

NuSAC/SCR/04/M2

**HEALTH AND SAFETY COMMISSION
NUCLEAR SAFETY ADVISORY COMMITTEE
SUB-COMMITTEE ON RESEARCH**

**Minutes of the 35th Meeting of the
Nuclear Safety Advisory Committee Sub-Committee on Research
16 September 2004 at HSE, Rose Court, London**

Present:

SCR MembersHSE

Prof J Knott (Chairman)	Dr P Storey
Dr P Haigh	Dr A Miller
Prof B Littlewood	Dr H Starkie
Prof D Owens	Mrs J Brady
Prof S Parry	Mrs A Edwards

LicenseesC&I Presentation

Dr G Airey, BE	Mr R Yates, HSE
Dr J Thomson, BE	Mr P Tooley, BE
Dr R Ainsworth, BE	Mr S Wardle, British Nuclear Group Sellafield
Ms M Wise, UKAEA	Dr S Johnson, British Nuclear Group Reactor Sites
Dr J Hobson, British Nuclear Group, Sellafield	
Mr S Daniell, British Nuclear Group Reactor Sites	

Mr S Walsgrove (DTI)	Prof R Bloomfield, NuSAC
Mr F Lopez (LMU)	Mr S Vbranch, NuSAC (part-time)
Mr T Selby (LMU)	

1. Chairman's Opening Remarks

1.1 The chairman opened the meeting. He welcomed the participants from LMU and UKAEA, who had been invited because of the session on NDA. Mr Walsgrove (DTI), Dr Dimbylow (MOD) and Dr Davies (HSE Chief Scientist) had been invited as observers in their capacity as NSRSG members, but were unable to attend, apart from Mr. Walsgrove. The chairman thanked Dr Thomson and Dr Airey from BE, whose last meeting this was. He welcomed Dr. Ainsworth from BE, who was attending for the first time as part of the BE transition. The secretariat had invited Margaret Burns, the HSC member with responsibility for nuclear matters. She was unable to attend, but had asked to be invited to future meetings. It was agreed that this should be a standing invitation (*Action 04/13*). The chair expressed concern that the committee's access to HSC had been reduced with HSC's new methods of working, with the research programme paper being taken below the line at HSC meetings. HSE offered to arrange a meeting between the chair, HSE and HSC (action 04/14) to address this concern.

2. Approval of Minutes: 34th Meeting and Matters Arising.

2.1 The minutes of the 34th meeting held in April 2004 (NuSAC/SCR/04/M1) were approved.

2.2 It was noted that all the actions had been completed or were on the agenda. The details of the actions had been appended to the meeting agenda.

3. Membership of SCR

3.1 The chairman noted that three of the current SCR members had reached the end of their 10 year period. A new chairman (Mr S Vranich) had been appointed for the main committee recently, and NuSAC was being reconstituted. The secretariat would invite new SCR members, checking whether there was a requirement to have CBI and TUC members (*Action 04/15*).

4. Update on any significant changes in the 04/05 programme

4.1 HSE and the licensees said that there had been no significant changes in the 04/05 programme, and over 90% of the programmes had been committed.

5. NDA

LMU's view of research under NDA - NuSAC/SCR/04/13

5.1 Mr. Lopez presented this paper. The powers of NDA included:

- making grants or loans to persons carrying out research
- using its facilities for research into any matter
- using its facilities for research to generate funds
- promoting the carrying out of research by others.

5.2 There had been a planning meeting to set up a Research Board of NDA and other Government Departments and agencies. This would advise NDA.

HSE's view of arrangements for NDA licensee research - NuSAC/SCR/04/14

5.3 Dr. Storey presented this paper. The present arrangements and legal situation between HSE and the licensees were fundamentally unchanged, but the NDA had to be included in the arrangements. HSE believed the current research transparency arrangements with the reactor licensees and BNFL provided a good basis, and HSE was working with UKAEA to improve the research arrangements between them. Historically these had received less attention since the change in the role of UKAEA. There was a need to ensure a smooth transition from the current arrangements and programmes, including the current arrangements for preserving essential research capabilities (staff and facilities). HSE was discussing a MOU with NDA on research. The SCR had a key oversight role.

Impact of NDA on BNFL's organisation - NuSAC/SCR/04/15

5.4 Mr. Daniell and Dr. Hobson presented this paper. BNFL was undergoing a major change programme for the transition from an owner-operator to an M&O contractor, but it would be ensured that Site Licensee responsibilities with respect to research were fully maintained. BNFL felt that, with the introduction of the NDA, the existing arrangements for optimising and integrating generic (multi-site) and long-term nuclear safety research issues and associated capabilities were no longer appropriate. BNFL believed that longer term, generic projects of this nature were likely to be the major part of the required research programmes, and NDA should have the responsibility for commissioning the work. Dr Hobson proposed a model for dialogue between the NDA licensees, the regulator(s), NDA and the NDA research board, with mechanisms for both top-down and bottom-up flows of information and proposals. Continuity would be maintained until new arrangements were in place, but it was important that these mechanisms were clarified as soon as possible. A meeting between NDA, HSE and Licensees would be arranged shortly.

Future of UKAEA technology under NDA - NuSAC/SCR/04/16

5.5 Ms. Wise presented this paper. UKAEA was now involved in development work rather than research, and had appropriate arrangements in place which would not need changing following the setting up of the NDA. UKAEA were working with HSE to improve transparency of R&D, and they welcomed the setting up of the NDA research board. UKAEA was involved in extensive collaboration agreements, but any potential collaboration with BNFL could be affected by the fact that they would be competing for contracts in the next phase of the NDA programme. UKAEA had had adverse experiences with loss of IPR in some previous collaborations. UKAEA was involved in 'gateway' reviews with NSTS and ALFA, and was concerned that the needs drivers for some of this work was unclear.

Discussion

5.6 In response to the SCR Mr Lopez replied that the Research Board would not commission work itself, but would have a coordinating function. The SCR expressed concern that NDA needed technical expertise to make judgements, which would in part be supplied by the research board, but there was a need for licensee input. NDA had limited resources.

5.7 In response to the SCR, LMU replied that the safety and environmental law was unchanged. HSE could not direct or levy NDA in the way that it could direct or levy licensees. The MOU to be developed would address how the research levy would operate in the new triangular situation.

5.8 The SCR expressed concerns that:

- The BNFL Nuclear Science and Technology Services business NSTS would be used both to provide advice on the required technology needs and to supply research. This was a conflict of interest;
- if NSTS's facilities were used for external commercial purposes, they might not be available for NDA needs.

5.9 LMU said that IPR was a major issue being addressed by the lawyers currently, with the need to incentivise the developer but to avoid duplication.

5.10 The SCR asked what happened if unforeseen needs arose. LMU replied that there was a mechanism for change control, which could either release more funds or defer other non-safety work. A prioritisation scheme was being developed to address this. HSE said that decommissioning was a new situation. It could not be stopped in the same manner as operation, and waste management timescales (and the timescales of the required research) were longer than the duration of the site management contracts. LMU replied that the use of the Life Cycle Base Lines addressed this timescale issue, and also gave an overall view of all sites and showed the opportunities for synergies.

5.11 The SCR asked whether the competition process would be designed to optimise safety or to satisfy a threshold value. LMU replied that there was a sophisticated assessment process which would involve the regulators and would have pre-entry qualifications. Previous experience and reputation would be taken into account.

5.12 The SCR expressed concern that the process could lead to problems similar to those observed for British Energy and the Strategic Rail Authority.

5.13 The licensees and the SCR expressed concern about the Terms of Reference of the Research Board, and the need to include the licensees and the SCR in the consultations. The SCR expressed concern about their overview of safety work, and asked for an early view of the proposals by LMU/NDA (*Action 04/16*).

5.14 The SCR expressed a concern that even if most of the staff remained in a change of contractor, new management could introduce a change of culture or make the staff sign agreements which could bring about changes for the worse. LMU replied that there were both good and bad examples in practice.

5.15 The chair expressed the view that there were potentially increased research needs compared with operation because the uncertainties were greater. The licensees expressed the view that the needs were reduced as the hazard was less. The chair replied that perceptions were different, and it was important to provide public assurance of demonstrable safety.

5.16 The chair summarised that there were still substantial uncertainties and concerns to be addressed in the new arrangements. In the light of this it was agreed that the technical presentations at the next meeting would be on Waste Management and Decommissioning, and the chairs of NuSAC Review Groups 2 and/or 3 should be invited (*Action 04/17*).

6. Presentation on C&I research

6.1 Mr Yates (HSE) introduced the presentations. The C&I programme was overseen by CINIF (C&I Nuclear Industry Forum) which was wider in scope than research, and included members for Chapel Cross&Calder Hall and Sellafield, as well as the Superintending Inspector who was NSD Nuclear Topic Lead for C&I. UKAEA and AWE had been invited to join, but had not yet attended. There was still extensive collaboration in projects. The current issues were mainly computer based, but there were essential capability issues for non computer based systems.

6.2 Mr Tooley (BE, CINIF chairman) summarised the activities of CEMSIS (Cost Effective Modernisation of Systems Important to Safety), a Euratom FP5 project that BE had coordinated. The case studies had been close to applications, and it had benefited from industry participation (with EDF and BNFL also). It had provided practical guidance and accelerated collaborative working, but a very large overhead had been provided by BE in the coordination.

6.3 Mr Wardle (Sellafield) described the dissemination of research results within Sellafield. There was a traceable path from the results to standards and procedures, technical solutions on projects, the Design Authority, the Maintenance Authority and the Intelligent Customer.

6.4 Dr Johnson (Magnox) described the maintenance of Essential Research Capability. Two Key Teams were being supported, in the areas of nucleonics and reactor protection equipment.

6.5 The SCR said they were encouraged to hear that novel high risk areas such as SMART sensors were being investigated. HSE replied that they felt there might be no other option in the future. The licensees added that they already had such experiences.

6.6 The SCR asked about the leverage in international collaborations such as CEMSIS. BE replied that not all the funding had been matched, and the UK had paid 25% of the total. The SCR asked if the group had an international strategy, as it was an active area. BE replied that they followed the OECD Halden project, were considering a follow-on project to CEMSIS in FP6, and had also looked more widely.

6.7 The SCR asked about security issues, as the profile of this would be raised by the Office of Civil Nuclear Security, and the market might not provide what was required. HSE replied that this area was being addressed, but they were also looking for ideas.

6.8 The SCR asked HSE what they used to judge new proposals from the industry for operating plant. HSE replied that they used a combination of CINIF results, industry studies, NSD's Safety Assessment Principles and Technical Assessment Guides, supplemented with external expertise if necessary.

6.9 The SCR asked if there were staff shortages in this area. HSE replied that the area followed general nuclear industry trends, and the key team work helped. BE replied that the biggest issue was the supply of legacy systems.

6.10 The chairman summarised that their main concern had been that the technical debate was maintained in the new arrangements, and they had been reassured by the presentations.

7. Nuclear Research Index 2004 (HSE) NuSAC/SCR/04/17

7.1 Dr. Starkie presented a summary paper on the NRI. There were 199 live sub-issues. Excluding the W&D area, which had been overhauled, there were 12 new sub-issues since the previous year, and 32 had been closed. Some technical areas (such as PSA, plant modelling, nuclear physics, radionuclides, radiological protection) were mature areas where the main requirement was continued support for Essential Research Capability and intelligence gathering. These residual issues were not amenable to closure whilst plant continues to operate.

7.2 Waste Management and Decommissioning was the main growth area of the NRI, although whether the required research was commissioned by the licensees or the NDA had to be determined. C&I, graphite and plant life management (steel components) were the other most active areas, the first being driven by technological change and the last two being driven by the ageing process.

7.3 HSE and British Nuclear Group Reactor Sites said that they were discussing the best way to organise the W&D area, as it was anomalous in not being organised on technical discipline grounds, which caused some problems. HSE's remit here covered waste management in addition to nuclear safety. HSE was considering separating the issues for operational and non-operational stations. This would be reported on at the next meeting, along with the technical W&D presentation (*Action 04/18*).

8. Evaluation of 03-04 programme

HSE NuSAC/SCR/04/18

8.1 Dr. Miller said that this year the evaluation had been moved forward to the autumn meeting, with more weight on the technical results and less on numerical

analysis. The former IMC companies were now reporting separately, reflecting the changed arrangements. Evaluation methods were under discussion, but it remained difficult to demonstrate directly the safety benefits of the programme. In particular the levy programme had generic long-term objectives of intelligence gathering, benchmarking and infrastructure maintenance, and issue closure could not be used as a yardstick as it could be for the licensee commissioned projects. Determining which projects were reasonably practicable to undertake was mainly done by a dialogue between HSE and the licensees rather than by any formal criteria.

8.2 The evaluation had put maintaining knowledge and expertise in the regulator and licensee as the principal benefit. 25% of the projects had not yielded any safety benefit, 20% of the projects gave results which had already been used, and 25% gave results which were capable of being used immediately.

8.3 In response to the SCR, HSE replied that the riskiest projects were:

- international collaboration, because this was less flexible (although it gave good gearing)
- funding PhD students, as it was not always possible to get good students (although there were other benefits of low cost and supporting university departments).

8.4 In response to the SCR's concern that the new arrangements represented a step reduction in the nuclear safety research programme, HSE replied that the technical maturity of several areas, the Magnox closure programme and the reduced research requirements for decommissioning plants meant that there had been an agreed reduction in the volume of the programme. HSE also recognised that the intensifying nature of the market in which the licensees competed meant the licensees were challenging proposals more robustly. Although HSE had not changed their criteria for deciding which were the high priority issues that merited research, this did mean that the programme was now more concentrated on projects designed to give more immediate significant safety benefits than in the past. If major issues arose such as had happened recently with graphite, HSE was prepared to do everything that was necessary to ensure an adequate programme. The two main routes available to HSE in case of unresolved dispute were to use the levy powers or to use regulatory powers. In the instance of graphite, the issue had gone into the regulatory arena.

BE NuSAC/SCR/04/19

8.5 Dr. Airey presented this paper. The outturn had been less than planned because staff had been diverted onto emerging operational issues, but this had been agreed with HSE. He gave examples of where projects had contributed to nuclear safety by knowledge retention, plant optimisation, support to safety cases, data accumulation etc. The technical exchanges had been monitored and found to be satisfactory by HSE. In response to a previous audit, information on the non-NRI programme (formerly Industry Direct) had been included in an appendix.

8.6 In response to the SCR, BE replied that some of the work on the emerging operational issues was itself generic in nature. The postponed research work was

carried forward to the next year's programme in general. However the budget was not carried forward, as a limitation was staff to manage the work.

British Nuclear Group Reactor Sites NuSAC/SCR/04/20

8.7 Mr. Daniell presented this paper. There had been a small reduction in the planned programme due to a W&D project not being practical, as previously reported. Additional research projects on graphite had been commissioned. Examples were given to demonstrate how the work had contributed to nuclear safety.

8.8 In response to the SCR, it was explained that the only significant future research area required to support generating plant was in graphite. The last stations to cease generation were the two with concrete pressure vessel: Oldbury in 2008 and Wylfa in 2010 (planned dates).

9. Revised Guidelines for HSC Co-ordinated programme NuSAC/SCR/04/21

9.1 HSE withdrew the paper, as it would be superseded by the MOU between HSE and NDA already referred to.

10. Any other business.

10.1 There was a below-the line joint HSE/Sellafield paper NuSAC/SCR/04/22 on nuclear chemical plant research arrangements. HSE's technical area strategies and BNFL Sellafield's Nuclear Research Schedule were also presented as complementary information. The chairman expressed the view that this information was very helpful. HSE and BNFL had agreed that next spring (after a complete year of operation of the new arrangements) would be a better time to review the new arrangements.

10.2 BE raised the issue of the inadequate funding for the Imperial College reactor Consort. BE supported continuing operation, but could not provide sufficient finance itself. HSE said the issue had already been discussed at NAILS (Nuclear Academic and Industry Liaison group), but HSE was attending the workshop organised by Imperial College in October on this, and they would report back (*Action 04/19*), but HSE had reviewed the issue and concluded it was not appropriate for HSE to support Consort with levy funding. The chairman said that EPSRC should be lobbied.

10.3 Dr. Storey thanked the retiring members and participants (Profs Knott, Parry and Littlewood, and Drs Airey and Thomson). The chairman added his thanks, saying that the committee had seen major changes in the last 5 years. He believed that the research programme was still appropriate and sufficient to support plant safety.

10.4 The next meeting date would be fixed when the new membership was known.

Actions

04/13 - HSE - HSC to have standing invitation to meetings

04/14 – HSE – Arrange meeting with M Burns (HSC) and SCR chair

04/15 – HSE - Invite new SCR members, checking whether there was a requirement to have TUC and CBI members

(Note – Dr R Dolby, ex TWI, has accepted an invitation to be seconded)

04/16 – LMU/HSE – Send SCR early draft of MOU

04/17 – HSE – Arrange W&D presentation at next SCR mtg, inviting RG2&3 chairs

04/18 – HSE – Report on organisation of W&D NRI at next SCR meeting

04/19 – HSE – Report back on Consort reactor from Imperial College workshop in October