



**A PUBLIC CONSULTATION ON
MODERNISING THE POLICY
FOR DECOMMISSIONING THE
UK'S NUCLEAR FACILITIES**

NOVEMBER 2003

IN ASSOCIATION WITH

HM TREASURY

DEPARTMENT FOR ENVIRONMENT
FOOD AND RURAL AFFAIRS

SCOTTISH EXECUTIVE

WELSH ASSEMBLY

MINISTRY OF DEFENCE



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Context and purpose

The Government's current policy on the decommissioning of the UK's nuclear industry facilities is set out in the White Paper "Review of Radioactive Waste Management Policy: Final Conclusions", Cm 2919, published in July 1995. The Government has concluded that the policy needs updating to reflect developments in decommissioning theory and practice since Cm 2919 was published. This document, which has been prepared by the Department of Trade and Industry (DTI) with the active assistance of other interested Government departments, the Scottish Executive and the Welsh Assembly Government, and the regulators, contains, at Annex A, the Government's proposed revised policy. The Government submits this proposed revised policy for public consultation and seeks responses by 27 February 2004. Information on how to respond and comment is given in paragraph 22 of the proposals .

ISSUED: NOVEMBER 2003

RESPOND BY: 27 FEBRUARY 2004

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Executive summary

The Government presents for consultation a revision to its policy on the decommissioning of nuclear facilities. The proposed revised policy requires nuclear operators to develop comprehensive strategies for decommissioning their facilities. It gives guidance on the issues to be addressed in strategies. It also provides for operators to review their strategies regularly, to provide adequate and secure funding and to develop and spread best practice. It takes account of the proposed formation of the Nuclear Decommissioning Authority, and emphasises the need for proportionate regulation of decommissioning operations. It recognises that the future use of the site will be an important factor in determining the decommissioning operations to be consulted on. The policy also proposes that restoration to unrestricted use may not always be the Best Practicable Environmental Option, and that the policy needs to be flexible enough to allow for a range of possible outcomes.

The consultation is being held jointly with the devolved administrations in Scotland and Wales. The Government wishes to have the views of interested parties and individuals before finalising its policy. These should be received by 27 February 2004.

The Government's proposals

- 1.** Although the current decommissioning policy applies to the decommissioning of all UK nuclear industry facilities it was written against the background of proposals to privatise nuclear power stations. It was also largely directed towards addressing the eventual closure and dismantling of these stations. Since then, decommissioning has become a major activity for nuclear operators.
- 2.** The key objective in decommissioning a nuclear facility is to remove the hazard progressively, giving due regard to security and non proliferation considerations while ensuring the safety of workers and the general public and protecting the environment. As the policy set out in Cm 2919 has been progressively applied to nuclear licensed sites important lessons have been learnt in drawing up strategies for decommissioning of redundant plant. The first round of reviews of these strategies by the Health and Safety Executive (HSE) has produced important information and insights. These have been taken into account in shaping the revised policy.
- 3.** All operations on nuclear licensed sites are regulated for safety by the HSE's Nuclear Installations Inspectorate (NII), for security by the Office of Civil Nuclear Security (OCNS) and in respect of discharges to the environment and disposal of radioactive waste by either the Environment Agency (EA) in England and Wales or the Scottish Environment Protection Agency (SEPA) in Scotland. All these regulators have a key role to play in decommissioning. Given the increasing range and volume of decommissioning which can be expected in the short and medium term and the prospect of greater private sector involvement in the work, the Government wishes to see the policy framework set out as transparently as possible. This in turn should help current and prospective decommissioning organisations to develop best practice and get a clearer understanding of how to work effectively with the regulators. It will also help workers and local residents understand how operators are carrying forward decommissioning plans.
- 4** The consultation paper "Managing Radioactive Waste Safely" (MRWS) of September 2001 and the White Paper "Managing the Nuclear Legacy", Cm 5552, of July 2002 acknowledged the need to examine the policy for decommissioning of the UK's nuclear facilities. Respondents to the latter in particular supported this.
- 5.** For these reasons the DTI, working closely with all relevant UK Government departments (Defra, MoD, Treasury, Health), the devolved administrations and the regulatory authorities, have examined current decommissioning policy. The principal aim has been to address any uncertainties in the application of decommissioning policy and its interpretation and to ensure that it is comprehensive, clear and up-to-date. The draft Nuclear Sites and Radioactive

Substances Bill, published on 24 June to establish the Nuclear Decommissioning Authority (NDA), requires the NDA to have regard to Government policy on decommissioning in carrying out its functions.

What is decommissioning?

6. Decommissioning is the process through which a nuclear facility is taken out of service. It includes full or partial dismantling of buildings and their contents and the management of arising wastes. It may also include other operations such as the decontamination of buildings which are not to be dismantled, and the necessary remedial treatment of the land under and around the facility. Decommissioning will progressively reduce the level of hazard from the facility, and it is essential that it is conducted in a manner which is safe, secure and represents the Best Practicable Environmental Option (BPEO) for the site, as well as being efficient and effective. Completion of the process will result in a site which is safe and, as far as can currently be foreseen, suitable for one of a range of uses from industrial and commercial use to unrestricted use. Depending on this subsequent use, the site may retain buildings and services (such as drains) from the former facility.

7. The immediate objective of decommissioning is to reduce the hazard associated with a site and its plant in a progressive and systematic manner which ensures safety of workers and the public and protects the environment. The wider objective of decommissioning is to reduce the number of sites, and acreage of land, which remain under regulatory control. Where regulatory control is still necessary after completion of decommissioning operations, the goal will be to minimise the area of land to which those controls apply. Where there are low residual risks, the level of regulatory control should be similarly low.

What is the legal framework for decommissioning?

8. Decommissioning needs to be conducted within the requirements of the relevant legislation.

- (i) Most decommissioning operations on nuclear licenced sites are governed by the site licensing requirements of the Nuclear Installations Act 1965, enforced by HSE.
- (ii) The disposal of radioactive wastes is authorised under the provisions of the Radioactive Substances Act 1993, and enforced by the relevant environment agency.
- (iii) The environmental impact of reactor decommissioning must be assessed under the provisions of the relevant legislation, the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999 (SI 1999 No 2892), which is enforced by HSE.
- (iv) Other legislation, such as planning legislation, may also impinge on decommissioning, e.g. where the construction of additional facilities or change in the use of existing facilities is required.

(v) The NDA will have responsibility for drawing up a strategy for decommissioning of the sites for which it is responsible and an annual work plan, both of which will be subject to the approval of the Secretary of State.

9. While significant amounts of nuclear and radioactive material remain on site, security issues will need to be regulated by the OCNS. Some sites (but not those in the private sector, which will have their own security arrangements) will be policed by the new constabulary replacing the UKAEA police.

10. For ease of reference all the key legislation relevant to decommissioning is set out in Appendix 1. The regulatory controls and the approach taken by HSE and the environment agencies to the enforcement of the regulations is set out in Appendix 2. A glossary of relevant terms is at Appendix 3.

Current decommissioning policy

11. Current decommissioning policy is set out in paragraphs 120 – 131 of Cm 2919, with a summary at paragraphs 181 – 184. The underlying principles are as follows:

- In general, the process of decommissioning nuclear power plants should be undertaken as soon as it is reasonably practical to do so, taking account of all relevant factors.
- The Government believes that there are a number of acceptable decommissioning strategies for nuclear power stations, including safestore. However, regulatory approval will continue to be required on a case-by-case basis.
- Nuclear operators will be asked to draw up strategies for decommissioning their redundant plant and these will be reviewed quinquennially by HSE in consultation with the environment agencies.
- Segregated funds will be established for decommissioning those parts of the industry which are privatised.

What has changed since Cm 2919 was published?

12. Since Cm 2919 was published, nuclear operators and regulators alike have become more familiar with the challenges involved in decommissioning and clean-up. There is a greater understanding of the materials and the levels and volumes of radioactivity which are involved and the problems likely to be associated with the management of the waste that this will generate. This increased understanding has been drawn on in constructing the proposals in this consultation document. It is also clear from completed decommissioning projects that there are more potential uses for decommissioned sites than was considered at the time of Cm 2919 and that restoration for unrestricted use will not always represent the BPEO, for instance if significant parts of a site are contaminated radioactively or chemically it may be more environmentally disruptive to move the contaminated material to another site than to leave it in its present location, or the best economic option.

13. There have also been important changes to the organisational structure of the UK nuclear industry since Cm 2919 was published. By far the most important change as regards nuclear decommissioning is the proposal in “Managing the Nuclear Legacy” to create what is now known as the Nuclear Decommissioning Authority (NDA). Subject to the passage of the relevant legislation, the proposed NDA will be operational by 2005 and will have a duty to ensure that public sector civil nuclear liabilities are managed within a statutory framework which will include a requirement for it to have regard to the need to safeguard the environment, protect people from health risks, and preserve nuclear security. This legacy comprises a wide variety of nuclear facilities, some of which are reactors, but many of which derive from past research and other activities. Dealing with the legacy will require the decommissioning of many facilities spanning a wide range of activities.

14. Intermediate Level Waste (ILW) management policy has not progressed as anticipated in Cm 2919. In particular work on researching underground disposal facilities, which Nirex was then conducting, ceased in 1997. This resulted in Government – in this context the UK Government and the devolved administrations – initiating a review of policy for the long-term management of the UK’s solid radioactive wastes through its “Managing Radioactive Waste Safely” programme. Following analysis of responses to the September 2001 consultation document, the way the policy process is to be conducted was clarified in a statement of July 2002 and a 2002 end-of-year progress report to the Environment, Food and Rural Affairs Committee. Most notably, the review is to be overseen by the new Committee on Radioactive Waste Management (CoRWM). When finalised, the revised policy will influence the timing of certain operations involved in the creation of radioactive wastes and the operations related to their management. In the meantime there will be a need for interim storage of ILW, either on the site where it was generated or elsewhere.

15. In 1999 the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations (SI 1999 no 2592) introduced the requirement for an operator of a nuclear power plant to submit an environmental impact assessment to HSE and seek HSE’s consent to the start of decommissioning. As only two environmental impact assessments have been submitted so far, it is too early to judge how the requirements of the regulations may impact upon decommissioning strategies and operations for nuclear reactors.

16. The Government published the UK strategy for Radioactive Discharges 2001-2020 in July 2002. This strategy has been designed to meet the UK’s international obligations under the Convention for the Protection of the Marine Environment of the North-East Atlantic (the OSPAR convention). It requires progressive and substantial reductions in radioactive discharges to the marine environment. By the year 2020 the OSPAR Commission intends to ensure that discharges of radioactive substances are reduced to levels where the additional concentrations in the marine environment above historic levels resulting from such discharges are close to zero. The Government considers that the rigorous

application of the As Low As Reasonably Achievable (ALARA) principle will reduce discharges sufficiently to achieve the OSPAR objective. The discharges associated with these activities will be closely regulated and will continue to be minimised by the application of the Best Practicable Means (BPM) principle. However, the UK strategy recognises that short term increases in discharges of some radionuclides as a consequence of decommissioning activities may be unavoidable. However, where this is the case, the relevant environment agency will need to be satisfied that, among other things, they represent the optimal result from appropriate option studies and reflect the application of the ALARA/BPM principles in meeting the UK's OSPAR obligations.

17. HSE has now conducted the first series of quinquennial reviews of decommissioning strategies which were introduced in Cm 2919. These cover licensed nuclear operators with significant decommissioning liabilities,. Valuable insights and experience have been gained by all involved, including

- It is clear that operators need to take account of a wide range of issues in drawing up and delivering their decommissioning plans .
- There will be a range of potential subsequent uses for sites of decommissioned nuclear facilities. In many cases unrestricted use will not deliver BPEO , nor necessarily be the one which local stakeholders will favour.
- The present regulatory regimes enable the regulators to apply a proportionate approach to a reducing level of risk.
- It is now even clearer that a “one size fits all” approach does not apply to decommissioning projects.

18. Although Cm 5552 requested comments on decommissioning, few responses were received. However, a number of respondents felt that the part of Cm 2919 which deals with decommissioning is out of date, and that an updated statement of decommissioning policy was required.

19. For all of these reasons the Government considers it now appropriate to examine its decommissioning policy, to update it and to make the revised policy transparent.

What is the Government proposing?

20. The Government proposes:

- to reaffirm that the core principles of decommissioning policy (as set out in paragraph 7.38 in the white paper “Managing the Nuclear Legacy” and Cm 2919) are sound and still apply – in particular that decommissioning must be conducted as soon as reasonably practicable in a manner which is safe, secure, efficient and cost effective, and represents BPEO for the site;
- to make it clear that the policy applies to all of the UK nuclear industry's facilities rather than to its reactors alone;
- to clarify what decommissioning means in practice, in particular that it includes the need to remediate and, where practicable, to restore associated

land, and that the future use of the site will be an important factor in determining the decommissioning operations to be carried out;

- to recognise that restoration to unrestricted use may not always be the BPEO for the site of a decommissioned facility, that the policy needs to be flexible enough to allow for a range of possible end points reflecting the intended future use of the site, and that achievement of any given end point will be a progressive process which, in most instances, will span a number of decades;
- to make clear that decisions on end points should only be reached after consultation with local communities and other stakeholders;
- to recognise the importance of restoring sites of decommissioned nuclear facilities to high standards of safety consistent with their designated future use;
- to make clear that, given the long time scales for identifying and implementing final management solutions for radioactive wastes, interim storage will become increasingly important, and increasing amounts of arising wastes may need to be stored in passively safe forms;
- to underline further that the regulatory framework is flexible enough to enable the regulators to apply a proportionate level of control throughout decommissioning as the hazard posed by a site reduces;
- to lay greater emphasis on the need to develop and share best practice, in line with the principles underpinning the creation of the NDA.

21. The Government is pledged to making policy development more accessible and responsive. An important feature is effective consultation with all interested parties. Annex A constitutes the Government's proposed policy and the Government welcomes comments on all aspects of the statement.

How to respond

22. Comments should be received by DTI on or before Friday 27 February 2004. They should be sent, in writing, to:

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or via the DTI website at <http://www.dti.gov.uk/>

A detachable response form, which you may wish to use, is attached at Appendix 4.

23. Additional copies should be requested from Jeff Hoare at the address above.

Making the results public and further action

24. Once comments on the proposed statement have been received, considered and taken into account, the Government intends to issue its new statement of policy on decommissioning, probably in the form of a written statement to Parliament. It will then encourage the proposed NDA, site operators and the regulators to examine their existing procedures and practices and update them in line with the new policy. Government welcomes HSC/E's proposal to consult during 2003 on new policy guidelines on delicensing nuclear licensed sites.

25. We may publish the comments. If you do not wish your response to be published, please ask us to treat it as confidential. Confidential responses may nevertheless be included in any statistical summary of comments received and views expressed.

26. The Government currently expects to need to review the revised policy in 5 to 10 years time in the light of practical experiences and especially the impact of the proposed NDA.

DTI

November 2003

Annex A

The Government's proposed new decommissioning policy statement

Introduction

1. This statement of the Government's policy on the decommissioning of nuclear facilities replaces the previous statement contained in paragraphs 120-131 of "Review of Radioactive Waste Management Policy Final conclusions" (Cm 2919) published in July 1995.

Coverage of the policy

2. This proposed revised decommissioning policy covers all (existing and new) UK nuclear industry facilities. This includes power stations, other reactors, research facilities, fuel fabrication and reprocessing plants and laboratories on sites licensed under the Nuclear Installations Act 1965 (NIA65). It also includes the site at Culham used for research into fusion and facilities on sites owned by the Ministry of Defence and, where relevant, nuclear submarines and their liabilities.

Decommissioning operations and strategies

3. Decommissioning is the process through which a nuclear facility is taken out of service, including full or partial dismantling of buildings and their contents. It may include other operations such as the decontamination of buildings which are not to be dismantled and the remedial treatment or restoration of the land under and around the facility. The objective of decommissioning is to remove the hazard it poses progressively, giving due regard to security considerations, the safety of workers and the general public and protecting the environment, while in the longer term reducing the number of sites and acreage of land which remain under regulatory control. Decommissioning operations should be carried out as soon as reasonably practicable, taking all relevant factors into account as provided for in the relevant operator's strategy and plan. The Government recognises that decommissioning operations may, however, involve two or more

separate stages spanning a number of decades. It may also be more appropriate to delay particular operations to benefit from new or developing technologies or from further development of existing best practice, or to take advantage of radioactive decay. The Government confirms that, as with regulatory approval, the relevant factors, and their respective importance, can only be determined on a case-by-case basis.

4. Each operator is expected to produce and maintain a decommissioning strategy and plans for its sites. The Government expects that those strategies and plans will take into account the views of stakeholders (including relevant local authorities, public and stakeholder groups). Strategies should include a comprehensive site decommissioning plan for safely carrying out the decommissioning process at one or more facilities with due regard to security and protection of the environment. Each plan should take into account any proposed future use of the site in question. Operators of sites which are the responsibility of the proposed Nuclear Decommissioning Authority (NDA) are expected to produce and maintain plans for their sites. Each plan will need to be consistent with the overall strategy of the proposed NDA and be subject to its approval. A strategy may apply to more than one facility on a site or to a number of similar facilities on different sites, but in this situation each individual facility should be separately assessed and costed. The Government also expects that operators will typically begin to refine strategies and plans, in consultation with the regulators and stakeholders before they plan to close the facilities (or first facility as appropriate).

5. A strategy should take into account all relevant factors, assessing and presenting them in a transparent way underpinned by objective information and arguments. These include:

- ensuring worker and public safety,
- maintaining site security,
- minimising waste generation and providing for effective and safe management of wastes which are created,
- minimising environmental impacts including reusing or recycling materials whenever possible,
- maintaining adequate site stewardship,
- using resources effectively, efficiently and economically,
- providing adequate funding,
- maintaining access to an adequate and relevant skills and knowledge base,
- using existing best practice wherever possible,
- conducting R&D to develop necessary skills or best practice and,
- consulting appropriate public and stakeholder groups on the options considered and the contents of the strategy.

These factors should be applied throughout each potential decommissioning programme to ensure that programmes are optimised, and to help to establish the earliest practicable timetable for the operations.

6. Sites of decommissioned nuclear facilities may represent a potentially valuable resource. The future use of the site, once decommissioning operations have been safely completed, could therefore be a significant factor in determining decommissioning operations. It may be possible in some cases to complete decommissioning operations to the point where unrestricted use is possible, although an overriding consideration will be whether it represents BPEO for the site. Experience to date suggests that potential uses will range from industrial and commercial use to unrestricted use. The objective should be to get the best solution overall taking into account the needs of the environment and the safety of workers and the local community. The range of facilities and circumstances to which the proposed policy will apply mean that the specific use (or uses) of each site cannot sensibly be determined many years in advance of decommissioning operations. To do otherwise risks foreclosing options currently not envisaged or imposing uses which turn out to be unsuitable. The Government expects operators to address the future use of sites in good time and to take decisions which take into account local factors and the wishes of the local community. Operators will therefore need to discuss potential uses with the Local Planning Authority, the regulators and local public and stakeholder groups. In the case of sites for which the proposed NDA is to become responsible, the NDA's strategy will include an objective as to the condition to which the site is restored, which will be subject to Ministerial approval.

7. Operators' decommissioning strategies will need to take into account relevant developments in UK radioactive waste management policy. This includes both the outcome of the "Managing Radioactive Waste Safely" programme to determine how the higher activity components of the UK's solid radioactive waste should be managed over the longer term and, potentially also, the approaches agreed with the proposed NDA for more immediate treatment and management of waste. Ultimately developments such as these will serve to simplify an operator's task in drawing up and implementing its decommissioning strategy. The Government recognises that changes in policy in this complex and sensitive area are unlikely to be achieved immediately (e.g. final decisions on the MRWS programme are not expected until 2006) and that, given the timescale likely to be involved, the policy itself will be subject to review and refinement. Therefore, some future decommissioning work will be carried out in a climate that has an element of uncertainty. Given this uncertainty, the Government considers that decommissioning strategies should seek to avoid the creation of radioactive wastes in forms which may foreclose options for effective long-term waste management.

8. Strategies should harness the general benefits of radioactive decay while the problems to which it may give rise in certain areas should be avoided. Careful consideration should be given to delaying operations to allow radioactive decay

to occur. This should maximise the amounts of materials suitable for re-use or recycling, as opposed to being managed as LLW.

9. Strategies should minimise the volumes of radioactive wastes which are created, particularly the volume of ILW. Wherever possible wastes should not be created during decommissioning until an appropriate management solution is, or will shortly be, available for use. Priorities for managing the various types of wastes which do arise should be established. Until long-term management solutions have been identified, some of the wastes arising from decommissioning will need to be stored. This includes ILW, which was intended to be disposed of to the repository which Nirex had been charged with developing. The subsequent demise of this programme in 1997 means that initially operators are likely to be packaging and treating decommissioning wastes for storage rather than for disposal. This should be done in a way which does not preclude disposal options. Nirex currently operates a system of guidance to operators on the compatibility of waste packaging and storage arrangements with longer term management requirements. Proposals to incorporate this more fully within the regulatory system are currently being implemented by the regulatory authorities. These will provide a regulatory oversight of the Nirex system of guidance, but until such arrangements are in place the Government affirms that operators should make full use of Nirex guidance for their decommissioning wastes wherever appropriate. Wastes can be stored on the site of production or on another site and these options should be considered and the reasons for the chosen option stated.

Review of decommissioning strategies

10. Operators should review their strategies when changes in circumstances, including relevant Government policies, make this necessary. Operators whose sites are an NDA responsibility will need to work closely with it to ensure that site plans are modified when the need arises.

11. To implement the requirements of Cm 2919 rather than as a regulatory function, HSE, in conjunction with the environment agencies, has been reviewing operators' decommissioning strategies for licensed sites every five years. The Government considers that, except where equivalent arrangements are made for sites managed by the NDA, strategies should continue to be subject to regular periodic reviews, at least every five years, by HSE in consultation with the environment agencies.

12. The Government expects that successive strategy reviews will require significantly less effort from operators and the HSE. This will be especially true during extended periods of care and maintenance, unless there have been major changes (for example in radioactive waste policy or any redefinition of the end point) since the previous review.

Funding of decommissioning operations

13. The Government expects that all operators will take the steps necessary to ensure that their decommissioning work is adequately funded. No nuclear project should be started unless it is clear that sufficient funds will be available to complete decommissioning in a safe and secure way, which represents BPEO for the site. Arrangements already exist in the UK, on an individual operator basis, to meet the costs of all decommissioning operations, but the establishment of the proposed NDA will result in changes in respect of the sites for which it will be responsible. Current and potential future arrangements may be further influenced by European legislation or by international agreements. Proposals for the former are currently being considered in this area but are at a very early stage.

14. The proposed NDA will be funded directly by Government. The Government's intention is to ensure that sufficient funds are available to enable the proposed NDA to drive forward decommissioning of its sites in the most effective way. The financial arrangements for the proposed NDA include the creation of a dedicated statutory segregated account which will underline the Government's commitment to clean up and help build public and market confidence that funding will be available to support substantial work programmes over a period of years.

15. The current arrangements for meeting British Energy (BE)'s UK nuclear decommissioning liabilities whereby those liabilities are met from the independent Nuclear Decommissioning Fund, owned by the Nuclear Trust, are also subject to change. The new arrangements are intended to ensure that the funding of BE's future liabilities are put on a firmer footing. Under BE's restructuring plan, which was announced on 28 November 2002 and is subject to the approval of the European Commission, the Nuclear Trust will be enlarged into or supplemented by a new fund, the Nuclear Liabilities Fund (NLF) which will cover decommissioning and certain other liabilities. BE will make enhanced payments into the new fund/s, which will be underwritten by Government to the extent that there is any shortfall so as to ensure safety, security and environmental protection.

Regulation of decommissioning operations

16. The Government and the regulators are committed to ensuring that the application of the regulatory controls during decommissioning, which ensure adequate control of operations, is transparent. Where appropriate, this includes the regulatory system which will operate on the site after the completion of dismantling operations. The key parts of the regulatory regime are the controls imposed by the HSE under the nuclear site licence and the conditions attached by the environment agencies to radioactive discharge and waste disposal authorisations. The Office for Civil Nuclear Security (OCNS) also plays an important regulatory role.

17. The Government expects that the nuclear regulators will continue to implement its policy on better regulation by ensuring that the level of regulation is proportionate to the level of the risk to safety, the environment or security posed by the site. The Government expects that the amount of regulation will reduce as decommissioning proceeds although there may be periods of intense decommissioning activity when regulatory oversight will need to be temporarily increased. It endorses a continuation of the regulators' proportionate and flexible approach to regulating decommissioning operations, so as to achieve this reduction.

18. The regulatory regime provides for the progressive removal from regulatory control of all or part of a licensed site where HSE is satisfied that there is no danger from radiation on the site or the relevant part of it. This is a process which has been implemented at UKAEA's Winfrith site, part of which is now suitable for unrestricted use.

Access to skills and development and spread of best practice

19. Operators should maintain the knowledge base, records and skills necessary to their decommissioning operations. This should include the retention, recruitment and training of staff and the preservation of the documentation necessary fully to underpin the operations. R&D to acquire new skills or develop existing ones should be carried out as necessary.

20. To enable operators to augment their skills the Government considers that best practice should be developed and spread to ensure that decommissioning in the UK is carried out effectively. The proposed NDA will have an objective of championing best practice. However, the Government considers it important that all operators identify and share best practice, if necessary under appropriate financial arrangements. Those who are developing best practice are likely to be at the leading edge of decommissioning. Examples of successful recent decommissioning projects in the UK include:

- the successful removal of a redundant nuclear fuel fabrication plant at BNFL's Springfield site, where the landscape has been restored to its original state.
- the removal of machinery used for mixed oxide fuel manufacture, the successful decontamination of the building at Sellafield in which it was housed and the subsequent refurbishment of the building for re-use as a storage and processing area for plutonium contaminated material.
- the decontamination of plutonium handling laboratories at UKAEA's Winfrith site where the buildings and land have now been released for unrestricted use.
- the removal of active components outside the reactor building at the former Berkeley power station, the construction of purpose built storage for retrieved ILW and major decontamination of the remaining buildings.

Designing new nuclear facilities to take account of decommissioning

21. The Government considers that any new facility covered by this policy should be designed and built so as to minimise decommissioning operations and costs. This approach will ensure that the UK minimises the creation of decommissioning liabilities which future generations would have to deal with.

Appendix 1 – Key legislation relevant to decommissioning

The Nuclear Installations Act 1965(NIA65)

The Nuclear Installations Act 1965 (as amended) is a relevant statutory provision of the Health and Safety at Work etc Act 1974(HSW74). NIA 65 enables HSE to grant licences for the operation of nuclear installations at prescribed sites, known as licensed sites. The standard licence has 36 conditions which apply throughout the site's lifetime. Licence conditions 34, 35 & 36 apply particularly to decommissioning operations.

(34) requires operators to ensure that radioactive waste on the sites is at all times adequately controlled, or contained, so that it cannot leak or escape from control. (In terms of the radioactive waste that results from decommissioning, and for which there is no immediate disposal route, operators can comply with this condition by storing this material in a safe manner.)

(35) requires an operator to produce and implement decommissioning programmes. Under this condition the NII has the option of requiring parts of the programmes to be submitted for its approval, which then cannot be changed without further approval. It specifies that, where appropriate, decommissioning shall be divided into stages, and the NII has the power to specify that a licensee shall not proceed to the next stage without its consent. Further it gives NII the power to direct an operator to commence, or halt decommissioning if it is in the interests of safety. The condition, therefore, gives the NII appropriate regulatory control over the planning and implementation stages of decommissioning projects.

(36) requires operators to justify the safety of any proposed change to its organisation's structure or resources. This is very relevant when decommissioning programmes begin and the extent and type of work on a site can lead to significant changes in the work force. The NII expects an operator, who is the licensee, to remain in control of operations on its site at all times, and to do so it must retain the necessary resources and competence to understand the hazards and how to manage them. (NII has no objection to the use of contractors but it does become concerned if a licensee proposes to contract out its core functions. The basic premise is that a licensee must retain the ability to act as an intelligent customer for work that is procured.)

Ionising Radiations Regulations 1999 (IRR99)

These regulations are made under HSW74. IRR99 apply to a large range of workplaces where radioactive substances are used. Any employer who undertakes work on ionising radiation must comply with IRR99

The Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999 (SI 1999 no 2592).

These require the submission to HSE in a prescribed form of an assessment of the environmental impact of the decommissioning of a nuclear reactor begun after November 1999, before the work begins (and the work cannot begin until the assessment has been agreed). This assessment is subject to public consultation, and HSE may attach conditions to any agreement to the work that it may grant.

Radioactive Substances Act 1993(RSA93)

Disposals of radioactive wastes from nuclear sites, including discharges of liquid and gaseous radioactive wastes to the environment and transfers of solid radioactive wastes to other premises are regulated through authorisations issued under this Act by the Environment Agency in England and Wales and by the Scottish Environment Protection Agency in Scotland. Decommissioning nuclear sites will require authorisations under the Act, granted by EA in England and Wales and by SEPA in Scotland, to which limitations and conditions will be attached. A number of Exemption Orders made under the Act provide exemptions from the need for the disposal of waste to be authorised specifically under the Act (the Orders providing a generic form of authorisation subject to their conditions being met). The exemption order most relevant to decommissioning activities is the Substances of Low Activity Exemption Order

Town and Country Planning Act 1990 and the Town and Country Planning (Scotland) Act 1997

The legislation controls development of land, and changes in its use. Demolition of a building is not classed as development, and does not require consent under the Acts. However, alterations to an existing building which do not result in its demolition and the construction of new buildings, such as waste stores, during the course of decommissioning operations are classed as development and require consent.

Appendix 2 – Regulatory controls during decommissioning

This appendix sets out the approach adopted by the regulators of nuclear sites to decommissioning operations.

1) Coordination of regulation

HSE and the Environment Agency have recently reviewed their working relationship on nuclear safety and environmental regulatory issues. A key conclusion was that a combination of tripartite (licensee/HSE/EA) working and early identification and resolution of regulatory issues is key to delivering effective, joined-up regulation. The results of this work are enshrined in a revised Memorandum of Understanding signed in April 2002.

2) HSE/NII

Rationale of Regulatory Approach

HSE regulates activities in accordance with the framework set out in its document “Reducing Risks, Protecting People” (R2P2). R2P2 describes HSE’s approach and explains how it follows the principles of good regulation, i.e. transparency, accountability, proportionality, consistency and targeting.

Risks above a certain level are deemed “intolerable”, i.e. the risk cannot be justified on any grounds. Below a certain very low level (typically a risk of a fatality of 1 in a million a year) risks are judged to be broadly acceptable. Between these extremes is a region where the risk is deemed tolerable. Risks in that region are typical of the risks that people are prepared to tolerate in order to secure benefits. In this region, a particular level of risk can be accepted only if further risk reduction is impracticable or the cost of reducing it is grossly disproportionate to the reduction that can be achieved. HSE’s interpretation is based on the legal requirement to demonstrate reasonable practicability (or that risks are ALARP (As Low As Reasonably Practicable)).

Risks falling into the broadly acceptable region are generally regarded as acceptable and HSE will not usually expect significant further steps to reduce risks. The strength of the requirement on the site operator to demonstrate ALARP and the rigour and degree of regulatory scrutiny will, however, increase progressively as risks move higher through the tolerable towards the intolerable region.

Control of operations

Operations at a licensed nuclear site are subject to the provisions of the nuclear site's licence which is granted under the NIA65 (see appendix 1). Nuclear site licences are an extremely flexible method of exerting regulatory control during decommissioning. HSE are committed to using that flexibility to help ensure the most cost-effective approach to clean-up.

Level of scrutiny of licensed operations

During routine operation of a facility the NII undertakes regular compliance inspections against a planned programme. When certain plants cease to operate and hazardous material is removed from the site, it will usually be possible to reduce regulatory inspections in line with the reduction in the risk. Scrutiny may need to be increased during periods of decommissioning activity which involve handling highly radioactive materials especially when operations are technically novel or being carried out for the first time. Such operations are 'permissioned' for decommissioning in the same way as for commissioning, – confidence has to be gained that they can be undertaken safely before they start.

However, once a site consists only of a building (or buildings) containing passively safe ILW, in a period of extended care and maintenance, a markedly lower risk is posed to workers and public than during operation and decommissioning activities. The licence conditions will still apply, and a safety case must be maintained and periodically reviewed by the licensee, but HSE will only expect to see arrangements for licence condition compliance proportionate to that risk, and the demands placed on the licensee by these licence requirements are expected to be proportionately reduced.

A licensee can apply to HSE for release of part of a site from the licence if it is no longer needed for a licensable activity. HSE may vary the licence to exclude that part if it is satisfied there is no danger from ionising radiation from anything on that part of the site. In anticipation of an increase in delicensing requests, HSE is planning to issue an up-to-date delicensing policy statement for consultation during autumn 2003.

3) EA/SEPA

The Environment Agency and SEPA also follow the principles of good regulation in the limitations and conditions of the radioactive waste disposal authorisations they grant under RSA93 for nuclear sites. This includes a proportionate approach in setting limitations and conditions, and a proportionate response to any breach of regulatory requirements. The Environment Act 1995, under which the Agencies were established, requires the Agencies to take into account costs and benefits in discharging their regulatory activities.

Standards

The Government has issued Directions to the Environment Agency and SEPA, which have the principal aim of requiring the environment agencies to ensure, when exercising their duties and functions under the RSA 93, that:

- Exposures of members of the public and the population as a whole resulting from the disposal of radioactive waste are kept ALARA, economic and social factors being taken into account.
- The sum of the doses resulting from the exposure of any member of the public to ionising radiation should not exceed a limit of 1mSv/year from all man-made sources of radioactivity, other than medical exposure.
- The dose resulting from the exposure of any member of the public to ionising radiation from any source from which radioactive discharges are first made on or after 13 May 2000 should not exceed a constraint of 0.3mSv/year.
- The dose resulting from the exposure of any member of the public to ionising radiation from the discharges from any single site should not exceed a constraint of 0.5mSv/year.

The dose constraints contained in the Directions are not limits, but are optimisation tools. Nevertheless, the Agencies will regulate to ensure compliance with the constraints. In all cases, the Agencies will look for a clear demonstration that doses to members of the public are within limits and ALARA – a concept that includes the consideration of reasonableness.

In the Government's draft statutory guidance to EA on the regulation of radioactive discharges into the environment from nuclear licensed sites, applicable to England, and the subsequent draft statutory guidance from the National Assembly to the Agency, applicable to Wales, it was stated that there is widespread international agreement that doses to members of the public of the order of 0.01mSv/year or less are sufficiently low to be of no regulatory concern. This dose can be broadly equated to risk of death of less than one in a million per year. The draft statutory guidance also stated that in recent years there has been greater awareness of the need to cherish the natural environment and avoid contamination of it even at levels where the risks posed are small and considered negligible compared to the risks encountered in daily life. The presumption is to avoid adding radioactive materials to the environment where this can reasonably be avoided.

Regulatory activities

In applying their proportionate approach to regulation, the Agencies will take into account a wide range of factors, including actual and potential environmental impacts, any recent incidents and resulting enforcement action, operator management systems and culture. The cessation of operational activities on a nuclear site will tend to reduce discharges to the environment. The subsequent implementation of a programme of decommissioning, involving a staged approach to the reduction of hazards on site may mean that some discharges temporarily increase. Solid waste transfers off site can be expected during decommissioning. The agencies regulatory activities will at all times remain proportionate, taking into account risks to members of the public and the environment from radioactive waste disposals including discharges and waste transfers, as well as more general economic and social factors.

In future, the agencies' approach will be guided by the UK Strategy for Radioactive Discharges, 2001-2020 (published in July 2002). In England and Wales, the Environment Agency will also be guided by the relevant Statutory Guidance on the Regulation of Radioactive Discharges into the Environment from Nuclear Licensed Sites(not yet finalised). The guiding principles of the UK Strategy are:

- the precautionary principle, whereby lack of full scientific certainty shall not be used as a reason for postponing cost effective measures to prevent environmental degradation where there are threats of serious or irreversible environmental damage;
- the polluter pays principle, whereby the costs of pollution prevention, control and reduction measures are to be borne by the polluter;
- the ALARA principle, whereby radiological doses and risks are kept as low as reasonably achievable, taking account of other factors, including economic and social factors; and
- a proportionate approach, whereby priority is given to reducing discharges which have greatest radiological significance or which present most risk of damaging the marine environment, whilst ensuring that the costs of such reductions are not grossly disproportionate to their benefits.

The UK Strategy recognises that short-term increases in the discharges of some radionuclides may be an unavoidable consequence of decommissioning and clean-up activities.

4) OCNS

Rationale of Regulatory approach

Security needs are driven by the threat and the severity of the adverse consequences that could arise if the threat is not effectively countered. The potential consequences vary depending on the ways in which a target could be under threat, on the nature and location of the target, and its vulnerability. Effective security is determined principally by an understanding of purposeful threats and the vulnerabilities they could exploit, not by the hazard posed by the nuclear installations, their operations and their contents. OCNS recognises that careful judgment is required to maintain a balance between the needs of security and the need for disclosure in order to conduct normal business. Details of the threat, of risk analysis, and of security measures are sensitive and require appropriate protection.

Regulatory activity

OCNS is sensitive to the conflict between its need for confidentiality and the benefits of openness in building confidence. OCNS applies a proportional, consistent and targeted approach to security. It is as transparent as it can be about the regulatory process. It provides sensitive information about the threat and countermeasures to those who need it in order to maintain appropriate security but does not make this information available more generally.

OCN requires all relevant activities to be appropriately secured. Security Plans must be submitted and approved in advance. It is envisaged that decommissioning will lead to more security and more regulatory activity in the medium term. It is envisaged overall that the security requirement will reduce as clean-up draws to its end. However, there will not be a linear relationship between inventory and security reduction. And, crucially, although the amount and type of radioactive material partially may be reduced, the chief determinant is, and will remain, the level of threat.

Appendix 3 – Glossary

This appendix sets out a number of definitions of key items used in this document, to help clarify its overall meaning.

ALARA (As Low As Reasonably Achievable). The ALARA principle is contained in the Euratom Basic Safety Standards Directive 96/29 which is transposed into UK law. Essentially it means that all reasonable steps should be taken to protect people. In making this judgement, factors such as the costs involved in taking protection measures are weighed against benefits obtained, including the reduction in risks to people.

ALARP (As Low As Reasonably Practicable). To satisfy this principle, measures to reduce risk must be taken unless, or until, the cost of those measures, whether in time, trouble or money, is grossly disproportionate to the reduction in risk.

Best Practicable Environmental Option (BPEO). The radioactive waste management option which is the outcome of a systematic and consultative decision-making procedure which emphasises the protection and conservation of the environment across land, air and water. The BPEO procedure establishes, for a given set of objectives, the option that provides the most benefit or least damage to the environment as a whole, at acceptable cost, in the long term as well as in the short term.

Best Practicable Means (BPM). BPM is a term used by EA and SEPA in authorisations issued under the Radioactive Substances Act. Essentially, it requires operators to take all reasonably practicable measures in the design and operational management of their facilities to minimise discharges and disposals of radioactive waste, so as to achieve a high standard of protection for the public and the environment. BPM is applied to such aspects as minimising waste creation, abating discharges and monitoring plant, discharges and the environment. It takes account of such factors as the availability and cost of relevant measures, operator safety and the benefits of reduced discharges and disposals. If the operator is using BPM, radiation risks to the public and the environment will be ALARA.

Environment Agency (EA). An agency tasked with, among other things, regulating under specific legislation aimed at protecting the environment in England and Wales. The principal legislation under which EA regulates nuclear sites is the Radioactive Substances Act 1993 under which it grants authorisations for disposal of radioactive wastes, including discharges to air and water and transfers to other premises. The authorisations granted by EA are subject to limitations and conditions which have the force of law. See also the Scottish Environment Protection Agency (SEPA).

Hazard is the potential for harm – e.g. arising from ionising radiation. This may vary from time to time according to the operations being carried out or for other reasons.

Health and Safety Executive (HSE). A statutory body with day-to-day responsibility for the enforcement of safety legislation. It is the statutory licensing authority for UK civil nuclear installations, a function it delegates to the Nuclear Installations Inspectorate (NII), which is part of its Nuclear Safety Directorate.

HLW. High Level (or heat generating) waste, in which the temperature may rise significantly as a result of its radioactivity.

ILW. Intermediate level waste, with radioactivity levels which exceed the upper boundary for low-level waste, but which does not generate significant amounts of heat.

LLW. Low level waste, which contains radioactive materials which do not exceed 4 GigaBecquerels/tonne alpha or 12 GigaBecquerels/tonne beta/gamma activity.

OCNS. The Office for Civil Nuclear Security is an independent unit within DTI responsible for the regulation of security in the civil nuclear industry. It is responsible for determining the standards of all aspects of protective security applicable to the industry and for monitoring compliance through the enforcement of the Civil Nuclear Industries Regulations 2003.

Operator. The legal entity which has the responsibility for operating a UK nuclear industry facility.

Radioactive decay is the process whereby the atoms of a radionuclide disintegrate and the radionuclide becomes progressively less radioactive as a result. The rate at which this process proceeds is measured in terms of a half-life, which is the time required for one half of the atoms of the radionuclide to disintegrate. Each radionuclide has a unique half-life.

Risk is the chance that someone or something that is valued will be adversely affected by a hazard.

Safestore is a strategy normally used in reactor decommissioning in which the principal activities are conducted in two or more discrete operations to take advantage of natural radioactive decay. During the interval(s) between the periods of operations the facility's outer containment building is modified to, and maintained in, a state known as "Safestore". This incorporates high levels of robustness and durability, with integral passive security and safety and an environmental monitoring programme.

Scottish Environment Protection Agency (SEPA). An agency tasked with, among other things, regulating under specific legislation aimed at protecting and enhancing the environment in Scotland. The principal legislation under which the SEPA regulates nuclear sites is the Radioactive Substances Act 1993, under

which it grants authorisations for disposal of radioactive wastes, including discharges to air and water and transfers to other premises. The authorisations granted by the SEPA are subject to limitations and conditions having the force of law. See also the Environment Agency (EA) for England and Wales.



Appendix 4 – Consultation response form

Modernising the policy for decommissioning the UK's nuclear facilities

The closing date for this consultation is 27 February 2004

DTI may, in accordance with the Code of Practice on Access to Government Information, make available, on public request, individual consultation responses. This will extend to your comments unless you inform us that you wish them to remain confidential.

Please tick if you want us to keep your response confidential

Name.....

Organisation (if applicable).....

Address

.....

.....

Return completed forms to: Jeff Hoare

Department of Trade and Industry
Nuclear and Coal Liabilities Unit
1 Victoria Street
London SW1H 0ET.
e-mail: jeff.hoare@dti.gsi.gov.uk
Tel: 020 7215 2783
Fax: 020 7215 0263

Please tick one box from the list below that best describes you.

This will help us to present views by group type.

- MP/MEP/MSP/WAM
- Nuclear Facility Owner
- Trade Union
- Environmental Group
- Contractor to Nuclear Industry
- Local Government
- Central Government
- Member of the Public
- Local Interest Group
- Other (please describe):.....

Code of Practice on written consultation

All UK national public consultations are required to conform to the following standards:

Timing of consultation should be built into the planning process for a policy (including legislation) or service from the start, so that it has the best prospect of improving the proposals concerned, and so that sufficient time is left at each stage.

It should be clear who is being consulted, about what questions, in what timescale and for what purpose.

A consultation document should be as simple and concise as possible. It should include a summary, in two pages at most, of the main questions it seeks views on. It should make it as easy as possible for readers to respond, make contact or complain.

Documents should be made widely available, with the fullest use of electronic means (though not to the exclusion of others), and effectively drawn to the attention of all interested groups and individuals.

Sufficient time should be allowed for considered responses from all groups with an interest. Twelve weeks should be the standard minimum period for a consultation.

Responses should be carefully and open-mindedly analysed, and the results made widely available, with an account of the views expressed, and the reasons for decisions finally taken.

Departments should monitor and evaluate consultations, designating a consultation co-ordinator who will ensure the lessons are disseminated.

