

**MINUTES OF THE NUCLEAR SAFETY ADVISORY COMMITTEE  
(NUSAC) MAIN MEETING HELD ON THURSDAY 8 JULY 2004 AT 1015 HOURS  
IN THE ROSE ROOM, ROSE COURT**

Those attending:

Acting Chair:	Prof Neville Moray	
Newly appointed Chair:	Mr Steve Vranck	
Members:	Mrs Sheila Ashford	
	Mr Andrew Clarke	
	Mr Barry Cripwell	
	Mr John Billard	
	Dr Wynne Davies	
	Dr Bryan Edmondson	
	Dr Paul Haigh	
	Prof Bev Littlewood	
Prospective Member - Observer	Prof Robin Bloomfield	
	Dr Rod McKenzie	
	Prof Susan Parry	
	Dr Jim Whiston	
	Prof David Owens	
Chief Inspector (NII):	Mr Laurence Williams	NSD
Observers:	Dr Angela Jenkins	AWE
	Mr Peter Webster	BE
	Mr Andrew Clark	DRDL
	Cdre Andrew McFarlane	MoD
	Dr John Crofts	UKAEA
	Mr Dave Mason	BNFL
	Mr Richard Mayson	BNFL Reactor Systems
	Mr Alan Brandwood	BNFL Magnox
	Mr Charles Bridge	DTI
	Dr Joe McHugh	EA
Presenters:	Mr Sig Berg	WANO (Item 6)
	Mr Neale Brittain	BE (Item 7)
	Mr Phil Shepherd	BNFL Magnox (Item 8)
	Mr Mike Weightman	NSD (Item 9)
	Mr Colin Waker	NSD (Item 10)
Secretariat:	Mr Colin Potter	Acting Secretary
	Mrs Joyce Boorman	Secretariat
	Mrs Alma Edwards	Secretariat

<b><u>Item 1: Welcome, introduction and apologies</u></b>	
1.1	Neville Moray was Acting Chairman for the meeting in the absence of John Knott. He introduced the newly appointed Chairman of NuSAC, Mr Stephen Vbranch to the Committee.
1.2	Stephen Vbranch said that he was delighted and privileged to be appointed Chairman of NuSAC and looked forward to meeting and working with members and observers. He said that he was a Chartered Chemical Engineer, Immediate Past President of the Institution of Chemical Engineers and had been Chair and a member of the Technical Sub-Committee of the Health and Safety Commission's (HSC) Advisory Committee on Genetic Modification.
1.3	John Billard, TUC nominee, had been formally appointed as a TUC nominated member on NuSAC.
1.4	Prospective new member to replace Prof Bev Littlewood, Prof Robin Bloomfield was attending NuSAC as an observer.
1.5	Colin Potter was Acting Secretary, replacing Andy Hall who had returned to NSD.
1.6	Neville Moray informed the meeting of John Knott's OBE award in the Queen's Birthday Honours. He asked the meeting to join with him in congratulating Prof Knott.
1.7	Apologies were received from John Knott, Sue Cox, Bill Heafield, Steve Napier and Mary Morrey ( NRPB). Joe McHugh, EA, would join the meeting later.
1.8	Neville Moray outlined the following changes to the composition of observers to the Committee: Alan Brandwood had moved from AWE to BNFL Magnox. His successor at AWE was Dr Angela Jenkins to whom the Committee gave a warm welcome. Dave Mason had moved from BNFL Magnox to BNFL Sellafield. It had been agreed that there would be two BNFL observers: Richard Mayson for BNFL Reactor Systems and Dave Mason for British Nuclear Group. Peter Webster of British Energy (BE) had succeeded Jeremy Western who had moved to a different post in BE. Neville Moray officially thanked Jeremy Western for his contributions and assistance during his time as the BE observer.
<b><u>Item 2: Minutes of the Main meeting held on 4 March 2004</u></b>	
2.1	The 'revised final' version of the minutes circulated to Members on 14 June 2004 were taken as a correct record after agreement of the following alterations:
	Para 3.8 - the action number should read '78/3/19'.
	Para 6.9 - The third sentence should read 'However, there had been an apparent deterioration in industrial safety performance'.
	Para 7.9 – The second and third sentences should read 'Murdo Allen confirmed that some workers with long term health problems had retired during the 12 hour shift working trial without actually working that

	pattern and they had been excluded from the results. On overtime, he said that no worker was allowed do an additional shift at start and finish of a shift’.
	Action List: Action 82/1/26 – ‘BNFL’ should be replaced by ‘BE’
<b><u>Item 3: Matters Arising from the Main meeting held on 4 March 2004</u></b>	
3.1	Actions 82/1/25, Actions 82/1/29 to 82/1/36, Action 81/3/10 and Action 81/3/11 were cleared. Actions 82/1/26 to 82/1/28 and Action 78/3/19 were outstanding.
3.2	Action 82/1/25: Laurence Williams gave information on the NDA project at the Members Only meeting held on 7 July 2004.
	Action 82/1/26: BE asked for the report on Peel Park closure to be re-scheduled to the November 2004 meeting.
	Action 82/1/27: Laurence Williams had asked Alun Williams in NSD to provide a report for NuSAC.
	Action 82/1/28: BNFL will present the paper on TPP at the November meeting.
	Action 82/1/29: Laurence Williams had informed NuSAC of the national agreed emergency procedures.
	Action 82/1/30: Contact with the new DNSC Secretariat had been made.
	Action 82/1/31: BNFL Magnox supplied RG1 with information on contractor management arrangements.
	Action 82/1/32: NII supplied information on the variation of INES data across the licensees to NuSAC.
	Action 82/1/33: Meeting of RG1 and RG5 members with DML and MoD about industrial safety data took place on 7 July.
	Action 82/1/34: ‘Safety Performance’ paper had been scheduled in NuSAC’s Work Plan for March 2005.
	Action 82/1/35: Colin Waker was to present the update paper on SAPs later in the meeting.
	Action 82/1/36: BE supplied information on AGR fuel failures to RG2. Rod McKenzie said that NuSAC would prefer to hear of such issues sooner rather than later.
	Action 81/3/10: Alex Miller presented the Research co-ordination paper to the Members Only meeting held on 7 July.
	Action 81/3/11: ‘Operational Excellence’ papers were agenda items for later in the meeting.
	Action 78/3/19: The BE amended paper on the Torness Gas Circulator event was still awaited.
<b><u>Item 4: NII-related Business</u></b>	
4.1	<u>BE restructuring</u> : Laurence Williams reported that NII was addressing the proposed restructuring from the licensing point of view. The goal would be for a single owner/operator and NII was working to ensure that.
4.2	<u>Magnox sites</u> : NII were relicensing the BNFL Magnox sites to Magnox Electric and Laurence noted that there was still a need for NII and ME to

	discuss changes in licence condition arrangements as sites moved from an operating to a decommissioning regime.
4.3	<u>NDA</u> : Laurence said that NII continued to work with the DTI/LMU to ensure that the new site contracts based upon near term work plans properly addressed the concerns of the regulators and that priority would be given to safety.
4.4	<u>Defence Sites</u> : Laurence Williams reported that there were a number of issues associated with the Astute submarine construction project at BAESM, with a challenge on resourcing. At DML, there were challenges associated with the docking of HMS Victorious for the 2 <sup>nd</sup> Vanguard class refit, and with Phase 3 of the Staged Improvement Programme to the shore infrastructure.
4.5	<u>Resources</u> : Laurence Williams reported that staff resources were below the 179 cadre with only 164 Inspectors in post. The latest recruitment campaign had drawn very few applications. The current industrial dispute, with NII inspectors working to rule, had resulted in a 15% reduction in site inspection activities.
4.6	Members raised concern that long term issues could be affected by both the recruitment and industrial action problems. Laurence Williams agreed. He noted the Prime Minister's recent statement about keeping the nuclear option open and commented that within a few years, NII would have no inspectors with new reactor licensing experience as all those who worked on Sizewell B would have retired. He also said that he had to divert resource to ensure that both the restructuring of BNFL and the creation of the NDA would not prejudice nuclear safety.
4.7	Peter Webster remarked that the recruiting problem was the same for the industry as well as the regulator with the absence of 'new build', the decline in nuclear science and engineering courses, and everyone drawing from the same decreasing pool of people.
4.8	<u>Revision of Licence Conditions (LCs)</u> : Laurence Williams reported that the review of licence conditions had been completed. He reminded members that with the exception of LC36, the current licence conditions were introduced in 1990.
4.9	In response to Alan Brandwood's request for more information, Laurence Williams said that after approx 15 years experience of working with the LCs, NII thought it was right to review how well they were working, were any revisions required or were additional ones required. He reported that he was not proposing to add any new conditions but there would be some minor changes for clarity. The one exception was likely to be LC12 (Duly Authorised Persons and other Suitably Qualified and Experienced Persons), where he was intending to extend HSE's power to enable NII inspectors to withdraw the 'SQEP' status of persons it deemed not suitably qualified or experienced. This would mean that such people would not be allowed to work on safety related work.
4.10	Laurence Williams said that NuSAC and others would be consulted before any decisions were made.
4.11	<b>ACTION 82/2/15: NII to give NuSAC the opportunity to comment on the revision to site Licence Conditions.</b>

<b><u>Item 5: Matters that the Sub Committee on Research and Review Groups may wish to raise with licensees or observers</u></b>	
5.1	This agenda item was deleted from the meeting to allow the following items to be completed by lunchtime.
<b><u>Item 6: Towards Operational Excellence (WANO)</u></b>	
6.1	<p>Sig Berg, Managing Director of WANO (World Association of Nuclear Operators), presented this item. He outlined the six elements, which have contributed to recent ‘sentinel events’ at nuclear plants.</p> <ul style="list-style-type: none"> <li>• <b>Acceptance of degraded conditions.</b> This was a critical issue relating to the conditions of the plant.</li> <li>• <b>Perceived pressure.</b> An appreciation of pressure relating to production i.e. where management did little to rectify the situation.</li> <li>• <b>Senior managers were distracted.</b> Managers were involved in a single issue and lost track of the bigger picture.</li> <li>• <b>Failure to be self-critical.</b> Looking carefully at what was going on at the site and asking whether workers were doing what they should be doing at any given time.</li> <li>• <b>Oversight weaknesses.</b></li> <li>• <b>Belief that performance was “good”.</b> This caused isolation from the rest of the industry and was self-opinionated. What was needed was excellence in daily operations.</li> </ul>
6.2	<p>Sig Berg said that Operational Focus ensures that all equipment works day in, day out, and people do what they were supposed to. The key principles of operational focus meant that everyone knew what an excellent plant was. A problem-focused mindset was paramount. People should look for what was abnormal and focus on fundamentals of the plant to ensure they were solid. He said that plants, which focused on fundamentals, focused on results.</p>
6.3	<p>There should be intense management engagement. Senior managers should focus on day to day operations:</p> <ul style="list-style-type: none"> <li>• Understand the core business</li> <li>• Strive for operational excellence – event free operations</li> <li>• Reduction in the unplanned capability loss factor e.g. in 2002 it was 12% in the UK; in the US it was under 2%.</li> </ul>
6.4	In closing he said that nuclear safety was a “dynamic non-event”.
6.5	The Chair and Members thanked Sig Berg for his clear, precise and excellent presentation.

**Item 7: Towards Operational Excellence (BE)**

7.1	<p>Neale Brittain presented this item. He said at BE Operational Excellence came under the “Management of Change Programme” with six key areas:</p> <ul style="list-style-type: none"><li>• <b>Foundation.</b> Mainly concerned with human resource issues. The organisation and the structure of the business. The people employed on the stations. The leadership and culture at the plant - visibility of management, changes in the behaviour of senior management and front line staff.</li><li>• <b>Training.</b> The provision of the right training at the right time. More onsite training. Visibility of line management. Improvement in the quality of training and improvement in the infrastructure.</li><li>• <b>Human Performance.</b> More interaction between staff and visibility in the field</li><li>• <b>Equipment reliability.</b> An injection of resources to help towards leak reduction.</li><li>• <b>Management of Work.</b> Good team working and work and contingency planning.</li><li>• <b>Operational Focus.</b> Faster, proactive response. Also, benchmarking for sub-standard conditions.</li></ul>
7.2	<p>John Billard asked whether the financial pressures on BE had been removed. Neale Brittain said that the pressures were still there but the company was striving towards operational excellence; this would help remove that pressure.</p>
7.3	<p>The Chair thanked Neale Brittain for his paper.</p>

**Item 8: Towards Operational Excellence: Team Nuclear Safety Key Performance Indicators (BNFL Magnox)**

8.1	<p>Phil Shepherd presented this item. He concentrated on:</p> <ul style="list-style-type: none"><li>• <b>Operational Focus Improvement.</b> This dealt with the Overall Improvement Strategy.<ul style="list-style-type: none"><li>○ Reduction in human error</li><li>○ Learning from experience</li><li>○ PMP backlog reduction</li><li>○ Conduct of maintenance</li><li>○ Conduct of operations</li></ul></li><li>• <b>Tools for Improvement.</b> BNFL was using nine high level indicators with a trend graph on a station by station basis.</li><li>• <b>Time of Change.</b> There were 20 indicators which included integrated value and median values for the whole fleet<ul style="list-style-type: none"><li>○ Best score v. worst score</li><li>○ Overall trend against indicators using the traffic light system</li></ul></li></ul>
-----	--

	<ul style="list-style-type: none"> <li>○ The creation of a 3 x 3 matrix of indicators</li> <li>○ Monitoring month by month trends in change</li> </ul> <ul style="list-style-type: none"> <li>● <b>Core Values.</b> The core values are: <ul style="list-style-type: none"> <li>○ Industrial safety</li> <li>○ Behavioural safety</li> <li>○ Sickness absence</li> <li>○ Environmental Performance</li> </ul> </li> </ul>
8.2	In conclusion, Phil Shepherd said that enablers were in position to drive Operational Performance forward.
8.3	Andrew Clarke said that BNFL had taken a big step forward and commended the company on the development of the Operational Excellence strategy.
8.4	In reply to a question regarding the use of the tool for predicting the recent problems at Bradwell, Phil Shepherd said that the situation was improving.
8.5	The Chair thanked Phil Shepherd for his presentation.
<b><u>Item 9: Towards Operational Excellence (NII)</u></b>	
9.1	<p>Mike Weightman's presentation concentrated on:</p> <ul style="list-style-type: none"> <li>● <b>Operational Excellence versus Design Safety.</b> It was neither one nor the other. They were inter-related and need equal attention. Neither was sufficient. However, they were a pre-requisite for nuclear safety excellence.</li> <li>● <b>Sustained Excellence.</b> In order to maintain excellence, design must be adequate and appropriate. It must be robust and compliance should be towards the centre - "dart board" culture.</li> <li>● <b>Communication with Chief Executive/Board.</b> There should be a common vision</li> <li>● <b>Intelligent Operator.</b> There should be investment in people. There should be a strong change in management abilities. There should be an intolerance with regard to defects and the need to get things right. Good housekeeping should be of key importance. It was important in the nuclear reactor business that leadership was passed down to supervisor level. Of prime importance was to look at the capabilities at site level to decide what drives licensees in their business.</li> <li>● <b>NII's Power to Influence.</b> NII is influential in the change process by developing ways of influencing licensees and their owners from the top to the bottom. Learning from other organisations, among them WANO, to drive and influence a culture of sustained improvements.</li> </ul>
9.2	The Chair thanked Mike Weightman for his presentation; and also reiterated his thanks to Messrs Berg, Brittain and Shepherd.
9.3	The Committee then questioned presenters of Items 6-9.

9.4	Jim Whiston asked about the position on sickness absence at BNFL Magnox. In reply, Phil Shepherd said that there had been an increase in long term sickness. The trend was deteriorating. However, Stress Management Policies and a “Helpline” were in place.
9.5	Jim Whiston said that progress should be monitored and that BNFL should stick with the planned approach. He said that RG1 would wish to review the BE improvement programme at an appropriate time.
<b>9.6</b>	<b>ACTION 82/2/16: RG1 to review BE’s “Performance Improvement Programme” at an appropriate time.</b>
9.7	Jim Whiston was also pleased that NII was looking at sustained excellence and its efforts working with Chief Executives. Laurence Williams said that he fully supported the BE’s performance improvement programme as there was some way to go to get UK plants up to the best in US. Laurence agreed that it was important to avoid challenging safety systems by fixing things when they needed to be fixed.
9.8	Sig Berg said that there was a shift in market forces against safety. There were more and more Chief Executive Officers (CEOs) being appointed without nuclear background. They were very good with finance and this pitted against nuclear safety. WANO recognised this disconnection and believes that new CEOs should understand their responsibilities regarding nuclear safety.
9.9	Wynne Davies congratulated Sig Berg on the work being done by WANO. He was especially pleased with the work being done at BNFL Magnox. With regard to BE, he noted that NuSAC had cautioned in the past about “initiative overload” and questioned how the new initiative was working in practice.
9.10	Neale Brittain said that the proposals stem from a “wake up call” to BE. Peter Webster said that the 3-year programme looked at the origins of the framework for operational excellence. The new management accepted that there was a need for change in direction – investment in people.
9.11	Andrew Clarke asked Sig Berg whether he had any thoughts on the creation of the NDA, which would lead to greater contractorisation. In response Sig Berg said that he could not comment specifically on the NDA. However, he had a few personal thoughts, namely: <ul style="list-style-type: none"> <li>• Maintain honest, straightforward talking</li> <li>• Seek clarity on what is expected</li> <li>• Be prepared to learn from others</li> <li>• Keep track of trends</li> <li>• Take notice of “precursors” and pay greater attention to events at plants, seeking out the root causes in order to significantly lower risks.</li> </ul>
9.12	John Billard stated that the industry was experiencing significant change and the employees were worried about the change in their employment conditions. Current site directors were lobbying to ensure their organisations survive. There was need for a period of stability.
9.13	Laurence Williams said that the precursors were there at Dounreay before the 1998 incident; they were there at Sellafield before the NII Team Inspection but NII had picked up the deterioration before anything significant. However, he noted that with the rate of change in the nuclear

	industry changing. NII was finding it increasingly difficult to monitor and keep abreast of such pre-cursors. He believed NII needs to work with the industry to identify pre-cursor events and analyse trends.
<b><u>Item 10: Status Report on the Benchmarking and Review of NSD Safety Assessment Principles (NSD)</u></b>	
10.1	Colin Waker presented this item. The 2-year project was at the first 6 month milestone and NII had agreed to come back to this meeting to update members and to get agreement that the project was going in the right direction.
10.2	Besides himself, the work was being undertaken with the assistance of the consultancy Vectra, and two ex-DCIs. Benchmarking against the International Atomic Energy Agency (IAEA) Safety Standards was about 1/3 complete. 1500 issues had arisen from this process so far.
10.3	The heirarchical structure of the proposed revised SAPs was: <ul style="list-style-type: none"> <li>• Fundamental principles – existing ICRP Fundamental Principles</li> <li>• Safety and Radioactive Waste Management Principles – generic facilities</li> <li>• Targets – the risk management structure e.g. SFAIRP – “so far as is reasonably practicable”</li> <li>• Good Practice – equate to IAEA Safety Guides</li> <li>• Guidance – Explanatory documents</li> </ul>
10.4	The SAPs will be consulted upon – a paper proposing the consultation process will be developed and put to NSD’s Management Board. Contacts had been established with key industry stakeholders already. There should be no surprises when the consultation document is issued.
10.6	Richard Mayson, BNFL said that he liked the proposed hierarchical approach and the utilisation of IAEA standards. However, he wondered how it would be applied, for instance, to new reactor designs in a few years time. He was concerned that rigid application of the SAPs could lead to licensees having to prepare complex safety cases for designs already approved abroad. Colin Waker said that the process was evolutionary and not revolutionary. The guidance on how NII assessors would approach the assessment would not change because it was written for a wide range of regulatory work.
10.7	Laurence Williams said that the process was an exciting development and when the SAPs architecture was right – it was hoped to have it by the end of the year – it would appeal to key stakeholders.
10.8	The Chair thanked Colin Waker for his presentation. The Committee had noted the progress on the project and looked forward to being consulted at the appropriate time before wider consultation takes place.
10.9	<b>ACTION 82/2/17: NII to consult with NuSAC (via RG1) before wider consultation is undertaken on the revision of the SAPs.</b>
<b><u>Item 11: Any Other Business</u></b>	
11.1	There was no other business.

**Item 12: Date of next meeting**

12.1	The next meeting will take place at The Plymouth Hoe Moat House Hotel, Plymouth on Friday 5 November 2004 at 0900 hours.
------	--

APPROVED

**LIST OF ACTIONS FROM JULY 2004 'MAIN' MEETING**

<b>ACTION NUMBER</b>	<b>ACTION</b>	<b>ACTION BY WHOM</b>
82/2/15	NII to consult NuSAC on revision to site Licence Conditions	NII
82/2/16	RG1 to review BE's 'Management of Change Programme' at an appropriate time	RG1 and BE
82/2/17	NII to consult with NuSAC (via RG1) before wider consultation is undertaken on the revision of the SAPs	NII

**LIST OF ACTIONS OUTSTANDING FROM MARCH 2004 'MAIN' MEETING**

<b>ACTION NUMBER</b>	<b>ACTION</b>	<b>ACTION BY WHOM</b>
82/1/26	BE to prepare a report on how nuclear safety is maintained, in particular the proposed closure of Peel Park for the July 2004 meeting	BE
82/1/27	Laurence Williams to provide information on resources for decommissioning	NII
82/1/28	Richard Mayson to prepare a paper on the TPP trials for NuSAC	BNFL

APPROVED

**ACTION OUTSTANDING FROM NOVEMBER 2002 'MAIN' MEETING**

<b>ACTION NUMBER</b>	<b>ACTION</b>	<b>ACTION BY WHOM</b>
78/3/19	BE to share details of the Torness gas circulator event at an appropriate time	BE