

**Open Paper****NUCLEAR SAFETY ADVISORY COMMITTEE****REPORT FROM HSE/NSD FOR THE MEETING TO BE HELD MARCH 2007****Contents****Policy Update**

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## **CoRWM**

1. CoRWM published its report to Government and the devolved Administrations in July 2006 and the Government responded in October 2006. Broadly the Government welcomed the CoRWM's report and believed it provided a sound basis for moving forward. In particular, the Government accepted that geological disposal coupled with safe and secure interim storage is the way forward for the long-term management of the UK's higher activity wastes. HSE continues to work with other Government departments and regulators through the Managing Radioactive Waste Safely Implementation Planning Group (MRWS IPG). In particular the regulators (HSE, EA and SEPA) has issued revised guidance for trial use by the industry and regulators on the regulatory process for managing radioactive waste at nuclear licensed sites. We continue to work with Defra so that regulatory requirements are clarified as part of implementation proposals.

## **Judicial Review**

2. The Government has issued a statement in response to the successful challenge of Greenpeace to the consultation exercise that preceded the publication of the Energy Review report last year. It is likely that the White Paper will be published in early May 2007 along with a new consultation. HSE awaits further details of the Governments' intentions.

## **GENERAL ISSUES**

### **Overview**

3. We have continued to work to ensure that the industry remains focused on delivering high standards of nuclear safety and radioactive waste management during times of change and when evidence of plant ageing continues.

4. We have now produced a public report of our investigation into the THORP leak. In this report lessons are identified for the wider nuclear industry as well as Sellafield operations. The Chief Inspector in his Foreword also identifies lessons for the regulator. We now hope to move on to use the lessons learnt as the basis for driving improved safety culture at Sellafield. Additionally, we have reminded the wider nuclear industry, through issuing a Press Notice, to strive to maintain all the barriers required to secure high standards of nuclear safety.

### **Strategic issues**

5. Work is well advanced to bring the Office of Civil Nuclear Security (OCNS) and the DTI's Safeguards Operational function into HSE within NSD, which will be renamed. The expected date for the change is 1 April 2007.

## **BNGSL Competition**

6. We are ensuring that bidders involved in the NDA's competition for ownership of BNGSL are aware of their potential responsibilities. Presentations have been given at the Industry Days held in Manchester on 28 and 29 November 2006 and we will also be participating in a further workshop for bidders to be held on 12 and 13 April 2007. We are in discussions with BNF plc, NDA and government on enhanced governance arrangements for BNGSL.

## **Site Visits**

7. The Chief Inspector has continued with his programme of site visits. Over the period covered by this report Dr Weightman visited Hartlepool on 16 November 2006 with USNRC Commissioner Merrifield, Sizewell B on 23<sup>rd</sup> November 2006, and Winfrith on 27<sup>th</sup> February 2007. He noted improvement to the general standards of plant condition in all his visits but further advice on a number of specific improvements was also given. He has further planned visits in his diary from April 2007 onwards. These visits continue to be invaluable in obtaining at first hand an impression of the efforts being made to maintain and improve health and safety standards, the impact of our regulatory activities, the people and plant on the nuclear sites, and to be able to discuss with site safety representatives and managers their concerns and issues. Additionally, they provide opportunities for influencing and leveraging change. In this context HMCI also talked to the UKAEA and BNF plc boards.

## **UKAEA**

8. The programme for restructuring UKAEA has continued to raise issues because of disagreement over the proposed number of site licensee staff being allocated to the Parent Body Organisation. A meeting is to be held shortly to derive a new schedule and to discuss the way ahead.

## **Low Level Waste Repository (LLWR)**

9. The date for relicensing of the LLWR (at Drigg) continues to slip with April 2007 now being the prospective relicensing date. The reason for the slippage is the need to remove all PCM before relicensing as the new site license organisation is being established without the core competence to deal with this material. Currently this delay is not posing problems for the NDA competition of this site.

## **Windscale**

10. The Windscale site needs to be relicensed prior to the completion of the BNGSL competition. Windscale is also likely to be the rate determining step in the relicensing of Dounreay, Harwell and Winfrith as it cannot be left as an "orphan" UKAEA site. Discussions are currently taking place to determine the appropriate form of relicensing. The situation is further complicated by discussions over the positions of existing UKAEA staff within this organisation.

### **Working with other Regulators**

11. We have continued to work closely with other regulators, in particular the Environment Agency (EA) and the Scottish Environment Protection Agency (SEPA). Our work with OCNS has been particularly close as a part of the programme of regulatory consolidation.

### **NDA Funding**

12. We have kept a close eye on discussion about NDA funding and note what appears to be a reasonable outcome.

### **New Build**

13. Last July, HSE was asked by the Government to work with the other nuclear regulators (the Environment Agency, Scottish Environment Protection Agency and the Office of Civil Nuclear Security) to implement a 'pre-authorisation' system for new nuclear reactors should a new build programme be initiated. This was to allow generic designs to be assessed in advance of any application to build a nuclear power station at a particular site.

14. On 11 January 2007, EA, HSE, and OCNS published coordinated but separate guidance for pre-licensing. A joint top-tier guide was also published giving an overview of the pre-licensing process. The guidance documents allow for a revised version to be issued, if necessary, to take account of experience. They can be viewed on the HSE web site at <http://www.hse.gov.uk/nuclear/reactors/guidance.htm>

15. A joint regulatory forum was set up with the other nuclear regulators, to allow us to develop a closely coordinated approach. One outcome of this has been an agreement to set up a joint project office to handle design submissions and interactions with other stakeholders if the project goes ahead.

### **Communication and Stakeholder engagement**

16. We are determined to improve our communications and engagement with stakeholders. An internal stakeholder mapping exercise has been undertaken to analyse our relationship with key stakeholders. A programme of work is being taken forward during 2007 to make more effective use of our available resource in this area.

17. A project is underway to revise the content and navigation of the nuclear pages of the HSE website. The site has been completely mapped and new features are being introduced such as a web feedback facility and e-bulletin service, which allows email alerts to be sent straight to a user's desktop.

18. A Communication and Stakeholder Engagement (CASE) team has been established under a new Band 1 within NSD to boost our capability and raise awareness of stakeholder engagement, and additional resource has been committed from January 2007.

19. There were 7 PQs, 23 FOI summary of requests and 3 correspondence from MPs during the period covered by this report.

### **NuSAC SCR – February Meeting 2007**

20. HSE's ideas on developing a 'new build' research programme were presented to the sub-committee. HSE's assessment process would be used to identify knowledge gaps that need to be addressed through research. In developing a programme to address these gaps, account will be taken of research already undertaken by prospective vendors and by others such as the US, French and Finnish regulators.

21. Following a presentation on HSE's access to Independent Technical Capability, the SCR raised the question of how HSE would be able to secure access to this capability if new build meant greater competition between industry and NSD for the services of such capability. This issue will be considered as part of any project to implement such arrangements.

### **Licensee Safety Performance Indicators (SPIs)**

22. Licensee SPIs are measurements relating to licensees' people, plant and procedures, which provide information on licensee's safety performance. Many international nuclear regulators use licensee SPI information, in combination with information from inspection and assessment activities, to optimise regulatory intervention strategies and allocation of resources.

23. Approximately 2 years ago HSE commenced a project with British Energy to examine how safety performance indicators could be developed for mutual benefit to deliver improved safety performance. In July 2006, a project team was set up to develop licensee SPI's for use across NSD. A project team was tasked with extending the SPI approach piloted with British Energy, together with the lessons learned, to all licensees.

24. One of the key aspects of setting up a licensee SPI system was to decide which areas to measure. An SPI Framework was developed, based on IAEA TEC DOC 1141 "Operational Safety Performance Indicators for Nuclear Power Plants, May 2000", that is anticipated to have wide relevance across the industry.

25. The framework sets out three high level attributes (Sustained excellence of operation, Control of hazards and Positive safety culture), "overall" indicators linked to NSD's Strategic Goals and "topic areas" which contribute to plant nuclear safety performance at a given time. Directly measurable indicators are only available at topic level.

26. HSE is now consulting licensees and other stakeholders to take this work further. This has included workshops with specific licensees, presentations to the Safety Director's Forum and interface with the environmental regulators. We are also keeping in touch with HSE colleagues working on SPI's in other sectors.

27. A one-year SPI implementation pilot study is planned to start in April 2007. The aim is to use data already collected by licensees wherever possible.

### **PSA targets (Departmental Strategic Objectives, DSO)**

28. HSE is likely to have a DSO as part of wider DWP Public Service Agreements (PSA) targets. This DSO is likely to remain broadly similar to the current PSA metric, with three major hazards sector targets for nuclear, offshore and onshore COMAH. For major hazards, from a 2001/02 baseline, the requirement is to produce measures of duty holder performance demonstrating effective control of major hazard activity.

In respect of nuclear this is;

- to reduce the number of events reported by licence holders, which are judged to have the potential to challenge a nuclear safety system by 7.5%.

HSE is examining a number of areas where it can develop metrics concerning its performance and that of the licensee. One of the more developed pieces of work that relates to this aspect and ultimately to the top-level metric is the Safety Performance Indicator work discussed above.

## **OPERATIONAL ISSUES**

### **Operating Power Stations**

#### **Dungeness A**

29. The station ceased power generation on 31st December 2006. This quarter has been dominated by issues connected with the new operational regime and defuelling.

30. Following cessation of generation, Operating Rule suspensions and Approvals have been issued to allow the reactor control rods and boron emergency shutdown devices to be dropped in and permanently isolated, rendering their associated systems redundant.

31. All other safety systems remain operable until post generation safety cases have been agreed and fuel decay heat levels have fallen to passively safe levels.

32. The initial "post operational preparations" for defuelling are well advanced. However, Sellafield's reduced capacity to process spent Magnox fuel may inhibit reactor defuelling.

## Dungeness B

33. Dungeness B continues to experience problems with the fuel route. The main issue is with the justification of the continued integrity of Fuel Plug Units, especially those that were manufactured early in the station's life. This issue has had severe consequences for the refuelling programmes, serving to extend them. Reactor 21 operated during the period until a planned refuelling outage in February 2007. On 14 January 2007, during routine sensor rod testing, control rod TO4 was commencing raising from its partially inserted position when the reactor automatically tripped on flux protection. Investigations showed that a shear pin had failed in the control rod. Reactor 22 underwent a refuelling outage which was extended due to operational difficulties surrounding the Fuel Plug Units. On 12 January, as the reactor was being brought back to power a control rod dropped into the core. The reactor was manually tripped and all post-trip functions worked correctly. Investigations revealed the failure of a shear pin in the control rod.

34. No Licence Instruments were issued during the period and no enforcement action was deemed necessary. Anticipated Licence Instruments to permission the replacement Data Processing System were postponed due to the continuing technical and contractual problems being encountered on the project.

35. The Level 2 Emergency Exercise 'GANGES' was held to test the adequacy of the off-site emergency arrangements for an incident occurring at Dungeness B. The station's participation was witnessed and was seen to be satisfactory.

## Hartlepool

36. Both reactors started their periodic shutdown following the ECW buried cast iron pipework failure on 26<sup>th</sup> September 2006. Once the safety case for return to service was finalised by completing the ECW modifications, Reactor 2 (R2) restarted on 18<sup>th</sup> December 2006, on three quadrants as a SRV was passing steam on the A quadrant. R2 continued in this mode until the February refuelling outage. Reactor 1 restarted on 26<sup>th</sup> December 2006 and has run at full load since.

37. An INES 0 event occurred during the period involving the shutdown of Reactor 1 on the 15<sup>th</sup> December 2006 from 300MW thermal as the Permanent Magnet Generator had a fault which impaired the DC exciter. HSE monitored progress with this fault until the restart on 26<sup>th</sup> December 2006. A second event, provisionally rated as INES 0, occurred on 1<sup>st</sup> February 2007 when Reactor 1 was shutdown to allow a repair to a leak on a high pressure steam instrumentation pipe. The unit was successfully restarted within 48 hours.

38. There have been no Licence Instruments issued during the period and no regulatory action that requires reporting.

39. The site level 1 Emergency exercise scheduled for 13<sup>th</sup> December 2006 was cancelled as the risks to personnel during an out of hours exercise in strong and gusty winds were excessive. Exercise "Athena" was subsequently held on 16<sup>th</sup> January 2007. Two areas for improvement were identified: use of the mobile Access

Control Post (ACP); and communications in the command chain, and a re-demonstration will follow.

40. An Local Community Liaison Committee meeting was held on 7th December 2006, with no contentious issues raised.

### **Heysham 1**

41. The Heysham 1 reactors have maintained a satisfactory safety performance during the period. Although the reactors have sustained steady operation during the last quarter, since October 11 2006 R2 has operated at reduced power and in December 2006 R1 suffered a steam leak leading an unscheduled shutdown for repairs.

42. The under hotbox dome surface temperature of all four reactors at Heysham 1 and Hartlepool has increased progressively since operations commenced. All four reactors continue to comply with the average dome temperature limit imposed by Technical Specifications. However, recent analysis has revealed that a single thermocouple (T/C) on Heysham 1 Reactor 2 is recording a temperature above the original design limit. On 11 October 2006 the station took the decision to reduce power to lower the temperature and secure a margin against the design. Reactor 2 is currently operating at 84% feed flow and the station has prepared an Engineering Change, which justifies sustained operation at reduced load. If the station wishes to increase reactor power such that top dome temperatures exceed the original design limit then they are required to justify this in an Engineering Change.

43. On 25th December 2006 Reactor 1 had just returned to service following its scheduled refuelling outage when the station identified a significant steam leak in the vicinity of the main Turbine No. 1 to Reactor inter-connector isolation valve (TG1/SS/23). On 3rd January 2007 the reactor commenced a 40 hr unplanned outage to repair the leak. A subsequent Significant Abnormal Condition Investigation (SACI) revealed that the root cause of the leak was incorrect installation of the packing to the valve gland. The investigation also found that the station had no formal procedure for the type of packing used. The investigation proposed several corrective actions including a review of the condition of the glands of other valves.

44. We are maintaining dialogue with BE on its proposals for further investigation of the unexpected wire tails revealed by radiographs of Reactor 2 BCU prestressing wire anchorages. We are seeking further validation of BE's argument that these are artefacts of construction. BE intends to undertake further investigation during the R2 Refuelling Outage scheduled to commence 28 February 2007. This investigation is part of an extensive programme of inspections and modifications that BE intend to implement during forthcoming refuel and statutory outages with the aim of establishing the baseline condition of all BCU's.

45. We observed Emergency Exercise "LANCE" and judged the station performance to be satisfactory. However, both BE and NII observers reported weaknesses in the performance of the Damage Repair Team (DRT). The station agreed to prepare and implement a plan to improve the performance of all its DRTs.

## Heysham 2

46. In the reporting period there have been four unplanned reactor shutdowns. Two were manual shutdowns as a result of indications of degradation in plant condition, where the operators decided to manually shutdown each of the reactors to investigate and then to effect necessary repairs. Whilst repairing leaking steam pipework on reactor 7, reactor 8 also shutdown automatically, as a result of an operative inadvertently turning off the wrong lubricating oil pump serving the main feedwater pump. The circumstances surrounding the automatic shutdown of reactor 8 are still under investigation. Indeed a similar event occurred 12 years ago. This was rated at INES 1 by the licensee. We will monitor the outcome of the investigation to ensure that any lessons emerging are learned by the staff in order to help prevent a further recurrence.

47. During the severe weather in January 2007 an electrical fault led to all four R8 main turbine governor valves closing; the turbines did not trip and steam pressure in the boilers increased to the point that four boiler steam safety relief valves (SRV) opened. The operators took a prudent decision to manually shutdown R8. The SRV steam release resulted in damage to local pipe lagging and cabling.

48. During all four unplanned reactor shutdowns no operating limits or conditions were exceeded.

## Hinkley Point B

49. During the period covered by this report both reactors at Hinkley Point B have been shutdown. Periodic shutdown of Reactor 3 commenced on 22<sup>nd</sup> September 2006, having been brought forward by British Energy. This was due to an emerging problem concerning defects being found in boiler tubes in Hunterston B Reactor 3. Hinkley Point B Reactor 4 was subsequently tripped on 19<sup>th</sup> October 2006, following inspection of Hinkley Point B Reactor 3 boiler tube bifurcations, which identified a greater rate of degradation than expected. A programme of boiler tube inspection and repair has been undertaken at Hinkley Point B on both Reactor 3 and Reactor 4. The defects in the boiler tubes are a consequence of operation over a lengthy period of time at high temperature. A safety case for return to service of both reactors has been produced by the Licensee and submitted for assessment. Key features of the proposed safety case include more frequent boiler tube inspections and operation at reduced power.

## Hunterston B

50. Both reactors have remained shut down throughout the reporting period while undergoing boiler inspections and repairs. During early January additional work was started to carry out inspections and refurbishment on safety related plant identified by the periodic safety review (PSR). Return to service of Reactor 3 continues to depend on the issue of a Consent under licence condition 30 and return to service of reactor 4 requires an Agreement under licence condition 22.

51. The decision on the current PSR for Hunterston B (and Hinkley Point B) has been deferred by HSE to 30th April 2007, because of delays resulting from a number of factors, including the impact on resources due to high priority emergent issues at both British Energy and HSE.

52. There has been one INES 1 event during the reporting period - a failure to comply with a Tech Spec Limited Condition Operations (LCO) regarding interlocks related to venting the reactor in a shut down condition. We are satisfied with the licensee's investigation and resolution.

### **Oldbury**

53. The company has completed 100% inspection of the graphite surface in all fuel channels in the reactor 2 core flattened region and has identified no defects of significance. It is making good progress with inspection of selected channels in the core of reactor 1 and again has found no significant issues.

54. After shutting down Reactor 1 in September 2006 for its periodic maintenance outage, the company has now satisfactorily completed its programme of maintenance and inspection.

55. Magnox Electric submitted a case for the return to service of reactor 2 to its Nuclear Safety Committee (NSC) in late November 2006. Having gained the NSC's agreement, it then forwarded the document to the Executive in support of its application to start up the plant. We have made good progress with the assessment of the case in collaboration with its Graphite Technical Advisory Committee. A meeting has been held in January 2007 with the licensee where issues for clarification and confirmation were discussed and the company is now working on a response.

56. Magnox Electric is nearing completion of the submission covering the return of reactor 1 to service and plans to submit this to the NSC in February 2007.

### **Sizewell A**

57. This period has been one of considerable change at Sizewell A as the site ceased to be an electricity generator on 31<sup>st</sup> December 2006 and entered the defuelling and decommissioning phase of its life. Generally, safety performance has been satisfactory, however, there was an uncontrolled loss of up to 40,000 gallons of irradiated fuel cooling pond water on 7<sup>th</sup> January 2007 that was rated as INES 1. Some of the pond water was discharged to sea via the storm drain system, consequently both HSE and EA are at present carrying out initial investigations so as to establish the facts and consider appropriate regulatory action. On 2<sup>nd</sup> February 2007 there was a second INES 1 event when relay testing resulting in all forced cooling being lost to a reactor for about 3 hours. Peak fuel temperatures rose by about 20°C, to 82°C maximum, before the plant was configured correctly and forced cooling re-established on the shutdown reactor.

58. We have issued two Licence Instruments: one agreeing to Reactor 1 operating up to and including 31<sup>st</sup> December 2006 and the other, issued post-shutdown, agreed to the suspension of certain Operating Rules that are not relevant to a shutdown reactor.

59. The site had a good demonstration of its emergency plan at a Level 1 exercise on 15 November 2006. An Emergency Planning Consultative Committee meeting took place on 2<sup>nd</sup> November 2006 and a Site Stakeholder Group meeting was held at Aldeburgh on 8<sup>th</sup> December 2006.

## **Sizewell B**

60. Sizewell B completed refuelling outage 8 (RF08) within the Licensee's plan of 49 days. During this outage the Reactor Pressure Vessel (RPV) Head was replaced. This was a major project. The project went well and there were no significant issues with the acceptance of the RPV head for service, reinforcement of the lifting and load paths, the disassembly of the old head and the reassembly of the control rod drive mechanisms (CRDMs) onto the new head. Commissioning of the CRDMs and other instrumentation went to plan. The Licensee chose to re-use the existing CRDMs and that increased the dose burden for this project. The licensee controlled the dose burden well and Sizewell B's head exchange was completed with one of the lowest dose burdens within the PWR community. The old RPV head has been put into medium term shielded storage on site pending final disposal when activity levels have reduced.

61. The licensee also replaced the fuel-handling machine in the containment cavity to bring the whole fuel route up to more modern standards and improve reliability.

62. The core was redesigned for cycle 9 operation with 80 new High Thermal Performance Framatome-ANP assemblies. The cycle 9 core still includes 13 original BNFL assemblies. The safety case for the new core was accepted and Consent to start up was signed on 13 October 2006. The reactor has operated at full power since returning to service.

63. There have been two INES 1 events during the period. The first was a mis-setting of a steam generator Power Operated Relief Valve (PORV). This was correctly set after the outage and confirmed by routine surveillances but was noted to be set below the Tech Spec limit by a vigilant operator. It has not been possible to establish how the PORV setting was changed. The frequency of surveillances has been increased pending the final outcome of the Licensee's investigation into this event. The second event occurred on 17 December and involved the Duly Authorised person (DAP) releasing safety related plant for maintenance without proper checks on the availability of back up plant and without completing verification checks. The control room staff immediately identified that plant was being taken out of service without back up plant being available and stopped the job. The DAP has had his authorisation suspended and has been taken off front line operations tasks.

64. Sizewell B successfully re-demonstrated its emergency arrangements on 6 December 2006. This follows weaknesses identified during the annual demonstration exercise in June 2006 and the need for follow up training in Command and Control for the key emergency response roles.

## Torness

65. During the recent period of operation, no faults have occurred that have exceeded the design basis for the station and its safety case, and no events have been reported above 1 on the INES scale, which corresponds to a plant anomaly.

66. The Torness Station Director attended HSE headquarters to present details of their plan to recover from the drumscreen blockage event and the unplanned reactivity excursion event reported in the last submission to NuSAC. They presented details of their response to both events, which has included comprehensive investigations into causative factors and recommended corrective action in both the short and long term. They provided progress statements on work remaining, and agreed to summarise the overall response to both events in a letter to HSE following the meeting. At this stage we accept the response as reasonable in each case, but has emphasised to the station that improvement in operator awareness of the safety case must be achieved and also greater questioning of operational decisions should be encouraged. In the case of the reactivity event, the station is also implementing the corrective actions arising from the company's generic investigation. Areas where improvement is sought from Torness include: use of OEF; awareness of the safety case; plant materiel condition; provision of resources; instructions to operators and use of the challenge function.

## Wylfa

67. Both reactors have continued to operate safely. Fuel route equipment unavailability during the reporting period significantly reduced the Station's ability to refuel the reactors. Consequent reduced reactivity prevented the reactors from generating maximum power output. During January 2007 reactor refueling recommenced. At the start of February 2007 a small keyway was found to have become detached from one of the fuelling machines and it was assumed to have fallen into one of the two reactors. The Station confirmed that a safety case provides for such an event although this required the immediate introduction of a 1 Deg C temperature trip margin penalty. The site inspector is investigating the cause of this event. There were no reported events above a rating of zero on the INES scale.

68. The Wylfa emergency arrangements were adequately demonstrated during the Level 1 exercise held on 18 October 2006 . Although good and satisfactory performances were observed detailed learning points for consideration and follow-up were also identified with priority to be given to those associated with casualty rescue, dose management targets, disrobing management, and upgrade of the electronic muster system.

69. The only outstanding Periodic Safety Review (PSR) work is to complete the production of a Probabilistic Safety Analysis (PSA) for the fire hazard. During the period our inspectors carried out inspection visits and attended meetings to help progress technical aspects of the work programme. We remain satisfied with the rate of progress and predicted timescales for completion.

70. In 1990, it was discovered that a number of spent fuel elements in dry store cell 4 had been affected by a roof leak, resulting in corrosion of the Magnox cladding. We have continued to hold regular meetings with the project team to monitor progress and development of the detailed safety case to recover the fuel elements and

dispatch them off site for further treatment while minimising the spread of contamination. Final design of both the recovery equipment and fuel transfer machine upgrade is nearing completion. We have issued an Agreement that permits the removal of the remaining 946 undamaged fuel elements stored in the row that contains the corroded fuel elements. This is a key stage in preparation for providing access for the recovery equipment. The Station remains committed to remove the damaged fuel before the end of 2008.

71. During return to service of Reactor 2 a water hammer event occurred whilst T/A 3 was being recommissioned resulting in damage to steam pipework supports associated with T/A 4 and adjacent plant. Recovery of the situation progressed during the quarter to the point where the pipework was returned into operational service. During recommissioning and preparation for return to service, we were kept informed throughout, and were satisfied with the action being taken by the Station with respect to pipe inspection, replacement and resetting of pipe supports, structural integrity assessment in support of a Cat 2 safety case to justify return to service, and continuing support of the Appointed Examiner.

72. The Radiological Protection Institute of Ireland's Director of Advisory Services led a team of 5 that visited Wylfa to improve their understanding of the plant's design, safety features, and the local emergency planning arrangements. He and his team found the visit to be extremely useful and as a result deepened their understanding of the issues so that they will be able to talk with a lot more authority about Magnox generation, about Wylfa in particular, and hopefully deal more effectively with all enquiries that are referred to them from whatever quarter.

73. Two dropped load conventional safety events were reported under RIDDOR. No personnel were injured but the events are being investigated to determine if there are any regulatory implications under the Lifting Operations and Lifting Equipment Regulations 1998 (LOLER).

### **Decommissioning/defuelling Power Reactors**

#### **Berkeley**

74. A level 1 emergency demonstration exercise was observed in November 2006 and this was judged to be a strong performance in all areas. Following clean up and successful surveying, we issued a variation to the Berkeley nuclear licence on 22<sup>nd</sup> December 2006. This means that a large proportion of the Berkeley Centre part of the licensed site is delicensed. Nuclear site delicensing on this scale is a first for the UK nuclear industry. Engineering design and development work is progressing well on the Active Waste Vault Removal project and the decision has now been made to build an above ground ILW store to accept the waste from the vaults.

#### **Bradwell**

75. Following the successful demonstration that all fuel had been removed from the site, we approved the revised Emergency Plan and this allowed the site to move to full decommissioning management arrangements in October 2006. Decommissioning projects are progressing, including the removal of asbestos based lagging material from the boiler houses and the clean up of the cooling ponds.

#### **Calder Hall**

76. We have continued to assess Calder Hall's programme of major modifications to improve safety, engineering reviews, maintenance and other work that Calder Hall is carrying out on its fuel discharge routes. The licensee is doing this work both to improve safety during defuelling, and also, to ensure that defuelling occurs reliably to meet BNG's programme for the safe management to the end of life of spent magnox fuels. We carried out an inspection to examine implementation of the work and judge progress. Overall, we were satisfied. The only issue of concern was poor housekeeping in some areas that could cast doubt on the quality of implementation. We welcomed Calder Hall's positive response and were satisfied with the steps it proposed to address this issue.

### **Chapelcross**

77. Progress is being made on preparations for defuelling the reactors. Much of the equipment installation on the lead reactor has been completed and is now being tested. Staff training has started and inactive commissioning of the systems is underway. We have increased our intervention activities to reflect the development of the project.

78. There was a significant fall of asbestos from one of the heat exchangers during bad weather in early December 2006. This led to restrictions on access to the area around the reactors and turbine hall, whilst the asbestos was cleared up.

### **Hinkley Point A**

79. Progress with various decommissioning projects continues. Clearance of the new Intermediate Level Waste (ILW) store site has been completed and initial construction work has started. A small consignment of skips has been sent to the US for decontamination and smelting as a trial. A Level 1 Emergency Exercise was held in November 2006 and the site performed well.

### **Hunterston A**

80. The station continues with its good record of no lost time accidents. Decommissioning projects have progressed during the last reporting period. In particular, the ILW store fitting out is nearing completion and the new modular active effluent treatment plant is close to completion.

### **Trawsfynydd**

81. Decommissioning and waste retrieval and conditioning activities continue to progress. The construction of the ILW store is ahead of programme with the wall up to roof level.

82. On 29 November 2006 we witnessed a level 1 demonstration emergency exercise at Trawsfynydd. The exercise was an adequate demonstration of the site emergency arrangements. However, there were areas for improvement noted. In particular these areas included activities associated with casualty handling by site staff, and command and control, clarity of roles and communication within the

Emergency Control Centre (ECC). At the exercise debrief we agreed that it would be beneficial to hold the Trawsfynydd 2007 demonstration emergency exercise earlier in the year in either April or May 2007. This would reduce the hazards associated with working in adverse weather and poor light conditions. This change of date would also allow an early demonstration of the emergency arrangements following the issues noted above. This earlier time will be retained when planning future Trawsfynydd demonstration emergency exercises.

83. A Site Stakeholder Group meeting was held on 8 December 2006. Reports produced by HSE, Magnox, and the Environment Agency were presented to members of the local community and other bodies such as NFU and Snowdonia National Parks

### **Nuclear Fuel Cycle Facilities**

#### **BNGSL Sellafield**

##### **Events**

High Level Waste Plants – B361 Incident, 7 July 2006. Follow-up Inspection of Asset Care, November 2006

84. We were informed that a tank within the HALES complex was found to have floated due to water ingress into the tank compound. The tank forms part of the HALES cooling water system and is located in an external pit mostly below ground level outside B215. HSE and EA investigation revealed concerns about standards of asset care, the adequacy of resources and indicators of poor safety culture. HSE and EA carried out a joint inspection in November 2006 to evaluate the effectiveness of the HLWP asset care regime in managing ageing and degradation of plant with nuclear safety and environmental functions.

85. Overall the inspection revealed that BNGSL is devising good management systems, which are being rolled out steadily across the site. There was evidence of asset care successes and examples of poor standards. There is clearly a long way to go before acceptable standards are the norm and proportionate enforcement action has been taken (in the form of a letter asking for improved standards). The success on HLWP depends on the recruitment of additional resources because the current team is under-strength. There are also questions to be asked with regard to the interface between Operating Units and Plant Services.

##### Contamination Event in Analytical Services

86. The last report included reference to a contamination incident involving exposure of two contract joiners in an Analytical Services Building.

87. Another incident had occurred resulting in an internal dose to a contractor during decommissioning work on a storage area in 2005. This incident was investigated, and similar local and site issues were identified to those found on the Analytical Services investigation. Again, BNGSL produced a detailed response to the findings.

88. Both sets of BNGSL responses were considered against HSE's Enforcement Management Model, and it was decided that although the local responses were generally adequate, regulatory action was required to address the site issues. The principal site investigation findings were associated with deficiencies in the Dosimetry system, and an Improvement Notice was served on BNGSL to deliver an extended programme of remedial measures and improvements to the Dosimetry arrangements.

#### Sellafield MOX Plant (SMP) Contamination Event

89. On 10 January 2007 a contamination event occurred within SMP involving five workers associated with glovebox operations. The workers are subject to biological monitoring and definitive dose data will be available within the next few weeks. BNGSL has set up a Board of Inquiry. We are currently investigating the event.

#### THORP – Feed Clarification Cell Leak Investigation

90. As noted above we have published a report on our investigation.

### **BNGSL Sellafield Operations and Projects**

#### High Level Waste Plants (HLWP) - HAL Stocks Specification

91. BNGSL continues to provide HSE with monthly reports summarising the quantities of highly active liquor (HAL) contained in the highly active storage tanks (HASTs). These figures are used to judge whether BNGSL continues to meet the HAL Specification issued in 2000, which provides a limit on the amount of HAL that can be stored at any time and promotes HAL stocks reduction. Satisfactory performance of WVP coupled with the extended outage at THORP has meant that HAL stocks are currently well below that required by the Specification. Consequently we are content that BNGSL has kept within the requirements of the Specification.

92. Our biennial more detailed review of the HAL stocks Specification is in progress. The internal process is nearly complete. This will be followed by a process of discussion with BNGSL to determine whether the revised Specification limits proposed by the review are reasonably achievable. Our biennial review is expected to be issued as a statement to April's West Cumbria Sites Stakeholder Group meeting. In the meantime we will continue to regulate the HAL stocks against the existing Specification.

#### Highly Active Storage Tanks (HASTs) Integrity

93. HAST cooling components have suffered over the years from corrosion. A number of cooling coils have been declared failed. A failure causes a breakthrough of activity into the cooling water circuits, which can lead to a radioactive release if not properly managed. There seems to be broad agreement that HAST cooling coil failure rates and the location of failed coils leads to uncertainty over the ability of the newer HASTs to service the needs of the HAL stocks strategy. If the plant starts to deteriorate more quickly then the ability of HASTs to receive raffinates will be prejudiced (with knock-on consequences).

94. BNGSL's present contingency plan is a project to dose the cooling water circuits with nitrates as a way of stopping or at least reducing the rate of corrosion failures. At present we have a number of outstanding issues connected with nitrate dosing. One of the options to insure against these problems would be to build smaller, inherently safer HASTs. In order for these to be effective on sensible timescales, work needs to start as soon as possible. We wish to see new HAST designs developed to a stage where their viability could be judged alongside other options under consideration. BNGSL has indicated that work to evaluate the need for new HASTs will start early in the next financial year.

#### HA Evaporator Integrity

95. There are three evaporators within HALES (referred to as Evaporators A, B and C). They are used to evaporate High Active (HA) raffinate produced during reprocessing in order to reduce its volume for ease of storage and to facilitate subsequent vitrification. The status of the evaporators (as of January 2007) is:

- Evaporator A was shut down on 4 October 2006 because of activity breakthrough. Evaporator A remains shut down pending investigation and BNGSL proposals for its return to service.
- Evaporator B was shut down in December 2004 following activity breakthrough and a safety case to justify restart has not yet been submitted.
- The restart of Evaporator C planned for late November 2006 was delayed on safety grounds because of indications that component thicknesses may be less than safety case requirements. Further work is being done, including inspections, to explore these findings and confirm actual component thicknesses.

96. Therefore, at present there is no HA evaporative capacity.

97. The position on evaporative capacity is evolving quickly and it is not possible at present to be certain about the implications. The restart of full THORP reprocessing is delayed and the processing of Magnox raffinate will be temporarily halted. The implications for other plants at Sellafield and for the nuclear industry in general are being considered.

#### Waste Vitrification Plant (WVP)

98. The rate of vitrified container production was at record levels in 2005/06, helped by a sustained run of three-line operation towards the end of the year. The rate of production in 2006/07 has been reduced mainly by the planned outage on Line 1 to implement plant modifications from the collaboration with COGEMA, and by unplanned outages caused by plant malfunctions. Line 1 has begun an extended planned shutdown to implement modifications to improve the container production process. After a period of project evaluation, Line 2 will undergo similar modifications; Line 3, which is of more recent design, will be modified later as appropriate. We have maintained regulatory interest in the outage work but have not had cause to intervene.

### Residue Export Facility (REF)

99. The construction of REF adjacent to the Vitrified Product Store (VPS) is part of a wider project to manage the safe transfer of a number of containers of high level waste to overseas customers of BNGSL. The transfer is associated with government policy on waste substitution (refer to Cm 2919, Review of Radioactive Waste Management Policy, July 1995).

100. This project is progressing reasonably well though it is running slightly behind programme. Construction is all but complete and inactive commissioning is proceeding in stages. We continue to engage regularly with BNGSL on regulatory issues in advance of the start of active commissioning early in 2007.

### THORP Return to Service

101. Work has continued in accordance with an accelerated restart programme agreed with BNGSL. We witnessed a satisfactory demonstration of THORP's emergency arrangements during October 2006, and a joint team undertook a close out inspection with EA during November 2006, which provided increased confidence in BNGSL's ability to safely restart the plant. Readiness inspections were completed and BNGSL completed all outstanding work associated with restart, including the provision of acceptable responses to outstanding issues. A Consent to restart was issued in early January 2007 and BNGSL hopes to process some active liquors within the plant in the near future. Problems with the evaporators in the adjacent HALES plant, which takes active liquors from THORP, will prevent a full plant restart until the problems are resolved. A summary report of the work we undertook prior to Consent being given is on the HSE website.

### Plutonium Finishing and Storage

102. On the 10<sup>th</sup> October 2005 we issued BNGSL with Consent under LC31 (2) to restart feeds to the conditioning vessels of Finishing Line 5 at Sellafield. This consent was subject to 13 commitments from BNGSL to address safety related issues arising from our assessment of their submission for restart of the plant. Currently, the only outstanding commitment is the provision of a permanent neutron monitoring system in the finishing line gloveboxes. This project is progressing in accordance with the revised programme and delivery of a fully commissioned system is expected in April 2007.

### Floc Retrieval Plant

103. Since providing Agreement to an extension of active commissioning of the Floc Retrieval Plant, enabling BNGSL to recommence re-suspension of the buffer tank and continue with the reduction of the hazard within the storage tanks, both the Floc Retrieval Plant, the Enhanced Actinide Removal Plant (EARP) and the Waste Packaging and Encapsulation Plant (WPEP) have been experiencing operational challenges. These challenges have limited the number of batches of Floc transferred from the buffer tank and treated through EARP and WPEP and delayed the completion of active commissioning. Consequently, we have given Agreement to a further extension of active commissioning of the Floc Retrieval Plant to 31 July 2007, following a request from BNGSL.

#### Encapsulated Product Stores

104. The site preparation and foundations phase of the project to deliver the new Encapsulated Product Store (EPS3), is progressing. There has been some slippage in the programme and this phase is approximately one month late and is now due to complete in April 2007. Funding for the second phase of the project, construction of the store, has been sanctioned by NDA. The next stage of approval for this phase requires NDA to submit the project proposal funding to DTI for their approval and a decision is expected shortly. HSE has advised BNGSL that provision of suitable and sufficient storage is required in adequate time to avoid disrupting site operations for enhancing safety.

#### Fuel Handling Plant

105. It was reported previously that there had been a gradual unexplained increase in aerial discharges from FHP and BNGSL had confirmed that the FHP 12 month rolling discharge for caesium-137 to the end of August 2006 was slightly in excess of the plant limit. Since then BNGSL reported that the caesium-137 aerial discharge at the end of October had reached about 120% of the plant limit.

106. BNGSL carried out a detailed investigation into the reasons for the increased discharges and identified the cause. Consequently changes were made to the way the plant was operated. BNGSL has reported that discharges have returned to their normal levels although the 12 month rolling discharge for caesium-137 is predicted to remain above the plant limit until around the middle of 2007. BNGSL is investigating the cause in more detail and it expects to report the findings early in 2007. We are working closely with the EA to monitor BNGSL's investigation. EA is the lead regulator for general discharges.

#### Emergency Exercise – Magnox Reprocessing Plant

107. BNGSL provided a level 1 demonstration of their arrangements for dealing with emergencies on site during November 2006. The exercise was based upon an out of hours criticality event within the Magnox Reprocessing Plant.

108. After careful consideration, HSE advised BNGSL that it did not consider the demonstration to be adequate. BNGSL's process for scrutinising evacuated staff arriving at its emergency reception centre failed to prioritise the evacuees to allow early availability of key personnel for post incident duties. This subsequently caused significant delays in the establishment of key teams and this was not recognised in sufficient time by the Site Emergency Control Centre staff.

109. As a consequence of this, BNGSL have been asked to review and improve these processes and a repeat exercise has been arranged for 5th June 2007.

#### Legacy Ponds

110. The Gantry Refurbishment System (GRS) has now been installed on to the Magnox Storage Pond. The GRS is a key enabling measure to facilitate retrievals from the pond. We have voiced concerns to the licensee over potential delays in the

Sludge Packaging Plant (SPP1) programme. SPP1 is the plant that will receive sludge from the Magnox Storage Pond.

111. Our inspection of BNGSL's activities aimed at discharge of the Improvement Notice on their maintenance arrangements in the Legacy Ponds and Silos area revealed that good progress is being made and that there has been a step change improvement in the asset care process.

### **Low Level Waste Repository at Drigg**

112. Following a readiness inspection, we issued a licence instrument allowing the site to move into the "shadow working" phase that is intended to provide firm evidence that the Site Licence Company has adequate capability. This is a pre-condition to re-licensing.

113. As part of the process of separating the LLWR from the Sellafield organisation, the site will need its own emergency plan and arrangements. The proposed new arrangements were successfully demonstrated in December 2006 but will not come into force until the site is relicenced.

### **Springfield Fuels Ltd**

114. Springfields Fuels Ltd (SFL) continues to seek opportunities to further utilise the plant facilities on the site. We intend to closely monitor the progress made by SFL to process the legacy residues currently held on site to ensure that these programmes are not unduly delayed.

115. The Springfields Site Stakeholder Group (SSG) has undertaken, at the request of the NDA, various activities eg surveys, open forum meetings etc seeking the local stakeholders views on the possible "end states" for the site when the NDA relinquishes control of the site.

116. The Level 2 Emergency Exercise (Heron 3) undertaken in November 2006 was considered to be an adequate demonstration of the offsite emergency plan and arrangements. The recovery phase following such an exercise scenario was further exercised in Feb 07.

117. Recent inspections of the operations at SFL have raised no significant issues.

### **URENCO - Capenhurst**

118. Extensive construction work is currently underway across the site on a number of projects to expand operations on the site including major extensions to one of the enrichment plants and a large new raft storage area. Detailed design work is ongoing on the Tails Management Facility which URENCO Capenhurst Ltd (UCL) intend to construct to deconvert the URENCO stock of Hex tails materials into a more stable oxide form.

119. Generally we have been satisfied with the recent safety performance on the site although a few issues are subject of ongoing discussions with UCL.

**BNGSL – Capenhurst**

120. We continued to inspect the site decommissioning projects, which are delivering tangible nuclear hazard reductions. The licensee completed a project in December 2006, which involved the processing and dilution of enriched uranium residues, recovered from redundant plant equipment. This project has substantially reduced the criticality hazard on the site. We continue to press both the licensee and NDA to accelerate disposition plans, for the legacy uranium hexafluoride ("Hex Tails") materials, currently stored on the site in significant quantities, together with the disposal of other waste materials.

121. We are assessing the licensee's developing proposals for substantial reductions in the size of the licensee's workforce, as short term decommissioning projects are completed. The need for the licensee to continue to be able demonstrate adequate "core competence" and "intelligent customer" capability with a much smaller site organisation next year, will be regulated in accordance with licence condition 36.

122. The licensee successfully demonstrated, at an unannounced exercise in November 2006, at the Urenco, BNGSL Capenhurst and BNGSL Sellafield sites, the ability to process special accident dosimetry, ("Criticality belts" as worn by some of the Capenhurst workforce) and to produce an assessment within an acceptable timescale.

123. We continue to engage with the active site safety representatives who are leading a safety improvement project, which demonstrates their initiative and involvement on the site to improve safety.

**UKAEA****General**

124. HSE continues its interactions with UKAEA on its proposals for restructuring to establish a Parent Body Organisation (PBO) and separate Site Licence Companies (SLCs).

**Dounreay Enforcement Action**

125. Following an investigation into a plutonium intake at a facility on the Dounreay site, we served two Improvement Notices on UKAEA for failing to comply with Licence Condition 4 and Licence Condition 25 respectively. We have also submitted a report to the Procurator Fiscal in relation to this event.

**Dounreay Fast Reactor (DFR) and Prototype Fast Reactor (PFR)**

126. We are keen to see the early destruction of liquid sodium and NaK from the reactors in order to remove some of the highest hazards on the Dounreay site.

127. The NaK disposal plant at DFR is currently in the inactive commissioning phase and subject to regulatory control under the licence conditions. Technical problems have been overcome and UKAEA should shortly be requesting a Licence Instrument

requesting agreement to active commissioning using contaminated NaK from the reactor vessel. The DFR Breeder Removal Project, which will commence after the removal of most of the NaK from the reactor vessel is also subject to regulatory control. Assessments of process chemistry, control and instrumentation and mechanical handling are in progress.

128. At PFR, novel techniques have been developed and successfully implemented to enhance the drainage of sodium from the reactor vessel for destruction in the Sodium Disposal Plant. It is important that as much sodium is removed as possible as the residual sodium will be subject to Water Vapour Nitrogen process, which is carried out at low water vapour concentrations to avoid uncontrolled reactions and pressure excursions. This process needs to be strictly controlled to avoid pressure excursions. We have called in the project for assessment.

#### Dounreay Cementation Plant (DCP)

129. UKAEA has now removed a shield plug and the attached highly contaminated roller conveyor from the encapsulation cell. The removal of the contaminated conveyor will reduce dose rates during the in-cell decontamination operations. The conveyor will be dismantled and packaged as intermediate level waste. Temporary shielding has been built around the plug and inside the cell. Dose rates are being assessed prior to man entry to determine if hands-on decontamination is acceptable.

#### Dounreay Shaft

130. Following agreement from SEPA, we have granted permission for construction of the grout curtain around the Dounreay Shaft. Coring has started and will be followed by grout injection to isolate the Shaft from the groundwater. This should reduce effluent treatment requirements when the water level in the Shaft is lowered to facilitate retrievals. UKAEA and NDA are considering delaying the start of the waste retrieval project due to funding constraints, but the isolation project is unlikely to be affected.

#### Harwell & Winfrith

131. UKAEA is reorganising in order to meet NDA's requirements for competing all the UKAEA sites in 2008. The reorganisation will cluster the Harwell and Winfrith sites together in a single Site Licensee Company. We continue to discuss the significant issues of controlling mind and intelligent customer attributes which have been raised by UKAEA proposals regarding the secondment of management staff from the Parent Body Organisation into the SLC management structure.

132. UKAEA continues to make progress with its decommissioning work across both of the sites. The progress is such that tenant organisations on both sites have been informed by UKAEA that they must vacate their premises in 2010. This will mean that the tenants will have to vacate the nuclear licensed site.

Windscale - B13

133. Windscale has completed its plan to make engineered safety improvements to the B13 facility. The plan is now incorporated into the NDA lifetime plan for the site.

134. We have agreed a request from UKAEA to allow use of the new Operational Safety Case for B13 with restrictions on the operations that can be performed. We have also specified that certain safety documentation for B13 modifications should be submitted to HSE before any changes are made.

135. UKAEA has suspended use of all the shield doors in the B13 facility following an event associated with Cave 12.

**GE Healthcare Ltd**

136. There is nothing of significance to report for this period.

**Imperial College**

137. Start-up after the August 2006 shutdown was further delayed in November 2006, when a fuel element was dropped about a metre into its storage position in the reactor tank. The incident was declared as INES Level 1 by the licensee, though no damage or release of radioactive material has been detected. We have given permission for modifications to the fuel-handling equipment and procedures intended to prevent a recurrence.

138. An exercise in October 2006 was judged not to be a satisfactory demonstration of the licensee's emergency arrangements. A repeat exercise will be held in April 2007.

**Defence Nuclear Sites**

**Defence Facility Regulation**

139. In general, the safety performance at the defence facilities inspected by HSE, namely Aldermaston and Burghfield (AWE - Atomic Weapons Establishment), Devonport (DRDL - Devonport Royal Dockyard Ltd), HM Naval Base Devonport, Barrow (BAESM - BAE Systems Marine), Derby (RRMPOL - Rolls Royce Marine Power Operations Ltd), HM Naval Base Clyde, Rosyth (RRDL - Rosyth Royal Dockyard Ltd) and the Vulcan Naval Reactor Test Establishment at Dounreay, continues to be satisfactory.

140. Intervention strategies, developed jointly with MoD's DNSR (Defence Nuclear Safety Regulator) are being delivered across the Naval Nuclear Propulsion and Nuclear Weapons Programmes through the use of Project and Programme working. This approach is maximising the use of our and DNSR resource through a process of joined up working and complementary regulation to ensure that intervention activities are proportionate and appropriately targeted.

**MoD General – UK Staged Improvement Programme (SIP)**

141. We continue to engage with the MoD UK-SIP (Staged Improvement Programme) the purpose of which is to inform investment decisions across the MoD Naval Nuclear Propulsion Programme estate. Early regulatory engagement with the process is considered to be a high priority. This will ensure that appropriate attention is given to Nuclear Safety Related Improvement projects with subsequent delivery and risk reduction to a properly prioritised operational programme.

**Barrow**

142. Through our planned intervention activity, we continue to monitor the licensee's nuclear safety performance against the forthcoming significant project milestone of Astute Boat 1 Launch in June 2007. We are satisfied that nuclear safety continues to receive an appropriate high level of attention within the business and performance remains satisfactory.

**Devonport**

143. We have continued to monitor MoD's progress towards implementation of the strategy, through the FNF (Future Nuclear Facilities) project, for dealing with laid up submarines at Devonport prior to the commencement of decommissioning. Three fuelled submarines are now stored at Devonport awaiting the DDLP (Defuel, De-equip and Lay-up Preparations) process which cannot commence until improvements to the existing dockyard facilities are completed. The MoD has advised that long term funding for the FNF project has been secured and that the detailed design and analysis work is proceeding. The current programme suggests that the new facilities can be completed by 2012 but we are pressing for an improvement to this timescale. We are satisfied that, subject to satisfactory monitoring arrangements, the redundant submarines can be safely stored in a fuelled state, until the new facilities are brought into service. HSE is monitoring developments in respect of the future ownership of the nuclear licensee organisation, DRDL (Devonport Royal Dockyard Limited). DRDL is currently owned by the consortium KBR/Weir Group/Balfour Beatty and we are currently satisfied that the management of nuclear safety on the site will remain unaffected by the possible sale process and will remain business as usual.

144. We completed an investigation into an event involving lifting operations within the Low Level Refuelling Facility. Our investigation revealed shortfalls within a number of DRDL's control of work arrangement, but specifically in the area of nuclear safety related operator actions. Whilst the event in itself held no danger for the public, or the workforce, the behaviours were potentially unsafe and not to the high standards of nuclear safety performance that we expect. The HSE Enforcement Management Model was used to inform our regulatory response and an Improvement Notice was served on DRDL, identifying specific areas for improvement to operator training. The strategy behind issuing the Notice was also to reinforce regulatory expectations, for improvement to the company's corporate safety culture and management of safety arrangements at Devonport.

**Portland Z-Berth**

145. In accordance with the Radiation (Emergency Preparedness and Public Information) Regulations, for a Z-Berth at Portland Port, we are continuing to offer guidance to Dorset County Council and other stakeholders about plans to put in place off site emergency arrangements. The arrangements are being tested through a number of targeted emergency exercises that we are witnessing to ensure the necessary standard of performance has been demonstrated prior to the planned use by a nuclear powered submarine later in the year.

**Rosyth**

146. The work to decommission the majority of the facilities used for nuclear activities (RD83 Project) is progressing safely and to programme. Discussions continue with MoD in respect of the strategy and timescale for decommissioning the remaining areas. The overall project objective is to establish conditions such that the site can be delicensed.

**Derby**

147. We are currently assessing the licensee's PSR (Periodic Safety Review) submission for the Neptune Test Reactor. We are planning to make a statement by the end of June 2007 about the adequacy of the case to support a further 10 year period of operation.

**Atomic Weapons Establishment**

148. The Government White Paper on the future of UK's nuclear deterrent (Cm 6994) was published in December 2006. This stated that the programme of investment in sustaining capabilities at AWE will continue. This investment is to ensure that both the existing warhead is maintained for as long as necessary, and to enable the development of a replacement warhead if that is required. Additional investment averaging £350 million per annum over the years 2005/06 to 2007/08 was announced in 2005. The Government considers that further investment will be necessary, and early in the next decade, the costs of AWE are likely - at their peak - to be equivalent of about 3% of the current defence budget. We are working with AWE and MOD on the development of this Programme to ensure that nuclear safety issues are properly considered at the outset.

**Conventional Health and Safety**

149. During the period covered by this report, eight benchmarking conventional health and safety inspections have taken place. There were no obvious problems found at Dungeness B, Windscale, Hinkley Point B, Hinkley Point A, Harwell and Hartlepool. Overall conventional health and safety conditions are good at these sites. Problems with conventional health and safety were identified at Dungeness A and Hartlepool and a Prohibition Notice was issued at Hinkley Point B for dangerous work at height practice on the overhead crane in the charge hall area.

## **HSE NSD ISSUES**

### **Organisation/Resources**

150. As of the 1st February 2007, we had 171 inspectors in post not all of whom are nuclear inspectors. This is short of resources required for predicted future work (excluding any new build work) and has impacted on strategic and assessment work given that we have maintained priority to site inspection work. However, as this continues pressures are now showing here as well. NSD senior management continues to reprioritise work to ensure that safety significant tasks are covered

151. Work is underway to address the resourcing shortfall. 9 inspectors from the rest of HSE will join NSD between January and April 2007. HSE continues to discuss with HM Treasury the need for an improved reward package. Subject to a satisfactory outcome of these discussions, NSD is planning to conduct an external recruitment campaigns as soon as possible in 2007-08. We are also intent on maximising retention of talent.

### **Security Informed Nuclear Safety**

152. We are continuing to work closely with the Office of Civil Nuclear Security (OCNS) on security informed nuclear safety matters. Our advice has continued to result in a number of changes to existing facilities and to proposed projects. OCNS and ourselves will be hosting an industry workshop on March 21 2007 to discuss the processes of handling classified safety information. We will also be organising bilateral discussions with the Canadian Nuclear Safety Commission in the UK in late April/May 2007.

### **Project to Benchmark and Review HSE's SAPS**

153. The revised HSE Safety Assessment Principles for Nuclear Facilities ('06SAPs') were published in December at "[www.hse.gov.uk/nuclear/saps/index.htm](http://www.hse.gov.uk/nuclear/saps/index.htm)". Three other documents supporting the 06SAPs can be found at the same site. The documents are: guidance on the application of ALARP; explanatory note on the numerical targets and legal limits; and the 1992 SAPs to 2006 cross-reference. The last document will be used to enable use of the HSE's Technical Assessment Guides (TAGs) until they are updated. A further document that explains how HSE responded to the comments received during the stakeholder engagement on the SAPs will be issued on the same site shortly.

154. Internal seminars took place in December 2006 to give NSD staff and representatives of the Environment Agency and the Defence Nuclear Safety Regulator an overview of the 06SAPs. More detailed training and experience feedback will occur within HSE's Nuclear Topic Group structure. An external seminar was held on 26 January 2007. A report on this event will be posted on the SAPs web-site above shortly.

155. Work continues on preparing or up dating the Technical Assessment Guides that are needed to support the revised SAPs.

## **EFQM**

156. HSE continues to use the EFQM Excellence Model to guide our business improvement activity and to work towards achieving the Investors in Excellence, (IiE) Standard. We were formally assessed by an external assessor against the IiE standard in August 2006 and this identified the need to make further progress in two areas. An action plan is in preparation but we will not now achieve our original target of securing IiE recognition by February 2007.

## **International Work**

### **The European Council Working Party on Nuclear Safety (WPNS)**

157. In 2004, the European Council asked the Euratom Community to undertake an extensive consultation with stakeholders before any Euratom legal instruments are developed on nuclear safety and safe management of spent fuel and radioactive waste. WPNS was given this task, which was divided into three areas: nuclear safety; spent fuel and waste management; and financing decommissioning.

158. The work finished in December 2006. The final report should be publicly available. It consists of a short report that will include conclusions and recommendations with more detailed explanations of the finding in the annexes.

159. The German Presidency is discussing with Member States ways to address the recommendations.

### **IAEA International Regulatory Review**

160. Following the April 2006 independent review, led by the IAEA, of our regulation of existing nuclear power plants and our readiness to regulate and licence new designs of reactors the suggestions and recommendations have been converted into programmes of work within NSD. An internal strategic project has been established to take forward the progress of this work in preparation for future IAEA regulatory reviews.

### **Western Nuclear Regulators Association (WENRA)**

161. The WENRA reference levels for operating power reactors have been updated to reflect comments from stakeholders, including those from European reactor operators. WENRA agreed to publish the revised reference levels at its meeting in November 2006. They can be found at [www.wenra.org](http://www.wenra.org) under "publications". Note however, some of the reference levels require further work, which will be completed in March 2007. We are committed to apply these assessment reference levels and hence ensure they are met as far as is reasonably practicably at UK nuclear power stations by 2010. A report on the approach to achieve this is in preparation that reflects the revised reference levels. The report will be made publicly available and an opportunity given for stakeholders to comment on the approach we are proposing.

162. We are active in the development of reference levels for waste management and decommissioning, which are due to be ready for consultation during 2007.

#### **INRA**

163. The Chief Inspector attended a very useful meeting of the International Nuclear Regulators Association at which various issues were discussed in an open way.

#### **ICRP (International Commission for Radiological Protection)**

164. The NEA (Nuclear Energy Agency) Expert Group on the implications of ICRP Recommendations met in February 2007 to consider and propose any necessary text changes to the draft ICRP recommendations which were issued on 12 January 2007. It is expected that the ICRP will approve the final version of their recommendations in March 2007. This is of some importance because it is expected that the new ICRP Recommendations will feed into the revision of the Directive 96/29/EURATOM, and the IAEA Basic Safety Standards.

#### **Euratom Directive**

165. There is a EURATOM Article 31 Group working party meeting on 8 March 2007 to discuss and propose an appropriate regulatory system for the control of practices to replace the current Directive 96/29/Euratom Title III. This meeting will discuss the concepts of notification, reporting, registration, type approval, prior authorisation, authorisation, & licensing; and is required to take into account guidance published by ICRP. A key feature of the work is to introduce a graded approach to regulatory control.

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March 2007