

How Safe Is AWE Burghfield?

PUBLISHED: 16.04.2008

CATEGORIES: BURGHFIELD

How Safe is AWE Burghfield?

An analysis of HSE Nuclear Installation Inspectorate

**Reports and correspondence to the AWE plc Regulatory Control
Centre Aldermaston 2006/7**

By Di McDonald, Nuclear Information Service

January 2008

“in view of the nature and number of the shortfalls, NII would normally expect that these operations would be suspended...

Any decision to continue with these operations should only be taken in the full knowledge of the existence of these shortfalls and any potential outcome.”

“AWE need to provide a coherent justification as to why it is safe to continue operating with a structure which will not meet modern standards.”

NII Letter 9th May 2007. Annex 1

HOW SAFE IS AWE BURGHFIELD?

This report is an analysis of Health and Safety Executive Nuclear Installation Inspectorate Reports and correspondence to AWE plc Regulatory Control Centre Aldermaston based on disclosures under the Freedom of Information Act 2000.

SUMMARY

AWE plc are used to illustrate the nuclear safety problems at AWE's Burghfield warhead dis/assembly facility and the conditions under which the workforce operate. These documents deal with a list of 1,000 Safety Case shortfalls, some considered minor, some extremely serious. Most of the documents are also accessible on the HSE website, with confidential words expunged.

- AWE is criticised by NII inspectors for confusion over responsibilities and for failing to prepare a risk assessment and get to grips with shortfalls. NII identifies one cause of the inability of AWE to put things right as that of “ownership” of the problem. AWE Management Limited manages the Aldermaston and Burghfield sites, AWEplc is the operator and the Ministry of Defence (MoD) is the customer. Each has different departments involved with warhead production. In the confusion, problems drop between the “gaps”. Another reason for failure is that AWE finds some solutions “too onerous” or shortfalls are reported closed when actually, they have been parked for later attention. The NII reports that serious civil engineering and mechanical engineering problems in the ‘Gravel Gertie’ (GG) warhead facilities require intervention to warn of *catastrophic failure*. (my italics). NII then draws attention to the fact that there is no reference to such an explosive event in the Facilities Emergency Plan.

“By 27th September 2007, AWE had not addressed all of the shortfalls identified as a result of its Periodic Review of Safety (PRS). Whilst many of these shortfalls are minor, others have a greater safety significance and so are being addressed prior to those with low safety significance.”

References

NII Introductory Notes

Letters from NII to AWEplc Regulatory Interface Control Centre : 04/05/07;
09/05/07

Project Assessment Reports: 25/2006; 33/2006; 40/2006; 46/2006; 014/2007;
020/2007;

Site Inspection Reports: 2007/032; 2007/037.

HSE NII documents:

<http://www.hse.gov.uk/foi/releases/burghfield/par40-2006.pdf>

<http://www.hse.gov.uk/foi/releases/burghfield/par33-2006.pdf>

<http://www.hse.gov.uk/foi/releases/burghfield/par46-2006.pdf>

Note

The HSE has a policy of openness and transparency that extends to the NII with some restrictions in security sensitive documents. The reader will need to guess words expunged by NII/MoD in brackets [.....] in the extracts. But it is not difficult – there is no secret in the fact that AWE(B) carries out operations to both assemble and disassemble Trident warhead units. NII text is in italics throughout, with that to be highlighted by the author, underlined. Editorial clarifications are in () brackets.

4. The Problem

Quotations from NII Reports speak for themselves, and little needs adding by way of explanation. *“Shortfalls” describe AWE safety standards that are not good enough. Although many of these shortfalls are minor, others have great safety significance. Unequivocal criticism supplements NII’s usual supportive reporting language.*

i. General Meeting between NII and AWE

“1. AWE provided a summary of the PRS (Periodic Review of Safety) process emphasising the scale of the operation, i.e.1000, (Safety Case) shortfalls.”

NIS ref: 100/4

ii. “10 category 1 shortfalls will go beyond the September 2007 decision date.”

Site Inspection Report 2007/032

NIS ref:104/8

4.1. NII examined the AWE database system for tracking shortfall remediation and checking progress of required modifications.

i. “AWE were asked to explain how the technical issue would be rectified in practice. There were two main issues, the traceability of the process and the technical reassurance that the proposed modifications would both resolve the original issue and produce the overall safety benefit to the final safety case.”

Site Inspection Report 2007/032

NIS ref:101/5

ii. *“A chief concern is that the categorisation of the entire process may not reflect the consequences of inadequate conception of design or implementation. AWE admitted that this modification may now attract a category B status, however this contradicted what had previously been notes that only category A and C modifications existed.”*

Site Inspection Report 2007/032

NIS ref:105/9

iii. *“..it was difficult to establish how the remedial works engineering projects are controlled.”*

Site Inspection Report 2007/032

NIS ref:102/6

iv. *“There were 18 shortfalls (in this department) ranging from Cat 1 to Cat 4 and he had provided an outline of the proposed actions. Three items were completed and the outline engineering details of a number of modifications were listed. Eight items indicated that a challenge would be made against the original shortfalls. That is the original SFRs were too onerous”... “One action related to electrical issues.”*

Site Inspection Report 2007/032

NIS ref:104/8

v. “AWE need to provide a coherent justification as to why it is safe to continue operating with a structure which will not meet modern standards.”

NII Letter 9th May 2007. Annex 1

4.2 The responsibility to allow operations at AWE Burghfield to continue rests with the MoD. It uses its power to override NII advice, that the plant should be closed until it is made safe, and insists that operations continue. Although the NII regulates the buildings and handling process, it does not regulate the warhead dis/assembly, as it is denied access the US/UK warhead design. Responsibility to ignore NII advice is taken by the MoD's Defence Nuclear Regulator (DNSR). NII makes clear that it takes no responsibility for the continuing use of the building in a substandard state.

i. “NII asked AWE and DNSR whether the existing programme could be delayed. DNSR however, confirmed that these [d...../a.....] are necessary

Project Assessment Report No: 25/2006

NIS Ref: 28/2

ii. “..in view of the nature and number of the shortfalls, NII would normally expect that these operations would be suspended.....Any decision to continue with these operations should only be taken in the full knowledge of the existence of these shortfalls and any potential outcome.”

Project Assessment Report No: 25/2006

NIS Ref: 34/8

iii. “[T]he AWE Act Amendment Order 1997 dis-applies the licence conditions attached to the nuclear site licence in relation to the design of a “nuclear device.” Regulation of such activities at AWE is undertaken by the MoD’s Defence Nuclear Safety Regulator, DNSR.”

NII Notes10/09/07

NIS Ref: 4/4

potential outcome and with the full agreement of the MoD regulator, who should confirm the requirement for and the importance of such operations. The number of these operations should be strictly limited. A judgement therefore regarding the tolerability of these operations and the MoD's necessity for such operations should be taken."

Project Assessment Report No: 33/2006& 40/2006

NIS Ref: 48/10 & 60/8

5. Delay

The AWEML contractor consortium of BNFL, Lockheed Martin Limited and Serco Limited took over the management of AWE in 2000, and since 2002 it has been preoccupied with an extensive Site Development Plan for the AWE Aldermaston site. Construction projects worth billions of pounds of government money are under way, with more in the pipe-line. Other priorities are recruitment, staff retention and public relations. From the evidence here, deep maintenance and replacement of aging nuclear facilities on safety grounds appear to have been low down the priority list.

NII Notes 10/09/07

NIS Ref: 5/5

ii. *“NII is uncomfortable that some of the Burghfield shortfalls, particularly those at category 1, will not have been addressed by that time and that in some cases it may not even be clear by then (Sept. 2007 Decision date) what the final proposal and timescale will be.”*

NII Letter 4th May 2007. NIS Ref: 7/8/5

iii. *“You should also be aware that in the event that NII feels that there has not been adequate remediation of the case of a significant shortfall by the “Decision date”, it may consider requiring the imposition of some form of operational restriction to compensate, until an adequate solution is in place.”*

NII Letter 4th May 2007

NIS Ref: 7/8/5

iv. *“The facility remedial works design control plan for these projects needs to be finalised urgently if these projects are to be completed to a*

Remedial Works Team (meeting) 25 April 2007

NIS Ref: 16/4 & NIS ref: 102/6

6. NII's lack of confidence in AWE

AWE is criticised for confusion over responsibilities. Those involved are AWE Management Limited (AWEML), the contractor that manages the sites, AWEplc, the operator and the Ministry of Defence (MoD), the customer.

i. "There is some inconsistency; for example, the AMS database holds shortfalls that were explained (by AWE) as aiming at tooling, and challenges to the risk assessment. During discussions, AWE personnel indicated that these would not be resolved by the facility."

NII Letter 9th May 2007. Annex 1

NIS Ref:20/8

ii. *“Without clear ownership there is the potential to fall through the gaps.”*

NII Letter 9th May 2007. Annex 1

NIS Ref:20/8

iiii. *“The Design Control Plan does not instil confidence that AWE’s own procedures are being followed.”*

NII Letter 9th May 2007

NIS Ref:13/1

iv. *“Some shortfalls were ambiguously worded and the facility were unclear with regard to the issue to be addressed.”*

Site Inspection Report No: 2007/032

NIS Ref: 103/7

Site Inspection Report No: 2007/032

NIS Ref: 110/14

7. Safety Case Issues

i. *“NII emphasised the importance of doing a proper risk assessment for modifications, to ensure that risk is in fact reduced and not increased by being inadequately conceived or implemented.”*

NII Letter 9th May 2007. Annex 1. NIS Ref: 15/3

ii. “AWE need to provide a coherent justification as to why it is safe to continue operating with a structure which will not meet modern standards.”

Remedial Works Team (meeting) 25 April 2007

iii. *“ A new RA (Risk Assessment) was started but progress has been unacceptably slow.”*

Project Assessment Report No: 25/2006

NIS Ref: 30/4

iv. *“The justification document does not provide any demonstration, at this point, that the risks associated with the disassembly process are tolerable since there is a significant amount of work still to be done to arrive at the risk figures. However, AWE considers risks to be below BSL. This (AWE) assertion is based on the original safety case, and the subsequent Periodic Review of Safety (PRS) work carried out using this safety case. This was criticised in 2002 for screening out significant risk contributors (for example, the [.....] now known to be one of the largest risk contributors was nearly omitted from the analysis.”*

Project Assessment Report No: 25/2006

NIS Ref: 32/6

requirement to limit operations in the store.” “Other structures have identified shortfalls which require to be addressed”.

Civil Engineering Assessment

Project Assessment Report No: 40/2006

NIS Ref:59/7

7.1 Urgent action is required by the NII.

i. “The above short-term measures and those currently planned do not reduce the significance of the shortfalls in these systems or remove the urgency of the remedial works programme.”

Mechanical Engineering Assessment

Project Assessment Report No: 40/2006

NIS Ref: 60/8

Project Assessment Report No: 25/2006

NIS Ref: 31/5

iii. "We reminded AWE of their ALARP(As Low As Reasonably Possible) obligations"

Site Inspection Report No: 2007/037

NIS Ref: 118/6

7.2 A final report lists AWE reports from several staff members responsible for dealing with shortfalls. Two groups are described here as A and B for distinction.

i. A. ".. originally, 1,000 shortfalls were identified. These reduced to

193 system improvements

145 safety case improvement work packages and

Facility actions: 37% are done so far

About 5% are being challenged to see whether the remediation is really ALARP... none of the ALARP challenges represents a "no work" outcome.

[58% remain to be done and 5% to be resolved]

B. said his team had 145 actions of which 22 had been completed.

The remainder would be completed when the safety case is issued in September 2007.

In other words, AWE(B) will end up with a safety case supplemented by a collection of modified proposals."

Project Assessment Report No: 020/2007

NIS Ref: 99/3

ii. "AWE has continually maintained that the risk from assembly and disassembly processes are tolerable, but without the detailed supporting analysis, full

publication ‘The tolerability of risk from nuclear power stations’, revised 1992.]”

NII Notes10/09/07

NIS Ref: 6/5/5

7.3 NII asks AWE to supply the following further information:

i. *“Prior to requesting any further LIs, (Licence Instruments to permission work to take place) AWE to supply:*

*“Prepare and implement an appropriate programme of regular [.....] and other relevant inspections of the GGs to ensure a continuing fitness for purpose (**to give early warning of catastrophic failure/collapse**).”*

Project Assessment Report No: 25/2006

NIS Ref: 37/11

8. Politics

The conflict of interest between the MoD Safety Regulator and the MoD task is clear. Not only is secrecy versus safety, but the drive for nuclear weapons is versus safety too. MoD quote the government commitment to reduce warhead numbers by 20% to 160 in the 2006 White Paper as a justification not to stop operations on safety grounds. Successive NII Reports repeat that the demands made by the MoD are incompatible with proper safety standards. I make no apology for repeating quotations that have already illustrated the 'Problem' at 4.2 under this heading of 'Politics'.

i. "NII would normally expect that these operations would be suspended.....Any decision to continue with these operations should only be taken in the full knowledge of the existence of these shortfalls and any potential outcome."

Project Assessment Report No: 25/2006

NIS Ref: 34/8

ii. [As stated previously], "any decision to agree to continue with these operations should only be taken in the full knowledge of the existence of the shortfalls, the potential outcome and with the full agreement of the MoD regulator, who should confirm the requirement for and the importance of such operations. The number of these operations should be strictly limited. A judgement therefore regarding the

Project Assessment Report No: 33/2006& 40/2006

NIS Ref: 40/2, 48/10 & 60/8

iii. “Units [w.....] need to be [d.....] for stockpile surveillance and other related reasons and to maintain Government commitments on warhead numbers.”

Project Assessment Report No: 40/2006

NIS Ref:55/3

iv. “The Nuclear Weapon Regulator (NWR) (MoD) has informed NII that the [w.....] which AWE has requested permission to [d...../a.....] are necessary in support of the UK Strategic Defence.”

Project Assessment Report No: 020/2007

NIS Ref:86/4

activities.”

Project Assessment Report No: 40/2006

NIS Ref: 55/3

vi. “NII has consulted with DNSR’s NWR to confirm that the requested operations are necessary in support of the UK strategic defence programme.”

Project Assessment Report No: 014/2007

NIS Ref: 69/6

vii. “NII should not agree to further [.....] operations unless AWE can demonstrate that it has achieved [a] Schedule of Deliverables listed”.

NII Recommendations

Project Assessment Report No: 40/2006

NIS Ref:62/10

shortfalls to the facility and plant, (a) LI was issued in August 2006 to allow AWE to [d...../ a.....] already held at AWE(B), **only** following written confirmation from DNSR that the [o.....] were necessary in support of the UK Strategic Deterrent.

Project Assessment Report No: 33/2006 & 014/2007

NIS Ref: 40/2 & 65/2

9. AWE Failures

i. “ It is recognised that the current facilities fail to meet modern standards and only the design, construction and operation of new facilities will ensure that modern safety standards are met.”

Project Assessment Report No: 33/2006

NIS Ref: 41/3

Project Assessment Report No: 33/2006

NIS Ref: 45/7

iii. “Unfortunately, AWE has been unable to complete the full programme of work across the complete facility and adequately document all the procedures and records.”

Mechanical Assessment

Project Assessment Report No: 33/2006

iv. “AWE failed to adequately demonstrate that the process would deliver engineering fixes that address the PRS shortfalls in terms of the safety case requirements.”

Site Inspection Report No: 2007/032

NIS Ref:105/9

been resolved or 'closed out'.

i. *“Hence, even this apparent straightforward modification could not yet be accepted as being satisfactorily completed.”*

Site Inspection Report No: 2007/037

NIS Ref:115/3

ii. “It is recommended that NII should not issue further Licence Instruments until AWE meets all the requirements for the Schedule of Deliverables.”

Project Assessment Report No: 33/2006

NIS Ref: 51/13

CONCLUSION

construction projects and the billions of pounds of government money allocated to them lies elsewhere.

2. AWEplc (the sites operator), has failed to see, failed to listen or failed to convince decision-makers that the decline of the Burghfield warhead plant may put workers and the public at risk. It has not developed an effective database tracking system for fault monitoring and rectifying.

3. AWE Management Limited (AWEML) has sought to build a new empire with maximum yield for its shareholders and has failed to listen to its advisers and to invest in safety. AWEML has marketed itself as a world leader without checking that the shop floor is safe.

4. The MoD, as guardian of UK nuclear weapons, has failed to ensure that safety is the priority at AWE, preferring to meet the development and financial aspirations of the consortium. It has hidden behind the government commitment to reduce the Trident warhead stockpile by 20% as justification for ignoring the advice of the regulator, and has failed to close the Burghfield site until it is fit for purpose.

failed to direct the MoD to manage the nuclear stockpile without recourse to the Gravel Gertie facilities at Burghfield that are unfit for purpose, by failing to restrict their use to emergency purposes only. Lastly, the government should have explained to the public that its commitment to cut warhead numbers must be contingent on safety constraints and necessarily suffer some delay a present.

- All the parties to the safety crisis at AWE Burghfield have a statutory duty of care and good governance. If a decision has been taken to sacrifice safety in order to keep the disassembly process going for political or cost-cutting reasons before the GGs are too far-gone, then the question of legal liability arises. Nuclear safety demands that all building plans are immediately deferred, and if necessary, others are interrupted, in order that people concentrate on re-building a plant for dis-assembling nuclear warheads that meets modern safety standards.

Sign up to newsletter

Support our work

DONATE

Contact

[Privacy Policy](#)

This work is licensed under a [Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License](#)

Designed by Advocate built by Netuxo