

From: Rachel Western

To: Geoffrey Podger

Chief Executive of HSE
Health and Safety Executive
Redgrave Court
Merton Road
Bootle
Merseyside

L20 7HS

CC: Mike Weightman, HM Chief Inspector of Nuclear Installations and
Director (Nuclear Directorate)

Mick Bacon (NII), Dick Howarth (NII)
Sue Brett (CCC) Nuclear Issues Officer
FAO: The Planning Inspectors

Diane Abbott (MP for Hackney North and Stoke Newington)
Pete Wilkinson

10th July 2009

Dear Sir,

**Re: NII Evidence at CCC Planning Inquiry
(Tue 18th - Wed 19th November 2008)**

**Adequacy of Dr Mike Weightman's
Further Letter (of 5th March 2009)**

Thank you very much for forwarding my letter of the 27th January 2009 to Dr Mike Weightman, [HM Chief Inspector of Nuclear Installations and Director (Nuclear Directorate)] for response.

My letter to you of the 27th January 2009 concerned the Cumbria County Council Planning Hearing of November 2008 – at which an NII representative was present.

Unfortunately, as you know, I felt the need to make a Complaint (see my original letter of 30th December 2008) concerning the way that the NII representative participated in the Hearing.

Specifically, the summary of my complaint (copied from my 30th December 2008 letter) is set out in the box below.

Summary of Complaint

That the NII representative at the Cumbria County Council Planning Inquiry, misrepresented the position of the NII, with respect to the NII's concerns over the difficulties associated with the liquid high level (radioactive) wastes) at the Sellafield site.

I apologise for the delay in my response to Dr Weightman's letter of 5th March; however, Dr Weightman's letter to me posed something of a conundrum.

This is due to the fact that Dr Weightman's correspondence in response to my letters has only served to exacerbate my concerns over the veracity of NII statements.

At the risk that you find my continued correspondence tiresome, I have chosen to pursue this matter further due to the imperative for a robust:

Regulator / Planning interface

ie - the Planning System **must** be able to rely on the factual accuracy of input from regulators.

The box below sets out two quotes from the CCC Inspectors report (February 2009).

These quotes clearly indicate that the Inspectors who presided over the Planning Hearing in question (Nov 2008 – CCC) made the decision to delegate matters concerning detailed issues associated with radioactive waste management to the regulators.

The Critical Role of Regulators in Planning

The CCC Planning Inspectors Report ¹ (of 3rd February 2009) states:

*“Detailed technical issues and uncertainties relating to the management, storage and disposal of radioactive wastes are **subject to other controls and legislation**, and are outside the scope of this strategic planning document.”* page 29 (para 8.119)

and more specifically:

*“Issues about possible problems associated with the **vitrification** [the process of turning the liquid wastes into a solid glass form] **of liquid HLW** are covered by other regulatory processes and do not, in our view, justify a more restrictive policy towards the existing or future storage and disposal of HLW at Sellafield.”*

page 27 (para 8.103)

Thus the Inspectors clearly felt that they could rely on the NII evidence that was put before them. However, as is demonstrated below this assumption was inappropriate.

Clearly this is a matter of deep concern.

The majority of this document comprises an analysis of Dr Weightman’s March letter. My analysis of the letter is combined with my analysis of the evidence base. – thus, as far as possible, my presentation of a contrasting perspective is sourced to a reference.

On Wednesday 8th July 2009 at a meeting with Dr Weightman, I drew his attention to my concerns over his March letter and gave him a copy of the analysis that I had produced.

This document is set out in subsequent pages.

In addition to discussing the March letter, our conversation ranged across a number of primarily Sellafield related issues. I said that I would very much like to develop a constructive relationship with the NII and Dr Weightman said that he would be happy to meet with me again – for which I am grateful.

Dr Weightman also said that he would provide a response to my analysis of the March letter.

The NII / Planning Issue is not only pertinent to Cumbria County Council and the wastes at Sellafield – it is also highly relevant to the proposals for reactor new build

¹ S J Pratt & E Simpson “Report on the Examination into the Cumbria Minerals and Waste Core Strategy and Generic Development Control Policies Development Plan Documents” (Published 3rd February 2009)

and plans for a new nuclear warhead factory (at Burghfield in Berkshire – just West of London).

Such decisions are of great import. Nuclear projects have the potential for causing extraordinary harm – it is therefore absolutely essential that those who have been tasked with protecting public and worker safety apply the highest standards of rigour and integrity.

Yours sincerely

Dr Rachel E J Western BA (Oxon) PhD MRSC

Nuclear Researcher for Friends of the Earth Cumbrian Groups
Member of Nuclear Waste Advisory Associates

**Analysis of Mike Weightman's
5th March Letter**

SUMMARY

Context

In November 2008, Dr Rachel Western² gave evidence at a Planning Hearing in Cumbria concerning the safety of nuclear waste at Sellafield. She argued that:

- i) urgent measures were needed to address safety problems; and
- ii) the government regulator – the ‘*Nuclear Installations Inspectorate*’ (or ‘NII’) were concerned that the necessary funds would not be available to carry out this work.

Her evidence was based on the July 2008 edition of the NII Newsletter – which she quoted verbatim. Thus,

Urgent Measures Needed

“Replacement HASTs [Highly Active Storage Tanks³] should be progressed with the utmost urgency.” (page 16)

Funding

The funding issue was also referred to extensively in the NII Newsletter referred to above.

For example:

“Funding constraints are restricting the licensee’s ability to deliver major projects and safety improvements on the site” (page 11)

“Sellafield Limited has now shared the content of Lifetime Plan 2008 (LTP08) with us and it does indicate a significant shortfall in funding between the costs of the in-year programme of work identified by the licensee for the Sellafield site and the level of funding available from NDA.” (page 12)

Web Link for NII July 2008 Newsletter

² Nuclear Researcher for Friends of the Earth (Cumbria Groups)

³ At the Sellafield nuclear plant, nuclear waste is liquidised in order to extract its plutonium content. After the plutonium extraction has been carried out the waste remains in tanks until it is re-solidified. Whilst the waste remains as a liquid it is incredibly dangerous (see Appendix Four).

<http://www.hse.gov.uk/nuclear/nsn4308.pdf>

Evidence provided by NII Representative

The NII were formally invited to attend the Hearing (see Appendix Two). However, in his evidence to the Hearing the NII Representative stated that the concerns that Dr Western had expressed were without foundation. This was despite the fact that Dr Western had directly quoted an NII document.

The note of the Hearing prepared by the representative from the Committee on Radioactive Waste Management (CoRWM), John Rennilson, who was present as an Observer, formally shows that the NII dismissed Dr Western's concerns. Thus,

*“Dr Western ... felt that funding problems at Sellafield were undermining its safety. This was heard, **received a negative response** from the regulators and I cannot see being taken forward in a planning document.”⁴ (page 4)*

Subsequent Correspondence

Following receipt of the formal CoRWM note of the Hearing, Dr Western wrote to the Chief Executive of the Health and Safety Executive (HSE)^{5,6} to complain that the NII representative had ‘*misrepresented*’ the NII's position.

On 22nd January 2009, Dr Western received a response to her letter to the HSE from the Head of the NII. Unfortunately, this response letter significantly compounded the original problem – as it contained a number of misrepresentations. Thus, Dr Western immediately sent a response to this letter (on the 27th Jan).

On the 5th March 2009, the NII responded to this second letter. This letter has **ten** ‘misrepresentations’.

It is this letter which is the subject of this document.

Accident at Sellafield on 1st April

Just a month after the NII's 5th March letter, there was a ‘near-miss’ accident in which Sellafield was just hours from disaster.

This accident occurred within the facilities⁷ that had been the subject of Dr Western's evidence at the original November 2008 Hearing – and thus vindicated her concerns.

⁴ See CoRWM document 2506 - attached to my original complaint of the 30th December 2008.

⁵ Who are responsible for the NII

⁶ on 30th December 2008

⁷ the Liquid High Level Waste tanks (Liquid HLW tanks)

Dr Mike Weightman
HM Chief Inspector of Nuclear Installations

Letter of 5th March 2009

Ten Misrepresentations

Context

In November 2008 Cumbria County Council (CCC) held a Planning Hearing at which Dr Rachel Western expressed concerns over:

- the fact that due to lack of funds urgent safety requirements laid out by the Nuclear Installations Inspectorate (NII) to the nuclear industry⁸ concerning Sellafield⁹ may not be implemented; and that
- this has very serious implications for hazard presented by ‘Liquid High Level Waste’ (Liquid HLW) – one of the most dangerous forms of nuclear waste in existence.

Dr Western’s evidence largely consisted of direct quotations from the NII Newsletter.¹⁰ However, at the Hearing, the NII representative stated that Dr Western’s evidence was without foundation.

Subsequently, Dr Western wrote to the Head of the Health and Safety Executive¹¹ (which is responsible for the NII) to complain about this misrepresentation.

The letter of 5th March 2009,¹² from Dr Mike Weightman (Head of the NII), was received by Dr Western as a result of this correspondence.

As is shown below, the 5th March, letter compounds the initial dilemma of one misrepresentation by magnifying the number of misrepresentations to ten.¹³

⁸ Specifically the NDA – or ‘Nuclear Decommissioning Authority’

⁹ The plutonium complex in Cumbria on the coast of the Irish Sea.

¹⁰ of July 2008

¹¹ Geoffrey Podger – Letter of 30th December 2008

¹² See Appendix One

¹³ in just one side of A4

**The Ten Misrepresentations
Made in Dr Weightman's 5 March 2009 Letter ¹⁴**

SUMMARY

1. **Disposal not Management**
2. NII Rep Present as **Observer not Participant**
3. Mr Haworth (NII Rep) **Views Not Sought**
4. Sellafield is **Safely Managed at Present**
5. Sellafield **Not Focus for Funding Concerns**
6. Work at Sellafield is **Not Constrained by Funding**
7. Sellafield **Insurance Arrangements 'Commercial'**
8. Even **High Hazards can be Managed Safely**
9. NII **Newsletter now More 'Accessible'**
10. **Delayed November 2008 Newsletter now available**

¹⁴ The letter was one side A4 long – and can be found at Appendix One

The Ten Misrepresentations In Dr Weightman's Letter

Below the ten misrepresentations are set out in the order that they appear in the letter. The full text of the letter is set out in Appendix One.

1. Disposal not Management

Dr Weightman states in his letter:

*“[t]he hearing was concerned with a proposal for an underground repository in Cumbria. Although operational and safety issues at Sellafield might have some bearing on the practicability of implementing any disposal policy they did not appear to be directly relevant to the Hearing.”*¹⁵

Thus Dr. Weightman indicates that ‘operational’ issues were not ‘directly relevant’ to the November Hearing. This is incorrect.

However, the Cumbria County Council (CCC) planning documents that were under consideration at the Hearing did in fact specifically refer to operational issues associated with the management of Liquid High Level Waste. This was considered quite separately from the issue of nuclear waste disposal.

Consideration of Management Issues

The November CCC Planning Hearing was concerned with the Council's Draft ‘Development Plan Documents’¹⁶ (DPDs) on :

‘Minerals & Waste Core Strategy & Generic Development Control Policies’.¹⁷

- or, put more simply ‘Waste Framework’ documents.¹⁸

The ‘Core’ document addresses nuclear waste at Chapter 8.¹⁹

In this chapter:

¹⁵ Dr Weightman's Letter of 5th March 2009. page 1

¹⁶ Under the terms of Section 20(5) of the Planning & Compulsory Purchase Act 2004

¹⁷ S J Pratt & E Simpson “Report on the Examination into the Cumbria Minerals and Waste Core Strategy and Generic Development Control Policies Development Plan Documents” (Published 3rd February 2009) - page 1

<http://www.cumbria.gov.uk/elibrary/Content/Internet/538/755/1929/1982/39850162227.pdf>

¹⁸ Although the document also considered minerals, that was not relevant to the hearing at which Mr Haworth and I attended

¹⁹ “Draft Core Strategy of the Cumbria Minerals and Waste Development Framework - (pp 45 – 51)

<http://www.cumbria.gov.uk/elibrary/Content/Internet/538/755/1929/3951815533.pdf>

- Policy 11 (page 48) considers waste **Disposal**; and
- Policy 10 (page 47) considers waste **Storage**

The overall context of these two Policies is set out on pages 45 to 47.

An important technical point to be aware of is that High Level Waste (HLW) – which essentially comprises concentrated ‘*fission products*’ (the most fiercely radioactive form of nuclear wastes) comes in different forms – some liquid, and some solid. This is set out in more detail in the footnote.²⁰

At Sellafield the HLW is changed from a solid to a liquid and then back to a solid.

There are two things that it is critically important to realise:

i) Firstly, that during the in-between stage, whilst the HLW is in a **Liquid** form, it is **far more dangerous** (see Appendix Four) - this is because it is liable to boil dry and so escape from the site.²¹ Alternatively, were a plane or a bomb to hit Sellafield – being a liquid, again the HLW would readily escape.

ii) The nuclear industry and the government refer to this:

Solid / Liquid/ Solid Process

using the word ‘**Storage**’ – which is obviously highly misleading.

Processing materials is obviously different than storing them.

²⁰ ‘High Level Waste’ (or HLW) consists of ‘Fission Products’ in a concentrated form. ‘Fission Products’ are the fragments of the original atoms that have released their ‘nuclear energy’ by break into two much smaller atoms (which are roughly half the size). These fragments are fiercely radioactive and extremely dangerous.

Initially the ‘fission products’ are held in the actual fuel rods used in the nuclear reactor. After a while, the waste fuel rods are taken out of the reactor. This ‘**Solid HLW**’ is sent to Sellafield in Cumbria, where the plutonium that they contain is removed. The method used for plutonium removal is a chemical technique known as ‘solvent extraction’ which demands that the waste fuel rods are turned into a liquid form.

The solid fuel rods are changed into a liquid form by dissolving them in nitric acid. Once the plutonium is removed from the acid solution, the waste stream ‘**Liquid High Level Waste**’ is created. This comprises of the nitric acid (which was used to dissolve the fuel rod) plus the ‘fission products’.

Liquid High Level Waste is extremely dangerous – some indication of the hazard that it presents is set out in Appendix Four. Sellafield has a set of equipment that is meant to return the ‘fission products’ to a solid form (as they were prior to removal of plutonium from the mixture). The method used for this re-solidification is known as ‘vitrification’. The ‘**Solid HLW**’ that results is the form of a type of glass.

²¹ Where it might contaminate the local people

On page 45 of the draft Core document, reference²² is very clearly made to the process of returning the Liquid HLW to Solid HLW. The method used to achieve this is known as ‘vitrification’, in which the HLW is turned into a sort of glass. Thus,

“Liquid high level waste, mostly from reprocessing, is stored to cool at Sellafield and is then subject to a process of vitrification”

The solid glass form of HLW is still dangerous - in the sense that if you were near to it, it would kill you very quickly. However it does not possess the same potential for catastrophe (see Appendix Four) that the Liquid HLW poses. This is because it will not boil dry, and because if it were to be hit by a bomb or a plane it would not be released directly into the sky.

Unfortunately Sellafield is currently experiencing problems with the ‘Re-Solidification’ process, and this is what Dr Western’s evidence to the Hearing was concerned with.

The crux of Dr Western’s evidence to the (November 2008) Hearing, was that the process of ‘Re-Solidifying’ (or ‘vitrifying’) HLW was not going smoothly.

In particular she referred to the July 2008 NII Newsletter, to show that the NII

required ‘**urgent**’ measures to be carried out by the nuclear industry to address problems with the Liquid HLW treatment facilities,

feared that these measures may not be carried out – due to lack of funding

2. NII Rep Present as **Observer not Participant**

Dr Weightman states:

*“Mr Haworth’s [the NII representative] role was primarily as an observer”*²³

This is incorrect.

At Appendix Two (which is a letter from Mr Tony Bishop of the Planning Inspectorate sent to Dr Western 17 April 2009) it is shown that Mr Haworth was present as an official participant at the Hearing – in fact he had been invited by the Inspectors at the suggestion of Cumbria County Council.

Thus, Mr Bishop states that the role of Mr Haworth:

²² para 8.2 – ‘Where are we now’

²³ Dr Weightman’s Letter of 5th March 2009, page 1

“was as an official participant at the hearing representing the NII”

3. Mr Haworth (NII Rep) Views Not Sought

Dr Weightman states that Mr Haworth:

“was neither asked nor prepared to comment on the generality of the evidence presented and in particular the detailed regulatory position on Sellafield projects.”

This is incorrect.

The letter from Mr Tony Bishop of the Planning Inspectorate to Dr Western (as discussed above) clearly states that the role of Mr Haworth at the Hearing was:

“to assist the Inspectors in understanding the role of the NII and its views on the issues discussed, rather than as an observer.”

This is of particular importance due to the fact that a key function of the Hearing was to establish whether Cumbria County Council’s draft ‘Waste Framework’ was ‘sound.’²⁴

Dr Western’s Evidence and the ‘Soundness’ Issue

The word ‘*sound*’ has a very particular definition within the context of Planning Regulations. Thus, the response form, which was sent out along with Cumbria County Council’s draft ‘Waste Framework’ in March 2008, sets out nine ‘tests of soundness’ which a Policy must pass in order to be deemed: ‘*sound*’.²⁵

In Dr Western’s October Submission to the Consultation (which was immediately before the November Hearing)²⁶ she argued that the draft ‘Waste Framework’ document

did not meet ‘Soundness Test 7’

ie

“policies that fail to represent the most appropriate in all the circumstances.”

.... the relevant ‘circumstances’ being the failing of the funding base necessary to ensure that the NII’s requirements would be met.

²⁴ Inspectors’ Report (February 2009) – page one

<http://www.cumbria.gov.uk/elibrary/Content/Internet/538/755/1929/1982/39850162227.pdf>

²⁵ See the Annex on page 4.

²⁶ ‘Second Submission to Cumbria County Council’s Minerals and Waste Development Framework’ Dr Rachel Western (21st October 2008) page one

Although Dr Western's evidence was based direct quotes from an NII document, the NII rep dismissed her points out of hand. Thus, the CoRWM representative commented

“Dr Western ... felt that funding problems at Sellafield were undermining its safety. This was heard, received a negative response from the regulators and I cannot see being taken forward in a planning document.”²⁷ (page 4)

Therefore, it can clearly be seen, both from the letter of Mr Bishop of the Planning Inspectorate, and also, from the CoRWM minute of Mr Rennilson – that Mr Hawarth (the NII rep's) function was to act as a the source of official NII views - in order to inform the Planning Inspectors.

Furthermore, it can be seen that Mr Hawarth played a key role in determining the opinion that was formed by the Inspectors that there was no need for them to take note of Dr Western's evidence.

Thus – Mr Hawarth of the NII stated that the NII had no significant concerns over the matters that Dr Western had raised – and therefore that there was no need for the Inspectors to conclude that the Council should take a more proactive approach to the safety of Sellafield.

4. Sellafield is Safely Managed at Present

Dr Weightman states:

“we have had a number of issues regarding Sellafield and its facilities over the years, which we have reported in our newsletters and the Site Stakeholder group reports we continuously press Sellafield to accelerate the rate at which it places its most hazardous materials into safer forms. It would be wrong however to conclude from this that we believe the safety of this material is not being adequately managed at present.”²⁸

Thus, on 5th March 2009, Dr Weightman clearly indicates that he believed that the Liquid HLW at Sellafield is being safely managed.

This is not the case.

Just a month after Dr Weightman's statement, on 1st April 2009 an incident that took place at Sellafield that was so serious that the site emergency arrangements had to be brought into play.

This incident involved the Liquid HLW facilities at Sellafield that had been the subject of Dr Western's evidence at the November 2008 Hearing.

²⁷ See CoRWM document 2506 - attached to my original complaint of the 30th December 2008.

²⁸ Dr Weightman's Letter of 5th March 2009, page 1

Appendix Three sets out the background and details of this accident.

The fact that this incident involved the Liquid HLW facilities that had been the subject of Dr Western's evidence at the November Hearing vindicates Dr Western's concerns.

The incident was caused by failure in the system that pipes cold running water through the HLW tanks. Without this cold running water the HLW would get hotter and hotter. (This is because it is so radioactive - and therefore self-heating).

BNFL²⁹ analysis has indicated that such failure of this cooling system would lead to:

- boiling of the liquid HLW after 12 hours, and
- the HLW tanks drying out after three days.³⁰

The Sellafield Newsletter (April 8th 2009 – Issue 1101, page 2) reports that during the accident the Site Emergency Arrangements were brought into play for four hours.³¹

Gordon Thompson of the 'Institute for Resource and Security Studies' (IRSS) – who has provided key analysis of the Liquid HLW issue for over thirty years has reported that once the HLW starts to boil, radioactivity will begin to be released. The NII have stated that the consequences of prolonged cooling failure could be 'very severe'.³²

Although Appendix Four looks at the possible dangers presented by HLW release in terms of 'possible numbers of fatalities' – and also comparison with Chernobyl; the fact is that precise predictions are very difficult.

What it is possible to say reliably, is that an accident that led to a release of HLW could easily lead to a very significant loss of life.

The operation of the Emergency System for four hours (during the April 1st incident) is comparable to the 12 hour period (that would lead to the start of boiling). Clearly this margin is unacceptable.

The difficulty associated with the tightness of the margin may be appreciated when it is remembered that in 2005 Sellafield staff failed to detect a leak of Liquid HLW³³ for nine months.³⁴ The leak was so serious that the nuclear industry pleaded guilty to criminal charges.³⁵

²⁹ BNFL – 'British Nuclear Fuels' the predecessor to the 'NDA' – the Nuclear Decommissioning Authority

³⁰ "High Level Radioactive Liquid Waste at Sellafield - Risks, Alternative Options and Lessons for Policy" Gordon Thompson (June 1998) - Section 4.1 (as above) [<http://www.irss-usa.org/pages/documents/Complew-oapp.pdf>]

³¹ 'Sellafield News' Wednesday 8th April 2009 – Issue 1101 (page 2) http://www.sellafieldsites.com/UserFiles/File/Sellafield%20News/Sellafield%20News%2008_4_09.pdf

³² "High Level Radioactive Liquid Waste at Sellafield - Risks, Alternative Options and Lessons for Policy" Gordon Thompson (June 1998) - Section 4.1 [<http://www.irss-usa.org/pages/documents/Complew-oapp.pdf>]

³³ still containing plutonium

³⁴ "New plant culture" *Nuclear Engineering International* - 27th July 2005

Similarly on 20th May 2009, the Whitehaven News ³⁶ reported that a more recent leak at Sellafield had gone undetected for 14 months, and was only discovered on the day that Gordon Brown was visiting. ³⁷

<http://www.neimagazine.com/story.asp?storyCode=2029958>

³⁵ "BNG pleads guilty over Thorp leak" *Nuclear Engineering International* - 13 June 2006

<http://www.neimagazine.com/story.asp?storyCode=2036700>

³⁶ The local paper in the Sellafield area

³⁷ Whitehaven News, Weds 20th May 2009 http://www.whitehaven-news.co.uk/news/sellafield_braces_for_fall_out_over_undetected_pipe_leak_1_557205?referrerPath=news

The fact that the April 2009 accident took place just one month after Dr Weightman stated that Sellafield was safely handling nuclear wastes demonstrates that his statement was incorrect.

5. Sellafield **Not Focus for Funding Concerns**

In an earlier letter to the Health and Safety Executive (HSE) ³⁸ of 27th January 2009, Dr Western made reference to a story in the Guardian ³⁹ which reported a “*call for ‘innovativ’ ways of raising money*” that had been made by the NII.

Specifically the story referred to widespread concern over a shortage of Public Funds

“with the vast bulk being spent at Sellafield in Cumbria and Dounreay in Scotland.”

However, in his letter of 5th March, Dr Weightman makes the statement that his:

“recent comments on funding were not focussed on Sellafield”

This statement is not correct.

The NDA (2009 – 2012) Business Plan ⁴⁰ indicates (page 34) that the total expenditure expected for Sellafield in the year (2009/ 2010) is approximately £1.2 Billion. For the whole of the NDA, the expected expenditure for this period is £2.8 Billion. (see page 28) From these figures it may be calculated that Sellafield represents 40% of NDA expenditure. As indicated above, the Sellafield site presents extremely dangerous hazards.

On 10th June 2009, Contract Journal reported (see Appendix Seven) ⁴¹ that Sellafield had ‘cornered’ almost 70% of the Nuclear Decommissioning Authorities ⁴² budget.

Given the large degree of required expenditure it must be the case that Sellafield represents an extreme funding problem.

6. Work at Sellafield is **Not Constrained by Funding**

Dr Weightman states in his letter of 5th March:

³⁸ Who are responsible for the NII

³⁹ Tuesday 27th January see Appendix Two of that letter

⁴⁰ Nuclear Decommissioning Authority (NDA) Business Plan [2009/2012] Published by the Nuclear Decommissioning Authority 2009 – [ISBN 978-1-905985 13 5]
<http://www.nda.gov.uk/documents/loader.cfm?url=/commonspot/security/getfile.cfm&pageid=28874>

⁴¹ Contract Journal ‘Contractors warm up for £1.3bn Sellafield clean-up’ Weds 10 June 2009
<http://www.contractjournal.com/Articles/2009/06/01/68289/with-13bn-to-spend-per-annum-nuclear-decomissioning-work-has-a-long-half-life.html>

⁴² NDA

“As I noted in my previous letter, work at Sellafield is not currently constrained by funding”

This is incorrect.

Correspondence between the NII and the NDA that has been forwarded to me by Dr Weightman’s office ⁴³ clearly indicates that the NII are in fact extremely concerned by the NDA’s failure to fund key Liquid HLW projects. ⁴⁴

Specifically, in a letter to the NDA dated (26th September 2008) the NII state:

“Sellafield Limited: High Level Waste Plants Projects

“We write to say how surprised and concerned we are about recent funding decisions for the evaporator E and replacement Highly Active Storage Tank (HAST) project on High Level Waste Plants (HLWP). The more so, since we thought you were aware of the safety drivers and critical importance of timely delivery”

.....

as a matter of urgency we wish you to present:

.....

c) how you plan to have your contractors regain the lost time and momentum for the evaporators and replacement HASTS “ [Highly Active Storage Tanks]”

From this it may be seen that the NII are clearly concerned about the degree of funding being made available by the NDA to address the HLW problems at Sellafield.

In response the NDA wrote (on 1st October 2008):

“High Level Waste Plants Projects

“To underwrite the financial sanction and case to Government we are undertaking a strategic review

.....

“we accept that the decision to halt long lead work on [Evaporator E and] replacement HASTs (Highly Active Storage Tanks) were premature” ⁴⁵

Thus it can be seen that the NII, in fact, are extremely concerned about the degree to which the NDA is funding safety critical HLW work on the Sellafield site.

⁴³ (This was originally meant to be an Enclosure with the 5th March letter – but was kindly E-mailed to me on the 9th March)

⁴⁴ Letter from P Woodhouse and G A Trimble (NII) to Richard Waite (NDA) - 26th September 2008

⁴⁵ Letter from Richard Waite (NDA Acting Chief Executive) to Kevin Allars (NII – Head of NII Division 2) - 1st October 2008

Appendix Three reports more recent reference to these funding shortfalls.⁴⁶ The issue is also discussed in the 10 June 2009 issue of Contract Journal (See Appendix Seven).

7. Sellafield Insurance Arrangements ‘Commercial’

Dr Weightman states⁴⁷ that:

“the new management company [Nuclear Management Partners] for Sellafield required alternative insurance arrangements for commercial accounting reasons”

Clearly, it would suit every business and individual that required insurance, if this financial responsibility were to be taken on by the Treasury. Thus, Dr Weightman’s statement here that this is a ‘commercial’ arrangement amounts only to word-play.

8. Even High Hazards can be Managed Safely

Dr Weightman states:⁴⁸

“even high hazards can be managed safely “

Although this statement may be correct in an academic sense – it is not correct in terms of the attitude of Nuclear Management Partners⁴⁹ to their capability to achieve safe management of Sellafield. This is demonstrated by the fact that they did not deem it appropriate to be responsible for their own insurance.

9. NII Newsletter now More ‘Accessible’

Dr Weightman states (wrt the NII Newsletter) that the delay in publication⁵⁰ of the most recent Newsletter was due to:

“our desire to put information in a more accessible form”⁵¹

However, there does not appear to be any actual change in the nature of the terminology used, nor the degree of explanation that is given.

For example the text on page 13, which considers the possible use of nitrates as means of avoiding corrosion in the cooling coils within the Liquid HLW tanks, gives no explanation of how this was meant to work, and furthermore gives no technical explanation of why this approach will not now be pursued.

⁴⁶ (In a February 2009 on the disbanding of the Nuclear Safety Committee ‘NuSAC’)

⁴⁷ Letter of 5th March 2009 (page 2)

⁴⁸ (In his letter of 5th March – page 2)

⁴⁹ The managers of the Sellafield site

⁵⁰ NB – The NII Website stated in January that the November 2008 Newsletter would be published at the end of January 2009. However, three months later, this has still not taken place.

⁵¹ Letter of 5th March 2009 (page 2)

Of more concern is the fact that the sentence from the July 2008 NII Newsletter, which indicates that replacement Liquid HLW tanks should be built as a matter of *'utmost urgency'* (see below) has simply been deleted from the September text.⁵²

This has been done for no apparent reason.

NII - July 2008 Newsletter

“Replacement HASTs [Highly Active Storage Tanks⁵³] should be progressed with the utmost urgency.” (page 16)

<http://www.hse.gov.uk/nuclear/nsn4308.pdf>

Appendix Six sets out the relevant September (NII Newslette text) text in full – and thus an appraisal of accessibility may be made. In addition, the text may be analysed in order to demonstrate that the critical sentence *“Replacement HASTs [Highly Active Storage Tanks] should be progressed with the utmost urgency.”* (from the July text) has been deleted.

10. Delayed November 2008 Newsletter now available

Finally, Dr Weightman states:

*[You] “request [ed] .. an explanation for the delay in the publication of the November 2008 NII newsletter on the web. Please find attached a copy of this edition of the Newsletter.”*⁵⁴

In fact the edition that was enclosed was the September 2008 edition. The November version – which was due to go on-line at the end of January 2009 has still not been made available.

⁵² (See Appendix Four)

⁵³ At the Sellafield nuclear plant, nuclear waste is liquidised in order to extract its plutonium content. After the plutonium extraction has been carried out the waste remains in tanks until it is re-solidified. Whilst the waste remains as a liquid it is incredibly dangerous (see Appendix Four).

⁵⁴ (on page 2 of the 5 March letter)

NII - MISREPRESENTATION

Annex ONE – Text of 5 March 2009 NII Letter

Letter from Dr Weightman to Dr Western
5th March 2009 (Re-typed)⁵⁵

**From: Health and Safety Executive
Nuclear Directorate
HM Nuclear Installations Inspectorate**

MIKE WEIGHTMAN

**HM Chief Inspector
4N 1 Redgrave Court
Merton Road
Bootle
Merseyside
L20 7HS
Great Britain**

Direct Dial: 0151 951 4168

Fax: 0151 951 4821

<http://www.hse.gov.uk/>

To:
Dr R Western
53E Norcott Road
Stoke Newington
Hackney
London
Hackney

N16 7EJ

5th March 2009

Dear Dr Western

I have been asked to reply to your further letter dated 27 January 2009 reiterating your complaint that ‘the NII representative at the Cumbria County Council Planning Inquiry, misrepresented the position of the NII, with respect to the NII’s concerns

⁵⁵ The original is available on request . The document is included here – in as a ‘re-typed’ version due to problems associated with E-mailing scanned documents.

over difficulties associated with the liquid high level (radioactive) wastes at the Sellafield site”. Thank you for providing more information with this letter but having reviewed it, I remain of the view that Mr Haworth did not misrepresent our position for the reasons I explain below.

The hearing was concerned with a proposal for an underground repository in Cumbria. Although operational and safety issues at Sellafield might have a bearing on the practicability of implementing any disposal policy, they did not appear to be directly relevant to the hearing. Mr Haworth’s role was primarily as an observer and he was neither asked nor prepared to comment on the generality of the evidence presented and in particular the detailed regulatory position on Sellafield projects.

As you have noted, we have had a number of issues regarding Sellafield and its facilities over the years, which we have reported in our newsletters and Site Stakeholder Group reports. UK health & safety law requires all employers to reduce the risks to their workers and the public “so far as is reasonably practicable”, (SFAIRP), and so we continuously press Sellafield to accelerate the rate at which it places its most hazardous materials into safer forms. It would be wrong to conclude from this that we believe that safety of this material is not being adequately managed at present. What we have been doing, however, is seeking to ensure that strategic and long term issues are addressed as well present day risks are managed SFAIRP.

My recent comments on funding were not focused on Sellafield, but applied to the whole of the NDA estate. As I noted in my previous letter, work at Sellafield is not currently constrained by funding. There are a number of low priority decommissioning projects across the UK that could be accelerated, and in my comments I wished to draw attention to possible alternative funding mechanisms that could enable such acceleration. Let me assure you, however, that we consider any delays to progress with remediation of high hazard plant as a serious matter regardless of the reasons for this.

Finally, in relation to your three particular points the new management company for Sellafield required alternative insurance arrangements for commercial accounting reasons and there is no contradiction between this and my view that even high hazards can be managed safely. Indeed, this is true for other high hazard sectors of the British industry as it is for the nuclear industry.

You also had two specific queries. First a request for a copy of the NII letter to NDA of 26th September 2008 and their reply of 1st October 2008, please find copies enclosed.

Second a request for an explanation for the delay in the publication of the November 2008 NII newsletter on the web. Please find attached a copy of this edition of the Newsletter that is just about to go on HSE’s website. The preface explains the delay, it relates to the curtailment of the Nuclear Safety Advisory Committee for whom the basic report is produced and our desire to put information in a more accessible form.

I hope that this helps you to understand our position better and that this letter provides the information you seek.

Yours sincerely

Mike Weightman
HM Chief Inspector of Nuclear Installations
And Director, Nuclear Directorate

APPENDIX TWO

Letter from the Tony Bishop
of the Planning Inspectorate
To Dr Rachel Western

(17th April 2009)



The Planning Inspectorate

411/Eagle Wing
Temple Quay House
2 The Square
Temple Quay
Bristol BS1 6PN

Direct Line 0117-372 6278
Switchboard 0117-372 8000
Fax No 0117-372 8139
GTN 1371-6278
e-mail: tony.bishop@pins.gsi.gov.uk
<http://www.planning-inspectorate.gov.uk>

Dr Rachel Western

Your Ref:

By email

Our Ref: PINS/H0900/429/9

Date: 17 April 2009

Dear Dr Western

CUMBRIA COUNTY COUNCIL – CORE STRATEGY

Thank you for your telephone call of 8 April and your email of 9th asking about the status of Mr Howarth of the Nuclear Installations Inspectorate.

It may be helpful if I explain that the Nuclear Installations Inspectorate (NII) was formally invited to attend the hearing session on radioactive waste by the Inspectors, at the suggestion of Cumbria County Council. The Inspectors have the discretion to invite parties who have not made formal representations or indicated an intention to attend an oral hearing if they feel it would help to assist the discussion.

Consequently, the role of Mr Howarth was as an official participant at the hearing representing the NII, to assist the Inspectors in understanding the role of the NII and its view on the issues discussed, rather than as an observer.

With regard to your question about minuting there is no formal requirement for notes or records of sessions at Development Plan Document hearings to be made.

However, I understand that the Inspectors asked for notes to be taken, outlining the gist of the discussions at the hearings, principally for their use. Although these notes are not formal examination documents, they are available for public inspection, if necessary, at the offices of Cumbria County Council. Although these notes outline the main topics discussed, they are not intended to record all comments made during the hearing session. Notes were produced for the pre hearing meeting, principally because this set out the procedures to be adopted for the hearing sessions of the examination, and because not all those attending the hearings were present at the prehearing meeting. However, these were not intended to be formal minutes of the prehearing meeting, but to outline the main matters discussed.

I hope that these comments are useful.

Yours sincerely
TONY BISHOP
Quality Assurance Unit

APPENDIX THREE

Sellafield Loss of Coolant Incident In Liquid High Level Waste Tanks

1st April 2009

Introduction – What Sellafield Does

The main process carried out at the Sellafield nuclear site is the separation of plutonium from used nuclear fuel rods. This procedure is carried out using a liquid based chemical technique known as ‘*solvent extraction*’. Following the plutonium separation, the majority of the radioactive wastes are to be found in a hot nitric acid mixture known as ‘Liquid High Level Wastes.’⁵⁶

The Importance of Constant Cooling

This High Level Waste stream at Sellafield is fiercely radioactive – so much so that it is self-heating and needs to be constantly cooled. This is achieved by a system of pipework inside the tanks which carry cold water.

It is important that the cooling system in the high level waste tanks is kept running constantly – otherwise the high level wastes in the tank could get so hot that they boiled. If the cooling problem remained unresolved, the tank would eventually boil dry.

It is very important to prevent this happening - because if the wastes were allowed to start boiling then radioactivity would escape and contaminate the surroundings.

Precise estimates of how much radioactivity would escape – and how many people would be affected – have not been carried out. However the Nuclear Installations Inspectorate (NII) have stated that the consequences of prolonged cooling failure could be ‘very severe’.⁵⁷

In December 2008, the Department of Energy and Climate Change (DECC) defined a severe accident as one that would kill at least 100 people.⁵⁸ (This is based on a

⁵⁶ Prior to re-solidification (vitrification).

⁵⁷ “High Level Radioactive Liquid Waste at Sellafield - Risks, Alternative Options and Lessons for Policy” Gordon Thompson (June 1998) - Section 4.1
[<http://www.irss-usa.org/pages/documents/Complew-oapp.pdf>]

⁵⁸ ‘The Justification of Practices involving ionising Radiation Regulations (2004) “*Consultation on the Nuclear Industry Association’s Application to Justify New Nuclear Power Stations*” – Volume Two (Appendix B) – Copy of the Application.- Published by the Department of Energy and Climate Change (December 2008)
<http://www.berr.gov.uk/files/file49231.pdf> (page 47)

Nuclear Industry Association document (NIA) document of (June 2008) – which is itself based on a Nuclear Installations Inspectorate (NII) Document (of 2006).⁵⁹

The timings involved for the initiation of a severe accident are very short. BNFL⁶⁰ analysis has indicated that cooling failure would lead to boiling after 12 hours, and to the tank drying out after three days.⁶¹

Estimated Probabilities of Cooling Failure

Although the time it would take for radioactivity to start escaping is short, it has been argued that the probability of a failure in the cooling system is extremely low. For example the NII have argued that the probability of a failure continuing for 24 hours is less than one in one million years – and the possibility of 3 day failure (that would lead to the tanks drying out) is less than one in a 100 million years.

However on Thursday 9th April, Cumbrians Opposed to a Radioactive Environment (CORE) revealed that at the beginning of April (2009) a cooling failure had in fact taken place.⁶² The incident was on Wednesday 1st April⁶³ and the Sellafield Site Newsletter ‘*Sellafield News*’⁶⁴ indicates that that the problem was so serious that the Site Emergency Control Centre arrangements had to be called on.

Comparison with Chernobyl

This happened just a week after the Norwegian Radiation Protection Authority published a report comparing the effects of an accidental release of radioactivity from the Sellafield high level waste tanks to the effects of the Chernobyl accident.⁶⁵

This clearly indicates that the probabilities of cooling failure that are used by the NII to regulate the Sellafield site are extremely unrealistic. It is important to realise that although the Norwegian report refers to the implications of an accident at Sellafield being up to 50 times worse than Chernobyl (see page 5) – obviously, because Sellafield is in Cumbria, the effects on Cumbria and the UK would be much worse.

⁵⁹ See ‘DECC’ December (2008) ‘Justification’ document Volume Two (Appendix B) – <http://www.berr.gov.uk/files/file49231.pdf> (pp 46,47)

⁶⁰ BNFL – ‘British Nuclear Fuels’ the predecessor to the ‘NDA’ – the Nuclear Decommissioning Authority

⁶¹ “High Level Radioactive Liquid Waste at Sellafield - Risks, Alternative Options and Lessons for Policy” Gordon Thompson (June 1998) - Section 4.1 (as above) [<http://www.irss-usa.org/pages/documents/Completem-oapp.pdf>]

⁶² ‘Near Miss’ at Sellafield’s High Level Waste (HLW) Storage Tank Complex.’ Thur 9 April 2009 <http://www.corecumbria.co.uk/newsapp/pressreleases/pressmain.asp?StrNewsID=256>

⁶³ “Cooling Water Supplies” - Note from Sellafield Press Office – 14th April 2009

⁶⁴ ‘Sellafield News’ Wednesday 8th April 2009 – Issue 1101 (page 2)

http://www.sellafieldsites.com/UserFiles/File/Sellafield%20News/Sellafield%20News%2008_4_09.pdf

⁶⁵ ‘Norwegian Radiation Protection Authority, P.O. box 55, No-1332 Østerås, Norge.

Telephone + 47 67 16 25 00, fax +47 67 14 74 07.

E-mail: nrpa@nrpa.no

www.nrpa.no

ISSN 0804-4910

Conclusion

At the beginning of this month, there was an accident at the Sellafield nuclear facility that was only supposed to happen of the order of once in one million years. Due to the fact that radioactivity could have escaped from the site, emergency arrangement needed to be brought into play.

The reality of the Sellafield incident – as compared to the abstract calculation of the probability of future accidents – clearly indicates that basis of the NII regulation of the Sellafield site is seriously flawed.

APPENDIX FOUR

Sellafield and The Hazard Presented by Liquid High Level Wastes

The Military Origin of the Sellafield Site

The techniques applied to spent fuel waste management at the Sellafield site have changed little since the military origins of the site. Sellafield was first set up immediately following the Second World War to provide plutonium for nuclear weapons. In order to achieve this a chemical extraction process was developed.

Thus at Sellafield spent nuclear fuel rods are dissolved in hot nitric acid and then subjected to a 'solvent extraction' process to separate the uranium and the plutonium, and concentrate the intensely radioactive 'fission products' in the nitric acid.

When the decision to subject nuclear fuel rods from the non-military nuclear power stations was made it was confidently argued that the fission product stream could readily be turned into glass (vitrified) – and also that the plutonium and uranium product streams would prove to be a valuable resource.

However, in fact it has proven to be very difficult to achieve the vitrification of the nitric acid/HLW stream, and also – rather than bringing in funds, the reprocessed uranium and separated plutonium stocks are going to require funds in order to develop a long term approach to their management.

The Hazard Presented by Liquid HLW

A significant contribution to the hazard presented by the Sellafield site arises from the liquid wastes – thus in a June 2006 an NDA (Nuclear Decommissioning Authority) document on 'Radiological Hazard Potential', the NDA Engineering Directorate⁶⁶ wrote:

“Materials which are liquids or gases could all escape if all storage protection was removed” (page 6)

In the year 2000, British Nuclear Fuels (BNFL) estimated that the likelihood of a plane crashing into the liquid high level waste tanks on the Sellafield site was:

one in 100 million a year.⁶⁷

⁶⁶ Nuclear Decommissioning Authority “The “Radiological Hazard Potential” - Helping to make sense of cleaning up the UK's nuclear sites” [Engineering Directorate Document No: EGR003 Revision: Rev 1] 13th June 2006

⁶⁷ ‘Assessing the risk of terrorist attacks on nuclear facilities’ Parliamentary Office of Science and Technology Report - Report 222, July 2004 (page 79)

In the following following year, the 9/11 plane crash took place – and thus BNFL’s one in a 100 million estimate of a plane crash is demonstrably far too low. However, given that BNFL had argued that the risk of such a plane crash was so low, they had not designed the tanks that hold the liquid high level wastes to be able to be able to withstand aircraft impact.⁶⁸

Thus – if there were to be a 9/11 at Sellafield the radioactive contents of the tanks would be released.

In the following Boxes, some attempt is made to give an indication of the hazard presented by the liquid HLW at Sellafield. The first calculation is based on a report for the European Parliament carried out in 2001; and the second calculation is based on a report by the US High Level waste expert, Gordon Thompson.

Caveat

- Calculations – ‘Order of Magnitude Only

The figures in the two boxes below are meant to give an order of magnitude indication of the degree of hazard only – as there are many variables that would affect the harm that would be caused by a release from the liquid waste tanks.

In addition to factors such as wind direction; another very important consideration is the actual quantity of radio-nuclides in the tanks. The quantity of radionuclides is dependent not only on the balance between:

(a) how much has been generated as a bi-product of the plutonium separation operation, and

(b) the amount vitrified (turned into glass blocks)

but also on how much has decayed away to non-radioactive isotopes

⁶⁸ POST (2004) page 79.

Sellafield + Possible Fatalities

Source: **European “STOA” Report – (August 2001)**

[STOA = ‘Scientific and Technological Option Assessment’]

*“Possible Toxic Effects from the Nuclear Reprocessing Plants at Sellafield (UK) and Cap de la Hague (France)”*⁶⁹

Some indication of the possible number of fatalities that would result from a Plane Crash into Sellafield may be given by the STOA Report (August 2001).

On page 38, this report considers a possible ‘*atmospheric release*’ from the Sellafield Liquid High Level Waste tanks of the radioactive atom:

‘3.5 million Tera Bequerels of Caesium-137’.

It calculates that this could result in a ‘*collective dose*’ over the affected population of:

‘ 47 million Person – Sieverts ’⁷⁰

According to the Health Protection Agency (HPA), the International Commission of Radiological Protection (the ICRP) has recommended an ‘overall total cancer risk coefficient’: of:

5% per Sievert.^{71.72}

Thus, the number of fatalities that may be expected from such a release would be:

$$\begin{aligned} & \mathbf{47,000\,000 \times 0.05} \\ & = \mathbf{2,350\,000} \end{aligned}$$

or - approximately **Two Million Fatalities.**

⁶⁹ Mycle Schneider et al - Commissioned by the European Parliament, (Directory General for Research) Contract No EP/IV/A/STOA/2000/17/0 (August 2001)

⁷⁰ Sv – stands for ‘Sievert’ – which is the unit used for the health effects of radiation,

⁷¹ E-mail from Shelly Mobbs (Health Protection Agency) to Rachel Western - 26 Nov 2008

⁷² see also e-mail from Ian Fairlie (Consultant on Radioactivity in the Environment) to Rachel Western - 24th January 2009

Sellafield + Chernobyl

Source:

*”Civilian Nuclear Facilities as Weapons for an Enemy”*⁷³
Submission by Gordon Thompson
to Defence Select Committee (January 2002)

“A notable example of a potential radiological weapon for an enemy of the UK is the B215 facility at Sellafield. This facility houses 21 steel tanks and associated equipment in above-ground concrete cells. The tanks contain high-level radioactive waste (HLW) in the form of a self-heating, acidic liquid that requires continuous cooling and agitation. This liquid HLW is a product of nuclear fuel reprocessing at Sellafield. At present, the tanks contain about 1,550 cubic metres of liquid HLW. The radioactive isotopes in this liquid include:

*about 8 million*⁷⁴ *TBq (2,400 kilograms) of caesium-137*

For comparison,

the 1986 Chernobyl reactor accident released to the atmosphere about 90,000 TBq (27 kilograms) of caesium-137, representing 40 percent of the inventory of caesium-137 in the reactor core. Most of the offsite radiation exposure from the Chernobyl accident can be attributed to caesium-137, which has a half-life of 30 years.”
(page 2)

Using these figures, the hazard associated with Sellafield, can be calculated as follows:

$$= \frac{8,000,000}{90,000} \quad \text{“ 90 Chernobyls ”}$$

⁷³ http://www.irss-usa.org/pages/documents/UKDefCttee01_02_000.pdf, p2

⁷⁴ a TBq is a unit of radioactivity

APPENDIX FIVE

UK nuclear advisory group scrapped after warning of safety risks, insiders claim

Monday 16 February 2009 16.16 GMT

Summary

An expert advisory committee has been quietly scrapped after it warned the future safety of Britain's ageing nuclear plants was being put at risk by poor performance, delays and budget cuts. The Nuclear Safety Advisory Committee (NuSAC), which has been offering critical advice to Britain's health and safety watchdog for nearly 50 years, was disbanded without any public announcement. Former members of NuSAC are now worried about the lack of independent safety advice at a time when the government is embarking on a major expansion and clean-up of nuclear power

<http://www.guardian.co.uk/environment/2009/feb/16/nuclear-safety>

- Nuclear Safety Advisory Committee disbanded without any announcement
- Experts alarmed there is no immediate successor to provide independent nuclear advice

Rob Edwards and [Terry Macalister](#)
Monday 16 February 2009 16.16 GMT

An expert advisory committee has been quietly scrapped after it warned the future safety of Britain's ageing nuclear plants was being put at risk by poor performance, delays and budget cuts.

The Nuclear Safety Advisory Committee (NuSAC), which has been offering critical advice to Britain's health and safety watchdog for nearly 50 years, was disbanded without any public announcement.

Former members of NuSAC are now worried about the lack of independent safety advice at a time when the government is embarking on a major expansion and clean-up of [nuclear power](#).

Some former members privately suspect that NuSAC was shut down in October because it could have hampered government plans for a new programme of nuclear reactors. "This was just the time to get rid of a potential pest and spanner in the works of the brave new world of nuclear regulation and build," said one.

Some of NuSAC's recent criticisms — particularly on potential shortfalls in the future funding of nuclear decommissioning and radioactive waste management — were forthright. "Maybe that was enough to rock the boat," added the former NuSAC member.

Some committee members are also angry at suddenly being told in September that their next meeting was cancelled. "The way we were treated was shabby, to be honest," said another former NuSAC member.

NuSAC consisted of 19 safety experts, including scientists, academics, trade unionists and business executives, none of whom were paid. It reported to the Health and Safety Executive (HSE) and was chaired for the past four years by Dr Stephen Vranich, a chemical engineer from Jacobs Engineering.

"We are anxious to ensure that a successor body to NuSAC is set up as soon as possible," he said. "It is essential that nuclear safety regulators continue to receive good, independent advice, particularly at a time of great change in the nuclear industry."

NuSAC had been "passionate" about safety and spoke with "tremendous authority", Vranich argued. "I believe we did good work and raised important concerns on the future funding of nuclear decommissioning and waste management, on skills shortages, on the siting of new nuclear power stations and on other issues."

NuSAC's demise followed the launch of a major review of nuclear regulatory arrangements by the government's nuclear adviser, economist Dr Tim Stone. In a report last month, he recommended more staff and a major shake-up for the HSE, but made no mention of an advisory committee.

Marion Hill, a radiation scientist and former NuSAC member, thought it was unclear why the committee had not been allowed to carry on until a replacement could be set up. "It is a very busy time for the nuclear industry and I would have thought that HSE needed access to independent safety advice," she said.

The absence of NuSAC made it more difficult to find out about the regulation of nuclear plants. She argued: "Without NuSAC there is less information in the public domain about nuclear safety."

In an unpublicised report last July, NuSAC warned that programmes to deal with radioactive wastes from decommissioning the Sellafield nuclear complex in Cumbria and other old nuclear plants had suffered "substantial slippages".

The slippages were caused by the "poor performance" of nuclear plants, delays in developing waste processing and budget restrictions, the report concluded. "There remains a lack of confidence that the high hazards are being tackled to a robust programme."

NuSAC has also expressed concerns about the likely impact on safety of the shortage of skilled staff. And it has identified shortfalls in the siting criteria for new nuclear stations.

But the HSE denied that NuSAC had been shut down because it raised inconvenient issues. According to an HSE spokeswoman, it was because of the review by Tim Stone. "The HSE board decided to defer on reconstitution of this committee until it knows what sort of advisory body will be best suited to the changing circumstances in the nuclear field," she said. "It will be reconstituted in some form in due course."

The spokeswoman claimed that HSE nuclear inspectors had access to independent advice on nuclear safety from other sources. And she promised that information on nuclear regulation would continue to be published.

Some nuclear industry experts argued that NuSAC was a relatively ineffectual committee that had failed to live up to what had been expected of it. But they too expressed grave concern that there was no immediate successor to the organisation at such a vital time, when nuclear newbuild and waste issues were high on the public agenda.

APPENDIX SIX

Comparison of NII Newsletter Text on ‘Highly Active Storage Tanks’

July 2008 – need for replacement ‘*with utmost urgency*’

“Replacement HASTs [Highly Active Storage Tanks] should be progressed with the utmost urgency. We are currently awaiting the submission of Sellafield Limited’s document on their strategy for the safe storage of HAL .[High Active Liquor]” (Emphasis Added)

NII - July 2008 Newsletter

<http://www.hse.gov.uk/nuclear/nsn4308.pdf>

(page 16)

Compare the Sept 2008 Newsletter (the most recent that is on the web) – which makes no reference to the need for the urgent replacement of tanks.

NII – Sept 2008

Highly active storage tanks (HASTs) integrity

The following two paragraphs comprise the full text of this section. It can be seen the the previous (July 2008) reference to the need for replacement tanks to be built ‘*with the utmost urgency*’ does not appear within this text.

“Our previous reports have indicated that HAST cooling components have suffered over the years from corrosion. A number of cooling coils have been declared failed. A failure causes a breakthrough of activity into the cooling water circuits which can lead to a radioactive release if not properly managed. HAST cooling coil failure rates, and (specifically) the location of the most recent failed coils, has led to uncertainties over the ability of the newer HASTs to continue to service the needs of the HAL stocks strategy. If the HASTs start to deteriorate more quickly, then the ability of HALEs to receive raffinates will be prejudiced (with important knock-on consequences). The rates of failure of cooling coils will determine the volumetric capacity of HASTs to store HAL and has the potential to constrain raffinate receipt.

Sellafield Limited’s contingency plans had until recently placed considerable reliance upon a project to dose the cooling water circuits with nitrates as a way of stopping, or at least reducing the rate of, corrosion failures. Following our review of the technical information relating to nitrate dosing, and consideration by the licensee and internationally-recognised independent corrosion experts, Sellafield

Limited has decided not to pursue this strategy further. In the light of this significant development, we have written requesting a revised statement of Sellafield Limited's strategy for the future safe storage of HAL.” (page 13)

Source

<http://www.hse.gov.uk/nuclear/nn44-040309.pdf>

NII Newsletter

Issue 44 - Reporting period June-September 2008

(Most recent that is publicly available)

APPENDIX SEVEN

Sellafield and Funding Problems

Contract Journal
Weds 10th June 2009

<http://www.contractjournal.com/Articles/2009/06/01/68289/with-13bn-to-spend-per-annum-nuclear-decommissioning-work-has-a-long-half-life.html>

Contractors warm up for £1.3bn Sellafield clean-up

Nuclear Management Partners has a brief to clean up Sellafield, the largest and most hazardous UK nuclear site. With £1.3bn to spend annually, the work available should have a long half life.

nuclear

Late last year Amec, in consortium with Washington International Holdings and Areva, clinched a lucrative £22bn contract to oversee the decommissioning of Sellafield, the UK's biggest nuclear facility. The contract runs for an initial five years, with an option to renew for a total of 17 years.

With an annual spend of £1.3bn, the winning consortium, known as Nuclear Management Partners (NMP), has a brief to clean up what is the largest and most hazardous of the Nuclear Decommissioning Authority's (NDA) 20 nuclear sites. So large and urgent is the brief that **Sellafield has cornered almost 70% of the NDA's decommissioning budget.**

Keith Case, Sellafield's commercial director, says Sellafield's decommissioning programme offers a "massive" opportunity for suppliers. "Of our £1.3bn annual budget, more than 60% is spent with suppliers. That's a spending of £700m this year alone. At a time when there is a downturn in many sectors, the nuclear market is a huge opportunity for suppliers."

Case was seconded onto Sellafield's board by NMP in October as its commercial and contract management executive director. Case is one of 10 seconded executive directors, tasked with overseeing the management and operation of the Sellafield sites.

Cultural change

Five months into NMP's contract, it is clear a cultural change is happening at Sellafield. NMP is like a new broom, sweeping away old and inefficient systems, and opening up Sellafield's doors to new ways of working.

The aim, says Case, is to develop more efficient, economic and innovative ways of delivering Sellafield's decommissioning programme. Suppliers are key to this process and Sellafield is keen to talk to as many suppliers and potential suppliers as it can, holding frequent supplier forums. Case explains: "We are trying to have open dialogue and transparency with suppliers, giving as much information as we can to them about what Sellafield needs from them in order to deliver good value to the NDA."

He is also keen to bring in new blood, encouraging newcomers to use the supplier database along with the supplier forums to break into the loop. And if that fails, Case says suppliers can contact Zoe Whittle, Sellafield's supply chain ombudsman, who is there to help new entrants to the market and act as a first point of contact for the supply chain.

So what does Sellafield need from its suppliers? Innovation is crucial, says Case. "Focus on bringing value, focus on bringing good ideas about how things can be improved here and focus on bringing innovation into the programme," he says. Procurement processes

For its part, Sellafield is intent on improving its procurement processes, which contractors complain can be time consuming, costly and unreliable. Acknowledging these concerns, Case says: "There have been quite a lot of projects out in the market which funding has been pulled from or at least never been there," he explains. "So there has been an element of prequalification or even tendering of work that does not come to fruition."

In addition, the procurement plan "is far from being 100% accurate," says Case, explaining that this is largely because Sellafield's Life Time Plan, which the procurement plan is based on, is also inaccurate.

But change is on its way with plans for a new, accurate Life Time Plan by the end of this year, alongside a fully funded site execution plan, which will allow potential bidders to plan with more confidence.

Sellafield also wants to tackle costly tendering practices. Case cites frameworks as an example. "Despite the fact we have already competed the frameworks, we still ask the suppliers to compete with each other for chunks of work. I think the extent to which we do that is probably too great and we should reduce that and hopefully that will increase the volume of successful tenders and qualifications that suppliers put in."

Case says Sellafield will also "break the mould" by ending the unpopular yearly breaks on contracts which it currently exercises - another practice he sees as time consuming and wasteful. He estimates that more than 80% of Sellafield contracts will be affected by this change.

"We do agree budgets every year, but that is no reason to break all the contracts at each year-end," he says. "If funding does not materialize as we expect from year to year we can have a sensible discussion about it and modify the contracts."

New procurement methods are also on the cards. Sellafield managers have met with the BAA Terminal Five procurement team and Highways Agency officials to learn about how they procure their major contracts.

The Highways Agency's use of Early Contractor Involvement (ECI) design-and-build contracts is of particular interest and has prompted Sellafield to hold a number of workshops with its decommissioning and major projects contractors to discuss how the ECI model can be applied at Sellafield.

Case believes the ECI model could play an important part in procuring some of Sellafield's projects. He comments: "I can see at least two areas where ECI will pay big dividends. One is in formulating the options for major projects including innovative ideas from the supply chain before we put the project strategy to bed."

He adds: "The second area is in the commercial delivery strategy. How do we formulate that strategy? I would like to see more of an open discussion with suppliers and potential contractors to make sure we are tailoring it not just to the solution, but to the marketplace as well."

However, the nature of Sellafield's contracts may still pose a challenge, Case says. "It is easier in an environment with repeat business. Sellafield is an organization with a lot off one-off, really difficult and interesting projects, but the strategy and solutions need some innovative thinking."

Sellafield is also looking to engage with key members of the supply chain to develop more "fit for purpose" delivery mechanisms. Case points to one example, explaining: "We have recently worked on the Evaporator D project with lead contractor Costain to very good effect to deliver an integrated project team on a partnering basis where we have negotiated changes in the delivery fee model which gives more reward on successful outcomes."

But with a forecasted squeeze on public spending and the NDA under Treasury pressure to keep a tight lid on decommissioning costs (which have escalated from £61bn to £75bn over the past four years) can Sellafield guarantee a good flow of work in the future?

Case remains sanguine. He says: "Sellafield is not immune from the pressure that will undoubtedly be brought to bear on public sector finances in the next three or four years, but the work that needs to be addressed is of such a high hazard nature that the money will still need to be spent, even if Sellafield's budget comes under pressure."

With a decommissioning programme that appears recession proof, Sellafield makes an attractive option for contractors looking for a port in the economic storm.
Evaporator D Sellafield

The construction of Sellafield's fourth evaporator is an example of the sort of innovative solutions NMP is looking for from its contractors.

Costain is using off-site and modularized construction solutions, making significant cost savings.

The design of the Evaporator facility consists of 15 separate modules, the largest of which is 27m high. The modules are being manufactured off site or near site and then shipped in by sea and transported onto site across the River Ehen and the Barrow to Workington rail lines.

Key to the success of this approach is a detailed logistics programme, which marries in the delivery of the modules with Evaporator D's civil construction programme.

Using off-site construction and delivery by sea not only speeds up the construction programme, but also ensures better quality construction and a safer environment. Sea delivery also reduces the impact of such a major project on the local community. Costain believes this form of major project delivery could play a key role in the delivery of the UK's new build nuclear programme.

Evaporator D Fact File

- * The housed building will consist of 15 in-cell modules, the largest of which will be 27m high.
- * Over 21km of pipework, bound together by over 10,000 welds.
- * 300t of specialist steel used to make the key highly active equipment.
- * 396 major plant items.

