

Exercise Aldex 10 – independent observations

A briefing from Nuclear Information Service

Background

1. Exercise Aldex 10 took place on 10 November 2010 to test off-site emergency arrangements for the Atomic Weapons Establishment (AWE) Aldermaston. The exercise was a 'Level 2' exercise¹, meaning that it is assessed by the Nuclear Installations Inspectorate for compliance with the requirements of the REPIR regulations² and involves a broad range of agencies which would be involved at the regional level in responding to an off-site emergency at an AWE site. Level 2 exercises are scheduled to take place every three years, and the last Level 2 exercise for AWE Aldermaston took place on 16 November 2007.
2. The exercise was co-ordinated by West Berkshire Council, with the support of a planning team made up of a number of members of the AWE Off Site Plan Working Group. It took the form of a command and control exercise with no 'live' play by emergency responders. The emergency scenario for the exercise was centred on the release of a radioactive plume which drifted south-west from AWE Aldermaston over residential areas around Tadley, providing a test particularly for Basingstoke and Deane Borough Council and responding agencies in the north of Hampshire. A Gold Command centre (strategic level) for the exercise was established at the Thames Valley Police Headquarters at Kidlington, with Silver Command (tactical level) operational command units for individual participating agencies at a number of locations, including Reading police station, the West Berkshire Council offices in Market Street, Newbury, the Health and Safety Executive Nuclear Directorate headquarters in Bootle, and AWE's own Situations Control Centre. In total an estimated 250 people at various different sites were involved in the exercise.
3. Nuclear Information Service (NIS) wrote to West Berkshire Council in November 2009, welcoming publication of the Atomic Weapons Establishments Off-Site Contingency Arrangements³ and commenting on the need to test the arrangements through an

1 Nuclear emergency exercises take place at three levels, with Level 1 exercises testing site operators' on-site emergency plans and Level 3 exercises taking place on a national scale. Full details are provided in 'Arrangements for responding to nuclear emergencies', Health and Safety Executive, 1994.

2 The Radiation (Emergency Preparedness and Public Information) Regulations 2001. Statutory Instrument 2001 No. 2975. Available at: <http://www.legislation.gov.uk/ukxi/2001/2975/contents/made>

3 Letter from Nuclear Information Service to Civil Contingencies Manager, West Berkshire Council, 12 November 2009.

emergency exercise. We stated:

“Given the complex nature of the contingency arrangements, in order to provide a credible test of their adequacy NIS considers that the Aldex 10 exercise should rehearse the following activities:

- Establishment of Gold, Silver, and Bronze control centres.
- Establishment of an exclusion zone for a contaminated area, with associated road closures and access restrictions.
- Establishment of a rest centre.
- Sheltering or evacuation arrangements at a vulnerable location such as a school or care home”.

4. West Berkshire Council responded constructively to our comments, although a subsequent request for NIS to be given permission to participate in the Aldex 10 exercise as independent observers was turned down. NIS therefore decided to deploy unofficial on-the-ground observers in the vicinity of AWE Aldermaston on the day of the exercise to monitor events and also discuss the AWE emergency arrangements with local people and organisations that might reasonably be expected to play a role in responding to an emergency on the site. This report outlines our findings.
5. NIS recognises the hard work put into the exercise by the planning team and exercise players, and appreciates that valuable learning emerged as a result of the exercise. This report is not intended as a critique of the Aldex 10 exercise, but as a means of providing constructive suggestions to help shape future Aldex exercises with the aim of increasing emergency preparedness and public confidence in emergency arrangements.

Exercise objectives

6. The Exercise Instruction for Aldex 10⁴ defined the objectives of the exercise as follows:

“The key objective of Aldex 2010 is to test the Command and Control arrangements and interfaces as detailed in the AWE Off Site Plan for a Radiation Emergency at AWE Aldermaston. Particularly:-

- a) To test the communication routes between the Situations Coordination Centre (SCC) at AWE(A) and the Command and Control Centres set up by Thames Valley Police and others as appropriate.
- b) To Confirm the effectiveness of the flow of advice and information between the Operator (at the AWE SCC) and command and control centres operating in response to the incident and, where appropriate, central government.
- c) To provide responders under the Off Site Plan with an opportunity to verify their own plans to an Off Site Emergency at AWE Aldermaston (these to be an adjunct to the main exercise and not in conflict with it).

4 'AWE Level 2 Emergency Exercise: Aldex 2010 – 10th November 2010. Exercise instruction – Players'. Issue 1, 1 November 2010. West Berkshire Council. Document reference DI02/SRG/10/JAF/B/097.

d) To test joint organisational media handling procedures.

e) To produce a post exercise report with recommendations for action. The actions to be acceptable, achievable and within the control of the agencies involved in the exercise.”

7. These objectives were the same as those set for the 2007 Aldex exercise. As Aldex exercises take place on a three-yearly cycle different personnel are likely to be in post for each exercise, the emergency plan or site arrangements may have changed since the previous exercise, and differing exercise scenarios can be tested, justifying the use of the same objectives over subsequent years. On the other hand, more may be learnt if an exercise focuses on activities that have not recently been tested. In the case of the Aldex plan, these could include establishment of an exclusion zone for a contaminated area, establishment of a rest centre, sheltering or evacuation arrangements for a vulnerable location, or recovery issues following the emergency.
8. The Aldex 10 exercise took place over a single day, when in reality the response to an off-site emergency at an AWE site would continue over an extended period. Safety regulators at the Ministry of Defence have expressed concerns that nuclear emergency exercises now last only a day and cannot demonstrate the sustained response that would be required in a real-life scenario⁵. Although there would be a significant resource cost in running a future Aldex exercise over a longer period than a single day, consideration should be given to the case for running an extended exercise.

Live play or command post exercise?

9. The Aldex 10 exercise took the form of a command post exercise, with no 'live' test of the AWE Off-Site Contingency Arrangements outside AWE's Situations Control Centre (which directs AWE's element of the response to any emergency). It was clear that neither the AWE Aldermaston or Burghfield site had been placed under cover, with personnel working out in the open and gates open for access as usual.
10. Although Gold and Silver level command centres were established as part of the exercise play, the exercise format did not allow establishment of an exclusion zone or rest centre to be rehearsed, and did not test the practical effectiveness of sheltering arrangements.
11. Regular live on-site exercises take place at AWE sites, and while these provide AWE staff and sometimes emergency services with the chance to practice the on-the-ground logistics of dealing with an emergency at an AWE site, they do not provide opportunities to deal with off-site aspects of an emergency response and seldom involve non-emergency service participants. Although live on-site exercises take place regularly, it is not clear when the last live test of off site contingency arrangements took place - if indeed such an exercise has ever been organised. At the very least it has

⁵ 'Defence Nuclear Environment and Safety Board 2009 Assurance Report'. Ministry of Defence, 2009. Paragraph 32. Available at <http://www.mod.uk/DefenceInternet/MicroSite/DES/OurPublications/HealthandSafety/DefenceNuclearEnvironmentAndSafetyBoardAssuranceReports.htm>

been six years since such an exercise took place - probably considerably longer - and the next opportunity to hold a live off-site level 2 exercise at the AWE will not now be until 2013. This raises questions as to whether the practical off-site aspects of planning for an emergency at AWE are being tested with sufficient frequency.

12. AWE staff and long-term contractors regularly participate in on-site emergency exercises, and short term contractors are supposed to be accompanied whilst on site by a member of AWE staff who can advise on what action should be taken in the event of an emergency. However, it is not clear what measures are taken to advise AWE contractors working off-site about emergency procedures. Whilst observing at AWE during the Aldex 10 exercise we spoke to two building contractors who were repairing a wall at the site perimeter near the main gate. Neither knew what steps to take in the event of an emergency and they had apparently not been informed about emergency procedures by their manager.
13. It is also important to give members of the public the opportunity to participate in emergency exercises so that they become familiar with emergency arrangements and are aware of the steps they will need to take to protect themselves during an emergency. A Ministry of Defence nuclear emergency exercise held in Portland, Dorset, in March 2010 highlighted the difficulties the authorities might face in informing the public about an emergency and the anxieties that local people would experience during an emergency⁶. Older residents were particularly worried during the exercise, underlining the need to make special provision for vulnerable people. However, despite the chaotic outcome of the Portland exercise it provided an invaluable opportunity for the authorities to learn lessons about how to deal with such issues in a real-life situation. Without having undertaken an on-the-ground off-site emergency for AWE, it is reasonable to ask how well equipped Thames Valley Police and other agencies involved in responding to an emergency would be to anticipate and deal with such problems.
14. The fire in an explosives area at AWE Aldermaston on 3 August 2010 demonstrated "numerous difficulties" in communications and co-ordination between agencies involved in handling the incident, according to the Incident Debrief Corrective Action Report prepared by the Royal Berkshire Fire and Rescue Service, largely because of the time of day the incident took place (late evening) and the security status of the site. Fire hydrants did not work efficiently; key equipment was away for maintenance; and the tactical plan for dealing with fires on site was found to be more relevant for dealing with radiological emergencies than incidents involving explosives. Live emergency exercises allow practical problems of this nature to be identified and addressed in a way that command post demonstrations do not.
15. The emergency response to an incident at AWE could be complicated by the need to close roads to prevent access to potentially contaminated areas lying downwind of any radiation plume. A nuclear emergency exercise at the Sellafield reprocessing plant in 2009 resulted in widespread traffic congestion around the site⁷, and similar problems can be anticipated in the event of an accident at an AWE site. The fire at AWE

6 'Nuclear panic on Portland: residents tell of fear'. Laura Kitching. Dorset Echo, 12 March 2010. Available at:

http://www.dorsetecho.co.uk/news/5057671.Nuclear_panic_on_Portland_Residents_tell_of_fear/

7 'Doomsday Scenario'. Alan Irving. Whitehaven News, 30 September 2009. Available at:

http://www.whitehaven-news.co.uk/news/doomsday_scenario_1_618159?referrerPath=news

Aldermaston on 3 August 2010, although occurring overnight and resulting in the closure only of a single road, Red Lane, resulted in serious local traffic disruption. The review of the 2007 AWE emergency exercise concluded that: “Actually getting to GOLD could be an issue due to grid lock etc”. West Berkshire Council has a plan for managing road closures and traffic in the event of a major emergency, and a Highways emergency cell can be set up as part of the emergency response to manage this task if necessary. Although some degree of traffic chaos would probably be inevitable in an emergency of this nature, live exercise rehearsals of the deployment of police to control traffic and contractors to set up signs notifying motorists of diversions could help in reducing difficulties 'on the day'.

16. A recent live CBRN emergency exercise in Sheffield demonstrated the advantages that live play has over a tabletop exercise. Exercise 'Sheffield Steel'⁸, organised by Sheffield City Council, took place in August 2010 to test the emergency response to a CBRN incident in the city centre, with a particular objective of testing deployment of mass decontamination facilities in a live scenario. Valuable practical lessons were learnt about decontamination arrangements, and the exercise highlighted concerns about the time taken to mobilise a response, the length of time potentially contaminated members of the public would be prepared to wait for decontamination, communication issues experienced by emergency responders working in protective suits, and cultural and modesty issues. In order to minimise inconvenience to members of the public resulting from the real-life field deployment of emergency equipment, the exercise took place on a Sunday morning.
17. Although inquiry inspectors ruling on nuclear site developments have in the past taken the view that live exercises are not necessary to demonstrate that nuclear emergency plans have been adequately tested⁹, the emergency planning context has changed over recent years. The nature of security threats has changed drastically and the Fukushima nuclear accident has highlighted the need for effective emergency arrangements and has increased pressure on the nuclear industry to visibly demonstrate that safety arrangements are adequate in order to maintain public confidence.
18. Live emergency exercises cost a lot of money to organise and would be difficult to fund in the current financial climate, although the REPPiR regulations allow local authorities to reclaim certain exercise costs from the site operator¹⁰. However, they give a better idea of the practicalities of managing an emergency response and any unexpected difficulties which may emerge. In a situation where costs are at issue, a useful compromise may be to test key elements of an emergency plan in a live exercise whilst rehearsing other aspects through command post activities.

8 Exercises Solar Victory and Sheffield Steel. Presentation by David Owens, Sheffield City Council. 'Nuclear Emergency Planning – Awareness Seminar', Nuclear Free Local Authorities English Forum, 17 September 2010, Manchester.

9 Barnes, Michael, 1990, “The Hinkley Point Public Inquiries: A Report to the Secretary Of State for Energy and the Environment”, HMSO.

10 Regulation 12, The Radiation (Emergency Preparedness and Public Information) Regulations 2001.

Alerting and protecting the public

19. Members of the public would be alerted to a release of radioactive material from an AWE site through announcements on local media and, for residences in the zone expected to be affected by the release, through an automated telephone call. Schools and nurseries notionally at potential risk from radioactivity during the Aldex 10 exercise were alerted by email.
20. Although these are excellent ways for rapidly transmitting information about an accident and precautions to be taken for public protection, they are not guaranteed to pass information on to everybody who may be in the 'at risk' area. Telephone calls may not be answered or understood, and there is the possibility that an automated message may be mistaken for an unsolicited sales call, causing the recipient to hang up. The Cedars School at Aldermaston advised us that the school's email system suffered from occasional failures and was not always reliable.
21. As a result, during an incident there may be members of the public in the 'at risk' zone unaware of the emergency and out in the open, exposed to a radiation dose. A command post exercise does not easily provide opportunities for the emergency services to address how to deal with this concern.
22. Whilst undertaking field observations during the Aldex 10 exercise we noticed a wide difference between the level of preparation for an emergency between different institutions in the vicinity of AWE Aldermaston. The Jubilee Nursery at Padworth was an example of an organisation which seemed well prepared to deal with an emergency. Staff at the nursery were aware that the Aldex exercise was taking place and of measures aimed at protecting the children in their care, and told us that the nursery had food supplies and sleeping space on site. In contrast, checkout staff and the Health and Safety representative at the Sainsbury's supermarket in Tadley were not aware of the exercise and the Deputy Manager had no information from AWE or advice about radiation emergency arrangements among the documentation in the store's 'emergency box'. Staff at the supermarket reported that in the past there had been difficulties in encouraging shoppers to follow to safety instructions during emergency drills at the store. The Cedars School at Aldermaston had been alerted about the exercise and emergency arrangements, but staff did not consider the school suitable to provide overnight accommodation for children in the event of an emergency because of difficulties in providing heating and water.

Rest centres

23. According to the Atomic Weapons Establishments Off-Site Contingency Arrangements rest centres would be established by a local authority to provide temporary emergency accommodation to those unable to return to homes in the radioactively contaminated area immediately downwind of the AWE site or, in the event of a more serious accident, to those evacuated from their homes.
24. It would take time to establish a rest centre and setting one up would involve staff from more than one Council department. During the Aldex exercise all West Berkshire Council staff were sent an email asking whether they would have been available in the

event of a real emergency to help staff a rest centre. The call-out resulted in a positive response, indicating that in a real-life situation the council could expect to be able to find the staff resources needed to establish and operate a rest centre. An actual rest centre was not set up as part of the exercise, although rest centres have been established as part of other emergency exercises organised in the recent past in the West Berkshire area.

25. NIS observers visited Theale Green School, which was listed as a location for a rest centre in the 2004 Atomic Weapons Establishments Off Site Emergency Arrangements (now superseded by the 2009 version) and spoke to the school's Business Manager, who told us that she had worked at the school for four years and was not aware that the school could potentially be used as a rest centre. During this period the school had not been involved in any emergency exercises, and no supplies of emergency food or equipment are held at the school. We also visited Hurst College, Tadley and the Fieldgate Centre, Kingsclere, where staff informed us that the two centres were designated as evacuee reception centres but were not involved in and had not been informed about the Aldex 10 exercise.
26. Rest centres would be located in a safe area a reasonable distance away from the emergency area, and as far as possible upwind of the AWE site to avoid risks from contamination. They would not, therefore, be in the immediate vicinity of the emergency area. As a result, travel to a rest centre might not be easy for those without their own transport or for those with their own vehicles who are not familiar with routes to the centre – especially as road closures and diversions would probably be in effect in the area around the AWE site during an emergency. To overcome these difficulties road signs would need to be set up to direct drivers, and / or transport provided to take residents to the rest centre. Both of these actions would require the use of contractors to assist and would add an extra dimension of complexity to management of the emergency.
27. The Nuclear Emergency Planning Liaison Group has highlighted the importance of testing evacuation and rest centre arrangements¹¹. In its review of lessons learned from nuclear emergency exercises during 2009-10 the Group stated: "In two exercises issues were raised about training and familiarisation of the planning for the evacuation management of large numbers of people. Concerns were expressed about evacuation of schools, specifically with the availability of transport in real situations, about the handling of large numbers of the public and, in certain circumstances, handling a significant number of people who will be trapped on site for an extended period. A positive point from one exercise was the establishment and testing of rest centres and monitoring stations which was seen as contributing positively to the test of the off-site plan. While evacuation of large numbers of members of the public or site employees is unlikely to be necessary for most sites when dealing with design basis accidents, if the very low frequency/ high consequence event were to occur this issue could become crucial." Other emergency exercises have demonstrated a number of practical issues associated with setting up a rest centre, such as a lack of car parking space at

11 NEPLG Lesson Learned Sub Group Review of Level 2 and 3 Exercises 2009/2010'. Paragraph 3.7. Department of Energy and Climate Change, July 2010. Available at: http://www.decc.gov.uk/media/viewfile.ashx?filetype=4&filepath=What%20we%20do/UK%20energy%20supply/Energy%20mix/Nuclear/issues/emergency_plan/neplg/294-neplg-lessons-10-year.pdf&minwidth=true

buildings designated as rest centre¹².

28. NIS considers it would therefore be a prudent step for the next Aldex level 2 exercise to rehearse arrangements for establishing a rest centre and transporting members of the public to it. Establishing rest centres is one of the major emergency duties of a local authority, and the next Aldex exercise would be an opportunity to test this aspect of West Berkshire Council's emergency role.

Media handling

29. One of the objectives of the Aldex 10 exercise was to test joint organisational media handling procedures. A media briefing centre was set up at a pre-planned location, although details of the location were not revealed to the public. The media were simulated by trainee journalists, briefed to ask tough questions, during a mock press conference organised by Thames Valley Police as part of the exercise. The press conference was attended by the Chief Executives of AWE and West Berkshire Council, with many of the agencies involved in the emergency response also present to help provide expert advice.
30. Media officers from West Berkshire Council and Reading Borough Council were aware of the general background to the press conference but did not appear to have been briefed about the information given out at the press conference. Front-line reception staff at some other locations which the public might be expected to contact in the event of an emergency (Newbury Police Station, Hampshire Constabulary Headquarters, Reading Borough Council) seemed unaware that the exercise was taking place and were unable to answer questions about it, although they did their best to pass enquiries on to others who they felt may be able to help.
31. NIS discussed the exercise with a local newspaper journalist who stated that media representatives would have welcomed the opportunity to take part in the exercise press briefings in a real-life role. This would have further added to the realism of the exercise and would have helped agencies involved in the exercise to gain further insights into how the media would react to such an event. Subsequent news reports would have helped in raising public awareness of AWE's emergency arrangements. Local reporters have been involved in nuclear emergency exercises organised at other sites¹³ and there seems to be no reason why they could not be invited to be involved in a future Aldex exercise.

Scrutiny and transparency

32. Exercise Aldex 10 was monitored by a number of official observers representing various government agencies. We welcome West Berkshire Council's commitment to publish the exercise final report, summarising feedback from exercise observers, on

12 Notes of DECC Local Government Nuclear Seminar, Abbey Hotel, Redditch, 29-30 June 2010. Available at:

http://www.decc.gov.uk/media/viewfile.ashx?filetype=4&filepath=What%20we%20do/UK%20energy%20supply/Energy%20mix/Nuclear/issues/emergency_plan/neplg/872-minutes-local-gov-nuclear-seminar-june2010.pdf&minwidth=true

13 See, for example, 'Doomsday Scenario' by Alan Irving, *op cit*.

the civil contingencies pages of the Council website.

33. The exercise was observed by staff from the Health and Safety Executive, who were present to formally assess whether it met its objectives and was able to demonstrate that AWE plc has made suitable arrangements for dealing with emergencies on AWE sites. The Health and Safety Executive contributes to the content of the exercise final report although the Executive does not yet routinely publish reports of its own observations for individual exercises and has not provided feedback to the general public or press about the conduct of this exercise.
34. The exercise was also observed by Councillor Anthony Stansfeld and Councillor Irene Neill from West Berkshire Council and Councillor David Leeks from Basingstoke and Deane Borough Council, although it is not clear whether or how these members will report on their findings to their Councils or the public. Rather surprisingly, the AWE Local Liaison Committee has no direct role in observing the exercise or appointing local authority observers, although the Committee receives reports on the exercise from West Berkshire Council officers, as do certain local parish councils.
35. Members of the public who NIS observers spoke to were mostly unaware of the exercise and had no opportunity to participate in it. The event had not been publicised beforehand and press reporters were not permitted to watch the exercise. NIS asked for permission to participate in the Aldex 10 exercise officially as independent observers but this was not granted, although exercise managers provided considerable assistance and advice to us in the preparation of this report and NIS was able to field a team of on-the-ground observers whose findings have contributed to this report.
36. By including NIS or other similar local non-government groups in the exercise monitoring process, the organising team for the exercise could gain opportunities to obtain fresh insights on the exercise play and draw on the findings of a number of experienced volunteer observers, familiar with the local geography and able to help cover ground that formal observers might find more difficult to monitor.
37. We conclude that Exercise Aldex 10 could have shown greater accountability and transparency. We consider it important for independent observers and the press to be able to monitor and report on exercises of this nature if the public is to have confidence in emergency arrangements for AWE and other nuclear licensed sites.

Conclusions

38. The Aldex 10 exercise appears to have worked well as a test of command and control arrangements for the AWE Off-Site Contingency Arrangements. However, although command post exercises are invaluable in allowing emergency communication arrangements to be practised and tested, they are no substitute for an 'on the ground' exercise in terms of testing the logistical and practical elements of an emergency plan.
39. A field test of the AWE off-site emergency arrangements is now overdue. By supplementing previous command post exercises with a live field exercise the AWE Off-Site Plan Working Group would gain a deeper insight into the practicalities of responding to an incident at an AWE site through a robust test of public protection

arrangements with further opportunities for learning and improvement.

40. In the light of our monitoring and the conclusions of this report NIS makes the following suggestions to the AWE Off-Site Plan Working Group:

- The next three-yearly Level 2 Aldex exercise should contain elements of live field play.
- The exercise should test establishment of an exclusion zone, sheltering or evacuation at a vulnerable location, and establishment of a rest centre.
- Consideration should be given to extending the exercise play over a longer period than just one day, and to involving a broad range of players, including local businesses which have a duty of care over people on their premises in the event of an incident at an AWE site.
- Local media and independent non-government observers should be invited to assist in monitoring the exercise.
- On-site arrangements at AWE should be reviewed to ensure that contractors, especially those working at the site perimeter or unsupervised by a member of AWE staff, are informed of emergency arrangements.
- Consideration should be given to undertaking an audit of key locations around AWE sites to ascertain whether emergency arrangements are in place and, if necessary, advise on good practice.
- Consideration should also be given to undertaking an audit to check that rest centre site managers are fully aware of their responsibilities and that adequate equipment and supplies are available to establish a rest centre at each location.

Appendix 1. Locations visited during field monitoring

- AWE Aldermaston
- AWE Burghfield
- Willink School, Burghfield Common
- West Berkshire Council Offices – Market Street and Faraday Road.
- Reading Police Station
- Reading Borough Council – Civic Centre
- Newbury Police Station
- Aldermaston village hall
- Jubilee Nursery, Padworth
- Padworth village hall and informal caravan site
- Pangborne College
- Theale Green School
- Tadley Medical Partnership
- Mortimer Fire Station
- Cedars School, Aldermaston
- Sainsburys, Tadley
- Kennet Leisure Centre, Thatcham
- Kennet School, Thatcham
- St Johns Infant School, Mortimer
- Hampshire Constabulary HQ – Winchester
- Fieldgate Centre, Kingsclere
- Hurst College, Tadley

Appendix 2. NIS field monitoring team

- Chris Burden
- Peter Burt
- Nigel Day
- Margaret Downs
- Lucy Flowerdew
- Steve Hendry
- Zoe Irvine
- Alison James
- Juliet McBride
- Di McDonald
- Evelyn Parker
- Rob Parker
- Karen Rumbol
- Trish Whitham
- Brian Woodgate

NIS would like to extend thanks to all who answered our questions and assisted with our field monitoring enquires on the day of the exercise, and to Carolyn Richardson (West Berkshire Council) and Bob Powell (Health and Safety Executive) for providing invaluable information about the exercise arrangements and context.