



MINISTRY OF DEFENCE

DEFENCE NUCLEAR SAFETY REGULATOR

NUCLEAR WEAPON REGULATOR

DNSR/18/10/1

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EXERCISE ASTRAL BEND 2012 – ASSESSMENT

References:

- A. JSP471: Defence Nuclear Accident Response
- B. JSP538: Regulation of the Nuclear Weapon Programme
- C. D/NM12/80 dated Mar 12 – Exercise ASTRAL BEND 2012 DNSR Assessed Objectives
- D. DNSR/18/10/1 dated 27 Jul 11 – Exercise ASTRAL BEND 2011 Assessment

1. This assessment is provided in accordance with the Ministry of Defence policy on nuclear accident response set out in Reference A and with DNSR regulatory requirements (Reference B).

2. Exercise ASTRAL BEND 2012 was a demonstration of the arrangements for responding to an accident involving the air transport of defence nuclear materials, and was held at Heyford Park in Oxfordshire 27 March 2012. The objectives for the exercise were agreed in Reference C.

3. DNSR assessed the MOD response during the exercise, and I provided a preliminary verbal assessment on completion. It is confirmed that the exercise provided an appropriate scenario for demonstrating the agreed aspects of the arrangements, and that DNSR considers that the RAF Brize Norton Station NARO Team (SNT) would have coped with the events as presented. This was an improved demonstration of the SNT response by comparison with previous exercises (see Reference D), for which full credit is due. In particular, detailed drills were effectively performed and improved support was provided to the emergency services.

4. Strategic Weapons Project Team made clear before the exercise that a more fundamental review of the immediate response to such scenarios, agreed as necessary after previous exercises, had not been started but was scheduled to begin shortly. This assessment has, therefore, avoided a repetition of findings in areas likely to be subject to this review. The planned review needs to recognise the recently improved capabilities of the Civil Emergency Services (CES) and to provide effective support to them.

6. Details of the assessment are at Annex A. A preliminary summary of the Findings is at Annex B. In accordance with Reference B, the final version of the Findings is for agreement between DNSR and SWPT. Any issues requiring clarification should be referred to DNSR-IT at an early stage.

7. While the assessment is inevitably focussed on areas for improvement, a number of aspects of the response worked well. The extent of support from CES and the commitment, flexibility and enthusiasm of all participants were clearly evident.

Signed on original

Annexes:

- A. Exercise ASTRAL BEND 2012 – Detailed Assessment.
- B. Exercise ASTRAL BEND 2012 – Findings and Observations.

Distribution:

Action:

SW PT – Hd

Information:

RAF Brize Norton – Stn Cdr

SW PT – SAM DepHd

DefSy – NucSyEP&AH



EXERCISE ASTRAL BEND 2012 – DETAILED ASSESSMENT

EXERCISE PLANNING AND MANAGEMENT

1. The planning process was observed by DNSR and was effective in achieving the engagement of the Civil Emergency Services (CES). All agencies showed their commitment to the exercise and provided a considerable response on the day, which added realism and provided excellent opportunities to demonstrate liaison and support by the MOD responders. Thought had clearly been given to enabling all participants to set and demonstrate their objectives.

2. The facility used for simulation of the accident site was well chosen and laid-out with the few artificialities (eg. distances) being well managed. There was a reasonable simulation of accident debris and the use of actual weather on the day (with the exception of wind direction) was good. Di-staff availability coupled with the planned range of injects and the timed introduction of the MOD and CES response forces enabled a realistic response to the scenario. There were some issues with monitoring including very low results immediately around the containers and no distaff available to accompany the Cordon Party who were monitoring as they deployed (generating false negative results as a consequence).

3. Exercise management, including interaction between MOD and CES distaff, maintained the pace of events and value to the players. There was a tendency by MOD distaff to prompt and brief players for example by filling the information vacuum for the CES prior to the SNT's arrival. Although carried out with the best of intentions, this gave a misleading impression of the MOD response and should be avoided.

Observation (TRO 0121): MOD distaff should avoid the prompting or briefing of players outwith specific agreed remits.

DOCUMENTED ARRANGEMENTS AND TRAINING

4. A DNSR inspection of the SNT's documentation and training took place in advance of the exercise and has been reported separately.

THE RESPONSE

5. DNSR comments are made in light of the intent to conduct a broad review of the immediate response. The SNT response in this exercise followed established drills and orders which, though not wrong, are not optimised and have the potential to delay the most effective elements of the response. This was evident throughout the exercise and the key (but not exclusive) aspects that DNSR would expect to see included in the scope of the planned review are referred to in paragraphs 7, 8, 10, 11, 12, 16 & 17.

Alerting

6. All CES were pro-active and committed in moving forward in numbers at the scene to help the injured. This was before receipt of detailed hazard information or the arrival of the SNT advance party and has not always been the case in previous exercises. As expected, given the exercise scenario, this created some contaminated CES staff in addition to the casualties.

7. Notification of the radiation hazard to the CES at the scene occurred about 30 minutes after startex. While some of this delay may be attributable to CES communication nets, and incorrectly notified fax numbers, the method for and format of initial notification by the Special Safety Cell (SSC) should be included in the review.

8. On the basis of the notification, the CES understanding was that there was a contamination hazard and mistakenly a radiation hazard. An unnecessary 'time, distance, shielding' action was taken to protect against the radiation hazard, which in other circumstances, could adversely affect the momentum of the response. While such misinterpretation may be in the nature of a response to this scenario, it highlights the need for initial notification and advice to be as clear as possible, and is thus a review item.

Initial response

9. Departure of the helicopter was delayed by Air Traffic Control at RAF Brize Norton. Confirmation is required that, in the response to a real emergency, priority would be given to enable the SNT's departure as soon as the advance party is ready.

Finding (TRF 0192): Confirmation is required that the priority would be given to the SNT helicopter's departure in a real event.

10. On arrival, and after completing a quick airborne recce, the helicopter landed in a well-chosen area adjacent to the CES outer cordon. Disembarkation was then delayed while very detailed monitoring of the area was carried out. This was in accordance with what has become established practice, but it was substantially in excess of the confidence-building check which is required at this early stage: a further review item.

11. The SNT Executives integrated immediately with the CES (by then present in substantial numbers), with the Incident Commander (IC) re-locating to support their separate Silver, and the Chief of Staff (CoS) keeping in close contact at the Bronze level, including attending regular multi-agency "O" Group meetings. Saving a few minor issues, this was managed adequately in this exercise, but the separation could stretch resources. CES response structures vary (and the SNT has potentially to interact with many different services), but separation of Silver and Bronze, within the timescale of SNT responsibility, is frequent practice and the review should consider how this may be best supported.

In-cordon

12. There was a lack of urgency by the SNT In-cordon Team in making their way to and beyond the cordon as they allowed themselves to be distracted by successively briefing a series of CES groups en route. The Yellow Monitor worked effectively, though monitoring was somewhat laboured in areas upwind where contamination would not have been expected. The combined effect was that it took approximately 75min to advise the CoS of a confirmed release: well behind expected timings. CES had already reported that some casualties were contaminated and had monitoring results. An appreciation of the capabilities of the CES instrumentation (a review item) and a check of their results might have allowed earlier confirmation of release and a re-prioritisation of the Team's tasks.

13. On completion, an effective, if rather lengthy, cross-cordon brief supported by photographic and video evidence was given to the CoS.

Wider monitoring

14. The White Monitors were proactive in seeking (for exercise) CES (Police) support to deploy downwind; they carried out all drills competently and monitoring information was properly recorded and forwarded. The detection of contamination at 2km and beyond prompted a query from the IC to the SCC about the possible need to extend shelter. The mere detection of contamination beyond the shelter zone would not be a surprise and would not, unless (very high) levels so demanded, carry an expectation of extending shelter. It was a reasonable call to ask for advice, but an understanding of the basis of the shelter countermeasure would have obviated it.

Cordon and TCP

15. Cordon Party personnel deployed quickly, were familiar with their duties, including monitoring instrumentation and reported back as necessary.

16. The SNT attempted to establish an additional cordon at ~200m apparently on the basis that this was ~100m outside the initial CES cordon where some contamination had been detected. However this would have encompassed virtually the entire CES response organisation including their mass decontamination facility, and would have presented major difficulties in processing all of these resources. It was not clear that the additional cordon was required (the need was not justified by monitoring results) or that the implications of trying to impose it were appreciated (distaff action prevented it diverting the subsequent response). Again, the current CES approach (including Hot/Warm zone delineation) to the issue needs to inform the review.

17. Thereafter, the SNT made positive efforts to locate adjacent to the CES decontamination facility and to integrate with CES capabilities. The Temporary Control Post (TCP) was declared operational some 35 minutes after arrival: well within the target time. Monitoring of SNT personnel was effective with good techniques and contamination control in evidence. Cordon control was well demonstrated; with a number of CES personnel intercepted. Plans were made to process CES personnel through the TCP and to provide monitoring support to the CES decontamination facility. The review should capture this initiative and embed the approach into future arrangements.

Medical

18. The CES were proactive in dealing with casualties dispatching the most serious two to hospital without decontamination, in accordance with DoH guidance. The SNT Medical Officer (MO) quickly established links and a good working relationship with relevant CES officers. Hazards were briefed against the written information, and the MO verified that the destination hospital for casualties had been briefed about contamination and appropriate countermeasures. This all assisted with the smooth cross-cordon transfer of further casualties with the MO playing a key role.

19. On entry in cordon, the SNT Medic found that the casualties were already being attended. She therefore checked casualty numbers, details, etc. to rectify discrepancies in briefed information, maintaining good contact with the MO.

20. The MO's briefing of both IC and CoS was comprehensive and to the point. He identified the more significant discrepancies in the information he had received, sought clarification (including of casualty categories and numbers) and advised accordingly.

Command and Control

21. The CoS distributed information well, both locally and back to the SSC, and arrangements for the arrival of follow on forces were usefully discussed with the CES. The IC's location at Silver meant that CoS was required to deliver the brief to the MCA when he arrived at Bronze; the content was developed effectively in consultation with the IC and well delivered.

22. The IC interactions at Silver demonstrated the right instincts: acknowledging CES (Police) lead, reiterating the hazards advice and explaining his role and the SNT's capability. He provided information on the load and addressed security, [REDACTED]

[REDACTED] The IC prioritised and provided feedback routinely to SSC and to RAF Brize Norton showing an intelligent interpretation of their needs.

Media handling

23. Shortly after arrival the IC was door-stepped by Simpress, and when the CES (Police) offered an instant press conference, showed good judgement and declined. Both IC and Public Relations Officer (PRO) worked effectively with CES opposites, reinforcing Police lead and producing statements based on pre-scripted SNT material. The two press briefings were well supported, although at the first there was an unfortunate ambiguity on whether a release had been detected and what countermeasures had been advised. Whilst in principle a CES-led issue, SNT Executives should highlight any weaknesses in briefing material especially in such sensitive areas. The IC handled questions adequately, and with a greater appreciation of likely activity at Gold in such an event, might well have deferred answers in that direction.

EXERCISE ASTRAL BEND 2012 ASSESSMENT – FINDINGS & OBSERVATIONS

Reference	Finding / Observation	Annex A para
TRO 0121	MOD distaff should avoid the prompting or briefing of players outwith specific agreed remits.	3
TRF 0192	Confirmation is required that the priority would be given to the SNT helicopter's departure in a real event.	9