DEFENCE NUCLEAR SAFETY REGULATOR

ANNUAL REPORT 2011

OVERVIEW

1. I am required to provide an annual report which includes a summary of nuclear and radiological safety and environmental protection performance in the Defence Nuclear Programme (DNP), the identification of issues and an account of the health of regulation as conducted by the Defence Nuclear Safety Regulator (DNSR). This is the first such report[1,2] provided as a contribution to 2nd PUS's Departmental safety process. DNSR's high-level conclusions on safety performance emerge from its work in regulating elements of the DNP; the statutory regulators (the Office for Nuclear Regulation (ONR), the Environment Agency (EA) and the Scottish Environment Protection Agency (SEPA)) provide complementary regulation in the DNP, and their conclusions are integrated, where relevant, in this report. The report is provided to duty-holders in the DNP to make them aware of regulatory conclusions and the direction for subsequent interventions.

2. Those responsible for delivering the DNP have maintained an acceptable standard of nuclear and radiological safety for the submarine crews, the workforces, the public and the protection of the environment. Demonstrability of this performance, to accepted good practice, is sound in many elements of the DNP but continues to need improvement in others. The two most significant Issues raised in this report continue themes from recent Defence Nuclear Environment and Safety Board (DNESB) reports. These are that ***inadequacy of resources***, both money and staff complement, and the difficulties in maintaining a sustainable cadre of ***suitably competent staff*** (Royal Navy, MOD civilians and in industry partners) are the principal threats to safety in the DNP in the medium term. Whilst there have been initiatives that prospectively resolve some long-standing Issues, duty-holders 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 projected defence resources.

ISSUES & RISKS

3. Progress has been made in addressing the eight key Issues presented in the 2010 DNESB Report, most of which are challenging and require long-term action. One Issue from last year no longer appears[3]. One previous Issue has been re-expressed as two continuing Issues; these and the remaining six Issues have been updated to reflect the progress that has been achieved or the way the Issue has developed; the regulatory risk rating has been adjusted accordingly.

4. In the table below *Regulatory Risk* is to be interpreted as the risk to:
   a. protection of the workforce, the public and the environment; or
   b. compliance with relevant legislation, government policy or regulatory requirements; or
   c. the demonstrability of such compliance.

[1] DNSR previously drafted annual reports for the Chairman DNESB (2005-2010); prior to that CNNRP and NWR (which merged to form DNSR in 2006) provided individual reports (1999-2004/5).
[2] This report will also be provided to the Defence Nuclear Executive Board and the Defence Nuclear Safety Committee.
[3] Explanation for its removal is provided in the commentary below; it is now being managed as normal business

Current Status describes the likelihood of regulatory action prior to the *Suggested Strategies and Controls* being implemented. A red (high) *Current Status* suggests that significant action might be necessary within a year; amber and green risks have commensurately longer realisation periods. Arrows indicate whether the *Current Status* is assessed to be improving ↑, degrading ↓ or remaining steady →. The level described by the *Current Status* is a judgement of significance of nuclear/radiological risk; no attempt has been made to calibrate this against the levels of risk in other safety environments.

5. **Individually, none of the Issues reflect an immediate safety or environmental concern**[4]; they all represent a potential compromise to compliance or the demonstrability of compliance or associated processes. Taken together they pose the risk that it will become increasingly difficult to maintain that the DNP are being managed with due regard for the protection of the workforce, the public and the environment.

Issue	**Regulatory Risk**	**Suggested Strategies & Controls**	**Owners & Managers**	**Current Status**
1. **Adequacy of Resource** *2010 DNESB Issue No 1 updated.* Lack of adequate resource to deliver the defence nuclear programmes safely. (Paras 7-10)	Risk to compliance with JSPs 518 & 538 (specifically LC/AC36, as modified).	a. Identify organisational baselines and essential level of resource (human & financial) required to deliver programmes safely. b. Compare with existing level of resource and where necessary seek appropriate additional resource.	CoM(F)[5] & NC[6] DNP Authorisees	R ↓
2. **People** *2010 DNESB Issue No 2 updated.* Measures already in hand may be insufficient to address the present and predicted shortage of NSQEP in the Royal Navy, among MOD civilians and in defence contractors. (Paras 11-16)	Risk to the protection of the workforce & to compliance with JSPs 518 & 538.	a. Continue to implement present initiatives. b. Grasp outstanding reward and lateral recruitment issues. c. Consider crown control and industrial sustainability in outsourcing decisions.	CoM(F) & NC Managers – DSM, NC & DNP Authorisees	R →
3. **Front Line Responsibilities** *2010 DNESB Issue 3 updated* Navy Command is in control of submarines "at sea" but is not the authorisee. (Para 17)	Risk to demonstrable compliance with legislation and Defence Policy	a. Investigate migration of the authorisation for submarines "at sea" to NC from CSSE (weapons) and NP (propulsion). b. Integrate developing thinking from Haddon-Cave Duty-Holder workstream.	NC Managers – NC, NP-Hd, CSSE	G →

[4] In general in this report the term "safety …" can be taken to include "environmental protection" since the measures to secure both are often similar

[5] Chief of Materiel (Fleet): as of April 2011, CoM(F) became line manager for Director Submarines (DSM)

[6] Navy Command (Chief of Staff (Capability))

Issue	Regulatory Risk	Suggested Strategies & Controls	Owners & Managers	Current Status
4. **Safety Case Improvement** *2010 DNESB Issue No 4 part 1 modified & updated.* Safety Cases in the DNP are inconsistent against current good practice; integration of safety analyses for the reactor and weapon needs to be expedited. (Paras 18-19)	Risk to compliance with regulatory requirements.	a. Continue the development of reactor and weapon safety analyses. b. Integrate these analyses into activity safety cases. c. Embed the disciplines of Periodic Review of Safety.	CoM(F) & NC Managers – Authorisees & Approving Authorities	A →
5. **ALARP Demonstration** *2010 DNESB Issue No 4 part 2 modified & updated.* The demonstration that the risk from DNP activities is ALARP is inconsistent and tortuous to uncover. (Paras 20-22)	Risk to demonstrable compliance with legislation	a. Teach disciplines of ALARP justification and embed in culture.	CoM(F) & NC Managers – Authorisees & Approving Authorities	A →
6. **Control of Work** *2010 DNESB Issue No 5 updated* The number of incidents remains too high. (Para 23)	Risk to the workforce and public safety and to the environment, in both short and medium term.	a. Maintain current momentum in identifying and implementing best practice. b. Continue the momentum in addressing safety culture.	CoM(F) & NC Managers - Authorisees	A →
7. **Co-operation** *2010 DNESB Issue No 6 updated.* Co-operation between Authorisees and between Authorisees and Approving Authorities needs to be improved & formalised. (Para 24)	Risk to compliance with JSPs 518 & 538	a. Develop and agree documented arrangements between Authorisees. b. Develop and agree documented arrangements between Authorisees and Approving Authorities. c. Provide compliance statements for FAC1 (Duty of Co-operation).	CoM(F) & NC Managers – Authorisees & Approving Authorities	G →
8. **Nuclear Liabilities** *2010 DNESB Issue No 7 updated.* Full funding has not been allocated to deliver the Nuclear Liabilities Strategy. (Para 25)	Risk to meeting government policy.	a. Allocate funding to meet the liabilities declared in the MOD Strategy.	DSM Manager – SM-CE	G →

PROGRESS & SUCCESSES

6. In 2011, those responsible for implementing the nuclear programmes have:

   a. maintained Continuous At Sea Deterrence (CASD);

   b. maintained the required operational outputs from the submarine arm including a presence East of Suez;

c. introduced a new vehicle for nuclear weapon transport (TCHD Mk3);

d. rationalised and justified the use of UK operational submarine berths in accordance with updated regulatory requirements;

e. achieved HM Government agreement to the incorporation of PWR3 in the Future SSBN

f. published the MOD Nuclear Liabilities Strategy.

ISSUES & COMMENTARY

7. **Adequacy of Resource.** This remains a long-standing issue, and as in previous years, it continues to be focussed on the number of posts in MOD organisations; however, the effect of reductions in contract funding are becoming equally apparent in the difficulties that industry authorisees and licensees are experiencing in maintaining adequate complements. At least some of the Issues described further on have their roots in a general lack of resource to address the work required to conduct activities and demonstrate their safety. As noted last year, the outcome of the SDSR[7] in late 2010 was essentially that the DNP was to continue to provide the same capability for the foreseeable future. The most significant change was in the deferment of in-service dates (eg. for Future SSBN and successor warhead), but this inevitably generates work to justify extension of life to existing equipments or to refurbish as necessary.

8. The exact effects of the SDSR aspirations for reductions of armed forces and MOD civilian personnel numbers are still being worked out in the DNP. Departmental "atmospherics" provide a difficult backdrop, with general expectations of complements reduced to 75% (of current levels) by 2014/15 and managers having to devote time to assessments of the impact of trying to manage an unchanging programme with reducing staff levels.

9. The suggested strategy to mitigate the risk associated with this issue has been, and remains, to develop and justify robust baselines which detail the resource needed to safely deliver the outputs of the organisation. Emphasis has been added to this approach during 2011 by a change to a key regulatory requirement[8] which now states that "the licensee / authorisee shall provide and maintain adequate financial and human resources to ensure safe operation …". The guidance[9] on the construction, content and approval of nuclear baselines, developed and published by the industry (with regulatory support), has been applied with much greater consistency across the DNP, but creating such baselines (which in general contain more detail than those previously attempted) requires significant effort, itself difficult to extract from organisations already under pressure. Regulatory interventions (given priority as a result of the status of this Issue) have not found a comprehensive baseline. Sufficient work was done by the Naval Reactor Plant Authorisee to enable the Safety Improvement Notice, imposed last year, to be withdrawn and replaced by regulatory directives for specific aspects of the Notice. Notwithstanding the somewhat limited progress across the DNP, it is already becoming apparent that current complement (resulting from organisational development over the years) will be likely to be less than that required by a properly justified baseline; this conclusion is intuitively

[7] Strategic Defence & Security Review incorporating the Comprehensive Spending Review
[8] Licence/Authorisation Condition 36 is now entitled "Organisational Capability" (was "Control of Organisational Change")
[9] Nuclear Industry Code of Practice (NICoP) – *Nuclear Safety Capability: Nuclear Baseline & Organisational Change*

supported by experience of the time taken to develop projects or respond to regulatory findings. Against the background of reducing defence resources, managers should seek early indication of the outcome of baseline work and begin to consider stratagems for dealing with the conclusions.

10. While baseline definition remains unfinished and SDSR initiatives are not concluded, the risk emerging from Issue must remain at Red, degrading as it was last year.
(Issue No 1 continues DNESB 2010 Issue No 1)

11. **People.** The maintenance of a sufficient number of suitably qualified and experienced persons in the organisations delivering the DNP is another long-standing Issue[10]. Government has indicated its support for both civil and defence nuclear programmes to continue, thus the demand for nuclear competent people will remain high. At the national level, there are initiatives to improve the supply of young people into the programmes, and the changes in retirement patterns may result in retention of experienced people for a little longer. The problem for all employers remains the dearth of experienced mid-career people because the nuclear programmes were at a low ebb when this age group started their careers.

12. The DNP has taken a number of initiatives in respect of this Issue; in addition to improving competence, they include management and reward measures. The Submarine Training & Education Programme (STEP), inaugurated last year, aims to prioritise and coordinate capabilities provided within MOD and by industry partners; this is welcome and shows real promise for improvement of underpinning knowledge for everyone employed in the DNP.

13. The Royal Navy continues to use pay flexibilities at its disposal to retain key personnel (notably, in the DNP context, members of the submarine engineering (ESM) cadres). Whilst, in general, submarine engineering positions are adequately manned, there remain specific difficulties in growing and retaining sufficient SQEP at particular ranks. The current forecast for WO2s and CPOs across the ESM sub-branches shows a 16% deficit at Apr 12, reducing to 9% in Apr 13 but rising to 15% by Apr 16. The current deficit of 13% at Lieutenant rank, is predominantly amongst weapon engineers, but is predicted to spread to MESMs in the medium-term. There is a forecast shortfall in MESM and WESM post-charge officers from Apr 16 which will continue into the next decade.

14. The NSQEP Career Management Team (CMT) for MOD civilians has re-appraised the degree of direct personnel management support that it can afford and has focussed on better defining the NSQEP cadre and analysing its vulnerability. There are currently 307 posts in the DNP requiring MOD NSQEP civilians (at practitioner or above competence level). It is assessed that 29% of these posts have a high vulnerability[11]; a further 40% require action within 4 years for continuity. The CMT's work on tighter definition of the NSQEP requirement may now enable it to target rewards more effectively and maintain retention rates; there is evidence that a significant pay lead for the civil nuclear programmes is developing. Given the severe internal constraints in filling vacant posts[12], the NSQEP community has done well to maintain internal movement for both business and career development purposes. It is less obvious that transfer into the cadre from elsewhere in MOD is being achieved (this, of course, carries a training overhead, typically some months of courses, as knowledge must be acquired), and there is no current routine

[10] The MOD civilian NSQEP R&RA was first introduced in 2001
[11] defined as requiring mitigation action to be taken within one year to ensure continuity of delivery
[12] The standing assumption in MOD is that a vacancy will remain just that

method of recruiting from outside MOD, or more importantly for making it easy for RN personnel leaving the service in mid-career to join the civilian NSQEP community.

15. Evidence continues to build that constraints on the DNP's industrial funding are now affecting staffing levels in Tier 1 contractors; as a result projects run behind declared timetables and important safety submissions are delayed. The trend (of decades) to outsource work from MOD to industry when there are reductions in crown servant numbers (or the inability to recruit), may be approaching a real limit as industry is equally constrained. The limit may also result from the desire to maintain "crown control" of some activities, not least because safety legislation is applied differently (or exempted) dependant on who is conducting the work.

16. The risk rating for this Issue was marked as Red / improving last year having previously been Red / steady. There continue to be encouraging developments as DNP managers have been pro-active in achieving some freedoms and flexibility within an otherwise highly constrained environment. There are key tests still to be tackled, not least in reward for and lateral recruitment to the civilian NSQEP cadre; the risk remains Red, steady.
(Issue No 2 continues DNESB 2010 Issue No 2)

17. **Front Line Responsibilities.** At a Departmental level, all Front Line Commands (FLCs) have responded to recommendations implicit from the Haddon-Cave report by nominating *Duty Holders* for the safety of their activities. In Navy Command, this is Chief of Staff (Capability) (COSCAP) for submarines in Fleet time; it is his staff that have long been identified as principal duty-holders to the nuclear authorisees for the "at sea" life-cycle phases of the DNP. A workshop, hosted by DSM, was held to take forward the thinking on this Issue, the resolution of which would align the nuclear authorisee responsibility with COSCAP's *Duty Holder* role. The first stage, alignment on the principle, in a "control of organisational change" workstream for the nuclear weapons programme was approved by CINCFLEET and CSSE and agreed by DNSR in July. A paper addressing matters the nuclear propulsion programme will have to resolve is planned by DSM's staff.
(Issue No 3 continues DNESB 2010 Issue No 3)

18. **Safety Case Improvement.** Previously combined with the Issue of ALARP Demonstration (which now follows), safety case improvement remains a clear goal for the DNP which has yet to be brought to a satisfactory conclusion. On the whole, there are acceptable design safety analyses for the facilities and infrastructure of the DNP (eg. jetties and buildings). Safety analyses for the reactor and weapon, long in gestation, need to be made available by the Approving Authorities, with work to finalise them achieving greater priority. The task for each authorisee will be to integrate these analyses together with, for example, human factors data, to produce satisfactory activity-focussed safety cases. DNSR plans to develop a Technical Assessment Guide to outline its expectations in this area.

19. Some 12 years on from the first authorisations it is apparent that the conduct of periodic review of safety (PRS)[13] is not well embedded across the DNP. Many PRSs have been conducted late (outside the 10-year interval routinely expected by ONR) and have not always been to an adequate standard. There is good historic practice (eg. annual safety & performance assessments and design reviews) in the DNP which needs to be harnessed robustly to PRS methodology and disciplines. A PRS provides the opportunity

[13] PRS is a regulatory requirement under LC / AC / ADAC 15

(as it is a requirement) to develop the safety case to accord with current (at the time of the review) good practice; the state of development of safety cases (noted in the paragraph above) provides a difficult starting point. Maintaining the momentum, commitment and funding to deliver PRS will remain a long-term challenge, though it need not be as onerous as authorisees sometimes imagine.
(Issue No 4 continues DNESB 2010 Issue No 4 part 1)

20. **ALARP Demonstration.** It is the fundamental tenet of UK safety legislation that a duty-holder shall reduce risks to workforce and public (who may be affected by an activity) *so far as is reasonably practicable* (SFAIRP aka ALARP). Often overlooked is the duty of anyone who *supplies items for use at work* to reduce the inherent risk from that item SFAIRP. This latter point was given helpful emphasis for the DNP in 2011 in presenting the argument for the choice of PWR3 for the Future SSBN; an argument supported by senior legal advice.

21. Whilst it is formally accepted that the risks from activities in the DNP have been reduced SFAIRP, the demonstrability of these conclusions is often tortuous to uncover. This is not helped by the state of safety cases and safety analyses (para 18 above), but the disciplines involved in deriving the arguments (eg. in presenting options) are not well developed in the DNP, and there is a tendency to press on with programme and expenditure on an early-selected option and then attempt to justify it on the basis of time left or expenditure committed (the so-called "reverse-ALARP" justification). Examples of this are in the detailed design of the PWR3 (which resulted from immature design management arrangements[14]) and in decisions on critical defect inspection and antimonated-lead removal in the Astute class construction programme.

22. There is adequate guidance extant on demonstrating ALARP; it needs to be systematically taught throughout the DNP and absorbed into the culture as good practice.
(Issue No 5 continues DNESB 2010 Issue No 4 part 2)

23. **Control of Work.** With the diversity of workforces and organisations engaged in the DNP, this continues to be an Issue requiring management attention and a range of separate initiatives to address the different activities, maturity and cultures amongst licensees and authorisees. A number of incidents have occurred across the programme in 2011; individually they have not been of high significance or safety/environmental detriment, but taken together, they produce concern that working conditions and culture might not prevent an incident of higher significance. Individual licensee/authorisee safety culture initiatives continue, and the resource put into the Submarine Enterprise Peer Review is beginning to deliver outputs (eg. a summary from the first round of reviews). A further, highly thought-provoking, Submarine Safety Symposium was held in Devonport in October and helped to keep the topic in focus. Managers at all levels and workforces have been, but will need to continue to be (for example in conducting two imminent power-range tests), committed to active and close attention to this area.
(Issue No 6 continues DNESB 2010 Issue No 5)

24. **Co-operation.** Establishing the state of compliance with DNSR's regulatory requirement for Duty of Co-operation[15] featured in most intervention strategies during 2011, as required by last year's priorities for DNSR. From the arrangements inspected or reviewed, a common failing, as presaged last year, was inadequately robust written

[14] This was captured in DNESB 2010 Issue No 8 and the Safety Improvement Notice on NRPA – subsequently converted into a Direction
[15] Further Authorisation Condition 1

arrangements. Notwithstanding this, there is reasonable evidence that managers from authorisees which need to co-operate understand this requirement and act on it.
(Issue No 7 continues DNESB 2010 Issue No 6)

25. **Nuclear Liabilities** (previously Decommissioning and Disposal)**.** MOD's Nuclear Liabilities Strategy document was published in September 2011 following extensive consultation and ministerial agreement; it has been well received. Further encouragement was found in the rejection of the proposed deferment of the Submarine Dismantling Project and proceeding to public consultation on the Demonstration Phase (dismantling at least one (of 17) laid-up submarine). A key relationship is being established between MOD and the Nuclear Decommissioning Authority under which individual projects may then be managed. The whole area is not without technical difficulties as ILW treatment at AWE has exemplified this year, and there will always remain threats to funding in the current climate. However, the risk associated with this Issue has reduced.
(Issue No 8 continues DNESB 2010 Issue No 7)

26. **Future SSBN**. DNESB 2010 Issue No 8 concerned regulatory visibility of the design management arrangements for the reactor for the Future SSBN. This has markedly improved, although the consequence of this later than desirable visibility is noted above (para 21) in the context of ALARP demonstration.
(DNESB 2010 Issue No 8 concluded)

27. **Defence Reform.** Emerging from the response to SDSR has been a considerable agenda for reform of MOD structures and practices including the significant report from Lord Levene in which capability management will largely devolve to FLCs. In parallel, there has been a review of governance of the Department's nuclear responsibilities which, however, has not impacted directly on the resources or organisations of authorisees or licensees. Options being considered in the DE&S's Materiel Strategy review may represent a more significant challenge to the framework for regulation of the DNP; the potential impact will need to be considered carefully and the appropriate change management cases formulated and approved prior to implementation.

28. **Learning from Fukushima.** DNSR provided an initial statement on the implications for the DNP of the accident at the Fukushima Daiichi Nuclear Power Plant, following the Japanese earthquake and tsunami on 11 March. The statement gave detail of the evidence initially gained that DNP operations remained safe. This was on the basis of the authorisees' responses to the same initial four questions that ONR had asked of the UK's civil operators.

29. A Technical Advisory Panel (TAP), facilitated by DNSR with representation from all DNP authorisees / licensees, relevant advisers and ONR observers, has been formed. Under TAP co-ordination, MOD authorisees have been asked to provide further information against a template of the 25 recommendations from the ONR's initial report to UK Government on the industrial nuclear sector and to give preliminary consideration to the Stress Tests formulated by the EU Nuclear Regulators' Forum. Responses have been requested for end 2011[16] to allow DNSR to publish a summary report in March 2012, having also considered the ONR final report published in September.

30. **Emergency Response.** The revised arrangements for response to a submarine reactor accident are now established in all UK emergency plans. 19 nuclear emergency response demonstration exercises were conducted in 2011 with generally satisfactory

[16] This is commensurate with timescales given to civil non-power generating licensees by ONR

outcomes. A successful demonstration of the response to a nuclear weapon transport emergency was given in the ambitious 3-day Grade A SENATOR exercise combining immediate response, strategic co-ordination (led by Strathclyde Police) and recovery of weapons.

REGULATORY ACTIVITY

31. **Organisation and resources**. DNESB Annual Reports have previously noted the proposed developments in MOD regulation as a consequence of the wider response to the Haddon-Cave report on the Nimrod crash. The Defence Safety & Environment Authority (DSEA) is expected to be established in Centre TLB in early 2012 under delegation from 2nd PUS pending grant of a Charter by SofS; DNSR is one of the MOD regulators within this federation. A case for organisational change was prepared, in accordance with SofS's Safety Policy Statement, and was reviewed by stakeholders – in particular the Defence Nuclear Safety Committee – prior to endorsement by 2nd PUS. The basis of the case was that DNSR's regulatory regime and modus operandi would not change, its resources would be fully established in DSEA, and as its line of authority and independence were strengthened, the change represented an improvement for safety regulation.

32. DNSR's professional complement remained at 23 posts through PR11 screenings, and at end 2011, only one post remains vacant. Three new inspectors joined during the year (from DE&S teams) and internal transfers were made to develop careers; a third DNSR Inspectors' Course was held with welcome participation from ONR and DNSR's supporting groups. External training remains essential, for example in providing the underpinning knowledge for a second inspector to discharge "Competent Authority" duties in respect of transport packages. DNSR's office administration team is effectively carrying 1½ vacancies in a team of 3; replacement of a retiree has been delayed by recruitment constraints; inevitably some essential tasks are being done by the professional staff, while other work is accumulating.

33. At the time of writing, I do have concerns about the establishment of DNSR's full human resources in DSEA (the basis of the transfer). In-year funding has been transferred for only those posts occupied at the time (thus constraining recruitment for the two vacancies until Apr 12 at the earliest). Of longer term concern is an expected PR12 transfer declining to 75% staff funding by FY14/15; the essential maintenance of capability from the DNP has been noted (para 7) – this implies no reduction in regulatory demand. I have written to 2nd PUS to point out the inconsistency in these positions.

34. There has been a reduction in concern about the maintenance of contracted support which is essential to DNSR's conduct of business. Medium-term (until Mar 14) commercial arrangements have been concluded with Serco RSD, and there is clarity on the necessary actions to secure support beyond this. Possible compromises to Dstl's service delivery have not transpired; new tasking for both regulatory support (principally on radiation protection and emergency arrangements) and marine environmental survey has been agreed for a period of 5 years.

35. **Activity Summary.** In regulating the defence nuclear programmes DNSR has:

a. permissioned 81[17] (cf. 2006-10 average = 28) significant nuclear activities;

b. reviewed at least 226 (143) documented safety submissions;

c. conducted 73 (94) planned inspections (many jointly with ONR) and 10 (3) reactive inspections and investigations in response to unplanned events;

d. assessed 19 (16) emergency response exercises including SENATOR and 5 (3) re-demonstrations;

e. approved, as Competent Authority, 8 (average 4 in 2009-10) packages for the transport of defence nuclear materials;

f. issued no Safety Improvement Notices;
- one Notice (on SWPT in respect of the air transport of highly enriched uranium loads) was closed after a monitoring capability was established;
- one Notice (on NRPA in respect of organisational baselines) was closed after refinement of the issues into Directions;
- there are no Notices extant.

36. Drawing on previous work, DNSR produced a Strategic Framework for the first time in early 2011; this links together regulatory resources (human and financial) deployed, standing compliance expectations and priorities, activities in the DNP and the Issues emerging from these reports. Its conclusions provide the high-level input for the Intervention Strategies[18] which are produced to address each authorisee's specific circumstances.

37. **Joined-up Regulation.** The Defence Nuclear Programmes Regulators' Forum (DNPRF) has met on several occasions; the formation of DSEA, which includes maritime and Ordnance, Munitions & Explosives (OME) regulators, will change the membership of the forum but provides further opportunity for regulatory coherence in respect of the DNP. DNSR has been leading work with ONR and Defence Security to develop guidance on the assessment of "malicious acts" as an external hazard[19] to safety of nuclear activities, aiming to secure an alignment with the postulated threat provided by the security community. Mitigation of such hazards could be demonstrated by combining both traditional security measures with analysis of the resilience of infrastructure and equipment.

38. **Office for Nuclear Regulation.** The ONR was established as an agency of HSE on 1 April, with DfT's radioactive materials team joining in October. ONR's defence programmes division and DNSR continue to regulate jointly where appropriate and to develop common interests and processes through meetings and a workshop.

39. **International Collaboration.** I recently signed a Memorandum of Understanding with French colleagues[20] in respect of our cooperation in the regulation of the TEUTATES

[17] Operational Berth permissions & individual activity permissions at Devonport contribute to a total significantly above average
[18] Where appropriate these Strategies are jointly developed with ONR
[19] The 2006 edition of HSE Safety Assessment Principles (used by both ONR & DNSR) introduced this concept
[20] Le Délégué à la Sûreté Nucléaire et à la radioprotection pour les activités et installations intéressant la Défense (DSND)

Hydrodynamics project set up under the treaty between France and the UK. This creates the tone for our future work, but both regulators recognise that there is much to do. The useful benchmarking relationship with the US Defense Nuclear Facilities Safety Board was maintained in a visit by DNSR with ONR to Washington.

40. **Stakeholder Engagement, Legislation and Regulatory Policy.** The Director DSEA is required to chair stakeholder committees appropriate to DSEA's regulatory domains, and so the Defence Nuclear Regulation Stakeholder Committee (DNRSC) has been formed and has met for the first time, with a draft of this report tabled. Its membership and business pattern will be similar to the DNESB; DNSR provides the secretariat. The Nuclear and Radiation Legislation Group (NARLG) will continue to scan emerging legislation and standards, providing summaries to members of the DNRSC, and the Committee will become the senior consultation body for proposals to change regulatory policy.

41. DNSR has continued to produce its own Technical Assessment Guides (TAGs as self-guidance) to supplement the coverage of ONR's TAGs (which DNSR adopts as appropriate and the drafts of which it contributes to) where necessary for the defence programmes. TAGs on Lines of Defence (in the weapons programme) and Radioactive Material Transport Package Assessment have been published.

42. **Freedom of Information.** Requests for information, under FoI legislation, have continued to be made at a similar rate to last year. Transfer into Centre TLB, with new arrangements in DSEA, will require extra DNSR effort in responding to FoI requests, letters to Ministers and Parliamentary Questions.

PRIORITIES FOR 2012

43. The priority of action by those responsible for implementing the DNP should reflect the regulatory risk rating assigned to the Issues articulated above; in particular they should:

a. formulate robust organisational baselines to justify the financial and human resources required to deliver the DNP safely; pursue lateral recruitment into the MOD civilian NSQEP cadre (Issues 1 and 2);

b. deliver safety analyses for reactor and weapon which can inform activity safety cases and embed the disciplines of PRS (Issue 4);

c. systematically teach and absorb into the culture the methods of demonstration that risks have been reduced SFAIRP (Issue 5);

d. commit active and close management attention to reducing incidents resulting from poor control of work (Issue 6).

44. In 2012, in addition to routine regulatory activity, DNSR should:

a. be established with full staff complement in the DSEA and enabled to recruit (para 33);

b. publish a summary report on lessons for the DNP from Fukushima (para 29);

c. monitor potential effects on the regulation framework for the DNP emerging from defence reform initiatives (para 27);

d. lead the DNPRF to embed working relationships with MOD Maritime and OME regulators (para 37);

e. confirm working arrangements with Defence Security on nuclear safety / security interactions (para 37).

Signed by

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