



CONTENTS

Organisational update

British Energy

Safety management audit
Decommissioning strategies

Nuclear education

Relicensing of AWE

Ventilation loss to Sellafield plant

Wylfa - unexpected findings update

Dounreay

Safety audit
Fuel cycle area start-up

Waste management and decommissioning guidance

Ionising Radiations Advisory Committee (IRAC)

Nuclear Safety Advisory Committee (NuSAC)

International

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Editorial

Thank you for taking the time to respond to our questionnaire on the scope and format of the Newsletter. Your comments were much appreciated. Most were positive, for example "useful overview of what is current in the nuclear industry" and "it gives some indication of NII's thinking and priorities". All found the Newsletter useful in terms of its content but some felt there was too much use of acronyms and we have tried to reduce these in this issue. Others felt that more information on the NII organisation would be helpful; we have therefore included some details of our top management team. I hope you will see that we have taken your comments seriously and have acted to make the necessary improvements. In NII we are aiming to deliver regulatory excellence through continuous improvement and your comments on the Newsletter or other aspects of nuclear safety regulation are always welcome.

We continue to be kept very busy as we try to improve our regulatory processes, keep on top of our licensing duties and respond to incidents and initiatives. We are continuing to review and refine our regulatory processes, including the basic inspection programme, and I hope I will be in a position to report on developments in future issues.

For some time now I have been concerned about the future of nuclear education in this country. The number of universities providing undergraduate courses in nuclear engineering and science have declined to the point that no such courses are available. The picture for postgraduate courses is not much better. Irrespective of whether the current nuclear reactors are replaced by new plant, the nuclear industry will require suitably qualified and experienced people for many decades simply to operate the existing power stations, operate the nuclear submarine fleet, and design, build and operate the new facilities that will be needed to decommission current facilities and to manage the handling, treatment, storage and disposal of radioactive waste. In conjunction with the Department of Trade and Industry, we organised a seminar to discuss the issue. I am pleased to say the event was a success and I hope we can maintain the momentum to address this vital issue. We do not have a safety problem now but if nothing is done we could have one in ten to 15 years from now.

We have signed a Memorandum of Understanding with the Office of Civil Nuclear Security to ensure better co-ordination between safety and security issues. Following the re-licensing of the new contractors running the Atomic Weapons Establishment at Aldermaston, we gave a commitment to review the performance of the new contractors after their first year of operation. We completed this task on time and have concluded that safety performance has been maintained and in some areas improved.

On the international front we have again been busy both learning from others and sharing our knowledge and experience to advance nuclear safety world-wide. I hope you find this issue helpful, but if you have suggestions for improvement please do not hesitate to write to us.

Laurence Williams

Director of Nuclear Safety and

HM Chief Inspector of Nuclear Installations

Organisational update

HSE's Nuclear Safety Directorate (NSD) has the overall responsibility for meeting HSE's nuclear health and safety objectives. HM Nuclear Installations Inspectorate (NII) is the Directorate's operational arm responsible for enforcing nuclear licensing at sites.



Laurence Williams, Director of the Health and Safety Executive's (HSE'S) Nuclear Safety Directorate and Her Majesty's Chief Inspector of Nuclear Installations.

Laurence holds an honours degree in mechanical engineering and a masters degree in nuclear reactor technology. In 1976, he joined the NII as a nuclear inspector and has held a variety of posts including the assessment of the safety case for PWR fuel for the Sizewell B reactor, fuel behaviour in the Commercial Fast Breeder Reactor, and the civil structure design of BNFL's THORP reprocessing plant. He has also been responsible for the regulatory inspection of BNFL's Sellafield site as well as all the commercial nuclear power stations. Prior to his promotion to Director, he was head of HSE's Nuclear and Hazardous Installations Policy Division. Laurence has worked on a number of international activities with the Organisation for Economic Co-operation and Development's Nuclear Energy Agency (OECD/NEA), the International Atomic Energy Agency (IAEA), the European Union (EU) and the European Bank for Reconstruction and Development. He is currently Chair of the IAEA's Commission on Safety Standards and Chair of the International Nuclear Regulators' Association.



Dick Pape, Deputy Chief Inspector - heads Division regulating British Energy, Nycomed Amersham, and research reactor sites. Other work of the Division includes cross-directorate quality assurance and non-

nuclear health and safety inspection. Dick joined HMNII in 1975 from UKAEA Harwell to work on external hazards and siting issues, and fire and fuel safety in reactors. He joined the newly formed HSE Major Hazards Assessment Unit in 1980, preparing advice for local planning authorities on the siting of petrochemical plants and developments around them. He was also part of the working groups which produced the HSE Tolerability of Risk documents. In 1990 he helped to set up HSE's new Offshore Safety Division and was involved in the development of the offshore safety case regulations. He rejoined NII in 1993 as head of Assessment Division. In 1997 he became head of the division dealing with the UKAEA and defence sites; and he took up his present role in 2000. Extramurally, Dick is Director (formerly Chair) of the Safety and Reliability Society, the UK professional institution for technical specialists in risk and reliability assessment.



Mike Weightman, Deputy Chief Inspector - heads Division regulating BNFL, Urenco and Magnox Electric sites. Mike has had a variety of jobs since he joined HSE's NII in 1988 as a Principal Inspector of Nuclear Installations. He has inspected Magnox reactor sites, Heysham 2 (an advanced gas-cooled reactor site) and the UK's research reactors. He has headed various units in NII including a site inspection unit covering the AWE sites at Aldermaston and

Burghfield, and Royal Navy dockyards where nuclear powered submarines are maintained and refuelled. He has also headed units for nuclear regulatory strategy and policy. In the latter role he led the HSE project in 1995/96 to respond to and regulate the Government's proposals to restructure the nuclear power industry and privatise the more modern stations. He is a chartered engineer and chartered physicist.



Jim Furness, Deputy Chief Inspector - heads Division regulating Defence and UKAEA. Jim has held a wide variety of jobs since he joined NII in 1985 as a quality assurance specialist. He has been an inspector of Torness, the UK's most recent advanced gas-cooled reactor, and has headed various units and divisions within NII. In one of these roles, he was responsible for inspection activities at all of the UK's nuclear sites. More recently he was

responsible for the Division regulating BNFL, including enrichment, fuel manufacture, Magnox reactors and reprocessing. He now heads the division which inspects the UK's defence-related sites and the UK Atomic Energy Authority. He has been responsible for several high-profile investigations which led to the publication of reports including those on Dounreay in 1998 and last year on BNFL's Sellafield site and on the falsification of data in Sellafield's Mixed Oxide Fuel (MOX) Demonstration Plant.



Gordon Macdonald, Research and Strategy Division Head. Gordon joined HSE in 1978 as HM Factory Inspector and spent many years in the Factory Inspectorate - later the Field Operations Directorate (FOD) - dealing with a wide variety of industry sectors. His longest spell was dealing with major hazard chemical plant with responsibilities for inspection, enforcement and assessment of safety cases. After a spell in FOD Headquarters dealing

with work-planning for the Directorate as a whole, he joined Safety Policy Directorate (SPD). There he spent four years on major hazards policy - the main task was implementation of the Seveso II Directive (the COMAH Regulations in Great Britain) and he was involved in representing the UK in EU, OECD and UN major hazards fora. From SPD, he joined Operations Unit where he was involved in jobs as diverse as leading a multi-disciplinary audit of Railtrack following the Paddington disaster, and undertaking a study of permissioning regimes in HSE on behalf of the Board. He joined NSD in August 2000.

British Energy (BE)

Safety management audit

British Energy (BEGL and BEG(UK)L) have set up teams to respond to the recommendations in HSE/NII's safety management audit of BE in 1999. The issues identified and the recommendations made were expected to require substantial work by the licensees. A method of working was agreed. Stage 1 involved draft proposals from BE being reviewed by NII to confirm that BE had addressed the underlying concerns and that developed responses, when implemented, were likely to adequately address the recommendations.

Stage 2 requires evidence of implementation. It was anticipated that some responses would be cleared by inspection of their implementation at Stage 2, but that others would depend on BE providing evidence of the effect of the changes over a further period of time. Responses in this latter category would be moved to Stage 3. Progress to date has been reasonable, given the rigour of the process, with drafts for 50% of the recommendations having been delivered and endorsed to move towards Stage 2. We have seen 13 Stage 2 submissions and cleared six of them. Stage 1 proposals for another 20% of the recommendations are with BE for further work before clearance to move to Stage 2. We await Stage 1 proposals through this process for 30% of the recommendations.

Decommissioning strategies

As part of the Government Review of Radioactive Waste Management Paper (Cm 2919) HSE/NII agreed to carry out a review every five years of licensees' decommissioning strategies to ensure they remain soundly based.

An HSE/NII team undertook a technical review of British Energy's (BEGL and BEG(UK)L) quinquennial review submissions and their supporting references at BEGL's headquarters at Barnwood from 30 October to 3 November 2000. This started the formal process of NII assessment which has now been completed. There has been a period of consultation with the Environment Agencies and others. The results of NII's technical findings have been supplied to BE and to the trustees of BE's decommissioning fund. One of the primary conclusions of the NII assessment was that the proposed strategy was appropriate at this time and was flexible enough to accommodate lessons which may be learned in decommissioning other licensees' sites. The report is available on the HSE website.

Nuclear education

HSE/NII is one of several organisations that have a role to play in the future of nuclear education. NII and the Department of Trade and Industry (DTI), co-sponsored a forum on this topic.

The Nuclear Education Forum took place on 16 February at Mottram Hall Hotel (near Macclesfield) and was attended by more than 100 delegates. It was characterised by the high quality of presentations and the senior representation from all parts of the nuclear sector.

The Chief Inspector, Laurence Williams, gave a talk on the importance of maintaining nuclear safety competencies. He outlined the duties and responsibilities which fall to the nuclear regulator and to nuclear site licensees, reviewed the status and development of nuclear education in the UK and around the world and ended by throwing down the challenge to both Government departments and the industry to develop a strategic approach to the issue.

A talk by Helen Leiser, Director of DTI's Nuclear Industries Directorate, provided a Government perspective on the issue and proposed the need to plan for the future. Helen was very keen that a group should develop a strategic way forward and take responsibility to co-ordinate activity and that integrated planning should especially take account of human resources and joined-up government initiatives.

Roger Clarke, Director of the National Radiological Protection Board, spoke of the importance of education and training in the radiation protection area. The forum also heard views from across the nuclear industry, in particular about initiatives which had already taken

place. The universities were well represented and provided important information on how they were working more closely with industry to deliver industry's needs. There was also a presentation from the Department for Education and Employment.

The Chairman, Professor John Cheshire from Sussex University, summed up the event eloquently. He stressed the need for an interdepartmental Steering Group to co-ordinate responses to the issue and to be a focal point for activity and accountability. John also required different parts of the industry to co-ordinate their activities and to develop strategic plans within their own corporate planning arrangements. He emphasised the need to resource these activities adequately but take account of similar developments occurring elsewhere.

The Forum was organised in part to provide a UK response to the recent report Nuclear education - cause for concern? by the Organisation for Economic Co-operation and Development's Nuclear Energy Agency and has given the topic the necessary visibility and momentum so that the steering group can establish a strategy to address the issues.

The proceedings of the Forum are available on the HSE website: www.hse.gov.uk/nsd/nuceduc.htm

Regular updates on developments will be issued through the above website.



Laurence Williams, Helen Leiser and John Cheshire at the Nuclear Education Forum

Re-licensing of AWE

Since 1997 HSE/NII has regulated the Atomic Weapons Establishment (AWE) sites at Aldermaston and Burghfield under the UK's nuclear-site licensing regime. Until 31 March 2000 Hunting-BRAE was contracted by the Ministry of Defence to manage the operation of the sites. Following a rebidding process, AWE ML, a joint venture company comprising BNFL, Lockheed Martin and SERCO, was appointed by MoD's Defence Procurement Agency (DPA) as the new management contractor for the next ten years. The new licences are held by AWE plc, the employer of the labour force. NII undertook to provide ministers with reports on the safety performance of the new management contractor after three and 12 months following licensing. The three-month report was published in July 2000 and concluded that health and safety had been successfully managed during the change of contractor and licensee.

As part of the 12-month review, HSE undertook a team inspection during the first week of April 2001 with five inspectors from NII and an explosives inspector. Support was also provided by two Environment Agency inspectors. The report on the review was published in June 2001. It concluded that safety performance on the AWE sites was satisfactory and on the basis of the first 12 months was expected to remain so in the future. Areas for further development and improvement have been identified as well as areas of good practice and innovative thinking. Copies of these reports are available on the HSE website at www.hse.gov.uk/nsd/nsdhome.htm



AWE, Aldermaston site

Ventilation loss to Sellafield plant

On 26 January 2001, the ventilation system for the B215 high active liquor (HAL) storage tanks was inadvertently isolated during work to install a new caustic scrubber to reduce carbon 14 aerial discharges. Ventilation to the tanks was lost for approximately three hours. No release of radioactivity occurred and no worker was exposed to enhanced radiation levels. However, investigations revealed that improvements were appropriate in both the operation of the plant and in the project to install the caustic scrubber. NII issued two Directions under the nuclear site licence: one to require BNFL to undertake a safety review of the operation of the plant, and the other to require BNFL to obtain NII's consent before recommencing the installation of the new caustic scrubber. Both have now been fulfilled and the caustic scrubber has been installed.

Wylfa - unexpected findings update

The October 2000 issue of the Newsletter contained an article on unexpected findings on the two Magnox reactors at Wylfa during the planned periodic shutdown. With the exception of the defects in the superheater header closure welds, these findings have been closed out. On the subject of the superheater header closure welds, investigations by BNFL have indicated that the defects are consistent with lack of fusion during the original welding, with no evidence that in-service growth has taken place. Based on this, BNFL has developed a strategy for addressing the issue which has been accepted in principle by NII. NII is now regulating BNFL's implementation of this strategy by means of a series of regulatory hold points.

BNFL's strategy is based on a two-legged approach:

- (1) Use of structural integrity analysis to demonstrate to NII that each superheater header is fit for purpose without weld repairs and is unlikely to fail under normal or fault-loading conditions.
- (2) Defence in depth is to be provided by fitting external restraints to each of the 64 headers, unless there are strong arguments not to do so. These restraints will be capable of limiting the amount of header movement in the unlikely event of weld failure. In addition, equipment is to be installed to enable the welds to be monitored for any signs of incipient failure. The welds concerned will also be subject to an ongoing inspection programme.

BNFL is now progressing work on both of these 'legs' with the two reactors remaining shut down until the work has been completed to the satisfaction of NII. A significant milestone was achieved on 6 March 2001, when NII gave its agreement to the installation of the first of the external restraints.

Dounreay

Safety audit follow-up

Since the HSE/SEPA safety audit of Dounreay in June 1998, UKAEA has made significant progress in addressing the audit recommendations and the production of the Dounreay Site Restoration Plan. Since April 2001, 35 recommendations have been closed out and applications for the close out of a further 71 recommendations are expected to be made by UKAEA over the next few months. The remaining 42 recommendations are strategic in nature and have long timescales associated with their completion. Criteria for the close out of these are currently being developed.

HSE/NII's intention is to aim to close out the audit by September 2001 with a published HSE/SEPA report. This is dependent upon the completion of further work by UKAEA. Clearly, not all of the work required by the audit will have been completed by this date since several of the recommendations refer to the decommissioning which will take many years to achieve. Therefore, it is NII's intention to agree close out criteria for each strategic recommendation which, for example, may require further work supported by future programmes and project plans. These will then be monitored by NII as part of its normal regulatory inspection activity.

The bulk of the work lies in the building of many new facilities to condition and store the waste arising from decommissioning. This will require extensive increases to both UKAEA and contractor resources. NII/SEPA will agree key interim target dates (for example the dates for the production of safety cases to build waste plants) so that progress of the various schemes can be monitored.

Fuel cycle area start-up

(FCA)

The start-up meeting for the FCA waste-handling plant and two stores was held on 19 April. The majority of outstanding issues have been cleared. Consent to start up the plant is likely to be given in June 2001.

Start-up of the fuel and medical target fabrication plant was also discussed at the meeting on 19 April. There has been good progress and, providing no significant issues arise from NII's current assessment, it is likely that consent to restart will be given in June 2001.

Waste management and decommissioning guidance

NSD has recently completed guidance for use by its inspectors when they regulate radioactive waste management and decommissioning activities on nuclear sites. This guidance aims to draw together the relevant aspects of the legislation, Government policy and NSD's regulatory strategy in order to provide a consistent framework for the regulation of nuclear licensees. This guidance is available on the HSE website: www.hse.gov.uk/nsd/waste1.pdf and www.hse.gov.uk/decomm1.pdf.

IRAC

The Ionising Radiations Advisory Committee (IRAC) was set up in 1995 to consider all matters concerning protection against exposure to ionising radiations that are relevant to the work of the Health and Safety Commission (HSC). It is chaired by Dr Sam Harbison, a former Chief Inspector of Nuclear Installations. Its 18 members are nominated by the CBI (one of whom is from BNFL), the TUC, local authority organisations, the National Consumer Council, the National Radiological Protection Board, organisations representing small firms, the Department of Health, the Ministry of Defence and relevant professional organisations.

Over the last few years, IRAC has concentrated on completion of the Ionising Radiations Regulations 1999, which came into force on 1 January 2000, and the development of supporting guidance and procedures. Residual work from this project, particularly the production of associated non-statutory guidance; consideration of how IRAC can contribute to Securing Health Together; and a forward look to future developments, now dominate the Committee's work. It also provides general advice to HSC and HSE on occupational implications of ongoing research and other developments in the ionising radiations field.

A joint sub-group of IRAC and HSC's Nuclear Safety Advisory Committee members considered the draft Radiation (Emergency Preparedness and Public Information) Regulations (REPPPIR) to ensure consistency with emergency preparedness arrangements for nuclear licensed sites.

IRAC is planning to hold an open meeting on 10 October 2001. This will provide an opportunity for people interested in IRAC's work to attend and ask questions or take part in the discussions. For further information please contact IRAC Secretariat, HSE, 6NW, Rose Court, London SE1 9HS. Tel 020 7717 6834; e-mail ionising.radiation.hd@hse.gsi.gov.uk

NuSAC

The Nuclear Safety Advisory Committee (NuSAC) held its spring meeting on 8 March 2001. This included presentations on: restoration of the Wylfa reactors to service following the discovery of defects in superheater penetration welds; cracked steam headers at Dungeness B; and the annual update of comparison of safety performance of licensees.

Members of NuSAC visited the COGEMA reprocessing plant at La Hague, France, on 22 February 2001. The visit provided the members with an insight into how another country addresses the issues arising from reprocessing spent radioactive fuel. This will help members when considering similar work carried out in the UK.

COGEMA gave presentations of the reprocessing activities at La Hague and provided members with literature on the plant, the nuclear fuel cycle and its annual report for 1999. Members were also given background information on the tour of the UP3 plant (which the French had built to reprocess fuel from other countries). The site tour included visits to: the parking area for casks; dry loading facility; storage pool; vitrification facility; control room; and the environmental monitoring centre.

Discussions with COGEMA personnel included: management of contractors; recruitment; safety culture (including QA); organisation of the plant during normal operation and in an emergency; history of vitrification; and the relationship between COGEMA and the French Nuclear Regulator.

International

On 19 April, Laurence Williams hosted a bilateral exchange with the Swiss Federal Nuclear Safety Inspectorate (HSK) at its request to obtain NSD's view of the current situation at Sellafield. Topics discussed included nuclear regulation in the UK and in Switzerland, BNFL's progress on the HSE team inspection recommendations, and the incident in January 2001 on loss of ventilation to the B215 high active liquid tanks. Following the meeting, HSK staff visited Sellafield. The Swiss have written to Mr Williams expressing their warmest thanks to NSD for organising the visit and informing him that their objectives had been fully met, allowing them to make an informed decision with respect to Swiss fuel reprocessing at Sellafield.

On 20 April, Mr Williams attended the first meeting of an international panel of nuclear regulators set up by the European Bank of Reconstruction and Development (EBRD) to advise on the nuclear regulatory aspects of the completion of Khmelitsky unit 2 and Rovno unit 4 in Ukraine (K2/R4). K2/R4 are partially completed VVER1000 reactors. Completion and upgrading is being funded by EBRD and Euratom loans. One of the loan conditions is the satisfactory performance of the Ukrainian Regulatory Authority. This Russian-designed pressurised water reactor is the most recent VVER and comes closer to western standards than its predecessors, but there are still significant differences.

Also in April, Mr Williams visited the Swedish Nuclear Power Inspectorate (SKI). The visit consisted of meetings with Judith Melin, Director General of SKI, and other SKI officials. Topics of discussion included: NSD and SKI regulatory framework, economic deregulation, the Oskarshamn 1 Boiling Water Reactor refurbishment programme and spent fuel and radioactive waste management. Visits were made to the Oskarshamn 1 site, and to the Äspö Hard Rock Laboratory used for research on final disposal of radioactive waste.

Further information

Copies of Heysham 2 and Torness Nuclear Power Stations: The findings of NII's assessment of British Energy's periodic safety review are available from the Information Centre, HSE, Room 004, St Peter's House, Stanley Precinct, Bootle L20 3LZ. Tel: 0151 951 4103 Fax: 0151 951 4004 E-mail: nsd.infocentre@hse.gsi.gov.uk or on HSE's website at www.hse.gov.uk/nsd/heyton.pdf

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For information about health and safety ring HSE's InfoLine Tel: 08701 545500 Fax: 02020 859260 E-mail: hseinformationservices@natbrit.com or write to HSE Information Services, Caerphilly Business Park, Caerphilly CF83 3GG. You can also visit HSE's website: www.hse.gov.uk

If you wish to receive further copies of this newsletter they are available from John Hicks, 3NW Rose Court, 2 Southwark Bridge, London SE1 9HS, E-mail: john.hicks@hse.gsi.gov.uk

Single copies of HSE's Quarterly statement of nuclear incidents at nuclear installations can be obtained free from the Information Centre, HSE, Room 004, St Peter's House, Stanley Precinct, Bootle L20 3LZ.

HSE's Nuclear Safety Directorate now has its own homepage on the Internet. This can be accessed on: www.hse.gov.uk/nsdhome.htm

Your views

The Editor welcomes your views about the newsletter or the work of NSD. While we do not undertake to publish individual letters, comments about the scope and depth of coverage will help us in assessing the impact of the newsletter and to ensure that it remains relevant and informative.

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