



## Centre for Radiation, Chemical and Environmental Hazards

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10 February 2009

Dear Colleagues

### **Relationship between HPA's Advice on the Radiological Protection Objectives for the Land-based Disposal of Solid Radioactive Wastes and the Environment Agencies' Regulatory Guidance on Geological Disposal Facilities for Radioactive Waste**

Thank you for your letter dated 29 January. I note that the environment agencies have incorporated the majority of the recommendations made in HPA's Advice document on the Radiological Protection Objectives for the Land-based Disposal of Solid Radioactive Wastes. This is explained in Annex 1 of your guidance document.

In summary, HPA staff have looked in detail at the environment agencies' guidance document and its relationship to HPA's advice. HPA is satisfied that if properly implemented the environment agencies' guidance document will in practice afford essentially the same level of protection for future generations as that afforded in HPA's Advice on Radiological Protection Objectives for the Land-based Disposal of Solid Radioactive Wastes. Our detailed comments are provided below.

There are two areas where HPA advice has not been adopted in full in your Regulatory Guidance. These areas are detailed in your letter and also explained in Annex 1 of your guidance document.

The two key areas are 1) the dose constraint for a new disposal facility during the operational and active institutional control phases and 2) the adoption of a risk constraint of 1 in 100 000 per year following the end of active institutional control.

1. Your guidance document refers to HPA's recommended dose constraint of 0.15 mSv y<sup>-1</sup> for the dose to a member of the public arising from the operational and active institutional control phases given in HPA's advice, and the Directions and Regulations issued by Government which specify a source-related dose constraint of 0.3 mSv y<sup>-1</sup>. I understand that the environment agencies have to implement the direction issued by Government and the Devolved Administrations. Nevertheless, HPA will continue to advise government that, in the context of solid waste disposal, the dose constraint should be set at 0.15 mSv y<sup>-1</sup>. This constraint, represents the minimum aspiration for protection. I also note your wish to take account of HPA's advice as evidenced in the statement in your guidance document that 'developers/operators may wish to take HPA advice into consideration'. The purpose of a dose constraint is to act as an upper bound on the prospective dose from a proposed facility. However, HPA considers that meeting the dose constraint is not sufficient: doses should be as low as reasonably achievable below the constraint. This is the process known as optimisation.

I note that optimisation below a constraint is also the overriding requirement in your guidance document and this is emphasised in point 3 of your letter. Since the HPA advice and your guidance both seek to keep doses as low as reasonably achievable I am satisfied that the overall level of protection provided by your guidance should in practice be the same as that intended by the HPA advice.

2. Once active institutional control has ceased, and for all events and processes that lead to exposure of individuals (other than human intrusion directly into a waste disposal facility), HPA recommends that a risk constraint of 1 in 100 000 per year is applied to the exposure of an individual who is representative of the more highly exposed individuals in the population. This risk constraint is to be applied at the planning stage of a disposal facility. For regulatory purposes, you have chosen a numerically lower risk guidance level of 1 in 1000 000 per year, with a requirement for optimisation.

Although you have not required the application of HPA's recommended risk constraint directly it is referred to in your document when you specify your risk guidance level. Since the environment agencies' risk guidance level is an order of magnitude below HPA's recommended risk constraint, HPA considers that the combination of applying the environment agencies' risk guidance level and optimisation should lead to broadly the same outcome as applying HPA's recommended risk constraint with optimisation, and HPA considers that the environment agencies' guidance level is consistent with HPA's advice.

The overriding principle in both HPA's advice and your guidance document is optimisation, ie keeping risks as low as reasonably achievable, and this will drive the risks down. HPA define a risk constraint which is to be applied at the design stage. The advice explains that although the constraint is not a limit, especially at long timescales in the future, if it were exceeded then further effort would be needed to demonstrate that the option that gives rise to risks above this value is really the overall optimum option. Even if risks are below the risk constraint, HPA would expect optimisation to be done to keep the risks as low as reasonably achievable.

You have not specified a risk constraint but instead have specified a risk guidance level. This guidance level is not a limit or constraint but an indicator of your broad expectation of the estimated level of risk in a risk assessment of a disposal facility. However, you also require optimisation to be carried out whether the estimated risks are above or below the guidance level.

I am pleased that HPA and the environment agencies have co-operated in setting high standards for radioactive waste disposal.

Yours sincerely



Dr Roger Cox  
Director, CRCE