

Department for Environment, Food and Rural Affairs Consultation: ***Managing Radioactive Waste Safely. Proposals for developing a policy for managing solid radioactive waste in the UK***

Consultation response from the Low Level Radiation Campaign

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There is much to welcome in the Consultation Document, in particular the commitments on extensive open debate, inclusiveness and public acceptance.

### **1) Weakness of present paradigm of radiation risk**

The Consultation Document begins with an assumption which we cannot accept. This is the idea that a safe solution for Very Low Level Waste (VLLW) already exists, viz. "... disposal with domestic refuse directly at landfill sites or indirectly after incineration." (ConsDoc. 2.6) Following, presumably, from this assumption the Consultation Document has little to say about the volumes of VLLW and nothing at all about the public **radiation** exposures consequent upon its disposal. The graphic representations of waste volumes (pages 17 and 23) would be dramatically different if VLLW were included. Similarly an increase in the perception of radiation risk would have large implications for waste management.

The present method of handling VLLW inevitably means that the radioactivity contaminates the environment, resulting in low chronic doses to human populations following inhalation and ingestion of radioactive species. At these low levels of internal dose radiation biology is a morass of scientific uncertainties and new discoveries which no-one really understands. A substantial body of evidence, both published and unpublished, shows associations between disease and the low levels relevant to the disposal of *de minimis* materials. It is strongly suggestive of a 300-fold error in ICRP's risk factors for cancer at those dose levels. Recent evidence demonstrates, moreover, non-cancer effects previously thought not to be induced at all at such levels. This Campaign has submitted a considerable amount of such evidence to previous DETR consultations and to the Environment Agency on issues which involve releases of radioactivity into the environment. We do not propose to resubmit it here, since the Government's establishment of the Committee to Examine Radiation Risk for Internal Emitters ("CERRIE") is in itself an acknowledgement of the serious nature of the uncertainties surrounding the effects of ingested and inhaled radioactivity. Until the uncertainties have been resolved we must disregard the "radiotoxicities" of various nuclides as embodied in exemption criteria in the Basic Safety Standards Directive, since their theoretical basis is unsound.

As far as its public face is concerned, the debate about low level radiation health effects is polarised. This is well illustrated by the efforts the Environment Agency has made to refute evidence submitted in August 2000 in response to the Consultation on BNFL's applications to discharge radioactivity from Magnox sites in England and Wales. We submit as Appendix 1 a critique of the Agency's actions which we originally submitted in response to the Agency's consultation on the future of discharges from Sellafield. The central point is that the Agency referred most of the evidence to NRPB for comment and uncritically reproduced NRPB's view in the proposed decision document (pub. August 2001). Since the proposed decision was to allow the authorisations BNFL had applied for, we infer that the Agency accepted NRPB's view. The Agency's role in this affair is akin to executing a sentence handed down by a court of law where Counsel for the prosecution was gagged after making her opening statement and where the

accused person was allowed to edit the evidence as well as acting as judge and jury. (Note: Appendix 1 does not here include its own original appendices.)

## **Recommendation I**

**VLLW should be brought into the policy development process and considered in the light of scientific uncertainty about the health effects of low levels of radioactive pollution.**

### **2) Beyond VLLW**

VLLW is only one part of a complex and largely unseen issue. The civil and military nuclear establishments are divesting themselves of land and materials contaminated at about the 400 Becquerels per Kg. level set in antediluvian times by the Substances of Low Activity Exemption Order ("SoLA"). Our oblique reference to the flood is intentional since the volumes of material involved are huge - millions of tonnes. VLLW may be the smallest aspect; others are:

- Clearance of contaminated material from nuclear licensed sites, which entails a large number of routes for exposure of the public. (Examples are radiation from reused and recycled metal, and radioactivity entrained in dusts and slags from smelting the metal which are used in fertilisers, building materials, roads, and materials for surfacing playgrounds and all weather football pitches.)
- delicensing land and release of Ministry of Defence sites, and disposal or reuse of materials arising from such operations
- disposal of radioactivity from Exempt undertakings.

Some of the materials are classified as waste, but some which are not will give rise to wastes as a result of processing - the metal smelting described above is an example. In this context we draw attention to the general presumption or principle under the BSS Directive that clearance is only available for scrap metals before they are smelted and the exceptions that may be made for objects with complex geometry. In earlier submissions we have objected to such exceptions on the grounds that they are a form of dilution. We are not mollified by the assurance that if any of the ingots produced by smelting before clearance are above the threshold value they will be sent to Drigg. The exceptions increase the scope for producing ingots which are contaminated up to the limit. They also increase the gross quantity of radioactivity released both in the metal itself and in the byproducts.

The different pollution routes fall under the jurisdiction of different bodies - the Environment Agency, DEFRA, and the Health and Safety Executive - so nobody is seeing the full picture. We note with concern that HSE is no longer accountable to DEFRA, which makes the fragmentation worse.

Quantifying the volumes of materials involved and the radioactivity contained in them is obviously a highly complex and uncertain matter, but as far as we know no-one is even considering undertaking even a rough estimate. However the Basic Safety Standards Directive (96/29/Euratom) requires that competent authorities "... ensure, taking into account the radiological risks, that the estimates of population doses include ... assessment of the intake of radionuclides indicating the nature of the radionuclides and where necessary their physical and chemical states and determination of the activity and concentrations of these radionuclides." (Article 45(c))

We recognise that the cited Article 45 depends on Article 44 which only applies to "... risk ... which cannot be disregarded from the radiation protection point of view" and that it will be argued that levels for VLLW, exemption and clearance have been set below the point where this condition could be invoked. However, the scientific uncertainties referred to above mean that the criteria for setting the levels are questionable. The Precautionary Principle addresses such uncertainties and the minimum application of it would be to consider total exposures. The proposed process for developing a policy for solid radioactive waste provides an appropriate context for such consideration.

## Recommendation II

**The public is entitled to know the total quantities and qualities of radioactivity that might be released to the environment in VLLW, Exempt waste, through Clearance, and as a result of delicensing land and the disposal of contaminated sites outside the licensing system. The process of developing policy on nuclear waste management provides a suitable forum in which to explore mechanisms for gathering this information.**

### 3) Beyond the SoLA System

It would be prudent to consider the extraordinarily wide range of the activities which are being carried on under the umbrella of the Substances of Low Activity Exemption Order. It stretches the concept of exemption far beyond what is reasonable, and possibly beyond what is legally defensible.

The exemption provisions of the 1996 Directive were drafted in a Commission document known as RP65 ("Principles and methods for establishing concentrations and quantities (exemption values) below which reporting is not required in the European Directive": Radiation Protection No. 65 Doc XI-028/93, CEC Luxembourg) This document explicitly assumed that an exempt undertaking would be handling materials in moderate amounts - of the order of 1 tonne - but this was dropped in the Directive as adopted by the European Council. In this respect it echoes the SoLA EO which predates it and which has no mass limits. Nevertheless a 1998 report commissioned for the government (DETR/RAS/98.002 "Review of Strategy for Application of Exemption Orders in the UK Under the Revised EU Basic Safety Standards Directive: Final Report") suggests that "mass limits may need to be considered when implementing a revised Exemption Order framework." (3.35d) We are waiting to see a copy of the letter which seems to be the origin of this idea ("Comments on the 1 tonne mass restriction in the calculations for the BSS exemption levels". personal communication letter of 7 July 1997 from Dr J Cooper NRPB to Dr R L Jackson DoE-RAS Division.).

DETR/RAS/98.002 also expresses its author's reservations about population doses from exempt disposals: "RP65 provides no information on the contribution of disposal to the overall dose and its relevance to disposal cannot therefore be assessed." (3.35e)

The above observations seem all the more significant when one considers that SoLA levels have also been extended to encompass *de facto* Clearance, as shown in the following extracts from a letter from the Environment Minister :-

" ... Whilst the term "clearance levels" does not appear explicitly in UK legislation, the concept of clearance has been around for many years with the levels in Schedule 1 and SoLA in effect setting out what is to be considered radioactive material ... These values [levels] ... will continue to be used for unconditional clearance of large volumes of material ... With regard to SoLA ... no changes have been made to it and it will continue to be used for the unconditional clearance of any material meeting its requirements." (Michael Meacher to David Miller 18 October 2000 DETR ref. P/M/020054/00)

It gets worse; entire sites are being disposed of, with contaminated soil being scraped up and removed. It is reported that 64,000 tonnes were taken from a single MoD site. "Where to?" one may well ask. We have heard of material removed during decontamination of part of the Harwell site being dumped on ground next to a nearby primary school, though it was subsequently moved again when local people protested. The European Commission is of the opinion that "the Directive did not envisage the use of the clearance concept to the release of land or as a target for decontaminating land." (Stephen Kaiser to Dr Caroline Lucas MEP 9 October 2000).

The history of *de minimis* disposal shows legislators and regulators consistently tending surreptitiously to put the interests of the industry above those of the public on the grounds that

doses from any single instance are within bounds but without regard for total exposures and long term accumulations in the environment.

### **Recommendation III**

The Substances of Low Activity Exemption Order is a mess. There should be a dialogue to work towards new systems as a) b) c) below. These will have to be flexible to accommodate emerging understanding of the health effects of the different isotopes and of the different physical and chemical forms in which they occur.

- a) The system of Exemption Orders should be revised to separate workplace exposures from exposures consequent upon waste disposal from the exempt practices;
- b) A new regime separate from Exemption Orders and waste disposal should be developed to regulate Clearance of contaminated materials from licensed sites;
- c) A new regime separate from Exemption Orders and waste disposal should be developed to regulate practices related to the remediation and disposal of contaminated land.

### **4) Managing the Debate**

The first step in the debate is being taken largely in the dark:- the DEFRA project called *Identification of the Information Needed to Decide with Confidence on the Long-Term Management Options for Long-Lived Radioactive Waste* (see Consultation Document para. 6.6) has a Steering Group which includes NGOs but not LLRC. The Government's long-standing Radioactive Waste Management Committee (RWMAC) is supposed to include environmental NGOs but has nobody competent to address the health effects of low level radiation. The Board of Nirex is in the same fix, unless LLRC has a secret admirer in Angela Rippon, and the Consultation Document's account of the 1999 UK CEED Citizen Panel on waste policy (p. 45-46) is amusing rather than instructive if you happen to know that the Panel wasn't allowed to hear the evidence LLRC offered to present.

The Government seems anxious to ensure that the consultation and the collection of necessary information is overseen by an independent committee. We reject this notion. Nobody is independent. Anyone who has enough expertise to be worth listening to comes with baggage - affiliations, prejudices, past training, and their own research priorities and career prospects. Two dozen scientists who hold an incomplete, inconsistent or biased view may shout down one who is right, especially on a committee which is supposed to be producing a consensus report. This problem extends even to the people who run the committee, since the deliberations of experts require secretarial staff who can understand what's being said.

In our view politicians ought to take decisions on the basis of open reports which contain all the relevant facts about all the arguments rather than by endorsing recommendations from committees which meet behind closed doors. It is also necessary to compensate for industry's power to buy Whitehall lobbyists and skew academic research. The Government should set up a Scientific Advice Unit run by civil servants to commission and fund reports from scientists working in the public interest. These ideas are outlined in *I Don't Know Much about Science: Political Decision-making in Scientific and Technical Areas*: Green Audit, May 2000, a copy of which is enclosed as part of this response (Appendix 2).

### **Recommendation IV**

**DEFRA should convert the Information Needs Project into a pilot for a Scientific Advice Unit as proposed in *I Don't Know Much about Science*.**

### **5) Pre-empting the debate**

We are very concerned that the condition of some historic wastes may require intervention long before the present consultations can be concluded and that BNFL, pleading

*force majeure*, will seek early authorisation for emissions arising from conditioning wastes. While we accept that all efforts must be made to prevent loss of control over wastes there must be full consultation on actions to render them safe, including comparison of the Justifications of all the alternatives. In this context we note that management and disposal of waste from past practices is a practice in its own right, according to the Health and Safety Executive - see HSE's 1998 consultation on changes to the Ionising Radiations Regulations Annex 5: "List of existing types of practices (draft as at 24/11/97)". (A precursor is an Environment Agency memo of 24/10/96: "Classes or types of practice resulting in exposure to ionising radiation which are amenable to justification". LLRC is yet to see a copy of this.) We further note that when the new Ionising Radiations Regulations 1999 came into force Jan. 2000 - Statutory Instrument 1999 No. 3232 - the whole issue of Justification was missing, the relevant paragraph of the Consultative Document having been excised and the rest renumbered.

**Recommendation V Where emissions to the environment may result from actions proposed for preventing loss of control over historic wastes there must be full consultation including comparison of the Justifications of all the alternatives.**

Appendices

Consultation response from the Low Level Radiation Campaign to Proposals for the Future Regulation of Disposals of Radioactive Waste from British Nuclear Fuels plc Sellafield

*I Don't Know Much about Science: Political Decision-making in Scientific and Technical Areas*