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**Application by the UKAEA
for the movement of radioactive
materials from Harwell Laboratory
to Southampton-**

***Objection on behalf of
Southampton CND***

For and on behalf of the
Southampton CND

March 2000

Application by the UKAEA for the movement of radioactive materials from Harwell Laboratory to Southampton – *Objection on behalf of Southampton CND*

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Introduction

The UK Atomic Energy Authority (UKAEA) have applied for a license under the Radioactive Substances Act (RSA) 1993 for a license to dispose of radioactive substances from Harwell Laboratory. Part of this license application involves the movement of radioactive wastes from Harwell to Shanks Chemical Services Ltd at Fawley¹.

This report details Southampton CND's objection, and in particular examines:

- The obligations of the Environment Agency with regards to the assessment of non-radiological impacts;
- The failure to consider the impacts of radioactive waste disposal to Fawley as part of UKAEA's license applications;
- The steps required by the Agency to meet their obligations to assess the impacts of these proposals across all environmental media.

Our requests for changes to the proposed authorisation are outlined in section 3 at the end of the report.

We request that we are informed of the Agency's decision, and that as part of their decision document detailed reasons are given for the acceptance or rejection of the points made in this report.

1. The obligation to consider non-radiological impacts of radioactive waste disposal

Southampton CND object to the shipment of waste materials from Harwell to Fawley because we consider that:

- The effects of sending waste for incineration has not been compared to alternative management options, or the elimination of waste at source, as preferable alternatives;
- The risks associated with incinerating wastes at Fawley have not been integrated into the overall risks of the disposal of wastes from UKAEA Harwell; and
- There has been no attempt to objectively justify the transport of waste materials for incineration at Fawley.

This objection encompasses not only the radioactive elements of the waste sent for incineration to Fawley – it also includes the effects of the non-radioactive compounds produced by incineration and their effects. The Environment Agency may reject this argument because of the perceived restrictions of the Radioactive Substances Act, but in our view it is valid because:

1. There is no argument, we believe, that justification for the radioactive discharges is required – that issue was settled in *R v Secretary of State for the Environment and others, ex parte Greenpeace Ltd and another*². The issue is whether that justification can extend to the non-radioactive impacts. In our view, such justification is required because the non-radioactive impacts, due to the treatment of the material that is contaminated, are inseparable from the generation of the radioactive waste. Certainly, if the material were non-radioactive waste then such justification of the disposal option would be required under the *EC Framework Directive on Waste*³ (as enacted in the UK by Schedule 4 of the *Waste Management Licensing Regulations*⁴). Also, for non-radioactive wastes, the justification of 'best practicable environmental option' is required under principal established in the *Bolton*⁵ case.
2. The Environment Agency is required to have an holistic approach to regulation under the Secretary of State's guidelines – *The Environment Agency and Sustainable Development*⁶ – that implement the 'statutory objectives' of the Agency under section 4 of *The Environment Act 1995*. In particular we would consider paragraph 6.2 directly relevant:

Since the creation of the Environment Agency provides the opportunity for more coherent and integrated environmental protection and enhancement it will be important for the Agency to keep in mind the potential impact its actions may have on the **environment, taken as a whole**. Although for clarity the following guidance is structured in relation to its main functions, the Agency should have due regard to the interplay within and between the pollution control and water management functions and seek to identify the best practicable option to protect and enhance the environment taken as a whole.

The guideline in relation to radioactive substances (paragraphs 6.9/6.10 of the guidelines) set the framework for the Environment Agency's responsibilities within the priorities established in the government's review of radioactive waste management⁷. However, this document is silent on the issue of assessing the non-radiological impacts of radioactive waste disposal, and therefore the provisions paragraph 6.2 of the Secretary of State's guidance apply unmodified.

In our view, the Environment Agency has an obligation to consider the non-radiological impacts of different radioactive waste disposal options. More importantly, the principal of 'best practicable environmental option' must be applied in the case of radioactive wastes, as it is with non-radioactive wastes, in order to decide the most appropriate management option for this material. Of course, such investigations must include management options such as waste elimination, waste reductions, and the substitution of different processes and technologies that achieve an overall reduction in waste.

2. The UKAEA's failure to consider the impacts of radioactive waste disposal to Fawley as part of the license applications

The application by UKAEA for an RSA authorisation to dispose of radioactive wastes concentrates mainly on the discharge of radioactive materials directly from the site. The effects of the transfer of wastes to other sites for treatment or disposal are not assessed in detail. This is, we suppose, on the basis that these other sites have been licensed and are considered fit to accept these wastes. In our view this approach is flawed because:

- It does not follow that, if new evidence emerges, the transfer to other locations can be assumed to be the best option;
- The acceptance of the availability of particular disposal facilities does not provide the sort of rigorous test of suitability required by the 'best practicable environmental option' principal; and
- The acceptance of one means of disposal does not provide a justification of the benefits of that option, above all other possibilities, in order to justify its use above other management options and disposal practices.

Considering each of these points in detail:

2.1. The acceptance of the suitability for transfer in the license application, and the application of BPEO

The information supplied by UKAEA⁸ to justify the activities seeking authorisation under the RSA provides little information about the material that is being disposed to Fawley. Section 5.6 provides no clear justification for the selection of Fawley as an appropriate disposal option. Section 6.3 notes the non-radiological impacts from the disposal of radioactive substances under the proposed license. However, it fails within this section to address the issue of the non-radioactive discharges from the waste disposal route to Fawley. The additional information by UKAEA⁹ fails to address the generation of combustible wastes and their disposal at all.

In their evaluation of the issues within the UKAEA's application, the Environment Agency have made no attempt to quantify the non-radiological impacts of waste disposed at Fawley. Paragraph 4.5.1 states that, '*The Agency is satisfied that the proposal to transfer this waste to a commercial incinerator is the BPEO...*'. However, there has been no objective assessment presented to demonstrate that this conclusion is valid.

In our view the Environment Agency have failed to meet their obligations under the statutory objectives because of the failure to:

- Assess the proposed transfer of waste without considering other management options, and presenting that information for the public corroboration; and
- It would appear that the Agency have failed to properly integrate the risks presented by the transfer of wastes to Fawley within the overall risk appraisal for the license as a whole.

The effects of radioactive discharges from Fawley can be readily determined from the information already in existence – in particular from Shank's RSA application for the Fawley incinerator. However, the situation regarding the non-radioactive components discharged from Fawley is more complex because the changing regulatory basis of hazardous waste incineration as part of the negotiations for the implementation of the new EC Hazardous Waste Incineration Directive.

A significant change has arisen recently with the findings published in the final version of the 'Regulatory and Environmental Impact Assessment of the Proposed Waste Incineration Directive' (published by the DETR in 1999). This report indicates that there are significant health impacts that arise from the incineration of waste, particularly in relation to respiratory illness. The report details these impacts in terms of the impacts saved as a result of the reduction in emissions under the new Directive. However, the corollary of this is that increases in emissions can be quantified using this same data. For example, the effect of saving 20 kilos of nitrogen dioxides (NO_x) emissions is to prevent one fatality from respiratory illness, and for every 40 kilos of NO_x one hospital admission is avoided. The DETR's report also acknowledges that the confidence limits on this data is at least on order of magnitude. The true effect may therefore be ten times more or less than these figures suggest.

The Fawley incinerator is a significant source of air pollutants in the Southampton area. The material transferred from Harwell will constitute only a small part of the total impact from Fawley incinerator. But the impact will have a significant effect on the overall safety of radioactive waste disposal from Harwell because of the severity of effects identified in DETR's regulatory environmental impact assessment.

There is also the issue that has arisen recently, following comparative studies of workers in industry exposed to radiation, as to the effects of combining radioactive and non-radioactive chemical emissions. Evidence is emerging that there could be an additive or synergistic relationship between the radioactive elements of discharges, and the chemical components of those discharges. The effect of this is to promote cellular damage, and hence the increased likelihood of mutation and cancer, at a far greater level than the effects of either compound individually. This would mean that the effects of radioactive discharges from waste incinerators – such as Shank's plant at Fawley which has a significant discharge of radioactive compounds – would be proportionately greater than the discharge of radioactive or the non-radioactive materials on their own.

In our view the risks associated with incineration of waste from Harwell must be integrated into the overall risk assessment for radioactive waste management at UKAEA's Harwell facilities. There is no evidence to base an assumption that the incineration of combustible wastes from Harwell is BPEO. One factor of BPEO is the comparative health impact. In our view, the incineration route has health impacts that have been inadequately assessed. We consider that the Environment Agency must demand an assessment of environmental and human health risks from all potential disposal pathways and management options for this material. These assessments must also include the effects of non-radioactive as well as radioactive by-products or materials produced by each process or option.

2.2. Justifying the benefits of the management options

In our view the Agency have accepted the disposal of contaminated waste materials to Fawley without providing any meaningful assessment of the alternatives to this disposal route.

The information provided by UKAEA to substantiate the application provides no information as to the precise composition of the material they are seeking to incinerate. The second paragraph of section 5.6 specified oils and solvents. But the latter half of this paragraph indicates that there are a range of other materials that are also combustible and which therefore could be suitable for disposal to Fawley. In our view, this description is far too vague for the Agency to base any meaningful evaluation of BPEO, or to justify the release of radioactivity via this route. BPEO cannot be applied just on the basis of general waste streams – it must also be applied to specific waste types within that stream.

In our view, the Environment Agency must demand a full account of the materials that will be sent to

Fawley for incineration. The Agency must also demand information, for each waste category:

- Details of the alternative processes that exist to deal with this waste off-site;
- Alternative proposals for dealing with this waste that are viable;
- Details of different processes or techniques that may be employed to minimise or eliminate the production of this waste material; and
- For each of the options identified, a comparative review of the environmental and human health impacts of both radioactive and non-radioactive releases.

Unless the Agency seek to evaluate all possible management options for this waste stream they cannot claim to have considered BPEO. In practice, it is our view that the best option for the disposal of this material will be a combination on new management techniques on-site to reduce or eliminate the production of this material, together with an appropriate off-site disposal route that demonstrably has the lowest environmental and human health impact.

In our view the only way to achieve this is to require the operator, as part of the authorisation, to submit a review of management and disposal options for the material currently transferred to Fawley. It is also clear that a wider, more structured plan for waste management is required for the whole site, covering all waste streams individually.

3. The actions we require from the Agency to assess the impacts of these proposals across all environmental media

In our view, the Agency cannot approve the UKAEA's application for the transfer of waste materials to Shank's plant at Fawley. This is because:

- They lack the detailed evidence of alternative management practices on-site, and alternative disposal options off-site, to decide which is the most appropriate; and
- They lack the detailed comparative evaluation of risks from different management options to judge which combination of management practices and disposal options constitutes the '*best practicable environmental option*'.

In our view, the information provided by the Environment Agency's consultation document is inadequate. It is also, given the lack of information provided in the material from the UKAEA released with the consultation document, clear that much of the approval for the transfer to Fawley is based on supposition. The Agency have also clearly failed to consider the effects of non-radioactive discharges from the disposal options selected, and to integrate the risks from these options into the overall risk evaluation that forms part of the determination of the application.

Waste disposal to Fawley is already, we believe, taking place. Therefore resolving these objections will not be solved by immediately preventing transfer of waste to Fawley. However, what we require is far more than the improvement programme provided by Schedule 7 of the draft authorisation. In our view:

- Schedule 7(1) is far too vague. It should be redrafted with far greater detail, and specifying specific objective for each waste stream.
- Schedule 7 does not provide for integrating the risks of off-site disposal within the overall risk-appraisal for the site; and
- Schedule 7(1) provides insufficient detail on evaluation BPEO for the waste streams that are currently incinerated at Fawley.

TO RESOLVE THIS OBJECTION WE REQUIRE THAT:

- **Schedule 7(1) is redrafted to segregate the improvement programme for different waste streams;**
- **The time for compliance set in the Schedule should be set according to the actual difficulty of the task being set the operator rather than setting global time limit;**
- **For the incineration stream, there must be an evaluation of the different management options for this waste stream, considering the comparative impacts of incineration versus other disposal options;**
- **The evaluation of different disposal options must consider the effects of non-radioactive discharges on the environment and human health as well as radioactive discharges;**
- **The evaluation of different management options be completed within 6 months of the date of authorisation, and that continued transfer of wastes to Fawley beyond the 6 month period is conditional on this evaluation being completed. We require that the information and reports submitted to the Agency as part of the determination of this condition are placed on the public register prior to approval of the condition being granted.**
- **As part of the authorisation, the operator must produce, for approval by the Agency, a waste management plan for the site. This should specify proposals for individual waste streams and, where necessary, proposals for modifying existing practices within individual buildings on the UKAEA site. We expect this plan to provide a clear programme**

of improvements, within at least a five year period. In our view it is reasonable for the Agency to set a limit of 1 year for the production of this plan. We require that the information and reports submitted to the Agency as part of the determination of this condition are placed on the public register prior to approval of the condition being granted.

Only by seeking to implement the above conditions within the authorisation for UKAEA Harwell will the public's concern about the transfer of radioactive materials from Harwell to Fawley be satisfied.

Paul Mobbs.
March 2000

¹ Schedule 2 of the draft license, ref. BF0886, provided in the Environment Agency's consultation document, October 1999.

² *All England Law Reports* 4 [1994], 352-384.

³ EC Framework Directive on Waste, 75/442/EEC, as amended by Directives 91/156/EEC and 91/692/EEC.

⁴ Waste Management Licensing Regulations 1994, SI. 1994/1056

⁵ *R. v Bolton Metropolitan Borough Council ex. parte Roger Arthur Kirkman*, 1994

⁶ *The Environment Agency and Sustainable Development*, Department of the Environment November 1996. Relevant extracts of this document have been reproduced in Appendix 5.2 of this report.

⁷ *Review of Radioactive Waste Management Policy: Final Conclusions*, Cm2919, July 1995

⁸ *Radioactive Waste Arisings from Operations at UKAEA Harwell*, UKAEA December 1998, pages 55-57.

⁹ *Requested Further Information Applications Dated 19th Jan 1999*, UKAEA August 1999.