

**NUCLEAR SAFETY ADVISORY COMMITTEE  
REPORT FROM NII FOR THE MEETING TO BE HELD 13-14 JULY 2005**

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**GENERAL ISSUES**NDA/LMU Progress

1. The project to enable the NDA to come into being, including the restructuring of BNFL and associated re-licensing, successfully completed its work to programme. This enabled the successful launch of the NDA on the 1 April. It was in no small way a result the outstanding work of all the staff involved.

Site Visits

2. Since the last report the CI has visited Devonport, Harwell and Sellafield and has engaged senior management in the licensees in striving for common goals. Discussions were also held with safety representatives and trade union representatives.

## **OPERATIONAL ISSUES**

### **Division 1 – Nuclear Power Station Regulation**

#### **Senior Management Changes at BEG & BEG(UK)L**

3. BEG & BEG(UK)L have been advised that NII has no objection to the implementation of the Grade A Management of Change proposal MOC 285 for the introduction of the Chief Nuclear Officer (CNO) and Safety & Technical Director (S&TD) posts within BEGL & BEG(UK)L.
4. A caveat was that NII would engage in detailed discussions with the new post holders at an early date to establish their perspective of the roles and responsibilities and to understand how they intend to function within these roles. We also noted our determination to conclude our discussions on reviewing the licensees' formal interface with NII.
5. The background to this issue is:
  - this change was one of a series of senior management team changes arising from BEG's Performance Improvement Project;
  - the key consideration in NII's assessment was the maintenance of an independent role for the health and safety resource and the promotion of the concept of an adequate safety challenge function, but without dictating how a licensee should structure its organisation.

#### **Relicensing of Torness and Hunterston B to BEGL & Other Changes**

6. As part of a rationalisation of the BE group Torness and Hunterston B have been relicensed to BEGL with effect from 1 July 2005. There are other changes associated with this rationalisation including the transfer of assets and personnel.

#### **Magnox Sites Re-licencing**

7. With effect from 1 April 2005 the Nuclear Decommissioning Authority (NDA) took ownership of a number of Nuclear Licensed sites including the Magnox operating and post operational sites. Initially the NDA has let contracts to incumbent licensees to operate the sites on its behalf. The BNFL group was restructured in preparation for the transition to the NDA. One of the key outcomes is that the sites were re-licensed from BNFL to Magnox Electric Ltd with effect from the 1 April 2005. As a result of this re-licensing Magnox Electric Ltd became the incumbent licensee and operator for the Magnox sites.

**Magnox Decommissioning - Accelerated Preparations for Care and Maintenance**

8. Magnox Electric Ltd has been developing a number of innovative proposals to accelerate the placing into care and maintenance of power stations that have reached the end of their generating lives, and has begun to share its ideas with the NII, as well as the environment agencies and the NDA. Some of the concepts, such as the long-term storage of untreated fuel element debris instead of encapsulating it, do cause regulatory concern and have yet to gain acceptance. Nevertheless, according to Magnox estimates, the proposals, if implemented across all the Magnox stations, could produce savings in decommissioning costs in excess of £1 billion, so NII will continue to work with Magnox Electric and the other interested parties to see if our concerns can be overcome. At a high-level meeting in May 2005, the NDA proposed the establishment of a multi-partite steering group to progress this project. NII welcomes this and is looking forward to further discussions.

**Reactor Core Graphite**

9. Graphite reactor cores suffer from potential problems of both weight loss and graphite cracking. The graphite core provides a lattice that allows the movement of control rods and the passage of carbon dioxide to cool the fuel. The condition of the graphite also has implications for the structural integrity of the core. The fuel construction and gas flow are different in the Magnox and AGR designs. The AGR design is much less sensitive to the effects of graphite brick cracking as the fuel is contained in an integral sleeve which maintains gas flow through the fuel even if the fuel channel graphite itself contains cracks. Cracking in Magnox reactors could lead to gas coolant bypass and fuel damage if wide enough cracks were to develop in the fuel channels. These considerations have to be taken into account in determining the adequacy of the safety case for the operation of these reactors and determine the need for inspection, monitoring and sampling.
10. The NII has taken a multi legged approach to assessing the potential cracking problem that consists of: predictions of component and core condition; assessing the tolerance of the core safety functions to any predicted damage; assessing the consequences of core damage for safety function; monitoring of core condition during plant operation; and inspection and sampling during reactor outages to ensure that the core is behaving as predicted.
11. The precise limit criteria that would bring about an end to reactor operation would be based on an overall judgment about the strengths of the various legs of the safety case and the confidence that NII has in further safe operation. The reactors with the most at risk cores have had their outages extended until sufficient information has been

collected and analyzed to give the NII the confidence to allow them to return to service.

### **Wylfa (PSR Follow-up)**

12. NII completed its assessment of the Wylfa PSR in September 2004 and concluded that Magnox Electric has undertaken a satisfactory periodic safety review. This covers the remaining period of power operations and the period of final defueling.
13. Magnox Electric has successfully completed the majority of its PSR findings by the decision date.
14. Since the decision date NII has monitored the Magnox Electric work programme to complete the work it identified as part of the PSR. This work is outage related and is progressing satisfactorily. As part of NII's assessment of the PSR a number of additional issues were identified. These are also being monitored and satisfactory progress being made on the physical improvements and development of the safety cases and safety examinations.

### **Dungeness A**

15. During the recent period of operation the station safety performance overall was satisfactory. No events have occurred that have presented a significant challenge to the design basis for the station or been reported above a rating of zero on the INES scale. In April/May 2005 Reactor 2 successfully completed its final outage prior to station closure in December 2006. Magnox Electric is working on a safety case to justify extension to R1's operating interval to also take it to the end of 2006. NII has received safety submissions related to the post-operational safety case and the 10-Yearly PSR, which are closely related. Of note from a conventional safety viewpoint is the fact that Dungeness A has now gone for 3 million worker hours (2.5 years) without a lost time accident (i.e. time lost beyond the day or shift of the occurrence) to either station staff or contractors.

### **Hartlepool**

16. During the recent quarter Hartlepool has generally operated at full power on Reactor 2, but at only 80% power on Reactor 1. The reduced power operation is to protect the Reactor 1 Gen Transformer, since the "nursing unit", installed when the original transformer was replaced last year, indicates generation of gases in the cooling oil consistent with a poor phase connection. The station intends to examine the transformer during an extended refuelling outage planned to start in early June.
17. In late March, Reactor 1 was shut down to remove a leaking fuel stringer from channel E21. The leak is suspected to be due to pin over-pressure as a result of enhanced graphite deposition - a known

phenomenon, hopefully restricted to stringers loaded before COS injection was adopted several years ago. The decision to shut down and remove the leaking stringer was a good conservative decision by Hartlepool management. An un-planned trip was carried out on Reactor 2 on 22nd May due to a leak in boiler 2C2. The intention is to plug the affected tube and return Reactor 2 to service, before taking Reactor 1 out of service for its extended refuelling outage starting in early June.

18. The hazards wall between the reactor building basement and the turbine hall is now completed and commissioned to provide a 3.5m high barrier. Work is ongoing to extend this to 6.0m. The work to replace the LPBUCS is making poorer progress, and NII are still pressing BE to improve their project management arrangements.

### **Hinkley Point A**

19. NII is working with the NDA Team, EA and the licensee to ensure the timely programming of decommissioning projects. In particular, the key issues of ILW encapsulation and fuel element debris fire are being inspected. NII planned inspection of the site has been reduced in proportion to the diminishing site hazard.

### **Dungeness 'B'**

20. Both reactors at Dungeness B are currently operating safely.
21. The station has experienced a continuing reduction in the rate of nuclear reportable events, with approximately 8 events being reported in the last 12 months, and none during the last 4 months. Other key output performance measures are also showing improving trends. These include accident frequency rate and non-outage related defects.
22. Our assessment of the Licensee's proposals for the introduction of a system based on Technical Specifications, in place of Operating Rules and Identified Operating Instructions, has been completed and a Licence Instrument issued. The new arrangements were introduced successfully on 23 March 2005.
23. The station's Level 1 emergency exercise was held on the evening of 12 April 2005. The NII team concluded that the exercise had not provided an adequate demonstration of the Licensee's emergency arrangements, owing mainly to deficiencies associated with command and control at the Forward Control Point (FCP). The station has been asked to arrange a further demonstration within 8 months.
24. The presence of nine failed fuel elements in the reactors at Dungeness B is becoming a more important issue. Early removal of the fuel is currently constrained by buffer storage capacity and fuel bottling capability. Although release rates of fission products from the fuel

elements are currently low, any significant increase could swamp the detection systems, such that further failures would not be detectable. Discussions are in hand with the Licensee to progress the resolution of the issue.

### **Sizewell B**

25. Sizewell B has completed its seventh refuelling outage since the last report and has now returned to full power. The outage over ran slightly partly due to problems in returning the plant to service and partly because the 10 year ASME inspections of the RPV took slightly longer than planned. British Energy completed its 10 year ASME XI In Service Inspection (ISI) plan during this outage. This included removing the lower core internals and core barrel in order to complete the ISI of the reactor pressure vessel. This was the first time this has been done at Sizewell B. There were no unexpected indications from the RPV or RPV head inspections. During refuelling outage 6 (RFO6), minor cracks were identified in a few of the Inconel 600 head penetrations. Repeat inspections in RFO7 indicated a general increase in size of the defects seen in RFO6 (within expectation) and a modest number of new indications. The findings from the most recent head inspections still support the replacement head being delivered in 2006 for refuelling outage 8.
26. During the ISI inspection of the RPV British Energy identified that there was a discrepancy between the validation defect sizes used for validation of ultrasonic examination procedures and the equivalent parameter assumed in supporting fracture mechanics analyses (the Start of Life defect sizes - SOL). This has the potential to reduce stated Validation Factors for affected locations. The locations identified as affected are principally forging material locations. Most of these locations are not subject to in-service inspection, only manufacturing inspection. However some locations are currently subject to in-service inspection, for instance the RPV inlet and outlet nozzle forging inner surfaces (corners). Following the initial identification of a discrepancy at one type of location, British Energy carried out an investigation to determine the extent of locations potentially affected. British Energy is investigating how the discrepancy arose; it may have originated in the period 1989 - 1990. British Energy has provided a justification for continued operation to RFO8, by which time they expect to have reinstated the safety case to end of life.

### **Trawsfynydd**

27. Decommissioning and waste retrieval and conditioning activities are progressing. As a response to future NDA competition of the Site, the Management Team is actively looking at reducing direct employees and developing partnering and alliancing arrangements with other companies. The Site was re-licensed to Magnox Electric Ltd. on 1 April 2005

**Berkeley**

28. The Site was re-licensed to Magnox Electric Ltd. on 1 April 2005. Decommissioning activities have commenced within the Shielded Area cell lines and preparatory work is continuing for waste retrieval operations. A proposal is being developed to apply to de-license a significant area of the site providing "no danger" criteria can be met. The proposed area includes the A12 calibration facility and a pragmatic solution will be required for the management of the sealed sources immediately prior to de-licensing if the facility is to continue operation post de-licensing and become a Registered Premises under the Radioactive Substances Act 1993.

**Sizewell A**

29. Both reactors at Sizewell A continue to operate safely. There have been no reportable events or Licence Condition breaches during the reporting period. The site has achieved a world first when it was awarded International Safety Rating Standard (ISRS) and International Environmental Rating Standard (IERS) Level 10 by Det Norske Veritas, a firm of independent, international risk management consultants, just prior to NDA taking ownership on 1 April 2005.

**Torness**

30. Torness has operated steadily over the period covered by this report. There are no major safety concerns, however, there are a number of ongoing regulatory and technical issues. For example: fuel route and nuclear boundary door events, reliability of gas circulator frequency converters, examination of failed fuel, conventional fire safety improvements, demonstration of emergency arrangements and moving the Emergency Control Centre. The Station is making satisfactory progress in addressing such issues. Based upon performance indicators, and more subjective measures, there are some encouraging signs that the Station's ongoing improvement programme may be starting to have a positive effect. Not all indicators are positive though, and certain staff continue to have heavy workloads whilst adjusting to the required organisational, procedural and cultural changes. Increasing staff resources is seen as one of the key enablers to change.

**Chapelcross**

31. The site was relicensed from BNFL to Magnox Electric Ltd on 1 April. The ponds were returned to service at the end of March and the emptying of the ponds of irradiated fuel resumed. The site emergency arrangements were Approved and successfully demonstrated to ourselves at the Level 1 exercise in April. The late provision of documentation, to support the introduction of the post operation safety

case (POSC), may put at risk the September implementation date. Work on modifications to support the POSC has started. Clearance was given to start the fuel route upgrade work, to enable the safe defuelling of the reactors, and the work has commenced. The start date for defuelling is presently April 2007. Progress has been made in addressing the removal of the large quantities of LLW that have accumulated on the site. Aircraft over flying is still occurring and we are taking steps to address this.

### Hunterston A

32. A proposal to change the organisational structure of the site to provide for a focus on decommissioning activities has been assessed by NII and allowed to proceed. As part of this, HSE has Approved a new Emergency Plan to allow Hunterston A to move to "decommissioning emergency arrangements" and to provide for themselves the on site response, previously resourced by BE.

### Wylfa

33. The HSE's Deputy Director General (Mr McCracken) was at Wylfa on 8 June. He visited various plant areas, discussed recent and continuing programmes of enhancement, and held discussions with senior management on common safety goals. Discussions were also held with safety representatives.
34. Both reactors have continued to operate safely. Reactor 1 at Wylfa commenced a periodic shutdown on 1 April 2005. In addition to the routine outage related maintenance, Magnox Electric Ltd also carried out programmes of work associated with the PSR carry over work programme, two category one plant modifications, a category one repair, and enhanced graphite inspection and sampling. All these areas of work were sample examined by NII during the course of the outage, with several areas being subjected to detailed scrutiny. NII is satisfied that all the work carried out by Magnox Electric reached a satisfactory conclusion and that all of the issues raised by NII staff were resolved or reached an acceptable position for start up. On this basis it was concluded that the outage was satisfactorily completed and a Consent was issued on 27 May to permit the return to service of Reactor 1 for a further period of operation.
35. Since the last report the Station presented to NII more detailed information on the elements of its 2005/06 work- programme that were of regulatory interest. This resulted in a common understanding on the anticipated plant enhancements to be undertaken and expectations for regulatory interaction during the forthcoming financial year. In addition NII participated in NDA's Orange Review of the Near Term Work Plan that was held on 22 February.

**Hunterston B**

36. During the reporting period January to May no events have been reported above a rating of unity on the INES scale – this rating corresponds to a plant anomaly.
37. Both reactors have been operating normally; however, problems continue to be experienced on the steam plant side. Operational difficulties with the main boiler feed pumps (MBFPs) on both reactors have necessitated the prolonged use of the starting/standby boiler feed pumps while refurbishment of the MBFPs have been carried out.
38. Reactor 4 is due to commence its three-yearly statutory outage on 24 June 2005. NII's graphite specialist assessors' advice is that the planned inspection of 12 fuel channels is unlikely to give sufficient confidence to NII in support of the return to power of R4. An inspection of 25 channels is considered to be more appropriate

**Heysham 1 and Heysham 2**

39. On 1 February 2005 BE implemented single site working at the Heysham site. BE has appointed a single site Director with responsibility for both power stations and Plant Managers for each station who report to the Station Director. Under the new management arrangements the Human Resources, Training and Finance departments of the individual stations have been combined to form three joint-site departments reporting directly to the Station Director. Operations, Maintenance, Work Management and Technical Safety and Support remain station functions. The stations have used their arrangements for the control of organisational change to implement single site working at Heysham.

**Heysham 1**

40. Reactor 1 continues to operate at its nominal full load. Reactor 2 returned to service in April after an extensive programme of inspection and repair to turbine alternator 2 damaged by the failure of a turbine blade in January. Reactor 2 operated steadily prior to shutdown on May 6 for its scheduled Statutory Outage.
41. A recent key development is the implementation of the medium term safety case that addresses the potential consequences of a turbine disintegration. Station has completed the programme of modifications, which have enhanced protection against the consequential flood, fire and missile hazards and also permit a shutdown reactor to be purged to an air atmosphere with the other turbine operating. Station is committed to further enhancement of the protection against this plant failure.

42. Station is progressing the R2 outage programme, which includes a significantly enhanced programme of core inspection and also work to improve understanding of the condition and behaviour of the boiler closure units.
43. In conclusion, although Heysham 1 continues to be challenged by emergent issues, safety performance remains satisfactory overall.

**Heysham 2**

44. 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.
45. The period station has provided further information to NII and the Environment Agency about an event involving the discovery of tritium bearing liquid in the confinement sump below the station tritium storage tanks. They have removed the liquid from the sump, carried out remedial work to the sump sealing arrangements and identified additional maintenance requirements. Station is working to address areas for improvement, identified during their investigation into this event, to help prevent a recurrence.

**Bradwell**

46. Bradwell, after a five month cessation, returned to operational defuelling in November 2004. Good progress has been made in defuelling and currently Reactor 1 is 80% defuelled and Reactor 2 is 60% defuelled. The completion of operational defuelling is now planned for March 2006 with associated verification checks to confirm that no fuel is left on site following over the subsequent three months. The station successfully closed out an Improvement Notice seeking improvements in its arrangements for the production, implementation and review of risk assessments. The station produced its second Near Term Work Plan that was accepted by the Nuclear Decommissioning Authority.

**Hinkley Point B**

47. The last period has been a time of fairly steady operation on both reactors, but R4 was manually tripped on 26 April when a discrepancy occurred between reactor power and turbine load, causing an increase in steam pressures and lifting of steam relief valves. This was found to be due to an under-performing steam governor system.
48. During February there were two events of uncontrolled release of clean carbon dioxide gas from the storage and processing plant. These events were similar to an event that occurred in May 2004 and for which the follow-up actions would appear not to have been fully

effective. The carbon dioxide plant has a nuclear safety role and although this was not significantly affected such leaks should not occur. The releases of carbon dioxide also present an asphyxiation risk to staff on-site. The site inspector investigated these events and NII has written to Station asking for a safety review and a programme of improvement aimed at preventing similar carbon dioxide releases in future.

49. An Improvement Notice was issued in 2004 to address a shortfall in defect management and safety case compliance processes. The completion date was 30 April 2005 and BE has provided evidence of the actions they have taken in response. Safety related defect numbers have been reduced from around 700 to fewer than 300 and major changes have been introduced into their Tech Spec and safety related plant compliance procedures. Improvements to safety related plant configuration control procedures are being introduced on a rolling programme that will take over 1 year to complete.
50. In support of the programme to replace Reactor Cooling Water Cast Iron pipe work, NII had agreed to the installation of a temporary additional cooling system. However, this programme has slipped from July 2005 to February 2006. Adequate progress will be a start-up issue for the R4 outage (due to complete in December 2005).
51. An event occurred in the irradiated fuel dismantling cell in April. To recover from this, Station electrically isolated the cell and by default isolated the related emergency cooling fan, which is not allowed by the Approved Nuclear Safety Requirements. BE are however arguing that the NSR was not breached as the emergency fan was at all times available to perform its nuclear safety duty (it could fairly simply be switched-on). This remains under investigation

## **Division 2 - Nuclear Fuel Cycle And Decommissioning Regulation**

### **Sellafield**

#### **General**

52. NII hosted a visit by the UK Ambassador to Dublin at Sellafield, which was useful in balancing the importance of the Sellafield issues in relation to general Anglo-Irish contacts. Significant progress has been made in establishing the Anglo-Irish links and HSE/NII was encouraged to maintain the effort in this area. The Ambassador's Team in addition to visiting various plant areas also had discussions with the BNGSL Management Team and the Trade Union Representatives.
53. NII are becoming increasingly concerned about BNGSL's apparent lack of contingency plans to cover failing reliability of key plants at Sellafield. Key areas are High Active liquor evaporation, SIXEP and Decontamination facilities. These issues have been raised at high-

level meetings with BNGSL and as a result the company is setting up a specific forum to take forward our concerns.

### **Leak of Product Dissolver Liquor from Fractured Accountancy Tank Feed pipe within Feed Clarification Cell of THORP**

54. NII was made aware on the 20<sup>th</sup> April 2005 of the discovery of some 83m<sup>3</sup> of leaked product dissolver liquor within the THORP Feed Clarification Cell. The liquor had been leaking undetected from a fractured pipe feeding one of two accountancy tanks. The leak was discovered by the licensee when investigating accountancy discrepancies. The incident has been rated as INES 3 due to the large inventory (20te U and 160kg Pu) that has leaked from primary containment into secondary containment.
55. NII have been in frequent discussions with the licensee regarding recovery of the leaked liquor but are satisfied that significant safety margins existed at all times throughout the incident and incident recovery. The leaked liquor is now back in primary containment but there remains some deposits on the cell floor lining.
56. NII has completed a preliminary investigation into the incident. This investigation has been undertaken separately and without knowledge of the BNFL Board of Inquiry. The preliminary investigation revealed concerns regarding instrumentation failures and sump sampling and as a result two Improvement Notices have been issued linked to Licence Conditions 24/25 (instructions and recording) and 28/34 (maintenance and leak detection). NII's investigations are still ongoing and are likely to be extended to cover other areas. The licensee has placed its Board of Inquiry report in the public domain.

### **B299 Leak of Fissile Liquor into Pumping Cabinet Following Failure of a Hose Connection**

57. In the last report information was provided regarding an incident that occurred in the Finishing Line (19<sup>th</sup> January 2005) when, during a transfer of fissile liquor, the outlet hose of the feed pump became disconnected and led to an accumulation of fissile liquor in a glovebox. NII Inspectors have completed their formal investigation into the incident and have issued the final investigation report. In summary the report concludes that:
  - the immediate cause of the event was catastrophic failure of the pump outlet hose, which was due to an inadequately conceived plant modification;
  - a significant number of the lines of defence claimed in the Fully Developed Safety Case (fdSC) were ineffective;
  - criticality did not occur and that an adequate safety margin to criticality was maintained during the incident;

- there was no release of radioactive material outside the containment of the glovebox, no persons were injured and none incurred any additional radiation dose as result of this incident.
58. NII inspectors identified a number of areas that require attention by BNGSL including: plant modification arrangements, training, alarm instructions, contingency arrangements, identification of safety mechanisms and resources. The investigation report made a number of recommendations regarding regulatory action to ensure that BNGSL address a number of areas. These have been taken forward, i.e.:
- an Improvement Notice on BNGSL was issued on 22<sup>nd</sup> March 2005 under LC 22 to ensure the Licensee implements adequate arrangements to control modifications; and
  - a Direction was issued to BNGSL on the 23<sup>rd</sup> May 2005 under LC31 (1) to halt Product feed to the conditioning vessels of Line 5 within the Finishing Line. BNGSL has been formally advised that consent to restart finishing line operations will require completion of a number of tasks to the satisfaction of NII. The most significant is a robust review and reassessment of safety that scopes the major plant hazards within the Finishing Line.
59. NII is aware there are wider implications if the finishing line were to remain shutdown for an extended period of time, which include potential delays in the restart of Magnox reprocessing and the processing of fuel pond stocks. Consequently, we asked BNGSL to demonstrate how it intends balancing safety and environmental risk on the Sellafield site when drafting its programme of work to address NII's requirements.

### **Fuel Handling Plant**

60. BNGSL has made good progress in decanning corroded fuel in FHP and as a consequence radiological conditions in the plant has improved significantly. Pond water activity levels are down to below 3000 Bq/ml.

### **High Active Liquid Waste Plants and Vitrification**

61. BNGSL has continued to meet the Specification for total volume of HAL stored in the Highly Active Liquor Evaporation and Storage Plant. Good performance of WVP and the limit on HAL generation has resulted in an increase in the margin between actual stocks and that required by the Specification. However, blend batch operation, forced by only one evaporator being available, has resulted in the target on the oxide derived HAL being exceeded; this was envisaged and is allowed for by the Specification.
62. Repairs on Evaporator A have been completed but additional shielding and improved isolation are required to be installed before the

evaporator can be used safely to process raffinates. This work should be complete in time to receive material on restart of Magnox reprocessing operations. Investigation of the failure of Evaporator B continues; while it is the intention to return the evaporator to service, no plan or time scale for the work to achieve this has been established. Evaporator C continued to be used to support both Thorp and Magnox reprocessing activities through to their outages in June 2005.

63. The situation in respect of Highly Active Storage Tanks (HAST) remain unchanged. The weeping of one of the HASTs is very small and the HAST continues in routine operation. Modification of the cooling water to another of the HAST's jacket sections 2 and 3 is underway to allow the coolant to be diverted to the low or high active drains as appropriate and remotely recover the plant in the event of a significant break through of activity. The future role of this HAST is under discussion.
64. Vitrification performance has significantly improved and the plant exceeded its planned production for 2004 / 05. The production is on track to meet the increased targets for 2005 / 06 with both lines 2 and 3 exceeding 100 containers in a single campaign. However, further performance improvements are required if the plant is to meet its increased targets to support the HAL stock reduction and reprocessing programmes and BNGSL have contracted COGEMA to assist in bringing this about.

### **Springfields**

65. As part of the reorganisation of the industry required as part of the introduction of the NDA the Springfields site was relicenced to Springfields Fuels Ltd. NII undertook numerous discussions and inspections to investigate the capability of the new management structure as a viable licensee. In addition the arrangements for the control and supervision of operations carried out by NSTS and UAM on the site have been inspected. NSTS & UAM have now become "tenant" organisations on the SFL site.
66. The site continues to make good progress with its decommissioning programme and generally NII has been satisfied with safety performance on the site.

### **Capenhurst**

#### **URENCO**

67. URENCO Capenhurst Ltd (UCL) has embarked on a number of projects as part of its programme of expansion on site. Commissioning of the latest expansion of the enrichment facilities on site is progressing well and the construction phase of the new Chemical Services

Laboratory Buildings has commenced. The recent safety performance of the site has raised no significant issues.

**BNGSL**

68. As part of the reorganisation of BNFL, undertaken as part of the introduction of NDA, the Capenhurst site was placed within the BNGSL management structure. The decommissioning work on the site is progressing in accordance with the anticipated programme. NII is participating in the policy reviews, currently being undertaken by the licensee (on behalf of NDA), for the future storage of uranic materials on the site. NII is challenging the licensee to advance the timing of the deconversion of some uranic materials into a safer form for longer-term storage.

**UKAEA****UKAEA General**

69. Overall, UKAEA's safety performance over the last four months has been generally satisfactory, but we have concerns about the Processing Caves at Windscale.
70. We have continued to give a high priority in the last few months to our interaction with UKAEA regarding their decommissioning plans, including participating in the formal review of UKAEA's Near Term Work Plans in March.

**Dounreay**

71. NII has concerns regarding the slippage of a number of key and interim Dounreay Site Restoration Programme (and Life Cycle Baseline) agreed milestones, particularly relating to shaft and silo waste retrieval; we will continue to discuss this with UKAEA.
72. The Scottish Executive has instructed Scottish Environment Protection Agency to refuse UKAEA's application to dispose of Low Level radioactive Waste to Drigg. UKAEA propose to proceed with the building of the interim store for which planning permission is still valid. NII will consider the safety of such proposals to the extent warranted by the hazard associated with the proposals and within the constraints of our current work plan.
73. A Licence Instrument agreeing to the construction of the NaK Disposal Plant at DFR was issued on 11th May; this meets the target in the Divisional plan. Assessment effort to close technical issues raised prior to inactive commissioning continues.

**Harwell**

74. A public report detailing the assessment of the Harwell SW-PSR has been approved and arrangements are being made to publish it on the HSE/NII website and issue a Press Release.

**Winfrith**

75. A Licence Instrument was issued on 31<sup>st</sup> May to permit commissioning of the Waste Encapsulation and Treatment Plant proceeding in accordance with the PCmSR.

**Windscale**

76. UKAEA Windscale reported that a package had been found by British Nuclear Group Sellafield Ltd near the Magnox Reprocessing Plant in the Separation Area during the evening of 12th April that had an unexpected high radiation shine and that the package had been shipped from the Windscale Processing Caves. Both UKAEA and NII are investigating the circumstances of this event. When NII's investigation is complete we will consider the appropriate regulatory action.
77. A Licence Instrument was issued on 6 June to acknowledge the Safety Case and therefore permit an intrusive foil hole survey at Pile 1.

**Amersham**

78. Encouraging discussions have been held on the project to decommission the Senior Caves at the Grove Centre, and the project to rationalise the site's management system. No significant issues emerged from a meeting with safety representatives.

**ICRC Ascot**

79. Letters have been exchanged with the College about a reactor operator whose DAP status they withdrew and who has failed to regain the necessary competence.

**Division 3 – Defence Sites****Licensed Sites/Facilities supporting the Naval Nuclear Submarine Programme**

80. The safety performance at 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), Devonport Naval Base 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.

**Barrow**

81. Two issues currently dominate at Barrow: the quality of naval reactor plant components, and the late delivery of naval reactor plant associated safety documentation from the delegated Design Authority (dDA). The first issue is being adequately managed in terms of safety, but progress is slow, principally because of a shortage of resources. The hold point management system, now fully implemented at Barrow, is proving very successful in managing stakeholder and regulatory responses to this issue. Although the dDA has allocated additional resources to producing NRP safety documentation, more are still required, and BAESM is working closely with the dDA to find a solution to the problem. We are continuing to monitor the situation.

**Devonport**

82. The delivery of the Staged Improvement Programme (SIP) continues to be a high regulatory priority at Devonport. We are monitoring the licensee's progress towards delivery of a number of significant improvements to facilities this year including:
- demolition of the Submarine Refit complex (SRC) office building to remove the possible collapse hazard;
  - seismic strengthening of the 5 Basin North Wall; and
  - installation of equipment to boronate S & T Class submarine reactor cores to further reduce the possibility of criticality faults during refit operations. This safeguard will be in place for the HMS Triumph Long Overhaul Period with Refuel (LOP(R)).
83. The Chief Inspector visited Devonport in May this year and inspected the submarine facilities viewing completed improvements and work in progress. It was noted the process for implementing further improvements through the D154 Phase 3 Project and other contractual arrangements is currently being reworked by the MoD. The Chief Inspector emphasised the need to ensure the agreed facility improvements are delivered in agreement with the established SIP process and not unduly delayed.
84. The second in class LOP(R) of HMS Victorious is proceeding in 9 Dock. We are carefully monitoring the licensee's progress towards commissioning of the Primary Circuit Decontamination (PCD) facility which will be used for the first time to clean the reactor primary circuit prior to the commencement of refuelling operations. PCD is important to ensure worker radiation dose levels are properly controlled and reduced to ALARP and a regulatory hold point is in place, to permission active use of the facility.
85. A benchmarking inspection of the Operational Experience Feedback arrangements was completed during the period. A similar inspection had been completed earlier at Aldermaston and from the exercise we

were able to identify good practices for sharing elsewhere and areas for improvement. We expect the licensee to address the recommendations made in our inspection report that should bring about further improvements to safety performance at Devonport in the medium to longer term.

### **Atomic Weapons Establishment**

86. In addition to the routine compliance work, team inspections on safety case processes and procedures and on waste handling have been carried out in the period. The safety case inspection revealed that the licensee is updating its processes and procedures. While areas for improvement were identified, it was judged that once the update work has been completed, good quality safety cases should be produced. The waste inspection, carried out in conjunction with EA inspectors, showed areas of good practice as well as identifying some issues requiring improvement, longer term strategies to be developed, etc. Overall, however, the site standard was judged acceptable. NII is encouraged by licensee work to develop an integrated management system that includes producing standards that all parts of the licensee will use in the development of their management and operational processes. These standards will be applied to the licence compliance arrangements as they come up for their routine review.
87. Routine compliance work has not identified any issues requiring formal action to be taken and NII assessment inspectors continue to work with the licensee in the safety case standards and methodology areas.

### **Emergency Arrangements**

88. NSD has worked closely with civil contingency colleagues in HSE in preparation for the coming into force of the Civil Contingencies Act. This has included provision of information for national and regional risk registers and briefing for regional and local resilience fora. NSD has also worked with Nuclear Emergency Planning Liaison Group (NEPLG) colleagues to facilitate the integration of the extant nuclear emergency arrangements into the overall civil contingencies process.

### **Security Informed Nuclear Safety Issues**

89. NSD continues to work closely with the Office of Civil Nuclear Security (OCNS) on security informed nuclear safety issues. OCNS participated in a weeklong visit by USNRC hosted by NSD. The visit included technical discussions and visits to a range of sites including the HSL laboratories in Buxton. The latter was to discuss Computational Fluid Dynamics (CFD) modeling and experimental work HSL has been undertaking on behalf of NSD.

## INTERNATIONAL ACTIVITIES

90. During the last period the Chief Inspector presented the UK's report at the third review meeting of the Convention on Nuclear Safety in Vienna. He led the answering of questions on the report and the discussion of issues with the peer review countries that took the rest of the UK's day. Additionally, he has attended INRA, CSS and NEA meetings to further the UK's interests, help enhance international nuclear safety standards, and benchmark the NII's regulatory activities. The annual meeting with the French nuclear regulator took place in Chinon during which a Magnox reactor undergoing decommissioning and a PWR undergoing an outage were visited.

## NSD ISSUES

### Nuclear Research

#### NuSAC/SCR Concerns

91. At its meeting on April 14<sup>th</sup> 2005 the NuSAC sub-committee on research (SCR) agreed that the 2005-06 HSE Levy Programme and the British Energy, Magnox Electric and Sellafield Research Schedules presented an adequate and balanced programme, which they endorsed. However the SCR expressed a number of concerns, in particular:
- NuSAC SCR is disappointed that since the introduction of the new research arrangements the continuing financial situation of BE continues to adversely affect the nuclear safety research programme. It notes a continued downward trend in the cost of the programme and is concerned about the increasing commercial pressures on nuclear safety research.
  - NuSAC SCR considers that the research needs for decommissioning plant are not significantly less than for operating plant. It is also concerned about the potential effect of commercial pressures on safety research for decommissioning plant, and there is unease caused by uncertainty arising from the effect on the research programme of the introduction of the NDA, as there was about the effect of any new system.
  - NuSAC SCR is also disappointed that in recent years the agreed programme has led to a reduced outturn, as resources were diverted to other issues. Nevertheless it accepts that the timescales for research issues are often long and work can be deferred without unacceptable safety consequences, and notes that if HSE judges that the consequences are unacceptable, it can use its regulatory powers.

**The Problems with the British Energy Programme**

92. The British Energy Strategic Programme, including its contribution to the research programme, had suffered late budget cuts as a consequence of the financial problems being experienced by the company. Although the decision to cut the budget for the 2004-05 programmes had been made in December and 2005-06 budgets in February, these cuts were not communicated to HSE until March, giving no opportunity for discussion. HSE's assessment was that these cuts would have no material effect upon safety but work to address key issues will be slowed down. The main consequence of British Energy taking action to make these cuts without consulting HSE was to undermine HSE's trust in the company's cooperation on safety research. British Energy recognised that there had been a breakdown in communications with HSE and is putting in place arrangements to correct this in order to assure us that work is proceeding as planned.

**Effect of the NDA on Future Research Programmes**

93. The NDA coming into being provides an opportunity for change, but also brings about change, which in HSE's view potentially could have an adverse effect on nuclear safety. The NDA wants to take responsibility for the long-term generic research and although HSE welcomes this change, HSE needs to be in a position to influence or offer up its own ideas.
94. Although NDA is setting up a Research Board to advise it, it has not yet started functioning. As mentioned above, there are concerns about the potential effect of commercial pressures on safety research for decommissioning plant.
95. Furthermore, there are considerable uncertainties about the division of responsibilities between NDA, the Site Licensee Companies (SLCs) and HSE. In particular, it is not clear who has responsibility for issues over time spans longer than the duration of the contracts, or that affect more than one SLC. Examples such as hydrogen ignition research have already arisen.

**Proposed Research Forum**

96. The HSC Coordinated programme of Nuclear Safety Research has changed over the years, by design and agreement, to become more operational, more short-term, and more aligned with the reactor licensees' aims. It has also become smaller in volume. Arguments have been made and accepted (by HSE NSD Management Board, NuSAC SCR and HSC amongst others) for these changes for the reactor licensees. The current arrangements for Sellafield are more recent and for UKAEA are under development, so the situation there is different. NSD research unit wishes to promote a discussion of the future direction of the programme. To discuss the future direction of the programme a Forum will take place at Rose Court in July.

**Organisation / Resources**

97. The Health & Safety Executive agreed to increase NSD's resources for 2005/2006 to 179 inspectors. As of the 1st June 2005, NSD has 166 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.
98. Response to the recent recruitment campaign had been relatively good with 77 applications being received. Of the 17 advertised disciplines one was filled internally from HSE and nine filled by external candidates subject to security clearance. There were no suitable candidates for the Radiation Waste Management or Human Factors posts. There are still nine outstanding vacancies in the areas of Human Factors, Radiation Waste Management, Chemical Plant Process Engineering, Chemical Fault Studies, Ventilation, Health Physics, Radiation Protection Modeling and another recruitment campaign is being considered.

**Legal Instruments Issued – 1/4/04 – 31/05/05**

<b>Legal Instruments Issued –</b>				
	Division 1	Division 2	Division 3	Totals
Consents	11			11
Approvals	14	1		15
Directions		1		1
Licence Instruments Issued (Specifications)	95	10	12	117
<b>Totals</b>	<b>120</b>	<b>12</b>	<b>12</b>	<b>144</b>

**Project to Benchmark and Review the NII SAPs**

99. A report summarising the stakeholder comments on the December Discussion Document and the HSE responses to them has been put on the HSE web site. This is on a new SAPs page linked to a revised and improved NSD home page. Future stakeholder dialogue will be via this site, which contains the revised SAPs structure and any new text as it is released. It also has the programme for the release of the various sections and a “what’s new” link.
100. The SAPs structure has been revised from that issued in the Discussion Document, with the Assessment and Verification section having been brought to the beginning of the document but only containing principles and guidance related to the process of assessment (as opposed to the subject matter and outputs of assessment). A new section on Accident Analysis has been created. The Engineering principles also have some detailed restructuring as the result of insights arising from the drafting process.
101. It is intended that the drafting stage and initial stakeholder interactions should continue until the end of November, with a seminar/workshop under the auspices of the I. Mech. E. arranged for 22 November 2005 at the Birchwood Conference Centre at Risley. The revised SAPs, which will be issued in March 2006, will still be a draft for public consultation. The transitional arrangements that will follow were raised as an issue by stakeholders and will need to be addressed at the seminar.
102. HSE has agreed to work with the Naval Nuclear Regulator on the drafting of the new SAPs as CNNRP has decided that it would like to reach a position where the NII’s SAPs could be rendered appropriate for adoption by it for the assessment of the naval nuclear reactor plant. This cooperative arrangement is working well and is not adding significantly to timescales.
103. The possibility of a more detailed presentation on the status of the project at the next (13 October 2005) NuSAC meeting has been pencilled into the diary, if members feel that it would be useful and of interest.

**Mike Weightman**  
**July 2005**