

**NUCLEAR SAFETY ADVISORY COMMITTEE**  
**REPORT FROM NII FOR THE MEETING TO BE HELD 22-23 FEBRUARY 2006**

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**GENERAL ISSUES****Overview**

1 We have seen more signs that the nuclear power licensees are making improvements in their approach to securing nuclear safety. Proactive and conservative decision-making continues to be more evident. Compliance with licence conditions is improving but we would like to see faster progress. This reflects an increased attention to leadership, human performance, cultural change and investment. It appears also to have had a positive impact on operational performance. We continue to work to secure improved nuclear safety at Sellafield.

- 2 We are putting more effort into enhancing our effectiveness and targeting our resources and we continue to keep a close eye on the potential for further structural change in the industry impacting on safety.

## **NDA**

- 3 We have continued liaising closely with the NDA as it beds down into its role. We have responded to the NDA's draft strategy and continued with fruitful discussions with them in this area. Other discussions have embraced: the form of contracts, controlling mind issues, impact of CDM Regulations, working together better, and various operational issues.

## **Site Visits**

- 4 Since the last report the CI has visited Dungeness A and B, Chapelcross and Dounreay, and has continued to engage with senior management in the licensees in striving for sustained operational excellence. At each of the site visits discussions were held with the site health and safety representatives, which was very valuable and provided an opportunity to thank them for the excellent work they do.

## **Working with Other Regulators**

- 5 We have continued to work closely with other regulators of the nuclear industry and derived considerable benefits from this partnership working. I have met with EA, and attended a SEPA Board meeting with their stakeholders.

## **Stakeholder Interactions**

- 6 The big event over the period has been the stakeholder workshop on the SAPs review. This went well from our point of view and we received very valuable feedback. One general issue that was raised, and which reinforced concerns expressed by the Industry's Safety Directors Forum, was the need for more senior NII input to the process. While we thought that it was a little too early, given the early draft/topic specific stage in the process, I am pleased to say that I have been able to pull Dr Andy Hall off-line from heading up Division 2 to provide this input as well as leading the nuclear aspect of HSE's response to the Government's Energy Review. Mr John Sandford is on temporary promotion to Deputy Chief Inspector and Head of Division 2 in the meantime.

## **Energy Review**

- 7 During the period of this report the Government announced its intention to undertake an Energy Review. In January the Dti wrote to HSE to ask for advice on the Health and Safety aspects of a wide range of energy options, including new nuclear build. It also asked for advice on the nuclear regulatory approach. In response HSE has put in place a team covering all the various

potential energy sources headed up by Les Philpott from HSE Policy. Dr Andy Hall is working off-line to lead the nuclear input. Dr Hall's work includes engaging with stakeholders to gather views on a potential enhanced nuclear regulatory approach and to take into account any issues. As part of the work in examining our approach to regulating any new build of nuclear reactors we have arranged for the IAEA to undertake a targeted International Regulatory Review. This will involve a team of international high level experts in nuclear regulation coming to the UK for a week to review our approach to regulating the new reactors. This is a first for a large western nuclear power country and fits in well with our continuing to strive for regulatory excellence.

## **OPERATIONAL ISSUES**

### **Operating Power Stations**

#### **Dungeness A**

8 Dungeness A continues to operate safely and in compliance with its operating limits and conditions. During the period of this report the reactors were subjected to 3 manual unplanned shutdowns. The initiating faults were all unconnected but resulted from equipment failure. In addition, Station had to call in the fire brigade for a transformer failure in the control rod room; although no fire was detected, only smoke. The positive aspects to these events were that the operators made good conservative decisions. However, NII has asked the station to review its approach to plant ageing management with a view to identifying additional preventative activities for the final year of generation.

#### **Dungeness B**

9 At the time of writing both reactors at Dungeness B are operating safely.

10 The recent statutory outage of Reactor 22 was successfully completed in December 2005. The only significant emergent issue related to the discovery of thermal fatigue cracking in the drain lines of superheater and reheater headers. We satisfied ourselves on the adequacy of the Licensee's justification for Reactor 22 to be returned to service before issuing our Consent. We also accepted their justification for the continued operation of Reactor 21 until related inspections can be carried out during its next statutory outage, which is scheduled to start in April 2006.

11 The station has continued to experience a reduction in the rate of nuclear reportable events, with only two such events in the financial year to date. Other key safety performance measures have continued to show improving trends.

12 In recent reports we have noted our concern that failed fuel elements were known to be present in nine channels in the reactors at Dungeness B. The Licensee has committed to a programme under which these failed fuel

elements will be removed from the reactors by April 2006 and has made steady progress. At the time of writing failed fuel is known to remain in only three channels.

13 We have found that the recent introduction of Technical Specifications at Dungeness B, in place of Operating Rules, has been successful, with less ambiguity and more flexibility

### **Hartlepool**

14 Following establishment of the case for the boiler closure units (NP/SC 7415 Addendum 2), both reactors were returned to service in November 2005. The case requires a substantial programme of additional work to be completed in the near term and NII are continuing to monitor and progress this in detail.

15 A licence instrument was issued to enable commissioning of the replacement low pressure back up cooling system (LPBUCS) in December and the new discharge line is now in service. A final safety case paper is to be provided to consolidate the case for the new system and NII will be ensuring that this addresses the benefit of refurbishing the original discharge line to provide additional diversity and redundancy.

16 During restart of Reactor 1 in November a significant fault developed in the turbine generator and the reactor has been shut down for it to be replaced. This is a major exercise involving removal and replacement of a substantial amount of plant in the turbine hall, including the generator stator weighing around 300 tonne, and is likely to keep the reactor out of service until March 2006. BE have taken the opportunity to install the new unit Generator Transformer at the same time, replacing the temporary spare previously in service since the original failed in 2004. This will improve the robustness of grid connection and has a safety as well as commercial benefit.

### **Heysham 1**

17 NII continues to maintain close regulatory control of BE's development of the safety case addressing emergent issues concerning the boiler closure units (BCUs). Additional inspection of the Heysham A BCUs did not reveal any evidence of the acidic aqueous substance observed in a stud guide tube on Hartlepool Reactor 2 and therefore the station sought, and obtained, NII's agreement to implement the Category 1 Interim Safety Case NP/SC 7427. This case justified return to service of the reactors and continued operation until January 2006 with the option, subject to a satisfactory review, to extend this period to April 2006. The reactors returned to service during October. The station has advised NII that it intends to seek NII's agreement to implement NP/SC 7247 Addendum 1, which will argue that the reactors may continue to operate for a further 6-month period expiring in October 2006. Between February and July 2006 the station will take the opportunity presented by a series of scheduled refuelling outages to complete outstanding inspections of the BCUs and also implement a programme of ALARP measures aimed at

underpinning confidence in the integrity of the boiler closure units. This additional work will be the basis of the Category 1 Paper NP/SC 7415 Addendum 2, the medium term safety case justifying continued operation of the reactors pending presentation of a consolidated safety case for the BCUs. The station will seek NII's agreement before implementing this medium term case.

18 Since returning to power both reactors have continued to operate at their nominal full power. The station is hoping for a period of relative stability that will permit it to reorganise its Maintenance and Work Management departments and establish a new System Health Department, a key enabler in the BE wide Performance Improvement Programme.

19 NII observed a L1 demonstration of the station's emergency arrangements. NII concluded that the demonstration proved that the arrangements are adequate but that Command and Control in the ECC was below expectations. NII has asked the station to re-demonstrate Command and Control in the ECC within 6 months.

## **Heysham 2**

20 During the recent period of operation, no faults have occurred that have presented a significant challenge to the design basis for the station and its safety case, and no events have been reported above a rating of unity on the INES scale.

## **Hinkley Point B**

21 During the last quarter of 2005, both the Hinkley Point B reactors were shut down for planned routine maintenance. Reactor 3 had a planned two-week shutdown at the beginning of October, after which it returned to power and has operated steadily.

22 Reactor 4 shut down for 11 weeks. This was a planned periodic shutdown that is required by the Nuclear Site Licence at least every 3 years. Planned work included essential maintenance such as inspection of the graphite core, the concrete pressure vessel and steel pressure boundary components; and replacement of obsolete C&I equipment. British Energy also chose this time to do other Station maintenance work such as replacement of parts of steam turbines and electrical transformers. As up to 1000 contractor staff can be involved on-site, conventional safety also receives close attention and British Energy put much effort into ensuring good standards were maintained throughout the shutdown. When NII were satisfied that the planned maintenance work was complete with satisfactory outcomes, we issued our formal Consent for re-start of the reactor in December 2005. The return to full power did not go to plan and a further short shutdown was required to undertake work on the steam governor valves.

23 Level 1 Emergency Exercise "BALI" was held during the night of 7 December and was witnessed by a team from HMNII. The exercise was judged to be an adequate demonstration of the emergency arrangements produced by the Station under Licence Condition 11, and we noted an improvement in performance in a number of aspects.

24 Further progress has been made on the project to replace the cast iron cooling water pipework at the Station. NII are content that the safety case for the existing pipework is adequate for the interim period until it is replaced. Much of this replacement work was undertaken during the Reactor 4 periodic shutdown. The programme is due to be completed during 2006.

### **Hunterston B**

25 During the reporting period from October to December there have been no events reported above a rating of unity on the INES scale – this rating corresponds to a plant anomaly.

26 Reactors 3 and 4 have operated at nominal full load and in compliance with their operating limits and conditions

27 Hunterston B have constructed a new Access Control Point (ACP) facility on the site. This facility is a major improvement on the existing facilities and step change in the emergency arrangements of the site. NII observed the Hunterston B demonstration emergency exercise on 17th November 2005 during which the new facility was demonstrated. A programme of work is underway by the station to enable the full utilisation of the new ACP facility, to include completion of equipment installation, training of staff and procedures for its use.

### **Oldbury**

28 Whilst Reactor 1 has continued to operate as normal within current agreements with the Executive, Magnox Electric is working on providing a full technical justification for returning Reactor 2 to service. The company is taking steps to provide the necessary core materials properties data in order to demonstrate that the graphite retains sufficient strength to perform its safety function during the proposed period of operation.

29 In parallel with the above work, the company is inspecting additional channels within the reactor 2 core. By the end of 2005, 390 channels in the most "at risk" parts of the core had been viewed and no evidence of materials degradation had been seen.

30 In addition to the conventional approach to the safety case, the company is investigating the feasibility of alternative avenues for demonstrating the safety of operations at higher graphite weight loss. The Inspectorate will not be in a position to fully consider the adequacy of such a case until it is developed, but is being kept informed of progress in the mean time.

31 There remains no reason to be concerned about the operation of reactor 1 up to the agreed weight loss limit.

### **Sizewell A**

32 During the recent period of operation the station safety performance has been satisfactory. No events above zero on the INES scale have occurred. Emergency arrangements were successfully demonstrated at a recent Level 1 exercise. The site has produced a post operation and defuelling safety case, and an Environmental Statement under the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations. Both are being considered by HSE at present.

### **Sizewell B**

33 Sizewell B has operated continuously since its return to power following its seventh refuelling outage in May 2005. Progress with the Reactor Pressure Vessel replacement head is on target to meet the planned change during refuelling outage 8 in late 2006.

### **Torness**

34 Except for two automatic trips of Reactor 2 the Torness reactors have operated reasonably steadily over the period covered by this report. There are no major safety concerns and have been no reported events above a rating of 1 (anomaly) on the INES scale. An incident on 22 December involving the transfer of an irradiated fuel element into the fuel storage pond caught the attention of the media when the station declared a site emergency. Our review of the incident has confirmed that it was of little safety significance and that the station responded satisfactorily.

### **Wylfa**

35 For most of the period both reactors have operated at nominal full power. There were no reported events above a rating of zero on the INES scale. During January sudden unplanned loss of instrument supplies required the operators to carry out a double manual reactor trip. Reactor re-start was authorised after the site manager received interim recommendations from an Independent Panel of Inquiry. NII was in discussion throughout the 2-½ day plant investigation and recovery phase and supported the Site Manager's decision that it was safe to re-start the reactors. Incorrect synchronisation whilst tracing an earth fault was judged to be the cause. Although there have been unavailability issues associated with the turbines / steam generation plant these have not required NII involvement.

36 The Wylfa emergency arrangements were adequately demonstrated during the Level 1 exercise in October. A very realistic mock up was used that posed some challenge to the routine repair techniques of the Station. The implications are being reviewed and successful application will be witnessed during a future shift exercise. This experience demonstrates the

benefit of using good mock ups on which repair techniques can actually be applied.

37 NII received the revised safety case for continuing to operate Reactor 1 with 4 boiler support bracket tie rods that were installed during the 2005 Reactor 1 biennial outage with an incorrect materials properties specification. The Independent Investigation Report has also been received. Both are currently being considered and are likely to be accepted. A number of quality management processes have been modified as a result of the event.

38 Bench marking specialist inspections on plant configuration, electrical systems, pressure systems and asbestos management were completed during the reporting period. NII's work on projects associated with fuel, the fuel route, and the PSR follow up work programme has continued. The Station, NDA, and NII have discussed areas of common interest associated with the content of Wylfa's proposed 2006 / 2007 work programme.

### **Decommissioning/Defuelling Power Reactors**

#### **Berkeley**

39 Progress on the Active Waste Vault Retrieval Project remains slow. Post operational clean out and decommissioning of the Shielded Area cell lines is progressing. Characterisation of the site to support partial de-licensing is continuing.

#### **Bradwell**

40 Bradwell has completed defuelling of both reactors. NII is satisfied that the systems that Bradwell has adopted to verify that the reactors are empty of fuel give a high level of confidence that Reactor 1 is empty of fuel. Checks to confirm that Reactor 2 is empty are ongoing. Approximately 33 transport flasks worth of fuel remain on-site in the cooling ponds. Bradwell will despatch the fuel remaining in the ponds to Sellafield before entering the decommissioning phase. Removal of all fuel from site is dependant upon availability of transport flasks and may extend to late summer 2006. Safety performance at Bradwell has continued to improve over the period. The site has now almost completely implemented its Long Term Improvement Programme.

#### **Chapelcross**

41 The site completed work on the production of Post Operational Safety Case (POSC) supporting documentation, including the implementation of a safety case covering fire as a nuclear hazard. We witnessed a demonstration of a proposed Emergency Plan, that reflects the POSC, and were satisfied with the results. We permitted the implementation of the POSC in November.

42 Significant improvements have been made to the arrangements for identifying conditions and limits necessary in the interests of safety (Operating

Rules) and these improvements, together with the reduced risks and hazards associated with the shutdown reactors, enabled us to reduced the regulatory burden on the site by only requiring the Approval of one Operating Rule. There have been two INES 1 events. One event concerned the failure to test electrical equipment, required to supply reactor instrumentation, within the required time period. The cause of the event was the inadvertent amendment of computer software utilised in the routine planning of work. MEL has since introduced more rigorous controls to prevent a recurrence. The other event concerned the failure of a running diesel generator whilst battery testing was being undertaken. An Operating Rule covers the requirement for the running diesel generator, however the requirement is being reviewed and may be relaxed.

43 Upgrade work on the fuel route is progressing according to programme.

44 The Chief Inspector visited the site in November. He held meetings and undertook inspections with the Lead Team members and Safety Representatives.

45 Further progress has been made on removing the large quantities of Low Level Waste that have accumulated on the site.

### **Hinkley Point A**

46 Decommissioning work continues at an increasing rate. This has resulted in increased training and health physics staff. Improved methodology has accelerated the emptying of pond skips. Other areas of work are asbestos removal and the start of construction of an intermediate level waste store on site. The annual emergency demonstration exercise was successfully repeated in October.

### **Hunterston A**

47 Construction of the casing of the intermediate level waste store on site is now nearing completion. Other work on site includes a skip treatment plant to enable efficient skip disposal and removal of the precipitator tower. As decommissioning accelerates the site are actively recruiting new staff.

### **Trawsfynydd**

48 Decommissioning and waste retrieval and conditioning activities continue to progress. A second box of fuel element debris has been filled and grouted. The boiler lifting rig has been commissioned and to date 2 boiler sections have been cut and lowered for emplacement into storage positions. This work is a pre-requisite to enable the reduction in height of the reactor buildings. A Level 1 Emergency Exercise held in November was not considered to be an adequate demonstration of the site's Emergency Arrangements. A repeat will be held in March.

## NUCLEAR FUEL CYCLE FACILITIES

### Sellafield

#### Sellafield General

49 **Contaminated Land** - NII and EA attended a workshop with BNGSL on contaminated land, which included discussions on intermediate level waste and potential end-states. One of the actions from the workshop, which had broad application, was for BNGSL to prepare an authoritative report to capture the challenges regarding contaminated land at Sellafield to use in discussions with Government and stakeholders.

50 NII have also been encouraging BNGSL to address NII's long-standing concerns over the ongoing management of contaminated land and groundwater at Sellafield. BNGSL established a project board to respond, and have developed a programme of activities that extend over the next few years. Changes to the site management team have established a manager with site wide responsibilities in these areas, and an organisational structure to support this post.

51 **Sellafield Integrated Waste Strategy** - Following encouragement by NII and EA BNGSL has set up an executive led Integrated waste strategy steering group to implement the output of the waste strategies gap analysis that will derive from the first integrated waste strategy analysis. NII and EA will be observers at the initial set of meetings to ensure that the work of the group matches the purpose for which it was created.

52 An Integrated Waste Strategy (IWS) draws together the all the waste challenges (active and Inactive), the aims and objectives to improve the problems and the context for the treatment processes for a complex site.

53 **Demonstration Emergency Exercise** – the exercise was held on the Sellafield site, based on a release from the High Level Waste Plants. The Exercise was judged to be an adequate demonstration but identified some improvements, including Access Control Point layout and information management, alerting down wind of the incident plant, re-entry team management and scenario management.

#### Events

54 **THORP - Feed Clarification Cell Leak Investigation** - The investigation is completed and the investigation report is being finalised. The findings from this report have been communicated to BNGSL via letter in order to give them as much notice as possible of HSE recommendations and requirements prior to restart. Consideration is being given to further regulatory action.

55 **HLWP - HAST 21 Incident, 4 December 2005** - High levels of radiation were detected in some outcell areas of the Highly Active Liquor

Evaporation and Storage (HALES) facility during an operation to sample from HAST 21. There were no environmental effects found inside or external to the building. Three operators received elevated doses. Following work to effect recovery, plant status is now normal except for some localised residual radiation higher than background around HAST 21 sample bulge. Investigations are ongoing to determine the cause of the incident.

56 NII has conducted initial investigations and will continue to investigate.

57 **Pipebreak** - On 29 Nov 2005 BNGSL discovered a broken pipe on the pipebridge between Discharge Pond No.2 and the Settling Tank. The pipe in question was a 6" diameter, unused empty cast iron wastewater pipe. Failure of the pipe had resulted from failure of the pipe hangers. The damaged pipe threatened other pipes on the pipebridge, including air and steam supplies to the Solid Waste Storage Facility, as well as being a risk to Discharge Pond No.2 pipework and safety systems below. BNGSL undertook immediate remedial measures to secure the pipe, followed up by more substantial supporting measures using a load bearing scaffold and chain blocks. An internal investigation is underway which will be reviewed by NII.

58 **Analytical Services - Potential Overexposure** - On 31<sup>st</sup> October, two contract joiners were working in a laboratory to install new laboratory doors. During removal of part of the skirting board, the two installed air samplers in the lab went into alarm with high  $\alpha$  activity. All the workers evacuated the area, and full radiological checks were carried out.

59 On 29<sup>th</sup> November, the Sellafield ADS completed the assessment of urine samples given by the 5 people who were working in the laboratory. The initial dose assessment for one of the contractors was higher than expected, but recent reanalysis indicates that levels could fall. The two contractors were restricted from active area working. The Site Inspector will be investigating further early in the New Year and will be involving a HP specialist to review the dose estimates.

## **Operations**

### **Sellafield MOX Plant (SMP) Commissioning and Operation**

60 **Commissioning Progress** - SMP completed the first 4 fuel assemblies in May/June 2005. Safety performance has generally been good. Plant inspection was limited due to NII priorities elsewhere on site, though close contact has been maintained with plant management.

61 Several 'readiness for Consent to Operate' inspections are planned, to cover a range of topics, in preparation for assessment of the justification for CTO. For example, an NII 'Management of Safety' Inspection was completed in October 2005 with a satisfactory outcome and a joint Inspection by the NII and Environment Agency Inspectors is planned for February 2006.

## **High Active Liquid Evaporation & Storage (HALES) - Operations**

62 **HAL Stocks Specification** - Despite performance problems at WVP during 2005, the extended outage at THORP has meant that HAL stocks are currently at their lowest levels since the Specification was issued.

63 The rate of vitrified container production has been lower than planned because of a need to alter how the plant is operated following an activity discharge event in April, other operational difficulties and due to downtime to implement plant modifications to improve throughput. However all three lines are now in full operation and the benefits are already being felt.

64 **HAST Cooling Jacket Leaks** - Testing has indicated that corrosion penetration of the HAST 13 wall, that forms the primary containment for the HAL, has allowed very small quantities of HAL to pass through the wall into the jacket cooling system. This, and evidence of the start of a similar trend on HAST 12, indicates a progressive degradation of the tank integrity first identified 3 years ago. The issue has potentially significant long-term consequences but, because of available spare tanks and ullage (capacity in the used tanks), this can be managed in the short term.

65 HAST 13 has been emptied, apart from a heel in the bottom of the tank. BNGSL have no plans to use this tank again, but do not consider it retired. They have agreed that it will not be brought back into service without consulting us.

66 The risks from HAST 12 are currently very small and it is justified to retain this tank in service at the present time. The situation remains under review.

## **Legacy Ponds and Silos – Operations**

67 **Ponds** - BNGSL successfully retrieved a skip of fuel from Discharge Pond No.2 and transported it to Fuel Handling Plant to begin the characterisation process. This process should determine if fuel from the pond can be reprocessed or if alternative means of dealing with it need to be established. Good progress is being made in demolition works adjacent to the Magnox Storage Pond to provide space for construction of some of the plant needed to safely remove sludge from the pond.

68 **Silos** - Wet Silo work has included the installation of a new crane within the building to replace a redundant crane. BNGSL carried out the work effectively, but with some learning points. The crane is now undergoing setting to work and commissioning. Other "enabling works" for retrievals are successfully reducing the radiation levels at the operating floor and clearing redundant equipment to make space for the new retrieval machines.

69 For Dry Silos, a revised "Baseline Safety Case" has been implemented which includes changes following a periodic review of the safety case. Structural improvements are being made and the project to provide an additional argon supply is making good progress. Over the last few months, we have been presented with a new concept for retrievals machines and supporting structures.

### **Magnox Reprocessing - Operations**

70 **Reprocessing Plant** - The dissolver was heated on the 22 November and to date 50te of fuel have been processed. Operational problems have been experienced with the refurbished charge machine indexing shaft equipment becoming stiff so that only one charge machine can be currently used. BNGSL are making every effort to resolve the problems but there is the potential that the Magnox Operating Plan could be compromised. A number of technical problems are still being experienced with Product Finishing and Storage Plants but operational periods are steadily improving.

71 **Reprocessing Outage** - The reprocessing plant periodic shutdown commenced on 1 April 2005 in accordance with the requirements of the plant maintenance schedule. The main purpose of the shutdown was to carry out a full plant washout, to perform planned maintenance and inspections that could not be undertaken whilst the plant was operating and to undertake a number of projects. One of the main projects completed was the refurbishment of one of the dissolver charge machines.

72 Due to delays in starting up Product Finishing and Storage Plants, the shutdown was extended beyond the period originally programmed. After consideration of the restart safety issues NII gave BNGSL Consent to Operate the plant at the end of October.

73 Following the resolution of a number of operational problems the plant is moving towards steady operation.

74 **Plutonium Finishing and Storage** - On the 10<sup>th</sup> October 2005 NII issued BNGSL with Consent under LC31 (2) to restart feeds to the conditioning vessels of Finishing Line 5 at Sellafield.

75 Over the last 4½ months BNGSL has undertaken a significant amount of work to address NII's concerns related to the original Direction to halt feeds to the Finishing Line. The work included: a comprehensive review and reassessment of safety, a review of the need for a material accountancy system, a review of resources, a review of training, the provision and implementation of a glovebox standard, a review of alarm response instructions, a review of contingency arrangements and a workforce workshop to capture their safety concerns.

76 BNGSL's work has resulted in improvements in its arrangements to reduce the risks associated with plant operations, notably: provision of a neutron monitoring system, provision of a material accountancy system and

improved glovebox standards. The first of these is essential to ensure plant risks are tolerable and ALARP with respect to fissile powder and liquor accumulations.

## **DRIGG**

77 In line with NDA's draft strategy to compete the LLWR at Drigg, BNGSL have begun the process of defining the requirements for a Site Licence Company for the LLWR that is separate from the Sellafield organisation.

## **Springfields**

78 Springfields Fuels Ltd (SFL) continue to progress the work to process the stocks of natural and enriched uranium residues currently stored on site. Options for the processing of various residues continue to be evaluated and the efforts made by SFL to reduce the residue stocks will continue to be closely monitored by NII.

79 SFL are continuing with their programme to decommission facilities across the site. The next significant phase of decommissioning is associated with the Magnox Fuel production plants and will commence following the cessation of Magnox Fuel production during the forthcoming year.

80 The management of the continuing planned reduction of site manpower and the associated re-organisation of the SFL management and staff structures continue to be monitored/inspected by NII.

81 The recent safety performance of the site has raised no major issues.

## **URENCO - Capenhurst**

82 URENCO Capenhurst Ltd (UCL) have recently announced plans to further expand the enrichment facilities on the site and projects to widen the scope of enrichment operations on site.

83 Interactions between UCL and the regulators relating to the Tails Management Facility Project continue. This plant will deconvert hex tail material into a more stable oxide form for storage. Operation of this plant will mean that the UCL site will become a top tier COMAH site.

84 The safety performance at the UCL site over the recent months has been regarded as generally satisfactory.

## **BNGSL - Capenhurst**

85 The site decommissioning work is progressing steadily, reducing the site hazard, with some acceleration of authorised solid waste disposals being achieved, with regulatory encouragement, over and above that programmed for this year. NII continues to press the licensee (and lobby NDA) to revise

the policy regarding the timing of deconversion of legacy uranium hexafluoride “hex tails”, to the safer oxide form, for longer-term site storage. The licensee currently plans to start deconversion in 2020, but an earlier start to this deconversion process is being sought by NII. The licensee is currently engaged in an options review.

## **Nuclear Research Sites**

### **UKAEA**

#### **UKAEA General**

86 UKAEA’s safety performance over the last few months has been generally satisfactory, with the exceptions of the Cementation Plant at Dounreay where we have issued Improvement Notices following an incident and B13 at Windscale where we have concerns about the safety case (see below).

87 In advance of receiving a case under Licence Condition 36, we have commenced discussions with UKAEA as they prepare for a proposed major reorganisation. As the first step towards the re-organisation, UKAEA Ltd (Company No. 5597709) was incorporated as a private limited company by the Registrar of Companies for England and Wales on 20 October 2005. It is wholly owned by UKAEA.

#### **Dounreay**

88 **DCP Event** - An incident occurred in the Dounreay Cementation Plant on 26th September resulting in spillage of a batch of Materials Test Reactor raffinate and cement on to the cell floor. There were no injuries and no radiological release. The incident was categorised as 1 on the INES scale. NII has completed an investigation into the event and, taking into account the HSE’s Enforcement Management Model, two Improvement Notices were issued on 7th November. One concerned improvements in training (LC 10) and the other in control of modification (LC22) and operating instructions (LC24). Improvements identified to achieve compliance with other Licence Conditions were itemised in a letter to UKAEA. A meeting was held on site on 16th November to discuss and agree the programme for close-out of the Notices.

89 UKAEA believe that reorganisation at Dounreay is necessary to satisfy NDA’s need for partnership agreements and to improve communication and clarify responsibilities. An LC 36 submission was sent to NII which we have accepted as justifying the proposed changes.

90 **Pulse Column Laboratory Event** - Following the incident in the Pulse Column Laboratory in October, all decommissioning work in the facility has been suspended pending the outcome of a formal UKAEA investigation. Biological monitoring results from the Dounreay Approved Dosimetry Service have confirmed that of the eight individuals who had displayed positive nose

blows; two had received measurable intakes of Pu. UKAEA are planning entries into the active area early in January to carry out radiation and contamination surveys, to install additional air monitoring equipment and perform maintenance on existing air monitoring equipment. UKAEA have confirmed that no decommissioning work will be performed during these entries and there will be no access to the Pulse Column Glovebox Room.

## **Harwell**

91 A meeting has been held to review the progress with closing out the Harwell SW-PSR forward action plan. The inspection revealed that there is real and tangible progress with the actions agreed at the end of our assessment of the submission. Work is generally on target to be closed out on schedule as per the agreed plan. An exception is the development of the site safety case, which is dependent on the completion of the individual Modern Standards Safety Cases. The way to take this forward will be discussed.

## **Winfrith**

92 In the Aries project, AEAT is proposing to divest its remaining nuclear operations at Winfrith into the wholly owned AEAT subsidiary called Waste Management Technology (WMT). However, we have a query over whether AEAT's operations constitute a prescribed activity under NIA (e.g. treatment of Devonport resins). If this proves to be the case, then the relevant operations could only be undertaken on a licensed site.

## **Windscale**

93 The previous report to NuSAC explained the serving of an Improvement Notice on UKAEA as licensee, and one on Nexia Solutions as the tenant in B13, requiring improvements in risk Assessment, Control and Supervision, and Safe Systems of Work. Both companies are working hard at providing a satisfactory response. Following a satisfactory demonstration of progress in November, extensions have been granted that require the work to be completed before 1<sup>st</sup> September 2006.

94 The previous report also mentioned that NII had used a Specification under Licence Condition 13 to require that UKAEA seek further advice from its Southern Nuclear Safety Committee regarding aspects of the new B13 safety case. The NSC has provided advice on a number of shortcomings in the systems for producing and assessing safety case with actions that should be completed by April. Advice on the second part of the Specification, to reconsider the validity of the endorsement of this safety case, should be concluded at the February meeting. Consideration of further regulatory action awaits the outcome of this final advice, and of UKAEA's response to the Specification.

95 The decommissioning plan for the Windscale Piles submitted to NDA shows completion around 2060 following a further care and maintenance period of around 25 years. NII has pushed hard to get much shorter timescales. Detail planning is now underway which has potential for

completion around 2020. Work on decommissioning the Windscale AGR continues to progress well.

### **GE Healthcare Ltd**

96 The Chief Inspector (CI) has discussed the forthcoming changes to the GEHL board with its outgoing chairman. These, and changes consequent on the recent replacement of the Director of Safety Assurance, are the subject of a submission to NII under LC36 and a request for NII's agreement. The CI has arranged to follow up with a visit to the licensee's headquarters in March. NuSAC has asked the licensee for a paper on its experience of being bought by a US company (GE), to be presented in February.

97 The annual emergency exercise at Cardiff was judged to be an adequate demonstration.

### **Imperial College Reactor Centre**

98 The annual demonstration exercise at Ascot was held on 30 November simulating an accident during radiography in the reactor hall, and was considered to be satisfactory.

## **DEFENCE FACILITY REGULATION**

99 In general, the safety performance at the defence facilities inspected by the Division, namely the Atomic Weapons Establishments at Aldermaston and Burghfield, Devonport (Devonport Royal Dockyard Ltd - DRDL), Barrow (BAE Systems Marine – BAESM), Rolls Royce Derby (Rolls Royce Marine Power Operations Ltd – RRMPO), Clyde Naval Base, Rosyth Royal Dockyard Ltd (RRDL) and the Shore Test Facility at Dounreay, continues to be satisfactory with a range of issues being followed up as part of routine regulatory business. We are currently developing our Intervention Strategies for 2006/07 which we will share with the relevant stakeholders over the next few weeks.

### **Barrow**

100 We continue to oversee the improvements in quality assurance related to key safety components of the ASTUTE Class of nuclear submarines.

101 The Annual Barrow Licensed Site demonstration emergency exercise was held on 7<sup>th</sup> December 2005. The exercise was considered an adequate demonstration of the site's arrangements, with a good overall team performance.

### **Devonport**

102 Following the undocking of HMS Talent in early July, the licensee commenced a programme of outage work to confirm the continued validity of

the 14 dock facility safety case prior to further submarine overhaul and refuel work. We were also looking for a number of the Devonport Staged Improvement Plan (SIP) facility improvements to be delivered during the dock outage. In this respect the licensee used a window of opportunity with no submarines in dock to complete the demolition of the Central Management Office structure which had a poor seismic withstand capability. Good progress was also made with the installation of core boronation equipment which will be applied prior to all future submarine defuel/refuel operations and provides reactivity control to internationally accepted standards. We concluded that the licensee had satisfactorily completed the required routine compliance work for 14 dock and we were satisfied with the progress against the identified Devonport SIP improvements. We judged this position supported the safety case presented for the docking and long overhaul period with refuel (LOP(R)) of HMS Triumph and in consequence our agreement to the commencement of the activity was provided.

103 The LOP(R) of the second in class Trident Submarine, HMS Victorious, is being carried out in 9 Dock. Following the issue of our agreement to the commencement of Primary Circuit Decontamination (PCD) Facility active commissioning, two process cycles were safely applied to the reactor primary circuit. The decontamination process was successful and a reduction in average dose rate (including steam generators) by a factor of approximately 7 was achieved. The dose reduction was in line with expectations and provides a working environment with lower average dose rates than was achieved for the previous LOP(R) on HMS Vanguard. This was the first application, to UK naval reactor plant, of the Low Oxidation Metal Ion (LOMI) decontamination process that is used extensively worldwide within the civil nuclear power industry.

104 Following the Level 1 emergency exercise in June we requested the licensee to address the important learning points and to re-demonstrate, through a further emergency exercise, the casualty rescue arrangements. In response the licensee completed a review of the areas requiring improvement and put in place a programme of training exercises with a focus on casualty rescue. We witnessed the repeat emergency exercise on 15 September 2005 and concluded the licensee had provided an adequate re-demonstration.

105 Within our last report we noted that from our inspections a number of safety indicators for the 9 Dock PCD facility suggested the plant and its operating regime was currently falling short of the required levels of performance. Although our judgement concluded there was little or no impact on nuclear/radiological safety we were concerned the situation could deteriorate if action wasn't taken. We have followed up this matter through targeted reactive inspection work and the licensee has presented a recovery plan. We were encouraged that the licensee is addressing the issues generically across the site through a structured health and safety improvement plan with clearly defined outcomes. We are satisfied that the licensee is treating the matter seriously and will continue to work closely with colleagues from the other regulatory organisations to ensure the necessary improvements are delivered.

## **Atomic Weapons Establishment**

106 Work associated with AWE has started to increase as a consequence of the £1.05bn funding MoD declared in July 2005 to be allocated to AWE over the next three years. This work is associated with safety cases for replacement facilities and modernisation of existing facilities to maintain the existing stockpile of nuclear warheads safely and efficiently. This is on top of the normal day to day regulatory activities and the work associated with the periodic review of safety due to be completed in 2007. NII is working up an intervention strategy to allow available assessment and inspection resources to be targeted efficiently.

107 AWE has satisfied NII that it has addressed the concerns raised by NII in the Improvement Notice (IN) issued on 7 July 2005. The IN was as a result of an incident involving a small release of Tritium gas from legacy material. AWE has demonstrated a commitment to address the cause of the incident, and has put over 3,000 staff and contractors through a training programme on the appropriate response to discoveries of legacy materials.

## **NSD ISSUES**

### **Organisation / Resources**

108 The Health & Safety Executive agreed to increase NSD's resources for 2005/2006 to 179 inspectors. As of the 1st January 2006, NSD has 164 inspectors in post. Thus so far the resource shortfall has impacted primarily on the assessment work stream given that we have striven to give priority to site inspection work. However, pressures are now showing here as well.

109 NSD management continue to reprioritise work to ensure that safety significant tasks are covered. This necessitates the postponement/deferral of longer term strategic work (e.g. SAPs Review Project – below).

110 NSD vacancies are again being advertised on the HSE website, but the number of CVs received so far is low. Arrangements are being made to sift these CVs and then to organise an assessment event. The Executive is considering what other measures are needed to increase the staffing levels of NII.

### **Project to update the NII SAPs**

111 The project is now well into the top-down editing phase, and on track to be ready for public consultation by the end of March. The objective is to complete the consultation by the end of May.

112 The editorial board preparing the consultation draft includes input from both the Naval Nuclear Regulatory Panel to minimise difference in approach to regulating nuclear matters, and the Environment Agency to ensure compatibility at the regulatory interfaces.

113 So far as practicable the new SAPs should be understandable to a wider audience than the nuclear industry. To this end, a plain English check is being built into the final draft preparation process.

## **INTERNATIONAL**

### **Atomic Questions Group's Working Party on Nuclear Safety (WPNS)**

114 In response to the European Commission's proposal to have a Directive on nuclear safety, and another Directive on decommissioning, spent fuel and radioactive waste management, the European Council's view was that legal instruments could only be considered after extensive consultation with stakeholders and take account of work conducted by Member States' regulatory authorities.

115 This work was delegated to the WPNS, which formed three subgroups considering:

- What has been achieved by Member States in the different international contexts in respect of nuclear safety. Member States have completed questionnaires on their participation in the work on the Convention on Nuclear Safety, the IAEA safety standards, the work of the OECD NEA and within a European context. The results of the questionnaires are being analysed.
- What has been achieved by Member States in the international context in respect of the safety of decommissioning, spent fuel and radioactive waste management. Member States are currently completing a questionnaire on these topics in the context of the Joint Convention, the IAEA Standards and the work of the OECD NEA.
- How Member States address the financial aspects of decommissioning nuclear facilities, and spent fuel and radioactive waste management.

116 The results of this work will be presented to the Council at the end of 2006. Each Presidency is keeping the Council and the Atomic Questions Group up to date with progress.

**Mike Weightman**  
**February 2006**