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NUCLEAR.	Energy
Annex(1) BNFL + BRITISH ENERGY.	
	PART: 3
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DATE CLOSED	13 MAY 2002

Series : **ENERGY**

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Part : **3**

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RESTRICTED - MARKET

Treasury Chambers, Parliament Street, London, SW1P 3AG

Brian Wilson MP
Minister of State
Department of Trade and Industry
1 Victoria Street
London SW1H 0ET

13 May 2002

Dear Brian,

WITHDRAWAL OF THIRD PARTY NUCLEAR TERRORISM INSURANCE COVER

Thank you for your letters of 18 February and 13 May. I am pleased our officials have been able to work closely together, and understand DTI has come a long way in meeting our concerns about distortions to the market, safeguarding the interests of the taxpayer and developing an exit strategy.

2. As you explain, stepping in to relieve the nuclear industry of some third party operating risks moves against our policy to increase this responsibility in the revision to the Paris Convention. There should be no uncertainty about our continued commitment to this policy. But I am persuaded that there is no alternative at this time.

3. I am therefore prepared to agree to DTI indemnifying British Nuclear Insurers against claims arising from acts of terrorism as a contingent liability after 31 May provided:

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- The Government makes clear it is responding to temporary market failure. It does not accept the insurers' argument that terrorism is a risk which the State must bear
- A suitably commercial premium is charged to safeguard the interests of the taxpayer as well as minimise distortions to the market
- Every opportunity is taken to bring the market back

4. I expect the details of the scheme you establish to be agreed with my officials and to be consistent with Government Accounting rules and procedures.

5. For instance, Treasury officials will want to ensure the seven day notice period could be used to change the terms of the scheme or to cancel *before* the market has fully returned. And your officials will also need to advise you on how tightly drawn the cover should be, and how this should apply to those operators who currently have alternative arrangements to the BNI model. There are a number of such details which could leave the taxpayer unreasonably exposed. If it proves difficult to tie these details down by 31 May, your officials should press BNI hard for a further extension of its arrangements, on the basis of firm commitments of Government intervention. In any event, I would expect DTI to continue to pursue actively other options with the insurance industry, such as risk sharing or a US-type "one-stop" scheme.

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6. I would also like my officials to be consulted on the terms and timing of the announcement, and any communication of Government intent ahead of then. This will of course need careful handling.

7. A copy of this letter goes to John Spellar, Adam Ingram, Lewis Moonie and to Geoffrey Norris (No 10).

Best wishes,

Andrew

ANDREW SMITH

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Secretary of State for Trade and Industry

The Rt Hon John Prescott MP
Deputy Prime Minister and
First Secretary of State
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10 May 2002

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OJ
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Dear John,

WHITE PAPER ON MANAGING THE NUCLEAR LEGACY

This letter sets out the purpose and key themes of the White Paper and proposes arrangements for clearance with colleagues through DA Committee with a view to publication in the first week of July.

Last November, I made a major statement to the House announcing radical changes to arrangements for managing public sector civil nuclear liabilities and a consequential restructuring of BNFL. I said that the changes would be explained in greater detail in a subsequent White Paper with a view to implementing legislation being introduced at the first available opportunity.

The White Paper is now taking shape and I thought it would be helpful if I were to write to you now outlining the key themes and proposals for clearing the text with colleagues through DA Committee.

Nuclear clean-up is essential for the safety of future generations and to protect the environment. The scale and nature of the challenges involved are enormous. So too are the costs – spending in excess of £1bn a year and a total estimated undiscounted cost of well in excess of £40 billion for public sector civil liabilities. Getting to grips with these challenges and getting on top of the costs – which in the short term look certain to rise as understanding of what needs to be done increases - requires top quality technical and management skills and a clear long term strategy and strong focus for delivery which is currently lacking.

The Liabilities Management Authority, which I announced in my statement on 28 November, will fill the gap and be responsible for driving forward, over the next 100 years and more, the systematic reduction of the hazard posed by redundant nuclear facilities, spent nuclear fuel

Work on the White Paper is being taken forward under the guidance of a Project Board of officials from relevant departments, the Devolved Administrations, the nuclear regulators, No. 10; and Cabinet Office. In addition, my officials have consulted widely with stakeholders, including Trade Unions and environmental groups. Some green groups are bound to oppose the continued operation of THORP, SMP and Magnox but, by and large, there is broad support for the LMA and for the themes of the White Paper. There is strong support, in particular, for the commitment to openness and transparency.

Draft chapters are being prepared in consultation with interested departments and will be circulated to the Project Board [as a whole] for comment in the course of the next fortnight. My aim then is to circulate the draft White Paper as a whole to DA members by the end of the month with a request for comments by 17 June. This will allow publication in the first week of July – No. 10 has pencilled in 4 July as a target date. I hope these arrangements are acceptable to you and colleagues.

The White Paper is intended to prepare the ground for implementing legislation via the proposed Nuclear Reform Bill. The BNFL Board's concerns about the company's net asset deficit and BNFL's position mean that the need for this is becoming more rather than less urgent so we can restructure BNFL, set up the LMA and demonstrate to stakeholders that we are getting on with the job. If the Bill cannot be accommodated in the Programme for next Session, it is essential that it should be given advance drafting authority. I will be writing to Robin Cook about this before LP Committee meets on 24 June. Again, there is strong support from stakeholders, including the unions and environmental groups, for early action.

I am copying this letter to DA colleagues, the Prime Minister, Sir Richard Wilson and Geoffrey Norris and to Jack McConnell, Rhodri Morgan and Bill Callaghan, Chair of the Health and Safety Commission.

Best wishes,

PATRICIA HEWITT

IW5067

dti

Department of Trade and Industry

WHITE PAPER ON LEGACY MANAGEMENT

CONTENTS LIST

The Rt Hon Patricia Hewitt MP
Secretary of State for Trade and Industry

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26 March 2002

Dear Andrew,

You will recall that we agreed in November that work should be done on a segregated fund for nuclear clean up, following an earlier report by my officials which indicated that existing funding arrangements made the objective of managing civil nuclear liabilities cost effectively difficult to achieve.

I now attach a work-in-progress report prepared on this and other options for improving funding of nuclear clean up. I am grateful to you and MOD officials for their constructive input to the work. The report also reflects contributions from Lane Clark & Peacock and Deloitte & Touche as, respectively, actuarial and accounting advisers.

The report underlines the case for a segregated fund but also makes the case for an on-vote account held within the consolidated fund. This would be simpler and easier to implement, but would not necessarily have the same impact in terms of public confidence.

I propose that both options should be written into the White Paper to determine whether the benefits of the on-vote account would be outweighed by the presentational advantages of a segregated fund. Decisions could then be taken in the light of feedback, progress on the nuclear reform bill and further work by our officials.

I would be grateful for your and colleagues' views. It would be helpful to have comments by 17 April so that work on the White Paper can proceed.

I am copying this letter to the Prime Minister and recipients of my letter of 29 October.

Best wishes,

Patricia

PATRICIA HEWITT

Annex 1

Work in progress report on a segregated fund

1. A segregated fund could have a wide variety of features, each with different consequences in terms of corporate governance, accounting and budgeting treatment and, importantly, ability to meet policy objectives. The proposals we identify here represent our attempt to find the best mix in terms of optimised operational and management efficiencies. Specifically, they would:

   - Seek to provide confidence that money earmarked for clean up will be used for that purpose;
   - Seek to ensure that adequate funds will be available to meet decommissioning costs as they fall due to a high degree of certainty, and to demonstrate to contractors and the public that funds will be available to meet decommissioning costs into the future;
   - Seek to ensure that there is an adequate "buffer" to give the LMA freedom to bring forward or defer decommissioning projects for operational or efficiency reasons;
   - Dove tail into the government's spending review processes and smooth funding departments' contribution payments between these reviews; and
   - Offer protection to funding departments' DEL budgets against significant swings in liabilities estimates and spend profiles.

Structure

2. Our analysis suggests that a fund should be set up in statute and either controlled by the LMA itself or managed by "Trustees". It would operate under statutory provisions rather than under Trust law (although in a similar manner).

3. It would cover decommissioning and waste management costs and directly associated expenditure (e.g. research and skills programmes). Subject to Treasury agreement, our preference would be for it also to cover the LMA's running costs. This would ensure that the LMA was not constrained where increased activity would represent VFM. This issue is not, however, critical to the model.

4. Thorp, SMP and Magnox would be operated from funds which were separate from the segregated fund. In particular, cash shortfalls/losses resulting from the operation of these facilities/plants would not be covered from the fund. Current thinking is that, if government took the risk in relation to the operation of these facilities/plants, any cash surpluses/profits could be paid into the fund.

5. The initial payment into the fund would relate to BNFL's NLIP (some £4.0 billion, book value). The proposal is that DTI/MOD and Treasury would agree (outside

the statutory framework) the level of subsequent contributions to be paid into the fund as part of the spending review cycle.

6. DTI/MOD and Treasury would be informed by:

   - The LMA's expenditure estimates for future years (the LMA would be required to prepare and publish and regularly update whole life site remediation plans and liabilities estimates); and

   - Actuarial modelling of the payments needed to maintain the fund at an agreed level based on an agreed investment strategy. For example, the fund might aim to hold sufficient assets to discharge the decommissioning liabilities over the next 5 years with 80 % certainty, plus with 50% certainty:

     - 80% of year 6 liabilities;
     - 60% of year 7 liabilities;
     - 40 % of year 8 liabilities; and
     - 20% of liabilities for years 9 to 15.

7. More modelling work, to determine the actual desired level of funding (including the level of contingency), would be required if Ministers were to decide to proceed with the segregated fund option.

8. It is important to note that the fund would not be fully funded. This would both be unnecessary and, in fact, practically impossible, given that the liabilities estimates are so uncertain.

9. In practice, there would need to be some flexibility in the funding department's level of contributions, both to protect DTI/MOD's bargaining position with Treasury and to allow government to override decisions on contributions (and the operation of the fund) in the light of more pressing political matters. Having said this, contributions should remain at a level which was consistent with the objective of publicly demonstrating a real commitment to clean up. DTI and MOD payments already represent in excess of c. £400 million p.a. and from 2008 DTI is due to make payments of c. £4-500 million p.a. to contribute to the decommissioning of Magnox plants (the "Magnox undertaking"). These figures represent the baseline.

10. The LMA would be able to draw on money from the fund in order to finance work programmes agreed by Ministers. The programmes would require the LMA to go back to Ministers in the event that it wished to undertake significant additional expenditure not covered by the programme. (The proposed corporate governance arrangements for the LMA have been developed with this model in mind.)

11. The LMA would, therefore, be able to plan its operations with the confidence that funding was available and have the flexibility to deal with short-term variations in annual spend.

12. On the basis of recent and projected expenditure by BNFL, our actuarial advisers suggest a fund of around £5 billion would be sufficient to provide the desired certainty and flexibility. (More detailed calculations would be done if Ministers decided to proceed with the segregated fund option.)

13. An actuarial finding that the fund's value was more/less than the projected decommissioning costs would result in reduced/additional contribution requirements by DTI/MOD into the fund at least until the next review. If the discrepancy were the result of poor management of the funding process by DTI/MOD, it would be debited, up to a cap, to their DEL accounts (the level would need to be agreed with Treasury). In certain circumstances, there could be a mechanism whereby DTI/MOD could claw back excess funds in an orderly manner.

Corporate governance of the fund

14. The fund could be vested in either:

- A statutory body corporate appointed by Ministers (akin to Trustees). The body corporate would appoint persons to manage its assets and make payments to the LMA as and when required; or

- The LMA itself, which would appoint persons to manage it consistent with an agreed investment strategy, and draw down on the fund and in order to finance work programmes agreed with Ministers.

15. In principle, the former option would add another layer of control. In practice, given the proposal that the LMA should be able to draw down, in effect, automatically from the fund in accordance with its work programme, the creation of a body corporate might not add very much. Moreover, alternative controls should be able to be put in place which would satisfy the Departmental Accounting Officer that satisfactory systems of control existed within the LMA and between the Department and the LMA. For example, the operators of the fund would report annually to Ministers on their activities. The report would be published and laid before Parliament. The NAO would also scrutinise and report on the report.

16. The fund could be managed by either the National Debt Office in the Treasury, or (if it invested in more than government bonds) private fund managers. This decision will depend mainly on the fund's investment strategy, which is discussed below.

Investment strategy

17. Our actuarial advisers have suggested that the optimal investment strategy for a fund of the size and duration we are proposing would be a mix of bonds and equities. High level modelling work has suggested a split in the range of 10 to 15 per cent equities and 85 to 90 per cent bonds. (The exact asset split between

equities and bonds would depend on many factors such as the parties' objectives, the initial size of the fund, the margins taken for uncertainties, the assumed over performance of equities over government bonds, tax treatment and so on.) Our advisers have also indicated that, when considered with the liabilities estimates, such an investment strategy would be more likely to match funding requirements (i.e. have a lower risk profile) than a strategy based on bonds alone.

18. Government does not, however, generally invest in equities. We have commenced discussions with Treasury to find out whether the segregated fund could be an exception to this rule.

19. Initial modelling, based on long-term historical returns, suggests that a mixed investment strategy would make sense on a VFM basis even after including the cost of active fund managers. (The costs of managing the fund will depend on the asset mix and whether assets are managed actively or passively. On an initial fund of £5 billion, this translates into charges in the range of £5 - £12.5 million p.a.) It might also raise public and market confidence, in that the fund would operate more akin to a fund outside of government.

20. A question for further consideration – and one which would need to be tested if Ministers decided to proceed with the segregated fund option – is whether the increased confidence would offset any deterioration in the government's risk profile (this being the Treasury's argument against government investing in equities). At this stage, it is by no means clear that this would be the case and we recommend that the views of the public and of the market be tested in the White Paper.

21. If agreement was given to invest in equities, further modelling work would need to be done which took into account the funding departments' "aversion function" measuring how DTI/MOD (or government as a whole) would "feel" about different levels of surplus or deficit over different time horizons. This will be important given that deficits would need to be met from other departmental budgets or Treasury, and that Treasury would be unlikely to agree to a cap on funding departments' DEL budgets' exposure to equities shortfalls.

22. A decision to invest in equities would have implications for the fund's governance arrangements. In particular, Ministers would need to be, and seen to be, at arms length from those taking investment decisions and not be, or be seen to be, in a position to influence them. This is perhaps an argument in favour of a statutory body corporate to hold the fund. It may also be an argument in favour of limiting investment to overseas equities. In this way, Ministers could not be seen to be picking winners or favouring particular sectors of the economy. Irrespective of this decision, the fund would not invest in the nuclear sector in order to avoid compounding any difficulties encountered by this sector.

23. Investments in equities would also have implications for the government's fiscal aggregates. In particular, it would raise the government's net debt. The increase would, however, be miniscule in relation to overall debt figure, and is unlikely to concern Treasury.

24. Whether or not the fund invested in equities, bringing BNFL's NLIP into the segregated fund would have implications for central government net borrowing and, therefore, the government's ability to meet the targets set by the "Maastricht stability pact" (unless the fund was outside government for accounting purposes). In particular, net borrowing would improve when the NLIP was transferred into government, and worsen as expenditure was made from the fund. While the expenditure amounts would be large enough to have a noticeable impact on net borrowing, recent Treasury forecasts suggest that they would not result in the targets being breached.

25. A prohibition on investments in equities would not, in our view, undermine the main reasons for setting up a segregated fund.

Taxation

26. There would be an option whether or not to tax:

- The segregated fund's investment income;
- Payments in;
- Distributions;
- Claw backs; and
- Contributions on winding up.

27. Taxation would seem to be a pointless exercise in recycling money. It would also reduce the returns on investments and increase their volatility (thereby affecting the size of contributions to the fund). Further, it could lead to distortions of the investment strategy and lead to perverse investment decisions.

28. On the other hand, a decision to tax the fund would be consistent with its independence from government and could, therefore, further the policy objectives of public and market confidence. It would also be consistent with the treatment of the British Energy segregated fund and NLIP.

29. We believe that decisions on taxation should follow, and not lead, decisions on the structure and all other aspects of the fund and be informed by the wider context, including the LMA's other taxable activities and the treatment of other funds. Recommendations on taxation would follow any decision by Ministers to proceed with the segregated fund option.

Accounting and budgetary treatment

30. The way that government accounts for the fund and its treatment for budgetary purposes would both be important. (Accounting classification would not determine corporate governance arrangements which can be fit for purpose.)

31. If the LMA controls the fund, the fund will adopt the LMA's public expenditure classification. This could be a public corporation, a self-financing public

corporation or within central government (as a NDPB). The LMA's classification will depend on how the transfer of the assets and liabilities to the LMA is structured and the extent of the LMA's trading activities, i.e. Thorp, Magnox and SMP.

32. If, on the other hand, a statutory body corporate controls the fund, the fund will be classified within central government.

33. If the fund were classified as a public corporation (which may be possible for a limited period), payments into the fund and a cost of capital charge on the funding departments' investment would ordinarily be debited to the DTI/MOD's DEL budgets. They would be stable within each spending round and DTI/MOD's DEL budgets should be adequately protected.

34. If, on the other hand, the fund were classified as part of central government, payments out of it would ordinarily be debited to DTI/MOD's DEL budgets. In addition, movements in the value of investments, a cost of capital charge on investments, returns on investments, tax and management charges would all be debited to these budgets.

35. These effects would be contrary to our objective of optimal operational and management efficiencies and no perverse incentives or penalties for events or actions which were outside departments' control. In particular, DTI/MOD would have to predict these effects at each spending review. If they could not do so (almost a certainty), they would need to make up budgetary shortfalls by limiting LMA expenditure.

36. Accordingly, DTI/MOD would, under this scenario, have to seek Treasury agreement for concessions from RAB, for example, so that payments into the fund were debited to their DEL budgets. The result would be that budgetary estimates would be different from parliamentary estimates. There are, however, precedents for this.

37. Treasury officials have agreed to respond constructively to such requests provided DTI/MOD can find mechanisms which will give it comfort that funds will not be misused. We identified these mechanisms in paragraph 15 above, i.e. approval of work programmes, Capex limits, public reporting and NAO scrutiny.

38. Care would have to be taken not to build perverse incentives into the budgetary treatment of a fund. It might, for example, be consistent with VFM, to bring expenditure forward from one year to the next, and the funding departments should not be penalised for the resulting increases to the spending profile. Similarly, it may be consistent with VFM for a segregated fund to invest in equities. If this resulted in shortfalls in the short-term (but not in the long-term), again, funding departments should not be penalised.

39. Care would also need to be taken not to penalise funding departments when additional requirements were the result of matters outside their control, for example, the crystallisation of regulatory risk.

Annex 1

Steps to establish a segregated fund

40. The following broad steps would need to be taken if Ministers decided to establish a segregated fund for nuclear clean up:

- Detailed modelling work by the department's actuarial advisers;
- Preparation of a wish list for negotiation with Treasury in SR2002 and beyond;
- Decisions on the detailed aspects of the fund, e.g. investment strategy, taxation; and
- Preparation of provisions of the nuclear reform bill.

Annex 2

Work in progress report on an on-vote account

1. An on-vote account would be similar to a segregated fund, in that government would set aside a sum of money which it would replenish from time to time and which could only be used for nuclear clean up work.

2. Unlike a segregated fund, however, it would have the advantage of following normal supply procedures and the principle whereby all government funds should be consolidated. Also, unlike a segregated fund, funds would not be voted by Parliament until they were needed.

3. Payments into and out of an on-line account would, in reality, be payments into and out of the Consolidated Fund. Authority for payments and receipts would be sought through DTI's supply estimates.

4. The fund would be an account of these transactions, established in legislation, maintained by the funding departments and with an accounting officer. The funding department would publish an annual report and separate accounts for the fund, which would be audited by the NAO.

5. The receipt from the NLIP would be credited into the account. The account would be credited with interest on the balance and subsequent contributions by the funding departments. Balances would be maintained from one year to the next.

6. Legislation would protect the fund from diversion for other purposes. It would also enable payments out of the account to be for a specified purpose, i.e. to fund the LMA's agreed work programme. Payments out of the account would be debited to the balance. Subject to Treasury agreement, they would not be debited to the funding departments' DEL budgets (see paragraph 9 below).

7. The account would be topped up at regular review points in order to maintain a sufficient balance to meet currently projected spending requirements over a specified time horizon. While the level of contributions would be a matter of policy for the government of the day, as with a segregated fund, they should remain at a level which was consistent with the objective of publicly demonstrating a real commitment to clean up. The level of contributions could be determined in the same manner as for a segregated fund – see paragraphs 5 - 6 of Annex 1.

8. Unlike a segregated fund, there would be no real money to invest or (potentially) be taxed. Agreement would, therefore, need to be reached with the Treasury on the interest level to apply to the account. The most sensible rate would seem to be the Green Book rate (6%).

Accounting and budgetary treatment

9. As with a segregated fund, the budgetary treatment of an on-vote account would be key to enabling the account to deliver the prescribed policy objectives. In

particular, again as with a segregated fund, the funding departments would need to obtain Treasury agreement that expenditure from the account would not be debited to their DEL accounts. Instead, payments into the account would be debited to their DEL budgets.

10. The funding departments would also need to seek supplementary estimates in the event of the LMA bringing forward spend. We do not, however, envisage that this, effectively procedural, requirement would limit the flexibility and certainty the LMA needs to manage its liabilities cost effectively.

Steps to establish an on-vote account

11. Broadly the same steps that would be needed to establish a segregated fund (other than decisions on the fund's structure and operation) would need to be taken if Ministers decided to establish an on-vote account, i.e.

- Preparation of a wish list for negotiation with Treasury in SR2002 and beyond;
- Decisions on the detailed aspects of the account; and
- Preparation of provisions of the nuclear reform bill.

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10 May 2002

SVI
c/o J
MH
JK
SV
CS
JJM

Dear John,

NUCLEAR REFORM LEGISLATION: CONSTABULARY ASPECTS

This letter seeks colleagues' approval to the inclusion in the forthcoming nuclear reform legislation of measures to separate the UKAEA Constabulary from UKAEA and to set it up as a stand-alone Constabulary overseen by a statutory police authority. Responses are sought by 23 May or sooner if possible.

Following my statement in the House on 28 November outlining the Government's intention to separate the UKAEA Constabulary from UKAEA and to set it up as a stand-alone Constabulary overseen by a statutory police authority, I am writing to let you know of the specific measures I intend to include in the Nuclear Reform Bill, whose main purpose will be to establish new arrangements for the management of civil public nuclear liabilities.

These issues will be covered in the White Paper I intend to publish foreshadowing the Bill and will be set within the broader context of nuclear security.

My aim is to reconstitute the UKAEA Constabulary on a basis properly independent of the industry it protects; and provide modern standards of governance for the force, with improved transparency and accountability, through setting up a new statutory police authority which will take over responsibility from UKAEA for the employment and oversight of the force. These have been developed from the conclusions of the Stage 2 report from the UKAEA QQR on which colleagues commented in November of last year. These proposals are summarised in the attachment.

The Constabulary plays a key role in the civil nuclear security regulatory regime, for which I am responsible, through protecting a number of civil nuclear sites and sensitive nuclear material in transit. The proposals aim to ensure the continued efficient discharge of its

security role; to provide a robust legislative basis for a modern police force, paralleling Home Office police legislation as needed but tailored to the Constabulary's specific role; and as mentioned, provide improved governance through its oversight by a statutory Police Authority accountable to me. The proposals establish a structure of relationships between ministers, the Police Authority and the Chief Constable conducive to achieving these goals.

A key feature therefore is the power I propose (to be exercised primarily by the civil nuclear security regulator, the Director of Civil Nuclear Security on my behalf and continuing my present powers) to set the regulatory framework and security standards within which the Constabulary operates; and fall back powers of direction to the Police Authority to ensure that it secures their implementation. My use of these powers will however respect the Police Authority's oversight role and the Chief Constable's operational independence.

The composition of the police authority will include an independent chairman and 2 independent members, to be appointed under Nolan principles, and 4 representatives of nuclear site operators. I have considered the views expressed by colleagues about maintaining a majority for the commercial operators on the Police Authority but I believe it is right for the following reasons. These reflect the special circumstances of this force.

The nuclear operators of the sites protected by the Constabulary are legally liable for the safety and security of their sites, and necessarily have a critical interest in the performance of the Constabulary. They also fund 100% of its costs. The limitation of its functions to the protection of nuclear sites and nuclear material (including in transit) means that there is minimal contact with the public, so that the normal need for local public representation on the Police Authority has much less force. Wider public accountability would be provided by the independent members who would be expected to bring breadth of view, expertise, and to contribute to the sound corporate governance of the body.

Moreover, I can reassure those who are concerned that the commercial operators would focus on economy to the detriment of police numbers and the effectiveness of the force. The Constabulary is required to meet security standards and measures set by the security regulator, the Director of Civil Nuclear Security, which effectively sets the minimum number, duties and deployment of police officers on sites necessary to meet its security objectives and thus places a floor under the finances of the force. Furthermore, I will have broad and flexible powers to issue directions to the Police Authority, which can be used to ensure that the budget is set at a satisfactory level, should the need arise. The input from the operators provides useful commercial discipline (within the limits already set) and contributes substantial expertise in the maintenance and policing of secure sites.

I also recognise the need for the Police Authority to act with reasonable transparency to provide public reassurance about the role and functioning of the Constabulary, subject of course to the security sensitivity of the matters being discussed. For this reason, most meetings will necessarily remain closed but in order to increase transparency while not prejudicing security, I propose holding an occasional meeting open to the public once or twice a year aiming to give a general account of Constabulary's work.

As part of the overall modernisation I would like to take this opportunity to provide a modern statutory basis for the Constabulary. This would both replace the current archaic statutes and allow the appointment of officers as constables rather than special constables, as at present, which better reflects their status (Special constables have more recently become a category of part-time unpaid officer employed to assist the full time constables in Home Office and other police forces. While essentially a presentational matter, the continued designation of Constabulary officers as special constables does not sit easily with their status as full-time members of a professional force with the capability for armed response). The Chief Constable strongly supports this development.

The Constabulary's powers and jurisdiction would be unchanged except to remove its jurisdiction over land and premises owned or controlled by nuclear operators more than 5 km outside nuclear licensed sites, and to remove its power to pursue stolen property up to 15 miles from the sites of certain operators. These powers are no longer relevant to the core duties of the force.

I envisage a statutory requirement for inspection of the force by Her Majesty's Inspectors of Constabulary to replace the present voluntary inspections. This will align the force with Home Office forces and provide expert scrutiny of the force against the best policing standards. As the force operates in England, Wales and Scotland, it would be desirable to reach agreement between the respective HMICs (both the England & Wales, and Scottish bodies) to ensure that a single inspection is conducted for the whole force, so as to avoid fragmented or duplicated inspections.

Finally, I propose to introduce provisions paralleling those for Home Office forces to limit the ability of members of the force to undertake industrial action. These will prohibit membership of a trade union for members of the force and provide for any person inducing members of a police force to withhold their services to be guilty of an offence. The Home Office police staff representative body, the Police Federation, is recognised in legislation and I propose to give statutory recognition to the equivalent police staff representative association, the Constabulary's Police Federation.

I would be grateful for responses by 23 May or earlier if possible.

I am copying this to the Prime Minister, members of DA, Geoff Hoon, the First Minister in Scotland and Sir Richard Wilson.

Best wishes,

PATRICIA HEWITT

RESTRICTED POLICY

OUTLINE OF KEY ELEMENTS FOR LEGISLATION

The key elements comprise:

i) Powers and duties of the Secretary of State

- General duty to exercise powers to promote the efficiency and effectiveness of the force
- Power in relation to the Police Authority to -
  - appoint the Chair and members (minimum 7 up to 13)
  - remove the Chair or member
  - vary the number of Police Authority members
  - set terms and conditions of appointment
- Power to set objectives for the Police Authority, in particular on security
- Power to direct the Police Authority to secure effective discharge of its responsibilities in ensuring effective AEAC performance
- Power to issue directions to the Police Authority to take remedial measures following an adverse HMIC report
- Power to approve appointment by Police Authority of Senior Officers (the Chief Constable and Deputy Chief Constable)
- Power to approve the recommendation of Police Authority to suspend and seek the resignation or retirement of Senior Officers
- Power to require the Police Authority to suspend and seek the resignation or retirement of Senior Officers
- Power to seek a report from the Chief Constable on a policing matter.

ii) Powers and duties of the Police Authority

- Duty to maintain an efficient and effective force
- Duty to set strategy, objectives and performance targets, reflecting those set by the Secretary of State, including security objectives set by her, and having regard to any policing objectives set by the Home Secretary;
- Duty to issue annual Policing Plan
- Duty to issue 3-year strategy plan every 3 years
- Duty to set annual budget
- Power to nominate constables
- Power to employ members of the force and civilian staff
- Power to appoint and seek the retirement/suspension/resignation the Senior Officers, subject to approval of the Secretary of State
- Power to determine the remuneration of Chief and Senior Officers
- Duty to publish an annual report and submit to Secretary of State
- Duty to appoint the Clerk
- Power to approve collaborative arrangements with other forces
- Financial management duties, including maintenance and audit of accounts

- Liability for the wrongful acts of force members and power to pay out sums in settlement

iii) Financial Provisions

- SofS to determine financial duties of the Police Authority
- Duty of the PA to keep proper accounting records and prepare annual accounts in a form that the SofS, with the consent of the Treasury, may direct
- Accounts to be audited by the C&AG and sent to the SofS to be laid before both Houses
- Power for the PA to make charges to recover its costs
- Power of the SofS to make grants to the PA
- Powers for the PA to borrow, and for government to lend or to guarantee borrowing
- Power for the SofS to direct the PA to pay an amount it has received and to pay any surpluses

iv) Powers and duties of Chief Constable

- Power of control and direction of force
- Duty to prepare an annual report to the PA and publish the report

v) Constitution of the Force/ Other Police Issues

- New statutory basis (no longer special constables)
- Attestation to align with English/Welsh and Scottish declarations
- With powers and privileges of a constable within their jurisdiction
- Jurisdiction largely unchanged (with some minor amendments)
- Requirement for inspection of Constabulary by HMIC
- Recognition of Constabulary Police Federation
- Prohibition on membership of trade union for members of the force
- Prohibition against inducing members of a police force to withhold their services
- (possibly) Civilian searchers (a means introduced in the Police Reform Bill for the searching of persons and vehicles to be undertaken by non-police civilian staff, trained for the specific purpose, operating under the control of the Chief Constable)

vi) Provision for force members to retain membership of UKAEA pension scheme

COVERING RESTRICTED – POLICY & COMMERCIAL

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Direct line 020 7215 2851
Our Ref
Your Ref
Date 2 May 2002

Dear Emma

WITHDRAWAL OF NUCLEAR TERRORISM INSURANCE COVER

Can I begin by saying how immensely grateful we have been for the advice you and your Treasury colleagues have given us in helping us refine our ideas about what we should do in the light of the above insurance withdrawal.

I am attaching herewith a detailed paper which sets out our proposed course of action and, in so doing, hopefully addresses the questions you asked and the clarifications sought. I would be grateful if you could give your most urgent attention to this, as the days up to 31 May are quickly passing. I also hope that on the basis of the paper you feel able to recommend to the Chief Secretary that he gives the green the light to the scheme and writes to Brian Wilson to that effect.

Can I also say how grateful we were for clearance to make an informal approach the European Commission concerning the potential State Aids issues associated with any such scheme. Those discussions are now in hand through UKREP.

I am copying this letter to colleagues here, Geoffrey Norris (No10), and Linda Lockyear (CO/Civil Contingencies Secretariat), Sally Burlington, Victoria Robb, Graham Turnock (HMT)

Yours ever

IAN DOWNING
Director – International Nuclear Safety (CEE & FSU)

WITHDRAWAL OF TERRORISM COVER BY BRITISH NUCLEAR INSURERS (BNI)

Paper by the Department of Trade & Industry

Introduction and Summary

This paper presents DTI's case for a temporary Government indemnity to the British Nuclear Insurance Pool (BNI) to ensure that operators can continue to comply with statutory obligations following the unwillingness of the commercial sector, post-September 11, to provide cover for damage arising from acts of terrorism. The paper is structured as follows, it:

- Provides a factual background on the current legal framework for operators' and and HMG's obligations relating to third party damage from nuclear incidents; and the arrangements, chiefly involving the BNI and the European reinsurance market, by which such cover is normally provided. The paper also notes in this context that in the longer-term operators' and HMG's statutory insurance obligations will increase following ratification (and implementation through the Nuclear Reform Bill) of recent revisions to the Paris & Brussels Conventions.

- Describes the domestic and international market's response to the events of September 11, and DTI's own attempts to identify alternative options for providing cover commercially. Here the paper concludes that (a) the temporary extension of cover agreed by the industry from 1 April to 31 May 2002 is very unlikely to be further extended, and (b) there are no realistic options for filling the gap in cover by this date. The prospects that a commercial market may fully re-emerge in the long run and steps that the market is taking itself in the interim are touched upon.

- Describes potential consequences - substantive and presentational – should insurance cover for terrorism-related incidents cease to be available after 31 May. It concludes that a balanced risk assessment strongly favours Government intervention.

- Outlines and seeks Treasury approval for DTI's preferred approach of a Government indemnity to enable BNI to continue to maintain cover pending the restoration of a fully commercial market. It describes DTI's proposed mechanism for operating the indemnity (designed, broadly, to minimise administrative burdens and presentational risks, while facilitating an orderly return to a fully commercial market at the earliest possible opportunity.) In so doing the paper notes the earlier experience with the airline insurance market and seeks to benefit from the lessons learned. It also notes that the Department has commissioned independent expert advice on the details of the interim mechanism.

- Recognises the interest of the EU Commission in any such indeminity arrangements and notes the actions in train (with Treasury agreement) to secure EU Commission clearance.

- Finally emphasises the very limited time available to agree and implement a solution; the procedural steps need (by HMT and others) to achieve this; and the importance meanwhile of developing presentational lines.

Current Legal and Administrative Arrangements

Legal Framework

2. In the UK, the Nuclear Installations Act 1965 (the NIA) gives force in UK law to the provisions of various international Conventions *(Vienna, Paris, Brussels)* on nuclear liability. Under this legislation the nuclear operator is **absolutely and exclusively** liable for any damage to a third party caused by the on site emission of ionising radiation from whatever cause (except war). This is reflected in the long-established and continuing UK policy line that as much of the liability as possible should be covered by the industry itself having regard to what the insurance market can bear. Operators' liability is currently limited to £140m per incident, and they are obliged to cover that liability through insurance or other means. If they do not have such cover, they commit a criminal offence. If, in the event of an incident where claims exceed the £140m per incident limit, these are met by the Government under the provisions of the same Act. These arrangements are unique to the nuclear industry. They reflect international agreement that, since a nuclear accident could have such large-scale consequences, potential victims around the world must have certainty that they will be compensated.

3. Over recent years there has been a recognition (at least until the present collapse of the market) that levels of compensation for which the industry is liable have not kept in line with the availability of commercial cover, thereby increasing the financial exposure of governments. As a result, in the recently concluded negotiations for the revision of the Paris Convention on Third Party Liability in the Field of Nuclear Energy – which sets the international legal framework for the compensation of victims – the UK has supported successful arguments for an increase in operator's liability on the "polluter must pay" principle. *(This is consistent with last year's recommendations of the PIU)* It was agreed that the new compensation amounts for operators' liability should in due course be increased to €700m per incident. Nothing in the present paper is intended to infer any change to this basic policy of a progressive movement of responsibilities and costs on to operators in the medium to longer-term.

Current Nuclear Insurance Arrangements

4. Nuclear insurance pools have been established at a national level in many countries to provide the maximum possible insurance market capacity for material damage and third party liability cover for nuclear facility operators. In the UK, British Nuclear Insurers (BNI) is the national insurance pool (in fact four pools – Domestic, International, Canada and Marine Transit)) representing the UK insurance market in nuclear matters.[1] Currently 14 individual insurance companies and 38

[1] It is noted in passing that, in addition, in 1990, Pool Re (Nuclear) was established as an alternative mechanism for insuring against the risk of physical (material) damage and business disruption from terrorist attack. This did not cover third party liability which remained with the conventional insurance market. Any extension of

Lloyd's Syndicates subscribe to its Management Agreement. A fuller account of the organisation and operation of BNI has already been forwarded to HMT *(A list of nuclear sites covered is given at Annex A)*

5. The majority of nuclear operators obtain all of their third party liability insurance cover through the British pool. The exceptions are British Energy, which obtains £70m of their third party liability cover outside the pool through a separate company - EXEL. This policy has another two years to run. BNFL have captive insurance arrangements (wholly owned subsidiaries) for the exclusive cover of their own risk, however it obtains re-insurance through the pool and will therefore be similarly affected by the withdrawal of terrorism cover.

The Impacts of the Events of 11 September

Current Position

6. The effect of the events 11/9 on the nuclear insurance market took longer to emerge than in other industries (e.g.airlines), mainly duly to the fact that the insurers were locked into agreements from which they could not withdraw. However, starting with the British Pool, a global ripple effect has developed which seems destined to see third party nuclear liability cover withdrawn internationally by the end of the year as more and more policies come up for renewal.

7. In the case of BNI, UK nuclear operators and the Government have been given notice of cancellation of current policies insofar as those policies cover terrorist risks. This was due to take effect from 1 April 2002, however the cover has now been extended at DTI's request until 31 May 2002 to give time for the implications and alternatives to be accessed. Subsequent pressure by the Department on BNI to secure a further extension from its members has thus far been met with firm resistance. The members of BNI along with other insurance markets around the world claim that the events of 11/9 represent a new form of risk that falls outside of the scope of normal insurance. Incidents of this nature are not attacks against the operator, but against the State, and the State should therefore bear the responsibility for the payment of compensation. In the case of BNI they also claim that UK nuclear installations present a greater risk as a result of UK's support for US anti-terrorism policies.

8. In purely financial terms, the magnitude of the claims across the whole range of insurance products arising from the WTC event is what has frightened insurers. All the indications are from discussions with both UK and overseas colleagues is that this general sentiment is real and is persisting, particularly to nuclear insurers, where the perception of the risk is much greater than in the conventional markets.

9. The above comments are not anecdotal nor just apply to BNI. Other European Nuclear Pools have publicly stated that they will not continue to cover terrorism once current European policies have lapsed in December 2002. Marsh (London based brokers involved in PoolRe) have confirmed that they expect these pools to give three

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PoolRe(Nuclear) to cover third party laibility would require primary legislation and is not a option in the current circumstances.

months notice of cancellation later this year. Sebastian Reitsma, General Manager of the Swiss Pool (the largest in Europe) has echoed this view. The US arrangements are somewhat different and are described in footnote 2.[2]

10. This trend is born out by the attempts of UK companies to find cover in alternative markets. For example, British Energy has been advised by insurance brokers that there are only three credible insurance companies capable of underwriting nuclear liability outside the nuclear pool system – EMANI, ACE European Markets Insurance Ltd and EXEL Europe Insurance. ACE and EXEL have confirmed that, in future, they will not be covering <u>any</u> terrorist risk, not just nuclear liability. EMANI said that they would provide cover but not without the agreement of their re-insurers. They cannot obtain such an agreement.

11. The scope for UK industry to adopt self-insurance has also been considered. The overall position of BE is of course being explored in other fora where the current third party liability issue represents just one small component of far broader issues. As mentioned in para 5, whilst BNFL has limited captive insurance arrangements, they do not extend so far as to cover an attack on the scale of 11/9, nor do they cover the full liability amount required under the NIA. Universities operating research facilities clearly do not have sufficient assets. It may be that some commercial operators such as Rolls Royce, ICI, and Amersham International do have sufficient assets to wholly or partially self-insure but this is not a workable solution for the industry as a whole. Nor could such a mechanism be in place by 1 June.

<u>Prospects for Market Recover</u>

12. All the sources consulted paint a pessimistic picture of full market recovery in the short-term to medium term for the reasons outlined above *(Certainly not on the 1 June timescale necessary to address the UK position).* This is not to say that the insurance industry is being idle. A number of formative schemes are being examined, including a "one shot"/mutual insurance arrangement similar to that in the USA (see footnote 2 below). This is under current consideration by the pools of Western Europe (ie Paris Convention Countries plus Switzerland). Full details of how this might eventually work are not yet clear and a separate note will be provided on this issue. Even if such a scheme were to come into existence, it would not be before 2003.

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[2] In the US, operators are liable for all third party liability up to the amount of $200m. Once damages have exceeded that amount secondary cover is available from a pool to which that all operators contribute. Therefore, the US industry, as a whole, covers liability for each individual installation for damage that exceeds $200m. This secondary pool provides a total of $9500m which breaks down to at most $88 million each for the nation's 106 nuclear power reactors. The US pool has increased over the lifetime of US nuclear insurance legislation. The US scheme covers all third party liability, but in the case of an incident attributable to terrorist attack the operators are only obliged to cover the first incident annually. This "one shot" scheme was introduced in response to the events of 11/9.

Consequences of Cover Withdrawal from 1 June

13. In the light of the foregoing – and setting aside more speculative prospects such as reform of PoolRe(Nuclear) or the emergence of new innovative market based solution, the immediate options are **stark, uncomfortable and twofold;** namely

1. **Do nothing**

2. **Instigate immediate Government led short-term intervention in the insurance market** – at a level and for a duration as yet to be determined in consultation with the European Commission – to underpin existing market mechanisms and secure continuance of existing insurance cover until such times as current market difficulties partially or fully resolve themselves. This option is developed in the next section.

14. The "do nothing" option raises a whole range of difficult legal, operational and presentation issues. At the simplest level, a gap in insurance cover will have a significant impact on arrangements for the payment of compensation. Current arrangements pre-suppose that the commercial insurance market will automatically and rapidly handle claims that result from nuclear damage. If a terrorist attack caused nuclear damage that was not covered by insurance and therefore the Government had to take responsibility, it is not at all clear who would administer the claims and be responsible for emergency payments.

15. The specific consequences however go far wider. In summary:

Legal and Operation

- UK nuclear operators would be unable to comply with the provisions of the Nuclear Installations Act 1965 and so *prima facie* automatically commit a criminal offence;

- In the above circumstances, the prosecuting authorities would have to consider whether to prosecute companies or individual directors for this offence;

- Directors of nuclear operator companies may feel they should consider resigning from their posts in the light of the possible threat of criminal proceedings against them, and of potential damages claims against them personally in the event of a terrorist incident causing damage;

- Individuals, NGOs or foreign governments may seek to take legal action, either against nuclear operators in domestic law or against the Government under international law;

- The Nuclear Installations Inspectorate would decline to issue any new nuclear site licences in the absence of an indication that potential operators have in place the insurance which they are required by statute to have; (*this is a not an*

irregular occurrence as plant operations and site boundaries change over time).

Presentational

- The Government would need to explain why it was allowing UK nuclear plants to operate without adequate insurance cover, leaving potential victims of a terrorist incident without clear recourse to compensation;

- There would be a clear gap in the UK's third party nuclear liability regime, which would leave the UK at variance with its international partners in its implementation of the Paris Convention

These consequences are addressed in greater depth in Annex B

16. The knock-on effects in terms of reputation and credibility for both the nuclear industry and Government are, we believe, too awful to contemplate. For this reason the Department favours some kind of formal intervention in the market at this stage Such a move would send a clear signal by the Government that it is mindful of its domestic and international responsibilities and that it takes the issue of compensation seriously. In short, HMG would capture the moral high ground in defence of its continued nuclear operations.

The Proposed Scheme

17. The TROIKA scheme introduced in the immediate aftermath of 11/9 sets a precedent, if not necessarily providing a model for what we propose - although we do wish to exploit the best points and avoid the worse. It is proposed that the DTI scheme should fulfil the following criteria: (a) as far a possible provide a seemless extension of existing policies; (b) be limited in extent and duration; (c) not create new institutional arrangements but underpin and build on existing market mechanisms; (d) be cleared by the European Commission; (e) be kept under constant review (monthly); (f) have a clear exit strategy; (g) maintain pressure on the insurance industry to restore complete or partial commercial cover as soon as possible, and on the nuclear operators to continue to look for alternative sources and methods of cover; and (h) be cheap and efficient to administer.

18. What is envisaged is simplicity itself. Under the proposal, the BNI would continue to write its usual liability insurance policy for nuclear operators. HMG would issue a simple indemnity to BNI against third party claims arising from acts of terrorism. In parallel, the terrorist risk would be excluded from the policies that the UK and overseas pools have with BNI which, in other respects, would continue to provide reinsurance cover for the nuclear industry's third party liability. A premium for the indemnity would be collected by BNI and passed on to DTI who would surrender it to the Consolidated Fund. BNI would be able to recover their administrative expenses but would not be allowed to earn commission. The scheme would be reviewed monthly in order to maintain pressure on the BNI to develop proposals for a longer term solution that would diminish and ultimately remove the need for the indemnity. A provision would be included enabling the Government to withdraw the indemnity on a week's notice (although, admitedly, in practice,

withdrawal would only be possible once the commercial market had restored full cover for all third party risks or the nuclear industry had made other arrangements). Full details of the scheme, such as an agreed definition of an act of terrorism and the rate for the premium, have still to be worked out.

Involvement of European Commission

19. The Department recognises that any such scheme must conform to Article 87 of the EC Treaty, which provides that any aid granted by a Member State in any form that distorts or threatens to distort competition by favouring certain undertakings is incompatible with the Common Market. On the face of it, the granting of an indemnity would be such an aid and therefore would have to be offered on commercial terms based on a premium reflecting the Government's best estimate of a proper commercial rate. Such a step would require EC approval for which there are precedents.

20. The Department has already, with Treasury agreement, asked UKREP to engage with the Commission on an informal basis on their requirements for such a scheme, in order to guide the preparation of a formal notification.

21. The Department has also engaged Professor John Gittus, currently Regent's Professor at ULCA and former Professor of Risk Management at Portsmouth University to provide an independent assessment of the international insurance market and feeling of the level at which any Government premium should be set.

Conclusion

22. In the current circumstances and faced with the consequences of doing nothing, the Department seeks urgent approval from the Treasury (a) to proceed with the scheme described. - the full details of which will be worked up in full consultation with HMT officials; and (b) under guidance from UKREP prepare a formal notification for submission to the European Commission.

23. It cannot be overstressed that time is of the essence here. With less than a month to go the danger of missing the deadline is becoming very real. If approval is forthcoming, then we will move immediately to finalise the paperwork, in consultation with the Treasury Office of Account, for the note to Parliament declaring a contingent liability.

ANNEX A

UK LICENSED NUCLEAR SITES

BNFL (various sites)
BNFL Magnox Electric (various sites)
British Energy (various sites)
URENCO
UKAEA (N.B. already covered by government indemnity)
Amersham International (Amersham and Cardiff)
Rolls Royce (2 sites)
BAE Marine Systems Barrow
AWE (Aldermaston and Burghfield) – indemnified by MOD
Rosyth Royal Dockyards Ltd
ICI Chemicals & Polymers Billingham
Imperial College ST&M
Scottish Universities Reactor Centre – East Kilbride

Annex B

Legal and Operational consequences of withdrawal of Terrorism Cover

1. Operators unable to comply with UK and International law

If alternative commercial insurance cannot be found by 1 June, BNI's decision to withdraw terrorist cover will leave nuclear operators in breach of the requirements of the NIA. Under the Paris Convention, the UK is obliged to ensure that UK operators have sufficient coverage through insurance or some other financial security. The UK fulfils this obligation by making it a criminal offence under the NIA to operate without sufficient insurance.

Section 19(1) of the NIA requires an operator to make such provision as the Minister may approve for sufficient funds to be available, by insurance or other means, to ensure that any claims made against the licensee by virtue of its duty under section 7 (not to cause damage) will be satisfied. Without cover for damage caused by terrorism, the Secretary of State would not be able to approve the operator's provision for insurance.

2. Operators vulnerable to criminal prosecution

The operator may therefore commit an offence under section 19(5) of the NIA, which provides that it is an offence for a licensee not to comply with section 19(1), which is punishable by an unlimited fine or imprisonment for a term not exceeding two years. The operator would no doubt seek to argue that it had a defence. One argument might be that, because commercial insurance was not available, it could not comply with the regulatory requirement imposed on it, but the strength of this argument is difficult to determine.

A director or other officer may also be guilty of the offence if the offence is proved to have been committed with the consent or connivance of that officer (section 25(1) of the NIA). He/she may have a defence under section 727 of the Companies Act 1985, if the court decides that he/she acted honestly and reasonably and ought reasonably to be excused the default.

The Secretary of State and/or the Director of Public Prosecutions (who are the only persons who can authorize the bringing of proceedings in respect of this offence under section 25(3) of the NIA) may need to consider whether to prosecute any person for this offence. They will need to apply the usual two-stage test in considering this: first, whether the evidence is sufficiently strong to obtain a conviction (which, given that the facts would be largely undisputed and that this is a strict liability offence, is likely to be established) and secondly whether there is sufficient public interest in bringing a prosecution (which is difficult to pre-judge, but the fact that no insurance is available would be a significant factor in favour of not prosecuting).

3. Operators would remain liable without sufficient cover

In the event of an accident attributable to an act of terrorism, the operator would be liable whether he had cover or not. The compensation of victims would therefore be

paid from the liquidation of assets. Under the Paris Convention, it is recognized that circumstances might arise where (a) cover was unavailable; (b) where the financial guarantor was bankrupt, and that (c) these circumstances could not set aside the obligation of the operator under Article 10 – that the State is required to ensure that the operator always holds financial security up to his maximum liability. Thus the Government may be led to intervene in such a situation to avoid such a gap in the implementation of the Paris Convention.

The operator cannot remedy his default by simply "shutting up shop" on 31 May 2002, as his liability holds as long as nuclear material remains on the site. Therefore, rather than face the risk of criminal prosecution board members may resign. It would be impossible to give assurances that they would not be prosecuted, as HMG cannot give affected operators prior permission to commit criminal offences. Clearly, it would be highly undesirable for nuclear operators and for Ministers to be faced with this kind of dilemma.

4. Presentational difficulties

HMG would find it impossible to defend a situation where nuclear operators were acting illegally and were without effective cover for the compensation of victims. A storm of national and international criticism would ensue. The political reality is that, given the unlikelihood of the operators being able to cover their liability through the realisation of sufficient assets, the Government would have to step in with public funds (regardless of its international obligations). Assurances must be made that the situation was only temporary until the commercial insurance market had recovered confidence to cover terrorist risk, and that the well being of potential victims was of paramount importance and their legal entitlement to compensation would be respected and any contingent liability would fall upon the Government.

Given the political climate and public concern for nuclear safety in the aftermath of events of 11/9 it would be indefensible for the Government to stand aside in the hope that the commercial insurance market was able to reassert itself. The Government would face the charge that it was insensitive to the needs of potential victims by not ensuring that adequate compensation arrangements were in place. It would certainly not be enough to mollify Ireland and Norway who already argue that the UK is being irresponsible in maintaining nuclear operations at Sellafield. Both countries would pour shame on the UK if we could only give vague assurances that funds would be made available in the event of a terrorist attack, but could not give details of a fully prepared scheme.

COVERING RESTRICTED – POLICY AND COMMERCIAL

To:

PS/ROBIN YOUNG

From:

c.i Joan MacNaughton
Helen Leiser NID
Patrick Robinson NID1
Maurice Strike FRM
Richard Leyland FRM
Stephen Griffiths NID3

IAN DOWNING
Director NID3
Room 128 1V/S
☎ 215 2851

2 May, 2002

WITHDRAWAL OF TERRORIST INSURANCE COVER

Further to my note of 16 April and your conversation with John Pavel, PS/Sir Andew Turnbull, I promised to report again to Robin once we had had feedback from HMT on our draft position paper which we sent over for comment on 19 April.

The responses we received during the course of last week seemed to indicate that the mood music in the Treasury had somewhat changed and that, subject to further detailed clarification, the inference was that the DTI position was one that they could commend to the Chief Secretary. In addition, they also gave clearance for UKREP to open informal discussions with the Commission on the basis of a slightly revised non-paper we had prepared. This is now in hand.

Earlier today I forwarded the attached final paper to the Treasury. It sets out in detail the Department's arguments for providing a short-term indemnity to the British Nuclear Insurers Pool in order to avoid a gap in cover for acts of terrorism at nuclear sites when current policies lapse on 31 May.

We believe that the case for such intervention is overwhelming on legal, operational and presentation grounds. Adopting the Treasury's instinctive "do nothing" approach raises the spectre of an indefensible situation where the nuclear industry is acting illegally and there is no effective system in place to compensate victims of a terrorism incident at a nuclear site. The national and international outcry would be substantial and something to which we should not expose Ministers.

It is now a matter of wait and see. You will note that my covering letter to Emma Lindsell stresses the urgency and I would hope that we get a positive response from the Chief Secretary next week. In the meanwhile we are working on the mechanics of the scheme - including the due proecess of declaring a contingent liability and drawing up an insurance agreement with the Pool.

If the Treasury response is helpful then the critical path becomes progress with the European Commission. We have yet to receive any feedback as to how they are like to reacting but I pressing for this on the same timescale.

I will report again next next week when we will be clearer whether we do or do not have a crisis on our hands with which we require Robin's assistance to resolve.

Ian Downing

IAN DOWNING
Director – International Nuclear Issues

THE NATIONAL ARCHIVES

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Use black or blue pen to complete form.

Use the card for one piece or for each extract removed from a different place within a piece.

Enter the department and series,
eg. HO 405, J 82.

Enter the piece and item references, .
eg. 28, 1079, 84/1, 107/3

Enter extract details if it is an extract rather than a whole piece.
This should be an indication of what the extract is,
eg. Folio 28, Indictment 840079, E107, Letter dated 22/11/1995.
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If closed under the FOI Act, enter the FOI exemption numbers applying to the closure, eg. 27(1), 40(2).

Sign and date next to the reason why the record is not available to the public ie. Closed under FOI exemption; Retained under section 3(4) of the Public Records Act 1958; Temporarily retained; Missing at transfer
or Number not used.

NATIONAL ARCHIVES

DEPARTMENT/SERIES PREM 49 PIECE/ITEM 2474/1 (one piece/item number)	Date and sign
Extract details: letter dated 24 April 2002	X
CLOSED UNDER FOI EXEMPTION 27(1)	M Bourjaa 29/3/2023
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or Number not used.

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Added to Rabrix

bc JPo JH GN OJ TK Press

10 DOWNING STREET
LONDON SW1A 2AA

From the Private Secretary

19 April 2002

Dear Erica,

SELLAFIELD

Thank you for the 18 April minute from the Secretary of State for Trade and Industry to the Prime Minister.

The Prime Minister continues to think that effective publicity is an important part of our Sellafield strategy. He is grateful for the work so far on this. But we do not think that an article with his signature for an Irish newspaper in the current climate is the best way to meet the stated objective of gradually reducing the profile of the issue. There is a high risk of it proving counter-productive, especially in the Irish election campaign.

If you judge that there should be some HMG response to the postcard campaign, we would be content for another Minister to sign the article.

I am copying this to Simon McDonald (FCO), Andrew Allberry (Cabinet Office) and Sir Ivor Roberts (Dublin).

Yours,

Matthew Rycroft

MATTHEW RYCROFT

Erica Zimmer
DTI

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The Office of the Secretary of State for Trade and Industry
The Rt Hon Patricia Hewitt MP
Department of Trade & Industry
Room 823 - 1 Victoria Street, London, SW1H 0ET

FILE

FAX COVER

dti
Department of Trade and Industry

Date: 18 APRIL 2002

Number of pages including cover sheet: 9

To: OLIVER JONES cc: GN JJH JP MR.

Phone:

Fax: 7839 9044

From: SARAH MPST

E-Mail:

Phone: 0207 215 5623

Fax: 0207 215 54 68

REMARKS: ☑ Urgent ☐ For your review ☐ Reply ASAP ☐ Please comment

URGENT

OLLIE, MR replied - PM not suitable - 19/4. 19/4.

PLEASE FIND ATTACHED A LETTER TO THE PM. THE LETTER ATTACHED TO IT FOR HIM TO SEND OUT NEEDS SOME WORK DONE ON IT [PATRICIA HAS SUGGESTED PHIL BASSET & TEAM LOOK AT IT] BEFORE IT IS MEDIA/PUBLIC FRIENDLY.

THIS NEEDS TO GO OUT TOMORROW TO HAVE ANY IMPACT (MANY APOLOGIES FOR THE LATENESS OF THIS)

Sarah

Ministerial and Parliamentary Support Team

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PRIME MINISTER

Since I wrote to you on 22 February, Government Departments and agencies and our Embassy in Dublin have been taking forward action to improve the way the UK handles and responds to the high level of criticism we are receiving in Ireland over Sellafield issues. This work is already delivering benefits in terms of improving the effectiveness of the Government's response to accusations and how we take opportunities to deliver our own messages. Brian Wilson is taking a lead role in this work giving a number of interviews responding directly to Irish concerns.

A recent development that has significantly raised the already high profile of Sellafield issues amongst people in Ireland has been a massively popular "Shut Sellafield" campaign. The campaign has the strong support of many Irish newspapers and the backing of highly popular celebrities from Irish pop music (Westlife, Ronan Keating, U2 etc) and sport (including the Irish national football and rugby teams). It also had the initial backing of the Taoiseach. The campaign organiser, Ali Hewson, is also being suggested as the Labour Party candidate for the Irish Presidency. Not surprisingly, the campaign is receiving continuous media coverage in Ireland with the UK being portrayed as causing damage to Ireland's environment and placing profit before the safety and health of people in Ireland. The stated aim of the campaign is to make the "Shut Sellafield" cause a major political issue for people in the UK as well as Ireland.

There are three separate postage paid and pre-addressed postcards being delivered to every household in Ireland (costs are met by the Irish national post office - An Post). One card is addressed to the Prince of Wales, one to you and one to the Chief Executive of BNFL. Copies are enclosed for reference. Profits from the sale of the postcards (on sale in post offices and in national supermarket chains) go to charities associated with the impact of the nuclear accident at Chernobyl. We can expect very large numbers of these postcards to be delivered to the three recipients. They are due to be delivered on Friday 26 April – the anniversary of the Chernobyl accident.

As a result of the postcard campaign and the Irish Government's own high profile anti-Sellafield actions, the Sellafield issue is causing real lasting damage to Irish-British relations. We have been considering in consultation with HM Ambassador to Ireland and other Whitehall Departments whether and how the UK Government might respond to this situation in a way that would be effective and not be counter-productive to our overall aims of gradually reducing the profile of the issue. The view of FCO, DTI, the Ambassador to Ireland and others in Whitehall is that it is necessary for us to make some response to the current campaigning to

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demonstrate the seriousness with which the UK takes the issue and our firm belief that the accusations being levelled at the UK on Sellafield matters do not withstand proper scrutiny. We have concluded that the most effective way to achieve this would be for you to write an open letter on the issue to be placed in the Irish Independent newspaper and circulated to other media – **preferably this Friday 19 April**. Only a letter under your signature would command the media coverage necessary significantly to influence debate and popular opinion.

This is an issue with which you are already directly associated in Ireland. Your name appears in most of the media coverage generated and you are, of course, the recipient of one of the postcards. A measured response from you would demonstrate your willingness to address people's concerns and help promote a more informed and less emotive debate.

I am, therefore, attaching a draft open letter that you might write. We have sought to keep it as short as possible but it is difficult to address in any substantive way the wide range of accusations that are being made without including some of the arguments that serve to counter those claims. A less substantive response could be seen as suggesting we do not treat Irish concerns about these matters with the proper seriousness that Irish people believe we should.

I am copying this letter to the Foreign Secretary and to HM Ambassador to Ireland

PH
(Approved by the Secretary of State and signed in her absence)
April 2002

DEPARTMENT OF TRADE AND INDUSTRY

OPEN LETTER FROM THE RT HON TONY BLAIR MP TO THE PEOPLE OF IRELAND ABOUT THE SELLAFIELD NUCLEAR POWER PLANT

***IRISH INDEPENDENT*, 19 APRIL 2002**

Thousands of people in Ireland have asked me, through the postcard campaign, to look them in the eye and tell them that they are safe from the possibility of a serious nuclear accident at Sellafield. In writing this letter to you, I am responding directly to that request. The campaign asks you to believe that we aren't listening and don't care about the safety of people in Ireland or the UK. I want to assure you that this is simply not true.

My first priority is the safety and health of people both in the UK and in neighbouring countries. It is also the highest priority for everyone in the UK nuclear industry, and for the independent regulators that oversee its operations. That is the only possible basis on which any responsible Government would allow the nuclear industry to operate. We have in place stringent systems to ensure that nuclear activities are carried out safely; that waste is managed effectively; that necessary low-level discharges of radioactivity are minimised and properly controlled so as

not to harm the environment or health; and that nuclear installations and materials are secure.

The UK's independent nuclear safety regulator, the Health and Safety Executive's Nuclear Installations Inspectorate can and does instruct operators to take any action they consider necessary to maintain a high level of safety and ensure that defence in depth is maintained against the possibility of a significant accident.

The campaign suggest we are poisoning the environment. And yet the fact is that the levels of radioactivity discharged from UK nuclear sites are extremely low. Such discharges are tightly controlled and monitored by the Environment Agency and the Scottish Environmental Protection Agency to ensure that their impact on the environment is kept well within internationally accepted limits. The claim that "two million gallons of radioactive waste are being pumped into the Irish Sea every day" makes for colourful headlines. But it is misleading and mischievous to suggest that the small amounts of low level radioactivity that may be contained in certain liquids discharged from nuclear sites should be measured not in terms of their radioactive content but in terms of the total volume of the liquid that is discharged (mostly just water).

The Radiological Protection Institute of Ireland (RPII) has an important role in informing people in Ireland about the impact of radioactive discharges and in putting these into context alongside the impact of radiation arising from other natural sources. The RPII have regularly stressed to people in Ireland that the amounts of radioactivity discharged from UK nuclear sites are very small and "do not pose a significant health risk to people living in Ireland". They point out that levels of radioactivity that occur naturally on land, in the Irish Sea and in seafood, are very much higher than any radioactivity that might be present as a result of discharges from UK nuclear sites.

I know that there is a belief that a statistically unusual incidence of Down's Syndrome in Dundalk might be related to the fire that occurred at the Windscale reactor in 1957. After careful research carried out by an international group of scientists led by Irish epidemiologist Dr Geoffrey Dean, the Irish Radiological Protection Institute (RPII) announced in a press release of 10 April that the RPII "accepts the finding of a recent study, that a cluster of Down's syndrome births in Ireland in the 1960s and early 70s was not linked to Sellafield". The statement goes on to say "The RPII accepts, in the light of this finding, that the suggestion of a link between the Down's syndrome births and the Windscale fire is unfounded. For many years there has been a widespread belief that the

existence of such a link was probable or even proven, and this belief has undoubtedly been a source of anxiety for people in Ireland, particularly in the Louth/Dundalk area. The RPII therefore considers it important that the disproving of the suggested link should be widely publicised". I am also aware that Professor Peter Mitchell of University College Dublin, who has spent 20 years investigating the health effects of radioactive discharges, is unequivocal about the question of whether nuclear activities in the UK have impacted on health in Ireland saying: "It is my view, and those of my team, that there have been no significant ill health effects in this country from radioactive waste discharges from the British Sellafield plant".

Much concern has been expressed about last October's decision to authorise the manufacture of Mixed Oxide Fuel at Sellafield. Yet the fact is that operation of this fuel manufacturing plant involves virtually no discharges of radioactivity to the environment, generates no highly active waste and represents no threat to anyone in Ireland or the UK. It has been estimated that the extra radiation produced following the opening of the plant to the most highly exposed person in a nuclear plant, would be the same as that absorbed in two seconds on an airliner at 35,000 feet.

8

The tragic events of 11 September have made everyone re-think security, including security of nuclear sites. Security arrangements at nuclear sites are regularly reviewed. To be effective, those arrangements cannot be disclosed. I hope people will respect that position. But equally they should be reassured that systems are in place to protect all sensitive nuclear installations.

Some people say that, whatever the facts, they will not be satisfied until Sellafield is closed. They take a principled view that all nuclear power is wrong, and I respect, even if I do not share, that view. But if the UK had no nuclear power we would have to consume another 55 million tonnes of fossil fuel a year to replace it. This would damage our efforts to help halt climate change and global warming. Ireland and its' EU partners agreed at the world environmental summit in Kyoto to cut fossil fuel emissions. Nuclear power, which provides 35% of the EU's electricity supply, is a key part of that strategy to provide clean electricity.

The call to "Shut Sellafield" is a catchy slogan. But important work needs to be done and will be done at Sellafield over the decades ahead. We need to ensure that the waste from Britain's past and present nuclear operations continue to be safely dealt with. To walk away from this work now would be to put safety, health and environmental protection at risk,

both for current and future generations. That would be irresponsible and I am sure it is not an option that sensible people would want us to take. The priority that underpins all the work at Sellafield is to ensure that this legacy is managed in a safe and secure way that ensures protection of human health and the environment.

Finally, may I reassure you that I do hear you, loud and clear. I understand that some people will remain implacably opposed to activities at Sellafield. But any debate on the future of Sellafield and the nuclear industry should properly be based on reason and fact, not emotion and hyperbole.

Prime Minister

FILE

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10 DOWNING STREET
LONDON SW1A 2AA

From the Prime Minister's Chief of Staff

17 April 2002

Dear David,

NUCLEAR FUSION

John Marburger called me today from the White House on behalf of Andy Card (Chief of Staff). He said he had been charged with following up the discussion between the President and the Prime Minister on nuclear fusion.

He said that the United States did indeed wish to rejoin ITER. A number of the obstacles had now been moved, in particular John Sensenbrunner, formerly Chair of the House of Representatives Science Committee. And the ITER project had been scoped down and made more realistic and more timely. The US would therefore wish to rejoin as soon as possible. They would not want to get involved in the argument on location – the US was not a candidate – nor did they want materials to be sucked into the project since their inclusion might interfere with the US domestic programme.

However he was confident that they would make an announcement as soon as they could. It might be possible at the G8 Energy Ministers meeting in the next few weeks or – more likely – at the G8 Summit in Kananaskis in Canada this summer.

I welcomed this news and said the Prime Minister would be extremely pleased. They should let us know if there was anything we could do to help. It was clear from the discussion at Crawford that both the President and Prime Minister were enthusiastic supporters of nuclear fusion.

I am copying this letter to Patricia Hewitt, David Sainsbury, Geoffrey Norris, David Manning and Richard Wilson.

Yours ever
JP

JONATHAN POWELL

Professor David King FRS
DTI

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From: Rosalind Redfern
Date: 13 April 2002

PRIME MINISTER - to note.

cc: David Manning
Matthew Rycroft
Duty Press Officer

PAKISTAN:FIRE AT NUCLEAR POWER STATION

I received reports early this morning from the Duty Officer in the Civil Contingencies Unit of an explosion and fire at a Pakistan Nuclear Power station 05:30 GMT Friday 11 April. The reports are that the fire was contained by 10:00 GMT and that there was **no release** of radioactive material.

As a precautionary measure a MET Office Dispersion Model was requested by CCU, this shows that any radioactive material would travel in an easterly direction for the next 5 days, i.e towards China and the Pacific.

So far there has not been any press reaction to this incident.

File note.
SIS on the ground so 'resources' in the field are investigating further

Ros

ROSALIND REDFERN

RESTRICTED – POLICY

CABINET SECRETARIAT

Economic and Domestic Affairs Secretariat

CABINET OFFICE

70 Whitehall ▪ London SW1A 2AS

TELEPHONE: 020-7270 0306 ▪ FAX: 020-7270 0246 ▪ E-MAIL: helen.fleming@cabinet-office.x.gsi.gov.uk

8 April, 2002

Ms Anne Lambert
Nuclear Liabilities and BNFL
Department of Trade and Industry
1 Victoria Street
LONDON SW1

SELLAFIELD: OVERSEAS COMMUNICATION STRATEGY

You attended a meeting here on 5 April to discuss development of a strategy to deal with the concerns of the Irish Government and public, and the concerns of other countries, over the operation of Sellafield. Others present were Jonathan Cook, Rhyddid Carter and Steve Dolan (DTI); Richard Wood and Brian Oliver (DEFRA); Alice Carver, Caitlin Jones, Nicola Stewart and Libby Green (FCO); Tom Hoskin and Andy Pike (BE Dublin); Nick Brown, Ruth Neill and Rosie Uffindell (NIO); Jim Stewart and John Wren (DTLR); Dave Glazbrook and Paul Dyett (HSE); and Joe McHugh (Environment Agency.

Your Secretary of State had minuted the Prime Minister on 22 February to suggest that a strategy needed to be developed to address growing public awareness of and concern about Sellafield in Ireland. The Government of the Republic of Ireland had taken a firm stance against Sellafield and the issue had become politically prominent in the run-up to the May election. Concerns were also being expressed, although to a much lesser extent, in other countries that bordered the North Sea such as Norway, Iceland and Denmark. Your Secretary of State had proposed that the UK Government should seek to get across clear messages about the systems of regulation and control in place on the operation of Sellafield. Such messages would need to be factual and balanced, stressing the Government's role as a responsible regulator.

We agreed the following points in discussion.

a. The Secretariat would prepare a contact list for policy and press officials in the various Departments with an interest in this issue, including the Ministry of Defence. Attendees agreed to give me as soon as possible the names of any officials not present at the meeting.

b. A list of forthcoming events at which Sellafield issues might be raised would help ensure that the Government'' line to take was prepared well in advance. Alice Carver (FCO) agreed to co-ordinate a list. Attendees agreed to pass information about future events to her for inclusion in an updated list.

c. A core script should be developed to give clear factual information, including rebuttals where necessary, on all of the concerns being raised. Much of the information was already available, but it needed to be put into a form that would be accessible to the media and the public. You agreed to circulate the existing material, inviting policy colleagues to update it or to input material where there were gaps in coverage. DTI press office would rework the briefing to ensure that it was readily accessible. Policy officials would then review the core script to ensure that it was factually correct. We agreed that preparation of the core script should be completed by Friday 26 April.

d. The core script would be made available to all Whitehall Departments with an interest for use in briefing etc. Press Officers from all Departments would be instructed to use the core script when approached on standard questions. When new issues arose, a line would need to be co-ordinated between the relevant Departments.

e. The concerns of different Governments varied. It might be appropriate for a particular line of argument to be stressed more with one country than another. The FCO would need to be consulted when briefing was being prepared for an event involving a foreign government in order that these distinctions could be taken into account.

f. Consideration needed to be given to finding ways to get across to the Irish public the Government's message on the regulation of Sellafield. You agreed to work with BE Dublin to prepare a strategy for dealing with concerns in Ireland, including media opportunities, Ministerial meetings, official-level activities etc. The strategy should include proposals to involve Ministers from the relevant Departments in their particular areas of responsibility. You agreed to circulate a draft to colleagues for comment by Friday 19 April.

g. Most immediately, a high profile campaign was under way in Ireland to oppose the operation of Sellafield. The campaign would result in pre-printed postcards being sent to the Prime Minister, BNFL and HRH the Prince of Wales. It was suggested that postcards would also be sent to Romano Prodi, although no-one at the meeting could confirm this. You agreed to work with BE Dublin during the course of this week to develop some immediate ideas. I agreed to approach No 10 about the possibility of the Prime Minister's involvement in the strategy.

h. Preparation of a strategy for dealing with the concerns of other countries was a less urgent priority. You agreed to work with Caitlin Jones (FCO EFTA Desk) to adapt the strategy prepared for Ireland to meet the specific needs of Norway and, if necessary, Iceland and Denmark, on a longer timetable.

i. It would be important to ensure that a consistent approach was taken by the Government in its deadline with the various interested countries. It would be helpful for Nicola Stewart (EPD, FCO) and Libby Green (FCO Press Office) to take an overview of the Government's dealings with other Governments to ensure this consistency.

j. We agreed to meet again later in April to review progress in developing a coherent strategy and to ensure that co-ordination arrangements were operating effectively.

I am copying this letter to all those who attended the meeting, Paul Britton, Jaee Samant, Liz Grierson and Jonathan Sharrock (Cabinet Office); and Matthew Rycroft and Geoffrey Norris (Number 10).

Helen Fleming

From: Professor David King
Date: 5 April 2002

FAXED

PRIME MINISTER

MEETING WITH PRESIDENT BUSH: FUSION POWER

1. The Potential for Nuclear Fusion Power Stations

- Nuclear Power Stations are all currently based on Fission, a process which generates usable energy with extremely high efficiency, but also produces very long-lived radioactive material as waste.

- Nuclear Fusion Power Stations, based on the process that powers the sun, would be equally efficient at producing energy, but would have the major advantage that the waste product, helium gas, is non-radioactive, non-toxic and is not a greenhouse gas. It is harmless.

- Further advantages of Fusion over Fission:

  - the fuels are readily available and virtually inexhaustible;

  - the fuels and the waste cannot be utilized in building nuclear bombs;

  - Chernobyl-type meltdown accidents are impossible with fusion reactors.

- Giant strides have been made over the past 3 to 5 years towards solving the technological problems associated with Nuclear Fusion Power Stations.

2. The Fast Track International Fusion Power Project

There are two elements to this.

- ITER is the next stage in the technological development of Fusion Power, following the highly successful work on the Joint European Torus, JET, at Culham in the UK. It has been through the detailed design phases, and is fully costed, at 4 billion Euro over 10 years.

- Materials from which a Fusion Power Station could be constructed have been designed, but need to be tested. These materials have to sustain extremely high fluxes of high energy neutrons. To test these, it is proposed that a high energy, high flux neutron source is constructed – IFMIF – which could be used to test materials over an extended period – say 5 to 10 years. The cost of IFMIF is 0.5 billion Euro over 10 years.

- The European Union has agreed to the fast track proposal. The current international partners are Japan and Russia.

3. Why the US pulled out of the international fusion project.

In 1999 the US withdrew from the international fusion project ITER. The primary reasons, we believe, were:

- the belief that the original ITER design was unnecessarily large scale and expensive: it was costed at 9 billion Euro. The response has been a scaled down design, costed at 4 billion Euro.

- scepticism that the project would progress. Since 1999 enormous developments in the control of these instruments – in technology, at Culham in the UK, and in science and design, at Culham and, principally, at Princeton, USA. Several sites are now under offer, in France, in Japan and in Canada for the construction of ITER.

Jack Marburger, US Chief Scientific Adviser, and Bob Card, US Under-Secretary for Energy, have recently expressed enthusiasm for the return of the US to the international fusion project.

4. Advantages for the US in joining the fast track Fusion programme.

- the project will more quickly lead to the commercial development of Fusion Power Stations. The US would clearly be a major player in what is likely to be a development with widespread world demand.

- The US and the UK are currently the world leaders in, respectively, the science and the technology of fusion power.

- Fusion power provides a realistic alternative to fission power as an efficient, large-scale energy source which can replace fossil fuels on the US grid. This provides a key solution to the threats of global warming.

DAVID KING
CHIEF SCIENTIFIC ADVISER

NB. Professor King said PM has already seen this earlier note.

NOTE FOR THE PRIME MINISTER

FUSION - POWER FOR THE FUTURE

1. Fusion is the process that powers the stars and therefore sustains life on earth through sunlight. Nuclei of hydrogen gas fuse together to form helium, neutrons and energy *(Figure 1)*. To do this on earth requires a temperature of a hundred million degrees Centigrade, ten times hotter than the centre of the sun.

2. Fusion is the opposite of fission in which heavy nuclei split. Unlike fission - used in nuclear power stations - its reaction products are *not* radio-active. Some radioactivity is produced by the neutrons hitting the materials surrounding the fusion gas, but if these materials are chosen carefully the radioactivity is not long-lived and after a period the materials can be recycled. A fusion burner is like a domestic boiler in that if the gas fuelling stops, then the fusion stops; this means it is inherently different from the nuclear "pile" of a fission system and so Chernobyl-like "meltdown" accidents are impossible.

3. Fusion power would emit no greenhouse gases and therefore would not contribute to global warming. Its basic fuels (deuterium - a form of hydrogen extracted from seawater - and lithium) are virtually inexhaustible. It is therefore a promising, clean, sustainable, large-scale source of base-load electricity. Estimates of the cost of fusion electricity show that it should be competitive with clean coal and renewables.

4. Because of the very hot temperatures, producing and sustaining a fusion system is a major scientific and technological challenge. Strong magnetic fields have to be used to hold the hot, burning gas ("fusion plasma") away from the vessel walls *(Figure 2)*.

5. Europe has the world's leading fusion facility, JET, at Culham in Oxfordshire *(Figure 3)*. JET is an international facility operated by the UKAEA. Conditions in JET have reached the point where the fusion power released is comparable to the externally applied heating power.

6. As well as hosting JET, the UK has its own fusion research programme, also at Culham. This programme concentrates on perfecting the magnetic field system used to contain the fusion plasmas. Although this programme is relatively small compared with those of other developed countries, the quality of the UK science means it has large influence.

7. Two major tasks must now be undertaken to confirm the technical feasibility of fusion power. Firstly, a bigger version of JET, called ITER, needs to be built *(Figure 4)*. In ITER the energy multiplication would be at least ten, simulating the conditions needed for a power station. ITER would also sustain the burning fusion plasma with the technologies needed for a power station. Secondly, a much cheaper facility, called

IFMIF, is needed to confirm that materials could withstand the sustained fusion environment in a power station.

8. If these two key tasks are done in parallel, with a strong "user-pull" maintaining the focus of research on the end-product of electricity generation, a demonstration commercial power station could be on-line within twenty-five to thirty years. If world fusion R&D is focused more strongly on these two tasks, it need not require increased expenditure.

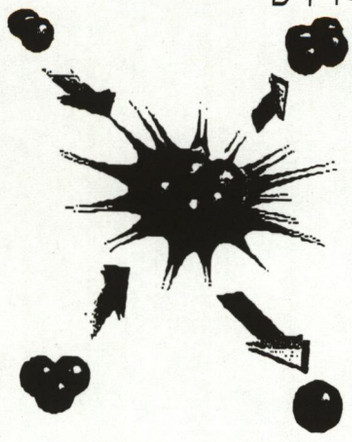
9. ITER has been designed internationally (Europe, Japan, Russia, US) based on R&D from JET and fusion research programmes around the world, including the UK's. The capital cost is 4 BEuro. The US withdrew in 1999 but is considering rejoining. Prototypes of ITER's key components have been successfully made and tested by industry and it is ready to build. There are candidate sites in Canada, Japan, France and Spain. Negotiations on how to build and operate it as an international project have started. The UK's fusion skills base at Culham will have a key role to play in maximising UK industry's involvement in both the construction and operation of ITER.

David King, OST

5/2/02

Figure 1: In a Fusion Power Plant Deuterium would fuse with Tritium to release Energy, Helium and a Neutron

$$D + T \rightarrow {}^{4}He + n + Energy$$



The primary fuels for fusion, deuterium and lithium, are virtually limitless

- Deuterium comes from seawater
- Tritium is produced when the neutron hits a lithium blanket

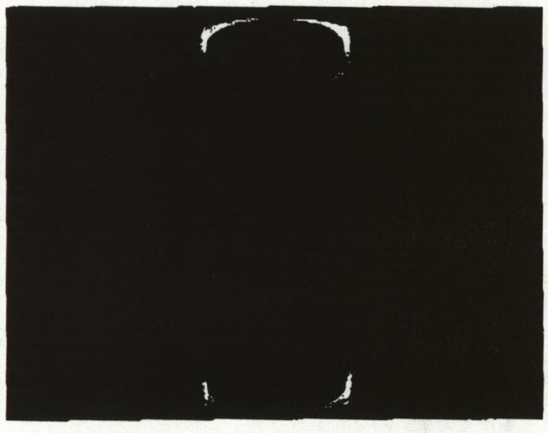
Figure 2: How can we achieve Fusion on Earth?

Requires:
Plasma at 100 million °C, at high enough density and for a sufficient time to burn

Containment:
- Gravity (sun and stars)
- Magnetic fields (solar flare)
- Inertial (very dense matter)

Research concentrates on using the magnetic bottle approach.

Inertial fusion is also pursued, but mostly for military science



Plasma in the START magnetic confinement device at Culham, Oxfordshire

Figure 3: JET has achieved all its original goals

Using tritium fuel, substantial fusion power (16MW) and energy (21MJ) have been generated with conditions close to energy breakeven (fusion power = heating power).

JET's role now is to optimise operating modes and develop technologies for ITER.

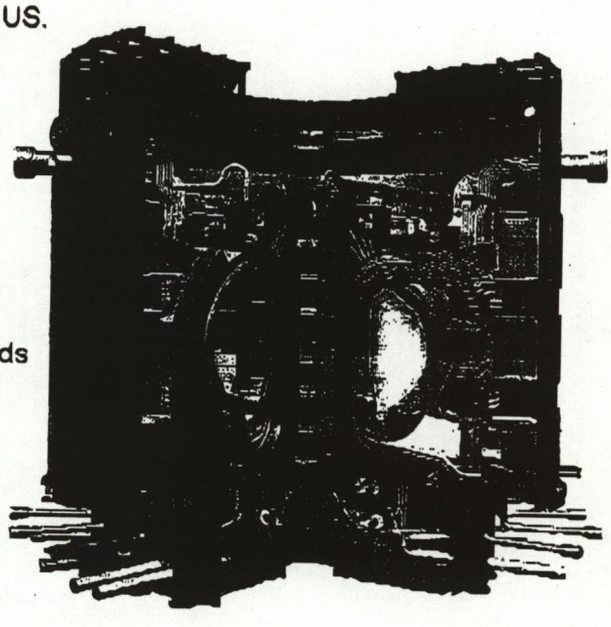
Results from JET and other experiments have given a high level of confidence that a burning plasma experiment - ITER - would achieve its objectives.

Figure 4: ITER

- Europe, Japan, Russia and formerly US. Canada via Europe. Possible sites in France, Spain, Canada, Japan (2).
- Cost ~ 4 BioEuro
- Global Objective: demonstrate the scientific and technological feasibility of fusion

  ⇒ Extended burn producing hundreds of MegaWatts of fusion power with energy gain > 10

  ⇒ Prove essential power station technologies



File

Spoke to Dave King 8/4 to say from me
enthusiastic. Says fusion will be a reality
in 20 years. I urged participation in
ITER. President instructed Mfg Cons to follow up.
King to follow up with his opp

From: Professor David King
Date: 5 April 2002

PRIME MINISTER ✓ to 9/4

MEETING WITH PRESIDENT BUSH: FUSION POWER

1. <u>The Potential for Nuclear Fusion Power Stations</u>

- Nuclear Power Stations are all currently based on Fission, a process which generates usable energy with extremely high efficiency, but also produces very long-lived radioactive material as waste.

- Nuclear Fusion Power Stations, based on the process that powers the sun, would be equally efficient at producing energy, but would have the major advantage that the waste product, helium gas, is non-radioactive, non-toxic and is not a greenhouse gas. It is harmless.

- Further advantages of Fusion over Fission:

  - the fuels are readily available and virtually inexhaustible;

  - the fuels and the waste cannot be utilized in building nuclear bombs;

  - Chernobyl-type meltdown accidents are impossible with fusion reactors.

- Giant strides have been made over the past 3 to 5 years towards solving the technological problems associated with Nuclear Fusion Power Stations.

2. The Fast Track International Fusion Power Project

There are two elements to this.

- ITER is the next stage in the technological development of Fusion Power, following the highly successful work on the Joint European Torus, JET, at Culham in the UK. It has been through the detailed design phases, and is fully costed, at 4 billion Euro over 10 years.

- Materials from which a Fusion Power Station could be constructed have been designed, but need to be tested. These materials have to sustain extremely high fluxes of high energy neutrons. To test these, it is proposed that a high energy, high flux neutron source is constructed - IFMIF - which could be used to test materials over an extended period - say 5 to 10 years. The cost of IFMIF is 0.5 billion Euro over 10 years.

- The European Union has agreed to the fast track proposal. The current international partners are Japan and Russia.

3. Why the US pulled out of the international fusion project.

In 1999 the US withdrew from the international fusion project ITER. The primary reasons, we believe, were:

- the belief that the original ITER design was unnecessarily large scale and expensive: it was costed at 9 billion Euro. The response has been a scaled down design, costed at 4 billion Euro.

- scepticism that the project would progress. Since 1999 enormous developments in the control of these instruments – in technology, at Culham in the UK, and in science and design, at Culham and, principally, at Princeton, USA. Several sites are now under offer, in France, in Japan and in Canada for the construction of ITER.

Jack Marburger, US Chief Scientific Adviser, and Bob Card, US Under-Secretary for Energy, have recently expressed enthusiasm for the return of the US to the international fusion project.

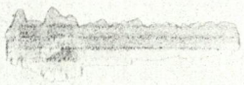
4. Advantages for the US in joining the fast track Fusion programme.

- the project will more quickly lead to the commercial development of Fusion Power Stations. The US would clearly be a major player in what is likely to be a development with widespread world demand.

- The US and the UK are currently the world leaders in, respectively, the science and the technology of fusion power.

- Fusion power provides a realistic alternative to fission power as an efficient, large-scale energy source which can replace fossil fuels on the US grid. This provides a key solution to the threats of global warming.

DAVID KING
CHIEF SCIENTIFIC ADVISER



FROM : Prof DA King

01223505873 223505873

05 Apr. 2002 22:59 F5

NB. Professor King said PM has already seen this earlier note.

NOTE FOR THE PRIME MINISTER

FUSION - POWER FOR THE FUTURE

1. Fusion is the process that powers the stars and therefore sustains life on earth through sunlight. Nuclei of hydrogen gas fuse together to form helium, neutrons and energy *(Figure 1)*. To do this on earth requires a temperature of a hundred million degrees Centigrade, ten times hotter than the centre of the sun.

2. Fusion is the opposite of fission in which heavy nuclei split. Unlike fission - used in nuclear power stations - its reaction products are *not* radio-active. Some radioactivity is produced by the neutrons hitting the materials surrounding the fusion gas, but if these materials are chosen carefully the radioactivity is not long-lived and after a period the materials can be recycled. A fusion burner is like a domestic boiler in that if the gas fuelling stops, then the fusion stops; this means it is inherently different from the nuclear "pile" of a fission system and so Chernobyl-like "meltdown" accidents are impossible.

3. Fusion power would emit no greenhouse gases and therefore would not contribute to global warming. Its basic fuels (deuterium - a form of hydrogen extracted from seawater - and lithium) are virtually inexhaustible. It is therefore a promising, clean, sustainable, large-scale source of base-load electricity. Estimates of the cost of fusion electricity show that it should be competitive with clean coal and renewables.

4. Because of the very hot temperatures, producing and sustaining a fusion system is a major scientific and technological challenge. Strong magnetic fields have to be used to hold the hot, burning gas ("fusion plasma") away from the vessel walls *(Figure 2)*.

5. Europe has the world's leading fusion facility, JET, at Culham in Oxfordshire *(Figure 3)*. JET is an international facility operated by the UKAEA. Conditions in JET have reached the point where the fusion power released is comparable to the externally applied heating power.

6. As well as hosting JET, the UK has its own fusion research programme, also at Culham. This programme concentrates on perfecting the magnetic field system used to contain the fusion plasmas. Although this programme is relatively small compared with those of other developed countries, the quality of the UK science means it has large influence.

7. Two major tasks must now be undertaken to confirm the technical feasibility of fusion power. Firstly, a bigger version of JET, called ITER, needs to be built *(Figure 4)*. In ITER the energy multiplication would be at least ten, simulating the conditions needed for a power station. ITER would also sustain the burning fusion plasma with the technologies needed for a power station. Secondly, a much cheaper facility, called

IFMIF, is needed to confirm that materials could withstand the sustained fusion environment in a power station.

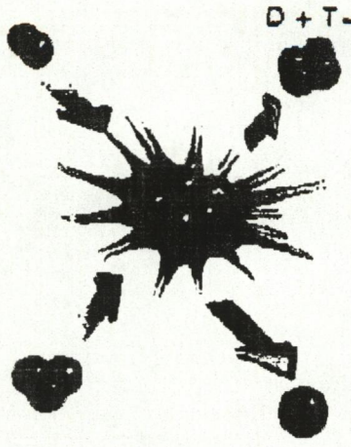
8. If these two key tasks are done in parallel, with a strong "user-pull" maintaining the focus of research on the end-product of electricity generation, a demonstration commercial power station could be on-line within twenty-five to thirty years. If world fusion R&D is focused more strongly on these two tasks, it need not require increased expenditure.

9. ITER has been designed internationally (Europe, Japan, Russia, US) based on R&D from JET and fusion research programmes around the world, including the UK's. The capital cost is 4 BEuro. The US withdrew in 1999 but is considering rejoining. Prototypes of ITER's key components have been successfully made and tested by industry and it is ready to build. There are candidate sites in Canada, Japan, France and Spain. Negotiations on how to build and operate it as an international project have started. The UK's fusion skills base at Culham will have a key role to play in maximising UK industry's involvement in both the construction and operation of ITER.

David King, OST

5/2/02

Figure 1: In a Fusion Power Plant Deuterium would fuse with Tritium to release Energy, Helium and a Neutron



$$D + T \longrightarrow {}^{4}He + n + Energy$$

The primary fuels for fusion, deuterium and lithium, are virtually limitless

- Deuterium comes from seawater
- Tritium is produced when the neutron hits a lithium blanket

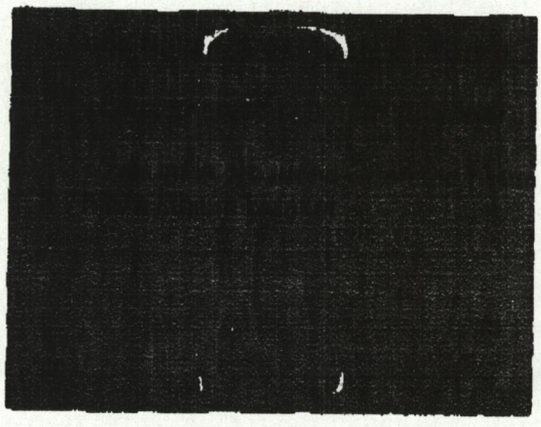
Figure 2: How can we achieve Fusion on Earth?

Requires:
Plasma at 100 million °C, at high enough density and for a sufficient time to burn

Containment:
- Gravity (sun and stars)
- Magnetic fields (solar flare)
- Inertial (very dense matter)

Research concentrates on using the magnetic bottle approach.

Inertial fusion is also pursued, but mostly for military science



Plasma in the START magnetic confinement device at Culham, Oxfordshire

Figure 3: JET has achieved all its original goals

Using tritium fuel, substantial fusion power (16MW) and energy (21MJ) have been generated with conditions close to energy breakeven (fusion power = heating power).

JET's role now is to optimise operating modes and develop technologies for ITER.

Results from JET and other experiments have given a high level of confidence that a burning plasma experiment - ITER - would achieve its objectives.

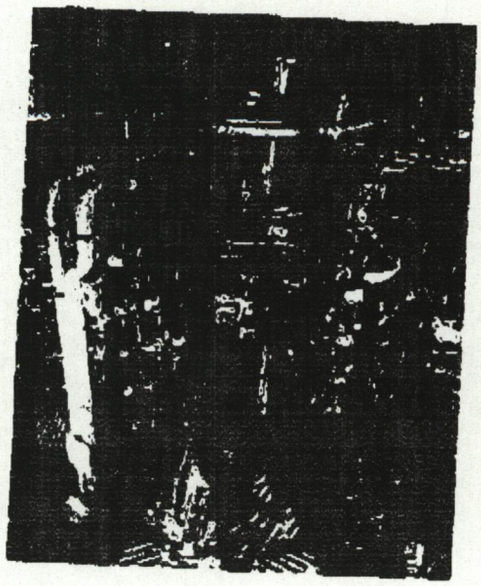
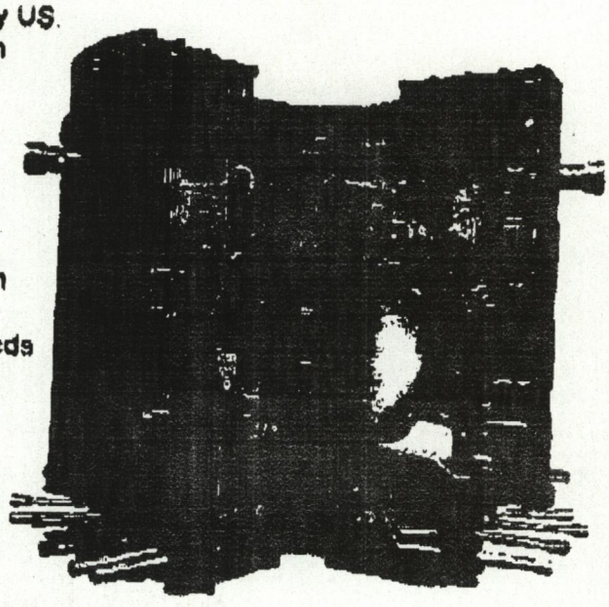


Figure 4: ITER

* Europe, Japan, Russia and formerly US. Canada via Europe. Possible sites in France, Spain, Canada, Japan (2).
* Cost ~ 4 BioEuro
* Global Objective: demonstrate the scientific and technological feasibility of fusion

  ⇒ Extended burn producing hundreds of MegaWatts of fusion power with energy gain > 10

  → Prove essential power station technologies



The Rt Hon Patricia Hewitt MP
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FAXED

CN.
I assume you are content?
OJ.

OJ cc: CMP JSH JDN

26 March 2002

Dear Andrew,

You will recall that we agreed in November that work should be done on a segregated fund for nuclear clean up, following an earlier report by my officials which indicated that existing funding arrangements made the objective of managing civil nuclear liabilities cost effectively difficult to achieve.

I now attach a work-in-progress report prepared on this and other options for improving funding of nuclear clean up. I am grateful to you and MOD officials for their constructive input to the work. The report also reflects contributions from Lane Clark & Peacock and Deloitte & Touche as, respectively, actuarial and accounting advisers.

The report underlines the case for a segregated fund but also makes the case for an on-vote account held within the consolidated fund. This would be simpler and easier to implement, but would not necessarily have the same impact in terms of public confidence.

I propose that both options should be written into the White Paper to determine whether the benefits of the on-vote account would be outweighed by the presentational advantages of a segregated fund. Decisions could then be taken in the light of feedback, progress on the nuclear reform bill and further work by our officials.

I would be grateful for your and colleagues' views. It would be helpful to have comments by 17 April so that work on the White Paper can proceed.

I am copying this letter to the Prime Minister and recipients of my letter of 29 October.

Best wishes,

Patricia

PATRICIA HEWITT

CM3201

dti

Work in progress report on a segregated fund

1. A segregated fund could have a wide variety of features, each with different consequences in terms of corporate governance, accounting and budgeting treatment and, importantly, ability to meet policy objectives. The proposals we identify here represent our attempt to find the best mix in terms of optimised operational and management efficiencies. Specifically, they would:

   - Seek to provide confidence that money earmarked for clean up will be used for that purpose;

   - Seek to ensure that adequate funds will be available to meet decommissioning costs as they fall due to a high degree of certainty, and to demonstrate to contractors and the public that funds will be available to meet decommissioning costs into the future;

   - Seek to ensure that there is an adequate "buffer" to give the LMA freedom to bring forward or defer decommissioning projects for operational or efficiency reasons;

   - Dove tail into the government's spending review processes and smooth funding departments' contribution payments between these reviews; and

   - Offer protection to funding departments' DEL budgets against significant swings in liabilities estimates and spend profiles.

Structure

2. Our analysis suggests that a fund should be set up in statute and either controlled by the LMA itself or managed by "Trustees". It would operate under statutory provisions rather than under Trust law (although in a similar manner).

3. It would cover decommissioning and waste management costs and directly associated expenditure (e.g. research and skills programmes). Subject to Treasury agreement, our preference would be for it also to cover the LMA's running costs. This would ensure that the LMA was not constrained where increased activity would represent VFM. This issue is not, however, critical to the model.

4. Thorp, SMP and Magnox would be operated from funds which were separate from the segregated fund. In particular, cash shortfalls/losses resulting from the operation of these facilities/plants would not be covered from the fund. Current thinking is that, if government took the risk in relation to the operation of these facilities/plants, any cash surpluses/profits could be paid into the fund.

5. The initial payment into the fund would relate to BNFL's NLIP (some £4.0 billion, book value). The proposal is that DTI/MOD and Treasury would agree (outside

the statutory framework) the level of subsequent contributions to be paid into the fund as part of the spending review cycle.

6. DTI/MOD and Treasury would be informed by:

   - The LMA's expenditure estimates for future years (the LMA would be required to prepare and publish and regularly update whole life site remediation plans and liabilities estimates); and

   - Actuarial modelling of the payments needed to maintain the fund at an agreed level based on an agreed investment strategy. For example, the fund might aim to hold sufficient assets to discharge the decommissioning liabilities over the next 5 years with 80 % certainty, plus with 50% certainty:

     - 80% of year 6 liabilities;
     - 60% of year 7 liabilities;
     - 40 % of year 8 liabilities; and
     - 20% of liabilities for years 9 to 15.

7. More modelling work, to determine the actual desired level of funding (including the level of contingency), would be required if Ministers were to decide to proceed with the segregated fund option.

8. It is important to note that the fund would not be fully funded. This would both be unnecessary and, in fact, practically impossible, given that the liabilities estimates are so uncertain.

9. In practice, there would need to be some flexibility in the funding department's level of contributions, both to protect DTI/MOD's bargaining position with Treasury and to allow government to override decisions on contributions (and the operation of the fund) in the light of more pressing political matters. Having said this, contributions should remain at a level which was consistent with the objective of publicly demonstrating a real commitment to clean up. DTI and MOD payments already represent in excess of c. £400 million p.a. and from 2008 DTI is due to make payments of c. £4-500 million p.a. to contribute to the decommissioning of Magnox plants (the "Magnox undertaking"). These figures represent the baseline.

10. The LMA would be able to draw on money from the fund in order to finance work programmes agreed by Ministers. The programmes would require the LMA to go back to Ministers in the event that it wished to undertake significant additional expenditure not covered by the programme. (The proposed corporate governance arrangements for the LMA have been developed with this model in mind.)

11. The LMA would, therefore, be able to plan its operations with the confidence that funding was available and have the flexibility to deal with short-term variations in annual spend.

12. On the basis of recent and projected expenditure by BNFL, our actuarial advisers suggest a fund of around £5 billion would be sufficient to provide the desired certainty and flexibility. (More detailed calculations would be done if Ministers decided to proceed with the segregated fund option.)

13. An actuarial finding that the fund's value was more/less than the projected decommissioning costs would result in reduced/additional contribution requirements by DTI/MOD into the fund at least until the next review. If the discrepancy were the result of poor management of the funding process by DTI/MOD, it would be debited, up to a cap, to their DEL accounts (the level would need to be agreed with Treasury). In certain circumstances, there could be a mechanism whereby DTI/MOD could claw back excess funds in an orderly manner.

Corporate governance of the fund

14. The fund could be vested in either:

- A statutory body corporate appointed by Ministers (akin to Trustees). The body corporate would appoint persons to manage its assets and make payments to the LMA as and when required; or

- The LMA itself, which would appoint persons to manage it consistent with an agreed investment strategy, and draw down on the fund and in order to finance work programmes agreed with Ministers.

15. In principle, the former option would add another layer of control. In practice, given the proposal that the LMA should be able to draw down, in effect, automatically from the fund in accordance with its work programme, the creation of a body corporate might not add very much. Moreover, alternative controls should be able to be put in place which would satisfy the Departmental Accounting Officer that satisfactory systems of control existed within the LMA and between the Department and the LMA. For example, the operators of the fund would report annually to Ministers on their activities. The report would be published and laid before Parliament. The NAO would also scrutinise and report on the report.

16. The fund could be managed by either the National Debt Office in the Treasury, or (if it invested in more than government bonds) private fund managers. This decision will depend mainly on the fund's investment strategy, which is discussed below.

Investment strategy

17. Our actuarial advisers have suggested that the optimal investment strategy for a fund of the size and duration we are proposing would be a mix of bonds and equities. High level modelling work has suggested a split in the range of 10 to 15 per cent equities and 85 to 90 per cent bonds. (The exact asset split between

equities and bonds would depend on many factors such as the parties' objectives, the initial size of the fund, the margins taken for uncertainties, the assumed over performance of equities over government bonds, tax treatment and so on.) Our advisers have also indicated that, when considered with the liabilities estimates, such an investment strategy would be more likely to match funding requirements (i.e. have a lower risk profile) than a strategy based on bonds alone.

18. Government does not, however, generally invest in equities. We have commenced discussions with Treasury to find out whether the segregated fund could be an exception to this rule.

19. Initial modelling, based on long-term historical returns, suggests that a mixed investment strategy would make sense on a VFM basis even after including the cost of active fund managers. (The costs of managing the fund will depend on the asset mix and whether assets are managed actively or passively. On an initial fund of £5 billion, this translates into charges in the range of £5 - £12.5 million p.a.) It might also raise public and market confidence, in that the fund would operate more akin to a fund outside of government.

20. A question for further consideration – and one which would need to be tested if Ministers decided to proceed with the segregated fund option – is whether the increased confidence would offset any deterioration in the government's risk profile (this being the Treasury's argument against government investing in equities). At this stage, it is by no means clear that this would be the case and we recommend that the views of the public and of the market be tested in the White Paper.

21. If agreement was given to invest in equities, further modelling work would need to be done which took into account the funding departments' "aversion function" measuring how DTI/MOD (or government as a whole) would "feel" about different levels of surplus or deficit over different time horizons. This will be important given that deficits would need to be met from other departmental budgets or Treasury, and that Treasury would be unlikely to agree to a cap on funding departments' DEL budgets' exposure to equities shortfalls.

22. A decision to invest in equities would have implications for the fund's governance arrangements. In particular, Ministers would need to be, and seen to be, at arms length from those taking investment decisions and not be, or be seen to be, in a position to influence them. This is perhaps an argument in favour of a statutory body corporate to hold the fund. It may also be an argument in favour of limiting investment to overseas equities. In this way, Ministers could not be seen to be picking winners or favouring particular sectors of the economy. Irrespective of this decision, the fund would not invest in the nuclear sector in order to avoid compounding any difficulties encountered by this sector.

23. Investments in equities would also have implications for the government's fiscal aggregates. In particular, it would raise the government's net debt. The increase would, however, be miniscule in relation to overall debt figure, and is unlikely to concern Treasury.

24. Whether or not the fund invested in equities, bringing BNFL's NLIP into the segregated fund would have implications for central government net borrowing and, therefore, the government's ability to meet the targets set by the "Maastricht stability pact" (unless the fund was outside government for accounting purposes). In particular, net borrowing would improve when the NLIP was transferred into government, and worsen as expenditure was made from the fund. While the expenditure amounts would be large enough to have a noticeable impact on net borrowing, recent Treasury forecasts suggest that they would not result in the targets being breached.

25. A prohibition on investments in equities would not, in our view, undermine the main reasons for setting up a segregated fund.

Taxation

26. There would be an option whether or not to tax:

- The segregated fund's investment income;
- Payments in;
- Distributions;
- Claw backs; and
- Contributions on winding up.

27. Taxation would seem to be a pointless exercise in recycling money. It would also reduce the returns on investments and increase their volatility (thereby affecting the size of contributions to the fund). Further, it could lead to distortions of the investment strategy and lead to perverse investment decisions.

28. On the other hand, a decision to tax the fund would be consistent with its independence from government and could, therefore, further the policy objectives of public and market confidence. It would also be consistent with the treatment of the British Energy segregated fund and NLIP.

29. We believe that decisions on taxation should follow, and not lead, decisions on the structure and all other aspects of the fund and be informed by the wider context, including the LMA's other taxable activities and the treatment of other funds. Recommendations on taxation would follow any decision by Ministers to proceed with the segregated fund option.

Accounting and budgetary treatment

30. The way that government accounts for the fund and its treatment for budgetary purposes would both be important. (Accounting classification would not determine corporate governance arrangements which can be fit for purpose.)

31. If the LMA controls the fund, the fund will adopt the LMA's public expenditure classification. This could be a public corporation, a self-financing public

corporation or within central government (as a NDPB). The LMA's classification will depend on how the transfer of the assets and liabilities to the LMA is structured and the extent of the LMA's trading activities, i.e. Thorp, Magnox and SMP.

32. If, on the other hand, a statutory body corporate controls the fund, the fund will be classified within central government.

33. If the fund were classified as a public corporation (which may be possible for a limited period), payments into the fund and a cost of capital charge on the funding departments' investment would ordinarily be debited to the DTI/MOD's DEL budgets. They would be stable within each spending round and DTI/MOD's DEL budgets should be adequately protected.

34. If, on the other hand, the fund were classified as part of central government, payments out of it would ordinarily be debited to DTI/MOD's DEL budgets. In addition, movements in the value of investments, a cost of capital charge on investments, returns on investments, tax and management charges would all be debited to these budgets.

35. These effects would be contrary to our objective of optimal operational and management efficiencies and no perverse incentives or penalties for events or actions which were outside departments' control. In particular, DTI/MOD would have to predict these effects at each spending review. If they could not do so (almost a certainty), they would need to make up budgetary shortfalls by limiting LMA expenditure.

36. Accordingly, DTI/MOD would, under this scenario, have to seek Treasury agreement for concessions from RAB, for example, so that payments into the fund were debited to their DEL budgets. The result would be that budgetary estimates would be different from parliamentary estimates. There are, however, precedents for this.

37. Treasury officials have agreed to respond constructively to such requests provided DTI/MOD can find mechanisms which will give it comfort that funds will not be misused. We identified these mechanisms in paragraph 15 above, i.e. approval of work programmes, Capex limits, public reporting and NAO scrutiny.

38. Care would have to be taken not to build perverse incentives into the budgetary treatment of a fund. It might, for example, be consistent with VFM, to bring expenditure forward from one year to the next, and the funding departments should not be penalised for the resulting increases to the spending profile. Similarly, it may be consistent with VFM for a segregated fund to invest in equities. If this resulted in shortfalls in the short-term (but not in the long-term), again, funding departments should not be penalised.

39. Care would also need to be taken not to penalise funding departments when additional requirements were the result of matters outside their control, for example, the crystallisation of regulatory risk.

Steps to establish a segregated fund

40. The following broad steps would need to be taken if Ministers decided to establish a segregated fund for nuclear clean up:

- Detailed modelling work by the department's actuarial advisers;
- Preparation of a wish list for negotiation with Treasury in SR2002 and beyond;
- Decisions on the detailed aspects of the fund, e.g. investment strategy, taxation; and
- Preparation of provisions of the nuclear reform bill.

Work in progress report on an on-vote account

1. An on-vote account would be similar to a segregated fund, in that government would set aside a sum of money which it would replenish from time to time and which could only be used for nuclear clean up work.

2. Unlike a segregated fund, however, it would have the advantage of following normal supply procedures and the principle whereby all government funds should be consolidated. Also, unlike a segregated fund, funds would not be voted by Parliament until they were needed.

3. Payments into and out of an on-line account would, in reality, be payments into and out of the Consolidated Fund. Authority for payments and receipts would be sought through DTI's supply estimates.

4. The fund would be an account of these transactions, established in legislation, maintained by the funding departments and with an accounting officer. The funding department would publish an annual report and separate accounts for the fund, which would be audited by the NAO.

5. The receipt from the NLIP would be credited into the account. The account would be credited with interest on the balance and subsequent contributions by the funding departments. Balances would be maintained from one year to the next.

6. Legislation would protect the fund from diversion for other purposes. It would also enable payments out of the account to be for a specified purpose, i.e. to fund the LMA's agreed work programme. Payments out of the account would be debited to the balance. Subject to Treasury agreement, they would not be debited to the funding departments' DEL budgets (see paragraph 9 below).

7. The account would be topped up at regular review points in order to maintain a sufficient balance to meet currently projected spending requirements over a specified time horizon. While the level of contributions would be a matter of policy for the government of the day, as with a segregated fund, they should remain at a level which was consistent with the objective of publicly demonstrating a real commitment to clean up. The level of contributions could be determined in the same manner as for a segregated fund – see paragraphs 5 - 6 of Annex 1.

8. Unlike a segregated fund, there would be no real money to invest or (potentially) be taxed. Agreement would, therefore, need to be reached with the Treasury on the interest level to apply to the account. The most sensible rate would seem to be the Green Book rate (6%).

Accounting and budgetary treatment

9. As with a segregated fund, the budgetary treatment of an on-vote account would be key to enabling the account to deliver the prescribed policy objectives. In

particular, again as with a segregated fund, the funding departments would need to obtain Treasury agreement that expenditure from the account would not be debited to their DEL accounts. Instead, payments into the account would be debited to their DEL budgets.

10. The funding departments would also need to seek supplementary estimates in the event of the LMA bringing forward spend. We do not, however, envisage that this, effectively procedural, requirement would limit the flexibility and certainty the LMA needs to manage its liabilities cost effectively.

Steps to establish an on-vote account

11. Broadly the same steps that would be needed to establish a segregated fund (other than decisions on the fund's structure and operation) would need to be taken if Ministers decided to establish an on-vote account, i.e.

- Preparation of a wish list for negotiation with Treasury in SR2002 and beyond;
- Decisions on the detailed aspects of the account; and
- Preparation of provisions of the nuclear reform bill.

Joan MacNaughton

PS SoS

From: **Graham Bryce**
Deputy Director, International Energy Markets
Energy Policy Directorate
Room 2121, 1 Victoria Street

Tel: 020-7215-2733
Fax: 020-7215-2867
Mail bryce graham

Date: 15 March 2002

ci PS Mr Wilson
PS Robin Young
Catherine Bell
Edmund Hosker
Neil Hirst
Helen Leiser
Ann Lambert
Philip Bovey
Denis Walker
Ian Fletcher
Mark Bucknill
Richard Penn
Judith Bennington

BRITISH ENERGY (BE) - FOLLOW UP TO MEETING WITH ROBIN JEFFREY

Issue

1. You asked for a short and strategic options paper given the wish to avoid the premature closure of the nuclear stations owned by British Energy.

Recommendation and Timing

2. You write to Treasury following your meeting with officials at lunchtime on Monday 18 March 2002.

3. The draft letter attached does not seek agreement to offer BE comfort in time for its announcement next Thursday (21 March). On balance we think this is right, but it is not free of risk. An alternative final paragraph is provided in the letter which should be used if you do wish to be able to offer comfort. Politically you would be raising expectations which would then lead to criticism if you were unable to deliver. The legal risk is not immediate but you would be entering a process in which the Board would be relying on the outcome in continuing to trade. Being a party to continuing trading in this way could lead to your being liable for the losses of the company.

4. From our discussion with officials it seems very unlikely that Treasury would agree to your offering this comfort.

BE's Position

5. CSFB's findings are

- UK business - losses pre tax £ 180 million pa (mpa)
- North America - profits pre tax £ 150-200 mpa
- Overall - losses after tax of £ 50 mpa for the next three years.

During the year BE needs to start re-financing its debt profile. It must maintain investment grade ratings and market confidence. To avoid breaching bond covenants it must deliver its (aggressive) business plan.

Options

Let events take their course (i.e. continue with contingency planning only)

Pros

Avoids government intervention in a private company.

Cons

Risks BE insolvency. High costs of picking up nuclear liabilities and loss of cash generative North American business; politically unattractive ; does not accord with PIU 'keeping the nuclear option open'; potential difficulties over in insolvency office holder's actions - and acceptability as a nuclear licensee ; means Kyoto targets potentially unattainable (or attainable only at very high cost).

5. There are five options which could improve the prospects of BE remaining solvent. It is likely that most, if not all, of these would require state aids approvals. As a result, delivery of the options is not entirely within HMG's gift. That would need to be made clear to the company.

i) Encourage further commercial renegotiation of BNFL's fuel supply and disposal contracts.

Pros

Possible scope to achieve up to £ 80 mpa of benefit to BE on commercial terms; in BNFL's own interests to sustain BE as main customer

Cons

BNFL may not go far enough without pressure from HMG; benefits may be insufficient to provide permanent solution.

ii) Negotiating an arrangement whereby BE paid HMG a fee to take on its pre-privatisation liabilities.

Pros

BE's liabilities handled in LMA; BE argument that current liabilities burden is unfair.

Cons

A gift to BE; their case appears flimsy; more liabilities for HMG; state aids issues etc.

iii) Encourage DTLR to come to a negotiated arrangement with BE regarding the rating of its AGR and PWR stations.

Pro

BE have legitimate claim lodged with EU Commission

Cons

Not enough to provide solution on its own. Difficult to dislodge DTLR; possible fallout on other ratepayers.

iv) Carbon Savings Benefits for Nuclear Generation.

Pro

Has some environmental logic.

Cons

Treasury will not dismantle the CCL; other benefits a longer term issue - post energy White Paper.

v) EdF or another purchaser

Pro

A competitive commercial outcome

Cons
May not be feasible ; difficult negotiations on terms; competition aspects ; politics of EdF as dominant UK electricity company; commercial implications of EdF as main customer for COGEMA and BNFL.

Next Steps

8. We need to meet to discuss tactics for the short term. The first essential is to persuade Treasury that any intervention is necessary at all. The key argument in the early phase would have to run as follows :

- HMT's strategy of no action runs the unacceptable risk of a premature failure at BE - after which the ability to control developments is fatally undermined.
- Maintaining BE as a going concern has significant benefits over the alternatives in that it give UK plc the chance of continuing a structure where profitable. Canadian and US contracts provide a partial offset to the temporary difficulty (albeit several years long) in UK wholesale electricity prices and, over the longer term, contribute to the decommissioning of the UK nuclear fleet.
- There will be a considerable cost to HMG if BE went down since it would lose the substantial value in BNFL's THORP reprocessing contracts.
- Some statement of willingness to consider options may help to offset negative market sentiment running out of control - but one should be clear that there is no easy option here.

9. A draft letter for you to send to the Chancellor has been attached setting out these points.

Dr. G.W. Bryce

Joan MacNaughton

PS SoS

From: **Graham Bryce**
Deputy Director, International Energy Markets
Energy Policy Directorate
Room 2121, 1 Victoria Street

Tel: 020-7215-2733
Fax: 020-7215-2867
Mail bryce graham

Date: 15 March 2002

ci PS Mr Wilson
PS Robin Young
Catherine Bell
Edmund Hosker
Neil Hirst
Helen Leiser
Ann Lambert
Philip Bovey
Denis Walker
Ian Fletcher
Mark Bucknill
Richard Penn
Judith Bennington

BRITISH ENERGY (BE) - FOLLOW UP TO MEETING WITH ROBIN JEFFREY

Issue

1. You asked for a short and strategic options paper given the wish to avoid the premature closure of the nuclear stations owned by British Energy.

Recommendation and Timing

2. You write to Treasury following your meeting with officials at lunchtime on Monday 18 March 2002.

3. The draft letter attached does not seek agreement to offer BE comfort in time for its announcement next Thursday (21 March). On balance we think this is right, but it is not free of risk. An alternative final paragraph is provided in the letter which should be used if you do wish to be able to offer comfort. Politically you would be raising expectations which would then lead to criticism if you were unable to deliver. The legal risk is not immediate but you would be entering a process in which the Board would be relying on the outcome in continuing to trade. Being a party to continuing trading in this way could lead to your being liable for the losses of the company.

4. From our discussion with officials it seems very unlikely that Treasury would agree to your offering this comfort.

BE's Position

5. CSFB's findings are

- UK business - losses pre tax £ 180 million pa (mpa)
- North America - profits pre tax £ 150-200 mpa
- Overall - losses after tax of £ 50 mpa for the next three years.

During the year BE needs to start re-financing its debt profile. It must maintain investment grade ratings and market confidence. To avoid breaching bond covenants it must deliver its (aggressive) business plan.

Options

Let events take their course (i.e. continue with contingency planning only)

Pros

Avoids government intervention in a private company.

Cons

Risks BE insolvency. High costs of picking up nuclear liabilities and loss of cash generative North American business; politically unattractive ; does not accord with PIU 'keeping the nuclear option open'; potential difficulties over in insolvency office holder's actions - and acceptability as a nuclear licensee ; means Kyoto targets potentially unattainable (or attainable only at very high cost).

5. There are five options which could improve the prospects of BE remaining solvent. It is likely that most, if not all, of these would require state aids approvals. As a result, delivery of the options is not entirely within HMG's gift. That would need to be made clear to the company.

i) Encourage further commercial renegotiation of BNFL's fuel supply and disposal contracts.

Pros

Possible scope to achieve up to £ 80 mpa of benefit to BE on commercial terms; in BNFL's own interests to sustain BE as main customer

Cons

BNFL may not go far enough without pressure from HMG; benefits may be insufficient to provide permanent solution.

ii) Negotiating an arrangement whereby BE paid HMG a fee to take on its pre-privatisation liabilities.

Pros

BE's liabilities handled in LMA; BE argument that current liabilities burden is unfair.

Cons

A gift to BE; their case appears flimsy; more liabilities for HMG; state aids issues etc.

iii) Encourage DTLR to come to a negotiated arrangement with BE regarding the rating of its AGR and PWR stations.

Pro

BE have legitimate claim lodged with EU Commission

Cons

Not enough to provide solution on its own. Difficult to dislodge DTLR; possible fallout on other ratepayers.

iv) Carbon Savings Benefits for Nuclear Generation.

Pro

Has some environmental logic.

Cons

Treasury will not dismantle the CCL; other benefits a longer term issue - post energy White Paper.

v) EdF or another purchaser

Pro

A competitive commercial outcome

Cons

May not be feasible ; difficult negotiations on terms; competition aspects ; politics of EdF as dominant UK electricity company; commercial implications of EdF as main customer for COGEMA and BNFL.

Next Steps

8. We need to meet to discuss tactics for the short term. The first essential is to persuade Treasury that any intervention is necessary at all. The key argument in the early phase would have to run as follows :

- HMT's strategy of no action runs the unacceptable risk of a premature failure at BE - after which the ability to control developments is fatally undermined.
- Maintaining BE as a going concern has significant benefits over the alternatives in that it give UK plc the chance of continuing a structure where profitable. Canadian and US contracts provide a partial offset to the temporary difficulty (albeit several years long) in UK wholesale electricity prices and, over the longer term, contribute to the decommissioning of the UK nuclear fleet.
- There will be a considerable cost to HMG if BE went down since it would lose the substantial value in BNFL's THORP reprocessing contracts.
- Some statement of willingness to consider options may help to offset negative market sentiment running out of control - but one should be clear that there is no easy option here.

9. A draft letter for you to send to the Chancellor has been attached setting out these points.

Dr. G.W. Bryce

Rt. Hon. Gordon Brown MP
Chancellor of the Exchequer
HM Treasury
Downing Street

I have seen Paul Boateng's letter of 15 February to Brian Wilson. In my meeting with members of the British Energy board on Thursday 14 March, I maintained our position of offering no comfort to the company. However, the situation has developed since that earlier exchange of letters and I am writing to update you on the situation. In light of the company's latest representations I am also seeking your agreement in principle that we should avoid an insolvency at BE and to our considering further those actions that may ward off what may be a critical situation developing in the British nuclear generation industry.

In considering this situation, it is important to be clear what our concerns are, and what key objectives we should pursue. As I see it, the key considerations for Government are:-

- Ensuring security of supply, by avoiding a situation where unplanned closure of generation units place capacity margins at risk – this is the "keeping the lights on" objective
- Avoiding so far as possible assuming BE's financial liabilities or incurring public expenditure (and this objective encompasses the task of continuing to provide the best framework for BNFL)
- Keeping open the option of civil nuclear generation in the UK in future.
- Assurance of nuclear safety at all times.

Although BE's financial position and prospects are at the centre of the problems we now face, I am clear that the company's future per se should largely be a matter of indifference to us, except so far as its fate affects the attainment of these objectives. But I must also say that I consider BE's future to be directly relevant to all four.

As your officials know, BE has indicated to us that, in light of much reduced electricity wholesale prices, especially for those who generate baseload power, the company's UK nuclear generating business is likely to make significant accounting losses for some years. This is a view that our own economists and our external financial advisers (Credit Suisse First Boston) confirms. The short term effects on BE's business are already becoming apparent. The company has seen its credit rating downgraded to a relatively low investment grade and a further downgrading could impact on its ability to raise finance. When the company announces its expectations for future trading to the market within the next few weeks, the impact on its equity value might be severe, with knock-on effects on its credit ratings and ability to carry on to finance its businesses both in the UK and North America.

My officials are currently investigating with colleagues in HSE and Ofgem the regulatory, safety and security of supply issues which would arise were the company to become insolvent. Your officials have been invited to participate in this exercise. However the potential implications for public finances of an insolvency are in my view very severe. An insolvency office holder would, in such circumstances, have no duty to protect the public interest and would be under no obligation to minimise costs to the taxpayer, support Government policy or provide for security of electricity supply.

At present BE uses profits from its North American operations to help to finance current losses in the UK business - including contributing to the costs of longer term nuclear liabilities in the UK. But, were there to be a prospect of an insolvency, it is likely that these profitable businesses would cease to be available for that purpose. BE's share in Amergen would probably be sold to BE's partner in the joint venture and, more seriously, BE's lease in Bruce Power would be returned without compensation to Ontario Hydro. (BE hold the lease subject to conditions regarding the parent company's ability to provide financial cover) BE would have little hope of ever returning to profit in these circumstance or even of financing its business - even in the short term. Insolvency would lead to severe calls on the public purse and the taxpayer would be obliged, in practice, to pick up some of the liabilities - some

directly and some through its ownership of BNFL which would be BE's main creditor.

So it cannot be in the public interest for us to let BE's nuclear stations close prematurely or to run the risk of major liabilities returning to the in practice taxpayer through inaction or an unwillingness to contemplate limited remedial measures in the short term. UK nuclear stations remain viable in economic terms, with revenues exceeding avoidable costs. The stations also play a significant part in helping the UK to meet its emission reduction target under Kyoto. Without them, we would probably not meet our Kyoto targets. There are also presentational downsides attached to allowing the UK's sole nuclear generating company to fail: in terms of the climate for future PPP arrangements, of public concerns about nuclear safety (already heightened post-September 11), or of the credibility of the Government's wider energy policy (based on the compatibility of market liberalisation with security of energy supply).

In my view therefore Government cannot let BE go to the wall. This is not because of any particular wish to protect the interests of shareholders or even those providing credit to the company. It is because, in the case of insolvency, it is likely that the costs and liabilities would end up on Government's door, including the costs of winding up BNFL's Thorp business which is heavily dependent on BE's custom, and the taxpayer would pay more in practice than might be necessary.

In normal circumstances we would expect BE to look to its banks - with whom it claims to have good relationships - for refinancing. But under present circumstances this is likely to prove difficult. BE and BNFL are having more constructive talks on ways of easing BE's position in ways which BNFL can justify commercially. But I suspect these alone will not be enough to ward off more serious difficulties.

It is my view, and this is confirmed by CSFB, that some limited movement on one or a combination of options, could stabilise the position at BE and at the very least keep the option of avoiding an insolvency in the short term, with all the risks that that entails.

BE has told us that it will be talking to North American and British analysts on Thursday 21 March. While we understand BE will be guarded in what it says, we can expect fluctuations in the share price to follow. BE will be required to make more fundamental statements as to the company's future trading prospects during its prelims in May. I recognise it is not possible to take any specific action before any statement by the company this week. But I believe it is now essential that our officials work together to look at the cost, benefits and tactics needed for the various options set out in the annex to this letter in order to work out the least cost option for Government. This should seek to report back to both of us by the end of April in order that we can have an agreed basis upon which we can make decisions.

Robin Jeffrey is seeking comfort from the Government in advance of the analysts meeting. BE would rely on any such comfort in its dealings with the market. At present I do not believe that such comfort should be given. However, there is a risk that BE's statement this week, or the subsequent questioning of the board, might lead to a severe downgrading of confidence among rating agencies - a development which would undermine fatally the ability of the company to refinance its debt. In that event we would need to agree what comfort, if any, it might be necessary to offer.

Alternative final paragraph if you do wish to seek agreement to your providing comfort before 21 March :

[Robin Jeffrey is seeking comfort from the Government in advance of the analysts meeting. BE would rely on any such comfort in its dealings with the market. There is a risk that BE's statement this week, or the subsequent questioning of the board, might lead to a severe downgrading of confidence among rating agencies - a development which would undermine fatally the ability of the company to refinance its debt. I would be grateful therefore for your agreement that I should now say to BE, for use by them in presenting their outlook to the City, that I am considering the options that they have put to me.]

I am copying this letter to the Prime Minister.

PATRICIA HEWITT

IN STRICT CONFIDENCE

BNFL

Norman Askew
Chief Executive

British Nuclear Fuels plc
Risley
Warrington
Cheshire WA3 6AS
Tel: 01925 835290
Fax: 01925 820313

13 March 2002

Mr G Norris
Policy Unit
No 10 Downing Street
LONDON
SW1

Dear Geoffrey.

I enclose the attached chart I was discussing with you, which was prepared 18 months ago and shows our view of BE's financial position at that time.

As you can see, Analysts estimated the range of prices per megawatt hour (MWh) to be somewhere between £27 and £22. We then took a line to show what it would be if it was 10% below that bottom figure, ie just below £20 per MWh. The first diagnostic line shows the net income would be zero if they made no cost reductions from their 1998/99 cost base and the price was just below £25. If they made a 25% cost reduction, prices could drop to below £20 and they would still retain net income at zero.

The next line is the operating profit at zero and then the line where they would have been unable to pay Dividends and finally the position of technical insolvency, defined as Negative Shareholder Value.

I am having this work redone for today's numbers and will discuss it with you when the analysis is done. Needless to say, from BE's point of view, this is very sensitive, which I know you will treat as such.

Regards.

Yours sincerely

Norman

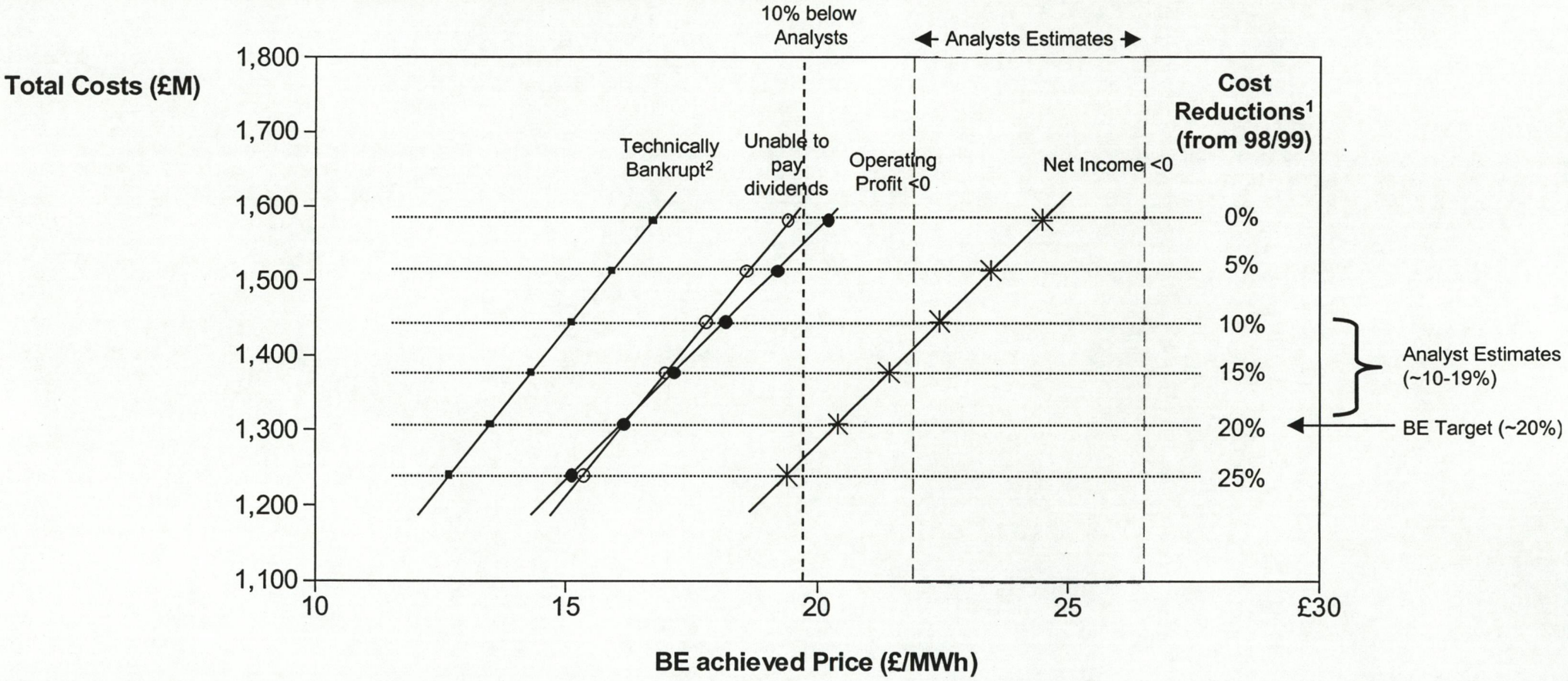
IN STRICT CONFIDENCE

Registered in England no. 1002607
Registered office:
Risley Warrington Cheshire WA3 6AS

Cost Reductions

If future achieved prices stay within analyst expected range, BE will need to reduce its costs by 15% to stay profitable at 97/98 output level

Output: 67.0 TWh



Note: 1. Cost reductions are non-BNFL related. 2.Defined as negative shareholder value

Andria Soteriou

From: Geoffrey Norris
Sent: 19 February 2002 10:51
To: Andria Soteriou
Subject: FW: NRB & WP: Inter Departmental Project Board


Agenda NRB & WP Project Board ...


PB(02)02.doc


PB(02)03.doc


PB(02)04.doc


PB(02)05.doc

please print the attached

-----Original Message-----
From: Fleming Helen - SEC B -
[mailto:helen.fleming@cabinet-office.x.gsi.gov.uk]
Sent: 19 February 2002 10:02
To: Norris Geoffrey - No. 10 -; Jones Oliver - No 10 -
Subject: FW: NRB & WP: Inter Departmental Project Board

Are you in touch with Stephen Spivey's developing work on the LMA? And will one of you attend this meeting? I am minded to go just to get my understanding of the issues up to speed.
Helen
-----Original Message-----
From: Spivey Stephen (Mr SD) [mailto:Stephen.Spivey@dti.gsi.gov.uk]
Sent: 18 February 2002 08:59
To: 'helen.fleming@cabinet-office.x.gsi.gov.uk'
Subject: FW: NRB & WP: Inter Departmental Project Board

-----Original Message-----
From: Byrne Barbara (Mrs BAF) On Behalf Of Spivey Stephen (Mr SD)
Sent: 15 February 2002 17:18
To: Lambert Anne (Miss GMA)
Cc: 'colin.potter@hse.gsi.gov.uk'; 'dave.glazbrook@hse.gsi.gov.uk'; 'henry.derwent@defra.gsi.gov.uk'; 'richard.wood@defra.gsi.gov.uk'; 'graham.turnock@hm-treasury.gsi.gov.uk'; 'helen.fleming@hm-treasury.gsi.gov.uk'; 'elizabeth.gray@scotland.gsi.gov.uk'; 'XD3@dpa.mod.uk'; 'jim.gray@environment-agency.gov.uk'; Whiteley Simon (New Accounts); Innes Gordon (Mr GD); Griffin Richard (Mr RD); Gregory Ian (Mr IJ); Bovey Philip (Mr PH); Allan Kate (Ms KM); Leyland Richard (Mr RJ); Welch Bryan (Mr BJ)

Subject: NRB & WP: Inter Departmental Project Board

Anne cc as above

Nuclear Reform Bill and White Paper: Inter Departmental Project Board

I attach an agenda and papers for the meeting on Thursday in the DTI Conference Centre

We will circulate an up to date Project Plan (PB(02)01) and the paper on regulatory and policy issues (PB(02)06) early next week.

Stephen

<<Agenda NRB & WP Project Board 21 Feb 02.doc>> <<PB(02)02.doc>> <<PB(02)03.doc>> <<PB(02)04.doc>> <<PB(02)05.doc>>

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The Cabinet Office's computer systems may be monitored and communications carried on them recorded, to secure the effective operation of the system and for other lawful purposes.

NUCLEAR REFORM BILL AND WHITE PAPER:
INTER DEPARTMENTAL PROJECT BOARD

Meeting on 21 February at 09.00 in the DTI Conference Centre, 1 Victoria Street

AGENDA

1	Introductions	
2	Project Plan	PB(02)01
3	Future Arrangements for Site Management	PB(02)02
4	LMA Constitution	PB(02)03
5	Funding Arrangements	PB(02)04
6	Implications of Restructuring for BNFL and UKAEA	PB(02)05
7	Regulatory and Policy Issues for the White Paper	PB(02)06
8	Arrangements for engaging stakeholders	
9	Any Other Business	

PB(02)02

LMA- SITE LICENSEE CONTRACTUAL ARRANGEMENTS

PROGRESS UPDATE FOR PROJECT BOARD- 21 FEBRUARY 2002

OVERVIEW

This paper summarises the work done to date to identify the options for moving towards contractual arrangements between the LMA and site licensees to discharge the nuclear liabilities, should LMA decide that this was the most appropriate method of managing a particular site. It concludes by identifying a preferred way forward.

SUMMARY

The objectives of transferring the liabilities to the LMA are:

1. to enable it (through its funding responsibility) to exercise strategic control over public sector civil nuclear liabilities discharge
2. to facilitate the introduction of competition into site management
3. to facilitate the possibility of introducing a PPP into BNFL

To enable the LMA to deliver on these objectives we need it to have available contractual arrangements which:

- Provide full maintenance of the appropriate regulatory oversight while minimising the extent of change required to the current regulatory regime
- Give the contractor the greatest freedom to manage the relevant site, consistent with LMAs objectives as set out in the contract and updated via contract management processes
- Minimise the need to show nuclear liabilities on the contractor's balance sheet
- Provide maximum flexibility for LMA as it decides whether, for any site, to adopt a public sector site manager, either indefinitely or as a fallback, or to proceed with a private sector site manager.

Three broad options have been identified. All of these options have the same basic economic effect: LMA pays the costs of nuclear clean-up, employing a management contractor on an incentivised basis to carry out the overall strategy for each site as set by the LMA. In all cases the licensable entity would be under the operational control of the management contractor for the purposes of satisfying safety and other regulators. This is the same policy and economic model as developed for the AWE site. The three options are:

- Option 1: a management contractor seconds staff to an LMA-owned entity that holds the site licence. These staff provide the core leadership and management of the site licensee corporate entity

- Option 2: ownership of the site licensee corporate entity is transferred from LMA to a management contractor for the duration of the management contract. The management contractor's responsibility for nuclear obligations is limited to the duration of the contract (in effect this is close to the structure which operates at AWE).
- Option 3: legislation removes responsibility for discharging decommissioning and clean-up liabilities from the site licensees for public sector civil nuclear sites and passes them to the LMA.

Option 3 has been rejected as requiring too radical a change to the current nuclear regulatory regime.

Option 1 does not seem to require any specific powers in the Bill apart from the general provisions to establish an LMA.

Option 2 requires an AWE-style provision in the Bill that limits the period of responsibility of the contractor to the term of its contract.

The recommendation is to proceed to develop the Bill to allow LMA to implement either of Options 1 and 2 to give it maximum flexibility to respond to future situations.

DISCUSSION

Annexes 1 and 2 set out the probable legal structures required to implement options 1 and 2 respectively. These annexes and further detailed descriptions have been discussed with regulators, BNFL, UKAEA, DTI legal, DTI financial and accounting advisers and a number of potential contractors. In summary the discussions to date indicate that:

- Option 1 is regarded as viable by the regulators. Option 2, and in particular the relevance of AWE as a precedent, is to be discussed at another meeting with the regulators on 20 February. A report on the outcome will be available at the Project Board.
- Option 1 was viewed by UKAEA and BNFL as raising some significant issues over the freedom of the management contractor to manage operations on each site. In particular, LMA's ownership of the site licensee could (in BNFL's view would) impede the effecting of cultural change on sites such as Sellafield.
- Private sector contractors raised the same issues as BNFL and UKAEA over the effective capacity of the management contractor to create change. However they also raised a significant concern over the potential need to show the nuclear clean-up liabilities on their balance sheet under Option 2, significantly reducing the attractiveness of a site management contract to potential contractors. Overall they expressed a preference for Option 1.
- In practice, both Options 1 and 2 raise this major accounting treatment issue: a possible need to reflect the full quantum of nuclear liabilities on the management contractor's consolidated balance sheet, albeit with an offsetting

asset representing the value of the LMA indemnity to meet the cost of the liabilities.

The option of retaining UKAEA and/or BNFL and/or new public sector entities as publicly-owned site managers will remain open to LMA.

Discussions with our accounting advisers are continuing, with a view to reducing this accounting concern. We will then be seeking further input from private sector contractors to see whether there preferred option changes in the light of the fresh advice.

An update on recent discussion will be made at the meeting. Other options that will remain open to the LMA include:

BPT Legislation Team
15 February 2002

Annex 1

LEGAL STRUCTURE FOR OPTION 1

This annex sets out the key legal entities and contractual structures required to give effect to option 1.

DEFINITIONS

LMA	Liabilities Management Authority
SLCo	Corporate body holding the nuclear site licence
MCL	Private sector contractor, contracted by LMA to provide staff to manage the site. May be part of a single group of companies, or owned by a consortium.

1. The LMA has statutory duties to:
    a. Prepare strategic plans for the management of the nuclear licensed sites for which it has responsibility
    b. Fund the costs incurred by site licensees on specified sites in discharging their nuclear liabilities
2. LMA owns 100 per cent of the shares in a number of Companies Act companies, each of which is the licensee of one or more nuclear sites (eg Sellafield plc). Each company:
    a. Owns all the assets on the site
    b. Is the contractual party for any 3rd party contracts (eg Thorp, SMP)
    c. Employs the greater part of the people working on the site
    d. Is the contractual party for all sub-contracts required to deliver site operational and clean-up activities.
3. The economic benefit of the 3rd party contracts will be retained by SLCo to offset the costs incurred in discharging nuclear liabilities. It is not anticipated that SLCo will generate significant surpluses, but any dividends paid out of such surpluses would pass to LMA.
4. The LMA will have the power to direct SLCo to:
    a. Develop and deliver site operational plans that achieve the milestones and targets set out in the LMA Whole Life Site Remediation Plan
    b. Permit LMA or its agents [C&AG?] access to its books
    c. Comply with procurement procedures
    d. Maintain and develop the site's assets and workforce at capability levels to be set out in the site asset and HR strategies agreed between LMA and SLCo.

    These powers to direct may be effected by statutory provision and/or by LMA/SLCo contractual arrangements.

5. LMA enters into a contract with MCL for [10] years under which MCL provides staff on a secondment basis to SLCo. In return, LMA agrees to pay MCL a fee based on agreed performance targets for SLCo's operations. The incentive element of the fee will be designed to reward MCL for the added value which its people have contributed to the management of the site.
6. The performance targets will relate to:
    a. Operational output
    b. Project milestones
    c. Compliance with safety, environmental and other regulations
    d. Cost management
    e. Stakeholder relations
7. The Board of SLCo is appointed by LMA on the following basis:
    a. The Board will comprise a Chairman, [3] non-executive directors and [3] executive directors.
    b. The Chairman and non-executives will be LMA nominees, at least one of whom is likely to be a senior LMA executive. Other non-executives could be stakeholder representatives (but not MCL aligned).
    c. MCL will nominate suitably qualified and experienced people (SQEP) to act as the 3 executive directors, for example a Chief Executive, Head of Site and Director of Finance, for LMA (as shareholder) to appoint to the Board of SLCo. LMA will only refuse to appoint such people if it has reason to believe such nominees are not SQEP . These nominees could include (at MCL's discretion) people who are employees of SLCo.
8. The contract between LMA and MCL will have termination provisions, including:
    a. LMA's failure to appoint a MCL nominee without reasonable justification (to be defined), shall entitle MCL to terminate the contract and receive compensation (based on a formula for early termination for no fault of MCL).
    b. MCL's failure to nominate executive directors who are SQEP, shall entitle LMA to terminate the contract without compensation.
    c. LMA will have only have the right to remove any directors and/or to appoint any person it chooses in the event of [a list of site management events that would constitute a significant management failure].
    d. For sustained under-performance (to be defined) of SLCo
    e. For major management failure
9. There will be other LMA remedies in the main LMA-MCL contract.
10. The LMA/SLCo and LMA/MCL contracts will have provisions setting out procedures for:
    a. Determining the whole life site remediation plan

b. Agreeing performance targets and KPIs

c. Resetting the incentive payment mechanism

d. Dispute resolution.

Annex 2

LEGAL STRUCTURE FOR OPTION 2

This annex sets out the key legal entities and contractual structures required to give effect to option 2.

1. The LMA has statutory duties to:
    a. Prepare strategic plans for the management of the nuclear licensed sites for which it has responsibility
    b. Fund the costs incurred by site licensees on specified sites in discharging their nuclear liabilities
2. LMA owns all the assets on the nuclear licensed sites that fall within its remit. It also owns a "golden share" in a number of Companies Act companies (SLCos), each of which is the licensee of these nuclear sites (eg Sellafield plc). The key term of the golden share is the right to reacquire (or require the reassignment of the shares to a new shareholder) all the other shares in the SLCo upon termination of the contract described in 5 below. All remaining shares in each company are owned by the contractors selected by LMA to manage the site.
3. Each company:
    a. Has a lease or license from LMA giving it the right to occupy or use the assets on the nuclear licensed sites
    b. Is the contractual party for any 3rd party contracts (eg Thorp, SMP)
    c. Employs the greater part of the people working on the site
    d. Is the contractual party for all sub-contracts required to deliver site operational and clean-up activities.
4. The LMA will have the power to direct SLCo to:
    a. Develop and deliver site operational plans that achieve the milestones and targets set out in the LMA Whole Life Site Remediation Plan
    b. Permit LMA or its agents [C&AG?] access to its books
    c. Comply with procurement procedures
    d. Maintain and develop the site's assets and workforce at capability levels to be set out in the site asset and HR strategies agreed between LMA and SLCo.

    These powers to direct may be effected by statutory provision and/or by LMA/SLCo contractual arrangements.
5. LMA enters into a contract with MCL for [10] years under which LMA agrees to pay MCL a fee based on agreed performance targets for SLCo's operations. The performance targets will relate to:
    a. Operational output
    b. Project milestones
    c. Compliance with safety, environmental and other regulations

d. Cost management

e. Stakeholder relations

6. The legislation setting up the LMA will include provisions that effectively limit MCL's exposure to liabilities that may flow from its ownership of SLCo, to the period for which it owns SLCo and has the contract with LMA. MCL will also be able to require LMA to acquire its shares in SLCo upon termination of the contract.

7. The economic benefit of the 3rd party contracts will be retained by SLCo to offset the costs incurred in discharging nuclear liabilities. The net cost will be reclaimed from LMA under the LMA's duty in 1 above. It is not anticipated that SLCo will generate significant surpluses, but any dividends paid out of such surpluses would pass to LMA.

8. The Board of SLCo is appointed by MCL as the shareholder. LMA may have rights to appoint some directors or there may be independent directors. MCL will control the Board. It is likely that SLCos executive directors and a number of its senior managers will be drawn from MCL and its parent company.

9. The contract between LMA and MCL will have termination provisions, including:

   a. For sustained under-performance (to be defined) of SLCo

   b. For major management failure

10. There will be other LMA remedies in the main LMA-MCL contract. The LMA/SLCo and LMA/MCL contracts will also have provisions setting out procedures for:

    a. Determining the whole life site remediation plan

    b. Agreeing performance targets and KPIs

    c. Resetting the incentive payment mechanism

    d. Dispute resolution.

LMA Constitution

The Bill

1. The Nuclear Bill will create the Liabilities Management Authority (LMA). This note sets out our line of approach for doing this. It also identifies choices that we propose to put to Ministers.

The Authority

2. The LMA will comprise a Chairperson and between 6 to 14 members. It will not be part of the Crown. It is our intention that the LMA's functions/powers will be vested in the members, who will be able to delegate them to a management team. (We are still, however, to investigate a European style two-tier board structure.)

3. The members will be appointed for a limited time by and collectively responsible and accountable to the Secretary of State for delivering the agreed corporate and business plans, specifically for achievement of annual performance targets. The Bill will provide that a majority of the members will not be members of the management team.

4. Appointments will be made in accordance with Nolan principles with the Chairperson, once appointed, taking the lead in identifying suitable candidates and making recommendations to the Secretary of State for approval. It is our intention that the members will include a number of people from business including the Chairperson, with first hand experience of change management, building and maintaining strong safety cultures and managing large and complex programmes involving technical and regulatory risk. The broader membership should also include people with nuclear, regulatory and environmental backgrounds. It is our intention that there will not be a departmental representative.

5. We propose to ask Ministers whether or not the bill should contain a requirement for members to be appointed because they represent particular interests or for their skills.

6. The members' roles will be to provide overall leadership, define specific objectives and incentives, scrutinise and approve work programmes, monitor outputs, make key executive appointments (e.g. the Chief Executive) and set rates of remuneration in line with market levels. The aim is that they will challenge the management team and ensure that it is properly focused, incentivised and delivering positive results.

7. Members' pay will be linked to performance and LMA results.

The Authority's relationship with government

8. The government will exercise strategic control over the LMA through annual general meetings to review and approve strategies developed by the LMA, approve annual business plans and set appropriate performance indicators; and through half-yearly 'analyst' meetings, where the LMA will brief interested

departments/other government stakeholders on progress in year and on current issues.

9. Following agreement of work programmes, operational decisions will be left wholly to the LMA, which will be able to draw down on funds to cover expenditure. The LMA will, however, present any major variations from the programme for approval and seek specific agreement for expenditure outside an agreed range. (Note: this approach will require agreement with Treasury that certain existing controls will not apply.)

10. Members will meet with Ministers as and when necessary.

11. The Secretary of State will have a power to remove members on the grounds of incapacity, misbehaviour or failure to perform effectively. It is our intention that, other than in relation to the Chairperson, this power will be exercised on the advice of the Chairperson. The Secretary of State will also have power, to be used in exceptional circumstances, to direct the LMA. Such directions would be published.

12. Government will assess the LMA's strategy/performance (traditionally a QQR) when it feels that this is needed. Government may choose to review only particular aspects of strategy/performance.

13. The Department's principal Accounting Officer will be responsible for ensuring that satisfactory systems of control exist within the LMA and between the Department and the LMA. He/She will designate the Chairperson of the LMA as Accounting Officer, with delegatory powers consistent with the members' powers to delegate their functions to the management team. The Chairperson (and where delegated to the Chief Executive, the Chief Executive) will be accountable to Parliament for all of the resources under his/her control. The Board will be collectively responsible and accountable for ensuring that funds are used for the purposes intended by Parliament and in accordance with applicable Government guidance on propriety, regularity and value for money.

14. The detail of the relationship will be set out in a Management Agreement defining the LMA's aims, objectives and responsibilities and its relationship with government. The Agreement will also cover arrangements for financial planning and control and for agreeing business and corporate plans, performance measures and targets against which in-year performance would be assessed.

<u>The Authority's functions/duties</u>

15. The LMA's primary purpose will be to direct, oversee and secure cost effective and environmental remediation of public sector nuclear sites. It will have the following broad functions:

    - Develop and implement strategy and basic principles for discharging public sector nuclear liabilities;
    - Determine management arrangements for individual sites and/or packages of liabilities, keep those arrangements under review and, where appropriate, implement changes. (And use whole life site remediation plans as the foundation documents which map out the strategies for the environmental remediation of the sites);

- Determine management arrangements for operational Magnox stations and operational plant at Sellafield (at least in the short term), keep those arrangements under review and, where appropriate, implement changes;
- Fund the costs incurred by site licensees on specified sites in discharging liabilities and account to Ministers and to Parliament for expenditure and progress against defined objectives;
- Create a framework for securing management efficiencies and improve value for money across the board, e.g. by developing the supply chain and the skills and knowledge base required to sustain long term decommissioning and clean up over the longer term; promoting synergies and co-operation between site licensees; disseminating and developing best practice and ensuring that it is applied consistently across the piece; commissioning relevant research; and providing advice to HMG on relevant policy issues; and
- Inspire public confidence in arrangements for managing public sector liabilities.

16. (More work needs to be done on this aspect of the Bill.)

17. These functions will relate to existing public sector civil nuclear liabilities. It is proposed that these liabilities will be defined by reference to a list of sites contained in an Order which will enable us to cover the possibility that the LMA could take on the management of public sector military nuclear liabilities and/or the building/operation of any future repository for all UK radioactive waste.

18. We propose that Ministers will be asked whether or not they would like to exclude the latter possibility. We also propose to ask Ministers whether or not they would wish the Bill to allow for the possibility of adding sites to the list which are currently in the private sector (specifically BE sites).

19. The LMA will have powers to do whatever is necessary, appropriate, incidental or conducive to the exercise of its functions, including, for example, powers to:

    - Enter into agreements and make payments to site operators;
    - Operate/secure the operation of nuclear plants/facilities (Thorp, SMP, Magnox, Drigg, any future waste repository) and related plants/facilities (Maentwrog, Fellside);
    - Commission research;
    - Give advice to Ministers (e.g. on the cost and practicality of different waste management policy options);
    - Dispose of/develop/join with others in developing land;
    - Dispose of assets (e.g. grid connections);
    - Create subsidiaries; etc.

20. Broadly, the members will delegate the LMA's powers to the management team.

21. The Bill will place duties on the LMA in the exercise of its powers, specifically to:

    - Seek VFM;
    - Consult regulators before formulating or approving clean up strategies and plans and from time to time as part of keeping its strategies and plans under review; and
    - Consult widely on how it proposes to operate.

FUNDING ARRANGEMENTS

1 Ministers agreed in light of the UKAEA QQR report that further work should be done on the proposal for a segregated fund.

2 Work has been taken forward by a group including representatives from DTI, Treasury and MOD, Deloittes (Accounting Adviser to DTI) and LCP (Actuarial Adviser to DTI). The approach has been to:

- Define objectives;
- Review the rationale for a segregated fund against those objectives and consider how the fund might work in practice; and
- Identify and evaluate alternatives.

Objectives

3 The following objectives have been identified:

- Flexibility and reduced cost: sufficient reserve to allow the LMA to bring forward/put back spend where this will contribute to a reduction in the overall cost of discharging liabilities for the same or better VFM (and therefore to allow the LMA to plan on an assured basis) (Priority ranking (1 to 10, 10 being the highest): 9-10);
- Public confidence: underline government commitment to clean up; that money earmarked for clean up will be used for that purpose; and that funding will be at the heart of any coherent long-term strategy for clean up (Priority ranking: 7-8);
- Certainty for industry: that the work programme will be committed (Priority ranking: 7-8); and
- Enable the LMA to focus on its prime tasks of decommissioning and environmental remediation of nuclear sites and long-term management of waste (Priority ranking: 3-4);

4 We also identified the following constraints

- Predictability: the need for reasonably smooth annual cash flow (in terms of the funding departments) (Importance: High); and

- Protection of funding departments' DEL budget; when spend increases/decreases within the years covered by a payments formula (Importance: Very high).

5 In operational terms, the aim has been to develop a framework which optimises operational and management efficiencies and focuses on outcomes, and which does not give rise to perverse incentives or penalise funding departments for events or actions which are outside their control.

Possible Fund Mechanisms

6 The following mechanisms have been considered:

- A segregated fund with the freedom to invest in a broad range of assets;

- A segregated fund with constrained investment options (Note: the investment strategy is linked to structure);

- A statutory "on-vote account" – that is to say, an account, established in legislation, maintained by the DTI with a DTI accounting officer. Payments into and out of the account would, in reality, be "payments" into and out of the Consolidated Fund. The account would be a register of these transactions, with balances being maintained from one year to the next;

- A (closed) ring-fenced account – ie a medium for drawing down the Nuclear Liabilities Investment Portfolio inherited from BNFL and ensuring that it is spent on clean-up;

- A long-term settlement with virement between years; and

- A long-term policy commitment.

7 Work is almost complete and the likely outcome is that Ministers will be invited to choose between a segregated fund (which, itself, has a large number of options) and an on-vote account. An alternative would be to establish an on-vote account after the NLIP has been run down. The basic difference between the options is that a fund would have real cash, whereas the account would (broadly) be a statutory backed commitment to make payments from the Consolidated Fund

8 Our aim is to put a report to Ministers by 1 March in line with the project plan which, in turn, will provide the basis for Chapter 6 of the White Paper. The report will be "agreed" with MOD, Treasury and FRM (recognising that negotiation with Treasury will follow, primarily on budgeting

issues). Ministers will then write round to colleagues seeking support for our preferred option. Our intention is for the report not to address whether or not to create a single funding stream: this will be negotiated in the context of SR2002.

9 Any segregated fund would be established in statute and require provisions setting out its objectives and structure. The on-vote account would also need statute to define its objectives and be effectively ring fenced. Work on developing Instructions will proceed whilst waiting for Ministers' views

IMPLICATIONS OF RESTRUCTURING FOR BNFL AND UKAEA

The attached note:

- provides an outline for the chapter of the White Paper which will deal with these issues;

- lists some of the detailed issues for consideration in relation to the future operation of THORP, SMP and Magnox stations. Feedback from the 28 November announcement and subsequent contacts with stakeholder groups suggests that these will be a key part of the White Paper.

The outline has been agreed with UKAEA and BNFL and both organisations are in the process of providing draft material for sections 1 and 2. Work is also in hand with BNFL on the issues for consideration identified in the Annex.

ANNEX

White Paper: Chapter 5: Implications for BNFL and UKAEA

1. Description of BNFL and UKAEA activities.
   To include outline of current entity structures

2. Description of BNFL and UKAEA's current approaches to legacy management
   - BNFL's strengthened focus on liability management (new approach on historic wastes);
   - action being taken by BNFL to improve performance as liabilities managers (including competitive tendering, e.g. in Magnox decommissioning);
   - relevant UKAEA actions.

3. Explanation of Removal of Liabilities from BNFL and UKAEA - including reasons for doing so.
   (i.e. legislation to place obligation on LMA; aim to ensure LMA has access to maximum range of site management options in future so either: (i) sites to remain as public sector bodies but with potential for private sector management or (ii) bodies could be managed in the private sector but with a limitation of the period of responsibility or in the public sector with indemnities.

4. Assets to be transferred to the LMA
   Which assets will transfer from BNFL and UKAEA to the LMA. BNFL and UKAEA producing papers . Needs to provide overall picture of what goes where and rationale for decisions taken.

5. Explanation of resulting changes to BNFL/UKAEA structures
   i.e. for BNFL split between "commercial" activities (Fuel and NDCU) and Legacy Management activities (Sellafield/Magnox/Capenhurst) NB: if option (i) is followed for removal of liabilities think split will be actual even prior to sale. Also include liabilities remaining with BNFL;

   - UKAEA focus on site management activities subject to implementation of other QQR conclusions and decisions on other UKAEA activities;

   - Also outline Pre PPP/Competition contractual approach - statutory arrangement.

6. Treatment of Operational Assets to be owned by the LMA – ie THORP, SMP, Magnox - see Annex attached.

7. State Aids/ EU considerations.

8. DTI role as BNFL's shareholder and Ongoing DTI relationship with UKAEA

- words from Government about BNFL's activities, aspirations, importance of customers, etc. (Probably) passing reference to technical insolvency.

- outline corporate governance arrangements in place between the DTI and BNFL;

- performance targets / KPIs that are being set, both on legacy and more widely across BNFL's businesses;

- restatement of Government's position on PPP (from November statement).

- performance monitoring of UKAEA activities - outcome of PA review?

9 Approach to Competition

Potential start with Drigg/Capenhurst; commitment to competitive tendering where appropriate; encourage development of site management expertise etc.

10. People issues

- Employment implications, pensions, trades unions.

White Paper, Chapter 5, Section 6. Treatment of Operational Assets to be owned by the LMA. Issues

Issues agreed

1. Treatment of existing contractual arrangements unaffected in any way by November statement.

Thorp

2. BNFL able to conclude baseload contracts currently being renegotiated with its overseas customers, subject to the approval of the BNFL Board to the final settlement.

3. Approval of DTI needed for any new THORP post-baseload business beyond that currently contracted, and for any material future amendments to the terms of existing THORP baseload and postbaseload contracts. (Agreed at time of statement). LMA will advise on the impact on the liabilities discharge programme, both in terms of timetable and cost.

SMP

4. BNFL to continue to seek contracts to make MOX fuel from the plutonium arising from spent fuel reprocessed at Sellafield. Approval of DTI needed for any new MOX contracts in addition to those specified in the company's economic case for SMP

Magnox

5. Operation of Magnox power stations to be in accordance with BNFL's current lifetimes strategy. Approval of DTI needed for any proposed change to the lifetimes strategy (on which the LMA would advise / take a view after its assumption of Magnox assets and liabilities). The LMA will need to consider the most effective means of managing and decommissioning the stations.

Integrity of NLIP

6. As agreed in the Corporate Governance arrangements at time of statement.

Captive Insurance companies

7. Captive insurance companies and the assets within them will follow risks / liabilities wherever possible.

Issues for consideration

1. Split of assets and operations as between the LMA and new BNFL.

2. Future treatment of THORP / SMP contracts, once the LMA is established.

3. Treatment of THORP / SMP revenues, cashflows and profits (including possible shortfalls) as between BNFL and LMA, once LMA is established.

4. Treatment of risks relating to THORP / SMP / Magnox operating stations as between BNFL and LMA, once LMA is established.

5. Future funding of THORP / SMP/ Magnox (including cash flows, operating profits and capex required)

- THORP / Magnox Generation Advance Payments
- Risk premium payments.

6. Potential introduction of a third party to manage and operate Magnox.

- downstream plants (commercial business vs liabilities management conflict)
- decommissioning of Magnox.

7. In considering the above, to take account of:-

- potential State aids implications;
- likely reaction of a potential private sector site management team to such arrangements;
- the interface with, and possible impact on, a segregated fund;
- any implications for regulation, or the development of the supply chain and skills based; and
- what needs to be decided for the Bill to be drafted.

MH

SC: JS
JH
MR
SV
MEB
MB

Home Office

Home Secretary
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The Rt Hon Stephen Byers MP
Secretary of State for Transport,
Local Government and the Regions
Eland House
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26 MAR 2002

Dear Stephen

SELLAFIELD

Thank you for your letter of 19 February 2002 reporting to me, Patricia Hewitt and other members of DOP(IT)(T) the appraisal of the options for possibly reducing the number of flights over the north-west of England.

Having now considered the appraisal made by your officials and experts from the CAA, I agree with your conclusion that it would not be sensible to re-route flights away from Sellafield.

However, I do consider that the work being carried out separately by DTI on possible enhancements to the physical security of Sellafield is consequently therefore very important.

Another key point is that DOP(IT)(T) will need to consider what more can be done within the UK to counter the threat posed by rogue aircraft. The emerging recommendations from the SDR New Chapter Work, which Geoff will bring to the Committee, will be significant here. And I know you yourself will also be looking at how we can take forward other urgent and important work on

aviation security, including the standards we expect of those flying to the UK, which is also relevant.

I have copied this letter to Patricia and to other members of DOP(IT)(T).

Best wishes,

David

DAVID BLUNKETT

Rec'd already file.

RESTRICTED

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PRIME MINISTER

SELLAFIELD

I have seen Patricia Hewitt's letter to you of 22 February enclosing the strategy paper "Improving the Presentation in Ireland and Elsewhere of HM Government Positions on the UK Nuclear Industry". I have also seen Margaret Beckett's response of 11 March.

Like Margaret, I broadly support much of what Patricia says in her letter, and the proposals for taking forward your wishes as set out in the strategy paper. The paper notes that there are already a number of arrangements in place for facilitating relations with the Irish Government on nuclear matters, but omits to mention the British-Irish Council. Sellafield has already formed an important strand of the discussions in the Council's Environment working group and will be the main item on the agenda of the next Ministerial meeting on the Environment in the autumn. As in other areas, the Irish Government, and in this case also the Isle of Man, have voiced strong opposition to the continued operation of Sellafield.

While we can argue the UK case robustly in the BIC, I have no illusions that persuading the Irish will be easy. Nevertheless, the fact that BIC discussions take place in private may provide an opportunity to deal with matters of substance rather than rhetoric.

I am copying this letter to Jack Straw, Margaret Beckett, John Reid, Alan Milburn, Stephen Byers, Sir Richard Wilson and Her Majesty's Ambassadors to Ireland and Norway.

JP

JOHN PRESCOTT
25 March 2002

THE FUTURE OF UK NIREX **BP(02)08**

Summary

1. The NRB White Paper provides an opportunity for Ministers to set out a clear direction for the future of Nirex, taking account of the development of radioactive waste management policy along the lines outlined in DEFRA's consultation document. In considering what the NRB might say about Nirex's future the key issue is whether any of its existing knowledge base (eg. on deep disposal) or activities (eg.on packaging and transport advice) needs to be retained, and if so how best to achieve this. This does not presuppose that Nirex, as currently constituted, needs to remain in existence.

Background

2. Nirex was established in 1982 and incorporated as a private limited company (UK Nirex Limited) in 1985 to provide radioactive waste disposal services. Its ordinary shareholders are BNFL, UKAEA and BE. DTI has a special share. Nirex is funded directly by the nuclear industry. It also receives some income from DEFRA under contract. Its budget is about £11m a year (40% staff costs, 60% external contracts), of which £1m is spent on communications activities (split 44%/56%), £2.4m on its science programme (27%/73%) and £2.1m on advice on packaging and transport (57%/43%).

3. Nirex's aim at establishment was to manage the nuclear industry's intermediate level wastes (ILW). In 1989 SoS Environment asked Nirex to investigate two sites for a deep ILW facility, later one (Sellafield, from 1991 onwards). As part of its development of technical standards for this, it provided the industry with advice on transport and packaging of wastes. In 1997, when Nirex appeal against the refusal of planning permission for a rock characterisation facility was rejected, site investigation work ceased. By this time Nirex had accumulated a good deal of knowledge about deep disposal which lives on in their approach to the packaging of waste.

4. Since 1997, and in continuing pursuit of the 1991 request from DEFRA, Nirex continues to:

- advise industry on **packaging and transport**, in the context of their expertise on deep disposal : under the letter of comfort(LOC) system Nirex provides industry with guidance on packaging ILW; with reservations (mainly related to the necessarily indefinite nature of conceptual LOCs), the system is valued by both industry and regulators;

- maintain the **database from its site investigation** programmes and a database of world wide information on deep disposal;

- maintain the UK **national waste inventory** under contract to DEFRA;

- conducts **communication/education** activities PR on nuclear (waste) issues.

5. In carrying out these functions, Nirex contributes to discussions on waste management policy, explores HLW/ILW co-disposal options and investigates how to achieve public acceptability for a facility. It has also retained a strong research base.

6. Nirex's activities are agreed by its Board, as is its budget. Government (DTI and DEFRA) have no formal role in setting the goals of the company but are responsible for the policy context in which it operates. In particular, DEFRA is responsible for setting the

Government's policy on the management of radioactive waste, and Nirex's articles of association require that its activities are in accordance with this policy.

Implications of recent devlopments for Nirex

7. Three developments raise key questions about Nirex's future :

- **The DEFRA radwaste consultation document (September 2001)** - this raises a number of issues which impact on the future of Nirex, chiefly whether specific bodies should be set up, one to conduct the information gathering/consultation process on a long term solution for radwaste and another to act as a centre for research expertise; and whether Nirex could fill either role in its existing, or an expanded, form; the consdoc outlines a two stage process : (i) 2002-07 : consultation on and consideration of options for long term management of radwaste, leading to the choice of a preferred option (ii) post 2007 - implementation of the option;

- **The proposal to create an LMA (November 2001)** - once the LMA is in being, two of the Nirex shareholders (UKAEA and BNFL) will, in effect, be owned by it (some parts of BNFL's business may have been separated but its interest in Nirex most logically remains with the liabilities component). The LMA will also provide the bulk of funding for Nirex and be responsible for the bulk of the wastes that might need to be disposed of.

- **Nirex and shareholder views on its future** - Nirex has proposed that two new bodies should be set up : a Radioactive Waste Policy Board, and a Radioactive Waste Management Organisation (with the latter incorporating Nirex expertise). Both would be independent from the industry and funded direct by Government. However, Nirex shareholders may hold differing views; for example, UKAEA have suggested that the current functions of Nirex be distributed among the LMA, regulators and a new DEFRA consultation unit.

8. The NRB White paper offers Ministers an opportunity, if they wish, to map out a possible future for Nirex in the context of these developments. Even if Ministers decide that no changes in Nirex's role and status should be signalled, the White Paper will need to make some comment on Nirex if only to reduce uncertainty for Nirex staff and management.

9. It should also be borne in mind that the future of Nirex raises political and presentational sensitivities. There is considerable baggage associated with Nirex and its name, and with the various sites it has investigated over the years. Some of its past communication activities (for example in Scotland) have raised sensitivities both among its ordinary shareholders and with other stakeholders (Government and external). Under its new Chairman, Sir Ken Jackson, Nirex is actively and publicly promoting its own view of the best way forward.

Functions currently undertaken by Nirex

10. The DEFRA consultation document draws attention to the value of Nirex's **educational and information work**. Nirex claim that their activities in this area are highly regarded by the public and by NGOs. However, as Nirex recognise themselves, as they are funded and owned by the industry their "message" is to some extent tainted, and the bulk of their funding for these activities does come from the shareholders (other than one-off contracts from DEFRA). This raises the question of whether this activity would be better funded by DEFRA if DEFRA wanted to use Nirex in this role in its policy development process. Arguably it makes more sense for Government, which has started a public consultative process on radioactive waste management, to direct and fund such activities in the future if it wished.

11. In theory Nirex's main current activity, **package and transport advice**, could be provided by any organisation with the relevant technical skills. But such advice will only be of value if the baseline specifications are consistent with any new deep disposal/long term storage facility. At present, the expertise within Nirex in this area is unrivalled in the UK and while this does not imply the need to maintain Nirex in its current form there does seem to be a need to retain its expertise. The LOC system provides independent assessment of waste producers' plans for packaging their ILW and advice on package design and related issues such as R&D. Nirex has developed waste package specifications and defined a standard range of ILW packages. It issues LOCs in three stages, conceptual (where the producer's packaging concepts are compatible with its specifications), interim (where the product from the proposed packaging process is deemed compatible) and final (where the product from the packaging plant is deemed compatible). NII will not normally allow a waste packaging plant to operate without a LOC.

12. NIREX already has large stores of **site investigation data**. It does not require a specialist nuclear company to safeguard it until needed. However, this would be of more value if staff with experience of the data were still available to utilise it in the site investigation, design etc work beginning in or after 2007. This could be achieved either by retaining Nirex or ensuring that the relevant expert staff were retained somewhere in the organisations described in the DEFRA consdoc. Nirex also has a database of international information on deep disposal, but any new information in this area which is required could be commissioned by the new body DEFRA plan to set up following the conclusion of their waste management consultation.

13. Nirex also carries out, under contract to DEFRA, the production of the UK's triennial **radioactive waste inventory**. This involves the acquisition from waste producers of details of their current holdings and future arisings of all wastes, and gives Nirex a unique insight into the overall UK radioactive waste situation - both current and future. The contract for the work is awarded by competitive tender, and while there is, in theory, no reason why another organisation could not perform it, DEFRA has not so far chosen to award the contract elsewhere

Options for the future of Nirex

14. There a range of possible options for the future of Nirex. The NRB could indicate what these options are, and which of them the Government favours pursuing, and then seek views from interested parties. The steer on Nirex could be more or less definitive depending on how far stakeholders/shareholders are agreed on the way forward.

(1) DO NOTHING

15. Essentially, maintain Nirex in its current form, but with a focus on it gradually preparing itself any role it might have post 2007. Such a "wait and see" policy may be sustainable publicly given the uncertainty about the timing of the LMA, and the DEFRA consultation timetable. It also protects the morale of Nirex staff and safeguards the knowledge base in deep disposal and transport and packaging advice.

16. However, it perpetuates the Nirex name (and attendant political baggage) into a period which the LMA enters with, thus far, a fair wind from the majority of interested parties, including NGOs. It also allows Nirex freedom to pursue their preferred agenda in a key period of policy development. This could cause problems for all other stakeholders, including ordinary shareholders and OGDs (DTI, DEFRA, Scottish Executive). The awkward decisions about Nirex's future would only be postponed. There does seem to general recognition by all stakeholders, and by Nirex itself, that a cross roads has been reached and that now is the time to decide the company's future direction. Some of the ordinary shareholders who would prefer more radical change might criticise such a postponement and, as shareholders, seek to

force the issue with the company.

(2) REFOCUS NIREX

17. The aim here would be to confine Nirex's work to those areas where it can add real value ie. packaging and transport advice, research and the maintenance of the deep disposal knowledge base- with a guarantee that Nirex would be the provider of such advice. The industry and DEFRA would then be free to buy other services currently provided by Nirex from others as they saw fit (in particular the communication/education activities). Shareholders would undoubtedly seek to refocus Nirex's operations along these lines and provide funds accordingly

18. Such a signal from Government (of a reduced role for Nirex) might well impact adversely on the morale and motivation of Nirex staff. Nirex senior management might lobby against such a change, particularly against the downplaying of the communication activities.

19. It is also questionable whether the core of Nirex needed to service the packaging and transport advice, and maintain the deep disposal knowledge base, is large enough to achieve its own critical mass. This core might then need an alterative home or parent organisation which may not be easy to find (the British Standards Institute is one possible candidate).

20. A further variation on this would be to combine a refocusing of Nirex activities with the breaking of the funding/shareholder relationship with the industry. For example, Nirex or a successor could be established as a stand alone independent body funded on a strict contract-delivery basis from the industry, DEFRA, or the LMA, undertaking a range of activities including research, information, packaging advice, and (if required) some consultative or PR work. This organisation would also be in the market to bid to develop and operate long term waste disposal solutions for ILW and LLW. This is not a million miles way from the direction Nirex itself has signalled it wants to go. It does provide scope (though no guarantees) for the knowledge base on waste management/ deep disposal to be safeguarded. Again, the question is whether such functions on their own, and possible work from Government and industry, are enough to achieve a critical mass.

(3) SIGNAL THE END OF NIREX

21. The aim here would be a clean break with the past, and an end to the Nirex name and its baggage, as part of the new way forward identified in the secretary of State's LMA announcement. Nirex activities and expertise, where these were judged essential to maintain for the development of radioactive waste management policy, would be separated out from the existing entity and new homes found for them. Possible candidates include the regulators (packaging standards and supporting generic research), BSI (same functions) or DEFRA (for generic research on long term waste management options).

22. The clear danger in this is the risk of losing existing Nirex expertise, especially on packaging and transport as it is not clear there is another credible supplier of such advice. It would be particularly useful to have the views of the regulators (EA, SEPA, HSE/NII) on how serious such a loss would be and the best options for ensuring that it was avoided.

23. Political and staff/management sensitivities would obviously be most acute under this option.

Conclusion

24. The views of the Board are sought on the best way forward in respect of Nirex. Next steps in the light of the Board's views would be to put proposals to Ministers for possible text for inclusion in the NRB.

25. In terms of actual steps to implement a change, these would require further work, but the most likely way of achieving the more radical refocusing options would be for the shareholders to agree that the company's activities should be changed, transferred or ceased in accordance with a new statement by the Government of its policy on radioactive waste management.

NID2 March 2002

Annex 2

DRIGG

Introduction

1 Drigg is the low level waste disposal site operated by BNFL, located a few miles south of Sellafield. The Drigg operations comprise:

- A concrete lined vault, in which sealed containers of compacted low level waste are placed
- A closed and covered-over disposal area, which is monitored to ensure that there are no discharges eg from water run-off
- A waste compaction facility (WAMAC) situated on Sellafield
- A grouting plant on the Drigg site (DGF), to fill the compacted containers with cement-based grout
- A retrievals programme, to remove LLW, mostly plutonium contaminated material, from a number of WW2 bunkers on the Drigg site, and return them to Sellafield for treatment.

2 Under the current plans and levels of LLW arisings, Drigg has sufficient capacity to remain open until 2060.

3 Drigg is the principal UK LLW disposal site and is used by many UK organisations that produce low level nuclear waste. BNFL charges them for compacting the waste and placing it in storage. The effect of the charges is to minimise the volumes of such waste produced, and optimise the use of the limited capacity of Drigg.

Implications for LMA

4 The LMA will take on Drigg as one of its sites.

5 BNFL's view is that Drigg could be managed separately from the Sellafield site, and therefore the management and operation (M&O) of Drigg is potentially an early candidate for a competition. The precise scope of the M&O contract would need further detailed work, such as the interactions with WAMAC and the responsibility for the PCM retrievals programme. The contract would also need to ensure that there were appropriate incentives on the contractor to minimise (by compaction or any other suitable means) the volume of the waste being deposited.

6 Drigg needs to continue to be available to all potential users. It has been suggested that the operational and pricing policy for the facility should be clarified and openly declared. Consistent with LMAs open and transparent approach, the LMA will be in a position to do this. No thought has yet been given as to how this might be done, but we envisage something along the lines of charging a full economic cost including long term care and maintenance costs and (possibly) a charge reflecting the difficulty of finding suitable alternative sites when Drigg is full.

7 Early tendering of Drigg operations could be a helpful signal to the market that substantive changes will flow from the 28 November announcement. The LMU will be talking to BNFLs management, specifically with its in-house liabilities contracting function ALFA, about whether this can be achieved in advance of LMA set-up.

Recommendation

8 The LMA should:

- **Take strategic responsibility for Drigg**
- **Consider the need to formalise the current access arrangements**
- **Consider how best to maintain incentives for the optimal use of Drigg**
- **Seek to tender its management as an early priority, unless BNFL has delivered this already**

NUCLEAR REFORM BILL AND WHITE PAPER:
INTER DEPARTMENTAL PROJECT BOARD

Meeting on 21 March at 3.00pm in the Conference Centre
1 Victoria Street

AGENDA

1	Minutes of last meeting and matters arising.	
2	Revised timetable and project plan	PB(02)01 Rev
3	Implications of restructuring	PB(02)07
	- THORP and SMP - Magnox - Drigg - UKAEA	
4	Future of NIREX	PB(02)08
5	Overview progress report on other issues	
6	Any Other business	

Progress on White Paper: Summary Sheet

White Paper Chapter	Current Status	March	April	May
1. Summary	Drafting not yet started.		Draft chapter to be circulated.	Draft chapter cleared by PB and then by Ministers
2. What are Nuclear Liabilities?	First draft almost complete.	Draft chapter to be circulated.	Draft chapter cleared by PB and then by Ministers.	
3. Role of the LMA	Drafting started.		Draft chapter to be circulated; Draft chapter cleared by PB and then by Ministers.	
4. Basis of the LMA	Drafting started.		Draft chapter to be circulated; draft chapter cleared by PB and then by Ministers.	
5. Implications for BNFL and UKAEA		Draft chapter to be circulated.	Draft chapter cleared by PB and then by Ministers.	
6. Funding Arrangements	Drafting will start once Ministers have commented on the possible funding options.	Submit report on options to Ministers; DTI Ministerial letter to colleagues.	Draft chapter to be circulated.	Draft chapter cleared by PB and then by Ministers.
7. Regulatory and Policy Issues		PB discussion on future of Nirex; Submission to Ministers on Nirex.	Draft chapter to be circulated.	Draft chapter cleared by PB and then by Ministers.
8. Security	Policy issues have almost been agreed, drafting about to start.		Draft chapter to be circulated; Draft chapter cleared by PB and then by Ministers.	
9. International Nuclear Safety	Drafting starting. A few policy issues require clarification.		Draft chapter to be circulated; Draft chapter cleared by PB and then by Ministers.	

Workstream 1: Workstream Leader: Outcomes: Linked to:	LMA Gordon Innes DTI (Tel: 020 7215 0255) 1. White Paper Chapters 3 & 4 2. Instructions to Counsel Workstreams 2 and 3	Key Issues:	1. LMA structure and role/ operation 2. Corporate Governance 3. LMA Relationship with Site Licensees 4. LMA Relationship with Regulators

Date	**Issue/Milestone**
12 Mar	Meeting with Regulators and Scottish Executive.
15 Mar	Submission to Ministers on the basis on which the LMA should be set-up.
21 Mar	Project Board.
27 Mar	Meeting with Regulators and Scottish Executive.
End Mar	First draft of instructions to Counsel.
11 April	Meeting with Regulators and Scottish Executive.
15 Apr	Circulate first drafts of Chapters 3 and 4.
22 Apr	Project Board.
End Apr	Submit draft Chapters 3 and 4 to Ministers.
May	Project Board.
End May	Final draft instructions to Counsel.

Workstream 2: Workstream Leader: Outcomes: Linked to:	Site Licensees Simon Whiteley (Tel: 020 7215 0137) 1. White Paper Chapter 5 2. Instructions to Counsel Workstream 1	Key Issues:	1. Removal of liabilities from UKAEA and BNFL 2. Transfer of other liabilities (e.g. legal claims) 3. Transfer of assets to LMA 4. Restructuring of BNFL (incl. mgmt of Thorp/Mox) 5. Restructuring of UKAEA 6. Pensions 7. Tax implications 8. LMA/Site licensee contracts 9. LMA/Site licensee initial and transitional arrangements

Date	**Issue/Milestone**
4 Mar	Agreement with OGC that the public procurement regulations do not present any significant problems for the proposed way forward.
12 Mar	Meeting with Regulators and SE.
15 Mar	DTI paper on treatment of BNFL legacy-linked commercial activities.
15 Mar	DTI paper on other restructuring implications for BNFL.
15 Mar	Submission to Ministers on interim pre-competition arrangements and the necessary legislation provisions for contractual arrangements between the LMA and site licensees.
21 Mar	Project Board.
22 Mar	First draft of instructions to Counsel on LMA/site licensee's relationships.
28 Mar	Circulate first draft of Chapter 5.
28 Mar	DTI paper on LMA accounting implications of THORP etc..
22 Apr	Project Board.
22 Apr	DTI paper on pensions for discussion with Treasury.
End Apr	Submission to Ministers on pensions.
End Apr	Submit draft Chapter 5 to Ministers.
End Apr	First draft of instructions to Counsel.
May	Project Board.
End May	Final draft instructions to Counsel.

Workstream 3:	Funding Arrangements	Key Issues:	1. Objectives for the fund 2. Structure, funding mech'm & legislative requirements 3. Acc'ting/Budget'g/SR 2002 4. Investment strategy 5. Tax 6. Public expenditure issues 7. Financial arrangements re: THORP, SMP and Magnox
Workstream Leader:	Gordon Innes (Tel: 020 7215 0255)		
Outcomes:	1. Recommendations to Ministers 2. Support for recommendations from OGDs 3. White Paper Chapter 6 4. Instructions to Counsel		
Linked to:	Workstream 1		

Date	**Issue/Milestone**
15 Mar	Agree advice to Ministers at official level.
20 Mar	Submit report on funding options to Ministers.
21 Mar	Project Board.
22 Mar	DTI letter to Ministerial colleagues.
22 Apr	Project Board.
29 Apr	Circulate first draft of Chapter 6.
May	Submit draft Chapter 6 to Ministers.
May	First draft of instructions to Counsel.
May	Project Board.
End May	Final draft instructions to Counsel.

Workstream 4:	Regulation & Policy Issues	Key Issues	1. EA proposal for fast track authorisations. 2. Identification of any other specific regulatory issues to be address in the Bill. 3. Interface with DEFRA/DA consultation process 4. Future of Nirex. 5. Interface between safety and environmental regulation. 6. Delicensing.
Workstream Leader:	Kate Allan (020 7215 2893)		
Outcomes:	1. White Paper Chapter 7 2. Instructions to Counsel		
Linked to:	Workstreams 1 and 2		

Date	**Issue/Milestone**
21 Feb	Initial discussion of WP issues at Project Board.
?	DEFRA submission on possible EA fast track authorisations.
12 Mar	Close of Phase One of DEFRA/DA consultation process.
18 Mar	NL&B meeting with DEFRA.
21 Mar	Project Board.
End Mar	Submission to Ministers on future of Nirex.
End Mar	Submission to Ministers on inclusion of EA fast track authorisations in Nuclear Reform Bill (subject to DEFRA clearance).
22 Apr	Project Board.
End Apr	First draft instructions to Counsel (if required).
3 May	Circulate first draft of Chapter 7
May	Project Board.
End May	Submit draft Chapter 7 to Ministers.
End May	Final draft instructions to Counsel (if required).

Workstream 5:	Security	Key Issues:	1. Separation of Constabulary from UKAEA 2. Creation of a Police Authority 3. Establishment of a charging mechanism
Workstream Leader:	Kate Allan (Tel: 020 7215 2893)		
Outcomes:	1. Instructions to Counsel 2. White Paper Chapter 8		
Linked to:	None		

Date	**Issue/Milestone**
Mid Mar	Consult Home Office on key Bill provisions.
Throughout Mar and Apr	Work up detailed proposals for Bill provisions. Validate with key players. Provide policy instructions to lawyers.
21 Mar	Project Board.
15 Apr	Circulate first draft of Chapter 8.
15 Apr	Submission to Ministers on key policy issues and general content of Bill provisions.
22 Apr	Project Board.
End Apr	Submit draft Chapter 8 to Ministers.
End Apr	First draft of instructions to Counsel.
May	Project Board.
End May	Final draft of instructions to Counsel.

Workstream 6:	International Nuclear Safety/Implications of Paris & Brussels Conventions	Key Issues:	To ensure legislation enables UK ratification of the revised Paris and Brussels Conventions on third party liability
Workstream Leader:	Kate Allan (Tel: 020 7215 2893)		
Outcomes:	1. White Paper Chapter 9 2. Instructions to Counsel		
Linked to:	None		

Date	**Issue/Milestone**
21 Mar	Project Board.
12 Mar	Remaining policy issues requiring decision identified and action initiated to resolve.
Mar-Apr	Drafting of instructions in progress on issues (the majority) where policy clear.
9 Apr	Remaining policy issues resolved.
15 Apr	Submission to Ministers seeking decisions on remaining policy issues and seeking approval for legislative provisions as a whole and to seeking policy clearance from colleagues.
End Apr	Seek policy clearance.
15 Apr	Circulate first draft of Chapter 9.
22 Apr	Project Board.
End Apr	Submit draft Chapter 9 to Ministers.
End Apr	First draft of instructions to Counsel.
May	Project Board.
End May	Final draft instructions to Counsel.

Consultees for Each Workstream

Name	Department	Workstreams
Stephen Spivey	NL&B/DTI	All
Simon Whiteley	NL&B/DTI	1 and 2
Gordon Innes	NL&B/DTI	1, 2 and 3
Denis Walker	NL&B/DTI	1, 2 and 3
Daniel Grosvenor	NL&B/DTI	3
Richard Griffin	NL&B/DTI	All
Alan Wright	FRM/DTI	1
Helen Costa	FRM/DTI	1
Richard Leyland	FRM/DTI	1, 2 and 3
Philip Bovey	Legal/DTI	1 and 2
Bryan Welch	Legal/DTI	1 and 2
Daniel Jenkins	Legal/DTI	1, 2, 3, 5 and 6
Ian Gregory	NID/DTI	1, 2, 3 and 4
David Rutland	NID/DTI	1 and 2
Kate Allan	NID/DTI	2, 4, 5 and 6
Steve Dolan	NID/DTI	2 and 4
Stephen Griffiths	NID/DTI	6
Jeff Hoare	NID/DTI	3
Helen Fleming	Cabinet Office	1 and 2
Tony Medawar	Cabinet Office	1 and 2
Graham Turnock	Treasury	1, 2, 3 and 4
Elizabeth Gray	Scottish Executive	1, 2 and 4
Lynn Griffiths	National Assembly for Wales	1
David Glazbrook	HSE	1, 2 and 4
Colin Potter	HSE	1, 2 and 4
Jim Gray	EA	1, 2 and 4
Simon Woodall	OGC	2
Michael Buckland-Smith	OCNS	2 and 5
Henry Derwent	DEFRA	1 and 4
Richard Wood	DEFRA	1 and 4
Adam Scott	DEFRA	1 and 4
Julie Tooley	SEPA	1, 2 and 4
Chris Green	MoD	3
Tony Mason	LCP	3
Philip Boyle	LCP	3
Francis Fernandez	LCP	3
Ken McFarlane	D&T	3
Stephen White	UKAEA	1 and 2
Ted Williams	BNFL	1 and 2

Andria Soteriou

From: Geoffrey Norris
Sent: 15 March 2002 18:17
To: Andria Soteriou
Subject: FW: Project Board: 21 March

to print please. is it in my diary
-----Original Message-----
From: Spivey Stephen (Mr SD) [mailto:Stephen.Spivey@dti.gsi.gov.uk]
Sent: 15 March 2002 17:05
To: Lambert Anne (Miss GMA)
Cc: Innes Gordon (Mr GD); Whiteley Simon (Mr S); Gregory Ian (Mr IJ); Allan Kate (Ms KM); Welch Bryan (Mr BJ); Conroy Sarah (Miss SE); Leyland Richard (Mr RJ); Idowu Babatunde (Dr BS); 'helen.fleming@cabinet-office.x.gsi.gov.uk'; 'henry.derwent@defra.gsi.gov.uk'; 'graham.tucnock@hm-treasury.gsi.gov.uk'; 'colin.potter@hse.gsi.gov.uk'; 'XD3@dpa.mod.uk'; 'elizabeth.gray@scotland.gsi.gov.uk'; Griffin Richard (Mr RD); Ussher Kitty (Ms KA); 'robert.e.smith@environment-agency.gov.uk'; 'gnorris@no10.x.gsi.gov.uk'
Subject: Project Board: 21 March

Anne cc as above

Nuclear Reform Bill and White Paper: Inter Departmental Project Board

I attach an agenda and papers for the meeting on Thursday 21 March at 3pm in the DTI Conference Centre.

Stephen

<<Agenda NRB&WP Project Bd 21.3.02.doc>> <<Project Board (20 Feb).doc>> <<PB(02) 01Rev1.doc>> <<PB- Restructuring paper.doc>> <<UK NIREX - PB(02)08.doc>>

NOTE OF THE NUCLEAR REFORM BILL AND WHITE PAPER INTER-DEPARTMENTAL PROJECT BOARD DISCUSSION, HELD AT DTI ON 21 FEBRUARY 2002

Those attending:

Anne Lambert (Chair)	DTI	Henry Derwent	DEFRA
Stephen Spivey	DTI	Graham Turnock	HMT
Gordon Innes	DTI	Colin Potter	HSE
Simon Whiteley	DTI	Jim Gray*	EA
Ian Gregory	DTI	Bob Smith	EA
Kate Allan	DTI	Barry Thornton	MoD
Bryan Welch	DTI	Elizabeth Gray	SE
Sarah Conroy	DTI	Helen Fleming	CO
Richard Leyland	DTI	Tunde Idowu	DTI
Richard Griffin	DTI		

* for part of the meeting

Introduction

1. An agenda and background papers had been circulated in advance of the meeting, with the exception of PB(02)01 - the Project Plan. Copies of this document were distributed at the meeting and it was explained that this was very much a working document. DTI planned to revise the structure and circulate an updated version in the next week or so. In the meantime, if anyone had any comments, they should feed them into DTI. ***Action DTI/All***.

2. DTI briefed the Board on the re-naming of BPT as Nuclear Liabilities and BNFL Directorate (NL&B). DTI also updated the meeting on progress with securing a slot in the 2002/03 legislative programme. The current feeling within DTI was that a slot would not be granted. Nevertheless, until we had a definite decision from the LP Committee, it was important to work towards publishing the White Paper and drafting the bill on the existing timescale. If circumstances changed, the workplan would need to be revised accordingly.

Future Arrangements for Site Management

3. DTI presented Board paper PB(02)02 on the future arrangements for site management. The key points from the discussion were:

- Options 1 & 2 looked more attractive to the regulators and to the private sector companies that had been approached.
- Option 3 was unattractive as it involved a radical change to the current nuclear regulatory regime. In addition, it potentially diluted the LMA's focus on strategy, it looked bad from the public perception perspective and it would set a very unhelpful precedent for the non-LMA licensees. HSE clarified that, for the reasons listed above, it had not felt the need to utilise internal resources on an analysis of this option. If the Board decided to re-open the debate on

Option 3, then HSE would need time to think through the consequences of such a course of action before participating in any wider discussions.

- DEFRA felt that Option 2 looked the best out of the three and agreed that Option 3 had significant drawbacks. However, the paper did not reflect the full extent of the reasons why Option 3 was being put aside for the time being. It was therefore agreed that these arguments should be formally recorded. ***Action DTI.***

4. It was agreed that work should proceed to develop the Bill to allow LMA to implement either of Options 1 and 2 to give it the maximum flexibility to respond to future situations. DTI would put this recommendation to its Ministers and then start to drill down into the two options. ***Action DTI.***

LMA Constitution

5. DTI presented a summary of the paper PB(02)03. The following points came out of the discussion:

- The scope of the LMA might be defined in the Bill by way of a list of sites or a list of categories. This would leave open the possibility of it taking on liabilities that are not currently within the definition of "public sector civil nuclear" without the need for further legislation.
- The paper also identified a possible future role for the LMA as the owner and manager of a final waste repository, essentially filling the role currently envisaged for NIREX. All agreed that while this might be a good idea on paper, it needed further discussion. DEFRA had a list of questions that it felt were important in the context of this paper and it was agreed these would be fed into DTI, along with any other questions or comments on this paper. ***Action DEFRA/All.***

6. The Scottish Executive drew attention to the fact that the Scottish Parliament was almost certain to want to debate this Bill. It was recognised that this had implications for the timing of any Bill and it was agreed that DTI and SE would discuss this issue in more detail outside of the meeting. ***Action SE/DTI.***

Funding Arrangements

7. DTI summarised the current options for future funding of liabilities discharge - PB(02)04. The two current contenders were some form of a segregated fund and a statutory "on vote account". Both options required statutory provisions. DEFRA underlined the importance of the presentational aspects of this work. The next step was for DTI to clear this with its Ministers and the expectation was that this would result in a letter to Ministerial colleagues.

Implications of Restructuring for BNFL and UKAEA

8. DTI presented a summary of the paper: PB (02)05. More work would need to be done in several areas, including:

- Asset transfers from BNFL to LMA

- Future treatment of THORP/SMP contracts and the contracts between BNFL and UKAEA.
- Tax issues on assets transfer
- Pensions:
    - migration from UKAEA to LMA
    - possible creation of a Single Combined Nuclear Clean-up Pension Scheme

9. It was hoped that a joint DTI/BNFL paper on the issues realting to THORP/SMP and Magnox would be ready for presentation to the Board in 3-4 weeks time. Once the work to bottom out the outstanding issues had been completed, decisions would need to be taken on White Paper presentation. ***Action DTI***.

Regulatory and Policy Issues for the White Paper

10. The following observations were made on the paper PB(02)06:

- The White Paper would need to mention the current state of play on the DEFRA/Devolved Administration consultation document.
- DTI needed to do more work on how the 'Golden Triangle' would work in practice, perhaps borrowing an example from the UKAEA's Dounreay Site Restoration Plan.
- DEFRA and DTI would meet to discuss the Waste Management Policy Issues. ***Action DTI/DEFRA***.
- DTI would circulate a paper on NIREX in advance of the next meeting of the Board. ***Action DTI***.
- All agreed that, depending on the outcome of the first phase of the DEFRA/DA consultation document, this chapter of the White Paper might include an announcement of a review of decommissioning policy.

Arrangements for Engaging Stakeholders

11. DTI briefed the Board on progress with the discussions with various stakeholders (e.g. Trade Unions, the Industry, local authorities and Environmental Groups). Some discussion were being carried out bilaterally and others through a third party, for example, the exisiting Stakeholder Dialogue network. The plan was to sound out opinions on the 28 November statement and then, when published, the White Paper. Ultimately, this dialogue would be handed over to the LMA to continue in whatever form it saw fit. It was agreed that DEFRA and DTI should coordinate contact with these groups. ***Action DTI/DEFRA***.

Any Other Business

12. It was agreed that arrangements would be made for Project Board meetings in four and eight weeks time. ***Action DTI***.

NL&B/DTI
4 March 2002

Annex

Summary List of Actions from 20 February 2002

Action	Who
1. Circulate revised Project Plan	DTI
2. Feed in any comments on Project Plan	All
3. Formally record reasons why Option 3 is being put to one side.	DTI
4. Put agreed recommendation on future arrangements for site management to Ministers and, subject to their comments, begin work to further develop Options 1 and 2.	DTI
5. Feed in questions or comments on the LMA constitution paper	DEFRA
6. Discuss Scottish Parliament interest in this work	SE & DTI
7. Finalise paper on implications for THORP/SMP and Magnox of restructuring of BNFL	DTI
8. Discuss Waste Management Policy Issues	DTI & DEFRA
9. Circulate paper on NIREX	DTI
10. Coordinate contacts with Stakeholders	DTI & DEFRA
11. Arrange further Project Board meetings for four and eight weeks time.	DTI

Workstreams: Nuclear Reform White Paper and Bill

15.03.02

30 The final decision on Thorp closure, contract changes and any new contracts will be with the Secretary of State, with advice from LMA, but at a detailed level LMA is assumed to be involved, given the linkages with legacy activities.

31 The overall conclusion is that LMA needs to be involved in the key strategic decisions concerning Thorp, despite the activities being very different from its core focus and therefore potentially a distraction. Given this involvement, the IO approach is substantially more manageable and lower risk than the ERF approach.

32 It will be open to LMA to review this conclusion in the future, if, for example, the vitrification programme significantly improves, but it would be imprudent to take such a decision now.

SMP

33 The key risks with SMP include:

- achieving planned throughput levels
- securing profitable contracts
- obtaining sufficient Pu to deliver the contracts

34 The throughput risk can be handled effectively under either the IO or ERF approaches.

35 The securing of contracts could be handled on the same basis as the Thorp contracts, either by ERF or by IO. However, most of the SMP contracts will be with the same customers as Thorp contracts and the scope for conflicts of interest is considerable where the contractor is acting as agent for Thorp contracts but as the principal for SMP contracts. There is therefore advantage in taking the same approach to both Thorp and SMP.

36 The risk of not obtaining enough Pu from Thorp is also best managed by taking the Thorp and SMP strategies together.

37 The customer risks and Pu risks both point towards using the same basis for SMP as for Thorp ie IO. Any other approach raises considerable risks of introducing perverse incentives.

Other issues

38 Adopting the IO approach simplifies the treatment of a number of related issues, which would otherwise need careful consideration as to how they should be handled under the ERF approach:

- There is no need to distinguish between current waste and spent fuel, and future arisings. All will be the responsibility of the LMA, except where ultimate title resides with existing customers eg British Energy or overseas customers
- The LMA can more readily ensure a consistent approach to the packaging of waste
- Choices and trade-offs on discharges will remain wholly within LMAs control as part of the strategy determination and review process
- Choices and trade-offs on the use of waste plants will similarly remain LMA strategic decisions

PB(02)07

White Paper Chapter 5

Implications of Restructuring

1 At its meeting on 21 February, the Project Board approved the outline of Chapter 5 of the White Paper (PB(02)05, covering the following topics:

- Changes to BNFL and UKAEA structures as a result of setting up the LMA
- Treatment of operational assets
- DTIs role as BNFLs shareholder, and with UKAEA
- Approach to Competition
- People issues

2 This paper contains 3 annexes that cover the following topics:

- Annex 1: The treatment of BNFL commercial businesses
- Annex 2: Drigg
- Annex 3: The implications of LMA set-up for UKAEA

3 The paper's aim is to provide a basis for identifying the issues that will need to be addressed in the White Paper, and some initial thoughts and conclusions. The papers are not intended to provide draft text.

4 Further papers, for the next Project Board will cover:

- The approach to competition
- The treatment of surpluses arising from commercial activities
- People issues, including pensions

5 BNFL have commented on an early draft of the paper on BNFL commercial business. We have not yet had a formal response to the overall conclusions but we believe that our proposed approach is broadly consistent with their thinking. We will provide an update at the Project board meeting.

- Decisions on investment to build new plant or refurbish existing plants will lie with LMA.

39 In all the above the site managing contractor will have a crucial role in the detailed preparation of the strategy. The regulators will be fully involved as well.

40 The other facilities, such as MoD submarine fuel store, can be managed using the same approaches described above. The IO approach seems likely to be the way forward, clearly allowing LMA to take the strategic decisions but more work would be required to reach a final decision. Any proposals for extending these activities would also require LMA approval.

41 One consequence of adopting the IO approach is that LMA will have significant sources of 3rd party income:

- Electricity sales
- Thorp contracts
- SMP contracts

42 The implications for LMA finances and accounts of the 3rd party income, and the treatment of the Thorp and SMP customer advance payments, is currently being considered.

Summary

43 The LMA should have no involvement in the following commercial activities that have no or only small linkages to legacy activities:

- Westinghouse fuel manufacture and services
- BNFL Environmental Services (contracts to handle clean-up activities for 3rd parties)
- PNTL, DRS and other subsidiaries

BNFL ES, as a fully commercial clean-up contractor, should in principle be eligible to bid for LMA clean-up contracts but it will be open to LMA to restrict this, perhaps as part of its strategic imperative of strengthening the supply chain.

44 For legacy linked commercial activities, the overall approach should be for LMA to have **strategic control** using the "incentivised operator" approach, with the following features:

- The assets are **owned** by the LMA but managed and operated by the contractor under an M&O contract with incentives linked to output and other KPIs
- The LMA takes the major part of the **financial rewards** because it has the major **commercial and financial risks** of ownership but the operator takes (and is rewarded for taking) some **operational risks**
- The Secretary of State will take some key **strategic decisions**, eg Thorp closure, new Thorp contracts, with advice from the LMA
- The LMA takes other **strategic decisions** regarding the commercial operations and their potential impacts on legacy management (and vice versa)
- The **contracts** with the customers stay with the existing companies

45 This approach creates clarity that LMA is accountable for decisions on a range of strategic issues. It reduces the risk of creating perverse incentives that could arise from devising a structure that ring fences some of the rewards and risks with the contractor. It nevertheless provides scope to incentivise the operational activities consistent with the overall policy objectives for the LMA.

46 It will be open to LMA to review these decisions should better information on the linkages and risks came to light.

Appendix A

Linkages between legacy and commercial activities

1 The key activities that need to be considered here are:

- Commercial activities:
  - Magnox Generation
  - Magnox Reprocessing
  - Thorp
  - SMP
- Legacy activities
  - Defuelling and decommissioning of non-generating Magnox stations
  - Retrieval of waste and other nuclear materials from the historic plants at Sellafield, for treatment to make the materials passively safe
  - Post operational clean out (POCO) and decommissioning of all closed plants on Sellafield
- Shared waste treatment plants and support facilities

2 At present these are effectively part of one economic pool, Spent Fuel and Engineering Group (SFEG) and Magnox Generation (MGBG). Although for management purposes these two groups are separate, a significant proportion of MGBG costs are allocated from SFEG for reprocessing its spent fuel, rather than being on an arm's length basis. Part of the reason for transferring Magnox Electric plc to BNFL's ownership was to deliver synergies from combining these two businesses in one economic pool.

3 Given that the activities are currently in one pool, any move to separate them out needs careful consideration to ensure that there are no inappropriate risk allocations (ie risks are not borne by the party best able to manage the risk) or perverse incentives being created. These factors can be assessed by considering:

- How the activities relate to one another: the major decision points, risks and opportunities
- How the nature of the activities could change over time: whether a decision taken today by one party (eg the site operator) could affect the interests of another party (eg LMA) at some later date

4 This appendix describes in more detail the nature of the activities and the implications for the treatment of the commercial businesses under the LMA, under the following headings:

- Current strategies
- Organisation of Sellafield
- Site process linkages
- Strategic linkages

Current strategies

5 The strategies for the legacy linked commercial activities were thoroughly reviewed by the BNFL strategy work leading up to the 28 November announcement.

6 The planned closure dates for the Magnox Generation operational stations have been announced. The dates reflect a view of many factors, principally:

- Projected generation outputs
- Projected NETA prices
- The cycle of station safety case reviews
- The projected Magnox reprocessing throughput
- The management of defuelling bottlenecks following any accelerated closures

7 The current view is that early Magnox closures would incur a significant economic cost (up to some £1bn for complete early closure). This view continues to be monitored in the light of market conditions and technical issues.

8 The expected closure date for Magnox Reprocessing is 2012. Given the accepted need to reprocess spent Magnox fuel and the forecast level of arisings, closure any earlier would require an accelerated completion of the reprocessing programme. At present this seems unlikely.

9 The earliest date for closing Thorp is constrained by the existing customer contracts. Earlier closure would create significant difficulty for the Thorp customers. A very approximate estimate of the costs of early (ie immediate) closure, including compensation for customers, is some £3bn worse than the option of meeting current contracted commitments.

10 The SMP programme has been reviewed recently as part of the SMP commissioning authorisation.

Organisation of Sellafield

11 Many of the activities are located on Sellafield. An early question was whether it was possible to reconfigure the site into physically separate areas. Two separate exercises, one commissioned by BNFL, and one commissioned jointly by BNFL and DTI, have gathered data on the physical linkages between these activities. The conclusions were that:

- The downstream waste plants used by the two reprocessing activities and legacy retrievals programme are common. The site operational plan, and the plant upgrade and investment programme that flows from any revisions to the plan, needs to be developed on a site-wide basis
- The safety of some upstream plants depends on the operations of downstream plants. Standard NII practice would (very broadly) require such linked plants to be under a single management structure
- The discharge authorisation is (again very broadly) for the site as a whole, with choices required between discharges at different times from different parts of the site
- The site depends on common support facilities and services (eg utilities), a number of which are safety-critical

- The site uses a common pool of technical expertise.

12 None of the above is an absolute show-stopper for splitting the site, but collectively they make it very hard, to a point at which the potential benefits are very likely to be exceeded by the operational constraints and costs that splitting the site would impose. For these reasons the 28 November announcement explicitly rejected the option of splitting the Sellafield site. This decision seems likely to remain valid for the medium term (at least until the end of Thorp and Magnox reprocessing).

13 Economic ring-fencing is a variant of physical separation of the site. It does not necessarily raise the same issues, but neither does it remove them entirely. For example, BNFL had a form of economic ring-fencing under an earlier structure for the site: Magnox Reprocessing was for a while grouped with Magnox Generation, with the waste treatment activities grouped with what is now BNFL Environmental Services. There is a view that this structure was a contributory factor to the issues raised by the NII Team Inspection report. Shortly thereafter the site was reorganised into its current single group.

Site process linkages

14 The following table lists the major process linkages and dependencies between commercial and legacy activities listed above:

Activity	**Depends on:**	**For:**	**Experience of fragility of linkage**
Magnox Generation	Magnox reprocessing	Spent fuel transportation flasks	Poor flask turnround in 2000 led to near-full station ponds
Magnox reprocessing	Waste treatment plants	Vitrification	Poor vitrification rates have significantly increased the risk of halting reprocessing to limit stocks of Highly Active Liquor (HAL)
		Encapsulation of solid ILW	A problem in one encapsulation plant in 1998. This was probably attributable to upstream (ie Magnox reprocessing) actions
		Treatment of liquid effluents	No recent issues
		Treatment of plutonium contaminated waste	An issue with PCM monitors prevented movement of PCM from Magnox to PCM treatment plants, causing operational bottlenecks
Thorp	Magnox reprocessing	Dismantling and storage of AGR fuel prior to reprocessing	No recent issues
	Waste treatment plants	Broadly as for Magnox reprocessing	Thorp was shut for some months in 2000/01 because of issues with plants handling HAL- "Evaporator C" and the "caustic scrubber"
SMP	Thorp	Supply of Plutonium	The acceptance of Mox contracts depends on the planned availability of plutonium.
Closed Magnox stations	Magnox reprocessing	See comments on operational stations above	No recent issues
Retrievals from Historic plants	Waste treatment plants	Will be dependent on these when the bulk retrievals phase commences	-

Activity	Depends on:	For:	Experience of fragility of linkage
POCO and decommissioning of closed plants	Waste treatment plants	Will be dependent for eg treating acids used to decontaminate building materials	-

15 Putting these activities into two or more different economic groups (eg an incentivised operator of Magnox Reprocessing and Waste Treatment plants, with an economic ring fence of Thorp) would require explicit contractual provisions to determine which economic group bore the costs of all potential operational issues such as:

- Not being able to operate because of a downstream plant failure, or the non-arrival of material from an upstream plant
- Off-specification material creating operational problems for downstream plants
- Changes to operational procedures between plants, perhaps because of a revised safety case

16 It would be possible to rely on dispute resolution procedures to resolve these issues. Recent experience suggests that dispute resolution would be required frequently with large sums at stake. It would also undermine the basis of the LMA/ contractor relationship.

17 The alternative would be to rely on pre-agreed fault attribution and penalty provisions. Devising these to cater for the full range of likely circumstances would be very difficult, perhaps impossible.

Strategic linkages

18 The above process linkages are all relatively short-term in their effect- they could create difficulties for the operation of the site at short notice, days or weeks. In addition there are longer-term strategic linkages that could have a very significant impact on the operations of the site and/or require major capital investment. These include:

- The investment required to support the historic waste management strategy
- Any investment to comply with the recommendations of the Sellafield discharges review
- A possible need to close some Magnox stations early to reduce the volume of Magnox spent fuel requiring reprocessing

19 The timescales involved make a dispute resolution process a more viable approach to resolving these issues. But developing an optimum technical and value for money solution for these issues will be challenging. Introducing divergent economic interest between the relevant parties would add significantly to the challenge.

Restructuring BNFL: Treatment of Commercial Businesses

Background

1 There are a number of commercial businesses currently within BNFL. Creating the LMA raises the issue of how these businesses are to be treated. The principal commercial businesses are:

- **Westinghouse** – the Westinghouse business within BNFL undertakes fuel manufacture in the US and Europe (including at Springfield in the UK) and performs reactor services for numerous utilities throughout the world. Westinghouse also includes the group's investment in Urenco.
- **BNFL Environmental Services** - the renamed Nuclear Decommissioning and Clean-up business of BNFL, which performs decommissioning and clean-up activities for utilities and governments either as a prime contractor or member of a consortium. The BNFL ES business is predominantly focused on the UK and US, including being the contractor for decommissioning the 3 closed Magnox stations.
- **Magnox Generation** – Magnox Generation operates the 8 operating Magnox nuclear reactors and sells electricity under NETA for the national grid. The remaining operating stations are scheduled to close over the next 8 years
- **Magnox Reprocessing** –reprocessing the spent fuel from BNFL's Magnox stations
- **Thorp** –reprocessing spent fuel for nuclear utilities in the UK and overseas, and for the UKAEA.
- **SMP** – the Sellafield Mox Plant is a facility designed to manufacture Mox fuel using uranium and reprocessed plutonium for use in PWR and BWR reactors. The facility is currently being commissioned after being approved late last year.
- **Others** – including PNTL the sea transport business and DRS the UK rail transport business.

2 BNFL also have other facilities that are contracted, such as a facility being built for the storage of MoD's submarine fuel. These are much smaller than the above, but are similar in principle. It also operates Drigg (see separate paper).

Businesses that are clearly separable

3 The following businesses are distinct business units that have little or no connection to the LMA's task of managing the legacy of civil nuclear liabilities:

- The **Westinghouse** business is not connected with Sellafield or other legacy sites apart from a small amount of UKAEA and MOD legacy liabilities at the Springfields fuel fabrication site. It can continue to be a supplier of fuel to Magnox, as a normal commercial supplier
- The **BNFL Environmental Services** business is only a contractor for nuclear clean-up site management, rather than a site owner. It is currently the contractor on 3 Magnox stations and would therefore become a supplier to the LMA for these stations and potentially others.

- **Others**- PNTL, DRS and other businesses are in some cases important suppliers to the legacy-linked activities. However they operate on an arm's length trading relationship basis with the rest of BNFL. LMA does not need to own these businesses to secure their services.

Businesses that are linked to the legacy

4 The remaining BNFL commercial activities are, to a variable extent, linked to the legacy activities. Ideally, the LMA would not be involved in them, as they are not part of its core purpose, and LMA should be free to focus on those activities that are essential to delivering the purpose.

5 These linkages are likely to exist for some time. The Appendix summarises the current position on the strategy for each. In summary, there is no current need to change the announced position on the continued operation of each activity.

6 The nature of the linkages vary (see Appendix A) but in all cases point to a conclusion that LMA must be able to:

- influence the plans for performing the activities
- change its views on a timescale shorter than would be an appropriate contracting period (assumed to be 10 years)

7 One approach to dealing with these activities was considered and rejected in the Autumn: physical separation of the various activities on the Sellafield site. The 28 November announcement confirmed that Sellafield should continue to be managed as a single, unified site. Some of the arguments leading to that conclusion are set out in the Appendix.

8 In the context of a single Sellafield site, it is therefore necessary to consider whether, for each commercial activity, the LMA should have:

- **Strategic control** principally by owning the assets and having the major part of the benefits and risks of ownership. Consistent with its overall purpose, it should contract with other organisations to perform all significant operational activities

OR

- **Contractual control,** with LMAs interests in the linked commercial activities being managed via contracts with other parties (eg New BNFL) with the other party having the overall strategic control.

9 The remainder of this paper considers, for each of the principal legacy-linked commercial businesses, whether LMA should secure strategic or contractual control to allow it to manage these linkages. In practice, the key questions that need to be answered are:

- Who **owns** the income producing assets associated with these businesses eg the Thorp reprocessing plant, the Magnox stations?
- Who gets the **financial rewards** and takes the **commercial and financial risks** of ownership?
- Who takes **strategic decisions** regarding the commercial operations and their potential impacts on legacy management (and vice versa)?

- Who has the **contracts** with the customers?

10 These questions will be addressed in the remainder of this paper. **We recommend that**:

- the LMA should secure strategic control of the linked commercial activities
- the operational assets of Magnox Generation, Magnox Reprocessing, Thorp and SMP businesses should transfer to the LMA, as these are inextricably linked to the Sellafield site and the LMA's role of legacy management
- these activities should be managed by an operator, using the "incentivised operator" approach.

11 This recommendation will allow the activities to be managed on a unified basis with legacy management activities, with a contractor that is incentivised to meet the LMA's objectives. This will transfer the majority of the risks, including residual risks, and potential rewards to the LMA.

The options

12 There are broadly two options to consider for the contractual and management split of the legacy-linked commercial operations between the LMA and the site operator:

- **incentivised operator** (IO): an operator manages the assets under a management and operations (M&O) contract with the LMA
- **economic ring fencing** (ERF): the assets are operated by a commercial organisation that takes the major part of the rewards and risks, likely to be the LMAs site management contractor managing the legacy activities on the site

13 Under the **incentivised operator** approach the operator will be incentivised to manage and operate the commercial activities in line with a strategy set by the LMA. The operator will be rewarded for its management of operational risks (eg annual output from Magnox stations, throughput of Thorp) compared with plans and targets set by LMA. The majority of the financial and operational risks and rewards will lie with the LMA, since LMA will determine the strategy.

14 The **economic ring fencing** approach would place more of the risks and rewards of the operating stations and commercial plants with the operator rather than with LMA. Contracts between LMA and the operator would define how decisions are taken that could impact on legacy management eg plant closure, use of shared waste treatment plants. The contracts would also define any payments from one party to the other as compensation for eg early closure.

Application to the respective businesses

15 The two broad approaches could be applied to the legacy-linked businesses as follows[1]:

- Magnox Generation:
  - IO: a contractor[2] would operate the stations under an M&O contract with payments that vary depending on the level of generation output, and (possibly) the average price achieved per Twh in NETA[3]

[1] The descriptions are illustrative rather than definitive

- ➢ ERF: a contractor would run the stations until the announced closure dates, taking the major part of the revenue and funding all operational and maintenance costs. LMA would levy a decommissioning charge on the revenue arising

- Magnox Reprocessing:
  - ➢ IO: the contractor for the management of the Sellafield site would operate the fuel handling plant, B205 reprocessing plant and related plants under an M&O contract with payments that vary depending on the level of throughput
  - ➢ ERF: the Sellafield site contractor receives a fixed price per tonne for spent fuel reprocessed
- Thorp:
  - ➢ IO: the Sellafield site contractor operates Thorp under an M&O contract with payments that vary depending on the level of throughput. The income from the Thorp contracts accrues to LMA
  - ➢ ERF: the Sellafield site contractor receives the income from Thorp contracts, and pays all the operating costs of Thorp. Costs of downstream waste plants are split between Thorp operations and all other operations. LMA levies a charge to contribute to the eventual decommissioning cost of Thorp
- SMP:
  - ➢ IO: the Sellafield site contractor operates SMP under an M&O contract with payments that vary depending on the level of throughput. The income from the SMP contracts accrues to LMA
  - ➢ ERF: the Sellafield site operator secures the contracts for SMP output, and runs the plant to deliver the requirements of the contracts

16 The implications of these alternatives are discussed below. The Appendix includes more information on the nature of the linkages between the activities.

Magnox Generation

17 The key risks with Magnox Generation operations include:

- The potential need to shut stations early because unexpected operational issues make ongoing operations uneconomic. For example, Hinkley Point A closed because Magnox management could not demonstrate, at reasonable cost, that one key aspect of the station was operating safely. Similar issues could arise at some of the remaining stations
- There may be a need to shut the stations early to reduce the level of spent fuel arisings requiring reprocessing before the Magnox Reprocessing plant closes.

18 Under the IO approach, these risks are largely LMA ones, and it will also receive the major part of the rewards arising from continued station operations. Under the ERF

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[2] In the first instance this would be BNFL (or UKAEA for UKAEA commercial activities) for all of the references to "a contractor". The scope for changing contractors will vary, and is a decision that will be developed by LMA in due course

[3] Under all of the options described there would be incentives and/or penalties for safety, security and environmental performance, directly in the LMA-operator contract and/or by applying the usual regulatory sanctions on operational activities.

approach, a complicated process for apportioning the risks and rewards between the operator and LMA would be required. For example, an operator decision to close a station early because it cannot justify the ongoing maintenance costs would impact on LMAs "levy" to cover future decommissioning costs. Devising a workable contractual process that balanced the needs of the two parties, in the face of some very fine engineering judgements, may prove impossible.

19 The conclusion is that the IO approach is the only feasible approach for Magnox Generation. LMA will own the remaining operational Magnox stations but will contract with an operator (initially New BNFL) to manage the stations on its behalf. The contractor will be incentivised to maximise output (consistent with safety, discharge limits, requirements for periodic maintenance etc) for the remainder of their operational lives. LMA will receive the revenue from electricity sales, and will take decisions on early closures should that become necessary.

Magnox Reprocessing

20 The key risks with Magnox Reprocessing include:

- The need to maintain throughput at a high level to ensure that station and Sellafield ponds are not full to capacity
- The dependence on a number of key shared downstream waste plants, such as vitrification and encapsulation, shared with Thorp and the legacy retrievals programme
- The need to shut B205 by 2015 at the latest to comply with OSPAR, with a consequent potential need to shut stations early to reduce the volume of spent fuel requiring reprocessing

21 Again, under the IO approach these would be largely LMA risks. This would be consistent with its position as recipient of the Magnox Generation rewards. For this plant, the ERF approach is in practice very similar to the IO approach since there is no independent source of income to offset the costs of running the plant. If Magnox Generation were treated on an ERF basis, there may be a case for using ERF for reprocessing to create a combined single economic entity (although the linkages with other site activities would still need to be considered), but not otherwise.

22 The conclusion is therefore that IO approach should be used for Magnox Reprocessing. LMA will take the key decisions on closure of the reprocessing facilities, and any need to close Magnox stations early to minimise the volume of spent fuel to be reprocessed.

Thorp

23 The key risks with Thorp include:

- The need to maintain throughput at an economically viable level
- The dependence on a number of key shared downstream waste plants, such as vitrification and encapsulation, shared with Magnox Reprocessing and the legacy retrievals programme
- Managing the existing contracts with customers
- Potentially, securing and delivering additional post baseload business.

24 The current view is that the existing and any new contracts with customers would need to remain with the existing company (BNFL- although it will become the Sellafield site licence company or SLCo under the Option 1/Option 2 structures previously discussed). This view is being confirmed with legal advisers.

25 Both the IO and the ERF approaches can deal effectively with the need to maintain throughput. Where they differ is in the treatment of the downstream waste plants, principally vitrification but also for legacy retrievals.

26 For vitrification, the key issue is the need to balance the requirements of Magnox and Thorp reprocessing. BNFL are under a tight constraint (the "HAL curve") as well as an end-date for Magnox reprocessing. At the limit, these constraints lead to Magnox reprocessing being prioritised above Thorp, but the judgements involved are in practice somewhat finer. As with Magnox Generation, it would be difficult to devise a contract that allows the rewards and risks associated with such judgements to be apportioned rationally (rather than perversely) between the LMA and the contractor. This risk, and the related risks with other downstream waste plants, point strongly towards a preference for the IO approach.

27 The existence of the current and potential contracts with third parties points towards the use of the ERF approach. Negotiating with (for example) Japanese customers for the timing of the return of waste, is far removed from the core functions of the LMA. Under the ERF approach, these and similar issues would clearly be a matter for the contractor, although LMA is likely to need to be involved in decisions such as:

- Waste substitution
- Additional PBL contracts increasing pressure on downstream waste plants
- Early Thorp closure, bringing forward the date of decommissioning
- Use of FHP Magnox ponds for Thorp spent fuel contracts (storage or reprocessing) after the end of the Magnox programme
- Cost allocations for access to the shared downstream waste plants

28 It is therefore likely that LMA will need to be involved in these commercial decisions. The "ring fence" under ERF would need to be porous, again leading to complex contractual provisions to allocate risks and rewards rationally. The process managed by BNFL for the allocation of the costs of downstream waste plants to customers, is already complex. Introducing a further layer between LMA and the customers would add to the complexity. A complicating factor with Thorp is the level of advanced payments from customers, and the need, under the ERF approach, to apportion these between LMA and the contractor. Overall, the risk of introducing perverse incentives by following an ERF approach must be considered as high.

29 It should be possible to use a form of the IO approach to the management of the existing contracts, and conceivably to the securing of any new contracts. The contractor will necessarily be acting as the agent, with the Government involved on all the key decisions but represented by the contractor in the negotiations. The contractor could be incentivised, perhaps by a sales commission, to maximise the revenue obtainable under the existing contracts, or to agree new contracts within a mandate set by the Government.

Annex 3

The Future of UKAEA

Introduction

1 UKAEA is responsible for liabilities management at 5 sites – Harwell, Winfrith, Dounreay, Windscale and Culham – and accountable for expenditure in relation to those sites. It also acts as managing agent for the Secretary of State in respect of certain historic liabilities at Sellafield for which it retained financial responsibility when BNFL was created in 1971, working with MoD (which shares financial responsibility for the liabilities concerned) to challenge BNFL and secure best value for money. In the light of the QQR, it is currently seeking to improve its performance with a view to demonstrating that it should be a supplier of choice to the LMA.

Implications of LMA Model for UKAEA

2 When the LMA is created, it will take on financial responsibility for UKAEA's liabilities. Initially, UKAEA will continue to manage the liabilities under performance based contracts similar to those that LMA will have with BNFL. These will prepare the ground for any subsequent contracts with the private sector and create explicitly incentives for UKAEA to further improve its performance.

3 Given Ministers assurances that there is no prescribed agenda for privatising site management, any change to these arrangements will depend on

- UKAEA's performance;
- the availability of credible alternatives capable of carrying out UKAEA's site management role more effectively.

4 A decision to make a change would be based on the LMA's view of what it considered best for liabilities discharge, including its strategic interest in developing a competitive market for site management. It would be subject to regulatory approval in the normal way – a key issue being whether possible successors have the requisite resources, skills and know-how.

5 UKAEA is already organised on a site basis so creating a structure to facilitate competition should be straightforward. Site management vehicles could be created for single sites, a combination of sites or the UKAEA estate as a whole. Sites could be competed without UKAEA involvement, with UKAEA in partnership with third parties or by market testing UKAEA management against third parties. Any competition would be based on the UKAEA staff and resources required to run a site transferring to the new contractor (or the contractor taking on ownership of the site management company for the duration of the contract) in the same way as is envisaged for BNFL sites. As with BNFL, the question would be who should manage that resource.

6 A number of structural changes would have to take place before the LMA could award a contract to a private sector site manager, principally:

- The transfer of ownership of the sites concerned to LMA
- Relicensing of the site to a Companies Act company

- Transferring the employment contracts of the UKAEA employees to that company
- Novating contracts with 3rd parties, eg site sub-contractors to the relevant companies.

7 There does not appear to be a need to make these changes significantly in advance of awarding such a contract. It would therefore make sense to defer them until LMA has determined the order and configuration (grouping of sites) that it prefers for tendering the management of the sites and is clear that it wishes to proceed. Any other course is bound to be demotivating for management and staff and cut across the basic objective of promoting safe, secure and cost effective discharge of the nuclear legacy.

8 There is similarly no reason to change UKAEA's legal status in order to enable it to have a contractual relationship with LMA. There is no reason why two statutory corporations cannot trade in a contractual relationship indefinitely and numerous instances of such long term relationships (eg between UKAEA and the former CEGB). Funding UKAEA's liabilities management activities through the LMA rather than directly through DTI will, however, have implications for the governance arrangements and accounting treatment of UKAEA. These need further consideration.

9 Once the LMA is set up, it will not be necessary, however, for UKAEA to retain its role in relation to historic liabilities at Sellafield. Financial and monitoring responsibility will pass to the LMA dealing directly with BNFL as Sellafield site manager. The UKAEA and MoD compliance teams will transfer to the LMA (or be redeployed elsewhere in UKAEA/MoD) and become part of the LMA's overall capability for contract management.

Longer Term Options

10 There are four possible scenarios for UKAEA's future as a liabilities manager:

- if a competitive market fails to develop, it could retain responsibility for its sites indefinitely
- if government decides to split up BNFL and leave BNFL liabilities management in the public sector, there would be the opportunity to bring the BNFL rump and UKAEA together and organise the combined resource to best effect
- if UKAEA fails to deliver and a competitive market develops, UKAEA could lose its existing sites or be privatised via a PPP between its corporate management and the private sector
- UKAEA could bid for all or some of its existing sites in partnership with the private sector.

11 Existing powers are flexible enough to accommodate any of these possible outcomes. There is therefore no need to write additional provisions into the Bill. At the same time, this leaves the LMA with maximum flexibility and avoids the risk of Ministers being perceived to have taken decisions on UKAEA's future without giving it the opportunity to show what it can do.

12 The only possibility which current legislation does not cater for is the formal winding up of UKAEA. Winding up, however, would only arise if UKAEA's other activities either ceased or could be transferred elsewhere. This is clearly a possibility for the long term future but it is not clear that it would make sense to take winding up powers now against that possibility. The presentational risk would again be that Ministers were seen as having a hidden agenda for UKAEA, contrary to the assurances which have been given both to management and the unions.

RESTRICTED - APPOINTMENTS

Read already file

PRIME MINISTER

CHAIRMANSHIP OF BRITISH NUCLEAR FUELS PLC

I should be grateful for your agreement, subject to the settlement of detailed terms, that I may now offer Hugh Collum the firm prospect of a further appointment as Chairman of BNFL for up to two years from the expiry of his current appointment at the end of 30 September 2002.

Hugh Collum was appointed non-executive Chairman of BNFL on 1 October 1999. He had previously served on the boards of a number of major plc's and was Chief Financial Officer of SmithKline Beecham until shortly before he joined the BNFL Board.

My officials have discussed with Hugh Collum, who will be 62 in June 2002, his future plans and aspirations. He has made clear that he is looking to focus his business activity. He will be resigning from the boards of SA Breweries and Invensys later this month and wants to concentrate on one or two directorships. He would like to remain Chairman of BNFL for another year or so beyond next September if asked to do so, but would like to clarify the situation as soon as possible.

The Code of Practice of the Office of the Commissioner for Public Appointments makes clear that when a first re-appointment is contemplated, as is the case here, the normal competitive process need not apply. Nevertheless, such re-appointment should not be made unless the individual has performed satisfactorily during their current term. That is true in this case.

He took over the helm at BNFL at a time when the company appeared to be doing reasonably well and work had begun in earnest on the prospects of introducing a Public Private Partnership (PPP) into the company. But within a few months the MOX data falsification incident at Sellafield, other performance problems at that site and problems with their US clean-up business, resulted in the company being under siege. He reacted decisively – sacking the Chief Executive in March 2000 as part of his wider management review which also saw the departure of the Finance Director, other senior managers and all the non-executives. The review also led to a re-organisation of the company into new business groups with more clearly defined lines of responsibility and accountability.

I believe he has done a good job in very difficult circumstances. He has certainly devoted far more time to the job than his two days a week contractual minimum, and it is certainly not the job he was led to expect.

In my view, therefore, he should be offered the prospect of leading the company for up to two years beyond next September. The company clearly faces a challenging future. There is a huge amount to be done to implement the strategy for managing the nuclear legacy that I announced in my statement to the House last November. While the establish of the Liabilities Management

Authority is dependent on securing the necessary legislative time, there is much that can be done in the meantime to put in place the building blocks for better management of the Sellafield legacy and the organisational and cultural changes required. Hugh Collum is firmly committed to these changes and continuity will help ensure they are achieved.

His current remuneration comprises a fixed fee of £150,000 per annum - a figure agreed in 1999 for the duration of his three-year term. I suggest we offer him £165,000 (which at a compound rate would be broadly in line with up rating to take account of three years' inflation) Other terms and conditions would remain unchanged.

I should be grateful for your early agreement to this proposal, and that of the Chief Secretary to whom I am copying this minute. I do need now to be in a position to offer Hugh Collum the firm prospect of a further appointment. I am also sending a copy of this minute to the Deputy Prime Minister and to Sir Richard Wilson.

P H

March 2002

DEPARTMENT OF TRADE AND INDUSTRY

EMAILED

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12 March 2002

Dear Michael,

5TH NORTH SEA CONFERENCE

I have seen your letter of 25 February to John Prescott seeking clearance of the negotiating line for the 5th North Sea Conference on 20/21 March. I am content with most of the proposals you make, subject to a request to negotiate for changes to some late drafting on pollution from offshore installations and some caveats about the line to take should other states call for changes to the text. These caveats concern transport of nuclear materials, discharge of radioactive waste, pollution from offshore installations, promotion of renewable energy and hazardous substances.

Transport of nuclear materials

You are right to expect the UK to come under some pressure over the maritime transport of nuclear materials. I fully agree with the proposed UK line on this matter as set out in Annex A; in particular the rejection of language that calls for minimising the number of such shipments or restricting the routes available to them. This would be contradictory to fundamental principles of freedom of navigation of the seas. I know this is something that John Spellar has also raised in his letter to you of 27 February.

We can support text that recognises the importance of compliance with the IAEA regulations and calls for maintaining high standards. We need, however, to be careful to avoid potential traps in this area. For example, we are content with calls for standards and arrangements to continue to be examined and further improved where necessary. But we should encourage the recognition that compliance with existing standards does provide for a high level of safety and avoid the suggestion that existing standards and arrangements are somehow inadequate and need to be strengthened. Seeking improvements need not necessarily involve a presumption that regulatory and administrative burdens must continually increase.

SP 12/3/02

Similarly, while we recognise the importance of having in place effective third party liability regimes to provide insurance cover for potential nuclear accidents, we believe the existing regimes are indeed effective and adequate.

I am also pleased that you will seek to amend the reference to "timely consultations with relevant coastal States in advance of shipments" to read "provide timely information". It does seem only right that if the text is going to welcome a practice that we undertake, it should properly reflect what that practice actually is. Use of the word "consultations" suggests wrongly that we somehow provide States with an opportunity to influence operational decisions. It may prove to be a difficult argument as the "consultations" line appears in the safety resolution of the IAEA General Conference from last September having been forced through by New Zealand. That does not make it any less inaccurate.

Discharge of radioactive waste

Since your letter was written, we have received Revised Version draft 4 of the draft Ministerial declaration, and my comments are based on this draft, in which the radioactive waste paragraph is now numbered 65 rather than 63, and an additional bracketed section appears in the first line of the preamble.

I know you will bear in mind that the UK and France have a common interest in achieving a satisfactory text of the radioactive waste management paragraph (numbered 63 in your letter, but renumbered 65 in draft 4 of the declaration). It thus follows that, in particular, the UK should support France if they wish to delete the bracketed paragraph in the preamble on the significance of radioactive discharges or retain the alternative subparagraph (ii), to which you have proposed agreement and deletion respectively. With this caveat, I agree to the line you have proposed on this paragraph.

The second bracketed section in the preamble (to paragraph 65 in draft 4) contains the words "ongoing need to address". I prefer the first bracketed section, provided that "urgent" is deleted, as you have proposed.

Offshore installations

I am content with your proposed line on the prevention of pollution from offshore installations. I would hope you would emphasise in any negotiations the significant progress that has been made in the environmental performance of the offshore industry as indicated in paragraph 60 of the Declaration.

I understand that North Sea officials have now dealt with the concerns expressed over a German proposal on removal of "obstacles" from the seabed and the present wording of paragraph 63 is now acceptable.

There is a late insertion in the text (paragraph 61, vi) inviting OSPAR "to promote the use of vapour recovery equipment during the offshore ship-loading of crude oil". I would be grateful if you could attempt to negotiate a more helpful form of words: "to promote, where

practicable, vapour recovery during the offshore loading of crude oil;". I prefer the insertion of "where practicable" since OSPAR has not yet drafted BAT or BEP for offshore vapour recovery. I also think that what is intended is promotion of the process, not the mere use of equipment.

Section IX Promotion of Renewable Energy

I can support the text of this section, including the recent addition of the helpful reference to our commitment to the Kyoto protocol. Indeed, I hope you will take the opportunity to speak positively about the role which we believe offshore windfarms might play in addressing climate change. We can also live with the proposed text seeking agreement on a step by step approach to development, taking account of the emerging understanding of environmental impact data. Whilst the wording implies a cautious approach, and does not reflect the urgent need for deployment of offshore wind, in practice it is not incompatible with our plans for a robust strategy which will take full account of environmental impact. However, I would hope that you would strongly resist any attempts to seek agreement on further amendments which could effectively slow down progress, such as agreement that early development should be restricted to pilot scale projects.

Hazardous substances

I agree with your proposed line on hazardous substances, in particular the general principle of consistency and coherence with what has been recently agreed by Ministers in other related international negotiations. I agree with you that the proposed wording from Sweden and Norway (referenced as para 49 in your letter but para 53 in the text of the most recent draft) on hazardous substances in consumer products is unacceptable. I am happy to agree your proposed compromise wording. It is important, in line with your general principle, to keep any wording on this subject consistent with the EC Chemicals Strategy.

I am copying this letter to the Prime Minister, other members of ENV Committee and Sir Richard Wilson.

Best wishes,

Patricia

PATRICIA HEWITT

JW3091

dti

02072385727

DEFRA
Department for
Environment,
Food & Rural Affairs

Nobel House
17 Smith Square
London SW1P 3JR

From the Secretary of State

OJ
cc GN
MH.
JS.
MR

PRIME MINISTER

I have seen Patricia Hewitt's letter to you of 22 February enclosing the strategy paper "Improving The Presentation in Ireland and Elsewhere of HM Government Positions on the UK Nuclear Industry".

I fully support your desire to see the public relations game on Sellafield raised and broadly support much of what Patricia says in her letter, and the proposals for taking forward your wishes as set out in the strategy paper.

Officials from my Department were able to comment on the paper in draft and take part in meetings to discuss its content. They have also been heavily engaged in work associated with Irish and Norwegian concerns about Sellafield. This work includes, most notably, issues arising from Ireland's decision to bring legal proceedings against the UK through international arbitrations using the OSPAR and UNCLOS Conventions. The robust defence mounted against Ireland's application for interim measures before the ITLOS Tribual in Hamburg in late 2001 was the result of the close and effective cooperation of officials across Whitehall. This will continue as we now prepare for the forthcoming arbitral proceedings under the OSPAR and UNCLOS Conventions.

Both Michael Meacher and I have been involved personally with Norwegian Parliamentarians regarding their concerns about Sellafield, and the issue of Technetium-99 discharges in particular. In all cases we have deployed standard lines of argument accepted across Whitehall. Michael will shortly be attending the 5th North Sea Ministers Conference in Norway (20-21 March). We can expect a great deal of anti-Sellafield sentiment to be expressed in and around the margins of that meeting. Michael, and the officials with him, will ensure that reporting of the issues is achieved in a balanced manner.

The proposals outlined in Patricia's paper and the associated strategy paper will help pull together all the strands of the Government's various policies in respect of the nuclear industry. Officials from my Department will play their part in ensuring that the strategy is successful. However, on those issues where Alan Milburn and I share

regulatory responsibilities (for example on the review of Technetium-99 discharges, the Environment Agency's forthcoming review of Sellafield discharges, and certain cases relating to "justification" of nuclear practices), there will inevitably be some limitations on our Department's ability to contribute.

Having said that I support the need for a strategy and believe more could be done domestically to address matters of substance if we are to make real progress in ameliorating the concerns which countries like Ireland and Norway have with regard to UK nuclear policy. For example, it is currently a requirement of the Health and Safety Executive that stores of high-level liquid nuclear waste at Sellafield be reduced to buffer levels by 2015. This is Ireland's principal concern about safety at Sellafield. Similarly, we are in the process of finalising the UK's Radioactive Discharges Strategy required under the OSPAR Strategy. It is essential that we are able to demonstrate to countries like Ireland and Norway that we are serious about meeting the commitments we have entered into in international fora to reduce our radioactive discharges.

Margaret

MARGARET BECKETT
11 March 2002

205 3731

MATRIX

From the Ambassador
Sir Ivor Roberts KCMG

British Embassy
Dublin

29 Merrion Road
Dublin 4

Telephone: 205-3711
Facsimile: 205-3719

7 March 2002

Brian Wilson Esq
Minister for Energy
Department of Trade and Industry
Victoria Street
London
SW1

By fax

Dear Brian,

SELLAFIELD: MEETING WITH IRISH PARLIAMENTARIANS

I was surprised to learn late on 6 March, that officials of the DTI, OCNS and HSE have agreed to a meeting on Monday 11 March at which a number of Irish TDs, who are members of the British-Irish Interparliamentary Body, are to be briefed by the DTI on security matters surrounding Sellafield. Neither I, nor anyone else in this Embassy were consulted.

RTE Television are to cover the event and we can count on the Irish parliamentarians involved making maximum political capital out of the briefing in this pre-election period. Conor Lenihan, one of the TDs who visited Sellafield, told one of my staff in terms recently that he intended to make as much hay as possible from the issue.

We need arrangements in place to rebut the statements which some of the parliamentarians will surely make. I do not think officials can do that. Are you able to pitch in directly with some media interviews on Monday? If so, we will liaise with your press people on which Irish media might be most appropriate.

Yours ever
Ivor.

Ivor Roberts

Copy: Matthew Rycroft, No 10 Downing Street
Jeffrey Norris, No 10 Downing Street
Karen Pierce, EUD (B), FCO

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ENERGY : NUCLEAR : PTJ : Annex 1

Technical assessment of dispute between BNFL + British Energy

Arthur D Little

Arthur D Little

Technical assessment of the dispute between BNFL and British Energy over spent fuel storage at Sellafield

Notice

This report was commissioned by Department of Trade and Industry on terms specifically limiting Arthur D. Little's liability. Our conclusions are the results of the exercise of our best professional judgement, based in part upon materials and information provided to us by Department of Trade and Industry and others. Use of this report by any third party for whatever purpose should not, and does not, absolve such third party from using due diligence in verifying the report's contents.

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Case Director: ..... Date: .....

Report to
Dept. Trade and Industry

CONFIDENTIAL

15 March 2002

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Reference 1-6184

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1. Outline of Dispute

BNFL and British Energy disagree on the feasibility of long term storage of post baseload AGR fuel in the Sellafield ponds.

The dispute between BNFL and British Energy (BE) over spent fuel management at Sellafield has its origins in the contracts between BNFL and BE's antecedents, Nuclear Electric (NEL) and Scottish Nuclear (SNL). These contracts relate to BE's post baseload (PBL) AGR fuel arisings and allow for a mix of reprocessing and long term storage. In particular, a price was agreed in the SNL contract for a portion of its PBL AGR fuel to be stored at a price per tU considerably lower than the reprocessing price.

The dispute began in 2000 with BE invoking a so-called hardship clause in its contracts and requesting that all its PBL AGR fuel be stored rather than reprocessed, at the agreed SNL storage price. BNFL resisted the request, not least because it would severely reduce its revenues to the extent that its costs could not be covered. At the same time BNFL raised a number of technical objections to long term storage of PBL AGR fuel in the Sellafield ponds.

The study described in this report was commissioned by the Department of Trade and Industry (DTI) to examine the technical basis for these objections and BE's counter claims. The contractual and economic aspects of the dispute are outside the scope of the study, which has been carried out without reference to either BNFL or BE. Information has been gathered from DTI and public domain sources. As it has not been possible to verify data or our assumptions with either party, the opinions expressed in the report are offered on a best efforts basis.

2. Outline of Principal Arguments

BNFL argues that there is insufficient pond capacity and their operational flexibility will be seriously impacted.

The three spent fuel storage ponds relevant to the dispute are:

*Building Number **	*Pond name*	*Operational date*	*Construction*	*Water chemistry*	*Water Discharge*	*Fuel types stored*
B310	Pond 4	1982	Open pond. Part double containment	Dosed	via Sixep	AGR
B311	FHP	1984	Covered. Double (concrete) containment	Dosed	via Sixep	Magnox AGR
B560	TR&S	1988	Covered. Double (stainless steel in concrete) containment	Demineralised water	direct to sea	LWR AGR (en route to re-processing)

* Building numbers, rather than pond names, are used throughout this report.

Further technical description of these ponds is given in Section 4.1.1, and pond capacities are described in Appendix A.

There are other ponds at Sellafield that contain a range of orphan fuels from MoD and UKAEA reactors, and fuel residues from the early Magnox programme. These are not identifiable (in the documents made available) as part of BNFL's baseload or post baseload strategy for Thorp. Reprocessing of orphan fuels, including those located at Dounreay, have not been considered as directly relevant to the dispute. This is in line with the approach of RWMAC who stated 'The amounts of fuel from these other sources are extremely small in relation to the amounts likely to be reprocessed at Sellafield' in their appraisal of the radioactive waste implications of reprocessing. But, one of the ponds (B27) currently contains a range of oxide fuels that are presumed to be scheduled for reprocessing in Thorp, as the pond is identified as a future storage facility for contaminated LWR fuel containers (multi-element bottles, or MEBs) currently resident in B560.

At the time that the dispute erupted (in 2000), the basis for BNFL's objection centred on the lack of fuel storage capacity in the existing ponds. The core of their argument was that, using currently approved arrangements, there was insufficient pond capacity to provide long term storage for all the 6300tU of PBL AGR fuel (rather than the 2900teU already agreed) and keep Thorp open until 2014 (the end of the 10 year PBL period). Most notably, and assuming that all of the fuel were dismantled on arrival at Sellafield, arisings would exceed storage capacity for a crucial 10 year period, between about 2010 and 2020.

BE challenged BNFL's argument. Although they did not have access to the supporting technical information they re-worked BNFL's graphs to show that storage capacity could be aligned with fuel arisings, provided that BNFL cleared B311 and B560 of antecedent Magnox and LWR fuel containers (MEBs) in good time.

At the time of this exchange of views, there were still uncertainties about the closure of the Magnox reactors and the possible use of Magrox fuel. Since then, firm dates have been agreed for Magnox reactor closure and the use of Magrox fuel has been ruled out. Accordingly, in this study it has been possible to examine the pond capacity argument on the basis of largely undisputed technical assumptions relating to pond capacities and fuel arisings.

Moving beyond the pond capacity argument, BNFL has put forward broader objections to switching the PBL AGR fuel from reprocessing to long term storage (LTS). These can be summarised as follows:

- Any departure from currently agreed storage arrangements would require NII approval (the feasibility of long term storage of dismantled fuel has not yet been tested)
- Long term storage would require new facilities and upgrades to existing facilities (particularly B310)
- New facilities and upgrades would be costly and could be subject to new planning permissions
- The conversion of the Magnox bays in B311 to AGR storage is constrained by the removal of contaminated Magnox furniture
- The conversion of B560 to AGR fuel storage is constrained by the removal of contaminated LWR fuel containers (MEBs)
- Limited storage capacity would affect both the Magnox and AGR spent fuel programmes (and may cause closure of AGR reactors, as priority would need to be given to Magnox reprocessing)
- Lack of operational flexibility would affect BNFL's ability to win new overseas spent fuel reprocessing business
- Lack of operational flexibility would make the Sellafield site as a whole more susceptible to interruptions and breakdowns

This report deals with the capacity argument in some depth, and also addresses BNFL's broader objections.

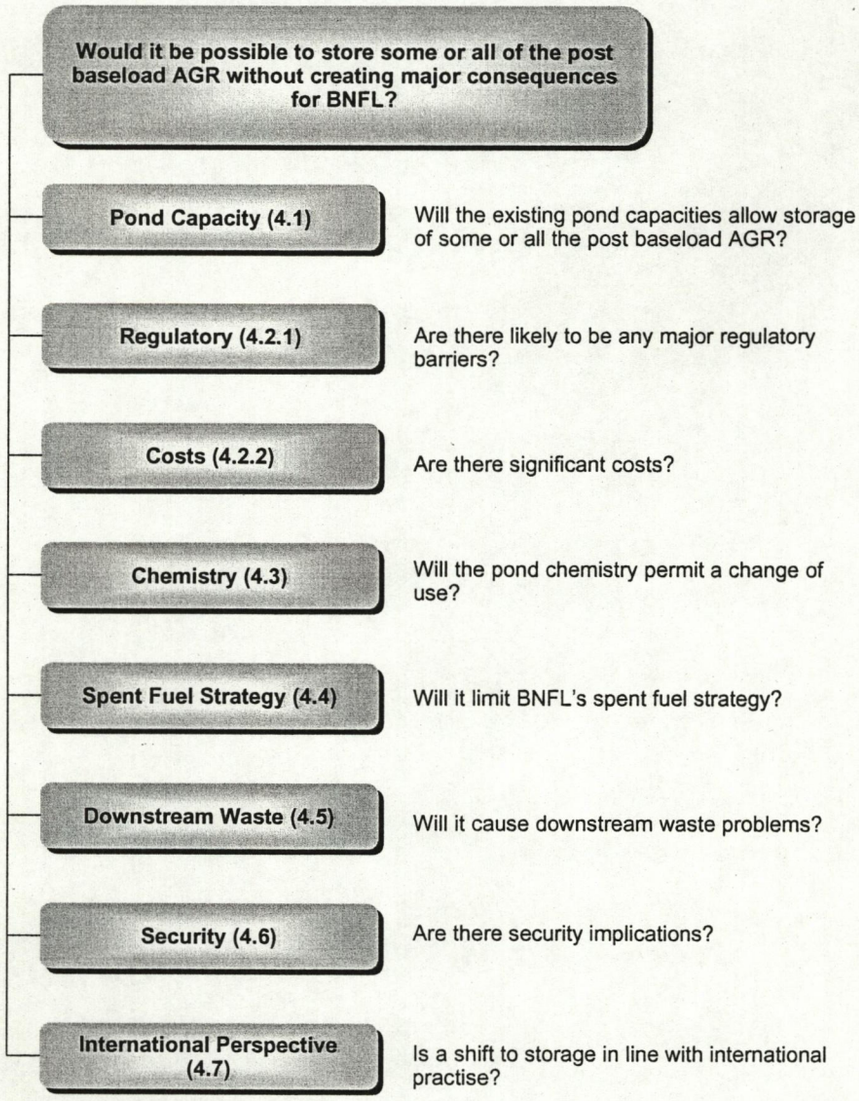
3. Critical Technical Issues

BNFL's principal arguments are that there is insufficient capacity for PBL AGR fuel storage and that operational flexibility will be seriously impaired.

DTI would like to know if it is technically possible to store some or all of the PBL AGR fuel at Sellafield, instead of reprocessing it and to understand the major consequences of such a shift from reprocessing to storage.

Figure 1 shows how the key the issues have been addressed, and described in this report:

Figure 1: Issues Addressed in this Report



To provide a reference point for analysis, key assumptions are described below, highlighting any areas of common ground between BNFL and BE, and areas of dispute.

3.1 Key assumptions used in this study

The key assumptions relate to the timing and quality of fuel discharged from the UK reactor fleet (AGR and Magnox), the timing and quantity of fuel arising from the overseas baseload contracts, the likelihood of any overseas post baseload contracts, Sellafield pond capacities and the Magnox/Thorp reprocessing rates. These assumptions are set out in Figure 2:

Figure 2: ADL's Key Assumptions

Parameter	*Assumption*	*Comments*
UK AGR closure timetable	from 2008 to 2023	There is some uncertainty about the closure timetable
Remaining fuel arisings from the AGR programme	7144tU ▪ 818tU from baseload ▪ 3400tU for post baseload ▪ 2926tU for storage	Approximately 2,000tU is already in the Sellafield ponds. Leaving approximately 5,000tU still to arrive (at up to 300tU/y)
UK Magnox closure timetable	Last closure in 2009 (Wylfa)	No extension to this timetable is expected
Remaining fuel arisings from the Magnox programme	9507tU ▪ 1130tU in B311 ▪ 8358tU to arrive at Sellafield	This total may be lower if the Wylfa dry store is used as a long term store for some of the fuel
Timetable for arrival of remaining overseas contracted baseload arisings (LWR)	▪ Final delivery of baseload in 2005 ▪ Final delivery of contracted post baseload in 2009	Mostly already at Sellafield
Remaining arisings from overseas contracts	2,350tU (approx.) ▪ 2,056tU from baseload ▪ 305tU from German / Dutch post baseload contracts	▪ Approximately 350tU of baseload is still to arrive at Sellafield ▪ Approximately 200tU of contracted post baseload is still to arrive at Sellafield
Potential Japanese post baseload arisings	1600tU	If contracted, this is assumed to arrive over the next 9 years
Sellafield pond capacities	B311 (1450tU dismantled AGR, plus 2,000tU Magnox) B560 (3,200tU LWR, plus 400tU AGR) B310 (1,500tU AGR) B27 (2,000tU LWR)	▪ BNFL tends to use 'storage units' for defining pond capacities ▪ Details of pond capacities in storage units and in un/dismantled format are shown in Appendix A
Thorp reprocessing rate	Rising from 700tU/y currently to 900tU/y by 2004	The maximum possible rate is about 1,200tU/y
Magnox reprocessing rate	Rising from 600tU/y in 2001 to 1200tU/y by end 2004	The maximum possible rate is about 1,600tU/y
Time to remove Magnox and LWR 'empties' from ponds and convert to AGR use	Approximately 2 years	BNFL assumes a much longer time to clear the ponds of 'empties'

*The more detailed assumptions are presented in Appendix A

3.2 BNFL / BE areas of substantive agreement and disagreement

Many of BNFL's and BE's assumptions behind their respective positions were not made available, and a number of parameters have changed since the dispute came to a head in 2000 (e.g. the Magnox closure programme has now been fixed etc). However, it has been possible to infer the main assumptions of both parties in order to assess where there are substantive differences of opinion.

Broadly speaking both parties appear to have made similar assumptions to the ones described in Figure 2 above.

The main areas of difference between BNFL and BE are to do with on the likelihood of BNFL securing overseas post baseload contracts, and the rate at which empty fuel containers can be removed from the ponds:

- BNFL assumes a reasonable likelihood of securing about 1600tU of overseas post baseload contracts from Japan, and hence wants to reserve the equivalent capacity at Thorp. BE assumes BNFL will not secure these contracts
- BNFL assumes that removal of empty fuel containers (after the fuel has been removed for reprocessing) take 4 years or more. BE assumes these containers (or at least the Magnox containers) can be removed much more rapidly, say within a year

The net effect of these positions is that BE believes that it is possible to store all the PBL AGR fuel in the existing ponds at Sellafield, whereas BNFL's position in 2000 was that there would be a storage capacity shortfall of about 2,500tU.

It has not been possible to account for a large increase in the arrival rate of AGR fuel during the period 2010 to 2015, assumed by BNFL. This increases the excess loading claimed by BNFL, but does not appear to have been challenged by BE. However, BNFL's most recent documentation appears to concede a lower AGR arrival rate during this critical period, with a resulting lower capacity shortfall.

3.3 Changes since 2000

Common ground and major differences between the parties were established in mid-late 2000. Since then the following underlying assumptions have changed:

- More certainty about the Magnox programme, especially the closure of the stations by 2009 and the end of Magnox reprocessing by 2012
- The Magrox programme has been dropped
- Thorp and Magnox reprocessing rates are both expected to increase
- Security concerns have increased since September 11

4. Analysis

It should be possible to store most of the disputed fuel, without significantly constraining BNFL's operational flexibility, and still addressing BNFL's broader objections.

Analysis carried out during the current study, on the basis of available data on pond capacities, fuel arising and operational constraints leads to the conclusion that there is sufficient capacity to store all PBL AGR fuel. But, a proportion would need to be reprocessed in order to alleviate potential bottlenecks. The overall analysis of storage and reprocessing options is summarised in Figure 3 and described more fully in Section 4.1.3 below .

Figure 3: Summary of Storage and Reprocessing Options

Scenario	*Assumptions*	*Impacts*	*Quantity of PBL AGR fuel reprocessed (tU)*	*Quantity of PBL AGR fuel stored* (tU)*
Current BNFL strategy	Manage all PBL AGR fuel as contracted	BNFL base case	3400	2926
Early Thorp Closure	No PBL AGR reprocessing	Lose all PBL re-processing capacity	0	6326
Late Thorp closure	Dismantle all and store most of the AGR PBL fuel, with flexibility on overseas PBL reprocessing	Keep all Thorp capacity for overseas PBL reprocessing and release B311 for AGR storage early	1000	5326
Late Thorp and Magnox closure	Dismantle all and store much of the AGR PBL fuel, with flexibility on overseas PBL and Magnox reprocessing	Keep all Thorp capacity for overseas PBL reprocessing and allow unconstrained release B311 for AGR storage	1500	4826
BNFL's response to BE's request for storage	Inferred from BNFL's "best offer" for storage (but assumes accelerated AGR arisings in period 2009 to 2015)	Keep all Thorp capacity for overseas PBL reprocessing and allow unconstrained release B311 for AGR storage	2500	3826

4.1 Pond Capacity: It should be possible to store about 2,400tU of the disputed 3,400tU PBL AGR, whilst meeting most of BNFL's needs for flexibility

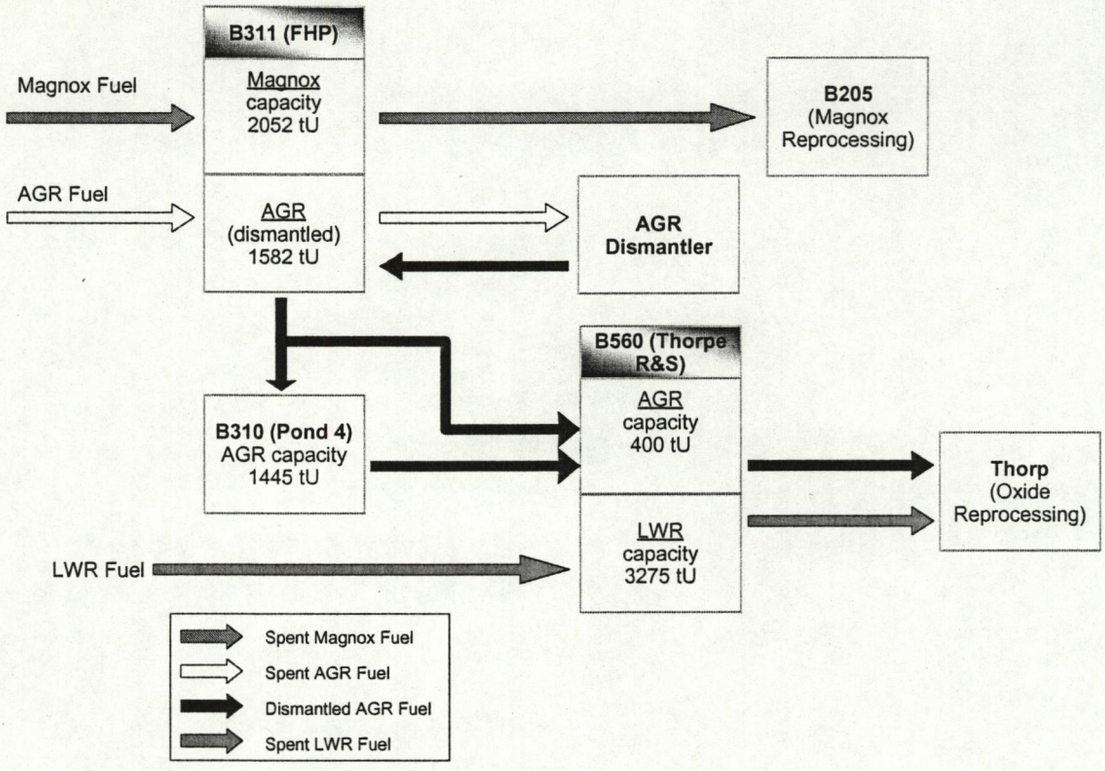
There are four spent fuel storage ponds at Sellafield, with B311(Pond5), B560 (TR&S) and B310 (Pond 4) being the most relevant to this dispute. During this study a model was developed to represent the flow of spent fuel into and out of these ponds over time to understand the critical capacity factors and to identify capacity constraints.

The model shows it is possible to store all the PBL AGR at Sellafield, although this would impose significant constraints on BNFL (e.g. no (overseas) post baseload contracts would be possible). A proposed compromise option would be to reprocess about 1,000tU of the disputed 3,400tU AGR post baseload, which would allow BNFL significantly more flexibility, especially regarding their Thorp operations.

4.1.1 B311 and B560 are the key spent fuel ponds at Sellafield

There are three relevant spent fuel ponds at Sellafield, with a layout, flow and capacity as shown in Figure 4:

Figure 4: Diagrammatic representation of the Sellafield spent fuel ponds



B311 is the holding pond for incoming Magnox and AGR fuel. It has three equal sized concrete bays; two of these are currently set up for Magnox storage and one for AGR. The Magnox bays can be used to store AGR once they are free of Magnox fuel and the empty Magnox fuel containers are removed.

B560 is the receipt and storage facility in Thorp and is used as a buffer for the fuel that is to be reprocessed. It is fully lined and is currently set up for LWR fuel, although AGR fuel can also sit there for a limited period whilst awaiting reprocessing. The chemistry in this pond can be switched to suit longer term AGR storage once it is free from LWR fuel and empty LWR containers (multi-element bottles or MEBs) are removed.

B310 is an open concrete pond with stainless steel walls and an unlined floor. This pond is set up for AGR storage, is more or less full and contains the oldest AGR fuel.

4.1.2 *Liberating B311 and/or B560 for AGR storage has the greatest impact on PBL AGR fuel storage capacity*

The model shows that the key factors affecting BNFL's ability to store PBL AGR are:

- The timing of the conversion of the Magnox storage bays (in B311) to AGR storage bays, towards the end of the Magnox reprocessing programme. This in turn depends on the arrival of Magnox fuel from the power stations and the rate and timing of Magnox reprocessing. BNFL has declared its Magnox station closure programme and this is not expected to slip significantly. The Magnox reprocessing rate is less certain and a lower than planned rate could cause delays in converting the Magnox bays to AGR use.

- The timing of the conversion of B560 from LWR storage to AGR storage, at the end of the overseas LWR reprocessing programme. This timing is critically dependent on whether a Japanese post baseload reprocessing contract will materialise and on the rate of removal of empty MEBs from the pond. The removal of empty MEBs is not critical if the conversion to AGR can take place as soon as the LWR fuel stocks are cleared to reprocessing

4.1.3 *It is possible to store all the PBL AGR at Sellafield, although a proposed compromise option would involve reprocessing about 1,000tU of the disputed 3,600tU*

Capacity modelling work has been carried out from first principles, on the basis of technical assumptions that should be beyond dispute. Modelled scenarios include:

- BNFL's current strategy (i.e. all PBL AGR fuel is reprocessed), and
- BNFL's response to BE, inferred from BNFL's "best offer" made at the time the dispute erupted.

In addition, three new scenarios were modelled with the intention of testing the impact of an additional PBL AGR fuel storage burden on BNFL's Thorp and Magnox reprocessing programmes. These scenarios are referred to in terms of their impacts, as follows:

- Early Thorp closure – needed to accommodate all the PBL AGR storage burden. In this scenario the Thorp pond (B560) would have to be made available for AGR storage in about 2007 to prevent AGR volumes in B311 exceeding capacity. This puts a deadline of about 2005 to clear the pond of baseload LWR, via Thorp reprocessing. This implies a reasonably good but achievable reprocessing rate from now until closure of about 700tU/y. The small amount of contracted post baseload (311tU of German fuel, 4tU of Netherland fuel) would either have to reprocessed within the same time frame (which would require a modest increase of the Thorp reprocessing rate to about 770tU/year) or a return of the fuel to its home country.

- Late Thorpe closure – allowing storage of as much PBL AGR fuel as possible without constraining Thorp programme, but relying on prompt clearance of Magnox storage capacity. In this scenario the timely release of the Magnox bays is the key issue. It is assumed that the first Magnox bay becomes available in 2011 and the second bay becomes available in 2013 (although the release date of the second bay is less critical). In these circumstances Thorp closure could be delayed until about 2014, which is more than sufficient to accommodate any likely post baseload contracts or a lower than planned Thorp reprocessing rate.

  Achieving the release date for the Magnox bays assumes BNFL stands by its declared power station closure timetable (with the last station closure in 2009), and that it achieves its projected Magnox reprocessing rate of about 1,200tU/y from about 2005 onwards. This reprocessing rate is significantly higher than the (approximately) 600tU/y achieved in the last year, although the Magnox reprocessing rate has been increasing generally over recent years.

  There is some flexibility within this scenario that could accommodate a slightly extended power station programme (i.e. by about one year), and a less than target reprocessing rate (by up to 20%). There is also upside flexibility if Thorp closes before 2010 (e.g. due to lack of any significant post baseload contracts), which would then require less than the proposed 1,000tU post baseload AGR to be reprocessed.

- Late Thorp and late Magnox closure – allowing storage of as much PBL AGR fuel as possible without constraining either Thorp or Magnox programmes. This scenario assumes the Magnox bays do not start to become available until 2012 and are not fully available until 2018, and that the same assumptions apply to Thorp as in the previous scenario. The slow release of the Magnox bays mirrors BNFL's proposal, and is considered to be very conservative.

  Practically all of the possible downside flexibilities can be accommodated within these assumptions. In particular, Magnox reprocessing in B205 could continue until 2015, which is technically the latest realistic date for reprocessing at B205 (i.e. it is not possible to process the medium active effluent arisings from the plant beyond this date).

  Any situation that required Magnox reprocessing beyond 2015 would require the Magnox to be reprocessed through Thorp, which would in turn require a new head end to be fitted to the Thorp facility (at great cost). However we believe such a situation is unlikely to arise, as BNFL should be able to manage their Magnox programme to ensure all fuel arisings are dealt with well within the proposed life of B205.

For each scenario, the quantity of PBL AGR reprocessing needed, in order to accommodate fuel arisings within available pond capacity, was calculated.

The results are summarised in Figure 5. The Early Thorp closure scenario shows that it is possible to store all the post baseload AGR at Sellafield, although this would impose significant constraints on BNFL's operations. The compromise of 'Late Thorp closure' would require only 1,000tU of the disputed 3,400tU PBL AGR to be reprocessed, and would allow BNFL significant flexibility in its operations (especially Thorp).

Figure 5: Description and implications of each scenario

Scenario	*Implications **	*Quantity of PBL AGR fuel reprocessed (tU)*	*Quality of PBL AGR fuel stored (tU)*	*Quantity of PBL AGR fuel added to undisputed storage burden (tU)*
BNFL's current strategy Full reprocessing of the post baseload AGR fuel	▪ BNFL follows its current strategy and manages all PBL AGR fuel as contracted	3,400	2926	0
Early Thorp closure: Accommodate BE's request to store all the post baseload AGR at Sellafield	▪ Close Thorp in about 2005 ▪ Loss of opportunity for post baseload reprocessing ▪ Adherence to the Magnox closure programme ▪ Rapid clear out and conversion of ponds to AGR only storage	0	6326	3,400
Late Thorp closure: Try to store as much as possible, without constraining options for Thorp	▪ Adherence to the Magnox closure programme ▪ Rapid clear out and conversion of the Magnox ponds to AGR only storage	1,000	5326	2,400
Late Thorp and Late Magnox closure: Try to store as much as possible, without constraining options for Thorp and allowing a slow release of the Magnox ponds	▪ Slow clear out and conversion of the Magnox ponds to AGR only storage (in line with BNFL's preference)	1,500	4826	1,900
BNFL's response to BE's request Broadly the same assumptions as our 'Late Thorp and Late Magnox closure' scenario, but with an increased rate of AGR fuel arrival from about 2009 to 2015	▪ BNFL maintains all its preferred flexibilities and stores the minimum possible post baseload AGR ▪ The increased AGR arrival rate from 2009 results in a higher quantity of reprocessed post baseload	2,500	3826	900

* Full set of assumptions and key implications for each scenario is presented in Appendix B (together with capacity profiles over time)

The key conclusions from the scenario analysis are as follows:

- It is possible to store all of the PBL AGR fuel, but this would impose many constraints on BNFL. In particular, no overseas post baseload contracts would be possible, and, rapid clear out and conversion of B311 and B560 to AGR fuel storage would be required

- Allowing BNFL their proposed flexibility on Magnox and LWR programmes would still permit storage of about 1,900tU out of the 3,400tU in dispute

- BNFL's own analysis* (carried out in 2000) using the same Magnox and LWR flexibility assumptions imply that only 900t of the disputed 3400tU could be stored. This is due to their assumption of an increased arrival rate of AGR fuel (700tU/y compared to about 300tU/y) during the critical period from 2010 to 2015

- A sensible compromise would be the 'Late Thorp' scenario, which would give BNFL full flexibility on Thorp operations (with no loss of opportunity for overseas post baseload contracts, and availability for reprocessing legacy fuel etc). However, this would require BNFL to adhere to their Magnox schedule, with a reasonably rapid clear out and conversion of the B311 Magnox ponds to AGR storage. This scenario implies reprocessing of about 1,000tU of PBL AGR in order to remain within the capacity constraints of the existing ponds.

- In BNFL's "best offer" scenario (from 2000) appears they have used broadly the same assumptions as in the current study's 'Late Thorp and Late Magnox' scenario, apart from their assumption of a much higher arrival rate for AGR arisings from 2009 to 2015 (i.e. about 700tU/y compared with our estimate of about 300tU/y during the same period). The higher AGR arrival rate increases the amount of AGR needing to be reprocessed from 1,500tU to 2,500tU.

BNFL's most recent presentation, which was made available to us whilst finalising this document, appears to indicate they have now reduced their assumptions for the AGR arrival rate from 2009 to 2015, to a level more consistent with our views. This implies the required volume of post baseload AGR that must be reprocessed is broadly the same as in our 'Late Thorp and Late Magnox' scenario.

4.2 Regulatory Approvals and Upgrades

4.2.1 Extending the use of existing ponds for about 30 years seems feasible, but there may be regulatory concerns over the change of use of B311 and B560:

Without reference to BNFL it has been impossible to obtain information on the current nuclear site licence restrictions on the use of the various facilities and ponds on the Sellafield site. This is because HSE/NII are bound by clause 28 (commercial

confidentiality). However, it has been possible to establish a number of pertinent HSE/NII positions on the subject of extended storage of AGR fuel.

From an approval point of view, there are no Safety Cases in place that would allow the long-term storage of fuel. The fact that the post baseload contracts with SNL and NEL already both contain a significant storage does not necessarily mean that HSE/NII will accept the proposal as and when the appropriate Safety Cases are submitted.

Therefore, for the present, the long-term storage (100 years +) of any AGR fuel in the existing Sellafield ponds is difficult to envisage. There are a number of factors that support this conclusion:

- The long-term use of above-ground wet storage conflicts with HSE/NII policy on passively safe facilities
- B311 has a design life of about 50 years (commissioned in 1984) and has technical features (unlined concrete bays with potential re-enforcement bar corrosion issues) which are likely to prevent life extension
- Converting the use of B560 to long-term storage may well be out with the planning consent on the use of Thorp Plant
- Periodic Safety Reviews (conducted every ten years) will impose progressively more stringent requirements on storage ponds using ALARA principles
- Extending the storage period of AGR fuel significantly beyond the current experience timeframe (~20 years) will require Research and Development justification

In contrast, extending the use of the facilities for a shorter period (~30 years) may well be feasible since the challenges, whilst similar in nature to those for long-term storage, are in all respects less onerous. Referring to the above points:

- Without details of any time limiting features of the existing Safety Cases for the Sellafield ponds it is impossible to define the key risks (ageing, containment failure) which might trigger a closure of that facility. However, the application of modern standards to existing facilities is a matter for negotiation with the HSE/NII. Invariably the use of ALARA principles assists in retaining existing facilities if the cost of modern alternatives is high and the risks are low. In the case of B311 it may be that the corrosion of re-enforcement bars is a key ageing issue

- Since B311 has a design life of 50 years and was commissioned in 1984, an extended period of use limited to 30 years seems feasible

- B560 obviously obtained planning approval as a fuel storage facility (albeit for short-term storage prior to reprocessing), up to the end of the proposed post-baseload period. It may be, therefore, that an application to the local planning authority in order to extend its use for storage over a modest period is a matter that can be handled by BNFL in a relatively straightforward manner

- The Periodic Safety Review is a formal mechanism for applying a review against modern standards using ALARA principles. These are likely to be straightforward in the near term, but become more onerous over time.

- It may be possible to fulfil HSE/NII requirements for supporting research on wet fuel storage. By retaining a small amount of AGR fuel that has already been in storage since the 1980s for research, the regulator's need for minimising risk and having an early warning system could be fulfilled.

4.2.2 *Cost Implications: Moving from reprocessing to storage will have several cost implications for BNFL*

A change from reprocessing to storage will require BNFL to make changes to their planned use of the storage ponds, reprocessing plants and other Sellafield support facilities. These changes are mostly to do with:

- Removal of empty Magnox and LWR containers earlier and faster than planned,
- The financial impact of an early closure of Thorp, and
- The early conversion of B311 and B560.

The changes are described in more detail below.

4.2.2.1 *Empty fuel containers: Rapid removal of Magnox and LWR (MEB) empties may carry some additional costs*

The empty Magnox containers will have to be removed from the Magnox bays in B311 to make space for AGR storage. At the same time the pond water chemistry will need to be adjusted to suit a dismantled AGR fuel storage. Similar provisions apply to the removal of MEBs and changes in water chemistry in B560.

Containers are likely to be classed as Low Level Waste (LLW), as they may have been mildly contaminated either directly by leakage from the spent fuel, or indirectly by absorption of contaminated pond water.

It will be necessary to have a means of dealing with the contamination in the containers and to find a suitable dry storage location for them when they are to be safely removed from the contaminated ponds.

This should be feasible as the levels of contamination in the containers will be low, and relatively simple and proven methods for dealing with such contamination are readily available. However, removing the containers at a more rapid rate than planned will have an associated cost.

4.2.2.2 *Thorp: Early closure would have a 'probability-adjusted value' of potential reprocessing contracts*

To accommodate storage of all PBL AGR fuel, Thorp would have to close in about 2005, with the loss of opportunity for overseas PBL reprocessing contracts. Even

acceptance by BNFL of a partial reduction in AGR reprocessing, might make it more difficult for BNFL to win further overseas business. Therefore, in each scenario, BNFL will have to carry the cost of the 'probability-adjusted value' associated with the loss of opportunity, although many observers believe the probability is actually very low.

Early closure of Thorp would also mean incurring decommissioning costs earlier than planned, with the associated 'NPV' impact.

4.2.2.3 B311 and B560: Early and more rapid conversion of B311 and B560 to AGR only storage would incur some additional costs

In both BNFL's and BE's scenarios it is planned to convert B311 and B560 to AGR storage ponds at some point. The conversion of the ponds will involve costs to BNFL, mostly related to changing the pond chemistry and modifying the water discharge route. Pond water will need to be boron dosed to allow closer packing of dismantled fuel elements, and B560 will need to be discharged via SIXEP rather than direct to sea, as is current practise.

Switching from reprocessing to storage brings conversion forward in time. The cost of conversion is likely to be slightly higher and will have a 'NPV' impact.

4.2.2.4 Dismantler: Additional dismantler operating / maintenance / construction costs may be incurred

In all storage scenarios it is assumed that all the AGR fuel will be dismantled in order to maximise storage in existing pond capacity. This will put greater demand on the B311 fuel dismantler.

The B311 AGR fuel dismantler has achieved a dismantling rate that is consistent with the AGR fuel input rate over recent years, which implies it can meet demand. However, it is unknown whether it can maintain these rates for the next 10 years without some form of intervention.

There will be costs to BNFL if unplanned maintenance is needed to maintain the dismantler's rate over the key period, and it may even require the construction of a second dismantler if extended maintenance or refurbishment is required to the original dismantler.

4.2.2.5 Additional Graphite Storage: It is likely that the additional graphite could be stored within the existing ILW storage provisions

The storage scenarios will result in increased amounts of graphite for storage (as all the AGR fuel will need to be dismantled to remain within the capacity constraints). The graphite will be treated as Intermediate Level Waste (ILW). The volume of additional graphite will be small compared to current and planned volumes of ILW at Sellafield (say 1% if the graphite is 'compacted'). Therefore, it is likely that it could be stored within existing facilities without causing a capacity problem.

Even if there is a capacity problem, BNFL has planning permission to erect additional ILW stores that would be suitable for graphite storage, and therefore dealing with the additional graphite would not be a constraint on any of the 'storage' scenarios.

4.2.2.6 B310: There should be no extra cost burden for BE from B310

It is assumed that B310 will remain operational until about 2020 in all scenarios, including 'BNFL's current strategy'. Therefore any maintenance required to the pond to keep it operational would apply equally to all scenarios.

4.2.2.7 Long term (dry) storage: BNFL will probably have to bear the cost of an extended dry storage facility

Wet storage in the Sellafield ponds is difficult to envisage for the long term for spent AGR (or any) fuel. Therefore, after an appropriate period of wet storage (say 30 years) it is likely that an alternative (dry) storage facility will be required in order to meet the regulator's need for passively safe storage. Technical solutions are already available for dry storage of LWR fuels, and detailed schemes were developed for AGR fuel in 1980/90s.

Such a solution will be necessary in any event, as even the "BNFL current strategy" scenario includes storage of about 3,000tU of PBL AGR fuel. However meeting BE's needs could produce an additional 3,400tU.

It is assumed that the additional marginal costs associated with increasing the storage quantity would be relevant to the dispute, rather than the unavoidable costs associated with designing and negotiating the dry storage facility itself.

4.3 Pond Water Chemistry: Extended storage of AGR fuel in ponds is feasible

4.3.1 Fuel compatibility: Extended storage of LWR and AGR fuels require significantly different water conditions

The long-term storage of spent LWR fuel in demineralised water is well established (Ref. 20). The fact that storage is at water temperatures and pressures much lower than reactor operating conditions suggests that fuel difficulties should not be encountered. Some spent LWR fuel has been stored for over 40 years with no signs of deterioration.

Spent AGR fuel has also been stored in water, but the experience is not so straight forward (Ref. 20). In 1987 it was discovered that approximately 7 tonnes of fuel (6000 pins) held in B310 was leaking radioactive caesium (Ref. 8). An intensive programme of work was instigated and the problem was solved by water treatment, ensuring high pH (11.5) and low chlorine concentration. It is worth putting this failure figure in context. In 1994 approximately 1,800 tonnes of spent AGR fuel was held in storage and approximately 200 tonnes of spent AGR fuel is currently delivered to Sellafield each year.

The lack of concern about wet storage of spent LWR and AGR fuel generally, is reflected in the lack of any significant research and development programmes on the topic. For instance, the HSC Co-ordinated Programme of Nuclear Safety Research has neither current nor closed references related to the wet storage of spent fuel (Ref. 11).

There is no reason to believe, therefore that the safe long-term storage of spent fuel (both LWR and AGR) is not a practical option. However, the requirement for significantly different chemical conditions precludes co-storage of LWR and AGR spent fuel for long periods of time.

4.3.2 *Implications for liquid discharges: The existing water treatment plants are designed to extract radionucleides which would arise from AGR fuel pin failures*

The recent Environmental Agency (EA) consultation document on proposals for the future regulation of discharges at Sellafield introduces a new integrated certificate of authorisation, the reduction in 22 radionuclide discharge limits (liquid and aerial), additional discharge limits on three radionuclides and new controls on discharges from individual plants.

The appendices and annexes to the consultation document (Ref. 22) contain extensive information on the operations at Sellafield and provide some indication of the main concerns of the EA. In terms of liquid discharges the main concerns are associated with the reprocessing of Magnox fuel and crud on the external surfaces of spent BWR fuel (cobalt-60). The discharge limits on caesium remain unaltered.

Water discharges from B310 and B311are treated in the Segregated Effluent Treatment Plant (SEPT), the Enhanced Actinide Removal Plant (EARP) and the Site Ion Exchange Plant (SIXEP). Water discharges from B560 are routed directly to sea.

From previous experience of spent AGR fuel failure during wet storage, the leakage of caesium is the main concern. SIXEP was designed to remove strontium and caesium from liquid waste streams and has achieved high removal efficiencies for these radionuclides. Therefore from a liquid discharge point of view, protection is available for B310 and B311, but currently this is not the case for the B560.

4.3.3 *Contingencies for dealing with corrosion: Experience to date suggests that AGR fuel pin corrosion is well managed by existing water chemistry*

From all the available evidence it would appear that the corrosion of spent AGR fuel in wet storage has been resolved by appropriate water treatment techniques (Refs. 20 and 21). It has been stored in these conditions for up to18 years with no reported deterioration. When fuel did fail in the late 1980's the situation was controlled and did not become catastrophic in the same way that Magnox corrosion did in the mid 1970s. The indications, therefore, are that should fuel failure occur there will be an early indication of problems and effective and prompt remedial action will be possible.

Currently, any spent Magnox and AGR fuel that does fail is transferred to dry storage in steel bottles charged with nitrogen. Reprocessing of failed fuel is unlikely, and it will probably be retained for deep disposal with further encapsulation. This may be feasible as a contingency for failed fuel stored for an extended period in the Sellafield ponds.

4.3.4 Conclusion: Long term storage of AGR fuel in ponds does not present water chemistry or discharge problems

From all the evidence it appears that the long-term storage of spent AGR fuel in ponds does not present fundamental technical difficulties. Whilst the experience window for storage of AGR fuel (about 18 years) is shorter than that of LWR fuel (about 40 years) it is, nevertheless, significant. Also, the fact that BNFL have already entered into long-term storage contracts with SNL and NE for approximately half of the PBL AGR fuel arisings suggests that they have assessed the risks as low.

The long-term co-storage of spent AGR and LWR fuel is not feasible because of the different water conditions required for each fuel type.

Short-term management of fuel failures, should they arise, is feasible both in terms of liquid discharges (except for B560) and failed fuel storage.

Overall, pond water chemistry does not present significant problems for the long-term storage of spent AGR fuel.

4.4 Spent fuel management implications: Only the 'Early Thorp closure' scenario will have a material impact on BNFL's spent fuel strategy

BNFL's spent fuel strategy covers all the key aspects of spent fuel management i.e. initial storage of the spent fuel, reprocessing, the production of MOX fuel from separated plutonium, storage of separated uranium and plutonium and treatment, storage and disposal of radioactive wastes. There are six streams of spent fuel covered in BNFL's spent fuel strategy:

- UK baseload AGR fuel (contracted)
- Overseas baseload LWR fuel (contracted)
- UK post baseload AGR fuel (contracted, but the subject of the dispute)
- Overseas post baseload (mostly not contracted)
- Legacy fuels (not contracted)
- Magnox fuel (internally contracted)

Of these the 'Overseas post baseload spent fuel', the 'legacy fuel' and obviously the 'UK post baseload AGR fuel' streams could be impacted by the storage proposals. The more constraining 'Early Thorp closure' scenario would prevent reprocessing of any of these streams, although the likelihood of BNFL securing reprocessing contracts for any further post baseload LWR fuel is consider to be low by many. All the other suggested scenarios would allow reasonable flexibility around these fuel streams.

Baseload reprocessing is not in dispute and is common to all scenarios. The plutonium arising from the baseload reprocessing will be sufficient to meet the requirements of BNFL's planned MOX programme. In any case, there is already sufficient separated plutonium in store to supply the planned MOX programme, without any further reprocessing, although in some circumstances there may have to be an agreed 'plutonium swap' between the plutonium owners, and there may be requirements to re-process the separated plutonium to remove americium in-growth.

The Magnox fuel stream will be unaffected by the switch to storage, but in some scenarios additional storage capacity for PBL AGR fuel in B311 is only won at the expense of flexible storage for Magnox arisings.

4.5 ILW Management and Additional Loadings: All the options will add minor quantities to the ILW management burden at Sellafield

In 1998 HSE estimated that around 15% of raw ILW stored at Sellafield had been conditioned into a passive state (Ref. 27). The disposition of ILW at that time is given in Figure 6 below (conditioned waste is located in the Engineered Drum Storage).

Figure 6: Disposition of LWR at Sellafield (1998)

Store	*Waste volume (m3)*				*Total m3*	*State*
	Fuel cladding	Solid from liquids	Misc.	PCM		
Engineered Drum Storage	5510	2700	120	6	8336	Conditioned
Interim PCM Drum Storage				7170	7170	Raw
Ponds	1330	230	895		2455	Raw
Engineered Box Store			995		995	Raw
ILW Silos	11070		2280		13350	Raw
ILW Tanks		9470	135		9605	Raw
North Group Compound			6		6	Raw
Miscellaneous Stores	25		600		625	Raw

The total volume of ILW waste at that time was approximately 43,000 m3.

BNFL has a comprehensive retrieval, solidification and storage programme, including the provision of waste stores which should condition the majority of raw wastes by 2015. Waste storage includes a series of Encapsulated Product Stores (EPS) of which two existed in 1998 (EPS1, EPS2) and two were planned (EPS3–2007/8, EPS4–2014/15). Importantly, outline planning consent has been obtained for up to 10 EPS stores at Sellafiled.

Each store can hold between 13,600 and 34,800 drums (500 litre) depending on packing. It was estimated that approximately 90,000 drums would be required for ILW arisings at Sellafield up to 1998, equivalent to between three and seven stores.

In 2000, RWMAC reported (Ref. 28) that three EPS stores were in operation with a total capacity of 30,000m3. Three further stores were planned adding another 50,000m3. RWMAC then go on to say "According to current forecasts, there will be about 10,000 m3 of spare capacity in these stores. Thus, broadly, any scenario that adds an extra 10,000 m3 of beta/gamma ILW relative to the Combined Reference scenario would result in the need for an additional store."

Considering the various scenarios for the future operation of Sellafield, the BNFL Strategy is to process 3,400tU of AGR fuel and store, undismantled, 2,926tU of AGR fuel. All the scenarios considered by the present study require all AGR fuel to be dismantled, either for storage or reprocessing. Therefore there are an additional 2,926tU to be dismantled, generating its own ILW in the form of graphite sleeves, grids and braces. The graphite sleeves are, volumetrically, the bulkiest items so the analysis below will focus on their addition to the ILW storage burden.

All scenarios will generate the same quantity (78,703) of graphite sleeves. This represents an additional volume of ILW for disposal of 564 m3, if they are broken into pieces. But, there is a saving, in that up to 3,400 tonnes of fuel will not be reprocessed, and ILW in the form of encapsulated leached hulls will not be generated. This saving of up to125 m3 gives a net additional requirement for space of 439 m3.

This additional volume of waste can be put into context. It represents a 1% increase in stock at 1998. Furthermore it is only 4% of RWMAC's estimate of spare storage capacity. This is not a significant amount, representing a minor perturbation in both cases. It should, therefore, be manageable within the current ILW storage strategy.

4.6 Other implications

4.6.1 Plutonium storage

Following BNFL's base case for reprocessing 3400 tU of PBL AGR fuel will add approximately 15 tonnes of Plutonium (tPu) to the quantity stored at Sellafield, which in April 2000 stood at 63 tPu.

Thorp-derived Pu is stored separately from Magnox-derived Pu. According to RWMAC, the Thorp store has a capacity of 45 tPu and was designed to accommodate all the Pu created by the original reprocessing baseload of 6000 tU of fuel with a 40 Gwd/tU burn-up. The baseload throughput has since been increased to 7000 tU but if it is assumed that fuel burn-up will be lower than originally expected, the 45 tPu, capacity will be sufficient for the current baseload arisings.

Thorp Pu stocks stood at about 47% of store capacity in June 2001. The commissioning of the Sellafield MOX Plant (SMP) can be expected to reduce the quantity of Thorp-derived Pu destined for storage. But, without the consumption of Pu in SMP, the Thorp Pu store will be full by about 2004. RWMAC report that BNFL has a £50million provision in its business plan for a Thorp Pu store extension.

The need for a new Thorp Pu store beyond 2004 will depend on whether there is sufficient demand for MOX. BNFL reckon to have a market for almost all of the Pu extracted from the overseas LWR baseload fuel, and if it were successful in selling all this Pu in the form of MOX fuel then the demand for storage capacity would reduce by about 20 tPu and the need for new Pu storage at Thorp seems unlikely. However, for the time being, only 25% or so of the overseas baseload is committed to MOX production through signed contracts or heads of agreement.

The prospect of switching PBL AGR fuel to storage is, from a non-proliferation point of view, advantageous in that it reduces the total amount of Pu added to UK storage, albeit by only a small amount (15 tPu). Beyond that, it cannot easily be argued (with the recent commissioning of SMP) that such a reduction would have an economic benefit, by saving the cost of extending storage capacity after 2004, as the Pu derived from PBL AGR fuel would most likely be accommodated in the capacity liberated by Pu export as MOX.

4.6.2 HAL stocks

Long term storage of spent fuel reduces the volume of HAL to be added to storage tanks, and hence the quantity of fission product material that is stored in a non-passively safe state. Increasing the quantity of spent fuel held in long term storage could be seen as beneficial in this regard. But, BNFL is already committed to reducing the quantity of HAL stocks and such a benefit may only exist for the near term. The short term benefit of reducing the quantity of the HAL added to storage will need to be set against the longer term risks of holding spent fuel for extended periods in ponds, which themselves are regarded as non-passively safe facilities.

4.7 International Experience in Spent Fuel Storage

4.7.1 Relative merits of storage over reprocessing: Overall it seems that dry storage of AGR fuel is the preferred route in the long term

The requirement to reprocess fuel from nuclear reactors is embedded in the strategies for the development of nuclear power generation prevalent in the 1970's and 1980's. Uranium was a relatively scarce and expensive commodity, nuclear power generation was projected to expand rapidly and the next generation of reactor, the fast breeder, would increase the utilisation of uranium by orders of magnitude.

However, through the 1990's all these strategies have been abandoned. Uranium is widely available and is significantly cheaper (in real terms) than the peak spot prices of

the late 1970s (Ref. 33). Post Chernobyl and Three Mile Island the world nuclear programmes have generally stalled. Also, the technical difficulties and economic realities of fast breeder reactors have led to their abandonment by all countries except Japan, Russia, India and China.

Another major change in this period has been the end of the Cold War and, as a consequence, the emergence of concerns over plutonium disposition.

The relative merits of storage over reprocessing should therefore be assessed against the future scenarios for nuclear power generation, global politics and plutonium management.

The rate of production of spent fuel is approximately 10,000 tonnes per annum and is likely to remain fairly constant for the next decade. In 1999 there was approximately 140,000 tonnes of spent fuel in storage world-wide, 100,000 tonnes in at reactor (AR) ponds, 34,0000 tonnes in 'away from reactor' (AFR) ponds and 6,000 tonnes in dry stores (Ref. 2, 16, 18 and 21).

Currently, large-scale commercial reprocessing of fuel is carried out in France (La Hague) and the United Kingdom (THORP/Sellafield) in facilities that have capacities of 1,700 tU and 700 tU/year respectively. Actual performance figures fall short of these capacities. La Hague processed 12,000 tU in the decade 1990-2000 and THORP has processed approximately 4,000 tU since 1994. The new Japanese facility at Rokkasho Mura has a design capacity of 800 tU/year and not expected to open until about 2010. There are no plans to expand the world-wide reprocessing capacity to anywhere near the annual rate of spent fuel discharge.

From these figures it is clear that the majority of fuel is, and will continue to be, destined for storage of one form or another. The reason is that opinion concerning the relative merits of storage over reprocessing has crystallised on commercial, safety and security grounds.

Financial appraisal of all forms of storage (wet/dry, pond/vault/cask) shows that it is cheaper than reprocessing as a means of spent fuel management. Furthermore, dry storage is significantly cheaper and some studies have demonstrated the financial benefits of transferring fuel from wet to dry stores (Refs. 2 and 9).

Dry storage of fuel that has thermally cooled in ponds for some five to 15 years presents a negligible safety risk (Refs. 29 and 30). Whilst in theory there are risks with wet storage (such as loss of thermal cooling and criticality excursions) the actual number of incidents is small. The reprocessing of fuel is a complex process and has a number of inherent safety problems (Refs. 25 and 26). Overall, opinion points to storage having a lower safety risk option than reprocessing.

There is a legacy of plutonium from commercial reprocessing that is of international concern. In 2000 there were approximately 200 tPu of separated plutonium stockpiled world-wide of which the UK held 60 tPu. The necessary reprocessing of Magnox fuel will add approximately 30 tPu and continued reprocessing of AGR fuel will add approximately 15 tPu. International solutions to the management of this plutonium are the use of MOX fuel in LWRs and immobilisation. There are no technical or safety reasons that require AGR fuel to be reprocessed. Therefore the extraction of plutonium from that fuel is optional. There is a body of opinion which argues that retaining the plutonium in its original form in spent AGR fuel pins is the preferred method of managing its disposition.

Overall the balance of arguments when applied to AGR fuel does seem to suggest that storage (wet then dry) and eventual disposal to a repository is the preferred route from commercial, safety and security points of view.

4.7.2 *Emerging AFR market: Dry storage is developing as an international service business*

As no geological repository has yet been opened and world reprocessing capacity is far less than world spent fuel generation, most of that fuel will remain in storage. It seems that there is a world-wide "quiet consensus" for storage, reflected in the industry's most influential body, the IAEA (Refs. 12-19 inclusive).

Overall, the balance of national utility policies is towards storage as set out below:

Figure 7: National utility policies on storage and reprocessing

Countries/Utilities using only storage (wet and dry)	*Countries/Utilities constructing dry stores*	*Countries/Utilities with plans for dry storage*	*Countries presently committed to reprocessing fuel*
Canada Finland Sweden USA	Armenia Bulgaria Czech Rep Germany Hungary Lithuania Russia Slovakia Spain Ukraine	Argentina Belgium Brazil Czech Rep Japan South Korea Netherlands Switzerland Ukraine	France UK China Japan

Inevitably, the marketplace has responded to the potential business of AFR storage and a number of companies have emerged, particularly in the USA (Refs 14 and 15) to exploit the market. BNFL are currently involved in this market, through their acquisition of Sierra Nuclear Corporation in 1998 and Westinghouse in 1999.

4.7.3 *General international view: There is a clear trend away from reprocessing and towards long-term storage*

By 1999 approximately 220,000 tonnes of spent fuel had been generated by civil nuclear reactors since the dawn of the nuclear age. In 1999 approximately 140,000 tonnes of

spent nuclear fuel was in storage. For comparison approximately 16,000 tonnes of LWR/AGR fuel has been reprocessed at La Hague and THORP.

The vast majority of storage (96%) is in wet ponds either at-reactor (AR) (71%) or away-from-reactor (AFR) (25%). The remainder is in dry stores. The general view is that storage is a temporary measure prior to direct disposal to a repository. Because of the more complex and costly nature of wet storage there is also a strong body of opinion that considers wet storage as relatively short-term (5 to 30 years) followed by transfer to dry stores for up to 100 years. The approximate capacities and inventories of the various storage routes in 1997 are given below:

Figure 8: Capacities and inventories of various storage routes since 1997

Store Type	*Capacity, tU*	*Inventory, tU*	*Occupancy, %*
Wet AR	154,649	91,270	59
Wet AFR	55,127	33,767	61
Dry, operating	24,617	5,292	21
Dry, under construction	18,251	0	0
Total	252,914	130,329	52

Wet AR storage of LWR spent fuel for prolonged periods is an accepted practice with pond capacities being increased by double racking and construction of new facilities (for instance, Sizewell B will store its spent fuel AR for at least 34 years).

The world's first dry store for spent fuel was constructed in 1970 as an integral part of Wylfa power station. Its current capacity is 950 tU of fuel. The concept of dry storage of AGR fuel is not new. In 1988 the CEGB announced plans for a large central dry store sited at Heysham 2 power station. These plans were shelved during the protracted privatisation on Nuclear Electric. In 1995 Scottish Nuclear was given permission by the Department of Environment to construct a dry store at Torness power station. This followed five years of design and Public Inquiry. The plans were shelved following re-negotiation of the BNFL contract.

The value of reprocessing has been extensively reviewed in the context of Sellafield and La Hague (Ref. 7).

Overall, the international view is to move away from reprocessing to long term storage of spent fuel.

5. Conclusions

The overall view from this study is that there is scope for a workable compromise between BE and BNFL with a proportion of the PBL AGR arisings being reprocessed in order to allow BNFL sufficient flexibility in the completion of its existing Magnox and Thorp baseload (and possible post base load) reprocessing commitments.

The dispute between BNFL and BE centres on, although is not limited to, a difference of opinion about the capacity of the Sellafield ponds to accommodate all of BE's PBL AGR fuel for long term storage. BNFL has already committed to long term storage for a proportion of PBL AGR fuel (2926 tU) but BE's request was that the entire PBL arisings, an additional 3400 tU, should be consigned to storage.

BNFL's response to BE's request included figures showing that arisings would exceed capacity during a critical 10 year period (roughly 2010 to 2020). Capacity constraints were said to be caused by the need to convert existing pond capacity from either Magnox or LWR storage to suit the needs of long term AGR fuel storage.

This study has examined the capacity argument in such detail as has been possible, given the restriction of not referring to either party and the proprietary nature of much of the relevant technical information.

The underlying assumptions in BNFL's capacity argument, derived mainly from to the need to store AGR fuel in alkaline pond water to prevent corrosion in the long term, were examined and found to be reasonably sound. The utilisation of pond capacity was modelled during this study, using these assumptions and information about fuel arisings (available either from DTI or in the public domain).

There are three ponds relevant to the capacity argument (B310, B311 and B560) but the disputed capacity is limited to B311 (or FHP) and B560 (or TR&S).

The capacity model was not able to reproduce fully the picture put forward by BNFL, or indeed the counter-interpretation put forward by BE, in late 2000. Nevertheless, it has been possible to show that pond capacity is constrained for PBL AGR storage if Thorp remains open for overseas PBL business and a large buffer is maintained in pond capacity for Magnox fuel.

However, sufficient long term storage capacity for all the PBL AGR fuel can be created, providing that all the fuel is dismantled, that Thorp closes after the completion of baseload reprocessing and the ponds are then converted to suit long term AGR storage. This will clearly deny BNFL the opportunity to sell overseas PBL reprocessing business, but having said that, there is no firm evidence to suggest that any overseas PBL business is in prospect.

If Thorp were to remain open for PBL reprocessing, then a variable portion of BE's PBL AGR arisings could be stored (over and above that already contracted for storage), depending on the degree of flexibility allowed for completion of Magnox reprocessing. A timely release of the pond capacity currently reserved for Magnox fuel would mean that 5326 tU of PBL AGR arisings (out of a total 6326 tU) could be stored. Keeping the current Magnox capacity reserved beyond the completion of reprocessing would mean that 4826 tU PBL AGR fuel could be stored. In its analysis of pond capacity, BNFL reckoned that it could only store a maximum of 3826 tU under comparable circumstances.

From this modelling work, there appears to be scope for a workable compromise on PBL AGR fuel storage with a trade-off between the portion of arisings that are reprocessed, the availability of Thorp for overseas PBL business and flexibility in completing Magnox reprocessing.

Increasing the quantity of PBL AGR fuel consigned to long term storage will only be achieved at a cost. Cost factors that will need to be taken into account include:

- Upgrade of B311 to meet modern standards of pond construction
- Facilities for the early removal and decontamination of empty Magnox and LWR fuel containers
- Continuing use of the AGR fuel dismantler
- Additional storage capacity for graphite and other fuel element components (although this will be offset by a reduction in reprocessing ILW arisings)
- Additional effluent control on the Thorp pond
- Earlier decommissioning costs for Thorp

BNFL claim that the cost of upgrading B310 will be attributable to the switch to long term storage, but this claim cannot be substantiated as pond capacity here is common to all reprocessing and storage scenarios.

Although there may be capacity in the Sellafield ponds to accommodate a greater portion of BE's PBL arisings, there are potential regulatory objections that might preclude all long term storage in the existing ponds. These potential objections stand for any amount of storage, including that already contracted between BE and BNFL. Not least is the potential objection from HSE/NII on policy grounds, in that long term underwater storage in surface ponds in not passively safe, and it may be necessary for BNFL to consider the construction of less vulnerable ponds (i.e. underground) or passively safe dry storage facilities.

The need for new planning permissions or variations cannot be assessed without detailed reference to BNFL and the local planning authority, which has not been possible on this occasion. If new planning submissions are required, for example for the construction of new facilities or the substantial change of use of existing ponds, then protracted delays can be expected. BNFL already has outline planning permission for substantial ILW storage capacity, and so the only doubt lies in whether the local

planning authority will regard the change of use for Thorp from reprocessing to long term storage as requiring a new planning application.

A switch to long term spent fuel storage, as an alternative to reprocessing, can be seen as beneficial in that it reduces the quantity of HAL and separated Pu (albeit by only small amounts relative to existing quantities) stored at Sellafield. Having said that, such benefits are likely to be short lived as BNFL is required (under HSE/NII Specification) to reduce HAL storage to buffer levels by 2015, and Pu stocks will most likely be reduced through MOX fuel production.

The benefits of switching a greater portion of spent fuel to long term storage would need to be set against the additional risk of maintaining fuel in surface ponds, which are not passively safe facilities. Vulnerability to all risks, including terrorism, sea level rise and coastal erosion, would need to be taken into account in analysing the risks and benefits of the various storage and reprocessing options.

The overall view from this study is that there is scope for a workable compromise between BE and BNFL with a portion of the PBL AGR arisings being reprocessed in order to allow BNFL sufficient flexibility in the completion of its existing Magnox and Thorp baseload reprocessing commitments. There will be costs attached to increasing the quantity of fuel consigned to long term storage that will need to be negotiated between the two parties.

There are risks associated with a commitment to long term storage, but these will need to be addressed in any event by BNFL in order to meet its existing contracted storage obligations. It may well be that the principle of long term storage in the existing Sellafield ponds is constrained by the nuclear safety regulators, and blocked by the local planning authority. BNFL will need to manage these uncertainties and meet associated costs whatever the outcome of the current dispute. But, it may be that there is a proportional cost attributable to BE on account of any additional PBL AGR storage that might be agreed in the resolution of the current dispute.

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Appendices

A: Underlying Assumptions

- A1 Baseload and post baseload quantities
- A2a Fuel arrival assumptions (Magnox)
- A2b Fuel arrival assumptions (AGR)
- A3 Pond capacities and loadings (tU and storage units)
- A4 Reprocessing rates
- A5 Conversion factors (storage units to tU)

B: Comparison of Demand for Storage versus Pond Capacity *

- B1 Early Thorp closure
- B2 Late Thorp closure
- B3 Late Thorp and late Magnox closure
- B4 BNFL's view of storage
- B5 Full Reprocessing (BNFL's strategy)

* In all scenarios it is assumed that all AGR is dismantled and B310 (pond 4) remains operational until about 2020.

Where demand for storage exceeds pond capacity the excess demand equals the quantity of PBL AGR fuel that would need to be reprocessed in order to keep within capacity constraints.

Appendix A: Underlying Assumptions

Appendix A1 Baseload and Post Baseload Quantities

	In system(tU)	Reprocessed (tU)	Total(tU)
Baseload (tot)	2874	4000	6874
UK baseload (AGR)	818	1500	2318
O/seas baseload (LWR)	2056	2500	4556
UK pbl (total)	6326	0	6326
UK pbl (repro)	3400	0	3400
UK pbl (storage)	2926	0	2926
O/seas pbl	301	0	301
Jap possible pbl	1600	0	1600

Appendix A2 Fuel Arrival Assumptions (Magnox)

Magnox Power Stations	*Tonnages tU*	*Closure Date*
Calder Hall, Chapel Cross – fuel/year	80	2008
Calder Hall, Chapel Cross - buffer	100	
Calder Hall, Chapel Cross - core	480	
Bradwell – fuel/year	52	2002
Bradwell - buffer	84	
Bradwell - core	300	
Dungeness A – fuel/year	94	2006
Dungeness A - buffer	99	
Dungeness A - core	530	
Hinkley A – fuel/year		2000
Hinkley A - buffer	44	
Hinkley A - core	200	
Sizewell A – fuel/year	90	2006
Sizewell A - buffer	150	
Sizewell A - core	500	
Oldbury – fuel/year	92	2008
Oldbury - buffer	67	
Oldbury - core	520	
Wylfa – fuel/year	200	2009
Wylfa - buffer	750	
Wylfa - core	1140	

Availability factor	=	70%
Buffer wind-down assumption	=	40%, 40%, 20% in the years around closure
Core wind-down assumption	=	50% in year of closure, 50% in year after closure

Appendix A2b Fuel Arrival Assumptions (AGR)

AGR Power Stations	Tonnages (tU)	*Closure Date*
Dungeness B – fuel/year	35	2008
Dungeness B - buffer	32	
Dungeness B - core	228	
Hinkley Point B – fuel/year	35	2011
Hinkley Point B - buffer	19	
Hinkley Point B - core	228	
Hunterston B – fuel/year	35	2011
Hunterston B - buffer	19	
Hunterston B - core	228	
Hartlepool – fuel/year	35	2014
Hartlepool - buffer	15	
Hartlepool - core	228	
Heysham 1 – fuel/year	35	2014
Heysham 1 - buffer	15	
Heysham 1 - core	228	
Heysham 2 – fuel/year	35	2023
Heysham 2 - buffer	46	
Heysham 2 - core	228	
Torness – fuel/year	35	2023
Torness - buffer	46	
Torness - core	228	
Sizewell B – fuel/year	n/a	2035
Sizewell B - buffer	n/a	
Sizewell B - core	n/a	

Typical annual fuel/year total	=	250 – 300 tU/g
Availability factor	=	65%
Buffer wind-down assumption	=	40%, 40%, 20% in the 3 years around closure
Core wind-down assumption	=	50% in year of closure, 50% in year after closure

Appendix A3 Pond Capacities and Loadings

Pond Capacities (tU and Storage Units)

Fuel Type	FHP(B311)	TR&S(B560)	Pond4(B310)	B27(oldLWR)
LWR (tU)		3275		2244
LWR (units)		1252		788
Magnox (tU) - 2 bays	2052			
Magnox (units) - 2 bays	1140			
AGR (tU)	1582	387	1445	
AGR (units)	570	166	600	
AGRonly (tU)	4644	4583		
AGRonly (units)	1821	1797		

Pond Loadings (tU and Storage Units)

Fuel Type	FHP(B311)	TR&S(B560)	Pond4(B310)	B27(oldLWR)
LWR (tU)		1632		?
LWR (units)		628		
Magnox (tU) - 2 bays	1150			
Magnox (units) - 2 bays	638			
AGR -dismantled (tU)	590	320	1380	
AGR - dismanted (units)	231	125	541	

Appendix A4 Reprocessing Rates (estimates)

Reprocessing Plant	*Current*	*Planned*	*Maximum*
Magnox	600	1200	1600
Thorp	700	900	1200

Appendix A5 Conversion Factors

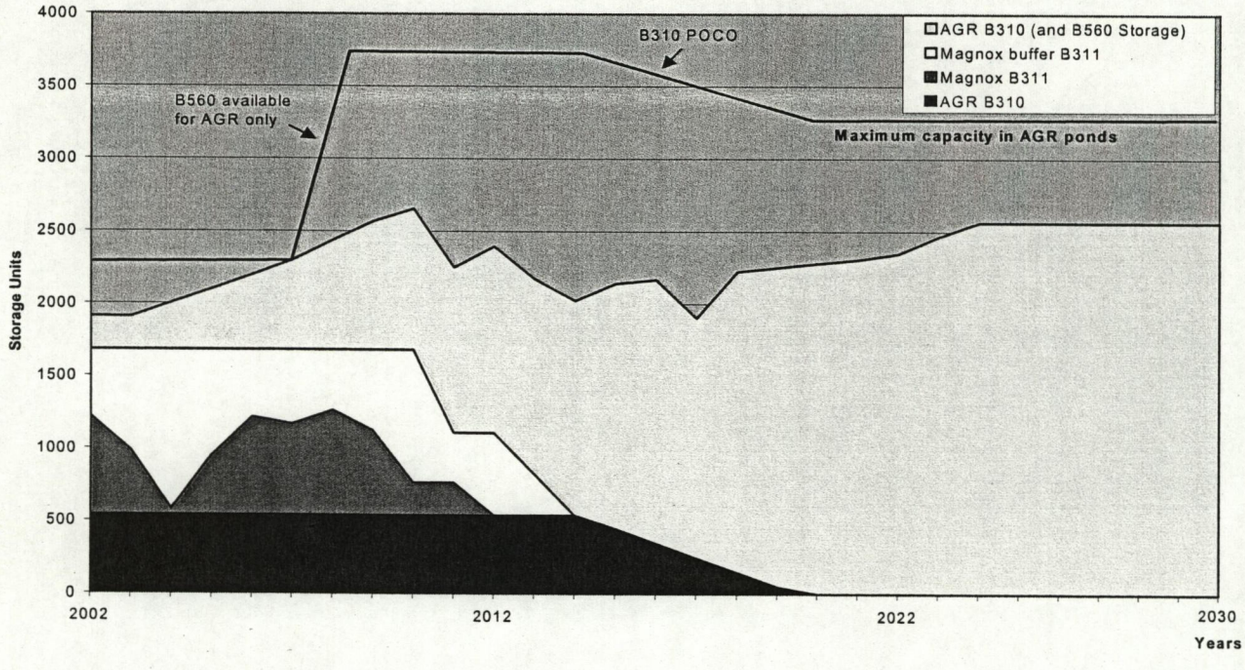
Conversion Factors (storage units to tU)	*Values (tU)*
1AGR storage unit undismantled	0.75
1AGR storage unit dismantled	2.55
1Magnox storage unit - no corrosion	1.8
1Magnox storage unit - corrosion	1.6
1LWR storage unit	2.6

Appendix B: Comparison of Demand for Storage versus Pond Capacity

Appendix B1 Early Thorp Closure

ADL View: Highly constraining for BNFL, but achievable
Description: Maximum effort to accommodate the 'storage' option
• TR&S becomes available for AGR storage from 2007 e.g. • Complete baseload reprocessing by 2004/5 (i.e. on plan) • Remove LWR MEBs by say 2005/6 • Reconfigure TR&S chemistry for AGR in 2006 • One of the Magnox bays becomes available for AGR storage from 2011 • The second Magnox bay becomes available for AGR storage from 2013
Repro / storage amounts
• 0tU AGR post baseload reprocessing • 3,400tU AGR post baseload storage
Key Implications
• Closes any options on post baseload reprocessing: - No potential for Japanese pbl contracts (probably low probability anyway) - Unlikely to be able to deliver on the undelivered part of the German post baseload contract (although there is uncertainty that this will happen anyway) - No option for dealing with legacy fuels (e.g.B27) via reprocessing • Requires BNFL to meet its Magnox closure and reprocessing schedules • Requires BNFL to rapidly remove 'empties' from B311 and B560 and convert to AGR storage within about 1 to 2 years
Comments
• This scenario is highly constraining for BNFL, but it is achievable

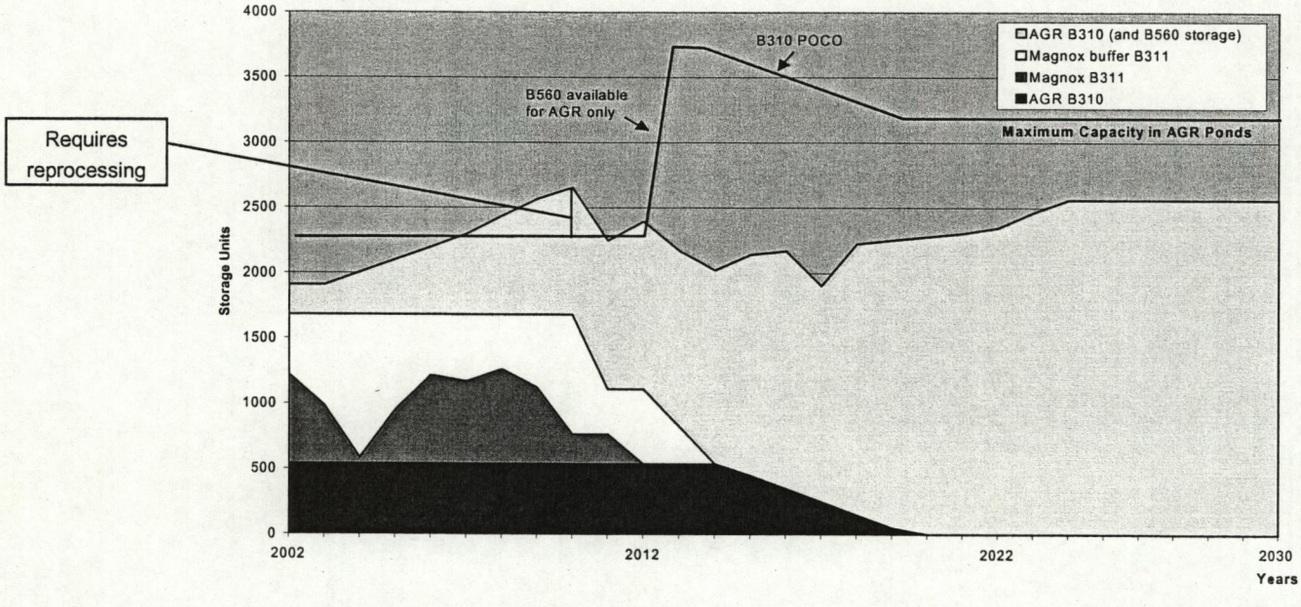
Comparison of demand for space with available capacity in AGR ponds (Early Thorp Closure)



Appendix B2 Late Thorp Closure

ADL View: Sensible compromise solution
Description: Adhere to Magnox schedules, but relax Thorp constraints)
• One of the Magnox bays becomes available for AGR storage from 2011 • The second Magnox bay becomes available for AGR storage from 2013 • Flexibility for Thorp to remain operational until approximately 2012
Repro / storage amounts
• Up to 1000tU AGR post baseload reprocessing required to remain within capacity constraints • 2,400tU AGR post baseload storage
Key Implications
• Maintains options for all the potential post baseload options: - Potential for Japanese pbl contracts (probably low probability anyway) - Able to deliver on the undelivered part of the German post baseload contract (although there is uncertainty that this will happen anyway) - Options for dealing with legacy fuels (e.g.B27) via reprocessing - Available reprocessing capacity for any other possible future reprocessing work • Requires BNFL to meet its Magnox closure and reprocessing schedules • Requires BNFL to rapidly remove 'Magnox empties' from FP and convert to AGR storage within about 1 to 2 years • Less demanding on clearing B560 and converting to AGR storage (although the urgency will depend on how long Thorp would actually continue operating)
Comments
• Appears to be a reasonable compromise solution: - No real constraints on BNFL's reprocessing strategy - Allows for the potential storage of most of the disputed AGR post baseload fuel

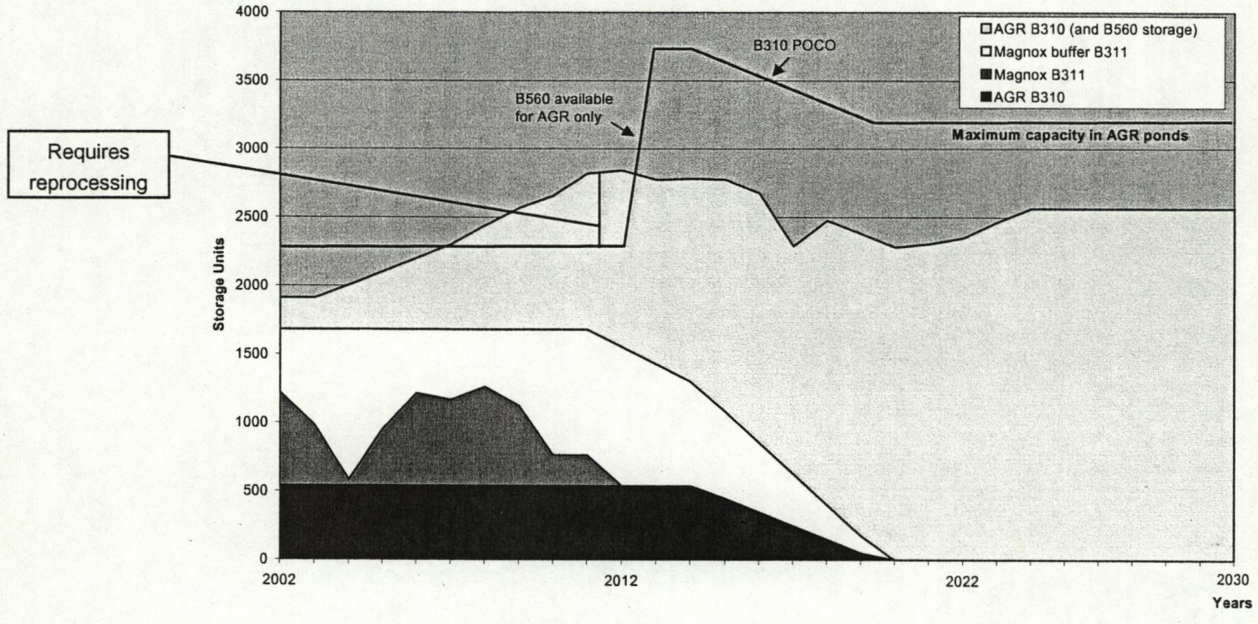
Comparison of demand for space with available capacity in AGR ponds (Late Thorp Closure)



Appendix B3 Late Thorp and Late Magnox Closure

ADL View: Should be easy for BNFL to achieve
Description: Relax Thorp constraints and Magnox schedules
• Flexibility for Thorp to remain operational until approximately 2012 • Availability of Magnox bays as defined by BNFL i.e. a slow release of Magnox storage capacity for AGR over approximately a 10 year period from 2011 • This scenario is essentially our attempt to model BNFL's view of BE's storage request
Repro / storage amounts
• Approximately 1500tU AGR post baseload reprocessing required to remain within capacity constraints • 1,900tU AGR post baseload storage
Key Implications
• Maintains options for all the potential post baseload options: - Potential for Japanese pbl contracts (probably low probability anyway) - Able to deliver on the undelivered part of the German post baseload contract (although there is uncertainty that this will happen anyway) - Options for dealing with legacy fuels (e.g.B27) via reprocessing - Available reprocessing capacity for any other possible future reprocessing work • No particular requirement for BNFL to meet its Magnox programme timetable • Relaxed timetable for clearing TR&S and FHP, and converting them to AGR storage
Comments
• This scenario builds in all the flexibilities requested by BNFL • The approximately 10 year delay in converting B311 to AGR storage seems unnecessarily long • However, our model shows that with all these flexibilities it would still be possible to accommodate storage of approximately 2,100tU out of the 3,600tU of AGR post baseload • This is a larger amount than implied by BNFL's version of this scenario, primarily because of an apparent discrepancy between our model and theirs around the arrival rate of AGR fuel in the years 2009 to 2015 (see next scenario)

Comparison of demand for space with available capacity in AGR ponds (Late Thorp and Late Magnox Closure)



Appendix B4 BNFL's view of storage

ADL View: BNFL not trying very hard to accommodate BE's storage request
Description: Relax Thorp constraints and Magnox schedules and increase AGR arrival rate in 2004 to 2015
• Flexibility for Thorp to remain operational until approximately 2014(+) • Thorp pond (B560) only becomes available in 2019 after a slow removal of empty LWR containers • Availability of Magnox bays as defined by BNFL i.e. a slow release of Magnox storage capacity for AGR over approximately a 10 year period from 2011
Repro / storage amounts
• 2,500tU AGR post baseload reprocessing required to remain within capacity constraints • 900tU AGR post baseload storage
Key Implications
• Maintains options for all the potential post baseload options: - Potential for Japanese pbl contracts (probably low probability anyway) - Able to deliver on the undelivered part of the German post baseload contract (although there is uncertainty that this will happen anyway) - Options for dealing with legacy fuels (e.g.B27) via reprocessing - Available reprocessing capacity for any other possible future reprocessing work • No particular requirement for BNFL to meet its Magnox programme timetable • Relaxed timetable for clearing B560 and B311, and converting them to AGR storage
Comments
• This scenario builds in all the flexibilities requested by BNFL • The approximately 10 year delay in converting B311 to AGR storage seems unnecessarily long • BNFL's charts implies only 900tU of post baseload AGR could be stored in this scenario (compared to our estimate of 1,900tU) • The discrepancy appears to be a difference of opinion on the rate of AGR fuel arrivals from about 2009 to 2015; BNFL assumes approximately 700tU/y, compared to our estimate of about 300tU/y

Appendix B5 Full post baseload reprocessing (BNFL's current strategy)

ADL View: This is BNFL's current strategy
Description: All the AGR post baseload is reprocessed
• Keep to current AGR baseload contracts
Repro / storage amounts
• All 3,400tU AGR post baseload reprocessed • No post baseload storage
Key Implications
• BNFL maintains all its preferred flexibilities • BNFL continues to deliver against the BE post baseload contracts
Comments
• This is BNFL's current strategy