210 5523 email: dhmail@doh.gsi.gov.uk

Dr Patrick Smeesters, Service de Protection contre les Radiations Ionisantes, Ministère de la Santé Publique et de l'Environnement, Rue Ravenstein 36 B-1000 BRUXELLES, Belgium

Robert E Smith, Policy Adviser Radioactive Substances Regulation Environment Agency Steel House, 11 Tothill Street, London SW1H 9NF E-mail robert.e.smith@environment-agency.gov.uk

Baroness Barbara Young, Chief Executive, Environment Agency, Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol BS32 4UD

Sellafield consultation details

Public consultation on proposals for the future regulation of disposals of radioactive waste from British Nuclear Fuels plc Sellafield. Deadline for responses December 3rd 2001.
Copies [or CD ROMs] of the consultation documents can be obtained from John Mellor on 01768 866666 ext'n. 5775
Addresses for responses: Sellafield Review, Environment Agency, PO Box 114 Penrith Cumbria CA11 9GN or fax 01768 892456 or email project.sellafield@environment-agency.gov.uk

The Consultative Exercise on Radiation Risk from Internal Emitters (CERRIE)

CERRIE is jointly funded by the Department of the Environment, Food and Rural Affairs and the Department of Health. It is administered by the Committee on Medical Aspects of Radiation in the Environment (COMARE) and intends to report in 2003.

The members are:-
Professor Dudley Goodhead (Chair),
Professor Eric Wright,
Dr. Colin Muirhead (NRPB),
Dr. Richard Wakeford (BNFL),
Pete Roche (Greenpeace)
Dr Roger Cox (NRPB),
Dr. John Harrison (NRPB),
Professor Jack Simmons,
Dr Chris Busby (Green Audit and LLRC)
Richard Bramhall (LLRC),
Dr Phil Day (FoE and University of Manchester School of Chemistry).
Dr Barrie Lambert (Barts Medical School) was announced as a member but resigned before the first meeting.

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Note - "Article 31 Group"

The latest opinion of the European Commission's advisers on radiation protection - the "Article 31 Group of Experts"- has just been published. It is the Proceedings of a Seminar [7] held last year, so it predates the Parliament's resolution. The Seminar was a partial (and very self congratulatory) review of the epidemiological literature on radiation risk. It included no reviews of the post-Chernobyl infant leukaemia [1] nor of the then available work on minisatellite mutations [8]. There have been many criticisms of the way the epidemiology has been interpreted, but the critics were not invited to the Seminar.

References

1 Busby, C. Scott Cato, M. 2000 *Increases in Leukemia in Infants in Wales and Scotland Following Chernobyl: Evidence for Errors in Statutory Risk Estimates*. Energy and Environment Vol. 11 2000, No. 2 127-139

2 Weinberg H. Sh, Korol A.B, Kiezhner V.M, Avavivi A, Fahima T, Eviatar Nevo, Shapiro S, Rennert G, Piatak O, Stepanova E.I, and Skarskaja E (2001), *Very high mutation rate in offspring of Chernobyl accident liquidators* Proc Roy. Soc. London D, 266: 1001-1005

3 *May 3rd 2001. 11. Chernobyl B5-0321, 0322, 0323, 0324 and 0325/2001European Parliament resolution on the problem of nuclear safety fifteen years after the Chernobyl accident, and its health consequences.*Minutes of 03/05/2001 - Provisional Edition

4 The Precautionary Principle is part of Agenda 21 adopted at UNCED in Rio 1992. It is inscribed in the EU's Maastricht Treaty 1992 and Amsterdam Treaty 1997.

5 Council Directive 96/29/EURATOM - the *Basic Safety Standards Directive*

6 Decision of the Secretaries of State on Justification for the Manufacture of MOX Fuel, DEFRA and DH, October 2001 para. 75

7 *Radiation protection 25. Low dose ionizing radiation and cancer risk. Proceedings of a scientific seminar held in Luxembourg on 9 November 2000* Luxembourg: Office for Official Publications of the European Communities, 2001. Downloadable from http://www.europa.eu.int/comm/environment/radprot/125/rp-125-en.pdf

8 e.g. Dubrova, Y. E. Nesterov, V. N. Jeffreys, A. J. 1997 *Further evidence for elevated human minisatellite mutation rate in Belarus eight years after the Chernobyl accident.* Mutation Research 381 pp 267 - 278 (1997)