# DEFENCE NUCLEAR ENVIRONMENT AND SAFETY BOARD

# 2006 ASSURANCE REPORT[1]

## OVERVIEW

1. My assurance report from the Defence Nuclear Environment and Safety Board (DNESB) covers the calendar year 2006. The DNESB oversees nuclear and radiological safety and environmental protection in the naval nuclear propulsion and nuclear weapons programmes. This report presents a summary compilation of assurance gathered by the independent Defence Nuclear Safety Regulator (DNSR); its conclusions have been noted by the implementers in both programmes.

2. Overall, while a number of significant issues are identified, I am encouraged, as I return to the Chair of DNESB after a 2½ year interval, that real progress has now started in tackling a number of long-term cross-cutting issues that have been recognised for several years but previously had limited intervention. This has clearly been enabled by the establishment and maturing of the post of DG Nuclear, who provides a welcome, coherent and effective focus on programme management of the defence nuclear programmes.

## ASSURANCE ASSESSMENT

3. DNSR has assessed that those responsible for the Naval Nuclear Propulsion Programme (NNPP) and the Nuclear Weapon Programme (NWP) have maintained a high standard of safety for the submarine crews, the workforces, the public and the protection of the environment. The demonstrability of this performance to accepted modern standards is good in some parts of the programme, but needs improvement in others. There have been some welcome initiatives that promise to resolve some long-standing safety issues in both programmes. Implementers will need to sustain priority for these initiatives over a period of years (in most cases) until they deliver benefits; this will not be easy within defence resources.

4. On the basis of the assurance provided by DNSR and dialogue with the dutyholders, I am satisfied that an acceptable standard of nuclear and radiological safety and environmental protection has been maintained in the operation and delivery of the nuclear propulsion and weapons programmes. Safety behaviour is generally appropriate in the nuclear programmes, underpinned by effective systems for safety and environmental protection. But there are a number of issues which present risks to compliance, or to demonstrability of compliance, with SofS's Safety and Environment Policy Statement and which nuclear programme implementers should therefore regard as potentially significant risks to their programmes.

## ISSUES & RISKS

5. Eleven significant issues are presented in the table below. In the table, *Regulatory Risk* is interpreted as the risk to:

- protection of the workforce, the public and the environment;
- compliance with SofS Safety & Environment Policy Statement in respect of relevant legislation, government policy and MoD requirements (as expressed in JSPs);
- demonstrability of such compliance.

*Current risk* is the current likelihood of the Regulatory Risk prior to Strategies and Controls being implemented. A high (red) current risk suggests that significant regulatory action might be necessary within a year; medium and low risks have a commensurately longer realisation period. The level of current risk stated is a judgement of the significance within the defence nuclear programmes; no attempt has been made to calibrate these levels against the levels of risks in other safety environments.

[1] This report is for the Defence Environment and Safety Board (DESB), the Defence Nuclear Safety Committee (DNSC) and the Defence Nuclear Executive Board (DNEB).

6. Progress has been made in addressing all the key risks presented in the 2005 Report. Some of these no longer appear in this table and are being managed as normal business, while others remain, in some cases with the wording changed for clarity and with the risk rating adjusted according to the action already taken. Some new issues that have become sufficiently significant over the year have been included. Of note, the 2 risks assessed as red in 2005 have both been re-assessed as amber. In this report no red risks are identified: 7 are assessed as amber and 4 as green.

7. None of the risks reflect an immediate safety or environmental concern. All but one are related to compliance, the demonstrability of compliance, and the associated processes. But without this compliance it will be increasingly difficult to continue to substantiate that the defence nuclear programmes are being managed with due regard for the protection of the workforce, the public and the environment.

| Issue | Regulatory Risk | Suggested Strategy & Control | Owner & Manager | Current Risk |
|---|---|---|---|---|
| 1. **Control of Organisational Change.**<br>*New issue but related to 2005 Issue 1.*<br>Proactive compliance with extant processes for control of organisational change (AC36) needs to be improved.<br>(Paras 9-10) | Risk to compliance with JSPs 518 & 538 | a. Co-operation between Authorisees and senior duty-holders to identify and build on best practice, thus improving arrangements for the major changes foreseen in 2007.<br>b. Greater focus on the benefits of proactive compliance | DG Nuc<br><br>Mgr - SSD | A |
| 2. **NNPP Contracting Strategy.**<br>*2005 Issue 2 updated.*<br>NNPP contracting strategy does not adequately drive desired outcomes, behaviours and investment.<br>(Para 11) | Risk to demonstrable compliance with legislation and MoD requirements | Monitor effectiveness of FRPS initiative, and adopt where appropriate to other areas of the NNPP. | DG Nuc<br><br>Mgr - DNC | G |
| 3. **Safety Case Improvement.**<br>*2005 Issue 4 updated.*<br>The development of safety analyses by the plant and weapon approving authorities and the use of these analyses by Authorisees in their safety cases remains inconsistent.<br>(Para 13) | Risk to demonstrable compliance with requirements | a. Develop a corporate strategy for the development of safety cases to be implemented through the Authorisees.<br>b. Adopt a common agreed set of safety case methodologies. | DG Nuc<br><br>Mgr - SSD | G |
| 4. **Clyde Naval Base.**<br>*2005 Issue 6 updated and reduced.*<br>Much remains to be done to be ready for ASTUTE arrival, improve authorisation condition compliance, and extend authorisation to the weapons programme.<br>(Para 18) | Risk to compliance with legislation and JSPs 518 & 538 | A good Nuclear Safety Strategy, increased resource and improved programme management are now in place.<br>Continue to resource and deliver against this strategy. | DG Log Fleet<br><br>Mgr - NBC (Clyde) | A |

| Issue | Regulatory Risk | Suggested Strategy & Control | Owner & Manager | Current Risk |
|---|---|---|---|---|
| 5. **Control of Work.**<br>*New issue.*<br>Across the programmes, control of work generally falls below best practice, and has given rise to a number of events.<br>(Para 19) | Risk to workforce and public safety and to the environment. | Continuing dialogue between Authorisees to identify best practice.<br>Implement improvements where necessary in all sites. | DG Nuc<br><br>Mgr - SSD | A |
| 6. **Resources.**<br>*New issue.*<br>There are significant challenges in recruiting, developing and retaining sufficient competent staff.<br>(Para 20) | Risk to implementation of compliance. | a. Develop and implement recruitment and retention strategy in response to the skills analysis.<br>b. Maintain links with sector skill council. | DG Nuc<br><br>Mgr - SSD | A |
| 7. **Co-operation.**<br>*New issue.*<br>Co-operation between NNPP Authorisees needs to be improved, with greater clarity between the two roles of the NRPA.<br>(Para 22) | Risk to compliance with JSP518 | a. Develop and agree documented arrangements between NNPP Authorisees.<br>b. Distinguish NRPA's "at sea" Authorisee role from Approving Authority role | DG Nuc<br><br>Mgr - NPTL | G |
| 8. **Emergency Response.**<br>*2005 issue 5 updated and reduced.*<br>The current assessment that a radiation emergency at an operational berth (Z and foreign) is reasonably foreseeable requires declaration of significant emergency planning distances in the UK; this may be disproportionate to the real hazard.<br>(Para 23) | Risk to demonstrable compliance with legislation | Continue to deliver against a strategy which takes better credit for the robustness of the NRP design and seek to demonstrate that a radiation emergency is not reasonably foreseeable at an operational berth | DG Nuc<br><br>Mgr - SSD | G |
| 9. **Warhead Modification.**<br>*2005 issue 8 updated.*<br>[redacted]. Safety approaches need amendment and re-approval.<br>(Para 25) | Risk to demonstrability of compliance with NW SPSCs (JSP538) | Continue [redacted] and express in safety documentation. | DG Nuc<br><br>Mgr - NWTL | A |

| Issue | Regulatory Risk | Suggested Strategy & Control | Owner & Manager | Current Risk |
|---|---|---|---|---|
| 10. **Nuclear Transport.** *2005 issue 7.* There are inconsistent arrangements for the transport of nuclear weapons, special nuclear material and reactor fuel which is exempt from legislation. Cross-fertilisation, efficiency and adoption of best practice is inhibited. (Para 27) | Risk to demonstrability of compliance of transport safety arrangements with Departmental standards | Improve focus on nuclear transport seeking commonality with nuclear weapon arrangements | DG Nuc<br><br>Mgr – DNC/ & NMTL | A |
| 11. **Decommissioning & Disposal.** *2005 issue 3 updated and reduced.* No Decommissioning and Disposal Strategy and no funded plan for decommissioning and disposal of submarine including adequate facilities to de-fuel them at the end of service life. (Para 29) | Risk to demonstrably meeting SofS policy, MoD requirements, wider government policy, and international treaty commitments. | a. Capitalise on momentum from DNEB-endorsed Decommissioning & Disposal Policy.<br>b. Secure long-term funding in DNEIP[2].<br>c. Produce a costed and funded submarine decommissioning & disposal strategy on schedule (Apr 07). | a & b: Policy Director<br><br>c: DG Nuc<br>Mgr - SSD | A |

**PROGRESS & SUCCESSES**

8. In 2006, those responsible for implementing the nuclear programmes have:

a. Adopted a resourced Nuclear Safety Strategy at Clyde Naval Base and begun construction of the new SSN jetty (2005 – Issue 6);

b. Achieved the essential first step of DNEB endorsement of a Nuclear Decommissioning and Disposal Policy, including governance arrangements (2005 – Issue 3);

c. Achieved authorisation of the "Deployed At Sea" life-cycle phase – the 2nd out of 5 authorisations in the NWP;

d. Improved the governance of the nuclear delivery cluster, including transfer of line and performance management of DPA nuclear IPTs to DG Nuc (2005 - Issue 1);

e. Placed a significant contract for the production of "Shut-down Safety Analysis" for the naval reactor plant (2005 – Issue 4);

f. Progressed common safety case methodologies, pan NNPP Naval Nuclear Safety Principles and a strategy for NRP safety exploitation.

g. Established joint mechanisms for managing the multi-regulatory environment at AWE as the NWCSP gains momentum;

h. Delivered required military capability from the Submarine Arm. (SSN activity was wide ranging from both S & T Class, including deployments to [redacted]. SSBNs maintained CASD, with HMS VANGUARD returning to the operational patrol cycle following completion of a successful DASO firing.);

[2] Defence Non-Equipment Investment Programme

i. Undertaken an SSN visit to Southampton, following successful reinstatement of this operational berth;

j. Developed and started to use Devonport 3 Basin for storage of paid-off submarines awaiting defuelling, supported by an appropriate safety case.

k. Made substantial progress with the build and justifications for operation and safety of the ASTUTE class submarines;

l. [redacted];

m. Beneficially influenced the development of the Defence and Maritime Industrial Strategies, and developed a new contracting approach for Flotilla Reactor Plant Support (2005 – Issue 2).

**ISSUES**

9. **Organisational Change.** Management arrangements in the nuclear delivery cluster under DG Nuclear have progressed in a satisfactory direction. Transfer of line and performance management of the DPA nuclear IPTs to DG Nuc addressed the principal safety management concern expressed in the last report. The Naval Base Commanders are now the only areas with nuclear programme delivery not directly within DG Nuc's line and performance management. The NBCs are nonetheless accountable to DG Nuc for both delivery and safety, while resourced and managed by DG Log Fleet. DG Nuc's view that this arrangement is workable, while not optimal, is supported.

10. More generally, the MOD is again heading for a period of major change in 2007, with the implementation of the Defence Acquisition Change Programme, the Naval Base Review, Fleet Transformation, the merger of the DPA and DLO to form DE&S, a new organisational design for the nuclear cluster, and significant changes in a number of teams, notably the NPIPT. Against this background, regulatory inspections of a number of Authorisees indicate that compliance with AC36 (Control of Organisational Change) is generally poor, and significantly below best practice in the civil nuclear programmes. It is particularly disappointing that in some areas where AC36 compliance was previously good (or even exemplary), compliance has worsened this year. Generally the right compliance statements and management arrangements are in place: but there is often poor behaviour in proactive compliance with these arrangements. (Issue 1 – new issue building on 2005 Issue 1.)

11. **Contracting Strategy.** Previous reports have identified the need for contracting strategies to be reviewed to incentivise desired outcomes, behaviours and investment, with safety having as much influence as the financial and commercial disciplines. The NPIPT's development of the Flotilla Reactor Plant Support Contract along these lines is most encouraging. It will, though, take time to see the effect on behaviour. If successful, similar principles need to be deployed, where appropriate, in other areas of NNPP contracting. (Issue 2 – continues: modified.)

12. Expectations had previously been raised that the proposals emerging from the Submarine Acquisition Modernisation (SAM) work would drive a more coherent approach in achieving a sustainable, safe, submarine enterprise. The SAM initiative has established a precedent and has itself been superseded by the Defence and Maritime Industrial Strategies through which DG Nuc continues to provide the focus for the submarine programme in "Transforming Submarine Support".

13. **Safety Case Improvement.** The award of a contract to the reactor plant design authority for the provision of "shut-down" safety analysis marks a considerable step forward in the development of properly integrated (plant:site) safety cases for activities in the NNPP. NPIPT is clear that the users for this analysis are the site Authorisees, and the next phase of this work should see those Authorisees making comprehensive arrangements to integrate the analysis into their facility safety cases. In the NWP, progress towards a modern suite of safety cases has been steady; understanding of the responsibilities for the weapon (intrinsic) safety analysis as an input to Authorisees' facility safety cases is improving but still inconsistent. The demonstrability of compliance with requirements (eg. establishing whether an activity is ALARP) is severely constrained in the absence of integrated safety cases. In addition there is potential for nugatory or duplicate work with implicit sub-optimal use of resources. (Issue 3 – continues: modified and broadened)

14. In support of the shut-down safety analysis initiative, methodologies have been defined which the NRPA considers represent best modern standards. Though these have not yet been agreed by all Authorisees, they will form a sound starting point for agreement of common methodologies across the programme. These will be developed at safety exploitation working groups, taking forward the safety exploitation strategy issued by the NRPA. This working group supersedes various former safety case process fora, and brings all Authorisees together. Furthermore, a comprehensive suite of Naval Nuclear Safety Principles is nearing acceptance. These are the operators' joint philosophy for the implementation of the generic requirements of MOD Safety Principles and NII Safety Assessment Principles.

15. In parallel with the progress toward the shut-down safety case, the NRP Authorisee has developed a strategy and plan for addressing the deficiencies in PWR2 (STF, Vanguard and Astute classes) compared against modern standards. This staged delivery will provide continuous improvement in safety analysis and is planned to complete by 2011.

16. Much progress has been achieved in the construction and commissioning of the ASTUTE class submarines at Barrow. Regulatory concern persists that design substantiation and safety justification have been delivered too late to influence the design and build sufficiently, but there is increasing evidence of a better link between design requirements and commissioning. The focus is now on assurance that later stages of reactor assembly and commissioning will be in accordance with the design intent. The replacement of earlier SSNs by ASTUTE class will have significant nuclear safety and environmental benefits.

17. A major safety improvement to be implemented to the ASTUTE class and (at long overhauls) to the VANGUARD Class, is [redacted]. The Technology Exploitation Strategy is for implementation on the earliest possible platform, to maximise the safety benefit.

18. **Clyde Naval Base.** In response to concerns from a number of stakeholders, and with full DNSR support, NBC Clyde published a comprehensive Nuclear Safety Strategy in April. Considerable improvements have been made in programme and project management and, with significant management intervention by DG Nuc, essential additional resources have been made available, most notably uplift in SQEP in key posts. Activities required to prepare for the arrival of the ASTUTE class are now progressing well, and DNSR is confident that Clyde is on track for this milestone. Work continues to improve AC compliance and extend authorisation to the weapons programme. The impact of the Naval Base Review will also need to be carefully monitored. (Issue 4 – continues.)

19. **Control of Work.** A number of different relatively low level events have given rise to a growing concern associated with the control of work at Devonport Royal Dockyard. With DNSR and NII engagement, DRDL managers have taken this issue very seriously, and devoted

significant resource to understanding the root cause and taking remedial action. The NII placed 2 improvement notices, one relating to point of work risk assessment, and the other associated with training; while the EA also took enforcement action. More generally, appropriate control of work is an issue that has been challenging all NNPP Authorisees in 2006. A number of improvements have been made. The dialogue between Authorisees on this topic, to share good practice, is encouraging, but further improvement needs to be implemented. (Issue 5 – new.)

20. **Resources.** The delivery of a strong environmental and safety performance is crucially dependent on the availability of the necessary resources, particularly sufficient suitably qualified and experienced personnel. A functional competence based skills analysis has identified that, even with a steady state demand, MOD must recruit several hundred civilian staff into the nuclear programmes over the next 10 years – of the order of 5 times the current recruitment rate. This issue is a significant contributing factor to a number of the other identified issues, notably control of work. While the scale of the challenge is now known, it resolution will not be straightforward. Influenced by the civil decommissioning programme, and the likelihood of a new civil nuclear build programme, many defence nuclear contractors, like others in the nuclear industry, are facing similar challenges. MOD's links with the COGENT Sector Skills Council, the Nuclear Technology Education Consortium (NTEC), and potentially with the national nuclear skills academy are welcome, and should be maintained. (Issue 6 – new.)

21. Additionally, budgetary resource pressures continue to increase, with many dutyholders facing new major savings targets. It is vital that the potential impact of such savings measures on safety and environmental performance is correctly assessed and considered.

22. **Co-operation.** The successful authorisation of the Naval Reactor Plant Authorisee (NRPA) at the end of 2005 marked the completion of initial authorisation of the NNPP. This has now highlighted a need for improvements in the formal co-operation between NRPA and site Authorisees/Licensees; this will be an inspection theme in 2007. The achievement of greater clarity in distinguishing NRPA's role as Authorisee for operations in the geographic area outside authorised sites (at sea and at operational berths) from the plant Approving Authority role may help in understanding the co-operation issues. (Issue 7 – new.)

23. **Emergency Response.** In 2005 a DNSR Safety Improvement Notice was issued on the NNPP Authorisees, seeking significant improvement in the approach to the analysis for the 2008 REPPIR[3] submissions. Considerable proactive progress has been made in addressing this by all NNPP Authorisees. The adoption of a reference accident approach appears, from preliminary results, to be likely to lead to a requirement for reduced emergency planning zones. (Issue 7 – continues.)

24. Good progress is being made on rationalising safety management issues associated with operational berths[4], led by Fleet (on behalf of the relevant Authorisees), with effective engagement by both DNSR and NII.

25. **Warhead Modification.** The Safety Justification Plan for the planned modification of the nuclear warhead (principally the Mk4A AF&F upgrade) is expected to be submitted in early 2007. [redacted]. (Issue 9 – continues)

26. Authorisation of operations at AWE is expected to be achieved early in 2007. DNSR is playing an increasing role in the joint regulatory activity especially in respect of the justification of activities in support of the overall programme. The structure and consistency of regulatory

[3] The Radiation (Emergency Preparedness and Public Information) Regulations, which require an assessment of whether a radiation emergency is reasonably foreseeable, and if so, the determination of the required detailed emergency planning zone.

[4] Operational berths are all nuclear submarine berths not located on an Authorised or Licensed Site, including UK commercial ports, UK overseas territories and foreign berths.

interface meetings at all levels, but particularly the most senior, has been improved, not least to ensure that programme issues and their impact on safety campaigns receive proper attention. There have, however, been adjustments in the programme to deliver capability enhancements at AWE resulting in some regulatory anxiety about the extent to which safety aspirations have been factored into the reviews.

27. **Nuclear Transport.** The issue raised in the 2005 report that there are inconsistent arrangements for the transport of nuclear weapons, special nuclear material, and reactor fuel remains unchanged. The NW Transport Capability Continuation (NWTCC) project encompasses replacement vehicles for NW transportation, consideration of the contracted service (convoy maintenance and driving) and the overall management of the task. Some options from this project, while attractive in isolation, might make the resolution of this issue more difficult. Organisational Change (AC36) analyses will be prepared, but it is essential that these are scrutinised taking a strategic perspective on the management of all nuclear transport. (Issue 10 – continues.)

28. A proposed reduction from three RAF Station NARO Teams[5] to one was agreed, but the sole Safety Improvement Notice issued by DNSR in 2006 resulted from a demonstration of the response to an air transport accident. Initial actions largely failed to meet requirements, but rapid remedial work led to a satisfactory re-demonstration of the capability. It also became evident that their monitoring instrumentation was inadequate for highly-enriched uranium loads; and, without exceptional measures, such loads may not be carried pending resolution of the Notice. A solution is being developed which, when formalised, will allow the SIN to be lifted.

29. **Decommissioning and Disposal.** The endorsement by the DNEB of the Nuclear Decommissioning and Disposal Policy is a welcome and necessary step forward. Governance arrangements are stated (including the responsibilities of the Chairman DNESB and DNSR). Placing the policy lead with the Board itself (through its Chairman – the Policy Director) should reinforce the process of obtaining long-term funding in the DNEIP. Funding is now more secure for Devonport Future Nuclear Facilities (which includes the new defuelling capability) and for the subsequent dismantling under the ISOLUS project. DG Nuc is scheduled to develop the Strategy to deliver the policy across the nuclear programmes by April 2007, and this will be given appropriate scrutiny. While the real hazard (from both safety and environmental perspectives) from fuelled paid-off submarines is very low, decommissioning and disposal of the submarines has a significant public profile (evident particularly at Devonport as the number of these submarines increases) with the potential to influence stakeholder acceptance of future programmes. Committed funding and a stable programme would do much to allay stakeholder and regulatory concerns in this emotive area. (Issue 11 – continues: modified)

## REGULATORY ACTIVITY

30. **Organisation.** The Defence Nuclear Safety Regulator stood up in April, formed from the merger of the Chairman Naval Nuclear Regulatory Panel and the Nuclear Weapon Regulator. A documented control of organisational change process was followed, and the merger was approved by the DNESB Chairman, taking account of comment from independent review. The Nuclear Weapon Regulator title has been retained and complemented by a Nuclear Propulsion Regulator (formerly DCNNRP); these two senior posts retain nuclear programme foci within DNSR, but flexibility and cross-programme working is being developed by DNSR's 17 Inspectors. Hosted by the DPA Technical Director, DNSR's single customer, as well as the source of delegated regulatory authority, remains myself as DNESB Chairman (in the Chair since April 2006) on behalf of 2nd PUS.

31. **Activity Summary.** In seeking assurance about safety DNSR has:

a. permissioned 41 significant nuclear activities;

[5] The teams provide immediate response to an air crash involving defence nuclear materials.

b. reviewed at least 102 documented safety submissions;

c. conducted 66 planned inspections (many jointly with NII) and 2 reactive inspection and investigation in response to unplanned events;

d. assessed 12 emergency response exercises and a further 2 smaller scale demonstrations on particular aspects of the arrangements;

e. issued 1 safety improvement notice.

32. **Joint Regulation.** The practice of joint regulation has been further developed with all relevant statutory regulators during 2006. Specifically:

a. Following 2 joint training events, a revised Letter of Understanding has been signed by DNSR and the NII, providing greater clarity on the implementation of joint regulation. Regulatory Strategy documents and plans are being drawn up for each distinct area of joint regulation, which will guide joint inspection and assessment activities.

b. A schedule of joint meetings with EA and SEPA (also attended by NII) has been developed and joint activities are increasing.

c. As DNESB Chairman, I endorsed the proposal for DNSR to become the defence "Competent Authority" in respect of the transport of major items in both programmes, and action is in hand to deliver this capability. An important feature will be continued co-operation with the Department for Transport (DfT), and a revised Letter of Understanding is nearing signature.

33. **Standard Setting.** Implementing the principles of joint regulation, DNSR has devoted significant resource in 2006 in assisting HSE/NII to revise their Safety Assessment Principles (SAPs – to be published in December). The revised SAPs are written in a much more generic and less prescriptive manner, and therefore the intention is that these SAPs will in due course be adopted for general use across the defence nuclear programmes with additional material relating to their interpretation and application in the defence sector. Work to develop this material is more advanced and less substantial for reactors than for weapons. This will be subject to consultation with dutyholders and regulatory impact assessment before implementation. In parallel, resources will be devoted in 2007 to updating JSPs 518 and 538 both to incorporate the new approach, to reflect routine changes (eg. the creation of DNSR) and to improve commonality.

34. DNSR has welcomed the opportunities for its senior staff to engage with and observe the work being done in the Department in preparation for the proposed next generation of the deterrent. For both propulsion plant and weapons this has included influencing research programmes, guiding IPTs on the format of initial safety documentation and advising the DEC on high-level safety requirements.

**PRIORITIES FOR 2007**

35. I consider that in 2007 those responsible for implementing the nuclear programmes should respond to the key issues identified earlier in this report. The key themes of this are to:

a. Ensure that the significant organisational change being implemented at many levels encourages sound management of safety and environmental protection. Ensure that the Maritime Industrial Strategy is complemented by an appropriate contracting strategy, to incentivise appropriate investment and behaviour. Improve the formal arrangements for co-operation between Authorisees. (Issues 1, 2 & 7.)

b. Develop and implement strategies for recruiting, developing and retaining sufficient competent people into the defence nuclear programmes. (Issue 6.)

c. Continue to develop and implement a corporate strategy and methodologies for safety cases across the programmes. This must optimise investment in improvements. (Issues 3, 8 & 9.)

d. Continue to implement the Clyde Nuclear Safety Strategy, and generally improve control of work across the programmes. (Issues 4 & 5.)

e. Develop more coherent arrangements for the transport of all nuclear material. (Issue 10.)

f. Build on the decommissioning and disposal policy, by developing a resourced implementation strategy, thus gaining stakeholder confidence. (Issue 11.)

36. In 2007, in addition to routine regulatory activity, DNSR should:

a. Continue to further develop joint regulation arrangements with the statutory and MOD internal regulators, to better focus regulatory activity on encouraging improved safety and environmental performance.

b. Complete the authorisation of the NW programme, and encourage greater co-operation between Authorisees in the NP Programme.

c. Continue to ensure that appropriate standards are set for the programmes, to facilitate a strong safety and environmental performance. This includes both influencing national and (where appropriate) international standards, and internal MOD standards.

d. Influence new programmes, particularly in the concept and assessment phases.

*signed*

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Chairman Defence Nuclear Environment and Safety Board